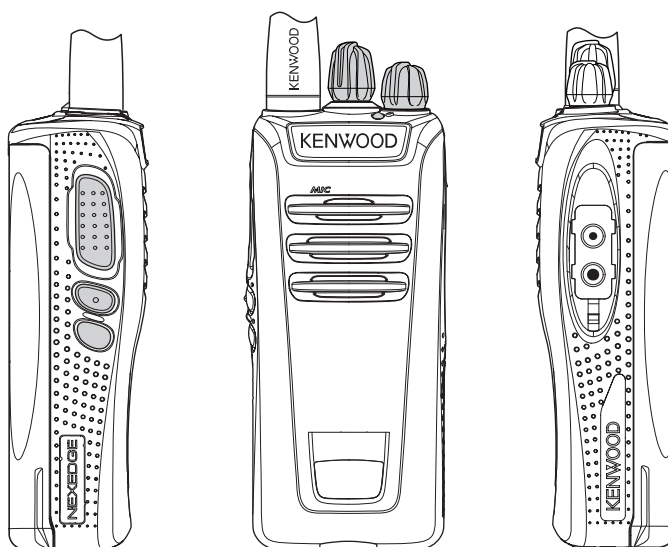


KENWOOD

SERVICE MANUAL

VHF DIGITAL TRANSCEIVER

NX-240, NX-240(V)



Note :

Lead free solder used in the board (material : Sn, Ag, In, Bi, melting point : 227 Centigrade)

TABLE OF CONTENTS

1	PRECAUTION.....	1-4
2	SPECIFIC SERVICE INSTRUCTIONS.....	1-4
3	DISASSEMBLY	1-13
4	ADJUSTMENT	1-16
5	TROUBLESHOOTING	1-22

This service manual is applied for Hardware Ver 2.0 transceivers (K, P, M, M2 types) with B52xxxxx or subsequent serial numbers.

This product complies with the **RoHS** directive for the European market.



This product uses Lead Free solder.

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Transceivers containing AMBE+2™ Vocoder: The AMBE+2™ voice coding technology is embedded in the firmware under the license of Digital Voice Systems, Inc.

SPECIFICATION

GENERAL		
Frequency Range		136~174MHz
Number of Channels		32
Zones		2
Max. Channels per zone		16
Channel Spacing	Analog	12.5/25kHz
	Digital	6.25/12.5kHz
Operating Voltage		7.5V DC $\pm 20\%$
Battery Life Battery Saver OFF/ON (5-5-90 at high power with KNB-45L (2000mAh))		Approx. 10/12 hours
Operating Temperature Range		-30°C~+60°C (-22°F to +140°F)
Frequency Stability		± 2.0 ppm
Antenna Impedance		50 Ω
Dimensions (W x H x D) (Projections not included)	with KNB-45L	54 x 122 x 35.3 mm (2.13 x 4.80 x 1.39 in)
Weight (net)	Radio only	165 g (5.8 oz)
	with KNB-45L	281 g (9.9 oz)
RECEIVER		
Sensitivity	Digital@6.25kHz	0.25 μ V (3% BER)
	Digital@12.5kHz	0.25 μ V (3% BER)
	Analog	0.25 μ V (EIA 12dB SINAD)
Selectivity	Analog@25kHz	70dB
	Analog@12.5kHz	60dB
Intermodulation Distortion	Analog	70dB
Spurious Response	Analog	70dB
Audio Distortion		Less than 10%
Audio Output		1W/12 Ω (Internal speaker) 500mW/8 Ω (External output)
TRANSMITTER		
RF Power Output	High/Low	5W/1W
Spurious Response		70dB
FM Hum & Noise	Analog@25kHz	45dB
	Analog@12.5kHz	40dB
Audio Distortion		Less than 10%
Modulation		16K0F3E, 11K0F3E, 4K00F1E, 4K00F1D, 4K00F7W, 4K00F2D, 8K30F1E, 8K30F1D, 8K30F7W

Analog measurements made per TIA/EIA-603 and specifications shown are typical.

Digital measurements made per NXDN CA1 and specifications shown are typical.

JVC KENWOOD Corporation reserves the right to change specifications without prior notice or obligation.

SECTION 1 PRECAUTION

This service manual does not describe PRECAUTION.

SECTION 2 SPECIFIC SERVICE INSTRUCTIONS

2.1 CIRCUIT DESCRIPTION

2.1.1 Frequency Configuration

The receiver utilizes double conversion. The first IF is 45.45MHz and the second IF is 450kHz. The first Local oscillator is supplied from the PLL circuit.

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

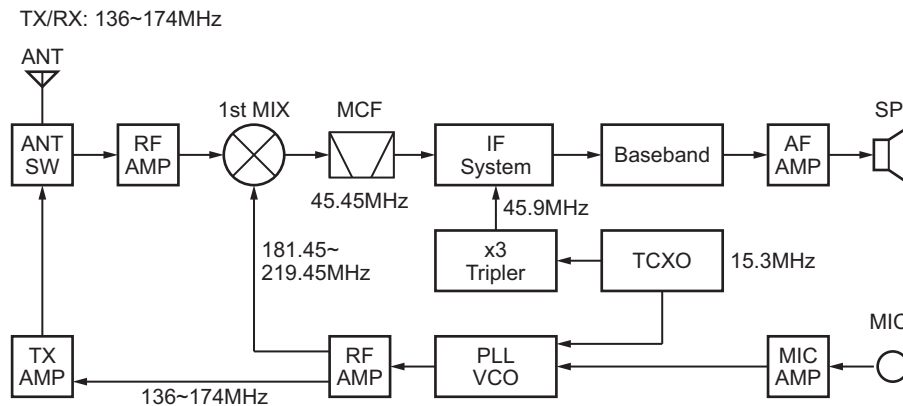


Fig.1 Frequency configuration

2.1.2 Receiver System

The receiver system is shown in Figure 2.

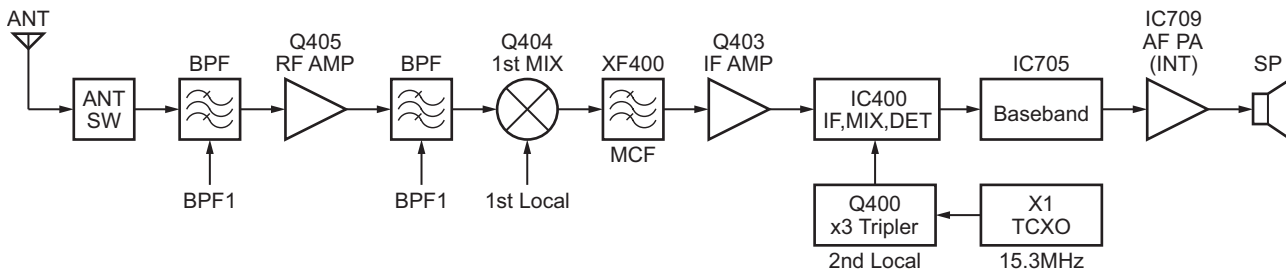


Fig.2 Receiver system

2.1.2.1 Front End (RF Amplifier) Circuit

The signal coming from the antenna passes through the transmit/receive switching diode circuit (D201, D202, D203 and D204) and a BPF (L415 and L416), and is then amplified by the RF amplifier (Q405).

The resulting signal passes through a BPF (L411) and goes to the mixer. The BPF is adjusted by variable capacitance diodes (D401, D402, D403 and D404). The input voltage to the variable capacitance diodes is the regulated voltage output from the DC amplifier (IC704).

2.1.2.2 First Mixer

The signal from the front end is mixed with the first local oscillator signal generated in the PLL circuit by Q404 to produce the first IF frequency of 45.45MHz.

The resulting signal passes through the XF400 MCF to cut the adjacent spurious and provide optimum characteristics, such as adjacent frequency selectivity.

2.1.2.3 IF Amplifier Circuit

The first IF signal is passed through a four-pole monolithic crystal filter (XF400) to remove the adjacent channel signal. The filtered first IF signal is amplified by the first IF amplifier (Q403) and is then applied to the IF system IC (IC400).

The IF system IC provides a second mixer, AGC+BPF, PLL FM detector, noise squelch and RSSI circuit.

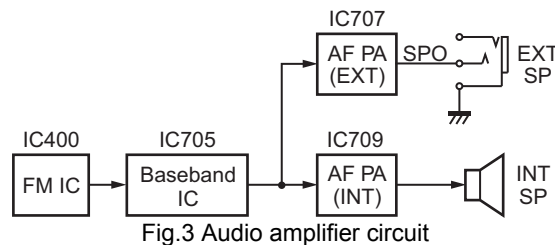
The second mixer mixes the first IF signal (45.45MHz) with the signal of the second local oscillator output (Q400) and produces the second IF signal of 450kHz.

The second IF signal is passed through the internal bandpass filter of the IF system IC to remove the adjacent channel signal. The filtered second IF signal is amplified by the limiting amplifier and demodulated by the internal discriminator of the IF system IC.

The demodulated signal is routed to the audio circuit.

2.1.2.4 Audio Amplifier Circuit

The demodulated signal from IC400 is sent to an AF amplifier through IC705, and is routed to an audio power amplifier (INT:IC709, EXT:IC707) where it is amplified and output to the speaker.



2.1.2.5 Squelch Circuit

Part of the AF signal from the IC400 enters the FM IC (IC400) again, and the noise component is amplified and rectified by a filter and an amplifier to produce a DC voltage corresponding to the noise level.

There are 2 noise filters. Analog Narrow band, NXDN Narrow band and NXDN Very Narrow band will share the same noise filter (W_N control is Low) where as analog wide band will use another noise filter (W_N control is HIGH).

The selection of different noise filter is by 2 multiplexer (IC719 and IC720).

The DC signal from the FM IC goes to the analog port of the MCU (IC710). IC710 determines whether or not to output sounds from the speaker by checking if the input voltage is higher or lower than the preset value.

To output sounds from the speaker, IC710 sends a high signal to the EXTSPSW line and turns IC707 on through Q709, Q710, Q713 and Q716. This explanation is for the external speaker amplifier. For the internal loudspeaker amplifier, IC710 sends a high signal to the INTSPSW line and turns IC709 on through Q711 and Q714.

2.1.3 Transmitter System

2.1.3.1 Microphone Amplifier Circuit

The signal from the microphone is limited by the AGC circuit, which is composed of D700, D701, Q705, Q706 and the mute switch (Q704). IC705 is composed of a high-pass filter, low-pass filter and pre-emphasis/IDC circuit.

The signal from the microphone and the low speed data from the MCU (IC710) enter the baseband IC (IC705) and pass through each path and are mixed inside the IC.

The output signal from the audio processor MOD2 goes to the VCO modulation input. The other output signal from MOD1 goes to the TCXO modulation input.

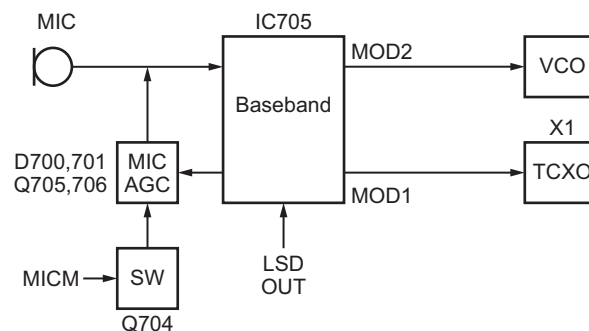


Fig.4 Microphone amplifier circuit

2.1.3.2 Drive and Final Amplifier Circuit

The signal from the T/R switch (D15 is on) is amplified by the pre-drive amplifier (Q201) to 20mW.

The output of the pre-drive amplifier is amplified by the drive amplifier (Q206) and the RF final amplifier (Q208) to 5.0W (1W when the power is low).

The drive amplifier and the RF final amplifier consist of two MOS FET stages.

The output of the RF final amplifier is then passed through the antenna switch (D203 and D204) and harmonic filter (LPF) and is applied to the antenna terminal.

2.1.3.3 APC Circuit

The APC circuit always monitors the current flowing through the drive amplifier (Q206) and RF power amplifier (Q208), and keeps it constant. The voltage drop at R230, R231 and R233 is caused by the current flowing through the RF final amplifier. This voltage is applied to the differential amplifier IC200 (1/2).

IC200 (2/2) compares the output voltage of IC200 (1/2) with the reference voltage from IC705 (32pin:AUXDAC1). The output of IC200 (2/2) controls the gate bias voltage of the RF power amplifier and the drive amplifier to make both voltages the same.

The change of power (high/low) is carried out by the change of the reference voltage.

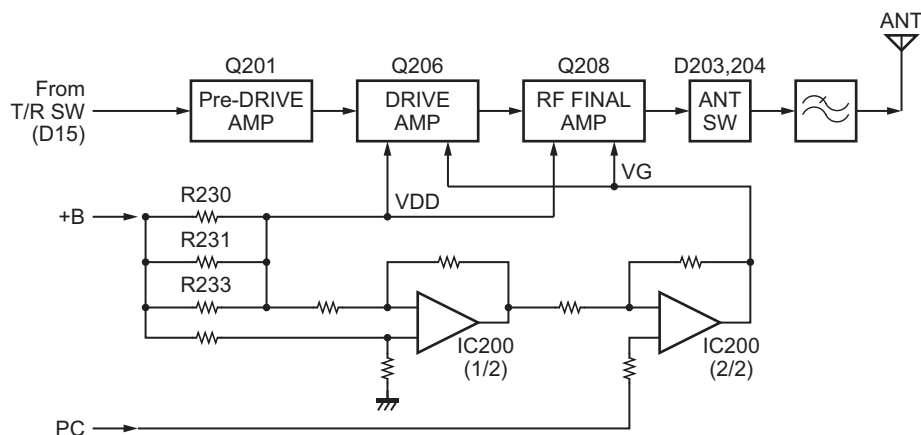


Fig.5 Drive and final amplifier and APC circuit

2.1.4 Frequency Synthesizer Unit

2.1.4.1 Frequency synthesizer

The frequency synthesizer consists of the TCXO (X1), VCO, PLL-IC (IC2), and buffer amplifiers.

The TCXO generates 15.3MHz. The frequency stability of TCXO is 0.45ppm within the temperature range of -30°C to +60°C. The frequency tuning and modulation of the TCXO are done to apply voltage to pin 1 of the TCXO. The TCXO output is applied to pin 10 of the PLL-IC.

The VCO consists of 2 VCOs and covers a dual range of 181.45~219.45MHz and 136~174MHz. The VCO generates 181.45~219.45MHz to provide the first local signal for reception. The operating frequency is generated by Q6 in transmitting mode and Q5 in receiving mode. The oscillation frequency is controlled by applying the VCO control voltage, obtained from the phase comparator (IC2) to the variable capacitance diodes (D3, D5, D8, D9, D11, and D13 while transmitting and D2, D4, D6, D7 and D12 while receiving).

The TX/RX pin of IC710 goes "high" in transmission mode, causing Q8 to turn off, and Q7 turn on. The TX/RX pin goes "low" in reception mode.

The output from Q5 and Q6 are amplified by a buffer amplifier (Q9) and RF amplifier (Q2), and are then sent to the PLL-IC. The PLL-IC consists of an 18-bit delta signal modulator, prescaler, reference divider, phase comparator, and charge pump.

The input signal from pin 10 and 17 of the PLL-IC is divided down and compared at the phase comparator. The pulse output signal of the phase comparator is applied to the charge pump and transformed into a DC signal in the loop filter (LPF). The DC signal is applied to the CV of the VCO and is locked to keep the VCO frequency constant.

PLL data is output from PLL_LE (pin 87), PLL_DATA (pin 86) and PLL_CLK (pin 88) of the MCU (IC710). The data is input to the PLL-IC when the channel is changed or when transmission is changed to reception and vice-versa. The PLL lock condition is always monitored by pin 70 (PLL_LD) of the MCU. When the PLL is unlocked, PLL_LD goes low.

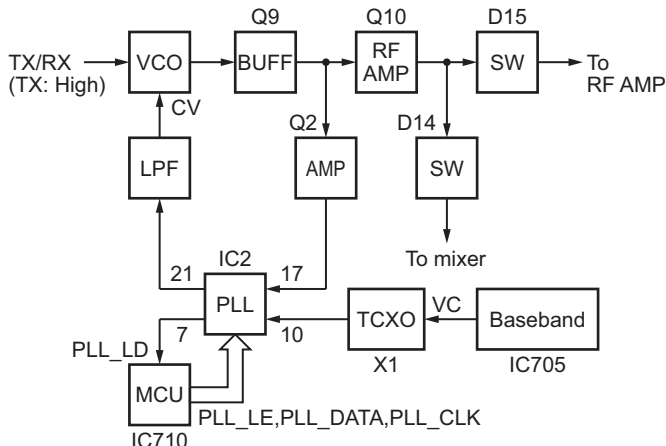


Fig.6 PLL block diagram

2.1.5 Control Circuit

The control consists of the MCU (IC710) and its peripheral circuits. It controls the TX-RX unit. IC710 mainly performs the following;

- (1) Switching between transmission and reception via the PTT signal input.
- (2) Reading channel information, frequency, and program data from the memory circuit.
- (3) Sending frequency program data to the PLL.
- (4) Controlling squelch on/off via the DC voltage from the squelch circuit.
- (5) Controlling the audio mute circuit via the decode data input.
- (6) Transmitting tone and encode data.

2.1.5.1 Frequency Shift Circuit

The MCU (IC710) and baseband IC (IC705) operate at a clock frequency of 19.2MHz.

The clock frequency can be shifted by 50ppm when the beat shift is checked in the FPU. This is implemented by applying the beat shift voltage of 3.2V to pin 1 of X2.

The beat shift function must be ON if there is any internal beat which is related to the 19.2MHz clock.

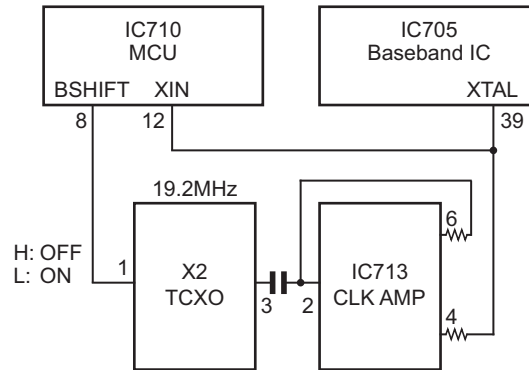


Fig.7 Frequency shift circuit

2.1.5.2 Memory Circuit

The Memory circuit consists of the MCU (IC710) and EEPROM (IC700). The EEPROM has a capacity of 64K-bit and stores the channel information, the last channel data, the scan on status, and other parameters.

■EEPROM

Note:

The EEPROM stores tuning data (Deviation, Squelch, etc.).
Realign the transceiver after replacing the EEPROM.

2.1.5.3 Low Battery Warning

The battery voltage is monitored by the MCU (IC710 pin 33: BATT). When the battery voltage falls below 6.4V approximately, the red LED blinks, notifying the operator that it is time to replace the battery (When "Always" option (default setting) under the Battery Warning function in the FPU is selected).

If the battery voltage falls below 5.8V approximately, the transceiver does not transmit and a warning tone beeps when the PTT switch is pressed (When the Battery Warning Tone is selected in the FPU).

2.1.5.4 Key Input

Keys and channel selector circuit.

The signal from the keys and channel selector are directly input to the MCU, as shown in Figure 8.

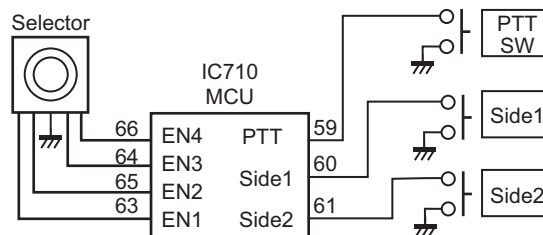


Fig.8 Key input

2.1.6 Signaling Circuit

2.1.6.1 Encode

■ Low-speed data (QT, DQT)

Low-speed data is output from pin 29 of the MCU. The signal passes through the low pass CR filter, and goes to the audio processor (IC705). The signal is mixed with the audio signal and goes to the VCO and TCXO (X1) modulation input after passing through the D/A converter inside the audio processor (IC705) for BAL adjustment.

■ High-speed data (2-tone,DTMF)

High-speed data (HSD) is output from pin 30 of the MCU. HSD deviation made by an adjustment in the MCU is passed through the low pass CR filter and is then mixed with the microphone signal before being applied to the baseband IC (IC705).

The output of the baseband IC, MOD1 and MOD2, will be fed into the TCXO and VCO respectively.

■ MSK (Fleet Sync/MDC-1200)

The MSK signal is generated in the audio processor (IC705). The signal passes through the D/A converter (inside the baseband IC: IC705) and is routed to the VCO. When encoding the MSK, the microphone input signal is muted.

2.1.6.2 Decode

■ QT/DQT

The output signal from the FM IC (IC400) enters the MCU (IC710) through IC705. IC710 determines whether or not the QT or DQT matches the preset value, and controls the AFSW and speaker output sounds according to the squelch results.

■ 2-tone

Part of the received AF signal output from the FM IC (IC400) passes through the baseband IC (IC705), and is compared and output from MOD2 before going to the MCU (IC710). IC710 checks whether or not the 2-tone data is necessary. If it matches, IC710 carries out a specified operation, such as turning the speaker on.

■ MSK (Fleet Sync)

The MSK input signal from the FM IC (IC400) goes to IC705. The decoded information is then processed by the MCU.

■ DTMF

The DTMF input signal from the FM IC (IC400) goes to IC705. The decoded information is then processed by the MCU.

2.1.7 Power Supply

There are five 5V power supplies and five 3.3V power supplies: 50M, 50V, 50C, 50R, 50T, 33M, 33MS, 33B, 33R and 33MD.

50M and 33M are always output while the power is on.

33MS is always output, but turns off when the power is turned off, to prevent a malfunction of the MCU.

50C is a common 5V and is output when SAVE is not set to ON.

50R is 5V for reception and is output during reception.

50T is 5V for transmission and is output during transmission.

50V is 5V for the SP/MIC connector.

33B is 3.3V for the baseband IC (IC705) digital supply.

33R is 3.3V for the IF IC (IC400).

33MD is 3.3V for the MCU digital supply.

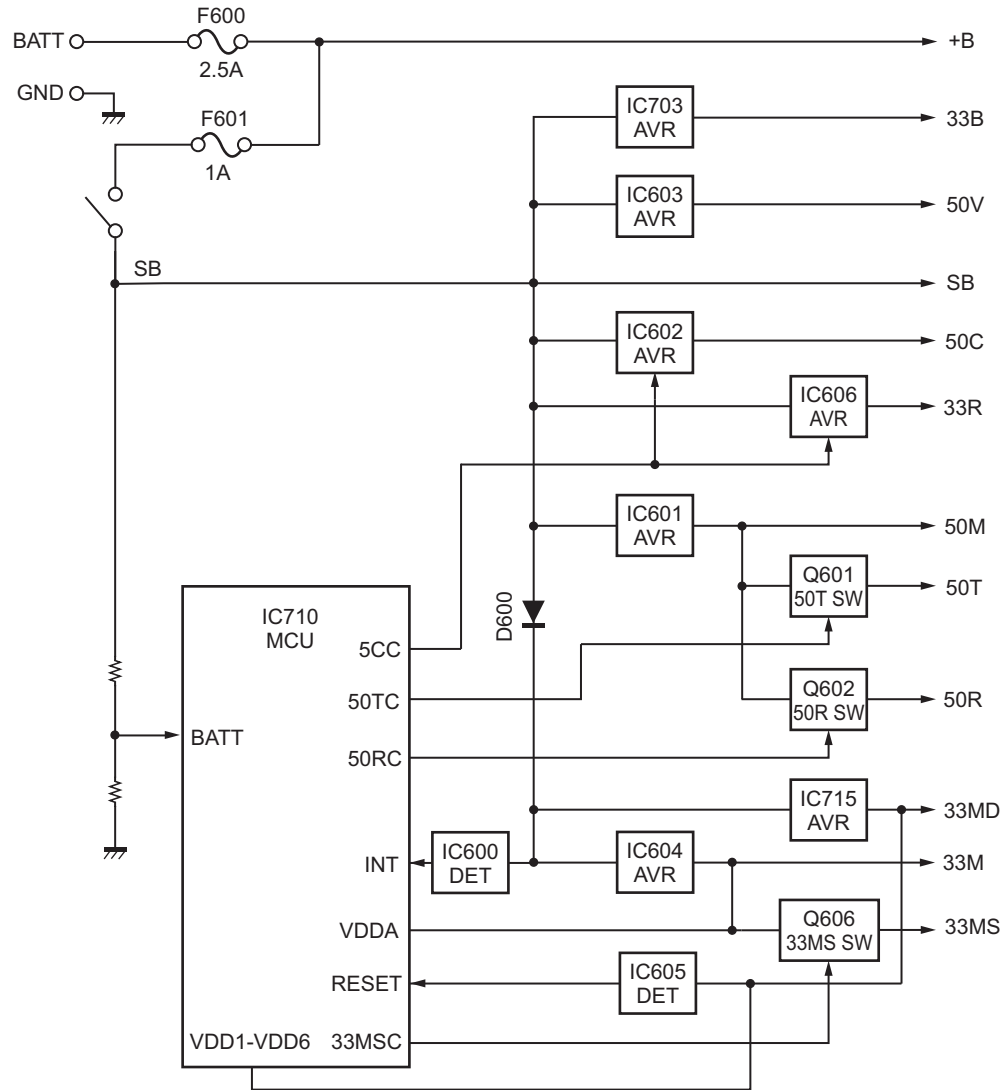


Fig.9 Power supply

2.1.8 NXDN Receiving

2.1.8.1 For Digital Data Mode

The demodulated signal from IC400 (Pin13) is fed into the baseband IC (Pin 16) for NXDN decoding. The decoded digital data will pass to the MCU through the C-BUS. The MCU determines whether or not to output sound from the speaker by checking if the data matches.

Pin No.	Name	I/O	Function
34	RSSI	I	RSSI input
35	BUSY	I	BUSY input
36	TH_DET	I	Thermistor detection (Temperature detection)
37	33MSC	I/O	33M switch control
38	OPT1	O	Option port 1
39	OPTDET	I	Option detection
40	GRNLED	O	Green LED control (Hi: LED ON)
41	REDLED	O	Red LED control (Hi: LED ON)
42	MIC_MT	O	MIC mute
43	EXTSPMT	O	Speaker mute
44	ASSTSW	O	Assist switch
45	TX/RX	O	TX/RX switch (Hi: TX, Lo: RX)
46	INSPSW	O	Internal speaker switch
47	TEST_TX	O	UART_TX for test
48	TEST_RX	I	UART_RX for test
49	VCAP_1	-	2.2uF
50	VDD4	-	33MD
51	CML_CSN	O	Chip select for baseband IC
52	CML_SCLK	O	SCLK for baseband IC
53	CML_CDATA	O	Command for baseband IC
54	CML_RDATA	I	REPLY for baseband IC
55	FM_RSTN	O	Hardware reset for FM IC
56	FM_CSN	O	Chip select for FM IC
57	FM_SCLK	O	Clock for FM IC
58	FM_SDATA	I/O	Data I/O for FM IC
59	PTT	I	PTT key
60	PF1	I	Programmable function key input 1
61	PF2	I	Programmable function key input 2
62	FM_PDN	O	Power down port for LDO of FM IC
63	EN1	I	Encoder input 1
64	EN3	I	Encoder input 3
65	EN2	I	Encoder input 2
66	EN4	I	Encoder input 4
67	OPT3	I/O	Option port 3
68	TXD	O	Serial data to MIC jack
69	RXD	I	Serial data from MIC jack
70	PLL_UL	I	Unlock voltage for PLL
71	OPT2	I/O	Option port 2
72	SWDIO	I/O	SWDIO for SWD
73	VCAP_2	-	2.2uF
74	VSS3	-	GND
75	VDD5	-	33MD
76	SWCLK	I/O	SWCLK for SWD
77	CML_SSOUT	I	SPI chip select for baseband IC
78	CML_EPSCLK	I	Clock for SPI

Pin No.	Name	I/O	Function
79	CML_EPSO	O	SPI output
80	CML_EPSI	I	SPI input
81	EEP_DATAI	I	Data input for EEPROM
82	EEP_DATAO	O	Data output to EEPROM
83	EEP_CS	O	Chip select for EEPROM
84	EEP_CLK	O	Clock for EEPROM
85	EEP_WP	O	Write protect for EEPROM
86	PLL_DATA	O	Data output for PLL
87	PLL_LE	O	Chip select for PLL
88	PLL_CLK	O	Clock for PLL
89	SWO	O	SWO for SWD
90	SRST	I	SRST for SWD
91	OPT5	I/O	Option port 5
92	OPT6	I/O	Option port 6
93	OPT7	I/O	Option port 7
94	NC	I	No connection
95	W_N	O	Wide/Narrow Switch (Hi:W, Lo:other)
96	5TC	O	5T control
97	INT	I	Interrupt
98	CML_IRQN	I	IRQ for baseband IC
99	PDR_ON	-	GND
100	VDD6	-	33MD

2.3 COMPONENTS DESCRIPTION

2.3.1 TX-RX unit (X57-8500-10)

Ref. No.	Part Name	Description
IC1	IC	DC amplifier (FREQ/MOD)
IC2	IC	PLL System
IC3	IC	DC amplifier (CV)
IC200	IC	DC amplifier (APC)
IC400	IC	IF System
IC600	IC	Voltage detector (INT)
IC601	IC	Voltage regulator (50M)
IC602	IC	Voltage regulator (50C)
IC603	IC	Voltage regulator (50V)
IC604	IC	Voltage regulator (33M)
IC605	IC	Voltage detector (Reset)
IC606	IC	Voltage regulator (33R)
IC700	IC	EEPROM
IC703	IC	Voltage regulator (33B)
IC704	IC	DC amplifier (BPF tune)
IC705	IC	Baseband system
IC706	IC	DC amplifier (VOX)
IC707	IC	AF power amplifier (EXT)

Ref. No.	Part Name	Description
IC708	IC	AF amplifier
IC709	IC	AF power amplifier (INT)
IC710	IC	MCU
IC713	IC	Crystal oscillator amplifier
IC715	IC	Voltage regulator (33MD)
IC717	IC	AF amplifier
IC719, 720	IC	Wide/Narrow multiplexer
Q1	FET	DC switch (MOD)
Q2	Transistor	PLL Fin amplifier
Q3	FET	Q1 control
Q4	Transistor	Rippler filter
Q5	FET	RX VCO
Q6	FET	TX VCO
Q7	FET	Q8 control
Q8	FET	TX/RX VCO DC switch
Q9	Transistor	Buffer amplifier
Q10	Transistor	RF amplifier
Q201	Transistor	Pre-drive amplifier
Q203	Transistor	Discharge switch
Q205	FET	APC control switch
Q206	FET	Drive amplifier
Q207	Transistor	DC switch (APC)
Q208	FET	Final amplifier
Q209	FET	DC switch (Power control)
Q210	Transistor	DC switch (Power control)
Q400	Transistor	2nd local amplifier
Q403	Transistor	1st IF amplifier
Q404	FET	1st mixer
Q405	FET	RX RF amplifier
Q600	Transistor	DC switch (BUSY LED)
Q601	FET	DC switch (50T)
Q602	FET	DC switch (50R)
Q603	FET	DC switch (MIN VOL)
Q604	Transistor	DC switch (RED LED)
Q605	Transistor	DC switch (BLUE LED)
Q606	FET	DC switch (33MS)
Q703	FET	Level shift (TXD)
Q704	Transistor	MIC mute switch
Q705	Transistor	MIC AGC amplifier
Q706	Transistor	MIC AGC amplifier
Q707	FET	Level shift (RXD)
Q708	Transistor	DC switch (EXT PTT)
Q709	Transistor	Q710 control
Q710	Transistor	DC switch (IC707 SB)
Q711	Transistor	Q715 control

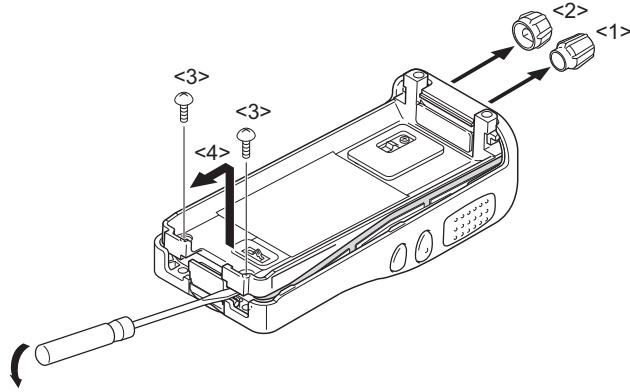
Ref. No.	Part Name	Description
Q712	Transistor	Pop noise mute control
Q713	FET	AF switch (EXT SP)
Q714	Transistor	DC switch (IC709 SB)
Q715	Transistor	Q714 control
Q716	FET	AF switch (EXT SP)
D2	Variable capacitance diode	RX VCO tune
D3	Variable capacitance diode	TX VCO tune
D4	Variable capacitance diode	RX VCO tune
D5	Variable capacitance diode	TX VCO tune
D6, 7	Variable capacitance diode	RX VCO tune
D8, 9	Variable capacitance diode	TX VCO tune
D10	Diode	Speed up
D11	Variable capacitance diode	TX assist
D12	Variable capacitance diode	RX assist
D13	Variable capacitance diode	Modulation
D14, 15	Diode	TX/RX switch
D200	Zener diode	Over voltage protection
D201-204	Diode	Antenna switch
D401-404	Variable capacitance diode	RX BPF tuning
D600	Diode	Voltage drop
D601	LED	Green (BUSY)
D602	LED	Red (TX)
D603	Diode	Voltage prevention
D604	LED	Blue
D700, 701	Diode	AF detector (MIC)
D702	Diode	AF detector (VOX)
D703	Diode	Limiter
D754	Diode	1 pin detection

SECTION 3 DISASSEMBLY

3.1 Precautions for Disassembly

3.1.1 Removing the Case Assembly from the Chassis

- (1) Remove the selector knob <1> and volume knob <2>.
- (2) Remove the two screws <3>.
- (3) Lift and remove the chassis from the case assembly <4>.
(Use a flat-blade screwdriver to easily lift the chassis.)

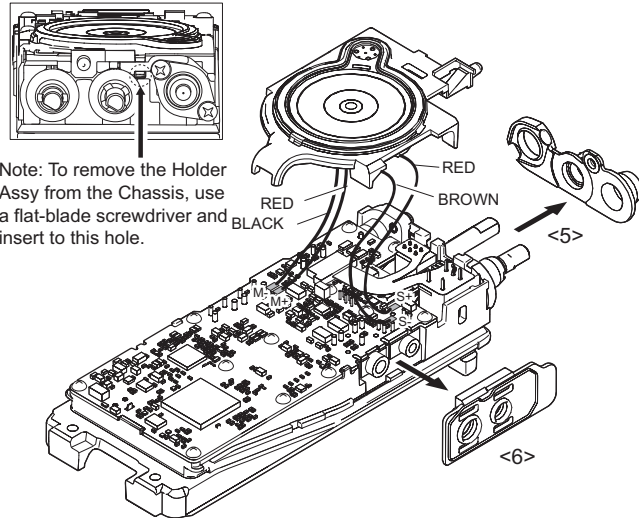


3.1.2 Removing the Holder Assembly from the Chassis

- (1) Remove the packing <5> from the SMA, volume and selector.
- (2) Remove the holder from the chassis.

Note:

- Take care to not cut the speaker and microphone leads.
- (3) Detach the solder of the speaker and microphone leads from the PCB beforehand.
 - (4) Remove the packing <6> from the SP/MIC jack of the TX-RX unit.



Note: To remove the Holder Assy from the Chassis, use a flat-blade screwdriver and insert to this hole.

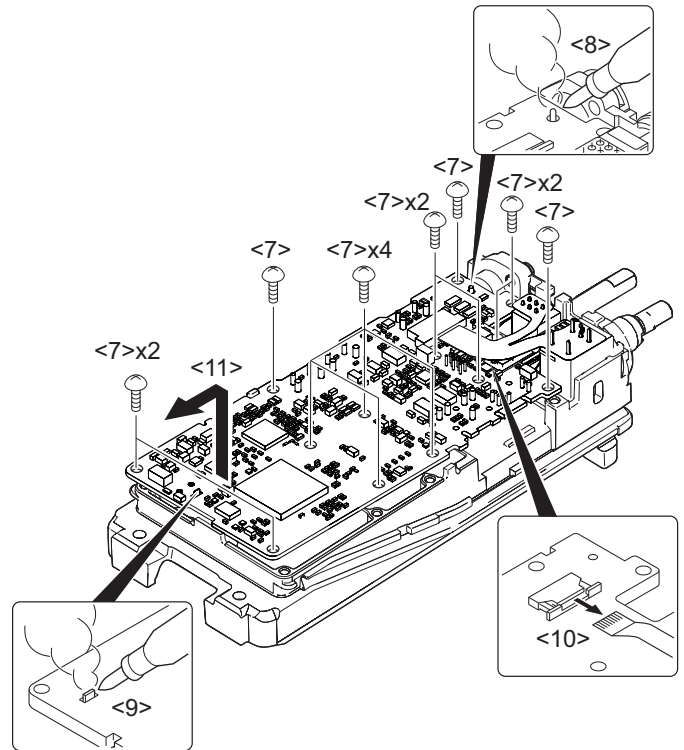
3.1.3 Removing the TX-RX unit from the Chassis

- (1) Remove the thirteen screws <7> fixing the TX-RX unit.
- (2) Remove the solder of the antenna terminal with a soldering iron <8>.
- (3) Remove the solder of the positive terminal with a soldering iron <9>.

Note:

You can remove the TX-RX unit from the chassis without removing the solder at the positive terminal. However, in this case, you cannot attach the packing (G53-2218-03) that is on the positive terminal to the chassis during assembly. So, we advise you to remove the solder on the positive terminal first.

- (4) Remove the FPC from the flat cable connector <10>.
- (5) Lift and remove the TX-RX unit from the chassis <11>.

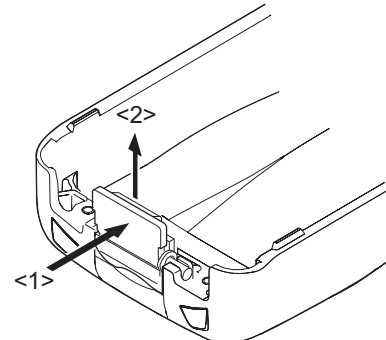


3.1.4 Removing the Battery Release Lever from the Case Assembly

- (1) Press the upper part of the lever toward the inside of the case assembly. One side of the shaft will be removed <1>.
- (2) Lift and remove the battery release lever from the case assembly <2>.

Note:

Scratch and widen the glue hole if you are having difficulty removing the other end of the shaft. No glue is required when you reassemble the battery release lever.



3.2 Precautions for Reassembly

3.2.1 Attaching the Battery Release Lever to the Case Assembly

- (1) Insert one side of the shaft into the hole at the lever fitting section on the case assembly <1>.

Caution:

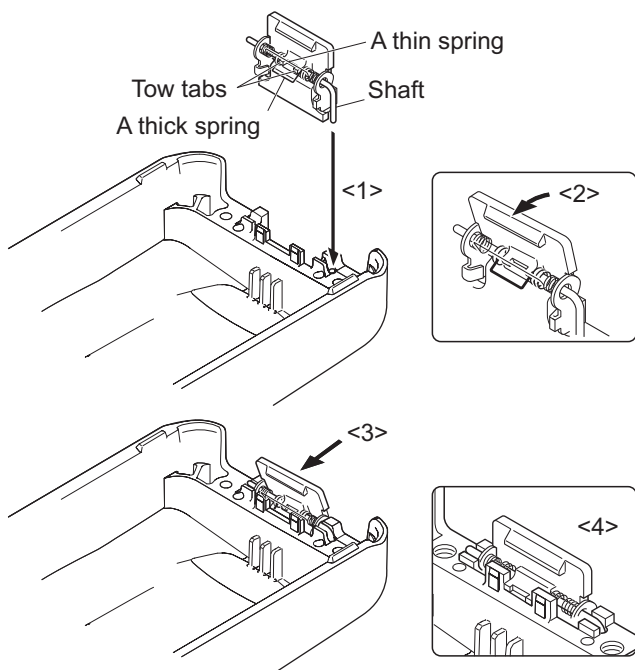
Position the thin spring (G01-4543-14) above the two tabs of the lever.

- (2) Tilt the battery release lever slightly forward <2>, so that the thick spring (G01-4542-04) is positioned below the case surface.
- (3) With the thick spring positioned below the case surface, attach the other side of the shaft to the case assembly by pressing the battery release lever <3> until it snaps into place <4>.

Caution:

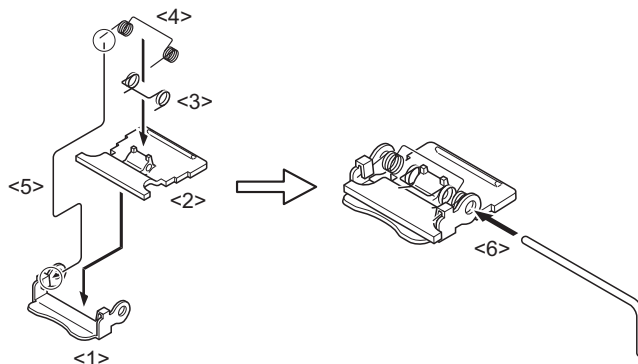
Be careful to not tilt the battery release lever too far forward.

If the battery release lever is pushed in this state where the two tabs come below the case surface, there is a possibility of damaging the two tabs.



3.2.2 Assembling the Battery Release Lever

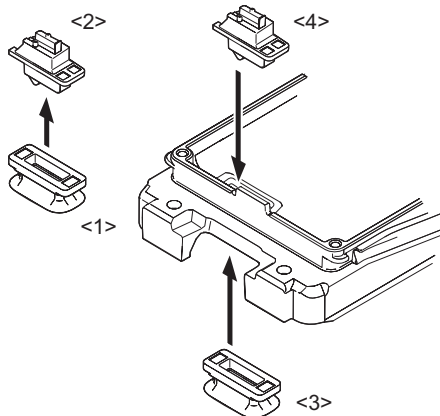
- (1) Place the lever <2> onto the stopper <1>.
- (2) Place the thick spring <3> onto the lever.
- (3) Hook the right and left ends of the thin spring <4> onto the tabs of the stopper, then place the thin spring onto the lever <5>.
- (4) Slide the shaft through the hole of the stopper and lever <6>.



3.2.3 Attaching the Positive Terminal to the Chassis

Always attach the positive terminal to the chassis using the following procedures, before mounting the TX-RX unit onto the chassis.

- (1) Remove the holder assembly <2> from the packing <1> of the positive terminal.
- (2) Mount the packing of the positive terminal into the chassis hole <3>.
- (3) Mount the holder assembly into the packing of the positive terminal <4>.

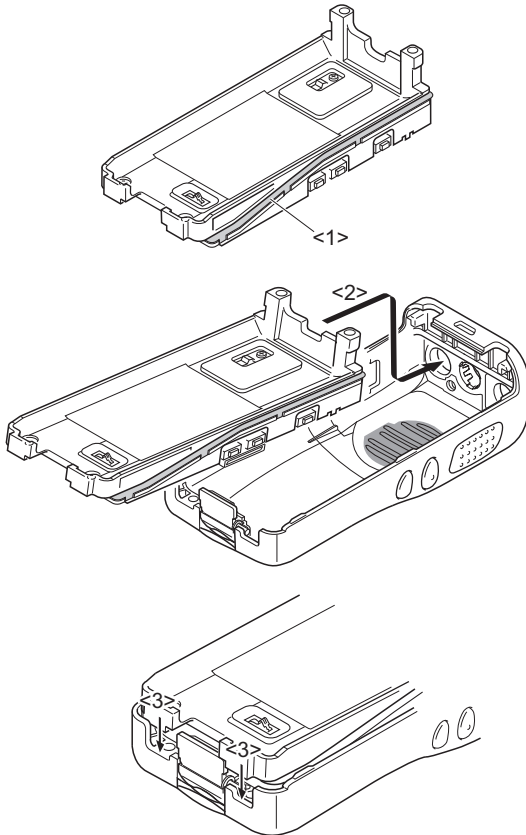


3.2.4 Mounting the Chassis to the Case Assembly

- (1) Confirm that the waterproof packing attached to the circumference of the chassis is securely inserted in the groove of the chassis <1>.
- (2) Insert the upper part of the chassis into the case assembly <2>.
- (3) Press the chassis <3> and the case assembly together to attach them.

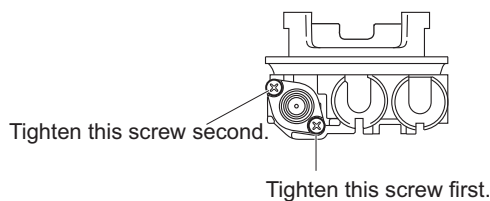
Caution:

If the packing of the SP/MIC is not at the correct position after attaching the chassis to the case assembly, reposition the packing with your fingers.



3.2.5 Attaching the Antenna Receptacle to the Chassis

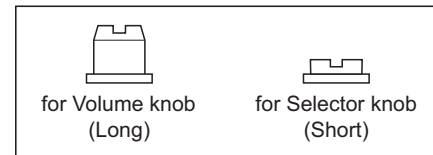
Screw the antenna receptacle to the chassis in the order shown in the drawing so that the antenna receptacle comes to the center of the case hole.



3.2.6 The Nuts of the Volume Knob and Channel Knob

Note that the shape, color and height of the nuts of the volume knob and channel knob are different from one another. (The nut of volume knob is silver, and the nut of channel knob is gold.) Use the following jig when removing the nuts of the volume knob and channel knob:

- Jig (Part No.: W05-1012-00)



SECTION 4 ADJUSTMENT

4.1 Test Equipment Required for Alignment

Test Equipment	Major Specifications	
1. Standard Signal Generator (SSG)	Frequency Range	100 to 520MHz
	Modulation	Frequency modulation and external modulation
	Output	-127dBm/0.1 μ V to greater than -47dBm/1mV
2. Power Meter	Input Impedance	50 Ω
	Operation Frequency	100 to 520MHz
	Measuring Range	Vicinity of 10W
3. Deviation Meter	Frequency Range	100 to 520MHz
4. Digital Volt Meter (DVM)	Measuring Range	10mV to 10V DC
	Input Impedance	High input impedance for minimum circuit loading
5. Oscilloscope		DC through 30MHz
6. High Sensitivity Frequency Counter	Frequency Range	10Hz to 1000MHz
	Frequency Stability	0.2ppm or less
7. Ammeter		5A
8. AF Volt Meter (AF VM)	Frequency Range	50Hz to 10kHz
	Voltage Range	1mV to 10V
9. Audio Generator (AG)	Frequency Range	50Hz to 5kHz or more
	Output	0 to 1V
10. Distortion Meter	Capability	3% or less at 1kHz
	Input Level	50mV to 10Vrms
11. 8 Ω Dummy Load		Approx. 8 Ω , 3W
12. Regulated Power Supply		5V to 10V, approx. 3A Useful if ammeter equipped

*The test equipment which is not used for adjustment is contained in this table.

■Antenna connector adapter

The antenna connector of this transceiver uses an SMA terminal.

Use an antenna connector adapter [SMA(f) - BNC(f) or SMA(f) - N(f)] for adjustment. (The adapter is not provided as an option, so buy a commercially-available one.)

■Repair Jig (Chassis)

Use jig (Chassis) for repairing the transceiver. Place the TX-RX unit on the jig and fit it with screws.

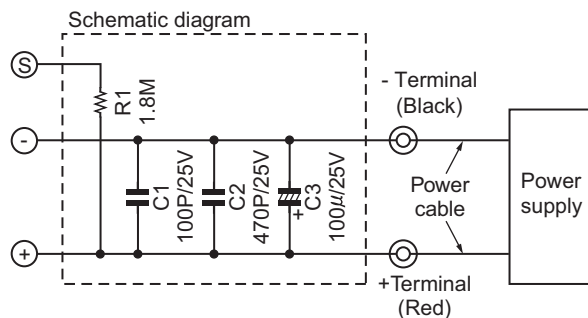
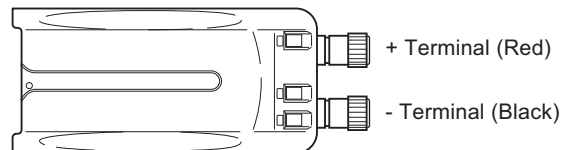
The jig facilitates the voltage check and protects the final amplifier FET when the voltage on the flow side of the TX-RX unit is checked during repairs.

■Battery Jig (W05-1011-00)

Connect the power cable properly between the battery jig installed in the transceiver and the power supply, and be sure output voltage and the power supply polarity prior to switching the power supply ON, otherwise over voltage and reverse connection may damage the transceiver, or the power supply or both.

Note:

When using the battery jig, you must measure the voltage at the terminals of the battery jig. Otherwise, a slight voltage drop may occur within the power cable, between the power supply and the battery jig, especially while the transceiver transmits.



4.2 Frequency and Signaling

The transceiver has been adjusted for the frequencies shown in the following table. When required, readjust them following the adjustment procedure to obtain the frequencies you want in actual operation.

■Test frequency

CH	RX (MHz)	TX (MHz)
1	155.05000	155.10000
2	136.05000	136.10000
3	173.85000	173.90000
4	155.00000	155.00000
5	155.20000	155.20000
6	155.40000	155.40000
7~16	-	-

■Analog mode signaling

No.	RX	TX
1	None	None
2	None	20 Hz Square Wave
3	QT 67.0 Hz	QT 67.0 Hz
4	QT 151.4 Hz	QT 151.4 Hz
5	QT 210.7 Hz	QT 210.7 Hz
6	QT 254.1 Hz	QT 254.1 Hz
7	DQT D023N	DQT D023N
8	DQT D754I	DQT D754I
9	DTMF Decode (Code: 159D)	DTMF Encode (Code: 159D)
10	None	DTMF (Code: 9)
11	None	MSK (1010..)
12	FleetSync: 100-1000	FleetSync: 100-1000
13	None	Single Tone: 1000 Hz
14	2-tone Decode: A: 304.7 Hz B: 3106.0 Hz	2-tone Encode: A: 304.7 Hz B: 3106.0 Hz
15	None	DTMF Tone: 1477 Hz
16	Single Tone: 979.9 Hz	Single Tone: 979.9 Hz
17	None	MSK PN9
18	None	DTMF (Code: 3)

■NXDN mode signaling

No.	RX	TX
1	RAN1	RAN1
2	None	PN9
3	RAN1	Maximum Deviation Pattern
4	FSW+PN9	Mod set-up *1
5	Tone Pattern (1031 Hz)	Tone Pattern (1031 Hz)

RAN: Radio Access Number

PN9: Pseudo-Random Pattern (for production only)

*1: To output 150Hz square wave (for production only)

4.3 Preparations for Tuning the Transceiver

Before attempting to tune the transceiver, connect the unit to a suitable power supply.

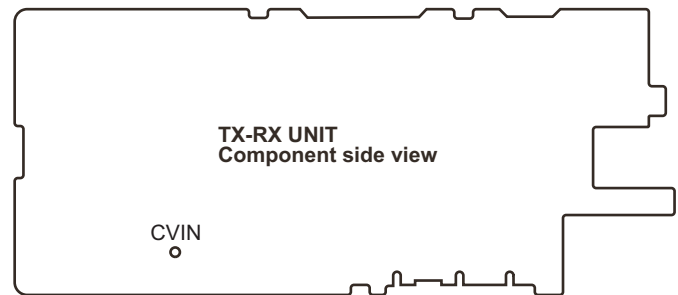
Whenever the transmitter is tuned, the unit must be connected to a suitable dummy load (i.e. power meter).

The speaker output connector must be terminated with a 8Ω dummy load and connected to an AC voltmeter and an audio distortion meter or a SINAD measurement meter at all times during tuning.

■5 reference level adjustments frequency

TEST CH	RX (MHz)	TX (MHz)
Low	136.05000	136.10000
Low'	145.55000	145.50000
Center	155.05000	155.10000
High'	164.55000	164.50000
High	173.85000	173.90000

4.4 Adjustment Points



4.5 Common Section

Item	Condition	Measurement			Adjustment			Specifications /Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
1. Setting	1) Power supply voltage DC power supply terminal : 7.5V							
2. Receive Assist voltage	1) Auto tuning *Note 1					FPU		4.0 ± 0.1V
	2) CH: Low *Note 2	DVM	TX-RX	CVIN			Check	0.6V or more (at CVIN terminal)
3. Transmit Assist voltage	1) Auto tuning *Note 1					FPU		4.0 ± 0.1V
	2) CH: Low *Note 2	DVM	TX-RX	CVIN			Check	0.6V or more (at CVIN terminal)

***Note 1:**

During test mode, click the [Tune Assist Voltage] button in test mode dialog box, then start automatic adjustment of the Receive/ Transmit assist voltage.

***Note 2:**

The CV voltage checking of CH:2 (Default value) test frequency must be performed in test mode.

4.6 Transmitter Section

Item	Condition	Measurement			Adjustment			Specifications /Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
1. Frequency	(1)TEST CH: Center PTT ON	Frequency counter		ANT		FPU	155.100MHz	±30Hz
2. High Transmit Power	(1)TEST CH: Low, Low', Center, High', High (5 point) (2)Battery Terminal voltage: 7.5V (3)PTT ON	Power meter Ammeter		ANT		FPU	5.0W	±0.1W 2.0A or less
3. Low Transmit Power	(1)TEST CH: Low, Center, High (3 point) (2)Battery Terminal voltage: 7.5V (3)PTT ON	Power meter Ammeter		ANT		FPU	1.0W	±0.1W 1.0A or less
4. DQT Balance 1 *Note 3	(1)TEST CH: Low, Low', Center, High', High (5 point) (2)Deviation meter filter LPF: 3kHz HPF: OFF (3)PTT ON	Deviation meter Oscilloscope		ANT		FPU	Make the demodulation wave into square wave.	
DQT Balance 2 *Note 3	(1)TEST CH: Low, Low', Center, High', High (5 point) (2)Deviation meter filter LPF: 3kHz HPF: OFF (3)PTT ON	Deviation meter Oscilloscope		ANT		FPU	The Deviation of 20Hz frequency is fixed. Change the 1kHz adjustment value to become the same deviation of 20Hz within the specified range.	±15Hz
5. Maximum Deviation (Analog Narrow)	(1)TEST CH: Low, Low', Center, High', High (5 point) (2)Deviation meter filter LPF: 15kHz HPF: OFF (3)PTT ON	Deviation meter Oscilloscope		ANT		FPU	2.0kHz (According to larger +, -)	±80Hz Note: FPU auto input 1kHz/ 150mV

Item	Condition	Measurement			Adjustment			Specifications /Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
(Analog Wide)	(1)TEST CH: Low, Low', Center, High', High (5 point) (2)Deviation meter filter LPF: 15kHz HPF: OFF (3)PTT ON	Deviation meter Oscilloscope		ANT		FPU	4.0kHz (According to larger +, -)	±80Hz Note: FPU auto input 1kHz/ 150mV
6. Maximum Deviation (NXDN Very Narrow) *Note 4	(1)TEST CH: Low, Low', Center, High', High (5 point) (2)Deviation meter filter LPF: 15kHz HPF: OFF (3)PTT ON	Deviation meter Oscilloscope		ANT		FPU	1.337kHz	±26Hz
(NXDN Narrow)	(1)TEST CH: Low, Low', Center, High', High (5 point) (2)Deviation meter filter LPF: 15kHz HPF: OFF (3)PTT ON	Deviation meter Oscilloscope		ANT		FPU	3.056kHz	±59Hz
7. CW ID Deviation (NXDN Very Narrow) *Note 4	(1)TEST CH: Center (2)Deviation meter filter LPF: 15kHz HPF: OFF (3)PTT ON	Deviation meter Oscilloscope		ANT		FPU	1.00kHz	±100Hz
8. DQT Deviation (Analog Narrow)	(1)TEST CH: Center (2)Deviation meter filter LPF: 3kHz HPF: OFF (3)PTT ON	Deviation meter Oscilloscope		ANT		FPU	0.35kHz	±50Hz
(Analog Wide)	(1)TEST CH: Center (2)Deviation meter filter LPF: 3kHz HPF: OFF (3)PTT ON	Deviation meter Oscilloscope		ANT		FPU	0.75kHz	±50Hz
9. QT Deviation (Analog Narrow)	(1)TEST CH: Center (2)Deviation meter filter LPF: 3kHz HPF: OFF (3)PTT ON	Deviation meter Oscilloscope		ANT		FPU	0.35kHz	±50Hz
(Analog Wide)	(1)TEST CH: Center (2)Deviation meter filter LPF: 3kHz HPF: OFF (3)PTT ON	Deviation meter Oscilloscope		ANT		FPU	0.75kHz	±50Hz
10. DTMF Deviation (Analog Narrow)	(1)TEST CH: Center (2)Deviation meter filter LPF: 15kHz HPF: OFF (3)PTT ON	Deviation meter Oscilloscope		ANT		FPU	1.5kHz	±50Hz
(Analog Wide)	(1)TEST CH: Center (2)Deviation meter filter LPF: 15kHz HPF: OFF (3)PTT ON	Deviation meter Oscilloscope		ANT		FPU	3.0kHz	±50Hz

Item	Condition	Measurement			Adjustment			Specifications /Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
11. MSK Deviation (Analog Narrow)	(1)TEST CH: Center (2)Deviation meter filter LPF: 15kHz HPF: OFF (3)PTT ON	Deviation meter Oscilloscope		ANT		FPU	1.5kHz	±50Hz
(Analog Wide)	(1)TEST CH: Center (2)Deviation meter filter LPF: 15kHz HPF: OFF (3)PTT ON	Deviation meter Oscilloscope		ANT		FPU	3.0kHz	±50Hz

***Note 3:**

Only 1 DQT Balance needs to be adjusted (either DQT Balance 1 or DQT Balance 2).

***Note 4:**

For the adjustment of the Maximum Deviation (NXDN Very Narrow) and CW ID Deviation (NXDN Very Narrow).

After adjusting the DQT Balance and Maximum Deviation (Analog), it is necessary to adjust the Maximum Deviation (NXDN Very Narrow) and CW ID Deviation (NXDN Very Narrow).

4.7 Receiver Section

Item	Condition	Measurement			Adjustment			Specifications /Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
1. RX Sensitivity (Semiautomatic) *Note 5	(1)TEST CH: Low, Center, High (3 point) (2)SSG output: -90dBm (7.08uV) AF Freq : 1kHz Mod Dev : ±1.5kHz	SSG Oscilloscope Audio Analyzer		ANT		FPU	Press [Start] (Auto tuning)	
2. Open Squelch 5 (Analog Narrow)	(1)TEST CH: Low, Center, High (3 point) (2)SSG output: Low : -120dBm (0.22uV) Center, High : -121dBm (0.2uV) AF Freq : 1kHz Mod Dev : ±1.5kHz	SSG Oscilloscope Audio Analyzer		ANT		FPU	Press [Start] (Auto tuning)	
(Analog Wide)	(1)TEST CH: Low, Center, High (3 point) (2)SSG output: Low : -120dBm (0.22uV) Center, High : -121dBm (0.2uV) AF Freq : 1kHz Mod Dev : ±3.0kHz	SSG Oscilloscope Audio Analyzer		ANT		FPU	Press [Start] (Auto tuning)	
(NXDN Very Narrow)	(1)TEST CH: Low, Center, High (3 point) (2)SSG output: Low : -123dBm (0.158uV) Center, High : -122dBm (0.178uV) AF Freq : 400Hz Mod Dev : ±1.1kHz	SSG Oscilloscope Audio Analyzer		ANT		FPU	Press [Start] (Auto tuning)	
(NXDN Narrow)	(1)TEST CH: Low, Center, High (3 point) (2)SSG output: Low : -123dBm (0.158uV) Center, High : -122dBm (0.178uV) AF Freq : 400Hz Mod Dev : ±2.2kHz	SSG Oscilloscope Audio Analyzer		ANT		FPU	Press [Start] (Auto tuning)	
3. Tight squelch (Analog Narrow)	(1)TEST CH: Low, Center, High (3 point) (2)SSG output: Low : -117dBm (0.32uV) Center, High : -118dBm (0.28uV) AF Freq : 1kHz Mod Dev : ±1.5kHz	SSG Oscilloscope Audio Analyzer		ANT		FPU	Press [Start] (Auto tuning)	

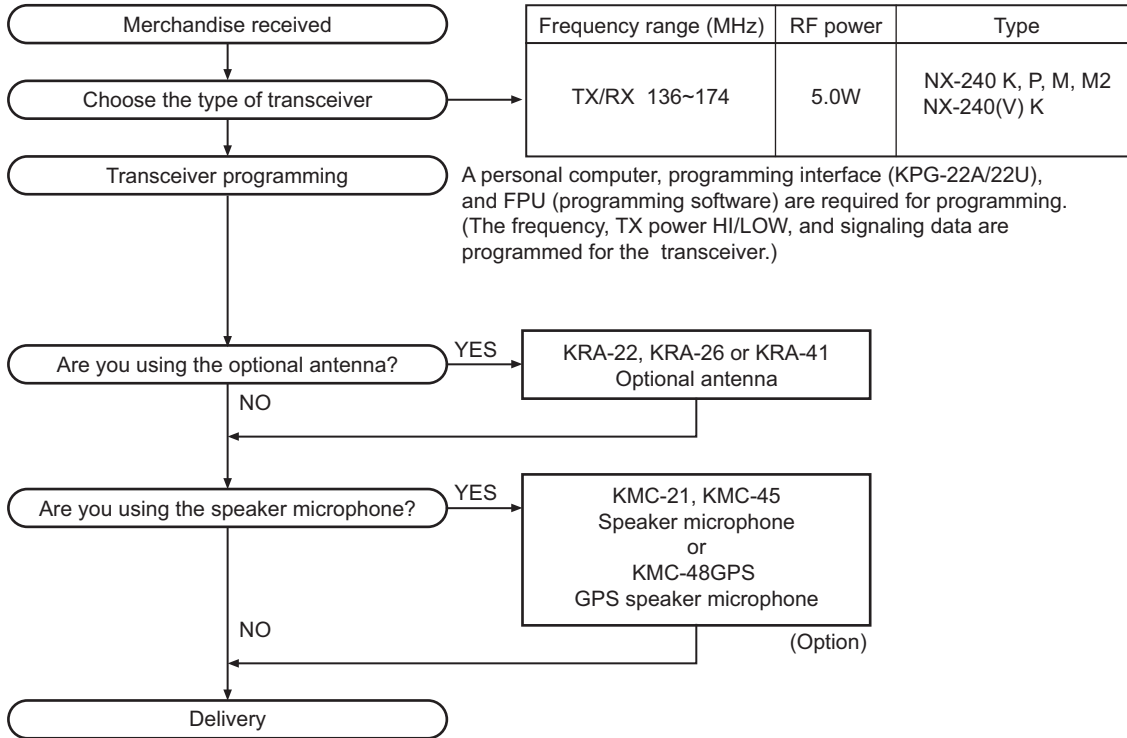
Item	Condition	Measurement			Adjustment			Specifications /Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
(Analog Wide)	(1)TEST CH: Low, Center, High (3 point) (2)SSG output: Low : -117dBm (0.32uV) Center, High : -118dBm (0.28uV) AF Freq : 1kHz Mod Dev : ± 3.0 kHz	SSG Oscilloscope Audio Analyzer		ANT		FPU	Press [Start] (Auto tuning)	
4. Low RSSI (Analog Narrow)	(1)TEST CH: Low, Center, High (3 point) (2)SSG output: -120dBm (0.22uV) AF Freq : 1kHz Mod Dev : ± 1.5 kHz	SSG Oscilloscope Audio Analyzer		ANT		FPU	Press [Start] (Auto tuning)	
(Analog Wide)	(1)TEST CH: Low, Center, High (3 point) (2)SSG output: -120dBm (0.22uV) AF Freq : 1kHz Mod Dev : ± 3.0 kHz	SSG Oscilloscope Audio Analyzer		ANT		FPU	Press [Start] (Auto tuning)	
(NXDN Very Narrow)	(1)TEST CH: Low, Center, High (3 point) (2)SSG output: -120dBm (0.22uV) AF Freq : 1kHz Mod Dev : ± 1.5 kHz	SSG Oscilloscope Audio Analyzer		ANT		FPU	Press [Start] (Auto tuning)	
(NXDN Narrow)	(1)TEST CH: Low, Center, High (3 point) (2)SSG output: -120dBm (0.22uV) AF Freq : 1kHz Mod Dev : ± 1.5 kHz	SSG Oscilloscope Audio Analyzer		ANT		FPU	Press [Start] (Auto tuning)	
5. High RSSI (Analog Narrow)	(1)TEST CH: Low, Center, High (3 point) (2)SSG output: -80dBm (22.4uV) AF Freq : 1kHz Mod Dev : ± 1.5 kHz	SSG Oscilloscope Audio Analyzer		ANT		FPU	Press [Start] (Auto tuning)	
(Analog Wide)	(1)TEST CH: Low, Center, High (3 point) (2)SSG output: -80dBm (22.4uV) AF Freq : 1kHz Mod Dev : ± 3.0 kHz	SSG Oscilloscope Audio Analyzer		ANT		FPU	Press [Start] (Auto tuning)	
(NXDN Very Narrow)	(1)TEST CH: Low, Center, High (3 point) (2)SSG output: -80dBm (22.4uV) AF Freq : 1kHz Mod Dev : ± 1.5 kHz	SSG Oscilloscope Audio Analyzer		ANT		FPU	Press [Start] (Auto tuning)	
(NXDN Narrow)	(1)TEST CH: Low, Center, High (3 point) (2)SSG output: -80dBm (22.4uV) AF Freq : 1kHz Mod Dev : ± 1.5 kHz	SSG Oscilloscope Audio Analyzer		ANT		FPU	Press [Start] (Auto tuning)	

***Note 5:**

(1) Only RX Sensitivity (Semiautomatic) needs to be adjusted (RX Sensitivity does not need to be adjusted again).

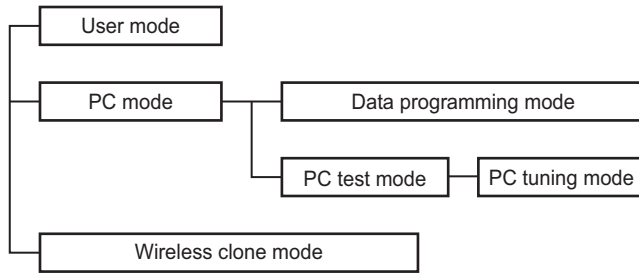
SECTION 5 TROUBLESHOOTING

5.1 SYSTEM SET-UP



5.2 REALIGNMENT

5.2.1 Modes



Mode	Function
User mode	For normal use.
PC mode	Used to communication between the transceiver and PC.
Data programming mode	Used to read and write frequency data and other features to and from the transceiver.
PC test mode	Used to check the transceiver using the PC. This feature is included in the FPU.
Wireless clone mode	Used to transfer programming data from one transceiver to another.

5.2.2 How to Enter Each Mode

Mode	Operation
User mode	Power ON
PC mode	Received commands from PC
Wireless clone mode	[PTT] + [Side2] + Power ON (Two seconds)

5.2.3 PC Mode

5.2.3.1 Preface

The transceiver is programmed by using a personal computer, a programming interface (KPG-22A/22U) and the FPU (programming software).

The programming software can be used with a PC. Figure 1 shows the setup of a PC for programming.

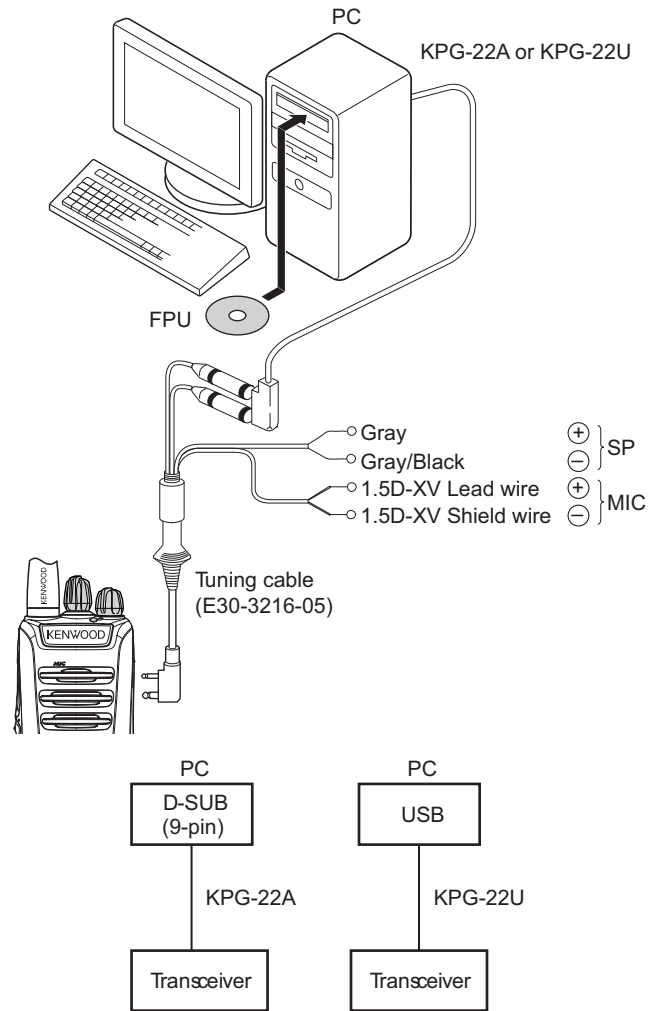


Fig.1

5.2.3.2 Connection procedure

- (1) Connect the transceiver to the computer using the interface cable.

Note:

- You must install the KPG-22U driver in the computer to use the USB programming interface cable (KPG-22U).
- (2) When the Power is switched on, you can immediately enter user mode. When the PC sends a command, the transceiver enters PC mode. When data is transmitting from the transceiver, the red LED lights. When data is being received by the transceiver, the green LED lights.

Note:

- The data stored in the computer must match the "Model Name and Model Type" when it is written into the EEPROM.
- Do not press the [PTT] key during data transmission or reception.

5.2.3.3 KPG-22A description (PC programming interface cable: Option)

The KPG-22A is required to interface the transceiver with the computer. It has a circuit in its D-sub connector (KPG-22A: 9-pin) case that converts the RS-232C logic level to the TTL level.

The KPG-22A connects the SP/MIC connector of the transceiver to the RS-232C serial port of the computer.

5.2.3.4 KPG-22U description (USB programming interface cable: Option)

The KPG-22U is a cable which connects to a USB port on a computer.

When using the KPG-22U, install the supplied CD-ROM (with driver software) in the computer. The KPG-22U driver runs under Windows XP, Vista, 7 or 8.

The latest version of the USB driver is available for download from the following URL:

<http://www.kenwood.com/usb-com/>

(This URL may change without notice.)

5.2.3.5 Programming software description

The FPU is the programming software for the transceiver supplied on a CD-ROM. This software runs under Windows XP, Vista, 7 or 8 on a PC. The software on this disk allows a user to program the transceiver via the Programming interface cable (KPG-22A/22U).

- Use the FPU that matches the market when you first set the market code and model name/frequency data to the service unit. A unit set by mistake cannot be restored.

- List of FPU for transceiver

Model	Type	FPU
NX-240	K, P, M, M2	KPG-169D
NX-240(V)	K	KPG-170D

5.2.3.6 Programming with a PC

If data is transferred to the transceiver from a PC with the FPU, the data for each set can be modified.

Data can be programmed into the EEPROM in RS-232C format via the SP/MIC jack.

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

5.2.4 Wireless Clone Mode

5.2.4.1 Outline

"Wireless Clone Mode" copies the transceiver data to another transceiver.

The dealer can copy the transceiver data to another transceiver even without the use of a personal computer.

5.2.4.2 Example

The transceiver can copy the programming data to one or more transceivers via RF communication.

The clone source and clone target(s) must be in wireless clone mode.

5.2.4.3 Operation

- (1) To switch the clone target(s) to Wireless Clone mode, press and hold the [PTT] and [Side2] keys while turning the transceiver power ON.
- (2) Wait for 2 seconds. The LED will light orange and the transceiver will announce "Clone".

- (3) Select a channel table number using the Side1 (increment channel table) and Side2 (decrement channel table) keys.
- (4) To switch the clone source to wireless clone mode, press and hold the [PTT] and [Side2] keys while turning the transceiver power ON.
- (5) Wait for 2 seconds. The LED will light orange and the transceiver will announce "Clone".
- (6) Select the same channel table number as the clone target(s).
- (7) Press [PTT] on the clone source to begin data transmission.
When the clone target starts to receive data, the LED will light green.
When the clone source finishes sending data, a "confirmation" tone will sound.
If data transmission fails while cloning, an "error" tone will sound from the target unit.
- (8) If the cloning fails, no data will be available in the target unit when it is returned to User mode.
- (9) When the cloning is successful, the target unit's "Scan" and "Key lock" functions will return to their default values (Scan = OFF, Key lock = OFF).

Note:

- The dealer can clone data to two or more transceivers by repeating the above procedures.
- If the transceiver's wireless clone Mode is configured as "Disabled", it cannot enter Clone mode.
- The table shown in the next page covers the frequencies used for wireless cloning.
- Wireless clone mode cannot be entered in battery low state.
- A unit cannot be a "Source Unit" if it is not programmed. If [PTT] is pressed, an "error" tone will sound.
- The language available is only English.
- Once a unit is set to be the source, it cannot be a target after the data has been transmitted. This protects the data in the source unit.
- Electronic interface may cause a failure in data transfer during Wireless Cloning, such as when waveforms or electromagnetic fields are being performed at the workbench.
- **Wireless clone mode can be used ONLY by authorized service personnel.**
- **The wireless clone mode setting must be configured as "Disable" before being delivered to the end-user.**
- **To clone, replace the antenna from both the source transceiver and the target transceiver with a dummy load.**
- **The transmit output power is automatically set to Low in clone mode.**
- **Wireless clone mode does not function if Read Authorization Password or Overwrite Password has been configured in Data Password.**

• Clone frequency table

No.	Operating frequency 136~174 (MHz)
1	136.150
2	138.150
3	140.150
4	142.150
5	144.150
6	146.150
7	148.150
8	150.150
9	152.150
10	154.150
11	156.150
12	158.150
13	160.150
14	162.150
15	164.150
16	166.150
17	168.150
18	170.150
19	172.150
20	174.150

5.3 Replacing TX-RX Unit

■ TX-RX unit Information

Model Name	Original TX-RX unit Number	For Service TX-RX unit Number
NX-240 K	X57-8500-10	XC2-0090-10
NX-240V K	X57-8500-10	XC2-0090-11
NX-240 P	X57-8500-10	XC2-0091-01
NX-240 M	X57-8500-10	XC2-0090-21
NX-240 M2	X57-8500-10	XC2-0090-22

■ Supplied Accessories of "Service TX-RX unit"

Item (Including Parts Number)	Quantity
TX-RX Unit (XC2-009)	1
Model Name Plate	1

■ "Service TX-RX unit" Data

The following data is written on the service TX-RX unit:

Data Type	Description
Firmware	NX-240/340 Firmware
FPU Data (PC programming mode)	XC2-009 (NX-240/240V) K type data. XC2-009 (NX-240) P type data. XC2-009 (NX-240) M type data.
KENWOOD ESN	Model name: NX-240 or NX-240V Type: K, P or M The same number as the Model Name Plate label is written.
NXDN ESN	The same number as the Model Name Plate label is written.

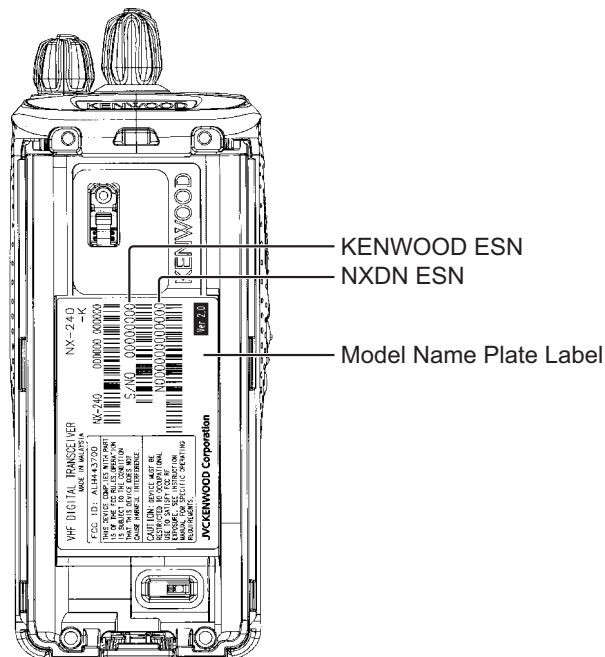
■ After Changing the PCB

- (1) Using the KPG-169D (NX-240) / KPG-170D (NX-240V), select your desired item (Model Name and Frequency) from the Model> Product Information menu, then use Program> Write Data to the Transceiver to write the FPU data (PC Programming mode). When writing to the transceiver, a Warning Message, corresponding to the item selected, appears. Click [OK] to continue writing the data.
- (2) Enter Program> Test Mode, then adjust the various adjustment data (PC Test Mode) as described in the "SECTION 4 ADJUSTMENT".
- (3) Attach the new labels corresponding to the new printed circuit board. (Refer to the images below for label placement.)
- (4) If necessary, write the FPU data used by the customer with the KPG-169D (NX-240) / KPG-170D (NX-240V).

Note:

- When a new printed circuit board is used, the KENWOOD ESN changes, as does the Transceiver Information display of the KPG-169D (NX-240) / KPG-170D (NX-240V), but this does not have any effect on the operation of the transceiver.
- If changing to the original ESN, please contact our service center.

■ Model Name Plate Label Layout



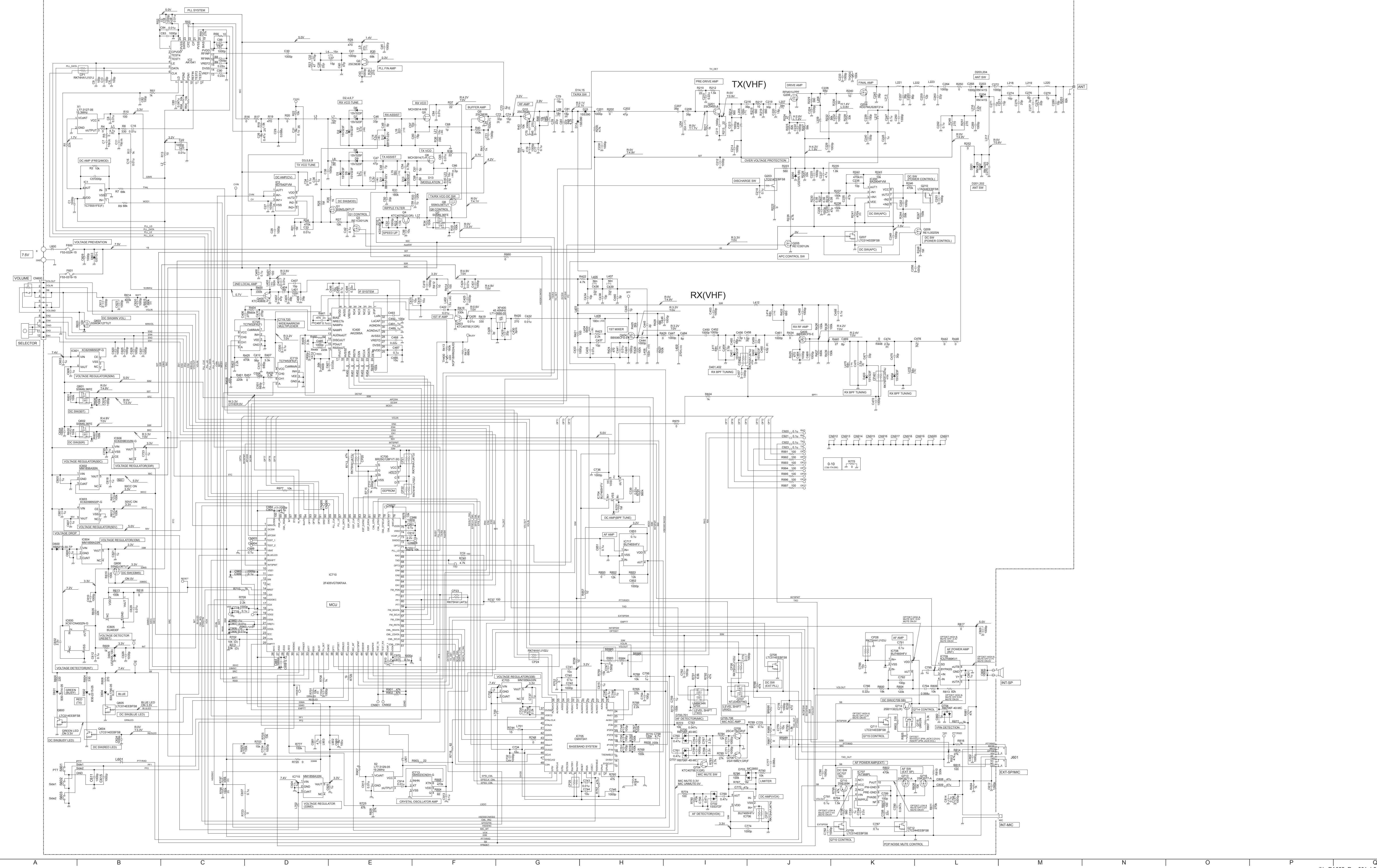
5.4 TERMINAL FUNCTION

5.4.1 TX-RX unit (X57-8500-10)

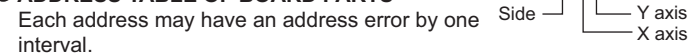
Pin No.	Name	I/O	Function
CN600			
1	VOLOUT	O	Volume output to audio amplifier
2	VOLIN	I	Volume level input for audio control
3	SB	I	Power input after power switch
4	SB	I	Connect to pin 3
5	B	O	Power output after passing through the fuse
6	B	O	Connect to pin 5
7	VOLGND	-	GND for volume level
8	EN2	I	Rotary switch input
9	EN4	I	Rotary switch input
10	GND	-	GND
11	EN3	I	Rotary switch input
12	EN1	I	Rotary switch input

5.4.2 SP/MIC Connector Specification

Pin No.	Name	I/O	Signal Type	Function
1	PTT/RXD	I	Digital	PTT/RXD input
2	MICIN	I	Analog	External MIC input
3	MICO	O	Analog	Internal MIC output
4	OPTDET	I	Digital	External option detection
5	50V	O	Power	DC 5V output
6	AE	-	GND	GND
7	TXD	O	Digital	TXD output
8	NC	-	-	No connection
9	NC	-	-	No connection
10	SPO	O	Analog	Internal audio output



--- Component side view (J7C-0113-00) ---

[illegible]

--- Foil side view (J7C-0113-00) ---



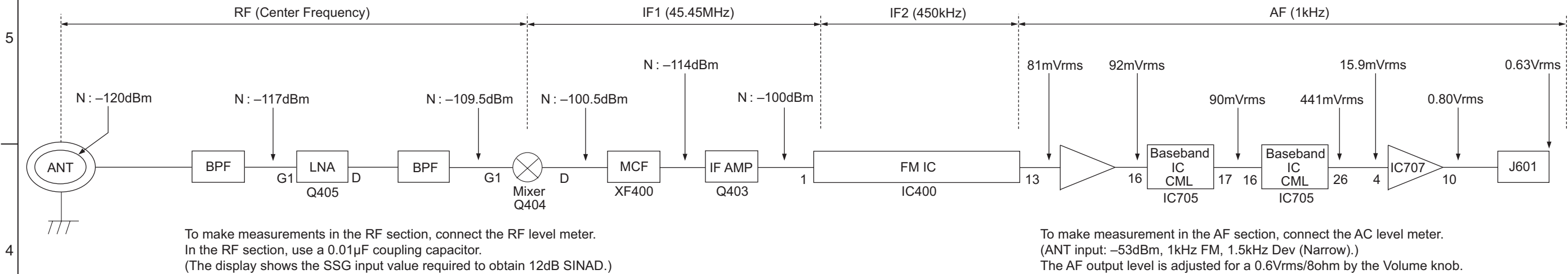
Each address may have an address error by one interval.

Side

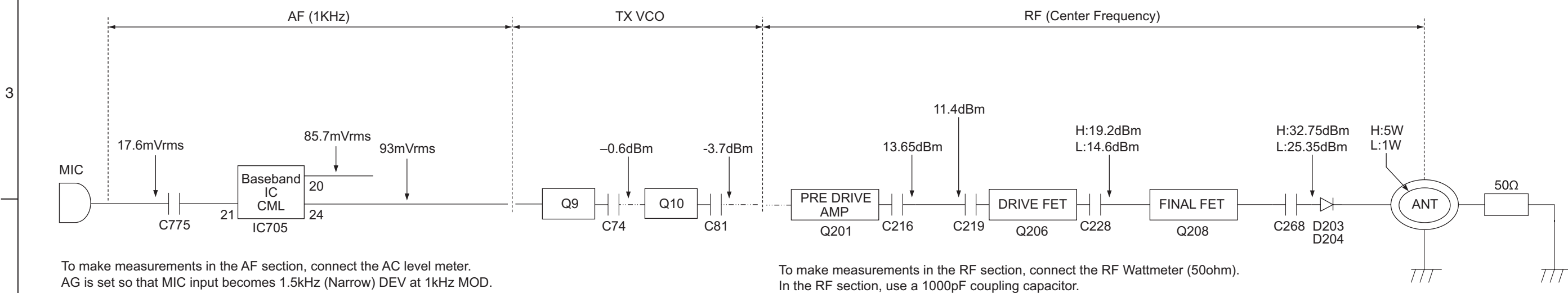
REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION					
IC		Q703	B- 3A	RESISTOR	R29	B- 2A	R200	B- 3A	R404	B- 2B	R437	B- 3B	R824	B- 4B	C23	B- 2A	C54	B- 3A	C85	B- 1A	C239	B- 4B	C400	B- 1B	C433	B- 2B	C461	B- 3B	C500	B- 1B	CN918	B- 2A	L21	B- 3A	L404	B- 2B				
IC2	B- 2A				R30	B- 2A	R202	B- 3A	R405	B- 2B	R438	B- 3B	R850	B- 2B	C26	B- 1A	C56	B- 2A	C86	B- 2A	C240	B- 4B	C402	B- 1B	C434	B- 3B	C464	B- 3B	C501	B- 1B	CN919	B- 2A	L23	B- 3A	L405	B- 3B				
IC3	B- 2A	DIODE			R31	B- 2A	R210	B- 3A	R407	B- 1B	R439	B- 3B	R970	B- 4B	C27	B- 2A	C57	B- 3A	C87	B- 2A	C242	B- 4A	C403	B- 1B	C435	B- 2B	C465	B- 3B	C504	B- 1B	CN920	B- 3A	L24	B- 2A	L406	B- 2B				
IC400	B- 2B		D2		R2	B- 1B	R32	B- 2A	R211	B- 3A	R408	B- 2B	R440	B- 3B	R991	B- 1A	C28	B- 2A	C58	B- 2A	C245	B- 4B	C404	B- 1B	C436	B- 3B	C466	B- 3B	C736	B- 4B	CN921	B- 3A	L25	B- 3A	L407	B- 3B				
ICT04	B- 4B		D3		R4	B- 2A	R4	B- 1A	R33	B- 3A	R212	B- 3A	R409	B- 2B	R441	B- 2B	R992	B- 1A	C29	B- 1A	C59	B- 2A	C89	B- 2A	C247	B- 4B	C405	B- 1B	C437	B- 2B	C468	B- 3B	C739	B- 4B	S601	B- 4B	L26	B- 3A	L408	B- 2B
ICT715	B- 1A		D4		R5	B- 1B	R34	B- 2A	R213	B- 3A	R412	B- 1B	R442	B- 4B	R993	B- 1A	C30	B- 2A	C60	B- 3A	C90	B- 2A	C250	B- 4B	C406	B- 2B	C438	B- 3B	C469	B- 3B	C762	B- 3A	S602	B- 3B	L204	B- 3A	L409	B- 3B		
TRANSISTOR		D5	R6	B- 1B	R35	B- 2A	R214	B- 3B	R413	B- 1B	R446	B- 4B	R994	B- 1A	C31	B- 1A	C61	B- 3A	C200	B- 3A	C253	B- 5A	C407	B- 1B	C439	B- 3B	C470	B- 4B	C809	B- 5A	S603	B- 3B	L205	B- 3B	L411	B- 3B				
		D6	R8	B- 2B	R36	B- 3A	R215	B- 3B	R414	B- 1B	R448	B- 4B	R995	B- 1A	C32	B- 2A	C64	B- 3A	C201	B- 3A	C257	B- 5A	C409	B- 1B	C440	B- 2B	C471	B- 4B	C920	B- 1A	CP1	B- 1A	L206	B- 3B	L412	B- 3B				
	Q1	B- 2A	D7	R9	B- 1B	R37	B- 2A	R217	B- 3B	R417	B- 1B	R449	B- 2B	R996	B- 1A	C33	B- 2A	C65	B- 2A	C202	B- 3A	C259	B- 5B	C410	B- 2B	C441	B- 2B	C472	B- 4B	C921	B- 1A	CP401	B- 4B	L207	B- 3B	L414	B- 3B			
	Q2	B- 2A	D8	R10	B- 1A	R38	B- 3A	R219	B- 3B	R418	B- 2B	R450	B- 2B	R997	B- 1A	C34	B- 2A	C66	B- 3A	C207	B- 3A	C260	B- 5B	C412	B- 1B	C442	B- 2B	C474	B- 4B	C922	B- 1A	CP402	B- 3B	L208	B- 4A	L415	B- 3B			
	Q3	B- 2A	D9	R11	B- 1B	R39	B- 2A	R224	B- 3B	R419	B- 2B	R451	B- 2B			C35	B- 2A	C68	B- 3A	C208	B- 3A	C262	B- 4B	C413	B- 2B	C443	B- 2B	C475	B- 4B	C923	B- 4B	J601	B- 4A	L209	B- 4B	L416	B- 4B			
	Q4	B- 2A	D10	R13	B- 2A	R40	B- 3A	R225	B- 4B	R420	B- 2B	R452	B- 2B	CAPACITOR		C36	B- 2A	C71	B- 2A	C210	B- 3A	C264	B- 5B	C414	B- 1B	C444	B- 2B	C478	B- 4B	C924	B- 1A	L1	B- 2B	L212	B- 4B	L702	B- 1A			
Q5	B- 3A	D11	B- 2A	R16	B- 2A	R41	B- 2A	R227	B- 4B	R421	B- 2B	R453	B- 2B		C1	B- 1B	C37	B- 2A	C72	B- 3A	C211	B- 3A	C268	B- 5B	C415	B- 1B	C445	B- 2B	C484	B- 3B	C925	B- 1A	L2	B- 2A	L213	B- 4A	XF400	B- 2B		
Q6	B- 3A	D12	B- 3A	R17	B- 2A	R43	B- 3A	R229	B- 4A	R422	B- 3A	R454	B- 2B		C5	B- 1B	C38	B- 3A	C73	B- 3A	C212	B- 3B	C269	B- 4B	C416	B- 1B	C446	B- 2B	C485	B- 2B	C980	B- 1A	L3	B- 2A	L216	B- 5B				
Q7	B- 2A	D13	B- 3A	R18	B- 2A	R44	B- 3A	R232	B- 4B	R423	B- 2B	R455	B- 2B		C6	B- 1A	C40	B- 2A	C74	B- 3A	C213	B- 3A	C270	B- 4B	C419	B- 1B	C447	B- 3B	C486	B- 1B			L4	B- 2A	L217	B- 4B				
Q8	B- 2A	D14	B- 3A	R19	B- 2A	R45	B- 2A	R236	B- 4B	R424	B- 2B	R457	B- 1B		C7	B- 1B	C41	B- 2A	C75	B- 2A	C214	B- 4B	C271	B- 5B	C421	B- 2B	C450	B- 3B	C487	B- 1B	OTHER		L7	B- 3A	L218	B- 5B				
Q9	B- 3A	D15	B- 3A	R20	B- 2A	R46	B- 3A	R239	B- 4B	R425	B- 2B	R458	B- 1B		C8	B- 1A	C42	B- 2A	C76	B- 3A	C216	B- 3B	C272	B- 5B	C422	B- 2B	C452	B- 3B	C488	B- 1B		X1	B- 1B	L8	B- 2A	L219	B- 5B			
Q10	B- 3A	D201	B- 4B	R21	B- 2A	R48	B- 3A	R240	B- 4A	R426	B- 2B	R459	B- 1B	C9	B- 1A	C43	B- 2A	C77	B- 3A	C219	B- 3B	C273	B- 5B	C424	B- 1B	C453	B- 3B	C489	B- 1B	TH200		B- 4A	L9	B- 2A	L220	B- 5B				
Q201	B- 3A	D202	B- 4B	R22	B- 2A	R51	B- 1A	R249	B- 4B	R427	B- 2B	R460	B- 2B	C11	B- 1B	C45	B- 2A	C78	B- 3A	C220	B- 3B	C274	B- 5B	C425	B- 2B	C454	B- 3B	C491	B- 1B	TH400		B- 1B	L10	B- 3A	L221	B- 4A				
Q206	B- 4A	D203	B- 5B	R23	B- 2A	R52	B- 1A	R250	B- 5B	R428	B- 2B	R461	B- 1B	C13	B- 1A	C46	B- 3A	C79	B- 3A	C222	B- 3B	C275	B- 5B	C426	B- 2B	C455	B- 3B	C492	B- 1B	CN912		B- 4B	L11	B- 2A	L222	B- 5A				
Q208	B- 4A	D204	B- 5B	R24	B- 2A	R53	B- 2A	R251	B- 4B	R429	B- 2B	R720	B- 1A	C15	B- 1B	C47	B- 2A	C80	B- 3A	C224	B- 4B	C276	B- 5B	C428	B- 2B	C456	B- 3B	C493	B- 1B	CN913		B- 3B	L13	B- 2A	L223	B- 5B				
Q400	B- 1B	D401	B- 3B	R25	B- 2A	R54	B- 2A	R252	B- 4B	R433	B- 3B	R751	B- 4B	C16	B- 2A	C48	B- 2A	C81	B- 3A	C228	B- 4A	C277	B- 5B	C429	B- 2B	C457	B- 3B	C494	B- 2B	CN914	B- 3B	L14	B- 3A	L240	B- 1B					
Q403	B- 2B	D402	B- 3B	R26	B- 2A	R55	B- 2A	R400	B- 1B	R434	B- 3B	R755	B- 4B	C18	B- 1A	C49	B- 3A	C82	B- 1A	C229	B- 4B	C278	B- 5B	C430	B- 2B	C458	B- 3B	C495	B- 2B	CN915	B- 4B	L15	B- 2A	L401	B- 1B					
Q404	B- 2B	D403	B- 4B	R27	B- 2A	R56	B- 2A	R401	B- 1B	R435	B- 3B	R751	B- 4B	C19	B- 1A	C50	B- 2A	C83	B- 1A	C232	B- 4A	C279	B- 5B	C431	B- 3A	C459	B- 3B	C496	B- 2B	CN916	B- 3A	L16	B- 3A	L402	B- 2B					
Q405	B- 3B	D404	B- 4B	R28	B- 2A	R58	B- 2A	R403	B- 1B	R436	B- 3B	R782	B- 3A	C22	B- 2A	C51	B- 2A	C84	B- 1A	C233	B- 4A	C280	B- 5B	C432	B- 2B	C460	B- 3B	C497	B- 2B	CN917	B- 2A	L17	B- 2A	L403	B- 2B					

LEVEL DIAGRAM

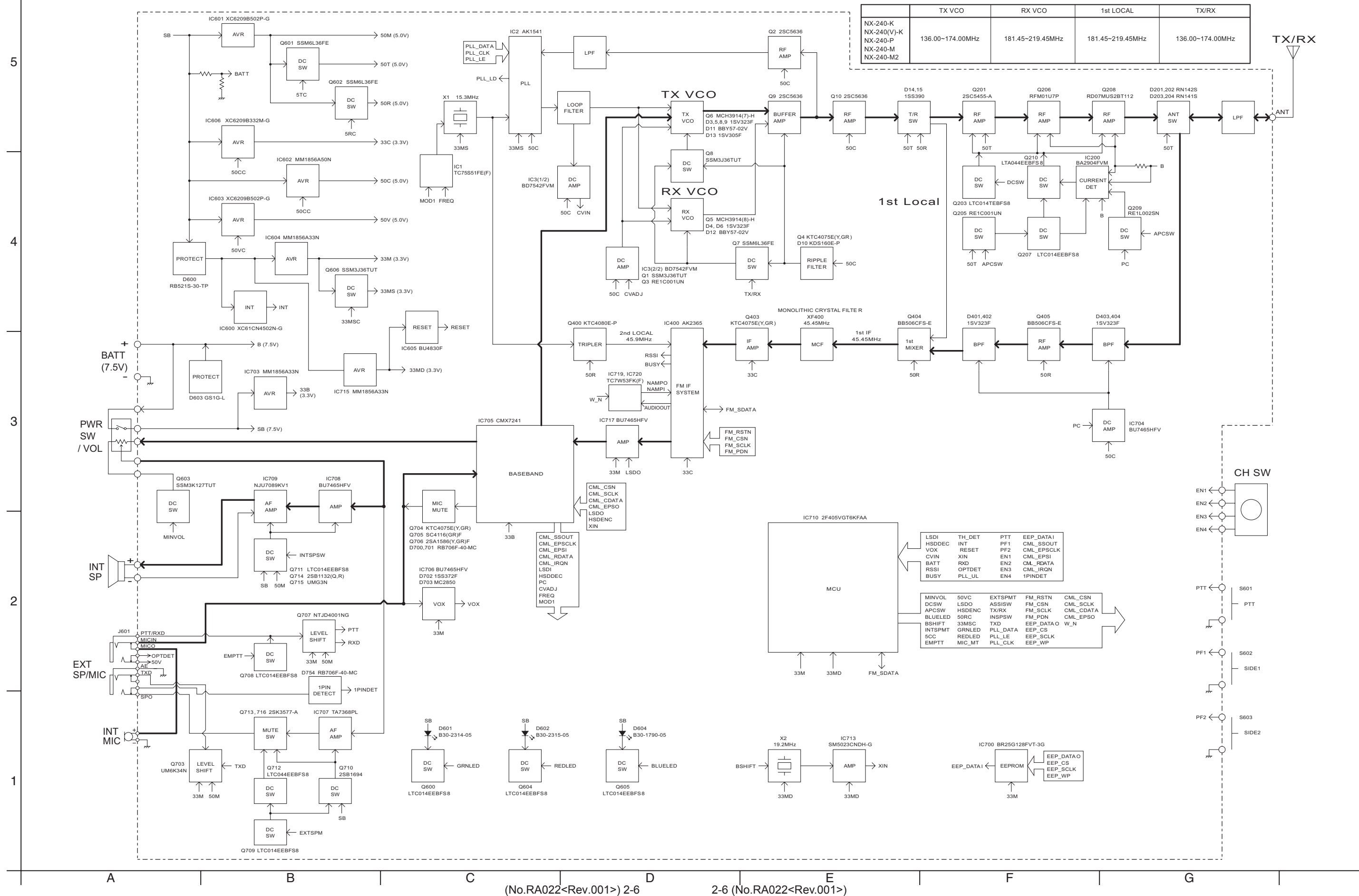
Receiver Section



Transmitter Section



■ TX-RX UNIT (X57-8500-10)



PARTS LIST

[NX-240,NX-240(V)]

* SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

* BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine parts be used.

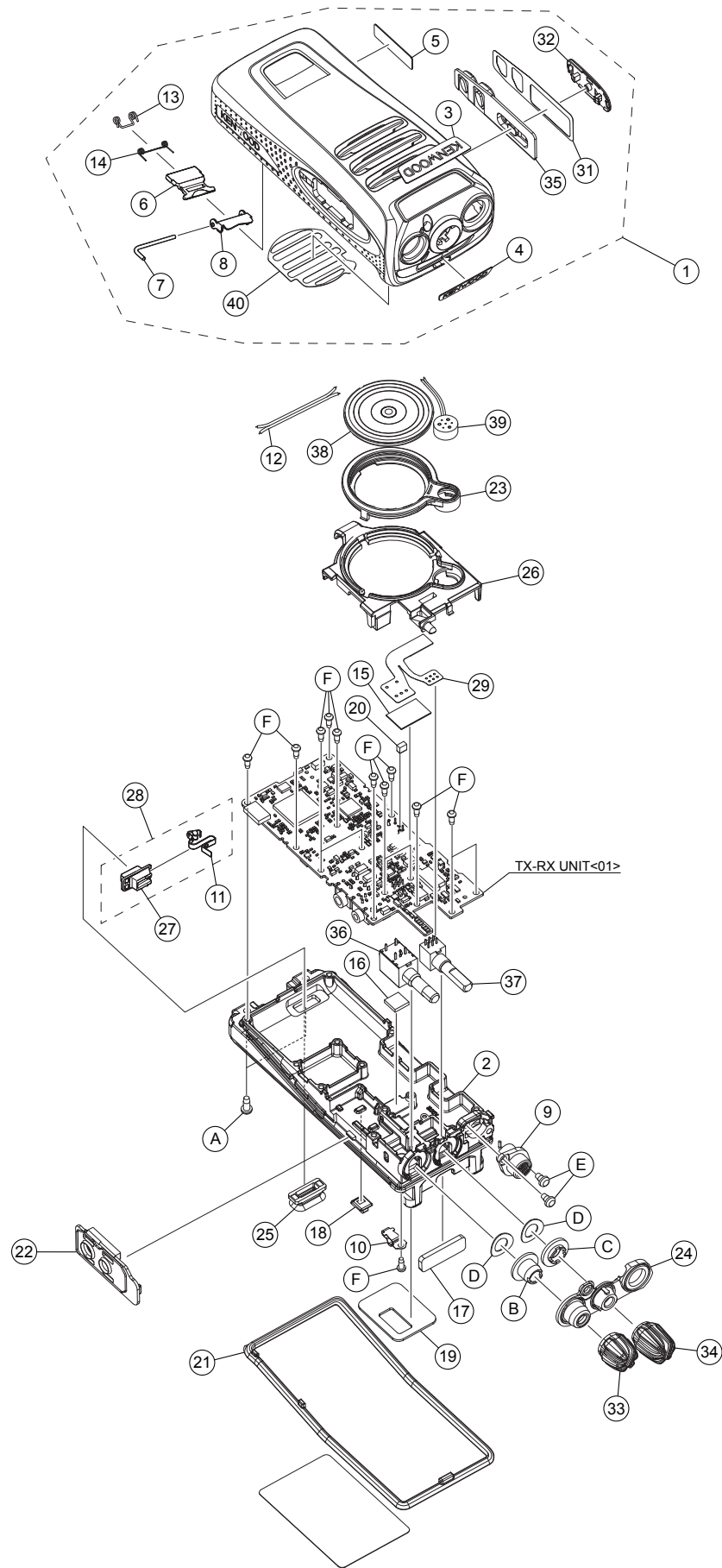
* (x_) in a description column shows the number of the used part.

- Contents -

Exploded view of general assembly and parts list	3-2
Electrical parts list	3-4
Packing materials and accessories parts list	3-10

Exploded view of general assembly and parts list

Block No.M1MM



General assembly

Block No. [M][1][M][M]

△ Symbol No.	Part No.	Part Name	Description	Local
1	A02-4228-23	PLASTIC CABINET ASSY		
2	A1A-0029-00	PLASTIC CABINET ASSY		
3	B43-1693-04	BADGE(KENWOOD-FRONT)		
4	B43-1694-04	BADGE(KENWOOD)		
5	B43-1700-04	BADGE(NEXEDGE)		
6	D10-0649-03	LEVER		
7	D21-0863-04	SHAFT		
8	D32-0441-13	STOPPER(SELECTOR)		
9	E04-0477-15	RF COAXIAL RECEPTACLE(SMA)		
10	E23-1253-24	TERMINAL(GROUND)		
11	E23-1395-04	TERMINAL(+VE)		
12	E37-1288-05	PARALLEL CORD		
13	G01-4542-04	COIL SPRING(LEVER)		
14	G01-4543-14	COIL SPRING(STOPPER)		
15	G10-1348-04	FIBROUS SHEET(X57-IC)		
16	G11-4465-04	RUBBER SHEET(FET)		
17	G13-2009-04	CUSHION(CHASSIS)		
18	G13-2033-04	CUSHION(GROUND)		
19	G13-2034-24	CUSHION(CHASSIS)		
20	G13-2448-04	CUSHION(X57.SP)		
21	G53-1604-03	PACKING(CHASSIS)		
22	G53-2215-03	PACKING(SP/MIC)		
23	G53-2216-03	PACKING(SP)		
24	G53-2217-02	PACKING(VOLUME/SELECTOR)		
25	G53-2218-03	PACKING(+VE)		
26	J19-5578-22	HOLDER(SP)		
27	J19-5579-03	HOLDER(+VE)		
28	J19-5580-03	HOLDER ASSY		
29	J87-0054-05	FPC(VOLUME/SELECTOR)		
31	J99-0783-04	ADHESIVE SHEET(PTT)		
32	K29-9612-03	BUTTON KNOB(PTT)		
33	K29-9614-03	KNOB(VOLUME)		
34	K29-9615-03	KNOB(SELECTOR)		
35	K29-9625-03	BUTTON KNOB(PF)		
36	R31-0670-35	VARIABLE RESISTOR		
37	S60-0450-05	ROTARY SWITCH		
38	T0H-0011-00	SPEAKER		
39	T91-0659-15	MIC ELEMENT		
40	G10-1854-04	FIBROUS SHEET(SP)		
A	N09-6621-05	PAN HEAD SCREW	(x2)	
B	N14-0849-05	CIRCULAR NUT(VOLUME)		
C	N14-0869-05	CIRCULAR NUT(SELECTOR)		
D	N19-2214-05	SPECIAL WASHER(VOL/SELECTOR)	(x2)	
E	N30-2604-48	PAN HEAD MACHINE SCREW	(x2)	
F	N83-2005-48	PAN HEAD TAPTITE SCREW	(x14)	
-	XC2-0090-10	SERVICE TX-RX UNIT		240_K
-	XC2-0090-11	SERVICE TX-RX UNIT		240V_K
-	XC2-0090-21	SERVICE TX-RX UNIT		240_M
-	XC2-0090-22	SERVICE TX-RX UNIT		240_M2
-	XC2-0091-01	SERVICE TX-RX UNIT		240_P

Electrical parts list

TX-RX UNIT

X57-8500-10

Block No. [0][1]

△ Symbol No.	Part No.	Part Name	Description	Local
IC1	TC75S51FE(F)	IC(MOS-IC)		
IC2	AK1541	IC(MOS-IC)		
IC3	BD7542FVM	IC(MOS-IC)		
IC200	BA2904FVM	IC(MOS-IC)		
IC400	AK2365A	IC(MOS-IC)		
IC600	XC61CN4502N-G	IC(MOS-IC)		
IC601	XC6209B502P-G	IC(MOS-IC)		
IC602	MM1856A50N	BI-POLAR IC		
IC603	XC6209B502P-G	IC(MOS-IC)		
IC604	MM1856A33N	BI-POLAR IC		
IC605	BU4830F	IC(MOS-IC)		
IC606	XC6209B332M-G	IC(MOS-IC)		
IC700	BR25G128FVT-3G	ROM IC		
IC703	MM1856A33N	BI-POLAR IC		
IC704	BU7465HFV	IC(MOS-IC)		
IC705	CMX7241	IC(MOS-IC)		
IC706	BU7465HFV	IC(MOS-IC)		
IC707	TA7368FG	IC(MOS-IC)		
IC708	BU7465HFV	IC(MOS-IC)		
IC709	NJU7089KV1	IC(MOS-IC)		
IC710	2F405VGT6KFAA	MICROPROCESSOR IC		
IC713	SM5023CNDH-G	IC(MOS-IC)		
IC715	MM1856A33N	BI-POLAR IC		
IC717	BU7465HFV	IC(MOS-IC)		
IC719	TC7W53FK(F)	IC(MOS-IC)		
IC720	TC7W53FK(F)	IC(MOS-IC)		
Q1	SSM3J36TUT	FET		
Q2	2SC5636	TRANSISTOR		
Q3	RE1C001UN	FET		
Q4	KTC4075E(Y,GR)	TRANSISTOR		
Q5	MCH3914-H/8/	FET		
Q6	MCH3914(7)-H	FET		
Q7	SSM6L36FE	FET		
Q8	SSM3J36TUT	FET		
Q9	2SC5636	TRANSISTOR		
Q10	2SC5636	TRANSISTOR		
Q201	2SC5455-A	TRANSISTOR		
Q203	LTC014TEBFS8	DIGI TRANSISTOR		
Q205	RE1C001UN	FET		
Q206	RFM01U7PF	FET		
Q207	LTC014EEBFS8	DIGI TRANSISTOR		
Q208	RD07MUS2BT214	FET		
Q209	RE1L002SN	FET		
Q210	LTA044EEBFS8	DIGI TRANSISTOR		
Q400	KTC4080E-P	TRANSISTOR		
Q403	KTC4075E(Y,GR)	TRANSISTOR		
Q404	BB506CFS-E	FET		
Q405	BB506CFS-E	FET		
Q600	LTC014EEBFS8	DIGI TRANSISTOR		
Q601	SSM6L36FE	FET		
Q602	SSM6L36FE	FET		
Q603	SSM3K127TUT	FET		
Q604	LTC014EEBFS8	DIGI TRANSISTOR		
Q605	LTC014EEBFS8	DIGI TRANSISTOR		
Q606	SSM3J36TUT	FET		
Q703	UM6K34N	FET		
Q704	KTC4075E(Y,GR)	TRANSISTOR		
Q705	2SC4116(GR)F	TRANSISTOR		
Q706	2SA1586(Y,GR)F	TRANSISTOR		
Q707	NTJD4001NG	FET		
Q708	LTC014EEBFS8	DIGI TRANSISTOR		
Q709	LTC014EEBFS8	DIGI TRANSISTOR		
Q710	2SB1694	TRANSISTOR		
Q711	LTC014EEBFS8	DIGI TRANSISTOR		
Q712	LTC044EEBFS8	DIGI TRANSISTOR		
Q713	2SK3577-A	FET		
Q714	2SB1132(Q,R)	TRANSISTOR		
Q715	UMG3N	DIGITAL TRANSISTOR ARRAY		
Q716	2SK3577-A	FET		

△ Symbol No.	Part No.	Part Name	Description	Local
D2	1SV323F	VARIABLE CAPACITANCE DIODE		
D3	1SV323F	VARIABLE CAPACITANCE DIODE		
D4	1SV323F	VARIABLE CAPACITANCE DIODE		
D5	1SV323F	VARIABLE CAPACITANCE DIODE		
D6	1SV323F	VARIABLE CAPACITANCE DIODE		
D7	1SV323F	VARIABLE CAPACITANCE DIODE		
D8	1SV325F	VARIABLE CAPACITANCE DIODE		
D9	1SV323F	VARIABLE CAPACITANCE DIODE		
D10	KDS160E-P	DIODE		
D11	BBY57-02V	VARIABLE CAPACITANCE DIODE		
D12	BBY57-02V	VARIABLE CAPACITANCE DIODE		
D13	1SV305F	VARIABLE CAPACITANCE DIODE		
D14	1SS390	DIODE		
D15	1SS390	DIODE		
D200	UDZW5.1(B)	ZENER DIODE		
D201	RN142S	DIODE		
D202	RN142S	DIODE		
D203	RN141S	DIODE		
D204	RN141S	DIODE		
D401	1SV323F	VARIABLE CAPACITANCE DIODE		
D402	1SV323F	VARIABLE CAPACITANCE DIODE		
D403	1SV323F	VARIABLE CAPACITANCE DIODE		
D404	1SV323F	VARIABLE CAPACITANCE DIODE		
D600	RB521S-30-TP	DIODE		
D601	B30-2314-05	LED(GREEN)		
D602	B30-2315-05	LED(RED)		
D603	GS1G-L	DIODE		
D604	B30-1790-05	LED(BLUE)		
D605	UDZW5.1(B)	ZENER DIODE		
D700	RB706F-40-MC	DIODE		
D701	RB706F-40-MC	DIODE		
D702	1SS372F	DIODE		
D703	MC2850	DIODE		
D754	RB706F-40-MC	DIODE		
C1	CK73HBB1H102K	C CAPACITOR	1000PF K	
C5	CK73HBB1H102K	C CAPACITOR	1000PF K	
C6	CC73HCH1H101J	C CAPACITOR	100PF J	
C7	CC73HCH1H100B	C CAPACITOR	10PF B	
C8	CK73HBB1E103K	C CAPACITOR	0.01UF K	
C9	CC73HCH1H101J	C CAPACITOR	100PF J	
C11	CC73HCH1H100B	C CAPACITOR	10PF B	
C13	CC73HCH1H101J	C CAPACITOR	100PF J	
C15	CK73HBB1E103K	C CAPACITOR	0.01UF K	
C16	CK73HBB1E103K	C CAPACITOR	0.01UF K	
C18	CK73HBB1H102K	C CAPACITOR	1000PF K	
C19	CK73HBB1E103K	C CAPACITOR	0.01UF K	
C22	CK73HBB1H102K	C CAPACITOR	1000PF K	
C23	CK73HBB1E103K	C CAPACITOR	0.01UF K	
C26	CS77MA1ER47M	TA E CAPACITOR	0.47UF 25WV	
C27	CK73HBB1H102K	C CAPACITOR	1000PF K	
C28	CK73HBB1H102K	C CAPACITOR	1000PF K	
C29	C93-1905-05	C CAPACITOR	0.068UF J	
C30	CK73HBB1H102K	C CAPACITOR	1000PF K	
C31	CS77MA1V0R1M	TA E CAPACITOR	0.1UF 35WV	
C32	CK73HBB1H471K	C CAPACITOR	470PF K	
C33	CK73HBB1E103K	C CAPACITOR	0.01UF K	
C34	CK73HBB1A104K	C CAPACITOR	0.1UF K	
C35	CC73HCH1H220J	C CAPACITOR	22PF J	
C36	CK73HBB1A105K	C CAPACITOR	1.0UF K	
C37	CC73HCH1H150J	C CAPACITOR	15PF J	
C38	CK73HBB1H102K	C CAPACITOR	1000PF K	
C40	CC73HCH1H470J	C CAPACITOR	47PF J	
C41	CK73HBB1H102K	C CAPACITOR	1000PF K	
C42	CK73HBB1A104K	C CAPACITOR	0.1UF K	
C43	CK73HBB1H102K	C CAPACITOR	1000PF K	
C45	CK73HBB1H102K	C CAPACITOR	1000PF K	
C46	CC73HCH1H330J	C CAPACITOR	33PF J	
C47	CC73HCH1H470J	C CAPACITOR	47PF J	
C48	CC73HCH1H070B	C CAPACITOR	7.0PF B	
C49	CC73HCH1H090B	C CAPACITOR	9.0PF B	
C50	CC73HCH1H330J	C CAPACITOR	33PF J	
C51	CK73HBB1H102K	C CAPACITOR	1000PF K	
C54	CC73HCH1HR75B	C CAPACITOR	0.75PF B	
C56	CK73FBOJ106K	C CAPACITOR	10UF K	
C57	CC73HCH1H100B	C CAPACITOR	10PF B	

△ Symbol No.	Part No.	Part Name	Description	Local	△ Symbol No.	Part No.	Part Name	Description	Local
C58	CC73HCH1H060B	C CAPACITOR	6.0PF B		C276	CC73GCH1H060B	C CAPACITOR	6.0PF B	
C59	CK73HBB1A105K	C CAPACITOR	1.0UF K		C277	CC73GCH1H030B	C CAPACITOR	3.0PF B	
C60	CC73HCH1H180J	C CAPACITOR	18PF J		C278	CC73GCH1H220J	C CAPACITOR	22PF J	
C61	CC73HCH1H050B	C CAPACITOR	5.0PF B		C279	CC73GCH1H070B	C CAPACITOR	7.0PF B	
C64	CK73HBB1E103K	C CAPACITOR	0.01UF K		C280	CC73GCH1H100C	C CAPACITOR	10PF C	
C65	CK73HBB1E103K	C CAPACITOR	0.01UF K		C400	CK73HBB1A104K	C CAPACITOR	0.1UF K	
C66	CC73HCH1H0R5B	C CAPACITOR	0.5PF B		C402	CC73HCH1H470J	C CAPACITOR	47PF J	
C68	CC73HCH1H010B	C CAPACITOR	1.0PF B		C403	CK73HBB1E103K	C CAPACITOR	0.01UF K	
C71	CK73HBB1H102K	C CAPACITOR	1000PF K		C404	CC73HCH1H180J	C CAPACITOR	18PF J	
C72	CC73HCH1H330J	C CAPACITOR	33PF J		C405	CC73HCH1H390J	C CAPACITOR	39PF J	
C73	CC73HCH1H050B	C CAPACITOR	5.0PF B		C406	CK73HBB1H271K	C CAPACITOR	270PF K	
C74	CC73HCH1H150J	C CAPACITOR	15PF J		C407	CC73HCH1H150J	C CAPACITOR	15PF J	
C75	CK73HBB1H102K	C CAPACITOR	1000PF K		C409	CC73HCH1H390J	C CAPACITOR	39PF J	
C76	CK73HBB1H102K	C CAPACITOR	1000PF K		C410	CK73HBB1H271K	C CAPACITOR	270PF K	
C77	CK73HBB1A104K	C CAPACITOR	0.1UF K		C412	CC73HCH1H560J	C CAPACITOR	56PF J	
C78	CC73HCH1H220J	C CAPACITOR	22PF J		C413	CK73HBB1H182K	C CAPACITOR	1800PF K	
C79	CC73HCH1H180J	C CAPACITOR	18PF J		C414	CK73HBB1H681K	C CAPACITOR	680PF K	
C80	CC73HCH1H220J	C CAPACITOR	22PF J		C415	CK73GB0J106K	C CAPACITOR	10UF K	
C81	CC73HCH1H180J	C CAPACITOR	18PF J		C416	CK73GB0J106K	C CAPACITOR	10UF K	
C82	CC73HCH1H01J	C CAPACITOR	100PF J		C419	CK73HBB1H102K	C CAPACITOR	1000PF K	
C83	CK73HBB1H102K	C CAPACITOR	1000PF K		C421	CK73HBB1A333K	C CAPACITOR	0.033UF K	
C84	CK73HBB1H103K	C CAPACITOR	0.010UF K		C422	CK73HBB1E103K	C CAPACITOR	0.01UF K	
C85	CK73HBB1A473K	C CAPACITOR	0.047UF K		C424	CK73HBB1E103K	C CAPACITOR	0.01UF K	
C86	CK73HBB1E103K	C CAPACITOR	0.01UF K		C425	CK73HBB1H102K	C CAPACITOR	1000PF K	
C87	CK73HBB1H102K	C CAPACITOR	1000PF K		C426	CK73HBB1E103K	C CAPACITOR	0.01UF K	
C88	CK73HBB1H102K	C CAPACITOR	1000PF K		C428	CC73HCH1H030B	C CAPACITOR	3.0PF B	
C89	CK73HBB1A224K	C CAPACITOR	0.22UF K		C429	CC73HCH1H200J	C CAPACITOR	20PF J	
C90	CK73HBB1A224K	C CAPACITOR	0.22UF K		C430	CC73HCH1H030B	C CAPACITOR	3.0PF B	
C200	CK73HBB1H102K	C CAPACITOR	1000PF K		C431	CK73HBB1H102K	C CAPACITOR	1000PF K	
C201	CK73HBB1H102K	C CAPACITOR	1000PF K		C432	CK73HBB1E103K	C CAPACITOR	0.01UF K	
C202	CC73HCH1H470J	C CAPACITOR	47PF J		C433	CK73HBB1H102K	C CAPACITOR	1000PF K	
C207	CC73HCH1H390J	C CAPACITOR	39PF J		C434	CC73HCH1H100B	C CAPACITOR	10PF B	
C208	CC73HCH1H390J	C CAPACITOR	39PF J		C435	CK73HBB1E103K	C CAPACITOR	0.01UF K	
C210	CK73HBB1A224K	C CAPACITOR	0.22UF K		C436	CC73HCH1H020B	C CAPACITOR	2.0PF B	
C211	CK73HBB1H102K	C CAPACITOR	1000PF K		C437	CC73HCH1H100C	C CAPACITOR	10PF C	
C212	CK73HBB1H102K	C CAPACITOR	1000PF K		C438	CC73HCH1H130J	C CAPACITOR	13PF J	
C213	CK73HBB1H102K	C CAPACITOR	1000PF K		C439	CC73HCH1H030B	C CAPACITOR	3.0PF B	
C214	CK73HBB1H102K	C CAPACITOR	1000PF K		C440	CC73HCH1H030B	C CAPACITOR	3.0PF B	
C216	CC73HCH1H390J	C CAPACITOR	39PF J		C441	CK73HBB1E103K	C CAPACITOR	0.01UF K	
C218	CK73HBB1A104K	C CAPACITOR	0.1UF K		C442	CC73HCH1H010B	C CAPACITOR	1.0PF B	
C219	CC73HCH1H300J	C CAPACITOR	30PF J		C443	CK73HBB1H102K	C CAPACITOR	1000PF K	
C220	CC73HCH1H180J	C CAPACITOR	18PF J		C444	CK73HBB1H102K	C CAPACITOR	1000PF K	
C222	CK73HBB1H102K	C CAPACITOR	1000PF K		C445	CC73HCH1H020B	C CAPACITOR	2.0PF B	
C224	CK73HBB1H102K	C CAPACITOR	1000PF K		C446	CK73HBB1H102K	C CAPACITOR	1000PF K	
C225	CK73HBB1H102K	C CAPACITOR	1000PF K		C447	CK73HBB1H102K	C CAPACITOR	1000PF K	
C226	CK73HBB1H102K	C CAPACITOR	1000PF K		C450	CK73HBB1H102K	C CAPACITOR	1000PF K	
C227	CK73FB1A475K	C CAPACITOR	4.7UF K		C452	CK73HBB1H102K	C CAPACITOR	1000PF K	
C228	CC73HCH1H680J	C CAPACITOR	68PF J		C453	CK73HBB1H102K	C CAPACITOR	1000PF K	
C229	CK73HBB1H102K	C CAPACITOR	1000PF K		C454	CC73HCH1H2R5B	C CAPACITOR	2.5PF B	
C230	CC73HCH1H470J	C CAPACITOR	47PF J		C455	CC73HCH1H680J	C CAPACITOR	68PF J	
C232	CK73HBB1H102K	C CAPACITOR	1000PF K		C456	CC73HCH1H1R5B	C CAPACITOR	1.5PF B	
C233	CK73HBB1H102K	C CAPACITOR	1000PF K		C457	CK73HBB1H102K	C CAPACITOR	1000PF K	
C235	CC73HCH1H470J	C CAPACITOR	47PF J		C458	CC73HCH1H1R5B	C CAPACITOR	1.5PF B	
C236	CC73HCH1H100B	C CAPACITOR	10PF B		C459	CC73HCH1H220J	C CAPACITOR	22PF J	
C239	CC73HCH1H151J	C CAPACITOR	150PF J		C460	CC73HCH1H4R5B	C CAPACITOR	4.5PF B	
C240	CC73HCH1H151J	C CAPACITOR	150PF J		C461	CK73HBB1H102K	C CAPACITOR	1000PF K	
C242	CC73GCH1H390J	C CAPACITOR	39PF J		C464	CK73HBB1H102K	C CAPACITOR	1000PF K	
C245	CK73GB1A105K	C CAPACITOR	1.0UF K		C465	CK73HBB1H102K	C CAPACITOR	1000PF K	
C247	CK73GBB1C104K	C CAPACITOR	0.1UF K		C466	CK73HBB1H102K	C CAPACITOR	1000PF K	
C249	CK73HBB1H102K	C CAPACITOR	1000PF K		C468	CK73HBB1A104K	C CAPACITOR	0.1UF K	
C250	CK73HBB1H102K	C CAPACITOR	1000PF K		C469	CC73HCH1H080B	C CAPACITOR	8.0PF B	
C252	CK73HBB1H102K	C CAPACITOR	1000PF K		C470	CC73HCH1H2R5B	C CAPACITOR	2.5PF B	
C253	CC73GCH1H560J	C CAPACITOR	56PF J		C471	CC73HCH1H330J	C CAPACITOR	33PF J	
C257	CC73GCH1H390J	C CAPACITOR	39PF J		C472	CK73HBB1H102K	C CAPACITOR	1000PF K	
C258	CK73HBB1H102K	C CAPACITOR	1000PF K		C474	CC73HCH1H2R5B	C CAPACITOR	2.5PF B	
C259	CC73GCH1H120J	C CAPACITOR	12PF J		C475	CC73HCH1H300J	C CAPACITOR	30PF J	
C260	CC73GCH1H220J	C CAPACITOR	22PF J		C478	CC73HCH1H070B	C CAPACITOR	7.0PF B	
C262	CK73HBB1A104K	C CAPACITOR	0.1UF K		C484	CC73HCH1H080B	C CAPACITOR	8.0PF B	
C263	CK73HBB1H102K	C CAPACITOR	1000PF K		C485	CK73HBB1H102K	C CAPACITOR	1000PF K	
C264	CK73GBB1H102K	C CAPACITOR	1000PF K		C486	CK73GB0J106K	C CAPACITOR	10UF K	
C268	CK73GBB1H102K	C CAPACITOR	1000PF K		C487	CK73HBB1A104K	C CAPACITOR	0.1UF K	
C269	CK73HBB1H102K	C CAPACITOR	1000PF K		C488	CK73HBB1A224K	C CAPACITOR	0.22UF K	
C270	CC73HCH1H040B	C CAPACITOR	4.0PF B		C489	CK73HBB1A105K	C CAPACITOR	1.0UF K	
C271	CC73GCH1H110J	C CAPACITOR	11PF J		C491	CK73HBB1A105K	C CAPACITOR	1.0UF K	
C272	CK73GBB1H102K	C CAPACITOR	1000PF K		C492	CC73HCH1H101J	C CAPACITOR	100PF J	
C273	CC73GCH1H100C	C CAPACITOR	10PF C		C493	CC73HCH1H101J	C CAPACITOR	100PF J	
C274	CC73GCH1H160J	C CAPACITOR	16PF J		C494	CK73HBB1A224K	C CAPACITOR	0.22UF K	
C275	CC73GCH1H200J	C CAPACITOR	20PF J		C495	CK73HBB1A104K	C CAPACITOR	0.1UF K	

△ Symbol No.	Part No.	Part Name	Description	Local	△ Symbol No.	Part No.	Part Name	Description	Local
C496	CK73GB0J106K	C CAPACITOR	10UF K		C778	CK73HBB1H102K	C CAPACITOR	1000PF K	
C497	CK73HBB1A104K	C CAPACITOR	0.1UF K		C779	CK73GB0J106K	C CAPACITOR	10UF K	
C500	CK73HBB1A104K	C CAPACITOR	0.1UF K		C780	CK73HBB1H102K	C CAPACITOR	1000PF K	
C501	CK73HBB1H681K	C CAPACITOR	680PF K		C781	CK73HBB1A104K	C CAPACITOR	0.1UF K	
C504	CC73HCH1H101J	C CAPACITOR	100PF J		C782	CK73HBB1H102K	C CAPACITOR	1000PF K	
C600	CK73GB1A105K	C CAPACITOR	1.0UF K		C783	CK73GB1A105K	C CAPACITOR	1.0UF K	
C601	CK73GB1A105K	C CAPACITOR	1.0UF K		C784	CK73GXR1C225K	C CAPACITOR	2.2UF K	
C602	CK73GXR1C225K	C CAPACITOR	2.2UF K		C785	CK73GB0J106K	C CAPACITOR	10UF K	
C603	CK73GB1A105K	C CAPACITOR	1.0UF K		C786	CK73HB1A224K	C CAPACITOR	0.22UF K	
C604	CK73HBB1H102K	C CAPACITOR	1000PF K		C787	CK73HBB1A104K	C CAPACITOR	0.1UF K	
C605	CK73GB1A105K	C CAPACITOR	1.0UF K		C788	CK73FB0J226M	C CAPACITOR	22UF M	
C606	CK73GB1A105K	C CAPACITOR	1.0UF K		C789	CC73HCH1H101J	C CAPACITOR	100PF J	
C607	CK73GB1A105K	C CAPACITOR	1.0UF K		C790	CK73HB1A473K	C CAPACITOR	0.047UF K	
C609	CK73HBB1H102K	C CAPACITOR	1000PF K		C791	CK73HBB1A104K	C CAPACITOR	0.1UF K	
C610	CK73HBB1H102K	C CAPACITOR	1000PF K		C792	CC73HCH1H101J	C CAPACITOR	100PF J	
C611	CK73HBB1H102K	C CAPACITOR	1000PF K		C794	CK73HBB1A683K	C CAPACITOR	0.068UF K	
C612	CK73HBB1A104K	C CAPACITOR	0.1UF K		C795	CK73GB1A105K	C CAPACITOR	1.0UF K	
C613	CK73HBB1H102K	C CAPACITOR	1000PF K		C798	CK73HBB1H102K	C CAPACITOR	1000PF K	
C615	CK73HBB1H102K	C CAPACITOR	1000PF K		C801	CK73GB1A105K	C CAPACITOR	1.0UF K	
C616	CK73HBB1H102K	C CAPACITOR	1000PF K		C802	CK73HBB1H102K	C CAPACITOR	1000PF K	
C618	CK73GB1A105K	C CAPACITOR	1.0UF K		C805	CK73HBB1H102K	C CAPACITOR	1000PF K	
C620	CK73HBB1H102K	C CAPACITOR	1000PF K		C806	CK73HBB1H102K	C CAPACITOR	1000PF K	
C621	CK73GB1A105K	C CAPACITOR	1.0UF K		C807	CK73HBB1A104K	C CAPACITOR	0.1UF K	
C623	CK73HBB1H102K	C CAPACITOR	1000PF K		C808	CK73EB0J476M	C CAPACITOR	47UF M	
C624	CK73HBB1H102K	C CAPACITOR	1000PF K		C809	CK73EB0J476M	C CAPACITOR	47UF M	
C625	CK73HBB1H102K	C CAPACITOR	1000PF K		C812	CK73HBB1H102K	C CAPACITOR	1000PF K	
C626	CK73HBB1H102K	C CAPACITOR	1000PF K		C814	CK73HBB1A104K	C CAPACITOR	0.1UF K	
C628	CK73HBB1H102K	C CAPACITOR	1000PF K		C815	CK73HB1A105K	C CAPACITOR	1.0UF K	
C629	CK73HBB1E103K	C CAPACITOR	0.01UF K		C851	CK73HBB1A104K	C CAPACITOR	0.1UF K	
C630	CK73HBB1H102K	C CAPACITOR	1000PF K		C852	CK73HBB1H102K	C CAPACITOR	1000PF K	
C631	CK73HBB1H102K	C CAPACITOR	1000PF K		C853	CK73HBB1A104K	C CAPACITOR	0.1UF K	
C700	CK73HBB1H102K	C CAPACITOR	1000PF K		C882	CK73HB1A105K	C CAPACITOR	1.0UF K	
C704	CK73HBB1H102K	C CAPACITOR	1000PF K		C905	CK73HBB1A104K	C CAPACITOR	0.1UF K	
C711	CK73HBB1H102K	C CAPACITOR	1000PF K		C906	CK73HB1H103K	C CAPACITOR	0.010UF K	
C718	CK73HBB1A104K	C CAPACITOR	0.1UF K		C907	CK73HB1H103K	C CAPACITOR	0.010UF K	
C719	CK73HBB1H102K	C CAPACITOR	1000PF K		C908	CK73HXR0J105K	C CAPACITOR	1.0UF K	
C720	CK73GB1A105K	C CAPACITOR	1.0UF K		C909	CK73HBB1A104K	C CAPACITOR	0.1UF K	
C723	CK73GB1A105K	C CAPACITOR	1.0UF K		C910	CK73HB0J225K	C CAPACITOR	2.2UF K	
C730	CK73GB1A105K	C CAPACITOR	1.0UF K		C911	CK73HBB1A104K	C CAPACITOR	0.1UF K	
C732	CK73HBB1H102K	C CAPACITOR	1000PF K		C912	CK73HB0J225K	C CAPACITOR	2.2UF K	
C734	CK73GB0J106K	C CAPACITOR	10UF K		C913	CK73HBB1A104K	C CAPACITOR	0.1UF K	
C735	CK73GB0J106K	C CAPACITOR	10UF K		C914	CK73HB1H103K	C CAPACITOR	0.010UF K	
C736	CK73HBB1H102K	C CAPACITOR	1000PF K		C915	CK73HB1H103K	C CAPACITOR	0.010UF K	
C737	CK73HB1A105K	C CAPACITOR	1.0UF K		C920	CK73HBB1A104K	C CAPACITOR	0.1UF K	
C739	CK73HBB1E103K	C CAPACITOR	0.01UF K		C921	CK73HBB1A104K	C CAPACITOR	0.1UF K	
C740	CK73HBB1A104K	C CAPACITOR	0.1UF K		C922	CK73HBB1A104K	C CAPACITOR	0.1UF K	
C741	CK73GB0J106K	C CAPACITOR	10UF K		C923	CK73HBB1A104K	C CAPACITOR	0.1UF K	
C742	CK73HBB1H102K	C CAPACITOR	1000PF K		C924	CK73GB1A105K	C CAPACITOR	1.0UF K	
C743	CK73HB1H103K	C CAPACITOR	0.010UF K		C925	CK73HB1A105K	C CAPACITOR	1.0UF K	
C744	CK73GB0J106K	C CAPACITOR	10UF K		C970	CK73HBB1H102K	C CAPACITOR	1000PF K	
C745	CK73HBB1A104K	C CAPACITOR	0.1UF K		C971	CK73HBB1A104K	C CAPACITOR	0.1UF K	
C746	CK73HBB1H102K	C CAPACITOR	1000PF K		C980	CS77MB20J101M	TA E CAPACITOR	100UF 35WV	
C747	CK73HBB1H152K	C CAPACITOR	1500PF K		C981	CK73HB0J475M	C CAPACITOR	4.7UF M	
C748	CK73HB1A105K	C CAPACITOR	1.0UF K		C982	CK73HXR0J105K	C CAPACITOR	1.0UF K	
C749	CC73HCH1H101J	C CAPACITOR	100PF J		C983	CK73HBB1H102K	C CAPACITOR	1000PF K	
C750	CC73HCH1H101J	C CAPACITOR	100PF J		C984	CK73HBB1H102K	C CAPACITOR	1000PF K	
C751	CC73HCH1H151J	C CAPACITOR	150PF J		C985	CK73HBB1H102K	C CAPACITOR	1000PF K	
C754	CC73HCH1H101J	C CAPACITOR	100PF J		C986	CK73HBB1H102K	C CAPACITOR	1000PF K	
C756	CK73HB1A105K	C CAPACITOR	1.0UF K		C989	CK73HBB1A104K	C CAPACITOR	0.1UF K	
C758	CK73HB0J475M	C CAPACITOR	4.7UF M		C999	CK73HBB1A104K	C CAPACITOR	0.1UF K	
C759	CK73HB1A105K	C CAPACITOR	1.0UF K						
C760	CK73HB1A474K	C CAPACITOR	0.47UF K		R1	RK73HB1J223J	MG RESISTOR	22K J 1/16W	
C761	CK73HB1A474K	C CAPACITOR	0.47UF K		R2	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
C762	CK73HBB1H102K	C CAPACITOR	1000PF K		R4	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
C763	CK73HB1A473K	C CAPACITOR	0.047UF K		R5	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
C764	CK73HBB1H102K	C CAPACITOR	1000PF K		R7	RK73HB1J683J	MG RESISTOR	68K J 1/16W	
C765	CK73HBB1H102K	C CAPACITOR	1000PF K		R8	RK73HB1J331J	MG RESISTOR	330 J 1/16W	
C766	CK73HB1A474K	C CAPACITOR	0.47UF K		R9	RK73HB1J683J	MG RESISTOR	68K J 1/16W	
C767	CK73GB0J225K	C CAPACITOR	2.2UF K		R10	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
C768	CK73GB0J225K	C CAPACITOR	2.2UF K		R11	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
C769	CK73HB1A474K	C CAPACITOR	0.47UF K		R13	RK73HB1J100J	MG RESISTOR	10 J 1/16W	
C770	CK73HBB1H102K	C CAPACITOR	1000PF K		R16	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
C771	CK73HBB1H102K	C CAPACITOR	1000PF K		R17	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
C772	CC73HCH1H470J	C CAPACITOR	47PF J		R18	RK73HB1J152J	MG RESISTOR	1.5K J 1/16W	
C773	CK73HBB1H102K	C CAPACITOR	1000PF K		R19	RK73HB1J471J	MG RESISTOR	470 J 1/16W	
C774	CK73HBB1H102K	C CAPACITOR	1000PF K		R20	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
C775	CK73HBB1A104K	C CAPACITOR	0.1UF K		R21	RK73HB1J105J	MG RESISTOR	1.0M J 1/16W	
C777	CK73HBB1A683K	C CAPACITOR	0.068UF K		R22	RK73HB1J103J	MG RESISTOR	10K J 1/16W	

△ Symbol No.	Part No.	Part Name	Description	Local	△ Symbol No.	Part No.	Part Name	Description	Local
R23	RK73HB1J470J	MG RESISTOR	47 J 1/16W		R409	RK73HB1J563J	MG RESISTOR	56K J 1/16W	
R24	RK73HB1J474J	MG RESISTOR	470K J 1/16W		R412	RK73HB1J100J	MG RESISTOR	10 J 1/16W	
R25	RK73HB1J105J	MG RESISTOR	1.0M J 1/16W		R413	RK73HB1J184J	MG RESISTOR	180K J 1/16W	
R26	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		R414	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R27	RK73HB1J103J	MG RESISTOR	10K J 1/16W		R417	RK73HB1J684J	MG RESISTOR	680K J 1/16W	
R28	RK73HB1J471J	MG RESISTOR	470 J 1/16W		R418	RK73HB1J334J	MG RESISTOR	330K J 1/16W	
R29	RK73HB1J271J	MG RESISTOR	270 J 1/16W		R419	RK73HB1J331J	MG RESISTOR	330 J 1/16W	
R30	RK73HB1J683J	MG RESISTOR	68K J 1/16W		R420	RK73HB1J271J	MG RESISTOR	270 J 1/16W	
R31	RK73HB1J184J	MG RESISTOR	180K J 1/16W		R421	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R32	RK73HB1J152J	MG RESISTOR	1.5K J 1/16W		R422	RK73HB1J472J	MG RESISTOR	4.7K J 1/16W	
R33	RK73HB1J124J	MG RESISTOR	120K J 1/16W		R423	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W	
R34	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R424	RK73HB1J471J	MG RESISTOR	470 J 1/16W	
R35	RK73HB1J271J	MG RESISTOR	270 J 1/16W		R425	RK73HB1J563J	MG RESISTOR	56K J 1/16W	
R36	RK73HB1J391J	MG RESISTOR	390 J 1/16W		R426	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R37	RK73HB1J220J	MG RESISTOR	22 J 1/16W		R427	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R38	RK73HB1J220J	MG RESISTOR	22 J 1/16W		R428	RK73HB1J563J	MG RESISTOR	56K J 1/16W	
R39	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R429	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R40	RK73HB1J154J	MG RESISTOR	150K J 1/16W		R433	RK73HB1J681J	MG RESISTOR	680 J 1/16W	
R41	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		R434	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R43	RK73HB1J103J	MG RESISTOR	10K J 1/16W		R435	RK73HB1J471J	MG RESISTOR	470 J 1/16W	
R44	RK73HB1J470J	MG RESISTOR	47 J 1/16W		R436	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R45	RK73HB1J271J	MG RESISTOR	270 J 1/16W		R437	RK73HB1J564J	MG RESISTOR	560K J 1/16W	
R46	RK73HB1J103J	MG RESISTOR	10K J 1/16W		R438	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R48	RK73HB1J472J	MG RESISTOR	4.7K J 1/16W		R439	RK73HB1J154J	MG RESISTOR	150K J 1/16W	
R51	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		R440	RK73HB1J270J	MG RESISTOR	27 J 1/16W	
R52	RK73HB1J100J	MG RESISTOR	10 J 1/16W		R441	RK73HB1J473D	MG RESISTOR	47K D 1/16W	
R53	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R442	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R54	RK73HB1J103J	MG RESISTOR	10K J 1/16W		R446	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R55	RK73HB1J273J	MG RESISTOR	27K J 1/16W		R448	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R56	RK73HB1J100J	MG RESISTOR	10 J 1/16W		R449	RK73HB1J224J	MG RESISTOR	220K J 1/16W	
R58	RK73HB1J103J	MG RESISTOR	10K J 1/16W		R450	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R200	RK73HB1J472J	MG RESISTOR	4.7K J 1/16W		R451	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R202	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R452	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R210	RK73HB1J220J	MG RESISTOR	22 J 1/16W		R453	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R211	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		R454	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R212	RK73HB1J152J	MG RESISTOR	1.5K J 1/16W		R455	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R213	RK73HB1J220J	MG RESISTOR	22 J 1/16W		R457	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R214	RK73HB1J561J	MG RESISTOR	560 J 1/16W		R458	RK73HB1J471J	MG RESISTOR	470 J 1/16W	
R215	RK73HB1J561J	MG RESISTOR	560 J 1/16W		R459	RK73HB1J332J	MG RESISTOR	3.3K J 1/16W	
R217	RK73HB1J100J	MG RESISTOR	10 J 1/16W		R460	RK73HB1J105J	MG RESISTOR	1.0M J 1/16W	
R219	RK73HB1J561J	MG RESISTOR	560 J 1/16W		R461	RK73HB1J224J	MG RESISTOR	220K J 1/16W	
R222	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R464	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R223	RK73HB1J561J	MG RESISTOR	560 J 1/16W		R600	RK73GB2A221J	MG RESISTOR	220 J 1/10W	
R224	RK73HB1J470J	MG RESISTOR	47 J 1/16W		R601	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R225	RK73HB1J823J	MG RESISTOR	82K J 1/16W		R602	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R226	RK73HB1J472J	MG RESISTOR	4.7K J 1/16W		R603	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R227	RK73HB1J563J	MG RESISTOR	56K J 1/16W		R604	RK73GB2A331J	MG RESISTOR	330 J 1/10W	
R228	RK73HB1J333J	MG RESISTOR	33K J 1/16W		R605	RK73HB1J223J	MG RESISTOR	22K J 1/16W	
R229	RK73HB1J391J	MG RESISTOR	390 J 1/16W		R606	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R230	RK73EB2ER39J	MG RESISTOR	0.39 J 1/4W		R607	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R231	RK73EB2ER39J	MG RESISTOR	0.39 J 1/4W		R608	RK73GB2A271J	MG RESISTOR	270 J 1/10W	
R232	RK73HB1J563J	MG RESISTOR	56K J 1/16W		R609	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R233	RK73EB2ER39J	MG RESISTOR	0.39 J 1/4W		R610	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R235	RK73HB1J182J	MG RESISTOR	1.8K J 1/16W		R611	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R236	RK73HB1J820J	MG RESISTOR	82 J 1/16W		R612	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R237	RK73HH1J154D	MG RESISTOR	150K D 1/16W		R613	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R238	RK73HH1J154D	MG RESISTOR	150K D 1/16W		R614	RK73HH1J824D	MG RESISTOR	820K D 1/16W	
R239	RK73HB1J333J	MG RESISTOR	33K J 1/16W		R615	RK73HH1J394D	MG RESISTOR	390K D 1/16W	
R240	RK73GB2A100J	MG RESISTOR	10 J 1/10W		R616	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R241	RK73HH1J474D	MG RESISTOR	470K D 1/16W		R701	RK73HH1J103D	MG RESISTOR	10K D 1/16W	
R242	RK73HH1J474D	MG RESISTOR	470K D 1/16W		R702	RK73HH1J103D	MG RESISTOR	10K D 1/16W	
R243	RK73HB1J103J	MG RESISTOR	10K J 1/16W		R703	RK73HB1J153J	MG RESISTOR	15K J 1/16W	
R244	RK73HB1J563J	MG RESISTOR	56K J 1/16W		R705	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R246	RK73HB1J474J	MG RESISTOR	470K J 1/16W		R708	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R247	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R709	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W	
R248	RK73HB1J105J	MG RESISTOR	1.0M J 1/16W		R710	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R249	RK73HB1J271J	MG RESISTOR	270 J 1/16W		R711	RK73HH1J103D	MG RESISTOR	10K D 1/16W	
R250	RK73FB2B000J	MG RESISTOR	0.0 J 1/8W		R712	RK73HB1J473J	MG RESISTOR	47K J 1/16W	
R251	RK73HB1J271J	MG RESISTOR	270 J 1/16W		R715	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R252	RK73GB2A000J	MG RESISTOR	0.0 J 1/10W		R718	RK73HB1J820J	MG RESISTOR	82 J 1/16W	
R253	RK73GB2A823J	MG RESISTOR	82K J 1/10W		R720	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R400	RK73HB1J334J	MG RESISTOR	330K J 1/16W		R723	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R401	RK73HB1J101J	MG RESISTOR	100 J 1/16W		R725	RK73HB1J473J	MG RESISTOR	47K J 1/16W	
R403	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W		R726	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R404	RK73HB1J564J	MG RESISTOR	560K J 1/16W		R736	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R405	RK73HB1J474J	MG RESISTOR	470K J 1/16W		R737	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R407	RK73HB1J332J	MG RESISTOR	3.3K J 1/16W		R740	RK73HB1J472J	MG RESISTOR	4.7K J 1/16W	
R408	RK73HB1J332J	MG RESISTOR	3.3K J 1/16W		R744	RK73HB1J150J	MG RESISTOR	15 J 1/16W	

△ Symbol No.	Part No.	Part Name	Description	Local
R746	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W	
R748	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R751	RK73HB1J105J	MG RESISTOR	1.0M J 1/16W	
R752	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R755	RK73HB1J564J	MG RESISTOR	560K J 1/16W	
R756	RK73HB1J100J	MG RESISTOR	10 J 1/16W	
R757	RK73HB1J473J	MG RESISTOR	47K J 1/16W	
R759	RK73HB1J153J	MG RESISTOR	15K J 1/16W	
R760	RK73HB1J473J	MG RESISTOR	47K J 1/16W	
R762	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R763	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R764	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R765	RK73HB1J273J	MG RESISTOR	27K J 1/16W	
R766	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W	
R767	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R768	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R769	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R770	RK73HB1J124J	MG RESISTOR	120K J 1/16W	
R772	RK73HB1J154J	MG RESISTOR	150K J 1/16W	
R773	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R774	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R775	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R777	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R780	RK73HB1J474J	MG RESISTOR	470K J 1/16W	
R781	RK73HB1J682J	MG RESISTOR	6.8K J 1/16W	
R782	RK73HB1J473J	MG RESISTOR	47K J 1/16W	
R783	RK73HB1J272J	MG RESISTOR	2.7K J 1/16W	
R784	RK73HB1J123J	MG RESISTOR	12K J 1/16W	
R785	RK73HB1J273J	MG RESISTOR	27K J 1/16W	
R786	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R787	RK73HB1J105J	MG RESISTOR	1.0M J 1/16W	
R788	RK73HB1J473J	MG RESISTOR	47K J 1/16W	
R789	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R790	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R792	RK73HB1J471J	MG RESISTOR	470 J 1/16W	
R793	RK73HB1J182J	MG RESISTOR	1.8K J 1/16W	
R794	RK73HB1J152J	MG RESISTOR	1.5K J 1/16W	
R795	RK73HB1J473J	MG RESISTOR	47K J 1/16W	
R796	RK73HB1J561J	MG RESISTOR	560 J 1/16W	
R797	RK73HH1J334D	MG RESISTOR	330K D 1/16W	
R798	RK73HH1J154D	MG RESISTOR	150K D 1/16W	
R800	RK73HB1J183J	MG RESISTOR	18K J 1/16W	
R801	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R802	RK73HB1J474J	MG RESISTOR	470K J 1/16W	
R803	RK73HB1J331J	MG RESISTOR	330 J 1/16W	
R804	RK73HB1J124J	MG RESISTOR	120K J 1/16W	
R805	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R806	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R807	RK73HB1J332J	MG RESISTOR	3.3K J 1/16W	
R809	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R810	RK73HB1J334J	MG RESISTOR	330K J 1/16W	
R811	RK73HB1J274J	MG RESISTOR	270K J 1/16W	
R812	RK73HB1J473J	MG RESISTOR	47K J 1/16W	
R813	RK73HB1J823J	MG RESISTOR	82K J 1/16W	
R814	RK73HB1J273J	MG RESISTOR	27K J 1/16W	
R815	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R816	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R817	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R824	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R825	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R826	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R828	RK73HB1J273J	MG RESISTOR	27K J 1/16W	
R850	RK73GB2A000J	MG RESISTOR	0.0 J 1/10W	
R852	RK73HB1J123J	MG RESISTOR	12K J 1/16W	
R853	RK73HB1J123J	MG RESISTOR	12K J 1/16W	
R857	RK73HB1J100J	MG RESISTOR	10 J 1/16W	
R860	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R877	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R881	RK73HB1J473J	MG RESISTOR	47K J 1/16W	
R901	RK73HB1J473J	MG RESISTOR	47K J 1/16W	
R902	RK73HB1J473J	MG RESISTOR	47K J 1/16W	
R903	RK73HB1J220J	MG RESISTOR	22 J 1/16W	
R904	RK73HB1J820J	MG RESISTOR	82 J 1/16W	
R905	RK73HB1J474J	MG RESISTOR	470K J 1/16W	
R907	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R960	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R970	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R977	RK73HB1J103J	MG RESISTOR	10K J 1/16W	

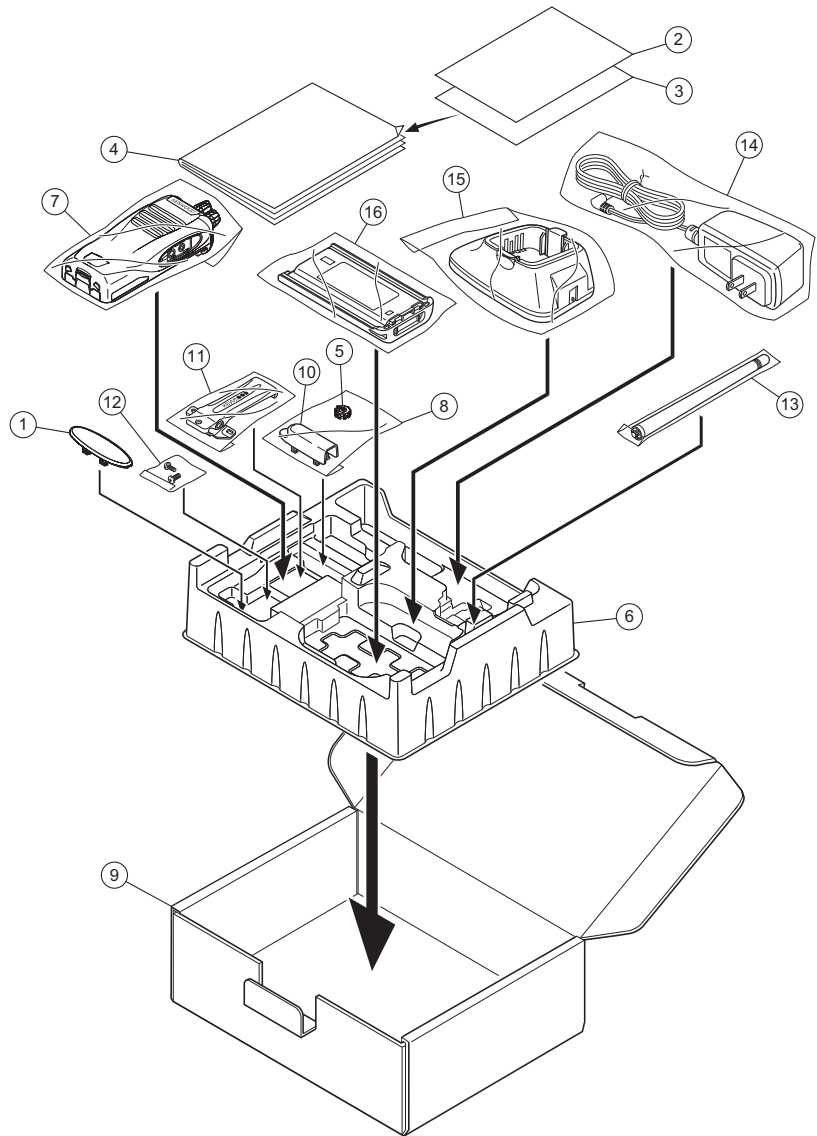
△ Symbol No.	Part No.	Part Name	Description	Local
R978	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R979	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R983	RK73GB2A000J	MG RESISTOR	0.0 J 1/10W	
R984	RK73GB2A000J	MG RESISTOR	0.0 J 1/10W	
R987	RK73GB2A000J	MG RESISTOR	0.0 J 1/10W	
R988	RK73GB2A000J	MG RESISTOR	0.0 J 1/10W	
R991	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R992	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R993	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R994	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R995	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R996	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R997	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
L1	LR77Z0AE4R7J	CHIP INDUCTOR		
L2	L92-0442-05	CHIP FERRITE		
L3	LB73H0AV-003	CHIP FERRITE BEADS		
L4	LK73H0AM15NJ	M.CHIP INDUCTOR		
L7	LK73G0AQ100K	M.CHIP INDUCTOR		
L8	LK73G0AQ100K	M.CHIP INDUCTOR		
L9	LK73H0AM27NJ	M.CHIP INDUCTOR		
L10	L40-2702-86	SMALL FIXED INDUCTOR(27UH)		
L11	L40-2702-86	SMALL FIXED INDUCTOR(27UH)		
L13	LK73G0AQ3R3K	M.CHIP INDUCTOR		
L14	LK73G0AQ3R3K	M.CHIP INDUCTOR		
L15	L41-3978-14	SMALL FIXED INDUCTOR(39NH)		
L16	L41-2278-14	SMALL FIXED INDUCTOR(22NH)		
L17	LB73H0AV-003	CHIP FERRITE BEADS		
L21	LK73G0AQ100K	M.CHIP INDUCTOR		
L23	LK73G0AQ100K	M.CHIP INDUCTOR		
L24	L40-1085-71	SMALL FIXED INDUCTOR(100NH)		
L25	L40-1085-71	SMALL FIXED INDUCTOR(100NH)		
L26	LK73H0AM18NJ	M.CHIP INDUCTOR		
L204	LK73H0AM33NJ	M.CHIP INDUCTOR		
L205	L40-1085-71	SMALL FIXED INDUCTOR(100NH)		
L206	LB73H0AV-002	CHIP FERRITE BEADS		
L207	LK73H0AM39NJ	M.CHIP INDUCTOR		
L208	LR79Z0DC45N5J	CHIP INDUCTOR		
L209	LB73F0AW-002	CHIP FERRITE BEADS		
L212	LB73F0AW-002	CHIP FERRITE BEADS		
L213	L34-4569-05	AIR-CORE COIL		
L216	L41-2295-39	SMALL FIXED INDUCTOR(2.2UH)		
L217	LR79Z0DC45N5J	CHIP INDUCTOR		
L218	LR79Z0DD27N4J	CHIP INDUCTOR		
L219	L34-4569-05	AIR-CORE COIL		
L220	LR79Z0DD37N7J	CHIP INDUCTOR		
L221	LR79Z0DD12N2J	CHIP INDUCTOR		
L222	LR79Z0DD21N9J	CHIP INDUCTOR		
L223	LR79Z0DD27N4J	CHIP INDUCTOR		
L400	L41-1885-53	SMALL FIXED INDUCTOR(0.18UH)		
L401	L40-1085-71	SMALL FIXED INDUCTOR(100NH)		
L402	L40-1591-86	SMALL FIXED INDUCTOR(1.5UH)		
L403	LB73G0BD-005	CHIP FERRITE BEADS		
L404	L41-6885-39	SMALL FIXED INDUCTOR(0.68UH)		
L405	LK73H0AM56NJ	M.CHIP INDUCTOR		
L406	L41-1885-53	SMALL FIXED INDUCTOR(0.18UH)		
L407	LK73H0AM56NJ	M.CHIP INDUCTOR		
L408	L41-1585-53	SMALL FIXED INDUCTOR(0.15UH)		
L409	L41-2785-53	SMALL FIXED INDUCTOR(0.27UH)		
L411	L41-6878-14	SMALL FIXED INDUCTOR(68NH)		
L412	LB73G0BD-005	CHIP FERRITE BEADS		
L414	L41-6878-14	SMALL FIXED INDUCTOR(68NH)		
L415	L41-6878-14	SMALL FIXED INDUCTOR(68NH)		
L416	L41-6878-14	SMALL FIXED INDUCTOR(68NH)		
L600	L92-0472-05	CHIP FERRITE		
L601	LB73G0BD-005	CHIP FERRITE BEADS		
L700	L92-0161-05	BEADS CORE		
L701	L92-0161-05	BEADS CORE		
L702	L92-0161-05	BEADS CORE		
L901	LB73H0AV-003	CHIP FERRITE BEADS		
L902	LB73H0AV-003	CHIP FERRITE BEADS		
L903	LB73H0AV-003	CHIP FERRITE BEADS		
CN600	E40-6922-05	FLAT CABLE CONNECTOR		
CN912	E23-1167-05	TERMINAL		
CN913	E23-1167-05	TERMINAL		
CN914	E23-1167-05	TERMINAL		
CN915	E23-1167-05	TERMINAL		

△ Symbol No.	Part No.	Part Name	Description	Local
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CN916	E23-1167-05	TERMINAL		
CN917	E23-1167-05	TERMINAL		
CN918	E23-1167-05	TERMINAL		
CN919	E23-1167-05	TERMINAL		
CN920	E23-1167-05	TERMINAL		
CN921	E23-1167-05	TERMINAL		
CP1	RK74HA1J101J	CHIP-COM	100 J 1/16W	
CP20	RK75HA1J473J	CHIP-COM	47K J 1/16W	
CP21	RK75HA1J473J	CHIP-COM	47K J 1/16W	
CP22	RK74HA1J102J	CHIP-COM	1.0K J 1/16W	
CP23	RK75HA1J473J	CHIP-COM	47K J 1/16W	
CP24	RK74HA1J102J	CHIP-COM	1.0K J 1/16W	
CP25	RK75HA1J473J	CHIP-COM	47K J 1/16W	
CP26	RK75HA1J103J	CHIP-COM	10K J 1/16W	
CP27	RK75HA1J474J	CHIP-COM	470K J 1/16W	
CP28	RK75HA1J103J	CHIP-COM	10K J 1/16W	
CP401	RK75HA1J474J	CHIP-COM	470K J 1/16W	
CP402	RK75HA1J474J	CHIP-COM	470K J 1/16W	
F600	F53-0324-15	FUSE(2.5A)		
F601	F53-0319-15	FUSE(1A)		
J601	E11-0703-05	PHONE JACK (SP/MIC)		
S601	S70-0414-05	TACT SWITCH		
S602	S70-0414-05	TACT SWITCH		
S603	S70-0414-05	TACT SWITCH		
TH200	ERTJ0EV104J	THERMISTOR		
TH400	NCP18WM224J03	THERMISTOR		
X1	L77-3127-05	TCXO(15.3MHZ)		
X2	L77-3129-05	TCXO(19.2MHZ)		
XF400	L71-0686-05	MCF(45.45MHZ)		

Packing materials and accessories parts list

Block No.M2MM



Packing and accessories

Block No. [M][2][M][M]

Symbol No.	Part No.	Part Name	Description	Local
1	B09-0758-03	CAP(SP/MIC)		
2	-----	PAMPHLET(SRA)		
3	-----	PAMPHLET(VOCODER)		
4	B62-2580-00	INSTRUCTION MANUAL		240_K,240V_K,240_P
4	B62-2581-00	INSTRUCTION MANUAL		240_M,240_M2
5	D32-0456-03	STOPPER(SELECTOR)		
6	H12-4319-05	PACKING FIXTURE		240_K,240V_K,240_M2,240_P
7	-----	PROTECTION BAG (100/200/0.07)		
8	-----	PROTECTION BAG		
9	H52-2589-01	ITEM CARTON CASE		240_K,240V_K,240_M2,240_P
9	H52-2588-01	ITEM CARTON CASE		240_M
10	J19-5577-03	HOLDER(SP/MIC)		
11	J29-0734-15	BELT CLIP		
12	N99-2089-05	SCREW SET		
13	T90-1036-15	HELICAL ANTENNA		240_K,240V_K,240_P
14	W08-1247-25	AC ADAPTER		240_K,240V_K
14	W08-1327-15	AC ADAPTER		240_M2
14	W08-1326-15	AC ADAPTER		240_P
15	W08-1249-45	CHARGER		240_K,240V_K
15	W08-1331-05	CHARGER		240_M2,240_P
16	-----	BATTERY ASSY(KNB-45L)		240_K,240V_K,240_P
16	-----	BATTERY ASSY(KNB-53N)		240_M2

MEMO



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