

OCTOBER, 1948
 941287
 RRM NO. 2.
 SEE CHASSIS
 STAMP

the hallicrafters co.

SERVICE BULLETIN FOR MODEL S-51

GENERAL

Tubes Nine glass rectifier
 Speaker 8-inch P.M.
 Speaker V.C. Impedance . . . 3.2 ohms
 Headset Output Low Impedance
 Antenna Provision for external antenna
 Tuning Manual
 Tuning Range

Range	Frequency	Reception
A	300 kc - 300 kc	Fixed Frequency
B	3.0 mc - 3.0 mc	" "
C	3.0 mc - 3.0 mc	" "
1	120 kc - 400 kc	General Coverage
2	400 kc - 1650 kc	" "
3	1450 kc - 4550 kc	" "
4	4.2 mc - 13.9 mc	" "

Intermediate Frequency . . . 440 kc
 Power Supply 100-125 V. DC or 60 cycles A.C. Provision for 6V., 12 V., 32 V. DC operation.
 Power Consumption 30 Watts

6 V., 12 V., AND 32 V. OPERATION

The Model S-51 Receiver may be operated from a 6 V., 12 V., or 32 V. source by inserting the correct power supply adapter unit. This adapter unit is plugged into the dual socket located on the top of the receiver chassis. Remove the jumper plug before inserting the low voltage adapter unit. One adapter unit is available for each of the above source voltages.

DC Source Voltage	Adapter Unit Part No.	Identification Stamp	Use Cable No.	Fuse Rating
6 Volts	1X629	6 VOLTS	6781861	10 amperes
12 Volts	1X630	12 VOLTS	6781861-1	5 amperes
32 Volts	1X631	32 VOLTS	6781861-2	2 amperes

When operating the receiver with the adapter, the power cable normally used for 117 V. AC/DC operation is replaced with the power cable supplied with the adapter unit and plugged into the same receptacle on the receiver. Connect the fused power cable lead to the "hot" side of the DC source and the unfused lead to the ground or "cold" side of the supply. Disregard polarity of the DC supply as this is taken care of by a reversing switch located on the back side of the adapter unit.

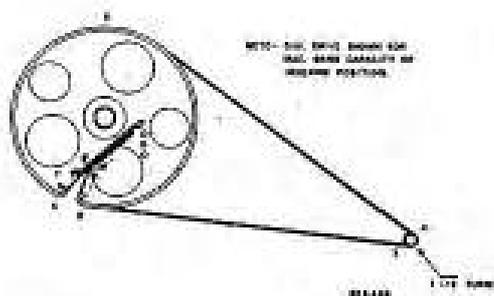
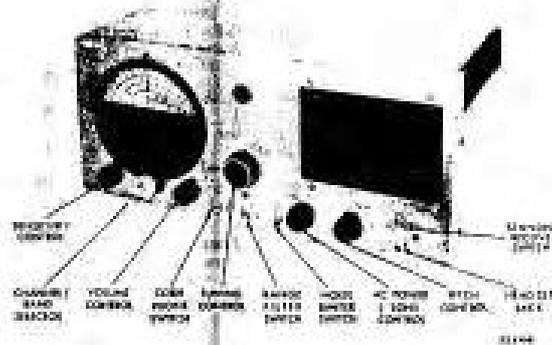


Fig. 1. Dial cord strating procedure.



RESTRINGING DIAL CORD

To restring the general coverage tuning dial cord, cut a 24-inch length of 30 lb. test dial cord and tie one end to the tension spring of the main tuning capacitor drive pulley at position "1" on the diagram. Follow the numbers "1" through "7" and at position "7" stretch the tension spring and tie the cord securely.

REPLACING LAMPS

Refer to Fig. 2 for location of the two dial lamps used in the receiver. Defective lamps may be replaced through the cabinet cover. Replace defective lamps with 8-8 V. Mazda #47 (Brown bead) lamps or equivalent.

REPLACING FUSES

A line fuse protects the receiver when operating from a 100-125 V. AC/DC source. This fuse is accessible at the rear of the receiver chassis. Replace defective fuses with type 1AG fuses with a one ampere rating.

Protective fuses for 6 V., 12 V., and 32 V. operation are located in the power cable. Refer to the paragraph on low voltage operation for fuse ratings. Replace defective fuses with the type 1AG body size.

CAUTION - Do not replace defective fuses with one of higher current rating than specified. Use the correct fuse and avoid costly repairs.

FIXED FREQUENCY CHANNEL ADJUSTMENTS

Adjustment of the fixed frequency channels for code and radio telephony reception in the 300 kc to 300 kc or 3000 kc to 3000 kc ranges is accomplished as described below. A total of three fixed frequency channels are available, one channel in the 300 kc to 300 kc range and two channels in the 3000 kc to 3000 kc range.

Set the band or range switch at "A" for a channel in the 300 kc to 300 kc band or either "B" or "C" for a channel in the 3000 kc to 3000 kc band.

Loosen the hinged cabinet cover and with a small screwdriver, adjust the screws identified as "Aa", "Ab", and "Ac" for the "A" band or "Ba", "Bb", and "Bc" for the "B" band, etc. Refer to Fig. 2. Make the adjustments in the order "C" "B" "A" (Oscillator, Mixer and Antenna),

adjusting the oscillator screw ("O") as you would normally have in a station and adjusting the "M" and "A" screws for maximum volume. When setting up a channel for code reception, set the PITCH CONTROL at mid position and tune the "O" adjustment for zero beat. The PITCH CONTROL may then be set for the desired pitch when copying code signals on the particular fixed frequency channel.

ALIGNMENT PROCEDURE

Set the following controls before alignment:

- SENSITIVITY Set at maximum
- VOLUME Set at maximum
- CW/AM switch Set at AM (see step 2)
- RANGE FILTER Set at OFF
- NOISE LIMITER Set at OFF

- TONE Set at HIGH
- STANDBY-RECEIVE Set at RECEIVE

For the settings of the remaining controls, refer to the alignment chart.

It will be necessary to remove the receiver chassis from the cabinet to make some of the alignment adjustments. The chassis is held in the cabinet by three screws along both the bottom edge of the front panel and the rear of the cabinet, and two screws on either side of the front panel.

The standard RMA dummy mentioned in the alignment chart consists of a 200 mmf. condenser in series with a 25 ohm r-f choke which is shunted by a 400 mmf condenser in series with a 400 ohm carbon resistor.

ALIGNMENT CHART

Step	Dummy Antenna	Signal Generator Coupling	Signal Generator Frequency	Band Switch Setting	Receiver-Dial Setting	Adjust	Remarks
1	.1 mfd. If an induction transformer is not used, change dummy ant. to .001 mfd. to reduce beam modulation.	High side to stator plates in center section of tuning gang; low side to chassis.	445 kc	"2"	Tuning cap. fully open	S1, S2, S3, S4, S5	Adjust for maximum audio output at speaker voice coil. Use just enough signal generator output to obtain a 50 mv audio level.
2	See step 1.	See step 1	445 kc (No modulation)	"2"	See step 1	S7	With the CW/AM switch set at CW remove the pitch control knob and adjust S-7 for zero beat. Replace the knob with the dot in the center position.
3	Std. RMA dummy	High side to "A1" on antenna strip; low side to chassis. Jumper connected between "A2" and "O"	350 kc 150 kc	"1"	350 kc 150 kc	"A, B, C" "D"	Maximum output as in step 1.
4	Std. RMA dummy	See step 3	1400 kc	"2"	1400 kc	"E, F, G"	Maximum output as in step 1.
5	Std. RMA dummy	See step 3	800 kc 4 mc	"3"	800 kc 4 mc	"H" "I, J, K"	Maximum output as in step 1.
6	Std. RMA dummy	See step 3	1800 kc 12 mc 5 mc	"4"	1800 kc 12 mc 5 mc	"M" "N" "O"	Maximum output as in step 1.

*Note - Calibration adjustments.

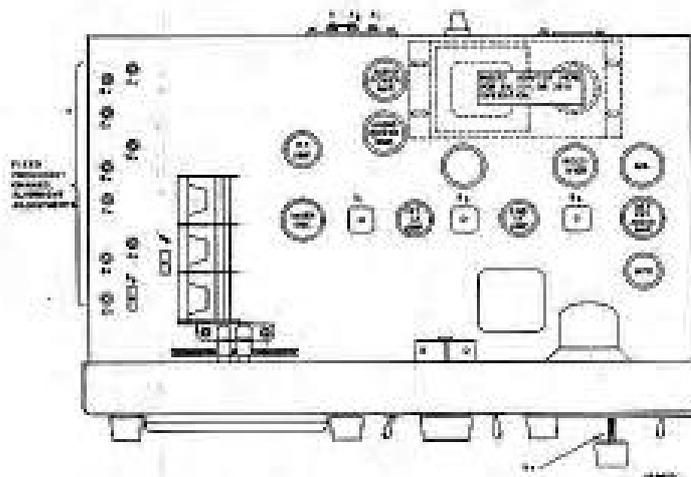


Fig. 2. Alignment adjustments, top view.

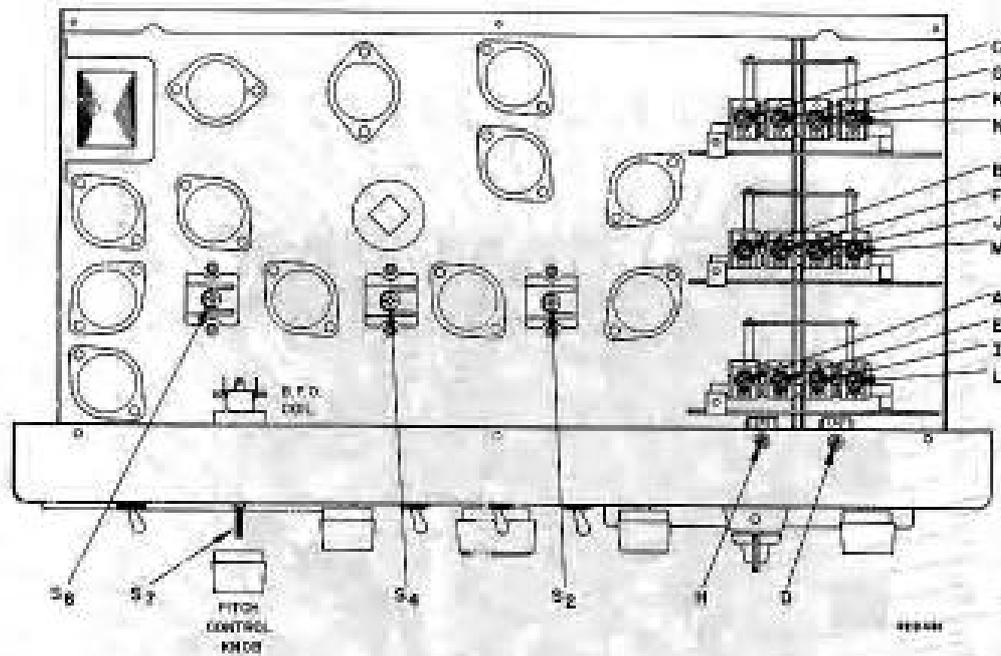


FIG. 3. Alignment adjustments, bottom view.

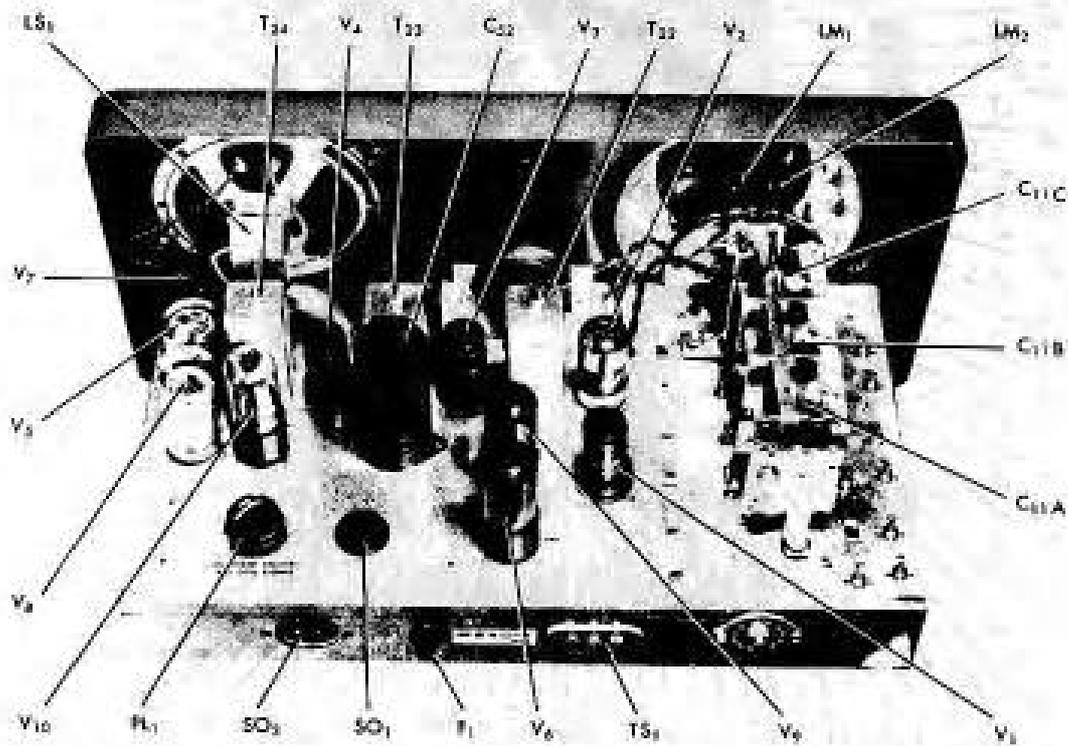


FIG. 4. Component locations, top view.

92 X 484

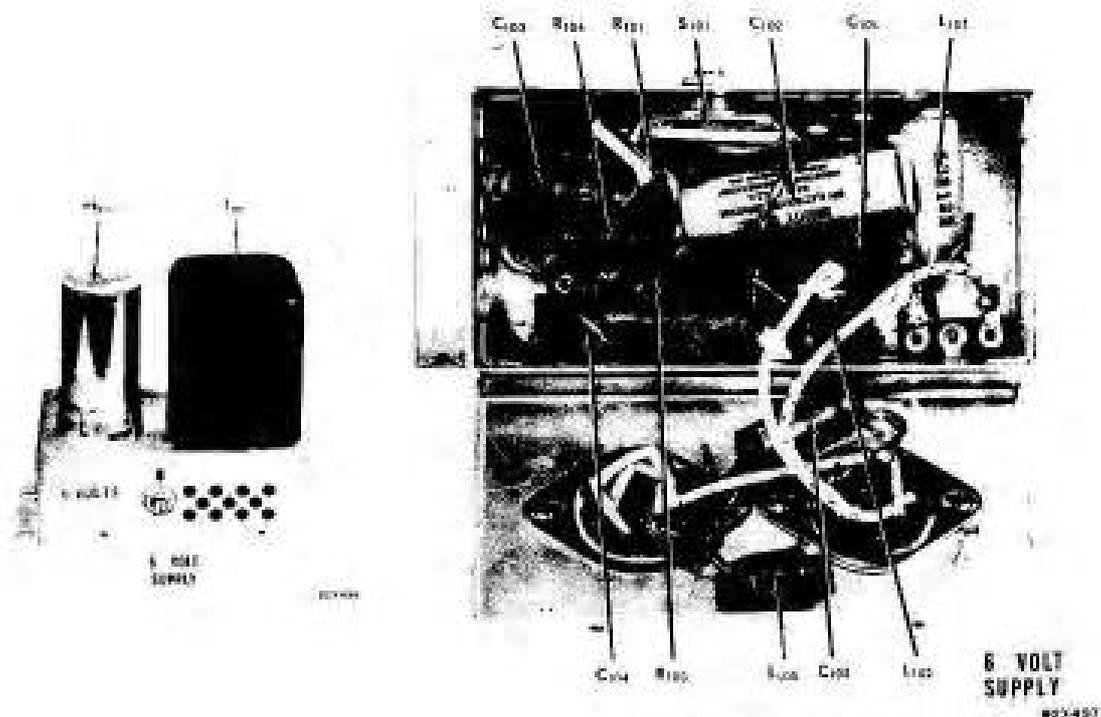


Fig. 6. Component location, 6-volt adapter unit. (922486 - 022497)

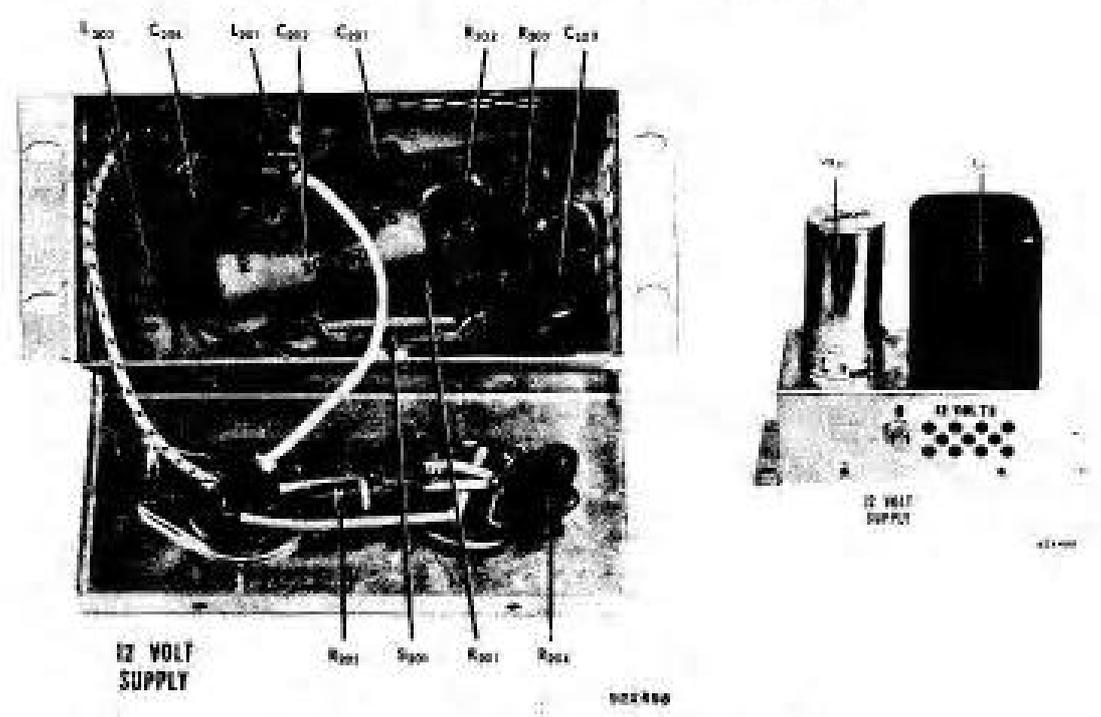


Fig. 7. Component location, 12-volt adapter unit.

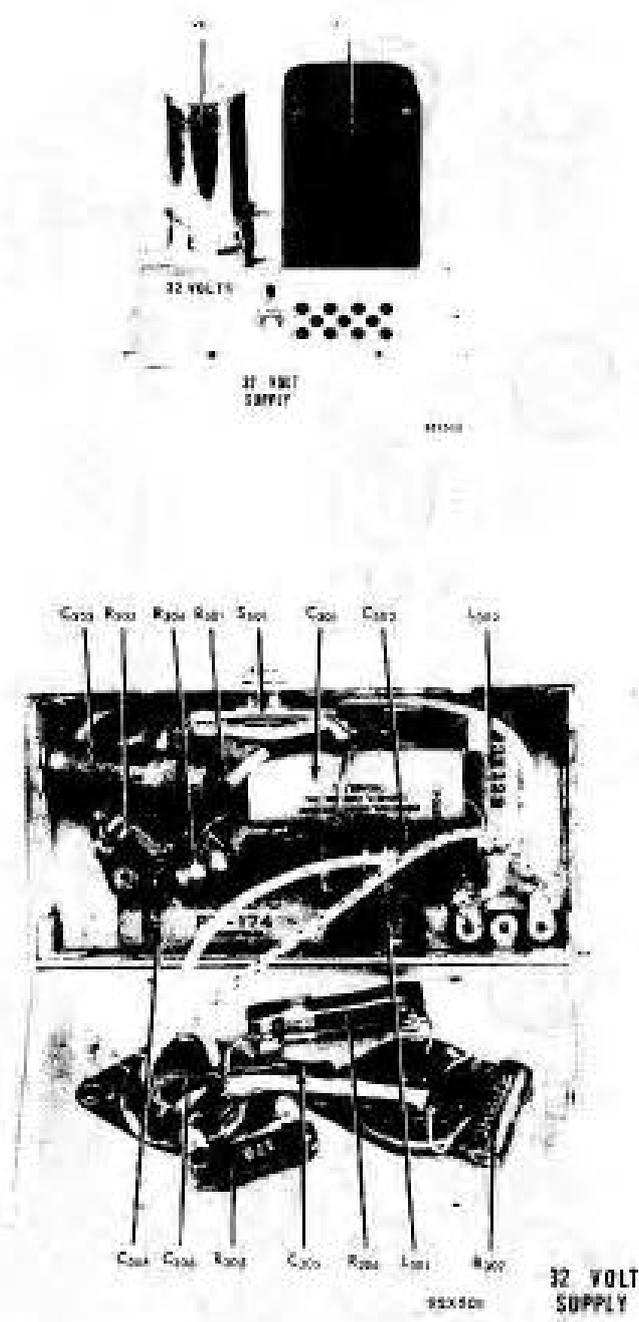


FIG. 3 Component locations, 32-volt adapter unit.

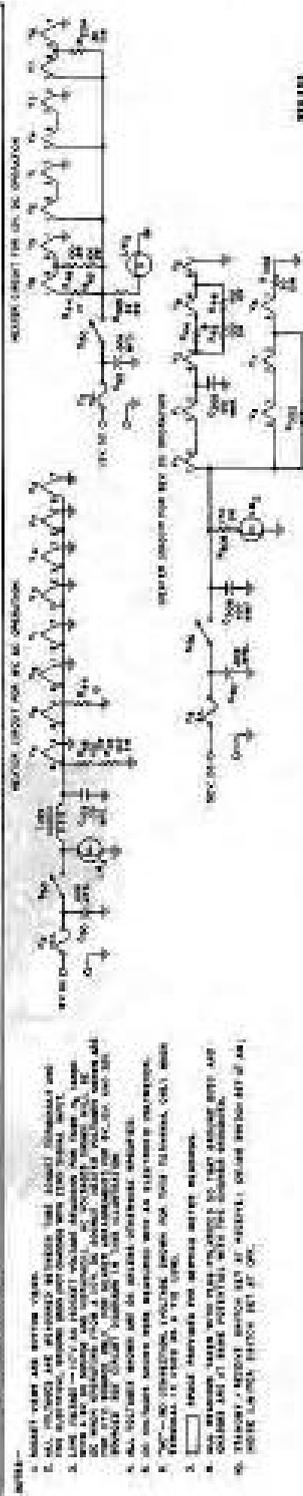
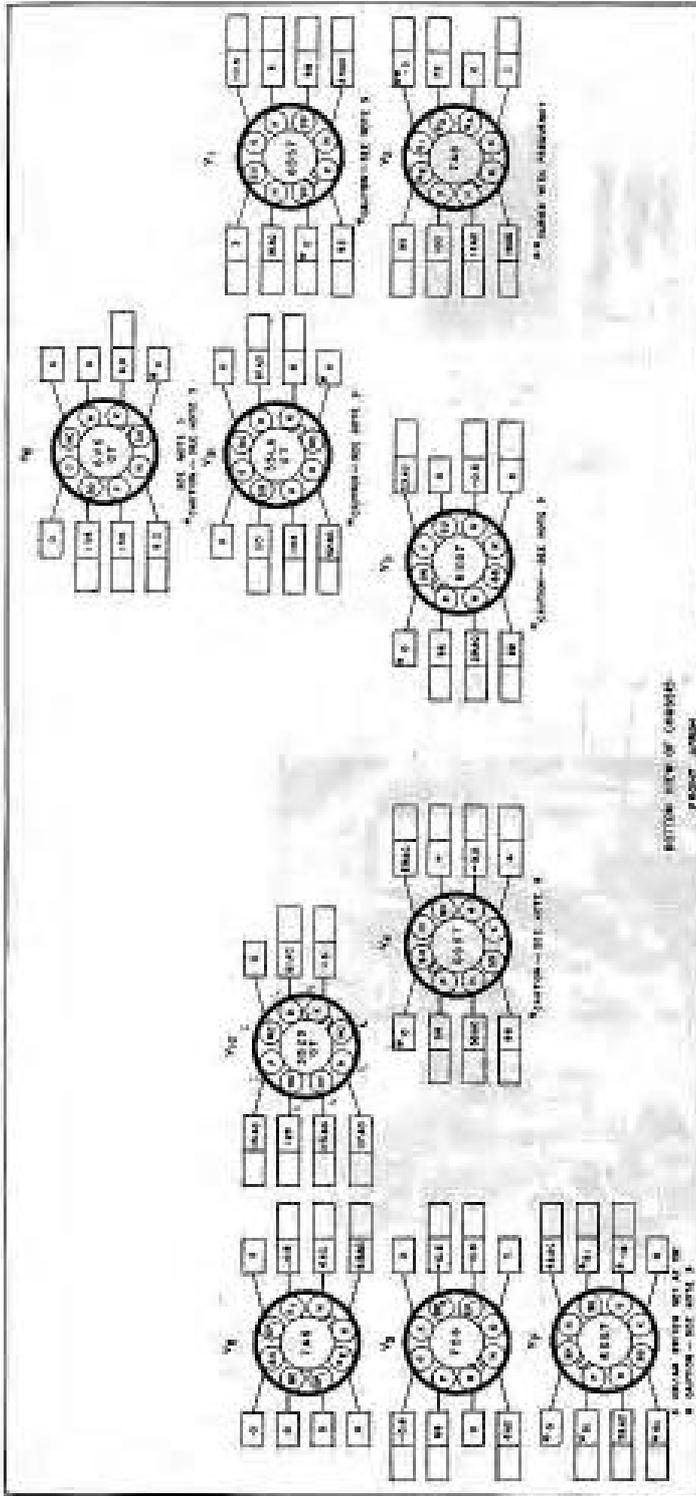
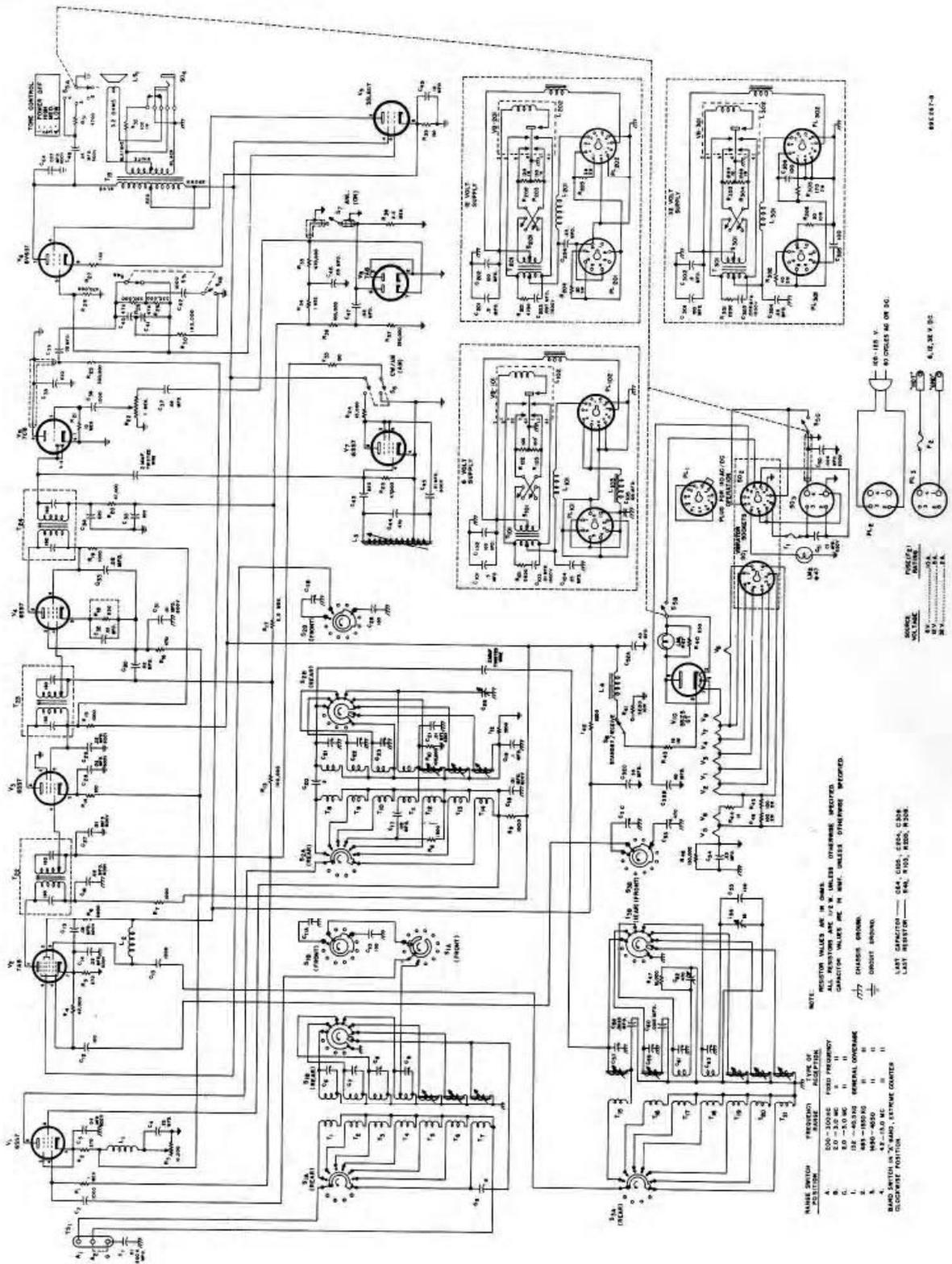


FIG. 5. - Table board settings (objekt).

FIG. 6. - Table board settings (objekt).

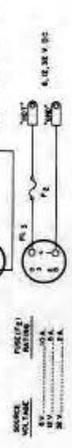
1. Check that all wiring is correct.
2. Set switches, relays, and other components in the positions shown in this diagram.
3. Use the "WATER CURRENT FOR USE IN OBSERVATION" switch to connect the water current to the table board.
4. Use the "WATER CURRENT FOR USE IN OBSERVATION" switch to connect the water current to the table board.
5. Use the "WATER CURRENT FOR USE IN OBSERVATION" switch to connect the water current to the table board.
6. Use the "WATER CURRENT FOR USE IN OBSERVATION" switch to connect the water current to the table board.
7. Use the "WATER CURRENT FOR USE IN OBSERVATION" switch to connect the water current to the table board.
8. Use the "WATER CURRENT FOR USE IN OBSERVATION" switch to connect the water current to the table board.
9. Use the "WATER CURRENT FOR USE IN OBSERVATION" switch to connect the water current to the table board.
10. Use the "WATER CURRENT FOR USE IN OBSERVATION" switch to connect the water current to the table board.



NOTE:
 RESISTOR VALUES ARE IN OHMS UNLESS OTHERWISE SPECIFIED.
 CAPACITOR VALUES ARE IN MICRO-UNITS UNLESS OTHERWISE SPECIFIED.
 ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.
 ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.

WAVELENGTH	FREQUENCY	TUBE OR
ALTERNATE		REMARKS
A. 500-1000 KC	1000 PERCENT	
B. 2.0-3.0 MC	1000 PERCENT	
C. 3.0-4.0 MC	1000 PERCENT	
D. 4.0-5.0 MC	1000 PERCENT	
E. 5.0-6.0 MC	1000 PERCENT	
F. 6.0-7.0 MC	1000 PERCENT	
G. 7.0-8.0 MC	1000 PERCENT	
H. 8.0-9.0 MC	1000 PERCENT	
I. 9.0-10.0 MC	1000 PERCENT	
J. 10.0-11.0 MC	1000 PERCENT	
K. 11.0-12.0 MC	1000 PERCENT	
L. 12.0-13.0 MC	1000 PERCENT	
M. 13.0-14.0 MC	1000 PERCENT	
N. 14.0-15.0 MC	1000 PERCENT	
O. 15.0-16.0 MC	1000 PERCENT	
P. 16.0-17.0 MC	1000 PERCENT	
Q. 17.0-18.0 MC	1000 PERCENT	
R. 18.0-19.0 MC	1000 PERCENT	
S. 19.0-20.0 MC	1000 PERCENT	
T. 20.0-21.0 MC	1000 PERCENT	
U. 21.0-22.0 MC	1000 PERCENT	
V. 22.0-23.0 MC	1000 PERCENT	
W. 23.0-24.0 MC	1000 PERCENT	
X. 24.0-25.0 MC	1000 PERCENT	
Y. 25.0-26.0 MC	1000 PERCENT	
Z. 26.0-27.0 MC	1000 PERCENT	
AA. 27.0-28.0 MC	1000 PERCENT	
AB. 28.0-29.0 MC	1000 PERCENT	
AC. 29.0-30.0 MC	1000 PERCENT	
AD. 30.0-31.0 MC	1000 PERCENT	
AE. 31.0-32.0 MC	1000 PERCENT	
AF. 32.0-33.0 MC	1000 PERCENT	
AG. 33.0-34.0 MC	1000 PERCENT	
AH. 34.0-35.0 MC	1000 PERCENT	
AI. 35.0-36.0 MC	1000 PERCENT	
AJ. 36.0-37.0 MC	1000 PERCENT	
AK. 37.0-38.0 MC	1000 PERCENT	
AL. 38.0-39.0 MC	1000 PERCENT	
AM. 39.0-40.0 MC	1000 PERCENT	
AN. 40.0-41.0 MC	1000 PERCENT	
AO. 41.0-42.0 MC	1000 PERCENT	
AP. 42.0-43.0 MC	1000 PERCENT	
AQ. 43.0-44.0 MC	1000 PERCENT	
AR. 44.0-45.0 MC	1000 PERCENT	
AS. 45.0-46.0 MC	1000 PERCENT	
AT. 46.0-47.0 MC	1000 PERCENT	
AU. 47.0-48.0 MC	1000 PERCENT	
AV. 48.0-49.0 MC	1000 PERCENT	
AW. 49.0-50.0 MC	1000 PERCENT	
AX. 50.0-51.0 MC	1000 PERCENT	
AY. 51.0-52.0 MC	1000 PERCENT	
AZ. 52.0-53.0 MC	1000 PERCENT	
BA. 53.0-54.0 MC	1000 PERCENT	
BB. 54.0-55.0 MC	1000 PERCENT	
BC. 55.0-56.0 MC	1000 PERCENT	
BD. 56.0-57.0 MC	1000 PERCENT	
BE. 57.0-58.0 MC	1000 PERCENT	
BF. 58.0-59.0 MC	1000 PERCENT	
BG. 59.0-60.0 MC	1000 PERCENT	
BH. 60.0-61.0 MC	1000 PERCENT	
BI. 61.0-62.0 MC	1000 PERCENT	
BJ. 62.0-63.0 MC	1000 PERCENT	
BK. 63.0-64.0 MC	1000 PERCENT	
BL. 64.0-65.0 MC	1000 PERCENT	
BM. 65.0-66.0 MC	1000 PERCENT	
BN. 66.0-67.0 MC	1000 PERCENT	
BO. 67.0-68.0 MC	1000 PERCENT	
BP. 68.0-69.0 MC	1000 PERCENT	
BQ. 69.0-70.0 MC	1000 PERCENT	
BR. 70.0-71.0 MC	1000 PERCENT	
BS. 71.0-72.0 MC	1000 PERCENT	
BT. 72.0-73.0 MC	1000 PERCENT	
BU. 73.0-74.0 MC	1000 PERCENT	
BV. 74.0-75.0 MC	1000 PERCENT	
BW. 75.0-76.0 MC	1000 PERCENT	
BX. 76.0-77.0 MC	1000 PERCENT	
BY. 77.0-78.0 MC	1000 PERCENT	
BZ. 78.0-79.0 MC	1000 PERCENT	
CA. 79.0-80.0 MC	1000 PERCENT	
CB. 80.0-81.0 MC	1000 PERCENT	
CC. 81.0-82.0 MC	1000 PERCENT	
CD. 82.0-83.0 MC	1000 PERCENT	
CE. 83.0-84.0 MC	1000 PERCENT	
CF. 84.0-85.0 MC	1000 PERCENT	
CG. 85.0-86.0 MC	1000 PERCENT	
CH. 86.0-87.0 MC	1000 PERCENT	
CI. 87.0-88.0 MC	1000 PERCENT	
CJ. 88.0-89.0 MC	1000 PERCENT	
CK. 89.0-90.0 MC	1000 PERCENT	
CL. 90.0-91.0 MC	1000 PERCENT	
CM. 91.0-92.0 MC	1000 PERCENT	
CN. 92.0-93.0 MC	1000 PERCENT	
CO. 93.0-94.0 MC	1000 PERCENT	
CP. 94.0-95.0 MC	1000 PERCENT	
CQ. 95.0-96.0 MC	1000 PERCENT	
CR. 96.0-97.0 MC	1000 PERCENT	
CS. 97.0-98.0 MC	1000 PERCENT	
CT. 98.0-99.0 MC	1000 PERCENT	
CU. 99.0-100.0 MC	1000 PERCENT	
CV. 100.0-101.0 MC	1000 PERCENT	
CW. 101.0-102.0 MC	1000 PERCENT	
CX. 102.0-103.0 MC	1000 PERCENT	
CY. 103.0-104.0 MC	1000 PERCENT	
CZ. 104.0-105.0 MC	1000 PERCENT	
DA. 105.0-106.0 MC	1000 PERCENT	
DB. 106.0-107.0 MC	1000 PERCENT	
DC. 107.0-108.0 MC	1000 PERCENT	
DD. 108.0-109.0 MC	1000 PERCENT	
DE. 109.0-110.0 MC	1000 PERCENT	
DF. 110.0-111.0 MC	1000 PERCENT	
DG. 111.0-112.0 MC	1000 PERCENT	
DH. 112.0-113.0 MC	1000 PERCENT	
DI. 113.0-114.0 MC	1000 PERCENT	
DJ. 114.0-115.0 MC	1000 PERCENT	
DK. 115.0-116.0 MC	1000 PERCENT	
DL. 116.0-117.0 MC	1000 PERCENT	
DM. 117.0-118.0 MC	1000 PERCENT	
DN. 118.0-119.0 MC	1000 PERCENT	
DO. 119.0-120.0 MC	1000 PERCENT	
DP. 120.0-121.0 MC	1000 PERCENT	
DQ. 121.0-122.0 MC	1000 PERCENT	
DR. 122.0-123.0 MC	1000 PERCENT	
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EC. 133.0-134.0 MC	1000 PERCENT	
ED. 134.0-135.0 MC	1000 PERCENT	
EE. 135.0-136.0 MC	1000 PERCENT	
EF. 136.0-137.0 MC	1000 PERCENT	
EG. 137.0-138.0 MC	1000 PERCENT	
EH. 138.0-139.0 MC	1000 PERCENT	
EI. 139.0-140.0 MC	1000 PERCENT	
EJ. 140.0-141.0 MC	1000 PERCENT	
EK. 141.0-142.0 MC	1000 PERCENT	
EL. 142.0-143.0 MC	1000 PERCENT	
EM. 143.0-144.0 MC	1000 PERCENT	
EN. 144.0-145.0 MC	1000 PERCENT	
EO. 145.0-146.0 MC	1000 PERCENT	
EP. 146.0-147.0 MC	1000 PERCENT	
EQ. 147.0-148.0 MC	1000 PERCENT	
ER. 148.0-149.0 MC	1000 PERCENT	
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ET. 150.0-151.0 MC	1000 PERCENT	
EU. 151.0-152.0 MC	1000 PERCENT	
EV. 152.0-153.0 MC	1000 PERCENT	
EW. 153.0-154.0 MC	1000 PERCENT	
EX. 154.0-155.0 MC	1000 PERCENT	
EY. 155.0-156.0 MC	1000 PERCENT	
EZ. 156.0-157.0 MC	1000 PERCENT	
FA. 157.0-158.0 MC	1000 PERCENT	
FB. 158.0-159.0 MC	1000 PERCENT	
FC. 159.0-160.0 MC	1000 PERCENT	
FD. 160.0-161.0 MC	1000 PERCENT	
FE. 161.0-162.0 MC	1000 PERCENT	
FF. 162.0-163.0 MC	1000 PERCENT	
FG. 163.0-164.0 MC	1000 PERCENT	
FH. 164.0-165.0 MC	1000 PERCENT	
FI. 165.0-166.0 MC	1000 PERCENT	
FJ. 166.0-167.0 MC	1000 PERCENT	
FK. 167.0-168.0 MC	1000 PERCENT	
FL. 168.0-169.0 MC	1000 PERCENT	
FM. 169.0-170.0 MC	1000 PERCENT	
FN. 170.0-171.0 MC	1000 PERCENT	
FO. 171.0-172.0 MC	1000 PERCENT	
FP. 172.0-173.0 MC	1000 PERCENT	
FQ. 173.0-174.0 MC	1000 PERCENT	
FR. 174.0-175.0 MC	1000 PERCENT	
FS. 175.0-176.0 MC	1000 PERCENT	
FT. 176.0-177.0 MC	1000 PERCENT	
FU. 177.0-178.0 MC	1000 PERCENT	
FV. 178.0-179.0 MC	1000 PERCENT	
FW. 179.0-180.0 MC	1000 PERCENT	
FX. 180.0-181.0 MC	1000 PERCENT	
FY. 181.0-182.0 MC	1000 PERCENT	
FZ. 182.0-183.0 MC	1000 PERCENT	
GA. 183.0-184.0 MC	1000 PERCENT	
GB. 184.0-185.0 MC	1000 PERCENT	
GC. 185.0-186.0 MC	1000 PERCENT	
GD. 186.0-187.0 MC	1000 PERCENT	
GE. 187.0-188.0 MC	1000 PERCENT	
GF. 188.0-189.0 MC	1000 PERCENT	
GG. 189.0-190.0 MC	1000 PERCENT	
GH. 190.0-191.0 MC	1000 PERCENT	
GI. 191.0-192.0 MC	1000 PERCENT	
GJ. 192.0-193.0 MC	1000 PERCENT	
GK. 193.0-194.0 MC	1000 PERCENT	
GL. 194.0-195.0 MC	1000 PERCENT	
GM. 195.0-196.0 MC	1000 PERCENT	
GN. 196.0-197.0 MC	1000 PERCENT	
GO. 197.0-198.0 MC	1000 PERCENT	
GP. 198.0-199.0 MC	1000 PERCENT	
GQ. 199.0-200.0 MC	1000 PERCENT	
GR. 200.0-201.0 MC	1000 PERCENT	
GS. 201.0-202.0 MC	1000 PERCENT	
GT. 202.0-203.0 MC	1000 PERCENT	
GU. 203.0-204.0 MC	1000 PERCENT	
GV. 204.0-205.0 MC	1000 PERCENT	
GW. 205.0-206.0 MC	1000 PERCENT	
GX. 206.0-207.0 MC	1000 PERCENT	
GY. 207.0-208.0 MC	1000 PERCENT	
GA. 208.0-209.0 MC	1000 PERCENT	
GB. 209.0-210.0 MC	1000 PERCENT	
GC. 210.0-211.0 MC	1000 PERCENT	
GD. 211.0-212.0 MC	1000 PERCENT	
GE. 212.0-213.0 MC	1000 PERCENT	
GF. 213.0-214.0 MC	1000 PERCENT	
GG. 214.0-215.0 MC	1000 PERCENT	
GH. 215.0-216.0 MC	1000 PERCENT	
GI. 216.0-217.0 MC	1000 PERCENT	
GJ. 217.0-218.0 MC	1000 PERCENT	
GK. 218.0-219.0 MC	1000 PERCENT	
GL. 219.0-220.0 MC	1000 PERCENT	
GM. 220.0-221.0 MC	1000 PERCENT	
GN. 221.0-222.0 MC	1000 PERCENT	
GO. 222.0-223.0 MC	1000 PERCENT	
GP. 223.0-224.0 MC	1000 PERCENT	
GQ. 224.0-225.0 MC	1000 PERCENT	
GR. 225.0-226.0 MC	1000 PERCENT	
GS. 226.0-227.0 MC	1000 PERCENT	
GT. 227.0-228.0 MC	1000 PERCENT	
GU. 228.0-229.0 MC	1000 PERCENT	
GV. 229.0-230.0 MC	1000 PERCENT	
GW. 230.0-231.0 MC	1000 PERCENT	
GX. 231.0-232.0 MC	1000 PERCENT	
GY. 232.0-233.0 MC	1000 PERCENT	
GA. 233.0-234.0 MC	1000 PERCENT	
GB. 234.0-235.0 MC	1000 PERCENT	
GC. 235.0-236.0 MC	1000 PERCENT	
GD. 236.0-237.0 MC	1000 PERCENT	
GE. 237.0-238.0 MC	1000 PERCENT	
GF. 238.0-239.0 MC	1000 PERCENT	
GG. 239.0-240.0 MC	1000 PERCENT	
GH. 240.0-241.0 MC	1000 PERCENT	
GI. 241.0-242.0 MC	1000 PERCENT	
GJ. 242.0-243.0 MC	1000 PERCENT	
GK. 243.0-244.0 MC	1000 PERCENT	
GL. 244.0-245.0 MC	1000 PERCENT	
GM. 245.0-246.0 MC	1000 PERCENT	
GN. 246.0-247.0 MC	1000 PERCENT	
GO. 247.0-248.0 MC	1000 PERCENT	
GP. 248.0-249.0 MC	1000 PERCENT	
GQ. 249.0-250.0 MC	1000 PERCENT	

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NOTE:
 RESISTOR VALUES ARE IN OHMS UNLESS OTHERWISE SPECIFIED.
 CAPACITOR VALUES ARE IN MICRO-UNITS UNLESS OTHERWISE SPECIFIED.
 ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.

WAVELENGTH	FREQUENCY	TUBE OR
ALTERNATE		REMARKS
A. 500-1000 KC	1000 PERCENT	
B. 2.0-3.0 MC	1000 PERCENT	
C. 3.0-4.0 MC	1000 PERCENT	
D. 4.0-5.0 MC	1000 PERCENT	
E. 5.0-6.0 MC	1000 PERCENT	
F. 6.0-7.0 MC	1000 PERCENT	
G. 7.0-8.0 MC	1000 PERCENT	
H. 8.0-9.0 MC	1000 PERCENT	
I. 9.0-10.0 MC	1000 PERCENT	
J. 10.0-11.0 MC	1000 PERCENT	
K. 11.0-12.0 MC	1000 PERCENT	
L. 12.0-13.0 MC	1000 PERCENT	
M. 13.0-14.0 MC	1000 PERCENT	
N. 14.0-15.0 MC	1000 PERCENT	
O. 15.0-16.0 MC	1000 PERCENT	