

144/430/440MHz FM DUAL BANDER

TM-G707A/E

SERVICE MANUAL

KENWOOD

© 1998-2 PRINTED IN JAPAN
B51-8418-00(B) 834



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	B38-0797-XX
	M2	X57-5570-22	
	M4	X57-5570-24	
TM-G707E	E	X57-5572-71	
	E3		

CIRCUIT DESCRIPTION

Frequency configuration

Since the TM-G707A/E uses the same PLL and IF for both the VHF and UHF band, these sections are used switching bands.

The 144MHz band reception system is mixed down with the 1st local frequency 182.850 MHz to 184.845 MHz (E), 182.850 MHz to 186.845 MHz (K, M) to make the 1st intermediate frequency of 38.85 MHz. This frequency is further mixed down with the 2nd local frequency of 38.4 MHz to obtain the 2nd intermediate frequency of 450 kHz.

The 430MHz band reception system is mixed down with the 1st local frequency 391.150 MHz to 401.145 MHz (M, E), 399.150 MHz to 406.145 MHz (K) to make the 1st intermediate frequency of 38.85MHz. This is mixed down with the 2nd local frequency of 38.4 MHz to obtain the 2nd intermediate frequency of 450 kHz. Thus, the reception systems form a double conversion system with two intermediate frequencies.

The transmission system uses direct oscillation for both the 144MHz and the 430MHz band and is made up of a PLL circuit formed through direct frequency division. Signals are amplified with straight amps and transmitted.

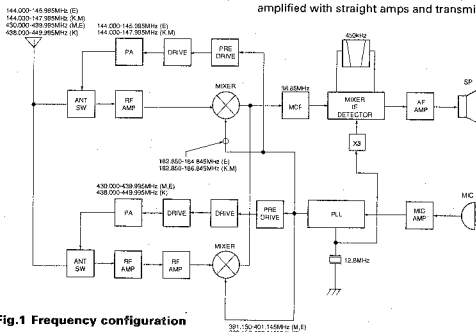


Fig.1 Frequency configuration

PLL synthesizer section

The VCO section is in the shielding case and the PLL section is on the TX-RX board. The 12.8MHz reference oscillator (X1) is oscillated with the PLL IC (IC1). The 5kHz and 6.25kHz reference frequencies are obtained by frequency dividing this signal.

5kHz, 10kHz, 15kHz, 20kHz, 6.25kHz, 12.5kHz, 25kHz, and 50kHz step PLL synthesizers are configured through phase comparison with the reference frequencies obtained by frequency dividing HT. The VHF VCO PLL is configured with one PLL IC by using a switch. For VHF, IC2 (analog switch) is

switched to the VHF side and D1 comes on. For UHF, IC2 is switched to the UHF side and D2 comes on. In this way, the two groups are formed. For VHF-band reception, oscillation is 182.85 to 184.845MHz (E), 182.85 to 186.845MHz (K, M) and for transmission, oscillation is 144.00 to 145.995MHz (E), 144.00 to 147.995MHz (K, M).

For UHF band reception, oscillation is 384.95 to 394.945MHz (M, E), 392.95 to 404.945MHz (K) and for transmission, oscillation is 430 to 439.995MHz (M, E), 438.00 to 449.995MHz (K).

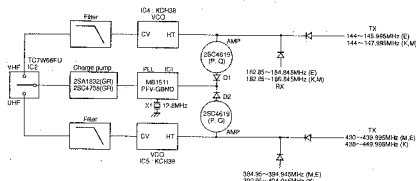


Fig.2 PLL synthesizer circuit

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

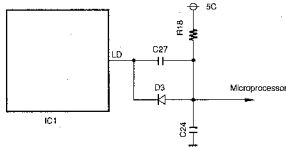


Fig.3 Unlock detect circuit

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.

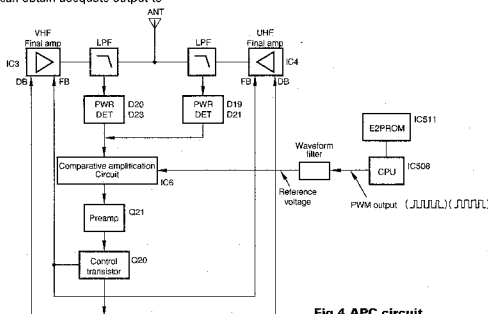


Fig.4 APC circuit

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

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
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	$550\Omega \pm 10\%$, $2.5\text{pF} \pm 0.5\text{pF}$

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

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 $450 \pm 5\text{kHz}$)
Insertion loss	6dB or less (at minimum lost point)
Guaranteed attenuation	35dB or more (within $450 \pm 100\text{kHz}$)
IC matching terminating impedance	

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

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.

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.

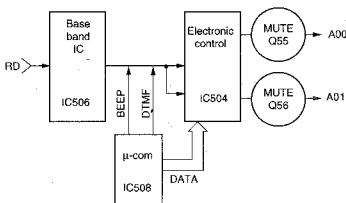


Fig. 5 AF Block Diagram

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

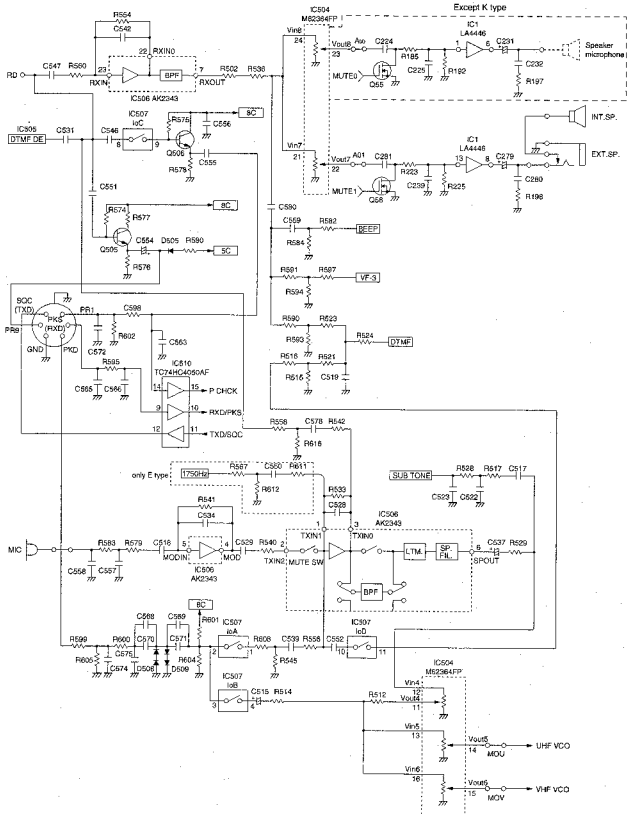


Fig. 6 Transceiver audio signal processor circuit

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.

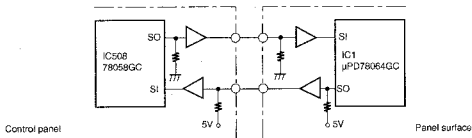


Fig. 7 Circuit for Data Communications Between Panel and Control Unit

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.

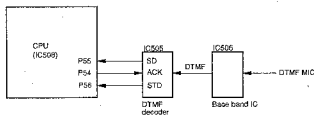


Fig.8 DTMF decode circuit

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.

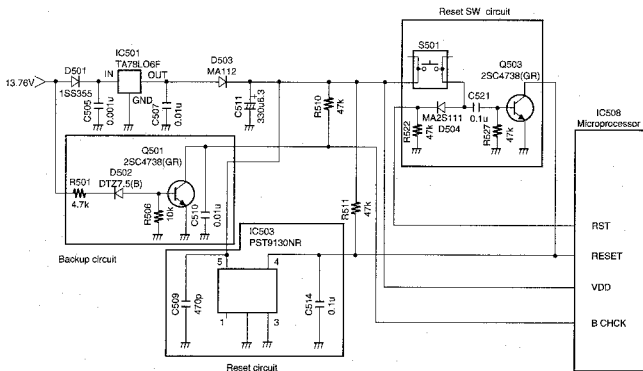


Fig.9 Reset backup circuit

CIRCUIT DESCRIPTION

●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 prevent 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 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.

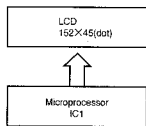


Fig.11 Display circuit

●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

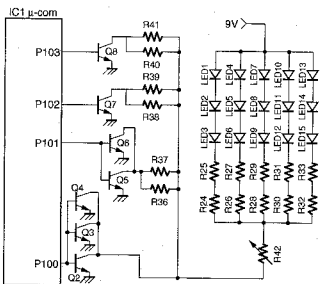


Fig.12 Dimmer circuit

TM-G707A/E

ACCESSORY MICROPHONE T91-0586-05 : K type (MC-53DM)

EXTERNAL VIEW



PARTS LIST

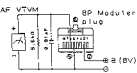
Ref. No.	Address	New Parts	Parts No.	Description
			A02-1992-08	CASE (FRONT)
			A02-1993-08	CASE (REAR)
			E30-3240-08	MICROPHONE CORD ASSY (MODULER)
			K29-5101-06	KN08 (PTT)
			K29-6102-98	KNDR (UP/DOWN)
			K29-5103-06	KEY TOP (20KEY)
			K29-5104-06	KN08 (LOCK)
SW3,4			S40-1117-05	TACT SWITCH (UP/DOWN)
SW2			S02-0441-08	SLIDE SWITCH (LOCK)
SW1			S70-0458-08	TACT SWITCH (PTT)
			T91-0570-08	MICROPHONE ELEMENT
IC1			LR40672	IC
01-3			2SD1623	TRANSISTOR

SPECIFICATIONS

Type	Electret capacitor
Power requirement	8.0 V DC \pm 10%
Current drain	35 mA or less
Sensitivity	-72 \pm 3 dB (at 1 kHz) (0 dB = 1 V/0.1 pa)
Impedance	900 Ω \pm 30% (at 1kHz)

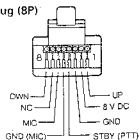
ADJUSTMENT

Item	Condition	Test equipment/Measurement	Adjustment	Specifications/Remarks
DTMF output level	[3] [6] key at same time push	AF VTM, BP Moduler	VR1	2.4mV \pm 0.01mV

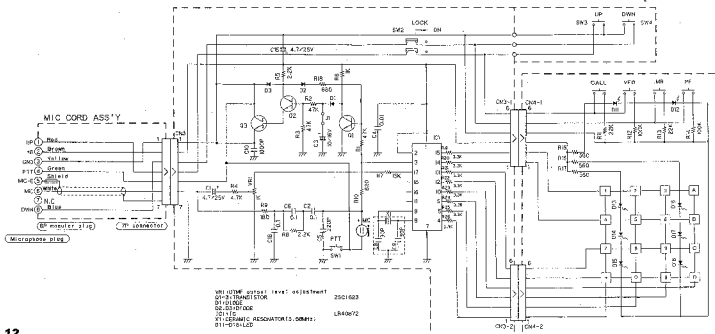


CONNECTOR END VIEW

Moduler plug (8P)



SCHEMATIC DIAGRAM



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

EXTERNAL VIEW



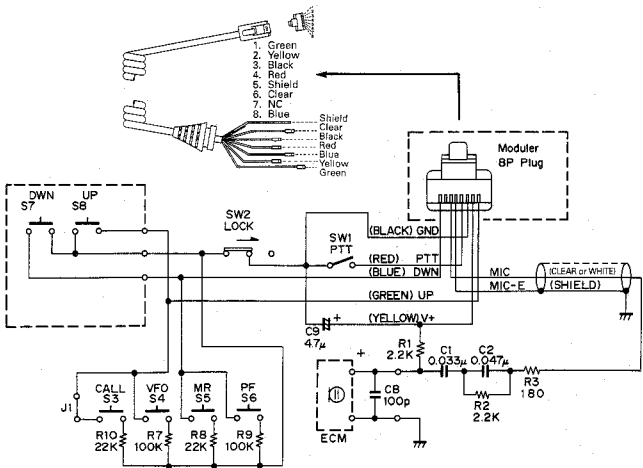
PARTS LIST

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)
			K29-3166-18	KNOB (UP)
			K29-3169-18	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, 2	H
12	VSS	-	GND	-
13, 14	P102, P103	O	Dimmer control3, 4	H
15	P30/TO0	O	SC 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/SIO/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)

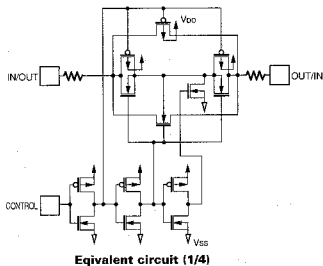
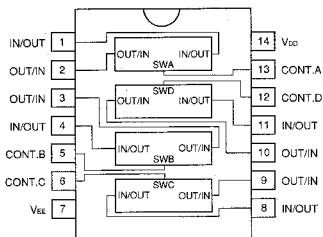
Pin No.	Port name	I/O	Function	Active Level
1			Open (connected to Vdd)	
2	MIC DW	AI	MIC [DOWN] [MR] [PF] key	H:No operation,4.7V max:SP MIC,4.3V max: [PF] pressed,0.5V max: [MR] pressed,0.8V max: [DOWN] pressed
3	MIC UP	AI	MIC [UP] [CALL] [VFO] key	H:No operation,4.3V max: [VFO] pressed,2.5V max: [CALL] 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 Vdd)	
8	RxD/PKS	I	RS-232C RxD terminal	
9	TxD/SQC	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			Open (connect Vdd)	
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			Open (connect Vdd)	
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, connection 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			Open (Connected to VSS)	
74	AVDD	-	A/D conversion circuit power supply terminal (connected to VDD)	
75	AVREF0	-	A/D conversion circuit reference voltage terminal (connected to VDD)	
76	SO IN	I	Squelch input	
77	SM IN	I	S meter input	
78~80			Open (Connected to Vdd)	

TM-G707A/E

SEMICONDUCTOR DATA

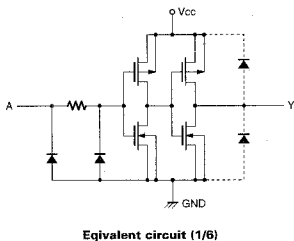
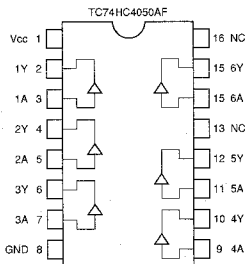
BU4066BCF

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	PRI/TXD/RXD/PSI/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 connection 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

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
CN4	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
	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
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	
CN504	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
CN701	6	E	GND
	7	5C	Common 5V
	8	V0	Audio input
	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

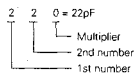
CC 45 TH 1H 220 J
1 2 3 4 5 6

- 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 (pF)	B	C	D	F	G
	±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

(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)

Refer to the table above.

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

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

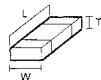
(Chip) (B, F)

• 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. FX (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	
		*	B11-1193-08	REFLECTOR (LCD ASSY)		47	-		H25-0103-04	PROTECTION BAG (125/25MM/0.7)	
LED1-15		*	B30-2187-08	LED (LCD ASSY)		48	-		H25-0537-04	PROTECTION BAG (180/30MM/0.03)	
8	3A	*	B38-0787-35	LCD ASSY		49	-		H25-0723-04	PROTECTION BAG (230/40MM/0.7)	
		*	B38-0789-08	LCD (LCD ASSY)		50	-	*	H62-1078-02	ITEM CARTON CASE	K
9	1B	*	B42-2455-04	STICKER (M4/M4M)		50	-	*	H62-1079-02	ITEM CARTON CASE	M2,M4
10	-	*	B46-0337-03	WARRANTY CARD	ACSY E.E3	50	-	*	H62-1980-02	ITEM CARTON CASE	E.E3
10	-	*	B46-0488-10	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 CORD ASSY(MOBILE)	ACSY E.E3	65	3A	*	K29-5223-03	KNOB (ISOL)	
22	1B	*	E30-2137-15	DC CORD		A	3A		N14-0568-04	CIRCULAR NUT(VOL)	
		*	E30-3006-08	MIC CUAL CABLE(TO SERVICE)	E.E3	B	3B		N33-2806-45	OVAL HEAD MACHINE SCREW (CAB)	
23	1B	*	E38-3808-08	MIC CUAL CABLE(TO SERVICE)	M2,M4,E	C	2B,3B		N67-3008-46	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 SREW (PANEL)	
24b	2A	*	E37-0632-06	LEAD WIRE WITH CONNECTOR(SP)	K	E	1B		N80-2018-45	PAN HEAD TAPITE SREW (FAN)	
25	2A	*	E37-0724-06	FLAT CABLE (20P)		F	2A		N83-2005-46	PAN HEAD TAPITE SREW	
26	1B	*	E37-0724-06	FLAT CABLE (20P)	E.E3	G	1B,2B		N83-2008-46	PAN HEAD TAPITE SREW	
DN1	-	*	E40-5953-05	PIN ASSY (LCD ASSY)		H	2B		N87-2886-46	BRAZER HEAD TAPITE SREW	
DN2	-	*	E40-5409-05	PIN ASSY (LCD ASSY)		66	-	*	N89-0331-05	SCREW SET (MOBILE)	ACSY E.E3
75	2A	*	F07-1428-23	COVER (DIN 8P)		66	-	*	N89-0331-05	SCREW SET (MOBILE)	ACSY M2,M4
26	1B	*	F07-1428-03	COVER (FAN)		67	-	*	N89-0382-05	SCREW SET	ACSY K
27	2B	*	F19-2233-04	SHIELDING COVER (VCO)		SHV1-3			S70-8498-05	TACT SWITCH (LCD ASSY)	
28	-	*	F51-0017-05	FUSE#*30L15A	ACSY	SHV4	3A		W82-1921-05	ENCODER (LCD ASSY)	
28	1B	*	F51-0017-05	FUSE#*30L15A		SHV5-B			S70-8439-05	TACT SWITCH (LCD ASSY)	
29	-	*	F51-0018-05	FUSE#*30L20A	ACSY	SP	1B		T07-0331-15	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			T91-0395-05	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-E30 450MH/35V)	
39	3B	*	G11-0784-14	SHEET		IC1	-	*	78P064GJ1UB	IC(CPU/LCD ASSY)	

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
TX-RX UNIT (X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3											
C12			CK73GB1H102K	DHP C	1000FF K	C77			CK73GB1H471K	DHP C	470FF K
C3			C92-0558-05	DHP-ELE	100FF 18WV	C78			CK73GB1H102K	DHP C	1000FF K
C4			CK73GB1H103K	DHP C	0.010UF K	C79			CK73GB1H471K	DHP C	470FF K
C5			CK73GB1E223K	DHP C	0.022UF K	C80			CK73FB1A105K	DHP C	7.0UF K
C6			CK73GB1H102K	DHP C	1000FF K	C81			CK73GB1H1050C	DHP C	5.0FF C
C7			CK73GB1H1010B	DHP C	1.0FF B	C82			CK73GB1H430J	DHP C	33FF J
C8,9			CK73GB1H1040C	DHP C	4.0FF C	C83			C92-0523-05	DHP-ELE	10UF 18WV
C10			CK73GB1H102K	DHP C	1000FF K	C84			CK73GB1H102K	DHP C	1000FF K
C11			CK73GB1H103K	DHP C	0.010UF K	C86			CK73GB1H101J	DHP C	100FF J
C12			CK73GB1H102K	DHP C	1000FF K	C87			CK73GB1H102K	DHP C	1000FF K
C13			CK73GB1H103K	DHP C	0.010UF K	C88			CK73GB1H101J	DHP C	100FF J
C14,15			CK73GB1H1030C	DHP C	3.0FF C	C89			CK73GB1H102K	DHP C	1000FF K
C17			CK73GB1H471K	DHP C	470FF K	C90,91			CK73GB1H103K	DHP C	0.010UF K
C18			CK73GB1H1030C	DHP C	3.0FF C	C92,93			CK73GB1H102K	DHP C	1000FF K
C19			CK73GB1H1060D	DHP C	6.0FF D	C94			C92-0523-05	DHP-ELE	10UF 18WV
C20			CK73GB1H1010B	DHP C	1.0FF D	C95,96			CK73GB1H102K	DHP C	1000FF K
C21			CK73GB1H471K	DHP C	470FF K	C97			C92-0522-05	DHP C	100FF J
C23,24			CK73GB1C104K	DHP C	0.10UF K	C98			C92-0565-05	DHP C	5.0FF C
C26			CK73GB1H471K	DHP C	470FF K	C99			CK73GB1H102K	DHP C	0.010UF K
C27			CK73GB1H101J	DHP C	100FF J	C101			CK73GB1H102K	DHP C	1000FF K
C29			CK73GB1H102K	DHP C	1000FF K	C102			C92-0560-05	DHP C	10FF D
C30			CK73GB1C473K	DHP C	0.047UF K	C103			CK73GB1H1060B	DHP C	6.0FF B
C33,34			C92-0002-05	DHP-TAN	0.22UF 35WV	C104			CK73GB1H101J	DHP C	100FF J
C35,36			C92-0695-45	DHP-TAN	10UF 19WV	C105			C92-0610-05	DHP-ELE	47UF 18WV
C37,38			C92-0511-05	DHP-TAN	0.15UF 35WV	C106			C92-0554-05	DHP C	4.0FF C
C39			C92-0696-45	DHP-TAN	4.7UF 10WV	C107			CK73GB1C104K	DHP C	0.10UF K
C40			CK73GB1H101J	DHP C	100FF J	C108			CK73GB1H102K	DHP C	39FF J
C41			CK73GB1H103K	DHP C	0.010UF K	C109,110			CK73GB1H102K	DHP C	1000FF K
C42			C92-0696-45	DHP-TAN	4.7UF 10WV	C11			C92-0572-05	DHP C	100FF J
C43			CK73GB1H101J	DHP C	100FF J	C112			C92-0564-05	DHP C	22FF J
C44			CK73GB1H103K	DHP C	0.010UF K	C113			C92-0558-05	DHP C	8.0FF D
C45			C92-0593-05	DHP-ELE	23UF 18WV	C114,115			CK73GB1H102K	DHP C	1000FF K
C46			CK73GB1H102K	DHP C	1000FF K	C116			CK73GB1H1060B	DHP C	6.0FF B
C47			CK73GB1H1030C	DHP C	3.0FF C	C117			CK73GB1H1020B	DHP C	2.6FF B
C48,50			CK73GB1H1040C	DHP C	4.0FF C	C118			CK73GB1H1060B	DHP C	6.0FF B
C51			CK73GB1H1150J	DHP C	15FF J	C119			CK73GB1H1010B	DHP C	1.0FF B
C52,53			CK73GB1H102K	DHP C	1000FF K	C120			CK73GB1H1060B	DHP C	6.0FF B
C54			CK73GB1H1050C	DHP C	5.0FF C	C121			CK73GB1H1020B	DHP C	2.6FF B
C55			CK73GB1H1060D	DHP C	6.0FF D	C123			CK73GB1H103K	DHP C	0.010UF K
C56			CK73GB1H1010B	DHP C	1.0FF B	C124			C92-0566-05	DHP C	33FF J
C57			CK73GB1H471K	DHP C	470FF K	C125			C92-0567-05	DHP C	7.0FF D
C58			CK73GB1H102K	DHP C	1000FF K	C126			CK73GB1H102K	DHP C	1000FF K
C59			CK73FB1A105K	DHP C	1.0UF K	C127			CK73GB1C104K	DHP C	0.10UF K
C60			CK73GB1H101J	DHP C	100FF J	C128			C92-0567-05	DHP C	39FF J
C61-63			CK73GB1H102K	DHP C	1000FF K	C129			CK73GB1H1060B	DHP C	6.0FF B
C64			CK73GB1H471K	DHP C	470FF K	C130			CK73GB1H1060B	DHP C	6.0FF B
C65			CK73GB1H1020J	DHP C	2.6FF J	C131			CK73GB1C104K	DHP C	0.10UF K
C66			CK73GB1H1030K	DHP C	3.0FF K	C132			CK73GB1H1060B	DHP C	6.0FF B
C67			CK73GB1H471K	DHP C	470FF K	C133			CK73GB1H1010B	DHP C	1.0FF B
C68			CK73GB1H102K	DHP C	1000FF K	C134			CK73GB1C104K	DHP C	0.10UF K
C69			CK73GB1H471K	DHP C	470FF K	C135			C92-0555-05	DHP C	5.0FF C
C70			CK73GB1H430J	DHP C	39FF J	C136			C92-0557-05	DHP C	7.0FF D
C71			CK73GB1H102K	DHP C	1000FF K	C137			CK73GB1H102K	DHP C	4000FF K
C72			CK73GB1H471K	DHP C	470FF K	C138			C92-0564-05	DHP C	22FF J
C73			CK73GB1C104K	DHP C	0.10UF K	C139,140			C92-0556-05	DHP C	5.6FF C
C74			CK73GB1H1060D	DHP C	6.0FF D	C141			C92-0558-05	DHP-ELE	100UF 18WV
C75			CK73GB1H471K	DHP C	470FF K	C142			CK73GB1H103K	DHP C	0.010UF K
C76			CK73GB1H102K	DHP C	1000FF 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

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
C149			0C7362H1H030C	CHIP C 3.0PF C		C221			0K736B1H102K	CHIP C 1000PF K	
C150			0C7362H1H101J	CHIP C 1000PF J		C222			0C7362H1H080D	CHIP C 8.0PF D	
C151			0C7362H1H240J	CHIP C 240PF J		C223			0K736B1H102K	CHIP C 1000PF K	
C152			0K736B1H102K	CHIP C 1000PF K		C224			0K736B1E223K	CHIP C 0.022UF K	E.E3
C153			0K736B1H471K	CHIP C 470PF K		C224			0K736B1E223K	CHIP C 0.022UF K	M2.M4
C154			0C7362H1H101J	CHIP C 1000PF J		C225			0K736B1H102K	CHIP C 1000PF K	
C155			0K736B1H471K	CHIP C 470PF K		C225			0K736B1H562K	CHIP C 5600PF K	
C156			0C7362H1H030C	CHIP C 3.0PF C		C226			0K736B1H103K	CHIP C 0.010UF K	M2.M4
C157			0K736B1H102K	CHIP C 1000PF K		C227			0C2-0558-05	CHIP-ELE 100UF 16WV	
C158			0C7362H1H020B	CHIP C 2.0PF B		C228			0C04EW1H470M	ELECTRO 47UF 50WV	
C159			0K736B1H471K	CHIP C 470PF K		C229			0K736B1H102K	CHIP C 1000PF K	
C160			0K736B1H102K	CHIP C 1000PF K		C230			0C2-0610-05	CHIP-ELE 47UF 16WV	E.E3
C161			0K736B1H471K	CHIP C 470PF K		C230			0C2-0610-05	CHIP-ELE 47UF 16WV	M2.M4
C162			0C7362H1H195B	CHIP C 1.5PF B		C231			0C04EW1C471M	ELECTRO 470UF 16WV	E.E3
C163-165			0C7362H1H101J	CHIP C 1000PF J		C231			0C04EW1C471M	ELECTRO 470UF 16WV	M2.M4
C166,167			0K736B1H102K	CHIP C 1000PF K		C232			0K736B1C104K	CHIP C 0.10UF K	E.E3
C166			0C7362H1H030C	CHIP C 3.0PF C		C232			0K736B1C104K	CHIP C 0.10UF K	M2.M4
C169			0K736B1H102K	CHIP C 0.010UF K		C233			0C7362H1H101J	CHIP C 1000PF J	
C170			0K736B1H471K	CHIP C 470PF K		C234			0K736B1H102K	CHIP C 1000PF K	
C171			0C7362H1H020B	CHIP C 2.0PF B		C234			0K736B1H103K	CHIP C 0.010UF K	
C172			0K736B1H102K	CHIP C 1000PF K		C236			0C2-0610-05	CHIP-ELE 47UF 16WV	
C173			0C7362H1H020B	CHIP C 2.0PF B		C237			0C04EW1H470M	ELECTRO 47UF 50WV	
C174			0K736B1H102K	CHIP C 1000PF K		C238			0K736B1H103K	CHIP C 0.010UF K	
C175			0C7362H1H210J	CHIP C 27PF J		C239			0K736B1H562K	CHIP C 5600PF K	
C176			0C7362H1H020B	CHIP C 2.0PF B		C240			0K736B1C104K	CHIP C 0.10UF K	
C177			0K736B1H102K	CHIP C 1000PF K		C241			0C7362H1H30J	CHIP C 30PF J	
C178			0C7362H1H270J	CHIP C 27PF J		C242			0C7362H1H26J	CHIP C 82PF J	
C179			0C7362H1H101J	CHIP C 1000PF J		C243			0C2-0610-05	CHIP-ELE 47UF 16WV	
C180			0C7362H1H020B	CHIP C 2.0PF B		C244			0K736B1C104K	CHIP C 0.10UF K	
C181			0K736B1H102K	CHIP C 1000PF K		C245			0C7362H1H86J	CHIP C 68PF J	
C183			0C7362H1H055B	CHIP C 0.5PF B		C246			0C7362H1H101J	CHIP C 1000PF J	
C184			0K736B1H102K	CHIP C 1000PF K		C247			0C7362H1H26J	CHIP C 82PF J	
C185			0K736B1H471K	CHIP C 470PF K		C248			0K736B1H103K	CHIP C 0.010UF K	
C186			0C7362H1H270J	CHIP C 27PF J		C249			0C7362H1H10J	CHIP C 10PF J	
C187			0K736B1H102K	CHIP C 1000PF K		C250			0K736B1H102K	CHIP C 1000PF K	
C188			0C7362H1H040C	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			0C2-0604-06	CHIP-TAN 1.0UF 16WV	
C196			0K736B1H471K	CHIP C 470PF K		C256			0K736B1C33K	CHIP C 0.033UF K	
C197			0C7362H1H195B	CHIP C 1.5PF B		C257,258			0C7362H1H101J	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			0C2-0558-05	CHIP-ELE 100UF 16WV	
C205			0K736B1H102K	CHIP C 0.010UF K		C264			0C7362H1H101J	CHIP C 1000PF J	
C207			0K736B1H471K	CHIP C 470PF K		C266			0K736B1H103K	CHIP C 0.010UF K	
C208			0C7362H1H090D	CHIP C 6.0PF D		C267			0C7362H1H270J	CHIP C 27PF J	
C209			0K736B1H102K	CHIP C 1000PF K		C268,269			0K736B1H103K	CHIP C 0.010UF K	
C210			0C7362H1H020B	CHIP C 2.0PF B		C270			0K736B1H272K	CHIP C 2700PF K	
C211			0K736B1E223K	CHIP C 0.022UF K	E.E3	C271			0K736B1H103K	CHIP C 0.010UF K	
C211			0K736B1E223K	CHIP C 0.022UF K	M2.M4	C272			0K736B1C104K	CHIP C 0.10UF K	
C212			0C7362H1H050B	CHIP C 1.0PF B		C273			0C2-0601-05	CHIP-C 0.1UF 25WV	
C213			0K736B1H102K	CHIP C 0.010UF K		C274			0K736B1H102K	CHIP C 1000PF K	
C214			0C7362H1H040C	CHIP C 4.0PF C		C275			0C04-0255-05	ELEC-CAP 1000UF 16WV	
C215			0C7362H1H26J	CHIP C 82PF J		C276			0C2-0604-05	CHIP-TAN 1.0UF 16WV	
C216			0K736B1H102K	CHIP C 1000PF K		C277			0C04-0255-05	ELEC-CAP 1000UF 16WV	
C217			0K736B1H471K	CHIP C 470PF K		C278			0C2-0610-05	CHIP-ELE 47UF 16WV	
C218			0K736B1H103K	CHIP C 0.010UF K		C279			0C04EW1C471M	ELECTRO 470UF 16WV	
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	

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
C282			CK73G81H103K	CHIP C 0.010UF K		C580			CK73G81C104K	CHIP C 0.10UF K	
C283-287			CK73G81H102K	CHIP C 0.001UF K		C582			CK73G81H103K	CHIP C 0.01UF K	
C288			CK73G81E22K	CHIP C 0.022UF K		TC1			C05-0394-95	CERAMIC TRIMMER CAP(10P)	
C290			CK73B81A105K	CHIP C 1.0UF K							
C291			CK73G81H140K	CHIP C 1000PF K	E,E3	DN1			E40-3237-05	PIN ASSY(2P)	
C291			CK73G81H102K	CHIP C 1000PF K		DN2			E23-9485-05	TERMINAL	
C292			CK73G81C104K	CHIP C 0.10UF K	M2,M4	CKG,4			E40-5744-05	FLAT CABLE CONNECTOR(20P)	
C292			CK73B81C104K	CHIP C 0.10UF K	M2,M4	CK6			E40-3237-05	PIN ASSY(2P)	
C585,506			CK73G81H102K	CHIP C 1000PF K		CKN01			E40-5652-45	PIN ASSY(4P)	
C597			CK73G81H103K	CHIP C 0.010UF K							
C598			CK73GCH1H101J	CHIP C 100PF J		CKN52,503			E40-5744-05	FLAT CABLE CONNECTOR(20P)	
C598			CK73G81H471K	CHIP C 470PF K		CKN64			E40-9618-05	FLAT CABLE CONNECTOR(8P)	
C510			CK73G81H103K	CHIP C 0.010UF K		CKN761			E40-5392-05	PIN ASSY(5P)	
C511			CE04DWL031M	ELECTRO 330UF 6.3WV		J1			E11-0448-05	3.5D PHONE JACK(8P)	
C512			CK73GCH1H101J	CHIP C 100PF J		J501			E58-9434-45	RF COAXIAL RECEPTACLE(ROUND)	
C513			C52-0546-05	CHIP-TAN 88UF 6.3WV		J502			E09-9677-45	MODULAR JACK	
C514			CK73G81C104K	CHIP C 0.10UF K		W501,502			E37-1458-05	PROCESSED LEAD WIRE	K
C515			C52-0506-05	CHIP-TAN 4.7UF 10WV		F1			F53-0128-05	FUSE (0.5A 50V)	
C516			C52-0505-05	CHIP-ELE 100UF 16WV		F2,3			F53-0108-05	FUSE (1.8A 50V)	
C517			CK73G81H103K	CHIP C 0.01UF K		F4			F53-0114-05	FUSE (0.1A 50V)	
C518			CK73B81A105K	CHIP C 1.0UF K		F501			F53-0108-05	FUSE (1.8A 50V)	
C519			CK73B81H471K	CHIP C 470PF K		Q1			L78-1113-05	TUNING COIL(450KHZ)	
C521			CK73G81C104K	CHIP C 0.10UF K		Q1			L72-0901-05	CERAMIC FILTER	
C522,523			CK73G81H103K	CHIP C 0.010UF K		L1			L40-4771-36	SMALL FIXED INDUCTOR(47NH)	
C524,525			CK73B81C104K	CHIP C 0.10UF K		L2			L40-3671-36	SMALL FIXED INDUCTOR(36NH)	
C528			CK73GCH1H20J	CHIP C 22PF J		L3			L46-2281-37	SMALL FIXED INDUCTOR(220UH)	
C529			CK73G81H102K	CHIP C 1000PF K		L4			L40-2271-36	SMALL FIXED INDUCTOR(22NH)	
C531			CK73G81H103K	CHIP C 0.010UF K	K,M2,M4	L5			L40-1581-37	SMALL FIXED INDUCTOR(60,150UH)	
C532			CK73GCH1H101J	CHIP C 100PF J		L6			L46-2271-36	SMALL FIXED INDUCTOR(22NH)	
C534			CK73GCH1H630J	CHIP C 33PF J		L7			L46-2271-36	SMALL FIXED INDUCTOR(22NH)	
C535			CK73G81H102K	CHIP C 0.010UF K	K,M2,M4	L8			L40-1271-36	SMALL FIXED INDUCTOR(12NH)	
C536			CK73GCH1H100D	CHIP C 10PF D		L9			L40-3371-36	SMALL FIXED INDUCTOR(33NH)	
C537			C52-0006-05	CHIP-TAN 2.2UF 6.3WV		L10			L40-1571-36	SMALL FIXED INDUCTOR(15NH)	
C538			CK73G81E22K	CHIP C 0.022UF K		L11			L40-2271-36	SMALL FIXED INDUCTOR(22NH)	
C540			CK73G81H103K	CHIP C 1000PF K		L12			L40-6971-38	SMALL FIXED INDUCTOR(69NH)	
C541			CK73GCH1H100D	CHIP C 10PF D		L13,14			L34-1239-05	AIR-CORE COIL(10 ST)	
C542			CK73G81H103K	CHIP C 0.010UF K		L15			L34-4404-05	AIR-CORE COIL(3 ST)	
C543,544			C52-0004-05	CHIP-TAN 1.0UF 16WV		L16			L34-0742-05	AIR-CORE COIL(5T)	
C546			CK73B81C104K	CHIP C 0.10UF K		L17			L34-6695-05	AIR-CORE COIL(8T)	
C547			CK73B1C474K	CHIP C 0.47UF K		L18			L34-1185-05	AIR-CORE COIL(2 ST)	
C548			CK73G81H102K	CHIP C 1000PF K		L19			L34-0498-05	AIR-CORE COIL(4T)	
C550			CK73G81H103K	CHIP C 0.010UF K	E,E3	L20			L34-1239-05	AIR-CORE COIL(10 ST)	
C551,562			CK73G81C104K	CHIP C 0.10UF K		L21			L34-1185-05	AIR-CORE COIL(2 ST)	
C563			CK73G81H103K	CHIP C 0.010UF K		L22			L34-4489-05	AIR-CORE COIL(4T)	
C564			CK73G81H103K	CHIP C 0.010UF K		L23			L34-1058-05	AIR-CORE COIL(2 ST)	
C565			C52-0609-05	CHIP-TAN 4.7UF 10WV		L24			L34-1228-05	AIR-CORE COIL(1T)	
C565,566			CK73B81A105K	CHIP C 1.0UF K		L25			L34-1052-05	AIR-CORE COIL(1 ST)	
C567			CK73G81C104K	CHIP C 0.10UF K		L26			L34-0498-05	AIR-CORE COIL(4T)	
C567,568			CK73G81H471K	CHIP C 470PF K		L27			L34-4402-05	AIR-CORE COIL(2 ST)	
C569			CK73G81H272K	CHIP C 2700PF K		L28			L34-0498-05	AIR-CORE COIL(4T)	
C569,561			CK73GCH1H101J	CHIP C 100PF J		L29			L34-4402-05	AIR-CORE COIL(2 ST)	
C562			CK73G81H103K	CHIP C 0.010UF K		L30			L40-4771-36	SMALL FIXED INDUCTOR(47NH)	
C563			CK73GCH1H101J	CHIP C 100PF J		L31			L40-3675-54	SMALL FIXED INDUCTOR(36NH)	
C564			CK73G81H102K	CHIP C 1000PF K	K,M2,M4	L32			L46-1071-36	SMALL FIXED INDUCTOR(10NH)	
C564			CK73G81H103K	CHIP C 0.010UF K	E,E3	L33					
C565,566			CK73GCH1H101J	CHIP C 100PF J		L34			L40-4771-36	SMALL FIXED INDUCTOR(47NH)	
C567			CK73G81H102K	CHIP C 1000PF K		L35			L40-6681-36	SMALL FIXED INDUCTOR(66NH)	
C568-571			CK73B81A105K	CHIP C 1.0UF K		L36			L46-1271-36	SMALL FIXED INDUCTOR(12NH)	
C572-575			CK73GCH1H101J	CHIP C 100PF J		L37			L46-6681-36	SMALL FIXED INDUCTOR(66NH)	
C576,577			CK73G81H103K	CHIP C 0.010UF K		L41			L78-1432-05	FILTER (435MHZ)	E,E3
C578			CK73G81H103K	CHIP C 0.010UF K	K,M2,M4	L41			L78-1432-05	FILTER (435MHZ)	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 (H44MHZ)	K	R46,47			RK73GB1J472J	CH1PR 4.7K J 1/8W	
L42			L40-8881-38	SMALL FIXED INDUCTOR(8NH)		R48			RK73GB1J471J	CH1PR 47Ω J 1/8W	
L43			L34-4543-05	COIL (Z5T)		R49,50			RK73GB1J473J	CH1PR 47K J 1/8W	
L44			L40-1075-44	SMALL FIXED INDUCTOR(10.0NH)		R51			RK73GB1J102J	CH1PR 10K J 1/8W	
L45			L40-2771-36	SMALL FIXED INDUCTOR(27NH)		R52			RK73GB1J470J	CH1PR 47 J 1/8W	E.E3
L46			L40-2271-36	SMALL FIXED INDUCTOR(22NH)		R52			R92-1252-05	CH1PR 0 OHM	K,M2,M4
L48			L34-4542-05	COIL (ZT)		R53			RK73GB1J471J	CH1PR 47Ω J 1/8W	
L49			L40-4771-36	SMALL FIXED INDUCTOR(47NH)		R54			RK73GB1J222J	CH1PR 2.2K J 1/8W	
L51			L40-1091-37	SMALL FIXED INDUCTOR(10.000NH)		R55			RK73GB1J102J	CH1PR 1.0K J 1/8W	
L52			L34-4542-05	COIL (ZT)		R56			RK73GB1J470J	CH1PR 47 J 1/8W	E.E3
L53			L78-1525-05	FILTER MODULE(435MHz)	E.E3	R58			R92-1252-05	CH1PR 0 OHM	K,M2,M4
L53			L78-1525-05	FILTER MODULE(435MHz)	M2,M4	R57,58			RK73GB1J222J	CH1PR 2.2K J 1/8W	
L53			L78-1526-05	FILTER MODULE(444MHz)	K	R59			RK73GB1J100J	CH1PR 10 J 1/8W	
L54			L40-3971-36	SMALL FIXED INDUCTOR(39NH)		R60			RK73GB1J222J	CH1PR 2.2K J 1/8W	
L55			L40-1581-37	SMALL FIXED INDUCTOR(158NH)		R61			RK73GB1J122J	CH1PR 22K J 1/8W	
L57			L40-2271-36	SMALL FIXED INDUCTOR(22NH)		R62			RK73GB1J222J	CH1PR 2.2K J 1/8W	
L58			L40-1581-37	SMALL FIXED INDUCTOR(158NH)		R63			RK73GB1J222J	CH1PR 2.2K J 1/8W	
L59			L40-4771-36	SMALL FIXED INDUCTOR(47NH)		R64			RK73GB1J100J	CH1PR 10 J 1/8W	
L60			L40-5881-37	SMALL FIXED INDUCTOR(588NH)		R65			RK73GB1J101J	CH1PR 10Ω J 1/8W	
L61			L40-1281-37	SMALL FIXED INDUCTOR(128NH)		R66,67			RK73GB1J222J	CH1PR 2.2K J 1/8W	
L83			L40-6881-38	SMALL FIXED INDUCTOR(68NH)		R68			RK73GB1J820J	CH1PR 56 J 1/8W	
L509			L52-0131-05	FERRITE CHIP		R69			RK73GB1J471J	CH1PR 47Ω J 1/8W	
X1			L77-1373-05	CRYSTAL RESONATOR(12.8MHz)		R70			RK73GB1J222J	CH1PR 22Ω J 1/8W	
X501			L77-1476-05	CRYSTAL RESONATOR(19.443MHz)		R71			RK73GB1J473J	CH1PR 4.7 J 1/8W	
XF1			L71-0481-05	MCF (38SC2158)		R72			RK73GB1J470J	CH1PR 47 J 1/8W	
CP501			R90-0724-05	MULTI-COMP 1K X4		R73			RK73GB1J152J	CH1PR 1.5K J 1/8W	
CP502			R90-0714-05	MULTI-COMP 10K X4		R74			RK73GB1J100J	CH1PR 10 J 1/8W	
R1			R92-0885-05	CH1PR 22 J 1/2W		R75			RK73GB1J222J	CH1PR 2.2K J 1/8W	
R2			RK73GB1J102J	CH1PR 1.0K J 1/8W		R76			RK73GB1J06J	CH1PR 68Ω J 1/8W	
R3			RK73GB1J101J	CH1PR 100 J 1/8W		R77			RK73GB2A10J	CH1P 10 J 1/10W	
R4			RK73GB1J471J	CH1PR 47Ω J 1/8W		R78			RK73GB1J331J	CH1PR 33Ω J 1/8W	
R5			RK73GB1J473J	CH1PR 47K J 1/8W		R79			RK73GB1J152J	CH1PR 1.5K J 1/8W	
R7,8			RK73GB1J473J	CH1PR 47K J 1/8W		R80			R92-0885-05	CH1PR 22 J 1/2W	
R10,11			RK73GB1J331J	CH1PR 33Ω J 1/8W		R82			R92-0885-05	CH1PR 22 J 1/2W	
R12,13			RK73GB1J222J	CH1PR 2.2K J 1/8W		R85			RK73GB2A22J	CH1PR 22Ω J 1/10W	E.E3
R14,15			RK73GB1J472J	CH1PR 4.7K J 1/8W		R86			RK73GB2A56J	CH1PR 5.6 J 1/10W	
R16			RK73GB1J222J	CH1PR 2.2K J 1/8W		R87			R92-0870-05	CH1PR 0 OHM	
R17			RK73GB1J220J	CH1PR 22 J 1/8W		R88			R92-2581-05	RESISTOR 220 1W	
R18			RK73GB1J222J	CH1PR 2.2K J 1/8W		R89,90			R92-1213-05	CH1PR 100 J 1/2W	
R19,21			RK73GB1J102J	CH1PR 1.0K J 1/8W		R91,92			RK73GB1J103J	CH1PR 10K J 1/8W	
R22			RK73GB1J273J	CH1PR 27K J 1/8W		R93			R92-2581-05	RESISTOR 220 1W	
R23			RK73GB1J183J	CH1PR 18K J 1/8W		R94			RK73GB1J222J	CH1PR 2.2K J 1/8W	
R24			R92-1252-05	CH1PR 0 OHM		R95			RK73GB1J103J	CH1PR 10K J 1/8W	
R25			RK73GB1J333J	CH1PR 33K J 1/8W		R96			RK73GB1J153J	CH1PR 15K J 1/8W	
R26			RK73GB1J332J	CH1PR 3.3K J 1/8W		R97			RK73GB1J222J	CH1PR 2.2K J 1/8W	
R27			RK73GB1J103J	CH1PR 10K J 1/8W		R98			RK73GB1J883J	CH1PR 88K J 1/8W	
R30			RK73GB1J101J	CH1PR 100 J 1/8W		R99			RK73GB1J223J	CH1PR 22K J 1/8W	
R31			RK73GB1J473J	CH1PR 47K J 1/8W		R100			RK73GB1J272J	CH1PR 2.7K J 1/8W	
R32			RK73GB1J472J	CH1PR 4.7K J 1/8W		R101			RK73GB1J103J	CH1PR 10K J 1/8W	
R33			RK73GB1J122J	CH1PR 1.2K J 1/8W		R102			RK73GB1J223J	CH1PR 22K J 1/8W	
R34			RK73GB1J531J	CH1PR 3.3K J 1/8W		R103			RK73GB1J103J	CH1PR 10K J 1/8W	
R35			RK73GB1J122J	CH1PR 1.2K J 1/8W		R104			RK73GB1J820J	CH1PR 82K J 1/8W	
R36			RK73GB1J331J	CH1PR 33Ω J 1/8W		R105			RK73GB1J103J	CH1PR 10K J 1/8W	
R37			RK73GB1J182J	CH1PR 1.8K J 1/8W		R106			RK73GB1J222J	CH1PR 2.2K J 1/8W	
R38			RK73GB1J331J	CH1PR 33Ω J 1/8W		R107			RK73GB1J473J	CH1PR 47K J 1/8W	
R39			RK73GB1J471J	CH1PR 47Ω J 1/8W		R108			RK73GB1J223J	CH1PR 22K J 1/8W	
R40,41			RK73GB1J332J	CH1PR 3.3K J 1/8W		R109			RK73GB1J151J	CH1PR 15Ω J 1/8W	
R42			RK73GB1J473J	CH1PR 47K J 1/8W		R110			RK73GB1J103J	CH1PR 10K J 1/8W	
R43			RK73GB1J332J	CH1PR 3.3K J 1/8W		R111			R92-1252-05	CH1PR 0 OHM	
R44,45			RK73GB1J101J	CH1PR 100 J 1/8W		R112			RK73GB1J101J	CH1PR 10Ω J 1/8W	

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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	E.E3
R125			RC73GB1J184J	CHIP R 180K J 1/16W		R192			RC73GB1J104J	CHIP R 100K J 1/16W	M2,M4
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	E.E3
R128			RC73GB1J104J	CHIP R 100K J 1/16W		R194			RC73GB1J103J	CHIP R 10K J 1/16W	M2,M4
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	E.E3
R131			RC73GB1J221J	CHIP R 22Ω J 1/16W		R197			RC73GB1J487J	CHIP R 4.7 J 1/16W	M2,M4
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 4.7K 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 47 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	E.E3
R157			RC73GB1J220J	CHIP R 22 J 1/16W		R220			RS2-1252-05	CHIP R 0 OHM	M2,M4
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			RC73GB1J194J	CHIP R 190K J 1/16W	E.E3
R166			RC73GB1J472J	CHIP R 4.7K J 1/16W		R253			RC73GB1J194J	CHIP R 190K J 1/16W	M2,M4
R168			RC73GB1J471J	CHIP R 4.7K J 1/16W		R254,255			RC73F52A82J	CHIP R 82Ω J 1/16W	
R172			RC73GB1J102J	CHIP R 1.0K J 1/16W	K	R501			RC73GB1J472J	CHIP R 4.7K J 1/16W	
R172			RC73GB1J473J	CHIP R 4.7K J 1/16W	E.E3	R502			RS2-1252-05	CHIP R 0 OHM	
R172			RC73GB1J473J	CHIP R 4.7K J 1/16W	M2,M4	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			RC73GB1J223J	CHIP R 2.2K 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	E.E3	R517			RC73GB1J694J	CHIP R 690K J 1/16W	
R186			RC73GB1J124J	CHIP R 120K J 1/16W	M2,M4	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			RK73GB1J1603J	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 J 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	1W191	3A		R01-9019-85	VARIABLE RESISTOR(VOL/SQU) 50K	
R541			RK73GB1J594J	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,E.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			HVU131	DIODE	
R551			RS2-0670-05	CHIP R 0 OHM	K,E.E3	014-16			MA4PH833	DIODE	
R552			RK73GB1J234J	CHIP R 330K J 1/16W		017-18			MK609	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			HVU260	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			HVU350	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			DSM3MA11	DIODE	
R577			RS2-1252-05	CHIP R 0 OHM		D42,43			HVU131	DIODE	
R578			RK73GB1J102J	CHIP R 1.0K J 1/16W		0501			1SS385	DIODE	
R579,580			RK73GB1J103J	CHIP R 10K J 1/16W		0502			DTZ7.5(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	
R584			RK73GB1J103J	CHIP R 10K J 1/16W		0508,509			DA221	DIODE	
R585			RK73GB1J472J	CHIP R 4.7K J 1/16W		01			M91511PV-6(ND)	(CPLL FREQUENCY 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)	
R591			RK73GB1J383J	CHIP R 38K J 1/16W		06			TAT5581F	(IC)(P AMP)	
R592-594			RK73GB1J473J	CHIP R 47K J 1/16W		07			BU2690PS	(IC)SHIFT/STORE REGISTER	
R595			RK73GB1J102J	CHIP R 1.0K J 1/16W		08			TK10300V	IC	
R596			RK73GB1J353J	CHIP R 33 J 1/16W		09			TC44V5FU	(IC)2 INPUT NAND GATE	
R597,598			RK73GB1J102J	CHIP R 1.0K J 1/16W		10			TA78L05F	(IC)VOLTAGE REGULATOR(+5V)	
R599			RS2-1252-05	CHIP R 0 OHM		11			TA78L06F	(IC)VOLTAGE REGULATOR(+6V)	
R600			RK73GB1J1004J	CHIP R 10 J 1/16W		12			TAR105F	(IC)VOLTAGE REGULATOR(+5V)	
R601			RK73GB1J224J	CHIP R 220K J 1/16W		13			PS79130NF	(IC)SYSTEM RESET	
R602			RK73GB1J104J	CHIP R 100K J 1/16W		14			MC2841F	(IC)(D/A CONVERTER)	
R603			RK73GB1J102J	CHIP R 1.0K J 1/16W		15			LC73851M	(IC)T/MF DECODER	K,M2,M4

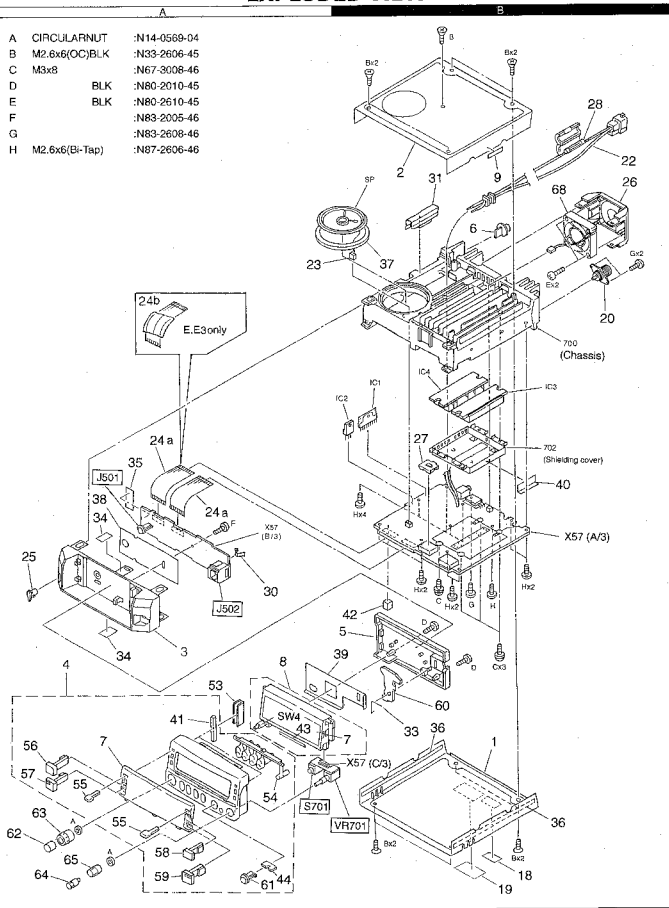
PARTS LIST

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

Ref. No.	Address	New parts	Parts No.	Description	Destination
IC506			AKC2943	10IC(TSS ENC/DEC/DECODER)	
IC507			8U4066BCF	10(A)ANALOG SWITCH (X4)	
IC508		*	780568C-A708BT	10(C)PU	K
IC509		*	780568C-A718BT	10(C)PU	E.E3
IC509		*	780568C-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(GR)	TRANSISTOR	
Q3,4			2SC4619P(D)	TRANSISTOR	
Q5			2SA1832(GR)	TRANSISTOR	
Q6			2SC4738(GR)	TRANSISTOR	
Q11			FM45	TRANSISTOR	
Q12			2SC4617(R)	TRANSISTOR	
Q13			2SC5108(Y)	TRANSISTOR	
Q14			2SC3068(D)	TRANSISTOR	
Q15			2SC4093	TRANSISTOR	
Q16			2SC498B	TRANSISTOR	
Q17			2SC3357	TRANSISTOR	
Q18,19			2SC2384	TRANSISTOR	
Q20			2SB1959(F)	TRANSISTOR	
Q21			2SC4617(R)	TRANSISTOR	
Q22			DTC144EU	DIGITAL TRANSISTOR	
Q23			2SC4513(R)	TRANSISTOR	
Q24			2SR1132(D,F)	TRANSISTOR	
Q25			DTC14EE	DIGITAL TRANSISTOR	
Q26			2SA1362(Y)	TRANSISTOR	
Q27,28			2SR1132(D,F)	TRANSISTOR	
Q29,30			2SA1362(Y)	TRANSISTOR	
Q31,32			FM45	TRANSISTOR	
Q33			3SK238A	FET	
Q34,35			2SC2968(D)	TRANSISTOR	
Q36			3SK238A	FET	
Q37			3SK241(R)	FET	
Q38			DTC14EE	DIGITAL TRANSISTOR	
Q39			2SC2068(D)	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(GR)	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(GR)	TRANSISTOR	
Q502			2SA1519	TRANSISTOR	
Q503			2SC4738(GR)	TRANSISTOR	
Q504			DTC14EE	DIGITAL TRANSISTOR	E.E3,M2,M4
Q505,506			2SC4738(GR)	TRANSISTOR	
TA9			157-152-65001	THERMISTOR(1SK)	

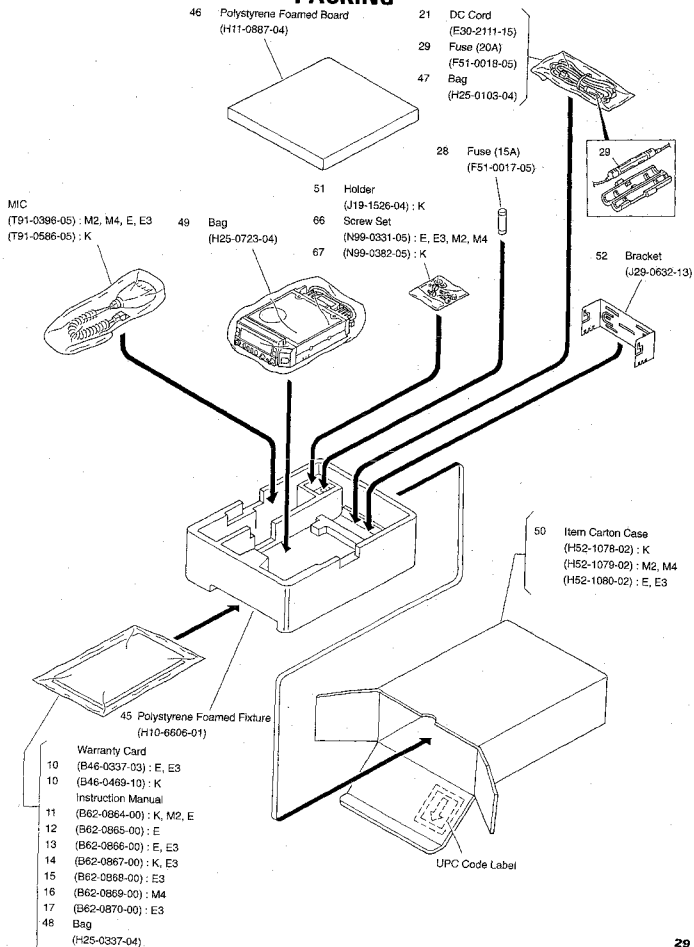
EXPLODED VIEW

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



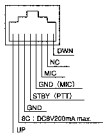
ADJUSTMENT

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

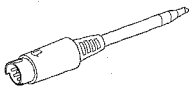


Microphone socket (as viewed from the front of the set)

- 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/8 Ω)
- 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.

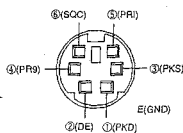
ADJUSTMENT

Adjustment Service Jig

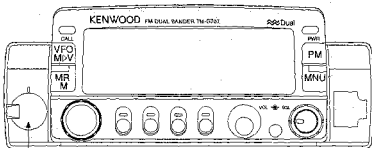


Data terminal short plug (W05-0611-00)

Service jigs usage



Pin assignment seen from direction B



B



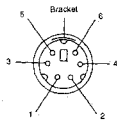
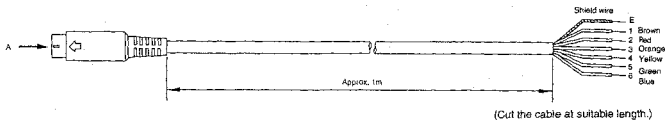
Short plug

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.

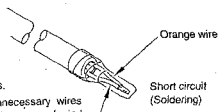


Pin assignment seen from direction A

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.

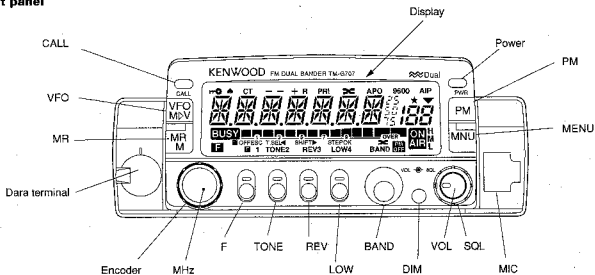


TM-G707A/E

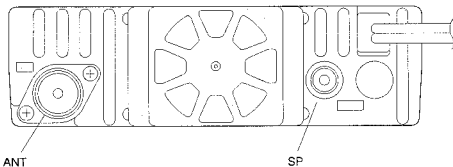
ADJUSTMENT

Parts layout

Front panel



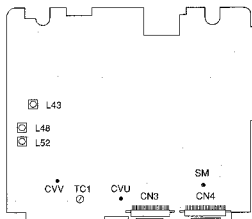
Rear panel



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)

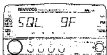
Adjustment mode startup method

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 **[MNU]** 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.)



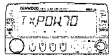
- ②. When you apply the prescribed SSG input from the ANT terminal and press the **[OK]** key, the adjustment value is set.
- C. S meter all light-up level (value set for each band)
- ①. When you display **[S.ALL.]** with the **[◀]** or **[▶]** key, the value currently input for the S meter is displayed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






- 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 sction

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 PM 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].</p> <p>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].</p> <p>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 with the front panel remove</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) WHF band FREQ.:145.980MHz:K,M FREQ.:144.980MHz:E transmission</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:— 122dBm: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:--83Bm							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.:365.975MHz:K FREQ.:370.100MHz:M,E SSG:--105dBm							S-meter one segment (S1) lights on.
	10) 800MHz band (S.ALL) SSG:--85Bm							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	1) 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.	Power meter Ammeter	Rear panel	ANT	Display	Encode [OK] key	UP/DOWN write	5.0W \pm 0.5W			
	1) POWER:LOW FREQ.:146.000MHz:K,M FREQ.:144.975MHz:E Transmission.							12W \pm 1.0W			
	2) POWER:MID Transmission.							48W or more			
	3) POWER:MAX Transmission.						Check			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	
	4) POWER:HI Transmission.						Display	Encode [OK] key	UP/DOWN write		K,E,M2:44 ~ 60W M4:20 ~ 25W
	5) FREQ.:144.000MHz FREQ.:147.975MHz:(K,M) FREQ.:145.975MHz:(E) POWER:HI Transmission.								Check		10 ~ 14W
	6) POWER:MID Transmission.										3 ~ 10W
7) POWER:LOW Transmission.											
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.	Power meter	Rear panel	ANT	Display	Encode [OK] key	UP/DOWN write	5.0W \pm 0.5W			
	1) POWER:LOW FREQ.:444.000MHz:K FREQ.:435.000MHz:M,E Transmission.							12.0W \pm 1.0W			
	2) POWER:MID FREQ.:438.000MHz:K FREQ.:430.000MHz:M,E Transmission.							33W or more			
	3) POWER:MAX FREQ.:449.975MHz:K FREQ.:439.975MHz:M,E Transmission.						Check			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	
	4) POWER:HI FREQ.:449.975MHz:K FREQ.:439.975MHz:M,E Transmission.						Display	Encode [OK] key	UP/DOWN write		K,E,M2:28 ~ 42W M4:20 ~ 25W
	5) FREQ.:438.000MHz:K FREQ.:430.000MHz:M,E FREQ.:449.975MHz:K FREQ.:439.975MHz:M,E POWER:HI Transmission.								Check		10 ~ 14W
	6) POWER:MID Transmission.										3 ~ 10W
7) POWER:LOW Transmission.											

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

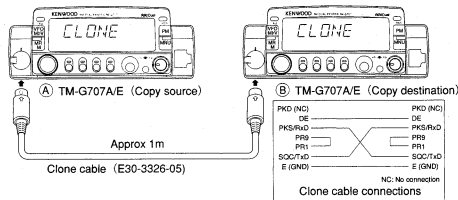
TM-G707A/E

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

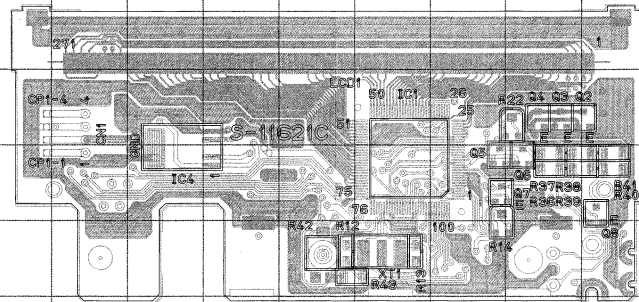
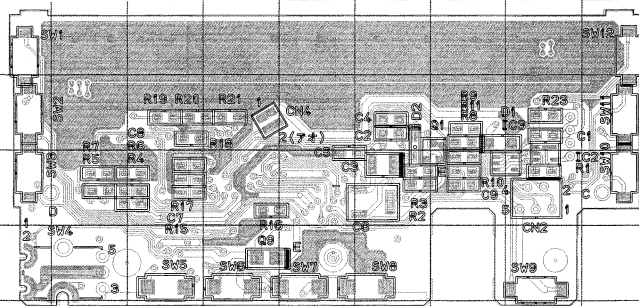
- ⑦. Switching the power OFF, then ON again returns the sets to normal operation.

Note:

- All the data in the copy destination set is overwritten.
- If clone operation is 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)

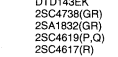
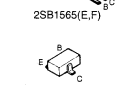
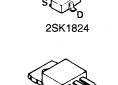
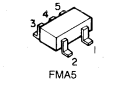
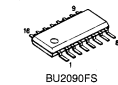
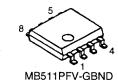
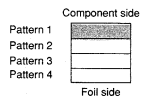
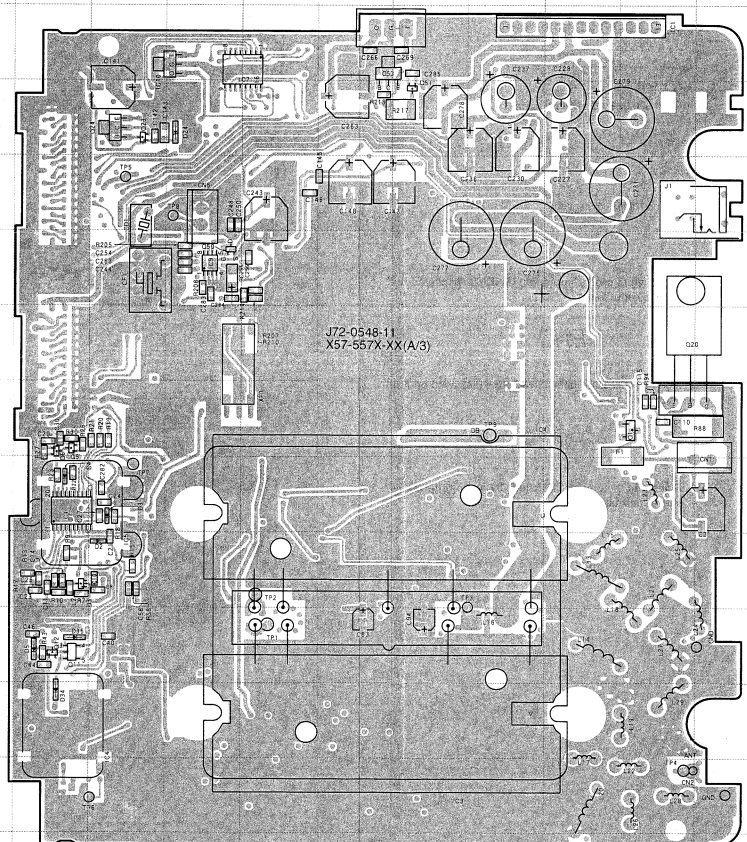


TM-G707A/E PC BOARD VIEW

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



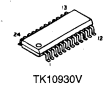
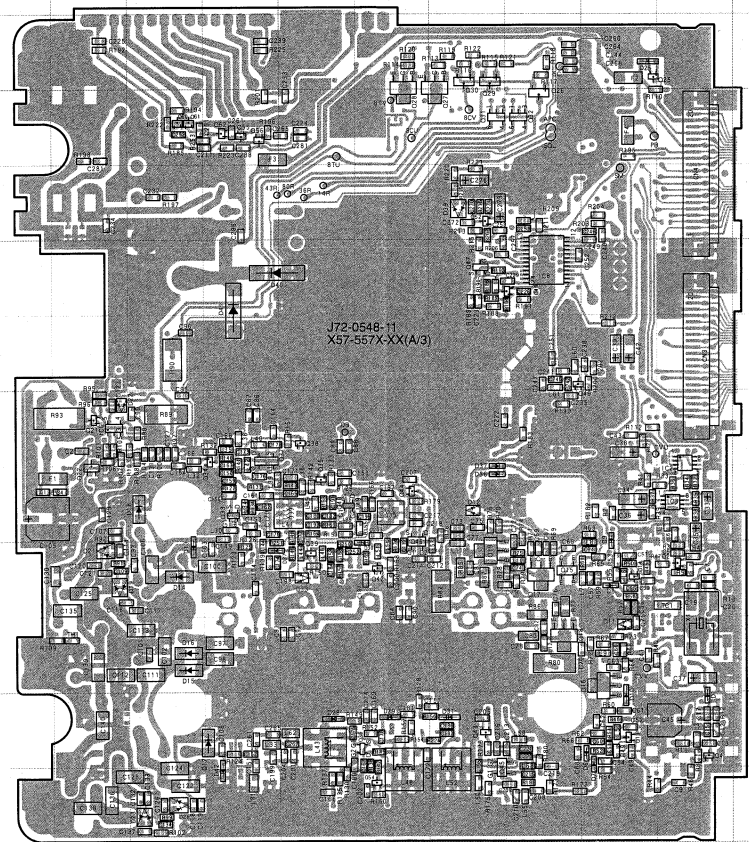
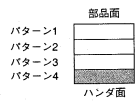
PC BOARD VIEW TM-G707A/E

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

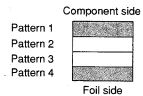
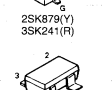
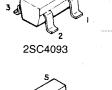
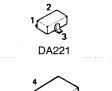
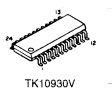
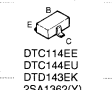
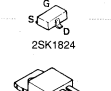
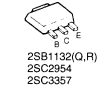
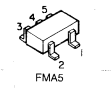
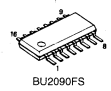
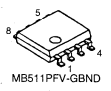
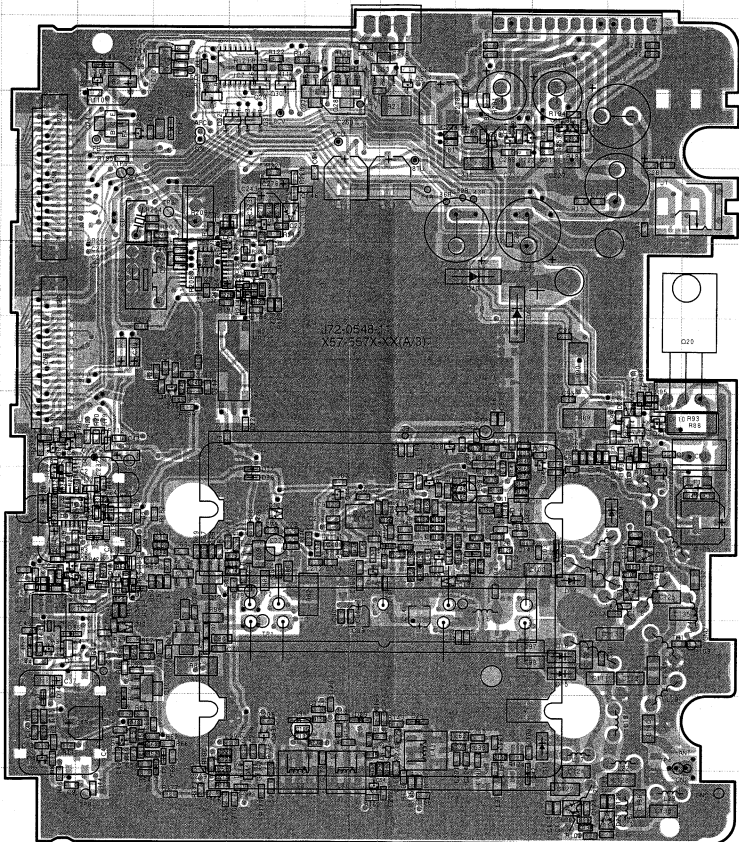


TM-G707A/E PC BOARD VIEW

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	Q48	8H
IC2	9G	Q50	6H
IC3	9G	Q51	3K
IC4	12F	Q52	5I
IC5	9G	Q53	3J
IC6	8N	Q54	13K
IC7	3I	Q55	4L
IC8	6H	Q56	4L
IC9	6H	Q60	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		



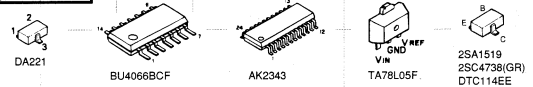
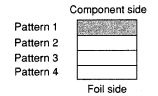
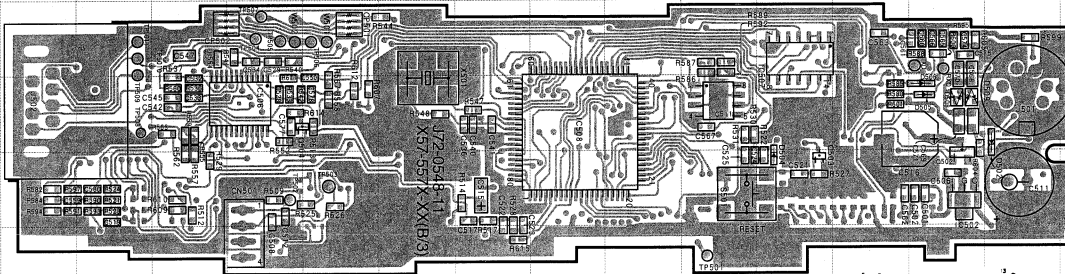
● Connect 1 and 4.

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)

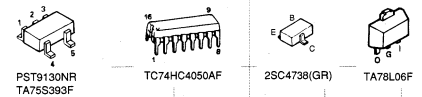
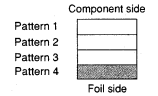
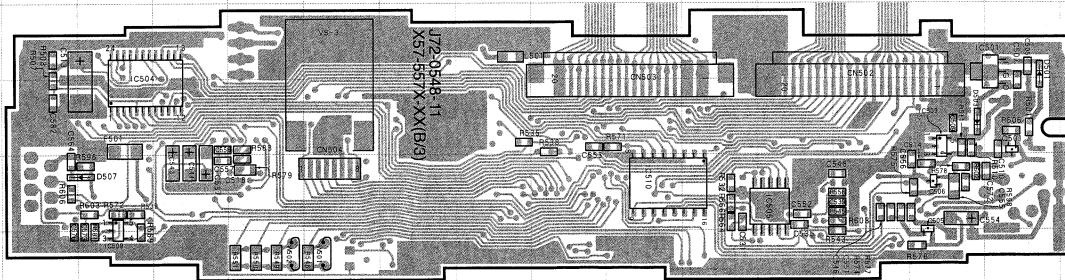
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IC506	4F
IC507	3M
IC508	4J
IC511	4L
Q502	50
Q503	5M
Q504	4F
D502	4P
D504	5M
D505	4O
D506	4O
D508	4O
D509	4O



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

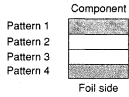
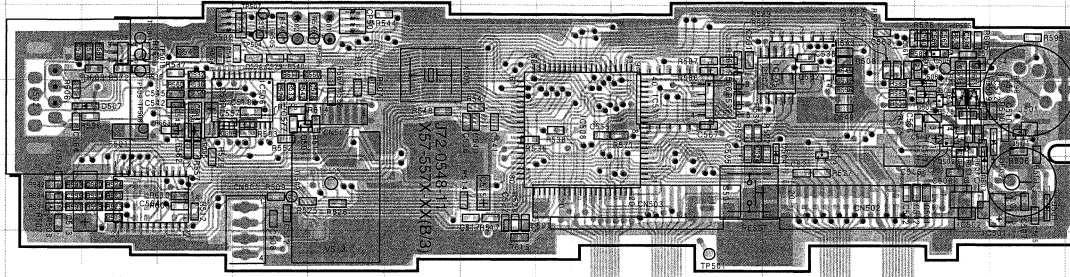
TX-RX UNIT (B/3)
(Foil side)

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

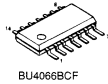


TM-G707A/E PC BOARD VIEW

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)



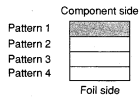
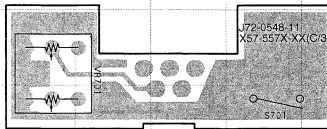
● Connect 1 and 4



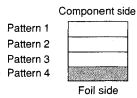
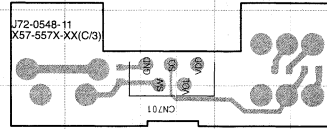
TX-RX UNIT (B/3)
(Component side) + (Foil side)

Ref. NO.	Address
IC501	5P
IC502	5O
IC503	4O
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	1O0
D501	5P
D502	4P
D503	5O
D504	5M
D505	4O
D506	4O
D507	4D
D508	4O
D509	4O

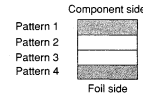
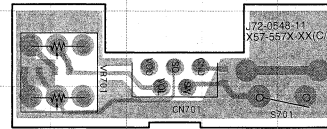
TX-RX UNIT (C/3) (Component side view)
(X57-557X-XX)0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3



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

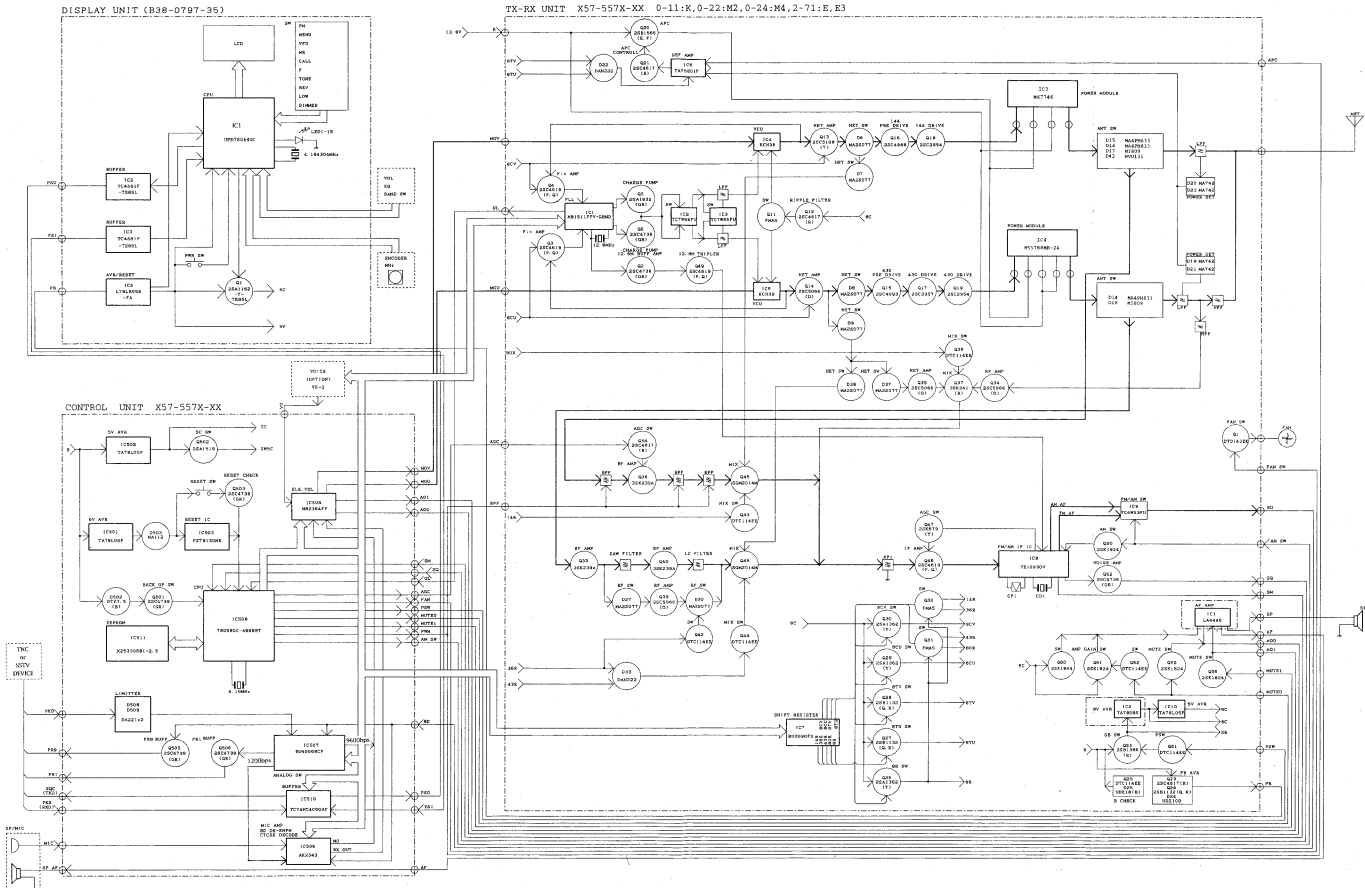


TX-RX UNIT (C/3) (Component side view) + (Foil side view)
(X57-557X-XX)0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3

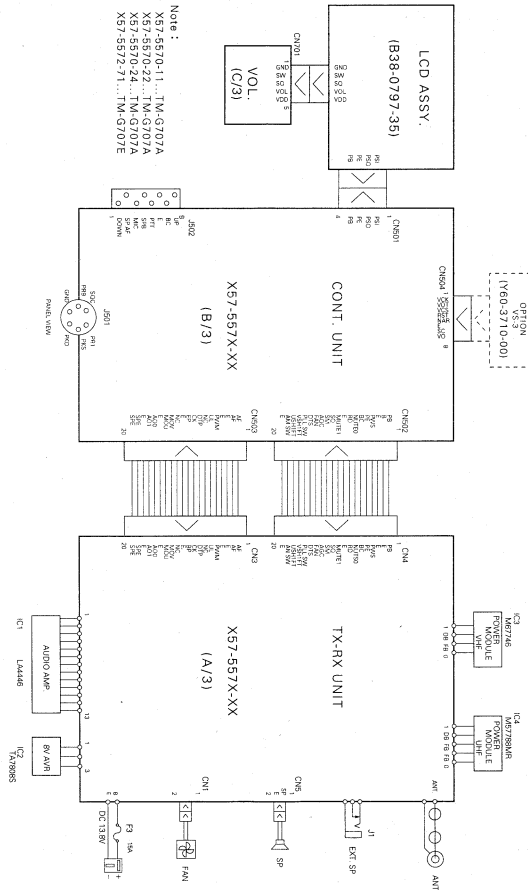


TM-G707A/E TM-G707A/E

BLOCK DIAGRAM

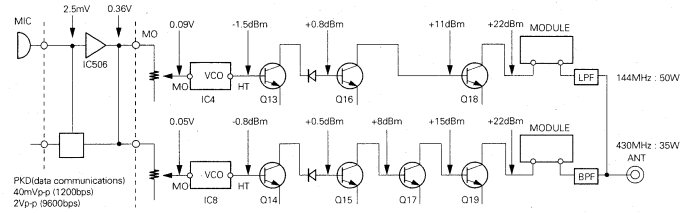


WIRING DIAGRAM

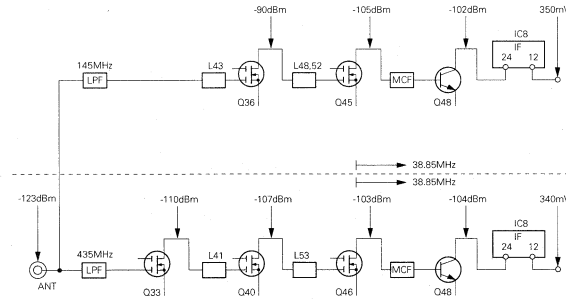


LEVEL DIAGRAM

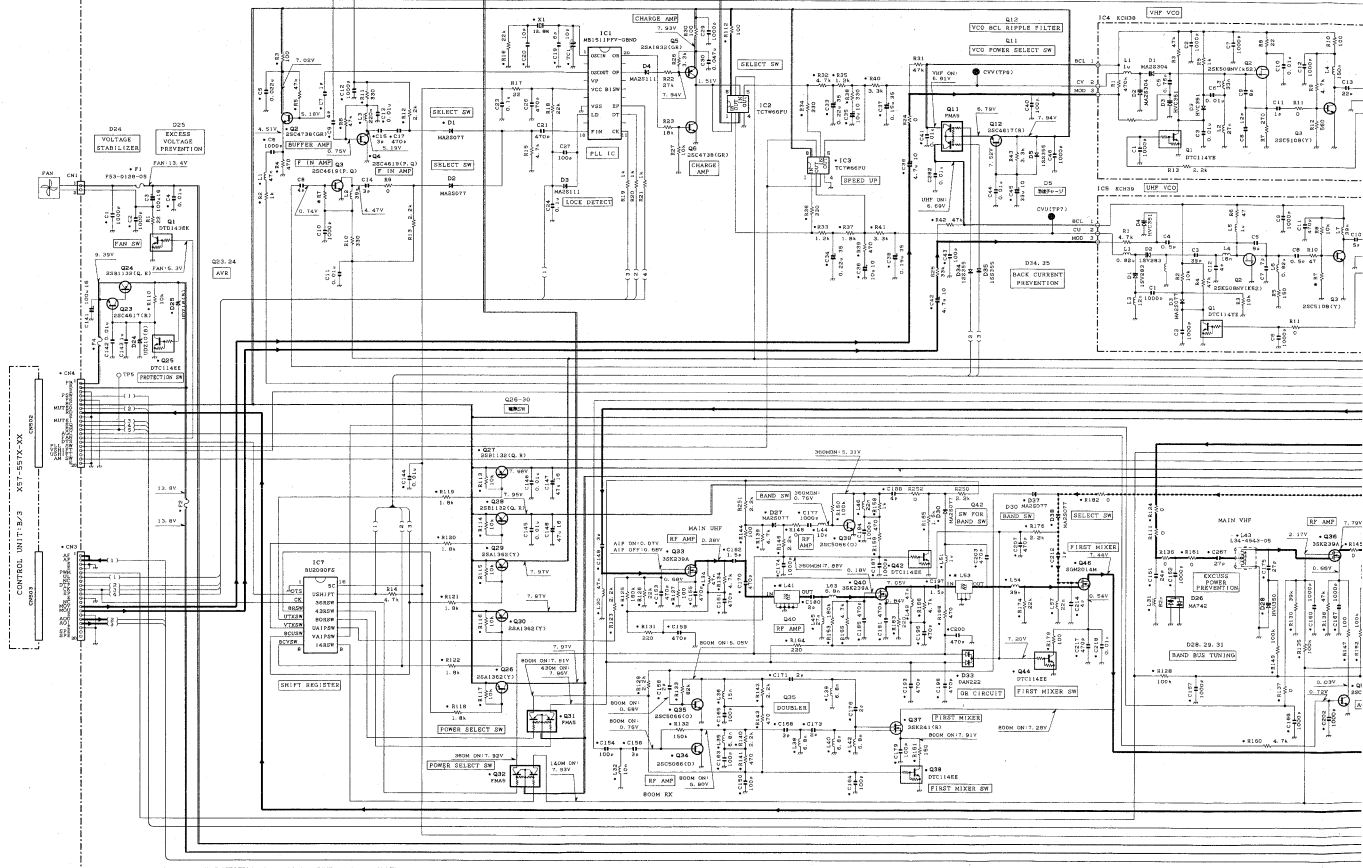
Transmitter Section



Receiver Section



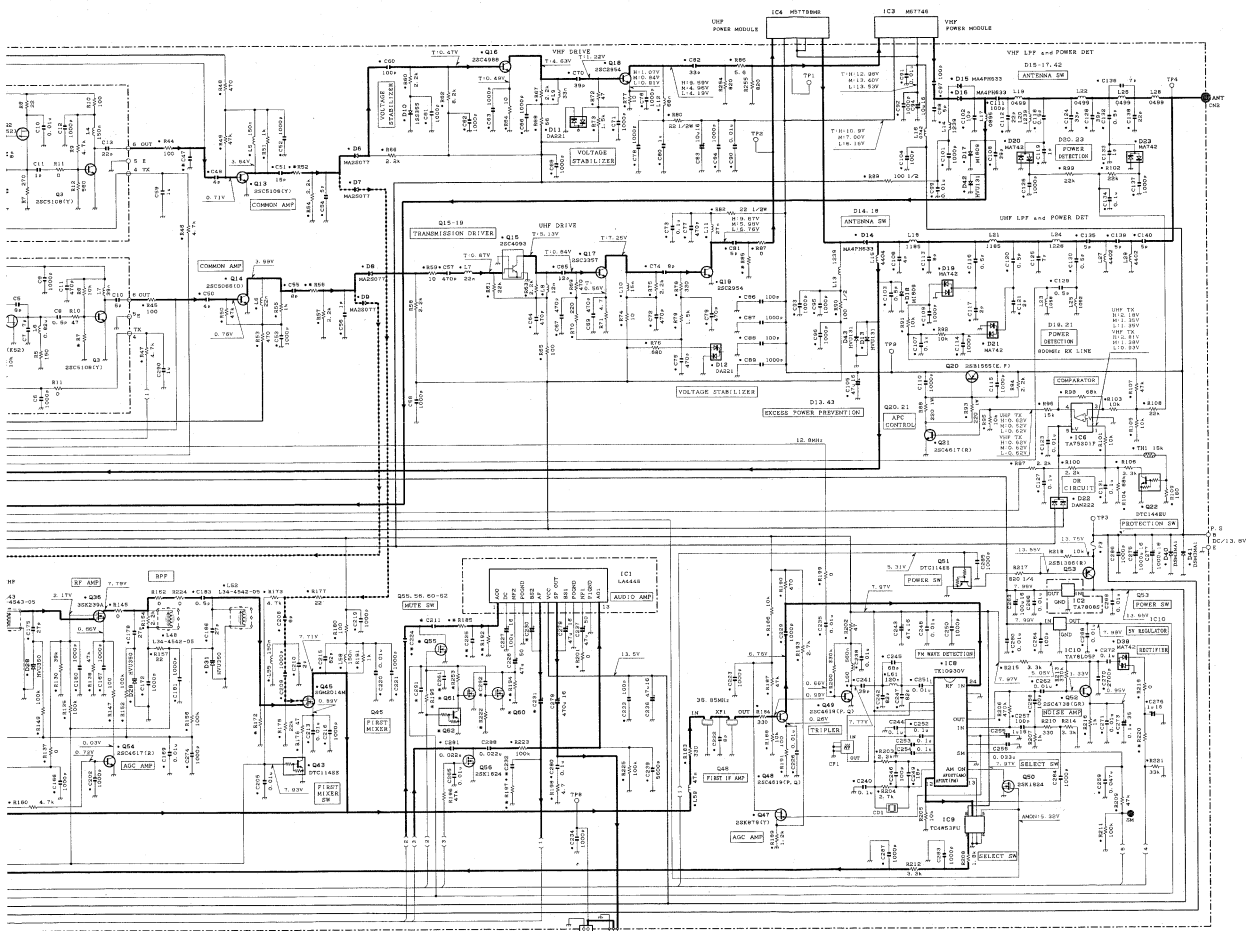
X57-557X-XX TX-RX UNIT A/3



QTY	REF	SYMBOL	DESCRIPTION	QTY	REF	SYMBOL	DESCRIPTION	QTY	REF	SYMBOL	DESCRIPTION	QTY	REF	SYMBOL	DESCRIPTION	QTY	REF	SYMBOL	DESCRIPTION		
1	IC1	7805	REGULATOR	1	IC2	7805	REGULATOR	1	IC3	PLL IC	PLL IC	1	IC4	OSCILLATOR	OSCILLATOR	1	IC5	MODULATOR	MODULATOR		
1	IC6	DEMODULATOR	DEMODULATOR	1	IC7	MICROPROCESSOR	MICROPROCESSOR	1	IC8	TIMER	TIMER	1	IC9	OVERCURRENT	OVERCURRENT	1	IC10	TEMPERATURE	TEMPERATURE	1	
1	Q1	2N2222	TRANSISTOR	1	Q2	2N3906	TRANSISTOR	1	Q3	2N4339	TRANSISTOR	TRANSISTOR	1	Q4	2N4339	TRANSISTOR	1	Q5	2N4339	TRANSISTOR	TRANSISTOR
1	Q6	2N4339	TRANSISTOR	1	Q7	2N4339	TRANSISTOR	TRANSISTOR	1	Q8	2N4339	TRANSISTOR	1	Q9	2N4339	TRANSISTOR	1	Q10	2N4339	TRANSISTOR	TRANSISTOR
1	Q11	2N4339	TRANSISTOR	1	Q12	2N4339	TRANSISTOR	TRANSISTOR	1	Q13	2N4339	TRANSISTOR	1	Q14	2N4339	TRANSISTOR	1	Q15	2N4339	TRANSISTOR	TRANSISTOR
1	Q16	2N4339	TRANSISTOR	1	Q17	2N4339	TRANSISTOR	TRANSISTOR	1	Q18	2N4339	TRANSISTOR	1	Q19	2N4339	TRANSISTOR	1	Q20	2N4339	TRANSISTOR	TRANSISTOR
1	Q21	2N4339	TRANSISTOR	1	Q22	2N4339	TRANSISTOR	TRANSISTOR	1	Q23	2N4339	TRANSISTOR	1	Q24	2N4339	TRANSISTOR	1	Q25	2N4339	TRANSISTOR	TRANSISTOR
1	Q26	2N4339	TRANSISTOR	1	Q27	2N4339	TRANSISTOR	TRANSISTOR	1	Q28	2N4339	TRANSISTOR	1	Q29	2N4339	TRANSISTOR	1	Q30	2N4339	TRANSISTOR	TRANSISTOR
1	Q31	2N4339	TRANSISTOR	1	Q32	2N4339	TRANSISTOR	TRANSISTOR	1	Q33	2N4339	TRANSISTOR	1	Q34	2N4339	TRANSISTOR	1	Q35	2N4339	TRANSISTOR	TRANSISTOR
1	Q36	2N4339	TRANSISTOR	1	Q37	2N4339	TRANSISTOR	TRANSISTOR	1	Q38	2N4339	TRANSISTOR	1	Q39	2N4339	TRANSISTOR	1	Q40	2N4339	TRANSISTOR	TRANSISTOR
1	Q41	2N4339	TRANSISTOR	1	Q42	2N4339	TRANSISTOR	TRANSISTOR	1	Q43	2N4339	TRANSISTOR	1	Q44	2N4339	TRANSISTOR	1	Q45	2N4339	TRANSISTOR	TRANSISTOR
1	Q46	2N4339	TRANSISTOR	1	Q47	2N4339	TRANSISTOR	TRANSISTOR	1	Q48	2N4339	TRANSISTOR	1	Q49	2N4339	TRANSISTOR	1	Q50	2N4339	TRANSISTOR	TRANSISTOR
1	Q51	2N4339	TRANSISTOR	1	Q52	2N4339	TRANSISTOR	TRANSISTOR	1	Q53	2N4339	TRANSISTOR	1	Q54	2N4339	TRANSISTOR	1	Q55	2N4339	TRANSISTOR	TRANSISTOR
1	Q56	2N4339	TRANSISTOR	1	Q57	2N4339	TRANSISTOR	TRANSISTOR	1	Q58	2N4339	TRANSISTOR	1	Q59	2N4339	TRANSISTOR	1	Q60	2N4339	TRANSISTOR	TRANSISTOR
1	Q61	2N4339	TRANSISTOR	1	Q62	2N4339	TRANSISTOR	TRANSISTOR	1	Q63	2N4339	TRANSISTOR	1	Q64	2N4339	TRANSISTOR	1	Q65	2N4339	TRANSISTOR	TRANSISTOR
1	Q66	2N4339	TRANSISTOR	1	Q67	2N4339	TRANSISTOR	TRANSISTOR	1	Q68	2N4339	TRANSISTOR	1	Q69	2N4339	TRANSISTOR	1	Q70	2N4339	TRANSISTOR	TRANSISTOR
1	Q71	2N4339	TRANSISTOR	1	Q72	2N4339	TRANSISTOR	TRANSISTOR	1	Q73	2N4339	TRANSISTOR	1	Q74	2N4339	TRANSISTOR	1	Q75	2N4339	TRANSISTOR	TRANSISTOR
1	Q76	2N4339	TRANSISTOR	1	Q77	2N4339	TRANSISTOR	TRANSISTOR	1	Q78	2N4339	TRANSISTOR	1	Q79	2N4339	TRANSISTOR	1	Q80	2N4339	TRANSISTOR	TRANSISTOR
1	Q81	2N4339	TRANSISTOR	1	Q82	2N4339	TRANSISTOR	TRANSISTOR	1	Q83	2N4339	TRANSISTOR	1	Q84	2N4339	TRANSISTOR	1	Q85	2N4339	TRANSISTOR	TRANSISTOR
1	Q86	2N4339	TRANSISTOR	1	Q87	2N4339	TRANSISTOR	TRANSISTOR	1	Q88	2N4339	TRANSISTOR	1	Q89	2N4339	TRANSISTOR	1	Q90	2N4339	TRANSISTOR	TRANSISTOR
1	Q91	2N4339	TRANSISTOR	1	Q92	2N4339	TRANSISTOR	TRANSISTOR	1	Q93	2N4339	TRANSISTOR	1	Q94	2N4339	TRANSISTOR	1	Q95	2N4339	TRANSISTOR	TRANSISTOR
1	Q96	2N4339	TRANSISTOR	1	Q97	2N4339	TRANSISTOR	TRANSISTOR	1	Q98	2N4339	TRANSISTOR	1	Q99	2N4339	TRANSISTOR	1	Q100	2N4339	TRANSISTOR	TRANSISTOR

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SCHEMATIC DIAGRAM

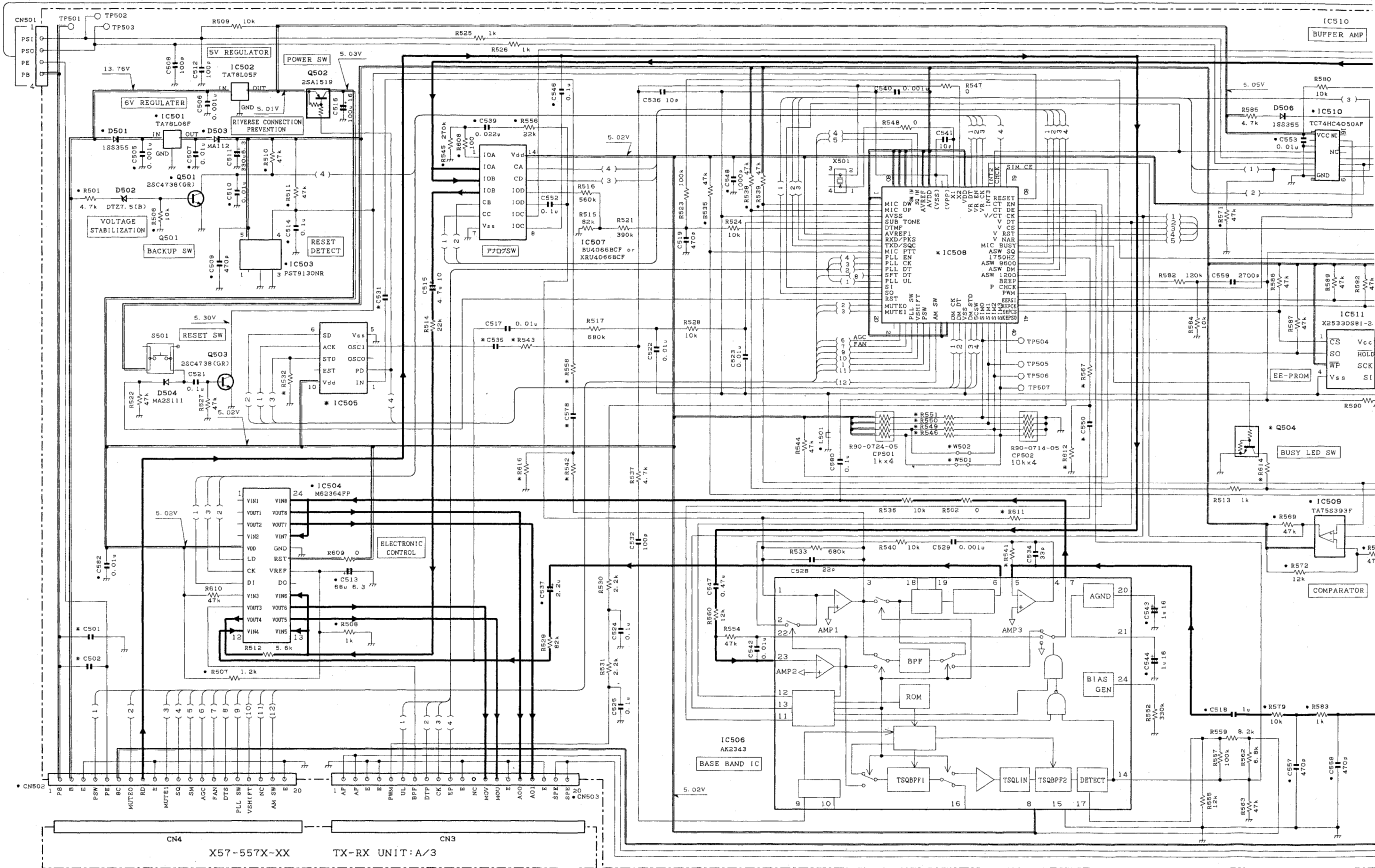


R1	Q17	28C3297	Q55	34.42-44.51-60	107C144E	Q47	28B9791Y	D1	2.6-4.9	37.30.37.28	HA25077	D17	19	MI509	D40.41	106KMA1
T1	Q18	28C3296	Q56	25.30	128A1902Y	Q48	28B1302Y	D2	4		18B395	D18-21	23.25.30	HA742	D38	
Q10	Q19	28B1555E(F)	Q57	36.40	128C329A	Q49	55.56.60.61	D3	10.34.35		18B391	D39	33	DA6030	D39	
Q20	Q20	107C144E7	Q58		128C411E3	Q50	28B1308(S)	D4	10		18V191	D40		106D181	D40	
Q24	27.28	25B1131G(B)	Q45.46		106G014H			D5	12.43		106D193	D41		106D181	D41	
								D14-16			16A447033	D38	28.31	106D190		

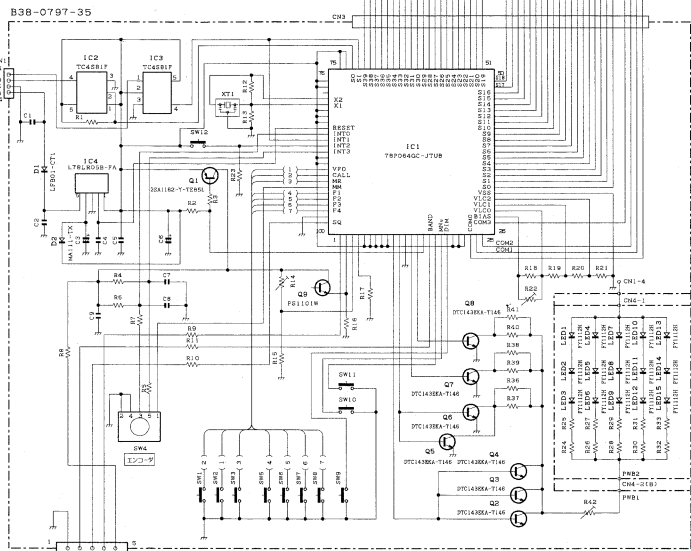
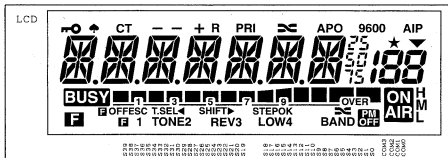
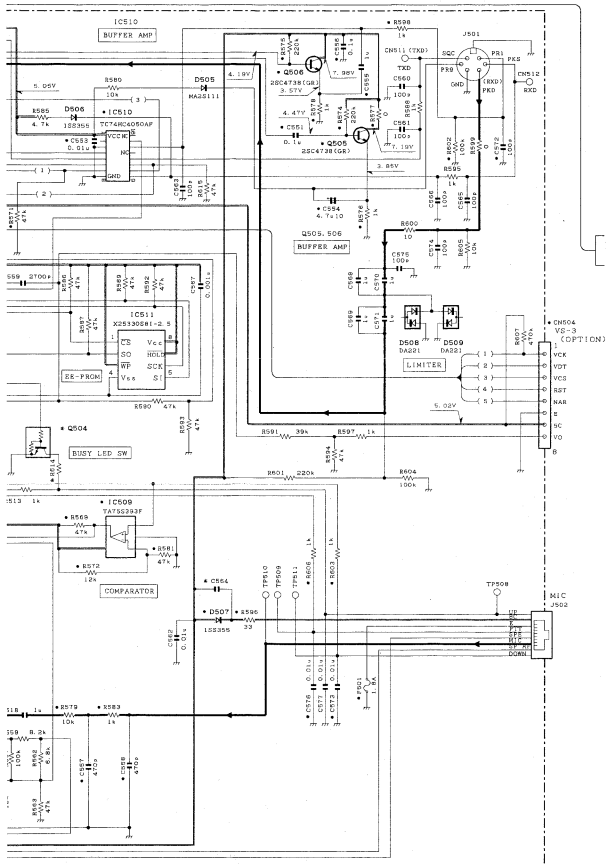
Note) • Ref. No. : Parts of pattern 1.

SCHEMATIC DIAGRAM

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



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



TEST POINTS

TEST POINT	D001	D002	D003	D004	D005	D006	D007	D008	D009	D010	D011	D012	D013	D014	D015	D016	D017	D018	D019	D020
Q-11	X	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Q-22	H2	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Q-24	H4	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Q-71	R	B3	B1	B2	B4	B5	B6	B7	B8	B9	B0	B1	B2	B3	B4	B5	B6	B7	B8	B9
D001	506.507	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513
D002	506.507	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513
D003	506.507	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513
D004	505	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513
D005	509	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513	10275.513

COMPONENTS

COMPONENT	VALUE	DESCRIPTION
D001	506.507	IC501: T7476100F
D002	10275.513	IC502: T74V140DF
D003	10275.513	IC503: T7476100F
D004	505	IC504: T74V140DF
D005	509	IC505: T7476100F

TEST POINTS

Q1: 5Y7-C/3

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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