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Errata

Title & Document Type: 8662A Synthesized Signal Generator Operating and Service Manual

Manual Part Number: 08662-90069

Revision Date: October 1994

HP References in this Manual

This manual may contain references to HP or Hewlett-Packard. Please note that Hewlett-Packard's former test and measurement, semiconductor products and chemical analysis businesses are now part of Agilent Technologies. We have made no changes to this manual copy. The HP XXXX referred to in this document is now the Agilent XXXX. For example, model number HP8648A is now model number Agilent 8648A.

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Operating and Service Manual
Volume 1

Serial Numbers
This manual applies directly to instruments
with serial number prefix 2114A and above.

8662A
Synthesized Signal Generator
10 kHz – 1280 MHz

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HP part number: 08662-90069
Printed in USA April 1999
Supersedes June 1996

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SAFETY CONSIDERATIONS

GENERAL

This product and related documentation must be reviewed for familiarization with safety markings and instructions before operation.

This product is a Safety Class I instrument (provided with a protective earth terminal.

BEFORE APPLYING POWER

Verify that the product is set to match the available line voltage and the correct fuse is installed.

SAFETY EARTH GROUND

An uninterruptible safety earth ground must be provided from the main power source to the product input wiring terminals, power cord, or supplied power cord set.

SAFETY SYMBOLS

Instruction manual symbol: the product will be marked with this symbol when it is necessary for the user to refer to the instruction manual (refer to Table of Contents).

Indicates hazardous voltages.

Indicates earth (ground) terminal.

WARNING

The WARNING sign denotes a hazard. It calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could result in personal injury. Do not proceed beyond a WARNING sign until the indicated conditions are fully understood and met.

CAUTION

The CAUTION sign denotes a hazard. It calls attention to an operating procedure, practice, or the like, which, if not correctly performed or adhered to, could result in damage to or destruction of part or all of the product. Do not proceed beyond a CAUTION sign until the indicated conditions are fully understood and met.

WARNING

Any interruption of the protective (grounding) conductor (inside or outside the instrument) or disconnecting the protective earth terminal will cause a potential shock hazard that could result in personal injury. (Grounding one conductor of a two conductor outlet is not sufficient protection).

Whenever it is likely that the protection has been impaired, the instrument must be made inoperative and be secured against any unintended operation.

If this instrument is to be energized via an autotransformer (for voltage reduction) make sure the common terminal is connected to the earth terminal of the power source.

HP-IB address selection is a procedure involving access to the Generator's interior. This procedure should only be performed by a service-trained person who is aware of the potential shock hazard of working on equipment with protective covers removed.

For continued protection against fire hazards, replace the LINE and OVEN fuses only with 250V normal blow fuses with the same current rating. Do not use repaired fuses or short circuited fuseholders.

CAUTION

The casual operator should not replace the LINE fuse. Replacing this fuse in a damaged Generator might cause additional damage. A qualified service person should first determine the cause of its failure, specifically with resistance checks in the power supply (see Service Sheet 55); repair the failure and then replace the fuse.

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Manual Changes to Operating and Service Manual - Part One

8662A

Agilent Technologies

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MANUAL CHANGES

MANUAL IDENTIFICATION

Model Number: 8662A
Date Printed: Dec. 1982
Part Number: 08662-90061/62

SYNTHESIZED SIGNAL GENERATOR
VOLUMES 1 and 2

This supplement contains important information for correcting manual errors and for adapting the manual to instruments containing improvements made after printing the manual.

To use this supplement, first, make all ERRATA corrections and then all appropriate serial number related changes indicated in the tables below.

SERIAL PREFIX OR NUMBER	MAKE MANUAL CHANGES
1830A-2114A	ERRATA ONLY
2128A	1-3
2132A	1-4
2136A	1-5
2138A	1-6
2145A	1-8
2148A	1-9
2151A	1-10
2201A	1-11
2222A	1-12
2224A	1-13
2232A	1-14
2237A	1-15
2240A	1-16
2242A	1-17
2244A	1-18
2301A,2302A	1-19
2322A	1-20
2330A	1-22
2340A	1-23

SERIAL PREFIX OR NUMBER	MAKE MANUAL CHANGES
2342A	1-24
2349A	1-25
2411A	1-26
2413A	1-27
2420A	1-29
2424A	1-31
2442A	1-33
2444A	1-34
2445A	1-35
2448A	1-36
2450A	1-37
2506A,2507A	1-38
2509A	1-39
2511A	1-41
2513A	1-42
2514A	1-43
2517A	1-44
2520A,2529A	1-45
2533A	1-46
2537A	1-47

>> NEW ITEM

NOTE

Manual change supplements are revised as often as necessary to keep manuals as current and accurate as possible. Hewlett-Packard recommends that you periodically request the latest edition of this supplement. Free copies are available from all HP offices. When requesting copies, quote the manual identification information from your supplement or the model number and print date from the title page of the manual.

Printed in U.S.A.

08 SEPTEMBER 1988
59 Pages Text
52 Pages Illustrations/Addtional Text
03 Foldouts

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SERIAL PREFIX OR NUMBER	MAKE MANUAL CHANGES
2545A	1-48
2549A	1-49
2551A	1-50
2601A	1-51
2604A	1-52
2606A	1-53
2612A	1-54
2608A	1-54
2612A	1-55
2614A	1-56
2620A	1-57
2629A	1-56, 58
2631A	1-56, 58-59
2632A	1-56, 58-60
2637A	1-56, 58-61
2641A	1-56, 58-62
2645A	1-56, 58-63
2650A	1-56, 58-64
2651A	1-56, 58-65
2652A	1-56, 58-66
2703A	1-56, 58-66

SERIAL PREFIX OR NUMBER	MAKE MANUAL CHANGES
2706A	1-56, 58-67
2712A	1-56, 58-68
2749A	1-56, 58-69
2811A	1-56, 58-70
2823A	1-56, 58-71
>> 2827A	1-56, 58-72

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ERRATA

Page 1-2, paragraph 1-8:
Under **Mechanical**, change the *Front Handle Kit, Option 907* part number to 5061-9690 (metric), change *Rack Mount Kit, Option 908* part number to 5061-9678 (metric), and change *Rack Mount Kit, Option with Handles, Option 909* part number to 5061-9684 (metric).

Page 1-4, Table 1-1:
Change Residual SSB Phase Noise performance limits at 10 kHz and 100 kHz offsets to "-131 dBc" and "-132 dBc" respectively.

In specification for Spurious Output Signals (non-harmonically related) add following note:

"Note: Spurious signals can be 3 dB higher if FM mode is enabled with dc-coupling of a dc level at either of modulation inputs."

In specification for Spurious Output Signals [Power Line, etc.] change "(50-60 Hz)" to "(60 Hz)", and add following note:

"Note: At 50 Hz line frequency, power line or microphonically related spurious signals may be up to 3 dB higher and appear at offsets as high as 1 kHz from carrier."

Page 1-5, Table 1-1:
Change Incidental FM performance limits to "0.12 x f_{mod}" for 0.15 to 640 MHz, 30% AM and "0.09 x f_{mod}" for 640 to 1280 MHz; 30% AM.
Change Incidental PM performance limits to "0.12 radians peak" for 0.15 to 640 MHz; 30% AM and "0.09 radians peak" for 640 to 1280 MHz; 30% AM.

Page 1-9, Table 1-2:
Change measured residual SSB phase noise table to following:

Offset from carrier[1]	0.01 to 120 MHz (dBc)	120 to 160 MHz (dBc)	160 to 320 MHz (dBc)	320 to 640 MHz (dBc)	640 to 1280 MHz (dBc)
10 Hz	-115	-119	-113	-107	-103
100 Hz	-126	-128	-124	-117	-112
1 kHz	-133	-138	-134	-128	-123
10 kHz	-137	-147	-143	-136	-131
100 kHz	-137	-145	-143	-136	-131

[1]Residual single-sideband phase noise in 1 Hz BW (CW and AM mode only).

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ERRATA (cont'd)

Page 1-9, Table 1-2 (cont'd):
Replace SWR description with following:

SWR:

Output Level	to 640 MHz	to 1280 MHz
+13 to -10 dBm	1.6	1.8
-10 to -139.9 dBm	1.5	1.6

Page 1-10, Table 1-2:
For EXTERNAL MODULATION, add following note under Input Level Required:

"Note: The EXTERNAL SOURCE annunciators will not provide a reliable indication if modulation rate is <20 Hz or if Generator is sweeping with Time/Step ≤10 ms."

Page 1-15, Table 1-5:
Change item number 7, 8, and 17 to read as follows and add other two two entries:

P/O Table 1-5. 11714A Service Accessory Kit (Errata)

Item Number	HP Part Number	CD	Qty	Description
7	08662-60075	7	3	Test Cable (SMC to BNC)
8	5060-6033	4	1	Extender Board A8 Assembly (15 pins)
17	08662-60080	4	4	Extender Cable
Not shown	08662-10001	4	1	Verification Tape
Not shown	08662-90057	8	1	Operating Note

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ERRATA (cont'd)

Page 2-2, Figure 2-1:
Replace *Figure 2-1. Power Cables and Main Plug PartNumbers* with the attached *Figure 2-1. Power Cables and Main Plug Part Numbers* in this change sheet.

Page 2-3, Paragraph 2-11, Rack Mounting:
At the end of the paragraph add the following paragraph entitled;

Rack Mount Slides. The following rack mount slide kits allow easy access to full-width instruments mounted in HP rack cabinets.

For non-HP rack cabinets, you will need to choose Slides and a Slide Adapter Kit. All slides lock in the fully extended position and will allow you to easily remove the instrument if necessary."

Non-tilting Rack Slides	1494-0059	Metric
	(1494-0017)	English
Tilting Rack Slides	1494-0063	Metric
	(1494-0026)	English
Non-HP Rack, Slide Adapter Kit	1494-0061	Metric
	(1494-0023)	English

IMPORTANT NOTE

All instruments currently manufactured by Hewlett-Packard require a slide with METRIC connecting hardware. Instruments manufactured with serial number prefixes 2234A to 2513A require English connecting hardware.

Page 3-14, Figure 3-4:
In MOD OFF description, delete parenthetical note, "(except FM from rear panel AUX FM input)". The MOD OFF key does disable all modulation.

Page 3-19, FUNCTIONAL CHECK:
In PROCEDURE, step 3, change last two entries in table headed "Output Frequencies (MHz)" to 1 111.111 111 and 1 222.222 222 .

Page 3-43, Paragraph 3-53:
In table under "**Frequency**" step 2, for Range Factors of 9, 41, 73 and 105, change value in column R2 to "520 x 10^6".

Page 3-44:
Under "**Fast" Learn String (L2, 11-Bytes) (Cont'd)**, change step 3 to read: "Determine value of variable M as decimal equivalent of bits M_9 through M_0 x X
where X = .1 if bit M_{10} = 1
or X = 1 if bit M_{10} = 0.

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ERRATA (cont'd)

Page 3-45, Paragraph 3-53:
In table under **Full "Front Panel" String (L1, 128 Bytes) (Cont'd)** step 3, Byte 25, change **"Interpretation"** for Bit 3 to read "INT FM + EXT AM".

Page 3-63:
Add following comment:
In remote mode, knob function and programming codes RU and RD are always enabled. Also, while in remote mode, codes R1 and R2 affect only step resolution. The on and off functions (codes R1, R2 and R3 sent in remote mode) are only realized after Generator is returned to local mode.

Page 3-64:
Change second sentence of second comment to read simply: "The knob does not remain enabled when shift is made."

Page 3-68:
Change procedure for enabling rear panel AUX FM connector to read:

"To enable rear panel connector:
1. Set FM deviation to 0 kHz or to any other value for FM + FM. (Note: If EXT DC is also selected, Generator's output signal would not be phase locked.)
2. Press Blue Key, SPECIAL and 51.
3. Adjust signal level according to instructions described under comments."

Change first sentence under **Comments** to:

"The EXTERNAL SOURCE HI-LO lights will not provide a reliable indication if modulation rate is <20 Hz or if Generator is sweeping with Time/Step ≤10 ms."

Page 3-70:
Change first two instructions under "DC Coupling with Phase Lock" to read:

"o Set FM deviation to 0.0 kHz or to any other value for FM + FM.
o Select INT 400, INT 1k or EXT AC. (Note: If EXT DC is selected, Generator's output signal would not be phase locked.)"

Page 3-71:
Add following comment:

"The AUX FM input is dc coupled. However, selecting AUX FM does not disable output signal's phase-lock stabilization (like FM and EXT DC through front panel input). Consequently any modulation signal applied to AUX FM input should not be such that it overmodulates Generator. The same low frequency FM deviation limits that apply to an EXT DC signal also apply to an AUX FM signal (that is, rates below 200 Hz must have reduced deviation; rates below 20 Hz will increase distortion)."

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ERRATA (cont'd)

Page 3-72:
In procedure for turning off modulation circuitry, delete parenthetical note, "(does not affect rear panel AUX FM input)". MOD OFF does disable all modulation.

Page 3-74:
Change procedure "To disable External AM (from Special Function 41 or 42)" to read:

1. To disable Ext AM from Special Function 41, press Blue Key, SPECIAL and 40.
2. To disable Ext AM from Special Function 42, press Blue Key, SPECIAL, 40 and INT 400 or INT 1k (depending on internal source desired).

Change procedure for "AUX FM On" to read:

1. Set FM deviation to 0.0 kHz or to any other value for FM + FM. (Note: If EXT DC is also selected, Generator's output signal would not be phase locked.)
2. Press Blue Key, SPECIAL and 51.

Page 3-75:
Change last Comment to read simply, "The MOD OFF key turns off all modulation".

Page 3-78:
Add following sentence to Comment about stopping Auto-Sequencing. "We recommend that Data keys not be used to stop Auto-Sequencing."

Page 3-79:
For prefixes 2021A and below, add following note about Special Function 80 and manual sweep mode.

"Note: Special Function 80 disables all special functions except 85. If manual sweep mode is enabled, Special Function 80 also changes output signal to last selected fixed or center frequency. When this happens, frequency readout will erroneously display last sweep frequency. The sweep mode will still be enabled, however, and output signal will shift back to correct sweep frequency when knob is rotated."

Page 4-4:
Replace page 4-4 of the manual with page 4-4 in this change sheet.

Page 4-5:
Replace page 4-5 of the manual with page 4-5 in this change sheet.

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ERRATA (cont'd)

Page 4-6:
Replace page 4-6 of the manual with page 4-6 in this change sheet.

Page 4-6, Item 3. *Incidental PM and FM:*
Add the following after the first sentence:
"Set the HP FILTER to 300 Hz and LP FILTER to 3 kHz on the Modulation Analyzer."

Page 4-7:
Replace page 4-7 of the manual with page 4-7 in this change sheet.

Page 5-3, Table 5-1:
Add following entry:

P/O Table 5-1. Factory Selected Components (1 of 5) (Errata)

Reference Designator	Service Sheet	Range of Values	Process of Selection
A3A1R17	36	38.3k--51.1k	If Reverse Power Protection is activated when RF Output is operating into an open circuit, decrease value of A3A1R17.

Page 5-6, Table 5-1:
Replace entry for A4A7C18, C19, C25, C26, and C35--C38 with following:

P/O Table 5-1. Factory Selected Components (Errata)

A4A7C18, C35	37	4700 pF--.012 uF	Refer to AGC Bandwidth Adjustment procedure, paragraph 5-31.
A4A7C19, C36	37	6800 pF--.015 uF	
A4A7C25, C37	37	.015 uF--.047 uF	
A4A7C26, C38	37	.015 uF--.047 uF	

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ERRATA (cont'd)

Page 5-7, Table 5-1:
Add following entry:

P/O Figure 5-1. Factory Selected Components (5 of 5) (Errata)

Reference Designator	Service Sheet	Range of Values	Process of Selection
A5A4C6	41	0--1000 pF	Refer to ERRATA, for Page 5-16, Paragraph 5-13.

Under **Range of Values**, change range of A6A1R46 to 21.5 ohms--75 ohms.

Page 5-7, Table 5-2:
For **A5A4 Assembly Replaced or Repaired**, under **Related Adjustments**, replace NONE with 5-13.

Page 5-16, Paragraph 5-13:
Add following step to PROCEDURE:

8. If there is a close-in spur (5 kHz or less), reduce value of A5A4C6 so that spur disappears. Range of values of A5A4C6 is from 0--1000 pF.

Page 5-45, Table 5-4:
Replace table in step 4 with following:

Table 5-4. Minimum Bandwidth Specifications (Errata)

Frequency Range (MHz)	Bandwidth	AGC Loop Capacitor	Range of Values for Parallel Capacitance
.01--.999 (Down Converter Band)	35--65 kHz	A4A7C25, C37	.015--.047 uF
1.0--119.999 (Down Converter Band)	≥65 kHz	A4A7C26, C38	.015--.047 uF
120--639.999 (Mid-Band)	≥120 kHz	A4A7C19, C36	6800 pF--.015 uF
640--1278	65--200 kHz	A4A7C18, C35	4700 pF--.012 uF

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ERRATA (cont'd)

Page 6-2, Paragraph 6-11:
Delete paragraph 6-11, "Spare Parts Kit". The Spare Parts Kit HP Part Number 08662-60090 (CD6) is no longer available.

Page 6-5, Table 6-3:
Change A1A1DS1-8 to 1990-0719 (CD8).
Change A1A1DS10 to 1990-0719 (CD8).
Change A1A1DS11-17 To 1990-0719 (CD8).
Change A1A1DS19-20 To 1990-0719 (CD8).
Change A1A1J1 to 1251-7342 (CD1) CONNECTOR 26-PIN M POST TYPE.
Change A1A1J2-J9 to 1200-0688 (CD7).
Change A1A1J10 to 1200-1293 (CD2).
Change A1A1J12-J13 to 1200-0897 (CD0).
Change A1A1MP1 and MP2 to 2110-0726 (CD4).

Page 6-7, Table 6-3:
Change A1A3DS1,2,5-7 to 1990-0719 CD8 LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V.

Page 6-10, Table 6-3:
A2A2U7; For recommended replacement, refer to **CHANGE 19.**

Page 6-12, Table 6-3:
A2A6C1; For recommended replacement, refer to **CHANGE 13.**
A2A6R7; For recommended replacement, refer to **CHANGE 13.**
Change A2A5U11 to 1816-1692 CD3 IC TTL S 16384 (16K) PROM 80-NS 3-S

Page 6-13, Table 6-3:
Change A2A7L1 to 08662-60316 (CD9).
Change A2A7L2 to 08662-60316 (CD9).
Change A2A7L3 to 08662-60316 (CD9).
Change A2A7L5 to 08662-60316 (CD9).
Change A2A6U6 to 1816-1691 CD9 IC TTL S 16384 (16K) PROM 80-NS
Change A2A6U13 to 1820-3929 CD9 IC-MPU; CLK FREQ=2 MHZ, W/INTNL CLK.

Page 6-14, Table 6-3:
Change A2A7U4 to 1820-2075 CD4 IC TRANSCEIVER TTL LS BUS OCTL.
Change A2A7U10 to 1820-3929 CD9 IC-MPU; CLK FREQ=2 MHZ, W/INTRNL CLK

Page 6-16, Table 6-3:
Change A3A1R17 to A3A1R17* 0757-0458 (CD7) RESITOR 51.1K 1% .125W F TC=0+/-100.
Change A3A1U1 to 1826-0065 CD0 IC COMPARATOR PRCN 8-DIP-P PKG

Page 6-17, Table 6-3:
Change A3A3C16 to 0180-3701 CD6 CAPACITOR-FXD 2.2UF +-10% 75VDC TA
Change A3A3L2 to 9140-0335 CD1 INDUCTOR 110 UH 15% .47 DX 1.25 LG Q=10

Page 6-18, Table 6-3:
A3A3R1-R8; For recommended replacement, refer to **CHANGE 18.**

Page 6-20, Table 6-3:
Change A3A3U13 and U19 to 1820-5386 CD6 IC AL ADDR NR
Change A3A4C16 to 0160-2020 (CD8).
This is recommended replacement for A3A4C16.

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Page 6-21, Table 6-3:
Change A3A4MP1 to 08662-00086 (CD4) COVER, 1/2 END.
Page 6-23, Table 6-3:
Change A3A5MP1 to 08662-00087 (CD5) COVER, 1/2 END.
Page 6-24, Table 6-3:
A3A6R1, R4, R8, R11, R15, R21, R25; For recommended replacement, refer to **CHANGE 18.**
A3A6R14; For recommended replacement, refer to **CHANGE 18.**
A3A6R3, R7, R10, R20, R24; For recommended replacement, refer to **CHANGE 18.**
Page 6-25, Table 6-3:
A3A6R28; For recommended replacement, refer to **CHANGE 18.**
A3A6R27 and R30; For recommended replacement, refer to **CHANGE 18.**
Page 6-28, Table 6-3:
Change A3A8C4 and C7 to CD6 CAPACITOR-FXD 2.2UF+-10% 75VDC TA
Page 6-29, Table 6-3:
Change A3A9L5 to 9135-0081 (CD3) INDUCTOR RF-CH-MLD 68NH 5% .102D X .2LG.
Change A3A8R11 to 0698-7272 CD1 RESISTOR 31.6K 1% .05W F TC=0+-100
Change A3A8R12 to 0757-0470 CD3 RESISTOR 162K 1% .125W F TC=0+-100
Page 6-30, Table 6-3:
Change A3A10C9 to 0160-4926 (CD7) CAPACITOR-FXD 110pf +/-5% 200 VDC CER. This is recommended replacement for A3A10C9.
Change A3A9L7 to 9135-0081 (CD3) INDUCTOR RF-CH MLD 68NH 5% .102D X .2LG.
Change A3A9L8 to 9135-0073 (CD3) INDUCTOR RF-CH-MLD 51NH 6% .102D X .26LG.
Under A3A9U1, delete 1251-3172 CD7 CONNECTOR-SGL CONT SKT .03-IN=BSC-SZ RND
Page 6-34, Table 6-3:
A4A1L8; For recommended replacement, refer to **CHANGE 17.**
Page 6-35, Table 6-3:
Delete entry beneath A4A1R41* which reads "1251-1998 (CD1) (QTY 3) CONNECTOR SGL CONT SKT .025 IN BSC-SZ".
Page 6-36, Table 6-3:
A4A2: For recommended replacement, refer to **Change 4.**
Page 6-37, Table 6-3:
A4A2R9 and R10; For recommended replacement, refer to **CHANGE 18.**
Change A4A2C16 to 0180-3701 CD6 CAPACITOR-FXD 2.2UF+-10% 75VDC TA
Page 6-38, Table 6-3:
A4A2U5; For recommended replacement, refer to **CHANGE 19.**
Page 6-39, Table 6-3:
A4A3L4 and A4A3L6; For recommended replacement, refer to **CHANGE 17.**
Change A4A3R19* and R23* to 0698-7228 CD7 RESISTOR 464 1% .05W F TC=0+-100.
Change A4A3R21* to 0757-0379 CD1 RESISTOR 12.1 1% .125W F TC=0+-100.
Delete the washer (2190-0124) under A4A3J2.
Add 2190-0124 CD4 WASHER-LK INTL T 5/8 IN .64-I-ID to J3

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ERRATA (cont'd)

Page 6-40, Table 6-3:
If A4A4C26, A4A4C28, A4A4C36 or A4A4C38 fail, refer to **CHANGE 14** for recommended replacement.

Page 6-41, Table 6-3:
Change A4A4MP1 to 08662-00096 (CD6) COVER, 2/3 END.
Change A4A4L9 to 08662-60316 (CD9).

Page 6-42, Table 6-3:
Change A4A4R49 to 0698-7204 (CD9) RESISTOR 46.4 1% .05W F TC=0+/-100.
Change A4A4U5 to 1826-0547 (CD3) IC OP-AMP LOW-BIAS-H-IMPD DUAL 8-DIP-P.
A4A4U3 and U4: See **CHANGE 30** for circuit modifications required when replacing A4A4U3 and U4 in instruments with serial prefixes prior to 2424A.

Page 6-44, Table 6-3:
Change A4A5MP1 to 08662-00111 (CD6) COVER, 1/3 END.
Change A4A5R1 and R7 to 0699-1426 CD7 RESISTOR 287 1% .125W F TC=0+-100.
Change A4A5R3 to 0699-1350 CD6 RESISTOR 17.8 1%.
Under A4A5U2, delete 1251-3172 CD7 CONNECTOR-SGL CONT SKT .03-IN=BSC-SZ RND

Page 6-45, Table 6-3:
Change A4A6R4* to 0698-7253 (CD8) RESISTOR 51.1K 1% .05W F TC=0+/-100.

Page 6-46, Table 6-3:
Change A4A6R7* to 0698-7251 (CD6) RESISTOR 4.22K 1% .05W F TC=0+/-100.
Change A4A6R29* to 0698-3153 (CD9) RESISTOR 3.83K 1% .125W F TC=0+/-100.
Change A4A6R32* to 0698-3151 (CD7) RESISTOR 2.87K 1% .125W F TC=0+/-100.

Page 6-47, Table 6-3:
Change A4A7L1 to 08662-60316 (CD9).
Change A4A7L2 to 08662-60316 (CD9).
Change A4A7L3 to 08662-60316 (CD9).
Change A4A7L4 to 08662-60316 (CD9).
Change A4A7L5 to 08662-60316 (CD9).
Change A4A7C25* to 0160-0574 (CD3) CAPACITOR-FXD .022 UF +/-20% 100 VDC CER.
Change A4A7C26* to 0160-5041 (CD9) CAPACITOR-FXD .015 UF +/-10% 100 VDC CER.
Delete A4A7C38* part number and change description to read "NORMALLY OPEN".

Page 6-49, Table 6-3:
A4A7U8; For recommended replacement, refer to **CHANGE 19.**
Change A4A8L1 to 08662-60316 (CD9). Change A4A8L2 to 08662-60316 (CD9).

Page 6-50, Table 6-3:
Change A4A9C5, A4A9C6, A4A9C16 and A4A9C18 to 0160-5548 (CD1) CAPACITOR-FXD .056 UF +/-5% 100 VDC. This is recommended replacement for A4A9C5, A4A9C6, A4A9C16 and A4A9C18.

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ERRATA (cont'd)

Page 6-51, Table 6-3:
Delete A4A9L3 10543-4001 TACK RUBBER.
Add A4A9L3 08662-40001 (CD7) (QTY1) TACK ELEXAR.
Page 6-52, Table 6-3:
A4A9U9; For recommended replacement, refer to **CHANGE 19.**
Change A4A9R71 to 0683-1865 CD5 RESISTOR 18M 5% .25W FC TC=-900/+1200.
Page 6-53, Table 6-3:
Add the following;
A4A10MP1 8160-0448 CD8 RFI ROUND STRIP BE-CU SN-PL .062-IN-OD
A4A10MP2 1251-5595 CD2 POLARIZING KEY-POST CONN.
Page 6-54, Table 6-3:
A5A1R1-R12; For recommeded replacement, refer to **CHANGE 18.**
Change A5A1U6 to 08662-86082 CD0 PROM, PROGRAMMED.
Change A5A1U14 to 1820-5386 CD6 IC AL ADDR NR.
Change A5A2C5 and A5A2C9-C20 to 0160-4040 (CD6) CAPACITOR-FXD 1000 PF +/-5% 100VDC CER.
Page 6-55, Table 6-3:
A5A2R13-R18; For recommended replacement, refer to **CHANGE 18.**
A5A2R19-R21; For recommended replacement, refer to **CHANGE 18.**
Page 6-58, Table 6-3:
Change A5A4C6* to A5A4C6+ 0160-0571 (CD0) CAPACITOR-FXD 470 PF +/-20% 100VDC CER.
Page 6-59, Table 6-3:
Change A5A5C1-C6 and A5A5C30-C44 to 0160-4040 (CD6) CAPACITOR-FXD 1000 PF +/-5% 100VDC CER.
Page 6-60, Table 6-3:
A5A5R1-R6; For recommended replacement, refer to **CHANGE 18.**
Change A5A5R21 to 0757-0317 CD7 RESISTOR 1.33K 1% .125W F TC=0+-100
Change A5A5R24 to 2100-3109 CD2 RESISTOR-TRMR 2K 10% C SIDE-ADJ 17-TRN
Page 6-61, Table 6-3:
Change A5A5R84 to 0699-1902 CD4.
Page 6-62, Table 6-3:
Add A5A6MP1 1251-5595 CD2 POLARIZING KEY-POST CONN
Page 6-63, Table 6-3:
Delete A6A1FL1, 08662-20009.
Change A6A1L1 to 08662-60316 (CD9).
Change A6A1L2 to 08662-60316 (CD9).
Delete A6A1MP24 08662-00040
Change A6A1R21 to 0698-7239 CD0 RESISTOR 1.33K 1% .05W F TC=0=-100
Page 6-64, Table 6-3:
Change A6A1R46* to 0698-7203 (CD8) RESISTOR 42.2 1% .05W F TC=0+/-100.
Page 6-65, Table 6-3:
Change A6A2L1 to 08662-60316 (CD9).
Delete A6A2MP24 08662-00040

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ERRATA (cont'd)

Page 6-66, Table 6-3:
Change A6A3C38 to 0160-4306 CD7 CAPACITOR-FXD 100PF+-100VDC CER
Page 6-67, Table 6-3:
Change A6A3C94 to 0160-5643 (CD7).
Page 6-68, Table 6-3:
Delete A6A3MP5 and MP6.
Change A6A3Q4 and Q5 to 1854-0720 CD3 TRANSISTOR NPN SI PD=500 MW FT=4 GHZ.
Page 6-69, Table 6-3;
Change A6A3R37 and R50 to 0698-7207 CD2 RESISTOR 61.9 1% .05W F TC=0+-100 24546 C3-1/8-T0-61R9-F
Under U2, delete 1251-3172 CD7 CONNECTOR-SGL CONT SKT .03-IN=BSC-SZ RND
Page 6-80, Table 6-3:
Under U2, delete 1251-3172 CD7 CONNECTOR-SGL CONT SKT .03-IN=BSC-SZ RND
Delete A6A6MP24
Change A6A6C24, C25 to 0160-5970 CD3 CAPACITOR-CER 3.9P 50V
Page 6-81, Table 6-3:
Change A6A7MP24
Page 6-82, Table 6-3:
Delete U2 1251-3172 CD7 CONNECTOR-SGL CONT SKT .03-IN=BSC-SZ RND
Delete A6A8MP24.
Page 6-83, Table 6-3:
A6A9R8 and R9; For recommended replacement, refer to **CHANGE 18.**
Change A6A9L1 to 08662-60316 (CD9).
Change A6A9L2 to 08662-60316 (CD9).
Change A6A9L3 to 08662-60316 (CD9).
Page 6-87, Table 6-3:
Add A7A2E1 9170-0847 (CD3) CORE-SHIELDING BEAD.
Page 6-88, Table 6-3:
Change A7A2R37 to RESISTOR 21.5K 1% .125W F TC=0+/-100.
Page 6-89, Table 6-3:
Add 08662-00237 CD INSULATOR SHIELD to MP4.
Add 08662-00239 CD INSULATOR SHIELD to MP6.
Add 08662-00238 CD INSULATOR SHIELD to MP5.
Page 6-90, Table 6-3:
Add A8A1MP1 08662-80081 CD7 FACTORY REPAIR LABEL.
Add A8A2MP1 08662-80081 CD7 FACTORY REPAIR LABEL.
Change A7A4Q2 to 1884-0329 CD1 THYRISTOR-BDT MBS4992 TO-92.
Add 0340-0699 CD9 INSULATOR-XSTR SLBL-ORG-POLYM under A7A4R2 and R3
Change A7A4RT1 to 0837-0263 CD2 THERMISTOR-SURGE PTCTR 5 OHM AT 25 DEG C and delete associated Heat Shrink Tubing, 0890-0050.
Page 6-91, Table 6-3:
Add to A8A4MP1, 08662-20391 CD6 INSULATOR.

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ERRATA (cont'd)

Page 6-92, Table 6-3:
If A8MP8 and/or A8MP10 are to be replaced, refer to **CHANGE 16** for recommended action.

Page 6-93, Table 6-3:
Change description of A8MP16 to read "WASHER-LK HLCL NO. 4 .115-IN-ID".

Page 6-95, Table 6-3:
Change B1 to 08662-80065 CD7 BALANCED FAN
>> Delete J3 and everything under it and label it NOT ASSIGNED.
>> Under J7 add 8150-0463 CD6 WIRE 24AWG W/BL 300V PVC 7X32 80C 506mm.
>> Under J7 add 1200-0063 CD2 CONNECTOR-SGL CONT SKT .04-IN-BSC-SZ RND.
>> Under J7 add 0890-0311 CD3 TUBING-FLEX .091-D/.062-RCVD .02-WALL.
>> Add J8-J10 1250-0870 CD4 CONNECTOR-RF BNC FEM SGL-HOLE-RR 50-OHM.
>> When ordering the cable for J8 use W65 08663-60363 CD7.
>> When ordering the cable for J9 use W41 08662-60061 CD1.
>> When ordering the cable for J10 use W42 08662-60062 CD2.
Change B1 to 08662-80065 CD7 BALANCED FAN.

Page 6-97, Table 6-3:
Delete MP28 Connector Clip 16 Cont.

Page 6-99, Table 6-3:
Change MP52, PANEL, REAR to 08662-20316 (CD5).

>> Page 6-101, Table 6-3:
Change MP112 to 08662-00216 CD2.
Add under MP112 6960-0002 CD4 PLUG-HOLE DOME-HD FOR .5-D-HOLE STL.
Add under MP112 1250-2050 CD6 TERMINAL-BNC M 50OHM.
Change MP127 to 2950-0035 CD8 NUT-HEX-DBL-CHAM 15/32-32-THD 00000 ORDER BY DESCRIPTION.
Add MP161 08662-00041 CD1 SHIELD COMPONENT LARGE.
Add MP162 08662-00040 CD0 SHIELD COMPONENT SMALL.
Add MP163 08662-00170 CD7 SHIELD CIRCUIT.
Add MP164 2190-0102 CD8 WASHER-LK INTL T 15/32 IN .472-IN-ID.
Change U1 to 5061-4824 CD9 ROTARY PULSE GENERATOR ASSY
Delete the following under U1;

Conn Key	1251-3963
Conn Cont U/W/F	1251-4052
Conn Post Bdy 6 pin	1251-4511
Label	08662-00150

Page 6-103, Table 6-3:
>> Change W11 to 08663-60015 CD6.
>> Change W16 to 5061-4809 CD0.
>> Change W17 to 5061-4807 CD8.
>> Change W25 to 5061-4808 CD9.
>> Change W26 to 5061-4806 CD7.

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ERRATA (cont'd)

Page 6-103, Table 6-3:
Change part number of second W34 entry (08662-20076) to 08662-20309 (CD6) CABLE, SEMI-RIGID (OPTION 001).
>> Add under the description of W41, "(order below items separate, for connector body see J9)".
>> Change the items under W41 to read as follows:
1250-0870 CD4 Qty1 (see J9).
2950-0035 CD8 Qty3 (see MP127).
2190-0068 CD5 Qty1 (see MP128).
2190-0102 CD8 Qty3 (see MP164).
>> Add under the description of W42, "(order below items separate, for connector body see J10)".
>> Change the items under W42 to read as follows:
1250-0870 CD4 Qty1 (see J9).
2950-0035 CD8 Qty3 (see MP127).
2190-0068 CD5 Qty1 (see MP128).
2190-0102 CD8 Qty3 (see MP164).
Change W47 HP Part Number to 08663-60352 (CD4). This is recommended replacement for W47.
>> Add W64 08663-60073 CD5 CONNECTOR 14-PIN.
>> Add W65 08663-60363 CD7 CABLE COAX.
>> Add under the description of W65, "(order below items separate, for connector body see J8)".
>> Change the items under W65 to read as follows:
1250-0870 CD4 Qty1 (see J9).
2950-0035 CD8 Qty3 (see MP127).
2190-0068 CD5 Qty1 (see MP128).
2190-0102 CD8 Qty3 (see MP164).

Page 6-104, Table 6-3:
Change W31 to 5061-4810 CD3.
Change W32 to 5061-4811 CD4.

Page 7-3, CHANGE E:
Add following entry:
"Change A3A1OR1* to 0698-7206 (CD1) RESISTOR 56.2 1% .05W F TC=+/-100."

Page 7-4, CHANGE L:
Change A4A1MP4 to 08662-00039 (CD7) SHIELD, CKT, LARGE.

Page 7-5, CHANGE O:
A6A6R3 and **A6A6R7**: The check digit is 3.

Page 7-7, CHANGE S:
A2A3: The check digit is 3.

Page 7-8, CHANGE S:
Change "Delete A6A1OMP1" to read "Delte A6A1OMP1 and entry following".

Page 7-9, CHANGE X:
Change entry for A2A7U20 and U21 to read "Change A2A7U20 to 1820-1197 (CD9) IC GATE TTL LS NAND QUAD 2-INP."
Change entry for A2A7U22 to read "Change A2A7U21, U22, and U23 to 1820-1759 (CD9) IC BFR TTL LS NON-INV OCTL."
Delete entry for A2A7U23.

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ERRATA (cont'd)

Page 7-16, CHANGE D:
Service Sheet 34 (Schematic):
Change entry for C59 to read "Remove capacitor C59, 100 pF, between R19 and ground."

Page 7-17, CHANGE G:
Service Sheet 51 (Schematic):
Add following entry "Remove asterisk (*) from R5 and change typical value to 6180 ohms.

Page 7-18, CHANGE M:
Service Sheet 39 (Schematic):
Change value of C24 to 10 pF.
Change entry for attenuator network to read "Remove attenuator network consisting of R56*, R57*, and R58* from between junction of L4 and C24 and pin 1 of U2.
Service Sheet 55 (Schematic):
Change entry for R14 and C7 to read "Add R14, 5.6 ohms and C7, 0.056 uF in series across T3 pins 5 and 7.

Page 7-25, CHANGE S:
Service Sheet 5 (Schematic):
Add following entries:
In table entitled "Integrated Circuit Part Numbers", change part number of U10 to 08662-80015 and U11 to 08662-80016.
In table entitled "Reference Designations" under A2A5, change C1-9 to read "C1-7" and R1-5 to read "R1-3".
In table entitled "Integrated Circuit Voltage and Ground Connections", change U1-3, 10 to read "U1-3" and U11 to read "U10, 11".

Page 8-313, Service Sheet 6:
A2A6C1; For recommended replacement, refer to **CHANGE 13.**
A2A6R7; For recommended replacement, refer to **CHANGE 13.**

>> Page 8-307,Service Sheet 3:
Change U11A pin 4 from *"NC"* to "+5V".
In the Key Code Display change the following:
From DS1 to DS3, DS3 to DS1, DS4 to DS7, DS5 to DS6, DS6 to DS5 and DS7 to DS4.

Page 8-333, Service Sheet 16:
A2A2U7; For recommended replacement, refer to **CHANGE 17.**

Page 8-335, Service Sheet 17 (Schematic):
In lower right-hand corner of schematic, change Service Sheet numbers associated with off-page connectors AY and AZ (START/STOP and SPAN respectively) from 1 to 2.

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ERRATA (cont'd)

Page 8-402, Service Sheet 18 (Component Locator):
Replace Figure 8-401 with attached **A8A4 Reference Buffer Component Locations.**

Page 8-405, Service Sheet 19 (Schematic):
Change typical value of R46* to 42.2 ohms.

Page 8-410, Service Sheet 22:
A6A9R8 and R9; For recommended replacement refer to **CHANGE 16.**

Page 8-503, Service Sheet 30 (Schematic):
Change value of R49 to 46.4 ohms.
A4A4C26, C28, C36, C38; For recommended replacement, refer to **CHANGE 14.**

Page 8-507, Figure 8-509, Service Sheet 32 (Schematic--A4A3):
A4A3L4 and L6; For recommended replacement, refer to **CHANGE 15.**
At 2db pad delete R25 keeping an open circuit between pins 6 and 3.
At 2db pad add R25(12.1ohms) between pins 7 and 2.
At 4db pad delete R30 keeping an open circuit between pins 6 and 3.
At 4db pad add R30(23.7ohms) between pins 7 and 2.
At 8db pad delete R35 keeping an open circuit between pins 6 and 3.
At 8db pad add R35(56.2ohms) between pins 7 and 2.
The collectors of transistors A4A3Q4, Q5, and Q6 connect to pin 8 of relays A4A3K3, K2, and K1 respectively rather than pin 9 as shown on schematic.

Page 8-507, Figure 8-509 (schematic):
The collectors of transistors A4A3Q4, Q5, and Q6 connect to pin 8 of relays A4A3K3, K2, and K1 respectively rather than pin 9 as shown on schematic.

Page 8-509, Service Sheet 33:
A4A2R9 and R10; For recommended replacement, refer to **CHANGE 16.**
A4A2U5; For recommeded replacement, refer to **CHANGE 17.**

Page 8-511, Service Sheet 34:
A4A1L8; For recommended replacement, refer to **CHANGE 15.**

Page 8-513, Service Sheet 35 (Schematic):
In lower left-hand portion of schematic, upper end of R55 is shown connected to +5.2V. Change this value to +5V.

Page 8-514, Figure 8-519 (Component Locator):
On Figure 8-519. Reverse Power Driver Component Locations, C9 is located below C6 and between R15 and Q1.

Page 8-515, Service Sheet 36 (Schematic):
Add an asterisk (*) to R17 and change its typical value to 51.1k.

Page 8-517, Figure 8-524, Service Sheet 37 (Schematic--A4A7):
In AGC Loop Gain Amplifier change Jumper Wire note to (note 2).
Change value of C25* to 0.022 uF.
Delete value shown for C38* (0.022 uF).
Change value of C26* to 0.015 uF.
A4A7U8; For recommended replacement, refer to **CHANGE 17.**

Page 8-519, Figure 8-529, Service Sheet 38 :
In INTEGRATED CIRCUIT VOLTAGE AND GROUND CONNECTIONS table change U6 to +5v(F2).

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ERRATA (cont'd)

Page 8-521, Figure 8-532, Service Sheet 39 (Schematic--A4A6):
Change value of R4* to 5.62K.
Change value of R7* to 5.11K.
Change value of R29* to 3.83K.
Change value of R32* to 2.87K.
Change typical value of R4* to 5.11k.

Page 8-523, Service Sheet 40:
A4A9U9; For recommended replacement, refer to **CHANGE** 17.

Page 8-547/548, Service Sheet 36:
In ALC BOARD, switch C23 220p with C27 20p and C27 20p with C23 220p.

Page 8-627, Figure 8-644, Service Sheet 53 (Schematic--A3A10):
Change value of C9 to 110pf.

Page 8-637, Figure 8-658, Service Sheet 57 (Schematic--A7A2):
Change value of R37 to 21.5K ohms.

Page 8-603, Service Sheet 41 (Schematic):
Add an asterisk (*) to C6 and change its typical value to 470 pF.

Page 8-606, Service Sheet 43:
A5A5R1-R6; For recommended replacement, refer to **CHANGE** 16.

Page 8-608, Service Sheet 44:
A5A2R13-R18; For recommended replacement, refer to **CHANGE** 16.
A5A2R19-R21; For recommended replacement, refer to **CHANGE** 16.

Page 8-610, Service Sheet 45:
A5A1R1-R12; For recommended replacement, refer to **CHANGE** 16.

Page 8-615, Service Sheet 47:
A3A3R1-R8; For recommended replacement, refer to **CHANGE** 16.

Page 8-620, Service Sheet 50:
A3A6R1, R4, R8, R11, R15, R21, R25, and R28; For recommended replacement, refer to **CHANGE** 16.
A3A6R14; For recommended replacement, refer to **CHANGE** 16.
A3A6R3, R7, R10, R20, R24, R27, and R30; For recommended replacement, refer to **CHANGE** 16.

Page 8-622, Figure 8-636:
On the component locator change the current C27 to C23 and delete C24 and C26.

Page 8-625, Service Sheet 52 (Schematic):
Change values of L5 and L7 to 68 nH.
Change value of L8 to 51 nH.

Page 8-631, Service Sheet 55 (Schematic):
At far left-hand edge of schematic, change wire color code given for upper conductor of W57 (connected to 115V side of S2) from "1" to "0".

Page 8-637, Service Sheet 57 (Schematic):
Under reference designator for Q4 add "(NOTE 2)".
Add following to **NOTES**:
"2. If Q4 is replaced, a ferrite bead (E1) should be added to its base."

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CHANGE 1

Page 1-6, Table 1-1:
Change FM Indicated Accuracy performance limits to "±8% of reading plus 10 Hz".

CHANGE 2

Page 3-4:
Under **Turn-On Configuration**, in first exception, delete second sentence which reads: "Also, it issues a Require Service message to an HP-IB controller at every turn-on."
Page 3-12, Figure 3-2:
Under REMOTE-ADDRESSED HP-IB LIGHTS, change second comment to read: "ADDRESSED: turns on while Generator is addressed to talk or listen (in remote mode only)."
Page 3-25:
Change two paragraph note at top of page to read simply: "This check can be performed with Generator in local or remote state. It checks for Require Service Message."
Page 3-25:
Change two paragraph note at top of page to read simply: "This check csan be performed with Generator in local or remote state. It checks for Require Service Message."

Replace first table on page with following:

Description	HP 9825A (HPL)	HP 9835A and 9845A (BASIC)
Require Service: Set Generator's RQS Mask to 00001000 (decimal 8)	wtb719,"@1",8	OUTPUT 719 USING "#,K,B";"@1",8

OPERATOR'S RESPONSE Turn Generator to STANDBY for at least 5 seconds, then to ON again.

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CHANGE 2 (cont'd)

Page 3-25 (cont'd):

Description	HP 9825A (HPL)	HP 9835A and 9845A (BASIC)
Read binary status of controller's interface and store data in variable S (in this step, 7 in the controller's select code).	rds (7)--S	STATUS 7;S
Print or display the value of SRQ bit (in this step, 7 is the SRQ bit, numbered from 0).	prt "SRQ=", bit (7,5)	PRINT "SRQ=";BIT (S,7)

OPERATOR'S RESPONSE: The SRQ bit should be 1. If not, Generator failed to send the Require Service Message.

Page 3-32:

In note at top of page delete third disadvantage which reads: "The Generator issues a Require Service message to system's controller with each turn-on."

Under **Turn-on Default Conditions** make following changes:

1. Change second default condition to read: "Immediate Execution Mode."
2. Delete fifth default condition, which is Require Service Message sent for Power Fail Restart.
3. Delete eighth default condition, which is table entitled, "RQS MASK."

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CHANGE 2 (cont'd)

Page 3-35:
Make following changes to paragraph entitled **Deferred Execution Mode :**

1. Delete second sentence which reads: "Deferred Execution is default mode at turn-on."
2. Change beginning of third sentence to read: "The Deferred Execution mode can be set, . . ."

Add following sentence to paragraph entitled **Immediate Execution Mode:**
"Immediate Execution is default mode at turn-on."

Page 3-39, Table 3-7:
Change condition for Execution Mode parameter to "Immediate".
Change condition for RQS Mask parameter to "Cleared".

Page 3-40:
Change third paragraph under **Request Service (RQS) Mask** to read simply:

"The RQS Mask is unchanged at turn-on. It remains at its previously set condition."

Page 3-41, Figure 3-12:
Under STATUS BYTE, delete "(DEFAULT CONDITION)" and all corresponding bit values which are shown in parentheses.
Delete second sentence in note at bottom of page which reads: "Turn-on default condition for mask is 01001110 (decimal 78)."

Page 3-49:
In table entitled **STATUS BYTE AND RQS MASK**, delete second note which reads: "Default value for RQS Mask at turn-on is 01001110 (decimal 78)."

Page 3-64:
Change second comment to read:
"A sweep mode takes priority over HOLD feature. That is, HOLD feature cannot be maintained for a non-sweep function when control is shifted to a sweep function.

Page 3-80, Table 3-11:
Add following entry to table.

Factory testing only	89

Page 3-82, Table 3-13:
Add following entry to table.

49	Sweep step size is greater than start/stop frequency difference.

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CHANGE 2 (cont'd)

Page 3-82, Table 3-14:
Add following entry to table.

89	Factory testing only

Page 3-89:
Add following comment:
"If manual sweep mode is enabled, pressing any of MARKERS keys may disable knob. To re-enable knob simply press MANUAL key."

CHANGE 3

Page 1-2, Paragraph 1-7:
Change sentence to read: "Option 001 provides RF OUTPUT connector and MODULATION INPUT connector on rear panel instead of front panel."
Page 6-97, Table 6-3:
Change second MP7 to 08662-00184 (CD3) PANEL, CONNECTOR (OPTION 001).
Page 6-101, Table 6-3:
Add a second MP112, 08662-00183 (CD2) SUPPORT, BNC (OPTION 001 ONLY).
Page 6-103, Table 6-3:
Under W35, change description of 08662-60055 to "CABLE ASSY (941) DCU ASSY TO A4A9 (STD); REAR PANEL to A4A9 (OPT 001)."

Add following parts under W35:

1. 1400-0017 (CD0) CLAMP-CABLE .312-DIA .375-WD NYL (OPTION 001 ONLY).
2. 2360-0115 (CD4) SCREW-MACH 6-32 .312-IN-LG PAN-HD POZI (OPTION 001 ONLY).
3. 3050-0066 (CD8) WASHER-FL MTLC NO. 6. .147-IN-ID (OPTION 001 ONLY).

CHANGE 4

Page 5-34 and 5-35:
Replace entire **DOUBLER FILTER TRACKING ADJUSTMENTS** procedure with attached procedure entitled "5-26. DOUBLER FILTER TRACKING ADJUSTMENTS (P/O Change 4)".
r Page 6-2, Table 6-1:
Under A4A2 Doubler Assembly, change **Restored Assy** part number to 08662-60309 and change **New Assy** part number to 08662-60303.
r Page 6-36, Table 6-3:
Change part number for first A4A2 entry (08662-60222) to 08662-60303 (CD4) DOUBLER ASSEMBLY.
Change part number for second A4A2 entry (08662-60081) to 08662-60309 (CD0) RESTORED DOUBLER ASSEMBLY.

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CHANGE 4 (cont'd)

Page 6-37, Table 6-3:

Change A4A2C36 part number and description to read 0160-3877 (CD5) CAPACITOR-FXD 100PF ±20% 200VDC CER.

Add A4A2C37 0160-2055 (CD9) CAPACITOR-FXD .01UF +80 -20% 100VDC CER.

Add A4A2C38 0160-0127 (CD2) CAPACITOR-FXD 1 UF ±20% 25VDC CER.

Page 6-38, Table 6-3:

Change A4A2R29 to 2100-3096 (CD6) RESISTOR-TRMR 50K 10% C TOP-ADJ 17-TRN.

Change A4A2R40 to 2100-3678 (CD0) RESISTOR-TRMR 500K 10% C TOP-ADJ 17-TRN.

Delete A4A2R52 part number and change description to read NOT ASSIGNED.
Delete A4A2R55 part number and change description to read NOT ASSIGNED.

Add A4A2R56 2100-3109 (CD2) RESISTOR-TRMR 2K 10% C SIDE-ADJ 17-TRN.
Add A4A2R57 0757-0279 (CD0) RESISTOR 3.16K 1% .125W F TC=0±100.
Add A4A2R58 2100-3103 (CD6) RESISTOR-TRMR 10K 10% C SIDE-ADJ 17-TRN.
Add A4A2R59 0757-0466 (CD7) RESISTOR 110K 1% .125W F TC=0±100.
Add A4A2R60 0698-3454 (CD3) RESISTOR 215K 1% .125W F TC=0±100.
Add A4A2R61 0698-0084 (CD9) RESISTOR 2.15K 1% .125W F TC=0±100.
Add A4A2R62 0757-0440 (CD7) RESISTOR 7.5K 1% .125W F TC=0±100.
Add A4A2TP10 1251-0600 (CD0) CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ.

Change A4A2U1 to 1826-0547 (CD3) IC OP AMP DUAL 8-PIN-P-PKG.

Page 8-219, Service Sheet E (Block Diagrams):

In Block Diagram 33, add an amplifier symbol in series with line running from FILTER TUNING D/A CONVERTER to bandpass filter in A4U3 MODULATOR. Label this amplifier MODULATOR-FILTER TRACKING AMPLIFIER.

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CHANGE 4 (cont'd)

Page 8-508, Service Sheet 33 (Principles of Operation):
Replace two paragraphs and NOTE entitled **Filter Tuning D/A Converter** with following:

Filter Tuning Circuitry

The tune voltages for two voltage-tuned filters, one in Doubler-Filter U2 and other in Modulator-Filter U3, are developed by ROM U4 and D/A Converter U5 working in conjunction with Doubler-Filter Tracking Amplifier U1A and Modulator-Filter Tracking Amplifier U1B.

Information for automatic correction of tuning curves for each of voltage-tuned filters is stored in ROM U4. This information is used to determine which frequencies will be passed or rejected by two voltage-tuned filters. Each filter can be programmatically advanced in 2 MHz steps from 640 MHz to 1280 MHz. The actual frequency selection signals that address data stored in ROM come from DCU. The ROM output is enabled at same time as doubler in U2. Although addresses that select ROM outputs to D/A Converter cannot be listed in a truth table, ROM address lines can be incremented by placing instrument in sweep mode. Verification can be made by stepping frequency in 2 MHz increments from 640 MHz to 1280 MHz while monitoring doubler band output on a spectrum analyzer at J2. It should be noted that frequency will still increment even if filter is not working.

CAUTION

The output of J2 is at a dc level of about +12 Vdc. Some spectrum analyzers are dc coupled and cannot be connected directly to this output. If input of spectrum analyzer is dc coupled, a blocking capacitor adapter must be used in series with input or damage will occur.

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CHANGE 4 (cont'd)

Page 8-508, Service Sheet 33 (Principles of Operation) (cont'd):

NOTE

Anytime either one or both of microcircuits U2 or U3 are replaced, a new ROM U4 must also be replaced. Any non-linearities that exist within two microcircuits are accounted for when ROM is programmed. The data stored in ROM is unique to two microcircuits, therefore, a new ROM must be programmed whenever either microcircuit is replaced.

Transistor Q3 forms a constant reference voltage source which can be adjusted by DOUBLER-FILTER TRACKING HIGH pot R29. This source provides voltage reference to D/A Converter U5 which determines maximum frequency pass band of voltage-tuned filter in Doubler-Filter U2. The ROM output is used by D/A Converter to attenuate this reference voltage and produce a current which will track tuning curves of voltage-tuned filters.

This current is coupled to input of Doubler-Filter Tracking Amplifier U1A where it is converted into tune voltage for voltage-tuned filter in Doubler-Filter U2. The DOUBLER-FILTER TRACKING LOW pot R40 sets lower limit for this tune voltage.

The tune voltage from Doubler-Filter Tuning Amplifier U1A is also coupled to input of Modulator-Filter Tracking Amplifier U1B. The MODULATOR-FILTER TRACKING LOW pot R56 sets lower limit for tune voltage to voltage-tuned filter in Modulator-Filter U3, while MODULATOR-FILTER TRACKING HIGH pot R58 sets upper limit.

Page 8-508, Service Sheet 33 (Component Locations):
Replace Figure 8-510 with attached A4A2 Component Locations.

Page 8-509, Service Sheet 33 (Block Diagrams):
In lower block diagram, add an amplifier symbol (that is, -|>-) in series with line running from FILTER TUNING D/A CONVERTER to bandpass filter in MODULATOR-FILTER. Label this amplifier MODULATOR-FILTER TRACKING AMPLIFIER.

Page 8-509, Service Sheet 33 (Schematic):
Replace appropriate portion of schematic with attached partial schematic.
In NOTE 2, change part number of exchange PC board to 08662-60309, and delete second sentence regarding partial PC board.
In table entitled "Reference Designations" under A4A2, change C1--18, 23--25, 27--29, 31--33, 35 to read C1--18, 23--25, 27--29, 31--33, 35--38; change R1--55 to read R1--51, 53, 54, 56--62; and change TP1--9 to read TP1--10.
In table entitled "Transistor and Integrated Circuit Part Numbers", change part number of U1 to 1826-0547.

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CHANGE 5

Page 6-5, Table 6-3:
Add A1A1 08662-60308 (CD9) READOUT BOARD ASSEMBLY (INCLUDES NUMERIC DISPLAYS) beneath A1 entry.
Change part number of A1A1 entry (08662-60173) to 08662-60307 (CD8) READOUT BOARD ASSEMBLY (DOES NOT INCLUDE NUMERIC DISPLAYS).

Page 8-323, Service Sheet 11 (Schematic):
Change A1A1 READOUT BOARD part number to 08662-60307.

CHANGE 6

Page 6-66, Table 6-3:
Change A6A3 to 08662-60314 (CD7) HF MULFIPLIER ASSEMBLY.
Page 6-69, Table 6-3:
Change A6A3R78 to 0698-7224 (CD3) RESISTOR 316 1% .05W F TC=0+/-100.
Add A6A3R79 0698-7194 (CD6) RESISTOR 17.8 1% .05W F TC=0+/-100.
Add A6A3R80 0698-7224 (CD3) RESISTOR 316 1% .05W F TC=0+/-100.
Page 6-80, Table 6-3:
Change A6A6R5 to 0698-7194 (CD6) RESISTOR 17.8 1% .05W F TC=+/-100.
Change A6A6R3, R7 to 0698-7224 (CD3) RESISTOR 316 1% .05W F TC=+/-100.

Page 8-215, Service Sheet C (Block Diagram):
Change power level at A6A3J4 to -6 dBm.
Page 8-217, Service Sheet D (Block Diagram):
Change power level at A6A6J2 to -6 dBm.
Page 8-407, Service Sheet 20 (Schematic):
Change part number for A6A3 assembly to 08662-60314.
Change value of R78 to 316 ohm.
Add two resistors (R79 and R80) in conjunction with R78 to form a 3 dB Pad. Refer to **P/O Schematic 20, A6A3 HF Multiplier (P/O Change 6).**
Page 8-413, Service Sheet 23 (Schematic):
Change value of R3 and R7 to 316 ohm.
Change value of R5 to 17.8 ohm.
Change value shown for pad consisting of R3, R5, and R7 to 3 dB.
Change power level at J2 to -6 dBm.

CHANGE 7

Page 6-86, Table 6-3:
Add A7A2C34 and C35 0160-2055 (CD9) CAPACITOR-FXD .01UF +80 -20% 100VDC CER.
Page 6-91, Table 6-3:
Change A8A4 to 08662-60306 (CD7) REFERENCE BUFFER.
Change A8A4C11 to 0180-0197 (CD8) CAPACITOR-FXD 2.2 UF +/-10% 20 VDC TA.
Add A8A4C28 0180-2205 (CD3) CAPACITOR-FXD .33 UF +/-10% 35VDC TA.
Add A8A4CR4 1901-0159 (CD3) DIODE-PWR RECT 400V 750MA DO-41.
Delete A8A4R9 part number and change description to read NOT ASSIGNED.

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CHANGE 7 (cont'd)

Page 6-92, Table 6-3:
Add A8A4U2 1826-0275 (CD4) IC 78L12A V RGLTR TO-92.
Delete A8A4VR1 part number and change description to read NOT ASSIGNED.

Page 8-402, Service Sheet 18 (Component Locations):
Replace Figure 8-401 with attached A8A4 Component Locations.
Page 8-403, Service Sheet 18 (Schematic):
Change part number of A8A4 assembly to 08662-60306.
Replace appropriate portion of schematic with attached partial schematic.
In table entitled "Reference Designations" under A8A4, change C1--12, 14--25, 27, to read C1--12, 14--25, 27, 28; change CR1--3 to read CR1--4; change R1--11, 13--42 to read R1--8, 10, 11, 13--42; change U1 to read U1, 2; and delete VR1.
In table entitled "Transistor and Integrated Circuit Part Numbers," add U2 with part number 1826-0275.
Page 8-637, Service Sheet 57 (Schematic):
Add capacitor A7A2C34, 0.01 uF, in parallel with C3.
Add Capacitor A7A2C35, 0.01 uF, in parallel with C18.
In table entitled "Reference Desigations" under A7A2, change C1--33 to read C1--35.

CHANGE 8

Page 1-15, Table 1-5:
Add following entry

P/O Table 1-5. 11714A Service Accessory Kit (P/O Change 8)

Item Number	HP Part Number	CD	Qty	Description
Not Shown	10811-90002	9	1	Operating & Service Manual

Page 6-2, Table 6-1:
Delete "A3A3 10 MHz Reference Oscillator 08662-60085 10544B Opt. 003" entry.

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CHANGE 8 (cont'd)

Page 6-91, Table 6-3:
Change part number for first A8A3 entry (10544B(003)) to 10811ACD0) 10 MHZ REFERENCE OSCILLATOR and delete "(NOT RECOMMENDED FOR FIELD REPAIR)" entry.
Delete second A8A3 entry which reads: "A8A3 08662-60085 (CD9) RESTORED 10 MHZ REFERENCE OSCILLATOR".

NOTE TO READER:

The 10811A 10 MHz Reference Oscillator is field repairable, therefore it does not require a restored assembly. The 08662-60085 restored 10 MHz Reference Oscillator is no longer available. Order part number 10544-60040 if a replacement is needed for a defective 10544B type 10 MHz Reference Oscillator.

Page 8-102, Paragraph 8-10:
Add following sentences before last sentence in paragraph 8-10. "The Operating & Service Manual for A8A3 10 MHz Reference Oscillator, part no. 10811A, is included with each service accessory kit to provide field service and repair information for oscillator. This manual may be ordered separately with part no. 10811-90002."
Page 8-403, Service Sheet 18 (Schematic):
Change part number of A8A3 assembly to 10811A.

CHANGE 9

Page 6-52, Table 6-3:
Change A4A9R60 to 0698-6344 (CD6) RESISTOR 900 .1% .125W F TC=0+/-25.
Delete A4A9R61 part number and change description to read NOT ASSIGNED.
CHANGE A4A9R62 TO 0698-6323 (CD1) RESISTOR 100 .1% .125W F TC=0+/-25.

Page 8-523, Service Sheet 40 (Schematic):
Change value of R60 to 900 ohm.
Delete R61 and connect R60 to R62.
In table entitled "Reference Designations" under A4A9, change R1--84 to read R1--60, 62--84.

CHANGE 10

Page 6-12, Table 6-3:
Change A2A6 to 08662-60315 (CD8) MICROPROCESSOR/DECODER.
Delete A2A6C7 part number and change description to read NOT ASSIGNED.
Delete A2A6C14 part number and change description to read NOT ASSIGNED.
Add A2A6DL1 1810-0315 (CD0) DELAY LINE 14 PIN DIP; 0.1 IN PIN.
Delete A2A6R29 part number and change description to read NOT ASSIGNED.
Add A2A6R30 0698-7236 (CD7) RESISTOR 1K 1% .05W F TC=0+/-100.
Add A2A6R31 0698-7227 (CD6) RESISTOR 422 1% .05W F TC=0+/-100.
Change A2A6U1 to 1820-2369 (CD9) IC OSC TTL LS DUAL.
Delete A2A6U2 part number and change description to read NOT ASSIGNED.
Page 6-13, Table 6-3:
Delete A2A6VR1 part number and change description to read NOT ASSIGNED.

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CHANGE 10 (cont'd)

Page 8-312, Service Sheet 6 (Component Locations):
Replace Figure 8-316 with attached A2A6 Component Locations.
Page 8-313, Service Sheet 6 (Schematic):
Change part number of A2A6 assembly to 08662-60315.
Replace appropriate portion of schematic with attached partial schematic.
In table entitled "Reference Designations" under A2A6:
Change C1-12, 14 to read C1-6, 8-12;
Add DL1;
Change R1-29 to read R1-28, 30, 31;
Change U1, 2, 4-13, 23, 24 to read U1, 4-13, 23, 24;
Delete VR1.
In table entitled "Integrated Circuit Part Numbers," change part number of U1 to 1820-2369 and delete U2 part number.
In table entitled "Integrated Circuit Voltage and Ground Connections," change pin numbers associated with U1 to read +5V -11, 14--16; $\bigvee$ -1, 8, 9; and NC -10, 12, 13. Also change U2, 4, 9--12 to read U4, 9--12.
Page 8-314, Service Sheet 7 (Component Locations):
Replace Figure 8-319 with attached A2A6 Component Locations.
Page 8-315, Service Sheet 7 (Schematic):
Change part number of A2A6 assembly to 08662-60315.

CHANGE 11

Page 6-89, Table 6-3:
Change A7A3R7, R8 to 0699-0944 (CD2) RESISTOR 162 1% .25W F TC=0+/-100.
Change A7A3R9, R10 to 0699-0945 (CD3) RESISTOR 75 1% .25W F TC=0+/-100.

CHANGE 12

Page 6-91, Table 6-3:
Add A8A3MP1 08662-00186 (CD5) SHIELD, OSC, COVER (Refer to **Change 8**).
Add A8A3MP2 08662-00187 (CD6) SHIELD, OSC, BODY (Refer to **Change 8**).

CHANGE 13

Page 6-12, Table 6-3:
Change A2A6C1 to 0180-0197 (CD6) CAPACITOR-FXD 2.2UF ± 10% 20 VDC TA 56289 150P2 25X 9020A2.
Change A2A6R7 to 0698-7286 (CD8) RESISTOR 121K 1% .05W F TC=0±100 24546 C3-1/8-to-1213-F.

Page 8-313, Service Sheet 6:
Change value of A2A6C1 to 2.2uF.
Change value of A2A6R7 to 121K ohms.

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CHANGE 14

r Page 6-40, Table 6-3:
Change following components in Table of Replaceable Parts:
A4A4C28 to 0160-4776 (CD5) CAPACITOR-FXD 29 PF ±2% 200 VDC CER 28480.
A4A4C38 to 0160-4776 (CD5) CAPACITOR-FXD 29 PF ±2% 200 VDC CER 28480.
A4A4C26 to 0160-4774 (CD3) CAPACITOR-FXD 16 PF ±2% 200 VDC CER 28480.
A4A4C36 to 0160-4774 (CD3) CAPACITOR-FXD 16 PF ±2% 200 VDC CER 28480.

Page 8-503, Service Sheet 30:
Change A4A4C26 and A4A4C36 to 16 pF.
Change A4A4C28 and A4A4C38 to 29 pF.

CHANGE 15

Page 6-94:
Change Item 7 part number to 0624-0100 (CD5).

CHANGE 16

Page 6-92, Table 6-3:
Delete A8MP5, A8MP6, A8MP11, A8MP12, A8MP18, and A8MP19.
r Change A8MP8 to 08662-20310 (CD9) CASTING, BOTTOM, 350 MHz 28480
r Change A8MP10 to 08662-20311 (CD0) CASTING, BASE, 10 MHz 28480.
Page 6-93, Table 6-3:
Under A8 XA8A4 delete part number 2200-0111.
Page 6-100, Figure 6-4:
Delete A8MP12, A8MP18, and A8MP19 from Illustrated Parts Breakdown.

CHANGE 17

r Page 6-34, Table 6-3:
r Change A4A1L8 to 9100-4078 (CD3) INDUCTOR 630 UH 56%.
Page 6-39, Table 6-3:
Change A4A3L4 and A4A3L6 to 9100-4078 (CD3) INDUCTOR 630 UH 56%.

Page 8-507, Service Sheet 32:
Change values of A4A3L4 and L6 to 630 uH.
Page 8-511, Service Sheet 34:
Change value of A4A1L8 to 630 uH.

CHANGE 18

r Page 6-18, Table 6-3:
Change A3A3R1-R8 to 0698-7218 (CD5) RESISTOR 178 1% .05W F TC=0±100.
r Page 6-24, Table 6-3:
Change A3A6R1, R4, R8, R11, R15, R21, R25 to 0698-7235 (CD6) RESISTOR 909 1% .05W F TC=0±100.
Change A3A6R14 to 0698-7232 (CD3) RESISTOR 681 1% .05W F TC=0±100.
Change A3A6R3, R7, R10, R20, R24, to 0698-7245 (CD8) RESISTOR 2.37K 1% .05W F TC=0±100.

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CHANGE 18 (cont'd)

r Page 6-25, Table 6-3:
Change A3A6R28 to 0698-7235 (CD6) RESISTOR 909 1% .05W F TC=0±100.
Change A3A6R27 and R30 to 0698-7245 (CD8) RESISTOR 2.37K 1% .05W F TC=0±100.

r Page 6-37, Table 6-3:
Change A4A2R9 and R10 to 0698-7230 (CD1) RESISTOR 562 1% .05W F TC=0±100.

r Page 6-54, Table 6-3:
Change A5A1R1-R12 to 0698-3445 (CD2) RESISTOR 348 1% .125W F TC=0±100.

r Page 6-55, Table 6-3:
Change A5A2R13=R18 to 0698-7225 (CD4) RESISTOR 348 1% .05W F TC=0±100.
Change A5A2R19-R21 to 0698-7232 (CD3) RESISTOR 681 1% .05W F TC=0±100.

r Page 6-60, Table 6-3:
Change A5A5R1-R6 to 0698-7218 (CD5) RESISTOR 178 1% .05W F TC=0±100.

r Page 6-83, Table 6-3:
Change A6A9R8 and R9 to 0698-7219 (CD6) RESISTOR 196 1% .05W F TC=0±100.

Page 8-410, Service Sheet 22:
Change values of A6A9R8 and R9 to 196 ohms.

Page 8-508, Service Sheet 33:
Change values of A4A2R9 and R10 to 562 ohms.

Page 8-606, Service Sheet 43:
Change values of A5A5R1-R6 to 178 ohms.

Page 8-608, Service Sheet 44:
Change values of A5A2R13-R18 to 348 ohms.
Change values of A5A2R19-R21 to 681 ohms.

Page 8-610, Service Sheet 45:
Change values of A5A1R1-R12 to 348 ohms.

Page 8-615, Service Sheet 47:
Change values of A3A3R1-R8 to 178 ohms.

Page 8-620, Service Sheet 50:
Change values of A3A6R1, R4, R8, R11, R15, R21, R25, and R28 to 909 ohms.
Change value of A3A6R14 to 681 ohms.
Change values of A3A6R3, R7, R10, R20, R24, R27, and R30 to 2.37K ohms.

CHANGE 19

Page 6-9, Table 6-3:
Delete A2A2CR6 1901-0518.

r Page 6-10, Table 6-3:
Change A2A2U7 to 1826-0921 (CD7).

Page 6-37, Table 6-3:
Delete A4A2CR3 1901-0535.

r Page 6-38, Table 6-3:
Change A4A2U5 to 1826-0921 (CD7).

Page 6-47, Table 6-3:
Delete A4A7CR2 1901-518.

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CHANGE 19 (cont'd)

r Page 6-49, Table 6-3:
Change A4A7U8 to 1826-0921 (CD7).
Page 6-51, Table 6-3:
Delete A4A9CR9 1901-0518.
r Page 6-52, Table 6-3:
Change A4A9U9 to 1826-0926 (CD7).

Page 8-333, Service Sheet 16:
Delete A2A2CR6.
In Transistor and Integrated Circuit Part Numbers table, change U5 to part number 1826-0921.
Page 8-509, Service Sheet 33:
Delete A4A2CR3.
In Transistor and Integrated Circuit Part Numbers table, change U5 to part number 1826-0921.
Page 8-517, Service Sheet 37:
Delete A4A7CR2.
In Transistor and Integrated Circuit Part Numbers table, change U8 to part number1826-0921.
Page 8-523, Service Sheet 40:
Delete A4A9CR9.
In Transistor and Integrated Circuit Part Numbers table, change U9 to part number 1826-0921.

CHANGE 20

Page 6-90, Table 6-3:
Change A8A1 quantity from 2 to 1.
r Change A8A2 to 08662-60317 (CD0) (Qty 1) VCO (NOT RECOMMENDED FOR FIELD REPAIR) 28480 08662-60317.

(Note: The restored VCO Assembly remains HP Part Number 08662-60083.)

Page 8-415, Service Sheet 24:
Change A8A2 part number to 08662-60317

CHANGE 21

Page 6-67, Table 6-3:
Change following part numbers and values:
A6A3C93 0160-4382 (CD9) CAPACITOR 3.3 PF +/-.25 PF 200 VDC CER 28480
A6A3C94 0160-4543 (CD4) CAPACITOR 470 PF +/-10% 100 VDC CER 28480
Add:
A6A3C99 0160-4543 (CD4) CAPACITOR 470 PF +/-10% 100 VDC CER 28480
Page 6-68, Table 6-3:
Change part number of A6A3Q1 to HP Part Number 1854-0980 (CD7).

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CHANGE 21 (cont'd)

Page 8-69, Table 6-3:
Add following resistors to parts list:
A6A3R81 0699-0183 (CD1) RESISTOR 436 5% .1W C TC=0+/-200 28480
A6A3R82 0699-0174 (CD0) RESISTOR 11.6 5% .1W C TC=0+/-100 28480
A6A3R83 0699-0183 (CD1) RESISTOR 436 5% .1W C TC=0+/-200 28480

Page 8-406, Figure 8-407 (component locator):
Include partial component locator "**P/O Figure 8-407. A6A3 Reference Section HF Multiplier Component Locations (P/O Change 21)**" contained in this manual changes supplement.

Page 8-407, Figure 8-409 (schematic):
Include partial schematic "**P/O Figure 8-409. A6A3 Reference Section HF Multiplier Component Locations (P/O Change 21)**" contained in this manual changes supplement.

In table of "**Transistors and Integrated Circuit Part Numbers**" change A6A3Q1 part number to 1854-0980.

Change output label to SS31 to "**Down Converter Band Mixer RF (-1 dBm +/-.75 dBm).**

Page 8-505, Figure 8-506 (Schematic):
Change input label from SS20 to "**Input 520 MHz (-1 dBm +/-.75 dBm).**

CHANGE 22

Page 6-66, Table 6-3:
Change capacitor part number and value to:
A6A3C38 0160-4389 (CD6) CAPACITOR 100 PF +/-5 PF 200 VDC CER 28480

Page 8-407, Figure 8-409 (schematic):
Change value of Q10 emitter bypass capacitor C38 from 1000 pF to 100 pF.

CHANGE 23

Page 6-38, Table 6-3:
Add:
A4A3C20 0160-3875 (CD3) CAPACITOR 22PF +/-5% 200 VDC CER 0+/-30

Page 6-39, Table 6-3:
Change:
A4A3L9 9100-2254 (CD3) INDUCTOR RF-CH-MLD 390NH 10% .105L X .26LG
A4A3R19* 0698-7228 (CD7) RESISTOR 464 .05W F TC=0+/-100
A4A3R23* 0698-7228 (CD7) RESISTOR 464 .05W F TC=0+/-100
A4A3R24 0698-7226 (CD5) RESISTOR 383 .05W F TC=0+/-100
A4A3R27 0698-7226 (CD5) RESISTOR 383 .05W F TC=0+/-100
A4A3R21* 0757-0379 (CD1) RESISTOR 12.1 .125W F TC=0+/-100
A4A3R29 0698-7220 (CD9) RESISTOR 215 .05W F TC=0+/-100
A4A3R32 0698-7220 (CD9) RESISTOR 215 .05W F TC=0+/-100
A4A3R30 0698-7198 (CD0) RESISTOR 26.1 .05W F TC=0+/-100

Page 6-40, Table 6-3:
Change:
A4A3R34 0698-7213 (CD0) RESISTOR 110 .05W F TC=0+/-100
A4A3R36 0698-7213 (CD0) RESISTOR 110 .05W F TC=0+/-100

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CHANGE 23 (cont'd)

Page 8-507, Figure 8-509 (Schematic):
Add C20/22 pF to schematic between output at J2 and ground.
Change following component values on schematic:
L9 to .39 uH
R19* and R23* to 464 ohms
R21* to 12.1 ohms
R24 and R27 to 383 ohms
R29 and R32 to 215 ohms
R30 to 26.1 ohms
R34 and R36 to 110 ohms

CHANGE 24

Page 6-102, Table 6-3:
Add RV1 08662-60318 (CD1) VARISTOR ASSEMBLY.

Page 8-631, Figure 8-652:
Add attached partial schematic contained in this manual changes supplment to **Figure 8-652. Power Supply Inverter, Motherboard, and Line Filter Schematics.**

CHANGE 25

Page 6-12, Table 6-3:
Add A2A6C15 0160-4787 (CD8) CAPACITOR-FXD 22PF +-5% 100VDC CER 0+-30.
Add A2A6MP3, MP4 1251-0600 (CD0) CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ.

Page 8-312, Figure 8-316 (component locations):
On the A2A6 Assembly, add C15 and mounting pins (1251-0600) in parallel with Y1.

NOTE

A2A6C15 can be installed by unsoldering A2A6Y1's leads then inserting mounting pins (1251-0600) in the holes previously occupied by the leads of A2A6Y1. Then solder the crystal leads and capacitor A2A6C15 to the pins.

Page 8-313, Figure 8-318 (schematic):
In the lower center of the A2A6 schematic, add C15, 22 pF, in parallel with Y1.

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CHANGE 26

NOTE

This change makes previous special options H03 and H12 (adds rear panel 640 MHz output and EFC input) standard features on the HP 8662A's with serial prefix 2411A and later. Option 003 has also been added which is a test only option and guarantees the specifications for the 640 MHz output. For specifications see Performance Test 4-12 contained in this manual changes supplement.

Page 1-9, Table 1-2:

Add the following information after **FREQUECY, External:**

EFC Input:

Frequency Deviation Available: 1 Hz total change in internal 10 MHz reference for a control voltage range of -10 to +10 VDC.

Input Resistance: 5000 ohms nominal

Maximum DC or Instantaneous Voltage: +/-15 VDC.

Add the following information after **Output**

640 MHz Output

Output Level: +1 dBm minimum (OPTION 003 ONLY).

DO NOT apply reverse power. No protection is provided. DO NOT apply DC voltage to this output. Terminate with 50 ohm load (supplied) when not in use.

Page 4-25

Add manual addition pages 4-25a/f titled **"4-12. ABSOLUTE SSB PHASE NOISE ON REAR PANEL 640 MHz OUTPUT (Option 003 only)"** included in this manual changes supplement.

Page 5-7, Table 5-1:

Add the following information to the table of Factory Selected Components.

Reference Designator	Service Sheet	Range of Values	Process of Selection
A6A3R81 A6A3R82 A6A3R83	20	287 - 870 ohms 0 - 17.6 ohms 287 - 870 ohms	These resistors form a pad that ranges from 0 to 3 dB. For 0 dB attenuation replace R82 with a piece of wire and delete R81 and R83. The value of the pad is selected to achieve a +5 dBm minimum level at the 520 MHz Output, J1. The nominal values are for 2 dB attenuation.
A6A3R84	20	26.1 ohms nominal	Select R84 to achieve a +1 dBm minimum output level at the 640 MHz output (A6A3J5).

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CHANGE 26 (cont'd)

Page 6-69, Table 6-3:
Add asterisk (*) to A6A3R81, R82, and R83 to indicate factory selected value.
Add A6A3R84* 0698-7198 (CD0) (Qty 1) RESISTOR 26.1 1% .05W F TC=0+-100
Page 6-92, Table 6-3:
Change A8A5 assembly part number from 08662-60191 to 08662-60322 (CD7).
Change A8C1 Qty from 5 to 6.
Add:
A8A5R1 0698-7246 (CD9) (Qty 2) RESISTOR 2.61K 1% .05W F TC=0+-100 24546 C3-1/8-TO-2611-F
A8A5R2 0698-7246 (CD9) RESISTOR 2.61K 1% .05W F TC=0+-100 24546 C3-1/8-TO-2611-F.
A8C6 0160-3036 (CD8) CAPACITOR-FDTHRU 5000PF +80 -20% 200V.
Change A8MP10 part number from 08662-20311 to 08662-20323 (CD4)
Page 6-95, Table 6-3:
Add:
AT1 1250-0207 (CD1) (Qty 1) TERMINATION-COAXIAL SERIES BNC; 50 OHMS
J7 1250-0083 (CD1) (Qty 1) CONNECTOR-RF BNC FEM SGL-HOLE-FR 50 OHM
Page 6-101, Table 6-3:
Delete:
MP112 part number 08662-00012 (STD)
MP112 part number 08662-00183 (OPT 001)
Add:
MP112 part number 08662-00216 (CD2).
Page 6-103, Table 6-3:
Add:
W62 08663-60359 (CD1) (Qty 1) CABLE ASSY-COAX "963"
W63 8150-0463 (CD6) (Qty 1) WIRE 24AWG W/BL 300V PVC 7X32 80C (13").

Page 8-403, Figure 8-403 (Schematic):
Insert partial schematic included in this manual changes supplement entitled **"P/O Figure 8-403. A8A3 and A8A4 10 MHz Reference Oscillator & Buffer Schematic (P/O Change 26)".**
Page 8-407, Figure 8-409 (Schematic):
Insert partial schematic included in this manual changes supplement entitled **"P/O Figure 8-409. A6A3 Reference Section High Frequency Multiplier Schematic (P/O Change 26)".**

CHANGE 27

Page 6-12, Table 6-3:
Delete the following parts added in **CHANGE 25**:
A2A6C15 0160-4787 (CD8) CAPACITOR-FXD 22PF +-5% 100VDC CER 0+-30.
A2A6MP3 1251-0600 (CD0) CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ.
A2A6MP4 1251-0600 (CD0) CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ.
Page 6-13, Table 6-3:
Change A2A6Y1 part number from 0410-1184 to 0410-1292.

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CHANGE 27 (cont'd)

Page 8-312, Figure 8-316 (component locations):
Delete capacitor C15 added in **CHANGE 25** as it is not needed with the replacement crystal added in this change.
Page 8-313, Figure 8-318 (schematic):
Delete capacitor C15 added in **CHANGE 25** as it is not needed with the replacement crystal added in this change.

CHANGE 28

NOTE

Part number 1820-1780 is being replaced by part number 1820-3517 in all applications in the 8662A. For instruments with serial prefixes prior to 2420A the new part is the preferred replacement, and is directly plug-in compatible on all boards except the A3A5 Assembly. In this use the resistors R13 and R14 must be removed from the board and replaced with terminal studs. The studs should be soldered in the existing R13 and R14 holes and the new value of R13 and R14 should be soldered to the studs along with the parallel capacitors C24 and C25 respectively.

Page 6-22, Table 6-3:
Add A3A5C24, and A3A5C25 0160-4803 (CD9) (Qty 2) CAPACITOR-FXD 68PF +-5% 100 VDC CER 0+-30.
Page 6-23, Table 6-3:
Change A3A5U2, and A3A5U3 from part number 1820-1780 to 1820-3517 (CD1) (Qty 2) IC DIVR ECL VAR-MODULO.
Change A3A5R13, and A3A5R14 from part number 0757-0416 to 0698-3443 (CD0) RESISTOR 287 1% .125W F TC=0+-100 24546 C4-1/8-TO-287R-F.
Add A3A5MP4, and A3A5MP5 0360-0124 (CD3) (Qty 4) CONNECTOR-SGL CONT PIN .04-IN-BSC-SZ RND.
Page 6-25, Table 6-3:
Change A3A6U1 from part number 1820-1780 to 1820-3517 (CD1) (Qty 1) IC DIVR ECL VAR-MODULO.
Page 6-29, Table 6-3:
Change A3A8U3 from part number 1820-1780 to 1820-3517 (CD1) (Qty 1) IC DIVR ECL VAR-MODULO.
Page 6-50, Table 6-3:
Change A4A8U1 from part number 1820-1780 to 1820-3517 (CD1) (Qty 1) IC DIVR ECL VAR-MODULO.
Page 6-55, Table 6-3:
Change A5A2U1 from part number 1820-1780 to 1820-3517 (CD1) (Qty 1) IC DIVR ECL VAR-MODULO.

Page 8-619, Figure 8-632 (schematic):
Change the value of R13 and R14 to 287 ohms.
Add capacitors C24 and C25, 68 pF, in parallel with R13 and R14.

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CHANGE 29

Page 6-86, Table 6-3:
Change A7A1U1 part number and description to 1826-0016 (CD1) (Qty 1) IC 204 V RGLTR TO-100 04713 MLM204G.

Page 8-633, Figure 8-655 (schematic):
Change part number of U1 in table of Transistor and Integrated Circuit Part Numbers to 1826-0016.

CHANGE 30

NOTE

Effective with serial prefix 2424A A4A4U3 and U4 have been replaced with a new version 1820-1940 IC. The following modifications must be made when replacing the old version IC with the new version IC in instruments with serial prefixes prior to 2424A.

Page 6-42, Table 6-3:
Change A4A4R12 from 0698-7205 to 0698-7207 RESISTOR 61.9 1% .05W TC=0+-100 24546 C3-1/8-TO-61R9-F.
Add A4A4R62 0699-0129 (CD5) (Qty 1) RESISTOR 17.6 5% .1W C TC=0+-200.

Page 8-503, Figure 8-503 (schematic):
Change the value of R12 to 61.9 ohms.
Add chip resistor R62,17.6 ohms, in series between R17 and C22.

CHANGE 31

Page 6-12, Table 6-3:
Add A2A6C15 0160-4787 (CD8) CAPACITOR-FXD 22PF +-5% 100VDC CER 0+-30.

Page 8-312, Figure 8-316 (component locations):
On the A2A6 Assembly, add C15 in parallel with Y1.

NOTE

A2A6C15 can be installed by unsoldering A2A6Y1's leads then inserting mounting pins (1251-0600) in the holes previously occupied by the leads of A2A6Y1. Then solder the crystal leads and capacitor A2A6C15 to the pins.

Page 8-313, Figure 8-318 (schematic):
In the lower center of the A2A6 schematic, add C15, 22 pF, in parallel with Y1.

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CHANGE 32

Page 6-20, Table 6-3:
Change A3A4CR7 to 0122-0162 (CD5) DIODE-VVC 29PF 10% BVR=30V
Change A3A4CR8 to 0122-0162 (CD5) DIODE-VVC 29PF 10% BVR=30V

Page 6-21, Table 6-3:
Change the following components:
A3A4R10 0698-3153 (CD9) RESISTOR 3.83 K 1% .125W F TC=0+-100 24546 C4-1/8-TO-3831-F
A3A4R12 0698-3136 (CD8) RESISTOR 17.8 K 1% .125W F TC=0+-100 24546 C4-1/8-TO-1782-F
A3A4R13 0757-0199 (CD3) RESISTOR 21.5 K 1% .125W F TC=0+-100 24546 C4-1/8-TO-2152-F
A3A4R16 0698-3156 (CD2) RESISTOR 14.7 K 1% .125W F TC=0+-100 24546 C4-1/8-TO-1472-F
A3A4R19 0757-0462 (CD3) RESISTOR 75 K 1% .125W F TC=0+-100 24546 C4-1/8-TO-7502-F

Page 6-26, Table 6-3:
Change A3A7CR13 to 0122-0162 (CD5) DIODE-VVC 29PF 10% BVR=30V
Change A3A7CR14 to 0122-0162 (CD5) DIODE-VVC 29PF 10% BVR=30V

Page 6-27, Table 6-3:
A3A7R12 0698-3153 (CD9) RESISTOR 3.83 K 1% .125W F TC=0+-100 24546 C4-1/8-TO-3831-F
A3A7R13 0698-3136 (CD8) RESISTOR 17.8 K 1% .125W F TC=0+-100 24546 C4-1/8-TO-1782-F
A3A7R15 0757-0199 (CD3) RESISTOR 21.5 K 1% .125W F TC=0+-100 24546 C4-1/8-TO-2152-F
A3A7R17 0698-3156 (CD2) RESISTOR 14.7 K 1% .125W F TC=0+-100 24546 C4-1/8-TO-1472-F
A3A7R20 0757-3153 (CD3) RESISTOR 75 K 1% .125W F TC=0+-100 24546 C4-1/8-TO-7502-F

Page 6-28, Table 6-3:
Change A3A8CR3 to 0122-0162 (CD5) DIODE-VVC 29PF 10% BVR=30V
Change A3A8CR4 to 0122-0162 (CD5) DIODE-VVC 29PF 10% BVR=30V
Change A3A8CR5 to 0122-0162 (CD5) DIODE-VVC 29PF 10% BVR=30V
Change A3A8CR6 to 0122-0162 (CD5) DIODE-VVC 29PF 10% BVR=30V
Change A3A8CR7 to 0122-0162 (CD5) DIODE-VVC 29PF 10% BVR=30V
Change A3A8CR8 to 0122-0162 (CD5) DIODE-VVC 29PF 10% BVR=30V
Change A3A8CR9 to 0122-0162 (CD5) DIODE-VVC 29PF 10% BVR=30V
Change A3A8CR10 to 0122-0162 (CD5) DIODE-VVC 29PF 10% BVR=30V
Change A3A8CR11 to 0122-0162 (CD5) DIODE-VVC 29PF 10% BVR=30V
Change A3A8CR12 to 0122-0162 (CD5) DIODE-VVC 29PF 10% BVR=30V

Page 6-45, Table 6-3:
Change A5A5CR9 to 0122-0162 (CD5) DIODE-VVC 29PF 10% BVR=30V

Page 6-60, Table 6-3:
Change A4A6CR10 to 0122-0162 (CD5) DIODE-VVC 29PF 10% BVR=30V
Change A4A6CR11 to 0122-0162 (CD5) DIODE-VVC 29PF 10% BVR=30V
Change A5A6CR12 to 0122-0162 (CD5) DIODE-VVC 29PF 10% BVR=30V

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CHANGE 32 (cont'd)

Page 8-617, Figure 8-629 (Service Sheet 48 - A3A4)
Change the following values to the new values shown.
R10, 3.83k ohms
R12, 17.8k ohms
R13, 21.5k ohms
R16, 14.7k ohms
R19, 75k ohms

Page 8-623, Figure 8-638 (Service Sheet 51 - A3A7)
Change the following values to the new values shown.
R12, 3.83k ohms
R12, 17.8k ohms
R13, 21.5k ohms
R16, 14.7k ohms
R19, 75k ohms

CHANGE 33

Page 6-20, Table 6-3:
Change A3A4C32 to 0160-2242 (CD6) (Qty 1) CAPACITOR-FXD 2.4PF +-.25 500 VDC CER.

Page 6-21, Table 6-3:
Change A3A4R27 and R28 to 0757-0274 (CD5) (Qty 2) RESISTOR 1.21K 1% .125W F TC=0+-100 24546 C4-1/8-TO-1211-F.

Page 6-22, Table 6-3:
Change A3A4R43 to 0698-3440 (CD7) (Qty 1) RESISTOR 196 1% .125W F TC=0+-100 24546 C4-1/8-TO-196R-F.

Page 8-617, Figure 8-629 (Service Sheet 48 - A3A4):
Change the following values to the new values shown:
C32, 2.4 pF
R27, R28, 1.21k ohms
R43, 196 ohms

CHANGE 34

Page 6-17, Table 6-3:
Change the following parts to the new parts shown below:
A3A3C36 0160-5405 (CD9) CAPACITOR-FXD 130PF +-5% 100VDC CER
A3A3C41 0160-4800 (CD6) CAPACITOR-FXD 120PF +-5% 100VDC CER
A3A3C42, C43 0160-5407 (CD1) CAPACITOR-FXD 62PF +-5% 100VDC CER 0+-30
A3A3C45, C46 0160-4811 (CD9) CAPACITOR-FXD 270PF +-5% 100VDC CER
A3A3C47, C48 0160-4932 (CD5) CAPACITOR-FXD 750PF +-5% 100VDC CER
A3A3C49 0160-4804 (CD0) CAPACITOR-FXD 56PF +-5% 100VDC CER 0+-30
A3A3C50, C51 0160-4811 (CD9) CAPACITOR-FXD 270PF +-5% 100VDC CER
A3A3C53 0160-5271 (CD7) CAPACITOR-FXD 30PF +-5% 100VDC CER 0+-30
A3A3C56 0160-4790 (CD3) CAPACITOR-FXD 12PF +-5% 100VDC CER
A3A3C58 0160-4786 (CD7) CAPACITOR-FXD 27PF +-5% 100VDC CER 0+-30
A3A3C59 0160-5699 (CD3) CAPACITOR-FXD 20PF +-5% 100VDC CER
A3A3C60 0160-4846 (CD0) CAPACITOR-FXD 1500PF +-5% 100VDC CER
A3A3C61 0160-4846 (CD0) CAPACITOR-FXD 1500PF +-5% 100VDC CER

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CHANGE 34 (cont'd)

Page 6-19, Table 6-3:
Change A3A3R123 to 0698-7223 (CD2) RESISTOR 287 1% .05W F TC=0+-100 24546 C3-1/8-TO-287R-F.

CHANGE 35

Page 6-85, Table 6-3:
Add the following part under A7A1Q1, Q2, and Q3 with 2 per transistor:
3050-0023 (CD7) (Qty 6) WHSR-FL NM NO. 6 .144-IN-ID .25-IN-OD

Page 6-89, Table 6-3:
Under A7A3MP6:
Delete 6960-0016 (CD0) (Qty 2) PLUG HOLE
Add 08662-00218 (CD4) (Qty 1) INSULATOR, HT SNK

CHANGE 36

Page 6-27, Table 6-3:
Change A3A7R28 and R30 to 0757-0274 (CD5) RESISTOR 1.21K 1% .125W F TC=0+-100 24546 C4-1/8-TO-1211-F.

Page 8-623, Figure 8-638 (Service Sheet 51 - A3A7):
Change the following values to the new values shown:
R28, R30, 1.21k ohms

CHANGE 37

Page 1-9, Table 1-2:
Change Supplemental Characteristic for Internal Timebase Frequency "Frequency Stability Temperature Coefficient from $<1.1 \times 10^{-10}/°C$ to $2.2 \times 10^{-10}/°C$.

Page 6-91, Table 6-3:
Change A8A3 part number to 10811-60111 (CD8).

Page 6-68, Table 6-3:
Change A6A3MP1 part number to 08662-00220 (CD8).

Page 8-403, Figure 8-403 (Service Sheet 18 - A8A3):
Change the part number of the 10 MHz Reference Oscillator to 10811-60111.

CHANGE 38

Page 6-40, Table 6-3:
Change the following part numbers:
A4A4 08662-60328 DISTRIBUTOR ASSY
A4A4C14 0160-0571 (CD0) CAPACITOR-FXD 470UF +-20% 100VDC CER 28480 0160-0571
A4A4C26 0160-4774 (CD3) CAPACITOR-FXD 16PF +-2% 200VDC CER 0+-30 28480 0160-4774
A4A4C28 0160-4776 (CD5) CAPACITOR-FXD 29PF +-2% 200VDC CER 0+-30 28480 0160-4776
A4A4C36 0160-4774 (CD3) CAPACITOR-FXD 16PF +-2% 200VDC CER 0+-30 28480 0160-4774

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CHANGE 38 (cont'd)

Page 6-40, Table 6-3:

Change the following part numbers:

A4A4C38 0160-4776 (CD5) CAPACITOR-FXD 29PF +-2% 200VDC CER 0+-30 28480 0160-4776

Add the following parts:

A4A4C58 0180-3051 (CD9) CAPACITOR-FXD 150UF +-10% 6VDC TA 28480 0180-3051

A4A4C59 0160-0571 (CD0) CAPACITOR-FXD 470UF +-20% 100VDC CER 28480 0160-0571

A4A4C60 0160-0571 (CD0) CAPACITOR-FXD 470UF +-20% 100VDC CER 28480 0160-0571

A4A4C61 0160-0571 (CD0) CAPACITOR-FXD 470UF +-20% 100VDC CER 28480 0160-0571

Page 6-41, Table 6-3:

Change the following:

A4A4L23 9135-0069 (CD7) INDUCTOR RF-CH-MLD 30NH 5% .102DX.26LG 28480 9135-0069

A4A4L27 9135-0081 (CD3) INDUCTOR .068UH 28480 9135-0081

Page 6-42, Table 6-3:

Change the following:

A4A4R10 0698-7223 (CD2) RESISTOR 287 1% .05W F TC=0+-100 24546 C3-1/8-TO-287R-F

A4A4R15 0698-7223 (CD2) RESISTOR 287 1% .05W F TC=0+-100 24546 C3-1/8-TO-287R-F

A4A4R17 0698-7210 (CD7) RESISTOR 82.5 1% .05W F TC=0+-100 24546 C3-1/8-TO-82R5-F

A4A4R18 0698-7210 (CD7) RESISTOR 82.5 1% .05W F TC=0+-100 24546 C3-1/8-TO-82R5-F

A4A4R24 0698-7222 (CD4) RESISTOR 261 1% .125W F TC=0+-100 24546 C4-1/8-TO-261O-F

A4A4R25 0698-7210 (CD7) RESISTOR 82.5 1% .05W F TC=0+-100 24546 C3-1/8-TO-82R5-F

A4A4R49 0698-7204 (CD9) RESISTOR 46.4 1% .05W F TC=0+-100 24546 C3-1/8-TO-46R4-F

A4A4R61 0698-8816 (CD1) RESISTOR 2.15 1% .125W F TC=0+-100 28480 0698-8816

Add the following parts:

A4A4R62 0698-7222 (CD1) RESISTOR 261 1% .05W F TC=0+-100 24546 C3-1/8-TO-261R-F

A4A4R63 0698-3437 (CD2) RESISTOR 133 1% .05W F TC=0+-100 24546 C4-1/8-TO-133R-F

A4A4R64 0698-3437 (CD2) RESISTOR 133 1% .05W F TC=0+-100 24546 C4-1/8-TO-133R-F

A4A4R65 0698-3437 (CD2) RESISTOR 133 1% .05W F TC=0+-100 24546 C4-1/8-TO-133R-F

A4A4R66 0698-7188 (CD8) RESISTOR 10 1% .05W F TC=0+-100 24546 C3-1/8-TO-10R-F

A4A4R67 0698-7188 (CD8) RESISTOR 10 1% .05W F TC=0+-100 24546 C3-1/8-TO-10R-F

A4A4R68 0698-8816 (CD1) RESISTOR 2.15 1% .125W F TC=0+-100 28480 0698-8816

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CHANGE 38 (cont'd)

Page 8-502, Figure 8-501, Service Sheet 30 (Component Locator--A4A4):
Attach the partial component locator **P/O Figure 8-501. A4A4 Output Section Distributor Component Locations (P/O Change 38)** contained in this manual changes supplement to the main component locator.
Page 8-503, Figure 8-503, Service Sheet 30 (Schematic--A4A4):
Change the board part number to 08662-60328.
Attach the partial schematic **P/O Figure 8-503. A4A4 Output Section Distributor Schematic (P/O Change 38)** contained in this manual changes supplement to the main schematic.

CHANGE 39

Page 6-46, Table 6-3:
Change A4A7 board part number to 08662-60325 (CD0).
Page 6-47, Table 6-3:
Add the following:
A4A7C35-C44 0160-0576 (CD5) (Qty 10) CAPACITOR-FXD .1UF +/- 20% 100VDC 28480 0160-0576.
Page 6-49, Table 6-3:
Add the following:
A4A7R93-R102 0698-7260 (CD7) (Qty 10) RESISTOR 10K 1% .05W F TC=0+/-100 24546 0698-0576.

Page 8-516, Figure 8-522 (Service Sheet 37 - A4A7)
Insert new component locator included in this manual changes supplement titled "**Figure 8-522. A4A7 Output Section AGC Component Locations (P/O Change 39)**".
Page 8-517, Figure 8-524. (Service Sheet 37 - A4A7)
Change board number to 08662-60325.
Make changes shown on partial schematic included in this manual changes supplement titled "**P/O Figure 8-524. A4A7 Output Section AGC Schematic (P/O Change 39)**".

CHANGE 40

Page 6-66, Table 6-3:
Change the following part numbers and descriptions:
A6A3 08662-60327 (CD2) HF MULTIPLIER ASSEMBLY 28480 08662-60327
A6A3C5 0180-0558 (CD5) CAPACITOR-FXD 470UF +-20% 10VDC 56289 150D477X001052
Page 6-67, Table 6-3:
Add the following parts:
A6A3C106-109 0180-2618 (CD2) CAPACITOR-FXD 33UF +-10% 10VDC TA 56289 D33GS1B10K

Page 8-407, Figure 8-409, Service Sheet 20 (Schematic):
Change the value of C5 to 470 uF.
Add C106, 33 uF, between pin 7(V+) and ground of U7.
Add C107, 33 uF, between pin 7(V+) and ground of U6.
Add C108, 33 uF, between pin 7(V+) and ground of U3.
Add C109, 33 uF, between pin 7(V+) and ground of U5.

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CHANGE 41

NOTE

This change is compatible with instruments of any serial number and is a recommended retrofit where fuse blowing due to current surge transients during 230 volt operation becomes a problem.

Page 6-115, Table 6-3:
Add RT2 0837-0027 (CD6) THERMISTOR DISC 30-OHM TC=3.9%/C-DEG 28480 0837-0027

Page 8-631, Figure 8-652, Service Sheet 55 (Schematic):
Add partial schematic contained in this manual changes supplement showing addition of thermistor to **P/O Figure 8-652. Power Supply Inverter, Mother Board & Line Filter Schematics (P/O Change 41).**

CHANGE 42

NOTE

Instruments with serial breaks 2513A and above have combined A2A7 and A2A9 with A2A8 . Any reference to A2A7 or A2A9 should be disregarede and replaced with A2A8.

Page 6-13, Table 6-3:
Delete the parts list for the A2A7 RAM ASSEMBLY 08662-60298, and replace with the new parts list included with this manual changes supplement for the A2A7 RAM/ROM ASSEMBLY.
Page 6-14, Table 6-3:
Delete the parts list for the A2A9 ROM 2 ASSEMBLY HP part number 08663-60296 and enter "NOT SPECIFIED" in the A2A9 description.
Page 6-15, Table 6-3:
Delete A2BT1 08672-60092 BATTERY PACK ASSEMBLY
Change A2MP3 part number from 08662-00180 to 08662-00221 (CD9)
Delete A2MP6 08672-00011 CLAMP, BATTERY
Delete A2MP7 08672-60029 BATTERY ASSEMBLY HOLDER

Page 8-316, Figure 8-325, Service Sheet 9 (Component Locations)
Page 8-319, Figure 8-327, Service Sheet 9 (Schematic)
This board is no longer used and has been replaced by the A2A7 RAM/ROM ASSEMBLY contained in the new service sheet 10.
Page 8-320, Figure 8-328, Service Sheet 10 (Component Locations)
Replace the existing figure with the new figure contained in this manual changes supplement.
Add Jumper W3 to the component locator directly below resistor array R13.

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CHANGE 42 (cont'd)

Page 8-321, Figure 8-330, Service Sheet 10 (Schematic)
Replace the existing schematic with the new foldout schematic contained in this manual changes supplement.
Change the reference designations for JP1 and JP2 to W1 and W2, respectively.

The following changes were made after the schematic was printed:
Add a connection from resistor array R13-pin 10 to U2-pin 18 (currently tied to ground). Then add W3 from U2-pin 18 to ground. Add "NOTE 2" adjacent to W3 and add text for NOTE 2 to right side of schematic under "NOTE 1" as follows: Remove jumper W3 when using 08662-80059 PROM.

CHANGE 43

Page 6-51, Table 6-3:
Change A4A9K1 part number to 0490-1423 (CD2)

Page 8-523/524, Figure 8-539, Service Sheet 40 (Schematic)
The new relay specified for K1 is a direct replacement for the existing relay.

CHANGE 44

Page 1-2:
Change part number of Front Handle Kit (Option 907) to 5061-9690
Change part number of Rack Flange Kit (Option 908) to 5061-9678
Change part number of Rack Flange and Front Handle Kit (Option 909) to 5061-9684

Page 6-99, Table 6-3:
Change MP51 part number to 5021-5805
Change MP52 part number to 08662-20330
Change MP53 part number to 5021-5837
Change MP54 part number to 5061-9435 (CD8)
Under MP54, change label 7120-5911 to 7120-8607 (CD2) LABEL "THIS INSTRUMENT USES METRIC AND ENGLISH HARDWARE..."
Change MP55 part number to 5061-9447 (CD2)
Change MP62 part number to 5041-6819 (CD4)
Change MP63 part number to 5041-6820 (CD7)
Under MP67, change screw 2360-0197 to 0515-1232 (CD4) M5X0.8X10 PANHEAD
Change MP72 part number to 2510-0192 to 0515-1331 (CD5) M4X0.7X6 FLATHEAD

CHANGE 45

NOTE

When replacing the CMOS switch U7 on the A6A4 or A6A5 Assemblies, the following component values should be changed to allow proper operation.

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CHANGE 45 (cont'd)

Page 6-74, Table 6-3:
Change A6A4R148 to 0698-7239 (CD0) RESISTOR 1.33K 1% .05W F TC=0+-100 C3-1/8-TO-1331-F
Page 6-74, Table 6-3:
Change A6A4VR2 to 1902-0955 (CD9) DIODE-ZNR 7.5V 5% PD=.4W
Page 6-79, Table 6-3:
Change A6A5R148 to 0698-7239 (CD0) RESISTOR 1.33K 1% .05W F TC=0+-100 C3-1/8-TO-1331-F
Page 6-79, Table 6-3:
Change A6A5VR2 to 1902-0955 (CD9) DIODE-ZNR 7.5V 5% PD=.4W
Page 8-425/426, Figure 8-436 Service Sheet 29 (Schematic--A6A4):
Change value of R148 to 1.33k ohms.
Change value of VR2 to 7.5V
Page 8-417, Figure 8-424 Service Sheet 25 (Schematic--A6A5):
Change value of R148 to 1.33k ohms.
Change value of VR2 to 7.5V

CHANGE 46

Page 6-28, Table 6-3:
Change A3A8CR3-CR12 part number to T-33781.
Change the following:
A3A8R4 0698-7253 (CD8) 5.11K 1% .05W F TC=0+-100 24546 C3-1/8-TO-5111-F
A3A8R5 0698-7249 (CD2) 3.48K 1% .05W F TC=0+-100 24546 C3-1/8-TO-3481-F
Page 6-29, Table 6-3:
Change the following:
A3A8R6 0698-7236 (CD7) 1K 1% .05W F TC=0+-100 24546 C3-1/8-TO-1001-F
A3A8R14 0698-7216 (CD3) 147 1% .05W F TC=0+-100 24546 C3-1/8-TO-147R-F
A3A8R32 0698-7211 (CD8) 90.9 1% .05W F TC=0+-100 24546 C3-1/8-TO-90R9-F
A3A8R33 0698-7209 (CD4) 75 1% .05W F TC=0+-100 24546 C3-1/8-TO-75R0-F
Page 6-30, Table 6-3:
Change the following:
A3A9R7 0698-7249 (CD2) 3.48 1% .05W F TC=0+-100 24546 C3-1/8-TO-3481-F
A3A9R9 0698-7236 (CD7) 1K 1% .05W F TC=0+-100 24546 C3-1/8-TO-1001-F
A3A9R10 0698-7257 (CD2) 7.5K 1% .05W F TC=0+-100 24546 C3-1/8-TO-7501-F
A3A9R11 0698-7271 (CD0) 28.7K 1% .05W F TC=0+-100 24546 C3-1/8-TO-2872-F
A3A9R12 0698-3553 (CD2) 196K 1% .125W F TC=0+-100 24546 C4-1/8-TO-1963-F
Page 8-625, Figure 8-641 Service Sheet 52 (Schematic--A3A9)
Change the following values:
R7, 2.87k
R9, 1k
R10, 7.5k
R11, 28.7k
R12, 196k
Page 8-629, Figure 8-647 Service Sheet 54 (Schematic--A3A8)
Change the following values:
R4, 5.11k
R5, 3.48k
R6, 1k
R14, 147
R32, 90.9
R33, 75

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CHANGE 47

Page 523/524, Figure 8-539 Service Sheet 40 (Schematic--A4A9)
Change the values of the following components:
R35, 4.22k
R47, 1.96k

Page 6-52, Table 6-3:
Change the following component values:
A4A9R35 0698-3154 (CD0) RESISTOR 4.22K 1% .125W F TC=0+-100 24546 C4-1/8-TO-4221-F
A4A9R47 0698-0083 (CD8) RESISTOR 1.96K 1% .125W F TC=0+-100 24546 C4-1/8-TO-1961-F

CHANGE 48

Page 6-90, Table 6-3:
Change A7A4 part number to 08662-60376 (CD1).
Change A7A4CR1-CR6 to 1901-1188 (CD0) DIODE-PWR RECT 800V 6A.

NOTE

If replacing the old A7A4 Power Supply Motherboard with the new board extreme care should be exercised as the connections are arranged in a different order on the new board HP part Number 08662-60376. For information regarding installing a new A7A4 Assembly in an older instrument refer to Installation Instructions - HP Part Number 08662-90069.

Page 8-631, Figure 8-652 Service Sheet 55 (Schematic--A7A4)
Change A7A4 part number to 08662-60376.

CHANGE 49

Page 6-51, Table 6-3:
Change A4A9R1 to 0757-0159 (CD5) RESISTOR 1K 1% .5W F TC=0+-100.
Page 6-52, Table 6-3:
Change A4A9R71 to 0683-2265 (CD1) RESISTOR 22M 5% .25W FC TC=-900/+1200.
Change A4A9U8 to 1826-0753 (CD3) IC OP AMP LOW-BIAS-H-IMPD QUAD 14-DIP-C.

Page 8-523/524, Figure 8-539 Service Sheet 40 (Schematic--A4A9)
Change U8 part number to 1826-0753 in table of Transistor and Integrated Circuit Part Numbers.
Change the values of R1 to 1k, and R71 to 22M.

CHANGE 50

Page 6-20, Table 6-3:
Change the following part numbers:
A3A4CR7 and CR8 0122-0173 (CD8) DIODE-VVC 29PF 10% C3/C25-MIN=5 BVR-30V.

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CHANGE 50 (cont'd)

Page 6-21, Table 6-3:
Change the following part numbers:
A3A4R1 2100-2516 (CD3) RESISTOR-TRMR 100K 10% C SIDE ADJ 1-TRN.
A3A4R10 0698-3154 (CD0) RESISTOR 4.22K 1% .125W F TC=0+-100.
A3A4R12 0698-3158 (CD4) RESISTOR 23.7K 1% .125W F TC=0+-100.
A3A4R13 0757-0123 (CD3) RESISTOR 34.8K 1% .125W F TC=0+-100.
A3A4R16 0698-3160 (CD8) RESISTOR 31.6K 1% .125W F TC=0+-100.
A3A4R24 0698-3447 (CD4) RESISTOR 422 1% .125W F TC=0+-100.
A3A4R25 0757-0280 (CD3) RESISTOR 1K .125W F TC=0+-100.

Page 6-26, Table 6-3:
Change the following part numbers:
A3A7CR13 and CR14 0122-0173 (CD8) DIODE-VVC 29PF 10% C3/C25-MIN=5 BVR=30V.

Page 6-27, Table 6-3:
Change the following part numbers:
A3A7R5* 0757-0438 (CD3) RESISTOR 5.11K 1% .125W F TC=0+-100.
A3A7R10 0757-0438 (CD3) RESISTOR 5.11K 1% .125W F TC=0+-100.
A3A7R12 0698-3154 (CD0) RESISTOR 4.22K 1% .125W F TC=0+-100.
A3A7R13 0757-0199 (CD3) RESISTOR 21.5K 1% .125W F TC=0+-100.
A3A7R15 0757-0123 (CD3) RESISTOR 34.8K 1% .125W F TC=0+-100.
A3A7R17 0698-3159 (CD5) RESISTOR 26.1K 1% .125W F TC=0+-100.
A3A7R20 0757-0464 (CD5) RESISTOR 90.9K 1% .125W F TC=0+-100.

Page 8-617, Figure 8-629 Service Sheet 48 (Schematic--A3A4)
Change the following component values:
R1, 100k
R10, 3.83k
R12, 23.7k
R13, 34.8k
R16, 31.6k
R24, 422
R25, 1k

Page 8-623, Figure 8-638 Service Sheet 51 (Schematic--A3A7)
Change the following component values:
R5*, 5.11k
R10, 5.11k
R12, 4.22k
R13, 21.5k
R15, 34.8k
R17, 26.1
R20, 90.9k

CHANGE 51

Page 6-82, Table 6-3:
Change A6A9 part number to 08662-60326 (CD1).

Page 8-411, Figure 8-415 Service Sheet 22 (Schematic--A6A9)
Change A6A9 Assembly part number to 08662-60326.

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CHANGE 52

Page 6-6, Table 6-3:
Change part number of A1A2J1 to 1251-8828
Add under A1A2J1 1251-5595 (CD2) POLARIZING KEY-POST CONN
Page 6-7, Table 6-3:
Change part number of A1A3J1 to 1251-8828
Add under A1A3J1 1251-5595 (CD2) POLARIZING KEY-POST CONN
Page 6-15, Table 6-3:
Change part number of A2A10J3 to 1252-1335
Add under A1A10J3 1251-5595 (CD2) POLARIZING KEY-POST CONN
Page 6-24, Table 6-3:
Change A3A6Q13 part number to 1854-1046
Page 6-30, Table 6-3:
Change A3A9Q1 part number to 1854-1046
Page 6-34, Table 6-3:
Change A4A1Q6 part number to 1854-1046
Change A4A1Q16 part number to 1854-1046
Change A4A1Q17 part number to 1854-1046
Page 6-47, Table 6-3:
Change A4A7Q2 part number to 1854-1046
Page 6-72, Table 6-3:
Change A6A4Q7 part number to 1854-1046
Page 6-77, Table 6-3:
Change A6A5Q13 part number to 1854-1046
Page 6-87, Table 6-3:
Change A7A2Q2 part number to 1854-1046
Page 6-103, Table 6-3:
Change W49 to 08663-60370 CD6.

Page 8-621, Figure 8-635 Service Sheet 50 (Transistor Part Numbers)
Change Q13 part number to 1854-1046
Page 8-625, Figure 8-641 Service Sheet 52 (Transistor Part Numbers)
Change Q1 part number to 1854-1046
Page 8-513, Figure 8-518 Service Sheet 35 (Transistor Part Numbers)
Change Q6, Q16, and Q17 part numbers to 1854-1046
Page 8-517, Figure 8-524 Service Sheet 37 (Transistor Part Numbers)
Change Q2 part number to 1854-1046
Page 8-423, Figure 8-433 Service Sheet 28 (Transistor Part Numbers)
Change Q7 part number to 1854-1046
Page 8-417, Figure 8-424 Service Sheet 25 (Transistor Part Numbers)
Change Q14 part number to 1854-1046
Page 8-637, Figure 8-658 Service Sheet 57 (Transistor Part Numbers)
Change Q2 part number to 1854-1046

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CHANGE 53

Page 6-59, Table 6-3:
Delete A5A5CR6-CR9.
Page 6-60, Table 6-3:
Change A5A5R53 to 2100-3056 (CD5) RESISTOR-TRMR 3K 10% WW T-ADJ 1-TRN.
Change A5A5R54 to 0757-0401 (CD0) RESISTOR 100 1% .125W F TC=0+-100.
Change A5A5R58 to 0698-3412 (CD3) RESISTOR 3.83K 1% .5W F TC=0+-100.
Change A5A5R59 to 0757-0459 (CD8) RESISTOR 56.2K 1% .125W F TC=0+-100.
Change A5A5R60 to 0698-7225 (CD4) RESISTOR 348 1% .05W F TC=0+-100.
Change A5A5R61 to 0757-0200 (CD7) RESISTOR 5.62K 1% .125W F TC=0+-100.
Delete A5A5R62-R73.

Page 8-607, Service Sheet 43 (schematic):
On the A5A5 Assembly, make the following changes:
Delete CR6-CR9.
Change the value of R53 to 3000.
Change the value of R54 to 100.
Change the value of R58 to 3830.
Change the value of R59 to 56.2k.
Change the value of R60 to 348.
Change the value of R61 to 5620.
Delete R62-R73.

>> CHANGE 54

Page 6-42, Table 6-3:
Change A4A4R49 to 0699-1948 (CD8) RESISTOR 46.4 1% .05W.

>> CHANGE 55

Page 6-40, Table 6-3:
Change A4A4 to 08662-60377.
Change A4A4C25 to 0160-4885 (CD7) CAPACITOR-FXD 8.2PF +-2% 200VDC CER
Change A4A4C26 to 0160-4522 (CD9) CAPACITOR-FXD 13PF +-5% 200VDC CER
Change A4A4C35 to 0160-4885 (CD7) CAPACITOR-FXD 8.2PF +-2% 200VDC CER
Change A4A4C36 to 0160-4522 (CD9) CAPACITOR-FXD 13PF +-5% 200VDC CER
Delete A4A4C45.
Page 6-41, Table 6-3:
Add A4A4E1 and A4A4E2 after A4A4DS1 as follows:
A4A4E1 9170-0029 (CD3) CORE SHIELDING BEAD 28480 9170-0029
A4A4E2 9170-0029 (CD3) CORE SHIELDING BEAD 28480 9170-0029
Delete A4A4Q3.
Page 6-42, Table 6-3:
Change A4A4R5 to 0698-3444 (CD1) RESISTOR 316 1% .125W F TC=0+-100
Change A4A4R27 to 0698-3629 (CD4) RESISTOR 270 5% 2W MO TC-0+-100
Change A4A4R32 to 0698-7194 (CD6) RESISTOR 17.8 1% .05W F TC=0+-100
Delete the following;
A4A4R36 0698-7236
A4A4R38 0698-0084
A4A4R39 0698-3151
Page 6-43, Table 6-3:
Change A4A4U6 to 1813-0219 CD9 IC WIDEBAND AMPL TO-39 PKG and delete associated heat sink (1205-0206).

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CHANGE 55 (cont'd)

Page 8-502, A4A4 Component Locations:
Delete C45, Q3, R36, R38, R39.
Page 8-503, SS30 (schematic):
Change the A4A4 board part number to 08662-60377 CD2.
Change the following values to the new values shown.
C25 and C35, 8.2 pF.
C26 and C36, 13 pF.
R5, 316 ohms.
R27, 270 ohms.
R32, 17.8 ohms.
Delete C45, Q3, R36, R38, R39.

>> **CHANGE 56**

Page 5-3, Table 5-1:
Change the A3A3R88*, Range of Values to 4.64K Ohm to 10K Ohm.
Page 6-19, Table 6-3:
Change A3A3R80 and R81 to 0698-7217 CD5 RESISTOR 162 1% .05W F TC=0+-100
Page 6-21, Table 6-3:
Change A3A4R24 to 0698-3432 CD7 RESISTOR 26.1 1% .125W F TC=0+-100
Change A3A4R25 to 0698-3444 CD1 RESISTOR 316 1% .125W F TC=0+-100

>> **CHANGE 57**

Page 6-95, Table 6-3:
Delete the following;

B1	08662-80065	BALANCED FAN

Add the following;

B1	3160-0259	CD4 FAN-TBAX 120-CFM 115V 50/60-HZ 2KV-DIEL

Page 6-99, Table 6-3:
Delete the following;

MP52	08662-00057	REAR PANEL

Add the following;

MP52	08662-20331	CD4 REAR PANEL

Page 6-100, Figure 6-4.
Replace Figure 6-4 with the attach "*Figure 6-4, Rear Panel Illustrated Parts Breakdown (Part of CHANGE 57)* in this change sheet.
Page 6-101, Table 6-3:
Delete the following;

MP102	08662-00057	FAN COVER
MP103	86701-00017	DISK SHIELD
MP133	2510-0045	SCREW
MP134	3050-0001	WASHER

Add the following;

MP102	08662-00227	CD5 FAN COVER
MP103	3160-0092	CD3 FAN SHIELD
MP133	2190-0198	CD2 WASHER-SHLDR NO. 4 .123-IN-ID .312-IN-ID
MP134	1401-0230	CD3 CAP,CLEAR

Change the quantity of MP142 2260-0003 NUT,HEX from (1) to (4)
Change quantity of MP143 1250-0043 GASKET-RF CONNECTOR from (8) to (4)

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>> CHANGE 58

Page 6-42, Table 6-3:
Change A4A4R8 to 0699-1903 CD5 RESISTOR-FXD 51.1 1% F TC=0+-100

Page 8-617, Service Sheet 48:
In the upper first half of the **A3A4 N LOOP VCO** schematic, under **Gain Set Switch**, change the value of A3A3R24 to 26.1 Ohm's and A3A4R25 to 316 Ohm's.

>> CHANGE 59

Page 6-68, Table 6-3:
Change A6A3R14 and R16 to 0699-1902 CD4 RESISTOR-FXD 10 1% F TC=+-100
Change A6A3R26, R38, R51, R55, R60, R62, R69 and R75 to 0699-1902 CD5 RESISTOR-FXD 10 1% F TC=+-100
Change A6A3R28 and R43 to 0699-1903 CD5 RESISTOR-FXD 51.1 1% F TC=+-100

>> CHANGE 60

Page 1-4, Table 1-1:
In the section for SPECTRAL PURITY, change the Spurious Output Signals for subharmonically related output signals to (-75dBc to -60dBc) and add this statement to customer specifications, "Subharmonically related spurious output signals above 1280 MHz are unspecified."
Page 6-53, Table 6-3:
Delete A4A10MP1 8160-0448 CD8 RFI ROUNDSTRIP BE-CU SN-PL .062-IN-OD

>> CHANGE 61

Page 6-91, Table 6-3:
Change A8A4MP1 to 08662-00230 CD7 SUPPORT, BNC BRACKET

>> CHANGE 62

Page 6-60, Table 6-3:
Change the following:
A5A5CR6-9 1901-0040 CD1 DIODE-SW 30V 50MA
Page 6-61, Table 6-3:
Change the following:

A5A5R45	0757-0421	CD4	RESISTOR	825	1% .12W
A5A5R54	0757-0401	CD0	RESISTOR	100	1% .12W
A5A5R60	0698-7237	CD8	RESISTOR	1.1K	1% .05W
A5A5R61	0757-0461	CD2	RESISTOR	68.1K	1% .12W
A5A5R62	0698-3457	CD6	RESISTOR	316K	1% .12W
A5A5R63	0698-7248	CD1	RESISTOR	3.16K	1% .12W
A5A5R64	0757-0462	CD3	RESISTOR	75K	1% .12W
A5A5R65	0757-0462	CD3	RESISTOR	75K	1% .12W
A5A5R66	0698-7225	CD4	RESISTOR	348	1% .05W
A5A5R67	0698-3450	CD9	RESISTOR	42.2K	1% .12W
A5A5R68	0698-7238	CD9	RESISTOR	1.21K	1% .05W
A5A5R69	0698-3159	CD5	RESISTOR	26.1K	1% .12W

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CHANGE 62 (cont'd)

Page 6-61, Table 6-3:

A5A5R70 0698-7206 CD1 RESISTOR 56.2 1% .05W
A5A5R71 0698-3156 CD2 RESISTOR 14.7K 1% .12W
A5A5R72 0698-3243 CD8 RESISTOR 178K 1% .12W
A5A5R73 0698-3452 CD1 RESISTOR 147K 1% .12W

Page 8-607, Service Sheet 43:

Change the following values:
R45, 825 ohms.
R54, 100 ohms.
R60, 1.1k ohms.
R61, 68.1k ohms.
R62, 316k ohms.
R63, 3.16k ohms.
R64 and R65, 75k ohms.
R66, 348 ohms.
R67, 42.2k ohms.
R68, 1.21k ohms.
R69, 26.1k ohms.
R70, 56.2 ohms.
R71, 14.7k ohms.
R72, 178k ohms.
R73, 147k ohms.

>> **CHANGE 63**

Page 6-42, Table 6-3:

Change the the part numbers and values of the following parts:
A4A5R1* 0699-1430 (CD3) RESISTOR-CHIP 422 1%
A4A5R3A*, R3B* 0699-1503 (CD1) RESISTOR-CHIP 0
A4A5R7* 0699-1430 (CD3) RESISTOR-CHIP 422 1%
A4A5R13, R15, R31, R33, 0699-1344 (CD8) RESISTOR-CHIP 10 1%
A4A5R36, R37 0699-1427 (CD8) RESISTOR-CHIP 316 1%
A4A5R38, R39 0699-1350 (CD6) RESISTOR-CHIP 17.8 1%
A4A5R40, R41 0699-1427 (CD8) RESISTOR-CHIP 316 1%

Page 8-505, Service Sheet 31:

Change the values of the following resistors:
R1*, R7*, 825 ohms.
R3A*, R3B*, 0 ohms.
R38, R39, 17.8 ohms.
R36, R37, R40, R41, 316 ohms.

The parallel combination of R3A and R3B replace the existing R3.

Delete reference to NOTE 1 as this note does not apply to the new chip resistors added in this change.

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>> CHANGE 64

Page 6-84, Table 6-1:
Change A7A1 board part number to 08662-60347 (CD6)
Page 6-85, Table 6-1:
Change the following:
A7A1Q4 1884-0330 (CD4) THYRISTOR-TRIAC
A7A1Q6 1884-0330 (CD4) THYRISTOR-TRIAC
A7A1Q8 1884-0330 (CD4) THYRISTOR-TRIAC

Page 8-633, Service Sheet 56:
Change board part number to 08662-60347.
Change the part numbers of Q4, Q6, and Q8 to 1884-0330 in the table *Transistor and Integrated Circuit Part Numbers.*

>> CHANGE 65

Page 6-85, Table 6-1:
Change A7A1CR3-5 to 1901-0831 (CD8) DIODE-ZNR 200V 5% DO-15 PD=1W TC=+.088%
Page 6-89, Table 6-1:
Change A7A3CR1-5, 12-14 to 1901-0831 (CD8) DIODE-ZNR 200V 5% DO-15 PD=1W TC=+.088%.
Change A7A3R1,2 to 0764-0045 (CD3) RESISTOR 22K 5% 2W MO TC=0+-200
Change A7A3Q3,Q4 to 1854-1060 (CD6) TRANSISTOR NPN SI TO-3 PD=175W
Page 6-90, Table 6-1:
Change A7A4R2-R3 to 0764-0045 (CD3) RESISTOR 22K 5% 2W MO TC=+-200
Change A7A4R8 to 0699-3769 (CD5) RESISTOR 5 5% 10W
Change A7A4VR2 to 1902-0668 (CD1) DIODE-ZNR 200V 5% D-15 PD=1W TC=+.088%

Page 8-631, Service Sheet 55:
In A7A3 INVERTER, under *+160V Switch Driver*, locate R1 and change the value to 22K ohm. Locate R2 under *-160V Switch Driver* and change the value to 22K ohm.
Page 8-631, Service Sheet 55:
In A7A4, POWER SUPPLY MOTHERBOARD, under *Rectifier, Filter and Voltage Doubler*, locate R2 and R3 and change to 22K ohm.
Page 8-631, Service Sheet 55:
In A7A4, POWER SUPPLY MOTHERBOARD, under *Overvoltage Crowbar*, change VR2 to 200V.

>> CHANGE 66

Page 6-95, Table 6-1:
Change B1 as follows:
For serial prefixes "2652A and below" order the following;
08662-60344 CD3 BALANCED FAN REPLACEMENT KIT
For serial prefixes "2703A and above" order the following;
08662-80065 CD7 BALANCED FAN
Page 6-97, Table 6-1:
Change MP2 to 08662-00233 (CD9) SUB-PANEL.

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>> CHANGE 67

Page 6-70, Table 6-3:
Change A6A4 to 08662-60358 CD9 PHASE DETECTOR, OUTPUT SUM (OS) LOOP AY
Page 6-72, Table 6-3:
Change A6A4MP1 to 08662-00229 CD7
Change A6A4MP4 to 08662-80066 CD8
Page 6-74, Table 6-3:
Change A6A4U7, U8 to 1826-1633 CD8 IC BFR TTL S INV OCTL 1-INP
Page 6-74, Table 6-3:
Change A6A4W1 to 08662-20292 CD6
Page 6-74, Table 6-3:
Change A6A5 to 08662-60357 CD8 PHASE DETECTOR, REF. SUM (RS) LOOP ASSY
Page 6-76, Table 6-3:
Change A6A5W1 to 08662-20292 CD6
Page 6-79, Table 6-3:
Change A6A5MP1 to 08662-00228 CD6
Page 6-79, Table 6-3:
Change A6A5U7, U8 to 1826-1633 CD8 IC BFR TTL S INV OCTL 1-INP

Page 8-415, Service Sheet 24;
Change the board number of A6A4 to 08662-60358.
Page 8-417, Service Sheet 25;
Change the board number of A6A4 to 08662-60358.
Under DUAL CMOS SWITCH #1 locate U8B and change pin 5 to 4, pin 4 to 2 and pin 2 to 6. Locate U8A and change pin 8 to 11, pin 9 to 13 and pin 1 to 9.
Under OUT-OF-LOCK DISCRIMINATOR delete the connection between U11 pin 5 and 6.
Under TTL TRIGGER locate U9C, delete the connection from U9C pin 8 leading to U8A pin 9 and draw a connection from U9C pin 8 to U11 pin 6 under OUT-OF-LOCK DISCRIMINATOR.

In the far right hand corner under DUAL CMOS SWITCH #2 complete the following:
Change U7A pin 9 to pin 4.
Change U7A pin 1 to pin 6.
Change U7A pin 8 to pin 2.
Change R150 to R151 1470 ohm.

In the far right hand corner under DUAL CMOS SWITCH #2 complete the following:
Change U7B pin 2 to pin 9.
Change U7B pin 4 to pin 11.
Change U7B pin 5 to pin 13.
Change R151 to R150 1470 ohm.

In the far right hand corner of the schematic change DUAL-OR to DUAL-NOR. Delete the +5V(F1) and U6D and connect U9A directly to U7A pin 6. In the far right hand corner delete the +5V(F1) and U6C and connect U9B directly to U7B pin 9.

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CHANGE 67 (cont'd)

Page 8-423, Service Sheet 8;
Change the board number of A6A5 to 08662-60357.
Page 8-425/426, Service Sheet 29;
Change the board number of A6A5 to 08662-60357.
Under DUAL CMOS SWITCH #1 locate U8B and change pin 5 to 4, pin 4 to 2 and pin 2 to 6. Locate U8A and change pin 8 to 11, pin 9 to 13 and pin 1 to 9.
Under OUT-OF-LOCK DISCRIMINATOR delete the connection between U11 pin 5 and 6.
Under TTL TRIGGER locate U9C, delete the connection from U9C pin 8 leading to U8A pin 9 and draw a connection from U9C pin 8 to U11 pin 6 under OUT-OF-LOCK DISCRIMINATOR

In the far right hand corner under DUAL CMOS SWITCH #2 complete the following:
Change U7A pin 9 to pin 4.
Change U7A pin 1 to pin 6.
Change U7A pin 8 to pin 2.
Change R150 to R151 1470 ohm.

In the far right hand corner under DUAL CMOS SWITCH #2 complete the following:
Change U7B pin 2 to pin 9.
Change U7B pin 4 to pin 11.
Change U7B pin 5 to pin 13.
Change R151 to R150 1470 ohm.

In the far right hand corner of the schematic change DUAL-OR to DUAL-NOR. Delete the +5V(F1) and U6D and connect U9A directly to U7A pin 6. In the far right hand corner delete the +5V(F1) and U6C and connect U9B directly to U7B pin 9.

>> CHANGE 68

Page 6-17, Table 6-3:
Change A3A3CR1-4 to 1900-0089 CD6 DIODE-SM SIG SCHOTTKY
Page 6-19, Table 6-3:
Change A3A3R80 and R81 to 0698-7216 CD3 RESISTOR 147 1% .05W F TC=0+-100 24546 C3-1/8-TO-147R-F
Page 8-615, Service Sheet 47:
Locate *PHASE DETECTOR* in the top left of the schematic and change the value of R80 and R81 to 147 ohms.

>> CHANGE 69

Page 6-29, Table 6-3:
Change A3A8R6 to 0698-7256 CD3 RESISTOR 311 .1% .23W F TC=0+-100
Change A3A8R12 to 0698-3455 CD4 RESISTOR 261K 1% .125W F TC=0+-100
Page 6-82, Table 6-3:
Add A6A8C26 to 0160-5971 CD4 CAPACITOR-FXD 4.7PF +-.5PF 50VDC CER

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CHANGE 69 (cont'd)

Page 8-421, Service Sheet 27:
Add C26 to ground between R10 and U2 pin 1, and give it a value of 4.7p.
Page 8-629, Service Sheet 54:
Under **CURRENT-TO-VOLTAGE CONVERTER** locate R6 and change its value to 6.8k ohms. Under **SHAPING NETWORK** locate R12 and change its value to 261k ohms.

>> CHANGE 70

Page 6-38, Table 6-3:
Change A4A2R43 to 0698-3154 CD0 RESISTOR 4.22K 1% .125W F TC=0+-100.

Page 8-509, Service Sheet 33:
In the upper left hand corner of the schematic locate R43 under **BIAS** and change its value to 4.22K.

>> CHANGE 71

Page 6-84: Table 6-3:
Change A6A9U1 to 08662-80085 CD1.
Change A6A9U2 to 08662-80086 CD2.
Change A6A9U3 to 08662-80087 CD3.
Page 6-90: Table 6-3:
Change A8A1 to 08662-60401 CD3.
Change A8A2 to 08662-60417 CD1.

Page 8-415, Service Sheet 24:
Change the A8A2 part number to 08662-60417.
Page 8-423, Service Sheet 28:
Change the A8A1 part number to 08662-60401.

>> CHANGE 72

Page 6-40, Table 6-3:
Change the A4A4 assembly part number to 08662-60405 CD7.
Delete A4A4C20 and A4A4C22.
Page 6-41, Table 6-3:
Change A4A4J1-J4 to 1250-2090 CD6 CONNECTOR 15-PIN PC EDGE ADAPTOR.
Change A4A4L40 to 9135-0075 CD5 INDUCTOR .051 UH.
Change A4A4L41-43 to 9100-3922 CD4 COIL, 3.0 UH.
Page 6-42, Table 6-3:
Change A4A4R19-23 to 0698-3441 CD8 RESISTOR 215 1% .125W F TC=0+-100
24546 C4-1/8-T0-215R-F.
Change A4A4R28 to 0757-0421 CD3 RESISTOR 365 1% .125W F TC=0+-100
24546 C4-1/8-T0-365R-F.
Delete A4A4R60.
Change A4A4R69-71 to 0757-0421 CD3 RESISTOR 365 1% .125W F TC=0+-100
24546 C4-1/8-T0-365R-F.

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>> CHANGE 72 (cont'd)

Page 8-502, Component Locator:
Use the attached A4A4 component locator **Figure 8-501. A4A4 Output Section Distributor Component Locations (P/O Change 72).**

Page 8-503, Service Sheet 30:
Use the attached schematic foldouts **Figure 8-503. A4A4 Output Section Distributor Schematic (P/O Change 72).**

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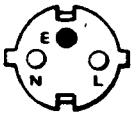
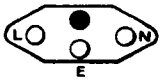
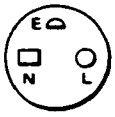
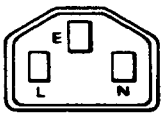
Plug Type	Cable HP Part Number	C D	Plug Description	Cable Length (inches)	Cable Color	For Use In Country
250V	8120-1351 8120-1703	0 4	90°/STR BS1363A* 90°/90°	90 90	Mint Gray Mint Gray	United Kingdom, Cyprus, Nigeria, Rhodesia, Singapore
250V	8120-1369 8120-0696	0 4	STR/STR NZSS198/ASC112* STR/90°	79 80	Gray Gray	Austrailia, New Zealand
250V 	8120-1689 8120-1692	7 2	STR/STR* STR/90°	79 79	Mint Gray Mint Gray	East and West Europe, Saudi Arabia, Egypt, (unpolarized in many nations)
125V	8120-1378 8120-1521 8120-1751	1 6 1	STR/STR NEMA5-15P* STR/90° STR/STR	80 80 90	Jade Gray Jade Gray Jade Gray	United States, Canada, Mexico, Phillipines, Taiwan U.S./Canada
100V (Same plug as above)	8120-4753 8120-4754	2 3	STR/STR STR/90°	90 90	Dark Gray Dark Gray	Japan only Japan only
250V 	8120-2104 8120-2296 8120-3997	3 4 4	STR/STR SEV1011 1959-24507 Type 12 STR/90° STR/90°	79 79 177	Gray Gray Gray	Switzerland
250V	8120-0698	6	STR/STR NEMA6-15P	90	Black	United States, Canada
250V 	8120-2956 8120-2957 8120-3997	3 4 4	90°/STR 90°/90° STR/STR	79	Gray	Denmark
250V	8120-4211 8120-4600	7 8	STR/STR*IEC83-B1 STR/90°	79 79	Black Gray	South Africa, India
250V 	8120-1860 8120-1575 8120-2191 8120-4379	6 0 8 8	STR/STR*CEE22-V1 (Systems Cabinet Use) STR/STR STR/90° 90°/90°	59 31 59 80	Jade Gray Jade Gray Jade Gray Jade Gray	

* Part number shown for plug is industry identifier for plug only. Number shown for cable is HP Part Number for complete cable including plug. E = Earth Ground; L = Line; N = Neutral; STR = Straight

Figure 2-1. Power Cables and Mains Plug Part Numbers (P/O ERRATA)

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Electrical Characteristics	Performance Limits	Conditions
FREQUENCY MODULATION (Cont'd)		
† Indicated FM Accuracy	±8% of reading plus 10 Hz	50 Hz to 20 kHz rates
FM Resolution	100 Hz 1000 Hz	<10 kHz deviation ≥10 kHz deviation
Incidental AM (AM sidebands)	 −72 dBc −65 dBc	1 kHz rate and 20 kHz deviation 0.01 to 640 MHz 640 to 1280 MHz
FM Distortion	1.0% 1.7%	dc to 1 kHz rates 1 kHz to 20 kHz rates
Center Frequency Accuracy and Long Term Stability	Same as CW mode	Internal and external ac mode only
† Backdating information in Section 7		

Description

All modulation specifications are checked by measuring the specified parameters on a modulation analyzer. Distortion is checked by measuring the demodulated output from the modulation analyzer.

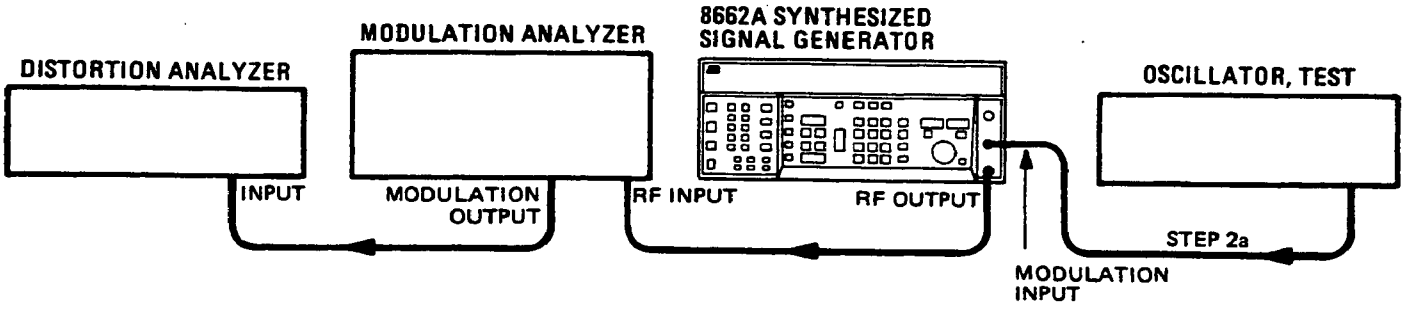

Figure 4—1. Modulation Test Setup

Equipment

Modulation Analyzer ..... HP 8901A, HP 8901B, HP 8902A
Distortion Analyzer ..... HP 8903B

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Procedure

1. Connect the RF OUTPUT of the Generator to the RF INPUT of the modulation analyzer. Set the Generator amplitude to +8.0 dBm. Set the analyzer as follows:

HP FILTER ..... 300 Hz
LP FILTER ..... 3 kHz
FM DE-EMPHASIS ..... OFF
DETECTORS: ..... PEAK + AUTOMATIC OPERATION

AM Indicated Accuracy

2. Set the Generator to 100.0 MHz, AM with INT 1k source. Set AM% to the values in the first column of the table below. Check that the modulation analyzer's readings are within the specified values given in the table.

AM Indicated (%)	Results		
	Min	Actual	Max
10	8.5	_____	11.5
30	27.5	_____	32.5
70	65.5	_____	74.5
90	84.5	_____	95.5

Repeat with the Generator set to 500.0 MHz and 1.0 GHz.

AM Indicated (%)	Results		
	Min	Actual	Max
10	8.5	_____	11.5
30	27.5	_____	32.5
70	65.5	_____	74.5
90	84.5	_____	95.5

AM Indicated (%)	Results		
	Min	Actual	Max
10	8.5	_____	11.5
30	27.5	_____	32.5
70	65.5	_____	74.5
90	84.5	_____	95.5

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Re-check accuracy at 100.0 MHz using the Generator's INT 400 source and the modulation analyzer's 50 Hz HP filter.

AM Indicated (%)	Results		
	Min	Actual	Max
10	8.5	_____	11.5
30	27.5	_____	32.5
70	65.5	_____	74.5
90	84.5	_____	95.5

NOTE

The following step checks AM accuracy at the maximum specified rates. It should be performed only if repairs have been made in the Output Section (part of A4).

2a. Connect the audio signal source of the 8903B to the Generator's MODULATION INPUT. Set the audio signal level to 1.0 Vpk (0.707 Vrms) measured at the Generator's MODULATION INPUT. On the Generator, select EXT AC and 90% AM. Change the LP Filter on the Modulation Analyzer to 15 kHz.
Set the Generator to the frequencies shown in the first column of the following table. Set the audio source to the frequencies in the second column. Measured AM depth, on the modulation analyzer, should be between 84.5 and 95.5%.

Generator Frequency (MHz)	Audio Frequency (kHz)	Results		
		Min.	Actual	Max.
1000.0	10	84.5%		95.5%
500.0	10	84.5%		95.5%
100.0	10	84.5%		95.5%
5.0	5	84.5%		95.5%
0.5	1.5	84.5%		95.5%

Incidental PM and FM

3. Set the Generator to 30% AM with INT 1k source. Set the Generator's frequency and analyzer's mode as stated in the table below, and check for the readings given in the table. Change the LP Filter on the modulation analyzer to 3 kHz.

8662A Frequency	Mode	Results	
		Actual	Max
600.0	PM	_____	0.120 rad
600.0	FM	_____	0.120 kHz
1000.0	FM	_____	0.09 kHz
1000.0	PM	_____	0.09 rad

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AM Distortion

4. Connect a cable from the MODULATION OUTPUT of the modulation analyzer to the input of the distortion analyzer. Set the Generator to 100.0 MHz. Set the modulation analyzer to AM. Set the Generator to the AM depths (INT 1k source) in the table below. Measure distortion at each setting and compare it to the specified value given in the table. Change the LP Filter on the modulation analyzer back to 15 kHz.

AM Indicated (%)	Results	
	Actual	Max
30	_____	2.0%
70	_____	4.0%
90	_____	5.75%

Repeat the distortion measurements at frequency settings of 600.0 MHz and 1.0 GHz.

AM Indicated (%) for 600 MHz	Results	
	Actual	Max
30	_____	2.0%
70	_____	4.0%
90	_____	5.75%

AM Indicated (%) for 1.0 GHz	Results	
	Actual	Max
30	_____	2.0%
70	_____	4.0%
90	_____	5.75%

FM Indicated Accuracy

5. Set the Generator to 100.0 MHz and FM mode with the INT 1k source. Set FM deviation to the values in the table below. Set the modulation analyzer to FM mode with the LP Filter set to 3 kHz, and check that the readings are within the specified values given in the table.

FM Indicated	Results		
	Min	Actual	Max
10 kHz	9.19 kHz	_____	10.81 kHz
30.0 kHz	27.59 kHz	_____	32.41 kHz
70.0 kHz	64.39 kHz	_____	75.61 kHz
100.0 kHz	91.99 kHz	_____	108.01 kHz

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5-26. DOUBLER FILTER TRACKING ADJUSTMENTS (P/O Change 4)

REFERENCE: Service Sheet 33.

DESCRIPTION: The DOUBLER-FILTER TRACKING LOW pot, A4A2R40, and the DOUBLER-FILTER TRACKING HIGH pot, A4A2R29, set the output voltage range of the D/A converter A4A2U5 to match the characteristics of the voltage-tuned filter which is part of the Doubler-Filter A4A2U2. The MODULATOR-FILTER TRACKING LOW pot, A4A2R56, and the MODULATOR-FILTER TRACKING HIGH pot, A4A2R58, set the tune voltage for the voltage-tuned filter which is part of the Modulator-Filter A4A2U3 so that it will track the voltage-tuned filter in the Doubler-Filter A4A2U2.

NOTE

This is a factory adjustment and should not be performed as a part of normal calibration. If repairs are made to the A4A2 Doubler Assembly, carefully follow this adjustment procedure.

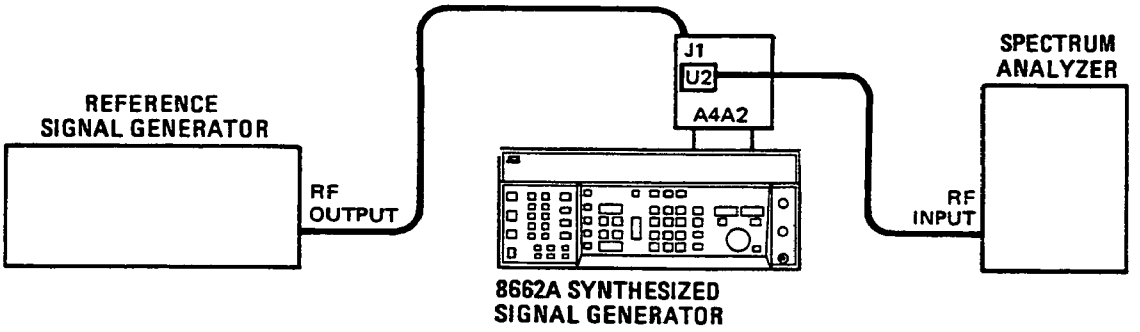


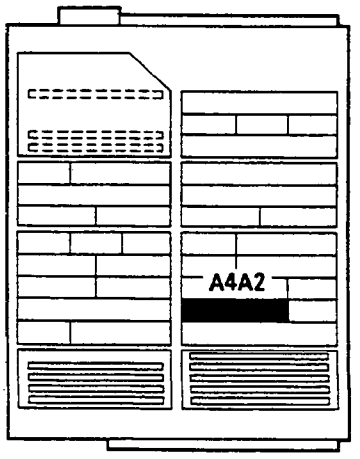
Figure 5-26. Doubler-Filter Tracking Adjustment Setup (P/O Change 4)

EQUIPMENT:

Spectrum Analyzer, RF	HP 8558B/181T
Reference Signal Generator	HP 8662A
Digital Voltmeter (DVM)	HP 3466A

PROCEDURE:

1. Remove the A4A7 assembly. (This removes the Doubler Band AGC/AM signal from the A4A2 assembly.) Install the A4A2 assembly on an extender board. Connect the reference signal generator to A4A2J1 using an RF cable.
2. Remove the cable A4A2W1 running between the two microcircuits. Connect an RF cable from the output of A4A2U2 (bottom connector of the left microcircuit) to the input of the spectrum analyzer.
3. Set the reference signal generator to 320.5 MHz at +1 dBm. Set the Signal Generator front panel frequency to 641 MHz. On the spectrum analyzer, set the scan width to 10 MHz/div. and the center frequency to 641 MHz.



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5-26. DOUBLER FILTER TRACKING ADJUSTMENTS (P/O Change 4) (Cont'd)

4. View the 641 MHz signal on the spectrum analyzer. Adjust the spectrum analyzer for a reference level of approximately +10 dBm.

5. Tune the reference signal generator from 295 MHz to 345 MHz. Adjust the DOUBLER-FILTER TRACKING LOW pot, A4A2R40, for symmetrical −3 dB points around the 641 MHz center frequency on the spectrum analyzer display (see Figure 5-27).

6. Set the reference signal generator to 639.5 MHz at +1 dBm. Set the Signal Generator front panel frequency to 1279 MHz.

7. Set the spectrum analyzer to a center frequency of 1279 MHz, an RF level of approximately +10 dBm, and a scan width of 20 MHz/div.

8. Tune the reference signal generator from 590 MHz to 690 MHz. Adjust the DOUBLER-FILTER TRACKING HIGH pot, A4A2R29, for symmetrical −3 dB points around the 1279 MHz center frequency on the spectrum analyzer display (see Figure 5-27).

NOTE

The adjustments are now complete for the Doubler-Filter A4A2U2. The following adjustment procedure will set the MODULATOR-FILTER TRACKING LOW pot, A4A2R56, and MODULATOR-FILTER TRACKING HIGH pot, A4A2R58, so that the voltage-tuned filter in the Modulator-Filter A4A2U3 will track the voltage-tuned filter in the Doubler-Filter A4A2U2.

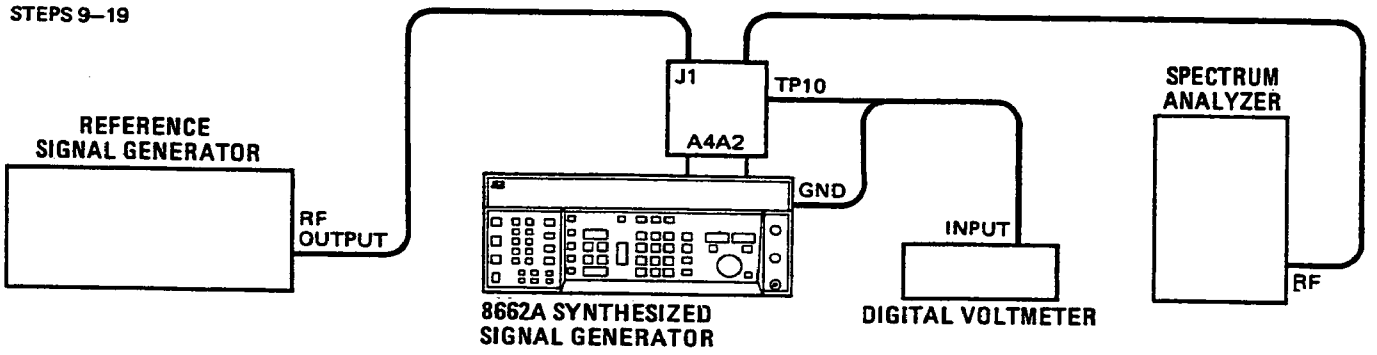

Figure 5-26A. Modulator-Filter Tracking Adjustment Setup (P/O Change 4)

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5-26. DOUBLER FILTER TRACKING ADJUSTMENTS (P/O Change 4) (Cont'd)

CAUTION

The output of A4A2J2 is at a dc level of about +12 Vdc. Some spectrum analyzers are dc coupled and cannot be connected directly to this output. If the input of the spectrum analyzer is dc coupled, a blocking capacitor adapter must be used in series with the input or damage could occur.

9. Disconnect the spectrum analyzer from the output of A4A2U2 and reconnect the A4A2W1 cable that runs between the two microcircuits. Connect the spectrum analyzer to A4A2J2.

10. Connect a 4.22 kΩ resistor between A4A2TP6 and A4A2TP9.

11. Set the reference signal generator to 320.5 MHz at +1 dBm. Set the Signal Generator front panel frequency to 641 MHz. Set the spectrum analyzer scan width to 10 MHz/div., center frequency to 641 MHz, and reference level to approximately +7 dBm.

12. Tune the reference signal generator from 295 MHz to 345 MHz and adjust the MODULATOR-FILTER TRACKING LOW pot, A4A2R56, for symmetrical −3 dB points around the 641 MHz center frequency on the spectrum analyzer display (see Figure 5-27).

13. Connect the DVM to A4A2TP10. Measure the dc voltage and record it for later use.

_____ Vdc

14. Set the reference signal generator to 550 MHz at +1 dBm. Set the Signal Generator front panel frequency to 1100 MHz. Set the spectrum analyzer scan width to 20 MHz/div., center frequency to 1100 MHz, and reference level to approximately +7 dBm.

15. Tune the reference signal generator from 500 MHz to 600 MHz and adjust the MODULATOR-FILTER TRACKING HIGH pot, A4A2R58, for symmetrical −3 dB points around the 1100 MHz center frequency on the spectrum analyzer display (see Figure 5-27).

16. Measure the dc voltage at A4A2TP10 and record it for later use,

_____ Vdc

17. Set the Signal Generator front panel frequency to 641 MHz and adjust the MODULATOR-FILTER TRACKING LOW pot, A4A2R56, for the same voltage as recorded in step 13 ±10 mVdc.

18. Set the Signal Generator front panel frequency to 1100 MHz and adjust the MODULATOR-FILTER TRACKING HIGH pot, A4A2R58, for the same voltage as recorded in step 16 ±10 mVdc.

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5-26. DOUBLER FILTER TRACKING ADJUSTMENTS (P/O Change 4) (Cont'd)

19. Repeat steps 17 and 18. The MODULATOR-FILTER TRACKING LOW and HIGH pots, A4A2R56 and A4A2R58 respectively, are interactive, so it may be necessary to repeat these adjustments several times.

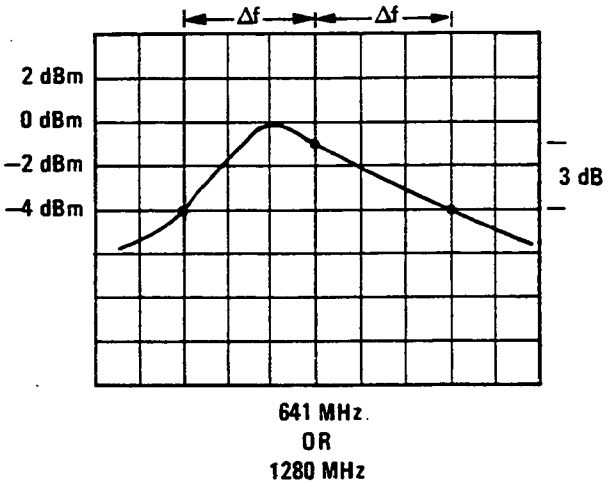

Figure 5-27. Adjustment of Symmetrical Frequency Difference at –3 dB Points (P/O Change 4)

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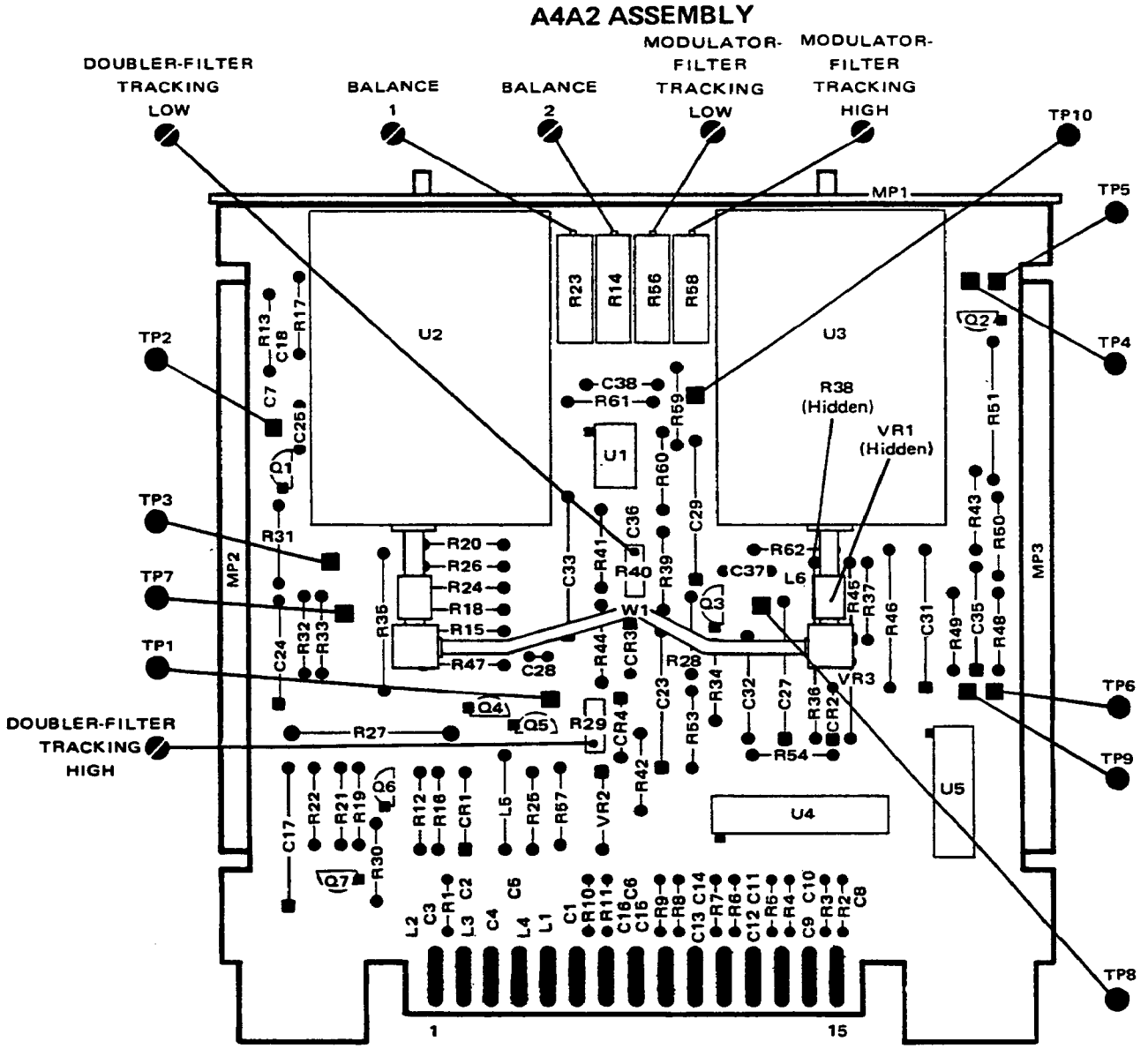

Figure 8-510. A4A2 Output Section Doubler Component Locations (P/O Change 4)

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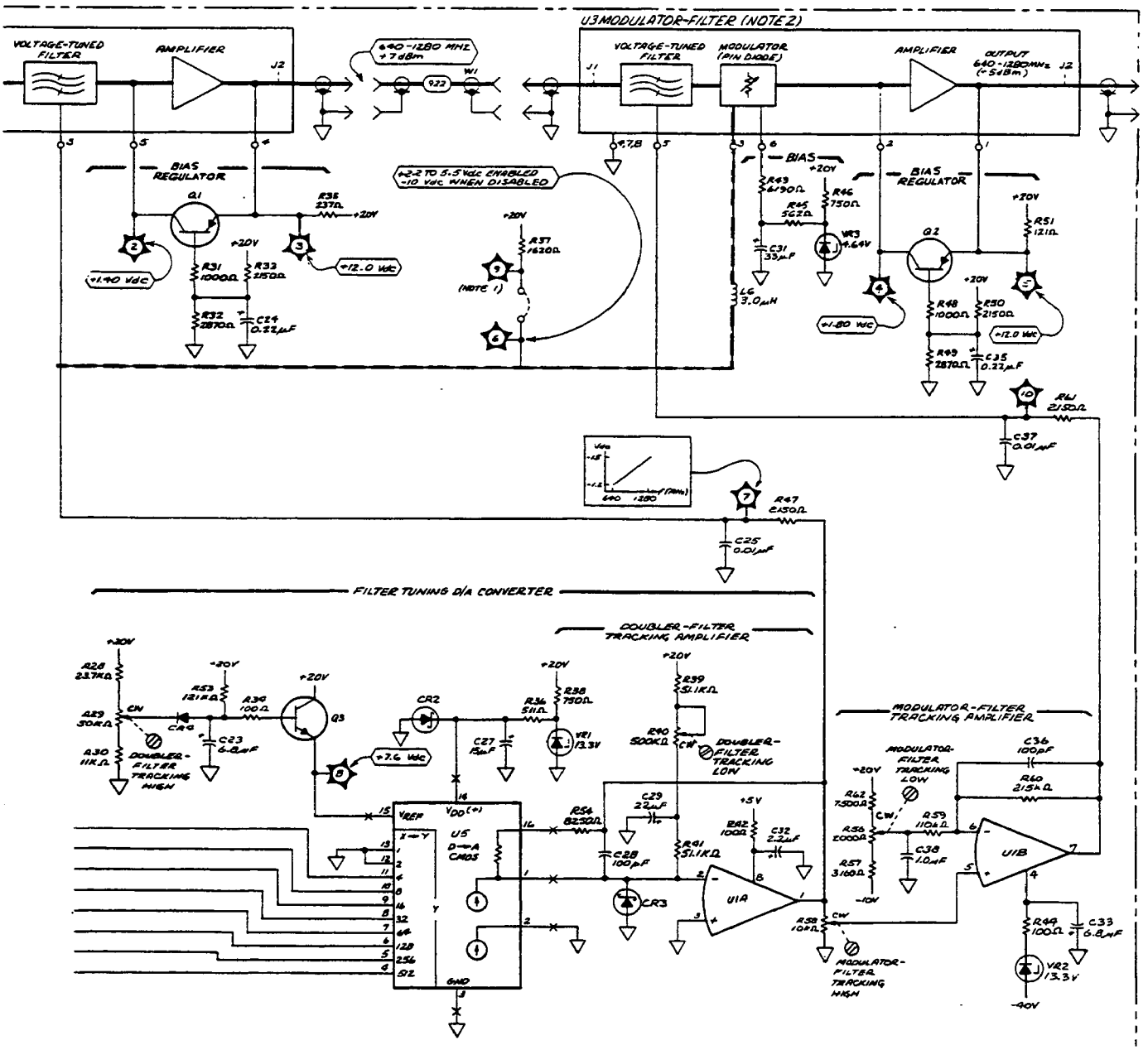

P/O Figure 8-512. A4A2 Output Section Doubler Schematic (P/O Change 4)

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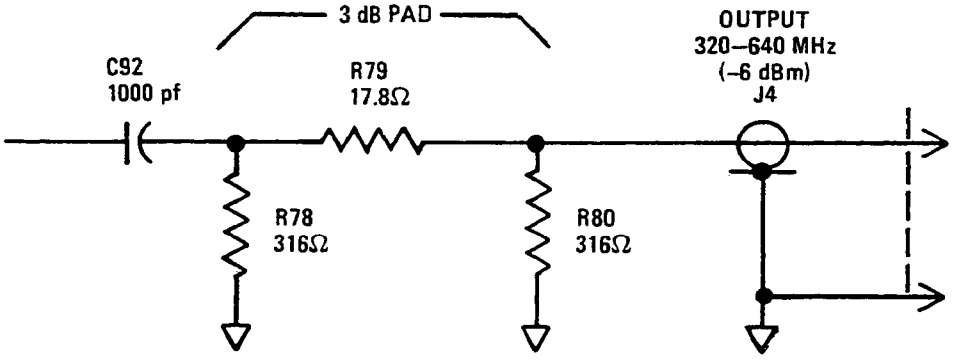

P/O Schematic 20, A6A3 HF Multiplier (P/O Change 6)

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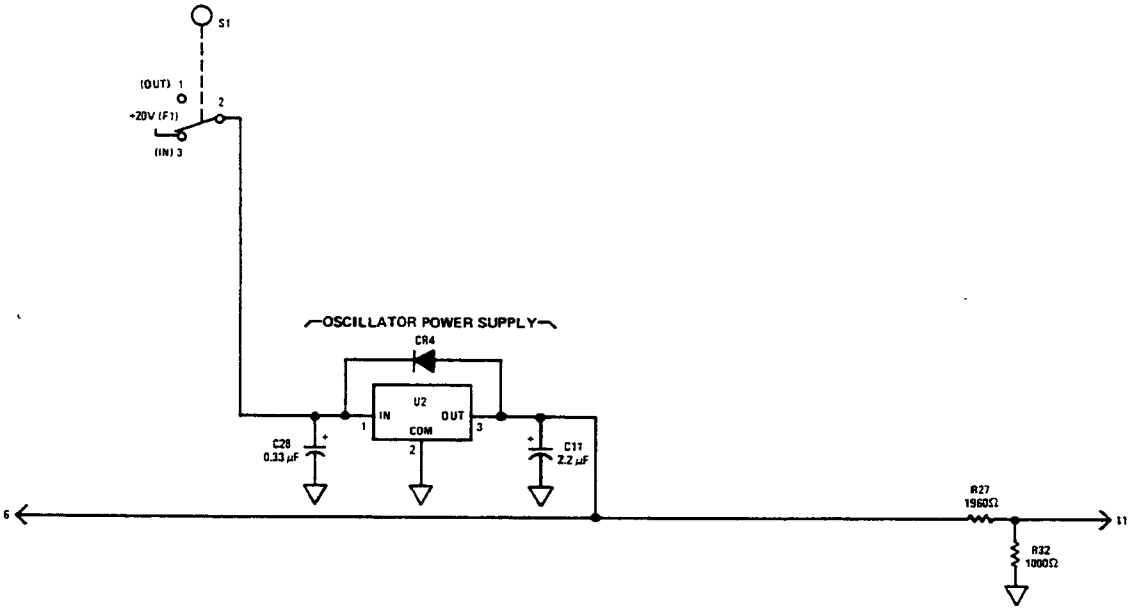

P/O Schematic 18, A8A3 and A8A4 10 MHz Reference Oscillator and Buffer (P/O Change 7)

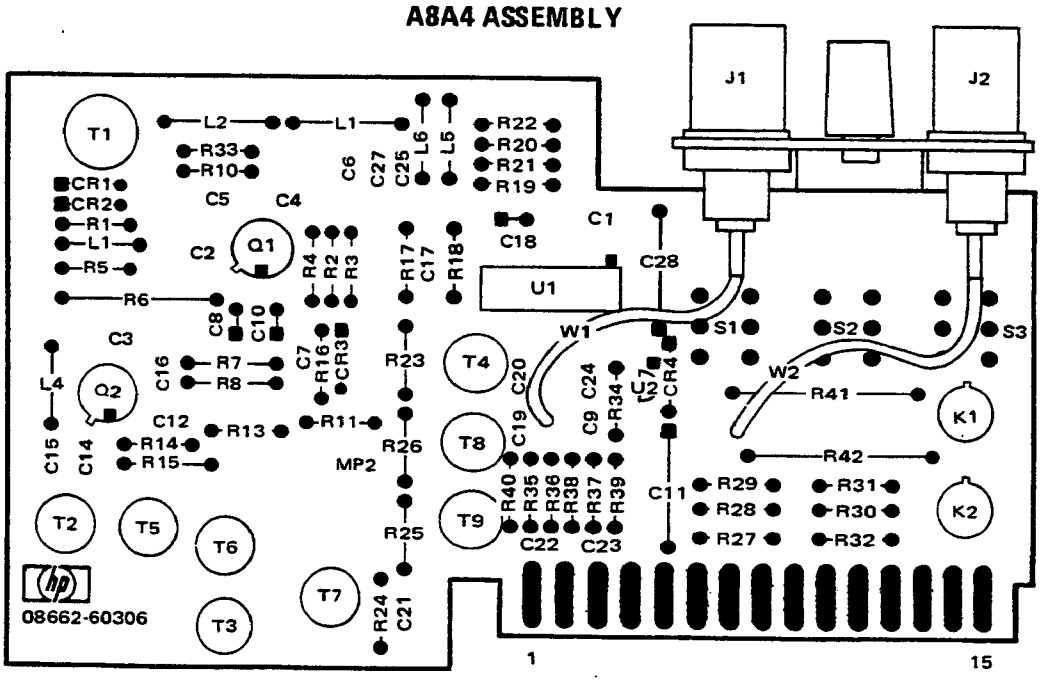

Figure 8-401. A8A4 Reference Buffer Component Locations (P/O Change 7)

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P/O A2A6 ASSEMBLY

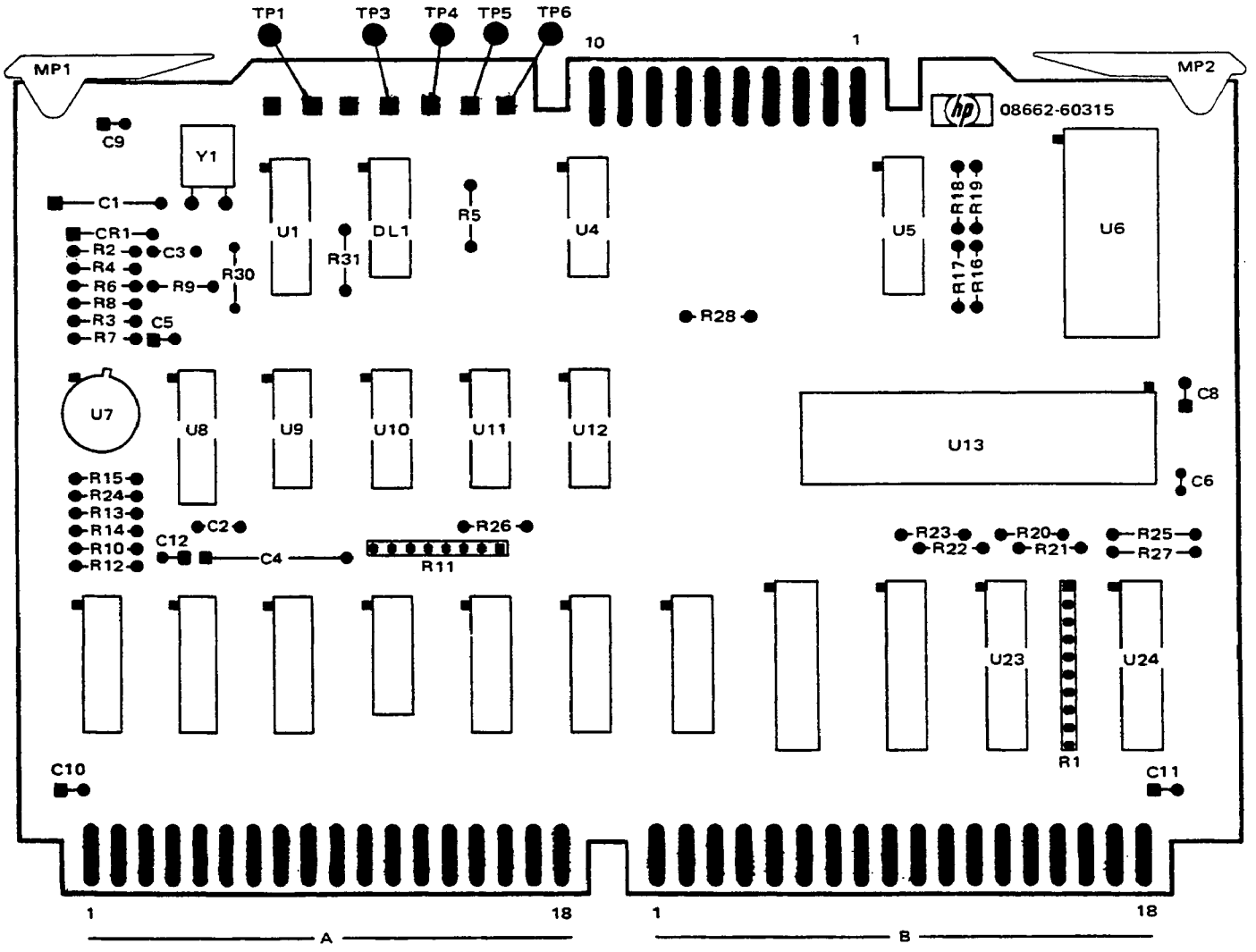

Figure 8-316. P/O A2A6 Microprocessor/Decoder Component Locations (P/O Change 10)

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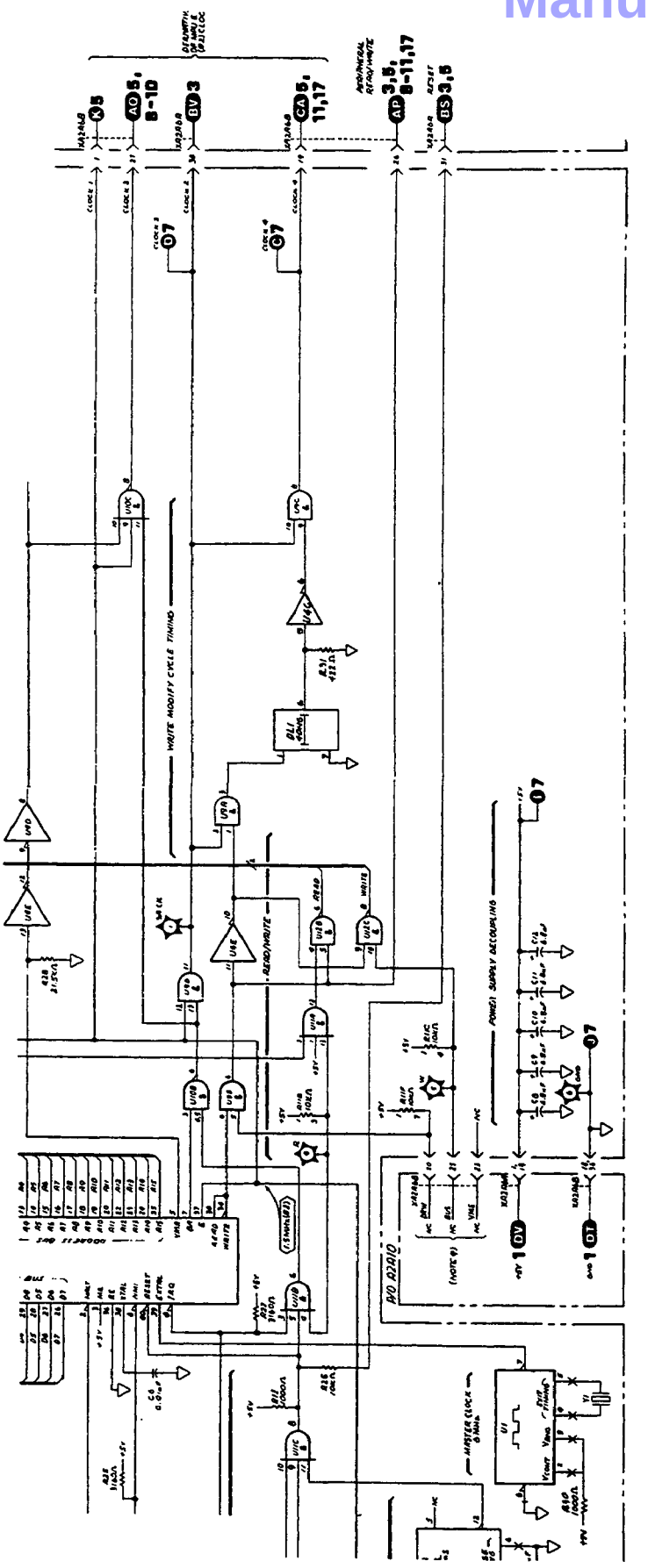

P/O Schematic 6, P/O A2A6 Microprocessor/Decoder (P/O Change 10)

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P/O A2A6 ASSEMBLY

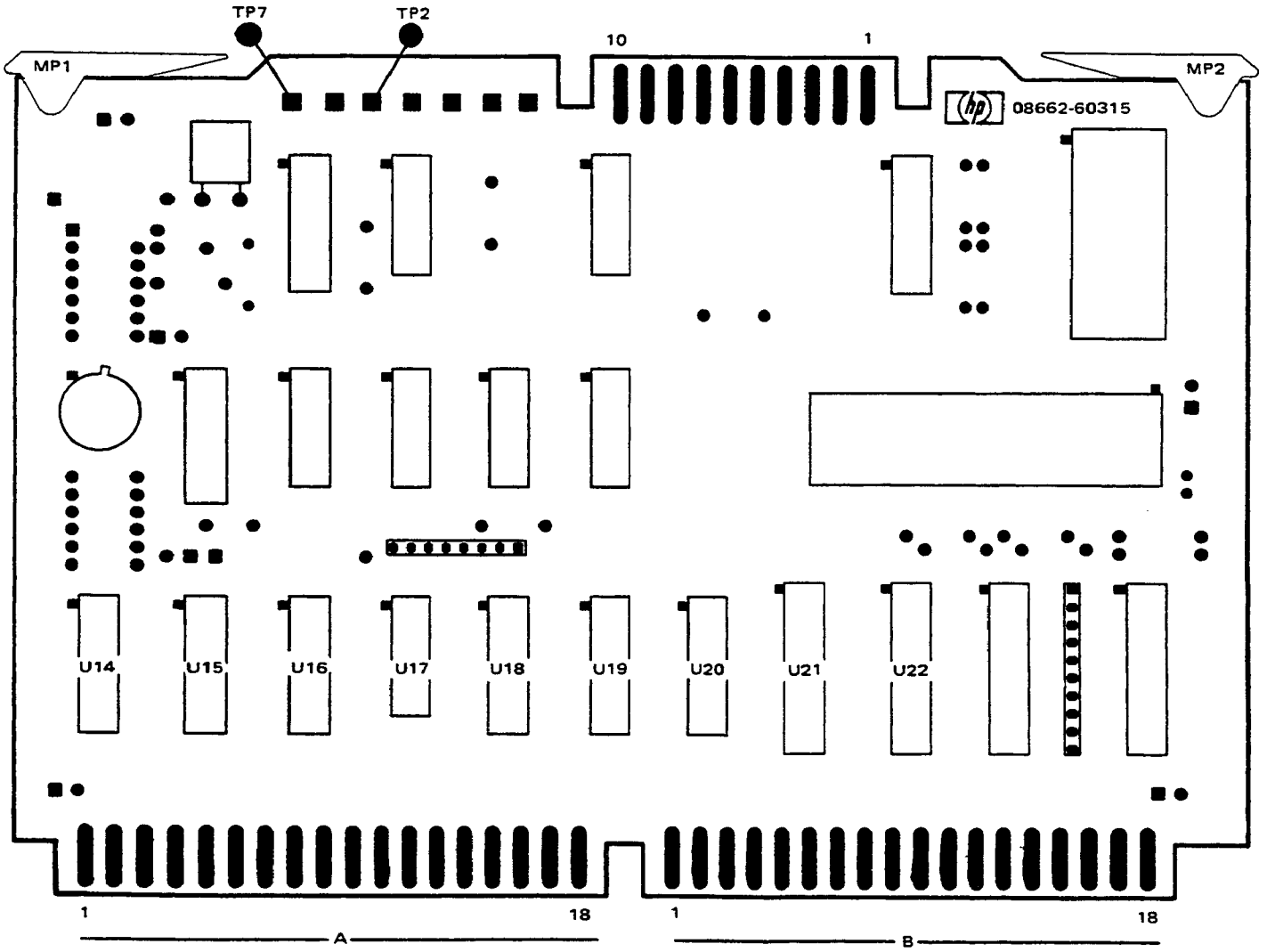

Figure 8-319. P/O A2A6 Microprocessor/Decoder Component Locations (P/O Change 10).

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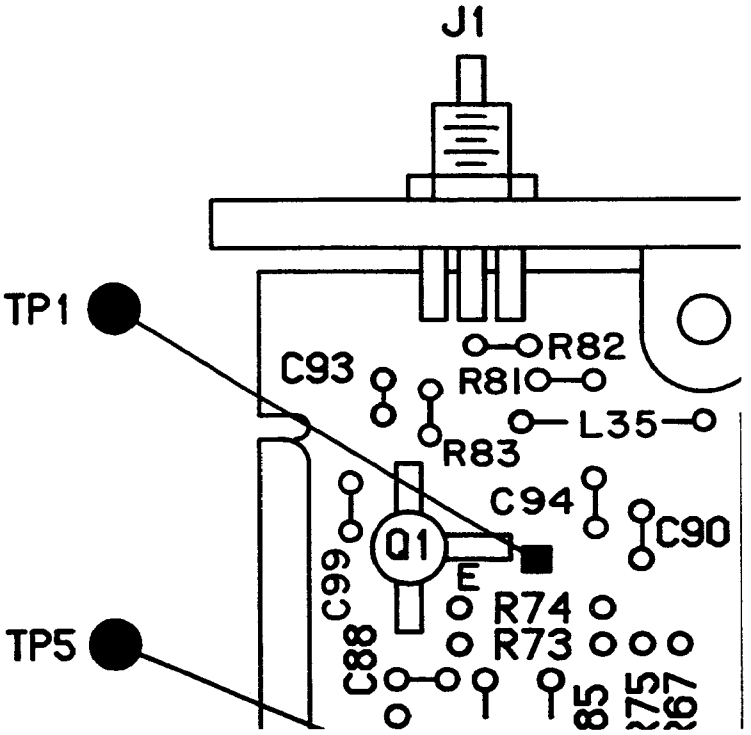
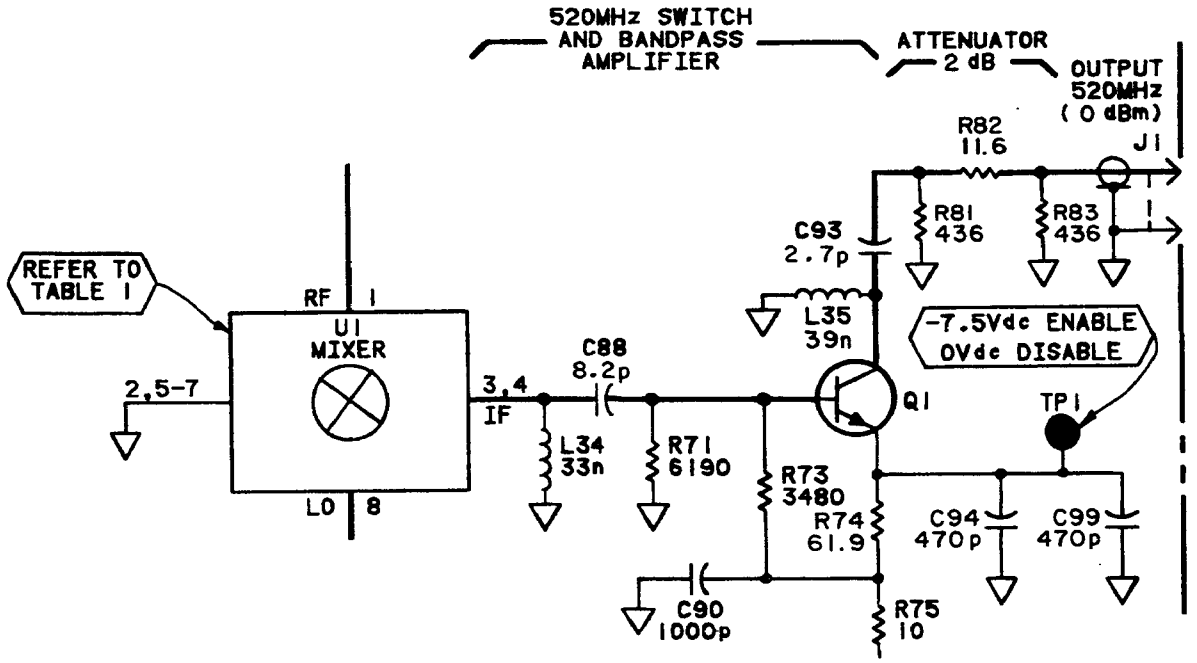


P/O Figure 8-407. A6A3 Reference Section HF Multiplier Component Locations (P/O Change 21)



P/O Figure 8-409. A6A3 Reference Section HF Multiplier Schematic (P/O Change 21)

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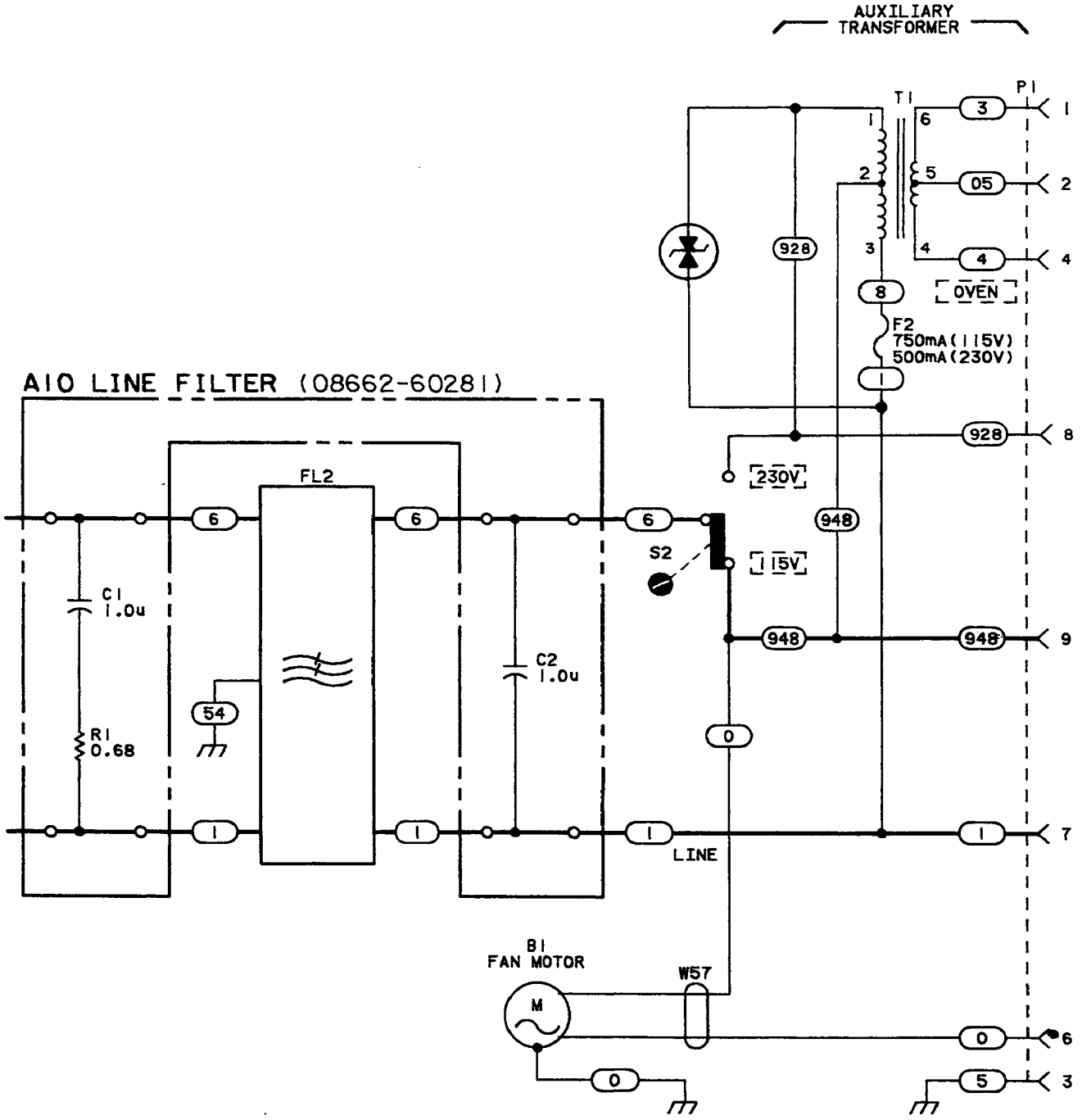

P/O Figure 8-652. Power Supply Inverter, Motherboard and Line Filter Schematic (P/O Change 24)

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4-12. ABSOLUTE SSB PHASE NOISE ON REAR PANEL 640 MHZ OUTPUT (Option 003 only). (P/O Change 26)

SPECIFICATION:

Electrical Specification	Performance Limit	Conditions
SPECTRAL PURITY		
Absolute SSB Phase Noise on rear panel 640 MHz output		1 Hz measurement Bandwidth.
		Offset from carrier
	- 54 dBc	1 Hz
	- 84 dBc	10 Hz
	-104 dBc	100 Hz
	-121 dBc	1 kHz
	-145 dBc	10 kHz
	-157 dBc	100 kHz
	-157 dBc	1 MHz
Output Level of rear panel 640 MHz output	> +2 dBm	

DESCRIPTION: The absolute SSB phase noise is measured by comparing the rear panel 640 MHz output signal to the rear panel 640 MHz output signal of another signal generator with known good phase noise. The phase detector method of phase noise measurement is used and the results are measured with a spectrum analyzer. The output level of the 640 MHz signal is also verified.

NOTE

Only instruments with serial number 2411A and above have the rear panel 640 MHz output and EFC input required to perform this test. This rear panel input and output was available on earlier serial number instruments if options H12 and H03 were ordered.

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4-12. ABSOLUTE SSB PHASE NOISE ON REAR PANEL 640 MHZ OUTPUT (Option 003 only) (Cont'd) (P/O Change 26)

NOTE

A better method of measuring this specification is to use the HP model 3047A Phase Noise Measurement System. This system can make the measurement quickly and accurately. The procedure specified in this performance test is accurate but very time consuming.

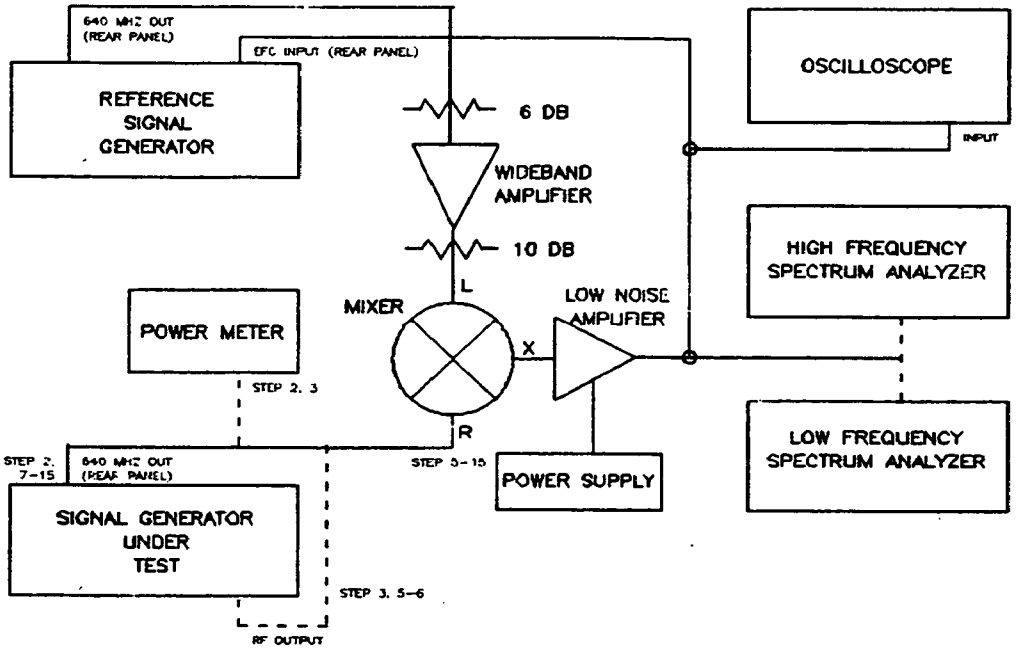

Figure 4-14. Absolute SSB Phase Noise of rear Panel 640 MHz Output (Option 003 Only) Test Setup.

EQUIPMENT:

Mixer	Watkins-Johnson M94C
Low Noise Amplifier	HP 08640-60506 (with HP 6215A power supply)
Oscilloscope	HP 1740A
Spectrum Analyzer (Low frequency)	HP 3582A
Spectrum Analyzer (High frequency)	HP 8566A or HP8568A
Signal Generator (Reference)	HP 8662A Option 003
Wide Band Amplifier	HP 8447E
Attenuators, Coaxial Fixed	HP 8491A series
Power Meter	HP 436A with HP8481A Power Sensor

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4-12. ABSOLUTE SSB PHASE NOISE ON REAR PANEL 640 MHZ OUTPUT (Option 003 only) (Cont'd) (P/O Change 26)

PROCEDURE:

1. Connect the equipment as shown in figure 4-14. Both the Reference Signal Generator and Signal Generator Under Test must have their Reference Oscillator switches set to INT. The signal level into the L input of the mixer should be in the range, +7 to +10 dBm. Change the value of the pads, if necessary, to obtain this output level.

2. Use the power meter to measure the RF level of the rear panel 640 MHz output signal of the Signal Generator Under Test. The level must be greater than +1.0 dBm. Record the measured level.

   Rear panel 640 MHz output level _____ dBm

3. Connect the power meter to the main RF output of the Signal Generator Under Test. Set the frequency of the generator to 640.0 MHz and set the amplitude to whatever setting gives the closest power meter reading to the value measured in step 2, above.

4. Set the Amplitude increment value of the Signal Generator Under Test to 50 dB. Press the Increment down arrow key thus reducing the amplitude by 50dB.

---------- CALIBRATION ----------

NOTE

This calibration must be performed once with the high frequency spectrum analyzer and twice with the low frequency spectrum analyzer. Thus, there are three values specified for every frequency setting in steps 5 and 6. Use the first setting given with the high frequency spectrum analyzer and the other values (in parenthesis and brackets) with the low frequency spectrum analyzer.

5. Connect a cable from the RF port of the mixer to the RF output connector of the Signal Generator Under Test. Set the output frequency of this generator to 640.01 (640.000 1) [640.000 01] MHz. This will produce a 10 kHz (100 Hz) [10 Hz] signal out of the mixer which is used to calibrate the spectrum analyzer.

6. Tune the spectrum analyzer to 10 kHz (100 Hz) [10 Hz] and set the reference level of the spectrum analyzer to the level of the signal at 10 kHz (100 Hz) [10 Hz].

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4-12. ABSOLUTE SSB PHASE NOISE ON REAR PANEL 640 MHZ OUTPUT (Option 003 only) (Cont'd) (P/O Change 26)

---------- SET QUADRATURE ----------

7. Connect a cable from the RF port of the mixer to the rear panel 640 MHz output of the Signal Generator Under Test.

8. Set the oscilloscope to dc coupled input and 0.1 volts/division vertical resolution. Set sweep speed to 0.2 mSEC/division although sweep speed will not affect the measurement. Adjust the vertical position control so ground level is at the center line of the display.

9. The signal displayed on the oscilloscope should be a slowly varying signal. If the signal is a dc level, adjust the FINE FREQUENCY ADJUST on the rear panel of the Reference Signal Generator until the signal begins to vary. If necessary, change the vertical resolution so the oscilloscope displays the peaks of the waveform. Note the peak amplitude (Vp) of the signal and record here.

Vp _____

10. Slowly adjust the FINE FREQUENCY ADJUST on the rear panel of the Reference Signal Generator while watching the oscilloscope display. Turn the adjustment in the direction which decreases the rate of change of the signal. Continue the adjustment until the signal becomes a dc level which indicates the signal generators are phase locked together. The dc level of the signal (+ or -) must be less than 30% of Vp measured in step 9.

NOTE

This is a very difficult adjustment to make. It is very easy to overshoot the point where the signal becomes dc in which case the rate of change will begin to increase. It is best to let both signal generators set with the line cords connected for at least 24 hours and with the LINE switch to ON for 1 hour before making this measurement. Once set the dc level should be stable for at least 15 minutes which is long enough to make the measurement. If the dc level drifts too much, the problem could be that the reference oscillator does not meet its long term stability specification. Perform the Internal Time Base Aging Test to check its stability.

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4-12. ABSOLUTE SSB PHASE NOISE ON REAR PANEL 640 MHZ OUTPUT (Option 003 only) (Cont'd) (P/O Change 26)

---------- MEASUREMENT ----------

11. Set the spectrum analyzer to its noise measurement mode. In this mode the spectrum analyzer normalizes the measurement to a 1 Hz bandwidth and corrects the reading to compensate for the noise measurement properties of the analyzer.

12. Set the spectrum analyzer center frequency to the offset at which phase noise is to be measured. This is 10.0 kHz the first time through this procedure. Lower the video bandwidth or use trace averaging to reduce the ambiguity of reading the noise level. Also if there is a spurious signal at exactly 10.0 kHz, read the noise level on either side of the signal. Determine how far (-XX dB) the noise level is below the reference level. If the spectrum analyzer gives a marker level in absolute dBm, subtract the reference level from it to get the relative value. Record the value in the table that follows.

13. The following corections must be applied to the value just measured to get the actual phase noise:

    > Add -50 dB because the reference level was calibrated with a signal 50 dB lower than the actual 640 MHz output.

    > Add -6 dB because the measured value is the double sideband value and the specification is the single sideband value.

    > Add -3 dB because the reference signal adds an equal amount of noise to the measured value.

    Thus, the total correction is -59 dB.

14. Measure the phase noise at offsets of 100 kHz and 1 MHz with the high frequency spectrum analyzer. Follow the instructions in steps 12 and 13. Record the measured values in the table that follows.

15. Replace the high frequency spectrum analyzer with the low frequency spectrum analyzer. The test set-up must be calibrated twice with the low frequency spectrum analyzer. Return to step 5 and restart the procedure there using the the settings in parenthesis, (). When the Measurement Section is reached, measure the phase noise at offsets of 100 Hz and 1 kHz. Record the measured values in the table that follows.

16. Return to step 5 and restart the procedure there using the settings in brackets, []. When the Measurement Section is reached, measure the phase noise at an offset of 10 Hz. Record the value in the table that follows.

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4-12. ABSOLUTE SSB PHASE NOISE ON REAR PANEL 640 MHZ OUTPUT (Option 003 only) (Cont'd) (P/O Change 26)

NOTE

The phase noise at 1 Hz from the carrier is not measured by this procedure. The measurement at 10 Hz insures that the noise at 1 Hz is within specifications. The noise at 1 Hz could be measured by using a low-noise amplifier with dc coupling.

	MEASURED NOISE			
Offset	Relative to Reference Level (dB/Hz)	Correction	Total (dBc/Hz)	Limit (dBc/Hz)
10 Hz	_____	-59 dB	_____	- 84
100 Hz	_____	-59 dB	_____	-104
1 kHz	_____	-59 dB	_____	-121
10 kHz	_____	-59 dB	_____	-145
100 kHz	_____	-59 dB	_____	-157
1 MHz	_____	-59 dB	_____	-157

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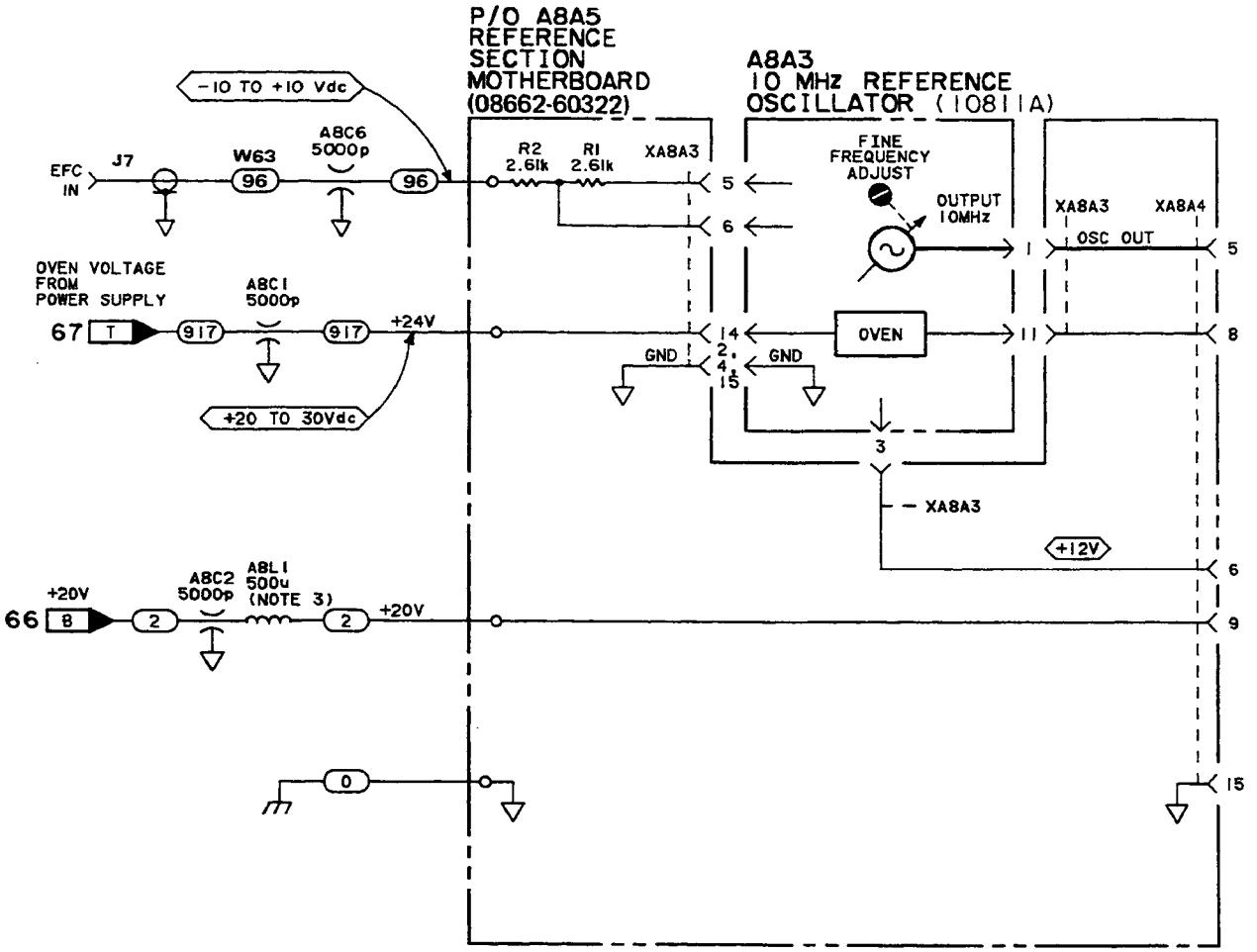

P/O Figure 8-403. A8A3 and A8A4 10 MHz Reference Oscillator & Buffer Schematic (P/O Change 26)

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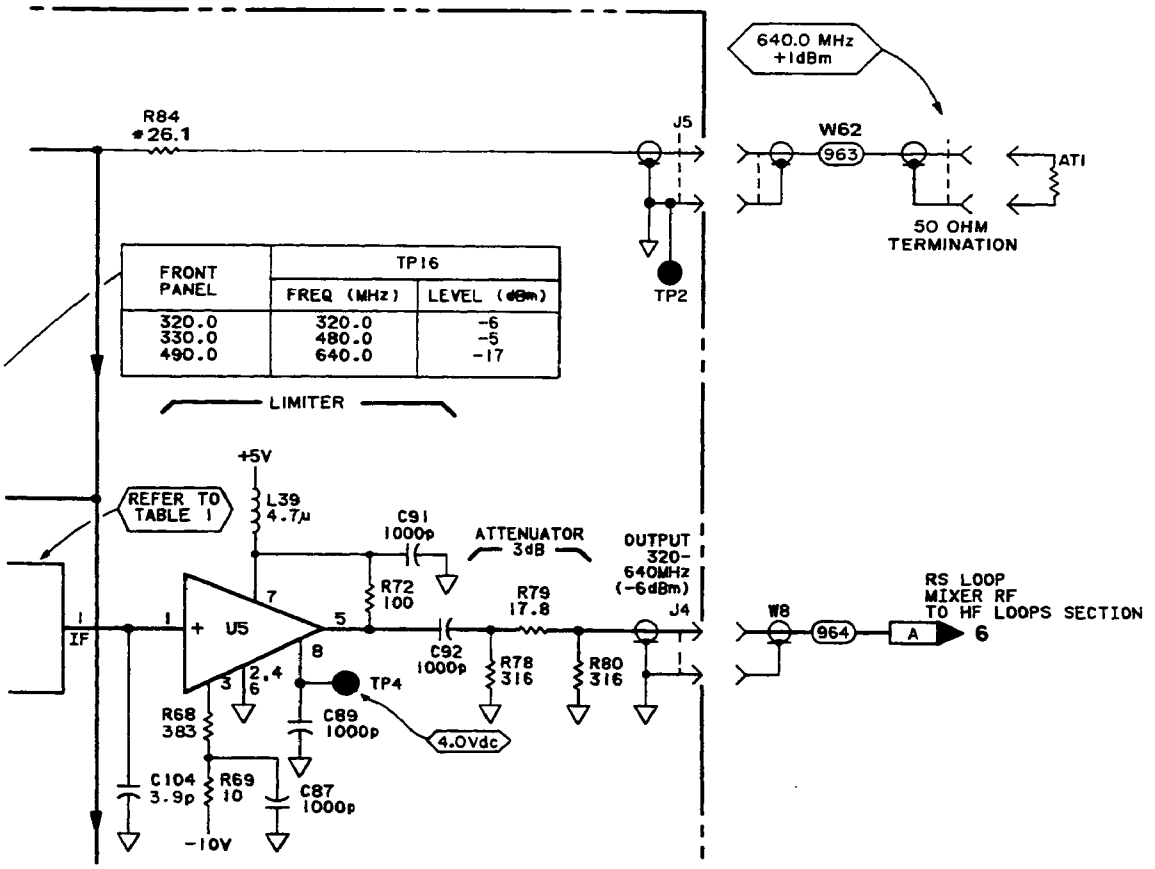

P/O Figure 8-409. A6A3 Reference Section High Frequency Multiplier Schematic (P/O Change 26)

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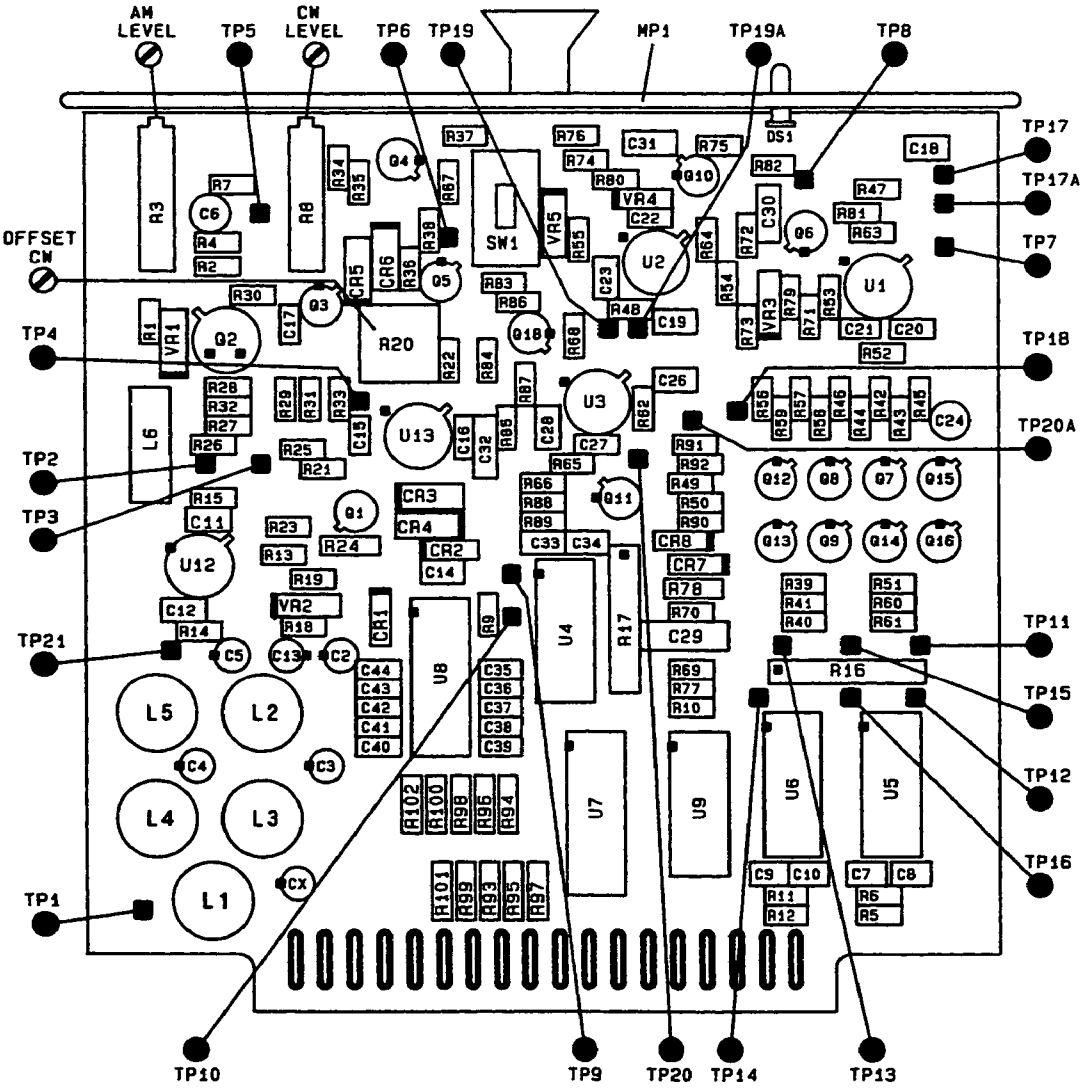

Figure 8-522. A4A7 Output Section AGC Component Locations (P/O Change 36)

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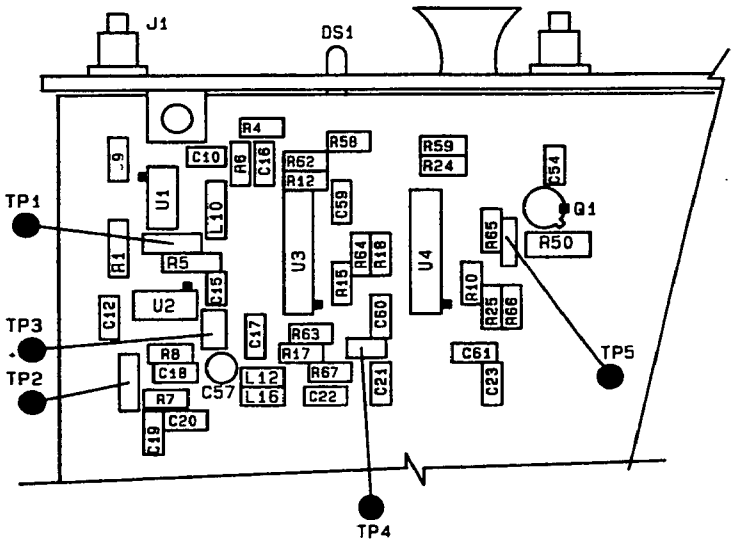
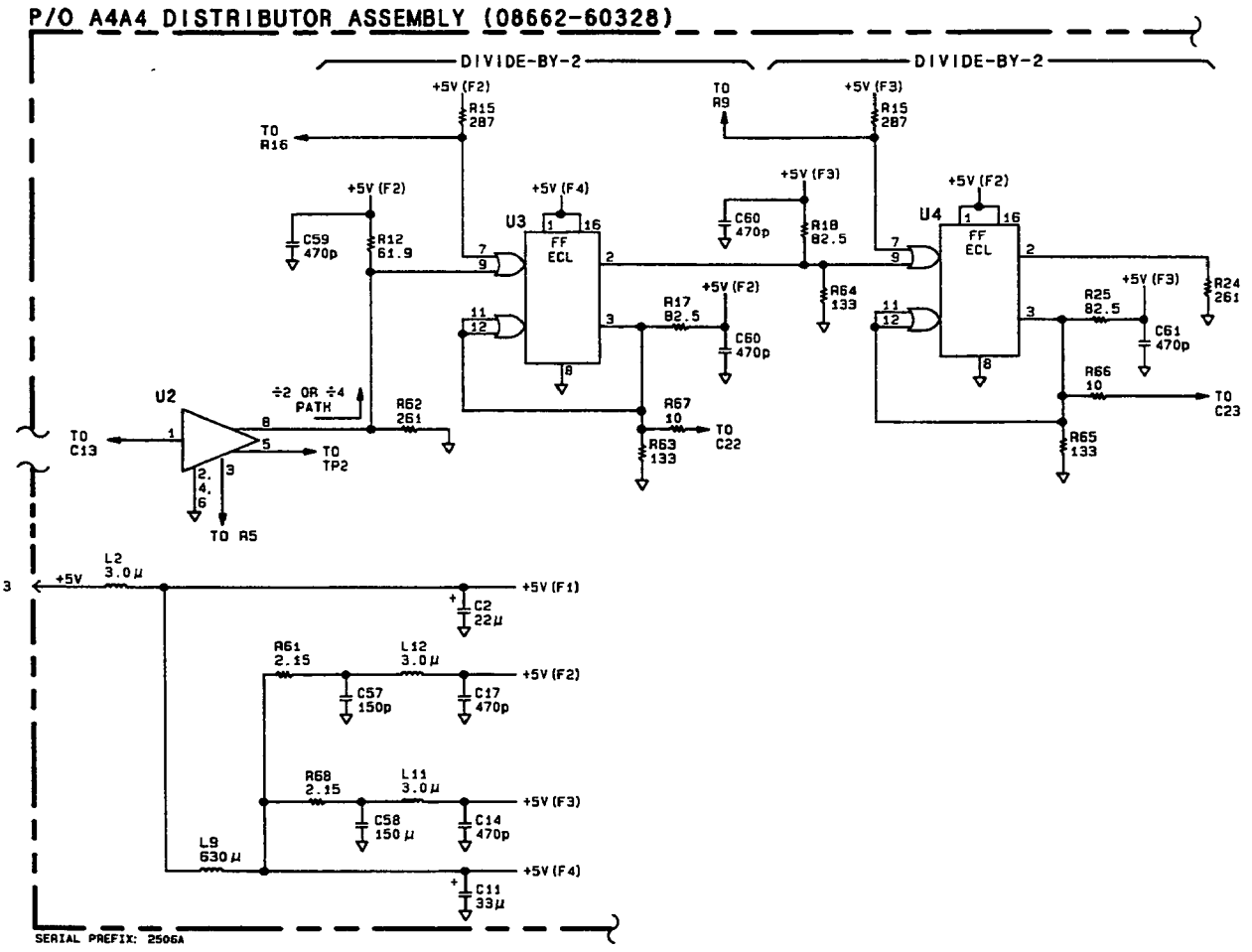


P/O Figure 8-501. P/O A4A4 Output Section Distributor Component Locations (P/O Change 38)



P/O Figure 8-503. P/O A4A4 Output Section Distributor Schematic (P/O Change 38)

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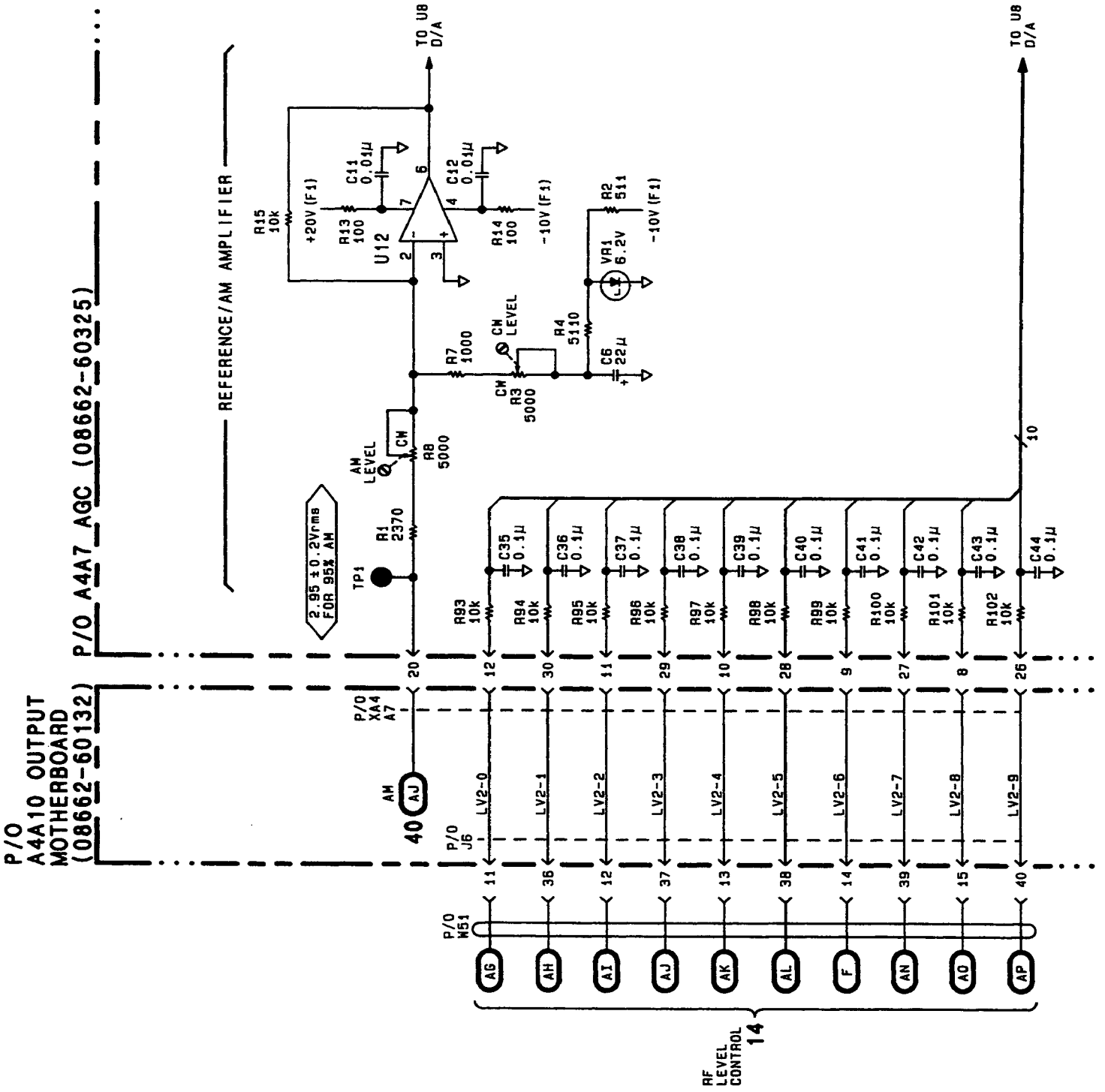

P/O Figure 8-524. A4A7 Output Section AGC Schematic (P/O Change 39)

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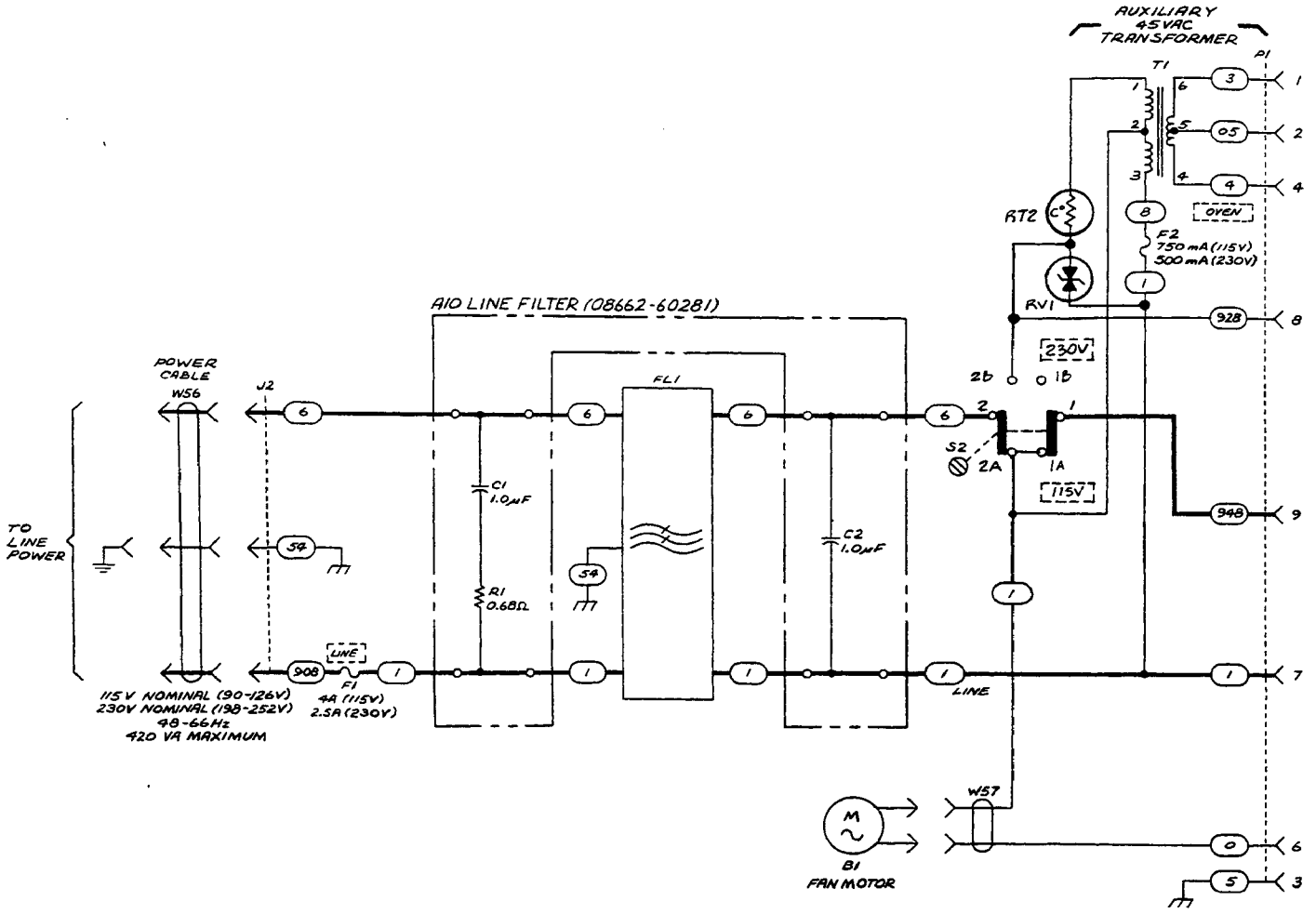

P/O Figure 8-652. Power Supply Inverter, Mother Board & Line Filter Schematics (P/O Change 41)

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P/O Table 6-3. Replaceable Parts (P/O CHANGE 42)

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A2A7	08662-60329	4		RAM/ROM ASSEMBLY	28480	08662-60329
A2A7B1	1420-0281	2		BATTERY 2.8V .46A-HR LI/S-DIOX PIN	28480	1420-0281
A2A7C1	0180-0116	1		CAPACITOR-FXD 6.8UF +-10% 35VDC TA	56289	150D68549035B2
A2A7C2	0180-0116	1		CAPACITOR-FXD 6.8UF +-10% 35VDC TA	56289	150D68549035B2
A2A7C3	0180-0116	1		CAPACITOR-FXD 6.8UF +-10% 35VDC TA	56289	150D68549035B2
A2A7C4	0160-4835	7		CAPACITOR-FXD .1UF +-10% 50VDC CER	28480	0160-4835
A2A7C5	0160-4835	7		CAPACITOR-FXD .1UF +-10% 50VDC CER	28480	0160-4835
A2A7C6	0160-4835	7		CAPACITOR-FXD .1UF +-10% 50VDC CER	28480	0160-4835
A2A7C7	0160-4835	7		CAPACITOR-FXD .1UF +-10% 50VDC CER	28480	0160-4835
A2A7C8	0160-4835	7		CAPACITOR-FXD .1UF +-10% 50VDC CER	28480	0160-4835
A2A7C9	0160-4835	7		CAPACITOR-FXD .1UF +-10% 50VDC CER	28480	0160-4835
A2A7C10	0160-4835	7		CAPACITOR-FXD .1UF +-10% 50VDC CER	28480	0160-4835
A2A7C11	0160-5098	6		CAPACITOR-FXD .22UF +-10% 50VDC CER	16299	CAC05X7R224J050A
A2A7C12	0160-4835	7		CAPACITOR-FXD .1UF +-10% 50VDC CER	28480	0160-4835
A2A7C13	0160-4835	7		CAPACITOR-FXD .1UF +-10% 50VDC CER	28480	0160-4835
A2A7C14	0160-4835	7		CAPACITOR-FXD .1UF +-10% 50VDC CER	28480	0160-4835
A2A7C15	0160-4814	2		CAPACITOR-FXD 150PF +-5% 100VDC CER	28480	0160-4814
A2A7C16	0160-4835	7		CAPACITOR-FXD .1UF +-10% 50VDC CER	28480	0160-4835
A2A7CR1	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A2A7CR2	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A2A7L1	9100-3922	4		INDUCTOR-FIXED 120-1300HZ	28480	9100-3922
A2A7MP1	4040-0748	3		EXTR-PC BC BLK POLYC .062-BD-THKNS	28480	4040-0747
	1480-0116	8		PIN GRV .062-IN-DIA .25-IN-LG STL	28480	1480-0116
A2A7MP2	4040-0747	2		EXTR-PC BC GRA POLYC .062-BD-THKNS	28480	4040-0747
	1480-0116	8		PIN GRV .062-IN-DIA .25-IN-LG STL	28480	1480-0116
A2A7Q1	1853-0405	9		TRANSISTOR-PNP SI PD=300MW FT=850MHZ	04713	2N4209
A2A7Q2	1854-0809	9		TRANSISTOR NPN SN2369A SI TO-18 PD=360MW	28480	1854-0809
A2A7R1	0757-0274	5		RESISTOR 1.21K 1% .125W F TC=0+-100	24546	C4-1/8-TO-1211-F
A2A7R2	0757-0274	5		RESISTOR 1.21K 1% .125W F TC=0+-100	24546	C4-1/8-TO-1211-F
A2A7R3	0757-0417	8		RESISTOR 562 1% .125W F TC=0+-100	24546	C4-1/8-TO-562R-F
A2A7R4	0698-3446	3		RESISTOR 383 1% .125W F TC=0+-100	24546	C4-1/8-TO-383R-F
A2A7R5	0757-0417	8		RESISTOR 562 1% .125W F TC=0+-100	24546	C4-1/8-TO-562R-F
A2A7R6	0698-3150	6		RESISTOR 2.37K 1% .125W F TC=0+-100	24546	C4-1/8-TO-2371-F
A2A7R7	0699-0784	8		RESISTOR 17.55K .1% .10W F TC=0+-15	28480	0699-0784
A2A7R8	0699-0784	8		RESISTOR 17.55K .1% .10W F TC=0+-15	28480	0699-0784
A2A7R9	0698-8960	6		RESISTOR 750K 1% .125W F TC=0+-100	28480	0698-8960
A2A7R10	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-TO-1002-F
A2A7R11	1810-0279	5		NETWORK-RES 10-SIP4.7K OHMX9	01121	210A472
A2A7R12	1810-0279	5		NETWORK-RES 10-SIP4.7K OHMX9	01121	210A472
A2A7R13	1810-0279	5		NETWORK-RES 10-SIP4.7K OHMX9	01121	210A472
A2A7R14	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	25456	C4-1/8-TO-1001-F
A2A7R15	2100-3273	1		RESISTOR-TRMR 2K 10% C SIDE-ADJ 1-TRN	28480	2100-3273
A2A7TP1	0360-0535	0		TERMINAL TEST POINT PCB	00000	ORDER BY DESCRIPTION
A2A7U1	08662-80063	5		UV PROGRAMMED ROM	28480	08662-80063
A2A7U2	08662-80062	4		UV PROGRAMMED ROM	28480	08662-80062
A2A7U3	1818-1968	7		IC CMOS 16348 (16K) STAT RAM 250-NS 3-S	28480	1818-1968
	1200-0565	9		IC-SOCKET 24-CONT DIP-SLDR	28480	1200-0565
A2A7U4	1820-2913	9		IC RCVR TTL ALS OCTL	01295	SN74ALS245N
A2A7U5	1820-1204	9		IC GATE TTL LS NAND DUAL 4-INP	01295	SN74LS20N
A2A7U6	1820-2739	7		IC GATE TTL ALS NOR QUAD 2-INP	01295	SN74ALS02N
A2A7U7	1820-2657	8		IC GATE TTL ALS OR QUAD 2-INP	01295	SN74ALS32N
A2A7U8	1820-2657	8		IC GATE TTL ALS OR QUAD 2-INP	01295	SN74ALS32N
A2A7U9	1820-2657	8		IC GATE TTL ALS OR QUAD 2-INP	01295	SN74ALS32N
A2A7U10	1826-0773	7		IC OP AMP GP TO-99 PKG	27014	LM10CH
A2A7VR1	1902-0943	5		DIODE-ZNR 2.4V 5% DO-35 PD=.4W TC=-.037%	28480	1902-0943
A2A7W1	8159-0005	0		RESISTOR-ZERO OHMS 22AWG LEAD DIA	28480	8159-0005
A2A7W2	8159-0005	0		RESISTOR-ZERO OHMS 22AWG LEAD DIA	28480	8159-0005
A2A7W3	8159-0005	0		RESISTOR-ZERO OHMS 22AWG LEAD DIA	28480	8159-0005

See introduction to this section for ordering information. * Indicates factory selected value

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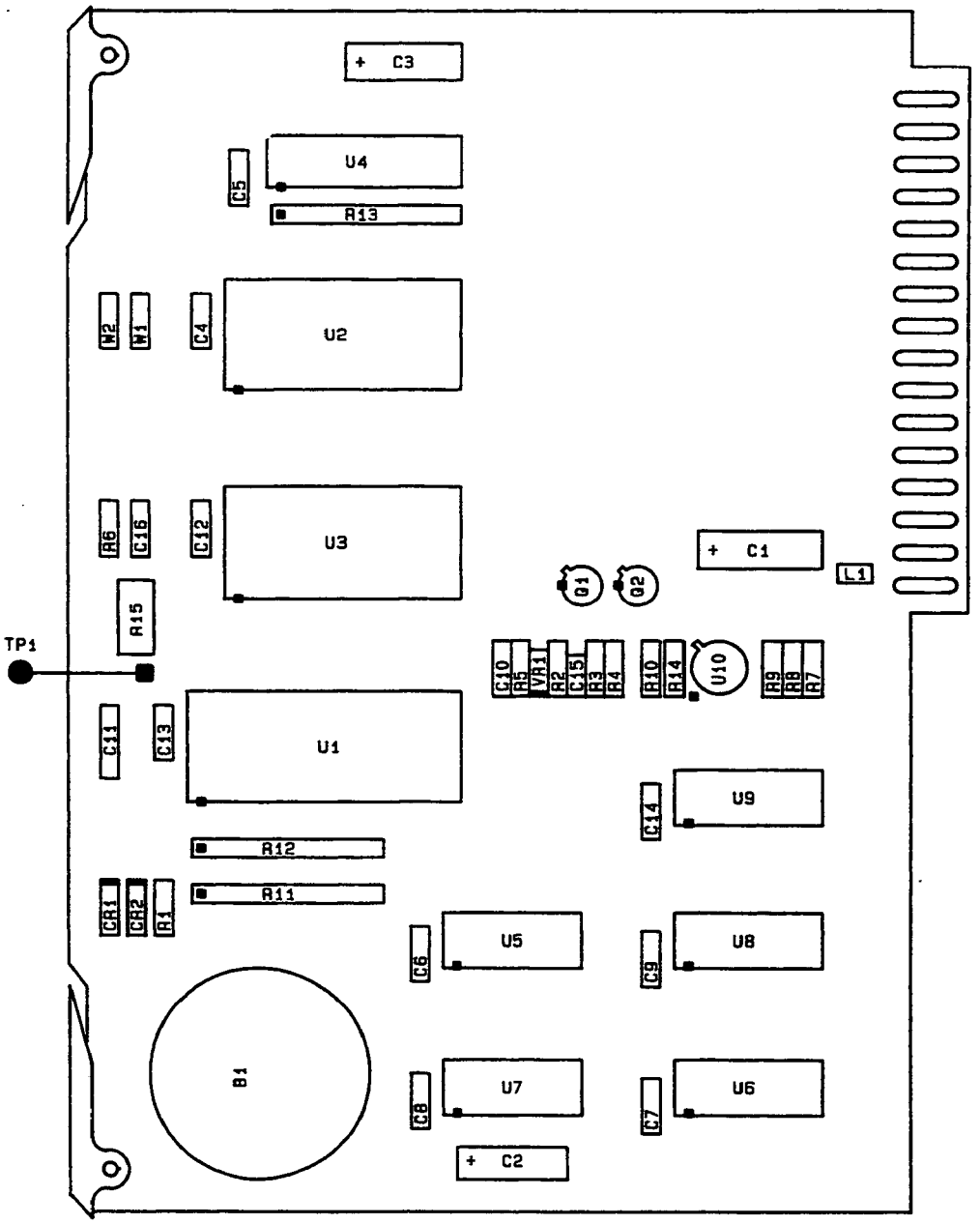

Figure 8-328. A2A7 RAM/ROM Component Locations (P/O CHANGE 42)

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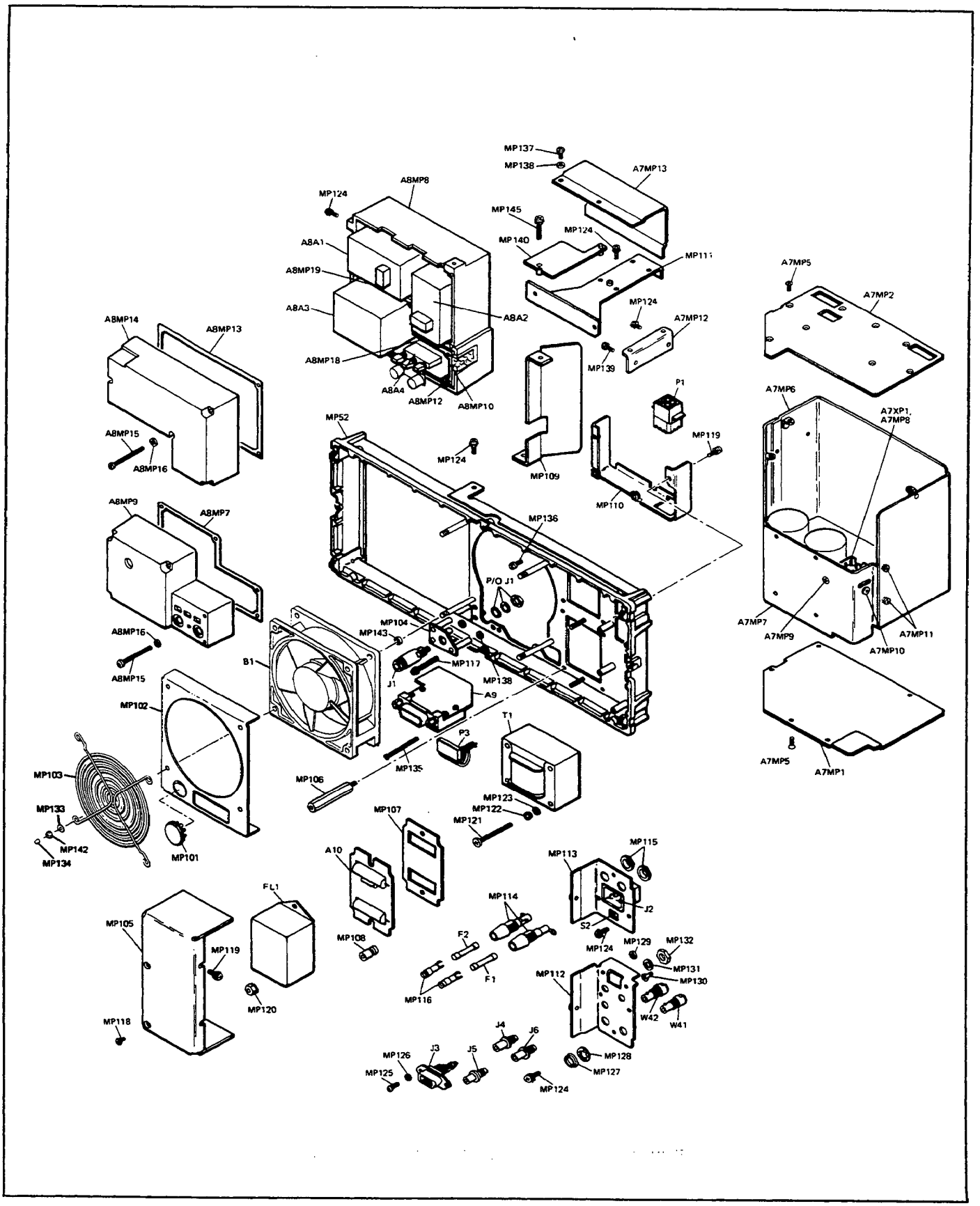

Figure 6-4. Rear Panel Illustrated Parts Breakdown (Part of CHANGE 57)

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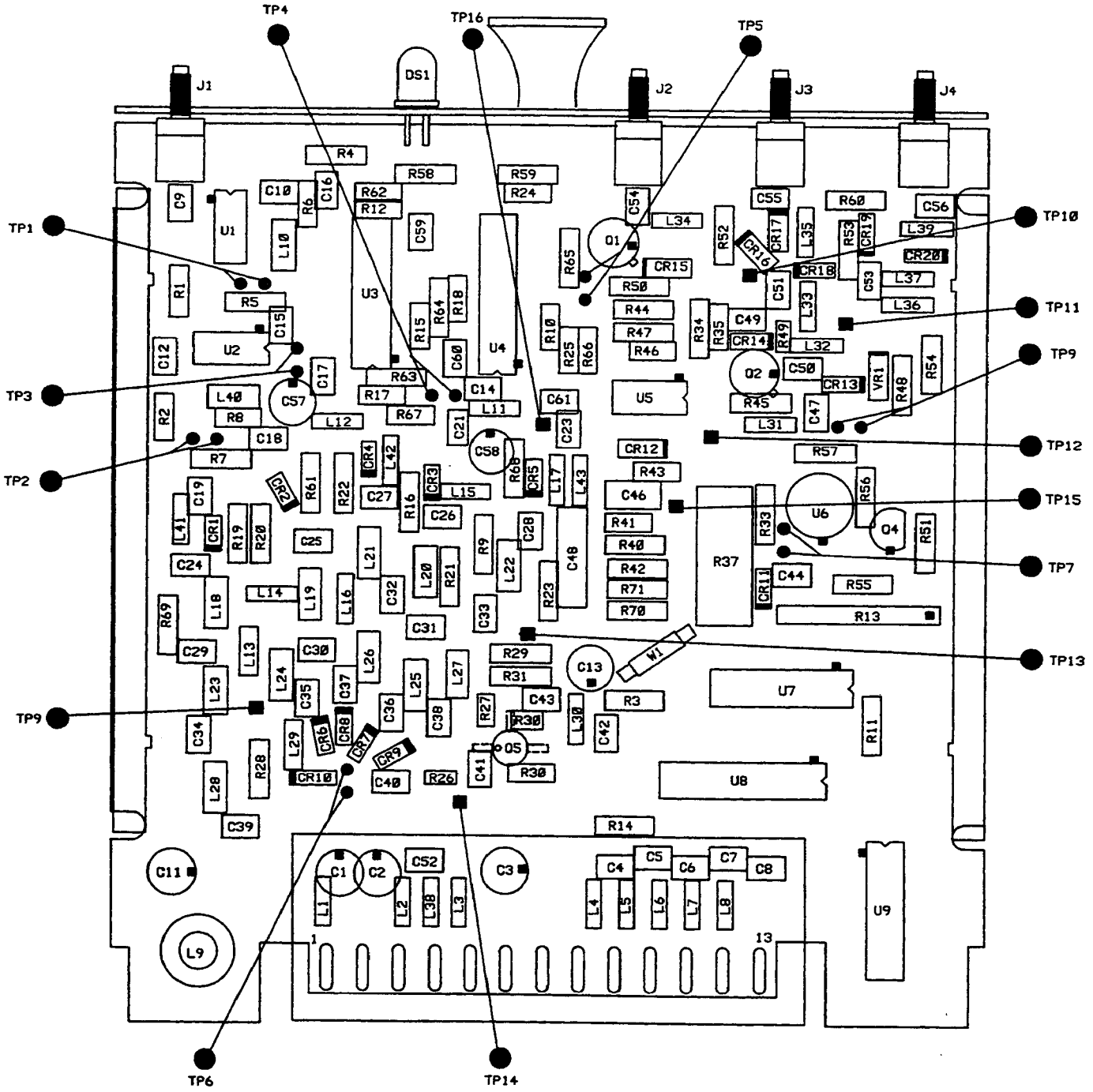

Figure 8–503. *A4A4 Output Section Distributor Component Locations (P/O Change 72)*

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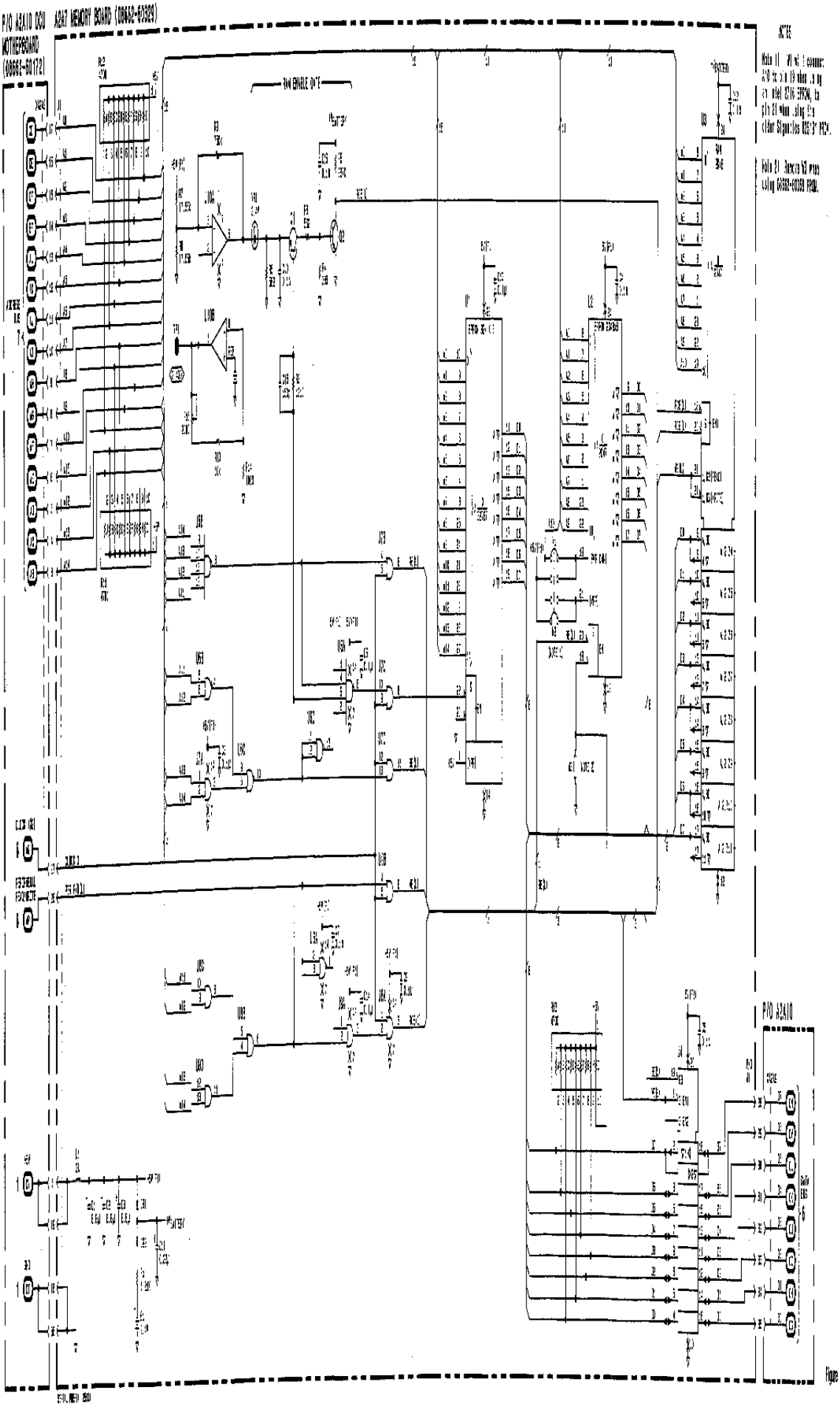

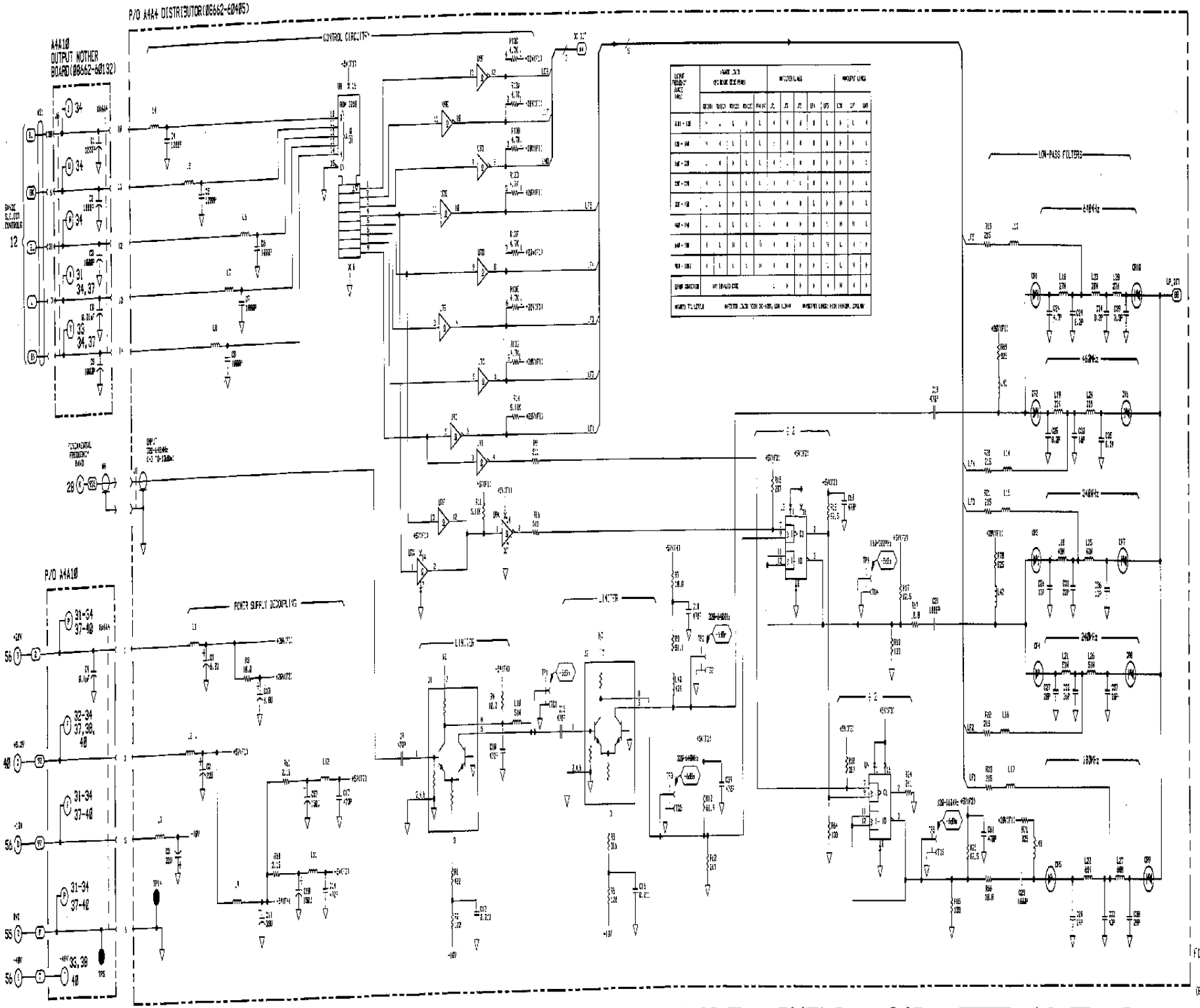

30a
A4A4
Figure 8-503.
8-503
(P/O Change 72)

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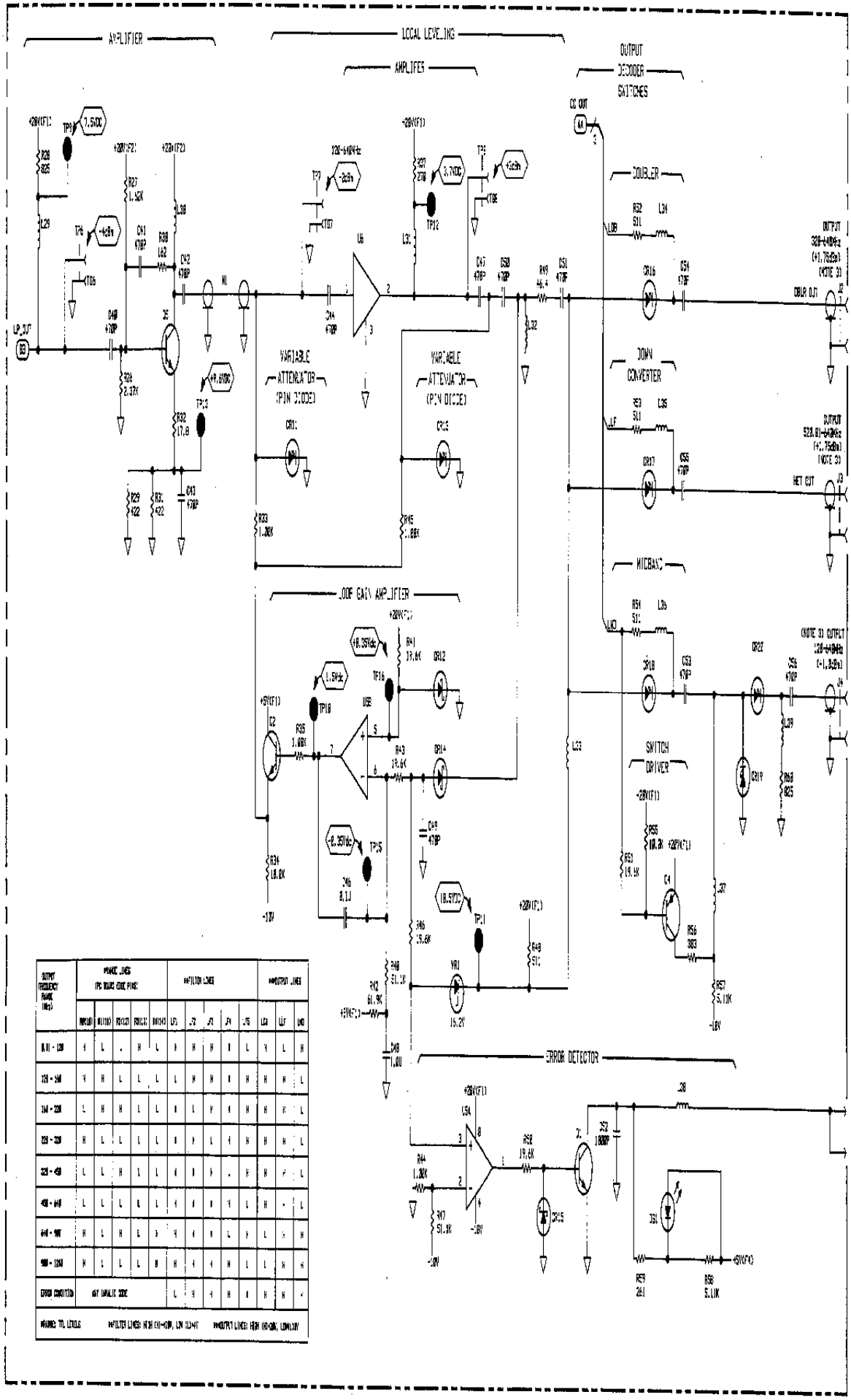

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These sections are bound separately in Volume 1 with a separate table of contents.

Sections VI and VII
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These sections are bound separately in Volume 1 with a separate table of contents.

Section VIII
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This section is located in Volume 2 with a separate table of contents.

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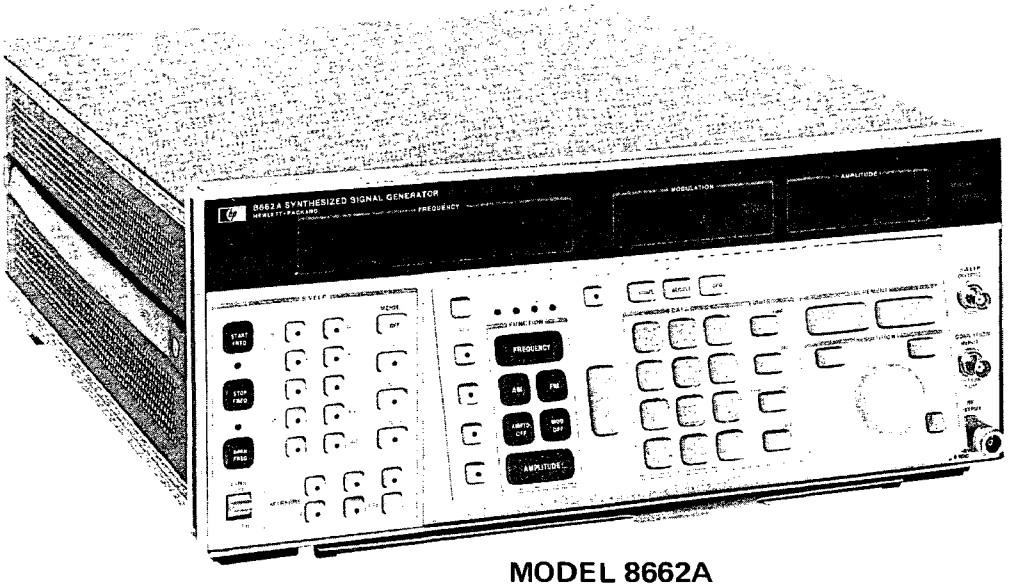

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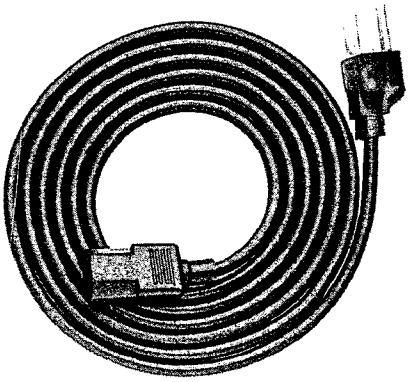

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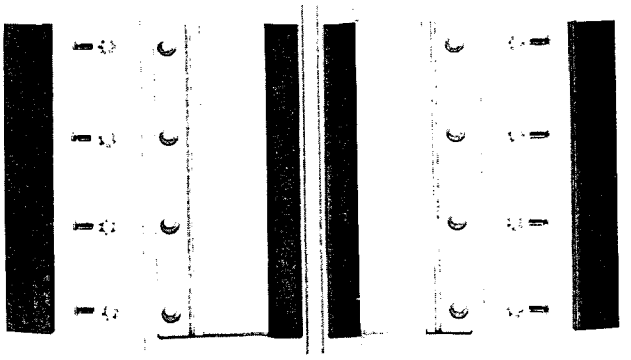
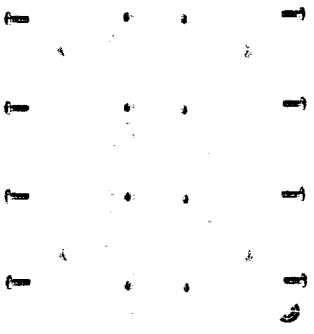
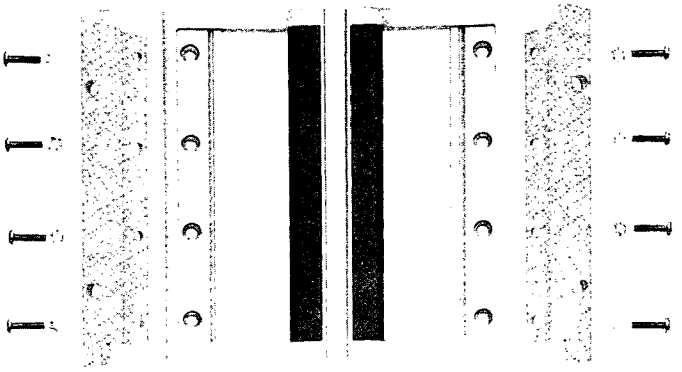


OPTION 907 FRONT HANDLE KIT



OPTION 908
RACK MOUNT KIT



OPTION 909
RACK MOUNT KIT WITH FRONT HANDLES

Figure 1-1. HP Model 8662A and Accessories Supplied

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SECTION I
GENERAL INFORMATION

1-1. INTRODUCTION

Volume 1 of the 8662A Operating and Service manual has seven major sections. They are:

I. General Information
II. Installation
III. Operation
IV. Performance Tests
V. Adjustments
VI. Replaceable Parts
VII. Manual Changes

This Operating Manual is part of Volume 1 and contains Sections I, II, and III only. Volume 2 contains Section VIII, Service (that is, principles of operation, troubleshooting, component locators, schematics, disassembly procedures, etc.).

This manual presents operating information for the HP Model 8662A Synthesized Signal Generator. The Generator, with all supplied accessories, is shown in Figure 1-1.

The HP part number for the Operating Manual only is shown on the title page of this manual. Part numbers for the complete Operating and Service Manual, for all its parts, and for a complete microfiche copy are listed on the back of the title pages for Volumes 1 and 2.

The microfiche copies are 100 x 150 mm (4 x 6-inch) microfilm transparencies of the manuals. Each microfiche contains up to 96 photo duplicates of the manual pages and the latest Manual Changes supplement.

1-2. SPECIFICATIONS

Instrument specifications are listed in Table 1-1. These specifications are the performance standards or limits against which the instrument can be tested. Supplemental characteristics are listed in Table 1-2. Supplemental characteristics are not specifications but are typical characteristics included as additional information for the user.

1-3. SAFETY CONSIDERATIONS

This product is a Safety Class I instrument (provided with a protective earth terminal). The Signal Generator and all related documentation must be reviewed for familiarization with safety markings and instructions before operation. Refer to the Safety Considerations page found at the beginning of this manual for a summary of general safety information.

Safety information for installation and operation is found in appropriate places throughout this manual.

1-4. INSTRUMENTS COVERED BY MANUAL

Attached to the instrument is a serial number plate. The serial number is in the form: 0000A00000. It is in two parts: the first four digits and the letter are the serial number prefix and the last five digits are the suffix. The prefix is the same for all identical instruments; it changes only when a change is made to the instrument. The suffix, however, is assigned sequentially and is different for each instrument. The contents of this manual apply to instruments with the serial number prefix(es) listed under SERIAL NUMBERS on the title page.

An instrument manufactured after the printing of this manual may have a serial number prefix that is not listed on the title page. This unlisted serial number prefix indicates the instrument is different from those described in this manual. Volumes 1 and 2 each contain a Manual Changes supplement for these newer instruments. Each supplement contains change instructions for all of the manuals within that volume. Additionally, a separate change supplement is available for this Operating Manual alone.

In addition to change information, the supplements may contain information for correcting errors in the manual. To keep this manual as current and accurate as possible, Hewlett-Packard recommends that you periodically request the latest Manual Changes supplement. These supplements are identified with the print dates and part numbers that appear on the title pages of the two volumes. Complimentary copies of these supplements are available from Hewlett-Packard.

For information concerning a serial number prefix that is not listed on the title page or in the Manual Changes supplements, contact your nearest Hewlett-Packard office.

1-5. DESCRIPTION

The HP Model 8662A is a precision synthesized signal generator with the following features:

- 10 kHz to 1280 MHz frequency range
- 0.1 Hz resolution (0.2 Hz from 640 to 1280 MHz)
- 5 x 10^{-10} /day frequency stability

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DESCRIPTION (Cont'd)

- +13 to —139.9 dBm output level range (with overrange to +16 dBm)
- ±1 dB level accuracy
- AM/FM modulation modes
- Hewlett-Packard Interface Bus (HP-IB) capability
- Reverse power protection to 30 watts

. . . . with exceptional spectral purity,

- SSB phase noise < —144 dBc/Hz at 10 kHz offset from carrier (f_c = 160 MHz)
- Broadband noise floor < —146 dBc
- Spurious signals from —84 to —100 dBc depending on f_c
- Harmonics —30 dBc

. . . . microprocessor control for measurement efficiency.

- Keyboard control of all functions
- Storage and recall of front panel settings
- Learn modes
- Stepping of all value-selectable parameters

. . . . and versatile digital sweep.

- Synthesized frequency accuracy and resolution
- Start/Stop and Span modes
- Linear or log sweep
- Selectable time per step
- Completely variable step size
- 5 digital markers

1-6. OPTIONS

1-7. Electrical

Option 001 provides the RF OUTPUT connector on the rear panel instead of on the front panel.

1-8. Mechanical

The following kits might have been ordered and received with the Signal Generator (they are shown in Figure 1-1). If they were not received with the original shipment and are now required, they may be ordered from your nearest Hewlett-Packard office, using the part numbers included in each of the following paragraphs.

Front Handle Kit, Option 907. This kit contains front handles and mounting hardware. Order HP part number 5061-0090 for the basic kit and 2190-0048 for lockwashers (8 required).

Rack Mount Kit, Option 908. This kit contains flanges and hardware for mounting the Generator in a standard rack of 482.5 mm (19 inches). Order HP part number 5061-0078.

Rack Mount Kit with Front Handles, Option 909. This kit contains flanges, handles and mounting hardware (the flanges are different than the Option 908 flanges). Order HP part number 5061-0084 for the basic kit and 2190-0009 for lockwashers (8 required).

1-9. HEWLETT-PACKARD INTERFACE BUS

HP-IB

1-10. Compatibility

The Signal Generator has an HP-IB interface and can be used with any HP-IB computing controller or computer for automatic system applications. The Signal Generator is fully programmable via the HP Interface Bus. HP-IB is Hewlett-Packard's implementation of IEEE Standard 488 and the identical ANSI Standard MC1.1. The Generator's compatibility with HP-IB is defined by the following list of interface functions: SH1, AH1, T6, TE0, L3, LE0, SR1, RL1, PP0, DC1, DT1, and C0. For more detailed information relating to remote operation of the Signal Generator, refer to Section III of this manual.

1-11. HP-IB Address

Two thumbwheel switches inside the top cover select the address code. This procedure is described **on page 2-2**, and is intended for service-trained persons only. The decimal equivalent of the 5-bit address code can be displayed on the front panel, however, by selecting Special Function 82 (**see page 3-32** for more details).

1-12. ACCESSORIES SUPPLIED

The accessories supplied with the Signal Generator are shown in Figure 1-1. The power cable is selected at the factory according to the voltage available in the country of destination. For the part numbers of the power cable refer to the paragraph titled Power Cables **on page 2-2**. For Generators shipped to countries using 115 volts, a set of fuses for 230 volts operation is also supplied.

1-13. EQUIPMENT AVAILABLE

A service accessory kit, Hewlett-Packard accessory number 11714A, is required for servicing and troubleshooting the Signal Generator. The service kit contains extender boards, connectors, cables, adapters and other service aids. For more details on the service accessory kit, see Table 1-5.

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1-14. RECOMMENDED TEST EQUIPMENT

Table 1-3 lists the equipment required for maintaining the Generator. The Critical Specification column describes the essential requirements for each piece of test equipment. Other equipment can be substituted if it meets or exceeds these critical specifications.

The Recommended Model column may suggest more than one model. The first model shown is usually the least expensive, single-purpose model. Alternate models are suggested for additional features that would make them a better choice in some applications. For example, reasons for recommending an alternate model might be:

- HP-IB programmability
  — or —
- Multi-function capability (that is, one model can replace two or more single-purpose models)

Table 1-4 presents the advantages of the alternate suggestions.

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Table 1-1. Specifications (1 of 5)

Electrical Characteristics	Performance Limits	Conditions
FREQUENCY		
Range	10 kHz to 1280 MHz (1279.999 999 8 MHz)	
Resolution	0.1 Hz 0.2 Hz	10 kHz to 640 MHz 640 MHz to 1280 MHz
Accuracy and Stability	Same as reference oscillator	
Internal Reference Oscillator[1]:		
Frequency	10 MHz	
Aging Rate	5×10^{-10} /day	After ten day warm-up (typically 24 hrs in normal operating environment)
SPECTRAL PURITY		
Residual SSB Phase Noise in 1 Hz Bandwidth		320 to 640 MHz; CW and AM mode.
	−100 dBc	10 Hz offset from carrier
	−112 dBc	100 Hz offset from carrier
	−121 dBc	1000 Hz offset from carrier
	−132 dBc	10 kHz offset from carrier
	−133 dBc	100 kHz offset from carrier
SSB Broadband Noise Floor in 1 Hz Bandwidth	−146 dBc	> +10 dBm output level; 120 to 640 MHz; 3 MHz offset from carrier
Spurious Output Signals (non-harmonically related[2])	−90 dBc	0.01 to 120 MHz
	−100 dBc	120 to 160 MHz
	−96 dBc	160 to 320 MHz
	−90 dBc	320 to 640 MHz
	−84 dBc	640 to 1280 MHz
Spurious Output Signals (subharmonically related[3])	−75 dBc	640 to 1280 MHz
	None	0.01 to 640 MHz
Spurious Output Signals [Power line (50—60 Hz) related or microphonically generated (within 300 Hz from carrier)]	−90 dBc	0.01 to 120 MHz
	−85 dBc	120 to 160 MHz
	−80 dBc	160 to 320 MHz
	−75 dBc	320 to 640 MHz
	−70 dBc	640 to 1280 MHz
Harmonics	−30 dBc	
OUTPUT (+15 to +45°C):		
Range	+13 to −139.9 dBm (1V to 0.023 μVrms into 50 ohms)	
Resolution	0.1 dB	

[1] The internal reference oscillator is kept at operating temperature in STANDBY mode with the instrument connected to Mains power.
[2] In the remote mode, it is possible to have spurious signals related to the microprocessor clock, spaced 3 MHz apart, at output levels typically less than −145 dBm.
[3] Subharmoncially related signals are f/2, 3f/2, etc.

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Table 1-1. Specifications (2 of 5)

Electrical Characteristics	Performance Limits	Conditions
OUTPUT (Cont'd)		
Absolute Level Accuracy[4,5]	± 1.0 dB	+13 to −120 dBm
	± 3.0 dB	−120 to −130 dBm
Flatness (referenced to 100 MHz, without correction, and down to −120 dBm)	± 1.5 dB ± 3.5 dB	10 kHz to 640 MHz 10 kHz to 1280 MHz
AMPLITUDE MODULATION		
Depth	0 to 95%	Output level of +8 dBm and below (+10 dBm in uncorrected mode)[6]
Resolution	1% 0.1%	10 to 95% AM 0 to 9.9% AM
Incidental FM	0.11 x f_{mod} 0.07 x f_{mod}	0.15 to 640 MHz; 30% AM 640 to 1280 MHz; 30% AM
Incidental PM	0.11 radians peak 0.07 radians peak	0.15 to 640 MHz; 30% AM 640 to 1280 MHz; 30% AM
Indicated Accuracy	±5% of reading ±1% AM	Depth ≤90% AM; for AM rates given below.
AM Rates:		
Internal	400 and 1000 Hz	
External	dc to 1.5 kHz dc to 5 kHz dc to 10 kHz	0.15 to 1 MHz 1 to 10 MHz 10 to 1280 MHz
AM Distortion (0.15 to 1280 MHz)	2% 4% 5.75%	0 to 30% AM 30 to 70% AM 70 to 90% AM
FREQUENCY MODULATION		
FM Rates:		
Internal	400 and 1000 Hz	
External ac	20 Hz to 100 kHz	1 dB bandwidth
External dc	dc to 100 kHz	1 dB bandwidth
Maximum Peak Deviation (external ac and internal)	The smaller of 100 kHz or f_{mod} x 500	0.01 to 120 MHz
	The smaller of 25 kHz or f_{mod} x 125	120 to 160 MHz

[4] Includes flatness, attenuator error, detector error and measurement uncertainty.
[5] Level correction can be defeated via a special keyboard function.
[6] AM is possible above these output levels but not specified.

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Table 1-1. Specifications (3 of 5)

Electrical Characteristics	Performance Limits	Conditions
FREQUENCY MODULATION (Cont'd)		
Maximum Peak Deviation (external ac) (Cont'd)	The smaller of 50 kHz or f_{mod} x 250	160 to 320 MHz
	The smaller of 100 kHz or f_{mod} x 500	320 to 640 MHz
	The smaller of 200 kHz or f_{mod} x 1000	640 to 1280 MHz
Maximum Peak Deviation (external dc)	100 kHz 25 kHz 50 kHz 100 kHz 200 kHz	0.01 to 120 MHz 120 to 160 MHz 160 to 320 MHz 320 to 640 MHz 640 to 1280 MHz
Indicated FM Accuracy	±6% of reading plus 10 Hz	50 Hz to 20 kHz rates
FM Resolution	100 Hz 1000 Hz	< 10 kHz deviation ⩾ 10 kHz deviation
Incidental AM (AM sidebands)		1 kHz rate and 20 kHz deviation
FM Distortion	−72 dBc −65 dBc	0.01 to 640 MHz 640 to 1280 MHz
	1.0% 1.7%	dc to 1 kHz rates 1 kHz to 20 kHz rates
Center Frequency Accuracy and Long Term Stability	Same as CW mode	Internal and external ac mode only
GENERAL		
Operating Temperature Range	0 to +55°C	
Power Requirements:		
Line Voltage 115 Setting 230 Setting	90 − 126V 198 − 252V	
Line Frequency	48 to 66 Hz	
Power Dissipation	420 VA maximum	
Electromagnetic Interference (EMI)	MIL STD 461A and VDE 0871	Conducted and radiated interference is within the requirements of methods CE03 and RE02 of MIL STD 461A as well as VDE 0871.
	or	
	1 μV	Induced in a two turn, 25 mm (1 inch) diameter loop, 25 mm (1 inch) away from the front panel and measured into a 50 ohm receiver.
Net Weight	30 kg (65.5 lb)	

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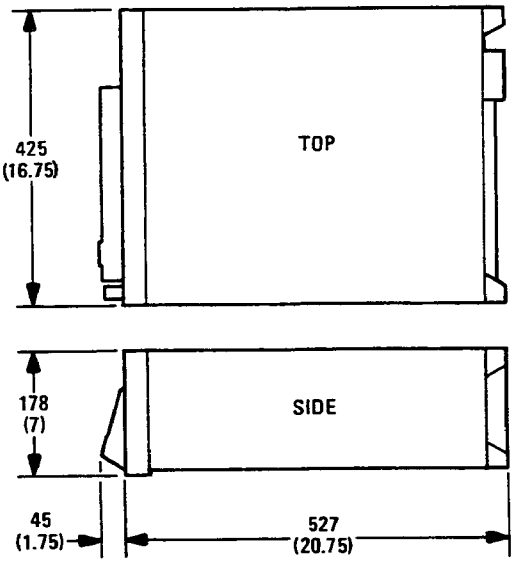
Table 1-1. Specifications (4 of 5)

Electrical Characteristics	Performance Limits	Conditions
GENERAL (Cont'd)		
Dimensions[7]:		
Height	178 mm (7.0 in.) nominal	
Width	425 mm (16.75 in.) nominal	
Depth	527 mm (20.75 in.) nominal	



DIMENSIONS IN MILLIMETRES AND (INCHES)

Electrical Characteristics	Features
DIGITAL SWEEP	
Start-Stop Sweep	Sweeps between two selected frequencies.
Span Sweep	Symmetrical sweep about center frequency selected.
Sweep Width	Determined by frequency resolution and frequency range of instrument; that is, 0.1 Hz to 1280 MHz.
Step Size	Choice of 100 or 1000 points per sweep, or settable to any value within the frequency resolution of the instrument.
Sweep Speed	Five selectable speeds: 0.5 ms, 1 ms, 2 ms, 10 ms, and 100 ms per step (0.5 ms is nominal value which will vary depending on use of markers or log sweep).
Log Sweep	Two choices available in increasing steps of 10% or 1% of the last frequency.
Frequency Markers	Five digital markers. Resolution and accuracy same as RF output.
Intensity Markers	Z-axis modulation of CRT display.
Amplitude Markers	Rear panel signal (5 kHz triangle wave) can be applied to AM input connector to provide adjustable amplitude markers.

[7] Dimensions are for general information only. If dimensions are required for building special enclosures, contact your HP office.

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Table 1-1. Specifications (5 of 5)

Electrical Characteristics	Features
DIGITAL SWEEP (Cont'd)	
Marker Sweep	Start/stop sweeps between any two frequency markers can be selected.
Display Blanking	250 μs positive pulse (TTL levels) available at rear panel for display blanking during frequency switching.
Sweep Output	0 to 10V nominal stepped ramp. Zero at start of sweep; approximately +10V at end of sweep regardless of sweep width. 10 000 points maximum.
SWEEP MODE	
Auto	Sweep repeats automatically.
Single	Single sweep activated by front panel keyboard.
Manual	Sweep controlled by front panel knob.
REMOTE OPERATIONS:	
HP-IB (IEEE 488) Capability:	
Interface	Hewlett-Packard Interface Bus (HP-IB). HP-IB is Hewlett-Packard's implementation of IEEE Standard 488 (and identical ANSI Standard MC1.1). The Generator's compatibility with HP-IB is defined by the following list of interface functions: SH1, AH1, T6, TE0, L3, LE0, SR1, RL1, PP0, DC1, DT1 and C0.
Functions Controlled	All functions controlled from the front panel with the exception of the line switch are programmable with the same accuracy and resolution as in manual mode.
Auxiliary Control:	
Interface	Rear panel 14-pin Micro Ribbon connector.
Functions Controlled	Step Up/Step Down: Same as INCREMENT keys on keyboard. Stop Sweep: Puts sweep in manual mode. Continue Sweep: Puts sweep in auto mode. Single Sweep: Initiates single sweep. Sequence: Same as sequence key on keyboard. Input Required: Contact closure to ground or 5 μs negative-true TTL pulse. Internally installed jumper determines mode. Outputs: 5 μs negative-true TTL pulse output under following conditions: 1) change in signal parameter; for example, frequency, amplitude, modulation, 2) end of sweep.

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Table 1-2. Supplemental Characteristics (1 of 2)

Supplement characteristics are intended to provide information useful in applying the instrument by giving typical, but non-warranted performance parameters.

FREQUENCY

Internal: The internal reference oscillator accuracy is a function of time base calibration ± aging rate ± temperature effects ±line voltage effects. Typical temperature and line voltage effects are 1.1 x $10^{-10}/°C < 1 \times 10^{-10}/\pm 10\%$ line voltage change.

External: Any 5 MHz (±0.0025%) frequency standard at a level of 1 Vrms ±0.1 volt or any 10 MHz (±0.005%) standard at a level of 0.5 to 0.7 Vrms into 50 ohms (rear panel connector).

Reference Output (source impedance 65 ohms): Reference signal (Int or Ext) available from rear panel connector at a level of > 0.5 Vrms into 50 ohms. (Output is always 10 MHz even with 5 MHz external frequency).

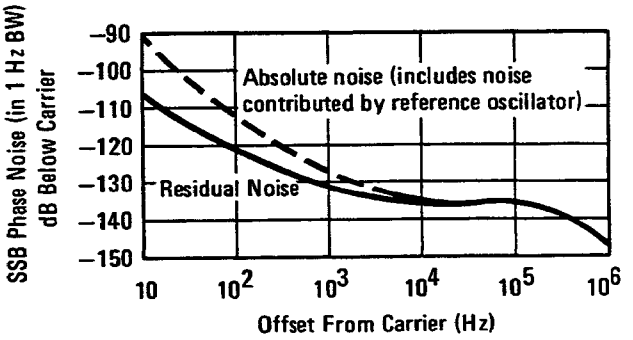
Frequency Switching Speed: Total switching time depends on the programming mode used. The 8662A RF settling time is 250 µs to be within 1 kHz and 400 µs to be within 100 Hz. The table below gives typical total switching time to be within 100 Hz of final frequency for various programming modes. (All data for 11-digits of frequency change.)

Programming Mode	*Microprocessor Time*	*Settling Time*	*Total Switching Time*
String	*12.1 ms*	*400 µs*	*12.5 ms*
Character	*8.3 ms*	*400 µs*	*8.7 ms*
Remote sweep	*In these modes, microprocessor time and RF time overlap.*		*700 µs*
Fast learn mode			*420 µs*

NOTE

Due to bandwidth switching of the automatic internal leveling loop, brief level inaccuracies (i.e., typically <30 ms) may occur when switching through 150 kHz and 1 MHz RF OUTPUT frequencies.

SPECTRAL PURITY



Measured SSB phase noise including noise contributed by reference oscillator. f_c = 639 MHz.

Measured residual SSB phase noise:

Offset from carrier[1]	*0.01 to 120 MHz (dBc)*	*120 to 160 MHz (dBc)*	*160 to 320 MHz (dBc)*	*320 to 640 MHz (dBc)*	*640 to 1280 MHz (dBc)*
10 Hz	*–113*	*–120*	*–113*	*–107*	*–101*
100 Hz	*–130*	*–132*	*–126*	*–119*	*–111*
1 kHz	*–134*	*–138*	*–133*	*–128*	*–122*
10 kHz	*–137*	*–148*	*–143*	*–136*	*–130*
100 kHz	*–134*	*–146*	*–142*	*–136*	*–130*

[1] *Residual single-sideband phase noise in 1 Hz BW (CW and AM mode only).*

OUTPUT

Impedance: 50 ohms nominal.

Reverse Power Protection: Protects signal generator from application of up to 30 watts of RF power to 1280 MHz into generator output. DC cannot exceed –8V.

SWR:

Output level	*to 640 MHz*	*to 1280 MHz*
+13 to –10 dBm	1.5	1.7
–10 to –139.9 dBm	1.4	1.5

Level Switching Speed: 60 ms from last command statement to stable output.

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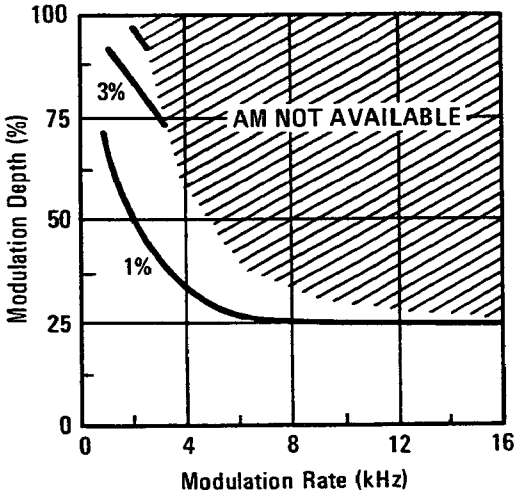
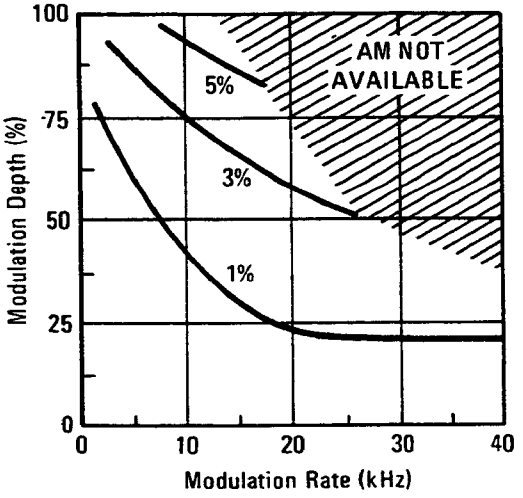
Table 1-2. Supplemental Characteristics (2 of 2)

AMPLITUDE MODULATION

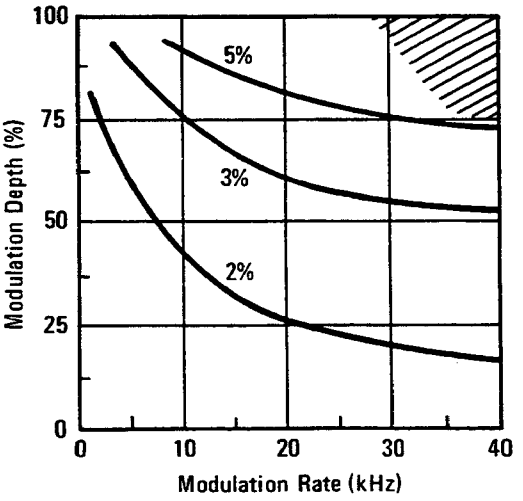
Measured AM Distortion Curves:



f_c = 150 kHz to 1 MHz



f_c = 1 MHz to 10 MHz



f_c = 10 MHz to 1280 MHz

FREQUENCY MODULATION

Measured Center Frequency Stability in DC Mode:

f_c (MHz)	Center frequency accuracy	Measured center frequency stability
0.01 - 120	±10 kHz	±200 Hz/hr
120 - 160	±2.5 kHz	±50 Hz/hr
160 - 320	±5 kHz	±100 Hz/hr
320 - 640	±10 kHz	±200 Hz/hr
640 - 1280	±20 kHz	±400 Hz/hr

EXTERNAL MODULATION

Input Impedance (Front Panel Input): 1000 ohms nominal.

Input Level Required: 1V peak for specified accuracy. Note that front panel annunciators indicate application of 1V peak signal ±2%. When greater accuracy is required, voltage of modulating signal should be monitored externally.

Modulating Signal Output: Internal or external modulating signal is provided at rear panel BNC connector at 200 mV_{rms} minimum into 10 kΩ resistive load.

Auxiliary FM Input: Rear panel connector for FM modulation. Operates independently allowing simultaneous FM modulation with two tones. Input impedance: 5.1 kΩ; 4V peak yields maximum allowable deviation.

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Table 1-3. Recommended Test Equipment (1 of 3)

Instrument	Critical Specification	Recommended Model	Use*
Attenuator, Fixed	Attenuation: As required by performance test Frequency Range: 10 kHz — 1300 MHz Accuracy: ±0.1 dB SWR: <1.3	HP 8491A	P
Attenuator, 1 dB Steps	Steps: 1 dB from 0 dB to 10 dB Frequency Range: 100 to 300 MHz	HP 355C or HP 8494G with HP 11713A (see Table 1-4)	A
Attenuator, 10 dB Steps	Steps: 10 dB from 0 dB to 50 dB Frequency Range: 100 to 300 MHz	HP 355D or HP 8496G with HP 11713A (See Table 1-4)	A
Cable, RF	Connector: UG-210/U Type N (male)	HP 11500B	P
Controller, HP-IB	HP-IB compatibility as defined by IEEE Standard 488-1975 and the identical ANSI Standard MC1.1: SH1, AH1, T2, TE0, L2, LE0, SR0, RL0, PP0, DC0, DT0, and C1, 2, 3, 4, 5.	HP 9825A/98213A/ 98034A or HP 9835A/98332A/ 98034A (see Table 1-4)	P,T
Digital Voltmeter (DVM)	Accuracy: 4-1/2 digit, ±0.05% reading ±1 digit Range: 10 mV to 600V Sensitivity: 10 μV	HP 3466A or HP 3455A (see Table 1-4)	P,A,T
Distortion Analyzer	Distortion Range: < 0.1% Range: 20 Hz to 100 kHz	HP 331A or HP 339A (see Table 1-4)	P
Frequency Counter	Range: 1300 MHz Resolution: 0.1 Hz External Time Base Capability	HP 5328A Option 031 or HP 5328A Options 011 and 031 (see Table 1-4)	P,A,T
Frequency Standard	Frequency: 10 MHz Long Term Stability: $< 1 \times 10^{-10}$/24 hours	HP 5065A	P,A
Low-Noise Amplifier	Input/Output Impedance: 50 ohms Frequency Bandwidth: 1 kHz to 1 MHz Noise Figure: < 3 dB Gain: 40 ± 1 dB	HP 08640-60506 Requires 19-25 Vdc Power Supply	P
Low-Pass Filter	Bandwidth: 1 MHz Impedance: 50 ohms	See Figure 1-2.	P
Mixer	Frequency: 0.2 to 500 MHz Type: Double Balanced	HP 10514A	P

*P = Performance Testing, A = Adjustments, T = Troubleshooting

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Table 1-3. Recommended Test Equipment (2 of 3)

Instrument	Critical Specification	Recommended Model	Use*
Mixer	Frequency: 500 to 1280 MHz Type: Double Balanced	Watkins-Johnson M94C	P
Modulation Analyzer	Accuracy: ±2% of reading AM Rejection: < 30 Hz at 50% AM (3 kHz BW) FM Rejection: < 0.2% AM (50 kHz FM)	HP 8901A	P,A
Oscillator, Test	Level: 1 Vpk minimum into 600 ohms Frequency: 10 kHz Distortion: <0.1%	HP 651B or HP 339A (see Table 1-4) or HP 3325A (see Table 1-4)	P,A
Oscilloscope	Vertical Sensitivity: 10 mV/division Bandwidth: 50 MHz	HP 1740A	P,A,T
Power Meter and Sensor	Frequency Range: 250 kHz to 1300 MHz Power Range: +17 to —60 dBm Accuracy: ± 0.2 dB	HP 436A with 8482A and 8484A or HP 436A Option 022 with 8482A and 8484A (see Table 1-4)	P,A
Power Supply	Range 0—25 Vdc Current: 500 mA	HP 6215A or HP 6002A Option 001 (see Table 1-4)	A,T
Service Accessory Kit	Required for servicing and troubleshooting. See Table 1-5 for part listing and description.	HP 11714A	A,T
Signal Generator (reference for Optional SSB Phase Noise Test)	Frequency: .01—1280 MHz Output: —50 dBm SSB Phase Noise: same or better than the specification for the Generator under test.	HP 8662A	P
Signature Analyzer	No known substitute. Provides preferred method for troubleshooting digital circuitry.	HP 5004A	T
Spectrum Analyzer, RF	Frequency Range: 0.1 to 1250 MHz Resolution Bandwidth: ≤1 kHz	HP 8558B/181T or HP 8554B/8552B/141T (see Table 1-4) or HP 8568A (see Table 1-4)	P,A,T
Spectrum Analyzer, Low Frequency	Frequency Range: 100 Hz to 150 kHz Resolution Bandwidth: ≤ 10 Hz Tracking Generator Feature (required for one adjustment not generally performed: that is, the AGC Bandwidth Adjustment)	HP 8556A/8552B/141T or HP 3585A (see Table 1-4) or HP 8568A (see Table 1-4)	P,A

*P = Performance Testing, A = Adjustments, T = Troubleshooting

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Table 1-3. Recommended Test Equipment (3 of 3)

Instrument	Critical Specification	Recommended Model	Use*
Wideband Amplifier	Gain: 26 dB Frequency Range: 100 kHz to 1280 MHz Impedance: 50 ohms Connector: Type N	HP 8447D Option 010	P
*P = Performance Testing, A = Adjustments, T = Troubleshooting			

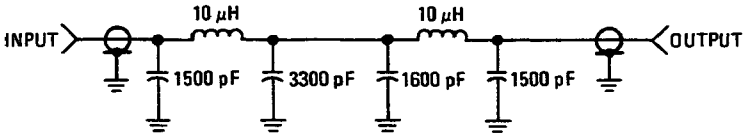

Figure 1-2. 1 MHz Low-Pass Filter

Table 1-4. Alternate Test Equipment (1 of 2)

Instrument	Recommended Model	Suggested Alternative	Advantages of Alternative
Attenuator, 1 dB steps	HP 355C	HP 8494G with HP 11713A	HP-IB*
Attenuator, 10 dB steps	HP 355D	HP 8496G with HP 11713A	HP-IB*
Controller, HP-IB	HP 9825A/98213A/ 98034A	HP 9835A/98332A/ 98034A	CRT Display HP Enhanced BASIC Larger Memory
Digital Voltmeter (DVM)	HP 3466A	HP 3455A	HP-IB*
*HP-IB is Hewlett-Packard's implementation of IEEE Standard 488 and the identical ANSI Standard MC1.1.			

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Table 1-4. Alternate Test Equipment (2 of 2)

Instrument	Recommended Model	Suggested Alternative	Advantages of Alternative
Distortion Analyzer	HP 331A	HP 339A	Ease of use. Satisfies requirements of both the Distortion Anaylzer and the Test Oscillator.
Frequency Counter	HP 5328A Option 031	HP 5328A Options 001 & 031	HP-IB*
Oscillator, Test	HP 651B	HP 339A	Satisfies requirements for both the Distortion Analyzer and the Test Oscillator.
		HP 3325A	HP-IB*
Power Meter	HP 436A	HP 436A Option 022	HP-IB*
Power Supply	HP 6215A	HP 6002A Option 001	HP-IB*
Spectrum Analyzer, RF	HP 8558B/ 181T	HP 8554B/8552B/ 141T	With the addition of the HP 8556A plug-in, this satisfies requirements for both the Low Frequency and RF Spectrum Analyzers
Spectrum Analyzer, RF and Low Frequency	HP 8558B/181T and HP 8556A/ 8552B/141T	HP 8568A	HP-IB* Satisfies requirements for the RF Spectrum Analyzer and most requirements of the Low Frequency Spectrum Analyzer. The HP 8568A does not have a low frequency tracking generator required for one adjustment, not generally performed (see the AGC Bandwidth Adjustment).
Spectrum Analyzer, Low Frequency	HP 8556A/8552B/ 141T	HP 3585A	HP-IB*

*HP-IB is Hewlett-Packard's implementation of IEEE Standard 488 and the identical ANSI Standard MC1.1.

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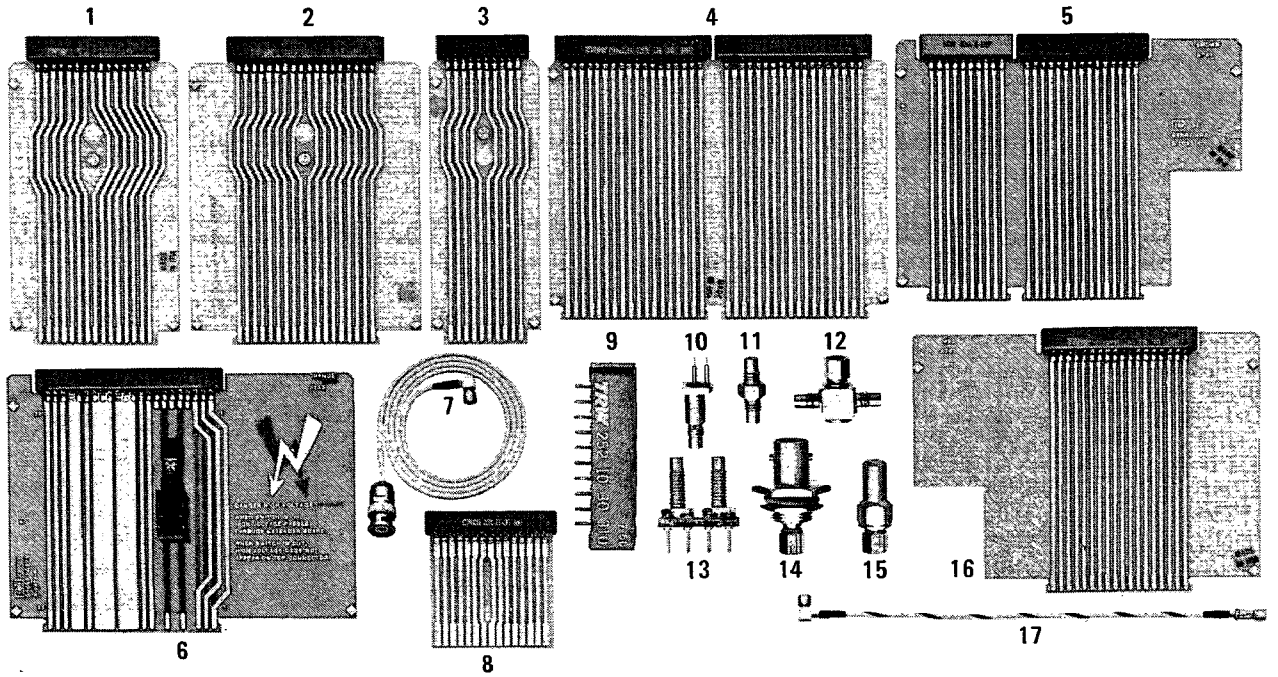
Table 1-5. 11714A Service Accessory Kit

Item Number	HP Part Number	CD	Qty	Description
1	08662-60276	0	3	Extender Board (15 pins)
2	08662-60275	9	3	Extender Board (18 pins)
3	08662-60277	1	3	Extender Board (10 pins)
4	08662-60274	8	3	Extender Board DCU (2 x 18 pins)
5	08662-60271	5	1	Extender Board Power Supply (10 and 15 pins)
6	08662-60273	7	1	Extender Board Power Supply (22 pins)
7	08662-60080	4	4	Test Cable (SMC to BNC)
8	5060-6033	4	1	Extender Board (30 pins)
9	1251-1631	9	1	Test Data Bus Connector
10	1250-1598	5	3	RF Test Probe (AC Coupled)
11	1250-0827	1	1	SMC Adapter (Straight)
12	1250-0838	4	2	SMC Adapter (TEE)
13	08662-60196	3	1	Mixer Test Board
14	1250-0832	8	2	Adapter (BNC to SMC)
15	1250-0839	5	2	RF Termination
16	08662-60272	6	1	Extender Board Power Supply (18 pins)
17	08662-60075	7	3	Extender Cable



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DECLARATION OF CONFORMITY

According to ISO/IEC Guide 22 and CEN/CENELEC EN 45014

Manufacturer's Name:	Agilent Technologies, Inc.
Manufacturer's Address:	1400 Fountaingrove Parkway Santa Rosa, CA 95403-1799 USA

Declares that the products

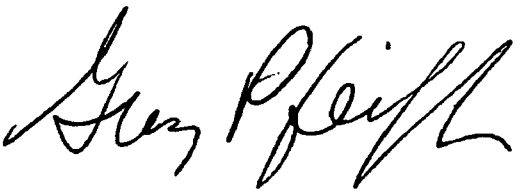
Product Name:	Synthesized Signal Generator
Model Number:	8662A, 8663A
Product Options:	This declaration covers all options of the above products.

Conform to the following product specifications:

	Standard	Limit
EMC:	CISPR 11:1990 / EN 55011-1991	Group 1, Class A
	IEC 801-2:1984/EN 50082-1:1992	4 kV CD, 8 kV AD
	IEC 801-3:1984/EN 50082-1:1992	3 V/m, 80 - 1000 MHz
	IEC 801-4:1988/EN 50082-1:1992	0.5 kV sig., 1 kV power

Safety: IEC 61010-1:1990 + A1:1992 + A2:1995 / EN 61010-1:1993 +A2:1995
CAN/CSA-C22.2 No. 1010.1-92

Supplementary Information:
The products herewith comply with the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC and carry the CE-marking accordingly.



Santa Rosa, CA, USA 2 September 2000

Greg Pfeiffer/Quality Engineering Manager

For further information, please contact your local Agilent Technologies sales office, agent or distributor.

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SECTION II
INSTALLATION

2-1. INTRODUCTION

This section provides installation instructions for the Signal Generator. This section also includes information pertinent to initial inspection, power requirements, line voltage, selection, HP-IB address selection, power cables, interconnection, environment, instrument mounting, storage, and shipment.

2-2. INITIAL INSPECTION

WARNING

To avoid hazardous electrical shock, do not perform electrical tests when there are signs of shipping damage to any portion of the outer enclosure (covers and panels).

Inspect the shipping container for damage. If the shipping container or cushioning material is damaged, it should be kept until the contents of the shipment have been checked mechanically and electrically. The contents of the shipment should be as shown in Figure 1-1. Procedures for checking electrical performance are given in the Functional Check in Section III and Performance Tests in Section IV (in Volume I). If the contents are incomplete, if there is mechanical damage or defect, or if the instrument does not pass the electrical performance test, notify the nearest Hewlett-Packard office. If the shipping container is damaged, or the cushioning materials show signs of stress, notify the carrier as well as the Hewlett-Packard office. Keep the shipping materials for the carrier's inspection.

2-3. PREPARATION FOR USE

2-4. Power Requirements

The Signal Generator requires a power source of 115 (90—126) Vac or 230 (198—252) Vac, 48 to 66 Hz single phase. Power consumption is less than 420 volt-amperes.

WARNING

This is a Safety Class I product (provided with a protective earth terminal). An uninterruptible safety earth ground must be provided from the main power source to the product input wiring terminals, power cord, or supplied power cord set. Whenever, it is likely that the protection has been impaired, the instrument must be made inoperative and be secured against any unintended operation.

If this instrument is to be energized via an autotransformer for voltage reduction, make sure the common terminal is connected to the earthed pole of the power source.

2-5. Line Voltage and Fuse Selection

CAUTION

BEFORE PLUGGING THIS INSTRUMENT into the mains (line) voltage, be sure the correct voltage and fuse have been selected.

Set the red switch on the rear panel to nominal 115V (for 90—126V) or 230V (for 198—252V).

WARNING

For protection against fire hazard, the LINE and OVEN fuses should only be 250V normal blow fuses with the correct current rating.

CAUTION

If the LINE fuse burns out, do not replace it until the cause for the failure has been determined and repaired (by a qualified service person only and specifically with resistance checks in the power supply. See Service Sheet 55). Replacing this fuse in a damaged Generator can cause additional damage.

Current ratings are printed under the fuseholders on the Generator's rear panel and listed with HP part numbers in Table 2-1.

Table 2-1. Line and Oven Fuse Part Numbers.

Line Voltage	Line Fuse	Oven Fuse
115V	HP 2110-0010 250V 5A Normal-Blow	HP 2110-0063 250V 0.75A Normal Blow
230V	HP 2110-0083 250V 2.5A Normal Blow	HP 2110-0012 250V 0.50A Normal Blow

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2-6. Power Cables

WARNING

BEFORE CONNECTING THIS INSTRUMENT, the protective earth terminal of the instrument must be connected to the protective conductor of the (mains) power cord. The mains plug shall only be inserted in a socket outlet provided with a protective earth contact. The protective action must not be negated by the use of an extension cord (power cable) without a protective conductor (grounding). Grounding one conductor of a two conductor outlet is not sufficient protection.

This instrument is equipped with a three-wire power cable. When connected to an appropriate ac power receptacle, this cable grounds the instrument cabinet. The type of power cable plug shipped with each instrument depends on the country of destination. Refer to Figure 2-1 for the part numbers of the power cables available.

2-7. HP-IB Address Selection HP-IB

The HP-IB address switches are located within the Signal Generator. To change the HP-IB address the top cover of the Signal Generator must be removed.

WARNING

This task should be performed only by service trained persons who are aware of the potential shock hazard of working on an instrument with protective covers removed.

To avoid hazardous electrical shock, the line (mains) power cable should be disconnected before attempting to change the HP-IB address.

The following procedures describe how to locate and set the HP-IB address switches.

a. Set the LINE switch to STANDBY and disconnect the line power cable.

NOTE

The HP-IB address changes only at instrument power-up. Thus, if the Generator is left on, the address will not change simply by changing the address switches.

b. Remove the Signal Generator's top cover by removing the two plastic feet from the rear of the top cover and loosening the screw at the middle of the rear edge of the top cover.

c. The HP-IB address switches are thumbwheel switches located behind the front panel amplitude display.

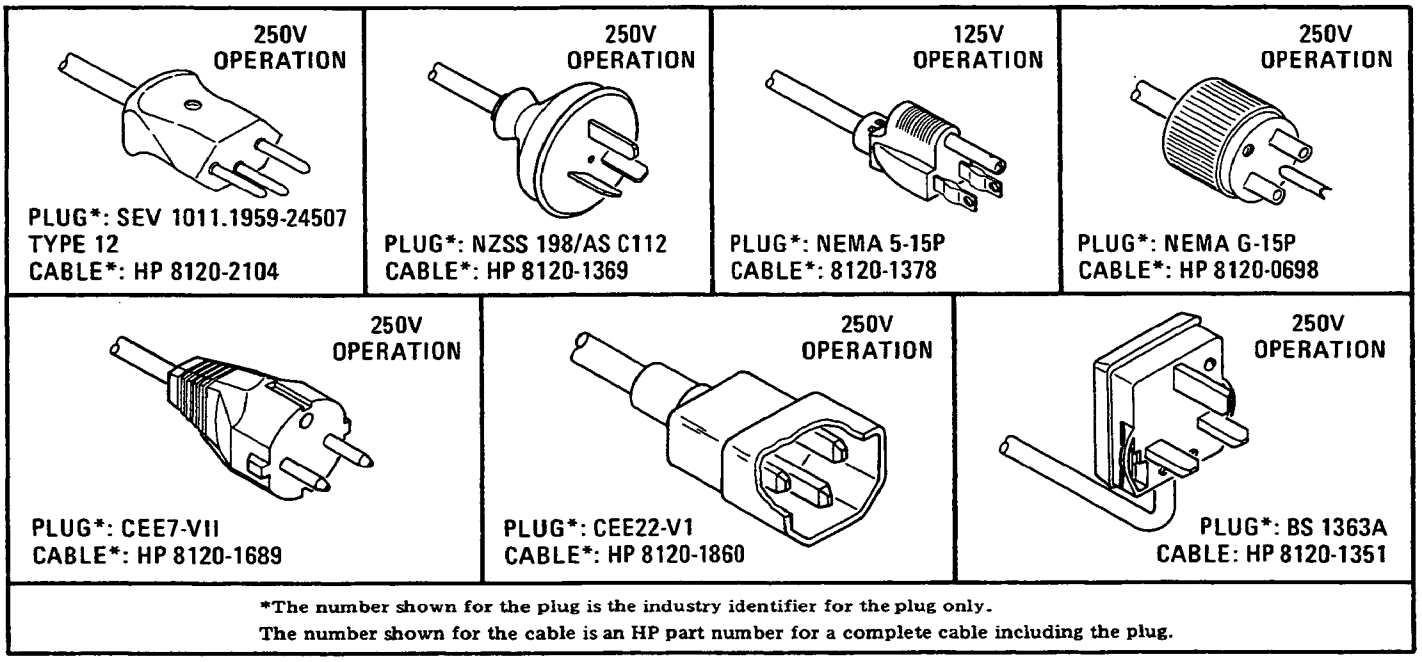

Figure 2-1. Power Cable and Mains Plug Part Numbers

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HP-IB Address Selection HP-IB **(Cont'd)**

d. The thumbwheel switch settings are in decimal code. Addresses from 00 to 30 are the only valid listen and talk addresses. Refer to Table 2-2 for the decimal equivalents of the ASCII Talk and Listen codes (**see page 3-97** for a more complete table of ASCII codes).

e. Select the new address, reinstall the Signal Generator's top cover, and set the LINE switch to ON.

Table 2-2. ASCII Address Codes to Decimal Equivalents

ASCII Address Codes		Decimal Equivalents
LISTEN	TALK	
SP	@	00
!	A	01
"	B	02
#	C	03
$	D	04
%	E	05
&	F	06
'	G	07
(	H	08
)	I	09
*	J	10
+	K	11
,	L	12
-	M	13
.	N	14
/	O	15
0	P	16
1	Q	17
2	R	18
3	S	19†
4	T	20
5	U	21
6	V	22
7	W	23
8	X	24
9	Y	25
:	Z	26
;	[	27
<	\	28
=	]	29
>	^	30

† Indicates factory set address.

2-8. Mating Connectors

Aux Interface Connector. The rear panel AUX control connector requires a male 14-pin Micro-Ribbon (57 Series) connector. The HP part number is 1251-0142. The connector is also available from Amphenol (Oak Brook, Illinois 60521). Interconnection data for the rear panel AUX control connector is provided in Figure 2-2.

HP-IB Interface Connector. Interconnection data for the Hewlett-Packard Interface Bus is provided in Figure 2-3.

Coaxial Connectors. Coaxial mating connectors used with the Signal Generator should be either 50 ohm type BNC male or type N male connectors that are compatible with US MIL-C-39012.

2-9. Operating Environment

The operating environment should be within the following limitations:

Temperature . . . . . 0°C to +55°C
Humidity . . . . . <95% relative at 40°C
Altitude . . . . . <4570 metres (15 000 feet)

NOTE

RF Output Level accuracy is specified only between +15 and +45°C.

2-10. Bench Operation

The instrument cabinet has plastic feet and fold-away tilt stands for convenience in bench operation. (The plastic feet are shaped to ensure self-aligning of the instruments when stacked.) The tilt stands raise the front of the Signal Generator for easier viewing of the control panel.

2-11. Rack Mounting

Rack mounting information is provided with the rack mounting kits. If the kit was not ordered with the Signal Generator as an option, it can be ordered through the nearest Hewlett-Packard office. Refer to the paragraph entitled Options in Section I.

2-12. STORAGE AND SHIPMENT

2-13. Environment

The instrument should be stored in a clean dry environment. The following environmental limitations apply to both storage and shipment:

Temperature . . . . . —55°C to +75°C
Humidity . . . . . <95% relative
Altitude . . . . . <15 300 metres (50 000 feet)

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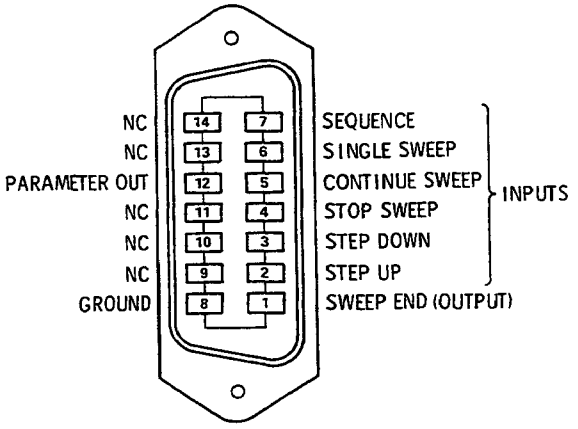

14-Pin Micro-Ribbon (57 Series) Connector

Logic Levels

The rear panel AUX connector logic levels are TTL compatible (5 μs negative true TTL pulse or a contact closure to ground).

Internal Jumper Selection

If the signals to the rear panel AUX connector require contact debouncing (e.g., for mechanical switches), an internal jumper must be changed. The jumper is installed at the factory for electronically clean input signals (i.e., those signals that do not require the use of the debounce circuit). The jumper is located on the A2A1 Key-Code board. To change the jumper position the top cover of the Signal Generator must be removed.

WARNINGS

This task should be performed only by service trained persons who are aware of the potential shock hazard of working on an instrument with protective covers removed.

To avoid hazardous electrical shock, the line (mains) power cable should be disconnected before removing the Generator's cover.

The following procedure describes how to locate and change the jumper position.

a. Set the Line switch to STANDBY and disconnect the line power cable.

b. Remove the Signal Generator's top cover by removing the two plastic feet from the rear of the top cover and loosening the screw at the middle of the rear edge of the top cover.

c. The A2A1 Key-Code board is located directly behing the FREQUENCY readout display.

d. Remove the A2 Assembly protective cover (left-hand side) by removing the two nuts.

e. Remove the A2A1 Key-Code board by gently lifting the board's extractors (the extractors are color-keyed brown and black).

f. The jumper is located on the upper left-hand corner of the board.

g. To enable the debounce circuit remove the jumper from J1 and reinstall the jumper at J2.

h. Reinstall the A2A1 Key-Code board, the A2 Assembly protective cover and the Signal Generator's top cover.

Figure 2-2. AUX Interface Connector

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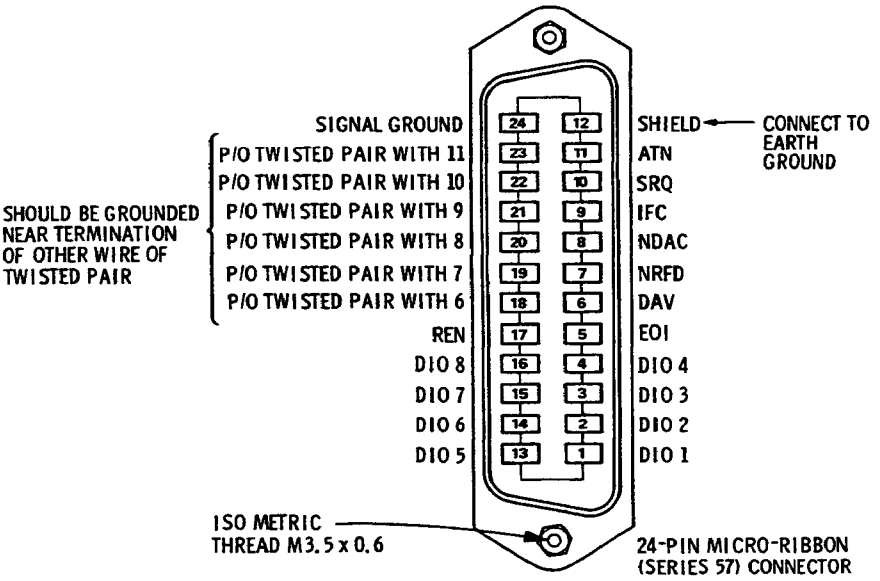

Logic Levels

The Hewlett-Packard Interface Bus logic levels are TTL compatible, i.e., the true (1) state is 0.0 Vdc to +0.4 Vdc and the false (0) state is 2.5 Vdc to +5 Vdc.

Programming and Output Data Format

Refer to Section III, Operation.

Mating Connector

HP 1251-0293; Amphenol 57-30240.

Mating Cables Available

HP 10631A, 1 metre (3.3 ft.), HP 10631B, 2 metres (6.6 ft.)
HP 10631C, 4 metres (13.2 ft.), HP 10631D, 0.5 metres (1.6 ft.)

Cabling Restrictions

1. A Hewlett-Packard Interface Bus system may contain no more than 2 metres (6.6 ft.) of connecting cable per instrument.

2. The maximum accumulative length of connecting cable for any Hewlett-Packard Interface Bus system is 20 metres (65.6 ft.).

Figure 2-3. Hewlett-Packard Interface Bus Connection

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2-14. Packaging

Original Packaging. Containers and materials identical to those used in factory packaging are available through Hewlett-Packard offices. If the instrument is being returned to Hewlett-Packard for servicing, attach a tag indicating the type of service required, return address, model number, and full serial number. Also mark the container FRAGILE to assure careful handling. In any correspondence refer to the instrument by model number and full serial number.

Other Packaging. The following general instructions should be used for repackaging with commercially available materials:

a. Wrap the instrument in heavy paper or plastic. (If shipping to a Hewlett-Packard office or service center, attach a tag indicating the service required, return address, model number, and full serial number.)

b. Use a strong shipping container. A double-wall carton made of 2.4 MPa (350 psi) test material is adequate.

c. Use enough shock-absorbing material (75 to 100 mm layer; 3 to 4 inches) around all sides of instrument to provide firm cushion and prevent movement in the container. Protect the control panel with cardboard.

d. Seal the shipping container securely.

e. Mark the shipping container FRAGILE to assure careful handling.

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SECTION III
OPERATION

3-1. INTRODUCTION

This section explains the operating characteristics of the Signal Generator, its functions, controls and modes of operation. It explains operator checks and maintenance (the OVEN fuse replacement is the only maintenance recommendation in this section).

3-2. Operating Characteristics

The Signal Generator can produce fixed or swept frequency signals between 10 kHz and 2560 MHz, between +13 and −30.9 dBm, with AM, FM, or mixed modulation. Table 3-1 contains a more complete list of basic signal parameters that can be set and controlled.

The Generator can be controlled by the front panel, by HP-IB and to a limited extent by the rear panel AUX connector. All user-selectable parameters can be varied in steps by the INCREMENT keys and the knob.

There are nine internal registers for storing and recalling full control setups.

3-3. Local Operation

Simplified Operation. The instructions on the backside of this folder describe basic operation only. It is the starting point for a first-time user.

Getting Acquainted. The Getting Acquainted Exercise (starting on page 3-6) provides a hands-on learning experience in the operation of the Generator.

General Operation. Several instructions relating to all features and modes are presented in the General Operating Instructions starting on page 3-4.

Operating Information Card. The pullout Operating Information card, located underneath the Generator, presents general operating instructions. With examples or menus of the Generator's features, it is a good teaching aid as well as a quick reference.

Detailed Operating Instructions. The detailed operating instructions present the most comprehensive information about all of the Generator's functions. The instructions are arranged alphabetically by title. They are indexed by function in Table 3-5.

Panel Features. Front and rear panel features are described in Figures 3-1 through 3-7. Figure 3-1 shows the full front view with references to detailed descriptions of all controls, connectors and indicators shown in the other figures.

3-4. Remote Operation

HP-IB. Knowledge of local operation is essential for HP-IB programming since most of the Data messages contain the same sequence-like sequences. HP-IB information is presented in the following areas:

- General HP-IB instructions start on page 3-30.
- A summary of program codes and formats starts on page 3-47 (some of the key-stroke-related codes are also shown on the pullout Operating Information card).
- Detailed information on the Generator's features with tables and examples of related program codes is presented in the detailed operating instructions (refer to the index in Table 3-5).

Auxiliary. The following keyboard functions can be controlled by TTL signals at the rear panel AUX connector:

- INCREMENT+
- INCREMENT−
- MANUAL (sweep)
- AUTO (sweep)
- SINGLE (sweep)
- SEQ

These controls and two output lines on the same connector are described in the Auxiliary Control paragraph on page 3-29.

3-5. Operator's Checks

This section includes three different checks that allow the operator to make a quick evaluation of the Generator's operation. The checks are as follows:

- Functional Check: keyboard controlled
- HP-IB Interface Check: controller required
- Memory Check: keyboard controlled, checks ROM (permanent memory) and RAM (temporary memory).

Operator's Checks start on page 3-18.

⚠ 3-6. OVEN FUSE REPLACEMENT

Two fuses on the rear panel are labeled "LINE" and "OVEN". If either fuse opens, the entire Generator would be disabled. The operator should only replace the OVEN fuse.

WARNING

For continued protection against fire hazard, replace only with a 250V, normal blow fuse with the same current rating.

CAUTION

The normal operator should not replace the LINE fuse. Replacing this fuse in a damaged Generator might cause additional damage. A qualified service person should first determine the cause of the failure, specifically with resistance checks in the power supply (see Service Sheet 10), repair the failure and then replace the fuse.

To replace the OVEN fuse, first set the LINE switch to STANDBY and unplug the power cable. Then remove the fuse cap and replace the fuse. Values for the fuse are printed below the fuseholder. The HP part numbers are listed in Section I (Specifications).

SIMPLIFIED OPERATION

Table 3-1. Operating Characteristics

Fixed Frequency	Range: 10 kHz to 2560.5 MHz (1279.995 000 00 MHz) Resolution: 0.1 Hz (below 6.5 MHz) 0.2 Hz (above 6.40 MHz)
Amplitude	Range: +13 to −130.9 dBm (999 mV to 0.063 µV) Coverage: −16 dBm (with decreased accuracy) Resolution: 0.1 dB
Modulation	AM Depth: 0 to 90% Resolution: 1% (0 to 50%) 0.5% (> to 90%) FM FM rates (1.6 GHz and above increased by 20 Hz to 1.28 MHz; increased by 40 to 2.56 MHz). FM deviation: **Center Frequency MHz** / **Maximum peak deviation: Internal and AC mode (kHz)** / **DC mode (kHz)** Where n is the number of: 0.5–128 — 20 or f_{MOD} × 100 — 12 128–256 — 25 or f_{MOD} × 125 — 15 256–320 — 50 or f_{MOD} × 250 — 30 320–640 — 100 or f_{MOD} × 500 — 100 640–1280 — 200 or f_{MOD} × 1000 — 200 FM resolution: 100 Hz (for deviations < 10 MHz) 1 kHz (for deviations > 10 MHz) Mixed Modulation: AM + FM PM – FM AM + FM + PM Internal Modulation Sources: 400 and 1000 Hz External Modulation Sources: AC and DC coupling
Swept Frequency	Stationary Sweep Range: 10 kHz to 1280.5 MHz (639.995 000 00 MHz) Modes: Automatic, Manual, Single Configuration: Linear Logarithmic Start-Stop Frequencies Center Frequency and Span Sweep Time (nine seconds) Frequency Accuracy: as long as sweep width is small as 0.1 Hz or 0.2 Hz above 640 MHz) Time Delay: 0.5 ms (minimum), 1, 2, 10 or 100 ms Markers: 7 Markers 8-bit and 8-bit Blanking: 8-bit (0.5 ms at start of main sweep; no blank on retrace) Sweep Output: 0 to +1.29 V Staircase Ramp

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SIMPLIFIED OPERATION

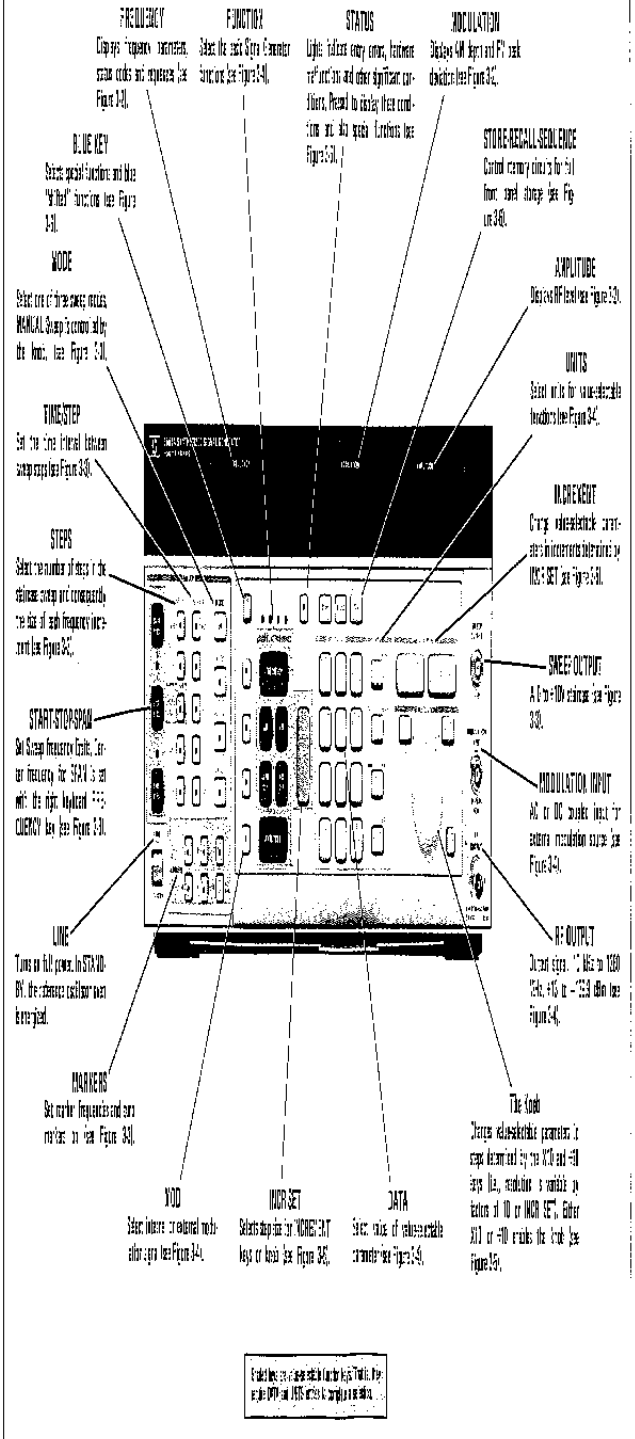
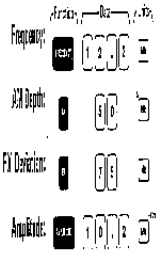


Figure 3-1. Front Panel Features

BASIC SIGNAL GENERATOR FUNCTIONS



These parameters are value-selectable. Their values are selected in the Function-Data-Units format shown in the examples above.

Modulation Signal. One of two internal signals (400 Hz or 1 kHz) or an external signal (or combination) through the front panel connector is selected by the VOID keys.

CHANGING VALUES

Value-selectable parameters can be changed by entering new Function-Data-Units entries, by using the INCREMENT keys or by using the knob.

INCREMENT

The INCREMENT keys change the value of the last selected function. They are always enabled. The amount they step a parameter is determined by the INCR SET key.

Increments are set using the cursor-controlled function-data-units format shown in the example below.

The KNOB

The knob is a stepping control also, but with no analog "feel". It changes the value of the last selected function. The knob is enabled by pressing either of the OFF keys (i.e., .XXX or +XX).

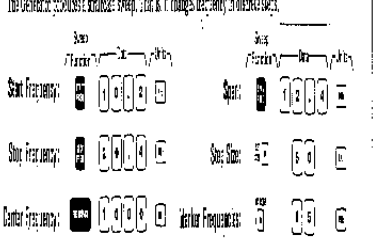
Select the knob's step resolution by pressing the .XXX or +XX key while scrolling the blinking digit to the appropriate amount. Each time the key is pressed, resolution changes by a factor of ten.

Turning the knob changes the parameter in steps equal to the position value of the selected digit.

The knob is disabled by pressing the OFF key or by selecting a new function.

SWEEP FUNCTIONS

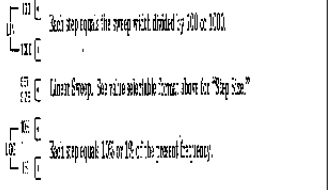
The Generator can execute a stepwise sweep. That is, it changes frequency in discrete steps.



These parameters are value-selectable. Their values are entered in the Function-Data-Units format shown in the example above.

Sweep Time and Step Linger

Sweep time is determined by the STEPS and TIME/STEP keys. The STEP keys determine number of steps per sweep, and consequently, the size of each frequency step. The STEPS key also determine the type or fitness sweep type.



Modes

The MODE keys turn on the sweep circuitry for a continuous sweep (AUTO), a manual sweep (controlled by the knob) or a single sweep.

Markers

The Generator can produce up to 11 markers on the 2-9 or 0-scale internally markers on a swept display. See the value selectable format above.

STATUS

Entry errors, hardware malfunctions and other significant conditions are indicated by a lighted STATUS key.

Press the STATUS key and read the two-digit codes in the FREQUENCY readout. Special functions are listed at the status on the right. The codes are explained under "Status" in the detailed operating instructions.

SPECIAL FUNCTIONS

Several special functions exist which extend the keyboard capability but which are not labeled on the keyboard. These functions are introduced under "Special Functions" in the detailed operating instructions.

STORE--RECALL

The Generator can store several settings for recall at a later time. This capability is described under "Store-Recall" and "Sequence" in the detailed operating instructions.

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Table 3-2. Index of Detailed Operating Instructions

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*The actual detailed operating instructions are arranged in alphabetical order at the end of this manual.

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3-7. GENERAL OPERATING INSTRUCTIONS

WARNINGS

Before the instrument is switched on, all protective earth terminals, extension cords, auto-transformers and devices connected to it should be connected to a protective earth grounded socket. Any interruption of the protective earth grounding will cause a potential shock hazard that could result in personal injury.

Only 250V normal blow fuses with the required rated current should be used. Do not use repaired fuses or short circuited fuseholders. To do so could cause a shock or fire hazard.

When working near the back of the Generator, take care not to let long hair be drawn into the fan. This could result in personal injury.

CAUTIONS

Before the instrument is switched on, it must be set to the voltage of the power source, or damage to the instrument may result.

The Generator's RF OUTPUT is protected against reverse power applications up to 30W. However, for greatest protection of expensive internal components, be careful not to apply any reverse power to the RF OUTPUT.

3-8. Turn-On

Turn-On Procedure. The Generator has a standby state and an on state. Whenever the power cable is plugged in, an oven is energized to keep the reference oscillator stable. If the Generator is already plugged in, set the LINE switch to ON.

If the power cable is not plugged in, follow these instructions.

On the rear panel:

1. Check the line voltage switch for correct voltage selection.
2. Check the two fuses for correct current ratings. Current ratings are printed on the rear panel.
3. Plug in the power cable.

On the front panel, set the LINE switch to ON.

NOTE

The light in the STATUS key should turn on blinking to indicate that the Generator requires warming up. (Status Code 12). The light should turn off within an hour and the Generator should be ready for general use.

Turn-On Configuration. The Generator turns on to the same control settings it had before it was switched to STANDBY or even completely OFF (that is, if line power was removed). The exceptions to this rule are listed below.

- It always turns on to local mode (vice HP-IB remote). Also, it issues a Require Service message to an HP-IB controller at every turn-on.
- It always turns on with the auto-sequence mode disabled.
- It turns on with amplitude correction enabled (except when a sweep mode is on or when amplitude is above +13 or below —120 dBm).
- HP-IB default conditions are enabled. These are described **on page 3-32.**

Turn-On Memory Check. The Generator performs a quick memory check at turn-on. It checks for a failure in ROM (permanent memory) or in RAM (temporary memory), and for the presence of correct data stored in RAM.

NOTE

An internal battery is used to retain data in RAM during standby and off periods. The data restores the last control setup and the nine storage registers.

The check takes less than five seconds and occurs while the Generator's readout displays all dashes.

If a ROM or serious RAM failure occurs the Generator will attempt to turn on to its last control set-

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Turn-On (Cont'd)
up. The Generator might be useable but does require service (malfunction code 99 will be set in the status readout).

If all of the register data has been altered (for example, if the battery failed) the Generator will re-initialize to 100 MHz, −30 dBm, modulation, sweep and special functions off. The initialized control setup will then be stored in all of the registers. The Generator might be useable but does require service (code 53 will be set in the status readout).

NOTE

The Parameter Out line (pin 12) on the rear panel AUX connector will switch to and remain at a TTL low level when this condition occurs. Thus it can be used as a signal that the Generator turned on to an unexpected state.

If any, but not all, of the stored data is found to be incorrect, the Generator will turn on to the configuration stored in its first good register. This could be caused by even a single bit of data being lost due to line transients, noise or other unpredictable conditions. The Generator should be useable and does not require service unless this situation occurs repeatedly (code 52 will be set in the status readout).

NOTE

In this situation, special functions and markers would also be cleared and the sequence reset to 1-2-3-4.

If the Generator is being used in a situation where its turn-on configuration is critical, it should have that configuration stored in all of the registers (without the use of special functions, markers or sequence).

3-9. Reference Selection

Three reference signal switches and two connectors are located on the rear panel. The INPUT connector can accept a reference signal to be used instead of the Generator's internal reference.

The internal reference is a 10 MHz signal with an aging rate of $<5 \times 10^{-10}$/day after warm-up (typically after 24 hours). Pressing the INT switch enables this internal reference.

Pressing either EXT switch disables the internal reference and enables the INPUT connector for signals of 5 MHz at >13 dBm or 10 MHz at >7 dBm.

The OUTPUT connector provides a 10 MHz signal (>7 dBm) derived from the selected reference. The OUTPUT connector does not require any switching.

3-10. Status Messages

The Generator produces several messages that indicate its status. The messages are in numeric codes which are described on the pullout Operating Information card, and in the detailed operating instruction titled "Status". The messages appear in the FREQUENCY readout when the STATUS key is pressed (special functions on the left; entry errors, hardware malfunctions and general status on the right).

The light in the STATUS key turns on to signal the operator that an entry error, hardware malfunction or other significant condition exists that affects operation. The light does not turn on for special functions.

3-11. Amplitude Correction Off

The Generator achieves optimum output level accuracy by correcting for internal amplitude variations throughout its frequency range. Much of this correction involves switching of the output attenuator. Thus it is possible for the attenuator to receive excessive mechanical wear during long periods of automatic frequency changes (for example, during operations that involve auto-sequencing, HP-IB learn modes, low-rate FM, etc).

If the high degree of level accuracy is not required during these operations, the correction feature should be defeated with Special Function 85. Specified level accuracies with correction enabled and typical accuracies with correction disabled are listed **on page 3-53.**

NOTE

Amplitude correction is automatically disabled during sweep mode operations and at output levels above +13 or below −120 dBm.

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3-12. GETTING ACQUAINTED EXERCISE

This is a simple exercise to familiarize you with the Generator's front panel control. It should only take about 30 minutes to perform. It doesn't require additional equipment, so you can look to the front panel for all indications.

This exercise can be performed in total or entered at several points where the boxed instructions for INITIALIZING are shown.

3-13. Turn-On and Warm-Up

If your instrument has been plugged in for more than an hour, it is probably warmed up and ready. Just set the LINE switch to ON.

If it has not been plugged in, follow these instructions.

On the rear panel:

1. Check the red Line Voltage switch for correct voltage selection.
2. Check the two fuses for correct sizes. The correct sizes are printed on the rear panel.
3. Press the INT button to select the internal reference oscillator.
4. Plug in the power cable.

Now, on the front panel, set the LINE switch to ON.

3-14. The STATUS Key and Light

If you just plugged in the Generator and switched it on, you should notice the STATUS light blinking on and off. It's probably trying to remind you that the Generator requires some warming up. Press and hold the STATUS key (even if your light isn't blinking, go ahead. Press the STATUS key anyway.). You should see a two-digit code on the right side of the FREQUENCY readout. If your Generator needs warming up, you should see code 12. If there is no fault at all, the code should be 00. If any other code appears, it might be indicating some transient condition that occured in the past. Press the key again. If the code disappears, all is well and you can continue. If a code appears on the left side, it is a special function code and you will clear that with the first initializing step.

The STATUS light and key are there to alert you to an instrument malfunction, an operator error, general status or special functions enabled. The codes are described on the pullout information card and in the detailed operating instruction titled "Status."

If the only problem is that your Generator needs warming up, you can proceed with this exercise. Ignore the blinking light. It will go out by itself when it is ready.

3-15. The Keyboards

Left and Right. You will notice that there are two distinct keyboards. The small one on the left is exclusively for sweep functions (of course, the LINE switch there affects the whole instrument). The larger, slanted keyboard on the right holds the Signal Generator function keys, data and data-changing controls, and storage keys.

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The Keyboards (Cont'd)

If you have trouble locating a key that I call out, relax and keep looking. They are all there. Sometimes the labels are on the keys and sometimes on the panel, and often there is more than one label per key.

One-Finger Keys. The Generator has a one-finger keyboard. That is, you should only press one key at a time. This applies to the knob too. You shouldn't turn the knob and press a key at the same time. When I ask you to press a key, I only want you to press it once and then let go. If, on the other hand, I want you to hold it down, I'll be explicit about that.

3-16. Indications

There are only three readout panels that share responsibility for all of the value-selectable parameters. Often this means that a parameter is set but not displayed (for example, an increment setting or Marker frequency). To recall a parameter just press and hold the key that describes it. The value should appear in the appropriate readout and remain for as long as the key is held.

Some keys have built-in lights that indicate the function is operating.

3-17. Setting Signal Generator Functions

INITIALIZING

Press the Blue Key, SPECIAL and 00 to initialize the Generator to 100 MHz, —30 dBm, modulation, sweep and special functions off.

All of the Generator's value-selectable parameters are set with a FUNCTION-DATA-UNITS keystroke format. (Notice the three blocks of keys with those labels on the right keyboard.) If you ever think that you made an incorrect DATA entry, just press the BACK SPACE key to "erase" the incorrect digits. If you think you've made a totally incorrect function setting, just redo it with a new FUNCTION-DATA-UNITS input.

Frequency. Press the following keys: FREQUENCY, 1279.999 999 8 and MHz. (you see, FUNCTION, DATA and UNITS). You have just set the RF to its maximum frequency. Notice that the keyboard function lamp labeled FREQ is on (this is one of four lamps located above the FUNCTION label). This lamp means that you can change the DATA and UNITS without pressing FREQUENCY again. Try it. Press 1 and GHz.

Modulation. AM% and FM peak deviation are set in a similar way. Press AM, 50 and %. Press EXT AC. The EXTERNAL SOURCE LO annunciator should be on. This means that you have selected the external modulation function but the input level is too low. Actually, of course, there is no input at all, so press INT 1k.

Amplitude. Press AMPLITUDE, 139.9 and —dBm. You have just set the minimum RF amplitude. (Are you beginning to understand the FUNCTION-DATA-UNITS format?)

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3-18. Changing Values

INITIALIZING

Press the Blue Key, SPECIAL and 00 to initialize the Generator to 100 MHz, −30 dBm, modulation, sweep and special functions off.

All of the FUNCTION keys and several of the sweep keys describe value-selectable functions. The values of these functions can be changed with the INCREMENT ↑ ↓ keys and the knob.

INCREMENT ↑ ↓. The INCREMENT keys change data in steps equal to a preset increment. Press and hold the INCR SET key. Notice that the FREQUENCY readout changes to 1 MHz (the initialized value of frequency increment). The value in the readout is the increment by which frequency will change each time an INCREMENT key is pressed. Release INCR SET and press the ↑ key a few times. Now press the ↓ key.

Increment Setting. Press AMPLITUDE, INCR SET, 5 and dB. Now, press and hold ↓. You should see the AMPLITUDE readout changing by 5 dB increments and at about 5 times per second. That's what happens when you keep an INCREMENT key depressed.

The Knob. The knob is a stepping control also, but with an analog "feel". It must be turned on (unlike the INCREMENT keys). Press FREQUENCY. Press and hold the RESOLUTION x 10 (ON) key. You have just enabled the knob for control of frequency. Notice that one of the FREQUENCY digits is blinking. This is the digit at which the stepping will start and progress by ones. Release the x 10 key and turn the knob a few times. Now press and hold the ÷10 key. The blinking digit should shift to the right. Release the ÷10 and turn the knob again. Observe that control has shifted by a factor of ten. Repeat this exercise with the x10 key.

The knob is disabled as soon as you select a new keyboard function. Press AMPLITUDE and try the knob; nothing should happen. Press the INCREMENT keys. Notice that they still operate. They are always on (however, they are now controlling a new function. That is, amplitude).

3-19. Setting Sweep Functions

INITIALIZING

Press the Blue Key, SPECIAL and 00 to initialize the Generator to 100 MHz, −30 dBm, modulation, sweep and special functions off.

Several of the sweep keys describe value-selectable functions just like the keys labeled "FUNCTION" on the right keyboard. That is, they require a similar FUNCTION-DATA-UNITS entry format. In this case the "function" keys are on the left keyboard but DATA and UNITS are where they always were on the right keyboard.

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GETTING ACQUAINTED EXERCISE

Setting Sweep Functions (Cont'd)

Sweep functions are not always displayed. Their values are sometimes hidden. If you wonder what a value is, press and hold the key for that function. The value should appear in the FREQUENCY readout and remain for as long as you hold the key down.

Start and Stop Frequencies. Press START FREQ, 200 and MHz. Press START FREQ again and hold it. The "hidden" start frequency value should appear in the FREQUENCY readout for as long as you hold the key in. Select a stop frequency of 300 MHz in a similar way.

Sweep Time. Press LIN 1000 (steps), 10 ms (Time/Step) and AUTO mode. Now look at the FREQUENCY readout. You should see a split readout with the sweeping frequency on the left and stop frequency on the right. Press 1 ms (Time/Step). The readout now shows only the start frequency on the left. There is no point in displaying instantaneous frequency now because it would be moving too fast for a meaningful display.

Center Frequency and Span. Use the FREQUENCY key on the right keyboard to set a center frequency of 500 MHz. Use the SPAN FREQ key on the left keyboard to set a 1 MHz span.

Now press SET SIZE, 100 and kHz. This sets a linear sweep with 10 steps (that is, the span of 1 MHz divided by 100 kHz per step). Press the MANUAL mode key and slowly turn the rotary control knob. You should see the frequency sweep between 499.5 and 500.5 MHz in 10 discrete steps.

Setting Markers. The Generator can produce Z-axis (intensity) markers on a swept display or amplitude markers on the RF signal. Of course, you won't be able to see them without a CRT, so they will be described in more detail later. For now, however, perform the following steps as an exercise in setting marker frequencies and turning them on.

Press the Marker 1 key, 475 and MHz (another FUNCTION-DATA-UNITS input). The Marker frequency is set but not turned on (notice that the light in the marker key stays off). This is because 475 MHz is outside of the frequency limits of your sweep (499.5 to 500.5 MHz). Change the frequency span to 100 MHz (that is, a sweep of 450 to 550 MHz), and press Marker 1 again. Now the Marker and its light should be on.

Let's set several markers. Set Marker 2 to 460 MHz and Marker 3 to 510 MHz. Notice that the lights stay on. Press Marker 2 and OFF. Marker 2 should turn off. Now press the Blue Key and ALL OFF. All remaining markers should turn off.

3-20. Frequency Transferring

INITIALIZING

Press the Blue Key, SPECIAL and 00 to initialize the Generator to 100 MHz, −30 dBm, modulation, sweep and special functions off.

You can transfer the value of one frequency parameter to another (in both fixed frequency and sweep modes). Let's transfer the frequency values of Marker 1 to START FREQ and

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GETTING ACQUAINTED EXERCISE

Frequency Transferring (Cont'd)
Marker 2 to STOP FREQ. First, set Marker 1 to 50 MHz and Marker 2 to 25 MHz. Then press the START FREQ and AUTO sweep mode keys so that you can observe what happens.

Now press the Blue Key, Marker 1 (the source) and START FREQ (the recipient). Press the Blue Key, Marker 2 (the source) and STOP FREQ (the recipient). What you should see is the start and stop frequencies change to the same values as the markers. (As a side note, you can see that it is possible to sweep backwards by setting the stop frequency lower than the start frequency. Press 100 ms Time/Step to observe this).

3-21. Front Panel Storage

INITIALIZING

Press the Blue Key, SPECIAL and 00 to initialize the Generator to 100 MHz, —30 dBm, modulation, sweep and special function off.

Store-Recall. Let's set several front panel configurations and store them for future use.

1. Press LIN 100 (steps), 10 ms (Time/Step) and the AUTO sweep mode key. Then press STORE and 1 (a DATA key) to store the entire front panel setup in register 1.

2. Press the sweep mode OFF key. Select AM 20% and amplitude +10 dBm (that is, AMPLITUDE, 10 and + dBm). Press STORE and 2.

3. Set FREQUENCY to 0.5 GHz and SPAN FREQ to 50 MHz. Select AUTO sweep mode. On the right keyboard, press MOD OFF and select amplitude —100 dBm. Then press STORE and 3.

Now press RECALL and 1. This should recall the first keyboard configuration, including the AUTO sweep.

Press RECALL 2 and RECALL 3. The front panel should change to the configurations stored in registers 2 and 3.

Sequence and Auto-Sequence Modes. The sequence function is a way of recalling storage registers in a pre-selected order or sequence. The normal sequence mode requires a keystroke for each recall. Auto-sequence is similar except the generator recalls one register after another automatically.

First, you must select the sequence. Do this now by pressing the Blue Key, SET SEQ, 1, 3, 2, and STORE. When the registers are recalled in a sequencing mode they will follow the order 1, 3, and 2.

Press SEQ. Press it again. The front panel should change once for each keystroke. Now press the Blue Key and AUTO SEQ. The Generator will recall one register after another as fast as it can. When an AUTO *sweep* mode is encountered, such as in registers 1 and 3, the Generator will perform a single sweep before moving to the next configuration. Because the sequencing moves so quickly across register 2, you might think it is skipping it. But look closely at the MODULATION readout. The 20% AM that flashes on periodically is the modulation setting of register 2.

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Front Panel Storage (Cont'd)

Press FREQUENCY. The sequencing should stop. In truth, pressing any key, except STATUS, would stop the auto-sequencing. I choose FREQUENCY because it can't cause any parameter change by itself. It just stops the sequencing.

What was the sequence that you programmed? To find out, press RECALL and SEQ (hold SEQ). The numbers 1, 3, and 2 should appear in the FREQUENCY readout. One of the numbers should be blinking. That number identifies the register with the current front panel setup. (There is an exception to this rule that you will learn later. However, you won't be wrong if you remember that the next register to be called is always to the right of the blinking digit, including wrap-around to the first digit). Release the SEQ key.

3-22. Special Functions

INITIALIZING

Press the Blue Key, SPECIAL and 00 to initialize the Generator to 100 MHz, −30 dBm, modulation, sweep and special functions off.

There are several special functions that are not apparent by looking at the front panel. In fact, you have been using one throughout this exercise (that is, Special Function 00 for Initializing). Others will be described in detail later. But let's try one more now.

This one is called "Amplitude Reference". It changes the AMPLITUDE readout from any absolute value in dBm to a value of 0.0 dB. Thereafter, all changes in amplitude are displayed in units of dB referenced to the original power level.

To change the AMPLITUDE readout from −30 dBm to 0.0 dB, press the Blue Key, SPECIAL and 31 (if you press the STATUS key, you'll see the special function code 31 on the left side of the FREQUENCY readout).

Now use the INCREMENT ↓ key to change the amplitude by −1.5 dB.

To disable the special function and change the readout to −31.5 dBm (that is, the original −30 dBm minus 1.5 dB) press the Blue Key, SPECIAL and 30.

That's it. The exercise is over. Set the LINE switch to STANDBY.

Oh, turn it on once again. You'll notice that the Generator turns on to the same state that you left it. That's one of its memory functions too.

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FREQUENCY READOUT

The FREQUENCY readout displays frequency parameters, status codes and sequence orders.

1. Fixed Frequency. 0.1 Hz displayed resolution; the tenth-Hertz digit is blanked if equal to zero.
2. Frequency Increment. When INCR SET key is pressed and held down. Same display format as Fixed Frequency.
3. Start-Stop Frequencies. When a sweep mode is operating. Five digits each for start and stop frequencies. Acutal frequency resolution beyond five digits is not displayed. Start frequency, on the left, changes to instantaneous sweep frequency during slow sweeps (i.e., 10 and 100 ms per step).
4. CF—ΔF (Center Frequency and Span). Same display format as Start-Stop frequencies. CF on the left changes to instantaneous sweep frequency during slow sweeps (i.e., 10 and 100 ms per steps).
5. Frequency—Manual Sweep Mode. Instantaneous display same format as Fixed Frequency.
6. Marker Frequency. When a MARKER key is pressed and held down. Same display format as Fixed Frequency.
7. Sweep Step Size. When SET SIZE is pressed and held down. Same display format as Fixed Frequency.
8. Status. When STATUS key is pressed and held down. Two blocks of two-digit codes. The second and third digits on the left display special function codes. If more than one special function is operating, the display will cycle through the applicable codes. Refer to the pullout information card or to the detailed operating instruction titled "Status" for descriptions of the codes.

   The first and second digits on the right display hardware malfunction and status codes, and operator error codes. Refer to the pullout information card or to the detailed operating instruction titled "Status" for description of codes and further instructions.
9. Sequence. When RECALL and SEQ are pressed, the readout displays the order of recall for storage registers in the SEQ and AUTO SEQ modes.

MODULATION READOUT

A two-digit display of %AM or %AM increment; 0.1% minimum resoltuion. A three-digit display of FM peak deviation or peak deviation increments 0.1 kHz minimum resolution.

EXTERNAL SOURCE HI-LO

Adjusting aid for setting the level of an external modulation source. The annunciators indicate that the input level is too high or too low for calibrated display of %AM or FM deviation. The annunciators will turn off when input level equals 1.00 ± .02 Vpk (0.707 ± .014 Vrms).

REMOTE-ADDRESSED HP-IB LIGHTS

REMOTE: Turns on when the Generator is in remote mode and after it has received its first Data Message.

ADDRESSED: turns on while the Generator is addressed to talk or listen.

AMPLITUDE READOUT

Displays absolute RF amplitude in mV, μV and dBm. Displays relative levels in dB for increment setting and the Amplitude Reference special function. The ones and tenths-digits are always displayed. Otherwise, leading zeros are blanked. A maximum of four digits can be displayed for dB and dBm; three digits maximum for mV and μV. Minimum display resolution is 0.1 dB, 0.1 dBm, and .001 μV.

Figure 3-2. Readout Panel Features

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STEPS

These keys select the number of steps in the staircase sweep and consequently, the size of each frequency increment. They also select a linear or logarithmic sweep.

LIN 100 and 1000 select a linear sweep divided into 100 or 1000 equal frequency steps.

SET SIZE selects a linear sweep. It is used with DATA and UNITS to set the frequency increment (e.g., SET SIZE, 1 and MHz). Pressing and holding SET SIZE recalls a previously set increment to the FREQUENCY readout (for as long as the key is depressed).

LOG 10% and 1% select a log sweep where each frequency step is 10% or 1% of the last frequency.

TIME/STEP

Sets the time interval between sweep steps.

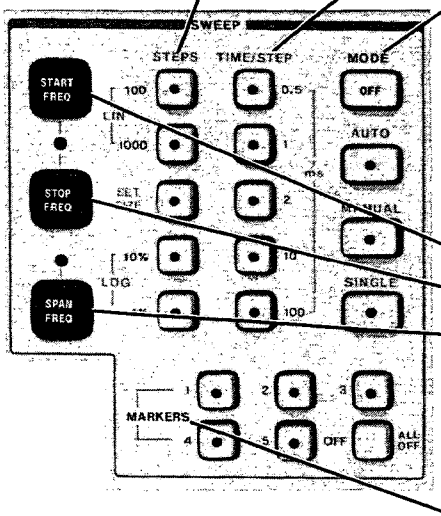
0.5 ms is a nominal value only. Actual time will vary depending on specific frequencies crossed, use of markers and choice of log or linear sweeps. Actual time should not exceed 0.9 ms.

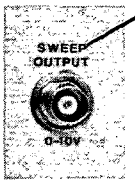
MODE

AUTO mode starts a continuous sweep (restarting at the end of each sweep).

MANUAL mode turns on the sweep circuitry; does not start a sweep but enables the knob for manual sweep.

SINGLE mode starts one sweep only. After one sweep the sweep circuitry turns off. The single sweep mode also controls the rear panel PEN LIFT output for use with pen plotters.





SWEEP OUTPUT

BNC female connector, 1000Ω output impedance. Voltage staircase, 0 to +10V. 1000 steps maximum. (If > 1000 frequency steps have been selected, the sweep circuitry averages these across the 1000 SWEEP OUTPUT steps. If greater than 10 000 frequency steps are selected, the SWEEP OUTPUT is disabled and set to 0V).

START-STOP/SPAN FREQ

Each key, when used with DATA and UNITS, sets its respective frequency parameter (e.g., START FREQ, 200 and kHz). Each key when pressed and held, recalls a previously set value to the FREQUENCY readout (for as long as the key is held). SPAN FREQ is used with a center frequency (set by the FREQUENCY key). Pressing the START or STOP FREQ key recalls a complete set of previously selected sweep parameters including frequency limits, steps, time per step and markers. Pressing SPAN FREQ will also recall a complete set of parameters which can be different from those selected for the Start-Stop configuration.

MARKERS

Two types of markers are available at the rear panel.

Z-axis intensity markers for a swept display.

Amplitude markers for the RF signal.

The MARKER keys perform the following funtctions:

1. When used with DATA and UNITS they select up to five marker frequencies (e.g., MARKER-1, 15 and MHz).
2. They turn on previously selected markers if the marker frequency is within the selected sweep width. Otherwise the marker will not turn on.
3. They temporarily recall a marker value to the FREQUENCY readout (for as long as the key is depressed).
4. They temporarily set the RF output to the marker frequency (for as long as the key is depressed).

When preceded by a Marker key, the OFF key turns off the selected marker. When preceded by the Blue Key, it turns off all markers.

Markers will be disabled if more than ten thousand frequency steps are selected in a sweep.

Figure 3-3. Sweep Features

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MOD

The MOD keys select an internal 400 or 1000 Hz modulation source or an external source through the MODULATION INPUT connector. These keys do not control the rear panel AUX FM connector.

EXT DC with FM is a valid selection but it will disable the phase lock stabilization of the RF output signal.

The modulation signal, either internal or external, is available at the rear panel MOD OUTPUT connector.

FUNCTION

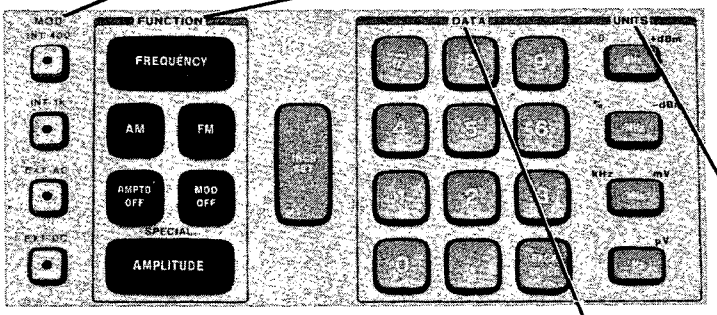
FREQUENCY, AM, FM and AMPLITUDE are used with DATA and UNITS to set their respective parameters (e.g., AM, 50 and %). AM and FM also act as "Mod-On" keys (i.e., with a single keystroke they can recall the previously selected AM depth or FM deviation, and modulation source).

AMPLITUDE also restores output after reverse power.

MOD OFF disables all modulation (except FM from the rear panel AUX FM input).

AMPTD OFF sets the RF amplitude to −139.9 dBm.

SPECIAL is used with the Blue Key and a two-digit number to set various special functions that are not otherwise indicated on the front panel (e.g., Blue Key, SPECIAL and 51). For more information, see the detailed operating instruction for Special Functions.



UNITS

UNITS keys are used with function and DATA keys to set value selectable parameters (Function, in this sense includes the keys labeled FUNCTION, INCR SET and the sweep function keys).

Each "Units" key is labeled with two or three different values (for example, dB, GHz, +dBm). The selected function determines the applicable units.

MODULATION INPUT

The input signal should be 1 Vpk to produce a calibrated display of AM depth or FM deviation. The EXTERNAL SOURCE HI-LO annunciators provide coarse accuracy of input level. If greater accuracy is required, the signal level should be measured externally.

BNC Female Connector. Nominal input impedance is 1000 ohms.

AC or dc coupling is determined by the EXT AC and EXT DC MOD keys. Minimum rate for ac coupling is 20 Hz.

An additional modulation input is AUX FM (see description under Rear Panel Features).

RF OUTPUT

Type-N Female Connector. Nominal impedance is 50 ohms.

Output level range is +13 to −139.9 dBm with a minimum resolution of 0.1 dBm.

Reverse power protection up to 30W and 8 Vdc. AMPLITUDE key restores RF.

DATA

The DATA keys are used with function and UNITS keys to set value selectable parameters (Function in this sense includes the keys labeled FUNCTION, INCR SET and the sweep function keys).

The DATA keys are used with the Blue Key and SET SEQ (STORE) to determine the order for recall of storage registers in Sequence and Auto Sequence Modes.

The DATA keys are used with STORE and RECALL to identify the nine storage registers (e.g., STORE 3, RECALL 3).

The DATA keys are used with the Blue Key and SPECIAL to determine specific special functions.

BACKSPACE clears one digit at a time starting with the least significant digit. It is used only during DATA entry and before a UNITS key is pressed.

Figure 3-4. Signal Generator Features

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INCR SET

INCR SET is used with function, DATA and UNITS to set the step size for the INCREMENT keys or the knob (e.g., FREQUENCY, INCR SET, 500 and kHz. Function in this sense includes the keys labeled FUNCTION and the sweep function keys including markers).

The increment can be as large as the maximum value for the function or as small as the minimum value of resolution.

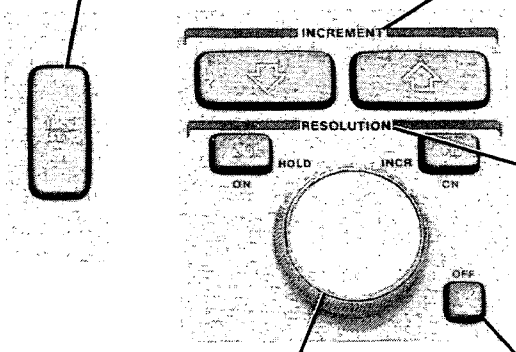
Pressing INCR SET temporarily recalls a previously set increment to the appropriate readout (for as long as the key is depressed).

INCREMENT KEYS

The INCREMENT keys increase or decrease a value selectable parameter in steps; the size of each step is selected by INCR SET. The parameter affected is determined by the function keys (Function in this sense includes the keys labeled FUNCTION and the sweep function keys).

The parameter will change once for each keystroke or about 5 times per second if the key is held down.

The stepping keys are always enabled (unlike the knob, which must be turned on).



RESOLUTION X10, ÷10

Both the X10 and ÷10 keys turn on the knob. Both keys change the stepping resolution by a factor of ten (up or down; once for each keystroke). When either key is pressed and held, a digit in the applicable readout blinks, indicating the resolution digit.

When the X10 key is preceded by the Blue Key, it "holds" the knob enabled, and in control of the present keyboard function. Otherwise, the knob would be disabled when a new function is selected (note: Manual sweep has priority over the "Hold" feature).

When the ÷10 key is preceded by the Blue Key, the knob will change data in increments selected with INCR SET (instead of its normal resolution of one times the power of ten).

THE KNOB

The knob is also a stepping control, but with an analog "feel". It controls any of the value selectable parameters. The parameter affected is determined by the function keys (function in this sense includes the keys labeled FUNCTION and the sweep functions including Markers). It is normally disabled and must be turned on by either the X10 or ÷10 key (see their descriptions for additional information about the knob).

The knob is also the manual sweep mode control.

OFF

The OFF key disables the knob.

Figure 3-5. Value Changing Controls

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BLUE KEY

The Blue Key provides three types of additional keystroke capability:

1. It changes the capabilities of some keys to their blue labeled function (e.g., Blue Key and X10 produce the knob's HOLD function).
2. It produces the special functions when used with the SPECIAL key and a two-digit number (e.g., Blue Key, SPECIAL and 51). For more information, see the detailed description page for Special Functions.
3. It transfers the value of one frequency parameter to any other frequency parameter when used in the following sequence: Blue Key — Source Key — Blue Key — Receiver Key.

The Blue Key also returns the Signal Generator to local control from remote HP-IB control.

KEYBOARD FUNCTION LAMPS

These lamps indicate that the keyboard is ready to receive data and units for one of the sweep functions or for a specific signal generator function.

STATUS

The STATUS key has a built-in lamp that turns on for malfunctions, entry errors and other vital conditions. Malfunctions that inhibit the Generator's operation will cause the lamp to blink. The blinking indication will stay on until the problem is remedied. Most entry-error indications will turn off automatically when the next keyboard function is selected or after the STATUS key is pressed.

Pressing the STATUS key will display a two-digit status code in the FREQUENCY readout (i.e., in the first two digits on the right). Descriptions and instructions for these codes are listed on the pull-out information card and on page 3-82.

Pressing the STATUS key will also display the two-digit special function codes in the FREQUENCY readout (i.e., in the second and third digits on the left). If more than one special function is operating, the display will cycle through the applicable codes. Descriptions for these codes are listed on the pull-out information card and on page 3-82.

STORE-RECALL-SEQ KEYS

STORE and RECALL are used to store and recall nine complete front panel configurations in storage registers 1 through 9 (e.g., STORE 1 and RECALL 1). Three exceptions to this are:

1. SINGLE sweep mode cannot be stored (however, the other sweep parameters associated with the single sweep can be stored).
2. Only one set of five marker frequencies can be set. However, any marker's On-Off status can be stored in a register.
3. Special Functions are not stored in individual registers. Once enabled, they apply to setups recalled from any register.

SEQ is used to recall any of the nine registers in a preset order, or sequence. The sequence is determined by the SET SEQ feature. After the sequence has been set, it is only necessary to press SEQ to recall the next register.

When preceded by the Blue Key, the AUTO SEQ key starts a recall of one register after another according to the preset sequence. Two characteristics of the AUTO SEQ feature are:

1. If AUTO sweep mode is recalled by AUTO SEQ, the generator will perform only one sweep, then switch to the next front panel configuration.
2. If MANUAL sweep mode is recalled by AUTO SEQ, the automatic sequencing will stop (however, the recalled front panel includes Manual sweep mode enabled).

Pressing any key except STATUS will stop the automatic sequencing as well as perform its intended function. (Note: if you press FREQUENCY, it will stop automatic sequencing without affecting the instantaneous value of any parameter or front panel display).

To set a sequence, press the Blue Key, SET SEQ, DATA, and STORE. Any register can be set into the sequence more than once, (e.g., 5 2 3 5 3). The Maximum number of registers in a sequence is ten.

To recall the sequence order, press RECALL and SEQ. The sequence will be displayed in the FREQUENCY readout with the last-recalled register number blinking. The exception to this is when a new sequence has been set and before any registers have been recalled. Then the blinking digit will be the first number in the sequence. In any event, the next register to be recalled will always be the digit to the right of the blinking digit (including wrap-around to first digit).

Figure 3-6. Blue Key, Keyboard Function Lamps, Status Key and Store-Recall-Seq Keys

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WARNING

Plate with the warning covers line voltage wiring and components. This plate should be removed only by service-trained personnel who are aware of the potential shock hazard.

Long hair can be drawn into the fan causing personal injury.

FREQUENCY REFERENCE. Switched input for 5 or 10 MHz reference; impedance is 50 ohms.

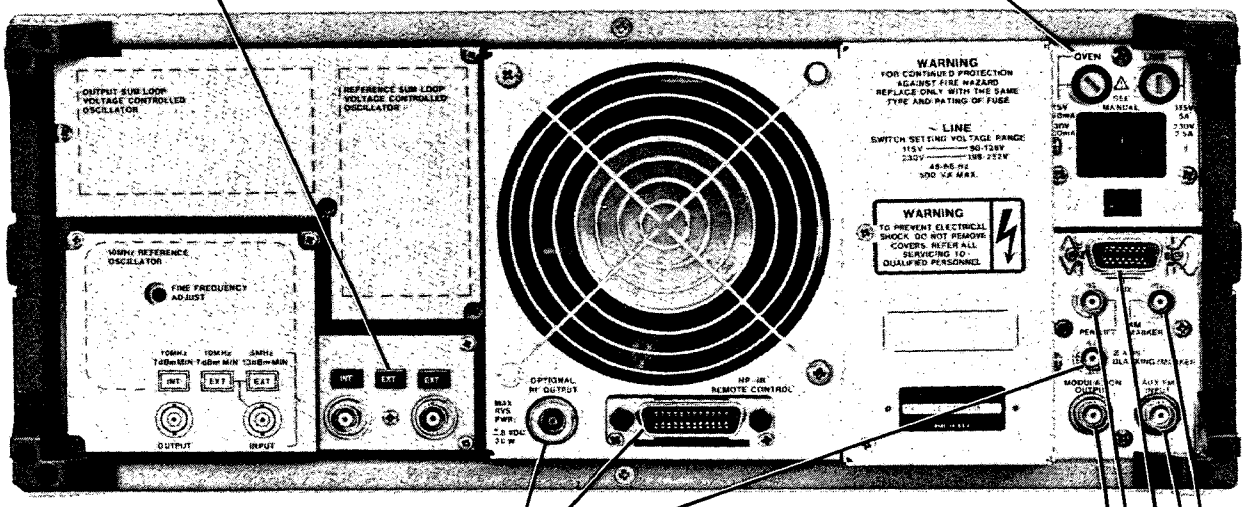
10 MHz reference output; impedance 50 ohms. The output signal is derived from the selected reference.

OVEN Fuse: for reference oscillator oven and the Generator's auxiliary power supply. The entire Generator is disabled when this fuse burns out It must be selected for 115V or 230V operation. Ordering information for this fuse is presented in section II, Installation.

LINE Fuse: The entire Generator is disabled when this fuse burns out. This fuse must be selected for 115V or 230V operation. The LINE fuse should not be replaced until the cause of its failure has been determined (see page 3-1, the foldout).

LINE Cord Receptacle: the center contact of this receptacle is connected to the Generator's chassis. Available power cables are described in Section II, Installation.

115V–230V Switch: must be selected for available line voltage.



OPTIONAL RF OUTPUT (Option 001 only). Type-N Female Connector. Nominal impedance is 50Ω. Output level is +13 to −139.9 dBm with minimum resolution of 0.1 dBm. The outputs is protected from reverse power applications up to 30 watts and 8 Vdc.

HP-IB REMOTE CONTROL. Connects the Generator to the Hewlett-Packard Interface Bus for remote operation.

Z-AXIS BLANKING/MARKER. BNC female connector. Load impedance should be at least 1 kΩ. Provides a 250 μs, TTL-High pulse at the beginning of each frequency change for blanking a swept display (to eliminate display of switching transients). Goes to TTL-Low during remainder of frequency step. Goes to a nominal −5V (internally adjustable between −2 and −8V) for Z-Axis intensity marker.

MODULATION OUTPUT. BNC Female Connector. Output impedance is ~8 kΩ. Internal or external modulation signal is present at 200 mVrms minimum into 10 kΩ resistive load.

PEN LIFT. BNC Female Connector. Controlled by Single Sweep mode. TTL-High for pen-up; TTL-Low for pen-down.

AUX Connector. Six TTL inputs and two TTL outputs for limited remote control of front panel functions. Refer to the more detailed information on page 3-29.

AUX FM INPUT. BNC Female Connector. Input impedance is ~5 kΩ DC coupled. For more details, see page 3-68.

AM MARKER. BNC Female Connector. Output impedance is ~1 kΩ, 5 kHz triangle wave, 3 Vp-p. Can be applied to front panel MODULATION INPUT to provide adjustable AM markers.

Figure 3-7. Rear Panel Features

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3-23. OPERATOR'S CHECKS

3-24. Functional Check

DESCRIPTION: All parts of the instrument are checked to see that they function normally. These tests will identify problems which must be corrected before performance tests can be performed.

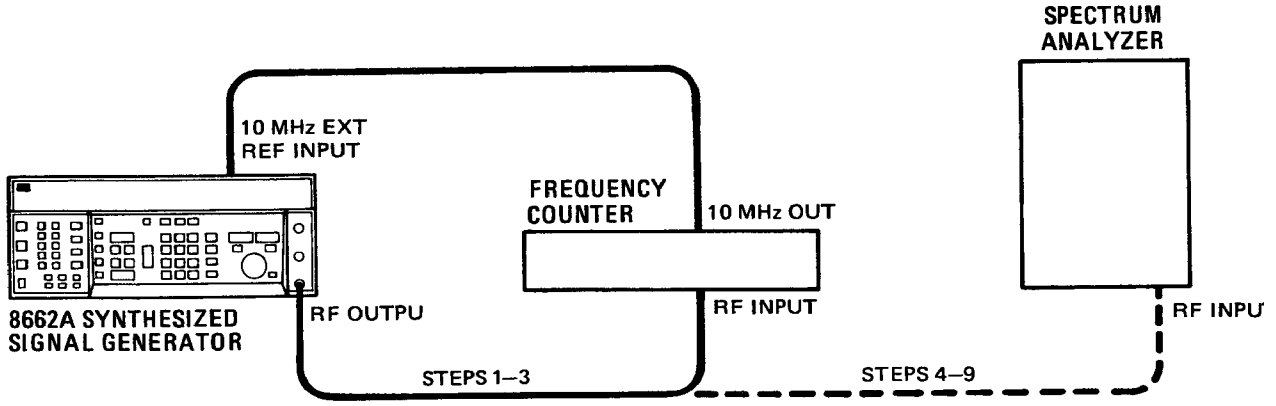

Figure 3-8. Functional Check Test Setup

EQUIPMENT:

Frequency Counter	HP 5328A Option 031
HF Spectrum Analyzer	HP 8558B/181T

PROCEDURE:

1. Connect a cable from the Generator's RF OUTPUT to the input of the frequency counter. Connect another cable from the counter's 10 MHz reference output to the Generator's rear panel INPUT connector and press the EXT 10 MHz pushbutton. In this condition, the Generator uses the counter's timebase as its reference.

2. Set the Generator's amplitude to −10.0 dBm and frequency to the values in the table, below. The counter reading should be the frequency that is set plus the resolution error for the counter being used.

Check Frequencies (MHz)
100.0
140.0
200.0
300.0
400.0
600.0
800.0
1000.0

3. Set the Generator's frequency to 111.111 111 1 MHz and set the frequency increment to 111.111 111 1 MHz. The counter reading should be the same value as the Generator's FREQUENCY display. Press the INCREMENT ↑ key until the maximum frequency is reached. Check that the Generator's FREQUENCY display and the counter reading are correct at each step. Then press the INCREMENT ↓ key to

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OPERATOR'S CHECKS

FUNCTIONAL CHECK (Cont'd)

decrease the frequency. Check the Generator's FREQUENCY display and counter readings again at each step as the frequency is decreased.

Output Frequencies (MHz)
111.111 111 1
222.222 222 2
333.333 333 3
444.444 444 4
555.555 555 5
666.666 666 6
777.777 777 6
888.888 888 8
999.999 999 8
1 111.111 111 2
1 222.222 222 2

4. Set the Generator to sweep from .01 to 1279 MHz in 1000 steps at 100 ms/step (AUTO mode). Set the Generator's amplitude to +10 dBm. Set the spectrum analyzer to a center frequency of 640 MHz with 200 MHz span/division and a +10 dBm reference level.

   Connect the Generator's RF OUTPUT to the analyzer's input. The display should be a continuous sweep (that is, no jumps or gaps). Harmonics can be seen over most of the sweep and should be more than 30 dB below the carrier.

   NOTE

   There is no amplitude correction in a sweep mode. Thus, the level of the swept signal might vary between +6.5 and +11 dBm.

5. Set the Generator's sweep mode to OFF and amplitude to +5 dBm. Set frequency to 0.1 MHz and enable the knob to change frequency with a 10 MHz resolution. Set the analyzer's amplitude scale to 2 dB/division.

   NOTE

   This step checks level flatness only, not absolute accuracy.

   Slowly tune the Generator through its entire frequency range while observing its level on the analyzer. The level should not vary more than ±2%.

6. Set the Generator to 600 MHz and +16 dBm. Adjust the spectrum analyzer to display the Generator's signal. Set the analyzer's reference level to the amplitude of the Generator's signal. Enable the Generator's knob to vary amplitude in 0.1 dB steps. Slowly decrease the Generator's amplitude to +5.1 dBm. Signal level on the spectrum analyzer should decrease smoothly with no jumps or upward steps (except when stepping between +13.1 and +13.0 dBm where level correction begins and a discontinuity can occur).

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OPERATOR'S CHECKS

FUNCTIONAL CHECK (Cont'd)

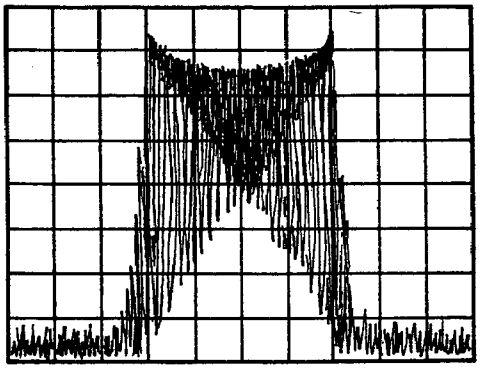

Figure 3-9. Functional Check, FM Signal (600 MHz, 50 kHz/Division, 0 dBm Reference)

7. Set the Generator to +10 dBm and the amplitude increment to 5 dB. Set the spectrum analyzer's amplitude scale to 10 dB/division and reference level to the Generator's signal amplitude. Using the Generator's INCREMENT ↓ key, slowly decrease the Generator's output level to −70 dBm. Signal level on the analyzer should decrease in 5 dB steps.

8. Set the Generator's signal to 0 dBm with FM at 100 kHz peak deviation and 1 kHz rate (INT 1k). Enable the knob to vary peak deviation in 1 kHz steps. Set the spectrum analyzer to 50 kHz span/division and a 0 dBm reference level. The analyzer display should be similar to Figure 3-9.

   Using the Generator's knob, slowly decrease FM deviation to zero. Deviation displayed on the analyzer should decrease smoothly.

9. Set the Generator to 50% AM at a 400 Hz rate (INT 400). Set the analyzer to zero span and fine tune for maximum level of the demodulated signal. Set the analyzer to linear amplitude mode. The demodulated signal should be a sine wave with a 2.5 ms period (that is, 400 Hz).

   Set the Generator to INT 1k (modulation rate). The period of the demodulated signal should become 1 ms (that is, 1 kHz).

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OPERATOR'S CHECKS

3-25. Memory Checks

NOTE

These checks are essentially the same as the Turn-On Memory Check. Therefore, they do not have to be repeated at each turn-on. They should only be performed if a fault is suspected.

DESCRIPTION: Special Function 83 checks ROM (that is, permanent memory).

Special Function 84 checks RAM (that is, temporary memory).

These checks differ from the Turn-On Memory Check only in their display (during the check) and in their response to a fault. They check for faulty ROM or RAM, or for altered data in RAM. These are only quick checks which are not as comprehensive as the diagnostics described in Section VIII (Service).

PROCEDURE: Press the Blue Key, SPECIAL and 83 (for the ROM check) or 84 (for RAM).

INDICATIONS: During the check, and until a fault is detected, the FREQUENCY readout displays 00. Two things occur to indicate a fault, if one is detected.

- Two-digit numeric codes will replace the 00 (these codes are additional diagnostic aids and are described only in Section VIII (Service).
- The STATUS key light will turn on blinking (malfunction code 99 will be set into the status readout).

At the end of the test, the readout will revert to its original display.

OPERATOR'S RESPONSE TO A FAULT: If a fault is detected in a ROM check, the Generator might be useable but it does require servicing.

If a fault is detected in a RAM check, it could be caused by even a single bit of data being lost due to line transients, noise, or other unpredictable conditions. The Generator might be useable and need not be serviced unless the fault occurs repeatedly.

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OPERATOR'S CHECKS

3-26. HP-IB I/O Check

DESCRIPTION: These procedures check the Generator's ability to process or send the HP-IB messages described **on page 3-31**. Only the Generator, a controller and an HP-IB interface are needed. These checks can be performed together or separately. Any special requirements for a check are described at the beginning of the check.

The validity of these checks is based on the following assumption:

- The Generator operates correctly from the keyboard. This can be verified with the preceding Functional Check.
- The Generator's memory circuits are good. This is verified automatically at each turn-on.
- The controller properly executes HP-IB operations.
- The HP-IB interface properly transfers the controller's instructions.

If the Generator appears to fail any of the HP-IB checks, the validity of the above assumptions should be confirmed before servicing the Generator.

The select code of the controller's I/O is assumed to be 7. The address of the Generator is assumed to be 19 (its address when shipped from the factory). This select code — address combination (that is, 719) is not necessary for these checks to be valid. However, the program lines presented here would have to be modified for any other combination.

If all of these checks are successful, the Generator's HP-IB I/O is operating correctly. These procedures do not check that all of the Generator's program codes can be executed. However, if the Generator works correctly from the keyboard, its memory circuits check good and the HP-IB I/O works correctly, then there is a high probability that the Generator will respond to all program codes.

INITIAL SETUP: The test setup is the same for all of the checks. That is, the Generator is connected by an HP-IB cable to the controller's interface.

The Generator does not require any special control settings. However, it should be turned to standby then on again at the beginning of a series of checks. This is a good step to perform also at the end of the checks and before general operation.

EQUIPMENT:

HP-IB Controller	HP 9825A (with General and Extended I/O ROMs).
	— or —
	HP 9835A (with I/O ROM)
	— or —
	HP 9845A (with I/O ROM)
HP-IB Interface	HP 98034A

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OPERATOR'S CHECKS

Remote and Local Messages.

NOTE This check assumes that the Generator is in the local state, a default condition at turn-on. Thus, the Remote Check precedes the Local Check. If the Generator is in the remote state (that is, its front panel REMOTE light is on), switch the Generator to standby, then on again.

Description	HP 9825A (HPL)	HP 9835A and 9845A (BASIC)
Remote: Send the Remote Message to the Generator. In this case, it includes remote-enable and the address-to-listen.	rem 719	REMOTE 719
Send a "dummy" command to the Generator (i.e., any Data Message). Its purpose is only to complete the Generator's requirements for turning on the REMOTE light.	wrt 719	OUTPUT 719

OPERATOR'S RESPONSE Check that the Generator's REMOTE light turns on. If it does not, the Generator failed to process the Remote Message.

Local: Send the Local Message.	lcl 719	LOCAL 719

OPERATOR'S RESPONSE Check that the Generator's REMOTE light turns off. If it does not, the Generator failed to process the Local Message.

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OPERATOR'S CHECKS

Local Lockout and Clear Lockout/Set Local Messages.

NOTE This check requires the Generator to be in the remote state.

Description	HP 9825A (HPL)	HP 9835A and 9845A (BASIC)
Send a "dummy" command to the Generator (i.e., any Data Message). Its purpose is only to complete the Generator's requirements for turning on the REMOTE light.	wrt 719	OUTPUT 719

OPERATOR'S RESPONSE Check that the Generator's REMOTE light is on.

Local Lockout: Send the Local Lockout Message.	llo 7	LOCAL LOCKOUT 7

OPERATOR'S RESPONSE Press the Generator's Blue Key while observing its REMOTE light. The light should remain on. If the light turns off, the Generator failed to process the Local Lockout Message.

Clear Lockout/Set Local: Send the Clear Lockout/Set Local Message.	lcl 7	LOCAL 7

OPERATOR'S RESPONSE Check that the Generator's REMOTE light turns off. If it does not, the Generator failed to process the Clear Lockout/Set Local Message.

Clear Lockout/Set Local: (cont'd) Send the Remote Message (enabled and addressed-to-listen) and a "dummy" Data Message to complete the Generator's requirements for turning on the REMOTE light.	rem 7; wrt 719	REMOTE 7 OUTPUT 719

OPERATOR'S RESPONSE Check that the Generator's REMOTE light turns on.

Press the Blue Key for return-to-local. Check that the REMOTE light turns off again. If not, the Generator failed to process the Clear Lockout/Set Local Message.

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Require Service and Status Byte Messages.

NOTE This check can be performed with the Generator in local or remote state. It checks for the Require Service Message that the Generator always sends at turn-on.

If you suspect that the Require Service Message has been cleared (for example, by a Clear Message or a previous reading of the Status Byte), simply turn the Generator to standby, then to on again.

Description	HP 9825A (HPL)	HP 9835A and 9845A (BASIC)
Require Service: Read the binary status of the controller's interface and store the data in variable S (in this step, 7 is the controller's select code).	rds (7) →S	STATUS 7;S
Print or display the value of the SRQ bit (in this step, 7 is the SRQ bit, numbered from 0).	prt "SRQ=", bit (7,S)	PRINT "SRQ="; BIT (S,7)

OPERATOR'S RESPONSE The SRQ bit should be 1. If not, the Generator failed to send the Require Service Message.

Status Byte: Read the Generator's Status Byte Message and store the data in Variable R.	rds (719) → R	STATUS 719;R
Print or display the value of the RQS bit (that is, bit 6, numbered from 0).	prt "RQS=", bit (6,R)	PRINT "RQS="; BIT (R,6)

OPERATOR'S RESPONSE The RQS bit should be 1. If not, the Generator failed to send the Status Byte Message.

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OPERATOR'S CHECKS

Data Message.

NOTE This check requires the Generator to be in the remote state.

Description	HP 9825A (HPL)	HP 9835A and 9845A (BASIC)
All data paths set to 1:		OUTPUT 719 USING
Set the Generator's RQS Mask to all ones (@1 and 255).	wtb 719,"@1", 255	"#,K,B";"@1", 255
Have the Generator produce the new mask value at its interface (rm).	wrt 719,"rm"	OUTPUT 719;"RM"
Read the 8-bit byte (that is, the mask value) and store it in variable M.	rdb (719) → M	M = READBIN (719)
Print the value of variable M.	prt "mask=", M	PRINT "MASK="; M

OPERATOR'S RESPONSE The controller should print the value 255 (the decimal equivalent of all ones). If not, the Generator failed to process these Data Messages.

All data paths set to 0:		
Set the Generator's RQS Mask to zeros (@1 and 0).	wtb 719,"@1", 0	OUTPUT 719 USING "#,K,B";"@1", 0
Have the Generator produce the new mask value at its interface (rm).	wrt 719,"rm"	OUTPUT 719;"RM"
Read the 8-bit byte (that is, the mask value) and store it in variable M.	rdb (719) → M	M = READBIN (719)
Print the value of variable M.	prt "mask=", M	PRINT "MASK="; M

OPERATOR'S RESPONSE The controller should print the value 0. If not, the Generator failed to process these Data Messages.

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OPERATOR'S CHECKS

Trigger Message.

NOTE This check requires the Generator to be in the remote state.

Description	HP 9825A (HPL)	HP 9835A and 9845A (BASIC)
Set the Generator's frequency to 999 MHz.	wrt 719, "fr 999 mz"	OUTPUT 719; "FR 999 MZ"
Set the Generator's frequency increment to 111 MHz.	wrt 719, "is 111 mz"	OUTPUT 719; "IS 111 MZ"

OPERATOR'S RESPONSE Check that the Generator's frequency is set to 999 MHz. Then press the Generator's INCR SET key to check for an increment of 111 MHz. This keyboard function is possible in the remote state (even if local lockout is enabled).

Configure the Generator's trigger response to be an INCREMENT ↓ function (that is, dn).	wrt 719, "ct dn"	OUTPUT 719; "CT DN"
Send a Trigger Message.	trg 719	TRIGGER 719

OPERATOR'S RESPONSE Check that the Generator's frequency changes to 888 MHz. If not, the Generator failed to process the Trigger Message or the Configure Trigger Data Message.

Clear Message.

NOTE This check requires the Generator to be in the remote state.

Description	HP 9825A (HPL)	HP 9835A and 9845A (BASIC)
The purpose of this step is to set the Generator to any frequency other than 100 MHz (thus, 888 MHz). If this condition already exists, the step can be eliminated.	wrt 719, "fr 888 mz"	OUTPUT 719; "FR 888 MZ"

OPERATOR'S RESPONSE Check that the Generator's frequency is set to 888 MHz (or to any frequency other than 100 MHz).

Send the Clear Message	clr 719	RESET 719

OPERATOR'S RESPONSE Check that the Generator's frequency changes to 100 MHz. If not, the Generator failed to process the Clear Message.

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OPERATOR'S CHECKS

Abort Message.

NOTE This check requires that the Generator be in the remote state.

Description	HP 9825A (HPL)	HP 9835A and 9845A (BASIC)
The purpose of this step is to ensure that the Generator is addressed. If this condition already exists, the step can be eliminated.	wrt 719	OUTPUT 719

OPERATOR'S RESPONSE Check that the Generator's ADDRESSED light is on.

Send the Abort Message.	cli 7	ABORTIO 7

OPERATOR'S RESPONSE Check that the Generator's ADDRESSED light turns off. If not, the Generator failed to process the Abort Message.

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3-27. REMOTE OPERATION, AUXILIARY CONTROL

3-28. AUX Input Lines

A limited number of front panel functions can be controlled through the rear panel AUX connector. These functions are listed in the table below.

The input lines are TTL compatible and negative-edge sensitive. They require a minimum of 5 μs between negative edges. Input signals can be generated by clean TTL drivers or by mechanical switches that require debouncing. The Generator has a built-in debouncing circuit that should be enabled or disabled depending upon which type of control is used.

The Generator is shipped from the factory configured for electrically-clean control signals (that is the debouncing circuit is disabled). One way to determine if the debouncing circuit is still disabled is described below.

- Set any parameter increment to one (1).
- Ground pin 2 (Step Up) several times and observe the parameter change.
- If the parameter steps are erratic (for example, steps of 2, 4, 3, etc.), the debouncing circuit is still disabled.
- If the parameter consistently changes in steps of one, the debouncing circuit is enabled.

Refer to Section II (Installation) for the procedure for enabling or disabling the debouncing circuit.

NOTE

The Installation section also shows the pinout configuration of the AUX connector as well as information for a recommended mating connector.

3-29. AUX Output Lines

The AUX connector also has a ground line and two TTL compatible output lines. The output lines are normally held at the high TTL level. The Sweep End line produces one 5 μs low-going pulse at the end of each sweep. The Parameter Out line produces one 5 μs low-going pulse when any signal parameter changes. Combinations of outputs connected to inputs can create several sequential functions (for example, the Sweep End output could be connected to the Step Up input to move center frequency after each sweep).

The Parameter Out line also goes low and remains low if the Turn-On Memory Check produces error code 53. This feature can be used to signal an unexpected turn-on configuration. The line is reset at the time of the first parameter change.

3-30. Amplitude Correction

Disable the Generator's Amplitude Correction feature if maximum level accuracy is not required. This is accomplished with Special Function 85. The purpose of this is to eliminate unnecessary mechanical wear of the output attenuator during long periods of frequency changing. This precaution would only be necessary here for the step up and down functions and the Sequence function. The correction feature is automatically disabled in any sweep mode. Specified level accuracies with correction enabled and typical accuracies with correction disabled are listed on page 3-53.

Table 3-3. AUX Connector Functions

	Pin	Function	Description
INPUTS	2	Step Up	Same as INCREMENT ↑ key
	3	Step Down	Same as INCREMENT ↓ key
	4	Stop Sweep	Same as MANUAL sweep mode key
	5	Continue Sweep	Same as AUTO sweep mode key
	6	Single Sweep	Same as SINGLE sweep mode key
	7	Sequence	Same as SEQ key
OUTPUTS	1	Sweep End	One pulse at end of each sweep
	12	Parameter Out	One pulse when any output signal parameter changes

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3-31. REMOTE OPERATION, HEWLETT-PACKARD INTERFACE BUS

The Generator can be operated through the Hewlett-Packard Interface Bus (HP-IB). Bus compatibility, programming, and data format are described in the following paragraphs.

All front panel functions (except for that of the LINE switch), special functions and remote-only functions are programmable through the HP-IB.

A quick check of the Generator's HP-IB interface is described earlier in this section under Operator Checks. It verifies that the Generator can respond to or send each of the applicable HP-IB messages described in Table 3-4.

For more information about HP-IB, refer to IEEE Std 488 (or the identical ANSI Standard MC1.1), the Hewlett-Packard catalog and the booklet "Improving Measurements in Engineering and Manufacturing" (HP part number 5952-0058).

3-32. HP-IB Compatibility

The Generator's complete bus capability as defined in IEEE 488 (or the identical ANSI Standard MC1.1) is presented beneath Table 3-4.

3-33. HP-IB Messages

The programming capability of the Generator is further described by the twelve HP-IB messages in Table 3-4. Foremost among these messages is the Data message. Data messages contain the program codes that control the Generator's output signal.

3-34. Remote Mode

Remote Capability. The Generator communicates on the bus in both remote and local modes. In remote, its front panel controls are disabled (except for the LINE switch, the Blue Key, the STATUS key and the function keys for displaying "hidden" parameters). The Generator can be addressed to listen or talk. When addressed to listen, the Generator will automatically stop talking and respond to the following messages: Data, Trigger, Clear, Remote, Local, Local Lockout, Clear Lockout/Set Local and Abort. When addressed to talk, the Generator will automatically stop listening and send one of the following messages: Data, Require Service or Status Byte.

NOTE

Even when the keyboard is otherwise disabled, the STATUS and function keys can interrupt certain Generator operations and delay the processing of program steps addressed to the Generator.

Local-to-Remote Change. The Generator switches to remote upon receipt of the Remote message. The Remote message has two parts. They are:

- Remote-enable (REN)
- Addressed-to-Listen once

The Generator's output signal and all control settings remain unchanged with the Local-to-Remote transition.

3-35. Local Mode

Local Capability. In local, the Generator can send a Require Service message, send a Status Byte message and respond to the Remote message.

NOTE

By strict definition, the Generator can respond to all HP-IB messages except the Data Message while in local. However, most of these messages would not normally be used in the local mode.

Remote-to-Local Change. The Generator returns to local control upon receipt of the Local or Clear Lockout/Set Local message. It can also be set to local mode by pressing the front panel Blue Key (assuming that local lockout is not in effect). The Generator's output signal remains unchanged and all preselected functions remain unchanged with the remote-to-local transition.

Local Lockout. When a data transmission is interrupted, which can happen by returning the Generator to local with the Blue Key, the data could be lost. This would leave the Generator in an unknown state. To prevent this, a local lockout is recommended. Local lockout disables the Blue Key and allows return-to-local only under program control.

NOTE

Return-to-Local can also be accomplished by turning the Generator to Standby,

(continued)

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Table 3-4. HP-IB Message Reference Table

HP-IB Message	Applicable	Response	Related Commands and Controls*	Interface Functions*
Data	Yes	All front panel functions, special functions and remote only functions are programmable. The Generator can send STATUS key information, the Require Service Mask value and control setups (learn modes). The front panel ADDRESSED indicator turns on when addressed.		T6 L3 AH1 SH1
Trigger	Yes	Executes a previously selected program code. Responds equally to bus command GET and program code TR (a Data Message).	GET	DT1
Clear	Yes	Sets output to 100 MHz, −30 dBm with modulation and sweep off. Resets many additional parameters as shown **on page 3-39**. Responds equally to DCL and SDC bus commands.	DCL SDC	DC1
Remote	Yes	The Generator's remote mode is enabled when the REN bus line is true. However, it remains in local (i.e., the keyboard is active) until it is addressed to listen the first time. The output signal is unchanged. The front panel REMOTE indicator turns on when in remote mode and after receiving its first Data Message.	REN	RL1
Local	Yes	The Generator returns to front panel control. The output signal is unchanged. Responds equally to the GTL bus command and the front panel Blue Key.	GTL	RL1
Local Lockout	Yes	Blue Key is disabled. Only the controller can return the Generator to local.	LLO	RL1
Clear Lockout/Set Local	Yes	Generator returns to local when the REN bus line goes false.	$\overline{\text{REN}}$	RL1
Pass Control/ Take Control	No	The Generator has no controller capability.		CØ
Require Service	Yes	The Generator sets the SRQ bus line true if one of the following conditions exists and it has been enabled by the RQS mask to send the message for that condition: Ready, Entry Error, Hardware Error, Power Fail Restart, Parameter Out, Sweep End and Operator Requests Response (SP-87).	SRQ	SR1
Status Byte	Yes	The Generator responds to a Serial Poll Enable (SPE) bus command by sending an 8-bit byte. Bit 7 (RQS bit) is true if Generator had sent the Require Service Message. All bits except bit 1 are latched and must be cleared. Each bit requires different conditions for clearing. See **page 3-40** for details.	SPE SPD	T6
Status Bit	No	The Generator does not respond to a parallel poll.		PPØ
Abort	Yes	The Generator stops talking or listening.	IFC	T6, L3

*Commands, Control lines and Interface Functions are defined in IEEE Std 488 (and the identical ANSI Standard MC1.1). Knowledge of these might not be necessary if your controller's manual describes programming in terms of the twelve HP-IB Messages shown in the left column.

Complete HP-IB capability as defined in IEEE Std 488 (and the identical ANSI Standard MC1.1) is:
SH1, AH1, T6, TEØ, L3, LEØ, SR1, RL1, PPØ, DC1, DT1, CØ.

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Local Mode (Cont'd)

NOTE (continued)

then On again. However, this technique has several potential disadvantages.

- *It defeats the purpose and advantage of local lockout (that is, the system controller will lose control of a system element).*
- *There are several HP-IB conditions that reset to default states at turn-on.*
- *The Generator issues a Require Service message to the system's controller with each turn-on.*

3-36. Addresses

The Generator's Talk and Listen addresses are set by a set of thumbwheel switches located inside the instrument. The address selection procedure is described in Section II. This information is intended for service trained persons who are aware of the potential shock hazard of working on an instrument with protective covers removed.

The decimal equivalent of the addresses can be displayed in the Generator's Frequency readout by pressing the following keys.

The address will be displayed in the format, — — X X — —. This is the decimal equivalent of the last five bits of both Talk and Listen ASCII address codes. Refer to Table 3-5 for interpretation of the decimal code.

3-37. Turn-on Default Conditions

Several HP-IB parameters are reset at turn-on. The parameters and their default conditions are listed below.

- HP-IB Local Mode
- Deferred Execution Mode
- Talk and Listen addresses set to internal switch setting.
- Unaddressed
- Require Service Message sent (that is, SRQ bit true) for Power Fail Restart.
- Remote Stepped Sweep off.
- Trigger Configuration cleared
-

RQS MASK		
Bit	**State**	**Description**
8	0	Operator Requests Response
7	1	RQS Bit
6	0	Sweep End
5	0	Parameter Out
4	1	Power Fail Restart
3	1	Hardware Error
2	1	Entry Error
1	0	Ready

Table 3-5. Decimal Address Codes to ASCII Equivalents

Decimal Equivalents	ASCII Address Codes	
	LISTEN	TALK
00	SP	@
01	!	A
02	"	B
03	#	C
04	$	D
05	%	E
06	&	F
07	'	G
08	(	H
09	)	I
10	*	J
11	+	K
12	,	L
13	-	M
14	.	N
15	/	O
16	0	P
17	1	Q
18	2	R
19†	3	S
20	4	T
21	5	U
22	6	V
23	7	W
24	8	X
25	9	Y
26	:	Z
27	;	[
28	<	\
29	=	]
30	>	^

†Indicates factory set address.

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3-38. Displays

The REMOTE light is on when the Generator is in the remote mode and after it has received its first Data Message. The ADDRESSED light is on when the Generator is currently addressed to talk or listen.

The STATUS Message Indicator is set under the same conditions in remote as it is in local. The STATUS message can be read in either remote or local when the Generator is under program control. For further discussion of STATUS, see the section on sending the Data Message.

The three major parameter readouts (FREQUENCY, MODULATION and AMPLITUDE) operate just as they do in the local mode. Hidden parameters can still be displayed in their readout panels by pressing and holding their front panel keys. (This capability is not available to the controller since it cannot hold a program code in the same manner that an operator can hold down a key.)

3-39. Receiving Data Messages

The Generator communicates on the HP-IB primarily with Data messages. Data messages include the Generator's HP-IB program codes (which are defined **on pages 3-47 and 3-48.** The program codes contain information for programming front panel functions (except for that of the LINE switch), all special functions and remote-only functions.

The Generator will respond to Data messages when in remote and addressed to listen.

Data Message Input Format. Data messages contain the controller's Talk address, the Generator's Listen address, a string of program codes and an End-of String message (EOS). The string of program codes follows the same protocol as keystrokes at the front panel. EOS can be a Line Feed (LF), an exclamation mark (!), a bus END message (i.e., EOI and ATN true) or an internally produced EOS (see Execution Modes, **page 3-35).**

The following paragraphs explain other key elements of the program code strings. Figure 3-10 shows several examples of Data messages.

Keyboard-Program Code Correlation. There is a corresponding program code for every key-label printed on the front panel.

Value-Selectable Parameters. Parameters, such as FREQUENCY and AMPLITUDE, are set with a Function-Data-Units sequence of program codes.

Data. "Data" in this sense refers only to number values and not to the entire Data message. The term here is derived from the bank of front panel DATA keys. Data can be any number, of arbitrary length, in fixed point notation. Digits beyond the display capability of a particular parameter are truncated. Therefore, it is best to format the data so that it is rounded to the correct number of digits. Leading zeroes are also acceptable, with the exception that a leading zero in the 10 GHz location will cause a digit overflow error (however, in most controllers, fixed point notation suppresses leading zeros, thus circumventing the error).

Signs preceding data are generally ignored. The exception to this rule is data with the unsigned dBm code (DM). With this program code only, data can be preceded with a plus or a minus. Otherwise, the +D or —D codes would be used for +dBm or —dBm.

Single-Value Parameters. Parameters such as "INT 1k" and "LIN 1000", are set with a single program code.

The Knob. Programming a single step of the knob requires that the program code RU or RD be sent ten times (except in the Manual sweep mode where one program code causes one step).

Special Functions. Special functions are capabilities that are not explicitly described on the front panel. They are programmed with SP and a numeric code (the single program code SP or the keystroke-like sequence BL AP can be used for SPECIAL). The numeric codes are listed on **page 3-49.**

Detailed Operating Instructions. The detailed operating instructions in this section of the manual present examples of program code sequences for most of the Generator's functions. An index of detailed instructions is located on **page 3-3.**

Upper-Lower Case Letters. Either upper or lower case letters can be used in a Data message. Also the number 0 is interchangeable with the letter O (or o), and the character ` is, interchangeable with @.

Recognizable Characters. The Generator can recognize only the following ASCII characters in a data message:

LF ! + — . 0—9 A—Z a—z @

All other characters, including spaces, are ignored by the Generator. However, if a space or other such character were inserted between the two characters of a program code, the program code would be invalid and any remaining characters in a string might be misinterpreted by the Generator.

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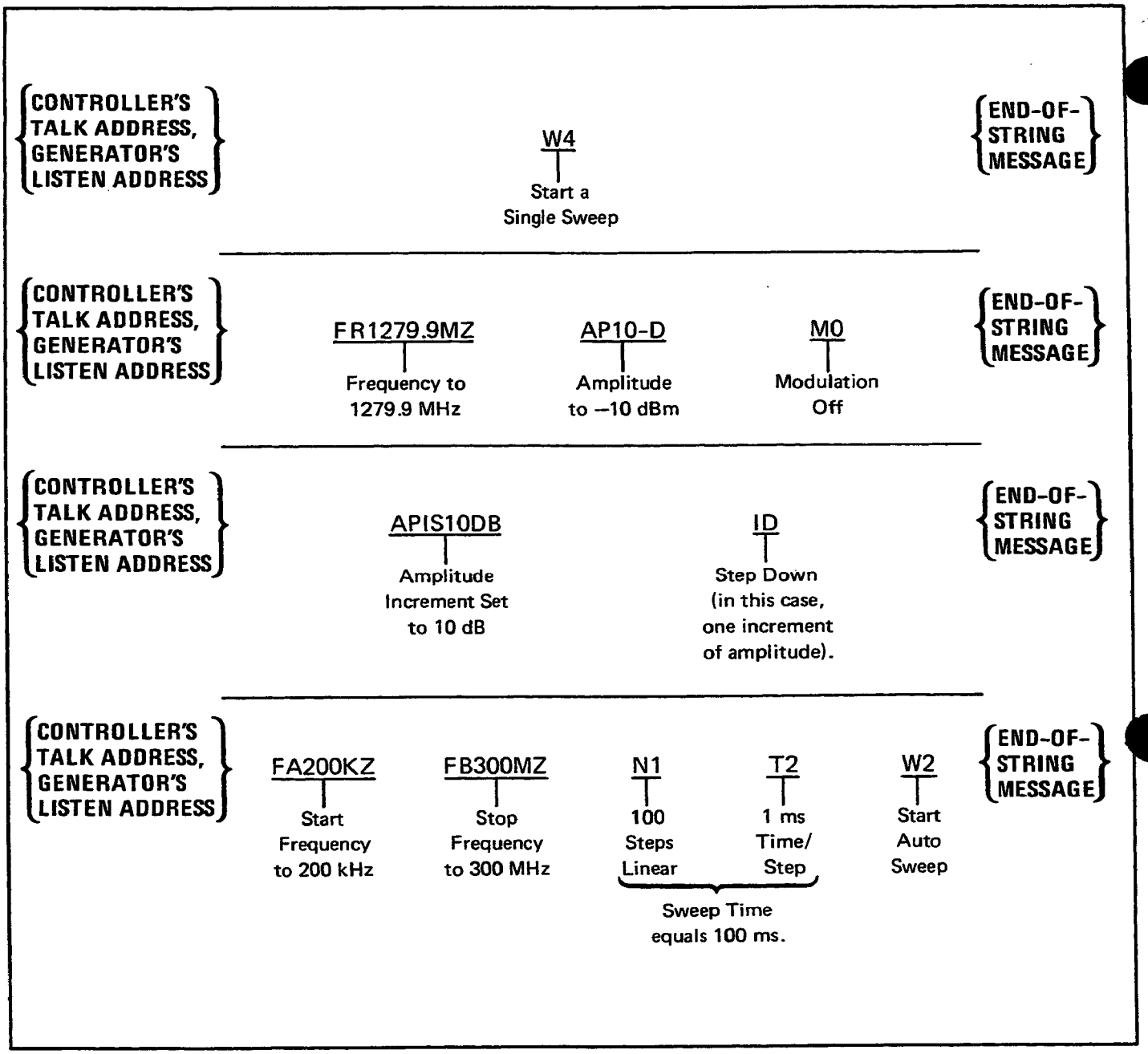

Figure 3-10. Data Message Examples

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Thus, the following entries would be valid . . .

FR 1,200,000 HZ; AP —30 DM

FR1200000HZAP—30DM

FR 1 200 000 HZ AP —30 DM

. . . but the following entry would be invalid:

F R1200000HZAP—30DM

NOTE

A complete list of ASCII characters, with conversions to binary, octal, decimal and hexadecimal, is shown **on page 3-97.**

Deferred Execution Mode. ASCII characters can be accepted in the Deferred or Immediate execution modes. Deferred Execution is the default mode at turn-on. It can be set, if necessary, by sending the program code @2. In this mode the Generator accepts strings up to 82 characters at a time, executing the string upon receiving an End-of String (EOS) message. An EOS message may be a Line Feed (LF), an exclamation mark (!) or a bus END message (that is, bus lines EOI and ATN true). The Generator produces its own EOS Message upon receipt of the 82nd character in a string. If a block of strings containing more than 82 characters is sent, the first 82 characters are accepted and the Generator holds the bus busy until it executes them. Then the next 82 characters are accepted and so on until the entire block is accepted. If only one string of less than 82 characters is sent, the Generator accepts the strings and frees the bus allowing program execution to continue.

Immediate Execution Mode. This ASCII mode must be selected by sending the program code @3. It differs from the Deferred Execution Mode in that the Generator produces an EOS message at the end of each character, and does not require one from the controller. The Generator processes each character before accepting the next one. Therefore, the Immediate Execution mode does slow down overall data transfer. However, the Generator can switch faster after the final EOS message than it can in the other mode. This is useful when the system controller is slow enough (data rate <1000 bytes/second) that it cannot take advantage of the Deferred mode's transfer speed or when switching time, independent of message length, is more important than program execution speed.

Binary Mode. The Generator's RQS Mask (Request Service) is programmed in binary format **(see page 3-40)**. Also learn mode data is sent and received in binary **(see page 3-37)**.

Program Execution Time. Execution time is determined by two parameters: the rate at which data can be accepted and processed by the Generator, and the settling time it takes to reach the desired output state. Table 3-6 gives some typical processing times for various commands.

Settling time is dependent on the parameter being changed as well as the previous front-panel setting. The following paragraphs give typical settling times for the various parameters.

Frequency. Figure 3-11 illustrates the worst-case frequency transient. The Generator will be within 100 Hz of the desired setting less than 400 μs after it has completed its processing.

Amplitude. Settling of the output attenuators requires an additional 32 ms, during which time the Generator is not ready to accept new data. Because of the internal error correction as a function of frequency, an unexpected attenuator change can occur when a new frequency (but the same amplitude) is programmed, slowing down the program. If maximum programming speed is desired, the error correction should be disabled (Special Function 85). If necessary, an error correction routine can be stored in the controller by measuring the Generator's output versus frequency with a power meter. This will allow taking output level into account in the final data without requiring error-correction.

In addition to level changes, the program level error can occur for 100 ms or more when first entering the 10 to 150 kHz range. This is due to capacitor charging in the leveling loop. When this occurs, bit 3 of the status byte is set high and error 10 (RF unleveled) is placed in the status message.

Modulation. A typical AM depth selection takes <1 ms. In addition, be aware that lock times of up to 3 seconds can occur when switching out of external DC FM modulation, and so must be allowed for in the program.

Sweep. The sweep times are determined by the time/step setting on the front panel, or else by the controller in remote stepped sweep.

Recall. A recall from the Generator's own storage registers takes about 18 ms (45 ms with an attenuator and modulation source change). If there are many parameters to change and/or the system utilizes a slow controller, recalling from storage may be faster than writing directly from the controller.

3-40. Sending Data Messages

The Generator can send Data messages when in remote and addressed to talk. The four types of

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Table 3-6. Typical Processing Times for Various Commands

Data Messages	Processing Times[1] (ms)		
	Deferred Execution	Immediate Execution	Binary[2]
FR1234567890.2 HZ	12.1	8.3	
FR992.1535MZ	11.4	7.7	
FR320.05MZ	10.6	7.6	
AP-30.1DM	36.5	34.1	
FM3KZM1	18.8	9.2	
FRIS1KZ	3.2	1.5	
FA100MZ, FB300MZ, N2, T2, W2	20.4	6.7	
TR (for CTUP, FR800MZ, FRIS1MZ)	8.2	7.9	
UP (for FR800MZ, FRIS1MZ)	8.1	7.8	
DN (for FR800MZ, FRIS1MZ)	8.2	7.9	
SPX1FR (Frequency Transfer for X1300MZ)	8.7	7.5	
RC1[3]	19 to 46.2	18 to 45.2	
ST1	6.8	5.7	
Y3 (Remote step sweep execute, no display)	0.82	0.61	
L1 (Restore) [11 characters]			0.420
L2 (Restore)[3] [128 characters]			25 to 52.2
Generator Character acceptance Time	0.17	0.39[4]	

[1] Processing time measured from EOS message until ready to accept next character. Amplitude correction is disabled.

[2] These times include bus controller transfer times of 15 microseconds per character plus Generator character acceptance time.

[3] Processing times may vary according to active functions. Longest times are for an attenuator change when the FM function is on.

[4] This time applies for characters that do not terminate a program code. The acceptance times for characters that terminate program codes are dependent on the program code execution time.

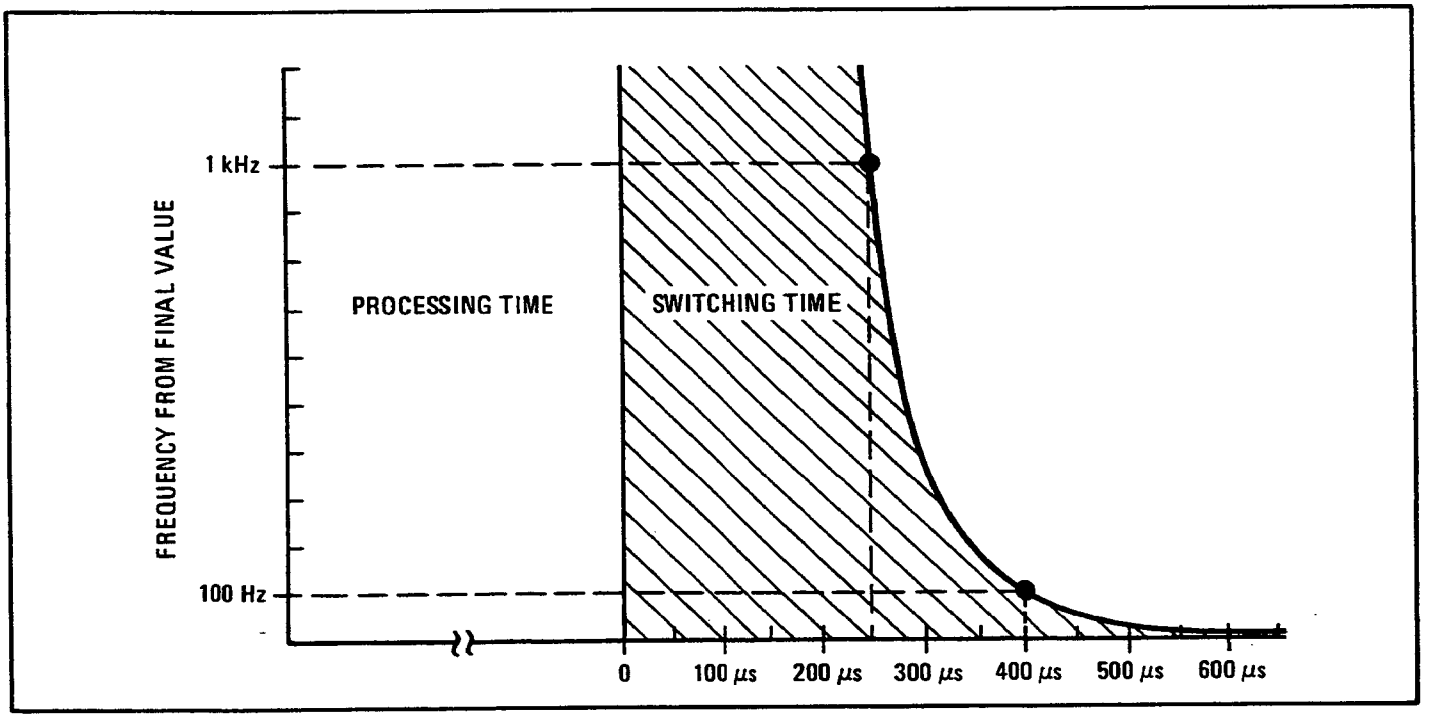

Figure 3-11. Typical Frequency Switching Time Showing Worst Case Lock and Settling Times

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Sending Data Messages (Cont'd)
information it can send in a Data message are listed below.

1. The Require Service Mask Value (explained later under sending the Require Service Message).
2. STATUS Key Message
3. Front Panel Learn Data
4. "Fast" Learn Data.

Status Key Message. After receiving an MS program code (Status Key Message) and when addressed to talk, the Generator will send thirteen two-digit codes (separated by commas, and ending with Carriage Return/Line Feed (a total of forty ASCII characters). The codes represent entry errors, instrument malfunctions, special function status and modulation level (from external source). The codes are sent in the following order:

1	xx,	Entry Error
2	xx,	Hardware Error
3	xx,	Special Function Status
4	xx,	
5	xx,	
6	xx,	
7	xx,	
8	xx,	
9	xx,	
10	xx,	
11	xx,	
12	xx,	
13	xx	External Modulation Source
—	CR	Carriage Return
—	LF	Line Feed

The two-digit codes are explained on the Generator's pullout information sheet, and **on page 3-82** (except for code 13 which will be 10 if the modulation level is low; 20 if high). Codes 3 through 12 are cleared when the special function is eliminated. However, Codes 1, 2, and 13 are cleared only after the condition is corrected and the message has been re-read.

Learn Modes. In addition to being able to store front panel setups in its own registers, the Generator has two learn mode capabilities which use the controller's memory. One learn mode allows the Generator to send complete front panel configurations to the controller's memory. The second is the fast mode which transfers only frequency and modulation information thus providing a much faster switching speed when recalled.

NOTE

The Operator Requests Response condition of the status byte can be a useful tool for performing learn functions. After setting up the front panel, press the Blue Key, SPECIAL and 87. This would issue a Require Service message (if enabled to by the RQS mask). The controller could be programmed to send the Generator to remote, perform the learn function and return the Generator to local for the next front panel setup. This procedure eliminates the need for the operator to go to the controller each time the front panel is set. **See page 3-39** *for more information on the Require Service message.*

The learn modes require a controller that can transfer information in binary form.

Whenever data is being transferred between controller and Generator, it must do so in uninterrupted strings. If a data string is broken or interrupted, the data could be lost or offset, and misinterpreted by the Generator. An offset of data bytes can persist through later data strings until the Generator is eventually switched to standby, then on again.

It is possible to interpret the Learn Mode strings to determine frequency, amplitude and modulation settings. Detailed procedures start **on page 3-43.**

Front Panel Learn Mode. After receiving an L1 program code (Front Panel Learn) and when addressed to talk, the Generator sends a string of 128 8-bit bytes containing information on the front panel configuration. This binary data can then be stored in the controller's memory for future use. In addition, as each configuration goes out onto the bus, it is also stored in the Generator's register 1. Thus, the byte string contains only those parameters that can be stored in the Generator's internal registers (**see page 3-83** for store-recall limitations).

NOTE

The 128th byte is sent with the bus EOI line true, thus terminating the message.

When the Generator is addressed to listen, the binary data can be returned to it in 128-byte strings or 64-byte strings, two at a time. The Generator interprets the first two bytes to determine that this is full-front-panel information and changes accordingly.

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Sending Data Messages (Cont'd)

"Fast" Learn Mode. The "Fast" learn mode stores only frequency and modulation data. When this data is recalled, the Generator can switch very rapidly between frequency or modulation settings (switching speeds as fast as 260 μs are possible).

After receiving an L2 program code ("Fast" Learn Mode) and when addressed to talk, the Generator sends a string of eleven 8-bit bytes onto the HP-IB. This binary data can then be stored in the controller's memory.

NOTE

The 11th byte is sent with the bus EOI line true, thus terminating the message.

At the end of a program that stores one or more strings, there should be a program step that stores a "dummy" byte. The dummy byte can be any eight bits except 01000000 or 11000000 (ASCII @ or `). It should be stored in the location that would otherwise start the next eleven byte string. When recalled at the end of the data strings, this "dummy" byte signals to the Generator that the recall program has ended.

When the Generator is addressed to listen and the first eleven byte data string is sent from controller memory, the Generator interprets the first two bytes to determine that the string is for the fast switching mode. The Generator will react in the following way.

1. The existing full front panel setup will be stored in register 1.
2. The amplitude setting will remain as it was but the internal amplitude error correction will be disabled.
3. Sweep mode will be turned off.
4. The FREQUENCY and MODULATION readout panels will be disabled except to display all dashes.
5. All keys are locked-out including the "hidden" parameter-display keys, the STATUS key and the Blue Key.
6. The Require Service function is disabled.

When the Generator receives the "dummy" byte (instead of another eleven-byte string) it will exit the fast-switching mode and recall the front panel setup stored in register 1.

3-41. Receiving the Trigger Message

The Generator responds to a Trigger message only if a response has been pre-programmed (see Configure Trigger). Otherwise, it ignores a Trigger message. It responds equally to a Trigger message (with bus command GET) and a Data message with program code TR (Trigger).

Configure Trigger. The Generator's response to a Trigger message is set when it receives a Data message containing the program code CT followed by one other valid program code. For example, CTW4 causes a single sweep (W4) when the Trigger message is received.

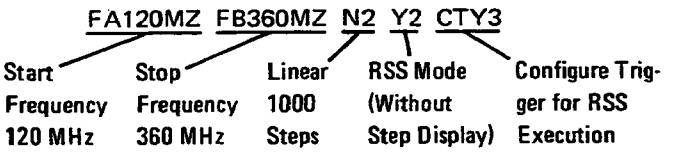
Remote Stepped Sweep (RSS). The Trigger message provides an additional sweep mode; that is, Remote Stepped Sweep. In this mode, each step is executed by a Trigger message. Thus the sweep is controlled by the system controller and can be synchronized with other system activities.

The RSS mode must be enabled. Sending the program code Y2 (a Data message) enables RSS with a display of sweep limits only. With Y2, the Generator can sweep as fast as 700 μs per step. Sending program code Y1 enables RSS with a display of each sweep step. With Y1, the minimum time per step is about 1.5 ms slower.

Sending the program code Y0 disables the RSS mode.

After enabling the RSS mode, it is necessary to configure the Trigger response. This is done by sending the program codes CT Y3 (Configure Trigger for RSS step execution). Thereafter, the first Trigger switches the Generator to its start frequency; each subsequent Trigger executes one step.

The following is an example of a program code string for establishing an RSS mode.



3-42. Receiving the Clear Message

The Generator responds to a Clear message by setting all parameters as shown in Table 3-7. The Generator responds equally to Selected Device Clear and Device Clear bus commands (SDC and DCL).

3-43. Receiving the Remote Message

The Remote message causes the Generator to switch to remote mode. It has two parts: 1) remote enable and 2) address-to-listen. The Generator's output does not change with the local-to-remote transition.

The REMOTE light turns on only when the Generator is in remote mode and after receiving its first Data Message. The ADDRESSED light turns on when the Generator is addressed to talk or listen.

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Table 3-7. Response to Clear Message

Parameter	Condition
Execution Mode	Deferred
RQS Mask	Unchanged
Status Byte	Cleared
Require Service (SRQ)	Cleared
Trigger Configuration	Cleared
Remote Stepped Sweep	Off
Frequency	100 MHz
Amplitude	−30 dBm
Modulation Mode	Off
Function Mode	Frequency
Markers 1−5	0 MHz
Frequency Increment	1 MHz
Amplitude Increment	0.1 dB
AM Increment	0.1%
FM Increment	0.1 kHz
AM	30%
FM	10 kHz
Modulation Source	Ext ac
Start Frequency	1 MHz
Stop Frequency	1279 MHz
Frequency Span	10 MHz
Time/Step	1 ms
Set Size	2 MHz
Step Size	100 steps
Sweep Mode	Off
Registers	unchanged
Sequence	1, 2, 3, 4
Frequency Resolution	1 MHz
Modulation Resolution	10 kHz, 10%
Amplitude Resolution	1 dB
Special Functions	None (00)

3-44. Receiving the Local Message

The Generator returns to front panel control when it receives the Local message. Its output does not change with the remote-to-local transition.

When the Generator goes to local mode, the front panel REMOTE indicator turns off. However, the ADDRESSED indicator would still illuminate if the Generator were addressed.

The local message is the means by which the controller sends the Go to Local (GTL) bus command.

The front panel Blue Key can also return the Generator to local mode. However, pressing the Blue Key might interrupt a Data message to the Generator. This would leave the Generator in a state unknown to the controller. This situation would be undesirable and could be avoided by sending the Local Lockout message which disables the Blue Key.

3-45. Receiving the Local Lockout Message

After receiving the Local Lockout message, the Generator's Blue Key return-to-local function is disabled. With Local Lockout in effect, the Generator can be returned to local only by the controller. The Local Lockout message is the means by which the controller sends the Local Lockout (LLO) bus command.

3-46. Receiving the Clear Lockout/Set Local Message

The Generator responds to the Clear Lockout/Set Local message in the same way as to the Local message (that is, it returns to front panel control). The Generator need not be addressed to listen. This message is the means by which the controller sets the Remote Enable (REN) bus line false.

3-47. Receiving the Pass Control Message

The Generator does not respond to the Pass Control message because it cannot act as a controller.

3-48. Sending the Require Service Message

The Generator sends a Require Service message if one of the following conditions exist and if it has been preprogrammed to send the message by the Request Service (RQS) Mask.

- Ready: when the Generator is finished processing a Data message.
- Entry Error: when an invalid keystroke or program command occurs (that is, when the front panel STATUS light turns on steady).
- Hardware Error: when a hardware condition turns the STATUS light on blinking or the EXTERNAL SOURCE HI-LO lights turn on.
- Power Fail Restart: when the Generator is returned to a power ON condition (from STANDBY or completely off).
- Parameter Out: when any parameter of the output signal changes.
- Sweep End: when the last step of a sweep occurs.
- Operator Request Response: when Special Function 87 is executed.

The Generator can send a Require Service message in either the local or remote mode. However, in the local mode, it can only respond to two of the conditions: 1) Power Fail Restart and 2) Operator Requests Response.

The Generator sends a Require Service message by setting the Service Request (SRQ) bus line true. The Require Service message is cleared after a serial poll has been executed by the controller.

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Sending the Require Service Message (Cont'd)

Request Service (RQS) Mask. The RQS Mask functions within the Status Byte. It determines which bits can set the RQS bit true (see Figure 3-12). Consequently, the mask determines which conditions will cause the Require Service message to be sent.

The RQS Mask is set with the @1 program code followed by an 8-bit byte (a Data message). Each bit, if true, enables a corresponding condition to set the RQS bit true. This message is executed immediately and does not require an End-of-String message.

At turn-on, the RQS Mask is set to default condition 01001110 (decimal 78). This default mask enables three conditions to set the RQS bit true. They are: entry errors, hardware errors, and power fail restart.

Sending the RQS Mask Value (a Data Message). After receiving an RM program code (Read Mask) and when addressed to talk, the Generator will send a single binary word (8 bits) that describes the present state of the mask. The bit pattern can be interpreted with the information in Figure 3-12.

NOTE

This byte is sent with the bus EOI line true, thus terminating the message.

3-49. Sending the Status Byte Message

After receiving a Serial Poll Enable bus command (SPE) and when addressed to talk, the Generator sends a Status Byte message. The message consists of one 8-bit byte of which 7 bits correspond to the pattern and descriptions for the RQS Mask. The remaining bit is the RQS Request Service bit (see Figure 3-12).

The RQS bit is set when one of the other seven conditions exists and that condition has been enabled by the RQS Mask. Bits 1—6 and 8 might be true regardless of conditioning by the RQS Mask. However, if a condition has not been selected by the mask, it cannot cause the RQS bit to be set or the Require Service message to be sent.

3-50. Clearing the Status Byte

The eight bits in the Status Byte are cleared under several sets of conditions.

Bit 1, the "Ready" bit, is cleared whenever the Generator is processing a Data message.

Bits 2 and 3, Entry and Hardware Errors, are cleared only after three conditions occur in the following order:

a. The condition is corrected.
b. The STATUS key message is re-read.
c. The Status Byte is re-read (at this reading, the Status Byte would still show the error because it is cleared only after the reading).

Bits 4, 5, 6, and 8 are set on transient conditions. Thus, to clear them, only the Status Byte need be read.

Bit 7, the RQS bit, is cleared after all other bits are cleared and the Status Byte is re-read.

NOTE

One additional situation can clear bit 7. If the RQS Mask is changed, for instance to all zeros, and one of the seven conditions occurs, bit 7 would go to the clear condition.

Figure 3-13 depicts the sequence of events necessary to read and clear the Status Byte. It is assumed that at the start (that is, at "Enter"), the Status Byte has *not* previously been read. Otherwise, bits 4, 5, 6, and 8 would already be cleared and their purpose defeated.

3-51. Sending the Status Bit Message

The Generator does not respond to a Parallel Poll Enable bus command (PPE) and thus cannot send a Status Bit Message.

3-52. Receiving the Abort Message

The Generator stops talking or listening when it receives the Abort message. The Abort message is the means by which the controller sets the interface Clear (IFC) bus line true.

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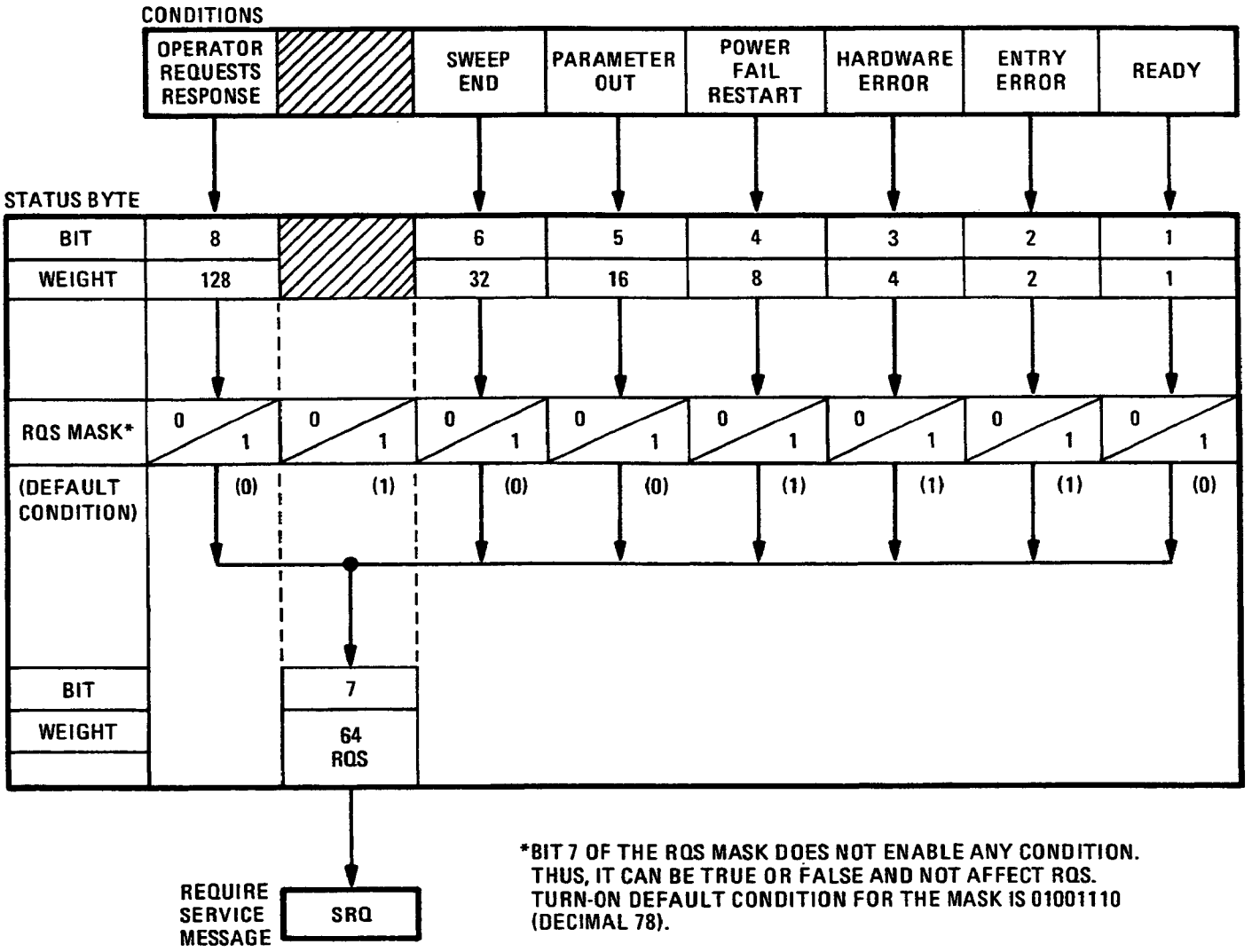

Figure 3-12. The Status Byte and RQS Mask

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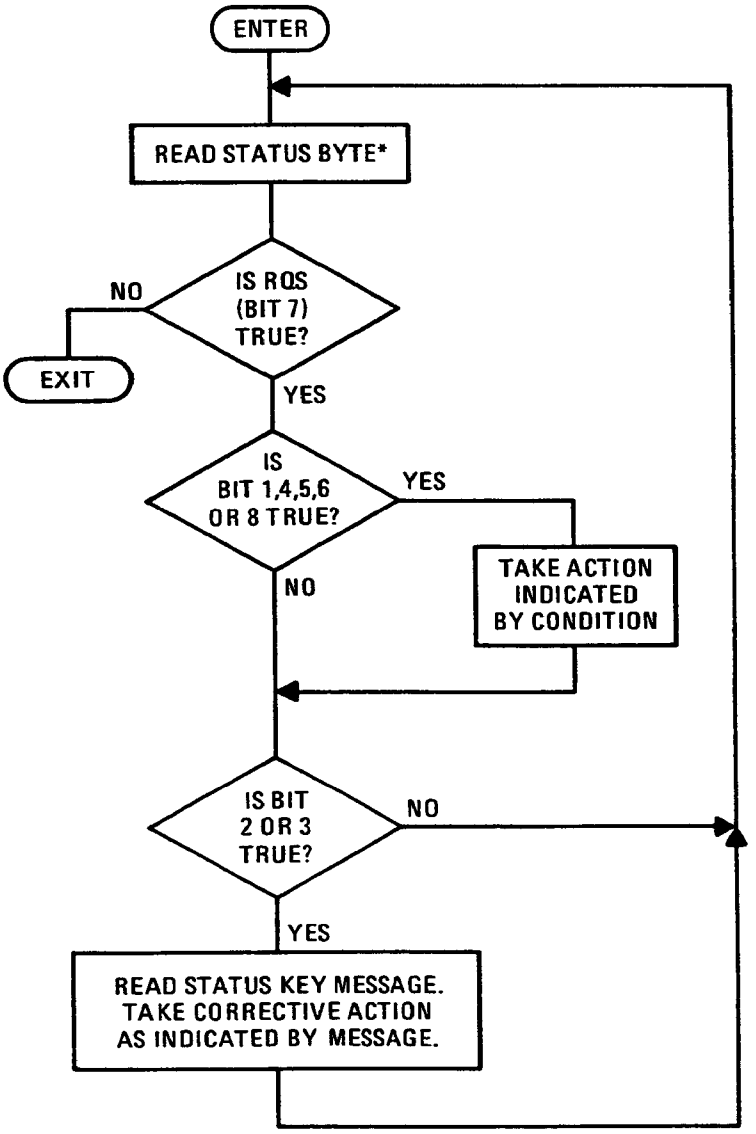

*THE BITS DESCRIBED IN THIS FLOW CHART ARE NUMBERED 1-8 (NOT 0-7).

Figure 3-13. Serial Poll Flow Chart (Reading and Clearing Status Byte)

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3-53. Reading Control Settings

The controller can be programmed to interpret the learn mode strings to determine the Generator's actual control settings. The "Fast" Learn (L2, 11-byte) string contains data for frequency and modulation settings. The full "Front Panel" (L1, 128-byte) string contains similar data but also for amplitude.

First the controller should read and store the data from the appropriate string (see page 3-37 for these instructions). Then the following procedures should be programmed to interpret the data.

"Fast" Learn String (L2, 11-Bytes).

Frequency. To determine the frequency setting, the following procedure should be programmed.

1. Interpret bytes 3 through 8 according to the following table.

Byte	Contents (MSB ↔ LSB)	Byte Interpretation
3	F_1, F_0	Packed BCD (i.e., two BCD digits per byte)
4	F_3, F_2	
5	F_5, F_4	
6	F_7, F_6	
7	F_9, F_8	
8	Range Factor	Decimal Equivalent

2. Convert the Range Factor (byte 8) to variables R1 and R2 with the following table.

Range Factor	R1	R2
0	1	0
1	0.5	0
3	0.25	0
4	1	0
6	0.5	0
9	1	520
17	2	0
21	2	0
41	1	520
73	1	520
105	1	520

3. Compute frequency (in Hz with the following formula:

$$F = (F_9 F_8 F_7 \ F_6 F_5 F_4 \ F_3 F_2 F_1 . F_0 \times R1) - R2$$

Modulation. Bytes 8 through 11 can be interpreted to determine the following modulation settings:

Mode (AM, FM or Mixed)
Source (Internal or External)
Rate (Internal Source only)
% AM or FM Deviation (if internally controlled)

1. Interpret bytes 8 through 11 according to the following table:

Byte	Contents (MSB ↔ LSB)	Byte Interpretation
8	Range Factor	Decimal Equivalent
9	$M_7 \leftrightarrow M_0$	Binary
10	$M_{15} \leftrightarrow M_8$	
11	Source Code	Decimal Equivalent

2. Interpret the Source Code (byte 11) using the following table:

Source Code	Modulation Modes	
	Internal (Rate)	External (Coupling)
18	FM (1 kHz)	—
20	AM (1 kHz)	—
26	FM (1 kHz)	AM (ac)
34	FM (400 Hz)	—
36	AM (400 Hz)	—
42	FM (400 Hz)	AM (ac)
48	—	—
50	—	FM (ac)
52	—	AM (ac)
90	FM (1 kHz)	AM (dc)
106	FM (400 Hz)	AM (dc)
114	—	FM (dc)
116	—	AM (dc)
128 and above	—	FM (AUX-dc)

*AUX FM might be used with other modes. Thus to interpret a Source Code above 128, first subtract 128, then interpret the second code.

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"Fast" Learn String (L2, 11-Bytes) (Cont'd)

3. Determine the value of variable M as the decimal equivalent of bits M_{10} through M_0.

4. Convert the Range Factor (byte 8) to variable R1 with the following table.

Range Factor	R1
0	1
1	0.5
3	0.25
4	1
6	0.5
9	1
17	2
21	2
41	1
73	1
105	1

5. Determine the settings for % AM or FM deviation with the following equations:

% AM = M x 0.1%

FM Deviation = M x R1 x 0.1 kHz

NOTE

The Generator can control either % AM or FM deviation but not both simultaneously. Whenever a mixed mode exists (that is, when Source Code is 26, 42, 90, 106, or 128), the Generator controls only the internally produced signal.

Full "Front Panel" String (L1, 128 Bytes).

Frequency. To determine the frequency setting the following procedure should be programmed.

1. Interpret bytes 6 through 11 according to the following table.

Byte	Contents (MSB ↔ LSB)	Byte Interpretation
6	F_1, F_0	Packed BCD (i.e., Two BCD Digits Per Byte)
7	F_3, F_2	
8	F_5, F_4	
9	F_7, F_6	
10	F_9, F_8	
11	F_{11}, F_{10}	

2. Determine the value of F, in Hz, with the following formula.

$F = F_{10}\ F_9F_8F_7\ F_6F_5F_4\ F_3F_2F_1.F_0$ Hz

3. If F >640 000 000.0 Hz, there could be a tenth-Hertz error due to the Generator's 0.2 Hz resolution in that range. In this case, F should be computed again but with the LSB of F_0 truncated.

Amplitude. To determine amplitude setting, the following procedure should be programmed.

1. Interpret byte 103 as simple binary.

2. If the most significant bit (MSB) equals 1, amplitude is set in voltage units; continue with step 3. If the MSB is 0, amplitude is set in dBm; continue with step 5.

3. For voltage, interpret bytes 108 through 112 according to the following table.

Byte	Contents (MSB ↔ LSB)	Byte Interpretation
108	V_1, V_0	Packed BCD (i.e., Two BCD Digits Per Byte)
109	V_3, V_2	
110	V_5, V_4	
111	V_7, V_6	
112	V_9, V_8	

4. Compute amplitude, in volts, with the following formula.

$V = .V_9V_8V_7\ V_6V_5V_4\ V_3V_2V_1\ V_0$

where only the three most significant digits (excluding leading zeros) are meaningful.

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Full "Front Panel" String (L1, 128 Bytes) (Cont'd)

5. For dBm, interpret bytes 33, 34, and 35 according to the following table.

Byte	Contents (MSB ↔ LSB)	Byte Interpretation
33	D_1, D_0	Packed BCD (i.e., Two BCD Digits Per Byte)
34	D_3, D_2	
35	D_5, D_4	

6. Compute amplitude, in dBm, with the following formula.

$$D = D_5 \quad D_4 D_3 D_2 \, . \, D_1$$

where D_5 is the sign: plus (+) if $D_5 = 0$; minus (—) if $D_5 = 8$.

Modulation. To determine the modulation setting, the following procedure should be programmed.

1. Interpret byte 18 (modulation mode) as simple binary. The bit pattern is shown in the following table.

Byte 18

Bit	Interpretation
0 1 2	Not Applicable
3	AM control
4	FM control
5 6 7	Not Applicable

2. If bit 3 (AM) is true, continue with step 3. If bit 4 (FM) is true, continue with step 6. If neither is true, the internal modulation circuitry is off.

3. Interpret byte 25 (AM mode) as simple binary. The bit pattern is shown in the following table. If a bit equals 1 the described function is set.

Byte 25

Bit	Interpretation	
0 1 2	Not Applicable	
3	INT AM + EXT FM	
4	INT 1k	EXT if both bits 4 and 5 =1
5	INT 400	
6	DC Coupled (1), AC (0)	
7	Not Applicable	

4. Interpret bytes 19 and 20 to determine the internal AM% setting.

Byte	Contents (MSB ↔ LSB)	Byte Interpretation
19	A_1, A_0	Packed BCD (i.e., Two BCD Digits Per Byte)
20	A_3, A_2	

5. Compute AM depth (in %) with the following formula.

$$AM = A_3 \, A_2 \, . \, A_1 \, \%$$

where digit A_1 is meaningless for depths $\geq 10\%$.

6. Interpret byte 32 (FM Mode) as simple binary. The bit pattern is shown in the following table. If a bit equals 1, its described function is set.

Byte 32

Bit	Interpretation	
0 1 2 3	Not applicable	
4	INT 1k	EXT if both bits 4 and 5 = 1
5	INT 400	
6	EXT DC (1), EXT AC (0)	
7	Not applicable	

7. Interpret bytes 26, 27, and 28 to determine the internal FM peak deviation setting.

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Full "Front Panel" String (L1, 128 Bytes) (Cont'd)

Byte	Contents (MSB ↔ LSB)	Byte Interpretation
26	D_1, D_0	Packed BCD (i.e., Two BCD Digits Per Byte)
27	D_3, D_2	
28	D_5, D_4	

8. Compute FM peak deviation (in kHz) with the following formula.

$$FM = D_4\ D_3\ D_2\ .\ D_1\ kHz$$

where digit D_1 is meaningless for deviations $\geqslant$10 kHz.

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Table 3-8. HP-IB Program Codes (Alphabetical Order)*

Program Code	Parameter
AM	AM Depth
AO	Amplitude Off
AP	Amplitude
AS	Auto Sequence
BL	Blue Key
BLAP	Special Function
BLR1	Knob, Hold
BLR2	Knob, Increment
BLSQ	Auto Sequence
BLST	Set Sequence
BLX6	All Markers Off
BS	Back Space
CT	Configure Trigger
DB	dB
DM	dBm (with Sign on Data)
DN	Down (↓)
FA	Start Frequency
FB	Stop Frequency
FM	FM Deviation
FR	Frequency or Center Frequency
FS	Frequency Span
GZ	GHz
HZ	Hz
IS	Increment Set
KZ	kHz
L1	Learn Front Panel
L2	"Fast" Learn
MS	Read Status Key Message
MV	mV
MZ	MHz
M0	Modulation Off
M1	Internal 400 Hz (Mod)
M2	Internal 1 kHz (Mod)
M3	External AC (Mod)
M4	External DC (Mod)
N1	100 Steps (Lin Sweep)
N2	1000 Steps (Lin Sweep)
N3	Set Step Size (Lin Sweep)
N4	Log 10% Steps (Sweep)
N5	Log 1% Steps (Sweep)
PC	Percent
RC	Recall
RD	Knob, CCW (Down)**
RM	Read Require Service Mask
RU	Knob, CW (Up)**
R1	Resolution x10 (On)
R2	Resolution ÷10 (On)
R3	Knob Off
R4	Knob, Hold
R5	Knob, Increment
SP	Special Function
SQ	Sequence
SS	Set Sequence
ST	Store
TR	Trigger
T1	0.5 ms/step (Sweep)
T2	1 ms/step (Sweep)
T3	2 ms/step (Sweep)
T4	10 ms/step (Sweep)
T5	100 ms/step (Sweep)
UP	Up (↑)
UV	μV
W1	Sweep Off
W2	Auto Sweep
W3	Manual Sweep
W4	Single Sweep
X1	Marker 1
X2	Marker 2
X3	Marker 3
X4	Marker 4
X5	Marker 5
X6	Selected Marker Off
X7	All Markers Off
Y0	Remote Stepped Sweep (RSS) Clear
Y1	RSS with Display
Y2	RSS without Display
Y3	RSS Execute
@1	Write Require Service Mask
@2	Deferred Execution Mode
@3	Immediate Execution Mode
0—9	Numerals 0—9
.	Decimal Point
+D	+ dBm
—D	—dBm

*Program Codes can be either upper or lower case.
**RD and RU are sent ten times to program one step of the knob (except in Manual Sweep mode where one program code produces one step).

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Table 3-9. HP-IB Program Codes (Functional Order)*

Parameter	Program Code
FREQUENCY	
Frequency	FR
AMPLITUDE	
Amplitude	AP
Amplitude Off	AO
MODULATION	
AM Depth	AM
FM Deviation	FM
Modulation Off	MO
Internal 400 Hz	M1
Internal 1 kHz	M2
External AC	M3
External DC	M4
DATA	
Numerals 0—9	0—9
Decimal point	.
Back Space	BS
UNITS	
dB	DB
dBm (with Sign on Data)	DM
+dBm	+D
—dBm	—D
mV	MV
μV	UV
%	PC
Hz	HZ
kHz	KZ
MHz	MZ
GHz	GZ
SWEEP	
Sweep Off	W1
Auto Sweep	W2
Manual Sweep	W3
Single Sweep	W4
Start Frequency	FA
Stop Frequency	FB
Center Frequency	FR
Frequency Span	FS
100 Steps (Linear)	N1
1000 Steps (Linear)	N2
Set Step Size (Linear)	N3
Log 10%	N4

Parameter	Program Code
SWEEP (Cont'd)	
Log 1%	N5
0.5 ms/Step	T1
1 ms/Step	T2
2 ms/Step	T3
10 ms/Step	T4
100 ms/Step	T5
Marker 1	X1
Marker 2	X2
Marker 3	X3
Marker 4	X4
Marker 5	X5
Selected Marker Off	X6
All Markers Off	X7 (or BLX6)
Remote Stepped Sweep (RSS) Clear	Y0
RSS with Display	Y1
RSS without Display	Y2
RSS Execute	Y3
OTHER	
Blue Key	BL
Up (↑)	UP
Down (↓)	DN
Increment Set	IS
Knob CW (Up)**	RU
Knob CCW (Down)**	RD
Resolution X10 (On)	R1
Resolution ÷10 (On)	R2
Knob, Off	R3
Knob, Hold	R4 (or BLR1)
Knob, Increment	R5 (or BLR2)
Sequence	SQ
Auto Sequence	AS (or BLSQ)
Set Sequence	SS (or BLST)
Store	ST
Recall	RC
Configure Trigger	CT
Trigger	TR
Write Require Service Mask	@1
Read Require Service Mask	RM
Read Status Key Message	MS
Learn Front Panel	L1
"Fast" Learn	L2
Deferred Execution Mode	@2
Immediate Execution Mode	@3
Special Functions	SP (or BLAP)

*Program codes can be either upper or lower case.

**To program one step of the knob, the program code, RU or RD, must be sent ten times. The exception to this is the manual sweep mode where one program code produces one step.

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Table 3-10. Special Function Codes

Special Function	Code*	Special Function	Code*
System Clear - Reset Front Panel	00	Parameter Shift Keying Toggle (one-key format)	62
Frequency Offset Off	10	Special Functions 10—62 Off	80
+ Frequency Offset	11	Amplitude Conversion (V → dBm)	81
— Frequency Offset	12	HP-IB Address Display	82
Amplitude Reference Off	30	ROM Test	83
Amplitude Reference	31	RAM Test	84
External AM Off	40	Amplitude Correction Off	85
Int FM + Ext AM (ac)	41	Amplitude Correction On	86
Int FM + Ext AM (dc)	42	HP-IB Operator Requests Response	87
AUX FM Off	50	Auto Sequence	88
AUX FM On	51		
Parameter Shift Keying Off	60		
Parameter Shift Keying Up/Down (two-key format)	61		

*Used with the Special Function program code SP (or BL AP).

HP-IB SYNTAX AND CHARACTERISTICS

Program Code Protocol: Same as keyboard protocol.

Data: Arbitrary length numerical string with imbedded decimal point.

End-of-String Message (EOS): Line Feed (LF), Exclamation Mark (!) or bus END message (EOI and ATN true). Required in Deferred Execution mode. Not required in Immediate mode.

Deferred Execution Mode: Accepts program code strings in blocks of 82 characters. 82nd character produces internal EOS message.

Immediate Execution Mode: Accepts one program code character at a time. Produces internal EOS message for each character.

Address: Shown on internal switches as five-bit equivalent decimal (00-30). New setting not recognized until new power-up. Special Function 82 displays address.

Return-to-Local: Blue Key.

STATUS BYTE AND RQS MASK

Bit	8	7	6	5	4	3	2	1
Condition	Operator Requests Service	RQS Service Request	Sweep End	Parameter Out	Power Fail Restart	Hardware Error	Entry Error	Ready
Weight	128	64	32	16	8	4	2	1

Notes: 1. Bit 7 of the RQS mask does not enable any condition. Thus, it can be true or false and not affect the Require Service conditioning.

COMPLETE HP-IB CAPABILITY (as described in IEEE Std-488 and the identical ANSI Standard MC1.1): SH1, AH1, T6, TE0, L3, LE0, SR1, RL1, PP0, DC1, DT1, C0.

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Amplitude

Description

This instruction describes how to set RF signal amplitude.

Operating Characteristics:

Range: +13 to —139.9 dBm (999 mV to .023 μV)
Resolution: 0.1 dB.

Procedure

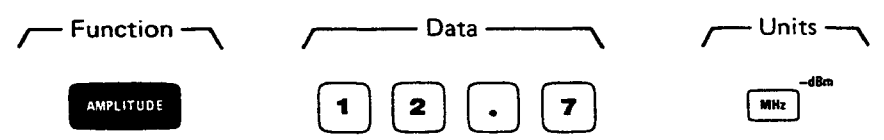
Select AMPLITUDE, data, and units.

To turn amplitude off (that is, —139.9 dBm) press AMPTD OFF.

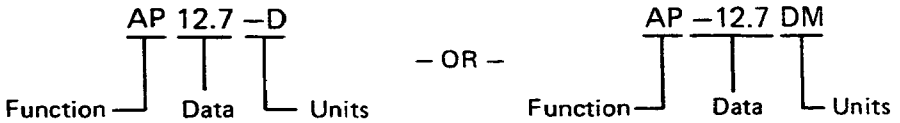
Example

Set RF signal amplitude to —12.7 dBm.

LOCAL (keystrokes)



HP-IB (program codes)



Keys and Program Codes

HP-IB

Keys	Codes
AMPLITUDE	AP
AMPTD OFF	AO
+ dBm	+D
—dBm	—D
dBm (with sign on data)	DM
mV	MV
μV	UV

Indications

The selected amplitude (with sign and units) should be displayed on the readout panel. The one's digit is always displayed. Otherwise, leading zeros are blanked. When four significant digits are selected between —100.0 and —139.9 dBm, the tenth's digit will not appear until after the —dBm key is pressed.

Comments

Digits selected that are beyond the specified resolution are ignored.

The Signal Generator uses microprocessor correction to achieve ±1 dB absolute output level accuracy between +13 and —120 dBm. Correction is not available in the sweep mode. Correction can be defeated with Special Function 85 and restored with Special Function 86.

Overrange extends to +16 dBm (without level correction). However, this overrange cannot be selected in voltage units (that is, 999 mV, the equivalent of +13 dBm, is maximum).

HP-IB

Data can be entered with leading sign under HP-IB control only (for example, +13 DM). Otherwise, the sign is incorporated in the units (that is, +D or —D).

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Amplitude (Cont'd)

Comments (Cont'd)

Voltages can be selected with resolutions of .001 μV to 1 mV depending upon the level selected. However, the Generator actually changes in units of dB only with a minimum resolution of 0.1 dB.

Related Instructions

Amplitude Conversion (V→dBm)
Amplitude Correction
Amplitude Reference

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Amplitude Conversion (V → dBm)

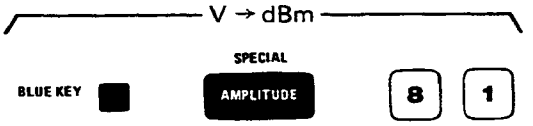
Description This instruction describes how to change the display of RF amplitude from voltage units to power units in dBm. This feature does not effect the actual output level.

Procedure Press the Blue Key, SPECIAL and 81.

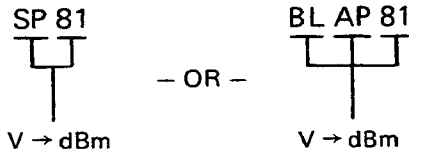
Example

The Amplitude readout displays 1.0 μV. Change the display into units of dBm. (The resulting display should be −107 dBm.)

LOCAL (keystrokes)



HP-IB (program codes)



Keys and Program Codes HP-IB

All of the keys and codes for this feature are shown in the example. Note: SPECIAL can be programmed with a simple SP or with BL and AP (Blue Key and AMPLITUDE).

Indications After the Amplitude readout changes to a value of dBm, there is no other indication that the conversion was made.

Comments There is no built-in conversion feature for dBm-to-volts. However, the following formula can be used to determine a voltage equivalent for the power:

$$V = \sqrt{.05} \cdot 10^{P/20}$$

where V is level in volts and P is level in dBm.

Related Instructions
Amplitude
Amplitude Correction
Amplitude Reference

ManualsPlus.com

Amplitude Correction

Description

This feature corrects for internal amplitude variations throughout the Generator's frequency range. In this way, the Generator attains its optimum level accuracy. The correction feature is automatically enabled at turn-on. It can be disabled by Special Function 85 and re-enabled by Special Function 86.

Amplitude Correction feature is not available above +13 or below —120 dBm. However, if the feature is enabled, it can affect amplitudes outside the range of +13 to —120 dBm.

Absolute Level Accuracy (+15° to +45°C):
- ±1 dB between +13 and —120 dBm
- ±3 dB between —120 and —130 dBm

Typical Level Accuracy (Correction Disabled):
- +1.0, —2.5 dB between +13 and —25 dBm, .01—640 MHz
- +1.0, —3.5 dB between +13 and —25 dBm, 640—1280 MHz
- +2.0, —3.0 dB between —25 and —139.9 dBm, .01—640 MHz
- +1.2, —4.5 dB between —25 and —139.9 dBm, 640—1280 MHz

Flatness (Referenced to 100 MHz, without Correction, down to —120 dBm):
- ±1.5 dB, .01 to 640 MHz
- ±3.5 dB, .01 to 1280 MHz

Procedure

To disable the correction feature, press the Blue Key, SPECIAL and 85.

To re-enable the correction feature, press the Blue Key, SPECIAL and 86.

Disable the Amplitude Correction feature.	
LOCAL (keystrokes)	Amplitude Correction Off: BLUE KEY, SPECIAL AMPLITUDE, 8, 5
HP-IB (program codes)	SP 85 — Amplitude Correction Off — OR — BL AP 85 — Amplitude Correction Off

Keys and Program Codes HP-IB

All of the keys and program codes for this feature are shown in the example.
Note: SPECIAL can be programmed with a simple SP or with BL and AP (Blue Key and AMPLITUDE).

Indications

The displayed amplitude should remain unchanged. However, actual output amplitude might change to a less accurate value. There is no indication of this feature until you press and hold the STATUS key. Code 85 should then appear in the special functions block of the FREQUENCY readout.

Continued . . .

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Amplitude Correction (Cont'd)

Comments

The figures for level accuracy listed under "Description" include flatness, attenuator error, detector error and measurement uncertainty.

If maximum level accuracy is not required during long periods of automatic frequency changing, the Amplitude Correction feature should be disabled. This will eliminate unnecessary mechanical wear to the output attenuator.

Related Instructions

Amplitude
Amplitude Conversion (V→dBm)
Amplitude Reference

ManualsPlus.com

Amplitude Reference

Description This feature converts the display of RF amplitude (in dBm) to a reference value of 0.0 dB. This feature by itself does not change the actual RF level. Afterwards, any change in amplitude will be displayed in units of dB relative to the selected reference.

Procedure To change the displayed amplitude from absolute units of dBm, to the reference 0.0 dB, press Blue Key, SPECIAL and 31.

To turn off the Amplitude Reference feature, press the Blue Key, SPECIAL and 30.

Example

The Amplitude readout displays −107 dBm. Change the display to indicate a reference level of 0.0 dB.

LOCAL (keystrokes)	Amplitude Reference BLUE KEY ■ SPECIAL AMPLITUDE 3 1
HP-IB (program codes)	SP 31 — Amplitude Reference – OR – BL AP 31 — Amplitude Reference

Keys and Program Codes HP-IB

All of the keys and codes used in the Amplitude Reference feature are shown in the examples. Note: the SPECIAL function can be programmed with a simple SP or with BL and AP (Blue Key and AMPLITUDE).

Indications The Amplitude readout should display 0.0 dB. There should be no change in actual output level at this point. Any subsequent change in output level will be displayed in units of dB relative to the selected reference.

Code 31 will appear in the special function block of the Frequency readout if you press and hold the STATUS key.

Comments Before the Amplitude Reference feature can be executed, the Amplitude readout must be displaying units of dBm. If the units are mV or μV they would have to be converted to dBm (see Amplitude Conversion, Special Function 81).

In the Amplitude Reference mode, output level can be varied with the INCREMENT keys or knob only. A completely new setting (that is, a Function-Data-Units entry) will turn off the reference feature.

Related Instructions
Amplitude
Amplitude Conversion (V→dBm)
Amplitude Correction

ManualsPlus.com

Frequency

Description This instruction describes how to set RF signal frequency and sweep center frequency.

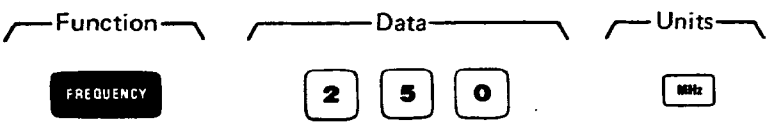
Range: 10 kHz to 1280 MHz (1279.999 999 8 MHz)
Resolution: 0.1 Hz (below 640 MHz)
0.2 Hz (above 640 MHz).

Procedure Select FREQUENCY, data, and units.

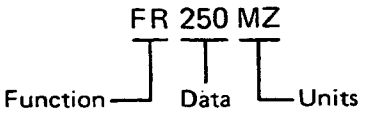
Example

Set RF signal frequency to 250 MHz.

LOCAL (keystrokes)



HP-IB (program codes)



Keys and Program Codes HP-IB

Keys	Codes
FREQUENCY	FR
GHz	GZ
MHz	MZ
kHz	KZ
Hz	HZ

Indications The selected frequency and units should be displayed on the readout panel. Leading zeros are blanked. Less significant digits display zeros if not selected (except for the tenth-hertz digit which should be blanked).

Comments Frequencies down to 1 kHz can be selected but level accuracy is specified to 10 kHz only. Amplitude at 1 kHz is typically within 2 dB below the displayed amplitude.

Digits selected that are beyond the specified resolution are ignored.

Related Instructions Frequency Offset
Frequency Transferring

ManualsPlus.com

Frequency Offset

Description This feature provides for an output frequency with a selectable offset from the displayed frequency. Both the amount and direction of the offset are selectable.

Procedure For a positive offset, press the Blue Key, SPECIAL, and 11. When the Frequency readout goes blank, select Data and Units for the frequency offset.

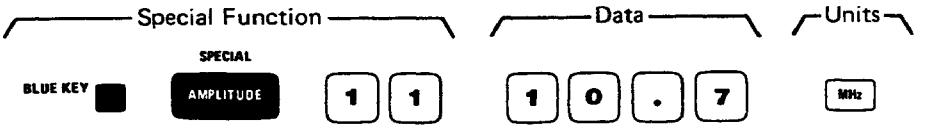
For a negative offset, substitute 12 for 11.

To remove the offset, press the Blue Key, SPECIAL and 10.

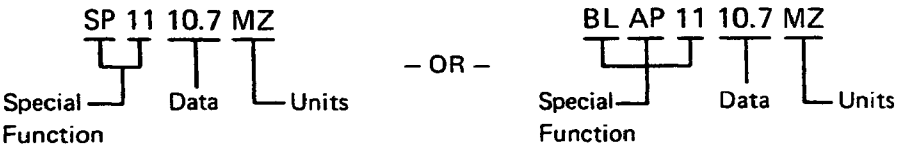
Example

Select an offset such that the output frequency is 10.7 MHz higher than the displayed frequency.

LOCAL (keystrokes)



HP-IB (program codes)



Keys and Program Codes HP-IB

Keys	Codes (see note)	
Blue Key		BL
SPECIAL	SP	AP
GHz	GZ	
MHz	MZ	
kHz	KZ	
Hz	HZ	

Note: the SPECIAL function can be programmed with a simple SP or BL and AP (Blue Key and AMPLITUDE).

Indications The displayed frequency should remain as the last selected frequency. However, the output frequency should change by the selected offset. There is no indication of the offset until you press and hold the STATUS key. Code 11 or 12 should then appear in the special functions block of the Frequency readout.

Comments The offset applies to both fixed and swept output frequencies. It also applies to sweep start-stop and marker frequencies. However, it does not apply to sweep span or step size.

Related Instructions Frequency
Sweep, Start-Stop

ManualsPlus.com

Frequency Transferring

Description

This feature allows you to transfer frequency values from one frequency parameter to another. You can transfer values between the following parameters:

Frequency	Marker Frequencies
Start Frequency	Step Size (i.e., SET SIZE for start-stop)
Stop Frequency	Step Size (i.e., SET SIZE for span)
Span Frequency	

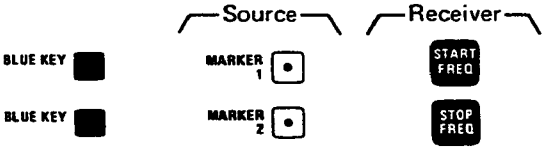
Procedure

Press the Blue Key. Then select a source key and a receiver key.

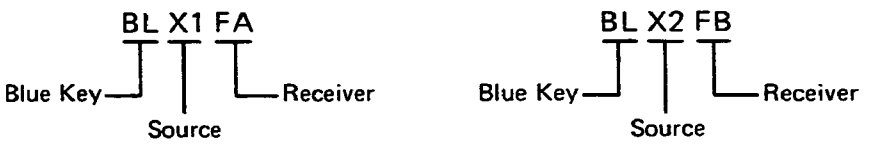
Example

Transfer the value of Marker 1 to Start Frequency and the value of Marker 2 to Stop Frequency.

LOCAL (keystrokes)



HP-IB (program codes)



Keys and Program Codes HP-IB

Keys	Codes	Keys	Codes
Blue Key	BL	MARKERS	
FREQUENCY	FR	1	X1
START FREQ	FA	2	X2
STOP FREQ	FB	3	X3
SPAN FREQ	FS	4	X4
SET SIZE	N3	5	X5

Indications

Indications depend upon the parameter currently being displayed. The source remains unchanged; the receiver changes to the same value as the source.

Comments

The frequency transfer feature provides, in effect, additional storage registers for frequency parameters (in addition to the nine general registers — see Store-Recall).

Related Instructions

Frequency
Sweep, Start-Stop
Sweep, Span
Sweep Markers
Store-Recall

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Increment ↓ ↑

Description This feature steps parameters up or down in increments which have been set previously. Any value-selectable parameter can be changed by the INCREMENT ↓↑ keys.

Procedure First set the size of the increment (see instructions for Increment Setting). Select the desired function key. Then press the step up or down key (INCREMENT ↓ ↑) to change the value by the selected increment. The value will change once for each keystroke, or about five times per second if the key is held down (local operation only).

Keys and Program Codes

HP-IB

Keys	Codes
↑	UP
↓	DN
FREQUENCY	FR
AMPLITUDE	AP
AM	AM
FM	FM

Keys	Codes
START FREQ	FA
STOP FREQ	FB
SPAN FREQ	FS
SET SIZE	N3
MARKERS 1-5	X1-X5

Indications The displayed value will increase (↑) or decrease (↓) in the increments selected.

Comments The size of the increment can be displayed by pressing and holding the INCR SET key.

The INCREMENT ↓↑ keys are always enabled.

Stepping can also be controlled by the rear panel AUX connector. Negative going TTL pulses are required: pin 2, INCREMENT ↑; pin 3, INCREMENT ↓.

Related Instructions
Increment Setting
Knob
Knob, Increments
Parameter Shift Keying

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Increment Setting

Description This feature sets the size of steps which are controlled by the INCREMENT ↑↓ keys or the knob in increment mode. Increments of frequency, amplitude, AM depth, and FM deviation can be set. The smallest increment for each function is listed below.

Frequency: 0.1 Hz (below 640 MHz)
0.2 Hz (above 640 MHz)

Amplitude: 0.1 dB

AM Depth: 1% (10—95%)
0.1% (0—9.9%)

FM Deviation: 0.1 kHz (for deviations <10 kHz)
1 kHz (for deviations >10 kHz)

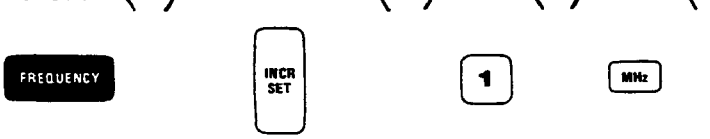
Frequency increments can be selected by FREQUENCY and any of the following sweep keys: START FREQ, STOP FREQ, SPAN FREQ, SET SIZE (STEPS), and any of the MARKER keys.

Procedure Select function, INCR SET, data, and units.

Example

Select a frequency increment of 1 MHz.

LOCAL (keystrokes)



HP-IB (program codes)

Keys and Program Codes HP-IB

Keys	Codes	Keys	Codes	Keys	Codes
INCR SET	IS	START FREQ	FA	GHz	GZ
FREQUENCY	FR	STOP FREQ	FB	MHz	MZ
AMPLITUDE	AP	SPAN FREQ	FS	kHz	KZ
AM	AM	SET SIZE	N3	Hz	HZ
FM	FM	MARKERS 1—5	X1-X5	%	PC
				dB	DB
				mV	MV
				μV	UV

Indications The value of the increment and its units annunciator should be displayed on the readout when they are entered. The readout should revert to the static value of the parameter after the units key is released. The display of an increment can be recalled to the readout by holding down the INCR SET key (local operation only).

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Increment Setting (Cont'd)

Comments

If the amplitude was selected in units of dBm, the increment must be selected in units of dB. If the amplitude was selected in units of volts, the increment must also be selected in units of volts (either mV or μV).

Increments of FM deviation must be selected in units of kHz only.

Voltage increments can be set as low as .001 μV. However, the Generator changes amplitude in units of dB only (0.1 dB increments minimum).

Related Instructions

Increment ↓↑
Knob, Increments

ManualsPlus.com

Knob

Description The knob is a stepping control with an analog "feel". It steps the value of the front panel function in unit steps starting at a selected digit. The digit is selected by the RESOLUTION keys X10 and ÷10.

Procedure Enable the knob by pressing either of the ON keys (X10 or ÷10).

Pressing either key again will increase (X10) or decrease (÷10) the step resolution by a factor of ten.

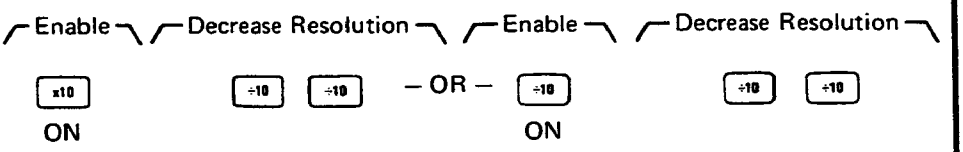
Rotate the knob clockwise to increase the value of the front panel function. Rotate the knob counterclockwise to decrease the value.

Disable the knob by pressing the OFF key or by selecting a different keyboard function.

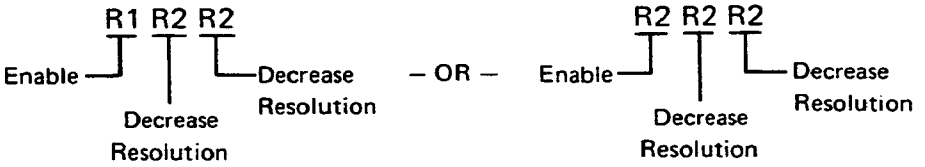
Example

Enable the knob with 1 kHz resolution of frequency steps (assume that the front panel function is already FREQUENCY and that the knob turns on to 100 kHz resolution).

LOCAL (keystrokes)



HP-IB (program codes)



Keys and Program Codes HP-IB

Keys	Codes (see note)
ON X10	R1
ON ÷10	R2
OFF	R3
Knob, (up)	RU
Knob, (down)	RD

Note: the knob function can be performed under HP-IB control However, it requires a string of ten program codes (either RU or RD) to perform one step. The exception to this rule is that in Manual sweep mode, one program code produces one sweep step.

Indications Whenever the X10 or ÷10 key is pressed, the digit representing resolution flashes on and off (local control only). When either key is pressed again, the adjacent digit, up or down, flashes to show the new resolution.

When the knob is turned clockwise, the displayed value should increase in unit steps starting at the selected digit. The inverse is true for counterclockwise rotation.

Comments The knob is normally turned off whenever a new keyboard function is selected. There is a HOLD feature, however, that allows you to retain knob control of one function after shifting keyboard control to another. (See instruction for Knob, Hold).

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Knob (Cont'd)

The basic knob feature allows you to select the digit where the stepping starts, and progresses in units of one on that digit. Another feature allows you to choose any size increment without regard to a starting digit. With this feature, the knob acts similarly to the INCREMENT ↓ and ↑ keys (see instructions for Knob, Increments).

HP-IB

The knob function can be performed under HP-IB control. However, it requires a string of ten program codes (either RU or RD) to perform one step. The exception to this rule is that in Manual sweep mode, one program code will produce one sweep step.

Related Instructions

Increment ↓↑
Increment Setting
Knob, Hold
Knob, Increments
Sweep Modes

ManualsPlus.com

Knob, Hold

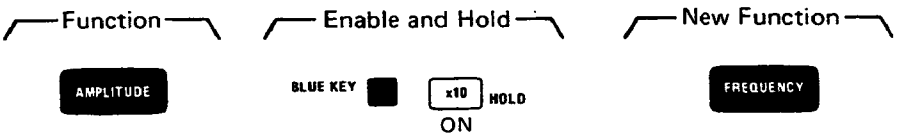
Description Normally the knob feature applies to the function for which the front panel is set, and is disabled if the front panel function changes. The HOLD feature allows you to retain knob control of one function even when the front panel is set to another.

Procedure Press the Blue Key and HOLD (X10).

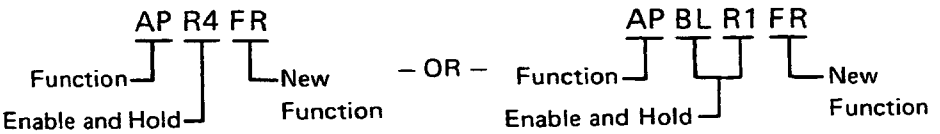
Example

Enable the knob to vary amplitude; hold control of amplitude and shift front panel control to frequency.

LOCAL (keystrokes)



HP-IB (program codes)



Keys and Program Codes HP-IB

Keys	Codes (see note)	
Blue Key		BL
HOLD (X10)	R4	R1

Note: The HOLD feature can be programmed with a simple R4 or with BL and R1 (Blue Key and X10).

Indications The knob's control should still be evident on the original function.

Comments Manual sweep mode takes priority over the HOLD feature. That is, the HOLD feature cannot be maintained if manual sweep is selected.

The HOLD feature cannot be maintained for one modulation function when front panel control is shifted to the other modulation function (that is, AM to FM or vice versa). The knob does remain enabled when the shift is made but the control shifts to the new modulation function.

You can select one increment for the knob and "hold" it. Then select another increment for the INCREMENT keys (for a different function).

Related Instructions Knob
Knob, Increments

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Knob, Increment

Description This feature allows the knob to step parameters in selected increments (like the INCREMENT keys) instead of the normal resolution format. Any value-selectable parameter can be controlled with this feature.

Procedure First, select the desired function and increment (see Increment Setting). Then press the Blue Key and ÷10 (INCR, ON). This turns on the knob in the Increment configuration.

Example

Enable the knob in the Increment configuration.	
LOCAL (keystrokes)	BLUE KEY ■ INCR ÷10
HP-IB (program codes)	R5 – OR – BL R2

Keys and Program Codes HP-IB

Keys	Codes (see note)	
Blue Key		BL
INCR	R5	R2

Note: The Increment configuration can be programmed with a simple R5 or with BL and R2 (Blue Key and ÷10).

Indications The displayed value will increase (cw) or decrease (ccw) in the increments selected.

Comments The knob is normally turned off whenever a new keyboard function is selected. There is a Hold feature, however, that allows you to retain knob control of one function after shifting keyboard control to another (see Knob, Hold).

You can select one increment for the knob and "hold"it. Then select another increment for the INCREMENT keys (for a different function).

HP-IB In the Increment configuration, the knob acts essentially the same as the INCREMENT keys: cw = ↑; ccw = ↓ (except when in HP-IB control where the program code RU or RD must be repeated ten times to affect a single step).

The size of an increment can be displayed by pressing the INCR SET key.

Related Instructions
Increment ↓ ↑
Increment Setting
Knob
Knob, Hold

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Modulation, AM

Description

This instruction describes how to set up and use AM with the internal modulation source.

Operating Characteristics:

Depth: 0—95%
Resolution: 1%, 10 to 95% AM
0.1%, 0 to 9.9% AM
Internal Rates: 400 and 1000 Hz.

External Rates

RF	AM Rates
0.15 to 1 MHz	dc to 1.5 kHz
1 to 10 MHz	dc to 5 kHz
10 to 1280 MHz	dc to 10 kHz

Procedure

Select AM, Data and %.

Select modulation rate.

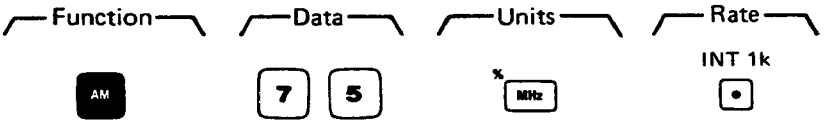
To turn AM off, press MOD OFF.

To turn the AM on to the last selected depth and rate, press AM.

Example

Select AM, 75% depth, 1 kHz rate (internal).

LOCAL (keystrokes)



HP-IB (program codes)

Keys and Program Codes HP-IB

Keys	Codes
AM	AM
MOD OFF	MO
%	PC
INT 400	M1
INT 1k	M2
EXT AC	M3
EXT DC	M4

Indications

The light in the selected MOD key should turn on. Selected AM depth and the %AM annunciator should be displayed on the readout panel. Two significant digits should be displayed.

Comments

Refer to Modulation, External Source for information on external levels.

AM is possible above +8 dBm. However, maximum peak envelope power (that is, carrier output plus AM depth) cannot exceed +14 dBm (with amplitude correction) or +16 dBm (without correction).

The maximum number of digits for AM depth is two. Selected values with three significant digits will be rounded off to two digit values.

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Modulation, AM (Cont'd)

Comments (Cont'd)

A modulation signal is produced at the rear panel MODULATION OUTPUT connector. Its level is a minimum of 200 mVrms and not operator controllable. The signal is the internally generated 400 or 1000 Hz (if enabled), or the external signal from the front panel MODULATION INPUT (single mode modulation only). The signal is never a mixed mode signal and never the signal from the rear panel AUX FM INPUT.

Related Instructions

Modulation, External Source
Modulation, Mixed

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Modulation, External Source

Description

This instruction describes the use of two external source connectors; the front panel MODULATION INPUT and the rear panel AUX FM INPUT.

The front panel connector can be ac or dc coupled for AM or FM. Its impedance is ~1000Ω. It requires a level of 0.707 Vrms (1 Vpk) for calibrated internal control of level.

NOTE

The Generator's output is not phase locked when a dc coupled signal is used for FM (front panel connector only).

The rear panel connector is dc coupled and for FM only (phase lock enabled). Its impedance is ~5000Ω. Its level is set externally only (that is, at the source).

Procedure

To enable the front panel connector, press EXT AC or EXT DC. Set the signal level to 0.707 Vrms (1 Vpk) for calibrated internal control of AM% or FM peak deviation.

NOTE

The EXTERNAL SOURCE HI light turns on if the signal is greater than 0.721 Vrms (1.02 Vpk). The LO light turns on if the signal is less than 0.693 Vrms (0.98 Vpk). If greater accuracy is required, an external voltmeter must be used.

To enable the rear panel connector, press the Blue Key, SPECIAL and 51. Adjust the signal level according to the instructions described under Comments.

To disable the rear panel connector, press the Blue Key, SPECIAL and 50.

Keys and Program Codes

HP-IB

Keys	Codes (see note)	
Blue Key		BL
SPECIAL	SP	AP
EXT AC	M3	
EXT DC	M4	
AM	AM	
FM	FM	

Note: The SPECIAL function can be programmed with a simple SP or BL and AP (Blue Key and AMPLITUDE).

Indications

For signals entering the front panel connectors, the EXTERNAL SOURCE HI-LO lights will turn on accordingly if the signal is too high (HI) or too low (LO) for calibrated internal control of the signal level.

For signals entering the rear panel connector, there is no such indication.

Comments

The EXTERNAL SOURCE HI-LO lights should not be used when sweep times are ⩽10 ms time/step.

A modulation signal is produced at the rear panel MODULATION OUTPUT connector. Its level is a minimum of 200 mVrms and not operator controllable. The signal is the internally generated 400 or 1000 Hz (if enabled), or the external signal from the front panel MODULATION INPUT (single mode modulation only). The signal is never a mixed mode signal and never the signal from the rear panel AUX FM INPUT.

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Modulation, External Source (Cont'd)

Comments (Cont'd)

External Control of AM Depth

There are two methods for controlling AM depth at the external source. The first method can provide greater RF stability; the second allows more versatile mixed modulation.

Greater Stability. The first method can be more stable if applied in a simple AM mode. This is because the less stable FM circuitry is disabled.

- Select AM 95%. This sets the internal AM depth control to maximum.
- Enable the front panel MODULATION INPUT by selecting either EXT AC or EXT DC.
- Set the external signal level for desired AM depth according to the following formulas:

  $$Vrms = A \times 6.7 \times 10^{-3}$$
  $$Vpk = A \times 9.5 \times 10^{-3}$$

  where A is desired AM depth in percent.

  0.778 Vrms (1.1 Vpk) is the maximum input level before clipping occurs.

NOTE

AM + FM is possible, with reduced stability, by using a second external source for FM and the rear panel AUX FM INPUT (that is, Special Function 51).

Versatile Mixed Modulation. The second method enables the internal FM circuitry which is inherently less stable. However, it also provides for AM + FM using the convenience of the internal FM circuitry; AM + FM using a second external source at the rear panel AUX FM INPUT, and AM + FM + FM using a combination of the internal and external sources.

- Enable the front panel MODULATION INPUT with Special Function 41 for ac coupling or 42 for dc coupling. These features direct the AM signal around the internal level control circuitry. They also enable the internal FM.
- At the Generator's front panel, set FM to 0.0 kHz or to any desired deviation for mixed modulation.
- Adjust the external signal level for the desired AM depth. The relationship of voltage to AM depth is:

  $$Vrms = A \times 7.07 \times 10^{-3}$$
  $$Vpk = A \times 10^{-2}$$

  where A is desired AM depth in percent.

NOTE

0.778 Vrms (1.1 Vpk) is the maximum input level before clipping occurs.

Continued . . .

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Modulation External Source (Cont'd)

Comments (Cont'd)

External Control of FM Deviation

There are two methods for controlling FM Deviation at the external source. The first method uses the front panel MODULATION INPUT and provides ac or dc coupling. However, with dc coupling, there is a significant decrease in RF stability (that is, the output signal is not phase locked). The second method uses the rear panel AUX FM INPUT which is dc coupled only (with phase locked stability).

AC and DC Coupling. For external control of FM deviation (for signals at the front panel MODULATION INPUT):

- Enable the MODULATION INPUT by selecting either EXT AC or EXT DC.
- Set the Generator to one of the following peak deviation settings depending on the RF frequency range:

Maximum Peak Deviation

RF (MHz)	FM Setting (kHz)
.01 to 120	100
120 to 160	25
160 to 320	50
320 to 640	100
640 to 1280	200

- Adjust the signal level of the external source to produce peak deviations according to the following relationship:

  0 to 0.707 Vrms (or 1 Vpk) produces peak deviations between 0 kHz and the value displayed on the Generator's front panel.

DC Coupling with Phase Lock. For external control of FM peak deviation (for signals entering the rear panel AUX FM INPUT):

- Select Special Function 51. This enables the rear panel signal path which bypasses the internal level control circuitry.
- Select any other modulation source for mixed modulation or disable all other sources by pressing MOD OFF (this does not affect the AUX FM INPUT).
- Adjust the signal level of the external source to produce peak deviations according to the formulas shown in the following table.

RF (MHz)	Vpk approximately equals*	
.01—120	Δfpeak/25 kHz	For Vrms multiply the values for Vpk by 0.707.
120—160	Δfpeak/6.25 kHz	
160—320	Δfpeak/12.5 kHz	
320—640	Δfpeak/25 kHz	
640—1280	Δfpeak/50 kHz	
*Δfpeak is the desired peak deviation.		

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Modulation, External Source (Cont'd)

Comments (Cont'd)

NOTE

When using the AUX FM INPUT for FM + FM, the resulting deviation from all sources should not exceed the maximum limits shown in the table above titled Maximum Peak Deviation.

Related Instructions

Modulation, AM
Modulation, FM
Modulation, Mixed

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Modulation, FM

NOTE

The Generator's output is not phase locked in FM with a dc coupled signal through the front panel MODULATION INPUT connector.

Description

This instruction covers selecting modulation sources, setting internal rates and deviation, and turning on the modulation circuitry.

Internal rates: 400 and 1000 Hz.

FM rates (1 dB bandwidth): external ac, 20 Hz to 100 kHz; external dc, dc to 100 kHz.

FM deviation:

Center Frequency (MHz)	Maximum peak deviation	
	Internal and AC mode (kHz)	DC mode (kHz)
	the smaller of	
0.01—120	100 or f_{mod} x 500	100
120—160	25 or f_{mod} x 125	25
160—320	50 or f_{mod} x 250	50
320—640	100 or f_{mod} x 500	100
640—1280	200 or f_{mod} x 1000	200

FM resolution: 0.1 kHz for deviations < 10 kHz; 1 kHz for deviations >10 kHz.

Procedure

Select FM, Data and kHz ("kHz" is the only valid unit for selecting deviation).

Select modulation source and rate.

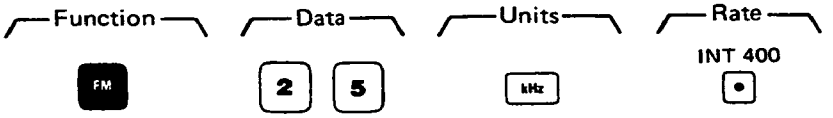
To turn off the modulation circuitry, press MOD OFF (does not affect the rear panel AUX FM INPUT).

To turn on the modulation circuitry to the last selected FM parameters, simply press FM.

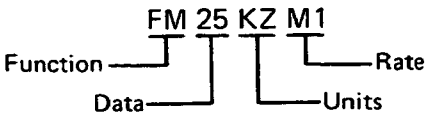
Example

Select FM, 25 kHz deviation and 400 Hz internal rate.

LOCAL (keystrokes)



HP-IB (program codes)



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Modulation, FM (Cont'd)

Keys and Program Codes

HP-IB

Keys	Codes
FM	FM
MOD OFF	MO
kHz	KZ
INT 400	M1
INT 1k	M2
EXT AC	M3
EXT DC	M4

Indications

Selected FM deviation and the "kHz FM" annunciator should be displayed on the readout panel. At least two significant digits should be displayed.

Comments

Refer to the Modulation, External Source instruction for external rates and levels, and for information on the rear panel AUX FM input.

Selected digits that exceed the resolution of the range are rounded off.

If selected deviation exceeds the maximum allowed for a range, deviation goes to Ø kHz.

A modulation signal is produced at the rear panel MODULATION OUTPUT connector. Its level is a minimum of 200 mVrms and not operator controllable. The signal is the internally generated 400 or 1000 Hz (if enabled), or the external signal from the front panel MODULATION INPUT (single mode modulation only). The signal is never a mixed mode signal and never the signal from the rear panel AUX FM INPUT.

Related Instructions

Modulation, External Source
Modulation, Mixed
Parameter Shift Keying

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Modulation, Mixed

Description

This instruction describes several modes of mixed modulation. Each mode involves some combination of the following features:

Internal 400 Hz and 1 kHz sources
External AM (ac coupled) with Internal FM
(Special Function 41)
External AM (dc coupled) with Internal FM
(Special Function 42)
External AUX FM (rear panel, dc coupled) with any other source
(Special Function 51)

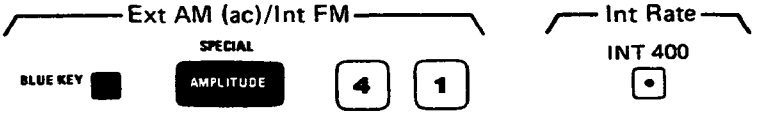
Procedure

Ext AM (ac) with Int FM:
Press the Blue Key, SPECIAL and 41.
Ext AM (dc) with Int FM:
Press the Blue Key SPECIAL and 42.
To disable the External AM (from Special Function 41 or 42):
Press the Blue Key, SPECIAL and 40.
AUX FM On:
Press the Blue Key, SPECIAL and 51
AUX FM Off:
Press the Blue Key, SPECIAL and 50.

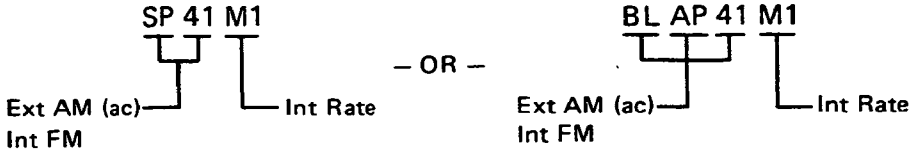
Example

Set up external AM, ac coupled with internal FM at a 400 Hz rate.

LOCAL (keystrokes)



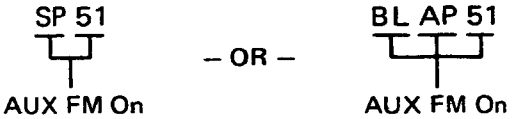
HP-IB (program codes)



Enable the rear panel AUX FM connector.

LOCAL (keystrokes)

HP-IB (program codes)



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Modulation, Mixed (Cont'd)

Keys and Program Codes

HP-IB

Keys	Codes (see note)	
Blue Key SPECIAL	SP	BL AP

Note: the SPECIAL function can be programmed with a simple SP or with BL and AP (Blue Key and AMPLITUDE).

Indications

Only the internally controlled AM depth or FM deviation is displayed.

Comments

In any mixed modulation mode, only the internal source can be controlled from the front panel.

When using the AUX FM input for FM + FM, the sum of the input signals should not produce deviation exceeding the limits listed in the Modulation, FM instruction.

With Special Functions 41 and 42, the internal FM turns on to a 1 kHz rate and the last selected FM deviation. Internal 400 Hz can be selected after the Special Function is set up.

The AUX FM input is dc coupled. However, selecting AUX FM does not disable the output signal's phase-lock stabilization (like FM and EXT DC through the front panel input). Consequently any modulation signal applied to the AUX FM input should not be such that it overmodulates the Generator. The same low frequency FM deviation limits that apply to an EXT DC signal also apply to an AUX FM signal (that is, rates below 200 Hz must have reduced deviation; rates below 20 Hz will increase distortion).

Setting the level of the external source is described under Modulation, External Source.

The MOD OFF key turns off all modulation except FM produced from the AUX FM input.

Related Instructions

Modulation, AM
Modulation, External Source
Modulation, FM

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Parameter Shift Keying

Description

This feature is a variation of the Increment ↓ ↑ feature. It provides a toggle function, that is, only one step up, then one step down, etc.

Special Function 61 is the two-key format. Each INCREMENT key is enabled for one step; then disabled while the other key is enabled for one step.

Special Function 62 is the one-key format. Either key (↓ or ↑) can perform the complete toggle function.

Procedure

Press the Blue Key SPECIAL and 61 (to enable the two-key format).

Press the Blue Key SPECIAL and 62 (to enable the one-key format).

Select a Function and increment value.

Press one or both stepping keys (↓ ↑), depending on the selected format, for switching the parameter up and down.

To turn off either feature, press the Blue Key, SPECIAL and 60.

Keys and Program Codes

HP-IB

Keys	Codes (see note)	
Blue Key SPECIAL	SP	BL AP
↑	UP	
↓	DN	

Note: SPECIAL can be programmed with a simple SP or with BL and AP (Blue Key and Amplitude).

Indications

The displayed value will increase and decrease by the selected increment.

Code 61 or 62 will appear in the Special Function block of the Frequency readout, if you press and hold the STATUS key.

Comments

This feature applies to all value-selectable functions of the Generator. It is particularly useful for implementing remotely controlled, low-rate FM (for rates less than 120 Hz).

Parameter shift keying always turns on with the up-step enabled regardless which format is selected.

It is important to consider switching to the uncorrected Amplitude mode (Special Function 85) when using this feature for frequency toggling over an extended period of time (this applies primarily to remote operation). The uncorrected mode prevents excessive mechanical wear of the attenuator due to very rapid switching for amplitude correction.

The toggling can also be controlled by the rear panel AUX connector. TTL pulses are required (Negative-edge sensitivity): pin 2 INCREMENT ↑; pin 3, INCREMENT ↓.

Related Instructions

Increment ↓↑
Increment Setting

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Sequence

Description

This feature allows you to predetermine the recall order of front panel storage registers and recall them one at a time.

The Auto-Sequence feature sets up a continuous recall of registers in the predetermined sequence.

Procedure

To set the sequence (that is, recall order), press the Blue Key, SET SEQUENCE, data and STORE (data is the register numbers in the desired recall sequence).

To recall registers one at a time in the predetermined sequence, press SEQ.

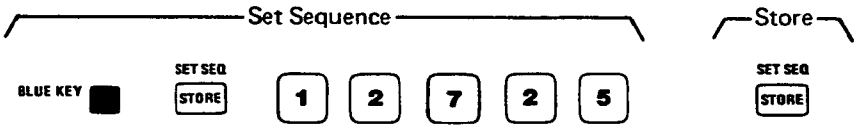
To start a continuous recall of registers in the predetermined sequence, press the Blue Key and AUTO SEQ.

To stop an Auto Sequence operation, press any key except STATUS.

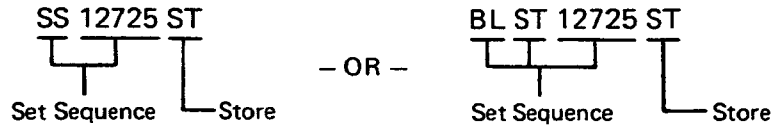
Example

Set the register recall sequence to 1, 2, 7, 2, and 5.

LOCAL (keystrokes)



HP-IB (program codes)



Keys and Program Codes HP-IB

Keys	Codes (see note)	
Blue Key		BL
SET SEQ	SS	ST
AUTO SEQ	AS	SQ
STORE	ST	
SEQ	SQ	

Note: SET SEQ can be programmed with a simple SS (or with BL and ST). AUTO SEQ can be programmed with a simple AS (or with BL and SQ).

Indications

The recall sequence will be displayed in the Frequency readout when the RECALL and SEQ keys are pressed (SEQ held). One digit will be blinking to indicate the last-recalled register (or the first register in the sequence if no recall has been made yet). The digit to the right of the blinking digit always represents the next register to be recalled (this includes wrap-around to the first digit).

Comments

It is important to consider switching to the uncorrected Amplitude mode (Special Function 85) when using the auto sequence capability with frequency changes. Not only does this increase auto sequence speed, but also prevents excessive mechanical wear of the attenuator section due to very rapid switching for those frequency ranges that involve switching the attenuator.

Continued . . .

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Sequence (Cont'd)

Comments (Cont'd)

Any order of registers is allowable. The maximum number of digits in a sequence is ten. Register numbers can be repeated in a sequence string (for example, 3 6 4 5 7 7 5 4 6 3).

In the Auto Sequence mode, the Generator recalls one register after another as fast as it can. If an Auto-Sweep mode is encountered, the Generator performs a single sweep then recalls the next register. If a Manual-Sweep mode is encountered, the sequencing will stop. However, the Generator will be configured for Manual Sweep mode.

Any key except STATUS can stop Auto-Sequencing. However, pressing any other key also performs its indicated function. We recommend using a function key like FREQUENCY since, by itself, it cannot change any existing parameter.

Special Function 88 is identical to the Auto Sequence function.

Related Instructions

Store-Recall

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Special Functions

Description The Generator has several functions that are not apparent from the front panel markings. These are the special functions. They are listed in Table 3-11. Most of the special functions are explained in other operating instructions.

Procedure Press the Blue Key, SPECIAL and the two-digit code.

Example

Initialize the front panel to the conditions listed in Table 3-12 (Special Function 00).

LOCAL (keystrokes)

HP-IB (program codes)

SP 00 — Special Function, Numerical Code

— OR —

BL AP 00 — Special Function, Numerical Code

Keys and Program Codes HP-IB

All of the keys and codes used in the Special Function feature are shown in the examples. Note: the SPECIAL function can be programmed with a simple SP or BL and AP (Blue Key and AMPLITUDE).

Indications Many of the Special Function codes will be displayed in the Frequency readout when the STATUS key is pressed (in the second and third digits from the left).

The following codes are not displayed:

1. All codes ending in zero.
2. Codes starting with eight except 85 and 88.

Comments Special Functions cannot be stored in individual storage registers. They are global parameters. That is, once enabled, a special function applies to any set of parameters recalled from storage.

ROM and RAM checks (83 and 84) are described earlier in this section under Operator's Checks.

HP-IB

HP-IB Operator Response (87) issues a Require Service Message. For more information, see the HP-IB instructions earlier in this manual.

Automatic Sequence (88) is identical to the AUTO SEQ keystroke function.

Related Instructions

Amplitude Conversion (V→dBm)
Amplitude Correction
Amplitude Reference
Frequency Offset
Modulation, External Source
Modulation, Mixed
Parameter Shift Keying
Sequence

Continued . . .

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Special Functions (Cont'd)

Table 3-11. Special Functions

Function	Codes*
Initialize front panel (see Table 3-12)	00
Frequency offset off	10
Positive (+) frequency offset	11
Negative (−) frequency offset	12
Amplitude reference off	30
Amplitude reference	31
Mixed modulation off	40
FM Internal and AM External (ac coupled)	41
FM Internal and AM External (dc coupled)	42
Auxiliary FM off (rear panel connector)	50
Auxiliary FM on	51
Parameter shift keying off	60
Parameter shift keying (two-key format)	61
Parameter shift keying (one-key format)	62
All Special Functions off (except 85)	80
Amplitude Conversion (V→dBm)	81
Display HP-IB Address	82
ROM Checksum routine	83
RAM Test	84
Amplitude correction off	85
Amplitude correction on	86
HP-IB operator response	87
Automatic sequence	88

*All of these codes follow the Blue Key and SPECIAL (program codes SP, or BL and AP).

Table 3-12. Initializing; Response to Special Function 00

Parameter	Condition
Frequency	100 MHz
Amplitude	−30 dBm
Modulation Mode	Off
Function Mode	Frequency
Markers 1—5	0 MHz
Frequency Increment	1 MHz
Amplitude Increment	0.1 dB
AM Increment	0.1%
FM Increment	0.1 kHz
AM	30%
FM	10 kHz
Modulation Source	Ext ac
Start Frequency	1 MHz
Stop Frequency	1279 MHz
Frequency Span	10 MHz
Time/Step	1 ms
Step Size	100 steps
Set Size	2 MHz
Sweep Mode	Off
Sweep Configuration	Span
Registers	Unchanged
Sequence	1, 2, 3, 4
Frequency Resolution	1 MHz
Modulation Resolution	10 kHz, 10%
Amplitude Resolution	1 dB
Special Functions	None (00)

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Status

Description

The Generator produces several messages in numeric code that alert the operator to conditions describing its status. The conditions are 1) Entry errors, 2) Hardware errors (malfunctions) 3) Special Functions enabled and 4) General status. The codes are displayed in the Frequency readout. They are defined in Tables 3-13 and 3-14 and on the Generator's pullout information card.

The light in the STATUS key turns on steady if the operator made an entry error and turns on blinking for hardware malfunctions and general status messages.

Procedure

To display the Status messages, press and hold the STATUS key.

Indications

The Frequency readout displays Special Function codes in the second and third digits from the left. If more than one Special Function is enabled, the readout will display one code after another, in sequence. It displays Entry Error, Hardware Malfunction and general status codes in the first two digits on the right.

Keys and Program Codes

HP-IB

Keys	Codes
STATUS	MS

Comments

Status should be checked whenever the Generator is turned on or whenever the STATUS key light turns on. It is a good idea to check the Status message occasionally to keep informed of the Generator's general status.

The STATUS key light for an entry error generally goes out after STATUS key has been pressed or after the next valid entry has been made. The entry error code is cleared only after the STATUS key is pressed.

The STATUS key light for a hardware malfunction or general status condition turns off only after the malfunction or condition changes. However, the error code is cleared only after the malfunction or condition changes and the STATUS key is pressed (in that order).

Special Functions do not cause the STATUS key light to turn on. Special Function codes are cleared as soon as the Special Function is disabled.

HP-IB

The format of the STATUS message for HP-IB operation is described under "Sending the Data Message" in the HP-IB presentation.

Status Code 10. Under certain conditions, it is possible for Status code 10, "Amplitude out of specification", to turn on when no amplitude error exists. This can happen during fast repetitive sweeps (for example, Auto Sweep or Remote Stepped Sweep, with the time/step less than 1 ms). Corrective action is not required unless code 10 persists in conditions other than the fast repetitive sweep.

Continued . . .

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Status (Cont'd)

Table 3-13, Status, Entry Errors and Hardware Malfunction Codes

00	No error.
01	No reference oscillator. Check INT-EXT switches. See Section VIII, Service.
09	Reverse power at RF OUTPUT. Remove source and press AMPLITUDE.
10	Amplitude out of specification (see comment on preceding page).
11	FM overmodulated. Reduce input level.
12	Crystal oven not heat stabilized. Allow 1 hour.
13	External reference selected.
14	Frequency of reference out of tolerance.
15	AM overmodulated. Reduce input level.
32	Frequency selection out of range (1 kHz to 1.28 GHz).
33	Amplitude selection >+16 dBm. Entry ignored.
34	Amplitude selection <−139.9 dBm. Entry ignored.
35	Amplitude >+10 dBm or 710 mV. AM not specified.
36	Amplitude selection >999 mV or <0 μV. Entry ignored.
37	AM selection >95% or <0%. Entry ignored.
38	Frequency <150 kHz. AM invalid.
39	FM >200 kHz or <0.0 kHz invalid.
40	FM >100 kHz invalid for frequencies between 320 and 640 MHz, or 1 kHz and 120 MHz.
41	FM >50 kHz invalid for frequencies between 160 and 320 MHz.
42	FM >25 kHz invalid for frequencies between 120 and 160 MHz
43	Wrong entry protocol. Entry ignored.
44	Too many significant digits prior to decimal point.
45	Start and stop frequencies equal.
46	Parameter underflow. Defaulted to zero.
47	Marker out of limits (start-stop).
48	Marker out of limits (span).
49	Sweep step size is greater than start-stop frequency difference.
50	Store/Recall error. Register failed or non-existent.
51	Recall 0 invalid (1—9 only).
52	RAM data altered; first good register recalled; special functions cleared. Re-enter data for Store-Recall registers.
53	RAM faulty. Generator initialized to 100 MHz and −30 dBm. Re-enter data for all registers. Refer to Section VIII, Service.
54	No amplitude correction above +13 dBm.
55	Sweep steps >10,000. Staircase ramp disabled (SWEEP OUTPUT = 0V).
56	Special Function code invalid.
57	Amplitude reference in volts invalid.
58	Key invalid in mixed modulation mode.
59	Sweep span out of limits.
99	Malfunction. Section VIII, Service.

Table 3-14. Special Function Status Codes

11	+Freq Offset
12	−Freq Offset
31	Amplitude reference
41	FM INT + AM EXT AC
42	FM INT + AM EXT DC
51	AUX FM (rear panel input)
61	Parameter shift keying increment (two-key format)
62	Parameter shift keying increment (one-key format)
85	Amplitude Correction Off
88	Automatic Sequence

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Store-Recall

Description Up to nine full front panel configurations (including "hidden" parameters) can be stored in the Generator's registers.

Procedure Press STORE and Data (a single digit register number)

Press RECALL and Data (a single digit register number)

Example

Store the front panel setup in register 2 and recall it at a later time.

LOCAL (keystrokes)	Store in Register 2: STORE 2	Recall from Register 2: RECALL 2
HP-IB (program codes)	ST 2 (Store in Register 2)	RC 2 (Recall from Register 2)

Keys and Program Codes HP-IB

Keys	Codes
STORE	ST
RECALL	RC

Comments Nine registers are available (1—9), each capable of storing a full front panel configuration.

Many of the frequency parameters can be utilized to store additional frequency settings. These can be recalled with the Frequency Transferring feature.

Marker frequencies and Special Functions cannot be stored in individual registers. They are global parameters. That is, once established they apply to any set of parameters recalled from storage. A Marker's On-Off status, however, can be stored in a register.

The Single sweep mode cannot be stored. However, the other sweep parameters associated with a Single sweep can be stored.

The Sequence feature allows you to recall registers one at a time and in a predetermined order. The Auto-Sequence feature is similar except that once started, it recalls the registers in a continuous stream.

Related Instructions Frequency Transferring
Sequence

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Sweep

Staricase Sweep

The frequency changes in discrete steps rather than in a continuous analog manner.

The Generator can sweep from 10 kHz to 1280 MHz (actually as low as 1 kHz but with a loss of level accuracy). The minimum step size is 0.1 Hz for signals below 640 MHz and 0.2 Hz above 640 MHz. The sweep can be either linear or logarithmic. There are five selectable values of time per step: 0.5 ms (nominal), 1, 2, 10, and 100 ms. Five frequency markers can be set. The markers can be either intensity modulation on a swept display or amplitude modulation on the RF signal (or both).

Modes

Four sweep modes are available. They are: Automatic, Manual, Single and Remote stepped sweep (HP-IB only). Each mode enables the sweep parameters that were previously selected.

Automatic mode starts a continuous sweep, restarting at the end of each sweep.

Manual mode does not start a sweep but enables the knob for manual operation. Pressing the MANUAL key will stop a continuous sweep in midspan. Pressing AUTO or SINGLE again will restart the sweep (continue) where it left off.

Single mode starts one sweep only. At the end of one sweep, the sweep circuitry is turned off and output frequency reverts to the last selected fixed frequency.

HP-IB **Remote Stepped Sweep (RSS)** is a sweep mode available only in the HP-IB remote mode. It allows the controller to execute each step and still have a SWEEP OUTPUT ramp and a Sweep End pulse at the AUX connector. For more information, **see page 3-38.**

Amplitude Correction

The correction feature is automatically disabled in all sweep modes.

Sweep Parameters.

The following sweep parameters are value-selectable:

Start-Stop frequencies	Time/step
Center Frequency and span	Marker frequencies
Sweep step size (Δf/step)	

Sweep Controls

All the front panel controls that are exclusively for sweep are on the left keyboard. Sweep features can also be remotely controlled by the HP-IB or through the auxiliary connector (AUX) on the rear panel.

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Sweep (Cont'd)

Inputs and Outputs

The **SWEEP OUTPUT** jack on the front panel provides a 0 to +10V staircase to drive a swept display.

The **AM MARKER** jack on the rear panel provides 5 kHz bursts for amplitude markers on the RF signal (it must be fed around to the front panel MODULATION INPUT and handled as an external modulation source).

The **Z-AXIS BLANKING/MARKER** output serves the dual purpose of blanking or intensifying a swept display (Z-axis intensity modulation). A TTL high level is produced at the beginning of each step of the staircase sweep. The pulse blanks the display for 250 μs so that switching transients from the Generator are not displayed. A —5V pulse intensifies the display at the point of a selected marker frequency (—5V is nominal; it is internally adjustable between —2 and —8V).

The **PEN LIFT** output is a TTL high level for pen-up condition and a low level for pen-down condition. It produces the pen-down condition in the single sweep mode only.

Three lines on the **AUX** connector each control one of the three sweep modes. They are TTL negative-edge sensitive. There is one sweep related output line on the AUX connector. It produces a TTL pulse at the end of each sweep.

Detailed Instructions

Most of these sweep characteristics are covered in greater detail in separate instructions. Their titles are:

Sweep Markers	Sweep, Start-Stop
Sweep Modes	Sweep Step Size
Sweep, Span	Sweep Time/Step

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Sweep Markers

Description

This instruction describes the Generator's Markers, how to set or change the marker frequencies and how to turn them on.

Five different marker frequencies can be set.

The Generator can produce Z-axis intensity markers for a swept display or amplitude markers on the RF signal.

The Z-axis intensity markers are nominally —5V. However, they are internally adjustable between —2 and —8V (see Section V, Adjustments). Z-axis markers are available through the rear panel Z-AXIS BLANKING/MARKERS connector.

The amplitude markers are 5 kHz triangle wave bursts available at the rear panel AM MARKERS output. This output can be connected to the front panel MODULATION INPUT to produce adjustable AM markers on the RF signal.

Procedure

To set a marker frequency:
Press a MARKERS key, Data and Units.

To turn a marker on, press the appropriate MARKERS key. The marker will turn on only if it is within the current sweepwidth.

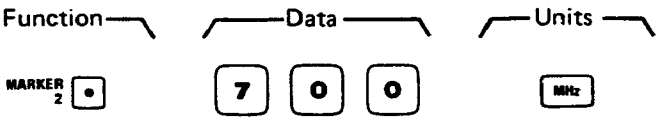
To turn a selected marker off, press the appropriate MARKERS key and OFF.

To turn all markers off, press the Blue Key and ALL OFF.

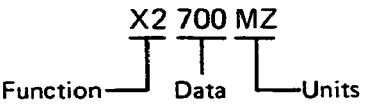
Example

Set Marker 2 to 700 MHz.

LOCAL (keystrokes)



HP-IB (program codes)



Keys and Program Codes

HP-IB

Keys	Codes (see note)	
MARKERS		
1	X1	
2	X2	
3	X3	
4	X4	
5	X5	
OFF	X6	
Blue Key		BL
ALL OFF	X7	X6

Note: The ALL OFF feature can be programmed with a simple X7 or with BL and X6 (Blue Key and OFF).

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Sweep Markers (Cont'd)

Indications

Lights in the MARKERS keys turn on only when the marker is on. The marker frequency appears in the Frequency readout, and the output signal changes to the marker frequency, when the marker key is pressed and held down (local operation only).

Comments

Markers can be used as storage registers for frequency. Their values can be transferred to other frequency parameters using the Frequency Transferring feature.

Marker frequencies cannot be stored in individual storage registers. They are global parameters. That is, once established, they apply to any set of parameters recalled from storage. A Marker's On-Off status, however, can be stored in a register.

Marker values can be changed by the INCREMENT ↓ ↑ keys and the knob.

Related Instructions

Frequency Transferring
Increment ↓↑
Knob
Sweep

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Sweep Modes

Description This feature turns the sweep on and off. It selects one of three modes: AUTO, MANUAL, or SINGLE.

Procedure Press the desired mode key. If the MANUAL mode is selected, control the sweep with the knob.

To turn the sweep off, press OFF.

Keys and Program Codes

HP-IB

Keys	Codes
OFF	W1
AUTO	W2
MANUAL	W3
SINGLE	W4
Knob, CW	RU
Knob, CCW	RD

Indications In AUTO and SINGLE sweep modes, there will be a split frequency readout: START-STOP, or CF—ΔF (for center frequency and span). Each readout contains five digits. Digits representing greater than five-digit resolution are not displayed. If 10 ms or 100 ms per step is selected, the left readout will display the changing frequency as it sweeps. In SINGLE sweep mode, the readout should revert to a display of static output frequency when the sweep is finished.

In MANUAL mode, there is only one display of output frequency that changes as frequency is swept with the knob.

The appropriate lights for START FREQ—STOP FREQ, SPAN FREQ, STEP (frequency) TIME/STEP, and MODE should turn on. There are no lights for TIME/STEP in the MANUAL mode since that function is manually controlled.

Comments A sweep generally starts at the preset limit. However, Manual Mode can stop an Auto sweep at any frequency; the AUTO key can then restart the sweep and continue from that point.

The sweep modes can be controlled by TTL low-going pulses at the rear panel AUX connector. The following table shows the function and pin relationships.

Function	AUX Pin
Stop Sweep (same as MANUAL)	4
Continue Sweep (same as AUTO)	5
Single Sweep (same as SINGLE)	6

Pin 1 of the AUX connector is a sweep output. A single TTL pulse is generated there at the end of each sweep.

SINGLE sweep mode controls the rear panel PEN LIFT connector for plotter operation. TTL-High for pen-up; TTL-Low for pen-down.

HP-IB In remote HP-IB control, the knob requires only one program code (either RU or RD) to perform a Manual sweep step.

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Sweep Modes (Cont'd)

Comments (Cont'd)

HP-IB

Remote Stepped Sweep (RSS). RSS is a sweep mode available only in the HP-IB remote mode. It allows the controller to execute each step and still have a SWEEP OUTPUT ramp and a Sweep End pulse at the AUX connector. For information, see page 3-38.

Related Instructions

Sweep
Sweep Markers
Sweep, Span
Sweep, Start-Stop
Sweep Step Size
Sweep Time/Step

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Sweep, Span

Description

This feature sets a frequency span about a center frequency with an equal sweep width above and below the center frequency.

Span width: 1 kHz to 1280 MHz (1279. 999 999 8).

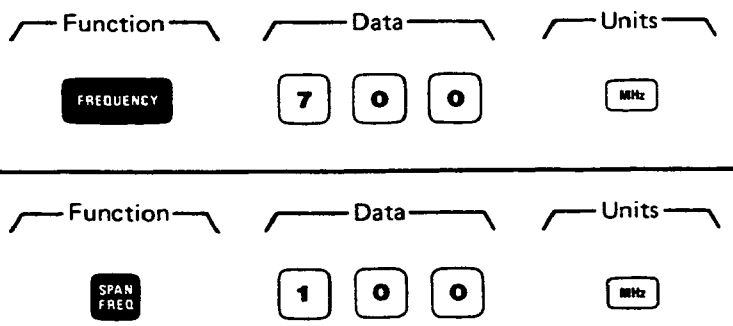
Procedure

Select FREQUENCY (for center frequency), Data, and Units; SPAN FREQ, Data, and Units.

Example

Select 700 MHz center frequency and a 100 MHz span.

LOCAL (keystrokes)



HP-IB (program codes)

Keys and Program Codes

HP-IB

Keys	Codes
FREQUENCY	FR
SPAN FREQ	FS
GHz	GZ
MHz	MZ
kHz	KZ
Hz	HZ

Indication

After the frequency span has been selected, the readout should revert to displaying center frequency. The frequency span can be recalled to the readout by holding down the SPAN FREQ key (local operation only). In this situation, the ΔF frequency annunciator should also turn on.

Comments

Selecting SPAN FREQ also recalls the last "span" combination of Steps and Time/Step. This can be a different combination than that selected for Start-Stop operations.

Frequencies down to 1 kHz can be selected but level accuracy is not specified below 10 kHz (typically about 2 dB below displayed amplitude at 1 kHz).

Digits representing less than tenth-hertz resolution are ignored.

Digits not selected, default to zero.

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Sweep, Span (Cont'd)

Related Instructions

Sweep
Sweep Markers
Sweep, Start-Stop
Sweep Step Size
Sweep Time/Step

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Sweep, Start-Stop

Description This feature sets starting and stopping points of the frequency sweep.

Sweep width: 1 kHz to 1280 MHz (1279.999 999 8).

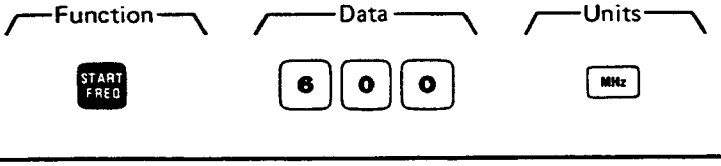
Procedure Select START FREQ, Data, and Units.

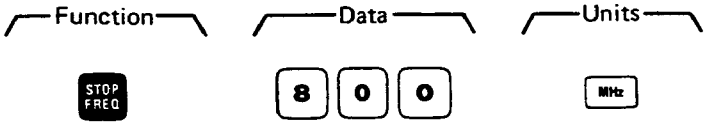
Select STOP FREQ, Data, and Units.

Example

Set sweep limits at 600 and 800 MHz.

LOCAL (keystrokes)





HP-IB (program codes)

Keys and Program Codes HP-IB

Keys	Codes
START FREQ	FA
STOP FREQ	FB
GHz	GZ
MHz	MZ
kHz	KZ
Hz	HZ

Indications The selected digits should be displayed in the FREQUENCY readout while they are being selected. However, the readout returns to the last selected fixed frequency after the units are selected.

The start or stop frequency can be recalled to the readout by holding down the START FREQ or STOP FREQ key (local operation only). In this situation, the START or STOP frequency annunciator should also turn on.

Comments Frequencies down to 1 kHz can be selected but level accuracy is not specified below 10 kHz (typically about 2 dB below displayed amplitude at 1 kHz).

Start and stop frequencies are totally independent of the displayed fixed frequency.

The start frequency can be higher than the stop frequency causing the sweep to progress from high to low.

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Sweep, Start-Stop (Cont'd)

Comments (Cont'd)

Selecting Start-Stop frequencies also recalls the last "Start-Stop" combination of Steps and Time/Step. This can be a different combination than that selected for span operation.

Digits representing less than tenth-hertz resolution are ignored.

Digits not selected, default to zero.

Related Instructions

Sweep
Sweep Markers
Sweep Modes
Sweep, Span
Sweep Step Size
Sweep Time/Step

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Sweep Step Size

Description

This feature selects log or linear sweeps and the size of the frequency increment in the staircase sweep.

LIN 100 and LIN 1000 set the increment to a constant value equal to sweepwidth ÷100 or sweepwidth ÷1000.

LOG 10% and LOG 1% set the increment to values equal to 10% or 1% of the present frequency.

SET SIZE is used to set the frequency increment to a constant value of your choice (settable within the frequency resolution of the Signal Generator).

Resolution: 0.1 Hz (below 640 MHz)
0.2 Hz (above 640 MHz)

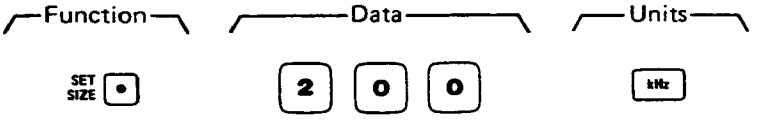
Procedure

Simply press one of the four preset step size keys or select SET SIZE, Data and Units.

Example

Set frequency step size to 200 kHz.

LOCAL (keystrokes)



HP-IB (program codes)

Keys and Program Codes

HP-IB

Keys	Codes
LIN 100	N1
LIN 1000	N2
SET SIZE	N3
LOG 10%	N4
LOG 1%	N5
GHz	GZ
MHz	MZ
kHz	KZ
Hz	HZ

Indications

If one of the four preset increments are selected, the only indication would be the light in the selected key turning on.

If SET SIZE is selected, the light in the key should turn on. Step size will be displayed on the readout panel until the units are selected. At that time, the readout will revert to fixed frequency. Step size can be recalled to the frequency readout by holding down the SET SIZE key (local operation only).

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Sweep Step Size (Cont'd)

Comment

In the manual mode for a log sweep only, turning the knob counter clockwise changes frequency in steps of 10% or 1% of the next frequency (instead of the present frequency).

Related Instructions

Sweep
Sweep Markers
Sweep Modes
Sweep, Span
Sweep, Start-Stop
Sweep Time/Step

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Sweep Time/Step

Description This feature sets the interval between steps of the staircase sweep.

Procedure Select one of the following preset values: 0.5 ms (nominal), 1, 2, 10, or 100 ms.

Keys and Program Codes

HP-IB

Keys	Codes
0.5 ms	T1
1 ms	T2
2 ms	T3
10 ms	T4
100 ms	T5

Indications The only indication should be the light in the selected key turning on.

Comments The shortest interval between steps is approximately 0.5 ms for a simple linear sweep. This time would be longer for log sweeps, markers, and FM (0.9 ms maximum).

Related Instructions
Sweep
Sweep Markers
Sweep Modes
Sweep Span
Sweep, Start-Stop
Sweep Step Size

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Table 3-15. Commonly Used Code Conversions

ASCII	Binary	Octal	Decimal	Hexa-decimal
NUL	00 000 000	000	0	00
SOH	00 000 001	001	1	01
STX	00 000 010	002	2	02
ETX	00 000 011	003	3	03
EOT	00 000 100	004	4	04
ENQ	00 000 101	005	5	05
ACK	00 000 110	006	6	06
BEL	00 000 111	007	7	07
BS	00 001 000	010	8	08
HT	00 001 001	011	9	09
LF	00 001 010	012	10	0A
VT	00 001 011	013	11	0B
FF	00 001 100	014	12	0C
CR	00 001 101	015	13	0D
SO	00 001 110	016	14	0E
SI	00 001 111	017	15	0F
DLE	00 010 000	020	16	10
DC1	00 010 001	021	17	11
DC2	00 010 010	022	18	12
DC3	00 010 011	023	19	13
DC4	00 010 100	024	20	14
NAK	00 010 101	025	21	15
SYN	00 010 110	026	22	16
ETB	00 010 111	027	23	17
CAN	00 011 000	030	24	18
EM	00 011 001	031	25	19
SUB	00 011 010	032	26	1A
ESC	00 011 011	033	27	1B
FS	00 011 100	034	28	1C
GS	00 011 101	035	29	1D
RS	00 011 110	036	30	1E
US	00 011 111	037	31	1F
SP	00 100 000	040	32	20
!	00 100 001	041	33	21
"	00 100 010	042	34	22
#	00 100 011	043	35	23
$	00 100 100	044	36	24
%	00 100 101	045	37	25
&	00 100 110	046	38	26
'	00 100 111	047	39	27
(	00 101 000	050	40	28
)	00 101 001	051	41	29
*	00 101 010	052	42	2A
+	00 101 011	053	43	2B
,	00 101 100	054	44	2C
—	00 101 101	055	45	2D
.	00 101 110	056	46	2E
/	00 101 111	057	47	2F
0	00 110 000	060	48	30
1	00 110 001	061	49	31
2	00 110 010	062	50	32
3	00 110 011	063	51	33
4	00 110 100	064	52	34
5	00 110 101	065	53	35
6	00 110 110	066	54	36
7	00 110 111	067	55	37
8	00 111 000	070	56	38
9	00 111 001	071	57	39
:	00 111 010	072	58	3A
;	00 111 011	073	59	3B
<	00 111 100	074	60	3C
=	00 111 101	075	61	3D
>	00 111 110	076	62	3E
?	00 111 111	077	63	3F

ASCII	Binary	Octal	Decimal	Hexa-decimal
@	01 000 000	100	64	40
A	01 000 001	101	65	41
B	01 000 010	102	66	42
C	01 000 011	103	67	43
D	01 000 100	104	68	44
E	01 000 101	105	69	45
F	01 000 110	106	70	46
G	01 000 111	107	71	47
H	01 001 000	110	72	48
I	01 001 001	111	73	49
J	01 001 010	112	74	4A
K	01 001 011	113	75	4B
L	01 001 100	114	76	4C
M	01 001 101	115	77	4D
N	01 001 110	116	78	4E
O	01 001 111	117	79	4F
P	01 010 000	120	80	50
Q	01 010 001	121	81	51
R	01 010 010	122	82	52
S	01 010 011	123	83	53
T	01 010 100	124	84	54
U	01 010 101	125	85	55
V	01 010 110	126	86	56
W	01 010 111	127	87	57
X	01 011 000	130	88	58
Y	01 011 001	131	89	59
Z	01 011 010	132	90	5A
[	01 011 011	133	91	5B
\	01 011 100	134	92	5C
]	01 011 101	135	93	5D
^	01 011 110	136	94	5E
_	01 011 111	137	95	5F
`	01 100 000	140	96	60
a	01 100 001	141	97	61
b	01 100 010	142	98	62
c	01 100 011	143	99	63
d	01 100 100	144	100	64
e	01 100 101	145	101	65
f	01 100 110	146	102	66
g	01 100 111	147	103	67
h	01 101 000	150	104	68
i	01 101 001	151	105	69
j	01 101 010	152	106	6A
k	01 101 011	153	107	6B
l	01 101 100	154	108	6C
m	01 101 101	155	109	6D
n	01 101 110	156	110	6E
o	01 101 111	157	111	6F
p	01 110 000	160	112	70
q	01 110 001	161	113	71
r	01 110 010	162	114	72
s	01 110 011	163	115	73
t	01 110 100	164	116	74
u	01 110 101	165	117	75
v	01 110 110	166	118	76
w	01 110 111	167	119	77
x	01 111 000	170	120	78
y	01 111 001	171	121	79
z	01 111 010	172	122	7A
{	01 111 011	173	123	7B
|	01 111 100	174	124	7C
}	01 111 101	175	125	7D
~	01 111 110	176	126	7E
DEL	01 111 111	177	127	7F

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These sections are bound separately in Volume 1 with a separate table of contents.

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SECTION IV
PERFORMANCE TESTS

4-1. INTRODUCTION

The procedures in this section test the instrument's electrical performance using the specifications of Table 1-1 as the performance standards. All tests can be performed without access to the interior of the instrument.

NOTES

If the performance tests are to be valid the following conditions must be met:

a. *The Generator must have a 1-hour warmup.*

b. *The line voltage must be within 90—126V or 198—252V; 48—66 Hz.*

c. *The ambient temperature must be +15 to +45°C for the Level Accuracy and Flatness Test.*

Before aging rate tests are performed, the Generator must 1) have a 10 day warmup if it has been disconnected from the Mains power for more than 24 hours, or 2) the Generator must have 24 hour warmup if it has been discontinued from the Mains power for less than 24 hours.

4-2. EQUIPMENT REQUIRED

Equipment required for the performance tests is listed in the Recommended Test Equipment table in Section I. Any equipment that satisfies the critical specifications given in the table may be substituted for the recommended model(s).

4-3. TEST RECORD

Results of the performance tests may be tabulated on the Test Record at the end of the procedures. The Test Record lists all of the tested specifications and their acceptable limits. The results recorded at incoming inspection can be used for comparison in periodic maintenance and troubleshooting and after repairs or adjustments.

4-4. ABBREVIATED PERFORMANCE TESTING

In most cases, it is not necessary to perform all of the tests in this section. Table 4-1 shows which tests are recommended for various situations. The Functional check in Section III should be the first step in all testing situations.

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Table 4-1. Abbreviated Performance Testing

Testing Situations*	Functional Check (Section III)	HP-IB I/O Check (Section III)	Modulation Checks 4-5	Level Acc. & Flatness 4-6	SSB Phase Noise 4-8	Harmonics & Spurious 4-10
Incoming Inspection or Overall Performance Verification	x	x	x	x	x	x
After Complete Adjustment	x		x	x	x	x
After Repairs to Individual Assembly						
A1A1 to A1A3	x	x			x	x
A2A1 to A2A10	x	x			x	x
A2A11	x		x	x	x	x
A2FL1	x				x	x
A3A1	x		x	x	x	x
A3A3 to A3A7	x				x	x
A3A8 to A3A10	x		x		x	x
A4A1 to A4A5	x		x	x	x	x
A4A6	x		x		x	
A4A7	x		x	x	x	x
A4A8	x		x		x	
A4A9	x		x		x	
A4A10	x		x	x	x	x
A4FL1	x		x	x	x	x
A4U1	x		x	x	x	x
A5A1 to A5A6	x				x	x
A6A1 to A6A3	x				x	x
A6A4	x		x		x	x
A6A5 to A6A7	x				x	x
A6A8 to A6A10	x		x		x	x
A7A1 to A7A4	x				x	x
A8A1	x		x		x	x
A8A2	x				x	x
A8A3 to A8A5	x				x	x
A9	x	x			x	x
A10	x				x	x

*Perform the following tests only if special circumstances exist.

4-7. Level Accuracy Test (Optional—Low Level)

4-9. SSB Phase Noise Test (Optional

4-10. Internal Time Base Aging Test

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PERFORMANCE TESTS

4-5. MODULATION TEST

SPECIFICATION

Electrical Characteristics	Performance Limits	Conditions
AMPLITUDE MODULATION		
Depth	0 to 95%	Output level of +8 dBm and below (+10 dBm in uncorrected mode)[1]
Resolution	1% 0.1%	10 to 95% AM 0 to 9.9% AM
Incidental FM	0.12 x f_{mod} 0.09 x f_{mod}	0.15 to 640 MHz; 30% AM 640 to 1280 MHz; 30% AM
Incidental PM	0.12 radians peak 0.09 radians peak	0.15 to 640 MHz; 30% AM 640 to 1280 MHz; 30% AM
Indicated Accuracy	±5% of reading ±1% AM	Depth ⩽90% AM; for AM rates given below
AM Rates:		
Internal	400 and 1000 Hz	
External	dc to 1.5 kHz dc to 5 kHz dc to 10 kHz	0.15 to 1 MHz 1 to 10 MHz 10 to 1280 MHz
AM Distortion (0.15 to 1280 MHz)	2% 4% 5.75%	0 to 30% AM 30 to 70% AM 70 to 90% AM
FREQUENCY MODULATION		
FM Rates:		
Internal	400 and 1000 Hz	
External ac	20 Hz to 100 kHz	1 dB bandwidth
External ac	dc to 100 kHz	1 dB bandwidth
Maximum Peak Deviation (external ac and internal)	The smaller of 100 kHz or f_{mod} x 500	0.01 to 120 MHz
	The smaller of 25 kHz or f_{mod} x 125	120 to 160 MHz
	The smaller of 50 kHz or f_{mod} x 250	160 to 320 MHz
	The smaller of 100 kHz or f_{mod} x 500	320 to 640 MHz
	The smaller of 200 kHz or f_{mod} x 1000	640 to 1280 MHz
Maximum Peak Deviation (external dc)	100 kHz 25 kHz 50 kHz 100 kHz 200 kHz	0.01 to 120 MHz 120 to 160 MHz 160 to 320 MHz 320 to 640 MHz 640 to 1280 MHz

[1] AM is possible above these output levels but not specified.

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PERFORMANCE TESTS

4-5. MODULATION TEST (Cont'd)

Electrical Characteristics	Performance Limits	Conditions
FREQUENCY MODULATION (Cont'd)		
†Indicated FM Accuracy	±8% of reading plus 10 Hz	50 Hz to 20 kHz rates
FM Resolution	100 Hz 1000 Hz	<10 kHz deviation ⩾10 kHz deviation
Incidental AM (AM sidebands)	 –72 dBc –65 dBc	1 kHz rate and 20 kHz deviation 0.01 to 640 MHz 640 to 1280 MHz
FM Distortion	1.0% 1.7%	dc to 1 kHz rates 1 kHz to 20 kHz rates
Center Frequency Accuracy and Long Term Stability	Same as CW mode	Internal and external ac mode only
†Backdating information in Section VII.		

DESCRIPTION All modulation specifications are checked by measuring the specified parameters on a modulation analyzer. Distortion is checked by measuring the demodulated output from the modulation analyzer.

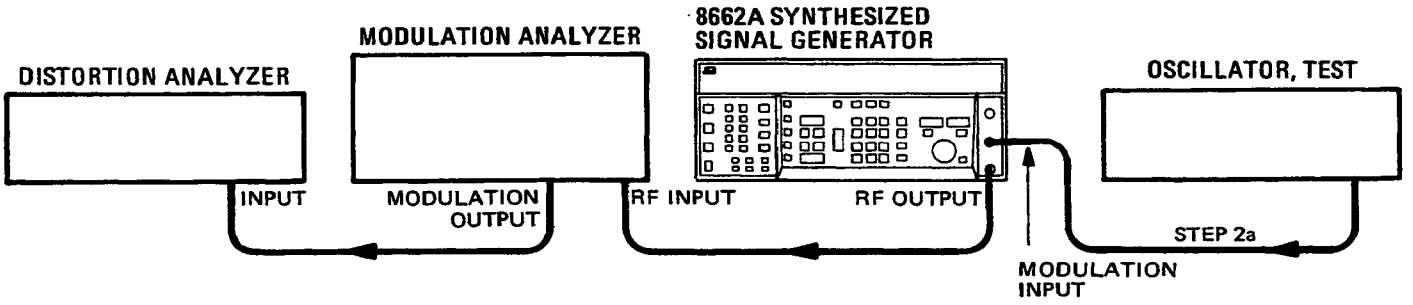

Figure 4-1. Modulation Test Setup

EQUIPMENT:
Modulation Analyzer . . . . . HP 8901A
Distortion Analyzer . . . . . HP 331A
Oscillator, Test . . . . . HP 651B

PROCEDURE:
1. Connect the RF OUTPUT of the Generator to the RF INPUT of the modulation analyzer. Set the Generator amplitude to +8.0 dBm and select Special Function 85 to disable amplitude correction. Set the analyzer as follows.
   HP FILTER: 300 Hz
   LP FILTER: 15 kHz
   FM DE-EMPHASIS: OFF
   DETECTORS: PEAK +
   AUTOMATIC OPERATION

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PERFORMANCE TESTS

4-5. MODULATION TEST (Cont'd)

2. *AM Indicated Accuracy*

Set the Generator to 100.0 MHz, AM with INT 1k source. Set AM% to the values in the first column of the table below. Check that the modulation analyzer readings are within the specified values given in the table.

AM Indicated (%)	Results		
	Min.	Actual	Max.
10	8.5	_____	11.5
30	27.5	_____	32.5
70	65.5	_____	74.5
90	84.5	_____	95.5

Repeat with the Generator set to frequencies of 500.0 MHz and 1.0 GHz.

AM Indicated (%)	Results		
	Min.	Actual	Max.
10	8.5	_____	11.5
30	27.5	_____	32.5
70	65.5	_____	74.5
90	84.5	_____	95.5

AM Indicated (%)	Results		
	Min.	Actual	Max.
10	8.5	_____	11.5
30	27.5	_____	32.5
70	65.5	_____	74.5
90	84.5	_____	95.5

Re-check accuracy at 100.0 MHz using the Generator's INT 400 source and the Analyzer's 50 Hz HP filter.

AM Indicated (%)	Results		
	Min.	Actual	Max.
10	8.5	_____	11.5
30	27.5	_____	32.5
70	65.5	_____	74.5
90	84.5	_____	95.5

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4-5. MODULATION TEST (Cont'd)

NOTE

The following step checks AM accuracy at the maximum specified rates. It should be performed only if repairs have been made in the Output Section (part of A4).

2a. Connect an audio signal source to the Generator's MODULATION INPUT. Set the audio signal level to the 1.0 Vpk (0.707 Vrms). On the Generator, select EXT AC and 90% AM.

Set the Generator to the frequencies shown in the first column of the following table. Set the audio source to the frequencies in the second column. Measured AM depth, on the modulation analyzer, should be between 84.5 and 95.5%.

Generator Frequency (MHz)	Audio Frequency (kHz)	Results		
		Min.	Actual	Max.
1000.0	10	84.5%	_____	95.5%
500.0	10	84.5%	_____	95.5%
100.0	10	84.5%	_____	95.5%
5.0	5	84.5%	_____	95.5%
0.5	1.5	84.5%	_____	95.5%

3. *Incidental PM and FM*

Set the Generator to 30% AM with INT 1k source. Set the Generator's frequency and analyzer's mode as stated in the table below, and check for the readings given in the table.

8662A Frequency (Max)	Mode	Results	
		Actual	Max.
600.0	PM	_____	0.120 rad
600.0	FM	_____	0.120 kHz
1000.0	FM	_____	0.09 kHz
1000.0	PM	_____	0.09 rad

4. *AM Distortion*

Connect a cable from the MODULATION OUTPUT of the modulation analyzer to the input of the distortion analyzer. Set the Generator to 100.0 MHz. Set the modulation analyzer to AM. Set the Generator to the AM depths (INT 1k source) in the table below. Measure distortion at each setting and compare it to the specified value given in the table.

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PERFORMANCE TESTS

4-5. MODULATION TEST (Cont'd)

AM Indicated (%)	Results	
	Actual	Max.
30	_____	2.0%
70	_____	4.0%
90	_____	5.75%

Repeat the distortion measurements at frequency settings of 600.0 MHz and 1.0 GHz.

AM Indicated (%) for 600 MHz	Results	
	Actual	Max.
30	_____	2.0%
70	_____	4.0%
90	_____	5.75%

AM Indicated (%) for 1.0 GHz	Results	
	Actual	Max.
30	_____	2.0%
70	_____	4.0%
90	_____	5.75%

†5. *FM Indicated Accuracy*

Set the Generator to 100.0 MHz and FM mode with the INT 1k source. Set FM deviation to the values in the table below. Set the modulation analyzer to FM mode and check that the readings are within the specified values given in the table.

FM Indicated	Results		
	Min.	Actual	Max.
5.0 kHz	4.59 kHz	_____	5.41 kHz
30.0 kHz	27.59 kHz	_____	32.41 kHz
70.0 kHz	64.39 kHz	_____	75.61 kHz
100.0 kHz	91.99 kHz	_____	108.01 kHz

†Backdating information in Section VII.

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4-5. MODULATION TEST (Cont'd)

6. *Incidental AM*

NOTE

The incidental AM Specification of the Generator is lower than can be measured by commercially available test equipment (that is, —72 dBc or .05%). This specification is checked when the unit is manufactured using a special test fixture. It is recommended that step 6 be performed. The measured value is limited by the performance of the modulation analyzer. A reading less than the given value indicates incidental AM of the Generator is less than the modulation analyzer can read and provides assurance that the Generator is operating properly.

Set the Generator to 100.0 MHz and 20 kHz FM deviation with internal 1 kHz source. Measure AM on the modulation analyzer. Readings should be less than 0.2%.

7. *FM Distortion*

Set the Generator to 100.0 MHz frequency and 30 kHz FM deviation with INT 1k source. Set the modulation analyzer to FM mode and measure the distortion of the MODULATION OUTPUT signal. Measured distortion should be less than 1.0%.

Change the Generator FM deviation to 100 kHz. Measured distortion should be less than 1.0%.

8. Re-enable amplitude correction with Special Function 86.

9. If the Generator failed any of these tests, perform the "Modulation Section Adjustment" or "AGC Bandwidth Adjustment" in Section V or troubleshoot with the procedures described in Service Sheet F.

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PERFORMANCE TESTS

4-6. LEVEL ACCURACY AND FLATNESS TEST

SPECIFICATION:

Electrical Characteristics	Performance Limits	Conditions
OUTPUT (+15 to +45°C)		
Range	+13 to −139.9 dBm (1V to .023 μVrms into 50 ohms)	
Resolution	0.1 dB	
Absolute Level Accuracy[1,2]	±1.0 dB ±3.0 dB	+13 to −120 dBm −120 to −130 dBm
Flatness (referenced to 100 MHz, without correction, and down to −120 dBm)	±1.5 dB ±3.5 dB	10 kHz to 640 MHz 10 kHz to 1280 MHz

[1] Includes flatness, attenuator error, detector error and measurement uncertainty.

[2] Level correction can be defeated via a special keyboard function.

DESCRIPTION: Level accuracy and flatness are checked at levels that can be read by a power meter.

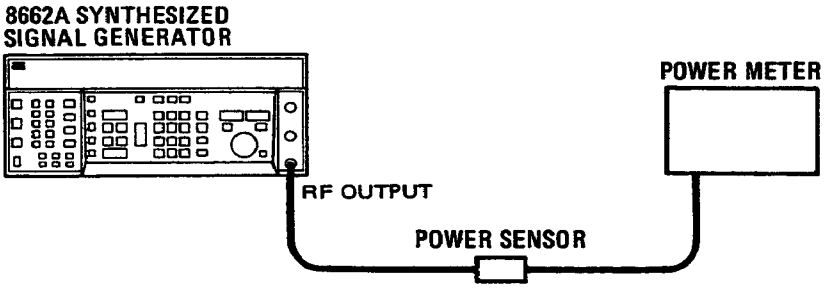

Figure 4-2. Level Accuracy and Flatness Test Setup

EQUIPMENT: Power Meter and Sensor . . . . . HP 436A with 8482A

PROCEDURE:

1. Connect the power sensor to the Generator as shown in Figure 4-2. Zero the power meter.

2. Set the Generator frequency to 10 MHz and increment to 100 MHz. Set amplitude to +13 dBm.

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4-6. LEVEL ACCURACY AND FLATNESS TEST (Cont'd)

3. Measure the power level. Then use the INCREMENT keys to change frequency in 100 MHz increments. Power must be +13.0 ±1.0 dBm.

Level Accuracy and Flatness Test		Results		
		Min.	Actual	Max.
+13 dBm:	10 MHz	+12.0 dBm	_____	+14.0 dBm
	110 MHz	+12.0 dBm	_____	+14.0 dBm
	210 MHz	+12.0 dBm	_____	+14.0 dBm
	310 MHz	+12.0 dBm	_____	+14.0 dBm
	410 MHz	+12.0 dBm	_____	+14.0 dBm
	510 MHz	+12.0 dBm	_____	+14.0 dBm
	610 MHz	+12.0 dBm	_____	+14.0 dBm
	710 MHz	+12.0 dBm	_____	+14.0 dBm
	810 MHz	+12.0 dBm	_____	+14.0 dBm
	910 MHz	+12.0 dBm	_____	+14.0 dBm
	1010 MHz	+12.0 dBm	_____	+14.0 dBm
	1110 MHz	+12.0 dBm	_____	+14.0 dBm
	1210 MHz	+12.0 dBm	_____	+14.0 dBm

4. Repeat step 3 with amplitude set to +3.0, −3.0, and −12.0 dBm. All readings must be the specified value ±1.0 dB.

Level Accuracy and Flatness Test		Results		
		Min.	Actual	Max.
+3.0 dBm:	10 MHz	+2.0 dBm	_____	+4.0 dBm
	110 MHz	+2.0 dBm	_____	+4.0 dBm
	210 MHz	+2.0 dBm	_____	+4.0 dBm
	310 MHz	+2.0 dBm	_____	+4.0 dBm
	410 MHz	+2.0 dBm	_____	+4.0 dBm
	510 MHz	+2.0 dBm	_____	+4.0 dBm
	610 MHz	+2.0 dBm	_____	+4.0 dBm
	710 MHz	+2.0 dBm	_____	+4.0 dBm
	810 MHz	+2.0 dBm	_____	+4.0 dBm
	910 MHz	+2.0 dBm	_____	+4.0 dBm
	1010 MHz	+2.0 dBm	_____	+4.0 dBm
	1110 MHz	+2.0 dBm	_____	+4.0 dBm
	1210 MHz	+2.0 dBm	_____	+4.0 dBm
−3.0 dBm:	10 MHz	−4.0 dBm	_____	−2.0 dBm
	110 MHz	−4.0 dBm	_____	−2.0 dBm
	210 MHz	−4.0 dBm	_____	−2.0 dBm
	310 MHz	−4.0 dBm	_____	−2.0 dBm
	410 MHz	−4.0 dBm	_____	−2.0 dBm
	510 MHz	−4.0 dBm	_____	−2.0 dBm
	610 MHz	−4.0 dBm	_____	−2.0 dBm
	710 MHz	−4.0 dBm	_____	−2.0 dBm

(continued)

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PERFORMANCE TESTS

4-6. LEVEL ACCURACY AND FLATNESS TEST (Cont'd)

Level Accuracy and Flatness Test		Results		
		Min.	Actual	Max.
−3.0 dBm:	810 MHz	−4.0 dBm	_____	−2.0 dBm
	910 MHz	−4.0 dBm	_____	−2.0 dBm
	1010 MHz	−4.0 dBm	_____	−2.0 dBm
	1110 MHz	−4.0 dBm	_____	−2.0 dBm
	1210 MHz	−4.0 dBm	_____	−2.0 dBm
−12.0 dBm:	10 MHz	−13.0 dBm	_____	−11.0 dBm
	110 MHz	−13.0 dBm	_____	−11.0 dBm
	210 MHz	−13.0 dBm	_____	−11.0 dBm
	310 MHz	−13.0 dBm	_____	−11.0 dBm
	410 MHz	−13.0 dBm	_____	−11.0 dBm
	510 MHz	−13.0 dBm	_____	−11.0 dBm
	610 MHz	−13.0 dBm	_____	−11.0 dBm
	710 MHz	−13.0 dBm	_____	−11.0 dBm
	810 MHz	−13.0 dBm	_____	−11.0 dBm
	910 MHz	−13.0 dBm	_____	−11.0 dBm
	1010 MHz	−13.0 dBm	_____	−11.0 dBm
	1110 MHz	−13.0 dBm	_____	−11.0 dBm
	1210 MHz	−13.0 dBm	_____	−11.0 dBm

NOTE

This test, together with the "Functional Check" in Section III, checks the output specifications, the amplitude correction feature, and the operation of the output attenuator. If it is necessary to test the Generator at specific lower levels, 1) use a power sensor with a lower range (the HP Model 8484A has a range of −20 to −60 dBm), or perform the test in paragraph 4-7 for levels below −60 dBm.

5. If the Generator failed this test, perform the "Output Amplifier (DC) Offset Adjustment" (paragraph 5-29), and the "CW Level Adjustment" (paragraph 5-32), or troubleshoot, using the procedures described on Service Sheet E.

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4-7. LEVEL ACCURACY TEST (OPTIONAL – LOW LEVEL)

SPECIFICATION:

Electrical Characteristics	Performance Limits	Conditions
OUTPUT (+15 to +45°C)		
Range	+13 to −139.9 dBm (1V to 0.023 μV rms into 50 ohms)	
Resolution	0.1 dB	
Absolute Level Accuracy[1,2]	±10 dB ±3.0 dB	+13 to −120 dBm −120 to −130 dBm
Flatness (referenced to 100 MHz, without correction, and down to −120 dBm)	±1.5 dB ±3.5 dB	10 kHz to 640 MHz 10 kHz to 1280 MHz

[1] Includes flatness, attenuator error, detector error & measurement uncertainty.

[2] Level correction can be defeated via a special keyboard function.

DESCRIPTION: This test is an optional addition to the test in paragraph 4-6. This test should be performed only if it is necessary to check specific levels below −60 dBm.

Levels below −60 dBm cannot be measured directly with a power meter. To measure these low levels the Generator is read by a power meter at a level within its range. A pad of accurately known attenuation is then inserted in series with the Generator's output and the output of the pad is used to set a reference on the spectrum analyzer. The pad is removed and the Generator's level is set to the value to be checked. The Generator's output is compared to the reference level on the spectrum analyzer and the actual value calculated.

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PERFORMANCE TESTS

4-7. LEVEL ACCURACY TEST (OPTIONAL – LOW LEVEL) (Cont'd)

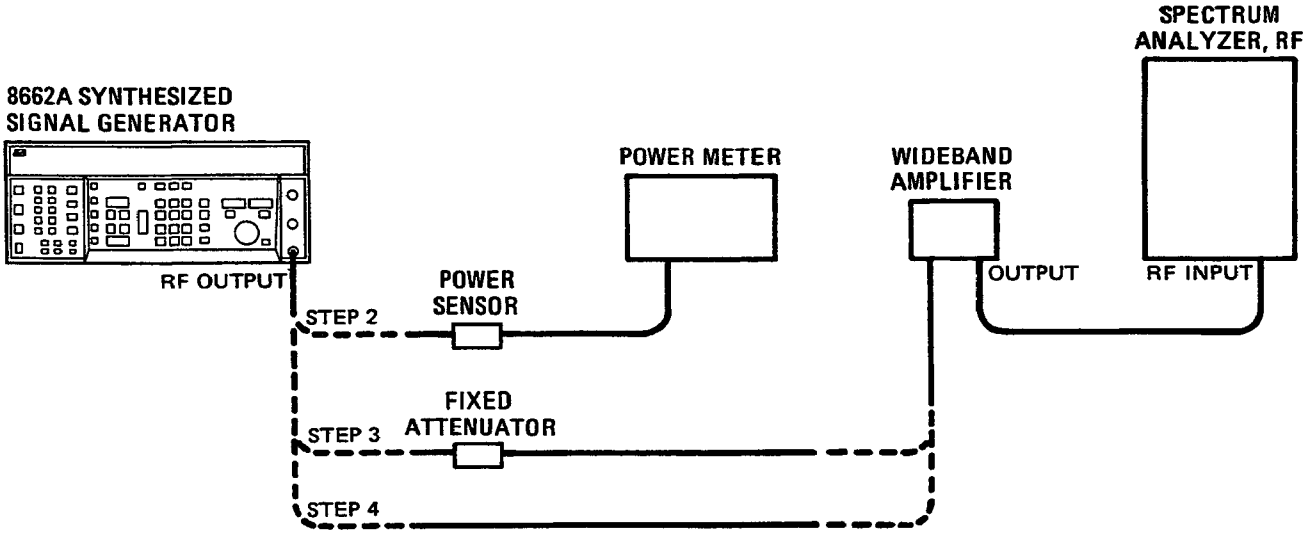

Figure 4-3. Level Accuracy Test Setup (Optional – Low Level)

EQUIPMENT:

Power Meter and Sensor	HP 436A with 8484A
Spectrum Analyzer, RF	HP 8558B/181T
Wideband Amplifier	HP 8447D Option 010
Cable, RF	HP 11500B
Attenuator, Fixed	HP 8491A

PROCEDURE:

1. Select a fixed pad value that when subtracted from the amplitude to be tested gives a value between −20 and −60 dBm. For example, to test −100 dBm, choose a pad between 40 and 80 dB. The exact value of the pad at the frequency being tested must be known.

2. Set the Generator's level higher than the amplitude being tested by the value of the pad. Measure the Generator output with the power meter and record the value here.

   _____dBm

3. Connect the pad to the Generator output, and to the spectrum analyzer through the wideband amplifier. View the signal on the spectrum analyzer and set the reference level to one division above the signal in the 2 dB log amplitude mode. Use well shielded RF cables or leakage will affect the accuracy of the results.

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4-7. LEVEL ACCURACY TEST (OPTIONAL – LOW LEVEL) (Cont'd)

4. Set the Generator's amplitude to the value being tested (level A) and remove the pad. View the signal on the spectrum analyzer and determine the difference from the signal viewed in step 3. The actual output level is calculated as follows:

_____ power meter reading (step 2)

– _____ exact value of pad (at frequency _____MHz)

\+ _____ difference observed (steps 3 and 4)

= _____ actual output level

where the indicated value (level A) is _____ dBm.

Actual Output Level	Results		
	Min.	Actual	Max.
–60 to –120 dBm, .01 to 1280 MHz	A – 1.0 dBm	_____	A + 1.0 dBm
–120 to –130 dBm, .01 to 1280 MHz	A – 3.0 dBm	_____	A + 3.0 dBm

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PERFORMANCE TESTS

4-8. SSB PHASE NOISE TEST

SPECIFICATION:

Electrical Specifications	Performance Limits	Conditions
SPECTRAL PURITY		
Residual SSB Phase Noise in 1 Hz Bandwidth		320 to 640 MHz; CW and AM mode.
	−100 dBc	10 Hz offset from carrier
	−112 dBc	100 Hz offset from carrier
	−121 dBc	1000 Hz offset from carrier
	−131 dBc	10 kHz offset from carrier
	−132 dBc	100 kHz offset from carrier
SSB Broadband Noise Floor in 1 Hz Bandwidth	−146 dBc	> +10 dBm output level; 120 to 640 MHz; 3 MHz offset from carrier

DESCRIPTION: SSB phase noise is measured by mixing the RF output of the Generator and its 10 MHz reference signal in a double balanced mixer to eliminate the carrier and translate the noise spectrum to a low frequency where it can be viewed on a high resolution spectrum analyzer. The 10 MHz reference output from the Generator's rear panel is used as the LO for the mixer. The RF output is set to 10 MHz and the output of the mixer is viewed on a spectrum analyzer at 10 kHz and 100 kHz.

This test is a good overall check of the phase noise performance of the Generator. However, if it is necessary to check phase noise at a specific output frequency, perform test 4-9.

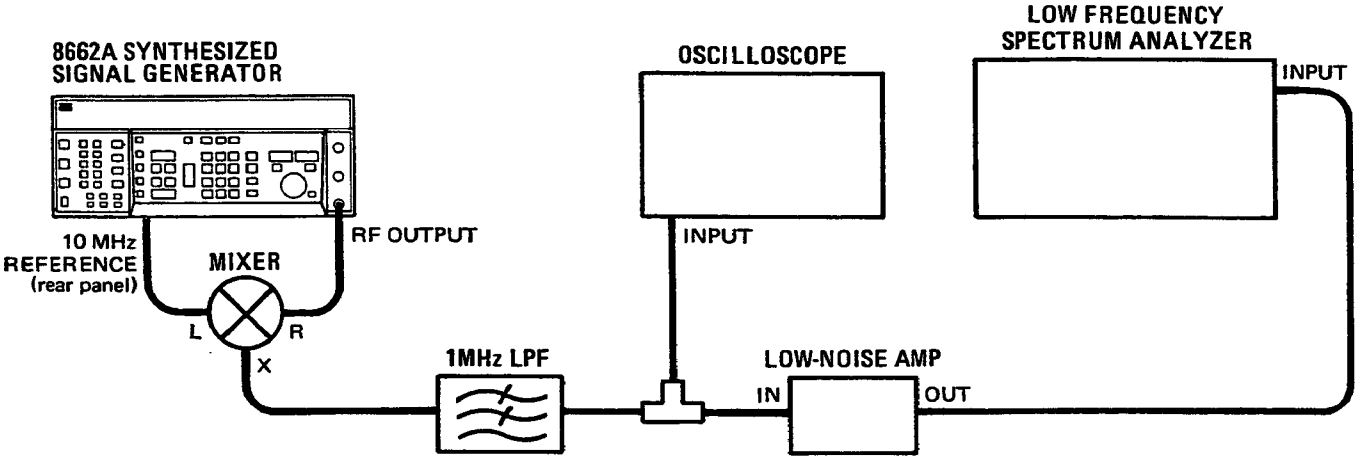

Figure 4-4. SSB Phase Noise Test Setup

EQUIPMENT:

Mixer	HP 10514A
1 MHz Low Pass Filter	(See Figure 1-2)
Low-Noise Amplifier	HP 08640-60506 (With Power Supply HP 6215A)
Spectrum Analyzer, Low Frequency	HP 8556A/8552B/141T
Oscilloscope	HP 1740A

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4-8. SSB PHASE NOISE TEST (Cont'd)

PROCEDURE:

1. Connect equipment as shown in Figure 4-4.

NOTE

Values in parenthesis are used the second time through the procedure to measure phase noise 100 kHz from the carrier.

2. Set the Generator to 10.010 (10.10) MHz and −50 dBm amplitude. Set the spectrum analyzer to 40 dB of input attenuation and view the 10 (100) kHz signal at any calibrated combination of resolution and bandwidth (no video filtering).

3. Adjust the reference level on the spectrum analyzer so the signal is 4 dB below the reference level. This compensates for the noise contribution of the LO signal.

4. Set the Generator to 10.0 MHz and 0 dBm amplitude. Set the spectrum analyzer to zero input attenuation.

5. Set the Generator frequency increment to 0.1 Hz. Press the INCREMENT ↑ key and view the signal in the dc coupled mode on the oscilloscope. The signal should be slowly moving around ground level (0.1 Hz sine wave). Stop the signal at ground level by pushing the Generator's INCREMENT ↓ key. This sets the two input signals to the mixer in phase quadrature.

6. Set the bandwidth of the spectrum analyzer to 10 Hz, scan width to the minimum and sweep so that the display is calibrated. View the signal and note how much the signal is below the top graticule of the display.

7. The actual phase noise is calculated from the reading obtained in step 6 by applying the following corrections:

   a. Add −50 dB to correct for the change in the Generator's attenuator.

   b. Add −40 dB to correct for the change in the spectrum analyzer's attenuator.

   c. Add −10 dB because the measurement was made in a 10 Hz bandwidth but phase noise is specified in a 1 Hz bandwidth.

8. Phase noise should be −131 dB or lower.

   −131 dBc _____

9. Repeat this procedure using the values in parenthesis and measure the phase noise 100 kHz away from the carrier. Phase noise should be −132 dB or lower.

   −132 dBc _____

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PERFORMANCE TESTS

4-9. SSB PHASE NOISE TEST (OPTIONAL)

SPECIFICATION:

Electrical Specifications	Performance Limits	Conditions
SPECTRAL PURITY		
Residual SSB Phase Noise in 1 Hz Bandwidth		320 to 640 MHz; CW and AM mode.
	−100 dBc	10 Hz offset from carrier
	−112 dBc	100 Hz offset from carrier
	−121 dBc	1000 Hz offset from carrier
	−131 dBc	10 kHz offset from carrier
	−132 dBc	100 kHz offset from carrier
SSB Broadband Noise Floor in 1 Hz Bandwidth	−146 dBc	> +10 dBm output level; 120 to 640 MHz; 3 MHz offset from carrier

DESCRIPTION: This test is an optional alternative to the test in paragraph 4-8. This test should be performed only if it is necessary to check phase noise at frequencies other than 10 MHz.

A reference signal generator and a double-balanced mixer are used to translate the noise spectrum to a lower frequency so that it can be viewed on a high resolution spectrum analyzer.

NOTE

This test measures the total SSB phase noise of both Generators. Therefore, the reference generator must have SSB phase noise that is less than or equal to the specification for the Generator under test.

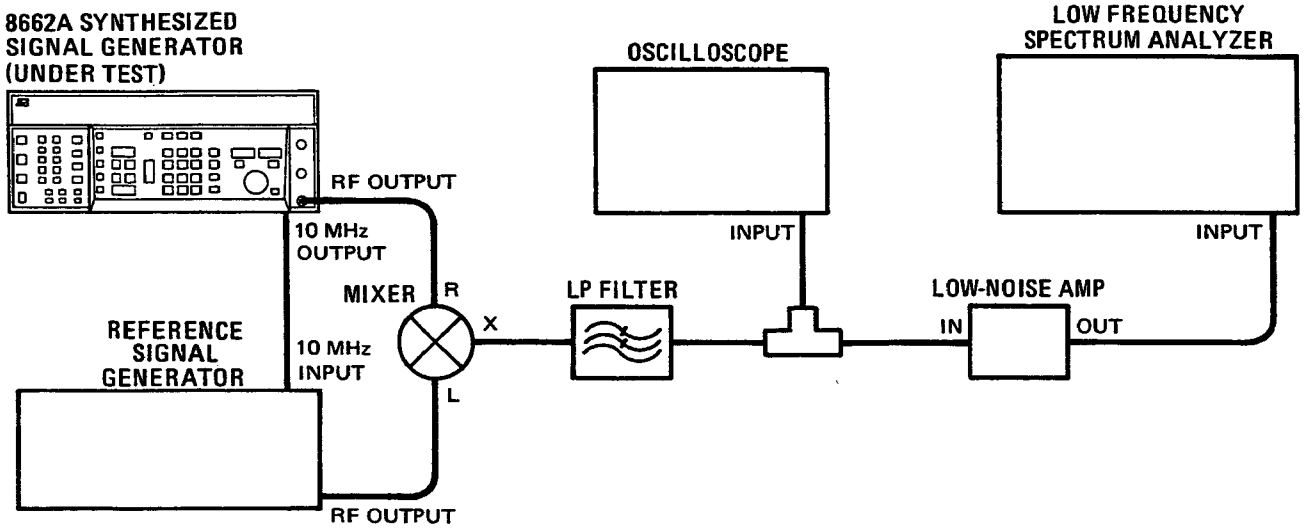

Figure 4-5. SSB Phase Noise Test Setup (Optional)

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4-9. SSB PHASE NOISE TEST (OPTIONAL) (Cont'd)

EQUIPMENT:

Mixer	HP 10514A or Watkins-Johnson M94C
Low-Pass Filter	See Figure 1-2
Low-Noise AMP	HP 08640-60506 (with Power Supply HP 6215A)
Spectrum Analyzer, Low Frequency	HP 8556A/8552B/141T
Oscilloscope	HP 1740A
Signal Generator	HP 8662A

PROCEDURE:

1. Connect the equipment as shown in Figure 4-5. The LP filter should have a bandwidth more than 10 times greater than the offset frequency where phase noise will be measured.

NOTE

The following symbols are used in the procedure:

f_{RF} = *the RF output frequency where SSB phase noise will be checked.*

f_{OFF} = *the frequency offset from* f_{RF} *where SSB phase noise will be checked.*

2. Set the reference generator's frequency to f_{RF} and output level to +13 dBm. Set the Generator under test to $f_{RF} + f_{OFF}$ and output level to −50 dBm.

3. Set the spectrum analyzer to 40 dB of input attenuation and view the signal at f_{OFF} with any calibrated combination of resolution and bandwidth (no video filtering).

4. Set the reference level of the spectrum analyzer so the signal is 7 dB below the reference level. This compensates for the noise contribution of the LO signal and the effect of the spectrum analyzer when measuring noise.

NOTE

If an HP 3582A Spectrum Analyzer is used, use the marker and adjust the sensitivity vernier for REL: −9.0 dB.

5. Set the Generator under test to f_{RF} and 0 dBm output level. Set the spectrum analyzer to zero input attenuation.

6. Set the frequency increment for the Generator under test to 0.1 Hz. Press the INCREMENT ↑ key and view the signal in the dc coupled mode on the oscilloscope. The signal should be slowly moving around ground level (0.1 Hz sine wave). Stop the signal at ground level by pushing the INCREMENT ↓ key. This sets the two input signals to the mixer in phase quadrature.

7. Set the bandwidth of the spectrum analyzer to 10 Hz, span width to the minimum and sweep so that the display is calibrated. View the signal and note how much the signal is below the reference level.

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PERFORMANCE TESTS

4-9. SSB PHASE NOISE TEST (OPTIONAL) (Cont'd)

8. The actual phase noise level is the signal level expressed as dB below the reference level (—xx dB) plus the following corrections:

   a. Add —50 dB to correct for the change in the attenuator in the Generator under test.

   b. Add —40 dB to correct for the change in the spectrum analyzer's attenuator.

   c. Add —10 dB because the measurement was made in a 10 Hz bandwidth but phase noise is specified in a 1 Hz bandwidth.

NOTE

If an HP 3582A Spectrum Analyzer is used, only correction 8a is needed. The Spectrum Analyzer applies the other corrections.

9. Measured phase noise should be at or below the specified value.

f_{RF} = _____ (320—640 MHz)

Offset Frequency (f_{OFF})	SSB Phase Noise	
	Min	Actual
10 Hz	—100 dBc	_____
100 Hz	—122 dBc	_____
1 kHz	—121 dBc	_____
10 kHz	—131 dBc	_____
100 kHz	—132 dBc	_____

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PERFORMANCE TESTS

4.10. HARMONICS AND SPURIOUS TEST

SPECIFICATION:

Electrical Characteristics	Performance Limits	Conditions
Spurious Output Signals (non-harmonically related)[1,2]	−90 dBc	0.01 to 120 MHz
	−100 dBc	120 to 160 MHz
	−96 dBc	160 to 320 MHz
	−90 dBc	320 to 640 MHz
	−84 dBc	640 to 1280 MHz
Spurious Output Signals (sub-harmonically related)[3]	−75 dBc	640 to 1280 MHz
	None	0.01 to 640 MHz
Spurious Output Signals [Power line (60 Hz) related or microphonically generated (within 300 Hz from carrier)][4]	−90 dBc	0.01 to 120 MHz
	−85 dBc	120 to 160 MHz
	−80 dBc	160 to 320 MHz
	−75 dBc	320 to 640 MHz
	−70 dBc	640 to 1280 MHz
Harmonics	−30 dBc	

[1] In remote mode, it is possible to have spurious signals related to the microprocessor clock spaced 3 MHz apart, at levels typically less than −145 dBm.

[2] Spurious signals can be 3 dB higher if the FM mode is enabled with dc-coupling of a dc level at either of the modulation inputs.

[3] Subharmonically related signals are f/2, 3f/2, etc.

[4] At 50 Hz line frequency, power line or microphonically related spurious signals may be up to 3 dB higher and appear at offsets as high as 1 kHz from the carrier.

DESCRIPTION: The RF output of the Generator is viewed on a spectrum analyzer. The Generator's frequency is set to values where harmonic and spurious performance problems are most likely to be observed

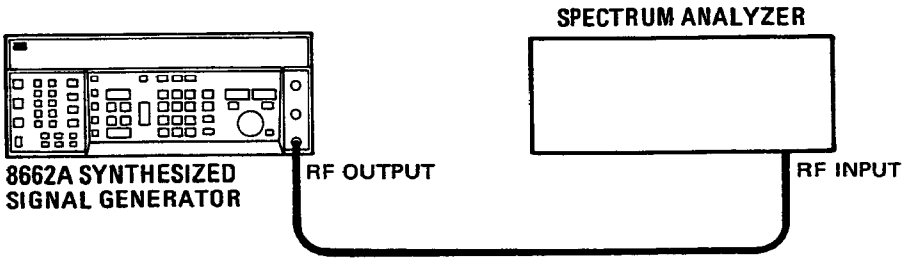

Figure 4-6. Harmonics and Spurious Test Setup

EQUIPMENT: Spectrum Analyzer, RF . . . . . HP 8558B/181T

PROCEDURE: 1. Connect the RF Output of Generator to the input of the spectrum analyzer.

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PERFORMANCE TESTS

4-10. HARMONICS AND SPURIOUS TEST (Cont'd)

Harmonics

2. Set the Generator's amplitude to +13 dBm and frequency to the values in the first column of the following table. Set the spectrum analyzer to the frequencies in the second column to view the second harmonic. The second harmonic should be more than 30 dB below the fundamental.

Frequency (MHz)	2nd Harmonic (MHz)	Results	
		Min	Actual
90.0	180.0	−30 dBc	_____
159.0	318.0	−30 dBc	_____
319.0	638.0	−30 dBc	_____
320.0	640.0	−30 dBc	_____
370.0	740.0	−30 dBc	_____
450.0	900.0	−30 dBc	_____
640.0	1280.0	−30 dBc	_____
745.0	1490.0	−30 dBc	_____

Spurious

3. If the Generator failed this test, perform the "Output Amplifier Power Amp Adjustment" (paragraph 5-28) or troubleshoot with the procedure on Service Sheet E.

4. Set the Generator frequency to 320.0 MHz and amplitude to 0.0 dBm. Set the spectrum analyzer input attenuator to the minimum attenuation allowable with a 0 dBm input signal. Adjust the tuning so the signal is centered on the second vertical graticule line from the left of the screen. Use 50 kHz resolution and 1 kHz bandwidth settings. Set the reference level to −40 dBm. The display should be as shown in Figure 4-7.

5. Set the Generator frequency to the values shown in the following table. At each frequency setting look at the spectrum from 100 to 350 kHz above the signal. All spurious signals must be below the level stated in the table. If the noise level is too high at any point, reduce bandwidth or add video filtering, but the sweep speed must be slowed to keep the amplitude calibrated.

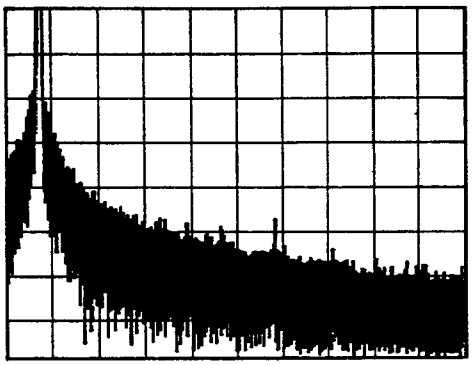

Figure 4-7. Spurious Test Spectrum Analyzer Display (321.8 MHz, 50 kHz/Division, 1 kHz Bandwidth)

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4-10. HARMONICS AND SPURIOUS TEST (Cont'd)

NOTE

In order to obtain maximum sensitivity, this test requires driving the input mixer of the spectrum analyzer above its optimum level. This could cause the generation of spurious signals in the spectrum analyzer. If a spurious signal is observed, change the Generator's frequency. If the spurious disappears, it most likely is from the Generator. If the spurious moves with the Generator's signal, it is probably generated in the spectrum analyzer.

Frequency (MHz)	Results	
	Min	Actual
320.000 000	−90 dBc	_____
320.000 010	−90 dBc	_____
320.000 030	−90 dBc	_____
320.000 100	−90 dBc	_____
320.000 300	−90 dBc	_____
320.001 000	−90 dBc	_____
320.003 000	−90 dBc	_____
320.010 000	−90 dBc	_____
320.030.000	−90 dBc	_____
320.100 00	−90 dBc	_____
329.999 990	−90 dBc	_____
329.999 970	−90 dBc	_____
329.999 900	−90 dBc	_____
329.999 700	−90 dBc	_____
329.999 000	−90 dBc	_____
329.997 000	−90 dBc	_____
329.990 000	−90 dBc	_____
329.970 000	−90 dBc	_____
329.900 000	−90 dBc	_____
103.980 000	−90 dBc	_____
640.000 000	−84 dBc	_____

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PERFORMANCE TESTS

4-11. INTERNAL TIME BASE AGING RATE TEST

SPECIFICATION:

Electrical Characteristics	Performance Limits	Conditions
Internal Reference Oscillator[1] Frequency Aging Rate	10 MHz 5×10^{-10}/day	After ten day warm-up (typically 24 hrs in normal operating environment)

[1] The internal reference oscillator is kept at operating temperature in STANDBY mode with the instrument connected to Mains power.

DESCRIPTION: The reference signal from the Generator (10 MHz OUTPUT) is connected to the oscilloscope's vertical input. A frequency standard (with long-term stability greater than 1×10^{-10}) is connected to the trigger input. The time required for a specific phase change is measured immediately and after a period of time. The aging rate is inversely proportional to the absolute value of the difference in the measured times.

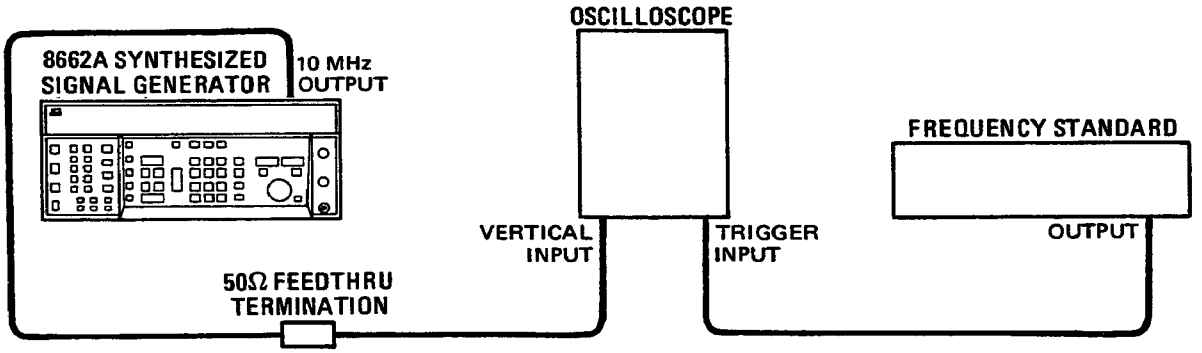

Figure 4-8. Internal Time Base Aging Rate Test Setup

EQUIPMENT:

Frequency Standard	HP 5065A
Oscilloscope	HP 1740A
50 Ohm Feedthru Termination	HP 11048C

NOTE

Be sure the Generator has had 10 days to warm up before beginning the test. If the Generator was disconnected from the power line for less than 24 hours, only a 24 hour warm-up is needed.

WARNING

Be careful working near the fan at the back of the Generator. Long hair can be drawn into the fan causing personal injury.

PROCEDURE:

1. Set the rear panel REFERENCE switch to INT.
2. Connect the equipment as shown in Figure 4–8.

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PERFORMANCE TESTS

4-11. INTERNAL TIME BASE AGING RATE TEST (Cont'd)

3. Adjust the oscilloscope controls for a stable display of the 10 MHz output.

4. Measure the time required for a phase change of 360°. Record the time (T_1) in seconds.

T_1 =_____s

5. Wait for a period of time (from 3 to 24 hours) and re-measure the phase change time (T_2). Record the period of time between measurements (T_3) in hours.

T_2 =_____ s

T_3 =_____h

6. Calculate the aging rate from the following equation:

$$\text{Aging Rate} = \left|\left(\frac{1\text{ cycle}}{f}\right)\left(\frac{1}{T_1}-\frac{1}{T_2}\right)\left(\frac{T}{T_3}\right)\right|$$

where: 1 cycle = the phase change reference for the time measurement (in this case 360°)

f = Synthesizer's reference output frequency (10 MHz)

T = specified time for aging rate (24h)

T_1 = initial time measurement(s) for a 360° (1 cycle) change

T_2 = final time measurement(s) for a 360° (1 cycle) change

T_3 = time between measurement (h)

for example:

if T_1 = 351s
T_2 = 349s
T_3 = 3h

then $$\text{Aging Rate} = \left|\left(\frac{1\text{ cycle}}{10\text{ MHz}}\right)\left(\frac{1}{351\text{s}}-\frac{1}{349\text{s}}\right)\left(\frac{24\text{h}}{3\text{h}}\right)\right|$$
$$= 1.306 \times 10^{-11}$$

7. Record the aging rate. Aging Rate _____5×10^{-10} /day

NOTE

If the absolute frequencies of the frequency standard and the Generator's reference oscillator are extremely close, the measurement time in steps 4 and 5 (T_1 and T_2) can be reduced by measuring the time required for a phase change of something less than 360°. Change 1 cycle in the formula (e.g., 180° = 1/2 cycle, 90° = 1/4 cycle).

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PERFORMANCE TESTS

4-11. INTERNAL TIME BASE AGING RATE TEST (Cont'd)

8. If the rate aging is not within the required tolerance, check the power supplies before replacing A8A3. Be sure sufficient warm-up time has been allowed (may require up to 10 days).

Table 4-2. Performance Test Record (1 of 5)

Hewlett-Packard Company
Model 8662A
Synthesized Signal Generator

Serial Number

Tested by: _____

Date: _____

Para. No.	Test	Results		
		Min.	Actual	Max.
4-5.	**MODULATION TEST**			
	AM Indicated Accuracy			
	100 MHz (1 kHz Rate)			
	10% AM	8.5%	_____	11.5%
	30% AM	27.5%	_____	32.5%
	70% AM	65.5%	_____	74.5%
	90% AM	84.5%	_____	95.5%
	500 MHz (1 kHz Rate)			
	10% AM	8.5%	_____	11.5%
	30% AM	27.5%	_____	32.5%
	70% AM	65.5%	_____	74.5%
	90% AM	84.5%	_____	95.5%
	1 GHz (1 kHz Rate)			
	10% AM	8.5%	_____	11.5%
	30% AM	27.5%	_____	32.5%
	70% AM	65.5%	_____	74.5%
	90% AM	84.5%	_____	95.5%
	100 MHz (400 Hz Rate)			
	10% AM	8.5%	_____	11.5%
	30% AM	27.5%	_____	32.5%
	70% AM	65.5%	_____	74.5%
	90% AM	84.5%	_____	95.5%
	AM Indicated Accuracy (Optional)			
	1000.0 MHz, 10 kHz rate, 90% AM	84.5%	_____	95.5%
	500.0 MHz, 10 kHz rate, 90% AM	84.5%	_____	95.5%
	100.0 MHz, 10 kHz rate, 90% AM	84.5%	_____	95.5%
	5.0 MHz, 5 kHz rate, 90% AM	84.5%	_____	95.5%
	0.5 MHz, 1.5 kHz rate, 90% AM	84.5%	_____	95.5%
	Incidental PM and FM			
	600.0 MHz: PM		_____	0.120 rad
	FM		_____	0.120 kHz

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Table 4-2. Performance Test Record (2 of 5)

Para. No.	Test	Results		
		Min.	Actual	Max.
4-5	**MODULATION TEST (Cont'd)**			
	Incidental PM and FM (Cont'd)			
	1000.0 MHz: FM		_____	0.09 kHz
	PM		_____	0.09 rad
	AM Distortion			
	100.0 MHz (1 kHz Rate)			
	30% AM		_____	2.0%
	70% AM		_____	4.0%
	90% AM		_____	5.75%
	600.0 MHz (1 kHz Rate)			
	30% AM		_____	2.0%
	70% AM		_____	4.0%
	90% AM		_____	5.75%
	1.0 GHz (1 kHz Rate)			
	30% AM		_____	2.0%
	70% AM		_____	4.0%
	90% AM		_____	5.75%
	† FM Indicated Accuracy			
	100.0 MHz (1 kHz Rate)			
	5.0 kHz	4.59 kHz	_____	5.41 kHz
	30.0 kHz	27.59 kHz	_____	32.41 kHz
	70.0 kHz	64.39 kHz	_____	75.61 kHz
	100.0 kHz	91.99 kHz	_____	108.08 kHz
	Incidental AM			
	NOTE *The incidental AM specification of the Generator is lower than can be measured by commercially available test equipment (that is, −72 dBc or .05%). This specification is checked when the unit is manufactured using a special test fixture. With the test recommended in this section, the measured value is limited by the performance of the modulation analyzer. A reading less than the given value indicates that incidental AM of the Generator is less than the modulation analyzer can read and provides assurance that the Generator is operating properly.*			
	100.0 MHz, 20 kHz peak dev., 1 kHz Rate		_____	0.2%
	FM Distortion			
	100.0 MHz, 30 kHz peak dev., 1 kHz Rate		_____	1.0%
	100.0 MHz, 100 kHz peak dev., 1 kHz Rate		_____	1.0%

†Backdating information in Section VII.

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Table 4-2. Performance Test Record (3 of 5)

Para. No.	Test	Results		
		Min.	Actual	Max.
4-6	**LEVEL ACCURACY AND FLATNESS TEST**			
	+13 dBm: 10 MHz	+12.0 dBm	_____	+14.0 dBm
	110 MHz	+12.0 dBm	_____	+14.0 dBm
	210 MHz	+12.0 dBm	_____	+14.0 dBm
	310 MHz	+12.0 dBm	_____	+14.0 dBm
	410 MHz	+12.0 dBm	_____	+14.0 dBm
	510 MHz	+12.0 dBm	_____	+14.0 dBm
	610 MHz	+12.0 dBm	_____	+14.0 dBm
	710 MHz	+12.0 dBm	_____	+14.0 dBm
	810 MHz	+12.0 dBm	_____	+14.0 dBm
	910 MHz	+12.0 dBm	_____	+14.0 dBm
	1010 MHz	+12.0 dBm	_____	+14.0 dBm
	1110 MHz	+12.0 dBm	_____	+14.0 dBm
	1210 MHz	+12.0 dBm	_____	+14.0 dBm
	+3.0 dBm: 10 MHz	+2.0 dBm	_____	+4.0 dBm
	110 MHz	+2.0 dBm	_____	+4.0 dBm
	210 MHz	+2.0 dBm	_____	+4.0 dBm
	310 MHz	+2.0 dBm	_____	+4.0 dBm
	410 MHz	+2.0 dBm	_____	+4.0 dBm
	510 MHz	+2.0 dBm	_____	+4.0 dBm
	610 MHz	+2.0 dBm	_____	+4.0 dBm
	710 MHz	+2.0 dBm	_____	+4.0 dBm
	810 MHz	+2.0 dBm	_____	+4.0 dBm
	910 MHz	+2.0 dBm	_____	+4.0 dBm
	1010 MHz	+2.0 dBm	_____	+4.0 dBm
	1110 MHz	+2.0 dBm	_____	+4.0 dBm
	1210 MHz	+2.0 dBm	_____	+4.0 dBm
	−3.0 dBm: 10 MHz	−4.0 dBm	_____	−2.0 dBm
	110 MHz	−4.0 dBm	_____	−2.0 dBm
	210 MHz	−4.0 dBm	_____	−2.0 dBm
	310 MHz	−4.0 dBm	_____	−2.0 dBm
	410 MHz	−4.0 dBm	_____	−2.0 dBm
	510 MHz	−4.0 dBm	_____	−2.0 dBm
	610 MHz	−4.0 dBm	_____	−2.0 dBm
	710 MHz	−4.0 dBm	_____	−2.0 dBm
	810 MHz	−4.0 dBm	_____	−2.0 dBm
	910 MHz	−4.0 dBm	_____	−2.0 dBm
	1010 MHz	−4.0 dBm	_____	−2.0 dBm
	1110 MHz	−4.0 dBm	_____	−2.0 dBm
	1210 MHz	−4.0 dBm	_____	−2.0 dBm

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Table 4-2. Performance Test Record (4 of 5)

Para. No.	Test	Results		
		Min.	Actual	Max.
4-6	**LEVEL ACCURACY AND FLATNESS TEST (Cont'd)**			
	−12.0 dBm: 10 MHz	−13.0 dBm	_____	−11.0 dBm
	110 MHz	−13.0 dBm	_____	−11.0 dBm
	210 MHz	−13.0 dBm	_____	−11.0 dBm
	310 MHz	−13.0 dBm	_____	−11.0 dBm
	410 MHz	−13.0 dBm	_____	−11.0 dBm
	510 MHz	−13.0 dBm	_____	−11.0 dBm
	610 MHz	−13.0 dBm	_____	−11.0 dBm
	710 MHz	−13.0 dBm	_____	−11.0 dBm
	810 MHz	−13.0 dBm	_____	−11.0 dBm
	910 MHz	−13.0 dBm	_____	−11.0 dBm
	1010 MHz	−13.0 dBm	_____	−11.0 dBm
	1110 MHz	−13.0 dBm	_____	−11.0 dBm
	1210 MHz	−13.0 dBm	_____	−11.0 dBm
4-7	**LEVEL ACCURACY TEST (OPTIONAL – LOW LEVEL)**			
	Exact Value of Pad _____ dB			
	Frequency _____ MHz			
	Test Level (A) _____ dBm			
	Actual Output Level			
	(−60 to −120 dBm, .01 to 1280 MHz)	A−1.0 dBm	_____	A + 1.0 dBm
	(−120 to −130 dBm, .01 to 1280 MHz)	A−3.0 dBm	_____	A + 3.0 dBm
4-8	**SSB PHASE NOISE TEST**			
	10 kHz Offset From Carrier	−131 dBc	_____	
	100 kHz Offset From Carrier	−132 dBc	_____	
4-9	**SSB PHASE NOISE TEST (OPTIONAL)**			
	f_{RF} = _____ MHz (320-640 MHz)			
	f_{OFF} = 10 Hz	−100 dBc	_____	
	= 100 Hz	−112 dBc	_____	
	= 1 kHz	−121 dBc	_____	
	= 10 kHz	−132 dBc	_____	
	= 100 kHz	−133 dBc	_____	

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Table 4-2. Performance Test Record (5 of 5)

Para. No.	Test	Results		
		Min.	Actual	Max.
4-10	**HARMONICS AND SPURIOUS TEST**			
	Frequency: 2nd Harmonic:			
	90.0 MHz 180 MHz	−30 dBc	_____	
	159.0 MHz 318 MHz	−30 dBc	_____	
	319.0 MHz 638 MHz	−30 dBc	_____	
	320.0 MHz 640 MHz	−30 dBc	_____	
	370.0 MHz 740 MHz	−30 dBc	_____	
	450.0 MHz 900 MHz	−30 dBc	_____	
	640.0 MHz 1280 MHz	−30 dBc	_____	
	745.0 MHz 1490 MHz	−30 dBc	_____	
	Maximum Spurious Signal Level			
	100—350 kHz above:			
	320.000 000 MHz	−90 dBc	_____	
	320.000 010 MHz	−90 dBc	_____	
	320.000 030 MHz	−90 dBc	_____	
	320.000 100 MHz	−90 dBc	_____	
	320.000 300 MHz	−90 dBc	_____	
	320.001 000 MHz	−90 dBc	_____	
	320.003 000 MHz	−90 dBc	_____	
	320.010 000 MHz	−90 dBc	_____	
	320.030 000 MHz	−90 dBc	_____	
	320.100 000 MHz	−90 dBc	_____	
	329.999 990 MHz	−90 dBc	_____	
	329.999 970 MHz	−90 dBc	_____	
	329.999 900 MHz	−90 dBc	_____	
	329.999 700 MHz	−90 dBc	_____	
	329.999 000 MHz	−90 dBc	_____	
	329.997 000 MHz	−90 dBc	_____	
	329.990 000 MHz	−90 dBc	_____	
	329.970.000 MHz	−90 dBc	_____	
	329.900 000 MHz	−90 dBc	_____	
	103.980 000 MHz	−90 dBc	_____	
	640.000 000 MHz	−84 dBc	_____	
4-11	**INTERNAL TIME BASE AGING RATE TEST**			
	Aging Rate		_____	5×10^{-10}/day

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SECTION V
ADJUSTMENTS

5-1. INTRODUCTION

This section contains adjustments and checks that assure peak performance of the Signal Generator. The Generator should be readjusted after repair or failure to pass a performance test. Included in this section are test setups and illustrations that show locations of assemblies. Removal and disassembly procedures are given in Section VIII.

The Signal Generator requires a 1 hour warmup period prior to making any adjustments. Before doing the 10 MHz Reference Oscillator Adjustment it is recommended the Signal Generator be connected to the main power (line) for at least 10 days. If a 10 day warmup period is impractical, the 10 MHz Reference Oscillator Adjustment can generally be performed after a 24 hour warmup.

The power supply voltages should be checked before making any other adjustments. Generally, the order in which the adjustments are performed is not critical. An exception to this is in the Low Frequency Loop Section where adjustments tend to interact slightly with one another; therefore, it is recommended to do these adjustments in specific order. If all the adjustments are to be performed, it is recommended that the order of adjustments be performed as given in this section. The order of these adjustments follows the major signal flow of the Signal Generator (that is, power supply, reference section, phase lock loops, output section, and the digital control unit).

Determining the adjustments to be performed after a component failure and subsequent repair or a performance test failure is important. This will help keep the adjustment time to a minimum. Refer to the paragraph entitled Related Adjustments. After the repair and/or adjustment, performance tests are usually required to verify performance.

5-2. SAFETY CONSIDERATIONS

This section contains warnings and cautions which must be followed for your protection and to avoid damage to the equipment.

WARNINGS

Maintenance described in this section is performed with power supplied to the instrument and with protective covers removed. Maintenance should be performed only by service trained personnel who are aware of the hazard involved (for example, fire and electrical shock). Where maintenance can be performed without power applied, the power should be removed.

A pin-to-pin voltage difference of 60 Vdc may be found on many of the Generator's circuit board connectors. Be careful while working on the circuit boards with power supplied to the instrument. If a circuit board is placed on an extender board, the possibility of coming in contact with 60 Vdc is greatly increased. Be careful while working on the circuit boards with power supplied. Work with one hand. Do not touch the extender board.

The adjustment procedures do not require access to the interior of the power supply. If it becomes necessary to work on the power supply for any reason, refer to the power supply schematics for important warnings about high voltage.

When working near the back of the Generator, take care not to let long hair be drawn into the fan. This could result in personal injury.

Capacitors inside the instrument may still be charged even if the instrument has been disconnected from its source of supply.

Before the instrument is switched on, all protective earth terminals, extension cords, auto-transformers and devices connected to it should be connected to a protective earth grounded socket. Any interruption of the of the protective earth grounding will cause a potential shock hazard that could result in personal injury.

Whenever it is likely that the protection has been impaired, the instrument must be made inoperative and be secured against any unintended operation.

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WARNING (Cont'd)

Only 250V normal blow fuses with the required rated current should be used. Do not use repaired fuses or short circuited fuseholders. To do so could cause a shock or fire hazard.

CAUTION

Do not unplug the A4A7 AGC board or the A4A9 Modulation board unless the instrument is unplugged or switched to standby. The A4A7 and A4A9 boards contain CMOS devices which may be damaged if the board is removed when the power is on.

5-3. EQUIPMENT REQUIRED

Each adjustment procedure contains a list of required test equipment. The test equipment is identified by callouts in the test setup diagrams included with each procedure.

If substitutions must be made for the recommended test equipment, refer to the Recommended Test Equipment table in Section I for the minimum specifications. It is important that the test equipment meet the critical specifications listed in the table if the Generator is to meet its performance requirements.

A service accessory kit, Hewlett-Packard accessory number 11714A, is required for servicing and troubleshooting the Signal Generator.

5-4. FACTORY SELECTED COMPONENTS

Factory selected components are identified on the schematics and parts list by an asterisk which follows the reference designator. The normal value or range of the components are shown. The manual change sheets will provide updated information pertaining to the selected components. Table 5-1 lists the reference designator, the process used in selecting a particular value, the normal value range, and the service sheet where the component part is shown.

5-5. POST-REPAIR ADJUSTMENTS

Table 5-2 lists the adjustments related to repairs or replacement of any of the assemblies.

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Table 5-1. Factory Selected Components (1 of 5)

Reference Designator	Service Sheet	Range of Values	Process of Selection
A3A3R88 A3A7R1 A3A9R14	47 51 52	4.7 kΩ—10 kΩ 1 kΩ—5.11 kΩ 82.5Ω—162Ω	These resistors should only need selection if: 1. The tank circuit inductor or varactor diodes were changed in the related VCO and: 2. The Generator subsequently failed the SSB Phase Noise or Harmonics and Spurious performance tests (bw might be too wide), or frequency switching speed is too slow (bw might be too narrow). For A3A3R88 and A3A7R1, increasing resistance decreases bandwidth. For A3A9R14, increasing resistance increases bandwidth.
A3A4R4	48	5.62Ω—14.7 kΩ	Selected to center the adjustment range of A3A4R1 (see paragraph 5-16).
†A3A7R5	51	2.15k to 6.81k	R5 is selected to center the adjustment range of POSITION pot A3A7R2. Decrease the value of R5 to lower the range of A3A7R2; increase the value of R5 to raise the range.
A3A7R27	51	1.47 kΩ—100 kΩ	R27 affects loop bandwidth. With the Signal Generator set to 9.9 MHz, the sum loop VCO bandwidth should be 100 kHz minimum to 200 kHz maximum (with less than 3 dB peaking). If the loop bandwidth of the sum loop is too wide, R27 must be increased; if the bandwidth is too narrow, R27 must be decreased.
A3A10R1	53	26.1Ω—100Ω	Set the Generator to 321 MHz, FM, 10 kHz peak deviation and EXT DC. Apply negative dc voltage (<–1V) to front panel MODULATION INPUT so that the signal at A3A8TP1 is approximately 110 MHz. Select R1 at approximately 150 kHz below the carrier level of spurious signal ≤–70 dBc. If this level cannot be obtained, check A4A6R51. Then, reselect R1.
A4A1L10	34	13 nH—48 nH	L10 is selected for a flat frequency response of the 3 dB amplifier (at the midband input; A4A1J1).
A4A1R11, R106 A4A1R10 A4A1R12	34 34 34	5.8Ω—38.3Ω None, or 909Ω—147Ω None, or 909Ω—147Ω	These resistors form a pad that attenuates the signal to give +16 dBm at A4A1J4. Attenuation / Series Resistor (R11, R106) / Shunt Resistors (R10, R12) 0 dB / 2—11.6Ω Chip resistors in parallel / None 1 dB / 2—11.6Ω Chip resistors in parallel / 909Ω 2 dB / 12.1Ω / 464Ω 3 db / 17.8Ω / 287Ω 4 dB / 23.7Ω / 283Ω 5 dB / 31.6Ω / 178Ω 6 dB / 38.3Ω / 147Ω

†Backdating information in Section VII.

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Table 5-1. Factory Selected Components (2 of 5)

Reference Designator	Service Sheet	Range of Values	Process of Selection
A4A1R41	34	46.4Ω—68.1Ω	A4A1R41 is selected for minimum dc shift between the 3 frequency bands so that no dc spike is output from the Output Amplifier. A digital voltmeter is connected to A4A1TP5. The Signal Generator is then set to switch between the three bands. There should be no more than 50 mV (maximum) change in voltage at TP5 through the shift sequence.
A4A1R67	35	17.8Ω—41.2Ω	Set current to the first stage of the output microcircuit so that there are minimum harmonics (at least 30 dB below carrier frequency) at the output.
A4A3R19 A4A3R21 A4A3R23	32 32 32	None or 909Ω—147Ω 5.62Ω—38.3Ω None or 909Ω—147Ω	Verify that the signal level at A4A3J1 is −16 dBm. Choose values for the attenuator pad formed by R19, R21, and R23 so that the signal level at A4A1J2 is as close as possible, but not less than, +10 dBm. Values for the pads are given in the chart below. Attenuation / Resistor (R21) / Resistors (R19, R23) 0 dB — 5.62Ω — None 1 dB — 5.62Ω — 909Ω 2 dB — 12.1Ω — 464Ω 3 dB — 17.8Ω — 287Ω 4 dB — 23.7Ω — 237Ω 5 dB — 31.6Ω — 178Ω 6 dB — 38.3Ω — 147Ω
A4A4R40	30	42.2 kΩ—61.9 kΩ	R40 is selected for +1.0 dBm at the A4A4J4 output (120—640 MHz).
A4A5R1 A4A5R3 A4A5R7	31 31 31	None or 870Ω—116Ω 5.8Ω—52.8Ω None or 870Ω—116Ω	Selected for minimum spurs at A4A1J4. Connect a 1 dB step attenuator between A4A4J3 and A4A5J1. Connect a spectrum analyzer to A4A1J4. Set the Signal Generator to 40 MHz (+10 dBm) and the spectrum analyzer for a center frequency of 40 MHz (with a 1 MHz span) and a reference level of +10 dBm. Now, set the Signal Generator to 120 MHz and set the step attenuator for a minimum amplitude level at 40 MHz. Repeat this procedure for the following frequencies: Freq. of Carrier — Freq. of Spur 120 MHz ..... 40 MHz 110 MHz ..... 80 MHz 100 MHz ..... 120 MHz 90 MHz ..... 160 MHz

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Table 5-1. Factory Selected Components (3 of 5)

Reference Designator	Service Sheet	Range of Values	Process of Selection
A4A5R7 (Cont'd)			Record the amount of attenuation of the 1 dB step attenuator and insert the appropriate pad (formed by R1, R3 and R7) as shown on the following chart: Attenuation / Series Resistor (R3) / Shunt Resistors (R1, R7) 0 dB / 2—11.6Ω chip resistors in parallel / None 1 dB / 2—11.6Ω chip resistors in parallel / 870M 2 dB / 11.6Ω / 436Ω 3 dB / 17.6Ω / 287Ω 4 dB / 23.8Ω / 220Ω 5 dB / 30.4Ω / 178Ω 6 dB / 37.3Ω / 150Ω 7 dB / 44.8Ω / 130Ω 8 dB / 52.8Ω / 116Ω
A4A6R4	39	4.22 kΩ—5.62 kΩ	Set the Generator to 100 MHz with Special Function 51 selected. Inject a 1 kHz sine wave at 2.83 Vrms into the AUX FM INPUT. Select A4A6R4 for actual peak deviation of 100 ±5 kHz at the Generator's RF OUTPUT.
A4A6R7	39	3.16 kΩ—5.11 kΩ	A4A6R7 is chosen so that A4A6R9 is in the center of its range when the FM deviation called for on the front panel is present at the RF output.
A4A6R21—R24 A4A6R29 A4A6R32	39 39 39	No limit 2.61 kΩ, 3.16 kΩ, 3.83 kΩ 1.47 kΩ, 2.15 kΩ, 2.87 kΩ	Adjustments need only be made when the varactors are replaced. The adjustment procedure is complicated and requires a dedicated test setup. It is recommended that this board be replaced with a new board from the factory in the event that repair or adjustment becomes necessary.
†A4A6R56 †A4A6R57 †A4A6R58	39	1—6 dB	Set the Generator to FM, 30 kHz peak deviation and EXT DC. Apply negative dc voltage (<–1V) to front panel MODULATION INPUT so that the signal at A4A10J5 is approximately 20.025 MHz. Select R56, R57 and R58 for a level between – 13 and –18 dBm. Check for spurious signal at approximately 19.875 MHz. Its level should be <–73 dBc. If not, increase the level of the 20.025 MHz signal (–13 dBm maximum). Attenuation (dB) / R56Ω / R57Ω / R58Ω 1 / 825 / 6.8 / 825 2 / 422 / 12.1 / 422 3 / 287 / 17.8 / 287 4 / 215 / 24.6 / 215 5 / 178 / 31.6 / 178 6 / 147 / 38.3 / 147

†Backdating information in Section VII.

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Table 5-1. Factory Selected Components (4 of 5)

Reference Designator	Service Sheet	Range of Values	Process of Selection
A4A7C18, C35 A4A7C19, C36 A4A7C25, C37 A4A7C26, C38	37 37 37 37	4700—8200 pF 8200 pF—0.015 μF 0.047—0.2 μF 0.047—0.2 μF	Refer to Adjustment 5-31.
A4A7L6	37	270 μH—3.3 mH	This inductor is selected to minimize peaking in the AGC loop, with 0 to 800 kHz applied to A4A7TP3. Peaking should not exceed 5 dB. Increasing inductance should decrease peaking.
† A4A9C41	40	10—820 pF	C41 should only need selection if: 1. One of the High Frequency Loops VCOs (A8A1 or A8A2) is replaced and, 2. The Generator subsequently fails the performance test for FM Indicated Accuracy. Set the Generator to 348 MHz, FM 100 kHz, EXT AC and 0 dBm. Obtain an external modulating signal of 1 kHz at 1V peak (0.707 Vrms) from a test oscillator and measure the Generator's modulation on a modulation analyzer. Adjust A4A6R9, MOD LEVEL, on the FM VCO assembly f/r an FM positive peak reading of 100 kHz. Set the test oscillator frequency to 20 kHz, being careful not to change the output level. Measure the Generator's positive peak deviation at 615 MHz and 348 MHz. Then, calculate ΔkHz, where ΔkHz = [102.4 — (deviation at 615 MHz)] + [(deviation at 348 MHz) —98.5]. Select C41 according to the following table. Δ kHz / Value / HP Part Number +1.2 / 820 pF / 0160-3761 +0.9 / 680 pF / 0160-2599 +0.7 / 560 pF / 0160-3789 +0.4 / 470 pF / 0160-0571 0 / 330 pF / 0160-3694 -0.4 / 220 pF / 0160-0570 -0.6 / 150 pF / 0160-4764 -0.8 / 100 pF / 0160-3877 -1.1 / 10 pF / 0160-3874 Do not select values other than those listed above.
† A4A9R74	40	1.78 kΩ to 2.61 kΩ	Set the Generator to 100 MHz, +0 dBm, FM, 100 kHz peak deviation and EXT AC. Apply an audio input signal of 0.707 Vrms amplitude and 200 Hz to front panel MODULATION INPUT. Decrease the modulation rate until status code 11 is indicated. The modulation rate should be between 150 and 200 Hz. Increase the value of R74 if status code 11 is indicated for a modulation rate greater than 200 Hz; decrease the value of R74 if status code 11 is indicated for a modulation rate less than 150 Hz.

† Backdating information in Section VII

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Table 5-1. Factory Selected Components (5 of 5)

Reference Designator	Service Sheet	Range of Values	Process of Selection
†A6A1R46	19	20Ω—40Ω	Connect a 10 MHz (+7.5 dBm) signal to the EXTERNAL REFERENCE INPUT of the Signal Generator. Select R46 for ≥10 dBm at the A6A1J2 output (160 MHz).
†Backdating information in Section VII			

Table 5-2. Post-Repair Adjustment Procedures

Assembly Replaced or Repaired	Related Adjustments
A1A1 to A1A3	None
A2A1	None
A2A2	5-34
A2A3 to A2A9	None
A2A11	5-32
A3A1	None
A3A3	5-15, 5-19
A3A4	5-16, 5-19
A3A5	5-19
A3A6	None
A3A7	5-17
A3A8	5-18
A3A9, A3A10	None
A4A1	5-28, 5-29, 5-31, 5-32
A4A2	5-26, 5-27
A4A3, A4A4	None
A4A5	5-25
A4A6	None
A4A7	5-30, 5-31, 5-32
A4A8	None
A4A9	5-14
A5A1, A5A2	None
A5A3	5-13
A5A4	None
A5A5	5-12
A6A1	5-7, 5-8
A6A2	5-7, 5-11
A6A3	5-7, 5-9, 5-10
A6A4	5-23, 5-24
A6A5	5-21, 5-22
A6A6 to A6A8	None
A6A9	5-20
A7A1, A7A2	5-6
A7A3, A7A4	None
A8A1, A8A2	None
A8A3	5-7, 5-8, 5-9, 5-10, 5-11
A8A4, A8A5	None

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ADJUSTMENTS

5-6. POWER SUPPLY VOLTAGE ADJUSTMENT

REFERENCE: Service Sheets 56 and 57.

DESCRIPTION: The +5.2Vdc, +20Vdc, −10Vdc and −40Vdc power supply output voltages are adjusted.

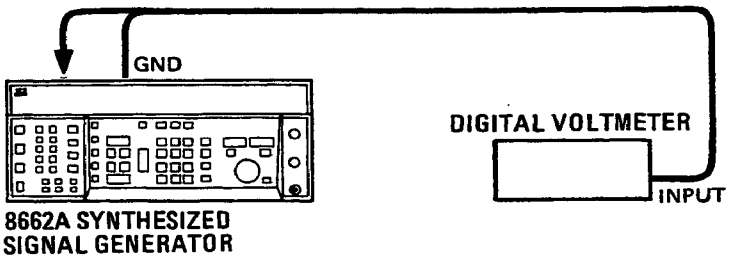


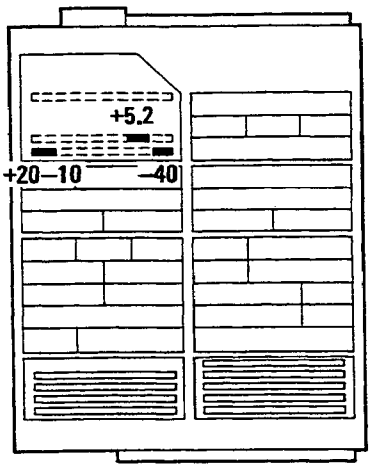
Figure 5-1. Power Supply Voltage Adjustment Setup

EQUIPMENT: Digital Voltmeter (DVM) ..... HP 3466A

PROCEDURE:

WARNING

These test procedures do not require access to the interior of the power supply. If it becomes necessary to work on the power supply for any reason, care must be taken due to internally exposed high voltages. Refer to the warnings on the schematics of the power supply section for further information.



1. Connect the test leads of the DVM to ground and the +5.2V test point (through the top cover of the power supply section) of the Signal Generator.
2. Set the +5.2V pot to +5.20 ± .01V. AC ripple should be no more than 10 mV.
3. Connect the DVM to the +20V test point.
4. Set the +20V adjustment pot so that the DVM reads +20.00 ± .05V. AC ripple should be no more than 10 mV.
5. Connect the DVM to the −10V test point.
6. Set the −10V adjustment pot so that the DVM reads −10.00 ± .02V. AC ripple should be no more than 10 mV.
7. Connect the DVM to the −40V test point.
8. Set the −40V adjustment pot so that the DVM reads −40.00 ± .10V. AC ripple should be no more than 10 mV.

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ADJUSTMENTS

5-7. 10 MHz REFERENCE OSCILLATOR ADJUSTMENT

REFERENCE: Service Sheet 18.

DESCRIPTION: The 10 MHz OUTPUT from the Signal Generator (rear panel) is compared against a frequency standard with a long term stability greater than 1×10^{-10}. The frequency of the reference oscillator is fine tuned for minimum drift using the 10 MHz Reference Oscillator Adjustment.

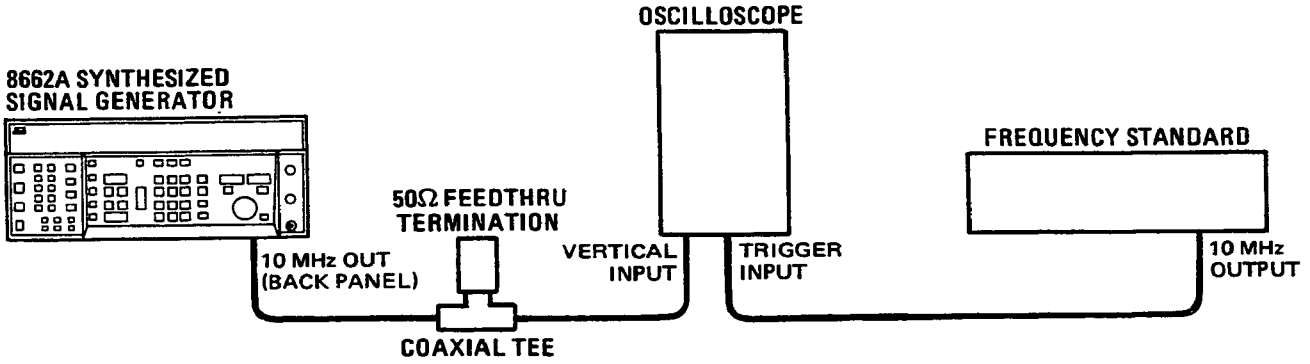


Figure 5-2. 10 MHz Reference Oscillator Adjustment Setup

EQUIPMENT:

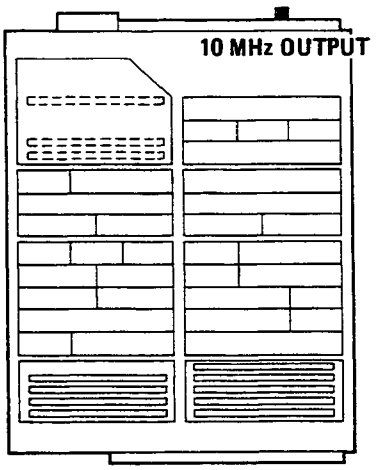
Frequency Standard	HP 5065A
Oscilloscope	HP 1704A

PROCEDURE:

WARNING

Be careful working near the fan at the back of the Generator. Long hair can be drawn into the fan causing personal injury.

1. Connect an RF cable from the frequency standard to the vertical input of the oscilloscope.
2. Adjust the oscilloscope so that at least one cycle of the sine waveform can be viewed on the oscilloscope screen.
3. Now, connect the equipment as shown in Figure 5-2.
4. Depress the rear panel frequency reference INT 10 MHz switch.
5. Set the FREQ. ADJ. (back side of the Signal Generator; crystal oscillator assembly) so that the waveform on the oscilloscope does not drift more than one cycle in ten seconds.



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ADJUSTMENTS

5-8. 40 MHz CRYSTAL FILTER ADJUSTMENT

REFERENCE: Service Sheet 19.

DESCRIPTION: The 80 MHz OUTPUT signal at A6A1J1 is measured with a spectrum analyzer while A6A1C27, C31, C34, and C38 are adjusted for maximum 80 MHz output level.

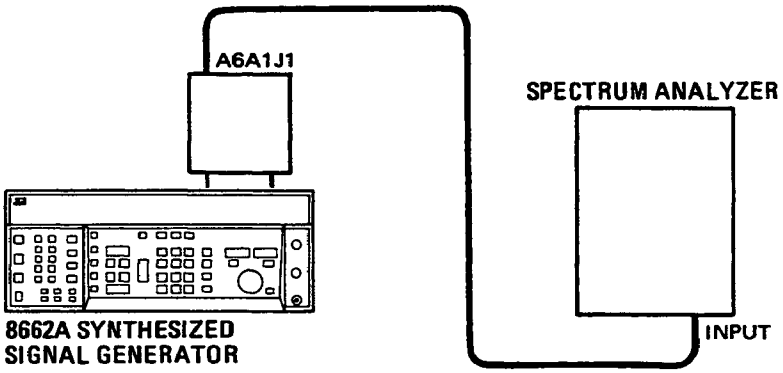
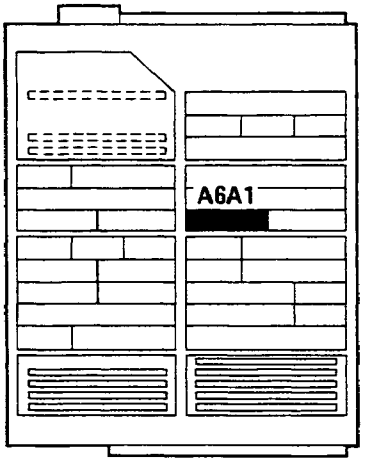


Figure 5-3. 40 MHz Crystal Filter Adjustment Setup

EQUIPMENT: Spectrum Analyzer, RF ..... HP 8558B/181T

PROCEDURE:

1. Place the A6A1 LF Multiplier Board on an extender board.
2. Set the Signal Generator's control for Special Function 00 (Press the Blue Key, Special and 00).
3. Set spectrum analyzer center frequency to 80 MHz, and reference level to +10 dBm.
4. Connect the 80 MHz OUTPUT, A6A1J1, to the spectrum analyzer.
5. Adjust variable capacitors A6A1C27, C31, C34, and C38 to obtain the maximum signal level on the spectrum analyzer. The signal level should be +3 to +6 dBm.



NOTE

These adjustments are interactive and several iterations may be required.

6. Check to see that the 10 MHz side bands (that is, 70 and 90 MHz) are >60 dB below the carrier.

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ADJUSTMENTS

5-9. 160 MHz AND 640 MHz BAND-PASS FILTER ADJUSTMENT

REFERENCE: Service Sheets 19 and 20.

DESCRIPTION: The 640 MHz signal at A6A3TP2 is measured with a spectrum analyzer while A6A3C13, C15, C16, C17 and C81 are adjusted for maximum 640 MHz output level.

NOTE

Variable capacitors A6A3C13, C15, C16, and C17 adjust the response of the 160 MHz Band-Pass Filter; A6A3C81 adjusts the response of 640 MHz Band-Pass Filter.

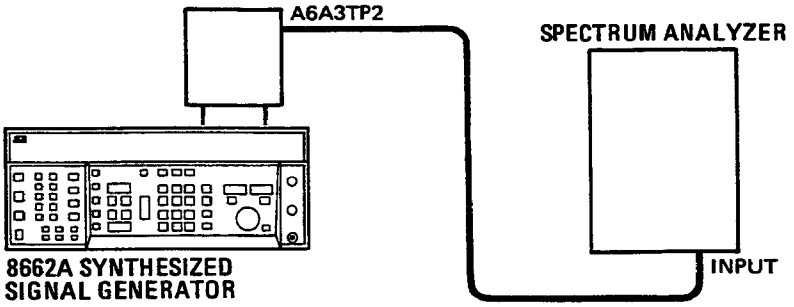
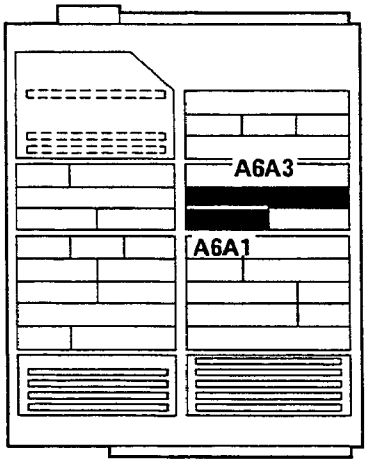


Figure 5-4. 160 MHz and 640 MHz Band-Pass Filter Adjustment Setup

EQUIPMENT: Spectrum Analyzer, RF ..... HP 8558B/181T



PROCEDURE:

1. Place the A6A3 HF Multiplier on an extender board. Connect an RF cable from the 160 MHz OUTPUT (A6A1J2) to the 160 MHz INPUT (A6A3J2).
2. Set the Signal Generator's control for Special Function 00 (press the Blue Key, Special, and 00).
3. Set spectrum analyzer center frequency to 640 MHz and reference level to +10 dBm.
4. Connect the spectrum analyzer input to A6A3TP2 (RF Test Point) using the special capacitor-coupled cable adaptor found in the service kit.
5. Adjust variable capacitors A6A3C13, C15, C16, and C17 to obtain the maximum signal level on the spectrum analyzer.

NOTE

Variable capacitors A6A3C13, C15, C16, and C17 are interactive and several iterations may be required.

6. Adjust variable capacitor, A6A3C81, for maximum output signal level. The signal level should be +1 to +10 dBm (typically +5 dBm).

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ADJUSTMENTS

5-10. 480 MHz BAND-PASS FILTER ADJUSTMENT

REFERENCE: Service Sheets 19 and 20.

DESCRIPTION: The 480 MHz signal at A6A3TP10 is measured with a spectrum analyzer while A6A3C48 is adjusted for maximum level at the output of the 480 MHz Band-Pass Filter.

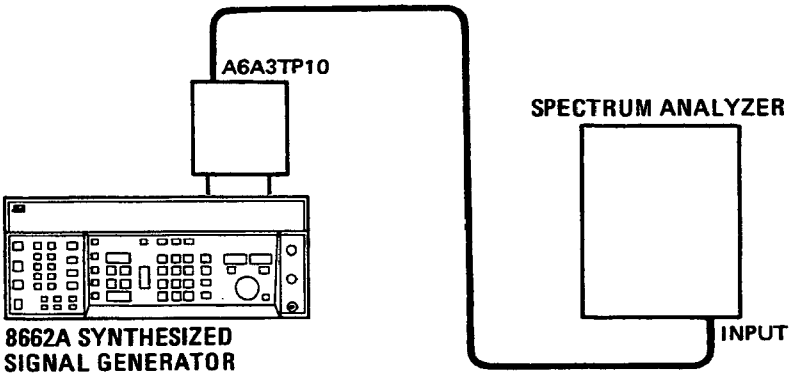
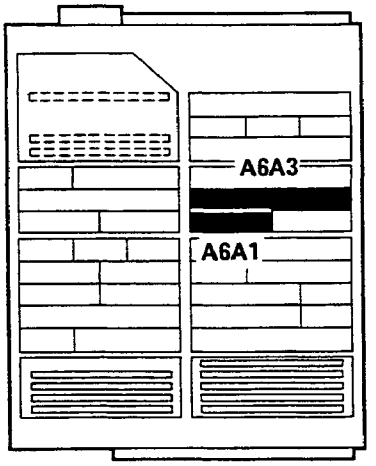


Figure 5-5. 480 MHz Band-Pass Filter Adjustment Setup

EQUIPMENT: Spectrum Analyzer, RF ..... HP 8558B/181T

PROCEDURE:

1. Place the A6A3 HF Multiplexer on an extender board. Connect an RF cable from the 160 MHz OUTPUT (A6A1J2) to the 160 MHz INPUT (A6A3J2).



2. Set the Signal Generator's control for Special Function 00 (press the Blue Key, Special, and 00).

3. Set spectrum analyzer center frequency to 480 MHz and reference level to +10 dBm.

4. Connect the spectrum analyzer input to A6A3TP10 (RF Test Point) using the special capacitor-coupled cable adaptor found in the service kit.

5. Adjust variable capacitor A6A3C46 to obtain the maximum signal level as viewed on the spectrum analyzer. The signal level should be −6 to +3 dBm (typically 0 dBm).

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ADJUSTMENTS

5-11. 140 MHz BAND-PASS FILTER ADJUSTMENT

REFERENCE: Service Sheets 19 and 21.

DESCRIPTION: The 140 MHz signal at A6A2J2 (60—140 MHz) is measured with a spectrum analyzer while A6A2C30 is adjusted for maximum level at the output of the 140 MHz Band-Pass Filter.

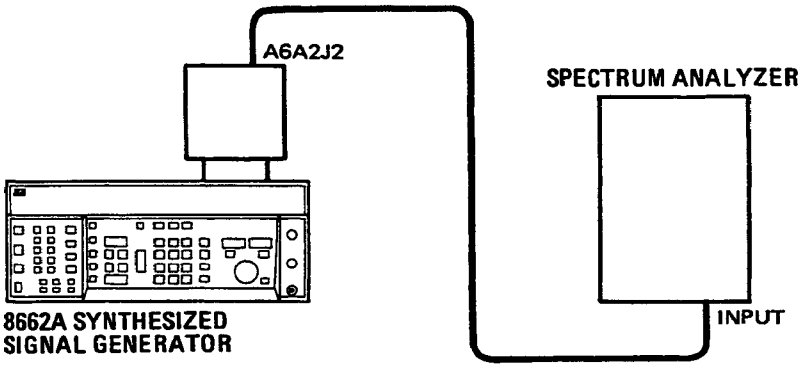
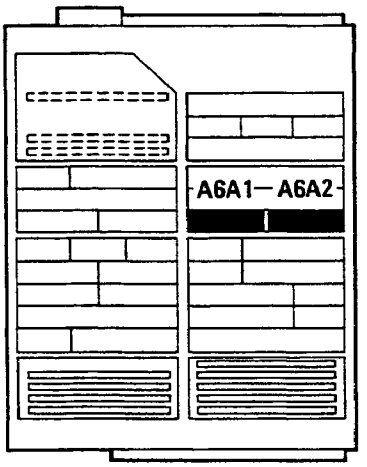


Figure 5-6. 140 MHz Band-Pass Filter Adjustment Setup

EQUIPMENT: Spectrum Analyzer, RF ..... HP 8558B/181T

PROCEDURE:

1. Place the A6A2 LO DRIVE on an extender board. Connect an RF cable from the 80 MHz OUTPUT (A6A1J1) to the 80 MHz INPUT (A6A2J1).
2. Set the Signal Generator's control for Special Function 00 (press the Blue Key, Special, and 00).
3. Set spectrum analyzer center frequency to 140 MHz and reference level to +10 dBm.
4. Connect the spectrum analyzer input to the 60 MHz—140 MHz OUTPUT (A6A2J2).
5. Adjust variable capacitor A6A2C30 to obtain maximum signal level on the spectrum analyzer. The signal level should be +3 dBm to +10 dBm (typically +9 dBm).



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5-12. FRACTIONAL N PRETUNE ADJUSTMENT

REFERENCE: Service Sheet 43.

DESCRIPTION: An oscilloscope is set up to monitor the FN Loop error voltage while the Signal Generator is sweeping between two selected frequencies. The A5A5R53 OFFSET pot is adjusted to center the ac components of the FN Loop error voltage on a +3 Vdc offset level. Then the A5A5R24 GAIN pot is adjusted to minimize the ac components.

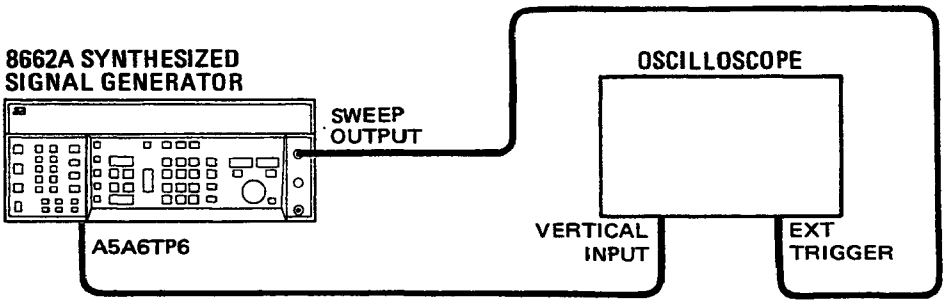
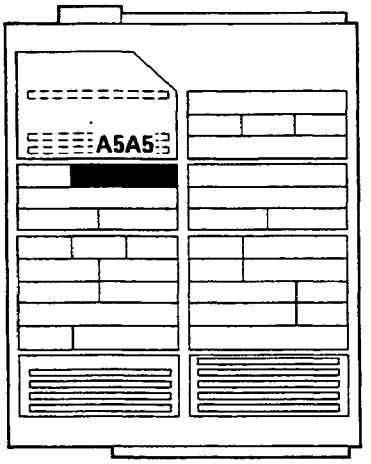


Figure 5-7. Fractional N Pretune Adjustment Setup

EQUIPMENT: Oscilloscope (with divide-by-10 probe) .. HP 1740A

PROCEDURE:

1. Connect the scope probe to A5A6TP6 (Fractional-N Loop Mother Board). Set the oscilloscope's time base controls to 1 ms per division and external trigger (negative slope); set the vertical controls to 0.1 volt per division with dc coupling.



2. Set the Signal Generator's controls as follows:

START FREQ	320 MHz
STOP FREQ	320.1 MHz
STEP SIZE	6.1875 kHz
TIME/STEP	0.5 ms
MODE	AUTO

3. Adjust the PRETUNE OFFSET, A5A5R53, so that the peak-to-peak FN Loop error voltage varies symmetrically around a +3 Vdc offset. Refer to Figure 5-8.
4. Adjust the PRETUNE GAIN, A5A5R24, to minimize the peak-to-peak FN Loop error voltage. It should read within 8 Vp-p centered on the +3 Vdc offset. Ignore the upper and lower overshoot (broken lines) when measuring the peak-to-peak swing.

NOTE

The Pretune Offset and Pretune Gain adjustments are interactive and several iterations may be required.

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ADJUSTMENTS

5-12. FRACTIONAL N PRETUNE ADJUSTMENTS (Cont'd)

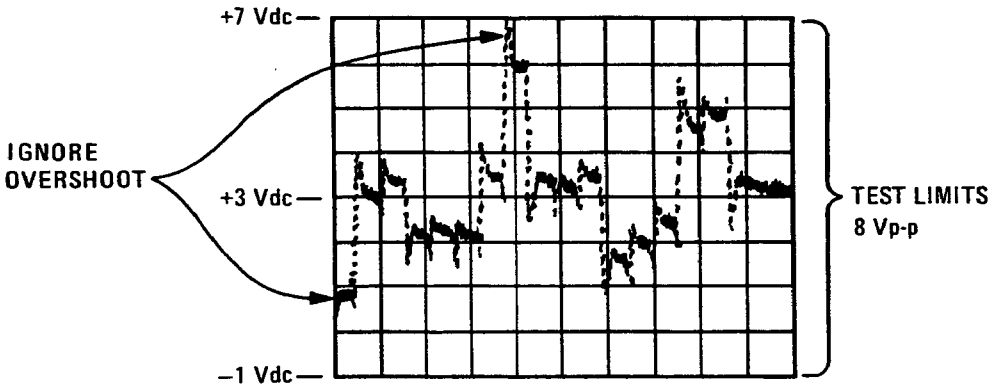

Figure 5-8. FN Loop Error Voltage (Time Base = 1 ms, Vertical Sensitivity = 1V)

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ADJUSTMENTS

5-13. FRACTIONAL N CORRECTION CURRENT ADJUSTMENT

REFERENCE: Service Sheets 42 and 43.

DESCRIPTION: The Fractional N Correction Current is adjusted to minimize spurious outputs located 10 kHz from the FN Loop VCO carrier frequency. Adjustments are made at VCO frequency settings of 100.090 MHz (for A5A3R40) and 100.099 MHz (for A5A3R39).

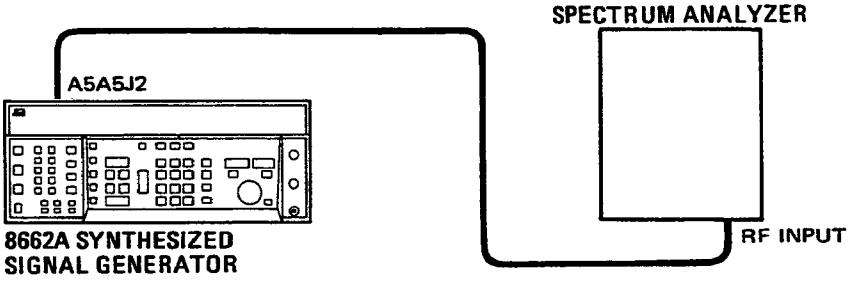
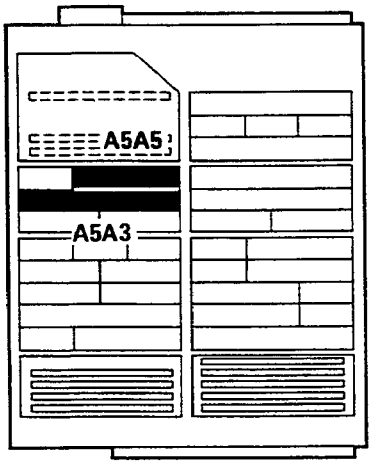


Figure 5-9. Fractional N Correction Current Adjustment Setup

EQUIPMENT: Spectrum Analyzer, RF ..... HP 8558B/181T

PROCEDURE:

1. Connect the spectrum analyzer's input to the 100 MHz to 200 MHz OUTPUT (A5A5J2).
2. Set the spectrum analyzer center frequency to 100.09 MHz, frequency span to 5 kHz per division, and resolution bandwidth of 1 kHz. Use reference level controls (set for 10 dB per division) to set signal peak to top graticule line on display.
3. Set the Signal Generator's controls for a frequency of 320.099910 MHz (which corresponds to a VCO frequency of 100.090 MHz).
4. Adjust CORRECTION CURRENT DF2, A5A3R40, to minimize the spurious output located 20 kHz away from the carrier. The spurious output should be at least 45 dB below the carrier.



5. Set the Signal Generator's controls for a frequency of 320.099901 MHz (which corresponds to a VCO frequency of 100.099 MHz).
6. Change the spectrum analyzer's center frequency to 100.099 MHz.
7. Adjust CORRECTION CURRENT DF1, A5A3R39, to minimize the spurious output located 10 kHz away from the carrier. The spurious output should be at least 45 dB below the carrier.

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ADJUSTMENTS

5-14. MODULATION SECTION ADJUSTMENT

REFERENCE: Service Sheets 38, 39 and 40.

DESCRIPTION: All the adjustments in the modulation section are interrelated and are performed together. The dc offsets of the internal amplifiers are set to zero. Internal signal levels are adjusted to obtain full scale FM deviation. The AM Level adjustment in the Output Section (paragraph 5-33) must have been performed and the AM + FM adjustment is made here which controls AM accuracy in the AM + FM mode. The detector which controls the front panel EXTERNAL SOURCE HI and LO lights is adjusted.

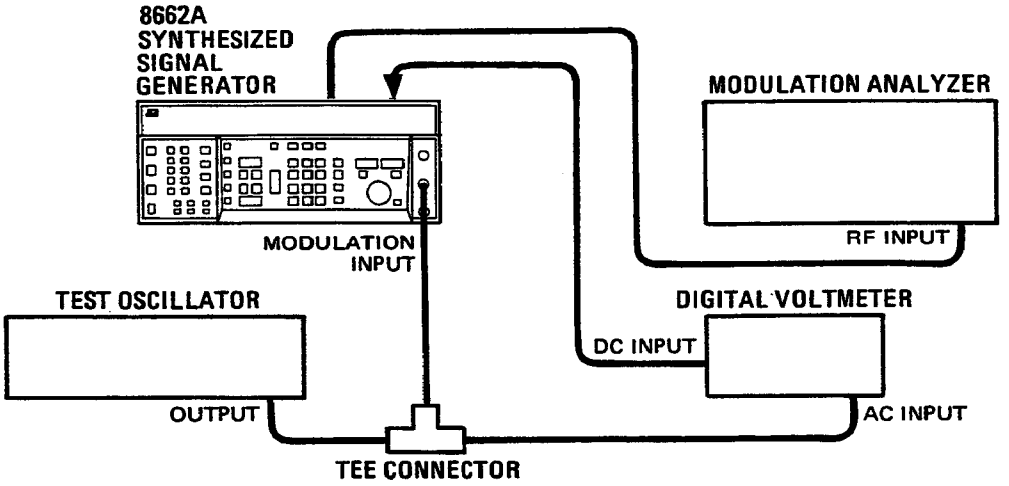


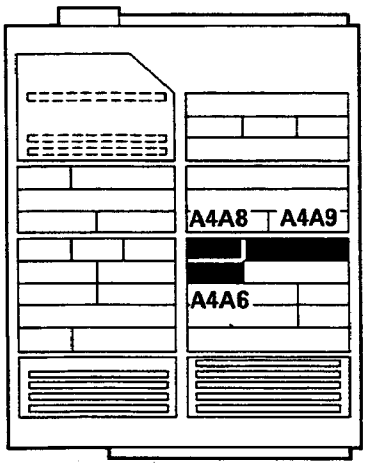
Figure 5-10. Modulation Section Adjustment Setup

EQUIPMENT:

Modulation Analyzer	HP 8901A
Oscillator, Test	HP 651B
Digital Voltmeter (DVM)	HP 3466A

PROCEDURE:

1. Set the Signal Generator to FM, EXT DC, 0.0 kHz deviation. Measure the voltage at A4A6TP1 with the DVM. Adjust DC OFFSET, A4A6R18, for a DVM reading of 8.00 ± 0.01 Vdc.
2. Set the Generator to EXT AC. Adjust FREQ. ADJ., A4A6C18, for a DVM reading of 8.00 ± 0.05 Vdc.



CAUTION

Don't unplug the A4A9 board unless the instrument is unplugged or switched to standby. The A4A9 board contains CMOS devices which will be damaged if the board is removed when the power is on.

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5-14. MODULATION SECTION ADJUSTMENT (Cont'd)

3. Set the Generator to EXT DC. Put a 50Ω load on the front panel MODULATION INPUT. Extend the A4A9 assembly and monitor A4A9TP4 with the DVM. Adjust the EXTERNAL OFFSET ADJUST, A4A9R30, for a DVM reading of .000 ±0.001 Vdc.

4. Set the Generator to EXT AC. Monitor A4A9TP2 with the DVM. Adjust the D/A OFFSET, A4A9R57, for a DVM reading of .000 ±0.001 Vdc.

5. Connect a cable from A4A8J2 (14 MHz FM) to the input of the modulation analyzer. Remove the 50Ω load from the front panel MODULATION INPUT connector. Set the Generator to FM, 100 kHz deviation, EXT AC source. Connect the output of the audio oscillator to the MODULATION INPUT of the Signal Generator. Set the output of the audio oscillator to 1 kHz and 0.7070 ± .0001 Vrms (corresponding to 100 kHz peak deviation). Adjust the MOD LEVEL, A4A6R9, for a reading of 100.0 ± 0.1 kHz FM peak deviation on the modulation analyzer.

6. Set the Signal Generator to INT 1k modulation. Adjust the 1 kHz INTERNAL LEVEL, A4A9R12, for a reading of 100.0 ± 0.1 kHz FM peak deviation on the modulation analyzer.

7. Set the Signal Generator to INT 400 modulation. Adjust the 400 Hz INTERNAL LEVEL, A4A9R10, for a reading of 100.0 ± 0.1 kHz FM peak deviation on the modulation analyzer.

8. Set the Generator to EXT AC. Adjust the audio oscillator output to 0.7070 ± 0.0001 Vrms using the DVM. Turn the DET, A6A9R50, clockwise until the front panel EXTERNAL SOURCE LO light comes on or the end of the adjustment is reached. Note the position of the pot. Turn the DET adjustment counterclockwise until the EXTERNAL SOURCE HI light comes on or the end of adjustment is reached. Set the pot midway between the two points.

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ADJUSTMENTS

5-15. N-LOOP ECL ADJUSTMENT

REFERENCE: Service Sheets 46 and 48.

DESCRIPTION: The A3A3R13 BIAS adjustment pot tunes the sensitivity of the circuitry which guides the loop to lock.

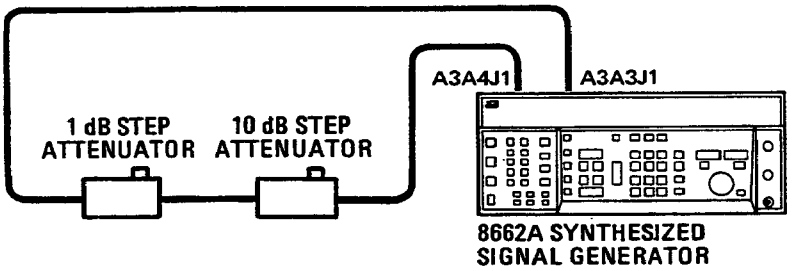


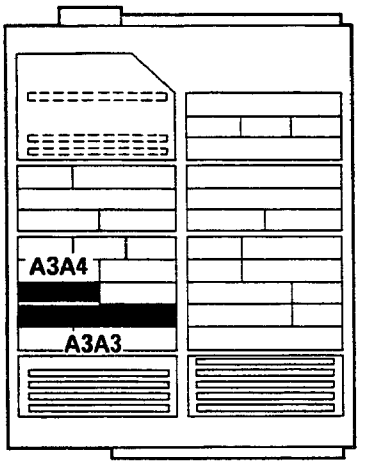
Figure 5-11. N-Loop ECL Adjustment Setup

EQUIPMENT:

Attenuator, 1 dB steps	HP 355C
Attenuator, 10 dB steps	HP 355D

PROCEDURE:

1. Connect the 1 dB and 10 dB step attenuators in series and install them between the A3A4J1 N-Loop VCO Output, and the A3A3J1 N-Loop Divider Input.



2. Set the Signal Generator as follows:

START FREQ	10.00 MHz
STOP FREQ	19.89 MHz
SET SIZE	0.1 MHz
SWEEP TIME/DIVISION	0.5 ms
SWEEP MODE	AUTO

3. Increase attenuation (using the two attenuators) from 0 dB to a point at which the loop just begins to break lock. This can be determined by viewing ERROR LED #03, on top of the A3A3 board.
4. Adjust the ECL BIAS pot, A3A3R13, so that ERROR LED #03 glows as dimly as possible.
5. Alternately increase attenuation and adjust the ECL BIAS pot until no further improvement in sensitivity can be made.
6. Recheck lower attenuations to insure that the loop remains locked.
7. The loop should lock with a minimum of 6 dB attenuation. Typical is 10 — 15 dB attenuation.

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ADJUSTMENTS

5-16. N-LOOP PHASE ERROR ADJUSTMENT

REFERENCE: Service Sheets 47 and 48.

DESCRIPTION: The open-loop VCO output is pretuned using a frequency counter. Then, the closed-loop phase error signal is adjusted with the POSITION and GAIN pots. POSITION affects the entire range of the VCO; GAIN affects primarily the lower frequencies.

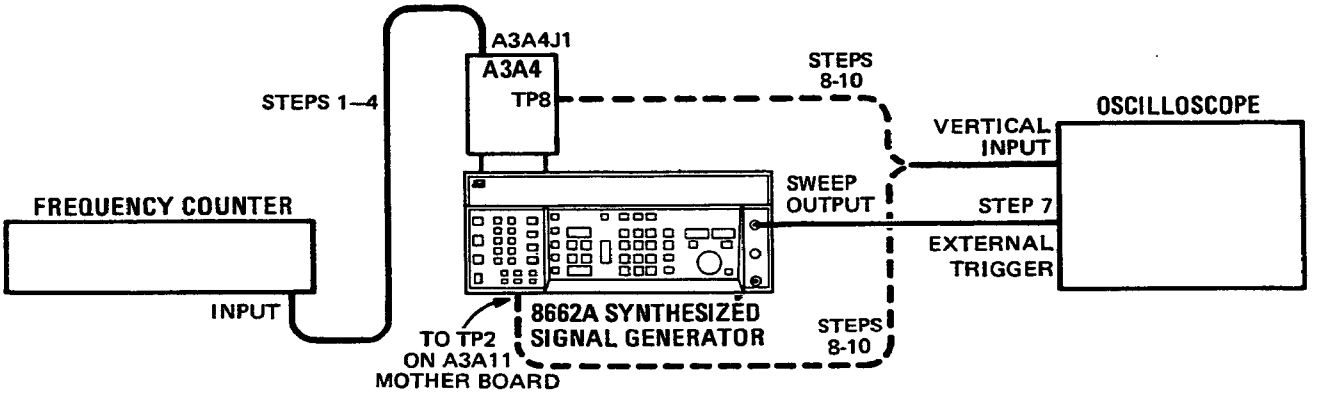


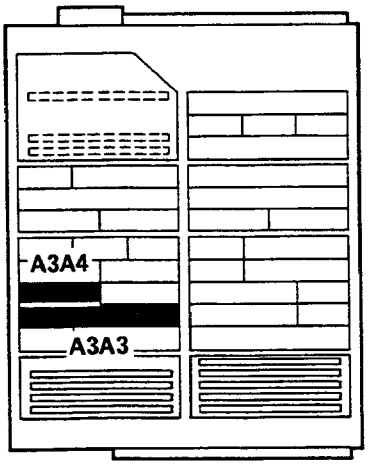
Figure 5-12. N-Loop Phase Error Adjustment Setup

EQUIPMENT:

Frequency Counter	HP 5328A Option 031
Oscilloscope	HP 1740A

PROCEDURE:

1. Remove the A3A3 assembly. This opens the phase lock loop. Connect the frequency counter to A3A4J1.
2. Select 329.9 MHz at the Generator's front panel. The frequency of A3A4J1 should be 221 ± 3 MHz. Adjust the POSITION pot, A3A4R1, if necessary to tune the frequency within this limit.
3. Select 320.0 MHz at the front panel. This time, adjust the GAIN pot, A3A4R3, for a counter reading of 122 ± 3 MHz.
4. Steps 2 and 3 are interactive and should be repeated until both frequencies are within limits.
5. Disconnect the counter from A3A4J1 and reconnect the original cable. Reinstall the A3A3 assembly, thus closing the loop.



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5-16. N-LOOP PHASE ERROR ADJUSTMENT (Cont'd)

6. Set the Signal Generator's controls as follows:

START FREQ	320.00 MHz
STOP FREQ	329.90 MHz
SET SIZE	0.1 MHz
TIME/STEP	0.5 ms
SWEEP MODE	AUTO

7. For purposes of setup, temporarily connect the Signal Generator's SWEEP OUTPUT to the oscilloscope's vertical input. Adjust the oscilloscope's horizontal controls for a full display width of one complete ramp.

8. Now, reconnect the Generator's SWEEP OUTPUT to the oscilloscope's external trigger input. If the A3A4 board is on an extender, connect A3A4TP8 to the oscilloscope's vertical input. Test point A3A11TP2 on the bottom of the Generator can be used, instead of A3A4TP8, if more convenient (see Figure 5-12).
9. Adjust POSITION pot (A3A4R1) and the GAIN pot (A3A4R3) until the displayed phase error signal is 0 ± 0.2V throughout the entire sweep (see Figure 5-13). If the POSITION pot does not have enough range, change the value of A3A4R4 within the limits described in Table 5-1.

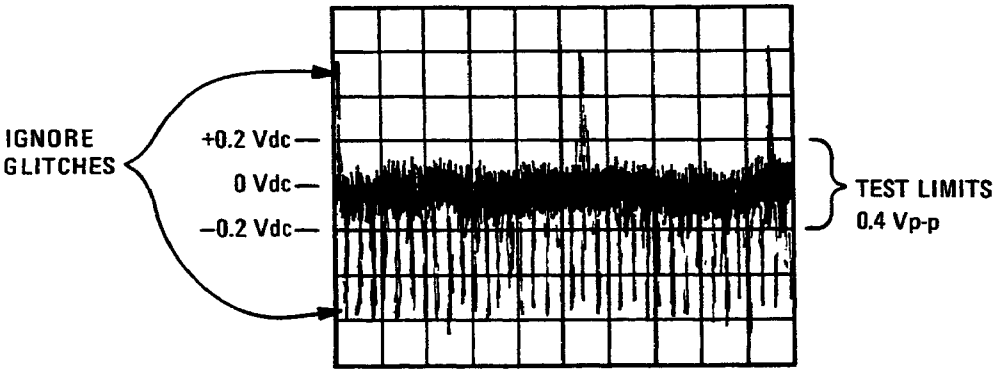

Figure 5-13. N-Loop Phase Error Signal Waveform (Adjusted Correctly at 0 ± 0.2V)

10. After completing this adjustment, confirm that the Low Frequency Section is functioning correctly by viewing ERROR LIGHTS #05, #04, and #03 (on the top covers of assemblies A3A10, A3A6, and A3A3, respectively). With the Signal Generator sweeping between 10 kHz and 1.2 GHz (1000 steps, 0.5 ms/step), these lights should either be glowing or flashing very dimly. When the SWEEP mode is disabled, these lights should not glow or flash.

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5-17. SUM LOOP PHASE ERROR ADJUSTMENT

REFERENCE: Service Sheet 51.

DESCRIPTION: The open-loop VCO output is pretuned using a frequency counter. Then, the closed loop phase error signal is adjusted with the POSITION and GAIN pots. POSITION affects the entire range of the VCO; GAIN affects the primarily the lower frequencies.

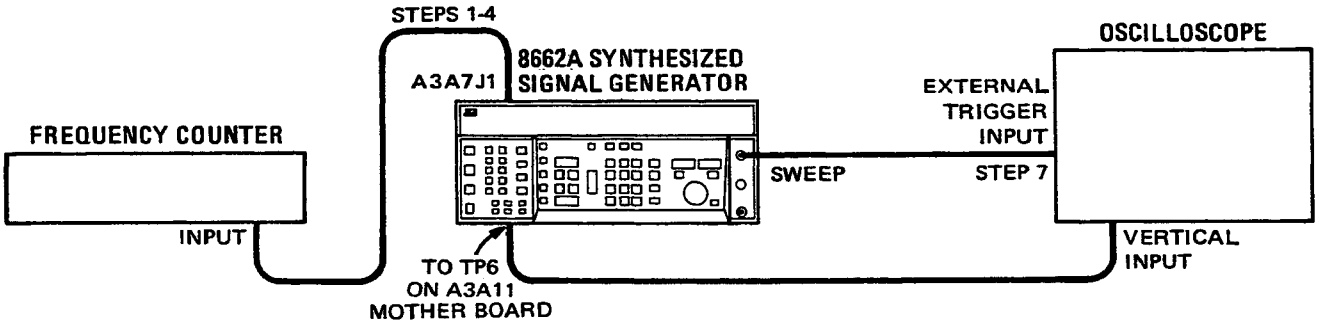
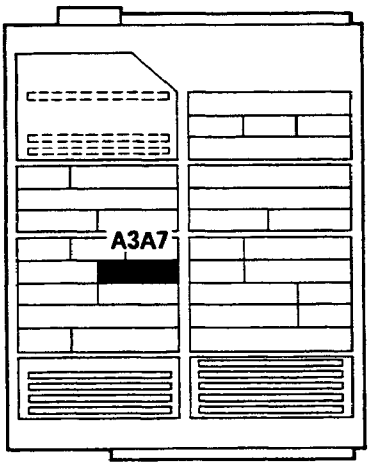


Figure 5-14. Sum Loop Phase Error Adjustment Setup

EQUIPMENT:
Frequency Counter ..... HP 5328A Option 031
Oscilloscope ..... HP 1740A

PROCEDURE:

1. On the A3A7 board, remove the jumpers labeled "A" and "B" (this opens the phase lock loop). Connect the frequency counter to A3A7J1.



2. Select 329.9 MHz at the Generator's front panel. The frequency of A3A7J1 should be 219 ± 3 MHz. Adjust the POSITION pot, A3A7R2, if necessary to tune the frequency within limits.

3. Select 320.0 MHz at the front panel. This time, adjust the GAIN pot, A3A7R3, for a counter reading of 120 ± 3 MHz.

4. Steps 2 and 3 are interactive and should be repeated until both frequencies are within limits.

5. Disconnect the counter from A3A7J1 and reconnect the original cable. Reconnect the jumpers at points "A" and "B", thus closing the loop.

6. Set the Signal Generator as follows:

START FREQ	320.00 MHz
STOP FREQ	329.90 MHz
SET SIZE	0.1 MHz
TIME/STEP	0.5 ms
SWEEP MODE	AUTO

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5-17. SUM LOOP PHASE ERROR ADJUSTMENT (Cont'd)

7. For purposes of setup, temporarily connect the Signal Generator's SWEEP OUTPUT to the oscilloscope's vertical input. Adjust the oscilloscope's horizontal controls for a full display width of one complete ramp.

8. Now, connect the Signal Generator's SWEEP OUTPUT to the oscilloscope's external trigger input. Connect a test probe from TP6 on the A3A11 Motherboard (bottom side of the instrument) to the vertical input of the oscilloscope.

9. Adjust the POSITION pot (A3A7R2) and GAIN pot (A3A7R3) on the top cover of A3A7 assembly until the displayed phase error signal is 0 ± 0.5V throughout the entire sweep.

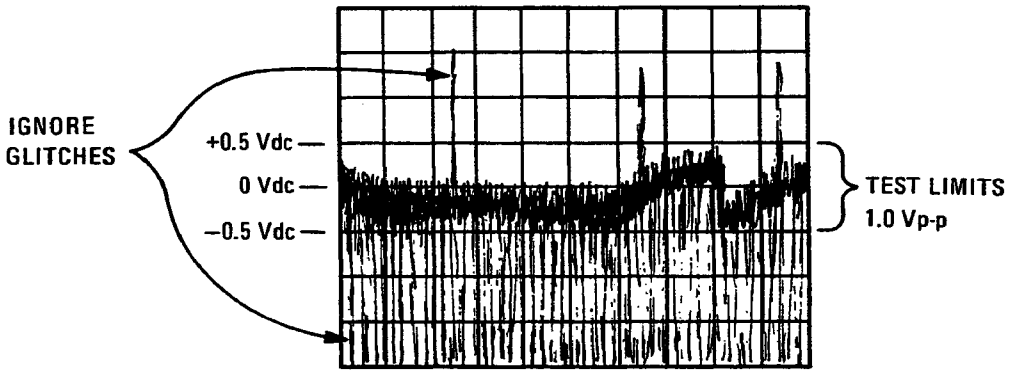

Figure 5-15. Sum Loop Phase Error Signal Waveform (Adjusted Correctly at 0 ± 0.5V)

10. After completing this adjustment, confirm that the Low Frequency Loop Section is functioning correctly by viewing ERROR LIGHTS #05, #04, and #03 (on the top covers of A3A10, A3A6 and A3A3, respectively). With the Signal Generator sweeping between 10 kHz and 1.2 GHz, these lights should either be glowing or flashing very dimly. When the SWEEP mode is disabled, these lights should not glow or flash.

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5-18. FM SUM LOOP PRETUNE ADJUSTMENT

REFERENCE: Service Sheet 54.

DESCRIPTION: The open-loop VCO frequency is adjusted with the POSITION and GAIN pots acting upon the pretune current only.

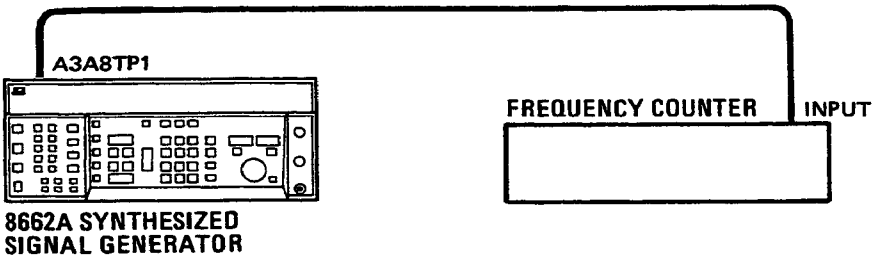
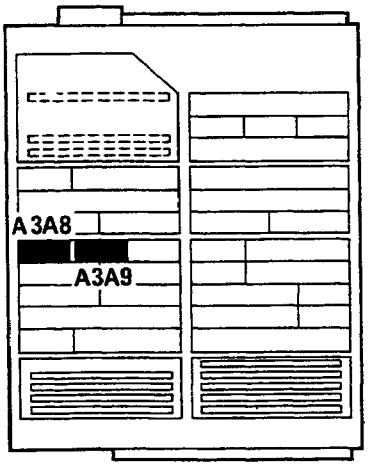


Figure 5-16. FM Sum Loop Pretune Adjustment Setup

EQUIPMENT: Frequency Counter ..... HP 5328A Option 031

PROCEDURE:

1. Remove the A3A9 assembly. This opens the phase lock loop. Connect the frequency counter to A3A8TP1.



2. Set the Generator to 329.90 MHz with MODULATION and AMPLITUDE turned off.

3. Adjust the POSITION pot, A3A8R3 (through the top cover of A3A8), for a counter reading of 199.0 ± 0.5 MHz.

4. Set the Generator to 320.00 MHz.

5. Adjust the GAIN pot, A3A8R4, for a reading of 100.0 ± 0.5 MHz.

6. Steps 2 through 5 are interactive and should be repeated until both frequencies are within limits.

7. After completing this adjustment, confirm that the entire Low Frequency Loop Section is functioning correctly by viewing ERROR LIGHTS #05, #04, and #03 (on the top covers of A3A10, A3A6 and A3A3, respectively). With the Signal Generator sweeping between 10 kHz and 1.2 GHz, these lights should either be glowing or flashing very dimly. When the SWEEP mode is disabled, these lights should not glow or flash.

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ADJUSTMENTS

5-19. N LOOP FRACTIONAL-N SPUR ADJUSTMENT

REFERENCE: Service Sheets 47, 48, and 57.

DESCRIPTION: Spurs at 1, 2, 3, and 4 MHz above the carrier (out of the A3A4 assembly) are adjusted for minimum amplitude.

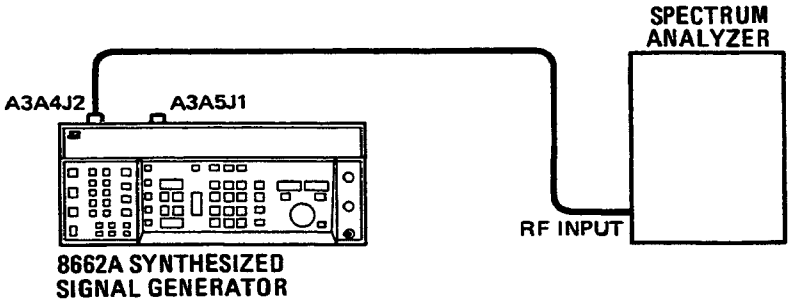
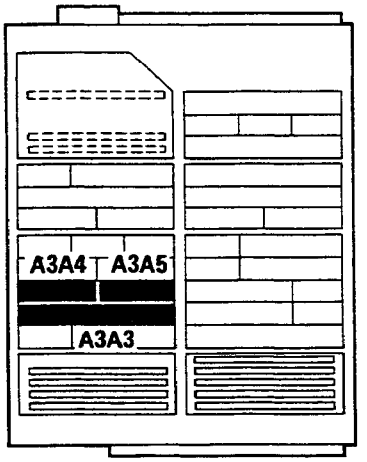


Figure 5-17. N Loop Fractional-N Spur Adjustment Setup

EQUIPMENT: Spectrum Analyzer, RF ..... HP 8558B/181T

PROCEDURE:

1. Disconnect the N Loop VCO Output, A3A4J2, from the Sum Loop Mixer Input, A3A5J1. Connect an RF cable from A3A4J2 to the input of the spectrum analyzer.



2. Set the Signal Generator as follows:

   FREQUENCY ..... 12.9 MHz
   Amplitude ..... AMPTD OFF
   Modulation ..... MOD OFF

3. Set the spectrum analyzer as follows:

   Center Frequency ..... 151 MHz
   Frequency Span/Division ..... 1 MHz
   Resolution Bandwidth ..... 30 kHz
   Video Filter ..... Minimum noise floor

4. Adjust the 1 MHz notch filter, through the top cover of A3A3, until the spur at 152 MHz becomes visible (that is, 1 MHz above the 151 MHz output of VCO).

5. Adjust the video filter (or Bandwidth adjustment) on the spectrum analyzer to obtain an absolute minimum noise floor.

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5-19. N LOOP FRACTIONAL-N SPUR ADJUSTMENT (Cont'd)

6. Adjust the 1 MHz notch filter, this time for a minimum spur level. The spur level should be at least 75 dB below the center frequency (151 MHz) level.

7. Repeat steps 4 through 6 for the spurs 2 MHz, 3 MHz and 4 MHz above the carrier using respective notch filter adjustments. Note that the 2 MHz spur has an adjustment on the N Loop VCO top cover (A3A4 assembly) as well as on N Loop Divider/Phase Detector top cover (A3A3 assembly). Each is adjusted for minimum spur level. Spur levels for all frequencies should be at least 75 dB below the center frequency (151 MHz) level.

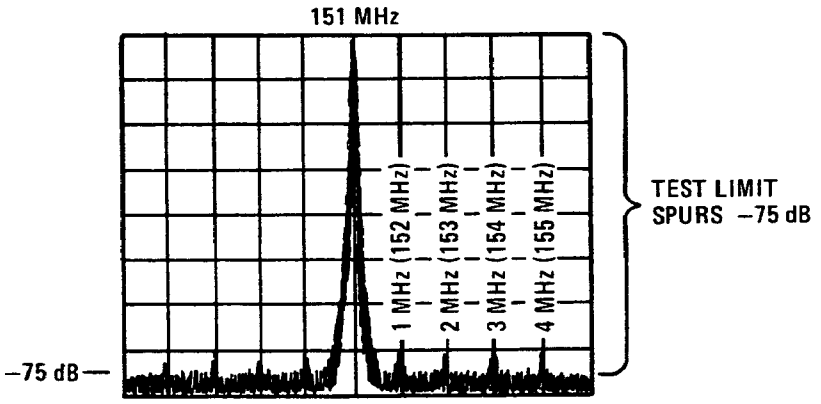

Figure 5-18. Relationship of 1, 2, 3, and 4 MHz Spurs to the Center Frequency of 151 MHz (as viewed on the Spectrum Analyzer)

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ADJUSTMENTS

5-20 CONTROLLER BOARD POWER SUPPLY (−30V) ADJUSTMENT

REFERENCE: Service Sheet 22.

DESCRIPTION: The Controller Board's −30 Vdc supply is adjusted.

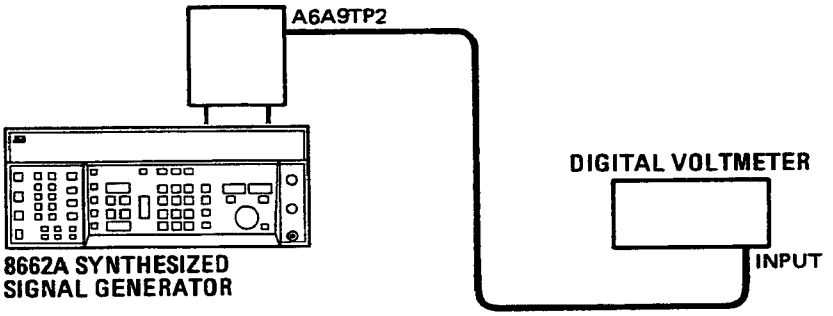
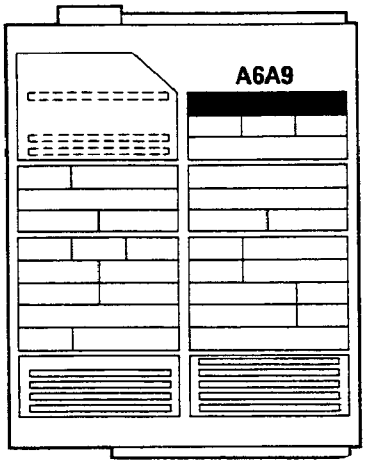


Figure 5-19. Controller Board Power Supply (−30V) Adjustment Setup

EQUIPMENT: Digital Voltmeter (DVM) ..... HP 3466A

PROCEDURE:

1. Place the A6A9 assembly on extender boards (two required).
2. Connect the DVM to A6A9TP2.
3. Adjust the −30 ADJ (A6A9R16) for a DVM reading of −30.00 ± 0.05 Vdc.



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ADJUSTMENTS

5-21 REFERENCE SUM LOOP PRETUNE ADJUSTMENT

REFERENCE: Service Sheet 24.

DESCRIPTION: The A6A5R85 GAIN adjustment pot sets the gain of the pretune D/A converter.

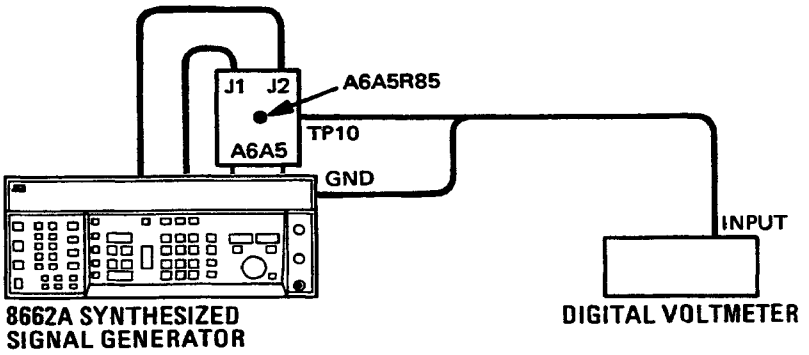
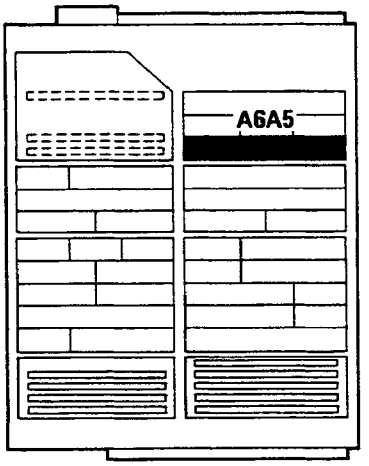


Figure 5-20. Reference Sum Loop Pretune Adjustment Setup

EQUIPMENT: Digital Voltmeter (DVM) ..... HP 3466A

PROCEDURE:

1. Install the A6A5 Assembly on an extender board. Connect the extended length RF cables between A6A5J1 and J2 and the Signal Generator. Connect a cable from A6A5TP10 to the input of the DVM.
2. Set the Signal Generator to a frequency of 320 MHz.
3. Adjust the GAIN control (A6A5R85) for a reading on the DVM of −3.75 ± .01 Vdc.



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ADJUSTMENTS

5-22 REFERENCE SUM LOOP OUT-OF-LOCK ADJUSTMENT

REFERENCE: Service Sheets 24 and 25.

DESCRIPTION: The A6A5R156 OUT-OF-LOCK pot is set so that the Out-of-Lock Light turns on when the Reference Sum Loop is unlocked (Error No. 06).

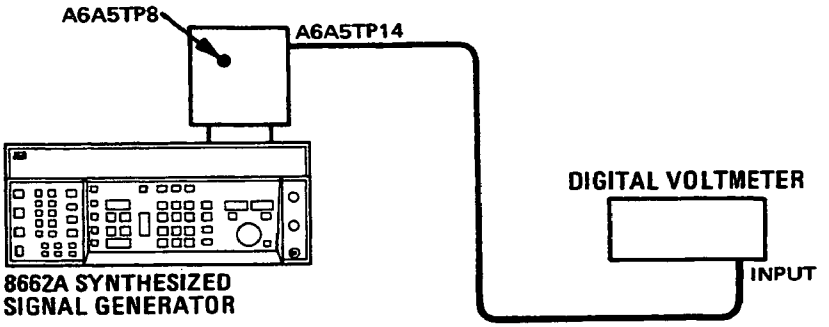
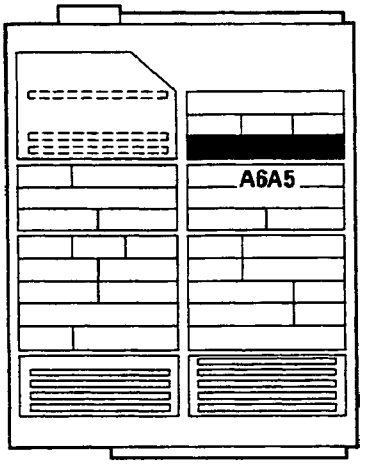


Figure 5-21. Reference Sum Loop Out-of-Lock Adjustment Setup

EQUIPMENT: Digital Voltmeter (DVM) ..... HP 3466A

PROCEDURE:

1. Place the A6A5 Phase Detector on an extender board. Reconnect A6A5J1 (INPUT 10/20 MHz) and A6A5J2 (OUTPUT −9 to −38 VDC) with the extended length RF cables.



2. Connect the DVM to A6A5TP14. Adjust the Generator's output frequency, in 1 MHz increments between 320 and 640 MHz, until the voltage at TP14 equals +4.5 ± 1.0 Vdc.

3. Disconnect the RF cable from A6A5J1 (INPUT 10/20 MHz). The Out-of-Lock Light, Error #06, may or may not turn on. Turn pot A6A5R156 fully clockwise. The error LED should be off. Then adjust pot A6A5R156 until the Out-of-Lock Light just comes on.

4. Reconnect the RF cable to A6A5J1 (the error LED should go out). Connect the DVM to A6A5TP8 and record the dc voltage level.

_____m Vdc

5. Adjust A6A5R156 for a voltage level 4 mV higher than the value recorded in step 4.

NOTE

Increasing the voltage at A6A5TP8 by 4 mV ensures that the Out-of-Lock Light still comes on when the instrument is cold and the loop is out of lock.

6. Verify that the Out-of-Lock Light comes on when the loop is unlocked by removing the RF cable from A6A5J1.

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ADJUSTMENTS

5-23 OUTPUT SUM LOOP PRETUNE ADJUSTMENT

REFERENCE: Service Sheet 28.

DESCRIPTION: The A6A4R85 GAIN adjustment pot sets the gain of the pretune D/A converter.

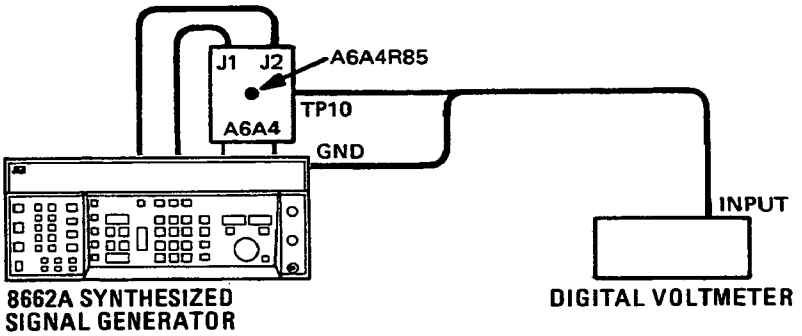
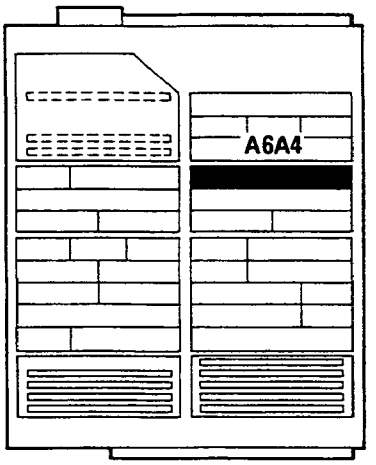


Figure 5-22. Output Sum Loop Pretune Adjustment Setup

EQUIPMENT: Digital Voltmeter (DVM) ..... HP 3466A

PROCEDURE:

1. Install the A6A4 Assembly on an extender board. Connect the extended length RF cables between A6A4J1 and J2 and the Signal Generator. Connect a cable from A6A4TP10 to the input of the DVM.
2. Set the Signal Generator to a frequency of 320 MHz.
3. Adjust GAIN control (A6A4R85) for a reading on the DVM of −3.75 ± .01 Vdc.



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ADJUSTMENTS

5-24 OUTPUT SUM LOOP OUT-OF-LOCK ADJUSTMENT

REFERENCE: Service Sheets 28 and 29.

DESCRIPTION: The A6A4R156 OUT-OF-LOCK pot is set so that the Out-of-Lock Light turns on when the Output Sum Loop is unlocked (Error No. 07).

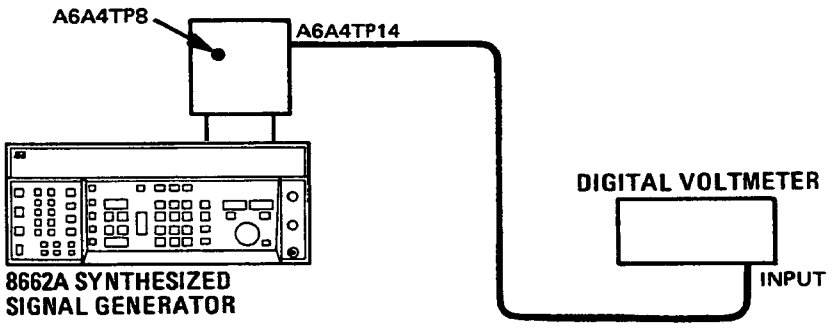
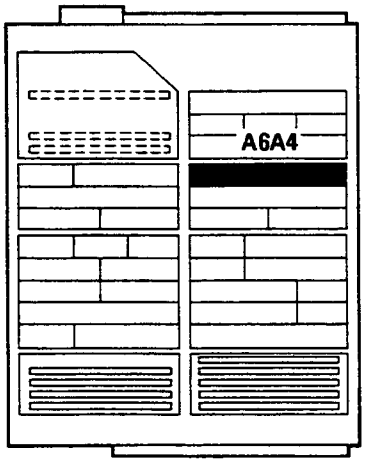


Figure 5-23. Output Sum Loop Out-of-Lock Adjustment Setup

EQUIPMENT: Digital Voltmeter (DVM) ..... HP 3466A

PROCEDURE:

1. Place the A6A4 Phase Detector on an extender board. Reconnect A6A4J1 (INPUT 10—20 MHz) and A6A4J2 (OUTPUT −9 to −38 VDC) with the extended length RF cables.



2. Connect the DVM to A6A4TP14. Adjust the Generator's output frequency, in 1 MHz increments between 320 and 640 MHz, until the voltage at TP14 equals +4.5 ± 1.0 Vdc.

3. Disconnect the RF cable from A6A4J1 (INPUT 10—20 MHZ). The Out-of-Lock Light, Error #07, may or may not turn on. Turn pot A6A4R156 fully clockwise. The error LED should be off. Then adjust pot A6A4R156 until the Out-of-Lock Light just comes on.

4. Reconnect the RF cable to A6A4J1 (the error LED should go out). Connect the DVM to A6A4TP8 and record the dc voltage level.

_____mVdc

5. Adjust A6A4R156 for a voltage level 4 mV higher than the value recorded in step 4.

NOTE

Increasing the voltage at A6A4TP8 by 4 mV ensures that the Out-of-Lock Light still comes on when the instrument is cold and the loop is out of lock.

6. Verify that the Out-of-Lock Light comes on when the loop is unlocked by removing the RF cable from A6A4J1.

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ADJUSTMENTS

5-25 LOW FREQUENCY DOWN CONVERTER ADJUSTMENT

REFERENCE: Service Sheet 31.

DESCRIPTION: The A4A5C16 Low Frequency Down Converter Adjustment variable capacitor (located on the component side of the A4A5 board) sets the tuned amplifier's frequency response and gain so that the signal entering the LO Input of the A4A5U2 mixer is properly matched to the mixer's requirements.

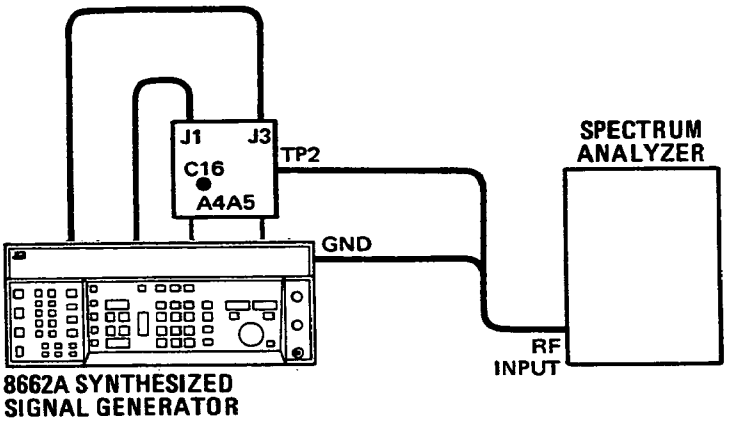
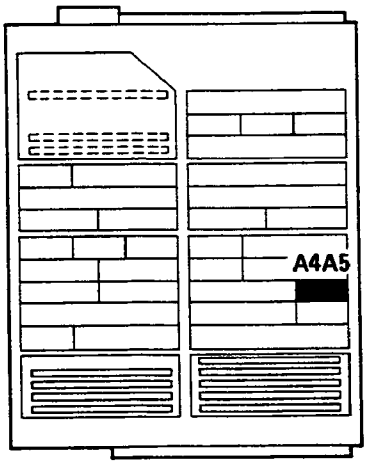


Figure 5-24. Low Frequency Down Converter Adjustment Setup

EQUIPMENT: Spectrum Analyzer, RF ..... HP 8558B/181T

PROCEDURE:

1. Install the A4A5 assembly on an extender board. Connect the extended length RF cables between A4A5J1, J3 and the Signal Generator. Connect a cable from A4A5TP2 to the 50Ω input of the spectrum analyzer using the special capacitor-coupled cable adapter found in the service kit.



2. Set the Signal Generator as follows:

START FREQ	10 kHz
STOP FREQ	120 MHz
SWEEP STEPS	1000
TIME/STEP	2 ms
SWEEP MODE	AUTO
MODULATION	MOD OFF

3. Set the spectrum analyzer to sweep between 520 and 640 MHz, with 1 MHz resolution bandwidth, +20 dBm reference level and d5 dB per vertical division.

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5-25 LOW FREQUENCY DOWN CONVERTER ADJUSTMENT (Cont'd)

4. Adjust A4A5C16 so that the swept-frequency response is flat within ± 1 dB at a power level above +10 dBm.

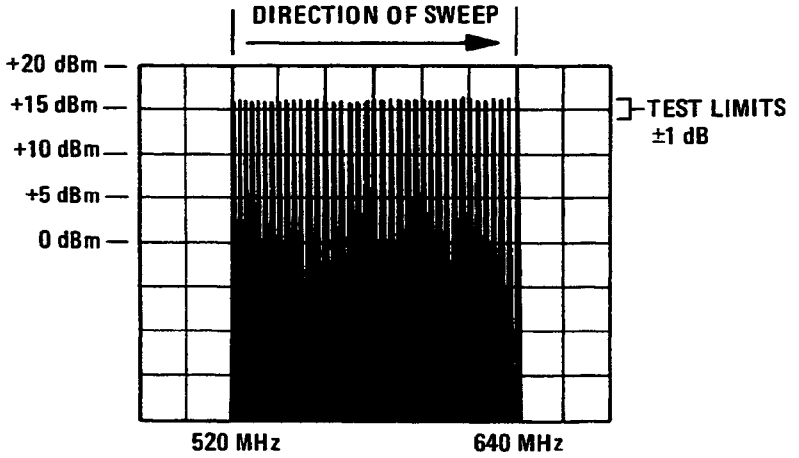

Figure 5-25. Adjustment of Flatest Frequency Response (within ± 1 dB)

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ADJUSTMENTS

5-26 DOUBLER FILTER TRACKING ADJUSTMENT

REFERENCE: Service Sheet 33.

DESCRIPTION: The A4A2R29 Filter Tracking (HIGH) pot and the A4A2R40 Filter Tracking (LOW) pot set the output voltage range of the D/A converter to match the characteristics of the voltage tuned filters.

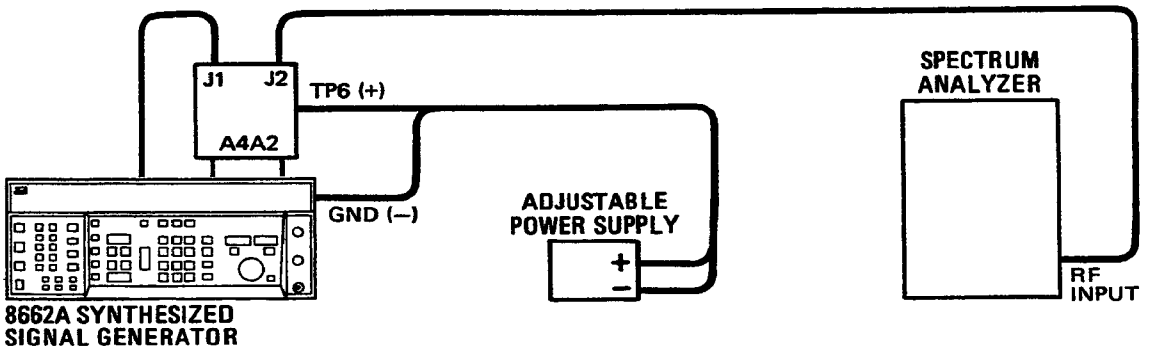
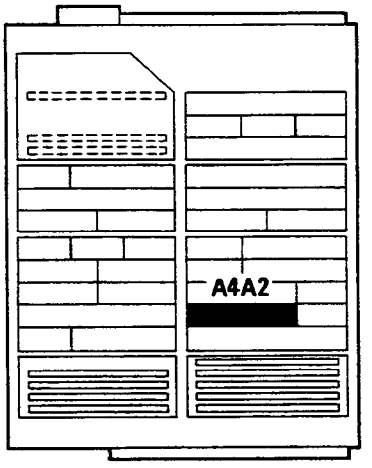


Figure 5-26. Doubler Filter Tracking Adjustment Setup

EQUIPMENT: Spectrum Analyzer, RF ..... HP 8558B/181T
Power Supply ..... HP 6215A

PROCEDURE:

1. Install the A4A2 on an extender board. Connect an extended length RF cable from A4A2J1 to A4A2J2. Connect the Power Supply to A4A2TP6 and ground.



CAUTION

The output of A4A2J2 is at a dc level of about +12 Vdc. Some spectrum analyzers are dc coupled and cannot be connected directly to this output. If the input of the spectrum analyzer is dc coupled, a blocking capacitor adapter must be used in series with the input or damage could occur.

2. Connect an RF cable between A4A2J2 and the spectrum analyzer.
3. Set the Signal Generator front panel frequency to 641.0 MHz. Set the adjustable power supply to approximately 3 volts. Set the scan width on the spectrum analyzer to 10 MHz/div.
4. View the signal on the spectrum analyzer and adjust the power supply for a peak signal level of 0 to +1 dBm.

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5-26 DOUBLER FILTER TRACKING ADJUSTMENT (Cont'd)

5. Adjust the FILTER TRACKING (LOW) pot, A4A2R40, for symmetrical –3 dB points at 641.0 MHz.

6. Set the Signal Generator front panel frequency setting to 1279.999 999 MHz. Set the scan width on the spectrum analyzer to 20 MHz/div. View the signal on the spectrum analyzer.

7. Adjust the FILTER TRACKING (HIGH) pot, A4A2R29, for symmetrical –3 dB points at 1279.999 MHz.

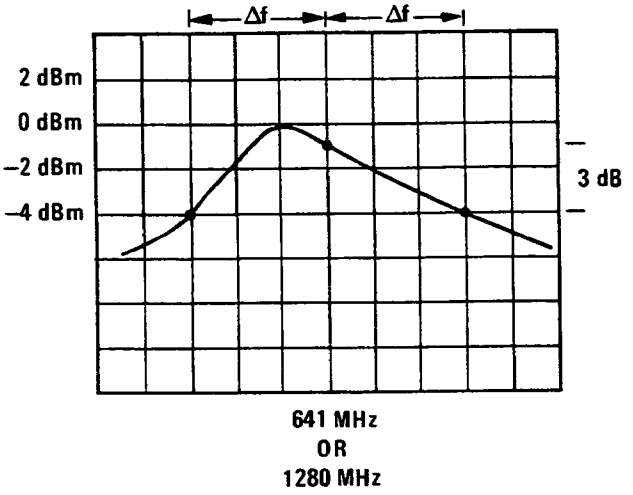

Figure 5-27. Adjustment of Symmetrical Frequency Difference at –3 dB Points

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5-27 DOUBLER BALANCE ADJUSTMENT

REFERENCE: Service Sheet 33.

DESCRIPTION: The A4A2R14 BALANCE 1 pot and the A4A2R24 BALANCE 2 pot set the bias applied to the A4A2U2 doubler microcircuit to minimize the level of the spur at 3/2 the frequency in the doubler band (that is, 640 to 1280 MHz).

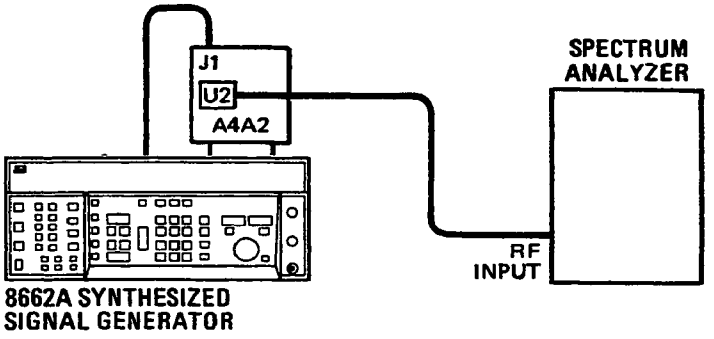
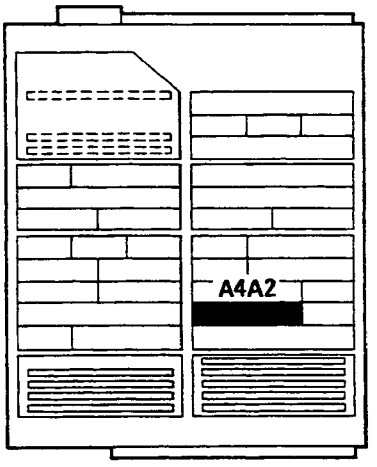


Figure 5-28. Doubler Balance Adjustment Setup

EQUIPMENT: Spectrum Analyzer, RF ..... HP 8558B/181T

PROCEDURE:

1. Install the A4A2 assembly on an extender board. Connect extended length RF cables between A4A2J1 and A4A4J2. Remove the cable running between the two microcircuits. Connect a cable from the output of A4A2U2 (bottom connector of the left microcircuit) to the input of the spectrum analyzer.



2. Set the spectrum analyzer as follows:

   Center Frequency ..... 1160 MHz
   Frequency Span/Division ..... 50 MHz

3. Set the Signal Generator as follows:

   FREQUENCY ..... 1160 MHz

4. Observe the signal on the spectrum analyzer. Set the reference level of the spectrum analyzer to this signal. Adjust the spectrum analyzer so the noise floor is more than 60 dB below the reference level.

5. Reset the Signal Generator as follows:

   FREQUENCY ..... 640 MHz
   START FREQ ..... 640 MHz
   STOP FREQ ..... 910 MHz
   SWEEP STEPS 1000
   TIME/STEP ..... 10 ms
   SWEEP MODE ..... MANUAL

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ADJUSTMENTS

5-27 DOUBLER BALANCE ADJUSTMENT (Cont'd)

6. Locate the 3/2 spur at 960 MHz. Push the Single Sweep button and watch the spur on the spectrum analyzer. The spur must be more than 55 dB below the reference level at all points from 960 to 1360 MHz. If the spur is too large at any point, continue with step 7. Otherwise, do not make any adjustments.

7. Set the Generator to a frequency where the spur is less than 55 dB below the reference. Adjust BALANCE 1, A4A2R14, and BALANCE 2, A4A2R24, to lower the level of the spur.

8. These adjustments are interactive and lowering the spur at one frequency might raise it at another. Repeat steps 6 and 7 until the spur is greater then 55 dB below the carrier across the entire doubler band.

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ADJUSTMENTS

5-28 OUTPUT AMPLIFIER POWER AMP BIAS ADJUSTMENT

REFERENCE: Service Sheet 35.

DESCRIPTION: The A4A1R86 POWER AMP BIAS pot (at top cover of A4A1 board) adjusts microcircuit A4A1U1 for minimum 2nd harmonic amplitude.

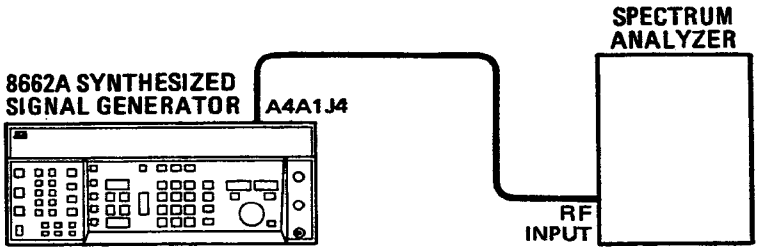
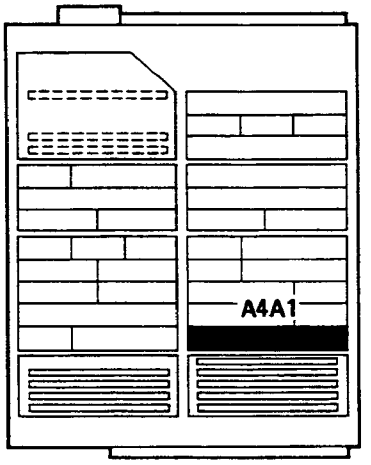


Figure 5-29. Output Amplifier Power Amp Bias Adjustment Setup

EQUIPMENT: Spectrum Analyzer, RF ..... HP 8558B/181T

PROCEDURE:

1. Connect a cable from A4A1J4 to the 50Ω input of the spectrum analyzer.



2. Set the Signal Generator as follows:

START FREQ	10 MHz
STOP FREQ	1 GHz
SWEEP STEPS	1000
TIME/STEP	0.5 ms
SWEEP MODE	AUTO
AMPLITUDE	+15 dBm
MODULATION	MOD OFF

3. Set the Spectrum Analyzer as follows:

Center Frequency	900 MHz
Reference Level	−5 dBm
Vertical Sensitivity/Division (Amplitude)	10 dB
Frequency Span/Division	200 MHz
Resolution Bandwidth	3 MHz

4. While viewing the sweep display on the spectrum analyzer, adjust the POWER AMP BIAS pot A4A1R86 so that the 2nd harmonic is as low as possible through the sweep range.

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ADJUSTMENTS

5-28 OUTPUT AMPLIFIER POWER AMP BIAS ADJUSTMENT (Cont'd)

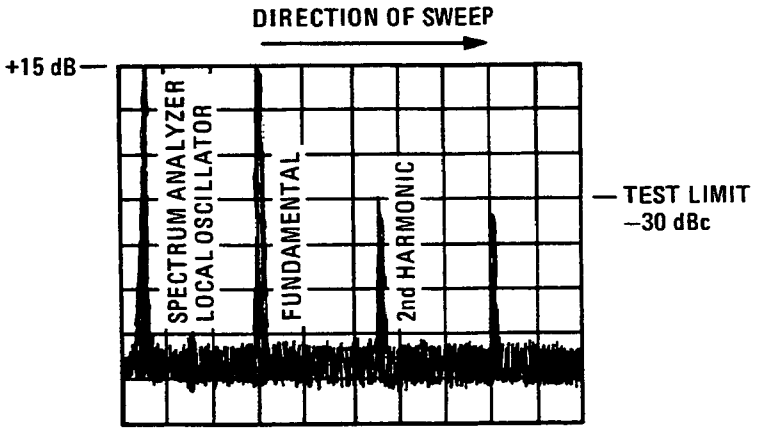

Figure 5-30. Adjustment of POWER AMP BIAS Pot for Minimum 2nd Harmonic Amplitude

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5-29 OUTPUT AMPLIFIER (DC) OFFSET ADJUSTMENT

REFERENCE: Service Sheet 35.

DESCRIPTION: The A4A1R90 OFFSET adjustment pot (at top cover of A4A1 board) linearizes the characteristic curve of the detector in the AGC loop so that it properly tracks amplitude changes.

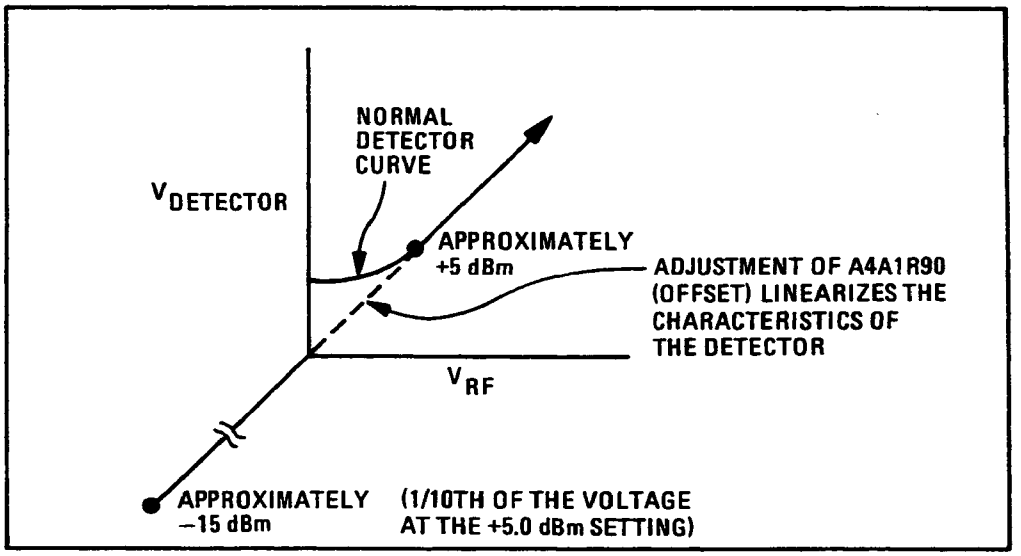

Figure 5-31. Detector Linearization through Adjustment of OFFSET Pot

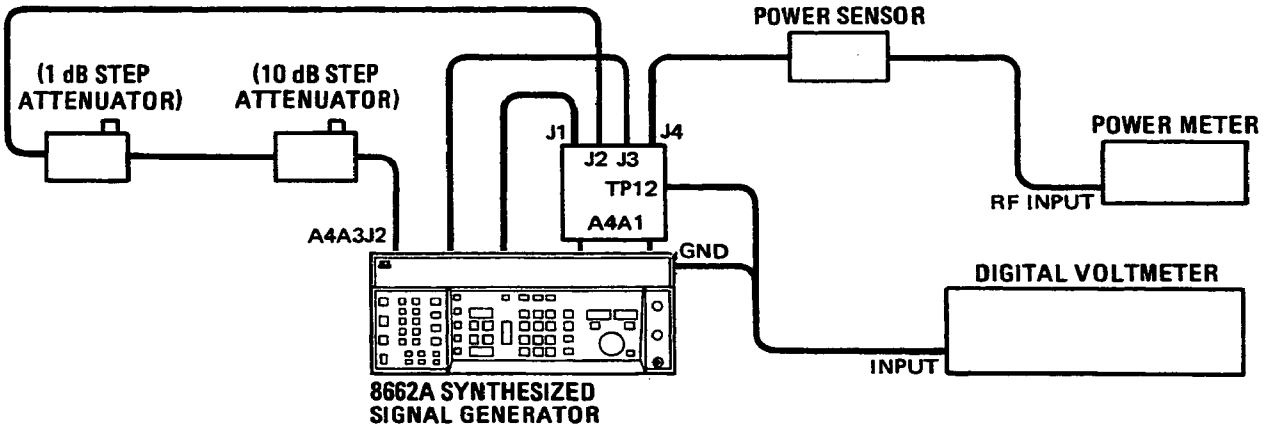

Figure 5-32. Output Amplifier (DC) Offset Adjustment Setup

EQUIPMENT:

Power Meter and Sensor	HP 435A with 8482A
Digital Voltmeter (DVM)	HP 3466A
Attenuator, 1 dB Steps	HP 355C
Attenuator, 10 dB Steps	HP 353D

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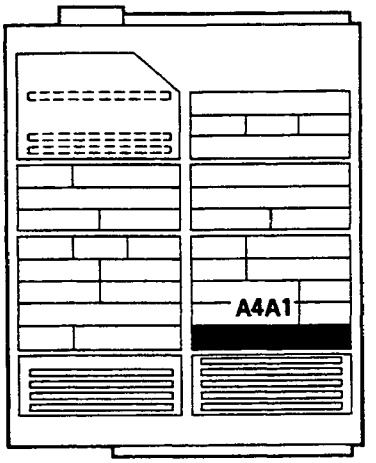
ADJUSTMENTS

5-29 OUTPUT AMPLIFIER (DC) OFFSET ADJUSTMENT (Cont'd)

PROCEDURE:

1. Install the A4A1 assembly on an extender board. Run extended length RF cables between A4A1J1 and J3 and their respective connections in the unit. Connect an RF cable between A4A1J4 and the power meter. Between A4A1J2 and the unit, connect the two attenuators in series. Connect an RF cable between A4A1TP12 and the DVM.



2. Set the Signal Generator as follows:

FREQUENCY	100 MHz
AMPLITUDE	0.0 dBm
MODULATION	MOD OFF

3. When the Signal Generator is set for 0.0 dBm, the signal output of A4A1J4 should be +4 to +6 dBm. Record the exact level output at J4 (in dBm, as displayed by the power meter) and the exact voltage at A4A1TP12 (as displayed on the DVM).

_____ dBm (at J4)

_____ V (at TP12)

4. Using the attenuators, reduce the signal input to the A4A1 board so that the resultant output at A4A1J4 is 20 dB below the original unattenuated reading (or about −14 to −16 dBm; see Figure 5-31). At this point, the voltage reading at A4A1TP12 should be exactly 1/10th that of the first reading. If it is not, adjust the A4A1R90 OFFSET pot.

5. Repeat Steps 3 and 4 until the 2nd voltage reading is 1/10th that of the first. Several iterations may be necessary.

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5-30 AGC OFFSET ADJUSTMENT

REFERENCE: Service Sheet 37.

DESCRIPTION: The A4A7R20 OFFSET adjustment pot (located on the component side of the A4A7 board) sets A4A7U13 for zero voltage offset.

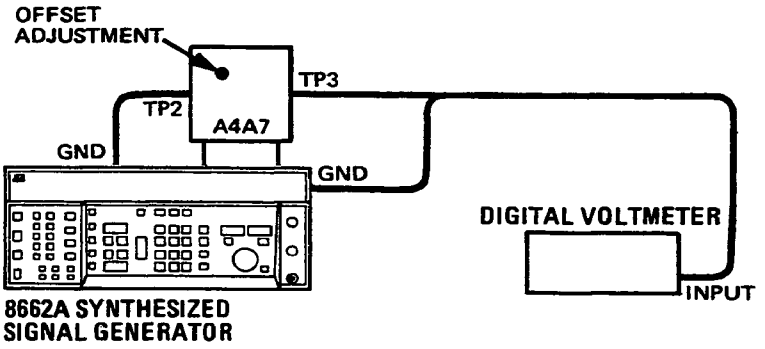


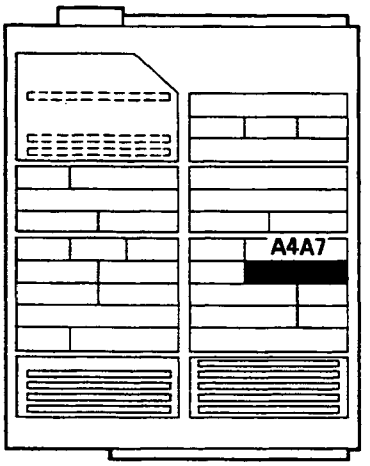
Figure 5-33. AGC Offset Adjustment Setup

EQUIPMENT: Digital Voltmeter (DVM) ..... HP 3466A

PROCEDURE:

CAUTION

Don't unplug the A4A7 board unless the instrument is unplugged or switched to standby. The A4A7 board contains CMOS devices which will be damaged if the board is removed when the power is on.



1. Unplug the Generator while installing the A4A7 assembly on an extender board.
2. Connect A4A7TP2 to ground.
3. Connect the DVM to A4A7TP3.
4. Turn on the Signal Generator and adjust the zero OFFSET pot (A4A7R20) for 0 ± .001V.

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ADJUSTMENTS

5-31 AGC BANDWIDTH ADJUSTMENT (C18, 19, 25, 26, 35—38)

REFERENCE: Service Sheet 37.

DESCRIPTION: There are three branches of the AGC loop. They are for the Down Converter band, the Mid-band and the Doubler band. AGC bandwidth is adjusted by selecting the feedback capacitors in each Loop Gain Amplifier (integrator). If the AGC bandwidth is too small, AM accuracy will not meet specification. If bandwidth is too large, the AGC loop might oscillate.

These capacitors should not require changing unless a repair has changed the gain of the RF signal in the output section.

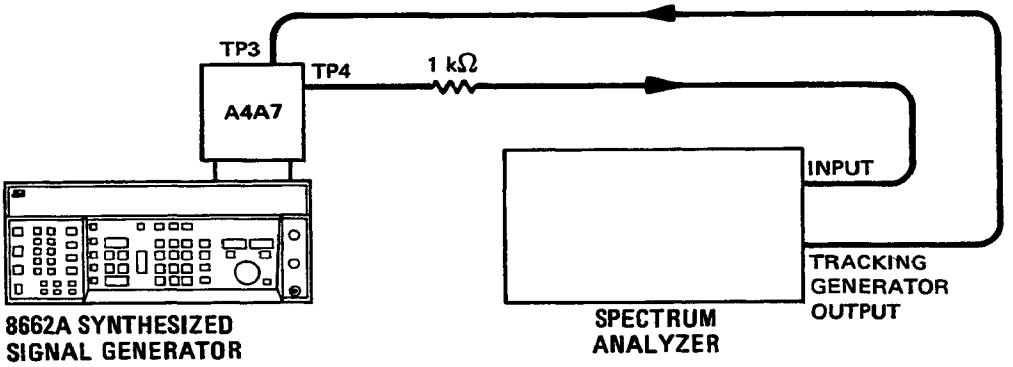


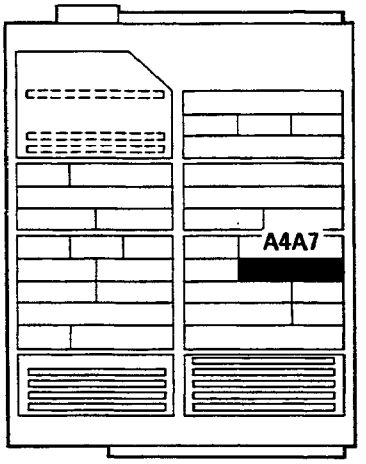
Figure 5-34. AGC Bandwidth Adjustment Setup

EQUIPMENT: Spectrum Analyzer,
Low Frequency ..... HP 8556A/8552B/141T

PROCEDURE:

1. Perform the Modulation Test in Section IV for AM Indicated Accuracy at 90% but using a 10 kHz rate instead of 400 or 1000 Hz. If the measured AM depth is less than 84.5%, the AGC loop bandwidth might be too narrow. Note the frequency at which the failure occurred and continue with Step 3.

   If the Generator passed the Indicated AM Accuracy Test, continue with Step 2.



2. Set the amplitude of the Generator to +10 dBm. Remove the top cover of the Generator. Tune the Generator through the .010 to .990 MHz range in 10 kHz increments and the 1 to 1271 MHz range in 10 MHz increments. Observe the LED on the A4A7 top-plate. If the LED turns on at some frequencies, the AGC bandwidth might be too wide and is oscillating. Note the frequency at which the LED turned on and continue with Step 3. If the LED did not turn on, no capacitor selection is necessary.

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5-31 AGC BANDWIDTH ADJUSTMENT (C18, 19, 25, 26, 35—38) (Cont'd)

3. Set the spectrum analyzer as follows:

Resolution bandwidth ..... 10 kHz
Sweep time ..... 1 ms
Scan ..... 0 to 20 kHz
Amplitude Scale ..... 2 dB/division

Set the input attenuation and sensitivity of the spectrum analyzer as needed so that the signal at the left side of the display (after ringing) is one division below the top graticule (see Figure 5-35).

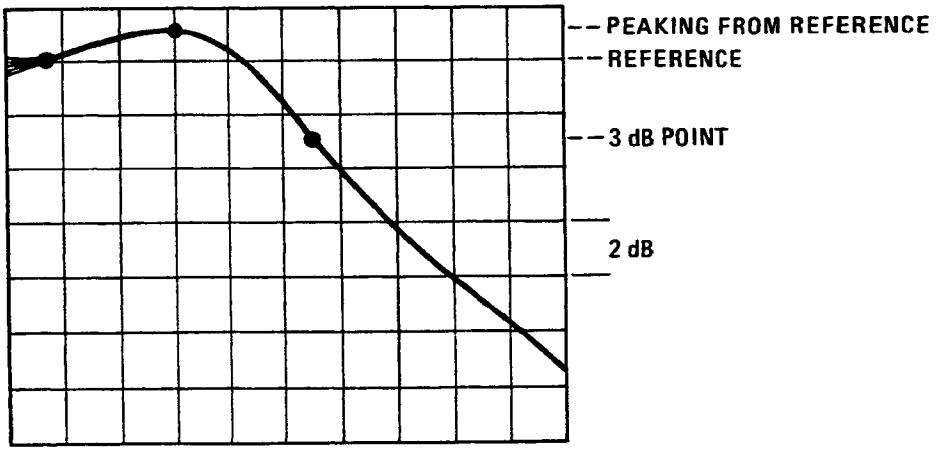

Figure 5-35. Typical AGC Bandwidth Display

CAUTION

Don't unplug the A4A7 board unless the instrument is unplugged or switched to standby. The A4A7 board contains CMOS devices which will be damaged if the board is removed when the power is on.

Connect the Equipment as shown in Figure 5-34. Set the Generator's amplitude to +10 dBm, sweep steps to LIN 100, sweep mode to MANUAL and start-stop frequencies according to Table 5-3.

Table 5-3. Start-Stop Frequencies for AGC Bandwidth Adjustment

Frequency of Failure (MHz)	START FREQ (MHz)	STOP FREQ (MHz)
.01—0.990	.01	0.999
1—111	1.0	119.999
121—631	120	639.999
641—1271	640	1278

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ADJUSTMENTS

5-31 AGC BANDWIDTH ADJUSTMENT (C18, 19, 25, 26, 35—38) (Cont'd)

4. Slowly tune the output frequency of the Generator through the appropriate range as listed in Table 5-3. Stop at the frequency where the bandwidth is most narrow (that is, at the −3 dB point). If the bandwidth does not meet the specifications listed in Table 5-4, replace the loop gain capacitors with a value that sets the −3 dB point of the curve greater than or equal to the minimum bandwidth for the appropriate band. Select capacitor values from Table 5-5.

NOTE

Increasing capacitance decreases bandwidth.

Table 5-4. Minimum Bandwidth Specifications

Frequency Range (MHz)	Bandwidth	AGC Loop Capacitor	Range of Values for Parallel Capacitance
.01—.999 (Down Converter Band)	35—60 kHz	A4A7C25, C37	.047—.2μF
1.0—119.999 (Down Converter Band)	≥ 65 kHz	A4A7C26, C38	.047—.2μF
120—639.999 (Mid-Band)	≥ 120 kHz	A4A7C19, C36	8200pF—.015μF
640—1278 (Doubler Band)	80—190 kHz	A4A7C18, C35	4700—8200 pf

Table 5-5. AGC Loop Gain Capacitor Selection Guide

Bandwidth	Capacitor Values	HP Part Number
Increasing ↑	1800 pF	0160-5037
	2200 pF	0160-0572
	3300 pF	0160-5038
	4700 pF	0160-0573
	6800 pF	0160-5039
	8200 pF	0160-4895
	.01 μF	0160-3879
	.012 μF	0160-5040
	.015 μF	0160-5041
	.018 μF	0160-4753
	.022 μF	0160-0574
	.033 μF	0160-4752
	.047 μF	0160-0575
Decreasing ↓	0.1 μF	0160-0576

5. After changing a capacitor, tune the RF frequency of the Generator through the selected band again. Verify that the signal level does not peak more than 6 dB from the reference level and that no oscillations occur (see Figure 5-35). If peaking is greater than 6 dB, increase the capacitance.

6. Repeat steps 1 and 2 to verify proper bandwidth adjustment.

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5-32 CW LEVEL ADJUSTMENT

REFERENCE: Service Sheet 37.

DESCRIPTION: The A4A7R3 CW LEVEL pot (top cover of the A4A7 board) adjusts the RF output level.

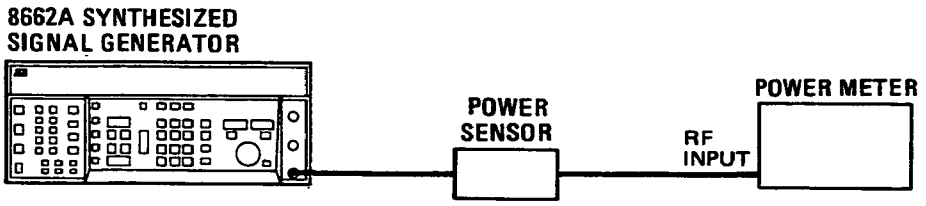
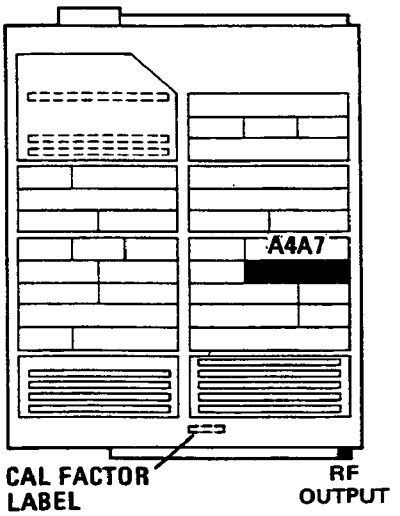


Figure 5-36. CW Level Adjustment Setup

EQUIPMENT: Power Meter and Sensor ..... HP 436A with 8482A

PROCEDURE:

1. Connect the power meter and sensor to the Generator's RF OUTPUT connector.
2. Set the Generator to 100 MHz, +7.5 dBm, modulation off and amplitude correction off (special function 85).
3† Adjust the "CW LEVEL" pot for a power meter reading of +7.50 ±0.05 dBm.
4† Vary the Generator's amplitude in 0.1 dB steps between +5.1 and ±16.0 dBm. The power meter reading should be the Generator's indicated amplitude, ±0.2 dBm for every step. If not, readjust "CW LEVEL."



5† Re-enable the Amplitude Correction with Special Function 86.

†Backdating information in Section VII.

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ADJUSTMENTS

5-33 AM LEVEL ADJUSTMENT

REFERENCE: Service Sheet 37.

DESCRIPTION: The A4A7R8 AM LEVEL adjustment pot (top cover of A4A7 board) sets the AM output level.

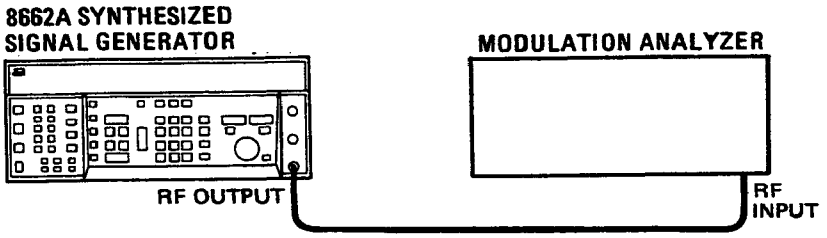


Figure 5-37. AM Level Adjustment Setup

EQUIPMENT: Modulation Analyzer ..... HP 8901A

PROCEDURE:

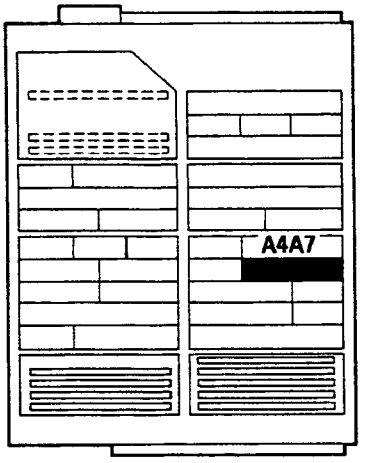
1. Connect the RF output of the Signal Generator to the input of the modulation analyzer.

2. Set the Signal Generator as follows:

   FREQUENCY ..... 100 MHz
   MODULATION ..... AM, 70%
   AMPLITUDE ..... 0.0 dBm

3. Set up the modulation analyzer for AM measurement.

4. Adjust the AM LEVEL pot, A4A7R8, for a reading of 69.5% to 70.5% on the modulation analyzer.



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ADJUSTMENTS

5-34 Z-AXIS MARKER LEVEL ADJUSTMENT

REFERENCE: Service Sheet 16.

DESCRIPTION: The A2A2R8 ZMRK adjustment pot sets the level of the Z-axis intensity marker. The Z-axis marker lever is adjustable over a range of −2 to −8V peak.

NOTE

Figure 5-38 illustrates a typical output waveform from the Z-AXIS BLANKING/MARKER connector.

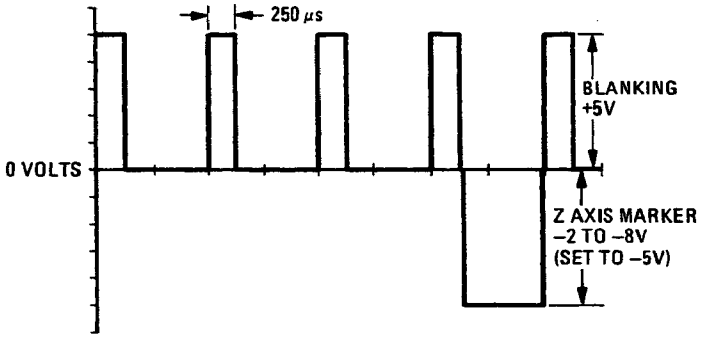

Figure 5-38. Typical Output Waveform from the Z-AXIS BLANKING/MARKER Connector

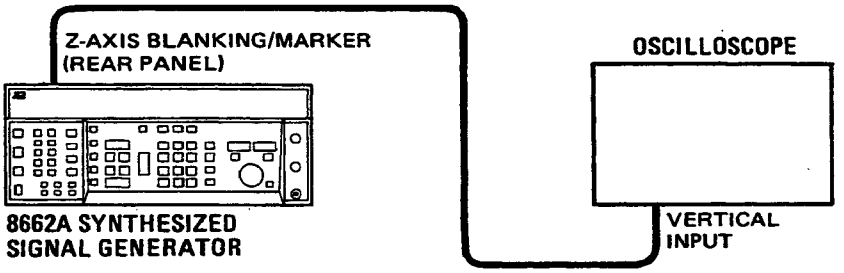

Figure 5-39. Z-Axis Marker Level Adjustment Setup

EQUIPMENT: Oscilloscope ..... HP 1740A

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5-34 Z-AXIS MARKER LEVEL ADJUSTMENT (Cont'd)

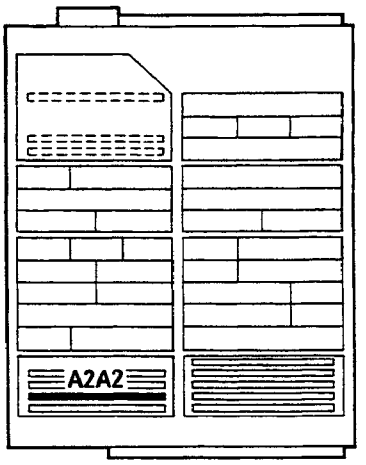
PROCEDURE:

1. Connect the Z-AXIS BLANKING/MARKER output (on rear panel) to the vertical input of the oscilloscope.

2. Set the oscilloscope's time base controls to 0.5 ms per division and internal trigger (negative slope); set the vertical controls to 2 volts per division with dc coupling.

3. Set the Signal Generator's controls as follows:

START FREQ	1 MHz
STOP FREQ	10 MHz
STEP SIZE	1 MHz
TIME/STEP	1 ms
MODE	AUTO
MARKER 1	1 MHz
MARKER 2	5 MHz



4. Adjust the ZMRK control, A2A2R9, to the desired Z-axis marker level (−2 to −8V). The Z-axis marker level is adjusted at the factory for −5.0 ± 0.2V.

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GENERAL INFORMATION
INSTALLATION
OPERATION

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Sections IV and V
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ADJUSTMENTS

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SECTION VI
REPLACEABLE PARTS

6-1. INTRODUCTION

This section contains information for ordering parts. Table 6-2 lists abbreviations used in the parts list and throughout the manual. Table 6-3 lists all replaceable parts in reference designator order. Table 6-4 contains the names and addresses that correspond to the manufacturer's code numbers.

6-2. RESTORED ASSEMBLIES

Table 6-1 lists assemblies within the instrument that may be replaced on an exchange basis, thus affording a considerable cost saving. Exchange, factory-repaired and tested assemblies are available only on a trade-in basis; therefore, the defective assemblies must be returned for credit. For this reason, assemblies required for spare parts stock must be ordered by the new assembly part number.

6-3. ABBREVIATIONS

Table 6-2 lists abbreviations used in the parts list, schematics and throughout the manual. In some cases, two forms of the abbreviation are used, one all in capital letters, and one partial or no capitals. This occurs because the abbreviations in the parts list are always all capitals. However, in the schematics and other parts of the manual, other abbreviation forms are used with both lower case and upper case letters.

6-4. REPLACEABLE PARTS LIST

Table 6-3 is the list of replaceable parts and is organized as follows:

a. Electrical assemblies and their components in alpha-numerical order by reference designation.

b. Chassis-mounted parts in alpha-numerical order by reference designation.

c. Miscellaneous parts.

The information given for each part consists of the following:

a. The Hewlett-Packard part number.

b. Part number check digit (CD).

c. The total quantity (Qty) in the instrument.

d. The description of the part.

e. A typical manufacturer of the part in a five-digit code.

f. The manufacturer's number for the part.

The total quantity for each part is given only once — at the first appearance of the part number in the list.

6-5. Factory Selected Parts (*)

Parts marked with an asterisk (*) are factory selected parts. The value listed in the parts list is the nominal value. Refer to Section V for information on determining what value to use for replacement.

6-6. Parts List Backdating (†)

Parts marked with a dagger (†) are different in instruments with serial number prefixes lower than the one that this manual applies to directly. Table 7-1 lists the backdating changes by serial number prefix. The backdating changes are contained in Section VII.

6-7. Parts List Updating (Change Sheet)

Production changes to instruments made after the publication of this manual are accompanied by a change in the serial number prefix. Changes to the parts list are recorded by serial number prefix on a MANUAL CHANGES supplement. Also, parts list errors are noted in the ERRATA portion of the MANUAL CHANGES supplement.

6-8. Illustrated Parts Breakdowns

Most mechanical parts are identified in Figures 6-1 through 6-4. These figures are located near the end of the Replaceable Parts table.

6-9. ORDERING INFORMATION

To order a part listed in the replaceable parts table, quote the Hewlett-Packard Part number (with the check digit), indicate the quantity required, and address the order to the nearest Hewlett-Packard office (see note). The check digit

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ORDERING INFORMATION (Cont'd)

will ensure accurate and timely processing of your order.

To order a part that is not listed in the replaceable parts table, include the instrument model number, instrument serial number, description and function of the part, and the number of parts required. Address the order to the nearest Hewlett-Packard office.

NOTE

Within the USA, it is better to order directly from the HP Parts Center in Mt. View, California. Ask your nearest HP office for information and forms for the "Direct Mail Order System."

6-10. RECOMMENDED SPARES LIST

Stocking spare parts for an instrument is often done to ensure quick return to service after a malfunction occurs. Hewlett-Packard prepares a "Recommended Spares" list for this instrument. The contents of the list are based on failure reports and repair data. Quantities given are for one year of parts support. A complimentary copy of the "Recommended Spares" list may be requested from your nearest Hewlett-Packard office.

When stocking parts to support more than one instrument or to support a variety of Hewlett-Packard instruments, it may be more economical to work from one consolidated list rather than simply adding together stocking quantities from the individual instrument lists. Hewlett-Packard will prepare consolidated "Recommended Spares" lists for any number or combination of instruments. Contact your nearest Hewlett-Packard office for details.

6-11. SPARE PARTS KIT

A "Spare Parts Kit" is available for this Generator (HP 08662-60090, CD6). The kit contains the components and assemblies listed in the "Recommended Spares" list. It may be ordered through your nearest Hewlett-Packard office.

Table 6-1. Part Numbers for Restored Assemblies

Reference Designation	Description	Part Number[1]	
		Restored Assy	New Assy
†A2A9U12	Part of Attenuator Kit (see A2A11)		
A2A11	Standard Attenuator Kit	08662-60082[2, 3]	08662-60002[2, 3]
	Option 001 Attenuator Kit	08662-60089[2]	08662-60086[2]
A4A1U1	Output Amplifier Microcircuit	08662-60084	08662-67008
A4A2	Doubler Assembly	08662-60081	08662-60222
A8A1, A8A2	High Frequency Loops Voltage Controlled Oscillators	08662-60083	08662-60001
A8A3	10 MHz Reference Oscillator	08662-60085	10544B Opt. 003

[1]When ordering extra assemblies for spare parts stock, use new assembly part number only. Restored orders require return of the defective part.

[2]If the A2A9 ROM 2 assembly is HP 08662-60246, order a Memory Update Kit in addition to the Attenuator Kit. The Memory Update Kit is HP 08662-60300.

[3]For prefixes 2107A and below. When ordering Attenuator Kit A2A11, order an RF Output Connector Conversion Kit 08662-60283.

† Backdating information in Section VII.

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Table 6-2. Reference Designations and Abbreviations

REFERENCE DESIGNATIONS

A . . . . . assembly
AT . . attenuator; isolator; termination
B . . . . . fan; motor
BT . . . . . battery
C . . . . . capacitor
CP . . . . . coupler
CR . . . . . diode; diode thyristor; varactor
DC . . . directional coupler
DL . . . . . delay line
DS . . . . . annunciator; signaling device (audible or visual); lamp; LED
E . . . . . miscellaneous electrical part
F . . . . . fuse
FL . . . . . filter
H . . . . . hardware
HY . . . . . circulator
J . . . electrical connector (stationary portion); jack
K . . . . . relay
L . . . . . coil; inductor
M . . . . . meter
MP . . . . . miscellaneous mechanical part
P . . . electrical connector (movable portion); plug
Q . . . . . transistor: SCR; triode thyristor
R . . . . . resistor
RT . . . . . thermistor
S . . . . . switch
T . . . . . transformer
TB . . . . . terminal board
TC . . . . . thermocouple
TP . . . . . test point
U . . . . . integrated circuit; microcircuit
V . . . . . electron tube
VR . . . . voltage regulator; breakdown diode
W . . . . cable; transmission path; wire
X . . . . . socket
Y . . . . crystal unit (piezoelectric or quartz)
Z . . . . tuned cavity; tuned circuit

ABBREVIATIONS

A . . . . . ampere
ac . . . . alternating current
ACCESS . . . . . accessory
ADJ . . . . . adjustment
A/D . . . . analog-to-digital
AF . . . . . audio frequency
AFC . . . . . automatic frequency control
AGC . . . . . automatic gain control
AL . . . . . aluminum
ALC . . . . . automatic level control
AM . . . amplitude modulation
AMPL . . . . . amplifier
APC . . . . automatic phase control
ASSY . . . . . assembly
AUX . . . . . auxiliary
avg . . . . . average
AWG . . . . American wire gauge
BAL . . . . . balance
BCD . . . . . binary coded decimal
BD . . . . . board
BE CU . . . . . beryllium copper
BFO . . . . . beat frequency oscillator
BH . . . . . binder head
BKDN . . . . . breakdown
BP . . . . . bandpass
BPF . . . . . bandpass filter
BRS . . . . . brass
BWO . . . . . backward-wave oscillator
CAL . . . . . calibrate
ccw . . counter-clockwise
CER . . . . . ceramic
CHAN . . . . . channel
cm . . . . . centimeter
CMO . . cabinet mount only
COAX . . . . . coaxial
COEF . . . . . coefficient
COM . . . . . common
COMP . . . . . composition
COMPL . . . . . complete
CONN . . . . . connector
CP . . . . . cadmium plate
CRT . . . cathode-ray tube
CTL . . . . complementary transistor logic
CW . . . . . continuous wave
cw . . . . . clockwise
cm . . . . . centimeter
D/A . . . . digital-to-analog
dB . . . . . decibel
dBm . . . . decibel referred to 1 mW
dc . . . . . direct current
deg . . degree (temperature interval or difference)
° . . . . . degree (plane angle)
°C . . . . . degree Celsius (centigrade)
°F . . . . degree Fahrenheit
°K . . . . . degree Kelvin
DEPC . . deposited carbon
DET . . . . . detector
diam . . . . . diameter
DIA . . . diameter (used in parts list)
DIFF AMPL . . differential amplifier
div . . . . . division
DPDT . . . . . double-pole, double-throw
DR . . . . . drive
DSB . . . . double sideband
DTL . . . . diode transistor logic
DVM . . . digital voltmeter
ECL . . . . emitter coupled logic
EMF . . electromotive force
EDP . . . . . electronic data processing
ELECT . . . . . electrolytic
ENCAP . . . . encapsulated
EXT . . . . . external
F . . . . . farad
FET . . . . . field-effect transistor
F/F . . . . . flip-flop
FH . . . . . flat head
FIL H . . . . . fillister head
FM . . frequency modulation
FP . . . . . front panel
FREQ . . . . . frequency
FXD . . . . . fixed
g . . . . . gram
GE . . . . . germanium
GHz . . . . . gigahertz
GL . . . . . glass
GRD . . . . . ground(ed)
H . . . . . henry
h . . . . . hour
HET . . . . . heterodyne
HEX . . . . . hexagonal
HD . . . . . head
HDW . . . . . hardware
HF . . . . . high frequency
HG . . . . . mercury
HI . . . . . high
HP . . . . . Hewlett-Packard
HPF . . . . . high pass filter
HR . . . . . hour (used in parts list)
HV . . . . . high voltage
Hz . . . . . Hertz
IC . . . . integrated circuit
ID . . . . . inside diameter
IF . . . . . intermediate frequency
IMPG . . . . . impregnated
in . . . . . inch
INCD . . . . . incandescent
INCL . . . . . include(s)
INP . . . . . input
INS . . . . . insulation
INT . . . . . internal
kg . . . . . kilogram
kHz . . . . . kilohertz
kΩ . . . . . kilohm
kV . . . . . kilovolt
lb . . . . . pound
LC . . . . . inductance-capacitance
LED . . light-emitting diode
LF . . . . . low frequency
LG . . . . . long
LH . . . . . left hand
LIM . . . . . limit
LIN . . . linear taper (used in parts list)
lin . . . . . linear
LK WASH . . . lock washer
LO . . . low; local oscillator
LOG . . . . logarithmic taper (used in parts list)
log . . . . . logrithm(ic)
LPF . . . . . low pass filter
LV . . . . . low voltage
m . . . . . meter (distance)
mA . . . . . milliampere
MAX . . . . . maximum
MΩ . . . . . megohm
MEG . . . . meg (10^6) (used in parts list)
MET FLM . . . . metal film
MET OX . . metallic oxide
MF . . . medium frequency; microfarad (used in parts list)
MFR . . . . . manufacturer
mg . . . . . milligram
MHz . . . . . megahertz
mH . . . . . millihenry
mho . . . . . mho
MIN . . . . . minimum
min . . . . . minute (time)
. . . ' . . . . . minute (plane angle)
MINAT . . . . . miniature
mm . . . . . millimeter

NOTE

All abbreviations in the parts list will be in upper-case.

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Table 6-2. Reference Designations and Abbreviations (cont'd)

MOD . . . . . modulator
MOM . . . . . momentary
MOS . . . . . metal-oxide semiconductor
ms . . . . . millisecond
MTG . . . . . mounting
MTR . . . meter (indicating device)
mV . . . . . millivolt
mVac . . . . . millivolt, ac
mVdc . . . . . millivolt, dc
mVpk . . . . millivolt, peak
mVp-p . . . millivolt, peak-to-peak
mVrms . . . . millivolt, rms
mW . . . . . milliwatt
MUX . . . . . multiplex
MY . . . . . mylar
μA . . . . . microampere
μF . . . . . microfarad
μH . . . . . microhenry
μmho . . . . . micromho
μs . . . . . microsecond
μV . . . . . microvolt
μVac . . . . . microvolt, ac
μVdc . . . . . microvolt, dc
μVpk . . . microvolt, peak
μVp-p . . . microvolt, peak-to-peak
μVrms . . . . microvolt, rms
μW . . . . . microwatt
nA . . . . . nanoampere
NC . . . . . no connection
N/C . . . . normally closed
NE . . . . . neon
NEG . . . . . negative
nF . . . . . nanofarad
NI PL . . . . . nickel plate
N/O . . . . . normally open
NOM . . . . . nominal
NORM . . . . . normal
NPN . . . negative-positive-negative
NPO . . . . negative-positive zero (zero temperature coefficient)
NRFR . . not recommended for field replacement
NSR . . . . . not separately replaceable
ns . . . . . nanosecond
nW . . . . . nanowatt
OBD . . . order by description
OD . . . . . outside diameter
OH . . . . . oval head
OP AMPL . . . operational amplifier
OPT . . . . . option
OSC . . . . . oscillator
OX . . . . . oxide
oz . . . . . ounce
Ω . . . . . ohm
P . . . . peak (used in parts list)
PAM . . . . pulse-amplitude modulation
PC . . . . . printed circuit
PCM . . pulse-code modulation; pulse-count modulation
PDM . . . . . pulse-duration modulation
pF . . . . . picofarad
PH BRZ phosphor bronze
PHL . . . . . Phillips
PIN . . . positive-intrinsic-negative
PIV . . . . . peak inverse voltage
pk . . . . . peak
PL . . . . . phase lock
PLO . . . . . phase lock oscillator
PM . . . . phase modulation
PNP . . . positive-negative-positive
P/O . . . . . part of
POLY . . . . . polystyrene
PORC . . . . . porcelain
POS . . positive; position(s) (used in parts list)
POSN . . . . . position
POT . . . . . potentiometer
p-p . . . . . peak-to-peak
PP . . . peak-to-peak (used in parts list)
PPM . . . . . pulse-position modulation
PREAMPL . . . preamplifier
PRF . . . . pulse-repetition frequency
PRR . . . . pulse repetition rate
ps . . . . . picosecond
PT . . . . . point
PTM . . . . . pulse-time modulation
PWM . . . . . pulse-width modulation
PWV . . . . . peak working voltage
RC . . . . . resistance-capacitance
RECT . . . . . rectifier
REF . . . . . reference
REG . . . . . regulated
REPL . . . . . replaceable
RF . . . . . radio frequency
RFI . . . . radio frequency interference
RH . . . . round head; right hand
RLC . . . . . resistance-inductance-capacitance
RMO . . . rack mount only
rms . . . . root-mean-square
RND . . . . . round
ROM . . read-only memory
R&P . . . . . rack and panel
RWV . . . reverse working voltage
S . . . scattering parameter
s . . . . . second (time)
. . . " . second (plane angle)
S-B . . . . . slow-blow (fuse) (used in parts list)
SCR . . . silicon controlled rectifier; screw
SE . . . . . selenium
SECT . . . . . sections
SEMICON . . . . . semiconductor
SHF . . . . . superhigh frequency
SI . . . . . silicon
SIL . . . . . silver
SL . . . . . slide
SNR . . signal-to-noise ratio
SPDT . . . . . single-pole, double-throw
SPG . . . . . spring
SR . . . . . split ring
SPST . . . . . single-pole, single-throw
SSB . . . . . single sideband
SST . . . . . stainless steel
STL . . . . . steel
SQ . . . . . square
SWR . . standing-wave ratio
SYNC . . . . . synchronize
T . . timed (slow-blow fuse)
TA . . . . . tantalum
TC . . . . . temperature compensating
TD . . . . . time delay
TERM . . . . . terminal
TFT . . thin-film transistor
TGL . . . . . toggle
THD . . . . . thread
THRU . . . . . through
TI . . . . . titanium
TOL . . . . . tolerance
TRIM . . . . . trimmer
TSTR . . . . . transistor
TTL . . transistor-transistor logic
TV . . . . . television
TVI television interference
TWT . . traveling wave tube
U . . . . . micro (10^{-6}) (used in parts list)
UF . . . microfarad (used in parts list)
UHF . . ultrahigh frequency
UNREG . . . . unregulated
V . . . . . volt
VA . . . . . voltampere
Vac . . . . . volts, ac
VAR . . . . . variable
VCO . . . voltage-controlled oscillator
Vdc . . . . . volts, dc
VDCW . . volts, dc, working (used in parts list)
V(F) . . . . . volts, filtered
VFO . . variable-frequency oscillator
VHF . . . . . very-high frequency
Vpk . . . . . volts, peak
Vp-p . . volts, peak-to-peak
Vrms . . . . . volts, rms
VSWR . . . voltage standing wave ratio
VTO . . . . . voltage-tuned oscillator
VTVM . . . . vacuum-tube voltmeter
V(X) . . . . . volts, switched
W . . . . . watt
W/ . . . . . with
WIV . . . . working inverse voltage
WW . . . . . wirewound
W/O . . . . . without
YIG . . yttrium-iron-garnet
Z_o . . . . . characteristic impedance

NOTE

All abbreviations in the parts list will be in upper-case.

MULTIPLIERS

Abbreviation	Prefix	Multiple
T	tera	10^{12}
G	giga	10^{9}
M	mega	10^{6}
k	kilo	10^{3}
da	deka	10
d	deci	10^{-1}
c	centi	10^{-2}
m	milli	10^{-3}
μ	micro	10^{-6}
n	nano	10^{-9}
p	pico	10^{-12}
f	femto	10^{-15}
a	atto	10^{-18}

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A1				P/O DIGITAL CONTROL UNIT		
A1A1	08662-60173	6	1	READOUT BOARD ASSEMBLY (DOES NOT INCLUDE NUMERIC DISPLAYS)	28480	08662-60173
A1A1C1	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A1A1C3	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A1A1C4	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A1A1DS1	1990-0517	4	2	LED-LAMP LUM-INT=3MCD IF=20MA-MAX BVR=5V	28480	5082-4655
A1A1DS2	1990-0517	4		LED-LAMP LUM-INT=3MCD IF=20MA-MAX BVR=5V	28480	5082-4655
A1A1DS3	2140-0495	7	16	LAMP,INCAND T1-BULB 115MA 5VDC	28480	2140-0495
A1A1DS4	2140-0495	7		LAMP,INCAND T1-BULB 115MA 5VDC	28480	2140-0495
A1A1DS5	2140-0495	7		LAMP,INCAND T1-BULB 115MA 5VDC	28480	2140-0495
A1A1DS6	2140-0495	7		LAMP,INCAND T1-BULB 115MA 5VDC	28480	2140-0495
A1A1DS7	2140-0495	7		LAMP,INCAND T1-BULB 115MA 5VDC	28480	2140-0495
A1A1DS8	2140-0495	7		LAMP,INCAND T1-BULB 115MA 5VDC	28480	2140-0495
A1A1DS9	2140-0495	7		LAMP,INCAND T1-BULB 115MA 5VDC	28480	2140-0495
A1A1DS10	2140-0495	7		LAMP,INCAND T1-BULB 115MA 5VDC	28480	2140-0495
A1A1DS11	2140-0495	7		LAMP,INCAND T1-BULB 115MA 5VDC	28480	2140-0495
A1A1DS12	2140-0495	7		LAMP,INCAND T1-BULB 115MA 5VDC	28480	2140-0495
A1A1DS13	2140-0495	7		LAMP,INCAND T1-BULB 115MA 5VDC	28480	2140-0495
A1A1DS14	2140-0495	7		LAMP,INCAND T1-BULB 115MA 5VDC	28480	2140-0495
A1A1DS15	2140-0495	7		LAMP,INCAND T1-BULB 115MA 5VDC	28480	2140-0495
A1A1DS16	2140-0495	7		LAMP,INCAND T1-BULB 115MA 5VDC	28480	2140-0495
A1A1DS17	2140-0495	7		LAMP,INCAND T1-BULB 115MA 5VDC	28480	2140-0495
A1A1DS18	2140-0495	7		LAMP,INCAND T1-BULB 115MA 5VDC	28480	2140-0495
A1A1J1	1251-3024	8	1	CONNECTOR 26-PIN M RECTANGULAR	28480	1251-3024
A1A1J2	1200-0688	7	8	SOCKET-STRP 11-CONT DIP-SLDR	28480	1200-0688
A1A1J3	1200-0688	7		SOCKET-STRP 11-CONT DIP-SLDR	28480	1200-0688
A1A1J4	1200-0688	7		SOCKET-STRP 11-CONT DIP-SLDR	28480	1200-0688
A1A1J5	1200-0688	7		SOCKET-STRP 11-CONT DIP-SLDR	28480	1200-0688
A1A1J6	1200-0688	7		SOCKET-STRP 11-CONT DIP-SLDR	28480	1200-0688
A1A1J7	1200-0688	7		SOCKET-STRP 11-CONT DIP-SLDR	28480	1200-0688
A1A1J8	1200-0688	7		SOCKET-STRP 11-CONT DIP-SLDR	28480	1200-0688
A1A1J9	1200-0688	7		SOCKET-STRP 11-CONT DIP-SLDR	28480	1200-0688
A1A1J10	1200-0687	6	2	SOCKET-STRP 12-CONT DIP-SLDR	28480	1200-0687
A1A1J11	1200-0687	6		SOCKET-STRP 12-CONT DIP-SLDR	28480	1200-0687
A1A1J12	1200-0822	1	2	SOCKET STRIP, 16-PIN	28480	1200-0822
A1A1J13	1200-0822	1		SOCKET STRIP, 16-PIN	28480	1200-0822
A1A1MP1	2110-0269	0	2	FUSEHOLDER-CLIP TYPE.25D-FUSE	28480	2110-0269
A1A1MP2	2110-0269	0		FUSEHOLDER-CLIP TYPE.25D-FUSE	28480	2110-0269
A1A1R1	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A1A1R2	0757-0421	4	15	RESISTOR 825 1% .125W F TC=0+-100	24546	C4-1/8-T0-825R-F
A1A1R3	0698-3437	2	2	RESISTOR 133 1% .125W F TC=0+-100	24546	C4-1/8-T0-133R-F
A1A1R4	0698-3438	3	7	RESISTOR 147 1% .125W F TC=0+-100	24546	C4-1/8-T0-147R-F
A1A1R5	0698-3438	3		RESISTOR 147 1% .125W F TC=0+-100	24546	C4-1/8-T0-147R-F
A1A1R6	0698-3132	4	39	RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A1A1R7	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A1A1U1	1820-1740	8	2	IC DRVR TTL DSPL DRVR	27014	DS8863N
A1A1U2	1820-1858	9	9	IC FF TTL LS D-TYPE OCTL	01295	SN74LS377N
A1A1U3-A1A1U13				NOT ASSIGNED		
A1A1U14	1820-1740	8		IC DRVR TTL DSPL DRVR	27014	DS8863N
A1A1U15	1820-1858	9		IC FF TTL LS D-TYPE OCTL	01295	SN74LS377N
A1A1U16-A1A1U18				NOT ASSIGNED		
A1A1U19	1820-1216	3	14	IC DCDR TTL LS 3-TO-8-LINE 3-INP	01295	SN74LS138N
A1A1U20	1820-1216	3		IC DCDR TTL LS 3-TO-8-LINE 3-INP	01295	SN74LS138N
A1A1U21-A1A1U24				NOT ASSIGNED		
A1A1U25	1820-1759	9	11	IC BFR TTL LS NON-INV OCTL	27014	DM81LS97N
A1A1U26	1820-1858	9		IC FF TTL LS D-TYPE OCTL	01295	SN74LS377N
A1A2	08662-60168	9	1	LEFT KEYBOARD	28480	08662-60168
A1A2DS1	1990-0665	3	23	LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	1990-0665
A1A2DS2	1990-0665	3		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	1990-0665
A1A2DS3	1990-0665	3		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	1990-0665
A1A2DS4	1990-0665	3		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	1990-0665
A1A2DS5	1990-0665	3		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	1990-0665
A1A2DS6	1990-0665	3		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	1990-0665
A1A2DS7	1990-0665	3		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	1990-0665
A1A2DS8	1990-0665	3		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	1990-0665
A1A2DS9	1990-0719	8	6	LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	HLMP-1301
A1A2DS10	1990-0665	3		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	1990-0665

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A1A2DS11	1990-0665	3		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	1990-0665
A1A2DS12	1990-0665	3		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	1990-0665
A1A2DS13	1990-0665	3		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	1990-0665
A1A2DS14	1990-0665	3		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	1990-0665
A1A2DS15	1990-0665	3		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	1990-0665
A1A2DS16	1990-0665	3		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	1990-0665
A1A2DS17	1990-0665	3		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	1990-0665
A1A2DS18	1990-0719	8		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	HLMP-1301
A1A2DS19	1990-0665	3		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	1990-0665
A1A2DS20	1990-0665	3		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	1990-0665
A1A2J1	1251-5315	4	6	CONNECTOR, 40-PIN, RIBBON CABLE	28480	1251-5315
A1A2MP1	0380-0765	0	13	STANDOFF-RVT-ON .25-IN-LG 6-32THD	00000	ORDER BY DESCRIPTION
A1A2MP2	08662-00143	4	1	PLATE, CLAMP	28480	08662-00143
A1A2R1	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A1A2R2	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A1A2R3	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A1A2R4	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A1A2R5	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A1A2R6	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A1A2R7	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A1A2R8	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A1A2R9	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A1A2R10	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A1A2R11	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A1A2R12	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A1A2R13	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A1A2R14	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A1A2R15	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A1A2R16	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A1A2R17	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A1A2R18	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A1A2R19	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A1A2R20	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A1A2S1	5060-9436	7	60	PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1609	0		KEY CAP,"OFF(ALL OFF)"	28480	5041-1609
A1A2S2	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-0285	6	5	KEY CAP, QUARTER "MARKER 5"	28480	5041-0285
A1A2S3	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-0285	6		KEY CAP, QUARTER "MARKER 4"	28480	5041-0285
A1A2S4	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-0285	6		KEY CAP, QUARTER "MARKER 3"	28480	5041-0285
A1A2S5	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-0285	6		KEY CAP, QUARTER "MARKER 2"	28480	5041-0285
A1A2S6	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-0285	6		KEY CAP, QUARTER "MARKER 1"	28480	5041-0285
A1A2S7	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1613	6		KEY CAP, FULL "STOP FREQ."	28480	5041-1613
A1A2S8	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1612	5		KEY CAP, FULL "START FREQ."	28480	5041-1612
A1A2S9	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-0285	6		KEY CAP, QUARTER "10 MS"	28480	5041-0285
A1A2S10	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-0285	6		KEY CAP, QUARTER "2 MS"	28480	5041-0285
A1A2S11	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-0285	6		KEY CAP, QUARTER "1 MS"	28480	5041-0285
A1A2S12	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-0285	6		KEY CAP, QUARTER "0.5 MS"	28480	5041-0285
A1A2S13	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-0286	7		KEY CAP, HALF "SINGLE"	28480	5041-0286
A1A2S14	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-0286	7		KEY CAP, HALF "MANUAL"	28480	5041-0286
A1A2S15	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-0286	7		KEY CAP, HALF "AUTO"	28480	5041-0286
A1A2S16	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-0276	5		KEY CAP, QUARTER "OFF"	28480	5041-0276
A1A2S17	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1638	5		KEY CAP, FULL "SPAN FREQ."	28480	5041-1638
A1A2S18	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-0285	6		KEY CAP, QUARTER "LOG 1%"	28480	5041-0285
A1A2S19	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-0285	6		KEY CAP, QUARTER "LOG 10%"	28480	5041-0285
A1A2S20	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-0285	6		KEY CAP, QUARTER "SET SIZE"	28480	5041-0285
A1A2S21	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-0285	6		KEY CAP, QUARTER "LIN 1000"	28480	5041-0285

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A1A2S22	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-0285	6		KEY CAP, QUARTER "LIN 100"	28480	5041-0285
A1A2S23	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-0285	6		KEY CAP, QUARTER "100 MS"	28480	5041-0285
A1A3	08662-60169	0	1	RIGHT KEYBOARD	28480	08662-60169
A1A3DS1	1990-0665	3		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	1990-0665
A1A3DS2	1990-0665	3		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	1990-0665
A1A3DS3	1990-0719	8		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	HLMP-1301
A1A3DS4	1990-0719	8		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	HLMP-1301
A1A3DS5	1990-0665	3		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	1990-0665
A1A3DS6	1990-0665	3		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	1990-0665
A1A3DS7	1990-0665	3		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	1990-0665
A1A3DS8	1990-0719	8		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	HLMP-1301
A1A3DS9	1990-0719	8		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	HLMP-1301
A1A3J1	1251-5315	4		CONNECTOR, 40-PIN, RIBBON CABLE	28480	1251-5315
A1A3J2	1251-4989	6	1	CONNECTOR 5-PIN M POST TYPE	28480	1251-4989
A1A3MP1	0380-0765	0		STANDOFF-RVT-ON .25-IN-LG 6-32THD	00000	ORDER BY DESCRIPTION
	2360-0115	4	13	SCREW-MACH 6-32 .312-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A1A3MP2	08662-00144	5	1	PLATE, FUNCTION	28480	08662-00144
A1A3MP3	08662-00145	6	1	PLATE, DATA	28480	08662-00145
A1A3MP4	08662-00146	7	1	PLATE, INCREMENT	28480	08662-00146
A1A3R1	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A1A3R2	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A1A3R3	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A1A3R4	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A1A3R5	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A1A3R6	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A1A3R7	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A1A3R8	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A1A3R9	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A1A3S1	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1636	3	1	KEY CAP, FULL "AMPTD OFF"	28480	5041-1636
A1A3S2	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1629	4	1	KEY CAP, LG DBL,FULL"AMPLITUDE(SPECIAL)	28480	5041-1629
A1A3S3	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1627	2	1	KEY CAP, FULL, "FM"	28480	5041-1627
A1A3S4	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1628	3	1	KEY CAP, FULL, "AM"	28480	5041-1628
A1A3S5	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1640	9	1	KEY CAP, HALF "X10 ON(HOLD)"	28480	5041-1640
A1A3S6	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1641	0	1	KEY CAP, HALF "DIVIDE-BY-10 ON-INCR"	28480	5041-1641
A1A3S7	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-0285	6		KEY CAP, QUARTER "INT 1K"	28480	5041-0285
A1A3S8	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-0285	6		KEY CAP, QUARTER "INT 400"	28480	5041-0285
A1A3S9	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1635	2	1	KEY CAP, HALF "HZ,UV"	28480	5041-1635
A1A3S10	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1634	1	1	KEY CAP, HALF "KHZ,MV KHZ"	28480	5041-1634
A1A3S11	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1633	0	1	KEY CAP, HALF "Z,-DBM MHZ"	28480	5041-1633
A1A3S12	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1632	9	1	KEY CAP, HALF "DB, +DBM GHZ"	28480	5041-1632
A1A3S13	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1625	0	1	KEY CAP, FULL "BACK SPACE"	28480	5041-1625
A1A3S14	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1624	9	1	KEY CAP, FULL "DECIMAL POINT"	28480	5041-1624
A1A3S15	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1639	6	1	KEY CAP, HALF "SEQ. (AUTO SEQ.)"	28480	5041-1639
A1A3S16	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1611	4	1	KEY CAP, HALF "RECALL"	28480	5041-1611
A1A3S17	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1610	3	1	KEY CAP, HALF "STORE (SET SEQ.)"	28480	5041-1610
A1A3S18	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-0285	6		KEY CAP, QUARTER "STATUS"	28480	5041-0285
A1A3S19	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-0441	6	1	KEY CAP, QUARTER (BLUE KEY)	28480	5041-0441
A1A3S20	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-0285	6		KEY CAP, QUARTER "EXT DC"	28480	5041-0285
A1A3S21	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-0285	6		KEY CAP, QUARTER "EXT AC"	28480	5041-0285
A1A3S22	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1620	5	1	KEY CAP, FULL "NUMBER 7"	28480	5041-1620
A1A3S23	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1619	2	1	KEY CAP, FULL "NUMBER 6"	28480	5041-1619
A1A3S24	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1618	1	1	KEY CAP, FULL "NUMBER 5"	28480	5041-1618

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A1A3S25	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1617	0	1	KEY CAP, FULL "NUMBER 4"	28480	5041-1617
A1A3S26	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1616	9	1	KEY CAP, FULL "NUMBER 3"	28480	5041-1616
A1A3S27	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1615	8	1	KEY CAP, FULL "NUMBER 2"	28480	5041-1615
A1A3S28	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1614	7	1	KEY CAP, FULL "NUMBER 1"	28480	5041-1614
A1A3S29	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1623	8	1	KEY CAP, FULL "NUMBER 0"	28480	5041-1623
A1A3S30	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1637	4	1	KEY CAP, FULL "MOD OFF"	28480	5041-1637
A1A3S31	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-0309	5	1	KEY CAP, QUARTER, "OFF"	28480	5041-0309
A1A3S32	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1626	1	2	KEY CAP, LG DBL,FULL(STEP DOWN)	28480	5041-1626
A1A3S33	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1626	1		KEY CAP, LG DBL,FULL(STEP UP)	28480	5041-1626
A1A3S34	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1631	8	1	KEY CAP, LG DBL,FULL "INCR SET"	28480	5041-1631
A1A3S35	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1630	7	1	KEY CAP, LG DBL,FULL "FREQUENCY"	28480	5041-1630
A1A3S36	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1622	7	1	KEY CAP, FULL "NUMBER 9"	28480	5041-1622
A1A3S37	5060-9436	7		PUSHBUTTON SWITCH P.C. MOUNT	28480	5060-9436
	5041-1621	6	1	KEY CAP, FULL "NUMBER 8"	28480	5041-1621
A2				P/O DIGITAL CONTROL UNIT		
A2A1	08662-60235	1	1	KEY CODE BOARD	28480	08662-60235
A2A1C1	0180-2620	6	23	CAPACITOR-FXD 2.2UF+-10% 50VDC TA	25088	D2R2GS1B50K
A2A1C2	0180-2620	6		CAPACITOR-FXD 2.2UF+-10% 50VDC TA	25088	D2R2GS1B50K
A2A1C3	0180-2620	6		CAPACITOR-FXD 2.2UF+-10% 50VDC TA	25088	D2R2GS1B50K
A2A1C4	0180-2620	6		CAPACITOR-FXD 2.2UF+-10% 50VDC TA	25088	D2R2GS1B50K
A2A1C5	0180-2620	6		CAPACITOR-FXD 2.2UF+-10% 50VDC TA	25088	D2R2GS1B50K
A2A1C6	0180-0291	3	9	CAPACITOR-FXD 1UF+-10% 35VDC TA	56289	150D105X9035A2
A2A1C7†	0180-0197	8	37	CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A2A1C8†	0160-3877	5	29	CAPACITOR-FXD 100PF +-20% 200VDC CER	28480	0160-3877
A2A1DS1	1990-0487	7	7	LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	5082-4584
A2A1DS2	1990-0487	7		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	5082-4584
A2A1DS3	1990-0487	7		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	5082-4584
A2A1DS4	1990-0487	7		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	5082-4584
A2A1DS5	1990-0487	7		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	5082-4584
A2A1DS6	1990-0487	7		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	5082-4584
A2A1DS7	1990-0487	7		LED-LAMP LUM-INT=1MCD IF=20MA-MAX BVR=5V	28480	5082-4584
A2A1MP1	4040-0748	3	8	EXTR-PC BD BLK POLYC .062-BD-THKNS	28480	4040-0748
	1480-0073	6	22	PIN-ROLL .062-IN-DIA .25-IN-LG BE-CU	28480	1480-0073
A2A1MP2	4040-0749	4	3	EXTR-PC BD BRN POLYC .062-BD-THKNS	28480	4040-0749
	1480-0073	6		PIN-ROLL .062-IN-DIA .25-IN-LG BE-CU	28480	1480-0073
A2A1R1	1810-0280	8	3	NETWORK-RES 10-SIP10.0K OHM X 9	01121	210A103
A2A1R2	1810-0280	8		NETWORK-RES 10-SIP10.0K OHM X 9	01121	210A103
A2A1R3	1810-0280	8		NETWORK-RES 10-SIP10.0K OHM X 9	01121	210A103
A2A1R4	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A1R5	1810-0339	8	1	NETWORK-RES 8-SIP270.0 OHM X 7	01121	208A271
A2A1R6	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A1R7	0757-0199	3	10	RESISTOR 21.5K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2152-F
A2A1R8	1810-0279	5	5	NETWORK-RES 10-SIP4.7K OHM X 9	01121	210A472
A2A1R9	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A2A1R10	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A1R11†	0698-3266	5	2	RESISTOR 237K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2373-F
A2A1R12†	0757-0442	9	61	RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A1S1	3101-0860	9	5	SWITCH-SL DPDT MINTR .5A 125VAC/DC PC	28480	3101-0860
A2A1U1	1820-1201	6		IC GATE TTL LS AND QUAD 2-INP	01295	SN74LS08N
A2A1U2	1820-1199	1	4	IC INV TTL LS HEX 1-INP	01295	SN74LS04N
A2A1U3	1820-1197	9	9	IC GATE TTL LS NAND QUAD 2-INP	01295	SN74LS00N
A2A1U4	1820-1423	4	6	IC MV TTL LS MONOSTBL RETRIG DUAL	01295	SN74LS123N
A2A1U5	1820-1201	6		IC GATE TTL LS AND QUAD 2-INP	01295	SN74LS08N
A2A1U6	1820-1202	7	5	IC GATE TTL LS NAND TPL 3-INP	01295	SN74LS10N
A2A1U7	1820-1197	9		IC GATE TTL LS NAND QUAD 2-INP	01295	SN74LS00N
A2A1U8†	1820-1262	9	1	IC CNTR TTL DECD ASYNCHRO NEG-EDGE-TRIG	01295	SN74290N
A2A1U9	1820-1991	1	1	IC CNTR TTL LS DECD DUAL 4-BIT	01295	SN74LS390N
A2A1U10	1820-1193	5	2	IC CNTR TTL LS BIN ASYNCHRO	01295	SN74LS197N

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A2A1U11	1820-1112	8	8	IC FF TTL LS D-TYPE POS-EDGE-TRIG	01295	SN74LS74AN
A2A1U12	1820-1112	8		IC FF TTL LS D-TYPE POS-EDGE-TRIG	01295	SN74LS74AN
A2A1U13	1820-1473	4	5	IC ENCDR TTL 8-INP	01295	SN74148N
A2A1U14	1820-1473	4		IC ENCDR TTL 8-INP	01295	SN74148N
A2A1U15	1820-1419	8	1	IC COMPTR TTL LS MAGTD 4-BIT	01295	SN74LS85N
A2A1U16	1820-1199	1		IC INV TTL LS HEX 1-INP	01295	SN74LS04N
A2A1U17	1820-2081	2	1	IC NMOS	04713	MC68A21P
A2A1U18	1820-1759	9		IC BFR TTL LS NON-INV OCTL	27014	DM81LS97N
A2A1U19	1820-1202	7		IC GATE TTL LS NAND TPL 3-INP	01295	SN74LS10N
A2A1U20	1820-1197	9		IC GATE TTL LS NAND QUAD 2-INP	01295	SN74LS00N
A2A1U21	1820-1473	4		IC ENCDR TTL 8-INP	01295	SN74148N
A2A1U22	1820-1195	7	4	IC FF TTL LS D-TYPE POS-EDGE-TRIG COM	01295	SN74LS175N
A2A1U23	1820-1473	4		IC ENCDR TTL 8-INP	01295	SN74148N
A2A1U24	1820-1473	4		IC ENCDR TTL 8-INP	01295	SN74148N
A2A1U25	1820-1197	9		IC GATE TTL LS NAND QUAD 2-INP	01295	SN74LS00N
A2A1U26	1820-1794	2	15	IC BFR TTL LS NON-INV OCTL	27014	DM81LS95N
A2A1U27	1820-1759	9		IC BFR TTL LS NON-INV OCTL	27014	DM81LS97N
A2A1U28	1820-1202	7		IC GATE TTL LS NAND TPL 3-INP	01295	SN74LS10N
A2A2	08662-60171	4	1	SWEEP BOARD ASSEMBLY	28480	08662-60171
A2A2C1	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A2A2C2	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A2A2C3	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A2A2C4	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A2A2C5	0160-0164	7	1	CAPACITOR-FXD .039UF +-10% 200VDC POLYE	28480	0160-0164
A2A2C6	0160-0157	8	2	CAPACITOR-FXD 4700PF +-10% 200VDC POLYE	28480	0160-0157
A2A2C7	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A2A2C8	0160-0153	4	2	CAPACITOR-FXD 1000PF +-10% 200VDC POLYE	28480	0160-0153
A2A2C9	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A2A2C10	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A2A2C11	0180-2205	3	1	CAPACITOR-FXD .33UF+-10% 35VDC TA	56289	150D334X9035A2
A2A2C12	0180-1746	5	7	CAPACITOR-FXD 15UF+-10% 20VDC TA	56289	150D156X9020B2
A2A2C13	0180-1746	5		CAPACITOR-FXD 15UF+-10% 20VDC TA	56289	150D156X9020B2
A2A2CR1	1901-0040	1	93	DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A2A2CR2	1901-0050	3	81	DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A2A2CR3	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A2A2CR4	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A2A2CR5	1901-0518	8	46	DIODE-SM SIG SCHOTTKY	28480	1901-0518
A2A2CR6	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A2A2MP1	4040-0748	3		EXTR-PC BD BLK POLYC .062-BD-THKNS	28480	4040-0748
	1480-0073	6		PIN-ROLL .062-IN-DIA .25-IN-LG BE-CU	28480	1480-0073
A2A2MP2	4040-0750	7	3	EXTR-PC BD RED POLYC .062-BD-THKNS	28480	4040-0750
	1480-0073	6		PIN-ROLL .062-IN-DIA .25-IN-LG BE-CU	28480	1480-0073
A2A2Q1	1854-0071	7	24	TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0071
A2A2Q2	1854-0071	7		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0071
A2A2Q3	1853-0020	4	7	TRANSISTOR PNP SI PD=300MW FT=150MHZ	28480	1853-0020
A2A2Q4	1855-0020	8	30	TRANSISTOR J-FET N-CHAN D-MODE TO-18 SI	28480	1855-0020
A2A2Q5	1855-0020	8		TRANSISTOR J-FET N-CHAN D-MODE TO-18 SI	28480	1855-0020
A2A2R1	0698-3136	8	8	RESISTOR 17.8K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1782-F
A2A2R2	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A2R3	0757-0458	7		RESISTOR 51.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5112-F
A2A2R4	0757-0458	7		RESISTOR 51.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5112-F
A2A2R5	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A2R6	0757-0458	7		RESISTOR 51.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5112-F
A2A2R7	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A2R8	2100-3354	9	1	RESISTOR-TRMR 50K 10% C SIDE-ADJ 1-TRN	28480	2100-3354
A2A2R9	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A2R10	0698-3260	9	3	RESISTOR 464K 1% .125W F TC=0+-100	28480	0698-3260
A2A2R11	0757-0465	6		RESISTOR 100K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1003-F
A2A2R12				NOT ASSIGNED		
A2A2R13				NOT ASSIGNED		
A2A2R14	0698-3161	9	4	RESISTOR 38.3K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3832-F
A2A2R15				NOT ASSIGNED		
A2A2R16	0757-0439	4	4	RESISTOR 6.81K 1% .125W F TC=0+-100	24546	C4-1/8-T0-6811-F
A2A2R17	0757-0460	1	4	RESISTOR 61.9K 1% .125W F TC=0+-100	24546	C4-1/8-T0-6192-F
A2A2R18	0757-0460	1		RESISTOR 61.9K 1% .125W F TC=0+-100	24546	C4-1/8-T0-6192-F
A2A2R19	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A2A2R20	0757-0465	6		RESISTOR 100K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1003-F
A2A2R21	0757-0416	7	35	RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A2A2R22				NOT ASSIGNED		
A2A2R23	0757-0458	7		RESISTOR 51.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5112-F
A2A2R24	0698-3155	1	13	RESISTOR 4.64K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4641-F
A2A2R25	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A2A2R26	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A2A2R27	0698-3159	5	5	RESISTOR 26.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2612-F
A2A2R28	0698-3159	5		RESISTOR 26.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2612-F
A2A2TP1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A2A2TP2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A2A2TP3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A2A2TP4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A2A2TP5	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A2A2TP6	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A2A2U1	1820-1423	4		IC MV TTL LS MONOSTBL RETRIG DUAL	01295	SN74LS123N
A2A2U2	1826-0271	0	2	IC OP AMP GP 8-DIP-P PKG	01295	SN72741P
A2A2U3	1826-0323	3	2	IC OP AMP GP QUAD 14-DIP-C PKG	28480	1826-0323
A2A2U4	1820-1423	4		IC MV TTL LS MONOSTBL RETRIG DUAL	01295	SN74LS123N
A2A2U5	1820-1197	9		IC GATE TTL LS NAND QUAD 2-INP	01295	SN74LS00N
A2A2U6	1826-0271	0		IC OP AMP GP 8-DIP-P PKG	01295	SN72741P
A2A2U7	1826-0264	1	3	IC CONV 10-B-D/A 16-DIP-P PKG	24355	AD7520LN
A2A2U8	1820-1201	6		IC GATE TTL LS AND QUAD 2-INP	01295	SN74LS08N
A2A2U9	1820-1858	9		IC FF TTL LS D-TYPE OCTL	01295	SN74LS377N
A2A2U10	1820-1216	3		IC DCDR TTL LS 3-TO-8-LINE 3-INP	01295	SN74LS138N
A2A2U11	1820-1195	7		IC FF TTL LS D-TYPE POS-EDGE-TRIG COM	01295	SN74LS175N
A2A2U12	1820-1858	9		IC FF TTL LS D-TYPE OCTL	01295	SN74LS377N
A2A2U13	1820-1858	9		IC FF TTL LS D-TYPE OCTL	01295	SN74LS377N
A2A2U14	1820-1858	9		IC FF TTL LS D-TYPE OCTL	01295	SN74LS377N
A2A2U15	1820-1858	9		IC FF TTL LS D-TYPE OCTL	01295	SN74LS377N
A2A2U16	1820-1858	9		IC FF TTL LS D-TYPE OCTL	01295	SN74LS377N
A2A2U17	1820-1794	2		IC BFR TTL LS NON-INV OCTL	27014	DM81LS95N
A2A3†	08662-60294	2	1	LEVEL MODULATION OUTPUT ASSEMBLY	28480	08662-60294
A2A3C1	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A2A3C2	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A2A3C3	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A2A3C4	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A2A3CR1	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A2A3CR2	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A2A3CR3	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A2A3CR4	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A2A3CR5	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A2A3CR6	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A2A3MP1	4040-0748	3		EXTR-PC BD BLK POLYC .062-BD-THKNS	28480	4040-0748
	1480-0073	6		PIN-ROLL .062-IN-DIA .25-IN-LG BE-CU	28480	1480-0073
A2A3MP2	4040-0751	8	3	EXTR-PC BD ORN POLYC .062-BD-THKNS	28480	4040-0751
	1480-0073	6		PIN-ROLL .062-IN-DIA .25-IN-LG BE-CU	28480	1480-0073
A2A3Q1	1853-0393	4	8	TRANSISTOR, PNP	28480	1853-0393
A2A3Q2	1853-0393	4		TRANSISTOR, PNP	28480	1853-0393
A2A3Q3	1853-0393	4		TRANSISTOR, PNP	28480	1853-0393
A2A3Q4	1853-0393	4		TRANSISTOR, PNP	28480	1853-0393
A2A3Q5	1853-0393	4		TRANSISTOR, PNP	28480	1853-0393
A2A3Q6	1853-0393	4		TRANSISTOR, PNP	28480	1853-0393
A2A3R1	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A3R2	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A3R3	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A3R4	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A3R5	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A3R6	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A2A3R7	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A2A3R8	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A2A3R9	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A3R10	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A3R11	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A3R12	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A3R13	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A3R14	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A2A3R15	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A2A3R16	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A2A3R17	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A3R18	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A3R19	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A3R20†	0757-0280	3	76	RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A2A3R21†	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A2A3R22†	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A2A3R23†	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A2A3R24†	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A2A3R25†	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F

See introduction to this section for ordering information
*Indicates factory selected value
†FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A2A3U1	1820-1730	6	14	IC FF TTL LS D-TYPE POS-EDGE-TRIG COM	01295	SN74LS273N
A2A3U2	1820-1730	6		IC FF TTL LS D-TYPE POS-EDGE-TRIG COM	01295	SN74LS273N
A2A3U3	1820-1730	6		IC FF TTL LS D-TYPE POS-EDGE-TRIG COM	01295	SN74LS273N
A2A3U4	1820-1730	6		IC FF TTL LS D-TYPE POS-EDGE-TRIG COM	01295	SN74LS273N
A2A3U5	1820-1730	6		IC FF TTL LS D-TYPE POS-EDGE-TRIG COM	01295	SN74LS273N
A2A3U6	1820-1730	6		IC FF TTL LS D-TYPE POS-EDGE-TRIG COM	01295	SN74LS273N
A2A3U7	1820-1730	6		IC FF TTL LS D-TYPE POS-EDGE-TRIG COM	01295	SN74LS273N
A2A3U8	1820-1794	2		IC BFR TTL LS NON-INV OCTL	27014	DM81LS95N
A2A3U9	1820-1794	2		IC BFR TTL LS NON-INV OCTL	27014	DM81LS95N
A2A3U10	1820-1794	2		IC BFR TTL LS NON-INV OCTL	27014	DM81LS95N
A2A3U11	1820-1794	2		IC BFR TTL LS NON-INV OCTL	27014	DM81LS95N
A2A3U12	1820-1794	2		IC BFR TTL LS NON-INV OCTL	27014	DM81LS95N
A2A3U13	1820-1794	2		IC BFR TTL LS NON-INV OCTL	27014	DM81LS95N
A2A3U14	1820-1794	2		IC BFR TTL LS NON-INV OCTL	27014	DM81LS95N
A2A4	08662-60167	8	1	FREQUENCY OUTPUT BOARD ASSEMBLY	28480	08662-60167
A2A4C1	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A2A4C2	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A2A4C3	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A2A4C4	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A2A4C5	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A2A4MP1	4040-0748	3		EXTR-PC BD BLK POLYC .062-BD-THKNS	28480	4040-0748
	1480-0073	6		PIN-ROLL .062-IN-DIA .25-IN-LG BE-CU	28480	1480-0073
A2A4MP2	4040-0752	9	1	EXTR-PC BD YEL POLYC .062-BD-THKNS	28480	4040-0752
	1480-0073	6		PIN-ROLL .062-IN-DIA .25-IN-LG BE-CU	28480	1480-0073
A2A4R1	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A4R2	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A4R3	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A4R4	1810-0279	5		RESISTOR PACK, 4.7K OHM 2%	01121	210A472
A2A4R5†	0757-0401	0	54	RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A2A4U1	1820-1730	6		IC FF TTL LS D-TYPE POS-EDGE-TRIG COM	01295	SN74LS273N
A2A4U2	1820-1730	6		IC FF TTL LS D-TYPE POS-EDGE-TRIG COM	01295	SN74LS273N
A2A4U3	1820-1267	4	2	IC CONV TTL BCD-TO-BIN 6-BIT	01295	SN74184N
A2A4U4	1820-1730	6		IC FF TTL LS D-TYPE POS-EDGE-TRIG COM	01295	SN74LS273N
A2A4U5	1820-1433	6	8	IC SHF-RGTR TTL LS R-S SERIAL-IN PRL-OUT	01295	SN74LS164N
A2A4U6	1820-1433	6		IC SHF-RGTR TTL LS R-S SERIAL-IN PRL-OUT	01295	SN74LS164N
A2A4U7	1820-1794	2		IC BFR TTL LS NON-INV OCTL	27014	DM81LS95N
A2A4U8	1820-1794	2		IC BFR TTL LS NON-INV OCTL	27014	DM81LS95N
A2A4U9	1820-1794	2		IC BFR TTL LS NON-INV OCTL	27014	DM81LS95N
A2A4U10	1820-1794	2		IC BFR TTL LS NON-INV OCTL	27014	DM81LS95N
A2A4U11	1820-1794	2		IC BFR TTL LS NON-INV OCTL	27014	DM81LS95N
A2A4U12	1820-1794	2		IC BFR TTL LS NON-INV OCTL	27014	DM81LS95N
A2A4U13	1820-1433	6		IC SHF-RGTR TTL LS R-S SERIAL-IN PRL-OUT	01295	SN74LS164N
A2A4U14	1820-1433	6		IC SHF-RGTR TTL LS R-S SERIAL-IN PRL-OUT	01295	SN74LS164N
A2A4U15	1820-1433	6		IC SHF-RGTR TTL LS R-S SERIAL-IN PRL-OUT	01295	SN74LS164N
A2A4U16	1820-1730	6		IC FF TTL LS D-TYPE POS-EDGE-TRIG COM	01295	SN74LS273N
A2A4U17	1820-1730	6		IC FF TTL LS D-TYPE POS-EDGE-TRIG COM	01295	SN74LS273N
A2A4U18	1820-1730	6		IC FF TTL LS D-TYPE POS-EDGE-TRIG COM	01295	SN74LS273N
A2A4U19	1820-1267	4		IC CONV TTL BCD-TO-BIN 6-BIT	01295	SN74184N
A2A4U20	1820-1730	6		IC FF TTL LS D-TYPE POS-EDGE-TRIG COM	01295	SN74LS273N
A2A4U21	1820-1433	6		IC SHF-RGTR TTL LS R-S SERIAL-IN PRL-OUT	01295	SN74LS164N
A2A4U22	1820-1433	6		IC SHF-RGTR TTL LS R-S SERIAL-IN PRL-OUT	01295	SN74LS164N
A2A4U23	1820-1433	6		IC SHF-RGTR TTL LS R-S SERIAL-IN PRL-OUT	01295	SN74LS164N
A2A5†	08662-60295	3	1	HP-IB	28480	08662-60295
A2A5C1	0180-2620	6		CAPACITOR-FXD 2.2UF+-10% 50VDC TA	25088	D2R2GS1B50K
A2A5C2	0180-2620	6		CAPACITOR-FXD 2.2UF+-10% 50VDC TA	25088	D2R2GS1B50K
A2A5C3	0180-2620	6		CAPACITOR-FXD 2.2UF+-10% 50VDC TA	25088	D2R2GS1B50K
A2A5C4	0180-2620	6		CAPACITOR-FXD 2.2UF+-10% 50VDC TA	25088	D2R2GS1B50K
A2A5C5	0180-2620	6		CAPACITOR-FXD 2.2UF+-10% 50VDC TA	25088	D2R2GS1B50K
A2A5C6	0180-2620	6		CAPACITOR-FXD 2.2UF+-10% 50VDC TA	25088	D2R2GS1B50K
A2A5C7	0180-2620	6		CAPACITOR-FXD 2.2UF+-10% 50VDC TA	25088	D2R2GS1B50K
A2A5C8†	0160-0574	3	8	CAPACITOR-FXD .022UF +-20% 100VDC CER	28480	0160-0574
A2A5C9†	0160-0574	3		CAPACITOR-FXD .022UF +-20% 100VDC CER	28480	0160-0574
A2A5L1	9100-1618	1	3	INDUCTOR RF-CH-MLD 5.6UH 10%	28480	9100-1618
A2A5MP1	4040-0748	3		EXTR-PC BD BLK POLYC .062-BD-THKNS	28480	4040-0748
	1480-0073	6		PIN-ROLL .062-IN-DIA .25-IN-LG BE-CU	28480	1480-0073
A2A5MP2	4040-0753	0	1	EXTR-PC BD GRN POLYC .062-BD-THKNS	28480	4040-0753
	1480-0073	6		PIN-ROLL .062-IN-DIA .25-IN-LG BE-CU	28480	1480-0073
A2A5R1	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A2A5R2	0698-3155	1		RESISTOR 4.64K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4641-F
A2A5R3	0698-3155	1		RESISTOR 4.64K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4641-F
A2A5R4†	0698-0082	7	14	RESISTOR 464 1% .125W F TC=0+-100	24546	C4-1/8-T0-4640-F
A2A5R5†	0698-0082	7		RESISTOR 464 1% .125W F TC=0+-100	24546	C4-1/8-T0-4640-F

See introduction to this section for ordering information
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† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A2A5S1	3100-3414	3	1	SWITCH-THUMBWHEEL 2-MOD; BCD 1-2-4-8	28480	3100-3414
A2A5U1	1820-1208	3	1	IC GATE TTL LS OR QUAD 2-INP	01295	SN74LS32N
A2A5U2	1820-1202	7		IC,GATE TTL LS NAND TPL 3-INPT	01295	SN74LS10N
A2A5U3	1820-1199	1		IC INV TTL LS HEX 1-INP	01295	SN74LS04N
A2A5U4	1820-1759	9		IC BFR TTL LS NON-INV OCTL	27014	DM81LS97N
A2A5U5	1820-2058	3	4	IC, HP-IB TRANSCEIVERS	07263	MC3448AL
A2A5U6	1820-2058	3		IC, HP-IB TRANSCEIVERS	07263	MC3448AL
A2A5U7	1820-2148	2	1	IC MICPROC-ACCESS NMOS	04713	MC68A488L
A2A5U8	1820-2058	3		IC, HP-IB TRANSCEIVERS	07263	MC3448AL
A2A5U9	1820-2058	3		IC, HP-IB TRANSCEIVERS	07263	MC3448AL
A2A5U10†	1820-1201	6	7	IC GATE TTL LS AND QUAD 2-INP	01295	SN74LS08N
A2A5U11†	08662-80047	5	1	ROM PROGRAMMED	28480	08662-80047
A2A5U12	1820-1759	9		IC BFR TTL LS NON-INV OCTL	27014	DM81LS97N
A2A5U13	1820-1759	9		IC BFR TTL LS NON-INV OCTL	27014	DM81LS97N
A2A6	08662-60236	2	1	MICRO PROCESSOR/DECODER	28480	08662-60236
A2A6C1	0180-1745	4	1	CAPACITOR-FXD 1.5UF+-10% 20VDC TA	56289	150D155X9020A2
A2A6C2	0160-3455	5	3	CAPACITOR-FXD 470PF +-10% 1KVDC CER	28480	0160-3455
A2A6C3	0160-3455	5		CAPACITOR-FXD 470PF +-10% 1KVDC CER	28480	0160-3455
A2A6C4	0180-0374	3	1	CAPACITOR-FXD 10UF+-10% 20VDC TA	56289	150D106X9020B2
A2A6C5	0180-2617	1	62	CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A2A6C6	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A2A6C7	0160-4519	4	1	CAPACITOR-FXD 9.1PF +-.5PF 200VDC CER	28480	0160-4519
A2A6C8	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A2A6C9	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A2A6C10	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A2A6C11	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A2A6C12	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A2A6C13				NOT ASSIGNED		
A2A6C14	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A2A6CR1	1901-0376	6	7	DIODE-GEN PRP 35V 50MA DO-35	28480	1901-0376
A2A6MP1	4040-0748	3		EXTR-PC BD BLK POLYC .062-BD-THKNS	28480	4040-0748
	1480-0073	6		PIN-ROLL .062-IN-DIA .25-IN-LG BE-CU	28480	1480-0073
A2A6MP2	4040-0754	1	1	EXTR-PC BD BLU POLYC .062-BD-THKNS	28480	4040-0754
	1480-0073	6		PIN-ROLL .062-IN-DIA .25-IN-LG BE-CU	28480	1480-0073
A2A6R1	1810-0275	1		NETWORK-RES 10-SIP1.0K OHM X 9	01121	210A102
A2A6R2	0698-7283	4	2	RESISTOR 90.9K 1% .05W F TC=0+-100	24546	C3-1/8-T0-9092-F
A2A6R3	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A2A6R4	0698-7268	5	33	RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2152-F
A2A6R5	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2152-F
A2A6R6	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2152-F
A2A6R7	0698-7283	4		RESISTOR 90.9K 1% .05W F TC=0+-100	24546	C3-1/8-T0-9092-F
A2A6R8	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A2A6R9	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A2A6R10	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2152-F
A2A6R11	1810-0206	8	1	NETWORK-RES 8-SIP10.0K OHM X 7	01121	208A103
A2A6R12	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2152-F
A2A6R13	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2152-F
A2A6R14	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2152-F
A2A6R15	0698-7284	5	6	RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F
A2A6R16	0698-7262	9	11	RESISTOR 12.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1212-F
A2A6R17	0698-7262	9		RESISTOR 12.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1212-F
A2A6R18	0698-7262	9		RESISTOR 12.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1212-F
A2A6R19	0698-7262	9		RESISTOR 12.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1212-F
A2A6R20	0698-7262	9		RESISTOR 12.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1212-F
A2A6R21	0698-7262	9		RESISTOR 12.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1212-F
A2A6R22	0698-7262	9		RESISTOR 12.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1212-F
A2A6R23	0698-7262	9		RESISTOR 12.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1212-F
A2A6R24	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A2A6R25	0757-0279	0	19	RESISTOR 3.16K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3161-F
A2A6R26	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A2A6R27	0757-0279	0		RESISTOR 3.16K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3161-F
A2A6R28	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2152-F
A2A6R29	0757-0397	3	4	RESISTOR 68.1 1% .125W F TC=0+-100	24546	C4-1/8-T0-68R1-F
A2A6TP1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A2A6TP2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A2A6TP3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A2A6TP4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A2A6TP5	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A2A6TP6	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A2A6TP7†	1251-0600	0	305	CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A2A6U1	1820-1424	5	1	IC OSC TTL LS DUAL	01295	SN74LS124N
A2A6U2	1820-1112	8		IC FF TTL LS D-TYPE POS-EDGE-TRIG	01295	SN74LS74AN
A2A6U3				NOT ASSIGNED		
A2A6U4	1820-1199	1		IC INV TTL LS HEX 1-INP	01295	SN74LS04N
A2A6U5	3100-3364	2	1	SWITCH-ROTARY 16 PIN DIP 4PDT	28480	3100-3364

See introduction to this section for ordering information
*Indicates factory selected value
†FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A2A6U6†	08662-80046	4	1	ROM PROGRAMMED	28480	08662-80046
A2A6U7	1826-0191	3	5	IC COMPARATOR GP DUAL TO-100 PKG	27014	LM319H
A2A6U8	1820-1423	4		IC MV TTL LS MONOSTBL RETRIG DUAL	01295	SN74LS123N
A2A6U9	1820-1201	6		IC GATE TTL LS AND QUAD 2-INP	01295	SN74LS08N
A2A6U10	1820-1202	7		IC GATE TTL LS NAND TPL 3-INP	01295	SN74LS10N
A2A6U11	1820-1203	8	2	IC GATE TTL LS AND TPL 3-INP	01295	SN74LS11N
A2A6U12	1820-1197	9		IC GATE TTL LS NAND QUAD 2-INP	01295	SN74LS00N
A2A6U13	1820-2240	5	1	IC, MC68A08P	28480	1820-2240
	1200-0654	7	1	SOCKET-IC 40-CONT DIP DIP-SLDR	28480	1200-0654
A2A6U14	1820-1216	3		IC DCDR TTL LS 3-TO-8-LINE 3-INP	01295	SN74LS138N
A2A6U15	1820-1216	3		IC DCDR TTL LS 3-TO-8-LINE 3-INP	01295	SN74LS138N
A2A6U16	1820-1216	3		IC DCDR TTL LS 3-TO-8-LINE 3-INP	01295	SN74LS138N
A2A6U17	1820-1203	8		IC GATE TTL LS AND TPL 3-INP	01295	SN74LS11N
A2A6U18	1820-1216	3		IC DCDR TTL LS 3-TO-8-LINE 3-INP	01295	SN74LS138N
A2A6U19	1820-1216	3		IC DCDR TTL LS 3-TO-8-LINE 3-INP	01295	SN74LS138N
A2A6U20	1820-1216	3		IC DCDR TTL LS 3-TO-8-LINE 3-INP	01295	SN74LS138N
A2A6U21	1820-1759	9		IC BFR TTL LS NON-INV OCTL	27014	DM81LS97N
A2A6U22	1820-1759	9		IC BFR TTL LS NON-INV OCTL	27014	DM81LS97N
A2A6U23	1820-1759	9		IC BFR TTL LS NON-INV OCTL	27014	DM81LS97N
A2A6U24	1820-1759	9		IC BFR TTL LS NON-INV OCTL	27014	DM81LS97N
A2A6VR1	1902-3024	9	1	DIODE-ZNR 2.87V 5% DO-7 PD=.4W TC=-.07%	28480	1902-3024
A2A6Y1	0410-1184	4	1	CRYSTAL, 6.000 MHZ	28480	0410-1184
	1400-0973	7	1	CLIP-CMPNT .139-.154-DIA STL	91506	6180-1A
A2A7†	08662-60298	6	1	RAM ASSEMBLY	28480	08662-60298
A2A7C1	0160-3447	5	4	CAPACITOR-FXD 470PF +-10% 1KVDC CER	28480	0160-3447
A2A7C2	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A2A7C3	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A2A7C4†	0180-2618	2	27	CAPACITOR-FXD 33UF+-10% 10VDC TA	25088	D33GS1B10K
A2A7C5†				NOT ASSIGNED		
A2A7C6†				NOT ASSIGNED		
A2A7C7†				NOT ASSIGNED		
A2A7C8†				NOT ASSIGNED		
A2A7C9†				NOT ASSIGNED		
A2A7C10†				NOT ASSIGNED		
A2A7C11†	0180-2168	7	4	CAPACITOR-FXD 290UF+50-10% 250VDC AL	00853	500291T250AB6B
A2A7C12†	0180-2168	7		CAPACITOR-FXD 290UF+50-10% 250VDC AL	00853	500291T250AB6B
A2A7C13†	0180-2168	7		CAPACITOR-FXD 290UF+50-10% 250VDC AL	00853	500291T250AB6B
A2A7C14†	0180-2168	7		CAPACITOR-FXD 290UF+50-10% 250VDC AL	00853	500291T250AB6B
A2A7C15†	0160-0576	5	19	CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-0576
A2A7C16†	0160-0576	5		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-0576
A2A7C17†	0160-0576	5		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-0576
A2A7C18†	0160-0576	5		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-0576
A2A7C19†	0160-0576	5		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-0576
A2A7C20†	0160-0576	5		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-0576
A2A7C21†	0160-0576	5		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-0576
A2A7C22†	0160-0576	5		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-0576
A2A7C23†	0160-0576	5		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-0576
A2A7C24†	0160-0576	5		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-0576
A2A7C25†	0160-0576	5		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-0576
A2A7C26†	0160-0576	5		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-0576
A2A7C27†	0160-0576	5		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-0576
A2A7C28†	0160-0576	5		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-0576
A2A7C29†	0160-0576	5		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-0576
A2A7C30†	0160-0576	5		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-0576
A2A7CR1†				NOT ASSIGNED		
A2A7CR2†				NOT ASSIGNED		
A2A7L1†	08672-80001	3	18	TOROID FILTER-630UH	28480	08672-80001
A2A7L2†	08672-80001	3		TOROID FILTER-630UH	28480	08672-80001
A2A7L3†	08672-80001	3		TOROID FILTER-630UH	28480	08672-80001
A2A7L4†	06872-80001	1	1	TOROID FILTER-630UH	28480	06872-80001
A2A7L5†	08672-80001	3		TOROID FILTER-630UH	28480	08672-80001
A2A7MP1	4040-0748	3		EXTR-PC BD BLK POLYC .062-BD-THKNS	28480	4040-0748
	1480-0073	6		PIN-ROLL .062-IN-DIA .25-IN-LG BE-CU	28480	1480-0073
A2A7MP2	4040-0755	2	1	EXTR-PC BD VIO POLYC .062-BD-THKNS	28480	4040-0755
	1480-0073	6		PIN-ROLL .062-IN-DIA .25-IN-LG BE-CU	28480	1480-0073
A2A7Q1	1854-0071	7		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0071
A2A7Q2	1853-0393	4		TRANSISTOR,PNP, SI TO-18	28480	1853-0393
A2A7Q3	1853-0393	4		TRANSISTOR,PNP, SI TO-18	28480	1853-0393
A2A7Q4	1854-0071	7		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0071
A2A7Q5	1854-0071	7		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0071
A2A7Q6	1854-0071	7		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0071

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A2A7R1	0757-0199	3		RESISTOR 21.5K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2152-F
A2A7R2	1810-0279	5		NETWORK-RES 10-SIP4.7K OHM X 9	01121	210A472
A2A7R3	0757-0199	3		RESISTOR 21.5K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2152-F
A2A7R4	0757-0199	3		RESISTOR 21.5K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2152-F
A2A7R5	0757-0199	3		RESISTOR 21.5K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2152-F
A2A7R6	1810-0279	5		NETWORK-RES 10-SIP4.7K OHM X 9	01121	210A472
A2A7R7	0757-0461	2	2	RESISTOR 68.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-6812-F
A2A7R8	0757-0346	2	15	RESISTOR 10 1% .125W F TC=0+-100	24546	C4-1/8-T0-10R0-F
A2A7R9	0757-0466	7	5	RESISTOR 110K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1103-F
A2A7R10	0757-0466	7		RESISTOR 110K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1103-F
A2A7R11	1810-0279	5		NETWORK-RES 10-SIP4.7K OHM X 9	01121	210A472
A2A7R12	0757-0466	7		RESISTOR 110K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1103-F
A2A7R13	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A7R14	0757-0466	7		RESISTOR 110K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1103-F
A2A7R15	0757-0458	7		RESISTOR 51.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5112-F
A2A7R16	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A7R17†				NOT ASSIGNED		
A2A7R18	0757-0274	5	3	RESISTOR 1.21K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1211-F
A2A7R19	0757-0394	0	11	RESISTOR 51.1 1% .125W F TC=0+-100	24546	C4-1/8-T0-51R1-F
A2A7R20†	1810-0275	1	2	NETWORK-RES 10-SIP1.0K OHM X 9	01121	210A102
A2A7U1	1818-0439	5	16	IC CMOS 1024 (1K) STAT RAM 300-NS 3-S	34371	HM1-6561B-9
A2A7U2	1818-0439	5		IC CMOS 1024 (1K) STAT RAM 300-NS 3-S	34371	HM1-6561B-9
A2A7U3	1818-0439	5		IC CMOS 1024 (1K) STAT RAM 300-NS 3-S	34371	HM1-6561B-9
A2A7U4	1818-0439	5		IC CMOS 1024 (1K) STAT RAM 300-NS 3-S	34371	HM1-6561B-9
A2A7U5	1818-0439	5		IC CMOS 1024 (1K) STAT RAM 300-NS 3-S	34371	HM1-6561B-9
A2A7U6	1818-0439	5		IC CMOS 1024 (1K) STAT RAM 300-NS 3-S	34371	HM1-6561B-9
A2A7U7	1818-0439	5		IC CMOS 1024 (1K) STAT RAM 300-NS 3-S	34371	HM1-6561B-9
A2A7U8	1818-0439	5		IC CMOS 1024 (1K) STAT RAM 300-NS 3-S	34371	HM1-6561B-9
A2A7U9	1818-0439	5		IC CMOS 1024 (1K) STAT RAM 300-NS 3-S	34371	HM1-6561B-9
A2A7U10	1818-0439	5		IC CMOS 1024 (1K) STAT RAM 300-NS 3-S	34371	HM1-6561B-9
A2A7U11	1818-0439	5		IC CMOS 1024 (1K) STAT RAM 300-NS 3-S	34371	HM1-6561B-9
A2A7U12	1818-0439	5		IC CMOS 1024 (1K) STAT RAM 300-NS 3-S	34371	HM1-6561B-9
A2A7U13	1818-0439	5		IC CMOS 1024 (1K) STAT RAM 300-NS 3-S	34371	HM1-6561B-9
A2A7U14	1818-0439	5		IC CMOS 1024 (1K) STAT RAM 300-NS 3-S	34371	HM1-6561B-9
A2A7U15	1818-0439	5		IC CMOS 1024 (1K) STAT RAM 300-NS 3-S	34371	HM1-6561B-9
A2A7U16	1818-0439	5		IC CMOS 1024 (1K) STAT RAM 300-NS 3-S	34371	HM1-6561B-9
A2A7U17	1826-0191	3		IC COMPARATOR GP DUAL TO-100 PKG	27014	LM319H
A2A7U18	1820-1216	3		IC DCDR TTL LS 3-TO-8-LINE 3-INP	01295	SN74LS138N
A2A7U19†	1820-0655	2	1	IC GATE TTL NOR DUAL 4-INP	01295	SN7425N
A2A7U20†	1820-1568	8	2	IC BFR TTL LS BUS QUAD	01295	SN74LS125AN
A2A7U21†	1820-1568	8		IC BFR TTL LS BUS QUAD	01295	SN74LS125AN
A2A7U22†	1820-2075	4	1	IC MISC TTL LS	01295	SN74LS245N
A2A7U23†	1820-2024	3	1	IC DRVR TTL LS LINE DRVR OCTL	01295	SN74LS244N
A2A8†				NOT ASSIGNED		
A2A9†	08662-60299	7	1	ROM 2	28480	08662-60299
A2A9C1	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A2A9C2	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A2A9C3	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A2A9C4	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A2A9C5	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A2A9MP1	4040-0756	3	1	EXTR-PC BD WHT POLYC .062-BD-THKNS	28480	4040-0756
	1480-0073	6		PIN-ROLL .062-IN-DIA .25-IN-LG BE-CU	28480	1480-0073
A2A9MP2	4040-0748	3		EXTR-PC BD BLK POLYC .062-BD-THKNS	28480	4040-0748
	1480-0073	6		PIN-ROLL .062-IN-DIA .25-IN-LG BE-CU	28480	1480-0073
A2A9R7	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A9R8	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A9R9	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A9R10	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A9R11†	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A9R12	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A2A9R13	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A2A9R14	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A2A9R15	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A2A9R16	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A2A9R17	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A2A9R18	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A2A9R19	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A2A9R20	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A2A9R21	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A2A9R22	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A2A9R23	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A2A9U1†	08662-80048	6	1	PROM, PROGRAMMED	28480	08662-80048
A2A9U2†	08662-80049	7	1	PROM, PROGRAMMED	28480	08662-80049
A2A9U3†	08662-80050	0	1	PROM, PROGRAMMED	28480	08662-80050
A2A9U4†	08662-80051	1	1	PROM, PROGRAMMED	28480	08662-80051
A2A9U5†	08662-80052	2	1	PROM, PROGRAMMED	28480	08662-80052

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A2A9U6†	08662-80053	3	1	PROM, PROGRAMMED	28480	08662-80053
A2A9U7†	08662-80054	4	1	PROM, PROGRAMMED	28480	08662-80054
A2A9U8†	08662-80055	5	1	PROM, PROGRAMMED	28480	08662-80055
A2A9U9†	08662-80056	6	1	PROM, PROGRAMMED	28480	08662-80056
A2A9U10†	08662-80057	7	1	PROM, PROGRAMMED	28480	08662-80057
A2A9U11†	08662-80058	8	1	PROM, PROGRAMMED	28480	08662-80058
A2A9U12†				NSR, REFER TO TABLE 6-1.		
A2A9U13	1820-1201	6		IC GATE TTL LS AND QUAD 2-INP	01295	SN74LS08N
A2A9U14	1820-1216	3		IC DCDR TTL LS 3-TO-8-LINE 3-INP	01295	SN74LS138N
A2A9U15	1820-1216	3		IC DCDR TTL LS 3-TO-8-LINE 3-INP	01295	SN74LS138N
A2A9U16	1820-1216	3		IC DCDR TTL LS 3-TO-8-LINE 3-INP	01295	SN74LS138N
A2A9U17	1820-1759	9		IC BFR TTL LS NON-INV OCTL	27014	DM81LS97N
A2A10	08662-60172	5	1	DCU MOTHER BOARD	28480	08662-60172
A2A10E1	0340-0095	5	4	TERMINAL-STUD SGL-TUR PRESS-MTG	28480	0340-0095
A2A10E2	0340-0095	5		TERMINAL-STUD SGL-TUR PRESS-MTG	28480	0340-0095
A2A10E3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A2A10E4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A2A10E5	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A2A10E6	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A2A10E7	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A2A10E8	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A2A10J1	1251-5315	4		CONNECTOR, 40-PIN, RIBBON CABLE	28480	1251-5315
A2A10J2	1251-5315	4		CONNECTOR, 40-PIN, RIBBON CABLE	28480	1251-5315
A2A10J3	1251-4017	1	1	CONNECTOR 26-PIN M	28480	1251-4017
A2A10J4	1251-5316	5	2	CONNECTOR, 34-PIN	28480	1251-5316
A2A10J5	1200-0507	9	6	SOCKET-IC 16-CONT DIP-SLDR	28480	1200-0507
A2A10J6	1200-0507	9		SOCKET-IC 16-CONT DIP-SLDR	28480	1200-0507
A2A10J7	1251-5315	4		CONNECTOR, 40-PIN, RIBBON CABLE	28480	1251-5315
A2A10J8	1251-5314	3	2	CONNECTOR, 50-PIN	28480	1251-5314
A2A10J9	1251-5414	4	1	CONNECTOR 7-PIN M POST TYPE	28480	1251-5414
A2A10L1†	9140-0158	6	13	INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG	28480	9140-0158
A2A10TP1	0340-0095	5		TERMINAL-STUD SGL-TUR PRESS-MTG	28480	0340-0095
A2A10TP2	0340-0095	5		TERMINAL-STUD SGL-TUR PRESS-MTG	28480	0340-0095
A2A10TP3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A2A10TP4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A2A10XA2A1A	1251-2026	8	17	CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS	28480	1251-2026
A2A10XA2A1B	1251-2026	8		CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS	28480	1251-2026
A2A10XA2A2A	1251-2026	8		CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS	28480	1251-2026
A2A10XA2A2B	1251-2026	8		CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS	28480	1251-2026
A2A10XA2A3A	1251-2026	8		CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS	28480	1251-2026
A2A10XA2A3B	1251-2026	8		CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS	28480	1251-2026
A2A10XA2A4A	1251-2026	8		CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS	28480	1251-2026
A2A10XA2A4B	1251-2026	8		CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS	28480	1251-2026
A2A10XA2A5A	1251-2026	8		CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS	28480	1251-2026
A2A10XA2A5B	1251-2026	8		CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS	28480	1251-2026
A2A10XA2A6A	1251-2026	8		CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS	28480	1251-2026
A2A10XA2A6B	1251-2026	8		CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS	28480	1251-2026
A2A10XA2A7	1251-2026	8		CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS	28480	1251-2026
A2A10XA2A8	1251-2026	8		CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS	28480	1251-2026
A2A10XA2A9	1251-2026	8		CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS	28480	1251-2026
A2A11				0-155DB STEP ATTEN.,NSR(SEE TABLE 6-1)		
A2BT1	08672-60092	0	1	BATTERY PACK ASSEMBLY	28480	08672-60092
A2FL1	08662-60011	1	1	BANDPASS FILTER-520MHZ	28480	08662-60011
A2MP1	08662-20010	6	4	GUIDE SUPPORT (HEX SHAPE)	28480	08662-20010
	3050-0226	2	4	WASHER-FL MTLC NO. 10 .203-IN-ID	28480	3050-0226
	0510-0045	6	4	RETAINER-RING E-R EXT .188-IN-DIA STL	28480	0510-0045
A2MP2	08662-00046	6	1	COVER, DCU, LEFT	28480	08662-00046
A2MP3†	08662-00180	9	1	COVER, DCU, RIGHT	28480	08662-00180
A2MP4	0360-0036	6	1	TERMINAL-SLDR LUG PL-MTG FOR-#6-SCR	28480	0360-0036
A2MP5	08662-00062	6	4	CAGE, PC BOARDS	28480	08662-00062
A2MP6	08672-00011	7	1	CLAMP, BATTERY	28480	08672-00011
A2MP7	08672-60029	3	1	BATTERY HOLDER ASSEMBLY	28480	08672-60029
A3A1	08662-60135	0	1	REVERSE POWER DRIVER ATTENUATOR	28480	08662-60135
A3A1C1	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A1C2	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A1C3	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A1C4	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A3A1C5	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K

See introduction to this section for ordering information
*Indicates factory selected value
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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A3A1C6	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A3A1C7	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A1C8	0180-2215	5	2	CAPACITOR-FXD 170UF+75-10% 15VDC AL	56289	30D177G015DD2
A3A1C9†	0180-2619	3	37	CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A3A1CR1	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A3A1CR2	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A3A1DS1	1990-0326	3	10	LED-LAMP LUM-INT=300UCD IF=50MA-MAX	28480	5082-4444
A3A1J1	1250-1220	0	51	CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4	64	WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9	59	NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A3A1J2	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A3A1J3	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A3A1L1	9100-3922	4	96	COIL, 3.0 UH	28480	9100-3922
A3A1L2	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A3A1L3	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A3A1MP1	08662-00081	9	1	COVER, 1/3 END	28480	08662-00081
	2360-0113	2	39	SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A3A1MP2	08662-00107	0	2	GASKET, EXTRUSION 1/3 END	28480	08662-00107
A3A1Q1	1853-0012	4	32	TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW	01295	2N2904A
A3A1Q2	1854-0071	7		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0071
A3A1R1	0757-0346	2		RESISTOR 10 1% .125W F TC=0+-100	24546	C4-1/8-T0-10R0-F
A3A1R2	0757-0422	5	14	RESISTOR 909 1% .125W F TC=0+-100	24546	C4-1/8-T0-909R-F
A3A1R3	0698-3161	9		RESISTOR 38.3K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3832-F
A3A1R4	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A3A1R5	0698-3444	1	13	RESISTOR 316 1% .125W F TC=0+-100	24546	C4-1/8-T0-316R-F
A3A1R6	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A3A1R7	0698-3444	1		RESISTOR 316 1% .125W F TC=0+-100	24546	C4-1/8-T0-316R-F
A3A1R8	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A3A1R9	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A3A1R10	0699-0073	8	1	RESISTOR 10M 1% .125W F TC=0+-150	28480	0699-0073
A3A1R11	0698-3160	8	18	RESISTOR 31.6K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3162-F
A3A1R12	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A3A1R13	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A3A1R14	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A3A1R15	0757-0465	6		RESISTOR 100K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1003-F
A3A1R16	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A3A1R17	0757-0461	2		RESISTOR 68.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-6812-F
A3A1R18	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A3A1R19	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A3A1TP1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A1TP2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A1TP3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A1U1	1826-0026	3	6	IC COMPARATOR PRCN TO-99 PKG	01295	LM311L
A3A1U2	1820-1212	9	1	IC FF TTL LS J-K NEG-EDGE-TRIG	01295	SN74LS112AN
A3A1U3	1820-0175	1	1	IC INV TTL HEX 1-INP	01295	SN7405N
A3A1U4	1820-1197	9		IC GATE TTL LS NAND QUAD 2-INP	01295	SN74LS00N
A3A1VR1	1902-3256	9	2	DIODE-ZNR 23.7V 5% DO-35 PD=.4W	28480	1902-3256
A3A1VR2	1902-3070	5	1	DIODE-ZNR 4.22V 5% DO-35 PD=.4W	28480	1902-3070
A3A2				NOT ASSIGNED		
A3A3	08662-60138	3	1	N LOOP DIVIDER/PHASE DETECTOR ASSEMBLY	28480	08662-60138
A3A3C1	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A3C2	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A3C3	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A3C4	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A3C5	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A3C6	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A3C7	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A3C8	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A3C9†	0180-0558	5	1	CAPACITOR-FXD 470UF+-20% 10VDC TA	56289	150D477X0010S2
A3A3C10	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A3C11	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A3C12	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A3C13†	0160-0576	5		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-0576
A3A3C14	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A3A3C15	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878

See introduction to this section for ordering information
*Indicates factory selected value
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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A3A3C16	0180-2620	6		CAPACITOR-FXD 2.2UF+-10% 50VDC TA	25088	D2R2GS1B50K
A3A3C17	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A3C18	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A3C19	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A3C20	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A3C21	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A3C22	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A3C23	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A3C24	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A3C25	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A3C26	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A3C27	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A3C28	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A3C29	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A3C30	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A3C31	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A3C32	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A3C33	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A3C34	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A3C35	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A3C36	0140-0195	2	1	CAPACITOR-FXD 130PF +-5% 300VDC MICA	72136	DM15F131J0300WV1CR
A3A3C37	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A3C38	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A3C39	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A3C40	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A3C41	0160-2205	1	1	CAPACITOR-FXD 120PF +-5% 300VDC MICA	28480	0160-2205
A3A3C42	0140-0205	5	2	CAPACITOR-FXD 62PF +-5% 300VDC MICA	72136	DM15E620J0300WV1CR
A3A3C43	0140-0205	5		CAPACITOR-FXD 62PF +-5% 300VDC MICA	72136	DM15E620J0300WV1CR
A3A3C44	0121-0105	4	2	CAPACITOR-V TRMR-CER 9-35PF 200V PC-MTG	52763	304324 9/35PF N650
A3A3C45	0140-0210	2	5	CAPACITOR-FXD 270PF +-5% 300VDC MICA	72136	DM15F271J0300WV1CR
A3A3C46	0140-0210	2		CAPACITOR-FXD 270PF +-5% 300VDC MICA	72136	DM15F271J0300WV1CR
A3A3C47	0160-3538	5	3	CAPACITOR-FXD 750PF +-5% 100VDC MICA	28480	0160-3538
A3A3C48	0160-3538	5		CAPACITOR-FXD 750PF +-5% 100VDC MICA	28480	0160-3538
A3A3C49	0140-0191	8	2	CAPACITOR-FXD 56PF +-5% 300VDC MICA	72136	DM15E560J0300WV1CR
A3A3C50	0140-0210	2		CAPACITOR-FXD 270PF +-5% 300VDC MICA	72136	DM15F271J0300WV1CR
A3A3C51	0140-0210	2		CAPACITOR-FXD 270PF +-5% 300VDC MICA	72136	DM15F271J0300WV1CR
A3A3C52	0121-0105	4		CAPACITOR-V TRMR-CER 9-35PF 200V PC-MTG	52763	304324 9/35PF N650
A3A3C53	0160-2199	2	2	CAPACITOR-FXD 30PF +-5% 300VDC MICA	28480	0160-2199
A3A3C54	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A3C55	0121-0446	6	3	CAPACITOR-V TRMR-CER 4.5-20PF 160V	28480	0121-0446
A3A3C56	0160-2259	5	1	CAPACITOR-FXD 12PF +-5% 500VDC CER 0+-30	28480	0160-2259
A3A3C57	0121-0446	6		CAPACITOR-V TRMR-CER 4.5-20PF 160V	28480	0121-0446
A3A3C58	0160-2306	3	3	CAPACITOR-FXD 27PF +-5% 300VDC MICA	28480	0160-2306
A3A3C59	0160-2264	2	4	CAPACITOR-FXD 20PF +-5% 500VDC CER 0+-30	28480	0160-2264
A3A3C60	0160-3068	6	2	CAPACITOR-FXD 1500PF +-5% 300VDC MICA	28480	0160-3068
A3A3C61	0160-3068	6		CAPACITOR-FXD 1500PF +-5% 300VDC MICA	28480	0160-3068
A3A3C62	0160-0573	2	16	CAPACITOR-FXD 4700PF +-20% 100VDC CER	28480	0160-0573
A3A3C63	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A3CR1	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A3A3CR2	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A3A3CR3	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A3A3CR4	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A3A3CR5	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A3CR6	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A3CR7	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A3CR8	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A3CR9	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A3CR10	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A3CR11	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A3CR12	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A3DS1	1990-0326	3		LED-LAMP LUM-INT=300UCD IF=50MA-MAX	28480	5082-4444
A3A3E1†	9170-0029	3	7	CORE-SHIELDING BEAD	28480	9170-0029
A3A3E2†	9170-0029	3		CORE-SHIELDING BEAD	28480	9170-0029
A3A3J1	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A3A3L1	9140-0144	0		INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG	28480	9140-0144
A3A3L2†	9140-0515	9	1	INDUCTOR-FXD 144UH +/-20%	28480	9140-0515
	0890-0065	4	1	TUBING-HS .54-D/.415-RCVD .032-WALL PVC	28480	0890-0065
	0890-0212	3	1	TUBING-FLEX .032-ID TFE .012-WALL	00000	ORDER BY DESCRIPTION
A3A3L3	9140-0144	0		INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG	28480	9140-0144
A3A3L4	9100-1629	4	10	INDUCTOR RF-CH-MLD 47UH 5% .166DX.385LG	28480	9100-1629
A3A3L5	9140-0144	0		INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG	28480	9140-0144
A3A3L6	9140-0179	1	6	INDUCTOR RF-CH-MLD 22UH 10% .166DX.385LG	28480	9140-0179
A3A3L7	9140-0179	1		INDUCTOR RF-CH-MLD 22UH 10% .166DX.385LG	28480	9140-0179
A3A3L8	9140-0138	2	1	INDUCTOR RF-CH-MLD 180UH 5% .166DX.385LG	28480	9140-0138

See introduction to this section for ordering information
*Indicates factory selected value
†FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A3A3L9	9140-0158	6		INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG	28480	9140-0158
A3A3L10	9140-0158	6		INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG	28480	9140-0158
A3A3L11	9140-0158	6		INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG	28480	9140-0158
A3A3L12	9140-0158	6		INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG	28480	9140-0158
A3A3L13	9100-1635	2	2	INDUCTOR RF-CH-MLD 91UH 5% .166DX.385LG	28480	9100-1635
A3A3L14	9140-0158	6		INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG	28480	9140-0158
A3A3L15	9140-0158	6		INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG	28480	9140-0158
A3A3L16	9100-1633	0	1	INDUCTOR RF-CH-MLD 68UH 5% .166DX.385LG	28480	9100-1633
A3A3L17	9100-1631	8	1	INDUCTOR RF-CH-MLD 56UH 5% .166DX.385LG	28480	9100-1631
A3A3L18	9100-1627	2	4	INDUCTOR RF-CH-MLD 39UH 5% .166DX.385LG	28480	9100-1627
A3A3L19	9100-1627	2		INDUCTOR RF-CH-MLD 39UH 5% .166DX.385LG	28480	9100-1627
A3A3MP1	08662-00100	3	1	COVER, EXTRUSION, FULL	28480	08662-00100
	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A3A3MP2	5001-0176	0	54	STRAP GROUND	28480	5001-0176
A3A3MP3	5001-0176	0		STRAP GROUND	28480	5001-0176
A3A3Q1	1854-0404	0	45	TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A3A3Q2	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A3A3Q3	1853-0034	0	5	TRANSISTOR PNP SI TO-18 PD=360MW	28480	1853-0034
A3A3Q4	1853-0034	0		TRANSISTOR PNP SI TO-18 PD=360MW	28480	1853-0034
A3A3Q5	1854-0247	9	23	TRANSISTOR NPN SI TO-39 PD=1W FT=800MHZ	28480	1854-0247
A3A3Q6	1853-0007	7	36	TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A3A3Q7	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A3A3Q8	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A3A3Q9	1853-0451	5	32	TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
A3A3Q10	1854-0247	9		TRANSISTOR NPN SI TO-39 PD=1W FT=800MHZ	28480	1854-0247
A3A3Q11	1853-0451	5		TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
A3A3Q12	1853-0451	5		TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
A3A3R1	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A3A3R2	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A3A3R3	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A3A3R4	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A3A3R5	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A3A3R6	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A3A3R7	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A3A3R8	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A3A3R9	0757-0316	6	1	RESISTOR 42.2 1% .125W F TC=0+-100	24546	C4-1/8-TO-42R2-F
A3A3R10	0698-7219	6	23	RESISTOR 196 1% .05W F TC=0+-100	24546	C3-1/8-TO-196R-F
A3A3R11	0698-7213	0	5	RESISTOR 110 1% .05W F TC=0+-100	24546	C3-1/8-TO-110R-F
A3A3R12	0698-7222	1	21	RESISTOR 261 1% .05W F TC=0+-100	24546	C3-1/8-TO-261R-F
A3A3R13	2100-3349	2	1	RESISTOR-TRMR 100 10% C SIDE-ADJ 1-TRN	28480	2100-3349
A3A3R14	0698-7216	3		RESISTOR 147 1% .05W F TC=0+-100	24546	C3-1/8-TO-147R-F
A3A3R15	0698-7221	0	10	RESISTOR 237 1% .05W F TC=0+-100	24546	C3-1/8-TO-237R-F
A3A3R16	0698-7221	0		RESISTOR 237 1% .05W F TC=0+-100	24546	C3-1/8-TO-237R-F
A3A3R17	0698-7216	3		RESISTOR 147 1% .05W F TC=0+-100	24546	C3-1/8-TO-147R-F
A3A3R18	0698-7234	5	13	RESISTOR 825 1% .05W F TC=0+-100	24546	C3-1/8-TO-825R-F
A3A3R19	0698-7234	5		RESISTOR 825 1% .05W F TC=0+-100	24546	C3-1/8-TO-825R-F
A3A3R20	0698-7234	5		RESISTOR 825 1% .05W F TC=0+-100	24546	C3-1/8-TO-825R-F
A3A3R21	0698-7216	3		RESISTOR 147 1% .05W F TC=0+-100	24546	C3-1/8-TO-147R-F
A3A3R22	0698-7221	0		RESISTOR 237 1% .05W F TC=0+-100	24546	C3-1/8-TO-237R-F
A3A3R23	0698-7234	5		RESISTOR 825 1% .05W F TC=0+-100	24546	C3-1/8-TO-825R-F
A3A3R24	0698-7222	1		RESISTOR 261 1% .05W F TC=0+-100	24546	C3-1/8-TO-261R-F
A3A3R25	0698-7222	1		RESISTOR 261 1% .05W F TC=0+-100	24546	C3-1/8-TO-261R-F
A3A3R26	0698-7222	1		RESISTOR 261 1% .05W F TC=0+-100	24546	C3-1/8-TO-261R-F
A3A3R27	0698-7222	1		RESISTOR 261 1% .05W F TC=0+-100	24546	C3-1/8-TO-261R-F
A3A3R28	0698-7218	5	6	RESISTOR 178 1% .05W F TC=0+-100	24546	C3-1/8-TO-178R-F
A3A3R29	0698-7218	5		RESISTOR 178 1% .05W F TC=0+-100	24546	C3-1/8-TO-178R-F
A3A3R30	0698-7218	5		RESISTOR 178 1% .05W F TC=0+-100	24546	C3-1/8-TO-178R-F
A3A3R31	0698-7221	0		RESISTOR 237 1% .05W F TC=0+-100	24546	C3-1/8-TO-237R-F
A3A3R32	0698-7218	5		RESISTOR 178 1% .05W F TC=0+-100	24546	C3-1/8-TO-178R-F
A3A3R33	0698-7188	8	64	RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A3A3R34	0698-7216	3		RESISTOR 147 1% .05W F TC=0+-100	24546	C3-1/8-TO-147R-F
A3A3R35	0698-7233	4		RESISTOR 750 1% .05W F TC=0+-100	24546	C3-1/8-TO-750R-F
A3A3R36	0698-7233	4		RESISTOR 750 1% .05W F TC=0+-100	24546	C3-1/8-TO-750R-F
A3A3R37	0698-7233	4		RESISTOR 750 1% .05W F TC=0+-100	24546	C3-1/8-TO-750R-F
A3A3R38	0698-7233	4		RESISTOR 750 1% .05W F TC=0+-100	24546	C3-1/8-TO-750R-F
A3A3R39	0698-7221	0		RESISTOR 237 1% .05W F TC=0+-100	24546	C3-1/8-TO-237R-F
A3A3R40	0698-7233	4		RESISTOR 750 1% .05W F TC=0+-100	24546	C3-1/8-TO-750R-F
A3A3R41	0698-7216	3		RESISTOR 147 1% .05W F TC=0+-100	24546	C3-1/8-TO-147R-F
A3A3R42	0698-7216	3		RESISTOR 147 1% .05W F TC=0+-100	24546	C3-1/8-TO-147R-F
A3A3R43	0698-7221	0		RESISTOR 237 1% .05W F TC=0+-100	24546	C3-1/8-TO-237R-F
A3A3R44	0698-7233	4		RESISTOR 750 1% .05W F TC=0+-100	24546	C3-1/8-TO-750R-F
A3A3R45	0698-7229	8	64	RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-TO-511R-F
A3A3R46	0698-7233	4		RESISTOR 750 1% .05W F TC=0+-100	24546	C3-1/8-TO-750R-F
A3A3R47	0698-7233	4		RESISTOR 750 1% .05W F TC=0+-100	24546	C3-1/8-TO-750R-F
A3A3R48	0698-7233	4		RESISTOR 750 1% .05W F TC=0+-100	24546	C3-1/8-TO-750R-F
A3A3R49	0698-7233	4		RESISTOR 750 1% .05W F TC=0+-100	24546	C3-1/8-TO-750R-F
A3A3R50	0698-7226	5		RESISTOR 383 1% .05W F TC=0+-100	24546	C3-1/8-TO-383R-F

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A3A3R51	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-TO-511R-F
A3A3R52	0698-7233	4		RESISTOR 750 1% .05W F TC=0+-100	24546	C3-1/8-TO-750R-F
A3A3R53	0698-7220	9	6	RESISTOR 215 1% .05W F TC=0+-100	24546	C3-1/8-TO-215R-F
A3A3R54	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-TO-511R-F
A3A3R55	0698-7200	5		RESISTOR 31.6 1% .05W F TC=0+-100	24546	C3-1/8-TO-31R6-F
A3A3R56	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A3A3R57	0698-7233	4		RESISTOR 750 1% .05W F TC=0+-100	24546	C3-1/8-TO-750R-F
A3A3R58	0698-7233	4		RESISTOR 750 1% .05W F TC=0+-100	24546	C3-1/8-TO-750R-F
A3A3R59	0698-7209	4	3	RESISTOR 75 1% .05W F TC=0+-100	24546	C3-1/8-TO-75R0-F
A3A3R60	0698-7253	8	22	RESISTOR 5.11K 1% .05W F TC=0+-100	24546	C3-1/8-TO-5111-F
A3A3R61	0698-7253	8		RESISTOR 5.11K 1% .05W F TC=0+-100	24546	C3-1/8-TO-5111-F
A3A3R62	0698-7238	9	8	RESISTOR 1.21K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1211-F
A3A3R63	0698-7238	9		RESISTOR 1.21K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1211-F
A3A3R64	0698-7253	8		RESISTOR 5.11K 1% .05W F TC=0+-100	24546	C3-1/8-TO-5111-F
A3A3R65	0698-7253	8		RESISTOR 5.11K 1% .05W F TC=0+-100	24546	C3-1/8-TO-5111-F
A3A3R66	0698-7192	4	2	RESISTOR 14.7 1% .05W F TC=0+-100	24546	C3-1/8-TO-14R7-F
A3A3R67	0698-7233	4		RESISTOR 750 1% .05W F TC=0+-100	24546	C3-1/8-TO-750R-F
A3A3R68	0698-7196	8	21	RESISTOR 21.5 1% .05W F TC=0+-100	24546	C3-1/8-TO-21R5-F
A3A3R69	0698-7233	4		RESISTOR 750 1% .05W F TC=0+-100	24546	C3-1/8-TO-750R-F
A3A3R70	0698-7224	3	27	RESISTOR 316 1% .05W F TC=0+-100	24546	C3-1/8-TO-316R-F
A3A3R71	0698-7237	8		RESISTOR 1.1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1101-F
A3A3R72	0698-7226	5		RESISTOR 383 1% .05W F TC=0+-100	24546	C3-1/8-TO-383R-F
A3A3R73	0698-7237	8		RESISTOR 1.1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1101-F
A3A3R74	0698-7224	3		RESISTOR 316 1% .05W F TC=0+-100	24546	C3-1/8-TO-316R-F
A3A3R75	0698-7213	0		RESISTOR 110 1% .05W F TC=0+-100	24546	C3-1/8-TO-110R-F
A3A3R76	0698-7226	5		RESISTOR 383 1% .05W F TC=0+-100	24546	C3-1/8-TO-383R-F
A3A3R77	0698-7233	4		RESISTOR 750 1% .05W F TC=0+-100	24546	C3-1/8-TO-750R-F
A3A3R78	0698-7233	4		RESISTOR 750 1% .05W F TC=0+-100	24546	C3-1/8-TO-750R-F
A3A3R79	0698-7233	4		RESISTOR 750 1% .05W F TC=0+-100	24546	C3-1/8-TO-750R-F
A3A3R80	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A3A3R81	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A3A3R82	0698-7233	4		RESISTOR 750 1% .05W F TC=0+-100	24546	C3-1/8-TO-750R-F
A3A3R83	0698-7233	4		RESISTOR 750 1% .05W F TC=0+-100	24546	C3-1/8-TO-750R-F
A3A3R84	0698-7233	4		RESISTOR 750 1% .05W F TC=0+-100	24546	C3-1/8-TO-750R-F
A3A3R85	0698-7263	0	4	RESISTOR 13.3K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1332-F
A3A3R86	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3-1/8-TO-2152-F
A3A3R87	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1002-F
A3A3R88*	0698-7257	2	5	RESISTOR 7.5K 1% .05W F TC=0+-100	24546	C3-1/8-TO-7501-F
A3A3R89	0698-7234	5		RESISTOR 825 1% .05W F TC=0+-100	24546	C3-1/8-TO-825R-F
A3A3R90	0698-7233	4		RESISTOR 750 1% .05W F TC=0+-100	24546	C3-1/8-TO-750R-F
A3A3R91	0698-7233	4		RESISTOR 750 1% .05W F TC=0+-100	24546	C3-1/8-TO-750R-F
A3A3R92	0698-7233	4		RESISTOR 750 1% .05W F TC=0+-100	24546	C3-1/8-TO-750R-F
A3A3R93	0698-7233	4		RESISTOR 750 1% .05W F TC=0+-100	24546	C3-1/8-TO-750R-F
A3A3R94	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A3A3R95	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A3A3R96	0698-7233	4		RESISTOR 750 1% .05W F TC=0+-100	24546	C3-1/8-TO-750R-F
A3A3R97	0698-7233	4		RESISTOR 750 1% .05W F TC=0+-100	24546	C3-1/8-TO-750R-F
A3A3R98†	0698-7247	0	4	RESISTOR 2.87K 1% .05W F TC=0+-100	24546	C3-1/8-TO-2871-F
A3A3R99	0698-7248	1	18	RESISTOR 3.16K 1% .05W F TC=0+-100	24546	C3-1/8-TO-3161-F
A3A3R100	0698-7248	1		RESISTOR 3.16K 1% .05W F TC=0+-100	24546	C3-1/8-TO-3161-F
A3A3R101	0698-7248	1		RESISTOR 3.16K 1% .05W F TC=0+-100	24546	C3-1/8-TO-3161-F
A3A3R102	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A3A3R103	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A3A3R104	0698-7248	1		RESISTOR 3.16K 1% .05W F TC=0+-100	24546	C3-1/8-TO-3161-F
A3A3R105	0698-7240	3	18	RESISTOR 1.47K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1471-F
A3A3R106	0698-7240	3		RESISTOR 1.47K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1471-F
A3A3R107	0698-7232	3	6	RESISTOR 681 1% .05W F TC=0+-100	24546	C3-1/8-TO-681R-F
A3A3R108	0698-7244	7		RESISTOR 2.15K 1% .05W F TC=0+-100	24546	C3-1/8-TO-2151-F
A3A3R109	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1001-F
A3A3R110	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1002-F
A3A3R111	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1002-F
A3A3R112	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1001-F
A3A3R113	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1001-F
A3A3R114	0698-7255	0	6	RESISTOR 6.19K 1% .05W F TC=0+-100	24546	C3-1/8-TO-6191-F
A3A3R115	0698-7253	8		RESISTOR 5.11K 1% .05W F TC=0+-100	24546	C3-1/8-TO-5111-F
A3A3R116	0698-7253	8		RESISTOR 5.11K 1% .05W F TC=0+-100	24546	C3-1/8-TO-5111-F
A3A3R117	0698-7224	3		RESISTOR 316 1% .05W F TC=0+-100	24546	C3-1/8-TO-316R-F
A3A3R118	0698-7249	2	16	RESISTOR 3.48K 1% .05W F TC=0+-100	24546	C3-1/8-TO-3481-F
A3A3R119	0698-7243	6	10	RESISTOR 1.96K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1961-F
A3A3R120	0698-7243	6		RESISTOR 1.96K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1961-F
A3A3R121	0698-7249	2		RESISTOR 3.48K 1% .05W F TC=0+-100	24546	C3-1/8-TO-3481-F
A3A3R122†	0698-7274	3	3	RESISTOR 38.3K 1% .05W F TC=0+-100	24546	C3-1/8-TO-3832-F
A3A3TP1-A3A3TP17	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A3A3U1	1820-0794	0	2	IC FF ECL D-M/S	04713	MC1670L
A3A3U2	1820-0796	2	2	IC GATE ECL NOR QUAD 2-INP	04713	MC1662L
A3A3U3	1820-0794	0		IC FF ECL D-M/S	04713	MC1670L
A3A3U4	1820-0796	2		IC GATE ECL NOR QUAD 2-INP	04713	MC1662L
A3A3U5	1820-0801	0	2	IC GATE ECL OR-NOR QUAD 2-INP	04713	MC10101P
A3A3U6	1820-0813	4	1	IC GATE ECL AND-OR	04713	MC10119P
A3A3U7	1820-0825	8	2	IC SHF-RGTR ECL D-TYPE PRL-IN PRL-OUT	04713	MC10141L
A3A3U8	1820-0825	8		IC SHF-RGTR ECL D-TYPE PRL-IN PRL-OUT	04713	MC10141L
A3A3U9	1820-0803	2	3	IC GATE ECL OR-NOR TPL	04713	MC10105P
A3A3U10	1826-0026	3		IC COMPARATOR PRCN TO-99 PKG	01295	LM311L
A3A3U11	1820-0817	8	3	IC FF ECL D-M/S DUAL	04713	MC10131P
A3A3U12	1820-0801	0		IC GATE ECL OR-NOR QUAD 2-INP	04713	MC10101P
A3A3U13	1820-1777	1	3	IC ADDR TTL S BCD 4-BIT	18324	N82S83N
A3A3U14	1820-0803	2		IC GATE ECL OR-NOR TPL	04713	MC10105P
A3A3U15	1826-0026	3		IC COMPARATOR PRCN TO-99 PKG	01295	LM311L
A3A3U16	1820-0693	8	3	IC FF TTL S D-TYPE POS-EDGE-TRIG	01295	SN74S74N
A3A3U17	1820-0579	9	3	IC MV TTL MONOSTBL RETRIG DUAL	01295	SN74123N
A3A3U18	1820-1191	3	1	IC FF TTL S D-TYPE POS-EDGE-TRIG COM	01295	SN74S175N
A3A3U19	1820-1777	1		IC ADDR TTL S BCD 4-BIT	18324	N82S83N
A3A3U20	1820-0305	9	1	IC ADDR TTL FULL ADDER 4-BIT	01295	SN7483AN
A3A3U21	1820-0681	4	3	IC GATE TTL S NAND QUAD 2-INP	01295	SN74S00N
A3A3W1				WIRE-BARE 22 AWG		
A3A3W2				WIRE-BARE 22 AWG		
A3A4	08662-60136	1	1	N LOOP VCO ASSEMBLY	28480	08662-60136
A3A4C1	0160-4084	8	29	CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-4084
A3A4C2	0160-4084	8		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-4084
A3A4C3	0160-5216	0	2	CAPACITOR-FXD .1UF +-10% 100VDC CER	28480	0160-5216
A3A4C4	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A4C5	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A4C6	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22CS1B15K
A3A4C7	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A4C8	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A4C9	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A4C10	0160-4084	8		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-4084
A3A4C11	0160-4084	8		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-4084
A3A4C12	0160-0174	9	1	CAPACITOR-FXD .47UF +80-20% 25VDC CER	28480	0160-0174
A3A4C13	0140-0191	8		CAPACITOR-FXD 56PF +-5% 300VDC MICA	72136	DM15E560J0300WV1CR
A3A4C14	0121-0446	6		CAPACITOR-V TRMR-CER 4.5-20PF 160V	28480	0121-0446
A3A4C15	0160-0939	4	4	CAPACITOR-FXD 430PF +-5% 300VDC MICA	28480	0160-0939
A3A4C16	0160-0945	2	2	CAPACITOR-FXD 910PF +-5% 100VDC MICA	28480	0160-0945
A3A4C17	0160-4084	8		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-4084
A3A4C18	0160-0939	4		CAPACITOR-FXD 430PF +-5% 300VDC MICA	28480	0160-0939
A3A4C19	0160-2406	4	1	CAPACITOR-FXD .27UF +-10% 80VDC POLYE	28480	0160-2406
A3A4C20	0160-4084	8		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-4084
A3A4C21	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A4C22†	0160-4768	5	2	CAPACITOR-FXD 470PF +-5% 100VDC CER	28480	0160-4768
A3A4C23†				NOT ASSIGNED		
A3A4C24	0160-0570	9	10	CAPACITOR-FXD 220PF +-20% 100VDC CER	20932	5024EM100RD221M
A3A4C25†				NOT ASSIGNED		
A3A4C26†				NOT ASSIGNED		
A3A4C27	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A4C28	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A4C29	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A4C30	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A4C31	0160-2242	6	1	CAPACITOR-FXD 2.4PF +-.25PF 500VDC CER	28480	0160-2242
A3A4C32†	0160-2250	6	2	CAPACITOR-FXD 5.1PF +-.25PF 500VDC CER	28480	0160-2250
A3A4C33	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A4C34	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A4C35	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A4C36	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A4C37	0160-2264	2		CAPACITOR-FXD 20PF +-5% 500VDC CER 0+-30	28480	0160-2264
A3A4C38	0160-2264	2		CAPACITOR-FXD 20PF +-5% 500VDC CER 0+-30	28480	0160-2264
A3A4C39	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A4C40	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A4CR1	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A4CR2	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A4CR3	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A4CR4†	1901-0039	8	6	DIODE-SWITCHING 50V 300MA 8NS	28480	1901-0039
A3A4CR5†	1901-0039	8		DIODE-SWITCHING 50V 300MA 8NS	28480	1901-0039
A3A4CR6†	1901-0039	8		DIODE-SWITCHING 50V 300MA 8NS	28480	1901-0039
A3A4CR7	0122-0065	7	18	DIODE-VVC 29PF 3%	28480	0122-0065
A3A4CR8	0122-0065	7		DIODE-VVC 29PF 3%	28480	0122-0065

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A3A4J1	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A3A4J2	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A3A4L1	9100-2251	0	13	INDUCTOR RF-CH-MLD 220NH 10% .105DX.26LG	28480	9100-2251
A3A4L2	9140-0144	0		INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG	28480	9140-0144
A3A4L3	9140-0144	0		INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG	28480	9140-0144
A3A4L4	9140-0144	0		INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG	28480	9140-0144
A3A4L5	9100-1635	2		INDUCTOR RF-CH-MLD 91UH 5% .166DX.385LG	28480	9100-1635
A3A4L6	9100-1625	0	3	INDUCTOR RF-CH-MLD 33UH 5% .166DX.385LG	28480	9100-1625
A3A4L7	9140-0142	8	9	INDUCTOR RF-CH-MLD 2.2UH 10% .105DX.26LG	28480	9140-0142
A3A4L8	08662-00076	2	2	INDUCTOR, OSC.	28480	08662-00076
A3A4L9	9100-2247	4	17	INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG	28480	9100-2247
A3A4L10	9100-2251	0		INDUCTOR RF-CH-MLD 220NH 10% .105DX.26LG	28480	9100-2251
A3A4L11	9100-2247	4		INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG	28480	9100-2247
A3A4L12	9100-2251	0		INDUCTOR RF-CH-MLD 220NH 10% .105DX.26LG	28480	9100-2251
A3A4L13	9100-2247	4		INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG	28480	9100-2247
A3A4L14	9100-2247	4		INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG	28480	9100-2247
A3A4L15	9100-2251	0		INDUCTOR RF-CH-MLD 220NH 10% .105DX.26LG	28480	9100-2251
A3A4L16	9100-2251	0		INDUCTOR RF-CH-MLD 220NH 10% .105DX.26LG	28480	9100-2251
A3A4MP1	08662-20061	7	1	COVER, 1/2 END	28480	08662-20061
	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A3A4MP2	5001-0176	0		STRAP, GROUND	28480	5001-0176
A3A4MP3	5001-0176	0		STRAP, GROUND	28480	5001-0176
A3A4Q1	1854-0247	9		TRANSISTOR NPN SI TO-39 PD=1W FT=800MHZ	28480	1854-0247
A3A4Q2	1854-0247	9		TRANSISTOR NPN SI TO-39 PD=1W FT=800MHZ	28480	1854-0247
A3A4Q3	1854-0345	8	6	TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW	04713	2N5179
	1205-0037	0	18	HEAT SINK TO-18-CS	28480	1205-0037
A3A4Q4	1854-0345	8		TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW	04713	2N5179
	1205-0037	0		HEAT SINK TO-18-CS	28480	1205-0037
A3A4Q5	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
	1205-0037	0		HEAT SINK TO-18-CS	28480	1205-0037
A3A4Q6	1853-0451	5		TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
A3A4Q7	1855-0235	7	5	TRANSISTOR J-FET N-CHAN D-MODE TO-52 SI	28480	1855-0235
A3A4Q8	1853-0451	5		TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
	1205-0037	0		HEAT SINK TO-18-CS	28480	1205-0037
A3A4Q9	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A3A4Q10	1853-0451	5		TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
A3A4Q11	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A3A4Q12	1853-0012	4		TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW	01295	2N2904A
A3A4R1	2100-2514	1	2	RESISTOR-TRMR 20K 10% C SIDE-ADJ 1-TRN	30983	ET50W203
A3A4R2	0757-0424	7	3	RESISTOR 1.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1101-F
A3A4R3	2100-2574	3	4	RESISTOR-TRMR 500 10% C SIDE-ADJ 1-TRN	30983	ET50X501
A3A4R4*	0757-0290	5	18	RESISTOR 6.19K 1% .125W F TC=0+-100	19701	MF4C1/8-T0-6191-F
A3A4R5	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A3A4R6	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A3A4R7	0757-0346	2		RESISTOR 10 1% .125W F TC=0+-100	24546	C4-1/8-T0-10R0-F
A3A4R8	0757-0422	5		RESISTOR 909 1% .125W F TC=0+-100	24546	C4-1/8-T0-909R-F
A3A4R9	0757-0290	5		RESISTOR 6.19K 1% .125W F TC=0+-100	19701	MF4C1/8-T0-6191-F
A3A4R10	0698-3155	1		RESISTOR 4.64K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4641-F
A3A4R11	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A3A4R12	0698-3156	2	12	RESISTOR 14.7K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1472-F
A3A4R13	0698-3136	8		RESISTOR 17.8K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1782-F
A3A4R14	0698-3157	3	10	RESISTOR 19.6K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1962-F
A3A4R15	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A3A4R16	0698-3159	5		RESISTOR 26.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2612-F
A3A4R17	0757-0438	3	33	RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A3A4R18	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A3A4R19	0698-3160	8		RESISTOR 31.6K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3162-F
A3A4R20	0698-3444	1		RESISTOR 316 1% .125W F TC=0+-100	24546	C4-1/8-T0-316R-F
A3A4R21	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A3A4R22	0698-3156	2		RESISTOR 14.7K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1472-F
A3A4R23	0757-0418	9	3	RESISTOR 619 1% .125W F TC=0+-100	24546	C4-1/8-T0-619R-F
A3A4R24	0757-0394	0		RESISTOR 51.1 1% .125W F TC=0+-100	24546	C4-1/8-T0-51R1-F
A3A4R25	0698-3447	4	7	RESISTOR 422 1% .125W F TC=0+-100	24546	C4-1/8-T0-422R-F
A3A4R26	0757-0346	2		RESISTOR 10 1% .125W F TC=0+-100	24546	C4-1/8-T0-10R0-F
A3A4R27	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A3A4R28	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A3A4R29	0698-3447	4		RESISTOR 422 1% .125W F TC=0+-100	24546	C4-1/8-T0-422R-F
A3A4R30	0698-3154	0	12	RESISTOR 4.22K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4221-F
A3A4R31	0757-0180	2	9	RESISTOR 31.6 1% .125W F TC=0+-100	28480	0757-0180
A3A4R32	0698-3154	0		RESISTOR 4.22K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4221-F
A3A4R33	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A3A4R34	0698-3432	7	4	RESISTOR 26.1 1% .125W F TC=0+-100	03888	PME55-1/8-T0-26R1-F
A3A4R35	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A3A4R36	0698-3152	8	11	RESISTOR 3.48K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3481-F
A3A4R37	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A3A4R38	0698-3152	8		RESISTOR 3.48K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3481-F
A3A4R39	0757-0420	3	19	RESISTOR 750 1% .125W F TC=0+-100	24546	C4-1/8-T0-751-F
A3A4R40	0698-3432	7		RESISTOR 26.1 1% .125W F TC=0+-100	03888	PME55-1/8-T0-26R1-F
A3A4R41	0698-3442	9	7	RESISTOR 237 1% .125W F TC=0+-100	24546	C4-1/8-T0-237R-F
A3A4R42	0757-0420	3		RESISTOR 750 1% .125W F TC=0+-100	24546	C4-1/8-T0-751-F
A3A4R43	0698-3442	9		RESISTOR 237 1% .125W F TC=0+-100	24546	C4-1/8-T0-237R-F
A3A4R44	0698-3152	8		RESISTOR 3.48K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3481-F
A3A4R45	0698-3152	8		RESISTOR 3.48K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3481-F
A3A4R46	0757-0420	3		RESISTOR 750 1% .125W F TC=0+-100	24546	C4-1/8-T0-751-F
A3A4R47	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A3A4R48	0757-0420	3		RESISTOR 750 1% .125W F TC=0+-100	24546	C4-1/8-T0-751-F
A3A4R49	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A3A4R50	0698-3438	3		RESISTOR 147 1% .125W F TC=0+-100	24546	C4-1/8-T0-147R-F
A3A4R51	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A3A4R52	0698-3443	0	9	RESISTOR 287 1% .125W F TC=0+-100	24546	C4-1/8-T0-287R-F
A3A4R53	0698-3443	0		RESISTOR 287 1% .125W F TC=0+-100	24546	C4-1/8-T0-287R-F
A3A4R54	0757-0294	9		RESISTOR 17.8 1% .125W F TC=0+-100	19701	MF4C1/8-T0-17R8-F
A3A4R55	0757-0294	9		RESISTOR 17.8 1% .125W F TC=0+-100	19701	MF4C1/8-T0-17R8-F
A3A4R56	0698-3443	0		RESISTOR 287 1% .125W F TC=0+-100	24546	C4-1/8-T0-287R-F
A3A4R57	0698-3443	0		RESISTOR 287 1% .125W F TC=0+-100	24546	C4-1/8-T0-287R-F
A3A4T1	08640-60355	0	8	TRANSFORMER, RF BLUE	28480	08640-60355
A3A4TP1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A4TP2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A4TP3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A4TP4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A4TP5	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A4TP6	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A4TP7	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A4TP8	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A4TP9	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A5	08662-60141	8	1	SUM LOOP MIXER	28480	08662-60141
A3A5C1	0160-2055	9	21	CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A3A5C2	0160-3456	6	20	CAPACITOR-FXD 1000PF +-10% 1KVDC CER	28480	0160-3456
A3A5C3	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22CS1B15K
A3A5C4	0160-3456	6		CAPACITOR-FXD 1000PF +-10% 1KVDC CER	28480	0160-3456
A3A5C5	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A3A5C6	0160-3455	5		CAPACITOR-FXD 470PF +-10% 1KVDC CER	28480	0160-3455
A3A5C7	0160-3456	6		CAPACITOR-FXD 1000PF +-10% 1KVDC CER	28480	0160-3456
A3A5C8	0160-3456	6		CAPACITOR-FXD 1000PF +-10% 1KVDC CER	28480	0160-3456
A3A5C9	0160-3456	6		CAPACITOR-FXD 1000PF +-10% 1KVDC CER	28480	0160-3456
A3A5C10	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A5C11	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A5C12	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A5C13	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A5C14	0160-0570	9		CAPACITOR-FXD 220PF +-20% 100VDC CER	20932	5024EM100RD221M
A3A5C15	0140-0210	2		CAPACITOR-FXD 270PF +-5% 300VDC MICA	72136	DM15F271J0300WV1CR
A3A5C16	0160-0134	1	3	CAPACITOR-FXD 220PF +-5% 300VDC MICA	28480	0160-0134
A3A5C17	0140-0197	4	6	CAPACITOR-FXD 180PF +-5% 300VDC MICA	72136	DM15F181J0300WV1CR
A3A5C18	0140-0196	3	1	CAPACITOR-FXD 150PF +-5% 300VDC MICA	72136	DM15F151J0300WV1CR
A3A5C19	0160-0168	1		CAPACITOR-FXD .1UF +-10% 200VDC POLYE	28480	0160-0168
A3A5C20	0160-0168	1		CAPACITOR-FXD .1UF +-10% 200VDC POLYE	28480	0160-0168
A3A5C21	0160-0168	1		CAPACITOR-FXD .1UF +-10% 200VDC POLYE	28480	0160-0168
A3A5C22	0160-0168	1		CAPACITOR-FXD .1UF +-10% 200VDC POLYE	28480	0160-0168
A3A5C23	0160-3456	6		CAPACITOR-FXD 1000PF +-10% 1KVDC CER	28480	0160-3456
A3A5CR1	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A3A5CR2	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A3A5CR3	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A3A5CR4	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A3A5CR5	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A5J1	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A3A5J2	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A3A5L1	9140-0096	1	1	INDUCTOR RF-CH-MLD 1UH 10% .166DX.385LG	28480	9140-0096
A3A5L2	9140-0112	2	2	INDUCTOR RF-CH-MLD 4.7UH 10%	28480	9140-0112
A3A5L3	9100-1612	5	2	INDUCTOR RF-CH-MLD 330NH 20%	28480	9100-1612
A3A5L4	9100-1612	5		INDUCTOR RF-CH-MLD 330NH 20%	28480	9100-1612
A3A5L5	9100-1628	3	1	INDUCTOR RF-CH-MLD 43UH 5% .166DX.385LG	28480	9100-1628

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A3A5L6	9100-1629	4		INDUCTOR RF-CH-MLD 47UH 5% .166DX.385LG	28480	9100-1629
A3A5L7	9100-1621	6	1	INDUCTOR RF-CH-MLD 18UH 10% .166DX.385LG	28480	9100-1621
A3A5MP1	08662-20062	8	1	COVER- 1/2	28480	08662-20062
	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A3A5MP2	5001-0176	0		GROUND STRAP	28480	5001-0176
A3A5MP3	5001-0176	0		GROUND STRAP	28480	5001-0176
A3A5Q1	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A3A5Q2	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A3A5R1	0698-3430	5	15	RESISTOR 21.5 1% .125W F TC=0+-100	03888	PME55-1/8-T0-21R5-F
A3A5R2	0757-0421	4		RESISTOR 825 1% .125W F TC=0+-100	24546	C4-1/8-T0-825R-F
A3A5R3	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-261R-F
A3A5R4	0698-3439	4	8	RESISTOR 178 1% .125W F TC=0+-100	24546	C4-1/8-T0-178R-F
A3A5R5	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A3A5R6	0698-7208	3	2	RESISTOR 68.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-68R1-F
A3A5R7	0698-3443	0		RESISTOR 287 1% .125W F TC=0+-100	24546	C4-1/8-T0-287R-F
A3A5R8	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A3A5R9	0757-0294	9		RESISTOR 17.8 1% .125W F TC=0+-100	19701	MF4C1/8-T0-17R8-F
A3A5R10	0698-3447	4		RESISTOR 422 1% .125W F TC=0+-100	24546	C4-1/8-T0-422R-F
A3A5R11	0698-3443	0		RESISTOR 287 1% .125W F TC=0+-100	24546	C4-1/8-T0-287R-F
A3A5R12	0698-7220	9		RESISTOR 215 1% .05W F TC=0+-100	24546	C3-1/8-T0-215R-F
A3A5R13	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A3A5R14	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A3A5R15	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A3A5R16	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A3A5R17	0757-0394	0		RESISTOR 51.1 1% .125W F TC=0+-100	24546	C4-1/8-T0-51R1-F
A3A5R18	0698-3151	7		RESISTOR 2.87K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2871-F
A3A5R19	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A3A5R20	0757-0398	4	5	RESISTOR 75 1% .125W F TC=0+-100	24546	C4-1/8-T0-75R0-F
A3A5R21	0698-3151	7		RESISTOR 2.87K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2871-F
A3A5R22	0698-3445	2	3	RESISTOR 348 1% .125W F TC=0+-100	24546	C4-1/8-T0-348R-F
A3A5R23	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A3A5R24	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A3A5R25	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A3A5R26	0698-3442	9		RESISTOR 237 1% .125W F TC=0+-100	24546	C4-1/8-T0-237R-F
A3A5TP1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A5TP2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A5TP3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A5TP4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A5TP5	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A5TP6	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A5TP7	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A5U1	1826-0372	2	23	LIMITER	28480	1826-0372
A3A5U2	1820-1780	6	6	IC PRESCR ECL	07263	11C90DC
A3A5U3	1820-1780	6		IC PRESCR ECL	07263	11C90DC
A3A5U4	1820-1344	8	4	IC PL LOOP 14-DIP-C PKG	04713	MC12040L
A3A5U5	1826-0026	3		IC COMPARATOR PRCN TO-99 PKG	01295	LM311L
A3A5U6	1820-0704	2	2	IC MV TTL MONOSTBL RETRIG	01295	SN74122N
A3A5U7	0955-0095	8	5	MIXER,SRAI	28480	0955-0095
A3A6	08662-60142	9	1	SUM LOOP PHASE DETECTOR AND PRETUNE	28480	08662-60142
A3A6C1	0160-4084	8		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-4084
A3A6C2	0160-4084	8		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-4084
A3A6C3	0160-4084	8		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-4084
A3A6C4	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A6C5	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A6C6	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A6C7	0160-4084	8		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-4084
A3A6C8	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A6C9	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A6C10	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A6C11	0160-4084	8		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-4084
A3A6C12	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A6C13	0160-3875	3	14	CAPACITOR-FXD 22PF +-5% 200VDC CER 0+-30	28480	0160-3875
A3A6C14	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A6C15	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A6C16	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A6C17	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A6C18	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A6C19	0160-0939	4		CAPACITOR-FXD 430PF +-5% 300VDC MICA	28480	0160-0939
A3A6C20	0140-0197	4		CAPACITOR-FXD 180PF +-5% 300VDC MICA	72136	DM15F181J0300WV1CR
A3A6C21	0140-0197	4		CAPACITOR-FXD 180PF +-5% 300VDC MICA	72136	DM15F181J0300WV1CR
A3A6C22	0160-2202	8	1	CAPACITOR-FXD 75PF +-5% 300VDC MICA	28480	0160-2202
A3A6C23	0160-0939	4		CAPACITOR-FXD 430PF +-5% 300VDC MICA	28480	0160-0939
A3A6C24	0140-0197	4		CAPACITOR-FXD 180PF +-5% 300VDC MICA	72136	DM15F181J0300WV1CR
A3A6C25	0160-4084	8		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-4084

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	CD	Qty	Description	Mfr Code	Mfr Part Number
A3A6C26	0160-0573	2		CAPACITOR-FXD 4700PF +-20% 100VDC CER	28480	0160-0573
A3A6C27	0160-0575	4		CAPACITOR-FXD .047UF +-20% 50VDC CER	28480	0160-0575
A3A6C28	0160-0127	2	5	CAPACITOR-FXD 1UF +-20% 25VDC CER	28480	0160-0127
A3A6C29	0160-0573	2		CAPACITOR-FXD 4700PF +-20% 100VDC CER	28480	0160-0573
A3A6C30	0160-3876	4	20	CAPACITOR-FXD 47PF +-20% 200VDC CER	28480	0160-3876
A3A6C31	0160-0575	4		CAPACITOR-FXD .047UF +-20% 50VDC CER	28480	0160-0575
A3A6C32	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A6C33	0160-0574	3		CAPACITOR-FXD .022UF +-20% 100VDC CER	28480	0160-0574
A3A6C34	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A6C35	0160-0574	3		CAPACITOR-FXD .022UF +-20% 100VDC CER	28480	0160-0574
A3A6CR1	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A6CR2	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A6CR3	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A6CR4	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A6CR5	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A6CR6	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A6CR7	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A6DS1	1990-0326	3		DIODE LIGHT EMTR	28480	5082-4444
A3A6J1	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A3A6L1	9140-0144	0		INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG	28480	9140-0144
A3A6L2	9140-0144	0		INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG	28480	9140-0144
A3A6L3	9140-0144	0		INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG	28480	9140-0144
A3A6L4	9100-1636	3	2	INDUCTOR RF-CH-MLD 110UH 5% .166DX.385LG	28480	9100-1636
A3A6L5	9100-1642	1		INDUCTOR RF-CH-MLD 270UH 5% .2DX.45LG	28480	9100-1642
A3A6L6	9140-0144	0		INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG	28480	9140-0144
A3A6MP1	08662-00088	6	1	COVER-1/2 END	28480	08662-00088
	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A3A6MP2	5001-0176	0		GROUND STRAP	28480	5001-0176
A3A6MP3	5001-0176	0		GROUND STRAP	28480	5001-0176
A3A6MP4	1205-0202	1	5	THERMAL LINK DUAL TO-18-CS	28480	1205-0202
A3A6Q1	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A3A6Q2	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A3A6Q3	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A3A6Q4	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A3A6Q5	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A3A6Q6	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A3A6Q7	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A3A6Q8	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A3A6Q9	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A3A6Q10	1853-0451	5		TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
A3A6Q11	1853-0451	5		TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
A3A6Q12	1854-0247	9		TRANSISTOR NPN SI TO-39 PD=1W FT=800MHZ	28480	1854-0247
	1205-0011	0	3	HEAT SINK TO-5/TO-39-CS	28480	1205-0011
A3A6Q13	1854-0475	5	9	TRANSISTOR-DUAL NPN PD=750MW	28480	1854-0475
A3A6Q14	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
	1205-0037	0		HEAT SINK TO-18-CS	28480	1205-0037
A3A6Q15	1853-0451	5		TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
A3A6R1	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A3A6R2	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-TO-51R1-F
A3A6R3	0698-7248	1		RESISTOR 3.16K 1% .05W F TC=0+-100	24546	C3-1/8-TO-3161-F
A3A6R4	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A3A6R5	1810-0207	9	1	NETWORK-RES 8-SIP22.0K OHM X 7	01121	208A223
A3A6R6	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-TO-511R-F
A3A6R7	0698-7248	1		RESISTOR 3.16K 1% .05W F TC=0+-100	24546	C3-1/8-TO-3161-F
A3A6R8	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A3A6R9	0757-0447	4	1	RESISTOR 16.2K 1% .125W F TC=0+-100	24546	C4-1/8-TO-1622-F
A3A6R10	0698-7248	1		RESISTOR 3.16K 1% .05W F TC=0+-100	24546	C3-1/8-TO-3161-F
A3A6R11	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A3A6R12	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1002-F
A3A6R13	0698-3200	7	2	RESISTOR 8K 1% .125W F TC=0+-100	24546	C4-1/8-TO-8001-F
A3A6R14	0698-7240	3		RESISTOR 1.47K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1471-F
A3A6R15	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A3A6R16	0698-7252	7		RESISTOR 4.64K 1% .05W F TC=0+-100	24546	C3-1/8-TO-4641-F
A3A6R17	0698-7234	5		RESISTOR 825 1% .05W F TC=0+-100	24546	C3-1/8-TO-825R-F
A3A6R18	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1002-F
A3A6R19	0698-8547	5	1	RESISTOR 4K .5% .1W F TC=0+-5	28480	0698-8547
A3A6R20	0698-7248	1		RESISTOR 3.16K 1% .05W F TC=0+-100	24546	C3-1/8-TO-3161-F
A3A6R21	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A3A6R22	0698-7252	7		RESISTOR 4.64K 1% .05W F TC=0+-100	24546	C3-1/8-TO-4641-F
A3A6R23	0698-7799	7	2	RESISTOR 2K .25% .125W F TC=0+-100	19701	MF4C1/8-TO-2001-C
A3A6R24	0698-7248	1		RESISTOR 3.16K 1% .05W F TC=0+-100	24546	C3-1/8-TO-3161-F
A3A6R25	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A3A6R26	0757-0470	3	1	RESISTOR 162K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1623-F
A3A6R27	0698-7248	1		RESISTOR 3.16K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3161-F
A3A6R28	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A3A6R29	0757-0463	4	2	RESISTOR 82.5K 1% .125W F TC=0+-100	24546	C4-1/8-T0-8252-F
A3A6R30	0698-7248	1		RESISTOR 3.16K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3161-F
A3A6R31	0698-3161	9		RESISTOR 38.3K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3832-F
A3A6R32	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A3A6R33	0698-3157	3		RESISTOR 19.6K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1962-F
A3A6R34	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A3A6R35	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A3A6R36	0757-0420	3		RESISTOR 750 1% .125W F TC=0+-100	24546	C4-1/8-T0-751-F
A3A6R37	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A3A6R38	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A3A6R39	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A3A6R40	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A3A6R41	0698-7222	1		RESISTOR 261 1% .05W F TC=0+-100	24546	C3-1/8-T0-261R-F
A3A6R42	0698-7248	1		RESISTOR 3.16K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3161-F
A3A6R43	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A3A6R44	0757-0419	0	9	RESISTOR 681 1% .125W F TC=0+-100	24546	C4-1/8-T0-681R-F
A3A6R45	0757-0419	0		RESISTOR 681 1% .125W F TC=0+-100	24546	C4-1/8-T0-681R-F
A3A6R46	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A3A6R47	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A3A6R48	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A3A6R49	0698-7263	0		RESISTOR 13.3K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1332-F
A3A6R50	0698-3151	7		RESISTOR 2.87K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2871-F
A3A6R51	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A3A6R52	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A3A6R53	0698-3444	1		RESISTOR 316 1% .125W F TC=0+-100	24546	C4-1/8-T0-316R-F
A3A6R54	0698-7256	1	4	RESISTOR 6.81K 1% .05W F TC=0+-100	24546	C3-1/8-T0-6811-F
A3A6R55	0698-7249	2		RESISTOR 3.48K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3481-F
A3A6R56	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A3A6R57	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A3A6R58	0698-3444	1		RESISTOR 316 1% .125W F TC=0+-100	24546	C4-1/8-T0-316R-F
A3A6R59	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A3A6R60	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-T0-10R-F
A3A6R61	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A3A6R62	0698-7253	8		RESISTOR 5.11K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5111-F
A3A6R63	0757-0420	3		RESISTOR 750 1% .125W F TC=0+-100	24546	C4-1/8-T0-751-F
A3A6R64	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-T0-10R-F
A3A6R65	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A3A6R66	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A3A6TP1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A6TP2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A6TP3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A6TP4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A6TP5	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A6TP6	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A6TP7	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A6TP8	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A6U1	1820-1780	6		IC PRESCR ECL	07263	11C90DC
A3A6U2	1820-0751	9	1	IC CNTR TTL DECD NEG-EDGE-TRIG PRESET	01295	SN74196N
A3A6U3	1820-1197	9		IC GATE TTL LS NAND QUAD 2-INP	01295	SN74LS00N
A3A6U4	1820-1112	8		IC FF TTL LS D-TYPE POS-EDGE-TRIG	01295	SN74LS74AN
A3A6U5	1820-0681	4		IC GATE TTL S NAND QUAD 2-INP	01295	SN74S00N
A3A6U6	1820-0704	2		IC MV TTL MONOSTBL RETRIG	01295	SN74122N
A3A7	08662-60140	7	1	SUM LOOP VCO ASSEMBLY	28480	08662-60140
A3A7C1	0160-3534	1	1	CAPACITOR-FXD 510PF +-5% 100VDC MICA	28480	0160-3534
A3A7C2	0160-4084	8		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-4084
A3A7C3	0160-4084	8		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-4084
A3A7C4	0160-5216	0		CAPACITOR-FXD .1UF +-10% 100VDC CER	28480	0160-5216
A3A7C5	0160-4084	8		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-4084
A3A7C6	0160-0574	3		CAPACITOR-FXD .022UF +-20% 100VDC CER	28480	0160-0574
A3A7C7	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A7C8	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A3A7C9	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A7C10	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A7C11	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A7C12	0160-4084	8		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-4084
A3A7C13	0160-4084	8		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-4084
A3A7C14	0160-0127	2		CAPACITOR-FXD 1UF +-20% 25VDC CER	28480	0160-0127
A3A7C15	0160-2208	4	1	CAPACITOR-FXD 330PF +-5% 300VDC MICA	28480	0160-2208
A3A7C16	0160-2207	3	2	CAPACITOR-FXD 300PF +-5% 300VDC MICA	28480	0160-2207
A3A7C17	0160-2207	3		CAPACITOR-FXD 300PF +-5% 300VDC MICA	28480	0160-2207
A3A7C18	0160-4084	8		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-4084
A3A7C19	0160-3535	2	1	CAPACITOR-FXD 560PF +-5% 300VDC MICA	28480	0160-3535
A3A7C20	0160-0889	3	1	CAPACITOR-FXD .33UF +-10% 80VDC POLYE	28480	0160-0889

See introduction to this section for ordering information
*Indicates factory selected-value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A3A7C21	0160-4084	8		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-4984
A3A7C22	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A7C23†	0160-4768	5		CAPACITOR-FXD 470PF +-5% 100VDC CER	28480	0160-4768
A3A7C24†				NOT ASSIGNED		
A3A7C25	0160-0570	9		CAPACITOR-FXD 220PF +-20% 100VDC CER	20932	5024EM100RD221M
A3A7C26†				NOT ASSIGNED		
A3A7C27†				NOT ASSIGNED		
A3A7C28	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A7C29	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A7C30	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A7C31	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A7C32	0160-2261	9	2	CAPACITOR-FXD 15PF +-5% 500VDC CER 0+-30	28480	0160-2261
A3A7C33	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A7C34	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A7C35	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A7C36	0160-2266	4	2	CAPACITOR-FXD 24PF +-5% 500VDC CER 0+-30	28480	0160-2266
A3A7C37	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A7C38	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A7C39	0160-2261	9		CAPACITOR-FXD 15PF +-5% 500VDC CER 0+-30	28480	0160-2261
A3A7C40	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A7C41	0160-2264	2		CAPACITOR-FXD 20PF +-5% 500VDC CER 0+-30	28480	0160-2264
A3A7CR1	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A7CR2	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A7CR3	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A7CR4	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A7CR5	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A7CR6	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A7CR7	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A7CR8	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A7CR9	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A7CR10	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A3A7CR11	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A7CR12	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A7CR13	0122-0065	7		DIODE-VVC 29PF 3%	28480	0122-0065
A3A7CR14	0122-0065	7		DIODE-VVC 29PF 3%	28480	0122-0065
A3A7CR15	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A3A7CR16	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A3A7J1	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A3A7J2	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A3A7L1	9100-1630	7	8	INDUCTOR RF-CH-MLD 51UH 5% .166DX.385LG	28480	9100-1630
A3A7L2	9140-0144	0		INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG	28480	9140-0144
A3A7L3	9140-0144	0		INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG	28480	9140-0144
A3A7L4	9140-0144	0		INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG	28480	9140-0144
A3A7L5	9100-1629	4		INDUCTOR RF-CH-MLD 47UH 5% .166DX.385LG	28480	9100-1629
A3A7L6	9100-1630	7		INDUCTOR RF-CH-MLD 51UH 5% .166DX.385LG	28480	9100-1630
A3A7L7	9140-0142	8		INDUCTOR RF-CH-MLD 2.2UH 10% .105DX.26LG	28480	9140-0142
A3A7L8	08662-00076	2		INDUCTOR, OSCILLATOR	28480	08662-00076
A3A7L9	9100-2247	4		INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG	28480	9100-2247
A3A7L10	9100-2251	0		INDUCTOR RF-CH-MLD 220NH 10% .105DX.26LG	28480	9100-2251
A3A7L11	9100-2247	4		INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG	28480	9100-2247
A3A7L12	9100-2247	4		INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG	28480	9100-2247
A3A7L13	9100-2251	0		INDUCTOR RF-CH-MLD 220NH 10% .105DX.26LG	28480	9100-2251
A3A7L14	9100-2251	0		INDUCTOR RF-CH-MLD 220NH 10% .105DX.26LG	28480	9100-2251
A3A7L15	9100-2247	4		INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG	28480	9100-2247
A3A7L16	9100-2251	0		INDUCTOR RF-CH-MLD 220NH 10% .105DX.26LG	28480	9100-2251
A3A7MP1	08662-00089	7	1	COVER, 1/2 END	28480	08662-00089
	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A3A7MP2	5001-0176	0		STRAP, GROUND	28480	5001-0176
A3A7MP3	5001-0176	0		STRAP, GROUND	28480	5001-0176
A3A7Q1	1854-0247	9		TRANSISTOR NPN SI TO-39 PD=1W FT=800MHZ	28480	1854-0247
A3A7Q2	1854-0247	9		TRANSISTOR NPN SI TO-39 PD=1W FT=800MHZ	28480	1854-0247
A3A7Q3	1854-0345	8		TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW	04713	2N5179
	1205-0037	0		HEAT SINK TO-18-CS	28480	1205-0037
A3A7Q4	1854-0345	8		TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW	04713	2N5179
	1205-0037	0		HEAT SINK TO-18-CS	28480	1205-0037
A3A7Q5	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
	1205-0031	4	1	THERMAL LINK TO-18-CS	28480	1205-0031
A3A7Q6	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A3A7Q7	1853-0451	5		TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
A3A7Q8	1855-0235	7		TRANSISTOR J-FET N-CHAN D-MODE TO-52 SI	28480	1855-0235

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A3A7Q9	1853-0451	5		TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
	1205-0037	0		HEAT SINK TO-18-CS	28480	1205-0037
A3A7Q10	1853-0451	5		TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
A3A7Q11	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A3A7Q12	1853-0012	4		TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW	01295	2N2904A
A3A7R1*†	0698-0084	9	37	RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A3A7R2	2100-2517	4	1	RESISTOR-TRMR 50K 10% C SIDE-ADJ 1-TRN	30983	ET50X503
A3A7R3	2100-2574	3		RESISTOR-TRMR 500 10% C SIDE-ADJ 1-TRN	30983	ET50X501
A3A7R4	0698-0082	7		RESISTOR 464 1% .125W F TC=0+-100	24546	C4-1/8-T0-4640-F
A3A7R5*†	0698-3151	7	15	RESISTOR 2.87K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2871-F
A3A7R6	0757-0346	2		RESISTOR 10 1% .125W F TC=0+-100	24546	C4-1/8-T0-10R0-F
A3A7R7	0757-0422	5		RESISTOR 909 1% .125W F TC=0+-100	24546	C4-1/8-T0-909R-F
A3A7R8	0757-0422	5		RESISTOR 909 1% .125W F TC=0+-100	24546	C4-1/8-T0-909R-F
A3A7R9	0698-0082	7		RESISTOR 464 1% .125W F TC=0+-100	24546	C4-1/8-T0-4640-F
A3A7R10	0757-0439	4		RESISTOR 6.81K 1% .125W F TC=0+-100	24546	C4-1/8-T0-6811-F
A3A7R11	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A3A7R12	0698-3155	1		RESISTOR 4.64K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4641-F
A3A7R13	0698-3156	2		RESISTOR 14.7K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1472-F
A3A7R14	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A3A7R15	0698-3136	8		RESISTOR 17.8K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1782-F
A3A7R16	0698-3157	3		RESISTOR 19.6K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1962-F
A3A7R17	0698-3159	5		RESISTOR 26.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2612-F
A3A7R18	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A3A7R19	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A3A7R20	0698-3160	8		RESISTOR 31.6K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3162-F
A3A7R21	0698-3444	1		RESISTOR 316 1% .125W F TC=0+-100	24546	C4-1/8-T0-316R-F
A3A7R22	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A3A7R23	0698-3156	2		RESISTOR 14.7K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1472-F
A3A7R24	0757-0180	2		RESISTOR 31.6 1% .125W F TC=0+-100	28480	0757-0180
A3A7R25	0757-0418	9		RESISTOR 619 1% .125W F TC=0+-100	24546	C4-1/8-T0-619R-F
A3A7R26	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A3A7R27*	0757-0465	6	10	RESISTOR 100K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1003-F
A3A7R28	0757-0428	1	11	RESISTOR 1.62K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1621-F
A3A7R29	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A3A7R30	0757-0428	1		RESISTOR 1.62K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1621-F
A3A7R31	0698-3154	0		RESISTOR 4.22K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4221-F
A3A7R32	0757-0399	5	1	RESISTOR 82.5 1% .125W F TC=0+-100	24546	C4-1/8-T0-82R5-F
A3A7R33	0698-3154	0		RESISTOR 4.22K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4221-F
A3A7R34	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A3A7R35	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A3A7R36	0698-3432	7		RESISTOR 26.1 1% .125W F TC=0+-100	03888	PME55-1/8-T0-26R1-F
A3A7R37	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A3A7R38	0698-3152	8		RESISTOR 3.48K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3481-F
A3A7R39	0698-3152	8		RESISTOR 3.48K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3481-F
A3A7R40	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A3A7R41	0757-0420	3		RESISTOR 750 1% .125W F TC=0+-100	24546	C4-1/8-T0-751-F
A3A7R42	0698-3432	7		RESISTOR 26.1 1% .125W F TC=0+-100	03888	PME55-1/8-T0-26R1-F
A3A7R43	0757-0420	3		RESISTOR 750 1% .125W F TC=0+-100	24546	C4-1/8-T0-751-F
A3A7R44	0698-3439	4		RESISTOR 178 1% .125W F TC=0+-100	24546	C4-1/8-T0-178R-F
A3A7R45	0757-0405	4	5	RESISTOR 162 1% .125W F TC=0+-100	24546	C4-1/8-T0-162R-F
A3A7R46	0698-3152	8		RESISTOR 3.48K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3481-F
A3A7R47	0757-0420	3		RESISTOR 750 1% .125W F TC=0+-100	24546	C4-1/8-T0-751-F
A3A7R48	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A3A7R49	0698-3152	8		RESISTOR 3.48K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3481-F
A3A7R50	0757-0420	3		RESISTOR 750 1% .125W F TC=0+-100	24546	C4-1/8-T0-751-F
A3A7R51	0698-3438	3		RESISTOR 147 1% .125W F TC=0+-100	24546	C4-1/8-T0-147R-F
A3A7R52	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A3A7R53	0698-3443	0		RESISTOR 287 1% .125W F TC=0+-100	24546	C4-1/8-T0-287R-F
A3A7R54	0757-0294	9		RESISTOR 17.8 1% .125W F TC=0+-100	19701	MFAC1/8-T0-17R8-F
A3A7R55	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A3A7R56	0698-3443	0		RESISTOR 287 1% .125W F TC=0+-100	24546	C4-1/8-T0-287R-F
A3A7T1	08640-60355	0		TRANSFORMER,RF BLUE	28480	08640-60355
A3A7TP1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A7TP2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A7TP3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A7TP4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A7TP5	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A7TP6	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A7W1				WIRE-BARE 22 AWG		
A3A7W2				WIRE-BARE 22 AWG		
A3A8	08662-60143	0	1	FM SL VCO	28480	08662-60143

See introduction to this section for ordering information
*Indicates factory selected value
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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A3A8C1	0180-2618	2		CAPACITOR-FXD 33UF+-10% 10VDC TA	25088	D33GS1B10K
A3A8C2	0160-4084	8		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-4084
A3A8C3	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A3A8C4	0180-2620	6		CAPACITOR-FXD 2.2UF+-10% 50VDC TA	25088	D2R2GS1B50K
A3A8C5	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A8C6	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A8C7	0180-2620	6		CAPACITOR-FXD 2.2UF+-10% 50VDC TA	25088	D2R2GS1B50K
A3A8C8	0160-3875	3		CAPACITOR-FXD 22PF +-5% 200VDC CER 0+-30	28480	0160-3875
A3A8C9	0160-3877	5		CAPACITOR-FXD 100PF +-20% 200VDC CER	28480	0160-3877
A3A8C10	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A3A8C11	0160-0194	3		CAPACITOR-FXD .015UF +-10% 200VDC POLYE	28480	0160-0194
A3A8C12	0160-4385	2	1	CAPACITOR-FXD 15PF +-5% 200VDC CER 0+-30	28480	0160-4385
A3A8C13	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A8C14	0160-3877	5		CAPACITOR-FXD 100PF +-20% 200VDC CER	28480	0160-3877
A3A8C15	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A8C16	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A8C17	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A8C18	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A8C19	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A8C20	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A8C21	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A3A8C22	0160-3874	2	14	CAPACITOR-FXD 10PF +-.5PF 200VDC CER	28480	0160-3874
A3A8C23	0160-3874	2		CAPACITOR-FXD 10PF +-.5PF 200VDC CER	28480	0160-3874
A3A8C24	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A8C25	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A8C26	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A8CR1	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A8CR2	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A8CR3	0122-0065	7		DIODE-VVC 29PF 3%	28480	0122-0065
A3A8CR4	0122-0065	7		DIODE-VVC 29PF 3%	28480	0122-0065
A3A8CR5	0122-0065	7		DIODE-VVC 29PF 3%	28480	0122-0065
A3A8CR6	0122-0065	7		DIODE-VVC 29PF 3%	28480	0122-0065
A3A8CR7	0122-0065	7		DIODE-VVC 29PF 3%	28480	0122-0065
A3A8CR8	0122-0065	7		DIODE-VVC 29PF 3%	28480	0122-0065
A3A8CR9	0122-0065	7		DIODE-VVC 29PF 3%	28480	0122-0065
A3A8CR10	0122-0065	7		DIODE-VVC 29PF 3%	28480	0122-0065
A3A8CR11	0122-0065	7		DIODE-VVC 29PF 3%	28480	0122-0065
A3A8CR12	0122-0065	7		DIODE-VVC 29PF 3%	28480	0122-0065
A3A8J1	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A3A8J2	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A3A8J3	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A3A8L1	9140-0144	0		INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG	28480	9140-0144
A3A8L2	9140-0144	0		INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG	28480	9140-0144
A3A8L3	9140-0144	0		INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG	28480	9140-0144
A3A8L4	9140-0144	0		INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG	28480	9140-0144
A3A8L5	9140-0144	0		INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG	28480	9140-0144
A3A8L6	9100-2260	1	2	INDUCTOR RF-CH-MLD 1.8UH 10% .105DX.26LG	28480	9100-2260
A3A8L7	9140-0142	8		INDUCTOR RF-CH-MLD 2.2UH 10% .105DX.26LG	28480	9140-0142
A3A8L8				NOT ASSIGNED		
A3A8L9	9140-0158	6		INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG	28480	9140-0158
A3A8L10	9100-2255	4	8	INDUCTOR RF-CH-MLD 470NH 10% .105DX.26LG	28480	9100-2255
A3A8L11	9140-0144	0		INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG	28480	9140-0144
A3A8L12	08662-00157	0	1	INDUCTOR-OSC.	28480	08662-00157
A3A8L13	9100-0346	0		INDUCTOR RF-CH-MLD 50NH 20% .105DX.26LG	28480	9100-0346
A3A8L14	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A3A8MP1	08662-00082	0	1	COVER- 1/3 END	28480	08662-00082
A3A8MP2	5001-0176	0		STRAP, GROUND	28480	5001-0176
A3A8MP3	5001-0176	0		STRAP, GROUND	28480	5001-0176
A3A8MP4	08662-00107	0		RF SHIELD	28480	08662-00107
A3A8Q1	1855-0235	7		TRANSISTOR J-FET N-CHAN D-MODE TO-52 SI	28480	1855-0235
A3A8Q2	1853-0451	5		TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
A3A8Q3	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A3A8Q4	1853-0451	5		TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
A3A8R1	0698-7224	3		RESISTOR 316 1% .05W F TC=0+-100	24546	C3-1/8-TO-316R-F
A3A8R2	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-TO-51R1-F
A3A8R3	2100-2489	9	2	RESISTOR-TRMR 5K 10% C SIDE-ADJ 1-TRN	30983	ET50X502
A3A8R4	2100-2633	5	2	RESISTOR-TRMR 1K 10% C SIDE-ADJ 1-TRN	30983	ET50X102
A3A8R5	0698-7272	1	3	RESISTOR 31.6K 1% .05W F TC=0+-100	24546	C3-1/8-TO-3162-F

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A3A8R6	0698-7257	2		RESISTOR 7.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-7501-F
A3A8R7	0698-7249	2		RESISTOR 3.48K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3481-F
A3A8R8	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A3A8R9	0698-7235	6	1	RESISTOR 909 1% .05W F TC=0+-100	24546	C3-1/8-T0-909R-F
A3A8R10	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A3A8R11	0698-7274	3		RESISTOR 38.3K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3832-F
A3A8R12	0698-7282	3	3	RESISTOR 82.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-8252-F
A3A8R13	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A3A8R14	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A3A8R15	0757-0279	0		RESISTOR 3.16K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3161-F
A3A8R16	0698-7227	6		RESISTOR 422 1% .05W F TC=0+-100	24546	C3-1/8-T0-422R-F
A3A8R17	0698-7206	1		RESISTOR 56.2 1% .05W F TC=0+-100	24546	C3-1/8-T0-56R2-F
A3A8R18	0757-0290	5		RESISTOR 6.19K 1% .125W F TC=0+-100	19701	MF4C1/8-T0-6191-F
A3A8R19	0757-0290	5		RESISTOR 6.19K 1% .125W F TC=0+-100	19701	MF4C1/8-T0-6191-F
A3A8R20	0698-7251	6		RESISTOR 4.22K 1% .05W F TC=0+-100	24546	C3-1/8-T0-4221-F
A3A8R21	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-T0-10R-F
A3A8R22	0698-7198	0	9	RESISTOR 26.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-26R1-F
A3A8R23	0698-7198	0		RESISTOR 26.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-26R1-F
A3A8R24	0698-7210	7	1	RESISTOR 82.5 1% .05W F TC=0+-100	24546	C3-1/8-T0-82R5-F
A3A8R25	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A3A8R26	0698-7220	9		RESISTOR 215 1% .05W F TC=0+-100	24546	C3-1/8-T0-215R-F
A3A8R27	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A3A8R28	0698-7220	9		RESISTOR 215 1% .05W F TC=0+-100	24546	C3-1/8-T0-215R-F
A3A8R29	0698-7213	0		RESISTOR 110 1% .05W F TC=0+-100	24546	C3-1/8-T0-110R-F
A3A8R30	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A3A8R31	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A3A8R32	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A3A8R33†	0698-7205	0	49	RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A3A8R34†	0698-7212	9	141	RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A3A8T1	08640-60355	0		TRANSFORMER, RF BLUE	28480	08640-60355
A3A8TP1				NOT ASSIGNED		
A3A8TP2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A8TP3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A8TP4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A8U1	1826-0372	2		IC, LIMITER	28480	1826-0372
A3A8U2	1826-0372	2		IC, LIMITER	28480	1826-0372
A3A8U3	1820-1780	6		IC PRESCR ECL	07263	11C90DC
A3A8W1				WIRE-BARE 22 AWG		
A3A9	08662-60139	4	1	FM SL MIXER ASSEMBLY	28480	08662-60139
A3A9C1	0160-3876	4		CAPACITOR-FXD 47PF +-20% 200VDC CER	28480	0160-3876
A3A9C2	0160-4084	8		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-4084
A3A9C3	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A3A9C4	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A9C5	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A9C6	0160-3874	2		CAPACITOR-FXD 10PF +-.5PF 200VDC CER	28480	0160-3874
A3A9C7	0160-3875	3		CAPACITOR-FXD 22PF +-5% 200VDC CER 0+-30	28480	0160-3875
A3A9C8	0160-3874	2		CAPACITOR-FXD 10PF +-.5PF 200VDC CER	28480	0160-3874
A3A9C9	0160-3872	0	1	CAPACITOR-FXD 2.2PF +-.25PF 200VDC CER	28480	0160-3872
A3A9C10	0160-3874	2		CAPACITOR-FXD 10PF +-.5PF 200VDC CER	28480	0160-3874
A3A9C11	0160-3874	2		CAPACITOR-FXD 10PF +-.5PF 200VDC CER	28480	0160-3874
A3A9C12	0160-0168	1		CAPACITOR-FXD .1UF +-10% 200VDC POLYE	28480	0160-0168
A3A9C13	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A9C14	0160-2253	9	1	CAPACITOR-FXD 6.8PF +-.25PF 500VDC CER	28480	0160-2253
A3A9C15	0160-3877	5		CAPACITOR-FXD 100PF +-20% 200VDC CER	28480	0160-3877
A3A9C16	0160-3874	2		CAPACITOR-FXD 10PF +-.5PF 200VDC CER	28480	0160-3874
A3A9C17	0160-3877	5		CAPACITOR-FXD 100PF +-20% 200VDC CER	28480	0160-3877
A3A9CR1	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A9CR2	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A3A9CR3	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A3A9J1	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A3A9J2	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A3A9J3	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A3A9L1	9140-0144	0		INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG	28480	9140-0144
A3A9L2	9140-0144	0		INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG	28480	9140-0144
A3A9L3	9140-0144	0		INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG	28480	9140-0144
A3A9L4	9100-1629	4		INDUCTOR RF-CH-MLD 47UH 5% .166DX.365LG	28480	9100-1629
A3A9L5	9100-0346	0		INDUCTOR RF-CH-MLD 50NH 20% .105DX.26LG	28480	9100-0346

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A3A9L6	9100-1629	4		INDUCTOR RF-CH-MLD 47UH 5% .166DX.385LG	28480	9100-1629
A3A9L7	9100-0346	0		INDUCTOR RF-CH-MLD 50NH 20% .105DX.26LG	28480	9100-0346
A3A9L8	9100-0346	0		INDUCTOR RF-CH-MLD 50NH 20% .105DX.26LG	28480	9100-0346
A3A9L9	9100-1629	4		INDUCTOR RF-CH-MLD 47UH 5% .166DX.385LG	28480	9100-1629
A3A9L10	9100-2251	0		INDUCTOR RF-CH-MLD 220NH 10% .105DX.26LG	28480	9100-2251
A3A9MP1	08662-00113	8	1	COVER, EXTRUSION 1/3C	28480	08662-00113
	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A3A9MP2	5001-0176	0		STRAP, GROUND	28480	5001-0176
A3A9MP3	5001-0176	0		STRAP, GROUND	28480	5001-0176
A3A9MP4	1205-0202	1		THERMAL LINK DUAL TO-18-CS	28480	1205-0202
A3A9Q1	1854-0475	5		TRANSISTOR-DUAL NPN PD=750MW	28480	1854-0475
A3A9Q2	1853-0451	5		TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
A3A9Q3	1853-0451	5		TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
A3A9Q4	1853-0451	5		TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
A3A9Q5	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A3A9Q6	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A3A9Q7	1853-0451	5		TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
A3A9R1	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-TO-51R1-F
A3A9R2				NOT ASSIGNED		
A3A9R3	0698-7223	2		RESISTOR 287 1% .05W F TC=0+-100	24546	C3-1/8-TO-287R-F
A3A9R4	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1002-F
A3A9R5	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1002-F
A3A9R6	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1002-F
A3A9R7	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1001-F
A3A9R8	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-TO-51R1-F
A3A9R9	0698-7194	6		RESISTOR 17.8 1% .05W F TC=0+-100	24546	C3-1/8-TO-17R8-F
A3A9R10	0698-7223	2		RESISTOR 287 1% .05W F TC=0+-100	24546	C3-1/8-TO-287R-F
A3A9R11	0698-7224	3		RESISTOR 316 1% .05W F TC=0+-100	24546	C3-1/8-TO-316R-F
A3A9R12	0698-7227	6		RESISTOR 422 1% .05W F TC=0+-100	24546	C3-1/8-TO-422R-F
A3A9R13	0698-7240	3		RESISTOR 1.47K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1471-F
A3A9R14*	0698-7215	2	6	RESISTOR 133 1% .05W F TC=0+-100	24546	C3-1/8-TO-133R-F
A3A9R15	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-TO-511R-F
A3A9R16	0698-7227	6		RESISTOR 422 1% .05W F TC=0+-100	24546	C3-1/8-TO-422R-F
A3A9R17	0698-7248	1		RESISTOR 3.16K 1% .05W F TC=0+-100	24546	C3-1/8-TO-3161-F
A3A9R18	0698-7223	2		RESISTOR 287 1% .05W F TC=0+-100	24546	C3-1/8-TO-287R-F
A3A9R19	0698-7194	6		RESISTOR 17.8 1% .05W F TC=0+-100	24546	C3-1/8-TO-17R8-F
A3A9R20	0698-7223	2		RESISTOR 287 1% .05W F TC=0+-100	24546	C3-1/8-TO-287R-F
A3A9R21	0698-7227	6		RESISTOR 422 1% .05W F TC=0+-100	24546	C3-1/8-TO-422R-F
A3A9R22	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1002-F
A3A9R23	0698-7242	5		RESISTOR 1.78K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1781-F
A3A9R24	0698-7223	2		RESISTOR 287 1% .05W F TC=0+-100	24546	C3-1/8-TO-287R-F
A3A9R25	0698-7194	6		RESISTOR 17.8 1% .05W F TC=0+-100	24546	C3-1/8-TO-17R8-F
A3A9R26	0698-7223	2		RESISTOR 287 1% .05W F TC=0+-100	24546	C3-1/8-TO-287R-F
A3A9R27	0698-7277	6	14	RESISTOR 51.1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-5112-F
A3A9R28	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-TO-51R1-F
A3A9R29	0698-7277	6		RESISTOR 51.1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-5112-F
A3A9R30	0698-7254	9		RESISTOR 5.62K 1% .05W F TC=0+-100	24546	C3-1/8-TO-5621-F
A3A9R31	0698-7261	8	8	RESISTOR 11K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1102-F
A3A9R32	0698-7209	4		RESISTOR 75 1% .05W F TC=0+-100	24546	C3-1/8-TO-75R0-F
A3A9R33	0698-7217	4	4	RESISTOR 162 1% .05W F TC=0+-100	24546	C3-1/8-TO-162R-F
A3A9R34	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-TO-511R-F
A3A9R35	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-TO-51R1-F
A3A9TP1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A9TP2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A9TP3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A9TP4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A9TP5	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A9U1†	0955-0096	9	5	MIXER SRAI	28480	0955-0096
	1251-3172	7	43	CONNECTOR-SGL CONT SKT .03-IN-BSC-SZ RND	28480	1251-3172
A3A9W1				WIRE-BARE 22 AWG		
A3A10	08662-60145	2	1	FM SUM LOOP PHASE DETECTOR	28480	08662-60145
A3A10C1	0180-2618	2		CAPACITOR-FXD 33UF+-10% 10VDC TA	25088	D33GS1B10K
A3A10C2	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A3A10C3	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A10C4	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A10C5	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A10C6	0160-2204	0	2	CAPACITOR-FXD 100PF +-5% 300VDC MICA	28480	0160-2204
A3A10C7	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A10C8	0140-0190	7	1	CAPACITOR-FXD 39PF +-5% 300VDC MICA	72136	DM15E390J0300WV1CR
A3A10C9	0160-3877	5		CAPACITOR-FXD 100PF +-20% 200VDC CER	28480	0160-3877
A3A10C10	0160-0575	4		CAPACITOR-FXD .047UF +-20% 50VDC CER	28480	0160-0575
A3A10C11	0160-2306	3		CAPACITOR-FXD 27PF +-5% 300VDC MICA	28480	0160-2306
A3A10C12	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A10C13	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A10C14	0160-3877	5		CAPACITOR-FXD 100PF +-20% 200VDC CER	28480	0160-3877
A3A10C15	0160-0575	4		CAPACITOR-FXD .047UF +-20% 50VDC CER	28480	0160-0575

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A3A10C16	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A10C17	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A10C18	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A10C19	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A10C20	0160-0575	4		CAPACITOR-FXD .047UF +-20% 50VDC CER	28480	0160-0575
A3A10C21	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A3A10C22	0160-2307	4	1	CAPACITOR-FXD 47PF +-5% 300VDC MICA	28480	0160-2307
A3A10C23	0160-4389	6	19	CAPACITOR-FXD 100PF +-5PF 200VDC CER	28480	0160-4389
A3A10C24	0160-3876	4		CAPACITOR-FXD 47PF +-20% 200VDC CER	28480	0160-3876
A3A10DS1	1990-0326	3		LED-LAMP LUM-INT=300UCD IF=50MA-MAX	28480	5082-4444
A3A10J1	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A3A10L1	9140-0144	0		INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG	28480	9140-0144
A3A10L2	9140-0144	0		INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG	28480	9140-0144
A3A10L3	9100-2247	4		INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG	28480	9100-2247
A3A10L4	9140-0141	7	11	INDUCTOR RF-CH-MLD 680NH 10% .105DX.26LG	28480	9140-0141
A3A10L5	9100-2247	4		INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG	28480	9100-2247
A3A10L6	9100-2247	4		INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG	28480	9100-2247
A3A10L7	9140-0141	7		INDUCTOR RF-CH-MLD 680NH 10% .105DX.26LG	28480	9140-0141
A3A10L8	9140-0144	0		INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG	28480	9140-0144
A3A10L9	9100-0368	6	4	INDUCTOR RF-CH-MLD 330NH 10% .105DX.26LG	28480	9100-0368
A3A10L10	9140-0141	7		INDUCTOR RF-CH-MLD 680NH 10% .105DX.26LG	28480	9140-0141
A3A10MP1	08662-00083	1	1	COVER- 1/3 END	28480	08662-00083
	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A3A10MP2	5001-0176	0		STRAP, GROUND	28480	5001-0176
A3A10MP3	5001-0176	0		STRAP, GROUND	28480	5001-0176
A3A10Q1	1854-0345	8		TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW	04713	2N5179
	1205-0037	0		HEAT SINK TO-18-CS	28480	1205-0037
A3A10Q2	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A3A10Q3	1854-0345	8		TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW	04713	2N5179
	1205-0037	0		HEAT SINK TO-18-CS	28480	1205-0037
A3A10Q4	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A3A10Q5	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A3A10R1*	0698-7206	1	4	RESISTOR 56.2 1% .05W F TC=0+-100	24546	C3-1/8-TO-56R2-F
A3A10R2	0698-7234	5		RESISTOR 825 1% .05W F TC=0+-100	24546	C3-1/8-TO-825R-F
A3A10R3	0698-7222	1		RESISTOR 261 1% .05W F TC=0+-100	24546	C3-1/8-TO-261R-F
A3A10R4	0698-7244	7		RESISTOR 2.15K 1% .05W F TC=0+-100	24546	C3-1/8-TO-2151-F
A3A10R5	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A3A10R6	0698-7247	0		RESISTOR 2.87K 1% .05W F TC=0+-100	24546	C3-1/8-TO-2871-F
A3A10R7	0698-7218	5		RESISTOR 178 1% .05W F TC=0+-100	24546	C3-1/8-TO-178R-F
A3A10R8	0698-7223	2		RESISTOR 287 1% .05W F TC=0+-100	24546	C3-1/8-TO-287R-F
A3A10R9	0757-0346	2		RESISTOR 10 1% .125W F TC=0+-100	24546	C4-1/8-T0-10R0-F
A3A10R10	0698-7227	6		RESISTOR 422 1% .05W F TC=0+-100	24546	C3-1/8-TO-422R-F
A3A10R11	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A3A10R12	0698-7224	3		RESISTOR 316 1% .05W F TC=0+-100	24546	C3-1/8-TO-316R-F
A3A10R13	0698-7244	7		RESISTOR 2.15K 1% .05W F TC=0+-100	24546	C3-1/8-TO-2151-F
A3A10R14	0698-7247	0		RESISTOR 2.87K 1% .05W F TC=0+-100	24546	C3-1/8-TO-2871-F
A3A10R15	0698-7232	3		RESISTOR 681 1% .05W F TC=0+-100	24546	C3-1/8-TO-681R-F
A3A10R16	0698-7243	6		RESISTOR 1.96K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1961-F
A3A10R17	0683-0275	9	1	RESISTOR 2.7 5% .25W FC TC=-400/+500	01121	CB2705
A3A10R18	0698-7227	6		RESISTOR 422 1% .05W F TC=0+-100	24546	C3-1/8-TO-422R-F
A3A10R19	0698-7223	2		RESISTOR 287 1% .05W F TC=0+-100	24546	C3-1/8-TO-287R-F
A3A10R20	0698-7194	6		RESISTOR 17.8 1% .05W F TC=0+-100	24546	C3-1/8-TO-17R8-F
A3A10R21	0698-7223	2		RESISTOR 287 1% .05W F TC=0+-100	24546	C3-1/8-TO-287R-F
A3A10R22	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A3A10R23	0698-7251	6		RESISTOR 4.22K 1% .05W F TC=0+-100	24546	C3-1/8-TO-4221-F
A3A10R24	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-TO-511R-F
A3A10R25	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-TO-511R-F
A3A10R26	0698-7234	5		RESISTOR 825 1% .05W F TC=0+-100	24546	C3-1/8-TO-825R-F
A3A10R27†	0698-7246	9	4	RESISTOR 2.61K 1% .05W F TC=0+-100	24546	C3-1/8-TO-2611-F
A3A10R28	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-TO-511R-F
A3A10R29	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-TO-511R-F
A3A10R30	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-TO-51R1-F
A3A10R31	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1001-F
A3A10R32	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1001-F
A3A10R33	0698-7241	4	7	RESISTOR 1.62K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1621-F
A3A10R34	0698-7230	1	1	RESISTOR 562 1% .05W F TC=0+-100	24546	C3-1/8-TO-562R-F
A3A10R35	0698-7243	6		RESISTOR 1.96K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1961-F
A3A10R36	0698-7243	6		RESISTOR 1.96K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1961-F
A3A10R37	0698-7261	8		RESISTOR 11K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1102-F
A3A10R38	0698-7261	8		RESISTOR 11K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1102-F
A3A10R39	0698-7248	1		RESISTOR 3.16K 1% .05W F TC=0+-100	24546	C3-1/8-TO-3161-F
A3A10R40	0698-7243	6		RESISTOR 1.96K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1961-F

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A3A10R41	0698-7233	4		RESISTOR 750 1% .05W F TC=0+-100	24546	C3-1/8-T0-750R-F
A3A10R42	0698-7250	5		RESISTOR 3.83K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3831-F
A3A10R43	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A3A10TP1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A10TP2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A10U1	1820-1344	8		IC PL LOOP 14-DIP-C PKG	04713	MC12040L
A3A10U2	0955-0095	8		MIXER SRAI	28480	0955-0095
	1251-3172	7		CONNECTOR-SGL CONT SKT .03-IN-BSC-SZ RND	28480	1251-3172
A3A10U3	1826-0191	3		IC COMPARATOR GP DUAL TO-100 PKG	27014	LM319H
A3A10U4	1820-0803	2		IC GATE ECL OR-NOR TPL	04713	MC10105P
A3A11	08662-60144	1	1	LF LOOP MOTHER BOARD	28480	08662-60144
A3A11E1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A11E2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A11E3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A11E4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A11E5	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A11J1	1250-0835	1	12	CONNECTOR-RF SMC M PC 50-OHM	28480	1250-0835
A3A11J2	1250-0835	1		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-0835
A3A11J3	1250-0835	1		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-0835
A3A11J4	1200-0507	9		SOCKET-IC 16-CONT DIP-SLDR	28480	1200-0507
A3A11TP1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A11TP2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A11TP3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A11TP4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A11TP5	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A11TP6	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A11TP7	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A11TP8	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A11TP9				NOT ASSIGNED		
A3A11TP10	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A3A11XA3A1	1251-1631	9		CONNECTOR-PC EDGE 10-CONT/ROW 1-ROW	28480	1251-1631
A3A11XA3A2				NOT ASSIGNED		
A3A11XA3A3	1251-2026	8		CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS	28480	1251-2026
A3A11XA3A4	1251-1633	1		CONNECTOR-PC EDGE 15-CONT/ROW 1-ROW	28480	1251-1633
A3A11XA3A5	1251-1633	1		CONNECTOR-PC EDGE 15-CONT/ROW 1-ROW	28480	1251-1633
A3A11XA3A6	1251-2035	9	5	CONNECTOR-PC EDGE 15-CONT/ROW 2-ROWS	28480	1251-2035
A3A11XA3A7	1251-1633	1		CONNECTOR-PC EDGE 15-CONT/ROW 1-ROW	28480	1251-1633
A3A11XA3A8				NOT ASSIGNED		
A3A11XA3A9	1251-2034	8	4	CONNECTOR-PC EDGE 10-CONT/ROW 2-ROWS	28480	1251-2034
A3A11XA3A10	1251-2034	8		CONNECTOR-PC EDGE 10-CONT/ROW 2-ROWS	28480	1251-2034
A3MP1				NOT ASSIGNED		
A3MP2				NOT ASSIGNED		
A3MP3	08662-00094	4	1	COVER- 2/3 END	28480	08662-00094
A4A1	08662-60126	9	1	OUTPUT AMPLIFIER	28480	08662-60126
A4A1C1	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A1C2	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A1C3	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A1C4	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A1C5	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A1C6	0160-0570	9		CAPACITOR-FXD 220PF +-20% 100VDC CER	20932	5024EM100RD221M
A4A1C7	0160-0571	0	43	CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A1C8	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A1C9	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A4A1C10	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A4A1C11	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A1C12	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A1C13	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A1C14	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A1C15	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A1C16	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A1C17	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A1C18	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A1C19	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A1C20	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A1C21	0160-0570	9		CAPACITOR-FXD 220PF +-20% 100VDC CER	20932	5024EM100RD221M
A4A1C22	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A1C23	0160-4780	1	2	CAPACITOR-FXD 5.6 PF	28480	0160-4780
A4A1C24	0160-4773	2	4	CAPACITOR-FXD 9.1 PF	28480	0160-4773
A4A1C25	0160-4783	4	2	CAPACITOR-FXD 15 PF	28480	0160-4783
A4A1C26	0160-4853	9	3	CAPACITOR-FXD 22 PF	28480	0160-4853
A4A1C27	0160-4776	5	3	CAPACITOR-FXD 29 PF	28480	0160-4776
A4A1C28	0160-4779	8	1	CAPACITOR-FXD 10 PF	28480	0160-4779
A4A1C29	0160-4774	3	2	CAPACITOR-FXD 16 PF	28480	0160-4774
A4A1C30	0160-4775	4	1	CAPACITOR-FXD 24 PF	28480	0160-4775

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A4A1C31	0160-4782	3	1	CAPACITOR-FXD 33 PF	28480	0160-4782
A4A1C32	0160-4777	6	1	CAPACITOR-FXD 42 PF	28480	0160-4777
A4A1C33	0160-4780	1		CAPACITOR-FXD 5.6 PF	28480	0160-4780
A4A1C34	0160-4773	2		CAPACITOR-FXD 9.1 PF	28480	0160-4773
A4A1C35	0160-4783	4		CAPACITOR-FXD 15 PF	28480	0160-4783
A4A1C36	0160-4853	9		CAPACITOR-FXD 22 PF 2%	28480	0160-4853
A4A1C37	0160-4776	5		CAPACITOR-FXD 29 PF	28480	0160-4776
A4A1C38	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A1C39	0160-0134	1		CAPACITOR-FXD 220PF +-5% 300VDC MICA	28480	0160-0134
A4A1C40	0160-0134	1		CAPACITOR-FXD 220PF +-5% 300VDC MICA	28480	0160-0134
A4A1C41	0180-2731	0	1	CAPACITOR-FXD 2.2UF+-10% 20VDC TA	28480	0180-2731
A4A1C42	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A1C43	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A1C44	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A1C45	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A1C46	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A1C47†	0160-0576	5		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-0576
A4A1C48	0160-0572	1	4	CAPACITOR-FXD 2200PF +-20% 100VDC CER	28480	0160-0572
A4A1C49	0160-4588	7	2	CAPACITOR-FXD 270PF +-5% 100VDC CER	28480	0160-4588
A4A1C50	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A1C51	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A1C52				NOT ASSIGNED		
A4A1C53†	0160-4031	5	2	CAPACITOR-FXD 330PF +-5% 100VDC CER	28480	0160-4031
A4A1C54	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A1C55	0160-3875	3		CAPACITOR-FXD 22PF +-5% 200VDC CER 0+-30	28480	0160-3875
A4A1C56	0180-2661	5	1	CAPACITOR-FXD 1UF+-10% 50VDC TA	25088	D1R0GS1A50K
A4A1C57	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A1C58	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A1C59†	0160-3877	5		CAPACITOR-FXD 100PF +-20% 200VDC CER	28480	0160-3877
A4A1CR1	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A1CR2	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A1CR3	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A1CR4	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A1CR5	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A1CR6	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A1CR7	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A1CR8	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A1CR9	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A1CR10	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A1CR11	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A1CR12	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A1CR13	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A1CR14	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A1CR15	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A1CR16	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A4A1CR17	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A4A1CR18	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A4A1CR19	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A4A1CR20	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A1CR21	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A1CR22	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A1CR23	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A1CR24	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A4A1CR25	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A4A1CR26	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A4A1CR27	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A4A1CR28	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A4A1CR29	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A4A1E1	9170-0029	3		CORE-SHIELDING BEAD	28480	9170-0029
A4A1E2	9170-0029	3		CORE-SHIELDING BEAD	28480	9170-0029
A4A1E3†	9170-0029	3		CORE-SHIELDING BEAD	28480	9170-0329
A4A1J1	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A4A1J2	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A4A1J3	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A4A1L1	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A1L2	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A1L3	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A1L4	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A1L5	9100-3922	4		COIL, 3.0 UH	28480	9100-3922

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A4A1L6	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A1L7	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A1L8	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A1L9	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A1L10*	9135-0068	6	7	INDUCTOR, .033 UH	28480	9135-0068
A4A1L11	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A1L12	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A1L13	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A1L14	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A1L15	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A1L16	9135-0070	0	5	INDUCTOR, .024 UH	28480	9135-0070
A4A1L17	9135-0068	6		INDUCTOR, .033 UH	28480	9135-0068
A4A1L18	9135-0075	5	7	INDUCTOR, .043 UH	28480	9135-0075
A4A1L19	9135-0073	3	9	INDUCTOR, .051 UH	28480	9135-0073
A4A1L20	9135-0081	3	6	INDUCTOR, .068 UH	28480	9135-0081
A4A1L21	9135-0070	0		INDUCTOR, .024 UH	28480	9135-0070
A4A1L22	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A1L23	9135-0068	6		INDUCTOR, .033 UH	28480	9135-0068
A4A1L24	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A1L25	9135-0075	5		INDUCTOR, .043 UH	28480	9135-0075
A4A1L26	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A1L27	9135-0073	3		INDUCTOR, .051 UH	28480	9135-0073
A4A1L28	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A1L29	9135-0081	3		INDUCTOR, .068 UH	28480	9135-0081
A4A1L30	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A1L31	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A1L32	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A1L33	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A1L34	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A1L35	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A1L36	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A1L37	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A1L38	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A1L39	9140-0210	1	13	INDUCTOR RF-CH-MLD 100UH 5% .166DX.385LG	28480	9140-0210
A4A1L40	9140-0137	1	1	INDUCTOR RF-CH-MLD 1MH 5% .2DX.45LG Q=60	28480	9140-0137
A4A1L41	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A1L42	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A1L43	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A1L44	9140-0179	1		INDUCTOR RF-CH-MLD 22UH 10% .166DX.385LG	28480	9140-0179
A4A1MP1	08662-00101	4	1	COVER, EXTRUSION FULL	28480	08662-00101
	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A4A1MP2	5001-0176	0		GROUND STRAP	28480	5001-0176
A4A1MP3	5001-0176	0		GROUND STRAP	28480	5001-0176
A4A1MP4†	08662-00170	7	3	SHIELD, CKT, LARGE	28480	08662-00170
A4A1MP5	08662-00041	1	7	SHIELD, COMP. LARGE	28480	08662-00041
A4A1MP6	08662-20285	7	2	CONTACT-FINGERS	28480	08662-20285
A4A1Q1	1854-0720	3	11	TRANSISTOR NPN SI PD=500MW FT=4GHZ	28480	1854-0720
A4A1Q2	1853-0036	2	10	TRANSISTOR PNP SI PD=310MW FT=250MHZ	28480	1853-0036
A4A1Q3	1854-0721	4	3	TRANSISTOR NPN SI TO-39 PD=1.5W	25403	BFR 95
	0340-0834	0	2	INSULATOR-XSTR POLYI	28480	0340-0834
	08662-20291	5	4	HEAT SINK	28480	08662-20291
A4A1Q4	1854-0071	7		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0071
A4A1Q5	1854-0071	7		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0071
A4A1Q6	1854-0475	5		TRANSISTOR-DUAL NPN PD=750MW	28480	1854-0475
A4A1Q7	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A4A1Q8	1853-0036	2		TRANSISTOR PNP SI PD=310MW FT=250MHZ	28480	1853-0036
A4A1Q9	1853-0036	2		TRANSISTOR PNP SI PD=310MW FT=250MHZ	28480	1853-0036
A4A1Q10	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A4A1Q11	1854-0071	7		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0071
A4A1Q12	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A4A1Q13	1853-0036	2		TRANSISTOR PNP SI PD=310MW FT=250MHZ	28480	1853-0036
A4A1Q14	1854-0071	7		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0071
A4A1Q15	1854-0477	7	13	TRANSISTOR NPN 2N2222A SI TO-18 PD=500MW	04713	2N2222A
A4A1Q16	1854-0475	5		TRANSISTOR-DUAL NPN PD=750MW	28480	1854-0475
A4A1Q17	1854-0475	5		TRANSISTOR-DUAL NPN PD=750MW	28480	1854-0475
A4A1Q18	1853-0036	2		TRANSISTOR PNP SI PD=310MW FT=250MHZ	28480	1853-0036
A4A1Q19	1854-0721	4		TRANSISTOR NPN SI TO-39 PD=1.5W	25403	BFR 95
	0340-0834	0		INSULATOR-XSTR POLYI	28480	0340-0834
	08662-20291	5		HEAT SINK	28480	08662-20291
A4A1Q20	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A4A1Q21	1854-0477	7		TRANSISTOR NPN 2N2222A SI TO-18 PD=500MW	04713	2N2222A
A4A1Q22	1853-0036	2		TRANSISTOR PNP SI PD=310MW FT=250MHZ	28480	1853-0036
A4A1Q23	1854-0071	7		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0071
A4A1Q24	1853-0036	2		TRANSISTOR PNP SI PD=310MW FT=250MHZ	28480	1853-0036
A4A1Q25	1854-0477	7		TRANSISTOR NPN 2N2222A SI TO-18 PD=500MW	04713	2N2222A
A4A1Q26	1854-0477	7		TRANSISTOR NPN 2N2222A SI TO-18 PD=500MW	04713	2N2222A

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A4A1R1	0698-0083	8	10	RESISTOR 1.96K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1961-F
A4A1R2	0698-0083	8		RESISTOR 1.96K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1961-F
A4A1R3	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-T0-10R-F
A4A1R4	0698-7241	4		RESISTOR 1.62K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1621-F
A4A1R5	0698-7245	8		RESISTOR 2.37K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2371-F
A4A1R6	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A4A1R7	0698-3401	0	2	RESISTOR 215 1% .5W F TC=0+-100	28480	0698-3401
A4A1R8	0699-0157	9	1	RESISTOR 12 5% .1W C TC=0+-200	26654	3C120J
A4A1R9				NOT ASSIGNED		
A4A1R10*	0698-7223	2	18	RESISTOR 287 1% .05W F TC=0+-100	24546	C3-1/8-T0-287R-F
	1251-1556	7	36	CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A4A1R11*	0698-7194	6	15	RESISTOR 17.8 1% .05W F TC=0+-100	24546	C3-1/8-T0-17R8-F
	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A4A1R12*	0698-7223	2		RESISTOR 287 1% .05W F TC=0+-100	24546	C3-1/8-T0-287R-F
	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A4A1R13	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A4A1R14	1810-0205	7	4	NETWORK-RES 8-SIP4.7K OHM X 7	01121	208A472
A4A1R15	0698-3151	7		RESISTOR 2.87K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2871-F
A4A1R16	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A4A1R17	0757-0798	8	2	RESISTOR 110 1% .5W F TC=0+-100	28480	0757-0798
A4A1R18	0698-7219	6		RESISTOR 196 1% .05W F TC=0+-100	24546	C3-1/8-T0-196R-F
A4A1R19	0698-7222	1		RESISTOR 261 1% .05W F TC=0+-100	24546	C3-1/8-T0-261R-F
A4A1R20	0698-0083	8		RESISTOR 1.96K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1961-F
A4A1R21	0698-7219	6		RESISTOR 196 1% .05W F TC=0+-100	24546	C3-1/8-T0-196R-F
A4A1R22	0757-0421	4		RESISTOR 825 1% .125W F TC=0+-100	24546	C4-1/8-T0-825R-F
A4A1R23	0698-3441	8	12	RESISTOR 215 1% .125W F TC=0+-100	24546	C4-1/8-T0-215R-F
A4A1R24	0698-3441	8		RESISTOR 215 1% .125W F TC=0+-100	24546	C4-1/8-T0-215R-F
A4A1R25	0698-3441	8		RESISTOR 215 1% .125W F TC=0+-100	24546	C4-1/8-T0-215R-F
A4A1R26	0698-3441	8		RESISTOR 215 1% .125W F TC=0+-100	24546	C4-1/8-T0-215R-F
A4A1R27	0698-3441	8		RESISTOR 215 1% .125W F TC=0+-100	24546	C4-1/8-T0-215R-F
A4A1R28	0757-0421	4		RESISTOR 825 1% .125W F TC=0+-100	24546	C4-1/8-T0-825R-F
A4A1R29	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A4A1R30	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A4A1R31	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A4A1R32	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A4A1R33	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A4A1R34	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A4A1R35	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A4A1R36	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A4A1R37	0698-3156	2		RESISTOR 14.7K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1472-F
A4A1R38	0698-6362	8	7	RESISTOR 1K .1% .125W F TC=0+-25	28480	0698-6362
A4A1R39	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A4A1R40	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A4A1R41*	0757-0395	1	1	RESISTOR 56.2 1% .125W F TC=0+-100	24546	C4-1/8-T0-56R2-F
	1251-1998	1	3	CONNECTOR-SGL CONT SKT .025-IN-BSC-SZ	28480	1251-1998
A4A1R42	0698-6362	8		RESISTOR 1K .1% .125W F TC=0+-25	28480	0698-6362
A4A1R43	0698-6362	8		RESISTOR 1K .1% .125W F TC=0+-25	28480	0698-6362
A4A1R44	0698-6362	8		RESISTOR 1K .1% .125W F TC=0+-25	28480	0698-6362
A4A1R45	0698-6362	8		RESISTOR 1K .1% .125W F TC=0+-25	28480	0698-6362
A4A1R46	0698-6362	8		RESISTOR 1K .1% .125W F TC=0+-25	28480	0698-6362
A4A1R47	0698-6362	8		RESISTOR 1K .1% .125W F TC=0+-25	28480	0698-6362
A4A1R48	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A4A1R49	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A4A1R50	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A4A1R51	0757-0422	5		RESISTOR 909 1% .125W F TC=0+-100	24546	C4-1/8-T0-909R-F
A4A1R52	0698-0082	7		RESISTOR 464 1% .125W F TC=0+-100	24546	C4-1/8-T0-4640-F
A4A1R53	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A4A1R54	0757-0419	0		RESISTOR 681 1% .125W F TC=0+-100	24546	C4-1/8-T0-681R-F
A4A1R55	0757-0419	0		RESISTOR 681 1% .125W F TC=0+-100	24546	C4-1/8-T0-681R-F
A4A1R56	0757-0278	9	7	RESISTOR 1.78K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1781-F
A4A1R57	0698-3445	2		RESISTOR 348 1% .125W F TC=0+-100	24546	C4-1/8-T0-348R-F
A4A1R58	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A4A1R59	0698-0082	7		RESISTOR 464 1% .125W F TC=0+-100	24546	C4-1/8-T0-4640-F
A4A1R60	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A4A1R61	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A4A1R62	0698-3155	1		RESISTOR 4.64K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4641-F
A4A1R63	0698-3153	9	7	RESISTOR 3.83K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3831-F
A4A1R64	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A4A1R65	0698-7253	8		RESISTOR 5.11K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5111-F
A4A1R66	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-T0-10R-F
A4A1R67*	0698-3429	2	1	RESISTOR 19.6 1% .125W F TC=0+-100	03888	PME55-1/8-T0-19R6-F
A4A1R68	0757-0421	4		RESISTOR 825 1% .125W F TC=0+-100	24546	C4-1/8-T0-825R-F
A4A1R69	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A4A1R70	0757-0422	5		RESISTOR 909 1% .125W F TC=0+-100	24546	C4-1/8-T0-909R-F
A4A1R71	0757-0417	8	3	RESISTOR 562 1% .125W F TC=0+-100	24546	C4-1/8-T0-562R-F
A4A1R72	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A4A1R73	0757-0278	9		RESISTOR 1.78K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1781-F
A4A1R74	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A4A1R75	0698-3453	2	4	RESISTOR 196K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1963-F
A4A1R76	0698-3157	3		RESISTOR 19.6K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1962-F
A4A1R77	0698-3157	3		RESISTOR 19.6K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1962-F
A4A1R78	0757-0422	5		RESISTOR 909 1% .125W F TC=0+-100	24546	C4-1/8-T0-909R-F
A4A1R79	0698-7253	8		RESISTOR 5.11K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5111-F
A4A1R80	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-T0-10R-F
A4A1R81	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-T0-10R-F
A4A1R82	0757-0465	6		RESISTOR 100K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1003-F
A4A1R83	0757-0422	5		RESISTOR 909 1% .125W F TC=0+-100	24546	C4-1/8-T0-909R-F
A4A1R84	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A4A1R85	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A4A1R86	2100-3351	6	1	RESISTOR-TRMR 500 10% C SIDE-ADJ 1-TRN	28480	2100-3351
A4A1R87	0698-7253	8		RESISTOR 5.11K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5111-F
A4A1R88				NOT ASSIGNED		
A4A1R89	0698-3266	5		RESISTOR 237K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2373-F
A4A1R90	2100-3356	1	1	RESISTOR-TRMR 200K 10% C SIDE-ADJ 1-TRN	28480	2100-3356
A4A1R91	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A4A1R92	0698-3150	6	11	RESISTOR 2.37K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2371-F
A4A1R93	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A4A1R94	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A4A1R95	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A4A1R96	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A4A1R97	0698-3150	6		RESISTOR 2.37K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2371-F
A4A1R98	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A4A1R99	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A4A1R100	0698-0083	8		RESISTOR 1.96K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1961-F
A4A1R101	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A4A1R102	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A4A1R103	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A4A1R104	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A4A1R105	0698-7284	5		RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F
A4A1R106*	0698-7233	4	30	NORMALLY OPEN	24546	C3-1/8-T0-750R-F
A4A1R107†	0698-7233	4		RESISTOR 750 1% .05W F TC=0+-100	24546	C3-1/8-T0-750R-F
A4A1TP1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A1TP2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A1TP3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A1TP4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A1TP5	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A1TP6	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A1TP7	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A1TP8	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A1TP9	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A1TP10	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A1TP11	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A1TP12	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A1TP13	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A1TP14	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A1TP15	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A1TP16	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A4A1TP17	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A4A1TP18	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A4A1TP19	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A4A1TP20	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A1U1	08662-67008	0		OUTPUT POWER AMPLIFIER	28480	08662-67008
A4A1U1	08662-60084	8		RESTORED MICROCIRCUIT	28480	08662-60084
A4A1U2	08662-67002	4	2	MID-BAND POWER AMPLIFIER	28480	08662-67002
	08662-20291	5		HEAT SINK	28480	08662-20291
A4A1U3	1820-0668	7	4	IC BFR TTL NON-INV HEX 1-INP	01295	SN7407N
A4A1U4	1820-1216	3		IC DCDR TTL LS 3-TO-8-LINE 3-INP	01295	SN74LS138N
A4A1U5	1820-0471	0	2	IC INV TTL HEX 1-INP	01295	SN7406N
A4A1U6	1820-1144	6	2	IC GATE TTL LS NOR QUAD 2-INP	01295	SN74LS02N
A4A1W1	08662-20044	6	1	CABLE, SEMI-RIGID	28480	08662-20044
A4A1W2	08662-60020	2	1	CABLE ASSEMBLY, PCB OUTPUT	28480	08662-60020
A4A2	08662-60222	6	1	DOUBLER ASSEMBLY	28480	08662-60222
A4A2	08662-60081	5		RESTORED DOUBLER ASSEMBLY	28480	08662-60081
A4A2C1	0160-3875	3		CAPACITOR-FXD 22PF +-5% 200VDC CER 0+-30	28480	0160-3875
A4A2C2	0160-3876	4		CAPACITOR-FXD 47PF +-20% 200VDC CER	28480	0160-3876
A4A2C3	0160-3876	4		CAPACITOR-FXD 47PF +-20% 200VDC CER	28480	0160-3876
A4A2C4	0160-3876	4		CAPACITOR-FXD 47PF +-20% 200VDC CER	28480	0160-3876
A4A2C5	0160-3876	4		CAPACITOR-FXD 47PF +-20% 200VDC CER	28480	0160-3876
A4A2C6	0160-3876	4		CAPACITOR-FXD 47PF +-20% 200VDC CER	28480	0160-3876
A4A2C7	0160-3877	5		CAPACITOR-FXD 180PF +-20% 200VDC CER	28480	0160-3877
A4A2C8	0160-3876	4		CAPACITOR-FXD 47PF +-20% 200VDC CER	28480	0160-3876
A4A2C9	0160-3876	4		CAPACITOR-FXD 47PF +-20% 200VDC CER	28480	0160-3876
A4A2C10	0160-3876	4		CAPACITOR-FXD 47PF +-20% 200VDC CER	28480	0160-3876

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A4A2C11	0160-3876	4		CAPACITOR-FXD 47PF +-20% 200VDC CER	28480	0160-3876
A4A2C12	0160-3876	4		CAPACITOR-FXD 47PF +-20% 200VDC CER	28480	0160-3876
A4A2C13	0160-3876	4		CAPACITOR-FXD 47PF +-20% 200VDC CER	28480	0160-3876
A4A2C14	0160-3876	4		CAPACITOR-FXD 47PF +-20% 200VDC CER	28480	0160-3876
A4A2C15	0160-3876	4		CAPACITOR-FXD 47PF +-20% 200VDC CER	28480	0160-3876
A4A2C16	0160-3876	4		CAPACITOR-FXD 47PF +-20% 200VDC CER	28480	0160-3876
A4A2C17	0180-0228	6	4	CAPACITOR-FXD 22UF+-10% 15VDC TA	56289	150D226X9015B2
A4A2C18	0160-3877	5		CAPACITOR-FXD 100PF +-20% 200VDC CER	28480	0160-3877
A4A2C19-A4A2C22				NOT ASSIGNED		
A4A2C23	0180-0116	1	14	CAPACITOR-FXD 6.8UF+-10% 35VDC TA	56289	150D685X9035B2
A4A2C24	0180-1735	2	2	CAPACITOR-FXD .22UF+-10% 35VDC TA	56289	150D224X9035A2
A4A2C25	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A4A2C26				NOT ASSIGNED		
A4A2C27	0180-1746	5		CAPACITOR-FXD 15UF+-10% 20VDC TA	56289	150D156X9020B2
A4A2C28	0160-3877	5		CAPACITOR-FXD 100PF +-20% 200VDC CER	28480	0160-3877
A4A2C29	0180-0228	6		CAPACITOR-FXD 22UF+-10% 15VDC TA	56289	150D226X9015B2
A4A2C30				NOT ASSIGNED		
A4A2C31	0180-0229	7	3	CAPACITOR-FXD 33UF+-10% 10VDC TA	56289	150D336X9010B2
A4A2C32	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A4A2C33	0180-0116	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	56289	150D685X9035B2
A4A2C34				NOT ASSIGNED		
A4A2C35	0180-1735	2		CAPACITOR-FXD .22UF+-10% 35VDC TA	56289	150D224X9035A2
A4A2C36				NOT ASSIGNED		
A4A2CR1	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A4A2CR2	1901-0535	9	3	DIODE-SM SIG SCHOTTKY	28480	1901-0535
A4A2CR3	1901-0535	9		DIODE-SM SIG SCHOTTKY	28480	1901-0535
A4A2CR4	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A4A2L1	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A2L2	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A2L3	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A2L4	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A2L5	9100-1636	3		INDUCTOR RF-CH-MLD 110UH 5% .166DX.385LG	28480	9100-1636
A4A2L6	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A2MP1	08662-00095	5	1	COVER-2/3 END	28480	08662-00095
	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A4A2MP2	5001-0176	0		GROUND STRAP	28480	5001-0176
A4A2MP3	5001-0176	0		GROUND STRAP	28480	5001-0176
A4A2MP4	08662-20285	7		CONTACT-FINGERS	28480	08662-20285
A4A2MP5	0363-0146	5		RFI STRIP-FINGERS BE-CU AU-PL .34-IN-WD	28480	0363-0146
A4A2Q1	1853-0020	4		TRANSISTOR PNP SI PD=300MW FT=150MHZ	28480	1853-0020
A4A2Q2	1853-0020	4		TRANSISTOR PNP SI PD=300MW FT=150MHZ	28480	1853-0020
A4A2Q3	1854-0071	7		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0071
A4A2Q4	1854-0071	7		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0071
A4A2Q5	1854-0071	7		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0071
A4A2Q6	1854-0071	7		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0071
A4A2Q7	1853-0020	4		TRANSISTOR PNP SI PD=300MW FT=150MHZ	28480	1853-0020
A4A2R1	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A4A2R2	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A4A2R3	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A4A2R4	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A4A2R5	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A4A2R6	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A4A2R7	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A4A2R8	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A4A2R9	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A4A2R10	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A4A2R11	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A4A2R12	0757-0440	7	11	RESISTOR 7.5K 1% .125W F TC=0+-100	24546	C4-1/8-TO-7501-F
A4A2R13	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-TO-101-F
A4A2R14	2100-3122	9	2	RESISTOR-TRMR 100 10% C SIDE-ADJ 17-TRN	02111	43P101
A4A2R15	0698-0082	7		RESISTOR 464 1% .125W F TC=0+-100	24546	C4-1/8-TO-4640-F
A4A2R16	0757-0440	7		RESISTOR 7.5K 1% .125W F TC=0+-100	24546	C4-1/8-TO-7501-F
A4A2R17	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-TO-101-F
A4A2R18	0757-0317	7	7	RESISTOR 1.33K 1% .125W F TC=0+-100	24546	C4-1/8-TO-1331-F
A4A2R19	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-TO-511R-F
A4A2R20	0757-0420	3		RESISTOR 750 1% .125W F TC=0+-100	24546	C4-1/8-TO-751-F
A4A2R21	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-TO-1001-F
A4A2R22	0698-3150	6		RESISTOR 2.37K 1% .125W F TC=0+-100	24546	C4-1/8-TO-2371-F
A4A2R23	2100-3095	5	1	RESISTOR-TRMR 200 10% C SIDE-ADJ 17-TRN	02111	43P201
A4A2R24	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-TO-5111-F
A4A2R25	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-TO-5111-F

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A4A2R26	0757-0420	3		RESISTOR 750 1% .125W F TC=0+-100	24546	C4-1/8-T0-751-F
A4A2R27	0698-3624	9	1	RESISTOR 150 5% 2W MO TC=0+-200	28480	0698-3624
A4A2R28	0698-3158	4	4	RESISTOR 23.7K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2372-F
A4A2R29	2100-3054	6	1	RESISTOR-TRMR 50K 10% C SIDE-ADJ 17-TRN	02111	43P503
A4A2R30	0757-0443	0	3	RESISTOR 11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1102-F
A4A2R31	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A4A2R32	0698-3151	7		RESISTOR 2.87K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2871-F
A4A2R33	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A4A2R34	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A4A2R35	0698-3102	8	1	RESISTOR 237 1% .5W F TC=0+-100	28480	0698-3102
A4A2R36	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A4A2R37	0757-0428	1		RESISTOR 1.62K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1621-F
A4A2R38	0757-0420	3		RESISTOR 750 1% .125W F TC=0+-100	24546	C4-1/8-T0-751-F
A4A2R39	0757-0458	7		RESISTOR 51.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5112-F
A4A2R40	2100-3061	5	1	RESISTOR-TRMR 500K 10% C SIDE-ADJ 17-TRN	02111	43P504
A4A2R41	0757-0458	7		RESISTOR 51.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5112-F
A4A2R42	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A4A2R43†	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A4A2R44	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A4A2R45	0757-0417	8		RESISTOR 562 1% .125W F TC=0+-100	24546	C4-1/8-T0-562R-F
A4A2R46	0757-0817	2	2	RESISTOR 750 1% .5W F TC=0+-100	28480	0757-0817
A4A2R47	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A4A2R48	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A4A2R49	0698-3151	7		RESISTOR 2.87K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2871-F
A4A2R50	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A4A2R51	0757-0799	9	1	RESISTOR 121 1% .5W F TC=0+-100	28480	0757-0799
A4A2R52	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A4A2R53	0757-0467	8	2	RESISTOR 121K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1213-F
A4A2R54	0757-0441	8	2	RESISTOR 8.25K 1% .125W F TC=0+-100	24546	C4-1/8-T0-8251-F
A4A2R55	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A4A2TP1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A2TP2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A2TP3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A2TP4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A2TP5	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A2TP6	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A2TP7	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A2TP8	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A2TP9	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A2U1	1826-0358	4	7	IC OP AMP LOW-BIAS-H-IMPD TO-99 PKG	27014	LF256H, SEL NOISE
A4A2U2	08662-67009	1	1	DOUBLER FILTER	28480	08662-67009
	0363-0146	5	3	RFI STRIP-FINGERS BE-CU AU-PL .34-IN-WD	28480	0363-0146
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
A4A2U3	08662-67010	4	1	MODULATOR FILTER	28480	08662-67010
	0363-0146	5		RFI STRIP-FINGERS BE-CU AU-PL .34-IN-WD	28480	0363-0146
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
A4A2U4	1816-1008	2	1	IC, 74S472	01295	TBP28S42J
	1200-0626	3	1	SOCKET-IC 20-CONT DIP DIP-SLDR	28480	1200-0626
A4A2U5	1826-0252	7	1	IC CONV 10-B-D/A 16-DIP-P PKG	24355	AD7520JN
A4A2VR1	1902-3193	3	3	DIODE-ZNR 13.3V 5% DO-35 PD=.4W	28480	1902-3193
A4A2VR2	1902-3193	3		DIODE-ZNR 13.3V 5% DO-35 PD=.4W	28480	1902-3193
A4A2VR3	1902-3082	9	2	DIODE-ZNR 4.64V 5% DO-35 PD=.4W	28480	1902-3082
A4A3	08662-60130	5	1	LOW FREQUENCY AMPLIFIER	28480	08662-60130
A4A3C1	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A3C2	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A3C3	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A3C4	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A3C5	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A4A3C6	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A4A3C7	0160-4896	0	1	CAPACITOR-FXD 47 PF 2% 200VDCW	28480	0160-4896
A4A3C8	0160-4776	5		CAPACITOR-FXD 29 PF	28480	0160-4776
A4A3C9	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A3C10	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A4A3C11	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A3C12	0160-4389	6		CAPACITOR-FXD 100PF +-5PF 200VDC CER	28480	0160-4389
A4A3C13	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A3C14	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A3C15	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A3C16	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A3C17	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A3C18	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A3C19	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A3CR1	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A4A3CR2	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A4A3CR3	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A4A3FL1	08662-60016	6	1	LOW PASS FILTER	28480	08662-60016
A4A3FL1J1				P/O A4A3FL1, NSR		
A4A3J1				PART OF A4A3FL1		
A4A3J2	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A4A3J3	1250-0836	2	1	CONNECTOR-RF SMC M PC 50-OHM	28480	1250-0836
A4A3K1	0490-0670	9	3	RELAY 2C 5VDC-COIL 1A 28VDC	28480	0490-0670
	0340-0440	4	5	INSULATOR-IC NYLON WHITE	28480	0340-0440
A4A3K2	0490-0670	9		RELAY 2C 5VDC-COIL 1A 28VDC	28480	0490-0670
	0340-0440	4		INSULATOR-IC NYLON WHITE	28480	0340-0440
A4A3K3	0490-0670	9		RELAY 2C 5VDC-COIL 1A 28VDC	28480	0490-0670
	0340-0440	4		INSULATOR-IC NYLON WHITE	28480	0340-0440
A4A3L1	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A3L2	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A3L3	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A3L4	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A3L5	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A3L6	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A3L7	9135-0081	3		INDUCTOR .068 UH	28480	9135-0081
A4A3L8	9135-0079	9	6	INDUCTOR .100 UH	28480	9135-0079
A4A3L9	9100-2251	0		INDUCTOR RF-CH-MLD 220NH 10% .105DX.26LG	28480	9100-2251
A4A3L10	9135-0079	9		INDUCTOR .100 UH	28480	9135-0079
A4A3L11	9100-2248	5	1	INDUCTOR RF-CH-MLD 120NH 10% .105DX.26LG	28480	9100-2248
A4A3MP1	08662-00110	5	1	COVER-1/3 END	28480	08662-00110
	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A4A3MP2	5001-0176	0		GROUND STRAP	28480	5001-0176
A4A3MP3	08662-00038	6	2	SHIELD, CKT	28480	08662-00038
A4A3MP4	08662-00040	0	5	SHIELD, COMP.	28480	08662-00040
A4A3Q1	1854-0247	9		TRANSISTOR NPN SI TO-39 PD=1W FT=800MHZ	28480	1854-0247
	1200-0173	5	12	INSULATOR-XSTR DAP-GL	28480	1200-0173
A4A3Q2	1854-0247	9		TRANSISTOR NPN SI TO-39 PD=1W FT=800MHZ	28480	1854-0247
	1200-0173	5		INSULATOR-XSTR DAP-GL	28480	1200-0173
A4A3Q3	1854-0721	4		TRANSISTOR NPN SI TO-39 PD=1.5W	25403	BFR 95
	1200-0173	5		INSULATOR-XSTR DAP-GL	28480	1200-0173
A4A3Q4	1854-0477	7		TRANSISTOR NPN 2N2222A SI TO-18 PD=500MW	04713	2N2222A
A4A3Q5	1854-0477	7		TRANSISTOR NPN 2N2222A SI TO-18 PD=500MW	04713	2N2222A
A4A3Q6	1854-0477	7		TRANSISTOR NPN 2N2222A SI TO-18 PD=500MW	04713	2N2222A
A4A3R1	0698-7190	2		RESISTOR 12.1 1% .05W F TC=0+-100	24546	C3-1/8-TO-12R1-F
A4A3R2	0698-7190	2		RESISTOR 12.1 1% .05W F TC=0+-100	24546	C3-1/8-TO-12R1-F
A4A3R3	0757-1022	3	1	RESISTOR 1.78K 1% .25W F TC=0+-100	24546	C5-1/4-TO-1781-F
A4A3R4	0698-7225	4	7	RESISTOR 348 1% .05W F TC=0+-100	24546	C3-1/8-TO-348R-F
A4A3R5	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-TO-511R-F
A4A3R6	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-TO-511R-F
A4A3R7	0698-7194	6		RESISTOR 17.8 1% .05W F TC=0+-100	24546	C3-1/8-TO-17R8-F
A4A3R8	0698-3441	8		RESISTOR 215 1% .125W F TC=0+-100	24546	C4-1/8-TO-215R-F
A4A3R9	0698-4590	0	3	RESISTOR 422 1% .25W F TC=0+-100	24546	C5-1/4-TO-422R-F
A4A3R10	0698-7199	1	1	RESISTOR 28.7 1% .05W F TC=0+-100	24546	C3-1/8-TO-28R7-F
A4A3R11	0698-0079	2	1	RESISTOR 2.37K 1% .25W F TC=0+-100	24546	C5-1/4-TO-2371-F
A4A3R12	0698-7231	2	3	RESISTOR 619 1% .05W F TC=0+-100	24546	C3-1/8-TO-619R-F
A4A3R13	0698-7217	4		RESISTOR 162 1% .05W F TC=0+-100	24546	C3-1/8-TO-162R-F
A4A3R14	0698-4579	5	2	RESISTOR 261 1% .25W F TC=0+-100	24546	C5-1/4-TO-261R-F
A4A3R15	0698-4579	5		RESISTOR 261 1% .25W F TC=0+-100	24546	C5-1/4-TO-261R-F
A4A3R16†	0698-7190	2	6	RESISTOR 12.1 1% .05W F TC=0+-100	24546	C3-1/8-TO-12R1-F
A4A3R17	0757-0403	2	3	RESISTOR 121 1% .125W F TC=0+-100	24546	C4-1/8-TO-121R-F
A4A3R18	0698-3152	8		RESISTOR 3.48K 1% .125W F TC=0+-100	24546	C4-1/8-TO-3481-F
A4A3R19*	0698-7223	2		RESISTOR 287 1% .05W F TC=0+-100	24546	C3-1/8-TO-287R-F
	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A4A3R20				NOT ASSIGNED		
A4A3R21*	0757-0294	9	5	RESISTOR 17.8 1% .125W F TC=0+-100	19701	MF4C1/8-T0-17R8-F
A4A3R22	0757-0290	5		RESISTOR 6.19K 1% .125W F TC=0+-100	19701	MF4C1/8-T0-6191-F
A4A3R23*	0698-7223	2		RESISTOR 287 1% .05W F TC=0+-100	24546	C3-1/8-TO-287R-F
	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A4A3R24	0698-7228	7	8	RESISTOR 464 1% .05W F TC=0+-100	24546	C3-1/8-TO-464R-F
A4A3R25	0698-7190	2		RESISTOR 12.1 1% .05W F TC=0+-100	24546	C3-1/8-TO-12R1-F
A4A3R26	0698-3152	8		RESISTOR 3.48K 1% .125W F TC=0+-100	24546	C4-1/8-TO-3481-F
A4A3R27	0698-7228	7		RESISTOR 464 1% .05W F TC=0+-100	24546	C3-1/8-TO-464R-F
A4A3R28	0757-0290	5		RESISTOR 6.19K 1% .125W F TC=0+-100	19701	MF4C1/8-T0-6191-F
A4A3R29	0698-7221	0		RESISTOR 237 1% .05W F TC=0+-100	24546	C3-1/8-TO-237R-F
A4A3R30	0698-7197	9	1	RESISTOR 23.7 1% .05W F TC=0+-100	24546	C3-1/8-TO-23R7-F
A4A3R31	0698-3152	8		RESISTOR 3.48K 1% .125W F TC=0+-100	24546	C4-1/8-TO-3481-F
A4A3R32	0698-7221	0		RESISTOR 237 1% .05W F TC=0+-100	24546	C3-1/8-TO-237R-F
A4A3R33	0757-0290	5		RESISTOR 6.19K 1% .125W F TC=0+-100	19701	MF4C1/8-T0-6191-F

See introduction to this section for ordering information
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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A4A3R34	0698-7214	1	2	RESISTOR 121 1% .05W F TC=0+-100	24546	C3-1/8-TO-121R-F
A4A3R35	0698-7206	1		RESISTOR 56.2 1% .05W F TC=0+-100	24546	C3-1/8-TO-56R2-F
A4A3R36	0698-7214	1		RESISTOR 121 1% .05W F TC=0+-100	24546	C3-1/8-TO-121R-F
A4A3TP1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A3TP2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A3TP3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A3TP4	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A4A4	08662-60197	4	1	DISTRIBUTOR ASSEMBLY	28480	08662-60197
A4A4C1	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A4C2	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A4A4C3	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A4A4C4	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A4C5	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A4C6	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A4C7	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A4C8	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A4C9	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A4C10	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A4C11	0180-2618	2		CAPACITOR-FXD 33UF+-10% 10VDC TA	25088	D33GS1B10K
A4A4C12	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A4C13	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A4C14	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A4C15	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A4C16	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A4C17	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A4C18	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A4C19	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A4C20	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A4C21	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A4C22	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A4C23	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A4C24	0160-4897	1	3	CAPACITOR-FXD 4.7PF +-.1PF 200VDC CER	28480	0160-4897
A4A4C25	0160-4773	2		CAPACITOR-FXD 9.1PF +-.1PF 200VDC CER	28480	0160-4773
A4A4C26	0160-4886	8	2	CAPACITOR-FXD 13PF +-2% 200VDC CER 0+-30	28480	0160-4886
A4A4C27†	0160-4883	5	2	CAPACITOR-FXD 20PF +-2% 200VDC CER 0+-30	28480	0160-4883
A4A4C28†	0160-4887	9	2	CAPACITOR-FXD 25PF +-2% 200VDC CER 0+-30	28480	0160-4887
A4A4C29	0160-4885	7	3	CAPACITOR-FXD 8.2PF +-2% 200VDC CER	28480	0160-4885
A4A4C30	0160-4774	3		CAPACITOR-FXD 16PF +-2% 200VDC CER 0+-30	28480	0160-4774
A4A4C31	0160-4853	9		CAPACITOR-FXD 22PF +-2% 200VDC CER 0+-30	28480	0160-4853
A4A4C32†	0160-4884	6	1	CAPACITOR-FXD 36PF +-2% 200VDC CER 0+-30	28480	0160-4884
A4A4C33	0160-4482	0	1	CAPACITOR-FXD .047UF +-10% 300VAC(RMS)	28480	0160-4482
A4A4C34	0160-4885	7		CAPACITOR-FXD 8.2PF +-2% 200VDC CER	28480	0160-4885
A4A4C35	0160-4773	2		CAPACITOR-FXD 9.1PF +-.1PF 200VDC CER	28480	0160-4773
A4A4C36	0160-4886	8		CAPACITOR-FXD 13PF +-2% 200VDC CER 0+-30	28480	0160-4886
A4A4C37†	0160-4883	5		CAPACITOR-FXD 20PF +-2% 200VDC CER 0+-30	28480	0160-4883
A4A4C38†	0160-4887	9		CAPACITOR-FXD 25PF +-2% 200VDC CER 0+-30	28480	0160-4887
A4A4C39	0160-4903	0	1	CAPACITOR-FXD 3.3PF +-.1PF 200VDC CER	28480	0160-4903
A4A4C40	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A4C41	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A4C42	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A4C43	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A4C44	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A4C45	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A4C46	0160-4084	8		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-4084
A4A4C47	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A4C48	0160-0127	2		CAPACITOR-FXD 1UF +-20% 25VDC CER	28480	0160-0127
A4A4C49	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A4C50	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A4C51	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A4C52	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A4C53	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A4C54	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A4C55	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A4C56	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A4C57†	0180-3051	9	1	CAPACITOR-FXD 150UF+-10% 6VDC TA	28480	0180-3051
A4A4CR1	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A4CR2	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A4CR3	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A4CR4	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A4CR5	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A4CR6	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A4CR7	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A4CR8	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A4CR9	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A4CR10	1901-1096	9		DIODE-PIN	28480	1901-1096

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A4A4CR11	1901-0639	4	2	DIODE-PIN	28480	5082-3080
A4A4CR12	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A4A4CR13	1901-0639	4		DIODE-PIN	28480	5082-3080
A4A4CR14	1901-0761	3	1	DIODE-SM SIG SCHOTTKY	28480	1901-0761
A4A4CR15	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A4A4CR16	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A4CR17	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A4CR18	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A4CR19	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A4CR20	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A4DS1	1990-0326	3		LED-LAMP LUM-INT=300UCD IF=50MA-MAX	28480	5082-4444
A4A4J1	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A4A4J2	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A4A4J3	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A4A4J4	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A4A4L1	9100-3922	4		COIL,3.0 UH	28480	9100-3922
A4A4L2	9100-3922	4		COIL,3.0 UH	28480	9100-3922
A4A4L3	9100-3922	4		COIL,3.0 UH	28480	9100-3922
A4A4L4	9100-3922	4		COIL,3.0 UH	28480	9100-3922
A4A4L5	9100-3922	4		COIL,3.0 UH	28480	9100-3922
A4A4L6	9100-3922	4		COIL,3.0 UH	28480	9100-3922
A4A4L7	9100-3922	4		COIL,3.0 UH	28480	9100-3922
A4A4L8	9100-3922	4		COIL,3.0 UH	28480	9100-3922
A4A4L9	08672-80001	3		TOROID FILTER 630 UH	28480	08672-80001
A4A4L10	9135-0073	3		INDUCTOR .051 UH	28480	9135-0073
A4A4L11	9100-3922	4		COIL,3.0 UH	28480	9100-3922
A4A4L12	9100-3922	4		COIL,3.0 UH	28480	9100-3922
A4A4L13	9100-3922	4		COIL,3.0 UH	28480	9100-3922
A4A4L14	9100-3922	4		COIL,3.0 UH	28480	9100-3922
A4A4L15	9100-3922	4		COIL,3.0 UH	28480	9100-3922
A4A4L16	9100-3922	4		COIL,3.0 UH	28480	9100-3922
A4A4L17	9100-3922	4		COIL,3.0 UH	28480	9100-3922
A4A4L18	9135-0080	2	3	INDUCTOR, .027 UH	28480	9135-0080
A4A4L19	9135-0068	6		INDUCTOR .033 UH	28480	9135-0068
A4A4L20	9135-0075	5		INDUCTOR, .043 UH	28480	9135-0075
A4A4L21	9135-0073	3		INDUCTOR .051 UH	28480	9135-0073
A4A4L22	9135-0081	3		INDUCTOR .068 UH	28480	9135-0081
A4A4L23	9135-0080	2		INDUCTOR, .027 UH	28480	9135-0080
A4A4L24	9135-0068	6		INDUCTOR .033 UH	28480	9135-0068
A4A4L25	9135-0075	5		INDUCTOR, .043 UH	28480	9135-0075
A4A4L26	9135-0073	3		INDUCTOR .051 UH	28480	9135-0073
A4A4L27	9100-3922	4		COIL,3.0 UH	28480	9100-3922
A4A4L28	9135-0080	2		INDUCTOR, .027 UH	28480	9135-0080
A4A4L29	9100-3922	4		COIL,3.0 UH	28480	9100-3922
A4A4L30	9100-3922	4		COIL,3.0 UH	28480	9100-3922
A4A4L31	9100-3922	4		COIL,3.0 UH	28480	9100-3922
A4A4L32	9100-3922	4		COIL,3.0 UH	28480	9100-3922
A4A4L33	9100-3922	4		COIL,3.0 UH	28480	9100-3922
A4A4L34	9100-3922	4		COIL,3.0 UH	28480	9100-3922
A4A4L35	9100-3922	4		COIL,3.0 UH	28480	9100-3922
A4A4L36	9100-3922	4		COIL,3.0 UH	28480	9100-3922
A4A4L37	9100-3922	4		COIL,3.0 UH	28480	9100-3922
A4A4L38	9100-3922	4		COIL,3.0 UH	28480	9100-3922
A4A4L39	9100-3922	4		COIL,3.0 UH	28480	9100-3922
A4A4MP1	08662-20063	9	1	COVER	28480	08662-20063
	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A4A4MP2	5001-0176	0		GROUND STRAP	28480	5001-0176
A4A4MP3	5001-0176	0		GROUND STRAP	28480	5001-0176
A4A4MP4	08662-00041	1		SHIELD, COMP., LARGE	28480	08662-00041
A4A4MP5†	08662-00170	7		SHIELD, CKT, LARGE	28480	08662-00170
A4A4Q1	1854-0477	7		TRANSISTOR NPN 2N2222A SI TO-18 PD=500MW	04713	2N2222A
A4A4Q2	1854-0477	7		TRANSISTOR NPN 2N2222A SI TO-18 PD=500MW	04713	2N2222A
A4A4Q3	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A4A4Q4	1853-0036	2		TRANSISTOR PNP SI PD=310MW FT=250MHZ	28480	1853-0036
A4A4Q5	1854-0720	3		TRANSISTOR NPN SI PD=500MW FT=4GHZ	28480	1854-0720

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A4A4R1	0698-3447	4		RESISTOR 422 1% .125W F TC=0+-100	24546	C4-1/8-T0-422R-F
A4A4R2	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A4A4R3	0757-0346	2		RESISTOR 10 1% .125W F TC=0+-100	24546	C4-1/8-T0-10R0-F
A4A4R4	0757-0346	2		RESISTOR 10 1% .125W F TC=0+-100	24546	C4-1/8-T0-10R0-F
A4A4R5	0698-3447	4		RESISTOR 422 1% .125W F TC=0+-100	24546	C4-1/8-T0-422R-F
A4A4R6	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A4A4R7	0757-0346	2		RESISTOR 10 1% .125W F TC=0+-100	24546	C4-1/8-T0-10R0-F
A4A4R8	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A4A4R9	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A4A4R10	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A4A4R11	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A4A4R12	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A4A4R13	1810-0205	7		NETWORK-RES 8-SIP4.7K OHM X 7	01121	208A472
A4A4R14	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A4A4R15	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A4A4R16	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A4A4R17	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A4A4R18	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A4A4R19	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A4A4R20	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A4A4R21	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A4A4R22	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A4A4R23	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A4A4R24	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A4A4R25	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A4A4R26	0698-7245	8		RESISTOR 2.37K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2371-F
A4A4R27	0698-7241	4		RESISTOR 1.62K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1621-F
A4A4R28	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A4A4R29	0698-4590	0		RESISTOR 422 1% .25W F TC=0+-100	24546	C5-1/4-T0-422R-F
A4A4R30	0698-7217	4		RESISTOR 162 1% .05W F TC=0+-100	24546	C3-1/8-T0-162R-F
A4A4R31	0698-4590	0		RESISTOR 422 1% .25W F TC=0+-100	24546	C5-1/4-T0-422R-F
A4A4R32	0698-7195	7	1	RESISTOR 19.6 1% .05W F TC=0+-100	24546	C3-1/8-T0-19R6-F
A4A4R33	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A4A4R34	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A4A4R35	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A4A4R36	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A4A4R37	0757-0798	8		RESISTOR 110 1% .5W F TC=0+-100	28480	0757-0798
A4A4R38	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A4A4R39	0698-3151	7		RESISTOR 2.87K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2871-F
A4A4R40*	0757-0458	7	13	RESISTOR 51.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5112-F
	1251-1998	1		CONNECTOR-SGL CONT SKT .025-IN-BSC-SZ	28480	1251-1998
A4A4R41	0698-7267	4	14	RESISTOR 19.6K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1962-F
A4A4R42	0757-0460	1		RESISTOR 61.9K 1% .125W F TC=0+-100	24546	C4-1/8-T0-6192-F
A4A4R43	0698-7267	4		RESISTOR 19.6K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1962-F
A4A4R44	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A4A4R45	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A4A4R46	0698-7267	4		RESISTOR 19.6K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1962-F
A4A4R47	0757-0458	7		RESISTOR 51.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5112-F
A4A4R48	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A4A4R49	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A4A4R50	0698-3157	3		RESISTOR 19.6K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1962-F
A4A4R51	0698-3157	3		RESISTOR 19.6K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1962-F
A4A4R52	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A4A4R53	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A4A4R54	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A4A4R55	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A4A4R56	0698-3446	3	11	RESISTOR 383 1% .125W F TC=0+-100	24546	C4-1/8-T0-383R-F
A4A4R57	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A4A4R58	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A4A4R59	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A4A4R60	0757-0421	4		RESISTOR 825 1% .125W F TC=0+-100	24546	C4-1/8-T0-825R-F
A4A4R61†	0698-8819	4	1	RESISTOR 3.83 1% .125W F TC=0+-100	28480	0698-8819
A4A4TP1	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A4A4TP2	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A4A4TP3	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A4A4TP4	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A4A4TP5	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A4A4TP6	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A4A4TP7	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A4A4TP8	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A4A4TP9	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A4TP10	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A4TP11	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A4TP12	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A4TP13	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A4TP14	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A4TP15	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A4A4TP16	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A4U1	1826-0372	2		IC, LIMITER	28480	1826-0372
A4A4U2	1826-0372	2		IC, LIMITER	28480	1826-0372
A4A4U3	1820-1940	0	2	IC, B196	28480	1820-1940
A4A4U4	1820-1940	0		IC, B196	28480	1820-1940
A4A4U5	1826-0092	3	1	IC OP AMP GP DUAL TO-99 PKG	28480	1826-0092
A4A4U6	08662-67002	4		UHF POWER AMPLIFIER	28480	08662-67002
	1205-0206	5	1	HEAT SINK SGL TO-5/TO-39-CS	28480	1205-0206
A4A4U7	1820-0668	7		IC BFR TTL NON-INV HEX 1-INP	01295	SN7407N
A4A4U8	08662-80011	3	1	ROM, MPX	28480	08662-80011
A4A4U9	1820-0471	0		IC INV TTL HEX 1-INP	01295	SN7406N
A4A4VR1	1902-0184	6	3	DIODE-ZNR 16.2V 5% DO-35 PD=.4W	28480	1902-0184
A4A5	08662-60131	6	1	LOW FREQUENCY DOWN CONVERTER	28480	08662-60131
A4A5C1	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A5C2	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A5C3	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A5C4	0160-4389	6		CAPACITOR-FXD 100PF +-5PF 200VDC CER	28480	0160-4389
A4A5C5	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A5C6	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A5C7	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A5C8	0160-0570	9		CAPACITOR-FXD 220PF +-20% 100VDC CER	20932	5024EM100RD221M
A4A5C9	0160-4389	6		CAPACITOR-FXD 100PF +-5PF 200VDC CER	28480	0160-4389
A4A5C10	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A5C11				NOT ASSIGNED		
A4A5C12	0160-4389	6		CAPACITOR-FXD 100PF +-5PF 200VDC CER	28480	0160-4389
A4A5C13	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A5C14	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A5C15	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A5C16	0121-0451	3	1	CAPACITOR-V TRMR-AIR 1.7-11PF 175V	74970	187-0106-028
A4A5C17	0160-4389	6		CAPACITOR-FXD 100PF +-5PF 200VDC CER	28480	0160-4389
A4A5C18	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A5C19	0160-4389	6		CAPACITOR-FXD 100PF +-5PF 200VDC CER	28480	0160-4389
A4A5C20	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A5C21	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A5C22	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A5C23	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A5C24	0160-4382	9	1	CAPACITOR-FXD 3.3PF +-.25PF 200VDC CER	28480	0160-4382
A4A5C25	0160-4389	6		CAPACITOR-FXD 100PF +-5PF 200VDC CER	28480	0160-4389
A4A5C26	0160-4897	1		CAPACITOR-FXD 4.7PF +-.1PF 200VDC CER	28480	0160-4897
A4A5C27	0160-4383	0	5	CAPACITOR-FXD 6.8PF +-.5PF 200VDC CER	20932	5024E0200RD689D
A4A5C28	0160-4885	7		CAPACITOR-FXD 8.2PF +-2% 200VDC CER	28480	0160-4885
A4A5C29	0160-3874	2		CAPACITOR-FXD 10PF +-.5PF 200VDC CER	28480	0160-3874
A4A5C30	0160-4897	1		CAPACITOR-FXD 4.7PF +-.1PF 200VDC CER	28480	0160-4897
A4A5C31	0160-4383	0		CAPACITOR-FXD 6.8PF +-.5PF 200VDC CER	20932	5024E0200RD689D
A4A5C32†	0160-3877	5		CAPACITOR-FXD 100PF +-20% 200VDC CER	28480	0160-3877
A4A5CR1	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A5CR2	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A5CR3	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A5CR4	1901-1096	9		DIODE-PIN	28480	1901-1096
A4A5J1	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A4A5J2	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A4A5J3				NSR, P/O A4A5W2		
A4A5L1	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A5L2	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A5L3	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A5L4	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A5L5	9135-0070	0		INDUCTOR 24 NH	28480	9135-0070
A4A5L6	9100-2247	4		INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG	28480	9100-2247
A4A5L7	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A5L8	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A5L9				PART OF PC BOARD TRACE		
A4A5L10	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A5L11	9135-0076	6	3	INDUCTOR, 39 NH	28480	9135-0076
A4A5L12	9135-0069	7	8	INDUCTOR, 30 NH	28480	9135-0069
A4A5L13	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A4A5L14	9100-2247	4		INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG	28480	9100-2247
A4A5L15	9135-0069	7		INDUCTOR, 30 NH	28480	9135-0069

See introduction to this section for ordering information
*Indicates factory selected value
†FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A4A5L16	9135-0069	7		INDUCTOR, 30 NH	28480	9135-0069
A4A5L17	9135-0069	7		INDUCTOR, 30 NH	28480	9135-0069
A4A5L18	9135-0069	7		INDUCTOR, 30 NH	28480	9135-0069
A4A5L19	9140-0179	1		INDUCTOR RF-CH-MLD 22UH 10% .166DX.385LG	28480	9140-0179
A4A5MP1	08662-20064	0	1	COVER- 1/3 END	28480	08662-20064
	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A4A5MP2	5001-0176	0		GROUND STRAP	28480	5001-0176
A4A5MP3	5001-0176	0		GROUND STRAP	28480	5001-0176
A4A5MP4	08662-00038	6		SHIELD, CKT, LARGE	28480	08662-00038
A4A5MP5	08662-00040	0		SHIELD, COMP. LARGE	28480	08662-00040
A4A5Q1	1853-0036	2		TRANSISTOR PNP SI PD=310MW FT=250MHZ	28480	1853-0036
A4A5Q2	1854-0720	3		TRANSISTOR NPN SI PD=500MW FT=4GHZ	28480	1854-0720
A4A5Q3	1853-0036	2		TRANSISTOR PNP SI PD=310MW FT=250MHZ	28480	1853-0036
A4A5Q4	1854-0477	7		TRANSISTOR NPN 2N2222A SI TO-18 PD=500MW	04713	2N2222A
A4A5Q5	1854-0720	3		TRANSISTOR NPN SI PD=500MW FT=4GHZ	28480	1854-0720
A4A5Q6	1854-0720	3		TRANSISTOR NPN SI PD=500MW FT=4GHZ	28480	1854-0720
A4A5R1*	0699-0184	2	2	RESISTOR 870 5% .1W C TC=0+-200	28480	0699-0184
A4A5R2				NOT ASSIGNED		
A4A5R3*	0699-0174	0	1	RESISTOR 11.6 5% .1W C TC=0+-200	28480	0699-0174
A4A5R4	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1001-F
A4A5R5	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A4A5R6	0698-7263	0		RESISTOR 13.3K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1332-F
A4A5R7*	0699-0184	2		RESISTOR 870 5% .1W C TC=0+-200	28480	0699-0184
A4A5R8	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1001-F
A4A5R9	0698-7249	2		RESISTOR 3.48K 1% .05W F TC=0+-100	24546	C3-1/8-TO-3481-F
A4A5R10	0698-7246	9		RESISTOR 2.61K 1% .05W F TC=0+-100	24546	C3-1/8-TO-2611-F
A4A5R11	0698-7220	9		RESISTOR 215 1% .05W F TC=0+-100	24546	C3-1/8-TO-215R-F
A4A5R12	0698-7198	0		RESISTOR 26.1 1% .05W F TC=0+-100	24546	C3-1/8-TO-26R1-F
A4A5R13	0699-0128	4	4	RESISTOR 10 5% .1W C TC=0+-200	26654	3C100J
A4A5R14	0698-7247	0		RESISTOR 2.87K 1% .05W F TC=0+-100	24546	C3-1/8-TO-2871-F
A4A5R15	0699-0128	4		RESISTOR 10 5% .1W C TC=0+-200	26654	3C100J
A4A5R16	0757-0198	2	1	RESISTOR 100 1% .5W F TC=0+-100	28480	0757-0198
A4A5R17	0698-7244	7		RESISTOR 2.15K 1% .05W F TC=0+-100	24546	C3-1/8-TO-2151-F
A4A5R18	0698-0083	8		RESISTOR 1.96K 1% .125W F TC=0+-100	24546	C4-1/8-TO-1961-F
A4A5R19	0698-7219	6		RESISTOR 196 1% .05W F TC=0+-100	24546	C3-1/8-TO-196R-F
A4A5R20	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A4A5R21	0698-7222	1		RESISTOR 261 1% .05W F TC=0+-100	24546	C3-1/8-TO-261R-F
A4A5R22	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1001-F
A4A5R23	0698-7219	6		RESISTOR 196 1% .05W F TC=0+-100	24546	C3-1/8-TO-196R-F
A4A5R24	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1001-F
A4A5R25	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A4A5R26	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-TO-2151-F
A4A5R27	0698-3150	6		RESISTOR 2.37K 1% .125W F TC=0+-100	24546	C4-1/8-TO-2371-F
A4A5R28	0698-7246	9		RESISTOR 2.61K 1% .05W F TC=0+-100	24546	C3-1/8-TO-2611-F
A4A5R29	0698-7220	9		RESISTOR 215 1% .05W F TC=0+-100	24546	C3-1/8-TO-215R-F
A4A5R30	0698-7198	0		RESISTOR 26.1 1% .05W F TC=0+-100	24546	C3-1/8-TO-26R1-F
A4A5R31	0699-0128	4		RESISTOR 10 5% .1W C TC=0+-200	26654	3C100J
A4A5R32				NOT ASSIGNED		
A4A5R33	0699-0128	4		RESISTOR 10 5% .1W C TC=0+-200	26654	3C100J
A4A5R34	0698-3334	8	1	RESISTOR 178 1% .5W F TC=0+-100	28480	0698-3334
A4A5R35	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A4A5R36	0699-0130	8	4	RESISTOR 287 5% .1W C TC=0+-200	28480	0699-0130
A4A5R37	0699-0130	8		RESISTOR 287 5% .1W C TC=0+-200	28480	0699-0130
A4A5R38	0699-0129	5	2	RESISTOR 17.6 5% .1W C TC=0+-200	28480	0699-0129
A4A5R39	0699-0129	5		RESISTOR 17.6 5% .1W C TC=0+-200	28480	0699-0129
A4A5R40	0699-0130	8		RESISTOR 287 5% .1W C TC=0+-200	28480	0699-0130
A4A5R41	0699-0130	8		RESISTOR 287 5% .1W C TC=0+-200	28480	0699-0130
A4A5R42†	0698-7260	7	49	RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1002-F
A4A5TP1	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A4A5TP2	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A4A5TP3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A5TP4	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A4A5TP5	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A4A5TP6	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A4A5TP7	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A4A5TP8	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A5TP9	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A5TP10	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A5TP11	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A5U1	08662-67002	4		UHF POWER AMPLIFIER	28480	08662-67002
	08662-20291	5		HEAT SINK	28480	08662-20291
A4A5U2	0960-0495	3	1	MIXER	28480	0960-0495
	1251-3172	7		CONNECTOR, SINGLE CONTACT	28480	1251-3172

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A4A5W1	08662-20046	8	1	CABLE, SEMI-RIGID #46	28480	08662-20046
A4A5W2	08662-20050	4	1	CABLE, SEMI-RIGID (INCLUDES A4A5J3)	28480	08662-20050
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A4A6	08662-60185	0	1	FM VCO ASSEMBLY	28480	08662-60185
A4A6C1	0160-3877	5		CAPACITOR-FXD 100PF +-20% 200VDC CER	28480	0160-3877
A4A6C2	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D&R8GS1B35K
A4A6C3	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D&R8GS1B35K
A4A6C4	0160-0575	4		CAPACITOR-FXD .047UF +-20% 50VDC CER	28480	0160-0575
A4A6C5	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A6C6	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A6C7	0160-0575	4		CAPACITOR-FXD .047UF +-20% 50VDC CER	28480	0160-0575
A4A6C8	0180-2697	7	5	CAPACITOR-FXD 10UF+-10% 25VDC TA	28480	0180-2697
A4A6C9	0180-2697	7		CAPACITOR-FXD 10UF+-10% 25VDC TA	28480	0180-2697
A4A6C10	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A6C11	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A6C12	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D&R8GS1B35K
A4A6C13	0160-2257	3	2	CAPACITOR-FXD 10PF +-5% 500VDC CER 0+-60	28480	0160-2257
A4A6C14	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A6C15	0160-4365	8	7	CAPACITOR-FXD 470PF +-5% 100VDC CER	28480	0160-4365
A4A6C16	0160-4548	9	1	CAPACITOR-FXD 82PF +-1% 50VDC PORC	28480	0160-4548
A4A6C17	0160-3431	7	1	CAPACITOR-FXD 6.8PF +-.5PF 500VDC CER	28480	0160-3431
A4A6C18	0121-0493	3	1	CAPACITOR-V TRMR-AIR 1.7-11PF 175V	74970	187-0306-125
A4A6C19	0160-3877	5		CAPACITOR-FXD 100PF +-20% 200VDC CER	28480	0160-3877
A4A6C20	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A6C21	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A6C22	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A6C23	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A6C24†	0160-4767	4	2	CAPACITOR-FXD 20PF +-5% 200VDC CER 0+-30	28480	0160-4767
A4A6C25	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A6C26	0160-3877	5		CAPACITOR-FXD 100PF +-20% 200VDC CER	28480	0160-3877
A4A6C27	0160-4103	2	4	CAPACITOR-FXD 220PF +-5% 100VDC CER	72982	8121-M100-COG-221J
A4A6C28†	0160-4767	4		CAPACITOR-FXD 20PF +-5% 200VDC CER 0+-30	28480	0160-4767
A4A6CR1	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A4A6CR2	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A4A6CR3	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A4A6CR4	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A4A6CR5	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A4A6CR6	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A4A6CR7	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A4A6CR8	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A4A6CR9	0122-0065	7		DIODE-VVC 29PF 3%	28480	0122-0065
A4A6CR10	1901-1034	5	1	STABISTOR 3V	03508	MPD400
A4A6DS1	1990-0326	3		LED-LAMP LUM-INT=300UCD IF=50MA-MAX	28480	5082-4444
A4A6J1	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A4A6L1	9140-0142	8		INDUCTOR RF-CH-MLD 2.2UH 10% .105DX.26LG	28480	9140-0142
A4A6L2	9140-0142	8		INDUCTOR RF-CH-MLD 2.2UH 10% .105DX.26LG	28480	9140-0142
A4A6L3	08662-00163	8	1	INDUCTOR	28480	08662-00163
A4A6L4†	9100-0346	0	5	INDUCTOR RF-CH-MLD 50NH 20% .105DX.26LG	28480	9100-0346
A4A6L5	9100-2252	1	2	INDUCTOR RF-CH-MLD 270NH 10% .105DX.26LG	28480	9100-2252
A4A6L6	9100-2252	1		INDUCTOR RF-CH-MLD 270NH 10% .105DX.26LG	28480	9100-2252
A4A6MP1	08662-00084	2	1	COVER- 1/3 END	28480	08662-00084
	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A4A6MP2	5001-0176	0		GROUND STRAP	28480	5001-0176
A4A6MP3	5001-0176	0		GROUND STRAP	28480	5001-0176
A4A6MP4	08662-00135	4	1	SHIELD	28480	08662-00135
A4A6Q1	1855-0235	7		TRANSISTOR J-FET N-CHAN D-MODE TO-52 SI	28480	1855-0235
A4A6Q2	1855-0235	7		TRANSISTOR J-FET N-CHAN D-MODE TO-52 SI	28480	1855-0235
A4A6Q3	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A4A6Q4	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A4A6Q5	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A4A6Q6	1855-0020	8		TRANSISTOR J-FET N-CHAN D-MODE TO-18 SI	28480	1855-0020
A4A6Q7	1855-0020	8		TRANSISTOR J-FET N-CHAN D-MODE TO-18 SI	28480	1855-0020
A4A6R1	0698-7219	6		RESISTOR 196 1% .05W F TC=0+-100	24546	C3-1/8-TO-196R-F
A4A6R2	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A4A6R3	0698-7224	3		RESISTOR 316 1% .05W F TC=0+-100	24546	C3-1/8-TO-316R-F
A4A6R4*	0698-7252	7	4	RESISTOR 4.64K 1% .05W F TC=0+-100	24546	C3-1/8-TO-4641-F
A4A6R5	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1001-F

See introduction to this section for ordering information
*Indicates factory selected value
†FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A4A6R6	0698-8827	4	2	RESISTOR 1M 1% .125W F TC=0+-100	28480	0698-8827
A4A6R7*	0698-7251	6	25	RESISTOR 4.22K 1% .05W F TC=0+-100	24546	C3-1/8-T0-4221-F
A4A6R8	0698-7257	2		RESISTOR 7.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-7501-F
A4A6R9	2100-2633	5		RESISTOR-TRMR 1K 10% C SIDE-ADJ 1-TRN	30983	ET50X102
A4A6R10	0698-8827	4		RESISTOR 1M 1% .125W F TC=0+-100	28480	0698-8827
A4A6R11	0698-7264	1	6	RESISTOR 14.7K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1472-F
A4A6R12	0698-7263	0		RESISTOR 13.3K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1332-F
A4A6R13	0698-0082	7		RESISTOR 464 1% .125W F TC=0+-100	24546	C4-1/8-T0-4640-F
A4A6R14	0698-0082	7		RESISTOR 464 1% .125W F TC=0+-100	24546	C4-1/8-T0-4640-F
A4A6R15	0698-7239	0	3	RESISTOR 1.33K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1331-F
A4A6R16	0698-7254	9		RESISTOR 5.62K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5621-F
A4A6R17	0698-7265	2	5	RESISTOR 16.2K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1622-F
A4A6R18	2100-2574	3		RESISTOR-TRMR 500 10% C SIDE-ADJ 1-TRN	30983	E150X501
A4A6R19	0698-7245	8		RESISTOR 2.37K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2371-F
A4A6R20	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A4A6R21*				*PARTS SELECTED IN TEST		
A4A6R22*				*PARTS SELECTED IN TEST		
A4A6R23*				*PARTS SELECTED IN TEST		
A4A6R24*				*PARTS SELECTED IN TEST		
A4A6R25	0698-7228	7		RESISTOR 464 1% .05W F TC=0+-100	24546	C3-1/8-T0-464R-F
A4A6R26	0698-7248	1		RESISTOR 3.16K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3161-F
A4A6R27	0698-7204	9	5	RESISTOR 46.4 1% .05W F TC=0+-100	24546	C3-1/8-T0-46R4-F
A4A6R28	0698-7204	9		RESISTOR 46.4 1% .05W F TC=0+-100	24546	C3-1/8-T0-46R4-F
A4A6R29*	0698-0085	0	8	RESISTOR 2.61K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2611-F
A4A6R30	0698-7204	9		RESISTOR 46.4 1% .05W F TC=0+-100	24546	C3-1/8-T0-46R4-F
A4A6R31	0698-7232	3		RESISTOR 681 1% .05W F TC=0+-100	24546	C3-1/8-T0-681R-F
A4A6R32*	0757-1094	9	4	RESISTOR 1.47K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1471-F
A4A6R33	0698-7200	5		RESISTOR 31.6 1% .05W F TC=0+-100	24546	C3-1/8-T0-31R6-F
A4A6R34				NOT ASSIGNED		
A4A6R35	0698-7240	3		RESISTOR 1.47K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1471-F
A4A6R36	0698-7240	3		RESISTOR 1.47K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1471-F
A4A6R37	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A4A6R38	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A4A6R39	0698-7284	5		RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F
A4A6R40	0698-7277	6		RESISTOR 51.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5112-F
A4A6R41	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2152-F
A4A6R42	0698-7248	1		RESISTOR 3.16K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3161-F
A4A6R43	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A4A6R44	0698-7208	3		RESISTOR 68.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-68R1-F
A4A6R45	0757-0317	7		RESISTOR 1.33K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1331-F
A4A6R46	0698-7248	1		RESISTOR 3.16K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3161-F
A4A6R47	0698-3447	4		RESISTOR 422 1% .125W F TC=0+-100	24546	C4-1/8-T0-422R-F
A4A6R48	0698-3446	3		RESISTOR 383 1% .125W F TC=0+-100	24546	C4-1/8-T0-383R-F
A4A6R49	0698-3446	3		RESISTOR 383 1% .125W F TC=0+-100	24546	C4-1/8-T0-383R-F
A4A6R50	0698-7216	3		RESISTOR 147 1% .05W F TC=0+-100	24546	C3-1/8-T0-147R-F
A4A6R51†	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A4A6R52	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A4A6R53	0698-7223	2		RESISTOR 287 1% .05W F TC=0+-100	24546	C3-1/8-T0-287R-F
A4A6R54	0698-7194	6		RESISTOR 17.8 1% .05W F TC=0+-100	24546	C3-1/8-T0-17R8-F
A4A6R55	0698-7223	2		RESISTOR 287 1% .05W F TC=0+-100	24546	C3-1/8-T0-287R-F
A4A6R56*	0698-7227	6	11	RESISTOR 422 1% .05W F TC=0+-100	24546	C3-1/8-T0-422R-F
A4A6R57*	0698-7190	2		RESISTOR 12.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-12R1-F
A4A6R58*	0698-7227	6		RESISTOR 422 1% .05W F TC=0+-100	24546	C3-1/8-T0-422R-F
A4A6TP1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A6TP2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A6TP3	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A4A6U1	1826-0372	2		IC, LIMITER	28480	1826-0372
A4A6U2	0955-0095	8		MIXER, SRAI	28480	0955-0095
A4A6U3	1826-0191	3		IC COMPARATOR GP DUAL TO-100 PKG	27014	LM319H
A4A6VR1	1902-0041	4	3	DIODE-ZNR 5.11V 5% DO-35 PD=.4W	28480	1902-0041
A4A6VR2	1902-3082	9		DIODE-ZNR 4.64V 5% DO-35 PD=.4W	28480	1902-3082
A4A6VR3	1902-0041	4		DIODE-ZNR 5.11V 5% DO-35 PD=.4W	28480	1902-0041
A4A7	08662-60129	2	1	AGC ASSEMBLY	28480	08662-60129
A4A7C1	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A7C2	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A4A7C3	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A4A7C4	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A7C5	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A4A7C6	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A4A7C7	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A7C8	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A7C9	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A7C10	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A4A7C11	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A7C12	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A7C13	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A7C14	0160-3875	3		CAPACITOR-FXD 22PF +-5% 200VDC CER 0+-30	28480	0160-3875
A4A7C15	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A7C16	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A7C17	0160-3877	5		CAPACITOR-FXD 100PF +-20% 200VDC CER	28480	0160-3877
A4A7C18*	0160-5039	5	1	CAPACITOR-FXD 6800PF +-10% 100VDC CER	28480	0160-5039
A4A7C19*	0160-3879	7	235	CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A7C19	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A7C20	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A7C21	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A7C22	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A7C23	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A7C24	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A7C25*	0160-0576	5		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-0576
A4A7C26*	0160-0575	4	21	CAPACITOR-FXD .047UF +-20% 50VDC CER	28480	0160-0575
A4A7C27	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A7C28	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A7C29†	0160-0194	3	2	CAPACITOR-FXD .015UF +-10% 200VDC POLYE	28480	0160-0194
A4A7C30	0160-4084	8		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-4084
A4A7C31	0160-4084	8		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-4084
A4A7C32	0160-4084	8		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-4084
A4A7C33	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A7C34	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A7C35*				NORMALLY OPEN		
A4A7C36*				NORMALLY OPEN		
A4A7C37*				NORMALLY OPEN		
A4A7C38*	0160-0574	3		CAPACITOR-FXD .022UF +-20% 100VDC CER	28480	0160-0574
A4A7CR1	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A4A7CR2	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A4A7CR3	1901-0081	0	6	DIODE-SWITCHING 50V 75MA 10NS	28480	1901-0081
A4A7CR4	1901-0081	0		DIODE-SWITCHING 50V 75MA 10NS	28480	1901-0081
A4A7CR5	1901-0081	0		DIODE-SWITCHING 50V 75MA 10NS	28480	1901-0081
A4A7CR6	1901-0081	0		DIODE-SWITCHING 50V 75MA 10NS	28480	1901-0081
A4A7CR7	1901-0081	0		DIODE-SWITCHING 50V 75MA 10NS	28480	1901-0081
A4A7CR8	1901-0081	0		DIODE-SWITCHING 50V 75MA 10NS	28480	1901-0081
A4A7DS1	1990-0326	3		LED-LAMP LUM-INT=300UCD IF=50MA-MAX	28480	5082-4444
A4A7L1	08672-80001	3		TOROID FILTER 630UH	28480	08672-80001
A4A7L2	08672-80001	3		TOROID FILTER 630UH	28480	08672-80001
A4A7L3	08672-80001	3		TOROID FILTER 630UH	28480	08672-80001
A4A7L4	08672-80001	3		TOROID FILTER 630UH	28480	08672-80001
A4A7L5	08672-80001	3		TOROID FILTER 630UH	28480	08672-80001
A4A7L6*	9100-1642	1	2	INDUCTOR RF-CH-MLD 270UH 5% .2DX.45LG	28480	9100-1642
A4A7MP1	08662-00097	7	1	COVER-2/3 END	28480	08662-00097
	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A4A7Q1	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A4A7Q2	1854-0475	5		TRANSISTOR-DUAL NPN PD=750MW	28480	1854-0475
A4A7Q3	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A4A7Q4	1854-0477	7		TRANSISTOR NPN 2N2222A SI TO-18 PD=500MW	04713	2N2222A
A4A7Q5	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A4A7Q6	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A4A7Q7	1855-0020	8		TRANSISTOR J-FET N-CHAN D-MODE TO-18 SI	28480	1855-0020
A4A7Q8	1855-0020	8		TRANSISTOR J-FET N-CHAN D-MODE TO-18 SI	28480	1855-0020
A4A7Q9	1855-0020	8		TRANSISTOR J-FET N-CHAN D-MODE TO-18 SI	28480	1855-0020
A4A7Q10	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A4A7Q11	1854-0477	7		TRANSISTOR NPN 2N2222A SI TO-18 PD=500MW	04713	2N2222A
A4A7Q12	1855-0020	8		TRANSISTOR J-FET N-CHAN D-MODE TO-18 SI	28480	1855-0020
A4A7Q13	1855-0020	8		TRANSISTOR J-FET N-CHAN D-MODE TO-18 SI	28480	1855-0020
A4A7Q14	1855-0020	8		TRANSISTOR J-FET N-CHAN D-MODE TO-18 SI	28480	1855-0020
A4A7Q15	1855-0020	8		TRANSISTOR J-FET N-CHAN D-MODE TO-18 SI	28480	1855-0020
A4A7Q16	1855-0020	8		TRANSISTOR J-FET N-CHAN D-MODE TO-18 SI	28480	1855-0020
A4A7Q17				NOT ASSIGNED		
A4A7Q18	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A4A7R1	0698-7245	8		RESISTOR 2.37K 1% .05W F TC=0+-100	24546	C3-1/8-TO-2371-F
A4A7R2	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-TO-511R-F
A4A7R3	2100-3056	8	3	RESISTOR-TRMR 5K 10% C SIDE-ADJ 17-TRN	02111	43P502
A4A7R4	0698-7253	8		RESISTOR 5.11K 1% .05W F TC=0+-100	24546	C3-1/8-TO-5111-F
A4A7R5	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A4A7R6	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A4A7R7	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1001-F
A4A7R8	2100-3056	8		RESISTOR-TRMR 5K 10% C SIDE-ADJ 17-TRN	02111	43P502
A4A7R9	0698-7245	8		RESISTOR 2.37K 1% .05W F TC=0+-100	24546	C3-1/8-TO-2371-F
A4A7R10	0698-7245	8		RESISTOR 2.37K 1% .05W F TC=0+-100	24546	C3-1/8-TO-2371-F

See introduction to this section for ordering information
*Indicates factory selected value
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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A4A7R11	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A4A7R12	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A4A7R13	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A4A7R14	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A4A7R15	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A4A7R16	1810-0205	7		NETWORK-RES 8-SIP4.7K OHM X 7	01121	208A472
A4A7R17	1810-0205	7		NETWORK-RES 8-SIP4.7K OHM X 7	01121	208A472
A4A7R18	0698-7232	3		RESISTOR 681 1% .05W F TC=0+-100	24546	C3-1/8-T0-681R-F
A4A7R19	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A4A7R20	2100-0558	9	1	RESISTOR-TRMR 20K 10% C TOP-ADJ 1-TRN	28480	2100-0558
A4A7R21	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A4A7R22	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A4A7R23	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A4A7R24	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A4A7R25	0698-7219	6		RESISTOR 196 1% .05W F TC=0+-100	24546	C3-1/8-T0-196R-F
A4A7R26	0698-7219	6		RESISTOR 196 1% .05W F TC=0+-100	24546	C3-1/8-T0-196R-F
A4A7R27	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A4A7R28	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A4A7R29	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A4A7R30	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A4A7R31	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A4A7R32	0698-7253	8		RESISTOR 5.11K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5111-F
A4A7R33	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A4A7R34	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A4A7R35	0698-7267	4		RESISTOR 19.6K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1962-F
A4A7R36	0698-7243	6		RESISTOR 1.96K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1961-F
A4A7R37	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-T0-10R-F
A4A7R38	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-T0-10R-F
A4A7R39	0698-7267	4		RESISTOR 19.6K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1962-F
A4A7R40	0698-7267	4		RESISTOR 19.6K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1962-F
A4A7R41	0698-7267	4		RESISTOR 19.6K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1962-F
A4A7R42	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A4A7R43	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A4A7R44	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A4A7R45	0698-7245	8		RESISTOR 2.37K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2371-F
A4A7R46	0698-7245	8		RESISTOR 2.37K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2371-F
A4A7R47	0698-7275	4	9	RESISTOR 42.2K 1% .05W F TC=0+-100	24546	C3-1/8-T0-4222-F
A4A7R48	0698-7275	4		RESISTOR 42.2K 1% .05W F TC=0+-100	24546	C3-1/8-T0-4222-F
A4A7R49	0698-7267	4		RESISTOR 19.6K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1962-F
A4A7R50	0698-7267	4		RESISTOR 19.6K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1962-F
A4A7R51	0698-7267	4		RESISTOR 19.6K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1962-F
A4A7R52	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A4A7R53	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A4A7R54	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A4A7R55	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A4A7R56†	0698-7279	8	1	RESISTOR 61.9K 1% .05W F TC=0+-100	24546	C3-1/8-T0-6192-F
A4A7R57	0698-7249	2		RESISTOR 3.48K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3481-F
A4A7R58	0698-7242	5		RESISTOR 1.78K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1781-F
A4A7R59	0698-7256	1		RESISTOR 6.81K 1% .05W F TC=0+-100	24546	C3-1/8-T0-6811-F
A4A7R60	0698-7267	4		RESISTOR 19.6K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1962-F
A4A7R61	0698-7267	4		RESISTOR 19.6K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1962-F
A4A7R62	0698-7275	4		RESISTOR 42.2K 1% .05W F TC=0+-100	24546	C3-1/8-T0-4222-F
A4A7R63	0698-7219	6		RESISTOR 196 1% .05W F TC=0+-100	24546	C3-1/8-T0-196R-F
A4A7R64	0698-7219	6		RESISTOR 196 1% .05W F TC=0+-100	24546	C3-1/8-T0-196R-F
A4A7R65	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A4A7R66	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A4A7R67	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A4A7R68	0698-7219	6		RESISTOR 196 1% .05W F TC=0+-100	24546	C3-1/8-T0-196R-F
A4A7R69†	0698-7254	9	4	RESISTOR 5.62K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5621-F
A4A7R70†	0698-7254	9		RESISTOR 5.62K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5621-F
A4A7R71	0698-7234	5		RESISTOR 825 1% .05W F TC=0+-100	24546	C3-1/8-T0-825R-F
A4A7R72	0698-7265	2		RESISTOR 16.2K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1622-F
A4A7R73	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A4A7R74	0698-7234	5		RESISTOR 825 1% .05W F TC=0+-100	24546	C3-1/8-T0-825R-F
A4A7R75	0698-7259	4	4	RESISTOR 9.09K 1% .05W F TC=0+-100	24546	C3-1/8-T0-9091-F
A4A7R76	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A4A7R77	0698-7284	5		RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F
A4A7R78	0698-3453	2		RESISTOR 196K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1963-F
A4A7R79	0698-7257	2		RESISTOR 7.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-7501-F
A4A7R80	0698-7257	2		RESISTOR 7.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-7501-F
A4A7R81	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A4A7R82	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A4A7R83†	0698-7250	5	4	RESISTOR 3.83K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3831-F
A4A7R84	0698-7259	4		RESISTOR 9.09K 1% .05W F TC=0+-100	24546	C3-1/8-T0-9091-F
A4A7R85	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A4A7R86†	0698-7273	2	1	RESISTOR 34.8K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3482-F
A4A7R87	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A4A7R88	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A4A7R89	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A4A7R90	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A4A7R91	0698-7219	6		RESISTOR 196 1% .05W F TC=0+-100	24546	C3-1/8-T0-196R-F
A4A7R92	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A4A7S1	3101-0860	9		SWITCH-SL DPDT MINTR .5A 125VAC/DC PC	28480	3101-0860
A4A7TP1				NOT ASSIGNED		
A4A7TP2- A4A7TP20A	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A7U1	1826-0358	4		IC OP AMP LOW-BIAS-H-IMPD TO-99 PKG	27014	LF256H, SEL NOISE
A4A7U2	1826-0358	4		IC OP AMP LOW-BIAS-H-IMPD TO-99 PKG	27014	LF256H, SEL NOISE
A4A7U3	1826-0358	4		IC OP AMP LOW-BIAS-H-IMPD TO-99 PKG	27014	LF256H, SEL NOISE
A4A7U4	1826-0138	8	7	IC COMPARATOR GP QUAD 14-DIP-P PKG	01295	LM339N
A4A7U5	1826-0138	8		IC COMPARATOR GP QUAD 14-DIP-P PKG	01295	LM339N
A4A7U6	1826-0138	8		IC COMPARATOR GP QUAD 14-DIP-P PKG	01295	LM339N
A4A7U7	1820-1281	2	1	IC DCDR TTL LS 2-TO-4-LINE DUAL 2-INP	01295	SN74LS139N
A4A7U8	1826-0264	1		IC CONV 10-B-D/A 16-DIP-P PKG	24355	AD7520LN
A4A7U9	1820-1144	6		IC GATE TTL LS NOR QUAD 2-INP	01295	SN74LS02N
A4A7U10				NOT ASSIGNED		
A4A7U11				NOT ASSIGNED		
A4A7U12	1826-0358	4		IC OP AMP LOW-BIAS-H-IMPD TO-99 PKG	27014	LF256H, SEL NOISE
A4A7U13	1826-0358	4		IC OP AMP LOW-BIAS-H-IMPD TO-99 PKG	27014	LF256H, SEL NOISE
A4A7VR1	1902-0680	7	2	DIODE-ZNR 1N827 6.2V 5% DO-7 PD=.4W	24046	1N827
A4A7VR2	1902-3203	6	1	DIODE-ZNR 14.7V 5% DO-35 PD=.4W	28480	1902-3203
A4A7VR3	1902-3182	0	2	DIODE-ZNR 12.1V 5% DO-35 PD=.4W	28480	1902-3182
A4A7VR4	1902-0025	4	5	DIODE-ZNR 10V 5% DO-35 PD=.4W TC=+.06%	28480	1902-0025
A4A7VR5	1902-0025	4		DIODE-ZNR 10V 5% DO-35 PD=.4W TC=+.06%	28480	1902-0025
A4A8	08662-60184	9	1	MODULATION DIVIDER	28480	08662-60184
A4A8C1	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A8C2	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A4A8C3	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A8C4	0180-0291	3		CAPACITOR-FXD 1UF+-10% 35VDC TA	56289	150D105X9035A2
A4A8C5	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A8C6	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A4A8C7	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A8C8	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A8C9	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A4A8C10	0180-2698	8	1	CAPACITOR-FXD 4.7UF+-10% 35VDC TA	28480	0180-2698
A4A8C11	0180-2697	7		CAPACITOR-FXD 10UF+-10% 25VDC TA	28480	0180-2697
A4A8C12	0180-2697	7		CAPACITOR-FXD 10UF+-10% 25VDC TA	28480	0180-2697
A4A8C13	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A8C14	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A8C15	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A8J1	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A4A8J2	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A4A8L1	08672-80001	3		TOROID FILTER 630UH	28480	08672-80001
A4A8L2	08672-80001	3		TOROID FILTER 630UH	28480	08672-80001
A4A8L3	9140-0114	4	3	INDUCTOR RF-CH-MLD 10UH 10% .166DX.395LG	28480	9140-0114
A4A8L4	9140-0114	4		INDUCTOR RF-CH-MLD 10UH 10% .166DX.395LG	28480	9140-0114
A4A8MP1	08662-00080	8	2	COVER-1/3 END	28480	08662-00080
	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A4A8Q1	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A4A8Q2	1854-0019	3	1	TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0019
A4A8Q3	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A4A8R1	0698-7264	1		RESISTOR 14.7K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1472-F
A4A8R2	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A4A8R3	0698-7224	3		RESISTOR 316 1% .05W F TC=0+-100	24546	C3-1/8-T0-316R-F
A4A8R4	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A4A8R5	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2152-F
A4A8R6	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A4A8R7	0698-7228	7		RESISTOR 464 1% .05W F TC=0+-100	24546	C3-1/8-T0-464R-F
A4A8R8	0698-7275	4		RESISTOR 42.2K 1% .05W F TC=0+-100	24546	C3-1/8-T0-4222-F
A4A8R9	0698-7252	7		RESISTOR 4.64K 1% .05W F TC=0+-100	24546	C3-1/8-T0-4641-F
A4A8R10	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A4A8R11	0698-7284	5		RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F
A4A8R12	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A4A8R13	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A4A8R14	0698-7285	6	5	RESISTOR 110K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1103-F
A4A8R15	0698-7285	6		RESISTOR 110K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1103-F

See introduction to this section for ordering information
*Indicates factory selected value
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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A4A8R16	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A4A8R17	0698-7285	6		RESISTOR 110K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1103-F
A4A8R18	0698-7285	6		RESISTOR 110K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1103-F
A4A8R19	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2152-F
A4A8R20	0683-1065	7	2	RESISTOR 10M 5% .25W CC TC=-900/+1100	01121	CB1065
A4A8R21	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A4A8R22	0757-0422	5		RESISTOR 909 1% .125W F TC=0+-100	24546	C4-1/8-T0-909R-F
A4A8R23	0698-7196	8		RESISTOR 21.5 1% .05W F TC=0+-100	24546	C3-1/8-T0-21R5-F
A4A8R24	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A4A8R25	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2152-F
A4A8R26	0698-7253	8		RESISTOR 5.11K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5111-F
A4A8TP1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A8TP2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A8TP3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A8TP4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A8TP5	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A8TP6	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A8U1	1820-1780	6		IC PRESCR ECL	07263	11C90DC
A4A8U2	1820-1478	9	1	IC CNTR TTL LS BIN ASYNCHRO	01295	SN74LS93N
A4A8U3	1820-1201	6		IC GATE TTL LS AND QUAD 2-INP	01295	SN74LS08N
A4A8U4	1820-0630	3	1	IC MISC TTL	04713	MC4044P
A4A8U5	1820-1490	5	1	IC CNTR TTL LS DECD ASYNCHRO	01295	SN74LS90N
A4A8U6	1820-1463	2	3	IC CNTR TTL DECD ASYNCHRO NEG-EDGE-TRIG	01295	SN74390N
A4A8U7	1820-1463	2		IC CNTR TTL DECD ASYNCHRO NEG-EDGE-TRIG	01295	SN74390N
A4A8U8	1820-1463	2		IC CNTR TTL DECD ASYNCHRO NEG-EDGE-TRIG	01295	SN74390N
A4A8U9	1826-0013	8	6	IC OP AMP LOW-NOISE TO-99 PKG	06665	SSS741CJ
A4A8VR1	1902-0025	4		DIODE-ZNR 10V 5% DO-35 PD=.4W TC=+.06%	28480	1902-0025
A4A9	08662-60183	8	1	MODULATION DRIVE ASSEMBLY	28480	08662-60183
A4A9C1	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A9C2	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A4A9C3	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A9C4	0180-2618	2		CAPACITOR-FXD 33UF+-10% 10VDC TA	25088	D33GS1B10K
A4A9C5	0160-4407	9	4	CAPACITOR-FXD .056UF +-5% 50VDC	28480	0160-4407
A4A9C6	0160-4407	9		CAPACITOR-FXD .056UF +-5% 50VDC	28480	0160-4407
A4A9C7	0180-2618	2		CAPACITOR-FXD 33UF+-10% 10VDC TA	25088	D33GS1B10K
A4A9C8	0180-2618	2		CAPACITOR-FXD 33UF+-10% 10VDC TA	25088	D33GS1B10K
A4A9C9	0160-4365	8		CAPACITOR-FXD 470PF +-5% 100VDC CER	28480	0160-4365
A4A9C10	0160-4365	8		CAPACITOR-FXD 470PF +-5% 100VDC CER	28480	0160-4365
A4A9C11	0180-2618	2		CAPACITOR-FXD 33UF+-10% 10VDC TA	25088	D33GS1B10K
A4A9C12	0180-2618	2		CAPACITOR-FXD 33UF+-10% 10VDC TA	25088	D33GS1B10K
A4A9C13	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A9C14	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A9C15	0160-4084	8		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-4084
A4A9C16	0160-4407	9		CAPACITOR-FXD .056UF +-5% 50VDC	28480	0160-4407
A4A9C17	0180-2697	7		CAPACITOR-FXD 10UF+-10% 25VDC TA	28480	0180-2697
A4A9C18	0160-4407	9		CAPACITOR-FXD .056UF +-5% 50VDC	28480	0160-4407
A4A9C19	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A9C20	0160-4365	8		CAPACITOR-FXD 470PF +-5% 100VDC CER	28480	0160-4365
A4A9C21	0160-4365	8		CAPACITOR-FXD 470PF +-5% 100VDC CER	28480	0160-4365
A4A9C22	0160-2204	0		CAPACITOR-FXD 100PF +-5% 300VDC MICA	28480	0160-2204
A4A9C23	0160-0128	3	1	CAPACITOR-FXD 2.2UF +-20% 50VDC CER	28480	0160-0128
A4A9C24	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A9C25	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A9C26	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A9C27	0160-2266	4		CAPACITOR-FXD 24PF +-5% 500VDC CER 0+-30	28480	0160-2266
A4A9C28	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A9C29	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A9C30	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A9C31	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A4A9C32	0160-0127	2		CAPACITOR-FXD 1UF +-20% 25VDC CER	28480	0160-0127
A4A9C33	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A9C34	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A9C35	0160-4084	8		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-4084
A4A9C36	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A9C37	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A9C38	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A9C39	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A9C40	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A9C41*	0160-3694	4	1	CAPACITOR-FXD 330PF +-10% 100VDC CER	28480	0160-3694
A4A9CR1	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A4A9CR2	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A4A9CR3	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A4A9CR4	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A4A9CR5	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040

See introduction to this section for ordering information
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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A4A9CR6	1901-0376	6		DIODE-GEN PRP 35V 50MA DO-35	28480	1901-0376
A4A9CR7	1901-0376	6		DIODE-GEN PRP 35V 50MA DO-35	28480	1901-0376
A4A9CR8	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A4A9CR9	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A4A9CR10	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A4A9CR11	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A4A9CR12	1901-0376	6		DIODE-GEN PRP 35V 50MA DO-35	28480	1901-0376
A4A9CR13	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A4A9CR14	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A4A9CR15	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A4A9CR16	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A4A9CR17	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A4A9CR18	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A4A9CR19	1901-0376	6		DIODE-GEN PRP 35V 50MA DO-35	28480	1901-0376
A4A9CR20	1901-0376	6		DIODE-GEN PRP 35V 50MA DO-35	28480	1901-0376
A4A9CR21	1901-0376	6		DIODE-GEN PRP 35V 50MA DO-35	28480	1901-0376
A4A9CR22	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A4A9CR23	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A4A9CR24	1901-0535	9		DIODE-SM SIG SCHOTTKY	28480	1901-0535
A4A9J1	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A4A9K1	0490-1013	6	1	RELAY-REED 1C 250MA 28VDC 5VDC-COIL 3VA	28480	0490-1013
A4A9L1	9140-0098	3	2	INDUCTOR RF-CH-MLD 2.2UH 10%	28480	9140-0098
A4A9L2	9140-0098	3		INDUCTOR RF-CH-MLD 2.2UH 10%	28480	9140-0098
A4A9L3	9100-4078	3	7	TOROID FILTER 630UH	28480	9100-4078
	3050-0079	3	2	WASHER-FL NM NO. 2 .094-IN-ID .188-IN-OD	28480	3050-0079
	3050-0079	3		WASHER-FL NM NO. 2 .094-IN-ID .188-IN-OD	28480	3050-0079
	10534-4001	2	1	TACK-RUBBER	28480	10534-4001
A4A9MP1	08662-00098	8	1	COVER- 2/3 END	28480	08662-00098
	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A4A9MP2	1205-0202	1		THERMAL LINK DUAL TO-18-CS	28480	1205-0202
A4A9MP3	1205-0202	1		THERMAL LINK DUAL TO-18-CS	28480	1205-0202
A4A9Q1	1855-0020	8		TRANSISTOR J-FET N-CHAN D-MODE TO-18 SI	28480	1855-0020
A4A9Q2	1855-0020	8		TRANSISTOR J-FET N-CHAN D-MODE TO-18 SI	28480	1855-0020
A4A9Q3	1855-0020	8		TRANSISTOR J-FET N-CHAN D-MODE TO-18 SI	28480	1855-0020
A4A9Q4	1855-0020	8		TRANSISTOR J-FET N-CHAN D-MODE TO-18 SI	28480	1855-0020
A4A9Q5	1853-0451	5		TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
A4A9Q6	1855-0020	8		TRANSISTOR J-FET N-CHAN D-MODE TO-18 SI	28480	1855-0020
A4A9Q7	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A4A9Q8	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A4A9Q9	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A4A9Q10	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A4A9Q11	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A4A9Q12	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A4A9Q13	1855-0020	8		TRANSISTOR J-FET N-CHAN D-MODE TO-18 SI	28480	1855-0020
A4A9Q14	1855-0020	8		TRANSISTOR J-FET N-CHAN D-MODE TO-18 SI	28480	1855-0020
A4A9Q15	1854-0477	7		TRANSISTOR NPN 2N2222A SI TO-18 PD=500MW	04713	2N2222A
A4A9Q16	1855-0020	8		TRANSISTOR J-FET N-CHAN D-MODE TO-18 SI	28480	1855-0020
A4A9Q17	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A4A9R1	0757-1078	9	1	RESISTOR 1.47K 1% .5W F TC=0+-100	28480	0757-1078
A4A9R2	0698-7251	6		RESISTOR 4.22K 1% .05W F TC=0+-100	24546	C3-1/8-T0-4221-F
A4A9R3	0757-0419	0		RESISTOR 681 1% .125W F TC=0+-100	24546	C4-1/8-T0-681R-F
A4A9R4	0698-7285	6		RESISTOR 110K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1103-F
A4A9R5	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A4A9R6	0757-0405	4		RESISTOR 162 1% .125W F TC=0+-100	24546	C4-1/8-T0-162R-F
A4A9R7	0757-0405	4		RESISTOR 162 1% .125W F TC=0+-100	24546	C4-1/8-T0-162R-F
A4A9R8	0698-7269	6	4	RESISTOR 23.7K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2372-F
A4A9R9	0698-7259	4		RESISTOR 9.09K 1% .05W F TC=0+-100	24546	C3-1/8-T0-9091-F
A4A9R10	2100-2522	1	1	RESISTOR-TRMR 10K 10% C SIDE-ADJ 1-TRN	30983	ET50X103
A4A9R11	0698-7246	9		RESISTOR 2.61K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2611-F
A4A9R12	2100-2489	9		RESISTOR-TRMR 5K 10% C SIDE-ADJ 1-TRN	30983	ET50X502
A4A9R13	0698-7269	6		RESISTOR 23.7K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2372-F
A4A9R14	0698-7259	4		RESISTOR 9.09K 1% .05W F TC=0+-100	24546	C3-1/8-T0-9091-F
A4A9R15	0698-3454	3	3	RESISTOR 215K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2153-F
A4A9R16	0698-7282	3		RESISTOR 82.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-8252-F
A4A9R17	0698-7196	8		RESISTOR 21.5 1% .05W F TC=0+-100	24546	C3-1/8-T0-21R5-F
A4A9R18	0698-7196	8		RESISTOR 21.5 1% .05W F TC=0+-100	24546	C3-1/8-T0-21R5-F
A4A9R19	0683-1065	7		RESISTOR 10M 5% .25W CC TC=-900/+1100	01121	CB1065
A4A9R20	0698-7269	6		RESISTOR 23.7K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2372-F
A4A9R21	0698-4422	7	2	RESISTOR 1.27K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1271-F
A4A9R22	0683-3955	8	1	RESISTOR 3.9M 5% .25W FC TC=-900/+1100	01121	CB3955
A4A9R23	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A4A9R24	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A4A9R25	0698-7269	6		RESISTOR 23.7K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2372-F

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A4A9R26	0698-7282	3		RESISTOR 82.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-8252-F
A4A9R27	0698-3454	3		RESISTOR 215K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2153-F
A4A9R28	0698-3458	7	1	RESISTOR 348K 1% .125W F TC=0+-100	28480	0698-3458
A4A9R29	0683-6845	1	1	RESISTOR 680K 5% .25W FC TC=-800/+900	01121	CB6845
A4A9R30	2100-3122	9		RESISTOR-TRMR 100 10% C SIDE-ADJ 17-TRN	02111	43P101
A4A9R31	0698-7203	8	3	RESISTOR 42.2 1% .05W F TC=0+-100	24546	C3-1/8-T0-42R2-F
A4A9R32	0698-7262	9		RESISTOR 12.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1212-F
A4A9R33	0698-7196	8		RESISTOR 21.5 1% .05W F TC=0+-100	24546	C3-1/8-T0-21R5-F
A4A9R34	0811-3473	8	1	RESISTOR 1K 1% 1W PW TC=0+-20	28480	0811-3473
A4A9R35	0698-3155	1		RESISTOR 4.64K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4641-F
A4A9R36	0698-4422	7		RESISTOR 1.27K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1271-F
A4A9R37	0698-7253	8		RESISTOR 5.11K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5111-F
A4A9R38	0698-7253	8		RESISTOR 5.11K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5111-F
A4A9R39	0698-7218	5		RESISTOR 178 1% .05W F TC=0+-100	24546	C3-1/8-T0-178R-F
A4A9R40	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A4A9R41	0683-1055	5	8	RESISTOR 1M 5% .25W FC TC=-800/+900	01121	CB1055
A4A9R42	0683-1055	5		RESISTOR 1M 5% .25W FC TC=-800/+900	01121	CB1055
A4A9R43	0698-7275	4		RESISTOR 42.2K 1% .05W F TC=0+-100	24546	C3-1/8-T0-4222-F
A4A9R44	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A4A9R45	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A4A9R46	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A4A9R47	0757-0428	1		RESISTOR 1.62K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1621-F
A4A9R48	0698-7203	8		RESISTOR 42.2 1% .05W F TC=0+-100	24546	C3-1/8-T0-42R2-F
A4A9R49	0698-7237	8		RESISTOR 1.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1101-F
A4A9R50	2100-3350	5	1	RESISTOR-TRMR 200 10% C SIDE-ADJ 1-TRN	28480	2100-3350
A4A9R51	0698-7231	2		RESISTOR 619 1% .05W F TC=0+-100	24546	C3-1/8-T0-619R-F
A4A9R52	0698-7248	1		RESISTOR 3.16K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3161-F
A4A9R53	0698-7240	3		RESISTOR 1.47K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1471-F
A4A9R54	0698-7240	3		RESISTOR 1.47K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1471-F
A4A9R55	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A4A9R56	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A4A9R57	2100-2514	1		RESISTOR-TRMR 20K 10% C SIDE-ADJ 1-TRN	30983	ET50W203
A4A9R58	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2152-F
A4A9R59	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2152-F
A4A9R60	0698-7234	5		RESISTOR 825 1% .05W F TC=0+-100	24546	C3-1/8-T0-825R-F
A4A9R61	0698-7209	4		RESISTOR 75 1% .05W F TC=0+-100	24546	C3-1/8-T0-75R0-F
A4A9R62	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A4A9R63	0698-7287	8	1	RESISTOR 133K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1333-F
A4A9R64	0698-7265	2		RESISTOR 16.2K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1622-F
A4A9R65	0683-1055	5		RESISTOR 1M 5% .25W FC TC=-800/+900	01121	CB1055
A4A9R66	0683-1055	5		RESISTOR 1M 5% .25W FC TC=-800/+900	01121	CB1055
A4A9R67	0698-7253	8		RESISTOR 5.11K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5111-F
A4A9R68	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A4A9R69	0698-7211	8	1	RESISTOR 90.9 1% .05W F TC=0+-100	24546	C3-1/8-T0-90R9-F
A4A9R70	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-T0-10R-F
A4A9R71	0683-2265	1	1	RESISTOR 22M 5% .25W FC TC=-900/+1200	01121	CR2265
A4A9R72	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A4A9R73	0698-7274	3		RESISTOR 38.3K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3832-F
A4A9R74*	0698-7244	7	14	RESISTOR 2.15K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2151-F
A4A9R75	2100-2574	3		RESISTOR-TRMR 500 10% C SIDE-ADJ 1-TRN	30983	ET50X501
A4A9R76	0683-1055	5		RESISTOR 1M 5% .25W FC TC=-800/+900	01121	CB1055
A4A9R77	0683-1055	5		RESISTOR 1M 5% .25W FC TC=-800/+900	01121	CB1055
A4A9R78	0683-1055	5		RESISTOR 1M 5% .25W FC TC=-800/+900	01121	CB1055
A4A9R79A	0698-7223	2		RESISTOR 287 1% .05W F TC=0+-100	24546	C3-1/8-T0-287R-F
A4A9R80	0698-7251	6		RESISTOR 4.22K 1% .05W F TC=0+-100	24546	C3-1/8-T0-4221-F
A4A9R81	0683-1055	5		RESISTOR 1M 5% .25W FC TC=-800/+900	01121	CR1055
A4A9R82	0698-7250	5		RESISTOR 3.83K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3831-F
A4A9R83	0698-7251	6		RESISTOR 4.22K 1% .05W F TC=0+-100	24546	C3-1/8-T0-4221-F
A4A9R84	0698-7270	9	1	RESISTOR 26.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2612-F
A4A9TP1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A9TP2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A9TP3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A9TP4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A9TP5	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A9TP6	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A9TP7	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A9TP8	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A9U1	1826-0323	3		IC OP AMP GP QUAD 14-DIP-C PKG	28480	1826-0323
A4A9U2	1826-0191	3		IC COMPARATOR GP DUAL TO-100 PKG	27014	LM319H
A4A9U3	1820-1423	4		IC MV TTL LS MONOSTBL RETRIG DUAL	01295	SN74LS123N
A4A9U4	1826-0358	4		IC OP AMP LOW-BIAS-H-IMPD TO-99 PKG	27014	LF256H, SEL NOISE
A4A9U5	1826-0161	7	3	IC OP AMP GP QUAD 14-DIP-P PKG	04713	MLM324P
A4A9U6	1820-1197	9		IC GATE TTL LS NAND QUAD 2-INP	01295	SN74LS00N
A4A9U7	1826-0161	7		IC OP AMP GP QUAD 14-DIP-P PKG	04713	MLM324P
A4A9U8	1826-0161	7		IC OP AMP GP QUAD 14-DIP-P PKG	04713	MLM324P
A4A9U9	1826-0264	1		IC CONV 10-B-D/A 16-DIP-P PKG	24355	AD7520LN

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A4A9VR1	1902-0025	4		DIODE-ZNR 10V 5% DO-35 PD=.4W TC=+.06%	28480	1902-0025
A4A9VR2	1902-3234	3	2	DIODE-ZNR 19.6V 5% DO-35 PD=.4W	28480	1902-3234
A4A9VR3	1902-3193	3		DIODE-ZNR 13.3V 5% DO-35 PD=.4W	28480	1902-3193
A4A9VR4	1902-3149	9	3	DIODE-ZNR 9.09V 5% DO-35 PD=.4W	28480	1902-3149
A4A10	08662-60132	7	1	OUTPUT MOTHER BOARD	28480	08662-60132
A4A10C1	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A10C2	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A10C3	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A10C4	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A10C5	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A10C6	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A10C7	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A4A10C8	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A4A10C9	0160-3094	8	2	CAPACITOR-FXD .1UF +-10% 100VDC CER	28480	0160-3094
A4A10E1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A10E2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A10E3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A10E4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A10E5	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A10J1	1250-0835	1		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-0835
A4A10J2	1250-0835	1		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-0835
A4A10J3	1250-0835	1		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-0835
A4A10J4	1250-0835	1		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-0835
A4A10J5	1250-0835	1		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-0835
A4A10J6	1251-5314	3		CONNECTOR, 50-PIN	28480	1251-5314
A4A10J7	1200-0507	9		SOCKET-IC 16-CONT DIP-SLDR	28480	1200-0507
A4A10L1	9140-0335	1	2	INDUCTOR, 110 UH	28480	9140-0335
A4A10TP1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A10TP2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A10TP3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A10TP4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A10TP5	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A4A10XA4A1	1251-1633	1		CONNECTOR-PC EDGE 15-CONT/ROW 1-ROW	28480	1251-1633
A4A10XA4A2	1251-2035	9		CONNECTOR-PC EDGE 15-CONT/ROW 2-ROWS	28480	1251-2035
A4A10XA4A3	1251-1631	9		CONNECTOR-PC EDGE 10-CONT/ROW 1-ROW	28480	1251-1631
A4A10XA4A4	1251-1633	1		CONNECTOR-PC EDGE 15-CONT/ROW 1-ROW	28480	1251-1633
A4A10XA4A5	1251-1631	9		CONNECTOR-PC EDGE 10-CONT/ROW 1-ROW	28480	1251-1631
A4A10XA4A6	1251-2034	8		CONNECTOR-PC EDGE 10-CONT/ROW 2-ROWS	28480	1251-2034
A4A10XA4A7	1251-1631	9		CONNECTOR-PC EDGE 10-CONT/ROW 1-ROW	28480	1251-1631
A4A10XA4A8	1251-2034	8		CONNECTOR-PC EDGE 10-CONT/ROW 2-ROWS	28480	1251-2034
A4A10XA4A9	1251-2026	8		CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS	28480	1251-2026
A4MP1	08662-00007	9	1	SUPPORT, EXTRUSION A	28480	08662-00007
A4MP2	08662-00068	2	1	GASKET, EXTRUSION O-AMP	28480	08662-00068
A4MP3	08662-00118	3	1	SUPPORT, EXTRUSION TOP-A	28480	08662-00118
A4MP4	08662-00127	4	1	SUPPORT, A-CENTER	28480	08662-00127
A4MP5	08662-20028	6	5	PLUG, EXTRUSION NUT	28480	08662-20028
A4MP6	08662-20030	0	1	EXTRUSION ASSEMBLY, A4	28480	08662-20030
A4W41	08662-60061	1	1	CABLE, COAX, WHITE-RED (INCLUDES W41J1)	28480	08662-60061
A4W41J1				NSR, P/O W41		
A5A1	08662-60146	3	1	ACCUMULATOR	28480	08662-60146
A5A1C1	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A5A1C2	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A5A1C3	0180-2208	6	7	CAPACITOR-FXD 220UF+-10% 10VDC TA	56289	150D227X9010S2
A5A1C4	0160-3456	6		CAPACITOR-FXD 1000PF +-10% 1KVDC CER	28480	0160-3456
A5A1C5	0160-3456	6		CAPACITOR-FXD 1000PF +-10% 1KVDC CER	28480	0160-3456
A5A1C6	0160-3456	6		CAPACITOR-FXD 1000PF +-10% 1KVDC CER	28480	0160-3456
A5A1C7	0160-3456	6		CAPACITOR-FXD 1000PF +-10% 1KVDC CER	28480	0160-3456
A5A1C8	0160-3456	6		CAPACITOR-FXD 1000PF +-10% 1KVDC CER	28480	0160-3456
A5A1C9	0160-3456	6		CAPACITOR-FXD 1000PF +-10% 1KVDC CER	28480	0160-3456
A5A1C10	0160-3456	6		CAPACITOR-FXD 1000PF +-10% 1KVDC CER	28480	0160-3456
A5A1C11	0160-3456	6		CAPACITOR-FXD 1000PF +-10% 1KVDC CER	28480	0160-3456
A5A1C12	0160-3456	6		CAPACITOR-FXD 1000PF +-10% 1KVDC CER	28480	0160-3456
A5A1C13	0160-3456	6		CAPACITOR-FXD 1000PF +-10% 1KVDC CER	28480	0160-3456
A5A1C14	0160-3456	6		CAPACITOR-FXD 1000PF +-10% 1KVDC CER	28480	0160-3456
A5A1C15	0160-3456	6		CAPACITOR-FXD 1000PF +-10% 1KVDC CER	28480	0160-3456
A5A1L1	9100-1618	1		INDUCTOR RF-CH-MLD 5.6UH 10%	28480	9100-1618
A5A1MP1	08662-00090	0	1	COVER- 1/2 END	28480	08662-00090
	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A5A1MP2	5001-0176	0		STRAP, GROUND	28480	5001-0176
A5A1MP3	5001-0176	0		STRAP, GROUND	28480	5001-0176

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A5A1R1	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A1R2	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A1R3	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A1R4	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A1R5	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A1R6	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A1R7	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A1R8	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A1R9	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A1R10	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A1R11	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A1R12	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A1R13	0698-3155	1		RESISTOR 4.64K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4641-F
A5A1R14	0757-0394	0		RESISTOR 51.1 1% .125W F TC=0+-100	24546	C4-1/8-T0-51R1-F
A5A1R15	0757-0421	4		RESISTOR 825 1% .125W F TC=0+-100	24546	C4-1/8-T0-8250-F
A5A1R16	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A5A1R17	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A5A1R18	0698-3155	1		RESISTOR 4.64K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4641-F
A5A1R19	0698-3155	1		RESISTOR 4.64K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4641-F
A5A1R20	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A5A1R21	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A5A1R22	0698-3155	1		RESISTOR 4.64K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4641-F
A5A1R23	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A5A1R24	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A5A1R25	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A5A1R26	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A5A1TP1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A1TP1A	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A1TP2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A1TP3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A1TP4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A1TP4A	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A1TP5	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A1TP6	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A1TP6A	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A1TP7	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A1TP8	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A1U1	1820-1251	6	5	IC CNTR TTL LS DECD ASYNCHRO	01295	SN74LS196N
A5A1U2	1820-1251	6		IC CNTR TTL LS DECD ASYNCHRO	01295	SN74LS196N
A5A1U3	1820-1193	5		IC CNTR TTL LS BIN ASYNCHRO	01295	SN74LS197N
A5A1U4	1820-0686	9	4	IC GATE TTL S AND TPL 3-INP	01295	SN74S11N
A5A1U5	1820-1195	7		IC FF TTL LS D-TYPE POS-EDGE-TRIG COM	01295	SN74LS175N
A5A1U6	08662-80002	2	1	PROM, PROGRAMMED	28480	08662-80002
A5A1U7	1820-1300	6	2	IC SHF-RGTR TTL LS R-S PRL-IN PRL-OUT	01295	SN74LS195AN
A5A1U8	1820-0629	0	3	IC FF TTL S J-K NEG-EDGE-TRIG	01295	SN74S112N
A5A1U9	1820-1195	7		IC FF TTL LS D-TYPE POS-EDGE-TRIG COM	01295	SN74LS175N
A5A1U10	1820-1300	6		IC SHF-RGTR TTL LS R-S PRL-IN PRL-OUT	01295	SN74LS195AN
A5A1U11	1820-1112	8		IC FF TTL LS D-TYPE POS-EDGE-TRIG	01295	SN74LS74AN
A5A1U12	1820-0685	8	1	IC GATE TTL S NAND TPL 3-INP	01295	SN74S10N
A5A1U13	1820-1112	8		IC FF TTL LS D-TYPE POS-EDGE-TRIG	01295	SN74LS74AN
A5A1U14	1820-1777	1		IC ADDR TTL S BCD 4-BIT	18324	N82S83N
A5A1U15	1820-1244	7	2	IC MUXR/DATA-SEL TTL LS 4-TO-1-LINE DUAL	01295	SN74LS153N
A5A1U16	1820-1244	7		IC MUXR/DATA-SEL TTL LS 4-TO-1-LINE DUAL	01295	SN74LS153N
A5A2	08662-60148	5	1	N/DIVIDER ASSEMBLY	28480	08662-60148
A5A2C1	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A5A2C2	0180-2208	6		CAPACITOR-FXD 220UF+-10% 10VDC TA	56289	150D227X9010S2
A5A2C3	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A5A2C4	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A5A2C5	0160-4747	0	34	CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A2C6	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A5A2C7	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A5A2C8	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A5A2C9	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A2C10	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A2C11	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A2C12	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A2C13	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A2C14	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A2C15	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A2C16	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A2C17	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A2C18	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A2C19	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A2C20	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	CD	Qty	Description	Mfr Code	Mfr Part Number
A5A2C21	0160-3877	5		CAPACITOR-FXD 100PF +-20% 200VDC CER	28480	0160-3877
A5A2CR1	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A5A2CR2	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A5A2CR3	1901-0039	8		DIODE-SWITCHING 50V 300MA 8NS	28480	1901-0039
A5A2CR4	1901-0039	8		DIODE-SWITCHING 50V 300MA 8NS	28480	1901-0039
A5A2J1	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A5A2L1	9100-1618	1		INDUCTOR RF-CH-MLD 5.6UH 10%	28480	9100-1618
A5A2L2	9140-0158	6		INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG	28480	9140-0158
A5A2L3	9140-0158	6		INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG	28480	9140-0158
A5A2MP1	08662-00091	1	1	COVER- 1/2 END	28480	08662-00091
	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A5A2MP2	5001-0176	0		STRAP, GROUND	28480	5001-0176
A5A2MP3	5001-0176	0		STRAP, GROUND	28480	5001-0176
A5A2MP4	08662-00041	1		SHIELD, COMPONENT, LARGE	28480	08662-00041
A5A2R1	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A5A2R2	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A5A2R3	0757-0420	3		RESISTOR 750 1% .125W F TC=0+-100	24546	C4-1/8-T0-751-F
A5A2R4	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A5A2R5	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A5A2R6	0698-3439	4		RESISTOR 178 1% .125W F TC=0+-100	24546	C4-1/8-T0-178R-F
A5A2R7	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A5A2R8	0757-0444	1	8	RESISTOR 12.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1212-F
A5A2R9	0757-0421	4		RESISTOR 825 1% .125W F TC=0+-100	24546	C4-1/8-T0-825R-F
A5A2R10	0698-3155	1		RESISTOR 4.64K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4641-F
A5A2R11	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A5A2R12	0698-3155	1		RESISTOR 4.64K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4641-F
A5A2R13	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A5A2R14	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A5A2R15	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A5A2R16	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A5A2R17	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A5A2R18	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A5A2R19	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A5A2R20	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A5A2R21	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A5A2R22	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A5A2R23	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A5A2R24	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A5A2TP1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A2TP2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A2TP3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A2TP4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A2TP4A	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A2TP5	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A2U1	1820-1780	6		IC PRESCR ECL	07263	11C90DC
A5A2U2	1820-0686	9		IC GATE TTL S AND TPL 3-INP	01295	SN74S11N
A5A2U3	1820-0629	0		IC FF TTL S J-K NEG-EDGE-TRIG	01295	SN74S112N
A5A2U4	1820-1322	2	3	IC GATE TTL S NOR QUAD 2-INP	01295	SN74S02N
A5A2U5	1820-0686	9		IC GATE TTL S AND TPL 3-INP	01295	SN74S11N
A5A2U6	1820-2049	2	2	IC CNTR TTL LS DECD ASYNCHRO PRESET	04713	SN74LS196N
A5A2U7	1820-0629	0		IC FF TTL S J-K NEG-EDGE-TRIG	01295	SN74S112N
A5A2U8	1820-2049	2		IC CNTR TTL LS DECD ASYNCHRO PRESET	04713	SN74LS196N
A5A2U9	1820-1251	6		IC CNTR TTL LS DECD ASYNCHRO	01295	SN74LS196N
A5A3	08662-60147	4	1	FRACTIONAL-N LOOP PHASE DETECTOR	28480	08662-60147
A5A3C1	0160-3456	6		CAPACITOR-FXD 1000PF +-10% 1KVDC CER	28480	0160-3456
A5A3C2	0180-0116	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	56289	150D685X9035B2
A5A3C3	0180-0229	7		CAPACITOR-FXD 33UF+-10% 10VDC TA	56289	150D336X9010B2
A5A3C4	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A5A3C5	0180-1731	8	3	CAPACITOR-FXD 4.7UF+-10% 50VDC TA	56289	150D475X9050B2
A5A3C6	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A5A3C7	0180-1731	8		CAPACITOR-FXD 4.7UF+-10% 50VDC TA	56289	150D475X9050B2
A5A3C8	0160-3877	5		CAPACITOR-FXD 100PF +-20% 200VDC CER	28480	0160-3877
A5A3C9	0160-3877	5		CAPACITOR-FXD 100PF +-20% 200VDC CER	28480	0160-3877
A5A3C10	0180-0116	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	56289	150D685X9035B2
A5A3C11	0160-3456	6		CAPACITOR-FXD 1000PF +-10% 1KVDC CER	28480	0160-3456
A5A3C12	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5A3C13	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5A3C14	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5A3C15	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A5A3C16	0160-0159	0	1	CAPACITOR-FXD 6800PF +-10% 200VDC POLYE	28480	0160-0159
A5A3C17	0160-3466	8	2	CAPACITOR-FXD 100PF +-10% 1KVDC CER	28480	0160-3466
A5A3C18	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5A3C19	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5A3C20	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5A3C21	0160-0157	8		CAPACITOR-FXD 4700PF +-10% 200VDC POLYE	28480	0160-0157
A5A3C22	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A5A3C23	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A5A3C24	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5A3C25	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5A3C26	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5A3C27	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5A3C28	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5A3C29	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5A3C30	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5A3C31	0180-0116	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	56289	150D685X9035R2
A5A3C32	0160-0161	4	3	CAPACITOR-FXD .01UF +-10% 200VDC POLYE	28480	0160-0161
A5A3C33	0180-0291	3		CAPACITOR-FXD 1UF+-10% 35VDC TA	56289	150D105X9035A2
A5A3C34	0160-2219	7	1	CAPACITOR-FXD 1100PF +-5% 300VDC MICA	28480	0160-2219
A5A3C35	0180-0291	3		CAPACITOR-FXD 1UF+-10% 35VDC TA	56289	150D105X9035A2
A5A3C36	0160-2250	6		CAPACITOR-FXD 5.1PF +-.25PF 500VDC CER	28480	0160-2250
A5A3C37	0160-2199	2		CAPACITOR-FXD 30PF +-5% 300VDC MICA	28480	0160-2199
A5A3C38	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A5A3C39	0180-0116	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	56289	150D685X9035B2
A5A3C40	0180-1731	8		CAPACITOR-FXD 4.7UF+-10% 50VDC TA	56289	150D475X9050B2
A5A3C41	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5A3C42	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A5A3C43	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A5A3C44	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5A3C45	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A5A3C46	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A5A3C47	0160-2225	5	1	CAPACITOR-FXD 2000PF +-5% 300VDC MICA	28480	0160-2225
A5A3C48	0180-0291	3		CAPACITOR-FXD 1UF+-10% 35VDC TA	56289	150D105X9035A2
A5A3C49	0180-0291	3		CAPACITOR-FXD 1UF+-10% 35VDC TA	56289	150D105X9035A2
A5A3CR1	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A5A3CR2	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A5A3CR3	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A5A3CR4	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A5A3CR5	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A5A3CR6	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A5A3CR7	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A5A3CR8	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A5A3CR9	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A5A3CR10	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A5A3CR11	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A5A3CR12	1901-0539	3	28	DIODE-SM SIG SCHOTTKY	28480	1901-0539
A5A3CR13	1901-0539	3		DIODE-SM SIG SCHOTTKY	28480	1901-0539
A5A3CR14	1901-0539	3		DIODE-SM SIG SCHOTTKY	28480	1901-0539
A5A3CR15	1901-0539	3		DIODE-SM SIG SCHOTTKY	28480	1901-0539
A5A3CR16	1901-0539	3		DIODE-SM SIG SCHOTTKY	28480	1901-0539
A5A3CR17	1901-0539	3		DIODE-SM SIG SCHOTTKY	28480	1901-0539
A5A3CR18	1901-0539	3		DIODE-SM SIG SCHOTTKY	28480	1901-0539
A5A3CR19	1901-0539	3		DIODE-SM SIG SCHOTTKY	28480	1901-0539
A5A3CR20	1901-0539	3		DIODE-SM SIG SCHOTTKY	28480	1901-0539
A5A3CR21	1901-0539	3		DIODE-SM SIG SCHOTTKY	28480	1901-0539
A5A3CR22	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A5A3CR23	1901-0539	3		DIODE-SM SIG SCHOTTKY	28480	1901-0539
A5A3CR24	1901-0539	3		DIODE-SM SIG SCHOTTKY	28480	1901-0539
A5A3CR25	1901-0539	3		DIODE-SM SIG SCHOTTKY	28480	1901-0539
A5A3CR26	1901-0539	3		DIODE-SM SIG SCHOTTKY	28480	1901-0539
A5A3CR27	1901-0539	3		DIODE-SM SIG SCHOTTKY	28480	1901-0539
A5A3CR28	1901-0539	3		DIODE-SM SIG SCHOTTKY	28480	1901-0539
A5A3DS1	1990-0326	3		LED-LAMP LUM-INT=300UCD IF=50MA-MAX	28480	5082-4444
A5A3L1	9140-0144	0		INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG	28480	9140-0144
A5A3L2	9100-1626	1	7	INDUCTOR RF-CH-MLD 36UH 5% .166DX.385LG	28480	9100-1626
A5A3L3	9100-1626	1		INDUCTOR RF-CH-MLD 36UH 5% .166DX.385LG	28480	9100-1626
A5A3L4	9100-1626	1		INDUCTOR RF-CH-MLD 36UH 5% .166DX.385LG	28480	9100-1626
A5A3L5	9100-1626	1		INDUCTOR RF-CH-MLD 36UH 5% .166DX.385LG	28480	9100-1626
A5A3L6	9100-1626	1		INDUCTOR RF-CH-MLD 36UH 5% .166DX.385LG	28480	9100-1626
A5A3L7	9100-1626	1		INDUCTOR RF-CH-MLD 36UH 5% .166DX.385LG	28480	9100-1626
A5A3MP1	08662-00102	5	1	COVER, EXTRUSION FULL	28480	08662-00102
	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A5A3MP2	5001-0176	0		STRAP, GROUND	28480	5001-0176
A5A3MP3	5001-0176	0		STRAP, GROUND	28480	5001-0176

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A5A3Q1	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A5A3Q2	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A5A3Q3	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A5A3Q4	1855-0081	1	2	TRANSISTOR J-FET N-CHAN D-MODE SI	28480	1855-0081
A5A3Q5	1854-0210	6	9	TRANSISTOR NPN 2N2222 SI TO-18 PD=500MW	04713	2N2222
A5A3Q6	1853-0012	4		TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW	01295	2N2904A
A5A3Q7	1854-0013	7	1	TRANSISTOR NPN 2N2218A SI TO-5 PD=800MW	04713	2N2218A
A5A3Q8	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A5A3Q9	1855-0081	1		TRANSISTOR J-FET N-CHAN D-MODE SI	28480	1855-0081
A5A3Q10	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A5A3Q11	1854-0210	6		TRANSISTOR NPN 2N2222 SI TO-18 PD=500MW	04713	2N2222
A5A3Q12	1854-0023	9	1	TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0023
A5A3Q13	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A5A3Q14	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A5A3Q15	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A5A3R1	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A3R2	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101 F
A5A3R3	0757-0444	1		RESISTOR 12.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1212-F
A5A3R4	0757-0444	1		RESISTOR 12.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1212-F
A5A3R5	0698-3154	0		RESISTOR 4.22K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4221-F
A5A3R6	0698-3154	0		RESISTOR 4.22K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4221-F
A5A3R7	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A3R8	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A5A3R9	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A3R10	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A5A3R11	0757-0421	4		RESISTOR 825 1% .125W F TC=0+-100	24546	C4-1/8-T0-825R-F
A5A3R12	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A3R13	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A3R14	0698-3447	4		RESISTOR 422 1% .125W F TC=0+-100	24546	C4-1/8-T0-422R-F
A5A3R15	0757-0417	8		RESISTOR 562 1% .125W F TC=0+-100	24546	C4-1/8-T0-562R-F
A5A3R16	0698-3150	6		RESISTOR 2.37K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2371-F
A5A3R17	0698-3150	6		RESISTOR 2.37K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2371-F
A5A3R18	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A3R19	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A3R20	0757-0317	7		RESISTOR 1.33K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1331-F
A5A3R21	0757-0317	7		RESISTOR 1.33K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1331-F
A5A3R22	0698-3136	8		RESISTOR 17.8K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1782-F
A5A3R23	0698-3136	8		RESISTOR 17.8K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1782-F
A5A3R24	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A3R25	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A3R26	0757-0199	3		RESISTOR 21.5K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2152-F
A5A3R27	0757-0199	3		RESISTOR 21.5K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2152-F
A5A3R28	0698-3409	8	2	RESISTOR 2.37K 1% .5W F TC=0+-100	28480	0698-3409
A5A3R29	0698-3409	8		RESISTOR 2.37K 1% .5W F TC=0+-100	28480	0698-3409
A5A3R30	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A5A3R31	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A5A3R32	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A5A3R33	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A5A3R34	0698-3153	9		RESISTOR 3.83K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3831-F
A5A3R35	0757-0440	7		RESISTOR 7.5K 1% .125W F TC=0+-100	24546	C4-1/8-T0-7501-F
A5A3R36	0698-3154	0		RESISTOR 4.22K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4221-F
A5A3R37	0757-0428	1		RESISTOR 1.62K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1621-F
A5A3R38	0757-0441	8		RESISTOR 8.25K 1% .125W F TC=0+-100	24546	C4-1/8-T0-8251-F
A5A3R39	2100-3109	2	2	RESISTOR-TRMR 2K 10% C SIDE-ADJ 17-TRN	02111	43P202
A5A3R40	2100-3123	0	2	RESISTOR-TRMR 500 10% C SIDE-ADJ 17-TRN	02111	43P501
A5A3R41	0698-3153	9		RESISTOR 3.83K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3831-F
A5A3R42	0698-3439	4		RESISTOR 178 1% .125W F TC=0+-100	24546	C4-1/8-T0-178R-F
A5A3R43	0698-3441	8		RESISTOR 215 1% .125W F TC=0+-100	24546	C4-1/8-T0-215R-F
A5A3R44	0698-3441	8		RESISTOR 215 1% .125W F TC=0+-100	24546	C4-1/8-T0-215R-F
A5A3R45	0698-3158	4		RESISTOR 23.7K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2372-F
A5A3R46	0698-3440	7	8	RESISTOR 196 1% .125W F TC=0+-100	24546	C4-1/8-T0-196R-F
A5A3R47	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A3R48	0698-4037	0	4	RESISTOR 46.4 1% .125W F TC=0+-100	24546	C4-1/8-T0-46R4-F
A5A3R49	0698-3157	3		RESISTOR 19.6K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1962-F
A5A3R50	0757-0465	6		RESISTOR 100K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1003-F
A5A3R51	0698-3260	9		RESISTOR 464K 1% .125W F TC=0+-100	28480	0698-3260
A5A3R52	0757-0458	7		RESISTOR 51.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5112-F
A5A3R53	0757-0458	7		RESISTOR 51.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5112-F
A5A3R54	0757-0288	1	3	RESISTOR 9.09K 1% .125W F TC=0+-100	19701	MF4C1/8-T0-9091-F
A5A3R55	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A3R56	0757-0444	1		RESISTOR 12.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1212-F
A5A3R57	0757-0465	6		RESISTOR 100K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1003-F
A5A3R58	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A5A3R59	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A5A3R60	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A5A3R61	0698-3151	7		RESISTOR 2.87K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2871-F
A5A3R62	0698-3156	2		RESISTOR 14.7K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1472-F
A5A3R63	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A5A3R64	0757-0200	7	3	RESISTOR 5.62K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5621-F
A5A3R65	0757-0290	5		RESISTOR 6.19K 1% .125W F TC=0+-100	19701	MF4C1/8-T0-6191-F
A5A3R66	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A3R67	0757-0420	3		RESISTOR 750 1% .125W F TC=0+-100	24546	C4-1/8-T0-751-F
A5A3R68	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A5A3R69	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A3R70	0757-0440	7		RESISTOR 7.5K 1% .125W F TC=0+-100	24546	C4-1/8-T0-7501-F
A5A3R71	0698-0085	0		RESISTOR 2.61K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2611-F
A5A3R72	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A5A3R73	0698-0089	4	1	RESISTOR 1.78K 1% .5W F TC=0+-100	28480	0698-0089
A5A3R74	0757-0400	9	5	RESISTOR 90.9 1% .125W F TC=0+-100	24546	C4-1/8-T0-90R9-F
A5A3R75	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A3R76	0757-0290	5		RESISTOR 6.19K 1% .125W F TC=0+-100	19701	MF4C1/8-T0-6191-F
A5A3R77	0698-3151	7		RESISTOR 2.87K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2871-F
A5A3R78	0698-3156	2		RESISTOR 14.7K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1472-F
A5A3R79	0757-0440	7		RESISTOR 7.5K 1% .125W F TC=0+-100	24546	C4-1/8-T0-7501-F
A5A3R80	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A3R81	0698-0083	8		RESISTOR 1.96K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1961-F
A5A3R82	0698-0083	8		RESISTOR 1.96K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1961-F
A5A3R83	0698-3443	0		RESISTOR 287 1% .125W F TC=0+-100	24546	C4-1/8-T0-287R-F
A5A3R84	0698-3407	6	1	RESISTOR 1.96K 1% .5W F TC=0+-100	28480	0698-3407
A5A3R85	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A3R86†	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A3R87†	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A3S1	3101-0860	9		SWITCH-SL DPDT MINTR .5A 125VAC/DC PC	28480	3101-0860
A5A3TP1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A3TP2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A3TP3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A3TP4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A3TP5A	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A3TP5	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A3TP6	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A3TP7	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A3TP8	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A3TP9	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A3U1	1826-0371	1	2	IC OP AMP LOW-BIAS-H-IMPD TO-99 PKG	27014	LF256H
A5A3U2	1826-0089	8	1	IC OP AMP WB TO-99 PKG	29832	1322
A5A3U3	1826-0013	8		IC OP AMP LOW-NOISE TO-99 PKG	06665	SSS741CJ
A5A3U4	1820-0681	4		IC GATE TTL S NAND QUAD 2-INP	01295	SN74S00N
A5A3U5	1820-0693	8		IC FF TTL S D-TYPE POS-EDGE-TRIG	01295	SN74S74N
A5A3U6	1826-0013	8		IC OP AMP LOW-NOISE TO-99 PKG	06665	SSS741CJ
A5A3U7	1820-1422	3	1	IC MV TTL LS MONOSTBL RETRIG	01295	SN74LS122N
A5A3U8	1820-0686	9		IC GATE TTL S AND TPL 3-INP	01295	SN74S11N
A5A3U9	1820-0683	6	1	IC INV TTL S HEX 1-INP	01295	SN74S04N
A5A3VR1	1902-0184	6		DIODE-ZNR 16.2V 5% DO-35 PD=.4W	28480	1902-0184
A5A3VR2	1902-0184	6		DIODE-ZNR 16.2V 5% DO-35 PD=.4W	28480	1902-0184
A5A3VR3†	1902-3301	5	2	DIODE-ZNR 34.8V 5% DO-35 PD=.4W	28480	1902-3301
A5A3VR4†	1902-3301	5		DIODE-ZNR 34.8V 5% DO-35 PD=.4W	28480	1902-3301
A5A4	08662-60151	0	1	REFERENCE DIVIDER ASSEMBLY	28480	08662-60151
A5A4C1	0160-3876	4		CAPACITOR-FXD 47PF +-20% 200VDC CER	28480	0160-3876
A5A4C2	0160-3466	8		CAPACITOR-FXD 100PF +-10% 1KVDC CER	28480	0160-3466
A5A4C3	0180-0116	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	56289	150D685X903582
A5A4C4	0180-2208	6		CAPACITOR-FXD 220UF+-10% 10VDC TA	56289	150D227X9010S2
A5A4C5	0160-3457	7	3	CAPACITOR-FXD 2000PF +-10% 250VDC CER	28480	0160-3457
A5A4C6†	0160-3878	6	226	CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A5A4C7	0160-3538	5		CAPACITOR-FXD 750PF +-5% 100VDC MICA	28480	0160-3538
A5A4C8	0160-3457	7		CAPACITOR-FXD 2000PF +-10% 250VDC CER	28480	0160-3457
A5A4C9	0160-3457	7		CAPACITOR-FXD 2000PF +-10% 250VDC CER	28480	0160-3457
A5A4CR1				NOT ASSIGNED		
A5A4CR2				NOT ASSIGNED		
A5A4CR3	1901-0039	8		DIODE-SWITCHING 50V 300MA 8NS	28480	1901-0039
A5A4L1	9140-0112	2		INDUCTOR RF-CH-MLD 4.7UH 10%	28480	9140-0112
A5A4L2	9100-1626	1		INDUCTOR RF-CH-MLD 36UH 5% .166DX.385LG	28480	9100-1626
A5A4L3	9100-0368	6		INDUCTOR RF-CH-MLD 330NH 10% .105DX.26LG	28480	9100-0368
A5A4MP1	08662-00085	3	1	COVER- 1/3 END	28480	08662-00085
	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A5A4MP2	5001-0176	0		STRAP, GROUND	28480	5001-0176
A5A4MP3	5001-0176	0		STRAP, GROUND	28480	5001-0176

See introduction to this section for ordering information
*Indicates factory selected value
†FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A5A4Q1	1853-0034	0		TRANSISTOR PNP SI TO-18 PD=360MW	28480	1853-0034
A5A4Q2	1853-0034	0		TRANSISTOR PNP SI TO-18 PD=360MW	28480	1853-0034
A5A4Q3	1853-0034	0		TRANSISTOR PNP SI TO-18 PD=360MW	28480	1853-0034
A5A4R1	0757-0394	0		RESISTOR 51.1 1% .125W F TC=0+-100	24546	C4-1/8-T0-51R1-F
A5A4R2	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A5A4R3	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A4R4	0757-0394	0		RESISTOR 51.1 1% .125W F TC=0+-100	24546	C4-1/8-T0-51R1-F
A5A4R5	0698-3136	8		RESISTOR 17.8K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1782-F
A5A4R6	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A5A4R7	0757-0444	1		RESISTOR 12.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1212-F
A5A4R8	0757-0394	0		RESISTOR 51.1 1% .125W F TC=0+-100	24546	C4-1/8-T0-51R1-F
A5A4R9				NOT ASSIGNED		
A5A4R10				NOT ASSIGNED		
A5A4R11	0757-0444	1		RESISTOR 12.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1212-F
A5A4R12	0757-0200	7		RESISTOR 5.62K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5621-F
A5A4R13	0757-0817	2		RESISTOR 750 1% .5W F TC=0+-100	28480	0757-0817
A5A4R14	0698-3441	8		RESISTOR 215 1% .125W F TC=0+-100	24546	C4-1/8-T0-215R-F
A5A4R15	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A5A4R16	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A5A4TP1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A4U1	1820-1251	6		IC CNTR TTL LS DECD ASYNCHRO	01295	SN74LS196N
A5A4U2	1820-1418	7	1	IC DCDR TTL LS BCD-TO-DEC 4-TO-10-LINE	01295	SN74LS42N
A5A4U3	1820-1206	1	1	IC GATE TTL LS NOR TPL 3-INP	01295	SN74LS27N
A5A4U4	1820-1251	6		IC CNTR TTL LS DECD ASYNCHRO	01295	SN74LS196N
A5A4U5	1820-0693	8		IC FF TTL S D-TYPE POS-EDGE-TRIG	01295	SN74S74N
A5A5	08662-60149	6	1	VCO ASSEMBLY	28480	08662-60149
A5A5C1	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A5C2	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A5C3	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A5C4	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A5C5	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A5C6	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A5C7	0160-0575	4		CAPACITOR-FXD .047UF +-20% 50VDC CER	28480	0160-0575
A5A5C8	0160-0575	4		CAPACITOR-FXD .047UF +-20% 50VDC CER	28480	0160-0575
A5A5C9	0160-0575	4		CAPACITOR-FXD .047UF +-20% 50VDC CER	28480	0160-0575
A5A5C10	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A5A5C11	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A5A5C12	0180-0116	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	56289	150D685X9035B2
A5A5C13	0160-2257	3		CAPACITOR-FXD 10PF +-5% 500VDC CER 0+-60	28480	0160-2257
A5A5C14	0180-0116	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	56289	150D685X9035B2
A5A5C15	0180-0116	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	56289	150D685X9035B2
A5A5C16	0160-0575	4		CAPACITOR-FXD .047UF +-20% 50VDC CER	28480	0160-0575
A5A5C17	0180-0291	3		CAPACITOR-FXD 1UF+-10% 35VDC TA	56289	150D105X9035A2
A5A5C18	0180-0291	3		CAPACITOR-FXD 1UF+-10% 35VDC TA	56289	150D105X9035A2
A5A5C19	0160-0575	4		CAPACITOR-FXD .047UF +-20% 50VDC CER	28480	0160-0575
A5A5C20	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A5A5C21	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A5A5C22	0160-0158	9	3	CAPACITOR-FXD 5600PF +-10% 200VDC POLYE	28480	0160-0158
A5A5C23	0160-3537	4	2	CAPACITOR-FXD 680PF +-5% 100VDC MICA	28480	0160-3537
A5A5C24	0160-0158	9		CAPACITOR-FXD 5600PF +-10% 200VDC POLYE	28480	0160-0158
A5A5C25	0180-0291	3		CAPACITOR-FXD 1UF+-10% 35VDC TA	56289	150D105X9035A2
A5A5C26	0160-0573	2		CAPACITOR-FXD 4700PF +-20% 100VDC CER	28480	0160-0573
A5A5C27	0160-0161	4		CAPACITOR-FXD .01UF +-10% 200VDC POLYE	28480	0160-0161
A5A5C28	0180-0116	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	56289	150D685X9035B2
A5A5C29	0180-0100	3	1	CAPACITOR-FXD 4.7UF+-10% 35VDC TA	56289	150D475X9035B2
A5A5C30	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A5C31	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A5C32	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A5C33	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A5C34	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A5C35	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A5C36	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A5C37	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A5C38	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A5C39	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A5C40	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A5C41	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A5C42	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A5C43	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A5C44	0160-4747	0		CAPACITOR-FXD 1000PF +-20% 100VDC CER	51642	200-100-X7R-102M
A5A5CR1	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A5A5CR2	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A5A5CR3	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A5A5CR4	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A5A5CR5	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A5A5CR6	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A5A5CR7	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A5A5CR8	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A5A5CR9	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A5A5CR10	0122-0065	7		DIODE-VVC 29PF 3%	28480	0122-0065
A5A5CR11	0122-0065	7		DIODE-VVC 29PF 3%	28480	0122-0065
A5A5CR12	0122-0065	7		DIODE-VVC 29PF 3%	28480	0122-0065
A5A5J1	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A5A5J2	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A5A5L1	9100-1629	4		INDUCTOR RF-CH-MLD 47UH 5% .166DX.385LG	28480	9100-1629
A5A5L2	9100-1629	4		INDUCTOR RF-CH-MLD 47UH 5% .166DX.385LG	28480	9100-1629
A5A5L3	9100-1629	4		INDUCTOR RF-CH-MLD 47UH 5% .166DX.385LG	28480	9100-1629
A5A5L4	9100-1629	4		INDUCTOR RF-CH-MLD 47UH 5% .166DX.385LG	28480	9100-1629
A5A5L5	9100-1666	9	1	INDUCTOR RF-CH-MLD 3.6MH 5% .23DX.57LG	28480	9100-1666
A5A5L6	9140-0210	1		INDUCTOR RF-CH-MLD 100UH 5% .166DX.385LG	28480	9140-0210
A5A5L7				PART OF P.C. BOARD		
A5A5MP1	08662-00099	9	1	COVER- 2/3 END	28480	08662-00099
	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A5A5MP2	5001-0176	0		STRAP, GROUND	28480	5001-0176
A5A5MP3	5001-0176	0		STRAP, GROUND	28480	5001-0176
A5A5MP4	08662-00041	1		SHIELD, COMPONENTS, LARGE	28480	08662-00041
A5A5MP5	08662-00039	7	1	SHIELD, CIRCUIT, LARGE	28480	08662-00039
A5A5MP6	1205-0202	1		THERMAL LINK DUAL TO-18-CS	28480	1205-0202
A5A5Q1	1854-0540	5	4	TRANSISTOR NPN SI TO-72 PD=200MW FT=1GHZ	04713	MM8006
A5A5Q2	1854-0540	5		TRANSISTOR NPN SI TO-72 PD=200MW FT=1GHZ	04713	MM8006
A5A5Q3	1854-0039	7	1	TRANSISTOR NPN 2N3053S ST TO-39 PD=1W	3L585	2N3053S
A5A5Q4	1853-0451	5		TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
A5A5Q5	1853-0451	5		TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
A5A5Q6	1854-0540	5		TRANSISTOR NPN SI TO-72 PD=200MW FT=1GHZ	04713	MM8006
A5A5Q7	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A5A5Q8	1853-0451	5		TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
A5A5Q9	1855-0020	8		TRANSISTOR J-FET N-CHAN D-MODE TO-18 SI	28480	1855-0020
A5A5Q10	1855-0020	8		TRANSISTOR J-FET N-CHAN D-MODE TO-18 SI	28480	1855-0020
A5A5Q11	1854-0540	5		TRANSISTOR NPN SI TO-72 PD=200MW FT=1GHZ	04713	MM8006
A5A5Q12	1853-0451	5		TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
A5A5Q13	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A5A5Q14	1853-0451	5		TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
A5A5R1	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A5A5R2	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A5A5R3	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A5A5R4	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A5A5R5	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A5A5R6	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A5A5R7	0698-3162	0	3	RESISTOR 46.4K 1% .125W F TC=0+-100	24546	C4-1/8-TO-4642-F
A5A5R8	0698-3162	0		RESISTOR 46.4K 1% .125W F TC=0+-100	24546	C4-1/8-TO-4642-F
A5A5R9	0698-3439	4		RESISTOR 178 1% .125W F TC=0+-100	24546	C4-1/8-TO-178R-F
A5A5R10	0698-0085	0		RESISTOR 2.61K 1% .125W F TC=0+-100	24546	C4-1/8-TO-2611-F
A5A5R11	0698-4008	5	1	RESISTOR 40K 1% .125W F TC=0+-100	24546	C4-1/8-TO-4002-F
A5A5R12	0757-0449	6	1	RESISTOR 20K 1% .125W F TC=0+-100	24546	C4-1/8-TO-2002-F
A5A5R13	0698-7884	1	1	RESISTOR 16K 1% .125W F TC=0+-50	19701	MF4C1/8-T2-1602-F
A5A5R14	0698-3200	7		RESISTOR 8K 1% .125W F TC=0+-100	24546	C4-1/8-TO-8001-F
A5A5R15	0698-5323	9	1	RESISTOR 4K .5% .125W F TC=0+-50	28480	0698-5323
A5A5R16	0698-7799	7		RESISTOR 2K .25% .125W F TC=0+-100	19701	MF4C1/8-TO-2001-C
A5A5R17	0698-3153	9		RESISTOR 3.83K 1% .125W F TC=0+-100	24546	C4-1/8-TO-3931-F
A5A5R18	0757-0428	1		RESISTOR 1.62K 1% .125W F TC=0+-100	24546	C4-1/8-TO-1621-F
A5A5R19	0757-1060	9	1	RESISTOR 196 1% .5W F TC=0+-100	28480	0757-1060
A5A5R20	0757-0428	1		RESISTOR 1.62K 1% .125W F TC=0+-100	24546	C4-1/8-TO-1621-F
A5A5R21	0757-0278	9		RESISTOR 1.78K 1% .125W F TC=0+-100	24546	C4-1/8-TO-1781-F
A5A5R22	0757-0440	7		RESISTOR 7.5K 1% .125W F TC=0+-100	24546	C4-1/8-TO-7501-F
A5A5R23	0757-0289	2	6	RESISTOR 13.3K 1% .125W F TC=0+-100	19701	MF4C1/8-TO-1332-F
A5A5R24	2100-3154	7	3	RESISTOR-TRMR 1K 10% C SIDE-ADJ 17-TRN	02111	43P102
A5A5R25	0698-3260	9		RESISTOR 464K 1% .125W F TC=0+-100	28480	0698-3260
A5A5R26	0698-7238	9		RESISTOR 1.21K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1211-F
A5A5R27	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-TO-1002-F
A5A5R28	0757-0289	2		RESISTOR 13.3K 1% .125W F TC=0+-100	19701	MF4C1/8-TO-1332-F
A5A5R29	0698-3160	8		RESISTOR 31.6K 1% .125W F TC=0+-100	24546	C4-1/8-TO-3162-F
A5A5R30	0757-0428	1		RESISTOR 1.62K 1% .125W F TC=0+-100	24546	C4-1/8-TO-1621-F
A5A5R31	0757-0428	1		RESISTOR 1.62K 1% .125W F TC=0+-100	24546	C4-1/8-TO-1621-F
A5A5R32	0757-0462	3	2	RESISTOR 75K 1% .125W F TC=0+-100	24546	C4-1/8-TO-7502-F
A5A5R33	0757-0346	2		RESISTOR 10 1% .125W F TC=0+-100	24546	C4-1/8-TO-10R0-F
A5A5R34	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-TO-1001-F
A5A5R35	0698-3156	2		RESISTOR 14.7K 1% .125W F TC=0+-100	24546	C4-1/8-TO-1472-F

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A5A5R36	0698-3156	2		RESISTOR 14.7K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1472-F
A5A5R37	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A5A5R38	0757-0458	7		RESISTOR 51.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5112-F
A5A5R39	0757-0467	8		RESISTOR 121K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1213-F
A5A5R40	0757-0458	7		RESISTOR 51.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5112-F
A5A5R41	0698-3160	8		RESISTOR 31.6K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3162-F
A5A5R42	0757-0462	3		RESISTOR 75K 1% .125W F TC=0+-100	24546	C4-1/8-T0-7502-F
A5A5R43	0698-3160	8		RESISTOR 31.6K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3162-F
A5A5R44	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A5R45	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A5A5R46	0757-0463	4		RESISTOR 82.5K 1% .125W F TC=0+-100	24546	C4-1/8-T0-8252-F
A5A5R47	0757-0416	7		RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A5A5R48	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A5R49	0757-0821	8	1	RESISTOR 1.21K 1% .5W F TC=0+-100	28480	0757-0821
A5A5R50	0698-0085	0		RESISTOR 2.61K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2611-F
A5A5R51	0698-0082	7		RESISTOR 464 1% .125W F TC=0+-100	24546	C4-1/8-T0-4640-F
A5A5R52	0698-0085	0		RESISTOR 2.61K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2611-F
A5A5R53	2100-3154	7		RESISTOR-TRMR 1K 10% C SIDE-ADJ 17-TRN	02111	43P102
A5A5R54	0698-0083	8		RESISTOR 1.96K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1961-F
A5A5R55	0698-0085	0		RESISTOR 2.61K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2611-F
A5A5R56	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A5A5R57	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A5A5R58	0698-3346	2	1	RESISTOR 4.22K 1% .5W F TC=0+-100	28480	0698-3346
A5A5R59	0698-3455	4	1	RESISTOR 261K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2613-F
A5A5R60	0698-7213	0		RESISTOR 110 1% .05W F TC=0+-100	24546	C3-1/8-T0-110R-F
A5A5R61	0757-0289	2		RESISTOR 13.3K 1% .125W F TC=0+-100	19701	MF4C1/8-T0-1332-F
A5A5R62	0698-3453	2		RESISTOR 196K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1963-F
A5A5R63	0698-7238	9		RESISTOR 1.21K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1211-F
A5A5R64	0698-3156	2		RESISTOR 14.7K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1472-F
A5A5R65	0757-0460	1		RESISTOR 61.9K 1% .125W F TC=0+-100	24546	C4-1/8-T0-6192-F
A5A5R66	0698-7231	2		RESISTOR 619 1% .05W F TC=0+-100	24546	C3-1/8-T0-619R-F
A5A5R67	0698-3158	4		RESISTOR 23.7K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2372-F
A5A5R68	0698-7213	0		RESISTOR 110 1% .05W F TC=0+-100	24546	C3-1/8-T0-110R-F
A5A5R69	0698-3157	3		RESISTOR 19.6K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1962-F
A5A5R70	0698-7238	9		RESISTOR 1.21K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1211-F
A5A5R71	0698-3160	8		RESISTOR 31.6K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3162-F
A5A5R72	0698-3243	8	1	RESISTOR 178K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1783-F
A5A5R73	0757-0123	3	1	RESISTOR 34.8K 1% .125W F TC=0+-100	28480	0757-0123
A5A5R74	0698-3453	2		RESISTOR 196K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1963-F
A5A5R75	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A5A5R76	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A5A5R77	0698-0082	7		RESISTOR 464 1% .125W F TC=0+-100	24546	C4-1/8-T0-4640-F
A5A5R78	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A5A5R79	0757-0421	4		RESISTOR 825 1% .125W F TC=0+-100	24546	C4-1/8-T0-825R-F
A5A5R80	0757-1094	9		RESISTOR 1.47K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1471-F
A5A5R81	0757-0346	2		RESISTOR 10 1% .125W F TC=0+-100	24546	C4-1/8-T0-10R0-F
A5A5R82	0757-0290	5		RESISTOR 6.19K 1% .125W F TC=0+-100	19701	MF4C1/8-T0-6191-F
A5A5R83	0757-0274	5		RESISTOR 1.21K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1211-F
A5A5R84	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-T0-10R-F
A5A5R85	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A5A5R86	0757-0428	1		RESISTOR 1.62K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1621-F
A5A5R87	0698-3153	9		RESISTOR 3.83K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3831-F
A5A5R88	0698-3444	1		RESISTOR 316 1% .125W F TC=0+-100	24546	C4-1/8-T0-316R-F
A5A5R89	0757-0346	2		RESISTOR 10 1% .125W F TC=0+-100	24546	C4-1/8-T0-10R0-F
A5A5R90	0698-7207	2	6	RESISTOR 61.9 1% .05W F TC=0+-100	24546	C3-1/8-T0-61R9-F
A5A5R91	0698-3151	7		RESISTOR 2.87K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2871-F
A5A5R92	0698-3151	7		RESISTOR 2.87K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2871-F
A5A5R93	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A5A5R94	0698-3150	6		RESISTOR 2.37K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2371-F
A5A5R95	0698-3150	6		RESISTOR 2.37K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2371-F
A5A5R96	0698-3442	9		RESISTOR 237 1% .125W F TC=0+-100	24546	C4-1/8-T0-237R-F
A5A5R97	0757-0346	2		RESISTOR 10 1% .125W F TC=0+-100	24546	C4-1/8-T0-10R0-F
A5A5R98	0698-3442	9		RESISTOR 237 1% .125W F TC=0+-100	24546	C4-1/8-T0-237R-F
A5A5R99	0757-0346	2		RESISTOR 10 1% .125W F TC=0+-100	24546	C4-1/8-T0-10R0-F
A5A5R100	0757-0394	0		RESISTOR 51.1 1% .125W F TC=0+-100	24546	C4-1/8-T0-51R1-F
A5A5R101	0757-0394	0		RESISTOR 51.1 1% .125W F TC=0+-100	24546	C4-1/8-T0-51R1-F
A5A5T1	08640-60355	0		TRANSFORMER, RF, BLUE	28480	08640-60355
A5A5TP1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A5TP2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A5TP3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A5TP4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A5U1	1826-0371	1		IC OP AMP LOW-BIAS-H-IMPD TO-99 PKG	27014	LF256H
A5A5U2	1820-0577	7	1	IC INV TTL HEX 1-INP	01295	SN7416N
A5A5U3	1820-1423	4		IC MV TTL LS MONOSTBL RETRIG DUAL	01295	SN74LS123N
A5A5U4	1826-0138	8		IC COMPARATOR GP QUAD 14-DIP-P PKG	01295	LM339N

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A5A6	08662-60152	1	1	FRACTIONAL-N LOOP MOTHER BOARD	28480	08662-60152
A5A6E1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A6E2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A6E3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A6E4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A6E5	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A6J1	1250-0835	1		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-0835
A5A6J2	1251-5316	5		CONNECTOR, 34-PIN	28480	1251-5316
A5A6TP1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A6TP2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A6TP3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A6TP4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A6TP5	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A6TP6	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A6TP7	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A6TP8	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A6TP9	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A6TP10	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A5A6XA5A1	1251-2035	9		CONNECTOR-PC EDGE 15-CONT/ROW 2-ROWS	28480	1251-2035
A5A6XA5A2	1251-2035	9		CONNECTOR-PC EDGE 15-CONT/ROW 2-ROWS	28480	1251-2035
A5A6XA5A3	1251-1633	1		CONNECTOR-PC EDGE 15-CONT/ROW 1-ROW	28480	1251-1633
A5A6XA5A4	1251-1631	9		CONNECTOR-PC EDGE 10-CONT/ROW 1-ROW	28480	1251-1631
A5A6XA5A5	1251-1633	1		CONNECTOR-PC EDGE 15-CONT/ROW 1-ROW	28480	1251-1633
A6A1	08662-60115	6	1	LF MULTIPLIER ASSEMBLY	28480	08662-60115
A6A1C1	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A6A1C2	0180-2618	2		CAPACITOR-FXD 33UF+-10% 10VDC TA	25088	D33GS1B10K
A6A1C3	0160-4527	4	8	CAPACITOR-FXD 56PF +-5% 200VDC CER 0+-30	28480	0160-4527
A6A1C4	0180-2618	2		CAPACITOR-FXD 33UF+-10% 10VDC TA	25088	D33GS1B10K
A6A1C5	0180-2618	2		CAPACITOR-FXD 33UF+-10% 10VDC TA	25088	D33GS1B10K
A6A1C6	0180-2618	2		CAPACITOR-FXD 33UF+-10% 10VDC TA	25088	D33GS1B10K
A6A1C7	0180-2618	2		CAPACITOR-FXD 33UF+-10% 10VDC TA	25088	D33GS1B10K
A6A1C8	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A1C9	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A6A1C10	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A1C11	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A1C12	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A1C13	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A1C14	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A1C15	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A1C16	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A1C17	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A1C18	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A1C19	0160-4103	2		CAPACITOR-FXD 220PF +-5% 100VDC CER	72982	B121-M100-CCG-221J
A6A1C20	0160-4512	7	2	CAPACITOR-FXD 120PF +-5% 200VDC CER	28480	0160-4512
A6A1C21	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A1C22	0160-4389	6		CAPACITOR-FXD 100PF +-5PF 200VDC CER	28480	0160-4389
A6A1C23	0160-4527	4		CAPACITOR-FXD 56PF +-5% 200VDC CER 0+-30	28480	0160-4527
A6A1C24	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A1C25	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A1C26	0160-3874	2		CAPACITOR-FXD 10PF +-.5PF 200VDC CER	28480	0160-3874
A6A1C27	0121-0449	9	9	CAPACITOR-V TRMR-CER 3.5-10PF 63V PC-MTG	28480	0121-0449
A6A1C28	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A1C29	0160-4387	4	1	CAPACITOR-FXD 47PF +-5% 200VDC CER 0+-30	28480	0160-4387
A6A1C30	0160-4493	3	2	CAPACITOR-FXD 27PF +-5% 200VDC CER 0+-30	28480	0160-4493
A6A1C31	0121-0449	9		CAPACITOR-V TRMR-CER 3.5-10PF 63V PC-MTG	28480	0121-0449
A6A1C32	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A1C33	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A1C34	0121-0449	9		CAPACITOR-V TRMR-CER 3.5-10PF 63V PC-MTG	28480	0121-0449
A6A1C35	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A1C36				NOT ASSIGNED		
A6A1C37	0160-3874	2		CAPACITOR-FXD 10PF +-.5PF 200VDC CER	28480	0160-3874
A6A1C38	0121-0449	9		CAPACITOR-V TRMR-CER 3.5-10PF 63V PC-MTG	28480	0121-0449
A6A1C39	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A1C40	0160-4521	8	1	CAPACITOR-FXD 12PF +-5% 200VDC CER 0+-30	28480	0160-4521
A6A1C41	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A1C42	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A1C43	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A1C44	0160-4522	9	1	CAPACITOR-FXD 13PF +-5% 200VDC CER 0+-30	28480	0160-4522
A6A1C45	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A1CR1	1901-0539	3		DIODE-SM SIG SCHOTTKY	28480	1901-0539
A6A1CR2	1901-0539	3		DIODE-SM SIG SCHOTTKY	28480	1901-0539
A6A1CR3	1901-0539	3		DIODE-SM SIG SCHOTTKY	28480	1901-0539
A6A1CR4	1901-0539	3		DIODE-SM SIG SCHOTTKY	28480	1901-0539
A6A1CR5	1901-0539	3		DIODE-SM SIG SCHOTTKY	28480	1901-0539

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A6A1CR6	1901-0539	3		DIODE-SM SIG SCHOTTKY	28480	1901-0539
A6A1CR7	1901-0539	3		DIODE-SM SIG SCHOTTKY	28480	1901-0539
A6A1CR8	1901-0539	3		DIODE-SM SIG SCHOTTKY	28480	1901-0539
A6A1FL1				BOARD ASSEMBLY, 40 CRYSTAL FILTER		
	0955-0115	3	1	FILTER, 40 MHZ	28480	0955-0115
	0360-1959	4	8	TERMINAL-STUD SGL-TUR SWGFRM-MTG	28480	0360-1959
	0380-0730	9	4	RIVET-ON STANDOFF, 4-40 (2)	28480	0380-0730
	0905-0782	5	8	"O" RING, .25" ID (4)	76680	AS 568-010 E50
	2200-0167	8	2	SCREW, 4-40 X .37 (2)	00000	ORDER BY DESCRIPTION
	08662-20009	3	1	MASS CIRCUIT BOARD	28480	08662-20009
A6A1J1	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A6A1J2	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A6A1J3	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A6A1L1	08672-80001	3		TOROID FILTER 630 UH	28480	08672-80001
A6A1L2	08672-80001	3		TOROID FILTER 630 UH	28480	08672-80001
A6A1L3	9140-0142	8		INDUCTOR RF-CH-MLD 2.2UH 10% .105DX.26LG	28480	9140-0142
A6A1L4	9140-0141	7		INDUCTOR RF-CH-MLD 680NH 10% .105DX.26LG	28480	9140-0141
A6A1L5	9100-2254	3	2	INDUCTOR RF-CH-MLD 390NH 10% .105DX.26LG	28480	9100-2254
A6A1L6	9140-0142	8		INDUCTOR RF-CH-MLD 2.2UH 10% .105DX.26LG	28480	9140-0142
A6A1L7	9140-0142	8		INDUCTOR RF-CH-MLD 2.2UH 10% .105DX.26LG	28480	9140-0142
A6A1L8	9100-2250	9	5	INDUCTOR RF-CH-MLD 180NH 10% .105DX.26LG	28480	9100-2250
A6A1L9	9100-2256	5	2	INDUCTOR RF-CH-MLD 560NH 10% .105DX.26LG	28480	9100-2256
A6A1L10	9140-0142	8		INDUCTOR RF-CH-MLD 2.2UH 10% .105DX.26LG	28480	9140-0142
A6A1L11	9100-2256	5		INDUCTOR RF-CH-MLD 560NH 10% .105DX.26LG	28480	9100-2256
A6A1L12	9135-0081	3		INDUCTOR, .068 UH	28480	9135-0081
A6A1L13	9100-2251	0		INDUCTOR RF-CH-MLD 220NH 10% .105DX.26LG	28480	9100-2251
A6A1L14	9140-0144	0		INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG	28480	9140-0144
A6A1L15	9140-0144	0		INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG	28480	9140-0144
A6A1MP1	08662-00092	2	1	COVER- 1/2 END	28480	08662-00092
	2360-0193	8	2	SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
	2190-0630	7	2	WASHER-LK HLCL NO. 6 .141-IN-ID	28480	2190-0630
A6A1MP2	5001-0176	0		GROUND STRAP	28480	5001-0176
A6A1MP3	5001-0176	0		GROUND STRAP	28480	5001-0176
A6A1MP4	08662-00041	1		SHIELD, COMP. LARGE	28480	08662-00041
A6A1Q1	1854-0247	9		TRANSISTOR NPN SI TO-39 PD=1W FT=800MHZ	28480	1854-0247
A6A1Q2	1854-0247	9		TRANSISTOR NPN SI TO-39 PD=1W FT=800MHZ	28480	1854-0247
A6A1Q3	1854-0247	9		TRANSISTOR NPN SI TO-39 PD=1W FT=800MHZ	28480	1854-0247
A6A1Q4	1854-0247	9		TRANSISTOR NPN SI TO-39 PD=1W FT=800MHZ	28480	1854-0247
A6A1Q5	1854-0247	9		TRANSISTOR NPN SI TO-39 PD=1W FT=800MHZ	28480	1854-0247
A6A1Q6	1854-0071	7		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0071
A6A1Q7	1854-0071	7		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0071
A6A1R1	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A6A1R2	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A6A1R3	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A6A1R4	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A6A1R5	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A6A1R6	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-TO-51R1-F
A6A1R7	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A6A1R8	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A6A1R9	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A6A1R10	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A6A1R11	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A6A1R12	0698-7251	6		RESISTOR 4.22K 1% .05W F TC=0+-100	24546	C3-1/8-TO-4221 F
A6A1R13	0698-7251	6		RESISTOR 4.22K 1% .05W F TC=0+-100	24546	C3-1/8-TO-4221-F
A6A1R14	0698-7251	6		RESISTOR 4.22K 1% .05W F TC=0+-100	24546	C3-1/8-TO-4221-F
A6A1R15	0698-7267	4		RESISTOR 19.6K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1962-F
A6A1R16	0698-7251	6		RESISTOR 4.22K 1% .05W F TC=0+-100	24546	C3-1/8-TO-4221-F
A6A1R17	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1001-F
A6A1R18	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1001-F
A6A1R19	0698-7201	6	3	RESISTOR 34.8 1% .05W F TC=0+-100	24546	C3-1/8-TO-34R8-F
A6A1R20	0698-7201	6		RESISTOR 34.8 1% .05W F TC=0+-100	24546	C3-1/8-TO-34R8-F
A6A1R21†	0698-7237	8	4	RESISTOR 1.1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1101-F
A6A1R22	0698-3444	1		RESISTOR 316 1% .125W F TC=0+-100	24546	C4-1/8-TO-316R-F
A6A1R23	0698-3444	1		RESISTOR 316 1% .125W F TC=0+-100	24546	C4-1/8-TO-316R-F
A6A1R24	0698-7219	6		RESISTOR 196 1% .05W F TC=0+-100	24546	C3-1/8-TO-196R-F
A6A1R25†	0698-7245	8	9	RESISTOR 2.37K 1% .05W F TC=0+-100	24546	C3-1/8-TO-2371-F
A6A1R26	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-TO-51R1-F
A6A1R27	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-TO-51R1-F
A6A1R28	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1001-F
A6A1R29	0698-7251	6		RESISTOR 4.22K 1% .05W F TC=0+-100	24546	C3-1/8-TO-4221-F
A6A1R30	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1001-F

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A6A1R31	0698-7251	6		RESISTOR 4.22K 1% .05W F TC=0+-100	24546	C3-1/8-T0-4221-F
A6A1R32	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A1R33	0698-7201	6		RESISTOR 34.8 1% .05W F TC=0+-100	24546	C3-1/8-T0-34R8-F
A6A1R34	0698-3444	1		RESISTOR 316 1% .125W F TC=0+-100	24546	C4-1/8-T0-316R-F
A6A1R35	0698-7240	3		RESISTOR 1.47K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1471-F
A6A1R36	0698-7215	2		RESISTOR 133 1% .05W F TC=0+-100	24546	C3-1/8-T0-133R-F
A6A1R37	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A1R38	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A6A1R39	0698-7251	6		RESISTOR 4.22K 1% .05W F TC=0+-100	24546	C3-1/8-T0-4221-F
A6A1R40	0698-7251	6		RESISTOR 4.22K 1% .05W F TC=0+-100	24546	C3-1/8-T0-4221-F
A6A1R41	0698-7251	6		RESISTOR 4.22K 1% .05W F TC=0+-100	24546	C3-1/8-T0-4221-F
A6A1R42	0698-7251	6		RESISTOR 4.22K 1% .05W F TC=0+-100	24546	C3-1/8-T0-4221-F
A6A1R43	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A1R44	0698-7217	4		RESISTOR 162 1% .05W F TC=0+-100	24546	C3-1/8-T0-162R-F
A6A1R45	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A1R46*	0698-7200	5	7	RESISTOR 31.6 1% .05W F TC=0+-100	24546	C3-1/8-T0-31R6-F
A6A1R47	0698-7192	4		RESISTOR 14.7 1% .05W F TC=0+-100	24546	C3-1/8-T0-14R7-F
A6A1R48	0698-3444	1		RESISTOR 316 1% .125W F TC=0+-100	24546	C4-1/8-T0-316R-F
A6A1R49	0698-3446	3		RESISTOR 383 1% .125W F TC=0+-100	24546	C4-1/8-T0-383R-F
A6A1R50	0698-7219	6		RESISTOR 196 1% .05W F TC=0+-100	24546	C3-1/8-T0-196R-F
A6A1R51	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A1R52	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A1T1	08662-80013	5	9	TRANSFORMER, 12T	28480	08662-80013
A6A1T2	08662-80013	5		TRANSFORMER, 12T	28480	08662-80013
A6A1T3	08662-80013	5		TRANSFORMER, 12T	28480	08662-80013
A6A1T4	08662-80013	5		TRANSFORMER, 12T	28480	08662-80013
A6A1TP1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A1TP2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A1TP3	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A6A1TP4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A1TP5	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A1TP6	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A6A1TP7	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A6A1TP8	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A6A1TP9	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A1TP10	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A6A1U1	1820-0817	8		IC FF ECL D-M/S DUAL	04713	MC10131P
A6A1U2	1820-1400	7	1	IC GATE ECL AND QUAD 2-INP	04713	MC10104P
A6A2	08662-60114	5	1	LO DRIVE ASSEMBLY	28480	08662-60114
A6A2C1	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A2C2	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A2C3	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A2C4	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A2C5	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A2C6	0180-2618	2		CAPACITOR-FXD 33UF+-10% 10VDC TA	25088	D33GS1B10K
A6A2C7	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A6A2C8	0160-4389	6		CAPACITOR-FXD 100PF +-5PF 200VDC CER	28480	0160-4389
A6A2C9	0160-4383	0		CAPACITOR-FXD 6.8PF +-.5PF 200VDC CER	20932	5024E0200RD689D
A6A2C10	0180-2618	2		CAPACITOR-FXD 33UF+-10% 10VDC TA	25088	D33GS1B10K
A6A2C11	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A2C12	0160-4389	6		CAPACITOR-FXD 100PF +-5PF 200VDC CER	28480	0160-4389
A6A2C13	0180-2618	2		CAPACITOR-FXD 33UF+-10% 10VDC TA	25088	D33GS1B10K
A6A2C14	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A2C15	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A2C16	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A2C17	0160-4493	3		CAPACITOR-FXD 27PF +-5% 200VDC CER 0+-30	28480	0160-4493
A6A2C18	0160-4527	4		CAPACITOR-FXD 56PF +-5% 200VDC CER 0+-30	28480	0160-4527
A6A2C19	0160-4527	4		CAPACITOR-FXD 56PF +-5% 200VDC CER 0+-30	28480	0160-4527
A6A2C20	0160-4527	4		CAPACITOR-FXD 56PF +-5% 200VDC CER 0+-30	28480	0160-4527
A6A2C21	0160-4389	6		CAPACITOR-FXD 100PF +-5PF 200VDC CER	28480	0160-4389
A6A2C22	0160-4389	6		CAPACITOR-FXD 100PF +-5PF 200VDC CER	28480	0160-4389
A6A2C23	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A2C24	0160-4494	4	1	CAPACITOR-FXD 39PF +-5% 200VDC CER 0+-30	28480	0160-4494
A6A2C25	0160-4527	4		CAPACITOR-FXD 56PF +-5% 200VDC CER 0+-30	28480	0160-4527
A6A2C26	0160-4527	4		CAPACITOR-FXD 56PF +-5% 200VDC CER 0+-30	28480	0160-4527
A6A2C27	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A2C28	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A2C29	0160-4350	1	2	CAPACITOR-FXD 68PF +-5% 200VDC CER 0+-30	28480	0160-4350
A6A2C30	0121-0449	9		CAPACITOR-V TRMR-CER 3.5-10PF 63V PC-MTG	28480	0121-0449
A6A2C31	0160-4383	0		CAPACITOR-FXD 6.8PF +-.5PF 200VDC CER	20932	5024E0200RD689D
A6A2C32	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A2C33	0160-4350	1		CAPACITOR-FXD 68PF +-5% 200VDC CER 0+-30	28480	0160-4350
A6A2C34	0160-4497	7	4	CAPACITOR-FXD 82PF +-5% 200VDC CER 0+-30	28480	0160-4497
A6A2C35	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A6A2C36	0160-3874	2		CAPACITOR-FXD 10PF +-.5PF 200VDC CER	28480	0160-3874
A6A2C37	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A2C38	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A2C39	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A2C40	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A2C41	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A2C42	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A2C43	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A2C44	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A2CR1	1901-1096	9		DIODE-PIN	28480	1901-1096
A6A2CR2	1901-1096	9		DIODE-PIN	28480	1901-1096
A6A2CR3	1901-1096	9		DIODE-PIN	28480	1901-1096
A6A2CR4	1901-1096	9		DIODE-PIN	28480	1901-1096
A6A2CR5	1901-1096	9		DIODE-PIN	28480	1901-1096
A6A2CR6	1901-1096	9		DIODE-PIN	28480	1901-1096
A6A2CR7	1901-1096	9		DIODE-PIN	28480	1901-1096
A6A2CR8	1901-1096	9		DIODE-PIN	28480	1901-1096
A6A2J1	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A6A2J2	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A6A2L1	08672-80001	3		TOROID FILTER 630 UH	28480	08672-80001
A6A2L2	9140-0158	6		INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG	28480	9140-0158
A6A2L3	9135-0072	2	4	INDUCTOR, .056 UH	28480	9135-0072
A6A2L4				NOT ASSIGNED		
A6A2L5	9100-2255	4		INDUCTOR RF-CH-MLD 470NH 10% .105DX.26LG	28480	9100-2255
A6A2L6				NOT ASSIGNED		
A6A2L7	9135-0072	2		INDUCTOR, .056 UH	28480	9135-0072
A6A2L8	9135-0078	8	2	INDUCTOR, .082 UH	28480	9135-0078
A6A2L9	9100-2250	9		INDUCTOR RF-CH-MLD 180NH 10% .105DX.26LG	28480	9100-2250
A6A2L10	9100-2250	9		INDUCTOR RF-CH-MLD 180NH 10% .105DX.26LG	28480	9100-2250
A6A2L11	9135-0078	8		INDUCTOR, .082 UH	28480	9135-0078
A6A2L12	9100-2250	9		INDUCTOR RF-CH-MLD 180NH 10% .105DX.26LG	28480	9100-2250
A6A2L13	9100-2250	9		INDUCTOR RF-CH-MLD 180NH 10% .105DX.26LG	28480	9100-2250
A6A2L14	9135-0069	7		INDUCTOR, .030 UH	28480	9135-0069
A6A2L15	9100-2254	3		INDUCTOR RF-CH-MLD 390NH 10% .105DX.26LG	28480	9100-2254
A6A2L16	9135-0070	0		INDUCTOR, .024 UH	28480	9135-0070
A6A2L17	9100-2247	4		INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG	28480	9100-2247
A6A2L18	9100-0368	6		INDUCTOR RF-CH-MLD 330NH 10% .105DX.26LG	28480	9100-0368
A6A2L19	9140-0158	6		INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG	28480	9140-0158
A6A2MP1	08662-00093	3	1	COVER- 1/2 END	28480	08662-00093
	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A6A2MP2	5001-0176	0		GROUND STRAP	28480	5001-0176
A6A2MP3	5001-0176	0		GROUND STRAP	28480	5001-0176
A6A2MP4	08662-00041	1		SHIELD, COMP. LARGE	28480	08662-00041
A6A2Q1	1854-0247	9		TRANSISTOR NPN SI TO-39 PD=1W FT=800MHZ	28480	1854-0247
A6A2Q2	1854-0247	9		TRANSISTOR NPN SI TO-39 PD=1W FT=800MHZ	28480	1854-0247
A6A2Q3	1854-0247	9		TRANSISTOR NPN SI TO-39 PD=1W FT=800MHZ	28480	1854-0247
A6A2R1	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A6A2R2	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A6A2R3	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A6A2R4	0698-7249	2		RESISTOR 3.48K 1% .05W F TC=0+-100	24546	C3-1/8-TO-3481-F
A6A2R5	0698-7240	3		RESISTOR 1.47K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1471-F
A6A2R6	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A6A2R7	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1001-F
A6A2R8	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1001-F
A6A2R9	0698-7228	7		RESISTOR 464 1% .05W F TC=0+-100	24546	C3-1/8-TO-464R-F
A6A2R10	0698-7228	7		RESISTOR 464 1% .05W F TC=0+-100	24546	C3-1/8-TO-464R-F
A6A2R11	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-TO-51R1-F
A6A2R12	0698-7251	6		RESISTOR 4.22K 1% .05W F TC=0+-100	24546	C3-1/8-TO-4221-F
A6A2R13	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A6A2R14	0698-7251	6		RESISTOR 4.22K 1% .05W F TC=0+-100	24546	C3-1/8-TO-4221-F
A6A2R15	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A6A2R16	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A6A2R17	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A6A2R18	0698-7251	6		RESISTOR 4.22K 1% .05W F TC=0+-100	24546	C3-1/8-TO-4221-F
A6A2R19	0698-7251	6		RESISTOR 4.22K 1% .05W F TC=0+-100	24546	C3-1/8-TO-4221-F
A6A2R20	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A6A2R21	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A6A2R22	0698-7223	2		RESISTOR 287 1% .05W F TC=0+-100	24546	C3-1/8-TO-287R-F
A6A2R23	0698-7194	6		RESISTOR 17.8 1% .05W F TC=0+-100	24546	C3-1/8-TO-17R8-F
A6A2R24	0698-7223	2		RESISTOR 287 1% .05W F TC=0+-100	24546	C3-1/8-TO-287R-F
A6A2R25	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1001-F

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A6A2R26	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A2R27	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A2R28	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A2R29	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A2R30	0698-7251	6		RESISTOR 4.22K 1% .05W F TC=0+-100	24546	C3-1/8-T0-4221-F
A6A2R31	0698-7251	6		RESISTOR 4.22K 1% .05W F TC=0+-100	24546	C3-1/8-T0-4221-F
A6A2R32	0698-7219	6		RESISTOR 196 1% .05W F TC=0+-100	24546	C3-1/8-T0-196R-F
A6A2R33	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-T0-10R-F
A6A2R34	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A6A2R35	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-T0-10R-F
A6A2R36	0698-7205	0		RESTSTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A6A2R37	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-T0-10R-F
A6A2R38	0698-7188	8		RESTSTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-T0-10R-F
A6A2TP1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A2TP2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A2TP3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A2TP4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A2TP5	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A6A2U1	1820-0817	8		IC FF ECL D-M/S DUAL	04713	MC10131P
A6A2U2	1820-1046	7	1	IC DCDR TTL 2-TO-4-LINE DUAL 2-INP	01295	SN74156N
A6A2U3	0955-0095	8		MIXER, SRAI	28480	0955-0095
A6A3†	08662-60297	5	1	HF MULTIPLIER ASSEMBLY	28480	08662-60297
A6A3C1	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C2	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C3	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C4	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C5	0180-2618	2		CAPACITOR-FXD 33UF+-10% 10VDC TA	25088	D33GS1B10K
A6A3C6	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A6A3C7	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C8	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C9	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C10	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C11	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C12	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C13	0121-0449	9		CAPACITOR-V TRMR-CER 3.5-10PF 63V PC-MTG	28480	0121-0449
A6A3C14	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C15	0121-0449	9		CAPACITOR-V TRMR-CER 3.5-10PF 63V PC-MTG	28480	0121-0449
A6A3C16	0121-0449	9		CAPACITOR-V TRMR-CER 3.5-10PF 63V PC-MTG	28480	0121-0449
A6A3C17	0121-0449	9		CAPACITOR-V TRMR-CER 3.5-10PF 63V PC-MTG	28480	0121-0449
A6A3C18	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C19	0160-3875	3		CAPACITOR-FXD 22PF +-5% 200VDC CER 0+-30	28480	0160-3875
A6A3C20	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C21	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C22	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C23	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C24	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C25	0160-3874	2		CAPACITOR-FXD 10PF +-.5PF 200VDC CER	28480	0160-3874
A6A3C26				NOT ASSIGNED		
A6A3C27	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C28	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C29	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C30	0160-4491	1	3	CAPACITOR-FXD 8.2PF +-5% 200VDC CER	28480	0160-4491
A6A3C31	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C32	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C33	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C34	0160-4520	7	2	CAPACITOR-FXD 11PF +-5% 200VDC CER 0+-30	28480	0160-4520
A6A3C35	0160-3568	1	2	CAPACITOR-FXD 2.7PF +-5% 200VDC CER	51642	100-100-NP0-279J
A6A3C36	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C37	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C38	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C39	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C40	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C41	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C42	0160-4492	2	2	CAPACITOR-FXD 18PF +-5% 200VDC CER 0+-30	28480	0160-4492
A6A3C43	0160-3875	3		CAPACITOR-FXD 22PF +-5% 200VDC CER 0+-30	28480	0160-3875
A6A3C44	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C45	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C46	0121-0447	7	2	CAPACITOR-V TRMR-CER 1.5-2.5PF 63V	28480	0121-0447
A6A3C47	0160-4383	0		CAPACITOR-FXD 6.8PF +-.5PF 200VDC CER	20932	5324E3200RD689D
A6A3C48	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C49	0160-4497	7		CAPACITOR-FXD 82PF +-5% 200VDC CER 0+-30	28480	0160-4497
A6A3C50	0160-4490	0	3	CAPACITOR-FXD 1.8PF +-.25PF 200VDC CER	28480	0160-4490
A6A3C51	0160-4389	6		CAPACITOR-FXD 100PF +-5PF 200VDC CER	28480	0160-4389
A6A3C52	0160-3875	3		CAPACITOR-FXD 22PF +-5% 200VDC CER 0+-30	28480	0160-3875
A6A3C53	0160-4492	2		CAPACITOR-FXD 18PF +-5% 200VDC CER 0+-30	28480	0160-4492
A6A3C54	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C55	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A6A3C56	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C57	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C58	0160-3873	1	3	CAPACITOR-FXD 4.7PF +-.5PF 200VDC CER	28480	0160-3873
A6A3C59	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C60	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C61	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C62	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C63	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C64	0160-4497	7		CAPACITOR-FXD 82PF +-5% 200VDC CER 0+-30	28480	0160-4497
A6A3C65	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C66	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C67	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C68	0160-4389	6		CAPACITOR-FXD 100PF +-5PF 200VDC CER	28480	0160-4389
A6A3C69	0160-4381	8	2	CAPACITOR-FXD 1.5PF +-.25PF 200VDC CER	28480	0160-4381
A6A3C70	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C71	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C72	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C73	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C74	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C75	0160-4520	7		CAPACITOR-FXD 11PF +-5% 200VDC CER 0+-30	28480	0160-4520
A6A3C76	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C77	0160-4381	8		CAPACITOR-FXD 1.5PF +-.25PF 200VDC CER	28480	0160-4381
A6A3C78	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C79	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C80	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C81	0121-0447	7		CAPACITOR-V TRMR-CER 1.5-2.5PF 63V	28480	0121-0447
A6A3C82	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C83	0160-4491	1		CAPACITOR-FXD 8.2PF +-5% 200VDC CER	28480	0160-4491
A6A3C84	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C85	0160-4497	7		CAPACITOR-FXD 82PF +-5% 200VDC CER 0+-30	28480	0160-4497
A6A3C86	0160-4389	6		CAPACITOR-FXD 100PF +-5PF 200VDC CER	28480	0160-4389
A6A3C87	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C88	0160-4491	1		CAPACITOR-FXD 8.2PF +-5% 200VDC CER	28480	0160-4491
A6A3C89	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C90	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C91	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C92	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C93	0160-3568	1		CAPACITOR-FXD 2.7PF +-5% 200VDC CER	51642	100-100-NP0-279J
A6A3C94	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C95	0160-4490	0		CAPACITOR-FXD 1.8PF +-.25PF 200VDC CER	28480	0160-4490
A6A3C96	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A3C97	0160-4527	4		CAPACITOR, FXD 56 PF	28480	0160-4527
A6A3C98	0160-4490	0		CAPACITOR-FXD 1.8PF +-.25PF 200VDC CER	28480	0160-4490
A6A3C99				NOT ASSIGNED		
A6A3C100	0160-4518	3	10	CAPACITOR-FXD 3.9PF +-.5PF 200VDC CER	28480	0160-4518
A6A3C101	0160-4518	3		CAPACITOR-FXD 3.9PF +-.5PF 200VDC CER	28480	0160-4518
A6A3C102	0160-4518	3		CAPACITOR-FXD 3.9PF +-.5PF 200VDC CER	28480	0160-4518
A6A3C103	0160-4518	3		CAPACITOR-FXD 3.9PF +-.5PF 200VDC CER	28480	0160-4518
A6A3C104	0160-4518	3		CAPACITOR-FXD 3.9PF +-.5PF 200VDC CER	28480	0160-4518
A6A3C105	0160-4518	3		CAPACITOR-FXD 3.9PF +-.5PF 200VDC CER	28480	0160-4518
A6A3CR1	1901-0539	3		DIODE-SM SIG SCHOTTKY	28480	1901-0539
A6A3CR2	1901-0539	3		DIODE-SM SIG SCHOTTKY	28480	1901-0539
A6A3CR3	1901-1096	9		DIODE-PIN	28480	1901-1096
A6A3CR4	1901-0539	3		DIODE-SM SIG SCHOTTKY	28480	1901-0539
A6A3CR5	1901-0539	3		DIODE-SM SIG SCHOTTKY	28480	1901-0539
A6A3CR6†	1901-1096	9	48	DIODE-PIN	28480	1901-1096
A6A3FL1	0955-0116	4	1	FILTER 160 MHZ	28480	0955-0116
	0360-1959	4		TERMINAL .067" SHANK (4)	28480	0360-1959
	0380-0730	9		RIVET-ON STANDOFF, 4-40 (2)	28480	0380-0730
	0905-0782	5		"O" RING, .25" ID (4)	76530	AS 568-010 E50
A6A3J1	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A6A3J2	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A6A3J3	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A6A3J4	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A6A3L1	9100-3922	4		COIL 3.0 UH	28480	9100-3922
A6A3L2	9100-3922	4		COIL 3.0 UH	28480	9100-3922
A6A3L3	9100-3922	4		COIL 3.0 UH	28480	9100-3922
A6A3L4	9100-3922	4		COIL 3.0 UH	28480	9100-3922
A6A3L5	9100-3922	4		COIL 3.0 UH	28480	9100-3922

See introduction to this section for ordering information
*Indicates factory selected value
†FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A6A3L6	9100-3922	4		COIL 3.0 UH	28480	9100-3922
A6A3L7	9100-3922	4		COIL 3.0 UH	28480	9100-3922
A6A3L8	9100-3922	4		COIL 3.0 UH	28480	9100-3922
A6A3L9	9135-0079	9		INDUCTOR, .100 UH	28480	9135-0079
A6A3L10	9135-0079	9		INDUCTOR, .100 UH	28480	9135-0079
A6A3L11	9135-0072	2		INDUCTOR, .056 UH	28480	9135-0072
A6A3L12	9135-0079	9		INDUCTOR, .100 UH	28480	9135-0079
A6A3L13	9140-0158	6		INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG	28480	9140-0158
A6A3L14	9100-0368	6		INDUCTOR RF-CH-MLD 330NH 10% .105DX.26LG	28480	9100-0368
A6A3L15	9135-0068	6		INDUCTOR, .033 UH	28480	9135-0068
A6A3L16	9135-0077	7	1	INDUCTOR, .036 UH	28480	9135-0077
A6A3L17	9135-0073	3		INDUCTOR, .051 UH	28480	9135-0073
A6A3L18	9140-0141	7		INDUCTOR RF-CH-MLD 680NH 10% .105DX.26LG	28480	9140-0141
A6A3L19				NSR, PART OF PC BOARD TRACE		
A6A3L20	9135-0072	2		INDUCTOR, .056 UH	28480	9135-0072
A6A3L21	9135-0073	3		INDUCTOR, .051 UH	28480	9135-0073
A6A3L22	9135-0076	6		INDUCTOR, .039 UH	28480	9135-0076
A6A3L23	9135-0079	9		INDUCTOR, .100 UH	28480	9135-0079
A6A3L24				NSR, PART OF PC BOARD TRACE		
A6A3L25	9100-2255	4		INDUCTOR RF-CH-MLD 470NH 10% .105DX.26LG	28480	9100-2255
A6A3L26	9135-0070	0		INDUCTOR, .024 UH	28480	9135-0070
A6A3L27	9135-0075	5		INDUCTOR, .043 UH	28480	9135-0075
A6A3L28	9135-0069	7		INDUCTOR, .030 UH	28480	9135-0069
A6A3L29				NSR, PART OF PC BOARD TRACE		
A6A3L30	9100-2255	4		INDUCTOR RF-CH-MLD 470NH 10% .105DX.26LG	28480	9100-2255
A6A3L31	9135-0081	3		INDUCTOR, .068 UH	28480	9135-0081
A6A3L32	9135-0075	5		INDUCTOR, .043 UH	28480	9135-0075
A6A3L33				NSR, PART OF PC BOARD TRACE		
A6A3L34	9135-0068	6		INDUCTOR, .033 UH	28480	9135-0068
A6A3L35	9135-0076	6		INDUCTOR, .039 UH	28480	9135-0076
A6A3L36	9135-0075	5		INDUCTOR, .043 UH	28480	9135-0075
A6A3L37	9140-0141	7		INDUCTOR RF-CH-MLD 680NH 10% .105DX.26LG	28480	9140-0141
A6A3L38	9140-0141	7		INDUCTOR RF-CH-MLD 680NH 10% .105DX.26LG	28480	9140-0141
A6A3L39†	9140-0144	0	29	INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG	28480	9140-0144
A6A3MP1	08662-00079	5	1	COVER, FULL END	28480	08662-00079
	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A6A3MP2	5001-0173	7	2	GROUND STRAP	28480	5001-0173
A6A3MP3	5001-0173	7		GROUND STRAP	28480	5001-0173
A6A3MP4	08662-00164	9	1	SHIELD, HF MULTIPLEXER	28480	08662-00164
A6A3MP5†	08662-00170	7		SHIELD, CIRCUIT, LARGE	28480	08662-00170
A6A3MP6	08662-00041	1		SHIELD, COMP. LARGE	28480	08662-00041
A6A3Q1	1854-0720	3		TRANSISTOR NPN SI PD=500MW FT=4GHZ	28480	1854-0720
A6A3Q2	1854-0610	0	3	TRANSISTOR NPN SI TO-46 FT=800MHZ	28480	1854-0610
A6A3Q3	1854-0071	7		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0071
A6A3Q4	1854-0720	3		TRANSISTOR NPN SI PD=500MW FT=4GHZ	28480	1854-0720
A6A3Q5	1854-0720	3		TRANSISTOR NPN SI PD=500MW FT=4GHZ	28480	1854-0720
A6A3Q6	1854-0247	9		TRANSISTOR NPN SI TO-39 PD=1W FT=800MHZ	28480	1854-0247
A6A3Q7	1854-0610	0		TRANSISTOR NPN SI TO-46 FT=800MHZ	28480	1854-0610
A6A3Q8	1854-0247	9		TRANSISTOR NPN SI TO-39 PD=1W FT=800MHZ	28480	1854-0247
A6A3Q9	1854-0610	0		TRANSISTOR NPN SI TO-46 FT=800MHZ	28480	1854-0610
A6A3Q10	1854-0720	3		TRANSISTOR NPN SI PD=500MW FT=4GHZ	28480	1854-0720
A6A3Q11	1854-0071	7		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0071
A6A3R1	0698-7224	3		RESISTOR 316 1% .05W F TC=0+-100	24546	C3-1/8-TO-316R-F
A6A3R2	0698-7267	4		RESISTOR 19.6K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1962-F
A6A3R3	0698-7243	6		RESISTOR 1.96K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1961-F
A6A3R4	0698-3446	3		RESISTOR 383 1% .125W F TC=0+-100	24546	C4-1/8-TO-383R-F
A6A3R5	0698-3446	3		RESISTOR 383 1% .125W F TC=0+-100	24546	C4-1/8-TO-383R-F
A6A3R6	0698-3446	3		RESISTOR 383 1% .125W F TC=0+-100	24546	C4-1/8-TO-383R-F
A6A3R7	0757-1002	9	1	RESISTOR 61.9 1% .5W F TC=0+-100	28480	0757-1002
A6A3R8	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-TO-51R1-F
A6A3R9	0698-7238	9		RESISTOR 1.21K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1211-F
A6A3R10	0698-7219	6		RESISTOR 196 1% .05W F TC=0+-100	24546	C3-1/8-TO-196R-F
A6A3R11	0698-7255	0		RESISTOR 6.19K 1% .05W F TC=0+-100	24546	C3-1/8-TO-6191-F
A6A3R12	0698-7219	6		RESISTOR 196 1% .05W F TC=0+-100	24546	C3-1/8-TO-196R-F
A6A3R13	0698-7250	5		RESISTOR 3.83K 1% .05W F TC=0+-100	24546	C3-1/8-TO-3831-F
A6A3R14	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A6A3R15	0698-3446	3		RESISTOR 383 1% .125W F TC=0+-100	24546	C4-1/8-TO-383R-F
A6A3R16	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A6A3R17	0698-7249	2		RESISTOR 3.48K 1% .05W F TC=0+-100	24546	C3-1/8-TO-3481-F
A6A3R18	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A6A3R19	0698-3439	4		RESISTOR 178 1% .125W F TC=0+-100	24546	C4-1/8-TO-178R-F
A6A3R20	0698-7207	2		RESISTOR 61.9 1% .05W F TC=0+-100	24546	C3-1/8-TO-61R9-F
A6A3R21	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A6A3R22	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A6A3R23†	0698-7226	5	6	RESISTOR 383 1% .05W F TC=0+-100	24546	C3-1/8-TO-383R-F
A6A3R24	0698-7255	0		RESISTOR 6.19K 1% .05W F TC=0+-100	24546	C3-1/8-TO-6191-F
A6A3R25	0698-7249	2		RESISTOR 3.48K 1% .05W F TC=0+-100	24546	C3-1/8-TO-3481 F

See introduction to this section for ordering information
*Indicates factory selected value
†FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A6A3R26	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A6A3R27	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1001-F
A6A3R28	0698-7295	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-TO-51R1-F
A6A3R29	0698-7207	2		RESISTOR 61.9 1% .05W F TC=0+-100	24546	C3-1/8-TO-61R9-F
A6A3R30	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1001-F
A6A3R31	0698-7255	0		RESISTOR 6.19K 1% .05W F TC=0+-100	24546	C3-1/8-TO-6191-F
A6A3R32	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1001-F
A6A3R33	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A6A3R34	0698-7249	2		RESISTOR 3.48K 1% .05W F TC=0+-100	24546	C3-1/8-TO-3481-F
A6A3R35	0698-7219	6		RESISTOR 196 1% .05W F TC=0+-100	24546	C3-1/8-TO-196R-F
A6A3R36	0698-7190	2		RESISTOR 12.1 1% .05W F TC=0+-100	24546	C3-1/8-TO-12R1-F
A6A3R37	0698-7207	2		RESISTOR 61.9 1% .05W F TC=0+-100	24546	C3-1/8-TO-61R9-F
A6A3R38	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A6A3R39				NOT ASSIGNED		
A6A3R40	0698-7240	3		RESISTOR 1.47K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1471-F
A6A3R41	0698-7249	2		RESISTOR 3.48K 1% .05W F TC=0+-100	24546	C3-1/8-TO-3481-F
A6A3R42	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A6A3R43	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-TO-51R1-F
A6A3R44	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A6A3R45	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1002-F
A6A3R46	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-TO-511R-F
A6A3R47	0698-7255	0		RESISTOR 6.19K 1% .05W F TC=0+-100	24546	C3-1/8-TO-6191-F
A6A3R48	0698-7196	8		RESISTOR 21.5 1% .05W F TC=0+-100	24546	C3-1/8-TO-21R5-F
A6A3R49	0698-7249	2		RESISTOR 3.48K 1% .05W F TC=0+-100	24546	C3-1/8-TO-3481-F
A6A3R50	0698-7207	2		RESISTOR 61.9 1% .05W F TC=0+-100	24546	C3-1/8-TO-61R9-F
A6A3R51	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A6A3R52	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A6A3R53	0698-7228	7		RESISTOR 464 1% .05W F TC=0+-100	24546	C3-1/8-TO-464R-F
A6A3R54	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A6A3R55	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A6A3R56	0698-7240	3		RESISTOR 1.47K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1471-F
A6A3R57	0698-7228	7		RESISTOR 464 1% .05W F TC=0+-100	24546	C3-1/8-TO-464R-F
A6A3R58	0698-7219	6		RESISTOR 196 1% .05W F TC=0+-100	24546	C3-1/8-TO-196R-F
A6A3R59	0698-3446	3		RESISTOR 383 1% .125W F TC=0+-100	24546	C4-1/8-TO-383R-F
A6A3R60	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A6A3R61	0698-7249	2		RESISTOR 3.48K 1% .05W F TC=0+-100	24546	C3-1/8-TO-3481-F
A6A3R62	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A6A3R63	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A6A3R64	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-TO-511R-F
A6A3R65	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A6A3R66	0698-7196	8		RESISTOR 21.5 1% .05W F TC=0+-100	24546	C3-1/8-TO-21R5-F
A6A3R67	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A6A3R68	0698-3446	3		RESISTOR 383 1% .125W F TC=0+-100	24546	C4-1/8-TO-383R-F
A6A3R69	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A6A3R70†				NOT ASSIGNED		
A6A3R71	0698-7255	0		RESISTOR 6.19K 1% .05W F TC=0+-100	24546	C3-1/8-TO-6191-F
A6A3R72	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A6A3R73	0698-7249	2		RESISTOR 3.48K 1% .05W F TC=0+-100	24546	C3-1/8-TO-3481-F
A6A3R74	0698-7207	2		RESISTOR 61.9 1% .05W F TC=0+-100	24546	C3-1/8-TO-61R9-F
A6A3R75	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A6A3R76†	0698-7288	9	1	RESISTOR 147K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1473-F
A6A3R77†	0698-7236	7	83	RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1001-F
A6A3R78†	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-TO-51R1-F
A6A3T1	08662-80004	4	1	TRANSFORMER	28480	08662-80004
A6A3T2	08662-80012	4	1	TRANSFORMER	28480	08662-80012
A6A3TP1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A3TP2	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A6A3TP3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A3TP4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A3TP5	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A3TP6	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A3TP7	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A3TP8	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A6A3TP9	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A3TP10	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A6A3TP11	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A3TP12	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A6A3TP13	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A3TP14	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A3TP15	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A3TP16	1251-1556	7		CONNECTOR-SGL CONT SKT .018-IN-BSC-SZ	28480	1251-1556
A6A3TP17	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A3U1	0955-0096	9		MIXER, SRAI	28480	0955-0096
	1251-3172	7		CONNECTOR-SGL CONT SKT .03-IN-BSC-SZ RND	28480	1251-3172
A6A3U2	1826-0372	2		IC, LIMITER	28480	1826-0372
A6A3U3	1826-0372	2		IC, LIMITER	28480	1826-0372
A6A3U4	0955-0096	9		MIXER, SRAI	28480	0955-0096
	1251-3172	7		CONNECTOR-SGL CONT SKT .03-IN-BSC-SZ RND	28480	1251-3172

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A6A3U5	1826-0372	2		IC, LIMITER	28480	1826-0372
A6A3U6	1826-0372	2		IC, LIMITER	28480	1826-0372
A6A3U7	1826-0372	2		IC, LIMITER	28480	1826-0372
A6A3U8	1826-0372	2		IC, LIMITER	28480	1826 0372
A6A3U9	1820-2140	4	1	IC CNTR ECL	52648	SP8610BDG
A6A3U10	0955-0095	8		MIXER, SRAI	28480	0955-0095
	1251-3172	7		CONNECTOR-SGL CONT SKT .03-IN-BSC-SZ RND	28480	1251-3172
A6A3VR1	1902-3171	7	5	DIODE-ZNR 11V 5% DO-35 PD=.4W TC=+.062%	28480	1902-3171
A6A3VR2	1902-0041	4		DIODE-ZNR 5.11V 5% DO-35 PD=.4W	28480	1902-0041
A6A3W1	08662-20056	0	1	CABLE, SEMI-RIGID	28480	08662-20056
A6A3W2	08662-20057	1	1	CABLE, SEMI-RIGID	28480	08662-20057
A6A3W3	08662-20078	6	1	CABLE, SEMI-RIGID	28480	08662-20078
A6A4	08662-60108	7	1	PHASE DETECTOR, OUTPUT SUM (OS) LOOP	28480	08662-60108
A6A4C1	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A4C2	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A4C3	0180-2618	2		CAPACITOR-FXD 33UF+-10% 10VDC TA	25088	D33GS1B10K
A6A4C4	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A4C5	0180-2618	2		CAPACITOR-FXD 33UF+-10% 10VDC TA	25088	D33GS1B10K
A6A4C6	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A6A4C7	0180-0141	2	3	CAPACITOR-FXD 50UF+75-10% 50VDC AL	56289	30D506G050DD2
A6A4C8	0180-2208	6		CAPACITOR-FXD 220UF+-10% 10VDC TA	56289	150D227X9010S2
A6A4C9	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A6A4C10	0180-2620	6		CAPACITOR-FXD 2.2UF+-10% 50VDC TA	25088	D2R2GS1B50K
A6A4C11	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A4C12	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A4C13	0180-2620	6		CAPACITOR-FXD 2.2UF+-10% 50VDC TA	25088	D2R2GS1B50K
A6A4C14	0160-0575	4		CAPACITOR-FXD .047UF +-20% 50VDC CER	28480	0160-0575
A6A4C15	0180-2620	6		CAPACITOR-FXD 2.2UF+-10% 50VDC TA	25088	D2R2GS1B50K
A6A4C16	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A4C17	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A4C18	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A4C19	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A4C20	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A4C21	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A4C22	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A4C23	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A4C24	0180-2620	6		CAPACITOR-FXD 2.2UF+-10% 50VDC TA	25088	D2R2GS1B50K
A6A4C25	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A4C26	0180-2618	2		CAPACITOR-FXD 33UF+-10% 10VDC TA	25088	D33GS1B10K
A6A4C27	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A4C28	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A6A4C29	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A6A4C30	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A4C31	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A4C32	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A4C33	0160-3877	5		CAPACITOR-FXD 100PF +-20% 200VDC CER	28480	0160-3877
A6A4C34	0160-3877	5		CAPACITOR-FXD 100PF +-20% 200VDC CER	28480	0160-3877
A6A4C35	0160-0575	4		CAPACITOR-FXD .047UF +-20% 50VDC CER	28480	0160-0575
A6A4C36	0160-4498	8	2	CAPACITOR-FXD 5.6PF +-.5PF 200VDC CER	28480	0160-4498
A6A4C37	0160-0572	1		CAPACITOR-FXD 2200PF +-20% 100VDC CER	28480	0160-0572
A6A4C38	0160-0573	2		CAPACITOR-FXD 4700PF +-20% 100VDC CER	28480	0160-0573
A6A4C39	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A4C40	0160-0574	3		CAPACITOR-FXD .022UF +-20% 100VDC CER	28480	0160-0574
A6A4C41	0160-0575	4		CAPACITOR-FXD .047UF +-20% 50VDC CER	28480	0160-0575
A6A4C42	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A4C43	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A4C44	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A4C45	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A4C46	0160-2209	5	4	CAPACITOR-FXD 360PF +-5% 300VDC MICA	28480	0160-2209
A6A4C47	0160-4084	8		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-4084
A6A4C48	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A6A4C49	0160-0573	2		CAPACITOR-FXD 4700PF +-20% 100VDC CER	28480	0160-0573
A6A4C50	0160-0570	9		CAPACITOR-FXD 220PF +-20% 100VDC CER	20932	5024EM100RD221M
A6A4C51	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A4C52	0160-0575	4		CAPACITOR-FXD .047UF +-20% 50VDC CER	28480	0160-0575
A6A4C53	0160-3875	3		CAPACITOR-FXD 22PF +-5% 200VDC CER 0+-30	28480	0160-3875
A6A4C54	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A6A4C55	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A4C56	0160-3876	4		CAPACITOR-FXD 47PF +-20% 200VDC CER	28480	0160-3876
A6A4C57	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A4C58	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A4C59	0160-3877	5		CAPACITOR-FXD 100PF +-20% 200VDC CER	28480	0160-3877
A6A4C60	0160-0573	2		CAPACITOR-FXD 4700PF +-20% 100VDC CER	28480	0160-0573

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A6A4C61	0160-0573	2		CAPACITOR-FXD 4700PF +-20% 100VDC CER	28480	0160-0573
A6A4C62	0160-3877	5		CAPACITOR-FXD 100PF +-20% 200VDC CER	28480	0160-3877
A6A4C63	0160-0573	2		CAPACITOR-FXD 4700PF +-20% 100VDC CER	28480	0160-0573
A6A4C64	0160-0573	2		CAPACITOR-FXD 4700PF +-20% 100VDC CER	28480	0160-0573
A6A4C65	0160-0298	8	2	CAPACITOR-FXD 1500PF +-10% 200VDC POLYE	28480	0160-0298
A6A4C66	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A4C67	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A4C68	0160-2209	5		CAPACITOR-FXD 360PF +-5% 300VDC MICA	28480	0160-2209
A6A4C69	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A6A4C70	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A4C71	0140-0198	5	2	CAPACITOR-FXD 200PF +-5% 300VDC MICA	72136	DM15F201J0300WV1CR
A6A4C72	0160-4389	6		CAPACITOR-FXD 100PF +-5PF 200VDC CER	28480	0160-4389
A6A4C73	0160-4103	2		CAPACITOR-FXD 220PF +-5% 100VDC CER	72982	8121-M100-COG-221J
A6A4C74	0160-0570	9		CAPACITOR-FXD 220PF +-20% 100VDC CER	20932	5024FM100RD221M
A6A4CR1	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A4CR2	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A4CR3	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A4CR4	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A4CR5	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A4CR6	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A4CR7				NOT ASSIGNED		
A6A4CR8				NOT ASSIGNED		
A6A4CR10	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A4CR11	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A4CR12	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A4CR13	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A4CR14	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A4CR15	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A4CR16	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A4CR17	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A4CR18	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A4CR19	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A4CR20	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A4CR21	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A4CR22	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A6A4CR23	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A4CR24	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A6A4CR25	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A6A4CR26	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A6A4CR27	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A6A4CR28	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A6A4CR29	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A4CR30	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A4CR31	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A6A4CR32	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A6A4CR33-A6A4CR37				NOT ASSIGNED		
A6A4CR38	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A4DS1	1990-0326	3		LED-LAMP LUM-INT=300UCD IF=50MA-MAX	28480	5082-4444
A6A4E1	9170-0029	3		CORE-SHIELDING BEAD	28480	9170-0029
A6A4J1	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A6A4J2	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A6A4L1	9100-1788	6	6	CHOKE-WIDE BAND ZMAX=680 OHMS 180 MHZ	02114	VK200 20/4B
A6A4L2	9100-1788	6		CHOKE-WIDE BAND ZMAX=680 OHMS 180 MHZ	02114	VK200 20/4B
A6A4L3	9100-1788	6		CHOKE-WIDE BAND ZMAX=680 OHMS 180 MHZ	02114	VK200 20/4B
A6A4L4	9100-4078	3		TOROID FILTER 630 UH	28480	9100-4078
A6A4L5	9100-4078	3		TOROID FILTER 630 UH	28480	9100-4078
A6A4L6	9100-1623	8	10	INDUCTOR RF-CH-MLD 27UH 5% .166DX.385LG	28480	9100-1623
A6A4L7-A6A4L8				NOT ASSIGNED		
A6A4L9	9100-1623	8		INDUCTOR RF-CH-MLD 27UH 5% .166DX.385LG	28480	9100-1623
A6A4L10	9100-1623	8		INDUCTOR RF-CH-MLD 27UH 5% .166DX.385LG	28480	9100-1623
A6A4L11	9100-1623	8		INDUCTOR RF-CH-MLD 27UH 5% .166DX.385LG	28480	9100-1623
A6A4L12	9100-1623	8		INDUCTOR RF-CH-MLD 27UH 5% .166DX.385LG	28480	9100-1623
A6A4L13	9140-0141	7		INDUCTOR RF-CH-MLD 680NH 10% .105DX.26LG	28480	9140-0141
A6A4L14	9140-0179	1		INDUCTOR RF-CH-MLD 22UH 10% .166DX.385LG	28480	9140-0179
A6A4L15	9100-1630	7		INDUCTOR RF-CH-MLD 51UH 5% .166DX.385LG	28480	9100-1630
A6A4L16	9100-1630	7		INDUCTOR RF-CH-MLD 51UH 5% .166DX.385LG	28480	9100-1630
A6A4L17	9100-4078	3		TOROID FILTER 630 UH	28480	9100-4078
A6A4L18	9140-0141	7		INDUCTOR RF-CH-MLD 680NH 10% .105DX.26LG	28480	9140-0141
A6A4L19	9100-1625	0		INDUCTOR RF-CH-MLD 33UH 5% .166DX.385LG	28480	9100-1625
A6A4L20	9100-1627	2		INDUCTOR RF-CH-MLD 39UH 5% .166DX.385LG	28480	9100-1627

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A6A4L21	9140-0210	1		INDUCTOR RF-CH-MLD 100UH 5% .166DX.385LG	28480	9140-0210
A6A4L22	9140-0210	1		INDUCTOR RF-CH-MLD 100UH 5% .166DX.385LG	28480	9140-0210
A6A4L23	9100-1611	4	2	INDUCTOR RF-CH-MLD 220NH 20%	28480	9100-1611
A6A4MP1	08662-00115	0	1	COVER- 1/3 END	28480	08662-00115
	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A6A4MP2	5001-0176	0		GROUND STRAP	28480	5001-0176
A6A4MP3	5001-0176	0		GROUND STRAP	28480	5001-0176
A6A4MP4	7120-8043	0	1	LABEL-IDENTIFICATION	28480	7120-8043
A6A4Q1	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A6A4Q2	1853-0012	4		TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW	01295	2N2904A
A6A4Q3	1854-0408	4	2	TRANSISTOR NPN SI TO-18 PD=300MW	28480	1854-0408
A6A4Q4	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A6A4Q5	1853-0451	5		TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
	1205-0037	0		HEAT SINK TO-18-CS	28480	1205-0037
A6A4Q6	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A6A4Q7	1854-0475	5		TRANSISTOR-DUAL NPN PD=750MW	28480	1854-0475
A6A4Q8	1853-0451	5		TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
	1205-0037	0		HEAT SINK TO-18-CS	28480	1205-0037
A6A4Q9	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A6A4Q10	1853-0451	5		TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
	1205-0037	0		HEAT SINK TO-18-CS	28480	1205-0037
A6A4Q11	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A6A4Q12	1853-0451	5		TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
	1205-0037	0		HEAT SINK TO-18-CS	28480	1205-0037
A6A4Q13	1854-0247	9		TRANSISTOR NPN SI TO-39 PD=1W FT=800MHZ	28480	1854-0247
A6A4Q14	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A6A4Q15				NOT ASSIGNED		
A6A4Q16				NOT ASSIGNED		
A6A4Q17	1855-0020	8		TRANSISTOR J-FET N-CHAN D-MODE TO-18 SI	28480	1855-0020
A6A4Q18	1855-0020	8		TRANSISTOR J-FET N-CHAN D-MODE TO-18 SI	28480	1855-0020
A6A4Q19	1855-0020	8		TRANSISTOR J-FET N-CHAN D-MODE TO-18 SI	28480	1855-0020
A6A4Q20	1855-0020	8		TRANSISTOR J-FET N-CHAN D-MODE TO-18 SI	28480	1855-0020
A6A4R1	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3 1/8-TO-1001-F
A6A4R2	0698-7224	3		RESISTOR 316 1% .05W F TC=0+-100	24546	C3-1/8-TO-316R-F
A6A4R3	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1001-F
A6A4R4	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1001-F
A6A4R5	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A6A4R6	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A6A4R7	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A6A4R8	0698-7194	6		RESISTOR 17.8 1% .05W F TC=0+-100	24546	C3-1/8-TO-17R8-F
A6A4R9	0698-7225	4		RESISTOR 348 1% .05W F TC=0+-100	24546	C3-1/8-TO-348R-F
A6A4R10	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A6A4R11	0698-7226	5		RESISTOR 383 1% .05W F TC=0+-100	24546	C3-1/8-TO-383R-F
A6A4R12	0698-7224	3		RESISTOR 316 1% .05W F TC=0+-100	24546	C3-1/8-TO-316R-F
A6A4R13	0698-7222	1		RESISTOR 261 1% .05W F TC=0+-100	24546	C3-1/8-TO-261R-F
A6A4R14	0698-7222	1		RESISTOR 261 1% .05W F TC=0+-100	24546	C3-1/8-TO-261R-F
A6A4R15	0698-7200	5		RESISTOR 31.6 1% .05W F TC=0+-100	24546	C3-1/8-TO-31R6-F
A6A4R16	0698-7200	5		RESISTOR 31.6 1% .05W F TC=0+-100	24546	C3-1/8-TO-31R6-F
A6A4R17	0698-7222	1		RESISTOR 261 1% .05W F TC=0+-100	24546	C3-1/8-TO-261R-F
A6A4R18	0698-7222	1		RESISTOR 261 1% .05W F TC=0+-100	24546	C3-1/8-TO-261R-F
A6A4R19	0698-7196	8		RESISTOR 21.5 1% .05W F TC=0+-100	24546	C3-1/8-TO-21R5-F
A6A4R20	0698-7216	3		RESISTOR 147 1% .05W F TC=0+-100	24546	C3 1/8-TO-147R-F
A6A4R21	0698-7216	3		RESISTOR 147 1% .05W F TC=0+-100	24546	C3-1/8-TO-147R-F
A6A4R22	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-TO-511R-F
A6A4R23	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-TO-1001-F
A6A4R24	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-TO-2151-F
A6A4R25	0757-0290	5		RESISTOR 6.19K 1% .125W F TC=0+-100	19701	MF4C1/8-TO-6191-F
A6A4R26	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-TO-1001-F
A6A4R27	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-TO-511R-F
A6A4R28	0698-3444	1		RESISTOR 316 1% .125W F TC=0+-100	24546	C4-1/8-TO-316R-F
A6A4R29	0757-0317	7		RESISTOR 1.33K 1% .125W F TC=0+-100	24546	C4-1/8-TO-1331-F
A6A4R30	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-TO-1001-F
A6A4R31	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1001-F
A6A4R32	0698-7264	1		RESISTOR 14.7K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1472-F
A6A4R33	0698-7244	7		RESISTOR 2.15K 1% .05W F TC=0+-100	24546	C3-1/8-TO-2151-F
A6A4R34†	0698-7242	5	4	RESISTOR 1.78K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1781-F
A6A4R35	0757-0465	6		RESISTOR 100K 1% .125W F TC=0+-100	24546	C4-1/8-TO-1003-F
A6A4R36	0698-7266	3	3	RESISTOR 17.8K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1782-F
A6A4R37	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-TO-511R-F
A6A4R38	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-TO-10R-F
A6A4R39	0698-7219	6		RESISTOR 196 1% .05W F TC=0+-100	24546	C3-1/8-TO-196R-F
A6A4R40	0698-7196	8		RESISTOR 21.5 1% .05W F TC=0+-100	24546	C3-1/8-TO-21R5-F
A6A4R41	0698-7275	4		RESISTOR 42.2K 1% .05W F TC=0+-100	24546	C3-1/8-TO-4222-F
A6A4R42	0698-7256	1		RESISTOR 6.81K 1% .05W F TC=0+-100	24546	C3-1/8-TO-6811-F
A6A4R43	0698-7244	7		RESISTOR 2.15K 1% .05W F TC=0+-100	24546	C3-1/8-TO-2151-F
A6A4R44	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1001-F
A6A4R45	0757-0279	0		RESISTOR 3.16K 1% .125W F TC=0+-100	24546	C4-1/8-TO-3161-F

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A6A4R46	0698-7264	1		RESISTOR 14.7K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1472-F
A6A4R47	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-T0-10R-F
A6A4R48	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-T0-10R F
A6A4R49	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-T0-10R-F
A6A4R50	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-T0-10R-F
A6A4R51	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2152-F
A6A4R52	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A6A4R53	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A6A4R54	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A6A4R55	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A6A4R56	0698-7240	3		RESISTOR 1.47K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1471-F
A6A4R57	0757-0424	7		RESISTOR 1.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1101-F
A6A4R58	0698-7249	2		RESISTOR 3.48K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3481-F
A6A4R59	0757-0419	0		RESISTOR 681 1% .125W F TC=0+-100	24546	C4-1/8-T0-681R-F
A6A4R60	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2152-F
A6A4R61	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2152-F
A6A4R62	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2152 F
A6A4R63	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2152-F
A6A4R64	0757-0199	3		RESISTOR 21.5K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2152-F
A6A4R65	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2152-F
A6A4R66	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2152-F
A6A4R67	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2152-F
A6A4R68	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2152-F
A6A4R69	0698-3154	0		RESISTOR 4.22K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4221-F
A6A4R70	0757-0421	4		RESISTOR 825 1% .125W F TC=0+-100	24546	C4-1/8-T0-825R-F
A6A4R71	0757-0421	4		RESISTOR 825 1% .125W F TC=0+-100	24546	C4-1/8-T0-825R-F
A6A4R72	0698-3476	9	2	RESISTOR 6K 1% .125W F TC=0+-100	03888	PME55-1/8-T0-6001-F
A6A4R73	0757-1093	8	2	RESISTOR 3K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3001-F
A6A4R74	0757-1094	9		RESISTOR 1.47K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1471-F
A6A4R75	0698-3548	6	2	RESISTOR 732 1% .125W F TC=0+-100	24546	C4-1/8-T0-732R-F
A6A4R76	0757-0444	1		RESISTOR 12.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1212-F
A6A4R77	0698-3440	7		RESISTOR 196 1% .125W F TC=0+-100	24546	C4-1/8-T0-196R-F
A6A4R78	0757-0290	5		RESISTOR 6.19K 1% .125W F TC=0+-100	19701	MF4C1/8-T0-6191-F
A6A4R79	0757-0288	1		RESISTOR 9.09K 1% .125W F TC=0+-100	19701	MF4C1/8-T0-9091-F
A6A4R80	0698-3438	3		RESISTOR 147 1% .125W F TC=0+-100	24546	C4-1/8-T0-147R-F
A6A4R81	0757-0290	5		RESISTOR 6.19K 1% .125W F TC=0+-100	19701	MF4C1/8-T0-6191-F
A6A4R82	0757-0440	7		RESISTOR 7.5K 1% .125W F TC=0+-100	24546	C4-1/8-T0-7501-F
A6A4R83	0757-0403	2		RESISTOR 121 1% .125W F TC=0+-100	24546	C4-1/8-T0-121R-F
A6A4R84	0698-3154	0		RESISTOR 4.22K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4221-F
A6A4R85	2100-2497	9		RESISTOR-TRMR 2K 10% C TOP-ADJ 1-TRN	73138	82PR2K
A6A4R86	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A6A4R87	0698-3151	7		RESISTOR 2.87K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2871-F
A6A4R88	0757-0398	4		RESISTOR 75 1% .125W F TC=0+-100	24546	C4-1/8-T0-75R0-F
A6A4R89	0757-0278	9		RESISTOR 1.78K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1781-F
A6A4R90	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A6A4R91	0757-0422	5		RESISTOR 909 1% .125W F TC=0+-100	24546	C4-1/8-T0-909R-F
A6A4R92	0757-0422	5		RESISTOR 909 1% .125W F TC=0+-100	24546	C4-1/8-T0-909R-F
A6A4R93	0757-0279	0		RESISTOR 3.16K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3161-F
A6A4R94	0698-7221	0		RESISTOR 237 1% .05W F TC=0+-100	24546	C3-1/8-T0-237R-F
A6A4R95	0698-7238	9		RESISTOR 1.21K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1211-F
A6A4R96	0698-7234	5		RESISTOR 825 1% .05W F TC=0+-100	24546	C3-1/8-T0-825R-F
A6A4R97	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A6A4R98	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A6A4R99	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A6A4R100	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-T0-10R-F
A6A4R101	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A6A4R102	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A4R103	0698-7277	6		RESISTOR 51.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5112-F
A6A4R104	0698-7277	6		RESISTOR 51.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5112-F
A6A4R105	0698-7277	6		RESISTOR 51.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5112-F
A6A4R106	0698-7277	6		RESISTOR 51.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5112-F
A6A4R107	0698-7261	8		RESISTOR 11K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1102-F
A6A4R108	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A4R109	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A4R110	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A4R111	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A4R112	0698-7261	8		RESISTOR 11K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1102-F
A6A4R113	0698-7224	3		RESISTOR 316 1% .05W F TC=0+-100	24546	C3-1/8-T0-316R-F
A6A4R114	0698-7224	3		RESISTOR 316 1% .05W F TC=0+-100	24546	C3-1/8-T0-316R-F
A6A4R115	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A6A4R116	0698-7222	1		RESISTOR 261 1% .05W F TC=0+-100	24546	C3-1/8-T0-261R-F
A6A4R117	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A6A4R118	0698-7222	1		RESISTOR 261 1% .05W F TC=0+-100	24546	C3-1/8-T0-261R-F
A6A4R119	0698-7253	8		RESISTOR 5.11K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5111-F
A6A4R120	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A6A4R121	0698-7277	6		RESISTOR 51.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5112-F
A6A4R122	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A6A4R123	0698-7225	4		RESISTOR 348 1% .05W F TC=0+-100	24546	C3-1/8-T0-348R-F
A6A4R124	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A6A4R125	0698-7241	4		RESISTOR 1.62K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1621-F
A6A4R126	0698-7225	4		RESISTOR 348 1% .05W F TC=0+-100	24546	C3-1/8-T0-348R-F
A6A4R127	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A6A4R128	0698-7241	4		RESISTOR 1.62K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1621-F
A6A4R129	0698-7262	9		RESISTOR 12.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1212-F
A6A4R130	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A6A4R131				NOT ASSIGNED		
A6A4R132	0698-7275	4		RESISTOR 42.2K 1% .05W F TC=0+-100	24546	C3-1/8-T0-4222-F
A6A4R133	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A4R134	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A4R135	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A6A4R136	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A6A4R137				NOT ASSIGNED		
A6A4R138	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A6A4R139	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A6A4R140	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A6A4R141	0698-7272	1		RESISTOR 31.6K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3162-F
A6A4R142	0698-7244	7		RESISTOR 2.15K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2151-F
A6A4R143	0698-7244	7		RESISTOR 2.15K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2151-F
A6A4R144	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A4R145	0698-7253	8		RESISTOR 5.11K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5111-F
A6A4R146	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A4R147	0698-7219	6		RESISTOR 196 1% .05W F TC=0+-100	24546	C3-1/8-T0-196R-F
A6A4R148	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A6A4R149	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A6A4R150	0698-7240	3		RESISTOR 1.47K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1471-F
A6A4R151	0698-7240	3		RESISTOR 1.47K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1471-F
A6A4R152	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A6A4R153	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A6A4R154	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A6A4R155	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A6A4R156†	2100-2497	9	4	RESISTOR-TRMR 2K 10% C TOP-ADJ 1-TRN	73138	82PR2K
A6A4S1	3101-0860	9		SWITCH-SL DPDT MINTR .5A 125VAC/DC PC	28480	3101-0860
A6A4T1	08640-60355	0		TRANSFORMER, RF, BLUE	28480	08640-60355
A6A4T2	08640-60355	0		TRANSFORMER, RF, BLUE	28480	08640-60355
A6A4TP1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A4TP2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A4TP3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A4TP4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A4TP5	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A4TP6	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A4TP7	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A4TP8	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A4TP9	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A4TP10	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A4TP11	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A4TP12	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A4TP13	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A4TP14	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A4U1	1826-0372	2		IC, LIMITER	28480	1826-0372
A6A4U2	1820-1344	8		IC PL LOOP 14-DIP-C PKG	04713	MC12040L
A6A4U3	1826-0026	3		IC COMPARATOR PRCN TO-99 PKG	01295	LM311L
A6A4U4	1826-0013	8		IC OP AMP LOW-NOISE TO-99 PKG	06665	SSS741CJ
A6A4U5	1820-0668	7		IC BFR TTL NON-INV HEX 1-INP	01295	SN7407N
A6A4U6	1820-1211	8	2	IC GATE TTL LS EXCL-OR QUAD 2-INP	01295	SN74LS86N
A6A4U7	1820-1781	7	4	IC SWITCH ANLG DUAL TO-100 PKG	34371	HI2-200-5
A6A4U8	1820-1781	7		IC SWITCH ANLG DUAL TO-100 PKG	34371	HI2-200-5
A6A4U9	1820-1322	2		IC GATE TTL S NOR QUAD 2-INP	01295	SN74S02N
A6A4U10	1826-0372	2		IC, LIMITER	28480	1826-0372
A6A4U11	1820-1112	8		IC FF TTL LS D-TYPE POS-EDGE-TRIG	01295	SN74LS74AN
A6A4U12	1820-0579	9		IC MV TTL MONOSTBL RETRIG DUAL	01295	SN74123N
A6A4U13	1826-0138	8		IC COMPARATOR GP QUAD 14-DIP-P PKG	01295	LM339N
A6A4U14	1820-0475	4	2	IC COMPARATOR HS TO-99 PKG	27014	LM306H
A6A4VR1	1902-0556	6	2	DIODE-ZNR 20V 5% PD=1W IR=5UA	28480	1902-0556
A6A4VR2	1902-0554	4	2	DIODE-ZNR 10V 5% PD=1W IR=10UA	28480	1902-0554
A6A4W1	08662-20055	9	2	CABLE, SEMI-RIGID #51	28480	08662-20055
A6A5	08662-60103	2	1	PHASE DETECTOR,REF. SUM (RS)LOOP ASSY	28480	08662-60103

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A6A5C1	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A5C2	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A5C3	0180-2618	2		CAPACITOR-FXD 33UF+-10% 10VDC TA	25088	D33GS1B10K
A6A5C4	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A5C5	0180-2618	2		CAPACITOR-FXD 33UF+-10% 10VDC TA	25088	D33GS1B10K
A6A5C6	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A6A5C7	0180-0141	2		CAPACITOR-FXD 50UF+75-10% 50VDC AL	56289	30D536G050DD2
A6A5C8	0180-2208	6		CAPACITOR-FXD 220UF+-10% 10VDC TA	56289	150D227X9010S2
A6A5C9	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A6A5C10	0180-2620	6		CAPACITOR-FXD 2.2UF+-10% 50VDC TA	25088	D2R2GS1B50K
A6A5C11	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A5C12	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A5C13	0180-2620	6		CAPACITOR-FXD 2.2UF+-10% 50VDC TA	25088	D2R2GS1B50K
A6A5C14	0160-0575	4		CAPACITOR-FXD .047UF +-20% 50VDC CER	28480	0160-0575
A6A5C15	0180-2620	6		CAPACITOR-FXD 2.2UF+-10% 50VDC TA	25088	D2R2GS1B50K
A6A5C16	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A5C17	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A5C18	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A5C19	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A5C20	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A5C21	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A5C22	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A5C23	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A5C24	0180-2620	6		CAPACITOR-FXD 2.2UF+-10% 50VDC TA	25088	D2R2GS1B50K
A6A5C25	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A5C26	0180-2618	2		CAPACITOR-FXD 33UF+-10% 10VDC TA	25088	D33GS1B10K
A6A5C27	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A5C28	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A6A5C29	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A6A5C30	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A5C31	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A5C32	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A5C33	0160-3877	5		CAPACITOR-FXD 100PF +-20% 200VDC CER	28480	0160-3877
A6A5C34	0160-3877	5		CAPACITOR-FXD 100PF +-20% 200VDC CER	28480	0160-3877
A6A5C35	0160-0575	4		CAPACITOR-FXD .047UF +-20% 50VDC CER	28480	0160-0575
A6A5C36	0160-4498	8		CAPACITOR-FXD 5.6PF +-.5PF 200VDC CER	28480	0160-4498
A6A5C37	0160-0572	1		CAPACITOR-FXD 2200PF +-20% 100VDC CER	28480	0160-0572
A6A5C38	0160-0573	2		CAPACITOR-FXD 4700PF +-20% 100VDC CER	28480	0160-0573
A6A5C39	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A5C40	0160-0574	3		CAPACITOR-FXD .022UF +-20% 100VDC CER	28480	0160-0574
A6A5C41	0160-0575	4		CAPACITOR-FXD .047UF +-20% 50VDC CER	28480	0160-0575
A6A5C42	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A5C43	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A5C44	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A5C45	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A5C46	0160-2209	5		CAPACITOR-FXD 360PF +-5% 300VDC MICA	28480	0160-2209
A6A5C47	0160-4084	8		CAPACITOR-FXD .1UF +-20% 50VDC CER	28480	0160-4084
A6A5C48	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A6A5C49	0160-0573	2		CAPACITOR-FXD 4700PF +-20% 100VDC CER	28480	0160-0573
A6A5C50	0160-0570	9		CAPACITOR-FXD 220PF +-20% 100VDC CER	20932	5024EM100RD221M
A6A5C51	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A5C52	0160-0575	4		CAPACITOR-FXD .047UF +-20% 50VDC CER	28480	0160-0575
A6A5C53	0160-3875	3		CAPACITOR-FXD 22PF +-5% 200VDC CER 0+-30	28480	0160-3875
A6A5C54	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A6A5C55	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A5C56	0160-3876	4		CAPACITOR-FXD 47PF +-20% 200VDC CER	28480	0160-3876
A6A5C57	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A5C58	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A5C59	0160-3877	5		CAPACITOR-FXD 100PF +-20% 200VDC CER	28480	0160-3877
A6A5C60	0160-0573	2		CAPACITOR-FXD 4700PF +-20% 100VDC CER	28480	0160-0573
A6A5C61	0160-0573	2		CAPACITOR-FXD 4700PF +-20% 100VDC CER	28480	0160-0573
A6A5C62	0160-3877	5		CAPACITOR-FXD 100PF +-20% 200VDC CER	28480	0160-3877
A6A5C63	0160-0573	2		CAPACITOR-FXD 4700PF +-20% 100VDC CER	28480	0160-0573
A6A5C64	0160-0573	2		CAPACITOR-FXD 4700PF +-20% 100VDC CER	28480	0160-0573
A6A5C65	0160-0298	8		CAPACITOR-FXD 1500PF +-10% 200VDC POLYE	28480	0160-0298
A6A5C66	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A5C67	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A5C68	0160-2209	5		CAPACITOR-FXD 360PF +-5% 300VDC MICA	28480	0160-2209
A6A5C69	0160-0571	0		CAPACITOR-FXD 470PF +-20% 100VDC CER	28480	0160-0571
A6A5C70	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A5C71	0140-0198	5		CAPACITOR-FXD 200PF +-5% 300VDC MICA	72136	DM15F201J0300WV1CR
A6A5C72	0160-4389	6		CAPACITOR-FXD 100PF +-5PF 200VDC CER	28480	0160-4389
A6A5C73	0160-4103	2		CAPACITOR-FXD 220PF +-5% 100VDC CER	72982	8121-M100-COG-221J
A6A5C74	0160-0570	9		CAPACITOR-FXD 220PF +-20% 100VDC CER	20932	5024EM100RD221M

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A6A5CR1	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A5CR2	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A5CR3	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A5CR4	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A5CR5	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A5CR6	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A5CR7-A6A5CR8				NOT ASSIGNED		
A6A5CR9	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A5CR10	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A5CR11	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A5CR12	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A5CR13	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A5CR14	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A5CR15	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A5CR16	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A5CR17	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A5CR18	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A5CR19	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A5CR20	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A5CR21	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A5CR22	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A6A5CR23	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A5CR24	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A6A5CR25	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A6A5CR26	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A6A5CR27	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A6A5CR28	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A6A5CR29	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A5CR30	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A5CR31	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A6A5CR32	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A6A5CR33-A6A5CR37				NOT ASSIGNED		
A6A5CR38	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A5DS1	1990-0326	3		LED-LAMP LUM-INT=300UCD IF=50MA-MAX	28480	5082-4444
A6A5E1	9170-0029	3		CORE-SHIELDING BEAD	28480	9170-0029
A6A5J1	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A6A5J2	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A6A5L1	9100-1788	6		CHOKE-WIDE BAND ZMAX=680 OHM@ 180 MHZ	02114	VK200 20/4B
A6A5L2	9100-1788	6		CHOKE-WIDE BAND ZMAX=680 OHM@ 180 MHZ	02114	VK200 20/4B
A6A5L3	9100-1788	6		CHOKE-WIDE BAND ZMAX=680 OHM@ 180 MHZ	02114	VK200 20/4B
A6A5L4	9100-4078	3		TOROID FILTER 630 UH	28480	9100-4078
A6A5L5	9100-4078	3		TOROID FILTER 630 UH	28480	9100-4078
A6A5L6	9100-1623	8		INDUCTOR RF-CH-MLD 27UH 5% .166DX.385LG	28480	9100-1623
A6A5L7				NOT ASSIGNED		
A6A5L8				NOT ASSIGNED		
A6A5L9	9100-1623	8		INDUCTOR RF-CH-MLD 27UH 5% .166DX.385LG	28480	9100-1623
A6A5L10	9100-1623	8		INDUCTOR RF-CH-MLD 27UH 5% .166DX.385LG	28480	9100-1623
A6A5L11	9100-1623	8		INDUCTOR RF-CH-MLD 27UH 5% .166DX.385LG	28480	9100-1623
A6A5L12	9100-1623	8		INDUCTOR RF-CH-MLD 27UH 5% .166DX.385LG	28480	9100-1623
A6A5L13	9140-0141	7		INDUCTOR RF-CH-MLD 680NH 10% .105DX.26LG	28480	9140-0141
A6A5L14	9140-0179	1		INDUCTOR RF-CH-MLD 22UH 10% .166DX.385LG	28480	9140-0179
A6A5L15	9100-1630	7		INDUCTOR RF-CH-MLD 51UH 5% .166DX.385LG	28480	9100-1630
A6A5L16	9100-1630	7		INDUCTOR RF-CH-MLD 51UH 5% .166DX.385LG	28480	9100-1630
A6A5L17	9100-4078	3		TOROID FILTER 630 UH	28480	9100-4078
A6A5L18	9140-0141	7		INDUCTOR RF-CH-MLD 680NH 10% .105DX.26LG	28480	9140-0141
A6A5L19	9100-1625	0		INDUCTOR RF-CH-MLD 33UH 5% .166DX.385LG	28480	9100-1625
A6A5L20	9100-1627	2		INDUCTOR RF-CH-MLD 39UH 5% .166DX.385LG	28480	9100-1627
A6A5L21	9140-0210	1		INDUCTOR RF-CH-MLD 100UH 5% .166DX.385LG	28480	9140-0210
A6A5L22	9140-0210	1		INDUCTOR RF-CH-MLD 100UH 5% .166DX.385LG	28480	9140-0210
A6A5L23	9100-1611	4		INDUCTOR RF-CH-MLD 220NH 20%	28480	9100-1611
A6A5MP1	08662-00116	1	1	COVER- 1/3 END	28480	08662-00116
	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A6A5MP2	5001-0176	0		GROUND STRAP	28480	5001-0176
A6A5MP3	5001-0176	0		GROUND STRAP	28480	5001-0176
A6A5Q1	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A6A5Q2	1853-0012	4		TRANSISTOR PNP 2N2904A ST TO-39 PD=600MW	01295	2N2904A
A6A5Q3	1854-0408	4		TRANSISTOR NPN SI TO-18 PD=300MW	28480	1854-0408
A6A5Q4	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A6A5Q5	1853-0451	5		TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
	1205-0037	0		HEAT SINK TO-18-CS	28480	1205-0037

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A6A5Q6	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A6A5Q7	1854-0475	5		TRANSISTOR-DUAL NPN PD=750MW	28480	1854-0475
A6A5Q8	1853-0451	5		TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
	1205-0037	0		HEAT SINK TO-18-CS	28480	1205-0037
A6A5Q9	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A6A5Q10	1853-0451	5		TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
	1205-0037	0		HEAT SINK TO-18-CS	28480	1205-0037
A6A5Q11	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A6A5Q12	1853-0451	5		TRANSISTOR PNP 2N3799 SI TO-18 PD=360MW	01295	2N3799
	1205-0037	0		HEAT SINK TO-18-CS	28480	1205-0037
A6A5Q13	1854-0247	9		TRANSISTOR NPN SI TO-39 PD=1W FT=800MHZ	28480	1854-0247
A6A5Q14	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A6A5Q15				NOT ASSIGNED		
A6A5Q16				NOT ASSIGNED		
A6A5Q17	1855-0020	8		TRANSISTOR J-FET N-CHAN D-MODE TO-18 ST	28480	1855-0020
A6A5Q18	1855-0020	8		TRANSISTOR J-FET N-CHAN D-MODE TO-18 SI	28480	1855-0020
A6A5Q19	1855-0020	8		TRANSISTOR J-FET N-CHAN D-MODE TO-18 SI	28480	1855-0020
A6A5Q20	1855-0020	8		TRANSISTOR J-FET N-CHAN D-MODE TO-18 SI	28480	1855-0020
A6A5R1	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A5R2	0698-7224	3		RESISTOR 316 1% .05W F TC=0+-100	24546	C3-1/8-T0-316R-F
A6A5R3	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A5R4	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A5R5	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A6A5R6	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A6A5R7	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A6A5R8	0698-7194	6		RESISTOR 17.8 1% .05W F TC=0+-100	24546	C3-1/8-T0-17R8-F
A6A5R9	0698-7225	4		RESISTOR 348 1% .05W F TC=0+-100	24546	C3-1/8-T0-348R-F
A6A5R10	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-T0-10R-F
A6A5R11	0698-7226	5		RESISTOR 383 1% .05W F TC=0+-100	24546	C3-1/8-T0-383R-F
A6A5R12	0698-7224	3		RESISTOR 316 1% .05W F TC=0+-100	24546	C3-1/8-T0-316R-F
A6A5R13	0698-7222	1		RESISTOR 261 1% .05W F TC=0+-100	24546	C3-1/8-T0-261R-F
A6A5R14	0698-7222	1		RESISTOR 261 1% .05W F TC=0+-100	24546	C3-1/8-T0-261R-F
A6A5R15	0698-7200	5		RESISTOR 31.6 1% .05W F TC=0+-100	24546	C3-1/8-T0-31R6-F
A6A5R16	0698-7200	5		RESISTOR 31.6 1% .05W F TC=0+-100	24546	C3-1/8-T0-31R6-F
A6A5R17	0698-7222	1		RESISTOR 261 1% .05W F TC=0+-100	24546	C3-1/8-T0-261R-F
A6A5R18	0698-7222	1		RESISTOR 261 1% .05W F TC=0+-100	24546	C3-1/8-T0-261R-F
A6A5R19	0698-7196	8		RESISTOR 21.5 1% .05W F TC=0+-100	24546	C3-1/8-T0-21R5-F
A6A5R20	0698-7216	3		RESISTOR 147 1% .05W F TC=0+-100	24546	C3-1/8-T0-147R-F
A6A5R21	0698-7216	3		RESISTOR 147 1% .05W F TC=0+-100	24546	C3-1/8-T0-147R-F
A6A5R22	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A6A5R23	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A6A5R24	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A6A5R25	0757-0290	5		RESISTOR 6.19K 1% .125W F TC=0+-100	19701	MF4C1/8-T0-6191-F
A6A5R26	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A6A5R27	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A6A5R28	0698-3444	1		RESISTOR 316 1% .125W F TC=0+-100	24546	C4-1/8-T0-316R-F
A6A5R29	0757-0317	7		RESISTOR 1.33K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1331-F
A6A5R30	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A6A5R31	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A5R32	0698-7264	1		RESISTOR 14.7K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1472-F
A6A5R33	0698-7244	7		RESISTOR 2.15K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2151-F
A6A5R34†	0698-7242	5		RESISTOR 1.78K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1781-F
A6A5R35	0757-0465	6		RESISTOR 100K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1003-F
A6A5R36	0698-7266	3		RESISTOR 17.8K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1782-F
A6A5R37	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A6A5R38	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-T0-10R-F
A6A5R39	0698-7219	6		RESISTOR 196 1% .05W F TC=0+-100	24546	C3-1/8-T0-196R-F
A6A5R40	0698-7196	8		RESISTOR 21.5 1% .05W F TC=0+-100	24546	C3-1/8-T0-21R5-F
A6A5R41	0698-7275	4		RESISTOR 42.2K 1% .05W F TC=0+-100	24546	C3-1/8-T0-4222-F
A6A5R42	0698-7256	1		RESISTOR 6.81K 1% .05W F TC=0+-100	24546	C3-1/8-T0-6811-F
A6A5R43	0698-7244	7		RESISTOR 2.15K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2151-F
A6A5R44	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A5R45	0757-0279	0		RESISTOR 3.16K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3161-F
A6A5R46	0698-7264	1		RESISTOR 14.7K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1472-F
A6A5R47	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-T0-10R-F
A6A5R48	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-T0-10R-F
A6A5R49	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-T0-10R-F
A6A5R50	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-T0-10R-F
A6A5R51	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2152-F
A6A5R52	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A6A5R53	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A6A5R54	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A6A5R55	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A6A5R56	0698-7240	3		RESISTOR 1.47K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1471-F
A6A5R57	0757-0424	7		RESISTOR 1.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1101-F
A6A5R58	0698-7249	2		RESISTOR 3.48K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3481-F
A6A5R59	0757-0419	0		RESISTOR 681 1% .125W F TC=0+-100	24546	C4-1/8-T0-681R-F
A6A5R60	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2152-F

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A6A5R61	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3 1/8-T0-2152-F
A6A5R62	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2152-F
A6A5R63	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2152-F
A6A5R64	0757-0199	3		RESISTOR 21.5K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2152-F
A6A5R65	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3 1/8-T0-2152-F
A6A5R66	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2152-F
A6A5R67	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2152-F
A6A5R68	0698-7268	5		RESISTOR 21.5K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2152-F
A6A5R69	0698-3154	0		RESISTOR 4.22K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4221-F
A6A5R70	0757-0421	4		RESISTOR 825 1% .125W F TC=0+-100	24546	C4-1/8-T0-825R-F
A6A5R71	0757-0421	4		RESISTOR 825 1% .125W F TC=0+-100	24546	C4-1/8-T0-825R-F
A6A5R72	0698-3476	9		RESISTOR 6K 1% .125W F TC=0+-100	03888	PME55-1/8-T0-6001-F
A6A5R73	0757-1093	8		RESISTOR 3K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3001-F
A6A5R74	0757-1094	9		RESISTOR 1.47K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1471-F
A6A5R75	0698-3548	6		RESISTOR 732 1% .125W F TC=0+-100	24546	C4-1/8-T0-732R-F
A6A5R76	0757-0444	1		RESISTOR 12.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1212-F
A6A5R77	0698-3440	7		RESISTOR 196 1% .125W F TC=0+-100	24546	C4-1/8-T0-196R-F
A6A5R78	0757-0290	5		RESISTOR 6.19K 1% .125W F TC=0+-100	19701	MF4C1/8-T0-6191-F
A6A5R79	0757-0288	1		RESISTOR 9.09K 1% .125W F TC=0+-100	19701	MF4C1/8-T0-9091-F
A6A5R80	0698-3438	3		RESISTOR 147 1% .125W F TC=0+-100	24546	C4-1/8-T0-147R-F
A6A5R81	0757-0290	5		RESISTOR 6.19K 1% .125W F TC=0+-100	19701	MF4C1/8-T0-6191-F
A6A5R82	0757-0440	7		RESISTOR 7.5K 1% .125W F TC=0+-100	24546	C4-1/8-T0-7501-F
A6A5R83	0757-0403	2		RESISTOR 121 1% .125W F TC=0+-100	24546	C4-1/8-T0-121R-F
A6A5R84	0698-3154	0		RESISTOR 4.22K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4221-F
A6A5R85	2100-2497	9		RESISTOR-TRMR 2K 10% C TOP-ADJ 1-TRN	73138	82PR2K
A6A5R86	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A6A5R87	0698-3151	7		RESISTOR 2.87K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2871-F
A6A5R88	0757-0398	4		RESISTOR 75 1% .125W F TC=0+-100	24546	C4-1/8-T0-75R0-F
A6A5R89	0757-0278	9		RESISTOR 1.78K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1781-F
A6A5R90	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A6A5R91	0757-0422	5		RESISTOR 909 1% .125W F TC=0+-100	24546	C4-1/8-T0-909R-F
A6A5R92	0757-0422	5		RESISTOR 909 1% .125W F TC=0+-100	24546	C4-1/8-T0-909R-F
A6A5R93	0757-0279	0		RESISTOR 3.16K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3161-F
A6A5R94	0698-7221	0		RESISTOR 237 1% .05W F TC=0+-100	24546	C3-1/8-T0-237R-F
A6A5R95	0698-7238	9		RESISTOR 1.21K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1211-F
A6A5R96	0698-7234	5		RESISTOR 825 1% .05W F TC=0+-100	24546	C3-1/8-T0-825R-F
A6A5R97	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A6A5R98	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A6A5R99	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A6A5R100	0698-7188	8		RESISTOR 10 1% .05W F TC=0+-100	24546	C3-1/8-T0-10R-F
A6A5R101	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A6A5R102	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A5R103	0698-7277	6		RESISTOR 51.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5112-F
A6A5R104	0698-7277	6		RESISTOR 51.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5112-F
A6A5R105	0698-7277	6		RESISTOR 51.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5112-F
A6A5R106	0698-7277	6		RESISTOR 51.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5112-F
A6A5R107	0698-7261	8		RESISTOR 11K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1102-F
A6A5R108	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A5R109	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A5R110	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A5R111	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A5R112	0698-7261	8		RESISTOR 11K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1102-F
A6A5R113	0698-7224	3		RESISTOR 316 1% .05W F TC=0+-100	24546	C3-1/8-T0-316R-F
A6A5R114	0698-7224	3		RESISTOR 316 1% .05W F TC=0+-100	24546	C3-1/8-T0-316R-F
A6A5R115	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A6A5R116	0698-7222	1		RESISTOR 261 1% .05W F TC=0+-100	24546	C3-1/8-T0-261R-F
A6A5R117	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A6A5R118	0698-7222	1		RESISTOR 261 1% .05W F TC=0+-100	24546	C3-1/8-T0-261R-F
A6A5R119	0698-7253	8		RESISTOR 5.11K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5111-F
A6A5R120	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A5R121	0698-7277	6		RESISTOR 51.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5112-F
A6A5R122	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A6A5R123	0698-7225	4		RESISTOR 348 1% .05W F TC=0+-100	24546	C3-1/8-T0-348R-F
A6A5R124	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A6A5R125	0698-7241	4		RESISTOR 1.62K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1621-F
A6A5R126	0698-7225	4		RESISTOR 348 1% .05W F TC=0+-100	24546	C3-1/8-T0-348R-F
A6A5R127	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A6A5R128	0698-7241	4		RESISTOR 1.62K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1621-F
A6A5R129	0698-7262	9		RESISTOR 12.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1212-F
A6A5R130	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A6A5R131				NOT ASSIGNED		
A6A5R132	0698-7275	4		RESISTOR 42.2K 1% .05W F TC=0+-100	24546	C3-1/8-T0-4222-F
A6A5R133	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A5R134	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A5R135	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A6A5R136	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A6A5R137				NOT ASSIGNED		
A6A5R138	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A6A5R139	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A6A5R140	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A6A5R141	0698-7272	1		RESISTOR 31.6K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3162-F
A6A5R142	0698-7244	7		RESISTOR 2.15K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2151-F
A6A5R143	0698-7244	7		RESISTOR 2.15K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2151-F
A6A5R144	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A5R145	0698-7253	8		RESISTOR 5.11K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5111-F
A6A5R146	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A6A5R147	0698-7219	6		RESISTOR 196 1% .05W F TC=0+-100	24546	C3-1/8-T0-196R-F
A6A5R148	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A6A5R149	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A6A5R150	0698-7240	3		RESISTOR 1.47K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1471-F
A6A5R151	0698-7240	3		RESISTOR 1.47K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1471-F
A6A5R152	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A6A5R153	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A6A5R154	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A6A5R155	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-51R1-F
A6A5R156†	2100-2497	9		RESISTOR-TRMR 2K 10% C TOP-ADJ 1-TRN	73138	82PR2K
A6A5S1	3101-0860	9		SWITCH-SL DPDT MINTR .5A 125VAC/DC PC	28480	3101-0860
A6A5T1	08640-60355	0		TRANSFORMER, RF, BLUE	28480	08640-60355
A6A5T2	08640-60355	0		TRANSFORMER, RF, BLUE	28480	08640-60355
A6A5TP1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A5TP2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A5TP3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A5TP4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A5TP5	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A5TP6	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A5TP7	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A5TP8	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A5TP9	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A5TP10	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A5TP11	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A5TP12	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A5TP13	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A5TP14	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A5U1	1826-0372	2		IC, LIMITER	28480	1826-0372
A6A5U2	1820-1344	8		IC PL LOOP 14-DIP-C PKG	04713	MC12040L
A6A5U3	1826-0026	3		IC COMPARATOR PRCN TO-99 PKG	01295	LM311L
A6A5U4	1826-0013	8		IC OP AMP LOW-NOISE TO-99 PKG	06665	SSS741CJ
A6A5U5	1820-0668	7		IC BFR TTL NON-INV HEX 1-INP	01295	SN7407N
A6A5U6	1820-1211	8		IC GATE TTL LS EXCL-OR QUAD 2-INP	01295	SN74LS86N
A6A5U7	1820-1781	7		IC SWITCH ANLG DUAL TO-100 PKG	34371	HI2-200-5
A6A5U8	1820-1781	7		IC SWITCH ANLG DUAL TO-100 PKG	34371	HI2-200-5
A6A5U9	1820-1322	2		IC GATE TTL S NOR QUAD 2-INP	01295	SN74S02N
A6A5U10	1826-0372	2		IC, LIMITER	28480	1826-0372
A6A5U11	1820-1112	8		IC FF TTL LS D-TYPE POS-EDGE-TRIG	01295	SN74LS74AN
A6A5U12	1820-0579	9		IC MV TTL MONOSTBL RETRIG DUAL	01295	SN74123N
A6A5U13	1826-0138	8		IC COMPARATOR GP QUAD 14-DIP-P PKG	01295	LM339N
A6A5U14	1820-0475	4		IC COMPARATOR HS TO-99 PKG	27014	LM306H
A6A5VR1	1902-0556	6		DIODE-ZNR 20V 5% PD=1W IR=5UA	28480	1902-0556
A6A5VR2	1902-0554	4		DIODE-ZNR 10V 5% PD=1W IR=10UA	28480	1902-0554
A6A5W1	08662-20055	9		CABLE, SEMI-RIGID #51	28480	08662-20055
A6A6	08662-60105	4	1	RF MIXER, RS LOOP ASSEMBLY	28480	08662-60105
A6A6C1	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A6C2	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A6C3	0180-2618	2		CAPACITOR-FXD 33UF+-10% 10VDC TA	25088	D33GS1B10K
A6A6C4	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A6A6C5	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A6C6	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A6C7	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A6C8	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A6C9	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A6C10	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A6C11	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A6C12	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A6C13	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A6C14	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A6C15	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A6A6C16	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A6C17	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A6C18	0160-3877	5		CAPACITOR-FXD 100PF +-20% 200VDC CER	28480	0160-3877
A6A6C19	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A6C20	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A6C21	0160-3875	3		CAPACITOR-FXD 22PF +-5% 200VDC CER 0+-30	28480	0160-3875
A6A6C22	0160-4547	8	2	CAPACITOR-FXD 150PF +-5% 200VDC CER	28480	0160-4547
A6A6C23	0160-3874	2		CAPACITOR-FXD 10PF +-.5PF 200VDC CER	28480	0160-3874
A6A6C24	0160-4518	3		CAPACITOR-FXD 3.9PF +-.5PF 200VDC CER	28480	0160-4518
A6A6C25	0160-4518	3		CAPACITOR-FXD 3.9PF +-.5PF 200VDC CER	28480	0160-4518
A6A6J1	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
A6A6J2				NSR, PART OF A6A6W1		
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .367-IN-THK	28480	2950-0078
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
A6A6L1	9100-3922	4		COIL 3.0UH	28480	9100-3922
A6A6L2	9100-3922	4		COIL 3.0UH	28480	9100-3922
A6A6L3	9140-0210	1		INDUCTOR RF-CH-MLD 100UH 5% .166DX.385LG	28480	9140-0210
A6A6L4	9140-0210	1		INDUCTOR RF-CH-MLD 100UH 5% .166DX.385LG	28480	9140-0210
A6A6L5	9135-0073	3		INDUCTOR RF-CH-MLD 51NH 6% .102DX.26LG	28480	9135-0073
A6A6L6	9100-2255	4		INDUCTOR RF-CH-MLD 470NH 10% .105DX.26LG	28480	9100-2255
A6A6L7	9100-2255	4		INDUCTOR RF-CH-MLD 470NH 10% .105DX.26LG	28480	9100-2255
A6A6L8	9100-2247	4		INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG	28480	9100-2247
A6A6MP1	08662-00109	2	1	COVER- 1/3 END	28480	08662-00109
	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A6A6MP2	5001-0176	0		GROUND STRAP	28480	5001-0176
A6A6MP3	5001-0176	0		GROUND STRAP	28480	5001-0176
A6A6MP4	08662-00040	0		SHIELD, SMALL	28480	08662-00040
A6A6Q1	1854-0720	3		TRANSISTOR NPN SI PD=500MW FT=4GHZ	28480	1854-0720
A6A6R1	0698-7224	3		RESISTOR 316 1% .05W F TC=0+-100	24546	C3-1/8-TO-316R-F
A6A6R2	0698-7194	6		RESISTOR 17.8 1% .05W F TC=0+-100	24546	C3-1/8-TO-17R8-F
A6A6R3†	0698-7216	3	22	RESISTOR 147 1% .05W F TC=0+-100	24546	C3-1/8-TO-147R-F
A6A6R4	0757-0180	2		RESISTOR 31.6 1% .125W F TC=0+-100	28480	0757-0180
A6A6R5†	0698-7202	7	1	RESISTOR 38.3 1% .05W F TC=0+-100	24546	C3-1/8-TO-38R3-F
A6A6R6	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-TO-511R-F
A6A6R7†	0698-7216	3		RESISTOR 147 1% .05W F TC=0+-100	24546	C3-1/8-TO-147R-F
A6A6R8	0698-7216	3		RESISTOR 147 1% .05W F TC=0+-100	24546	C3-1/8-TO-147R-F
A6A6R9	0698-3430	5		RESISTOR 21.5 1% .125W F TC=0+-100	03888	PME55-1/8-T0-21R5-F
A6A6R10	0698-7196	8		RESISTOR 21.5 1% .05W F TC=0+-100	24546	C3-1/8-TO-21R5-F
A6A6R11	0698-3430	5		RESISTOR 21.5 1% .125W F TC=0+-100	03888	PME55-1/8-T0-21R5-F
A6A6R12	0757-0180	2		RESISTOR 31.6 1% .125W F TC=0+-100	28480	0757-0180
A6A6R13	0698-7227	6		RESISTOR 422 1% .05W F TC=0+-100	24546	C3-1/8-TO-422R-F
A6A6R14	0698-7216	3		RESISTOR 147 1% .05W F TC=0+-100	24546	C3-1/8-TO-147R-F
A6A6R15	0698-3430	5		RESISTOR 21.5 1% .125W F TC=0+-100	03888	PME55-1/8-T0-21R5-F
A6A6R16	0698-7224	3		RESISTOR 316 1% .05W F TC=0+-100	24546	C3-1/8-TO-316R-F
A6A6R17	0698-3430	5		RESISTOR 21.5 1% .125W F TC=0+-100	03888	PME55-1/8-T0-21R5-F
A6A6R18	0698-7216	3		RESISTOR 147 1% .05W F TC=0+-100	24546	C3-1/8-TO-147R-F
A6A6R19	0698-7232	3		RESISTOR 681 1% .05W F TC=0+-100	24546	C3-1/8-TO-681R-F
A6A6R20	0698-7196	8		RESISTOR 21.5 1% .05W F TC=0+-100	24546	C3-1/8-TO-21R5-F
A6A6R21	0757-0394	0		RESISTOR 51.1 1% .125W F TC=0+-100	24546	C4-1/8-T0-51R1-F
A6A6R22	0698-7196	8		RESISTOR 21.5 1% .05W F TC=0+-100	24546	C3-1/8-TO-21R5-F
A6A6R23	0698-7196	8		RESISTOR 21.5 1% .05W F TC=0+-100	24546	C3-1/8-TO-21R5-F
A6A6U1	1826-0372	2		IC, LIMITER	28480	1826-0372
A6A6U2	1826-0372	2		IC, LIMITER	28480	1826-0372
A6A6U3	0955-0096	9		MIXER, DOUBLE-BALANCE	28480	0955-0096
	1251-3172	7		CONNECTOR-SGL CONT SKT .03-IN-BSC-SZ RND	28480	1251-3172
A6A6W1	08662-20048	0	2	CABLE, SEMI-RIGID (INCLUDES J2)	28480	08662-20048
A6A7	08662-60106	5	1	RF BUFFER ASSEMBLY	28480	08662-60106
A6A7C1	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A7C2	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A7C3	0180-2618	2		CAPACITOR-FXD 33UF+-10% 10VDC TA	25088	D33GS1B10K
A6A7C4	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A6A7C5	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A7C6	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A7C7	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A7C8	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A7C9	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A7C10	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A7C11	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A7C12	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A7C13	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A7C14	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A7C15	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878

See introduction to this section for ordering information
*Indicates factory selected value
†FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A6A7C16	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A7C17	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A7C18	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A7C19	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A7C20	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A7C21	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A7C22	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A7C23	0160-3873	1		CAPACITOR-FXD 4.7PF +-.5PF 200VDC CER	28480	0160-3873
A6A7C24	0160-3873	1		CAPACITOR-FXD 4.7PF +-.5PF 200VDC CER	28480	0160-3873
A6A7J1	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A6A7J2				NSR, PART OF A6A7W1		
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A6A7L1	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A6A7L2	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A6A7L3	9140-0210	1		INDUCTOR RF-CH-MLD 100UH 5% .166DX.395LG	28480	9140-0210
A6A7L4	9140-0210	1		INDUCTOR RF-CH-MLD 100UH 5% .166DX.395LG	28480	9140-0210
A6A7L5	9135-0069	7		INDUCTOR, .030 UH	28480	9135-0069
A6A7MP1	08662-00114	9	1	COVER- 1/3 END	28480	08662-00114
	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A6A7MP2	5001-0176	0		GROUND STRAP	28480	5001-0176
A6A7MP3	5001-0176	0		GROUND STRAP	28480	5001-0176
A6A7MP4	08662-00040	0		SHIELD, COMP. LARGE	28480	08662-00040
A6A7R1	0698-7224	3		RESISTOR 316 1% .05W F TC=0+-100	24546	C3-1/8-TO-316R-F
A6A7R2	0698-7194	6		RESISTOR 17.8 1% .05W F TC=0+-100	24546	C3-1/8-TO-17R8-F
A6A7R3	0698-7224	3		RESISTOR 316 1% .05W F TC=0+-100	24546	C3-1/8-TO-316R-F
A6A7R4	0757-0180	2		RESISTOR 31.6 1% .125W F TC=0+-100	28480	0757-0180
A6A7R5	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-TO-511R-F
A6A7R6	0698-7216	3		RESISTOR 147 1% .05W F TC=0+-100	24546	C3-1/8-TO-147R-F
A6A7R7	0698-3430	5		RESISTOR 21.5 1% .125W F TC=0+-100	03888	PME55-1/8-T0-21R5-F
A6A7R8	0698-7196	8		RESISTOR 21.5 1% .05W F TC=0+-100	24546	C3-1/8-TO-21R5-F
A6A7R9	0698-3430	5		RESISTOR 21.5 1% .125W F TC=0+-100	03888	PME55-1/8-T0 21R5-F
A6A7R10	0757-0180	2		RESISTOR 31.6 1% .125W F TC=0+-100	28480	0757-0180
A6A7R11	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-TO-511R-F
A6A7R12	0698-7216	3		RESISTOR 147 1% .05W F TC=0+-100	24546	C3-1/8-TO-147R-F
A6A7R13	0698-3430	5		RESISTOR 21.5 1% .125W F TC=0+-100	03888	PME55-1/8-T0-21R5-F
A6A7R14	0698-7196	8		RESISTOR 21.5 1% .05W F TC=0+-100	24546	C3-1/8-TO-21R5-F
A6A7R15	0698-3430	5		RESISTOR 21.5 1% .125W F TC=0+-100	03888	PME55-1/8-T0-21R5-F
A6A7R16	0757-0180	2		RESISTOR 31.6 1% .125W F TC=0+-100	28480	0757-0180
A6A7R17	0698-7227	6		RESISTOR 422 1% .05W F TC=0+-100	24546	C3-1/8-TO-422R-F
A6A7R18	0698-7216	3		RESISTOR 147 1% .05W F TC=0+-100	24546	C3-1/8-TO-147R-F
A6A7R19	0698-3430	5		RESISTOR 21.5 1% .125W F TC=0+-100	03888	PME55-1/8-T0-21R5-F
A6A7R20	0698-3430	5		RESISTOR 21.5 1% .125W F TC=0+-100	03888	PME55-1/8-T0-21R5-F
A6A7R21	0698-7224	3		RESISTOR 316 1% .05W F TC=0+-100	24546	C3-1/8-TO-316R-F
A6A7R22	0698-7194	6		RESISTOR 17.8 1% .05W F TC=0+-100	24546	C3-1/8-TO-17R8-F
A6A7R23	0698-7224	3		RESISTOR 316 1% .05W F TC=0+-100	24546	C3-1/8-TO-316R-F
A6A7U1	1826-0372	2		IC, LIMITER	28480	1826-0372
A6A7U2	1826-0372	2		IC, LIMITER	28480	1826-0372
A6A7U3	1826-0372	2		IC, LIMITER	28480	1826-0372
A6A7W1	08662-20047	9	1	CABLE, SEMI-RIGID (INCLUDES J2)	28480	08662-20047
A6A8	08662-60107	6	1	RF MIXER, OS LOOP ASSEMBLY	28480	08662-60107
A6A8C1	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A8C2	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A8C3	0180-2618	2		CAPACITOR-FXD 33UF+-10% 10VDC TA	25088	D33GS1B10K
A6A8C4	0180-2619	3		CAPACITOR-FXD 22UF+-10% 15VDC TA	25088	D22GS1B15K
A6A8C5	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A8C6	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A8C7	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A8C8	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A8C9	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A8C10	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A8C11	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A8C12	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A8C13	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A8C14	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A8C15	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A8C16	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A8C17	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A8C18	0160-3877	5		CAPACITOR-FXD 100PF +-20% 200VDC CER	28480	0160-3877
A6A8C19	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878
A6A8C20	0160-3878	6		CAPACITOR-FXD 1000PF +-20% 100VDC CER	28480	0160-3878

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A6A8C21	0160-3875	3		CAPACITOR-FXD 22PF +-5% 200VDC CER 04-30	28480	0160-3875
A6A8C22	0160-4547	8		CAPACITOR-FXD 150PF +-5% 200VDC CER	28480	0160-4547
A6A8C23	0160-3874	2		CAPACITOR-FXD 10PF +-.5PF 200VDC CER	28480	0160-3874
A6A8C24	0160-4518	3		CAPACITOR-FXD 3.9PF +-.5PF 200VDC CER	28480	0160-4518
A6A8C25	0160-4518	3		CAPACITOR-FXD 3.9PF +-.5PF 200VDC CER	28480	0160-4518
A6A8J1	1250-1220	0		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-1220
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A6A8J2				NSR, PART OF A6A8W1		
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2950-0078	9		NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
A6A8L1	9100-3922	4		COIL 3.0UH	28480	9100-3922
A6A8L2	9100-3922	4		COIL 3.0UH	28480	9100-3922
A6A8L3	9140-0210	1		INDUCTOR RF-CH-MLD 100UH 5% .166DX.385LG	28480	9140-0210
A6A8L4	9140-0210	1		INDUCTOR RF-CH-MLD 100UH 5% .166DX.385LG	28480	9140-0210
A6A8L5	9135-0073	3		INDUCTOR RF-CH-MLD 51NH 6% .102DX.26LG	28480	9135-0073
A6A8L6	9100-2255	4		INDUCTOR RF-CH-MLD 470NH 10% .105DX.26LG	28480	9100-2255
A6A8L7	9100-2255	4		INDUCTOR RF-CH-MLD 470NH 10% .105DX.26LG	28480	9100-2255
A6A8L8	9100-2247	4		INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG	28480	9100-2247
A6A8MP1	08662-00112	7	1	COVER- 1/3 END	28480	08662-00112
	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A6A8MP2	5001-0176	0		GROUND STRAP	28480	5001-0176
A6A8MP3	5001-0176	0		GROUND STRAP	28480	5001-0176
A6A8MP4	08662-00040	0		SHIELD, COMP. LARGE	28480	08662-00040
A6A8MP5	7120-8042	9	1	LABEL--IDENTIFICATION	28480	7120-8042
A6A8Q1	1854-0720	3		TRANSISTOR NPN SI PD=500MW FT=4GHZ	28480	1854-0720
A6A8R1	0698-7224	3		RESISTOR 316 1% .05W F TC=0+-100	24546	C3-1/8-TO-316R-F
A6A8R2	0698-7194	6		RESISTOR 17.8 1% .05W F TC=0+-100	24546	C3-1/8-TO-17R8-F
A6A8R3	0698-7224	3		RESISTOR 316 1% .05W F TC=0+-100	24546	C3-1/8-TO-316R-F
A6A8R4	0757-0180	2		RESISTOR 31.6 1% .125W F TC=0+-100	28480	0757-0180
A6A8R5	0698-7194	6		RESISTOR 17.8 1% .05W F TC=0+-100	24546	C3-1/8-TO-17R8-F
A6A8R6	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-TO-511R-F
A6A8R7	0698-7224	3		RESISTOR 316 1% .05W F TC=0+-100	24546	C3-1/8-TO-316R-F
A6A8R8	0698-7216	3		RESISTOR 147 1% .05W F TC=0+-100	24546	C3-1/8-TO-147R-F
A6A8R9	0698-3430	5		RESISTOR 21.5 1% .125W F TC=0+-100	03888	PME55-1/8-T0-21R5-F
A6A8R10	0698-7196	8		RESISTOR 21.5 1% .05W F TC=0+-100	24546	C3-1/8-TO-21R5-F
A6A8R11	0698-3430	5		RESISTOR 21.5 1% .125W F TC=0+-100	03888	PME55-1/8-T0-21R5-F
A6A8R12	0757-0180	2		RESISTOR 31.6 1% .125W F TC=0+-100	28480	0757-0180
A6A8R13	0698-7227	6		RESISTOR 422 1% .05W F TC=0+-100	24546	C3-1/8-TO-422R-F
A6A8R14	0698-7216	3		RESISTOR 147 1% .05W F TC=0+-100	24546	C3-1/8-TO-147R-F
A6A8R15	0698-3430	5		RESISTOR 21.5 1% .125W F TC=0+-100	03888	PME55-1/8-T0-21R5-F
A6A8R16	0698-7224	3		RESISTOR 316 1% .05W F TC=0+-100	24546	C3-1/8-TO-316R-F
A6A8R17	0698-3430	5		RESISTOR 21.5 1% .125W F TC=0+-100	03888	PME55-1/8-T0-21R5-F
A6A8R18	0698-7216	3		RESISTOR 147 1% .05W F TC=0+-100	24546	C3-1/8-TO-147R-F
A6A8R19	0698-7232	3		RESISTOR 681 1% .05W F TC=0+-100	24546	C3-1/8-TO-681R-F
A6A8R20	0698-7196	8		RESISTOR 21.5 1% .05W F TC=0+-100	24546	C3-1/8-TO-21R5-F
A6A8R21	0757-0394	0		RESISTOR 51.1 1% .125W F TC=0+-100	24546	C4-1/8-TO-51R1-F
A6A8R22	0698-7196	8		RESISTOR 21.5 1% .05W F TC=0+-100	24546	C3-1/8-TO-21R5-F
A6A8R23	0698-7196	8		RESISTOR 21.5 1% .05W F TC=0+-100	24546	C3-1/8-TO-21R5-F
A6A8U1	1826-0372	2		IC, LIMITER	28480	1826-0372
A6A8U2	1826-0372	2		IC, LIMITER	28480	1826-0372
A6A8U3	0955-0096	9		MIXER, DOUBLE-BALANCE	28480	0955-0096
	1251-3172	7		CONNECTOR-SGL CONT SKT .03-IN-BSC-SZ RND	28480	1251-3172
A6A8W1	08662-20048	0		CABLE, SEMI-RIGID (INCLUDES J2)	28480	08662-20048
A6A9	08662-60101	0	1	CONTROLLER ASSEMBLY	28480	08662-60101
A6A9C1	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A9C2	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A9C3	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A9C4	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A9C5	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A9C6	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A9C7	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A9C8	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A9C9	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A6A9C10	0180-2208	6		CAPACITOR-FXD 220UF+-10% 10VDC TA	56289	150D227X9010S2
A6A9C11	0180-2215	5		CAPACITOR-FXD 170UF+75-10% 15VDC AL	56289	30D177G015DD2
A6A9C12	0180-0141	2		CAPACITOR-FXD 50UF+75-10% 50VDC AL	56289	30D536G050DD2
A6A9CR1	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A9CR2	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A9CR3	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A9CR4	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A9CR5	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A6A9CR6	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A9CR7	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A9CR8	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A9CR9	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A9CR10	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A9CR11	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A9CR12	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A6A9J1	1200-0508	0	2	SOCKET-IC 14-CONT DIP-SLDR	28480	1200-0508
A6A9J2	1200-0508	0		SOCKET-IC 14-CONT DIP-SLDR	28480	1200-0508
A6A9L1	08672-80001	3		TOROID,FILTER 630UH	28480	08672-80001
A6A9L2	08672-80001	3		TOROID, FILTER 630 UH	28480	08672-80001
A6A9L3	08672-80001	3		TOROID, FILTER 630 UH	28480	08672-80001
A6A9L4	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A6A9L5	9100-3922	4		COIL, 3.0 UH	28480	9100-3922
A6A9MP1	08662-00080	8		COVER, FULL OSC. TANG	28480	08662-00080
	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A6A9Q1	1853-0012	4		TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW	01295	2N2904A
A6A9Q2	1853-0012	4		TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW	01295	2N2904A
A6A9Q3	1853-0012	4		TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW	01295	2N2904A
A6A9Q4	1853-0012	4		TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW	01295	2N2904A
A6A9Q5	1853-0012	4		TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW	01295	2N2904A
A6A9Q6	1853-0012	4		TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW	01295	2N2904A
A6A9Q7	1853-0012	4		TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW	01295	2N2904A
A6A9Q8	1853-0012	4		TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW	01295	2N2904A
A6A9Q9	1853-0012	4		TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW	01295	2N2904A
A6A9Q10	1853-0012	4		TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW	01295	2N2904A
A6A9Q11	1853-0012	4		TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW	01295	2N2904A
A6A9Q12	1853-0012	4		TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW	01295	2N2904A
A6A9Q13	1853-0012	4		TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW	01295	2N2904A
A6A9Q14	1853-0012	4		TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW	01295	2N2904A
A6A9Q15	1853-0012	4		TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW	01295	2N2904A
A6A9Q16	1853-0012	4		TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW	01295	2N2904A
A6A9Q17	1853-0012	4		TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW	01295	2N2904A
A6A9Q18	1853-0012	4		TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW	01295	2N2904A
A6A9Q19	1853-0012	4		TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW	01295	2N2904A
A6A9Q20	1853-0012	4		TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW	01295	2N2904A
A6A9Q21	1853-0012	4		TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW	01295	2N2904A
A6A9Q22	1854-0263	9	1	TRANSISTOR NPN 2N3019 SI TO-39 PD=800MW	04713	2N3019
A6A9Q23	1854-0071	7		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0071
A6A9Q24	1854-0071	7		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0071
A6A9Q25	1854-0071	7		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0071
A6A9R1	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A6A9R2	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A6A9R3	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A6A9R4	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A6A9R5	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A6A9R6	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A6A9R7	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A6A9R8	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A6A9R9	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-T0-100R-F
A6A9R10	0757-0279	0		RESISTOR 3.16K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3161-F
A6A9R11	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A6A9R12	0698-3160	8		RESISTOR 31.6K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3162-F
A6A9R13	0698-3439	4		RESISTOR 178 1% .125W F TC=0+-100	24546	C4-1/8-T0-178R-F
A6A9R14	0757-0279	0		RESISTOR 3.16K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3161-F
A6A9R15	0698-3160	8		RESISTOR 31.6K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3162-F
A6A9R16	2100-1986	9	1	RESISTOR-TRMR 1K 10% C TOP-ADJ 1-TRN	73138	82PR1K
A6A9R17	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A6A9R18	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A6A9R19	0698-3160	8		RESISTOR 31.6K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3162-F
A6A9R20	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A6A9R21	0757-0400	9		RESISTOR 90.9 1% .125W F TC=0+-100	24546	C4-1/8-T0-90R9-F
A6A9R22	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A6A9R23	0757-0279	0		RESISTOR 3.16K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3161-F
A6A9R24	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A6A9R25	0764-0016	8	1	RESISTOR 1K 5% 2W MO TC=0+-200	28480	0764-0016
A6A9R26	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A6A9R27	0698-3160	8		RESISTOR 31.6K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3162-F
A6A9R28	0757-0400	9		RESISTOR 90.9 1% .125W F TC=0+-100	24546	C4-1/8-T0-90R9-F
A6A9R29	0757-0279	0		RESISTOR 3.16K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3161-F
A6A9R30	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A6A9R31	0698-3160	8		RESISTOR 31.6K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3162-F
A6A9R32	0698-4037	0		RESISTOR 46.4 1% .125W F TC=0+-100	24546	C4-1/8-T0-46R4-F
A6A9R33	0757-0279	0		RESISTOR 3.16K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3161-F
A6A9R34	0757-0420	3		RESISTOR 750 1% .125W F TC=0+-100	24546	C4-1/8-T0-751-F
A6A9R35	0698-3160	8		RESISTOR 31.6K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3162-F

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A6A9R36	0698-3391	7	2	RESISTOR 21.5 1% .5W F TC=0+-100	28480	0698-3391
A6A9R37	0757-0279	0		RESISTOR 3.16K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3161-F
A6A9R38	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A6A9R39	0698-3160	8		RESISTOR 31.6K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3162-F
A6A9R40	0698-3439	4		RESISTOR 178 1% .125W F TC=0+-100	24546	C4-1/8-T0-178R-F
A6A9R41	0757-0279	0		RESISTOR 3.16K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3161-F
A6A9R42	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A6A9R43	0698-3160	8		RESISTOR 31.6K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3162-F
A6A9R44	0757-0400	9		RESISTOR 90.9 1% .125W F TC=0+-100	24546	C4-1/8-T0-90R9-F
A6A9R45	0757-0279	0		RESISTOR 3.16K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3161-F
A6A9R46	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A6A9R47	0698-3160	8		RESISTOR 31.6K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3162-F
A6A9R48	0757-0400	9		RESISTOR 90.9 1% .125W F TC=0+-100	24546	C4-1/8-T0-90R9-F
A6A9R49	0757-0279	0		RESISTOR 3.16K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3161-F
A6A9R50	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A6A9R51	0698-3160	8		RESISTOR 31.6K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3162-F
A6A9R52	0698-4037	0		RESISTOR 46.4 1% .125W F TC=0+-100	24546	C4-1/8-T0-46R4-F
A6A9R53	0757-0279	0		RESISTOR 3.16K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3161-F
A6A9R54	0757-0420	3		RESISTOR 750 1% .125W F TC=0+-100	24546	C4-1/8-T0-751-F
A6A9R55	0698-3160	8		RESISTOR 31.6K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3162-F
A6A9R56	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A6A9R57	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A6A9R58	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A6A9R59	0698-3391	7		RESISTOR 21.5 1% .5W F TC=0+-100	28480	0698-3391
A6A9TP1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A9TP2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A9U1	08662-80005	5	1	PROM, PROGRAMMED	28480	08662-80005
A6A9U2	08662-80006	6	1	PROM, PROGRAMMED	28480	08662-80006
A6A9U3	08662-80007	7	1	PROM, PROGRAMMED	28480	08662-80007
A6A9VR1	1902-3171	7		DIODE-ZNR 11V 5% DO-35 PD=.4W TC=+.062%	28480	1902-3171
A6A9VR2	1902-3171	7		DIODE-ZNR 11V 5% DO-35 PD=.4W TC=+.062%	28480	1902-3171
A6A9VR3	1902-3171	7		DIODE-ZNR 11V 5% DO-35 PD=.4W TC=+.062%	28480	1902-3171
A6A10	08662-60110	1	1	HF LOOP & REF. SECTION MOTHER BOARD	28480	08662-60110
A6A10E1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A10E2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A10E3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A10E4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A10E5	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A6A10J1	1200-0507	9		SOCKET-IC 16-CONT DIP-SLDR	28480	1200-0507
A6A10J2	1250-0835	1		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-0835
A6A10J3	1250-0835	1		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-0835
A6A10J4	1250-0835	1		CONNECTOR-RF SMC M PC 50-OHM	28480	1250-0835
A6A10L1	9140-0335	1		INDUCTOR, 110 UH	28480	9140-0335
A6A10MP1†	08662-00161	6	1	CLAMP-CABLE	28480	08662-00161
	2190-0004	9	1	WASHER-LK INTL T NO. 4 .115-IN-ID	28480	2190-0004
A6A10XA6A1	1251-1633	1		CONNECTOR-PC EDGE 15-CONT/ROW 1-ROW	28480	1251-1633
A6A10XA6A2	1251-1633	1		CONNECTOR-PC EDGE 15-CONT/ROW 1-ROW	28480	1251-1633
A6A10XA6A3	1251-1633	1		CONNECTOR-PC EDGE 15-CONT/ROW 1-ROW	28480	1251-1633
A6A10XA6A4	1251-1634	2	3	CONNECTOR-PC EDGE 18-CONT/ROW 1-ROW	28480	1251-1634
A6A10XA6A5	1251-1634	2		CONNECTOR-PC EDGE 18-CONT/ROW 1-ROW	28480	1251-1634
A6A10XA6A6	1251-1631	9		CONNECTOR-PC EDGE 10-CONT/ROW 1-ROW	28480	1251-1631
A6A10XA6A7	1251-1631	9		CONNECTOR-PC EDGE 10-CONT/ROW 1-ROW	28480	1251-1631
A6A10XA6A8	1251-1631	9		CONNECTOR-PC EDGE 10-CONT/ROW 1-ROW	28480	1251-1631
A6A10XA6A9	1251-2035	9		CONNECTOR-PC EDGE 15-CONT/ROW 2-ROWS	28480	1251-2035
A7A1	08662-60157	6	1	LINEAR REGULATOR ASSEMBLY	28480	08662-60157
A7A1C1	0180-2834	4	2	CAPACITOR-FXD 82UF+-10% 75VDC TA	56289	109D826X9075F2
A7A1C2	0180-2834	4		CAPACITOR-FXD 82UF+-10% 75VDC TA	56289	109D826X9075F2
A7A1C3	0180-0230	0	3	CAPACITOR-FXD 1UF+-20% 50VDC TA	56289	150D105X0050A2
A7A1C4	0160-0572	1		CAPACITOR-FXD 2200PF +-20% 100VDC CER	28480	0160-0572
A7A1C5	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A7A1C6	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A7A1C7	0180-0230	0		CAPACITOR-FXD 1UF+-20% 50VDC TA	56289	150D105X0050A2
A7A1C8	0180-0230	0		CAPACITOR-FXD 1UF+-20% 50VDC TA	56289	150D105X0050A2
A7A1C9	0180-0228	6		CAPACITOR-FXD 22UF+-10% 15VDC TA	56289	150D226X9015B2
A7A1C10	0160-3447	5		CAPACITOR-FXD 470PF +-10% 1KVDC CER	28480	0160-3447
A7A1C11	0180-0049	9	1	CAPACITOR-FXD 20UF+75-10% 50VDC AL	56289	30D206G050CC2
A7A1C12	0160-3447	5		CAPACITOR-FXD 470PF +-10% 1KVDC CER	28480	0160-3447
A7A1C13	0160-3094	8		CAPACITOR-FXD .1UF +-10% 100VDC CER	28480	0160-3094
A7A1C14	0180-1704	5	1	CAPACITOR-FXD 47UF+-10% 6VDC TA	56289	150D476X9006B2
A7A1C15	0160-3447	5		CAPACITOR-FXD 470PF +-10% 1KVDC CER	28480	0160-3447

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A7A1C16	0180-0116	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	56289	150D685X9035B2
A7A1C17	0180-0116	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	56289	150D685X9035B2
A7A1C18	0180-0228	6		CAPACITOR-FXD 22UF+-10% 15VDC TA	56289	150D226X9015B2
A7A1C19	0180-0597	2	1	CAPACITOR-FXD 22UF+-10% 50VDC TA	56289	M39003/01-2391
A7A1CR1	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A7A1CR2	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A7A1CR3	1901-1065	2	11	DIODE-PWR RECT 1N4936 400V 1A 200NS	14936	1N4936
A7A1CR4	1901-1065	2		DIODE-PWR RECT 1N4936 400V 1A 200NS	14936	1N4936
A7A1CR5	1901-1065	2		DIODE-PWR RECT 1N4936 400V 1A 200NS	14936	1N4936
A7A1DS1	1990-0327	4	1	LED-LAMP LUM-INT=800UCD IF=50MA-MAX	28480	5082-4415
A7A1DS2	1990-0523	2	4	LED-LAMP LUM-INT=1MCD IF=50MA-MAX BVR=5V	28480	5082-4950
A7A1DS3	1990-0523	2		LED-LAMP LUM-INT=1MCD IF=50MA-MAX BVR=5V	28480	5082-4950
A7A1DS4	1990-0523	2		LED-LAMP LUM-INT=1MCD IF=50MA-MAX BVR=5V	28480	5082-4950
A7A1MP1	0340-0875	9		INSULATOR-XSTR THRM-CNDCT	28480	0340-0875
A7A1MP2	08662-00006	8	1	HEAT SINK, POWER SUPPLY	28480	08662-00006
	2190-0007	2	2	WASHER-LK INTL T NO. 6 .141-IN-ID	28480	2190-0007
	2360-0119	8	1	SCREW-MACH 6-32 .438-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
	2420-0003	7	2	NUT-HEX-DBL-CHAM 6-32-THD .094-IN-THK	00000	ORDER BY DESCRIPTION
A7A1MP3	4040-0749	4		EXTR-PC BD BRN POLYC .062-BD-THKNS	28480	4040-0749
	1480-0073	6		PIN-ROLL .062-IN-DIA .25-IN-LG BE-CU	28480	1480-0073
A7A1MP4	4040-0749	4		EXTR-PC BD BRN POLYC .062-BD-THKNS	28480	4040-0749
	1480-0073	6		PIN-ROLL .062-IN-DIA .25-IN-LG BE-CU	28480	1480-0073
A7A1MP5	08662-00017	1	2	SHIELD, PC BOARD	28480	08662-00017
	2200-0105	4	2	SCREW-MACH 4-40 .312-IN-LG PAN-HD-POZI (CONNECTS PC BOARD TO SHIELD)	00000	ORDER BY DESCRIPTION
A7A1Q1	1854-0846	4	3	TRANSISTOR NPN PD=150W FT=4MHZ	28480	1854-0846
	0340-0875	9	5	INSULATOR-XSTR THRM-CNDCT	28480	0340-0875
A7A1Q2	1854-0846	4		TRANSISTOR NPN PD=150W FT=4MHZ	28480	1854-0846
	0340-0875	9		INSULATOR-XSTR THRM-CNDCT	28480	0340-0875
A7A1Q3	1854-0846	4		TRANSISTOR NPN PD=150W FT=4MHZ	28480	1854-0846
	0340-0875	9		INSULATOR-XSTR THRM-CNDCT	28480	0340-0875
A7A1Q4	1884-0217	6	3	THYRISTOR-TRIAC	04713	MAC-10-2
A7A1Q5	1853-0012	4		TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW	01295	2N2904A
	1200-0173	5		INSULATOR-XSTR DAP-GL	28480	1200-0173
A7A1Q6	1884-0217	6		THYRISTOR-TRIAC	04713	MAC-10-2
A7A1Q7	1853-0012	4		TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW	01295	2N2904A
	1200-0173	5		INSULATOR-XSTR DAP-GL	28480	1200-0173
A7A1Q8	1884-0217	6		THYRISTOR-TRIAC	04713	MAC-10-2
A7A1Q9	1853-0012	4		TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW	01295	2N2904A
	1200-0173	5		INSULATOR-XSTR DAP-GL	28480	1200-0173
A7A1Q10	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A7A1Q11	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A7A1Q12	1853-0020	4		TRANSISTOR PNP SI PD=300MW FT=150MHZ	28480	1853-0020
A7A1Q13	1853-0020	4		TRANSISTOR PNP SI PD=300MW FT=150MHZ	28480	1853-0020
A7A1Q14	1884-0201	8	3	THYRISTOR-SCR TO-92 VRRM=60	04713	2N5061
A7A1Q15	1853-0020	4		TRANSISTOR PNP SI PD=300MW FT=150MHZ	28480	1853-0020
A7A1Q16	1854-0071	7		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0071
A7A1R1	0698-3440	7		RESISTOR 196 1% .125W F TC=0+-100	24546	C4-1/8-T0-196R-F
A7A1R2	0698-3440	7		RESISTOR 196 1% .125W F TC=0+-100	24546	C4-1/8-T0-196R-F
A7A1R3	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A7A1R4	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A7A1R5	0757-0289	2		RESISTOR 13.3K 1% .125W F TC=0+-100	19701	MF4C1/8-T0-1332-F
A7A1R6	0698-3136	8		RESISTOR 17.8K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1782-F
A7A1R7	0757-0289	2		RESISTOR 13.3K 1% .125W F TC=0+-100	19701	MF4C1/8-T0-1332-F
A7A1R8	0757-0289	2		RESISTOR 13.3K 1% .125W F TC=0+-100	19701	MF4C1/8-T0-1332-F
A7A1R9	0698-3440	7		RESISTOR 196 1% .125W F TC=0+-100	24546	C4-1/8-T0-196R-F
A7A1R10	0757-0278	9		RESISTOR 1.78K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1781-F
A7A1R11	0698-3150	6		RESISTOR 2.37K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2371-F
A7A1R12	0757-0440	7		RESISTOR 7.5K 1% .125W F TC=0+-100	24546	C4-1/8-T0-7501-F
A7A1R13	0698-3451	0	1	RESISTOR 133K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1333-F
A7A1R14	0698-3150	6		RESISTOR 2.37K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2371-F
A7A1R15	0698-3150	6		RESISTOR 2.37K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2371-F
A7A1R16	0698-3440	7		RESISTOR 196 1% .125W F TC=0+-100	24546	C4-1/8-T0-196R-F
A7A1R17	0698-0084	9		RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A7A1R18	2190-3109	2		RESISTOR-TRMR 2K 10% C SIDE-ADJ 17-TRN	02111	43P202
A7A1R19	0698-3154	0		RESISTOR 4.22K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4221-F
A7A1R20	2190-3056	8		RESISTOR-TRMR 5K 10% C SIDE-ADJ 17-TRN	02111	43P502
A7A1R21	0698-3136	8		RESISTOR 17.8K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1782-F
A7A1R22	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A7A1R23	0698-4037	0		RESISTOR 46.4 1% .125W F TC=0+-100	24546	C4-1/8-T0-46R4-F
A7A1R24	0761-0058	2	1	RESISTOR 750 5% 1W MO TC=0+-200	28480	0761-0058
A7A1R25	0757-0276	7	2	RESISTOR 61.9 1% .125W F TC=0+-100	24546	C4-1/8-T0-6192-F
A7A1R26	0757-0276	7		RESISTOR 61.9 1% .125W F TC=0+-100	24546	C4-1/8-T0-6192-F
A7A1R27	0811-1340	4	2	RESISTOR 1 5% 5W PW TC=0+-50	28480	0811-1340
A7A1R28	0811-1340	4		RESISTOR 1 5% 5W PW TC=0+-50	28480	0811-1340
A7A1R29	0757-0397	3		RESISTOR 68.1 1% .125W F TC=0+-100	24546	C4-1/8-T0-68R1-F
A7A1R30	0757-0397	3		RESISTOR 68.1 1% .125W F TC=0+-100	24546	C4-1/8-T0-68R1-F

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A7A1R31	0757-0418	9		RESISTOR 619 1% .125W F TC=0+-100	24546	C4-1/8-T0-619R-F
A7A1R32	0698-0082	7		RESISTOR 464 1% .125W F TC=0+-100	24546	C4-1/8-T0-4640-F
A7A1R33	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A7A1R34	0757-0290	5		RESISTOR 6.19K 1% .125W F TC=0+-100	19701	MF4C1/8-T0-6191-F
A7A1R35	0757-0199	3		RESISTOR 21.5K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2152-F
A7A1R36	0811-1659	8	1	RESISTOR .27 5% 2W PW TC=0+-800	75042	BWH2-27/100-J
A7A1R37	0811-1667	8	1	RESISTOR 1.2 5% 2W PW TC=0+-400	75042	BWH2-1R2-J
A7A1R38	0698-3157	3		RESISTOR 19.6K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1962-F
A7A1R39	2100-3123	0		RESISTOR-TRMR 500 10% C SIDE-ADJ 17-TRN	02111	43P501
A7A1R40	0757-0428	1		RESISTOR 1.62K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1621-F
A7A1R41	0757-0421	4		RESISTOR 825 1% .125W F TC=0+-100	24546	C4-1/8-T0-825R-F
A7A1R42	0698-3412	3	1	RESISTOR 3.83K 1% .5W F TC=0+-100	28480	0698-3412
A7A1R43	0757-0278	9		RESISTOR 1.78K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1781-F
A7A1R44	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A7A1R45	0757-0397	3		RESISTOR 68.1 1% .125W F TC=0+-100	24546	C4-1/8-T0-68R1-F
A7A1R46	0698-3440	7		RESISTOR 196 1% .125W F TC=0+-100	24546	C4-1/8-T0-196R-F
A7A1TP1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A7A1TP2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A7A1TP3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A7A1TP4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A7A1TP5	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A7A1TP6	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A7A1U1	1826-0473	4	1	IC, LINEAR REGULATOR	28480	1826-0473
	1205-0011	0		HEAT SINK TO-5/TO-39-CS	28480	1205-0011
A7A1U2	1826-0016	1	1	IC 204 V RGLTR TO-100	04713	MLM204G
A7A1U3	1820-0247	8	1	IC V RGLTR TO-99	27014	LM305H
A7A1VR1	1902-3234	3		DIODE-ZNR 19.6V 5% DO-35 PD=.4W	28480	1902-3234
A7A1VR2	1902-3361	7	1	DIODE-ZNR 57.6V 2% DO-7 PD=.4W TC=+.082%	28480	1902-3361
A7A1VR3	1902-3323	1	1	DIODE-ZNR 42.2V 5% DO-35 PD=.4W TC=+.08%	28480	1902-3323
A7A1VR4	1902-3256	9		DIODE-ZNR 23.7V 5% DO-35 PD=.4W	28480	1902-3256
A7A1VR5	1902-3171	7		DIODE-ZNR 11V 5% DO-35 PD=.4W TC=+.062%	28480	1902-3171
A7A1VR6	1902-3333	3	1	DIODE-ZNR 46.4V 5% DO-35 PD=.4W	28480	1902-3333
A7A2	08662-60158	7	1	CONTROL BOARD ASSEMBLY	28480	08662-60158
A7A2C1	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A7A2C2	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A7A2C3†	0180-2779	6	5	CAPACITOR-FXD 470UF+75-10% 50VDC AL	56289	30D477G050FK2
A7A2C4†	0180-2779	6		CAPACITOR-FXD 470UF+75-10% 50VDC AL	56289	30D477G050FK2
A7A2C5	0160-2453	1	1	CAPACITOR-FXD .22UF +-10% 80VDC POLYE	28480	0160-2453
A7A2C6	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A7A2C7	0180-1743	2	1	CAPACITOR-FXD .1UF+-10% 35VDC TA	56289	150D104X9035A2
A7A2C8	0180-0229	7		CAPACITOR-FXD 33UF+-10% 10VDC TA	56289	150D336X9010B2
A7A2C9†	0180-2779	6		CAPACITOR-FXD 470UF+75-10% 50VDC AL	56289	30D477G050FK2
A7A2C10†	0180-2779	6		CAPACITOR-FXD 470UF+75-10% 50VDC AL	56289	30D477G050FK2
A7A2C11	0180-2779	6		CAPACITOR-FXD 470UF+75-10% 50VDC AL	56289	30D477G050FK2
A7A2C11				NOT ASSIGNED		
A7A2C12	0160-0127	2		CAPACITOR-FXD 1UF +-20% 25VDC CER	28480	0160-0127
A7A2C13	0160-3468	0	1	CAPACITOR-FXD .12UF +-10% 80VDC POLYE	28480	0160-3468
A7A2C14	0160-0158	9		CAPACITOR-FXD 5600PF +-10% 200VDC POLYE	28480	0160-0158
A7A2C15	0160-3537	4		CAPACITOR-FXD 680PF +-5% 100VDC MICA	28480	0160-3537
A7A2C16	0140-0194	1	1	CAPACITOR-FXD 110PF +-5% 300VDC MICA	72136	DM15F111J0300WV1CR
A7A2C17	0160-2306	3		CAPACITOR-FXD 27PF +-5% 300VDC MICA	28480	0160-2306
A7A2C18	0180-1819	3	1	CAPACITOR-FXD 100UF+75-10% 50VDC AL	56289	30D107G050DN2
A7A2C19	0160-0153	4		CAPACITOR-FXD 1000PF +-10% 200VDC POLYE	28480	0160-0153
A7A2C20	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A7A2C21	0160-2201	7	1	CAPACITOR-FXD 51PF +-5% 300VDC MICA	28480	0160-2201
A7A2C22	0160-0161	4		CAPACITOR-FXD .01UF +-10% 200VDC POLYE	28480	0160-0161
A7A2C23	0160-0945	2		CAPACITOR-FXD 910PF +-5% 100VDC MICA	28480	0160-0945
A7A2C24	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A7A2C25	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A7A2C26	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A7A2C27	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A7A2C28	0180-1746	5		CAPACITOR-FXD 15UF+-10% 20VDC TA	56289	150D156X9020B2
A7A2C29	0180-1746	5		CAPACITOR-FXD 15UF+-10% 20VDC TA	56289	150D156X9020B2
A7A2C30	0180-1746	5		CAPACITOR-FXD 15UF+-10% 20VDC TA	56289	150D156X9020B2
A7A2C31	0180-1746	5		CAPACITOR-FXD 15UF+-10% 20VDC TA	56289	150D156X9020B2
A7A2C32	0140-0197	4		CAPACITOR-FXD 180PF +-5% 300VDC MICA	72136	DM15F181J0300WV1CR
A7A2C33	0140-0197	4		CAPACITOR-FXD 180PF +-5% 300VDC MICA	72136	DM15F181J0300WV1CR
A7A2CR1	1901-0200	5	4	DIODE-PWR RECT 100V 1.5A	28480	1901-0200
A7A2CR2	1901-0200	5		DIODE-PWR RECT 100V 1.5A	28480	1901-0200
A7A2CR3	1901-0200	5		DIODE-PWR RECT 100V 1.5A	28480	1901-0200
A7A2CR4	1901-0200	5		DIODE-PWR RECT 100V 1.5A	28480	1901-0200
A7A2CR5	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A7A2CR6	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A7A2CR7	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A7A2CR8	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A7A2CR9	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A7A2CR10	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A7A2CR11	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A7A2CR12	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A7A2CR13	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A7A2CR14	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A7A2CR15	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A7A2CR16	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A7A2CR17	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A7A2CR18	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A7A2CR19	1901-0050	3		DIODE-SWITCHING 80V 200MA 2NS DO-35	28480	1901-0050
A7A2DS1	1990-0523	2		LED-LAMP LUM-INT=1MCD IF=50MA-MAX SVR=5V	28480	5082-4950
A7A2L1	9100-1630	7		INDUCTOR RF-CH-MLD 51UH 5% .166DX.385LG	28480	9100-1630
A7A2L2	9100-1630	7		INDUCTOR RF-CH-MLD 51UH 5% .166DX.385LG	28480	9100-1630
A7A2L3	9140-0114	4		INDUCTOR RF-CH-MLD 10UH 10% .166DX.385LG	28480	9140-0114
A7A2L4	9140-0210	1		INDUCTOR RF-CH-MLD 100UH 5% .166DX.385LG	28480	9140-0210
A7A2MP1	4040-0750	7		EXTR-PC BD RED POLYC .062-BD-THKNS	28480	4040-0750
	1480-0073	6		PIN-ROLL .062-IN-DIA .25-IN-LG BE-CU	28480	1480-0073
A7A2MP2	4040-0750	7		EXTR-PC BD RED POLYC .062-BD-THKNS	28480	4040-0750
	1480-0073	6		PIN-ROLL .062-IN-DIA .25-IN-LG BE-CU	28480	1480-0073
A7A2MP3	1205-0312	4	1	HEAT SINK SGL TO-3-CS	28480	1205-0312
	2190-0006	1	1	WASHER-LK HLCL NO. 6 .141-IN-ID	28480	2190-0006
	2360-0199	4	1	SCREW-MACH 6-32 .438-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
	2420-0003	7		NUT-HEX-DBL-CHAM 6-32-THD .094-IN-THK	00000	ORDER BY DESCRIPTION
A7A2Q1	1853-0053	3	1	TRANSISTOR PNP SI TO-3 PD=150W FT=3MHZ	28480	1853-0053
A7A2Q2	1854-0475	5		TRANSISTOR-DUAL NPN PD=750MW	28480	1854-0475
A7A2Q3	1853-0442	4	3	TRANSISTOR PNP 2N3867 SI TO-5 PD=1W	04713	2N3867
	1200-0173	5		INSULATOR-XSTR DAP-GL	28480	1200-0173
A7A2Q4	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A7A2Q5	1854-0210	6		TRANSISTOR NPN 2N2222 SI TO-18 PD=500MW	04713	2N2222
A7A2Q6	1854-0210	6		TRANSISTOR NPN 2N2222 SI TO-18 PD=500MW	04713	2N2222
A7A2Q7	1854-0210	6		TRANSISTOR NPN 2N2222 SI TO-18 PD=500MW	04713	2N2222
A7A2Q8	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A7A2Q9	1884-0201	8		THYRISTOR-SCR TO-92 VRRM=60	04713	2N5061
A7A2Q10	1853-0012	4		TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW	01295	2N2904A
	1200-0173	5		INSULATOR-XSTR DAP-GL	28480	1200-0173
A7A2Q11	1854-0210	6		TRANSISTOR NPN 2N2222 SI TO-18 PD=500MW	04713	2N2222
A7A2Q12	1853-0012	4		TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW	01295	2N2904A
	1200-0173	5		INSULATOR-XSTR DAP-GL	28480	1200-0173
A7A2Q13	1854-0210	6		TRANSISTOR NPN 2N2222 SI TO-18 PD=500MW	04713	2N2222
A7A2Q14	1854-0404	0		TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0404
A7A2Q15	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A7A2Q16	1854-0210	6		TRANSISTOR NPN 2N2222 SI TO-18 PD=500MW	04713	2N2222
A7A2Q17	1853-0007	7		TRANSISTOR PNP 2N3251 SI TO-18 PD=360MW	04713	2N3251
A7A2Q18	1854-0210	6		TRANSISTOR NPN 2N2222 SI TO-18 PD=500MW	04713	2N2222
A7A2Q19	1884-0201	8		THYRISTOR-SCR TO-92 VRRM=60	04713	2N5061
A7A2R1	0698-3153	9		RESISTOR 3.83K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3831-F
A7A2R2	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A7A2R3	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A7A2R4	0757-0443	0		RESISTOR 11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1102-F
A7A2R5	0698-0082	7		RESISTOR 464 1% .125W F TC=0+-100	24546	C4-1/8-T0-4640-F
A7A2R6	0698-3161	9		RESISTOR 38.3K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3832-F
A7A2R7	0698-3441	8		RESISTOR 215 1% .125W F TC=0+-100	24546	C4-1/8-T0-215R-F
A7A2R8	0698-0082	7		RESISTOR 464 1% .125W F TC=0+-100	24546	C4-1/8-T0-4640-F
A7A2R9	0698-3454	3		RESISTOR 215K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2153-F
A7A2R10	0757-0274	5		RESISTOR 1.21K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1211-F
A7A2R11	0698-3153	9		RESISTOR 3.83K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3831-F
A7A2R12	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A7A2R13	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A7A2R14	0757-0420	3		RESISTOR 750 1% .125W F TC=0+-100	24546	C4-1/8-T0-751-F
A7A2R15	2100-3154	7		RESISTOR-TRMR 1K 10% C SIDE-ADJ 17-TRN	02111	43P102
A7A2R16	0757-0200	7		RESISTOR 5.62K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5621-F
A7A2R17	0698-3449	6	1	RESISTOR 28.7K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2872-F
A7A2R18	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A7A2R19	0757-0279	0		RESISTOR 3.16K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3161-F
A7A2R20	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A7A2R21	0698-3457	6	1	RESISTOR 316K 1% .125W F TC=0+-100	28480	0698-3457
A7A2R22	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A7A2R23	0757-0317	7		RESISTOR 1.33K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1331-F
A7A2R24	0757-0279	0		RESISTOR 3.16K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3161-F
A7A2R25	0757-0439	4		RESISTOR 6.81K 1% .125W F TC=0+-100	24546	C4-1/8-T0-6811-F

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A7A2R26	0698-3159	5		RESISTOR 26.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2612-F
A7A2R27	0757-0440	7		RESISTOR 7.5K 1% .125W F TC=0+-100	24546	C4-1/8-T0-7501-F
A7A2R28	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A7A2R29	0698-0090	7	2	RESISTOR 464 1% .5W F TC=0+-100	28480	0698-0090
A7A2R30	0757-0465	6		RESISTOR 100K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1003-F
A7A2R31	0757-0422	5		RESISTOR 909 1% .125W F TC=0+-100	24546	C4-1/8-T0-909R-F
A7A2R32	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A7A2R33	0757-0419	0		RESISTOR 681 1% .125W F TC=0+-100	24546	C4-1/8-T0-681R-F
A7A2R34	0698-3445	2		RESISTOR 348 1% .125W F TC=0+-100	24546	C4-1/8-T0-348R-F
A7A2R35	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A7A2R36	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A7A2R37	0698-3158	4		RESISTOR 23.7K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2372-F
A7A2R38	0757-0439	4		RESISTOR 6.81K 1% .125W F TC=0+-100	24546	C4-1/8-T0-6811-F
A7A2R39	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A7A2R40	0698-3446	3		RESISTOR 383 1% .125W F TC=0+-100	24546	C4-1/8-T0-383R-F
A7A2R41	0757-0420	3		RESISTOR 750 1% .125W F TC=0+-100	24546	C4-1/8-T0-751-F
A7A2R42	0757-0440	7		RESISTOR 7.5K 1% .125W F TC=0+-100	24546	C4-1/8-T0-7501-F
A7A2R43	0757-0419	0		RESISTOR 681 1% .125W F TC=0+-100	24546	C4-1/8-T0-681R-F
A7A2R44	0698-0085	0		RESISTOR 2.61K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2611-F
A7A2R45	0698-3156	2		RESISTOR 14.7K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1472-F
A7A2R46	0698-3156	2		RESISTOR 14.7K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1472-F
A7A2R47	0698-3151	7		RESISTOR 2.87K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2871-F
A7A2R48	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A7A2R49	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A7A2R50	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A7A2R51	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A7A2R52	0698-3442	9		RESISTOR 237 1% .125W F TC=0+-100	24546	C4-1/8-T0-237R-F
A7A2R53	0698-3441	8		RESISTOR 215 1% .125W F TC=0+-100	24546	C4-1/8-T0-215R-F
A7A2R54	0698-3442	9		RESISTOR 237 1% .125W F TC=0+-100	24546	C4-1/8-T0-237R-F
A7A2R55	0698-3441	8		RESISTOR 215 1% .125W F TC=0+-100	24546	C4-1/8-T0-215R-F
A7A2R56	0698-0083	8		RESISTOR 1.96K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1961-F
A7A2R57	0698-0083	8		RESISTOR 1.96K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1961-F
A7A2TP1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A7A2TP2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A7A2TP3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A7A2TP4	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A7A2TP5	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A7A2TP6	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A7A2TP7	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A7A2TP8	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A7A2TP9	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A7A2TP10	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A7A2TP11	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ	28480	1251-0600
A7A2U1	1820-1746	4	1	IC BFR CMOS INV HEX	04713	MC14049UBCP
A7A2U2	1826-0180	0	1	IC TIMER TTL MONO/ASTBL	01295	NE555P
A7A2U3	1826-0192	4	1	IC V RGLTR TO-39	27014	LM320H-15
	1205-0011	0		HEAT SINK TO-5/TO-39-CS	28480	1205-0011
	1200-0173	5		INSULATOR-XSTR DAP-GL	28480	1200-0173
A7A2U4	1820-1963	7	2	IC FF CMOS D-TYPE POS-EDGE-TRIG DUAL	3L595	CD4013BAE
A7A2U5	1820-1965	9	1	IC GATE CMOS NOR TPL 3-INP	04713	MC14025BCP
A7A2U6	1820-1963	7		IC FF CMOS D-TYPE POS-EDGE-TRIG DUAL	3L595	CD4013BAE
A7A2U7	1820-1745	3	1	IC GATE CMOS NOR QUAD 2-INP	04713	MC14001BCP
A7A2U8	1826-0013	8		IC OP AMP LOW-NOISE TO-99 PKG	06665	SSS741CJ
A7A2U9	1826-0488	1	2	IC OP AMP WB TO-99 PKG	27014	LM218H
A7A2U10	1826-0488	1		IC OP AMP WB TO-99 PKG	27014	LM218H
A7A2VR1	1902-0025	4		DIODE-ZNR 10V 5% DO-35 PD=.4W TC=+.06%	28480	1902-0025
A7A2VR2	1902-0680	7		DIODE-ZNR 1N827 6.2V 5% DO-7 PD=.4W	24046	1N827
A7A2VR3	1902-3104	6	1	DIODE-ZNR 5.62V 5% DO-35 PD=.4W	28480	1902-3104
A7A2VR4	1902-0064	1	2	DIODE-ZNR 7.5V 5% DO-35 PD=.4W TC=+.05%	28480	1902-0064
A7A2VR5	1902-3139	7	1	DIODE-ZNR 8.25V 5% DO-35 PD=.4W	28480	1902-3139
A7A2VR6	1902-0064	1		DIODE-ZNR 7.5V 5% DO-35 PD=.4W TC=+.05%	28480	1902-0064
A7A2VR7	1902-0579	3	1	DIODE-ZNR 5.1V 5% PD=1W IR=10UA	28480	1902-0579
A7A2VR8	1902-3149	9		DIODE-ZNR 9.09V 5% DO-35 PD=.4W	28480	1902-3149
A7A2VR9	1902-3149	9		DIODE-ZNR 9.09V 5% DO-35 PD=.4W	28480	1902-3149
A7A3†	08662-60289	5	1	INVERTER ASSEMBLY	28480	08662-60289
A7A3C1	0180-4612	0	2	CAPACITOR-FXD 15UF+50-10% 300VDC AL	28480	0180-4612
A7A3C2	0180-4612	0		CAPACITOR-FXD 15UF+50-10% 300VDC AL	28480	0180-4612
A7A3C3	0180-0116	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	56289	150D685X9035B2
A7A3C4	0180-0116	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	56289	150D685X9035B2
A7A3C5	0160-4217	9	1	CAPACITOR-FXD 3900PF +-1% 500VDC MICA	28480	0160-4217
A7A3C6	0160-0297	7	1	CAPACITOR-FXD 1200PF +-10% 200VDC POLYE	28480	0160-0297
A7A3C7†				NOT ASSIGNED		
A7A3C8	0180-2751	4	1	CAPACITOR-FXD 470UF+100-10% 12VDC AL	00853	301EM471U012B
A7A3C9	0180-4614	2	1	CAPACITOR-FXD 68UF+100-10% 60VDC AL	56289	672D686H060DM5C
A7A3C10	0180-2749	0	1	CAPACITOR-FXD 270UF+100-10% 25VDC AL	00853	301EM271U025B

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A7A3C11	0180-4613	1	1	CAPACITOR-FXD 27UF+100-10% 100VDC AL	56289	672D276H100DM5C
A7A3C12†	0160-0168	1	8	CAPACITOR-FXD .1UF +-10% 200VDC POLYE	28480	0160-0168
A7A3C13†	0160-0168	1		CAPACITOR-FXD .1UF +-10% 200VDC POLYE	28480	0160-0168
A7A3CR1	1901-1065	2		DIODE-PWR RECT 1N4936 400V 1A 200NS	14936	1N4936
A7A3CR2	1901-1065	2		DIODE-PWR RECT 1N4936 400V 1A 200NS	14936	1N4936
A7A3CR3	1901-1065	2		DIODE-PWR RECT 1N4936 400V 1A 200NS	14936	1N4936
A7A3CR4	1901-1065	2		DIODE-PWR RECT 1N4936 400V 1A 200NS	14936	1N4936
A7A3CR5	1901-1065	2		DIODE-PWR RECT 1N4936 400V 1A 200NS	14936	1N4936
A7A3CR6	1901-0792	0	2	DIODE-SCHOTTKY 45V 30A	28480	1901-0792
	2740-0003	5	2	NUT-HEX-W/LKWR 10-32-THD .125-IN-THK	00000	ORDER BY DESCRIPTION
A7A3CR7	1901-0792	0		DIODE-SCHOTTKY 45V 30A	28480	1901-0792
	2740-0003	5		NUT-HEX-W/LKWR 10-32-THD .125-IN-THK	00000	ORDER BY DESCRIPTION
A7A3CR8	1901-0685	0	4	DIODE-PWR RECT 250V 5A 200NS	04713	MR822
A7A3CR9	1901-0685	0		DIODE-PWR RECT 250V 5A 200NS	04713	MR822
A7A3CR10	1901-0685	0		DIODE-PWR RECT 250V 5A 200NS	04713	MR822
A7A3CR11	1901-0685	0		DIODE-PWR RECT 250V 5A 200NS	04713	MR822
A7A3CR12	1901-1065	2		DIODE-PWR RECT 1N4936 400V 1A 200NS	14936	1N4936
A7A3CR13	1901-1065	2		DIODE-PWR RECT 1N4936 400V 1A 200NS	14936	1N4936
A7A3CR14	1901-1065	2		DIODE-PWR RECT 1N4936 400V 1A 200NS	14936	1N4936
A7A3F1†	2110-0630	9	2	FUSE .4A 125V NTD .25X.27	28480	2110-0630
	1251-2313	6	6	CONNECTOR-SGL CONT SKT .04-IN-BSC-SZ RND	28480	1251-2313
A7A3F2†	2110-0630	9		FUSE .4A 125V NTD .25X.27	28480	2110-0630
	1251-2313	6		CONNECTOR-SGL CONT SKT .04-IN-BSC-SZ RND	28480	1251-2313
A7A3L1	9100-4033	0	2	COIL, CHOKE 100 UH	28480	9100-4033
A7A3L2	9100-4033	0		COIL, CHOKE 100 UH	28480	9100-4033
A7A3L3	9100-4016	9	2	COIL, CHOKE 500 UH	28480	9100-4016
A7A3L4	9100-4016	9		COIL, CHOKE 500 UH	28480	9100-4016
A7A3L5	9100-4015	8	1	COIL, CHOKE 6.4 MH	28480	9100-4015
A7A3L6	9140-0315	7	2	FERRITE CHOKE	28480	9140-0315
A7A3L7	9140-0315	7		FERRITE CHOKE	28480	9140-0315
A7A3MP1	4040-0751	8		EXTR-PC BD ORN POLYC .062-BD-THKNS	28480	4040-0751
	1480-0073	6		PIN-ROLL .062-IN-DIA .25-IN-LG BE-CU	28480	1480-0073
A7A3MP2	4040-0751	8		EXTR-PC BD ORN POLYC .062-BD-THKNS	28480	4040-0751
	1480-0073	6		PIN-ROLL .062-IN-DIA .25-IN-LG BE-CU	28480	1480-0073
A7A3MP3	08662-00016	0	1	SUPPORT, PC BOARD #3	28480	08662-00016
A7A3MP4	08662-20042	4	2	EXTRUSION, HEAT SINK, .3	28480	08662-20042
	2360-0117	6	5	SCREW-MACH 6-32 .375-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A7A3MP5	08662-20042	4		EXTRUSION, HEAT SINK, .3	28480	08662-20042
	2360-0117	6		SCREW-MACH 6-32 .375-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A7A3MP6	08662-20043	5	1	EXTRUSION, HEAT SINK, DIODE	28480	08662-20043
	2360-0117	6		SCREW-MACH 6-32 .375-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
	6960-0016	0	2	PLUG HOLE	28480	6960-0016
A7A3Q1	1853-0442	4		TRANSISTOR PNP 2N3867 SI TO-5 PD=1W	04713	2N3867
	1200-0173	5		INSULATOR-XSTR DAP-GL	28480	1200-0173
A7A3Q2	1853-0442	4		TRANSISTOR PNP 2N3867 SI TO-5 PD=1W	04713	2N3867
	1200-0173	5		INSULATOR-XSTR DAP-GL	28480	1200-0173
A7A3Q3	1854-0657	5	2	TRANSISTOR NPN SI TO-3 PD=73.5W	28480	1854-0657
	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
	1251-2313	6		CONNECTOR-SGL CONT SKT .04-IN-BSC-SZ RND	28480	1251-2313
A7A3Q4	1854-0657	5		TRANSISTOR NPN SI TO-3 PD=73.5W	28480	1854-0657
	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
	1251-2313	6		CONNECTOR-SGL CONT SKT .04-IN-BSC-SZ RND	28480	1251-2313
A7A3R1	0764-0006	6	4	RESISTOR 18K 5% 2W MO TC=0+-200	28480	0764-0006
A7A3R2	0764-0006	6		RESISTOR 18K 5% 2W MO TC=0+-200	28480	0764-0006
A7A3R3	0757-0402	1	2	RESISTOR 110 1% .125W F TC=0+-100	24546	C4-1/8-T0-111-F
A7A3R4	0757-0402	1		RESISTOR 110 1% .125W F TC=0+-100	24546	C4-1/8-T0-111-F
A7A3R5	0757-0984	4	2	RESISTOR 10 1% .5W F TC=0+-100	28480	0757-0984
A7A3R6	0757-0984	4		RESISTOR 10 1% .5W F TC=0+-100	28480	0757-0984
A7A3R7	0757-0405	4		RESISTOR 162 1% .125W F TC=0+-100	24546	C4-1/8-T0-162R-F
A7A3R8	0757-0405	4		RESISTOR 162 1% .125W F TC=0+-100	24546	C4-1/8-T0-162R-F
A7A3R9	0757-0398	4		RESISTOR 75 1% .125W F TC=0+-100	24546	C4-1/8-T0-75R0-F
A7A3R10	0757-0398	4		RESISTOR 75 1% .125W F TC=0+-100	24546	C4-1/8-T0-75R0-F
A7A3R11	0698-3180	2	2	RESISTOR 68 2% 2W MO TC=0+-200	28480	0698-3180
A7A3R12	0698-3180	2		RESISTOR 68 2% 2W MO TC=0+-200	28480	0698-3180
A7A3R13	0698-3620	5	1	RESISTOR 100 5% 2W MO TC=0+-200	28480	0698-3620
A7A3R14†				NOT ASSIGNED		
A7A3R15†	0811-1673	6	2	RESISTOR 3.9 5% 2W PW TC=0+-400	75042	BWH2-3R9-J
A7A3R16†	0811-1673	6		RESISTOR 3.9 5% 2W PW TC=0+-400	75042	BWH2-3R9-J
A7A3RT1	0837-0153	9	1	THERMISTOR PROBE 100K-OHM TC=-4.6%/C-DEG	83186	51A92
	08662-00162	7	2	PAD, FOAM	28480	08662-00162
	0460-0042	6	2	TAPE ELE .75-IN-W .0025-IN-T POLYE-FLM	00000	ORDER BY DESCRIPTION
A7A3T1	9100-4018	1	2	TRANSFORMER	28480	9100-4018
A7A3T2	9100-4018	1		TRANSFORMER	28480	9100-4018
A7A3T3	9100-4017	0	1	TRANSFORMER	28480	9100-4017
	3050-0062	4	1	WASHER-FL MM NO. 8 .188-IN-ID .438-IN-OD	28480	3050-0062
	2580-0033	5	2	NUT-HEX-W/LKWR 8-32-THD .125-IN-THK	00000	ORDER BY DESCRIPTION

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A7A4	08662-60156	5	1	POWER SUPPLY MOTHER BOARD	28480	08662-60156
A7A4C1	0150-0012	3	1	CAPACITOR-FXD .01UF +-20% 1KVDC CER	56289	C023A102J103MS38
A7A4C2	0180-2835	5	2	CAPACITOR-FXD 600UF+50-10% 250VDC AL	28480	0180-2835
	2680-0129	8	6	SCREW-MACH 10-32 .312-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
	2190-0011	8	6	WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0011
A7A4C3	0180-2835	5		CAPACITOR-FXD 600UF+50-10% 250VDC AL	28480	0180-2835
	2680-0129	8		SCREW-MACH 10-32 .312-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
	2190-0011	8		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0011
A7A4C4	0160-4851	7	1		28480	0160-4851
A7A4C5	0160-0168	1		CAPACITOR-FXD .1UF +-10% 200VDC POLYE	28480	0160-0168
A7A4C6	0180-2862	8	1	CAPACITOR-FXD .015F+-20% 7.5VDC AL	28480	0180-2862
	2680-0129	8		SCREW-MACH 10-32 .312-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
	2190-0011	8		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0011
A7A4C7	0180-2208	6		CAPACITOR-FXD 220UF+-10% 10VDC TA	56289	150D227X9010S2
A7A4CR1	1901-0494	9	6	DIODE-PWR RECT 1N5003 1KV 1.5A	04713	1N5003
A7A4CR2	1901-0494	9		DIODE-PWR RECT 1N5003 1KV 1.5A	04713	1N5003
A7A4CR3	1901-0494	9		DIODE-PWR RECT 1N5003 1KV 1.5A	04713	1N5003
A7A4CR4	1901-0494	9		DIODE-PWR RECT 1N5003 1KV 1.5A	04713	1N5003
A7A4CR5	1901-0494	9		DIODE-PWR RECT 1N5003 1KV 1.5A	04713	1N5003
A7A4CR6	1901-0494	9		DIODE-PWR RECT 1N5003 1KV 1.5A	04713	1N5003
A7A4K1	0490-1173	9	1	RELAY 1C 5VDC-COIL 2A 220VAC	28480	0490-1173
A7A4Q1	1884-0268	7	1	THYRISTOR-SCR 2N6508 TO-220AB VRRM=600	04713	2N6508
	2190-0007	2		WASHER-LK INTL T NO. 6 .141-IN-ID	28480	2190-0007
	2200-0101	0	1	SCREW-MACH 4-40 .188-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A7A4Q2	1884-0091	4	1	THYRISTOR-SUS 2N4990 TO-98 VRRM=30	03508	2N4990
A7A4R1	0698-0085	0		RESISTOR 2.61K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2611-F
A7A4R2	0764-0006	6		RESISTOR 18K 5% 2W MO TC=0+-200	28480	0764-0006
A7A4R3	0764-0006	6		RESISTOR 18K 5% 2W MO TC=0+-200	28480	0764-0006
A7A4R4	0698-3132	4		RESISTOR 261 1% .125W F TC=0+-100	24546	C4-1/8-T0-2610-F
A7A4R5	0757-0290	5		RESISTOR 6.19K 1% .125W F TC=0+-100	19701	MF4C1/8-T0-6191-F
A7A4R6	0698-3433	8	1	RESISTOR 28.7 1% .125W F TC=0+-100	03888	PME55-1/8-T0-28R7-F
A7A4R7	0757-0401	0		RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A7A4R8	0811-1893	2	1	RESISTOR 5 5% 10W PW TC=0+-50	28480	0811-1893
A7A4R9	0698-3162	0		RESISTOR 46.4K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4642-F
A7A4R10	0757-0443	0		RESISTOR 11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1102-F
A7A4R11	0757-0466	7		RESISTOR 110K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1103-F
A7A4R12	0811-3514	8	1	RESISTOR .005 5% 5W PW TC=0+-90	28480	0811-3514
A7A4R13	0811-3288	3	1	RESISTOR .025 10% 2W PW TC=0+-180	28480	0811-3288
A7A4RT1	0837-0156	2	1	THERMISTOR DISC 5-OHM TC=-3.8%/C-DEG	93186	05E1
A7A4VR1	1902-0668	1	1	DIODE-ZNR 200V 5% DO-15 PD=1W TC=+.083%	28480	1902-0668
A7A4VR2	1902-0666	9	1	DIODE-ZNR 162V 5% DO-15 PD=1W TC=+.391%	28480	1902-0666
A7A4XA7A1A	1251-1631	9	9	CONNECTOR-PC EDGE 10-CONT/ROW 1-ROW	28480	1251-1631
A7A4XA7A1B	1251-1633	1	13	CONNECTOR-PC EDGE 15-CONT/ROW 1-ROW	28480	1251-1633
A7A4XA7A2	1251-1634	2		CONNECTOR-PC EDGE 18-CONT/ROW 1-ROW	28480	1251-1634
A7A4XA7A3	1251-5557	6	1	CONNECTOR-PC EDGE 22-CONT/ROW 1-ROW	28480	1251-5557
	0510-0160	6	2	NUT-HEX-DBL-CHAM 4-40-THD .122-IN-THK	00000	ORDER BY DESCRIPTION
	0570-0031	6	2	SCREW-MACH 4-40 .5-IN-LG RD-HD-SLT	00000	ORDER BY DESCRIPTION
A7MP1	08662-00017	1		COVER, PS BOTTOM	28480	08662-00017
A7MP2	08662-00042	2	1	COVER, PS TOP	28480	08662-00042
	08662-00021	7	1	BUMPER, FOAM	28480	08662-00021
A7MP3	0380-0388	3	5	STANDOFF-HEX .375-IN-LG 6-32THD	28480	0380-0388
A7MP4	0403-0332	7	2	GUIDE-PC BD BLK POLYC .062-BD-THKNS	28480	0403-0332
A7MP5	2360-0181	4	13	SCREW-MACH 6-32 .25-IN-LG 82 DEG	00000	ORDER BY DESCRIPTION
A7MP6	08662-00054	6	1	SUPPORT, PC	28480	08662-00054
A7MP7	08662-00055	7	1	DECK, AC	28480	08662-00055
	08662-00124	1	7	RUBBER, FOAM	28480	08662-00124
A7MP8	08662-00015	9	1	SUPPORT, A7XP1	28480	08662-00015
A7MP9	2200-0165	6	1	SCREW-MACH 4-40 .25-IN-LG 82 DEG	00000	ORDER BY DESCRIPTION
A7MP10	2200-0103	2		SCREW-MACH 4-40 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A7MP11	2360-0115	4		SCREW-MACH 6-32 .312-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A7MP12	08662-00131	0	1	SUPPORT, POWER MODULE	28480	08662-00131
A7MP13	08662-00014	8	1	COVER, AC	28480	08662-00014
A7XP1	1251-3315	0	1	CONNECTOR 9-PIN M UTILITY	28480	1251-3315
	1251-2097	3	8	CONTACT-CONN U/W-UTIL MALE CRP	28480	1251-2097
A8A1	08662-60001	9	2	VCO(NOT RECOMMENDED FOR FIELD REPAIR)	28480	08662-60001
A8A1	08662-60083	7	2	RESTORED VCO ASSEMBLY	28480	08662-60083
A8A2	08662-60001	9		VCO(NOT RECOMMENDED FOR FIELD REPAIR)	28480	08662-60001
A8A2	08662-60083	7		RESTORED VCO ASSEMBLY	28480	08662-60083

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	CD	Qty	Description	Mfr Code	Mfr Part Number
A8A3	10544B(003)	6	1	10MHZ REFERENCE OSCILLATOR NOT RECOMMENDED FOR FIELD REPAIR	28480	10544B(003)
A8A3	08662-60085	9	1	RESTORED VCO ASSEMBLY	28480	08662-60085
A8A3S2				NSR, PART OF A8A4S1		
A8A3S3				NSR, PART OF A8A4S1		
A8A4†	08662-60290	8	1	REFERENCE BUFFER	28480	08662-60290
A8A4C1	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A8A4C2	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A8A4C3	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A8A4C4	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A8A4C5	0160-4512	7		CAPACITOR-FXD 120PF +-5% 200VDC CER	28480	0160-4512
A8A4C6	0160-4365	8		CAPACITOR-FXD 470PF +-5% 100VDC CER	28480	0160-4365
A8A4C7	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A8A4C8	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A8A4C9	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A8A4C10	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A8A4C11	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A8A4C12	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A8A4C13				NOT ASSIGNED		
A8A4C14	0160-4031	5		CAPACITOR-FXD 330PF +-5% 100VDC CER	28480	0160-4031
A8A4C15	0160-4588	7		CAPACITOR-FXD 270PF +-5% 100VDC CER	28480	0160-4588
A8A4C16	0160-4389	6		CAPACITOR-FXD 100PF +-5PF 200VDC CER	28480	0160-4389
A8A4C17	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A8A4C18	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A8A4C19	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A8A4C20	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A8A4C21	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A8A4C22	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A8A4C23	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A8A4C24	0160-3879	7		CAPACITOR-FXD .01UF +-20% 100VDC CER	28480	0160-3879
A8A4C25	0160-3875	3		CAPACITOR-FXD 22PF +-5% 200VDC CER 0+-30	28480	0160-3875
A8A4C26				NOT ASSIGNED		
A8A4C27	0160-4365	8		CAPACITOR-FXD 470PF +-5% 100VDC CER	28480	0160-4365
A8A4CR1	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A8A4CR2	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A8A4CR3	1901-0518	8		DIODE-SM SIG SCHOTTKY	28480	1901-0518
A8A4J1	1250-0083	1	1	CONNECTOR-RF BNC FEM SGL-HOLE-FR 50-OHM	28480	1250-0083
	2190-0016	3	2	WASHER-LK INTL T 3/8 IN .377-IN-ID	28480	2190-0016
	2950-0001	8	2	NUT-HEX-DBL-CHAM 3/8-32-THD .094-IN-THK	00000	ORDER BY DESCRIPTION
A8A4J2	1250-0083	1		CONNECTOR-RF BNC FEM SGL-HOLE-FR 50-OHM	28480	1250-0083
	2190-0016	3		WASHER-LK INTL T 3/8 IN .377-IN-ID	28480	2190-0016
	2950-0001	8		NUT-HEX-DBL-CHAM 3/8-32-THD .094-IN-THK	00000	ORDER BY DESCRIPTION
A8A4K1†	0490-1034	1	2	RELAY 2C 12VDC-COIL .5A 350VDC	28480	0490-1034
	0340-0440	4		INSULATOR-IC NYLON WHITE	28480	0340-0440
A8A4K2†	0490-1034	1		RELAY 2C 12VDC-COIL .5A 350VDC	28480	0490-1034
	0340-0440	4		INSULATOR-IC NYLON WHITE	28480	0340-0440
A8A4L1	9140-0144	0		INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG	28480	9140-0144
A8A4L2	9140-0151	9	1	INDUCTOR RF-CH-MLD 2.07UH 5%	28480	9140-0151
A8A4L3	9140-0178	0	1	INDUCTOR RF-CH-MLD 12UH 10% .166DX.385LG	28480	9140-0178
A8A4L4	9100-2260	1		INDUCTOR RF-CH-MLD 1.8UH 10% .105DX.26LG	28480	9100-2260
A8A4L5	9100-2251	0		INDUCTOR RF-CH-MLD 220NH 10% .105DX.26LG	28480	9100-2251
A8A4L6	9100-2247	4		INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG	28480	9100-2247
A8A4MP1	08662-00025	1	1	SUPPORT, BNC BRACKET	28480	08662-00025
	2200-0103	2	8	SCREW-MACH 4-40 .25-IN-LG PAN-HD-POZ1	00000	ORDER BY DESCRIPTION
A8A4MP2	6960-0069	3	2	PLUG-HOLE	28480	6960-0069
A8A4Q1	1854-0247	9		TRANSISTOR NPN SI TO-39 PD=1W FT=800MHZ	28480	1854-0247
A8A4Q2	1854-0247	9		TRANSISTOR NPN SI TO-39 PD=1W FT=800MHZ	28480	1854-0247
A8A4R1	0698-7205	0		RESISTOR 51.1 1% .05W F TC=0+-100	24546	C3-1/8-TO-51R1-F
A8A4R2	0698-7239	0		RESISTOR 1.33K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1331-F
A8A4R3	0698-7251	6		RESISTOR 4.22K 1% .05W F TC=0+-100	24546	C3-1/8-TO-4221-F
A8A4R4	0698-7261	8		RESISTOR 11K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1102-F
A8A4R5	0698-7203	8		RESISTOR 42.2 1% .05W F TC=0+-100	24546	C3-1/8-TO-42R2-F
A8A4R6	0698-0090	7		RESISTOR 464 1% .5W F TC=0+-100	28480	0698-0090
A8A4R7	0757-0346	2		RESISTOR 10 1% .125W F TC=0+-100	24546	C4-1/8-TO-10R0-F
A8A4R8	0698-3438	3		RESISTOR 147 1% .125W F TC=0+-100	24546	C4-1/8-TO-147R-F
A8A4R9	0698-3401	0		RESISTOR 215 1% .5W F TC=0+-100	28480	0698-3401
A8A4R10	0698-7212	9		RESISTOR 100 1% .05W F TC=0+-100	24546	C3-1/8-TO-100R-F
A8A4R11	0698-7243	6		RESISTOR 1.96K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1961-F
A8A4R12				NOT ASSIGNED		
A8A4R13	0698-7239	0		RESISTOR 1.33K 1% .05W F TC=0+-100	24546	C3-1/8-TO-1331-F
A8A4R14	0698-7198	0		RESISTOR 26.1 1% .05W F TC=0+-100	24546	C3-1/8-TO-26R1-F
A8A4R15	0698-3437	2		RESISTOR 133 1% .125W F TC=0+-100	24546	C4-1/8-TO-133R-F

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A8A4R16	0698-7251	6		RESISTOR 4.22K 1% .05W F TC=0+-100	24546	C3-1/8-T0-4221-F
A8A4R17	0698-7251	6		RESISTOR 4.22K 1% .05W F TC=0+-100	24546	C3-1/8-T0-4221-F
A8A4R18	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A8A4R19	0698-7266	3		RESISTOR 17.8K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1782-F
A8A4R20	0698-7284	5		RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F
A8A4R21	0698-7244	7		RESISTOR 2.15K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2151-F
A8A4R22	0698-7277	6		RESISTOR 51.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5112-F
A8A4R23	0698-7198	0		RESISTOR 26.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-26R1-F
A8A4R24	0698-7198	0		RESISTOR 26.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-26R1-F
A8A4R25	0698-7198	0		RESISTOR 26.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-26R1-F
A8A4R26	0698-7198	0		RESISTOR 26.1 1% .05W F TC=0+-100	24546	C3-1/8-T0-26R1-F
A8A4R27	0698-7243	6		RESISTOR 1.96K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1961-F
A8A4R28	0698-7265	2		RESISTOR 16.2K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1622-F
A8A4R29	0698-7265	2		RESISTOR 16.2K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1622-F
A8A4R30	0698-7253	8		RESISTOR 5.11K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5111-F
A8A4R31	0698-7253	8		RESISTOR 5.11K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5111-F
A8A4R32	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A8A4R33	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A8A4R34	0698-7206	1		RESISTOR 56.2 1% .05W F TC=0+-100	24546	C3-1/8-T0-56R2-F
A8A4R35	0698-7204	9		RESISTOR 46.4 1% .05W F TC=0+-100	24546	C3-1/8-T0-46R4-F
A8A4R36	0698-7215	2		RESISTOR 133 1% .05W F TC=0+-100	24546	C3-1/8-T0-133R-F
A8A4R37	0698-7204	9		RESISTOR 46.4 1% .05W F TC=0+-100	24546	C3-1/8-T0-46R4-F
A8A4R38	0698-7215	2		RESISTOR 133 1% .05W F TC=0+-100	24546	C3-1/8-T0-133R-F
A8A4R39	0698-7215	2		RESISTOR 133 1% .05W F TC=0+-100	24546	C3-1/8-T0-133R-F
A8A4R40	0698-7215	2		RESISTOR 133 1% .05W F TC=0+-100	24546	C3-1/8-T0-133R-F
A8A4R41†	0757-1090	5	2	RESISTOR 261 1% .5W F TC=0+-100	28480	0757-1090
A8A4R42†	0757-1090	5		RESISTOR 261 1% .5W F TC=0+-100	28480	0757-1090
A8A4S1	3101-1730	4	1	SWITCH-PB 3-STATION 15MM C-C SPACING (INCLUDES S2 AND S3)	28480	3101-1730
A8A4T1	08662-80013	5		TRANSFORMER, 12T	28480	08662-80013
A8A4T2	08662-80003	3	4	TRANSFORMER	28480	08662-80003
A8A4T3	08662-80003	3		TRANSFORMER	28480	08662-80003
A8A4T4	08662-80013	5		TRANSFORMER, 12T	28480	08662-80013
A8A4T5	08662-80003	3		TRANSFORMER	28480	08662-80003
A8A4T6	08662-80003	3		TRANSFORMER	28480	08662-80003
A8A4T7	08662-80013	5		TRANSFORMER, 12T	28480	08662-80013
A8A4T8	08662-80013	5		TRANSFORMER, 12T	28480	08662-80013
A8A4T9	08662-80013	5		TRANSFORMER, 12T	28480	08662-80013
A8A4U1	1826-0138	8		IC COMPARATOR GP QUAD 14-DIP-P PKG	01295	LM339N
A8A4VR1	1902-3182	0		DIODE-ZNR 12.1V 5% DO-35 PD=.4W	28480	1902-3182
A8A4W1	8150-0033	6	2	WIRE, 22 AWG	28480	8150-0033
A8A4W2	8150-0033	6		WIRE, 22 AWG	28480	8150-0033
A8A5	08662-60191	8	1	REFERENCE SECTION MOTHER BOARD	28480	08662-60191
A8A5J1	1250-1588	3	4	CONNECTOR-RF SMB M PC 50-OHM	28480	1250-1588
A8A5J2	1250-1588	3		CONNECTOR-RF SMB M PC 50-OHM	28480	1250-1588
A8A5J3	1250-1588	3		CONNECTOR-RF SMB M PC 50-OHM	28480	1250-1588
A8A5J4	1250-1588	3		CONNECTOR-RF SMB M PC 50-OHM	28480	1250-1588
A8A5J5†				NOT ASSIGNED		
A8A5XA8A1-A8A5XA8A2				NOT ASSIGNED		
A8A5XA8A3	1251-1633	1		CONNECTOR-PC EDGE 15-CONT/ROW 1-ROW	28480	1251-1633
A8C1	0160-3036	8	5	CAPACITOR-FDTHRU 5000PF +80 -20% 200V	28480	0160-3036
A8C2	0160-3036	8		CAPACITOR-FDTHRU 5000PF +80 -20% 200V	28480	0160-3036
A8C3	0160-3036	8		CAPACITOR-FDTHRU 5000PF +80 -20% 200V	28480	0160-3036
A8C4	0160-3036	8		CAPACITOR-FDTHRU 5000PF +80 -20% 200V	28480	0160-3036
A8C5	0160-3036	8		CAPACITOR-FDTHRU 5000PF +80 -20% 200V	28480	0160-3036
A8L1†	9170-0499	1	1	CORE-TOROID AL=2135-NH/T	28480	9170-0499
A8MP1	0905-0741	6	1	GASKET, FOAM, SMALL	28480	0905-0741
A8MP2	0905-0742	7	1	GASKET, FOAM, LARGE	28480	0905-0742
A8MP3	5040-0394	6	1	BUTTON-INT	28480	5040-0394
A8MP4	5040-0395	7	2	BUTTON-EXT	28480	5040-0395
A8MP5	08660-00100	1	4	DAMPING PAD, FOAM	28480	08660-00100
A8MP6	08662-00124	1		RUBBER FOAM	28480	08662-00124
A8MP7	08662-00154	7	1	GASKET, 10 MHZ	28480	08662-00154
A8MP8	08662-20020	8	1	CASTING, BOTTOM 350 MHZ	28480	08662-20020
A8MP9	08662-20021	9	1	CASTING, COVER 10 MHZ	28480	08662-20021
A8MP10	08662-20022	0	1	CASTING, BASE, 10 MHZ	28480	08662-20022
A8MP11	08662-20037	7	1	LIMIT, CASTING	28480	08662-20037
A8MP12	08662-20284	6	1	CONTACT-FINGERS	28480	08662-20284
A8MP13	08662-00155	8	1	GASKET, 350 MHZ	28480	08662-00155
A8MP14	08662-20019	5	1	CASTING COVER, 350 MHZ	28480	08662-20919
A8MP15	2200-0509	2	9	SCREW-MACH 4-40 1.625-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A8 MP16	2190-0003	8		CONNECTOR	28480	2190-0003
A8 MP17	08662-00023	9	1	PLATE, HF OSCILLATORS SUPPORT	28480	08662-00023
A8 MP18	08662-20282	4	1	CONTACT-FINGERS	28480	08662-20282
A8 MP19	08662-20283	5	1	CONTACT-FINGERS	28480	08662-20283
A8 P1†				NOT ASSIGNED		
A8 XA8A4	1251-1633	1		CONNECTOR-PC EDGE 15-CONT/ROW 1 ROW	28480	1251-1633
				A8 MISCELLANEOUS PARTS		
	0360-0037	7	5	TERMINAL-SLDR LUG PL-MTG FOR-#6-SCR	28480	0360-0037
	0362-0227	1	3	CONNECTOR-SGL CONT SKT 1.14-MM-BSC SZ	28480	0362-0227
	0890-0041	6		TUBING-HS .11-D/.08-RCVD .016-WALL PVC	00000	ORDER BY DESCRIPTION
	2190-0003	8	14	WASHER-LK HLCL NO. 4 .115 IN-ID	28480	2190-0003
	2190-0124	4		WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	2200-0103	2		SCREW-MACH 4 40 .25-IN-LG PAN HD POZI	00000	ORDER BY DESCRIPTION
	2200-0105	4		SCREW MACH 4 40 .312-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
	2200-0111	2	1	SCREW MACH 4 40 .5 IN-LG PAN HD POZI	00000	ORDER BY DESCRIPTION
	2950-0078	9		NUT HEX DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
	8160-0054	2		RFI ROUND STRIP CU SN-PL .07-IN-OD	28480	8160-0054
A9	08662-60244	2	1	HP-IB INTERCONNECT	28480	08662-60244
A9E1	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM BSC-SZ SQ	28480	1251-0600
A9E2	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14-MM-BSC SZ SQ	28480	1251-0600
A9E3	1251-0600	0		CONNECTOR-SGL CONT PIN 1.14 MM BSC SZ SQ	28480	1251-0600
A9J1	1251-5315	4		CONNECTOR, 40 PIN, RIBBON CABLE	28480	1251-5315
A9J2	1251-3283	1	1	CONNECTOR 24 PIN F MICRORIBBON	28480	1251-3283
A9J3	1251-5370	1	1	CONNECTOR 11-PIN M POST TYPE	28480	1251-5370
A9MP1	0380-0643	3	2	STANDOFF HEX .255-IN-LG 6-32THD	00000	ORDER BY DESCRIPTION
A9MP2	0380-0643	3		STANDOFF-HEX .255-IN LG 6-32THD	00000	ORDER BY DESCRIPTION
A9MP3	08662-20027	5	1	SUPPORT, LEFT(VIEW FROM REAR OF INSTR)	28480	08662-20027
A9MP4	08662-20026	4	1	SUPPORT, RIGHT(VIEW FROM REAR OF INSTR)	28480	08662-20026
	2190-0017	4	2	WASHER-LK HLCL NO. 8 .168 IN-ID	28480	2190-0017
	2200-0103	2		SCREW MACH 4 40 .25 IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
A10	08662-60281	7	1	LINE FILTER ASSEMBLY (DOES NOT INCLUDE FL1)	28480	08662-60281
A10C1	0160-4702	7	2	CAPACITOR-FXD 1UF +-10% 400VDC MET-POLYP	28480	0160-4702
A10C2	0160-4702	7		CAPACITOR-FXD 1UF +-10% 400VDC MET-POLYP	28480	0160-4702
A10R1	0811-1553	1	1	RESISTOR .68 5% 2W PW TC=0+-800	75042	BWH2-11/16-J

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Item	Description	Extrusion Part Numbers (With Check Digits)			
		A3	A4	A5	A6
1	Support, Top	08662-00119 (4)	08662-00118 (3)	08662-00121 (8)	08662-00120 (7)
2	Screw-Machine, 6-32, 0.312 In. Lg, Pan Hd Pozi Plug, Extrusion Nut	2360-0115 (4) 08662-20028 (6)			
3	Support, Bottom,	08662-00008 (0)	08662-00007 (9)	08662-00010 (4)	08662-00009 (1)
4	Support, Center	08662-00128 (5)	08662-00127 (4)	08662-00130 (9)	08662-00129 (6) Qty: 2
5	Extrusion Assembly	08662-20071 (9)	08662-20072 (0)	08662-20073 (1)	Front: 08662-20075 (3) Back 08662-20074 (2)
6	Gasket	08662-00067 (1)	08662-00068 (2)	08662-00066 (0)	Front 08662-00065 (9) Back 08662-00064 (8)
7	Screw, Tapping, 0.5 In. Lg, Pan Hd, Pozi, Stl	0624-0281 (3)			

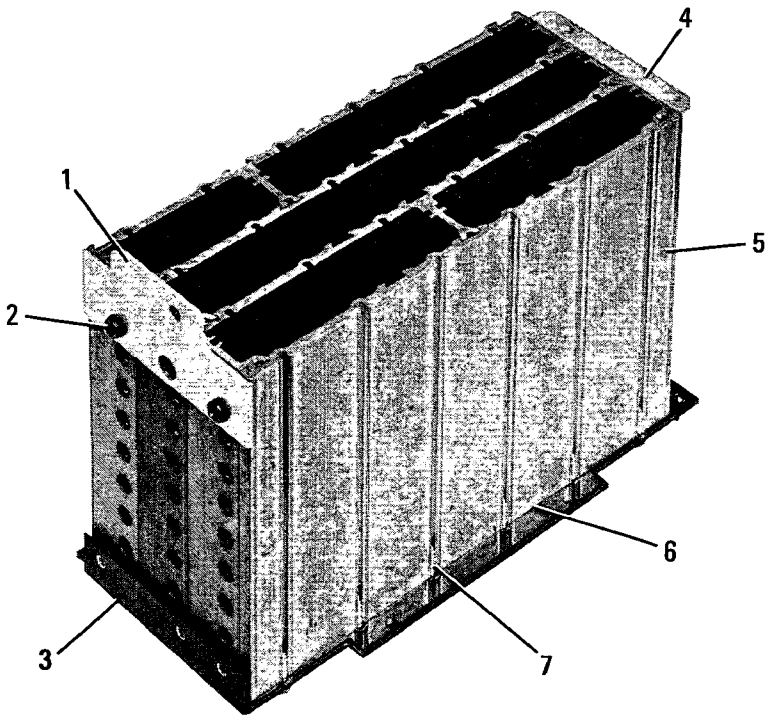

Figure 6-1. Extrusion Assemblies Replaceable Parts

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
				8662A CHASSIS PARTS		
B1	3160-0338	0	1	FAN (DOES NOT INCLUDE MP103)	28480	3160-0338
F1	2110-0010	9	1	FUSE 5A 250V NTD 1.25X.25 UL (LINE FUSE FOR 115V OPERATION)	75915	312005
F1	2110-0083	6	1	FUSE 2.5A 250V NTD 1.25X.25 UL (LINE FUSE FOR 230V OPERATION)	28480	2110-0083
F2	2110-0063	2	1	FUSE .75A 250V NTD 1.25X.25 UL (OVEN FUSE FOR 115V OPERATION)	28480	2110-0963
F2	2110-0012	1	1	FUSE .5A 250V NTD 1.25X.25 UL (OVEN FUSE FOR 230V OPERATION)	28480	2110-0012
FL1	9135-0084	6	1	FILTER LINE	28480	9135-0984
J1†				CONNECTOR, RF OUTPUT (STD. & OPT 001) MADE UP OF THE FOLLOWING:		
	08731-210	2	1	NUT-LOCKING	28480	08731-210
	5021-0836	1	1	ADH ELECT CND EPYX	28480	5021-0836
	1250-0915	8	1	CONTACT-RF CONN SER APC-N FEMALE	9D949	131-149
	2190-0104	0	1	WASHER-LK INTL T 7/16 IN .439-IN-ID	28480	2190-0104
	5040-0306	0	1	INSULATOR	28480	5040-0306
	08555-20093	5	1	CENTER CONDUCTOR	28480	06555-20093
	08761-2027	4	1	INSULATOR	28480	08761-2027
	08555-20074	6	1	BODY BULKHEAD	28480	08555-20094
	2950-0132	6	1	NUT-HEX-DBL-CHAM 7/16-28-THD .094-IN-THK	00000	ORDER BY DESCRIPTION
J2				P/O MP113, NSR		
J3	1251-0143	6	1	CONNECTOR 14-PIN F MICRO RIBBON	28480	1251-0143
	0360-0002	6	1	TERMINAL-SLDR LUG PL-MTG FOR-#2-SCR	28480	0360-0002
	0520-0129	8	2	SCREW-MACH 2-56 .312-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
	0610-0001	6	3	NUT-HEX-DBL-CHAM 2-56-THD .062-IN-THK	00000	ORDER BY DESCRIPTION
	2190-0014	1	2	WASHER-LK INTL T NO. 2 .089-IN-ID	28480	2190-0014
J4	1250-0083	1	3	CONNECTOR-RF BNC FEM SGL-HOLE-FR 50-OHM	28480	1250-0083
	2190-0016	3	3	WASHER-LK INTL T 3/8 IN .377-IN-ID	28480	2190-0016
	2950-0001	8	3	NUT-HEX-DBL-CHAM 3/8-32-THD .094-IN-THK	00000	ORDER BY DESCRIPTION
J5	1250-0083	1		CONNECTOR-RF BNC FEM SGL-HOLE-FR 50-OHM	28480	1250-0083
	2190-0016	3		WASHER-LK INTL T 3/8 IN .377-IN-ID	28480	2190-0016
	2950-0001	8		NUT-HEX-DBL-CHAM 3/8-32-THD .094-IN-THK	00000	ORDER BY DESCRIPTION
J6	1250-0083	1		CONNECTOR-RF BNC FEM SGL-HOLE-FR 50-OHM	28480	1250-0083
	2190-0016	3		WASHER-LK INTL T 3/8 IN .377-IN-ID	28480	2190-0016
	2950-0001	8		NUT-HEX-DBL-CHAM 3/8-32-THD .094-IN-THK	00000	ORDER BY DESCRIPTION

See introduction to this section for ordering information
*Indicates factory selected value
†FOR BACKDATING INFORMATION SEE SECTION VII

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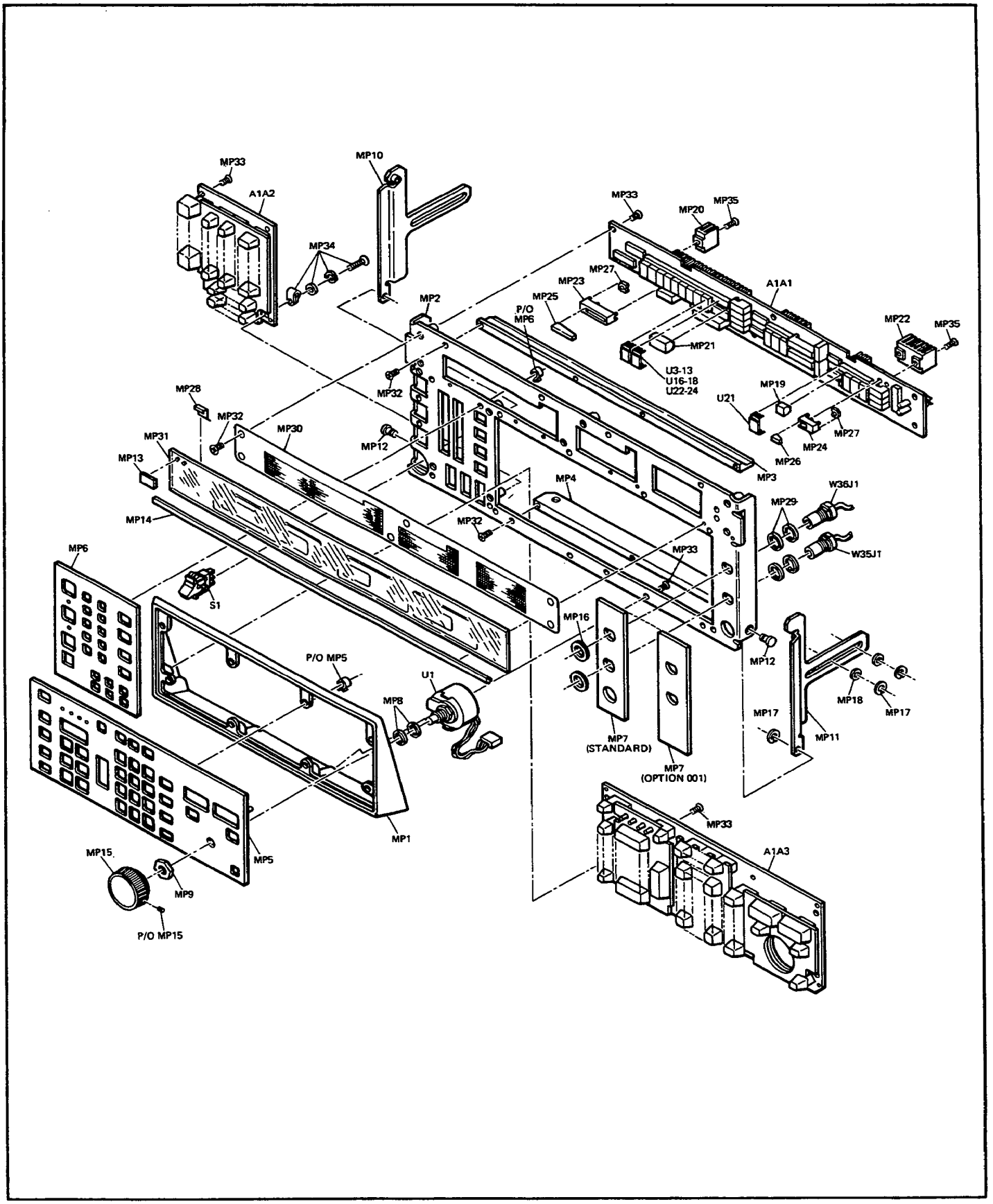

Figure 6-2. Front Panel Illustrated Parts Breakdown

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
MP1	08662-20036	6	1	CASTING, FRONT MACHINE	28480	08662-20036
MP2†	08662-00177	4	1	PANEL, SUB	28480	08662-00177
MP3	08662-20024	2	1	SUPPORT, PANEL, TOP	28480	08662-20024
MP4†	08662-20301	8	1	SUPPORT, PANEL, BOTTOM	28480	08662-20301
MP5	08662-00048	8	1	PANEL, MAIN, FRONT DRESS	28480	08662-00048
	0510-1148	2	12	RETAINER-PUSH ON KB-TO-SHFT EXT	28480	0510-1148
MP6	08662-00043	3	1	PANEL, SWEEP	28480	08662-00043
	0510-1148	2		RETAINER-PUSH ON KB-TO-SHFT EXT	28480	0510-1148
MP7†	08662-00178	5	1	PANEL, CONNECTOR (STANDARD)	28480	08662-00178
MP7	08662-00165	0	1	PANEL, CONNECTOR (OPTION 001)	28480	08662-00165
MP8	2190-0016	3	2	WASHER-LK INTL T 3/8 IN .377-IN-ID	28480	2190-0016
MP9	2950-0001	8	1	NUT-HEX-DBL-CHAM 3/8-32-THD .094-IN-THK	00000	ORDER BY DESCRIPTION
MP10	08662-00063	7	1	SUPPORT, PANEL, LEFT	28480	08662-00063
MP11†	08662-00176	3	1	SUPPORT, PANEL, RIGHT	28480	08662-00176
MP12†	08662-20300	7	2	PIN, HINGE	28480	08662-20300
MP13	7120-1254	1	1	NAMEPLATE .312-IN-WD .54-IN-LG AL	28480	7120-1254
MP14	5040-6928	4	1	DIVIDER STRIP	28480	5040-6928
MP15	0370-2389	7	1	KNOB-BASE 1-1/2 JGK .25-IN-ID	28480	0370-2389
	3030-0033	7	1	SCREW-SET 6-32 .188-IN-LG SMALL CUP-PT	00000	ORDER BY DESCRIPTION
MP16	0590-1011	6	2	NUT-KNRLD-R 15/32-32-THD .12-IN-THK	28480	0590-1011
MP17	0510-0045	6	6	RETAINER-RING E-R EXT .188-IN-DIA STL	28480	0510-0045
MP18	3050-0226	2	4	WASHER-FL MTLC NO. 10 .203-IN-ID	28480	3050-0226
MP19	08662-20038	8	3	PAD, LED SINGLE	28480	08662-20038
MP20	08662-20039	9	3	HEAT SINK, LED, SINGLE	28480	08662-20039
MP21	08672-20056	2	5	PAD, LED DOUBLE	28480	08672-20056
MP22	08672-20057	3	5	HEAT SINK, LED DOUBLE	28480	08672-20057
MP23	08672-40006	4	3	HOUSING, LAMP, LONG	28480	08672-40006
MP24	08672-40007	5	13	HOUSING, LAMP, SHORT	28480	08672-40007
MP25	08672-40008	6	3	BAR, LIGHT, LONG	28480	08672-40008
MP26	08672-40009	7	13	BAR, LIGHT, SHORT	28480	08672-40009
MP27	08672-40010	0	16	PLUG, LIGHT	28480	08672-40010
MP28	1600-0692	1	3	CLIP, RETAINING	28480	1600-0692
MP29	2190-0068	5	4	WASHER-LK INTL T 1/2 IN .595-IN-ID	28480	2190-0068
MP30	08662-00158	1	1	SCREEN, LED	28480	08662-00158
MP31	08662-20017	3	1	WINDOW, FRONT	28480	08662-20017
MP32	2200-0165	6	13	SCREW-MACH 4-40 .25-IN-LG 82 DEG	00000	ORDER BY DESCRIPTION
MP33	2200-0103	2	15	SCREW-MACH 4-40 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
MP34	1400-0053	4	1	CLAMP-CABLE .172-DIA .375-WD NYL	28480	1400-0053
	3050-0105	6	1	WASHER-FL MTLC NO. 4 .125-IN-ID	28480	3050-0105
	2190-0003	8	1	WASHER-LK HLCL NO. 4 .115-IN-ID	28480	2190-0003
	2200-0145	2	1	SCREW-MACH 4-40 .438-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
MP35	2200-0109	8	18	SCREW-MACH 4-40 .438-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
MP36†	08662-00172	9	9	SHIELD-ATTENUATOR HOUSING	28480	08662-00172
				** DELETE FOR PREFIXES 1833A & BELOW.		
MP37†	08662-00175	2	1	BRACKET-FRONT PANEL OUTPUT	28480	08662-00175
MP38†	08731-2102	8	1	NUT-LOCKING	28480	08731-2102
MP39-MP50				NOT ASSIGNED		

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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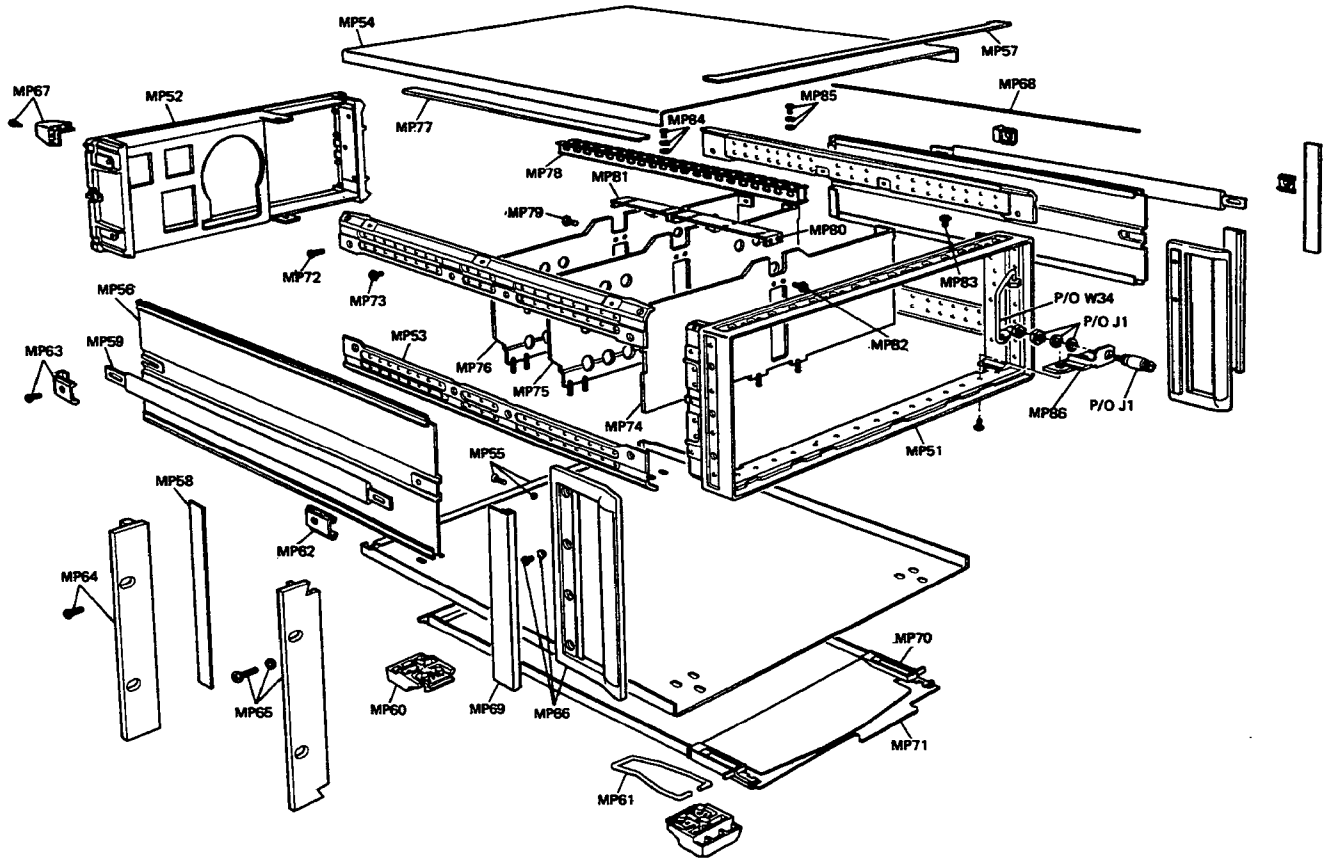

Figure 6-3. Chassis Illustrated Parts Breakdown

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
MP51	5020-8805	8	1	FRAME, FRONT	28480	5020-8805
MP52	08662-00056	8	1	PANEL, REAR	28480	08662-00056
MP53	5020-8837	6	4	STRUT, CORNER, W/O TAPPED HOLES	28480	5020-8837
MP54	5060-9835	0	1	COVER, TOP	28480	5060-9835
	0570-1171	7	2	SCREW-SPCL 6-32 .468-IN-LG UNCT 100	00000	ORDER BY DESCRIPTION
	0510-0015	0	2	RETAINER-RING E-R EXT .125-IN-DIA STL	28480	0510-0015
	7120-5911	5	1	LABEL, METRIC FASTENERS INFORMATION	28480	7120-5911
	7120-8138	4		LABEL-CAUTION	28480	7120-8138
MP55	5060-9847	4	1	COVER, BOTTOM	28480	5060-9847
	0570-1171	7		SCREW-SPCL 6-32 .468-IN-LG UNCT 100	00000	ORDER BY DESCRIPTION
	0510-0015	0		RETAINER-RING E-R EXT .125-IN-DIA STL	28480	0510-0015
	7120-8138	4		LABEL-CAUTION	28480	7120-8138
MP56	5060-9942	0	2	COVER, SIDE, PERFORATED	28480	5060-9942
MP57	5040-7202	9	1	TRIM, TOP	28480	5040-7202
MP58	5001-0440	1	2	TRIM, SIDE (STANDARD ONLY)	28480	5001-0440
MP59	5060-9804	3	2	HANDLE STRAP	28480	5060-9804
MP60	5040-7201	8	4	FOOT(STANDARD)	28480	5040-7201
MP61	1460-1345	5	2	TILT STAND, SST (WIRE FORM)	28480	1460-1345
MP62	5040-7219	8	2	STRAP, HANDLE, CAP-FRONT	28480	5040-7219
	2680-0118	5	2	SCREW-MACH 10-32 .5-IN-LG 82 DEG	00000	ORDER BY DESCRIPTION
MP63	5040-7220	1	2	STRAP, HANDLE, CAP-REAR	28480	5040-7220
	2680-0118	5		SCREW-MACH 10-32 .5-IN-LG 82 DEG	00000	ORDER BY DESCRIPTION
MP64	5020-8863	8	2	FLANGE-W/O FRONT HANDLE KIT (OPTION 908 ONLY)	28480	5020-8863
	2510-0193	7	8	SCREW-MACH 8-32 .375-IN-LG PAN-HD-POZI (OPTION 908 ONLY)	28480	2510-0193
MP65	5020-8875	2	2	FLANGE-WITH FRONT HANDLE KIT (OPTION 909 ONLY)	28480	5020-8875
	2510-0194	8	8	SCREW-MACH 8-32 .625-IN-LG PAN-HD-POZI (OPTION 909 ONLY)	28480	2510-0194
	2190-0009	4	8	WASHER-LK INTL T NO. 8 .168-IN-ID (OPTION 909 ONLY)	28480	2190-0009
MP66	5060-9900	0	2	HANDLE (OPTIONS 907 AND 909)	28480	5060-9900
	2510-0195	9	8	SCREW-MACH 8-32 .375-IN-LG 100 DEG (OPTION 907 ONLY)	28480	2510-0195
	2190-0048	1	8	WASHER-LK 82 CTSK EXT T NO. 8 .168-IN-ID (OPTION 907 ONLY)	28480	2190-0048
MP67	5040-7221	2	4	STAND-OFF, REAR PANEL	28480	5040-7221
	2360-0197	2	4	SCREW-MACH 6-32 .375-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
MP68	8160-0226	0	12	RFI ROUND STRIP MNL-MSH .05-IN-OD	28480	8160-0226
MP69	5020-8897	8	2	TRIM (OPTION 907 ONLY)	28480	5020-8897
MP70	5061-2033	8	1	TRAY	28480	5061-2033
MP71	7120-7205	4	1	PULL OUT CARD	28480	7120-7205
MP72	2510-0192	6	16	SCREW-MACH 8-32 .25-IN-LG 100 DEG	00000	ORDER BY DESCRIPTION
MP73	2360-0113	2	6	SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
MP74	08662-00051	3	1	GUSSET, FRONT	28480	08662-00051
MP75	08662-00052	4	1	GUSSET, CENTER	28480	08662-00052
MP76	08662-00053	5	1	GUSSET, REAR	28480	08662-00053
MP77	08662-00034	2	1	COVER, DUCT	28480	08662-00034
MP78	08662-00035	3	1	DUCT, WIRE	28480	08662-00035
MP79	2360-0117	6	6	SCREW-MACH 6-32 .375-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
MP80	08662-00132	1	1	SUPPORT, GUSSET 1	28480	08662-00132
MP81	08662-00133	2	1	SUPPORT, GUSSET 2	28480	08662-00133
MP82	2360-0115	4	2	SCREW-MACH 6-32 .312-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
MP83	2360-0116	5	4	SCREW-MACH 6-32 .312-IN-LG 82 DEG	00000	ORDER BY DESCRIPTION
MP84	2360-0195	0	5	SCREW-MACH 6-32 .312-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
	2190-0006	1	7	WASHER-LK HLCL NO. 6 .141-IN-ID	28480	2190-0006
	3050-0227	3	7	WASHER-FL MTLC NO. 6 .149-IN-ID	28480	3050-0227
MP85	2360-0193	8	2	SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
	2190-0006	1		WASHER-LK HLCL NO. 6 .141-IN-ID	28480	2190-0006
	3050-0227	3		WASHER-FL MTLC NO. 6 .149-IN-ID	28480	3050-0227
MP86-MP100				NOT ASSIGNED		

See introduction to this section for ordering information
*Indicates factory selected value

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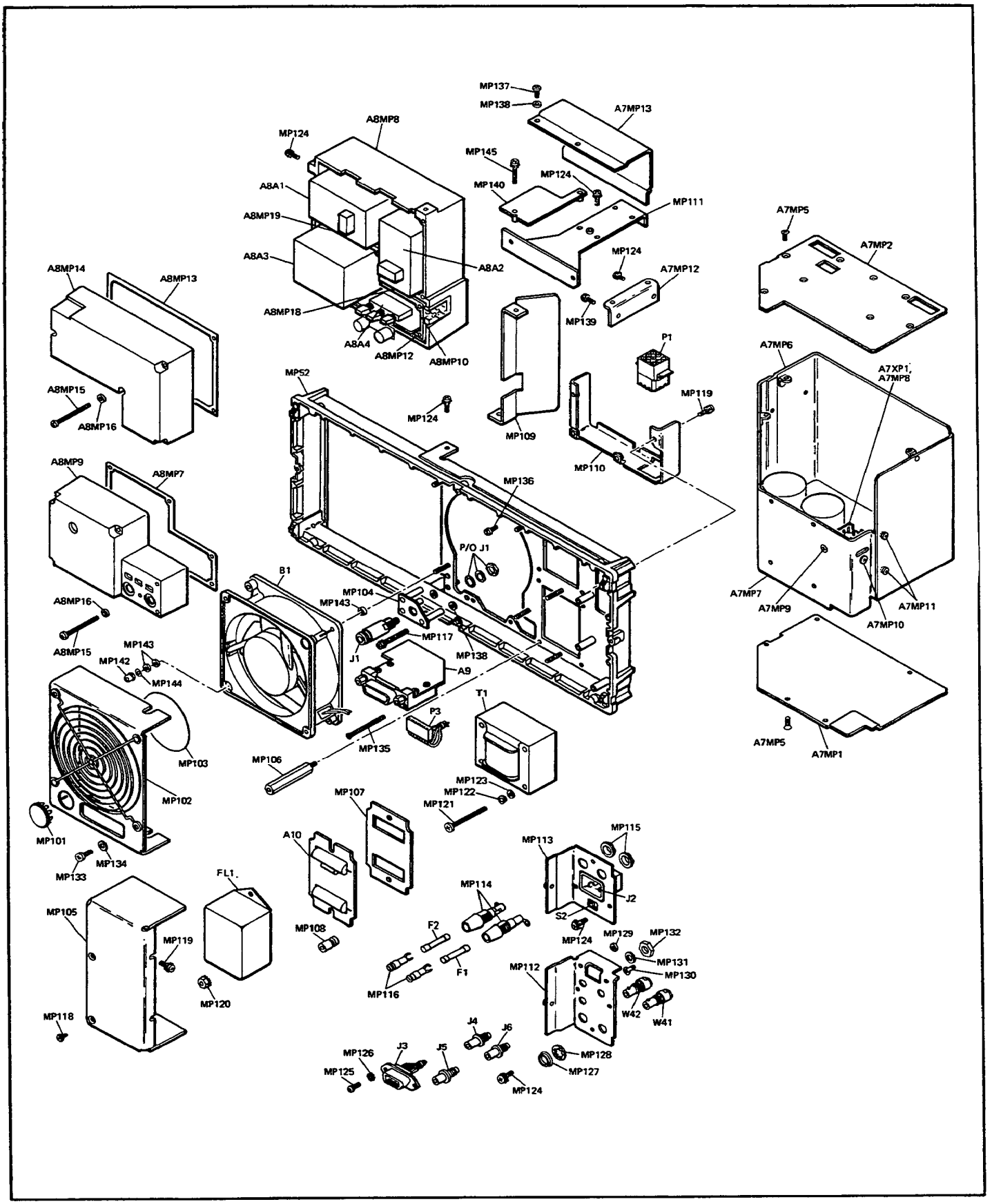

Figure 6-4. Rear Panel Illustrated Parts Breakdown

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
MP101	6960-0003	5	1	PLUG-HOLE DOME-HD FOR .75-D-HOLE STL (FOR STANDARD INSTRUMENT ONLY)	28480	6960-0003
MP102	08662-00057	9	1	COVER, FAN	28480	08662-00057
	4208-0220	2	2	CUSHION, FAN COVER	28480	4208-0220
MP103	86701-00017	3	1	DISK, FAN SHIELD	28480	86701-00017
MP104	08662-00036	4	1	SUPPORT, N (OPTION 001 ONLY)	28480	08662-00036
MP105	08662-00011	5	1	COVER, TRANSFORMER	28480	08662-00011
MP106	08662-20040	2	2	SCREW, PS	28480	08662-20040
MP107	08662-00159	2	1	INSULATOR, LINE FILTER	28480	08662-00159
MP108	08662-20060	6	2	SUPPORT, LINE FILTER	28480	08662-20060
MP109	08662-00028	4	1	DEFLECTOR, AIR	28480	08662-00028
MP110	08662-00013	7	1	SUPPORT, MOLEX, UPPER	28480	08662-00013
MP111	08662-00134	3	1	SUPPORT, GUSSET, REAR	28480	08662-00134
MP112	08662-00012	6	1	SUPPORT, BNC	28480	08662-00012
MP113	08662-00058	0	1	PLATE, FUSE (INCLUDES J2 AND S2, NSR)	28480	08662-00058
MP114	2110-0564	8	2	FUSEHOLDER BODY 12A MAX FOR UL	H9027	031.1657
MP115	2110-0569	3	2	NUT, FUSEHOLDER	28480	2110-0569
MP116	2110-0565	9	2	FUSEHOLDER CAP 12A MAX FOR UL	28480	2110-0565
MP117	2360-0242	8	3	SCREW-MACH 6-32 1.25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
MP118	2200-0104	3	2	SCREW-MACH 4-40 .25-IN-LG 82 DEG	00000	ORDER BY DESCRIPTION
MP119	2360-0113	2	5	SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
MP120	2420-0001	5	2	NUT-HEX-W/LKWR 6-32-THD .109-IN-THK	00000	ORDER BY DESCRIPTION
MP121	2360-0318	9	4	SCREW-MACH 6-32 1.875-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
MP122	2190-0006	1	4	WASHER-LK HLCL NO. 6 .141-IN-ID	28480	2190-0006
MP123	3050-0227	3	6	WASHER-FL MTLC NO. 6 .149-IN-ID	28480	3050-0227
MP124	2360-0113	2		SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
MP125	0520-0129	8	2	SCREW-MACH 2-56 .312-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
MP126	2190-0014	1	2	WASHER-LK INTL T NO. 2 .089-IN-ID	28480	2190-0014
MP127	0590-1011	6	2	NUT-KNRLD-R 15/32-32-THD .12-IN-THK	28480	0590-1011
MP128	2190-0068	5	2	WASHER-LK INTL T 1/2 IN .535-IN-ID	28480	2190-0068
MP129	0610-0001	6	2	NUT-HEX-DBL-CHAM 2-56-THD .062-IN-THK	00000	ORDER BY DESCRIPTION
MP130	0360-0002	6	1	TERMINAL-SLDR LUG PL-MTG FOR-#2-SCR	28480	0360-0002
MP131	2190-0016	3	3	WASHER-LK INTL T 3/8 IN .377-IN-ID	28480	2190-0016
MP132	2950-0001	8	3	NUT-HEX-DBL-CHAM 3/8-32-THD .094-IN-THK	00000	ORDER BY DESCRIPTION
MP133	2510-0045	8	2	SCREW-MACH 8-32 .375-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
MP134	3050-0001	1	2	WASHER-FL MTLC NO. 8 .172-IN-ID	28480	3050-0001
MP135	2200-0056	4	2	SCREW-MACH 4-40 .188-IN-LG 82 DEG	00000	ORDER BY DESCRIPTION
MP136	2360-0182	5	2	SCREW-MACH 6-32 .312-IN-LG 82 DEG	00000	ORDER BY DESCRIPTION
MP137	2200-0101	0	2	SCREW-MACH 4-40 .188-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
MP138	3050-0105	6	4	WASHER-FL MTLC NO. 4 .125-IN-ID	28480	3050-0105
MP139	2360-0117	6	1	SCREW-MACH 6-32 .375-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
MP140	08662-00020	6	1	SHIELD, CABLE	28480	08662-00020
MP142	0590-0076	1	2	NUT-HEX-PLSTC LKG 4-40-THD .143-IN-THK	28480	0590-0076
MP143	1250-0043	3	8		28480	1250-0043
MP144	3050-0227	3		WASHER-FL MTLC NO. 6 .149-IN-ID	28480	3050-0227
MP145	2360-0123	4	2	SCREW-MACH 6-32 .625-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
MP146-MP160				NOT ASSIGNED		

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
P1				CONNECTOR		
	1251-3159	0	1	CONNECTOR 9-PIN F UTILITY	28480	1251-3159
	1251-2418	2	8	CONTACT-CONN U/W-UTIL FEM CRP	28480	1251-2418
P2	08662-60160	1	1	BOARD ASSY, DISTRIBUTION	28480	08662-60160
P3	1251-4365	2	1	CONNECTOR 12-PIN F POST TYPE	28480	1251-4365
	1251-3967	8	16	CONTACT-CONN U/W-POST-TYPE FEM CRP	28480	1251-3967
	1251-3963	4	3	KEY-POST CONN	28480	1251-3963
P4	1251-4311	8	1	CONNECTOR 8-PIN F POST TYPE	28480	1251-4311
	1251-3967	8		CONTACT-CONN U/W-POST-TYPE FEM CRP	28480	1251-3967
	1251-3963	4		KEY-POST CONN	28480	1251-3963
	1251-0249	3	1	CONNECTOR 7-PIN F CIRC STANDARD	28480	1251-0249
R1				NOT ASSIGNED		
R2				NOT ASSIGNED		
R3	0757-0279	0	2	RESISTOR 3.16K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3161-F
R4	0698-7283	4	2	RESISTOR 90.9K 1% .05W F TC=0+-100	24546	C3-1/8-T0-9092 F
R5	0698-7260	7	1	RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
R6	0698-7283	4		RESISTOR 90.9K 1% .05W F TC=0+-100	24546	C3-1/8-T0-9092-F
R7				NOT ASSIGNED		
R8				NOT ASSIGNED		
R9				NOT ASSIGNED		
R10	0698-7244	7	10	RESISTOR 2.15K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2151-F
R11	0698-7244	7		RESISTOR 2.15K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2151-F
R12	0698-7244	7		RESISTOR 2.15K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2151-F
R13	0698-7244	7		RESISTOR 2.15K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2151-F
R14	0698-7244	7		RESISTOR 2.15K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2151-F
R15	0698-7244	7		RESISTOR 2.15K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2151-F
R16				NOT ASSIGNED		
R17				NOT ASSIGNED		
R18	0757-0279	0		RESISTOR 3.16K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3161-F
R19	0698-7244	7		RESISTOR 2.15K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2151-F
R20	0698-7244	7		RESISTOR 2.15K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2151-F
R21	0698-7244	7		RESISTOR 2.15K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2151-F
R22	0698-7244	7		RESISTOR 2.15K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2151-F
S1	3101-0613	0	1	SWITCH, TOGGLE	28480	3101-0613
S2				P/O MP113, NSR		
T1	9100-4014	7	1	TRANSFORMER HEATER	28480	9100-4014
U1	08662-60078	0	1	GEN ROTARY PULSE ASSEMBLY MADE UP OF THE FOLLOWING:	28480	08662-60078
	1251-3963	4		KEY-POST CONN	28480	1251-3963
	5060-0329	9	1	GEN ROTARY PULSE	28480	5060-0329
	1251-3967	8		CONTACT-CONN U/W-POST-TYPE FEM CRP	28480	1251-3967
	1251-4511	0	1	CONNECTOR 6-PIN F POST TYPE	28480	1251-4511
U2				NOT ASSIGNED		
U3	1990-0503	8	17	DISPLAY-NUM-DOT MAT 1-CHAR .29-H	28480	5082-7302, CAT D
U4	1990-0503	8		DISPLAY-NUM-DOT MAT 1-CHAR .29-H	28480	5082-7302, CAT D
U5	1990-0503	8		DISPLAY-NUM-DOT MAT 1-CHAR .29-H	28480	5082-7302, CAT D
U6	1990-0503	8		DISPLAY-NUM-DOT MAT 1-CHAR .29-H	28480	5082-7302, CAT D
U7	1990-0503	8		DISPLAY-NUM-DOT MAT 1-CHAR .29-H	28480	5082-7302, CAT D
U8	1990-0503	8		DISPLAY-NUM-DOT MAT 1-CHAR .29-H	28480	5082-7302, CAT D
U9	1990-0503	8		DISPLAY-NUM-DOT MAT 1-CHAR .29-H	28480	5082-7302, CAT D
U10	1990-0503	8		DISPLAY-NUM-DOT MAT 1-CHAR .29-H	28480	5082-7302, CAT D
U11	1990-0503	8		DISPLAY-NUM-DOT MAT 1-CHAR .29-H	28480	5082-7302, CAT D
U12	1990-0503	8		DISPLAY-NUM-DOT MAT 1-CHAR .29-H	28480	5082-7302, CAT D
U13	1990-0503	8		DISPLAY-NUM-DOT MAT 1-CHAR .29-H	28480	5082-7302, CAT D
U14				NOT ASSIGNED		
U15				NOT ASSIGNED		
U16	1990-0503	8		DISPLAY-NUM-DOT MAT 1-CHAR .29-H	28480	5082-7302, CAT D
U17	1990-0503	8		DISPLAY-NUM-DOT MAT 1-CHAR .29-H	28480	5082-7302, CAT D
U18	1990-0503	8		DISPLAY-NUM-DOT MAT 1-CHAR .29-H	28480	5082-7302, CAT D
U19				NOT ASSIGNED		
U20				NOT ASSIGNED		
U21	1990-0399	0	1	DISPLAY-AN-DOT MAT 1-CHAR .135-H	28480	5082-7304
U22	1990-0503	8		DISPLAY-NUM-DOT MAT 1-CHAR .29-H	28480	5082-7302, CAT D
U23	1990-0503	8		DISPLAY-NUM-DOT MAT 1-CHAR .29-H	28480	5082-7302, CAT D
U24	1990-0503	8		DISPLAY-NUM-DOT MAT 1-CHAR .29-H	28480	5082-7302, CAT D
W1	08662-60021	3	1	CABLE ASSY (963)	28480	08662-60021
W2	08662-60022	4	1	CABLE ASSY (965)	28480	08662-60022
W3	08662-60023	5	1	CABLE ASSY (960)	28480	08662-60023
W4	08662-60024	6	1	CABLE ASSY (935)	28480	08662-60024
W5	08662-60025	7	1	CABLE ASSY (967)	28480	08662-60025

See introduction to this section for ordering information
*Indicates factory selected value

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
W6	08662-60026	8	1	CABLE ASSY (962)	28480	08662-60026
W7	08662-60027	9	1	CABLE ASSY (966)	28480	08662-60027
W8	08662-60028	0	1	CABLE ASSY (964)	28480	08662-60028
W9	08662-60029	1	1	CABLE ASSY (973)	28480	08662-60029
W10	08662-60030	4	1	CABLE ASSY (961)	28480	08662-60030
W11	08662-60031	5	1	CABLE ASSY (975)	28480	08662-60031
W12	08662-60032	6	1	CABLE ASSY (972)	28480	08662-60032
W13	08662-60033	7	1	CABLE ASSY (974)	28480	08662-60033
W14	08662-60034	8	1	CABLE ASSY (971)	28480	08662-60034
W15	08662-60035	9	1	CABLE ASSY (940)	28480	08662-60035
W16	08662-60036	0	1	CABLE ASSY (934)	28480	08662-60036
W17	08662-60037	1	1	CABLE ASSY (936)	28480	08662-60037
W18	08662-60038	2	1	CABLE ASSY (937)	28480	08662-60038
W19	08662-60039	3	1	CABLE ASSY (933)	28480	08662-60039
W20	08662-60040	6	1	CABLE ASSY (930)	28480	08662-60040
W21	08662-60041	7	1	CABLE ASSY (932)	28480	08662-60041
W22	08662-60042	8	1	CABLE ASSY (931)	28480	08662-60042
W23	08662-60043	9	1	CABLE ASSY (951)	28480	08662-60043
W24	08662-60044	0	1	CABLE ASSY (950)	28480	08662-60044
W25	08662-60045	1	1	CABLE ASSY (924)	28480	08662-60045
W26	08662-60046	2	1	CABLE ASSY (925)	28480	08662-60046
W27	08662-60047	3	1	CABLE ASSY (923)	28480	08662-60047
W28	08662-60048	4	1	CABLE ASSY (922)	28480	08662-60048
W29	08662-60049	5	1	CABLE ASSY (920)	28480	08662-60049
W30	08662-60050	8	1	CABLE ASSY (921)	28480	08662-60050
W31	08662-60051	9	1	CABLE ASSY (91)	28480	08662-60051
W32	08662-60052	0	1	CABLE ASSY (94)	28480	08662-60052
W33	08662-60053	1	1	CABLE ASSY (93)	28480	08662-60053
W34†	08662-20299	3	1	CABLE ASSY (8) STANDARD	28480	08662-20299
	08662-20076	4	1	CABLE, SEMI-RIGID (OPTION 001)	28480	08662-20076
W35	08662-60055	3	1	CABLE ASSY (941)DCU ASSY TO A4A9	28480	08662-60055
	1250-1091	3	2	CONNECTOR-RF BNC FEM SGL-HOLE-RR 50-OHM	28480	1250-1091
W36	08662-60056	4	1	CABLE ASSY (0)FRONT PANEL ID DCU ASSY	28480	08662-60056
	1250-1091	3		CONNECTOR-RF BNC FEM SGL-HOLE-RR 50-OHM NSR, PART OF W36 AND W36J1	28480	1250-1091
W37	08662-60057	5	1	CABLE ASSY (7)	28480	08662-60057
W38	08662-60058	6	1	CABLE ASSY (6)	28480	08662-60058
W39	08662-60059	7	1	CABLE ASSEMBLY, (1)	28480	08662-60059
W40	08662-60060	0	1	CABLE ASSY (3)	28480	08662-60060
W41	08662-60061	1	1	CABLE ASSEMBLY	28480	08662-60061
	1250-0870	4	2	CONNECTOR-RF BNC FEM SGL-HOLE-RR 50-OHM	28480	1250-0870
	2190-0068	5	1	WASHER-LK INTL T 1/2 IN .505-IN-ID	28480	2190-0068
	0590-1011	6	2	NUT-KNRLD-R 15/32-32-THD .12-IN-THK	28480	0590-1011
	2950-0001	8	1	NUT-HEX-DBL-CHAM 3/8-32-THD .094-IN-THK	00000	ORDER BY DESCRIPTION
	2190-0066	3	2	WASHER-LK EXT T NO. 10 .195-IN-ID	28480	2190-0066
W42	08662-60062	2	1	CABLE ASSY (90)	28480	08662-60062
	1250-0870	4		CONNECTOR-RF BNC FEM SGL-HOLE-RR 50-OHM	28480	1250-0870
	0590-1011	6		NUT-KNRLD-R 15/32-32-THD .12-IN-THK	28480	0590-1011
	2190-0066	3		WASHER-LK EXT T NO. 10 .195-IN-ID	28480	2190-0066
W43†	08662-20080	0	1	CABLE ASSY (A1U1 TO A2A11)	28480	08662-20080
W44	8120-2314	7	2	CABLE ASSY 26AWG 7-CNDCT (A6A9 TO A8A2)	28480	8120-2314
W45	8120-2676	4	1	CABLE ASSEMBLY (25) (A2A10 TO A6A10)	28480	8120-2676
W45	08662-00161	6	2	CLAMP, CABLE	28480	08662-00161
W46	8120-2314	7		CABLE ASSY 26AWG 7-CNDCT (A6A9 TO A8A1)	28480	8120-2314
W47	8120-2669	5	1	CABLE ASSY, READOUT (A1A1 TO A2A10)	28480	8120-2669
W48	8120-2670	8	1	CABLE ASSY, R-KEYBOARD (A1A3 TO A2A10)	28480	8120-2670
W49	8120-2671	9	1	CABLE ASSY, L-KEYBOARD (A1A2 TO A2A10)	28480	8120-2671
W50	8120-2673	1	1	CABLE ASSEMBLY, RIBBON (30) (A2A10 TO A9)	28480	8120-2673
W51	8120-2672	0	1	CABLE ASSEMBLY, RIBBON (31) (A2A10 TO A4A10)	28480	8120-2672
W52	8120-2674	2	1	CABLE ASSEMBLY, RIBBON (32) (A2A10 TO A3A11)	28480	8120-2674
W53	8120-2675	3	1	CABLE ASSEMBLY, RIBBON (33) (A2A10 TO A5A6)	28480	8120-2675
W54	08662-60074	6	1	CABLE ASSY (9)	28480	08662-60074
W55	08662-60020	2	1	CABLE ASSY (8)	28480	08662-60020
W56				POWER CABLE (SEE SECTION II)		
W57	8120-0009	3	1	CABLE-UNSHLD 18AWG 2-CNDCT BLK-JKT	28480	8120-0009
W58				NSR - PART OF W61		
W59	08662-60076	8	1	CABLE ASSY (96)	28480	08662-60076
W60	08662-60077	9	1	CABLE ASSY (97)	28480	08662-60077
W61	08662-60017	7	1	WIRING HARNESS	28480	08662-60017

See introduction to this section for ordering information
*Indicates factory selected value
† FOR BACKDATING INFORMATION SEE SECTION VII

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Table 6-3. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
				MISCELLANEOUS PARTS		
	0361-0295	1	2	RIVET-POP #305Z	28480	0361-0295
	0590-0075	0	4	NUT-CAP 4-40-THD .25-IN-THK .25-A/F BRS	00000	ORDER BY DESCRIPTION
	0890-0056	3	2	TUBING-MS .2-D/.14-RCVD .02-WALL PVC BLK	28480	0890-0056
	0890-0983	5		TUBING-MS .125-D/.062-RCVD .02-WALL	28480	0890-0983
	1200-0063	2	2	CONNECTOR-SGL CONT SKT .04-IN-BSC-SZ RND	28480	1200-0063
	1251-4460	8	6	CLIP-CABLE PLUG RTNG-DUAL INLINE 16 CONT	28480	1251-4460
	1400-0014	7	1	CABLE CLAMP-HFCL .5-DIA .375-WD STL	28480	1400-0014
	1400-0015	8	1	CLAMP-CABLE .25-DIA .375-WD STL	28480	1400-0015
	1400-0017	0	2	CLAMP-CABLE .312-DIA .375-WD NYL	28480	1400-0017
	1400-0249	0	10	CABLE TIE .062-.625-DIA .091-WD NYL	28480	1400-0249
	1400-0510	8	1	CLAMP-CABLE .15-DIA .62-WD NYL	28480	1400-0510
	2190-0009	4	6	WASHER-LK INTL T NO. 8 .168-IN-ID	28480	2190-0009
	2190-0018	5	14	WASHER-LK HLCL NO. 6 .141-IN-ID	28480	2190-0018
	2200-0105	4	8	SCREW-MACH 4-40 .312-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
	2200-0117	8	2	SCREW-MACH 4-40 .875-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
	2200-0127	0	4	SCREW-MACH 4-40 1.75-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
	2200-0166	7	2	SCREW-MACH 4-40 .312-IN-LG 82 DEG	00000	ORDER BY DESCRIPTION
	2200-0556	9	2	SCREW-MACH 4-40 1.7-IN-LG 82 DEG	00000	ORDER BY DESCRIPTION
	2200-0759	4	6	SCREW-MACH 4-40 .156-IN-LG 82 DEG	28480	2200-0759
	2260-0003	7	2	NUT-HEX-PLSTC LKG 4-40-THD .141-IN-THK	00000	ORDER BY DESCRIPTION
	2260-0009	3	8	NUT-HEX-W/LKWR 4-40-THD .094-IN-THK	00000	ORDER BY DESCRIPTION
	2360-0119	8	1	SCREW-MACH 6-32 .438-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
	2360-0121	2	4	SCREW-MACH 6-32 .5-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
	2360-0123	4	2	SCREW-MACH 6-32 .625-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
	2360-0333	8	26	SCREW-MACH 6-32 .25-IN-LG 100 DEG	28480	2360-0333
	2420-0001	5	16	NUT-HEX-W/LKWR 6-32-THD .109-IN-THK	00000	ORDER BY DESCRIPTION

Table 6-4. Code List of Manufacturers

Mfr Code	Manufacturer Name	Address		Zip Code
H9027	SCHURTER A G H	LUZERN	SW	
00000	ANY SATISFACTORY SUPPLIER			
00853	SANGAMO ELEC CO S CAROLINA DIV	PICKENS	SC	29671
01121	ALLEN-BRADLEY CO	MILWAUKEE	WI	53204
01295	TEXAS INSTR INC SEMICOND CMPNT DIV	DALLAS	TX	75222
02111	SPECTROL ELECTRONICS CORP	CITY OF IND	CA	91745
02114	FERROXCUBE CORP	SAUGERTIES	NY	12477
03508	GE CO SEMICONDUCTOR PROD DEPT	AUBURN	NY	13201
03888	K D I PYROFILM CORP	WHIPPANY	NJ	07981
04713	MOTOROLA SEMICONDUCTOR PRODUCTS	PHOENIX	AZ	85008
06383	PANDUIT CORP	TINLEY PARK	IL	60477
06665	PRECISION MONOLITHICS INC	SANTA CLARA	CA	95050
07263	FAIRCHILD SEMICONDUCTOR DIV	MOUNTAIN VIEW	CA	94042
14936	GENERAL INSTR CORP SEMICON PROD GP	HICKSVILLE	NY	11802
18324	SIGNETICS CORP	SUNNYVALE	CA	94086
19701	MEPCO/ELECTRA CORP	MINERAL WELLS	TX	76067
20932	EMCON DIV ITW	SAN DIEGO	CA	92129
24046	TRANSITRON ELECTRONIC CORP	WAKEFIELD	MA	01880
24355	ANALOG DEVICES INC	NORWOOD	MA	02062
24546	CORNING GLASS WORKS (BRADFORD)	BRADFORD	PA	16701
25088	SIEMENS CORP	ISELIN	NJ	08830
25403	AMPEREX ELEK CORP SEMICON & MC DIV	SLATERSVILLE	RI	02876
26654	VARADYNE INC	SANTA MONICA	CA	90404
27014	NATIONAL SEMICONDUCTOR CORP	SANTA CLARA	CA	95051
28480	HEWLETT-PACKARD CO CORPORATE HQ	PALO ALTO	CA	94304
29832	TELEDYNE PHILBRICK NEXUS	DEDHAM	MA	02026
3L585	RCA CORP SOLID STATE DIV	SOMERVILLE	NJ	
30983	MEPCO/ELECTRA CORP	SAN DIEGO	CA	92121
34371	HARRIS SEMICON DIV HARRIS-INTERTYPE	MELBOURNE	FL	32901
51642	CENTRE ENGINEERING INC	STATE COLLEGE	PA	16801
52648	PLESSEY SEMICONDUCTORS	SANTA ANA	CA	92705
52763	STETTNER-TRUSH INC	CAZENOVIA	NY	13035
56289	SPRAGUE ELECTRIC CO	NORTH ADAMS	MA	01247
72136	ELECTRO MOTIVE CORP	FLORENCE	SC	06226
72982	ERIE TECHNOLOGICAL PRODUCTS INC	ERIE	PA	16512
73138	BECKMAN INSTRUMENTS INC HELIPOT DIV	FULLERTON	CA	92634
74970	JOHNSON E F CO	WASECA	MN	56093
75042	TRW INC PHILADELPHIA DIV	PHILADELPHIA	PA	19108
75915	LITTELFUSE INC	DES PLAINES	IL	60016
76680	FEDERAL-MOGUL CORP R&R & PLSTC GP	REDWOOD CITY	CA	94062
83186	VICTORY ENGINEERING CORP	SPRINGFIELD	NJ	07081
9D949	AMPHENOL SALES DIV OF BUNKER-RAMO	BROADVIEW	IL	60153
91506	AUGAT INC	ATTLEBORO	MA	02703

See introduction to this section for ordering information
*Indicates factory selected value

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SECTION VII — Part 1
MANUAL CHANGES — Volume I

7-1. INTRODUCTION

This section contains manual change instructions for backdating (Sections IV, V and VI) for HP 8662A Synthesized Signal Generators having serial number prefixes lower than 2114A. This section also contains instrument modification suggestions and procedures that are recommened to improve the performance and reliability of your Generator. Backdating information for Sections I, II and III (Operating Manual) will be found in Appendix A of the Operating Manual.

7-2. Manual Changes

To adapt this manual to your instrument refer to Table 7-1 and make all manual changes listed opposite your serial number prefix. The manual changes are listed in serial number prefix sequence and should be made in the sequence listed. Table 7-2 is a summary of changes by component.

If your instrument's serial number prefix is not listed on the title page of this manual or in Table 7-1, it may be documented in a MANUAL CHANGES supplement. For additional important information about serial number coverage refer to INSTRUMENTS COVERED BY MANUAL in Section I.

Table 7-1. Manual Changes by Serial Number Prefix, Volume 1

Serial Number Prefix	Make Manual Changes	Serial Number Prefix	Make Manual Changes
1830A	X to A	1930A	X to M, K
1832A	X to B	1939A	X to N
1833A	X to C	1940A	X to P, N
1835A	X to D	1943A	X to O
1840A	X to E	1946A	X to P
1841A	X to F	2002A	X to Q
1845A	X to G	2020A	X to R
1850A	X to H	2021A	X to S
1902A	X to I	2024A	X to T
1904A	X to J	2026A	X to U
1908A	X to K	2033A	X to V
1925A	X to K	2038A	X to W
1928A	X to L	2107A	X

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Table 7-2. Summary of Changes by Component

Component	Change No.	Component	Change No.	Component	Change No.
A2A1C7	B	A3A4C32	H	A6A3MP5	L
A2A1C8	W	A3A4CR4—CR6	D	A6A3R23	L
A2A1R11	B	A3A7C23, C24	G	A6A3R70	O
A2A1R12	W	A3A7C26, C27	G	A6A3R76	I
A2A1U8	G	A3A7R5	G	A6A3R77	L
A2A3	S	A3A8R33, R34	L	A6A3R78	O
A2A3R20-25	S	A3A9U1	J	A6A4R34	U
A2A4R5	J	A3A10R27	Q	A6A4R156	U
A2A5	S	A4A1C47	B	A6A5R34	U
A2A5C8, C9	S	A4A1C53	D	A6A5R156	U
A2A5R4, R5	S	A4A1C59	D	A6A6R3, R5, R7	O
A2A5U10, U11	S	A4A1E3	M	A6A10MP1	S
A2A6TP7	G	A4A1MP4	L, K	A7A2C3, C4, C9, C10	X
A2A6U6	S	A4A1R107	D	A7A3	M
A2A7	X	A4A2R43	V	A7A3C7, C12, C13	M
A2A7C4—C30	X	A4A3R16	R	A7A3F1, F2	V
A2A7CR1, CR2	X	A4A4C27, C28, C32, C37, C38	D	A7A3R14, R15, R16	M
A2A7L1-L5	X	A4A4C57	L	A8A4	Q
A2A7R17	X	A4A4MP5	A	A8A4K1, K2	Q
A2A7R20	X	A4A4R61	L	A8A4R41, R42	Q
A2A7U19	D	A4A5C32	D	A8A5J5	X
A2A7U20—U23	X	A4A5R42	D	A8L1	F
A2A8	S	A4A6C24	M, E	A8P1	X
A2A9	P	A4A6C28	M	J1	X
A2A9MP1	S	A4A6L4	M, E	MP2, MP4, MP7, MP11, MP12	X
A2A9R11	U, S	A4A6R51	M	MP36	C
A2A9U1, U2	S, P	A4A6R56—R58	M	MP37, MP38	X
A2A9U3—U7	S	A4A7C29	B	W34	X
A2A9U8	S, P	A4A7R56	A	W43	B
A2A9U9—U12	P	A4A7R69, R70	C		
A2A10L1	D	A4A7R83	K		
A2MP3	S	A4A7R86	K		
A3A1C9	T	A5A3R86, R87	J		
A3A3C9	V	A5A3VR3, VR4	J		
A3A3C13	G	A5A4C6	D		
A3A3E1, E2	U	A6A1R21, R25	N		
A3A3L2	V	A6A3	L		
A3A3R98	G	A6A3CR6	L		
A3A3R122	G	A6A3L39	O		
A3A4C22, C23	G				
A3A4C25, C26	G				

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CHANGE A

Table 6-3:
Change A4A4MP5 to 08662-00167 (CD2) SHIELD, CKT, LARGE.
Change A4A7R56 to 0698-7262 (CD9) RESISTOR, 12.1K 1% .05W F TC=0±100.

CHANGE B

Table 6-3:
Change A2A1C7 to 0180-0291 (CD3) CAPACITOR-FXD 1UF ±10% 35 VDC TA.
Change A2A1R11 to 0757-0465 (CD6) RESISTOR 100K 1% .125W F TC=0±100.
Change A4A1C47 to 0180-2661 (CD5) CAPACITOR-FXD 1UF ±10% 50 VDC TA.
Change A4A7C29 to 0160-0127 (CD2) CAPACITOR-FXD 1UF ±20% 25 VDC CER.
Change W43 to 08662-20049 (CD1) CABLE ASSY (A1U1 to A2A11).

CHANGE C

Table 6-3:
Change A4A7R69 and R70 to 0698-7236 (CD7) RESISTOR 1K 1% .05W F TC=0±100.
Delete MP36.

CHANGE D

Table 6-3:
Change A2A7U19 to 1820-1206 (CD1) IC GATE TTL LS NOR TPL 3-INP.
Delete A2A10L1.
Change A3A4CR4—6 to 1901-0518 (CD8) DIODE SHOTTKY.
Change A4A1C53 to 0160-3878 (CD6) CAPACITOR-FXD 1000 PF ±20% 100 VDC CER.
Delete A4A1C59.
Delete A4A1R107.
Change A4A4C27 and C37 to 0160-3875 (CD3) CAPACITOR-FXD 22 PF ±5% 200 VDC CER 0±30.
Change A4A4C28 and C38 to 0160-4781 (CD2) CAPACITOR-FXD 27 PF.
Change A4A4C32 to 0160-4782 (CD3) CAPACITOR-FXD 33 PF.
Delete A4A5C32.
Delete A4A5R42.
Delete A5A4C6.

CHANGE E

Table 6-3:
Change A4A6L4 to 9135-0073 (CD3) INDUCTOR .051 UH.
Change A4A6C24 to 0160-4524 (CD1) CAPACITOR-FXD 24 PF ±5% 200 VDC CER 0±30.

CHANGE F

Table 6-3:
Delete A8L1.

CHANGE G

Page 5-3, Table 5-1:
Delete the entry A3A7R5.

Table 6-3:
Change A2A1U8 to 1820-1442 (CD7) IC CNTR TTL LS DECD ASYNCHRO.
Delete A2A6TP7.
Change A3A3C13 to 0160-3878 (CD6) CAPACITOR-FXD 1000 PF ±20% 100 VDC CER.
Change A3A3R98 to 0698-7248 (CD1) RESISTOR 3.16K 1% .05W F TC=0±100.
Delete A3A3R122.

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CHANGE G (cont'd)

Table 6-3 (cont'd):
Change A3A4C22 to 0160-4389 (CD6) CAPACITOR-FXD 100 PF ±5 PF 200 VDC CER.
Add A3A4C23, C25 and C26 0160-4389 (CD6) CAPACITOR-FXD 100 PF ±5 PF 200 VDC CER.
Change A3A7C23 to 0160-4389 (CD6) CAPACITOR-FXD 100 PF ±5 PF 200 VDC CER.
Add A3A7C24 0160-4389 (CD6) CAPACITOR-FXD 100 PF ±5 PF 200 VDC CER.
Add A3A7C26 and C27 0160-4389 (CD6) CAPACITOR-FXD 100 PF ±5 PF 200 VDC CER.
Remove the asterisk (*) on A3A7R5 and change part number to 0757-0439 (CD4) RESISTOR, 6.81K 1% .125W F TC=0±100.

CHANGE H

Table 6-3:
Change A3A4C32 to 0160-2242 (CD6) CAPACITOR-FXD 2.4 PF ±0.25 PF 500 VDC CER.

CHANGE I

Table 6-3:
Delete A6A3R76.

CHANGE J

Table 6-3:
Delete A2A4R5.
Change A3A9U1 to 0955-0095 (CD8) MIXER SRAI.
Delete A5A3R86 and R87.
Delete A5A3VR3 and VR4.

CHANGE K

Table 6-3:
Change A4A1MP4 to 08662-00167 (CD5) SHIELD, CKT, LARGE.
Change A4A7R83 to 0698-7234 (CD5) RESISTOR 825 1% .05W F TC=0±100.
Change A4A7R86 to 0698-7257 (CD2) RESISTOR 7.5K 1% .05W F TC=0±100.

CHANGE L

Table 6-3:
Change A3A8R33 to 0698-7202 (CD7) RESISTOR 38.3 1% .05W F TC=0±100.
Change A3A8R34 to 0698-7216 (CD3) RESISTOR 147 1% .05W F TC=0 ±100.
Change A4A1MP4 to 08662-00167 (CD5) SHIELD, CKT, LARGE.
Delete A4A4C57.
Delete A4A4R61.
Change A6A3 to 08662-60112 (CD3) HF MULTIPLIER ASSEMBLY.
Delete A6A3CR6.
Change A6A3MP5 to 08662-00167 (CD2) SHIELD, CKT, LARGE.
Change A6A3R23 to 0698-7236 (CD7) RESISTOR 1K 1% .05W F TC-0±100.
Delete A6A3R77.

CHANGE M

Page 5-5, Table 5-1:
Delete the following entries:
A4A6R56, A4A6R57, A4A6R58 under Reference Designator, 1—6 dB under Range of Values, entire entry under Process of Selection.

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CHANGE M (cont'd)

Page 5-5, Table 5-1 (cont'd):
Add the following entry:

Reference Designator	Service Sheet	Range of Values	Process of Selection
A4A6R51	39	26.5Ω—56.2Ω	Set the Generator to FM, 30 kHz peak deviation and EXT DC. Apply negative dc voltage (<—1V) to front panel MODULATION INPUT so that the signal at A4A10J5 is approximately 20.025 MHz. Select R51 for a level between —13 and —18 dBm. Check for spurious at approximately 19.875 MHz. Its level should be <—73 dBc. If not, increase the level of the 20.025 MHz signal (—13 dBm maximum).

Table 6-3:
Delete A4A1E3.
Change A4A6C24 to 0160-4524 (CD1) CAPACITOR-FXD 24 PF ±5% 200 VDC CER 0±30.
Delete A4A6C28.
Change A4A6L4 to 9135-0073 (CD3) INDUCTOR, .051 μH.
Change A4A6R51 to 0698-7206 (CD1) RESISTOR 56.2 1% .05W F TC=0±100.
Add an asterisk (*) to A4A6R51.
Delete A4A6R56*.
Delete A4A6R57*.
Delete A4A6R58*.
Change A7A3 to 08662-60159 (CD8) INVERTER ASSEMBLY.
Add A7A3C7 0160-0165 (CD8) CAPACITOR-FXD .056 UF ±10% 200 VDC POLYE.
Delete A7A3C12 and C13.
Add A7A3R14 0811-1675 (CD8) RESISTOR 5.6 5% 2W PW TC=0±400.
Delete A7A3R15 and R16.

CHANGE N

Table 6-3:
Change A6A1R21 to 0698-7236 (CD7) RESISTOR 1K 1% .05W F TC=0±100.
Change A6A1R25 to 0698-7247 (CD0) RESISTOR 2.87K 1% .05W F TC=0±100.

CHANGE O

Table 6-3:
Delete A6A3L39.
Add A6A3R70, 0698-7188 (CD8) RESISTOR 10 1% .05W F TC=0±100.
Delete A6A3R78.
Change A6A6R3 and A6A6R7 to 0698-7224 RESISTOR 316 1% .05W F TC=0±100.
Change A6A6R5 to 0698-7194 (CD6) RESISTOR 17.8 1% .05W F TC=0±100.

CHANGE P

Page 4-4, Table 4-1:
In the table at the top of the page, change the FM Indicated Accuracy performance limits to "±6% of reading plus 10 Hz".

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CHANGE P (cont'd)

Page 4-7, Table 4-1:
Replace the table in step 5 with the following:

FM Indicated	Results		
	Min.	Actual	Max.
5.0 kHz	4.69 kHz	_____	5.31 kHz
30.0 kHz	28.19 kHz	_____	31.81 kHz
70.0 kHz	65.79 kHz	_____	74.21 kHz
100.0 kHz	93.99 kHz	_____	106.01 kHz

Page 4-26, Table 4-2:
Under FM Indicated Accuracy 100 MHz (1 kHz Rate), change the Min. and Max. Results to the following:

Para. No.	Test	Min.	Actual	Max.
P/O 4-5	5.0 kHz	4.69 kHz	_____	5.31 kHz
	30.0 kHz	28.19 kHz	_____	31.81 kHz
	70.0 kHz	65.79 kHz	_____	74.21 kHz
	100.0 kHz	93.99 kHz	_____	106.01 kHz

Page 5-45, paragraph 5-32:
Change steps 3, 4 and 5 to steps 4, 5 and 6 respectively.
Add step 3 as follows: "Extend the front panel (removing two screws on top and two on the bottom of the front panel). Read the "CAL FACTOR" label on the upper left of the attenuator."
Change steps 4 and 5 to read as follows:

4. Adjust the "CW LEVEL" pot for a power meter reading of (+7.50 minus cal factor) ±.05 dBm. For example if the Cal Factor is .30, adjust the "CW LEVEL" pot for a power meter reading of +7.20 ±0.05 dBm.

5. Vary the Generator's amplitude in 0.1 dB steps between +5.1 and ±16.0 dBm. The power meter reading should be the Generator's indicated amplitude minus the Cal Factor, ±0.2 dBm for every step. If not, readjust "CW LEVEL".

Table 6-3:
Change A2A9 to 08662-60246 (CD4) ROM 2.
Change A2A9U1 to 08662-80029 (CD3) PROM, PROGRAMMED.
Change A2A9U2 to 08662-80030 (CD6) PROM, PROGRAMMED.
Change A2A9U8 to 08662-80036 (CD2) PROM, PROGRAMMED.

CHANGE Q

Table 6-3:
A3A10R27. The old part is 0698-7245, 2.37 kΩ. However, the new part shown in Table 6-3 is the recommended replacement. Therefore, no manual change is suggested.
Change the part number for A8A4 to 08662-60192 (CD9) REFERENCE BUFFER.
Delete A8A4K1 and K2.
Delete A8A4R41 and R42.

CHANGE R

Table 6-3: Change A4A3R16 to 0698-7192 (CD4) RESISTOR 14.7 1% .05W F TC=0±100.

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CHANGE S

Page 6-2, Table 6-1:
Change reference designator "A2A9U12" to "A2A8U12".

Table 6-3:
Change A2A3 to 08662-60170 LEVEL MODULATION OUTPUT ASSEMBLY.
Delete A2A3R20—R25.
Change A2A5 to 08662-60237 (CD3) HP-IB.
Delete A2A5C8 and C9.
Delete A2A5R4 and R5.
Change A2A5U10 to 08662-80015 (CD7) ROM, PROGRAMMED.
Change A2A5U11 to 08662-80016 (CD8) ROM, PROGRAMMED.
Change A2A6U6 to 08662-80014 (CD6) ROM, PROGRAMMED.
Add the following parts:

Reference Designation	HP Part Number	CD	Qty	Description	Mfr Code	Mfr Part Number
A2A8	08662-60245	3	1	ROM 1(A NEW A2A8 DOES NOT CONTAIN AMPL. CORRECTION DATA.SAVE & USE OLD A2A8U12).	28480	08662-60245
A2A8C1	0180-0197	8		CAPACITOR-FXD 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A2A8C2	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A2A8C3	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A2A8C4	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A2A8C5	0180-2617	1		CAPACITOR-FXD 6.8UF+-10% 35VDC TA	25088	D6R8GS1B35K
A2A8MP1	4040-0748	3		EXTR-PC BD BLK POLYC .062-BD-THKNS	28480	4040-0748
	1480-0073	6		PIN-ROLL .062-IN-DIA .25-IN-LG BE-CU	28480	1480-0073
A2A8MP2	4040-0756	3	1	EXTR-PC BD WHT POLYC .062-BD-THKNS	28480	4040-0756
	1480-0073	6		PIN-ROLL .062-IN-DIA .25-IN-LG BE-CU	28480	1480-0073
A2A8R1	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A8R2	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A8R3	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A8R4	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A8R5	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A8R6	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A8R7	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A8R8	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A8R9	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A8R10	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2A8R11	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-G
A2A8R12	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-G
A2A8R13	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-G
A2A8R14	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-G
A2A8R15	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-G
A2A8R16	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-G
A2A8R17	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-G
A2A8R18	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-G
A2A8R19	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-G
A2A8R20	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-G
A2A8R21	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-G
A2A8R22	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-G
A2A8R23	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-G
A2A8U1	08662-80017	9	1	PROM, PROGRAMMED	28480	08662-80017
A2A8U2	08662-80018	0	1	PROM, PROGRAMMED	28480	08662-80018
A2A8U3	08662-80019	1	1	PROM, PROGRAMMED	28480	08662-80019
A2A8U4	08662-80020	4	1	PROM, PROGRAMMED	28480	08662-80020
A2A8U5	08662-80021	5	1	PROM, PROGRAMMED	28480	08662-80021
A2A8U6				NOT ASSIGNED		
A2A8U7	08662-80023	7	1	PROM, PROGRAMMED	28480	08662-80023
A2A8U8	08662-80024	8	1	PROM, PROGRAMMED	28480	08662-80024
A2A8U9	08662-80025	9	1	PROM, PROGRAMMED	28480	08662-80025
A2A8U10	08662-80026	0	1	PROM, PROGRAMMED	28480	08662-80026
A2A8U11	08662-80027	1	1	PROM, PROGRAMMED	28480	08662-80027
A2A8U12				NSR, REFER TO TABLE 6-1.		
	1200-0541	1	1	SOCKET-IC 24-CONT	28480	1200-0541
A2A8U13	1820-1201	6		IC GATE TTL LS AND QUAD 2-INP	01295	SN74LS08N
A2A8U14	1820-1216	3		IC DCDR TTL LS 3-TO-8-LINE 3-INP	01295	SN74LS138N
A2A8U15	1820-1216	3		IC DCDR TTL LS 3-TO-8-LINE 3-INP	01295	SN74LS138N
A2A8U16	1820-1216	3		IC DCDR TTL LS 3-TO-8-LINE 3-INP	01295	SN74LS138N
A2A8U17	1820-1759	9		IC BFR TTL LS NON-INV OCTL	27014	DM81LS97N

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CHANGE S (Cont'd)

Table 6-3 (cont'd):

Change A2A9 to 08662-60246 (CD4) ROM 2.
Change the first entry under A2A9MP1 to 4040-0747 (CD2) EXTR-PC-BD-GRA-POLYC .062 BD THKNS.
Add A2A9R11, 0698-7260 (CD7) RESISTOR 10K 1% .05W F TC=0±100.
Change A2A9U1 to 08662-80029 (CD3) PROM, PROGRAMMED.
Change A2A9U2 to 08662-80030 (CD6) PROM, PROGRAMMED.
Change A2A9U3 to 08662-80031 (CD7) PROM, PROGRAMMED.
Change A2A9U4 to 08662-80032 (CD8) PROM, PROGRAMMED.
Change A2A9U5 to 08662-80033 (CD9) PROM, PROGRAMMED.
Change A2A9U6 to 08662-80034 (CD0) PROM, PROGRAMMED.
Change A2A9U7 to 08662-80035 (CD1) PROM, PROGRAMMED.
Change A2A9U8 to 08662-80036 (CD2) PROM, PROGRAMMED.
Change A2A9U9 to 08662-80037 (CD3) PROM, PROGRAMMED.
Change A2A9U10 to 08662-80038 (CD4) PROM, PROGRAMMED.
Change A2A9U11 to 08662-80039 (CD5) PROM, PROGRAMMED.
Add A2A9U12, 08662-80040 (CD8) PROM, PROGRAMMED.
Change A2MP3 to 08662-00156 (CD9) COVER, DCU, RIGHT.
Delete A6A10MP1.

CHANGE T

Table 6-3:

Delete A3A1C9.

CHANGE U

Table 6-3:

Add A2A9R11, 0698-7260 (CD7) RESISTOR, 10K 1% .05W TC=0±100.
Delete A3A3E1, E2.
For each of the following parts (with old part numbers and values shown) the new parts shown in Table 6-3 are the recommended replacements. Therefore, no manual change is suggested.

A6A4R34	(0698-7245, 2.37 kΩ)
A6A4R156	(2100-1986, 1 kΩ)
A6A5R34	(0698-7245, 2.37 kΩ)
A6A5R156	(2100-1986, 1 kΩ)

CHANGE V

Table 6-3:

Change A3A3C9 to 0180-2208 (CD6) CAPACITOR FXD 220 UF ±10% 10 VDC TA.
Change A3A3L2 to 9100-3139 (CD5) TOROID FILTER.
Change A4A2R43 to 0757-0438 (CD3) RESISTOR, 5.11K 1% .125W F TC=0±100.
Delete A7A3F1 and the entry following.
Delete A7A3F2 and the entry following.

CHANGE W

Table 6-3:

Delete A2A1C8 and A2A1R12.

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CHANGE X

Page 6-2, Table 6-1:
Under A2A11 add the following statement after "Standard Attenuator Kit": "(Flexible output cable W34 must be returned with attenuator assembly.)"

Table 6-3:
Change A2A7 to 08662-60248 (CD6) RAM ASSEMBLY.
Change A2A7C4 to 0180-2617 (CD1) CAPACITOR-FXD 6.8 UF ±10% 35 VDC TA.
Add A2A7C5—C9, 0180-2617 (CD1) CAPACITOR-FXD 6.8 UF ±10% 35 VDC TA.
Add A2A7C10, 0160-3449 (CD7) CAPACITOR-FXD 2000 pF ±10% 250 VDC CER.
Delete A2A7C11—C30.
Add A2A7CR1 and CR2, 1901-0376 (CD6) DIODE-GEN PRP 35V 15 MA D0-35.
Delete A2A7L1—L5.
Add A2A7R17, 0698-3459 (CD8) RESISTOR 383K 1% .125W F TC=0±100.
Delete A2A7R20.
Change A2A7U20 and U21 to 1820-1197 (CD9) IC GATE TTL LS NAND QUAD 2-INP.
Change A2A7U22 to 1820-1759 (CD9) IC BFR TTL LS NON-INV OCTL.
Change A2A7U23 to 1820-1759 (CD4) IC BFR TTL LS NON-INV OCTL.
A7A2C3, 4, 9 and 10. The old parts are 0180-2644, 470 μF. However the new parts shown in Table 6-3 are the recommended replacements. Therefore, no manual changes are suggested.
Add A8A5J5, 1251-4989 (CD6) CONNECTOR, 5 PIN, WAFER.
Add A8P1, 1251-3963 (CD4) KEY-POST CONN and the following two entries:
1251-3967 (CD8) CONTACT-CONN W/W POST TYPE FEM CRP.
1251-4511 (CD0) CONNECTOR 6-PIN F POST TYPE.
Under J1 make the following changes:
Add part number 1250-0914 (CD7) CONNECTOR RF APC-N FEM UNMTD 50 OHM.
Delete part number 5021-0863 and its description.
Delete part number 08731-210 and its descripton.
Page 6-96, Figure 6-2:
Replace Figure 6-2 with Figure 7-1.

Page 6-98, Figure 6-3:
Replace Figure 6-3 with Figure 7-2.

Table 6-3 (cont'd)
Change MP2 to 08662-00049 (CD9) PANEL, SUB.
Change MP4 to 08662-20025 (CD3) SUPPORT, PANEL, BOTTOM.
Change the first MP7 to 08662-00033 (CD1) PANEL, CONNECTOR (STANDARD).
Change MP11 to 08662-00037 (CD5) SUPPORT PANEL RIGHT.
Change MP12 to 08662-20016 (CD2) PIN, HINGE.
Delete MP37 and MP38.
Change the last line to read: MP37-50 NOT ASSIGNED.
Change W34 to 08662-60054 (CD2) CABLE ASSY (8) STANDARD.

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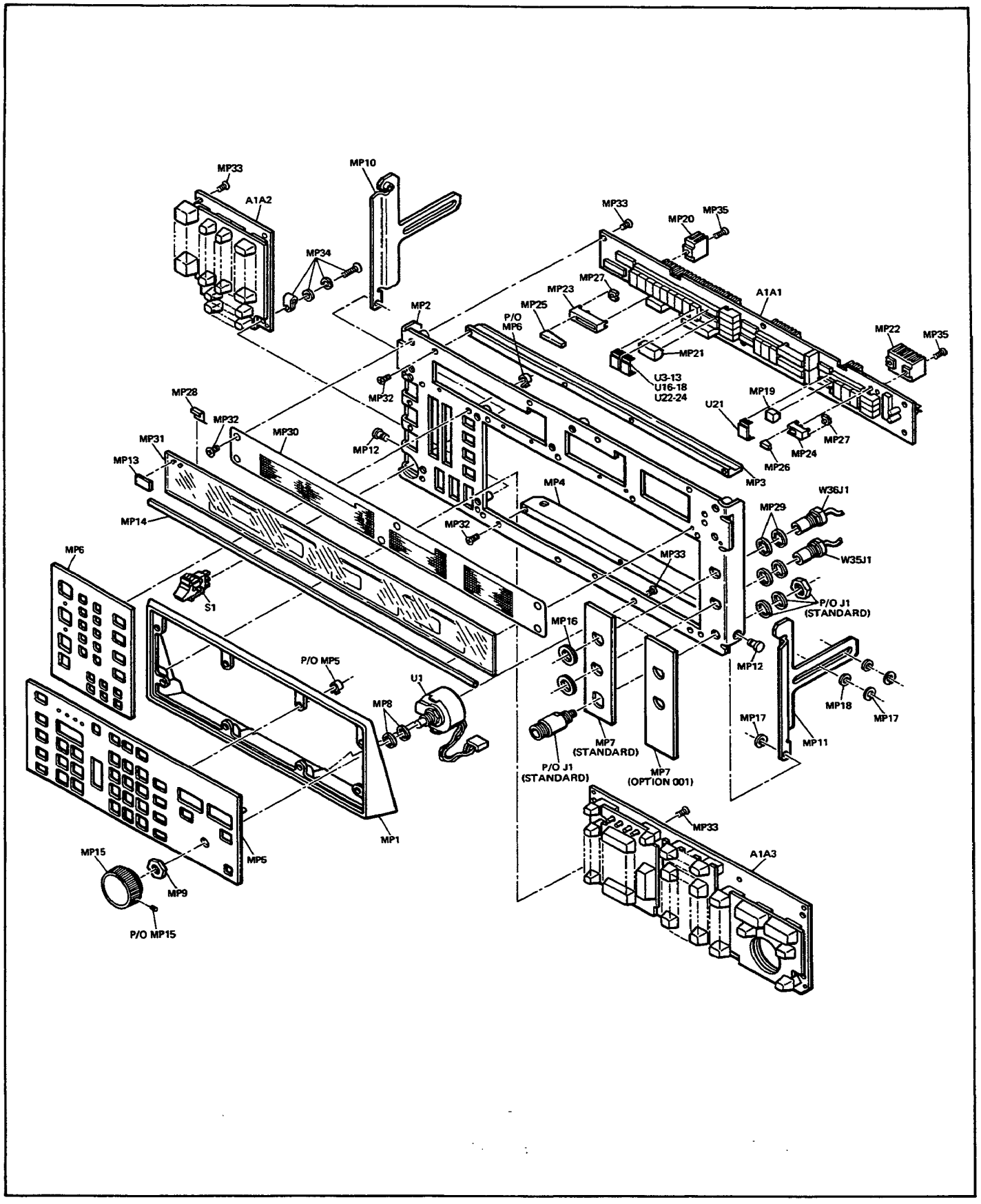

Figure 7-1. Front Panel Illustrated Parts Breakdown (P/O CHANGE X)

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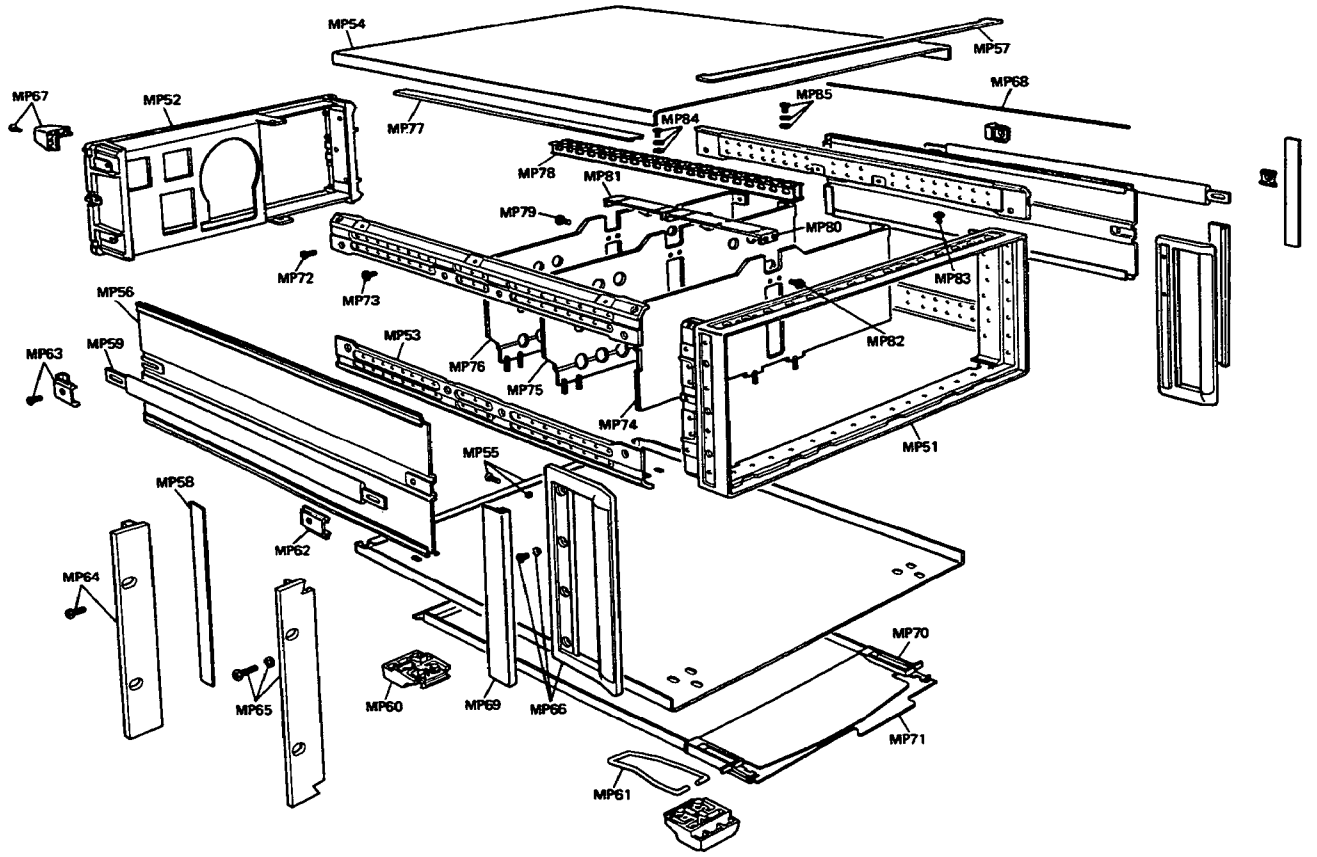

Figure 7-2. Chassis Illustrated Parts Breakdown (P/O CHANGE X)