

144/430/440MHz FM DUAL BANDER

TM-G707A/E

SERVICE MANUAL

KENWOOD

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Photo is K Type

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TM-G707A/E

CIRCUIT DESCRIPTION

Outline

This device is a dual-band 144/430MHz FM car transceiver planned and designed for amateur radio communications and has the following features.

1. The display backlighting uses ultra-high brightness yellow LEDs. The display is a 13-segment positive type.
2. The main unit is 40x140 mm. The detachable operation panel is 51.5x105 mm.
3. 180 channels in memory.
4. The chassis is diecast aluminum with the heat radiation fins formed into one piece with the chassis.
5. Built-in CTCSS functions with 38 different selectable tones.
6. Data terminal having 1200 bps/9600 bps packet communication and computer interface.
7. Audio announce mode that announces the display frequency, name of the key pressed, etc. (when VS-3 option installed)

List of Destinations

Model		Guarantee frequency range (MHz)		Output power (W)	
		144	430	144	430
TM-G707A	K	144-148 ¹	438-450	50 ²	35 ²
	M2		430-440		
TM-G707E	E	144-148	430-440	50	35
	E3				

¹ Taiwan : 144 ~ 148 MHz

² Taiwan : 25 W (both bands)

Accessories

Parts name	Parts No.	Q'ty	Destination
Warranty card	-	1	K,E,E3
Instruction manual	-	-	all
DC cord	E30-2111-15	1	all
Fuse (15A)	F51-0017-05	1	all
Microphone	T91-0396-05	1	M2,M4,E,E3
Microphone (DTMF)	T91-0586-05	1	K
Mobile bracket	J29-0632-13	1	all
Screw set	N99-0331-05	1	M2,M4,E,E3
Screw set	N99-0382-05	1	K
Microphone hanger	J19-1526-04	1	K

Units for Each Model and Destination

Model		TX-RX UNIT (A,B,B3,C,B)	LCD ASSY
TM-G707A	K	X57-5570-11	B38-0787-XX
	M2	X57-5570-22	
	M4	X57-5570-24	
TM-G707E	E	X57-5572-71	
	E3		

CIRCUIT DESCRIPTION

Unlock Detect Circuit

The signal whose phase has been compared from the PLL IC (IC1) is output, goes through the waveform circuit, and is input to the microprocessor. If the level after waveforming is low, the microprocessor judges this to be the unlock signal

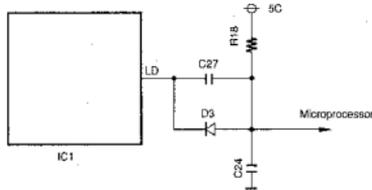


Fig.3 Unlock detect circuit

and does not transmit and does not send the transmission signals to the shift registers. The microprocessor also generates the beep to announce the unlocking. Unlocking is announced in the same manner for reception too.

Transmit Circuit

●Outline

The transmitter directly oscillates the target frequency with the dedicated 144MHz band and 430MHz band VCO and amplifies to the target power. Frequency modulation is applied directly with a variable-capacity diode.

●Modulation circuit

In the control unit, the audio signals are amplified and limited and passed through a splatter filter, then mixed with subtones from the microprocessor, and directly frequency modulated by a VCO (144MHz band: IC4; 430MHz band: IC5) with a variable-capacity diode.

●Younger stage circuit

The signals from the PLL unit are input to the drive circuit (144MHz band: Q16, Q18, 430MHz band: Q15, Q17, Q19). The drive amps carry out stable amplification over a broad band without regulation and can obtain adequate output to drive the final module.

●APC circuit

The automatic transmission output control circuit (APC) uses a differential amplifier circuit (IC6) to compare and amplify the reference voltage that forms the CPU PWM output and the DC voltage that detects part of the transmission power with diodes (VHF: D20 and D23; UHF: D19 and D21) and for that output controls the DB voltage with a preamp (Q21) and control transistor (Q20) and holds the transmission output constant.

Six sets of PWM data, high-, medium-, and low-power each for VHF and UHF are stored into EEPROM memory (IC511) and for each power condition, the data is extracted from the EEPROM to control the power.

The PWM output from the CPU is used as the BPF tuning voltage for reception.

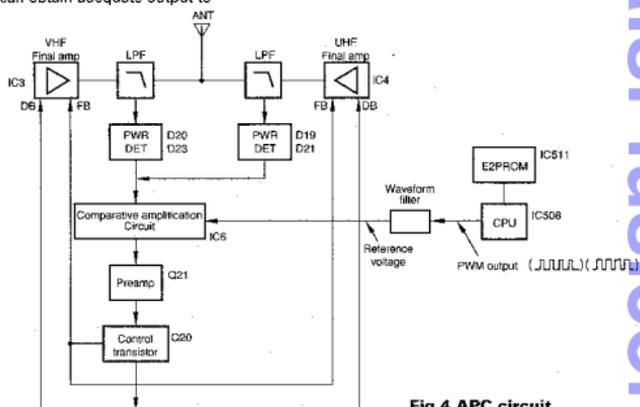


Fig.4 APC circuit

CIRCUIT DESCRIPTION

Reception Circuit

●144MHz Band

After the 144MHz antenna input signals pass through the final section antenna switching diode, they go through the front section tuning coil for matching and tuning are amplified with the GaAs field effect transistor. The unwanted signal is eliminated with a band pass filter made up of a 2-stage variable-capacity diode tuning and the result goes to the first mixer. The variable-capacity tuning comprises three stages. The tuning voltage is supplied from the microcomputer. For the tuning voltage, the PWM used for APC during transmission is switched to use for tuning for reception. In the first mixer, the signals are mixed with the first local signal from the PLL and converted to the first intermediate frequency signal of 38.85MHz, then the unwanted proximate signal is eliminated in the 2-stage MCF.

The first intermediate frequency signal is amplified and input to the FM IC (IC8). This intermediate frequency signal is mixed with the second local oscillator frequency of 38.4MHz to make the second intermediate frequency of 450kHz and

Item	Rating
Center Frequency	38.85MHz
Pass band width	$\pm 7.5\text{kHz}$ or more at 3dB
Attenuation band width	$\pm 25\text{kHz}$ or less at 36dB $\pm 45\text{kHz}$ or less at 58dB
Guaranteed attenuation	80dB or more within $\pm 1\text{MHz}$ (Spurious: 40dB or more within $\pm 1\text{MHz}$)
Ripple	1dB or less
Insertion loss	3dB or less
Termination impedance	$550\Omega \pm 10\%$, 2.5pF $\pm 0.5\text{pF}$

MCF (L71-0481-05)(TX-RX Unit XF1)

S Meter Circuit

S meter output voltage from the FM IC (IC8) is connected to the control unit and A/D converted by the CPU to drive the LCD bar meter.

Squelch Circuit

The squelch control angle is read into the panel section microprocessor and converted from analog to 6-bit digital. For adjustment mode, on the main unit side, the threshold level signal is received and the SQ voltage at that time are stored into the microprocessor. The microprocessor calculates the squelch release voltage using this voltage as the reference. This voltage and the panel section squelch control voltage are compared and the squelch switched ON and OFF.

Shift Register Circuits

The TX-RX units have a shift register (IC7) and carry out the control of the right figure.

after the unwanted proximate signal is eliminated with an FM ceramic filter, The signal is input to IC8 again. Here, second intermediate frequency is amplified and detection are carried out to form the audio signal. From the IF (38.85 MHz) stage onward, the circuits are shared with the 430MHz band and switched for each band.

●430MHz Band

After the 430MHz antenna input signals pass through the final section antenna switching diode, they go through the front section matching coil, are amplified with the GaAs field effect transistor, go through a divider, go through a SAW filter to eliminate the unwanted signal and the result is input to the first mixer. Here, the signals are mixed with the first local signal from the PLL and converted to the first intermediate frequency signal of 38.85MHz, from the IF stage onward, the circuits are shared with the VHF reception circuit.

Item	Rating
Nominal center frequency	450kHz
6dB band width	$\pm 7.5\text{kHz}$ or more (from 450kHz)
50dB band width	$\pm 15.0\text{kHz}$ or more (from 450kHz)
Ripple	3dB or less (within 450 \pm 5kHz)
Insertion loss	6dB or less (at minimum lost point)
Guaranteed attenuation	35dB or more (within 450 \pm 100kHz)
I/O matching terminating impedance	

Ceramic filter (L72-0931-05)(TX-RX Unit CF1)

Pin No.	Name	Function
1	E	GND
2	DTS	Serial data input
3	CK	Clock
4	8R SW	U/V RX Power SW
5	UTX SW	UHF TX Power SW
6	VTX SW	VHF TX Power SW
7	8CU SW	UHF Power SW
8	8CV SW	VHF Power SW
9	14R SW	VHF RX SW
10	VAIP SW	VHF AIP SW
11	UAIP SW	UHF AIP SW
12	80R SW	
13	43R SW	UHF Power SW
14	36R SW	
15	USHIFT	UHF VCO Shift SW
16	5C	VDD

CIRCUIT DESCRIPTION

AF Signal System

After the RD detection signal from the FM IC (IC8) enters the base band (IC506), it is combined with the VO signal from the audio synthesis unit and the beep and DTMF signals from the CPU and goes into the electronic control. The electronic control has two channels, one of which is used for the internal speaker (AO1) and the other of which is used for the speaker mic (AO0). The audio signals whose levels have been adjusted by the electronic control pass through the mute circuit, are amplified by the power amp (IC207), and are output to the built-in speaker and the speaker mic.

(K type has no speaker microphone circuit)

Beep Circuit, Mute Circuit

When a key is pressed, the beep sound is output from Pin 46 of the microcomputer. While the beep sound is output, the RD signal is muted within the base band IC. In the same manner, while VO signals or DTMF signals are output, the RD signal is muted within the base band IC.

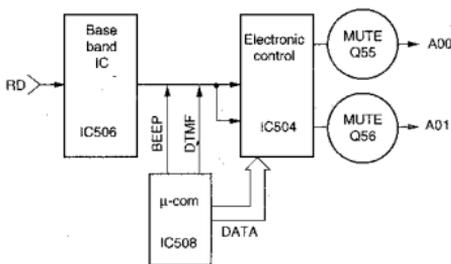


Fig. 5 AF Block Diagram

Mic Amp Circuit (Refer to Fig.6)

The audio signals from the microphone are impedance matched and enter AK2343 (IC506). AK2343 comprises a 2-stage amp, mute circuit, band pass filter circuit, limiter circuit, and splatter filter circuit. It provides the audio signal amplification and preemphasis characteristic. During data transmission from the DATA terminal, the IC507 mute switch

is switched off to mute audio signals from the mic. The level for the mic amp output is set with the electronic control (IC504). The modulation circuits are directly connected with the VCO variable-capacity diode for the 144MHz band and the VCO variable-capacity diode for the 430MHz band and apply frequency modulation.

CIRCUIT DESCRIPTION

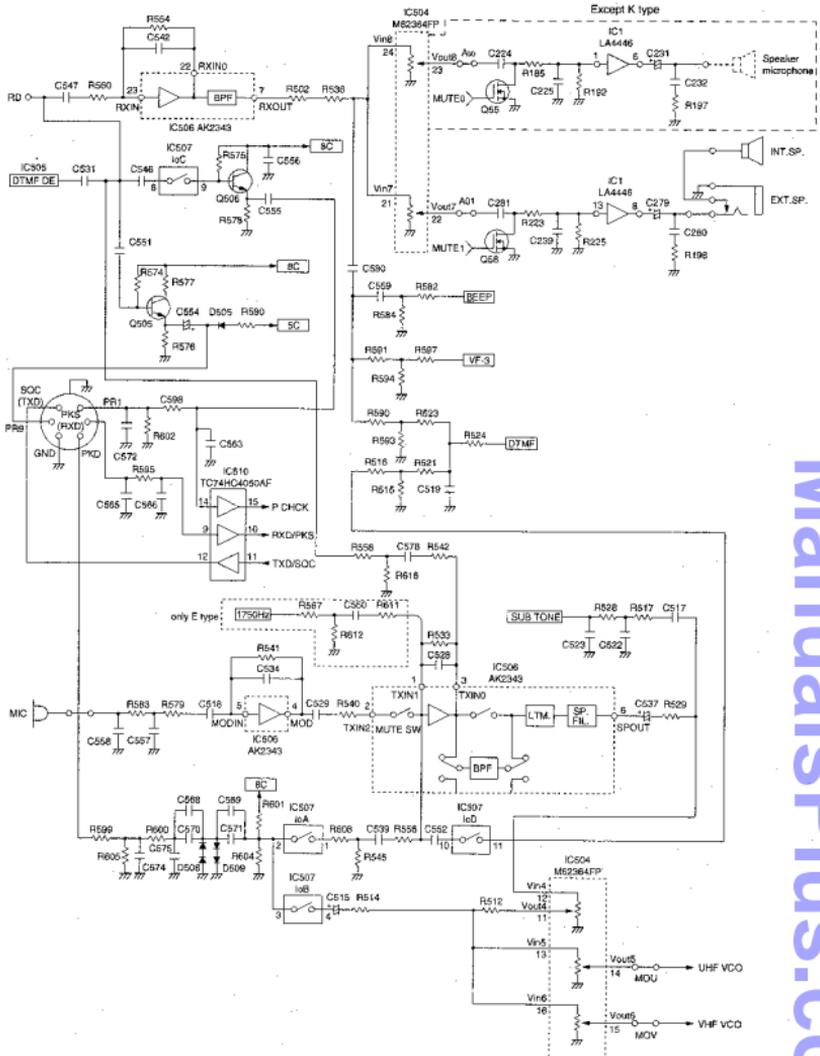


Fig. 6 Transceiver audio signal processor circuit

CIRCUIT DESCRIPTION

Digital Control Circuit (Refer to Fig.6)

The digital control section controls each function with one microprocessor (IC508) and comprises the subtone signal, DTMF encode and DTMF decode circuit (IC505), the electronic control circuit (IC504), the analog signal select switch (IC507), and the base band circuit (IC506). The reset and backup circuits, mic amp circuit, and microphone key input circuit are also included in the control unit.

Data Communications Between Panel and Control Unit

Figure 7 shows the control unit data communication circuits. SI is the serial data in and SO is the serial data out. There are Buffer amplifiers for protecting the microprocessor board.

Data communication is asynchronous, with a communications speed of 19200 bps. The control unit side microprocessor checks the connection once every 0.5 second and if the connection is NG twice in a row, in other words if the panel section is removed for more than one second, the power is cut off.

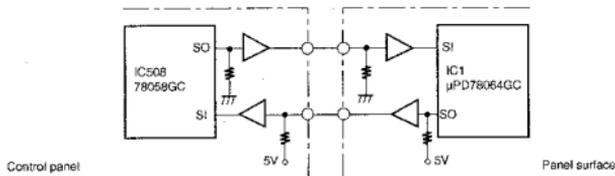


Fig. 7 Circuit for Data Communications Between Panel and Control Unit

Speaker Switching Circuit (Refer to Fig.6)

Each of the AF signals, AO0 and AO1, is input to one of the two independent power amps (IC1: LA4446). Switching between the internal speaker and external speaker is controlled by the electronic control (IC504) and the mute circuit of Q55 and Q56.

Tone Output Circuit (Refer to Fig.6)

The tone signals (38 waves within 67.0 to 250.3Hz) are output from AN00 of the microprocessor (IC508) analog output port.

●DTMF decode signals

The DTMF signals from a mic with DTMF (M2, E, E3 : optional), go into the DTMF decoder IC (IC505 : LC73881M). When a valid tone pair is detected, STD of the DTMF decoder IC goes high. This is input to the P56 port of the microprocessor (IC508), the serial clock is output from P54 of the microprocessor to the DTMF decoder IC, and the serial data is sent to the P55 port of the microprocessor.

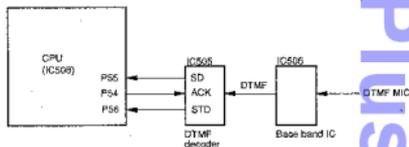


Fig.8 DTMF decode circuit

CIRCUIT DESCRIPTION

Reset and Backup Circuits

When power is supplied to the set, the reset circuit generates a delay in the reset IC (IC503: PST9130NR) and the delay signal is input to the reset terminal of the main unit microprocessor to carry out a power ON reset. When the power voltage drops, the voltage is detected and the reset signal is generated.

The reset switch circuit resets the main unit microprocessor when the reset switch (S501) is pressed. The microcomputer checks the RST port level after reset is performed. If the switch is released within 1 second (when RST port has set to LOW level) at this time, then operation is the same as VFO reset (VFO+POWER ON). However, if the switch is pressed for longer than 1 second (RST port has set to HIGH level for more than 1 second), then operation is the same as ALL reset (MR+POWER ON). The RST port is normally low. The backup circuit detects any voltage drop in the power supply voltage 13.8V line and sets B CHCK of the microprocessor high, causing the microprocessor to send the backup data to the EEPROM (IC511) and go into STOP mode to reduce power consumption.

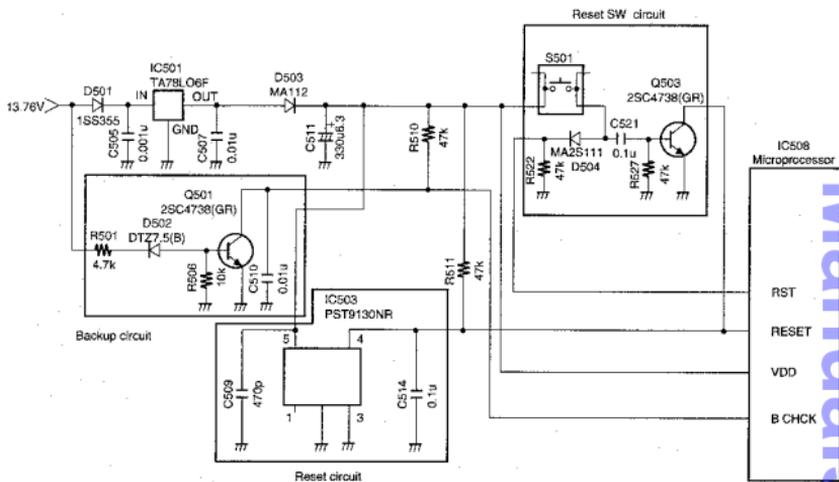


Fig.9 Reset backup circuit

CIRCUIT DESCRIPTION

Microphone Key Input

The microphone UP/DOWN and function keys are connected to the microprocessor analog input. The voltage when a key is ON operates the corresponding function. Also, the key input interrupt circuit is for switching the power ON/OFF with the microphone. When the DOWN, MR, and PF keys

are pressed, an interrupt is generated and the microprocessor is awoken from stop mode. However, with the TM-G707A/E, the power ON/OFF switch function can be registered to the PF key on the microphone.

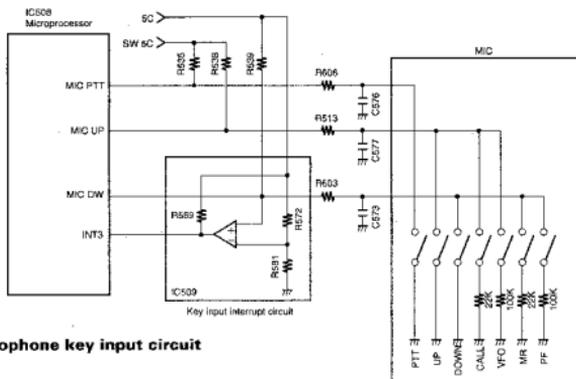


Fig.10 Microphone key input circuit

Data Terminal and Peripheral Circuits (Refer to Fig.6)

J501 (data terminal) is the data communications terminal on the front. It handles transmission control, data input/output, and squelch signals.

There are two data communications modes: 9600bps mode and 1200bps mode. 9600bps mode communications are GMSK and G3RUH packet communications. Unlike with 1200bps AFSK, with this type of high-speed modulation, frequency modulation is carried out after the digital base band signals (rectangular wave) are passed through a band limiting filter. For 9600bps GMSK for example, compared to 4800Hz signals (nearly sine wave signals passed through a filter), these signals have a hissing sound like digital modulation when listened to by ear. Different types of modulation, such as GMSK and G3RUH, are distinguished by the type of band limiting filter.

Transmission signals

Transmission modulation signals enter from PKD of the data terminals (J501). The path to the modulation depends on whether communications are 1200bps or 9600bps mode.

For 1200bps mode, the transmission modulation signals pass through IoA of the analog switch (IC507) and are input to IC506 TX IN1 (Pin 1). The signals pass through the audio amp within AK2343, are switched by the electronic control, and are input to the VCO.

Pin No.	Pin name	Specification		
		bps switching	1200bps	9600bps
1	PKD	Modulation input	40mVp-p	2Vp-p
		Frequency shift	3±0.5kHz	2.2±0.5kHz
		Always output during reception		
4	PR9	Output level	500mVp-p/10kΩ	
5	PR1	Output level	500mVp-p/10kΩ	
		Not output when squelch off		

DATA terminal input/output level

For 9600bps mode, the transmission modulation signals pass through IoB of IC507, are switched by the electronic control, and are input to the VCO.

The frequency shift depends on the input signal level, so there is an amplitude limiting circuit (D508, 509) to hold the signal below 4 Vp-p to avoid extreme shifts.

Thanks to this circuit, the PKD signal does not go above 4 Vp-p and the frequency shift does not fluctuate extremely.

CIRCUIT DESCRIPTION

●Reception signals

PR9 is the 9600bps data communications reception output. It outputs the FM detection circuit output (RD signals) through a buffer amp (Q505 : 2SC4738 (GR)). These signals are always output whether the squelch is open or closed.

PR1 is the 1200bps data communications reception output. It outputs the FM detection circuit output (RDT signals) through a buffer amp (Q506 : 2SC4738 (GR)). Output is controlled with the analog switch (IoC of IC507) according to whether squelch is open or closed.

●Squelch signal output circuit (Refer to Fig.6)

The squelch circuits is input to the TNC to prevents conflicts from occurring between simultaneous receive mode and transmit mode traffic during packet communications. (only during 1200bps) The signal is output from Pin 12 of IC510 to the data terminal. The logic is as shown in the Table below.

SQC terminal output	L:SQ CLOSE
(J 501 Pin 6)	H:SQ BUSY

Panel Section (LCD ASSY: B38-0797-35)

The panel section controls the serial communications with the main unit control section, the key input circuit, the display circuit, and the dimmer circuit through the microprocessor (IC1).

●Serial communications circuit

A buffer amp is inserted in order to protect the microprocessor ports.

●Key, Volume input circuit

Circuits to operate the panel section keys are connected to each microprocessor port. The PSW key is pulled down and the other keys are pulled up with software within the microprocessor. Rotary encoder operating circuits are connected directly to the microprocessor. The control divides the power supply voltage, reads the A/D port of the microprocessor, and transfers that data to the main unit.

●Display circuit

The display is a 13-segment positive type. The segments are controlled directly by drivers in the microprocessor.

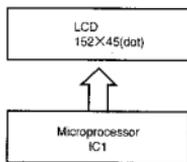


Fig.11 Display circuit

●Dimmer circuit

The dimmer circuit switches the lamp brightness to one of four levels or OFF. (See table) the current flowing to the LEDs is varied by selecting resistors from R36 to R41.

R42 is for adjusting for variation in the brightness of the LED. R42 is adjusted at the factory so that the brightness at the center of the LED is 24 ± 5 cd/m².

Dimmer level	P100	P101	P102	P103
1	H	L	L	L
2	L	H	L	L
3	L	L	H	L
4	L	L	L	H
OFF	L	L	L	L

Port logic

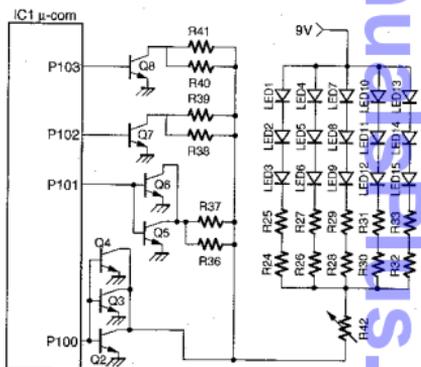


Fig.12 Dimmer circuit

ACCESSORY MICROPHONE T91-0396-05 : E, M type (MC-45)

EXTERNAL VIEW



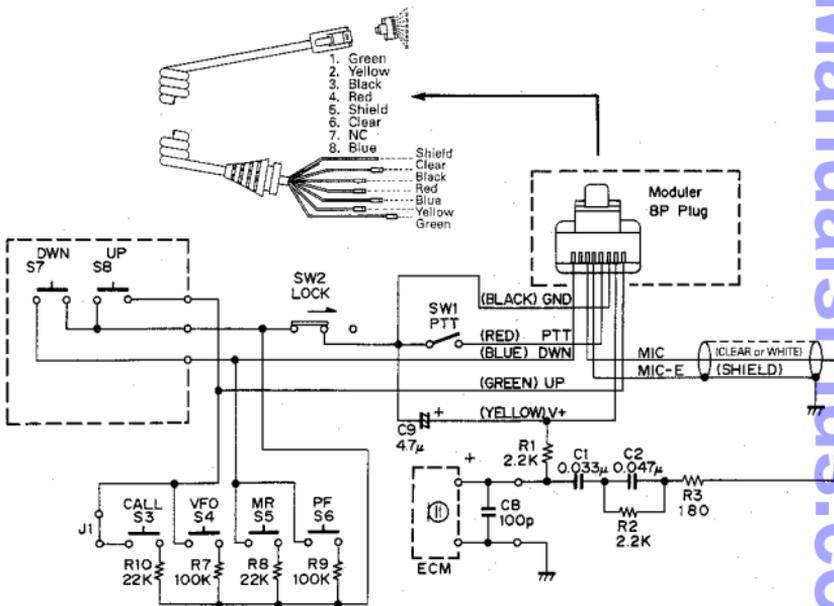
PARTS LIST

Ref. No.	Address	New Parts	Parts No.	Description
			A02-0896-08	CASE (FRONT)
			A02-0900-08	CASE (REAR)
			E30-3006-08	CURL CORD ASSY
			G13-0933-08	CUSHION (UP,DWN)
			K29-3165-08	KNOB (PTT)
			K29-3166-10	KNOB (UP)
			K29-3169-10	KNOB (DWN)
			K29-3170-08	KNOB (CALL, VED, MR, PF)
SW3-6			S59-1409-29	SWITCH ASSY (UP,DWN)
SW7,8			S40-1431-08	TACT SWITCH (CALL, VFO, MR, PF)
SW1			S40-1437-08	TACT SWITCH (UP,DWN)
SW2			S50-1431-08	MICRO SWITCH LOCK
			S31-1422-08	SLIDE SWITCH LOCK
			T91-0393-08	MICROPHONE ELEMENT

SPECIFICATIONS

Type	Electret capacitor
Power requirement	8.0 V DC $\pm 10\%$
Current drain	0.6 mA or less
Sensitivity	-71.5 \pm 3.5 dB (at 500 Hz) (0 dB = 1 V/0.1 pa)
Impedance	3.1k Ω $\pm 30\%$ (at 1kHz)

SCHEMATIC DIAGRAM



SEMICONDUCTOR DATA

78P064GCJTUB (LCD DISPLAY ASSY CPU:IC1)

Pin No.	Port name	IO	Function	Active Level
1	P11/ANI1	AI	AF VOL	-
2	P12/ANI2	AI	Photo transistor	-
3	P13/ANI3	AI	Dimmer reference	-
4	P14/ANI4	I	Dimmer detect terminal	-
5~7	P15~17/ANI5~7	-	Open	-
8	AVDD	-	VDD	-
9	AVREF	-	VDD	-
10, 11	P100, P101	O	Dimmer control 1, 2	H
12	VSS	-	GND	-
13, 14	P102, P103	O	Dimmer control 3, 4	H
15	P30/TO0	O	5C SW	-
16	P31/TO1	I	[BAND] key	L
17	P32/TO2	I	[PM] key	L
18	P33/TO3	I	[MENU] key	L
19	P34/TO4	I	[DIM] key	L
20	P35/PCL	-	Open	-
21	P36/BUZ	-	Open	-
22	P37	-	Open	-
23~26	COM0~3	O	LCD COM0~LCD COM3	-
27	BIAS	-	BIAS	-
28~30	VLC0~2	-	VLC0~VLC2	-
31	VSS	-	GND	-
32~55	S0~23	O	LCD S0~LCD S23	-
56~71	P97~P80/S24~39	O	LCD S24~LCD S39	-
72	P25/SI0/SB0	I	Main unit microcomputer communication SI	-
73	P28/SO0/SB1	O	Main unit microcomputer communication SO	-
74	P27/SCK0	-	Open	-
75	P70/SI2/RXD	-	Open	-
76	P71/SO2/TXD	-	Open	-
77	P72/SCK/ASCK	-	Open	-
78	IC	-	Open	-
79	X2	-	Clock oscillator connection (4.194304 MHz)	-
80	X1	-	Clock oscillator connection (4.194304 MHz)	-
81	VDD	-	VDD	-
82	XT1/P07	-	Open	-
83	XT2	-	Open	-
84	RESET	-	Reset input	-
85	P09/INTP0/TI00	I	Encoder clock	-
86	P01/INTP1/TI01	I	Main unit microcomputer communications request detect (connected to Pin 72)	-
87	P02/INTP2	I	[PWR] key	L
88	P03/INTP3	I	Encoder data	-
89	P04/INTP4	-	Open	-
90	P05/INTP5	-	Open	-
91	P110	I	[VFO] key	L
92	P111	I	[CALL] key	L
93	P112	I	[MR] key	L
94	P113	I	[MHz] key	L
95	P114	I	[F] key	L
96	P115	I	[TONE] key	L
97	P116	I	[REV] key	L
98	P117	I	[LOW] key	L
99	AVSS	-	GND	-
100	P10/ANI0	AI	Squelch VR	-

SEMICONDUCTOR DATA

I/O port specification

78058GC-A7X8BT (CONTROL UNIT CPU:IC508)

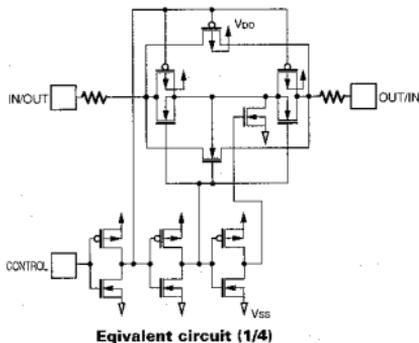
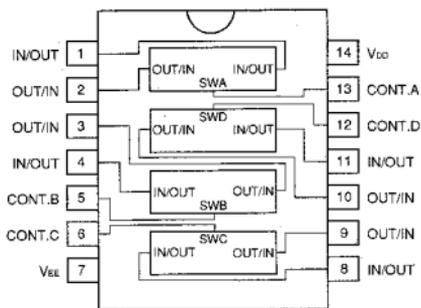
Pin No.	Port name	I/O	Function	Active Level
1		I	Open (connected to V _{DD})	-
2	MIC DW	AI	MIC [DOWN] [MR] [PF] key	H:No operation,4.7V max:SP MIC,4.3V max: [PF] pressed,0.5V max: [MR] pressed,0.8V max: [DOWN] pressed
3	MIC UP	AI	MIC [UP] [CALL] [VFO] key	H:No operation,4.3V max: [VFO] pressed,2.5V max: [CALL] pressed,0.6V max: [UP] pressed
4	AVSS	-	A/D conversion circuit VSS terminal (connected to ground)	-
5	SUB TONE	O	Sub tone signal D/A output terminal	-
6	DTMF	O	DTMF signal D/A output terminal	-
7	AVREF1	-	D/A conversion circuit reference voltage terminal (connected to V _{DD})	-
16	RXO/PKS	I	RS-232C RxD terminal	-
19	TXD/SOC	O	RS-232C TxD terminal	-
10	MIC PTT	I	MIC [PTT] key	H:No operation,L:pressed
11	PLL EN	O	PLL enable	L:Enable
12	PLL CK	O	PLL & shift register clock	-
13	PLL DT	O	PLL data	-
14	SFT DT	O	Shift register data	-
15	PLL UL	I	PLL unlock signal	-
16	SI	I	Panel microcomputer communications SI	-
17	SO	O	Panel microcomputer communications SO	-
18	RST	I	Reset switch input	H:pressed,L:No operation
19	MUTE0	O	SP/MIC AF MUTE SW	H:MUTE ON
20	MUTE1	O	Internal/external AF mute switch	H:MUTE ON
21		O	Open (connect V _{DD})	-
22	AGC	O	AGC	H:AGC ON
23	FAN	O	FAN	H:FAN ON
24	PLL SW	O	PLL SW	H: One moment when PPT On
25	V SHIFT	O	VHF VCO SHIFT SW	-
26	PSW	O	Power Switch	H:PSW ON,L:PSW OFF
27				-
28	AM SW	O	AM SW	H:A.M,L:F.M
29~30		I	Open (connect V _{DD})	-
31	DM CK	O	DTMF decoder clock	-
32	DM DT	O	DTMF decoder data	-
33	VSS	-	Microcomputer ground potential	-
34	DM STD	I	DTMF decoder detect terminal	-
35	5CSW	O	5C switch control	H:5C OFF,L:5C ON
36~39	SIM0~3	I	Destination Bit 0~3	-
40	EEP SO	I	EEPROM SO	-
41	EEP CS	O	EEPROM chip select	H,L:select
42	EEP CK	O	EEPROM clock	-
43	EEP SI	O	EEPROM SI	-
44	IPWM	O	APC control, BPF control (PWM)	-
45	IPCHCK	I	Packet connection check	-
46	BEEP	O	Beep output	-
47	ASW 1200	O	Packet signal input select 1200bps	H:1200bps side input
48	ASW DM	O	DTMF monitor ON/OFF	H:MONI ON
49	ASW 9600	O	Packet signal input select 9600bps	H:9600bps side input
50	1750HZ	O	1750Hz	-
51	ASW SQ	O	PR1 squelch control analog switch	L:PR1 MUTE
52	MIC BUSY	O	Speaker mic Busy LED	H:BUSY LED ON
53	V NAR	O	Audio synthesis IC serial input enable	L:Enable
54	V RST	O	Audio synthesis IC reset	-
55	V CS	O	Audio synthesis chip select	-
56	V DT	O	CTCSS data/audio synthesis IC data	-
57	V/CT CK	O	CTCSS clock/audio synthesis IC clock, connectors check	-
58	CT DE	O	CTCSS detected	L:Detected
59	CT EN	O	CTCSS enable	-
60	RESET	I	External reset terminal	-
61	SIM CH	I	CH display jumper	L:jumper present
62	B CHK	I	Power supply check	H:Voltage drop
63	INT2	I	Panel microcomputer communications request detect (connected to Pin 16)	L:Communications request
64	INT3	I	(Connected to Pin 2)	-
65	VR CK	O	Electronic VR clock	-
66	VR EN	O	Electronic VR enable	-
67	VR DT	O	Electronic VR data	-
68	VDD	-	Positive power supply terminal	-
69	X2	-	System clock (4.194304MHz)	-
70	X1	I	System clock (4.194304MHz)	-
71	VPP	-	Connected to VSS	-
72		-	Open	-
73	AVDD	-	Open (Connected to VSS)	-
74	AVDD	-	A/D conversion circuit power supply terminal (connected to V _{DD})	-
75	AVREF0	-	A/D conversion circuit reference voltage terminal (connected to V _{DD})	-
76	SO IN	I	Squelch input	-
77	SM IN	I	S meter input	-
78~80		I	Open (Connected to V _{DD})	-

TM-G707A/E

SEMICONDUCTOR DATA

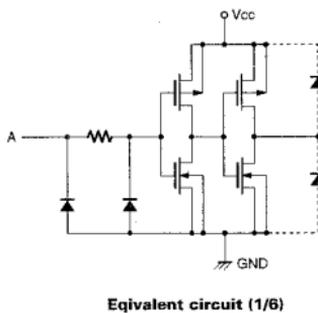
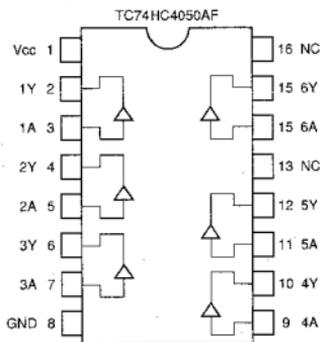
BU4066BCF

CONTORL UNIT:IC507



TC74HC4050AF

CONTORL UNIT:IC510



DESCRIPTION OF COMPONENTS

TX-RX UNIT (X57-557X-XX)

Ref.No.	Application/Function	Operation/Condition/Compatibility
Q1	Fan switch	
Q2	Buffer amp	12.8MHz
Q3	F in amp	UHF
Q4	F in amp	VHF
Q5, Q6	Charge pump	VHF/UHF common
Q11	VCO power select switch	VHF or UHF On
Q12	VCO 8CL ripple filter	VHF-UHF common
Q13	Common amp	VHF
Q14	Common amp	UHF
Q15	Transmission driver	UHF transmission on
Q16	Transmission driver	VHF transmission on
Q17	Transmission driver	UHF transmission on
Q18	Transmission driver	VHF transmission on
Q19	Transmission driver	UHF transmission on
Q20, Q21	APC control	VHF/UHF common transmission on
Q22	Protection switch	APC temperature protection
Q23, Q24	AVR	For PB
Q25	Protection switch	Excess voltage protection
Q26	Power switch	For 8R
Q27	Power switch	For 8TU
Q28	Power switch	For 8TV
Q29	Power switch	For 8CU
Q30	Power switch	For 8CV
Q31	Power select switch	43R/80R selection
Q32	Power select switch	14R/36R selection
Q33	RF amp	When VHF reception on
Q34	RF amp	
Q35	Doubler	
Q36	RF amp	When UHF reception on
Q37	First mixer	
Q38	First mixer switch	
Q39	RF amp	
Q40	RF amp	When UHF reception on
Q42	Switch for band switch	When UHF reception on
Q43	First mixer switch	When VHF reception on
Q44	First mixer switch	When UHF reception on
Q45	First mixer	When VHF reception on
Q46	First mixer	When UHF reception on
Q47	AGC amp	
Q48	First IF amp	VHF/UHF common transmission on
Q49	Tripler	Second local
Q50	Select switch	
Q51, Q53	Power switch	Power Switch
Q52	Noise amp	Squelch
Q54	AGC amp	
Q55	Mute switch	When speaker mic used
Q56	Mute switch	When internal speaker used
Q60	Mute switch	When internal speaker used
Q61, Q62	Mute switch	When internal speaker used
Q501	Backup switch	Backup on off
Q502	Power switch	For SW5C
Q503	Reset switch	Reset when on
Q504	BUSY LED switch	When speaker mic used
Q505	Buffer amp	9600bps RD
Q506	Buffer amp	1200bps RD

Ref.No.	Application/Function	Operation/Condition/Compatibility
IC1	PLL IC	PLL
IC2	Select switch	Loop filter switching
IC3	Speed up	Loop filter
IC4	VCO	VHF
IC5	VCO	UHF
IC6	Comparator	APC
IC7	Shift register	
IC8	FM wave detection	
IC9	Select switch	
IC10	5V regulator	5C
IC1	Microcomputer	LCD display assy
IC1	Audio amp	(Main)
IC2	8V AVR	8C (Main)
IC3	Power module	VHF (Main)
IC4	Power module	UHF (Main)
IC501	6V regulator	
IC502	5V regulator	5C
IC503	Reset detect	
IC504	Electronic control	
IC505	DTMF decoder	
IC506	Base band IC	
IC507	Analog switch	
IC508	Microcomputer	
IC509	Comparator	For speaker mic power switch
IC510	Buffer amp	PR1/TXD/RXD/PS1/PSO
IC511	EEPROM	
D1, D2	Select switch	F in switch
D3	Lock detect	Lock detect
D4	Reduce voltage	Charge pump
D6	Quick charge	VCO ripple filter
D6-D9	Select switch	Hetero switch
D10-D12	Voltage stabilizer	Q16, Q18, Q19 base bias
D13, D43	Excess power prevention	Q33 protection
D14, D18	Antenna switch	UHF
D15-D17, D42	Antenna switch	VHF
D19, D21	Power detection	UHF
D20, D23	Power detection	VHF
D22	OR circuit	8TV/8TU
D24	Voltage stabilization	Q23 base bias
D25	Excess voltage prevention	For PB
D26	Excess power prevention	Q36 protection
D27	Band switch	
D28, D29, D31	Band bus tuning	VHF front end
D30	Band switch	
D33	OR circuit	43R/36R
D34, D35	Back current prevention	VCO power switch
D37, D38	Select switch	Hetero switch
D39	Rectifier	Noise amp output
D40, D41	Diverse detection prevention	
D501, D503	Back current prevention	IC501
D502	Voltage stabilization	Q501
D504	Reduce voltage	RST port
D505, D506	Back current prevention	Data terminal
D507	Back current prevention	MIC terminal
D508, D509	Limitter	PKD

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TERMINAL FUNCTION

TX-RX UNIT (X57-557X-XX:A/3)

CN No.	Pin No.	Name	Function
CN1	1	FAN	SB output for fan
	2	E	GND
CN3	1	AF	Audio signal output for speaker mic
	2	AF	Audio signal output for speaker mic
	3	E	GND
	4	E	GND
	5	PWM	APC and VHF-BPF control
	6	UL	Unlock detect output
	7		Not used
	8	DTP	PLL data input
	9	CK	PLL shift register clock input
	10	EP	PLL enable input
	11	E	GND
	12		Not used
	13	MOV	VHF modulation input
	14	MOU	UHF modulation input
	15	E	GND
	16	A00	Audio signal input for speaker mic
	17	A01	Audio signal input for internal/external speakers
	18	E	GND
	19	SPE	Ground for speaker mic
	20	SPE	Ground for speaker mic
CN4	1	PB	Panel power supply output
	2	B	13.8V
	3	E	GND
	4	PSW	Power switch control input
	5	PE	Panel ground
	6	8C	Common 8V
	7	MUTE0	Mute control signal input for speaker mic
	8	RD	Demodulation audio output
	9	E	GND
	10	MUTE1	Mute control signal input for internal/external speakers
	11	SQ	Squelch voltage output
	12	SM	S meter voltage output
	13	AGC	AGC control signal input
	14	FAN	Fan control signal input
	15	DTS	Shift register data input
	16	PLL SW	PLL select switch
	17	V.SHIFT	VHF VCO frequency shift switch
	18	U.SHIFT	UHF VCO frequency shift switch
	19	AM SW	AM select switch
	20	E	GND
CN5	1		Internal speaker output
	2		GND

LCD ASSY (B38-0797-35)

CN No.	Pin No.	Name	Function
CN1	1	E	GND
	2	SW	Band select switch signal input
	3	SQ	Squelch volume voltage input
	4	VOL	AF volume voltage input
	5	VDD	Reference voltage output (5V)

CONTROL UNIT (X57-557X-XX:B/3)

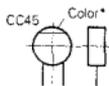
CN No.	Pin No.	Name	Function
CN501	1	PSI	Serial data input
	2	PS0	Serial data output
	3	PE	Panel ground
	4	PB	Panel power supply output
CN502	1	PB	Panel power supply input
	2	B	13.8V
	3	E	GND
	4	PSW	Power switch control output
	5	PE	Panel ground
	6	8C	Common 8V
	7	MUTE0	Mute control signal output for speaker mic
	8	RD	Demodulation audio input
	9	E	GND
	10	MUTE1	Mute control signal output for internal/external speakers
	11	SQ	Squelch voltage input
	12	SM	S meter voltage input
	13	AGC	AGC control signal input
	14	FAN	Fan control signal input
	15	DTS	Shift register data output
	16	PLL SW	PLL select switch
	17	V.SHIFT	VHF VCO frequency shift switch
	18	U.SHIFT	UHF VCO frequency shift switch
	19	AM SW	AM select switch
	20	E	GND
CN503	1	AF	Audio signal input for speaker mic
	2	AF	Audio signal input for speaker mic
	3	E	GND
	4	E	GND
	5	PWM	APC and VHF BPF control
	6	UL	Unlock detect input
	7		Not used
	8	DTP	PLL data input
	9	CK	PLL shift register clock output
	10	EP	PLL enable output
	11	E	GND
	12		Not used
CN504	13	MOV	VHF modulation output
	14	MOU	UHF modulation output
	15	E	GND
	16	A00	Audio signal output for speaker mic
	17	A01	Audio signal output for internal/external speakers
	18	E	GND
	19	SPE	Ground for speaker mic
	20	SPE	Ground for speaker mic
	1	VCK	VS-3 clock output
	2	VDT	VS-3 data output
3	VCS	VS-3 chip select	
4	RST	VS-3 reset output	
5	NAR	VS-3 input enable output	
6	E	GND	
7	5C	Common 5V	
8	V0	Audio input	
CN701	1	E	GND
	2	SW	Band select switch signal output
	3	SQ	Squelch volume voltage output
	4	VOL	AF volume voltage output
	5	VDD	Reference voltage input (5V)

PARTS LIST

CAPACITORS

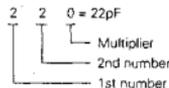
CC 45 TH 1H 220 J
1 2 3 4 5 6

- 1 = Type ... ceramic, electrolytic, etc. 4 = Voltage rating
2 = Shape ... round, square, ect. 5 = Value
3 = Temp. coefficient 6 = Tolerance



• Capacitor value

- 010 = 1pF
100 = 10pF
101 = 100pF
102 = 1000pF = 0.001μF
103 = 0.01μF



• Temperature coefficient

1st Word	C	L	P	R	S	T	U
Color*	Black	Red	Orange	Yellow	Green	Blue	Violet
ppm/°C	0	-80	-150	-220	-330	-470	-750

2nd Word	G	H	J	K	L
ppm/°C	±30	±60	±120	±250	±500

Example: CC45TH = -470 ± 60ppm/°C

• Tolerance (More than 10pF)

Code	C	D	G	J	K	M	X	Z	P	No code
(%)	±0.25	±0.5	±2	±5	±10	±20	+40	+80	+100	More than 10μF -10 - +50
							-20	-20	-0	Less than 4.7μF -10 - +75

(Less than 10pF)

Code	B	C	D	F	G
(pF)	±0.1	±0.25	±0.5	±1	±2

• Voltage rating

2nd word	A	B	C	D	E	F	G	H	J	K	V
0	1.0	1.25	1.6	2.0	2.5	3.15	4.0	5.0	6.3	8.0	-
1	10	12.5	16	20	25	31.5	40	50	63	80	35
2	100	125	160	200	250	315	400	500	630	800	-
3	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	-

• Chip capacitors

(EX) C C 7 3 F S L 1 H 0 0 0 J
1 2 3 4 5 6 7

Refer to the table above.

1 = Type
2 = Shape
3 = Dimension
4 = Temp. coefficient
5 = Voltage rating
6 = Value
7 = Tolerance

(Chip) (CH, RH, UJ, SL)

(EX) C K 7 3 F F 1 H 0 0 0 Z
1 2 3 4 5 6 7

(Chip) (B, F)

Dimension (Chip capacitors)

Dimension code	L	W	T
Empty	5.6 ± 0.5	5.0 ± 0.5	Less than 2.0
A	4.5 ± 0.5	3.2 ± 0.4	Less than 2.0
B	4.5 ± 0.5	2.0 ± 0.3	Less than 2.0
C	4.5 ± 0.5	1.25 ± 0.2	Less than 1.25
D	3.2 ± 0.4	2.5 ± 0.3	Less than 1.5
E	3.2 ± 0.2	1.6 ± 0.2	Less than 1.25
F	2.0 ± 0.3	1.25 ± 0.2	Less than 1.25
G	1.6 ± 0.2	0.8 ± 0.2	Less than 1.0

RESISTORS

• Chip resistor (Carbon)

(EX) R K 7 3 E B 2 B 0 0 0 J
1 2 3 4 5 6 7

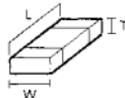
(Chip) (B, F)

• Carbon resistor (Normal type)

(EX) R D 1 4 B B 2 C 0 0 0 J
1 2 3 4 5 6 7

1 = Type 5 = Rating wattage
2 = Shape 6 = Value
3 = Dimension 7 = Tolerance
4 = Temp. coefficient

Dimension



Dimension (Chip resistor)

Dimension code	L	W	T
E	3.2 ± 0.2	1.6 ± 0.2	1.0
F	2.0 ± 0.3	1.25 ± 0.2	1.0
G	1.6 ± 0.2	0.8 ± 0.2	0.5 ± 0.1

Rating wattage

Code	Wattage	Code	Wattage	Code	Wattage
1J	1/16W	2C	1/8W	3A	1W
2A	1/10W	2E	1/4W	3D	2W
2B	1/8W	2H	1/2W		

TM-G707A/E

PARTS LIST

* New Parts. Δ indicates safety critical components.
 Parts without Parts No. are not supplied.
 Les articles non mentionnés dans le Parts No. ne sont pas fournis.
 Teile ohne Parts No. werden nicht geliefert.

L. Scandinavia
 Y. P.X. (Far East, Hawaii)
 Y. AAPES (Europe)

K. USA
 T. England
 K. Australia

P. Canada
 E. Europe
 M. Other Areas

TM-G707A/E

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
TM-G707A/E											
1	3B		A01-2121-13	CABINET (LOWER)		40	7B	*	G11-2533-04	SHEET	
2	1B		A01-2122-13	CABINET (UPPER)		41	3A		G13-1573-24	CUSHION (PANEL)	
3	3A	*	A22-0600-01	SUB PANEL		42	2B		G13-1602-04	CUSHION	
4	3A	*	A62-0571-13	PANEL ASSY		43	3A		G13-1625-04	CUSHION (PANEL)	
5	3B	*	A92-0028-01	REAR PANEL		44	3A	*	G13-1642-14	CUSHION (PANEL/BAND KEY)	
6	1B	*	B39-0395-05	CAP (PHONE)		45	-		H19-6605-01	FOAM PACKING MOLD	
7	3A	*	B10-2518-02	FRONT GLASS		46	-		H11-0887-04	POLYSTYRENE FOAMED BOARD	
LED1-15	-	*	B11-1150-08	REFLECTOR (LCD ASSY)		47	-		H25-0103-04	PROTECTION BAG (125/25MM/07)	
8	3A	*	B30-2187-08	LED (LCD ASSY)		48	-		H25-0537-04	PROTECTION BAG (180/30MM/03)	
-	-	*	B38-0787-35	LCD ASSY		49	-		H25-0723-04	PROTECTION BAG (230/40MM/07)	
-	-	*	B38-0789-08	LCD (LCD ASSY)		50	-	*	H62-1078-02	ITEM CARTON CASE	K
9	1B	*	B42-2455-04	STICKER (M4/M4MA)		50	-	*	H62-1079-02	ITEM CARTON CASE	M2,M4
10	-	*	B46-0403-03	WARRANTY CARD	ACSY E.E3	50	-	*	H62-1980-02	ITEM CARTON CASE	E.E3
10	-	*	B46-0408-10	WARRANTY CARD	ACSY K	51	-	*	J19-1526-04	HOLDER	ACSY K
11	-	*	B62-0864-00	INSTRUCTION MANUAL (ENGLISH)	ACSY K,M2,E	52	-	*	J29-0532-13	BRACKET (MOBILE)	ACSY
12	-	*	B62-0665-00	INSTRUCTION MANUAL (ITALY)	ACSY E	53	3A		J38-1237-14	SPACER	
13	-	*	B62-0666-00	INSTRUCTION MANUAL (GERMANY)	ACSY E.E3	54	3A		K27-3164-13	BUTTON KNOB (KEYS+DIMS)	
14	-	*	B62-0667-00	INSTRUCTION MANUAL (SPANISH)	ACSY K.E3	55	3A		K27-3165-03	BUTTON KNOB (POWER/CALL)	
15	-	*	B62-0668-00	INSTRUCTION MANUAL (FRENCH)	ACSY E3	56	3A		K27-3166-23	BUTTON KNOB (VFO)	
16	-	*	B62-0669-00	INSTRUCTION MANUAL (CHINESE)	ACSY M4	57	3A		K27-3167-33	BUTTON KNOB (MR)	
17	-	*	B62-0670-00	INSTRUCTION MANUAL (DUTCH)	ACSY E3	58	3A		K27-3168-23	BUTTON KNOB (PR)	
18	3B	*	B72-1425-04	MODEL NAME PLATE (FR/TA)	E3	59	3A		K27-3169-33	BUTTON KNOB (MENU)	
19	3B	*	B72-1340-04	MODEL NAME PLATE	K	60	3B		K27-3170-13	LEVER KNOB (RELEASE)	
19	3B	*	B72-1341-04	MODEL NAME PLATE	M2,M4	61	3A		K27-3174-13	BUTTON KNOB (BAND)	
19	3B	*	B72-1342-04	MODEL NAME PLATE	E.E3	62	3A		K27-3175-03	BUTTON KNOB (MHz)	
20	1B	*	E04-0167-05	RF COAXIAL RECEPTACLE(M)	K,M2,M4	63	3A	*	K29-5221-03	KNOB (ENCODER)	
20	1B	*	E04-0170-05	RF COAXIAL RECEPTACLE(M)	E.E3	64	3A	*	K29-5222-03	KNOB (VOL)	
21	-	*	E30-2111-15	DC CDRG ASSY(MOBILE)	ACSY E.E3	65	3A	*	K29-5223-03	KNOB (ISQL)	
22	1B	*	E30-2137-15	DC CDRG	E.E3	A	3A		N14-0568-04	CIRCULAR NUT(VOL)	
-	-	*	E30-3006-08	MIC CUAL CABLE(TO SERVICE)	E.E3	B	1B,2B		N33-2806-45	OVAL HEAD MACHINE SCREW (CAB)	
23	1B	*	E38-3808-08	MIC CUAL CABLE(TO SERVICE)	M2,M4,E	C	2B,3B		N67-3008-45	PAN HEAD SEMS SCREW W (MODULE)	
24a	2A	*	E39-3240-08	MIC CUAL CABLE(TO SERVICE)	K	D	3B		N80-2018-45	PAN HEAD TAPITE SCREW (PANEL)	
24b	2A	*	E37-0632-06	LEAD WIRE WITH CONNECTOR(SP)	K	E	1B		N80-2018-45	PAN HEAD TAPITE SCREW (FAN)	
25	2A	*	E37-0724-05	FLAT CABLE (20P)	E.E3	F	2A		N83-2005-46	PAN HEAD TAPITE SCREW	
26	1B	*	E39-3240-08	FLAT CABLE (20P)	E.E3	G	1B,2B		N83-2808-46	PAN HEAD TAPITE SCREW	
DN1	-	*	E40-5953-05	PIN ASSY (LCD ASSY)		H	2B		N87-2808-46	BRAZER HEAD TAPITE SCREW	
DN2	-	*	E40-5409-05	PIN ASSY (LCD ASSY)		66	-		N89-0281-05	SCREW SET (MOBILE)	ACSY E.E3
75	2A	*	F07-1428-23	COVER (DIN 8P)		66	-		N89-0381-05	SCREW SET (MOBILE)	ACSY M2,M4
26	1B	*	F07-1428-03	COVER (FAN)		67	-		N89-0282-05	SCREW SET	ACSY K
27	2B	*	F19-2233-04	SHIELDING COVER (VCO)		SRV1-3	-		S70-8498-05	TACT SWITCH (LCD ASSY)	
28	-	*	F51-0017-05	FUSE(R)30L15A	ACSY	SIV4	3A		W82-1921-05	ENCODER (LCD ASSY)	
28	1B	*	F51-0017-05	FUSE(R)30L15A		SIV5-8	-		S70-8439-05	TACT SWITCH (LCD ASSY)	
29	-	*	F51-0018-05	FUSE(R)30L20A	ACSY	SP	1B		T07-0331-05	SPEAKER	
30	2A	*	G02-0794-04	FLAT SPRING (CONT UNIT)		SB	1B		T42-0311-15	FANMOTOR	
31	1B	*	G02-0803-03	FLAT SPRING (AF AMP/AVR)		MIC	-		T91-0295-05	MICROPHONE	ACSY E.E3
32	-	*	G02-0809-04	FLAT SPRING (TX-RX UNIT)		MIC	-		T91-0395-05	MICROPHONE	ACSY M2,M4
33	3B	*	G09-0434-14	SPRING		-	-		T91-0570-08	MIC ELEMENT (TO SERVICE)	K
34	2A,3A	*	G10-0792-14	FIBROUS SHEET		MIC	-	*	T91-0696-05	MICROPHONE	ACSY K
35	2A	*	G10-0793-14	FIBROUS SHEET		IC1	-		L4446	IC(AF POWER AMP)	
36	3B	*	G10-0794-14	FIBROUS SHEET		IC7	-		T47808S	IC(REGULATOR)	
37	1B	*	G11-0778-04	RUBBER CUSHION (SP)		IC3	2B		M67746	IC(POWER MODULE-WHF)	
38	2A	*	G11-0779-04	SHEET		IC4	2B	*	M57788MR-24	IC(POWER MODULE)430 450MH/35V	
39	3B	*	G11-0784-14	SHEET		IC1	-	*	78P064GCUJTB	IC(CPU/LCD ASSY)	

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PARTS LIST

TX-RX UNIT (X57-557X-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination
TX-RX UNIT (X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3					
C12			CK73GB1H102K	DHP C 1000PF K	
C3			C92-0558-05	DHP-ELE 180UF 18WV	
C4			CK73GB1H103K	DHP C 0.010UF K	
C5			CK73GB1E223K	DHP C 0.022UF K	
C6			CK73GB1H102K	DHP C 1000PF K	
C7			CC73GCH1H010B	DHP C 1.0PF B	
C8,9			CK73GCH1H040C	DHP C 4.0PF C	
C10			CK73GB1H102K	DHP C 1000PF K	
C11			CK73GB1H103K	DHP C 0.010UF K	
C12			CK73GB1H102K	DHP C 1000PF K	
C13			CK73GB1H103K	DHP C 0.010UF K	
C14,15			CC73GCH1H030C	DHP C 3.0PF C	
C17			CK73GB1H471K	DHP C 470PF K	
C18			CC73GCH1H030C	DHP C 3.0PF C	
C19			CC73GCH1H060D	DHP C 6.0PF D	
C20			CC73GCH1H100D	DHP C 10PF D	
C21			CK73GB1H471K	DHP C 470PF K	
C22,24			CK73GB1C104K	DHP C 0.10UF K	
C25			CK73GB1H471K	DHP C 470PF K	
C27			CC73GCH1H010J	DHP C 1.0PF J	
C29			CK73GB1H102K	DHP C 1000PF K	
C30			CK73GB1C473K	DHP C 0.047UF K	
C32,34			C92-0502-05	DHP-TAN 0.22UF 35WV	
C35,36			C92-0565-05	DHP-TAN 10UF 18WV	
C37,38			C92-0511-05	DHP-TAN 0.15UF 35WV	
C39			C92-0606-05	DHP-TAN 4.7UF 10WV	
C40			CC73GCH1H101J	DHP C 100PF J	
C41			CK73GB1H103K	DHP C 0.010UF K	
C42			C92-0606-05	DHP-TAN 4.7UF 10WV	
C43			CC73GCH1H101J	DHP C 100PF J	
C44			CK73GB1H103K	DHP C 0.010UF K	
C45			C92-0553-05	DHP-ELE 33UF 18WV	
C46			CK73GB1H102K	DHP C 1000PF K	
C47			CC73GCH1H030C	DHP C 3.0PF C	
C48,50			CC73GCH1H040C	DHP C 4.0PF C	
C51			CC73GCH1H150J	DHP C 15PF J	
C52,53			CK73GB1H102K	DHP C 1000PF K	
C54			CK73GB1H050C	DHP C 5.0PF C	
C55			CC73GCH1H060D	DHP C 6.0PF D	
C56			CC73GCH1H010B	DHP C 1.0PF B	
C57			CK73GB1H471K	DHP C 470PF K	
C58			CK73GB1H102K	DHP C 1000PF K	
C59			CK73FB1A105K	DHP C 1.0UF K	
C60			CC73GCH1H101J	DHP C 100PF J	
C61-63			CK73GB1H102K	DHP C 1000PF K	
C64			CK73GB1H471K	DHP C 470PF K	
C65			CC73GCH1H102J	DHP C 12PF J	
C66			CK73GB1H102K	DHP C 1000PF K	
C67			CK73GB1H471K	DHP C 470PF K	
C68			CK73GB1H102K	DHP C 1000PF K	
C69			CK73GB1H471K	DHP C 470PF K	
C70			CC73GCH1H030J	DHP C 3PF J	
C71			CK73GB1H102K	DHP C 1000PF K	
C72			CK73GB1H471K	DHP C 470PF K	
C73			CK73GB1C104K	DHP C 0.10UF K	
C74			CC73GCH1H080D	DHP C 8.0PF D	
C75			CK73GB1H471K	DHP C 470PF K	
C76			CK73GB1H102K	DHP C 1000PF K	

E, E3

Ref. No.	Address	New parts	Parts No.	Description	Destination
C77			CK73GB1H471K	DHP C 470PF K	
C78			CK73GB1H102K	DHP C 1000PF K	
C79			CK73GB1H471K	DHP C 470PF K	
C80			CK73FB1A105K	DHP C 1.0UF K	
C81			CK73GCH1H050C	DHP C 5.0PF C	
C82			CC73GCH1H030J	DHP C 3PF J	
C83			C92-0523-05	DHP-ELE 18UF 18WV	
C84			CK73GB1H102K	DHP C 1000PF K	
C85			CC73GCH1H101J	DHP C 100PF J	
C87			CK73GB1H102K	DHP C 1000PF K	
C88			CC73GCH1H101J	DHP C 100PF J	
C89			CK73GB1H102K	DHP C 1000PF K	
C90,81			CK73GB1H103K	DHP C 0.010UF K	
C92,93			CK73GB1H102K	DHP C 1000PF K	
C94			C92-0523-05	DHP-ELE 18UF 18WV	
C95,96			CK73GB1H102K	DHP C 1000PF K	
C97			C92-0572-05	DHP C 100PF J	
C98			C92-0565-05	DHP C 5.0PF C	
C99			CK73GB1H103K	DHP C 0.010UF K	
C101			CK73GB1H102K	DHP C 1000PF K	
C102			C92-0562-05	DHP C 10PF D	
C103			CC73GCH1H060B	DHP C 6.5PF B	
C104			CC73GCH1H101J	DHP C 100PF J	
C105			C92-0610-05	DHP-ELE 47UF 18WV	
C106			C92-0564-05	DHP C 4.0PF C	
C107			CK73GB1C104K	DHP C 0.10UF K	
C108			CC73GCH1H090J	DHP C 3PF J	
C109,110			CK73GB1H102K	DHP C 1000PF K	
C111			C92-0572-05	DHP C 100PF J	
C112			C92-0564-05	DHP C 22PF J	
C113			C92-0566-05	DHP C 8.0PF D	
C114,115			CK73GB1H102K	DHP C 1000PF K	
C116			CC73GCH1H060B	DHP C 6.5PF B	
C117			CC73GCH1H020B	DHP C 2.6PF B	
C118			CC73GCH1H060B	DHP C 6.5PF B	
C119			CC73GCH1H100B	DHP C 1.0PF B	
C120			CC73GCH1H060B	DHP C 6.5PF B	
C121			CC73GCH1H020B	DHP C 2.6PF B	
C123			CK73GB1H103K	DHP C 0.010UF K	
C124			C92-0566-05	DHP C 33PF J	
C125			C92-0567-05	DHP C 7.0PF D	
C126			CK73GB1H102K	DHP C 1000PF K	
C127			CK73GB1C104K	DHP C 0.10UF K	
C128			C92-0567-05	DHP C 3PF J	
C129			CC73GCH1H060B	DHP C 6.5PF B	
C130			CC73GCH1H060B	DHP C 6.5PF B	
C131			CK73GB1C104K	DHP C 0.10UF K	
C132			CC73GCH1H060B	DHP C 6.5PF B	
C133			CC73GCH1H1010B	DHP C 1.0PF B	
C134			CK73GB1C104K	DHP C 0.10UF K	
C135			C92-0565-05	DHP C 5.0PF C	
C136			C92-0567-05	DHP C 7.0PF D	
C137			CK73GB1H102K	DHP C 1000PF K	
C138			C92-0564-05	DHP C 22PF J	
C139,140			C92-0566-05	DHP C 8.0PF C	
C141			C92-0566-05	DHP-ELE 100UF 18WV	
C142			CK73GB1H103K	DHP C 0.010UF K	
C143			CK73FB1A105K	DHP C 1.0UF K	
C144-146			CK73GB1H103K	DHP C 0.010UF K	
C147,148			C92-0610-05	DHP-ELE 47UF 18WV	

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TX-RX UNIT (X57-557X-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
C149			027362H1H030C	CHIP C	3.0PF C	C221			0K736B1H102K	CHIP C	1000PF K
C150			027362H1H101J	CHIP C	1000PF J	C222			027362H1H80D	CHIP C	8.0PF D
C151			027362H1H240J	CHIP C	240PF J	C223			0K736B1H102K	CHIP C	1000PF K
C152			0K736B1H102K	CHIP C	1000PF K	C224			0K736B1E223K	CHIP C	0.022UF K
C153			0K736B1H471K	CHIP C	470PF K	C224			0K736B1E223K	CHIP C	0.022UF K
C154			027362H1H101J	CHIP C	1000PF J	C225			0K736B1H562K	CHIP C	5600PF K
C155			0K736B1H471K	CHIP C	470PF K	C225			0K736B1H562K	CHIP C	5600PF K
C156			027362H1H030C	CHIP C	3.0PF C	C226			0K736B1H103K	CHIP C	0.010UF K
C157			0K736B1H102K	CHIP C	1000PF K	C227			032-0558-05	CHIP-ELE	100UF 16VV
C158			027362H1H020B	CHIP C	2.0PF B	C228			0304EW1H470M	ELECTRO	47UF 50WV
C159			0K736B1H471K	CHIP C	470PF K	C229			0K736B1H102K	CHIP C	1000PF K
C160			0K736B1H102K	CHIP C	1000PF K	C230			032-0610-05	CHIP-ELE	47UF 16VV
C161			0K736B1H471K	CHIP C	470PF K	C230			032-0610-05	CHIP-ELE	47UF 16VV
C162			027362H1H195B	CHIP C	1.5PF B	C231			0304EW1C471M	ELECTRO	470UF 16VV
C163-165			027362H1H101J	CHIP C	1000PF J	C231			0304EW1C471M	ELECTRO	470UF 16VV
C166,167			0K736B1H102K	CHIP C	1000PF K	C232			0K736B1C104K	CHIP C	0.10UF K
C166			027362H1H030C	CHIP C	3.0PF C	C232			0K736B1C104K	CHIP C	0.10UF K
C169			0K736B1H102K	CHIP C	0.010UF K	C233			027362H1H101J	CHIP C	1000PF J
C170			0K736B1H471K	CHIP C	470PF K	C234			0K736B1H102K	CHIP C	1000PF K
C171			027362H1H020B	CHIP C	2.0PF B	C234			0K736B1H103K	CHIP C	0.010UF K
C172			0K736B1H102K	CHIP C	1000PF K	C236			032-0610-05	CHIP-ELE	47UF 16VV
C173			027362H1H020B	CHIP C	2.0PF B	C237			0304EW1H470M	ELECTRO	47UF 50WV
C174			0K736B1H102K	CHIP C	1000PF K	C238			0K736B1H103K	CHIP C	0.010UF K
C175			027362H1H270J	CHIP C	27PF J	C239			0K736B1H562K	CHIP C	5600PF K
C176			027362H1H020B	CHIP C	2.0PF B	C240			0K736B1C104K	CHIP C	0.10UF K
C177			0K736B1H102K	CHIP C	1000PF K	C241			027362H1H30J	CHIP C	30PF J
C178			027362H1H270J	CHIP C	27PF J	C242			027362H1H26J	CHIP C	82PF J
C179			027362H1H101J	CHIP C	1000PF J	C243			032-0610-05	CHIP-ELE	47UF 16VV
C180			027362H1H020B	CHIP C	2.0PF B	C244			0K736B1C104K	CHIP C	0.10UF K
C181			0K736B1H102K	CHIP C	1000PF K	C244			027362H1H80J	CHIP C	68PF J
C183			027362H1H055B	CHIP C	0.5PF B	C246			027362H1H101J	CHIP C	100PF J
C184			0K736B1H102K	CHIP C	1000PF K	C247			027362H1H26J	CHIP C	82PF J
C185			0K736B1H471K	CHIP C	470PF K	C248			0K736B1H102K	CHIP C	0.010UF K
C186			027362H1H270J	CHIP C	27PF J	C249			027362H1H10J	CHIP C	10PF J
C187			0K736B1H102K	CHIP C	1000PF K	C250			0K736B1H102K	CHIP C	1000PF K
C188			027362H1H040C	CHIP C	4.0PF C	C251			0K736B1H103K	CHIP C	0.010UF K
C191			0K736B1H471K	CHIP C	470PF K	C252-254			0K736B1C104K	CHIP C	0.10UF K
C193			0K736B1H471K	CHIP C	470PF K	C255			032-0604-05	CHIP-TAN	1.0UF 16VV
C196			0K736B1H471K	CHIP C	470PF K	C256			0K736B1C33K	CHIP C	0.033UF K
C197			027362H1H195B	CHIP C	1.5PF B	C257,258			027362H1H101J	CHIP C	1000PF J
C198			0K736B1H471K	CHIP C	470PF K	C259			0K736B1C47K	CHIP C	0.047UF K
C200			0K736B1H471K	CHIP C	470PF K	C260			0K736B1H103K	CHIP C	0.010UF K
C202			0K736B1H102K	CHIP C	1000PF K	C262			0K736B1H103K	CHIP C	0.010UF K
C203			0K736B1H471K	CHIP C	470PF K	C263			032-0558-05	CHIP-ELE	100UF 16VV
C205			0K736B1H102K	CHIP C	0.010UF K	C264			027362H1H101J	CHIP C	100PF J
C207			0K736B1H471K	CHIP C	470PF K	C266			0K736B1H103K	CHIP C	0.010UF K
C208			027362H1H090D	CHIP C	6.0PF D	C267			027362H1H270J	CHIP C	27PF J
C209			0K736B1H102K	CHIP C	1000PF K	C268,269			0K736B1H103K	CHIP C	0.010UF K
C210			027362H1H020B	CHIP C	2.0PF B	C270			0K736B1H272K	CHIP C	2700PF K
C211			0K736B1E223K	CHIP C	0.022UF K	C271			0K736B1H103K	CHIP C	0.010UF K
C211			0K736B1E223K	CHIP C	0.022UF K				0K736B1C104K	CHIP C	0.10UF K
C212			027362H1H050B	CHIP C	1.0PF B	C272			032-0601-05	CHIP-C	0.1UF 25WV
C213			0K736B1H102K	CHIP C	0.010UF K	C274			0K736B1H102K	CHIP C	1000PF K
C214			027362H1H040C	CHIP C	4.0PF C	C275			030-4055-05	ELEC-CAP	1000UF 16VV
C215			027362H1H26J	CHIP C	82PF J	C276			032-0604-05	CHIP-TAN	1.0UF 16VV
C216			0K736B1H102K	CHIP C	1000PF K	C277			030-4055-05	ELEC-CAP	1000UF 16VV
C217			0K736B1H471K	CHIP C	470PF K	C278			032-0610-05	CHIP-ELE	47UF 16VV
C218			0K736B1H103K	CHIP C	0.010UF K	C278			0304EW1C471M	ELECTRO	470UF 16VV
C219			0K736B1H102K	CHIP C	1000PF K	C280			0K736B1C104K	CHIP C	0.10UF K
C220			0K736B1H103K	CHIP C	0.010UF K	C281			0K736B1E223K	CHIP C	0.022UF K

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TX-RX UNIT (X57-557X-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
C282			CK73G81H103K	CHIP C 0.010UF K		C580			CK73G81C104K	CHIP C 0.10UF K	
C285-287			CK73G81H102K	CHIP C 0.005UF K		C582			CK73G81H103K	CHIP C 0.010UF K	
C288			CK73G81E22K	CHIP C 0.022UF K		TC1			C05-0394-05	CERAMIC TRIMMER CAP(10P)	
C290			CK73F81A108K	CHIP C 1.0UF K		CN1			E40-3237-05	PIN ASSY(2P)	
C291			CK73G81H102K	CHIP C 0.005UF K	E,E3	CN2			E23-0485-05	TERMINAL	
C291			CK73G81H102K	CHIP C 0.005UF K	M2,M4	CN3,4			E40-5744-05	FLAT CABLE CONNECTOR(20P)	
C292			CK73G81C104K	CHIP C 0.10UF K	M2,M4	CN5			E40-3237-05	PIN ASSY(2P)	
C585,506			CK73G81H102K	CHIP C 0.005UF K		CN501			E40-5652-45	PIN ASSY(4P)	
C597			CK73G81H103K	CHIP C 0.010UF K		CN562,503			E40-5744-05	FLAT CABLE CONNECTOR(20P)	
C598			CK73G81H101J	CHIP C 0.010UF K		CN564			E40-9618-05	FLAT CABLE CONNECTOR(8P)	
C599			CK73G81H471K	CHIP C 470PF K		CN761			E40-5392-05	PIN ASSY(5P)	
C510			CK73G81H103K	CHIP C 0.010UF K		J1			E11-0448-05	3.5D PHONE JACK(8P)	
C511			CE040VJL031M	ELECTRO 330UF 6.3WV		J501			E55-9434-05	RF COAXIAL RECEPTACLE(ROUND)	
C512			CK73G81H101J	CHIP C 0.005UF K		J502			E08-9677-45	MODULAR JACK	
C513			C52-0546-05	CHIP-TAN 88UF 6.3WV		W501,502			E37-0459-05	PROCESSED LEAD WIRE	K
C514			CK73G81C104K	CHIP C 0.10UF K		F1			F53-0128-05	FUSE (0.5A 50V)	
C515			C52-0505-05	CHIP-TAN 4.7UF 10WV		F2,3			F53-0108-05	FUSE (1.8A 50V)	
C516			C52-0522-05	CHIP-ELE 100UF 16WV		F4			F53-0114-05	FUSE (0.1A 50V)	
C517			CK73G81H103K	CHIP C 0.010UF K		F501			F53-0108-05	FUSE (1.8A 50V)	
C518			CK73F81A108K	CHIP C 1.0UF K		Q1			L78-1113-05	TUNING COIL(450KHZ)	
C519			CK73G81H471K	CHIP C 470PF K		Q1			L72-0693-05	CERAMIC FILTER	
C521			CK73G81C104K	CHIP C 0.10UF K		L1			L40-4771-36	SMALL FIXED INDUCTOR(47NH)	
C522,523			CK73G81H103K	CHIP C 0.010UF K		L2			L46-3671-36	SMALL FIXED INDUCTOR(68NH)	
C524,525			CK73G81C104K	CHIP C 0.10UF K		L3			L46-2261-37	SMALL FIXED INDUCTOR(220UH)	
C526			CK73G81H220J	CHIP C 22PF J		L4			L40-2271-36	SMALL FIXED INDUCTOR(22NH)	
C529			CK73G81H103K	CHIP C 0.010UF K	K,M2,M4	L5			L40-1591-37	SMALL FIXED INDUCTOR(150UH)	
C531			CK73G81H103K	CHIP C 0.010UF K		L5,7			L46-2271-36	SMALL FIXED INDUCTOR(22NH)	
C532			CK73G81H101J	CHIP C 0.005UF K		L8			L40-1271-36	SMALL FIXED INDUCTOR(12NH)	
C534			CK73G81H530J	CHIP C 53PF J		L9			L45-3371-36	SMALL FIXED INDUCTOR(330NH)	
C535			CK73G81H103K	CHIP C 0.010UF K	K,M2,M4	L10			L40-1571-36	SMALL FIXED INDUCTOR(150NH)	
C536			CK73G81H100D	CHIP C 10PF D		L11			L40-2771-36	SMALL FIXED INDUCTOR(27NH)	
C537			C52-0005-05	CHIP-TAN 2.2UF 6.3WV		L12			L40-6971-38	SMALL FIXED INDUCTOR(69NH)	
C538			CK73G81E22K	CHIP C 0.022UF K		L13,14			L34-1239-05	AIR-CORE COIL(1.5T)	
C540			CK73G81H102K	CHIP C 0.005UF K		L15			L34-4004-05	AIR-CORE COIL(3.5T)	
C541			CK73G81H100D	CHIP C 10PF D		L16			L34-0742-05	AIR-CORE COIL(5T)	
C542			CK73G81H103K	CHIP C 0.010UF K		L17			L34-6695-05	AIR-CORE COIL(8T)	
C543,544			C52-0004-05	CHIP-TAN 1.0UF 16WV		L18			L34-1185-05	AIR-CORE COIL(2.5T)	
C546			CK73G81C104K	CHIP C 0.10UF K		L19			L34-0499-05	AIR-CORE COIL(4T)	
C547			CK73F81C47K	CHIP C 0.47UF K		L20			L34-1239-05	AIR-CORE COIL(10.5T)	
C548			CK73G81H102K	CHIP C 0.005UF K		L21			L34-1185-05	AIR-CORE COIL(2.5T)	
C550			CK73G81H03K	CHIP C 0.010UF K	E,E3	L22			L34-0499-05	AIR-CORE COIL(4T)	
C551,562			CK73G81C104K	CHIP C 0.10UF K		L23			L34-1058-05	AIR-CORE COIL(2.5T)	
C553			CK73G81H103K	CHIP C 0.010UF K		L24			L34-1228-05	AIR-CORE COIL(1T)	
C554			C52-0505-05	CHIP-TAN 4.7UF 10WV		L25			L34-1052-05	AIR-CORE COIL(1.5T)	
C555			CK73F81A108K	CHIP C 1.0UF K		L26			L34-0499-05	AIR-CORE COIL(4T)	
C556			CK73G81C104K	CHIP C 0.10UF K		L27			L34-4402-05	AIR-CORE COIL(2.5T)	
C557,558			CK73G81H471K	CHIP C 470PF K		L28			L34-0499-05	AIR-CORE COIL(4T)	
C559			CK73G81H272K	CHIP C 2700PF K		L29			L34-4402-05	AIR-CORE COIL(2.5T)	
C560,561			CK73G81H101J	CHIP C 0.005UF K		L30			L49-4771-36	SMALL FIXED INDUCTOR(47NH)	
C562			CK73G81H103K	CHIP C 0.010UF K		L31			L40-3075-54	SMALL FIXED INDUCTOR(82NH)	
C563			CK73G81H101J	CHIP C 0.005UF K	K,M2,M4	L32			L46-1071-36	SMALL FIXED INDUCTOR(10NH)	
C564			CK73G81H103K	CHIP C 0.010UF K	E,E3	L33			L40-4771-36	SMALL FIXED INDUCTOR(47NH)	
C565,566			CK73G81H101J	CHIP C 0.005UF K		L34			L40-6661-36	SMALL FIXED INDUCTOR(66NH)	
C567			CK73G81H102K	CHIP C 0.005UF K		L35			L46-1271-36	SMALL FIXED INDUCTOR(12NH)	
C568-571			CK73F81A108K	CHIP C 1.0UF K		L36-40			L46-8661-36	SMALL FIXED INDUCTOR(86NH)	
C572-575			CK73G81H101J	CHIP C 0.005UF K		E41			L78-1432-05	FILTER (435MHZ)	E,E3
C576,577			CK73G81H103K	CHIP C 0.010UF K		L41			L78-1432-05	FILTER (435MHZ)	M2,M4
C578			CK73G81H103K	CHIP C 0.010UF K	K,M2,M4						

PARTS LIST

TX-RX UNIT (X57-557X-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
L41			L78-1433-05	FILTER (44MHZ)	K	R46.47			RK73GB1J472J	CHPR	4.7K J 1/8W
L42			L40-8881-38	SMALL FIXED INDUCTOR(8NH)		R48			RK73GB1J471J	CHPR	47Ω J 1/8W
L43			L34-4543-05	COIL (2.5T)		R49,50			RK73GB1J473J	CHPR	47K J 1/8W
L44			L40-1075-44	SMALL FIXED INDUCTOR(10.0NH)		R51			RK73GB1J102J	CHPR	10K J 1/8W
L45			L40-2771-36	SMALL FIXED INDUCTOR(27NH)		R52			RK73GB1J470J	CHPR	47 J 1/8W
L46			L40-2271-36	SMALL FIXED INDUCTOR(22NH)		R52			R92-1252-05	CHPR	0 OHM
L48			L34-4542-05	COIL (3T)		R53			RK73GB1J471J	CHPR	47Ω J 1/8W
L49			L40-4771-36	SMALL FIXED INDUCTOR(47NH)		R54			RK73GB1J222J	CHPR	2.2K J 1/8W
L51			L40-1091-37	SMALL FIXED INDUCTOR(1.000UH)		R55			RK73GB1J102J	CHPR	1.0K J 1/8W
L52			L34-4542-05	COIL (3T)		R56			RK73GB1J470J	CHPR	47 J 1/8W
L53			L78-1525-05	FILTER MODULE(435MHz)	E.E3	R58			R92-1252-05	CHPR	0 OHM
L53			L78-1525-05	FILTER MODULE(435MHz)	MZ,MM	R57,58			RK73GB1J222J	CHPR	2.2K J 1/8W
L53			L78-1526-05	FILTER MODULE(444MHz)	K	R59			RK73GB1J100J	CHPR	10 J 1/8W
L54			L40-3971-36	SMALL FIXED INDUCTOR(39NH)		R60			RK73GB1J222J	CHPR	2.2K J 1/8W
L55			L40-1581-37	SMALL FIXED INDUCTOR(158UH)		R61			RK73GB1J122J	CHPR	22K J 1/8W
L57			L40-2271-36	SMALL FIXED INDUCTOR(22NH)		R62			RK73GB1J222J	CHPR	2.2K J 1/8W
L58			L40-1581-37	SMALL FIXED INDUCTOR(158UH)		R63			RK73GB1J222J	CHPR	2.2K J 1/8W
L59			L40-4771-36	SMALL FIXED INDUCTOR(47NH)		R64			RK73GB1J100J	CHPR	10 J 1/8W
L60			L40-5881-37	SMALL FIXED INDUCTOR(588UH)		R65			RK73GB1J101J	CHPR	100 J 1/8W
L61			L40-1281-37	SMALL FIXED INDUCTOR(128UH)		R66,67			RK73GB1J222J	CHPR	2.2K J 1/8W
L83			L40-6881-38	SMALL FIXED INDUCTOR(68NH)		R68			RK73GB1J820J	CHPR	56 J 1/8W
L509			L52-0131-05	FERRITE CHIP		R69			RK73GB1J471J	CHPR	47Ω J 1/8W
X1			L77-1373-05	CRYSTAL RESONATOR(12.8MHz)		R70			RK73GB1J221J	CHPR	22Ω J 1/8W
X501			L77-1476-05	CRYSTAL RESONATOR(19.443MHz)		R71			RK73GB1J473J	CHPR	4.7 J 1/8W
XF1			L71-0481-05	MCF (38SC2158)		R72			RK73GB1J470J	CHPR	47 J 1/8W
CP501			R90-0724-05	MULTI-COMP 1K X4		R73			RK73GB1J162J	CHPR	1.5K J 1/8W
CP502			R90-0714-05	MULTI-COMP 10K X4		R74			RK73GB1J100J	CHPR	10 J 1/8W
R1			R92-0885-05	CHPR 2.2K J 1/2W		R75			RK73GB1J221J	CHPR	2.2K J 1/8W
R2			RK73GB1J102J	CHPR 1.0K J 1/8W		R76			RK73GB1J061J	CHPR	68Ω J 1/8W
R3			RK73GB1J101J	CHPR 1.0 J 1/8W		R77			RK73GB2103J	CHPR	10 J 1/10W
R4			RK73GB1J471J	CHPR 47Ω J 1/8W		R78			RK73GB1J331J	CHPR	33Ω J 1/8W
R5			RK73GB1J473J	CHPR 47K J 1/8W		R79			RK73GB1J152J	CHPR	1.5K J 1/8W
R7,8			RK73GB1J470J	CHPR 47Ω J 1/8W		R80			R92-0885-05	CHPR	2.2 J 1/2W
R10,11			RK73GB1J331J	CHPR 3.3K J 1/8W		R82			R92-0885-05	CHPR	2.2 J 1/2W
R12,13			RK73GB1J222J	CHPR 2.2K J 1/8W		R85			RK73GB2A221J	CHPR	82Ω J 1/10W
R14,15			RK73GB1J472J	CHPR 4.7K J 1/8W		R86			RK73GB2A562J	CHPR	5.6 J 1/10W
R16			RK73GB1J223J	CHPR 2.2K J 1/8W		R87			R92-0870-05	CHPR	0 OHM
R17			RK73GB1J220J	CHPR 22 J 1/8W		R88			R92-2581-05	RESISTOR	220 1W
R18			RK73GB1J223J	CHPR 2.2K J 1/8W		R89,90			R92-1213-05	CHPR	100 J 1/2W
R19,21			RK73GB1J102J	CHPR 1.0K J 1/8W		R91,92			RK73GB1J103J	CHPR	10K J 1/8W
R22			RK73GB1J273J	CHPR 27K J 1/8W		R93			R92-2581-05	RESISTOR	220 1W
R23			RK73GB1J183J	CHPR 18K J 1/8W		R94			RK73GB1J223J	CHPR	2.2K J 1/8W
R24			R92-1252-05	CHPR 0 OHM		R95			RK73GB1J103J	CHPR	10K J 1/8W
R25			RK73GB1J333J	CHPR 33K J 1/8W		R96			RK73GB1J153J	CHPR	15K J 1/8W
R26			RK73GB1J332J	CHPR 3.3K J 1/8W		R97			RK73GB1J223J	CHPR	2.2K J 1/8W
R27			RK73GB1J103J	CHPR 10K J 1/8W		R98			RK73GB1J883J	CHPR	88K J 1/8W
R30			RK73GB1J101J	CHPR 10 J 1/8W		R99			RK73GB1J223J	CHPR	22K J 1/8W
R31			RK73GB1J473J	CHPR 47K J 1/8W		R100			RK73GB1J272J	CHPR	2.7K J 1/8W
R32			RK73GB1J472J	CHPR 4.7K J 1/8W		R101			RK73GB1J103J	CHPR	10K J 1/8W
R33			RK73GB1J122J	CHPR 1.2K J 1/8W		R102			RK73GB1J223J	CHPR	22K J 1/8W
R34			RK73GB1J501J	CHPR 3.3K J 1/8W		R103			RK73GB1J103J	CHPR	10K J 1/8W
R35			RK73GB1J122J	CHPR 1.2K J 1/8W		R104			RK73GB1J883J	CHPR	88K J 1/8W
R36			RK73GB1J331J	CHPR 33Ω J 1/8W		R105			RK73GB1J103J	CHPR	10K J 1/8W
R37			RK73GB1J162J	CHPR 1.6K J 1/8W		R106			RK73GB1J222J	CHPR	3.3K J 1/8W
R38			RK73GB1J331J	CHPR 3.3K J 1/8W		R107			RK73GB1J473J	CHPR	47K J 1/8W
R39			RK73GB1J471J	CHPR 47Ω J 1/8W		R108			RK73GB1J223J	CHPR	22K J 1/8W
R40,41			RK73GB1J332J	CHPR 3.3K J 1/8W		R109			RK73GB1J151J	CHPR	15Ω J 1/8W
R42			RK73GB1J473J	CHPR 47K J 1/8W		R110			RK73GB1J103J	CHPR	10K J 1/8W
R43			RK73GB1J332J	CHPR 3.3K J 1/8W		R111			R92-1252-05	CHPR	0 OHM
R44,45			RK73GB1J101J	CHPR 10 J 1/8W		R112			RK73GB1J101J	CHPR	10K J 1/8W

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TX-RX UNIT (X57-557X-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
R113-117			RC73GB1J103J	CHIP R 16K J 1/16W		R189			RC73GB1J122J	CHIP R 1.2K J 1/16W	
R118-122			RC73GB1J162J	CHIP R 1.8K J 1/16W		R190			RC73GB1J47J	CHIP R 47Ω J 1/16W	
R123			RC73GB1J222J	CHIP R 2.2K J 1/16W		R191			RC73GB1J161J	CHIP R 160Ω J 1/16W	
R124			RS2-1252-05	CHIP R 0 OHM		R192			RC73GB1J104J	CHIP R 100K J 1/16W	EES
R125			RC73GB1J184J	CHIP R 180K J 1/16W		R192			RC73GB1J104J	CHIP R 100K J 1/16W	M2,MM
R128			RC73GB1J223J	CHIP R 22K J 1/16W		R193			RC73GB1J272J	CHIP R 2.7K J 1/16W	
R127			RC73GB1J101J	CHIP R 10Ω J 1/16W		R194			RC73GB1J103J	CHIP R 10K J 1/16W	EES
R128			RC73GB1J104J	CHIP R 100K J 1/16W		R194			RC73GB1J103J	CHIP R 10K J 1/16W	M2,MM
R129			RC73GB1J223J	CHIP R 2.2K J 1/16W		R194			RS2-1252-05	CHIP R 0 OHM	K
R130			RC73GB1J393J	CHIP R 39K J 1/16W		R197			RC73GB1J487J	CHIP R 4.7 J 1/16W	EES
R131			RC73GB1J221J	CHIP R 22Ω J 1/16W		R197			RC73GB1J487J	CHIP R 4.7 J 1/16W	M2,MM
R132			RC73GB1J154J	CHIP R 150K J 1/16W		R199			RC73GB1J487J	CHIP R 4.7 J 1/16W	
R133			RC73GB1J823J	CHIP R 82K J 1/16W		R199			RS2-1252-05	CHIP R 0 OHM	
R134			RC73GB1J412J	CHIP R 4.1K J 1/16W		R200			RC73GB1J334J	CHIP R 330K J 1/16W	
R135			RC73GB1J104J	CHIP R 100K J 1/16W		R201			RS2-1252-05	CHIP R 0 OHM	
R138,137			RS2-1252-05	CHIP R 0 OHM		R202			RC73GB1J470J	CHIP R 47Ω J 1/16W	
R138			RC73GB1J473J	CHIP R 47K J 1/16W		R203			RC73GB1J222J	CHIP R 2.2K J 1/16W	
R139			RC73GB1J472J	CHIP R 4.7K J 1/16W		R204			RC73GB1J272J	CHIP R 2.7K J 1/16W	
R140			RC73GB1J222J	CHIP R 2.2K J 1/16W		R205			RC73GB1J103J	CHIP R 10K J 1/16W	
R141			RC73GB1J471J	CHIP R 4.7K J 1/16W		R206			RC73GB1J474J	CHIP R 470K J 1/16W	
R142			RC73GB1J222J	CHIP R 2.2K J 1/16W		R207			RC73GB1J102J	CHIP R 1.0K J 1/16W	
R143			RC73GB1J471J	CHIP R 4.7K J 1/16W		R209			RC73GB1J182J	CHIP R 1.8K J 1/16W	
R144			RC73GB1J101J	CHIP R 10Ω J 1/16W		R209			RC73GB1J473J	CHIP R 47K J 1/16W	
R145			RS2-1252-05	CHIP R 0 OHM		R210			RC73GB1J331J	CHIP R 330 J 1/16W	
R146			RC73GB1J222J	CHIP R 2.2K J 1/16W		R211			RC73GB1J104J	CHIP R 100K J 1/16W	
R147			RC73GB1J101J	CHIP R 10Ω J 1/16W		R212			RC73GB1J332J	CHIP R 3.3K J 1/16W	
R148			RS2-1252-05	CHIP R 0 OHM		R213			RC73GB1J334J	CHIP R 330K J 1/16W	
R149,150			RC73GB1J104J	CHIP R 100K J 1/16W		R213,215			RC73GB1J332J	CHIP R 3.3K J 1/16W	
R151			RC73GB1J151J	CHIP R 15Ω J 1/16W		R216			RC73GB1J102J	CHIP R 1.0K J 1/16W	
R152			RC73GB1J104J	CHIP R 100K J 1/16W		R217			RS2-1276-05	CHIP R 62Ω J 1/4W	
R153			RC73GB1J184J	CHIP R 180K J 1/16W		R218			RC73GB1J103J	CHIP R 10K J 1/16W	
R154			RC73GB1J222J	CHIP R 2.2K J 1/16W		R219			RS2-1252-05	CHIP R 0 OHM	
R155			RC73GB1J472J	CHIP R 4.7K J 1/16W		R220			RC73GB1J162J	CHIP R 1.6K J 1/16W	K
R156			RC73GB1J104J	CHIP R 100K J 1/16W		R220			RS2-1252-05	CHIP R 0 OHM	EES
R157			RC73GB1J220J	CHIP R 22 J 1/16W		R220			RS2-1252-05	CHIP R 0 OHM	M2,MM
R158			RC73GB1J102J	CHIP R 1.0K J 1/16W		R221			RC73GB1J333J	CHIP R 33K J 1/16W	
R159			RC73GB1J471J	CHIP R 4.7K J 1/16W		R223			RC73GB1J104J	CHIP R 100K J 1/16W	
R160			RC73GB1J472J	CHIP R 4.7K J 1/16W		R225			RC73GB1J104J	CHIP R 100K J 1/16W	
R161,162			RS2-1252-05	CHIP R 0 OHM		R250,251			RC73GB1J222J	CHIP R 2.2K J 1/16W	
R163,164			RC73GB1J221J	CHIP R 22Ω J 1/16W		R252			RS2-1252-05	CHIP R 0 OHM	
R165			RC73GB1J152J	CHIP R 1.5K J 1/16W		R253			RC73GB1J164J	CHIP R 160K J 1/16W	EES
R166			RC73GB1J472J	CHIP R 4.7K J 1/16W		R253			RC73GB1J184J	CHIP R 180K J 1/16W	M2,MM
R168			RC73GB1J471J	CHIP R 4.7K J 1/16W		R254,255			RC73F82A82J	CHIP R 82Ω J 1/10W	
R172			RC73GB1J102J	CHIP R 1.0K J 1/16W		R501			RC73GB1J472J	CHIP R 4.7K J 1/16W	
R172			RC73GB1J473J	CHIP R 4.7K J 1/16W		R502			RS2-1252-05	CHIP R 0 OHM	
R172			RC73GB1J473J	CHIP R 4.7K J 1/16W	M2,MM	R506			RC73GB1J103J	CHIP R 10K J 1/16W	
R173			RC73GB1J472J	CHIP R 4.7K J 1/16W		R507			RC73GB1J122J	CHIP R 1.2K J 1/16W	
R174,175			RC73GB1J223J	CHIP R 2.2K J 1/16W		R508			RC73GB1J102J	CHIP R 1.0K J 1/16W	
R176			RC73GB1J222J	CHIP R 2.2K J 1/16W		R508			RC73GB1J103J	CHIP R 10K J 1/16W	
R177			RC73GB1J220J	CHIP R 22 J 1/16W		RS10,511			RC73GB1J473J	CHIP R 47K J 1/16W	
R178			RC73GB1J470J	CHIP R 47 J 1/16W		R512			RC73GB1J562J	CHIP R 5.6K J 1/16W	
R178,180			RC73GB1J101J	CHIP R 10Ω J 1/16W		R513			RC73GB1J102J	CHIP R 1.0K J 1/16W	
R181			RC73GB1J102J	CHIP R 1.0K J 1/16W		R514			RC73GB1J223J	CHIP R 2.2K J 1/16W	
R182			RS2-1252-05	CHIP R 0 OHM		R515			RC73GB1J823J	CHIP R 82K J 1/16W	
R183,184			RC73GB1J331J	CHIP R 33Ω J 1/16W		R516			RC73GB1J564J	CHIP R 560K J 1/16W	
R185			RC73GB1J124J	CHIP R 120K J 1/16W	EES	R517			RC73GB1J894J	CHIP R 890K J 1/16W	
R186			RC73GB1J124J	CHIP R 120K J 1/16W	M2,MM	R521			RC73GB1J394J	CHIP R 390K J 1/16W	
R186			RC73GB1J103J	CHIP R 10K J 1/16W		R522			RC73GB1J473J	CHIP R 47K J 1/16W	
R187			RC73GB1J473J	CHIP R 4.7K J 1/16W		R523			RC73GB1J104J	CHIP R 100K J 1/16W	
R188			RC73GB1J103J	CHIP R 10K J 1/16W		R524			RC73GB1J103J	CHIP R 10K J 1/16W	

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Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
R525,526			RK73GB1J102J	CHIP R 1.0K J 1/16W		R604			RK73GB1J104J	CHIP R 100K J 1/16W	
R527			RK73GB1J473J	CHIP R 47K J 1/16W		R605			RK73GB1J473J	CHIP R 10K J 1/16W	
R528			RK73GB1J193J	CHIP R 10K J 1/16W		R606			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R529			RK73GB1J323J	CHIP R 82K J 1/16W		R607			RK73GB1J474J	CHIP R 47K J 1/16W	
R530,531			RK73GB1J472J	CHIP R 2.2K J 1/16W		R608			RK73GB1J101J	CHIP R 100 J 1/16W	
R532			RK73GB1J473J	CHIP R 47K J 1/16W	K,M2,M4	R609			RS2-1252-05	CHIP R 0 OHM	
R533			RK73GB1J884J	CHIP R 980K J 1/16W		R610			RK73GB1J473J	CHIP R 47K J 1/16W	
R535			RK73GB1J473J	CHIP R 47K J 1/16W		R611			RK73GB1J106J	CHIP R 1.0M J 1/16W	E.E3
R536			RK73GB1J1663J	CHIP R 10K J 1/16W		R612			RK73GB1J104J	CHIP R 100K J 1/16W	E.E3
R537			RK73GB1J472J	CHIP R 4.7K J 1/16W		R614			RK73GB1J471J	CHIP R 47J 1/16W	E.E3,M2,M4
R538,539			RK73GB1J473J	CHIP R 47K J 1/16W		R615			RK73GB1J473J	CHIP R 47K J 1/16W	
R540			RK73GB1J103J	CHIP R 10K J 1/16W		R616			RK73GB1J103J	CHIP R 10K J 1/16W	K,M2,M4
R541			RK73GB1J194J	CHIP R 190K J 1/16W	K,M2,M4	NR791	3A		R01-9019-85	VARIABLE RESISTOR(VOL/SQU) 50K	
R541			RK73GB1J694J	CHIP R 290K J 1/16W	E.E3	S501			S70-3424-85	TACT SWITCH(HARD RESET)	
R542			RK73GB1J104J	CHIP R 100K J 1/16W	K,M2,M4	S701	3B		S70-6451-85	TACT SWITCH(BAND)	
R543			RK73GB1J103J	CHIP R 10K J 1/16W	K,M2,M4	01-2			MA25077	DIODE	
R544			RK73GB1J475J	CHIP R 47K J 1/16W		00-4			MA25111	DIODE	
R545			RK73GB1J274J	CHIP R 270K J 1/16W		06			1SS395	DIODE	
R546			RS2-0579-05	CHIP R 0 OHM	M4,E3	06-9			MA25077	DIODE	
R547,548			RS2-1252-05	CHIP R 0 OHM		010			1SS395	DIODE	
R549			RS2-0670-05	CHIP R 0 OHM	E.E3	011,12			DA221	DIODE	
R550			RS2-0670-05	CHIP R 0 OHM	K,M2	013			HVJ131	DIODE	
R551			RS2-0670-05	CHIP R 0 OHM	K,E.E3	014-16			MA4PH833	DIODE	
R552			RK73GB1J334J	CHIP R 330K J 1/16W		017-18			MR09	DIODE	
R554			RK73GB1J472J	CHIP R 47K J 1/16W		019-21			MA742	DIODE	
R555			RK73GB1J123J	CHIP R 12K J 1/16W		022			DAN222	DIODE	
R556			RK73GB1J223J	CHIP R 22K J 1/16W		028			MA742	DIODE	
R557			RK73GB1J104J	CHIP R 100K J 1/16W		024			UD210(B)	ZENER DIODE	
R558			RK73GB1J473J	CHIP R 47K J 1/16W	K,M2,M4	025			UD210(B)	ZENER DIODE	
R559			RK73GB1J822J	CHIP R 8.2K J 1/16W		026			MA742	DIODE	
R560			RK73GB1J123J	CHIP R 12K J 1/16W		027			MA25077	DIODE	
R562			RK73GB1J882J	CHIP R 5.8K J 1/16W		028,29			HVJ260	VARIABLE CAPACITANCE DIODE	
R563			RK73GB1J473J	CHIP R 47K J 1/16W		030			MA25077	DIODE	
R567			RK73GB1J274J	CHIP R 270K J 1/16W	E.E3	031			HVJ350	VARIABLE CAPACITANCE DIODE	
R568			RK73GB1J473J	CHIP R 47K J 1/16W		033			DAN222	DIODE	
R571			RK73GB1J473J	CHIP R 47K J 1/16W		034,35			1SS385	DIODE	
R572			RK73GB1J123J	CHIP R 12K J 1/16W		037,38			MA25077	DIODE	
R574,575			RK73GB1J224J	CHIP R 220K J 1/16W		039			MA742	DIODE	
R576			RK73GB1J102J	CHIP R 1.0K J 1/16W		D40,41			DSM3MA1	DIODE	
R577			RS2-1252-05	CHIP R 0 OHM		D42,43			HVJ131	DIODE	
R578			RK73GB1J102J	CHIP R 1.0K J 1/16W		0501			1SS385	DIODE	
R579,580			RK73GB1J103J	CHIP R 10K J 1/16W		0502			DTZ-5(B)	ZENER DIODE	
R581			RK73GB1J473J	CHIP R 47K J 1/16W		0503			MA112	DIODE	
R582			RK73GB1J124J	CHIP R 120K J 1/16W		0504,505			MA25111	DIODE	
R583			RK73GB1J102J	CHIP R 1.0K J 1/16W		0506,507			1SS385	DIODE	
						0508,509			DA221	DIODE	
R584			RK73GB1J103J	CHIP R 10K J 1/16W							
R585			RK73GB1J472J	CHIP R 4.7K J 1/16W		01			M91511PV-6(ND)	(CPL FREQUNCY SYNTHESIZER)	
R586,587			RK73GB1J473J	CHIP R 47K J 1/16W		02,3			TC7W66FU	IC	
R588			RK73GB1J102J	CHIP R 1.0K J 1/16W		04			KD158	(IC)VHF VCO	
R589,590			RK73GB1J473J	CHIP R 47K J 1/16W		05			KD159	(IC)UHF VCO	
						06			TAT5581F	(IC)P AMP	
R591			RK73GB1J333J	CHIP R 33K J 1/16W							
R592-594			RK73GB1J473J	CHIP R 47K J 1/16W		07			RL296PS	(IC)SHIFT/STORE REGISTER	
R595			RK73GB1J102J	CHIP R 1.0K J 1/16W		08			TK1030DV	IC	
R596			RK73GB1J333J	CHIP R 33 K J 1/16W		09			TC44V5FU	(IC)2 INPUT NAND GATE	
R597,598			RK73GB1J102J	CHIP R 1.0K J 1/16W		10			TA78L05F	(IC)VOLTAGE REGULATORY +5V	
						11			TA78L06F	(IC)VOLTAGE REGULATORY +6V	
R599			RS2-1252-05	CHIP R 0 OHM		12					
R600			RK73GB1J106J	CHIP R 10 J 1/16W		13			TAT8105F	(IC)VOLTAGE REGULATORY +5V	
R601			RK73GB1J224J	CHIP R 220K J 1/16W		14			PS19130NF	(IC)SYSTEM RESET	
R602			RK73GB1J104J	CHIP R 100K J 1/16W		15			MC2841F	(IC)D/A CONVERTER	
R603			RK73GB1J102J	CHIP R 1.0K J 1/16W		16			LC73851M	(IC)T/MF DECODER	K,M2,M4

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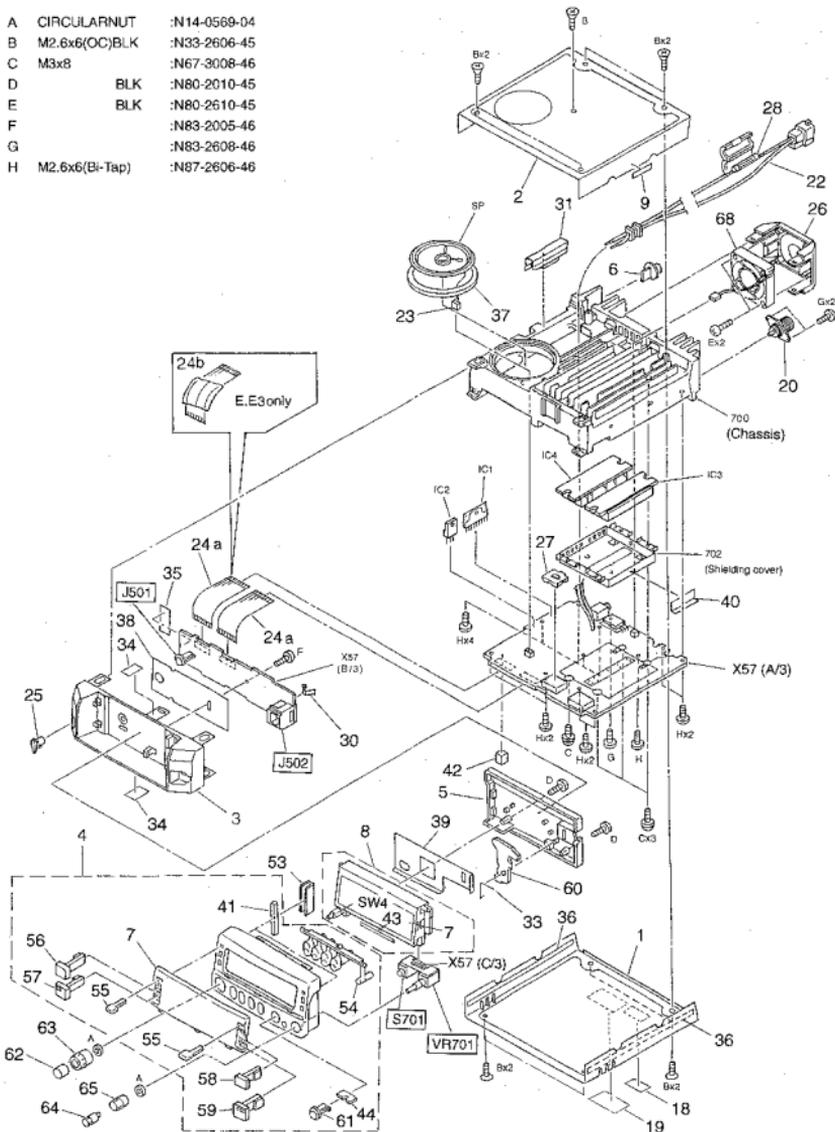
PARTS LIST

TX-RX UNIT (X57-557X-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination
IC506			AKC2943	10IC(TSS ENC/DEC/DECODER)	
IC507			8U4068BCF	10(A)ANALOG SWITCH (X4)	
IC508		*	780586C-A708BT	10(C)PU	K
IC509		*	780586C-A718BT	10(C)PU	E.E3
IC509		*	780586C-A718BT	10(C)PU	M2,M4
IC509			TA95538F	IC	
IC510			TC74HC4060AF	10(BUFFER CONVERTER)	
IC511		*	X2S3035B1-2.5	10(EEPROM)	
Q1			DT0148K	DIGITAL TRANSISTOR	
Q2			2SC4738(R)	TRANSISTOR	
Q3,4			2SC4619P(D)	TRANSISTOR	
Q5			2SA1832(R)	TRANSISTOR	
Q6			2SC4738(R)	TRANSISTOR	
Q11			FMAS	TRANSISTOR	
Q12			2SC4617(R)	TRANSISTOR	
Q13			2SC5108(Y)	TRANSISTOR	
Q14			2SC3068(O)	TRANSISTOR	
Q15			2SC4093	TRANSISTOR	
Q16			2SC498B	TRANSISTOR	
Q17			2SC3357	TRANSISTOR	
Q18,19			2SC2384	TRANSISTOR	
Q20			2SB1959E(F)	TRANSISTOR	
Q21			2SC4617(R)	TRANSISTOR	
Q22			DTC144EU	DIGITAL TRANSISTOR	
Q23			2SC4513(R)	TRANSISTOR	
Q24			2SR1132(Q,F)	TRANSISTOR	
Q25			DTC14EE	DIGITAL TRANSISTOR	
Q26			2SA1362(Y)	TRANSISTOR	
Q27,28			2SR1132(Q,F)	TRANSISTOR	
Q29,30			2SA1362(Y)	TRANSISTOR	
Q31,32			FMAS	TRANSISTOR	
Q33			3SK238A	FET	
Q3A,35			2SC2968(O)	TRANSISTOR	
Q36			3SK238A	FET	
Q37			3SK241(R)	FET	
Q38			DTC14EE	DIGITAL TRANSISTOR	
Q39			2SC2068(O)	TRANSISTOR	
Q40			3SK238A	FET	
Q42-44			DTC14EE	DIGITAL TRANSISTOR	
Q45,46			3SK42014M	FET	
Q47			2SK4728(Y)	FET	
Q48,49			2SC4619P(D)	TRANSISTOR	
Q50			2SK1824	FET	
Q51			DTC14EE	DIGITAL TRANSISTOR	
Q52			2SC4738(R)	TRANSISTOR	
Q53			2SR1385(R)	TRANSISTOR	
Q54			2SC4617(R)	TRANSISTOR	
Q55			2SK1824	FET	E.E3
Q56			2SK1824	FET	M2,M4
Q56,61			2SK1824	FET	E.E3
Q60,61			2SK1824	FET	M2,M4
Q62			DTC14EE	DIGITAL TRANSISTOR	E.E3
Q62			DTC14EE	DIGITAL TRANSISTOR	M2,M4
Q601			2SC4738(R)	TRANSISTOR	
Q502			2SA1519	TRANSISTOR	
Q503			2SC4738(R)	TRANSISTOR	
Q504			DTC14EE	DIGITAL TRANSISTOR	E.E3,M2,M4
Q505,506			2SC4738(R)	TRANSISTOR	
TA91			157-152-65001	THERMISTOR(1SK)	

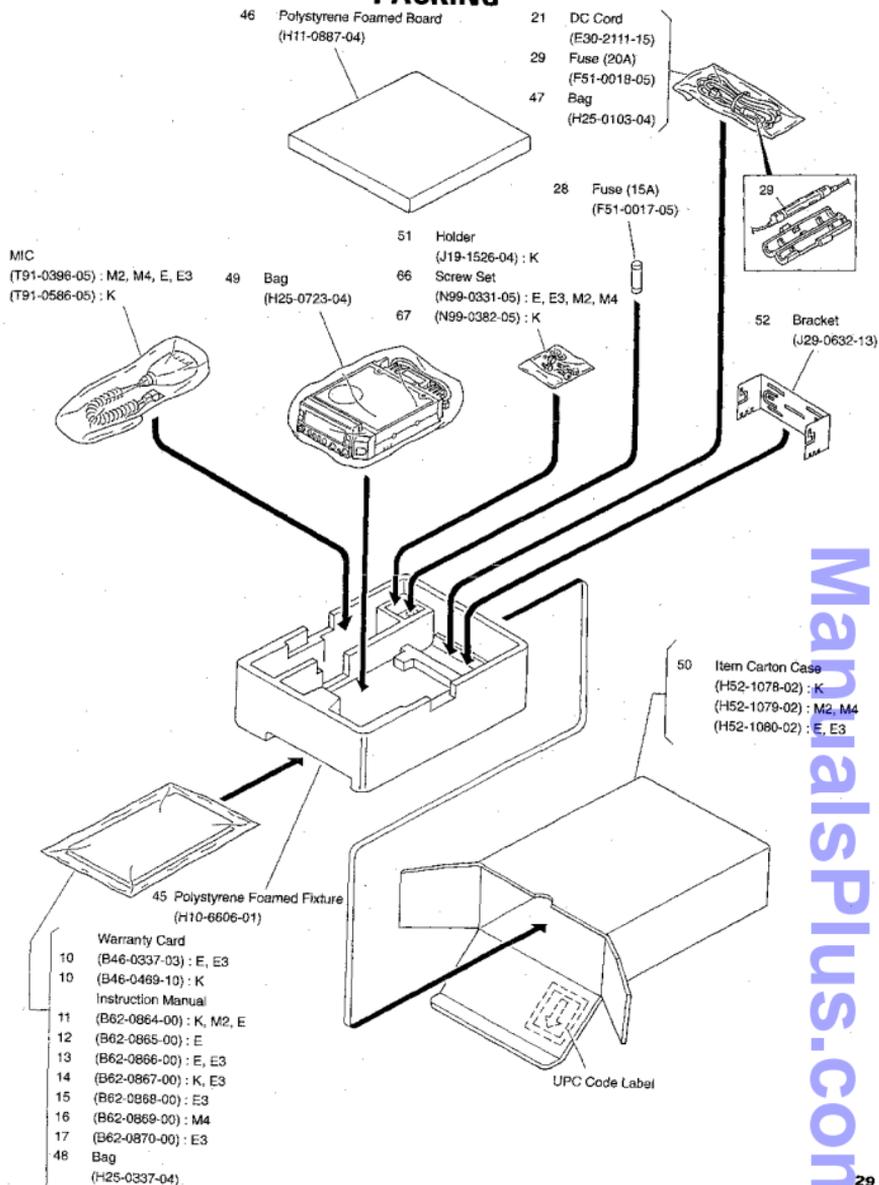
EXPLODED VIEW

A	CIRCULARNUT	:N14-0569-04
B	M2.6x6(OC)BLK	:N33-2606-45
C	M3x8	:N67-3008-46
D	BLK	:N80-2010-45
E	BLK	:N80-2610-45
F		:N83-2005-46
G		:N83-2608-46
H	M2.6x6(BI-Tap)	:N87-2606-46



Parts with the exploded numbers larger than 700 are not supplied.

PACKING



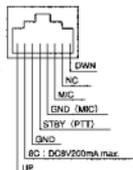
ADJUSTMENT

Measuring Equipment for Adjustment

1. **Digital voltmeter (D.V.M)**
Input impedance: High
2. **RF valve voltmeter (RF V.M)**
Input impedance: $1M\Omega$ or more, 2pF or less
Voltage range: Full scale = 10mV to 300V
Measurable frequency range: up to 450MHz
3. **Frequency counter (f.counter)**
Input sensitivity: About 50mV
Measurable frequency: 450MHz or more
4. **DC power supply**
Voltage: Variable in the range 10 to 17V
Current: 13A or more
5. **Power meter**
Measurement power: 60W, 30W, 10W
Impedance: 50Ω
Measurable frequency: 450MHz
6. **AF valve voltmeter (AF V.M)**
Input impedance: $1M\Omega$ or more
Voltage range: Full scale = 1mV to 30V
Measurable frequency range: 50Hz to 10kHz
7. **AF generator (AG)**
Output frequency: 100Hz to 10kHz
Output voltage: 0.5mV to 1V
8. **Linear detector**
Measurable frequency: 450MHz
9. **Spectrum analyzer**
Measurable frequency: 450MHz
10. **Directional coupler**
11. **Oscilloscope**
High sensitivity with horizontal input terminal
12. **Standard signal generator (SSG)**
The standard signal generator must be able to generate the 1GHz band frequencies and vary the amplitude and frequency.
Output: -133dBm to greater than -13dBm
13. **Dummy load (for AF)**
 8Ω , about 5W
14. **Distortion meter**
15. **Adjustment jig**

Preparation

● Microphone connector

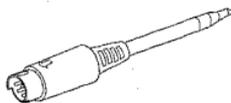


Microphone socket (as viewed from the front of the set)

- Use an insulated rod, such as a plastic rod, for adjustment (especially for trimmers, coils, etc.).
- To protect the signal generator, never connect the microphone to the microphone socket when the receiver section is adjusted.
- Before the power cord is connected, make sure the power switch is off.
- Without specification of SSG, standard modulation is applied (MOD : 1kHz, DEV : ± 3 kHz, AF output : 0.63V/ 8Ω)
- See the instruction manual for transmit and receive operations.
- Use service jigs as necessary.
- It is good to copy critical data with clone operations before making adjustments. For details on clone operations, see "Reference" on Page 39.

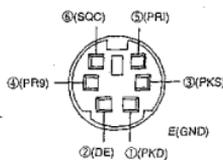
ADJUSTMENT

Adjustment Service Jig



Data terminal short plug (W05-0611-00)

●Service jigs usage



Pin assignment seen from direction B



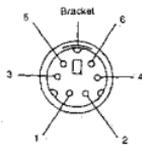
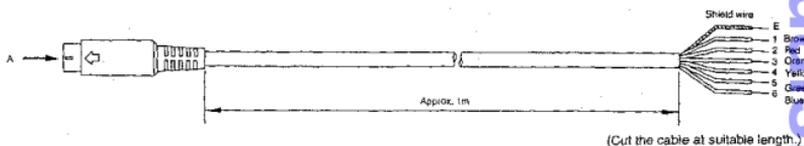
Short plug

Terminals ③ and ⑤ are short circuited.

- [Reference] ③ PKS (SEND switch for DATA terminal)
Connect PTT output. If PKS is set to "L", data are sent and the microphone will be mute.
- ⑤ SQC (Squelch control output)
This outputs squelch control output.

●Service jigs specification

Plug cable with 6P mini-DIN : Model PG-5A (cable parts No. : E30-3202-05) processed like under fig.

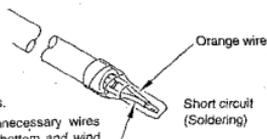


Pin assignment seen from direction A

DIN pin No.	Color
1	Brown
2	Red
③	Orange
4	Yellow
5	Green
⑥	Blue
Bracket	Shield

Join these DIN pins.

Cut unnecessary wires at the bottom and wind insulation tape around top edge.

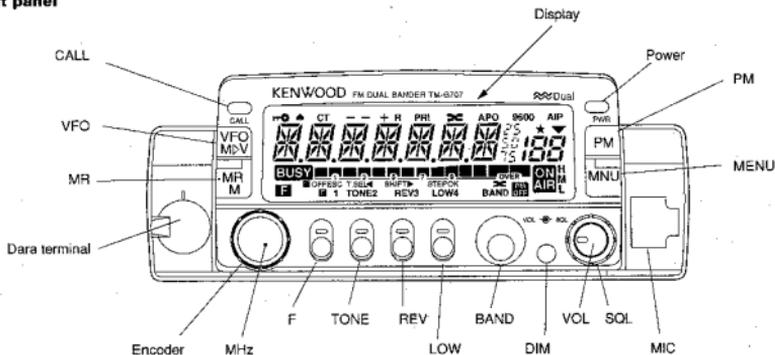


TM-G707A/E

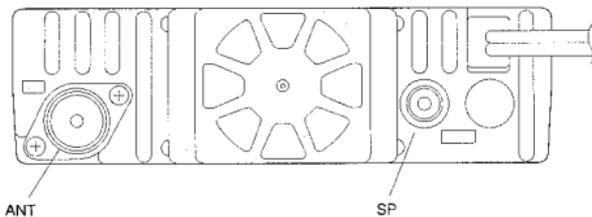
ADJUSTMENT

Parts layout

Front panel



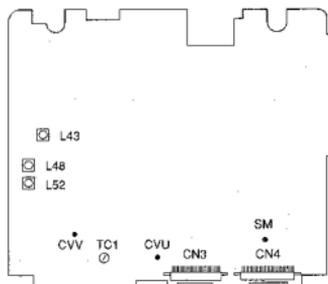
Rear panel



Adjustment parts layout

● TX-RX UNIT (Unit under)

- Adjustment parts No.
 - TC1 : Transmission frequency (UHF)
 - L43 : BPF(VHF)
 - L48 : BPF(VHF)
 - L52 : BPF(VHF)
- Test point
 - CVV : VCO lock voltage (VHF)
 - CVU : VCO lock voltage (UHF)
 - SM : BPF



ADJUSTMENT

Adjustment mode

- This is the adjustment mode for making adjustments or setting levels.
- The following items can be adjusted or set.
 - A Squelch release sensitivity (SQL.)
 - B S meter light-up start level (S.-1.)
 - C S meter all light-up level (S.ALL.)
 - D Transmission output (TX.POW.)
 - E Transmission modulation factor (DEVI.)
 - F VHF BPF (B.P.F.1, B.P.F.2, B.P.F.3, B.P.F.4)

Adjustment mode startup method

1. Switch OFF (PWR) and insert the adjustment plug at the set data terminal.
2. Switch ON (PWR) while pressing the (F) key and the (TONE) key at the same time.
3. When the set goes into adjustment mode, the "T." mark is displayed at the head of the frequency display. See the figure below.

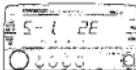


Adjustment mode display

4. In adjustment mode, the desired band and frequency can be selected with [VFO], [MR], [ENCODER] [MHz] and [BAND]. You can also switch the transmission output with the [LOW] key.
 5. When you press the [MENU] key, the set goes into adjustment enabled mode.
 6. Pressing the [◀] or [▶] key switches the adjustment item to the previous item or the next item among the six adjustment items A-F (9 adjustments).
- A. Squelch release sensitivity adjustment (values set independently for 144 MHz and 430 MHz)
- ①. When [SQL] is displayed with the [◀] or [▶] key, the value currently input for the squelch level is displayed and the squelch level can be adjusted. (See the figure below.)



- ②. In adjustment enabled mode, the [VFO] and [MR] keys function as the Up and Down keys, increasing/decreasing the frequency for VFO mode or the memory channel for MR mode.
 - ③. When you apply the prescribed SSG input from the ANT terminal and press the [OK] key, the adjustment value is set and the adjustment mode moves to the next item. If you press the [ESC] key, the adjustment value is not set.
- B. S meter light-up start level (value set for each band)
- ①. When you display [S-1] with the [◀] or [▶] key, the value currently input for the S meter is displayed and the value can be adjusted. (See the figure below.)



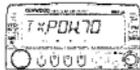
- ②. When you apply the prescribed SSG input from the ANT terminal and press the [OK] key, the adjustment value is set.
- C. S meter all light-up level (value set for each band)
- ①. When you display [S.ALL.] with the [◀] or [▶] key, the value currently input for the S meter is displayed and the value can be adjusted. (See the figure below.)



- ②. When you apply the prescribed SSG input from the ANT terminal and press the [OK] key, the adjustment value is set and the adjustment mode moves to the next item.

- D. Transmission output (values set independently for 144 MHz and 430 MHz)

- ①. After setting the frequency, switch to the desired output range with the [LOW] key.
- ②. When you display "TX.POW." with the [◀] or [▶] key, the current setting for the output is displayed blinking. (See the figure below.)



- ③. Connect the power meter to the ANT terminal, then press the mic PTT switch to transmit. Turn the [ENCODER] knob to adjust the power meter reading to the prescribed output.
- ④. When the prescribed output is reached, switch the PTT switch off and press the [OK] key to set the adjustment value.

- E. Transmission modulation factor (values set independently for 144 MHz and 430 MHz)

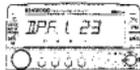
- ①. When you display "DEVI." with the [◀] or [▶] key, the current setting is displayed blinking. (See the figure below.)



- ②. Connect the direct wave detector and power meter to the ANT terminal, apply the prescribed A.G. input from the MIC input terminal, and transmit. Turn the [ENCODER] knob to adjust the direct wave detector reading to the prescribed value.
- ③. When the prescribed value is reached, stop transmission and press the [OK] key to set the adjustment value.

- F. VHF BPF adjustments (4 points: near 120MHz, 132 MHz, 160 MHz, and 170 MHz)

- ①. When you display any of "B.P.F.1," through "B.P.F.4" with the [◀] or [▶] key, the setting is displayed blinking. (See the figure below.)



B.P.F.2

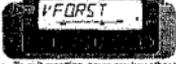
- ②. Connect the signal generator to the ANT terminal and the digital voltmeter to the TX-RX unit (soldier side) SM terminal.
- ③. Apply a signal of the prescribed output with the specified frequency from the signal generator. Turn the [ENCODER] knob and adjust to maximize the voltage at the SM terminal.
- ④. When the maximum value is reached, press the [OK] key to set the adjusted value. Set "B.P.F.2," "B.P.F.3," and "B.P.F.4" in the same manner.

Note:

- The [ENCODER] knob only works in frequency display and for transmission power, modulation factor, and BPF adjustments.
- When you press the [OK] key, the adjusted value is set and adjustment mode moves to the next item, but if you press the [ESC] key, the adjusted value is not set.
- To end adjustment mode, switch off the power.

ADJUSTMENT

Common section

Item	Condition	Measurement			Adjustment			Specifications/ Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
1. Setting	1) Power voltage:13.8V 2) VOL, SQL knob:MIN							
2. Reset	<p>■ Partial Reset (VFO) Use to initialize all settings except the memory channels, the Call channel, the FM channels, and Memory Channel Lockout.</p> <p>1 Press [VFO]+ POWER ON. • A confirmation message appears.</p>  <p>• To quit resetting, press any key other than [OK]. 2 Press [OK].</p>				<p>■ Full Reset (Memory) Use to initialize all settings that you have customized.</p> <p>1 Press [MR]+ POWER ON. • A confirmation message appears.</p>  <p>• To quit resetting, press any key other than [OK]. 2 Press [OK].</p>		<p>■ Hard Reset You can also use the RESET switch to initialize settings. Push the switch momentarily to do Partial Reset or press it for 1 second or longer to do Full Reset. No confirmation message appears. Use this switch when the microcomputer and/or the memory chip malfunction because of ambient factors.</p>  <p>Reset switch</p>	
3. Lock voltage check	<p>1) VHF band FREQ.:146.050MHz:K,M FREQ.:145.050MHz:E</p> <p>2) UHF band FREQ.:444.050MHz:K FREQ.:435.050MHz:M,E</p> <p>3) UHF band FREQ.:443.980MHz:K FREQ.:434.980MHz:M,E transmission</p> <p>4) VHF band FREQ.:146.050MHz:K,M FREQ.:145.050MHz:E SSG:-93dBm</p>	D.V.M		TX-RX (A/3)	CVV (TP6)	Check		about 2.5V
					CVU (TP7)			about 4.0V
		Power Meter D.V.M	Rear panel TX-RX (A/3)	ANT CVU (TP7)				about 3.0V
					CVV (TP6)			about 2.0V
4. BPF Adjust	1) FREQ.:146.050MHz:K,M FREQ.:145.050MHz:E SSG:-93dBm				TX-RX (A/3)	L43 L48 L52	Voltage max	2.5V or more
5. BPF Write	Switch to adjustment mode and carry out the operations for item F. SSG:-93dBm	SSG D.V.M	Rear panel TX-RX (A/3)	ANT SM	Display	Encoder [OK] key	UP/DOWN write	Voltage max

ADJUSTMENT

Receiver section

Item	Condition	Measurement			Adjustment			Specifications/ Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
1. High level input S/N and distortion check	1) VHF band FREQ.:146.050MHz:K,M FREQ.:145.050MHz:E SSG:— 53dBm AF output:2.63V/8 Ω	SSG Oscilloscope AFV.M Distortion meter	Rear panel	ANT EXT.SP			Check	S/N 42dB or more Distortion rate:4% or less
	2) UHF band FREQ.:444.050MHz:K FREQ.:435.050MHz:M,E SSG:— 53dBm AF output:2.63V/8 Ω							
2. Sensitivity check	1) VHF band FREQ.:146.050MHz:K,M FREQ.:145.050MHz:E FREQ.:144.050MHz FREQ.:147.925MHz:K,M FREQ.:145.925MHz:E SSG:— 120dBm:M,E SSG:— 119dBm:K AF output:0.63V/8 Ω	SSG Distortion meter Oscilloscope AFV.M	Rear panel	ANT EXT.SP			Check	SINAD 12dB or more
	2) UHF band FREQ.:444.050MHz:K FREQ.:435.050MHz:M,E FREQ.:438.050MHz:K FREQ.:430.050MHz:M,E FREQ.:449.975MHz:K FREQ.:439.925MHz:M,E SSG:— 122dBm AF output:0.63V/8 Ω							
3. Squelch write	Switch to adjustment mode and carry out the operations for Item A. 1) VHF band FREQ.:146.050MHz:K,M FREQ.:145.050MHz:E SSG:— 130dBm:M,E SSG:— 127dBm:K 2) UHF band FREQ.:444.050MHz:K FREQ.:435.050MHz:M,E SSG:— 130dBm	SSG	Rear panel	ANT EXP.SP	Display	[OK] key	Write	
4. Squelch check	1) VHF band FREQ.:146.050MHz:K,M FREQ.:145.050MHz:E SSG:OFF Set to the point where noise will be erased by turning the squelch knob.	SSG Oscilloscope	Rear panel	ANT EXP.SP	Display		Check	Knob position: 8:00 ~ 11:00 Busy lights off.
	2) SSG:— 126dBm:M,E SSG:— 125dBm:K							Squelch open. BUSY lights on.
	3) Squelch knob: clockwise MAX							AF output disappear. BUSY lights off.
	4) UHF band FREQ.:444.050MHz:K FREQ.:435.050MHz:M,E Set to the point where noise will be erased by turning the squelch knob.							Knob position: 8:00 ~ 11:00 Busy lights off.
	5) SSG:— 126dBm							Squelch open. BUSY lights on.
	6) Squelch knob: clockwise MAX							AF output disappear. BUSY lights off.

ADJUSTMENT

Receiver section

Item	Condition	Measurement			Adjustment			Specifications/ Remarks
		Test- equipment	Unit	Terminal	Unit	Parts	Method	
5. S-meter write	Switch to adjustment mode and carry out the operations for Item 3.C 1) 144MHz band (S-1) FREQ.:148.050MHz:K,M FREQ.:145.050MHz:E SSG: -118dBm	SSG	Rear panel	ANT	Display	[OK] key	Write	S-meter one segment (S1) lights on.
	2) 144MHz band (S.ALL) SSG: -96dBm							S-meter all segment (ALL) lights on.
	3) 430MHz band (S-1) FREQ.:444.050MHz:K FREQ.:435.050MHz:M,E SSG: -118dBm							S-meter one segment (S1) lights on.
	4) 430MHz band (S.ALL) SSG: -96dBm							S-meter all segment (ALL) lights on.
	5) 118MHz band (S-1) FREQ.:130.050MHz SSG: -103dBm							S-meter one segment (S1) lights on.
	6) 118MHz band (S.ALL) SSG: -83dBm							S-meter all segment (ALL) lights on.
	7) 300MHz band (S-1) FREQ.:370.100MHz SSG: -110dBm							S-meter one segment (S1) lights on.
	8) 300MHz band (S.ALL) SSG: -90dBm							S-meter all segment (ALL) lights on.
	9) 800MHz band (S-1) FREQ.:365.875MHz:K FREQ.:370.100MHz:M,E SSG: -105dBm							S-meter one segment (S1) lights on.
	10) 800MHz band (S.ALL) SSG: -85dBm							S-meter all segment (ALL) lights on.
6. S-meter check	1) FREQ.:146.050MHz:K,M FREQ.:145.050MHz:E FREQ.:444.050MHz:K FREQ.:435.050MHz:M,E SSG: -114 ~ -124dBm	SSG	Rear panel	ANT	Display	S-meter	Check	S-meter one segment (S1) lights on.
	2) FREQ.:148.050MHz:K,M FREQ.:145.050MHz:E FREQ.:444.050MHz:K FREQ.:435.050MHz:M,E SSG: -90 ~ -102dBm							S-meter all segment (ALL) lights on.

ADJUSTMENT

Transmission section

Item	Condition	Measurement			Adjustment			Specifications/ Remarks		
		Test-equipment	Unit	Terminal	Unit	Parts	Method			
1. Transmission frequency Adjust	UHF band FREQ.:444.000MHz:K FREQ.:435.000MHz:M,E	f.counter Dummy	Rear panel	ANT	TX:RX (A/3)	TC1	444.000MHz:K 435.000MHz:M,E	Not warm up the set. $\pm 500\text{Hz}$		
2-1. POWER VHF band write or check	For 1), 2) and 4), switch to adjustment mode and carry out the operations for Item D. 1) POWER:LOW FREQ.:146.000MHz:K,M FREQ.:144.975MHz:E Transmission.	Power meter Ammeter	Rear panel	ANT	Display	Encode [OK] key	UP/DOWN write	5.0W \pm 0.5W		
	2) POWER:MID Transmission.							12W \pm 1.0W		
	3) POWER:MAX Transmission.							48W or more		
	4) POWER:HI Transmission.						Display	Encode [OK] key	UP/DOWN write	M4:22.5W \pm 1.0W K,E,M2:MAX Power 52W or more. 50.0W \pm 1.0W MAX Power 48W or more. (MAX Power - 2W) \pm 1.0W
	5) FREQ.:144.000MHz FREQ.:147.975MHz: (K,M) FREQ.:145.975MHz: (E) POWER:HI Transmission.							Check		K,E,M2:44 ~ 60W M4:20 ~ 25W
	6) POWER:MID Transmission.									10 ~ 14W
	7) POWER:LOW Transmission.									3 ~ 10W
2-2. POWER UHF band write or check	For 1), 2) and 4), switch to adjustment mode and carry out the operations for Item D. 1) POWER:LOW FREQ.:444.000MHz:K FREQ.:435.000MHz:M,E Transmission.	Power meter	Rear panel	ANT	Display	Encode [OK] key	UP/DOWN write	5.0W \pm 0.5W		
	2) POWER:MID FREQ.:438.000MHz:K FREQ.:430.000MHz:M,E Transmission.							12.0W \pm 1.0W		
	3) POWER:MAX FREQ.:449.975MHz:K FREQ.:439.975MHz:M,E Transmission.							33W or more		
	4) POWER:HI FREQ.:449.975MHz:K FREQ.:439.975MHz:M,E Transmission.						Display	Encode [OK] key	UP/DOWN write	M4:22.5W \pm 1.0W K,E,M2:MAX Power 37W or more. 35.0W \pm 1.0W MAX Power 33W or more. (MAX Power - 2W) \pm 1.0W
	5) FREQ.:438.000MHz:K FREQ.:430.000MHz:M,E FREQ.:449.975MHz:K FREQ.:439.975MHz:M,E POWER:HI Transmission.							Check		K,E,M2:28 ~ 42W M4:20 ~ 25W
	6) POWER:MID Transmission.									10 ~ 14W
	7) POWER:LOW Transmission.									3 ~ 10W

ADJUSTMENT

Transmission section

Item	Condition	Measurement			Adjustment			Specifications/ Remarks
		Test- equipment	Unit	Terminal	Unit	Parts	Method	
3. DEV write or check	For 1) and 3), switch to adjustment mode and carry out the operations for item E. 1) VHF band FREQ.:146.000MHz:K,M FREQ.:144.975MHz:E AG:1kHz25mV:E AG:1kHz50mV:K,M Transmission	Power meter Linear detector Oscilloscope	Rear panel	ANT	Display	Encode [OK] key	UP/DOWN Write	$\pm 4.2\text{kHz} \pm 0.2\text{kHz}$
	2) Down AG output from the above state by 20dB (1kHz/2.5mV):E 20dB (1kHz/5.0mV):K,M Transmission	AG AF V.M		MIC			Check	$\pm 2.3 \sim 4.2\text{kHz}:E$ $\pm 2.4 \sim 4.1\text{kHz}:K,M$
	3) UHF band FREQ.:444.000MHz:K FREQ.:435.000MHz:M,E AG:1kHz25mV:E AG:1kHz50mV:K,M Transmission				Display	Encode [OK] key	UP/DOWN write	$\pm 4.2\text{kHz} \pm 0.2\text{kHz}$
	4) Down AG output from the above state by 20dB (1kHz/2.5mV):E 20dB (1kHz/5.0mV):K,M Transmission						Check	$\pm 2.3 \sim 4.2\text{kHz}:E$ $\pm 2.4 \sim 4.1\text{kHz}:K,M$
4. TONE DEV check	1) VHF band FREQ.:145.100MHz TONE:88.5Hz Transmission	Power meter Linear detector Oscilloscope	Rear panel	ANT			Check	$\pm 0.5 \sim 1.3\text{kHz}$
	2) UHF band FREQ.:445.100MHz:K FREQ.:435.100MHz:M,E TONE:88.5Hz Transmission							
5. Protection check	1) VHF band FREQ.:146.000MHz:K,M FREQ.:144.975MHz:E Power:Hi ANT:short circuit and open Transmission	Ammeter					Check	12.0A or less
	2) UHF band FREQ.:444.000MHz:K FREQ.:435.000MHz:M,E Power:Hi ANT:short circuit and open Transmission							12.0A or less

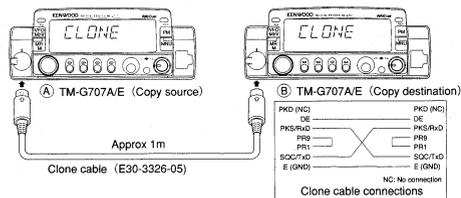
TM-G707A/E

ADJUSTMENT

[Reference]

Clone operation method

● Connection diagram



● Operations

1. Connect the data terminals on the copy source set and the copy destination set with the clone cable.
2. Start the clone function on the copy destination set by switching on its power while holding down the [F] and [REV] keys. "CLONE" appears is displayed.
3. Start the clone function on the copy source set by switching on its power while holding down the [F] and [REV] keys. "CLONE" appears is displayed.
4. Press the [CALL] key on the copy source set to start data transfer. "SEND" is displayed.

SEND

5. When clone processing ends, [END] is displayed on the copy source set.

END

6. If clone processing fails, [ERROR] is displayed on the copy source set.

ERROR

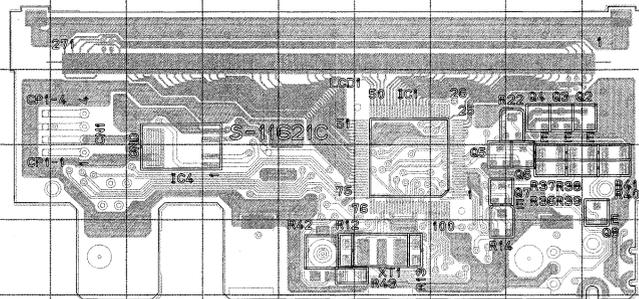
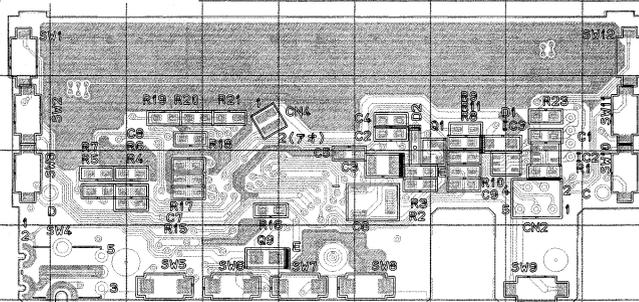
7. Switching the power OFF, then ON again returns the sets to normal operation.

Note:

- All the data in the copy destination set is overwritten.
- If clone operation are stopped midway, the data in the copy destination set may be lost.
- The two TM-G707 transceivers must be the same market versions to use the Clone function.

PC BOARD VIEWS TM-G707A/E

LCD ASSY (B38-0797-35)

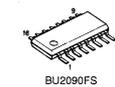
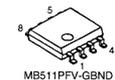
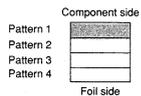
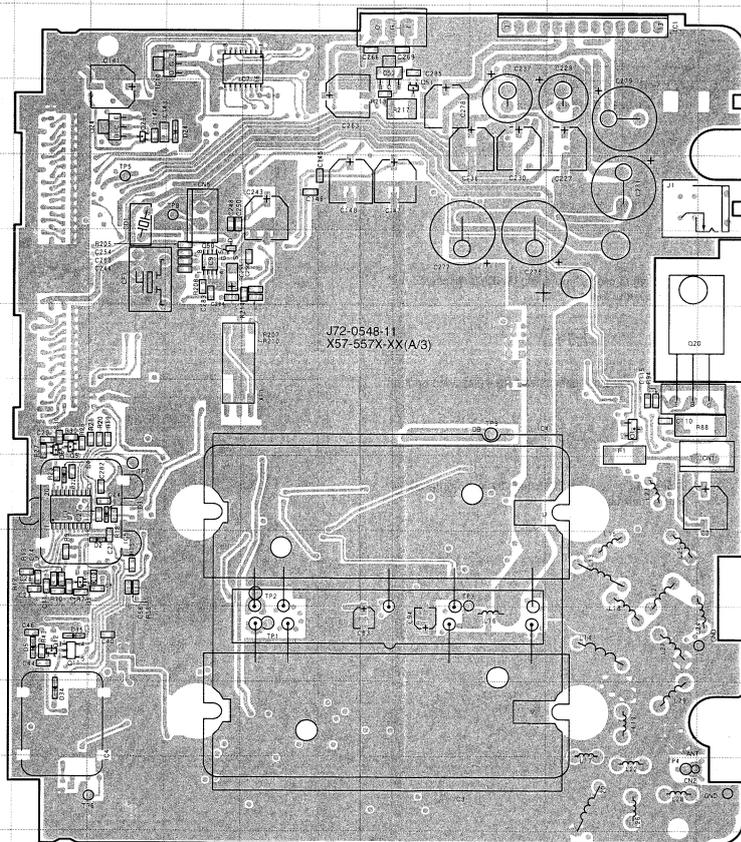


TM-G707A/E PC BOARD VIEW

TX-RX UNIT (A/3) (X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3 (Component side view)

TX-RX UNIT (A/3)
(Component side)

Ref. NO.	Address
IC1	9F
IC4	12F
IC5	10G
IC7	3I
IC9	6H
IC10	3G
Q1	8N
Q3	10G
Q5	8F
Q6	8F
Q11	11G
Q12	11F
Q20	7O
Q23	4G
Q24	4G
Q50	6H
Q51	3K
Q53	3J
D2	10G
D3	9G
D4	9G
D5	11F
D24	4H
D34	12F
D35	11F



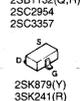
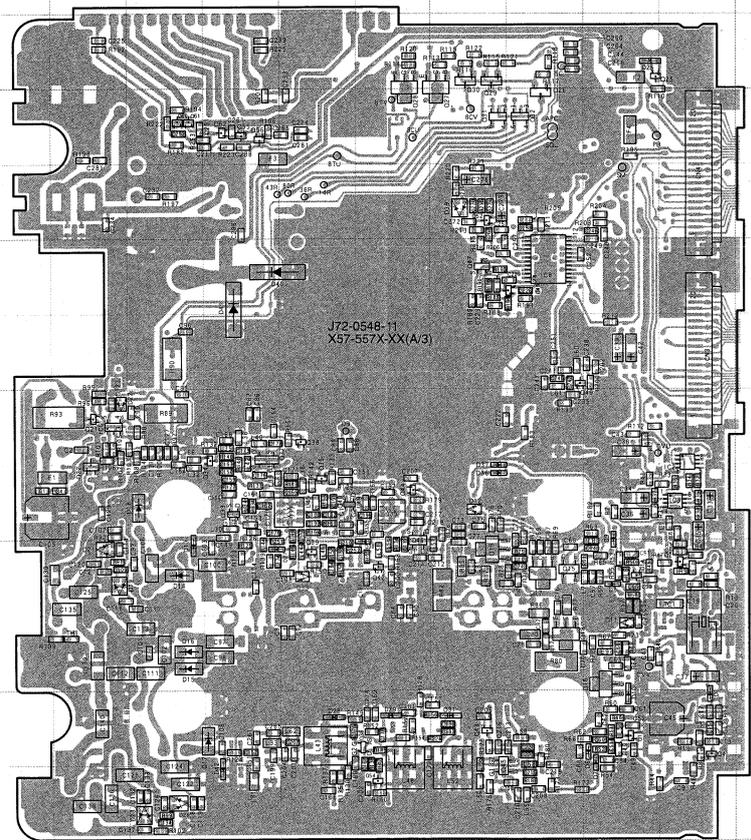
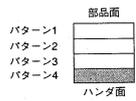
PC BOARD VIEW TM-G707A/E

TX-RX UNIT (A/3) (X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3 (Foil side view)

TX-RX UNIT (A/3)
(Foil side)

Ref. NO.	Address
IC2	9N
IC3	9N
IC6	8G
IC8	6M
Q2	10N
Q4	13O
Q13	12N
Q14	10N
Q15	10M
Q16	12M
Q17	10L
Q18	11M
Q19	10L
Q21	8G
Q22	9F
Q25	4N
Q26	4M
Q27	4K
Q28	4K
Q29	4L
Q30	4L
Q31	4L
Q32	4L
Q33	9H
Q34	9H
Q35	9J
Q36	12J
Q37	9I
Q38	8I
Q39	10I
Q40	9J
Q42	10J
Q43	12L
Q44	9K
Q45	13L
Q46	10K
Q47	6L
Q48	6L
Q49	8M
Q52	5L
Q54	13J
Q55	4H
Q56	4H
Q60	4G
Q61	4H
Q62	4G
D1	12O
D6	13M
D7	13M
D8	10M
D9	10M
D10	12N
D11	11M
D12	9L
D13	10H

Ref. NO.	Address
D14	10H
D15	11H
D16	11H
D17	13H
D18	9G
D19	10G
D20	13H
D21	10G
D22	8G
D23	13G
D25	3N
D27	10I
D28	12J
D29	12K
D30	10J
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D33	10I
D37	9L
D38	9L
D39	5K
D40	6I
D41	7H
D42	13H

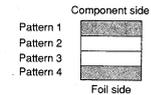
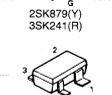
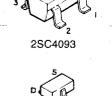
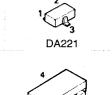
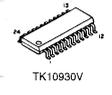
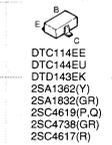
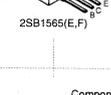
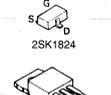
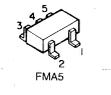
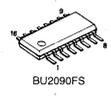
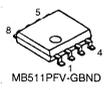
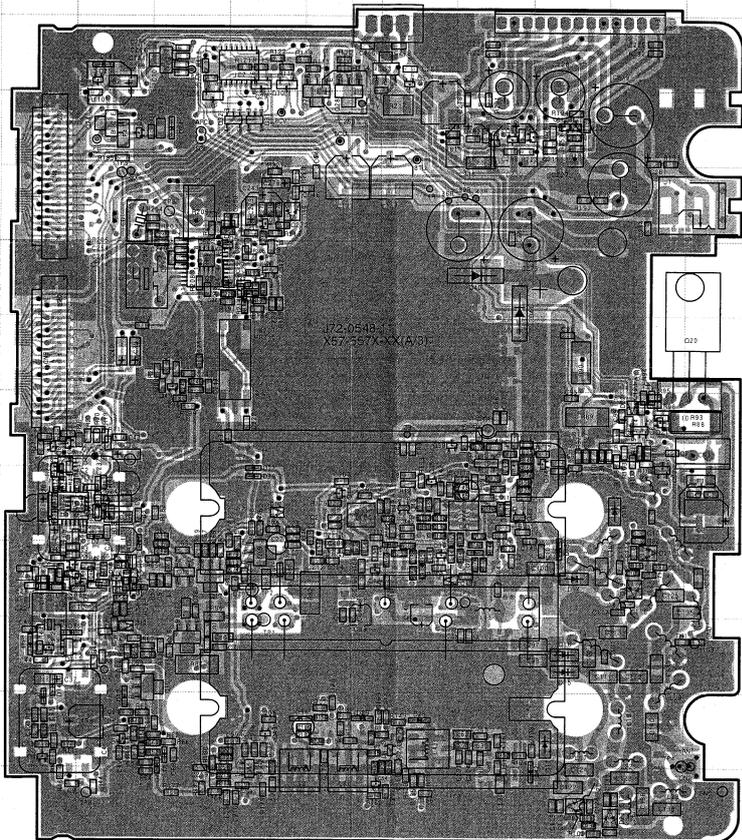


TM-G707A/E PC BOARD VIEW

TX-RX UNIT (A/3) (X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3 (Component side view) + (Foil side view)

TX-RX UNIT (A/3)
(Component side) + (Foil side)

Ref. NO.	Address	Ref. NO.	Address
IC1	9G	O49	8H
IC2	9G	O50	6H
IC3	9G	O51	3K
IC4	12F	O52	5I
IC5	9G	O53	3J
IC6	8N	O54	13K
IC7	3I	O55	4L
IC8	6H	O56	4L
IC9	6H	O60	4M
IC10	3G	Q61	4L
Q1	8N	Q62	4M
Q2	10G	D1	12F
Q3	10G	D2	10G
Q4	13F	D3	9G
Q5	8F	D4	9G
Q6	8F	D5	11F
Q11	11G	D6	13H
Q12	11F	D7	13H
Q13	12G	D8	10H
Q14	10G	D9	10H
Q15	10H	D10	12G
Q16	12H	D11	11H
Q17	10I	D12	9I
Q18	11H	D13	10M
Q19	10I	D14	10M
Q20	7O	D15	11M
Q21	8N	D16	11M
Q22	9O	D17	13M
Q23	4G	D18	9N
Q24	4G	D19	10N
Q25	4G	D20	13M
Q26	4H	D21	10N
Q27	4J	D22	8N
Q28	4K	D23	13N
Q29	4I	D24	4H
Q30	4I	D25	3G
Q31	4I	D27	10L
Q32	4I	D28	12K
Q33	9M	D29	12J
Q34	9M	D30	10K
Q35	9K	D31	12J
Q36	12K	D33	10L
Q37	9L	D34	12F
Q38	8L	D35	11F
Q39	10L	D37	9I
Q40	9K	D38	9I
Q42	10K	D39	5J
Q43	12I	D40	6L
Q44	9J	D41	7M
Q45	13I	D42	13M
Q46	10J		
Q47	6I		
Q48	6I		



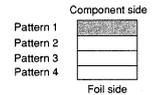
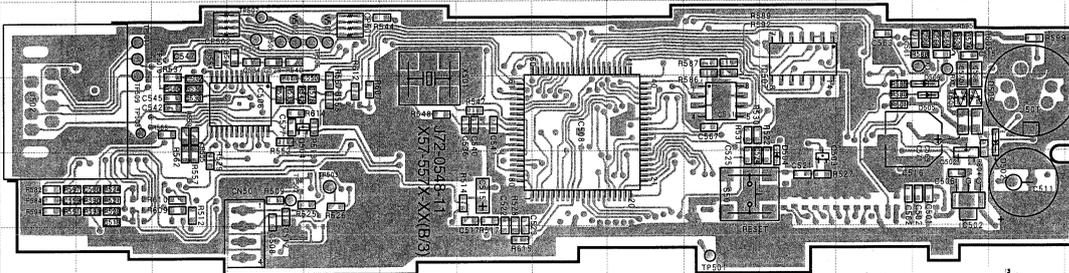
● Connect 1 and 4.

PC BOARD VIEW TM-G707A/E

TX-RX UNIT (B/3) (X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3 (Component side view)

TX-RX UNIT (B/3)
(Component side view)

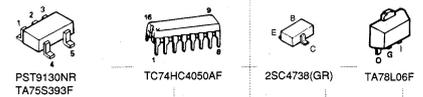
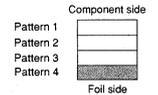
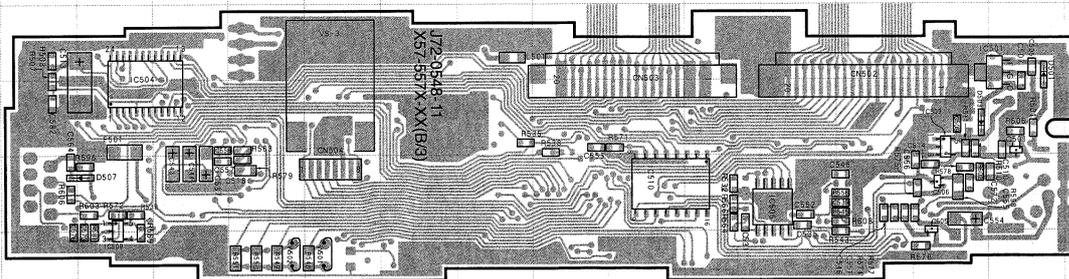
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IC502	50
IC506	4F
IC507	3M
IC508	4J
IC511	4L
Q502	50
Q503	5M
Q504	4F
D502	4P
D504	5M
D505	4O
D506	4O
D508	4O
D509	4O



TX-RX UNIT (B/3) (X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3 (Foil side)

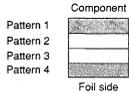
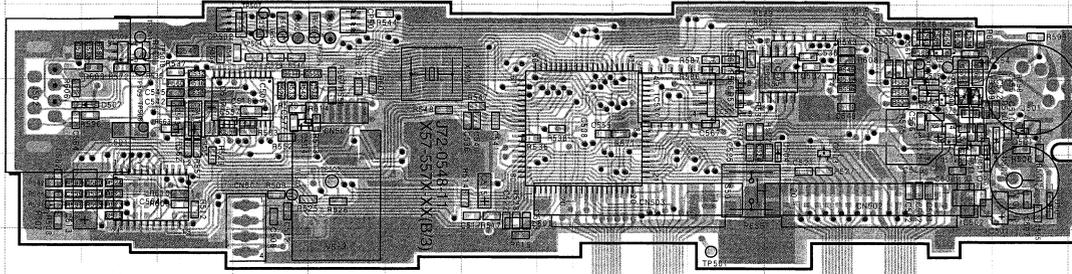
TX-RX UNIT (B/3)
(Foil side)

Ref. NO.	Address
IC501	8P
IC503	9O
IC504	9C
IC506	10C
IC509	11D
IC510	10K
Q501	9P
Q505	11O
D501	9P
D503	9C
D507	10D



TM-G707A/E PC BOARD VIEW

TX-RX UNIT (B/3) (X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3 (Component side view) + (Foil side view)



● Connect 1 and 4



DA221



BU4066BCF



AK2343



TA78L05F



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2SC4738(GE)
DTC114EE



PST9130NR
TA75S393F



TC74HC4050AF

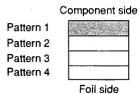


TA78L06F

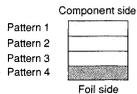
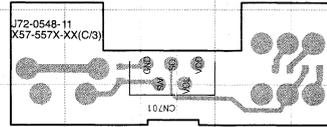
TX-RX UNIT (B/3)
(Component side) + (Foil side)

Ref. NO.	Address
IC501	5P
IC502	5O
IC503	4D
IC504	5D
IC506	4F
IC507	3M
IC508	4J
IC509	3D
IC510	4K
IC511	4L
Q501	4P
Q502	5O
Q503	5M
Q504	4F
Q505	3O
Q506	10O
D501	5P
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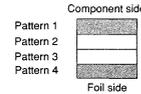
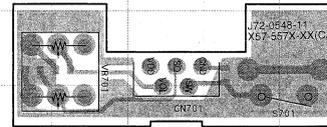
TX-RX UNIT (C/3) (Component side view)
(X57-557X-XX)0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3



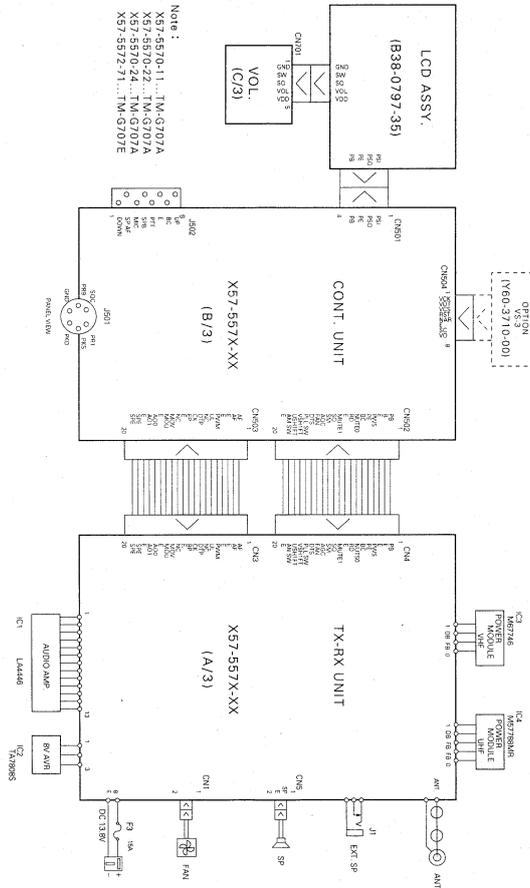
TX-RX UNIT (C/3) (Foil side)
(X57-557X-XX)0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3



TX-RX UNIT (C/3) (Component side view) + (Foil side view)
(X57-557X-XX)0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3

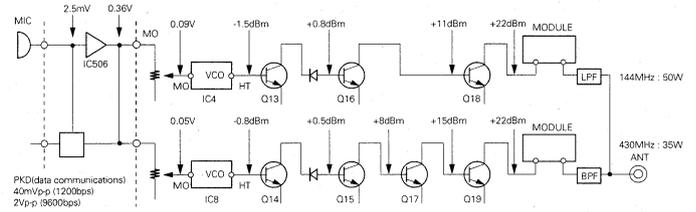


WIRING DIAGRAM



LEVEL DIAGRAM

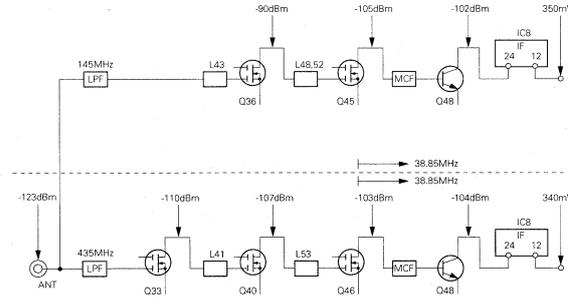
Transmitter Section



Note 1: Set the AG so that the microphone socket input is 3kHz deviation at 1kHz modulation.
The data communication connector input level is 3kHz deviation at 1kHz modulation for 1200bps and 2kHz deviation at 1kHz modulation for 9600bps.

Note 2: The transmit frequency is 145.0 or 435.0MHz.
Note 3: The HI/MID/LOW switch is set to HI.
Note 4: The measurements with the power meter, except for the ANT connector, are the values with the APC off.

Receiver Section

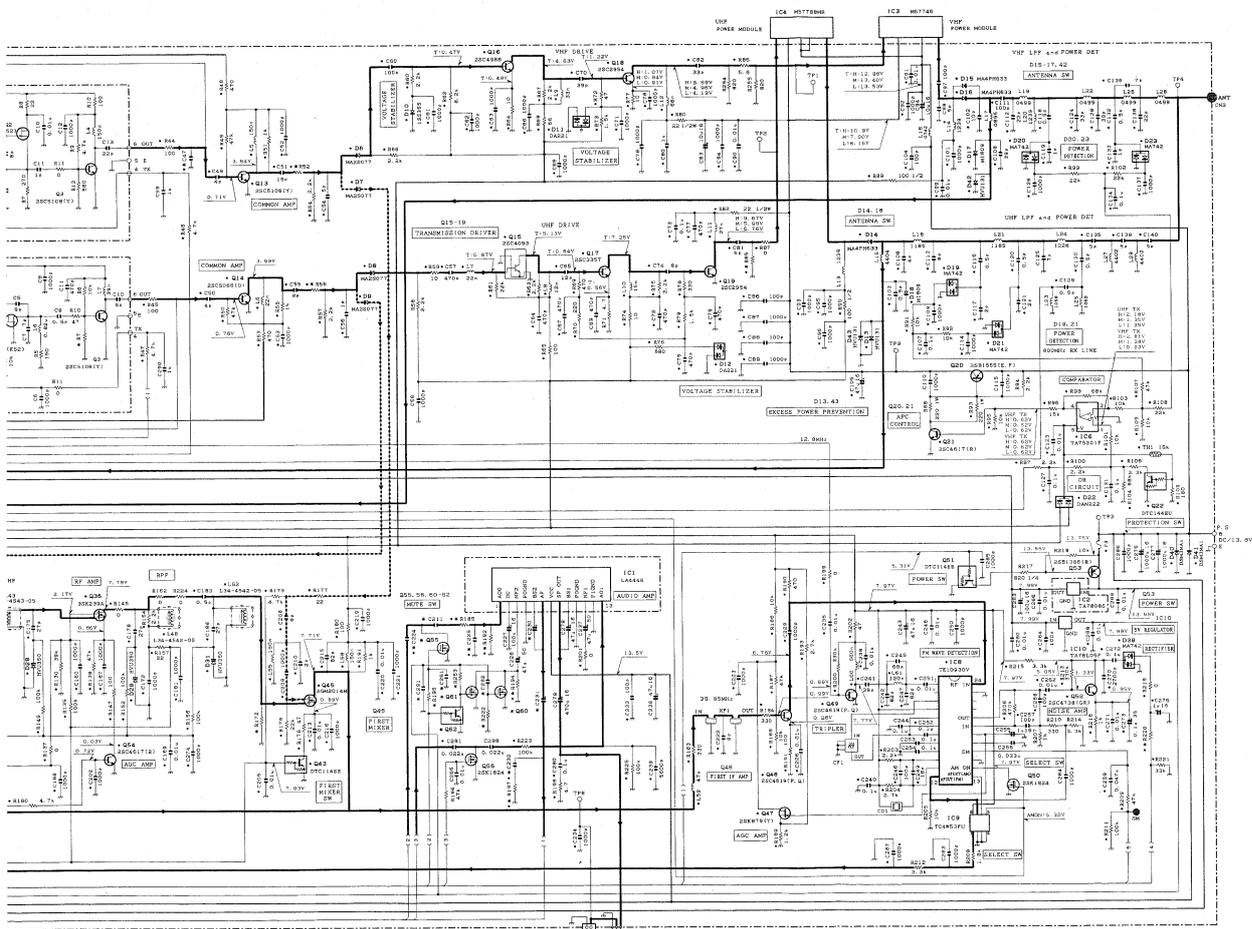


Note 1: The 12dB SINAD levels were plotted using a standard signal generator through a 0.01μF ceramic capacitor at each point from the RF to the first IF.

Note 2: The AF levels were measured with an AF voltmeter when the -73dBm (50μV) standard signal generator signal modulated by a 1kHz modulation frequency and a 3kHz deviation was received and the AF output was adjusted to 0.63V/8Ω by the AF VR.

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SCHEMATIC DIAGRAM

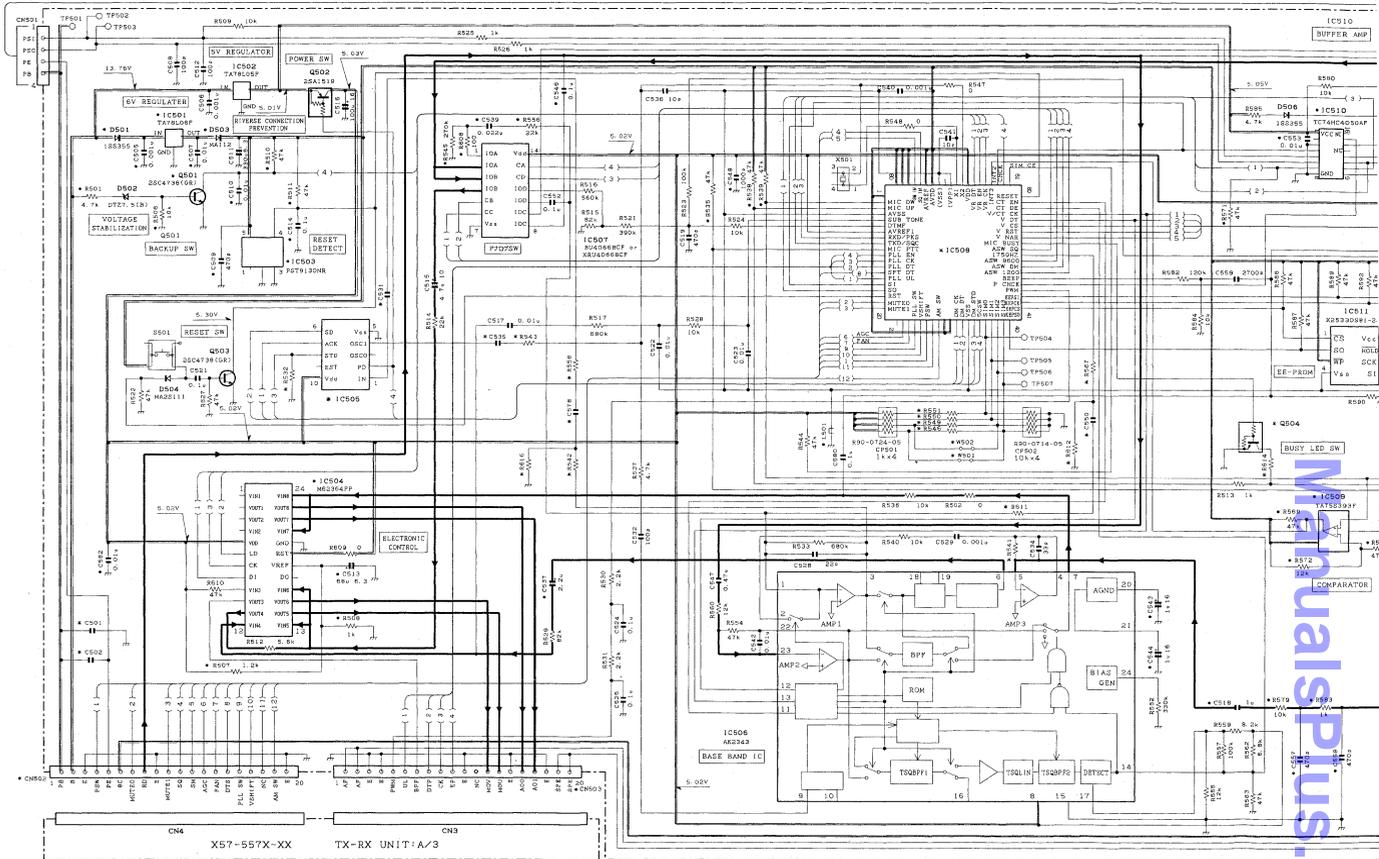


Q17	2SC3297	Q55	3A 42-44, 51, 62	107C144E	Q47	2869791Y	D1, 2, 6-4, 27, 30, 37, 38	HA2077	D17, 18	MI209	D40, 41	106KMA1
Q18	2SC2984	Q56	35, 36	107C144E	Q48	288139211	Q3, 4	1S2955	D19-21, 23, 25, 29	MA7482	Q38	106KMA2
Q19	2819555E(F)	Q57	36, 40	107C144E	Q49	288139211	Q5, 10, 34, 35	1S2955	D20, 33	DA2020	Q39	106KMA3
Q20	2819555E(F)	Q58	45	107C144E	Q50	288139211	Q11, 12	1S2955	Q34	106KMA4	Q40	106KMA4
Q21	2819555E(F)	Q59	45	107C144E	Q51	288139211	Q13, 42, 43	1S2955	Q35	106KMA5	Q41	106KMA5
Q22	2819555E(F)	Q60	45	107C144E	Q52	288139211	D14-16	1S2955	Q36	106KMA6	Q42	106KMA6
Q23	2819555E(F)	Q61	45	107C144E	Q53	288139211	D17-19	1S2955	Q37	106KMA7	Q43	106KMA7
Q24	27, 28	2581131P(G-B)	Q45, 46	107C144E	Q54	288139211	D20-28, 31	1S2955	Q38	106KMA8	Q44	106KMA8

Note) • Ref. No. : Parts of pattern 1.

SCHEMATIC DIAGRAM

X57-557X-XX TX-RX UNIT (CONTROL UNIT) : B/3



Note) • Ref. No. : Parts of pattern 1.

TM-G707A/E

SPECIFICATIONS

Specifications are subject to change without notice due to advancements in technology.

General		VHF Band	UHF Band
Frequency range	U.S.A./Canada	144-148MHz	438-450MHz
	General	144-148MHz ¹	430-440MHz
	Europe	144-146MHz	430-440MHz
Mode	F3E(FM)		
Antenna impedance	50Ω		
Usable temperature range	- 20° C~+60° C(- 4° F~+140° F)		
Power supply	13.8V DC±15% (11.7~15.8V)		
Grounding method	Negative ground		
Current	Transmit (max.)	11.0A or less	10.0A or less
	Receive (at 2W output)	1.0A or less	
Frequency stability (- 10° C~+50° C)	Within±3ppm		
Dimensions (WxHxD projections included)	140x54.5x205.5mm/5.51"x1.57"x7.44"		
Weight	1.2kg/2.6lb		
Transmitter			
Power output	High	50W ²	35W ²
	Medium	Approx. 10W	
	Low	Approx. 5W	
Modulation	Reactance		
Spurious emissions	- 60dB or less		
Maximum frequency deviation	±5kHz		
Audio distortion (at 60% modulation)	3% or less		
Microphone impedance	600Ω		
Receiver			
Circuitry	Double conversion		
Intermediate frequency (1st/2nd)	38.85MHz/450kHz		
Sensitivity (12dB SINAD)	0.16μV or less:M,E 0.22μV or less:K	0.16μV or less	
Selectivity (- 6dB)	12kHz or more		
Selectivity (- 60dB)	28kHz or less		
Squelch sensitivity	0.1μV or less:M,E 0.11μV or less:K	0.1μV or less	
Audio output (8 ohms,5% distortion)	2W or higher		
Audio output impedance	8Ω		

¹ Taiwan : 144 ~ 146MHz

² Taiwan : 25W (both bands)

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