VHF FM TRANSCEIVER

TK-760/762/H

SERVICE MANUAL

KENWOOD

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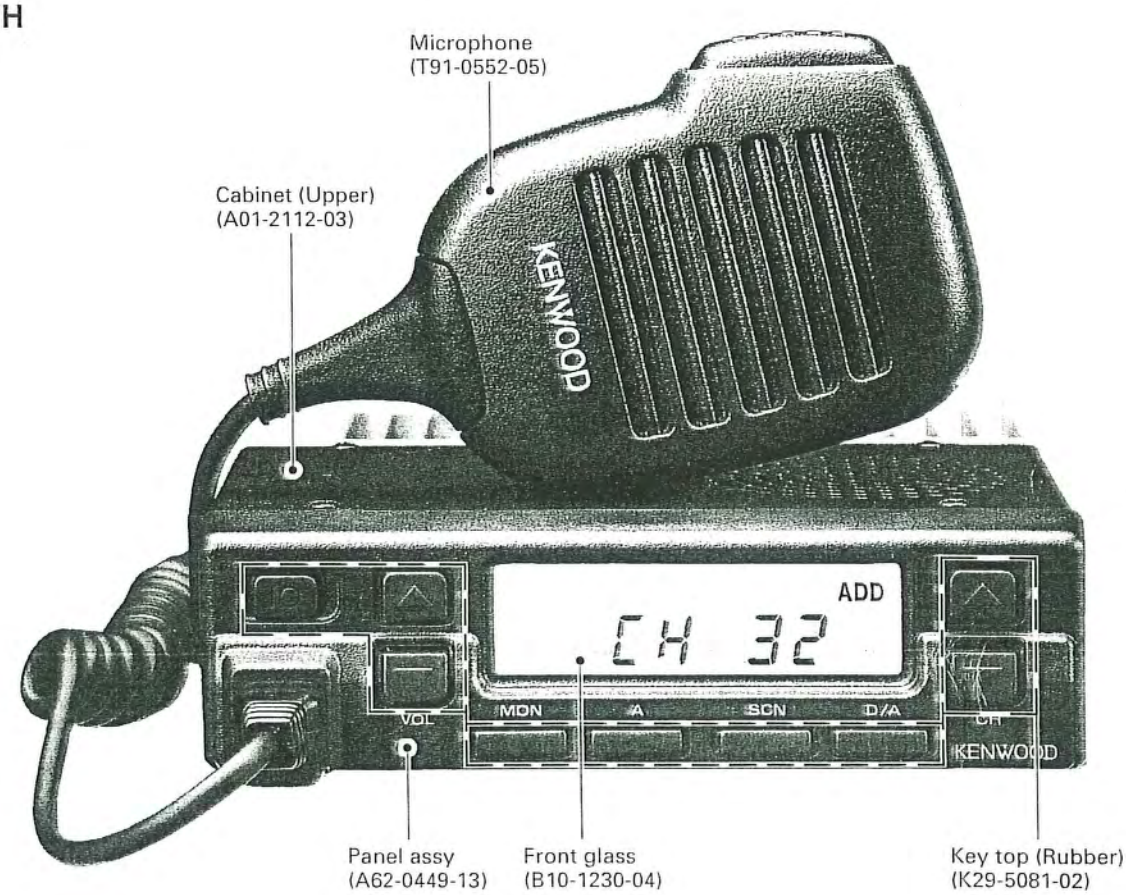
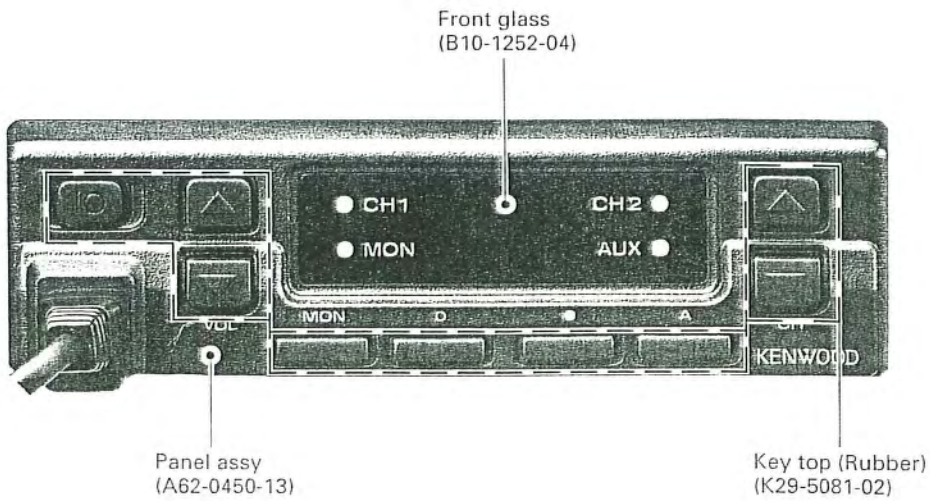
B51-8327-00 (N) 1382

TK-760/H



TK-762/H



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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 if someone is within two feet (0.6 meter) of the antenna.
- 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.
- All equipment should be properly grounded before power-up for safe operation.
- This equipment should be serviced by a qualified technician only.

FCC COMPLIANCE AND TYPE NUMBERS

Model and destination		Frequency range (MHz)	TX power (W)	Deviation (kHz)	Signaling			
					QT	DQT	2-TONE DEC	DTMF ENC
TK-760	K	148~174	25	5/2.5	○	○	○	○
TK-760	K2	136~156	25	5/2.5	○	○	○	○
TK-762	K	148~174	25	5/2.5	○	○	○	○
TK-762	K2	136~156	25	5/2.5	○	○	○	○
TK-760H	K	148~174	45	5/2.5	○	○	○	○
TK-760H	K2	136~156	45	5/2.5	○	○	○	○
TK-762H	K	148~174	45	5/2.5	○	○	○	○
TK-762H	K2	136~156	45	5/2.5	○	○	○	○

PRE-INSTALLATION CONSIDERATIONS

1. UNPACKING

Unpack the radio from its shipping container and check for accessory items. If any item is missing, please contact KENWOOD immediately.

2. LICENSING REQUIREMENTS

Federal regulations require a station license for each radio installation (mobile or base) be obtained by the equipment owner. The licensee is responsible for ensuring transmitter power, frequency, and deviation are within the limits permitted by the station license.

Transmitter adjustments may be performed only by a licensed technician holding an FCC first, second or general class commercial radiotelephone operator's license. There is no license required to install or operate the radio.

3. PRE-INSTALLATION CHECKOUT

3-1. Introduction

Each radio is adjusted and tested before shipment. However, it is recommended that receiver and transmitter operation be checked for proper operation before installation.

3-2. Testing

The radio should be tested complete with all cabling and accessories as they will be connected in the final installation. Transmitter frequency, deviation, and power output should be checked, as should receiver sensitivity, squelch operation, and audio output. QT equipment operation should be verified.

GENERAL

4. PLANNING THE INSTALLATION

4-1. General

Inspect the vehicle and determine how and where the radio antenna and accessories will be mounted.

Plan cable runs for protection against pinching or crushing wiring, and radio installation to prevent overheating.

4-2. Antenna

The favored location for an antenna is in the center of a large, flat conductive area, usually at the roof center. The trunk lid is preferred, bond the trunk lid and vehicle chassis using ground straps to ensure the lid is at chassis ground.

4-3. Radio

The universal mount bracket allows the radio to be mounted in a variety of ways. Be sure the mounting surface is adequate to support the radio's weight. Allow sufficient space around the radio for air cooling. Position the radio close enough to the vehicle operator to permit easy access to the controls when driving.

4-4. DC Power and wiring

1. This radio may be installed in negative ground electrical systems only. Reverse polarity will cause the cable fuse to blow. Check the vehicle ground polarity before installation to prevent wasted time and effort.
2. Connect the positive power lead directly to the vehicle battery positive terminal. Connecting the Positive lead to any other positive voltage source in the vehicle is not recommended.

CAUTION

If DC power is to be controlled by the vehicle ignition switch, a switching relay should be used to switch the positive power lead. The vehicle ignition switch then controls DC to the relay coil.

---

3. Connect the ground lead directly to the battery negative terminal.
4. The cable provided with the radio is sufficient to handle the maximum radio current demand. If the cable must be extended, be sure the additional wire is sufficient for the current to be carried and length of the added lead.

5. INSTALLATION PLANNING – CONTROL STATIONS

5-1. Antenna system

Control station. The antenna system selection depends on many factors and is beyond the scope of this manual. Your KENWOOD dealer can help you select an antenna system that will best serve your particular needs.

5-2. Radio location

Select a convenient location for your control station radio which is as close as practical to the antenna cable entry point. Secondly, use your system's power supply (which supplies the voltage and current required for your system). Make sure sufficient air can flow around the radio and power supply to allow adequate cooling.

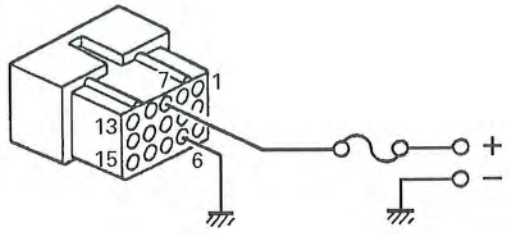
SERVICE

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

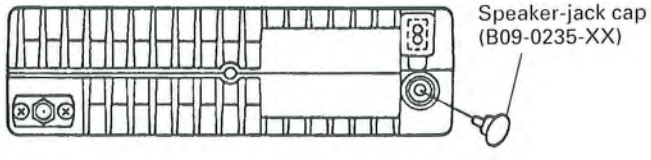
Note

When you modify your radio as described in system set-up, take the following precaution.

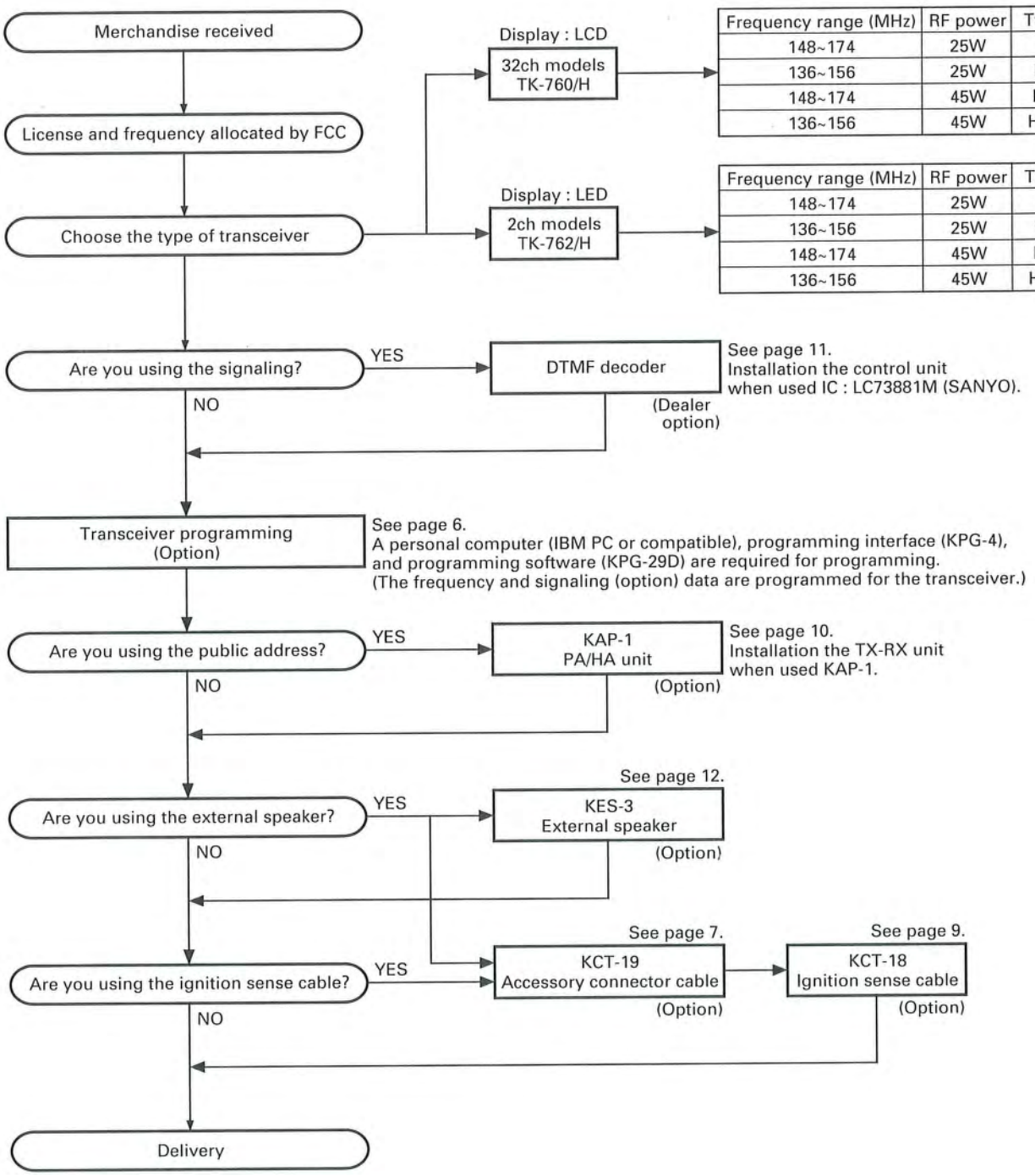
The rating of pin 7 (SB) of the accessory connector cable (KCT-19) on the rear of the radio is 13.6V (1A). Insert a 1A fuse if you use the SB pin for external equipment.



If you do not intend to use the 3.5-mm jack for the external speaker, fit the supplied speaker-jack cap (B09-0235-XX) to stop dust and sand getting in.



SYSTEM SET-UP



Frequency range (MHz)	RF power	Type
148~174	25W	K
136~156	25W	K2
148~174	45W	HK
136~156	45W	HK2

Frequency range (MHz)	RF power	Type
148~174	25W	K
136~156	25W	K2
148~174	45W	HK
136~156	45W	HK2

OPERATING FEATURES

1. Transceiver Programming

1-1. Introduction

The TK-760/762 transceiver is programmed using an IBM PC or compatible machine, a programming interface (KPG-4), and a programming disk (KPG-29D). Figure 1 shows the setup for an IBM PC.

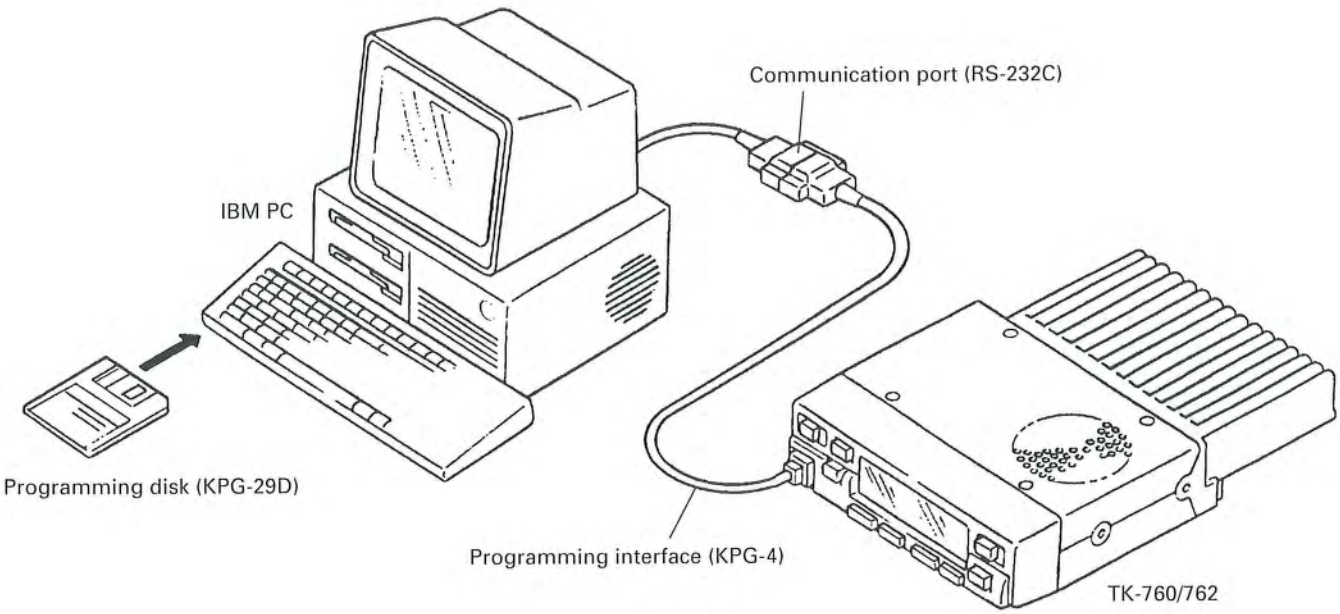


Fig. 1

1-2. KPG-4 Description

(Optional PC programming interface cable)

The KPG-4 is reeded to connect the TK-760/762 to the computer. It has a circuit in the D-subconnector (25-pin) case that converts the RS-232C logic level to TTL level. The KPG-4 plug is connected to external socket of the TK-760/762 and to the computer by a conversion cable (option) with a 9-pin female connector and a 25-pin male connector.

1-3. Programming Software Description

KPG-29D is the programming software for the TK-760/762, supplied on a 3.5" or 5.25" floppy disk. This software runs under MS-DOS (version 3.3 or later) on an IBM-PC/XT, AT, or PS2, or on a compatible machine. Data can be input to or read from the TK-760/762, and edited on the screen. Programmed data can be printed.

1-4. Data Program Mode

In this mode, data is written into the flash memory in the transceiver. When the power is turned on, data program mode can be entered immediately. When the KPG-4 is connected and commands can be received, "PROGRAM" is displayed to indicate that data program mode has been entered.

Tuning can be done using an IBM PC and KPG-29D, in the same way as in panel tuning mode. You can carry out panel tuning by selecting test mode on the KPG-29D menu screen and following the instructions on the screen. See the KPG-29D instruction manual for details.

OPERATING FEATURES / INSTALLATION

1-5. Clone Mode (Figure 2)

Programmed data is transferred from one transceiver to another by using a microphone cable.

1. Connect the master set to the slave set with but the master set is TK-760 only.
2. Turn the slave set on.
3. Hold down the CH [▼] key, turn the master set on, and keep the CH [▼] key down for two more seconds. "–C–" appears on the display to indicate that clone mode has been entered.]
4. Press the MON key on the master set. The ⇄ mark appears and data is sent from the master set to the slave set. "–PC–" appears on the slave set to show that it is receiving data.
5. When cloning is complete, the ⇄ mark on the master set disappears and "–C–" changes to "END". The slave set is automatically reset and enters user mode.

If cloning fails, the master set shows "ErrOr". Repeat steps 4 and 5.

If you wish to clone several sets, switch each of them on and repeat 4 and 5.

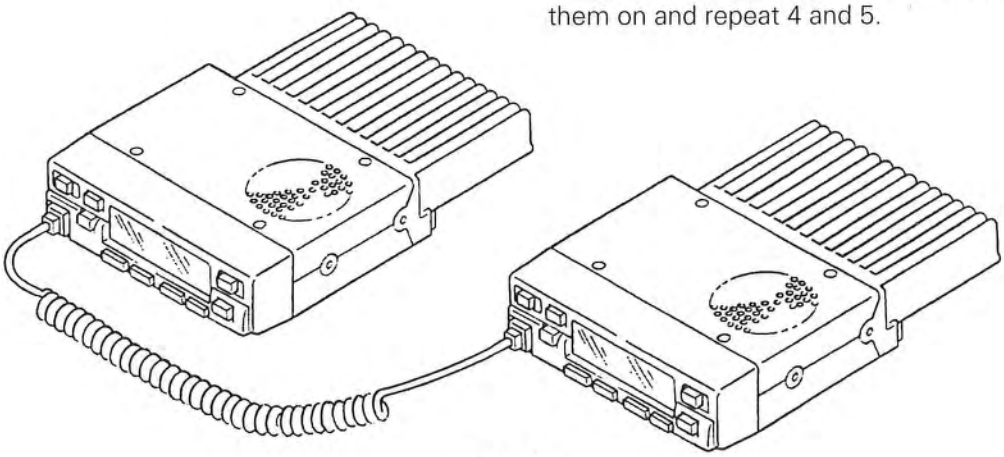


Fig. 2

INSTALLATION

1. Accessory Connection Cable (KCT-19 : Option)

The KCT-19 is an accessory connection cable for connecting external equipment. The connector has 15 pins and the necessary signal lines are selected for use.

1-1. Installing the KCT-19 in the transceiver

1. Remove the upper and lower halves of the transceiver case, and lift the DC cord bushing (❶) from the chassis.
2. Remove the pad (❷).

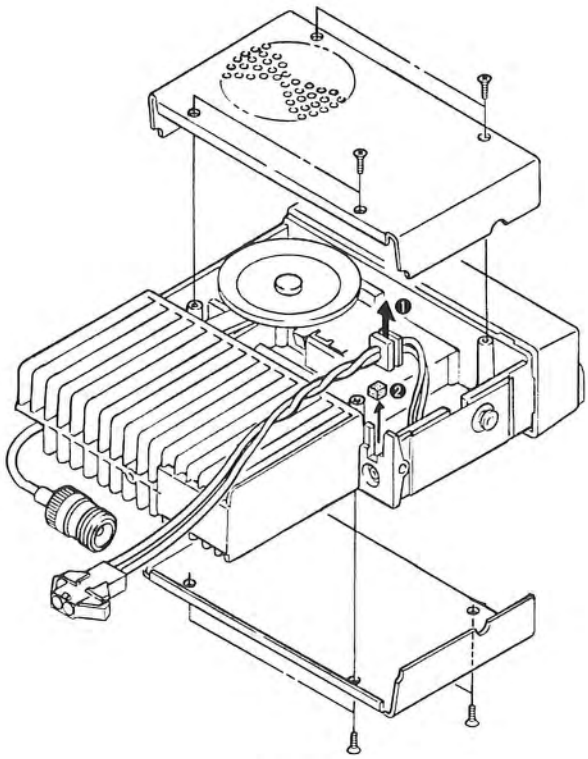


Fig. 1

INSTALLATION

3. Insert the KCT-19 cable (❸) into the chassis (❹). The wire harness band (❺) must be inside the chassis.
4. Relocate the DC cord bushing in the chassis (❻).
5. Connect the KCT-19 to the TX-RX unit (A/2) as shown in Figure 2 (❼).
6. Connect the KCT-19 to the external accessory by inserting the crimp terminal (❽) into the square plug (❾), both of which are supplied with the KCT-19.

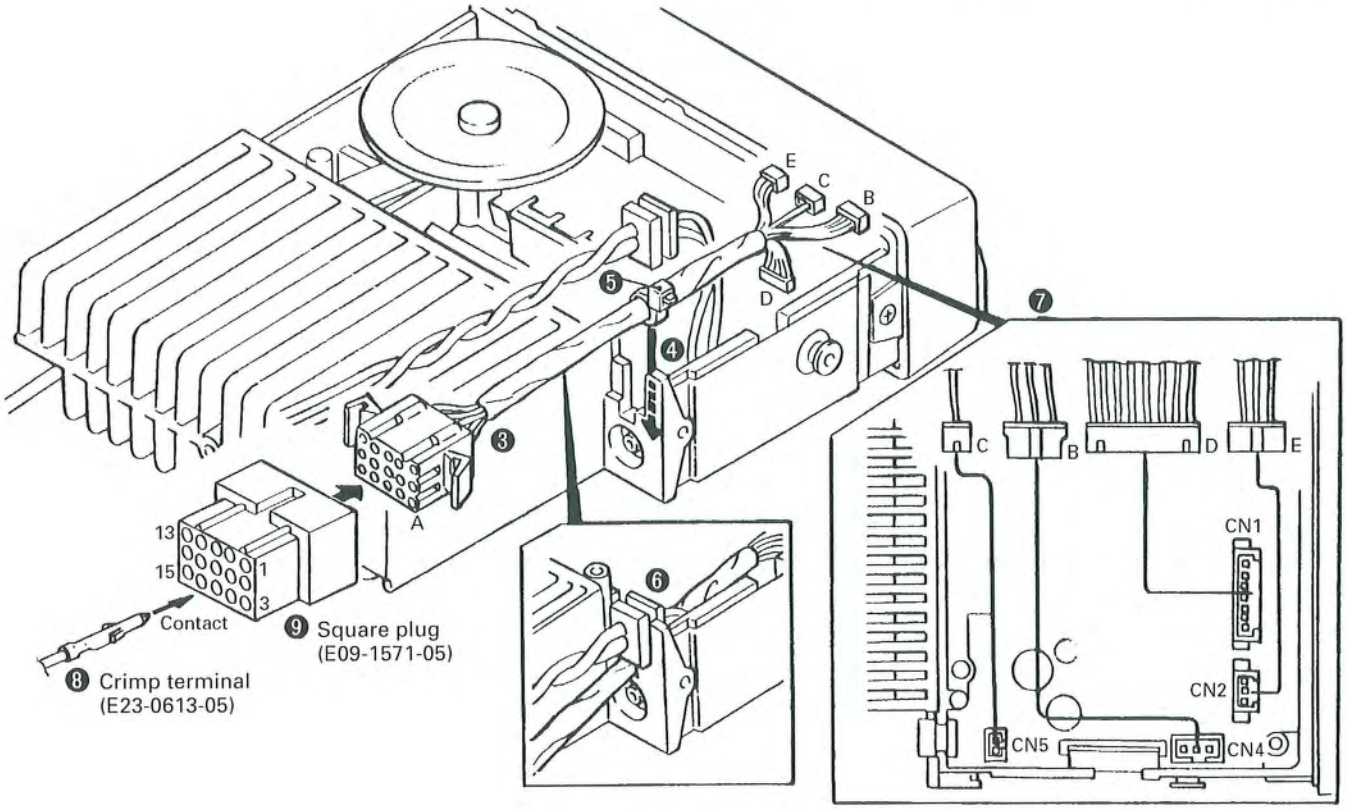


Fig. 2

1-2. Terminal function

No. (A)	No. (B,C,D)	Name	Function	KAP-1 Instllated
A-1	D-2	HK/CHS	MIC hook input/Channel select	←
A-2	D-5	ME	MIC GND	←
A-3	D-3	IGN	Ignition input	←
A-4	D-1	DEO	Detect output	←
A-5	D-6	MI	MIC input	←
A-6	B-2	E	GND	←
A-7	B-3	SB	DC supply (1A)	←
A-8	D-7	PTT	PTT input	←
A-9	D-4	DI	Data mod input	←
A-10	B-1	HOR	Horn Alert output	HR1
A-11	D-8	SQ	Squelch output	←
A-12	C-1	SP	Audio output	PA/HR2
A-13	E-1	AM	Audio mute input	←
A-14	E-2	MM	MIC mute input	←
A-15	E-3	TXS	Signal indicating whether the transceiver is transmitting or not.	←

- Refer to Terminal function on page 49, if need description in detail.
- Connect CN5 of the radio to connector C of the KCT-19 instead of to the internal speaker connector, if use external speaker.

INSTALLATION

2. Ignition Sense Cable (KCT-18 : Option)

The KCT-18 is an optional cable for enabling the ignition function. The ignition function lets you turn the power to the transceiver on and off with the car ignition key.

If you use the Horn Alert function, you can turn the function off while driving with the ignition key.

2-1. Connecting the KCT-18 to the transceiver

1. Install the KCT-19 in the transceiver. (See the KCT-19 section.)
2. Insert the KCT-18 lead terminal (❷) into pin 3 of the square plug (❶) supplied with the KCT-19, then insert the square plug into the KCT-19 connector (❸).

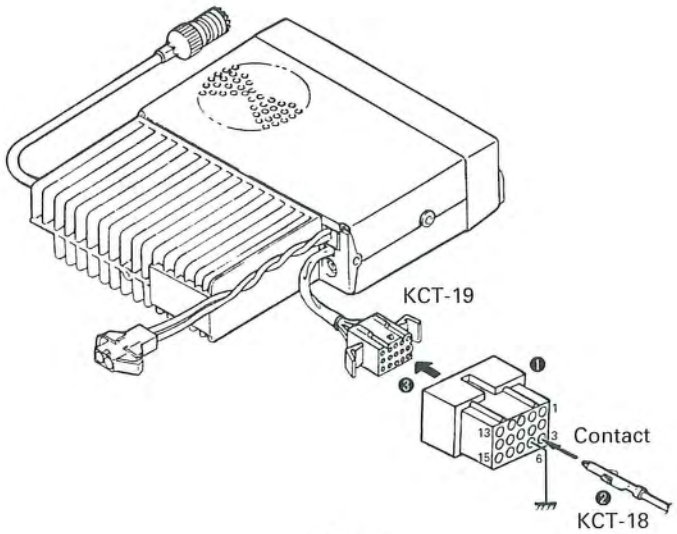


Fig. 3

2-2. Modifying the transceiver

Modify the transceiver as follows to turn the power or the Horn Alert function on and off with the ignition key.

1. Remove the lower half of the transceiver case.
2. Set jumper resistors (0Ω) R5 and R6 of the TX-RX unit (A/2) as shown in Table 1.

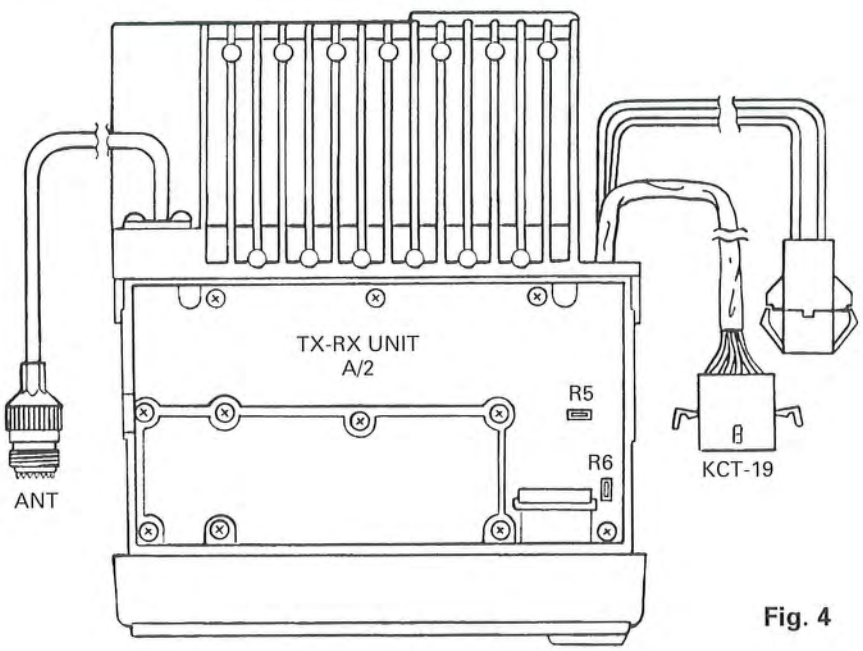


Fig. 4

Operation when KCT-18 is connected	R5	R6	
	Enable	Enable	← **KCT-18 cannot be connected**
Power on/off and Horn Alert on/off	Disable	Enable	
Horn Alert on/off	Enable	Disable	
	Disable	Disable	← **Power cannot be turned on**

Table 1 R5 and R6 setup chart

The Horn Alert function can be turned on and off only if the function has been assigned to the AUX key.

INSTALLATION

3. PA/HA Unit (KAP-1 : Option)

3-1. Installing the KAP-1 in the transceiver

The Horn Alert (max. 2A drive) and Public Address functions are enabled by inserting the KAP-1 W1 (3P; white/black/red) into CN4 on the TX/RX unit, inserting W2 (3P: green) into CN201 on the TX-RX unit, and connecting the KCT-19 (option) to CN2 and CN3 of the KAP-1.

- **Installation procedure**

1. Open the upper case of the transceiver.
2. Insert the two cables (❶) with connectors from the KAP-1 switch unit into the connectors on the transceiver.
3. Secure the switch unit board on the chassis with two screws (❸) with the notch (❷) in the board placed at the front left side.

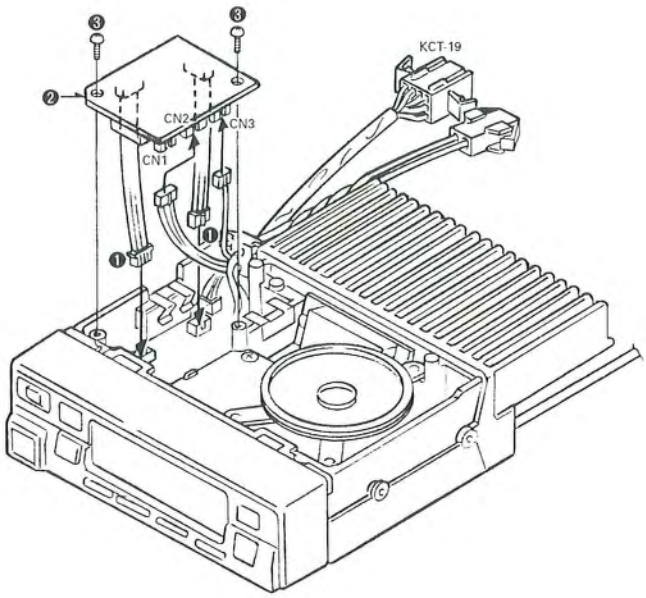


Fig. 5

3-2. Modifying the transceiver

- **Horn Alert**

The signal from pin 62 of IC409 (CPU) on the TX-RX unit turns Q13 and Q14 on and off and drives KAP-1 HA relay K2 to drive the horn with a maximum of 2A.

The default output is HR1. The relay open output can be obtained between HR1 and HR2 by removing R1 in the KAP-1.

	R1	Output form
HR1 (Default)	Enable	HR1
HR2	Disable	HR1 HR2

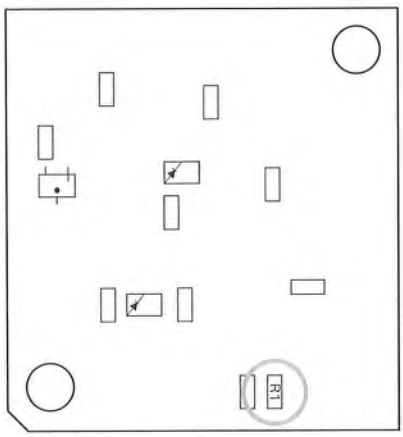


Fig. 6 KAP-1 foil side view

- **Public Address**

The signal from pin 14 of IC10 of the TX-RX unit drives PA relay K1 in the KAP-1 and switches the audio power amplifier output between the external PA system (through KCT-19) and internal and external speakers.

To use the PA function, R80 on the TX-RX unit must be removed. (See Fig. 7.)

	R80
Use the PA function	Disable
Do not use the PA function	Enable

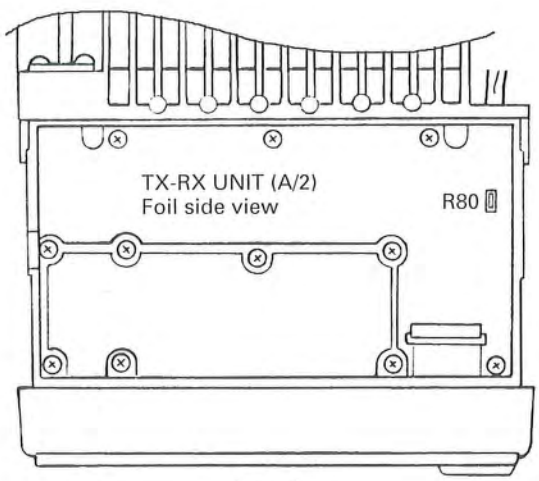


Fig. 7

INSTALLATION

3-3. Others

If the PA and HR2 are not necessary and the speaker output is output to an external unit through the KCT-19, connect the KCT-19 C connector to CN5 on the TX-RX unit.

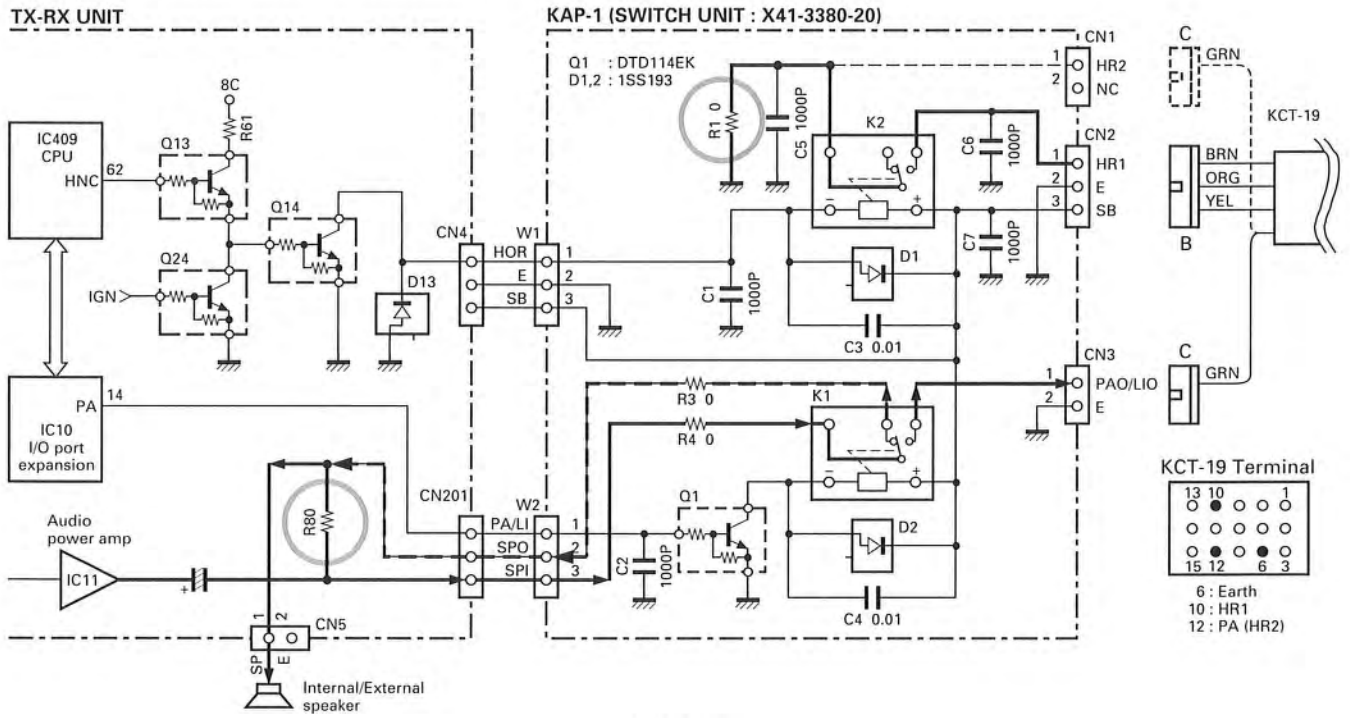


Fig. 8

4. DTMF Decode

If the DTMF decode function, such as code squelch, is necessary, the general-purpose decode IC (LC73881M: SANYO) must be installed.

- **Installation procedure**

1. Remove the upper and lower case and the panel.
2. Solder the IC to the PCB land of the TX-RX unit (control section).

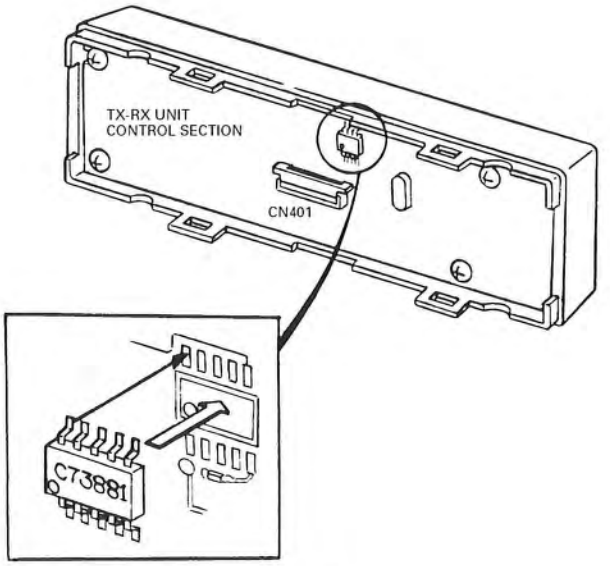


Fig. 9

INSTALLATION

5. External Speaker

5-1. KES-3 : Option

The KES-3 is an external speaker for the 3.5-mm-diameter speaker jack.

- **Connection procedure**

1. Connect the KES-3 to the 3.5-mm-diameter speaker jack on the rear of the transceiver.

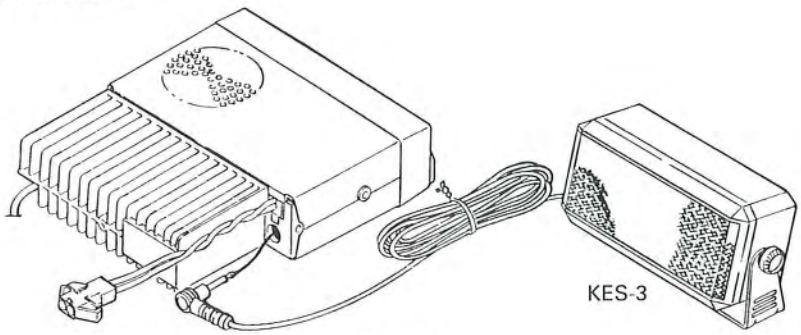


Fig. 10

6. Fitting the Control Panel Upside Down

The TK-760/762 control panel can be fitted upside down, so the transceiver can be mounted with its internal speaker (in the upper half of the case) facing down in your car.

1. Remove the upper and lower case of the transceiver and remove the panel from the main unit (❶).
2. Remove the flat cable (❷) and change the direction of bending the flat cable (❸).
3. Turn the panel over (❹), insert the flat cable into the main unit (❺). Attach the panel to the main unit, and reinstall the cases.

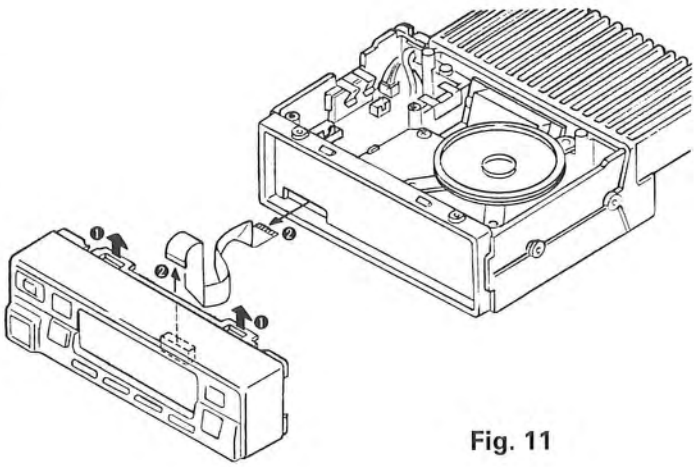


Fig. 11

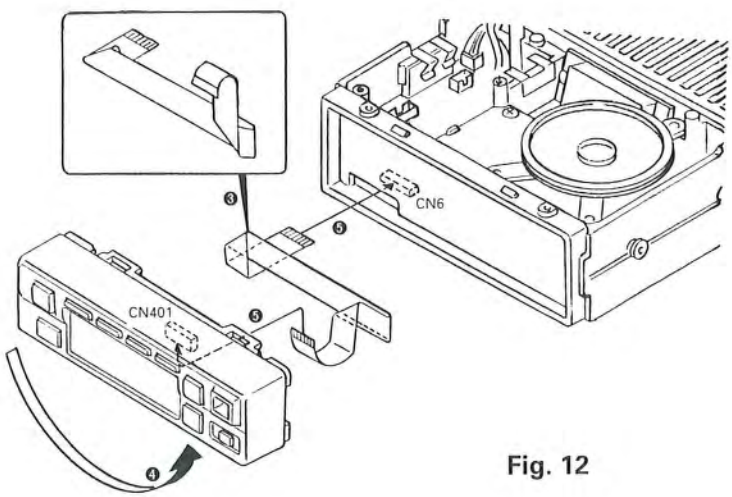
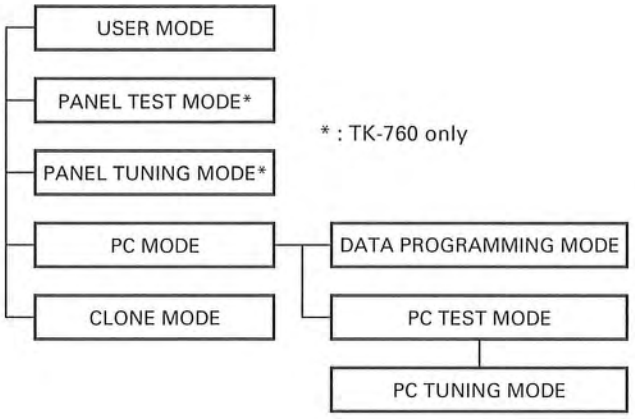


Fig. 12

REALIGNMENT

1. Modes



* : TK-760 only

Mode	Function
USER MODE	Customer use this mode.
PANEL TEST MODE	Dealer uses to check the fundamental characteristics.
PANEL TUNING MODE	Dealer uses to tune the radio.
PC MODE	This mode is communication the radio to PC (IBM compatible). It requires the KPG-29D.
DATA PROGRAMMING MODE	This mode is frequency data and features write to the radio and read from the radio. This feature is include the FPU.
PC TEST MODE	This mode can check the radio by PC control. This feature is include the FPU. This paragraph is as same as PANEL TUNING.

2. How To Enter Each Mode

Mode	Operation
USER MODE	Usually Power ON then begin this mode.
PANEL TEST MODE	The D/A switch is held on with Power ON the radio. The D/A switch holding about 1 sec. after Power ON the radio. But, if this mode is disabled by FPU then begin the USER MODE.
PANEL TUNING MODE	The SCAN switch is held on with Power ON the radio. The SCAN switch holdings about 1 sec. after Power ON the radio. But, if this mode is disabled by FPU then begin the USER MODE.
PC MODE	The radio Power ON to begin the USER MODE when through to the microphone then begin this mode. Note : PANEL TEST MODE and PANEL TUNING MODE does not begin the PC MODE.

3. Panel Test Mode (TK-760 Only)

When the test mode is entered, all LCD segments light, the beeper sounds for one second, and VERSION SELECT mode is entered.

Use the following keys to select a version:

D/A key ..... UP

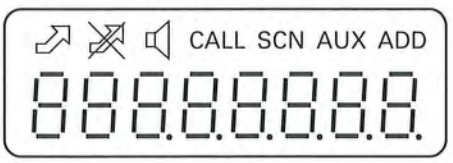
SCN key ..... DOWN

Table 1 lists the versions. The version is backed up when the CHANNEL DOWN key is pressed.

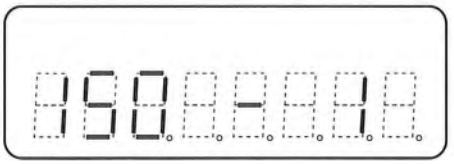
Version	Display
VHF F1	150-1
VHF F2	150-2

Table 1

All LCD segments appear



Version select mode



REALIGNMENT

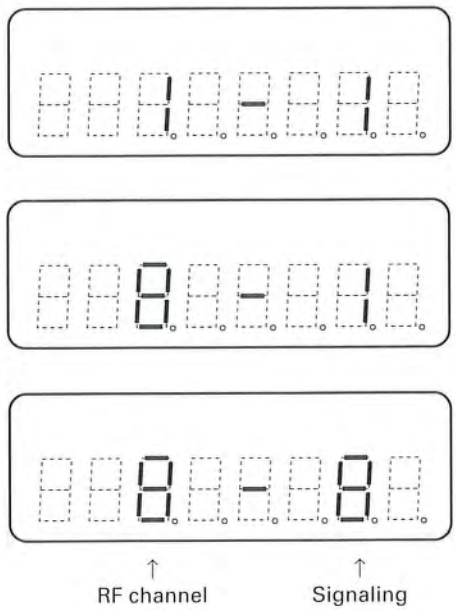
3-1. TEST MODE CHANNEL operation

When the CHANNEL DOWN key is pressed in the VERSION SELECT mode, the version is backed up and a channel operation begins.

The channel frequencies for each version are listed in Table 3, and key functions for channel operations are listed in Table 2.

Key	Function
VOL UP	VOL UP
VOL DOWN	VOL DOWN
CH UP	MUTE OFF
CH DOWN	W/N
MON	CH DOWN
A	CH UP
SCN	SIG DOWN
D/A	SIG UP
PTT	TX

Table 2



Frequency table for using on test mode

CH	K		K2	
	RX F (MHz)	TX F (MHz)	RX F (MHz)	TX F (MHz)
1	161.03000	161.00000	143.03000	143.00000
2	148.03000	148.00000	136.03000	136.00000
3	173.97000	174.00000	149.97000	150.00000
4	155.10000	155.10000	137.10000	137.10000
5	160.10000	160.10000	142.10000	142.10000
6	165.10000	165.10000	147.10000	147.10000
7	150.03000	150.00000	153.03000	153.00000
8	156.03000	156.00000	155.97000	156.00000

Signaling

	DEC signaling	ENC signaling	Remarks
1	No	No	
2	No	Rectangular wave	100Hz
3	QT 67.0Hz	QT	67.0Hz
4	QT 151.4Hz	QT	151.4Hz
5	QT 210.7Hz	QT	210.7Hz
6	DQT 023N	DQT 023N	
7	No	DTMF 1633Hz	Single tone
8	No	DTMF 852Hz 1209Hz	[7] key
9	2-tone slow	No	321.7Hz, 928.1Hz CALL flashes if the signal matches.
10	DTMF	No	[159D] CALL flashes if the signal matches.

Table 3

REALIGNMENT

4. Panel Tuning Mode (TK-760 Only)

When the tuning mode is entered, the TUNING MODE START display appears for about one second, and the VERSION SELECT state becomes effective. This state is different from the VERSION SELECT state in the TEST MODE in that the dot at the lower right side of the display lights.

Use the following keys to select a version:

D/A key ..... UP
SCN key ..... DOWN

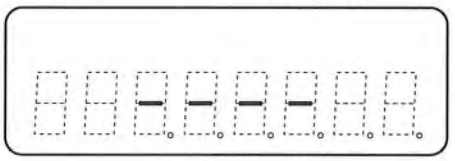
The version is backed up when the CH DOWN key is pressed as the version select key.

When the version is selected with the CH DOWN key, the CH SELECT state of the tuning mode becomes effective.

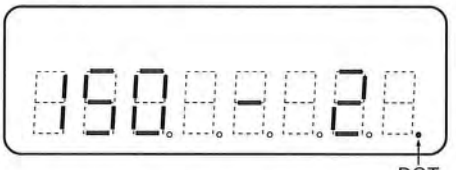
The channel and signaling can be selected in the same way as in the test mode.

The tuning items are listed in Tables 5 and 6, and key operations for tuning are listed in Table 4.

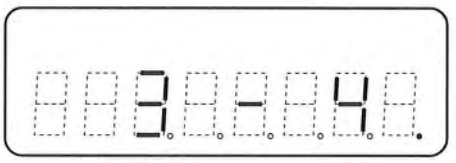
Tuning mode start display

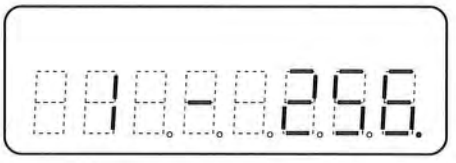


Tuning mode version select state



Tuning mode channel select state





Tuning mode channel select			Tuning mode tuning		
Key	Function	Remarks	Key	Function	Remarks
VOL UP	VOL up		VOL UP	VOL up	
VOL DOWN	VOL down		VOL DOWN	VOL down	
CH UP	To tuning	To the right state	CH UP	To CH SEL	To the left state
CH DOWN	N/A		CH DOWN	Select	To the next item
MON	CH down		MON	Item down	
AUX	CH up		AUX	Item down	
SCN	SIG down		SCN	Adjustment value down	
D/A	SIG up		D/A	Adjustment value up	
PTT	TX		PTT	TX	

Table 4

REALIGNMENT

Tuning item

Item No.	Tuning description	Valid range	Remarks
1	Frequency	1~256	
2	RF power	1~256	Three-point adjustment
2L	RF power (Low)	1~256	Low
2C	RF power (Center)	1~256	Center
2H	RF power (High)	1~256	High
3	RF low power	1~256	KM UHF F1
4	DQT balance	1~256	
5	Max deviation	1~256	Three-point adjustment
5L	Max deviation (Low)	1~256	Low
5C	Max deviation (Center)	1~256	Center
5H	Max deviation (High)	1~256	High
6	QT deviation	1~256	
7	DQT deviation	1~256	
8	Sensitivity	1~256	Three-point adjustment
8L	Sensitivity (Low)	1~256	Low
8C	Sensitivity (Center)	1~256	Center
8H	Sensitivity (High)	1~256	High
9	Squelch		

Table 5

Panel tuning state transition

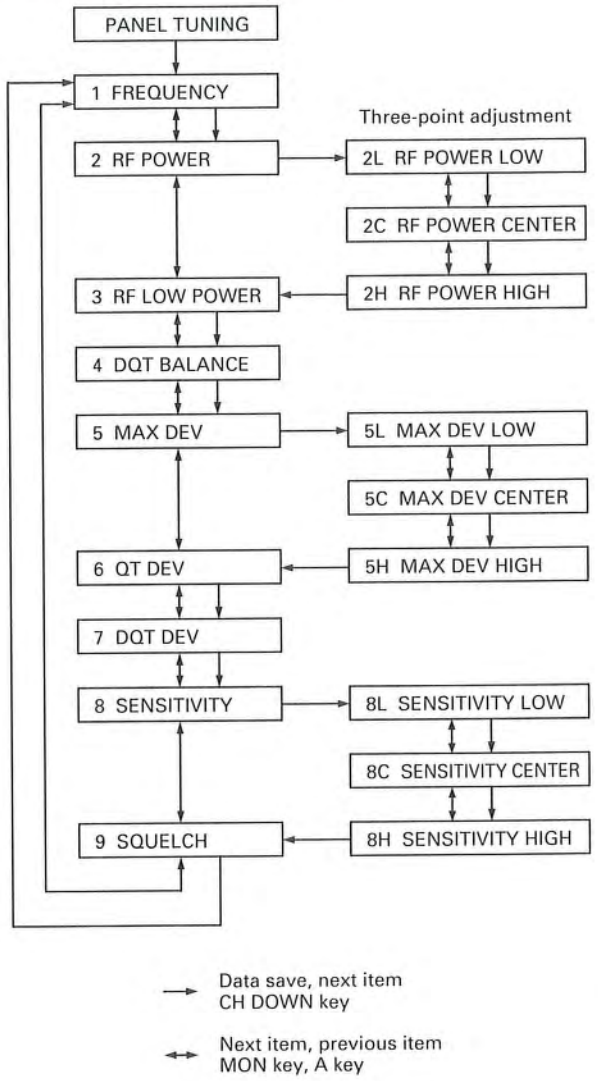
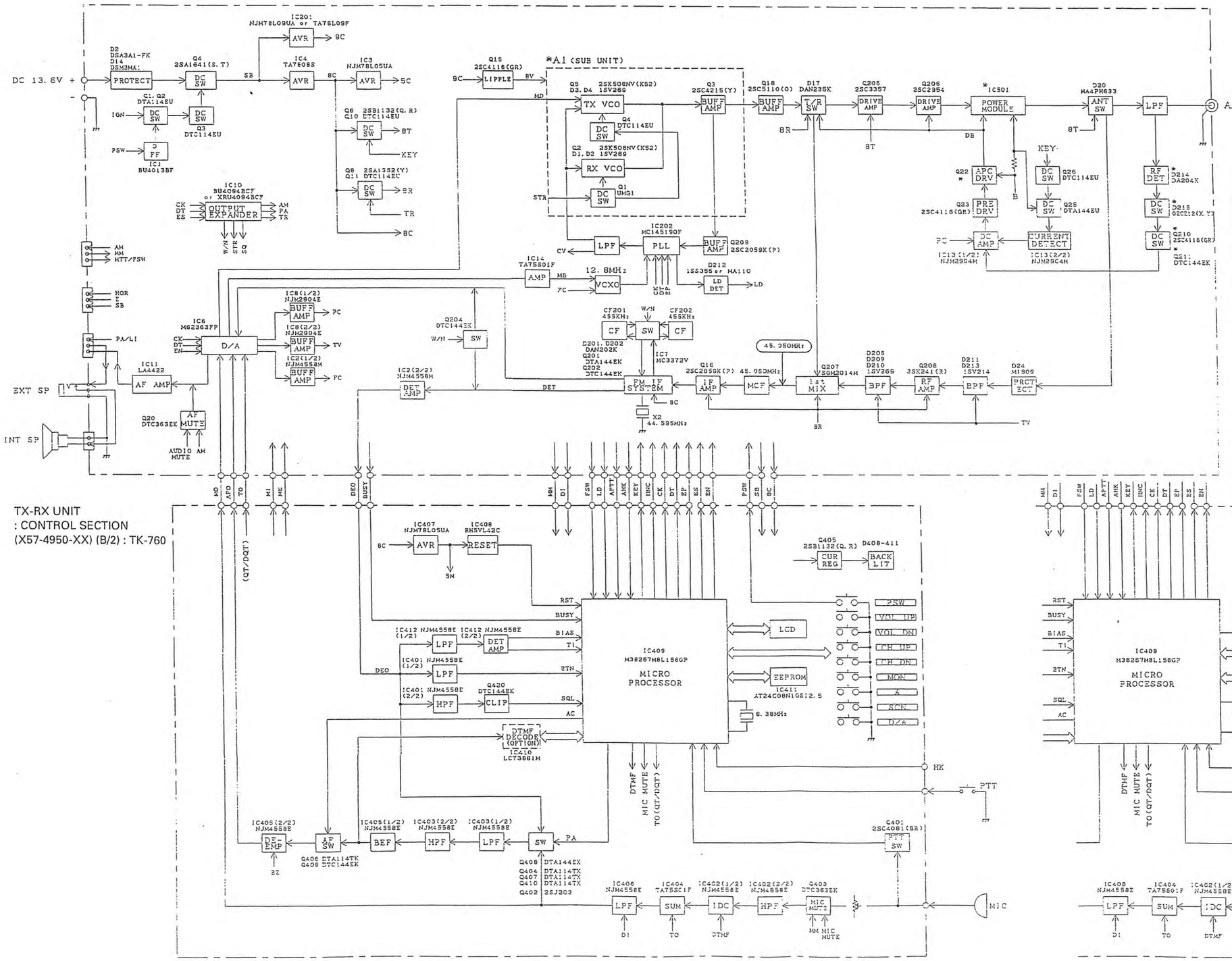


Table 6

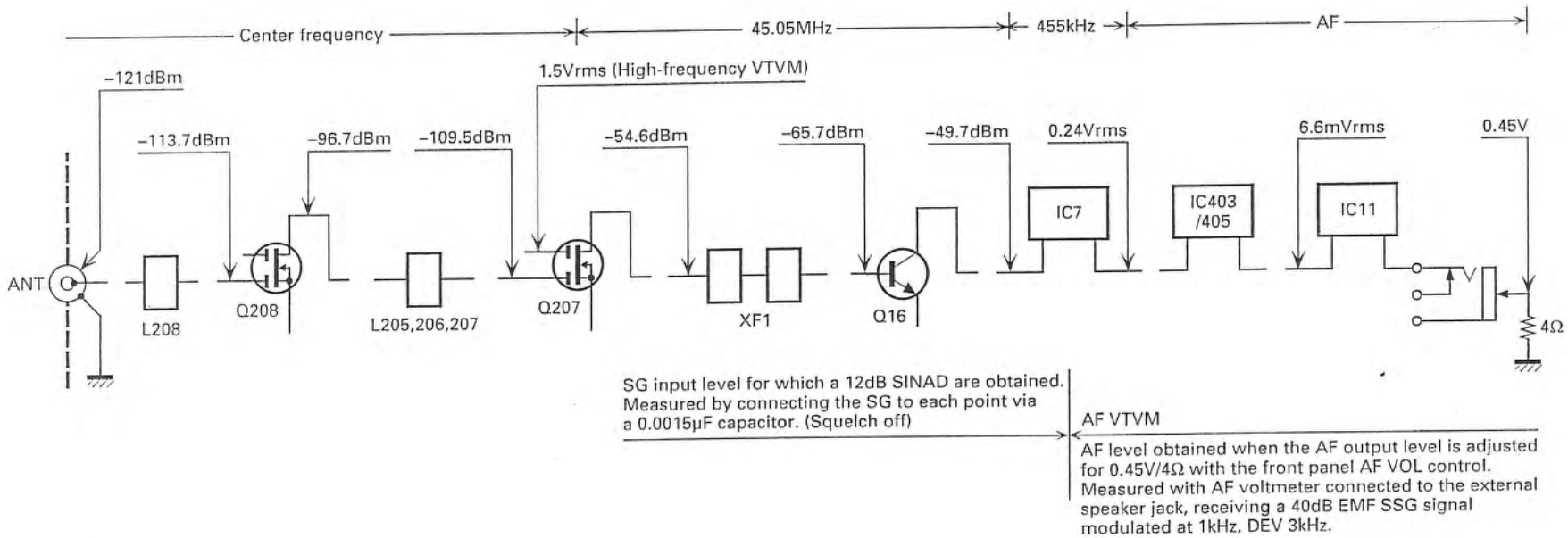
BLOCK DIAGRAM

TX-RX UNIT : TX-RX SECTION (X57-4950-XX) (A/2) : TK-760 (X57-5100-XX) (A/2) : TK-762

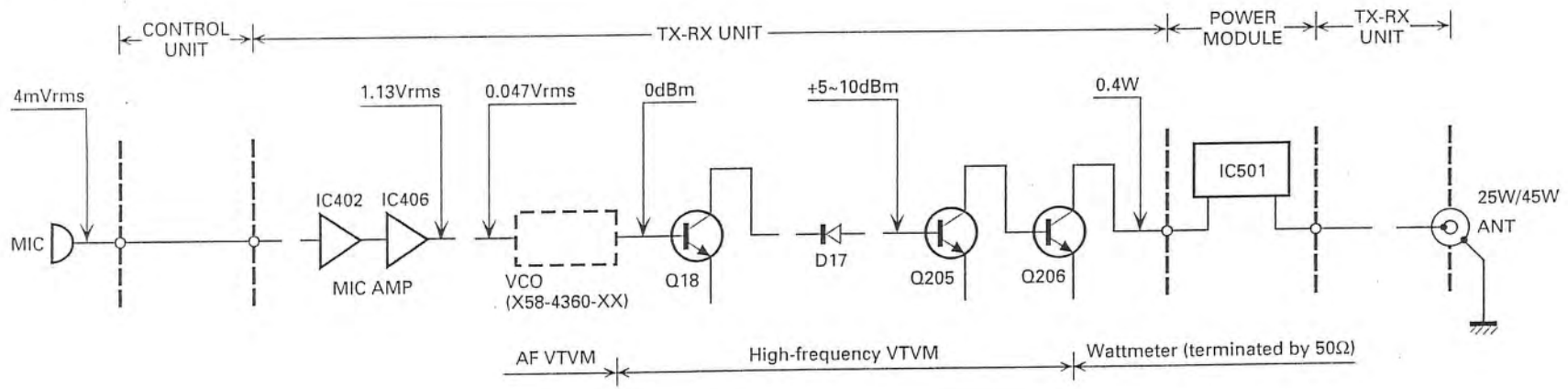


	D214	D215	Q22	Q210
-10 (K)	–	–	2SB1565(E,F)	–
-11 (K2)	–	–	2SB1565(E,F)	–
-12 (HK)	DA204K	02CZ12(X,Y)	2SA1757(E,F)	2SC4116(GR)
-12 (HK)	DA204K	02CZ12(X,Y)	2SA1757(E,F)	2SC4116(GR)
	Q211	IC501	A1	
-10 (K)	–	M67741H-32	X58-4360-10	
-11 (K2)	–	M67741L-32	X58-4360-11	
-12 (HK)	DTC144EK	M67781H-32	X58-4360-10	
-12 (HK)	DTC144EK	M67781L-32	X58-4360-11	

RX Section



TX Section



1. AG is set so that MIC input becomes 3kHz DEV at 1kHz MOD.
2. Transmitting frequency : Center frequency

CIRCUIT DESCRIPTION

1. Circuit Configuration by Frequency

The receiver is a double-conversion superhet with a first intermediate frequency (IF) of 45.050MHz and a second IF of 455kHz. Incoming signals from the antenna are mixed with the local signal from the PLL to produce the first IF of 45.050MHz.

This is then mixed with the 44.595MHz second local oscillator output to produce the 455kHz second IF. This is detected to give the demodulated signal.

The transmit signal frequency is generated by the PLL VCO, and modulated by the signal from the microphone. It is then amplified by TX amplifier and PA amplifier, and sent to the antenna.

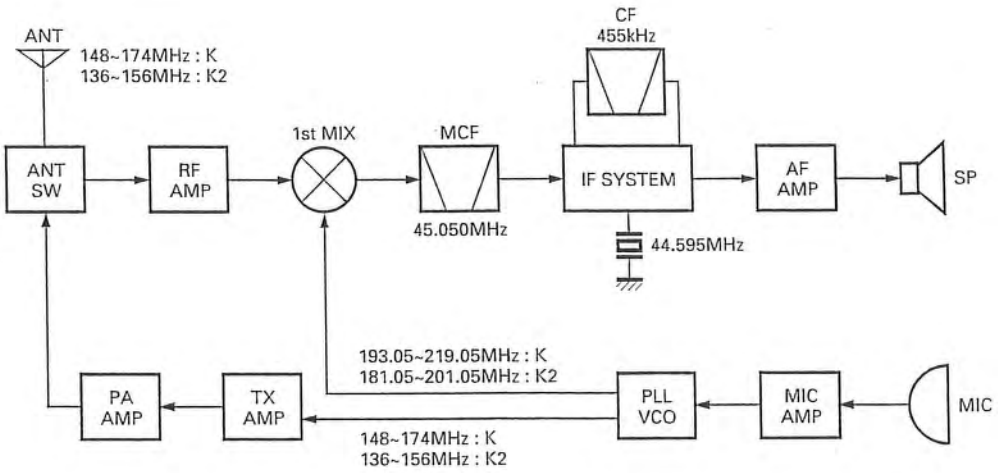


Fig. 1 Frequency configuration

2. Receiving System

2-1. RF unit

An incoming RF signal from the antenna terminal passes through the antenna switch (D20, and D24 are off) and the bandpass filter (L208). The signal is amplified by RF amplifier Q208, and passes through the bandpass filter (L205, 206, 207) again. The resulting signal goes to the first mixer (Q207), where it is mixed with the first local oscillator signal output from the frequency synthesizer to produce the first IF 45.050MHz.

2-2. IF unit

The first IF signal then passes through a four-pole monolithic crystal filter (XF1). The signal is amplified by first IF amplifier Q16 and goes to the second IF unit.

The second IF unit consists of an IF system IC (IC7) and the second mixer, second local oscillator, second IF filter, and FM detector. IC7 mixes the signal input to it with the 44.595MHz second local oscillator output of the crystal oscillator (X2) to produce the second IF of 455kHz.

The 455kHz signal then goes through 455kHz ceramic filter CF201 (WIDE), CF202 (NARROW) is amplified by the limiting amplifier, demodulated by the quadrature FM detector (in the same IC), and output to the receive audio amplifier.

2-3. Audio amplifier unit

The demodulated signal is amplified by IC2 (2/2), and goes through a low-pass filter consisting of IC403 (1/2), a high-pass filter consisting of IC403 (2/2), and a BEF consisting of IC405 (1/2) to remove the unwanted audio signal.

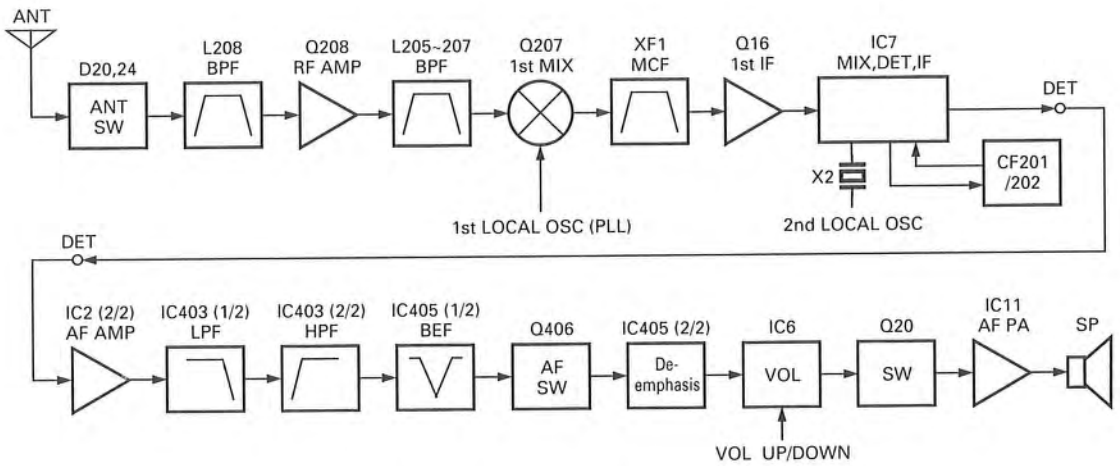
The signal the passes through the de-emphasis circuit consisting of the AF switch (Q406 on) and IC405 (2/2), and the volume level is adjusted by the IC6 D/A converter. The resulting signal goes to audio amplifier IC11, is amplified, and is output to the speaker.

2-4. Squelch circuit

The detector output is amplified by IC2 (2/2) and passes through a high-pass filter consisting of IC401 (2/2), which filters the noise components from the signal. Q420 converts the noise pulse level by hysteresis and applies it to the CPU (IC409).

The CPU counts the pulses, integrates them, and turns the squelch on and off according to the calculated value.

CIRCUIT DESCRIPTION



Flg. 2 Receiving system

2-5. Wide/Narrow switch

Each channel can be set as a wide or narrow channel by switching between CF201 : CFWM455F (Wide) and CF202 : CRWM455G (Narrow). The WIDE (high) signal and NARROW (low) signal are output from IC10 (I/O port expansion) pin 13. When the WIDE signal is output, Q201 turns off and Q202 turns on. When the NARROW signal is output, Q201 turns on and Q202 turns off.

A high or low signal is output to D201 and D202 to switch between CF201 and CF202. Q204 turns R221 on or off to change the IC7 (IF system) detection output level for WIDE/NARROW.

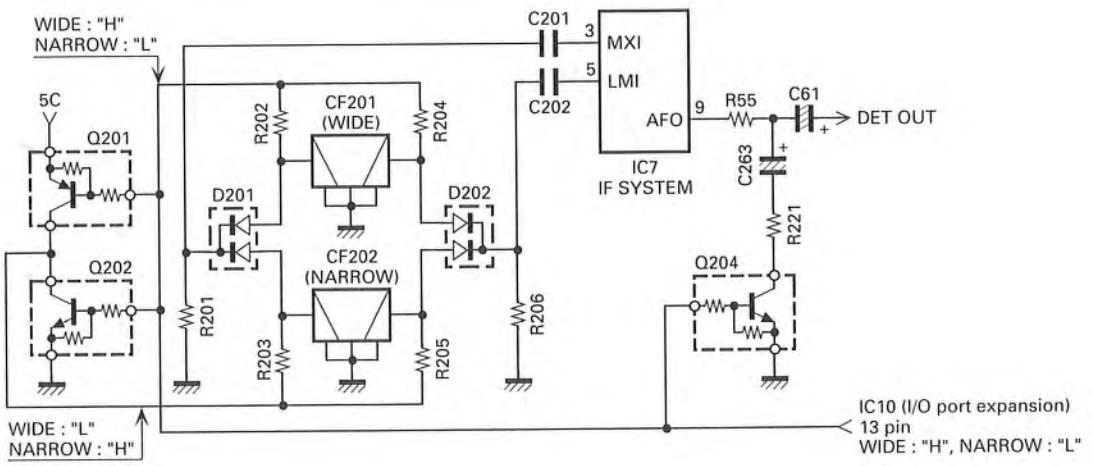


Fig. 3 Wide/Narrow switch

CIRCUIT DESCRIPTION

3. Transmitter System

3-1. Microphone amplifier

The signal from the microphone goes to the microphone mute switch (Q403 off). It then passes through the high-pass filter in IC402 (2/2) and the pre-emphasis/IDC circuit in IC402 (1/2).

The signal is applied to the IC404 summing amplifier and mixed with QT and DQT from the CPU (IC409). It then passes through the splatter filter (the fourth low-pass filter) consisting of IC406 (1/2, 2/2), which removes unwanted harmonics.

The output from the low-pass filter is input to the D/A converter (IC6) to adjust the modulation. IC6 changes the deviations of the wide and narrow channels.

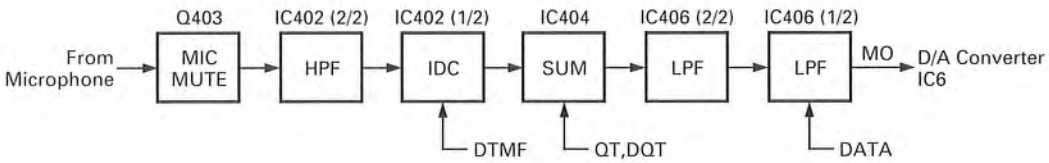


Fig. 4 Microphone amplification

3-2. Final amplifier

The signal from the PLL is amplified by drive amplifier (Q205, 206) and power module (IC501) to an output level of 25W/45W, and goes through the antenna switch D20 and harmonic filter, and on to the antenna terminal.

IC13 (1/2) compares the DC input to pin 2 with the reference voltage at pin 3 applied by IC8 (1/2), amplifies the result, and controls the DC amplifier (Q22 and Q23) to keep the transmit final current constant, thus keeping the transmit output constant.

3-3. APC circuit

The direct current that flows through the power module (IC501) produces a voltage across resistors R108. This voltage is applied to pin 6 of IC13 (2/2), and is input as the reference voltage difference of pin 5 and amplified.

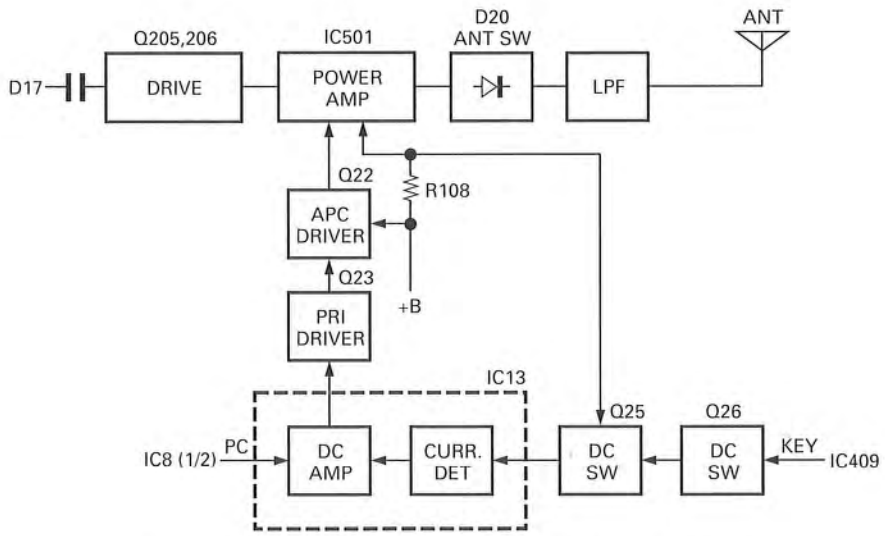


Fig. 5 Transmit power circuit and APC circuit

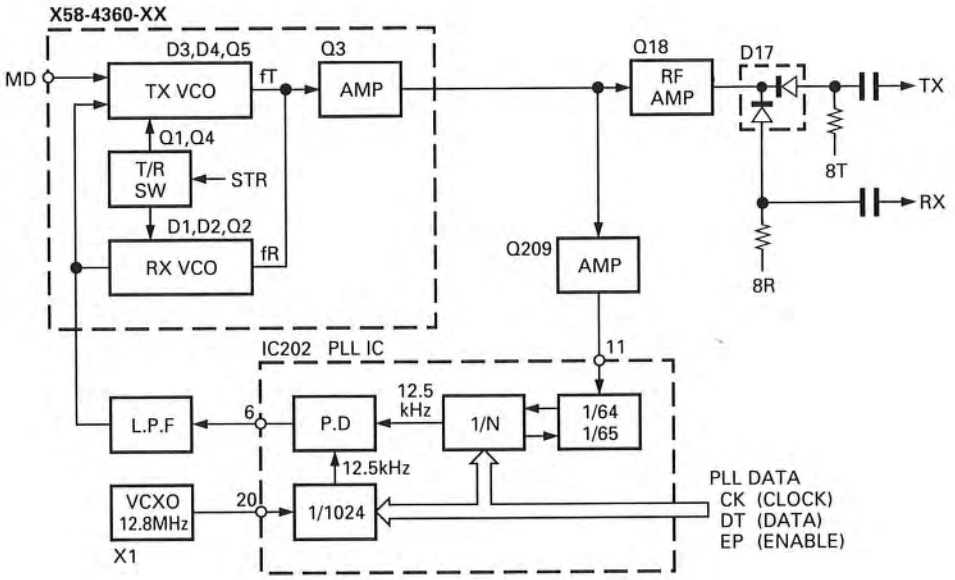
CIRCUIT DESCRIPTION

4. Frequency Synthesizer Unit

4-1. VCO/PLL

The PLL generates the transmit signal and the first local oscillator receive signal. The RF signal generated by Q5 (TX) or Q2 (RX) in the VCO unit is amplified by Q3, and the resulting signal is output to the TX-RX unit. TX and RX Q5 and Q2 are switched by turning the source line for Q5 and Q2 on and off. This is done by Q4 and Q1 using the control signal (STR) generated by the serial-to-parallel converter in the TX-RX unit. The RF signal passes through Q3 of the VCO unit and amplifier Q209 of the TX-RX unit, and is input to IC202 (PLL IC). The 12.8MHz PLL reference signal generated by the VCXO (X1) in the TX-RX unit is also input to IC202.

Both signals are divided according to the division data from the control unit to produce a 12.5kHz signal. The phases are compared, and a phase difference signal is output and passes through the charge pump (in IC202) and the low-pass filter of the lug lead to produce the control voltage for Q5/Q2 (VCO). This voltage is applied to D3 and D4 (TX) or D1 and D2 (RX) in the VCO unit to keep the VCO frequency constant. The other output from Q3 is amplified by the RF amplifier (Q18), and output to the transmit or receive unit via the RF switch (D17).



Flg. 6 PLL unit block diagram

4-2. PLL unlock

When the PLL is unlocked, the lock detect signal (LD) of the PLL IC (IC202) is rectified by D212, and converted to a DC signal. The CPU monitors this signal. When the PLL is unlocked, the CPU turns the key output signal off (low), then turns Q10, Q6, and 8T off to prevent unnecessary transmission.

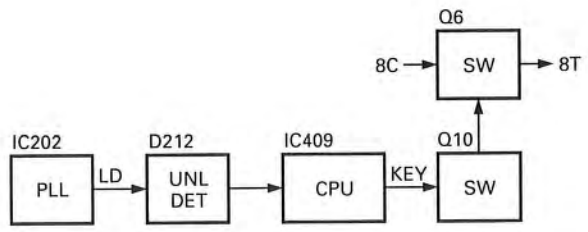


Fig. 7 PLL unlock circuit

CIRCUIT DESCRIPTION

5. Display Section

5-1. 32 channel (LCD) model

CPU (IC409) contains an LCD driver to drive the 7-segment, 8-digit LCD directly.

5-2. 2 channel (LED) model

This model turns LED drive switches Q412 to Q418 on or off in response to the signal from the CPU to light LEDs D412 to D415. TO produce an orange light, the green and red LEDs are turned on at the same time.

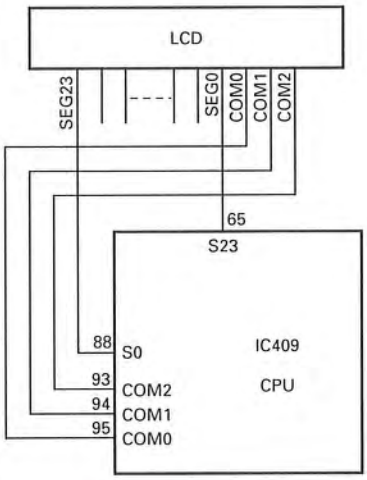


Fig. 8 32 channels model display section

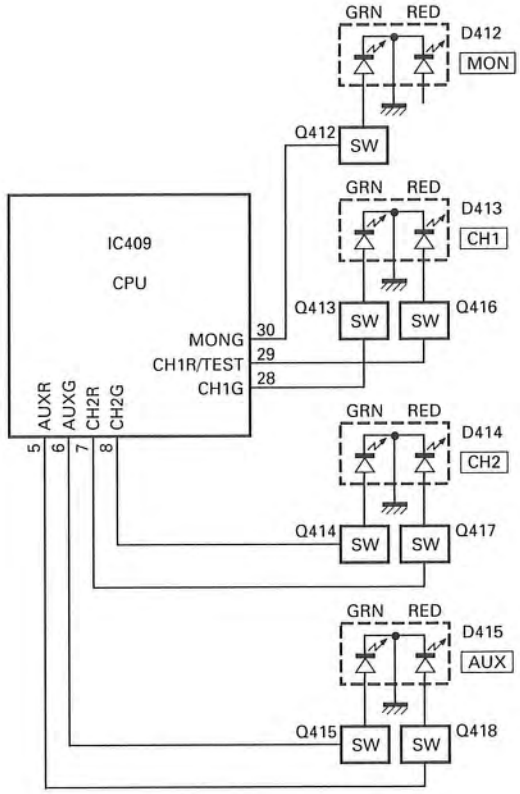


Fig. 9 2 channels model display section

6. Control Section

The control section consists of CPU (IC409) and its peripheral circuits. It controls the TX-RX unit. The CPU has the following main functions:

1) Switching between transmission and reception according to the PTT signal input.
2) Reading channel, frequency, and program data from the memory circuit.
3) Sending frequency data to the PLL.
4) Turning the squelch on and off according to the pulse signal input from the squelch circuit.
5) Controlling the audio mute circuit according to input decode data.
6) Sending encode data.
7) Sending data to the D/A converter.

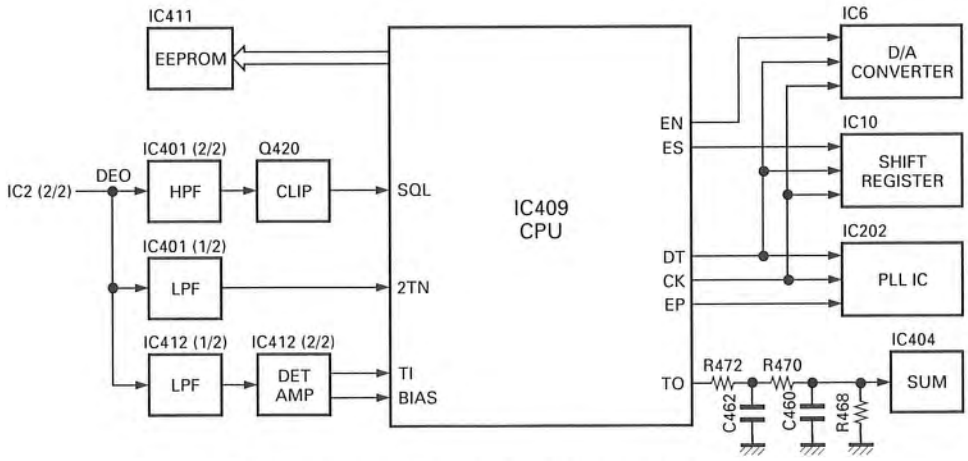


Fig. 10 Control section block diagram

CIRCUIT DESCRIPTION

6-1. Memory circuit

IC201 is a 8-Kbit EEPROM that stores adjustment and backup data.

- **Shift register**

IC10 is an interface IC for I/O port expansion. It is used to expand the CPU (IC409) output ports.

- **D/A converter**

IC6 is used as a conventional semi-fixed-resistor converter. It sets the following:

1) RX sensitivity
2) Transmission power
3) Modulation level
4) Audio power
5) Frequency

6-2. TX encode data

The CPU (IC409) transmits encode data.

- **QT, DQT, DTMF**

QT, DQT data items are output from CPU pin 16. The signal from this pin passes through the CR low-pass filter and goes to the summing amplifier (IC404) in the microphone amplifier. DTMF data is output from CPU pin 10. This signal passes through the CR low-pass filter and goes to IC402 in the IDC circuit of the microphone amplifier. These are mixed with the audio signal and output to the splatter filter. It then goes to the D/A converter (IC6) and on to the VCXO and VCO.

6-3. RX decode data

- **QT, DQT**

The receive detection signal passes through a low-pass filter IC412 (1/2) to remove audio components. This signal is input to pin 4 of the CPU.

The CPU digitizes this signal, and decodes the signal.

- **2-TONE**

Th receive detection signal pass through a low-pass filter IC401 (1/2). This signal is input to pin 11 of the CPU.

- **DTMF**

DTMF decoding is made available by installing the DTMF decode IC (LC73881M : SANYO) on the control board.

6-4. PLL data output

PLL data is output from DATA (pin 60), ENABLE (pin 73), and CLOCK (pin 58) of the CPU (IC209). The signals are input to the PLL IC (IC202) when the channel is changed or when transmission is changed to reception and vice versa.

6-5. Horn control

The horn switch, consisting of Q13, Q14, and Q24, controls the horn relay. It is supplied by the dealer to provide the external horn alert function.

Q24 disables horn alert, turning on when its base is high, to inhibit the function. Normally, the output from IC10 is low, and Q13 is off; the base of Q14 is about 0V and Q14 is off. When horn alert is enabled, the output from IC10 goes high and Q13 turns on. The base current flows through R61 to Q14 to turn Q14 on. Q14 can sink a maximum of 100mA. If the optional KAP-1 is used, it can drive up to 2A.

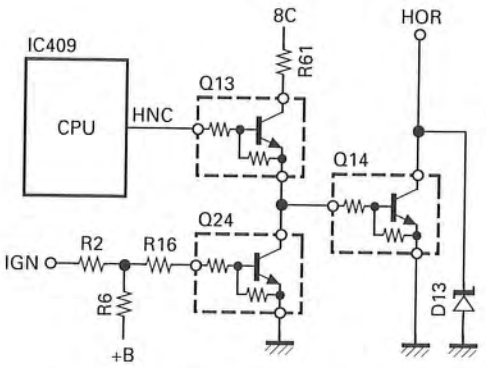


Fig. 11 Horn control circuit

6-6. PA switch

If the optional KAP-1 is used (see the separate section for details), the PA (Public Address) function becomes available. In this case, the signal flow changes as follows;

- **PA off**

For TX, Q410 turns on and Q407 turns off. The audio signal from the microphone passes through Q410 and IC6 and modulates the VCO.

For RX, the detected signal passes through Q404 which is on. It then passes through the audio filter, IC403, IC405, D/A IC (IC6), and is output to the speaker through the audio power amplifier IC11.

- **PA on**

Since Q410 is off, Q407 is on, and Q404 is off, the audio signal from the microphone goes to the audio filter IC403, passes through IC6, and goes to IC11. The signal is output to the external PA system through the PA relay in the KAP-1.

CIRCUIT DESCRIPTION

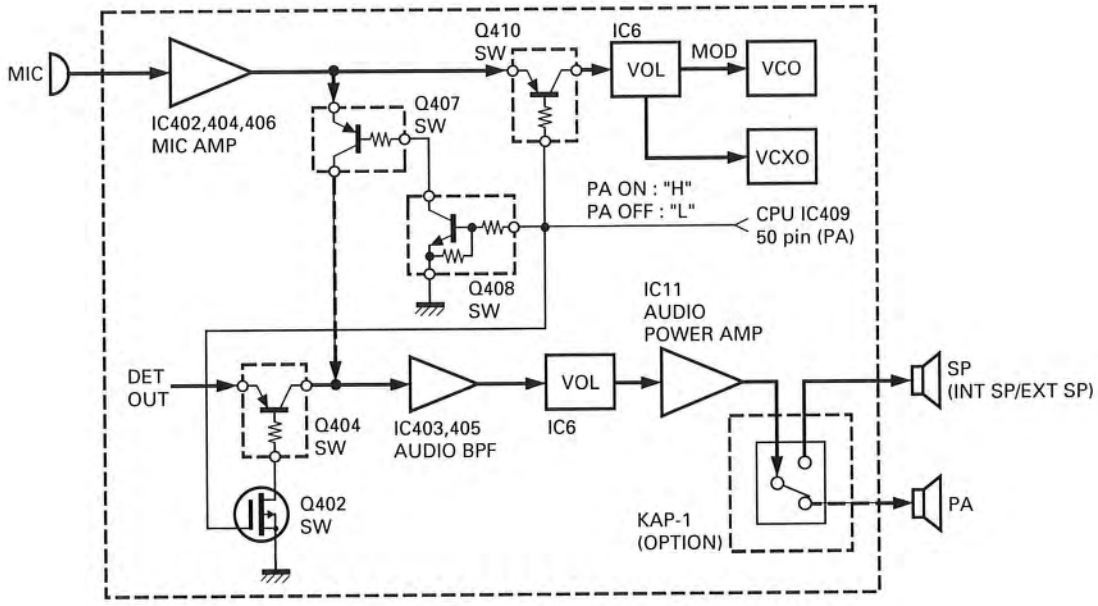


Fig. 12 PA switch circuit

6-7. Power supply circuit

D4 protects IC1 against overvoltage. Each time a pulse comes from the PSW terminal, the IC1 output is reversed. The reversed output signal passes through Q1 and Q3 and drives Q4. A voltage must be applied to the IGN terminal.

If 24V is supplied to the transceiver by mistake, Q2 turns on, and Q3 and Q4 are forced off, so the transceiver does not turn on.

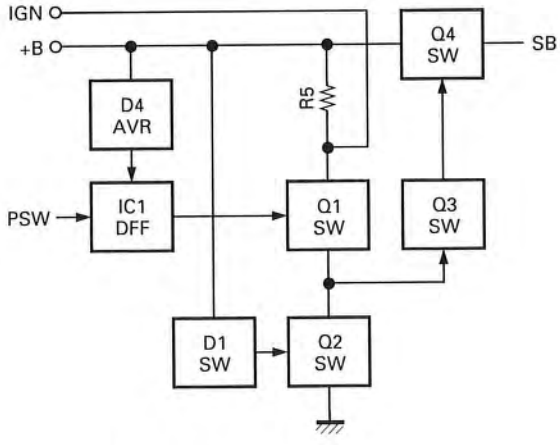
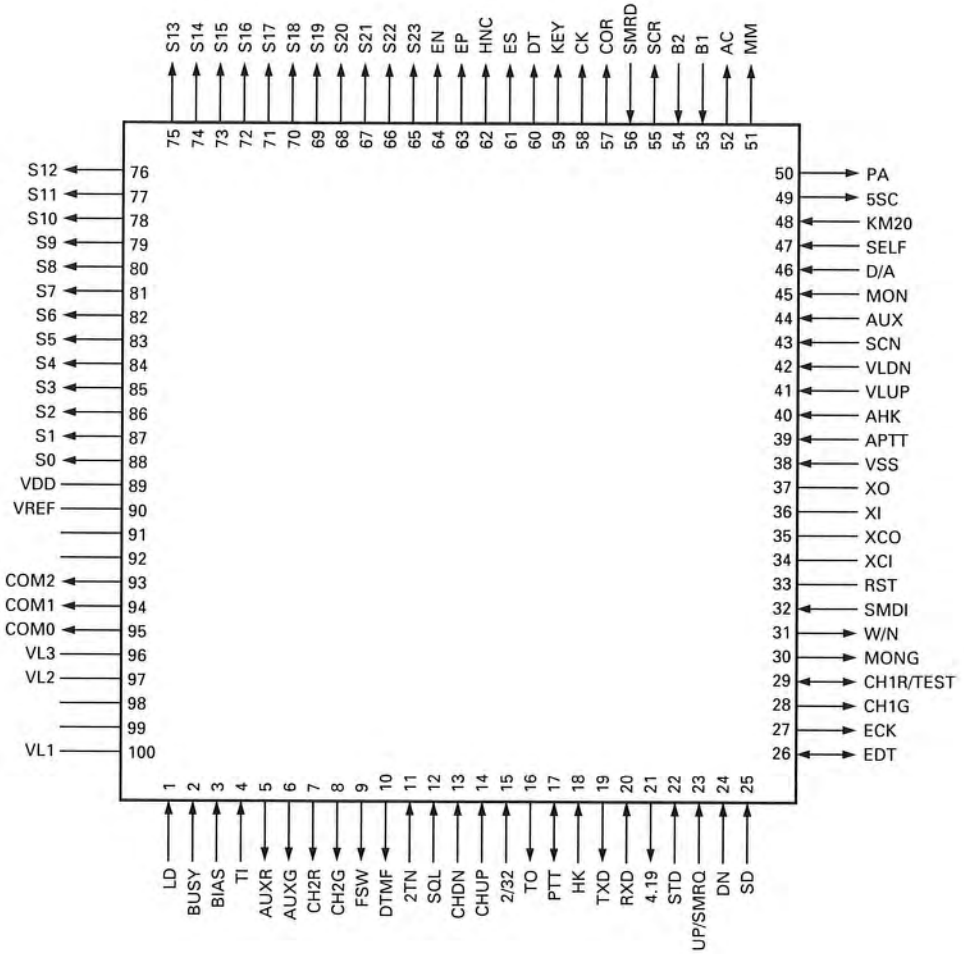


Fig. 13 Power supply circuit

SEMICONDUCTOR DATA

Microprocessor : M38267M8L156GP (TX-RX Unit IC409)

- **Terminal connection diagram**



- **Terminal function**

Pin No.	Port Name	I/O	Function
1	LD	I	PLL lock detect. "L" : Unlock, "H" : Lock
2	BUSY	I	Nor used.
3	BIAS	I	QT/DQT center voltage input.
4	TI	I	QT/DQT signal input.
5	AUXR	O	AUX LED (red). "L" : On, "H" : Off (TK-762 only)
6	AUXG	O	AUX LED (Green). "L" : On, "H" : Off (TK-762 only)
7	CH2R	O	CH2 LED (red). "L" : On, "H" : Off (TK-762 only)
8	CH2G	O	CH2 LED (green). "L" : On, "H" : Off (TK-762 only)
9	FSW	O	TX sense. "L" : PTT off, "H" : PTT on
10	DTMF	O	DTMF output.
11	2TN	I	2-tone input.
12	SQL	I	Squelch noise pulse input.
13	CHDN	I	CH down. "L" : On, "H" : Off
14	CHUP	I	CH up. "L" : On, "H" : Off
15	2/32	I	CH version. "L" : 32ch, "H" : 2ch
16	TO	O	QT/DQT PWM output.
17	PTT	I/O	Normal microphone PTT. "L" : On, "H" : Off / DTMF microphone : serial interface.
18	HK	I	Microphone hook. "L" : On hook, "H" : Off hook

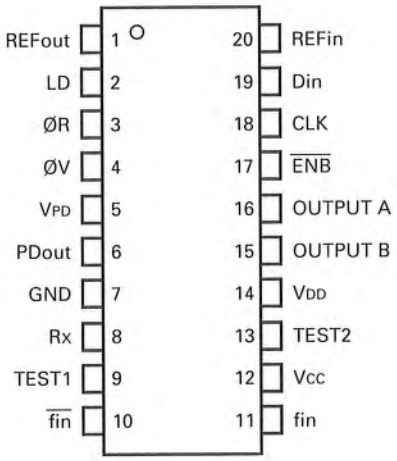
SEMICONDUCTOR DATA

Pin No.	Port Name	I/O	Function
19	TXD	O	RS-232C data output.
20	RXD	I	RS-232C data input.
21	4.19	O	DTMF decoder system clock.
22	STD	I	DTMF decoder STD. "L" : DTMF signal absent, "H" : DTMF signal present
23	UP/SMRQ	I	E trunk step pulse / Smartrunk ACK/REQ. (TK-760 only)
24	DN	I	E trunk sync pulse. (TK-760 only)
25	SD	I	DTMF decoder data.
26	EDT	I/O	EEPROM serial data.
27	ECK	O	EEPROM serial clock.
28	CHIG	O	CH1 LED (green). "L" : On, "H" : Off (TK-762 only)
29	CHIR/TEST	O/I	CH1 LED (red). "L" : On, "H" : Off (TK-762 only) / LCD check mode. "L" : On, "H" : Off (TK-760 only)
30	MONG	O	MON LED (green). "L" : On, "H" : Off (TK-762 only)
31	W/N	O	Wide/Narrow. "L" : Narrow, "H" : Wide
32	SMDI	I	E trunk AUX mute, Smartrunk serial data. (TK-760 only)
33	RST	–	Reset.
34	XCI	–	Sub clock.
35	XCO	–	Sub clock.
36	XI	–	Clock.
37	XO	–	Clock.
38	VSS	–	GND.
39	APTT	I	External PTT. "L" : On, "H" : Off
40	AHK	I	MDT : DTC. "L" : Data CH, "H" : Normal CH. External hook. "L" : On hook, "H" : Off hook
41	VLUP	I	VOL up. "L" : On, "H" : Off
42	VLDN	I	VOL down. "L" : On, "H" : Off
43	SCN	I	SCN. "L" : On, "H" : Off
44	AUX	I	A. "L" : On, "H" : Off
45	MON	I	MON. "L" : On, "H" : Off
46	D/A	I	D/A. "L" : On, "H" : Off
47	SELF	I	Dealer/Test mode enter. "L" : NG, "H" : OK
48	KM20	I	DTMF microphone PTT. "L" : Off, "H" : On
49	5SC	O	Smartrunk power supply. "L" : Off, "H" : On (TK-760 only)
50	PA	O	Public address. "L" : Off, "H" : On (TK-760 only)
51	MM	O	Microphone mute. "L" : Unmute, "H" : Mute
52	AC	O	Audio control. "L" : Mute, "H" : Unmute
53	B1	I	Scrambler binary data 1.
54	B2	I	Scrambler binary data 2.
55	SCR	O	Scrambler. "L" : Off, "H" : On
56	SMRD	I	Smartrunk data ready. (TK-760 only)
57	COR	O	E trunk COR. (TK-760 only)
58	CK	O	Common clock.
59	KEY	O	TX key. "L" : TX off, "H" : TX on
60	DT	O	Common data.
61	ES	O	Shift register strobe. "L" : Load, "H" : Latch
62	HNC	O	Horn control. "L" : Off, "H" : On
63	EP	O	PLL chip select. "L" : Select, "H" : Not select
64	EN	O	D/A converter chip select. "L" : Select, "H" : Not select
65~88	S23~S0	O	LCD segment 23~0.
89	VDD	–	+5V.
90	VREF	–	+5V.
91, 92			
93~95	COM2~COM0	O	LCD common 2~0.
96, 97	VL3, VL2	–	
98, 99			
100	VL1	–	

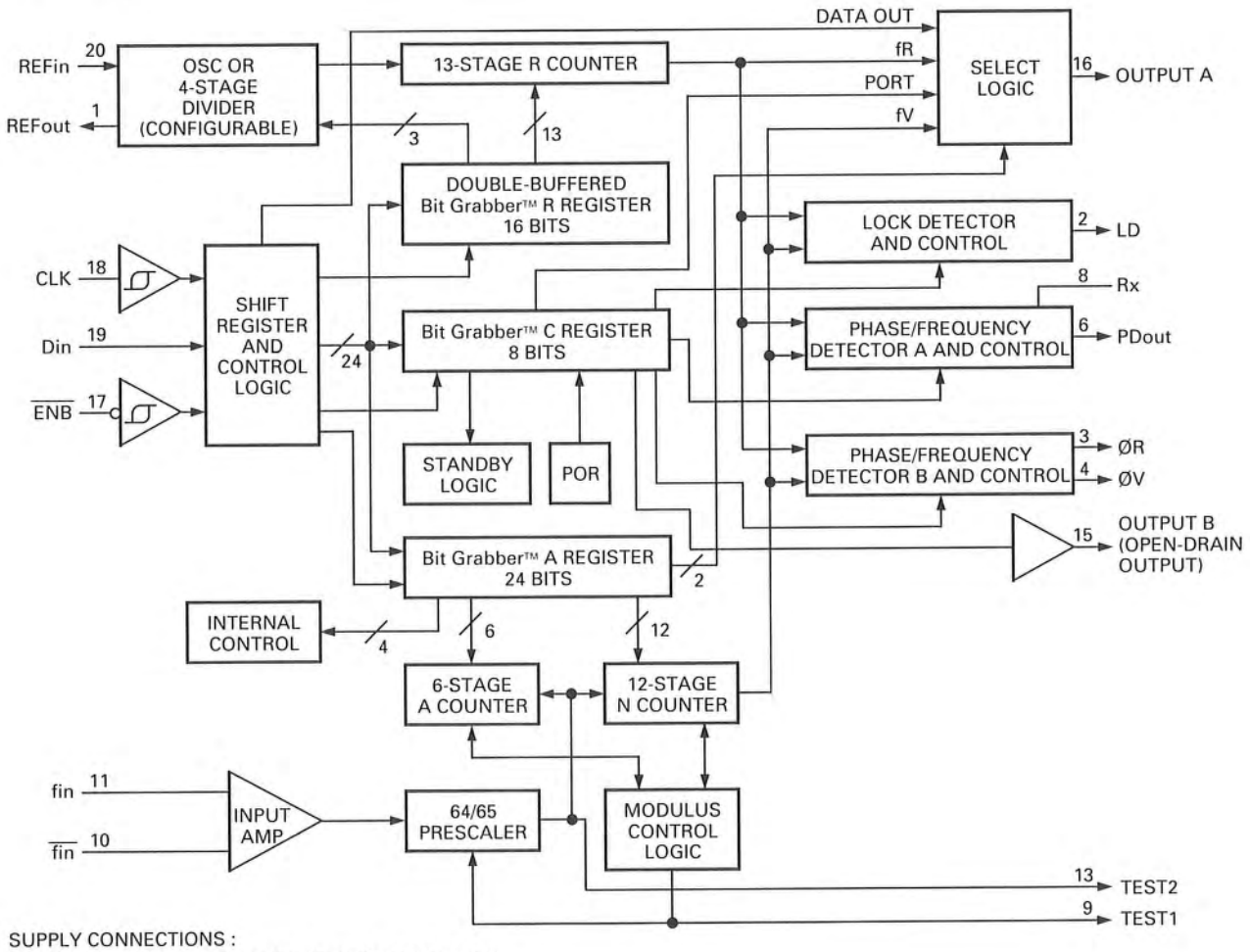
SEMICONDUCTOR DATA

PLL System : MC145190F (TX-RX UNit IC202)

- **Terminal connection diagram**



- **Block diagram**



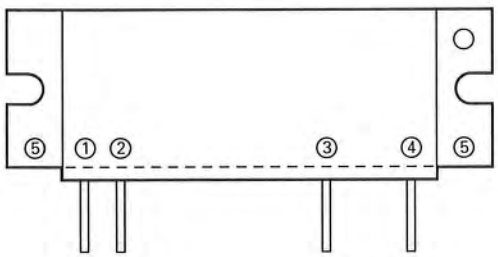
SUPPLY CONNECTIONS :
PIN12 = Vcc (V+TO INPUT AMP AND 64/65 PRESCALER)
PIN5 = VPD (V+TO PHASE/FREQUENCY DETECTORS A AND B)
PIN14 = VDD (V+TO BALANCE OF CIRCUIT)
PIN7 = GND (COMMON GROUND)

SEMICONDUCTOR DATA

Power Module : M67741H-32/M67741L-32/M67781H-32/M67781L-32 (IC501)

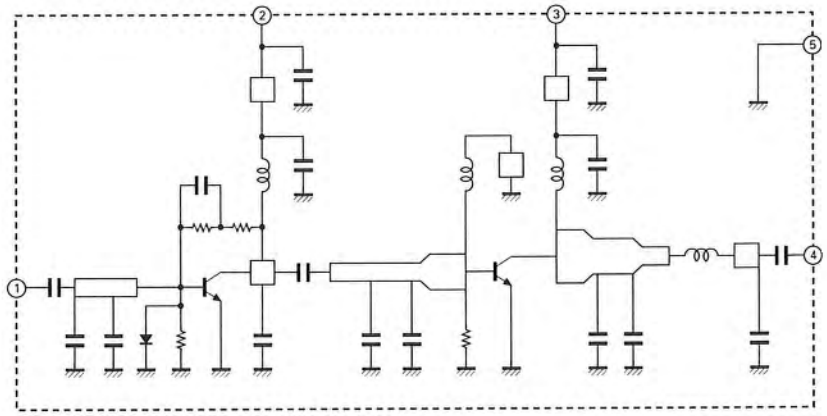
M67741H-32 : K M67741L-32 : K2 M67781H-32 : HK M67781L-32 : HK2

- **Terminal connection diagram**



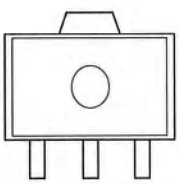
1 : Input
2 : First stage power supply
3 : Final stage power supply
4 : Output
5 : Fin (Earth)

- **Equivalent circuit**

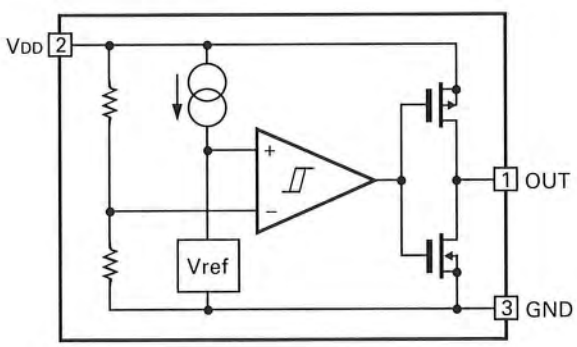


Reset Switch : RH5VL42C (TX-RX Unit IC408)

- **Terminal connection diagram**



- **Block diagram**



DESCRIPTION OF COMPONENTS

TX-RX UNIT (X57-4950-XX) : TK-760 -10 : K -11 : K2 -12 : HK -13 : HK2

TX-RX UNIT (X57-5100-XX) : TK-762 -10 : K -11 : K2 -12 : HK -13 : HK2

Ref No.	Parts No.	Use/Function	Operation/Condition
IC1	BU4013BF	Power supply circuit logic control	
IC2	NJM4558M	Audio amplifier (Detected output)	
IC3	NJM78L05UA	Voltage regulator	5C
IC4	TA7808S	Voltage regulator	8C
IC6	M62363FP	Level adjuster	
IC7	MC3372V	IF system	
IC8	NJM2904M	Buffer amplifier	
IC10	BU4094BCF	I/O port expansion	
IC11	LA4422	Audio power amplifier	
IC13	NJM2904M	Comparator, DC amplifier	
IC14	TA75S01F	Amplifier	
IC201	TA78L09F or NJM78L09UA	Voltage regulator	9C
IC202	MC145190F	PLL system	
IC401	NJM4558E	Active filter	
IC402	NJM4558E	Active filter, Limiter	
IC403	NJM4558E	Active filter	
IC404	TA75S01F	Adder	
IC405, 406	NJM4558E	Active filter	
IC407	NJM78L05UA	Voltage regulator	5M
IC408	RH5VL42C	Reset switch	
IC409	M38267M8L156GP	Microprocessor	
IC411	AT2408N10SI2.5	EEPROM	
IC412	NJM4558E	Active filter, Amplifier	
Q1	DTA114EU	DC switch	On when power switch on.
Q2	DTC114EU	DC switch	On when 24V connected, then Q3 turn off.
Q3	DTC114EU	DC switch	On when power switch on.
Q4	2SA1641(S,T)	DC switch	On when power switch on.
Q5	DTA114YK	DC switch	On when power switch off, then D22 turn on.
Q6	2SB1132(Q,R)	DC switch	8T switch. RX : 0V, TX : 8V
Q8	2SA1362(Y)	DC switch	8R switch. RX : 8V, TX : 0V
Q10	DTC114EU	DC switch	On when TX.
Q11	DTC114EU	DC switch	On when RX.
Q13	DTC114EK	DC switch	On when horn control on.
Q14	DTD114EK	DC switch	On when horn control on.
Q15	2SC4116(GR)	Ripple filter	
Q16	2SC2059K(P)	RX 1st IF amplifier	
Q18	2SC4215(Y)	RF amplifier	
Q20	DTC363EK	Muting switch	Audio mute. Off when busy.
Q22	2SB1565(E,F)	APC driver	25W model
Q22	2SA1757(E,F)	APC driver	45W model
Q23	2SC4116(GR)	DC amplifier	APC controller
Q24	DTC114EK	DC switch	On when IGN line "H".
Q25	DTA144EU	DC switch	On when TX.
Q26	DTC114EU	DC switch	On when TX.
Q201	DTA144EK	Filter switch	Off when "WIDE", on when 'NARROW".
Q202	DTC144EK	Filter switch	On when "WIDE", off when "NARROW".
Q204	DTC144EK	WIDE/NARROW switch	On when "WIDE", off when "NARROW".
Q205	2SC3357	RF amplifier	
Q206	2SC2954	RF amplifier	
Q207	SGM2014M	RX 1st mixer	
Q208	3SK241(R)	RF amplifier	

DESCRIPTION OF COMPONENTS

Ref No.	Parts No.	Use/Function	Operation/Condition
Q209	2SC2059K(P)	Buffer amplifier	
Q401	2SC4081(R)	PTT switch	On when "PTT OFF", off when "PTT ON". (At using KMC-23/24 only)
Q402	2SJ203	DC switch	On when PA function off.
Q403	DTC363EK	Muting switch	
Q404	DTA114TK	AF switch	On when PA function off.
Q405	2SB1132(Q,R)	Constant current regulator	About 60mA output. TK-760 only.
Q406	DTA114TK	AF switch	
Q407	DTA114TK	AF switch	On when PA function on.
Q408	DTC144EK	DC switch	On when PA function on.
Q409	DTC144EK	DC switch	
Q410	DTA114TK	AF switch	On when PA function off.
Q412	DTA114EK	DC switch	"MON" LED switch. TK-762 only.
Q413	DTA114EK	DC switch	"CH1" green LED switch. TK-762 only.
Q414	DTA114EK	DC switch	"CH2" green LED switch. TK-762 only.
Q415	DTA114EK	DC switch	"AUX" green LED switch. TK-762 only.
Q416	DTA114EK	DC switch	"CH1" red LED switch. TK-762 only.
Q417	DTA114EK	DC switch	"CH2" red LED switch. TK-762 only.
Q418	DTA114EK	DC switch	"AUX" red LED switch. TK-762 only.
Q419	DTA144EK	DC switch	
Q420	DTC144EK	DC switch	On/off by noise.
D1	02CZ18(X,Y)	Voltage reference	
D2	DSA3A1-FK	Reverse power protection	45W model only.
D3	1SS355 or MA110	Reverse current protection	
D4	02CZ15(X,Y)	Voltage reference	
D5	1SS355 or MA110	Reverse current protection	
D6	ERZ-M10DK220	Surge absorption	
D9~12	DA204K	Surge absorption	
D13	02CZ20(Y,Z)	Voltage reference	
D14	DSM3MA1	Reverse power protection	25W model only.
D17	DAN235K	RF switch	
D20	MA4PH633	TX/RX switch	On when TX.
D22	1SS355 or MA110	DC switch	On when power switch off.
D24	MI809	TX/RX switch	On when TX.
D201, 202	DAN202K	Filter switch (455kHz)	WIDE/NARROW switch.
D204	DAN235K	Filter switch (PLL BPF)	On when TX.
D205	DAN202K	DC switch	
D206, 207	DA204K	Temperature compensation	
D208~210	1SV269	BPF tuning	Vari-cap tuning.
D211	1SV214	BPF tuning	Vari-cap tuning
D212	1SS355 or MA110	DC switch	On when PLL unlocked.
D213	1SV214	BPF tuning	Vari-cap tuning.
D214	DA204K	RF detector	Final protection. 45W model only.
D215	02CZ12(X,Y)	DC switch	Final protection. 45W model only.
D401, 402	DA204K	Surge absorption	
D403	DAN202U	DC switch	On when microphone mute on.
D404	DA204K	DC switch	
D405	DA204K	Constant current setting	TK-760 only.

DESCRIPTION OF COMPONENTS

VCO (X58-4360-XX) -10 : K,HK -11 : K2,HK2

Ref No.	Parts No.	Use/Function	Operation/Condition
Q1	UMG1	TX/RX switching	
Q2	2SK508NV(K52)	Oscillator for RX	
Q3	2SC4215(Y)	Buffer amplifier	
Q4	DTC114EU	TX/RX switching	
Q5	2SK508NV(K52)	Oscillator for TX	
D1~4	1SV269	Variable diode	Frequency control.

TK-760/762

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-760/762
TX-RX UNIT (X57-4950-XX)/(X57-5100-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Remarks
TK-760/762						
1	1B	*	A01-2112-03	CABINET (UPPER)		
2	2B	*	A01-2113-03	CABINET (LOWER)		
3	2A	*	A62-0449-13	PANEL ASSY		760
3	2A	*	A62-0450-13	PANEL ASSY		762
5	2E		B09-0235-05	CAP (JACK) ACSY		
6	2A	*	B10-1230-04	FRONT GLASS		760
6	2A	*	B10-1252-04	FRONT GLASS		762
7	1B,1C		B42-2455-04	STICKER (M4x8 MAX)		
8	3E		B42-5526-04	STICKER (HYATT)		
9	1C		B42-5650-04	S/NO LABEL		
10	3E		B44-2163-04	UPC CODE LABEL (ITEM)		
11	1D	*	B46-0470-00	WARRNTY CARD ACSY		
12	1D	*	B62-0595-00	INSTRUCTION MANUAL ACSY		
13	1C	*	B72-1002-04	MODEL NAME PLATE	K	760
13	1C	*	B72-1003-04	MODEL NAME PLATE	K2	760
13	1C	*	B72-1004-04	MODEL NAME PLATE	HK	760
13	1C	*	B72-1005-04	MODEL NAME PLATE	HK2	760
13	1C	*	B72-1006-04	MODEL NAME PLATE	K	762
13	1C	*	B72-1007-04	MODEL NAME PLATE	K2	762
13	1C	*	B72-1008-04	MODEL NAME PLATE	HK	762
13	1C	*	B72-1009-04	MODEL NAME PLATE	HK2	762
15	2E		E30-2076-15	DC CORD ACSY		
16	1C		E30-2145-15	ANTENNA CABLE		
17	1C		E30-2172-15	DC CORD (BODY)		
18	1C		E37-0461-05	LEAD WIRE WITH CONNECTOR (SP)		
19	2B	*	E37-0587-05	FLAT CABLE		
21	1B	*	F10-2202-04	SHIELDING PLATE		
22	3D		F51-0016-05	FUSE (10A : DC CORD)	K,HK	
22	3D		F51-0017-05	FUSE (15A : DC CORD)	K2,HK2	
25	1B	*	G02-0791-04	FLAT SPRING (AVR, APC)		
–	–		G10-0769-04	AUXILIARY PART		
27	2A	*	G10-0710-04	AUXILIARY PART (PANEL)		
28	1B,2C	*	G10-0781-04	AUXILIARY PART (CHASSIS)		
29	1C		G10-0786-04	AUXILIARY PART (SP)		
30	1B		G13-1468-04	FORMED PLATE (DC CORD)		
31	2A	*	G13-1535-04	CUSHION (PANEL)		762
32	2B	*	G53-0796-04	PACKING (JACK)		
34	3D	*	H10-2789-02	POLYSTYRENE FOAMED FIXTURE		
35	1E	*	H11-0883-04	POLYSTYRENE FOAMED BOARD		
36	2D	*	H13-0975-14	CARTON BOARD		
37	2E		H25-0103-04	BAG (DC CORD)		
38	1D		H25-0720-04	BAG (BODY)		
39	3E	*	H52-0756-02	ITEM CARTON CASE		
41	1C		J19-1580-04	HOLDER (SP)		
42	2D	*	J19-1584-05	HOLDER ACSY		
43	2D	*	J29-0627-03	BRACKET ACSY		
45	2A	*	K29-5081-02	KEY TOP (RUBBER)		
A	1B,2B		N33-2606-45	SCREW (CABINET)		
B	2B		N67-3008-46	SCREW (IC)		
C	1B,1C		N87-2608-46	SCREW (PCB, ANT)		
47	2D	*	N99-0395-05	SCREW SET ACSY		
MIC	2E	*	T91-0552-05	MICROPHONE ACSY		
SP	1C		T07-0331-05	SPEAKER		
IC501	2B	*	M67741H-32	IC (POWER MODULE)	K	
IC501	2B		M67741L-32	IC (POWER MODULE)	K2	
IC501	2B	*	M67781H-32	IC (POWER MODULE)	HK	
IC501	2B	*	M67781L-32	IC (POWER MODULE)	HK2	
TX-RX UNIT (X57-4950-XX) : TK-760 TX-RX UNIT (X57-5100-XX) : TK-762 -10 : K -11 : K2 -12 : HK -13 : HK2						
101	2A	*	B11-1148-04	REFLECTOR		760
102	2B	*	B11-1149-04	FILTER		760
103	2A	*	B38-0759-05	LCD		760
C1-10			CK73GB1H102K	CHIP C 1000PF K		
C12			CK73GB1H102K	CHIP C 1000PF K		
C15,16			CK73GB1H102K	CHIP C 1000PF K		
C17			CE04EW1E471M	ELECTRO 470UF 25WV		
C19			CK73GB1H471K	CHIP C 470PF K		
C20			CK73GB1H102K	CHIP C 1000PF K		
C23			C92-0512-05	CHIP-TAN 1.0UF 16WV		
C24			C92-0036-05	CHIP-ELE 4.7UF 16WV		
C25			CK73GB1H471K	CHIP C 470PF K		
C26			CK73GB1H103K	CHIP C 0.010UF K		
C27			C92-0507-05	CHIP-TAN 4.7UF 6.3WV		
C28			CK73GB1H471K	CHIP C 470PF K		
C29			C92-0004-05	CHIP-TAN 1.0UF 16WV		
C30,31			CK73FB1E104K	CHIP C 0.10UF K		
C33			CK73GB1H103K	CHIP C 0.010UF K		
C35			CK73FB1E104K	CHIP C 0.10UF K		
C37			CK73GB1H103K	CHIP C 0.010UF K		
C38			CK73GB1H102K	CHIP C 1000PF K		
C39			CK73FB1E104K	CHIP C 0.10UF K		
C41			C92-0507-05	CHIP-TAN 4.7UF 6.3WV		
C42			C92-0543-05	CHIP-TAN 3.3UF 10WV		
C43,44			C92-0507-05	CHIP-TAN 4.7UF 6.3WV		
C46			CK73GB1H102K	CHIP C 1000PF K		
C47			CK73FF1C105Z	CHIP C 1.0UF Z		
C48			CK73FB1E104K	CHIP C 0.10UF K		
C50			CK73FB1E104K	CHIP C 0.10UF K		
C51			CK73GB1H102K	CHIP C 1000PF K		
C53			C92-0543-05	CHIP-TAN 3.3UF 10WV		
C54			CC73GCH1H150J	CHIP C 15PF J		
C55			CC73GCH1H220J	CHIP C 22PF J		
C57			CC73GCH1H180J	CHIP C 18PF J		
C58			CK73GB1H103K	CHIP C 0.010UF K		
C60			CC73GCH1H220J	CHIP C 22PF J		
C61			C92-0543-05	CHIP-TAN 3.3UF 10WV		
C63			CK73GB1H102K	CHIP C 1000PF K		
C65,66			CK73GB1H102K	CHIP C 1000PF K		
C67			C92-0546-05	CHIP-TAN 68UF 6.3WV		
C68,69			CK73GB1H103K	CHIP C 0.010UF K		
C70			CK73GB1H102K	CHIP C 1000PF K		

760 : TK-760 (K,K2,HK,HK2)
762 : TK-762 (K,K2,HK,HK2)

PARTS LIST

TX-RX UNIT (X57-4950-XX)
TX-RX UNIT (X57-5100-XX)

Ref. No.	Address	New parts	Parts No.	Description			Destination	Remarks
C71			C92-0044-05	CHIP-ELE	47UF	10WV		
C73			CK73GB1H471K	CHIP C	470PF	K		
C74			C92-0044-05	CHIP-ELE	47UF	10WV		
C75			C92-0004-05	CHIP-TAN	1.0UF	16WV		
C77			CK73GB1H103K	CHIP C	0.010UF	K		
C79			C92-0507-05	CHIP-TAN	4.7UF	6.3WV		
C81			C92-0040-05	CHIP-ELE	47UF	16WV		
C82			CK73GB1H103K	CHIP C	0.010UF	K		
C83			CC73GCH1H180J	CHIP C	18PF	J		
C84,85			CK73GB1H102K	CHIP C	1000PF	K		
C86			CK73GB1H103K	CHIP C	0.010UF	K		
C87			CK73GB1H102K	CHIP C	1000PF	K		
C88			CC73GCH1H120J	CHIP C	12PF	J		
C90			CC73GCH1H180J	CHIP C	18PF	J		
C93			CK73FF1C105Z	CHIP C	1.0UF	Z		
C95			CK73GB1H103K	CHIP C	0.010UF	K		
C97			C92-0044-05	CHIP-ELE	47UF	10WV		
C98			CK73GB1H102K	CHIP C	1000PF	K		
C99			C92-0044-05	CHIP-ELE	47UF	10WV		
C101			CK73GB1H102K	CHIP C	1000PF	K		
C102			CK73GB1H103K	CHIP C	0.010UF	K		
C104			CK73GB1H471K	CHIP C	470PF	K		
C105			CK73GB1H103K	CHIP C	0.010UF	K		
C108			C92-0040-05	CHIP-ELE	47UF	16WV		
C110			CE04EW1A471M	ELECTRO	470UF	10WV		
C111			CK73FB1E104K	CHIP C	0.10UF	K		
C113			CK73GB1H102K	CHIP C	1000PF	K		
C118			C92-0004-05	CHIP-TAN	1.0UF	16WV		
C119-121			CK73GB1H102K	CHIP C	1000PF	K		
C123			CK73GB1H102K	CHIP C	1000PF	K		
C124			CK73GB1H471K	CHIP C	470PF	K		
C125			C92-0040-05	CHIP-ELE	47UF	16WV		
C126			CK73GB1H102K	CHIP C	1000PF	K		
C127			CK73FB1E473K	CHIP C	0.047UF	K		
C128,129			CK73GB1H102K	CHIP C	1000PF	K		
C137			C92-0040-05	CHIP-ELE	47UF	16WV		
C138,139			CK73GB1H102K	CHIP C	1000PF	K		
C141			CK73GB1H471K	CHIP C	470PF	K		
C142			CK73GB1H102K	CHIP C	1000PF	K		
C143			CK73FB1E104K	CHIP C	0.10UF	K		
C146			CK73GB1H102K	CHIP C	1000PF	K		
C147			CK73GB1H103K	CHIP C	0.010UF	K		
C148			CK73GB1H102K	CHIP C	1000PF	K		
C151			CK73GB1H102K	CHIP C	1000PF	K		
C152			C93-0557-05	CHIP C	7.0pF	D	K	
C152			C93-0561-05	CHIP C	12PF	J	K2	
C152		*	C93-0564-05	CHIP C	22PF	J	HK2	
C153			CK73EB1H103K	CHIP C	0.010UF	K		
C154			C93-0603-05	CHIP C	1000PF	K		
C155			C93-0557-05	CHIP C	7.0PF	D	HK	
C155			C93-0561-05	CHIP C	12PF	J	K	
C155		*	C93-0564-05	CHIP C	22PF	J	K2,HK2	
C156		*	C93-0563-05	CHIP C	18PF	J	K2,HK2	
C156		*	C93-0564-05	CHIP C	22PF	J	K,HK	
C157		*	C93-0564-05	CHIP C	22PF	J		
C159			C93-0603-05	CHIP C	1000PF	K		
C160			CC73GCH1H101J	CHIP C	100PF	J		
C161		*	C93-0563-05	CHIP C	18PF	J		
C162		*	C93-0567-05	CHIP C	39PF	J		

Ref. No.	Address	New parts	Parts No.	Description			Destination	Remarks
C164		*	C93-0565-05	CHIP C	27PF	J		
C167			CK73GB1H102K	CHIP C	1000PF	K		
C175			CK73GB1H471K	CHIP C	470PF	K		
C186			CK73FB1E104K	CHIP C	0.10UF	K		
C187,188			CK73GB1H102K	CHIP C	1000PF	K		
C201,202			CK73FB1E104K	CHIP C	0.10UF	K		
C203,204			CC73GCH1H120J	CHIP C	12PF	J	K,HK	
C203,204			CC73GCH1H180J	CHIP C	18PF	J	K2,HK2	
C205-206			CK73GB1H102K	CHIP C	1000PF	K		
C212			CK73GB1H471K	CHIP C	470PF	K		
C213			CC73GCH1H101J	CHIP C	100PF	J		
C214-217			CK73GB1H102K	CHIP C	1000PF	K		
C218			CC73GCH1H270J	CHIP C	27PF	J		
C219			CK73GB1H102K	CHIP C	1000PF	K		
C220			CK73GB1H472K	CHIP C	4700PF	K		
C221			CC73FCH1H220J	CHIP C	22PF	J		
C222,223			CK73GB1H102K	CHIP C	1000PF	K		
C224			CK73GB1H103K	CHIP C	0.010UF	K		
C225			CC73GCH1H150J	CHIP C	15PF	J		
C226			CK73GB1H103K	CHIP C	0.010UF	K		
C227			CK73GB1H102K	CHIP C	1000PF	K		
C228			CC73GCH1H150J	CHIP C	15PF	J		
C229			CC73GCH1H150J	CHIP C	15PF	J	K,HK	
C229			CC73GCH1H180J	CHIP C	18PF	J	K2,HK2	
C230			CC73GCH1HR75C	CHIP C	0.75PF	C		
C231			CC73GCH1H120J	CHIP C	12PF	J	K,HK	
C231			CC73GCH1H180J	CHIP C	18PF	J	K2,HK2	
C232			CC73GCH1HR75C	CHIP C	0.75PF	C		
C233			CK73GB1H102K	CHIP C	1000PF	K		
C234			CC73GCH1H090D	CHIP C	9.0PF	D	K,HK	
C234			CC73GCH1H180J	CHIP C	18PF	J	K2,HK2	
C235-237			CK73GB1H102K	CHIP C	1000PF	K		
C239			CC73FCH1H030C	CHIP C	3.0PF	C		
C240			CC73GCH1H100D	CHIP C	10PF	D		
C241-243			CK73GB1H102K	CHIP C	1000PF	K		
C244-246			CC73GCH1H101J	CHIP C	100PF	J		
C247			CK73GB1H102K	CHIP C	1000PF	K		
C248			CK73FB1E104K	CHIP C	0.10UF	K		
C249			CK73GB1H102K	CHIP C	1000PF	K		
C250			C92-0543-05	CHIP-TAN	3.3UF	10WV		
C251			C92-0536-05	CHIP-TAN	10UF	10WV		
C252			CK73GB1H103K	CHIP C	0.010UF	K		
C253,254			CK73GB1H102K	CHIP C	1000PF	K		
C255			C92-0003-05	CHIP-TAN	0.47UF	25WV		
C256			CK73GB1H102K	CHIP C	1000PF	K		
C257			C92-0516-05	CHIP-TAN	4.7UF	16WV		
C258			CK73GB1H102K	CHIP C	1000PF	K		
C259			C92-0001-05	CHIP-TAN	0.1UF	35WV		
C260			CC73GCH1H050C	CHIP C	5.0PF	C		
C261			CK73FB1E223K	CHIP C	0.022UF	K		
C262			CC73GCH1H020C	CHIP C	2.0PF	C		
C263			C92-0003-05	CHIP-TAN	0.47UF	25WV		
C264			CC73GCH1H180J	CHIP C	18PF	J		
C265			CC73GCH1H180J	CHIP C	18PF	J	K,HK	
C265			CC73GCH1H220J	CHIP C	22PF	J	K2,HK2	
C266			CK73GB1H102K	CHIP C	1000PF	K		
C267			C92-0507-05	CHIP-TAN	4.7UF	6.3WV		
C268			CK73FF1C105Z	CHIP C	1.0UF	Z		
C269			CC73GCH1H180J	CHIP C	18PF	J	K,HK	

760 : TK-760 (K,K2,HK,HK2)
762 : TK-762 (K,K2,HK,HK2)

TK-760/762

PARTS LIST

TX-RX UNIT (X57-4950-XX)
TX-RX UNIT (X57-5100-XX)

Ref. No.	Address	New parts	Parts No.	Description			Destination	Remarks
C269			CC73GCH1H220J	CHIP C	22PF	J	K2,HK2	
C271			CC73GCH1H0R5B	CHIP C	0.5PF	B	HK,HK2	
C273			CK73GB1H102K	CHIP C	1000PF	K	HK,HK2	
C274,275			CC73GCH1H101J	CHIP C	100PF	J		
C277			CK73GB1H102K	CHIP C	1000PF	K		
C401,402			CK73GB1H471K	CHIP C	470PF	K		
C403			CK73GB1C104K	CHIP C	0.10UF	K		
C404,405			CK73GB1E123K	CHIP C	0.012UF	K		
C406			C92-0543-05	CHIP-TAN	3.3UF	10WV		
C407,408			CK73GB1C104K	CHIP C	0.10UF	K		
C409			CC73GCH1H101J	CHIP C	100PF	J		
C410,411			CK73GB1H471K	CHIP C	470PF	K		
C412			C92-0507-05	CHIP-TAN	4.7UF	6.3WV		
C413			CK73GB1E223K	CHIP C	0.022UF	K		
C414			CC73GCH1H101J	CHIP C	100PF	J		
C415			C92-0507-05	CHIP-TAN	4.7UF	6.3WV		
C416			CK73GB1H222K	CHIP C	2200PF	K		
C417			CK73GB1E223K	CHIP C	0.022UF	K		
C418			CK73GB1C273K	CHIP	0.027UF	K		
C419			CC73GCH1H470J	CHIP C	47PF	J		
C420			CK73GB1H471K	CHIP C	470PF	K		
C421			CK73GB1H472K	CHIP C	4700PF	K		
C422			CK73GB1H471K	CHIP C	470PF	K		
C423			C92-0507-05	CHIP-TAN	4.7UF	6.3WV		
C424			CK73GB1H471K	CHIP C	470PF	K		
C425,426			CK73GB1C273K	CHIP C	0.027UF	K		
C427			CK73GB1H102K	CHIP C	1000PF	K		
C428			CK73GB1H471K	CHIP C	470PF	K		
C430			CK73FF1C105Z	CHIP C	1.0UF	Z		
C431			CK73GB1E223K	CHIP C	0.022UF	K		
C432			CC73GCH1H100D	CHIP C	10PF	D		
C433			CK73GB1H471K	CHIP C	470PF	K		
C434,435			CK73GB1H682K	CHIP C	6800PF	K		
C436			C92-0507-05	CHIP-TAN	4.7UF	6.3WV		
C437			C92-0004-05	CHIP-TAN	1.0UF	16WV		
C438			CK73GB1H682K	CHIP C	6800PF	K		
C439			CK73GB1E103K	CHIP C	0.010UF	K		
C440			CC73GCH1H470J	CHIP C	47PF	J		
C441			CK73GB1E103K	CHIP C	0.010UF	K		
C442			CK73GB1H471K	CHIP C	470PF	K		760
C443			CK73GB1H471K	CHIP C	470PF	K		
C444			CC73FCH1H751J	CHIP C	750PF	J		
C445			CK73GB1H122K	CHIP C	1200PF	K		
C446,447			CK73GB1H471K	CHIP C	470PF	K		
C448			CC73GCH1H151J	CHIP C	150PF	J		
C449			CK73GB1E103K	CHIP C	0.010UF	K		
C450			CK73GB1H332K	CHIP C	3300PF	K		
C451			C92-0004-05	CHIP-TAN	1.0UF	16WV		
C452			C92-0536-05	CHIP-TAN	10UF	10WV		
C453,454			CK73GB1C104K	CHIP C	0.10UF	K		
C455			CK73GB1E103K	CHIP C	0.010UF	K		
C456,457			CK73GB1H471K	CHIP C	470PF	K		
C458			CK73GB1E103K	CHIP C	0.010UF	K		
C459			CK73GB1H102K	CHIP C	1000PF	K		
C460			CK73GB1E103K	CHIP C	0.010UF	K		
C461			CK73GB1H102K	CHIP C	1000PF	K		
C462			CK73GB1H472K	CHIP C	4700PF	K		
C463			C92-0606-05	CHIP-TAN	4.7UF	10WV		
C464-466			CK73GB1E103K	CHIP C	0.010UF	K		

Ref. No.	Address	New parts	Parts No.	Description			Destination	Remarks
C467			C92-0507-05	CHIP-TAN	4.7UF	6.3WV		
C468			CK73GB1E223K	CHIP C	0.022UF	K		
C469			CK73GB1C104K	CHIP C	0.10UF	K		
C470			CC73GCH1H101J	CHIP C	100PF	J		
C471			CK73GB1E103K	CHIP C	0.010UF	K		
C472-475			CC73GCH1H101J	CHIP C	100PF	J		
C476-479			CK73GB1H471K	CHIP C	470PF	K		762
C480			CC73GCH1H030C	CHIP C	3.0PF	C		
C481,482			CC73GCH1H100D	CHIP C	10PF	D		
C483-485			CK73GB1H471K	CHIP C	470PF	K		762
C486			CK73GB1C104K	CHIP C	0.10UF	K		
C487			C92-0012-05	CHIP-TAN	22UF	6.3WV		
C488,489			CK73GB1H471K	CHIP C	470PF	K		
C490			C92-0507-05	CHIP-TAN	4.7UF	6.3WV		
C491			CK73GB1C104K	CHIP C	0.10UF	K		
C492			CC73GCH1H470J	CHIP C	47PF	J		
C493,494			CK73GB1H103K	CHIP C	0.010UF	K		
105	2B	*	E29-1139-04	INTER CONNECTOR (LCD)				760
CN1			E40-5737-05	PIN CONNECTOR FOR INSIDE (8P)				
CN2			E40-5738-05	PIN CONNECTOR FOR INSIDE (3P)				
CN4			E40-3247-05	PIN CONNECTOR FOR INSIDE (3P)				
CN5			E40-3246-05	PIN CONNECTOR FOR INSIDE (2P)				
CN6		*	E40-5851-05	FLAT CABLE CONNECTOR (26P)				
CN201			E40-3247-05	PIN CONNECTOR FOR INSIDE (3P)				
CN401		*	E40-5851-05	CONNECTOR (26P)				
J1			E11-0442-05	PHONE JACK (3.5D)				
J401			E08-0673-05	MODULAR JACK				
F1			F53-0108-05	FUSE (1.8A)				
107	2A	*	J21-4479-04	HARDWARE FIXTURE				760
–			J30-0545-05	SPACER				
–		*	J31-0543-05	COLLAR				762
CD1			L79-1013-05	DISCLI (455KHZ)				
CF201			L72-0372-05	CERAMIC FILTER (455KHZ)				
CF202			L72-0376-05	CERAMIC FILTER (455KHZ)				
L1			L40-1092-34	SMALL FIXED INDUCTOR				
L2			L40-1005-34	SMALL FIXED INDUCTOR (10UH)				
L3			L40-1081-37	SMALL FIXED INDUCTOR (0.1UH)				
L19		*	L34-4480-05	COIL (5T)				
L20		*	L34-4479-05	COIL (2.5T)			HK	
L20		*	L34-4481-05	COIL (6T)			K,K2,HK2	
L21		*	L34-4478-05	COIL (9.5T)				
L22,23		*	L34-4481-05	COIL (6T)				
L24		*	L34-4478-05	COIL (9.5T)				
L201			L40-6871-34	SMALL FIXED INDUCTOR (68NH)				
L202			L40-8271-34	SMALL FIXED INDUCTOR (82NH)				
L203			L40-2781-37	SMALL FIXED INDUCTOR (0.27UH)				
L204			L40-3381-37	SMALL FIXED INDUCTOR (0.33UH)				
L205		*	L34-4472-05	COIL				
L206,207		*	L34-4473-05	COIL				
L208		*	L34-4472-05	COIL				
L209			L40-1581-37	SMALL FIXED INDUCTOR (0.15UH)			K,HK	
L209			L40-6872-37	SMALL FIXED INDUCTOR (0.068UH)			K2,HK2	
L210			L40-3971-36	SMALL FIXED INDUCTOR (39NH)				
L211			L40-1081-37	SMALL FIXED INDUCTOR (0.1UH)				
X1		*	L77-1676-05	VCXO (12.8MHZ)				
X2			L77-1595-05	CRYSTAL RESONATOR (44.595MHZ)				
X401			L77-1630-05	CRYSTAL RESONATOR (8.388MHZ)				

760 : TK-760 (K,K2,HK,HK2)
762 : TK-762 (K,K2,HK,HK2)

PARTS LIST

TX-RX UNIT (X57-4950-XX)
TX-RX UNIT (X57-5100-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Remarks
XF1		*	L71-0476-05	MCF (45.050MHZ)		
XF1		*	L71-0478-05	MCF (45.050MHZ)		
R1			RK73GB1J102J	CHIP R 1.0K J 1/16W		
R2			R92-1252-05	CHIP R 0 OHM		
R3			RK73GB1J103J	CHIP R 10K J 1/16W		
R4			R92-1252-05	CHIP R 0 OHM		
R5,6			R92-0670-05	CHIP R 0 OHM		
R7,8			RK73GB1J102J	CHIP R 1.0K J 1/16W		
R9,10			R92-1252-05	CHIP R 0 OHM		
R11			RK73GB1J224J	CHIP R 220K J 1/16W		
R12			RK73GB1J102J	CHIP R 1.0K J 1/16W		
R13			R92-1252-05	CHIP R 0 OHM		
R14			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R15			R92-1252-05	CHIP R 0 OHM		
R16			RK73GB1J103J	CHIP R 10K J 1/16W		
R17			RK73GB1J104J	CHIP R 100K J 1/16W		
R18			RK73GB1J123J	CHIP R 12K J 1/16W		
R19			RK73GB1J472J	CHIP R 4.7K J 1/16W		
R21			RK73GB1J153J	CHIP R 15K J 1/16W		
R22			RK73GB1J104J	CHIP R 100K J 1/16W		
R23			R92-1215-05	CHIP R 470 J 1/2W		
R25			RK73GB1J104J	CHIP R 100K J 1/16W	K2,HK2	
R25			RK73GB1J124J	CHIP R 120K J 1/16W	K,HK	
R26			RK73GB1J102J	CHIP R 1.0K J 1/16W		
R27			RK73GB1J394J	CHIP R 390K J 1/16W		
R28			RK73GB1J104J	CHIP R 100K J 1/16W		
R30			RK73GB1J104J	CHIP R 100K J 1/16W		
R34			RK73GB1J473J	CHIP R 47K J 1/16W		
R36			RK73GB1J473J	CHIP R 47K J 1/16W		
R37			RK73GB1J103J	CHIP R 10K J 1/16W		
R38			RK73GB1J182J	CHIP R 1.8K J 1/16W		
R40			RK73GB1J152J	CHIP R 1.5K J 1/16W		
R41			RK73GB1J224J	CHIP R 220K J 1/16W		
R42			RK73GB1J472J	CHIP R 4.7K J 1/16W		
R44			RK73GB1J220J	CHIP R 22 J 1/16W		
R46			RK73GB1J473J	CHIP R 47K J 1/16W		
R49			RK73GB1J104J	CHIP R 100K J 1/16W		
R50			RK73GB1J472J	CHIP R 4.7K J 1/16W		
R51			RK73GB1J104J	CHIP R 100K J 1/16W	K,HK,HK2	
R51			RK73GB1J333J	CHIP R 33K J 1/16W	K2	
R52			RK73GB1J220J	CHIP R 22 J 1/16W		
R53			RK73GB1J274J	CHIP R 270K J 1/16W		
R55			RK73GB1J332J	CHIP R 3.3K J 1/16W		
R56			R92-1252-05	CHIP R 0 OHM		
R57			RK73GB1J104J	CHIP R 100K J 1/16W		
R59			RK73GB1J122J	CHIP R 1.2K J 1/16W		
R60,61			RK73GB1J102J	CHIP R 1.0K J 1/16W		
R64			RK73GB1J471J	CHIP R 470 J 1/16W		
R66			RK73GB1J152J	CHIP R 1.5K J 1/16W		
R68			RK73GB1J471J	CHIP R 470 J 1/16W		
R71			RK73GB1J684J	CHIP R 680K J 1/16W		
R72			RK73GB1J223J	CHIP R 22K J 1/16W		
R73			RK73GB1J101J	CHIP R 100 J 1/16W		
R74			RK73GB1J391J	CHIP R 390 J 1/16W		
R76			RK73GB1J103J	CHIP R 10K J 1/16W		
R77			RK73GB1J101J	CHIP R 100 J 1/16W		
R78			RK73GB1J473J	CHIP R 47K J 1/16W		
R79,80			R92-0670-05	CHIP R 0 OHM		

Ref. No.	Address	New parts	Parts No.	Description	Destination	Remarks
R81			RK73GB1J102J	CHIP R 1.0K J 1/16W		
R83			RK73GB1J102J	CHIP R 1.0K J 1/16W		
R85			RK73GB1J681J	CHIP R 680 J 1/16W		
R86			RK73GB1J102J	CHIP R 1.0K J 1/16W		
R88			RK73FB2A2R2J	CHIP R 2.2 J 1/10W		
R92			RK73GB1J472J	CHIP R 4.7K J 1/16W		
R93			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R94			R92-0685-05	CHIP R 22 J 1/2W		
R99			RK73FB2A470J	CHIP R 47 J 1/10W		
R101			RK73FB2A470J	CHIP R 47 J 1/10W		
R102			RK73EB2B181J	CHIP R 180 J 1/8W		
R103			RK73EB2B151J	CHIP R 150 J 1/8W		
R104			RK73FB2A103J	CHIP R 10K J 1/10W		
R106			RK73FB2A154J	CHIP R 150K J 1/10W		
R107			RK73FB2A473J	CHIP R 47K J 1/10W		
R108		*	R92-2554-05	FIXED R 0.047 3W	K,K2	
R108		*	R92-2562-05	FIXED R 0.047 5W	HK,HK2	
R112			RK73FB2A472J	CHIP R 4.7K J 1/10W	K,K2	
R112			RK73FB2A473J	CHIP R 47K J 1/10W	HK,HK2	
R113			RK73FB2A272J	CHIP R 2.7K J 1/10W		
R115,116			RK73FB2A472J	CHIP R 4.7K J 1/10W		
R117			R92-1268-05	RN 4.7K B 1/8W		
R118			R92-2538-05	RN 3.9K B 1/8W		
R119			R92-1261-05	CHIP R 150 J 1/2W		
R124			RK73GB1J271J	CHIP R 270 J 1/16W		
R125			RK73GB1J180J	CHIP R 18 J 1/16W		
R126			RK73GB1J271J	CHIP R 270 J 1/16W		
R137			RK73GB1J104J	CHIP R 100K J 1/16W		
R139			R92-1252-05	CHIP R 0 OHM		
R140,141			RK73FB2A821J	CHIP R 820 J 1/10W		
R142,143			RK73FB2A100J	CHIP R 10 J 1/10W		
R144			RK73GB1J333J	CHIP R 33K J 1/16W		
R147			RK73GB1J474J	CHIP R 470K J 1/16W		
R201			RK73GB1J153J	CHIP R 15K J 1/16W		
R202-205			RK73GB1J223J	CHIP R 22K J 1/16W		
R206			RK73GB1J153J	CHIP R 15K J 1/16W		
R207-210			RK73GB1J103J	CHIP R 10K J 1/16W		
R211			RK73GB1J102J	CHIP R 1.0K J 1/16W		
R212			RK73GB1J560J	CHIP R 56 J 1/16W		
R213			RK73GB1J392J	CHIP R 3.9K J 1/16W	K2	
R218,219			RK73GB1J104J	CHIP R 100K J 1/16W		
R221			RK73GB1J392J	CHIP R 3.9K J 1/16W		
R222			RK73FB2A222J	CHIP R 2.2K J 1/10W		
R223			RK73FB2A103J	CHIP R 10K J 1/10W		
R224			RK73FB2A100J	CHIP R 10 J 1/10W		
R225			RK73FB2A222J	CHIP R 2.2K J 1/10W		
R226			RK73FB2A560J	CHIP R 56 J 1/10W		
R227			RK73FB2A470J	CHIP R 47 J 1/10W		
R228			RK73FB2A152J	CHIP R 1.5K J 1/10W		
R229			RK73FB2A100J	CHIP R 10 J 1/10W		
R230			RK73GB1J331J	CHIP R 330 J 1/16W		
R231			RK73GB1J101J	CHIP R 100 J 1/16W		
R232			RK73GB1J151J	CHIP R 150 J 1/16W		
R234			RK73GB1J473J	CHIP R 47K J 1/16W		
R235			RK73GB1J333J	CHIP R 33K J 1/16W		
R236,237			RK73GB1J104J	CHIP R 100K J 1/16W		
R238			RK73GB1J101J	CHIP R 100 J 1/16W		
R239			RK73GB1J104J	CHIP R 100K J 1/16W		
R240			RK73GB1J103J	CHIP R 10K J 1/16W		

760 : TK-760 (K,K2,HK,HK2)
762 : TK-762 (K,K2,HK,HK2)

PARTS LIST

TX-RX UNIT (X57-4950-XX)
TX-RX UNIT (X57-5100-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Remarks
R241			RK73GB1J680J	CHIP R 68 J 1/16W		
R242			RK73GB1J184J	CHIP R 180K J 1/16W		
R243			RK73GB1J103J	CHIP R 10K J 1/16W		
R244			R92-1252-05	CHIP R 0 OHM		
R245			RK73GB1J274J	CHIP R 270K J 1/16W		
R246			RK73GB1J104J	CHIP R 100K J 1/16W		
R247			R92-1281-05	FIXED R 4.7 1/4W		
R248			R92-1252-05	CHIP R 0 OHM		
R250-252			RK73GB1J102J	CHIP R 1.0K J 1/16W		
R253			RK73GB1J124J	CHIP R 120K J 1/16W		
R254			RK73GB1J101J	CHIP R 100 J 1/16W		
R255			R92-1252-05	CHIP R 0 OHM		
R256			RK73GB1J473J	CHIP R 47K J 1/16W		
R257			RK73GB1J101J	CHIP R 100 J 1/16W		
R259			RK73GB1J152J	CHIP R 1.5K J 1/16W		
R260			RK73GB1J101J	CHIP R 100 J 1/16W		
R261			RK73GB1J122J	CHIP R 1.2K J 1/16W		
R262			RK73GB1J101J	CHIP R 100 J 1/16W		
R263			RK73GB1J103J	CHIP R 10K J 1/16W		
R264			RK73GB1J223J	CHIP R 22K J 1/16W		
R265			RK73GB1J330J	CHIP R 33 J 1/16W		
R266			RK73GB1J104J	CHIP R 100K J 1/16W		
R267			RK73GB1J124J	CHIP R 120K J 1/16W		
R268			RK73GB1J184J	CHIP R 180K J 1/16W		
R269			RK73GB1J154J	CHIP R 150K J 1/16W		
R270			R92-1252-05	CHIP R 0 OHM		
R272			RK73GB1J101J	CHIP R 100 J 1/16W		
R401			RK73GB1J391J	CHIP R 390 J 1/16W		
R402			RK73GB1J102J	CHIP R 1.0K J 1/16W		
R403-405			R92-1252-05	CHIP R 0 OHM		
R406			RK73GB1J104J	CHIP R 100K J 1/16W		
R407			RK73GB1J683J	CHIP R 68K J 1/16W		
R408			RK73GB1J472J	CHIP R 4.7K J 1/16W		
R409			RK73GB1J563J	CHIP R 56K J 1/16W		
R410,411			RK73GB1J103J	CHIP R 10K J 1/16W		
R412			RK73GB1J681J	CHIP R 680 J 1/16W		
R413			RK73GB1J103J	CHIP R 10K J 1/16W		
R414			RK73GB1J473J	CHIP R 47K J 1/16W		
R415			RK73GB1J684J	CHIP R 680K J 1/16W		
R416			RK73GB1J152J	CHIP R 1.5K J 1/16W		
R417			RK73GB1J272J	CHIP R 2.7K J 1/16W		
R418			RK73GB1J124J	CHIP R 120K J 1/16W		
R419			RK73GB1J154J	CHIP R 150K J 1/16W		
R420			R92-1252-05	CHIP R 0 OHM		
R421			RK73GB1J153J	CHIP R 15K J 1/16W		
R422			RK73GB1J183J	CHIP R 18K J 1/16W		
R423			RK73GB1J223J	CHIP R 22K J 1/16W		
R424			R92-1252-05	CHIP R 0 OHM		
R425			RK73GB1J153J	CHIP R 15K J 1/16W		
R426			RK73GB1J223J	CHIP R 22K J 1/16W		
R427			RK73GB1J274J	CHIP R 270K J 1/16W		
R428			RK73GB1J333J	CHIP R 33K J 1/16W		
R429			RK73GB1J224J	CHIP R 220K J 1/16W		
R430,431			RK73GB1J183J	CHIP R 18K J 1/16W		
R432			RK73GB1J223J	CHIP R 22K J 1/16W		
R433			RK73GB1J103J	CHIP R 10K J 1/16W		
R434			RK73GB1J563J	CHIP R 56K J 1/16W		
R435			RK73GB1J823J	CHIP R 82K J 1/16W		
R436			RK73GB1J183J	CHIP R 18K J 1/16W		

Ref. No.	Address	New parts	Parts No.	Description	Destination	Remarks
R437			RK73GB1J224J	CHIP R 220K J 1/16W		
R438			RK73GB1J563J	CHIP R 56K J 1/16W		
R439			RK73GB1J683J	CHIP R 68K J 1/16W		
R441			RK73GB1J103J	CHIP R 10K J 1/16W		
R442			RK73GB1J561J	CHIP R 560 J 1/16W		
R443			RK73GB1J824J	CHIP R 820K J 1/16W		
R444			RK73GB1J224J	CHIP R 220K J 1/16W		
R445			RK73GB1J153J	CHIP R 15K J 1/16W		
R447			RK73GB1J273J	CHIP R 27K J 1/16W		
R448			RK73GB1J822J	CHIP R 8.2K J 1/16W		
R449			RK73GB1J563J	CHIP R 56K J 1/16W		
R450			RK73GB1J334J	CHIP R 330K J 1/16W		
R451			RK73GB1J104J	CHIP R 100K J 1/16W		
R452			RK73GB1J224J	CHIP R 220K J 1/16W		
R453,454			RK73GB1J824J	CHIP R 820K J 1/16W		
R455			RK73GB1J100J	CHIP R 10 J 1/16W		760
R456			RK73GB1J822J	CHIP R 8.2K J 1/16W		
R457,458			RK73GB1J823J	CHIP R 82K J 1/16W		
R459			RK73GB1J392J	CHIP R 3.9K J 1/16W		760
R460			RK73GB1J103J	CHIP R 10K J 1/16W		
R461			RK73GB1J104J	CHIP R 100K J 1/16W		
R462,463			RK73GB1J683J	CHIP R 68K J 1/16W		
R464			RK73GB1J223J	CHIP R 22K J 1/16W		
R465			RK73GB1J682J	CHIP R 6.8K J 1/16W		
R466			RK73GB1J183J	CHIP R 18K J 1/16W		
R467			RK73GB1J103J	CHIP R 10K J 1/16W		
R468			RK73GB1J223J	CHIP R 22K J 1/16W		
R469-471			RK73GB1J103J	CHIP R 10K J 1/16W		
R472			RK73GB1J223J	CHIP R 22K J 1/16W		
R473			R92-1252-05	CHIP R 0 OHM		
R474			R92-0670-05	CHIP R 0 OHM		
R475			R92-1252-05	CHIP R 0 OHM		760
R476-478			RK73GB1J473J	CHIP R 47K J 1/16W		760
R479			RK73GB1J103J	CHIP R 10K J 1/16W		
R480			R92-1252-05	CHIP R 0 OHM		760
R481-488			RK73GB1J102J	CHIP R 1.0K J 1/16W		
R489			R92-1252-05	CHIP R 0 OHM		
R490			RK73GB1J102J	CHIP R 1.0K J 1/16W		
R491			RK73GB1J473J	CHIP R 47K J 1/16W		
R492			R92-1252-05	CHIP R 0 OHM		
R493			RK73GB1J391J	CHIP R 390 J 1/16W		
R494-497			RK73GB1J102J	CHIP R 1.0K J 1/16W		
R498,499			RK73GB1J473J	CHIP R 47K J 1/16W		
R500,501			R92-1252-05	CHIP R 0 OHM		
R502			RK73GB1J105J	CHIP R 1.0M J 1/16W		
R503			RK73GB1J102J	CHIP R 1.0K J 1/16W		
R504-507			RK73GB1J221J	CHIP R 220 J 1/16W		762
R508			R92-1252-05	CHIP R 0 OHM		
R509-511			RK73GB1J271J	CHIP R 270 J 1/16W		762
R512			R92-0670-05	CHIP R 0 OHM		
R513			RK73GB1J103J	CHIP R 10K J 1/16W		
R514			RK73GB1J473J	CHIP R 47K J 1/16W		
R515			RK73GB1J333J	CHIP R 33K J 1/16W		
R516			RK73GB1J563J	CHIP R 56K J 1/16W		
R517			R92-1252-05	CHIP R 0 OHM		760
R518			RK73GB1J823J	CHIP R 82K J 1/16W		
R519			RK73GB1J684J	CHIP R 680K J 1/16W		
R520			RK73GB1J223J	CHIP R 22K J 1/16W		
R521			RK73GB1J473J	CHIP R 47K J 1/16W		

760 : TK-760 (K,K2,HK,HK2)
762 : TK-762 (K,K2,HK,HK2)

PARTS LIST

TX-RX UNIT (X57-4950-XX)
TX-RX UNIT (X57-5100-XX)
VCO (X58-4360-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Remarks
R522			RK73GB1J223J	CHIP R 22K J 1/16W		
R523,524			RK73GB1J473J	CHIP R 47K J 1/16W		
R525			RK73GB1J684J	CHIP R 680K J 1/16W		
R526			RK73GB1J224J	CHIP R 220K J 1/16W		
R527,528			RK73GB1J473J	CHIP R 47K J 1/16W		
R529			RK73GB1J683J	CHIP R 68K J 1/16W		
R530			RK73GB1J223J	CHIP R 22K J 1/16W		
VR401		*	R32-0657-05	SEMI FIXED VR 10K		
VR402		*	R32-0659-05	SEMI FIXED VR 300K		
D1			02CZ18 (X,Y)	DIODE		
D2			DSA3A1-FK	DIODE	HK,HK2	
D3			MA110	DIODE		
D3			1SS355	DIODE		
D4			02CZ15 (X,Y)	DIODE		
D5			MA110	DIODE		
D5			1SS355	DIODE		
D6			ERZ-M10DK220	SURGE ABSORVER		
D9-12			DA204K	DIODE		
D13			02CZ20 (Y,Z)	DIODE		
D14		*	DSM3MA1	DIODE	K,K2	
D17			DAN235K	DIODE		
D20			MA4PH633	DIODE		
D22			MA110	DIODE		
D22			1SS355	DIODE		
D24			MI809	DIODE		
D201,202			DAN202K	DIODE		
D204			DAN235K	DIODE		
D205			DAN202K	DIODE		
D206,207			DA204K	DIODE		
D208-210		*	1SV269	DIODE		
D211			1SV214	DIODE		
D212			MA110	DIODE		
D212			1SS355	DIODE		
D213			1SV214	DIODE		
D214			DA204K	DIODE	HK,HK2	
D215			02CZ12 (X,Y)	DIODE	HK,HK2	
D401,402			DA204K	DIODE		
D403			DAN202U	DIODE		
D404			DA204K	DIODE		
D405			DA204K	DIODE		760
D406-411		*	B30-2140-05	LED		760
D412-415		*	B30-2151-05	LED		762
IC1			BU4013BF	IC (D TYPE FLIP FLOP X2)		
IC2			NJM4558M	IC (OP AMP X2)		
IC3			NJM78L05UA	IC (VOLTAGE REGULATOR/ +5V)		
IC4			TA7808S	IC (VOLTAGE REGULATOR/ +8V)		
IC6			M62363FP	IC (8bit D/A CONVERTER)		
IC7			MC3372V	IC (FM IF)		
IC8			NJM2904M	IC (OP AMP X2)		
IC10			BU4094BCF	IC (8-STAGE SHIFT/STORE REGISTE		
IC11			LA4422	IC (AF POWER AMP/ 5.8W)		
IC13			NJM2904M	IC (OP AMP X2)		
IC14			TA75S01F	IC (OP AMP)		
IC201		*	NJM78L09UA	IC (VOLTAGE REGULATOR/ +9V)		
IC201			TA78L09F	IC (VOLTAGE REGULATOR/ +9V)		
IC202		*	MC145190F	IC		
IC401-403			NJM4558E	IC (OP AMP X2)		
IC404			TA75S01F	IC (OP AMP)		
IC405,406			NJM4558E	IC (OP AMP X2)		

Ref. No.	Address	New parts	Parts No.	Description	Destination	Remarks
IC407			NJM78L05UA	IC (VOLTAGE REGULATOR/ +5V)		
IC408		*	RH5VL42C	IC		
IC409		*	M38267M8L156GP	IC (MPU)		
IC411			AT2408N10SI2.5	IC (8kbit SERIAL EEPROM)		
IC412			NJM4558E	IC (OP AMP X2)		
Q1			DTA114EU	DIGITAL TRANSISTOR		
Q2,3			DTC114EU	DIGITAL TRANSISTOR		
Q4			2SA1641 (S,T)	TRANSISTOR		
Q5			DTA114YK	DIGITAL TRANSISTOR		
Q6			2SB1132 (Q,R)	TRANSISTOR		
Q8			2SA1362 (Y)	TRANSISTOR		
Q10,11			DTC114EU	DIGITAL TRANSISTOR		
Q13			DTC114EK	DIGITAL TRANSISTOR		
Q14			DTD114EK	DIGITAL TRANSISTOR		
Q15			2SC4116 (GR)	TRANSISTOR		
Q16			2SC2059K (P)	TRANSISTOR		
Q18			2SC4215 (Y)	TRANSISTOR		
Q20			DTC363EK	DIGITAL TRANSISTOR		
Q22		*	2SA1757 (E,F)	TRANSISTOR	HK,HK2	
Q22			2SB1565 (E,F)	TRANSISTOR	K,K2	
Q23			2SC4116 (GR)	TRANSISTOR		
Q24			DTC114EK	DIGITAL TRANSISTOR		
Q25			DTA144EU	DIGITAL TRANSISTOR		
Q26			DTC114EU	DIGITAL TRANSISTOR		
Q201			DTA144EK	DIGITAL TRANSISTOR		
Q202			DTC144EK	DIGITAL TRANSISTOR		
Q204			DTC144EK	DIGITAL TRANSISTOR		
Q205			2SC3357	TRANSISTOR		
Q206			2SC2954	TRANSISTOR		
Q207			SGM2014M	TRANSISTOR		
Q208			3SK241 (R)	TRANSISTOR		
Q209			2SC2059K (P)	TRANSISTOR		
Q210			2SC4116 (GR)	TRANSISTOR	HK,HK2	
Q211			DTC144EK	DIGITAL TRANSISTOR	HK,HK2	
Q401		*	2SC4081 (R)	TRANSISTOR		
Q402		*	2SJ203	FET		
Q403			DTC363EK	DIGITAL TRANSISTOR		
Q404			DTA114TK	DIGITAL TRANSISTOR		
Q405			2SB1132 (Q,R)	TRANSISTOR		760
Q406,407			DTA114TK	DIGITAL TRANSISTOR		
Q408,409			DTC144EK	DIGITAL TRANSISTOR		
Q410			DTA114TK	DIGITAL TRANSISTOR		
Q412-418			DTA114EK	DIGITAL TRANSISTOR		762
Q419			DTA144EK	DIGITAL TRANSISTOR		
Q420			DTC144EK	DIGITAL TRANSISTOR		
A1	2B	*	X58-4360-10	SUB UNIT (VCO)	K,HK	
A1	2B	*	X58-4360-11	SUB UNIT (VCO)	K2,HK2	

VCO (X58-4360-XX) -10 : K,HK -11 : K2,HK2

C1-3			CK73GB1H102K	CHIP C	1000PF	K	
C4			CC73GCH1H151J	CHIP C	150PF	J	K,HK
C4			CC73GCH1H470J	CHIP C	47PF	J	K2,HK2
C5,6			CC73GCH1H070D	CHIP C	7.0PF	D	K2,HK2
C5,6			CC73GCH1H120J	CHIP C	12PF	J	K,HK
C7,8			CK73GB1H102K	CHIP C	1000PF	K	
C9			CC73GCH1H060D	CHIP C	6.0PF	D	
C10			CC73GCH1H040C	CHIP C	4.0PF	C	K2,HK2
C10			CC73GCH1H150J	CHIP C	15PF	J	K,HK

760 : TK-760 (K,K2,HK,HK2)
762 : TK-762 (K,K2,HK,HK2)

PARTS LIST

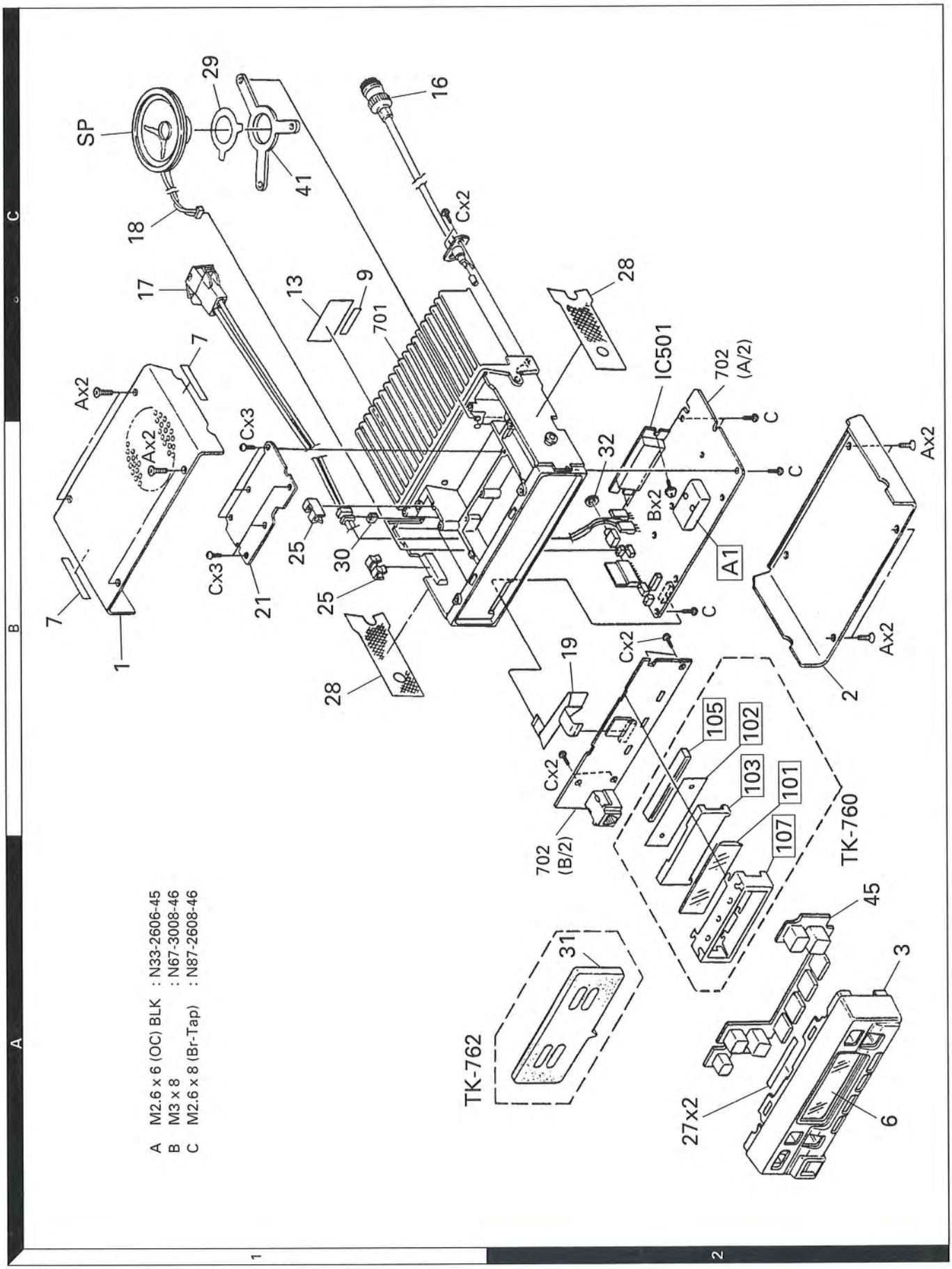
VCO (X58-4360-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Remarks
C11			CC73GCH1H060D	CHIP C 6.0PF D	K2,HK2	
C11			CC73GCH1H080D	CHIP C 8.0PF D	K,HK	
C12,13			CK73GB1H102K	CHIP C 1000P F		
C14			CC73GCH1H010C	CHIP C 1.0PF C		
C15,16			CK73GB1H102K	CHIP C 1000PF K		
C17			CK73GB1H103K	CHIP C 0.010UF K		
C18			CC73GCH1H270J	CHIP C 27PF J	K2,HK2	
C18			CC73GCH1H560J	CHIP C 56PF J	K,HK	
C20			CC73GCH1H060D	CHIP C 6.0PF D	K,HK	
C20			CC73GCH1H1R5C	CHIP C 1.5PF C	K2,HK2	
C21			CK73GB1H103K	CHIP C 0.010UF K		
C22			CK73GB1H102K	CHIP C 1000PF K		
C23			CK73GB1H103K	CHIP C 0.010UF K		
C24			CC73GCH1H020C	CHIP C 2.0PF C		
C25			CC73GCH1H150J	CHIP C 15PF J		
C27			CK73GB1H102K	CHIP C 1000PF K		
CN1		*	E40-5815-05	PIN CONNECTOR FOR INSIDE (6P)		
–		*	F10-2204-04	SHIELDING CASE		
L1,2			L33-1268-05	CHOKE COIL (10UH)		
L3			L34-4449-05	COIL	K2,HK2	
L3		*	L34-4485-05	COIL	K,HK	
L4-8			L33-1268-05	CHOKE COIL (10UH)		
L9		*	L34-4429-05	COIL	K,HK	
L9		*	L34-4484-05	COIL	K2,HK2	
L10			L40-1081-34	SMALL FIXED INDUCTOR (100NH)		

Ref. No.	Address	New parts	Parts No.	Description	Destination	Remarks
R1			RK73GB1J101J	CHIP R 100 J 1/16W		
R2			RK73GB1J470J	CHIP R 47 J 1/16W		
R3			RK73GB1J181J	CHIP R 180 J 1/16W		
R4			RK73GB1J472J	CHIP R 4.7K J 1/16W		
R5			R92-1252-05	CHIP R 0 OHM		
R6			RK73GB1J101J	CHIP R 100 J 1/16W		
R7			RK73GB1J183J	CHIP R 18K J 1/16W		
R8			RK73GB1J181J	CHIP R 180 J 1/16W		
R9			RK73GB1J470J	CHIP R 47 J 1/16W		
R10			RK73GB1J151J	CHIP R 150 J 1/16W	K,HK	
R10			RK73GB1J181J	CHIP R 180 J 1/16W	K2,HK2	
R11			RK73GB1J473J	CHIP R 47K J 1/16W		
R12			RK73GB1J103J	CHIP R 10K J 1/16W		
R13			RK73GB1J101J	CHIP R 100 J 1/16W		
R14			RK73GB1J390J	CHIP R 39 J 1/16W		
R15			R92-0670-05	CHIP R 0 OHM		
D1-4		*	1SV269	VARIABLE CAPACITANCE DIODE		
Q1			UMG1	TRANSISTOR		
Q2			2SK508NV (K52)	FET		
Q3			2SC4215 (Y)	TRANSISTOR		
Q4			DTC114EU	DIGITAL TRANSISTOR		
Q5			2SK508NV (K52)	FET		

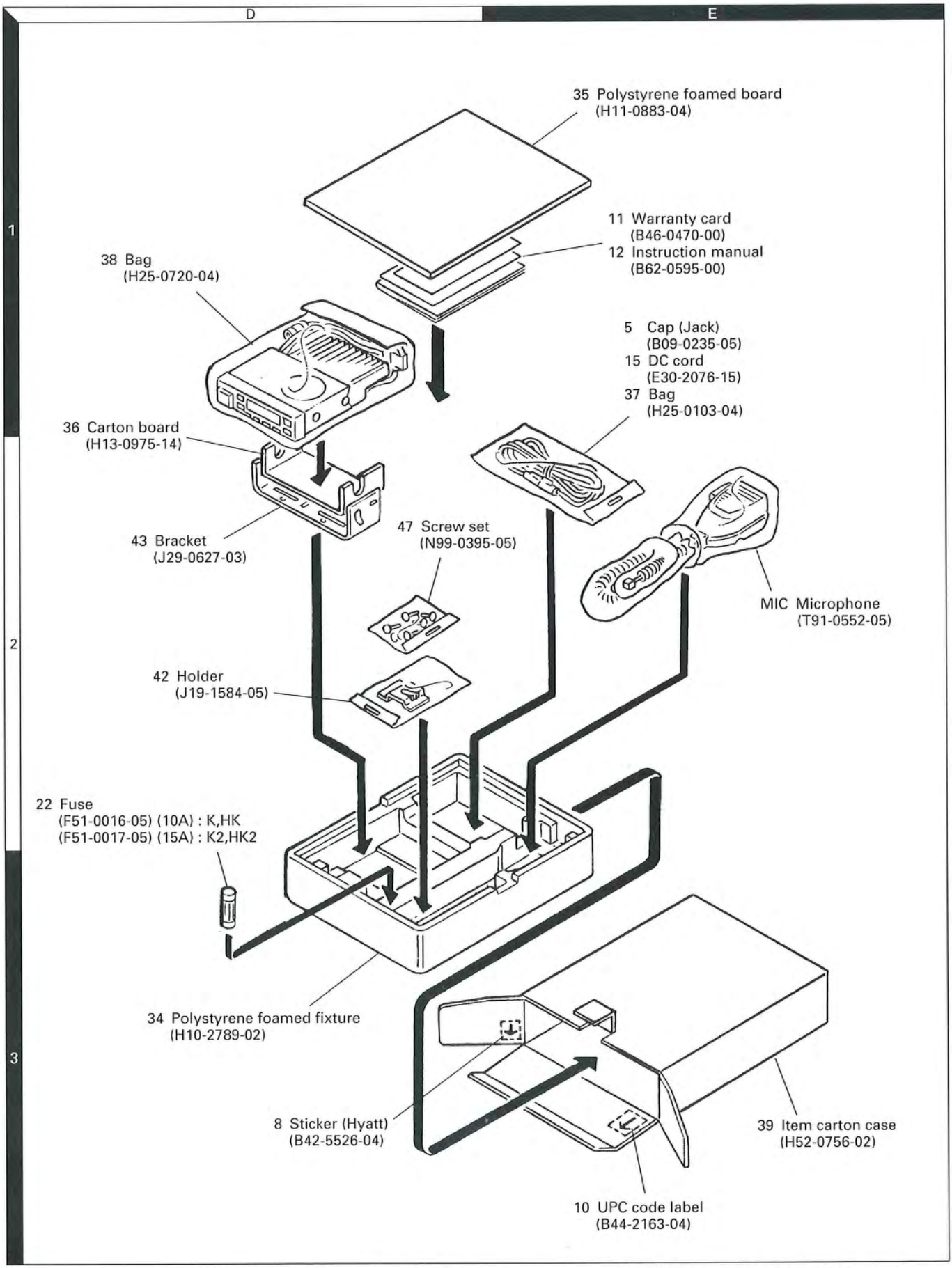
760 : TK-760 (K,K2,HK,HK2)
762 : TK-762 (K,K2,HK,HK2)

EXPLODED VIEW



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

PACKING

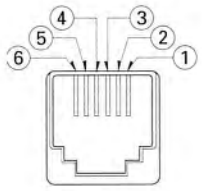


Parts with the exploded numbers larger than 700 are not supplied.

ADJUSTMENT

Test Equipment Required for Alignment

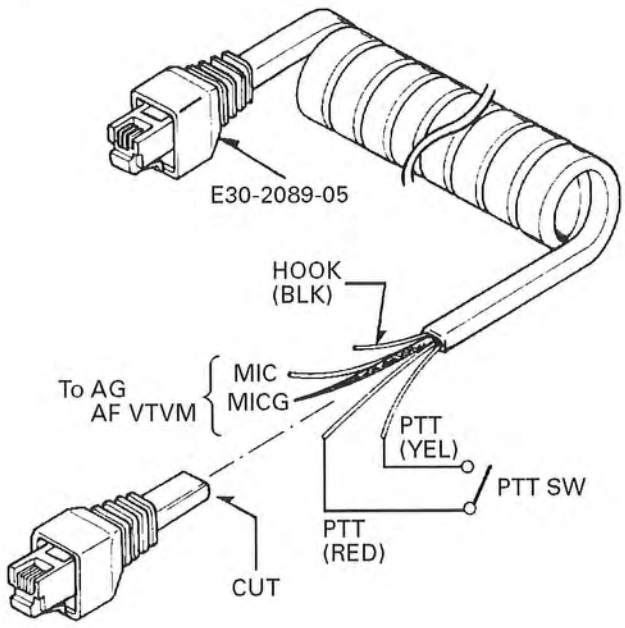
Test Equipment	Major Specifications	
1. Standard Signal Generator (SSG)	Frequency Range Modulation Output	100 to 200MHz Frequency modulation and external modulation –127dBm/0.1μV to greater than –7dBm/100mV
2. Power Meter	Input Impedance Operation Frequency Measurement Capability	50Ω 100 to 200MHz or more Vicinity of 60W
3. Deviation Meter	Frequency Range	100 to 200MHz
4. Digital Volt Meter (DVM)	Measuring Range Accuracy	1 to 10V DC High input impedance for minimum circuit loading
5. Oscilloscope		DC through 30MHz
6. High Sensitivity Frequency Counter	Frequency Range Frequency Stability	10Hz to 200MHz 0.2ppm or less
7. Ammeter		15A
8. AF Volt Meter (AF VTVM)	Frequency Range Voltage Range	50Hz to 10kHz 3mV to 3V
9. Audio Generator (AG)	Frequency Range Output	50Hz to 5kHz or more 0 to 1V
10. Distortion Meter	Capability Input Level	3% or less at 1kHz 50mV to 10Vrms
11. Voltmeter	Measuring Range Input Impedance	1.5 to 30V DC or less 50kΩ/V or greater
12. 4Ω Dummy Load		Approx. 4Ω, 3W
13. Regulated Power Supply		13.6V, approx. 15A (adjustable from 9 to 17V) Useful if ammeter requipped



① SB
② PTTG
③ PTT
④ MICG
⑤ MIC
⑥ HOOK

MIC connector (Front view)

- The following test cable is recommended.

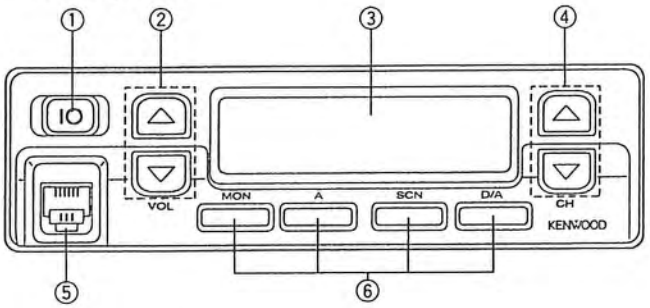


Test cable for microphone input

ADJUSTMENT

Adjustment Location

- **TK-760 (32-channel model)**
  Front panel



① POWER switch
Press to turn the power ON or OFF.

② VOLUME [▲] / [▼] buttons
Press [▲] to increase the volume or [▼] to decrease the volume. To quickly step the volume up or down, hold down [▲] or [▼] respectively.

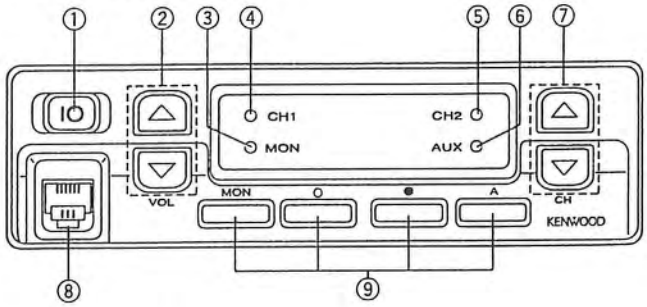
③ Display
See below for more details.

④ CHANNEL [▲] / [▼] buttons
Press [▲] to select the next higher channel or [▼] to select the next lower channel. You can choose from a maximum of 32 channels programmed by the dealer. To quickly step upward or down ward through the channels, hold down [▲] or [▼] respectively.

⑤ Microphone connector
Insert the 6-pin modular connector plug of the microphone until the locking tab clicks.

⑥ Function buttons
The functions of these buttons are dependent on dealer programming.

- **TK-762 (2-channel model)**
  Front panel



① POWER switch
Press to turn the power ON or OFF.

② VOLUME [▲] / [▼] buttons
Press [▲] to increase the volume or [▼] to decrease the volume. To quickly step the volume up or down, hold down [▲] or [▼] respectively.

③ MON indicator
Lights when the function programmed by your dealer is activated.

④ CH1 indicator
Lights orange when channel 1 is selected. Lights red while transmitting. Lights green when signals are present on the currently selected channel.

⑤ CH2 indicator
Lights orange when channel 2 is selected. Lights red while transmitting. Lights green when signals are present on the currently selected channel.

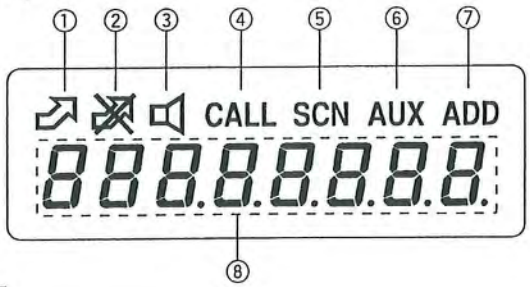
⑥ AUX indicator
Lights when the auxiliary function programmed by the dealer is activated.

⑦ CHANNEL [▲] / [▼] buttons
Press to select either channel 1 or channel 2.

⑧ Microphone connector
Insert the 6-pin modular connector plug of the microphone until the locking tab clicks.

⑨ Function buttons
The functions of these buttons are dependent on dealer programming.

Display



①
Visible while transmitting.

②
Visiible when signals are present on the currently selected channel.

③
Appears when the Monitor function is activated.

④ CALL
Blinks when the correct DTMF code for Code Squelch or tones for 2-Tone Signaling are received. Also appears while transmitting on a channel that uses Code Squelch or 2-Tone Signaling.

⑤ SCN
Appears when the Scan function is activated.

⑥ AUX
Appears when the auxiliary function programmed by the dealer is activated.

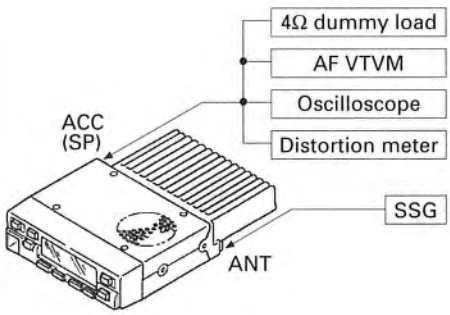
⑦ ADD
Appears when the currently selected channel is included in the scan list.

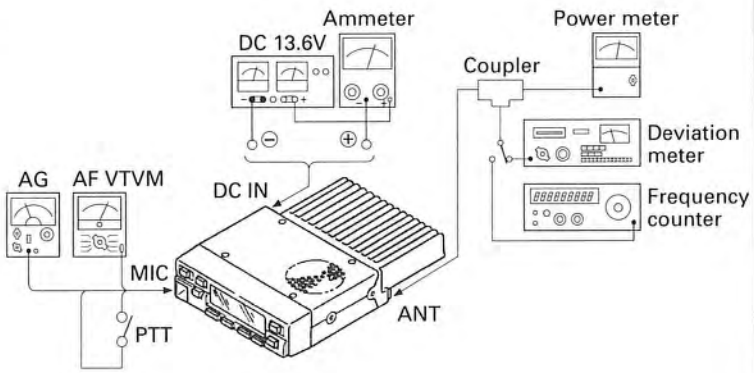
⑧
Displays a channel number and other information.

ADJUSTMENT

Common Section

<table>
<tr><th rowspan="2">Item</th><th rowspan="2">Condition</th><th colspan="3">Measurement</th><th colspan="3">Adjustment</th><th rowspan="2">Specifications/Remarks</th></tr>
<tr><th>Test-equipment</th><th>Unit</th><th>Terminal</th><th>Unit</th><th>Parts</th><th>Method</th></tr>
<tr><td>1. Memory frequency</td><td colspan="8">• Frequency range (MHz)
148~174 : K, HK
136~156 : K2, HK2

• Adjustment frequency (MHz)
<table><tr><td rowspan="2">CH</td><td colspan="2">K, HK</td><td colspan="2">K2, HK2</td><td rowspan="2"></td></tr><tr><td>TX</td><td>RX</td><td>TX</td><td>RX</td></tr><tr><td>1</td><td>161.000</td><td>161.030</td><td>146.000</td><td>146.030</td><td>Center</td></tr><tr><td>2</td><td>148.000</td><td>148.030</td><td>136.000</td><td>136.030</td><td>Low</td></tr><tr><td>3</td><td>174.000</td><td>173.970</td><td>156.000</td><td>155.970</td><td>High</td></tr></table>
• Signaling
<table><tr><td></td><td>Encode</td><td>Decode</td></tr><tr><td>1</td><td>–</td><td>–</td></tr><tr><td>2</td><td>100Hz square wave</td><td>–</td></tr><tr><td>3</td><td>QT (67.0Hz) tone</td><td>QT (67.0Hz)</td></tr><tr><td>4</td><td>QT (151.4Hz) tone</td><td>QT (151.4Hz)</td></tr><tr><td>5</td><td>QT (210.7Hz) tone</td><td>QT (210.7Hz)</td></tr><tr><td>6</td><td>DQT (023N) code</td><td>DQT (023N)</td></tr><tr><td>7</td><td>DTMF 1633Hz</td><td>–</td></tr><tr><td>8</td><td>DTMF 852/1209Hz</td><td>–</td></tr><tr><td>9</td><td>–</td><td>2-tone slow</td></tr><tr><td>10</td><td>–</td><td>DTMF</td></tr></table></td></tr>
<tr><td>2. Setting</td><td colspan="8">• Receiver section
The indicated SSG output level are for maximum output.
Whenever there is no modulation designation, standard modulation (MOD : 1kHz, DEV : ±3kHz) is indicated.
 

• Transmitter section
 
</td></tr>
<tr><td>3. Panel test mode setting</td><td colspan="8">The D/A switch is held on with turn on the set. The D/A switch holding about 1 second after turn on the set.
But, if this mode is disabled by FPU then begin the USER MODE.</td></tr>
<tr><td>4. Panel tuning mode setting</td><td colspan="8">The SCAN switch is held on with turn on the set. The SCAN switch holding about 1 second after turn on the set.
But, if this mode is disabled by FPU then begin the USER MODE.</td></tr>
<tr><td>5. PLL lock voltage</td><td>1) Set : Panel test mode.
CH : 3 – Sig : 1
Transmit and receive.</td><td rowspan="2">DVM

Dummy load</td><td rowspan="2">TX-RX (A/2)

Rear panel</td><td rowspan="2">TP1

ANT</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2">Check the voltage.</td><td>Less than 8.3V.</td></tr>
<tr><td>2) CH : 2 – Sig : 1
Transmit and receive.</td><td>More than 1.6V.</td></tr>
</table>

ADJUSTMENT

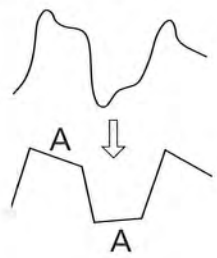
Receiver Section

Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
1. Sensitivity	1) Set : Panel tuning mode. Tuning item : 8L CH : 2 – Sig : 1 SSG frequency : 148.030MHz **K,HK** : 136.030MHz **K2,HK2** SSG output : –118dBm SSG MOD : 1kHz AF output : 1V/4Ω	SSG AF VTVM Distortion meter Oscilloscope AG	Rear panel	ANT EXT. SP	TX-RX (A/2)	L205~ L208	Adjust for maximum SINAD.	Maximize the SINAD them. SINAD is more than 12dB.
	2) Tuning item : 8C CH : 1 – Sig : 1 SSG frequency : 161.030MHz **K,HK** : 146.030MHz **K2,HK2**				Front panel	SCN or D/A key	Up/down for tuning data.	
	3) Tuning item : 8H CH : 3 – Sig : 1 SSG frequency : 173.970MHz **K,HK** : 155.970MHz **K2,HK2**							
2. Squelch	1) Set : Panel tuning mode. Tuning item : 9 CH : 1 – Sig : 1 SSG frequency : 161.030MHz **K,HK** : 146.030MHz **K2,HK2** SSG output : Value when 3dB is subtracted from the sensitivity value of 12dB SINAD. SSG MOD : 1kHz							Squelch closed once. Then squelch must be opened.
	2) Set : Panel test mode. CH : 1 – Sig : 1 SSG output : 8dB SINAD level						Check	Squelch must be opened.
	3) SSG output : OFF							Squelch must be closed.

Transmitter Section

Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
1. Frequency	1) Set : Panel tuning mode. Tuning item : 1 CH : 1 – Sig : 1 PTT : ON	Powermeter f. counter	Rear panel	ANT	Front panel	SCN or D/A key	Up/down for tuning data.	161.000MHz ± 200Hz **K,HK** 146.000MHz ± 200Hz **K2,HK2**
2. Maximum power check	1) Set panel tuning mode. Tuning item : 2 CH : 1 – Sig : 1 PTT : ON	Powermeter Ammeter	Rear panel	ANT			Check	More than 27.0W **K,K2** More than 46.0W **HK,HK2**

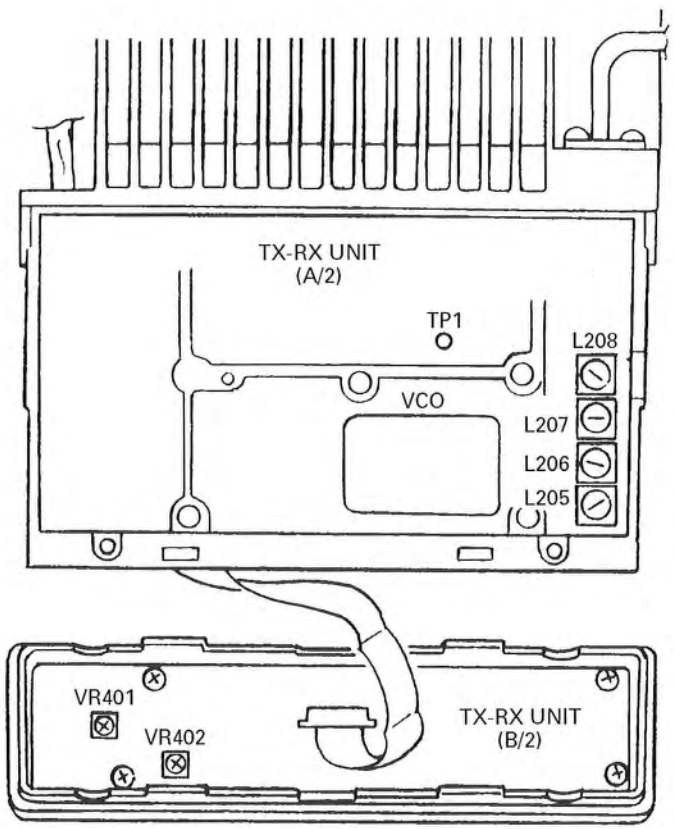
ADJUSTMENT

Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
3. Power High	1) Set : Panel tuning mode. Tuning item : 2L CH : 2 – Sig : 1 PTT : ON	Powermeter Ammeter	Rear panel	ANT	Front panel	SCN or D/A key	Up/down for tuning data.	25.0W±1W **K,K2** 45.0W±1W **HK,HK2**
	2) Tuning item : 2C CH : 1 – Sig : 1 PTT : ON							**K,K2** 25.0W±1W, Less than 7.0A **HK,HK2** 45.0W±1W, Less than 11.0A
	3) Tuning item : 2H CH : 3 – Sig : 1 PTT : ON							25.0W±1W **K,K2** 45.0W±1W **HK,HK2**
Low	4) Tuning item : 3 CH : 1 – Sig : 1 PTT : ON							Less than 2.0W **K,K2** Less than 10.0W **HK,HK2**
4. DQT balance	1) Set : Panel tuning mode. Tuning item : 4 CH : 1 – Sig : 6 Deviation meter filter LPF : 3kHz HPF : OFF De-emphasis : OFF PTT : ON	Powermeter Deviation meter Oscilloscope AF VTVM AG	Rear panel Front panel	ANT MIC	Front panel	SCN or D/A key	Up/down for tuning data. Make the de-modulation wave-form neat.	Flat the A parts. 
	2) Ch : n1 – Sig : 6 (Narrow) PTT : ON							
5. Maximum deviation	1) Set : Panel tuning mode. Tuning item : 5L CH : 2 – Sig : 1 AG : 1kHz/50mV Deviation meter filter LPF : 15kHz HPF : OFF De-emphasis : OFF PTT : ON						Up/down for tuning data. According to the larger +, –.	Wide ±4.1kHz ± 0.1kHz Narrow ±2.05kHz ± 0.05kHz Oscilloscope waveform is is not abnormal.
	2) CH : n2 – Sig : 1 (Narrow) PTT : ON							
	3) Tuning item : 5C CH : 1 – Sig : 1 PTT : ON							
	4) CH : n1 – Sig : 1 (Narrow) PTT : ON							
	5) Tuning item : 5H CH : 3 – Sig : 1 PTT : ON							
	6) CH : n3 – Sig : 1 (Narrow) PTT : ON							
6. MIC sensitivity	1) Set : Panel test mode. CH : 1 – Sig : 1 AG : 1kHz/5mV Deviation meter filter LPF : 15kHz HPF : OFF De-emphasis : OFF PTT : ON						Check	±2.5~±3.5kHz Oscilloscope waveform is not abnormal. If you need to adjust, you can adjust by VR401 on the TX-RX unit (B/2).

ADJUSTMENT

Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
7. QT deviation	1) Set : Panel tuning mode. Tuning item : 6 CH : 1 – Sig : 4 Deviation meter filter LPF : 3kHz HPF : 50Hz PTT : ON	Powermeter Deviation meter Oscilloscope AF VTVM AG	Rear panel Front panel	ANT MIC	Front panel	SCN or D/A key	Up/down for tuning data.	Wide 0.75kHz±50Hz Narrow 0.35kHz±25Hz
	2) CH : n1 – Sig : 4 (Narrow) PTT : ON							
8. DQT deviation	1) Set : Panel tuning mode. Tuning item : 7 CH : 1 – Sig : 6 Deviation meter filter LPF : 3kHz HPF : OFF PTT : ON							
	2) CH : n1 – Sig : 6 (Narrow) PTT : ON							
9. DTMF deviation check	1) Set : Panel test mode. CH : 1 – Sig : 8 Deviation meter filter LPF : 15kHz HPF : OFF PTT : ON						Check	±2.6~±3.9kHz If you need to adjust, you can adjust by VR402 on the TX-RX unit (B/2).

Adjustment Points



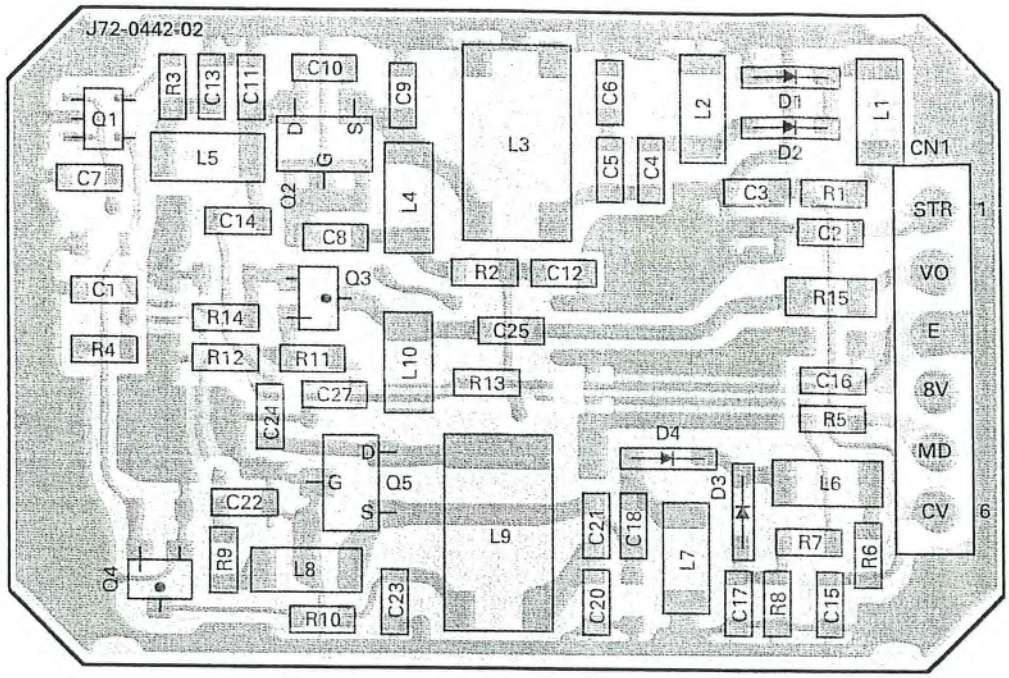
L205~208 : Sensitivity
VR401 : MIC sensitivity
VR402 : DTMF deviation

TERMINAL FUNCTION

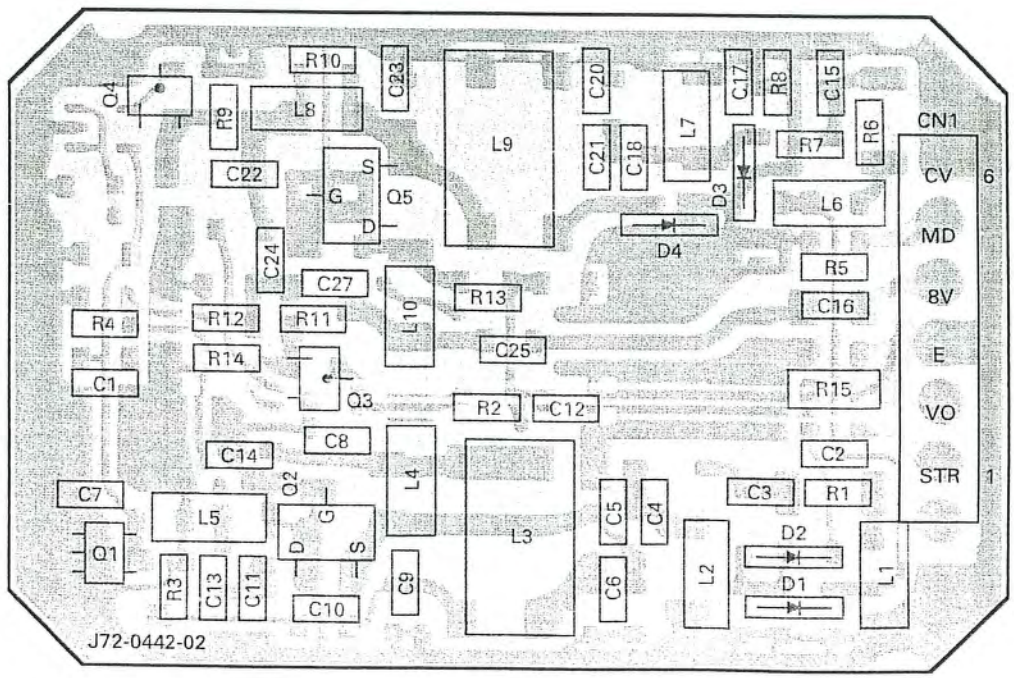
CN No.	Pin No.	Pin name	I/O	Function
TX-RX UNIT (A/2) : TX-RX section				
CN1	1	DEO	O	Detection signal output (650mV/47kΩ).
	2	AHK	I	External HOOK signal input.
To				On hook : "L", Off hook : "H"
KCT-19	3	IGN	I	Ignition input for KCT-18.
	4	DI	I	External modulation signal input.
	5	ME	–	MIC earth.
	6	MI	I/O	Internal MIC signal output, Externa MIC signal input (Standard modulation at 600Ω, 5mV).
	7	PTT	I	External PTT signal input. GND : TX, Open : RX
	8	SQ	O	Squelch signal output. Carrier in : Active "H"
CN2	1	AM	I	Audio mute signal input. Mute : "H", Unmute : Open
TO	2	MM	I	MIC mute signal input.
KCT-19				Mute : "H", Unmute : Open
	3	TXS	O	Signal indicating whether the transceiver is transmitting or not. TX : "H", Another condition : "L"
CN4	1	HOR	O	Horn alert control signal output. Signal output for horn relay drive (open collector), "L" level during horn drive : max. sink current 100mA.
To KCT-19 or KAP-1	2	E	–	Earth.
	3	SB	O	Power output after power switch (+13.6V±15%, 1.8A max.).
CN5	1	SP	O	Output for internal/external speaker.
To INT. SP or KCT-19	2	E	–	Earth.
CN6	1	E	–	Earth.
	2	MO	I	Modulation signal input.
To	3	PSW	I	Power switch control signal input. Power switch on : 0V
Control section	4	DEO	O	Detection signal output.
	5	MM	O	MIC mute signal output.
	6	DI	O	External modulation signal output.
	7	NC	–	Not connection.
	8	AFO	I	Audio signal input.
	9	8C	O	Common 8V output.
	10	ME	–	MIC earth.
	11	MI	I/O	Internal MIC signal input. External MIC signal output.
	12	AHK	O	External HOOK signal output. On hook : "L", Off hook : "H"
	13	SB	O	Power output after power switch.
	14	SB	O	(+13.6V±15%)
	15	KEY	I	KEY signal input. TX : "H"
	16	CK	I	Clock input for PLL/shift register/D-A converter.
	17	DT	I	Data input for PLL/shift register/D-A converter.
	18	BUSY	O	S-meter voltage output (Not use).
	19	LD	O	Lock detect output for PLL. Lock : "H", Unlock : "L"
	20	ES	I	Enable input for shift register.
	21	TXS	I	Signal indicating whether the transceiver is transmitting or not. TX : "H", Another condition : "L"
	22	HNC	I	Horn control signal input. Horn on : "H", Horn off : "L"
	23	EP	I	Enable input for PLL.
	24	EN	I	Enable input for D-A converter.
	25	APTT	O	External PTT signal output.
	26	E	–	Earth.

CN No.	Pin No.	Pin name	I/O	Function
CN201	1	PA	O	Relay for PA function in KAP-1 control signal. PA on : "H", PA off : "L"
To KAP-1	2	SPO	I	Audio signal input from KAP-1.
	3	SPI	O	Audio signal output to KAP-1.
J1		EXT SP	O	Output for external speaker (4W/5% distortion).
		DC 13.6V	I	Power supply input (DC 13.6V±15%).
		ANT	I/O	Connect for ANT connector.
TX-RX UNIT (B/2) : Control section				
CN401	1	E	–	Earth.
	2	MO	O	Modulation signal output.
To	3	PSW	O	Power switch control signal output. Power switch on : 0V
TX-RX section	4	DEO	I	Detection signal input.
	5	MM	I	MIC mute signal input.
	6	DI	i	External modulation signal input.
	7	NC	–	Not connection.
	8	AFO	O	Audio signal output.
	9	8C	I	Common 8V input.
	10	ME	–	MIC earth.
	11	MI	O/I	Internal MIC signal output. External MIC signal input.
	12	AHK	I	External HOOK signal input. On hook : "L", Off hook : "H"
	13	SB	I	Power output after power switch.
	14	SB	I	(+13.6V±15%)
	15	KEY	O	KEY signal output. TX : "H"
	16	CK	O	Clock output for PLL/shift register/D-A converter.
	17	DT	O	Data output for PLL/shift register/D-A converter.
	18	BUSY	I	S-meter voltage input (Not use).
	19	LD	I	Lock detect input for PLL. Lock : "H", Unlock : "L"
	20	ES	O	Enable output for shift register.
	21	TXS	O	Signal indicating whether the transceiver is transmitting or not. TX : "H", Another condition : "L"
	22	HNC	O	Horn control signal output. Horn on : "H", Horn off : "L"
	23	EP	O	Enable output for PLL.
	24	EN	O	Enable output for D-A converter.
	25	APTT	I	External PTT signal input.
	26	E	–	Earth.
J401	1	SB	O	Power output after power switch (+13.6V±15%, 1.8A max.).
To	2	E	–	Earth.
MIC jack	3	PTT	I/O	PTT signal input (GND : TX, Open : RX). Serial data input/output.
	4	ME	–	MIC earth.
	5	MI	I	MIC signal input. (Standard modulation at 600Ω, 5mV)
	6	HK	I/O	Hook signal input. On hook : "L", Off hook : "H" Serial data input/output.
VCO : Sub unit				
CN1	1	STR	O	TX/RX VCO switch signal output.
	2	VO	O	VCO signal output.
	3	E	–	Earth.
	4	8V	I	8V input for VCO.
	5	MD	I	Modulation signal input.
	6	CV	O	PLL lock voltage output.

VCO (X58-4360-XX) Component side view
-10 : K,HK -11 : K2,HK2



VCO (X58-4360-XX) Foil side view
-10 : K,HK -11 : K2,HK2

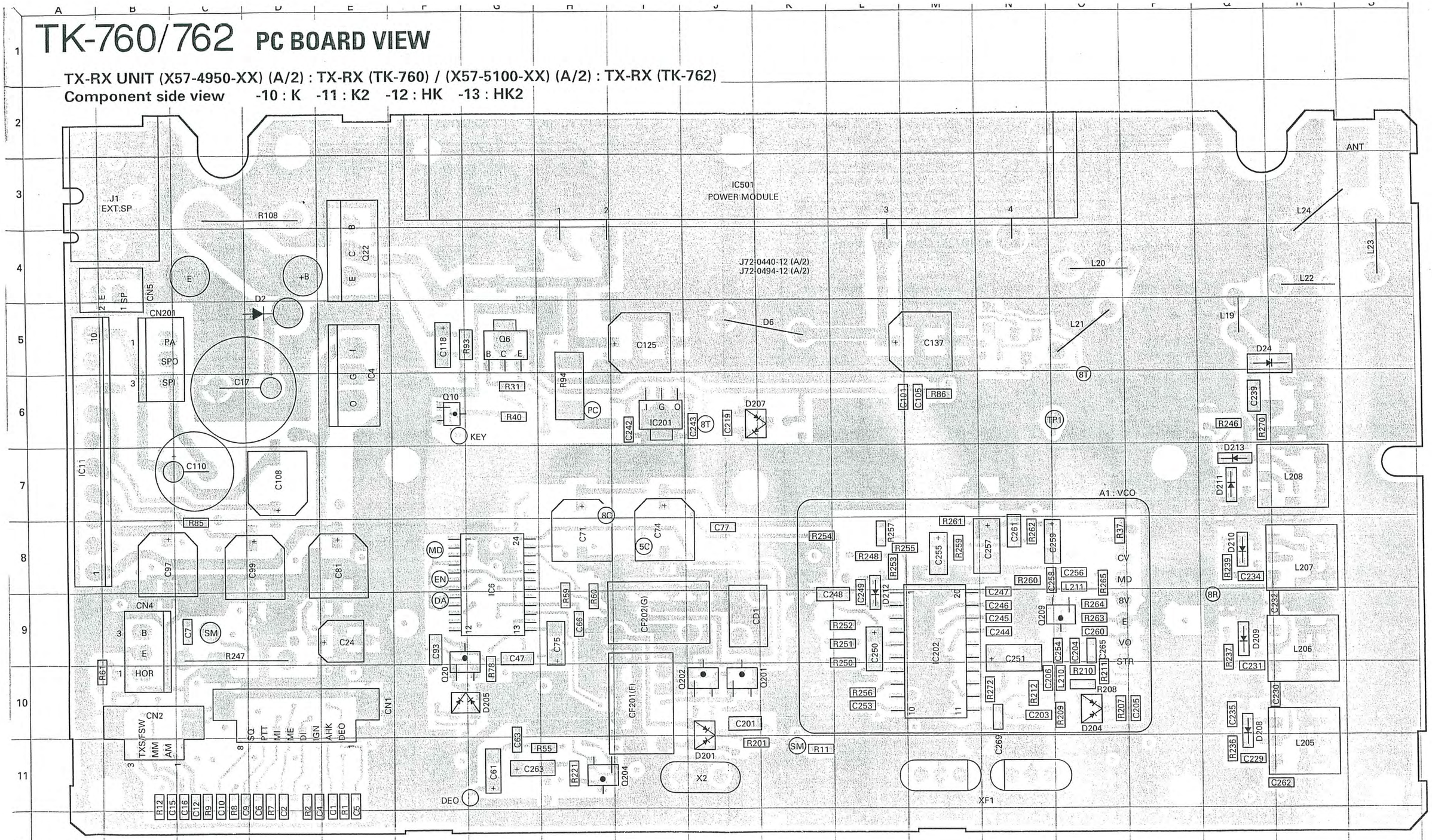


Component side
Foil side

TK-760/762 PC BOARD VIEW

TX-RX UNIT (X57-4950-XX) (A/2) : TX-RX (TK-760) / (X57-5100-XX) (A/2) : TX-RX (TK-762)

Component side view -10 : K -11 : K2 -12 : HK -13 : HK2



Ref No.	Address	Ref No.	Address	Ref No.	Address
IC4	5E	Q22	4E	D204	10O
IC6	8G	Q201	10J	D205	10G
IC11	7A	Q202	10J	D207	6J
IC201	6I	Q204	11H	D208	10Q
IC202	9M	Q209	9O	D209	9Q
IC501	3J	D2	5D	D210	8Q
Q6	5G	D6	5K	D211	7Q
Q10	6F	D24	5Q	D212	8L
Q20	10F	D201	10J	D213	7Q

Component side

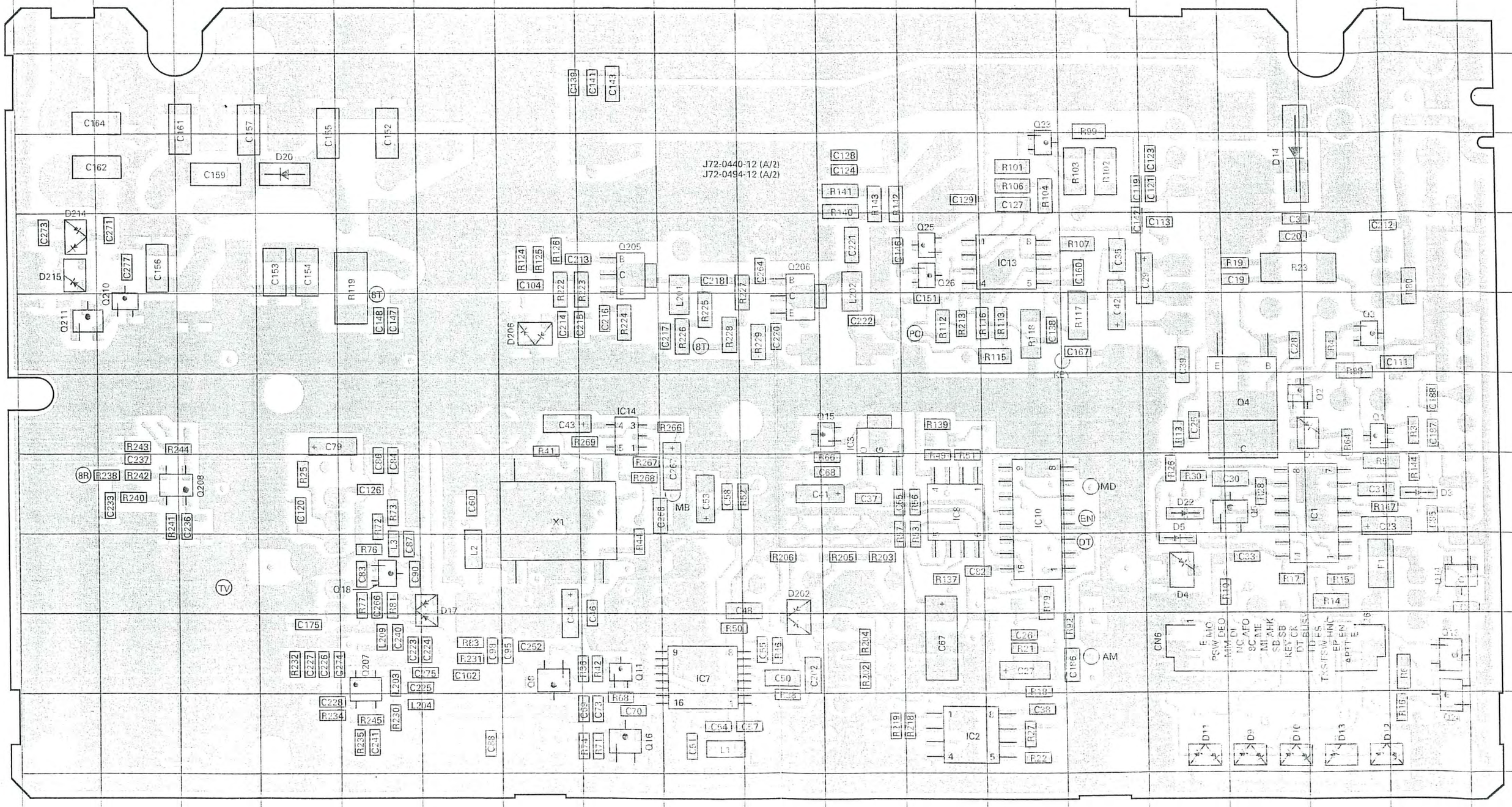
Pattern 1
Pattern 2
Pattern 3
Pattern 4

Foil side

PC BOARD VIEW TK-760/762

TX-RX UNIT (X57-4950-XX) (A/2) : TX-RX (TK-760) / (X57-5100-XX) (A/2) : TX-RX (TK-762)

Foil side view -10 : K -11 : K2 -12 : HK -13 : HK2



Ref No.	Address	Ref No.	Address	Ref No.	Address	Ref No.	Address	Ref No.	Address	Ref No.	Address
IC1	8Q	Q1	7Q	Q14	9R	Q205	5H	D4	9O	D17	9F
IC2	11L	Q2	7P	Q15	7K	Q206	5J	D5	9O	D20	4D
IC3	7K	Q3	6Q	Q16	11H	Q207	10E	D9	11P	D22	8O
IC7	10I	Q4	7P	Q18	9E	Q208	8C	D10	11P	D202	9J
IC8	8L	Q5	8P	Q23	4M	Q210	6B	D11	11O	D206	6G
IC10	8M	Q8	10G	Q24	11R	Q211	6A	D12	11Q	D214	5A
IC13	5M	Q11	10H	Q25	5L	D1	7Q	D13	11Q	D215	5A
IC14	7H	Q13	10R	Q26	5L	D3	8R	D14	4P		

Component side

Pattern 1

Pattern 2

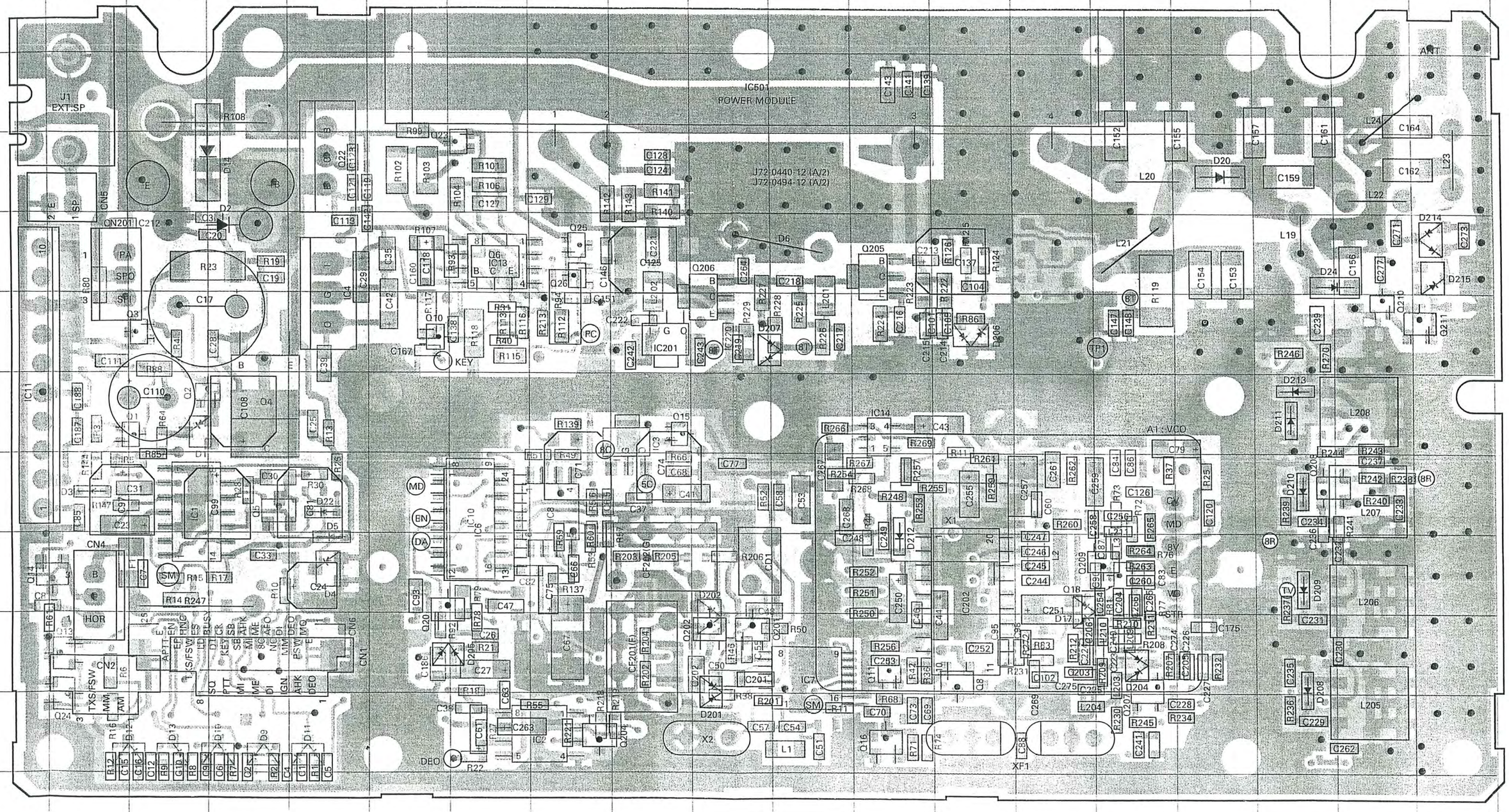
Pattern 3

Pattern 4

Foil side

TK-760/762 PC BOARD VIEW

TX-RX UNIT (X57-4950-XX) (A/2) : TX-RX (TK-760) / (X57-5100-XX) (A/2) : TX-RX (TK-762)
Component side view + Foil side -10 : K -11 : K2 -12 : HK -13 : HK2



	C152	C271	C273	R213	D2	D14	D214	D215	Q210	Q211
-10	YES	NO	NO	NO	NO	YES	NO	NO	NO	NO
-11	YES	NO	NO	YES	NO	YES	NO	NO	NO	NO
-12	NO	YES	YES	NO	YES	NO	YES	YES	YES	YES
-13	YES	YES	YES	NO	YES	NO	YES	YES	YES	YES

Ref No.	Address	Ref No.	Address	Ref No.	Address	Ref No.	Address	Ref No.	Address	Ref No.	Address	Ref No.	Address	Ref No.	Address	Ref No.	Address
IC1	8C	IC13	5G	Q5	8D	Q18	9O	Q204	11H	D2	5D	D13	11C	D205	10G	D214	5S
IC2	11H	IC14	7L	Q6	5G	Q20	10F	Q205	5L	D3	8B	D14	4D	D206	6M	D215	5S
IC3	7I	IC201	6I	Q8	10M	Q22	4E	Q206	5J	D4	9E	D17	10N	D207	6J		
IC4	5E	IC202	9M	Q10	6F	Q23	4G	Q207	11O	D5	9E	D20	4P	D208	10Q		
IC6	8G	IC501	3J	Q11	10L	Q24	11B	Q208	8Q	D6	5K	D22	8E	D209	9Q		
IC7	10K	Q1	7C	Q13	10B	Q25	5H	Q209	9O	D9	11D	D24	5Q	D210	8Q		
IC8	8H	Q2	7C	Q14	9B	Q26	5H	Q210	6R	D10	11D	D201	10J	D211	7Q		
IC10	8G	Q3	6C	Q15	7I	Q201	10J	Q211	6S	D11	11E	D202	9J	D212	8L		
IC11	7A	Q4	7D	Q16	11L	Q202	10J	D1	7C	D12	11C	D204	10O	D213	7Q		

Component side

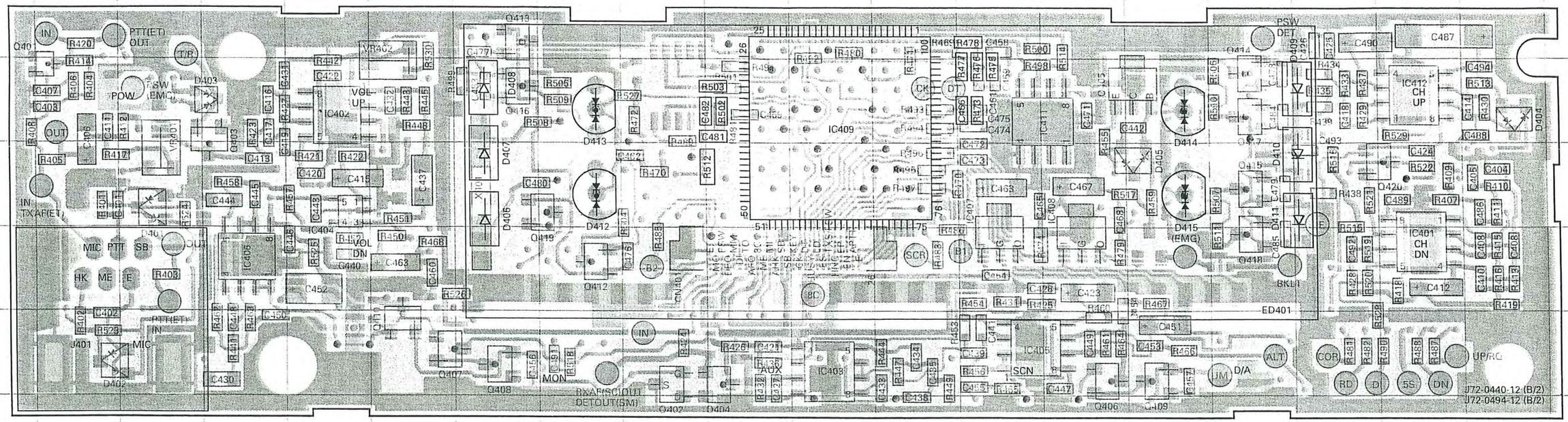
Pattern 1
Pattern 2
Pattern 3
Pattern 4

Foil side

Connect 1 and 4

TX-RX UNIT (X57-4950-XX) (B/2) : CONTROL (TK-760) / (X57-5100-XX) (B/2) : CONTROL (TK-762)

Component side view + Foil side -10 : K -11 : K2 -12 : HK -13 : HK2


IC401 CH UP
IC412 CH DN
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IC411
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VR401
VR402
VOL UP
VOL DN
SW (EMG)
POW
PTT(ET) OUT
PTT(ET) IN
IN TXA(ET)
MIC
PTT
SB
HK
ME
IE
SCN
AUX
MON
D/A
ALT
COR
RD
DI
5S
DN
UP/RC
BKLT
PSW DET
ED401
J401
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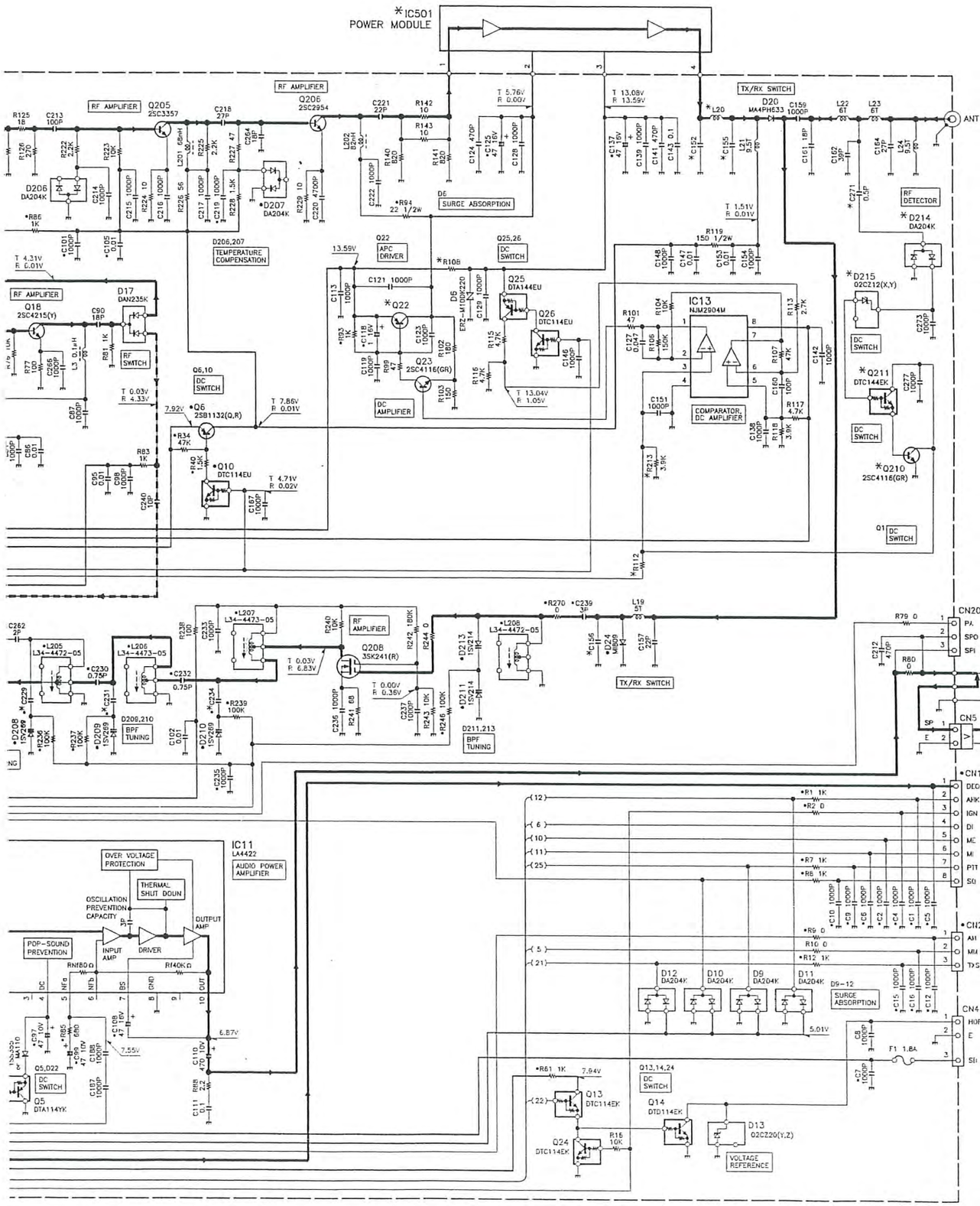


TK-760

USE FOR		IC501
X57-4950-10	K	M67741H-32
X57-4950-11	K2	M67741L-32
X57-4950-12	HK	M67781H-32
X57-4950-13	HK2	M67781L-32

TK-762

USE FOR		IC501
X57-5100-10	K	M67741H-32
X57-5100-11	K2	M67741L-32
X57-5100-12	HK	M67781H-32
X57-5100-13	HK2	M67781L-32

TK-760

USE FOR		R25	R51	R108	R112	R213	C152	C155	C156	C203,204	C229	C231	C234	C265,269	C271,273	L20	L209
X57-4950-10	K	120K	100K	0.047 3W	4.7K	NO	7P	12P	22P	12P	15P	12P	9P	18P	NO	6T	150nH
X57-4950-11	K2	100K	33K	0.047 3W	4.7K	YES	12P	22P	18P	18P	18P	18P	18P	22P	NO	6T	68nH
X57-4950-12	HK	120K	100K	0.047 5W	47K	NO	NO	7P	22P	12P	15P	12P	9P	18P	YES	2.5T	150nH
X57-4950-13	HK2	100K	100K	0.047 5W	47K	NO	22P	22P	18P	18P	18P	18P	18P	22P	YES	6T	68nH

TK-762

USE FOR		R25	R51	R108	R112	R213	C152	C155	C156	C203,204	C229	C231	C234	C265,269	C271,273	L20	L209
X57-5100-10	K	120K	100K	0.047 3W	4.7K	NO	12P	12P	22P	12P	15P	12P	9P	18P	NO	6T	150nH
X57-5100-11	K2	100K	33K	0.047 3W	4.7K	YES	12P	22P	18P	18P	18P	18P	18P	22P	NO	6T	68nH
X57-5100-12	HK	120K	100K	0.047 5W	47K	NO	NO	7P	22P	12P	15P	12P	9P	18P	YES	2.5T	150nH
X57-5100-13	HK2	100K	100K	0.047 5W	47K	NO	22P	22P	18P	18P	18P	18P	18P	22P	YES	6T	68nH

TK-760

USE FOR		Q22	Q210,211	D2	D14	D214,215	A1
X57-4950-10	K	2SB1565(E,F)	NO	NO	YES	NO	X58-4360-10
X57-4950-11	K2	2SB1565(E,F)	NO	NO	YES	NO	X58-4360-11
X57-4950-12	HK	2SA1757(E,F)	YES	YES	NO	YES	X58-4360-10
X57-4950-13	HK2	2SA1757(E,F)	YES	YES	NO	YES	X58-4360-11

TK-762

USE FOR		Q22	Q210,211	D2	D14	D214,215	A1
X57-5100-10	K	2SB1565(E,F)	NO	NO	YES	NO	X58-4360-10
X57-5100-11	K2	2SB1565(E,F)	NO	NO	YES	NO	X58-4360-11
X57-5100-12	HK	2SA1757(E,F)	YES	YES	NO	YES	X58-4360-10
X57-5100-13	HK2	2SA1757(E,F)	YES	YES	NO	YES	X58-4360-11

D1 : 02CZ18(X,Y)
D2 : DSA3A1-FK
D3,5,22,212 : 1SS355 or MA110
D4 : 02CZ15(X,Y)
D6 : ERZ-M10DK220
D9-12,206,207,214 : DA204K
D13 : 02CZ20(Y,Z)
D14 : DSM3MA1
D17,204 : DAN235K
D20 : MA4PH633
D24 : MI809
D201,202,205 : DAN202K
D208-210 : 1SV269
D211,213 : 1SV214
D215 : 02CZ12(X,Y)

IC1 : BU4013BF
IC2 : NJM4558M
IC3 : NJM78L05UA
IC4 : TA7808S
IC6 : M62363FP
IC7 : MC3372V
IC8,13 : NJM2904M
IC10 : BU4094BCF
IC11 : LA4422
IC14 : TA75S01F
IC201 : TA78L09F or NJM78L09UA
IC202 : MC145190F

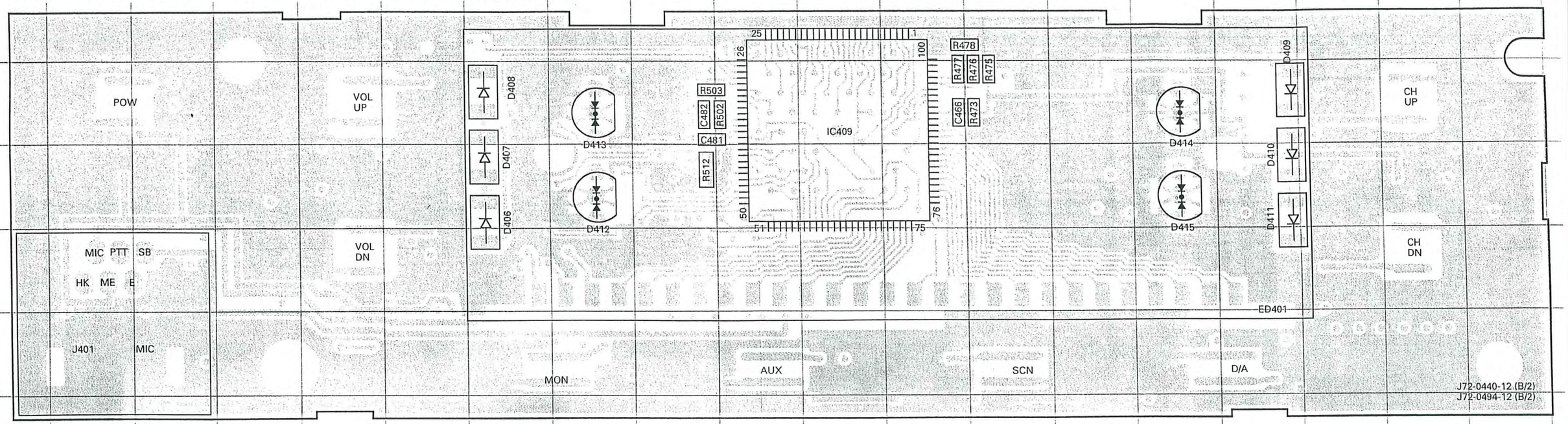
Q1 : DTA114EU
Q2,3,10,11,26 : DTC114EU
Q4 : 2SA1641(S,T)
Q5 : DTA114YK
Q6 : 2SB1132(Q,R)
Q8 : 2SA1362(Y)
Q13,24 : DTC114EK
Q14 : DTD114EK
Q15,23,210 : 2SC4116(GR)
Q16,209 : 2SC2059K(P)
Q18 : 2SC4215(Y)
Q20 : DTC363EK
Q22 : *
Q25 : DTA144EU
Q201 : DTA144EK
Q202,204 : DTC144EK
Q205 : 2SC3357
Q206 : 2SC2954
Q207 : SGM2014M
Q208 : 3SK241(R)

Note : • is parts of pattern 1

TK-760/762 PC BOARD VIEWS

TX-RX UNIT (X57-4950-XX) (B/2) : CONTROL (TK-760) / (X57-5100-XX) (B/2) : CONTROL (TK-762)

Component side view -10 : K -11 : K2 -12 : HK -13 : HK2



Ref No.	Address	Ref No.	Address
IC409	3K	D411	4P
D406	4G	D412	4H
D407	4G	D413	3H
D408	3G	D414	3O
D409	3P	D415	4O
D410	4P		

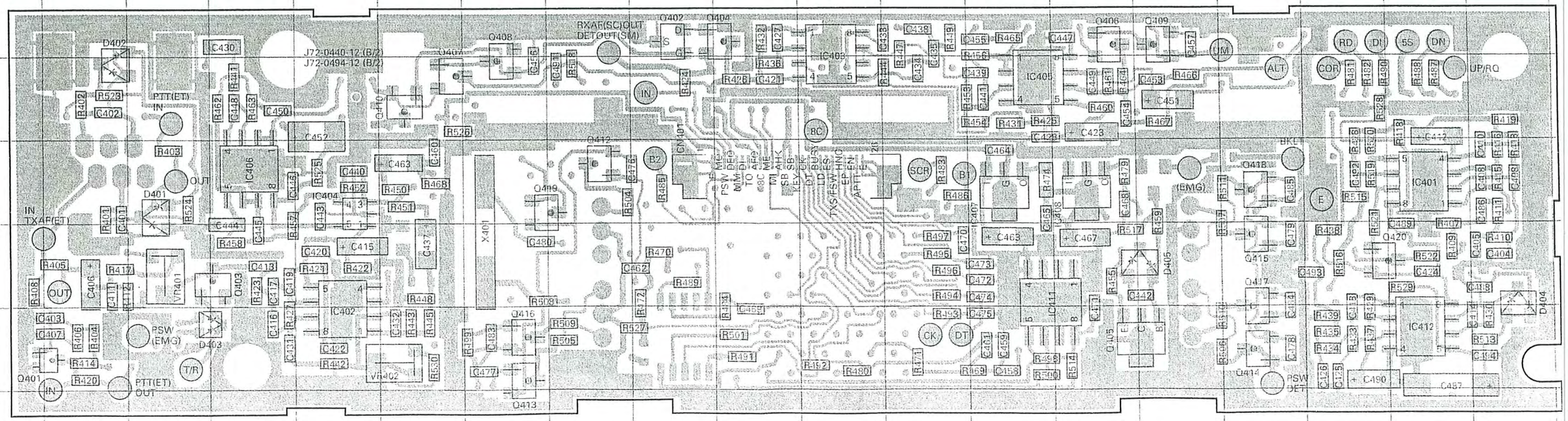
Component side

Pattern 1
Pattern 2
Pattern 3
Pattern 4

Foil side

TX-RX UNIT (X57-4950-XX) (B/2) : CONTROL (TK-760) / (X57-5100-XX) (B/2) : CONTROL (TK-762)

Foil side view -10 : K -11 : K2 -12 : HK -13 : HK2



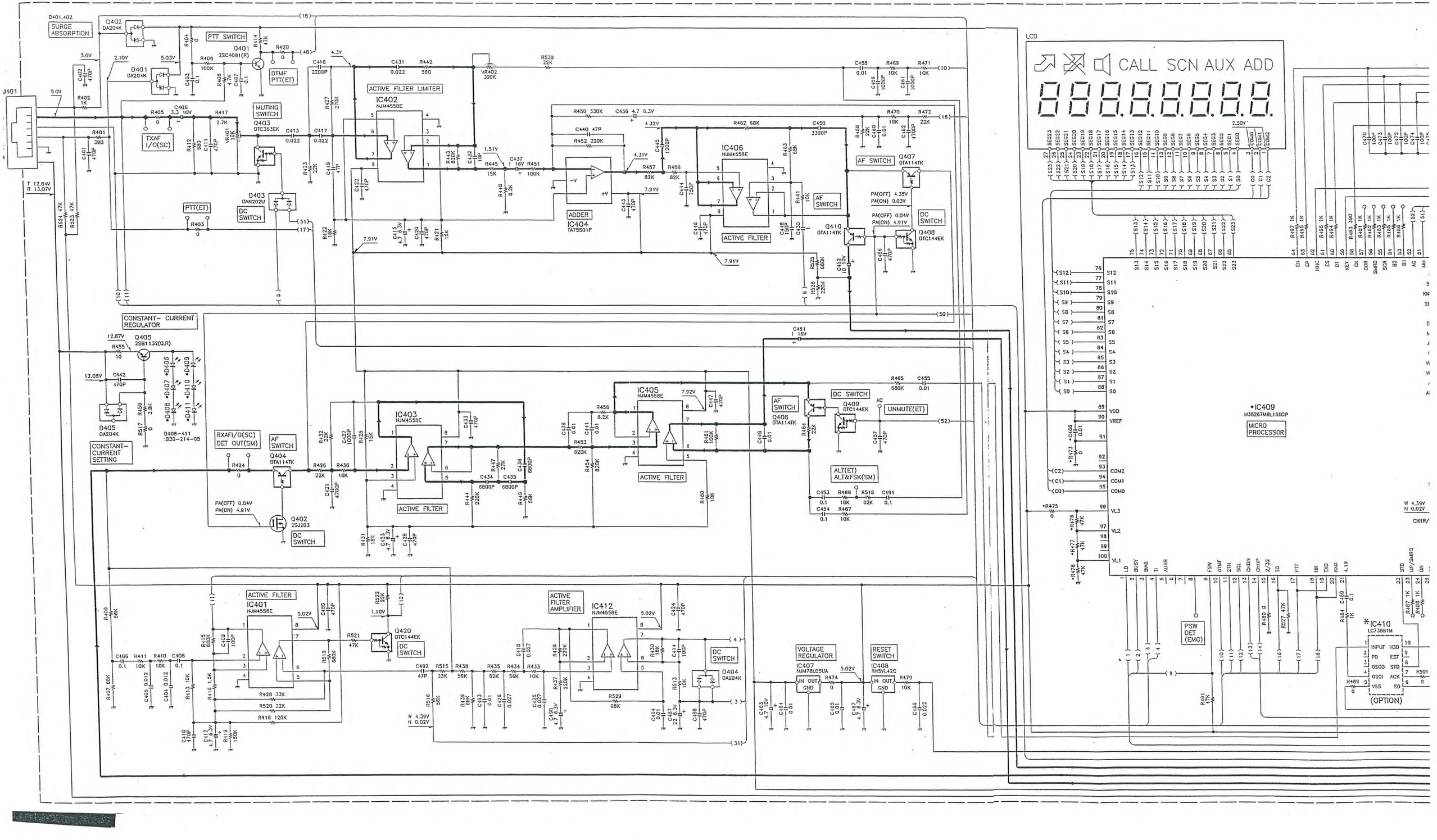
TX-RX UNIT (TX-RX SECTION) (X57-4950-XX) : TK-760
TX-RX UNIT (TX-RX SECTION) (X57-5100-XX) : TK-762

*A1 VCO UINT (X58-4360-XX)

USE FOR		C4	C5	C6	C10	C11	C18	C20	R10	L3	L9
X58-4360-10	K,HK	150P	12P	12P	15P	8P	56P	6P	150	L34-4485-05	L34-4429-05
X58-4360-11	K2,HK2	47P	7P	7P	4P	6P	27P	1.5P	180	L34-4449-05	L34-4484-05

TX-RX UNIT
(CONTROL SECTION)
(X57-) (B/2)

TX-RX UNIT (CONTROL SECTION) (X57-4950-XX) (B/2)



CIRCUIT DIAGRAM TK-760

IC401~403,405,406,412 : NJM4558E
IC404 : TA75S01F
IC407 : NJM78L05UA
IC408 : RH5VL42C
IC409 : M3B267MBL156GP
IC410 : LC73881M (OPTION)
IC411 : AT2408N10SI2.5

Q401 : 2SC4081(R)
Q402 : 2SJ203
Q403 : DTC363EK
Q404,406,407,410 : DTA114TK
Q405 : 2SB1132(Q,R)
Q408,409,420 : DTC144EK
Q419 : DTA144EK

D401,402,404,405 : DA204K
D403 : DAN202U
D406~411 : B30-2140-05

LCD
CALL SCN AUX ADD
2.50V

ADDER
IC404
TA75S01F

IC406
NJM4558E

AF SWITCH
Q407
DTA114TK

ACTIVE FILTER

PA(OFF) 4.35V
PA(ON) 0.03V
PA(OFF) 0.04V
PA(ON) 4.91V
DC SWITCH
Q408
DTC144EK
Q410
DTA114TK

IC405
NJM4558E

AF SWITCH
Q406
DTA114TK
DC SWITCH
Q409
DTC144EK
UNMUTE(ET)

ALT(ET)
ALT&FSK(SM)

ACTIVE FILTER AMPLIFIER
IC412
NJM4558E
DC SWITCH
D404
DA204K

VOLTAGE REGULATOR
IC407
NJM78L05UA

RESET SWITCH
IC408
RH5VL42C

*IC409
M38267M8L156GP
MICRO PROCESSOR

PSW DET (EMG)

*IC410
LC73881M
(OPTION)

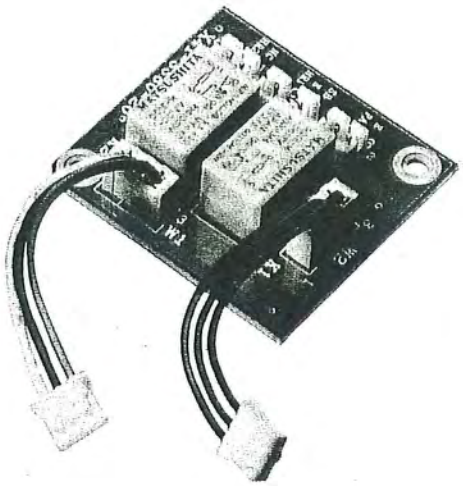
DT(SM)
CK(SM)
D/A
MON
AUX
SCN
VOL DN
VOL UP
CH UP
CH DN
POWER
PSW(EMG)
5S(SM)
Q419
DTA144EK
DC SWITCH

EEPROM
IC411
AT2408N10SI2.5

TX-RX UNIT
(TX-RX SECTION)
(X57-4950-XX) (A/2)
CN401
CN6

KAP-1 (PA/HA UNIT)

External View



Overview

This unit is designed as an option that is built into the TK-760/762 land mobile transceivers. It has a public address switching relay and a horn alert switching relay.

Main Features

- **Public address (PA) function**

The PA output switching relay is controlled by turning the PA function on and off. The PA output is directed to an external equipment through the KCT-19.

- **Horn alert (HA) function**

An external equipment can be controlled by turning the HA function on and off and using signaling decode output.

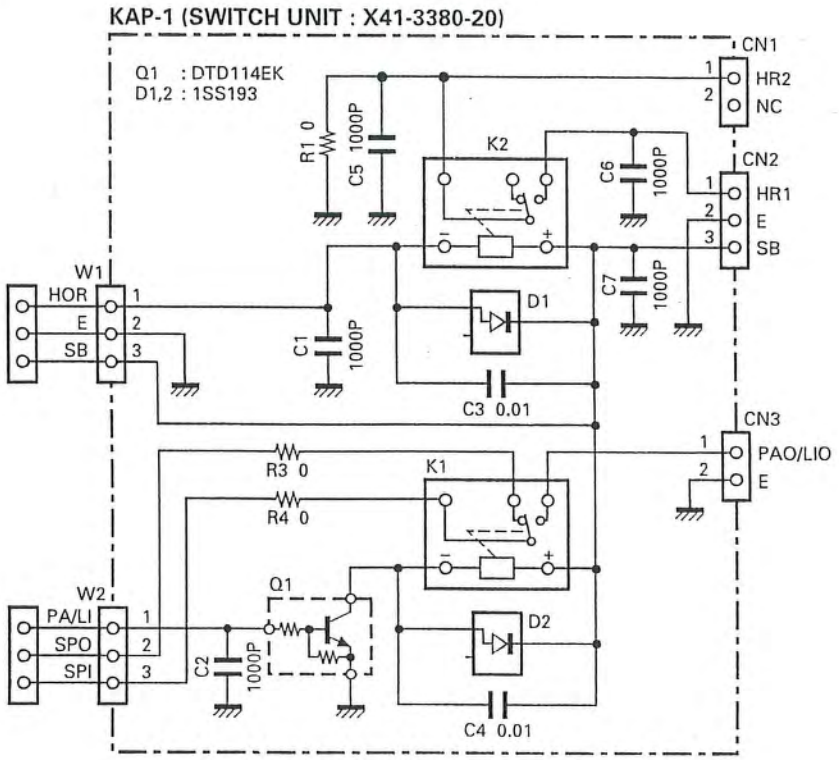
Part List

* : New parts

Ref. No.	New parts	Parts No.	Description
KAP-1			
		N87-2606-46	BRAZIER HEAD TAPTITE SCREW
	*	X41-3380-20	SWITCH UNIT
SWITCH UNIT (X41-3380-20)			
C1,2		CK73FB1H102K	CHIP C 1000PF K
C3,4		CK73FB1E103K	CHIP C 0.010UF K
C5-7		CK73FB1H102K	CHIP C 1000PF K
W1	*	E37-0630-05	LEAD WIRE WITH CONNECTOR
W2	*	E37-0631-05	LEAD WIRE WITH CONNECTOR
CN1		E40-3246-05	PIN ASSY (2P)
CN3		E40-3246-05	PIN ASSY (2P)
CN2		E40-3247-05	PIN ASSY (3P)
R1		R92-0670-05	CHIP R 0 OHM
R3,4		R92-0670-05	CHIP R 0 OHM
K1,2		S51-1420-05	RELAY
D1,2		1SS193	DIODE
Q1		DTD114EK	DIGITAL TRANSISTOR

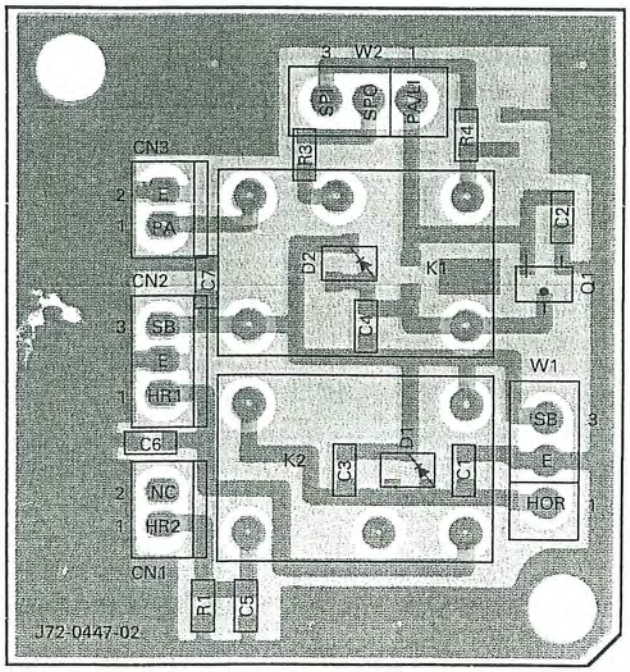
KAP-1 (PA/HA UNIT)

Circuit Diagram

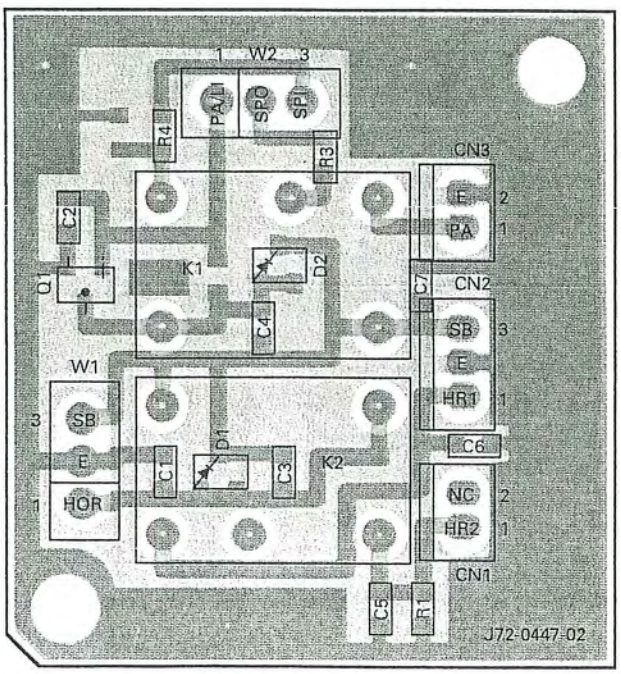


PC Board View

SW unit (X41-3380-20) Component side view



SW unit (X41-3380-20) Foil side view



Component side
Foil side

TK-760/762/H

SPECIFICATIONS

General

Frequency range	K, HK : 148 to 174MHz K2, HK2 : 136 to 156MHz
Number of channels	TK-760 : 32 semi-duplex channels TK-762 : 2 semi-duplex channels
Channel spacing	30/25/15/12.5kHz (PLL channel step 5kHz/6.25kHz)
Input voltage	13.6V DC negative ground
Current drain	0.4A on standby 1.0A on receive
	TK-760/762 : 8A on transmit TK-760H/762H : 12A on transmit
Duty cycle	Rceiver 100% Transmitter 20%
Temperature range	–30°C to +60°C (–22°F to +140°F)
Dimensions & Weight	140 (5.51) W x 40 (1.58) H x 170.3 (6.73) D mm (inch) 1.0kg (2.20lbs)

Receiver (Measurements made per EIA standard EIA-204-C)

RF input impedance	50Ω
Sensitivity (EIA 12dB SINAD)	0.25μV/Wide 0.33μV/Narrow
Selectivity	78dB/Wide 68dB/Narrow
Intermodulation	73dB/Wide 63dB/Narrow
Spurious and Image rejection	80dB
Audio power output	4W at 4Ω less than 5% distortion
Frequency stability	±0.0003% from –30°C to + 60°C
Channel frequency spread	26MHz/20MHz

Transmitter (Measurements made per EIA standard EIA-152-B)

RF power output	TK-760/762 : 25W TK-760H/762H : 45W
Spurious and Harmonics	70dB
Modulation	F3E, ±5kHz/±2.5kHz for 100% at 1000Hz
FM noise	Wide : 50dB Narrow : 43dB
Microphone impedance	Low impedance
Audio distortion	3% at 1kHz
Frequency stability	±0.0003% at –30°C to +60°C
Channel frequency speed	26MHz/20MHz

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1996-5/1996-10 (N) 1000