

UHF FM TRANSCEIVER

TK-260/(N)

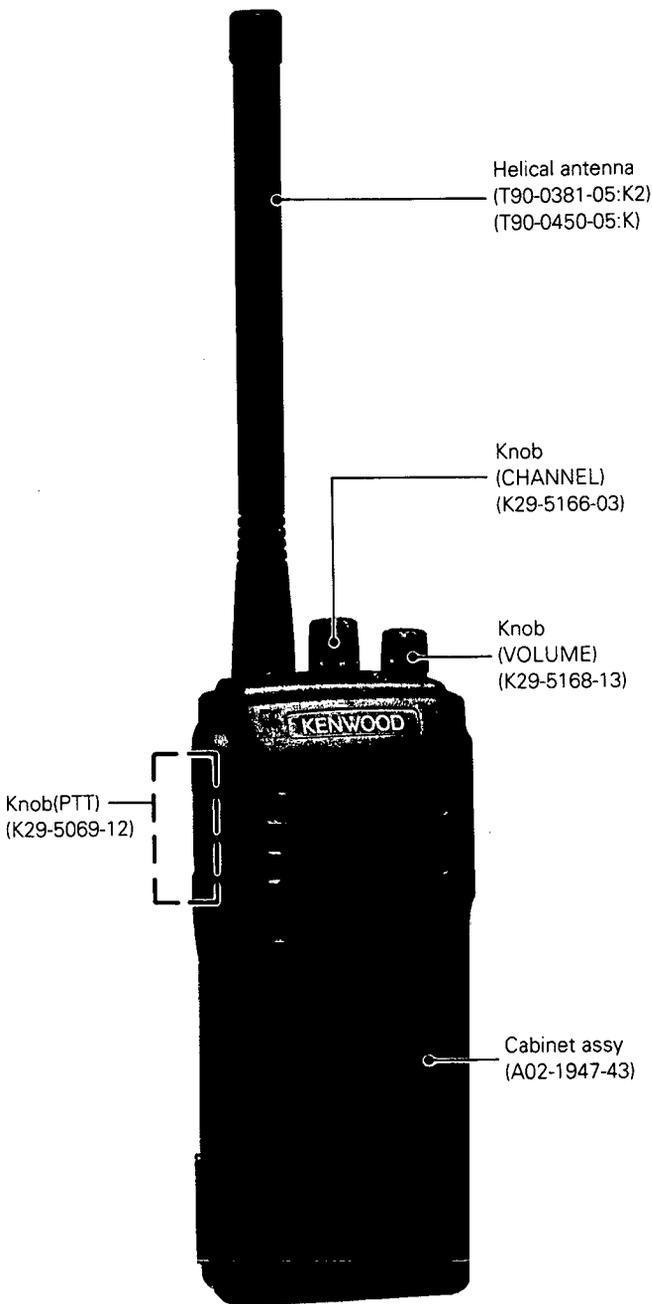
SERVICE MANUAL

KENWOOD

REVISED

© 1997-6 PRINTED IN JAPAN
B51-8314-10(B) 993

This service manual is the same as the TK-260 (B51-8314-00) service manual with destinations K and K2, with the exception of the new destinations, (N)K and (N)K2.



CONTENTS

GENERAL	2
REALIGNMENT	3
DISASSEMBLY FOR REPAIR	6
CIRCUIT DESCRIPTION	8
SEMICONDUCTOR DATA	14
DESCRIPTION OF COMPONENTS	16
PARTS LIST	18
EXPLODED VIEW	24
PACKING	25
ADJUSTMENT	26
PC BOARD VIEWS	
TX-RX UNIT(X57-4850-XX)	33
SCHEMATIC DIAGRAM	39
BLOCK DIAGRAM	43
LEVEL DIAGRAM	45
KNB-14/15A(Ni-Cd BATTERY)	46
SPECIFICATIONS	BACK COVER

CAUTION :

When using an external power connector, please use with maximum final module protection of 9V.

TK-260/(N)

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.

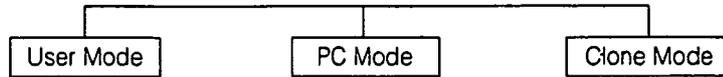
NOTE

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

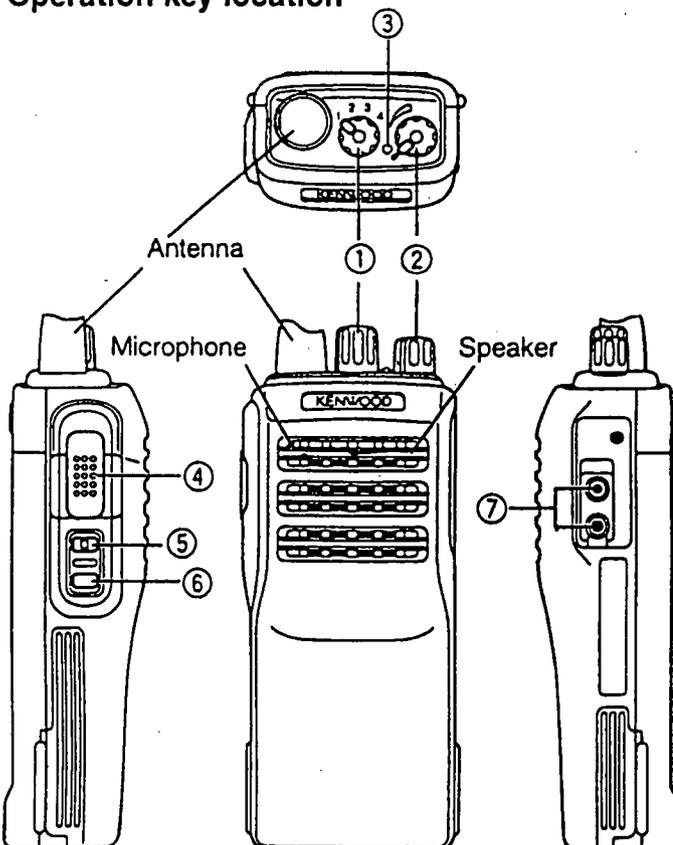


MODE	FUNCTION
User Mode	Use this mode for normal operation.
PC Mode	Use this mode, to make various settings by means of the FPU through the RS-232C port.
Clone Mode	Use this mode, to copy data settings from another transceiver by means of an interface cable.
Manufacture Mode	Use this mode, to realign 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 controlled by the FPU.
Clone Mode	Receive the clone data from the transceiver attached to the TK-270/(N)/278/(N)/T with the interface cable.

Operation key location



- 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	<p>Lights red while transmitting. Flashes red while transmitting if the battery pack voltage is low. Recharge or replace the battery pack at this time.</p> <p>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.</p>

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

REALIGNMENT

PC Mode

Preface

The TK-260/(N) 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.

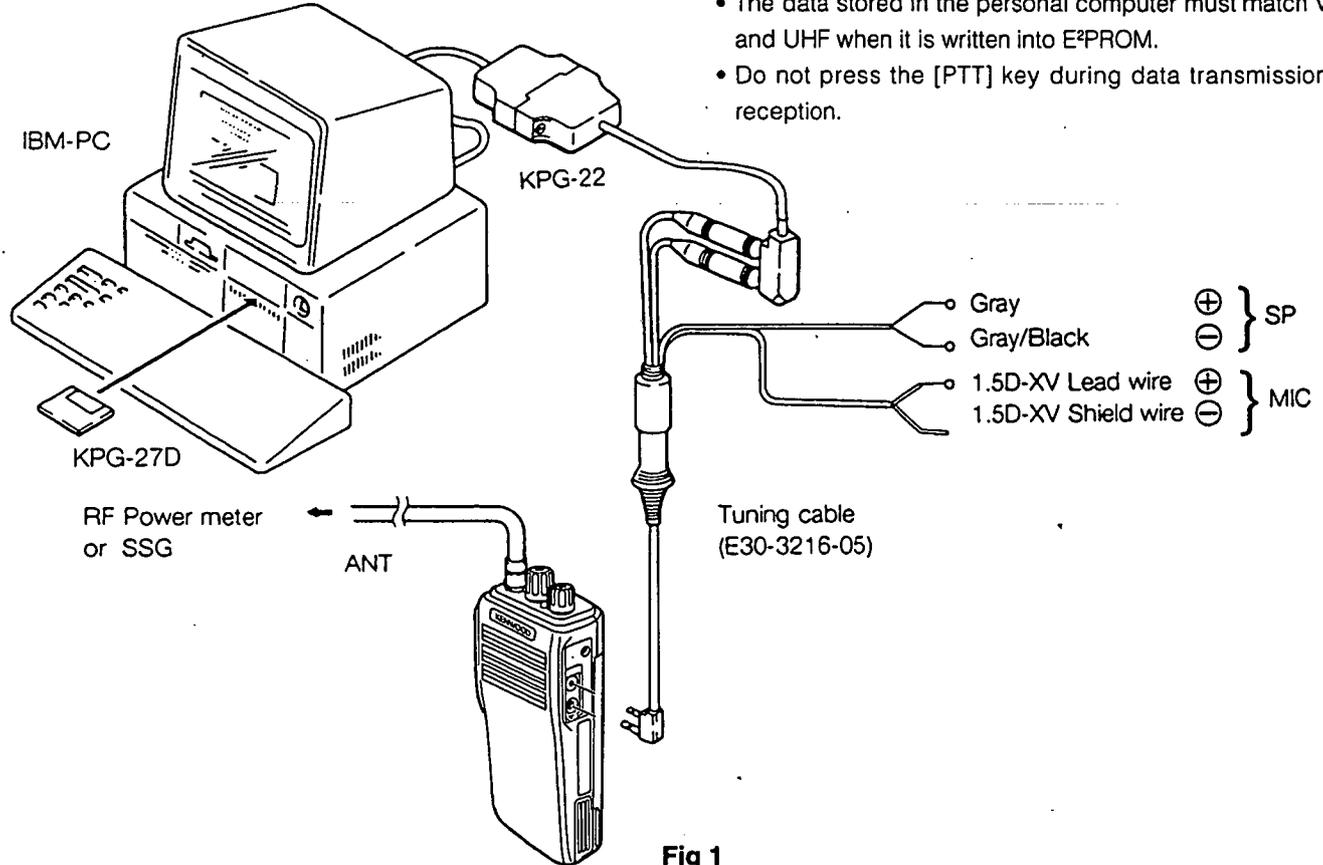


Fig 1

- **KPG-22 description**

(P.C programming interface cable: Option)

The KPG-22 is required to interface the TK-260/(N) 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/(N) 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/(N) radios via Programming interface cable (KPG-22).

Connection procedure

1. Connect the TK-260/(N) 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.

- **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.

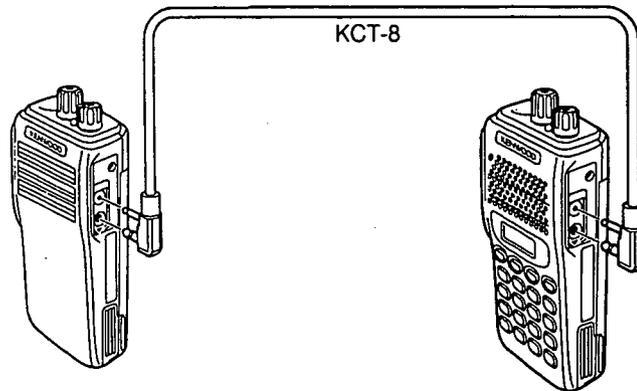
In this mode the PTT line operate as TXD and RXD data lines respectively.

(KPG-27D Instruction Manual)
(PartsNo: B62 0629-20)

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/(N) transceiver and TK-270/(N)/278/(N) in the clone mode with the KCT-8 interface cable.
2. Send clone data from the TK-270/(N)/278/(N) to the TK-260/(N).

The TK-260/(N) a green LED lights while receiving clone data.

Notes:

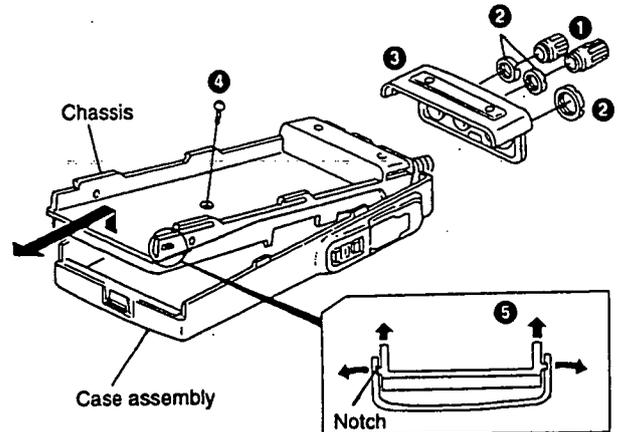
- VHF and IF must match.
- Do not press the [PTT] key during data transmission.
- Refer to the TK-270/(N)/278/(N) service manual for details on transferring TK-270/(N)/278/(N) clone data.

TK-260/(N)

DISASSEMBLY FOR REPAIR

Separating the case assembly from the chassis

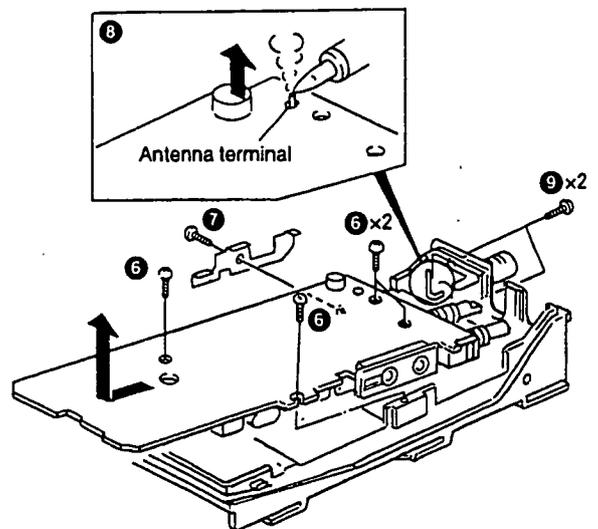
1. Remove the two knobs ① and three round nuts ②, and remove the panel ③.
2. Remove the one screw ④.
3. Expand the right and left sides of the bottom of the case assembly, lift the chassis, and remove it from the case assembly ⑤.



Separating the chassis from the unit

1. Remove the four screws ⑥.
2. Remove the one screw ⑦ and the fitting.
3. Remove the solder from the antenna terminal using a soldering iron and lift the unit off ⑧.
4. Remove the two screws ⑨ and remove the antenna connector.

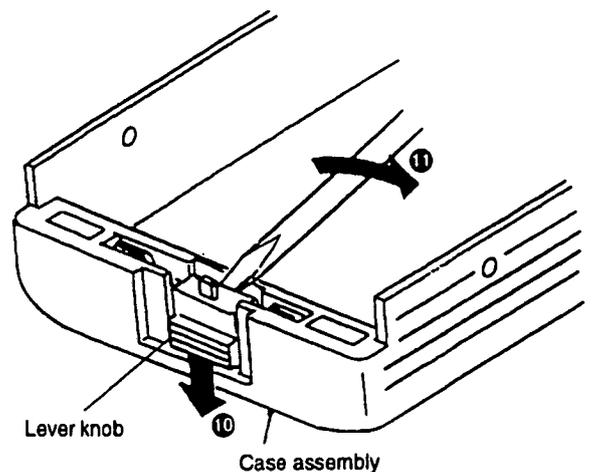
Note :When reassembling the unit in the chassis, be sure to solder the antenna terminal.



Removing the lever

1. Raise the lever on the lower case ⑩, insert a small normal screwdriver into the clearance between the case and lever, open the case carefully ⑪, and lift the lever off.

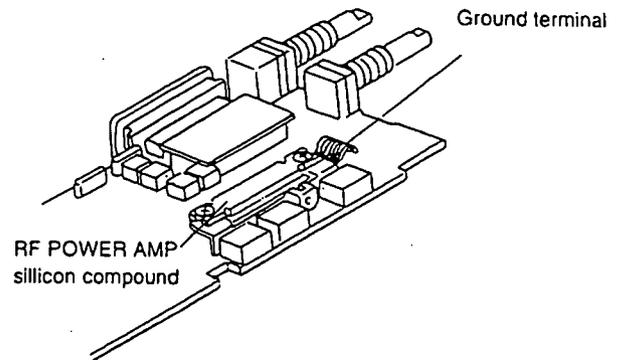
Note :Do not force to separate the case from the lever.



DISASSEMBLY FOR REPAIR

Protecting the ground terminal of the RF power amplifier

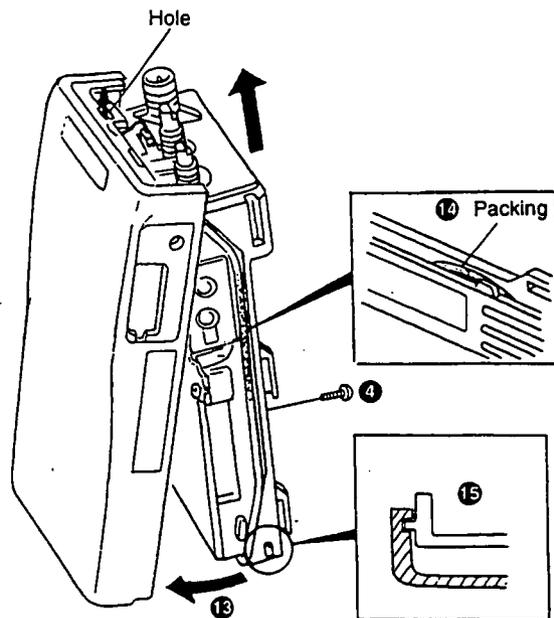
1. Take special care to prevent damage to the ground terminal of the RF power amplifier. Do not attach the silicon compound coated on the RF power amplifier to the ground terminal.



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.

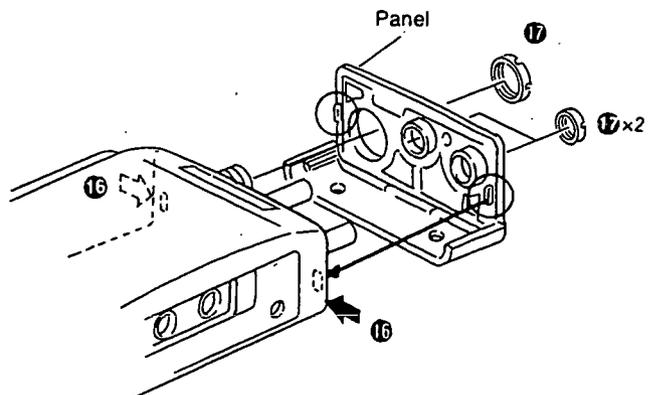
Note :After assembling the chassis, check whether the claw shown in Fig. ⑮ fits into the notch in the case assembly. After installing the chassis, verify that the packing does not protrude to the outside ⑭.



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.



TK-260/(N)

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.

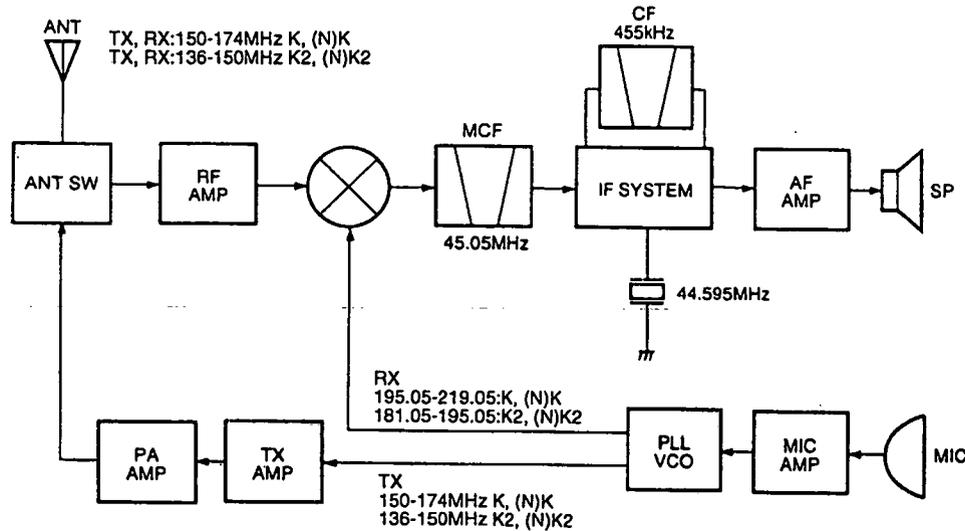


Fig 1 Frequency configuration

2. Receiver

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

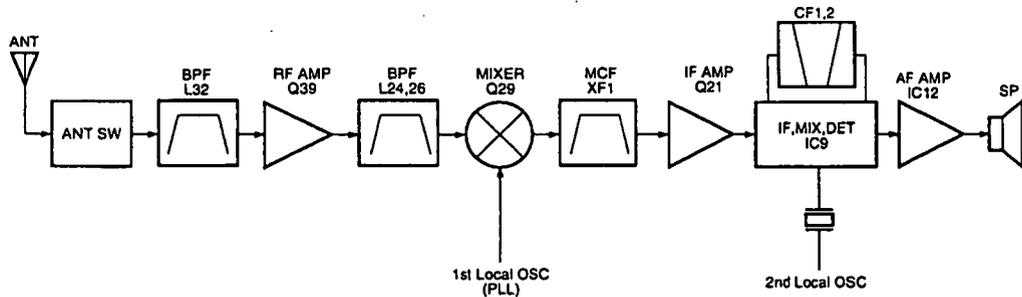


Fig 2 Receiver section configuration

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 AF CO 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 AF CO 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.)

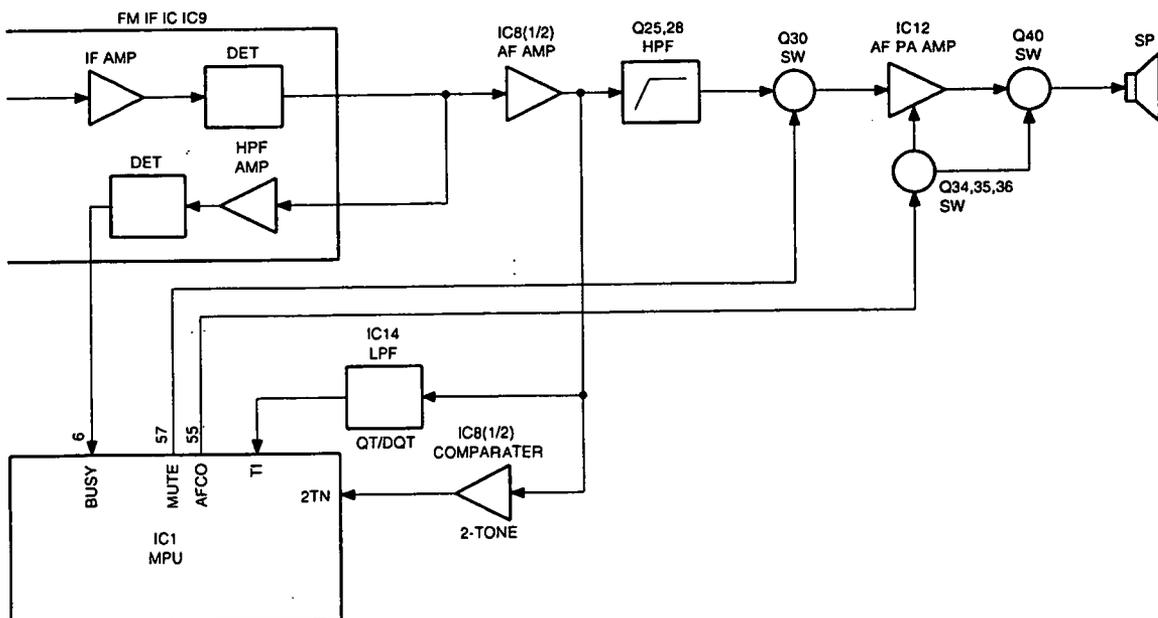


Fig 3 AF Amplifier and Squelch

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.)

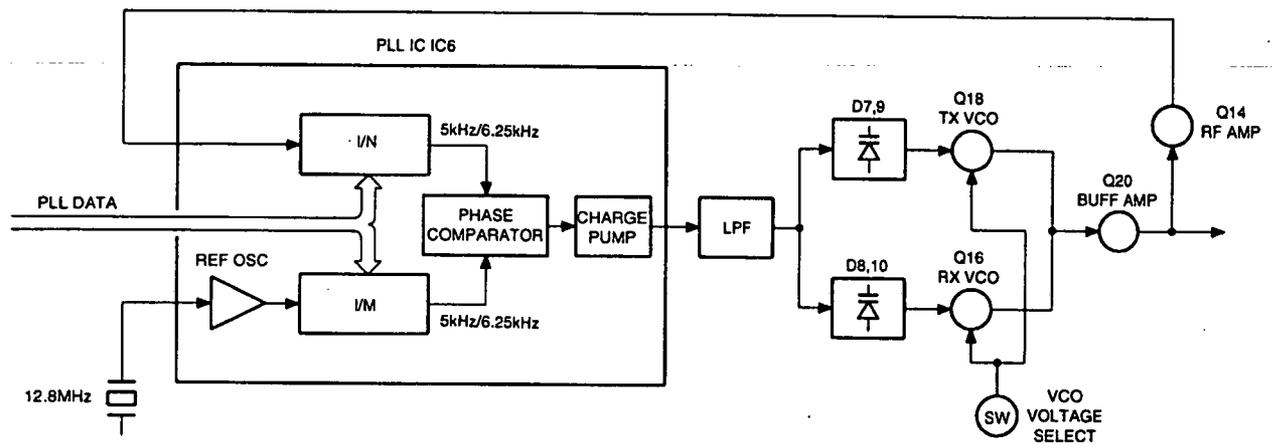


Fig 4 PLL circuit

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)

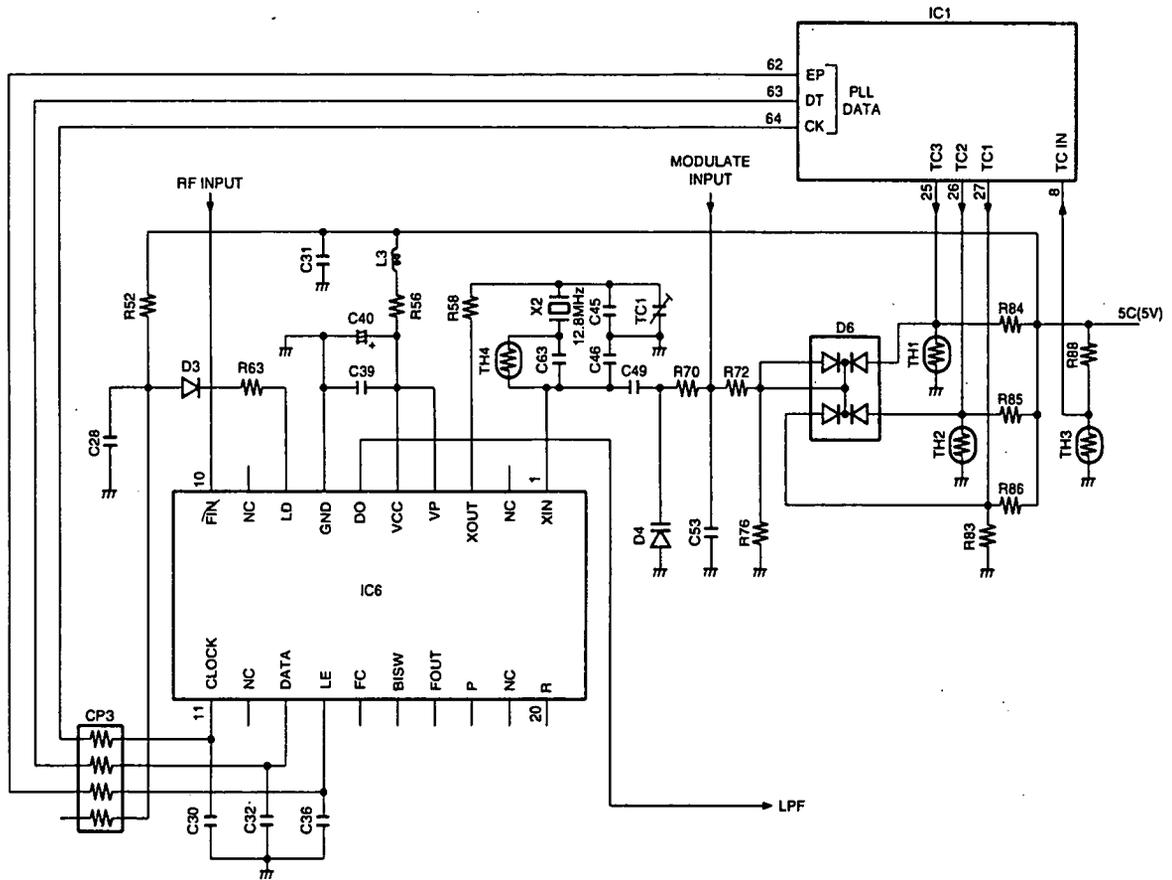


Fig 5 Reference Oscillator circuit

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.

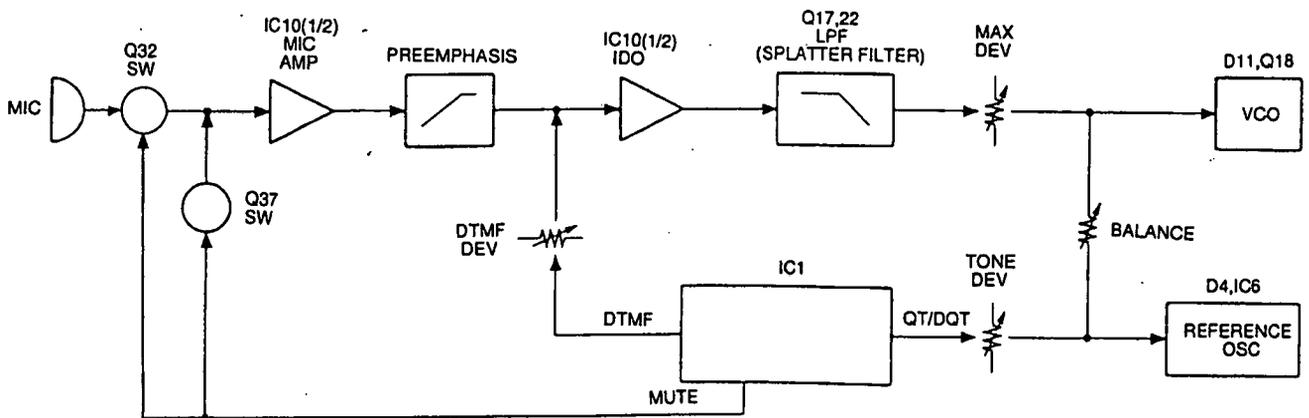


Fig 6 Transmit audio and QT/DQT

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.

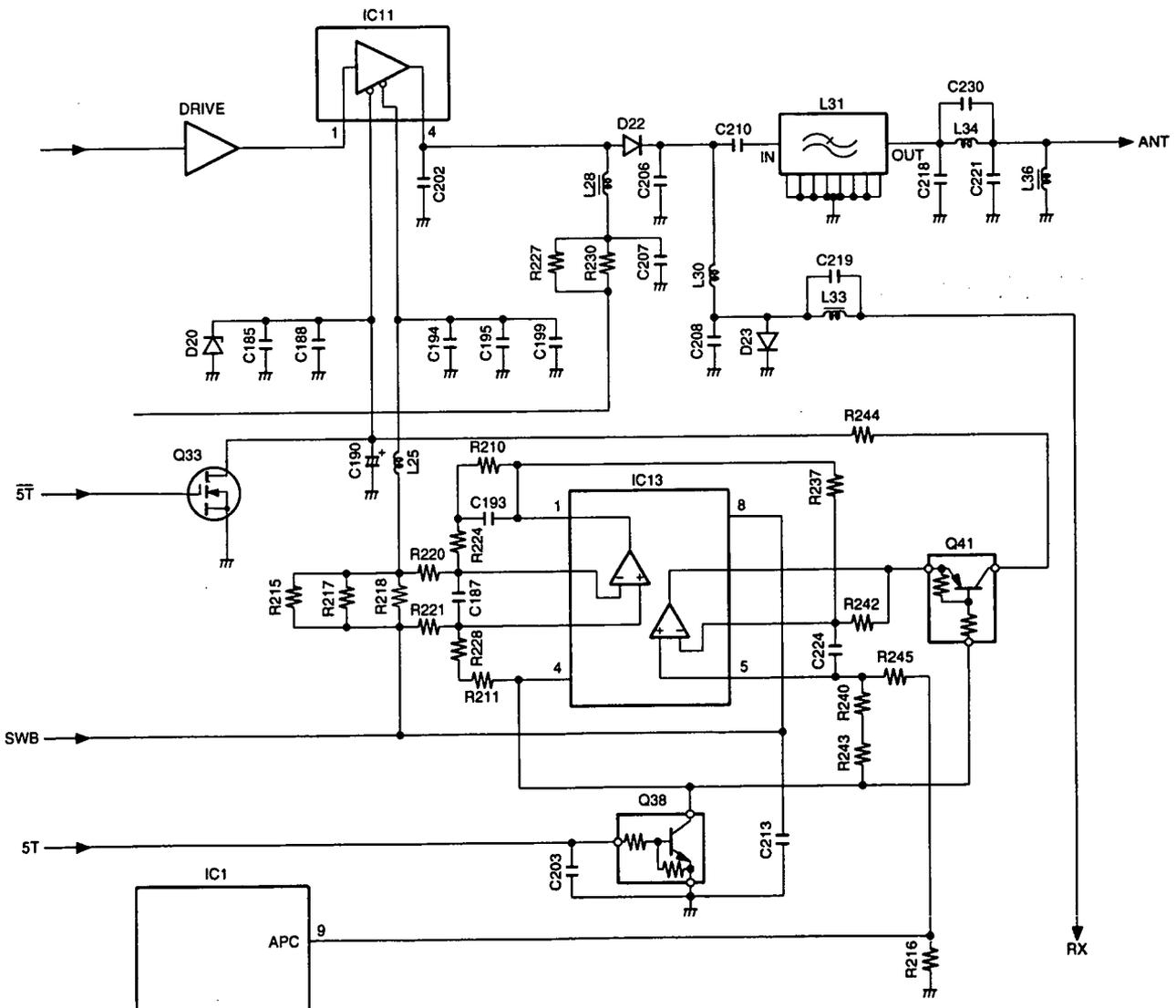


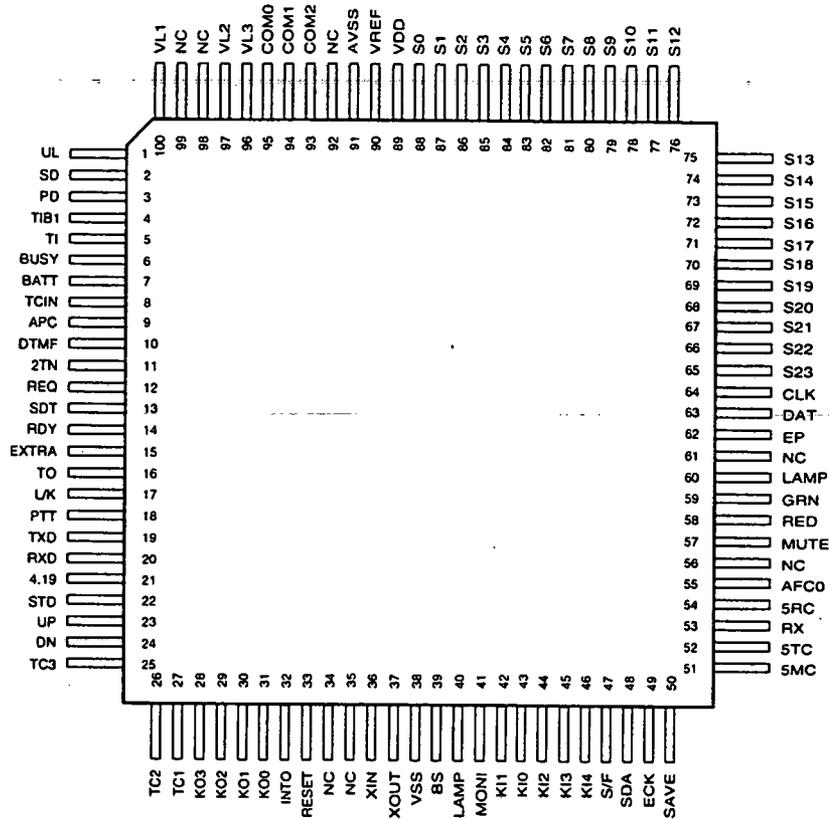
Fig 7 APC

TK-260/(N)

SEMICONDUCTOR DATA

Microprocessor : M38267M8L189GP (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

TK-260/(N)

DESCRIPTION OF COMPONENTS

TX-RX UNIT (X57-4850-XX)

Ref. No.	Parts No.	Description
IC1	M38267M8L189GP	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 REGULATER
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
Q32	DTA144EE	TRANSISTOR, AUDIO MUTE SWICTH
Q33	2SK1824	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

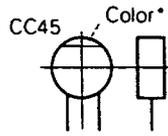
Ref. No.	Parts No.	Description
D7 - D10	1SV283	VARIABLE CAPACITANCE DIODE, FREQUENCY CON
D11	1SV214	VARIABLE CAPACITANCE DIODE, TX MODULATION
D14	MA2S111	DIODE, CUEERNT STEERING
D15	DA221	DIODE, LIMITTER
D16, D17	MA2S077	DIODE, RF SWITCH
D19	1SS372	DIODE, AGC DETECT
D20	MA8062	ZENER DIODE, BOLTAGE PROTECTION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

PARTS LIST

CAPACITORS

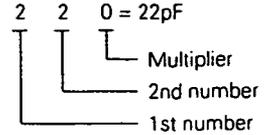
CC 45 TH 1H 220 J
 1 2 3 4 5 6

- 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



• 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

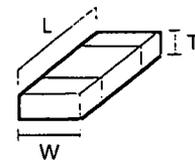
(Chip) (B, F)

• 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



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 mentionnés 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

TX-RX UNIT(X57-4850-XX)

Ref. No.	Address	New parts	Parts No.	Description	Desti-nation
TK-260, TK-260/(N)					
1	1A		A02-1947-43	CABINET ASSY	
2	3A		A10-1355-31	CHASSIS	
3	2B		A62-0428-14	PANEL	
4	1A		B01-0682-02	ESCUTCHEON (PTT)	
5	1B		B09-0351-03	CAP (SP/MIC JACKS)	ACSY
6	3B		B11-1142-14	REFLECTOR	
7	1B		B42-3394-14	STANDARD LABEL (FCC)	
8	3A		B42-5650-04	S/No LABEL	
9	3A		B42-5656-04	STICKER	
10	1A		B43-1102-04	BADGE (KENWOOD)	
11	-		B46-0470-00	WARRANTY CARD	ACSY
12	-		B62-0554-00	INSTRUCTION MANUAL	ACSY
13	3A		B72-0919-14	MODEL NAME PLATE (F1)	K
13	3A		B72-0920-14	MODEL NAME PLATE (F2)	K2
13	3A		B72-1154-04	MODEL NAME PLATE (F1)	NK
13	3A		B72-1155-04	MODEL NAME PLATE (F2)	NK2
14	3B		E04-0198-05	RF COAXIAL CONNECTOR (ANT)	
15	3A		E23-1006-04	RELAY TERMINAL (BATT-)	
16	2B		E37-0575-15	LEAD WIRE WITH CONNECTOR(SP)	
17	2A		F20-1167-04	INSULATING SHEET	
18	2A		F20-1170-04	INSULATING SHEET	
19	1A		G01-0881-04	COIL SPRING (RELEASE)	
20	2B		G09-0418-05	KNOB SPRING	
21	3A		G11-0769-04	SHEET (CHASSIS)	
22	3B		G11-0770-04	SHEET (CHASSIS)	
23	3A		G11-0775-04	SHEET (CHASSIS VCO)	
24	1A		G13-1584-04	CUSHION (CABINET)	
25	2B		G53-0791-03	PACKING (PLUG)	
26	3A		G53-0792-04	PACKING	
27	3B		G53-0808-02	PACKING (TOP)	
29	-		H12-1487-02	PACKING FIXTURE	
30	-		H25-0085-04	BAG (BODY)	
31	-		H25-2012-04	BAG (ACSY)	
32	-		H52-0732-12	ITEM CARTON CASE	
33	1A		J19-1572-04	HOLDER (RELEASE)	
34	1B		J21-4493-04	LOCKING BRACKET (SP/MIC)ACSY	
35	3A		J21-8307-14	HARDWARE FIXTURE (CHASSIS)	
36	3B		J29-0624-03	BELT HOOK	ACSY
-			J30-1217-14	SPACER (CASE)	
37	3A		J30-1235-04	SPACER (CHASSIS)	
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		K29-5166-03	KNOB (CH)	
43	2B		K29-5168-13	KNOB (VOL)	
A	2B		N14-0567-04	CIRCULAR NUT (ANT)	
B	2B		N14-0569-04	CIRCULAR NUT (VOL/CH)	
C	3B		N30-2604-46	PAN HEAD SCREW (ANT)	
D	3A		N32-2005-46	PAN HEAD TAPTINE SCREW(CHASSIS)	
E	3A		N35-2610-45	BINDING HEAD MACHINE SCREW	
F	3A		N79-2035-46	SCREW (- BATT TERMINAL)	
G	2A		N83-2005-46	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	Desti-nation
ANT	-		T90-0381-05	HELICAL ANTENNA	ACSY K2, NK2
ANT	-		T90-0450-05	HELICAL ANTENNA	ACSY K, NK
TX-RX UNIT (X57-4850-XX)-11:K, -12:K2, -15:(N)K, -16:(N)K2					
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
C9			CC73GCH1H221J	CHIP C 220PF	J
C11			CC73GCH1H221J	CHIP C 220PF	J
C12			CK73GB1H102K	CHIP C 1000PF	K
C13, 14			CC73GCH1H221J	CHIP C 220PF	J
C15			CC73GCH1H030C	CHIP C 3.0PF	C
C16			CC73GCH1H100D	CHIP C 10PF	D
C17			CC73GCH1H221J	CHIP C 220PF	J
C18			CK73GB1C104K	CHIP C 0.10UF	K
C19, 20			CK73GB1H102K	CHIP C 1000PF	K
C21-23			CC73GCH1H221J	CHIP C 220PF	J
C25			CK73GB1H102K	CHIP C 1000PF	K
C26			CC73GCH1H221J	CHIP C 220PF	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			CC73GCH1H130J	CHIP C 13PF	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			CC73GCH1H181J	CHIP C 180PF	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

TK-260 :K, K2
TK-260/(N):NK, NK2

PARTS LIST

TX-RX UNIT(X57-4850-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
C71			CC73GCH1H330J	CHIP C 33PF J	K, K2	C135			CC73GCH1H100D	CHIP C 10PF D	
C71			CC73GCH1H821J	CHIP C 82PF J	NK, NK2	C136			C92-0560-05	CHIP-TAN 10UF 6.3WV	
C72, 73			CK73GB1E123K	CHIP C 0.012UF K		C137			CK73GB1H272K	CHIP C 2700PF K	
C74			CK73GB1H472K	CHIP C 4700PF K		C138			CC73GCH1H150J	CHIP C 15PF J	
C75			CK73GB1H103K	CHIP C 0.010UF K		C139			CK73GB1H561K	CHIP C 560PF K	
C76			CK73GB1H182K	CHIP C 1800PF K		C140			C92-0507-05	CHIP-TAN 4.7UF 6.3WV	
C77			C92-0560-05	CHIP-TAN 10UF 6.3WV		C141			CK73GB1C333K	CHIP C 0.033UF K	K, K2
C78, 79			CK73GB1H102K	CHIP C 1000PF K		C141			CK73GB1C273K	CHIP C 0.027UF K	NK, NK2
C80			CC73GCH1H221J	CHIP C 220PF J		C142, 143			CK73GB1H102K	CHIP C 1000PF K	
C81			CK73GB1E223K	CHIP C 0.022UF K		C144			CC73GCH1H060D	CHIP C 6.0PF D	K, K2
C82			CK73GB1H103K	CHIP C 0.010UF K		C144			CC73GCH1H200J	CHIP C 20PF J	NK, NK2
C83			C92-0576-05	CHIP-TAN 1.0UF 6.3WV		C145			CK73GB1C333J	CHIP C 0.033UF J	
C84			CK73GB1H102K	CHIP C 1000PF K		C147			C92-0560-05	CHIP-TAN 10UF 6.3WV	
C85			CC73GCH1H101J	CHIP C 100PF J		C148			CK73GB1C473K	CHIP C 0.047UF K	
C86			CC73GCH1H221J	CHIP C 220PF J		C149			CK73GB1H102K	CHIP C 1000PF K	
C88			CK73GB1H103K	CHIP C 0.010UF K		C150			CK73GB1C473K	CHIP C 0.047UF K	
C89			CK73GB1H471K	CHIP C 470PF K		C151			CK73GB1C333K	CHIP C 0.033UF K	
C90			C92-0507-05	CHIP-TAN 4.7UF 6.3WV		C152			CK73GB1H103K	CHIP C 0.010UF K	
C91			CC73GCH1HR75C	CHIP C 0.75PF C		C153, 154			CK73GB1H102K	CHIP C 1000PF K	
C92			CK73GB1C104K	CHIP C 0.10UF K		C155			CK73GB1H103K	CHIP C 0.010UF K	
C93			CC73GCH1H151J	CHIP C 150PF J	K2, NK2	C156			CC73GCH1H220J	CHIP C 22PF J	
C93			CC73GCH1H221J	CHIP C 220PF J	K, NK	C157, 158			CK73GB1H102K	CHIP C 1000PF K	
C94			CC73GCH1H820J	CHIP C 82PF J		C159, 160			CK73GB1H103K	CHIP C 0.010UF K	
C95			CK73GB1C104K	CHIP C 0.10UF K		C161			CC73GCH1H150J	CHIP C 15PF J	K, K2
C96			CC73GCH1H470J	CHIP C 47PF J		C161			CC73GCH1H180J	CHIP C 18PF J	NK, NK2
C99			CC73GCH1H050C	CHIP C 5.0PF C	K, NK	C162			CC73GCH1H100D	CHIP C 10PF D	
C99			CC73GCH1H080D	CHIP C 8.0PF D	K2, NK2	C163			CK73GB1C473K	CHIP C 0.047UF K	
C100			CC73GCH1H180J	CHIP C 18PF J	K2, NK2	C164, 165			CK73GB1C104K	CHIP C 0.10UF K	
C100			CC73GCH1H150J	CHIP C 15PF J	K, NK	C166			CK73GB1H102K	CHIP C 1000PF K	
C101			C92-0587-05	CHIP-TAN 2.2UF 4WV		C167			CK73GB1E223K	CHIP C 0.022UF K	
C102			CK73FB1E104K	CHIP C 0.10UF K		C168			CK73GB1H102K	CHIP C 1000PF K	
C103			CK73GB1H103K	CHIP C 0.010UF K		C169			C92-0507-05	CHIP-TAN 4.7UF 6.3WV	
C104			CC73GCH1H050C	CHIP C 5.0PF C	K2, NK2	C170			CC73GCH1H020C	CHIP C 2.0PF C	
C104			CC73GCH1H090D	CHIP C 9.0PF D	K, NK	C171			CK73GB1H102K	CHIP C 1000PF K	
C105			CC73GCH1H180J	CHIP C 18PF J	K2, NK2	C172			CK73GB1H222K	CHIP C 2200PF K	
C105			CC73GCH1H200J	CHIP C 20PF J	K, NK	C173			CK73GB1C104K	CHIP C 0.10UF K	
C106			CK73GB1H103K	CHIP C 0.010UF K		C174			CK73GB1H102K	CHIP C 1000PF K	
C108, 109			CK73GB1H102K	CHIP C 1000PF K		C175			CK73GB1H682K	CHIP C 6800PF K	
C110			CC73GCH1H270J	CHIP C 27PF J		C176			CK73GB1H102K	CHIP C 1000PF K	
C111			CK73GB1H102K	CHIP C 1000PF K		C177			CK73GB1E223K	CHIP C 0.022UF K	
C112			CK73GB1H471K	CHIP C 470PF K		C178			CK73GB1C473K	CHIP C 0.047UF K	
C113			CK73GB1H103K	CHIP C 0.010UF K		C179			CK73GB1H102K	CHIP C 1000PF K	
C114			CC73GCH1H150J	CHIP C 15PF J		C180			C92-0576-05	CHIP-TAN 1.0UF 6.3WV	
C115			CK73GB1H103K	CHIP C 0.010UF K		C181			CK73GB1C393K	CHIP C 0.039UF K	
C116, 117			CK73GB1C104K	CHIP C 0.10UF K		C182			CC73GCH1H220J	CHIP C 22PF J	K2, NK2
C118			CK73GB1H332K	CHIP C 3300PF K		C182			CC73GCH1H180J	CHIP C 18PF J	K, NK
C119			CK73GB1H471K	CHIP C 470PF K		C183			CK73FB1C474K	CHIP C 0.47UF K	
C120			CC73GCH1H0R5C	CHIP C 0.5PF C		C184-186			CK73GB1H102K	CHIP C 1000PF K	
C121			CC73GCH1H150J	CHIP C 15PF J		C187			CK73GB1H471K	CHIP C 470PF K	
C122			CK73GB1C104K	CHIP C 0.10UF K		C188			CK73FB1C474K	CHIP C 0.47UF K	
C123			CC73GCH1H0R5C	CHIP C 0.5PF C		C189			CC73GCH1H040C	CHIP C 4.0PF C	K, NK
C125			CK73GB1C104K	CHIP C 0.10UF K		C189			CC73GCH1H060D	CHIP C 6.0PF D	K2, NK2
C126			CK73GB1H102K	CHIP C 1000PF K		C190			C92-0565-05	CHIP-TAN 6.8UF 10WV	
C127			CK73GB1C473K	CHIP C 0.047UF K		C191			CK73GB1H272K	CHIP C 2700PF K	K, K2
C128			C92-0560-05	CHIP-TAN 10UF 6.3WV		C191			CK73GB1H332K	CHIP C 3300PF K	NK, NK2
C129			CK73GB1H102K	CHIP C 1000PF K		C192			CK73GB1H471K	CHIP C 470PF K	
C130			CK73GB1C104K	CHIP C 0.10UF K		C193			CC73GCH1H101J	CHIP C 100PF J	
C132			CK73GB1C333K	CHIP C 0.033UF K		C194			CK73GB1H102K	CHIP C 1000PF K	
C133			CC73GCH1H330J	CHIP C 33PF J		C195			CK73GB1H103K	CHIP C 0.010UF K	
C134			CK73GB1C333J	CHIP C 0.033UF J		C196			CK73GB1H102K	CHIP C 1000PF K	

PARTS LIST

TX-RX UNIT(X57-4850-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
C197, 198			CK73GB1C104K	CHIP C 0.10UF K		L9			L33-1267-05	SMALL FIXED INDUCTOR (27NH)	K2, NK2
C199			CK73FB1C474K	CHIP C 0.47UF K		L10			L33-0751-05	SMALL FIXED INDUCTOR (39NH)	K2, NK2
C200			CK73GB1H102K	CHIP C 1000PF K		L10			L33-1267-05	SMALL FIXED INDUCTOR (27NH)	K, NK
C201			CC73GCH1H101J	CHIP C 100PF J		L11			L40-1091-37	SMALL FIXED INDUCTOR (1UH)	
C202			CC73GCH1H020C	CHIP C 2.0PF C	K2, NK2	L12			L40-6891-37	SMALL FIXED INDUCTOR (6.8UH)	
C202			CC73GCH1H070D	CHIP C 7.0PF D	K, NK	L13			L40-1085-35	SMALL FIXED INDUCTOR (100NH)	K, NK
C203			CK73GB1H102K	CHIP C 1000PF K		L13			L40-1281-35	SMALL FIXED INDUCTOR (120NH)	K2, NK2
C204			CC73GCH1H050C	CHIP C 5.0PF C	K, NK	L14			L92-0138-05	CORE	
C204			CC73GCH1H070D	CHIP C 7.0PF D	K2, NK2	L15			L40-1085-35	SMALL FIXED INDUCTOR (100NH)	
C205			C92-0560-05	CHIP-TAN 10UF 6.3WV		L16			L40-6881-37	SMALL FIXED INDUCTOR (0.68UH)	K, K2
C206			CC73GCH1H030C	CHIP C 3.0PF C	K, NK	L16			L40-2281-37	SMALL FIXED INDUCTOR (0.220UH)	NK, NK2
C206			CC73GCH1H120J	CHIP C 12PF J	K2, NK2	L18			L92-0138-05	CORE	
C207			CK73GB1H102K	CHIP C 1000PF K	K2, NK2	L19			L40-1081-37	SMALL FIXED INDUCTOR (0.1UH)	K, NK
C207			CC73GCH1H330J	CHIP C 33PF J	K, NK	L19			L40-1581-37	SMALL FIXED INDUCTOR (0.15UH)	K2, NK2
C208			CC73GCH1H270J	CHIP C 27PF J	K, NK	L21			L40-2285-54	SMALL FIXED INDUCTOR (220NH)	K, NK
C208			CC73GCH1H330J	CHIP C 33PF J	K2, NK2	L22			L40-6871-35	SMALL FIXED INDUCTOR (68NH)	K2, NK2
C209			CK73GB1C104K	CHIP C 0.10UF K		L22			L40-5671-35	SMALL FIXED INDUCTOR (56NH)	K, NK
C210			CC73GCH1H470J	CHIP C 47PF J		L23			L92-0138-05	CORE	
C211			CK73GB1H102K	CHIP C 1000PF K		L24			L34-4447-05	COIL	
C212			CK73GB1C473K	CHIP C 0.047UF K		L25			L92-0149-05	CORE	
C213			CK73GB1H102K	CHIP C 1000PF K		L26			L34-4447-05	COIL	
C214			C92-0567-05	CHIP-TAN 68UF 6.3WV		L27			L40-4785-48	SMALL FIXED INDUCTOR (470NH)	K, NK
C215			CC73GCH1H060D	CHIP C 6.0PF D	K, NK	L27			L40-5685-48	SMALL FIXED INDUCTOR (560NH)	K2, NK2
C215			CC73GCH1H090D	CHIP C 9.0PF D	K2, NK2	L28			L40-1085-34	SMALL FIXED INDUCTOR (100NH)	K2, NK2
C216			C92-0560-05	CHIP-TAN 10UF 6.3WV		L29			L92-0131-05	CORE	
C217			CK73GB1H103K	CHIP C 0.010UF K		L30			L33-0765-05	CHOKO COIL (50NH)	
C218			CC73GCH1H070D	CHIP C 7.0PF D	K, NK	L31			L79-1076-05	FILTER (136-163MHZ)	K2, NK2
C218			CC73GCH1H100D	CHIP C 10PF D	K2, NK2	L31			L79-1157-05	FILTER (148-174MHZ)	K, NK
C219			CC73GCH1H120J	CHIP C 12PF J	K, NK	L32			L34-4446-05	COIL	
C219			CC73GCH1H150J	CHIP C 15PF J	K2, NK2	L33			L33-0745-05	CHOKO COIL	
C220			CK73GB1H102K	CHIP C 1000PF K		L34			L33-0765-05	CHOKO COIL (50NH)	
C221			CC73GCH1H010B	CHIP C 1.0PF B		L35			L92-0149-05	CORE	
C222			CC73GCH1H150J	CHIP C 15PF J		L36			L40-1092-81	SMALL FIXED INDUCTOR	
C223			CC73GCH1H100D	CHIP C 10PF D	K, NK	L37			L40-4781-37	SMALL FIXED INDUCTOR (0.470UH)	NK, NK2
C223			CC73GCH1H120J	CHIP C 12PF J	K2, NK2	X1			L77-1630-05	CRYSTAL RESONATOR (8.388608MHZ)	
C224			CK73GB1H471K	CHIP C 470PF K		X2			L77-1725-05	CRYSTAL RESONATOR (12.8MHZ)	
C225			CK73GB1H102K	CHIP C 1000PF K		X3			L77-1661-05	CRYSTAL RESONATOR (44.595MHZ)	
C226			CK73GB1H471K	CHIP C 470PF K		XF1			L71-0409-15	MCF (45.050MHZ)	K, K2
C227-229			CK73GB1H102K	CHIP C 1000PF K		XF1			L71-0461-05	CRYSTAL FILTER (45.05MHZ)	NK, NK2
C230			CC73GCH1H1R5C	CHIP C 1.5PF C	K2, NK2	J	3A		N38-2640-46	SCREW (PA MODULE)	
C230			CC73GCH1H020C	CHIP C 2.0PF C	K, NK	K	3A		N78-2640-46	SCREW (+ BATT TERMINAL)	
TC1			C05-0380-15	TRIMMER CAPACITOR		CP3			R90-0714-05	MULTI-COMP 10K X4	
TC2, 3			C05-0383-05	TRIMMER CAPACITOR (6PF)		R1, 2			RK73GB1J472J	CHIP R 4.7K J 1/16W	
50	2A		E23-1005-04	TERMINAL (+ BATT)		R4			R92-1252-05	CHIP R 0 OHM	
51	2A		E23-1020-04	GROUND TERMINAL (PAMODULE)		R11			RK73GB1J103J	CHIP R 10K J 1/16W	
CN2			E40-5662-05	PIN ASSY SOCKET (SP)		R12-15			RK73GB1J472J	CHIP R 4.7K J 1/16W	
J1			E11-0457-05	PHONE JACK (SP/MIC)		R16, 17			RK73GB1J102J	CHIP R 1.0K J 1/16W	
F1			F53-0130-05	FUSE (3A)		R18, 19			RK73GB1J472J	CHIP R 4.7K J 1/16W	
-			G13-1303-04	CUSHION (X'TAL)		R20			RK73GB1J222J	CHIP R 2.2K J 1/16W	
55	2A		J19-1571-04	HOLDER (BATT -)		R23, 24			RK73GB1J473J	CHIP R 47K J 1/16W	
56	2A		J21-4495-14	HARDWARE FIXTURE (PAMODULE)		R26, 27			RK73GB1J104J	CHIP R 100K J 1/16W	
CD1			L79-1072-05	TUNING COIL		R28			RK73GB1J102J	CHIP R 1.0K J 1/16W	
CF1, 2			L72-0916-05	CERAMIC FILTER (455KHZ)	K, K2	R30			RK73GB1J391J	CHIP R 390 J 1/16W	
CF1, 2			L72-0939-05	CERAMIC FILTER (455KHZ)	NK, NK2	R32			RK73GB1J102J	CHIP R 1.0K J 1/16W	
L1, 2			L40-2281-37	SMALL FIXED INDUCTOR (0.22UH)		R34			RK73GB1J100J	CHIP R 10 J 1/16W	
L3			L92-0138-05	CORE		R35			RK73GB1J473J	CHIP R 47K J 1/16W	
L4			L40-2281-37	SMALL FIXED INDUCTOR (0.22UH)		R37-41			RK73GB1J102J	CHIP R 1.0K J 1/16W	
L5			L92-0138-05	CORE		R42			RK73GB1J334J	CHIP R 330K J 1/16W	
L6 -8			L40-6891-37	SMALL FIXED INDUCTOR (6.8UH)		R43			RK73GB1J103J	CHIP R 10K J 1/16W	
L9			L33-0744-05	SMALL FIXED INDUCTOR (23NH)	K, NK	R44-47			RK73GB1J102J	CHIP R 1.0K J 1/16W	

TK-260 :K, K2
TK-260/(N):NK, NK2

TK-260/(N)

PARTS LIST

TX-RX UNIT(X57-4850-XX)

Ref. No.	Address	New parts	Parts No.	Description	Desti-nation	Ref. No.	Address	New parts	Parts No.	Description	Desti-nation
R48			RK73GB1J472J	CHIP R 4.7K	J 1/16W	R122			RN73GH1J183D	METAL FILM R 18K	D 1/16W
R49			R92-1252-05	CHIP R 0 OHM		R123			RN73GH1J103D	METAL FILM R 10K	D 1/16W
R50			RK73GB1J102J	CHIP R 1.0K	J 1/16W	R124			RK73GB1J183J	CHIP R 18K	J 1/16W
R51			RK73GB1J104J	CHIP R 100K	J 1/16W	R125			RK73GB1J473J	CHIP R 47K	J 1/16W
R52			RK73GB1J154J	CHIP R 150K	J 1/16W	R128			RK73GB1J104J	CHIP R 100K	J 1/16W
R53			RK73GB1J473J	CHIP R 47K	J 1/16W	R129			RK73GB1J271J	CHIP R 270	J 1/16W
R54			RK73GB1J102J	CHIP R 1.0K	J 1/16W	R130			RK73GB1J332J	CHIP R 3.3K	J 1/16W
R55			RK73GB1J272J	CHIP R 2.7K	J 1/16W	R131			RK73GB1J823J	CHIP R 82K	J 1/16W
R56			RK73GB1J150J	CHIP R 15	J 1/16W	R131			RK73GB1J154J	CHIP R 150K	J 1/16W
R57			RK73GB1J104J	CHIP R 100K	J 1/16W	R132			RK73GB1J103J	CHIP R 10K	J 1/16W
R58			RK73GB1J223J	CHIP R 22K	J 1/16W	R135			RK73GB1J271J	CHIP R 270	J 1/16W
R59			RK73GB1J332J	CHIP R 3.3K	J 1/16W	R135			RK73GB1J331J	CHIP R 330	J 1/16W
R60			RK73GB1J224J	CHIP R 220K	J 1/16W	R136			RK73GB1J185J	CHIP R 1.8M	J 1/16W
R61			RK73GB1J103J	CHIP R 10K	J 1/16W	R137			RK73GB1J183J	CHIP R 18K	J 1/16W
R62			RK73GB1J332J	CHIP R 3.3K	J 1/16W	R138			RK73GB1J333J	CHIP R 33K	J 1/16W
R63			RK73GB1J102J	CHIP R 1.0K	J 1/16W	R139			RK73GB1J103J	CHIP R 10K	J 1/16W
R65			RK73GB1J102J	CHIP R 1.0K	J 1/16W	R141			RK73GB1J104J	CHIP R 100K	J 1/16W
R68			RK73GB1J272J	CHIP R 2.7K	J 1/16W	R142			RK73GB1J393J	CHIP R 39K	J 1/16W
R69			RK73GB1J821J	CHIP R 820	J 1/16W	R143			RK73GB1J124J	CHIP R 120K	J 1/16W
R70			RK73GB1J473J	CHIP R 47K	J 1/16W	R145, 146			RK73GB1J104J	CHIP R 100K	J 1/16W
R71			RK73GB1J124J	CHIP R 120K	J 1/16W	R147			RK73GB1J103J	CHIP R 10K	J 1/16W
R72			RK73GB1J104J	CHIP R 100K	J 1/16W	R148			RK73GB1J681J	CHIP R 680	J 1/16W
R73			RK73GB1J333J	CHIP R 33K	J 1/16W	R149			RK73GB1J564J	CHIP R 560K	J 1/16W
R74			RK73GB1J103J	CHIP R 10K	J 1/16W	R150			RK73GB1J152J	CHIP R 1.5K	J 1/16W
R75			RK73GB1J474J	CHIP R 470K	J 1/16W	R151			RK73GB1J104J	CHIP R 100K	J 1/16W
R76			RK73GB1J154J	CHIP R 150K	J 1/16W	R153			RK73GB1J185J	CHIP R 1.8M	J 1/16W
R79			RK73GB1J391J	CHIP R 390	J 1/16W	R155			RK73GB1J472J	CHIP R 4.7K	J 1/16W
R80, 81			RK73GB1J151J	CHIP R 150	J 1/16W	R156			RK73GB1J392J	CHIP R 3.9K	J 1/16W
R83			RN73GH1J333D	METAL FILM R 33K	D 1/16W	R157			RK73GB1J681J	CHIP R 680	J 1/16W
R84, 85			RN73GH1J243D	METAL FILM R 24K	D 1/16W	R157			RK73GB1J271J	CHIP R 270	J 1/16W
R86			RN73GH1J393D	METAL FILM R 39K	D 1/16W	R158			RK73GB1J333J	CHIP R 33K	J 1/16W
R87			RK73GB1J103J	CHIP R 10K	J 1/16W	R159, 160			RK73GB1J154J	CHIP R 150K	J 1/16W
R88			RN73GH1J103D	METAL FILM R 10K	D 1/16W	R161			RK73GB1J102J	CHIP R 1.0K	J 1/16W
R90			RK73GB1J102J	CHIP R 1.0K	J 1/16W	R162			RK73GB1J332J	CHIP R 3.3K	J 1/16W
R92			R92-1252-05	CHIP R 0 OHM		R163			RK73GB1J104J	CHIP R 100K	J 1/16W
R94			RK73GB1J683J	CHIP R 68K	J 1/16W	R164			RK73GB1J392J	CHIP R 3.9K	J 1/16W
R97			RK73GB1J102J	CHIP R 1.0K	J 1/16W	R165			RK73GB1J123J	CHIP R 12K	J 1/16W
R98			RK73GB1J682J	CHIP R 6.8K	J 1/16W	R166			RK73GB1J393J	CHIP R 39K	J 1/16W
R99			RK73GB1J103J	CHIP R 10K	J 1/16W	R167			RK73GB1J184J	CHIP R 180K	J 1/16W
R100			RK73GB1J332J	CHIP R 3.3K	J 1/16W	R168			RK73GB1J104J	CHIP R 100K	J 1/16W
R101			RK73GB1J103J	CHIP R 10K	J 1/16W	R169			RK73GB1J181J	CHIP R 180	J 1/16W
R104			RK73GB1J104J	CHIP R 100K	J 1/16W	R169			RK73GB1J271J	CHIP R 270	J 1/16W
R105			RK73GB1J103J	CHIP R 10K	J 1/16W	R171			RK73GB1J392J	CHIP R 3.9K	J 1/16W
R106			RK73GB1J222J	CHIP R 2.2K	J 1/16W	R171			RK73GB1J332J	CHIP R 3.3K	J 1/16W
R107			RK73GB1J562J	CHIP R 5.6K	J 1/16W	R172			RK73GB1J562J	CHIP R 5.6K	J 1/16W
R108			RK73GB1J393J	CHIP R 39K	J 1/16W	R173			R92-1252-05	CHIP R 0 OHM	K, K2
R109			RK73GB1J154J	CHIP R 150K	J 1/16W	R174			RK73GB1J473J	CHIP R 47K	J 1/16W
R109			RK73GB1J563J	CHIP R 56K	J 1/16W	R175, 176			RK73GB1J154J	CHIP R 150K	J 1/16W
R110			RK73GB1J104J	CHIP R 100K	J 1/16W	R177			RK73GB1J472J	CHIP R 4.7K	J 1/16W
R110			RK73GB1J473J	CHIP R 47K	J 1/16W	R178			RK73GB1J101J	CHIP R 100	J 1/16W
R111			RK73GB1J332J	CHIP R 3.3K	J 1/16W	R179			RK73GB1J330J	CHIP R 33	J 1/16W
R112			RK73GB1J103J	CHIP R 10K	J 1/16W	R180			RK73GB1J392J	CHIP R 3.9K	J 1/16W
R113			RK73GB1J684J	CHIP R 680K	J 1/16W	R181			RK73GB1J152J	CHIP R 1.5K	J 1/16W
R114			RK73GB1J333J	CHIP R 33K	J 1/16W	R182			RK73GB1J122J	CHIP R 1.2K	J 1/16W
R115			RK73GB1J473J	CHIP R 47K	J 1/16W	R185			RK73GB1J562J	CHIP R 5.6K	J 1/16W
R116			RK73GB1J184J	CHIP R 180K	J 1/16W	R186			RK73GB1J334J	CHIP R 330K	J 1/16W
R117			RK73GB1J152J	CHIP R 1.5K	J 1/16W	R188			RK73GB1J470J	CHIP R 47	J 1/16W
R118			RK73GB1J124J	CHIP R 120K	J 1/16W	R190			RK73GB1J102J	CHIP R 1.0K	J 1/16W
R120			RK73GB1J684J	CHIP R 680K	J 1/16W	R191			RK73GB1J103J	CHIP R 10K	J 1/16W
R121			RK73GB1J104J	CHIP R 100K	J 1/16W	R192			RK73GB1J102J	CHIP R 1.0K	J 1/16W

TK-260 :K, K2
TK-260(N) :NK, NK2

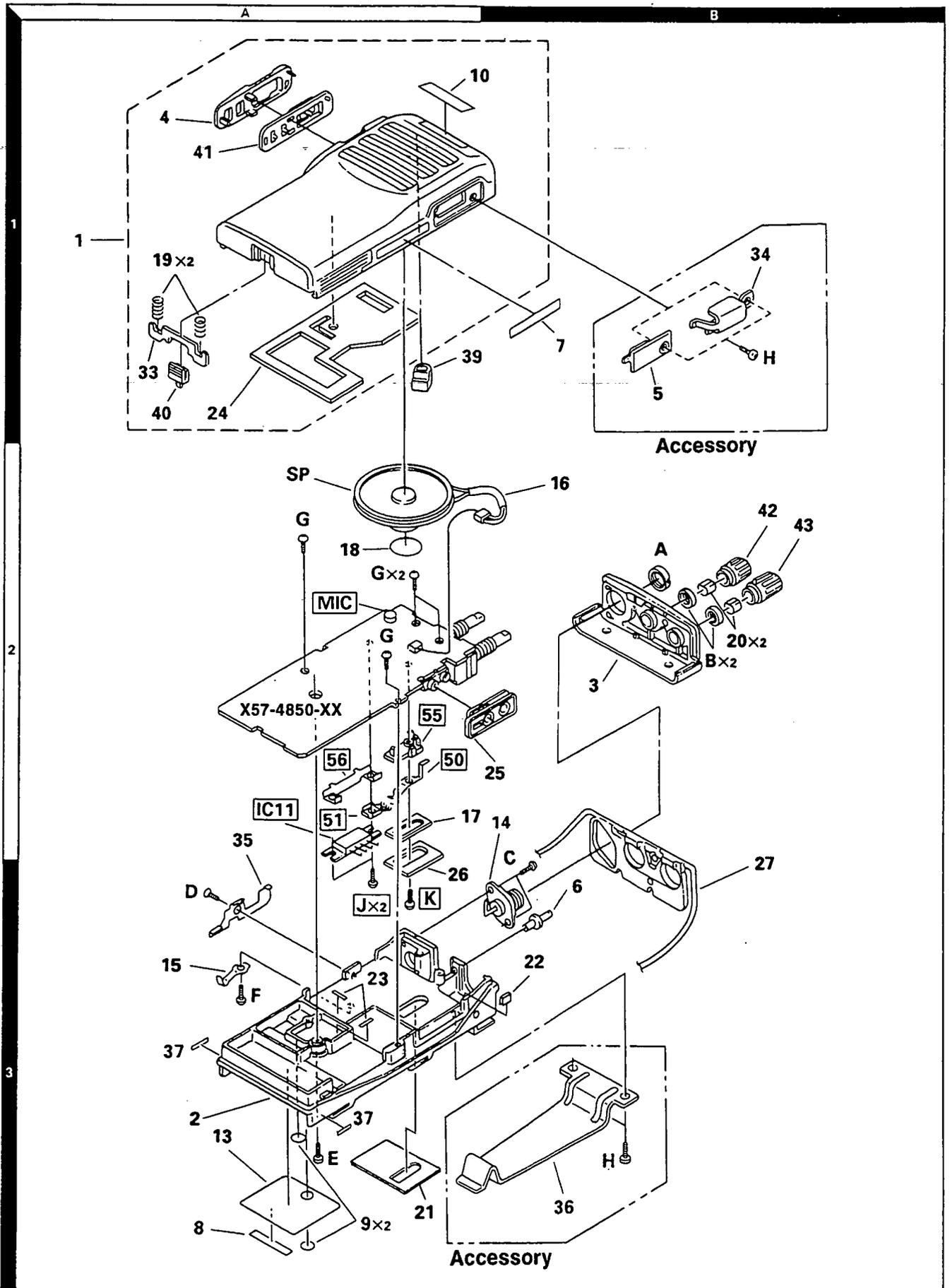
PARTS RIST

TX-RX UNIT(X57-4850-XX)

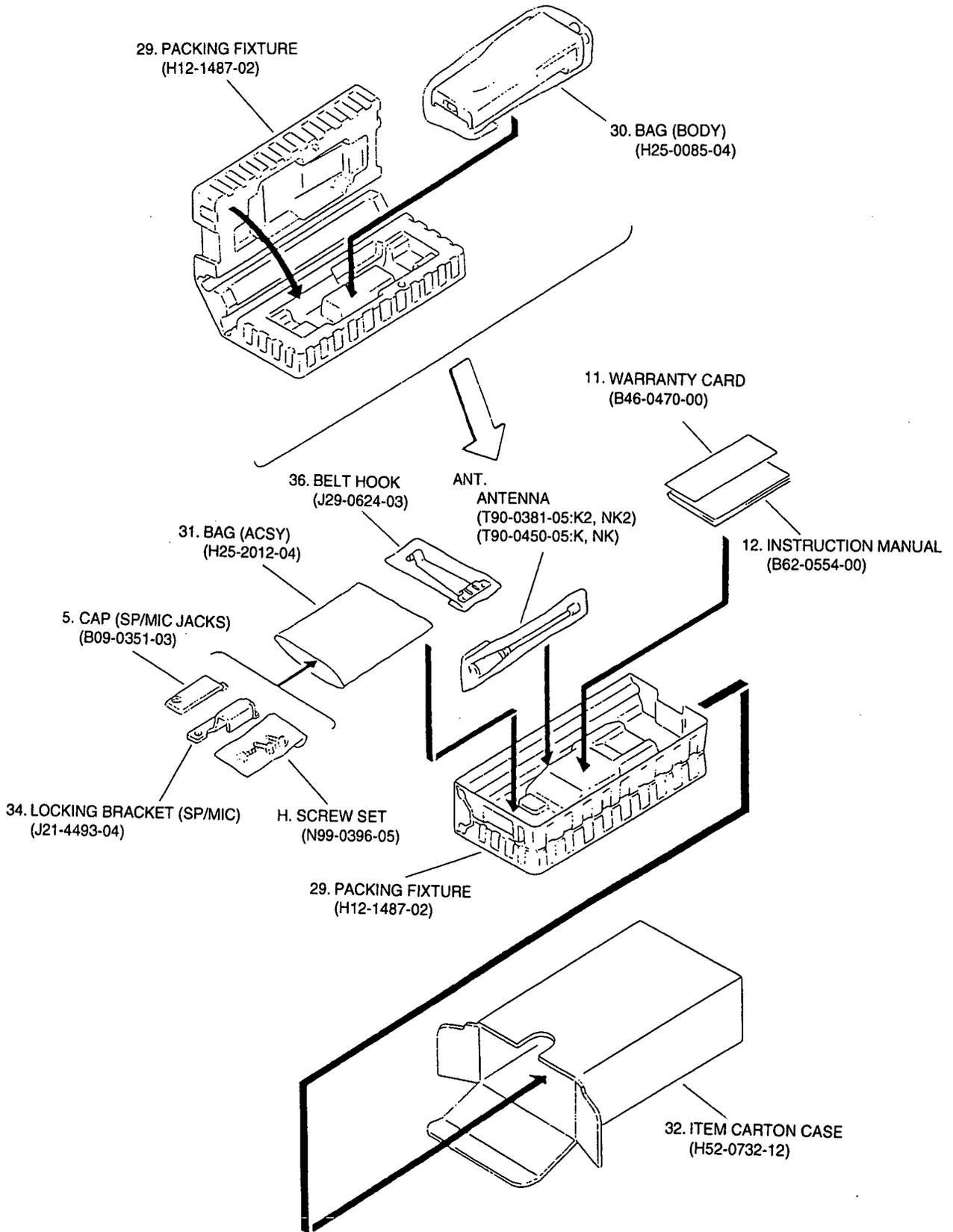
Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
R193			RK73GB1J561J	CHIP R 560 J 1/16W		D4			1SV269	DIODE	
R194			R92-1252-05	CHIP R 0 OHM		D5			1SS373	DIODE	
R195			RK73GB1J472J	CHIP R 4.7K J 1/16W		D6			UMN1N	DIODE	
R196			RK73GB1J152J	CHIP R 1.5K J 1/16W		D7 -10			1SV283	DIODE	
R197			RK73GB1J331J	CHIP R 330 J 1/16W		D11			1SV214	DIODE	
R198			RK73GB1J102J	CHIP R 1.0K J 1/16W		D14			MA2S111	DIODE	
R199, 200			RK73GB1J103J	CHIP R 10K J 1/16W		D15			DA221	DIODE	
R201			RK73GB1J330J	CHIP R 33 J 1/16W		D16, 17			MA2S077	DIODE	
R202			RK73GB1J101J	CHIP R 100 J 1/16W		D19			1SS372	DIODE	
R203			R92-1252-05	CHIP R 0 OHM		D20			MA8062	ZENER DIODE	
R204			RK73GB1J153J	CHIP R 15K J 1/16W		D21			DAN222	DIODE	
R205			RK73GB1J101J	CHIP R 100 J 1/16W		D22			HVU131	DIODE	
R207			RK73GB1J102J	CHIP R 1.0K J 1/16W		D23			MA2S077	DIODE	
R208			RK73GB1J473J	CHIP R 47K J 1/16W		D24			1SR154-400	DIODE	
R209			RK73GB1J222J	CHIP R 2.2K J 1/16W		IC1			M38267M&L189GP	IC (MICRO PROCESSOR)	
R210, 211			RN73GH1J154D	METAL FILM R 150K D 1/16W		IC2			PST9140NR	IC (RESET SWITCH)	
R212			R92-1252-05	CHIP R 0 OHM		IC4			AT2408N10SI2.5	IC (8Kbit SERIAL EEPROM)	
R213			RK73GB1J153J	CHIP R 15K J 1/16W		IC5			RN5VL45C	IC (VOLTAGE DETECT)	
R215			RK73EB2ER39K	CHIP R 0.39 K 1/4W		IC6			LMX15111TMX	IC (PLL FREQUENCY SYNTHESIZER)	
R216			RK73GB1J104J	CHIP R 100K J 1/16W		IC7			S-81350HG-KD	IC (VOLTAGE REGULATOR)	
R217, 218			RK73EB2ER39K	CHIP R 0.39 K 1/4W		IC8			TA75W01FU	IC (OP AMP X2)	
R219			RK73GB1J153J	CHIP R 15K J 1/16W		IC9			TA31136FN	IC (FM IF DETECTOR)	
R220, 221			RN73GH1J154D	METAL FILM R 150K D 1/16W		IC10			NJM2100V	IC (AUDIO AMP)	
R222			RK73GB1J274J	CHIP R 270K J 1/16W	K, K2	IC11	2A		PF0313-01	IC (RF POWER MODULE)	K2, NK2
R222			RK73GB1J224J	CHIP R 220K J 1/16W	NK, NK2	IC11	2A		PF0314-01	IC (RF POWER MODULE)	K, NK
R223			RK73GB1J153J	CHIP R 15K J 1/16W		IC12			TA7368F	IC (AF POWER AMP)	
R224			RN73GH1J154D	METAL FILM R 150K D 1/16W		IC13			NJM2904V	IC (APC)	
R225			RK73GB1J470J	CHIP R 47 J 1/16W		IC14			TA75W01FU	IC (OP AMP X2)	
R226			RK73GB1J151J	CHIP R 150 J 1/16W		Q2, 3			DTC114EE	DIGITAL TRANSISTOR	
R227			RK73GB1J271J	CHIP R 270 J 1/16W		Q4			DTC114YE	DIGITAL TRANSISTOR	
R228			RN73GH1J154D	METAL FILM R 150K D 1/16W		Q5			UMG3N	TRANSISTOR	
R229			RK73GB1J472J	CHIP R 4.7K J 1/16W		Q6			UPA572T	FET	
R230			RK73GB1J271J	CHIP R 270 J 1/16W		Q7			DTA114YE	DIGITAL TRANSISTOR	
R231			RK73GB1J563J	CHIP R 56K J 1/16W		Q8			MP5A02	TRANSISTOR	
R232			RK73GB1J223J	CHIP R 22K J 1/16W		Q9			UMG3N	TRANSISTOR	
R233			RK73GB1J333J	CHIP R 33K J 1/16W		Q12			DTA114YE	DIGITAL TRANSISTOR	
R234			RK73GB1J271J	CHIP R 270 J 1/16W		Q14			2SC4619	TRANSISTOR	
R235			RK73GB1J100J	CHIP R 10 J 1/16W		Q15			DTA114EE	DIGITAL TRANSISTOR	
R236			RK73GB1J331J	CHIP R 330 J 1/16W		Q16			2SK1875 (V)	FET	
R237			RK73GB1J103J	CHIP R 10K J 1/16W		Q17			2SC4617 (S)	TRANSISTOR	
R238			RK73GB1J474J	CHIP R 470K J 1/16W		Q18			2SK1875 (V)	FET	
R239			RK73GB1J182J	CHIP R 1.8K J 1/16W		Q19			2SJ243	FET	
R240			RK73GB1J273J	CHIP R 27K J 1/16W		Q20, 21			2SC5108 (Y)	TRANSISTOR	
R241			RK73GB1J471J	CHIP R 470 J 1/16W		Q22			2SC4617 (S)	TRANSISTOR	
R242			RK73GB1J105J	CHIP R 1.0M J 1/16W		Q23			UMC4	TRANSISTOR	
R243			R92-1252-05	CHIP R 0 OHM		Q24, 25			2SC4617 (S)	TRANSISTOR	
R244			RK73GB1J152J	CHIP R 1.5K J 1/16W	K2, NK2	Q26			2SC5108 (Y)	TRANSISTOR	
R244			RK73GB1J331J	CHIP R 330 J 1/16W	K, NK	Q28			2SC4617 (S)	TRANSISTOR	
R245			RK73GB1J104J	CHIP R 100K J 1/16W		Q29			SGM2014M	FET	
R246			RK73GB1J102J	CHIP R 1.0K J 1/16W		Q30			2SK1824	FET	
R247, 248			RK73GB1J101J	CHIP R 100 J 1/16W		Q31			2SC4988	TRANSISTOR	
VR1, 2			R12-7491-05	SEMI FIXED VR (68K)		Q32			DTA144EE	DIGITAL TRANSISTOR	
VR3			R12-7488-05	SEMI FIXED VR (22K)		Q33			2SK1824	FET	
VR4			R31-0613-05	VARIABLE R (POWER SW/AF VR)		Q34			2SA1362 (GR)	TRANSISTOR	
S1			S70-0414-05	TACT SWITCH (PTT)		Q35, 36			DTC144EE	DIGITAL TRANSISTOR	
S2			S60-0407-05	ROTARY SWITCH (CHANNEL)		Q37			2SC4919	TRANSISTOR	
S3, 4			S70-0414-05	TACT SWITCH (LAMP/MONI)		Q38			DTC114EE	DIGITAL TRANSISTOR	
MIC	2A		T91-0575-05	MICROPHONE (ELEMENT)		Q39			2SK1215 (E)	FET	
D2			B30-2019-05	LED (RE/GR)		Q40			2SK1588	FET	
D3			MA2S111	DIODE		Q41			DTA144EE	DIGITAL TRANSISTOR	
						TH1 -5			157-302-65801	THERMISTOR (3K)	

TK-260 :K, K2
TK-260/(N) :NK, NK2

EXPLODED VIEW



PACKING



TK-260/(N)

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 to 500MHz
2. Frequency deviation : ±35MHz
3. Output voltage : 100mV or more

13. Dummy Load

1. 8Ω, 3W or more.

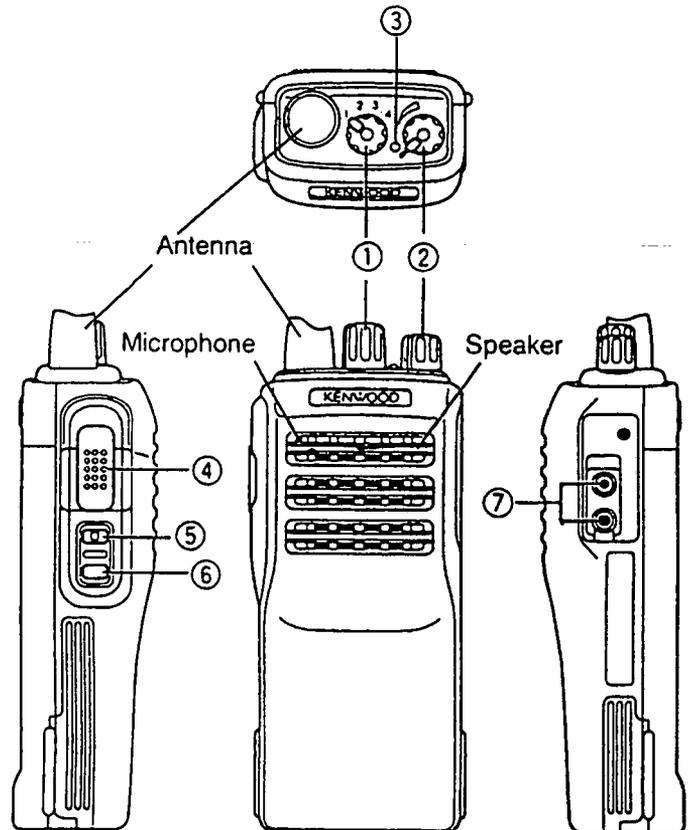
14. AF Generator(AG)

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

15. Distortion Meter

1. Measurable frequency : 30Hz to 100kHz
2. Input level : 50mV to 10Vrms

	Destination	Frequency range	Remark
TK-260/(N)	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

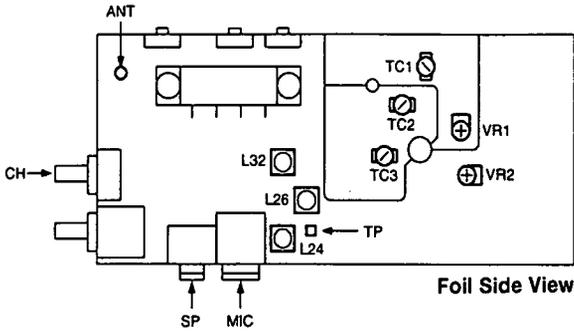
⑥ MONI

⑦ SP/MIC JACK

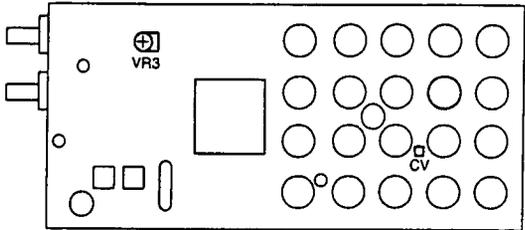
- Use a non-conductive rod such as a Bakelite rod for adjustment (especially of trimmers and coils).
- To protect the SSG, do not send out signals while adjusting the receiving unit.
- The indicated SSG output levels are for maximum output.

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: } Band-pass filter waveform adjustment
- L26: }
- 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

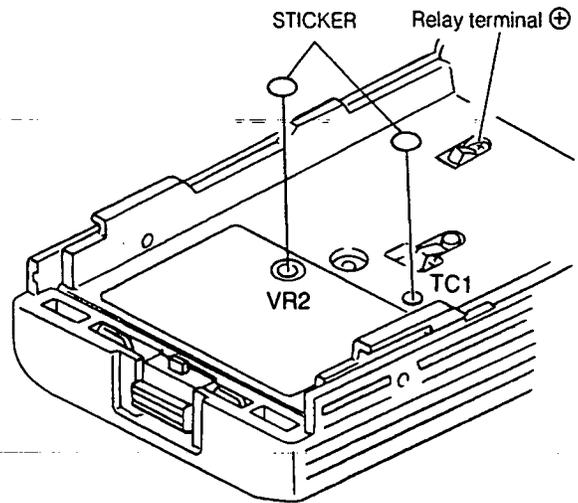
CH	K		K2	
	TX f (MHz)	RX f (MHz)	TX f (MHz)	RX f (MHz)
Center	162.000	162.100	143.000	143.100
LO	150.000	150.100	136.000	136.100
HI	173.973	173.900	149.975	149.900
OFF BAND	145.000	145.100	155.000	155.100

TK-260/(N)

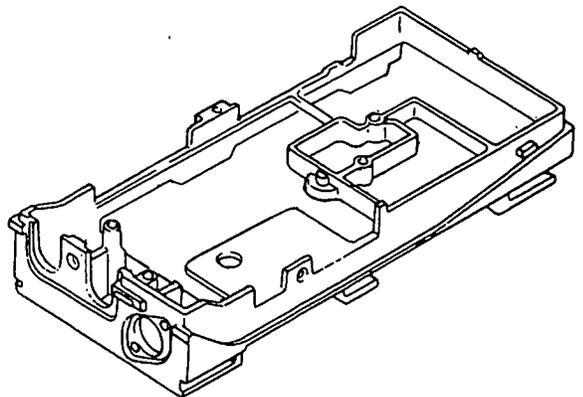
ADJUSTMENT

Use the jig(chassis) for adjustment to stabilize electrical operations. The frequency (TC1) and deviation (VR2) can be adjusted without using the jig.

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



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



2. Use the jig as follows:

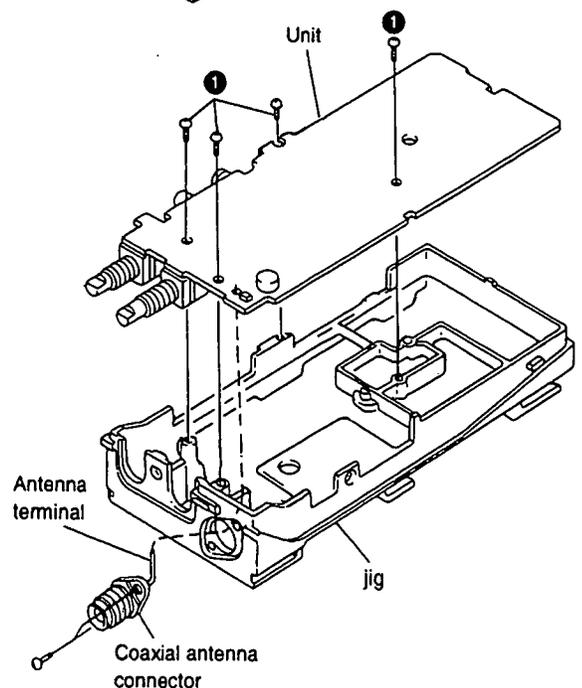
1. Insert the coaxial antenna connector into the jig.
2. Place the unit on the jig and fix it with four screws ①.
3. Solder the antenna terminal to the terminal of the unit.

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 Level DQT Balance RF Power QT Deviation DQT Deviation Battery Level

Please refer to the KPG-27D Instruction Manual (parts No. B62-0629-20) 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	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	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	

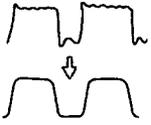
Receiver Section

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 (K type)/ -116 dBm ((N)K type) MOD: 1kHz DEV: ±3kHz:K type/±1.5KHz; ((N)K type)	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	The squelch must be closed.
	2) Level 9 SSG output: -116dBm MONI: ON				Adjust to close the squelch.	
	3) Level 3 SSG output: -128dBm (K type) SSG output:OFF ((N)K type) MONI: ON				Level 3 Adjust to close the squelch. (K type) Up the data (+8) than point that squelch is closed. ((N)K type)	

TK-260/(N)

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 ± 250 Hz
2. DQT/QT Balance	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	6.3W \pm 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	1.0W \pm 0.1W 1.0A or lower
	2) CH: TX High Battery terminal: 7.5V PTT: ON				Check	0.5~1.5W
	3) CH: TX LO Battery terminal: 7.5V PTT: ON				Check	0.5~1.5W
6. MAX DEV	1) CH: TX center AG: 1kHz/130mV PTT: ON	Modulation analyzer or linear detector (LPF: 15kHz) Oscilloscope AG AF. V.M.	ANT MIC	VR2	Adjust it to $\pm 4.1\text{kHz} \pm 100\text{Hz}$: K type	$\pm 4.1\text{kHz} \pm 100\text{kHz}$: K type
					Adjust it to $\pm 2.0\text{kHz} \pm 100\text{Hz}$: (N)K type (+, - Peak whichever is Maximum)	$\pm 2.0\text{kHz} \pm 100\text{kHz}$: (N)K type
7. MIC SENS	1) CH: TX center AG: 1kHz/13mV				Check (+, - Peak whichever is Maximum)	$\pm 2.2\text{kHz} \sim 3.6\text{kHz}$: K type $\pm 1.1\text{kHz} \sim 1.8\text{kHz}$: (N)K type

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 \pm 50Hz: K type Adjust it to 0.35kHz \pm 50Hz: (N)K type	0.75kHz \pm 50Hz: K type 0.35kHz \pm 50Hz: (N)K type
9. DQT DEV (PC MODE)	1) CH: TX center	Modulation analyzer or linear detector (LPF: 3kHz) Oscilloscope	ANT		Adjust it to 0.75kHz \pm 50Hz: K type Adjust it to 0.35kHz \pm 50Hz: (N)K type	0.75kHz \pm 50Hz: K type 0.35kHz \pm 50Hz: (N)K type
10. DTMF DEV (PC MODE)	1) CH: TX center	Modulation analyzer or linear detector (LPF: 15kHz) Oscilloscope	ANT		Check	\pm 2.5kHz~ \pm 4.5kHz: K type \pm 1.25kHz~ \pm 2.25kHz: (N)K type
11. Battery Level (PC MODE)	1) Battery terminal: 5.85V 2) Battery terminal: 6.3V	Digital voltmeter	BATT		Adjust so that the LED flashes Verify that the LED lights	The LED must flash Check

ADJUSTMENT

BPF-Wave

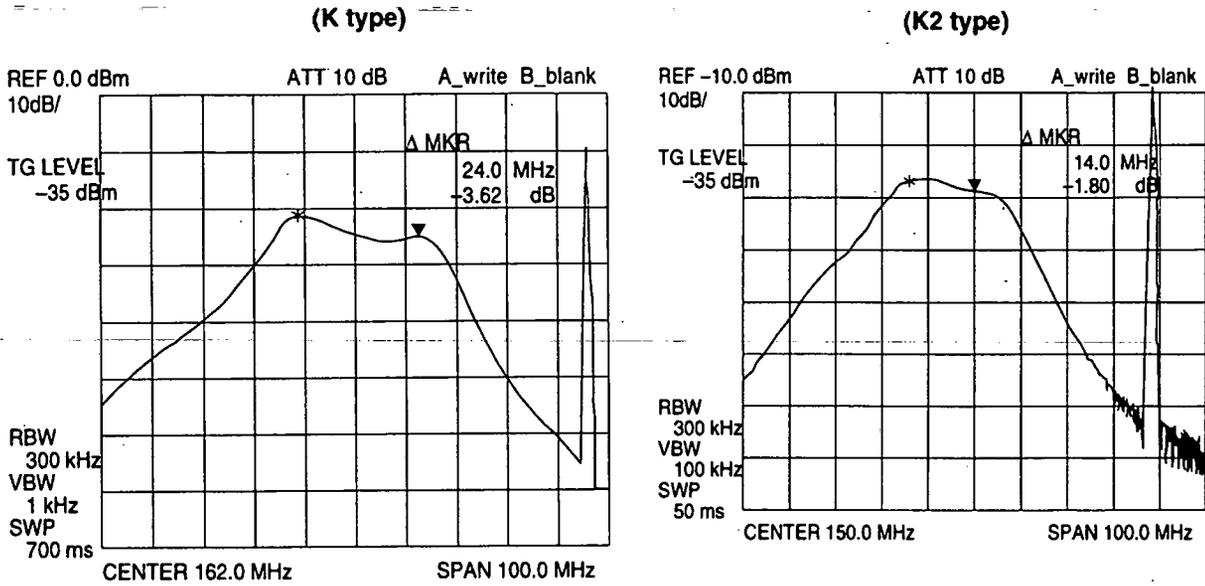


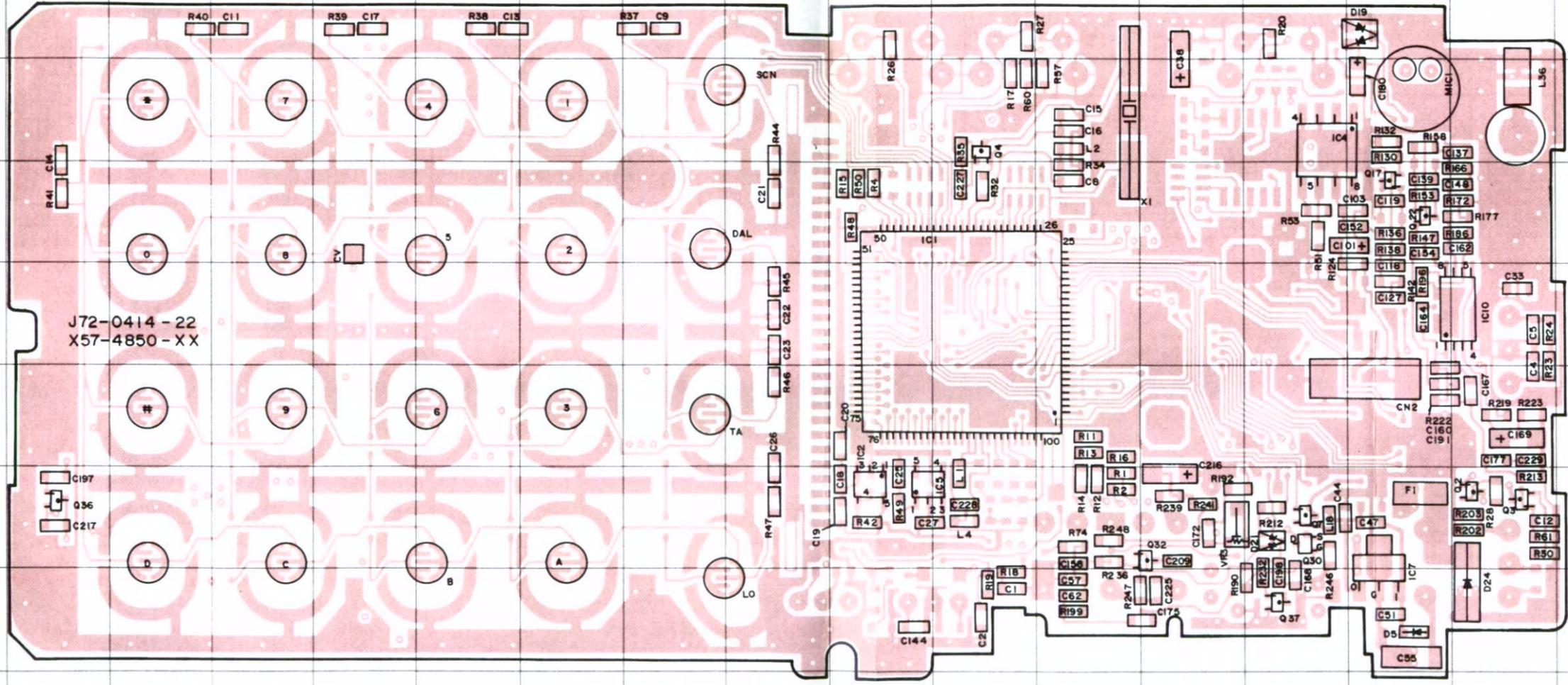
Fig 1

TK-260/(N) PC BOARD VIEWS

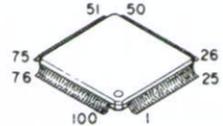
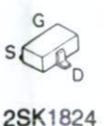
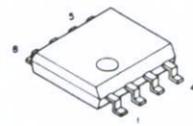
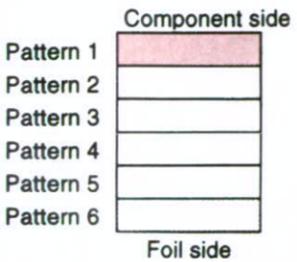
TX-RX UNIT (X57-4850-XX) Component side view
 -11 : K, -12 : K2, -15 : (N)K -16 : (N)K2

TX-RX UNIT (X57-4850-XX)
 (Component side)

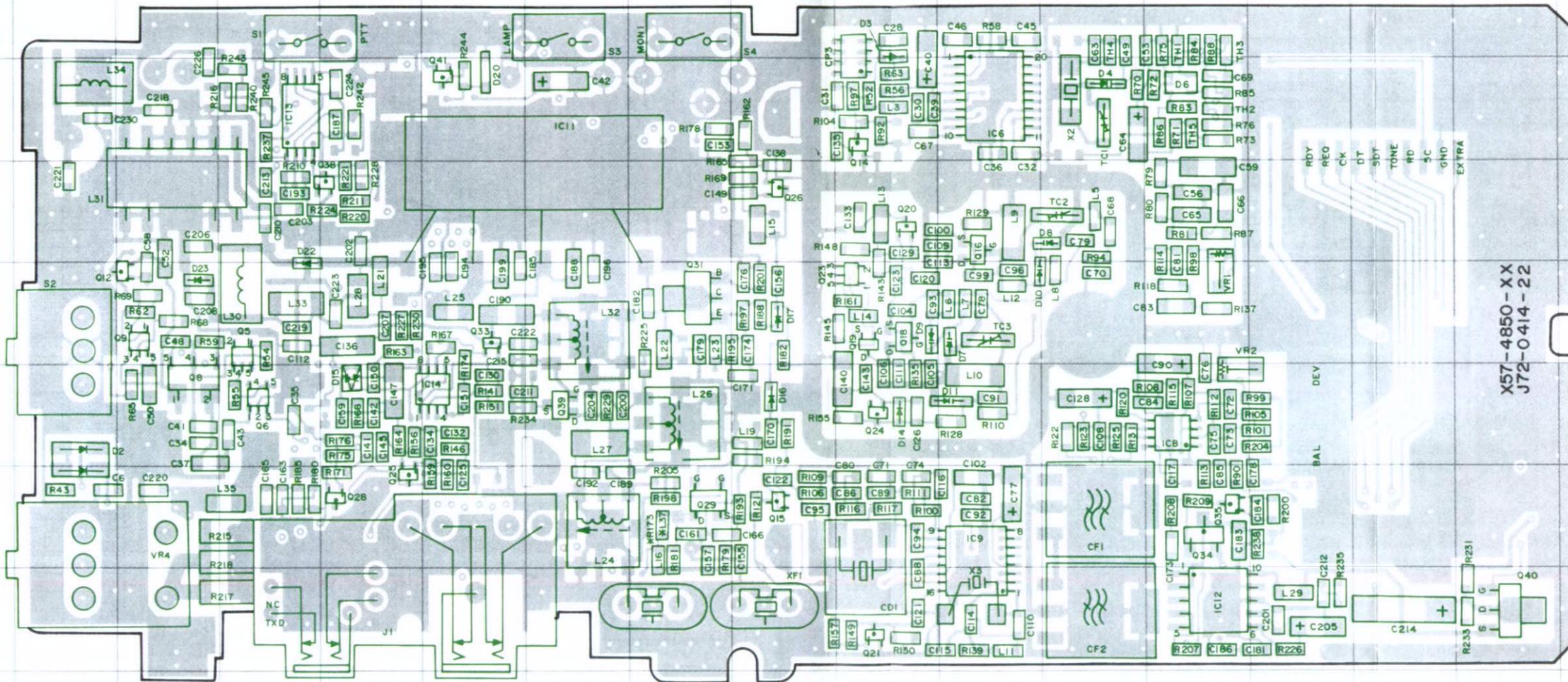
Ref No.	Address
IC1	7K
IC2	9J
IC4	5N
IC5	9J
IC7	10O
IC10	7P
Q2	9P
Q3	9P
Q4	5K
Q7	9N
Q17	6O
Q22	6O
Q30	9N
Q32	9M
Q36	9B
Q37	10N
D5	10O
D19	4O
D21	9N
D24	10P



J72-0414-22
 X57-4850-XX



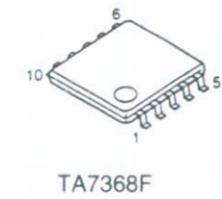
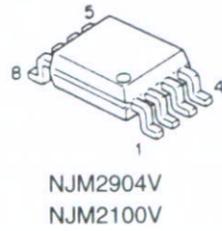
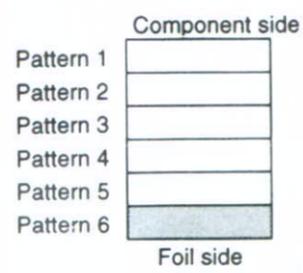
TX-RX UNIT (X57-4850-XX) Foil side view
-11 : K, -12 : K2, -15 : (N)K -16 : (N)K2



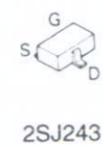
TX-RX UNIT (X57-4850-XX)
(Foil side)

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

X57-4850-XX
J72-0414-22



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

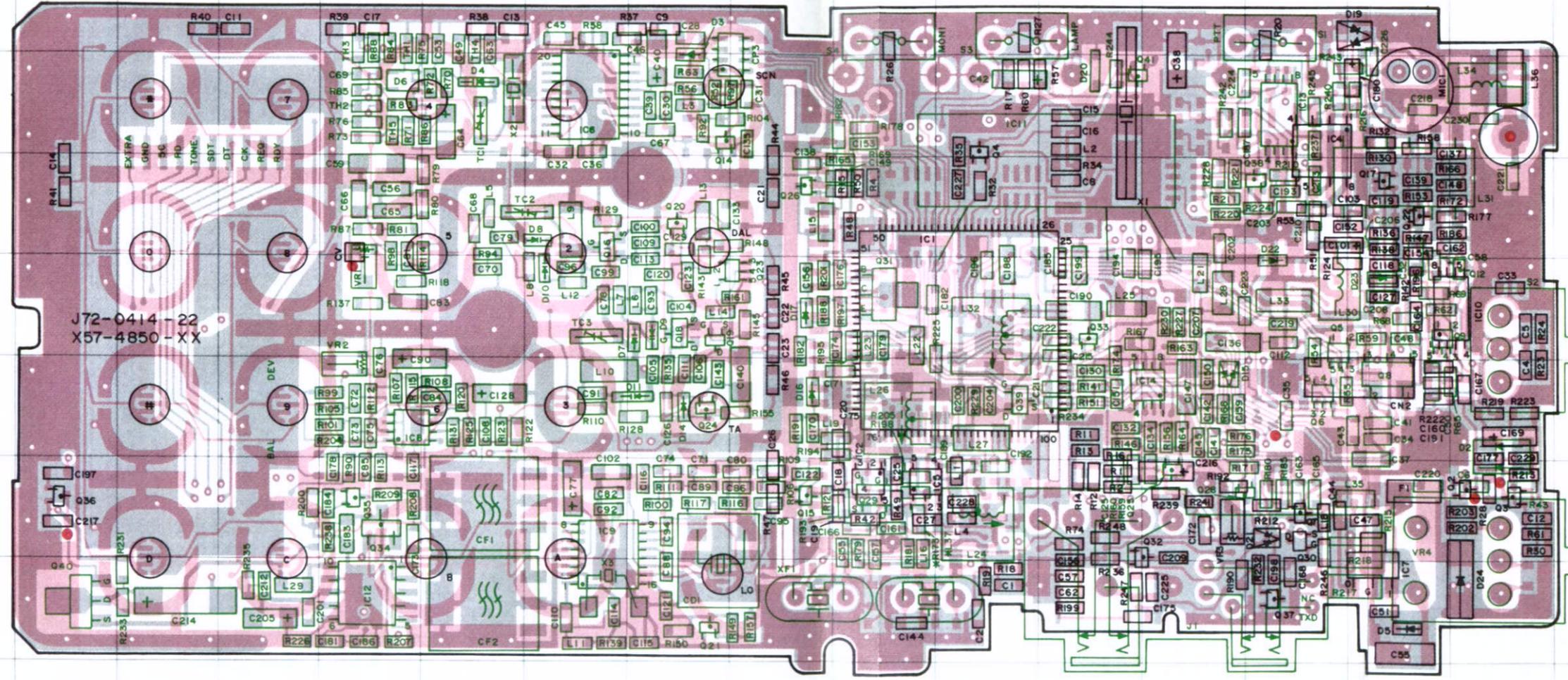


TK-260/(N) PC BOARD VIEWS

TX-RX UNIT (X57-4850-XX)
(Component side)+(Foil side)

Ref No.	Address
IC1	7K
IC2	9J
IC4	5N
IC5	9J
IC6	5G
IC7	100
IC8	8E
IC9	9G
IC10	7P
IC11	5K
IC12	10E
IC13	5N
IC14	8M
Q2	9P
Q3	9P
Q4	5K
Q5	7N
Q6	8N
Q7	9N
Q8	80
Q9	70
Q12	7P
Q14	6H
Q15	9I
Q16	6G
Q17	60
Q18	7H
Q19	7H
Q20	6H
Q21	10H
Q22	60
Q23	7I
Q24	8H
Q25	9M
Q26	6I
Q28	9M
Q29	9J
Q30	9N
Q31	7J
Q32	9L
Q33	7L
Q34	9E
Q35	9E
Q36	9B
Q37	10N
Q38	6N
Q39	8K
Q40	10B
D2	8P
D3	4H
D4	5F
D5	100
D6	5E
D7	7H
D8	6G
D9	7H
D10	7G
D11	8H
D14	8H
D15	8M
D16	8I
D17	7I
D19	40
D20	5L
D21	9N
D22	7N
D23	70
D24	10P

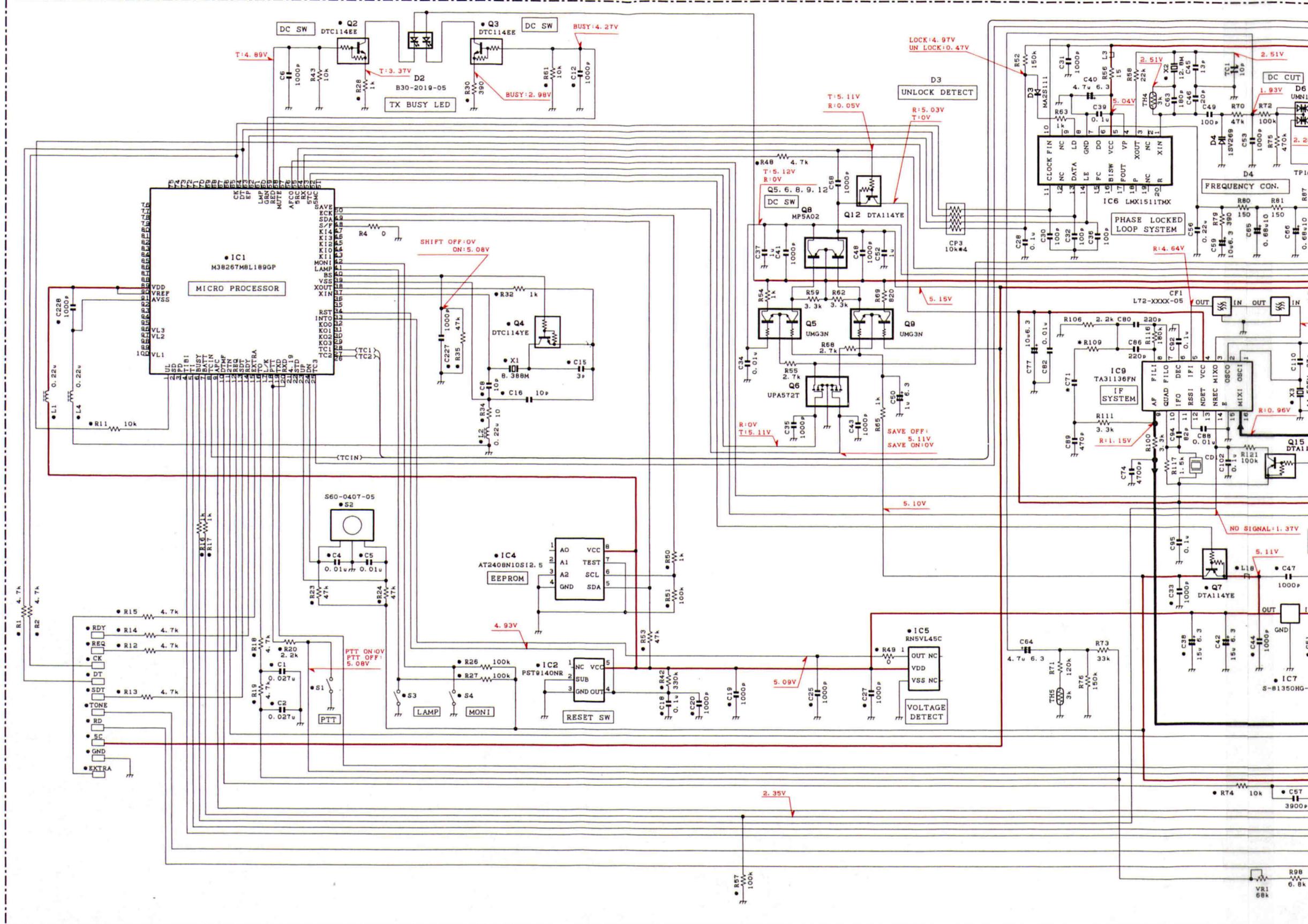
TX-RX UNIT (X57-4850-XX) Component side view +Foil side view
-11 : K, -12 : K2, -15 : (N)K -16 : (N)K2



● Connect 1 and 6.

<p>Component side</p> <p>Foil side</p>	<p>LMX1511TMX</p>	<p>TA7368F</p>	<p>TA75W01FU</p>	<p>DTA114EE</p>	<p>2SA1362</p>	<p>2SJ243</p>	<p>2SK1824</p>	<p>UMC4</p>	<p>SGM2014M</p>	<p>2SK1215</p>	<p>2SK1588</p>	<p>M38267M8L189GP</p>	
				DTA114YE									
				DTA144EE									
				2SC4617									
				2SC4619									
				DTC114EE									
			DTC114YE										
			DTC144EE										

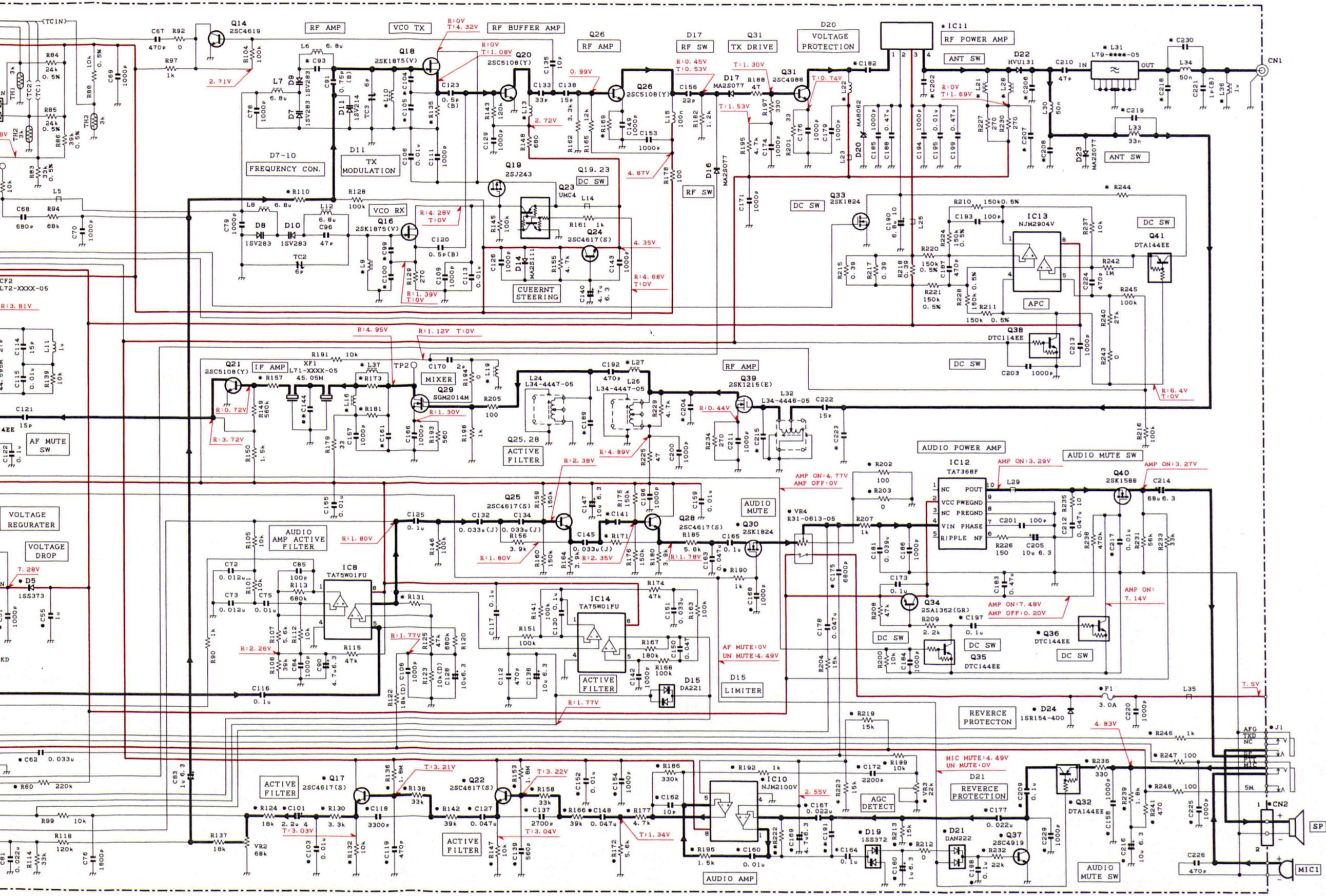
X57-4850-XX



	IC11	R109	R110	R131	R135	R157	R169	R171	R173	R181	R222	R244	C71	C93	C99	C100	C104	C105	C141	C144	C161	C182	C189	C191	C202	C204	C206	C207	C208	C215	C218	C219	C223	C230	L9	L10	L13			
TK-260/N	O-15	NK	RF0314-01	56k	47k	150k	270	270	180	3.3k	-	-	220k	330	82p	220p	5p	15p	9p	20p	0.027u(J)	20p	18p	18p	4p	3300p	7p	5p	3p	33p	27p	6p	7p	12p	10p	2p	23n	27n	100n	2
	O-16	NK2	PF0313-01	56k	100k	150k	330	270	270	3.3k	-	-	220k	1.5k	82p	150p	8p	18p	5p	18p	0.027u(J)	20p	18p	22p	6p	3300p	2p	7p	12p	1000p	33p	9p	10p	15p	12p	1.5p	27n	39n	120n	2
TK-260	O-11	K	PF0314-01	150k	47k	82k	270	680	180	3.9k	0	1.5k	270k	330	33p	220p	5p	15p	9p	20p	0.033u(J)	6p	15p	18p	4p	2700p	7p	5p	3p	33p	27p	6p	7p	12p	10p	2p	23n	27n	100n	6
	O-12	K2	PF0313-01	150k	100k	82k	330	680	270	3.9k	0	1.5k	270k	1.5k	33p	150p	8p	18p	5p	18p	0.033u(J)	6p	15p	22p	6p	2700p	2p	7p	12p	1000p	33p	9p	10p	15p	12p	1.5p	27n	39n	120n	6

39

SCHEMATIC DIAGRAM TK-260/(N)

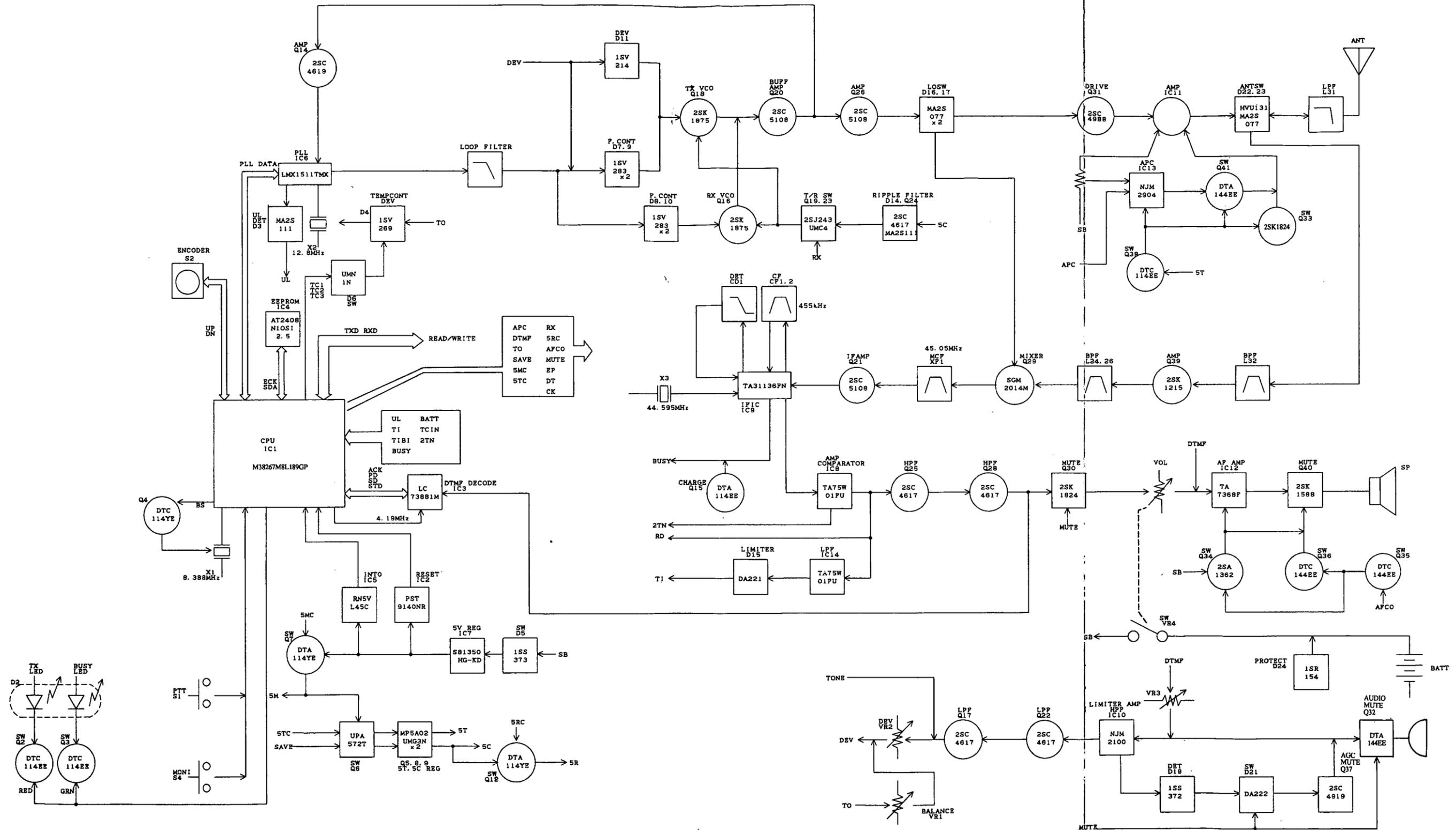


L16	L19	L21	L22	L27	L28	L31	L37	XF1	CF1.2	IC1: M38267M8L189GP	IC8: 14: TA75W01FU	IC13: NJM2904V	Q8	MP5A02	Q20, 21, 26: 2SC5108(Y)	Q33	2SK1824	Q41	DTA144EE	D7-10	1SV283	D21: DAN222		
20n	100n	220n	56n	470n	-	1157	470n	0.461	0.939	IC2: PST9140NR	IC9	: TA31136FN	Q2, 3, 38: DTC114EE	Q14	2SC4619	Q23	UMC4	Q34	2SA1362(GR)	D2	: B30-2019-05	D11	1SV214	D22: HVU131
20n	150n	-	68n	560n	100n	1076	470n	0.461	0.939	IC4: AT2408N10S12.5	IC10	: NJM2100V	Q4	DTA114EE	Q15	2SC4919	Q29	SGM2014M	Q35, 36: DTC144EE	D3, 14: MA2S111	D15	DA221	D24: 1SR154-400	
80n	100n	220n	56n	470n	-	1157	-	0.409	0.916	IC5: RN5VL45C	IC11	: RF0314-01(NK, K)	Q5, 9	UMG3N	Q16, 18	2SK1875(V)	Q30	2SK1824	Q37	2SC4919	D4	1SV269	D16, 17, 23: MA2S077	
80n	150n	-	68n	560n	100n	1076	-	0.409	0.916	IC6: LMX1511TMX	IC11	: RF0313-01(NK2, K2)	Q6	UPA572T	Q17, 22, 24, 25, 28, 28: 2SC4617(S)	Q31	2SC4988	Q39	2SK1215(E)	D5	1SS373	D19	1SS372	
										IC7: S-81350HG-KD	IC12	: TA7368F	Q7, 12	DTA114YE	Q19	2SJ243	Q32	DTA144EE	Q40	2SK1588	D6	UMN1N	D20	MA8062

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

TK-260/(N) TK-260/(N)

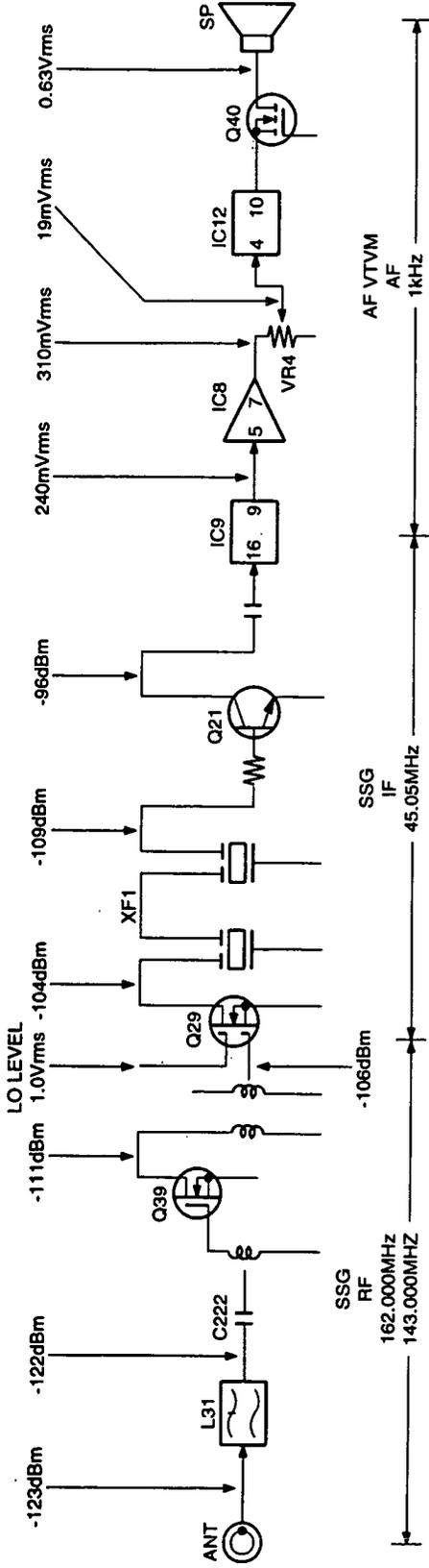
BLOCK DIAGRAM



	TX VCO FREQUENCY	RX VCO FREQUENCY	IC11
TK-260/(N)	K	150.000 - 174.000 MHz	PF0314
	K2	136.000 - 150.000 MHz	PF0313

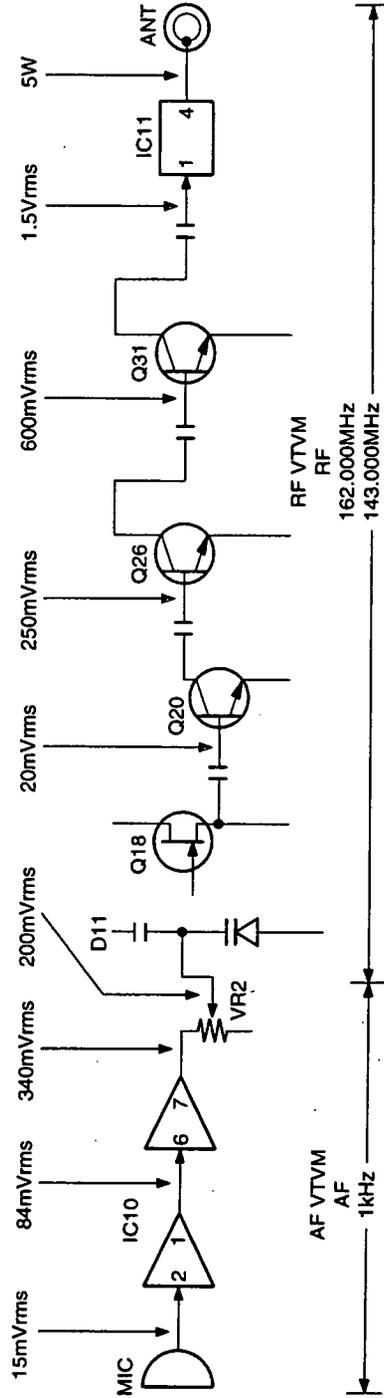
LEVEL DIAGRAM

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 (K. TYPE), ± 1.5 kHz (N) (K. TYPE) 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 12dB in which signals are input from SSG to each point through a 1000pF 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 (K. NK), 143.000MHz (K2, NK2). The audio generator is controlled so that the input signal at the MIC pin has a deviation of ± 3 kHz (K. TYPE), ± 1.5 kHz (N) (K. TYPE) for a modulation frequency of 1kHz.

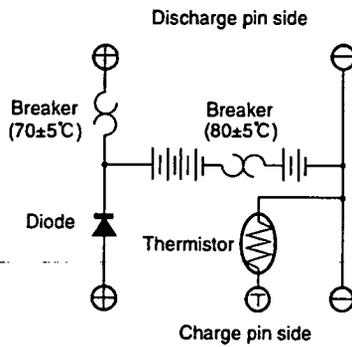
TK-260/(N)

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

KNB-14



CIRCUITDIAGRAM



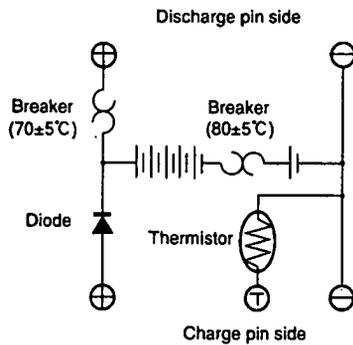
SPECIFICATIONS

Voltage : 7.2V(1.2Vx6)
 Charging current : 600mAh
 Dimensions : 60.8Wx110.8Hx17.3D(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(1.2Vx6)
 Charging current : 1100mAh
 Dimensions : 60.8Wx110.8Hx20.3D(mm)
 (projection included)
 Charger and charging time:
 KSC-15 (normal charger), approximately 8 hours
 KSC-16 (rapid charger), approximately 2 hours
 Weight : 210g

TK-260/(N)

TK-260/(N)

SPECIFICATIONS

GENERAL

Frequency Range	TK-260/(N): K (150 ~ 74MHz) TK-260/(N): K2 (136 ~ 150MHz)
Number of channels	4
Channel Spacing	30 (25) kHz: K type 12.5kHz: (N)K type (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-15A (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 (TK-260)/0.28μV (TK-260/(N))
Modulation Acceptance	±7kHz (TK-260)/±3.5kHz (TK-260/(N))
Selectivity	70dB (TK-260)/65dB (TK-260/(N))
Intermodulation	65dB (TK-260)/60dB (TK-260/(N))
Spurious response	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	16K φ F3E (TK-260)/11K φ F3E (TK-260/(N))
Maximum frequency deviation	±5kHz (TK-260)/±2.5kHz (TK-260/(N)) (for 100% at 1000Hz)
FM Noise	-45dB (TK-260)/-43dB (TK-260/(N))
Audio Distortion	5%
Frequency Stability	±0.0005% from -30°C to +60°C
Channel Frequency Spread	24MHz

KENWOOD CORPORATION

14-6, Dogenzaka 1-chome, Shibuya-ku, Tokyo 150, Japan

KENWOOD SERVICE CORPORATION

P.O. BOX 22745, 2201 East Dominguez Street, Long Beach, CA 90801-5745, U.S.A.

KENWOOD ELECTRONICS LATIN AMERICA S.A.

P.O. BOX 55-2791 Piso 6 Plaza Chase Cl. 47 y Aquilino de la Guardia Panama, Republic of Panama

KENWOOD ELECTRONICS CANADA INC.

6070 Kestrel Road, Mississauga, Ontario, Canada L5T 1S8

KENWOOD ELECTRONICS DEUTSCHLAND GMBH

Rembrücker Str. 15, 63150 Heusenstamm, Germany

KENWOOD ELECTRONICS BELGIUM N.V.

Mechelsesteenweg 418 B-1930 Zaventem, Belgium

KENWOOD ELECTRONICS FRANCE S.A.

13, Boulevard Ney, 75018 Paris, France

KENWOOD ELECTRONICS U.K. LIMITED

KENWOOD House, Dwight Road, Watford, Herts., WD1 8EB United Kingdom

KENWOOD ELECTRONICS EUROPE B.V.

Amsterdamseweg 37, 1422 AC Uithoorn, The Netherlands

KENWOOD ELECTRONICS ITALIA S.p.A.

Via G. Sirtori, 7/9 20129 Milano, Italy

KENWOOD IBERICA S.A.

Bolivia, 239-08020 Barcelona, Spain

KENWOOD ELECTRONICS AUSTRALIA PTY. LTD.

(A.C.N. 001 499 074)

P.O. Box 504, 8 Figtree Drive, Australia Centre, Homebush, N.S.W. 2140, Australia

KENWOOD & LEE ELECTRONICS, LTD.

Unit 3712-3724, Level 37, Tower one Metroplaza, 223 Hing Fong Road, Kwai Fong, N.T., Hong Kong