VHF FM TRANSCEIVER

TK-260

SERVICE MANUAL

KENWOOD

B51-8314-00(B) 1241

CONTENTS

GENERAL

INTRODUCTION

SCOPE OF THIS MANUAL

This manual is intended for use by experienced technicians familiar with similar types of commercial grade communications equipment. It contains all required service information for the equipment and is current as of the publication data. Changes which may occur after publication are covered by either Service Bulletins or Manual Revisions. These are issued as required.

ORDERING REPLACEMENT PARTS

When ordering replacement parts or equipment information, the full part identification number should be included. This applies to all parts : components, kits, or chassis. If the part number is not known, include the chassis or kit number of which it is a part, and a sufficient description of the required component for proper identification.

PERSONNEL SAFETY

The following precautions are recommended for personnel safety :

- DO NOT transmit until all RF connectors are verified secure and any open connectors are properly terminated.
- SHUT OFF and DO NOT operate this equipment near electrical blasting caps or in an explosive atmosphere.
- This equipment should be serviced by a qualified technician only.

SERVICE

This radio is designed for easy servicing. Refer to the schematic diagrams, printed circuit board views, and alignment procedures contained within.

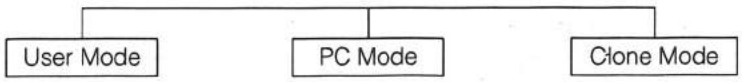
NOTE

WE CANNOT guarantee oscillator stability when using channel element manufactured by other than KENWOOD or its authorized agents.

Version	Frequency range	Remarks		QT/DQT	Battery	Charger
K	150~174MHz	IF1	45.05MHz	○	OP	OP
		LOC	44.595MHz			
K2	136~150MHz	IF1	45.05MHz	○	OP	OP
		LOC	44.595MHz			

REALIGNMENT

1 Modes

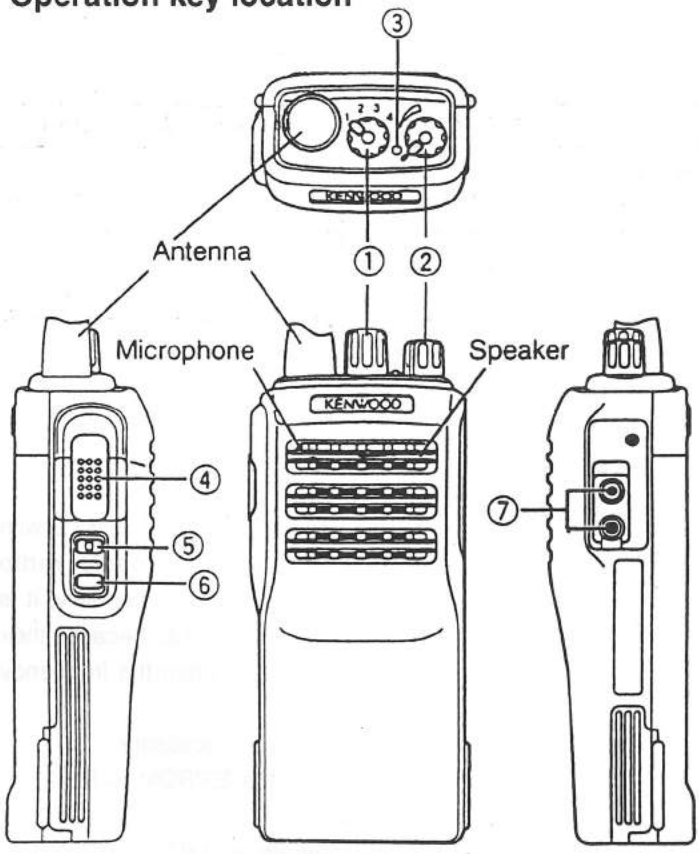


MODE	FUNCTION
User Mode	Use this mode for normal operation.
PC Mode	Use this mode, to make various settings by means of the FPU throughthe RS-232C port.
Clone Mode	Use this mode, to copy data settings from another transceiver by means of an interface cable.
Manufacture Mode	Use this mode, to realign the various settings through the RS-232C port during manufacture work.

2 How to enter each mode

MODE	PROCEDURE
User Mode	Power ON
PC Mode	Connect to the IBM PC compatible machine and controled by the FPU.
Clone Mode	Receive the clone data from the transceiver attached to the TK-270/278 with the interface cable.

Operation key location



The transceiver is shown with the optional KNB-14 battery pack installed.

① CHANNEL
② POWER/VOL
③ LED
④ PTT
⑤ Not used
⑥ MONI
⑦ SP/MIC JACK

Functions

KEY	FUNCTION
CH	Channel switching (4ch)
PTT	Transmit switch (push-to-talk)
MONI	Monitor or Squelch control ON/OFF
POWER/VOL	ON/OFF switch and volume control
LED	Lights red while transmitting. Flashes red while transmitting if the battery pack voltage is low. Recharge or replace the battery pack at this time. The LED lights green while receiving a station. The LED flashes orange if, while a channel programmed with 2-Tone signaling is selected, the same 2-Tone signaling is received as is programmed or you press and release the [**PTT**] switch. Press the [**MONI**] button to functions if your dealer activates the 2-Tone function on your transceiver.

REALIGNMENT

PC mode

Preface

The TK-260 transceiver is programmed by using a personal computer, programming interface (KPG-22) and programming software (KPG-27D).

The programming software can be used with an IBM PC or compatible. Figure 1 shows the setup of an IBM PC for programming.

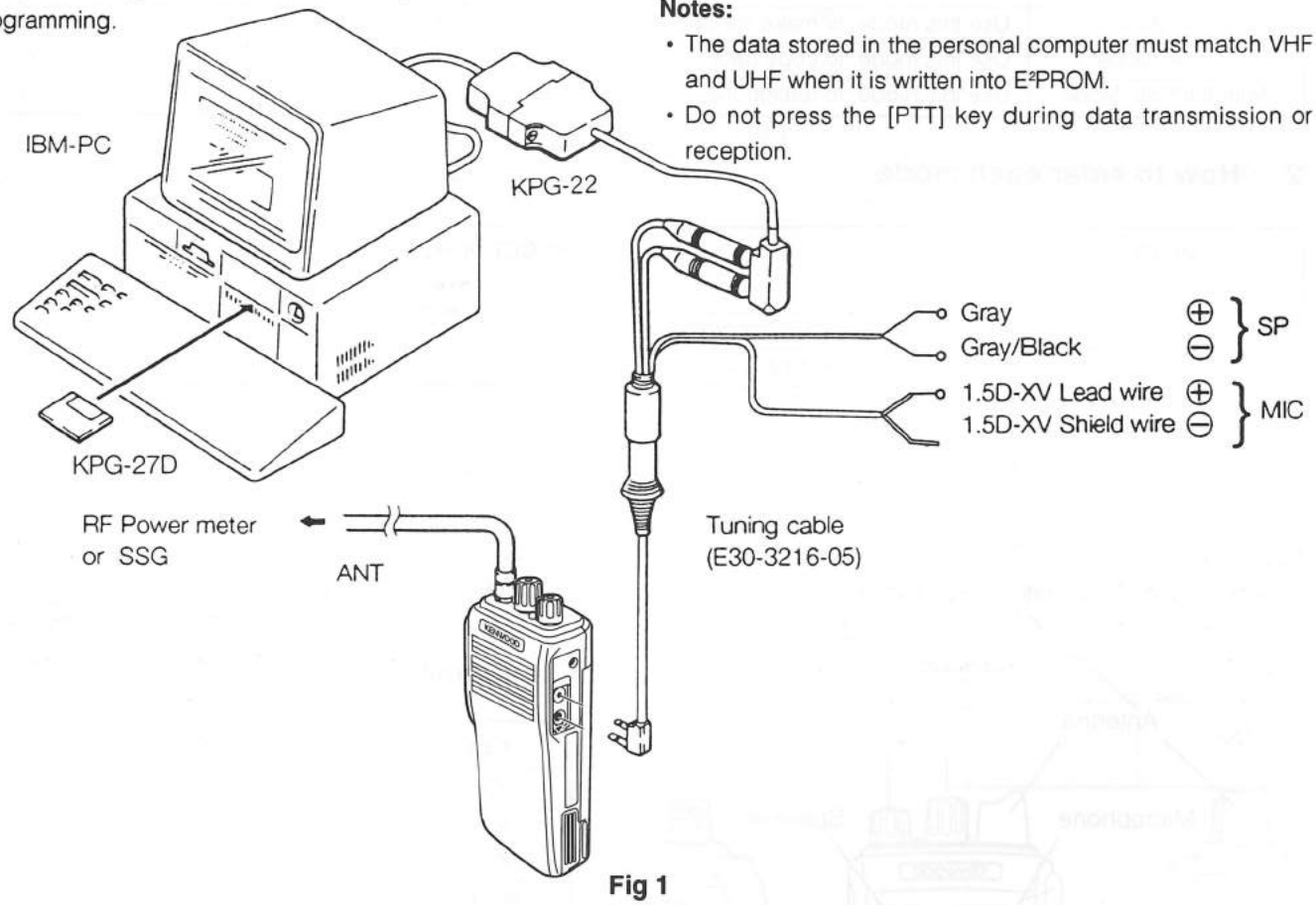


Fig 1

Connenction procedure

1. Connect the TK-360 to the personal computer with the interface cable.
2. When data transmitting from transceiver the red LED goes on.
   When data receiving to transceiver the green LED goes on.

Notes:

- The data stored in the personal computer must match VHF and UHF when it is written into E²PROM.
- Do not press the [PTT] key during data transmission or reception.

- **KPG-22 description**

(P.C programming interface cable: Option)

The KPG-22 is required to interface the TK-260 to the computer. It has a circuit in its D-subconnector (25-pin) case that converts the RS-232C logic level to the TTL level.

The KPG-22 connects the side panel jacks of the TK-260 to the computers RS-232C serial port.

- **Programming software description**

The KPG-27D Programming Disk is supplied in "5-1/4 and 3-1/2" disk format. The Software on this disk allows a user to program TK-260 radios via Programming interface cable (KPG-22).

- **Programming with IBM PC**

If data is transferred to the transceiver from an IBM PC with the KPG-27D, the destination data (basic radio information) for each set can be modified. Normally, it is not necessary to modify the destination data because their values are determined automatically when the frequency range (frequency type) is set.

The values should be modified only if necessary.

Data can be programmed into the E²PROM in RS-232C format via the SP MIC plug.

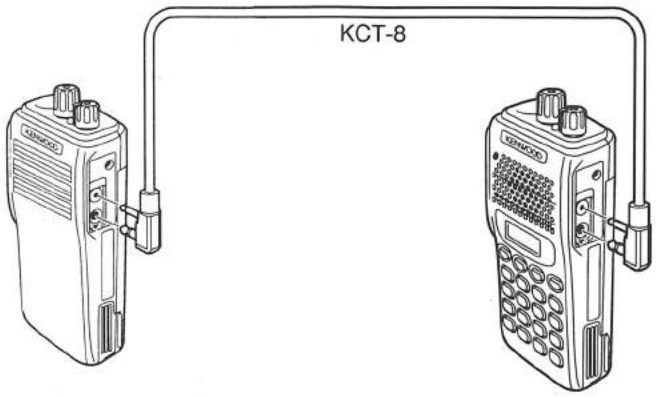
In this mode the PTT line operate as TXD and RXD data lines respectively.

(KPG-27D Instruction Manual
PartsNo: B62 0629-XX)

REALIGNMENT

Clone Mode

In the clone mode, two transceivers are connected together and the contents of the E²PROM of the other. The optional KCT-8 is used for cloning. For the connection method, see Figure.



Procedure

1. Connect the TK-260 transceiver and TK-270/278 in the clone mode with the KCT-8 interface cable.
2. Send clone data from the TK-270/278 to the TK-260. The TK-260 a green LED lights while receiving clone data.

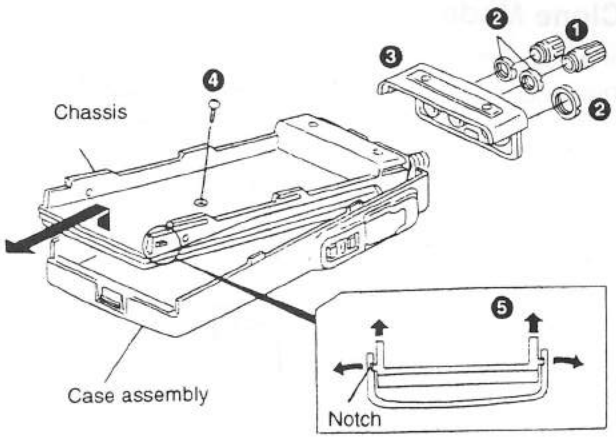
Notes:

- VHF and IF must match.
- Do not press the [PTT] key during data transmission.
- Refer to the TK-270/278 service manual for details on transferring TK-270/278 clone data.

DISASSEMBLY FOR REPAIR

Separating the case assembly from the chassis

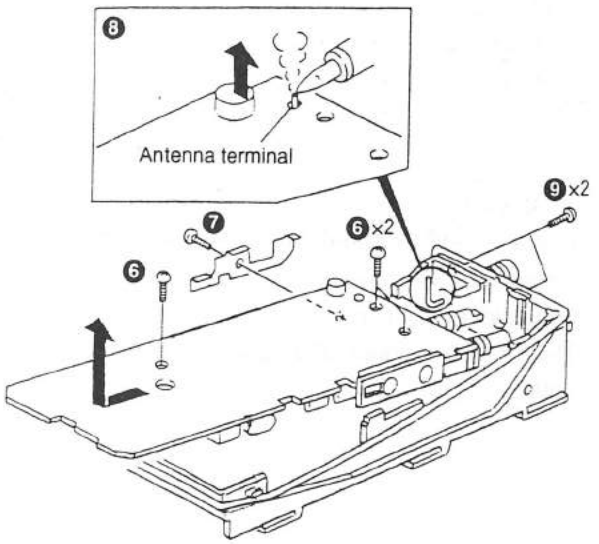
1. Remove the two knobs ❶ and three round nuts ❷, and remove the panel ❸.
2. Remove the one screw ❹.
3. Expand the right and left sides of the bottom of the case assembly, lift the chassis, and remove it from the case assembly ❺.



Separating the chassis from the unit

1. Remove the three screws ❻.
2. Remove the one screw ❼ and the fitting.
3. Remove the solder from the antenna terminal using a soldering iron and lift the unit off ❽.
4. Remove the two screws ❾ and remove the antenna connector.

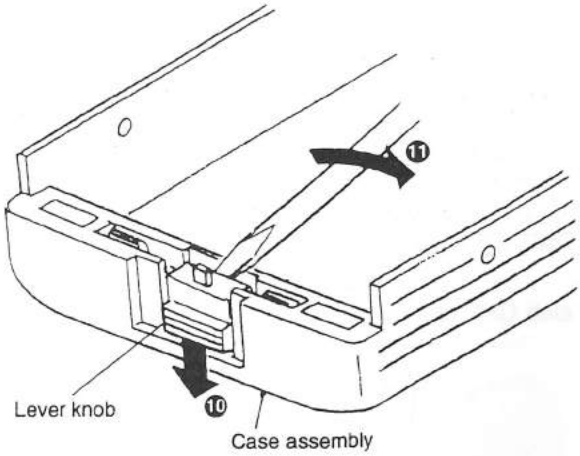
Note :When reassembling the unit in the chassis, be sure to solder the antenna terminal.



Removing the lever

1. Raise the lever on the lower case ❿, insert a small normal screwdriver into the clearance between the case and lever, open the case carefully ⓫, and lift the lever off.

Note :Do not force to separate the case from the lever.

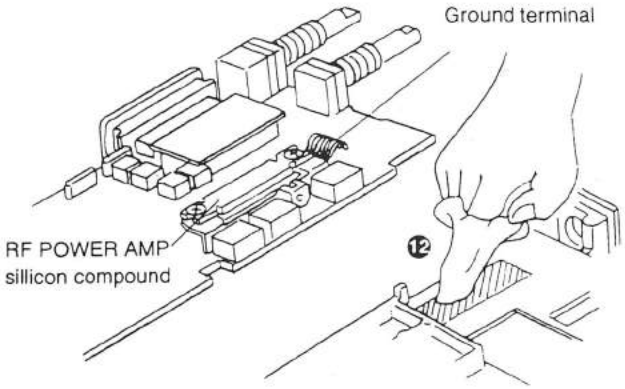


DISASSEMBLY FOR REPAIR

Protecting the ground terminal of the RF power amplifier

1. Take special care to prevent damage to the ground terminal of the RF power amplifier. Do not attach the silicon compound coated on the RF power amplifier to the ground terminal.

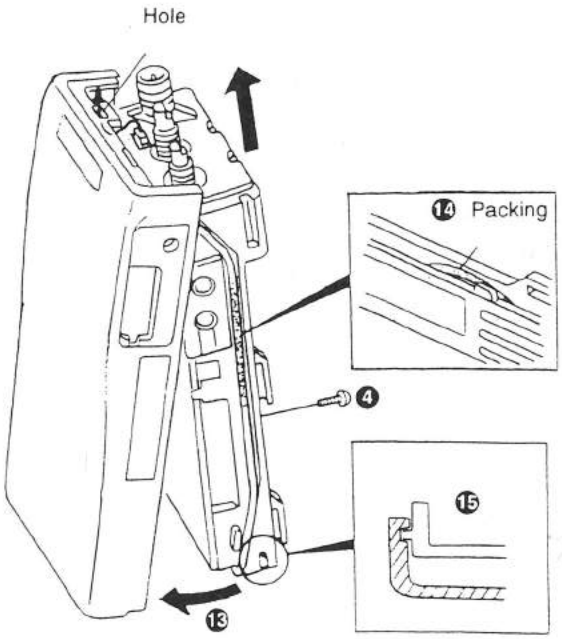
Note : If the silicon compound on the RF power amplifier attaches to other parts, wipe it off completely ⑫.



Assembling the case assembly and chassis

1. When assembling the chassis into the case assembly, insert the chassis claw into the hole in the case, and push in the chassis slowly ⑬.
2. Tighten the one screw ④.

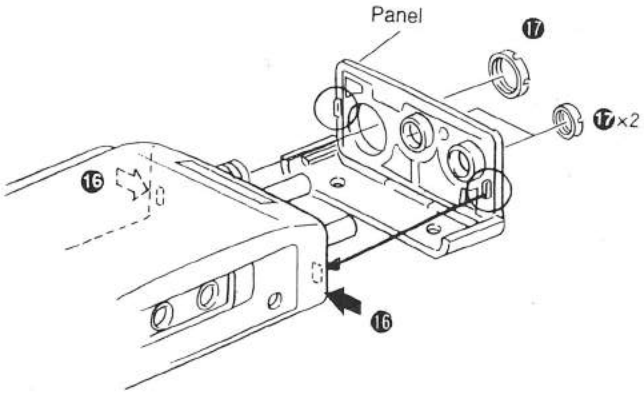
Note : After assembling the chassis, check whether the claw shown in Fig. ⑮ fits into the notch in the case assembly. After installing the chassis, verify that the packing does not protrude to the outside ⑭.



Assembling the panel

1. When assembling the panel, push in the both sides of the case assembly with fingers ⑯, fit the claw on the panel into the notch in the case assembly, and tighten the round nut ⑰.

Note : If the claw does not fit into the notch in the case assembly, there will be a gap.



CIRCUIT DESCRIPTION

1. Frequency configuration

The receiver utilizes double conversion. The first IF is 45.05 MHz and the second IF is 455 KHz. The first local oscillator signal is supplied from the PLL circuit.

The PLL circuit in the transmitter generates the necessary frequencies. Fig. 1 shows the frequencies.

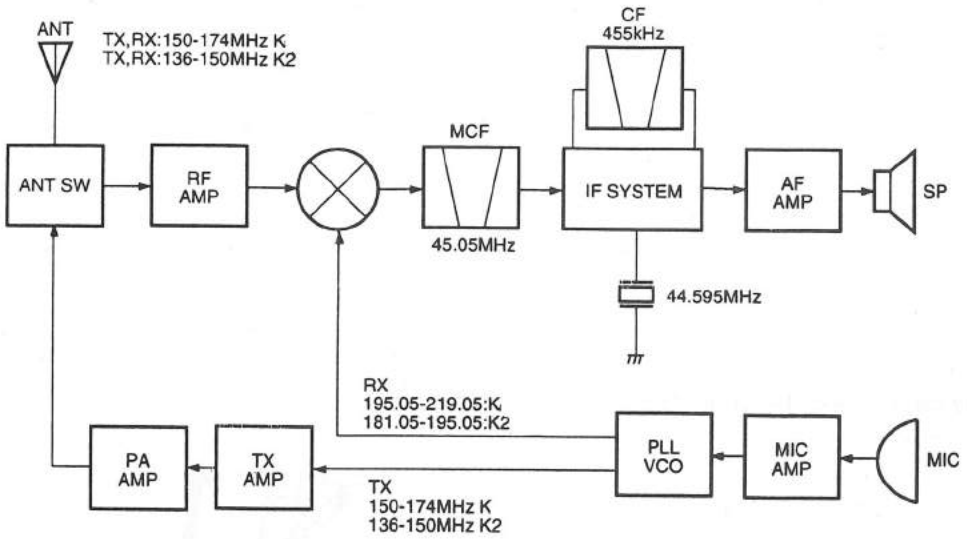


Fig 1 Frequency configuration

2. Receiver

The frequency configuration of the receiver is shown in Fig. 2.

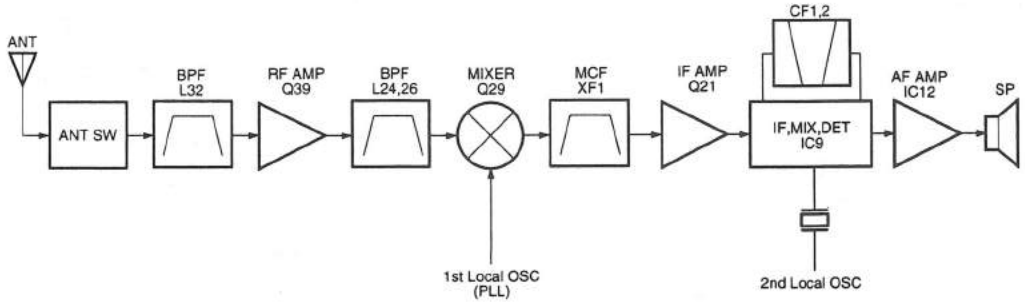


Fig 2 Receiver section cofiguration

1) Front end (RF AMP)

The signal coming from the antenna passes through the transmit/receive switching diode circuit, passes through a BPF (L33 and L32), is amplified by the RF amplifier (Q39). The resulting signal passes through a BPF (L26 and L24) and goes to the mixer.

2) First mixer

The signal from the front end is mixed with the first local oscillator signal generated in the PLL circuit by Q29 to produce a first IF frequency of 45.05 MHz.

The resulting signal passes through the XF1 MCF to cut the adjacent spurious and provide the optimum characteristics, such as adjacent frequency selectivity.

3) IF amplifier

The signal then passes through the first IF (Q21), and is amplified and goes to the IF IC (IC9). IC9 has the functions of the second OSC, second mixer, second IF amplifier, detector, noise amplifier, and noise detector.

The signal input to the IC is mixed with the RF signal of the second OSC to produce a 455kHz second IF signal. The signal is amplified by the IF amplifier. The signal passes through the ceramic filters (CF1 and CF2) to provide the necessary selectivity.

The signal is detected by the IC and output as an AF signal.

CIRCUIT DESCRIPTION

4) AF Amplifier

The AF signal from the IF IC is amplified by IC8 (1/2) and passes through the high-pass filter (Q25 and Q28) to remove 300 Hz and lower frequencies to suppress the sub-audio signal.

The signal then passes through the de-emphasis circuit to restore the audio frequency characteristics. The signal passes through AF VOL and enters the IC12 audio power amplifier to drive the speaker. (See Fig. 3.)

5) Squelch

Part of the AF signal from the IC enters the FM IC again, and the noise component is amplified and rectified by a filter and an amplifier to produce a DC voltage corresponding to the noise level.

The DC signal from the FM IC goes to the analog port of the microprocessor (IC1). IC1 determines whether to output sounds from the speaker by checking whether the input voltage is higher or lower than the preset value.

To output sounds from the speaker, IC1 sends a high signal to the MUTE and AFCO lines and turns IC12 on through Q30, Q35, Q34, Q36, and Q40. (See Fig. 3.)

6) Receive signaling

(1) QT/DQT

300 Hz and higher audio frequencies of the output signal from IF IC are cut by a low-pass filter (IC14). The resulting signal enters the microprocessor (IC1). IC1 determines whether the QT or DQT matches the preset value, and controls the MUTE and AFCO and the speaker output sounds according to the squelch results.

(2) 2-TONE

Part of the receive AF signal output from the AF amplifier (IC8 1/2) goes to the other IC8 (1/2), is compared, and goes to IC1. IC1 checks whether 2-TONE data is necessary. If it matches, IC1 carries out a specified operation, such as turning the speaker on. (See Fig. 3.)

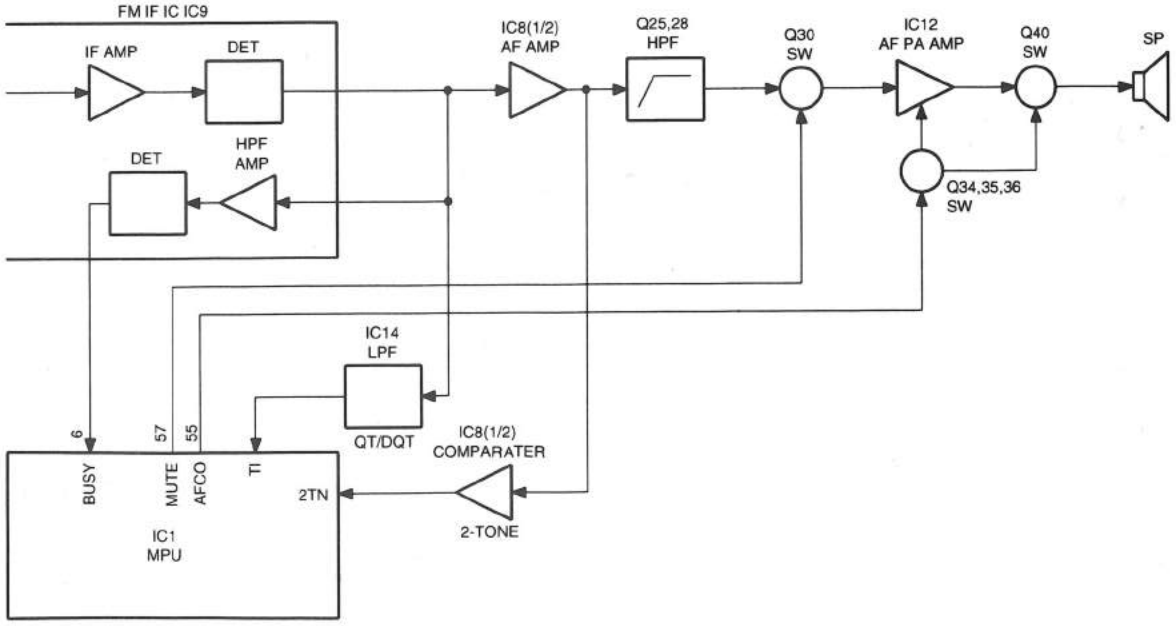


Fig 3 AF Amplifier and Squelch

CIRCUIT DESCRIPTION

3. PLL

The PLL circuit generates the first local oscillator signal for reception and the RF signal for transmission.

1) PLL

The receiver has a VCO (Q16), and the transmitter has another VCO (Q18). Figure 1 shows the VCO frequencies. The generated signal passes through the Q20 buffer and Q14 amplifier and enters the IC6 PLL IC. IC6 has the reference oscillation divider and phase comparator functions.

The input signal is divided into a 5 or 6.25 KHz signal according to the divide ratio data from the microcomputer (IC1). This signal and the 5 or 6.25 KHz signal divided from the reference signal enter the phase comparator to produce a differential signal. The frequency control signal is output from the charge pump.
This signal passes through the passive LPF and goes to the varicap to control the VCO frequency. (See Fig. 4.)

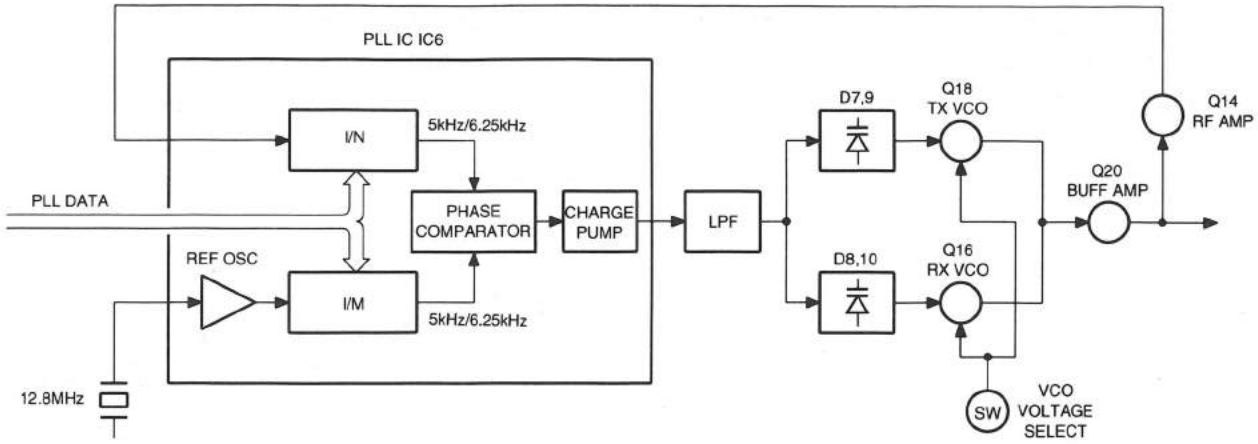


Fig 4 PLL circuit

CIRCUIT DESCRIPTION

2) Reference oscillator circuit

The reference oscillator circuit in the PLL IC produces the 12.8 MHz PLL reference frequency. To stabilize the frequency, the characteristics of the 12.8 MHz crystal oscillator are controlled and the frequency is temperature-compensated.

It is compensated by changing the DC voltage applied to D4. Changes in the ambient temperature are input to the analog port of IC1 using the TH3 thermistor. IC1 judges the temperature and outputs a voltage to the TC1, TC2, or TC3 port.

The temperature compensation value is corrected according to the differences in the characteristics of the thermistors in the TC1, TC2, and TC3 circuits. The temperature compensation is carried out when the temperature is -10°C or less. (See Fig. 5)

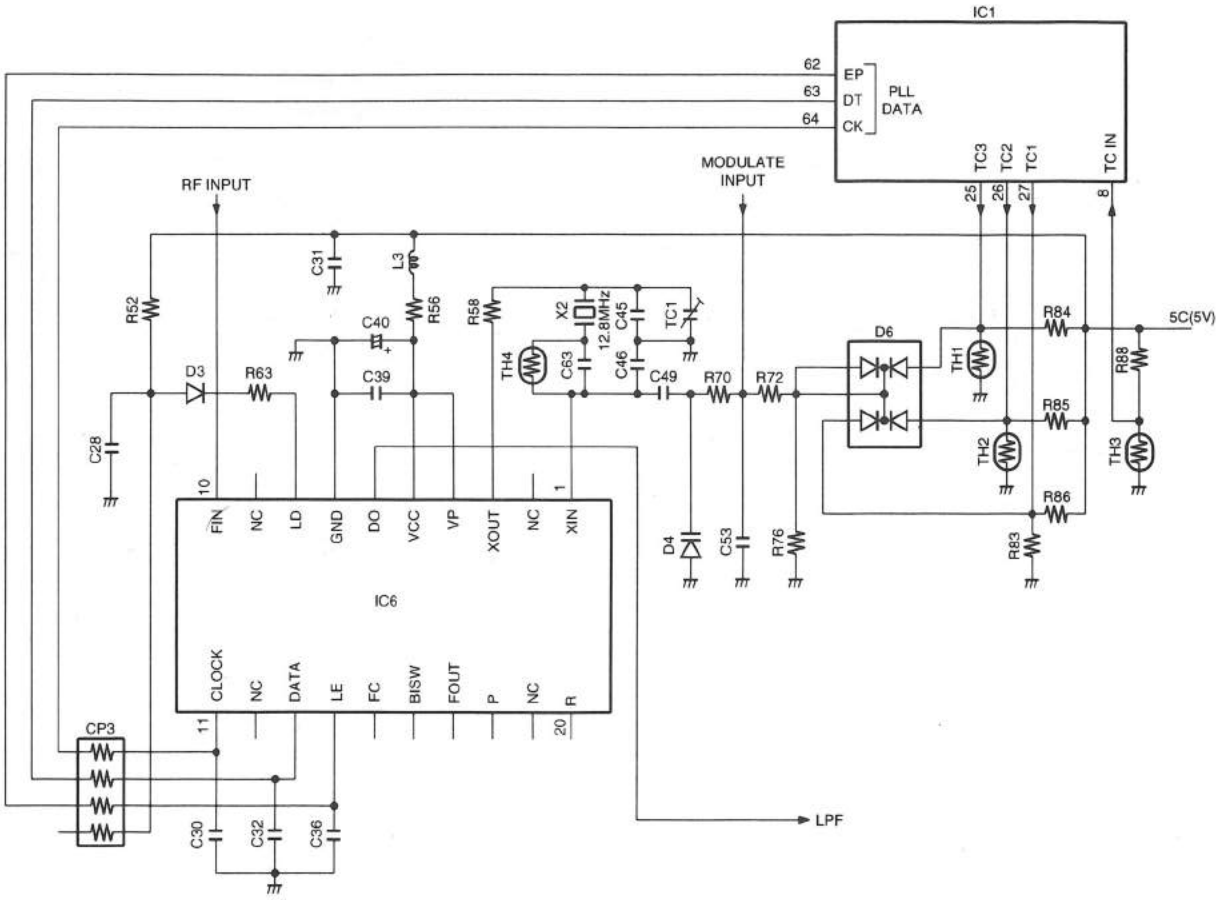


Fig 5 Reference Oscillator circuit

CIRCUIT DESCRIPTION

4. Transmitter

1) Transmit audio

The modulation signal from the microphone is amplified by IC10 (1/2), passes through a preemphasis circuit, and amplified by the other IC10 (1/2) to perform IDC operation. The signal then passes through a low-pass filter (splatter filter) (Q22 and Q17) and cuts 3 KHz and higher frequencies. The resulting signal goes to the VCO through the VCO modulation terminal for direct FM modulation. (See Fig. 6)

2) QT/DQT encoder

A necessary signal for QT/DQT encoding is generated by IC1 and FM-modulated to the PLL reference signal. Since the reference OSC does not modulate the loop characteristic frequency or higher, modulation is performed at the VCO side by adjusting the balance. (See Fig. 6)

3) VCO and RF amplifier

The modulation signal is modulated to VCO by D11. The RF signal from the PLL is amplified by Q26 and Q31 to the sufficient level to drive the power module.

4) Final module

The CMOS type power module (IC11) is used to amplify the transmission power.

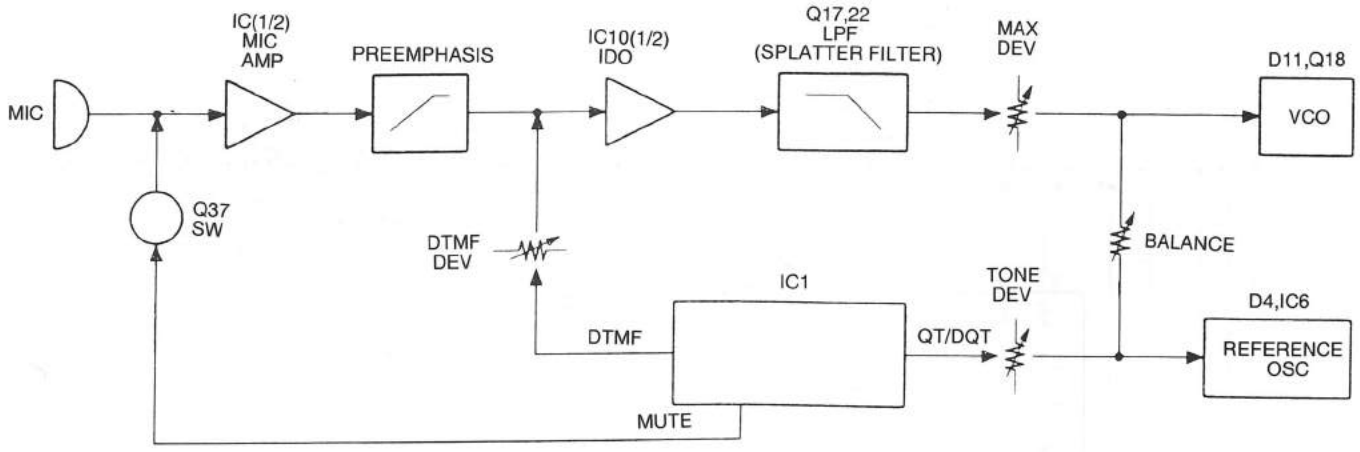


Fig 6 Transmit audio and QT/DQT

CIRCUIT DESCRIPTION

5) ANT switch and LPF

The signal from the module passes through the D22 SW and L31 LPF and is output from the ANT terminal. D22 and D23 are used to switch between transmission and reception. The chip-type LPF is used to provide required attenuation.

6) APC

The APC keeps the current to the final module constant. The current to the final module is output as a voltage by detecting the potential difference between R215, R217, and R218 by IC13 (1/2). IC13 (1/2) compares the signal with the APC voltage from IC1 and controls the voltage so that they have the same value. The output becomes the IC11 power control voltage, and the current is kept constant in this loop. The APC voltage from IC1 has the preset high or low power level. (See Fig. 7.)

5. Power supply

There are five 5V power supplies for microcomputer: 5V, 5M, 5C, 5R, and 5T. 5V for microcomputer is always output while the power is on. 5M is always output, but turns off when the power is turned off to prevent malfunction of the microcomputer.

5C is common 5V and output when SAVE is not set at OFF.

5R is 5V for reception and output during reception.

5T is 5V for transmission and output during transmission.

6. Control system

The IC1 CPU operates at 8.38MHz clocks. This oscillator has a circuit that shifts the frequency according to EEPROM data.

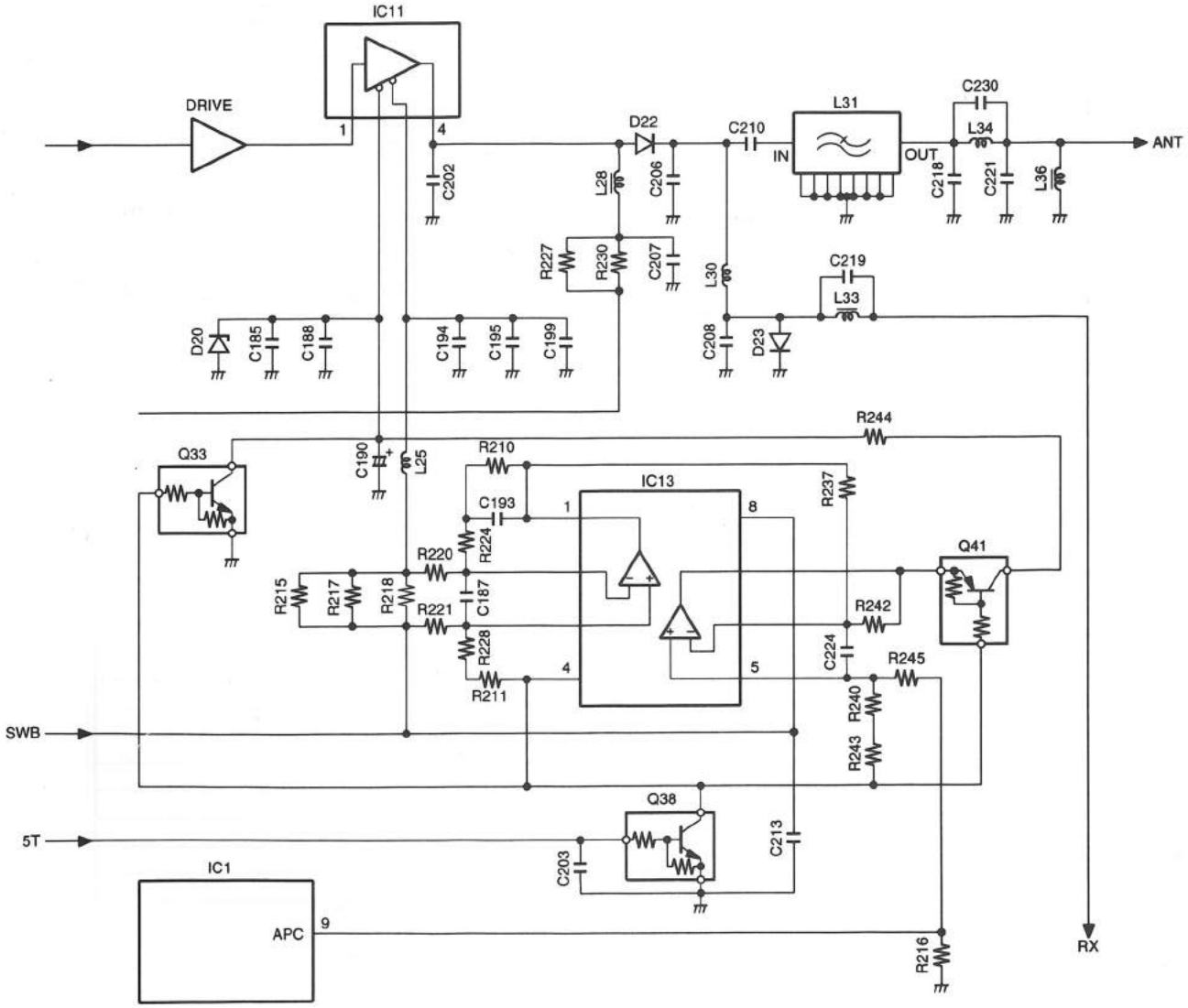
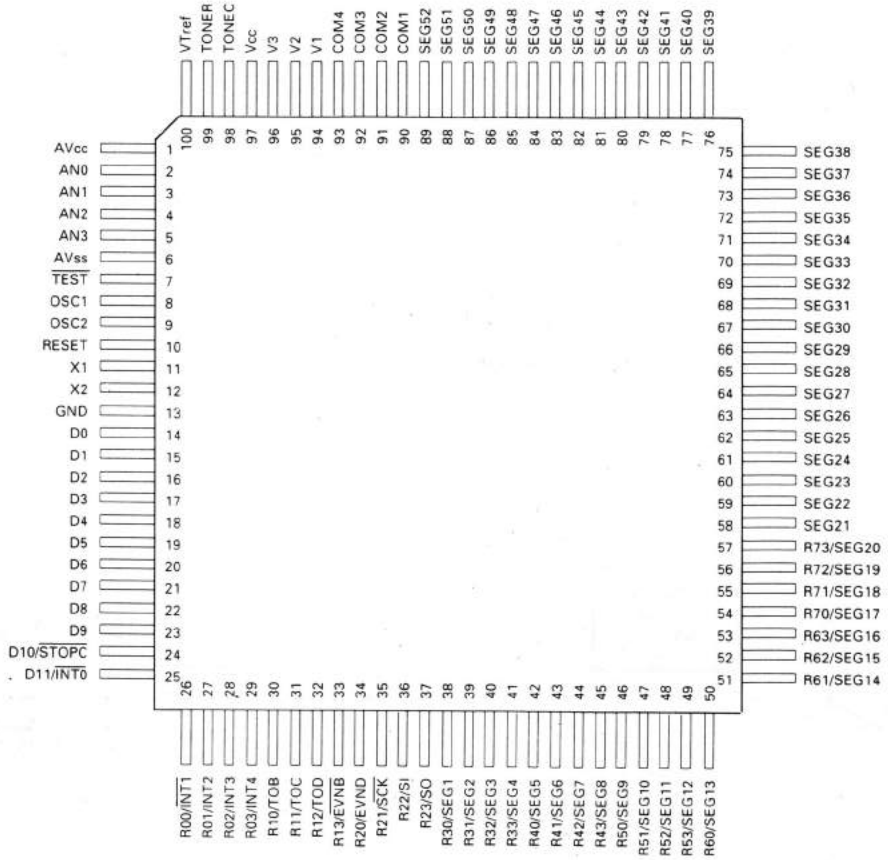


Fig 7 APC

SEMICONDUCTOR DATA

Microprocessor : M38267M8L150GP (IC1)

- **Pin connection diagram**



- **Pin function**

Pin No.	Port name	I/O	Function
1	UL	I	PLL unlock detection pin
2	SD	I	Serial data from DTMF IC
3	PD	O	DTMF IC power down pin H : Power down
4	TIB1	I	QT/DQT external circuit center point input
5	TI	I	QT/DQT signal input
6	BUSY	I	Busy input
7	BATT	I	Battery voltage detection
8	TCIN	I	TCXO voltage input
9	APC	O	Auto power control D/A output
10	DTMF	O	DTMF output
11	2TN	I	2-tone signal input pin
12	REQ	I	Data input from SmarTrunk II™ module
13	SDT	I	Acknowledge input from SmarTrunk II™ module
14	RDY	O	Ready signal output to SmarTrunk II™ module
15	EXTRA	O	AUX output
16	TO	O	QT/DQT output
17	L/K	I	[LAMP] + [key] enable judgment
18	PTT	I	[PTT] key input Connected to RXD
19	TXD	O	RS-232C output Connected to SP/mic test (REM)
20	RXD	I	RS-232C input Connected to [PTT] line
21	4.19	O	8.38/2=4.19 MHz output
22	STD	I	Signal input interrupt from DTMF IC
23	UP	I	Encoder input
24	DN	I	Encoder input
25	TC3	O	Switch port for temperature correction
26	TC2	O	Switch port for temperature correction

SEMICONDUCTOR DATA

Pin No.	Port name	I/O	Function
27	TC1	O	Switch port for temperature correction
28	KO3	O	Key matrix output Nch open drain output
29	KO2	O	Key matrix output Nch open drain output
30	KO1	O	Key matrix output Nch open drain output
31	KO0	O	Key matrix output Nch open drain output
32	INTO	I	Microcomputer stop input
33	RESET	I	Microcomputer reset pin
34	NC	I	Not connected
35	NC	O	Not connected
36	XIN	I	8.388608 MHz oscillator
37	XOUT	O	8.388608 MHz oscillator
38	VSS	-	Ground
39	BS	O	Beet shift pin H : Shift
40	LAMP	I	[LAMP] key input
41	MONI	I	[MONI] key input
42	KI1	I	Key matrix input
43	KI0	I	Key matrix input
44	KI2	I	Key matrix input
45	KI3	I	Key matrix input
46	KI4	I	Key matrix input
47	S/F	I	Simple plate/multi-function plate judgment H : Multi-function plate
48	SDA	I/O	EEPROM data line
49	ECK	O	EEPROM clock line
50	SAVE	O	Battery save line (5C) control H : Save off L : Save on
51	5MC	O	Control of power supply (5M) for other than microcomputer and EEPROM L : Power supply on
52	5TC	O	Transmission power supply (5T) control H : Power supply on
53	RX	O	TX/RX VCO select H : RX L : TX
54	5RC	O	Reception power supply (5R) control H : Power supply on
55	AFC0	O	AF amp power supply H : Power supply on
56	NC	O	Not connected
57	MUTE	O	Reception audio mute and mic mute H : Mic mute L : Reception audio mute
58	RED	O	Red LED control H : Lit
59	GRN	O	Green LED control H : Lit
60	LAMP	O	Not used
61	NC	O	Not connected
62	EP	O	PLL IC enabled PLL IC latches data when this signal high
63	DAT	O	Common data output
64	CLK	O	Common clock output
65 ~ 88	S23 ~ S0	O	Not used
89	VDD	-	Microcomputer power supply, 5V input
90	VREF	I	A/D conversion reference voltage; connected to Vcc
91	AVSS	I	A/D converter power supply; connected to Vss
92	NC	O	Not connected
93	COM2	O	Not used
94	COM1	O	Not used
95	COM0	O	Not used
96	VL3	I	Not used
97	VL2	I	2/3 VL3
98	NC	I	Not connected
99	NC	I	Not connected
100	VL1	I	1/3 VL3

DESCRIPTION OF COMPONENTS

TX-RX UNIT (X57-4850-XX)

Ref. No.	Parts No.	Description
IC1	M38267M8L150GP	IC, MICRO PROCESSOR
IC2	PST9140NR	IC, RESET SWITCH
IC3	LC73881M	IC, DTMF DECODER
IC4	AT2408N10SI2.5	IC, EEPROM
IC5	RN5VL45C	IC, VOLTAGE DETECT
IC6	LMX1511TMX	IC, PHASE LOCKED LOOP SYSTEM
IC7	S-81350HG-KD	IC, VOLTAGE REGURATER
IC8	TA75W01FU	IC, AUDIO AMP ACTIVE FILTER
IC9	TA31136FN	IC, IF SYSTEM
IC10	NJM2100V	IC, AUDIO AMP
IC11	PF0314-01	IC, RF POWER AMP
IC11	PF0313-01	IC, RF POWER AMP
IC11	PF0314-01	IC, RF POWER AMP
IC11	RF0313-01	IC, RF POWER AMP
IC12	TA7368F	IC, AUDIO POWER AMP
IC13	NJM2904V	IC, APC
IC14	TA75W01FU	IC, ACTIVE FILTER
Q1 ~ Q3	DTC114EE	TRANSISTOR, DC SWITCH
Q4	DTC114YE	TRANSISTOR, CLOCK FREQUENCY SHIFT
Q5	UMG3N	TRANSISTOR, DC SWITCH
Q6	UPA572T	FET, DC SWITCH
Q7	DTA114YE	TRANSISTOR, DC SWITCH
Q8	MP5A02	TRANSISTOR, DC SWITCH
Q9	UMG3N	TRANSISTOR, DC SWITCH
Q12	DTA114YE	TRANSISTOR, DC SWITCH
Q14	2SC4619	TRANSISTOR, RF AMP
Q15	DTA114EE	TRANSISTOR, AF MUTE SWITCH
Q16	2SK1875(V)	FET, VCO RX
Q17	2SC4617(S)	TRANSISTOR, ACTIVE FILTER
Q18	2SK1875(V)	FET, VCO TX
Q19	2SJ243	FET, DC SWITCH
Q20	2SC5108(Y)	TRANSISTOR, RF BUFFER AMP
Q21	2SC5108(Y)	TRANSISTOR, IF AMP
Q22	2SC4617(S)	TRANSISTOR, ACTIVE FILTER
Q23	UMC4	TRANSISTOR, DC SWITCH
Q24	2SC4617(S)	TRANSISTOR, RIPPLE FILTER
Q25	2SC4617(S)	TRANSISTOR, ACTIVE FILTER
Q26	2SC5108(Y)	TRANSISTOR, RF AMP
Q28	2SC4617(S)	TRASISTOR, ACTIVE FILTER
Q29	SGM2014M	FET, MIXER
Q30	2SK1824	FET, AUDIO MUTE
Q31	2SC4988	TRANSISTOR, TX DRIVE
Q33	DTC144EE	TRANSISTOR, DC SWITCH
Q34	2SA1362(GR)	TRANSISTOR, DC SWITCH
Q35, Q36	DTC144EE	TRANSISTOR, DC SWITCH
Q37	2SC4919	TRANSISTOR, AUDIO MUTE SWITCH
Q38	DTC114EE	TRANSISTOR, DC SWITCH
Q39	2SK1215(E)	FET, RF AMP
Q40	2SK1588	FET, AUDIO MUTE SWITCH
Q41	DTA144EE	TRANSISTOR, DC SWITCH
D1	B30-2143-05	LED, BACK LIGHT
D2	B30-2019-05	LED, TX BUSY LED
D3	MA2S111	DIODE, UNLOCK DETECT
D4	1SV269	VARIABLE CAPACITANCE DIODE, FREQUENCY CON
D5	1SS373	DIODE, REVERSE-FLOW PREVENTION
D6	UMNIN	DIODE, DC CUT

DESCRIPTION OF COMPONENTS

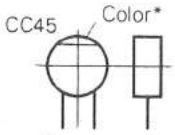
Ref. No.	Parts No.	Description
D7 ~ D10	1SV283	VARIABLE CAPACITANCE DIODE, FREQUENCY CON
D11	1SV214	VARIABLE CAPACITANCE DIODE, TX MODULATION
D14	MA2S111	DIODE, CUEERNT STEERING
D15	DA221	DIODE, LIMITTER
D16, D17	MA2S077	DIODE, RF SWITCH
D19	1SS372	DIODE, AGC DETECT
D20	MA8062	ZENER DIODE, BOLTAGE PROTECTION
D21	DAN222	DIODE, REVERCE PROTECTION
D22	HVU131	DIODE, ANT SWITCH
D23	MA2S077	DIODE, ANT SWITCH
D24	1SR154-400	DIODE, REVERCE PROTECTION

PARTS LIST

CAPACITORS

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

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



• Capacitor value

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

2 2 0 = 22pF
Multiplier
2nd number
1st number

• 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 -20	+80 -20	+100 -0	More than 10μF -10 ~ +50 Less than 4.7μF -10 ~ +75

(Less than 10pF)

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

• Voltage rating

2nd word / 1st 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)

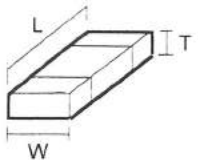
Dimension code	L	W	T
Empty	5.6 ± 0.5	5.0 ± 0.5	Less than 2.0
A	4.5 ± 0.5	3.2 ± 0.4	Less than 2.0
B	4.5 ± 0.5	2.0 ± 0.3	Less than 2.0
C	4.5 ± 0.5	1.25 ± 0.2	Less than 1.25
D	3.2 ± 0.4	2.5 ± 0.3	Less than 1.5
E	3.2 ± 0.2	1.6 ± 0.2	Less than 1.25
F	2.0 ± 0.3	1.25 ± 0.2	Less than 1.25
G	1.6 ± 0.2	0.8 ± 0.2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

Dimension



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

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	1/6W	3A	1W
2A	1/10W	2E	1/4W	3D	2W
2B	1/8W	2H	1/2W		

PARTS LIST

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

L : Scandinavia **K** : USA **P** : Canada
Y : PX (Far East, Hawaii) **T** : England **E** : Europe
Y : AAFES (Europe) **X** : Australia **M** : Other Areas

TK-260
TX-RX UNIT(X57-4850-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination
TK-260					
1	1A	*	A02-1947-23	CABINET ASSY	
2	2B	*	A62-0428-04	PANEL	
3	1A	*	B01-0682-02	ESCUTCHEON (PTT)	
4	1B	*	B09-0351-03	CAP (SP/MIC JACKS) ACSY	
5	3B	*	B11-1142-14	REFLECTOR	
6	1B		B42-3394-14	STANDARD LABEL (FCC)	
-			B42-5526-04	STICKER (HYATT)	
7	3A	*	G11-0769-04	SHEET (CHASSIS)	
8	3A		B42-5650-04	S/No LABEL	
9	3A	*	B42-5656-04	STICKER	
10	1A	*	B43-1102-04	BADGE (KENWOOD)	
-			B44-2163-04	UPC CORD LABEL (ITEM CARTON)	
-			B44-2165-04	UPC CORD LABEL (OUTER PACKING)	
11	3B	*	G11-0770-04	SHEET (CHASSIS)	
12	2A	*	G13-1583-04	CUSHION (PCB)	
13	-		B46-0470-00	WARRNTY CARD ASSY	
14	-	*	B62-0554-00	INSTRUCTION MANUAL ACSY	
15	3A	*	B72-0919-04	MODEL NAME PLATE (F1)	K
15	3A	*	B72-0920-04	MODEL NAME PLATE (F2)	K2
16	3A	*	E04-0198-05	RF COAXIAL CONNECTOR (ANT)	
17	3A	*	E23-1006-04	RELAY TERMINAL (BATT -)	
18	2A	*	E37-0575-05	LEAD WIRE WITH CONNECTOR (SP)	
19	2A	*	F20-1167-04	INSULATING SHEET	
20	1A	*	G01-0881-04	COIL SPRING (RELEASE)	
21	2B		G09-0418-05	KNOB SPRING	
22	3A	*	G11-0765-04	SHEET (CHASSIS)	
23	2A	*	G13-1512-04	CUSUION (SP)	
24	1A	*	G13-1544-04	CUSHION (CABINET)	
25	3B	*	G53-0790-03	PACKING	
26	2A	*	G53-0791-03	PACKING (PLUG)	
27	3A	*	G53-0792-04	PACKING	
28	1A	*	G53-0795-04	PACKING (SP)	
29	-	*	H12-1487-02	PACKING FIXTURE	
30	-		H25-0085-04	BAG (BODY)	
31	-	*	H25-2012-04	BAG (ACSY)	
32	-	*	H52-0732-02	ITEM CARTON CASE	
33	1A	*	J19-1572-04	HOLDER (RELEASE)	
34	2B	*	J21-4493-04	LOCKING BRACKET (SP/MIC) ACSY	
35	3A	*	J21-8307-04	HARDWARE FIXTURE (CHASSIS)	
36	3B	*	J29-0624-03	BELT HOOK ACSY	
-		*	J30-1217-14	SPACER (CASE)	
39	1A	*	J39-0609-04	SPACER (SP/MIC)	
40	1A	*	K29-5068-03	LEVER KNOB (RELEASE)	
41	1A	*	K29-5069-12	KEY TOP (PTT)	
42	2B	*	K29-5071-13	KNOB (VOL)	
43	2B	*	K29-5072-03	KNOB (CH)	
A	3B		N30-2604-46	PAN HEAD SCREW (ANT)	
B	2B	*	N14-0567-04	CIRCULAR NUT (ANT)	
C	2B	*	N14-0569-04	CIRCULAR NUT (VOL/CH)	
D	3A		N32-2005-46	PAN HEAD TAPTINE SCREW (CHASSIS)	
E	3A	*	N35-2610-45	BINDING HEAD MACHINE SCREW	
F	3A	*	N78-2630-46	SCREW (-BATT TERMINAL)	
G	2A		N89-2005-46	BINDING HEAD TAPTITE SCREW	
H	1B ,3B	*	N99-0396-05	SCREW SET ACSY	
SP	2A	*	T07-0327-05	SPEAKER	

Ref. No.	Address	New parts	Parts No.	Description	Destination
ANT	-		T90-0381-05	HELICAL ANTENNA ACSY	K2
ANT	-		T90-0450-05	HELICAL ANTENNA ACSY	K
TX-RX UNIT(X57-4850-XX)					
C1 ,2			CK73GB1C273K	CHIP C 0.027UF	K
C4 ,5			CK73GB1H103K	CHIP C 0.010UF	K
C6			CK73GB1H102K	CHIP C 1000PF	K
C8			CC73GCH1H100D	CHIP C 10PF	D
C12			CK73GB1H102K	CHIP C 1000PF	K
C15			CC73GCH1H030C	CHIP C 3.0PF	C
C16			CC73GCH1H100D	CHIP C 10PF	D
C18			CK73GB1C104K	CHIP C 0.10UF	K
C19 ,20			CK73GB1H102K	CHIP C 1000PF	K
C25			CK73GB1H102K	CHIP C 1000PF	K
C27			CK73GB1H102K	CHIP C 1000PF	K
C28			CK73GB1C104K	CHIP C 0.10UF	K
C30			CC73GCH1H101J	CHIP C 100PF	J
C31			CK73GB1H102K	CHIP C 1000PF	K
C32			CC73GCH1H101J	CHIP C 100PF	J
C33			CK73GB1H102K	CHIP C 1000PF	K
C34			CK73GB1H103K	CHIP C 0.010UF	K
C35			CK73GB1H102K	CHIP C 1000PF	K
C36			CC73GCH1H101J	CHIP C 100PF	J
C37			CK73FB0J105K	CHIP C 1.0UF	K
C38		*	C92-0662-05	CHIP-TAN 15UF	6.3WV
C39			CK73GB1C104K	CHIP C 0.10UF	K
C40			C92-0507-05	CHIP-TAN 4.7UF	6.3WV
C41			CK73GB1H102K	CHIP C 1000PF	K
C42		*	C92-0662-05	CHIP-TAN 15UF	6.3WV
C43 ,44			CK73GB1H102K	CHIP C 1000PF	K
C45			CC73GCH1H150J	CHIP C 15PF	J
C46			CC73GCH1H200J	CHIP C 20PF	J
C47 ,48			CK73GB1H102K	CHIP C 1000PF	K
C49			CC73GCH1H101J	CHIP C 100PF	J
C50			C92-0576-05	CHIP-TAN 1.0UF	6.3WV
C51			CK73GB1H102K	CHIP C 1000PF	K
C52			CK73FB0J105K	CHIP C 1.0UF	K
C53			CK73GB1H102K	CHIP C 1000PF	K
C55			CK73EF1C105Z	CHIP C 1.0UF	Z
C56			CK73FB1C224K	CHIP C 0.22UF	K
C57			CK73GB1H392K	CHIP C 3900PF	K
C58			CK73GB1H102K	CHIP C 1000PF	K
C59			C92-0659-05	CHIP-TAN 10UF	6.3WV
C62			CK73GB1C333K	CHIP C 0.033UF	K
C63			CC73GCH1H101J	CHIP C 100PF	J
C64			C92-0507-05	CHIP-TAN 4.7UF	6.3WV
C65 ,66			C92-0653-05	CHIP-TAN 0.68UF	10WV
C67			CK73GB1H471K	CHIP C 470PF	K
C68			CK73GB1H681K	CHIP C 680PF	K
C69 ,70			CK73GB1H102K	CHIP C 1000PF	K
C71			CC73GCH1H330J	CHIP C 33PF	J
C72 ,73			CK73GB1E123K	CHIP C 0.012UF	K
C74			CK73GB1H472K	CHIP C 4700PF	K
C75			CK73GB1C104K	CHIP C 0.10UF	K

PARTS LIST

TX-RX UNIT(X57-4850-XX)

Ref. No.	Address	New parts	Parts No.	Description			Destination
C76			CK73GB1H182K	CHIP C	1800PF	K	
C77			C92-0560-05	CHIP-TAN	10UF	6.3WV	
C78 ,79			CK73GB1H102K	CHIP C	1000PF	K	
C80			CC73GCH1H221J	CHIP C	220PF	J	
C81			CK73GB1E223K	CHIP C	0.022UF	K	
C82			CK73GB1H103K	CHIP C	0.010UF	K	
C83			C92-0576-05	CHIP-TAN	1.0UF	6.3WV	
C84			CK73GB1H102K	CHIP C	1000PF	K	
C85			CC73GCH1H101J	CHIP C	100PF	J	
C86			CC73GCH1H221J	CHIP C	220PF	J	
C88			CK73GB1H103K	CHIP C	0.010UF	K	
C89			CK73GB1H471K	CHIP C	470PF	K	
C90			C92-0507-05	CHIP-TAN	4.7UF	6.3WV	
C91			CC73GCH1HR75C	CHIP C	0.75PF	C	
C92			CK73GB1C104K	CHIP C	0.10UF	K	
C93			CC73GCH1H151J	CHIP C	150PF	J	K2
C93			CC73GCH1H221J	CHIP C	220PF	J	K
C94			CC73GCH1H820J	CHIP C	82PF	J	
C95			CK73GB1C104K	CHIP C	0.10UF	K	
C96			CC73GCH1H470J	CHIP C	47PF	J	
C99			CC73GCH1H060D	CHIP C	6.0PF	D	K
C99			CC73GCH1H080D	CHIP C	8.0PF	D	K2
C100			CC73GCH1H180J	CHIP C	18PF	J	
C101			C92-0587-05	CHIP-TAN	2.2UF	4WV	
C102			CK73FB1E104K	CHIP C	0.10UF	K	
C103			CK73GB1H103K	CHIP C	0.010UF	K	
C104			CC73GCH1H050C	CHIP C	5.0PF	C	K2
C104			CC73GCH1H100D	CHIP C	10PF	D	K
C105			CC73GCH1H180J	CHIP C	18PF	J	K2
C105			CC73GCH1H220J	CHIP C	22PF	J	K
C106			CK73GB1H103K	CHIP C	0.010UF	K	
C108,109			CK73GB1H102K	CHIP C	1000PF	K	
C110			CC73GCH1H270J	CHIP C	27PF	J	
C111			CK73GB1H102K	CHIP C	1000PF	K	
C112			CK73GB1H471K	CHIP C	470PF	K	
C113			CK73GB1H103K	CHIP C	0.010UF	K	
C114			CC73GCH1H150J	CHIP C	15PF	J	
C115			CK73GB1H103K	CHIP C	0.010UF	K	
C116,117			CK73GB1C104K	CHIP C	0.10UF	K	
C118			CK73GB1H332K	CHIP C	3300PF	K	
C119			CK73GB1H471K	CHIP C	470PF	K	
C120			CC73GCH1H0R5C	CHIP C	0.5PF	C	
C121			CC73GCH1H150J	CHIP C	15PF	J	
C122			CK73GB1C104K	CHIP C	0.10UF	K	
C123			CC73GCH1H0R5C	CHIP C	0.5PF	C	
C125			CK73GB1C104K	CHIP C	0.10UF	K	
C126			CK73GB1H102K	CHIP C	1000PF	K	
C127			CK73GB1C473K	CHIP C	0.047UF	K	
C128			C92-0560-05	CHIP-TAN	10UF	6.3WV	
C129			CK73GB1H102K	CHIP C	1000PF	K	
C130			CK73GB1C104K	CHIP C	0.10UF	K	
C132			CK73GB1C333K	CHIP C	0.033UF	K	
C133			CC73GCH1H330J	CHIP C	33PF	J	
C134			CK73GB1C333K	CHIP C	0.033UF	K	
C135			CC73GCH1H100D	CHIP C	10PF	D	
C136			C92-0560-05	CHIP-TAN	10UF	6.3WV	
C137			CK73GB1H272K	CHIP C	2700PF	K	
C138			CC73GCH1H150J	CHIP C	15PF	J	
C139			CK73GB1H561K	CHIP C	560PF	K	
C140			C92-0507-05	CHIP-TAN	4.7UF	6.3WV	

Ref. No.	Address	New parts	Parts No.	Description			Destination
C141			CK73GB1C333K	CHIP C	0.033UF	K	
C142,143			CK73GB1H102K	CHIP C	1000PF	K	
C144			CC73GCH1H060D	CHIP C	6.0PF	D	
C145			CK73GB1C333K	CHIP C	0.033UF	K	
C147			C92-0560-05	CHIP-TAN	10UF	6.3WV	
C148			CK73GB1C473K	CHIP C	0.047UF	K	
C149			CK73GB1H102K	CHIP C	1000PF	K	
C150			CK73GB1C473K	CHIP C	0.047UF	K	
C151			CK73GB1C333K	CHIP C	0.033UF	K	
C152			CK73GB1H103K	CHIP C	0.010UF	K	
C153,154			CK73GB1H102K	CHIP C	1000PF	K	
C155			CK73GB1H103K	CHIP C	0.010UF	K	
C156			CC73GCH1H220J	CHIP C	22PF	J	
C157			CK73GB1H102K	CHIP C	1000PF	K	
C159,160			CK73GB1H103K	CHIP C	0.010UF	K	
C161			CC73GCH1H150J	CHIP C	15PF	J	
C162			CC73GCH1H100D	CHIP C	10PF	D	
C163			CK73GB1C473K	CHIP C	0.047UF	K	
C164,165			CK73GB1C104K	CHIP C	0.10UF	K	
C166			CK73GB1H102K	CHIP C	1000PF	K	
C167			CK73GB1E223K	CHIP C	0.022UF	K	
C168			CK73GB1H102K	CHIP C	1000PF	K	
C169			C92-0507-05	CHIP-TAN	4.7UF	6.3WV	
C170			CC73GCH1H020C	CHIP C	2.0PF	C	
C171			CK73GB1H102K	CHIP C	1000PF	K	
C172			CK73GB1H222K	CHIP C	2200PF	K	
C173			CK73GB1C104K	CHIP C	0.10UF	K	
C174			CK73GB1H102K	CHIP C	1000PF	K	
C175			CK73GB1H682K	CHIP C	6800PF	K	
C176			CK73GB1H102K	CHIP C	1000PF	K	
C177			CK73GB1E223K	CHIP C	0.022UF	K	
C178			CK73GB1C473K	CHIP C	0.047UF	K	
C179			CK73GB1H102K	CHIP C	1000PF	K	
C180			C92-0576-05	CHIP-TAN	1.0UF	6.3WV	
C181			CK73GB1C393K	CHIP C	0.039UF	K	
C182			CC73GCH1H220J	CHIP C	22PF	J	
C183			CK73FB1C474K	CHIP C	0.47UF	K	
C184-186			CK73GB1H102K	CHIP C	1000PF	K	
C187			CK73GB1H471K	CHIP C	470PF	K	
C188			CK73FB1C474K	CHIP C	0.47UF	K	
C189			C73GCH1H040C	CHIP C	4.0PF C	K	
C189			CC73GCH1H060	CHIP C	6.0PF	K2	
C190			C92-0565-05	CHIP-TAN	6.8UF	10WV	
C191			CK73GB1H272K	CHIP C	2700PF	K	
C192			CK73GB1H471K	CHIP C	470PF	K	
C193			CC73GCH1H101J	CHIP C	100PF	J	
C194			CK73GB1H102K	CHIP C	1000PF	K	
C195			CK73GB1H103K	CHIP C	0.010UF	K	
C196			CK73GB1H102K	CHIP C	1000PF	K	
C197,198			CK73GB1C104K	CHIP C	0.10UF	K	
C199			CK73FB1C474K	CHIP C	0.47UF	K	
C200			CK73GB1H102K	CHIP C	1000PF	K	
C201			CC73GCH1H101J	CHIP C	100PF	J	
C202			CC73GCH1H020C	CHIP C	2.0PF	C	K2
C202			CC73GCH1H070D	CHIP C	7.0PF	D	K
C203			CK73GB1H102K	CHIP C	1000PF	K	
C204			CC73GCH1H050C	CHIP C	5.0PF	C	K
C204			CC73GCH1H070D	CHIP C	7.0PF	D	K2
C205			C92-0560-05	CHIP-TAN	10UF	6.3WV	
C206			CC73GCH1H030C	CHIP C	3.0PF	C	K

PARTS LIST

TX-RX UNIT(X57-4850-XX)

Ref. No.	Address	New parts	Parts No.	Description			Destination
C206			CC73GCH1H120J	CHIP C	12PF	J	K2
C207			CK73GB1H102K	CHIP C	1000PF	K	
C208			CC73GCH1H270J	CHIP C	27PF	J	K
C208			CC73GCH1H330J	CHIP C	33PF	J	K2
C209			CK73GB1C104K	CHIP C	0.10UF	K	
C210			CC73GCH1H470J	CHIP C	47PF	J	
C211			CK73GB1H102K	CHIP C	1000PF	K	
C212			CK73GB1C473K	CHIP C	0.047UF	K	
C213			CK73GB1H102K	CHIP C	1000PF	K	
C214			C92-0567-05	CHIP-TAN	68UF	6.3WV	
C215			CC73GCH1H060D	CHIP C	6.0PF	D	K
C215			CC73GCH1H090D	CHIP C	9.0PF	D	K2
C216			C92-0560-05	CHIP-TAN	10UF	6.3WV	
C217			CK73GB1H103K	CHIP C	0.010UF	K	
C218			CC73GCH1H070D	CHIP C	7.0PF	D	K
C218			CC73GCH1H100D	CHIP C	10PF	D	K2
C219			CC73GCH1H120J	CHIP C	12PF	J	K
C219			CC73GCH1H150J	CHIP C	15PF	J	K2
C220			CK73GB1H102K	CHIP C	1000PF	K	
C221			CC73GCH1H010C	CHIP C	1.0PF	C	
C222			CC73GCH1H150J	CHIP C	15PF	J	
C223			CC73GCH1H100D	CHIP C	10PF	D	K
C223			CC73GCH1H120J	CHIP C	12PF	J	K2
C224			CK73GB1H471K	CHIP C	470PF	K	
C225			CK73GB1H102K	CHIP C	1000PF	K	
C226			CK73GB1H471K	CHIP C	470PF	K	
C227-229			CK73GB1H102K	CHIP C	1000PF	K	
C230			CC73GCH1H1R5C	CHIP C	1.5PF	C	
TC1			C05-0380-15	TRIMMER CAPACITOR			
TC2 ,3		*	C05-0383-05	TRIMMER CAPACITOR (6PF)			
50	2A	*	E23-1005-04	TERMINAL (+BATT)			
51	2A	*	E23-1020-04	GROUND TERMINAL (PA MODULE)			
CN2			E40-5662-05	PIN ASSY SOCKET (SP)			
J1	-		E11-0457-05	PHONE JACK (SP/MIC)			
F1	-	*	F53-0130-05	FUSE (3A)			
-		*	G11-0752-04	AUXILIARY PART			
-			G13-1303-04	CUSHION (X'TAL)			
55	2A	*	J19-1571-04	HOLDER (+BATT)			
56	2A	*	J21-4495-14	HARDWARE FIXTURE (PA MODULE)			
D1		*	L79-1072-05	TUNING COIL			
F1 ,2			L72-0916-05	CERAMIC FILTER (455KHZ)			
L1 ,2			L40-2281-37	SMALL FIXED INDUCTOR 0.22UH			
L3			L92-0138-05	CORE			
L4			L40-2281-37	SMALL FIXED INDUCTOR 0.22UH			
L5			L92-0138-05	CORE			
L6 -8		*	L40-6891-37	SMALL FIXED INDUCTOR 6.8UH			
L9			L33-0744-05	SMALL FIXED INDUCTOR 23NH			K
L9			L33-1267-05	SMALL FIXED INDUCTOR 27NH			K2
L10			L33-0751-05	SMALL FIXED INDUCTOR 39NH			K2
L10			L33-1267-05	SMALL FIXED IMDUCTOR 27NH			K
L11			L40-1091-37	SMALL FIXED INDUCTOR 1UH			
L12		*	L40-6891-37	SMALL FIXED INDUCTOR 6.8UH			
L13		*	L40-1085-35	SMALL FIXED INDUCTOR 100NH			K
L13		*	L40-1281-35	SMALL FIXED INDUCTOR 120NH			K2
L14			L92-0138-05	CORE			
L15		*	L40-1085-35	SMALL FIXED INDUCTOR 100NH			
L16			L40-6881-37	SMALL FIXED INDUCTOR 0.68UH			
L18			L92-0138-05	CORE			
L19			L40-1081-37	SMALL FIXED INDUCTOR 0.1UH			K
L19			L40-1581-37	SMALL FIXED INDUCTOR 0.15UH			K2

Ref. No.	Address	New parts	Parts No.	Description			Destination
L22			L40-6871-35	SMALL FIXED INDUCTOR 68NH			
L23			L92-0138-05	CORE			
L24		*	L34-4447-05	COIL			
L25			L92-0149-05	CORE			
L26		*	L34-4447-05	COIL			
L27			L40-4785-48	SMALL FIXED INDUCTOR 470NH			K
L27			L40-5685-48	SMALL FIXED INDUCTOR 560NH			K2
L28			L40-1085-34	SMALL FIXED INDUCTOR 100NH			
L29			L92-0131-05	CORE			
L30			L33-0765-05	CHOKE COIL 50NH			
L31			L79-1076-05	FILTER (136-163MHZ)			K2
L31			L79-1157-05	FILTER (148-174MHZ)			K
L32		*	L34-4446-05	COIL			
L33			L33-0745-05	CHOKE COIL			
L34			L33-0765-05	CHOKE COIL 50NH			
L35			L92-0149-05	CORE			
L36			L40-1092-81	SMALL FIXED INDUCTOR			
X1		*	L77-1630-05	CRYSTAL RESONATOR (8.388608MHZ)			
X2		*	L77-1648-05	CRYSTAL RESONATOR (12.8MHZ)			
X3		*	L77-1661-05	CRYSTAL RESONATOR (44.595MHZ)			
XF1			L71-0409-15	MCF (45.050MHZ)			
J	3A		N38-2640-46	SCREW (PA MODULE)			
K	2A	*	N78-2640-46	SCREW (+BATT TERMINAL)			
CP3			R90-0714-05	MULTI-COMP 10K			
R1 ,2			RK73GB1J472J	CHIP R	4.7K	J 1/16W	
R4			R92-1252-05	CHIP R	0 OHM		
R11			RK73GB1J103J	CHIP R	10K	J 1/16W	
R12 -15			RK73GB1J472J	CHIP R	4.7K	J 1/16W	
R16 ,17			RK73GB1J102J	CHIP R	1.0K	J 1/16W	
R18 ,19			RK73GB1J472J	CHIP R	4.7K	J 1/16W	
R20			RK73GB1J222J	CHIP R	2.2K	J 1/16W	
R23 ,24			RK73GB1J473J	CHIP R	47K	J 1/16W	
R26 ,27			RK73GB1J104J	CHIP R	100K	J 1/16W	
R28			RK73GB1J102J	CHIP R	1.0K	J 1/16W	
R30			RK73GB1J391J	CHIP R	390	J 1/16W	
R32			RK73GB1J102J	CHIP R	1.0K	J 1/16W	
R34			RK73GB1J100J	CHIP R	10	J 1/16W	
R35			RK73GB1J473J	CHIP R	47K	J 1/16W	
R42			RK73GB1J334J	CHIP R	330K	J 1/16W	
R43			RK73GB1J103J	CHIP R	10K	J 1/16W	
R48			RK73GB1J472J	CHIP R	4.7K	J 1/16W	
R49			R92-1252-05	CHIP R	0 OHM		
R50			RK73GB1J102J	CHIP R	1.0K	J 1/16W	
R51			RK73GB1J104J	CHIP R	100K	J 1/16W	
R52			RK73GB1J154J	CHIP R	150K	J 1/16W	
R53			RK73GB1J473J	CHIP R	47K	J 1/16W	
R54			RK73GB1J102J	CHIP R	1.0K	J 1/16W	
R55			RK73GB1J272J	CHIP R	2.7K	J 1/16W	
R56			RK73GB1J150J	CHIP R	15	J 1/16W	
R57			RK73GB1J104J	CHIP R	100K	J 1/16W	
R58			RK73GB1J562J	CHIP R	5.6K	J 1/16W	
R59			RK73GB1J332J	CHIP R	3.3K	J 1/16W	
R60			RK73GB1J224J	CHIP R	220K	J 1/16W	
R61			RK73GB1J103J	CHIP R	10K	J 1/16W	
R62			RK73GB1J332J	CHIP R	3.3K	J 1/16W	
R63			RK73GB1J102J	CHIP R	1.0K	J 1/16W	
R65			RK73GB1J102J	CHIP R	1.0K	J 1/16W	
R68			RK73GB1J272J	CHIP R	2.7K	J 1/16W	
R69			RK73GB1J102J	CHIP R	1.0K	J 1/16W	
R70			RK73GB1J473J	CHIP R	47K	J 1/16W	

PARTS LIST

TX-RX UNIT(X57-4850-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination
R71			RK73GB1J124J	CHIP R 120K J 1/16W	
R72			RK73GB1J104J	CHIP R 100K J 1/16W	
R73			RK73GB1J333J	CHIP R 33K J 1/16W	
R74			RK73GB1J103J	CHIP R 10K J 1/16W	
R75			RK73GB1J474J	CHIP R 470K J 1/16W	
R76			RK73GB1J154J	CHIP R 150K J 1/16W	
R79			RK73GB1J391J	CHIP R 390 J 1/16W	
R80,81			RK73GB1J151J	CHIP R 150 J 1/16W	
R83		*	RN73GH1J333D	METAL FILMR 33K D 1/16W	
R84,85		*	RN73GH1J243D	METAL FILMR 24K D 1/16W	
R86		*	RN73GH1J393D	METAL FILMR 39K D 1/16W	
R87			RK73GB1J103J	CHIP R 10K J 1/16W	
R88		*	RN73GH1J103D	METAL FILMR 10K D 1/16W	
R90			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R92			R92-1252-05	CHIP R 0 OHM	
R94			RK73GB1J683J	CHIP R 68K J 1/16W	
R97			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R98			RK73GB1J682J	CHIP R 6.8K J 1/16W	
R99			RK73GB1J103J	CHIP R 10K J 1/16W	
R100			RK73GB1J332J	CHIP R 3.3K J 1/16W	
R101			RK73GB1J103J	CHIP R 10K J 1/16W	
R104			RK73GB1J104J	CHIP R 100K J 1/16W	
R105			RK73GB1J103J	CHIP R 10K J 1/16W	
R106			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R107			RK73GB1J562J	CHIP R 5.6K J 1/16W	
R108			RK73GB1J393J	CHIP R 39K J 1/16W	
R109			RK73GB1J154J	CHIP R 150K J 1/16W	
R110			RK73GB1J104J	CHIP R 100K J 1/16W	K2
R110			RK73GB1J473J	CHIP R 47K J 1/16WK	
R111			RK73GB1J332J	CHIP R 3.3K J 1/16W	
R112			RK73GB1J103J	CHIP R 10K J 1/16W	
R113			RK73GB1J684J	CHIP R 680K J 1/16W	
R114			RK73GB1J333J	CHIP R 33K J 1/16W	
R115			RK73GB1J473J	CHIP R 47K J 1/16W	
R116			RK73GB1J184J	CHIP R 180K J 1/16W	
R117			RK73GB1J152J	CHIP R 1.5K J 1/16W	
R118			RK73GB1J124J	CHIP R 120K J 1/16W	
R119			RK73GB1J473J	CHIP R 47K J 1/16W	
R120			RK73GB1J684J	CHIP R 680K J 1/16W	
R121			RK73GB1J104J	CHIP R 100K J 1/16W	
R122			RK73GB1J183J	CHIP R 18K J 1/16W	
R123			RK73GB1J103J	CHIP R 10K J 1/16W	
R124			RK73GB1J183J	CHIP R 18K J 1/16W	
R125			RK73GB1J473J	CHIP R 47K J 1/16W	
R126			R92-0679-05	CHIP R 0 OHM	
R128			RK73GB1J104J	CHIP R 100K J 1/16W	
R129			RK73GB1J271J	CHIP R 270 J 1/16W	
R130			RK73GB1J332J	CHIP R 3.3K J 1/16W	
R131			RK73GB1J823J	CHIP R 82K J 1/16W	
R132			RK73GB1J103J	CHIP R 10K J 1/16W	
R135			RK73GB1J271J	CHIP R 270 J 1/16WK	
R135			RK73GB1J331J	CHIP R 330 J 1/16W	K2
R136			RK73GB1J185J	CHIP R 1.8M J 1/16W	
R137			RK73GB1J183J	CHIP R 18K J 1/16W	
R138			RK73GB1J333J	CHIP R 33K J 1/16W	
R139			RK73GB1J103J	CHIP R 10K J 1/16W	
R140			RK73GB1J182J	CHIP R 1.8K J 1/16W	
R141			RK73GB1J104J	CHIP R 100K J 1/16W	
R142			RK73GB1J393J	CHIP R 39K J 1/16W	
R143			RK73GB1J124J	CHIP R 120K J 1/16W	

Ref. No.	Address	New parts	Parts No.	Description	Destination
R145,146			RK73GB1J104J	CHIP R 100K J 1/16W	
R147			RK73GB1J103J	CHIP R 10K J 1/16W	
R148			RK73GB1J681J	CHIP R 680 J 1/16W	
R149			RK73GB1J564J	CHIP R 560K J 1/16W	
R150			RK73GB1J152J	CHIP R 1.5K J 1/16W	
R151			RK73GB1J104J	CHIP R 100K J 1/16W	
R152			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R153			RK73GB1J185J	CHIP R 1.8M J 1/16W	
R155			RK73GB1J472J	CHIP R 4.7K J 1/16W	
R156			RK73GB1J392J	CHIP R 3.9K J 1/16W	
R157			RK73GB1J681J	CHIP R 680 J 1/16W	
R158			RK73GB1J333J	CHIP R 33K J 1/16W	
R159,160			RK73GB1J154J	CHIP R 150K J 1/16W	
R161			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R162			RK73GB1J332J	CHIP R 3.3K J 1/16W	
R163			RK73GB1J104J	CHIP R 100K J 1/16W	
R164			RK73GB1J392J	CHIP R 3.9K J 1/16W	
R165			RK73GB1J123J	CHIP R 12K J 1/16W	
R166			RK73GB1J393J	CHIP R 39K J 1/16W	
R167			RK73GB1J184J	CHIP R 180K J 1/16W	
R168			RK73GB1J104J	CHIP R 100K J 1/16W	
R169			RK73GB1J181J	CHIP R 180 J 1/16WK	
R169			RK73GB1J271J	CHIP R 270 J 1/16W	K2
R171			RK73GB1J392J	CHIP R 3.9K J 1/16W	
R172			RK73GB1J562J	CHIP R 5.6K J 1/16W	
R173			R92-1252-05	CHIP R 0 OHM	
R174			RK73GB1J473J	CHIP R 47K J 1/16W	
R175,176			RK73GB1J154J	CHIP R 150K J 1/16W	
R177			RK73GB1J472J	CHIP R 4.7K J 1/16W	
R178			RK73GB1J101J	CHIP R 100 J 1/16W	
R179			RK73GB1J330J	CHIP R 33 J 1/16W	
R180			RK73GB1J392J	CHIP R 3.9K J 1/16W	
R181			RK73GB1J152J	CHIP R 1.5K J 1/16W	
R182			RK73GB1J122J	CHIP R 1.2K J 1/16W	
R185			RK73GB1J562J	CHIP R 5.6K J 1/16W	
R186			RK73GB1J334J	CHIP R 330K J 1/16W	
R188			RK73GB1J470J	CHIP R 47 J 1/16W	
R190			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R191			RK73GB1J103J	CHIP R 10K J 1/16W	
R192			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R193			RK73GB1J561J	CHIP R 560 J 1/16W	
R194			R92-1252-05	CHIP R 0 OHM	
R195			RK73GB1J472J	CHIP R 4.7K J 1/16W	
R196			RK73GB1J152J	CHIP R 1.5K J 1/16W	
R197			RK73GB1J331J	CHIP R 330 J 1/16W	
R198			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R199,200			RK73GB1J103J	CHIP R 10K J 1/16W	
R201			RK73GB1J330J	CHIP R 33 J 1/16W	
R202			RK73GB1J101J	CHIP R 100 J 1/16W	
R203			R92-1252-05	CHIP R 0 OHM	
R204			RK73GB1J153J	CHIP R 15K J 1/16W	
R205			RK73GB1J101J	CHIP R 100 J 1/16W	
R207			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R208			RK73GB1J473J	CHIP R 47K J 1/16W	
R209			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R210,211			RN73GH1J154D	METAL FILMR 150K D 1/16W	
R212			R92-1252-05	CHIP R 0 OHM	
R213			RK73GB1J153J	CHIP R 15K J 1/16W	
R214			R92-1252-05	CHIP R 0 OHM	
R215			RK73EB2ER39K	CHIP R 0.39 K 1/4W	

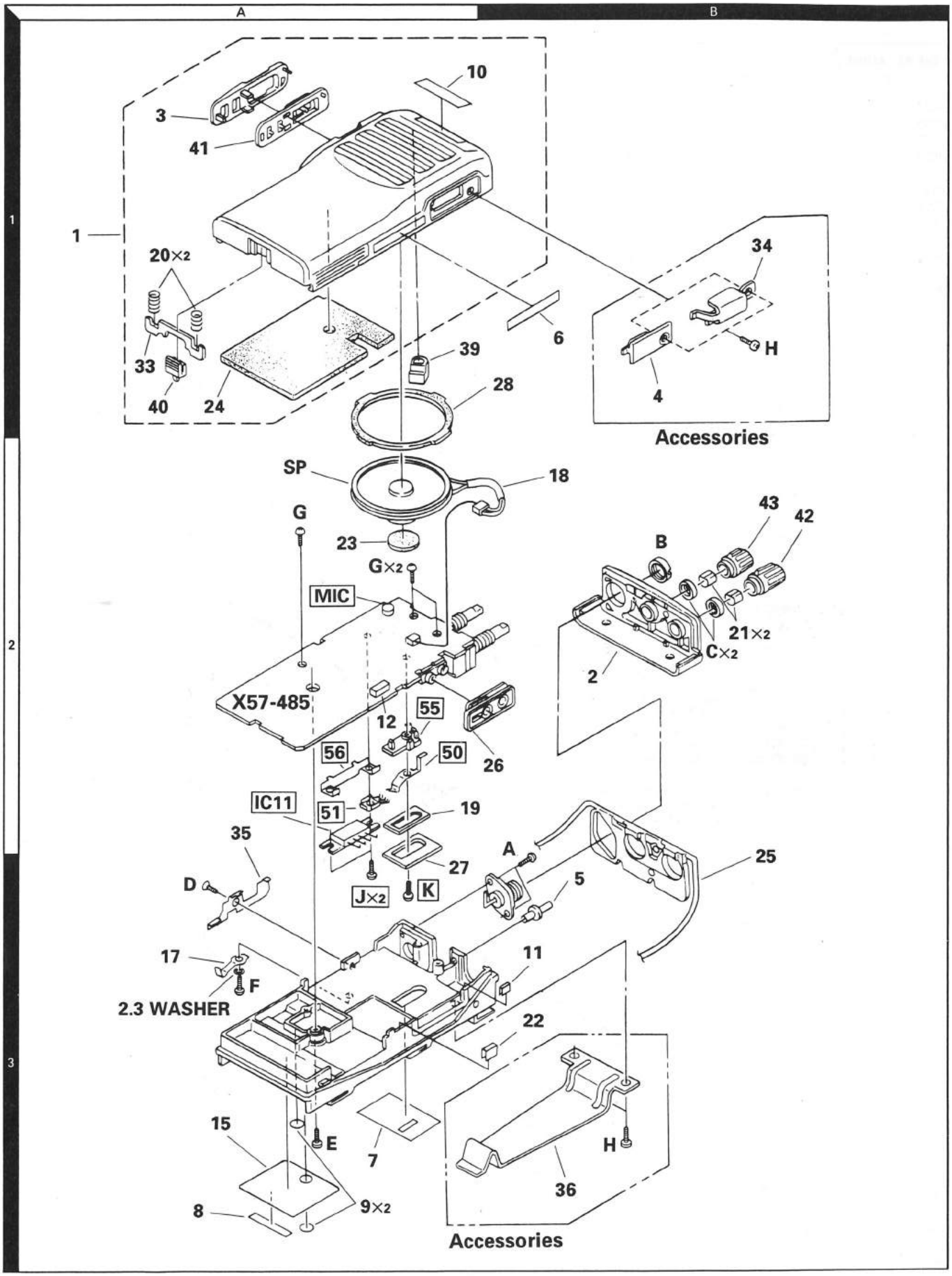
PARTS RIST

TX-RX UNIT(X57-4850-XX)

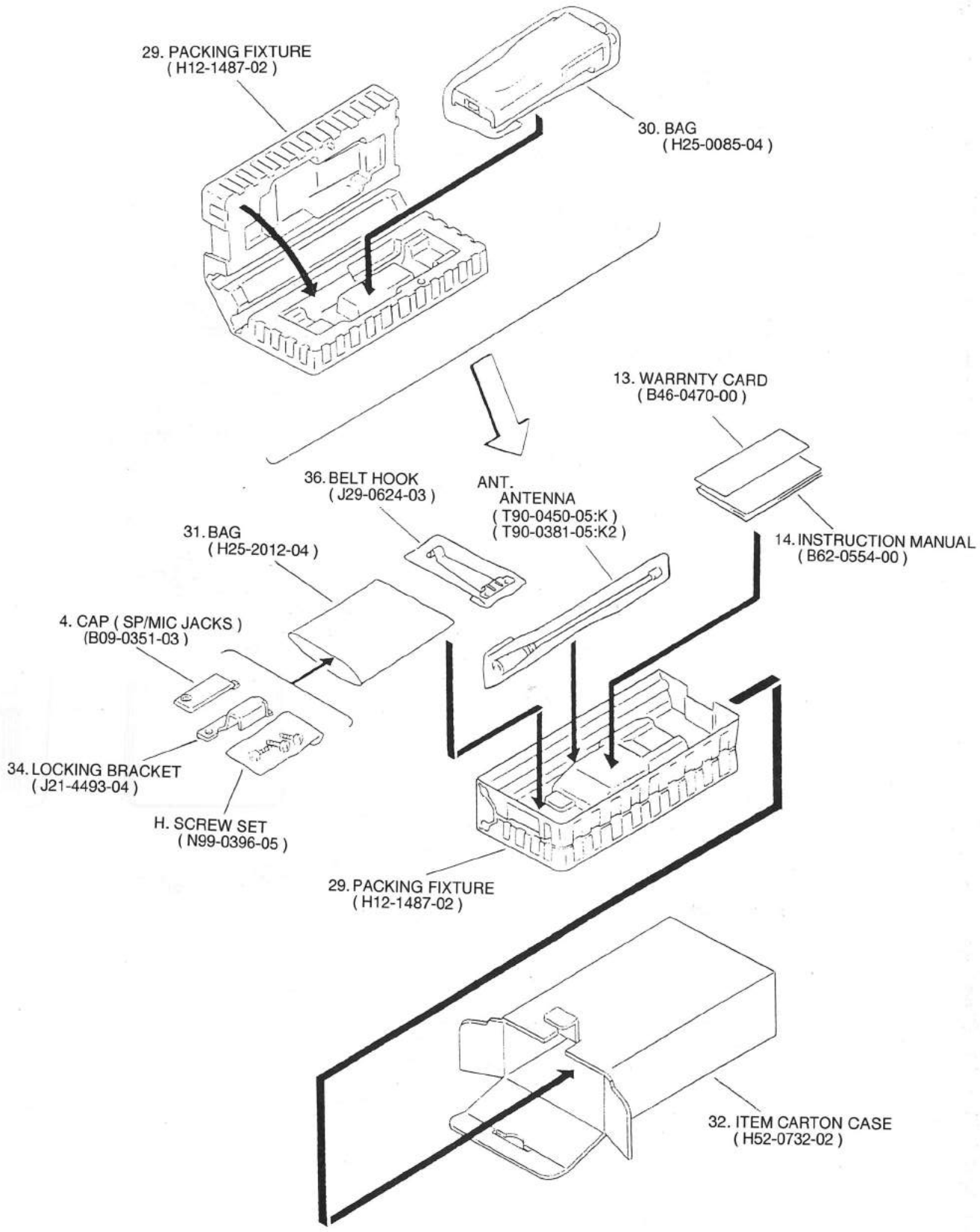
Ref. No.	Address	New parts	Parts No.	Description	Destination
R216			RK73GB1J104J	CHIP R 100K J 1/16W	
R217,218			RK73EB2ER39K	CHIP R 0.39 K 1/4W	
R219			RK73GB1J153J	CHIP R 15K J 1/16W	
R220,221			RN73GH1J154D	METAL FILMR 150K D 1/16W	
R222			RK73GB1J274J	CHIP R 270K J 1/16W	
R223			RK73GB1J153J	CHIP R 15K J 1/16W	
R224			RN73GH1J154D	METAL FILMR 150K D 1/16W	
R225			RK73GB1J470J	CHIP R 47 J 1/16W	
R226			RK73GB1J151J	CHIP R 150 J 1/16W	
R227			RK73GB1J271J	CHIP R 270 J 1/16W	
R228			RN73GH1J154D	METAL FILMR 150K D 1/16W	
R229			RK73GB1J472J	CHIP R 4.7K J 1/16W	
R230			RK73GB1J271J	CHIP R 270 J 1/16W	
R231			RK73GB1J563J	CHIP R 56K J 1/16W	
R232			RK73GB1J223J	CHIP R 22K J 1/16W	
R233			RK73GB1J333J	CHIP R 33K J 1/16W	
R234			RK73GB1J271J	CHIP R 270 J 1/16W	
R235			RK73GB1J100J	CHIP R 10 J 1/16W	
R236			RK73GB1J331J	CHIP R 330 J 1/16W	
R237			RK73GB1J103J	CHIP R 10K J 1/16W	
R238			RK73GB1J474J	CHIP R 470K J 1/16W	
R239			RK73GB1J182J	CHIP R 1.8K J 1/16W	
R240			RK73GB1J273J	CHIP R 27K J 1/16W	
R241			RK73GB1J471J	CHIP R 470 J 1/16W	
R242			RK73GB1J105J	CHIP R 1.0M J 1/16W	
R243			R92-1252-05	CHIP R 0 OHM	
R244			RK73GB1J152J	CHIP R 1.5K J 1/16W	
R245			RK73GB1J104J	CHIP R 100K J 1/16W	
R246			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R247,248			RK73GB1J101J	CHIP R 100 J 1/16W	
VR1 ,2			R12-7491-05	SEMI FIXED VR 68K	
VR3			R12-7488-05	SEMI FIXED VR 22K	
VR4		*	R31-0613-05	VARIABLE R POWER SW/AF VR	
S1		*	S70-0414-05	TACT SWITCHPTT	
S2			S60-0407-05	ROTARY SWITCH CHANNEL	
S3 ,4		*	S70-0414-05	TACT SWITCH (LAMP/MONI)	
MIC	2A	*	T91-0544-05	MICROPHONEELEMENT	
D2			B30-2019-05	LED	
D3			MA2S111	DIODE	
D4		*	1SV269	DIODE	
D5			1SS373	DIODE	
D6		*	UMN1N	DIODE	
D7 -10		*	1SV283	DIODE	
D11			1SV214	DIODE	
D14			MA2S111	DIODE	
D15			DA221	DIODE	
D16 ,17		*	MA2S077	DIODE	
D19		*	1SS372	DIODE	
D20			MA8062	ZENER DIODE	
D21			DAN222	DIODE	
D22			HVU131	DIODE	
D23		*	MA2S077	DIODE	
D24		*	1SR154-400	DIODE	
IC1		*	M38267M8L150GP	IC (MPU)	
IC2			PST9140NR	IC	
IC4		*	AT2408N10SI2.5	IC (8kbit SERIAL EEPROM)	
IC5		*	RN5VL45C	IC	
IC6			LMX1511TMX	IC (PLL FREQUENCY SYNTHESIZER)	
IC7		*	S-81350HG-KD	IC (VOLTAGE REGULATOR)	
IC8			TA75W01FU	IC (OP AMP X2)	

Ref. No.	Address	New parts	Parts No.	Description	Destination
IC9			TA31136FN	IC (FM IF DETECTOR)	
IC10		*	NJM2100V	IC	
IC11		*	PF0313-01	IC (RF POWER MODULE)	K2
IC11		*	PF0314-01	IC (RF POWER MODULE)	K
IC12			TA7368F	IC (AF POWER AMP)	
IC13		*	NJM2904V	IC	
IC14			TA75W01FU	IC (OP AMP X2)	
Q2 ,3			DTC114EE	DIGITAL TRANSISTOR	
Q4			DTC114YE	DIGITAL TRANSISTOR	
Q5		*	UMG3N	TRANSISTOR	
Q6			UPA572T	FET	
Q7			DTA114YE	DIGITAL TRANSISTOR	
Q8		*	MP5A02	TRANSISTOR	
Q9		*	UMG3N	TRANSISTOR	
Q12			DTA114YE	DIGITAL TRANSISTOR	
Q14			2SC4619	TRANSISTOR	
Q15			DTA114EE	DIGITAL TRANSISTOR	
Q16		*	2SK1875(V)	FET	
Q17			2SC4617(S)	TRANSISTOR	
Q18		*	2SK1875(V)	FET	
Q19			2SJ243	FET	
Q20 ,21		*	2SC5108(Y)	TRANSISTOR	
Q22			2SC4617(S)	TRANSISTOR	
Q23			UMC4	TRANSISTOR	
Q24 ,25			2SC4617(S)	TRANSSITOR	
Q26		*	2SC5108(Y)	TRANSISTOR	
Q28			2SC4617(S)	TRANSISTOR	
Q29			SGM2014M	FET	
Q30			2SK1824	FET	
Q31		*	2SC4988	TRANSISTOR	
Q33			DTC144EE	DIGITAL TRANSISTOR	
Q34			2SA1362(GR)	TRANSISTOR	
Q35 ,36			DTC144EE	DIGITAL TRANSISTOR	
Q37			2SC4617(S)	TRANSISTOR	
Q38			DTC114EE	DIGITAL TRANSISTOR	
Q39			2SK1215(E)	FET	
Q40			2SK1588	FET	
Q41			DTA144EE	DIGITAL TRANSISTOR	
TH1 -5		*	157-302-65801	THERMISTOR (3K)	

EXPLODED VIEW



PACKING


29. PACKING FIXTURE
(H12-1487-02)
30. BAG
(H25-0085-04)
13. WARRNTY CARD
(B46-0470-00)
36. BELT HOOK
(J29-0624-03)
ANT.
ANTENNA
(T90-0450-05:K)
(T90-0381-05:K2)
31. BAG
(H25-2012-04)
14. INSTRUCTION MANUAL
(B62-0554-00)
4. CAP (SP/MIC JACKS)
(B09-0351-03)
34. LOCKING BRACKET
(J21-4493-04)
H. SCREW SET
(N99-0396-05)
29. PACKING FIXTURE
(H12-1487-02)
32. ITEM CARTON CASE
(H52-0732-02)

ADJUSTMENT

Required Test Equipment

1. Stabilized Power supply

1. The supply voltage can be changed between 5V and 18V, and the current is 3A or more.
2. The standard voltage is 7.5V.

2. DC Ammeter

1. Class 1 ammeter (17 ranges and other features).
2. The full scale can be set to either 300mA or 3A.
3. A cable of less internal loss must be used.

3. Frequency Counter (f. counter)

1. Frequencies of up to 1GHz or so can be measured.
2. The sensitivity can be changed to 500MHz or below, and measurements are highly stable and accurate (0.2ppm or so).

4. Power Meter

1. Measurable frequency : Up to 500MHz
2. Impedance : 50Ω, unbalanced
3. Measuring range : Full scale of 10W or so
4. A standard cable (5D2W 1m) must be used.

5. RF Voltmeter(RF V.M)

1. Measurable frequency : Up to 500MHz or so.

6. Linear Detector

1. Measurable frequency : Up to 500MHz or so
2. Characteristics are flat, and CN is 60dB or more.

7. Digital Voltmeter

1. Voltage range : FS = 18V or so
2. Input resistance : 1MΩ or more

8. Oscilloscope

1. Measuring range : DC to 30MHz
2. Provides highly accurate measurements for 5 to 25MHz.

9. AF Voltmeter (AF V.M)

1. Measurable frequency : 50Hz to 1MHz
2. Maximum sensitivity : 1mV or more

10. Spectrum Analyzer

1. Measuring range : DC to 1GHz or more

11. Standard Signal Generator (SSG)

1. Maximum frequency : 500MHz or more
2. Output : -133dBm/0.05μv to 7dBm/501mV
3. Output impedance :50Ω

12. Tracking Generator

1. Center frequency : 50kHz to500MHz
2. Frequency deviation : ±35MHz
3. Output voltage : 100mV or more

13. Dummy Load

1. 8Ω, 3W or more.

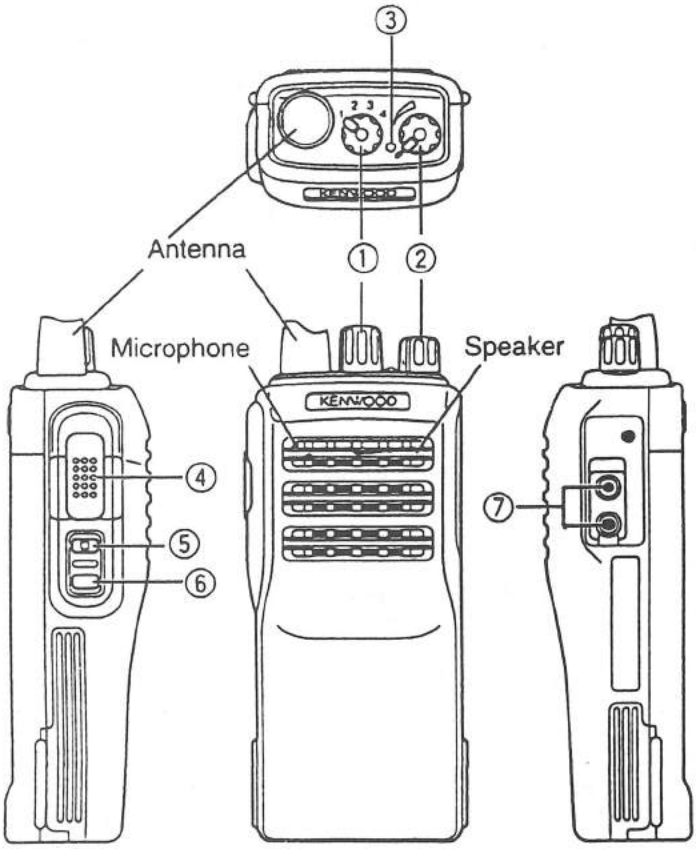
14. AF Generator(AG)

1. Frequncy range : 100Hz to 100kHz
2. Output : 0.5mV to 1V

15. Distortion Meter

1. Measuable frequency : 30Hz to 100kHz
2. Imput level : 50mV to 10Vrms

	Destination	Frequency range	Remark
TK-260	K	150~174MHz	IF 1 45.05MHz
	K2	136~150MHz	LOC 44.595MHz

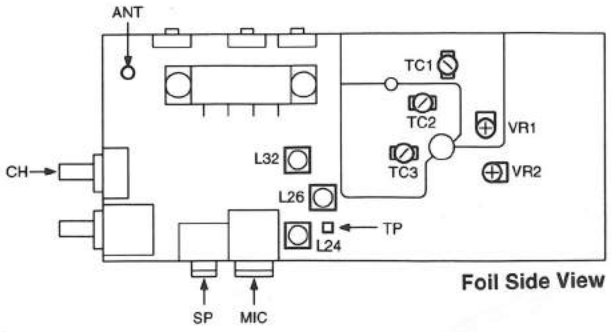


① CHANNEL
② POWER/VOL
③ LED
④ PTT
⑤ Not used
⑥ MONI
⑦ SP/MIC JACK

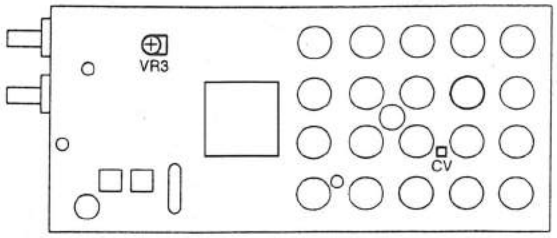
- Use a non-conductive rod such as a Bakelite rod for adjustment (especially of trimmers and coils).
- To protect the SSG,do not send out signals while adjusting the receiving unit.
- The indicateed SSG output levels are for maximum output.

ADJUSTMENT

Adjustment points



Foil Side View



Component Side View

TC1: Frequency adjustment
TC2: Receive lock voltage adjustment
TC3: Transmit lock voltage adjustment
VR1: DQT waveform adjustment
VR2: DEV adjustment
L24:
L26: } Band-pass filter waveform adjustment
L32:
ANT: Antenna connector
SP : Speaker jack
MIC: Microphone jack
TP : Band-pass filter test point
CH : Channel selector

VR3: DTMF DEV adjustment
CV : Lock voltage adjustment terminal

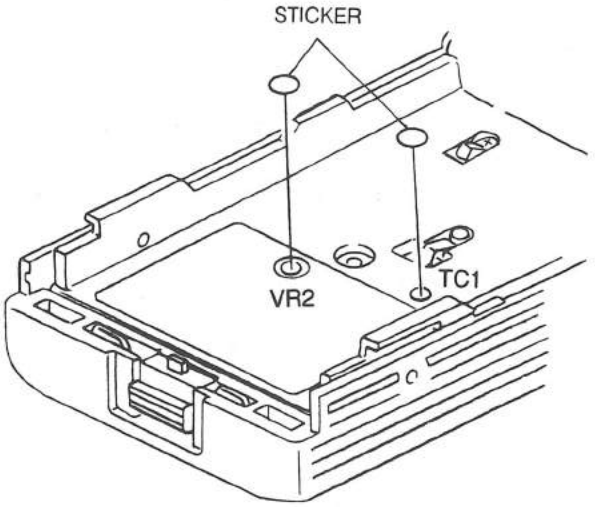
ADJUSTMENT FREQUENCY LIST

	K		K2	
CH	**TX f (MHz)**	**RX f (MHz)**	**TX f (MHz)**	**RX f (MHz)**
Center	162.000	162.100	143.000	143.100
LO	150.000	150.100	136.000	136.100
Hi	173.973	173.900	149.975	149.900
OFF BAND	145.000	145.100	155.000	155.100

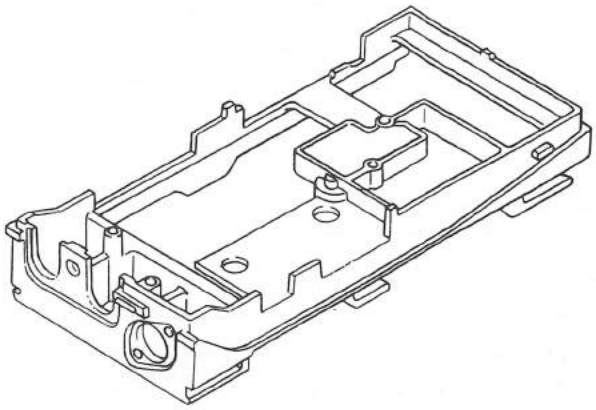
ADJUSTMENT

Use the jig(chassis) for adjustment to stabilize electrical operations. The frequency (TC1) and deviation (VR3) can be adjusted without using the jig.

Remove the STICKER (B42-5656-04) on the chassis.



1. jig for adjustment (part number A10-1368-03)



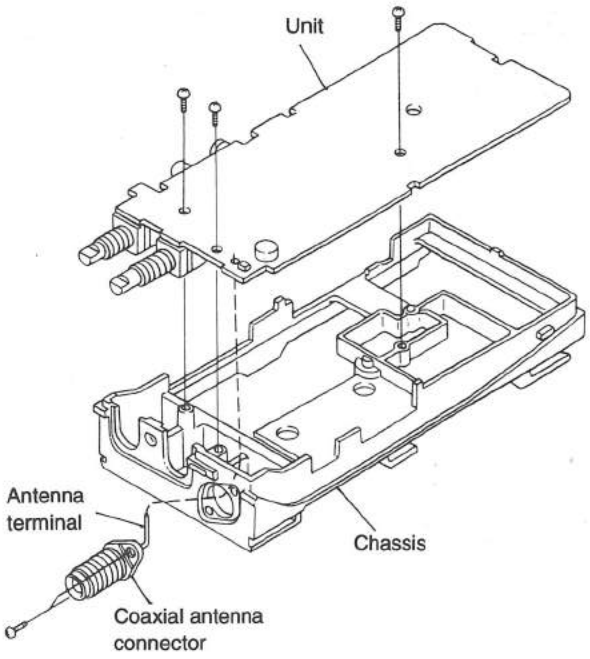
2. Use the jig as follows:

1. Insert the coaxial antenna connector into the jig.
2. Place the unit on the jig and fix it with three screws.
3. Solder the antenna terminal to the terminal of the unit.

Notes: 1. Do not install the Ni-Cd battery when using the jig for adjustment, repair, or checking.
If the Ni-Cd battery is installed, the relay terminal (+) may be damaged.

Notes: 2. Supply power from an external power supply.

(Relay terminal : +
jig (chassis) : –)



ADJUSTMENT

Use the KPG-27D programming software for adjustment of the next item in PC mode (see page 4).
Squelch Lavel DQT Balance RF Power QT Deviation DQT Deviation Battery Level
Please refer to the KPG-27D Instruction Manual (parts No. B62-0629-XX) for information on operating procedures.

Section common to the transmitter and receiver (VCO)

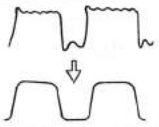
Item	Condition	Measurement		Adjustment		Specifications/ Remarks
		Test equipment	Terminal	Parts	Method	
1. Setting	1) Power supply voltage Battery terminal: 7.5V					
2. VCO lock voltage	1) CH: TX Hi. K TYPE CH: TX OFF BAND K2 TYPE	Digital voltmeter	CV	TC3	3.8V	±0.05V
	2) CH: TX OFF BAND K TYPE CH: TX LO K2 TYPE	Digital voltmeter	CV	Check	Confirm that it is 0.7V or higher. K TYPE Confirm that it is 1.3V or higher. K2 TYPE	
	3) CH: RX Hi K TYPE CH: RX OFF BAND K2 TYPE	Digital voltmeter	CV	TC2	3.8V	±0.05V
	4) CH: RX OFF BAND K TYPE CH: RX LO K2 TYPE	Digital voltmeter	CV	Check	Confirm that it is 0.8V or higher. K TYPE Confirm that it is 1.4V or higher. K2 TYPE	

Receiver Section

Item	Condition	Measurement		Adjustment		Specifications/ Remarks
		Test equipment	Terminal	Parts	Method	
1. Band-pass filter	1) Given frequency 2) Tra generator output -40dBm Connect the spectrum analyzer to the TP terminal.	Tra generator Spectrum analyzer	ANT TP	L24 L26 L32	Adjust the frequency so that it becomes the spectrum waveform shown in Fig. 1.	
2. Sensitivity	1) CH: RX center CH: RX LO CH: RX Hi At each frequency: SSG output: -118 dBm MOD: 1KHz DEV: ±3kHz	SSG Oscilloscope AF. V.M Distortion meter	ANT SP		Check	SINAD: 12dB or higher
3. Squelch Level (PC MODE)	1) CH: RX center MONI: ON	SSG Oscilloscope AF. V.M Distortion METER	ANT SP	Channel selector	Level 9 Adjust to close the squelch.	The squelch must be closed.
	2) Level 9 SSG output: -116dBm MONI: ON					
	3) Level 3 SSG output: -128dBm MONI: ON				Level 3 Adjust to close the squelch.	

ADJUSTMENT

Transmitter Section

Item	Condition	Measurement		Adjustment		Specifications/ Remarks
		Test equipment	Terminal	Parts	Method	
1. Transmit frequency	1) CH: TX center PTT: ON	Frequency counter	ANT	TC1	Adjust to center frequency	Within±250Hz
2. DQT/QT Balance (PC MODE)	1) CH: TX High	Modulation analyzer or linear detector (LPF: 3kHz) Oscilloscope	ANT	VR1	Rectify the waveform to square wave	
3. Full power (PC MODE)	1) CH: TX Center Battery terminal: 9.0V PTT: ON	Power meter Ammeter	ANT		Verify that it is 6.8W or higher	6.8W or higher
4. High power (PC MODE)	1) CH: TX center Battery terminal: 9.0V PTT: ON	Power meter Ammeter	ANT		Adjust it to 6.3W	±0.1W 2.2A or lower
	2) CH: TX High Battery terminal: 7.5V PTT: ON				Check	4.0~5.5W 2.2A or lower
	3) CH: TX LO Battery terminal: 7.5V PTT: ON				Check	4.0~5.5W 2.2A or lower
5. Low power (PC MODE)	1) CH: TX center Battery terminal: 7.5V PTT: ON	Power meter Ammeter	ANT		Adjust it to 1.0W	±0.1W 1.0A or lower
	2) CH: TX High Battery terminal: 7.5V PTT: ON				Check	0.5~1.5W
	3) CH: TX Low Battery terminal: 7.5V PTT: ON				Check	0.5~1.5W
6. MAX DEV	1) CH: TX center AG: 1kHz/150mV PTT: ON	Modulation analyzer or linear detector (LPF:15kHz) Oscilloscope AG AF. V.M.	ANT MIC	VR2	Adjust it to ±4.1kHz (+, - Peak whichever is Maximum)	±100Hz
7. MIC SENS	1) CH: TX center AG: 1kHz/15mv				Check (+, - Peak whichever is Maximum)	±2.2kHz~3.6kHz

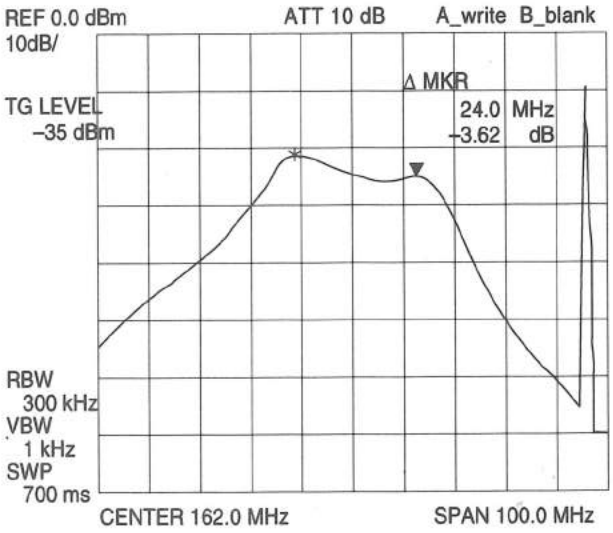
ADJUSTMENT

Transmitter Section

Item	Condition	Measurement		Adjustment		Specifications/ Remarks
		Test equipment	Terminal	Parts	Method	
8.QT DEV (PC MODE)	1) CH: TX center QT: 151.4Hz	Modulation analyzer or linear detector (LPF: 3kHz) Oscilloscope AG AF. V.M	ANT		Adjust it to 0.75kHz ±50Hz	0.75kHz ±50Hz
9. DQT DEV (PC MODE)	1) CH: TX center	Modulation analyzer or linear detector (LPF: 3kHz) Oscilloscope	ANT		Adjust it to 0.75kHz ±50Hz	0.75kHz ±50Hz
10. DTMF DEV (PC MODE)	1) CH: TX center	Modulation analyzer or linear detector (LPF:15kHz) Oscilloscope	ANT		Check	±2.5kHz ~±4.5kHz
11. Battery Level (PC MODE)	1) Battery terminal: 5.85V	Digital voltmeter	BATT		Adjust so that the LED flashes	The LED must flash
	2) Battery terminal: 6.3V				Verify that the LED lights	Check

ADJUSTMENT

(K type)



(K2 type)

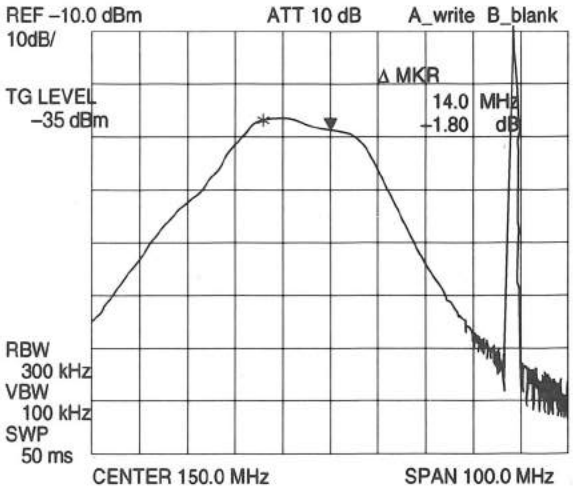
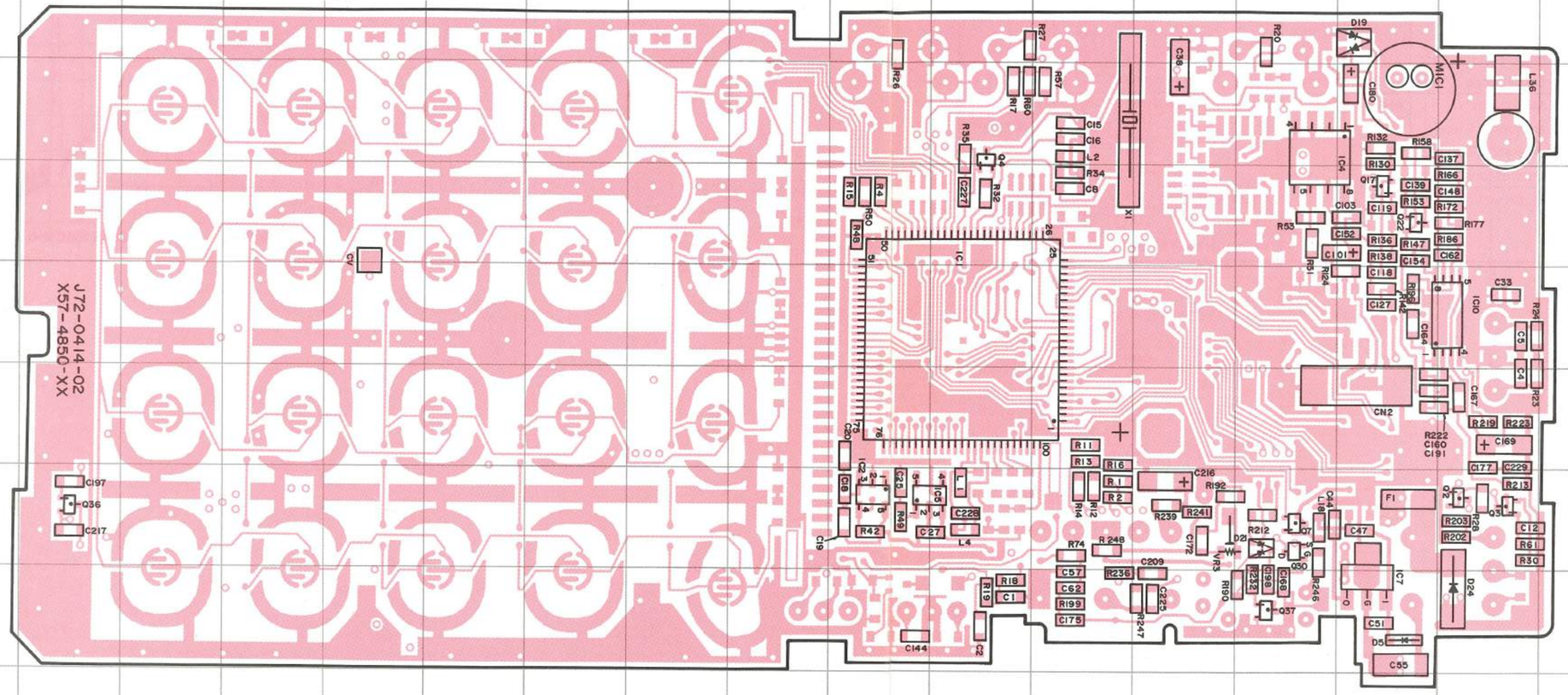


Fig 1

TK-260 PC BOARD VIEWS

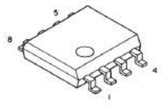
TX-RX UNIT (X57-4850-XX) Component side view
-10:K , -11:K2



TX-RX UNIT(X57-485)
(Component side)

Ref. No.	Address
IC1	7K
IC2	9J
IC4	5N
IC5	9J
IC7	10O
IC10	7P
Q2	9P
Q3	9P
Q4	5K
Q7	9N
Q17	6O
Q22	6O
Q30	9N
Q36	9B
Q37	10N
D5	10S
D19	4O
D21	9N
D24	10P

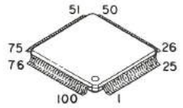
	Component side
Pattern 1	
Pattern 2	
Pattern 3	
Pattern 4	
Pattern 5	
Pattern 6	
	Foil side



NJM2100V

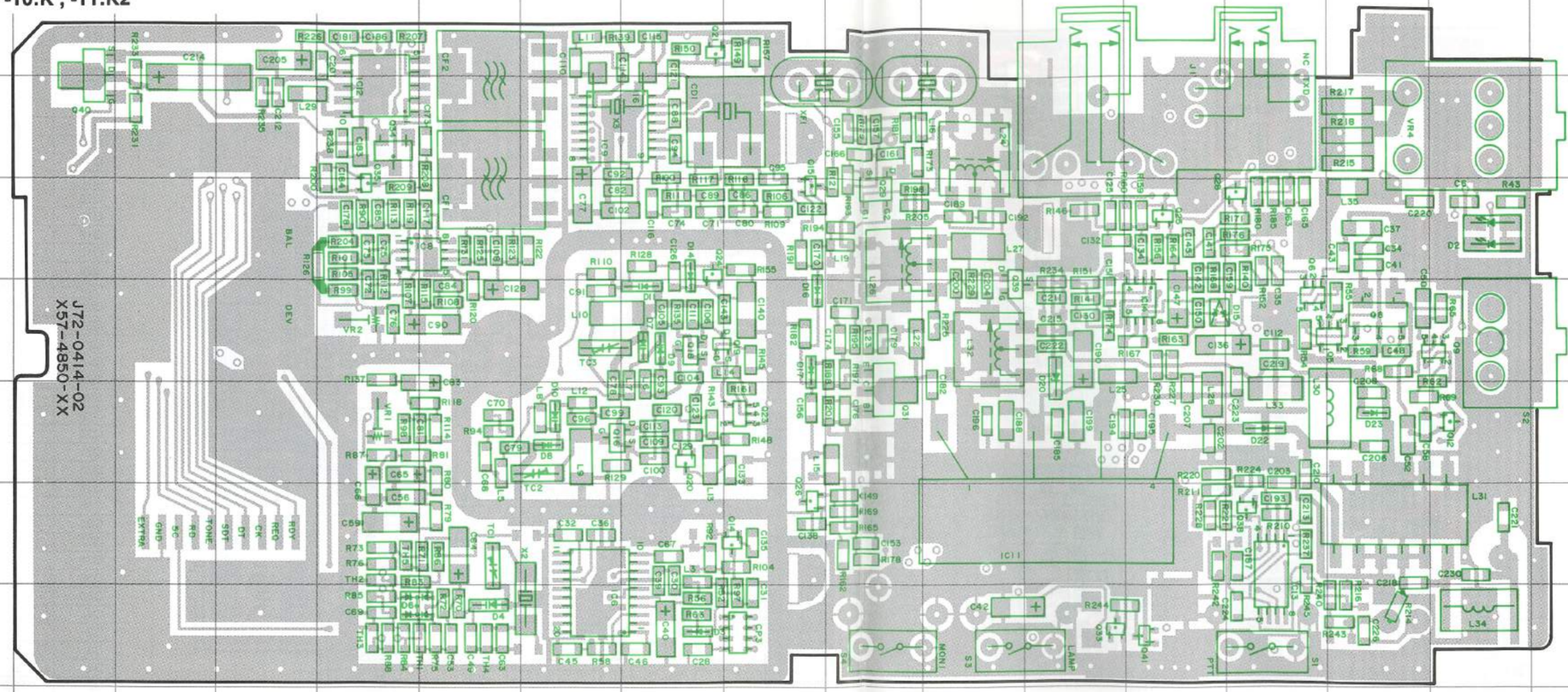
DTC114EE DTA114YE
DTC114YE 2SC4617
DTC144EE

2SK1824



M38267M8L150GP

TX-RX UNIT (X57-4850-XX) Foil side view
-10:K , -11:K2



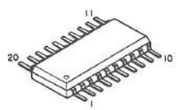
TX-RX UNIT(X57-485)
(Foil side)

Ref. NO.	Address
IC6	10G
IC8	6E
IC9	5G
IC11	9K
IC12	5F
IC13	9N
IC14	7M
Q5	7O
Q6	7N
Q8	7O
Q9	7P
Q12	8P
Q14	9I
Q15	6I
Q16	8G
Q18	7H
Q19	7H
Q20	8H
Q21	4H
Q23	8I
Q24	6H
Q25	6M
Q26	9I
Q28	6N
Q29	6J
Q31	8J
Q33	10L
Q34	5E
Q35	6E
Q38	9N
Q39	7K
Q40	5B
Q41	10M
D2	6P
D3	10H
D4	10F
D6	10E
D7	7H
D8	8G
D9	7H
D10	8G
D11	7H
D14	6H
D15	7M
D16	7I
D17	7I
D20	7L
D22	8N
D23	8O

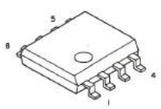
Component side

Pattern 1
Pattern 2
Pattern 3
Pattern 4
Pattern 5
Pattern 6

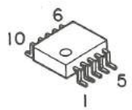
Foil side



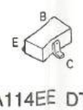
LMX1511TMX



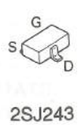
NJM2904V
TA75W01FU



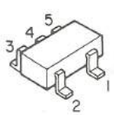
TA7368F



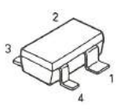
DTA114EE DTC144EE
DTA114YE 2SA1362
DTA144EE 2SC4617
DTC114EE 2SC4619



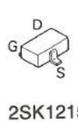
2SJ243



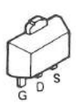
UMC4



SGM2014M



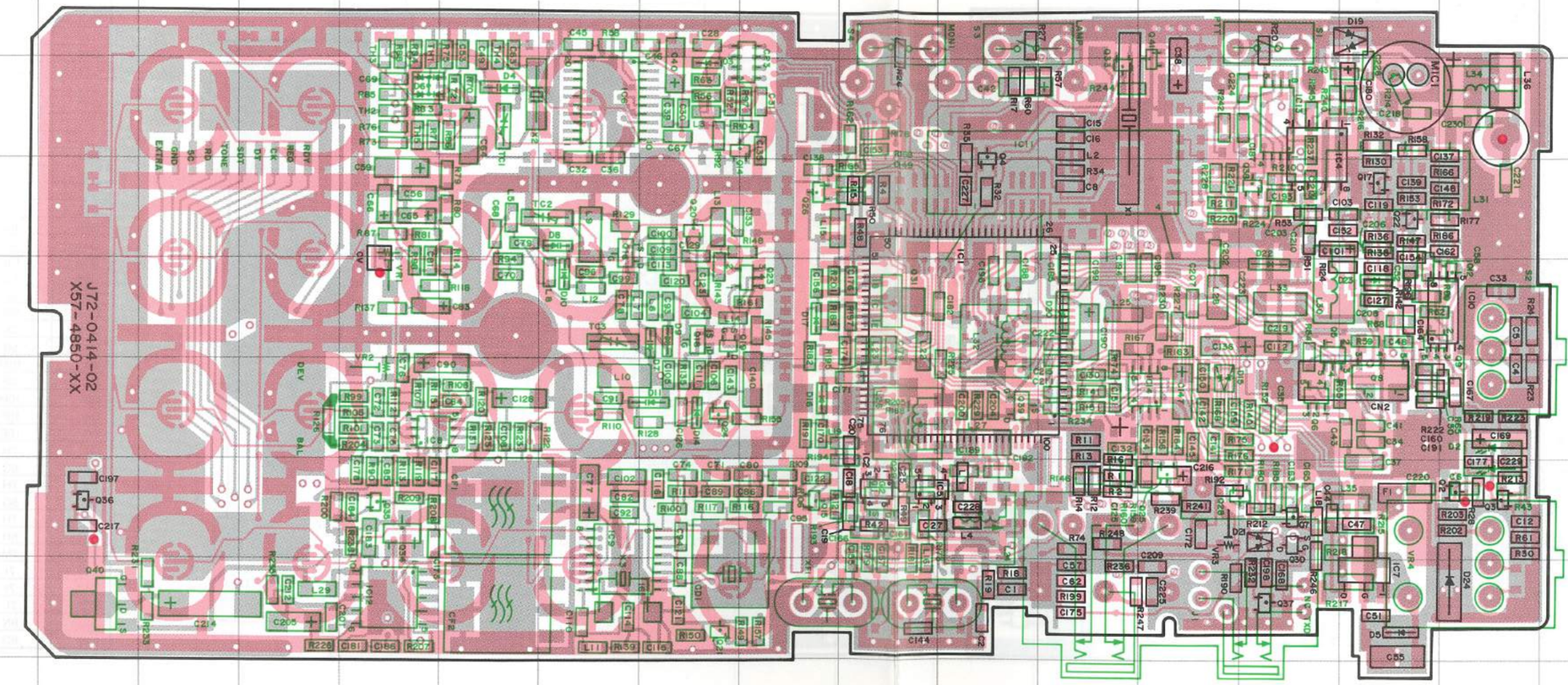
2SK1215



2SK1588

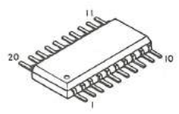
TK-260 PC BOARD VIEWS

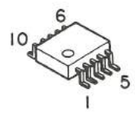
TX-RX UNIT (X57-4850-XX) Component side view +Foil side view
-10:K , -11:K2

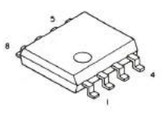


● Connect 1 and 6.

Component side
Pattern 1
Pattern 2
Pattern 3
Pattern 4
Pattern 5
Pattern 6
Foil side

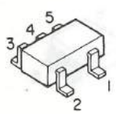

LMX1511TMX

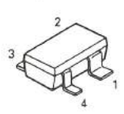

TA7368F


NJM2100V
NJM2904V
TA75W01FU


DTA114EE 2SA1362
DTA114YE 2SC4617
DTA144EE 2SC4619
DTC114EE
DTC114YE
DTC144EE

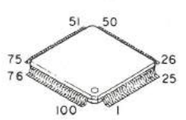

2SJ243
2SK1824


UMC4


SGM2014M

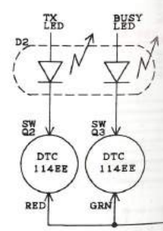

2SK1215


2SK1588


M38267M8L150GP

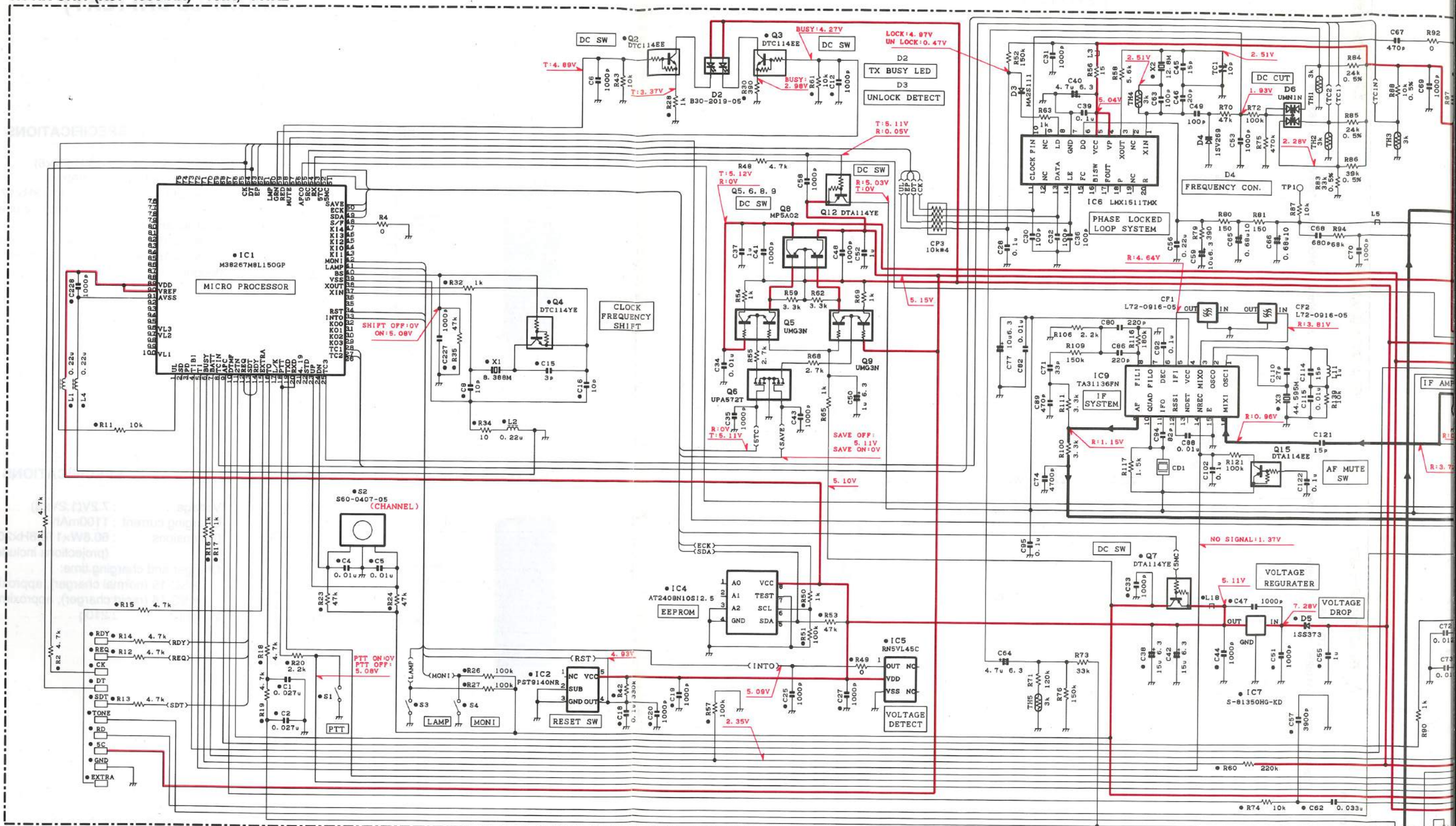
TX-RX UNIT(X57-485)
(Component side) + (Foil side)

Ref. No.	Address
IC1	7K
IC2	9J
IC4	6O
IC5	9K
IC6	5G
IC7	10O
IC8	8E
IC9	9G
IC10	7P
IC11	5K
IC12	10E
IC13	5N
IC14	8M
Q2	9P
Q3	9P
Q4	5K
Q5	7O
Q6	8N
Q7	9N
Q8	8O
Q9	7P
Q12	7P
Q14	6I
Q15	9I
Q16	6G
Q17	6O
Q18	7H
Q19	7H
Q20	6H
Q21	10H
Q22	6O
Q23	7I
Q24	8H
Q25	9M
Q26	6I
Q28	9M
Q29	9J
Q30	9N
Q31	7J
Q33	4L
Q34	9E
Q35	9E
Q36	9B
Q37	10N
Q38	6N
Q39	8K
Q40	10B
Q41	4M
D2	8P
D3	4H
D4	5F
D5	10O
D6	5E
D7	7H
D8	6G
D9	7H
D10	7G
D11	8H
D14	8H
D15	8N
D16	8I
D17	7I
D19	4O
D20	7L
D21	9N
D22	6N
D23	7O
D24	10P



TK-260	K
	K2

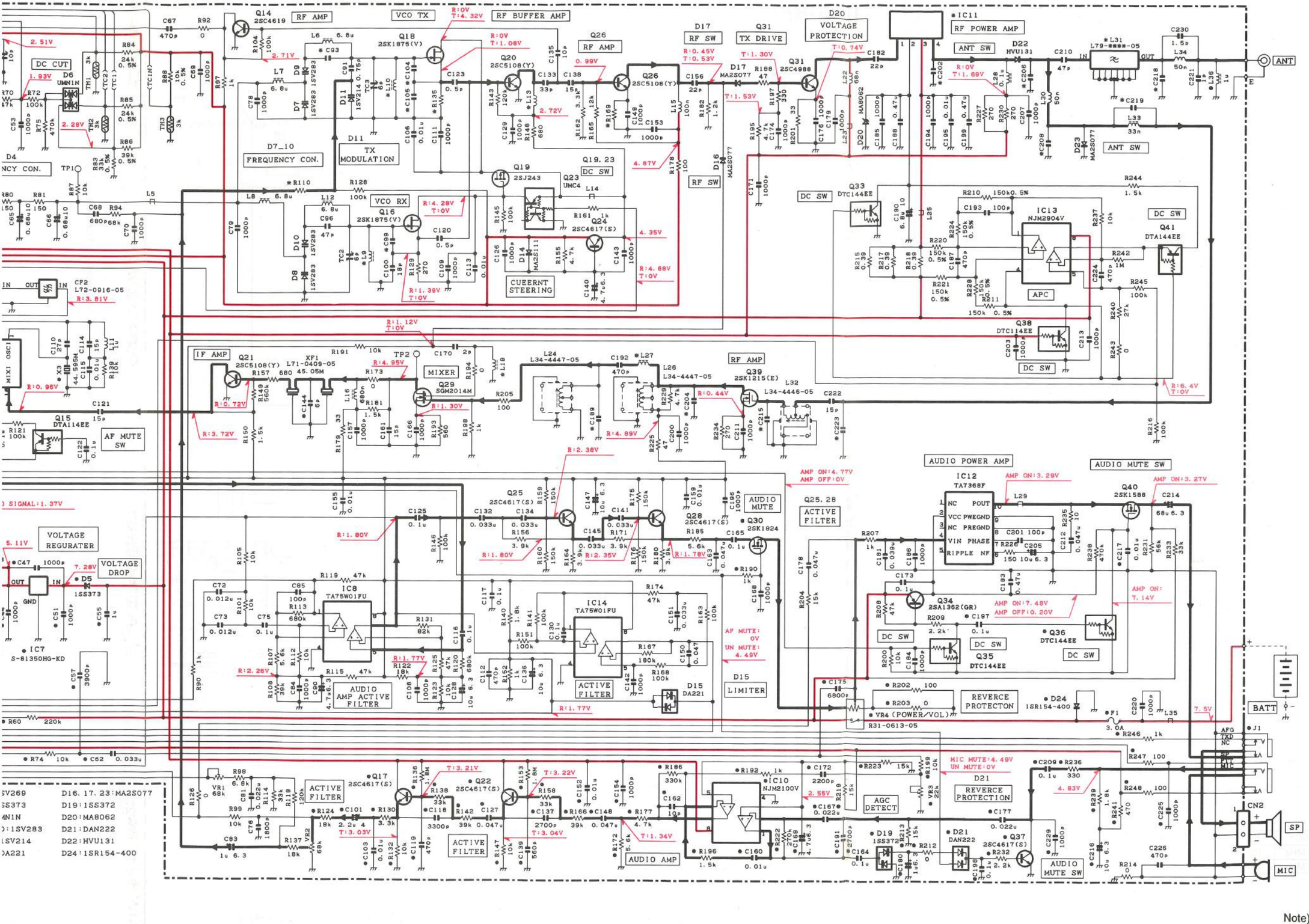
TX-RX UNIT (X57-4850-XX) -10:K, -11:K2



Ver.		R110	R135	R169	C93	C99	C104	C105	C188	C202	C204	C206	C208	C215	C218	C219	C223	L9	L10	L13	L19	L27	L31	IC11
0-11	K	47k	270	180	220p	6p	10p	22p	4p	7p	5p	3p	27p	6p	7p	12p	10p	23n	27n	100n	100n	470n	1157	PF0314-01
0-12	K2	100k	330	270	150p	8p	5p	18p	6p	2p	7p	12p	33p	9p	10p	15p	12p	27n	39n	120n	150n	560n	1076	PF0313-01

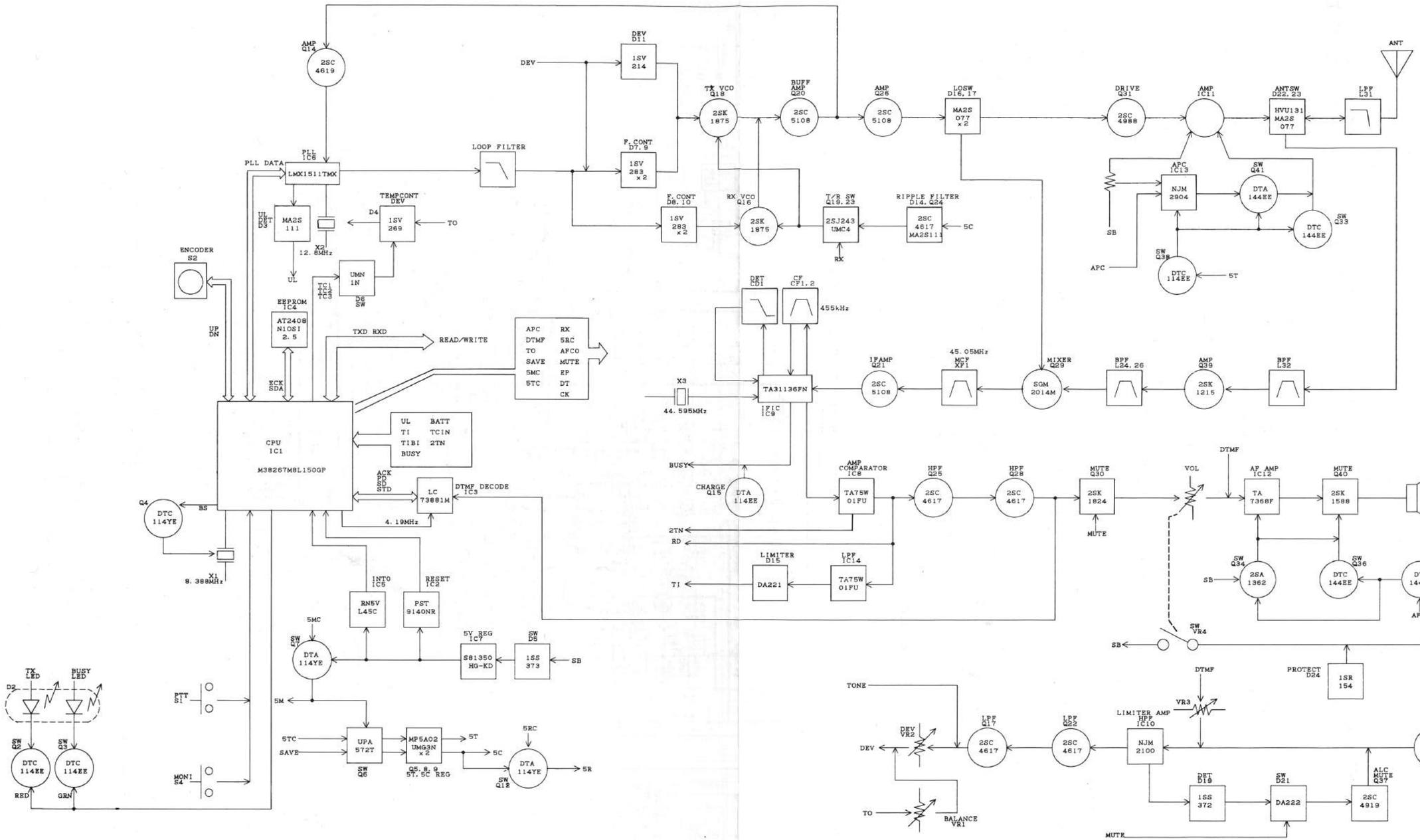
IC1:M38267M8L150GP
IC2:PST9140NR
IC4:AT2408N10SI2.5
IC5:RN5VL45C
IC6:LMX1511TMX
IC7:S-81350HG-KD
IC8.14:TA75W01FU
IC9:TA31136FN
IC10:NJM2100V
IC11:*
IC12:TA7368F
IC13:NJM2904V

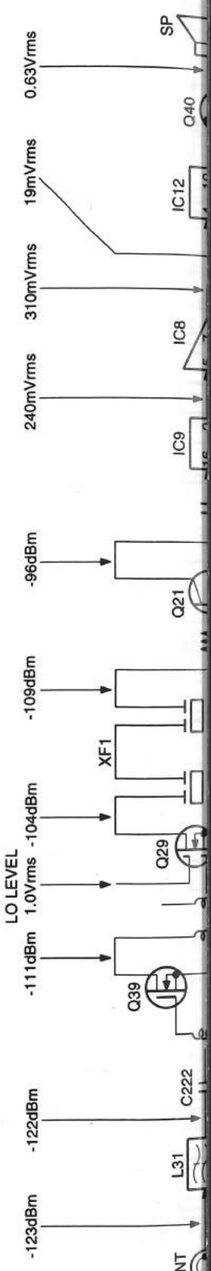
Q2.3.38:DTC114EE
Q4 :DTC114YE
Q5.9:UMG3N
Q6 :UPA572T
Q7.12:DTA114YE
Q8 :MP5A02
Q14:2SC4619
Q15:DTA114EE
Q16.18:2SK1875(V)
Q17.22.24.25.28.37:2SC4617(S)
Q19:2SJ243
Q20.21.26:2SC5108(Y)
Q23:UMC4
Q29:SGM2014M
Q30:2SK1824
Q31:2SC4988
Q33.35.36:DTC144EE
Q34:2SA1362(GR)
Q39:2SK1215(E)
Q40:2SK1588
Q41:DTA144EE
D2:B30-2019-05
D3.14:MA2S111
D4:1SV269
D5:1SS373
D6:UMN1N
D7-10:1SV283
D11:1SV214
D15:DA221
D16.17.23:MA2S077
D19:1SS372
D20:MA8062
D21:DAN222
D22:HVU131
D24:1SR154-400



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

BLOCK DIAGRAM



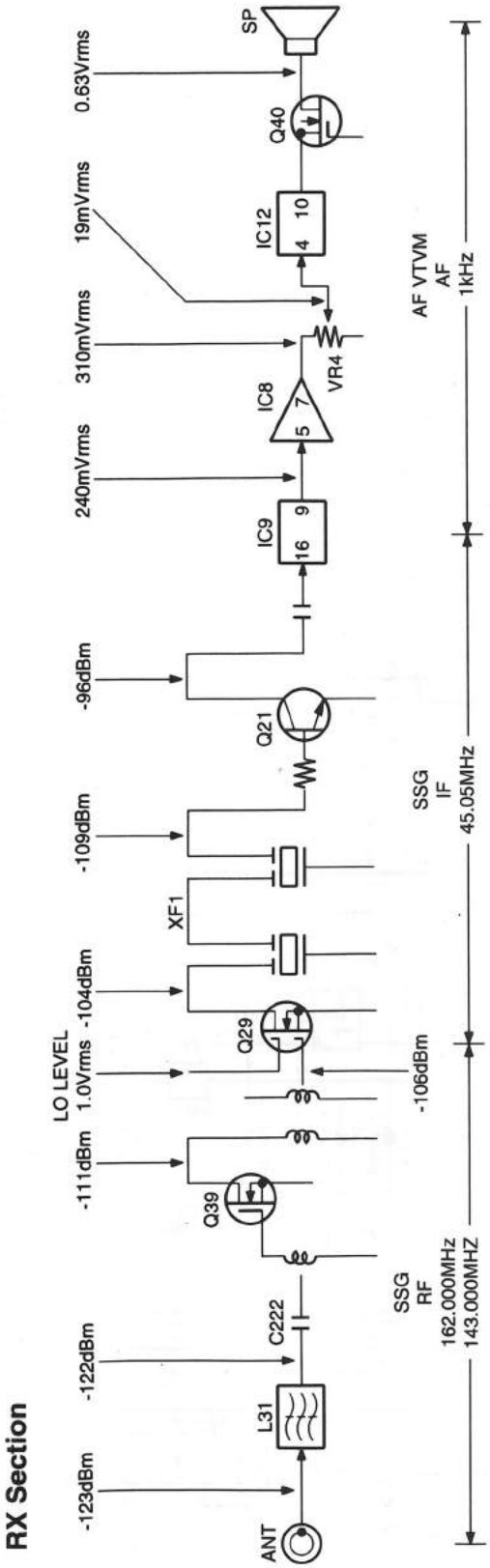


RX Section

		TX VCO FREQUENCY	RX VCO FREQUENCY	IC11
TK-260	K	150.000 – 174.000 MHz	195.050 – 219.050 MHz	PF0314
	K2	136.000 – 150.000 MHz	181.050 – 195.050 MHz	PF0313

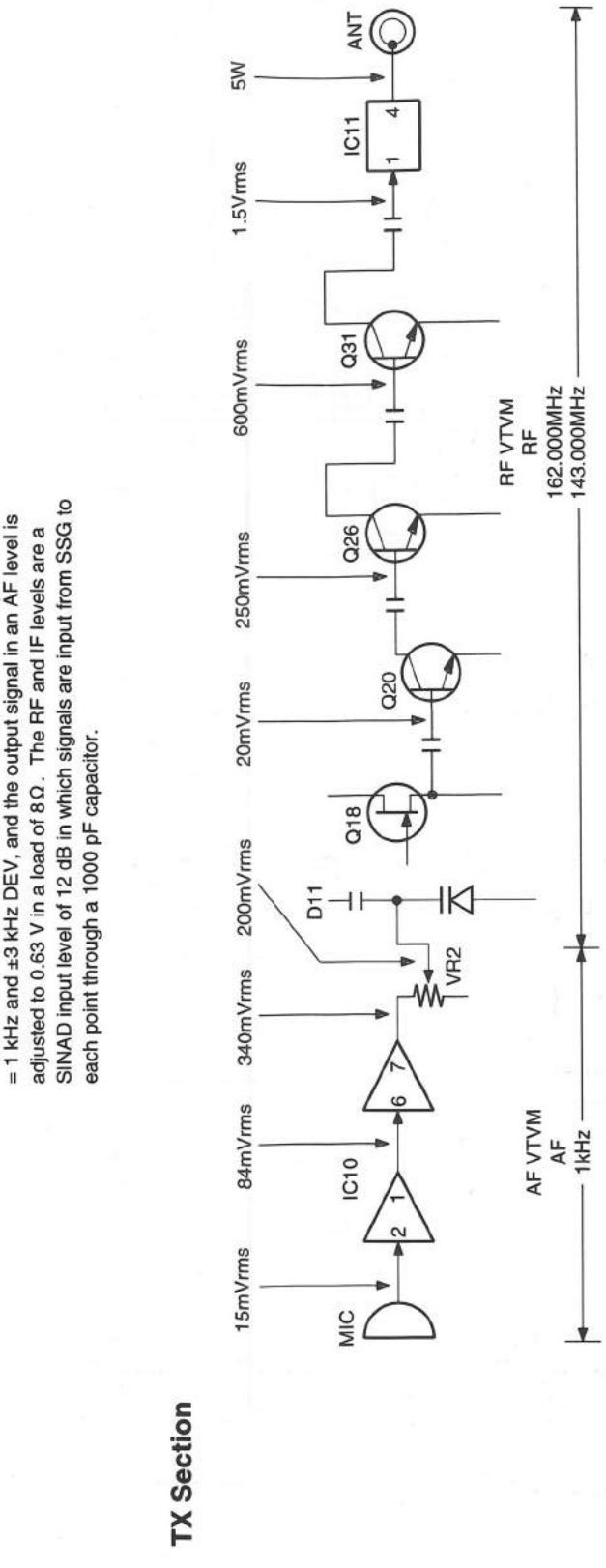
LEVEL DIAGRAM

RX Section



The supply voltage is 7.5 V. The input signal in an RF level is set to f = 1 kHz and ±3 kHz DEV, and the output signal in an AF level is adjusted to 0.63 V in a load of 8Ω. The RF and IF levels are a SINAD input level of 12 dB in which signals are input from SSG to each point through a 1000 pF capacitor.

TX Section

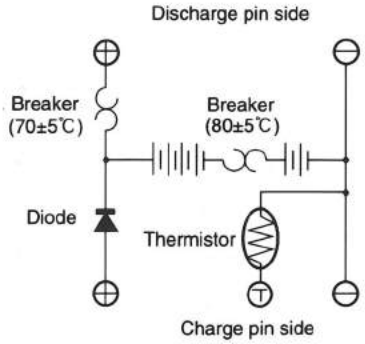


The AF level is measured by an AF VTVM. The RF level is measured by an RF VTVM. Each of levels measured at high impedance.
The transmitting frequency is 162.000MHz.
The audio generator is controlled so that the input signal at the MIC pin has a deviation of ±3kHz for a modulation frequency of 1kHz.

KNB-14/KNB-15A (Ni-Cd BATTERY)

KNB-14

CIRCUITDIAGRAM

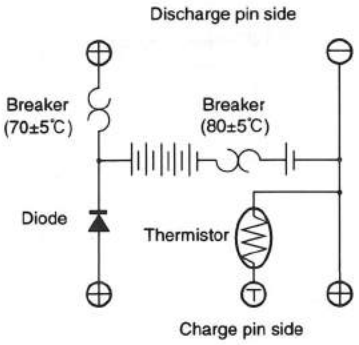


SPECIFICATIONS

Voltage : 7.2V(1.2V×6)
Charging current : 600mAh
Dimensions : 60.8W×110.8H×17.3D(mm)
(projections included)
Charger and charging time:
KSC-15 (normal charger), approximately 8 hours
KSC-16 (rapid charger), approximately 1 hour
Weight : 165g

KNB-15A

CIRCUITDIAGRAM



SPECIFICATIONS

Voltage : 7.2V(1.2V×6)
Charging current : 1100mAh
Dimensions : 60.8W×110.8H×20.3D(mm)
(projections included)
Charger and charging time:
KSC-15 (normal charger), approximately 8 hours
KSC-16 (rapid charger), approximately 1 hour
Weight : 210g

TK-260

SPECIFICATIONS

GENERAL

Frequency Range	TK-260: K (150 ~ 174MHz) TK-260: K2 (136 ~ 150MHz)
Number of channels	4
Cannel Spacing	30 (25) kHz (PLL channel step 5/6.25kHz)
Operating Voltage	7.5VDC
Battery Life	More than 8 hours at 5 watts (5-5-90 duty cycle with KNB-15A battery)
Temperature Life	-30°C to +60°C (-22 °F to +140 °F)
Dimensions and Weight	
With KNB-14 (7.2V 600mAh battery)	58 (2-5/16) W × 135 (5-5/16) H × 32 (1-1/4) D mm (in) 400g (0.88lbs)
With KNB-15 (7.2V 1100mAh battery)	58 (2-5/16) W × 135 (5-5/16) H × 35 (1-3/8) D mm (in) 440g (0.97lbs)

RECEIVER (Measurements made per EIA standard EIA-316B)

Sensitivity	
EIA 12dB SINAD	0.25μV
Modulation Acceptance	±7kHz
Selectivity	70dB
Intermodulation	65dB
Spurious responce	60dB
Audio Power Output	500mW at less than 10% distortion
Frequency Stability	±0.0005% from -30°C to +60°C
Channel Frequency Spread	24MHz

TRANSMITTER (Measurements made per EIA standard EIA-316B)

RF Power output	5W/1W
Spurious and Harmonics	-70dB
Modulation	16Kϕ F3E
Maximum frequency deviation	±5kHz (for 100% at 1000Hz)
FM Noise	-45dB
Audio Distortion	5%
Frequency Stability	±0.0005% from -30°C to +60°C
Channel Frequency Spread	24MHz

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