



SERVICE MANUAL

144 MHz FM TRANSCEIVER

IC-2SRA

IC-2SRE

INTRODUCTION

This service manual describes the latest service information for the IC-2SRA/E 144 MHz FM TRANSCEIVER at the time of publication.

MODEL	VERSION No.	VERSION	SYMBOL
IC-2SRA	#05	U.S.A.	USA
	#07	Australia	AUS
	#09	Asia	SEA
IC-2SRE	#02, #12	Europe	EUR-1, 3
	#03, #13	U.K.	UK, UK-1
	#04, #14	Italy	EUR-2, 4

DANGER

NEVER connect the transceiver to an AC outlet or to a DC power supply that uses more than 16 V. This will ruin the transceiver.

DO NOT expose the transceiver to rain, snow or any liquids.

DO NOT reverse the polarities of the power supply when connecting the transceiver.

DO NOT apply an RF signal of more than 20 dBm (100 mW) to the antenna connector. This could damage the transceiver's front end.

ORDERING PARTS

Be sure to include the following four points when ordering replacement parts:

1. 10-digit order numbers
2. Component part number and name
3. Equipment model name and unit name
4. Quantity required

<SAMPLE ORDER>

1130003760 IC TC4S71F IC-2SRA/E LOGIC UNIT 5 pieces
8810004870 Screw PHM2×2.5 ZK IC-2SRA/E Top cover 10 pieces

Addresses are provided on the inside back cover for your convenience.

REPAIR NOTES

1. Make sure a problem is internal before disassembling the transceiver.
2. **DO NOT** open the transceiver until the transceiver is disconnected from its power source.
3. **DO NOT** force any of the variable components. Turn them slowly and smoothly.
4. **DO NOT** short any circuits or electronic parts. An insulated tuning tool **MUST** be used for all adjustments.
5. **DO NOT** keep power ON for a long time when the transceiver is defective.
6. **DO NOT** transmit power into a signal generator or a sweep generator.
7. **ALWAYS** connect a 30 dB~40 dB attenuator between the transceiver and a deviation meter or spectrum analyzer when using such test equipment.
8. **READ** the instructions of test equipment thoroughly before connecting equipment to the transceiver.



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SECTION 1 SPECIFICATIONS

■ GENERAL

● Current drain

CONDITION			BAND	
			HAM	RECEIVER
Transmit (13.5 V)	High Power		1.3 A	—
	Low power 1		500 mA	—
Receive (12.5 V)	One band operation	Power saved	20 mA ^{*1}	20 mA ^{*1}
		Rated audio output	150 mA	200 mA
	Dual band operation	Power saved	40 mA ^{*1}	
		Rated audio output	250 mA	

^{*1} Average value.

: 6~16 V DC (negative ground)

: -10°C~+60°C; +14°F~+140°F

● External DC power supply

● Usable temperature range

● Dimensions and weight

(Projections not included.)

VERSION	DIMENSION	WEIGHT	BATTERY
IC-2SRA (#05)	54 (W)×170 (H)×36 (D) mm 2.1 (W)×6.7 (H)×1.4 (D) in	510 g 1.1 lb	BP-84
IC-2SRA (#07)	54 (W)×135 (H)×36 (D) mm 2.1 (W)×5.3 (H)×1.4 (D) in	395 g 13.9 oz	BP-82
IC-2SRE (#02~04)	54 (W)×154 (H)×36 (D) mm 2.1 (W)×6.1 (H)×1.4 (D) in	440 g ^{*2} 15.5 oz ^{*2}	BP-90
IC-2SRA (#09)	54 (W)×154 (H)×36 (D) mm 2.1 (W)×6.1 (H)×1.4 (D) in	430 g 15.2 oz	BP-83

^{*2}Weight includes 6 dry cell batteries.

■ HAM BAND

General

● Frequency coverage

VERSION	FREQUENCY COVERAGE
IC-2SRA (#05, #09)	140~150 MHz ^{*3} (Transmit)
IC-2SRE (#04, #14)	138~174 MHz ^{*3} (Receive)
IC-2SRE (#02, #03, #12, #13)	144~146 MHz
IC-2SRA (#07)	144~148 MHz

^{*3} Guaranteed frequency coverage is 144~148 MHz.

● Mode

: FM

● Frequency stability

: ±5 ppm (0°C~+50°C; +32°F~+122°F)

● Antenna impedance

: 50Ω (nominal)

Transmitter

● Output power (at 13.5 V)

: 5 W, 3.5 W, 1.5 W and 500 mW

● Max. frequency deviation

: ±5 kHz

● Spurious emissions

: Less than -60 dB

Receiver

● Receive system

: Double-conversion superheterodyne

● Intermediate frequencies

: 1st 30.85 MHz 2nd 455 kHz

● Sensitivity

: Less than 0.16 μV for 12 dB SINAD

● Squelch sensitivity

: Less than 0.18 μV at threshold

● Selectivity

: More than 15 kHz/-6 dB

Less than 30 kHz/-60 dB

● Spurious response rejection

: More than 60 dB

● Audio output power

: 180 mW at 10% distortion with an 8Ω load.

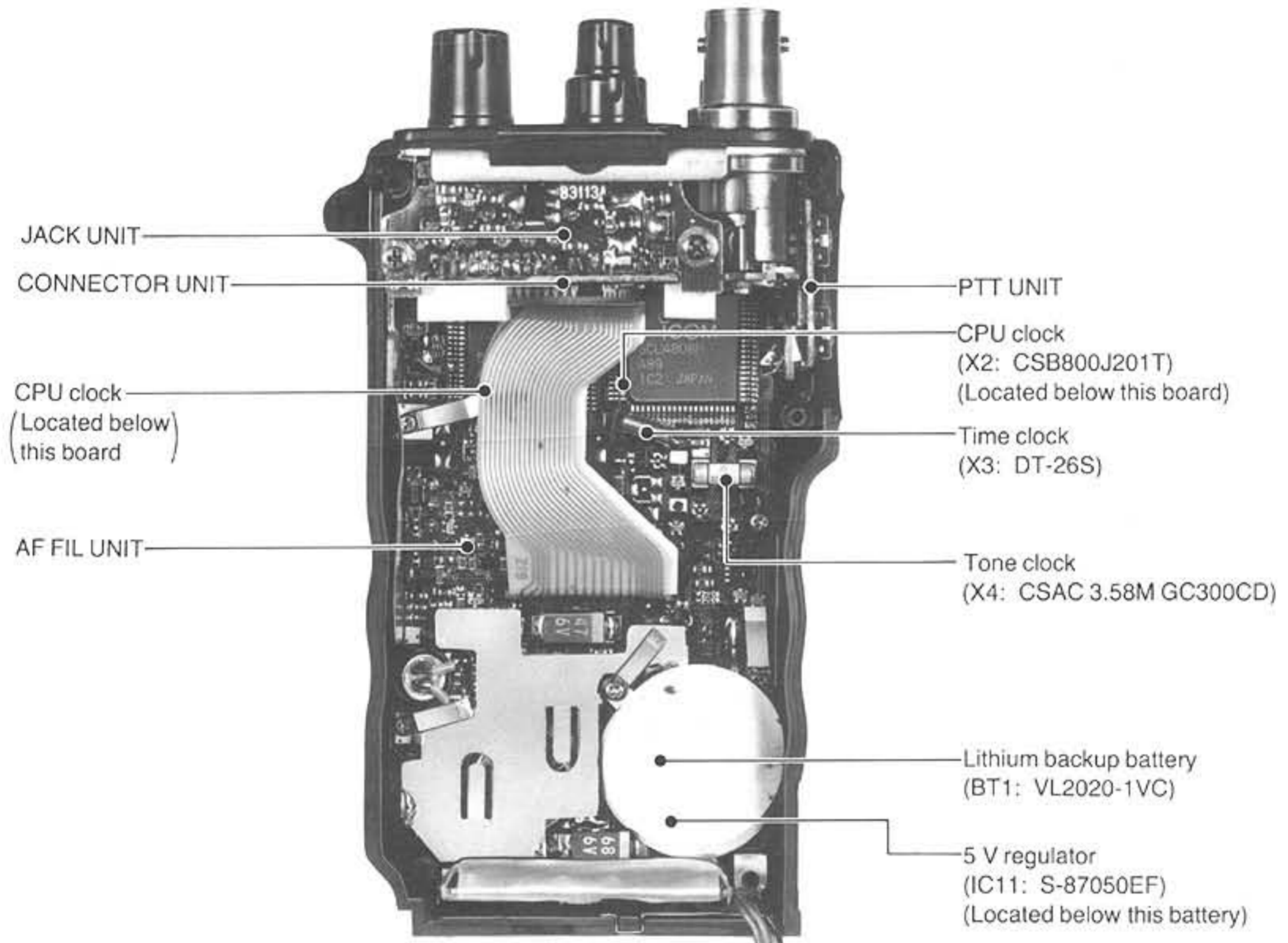
■ RECEIVER BAND

- Frequency coverage : 25~950 MHz
Guaranteed frequency coverage is 50~905 MHz.
- Mode : AM, FM and WFM
- Receive system : Triple-conversion superheterodyne
- Intermediate frequencies : 1st 266.700 MHz, 2nd 10.700 MHz, 3rd 455 kHz
- Sensitivity (Typical) : AM 1.8 μ V for 10 dB S/N
FM 0.56 μ V for 12 dB SINAD
WFM 1.8 μ V for 12 dB SINAD
Values not guaranteed for spurious points.
- Selectivity : AM, FM More than 15 kHz/6 dB
WFM More than 150 kHz/6 dB
- Audio output power : 180 mW at 10% distortion with an 8 Ω load.

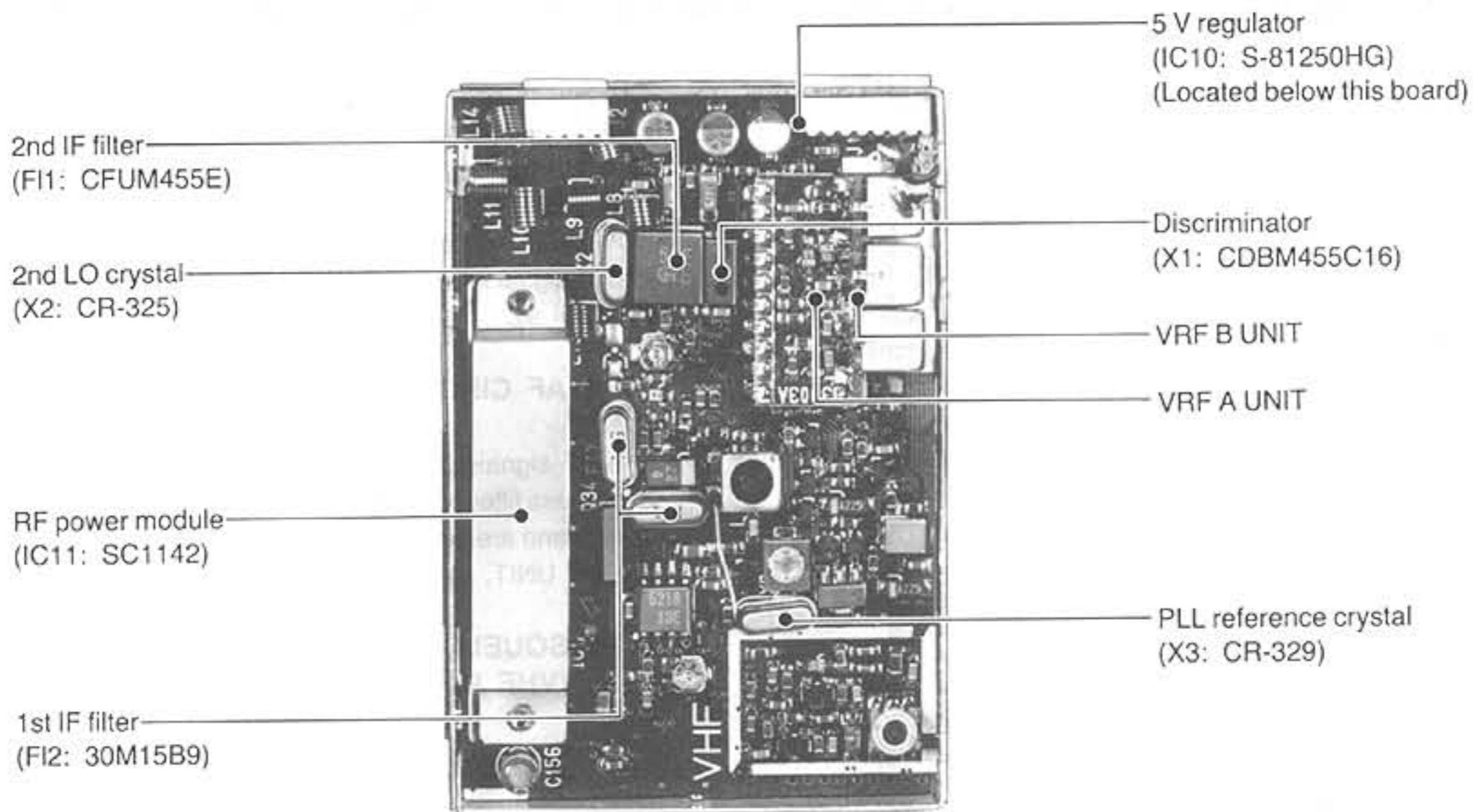
All stated specifications are subject to change without notice or obligation.

SECTION 2 INSIDE VIEWS

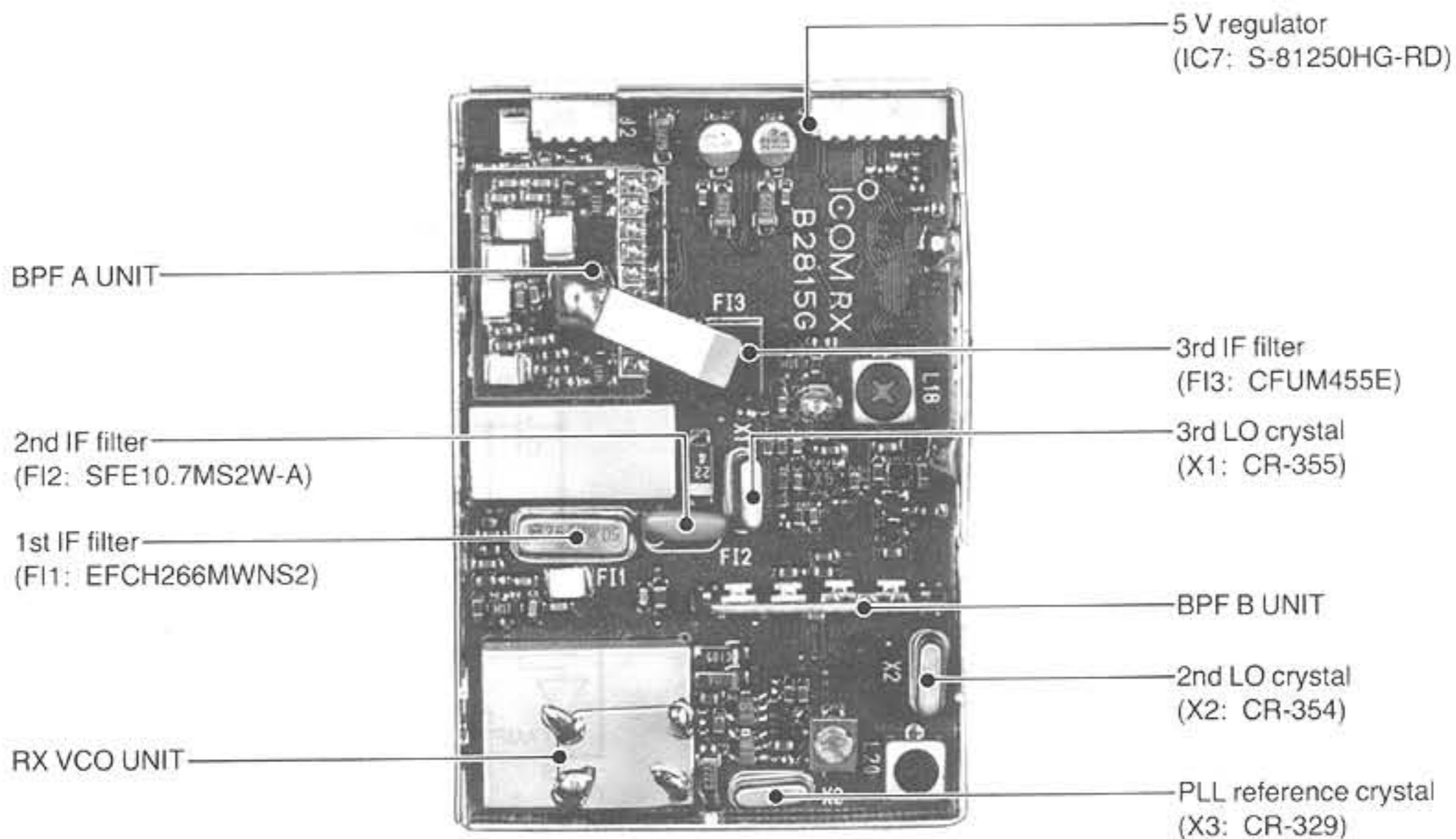
2-1 LOGIC UNIT



2-2 VHF RF UNIT



2-3 RX UNIT



SECTION 3 CIRCUIT DESCRIPTION

3-1 HAM BAND RECEIVER CIRCUITS

3-1-1 ANTENNA SWITCHING CIRCUIT (VHF RF UNIT)

The received signals enter the CONNECTOR UNIT. The VHF RF signals are applied to the bandpass filter (L10, L11, L14, C56~60) and then to the antenna switching circuit.

The antenna switching circuit employs a $\lambda/4$ -type diode switching system. While receiving, D23 turns OFF. The received signals which are applied to the VRFA UNIT pass through a low-pass filter (L8, L9, C52~54, D9).

3-1-2 RF AND 1st MIXER CIRCUITS (VRFA AND VHF RF UNITS)

The RF circuit amplifies the received signals up to the level needed at the 1st mixer circuit. The 1st mixer circuit converts the received signals to a fixed frequency of the 1st IF signal with a PLL output frequency. By changing the PLL frequency, only the desired frequency can pass through a pair of crystal filters at the next stage of the 1st mixer.

The VHF RF signals from the antenna switching circuit are amplified at Q1 and Q2 and are then converted to a 1st IF signal at Q6. The frequency of the 1st IF signal is 30.85 MHz. Q6 converts the RF signal using the PLL output signal from D16.

The VHF RF circuit adopts a tuned bandpass filter circuit that tunes the filters to the center frequency of the receiving signal using varactor diodes (D2, D4, D5). A PLL lock voltage is used for the filter tuned signal.

3-1-3 IF CIRCUIT (VHF RF UNIT)

The 1st IF signal passes through the crystal filter (F12) to suppress out-of-band signals. The signal is then amplified at Q5 and is applied to the FM IF IC (IC1, pin 16).

IC1 contains the 2nd mixer, local oscillator, limiter amplifier, quadrature detector, active filter and S-meter detector circuits. The local oscillator section and X2 generate 30.395 MHz for the 2nd LO signal.

The 1st IF signal is applied to a 2nd mixer section of IC1 (pin 16) and is then mixed with a 2nd LO signal for conversion to a 455 kHz 2nd IF signal.

The 2nd IF signal from the 2nd mixer (IC1, pin 3) passes through a ceramic filter (F11) where unwanted signals are suppressed. It is then amplified at the limiter amplifier section (IC1, pin 5) and applied to the quadrature detector section (IC1, pin 8 and ceramic discriminator, X1) to demodulate the 2nd IF signal into an AF signal. The AF signal is output from IC1 (pin 9).

3-1-4 AF CIRCUIT (AF FIL AND AF UNITS)

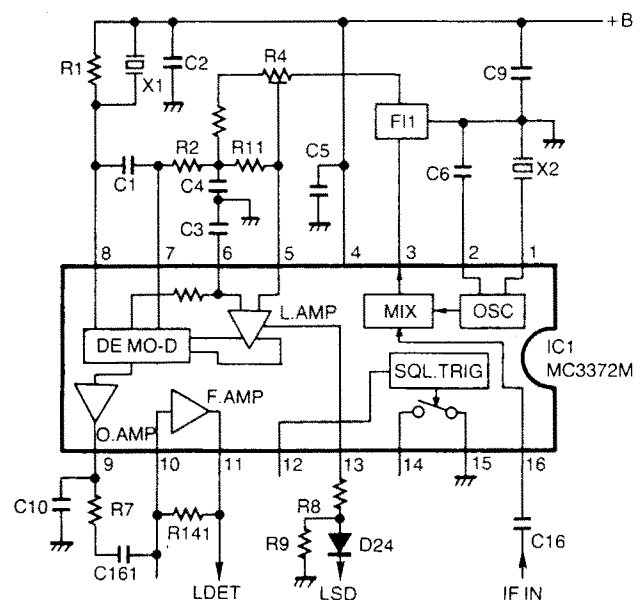
The AF signals from the VHF RF UNIT are applied to the band-pass filter (Q6) and are passed through the [HAM] VOL control and are then amplified at the power amplifier (IC1), on the AF UNIT, to obtain the speaker driving level.

3-1-5 SQUELCH CIRCUIT (VHF RF AND LOGIC UNITS)

In an FM receiver, noise signals are automatically suppressed while a signal with voice components is received. The noise squelch circuit acts in accordance with this phenomenon.

Noise components in the AF signal (20 kHz and higher) from IC1 (pin 11) are applied to the LOGIC UNIT. The noise signal passes through the [HAM] SQL control (R1) and is amplified at the active filter (IC7). This signal is rectified at D29 and is converted to DC voltage. This voltage is applied to Q30 or to IC16. Thus, while receiving no signal, the "LOW" signal is output from Q30 as the "L BUSY" signal.

While IC16 is turning over the rectified DC voltage, the "L MUT" signal is controlling the AF MUTE circuit (Q4, Q5). When the "L MUT" signal is "LOW," the AF MUTE circuit turns ON.



VHF IF CIRCUIT

3-2 HAM BAND TRANSMITTER CIRCUITS

3-2-1 MIC CONTROL CIRCUIT (LOGIC UNIT)

The mic control circuit controls the external or internal audio, DTMF tone and TONE CALL signals.

An audio signal from the external microphone is applied to the microphone control circuit (IC17, IC18, Q1, Q2). The audio signal passes through the attenuator (R19~R21) and is connected to the internal microphone. The audio signal amplified at IC20 is applied to the VHF RF UNIT. When the DTMF tone or TONE CALL signal outputs to the mic amp circuit, Q5 turns OFF the audio signal to prevent malfunctioning.

3-2-2 MIC AMP CIRCUIT (VHF RF UNIT)

The mic amplifier circuit amplifies audio signals with 6 dB/oct. pre-emphasis from the microphone to a level needed for the modulation circuit.

The mic amplifier circuit has a low level amplifier with pre-emphasis (IC9a) and a limiter amplifier (IC9b).

3-2-3 MODULATION CIRCUIT (VHF RF UNIT)

The modulation circuit modulates the VCO oscillating signal (RF signal) using the microphone audio signal.

The audio signal from IC9 (pin 1) changes the reactance of a varactor diode (D10) to modulate the oscillated signal at the TX VCO (Q23, Q24). The oscillated signal is buffer-amplified at Q25 and Q26 and is then applied to the drive amplifier circuit.

3-2-4 DRIVE AND POWER AMPLIFIER CIRCUITS (VHF RF UNIT)

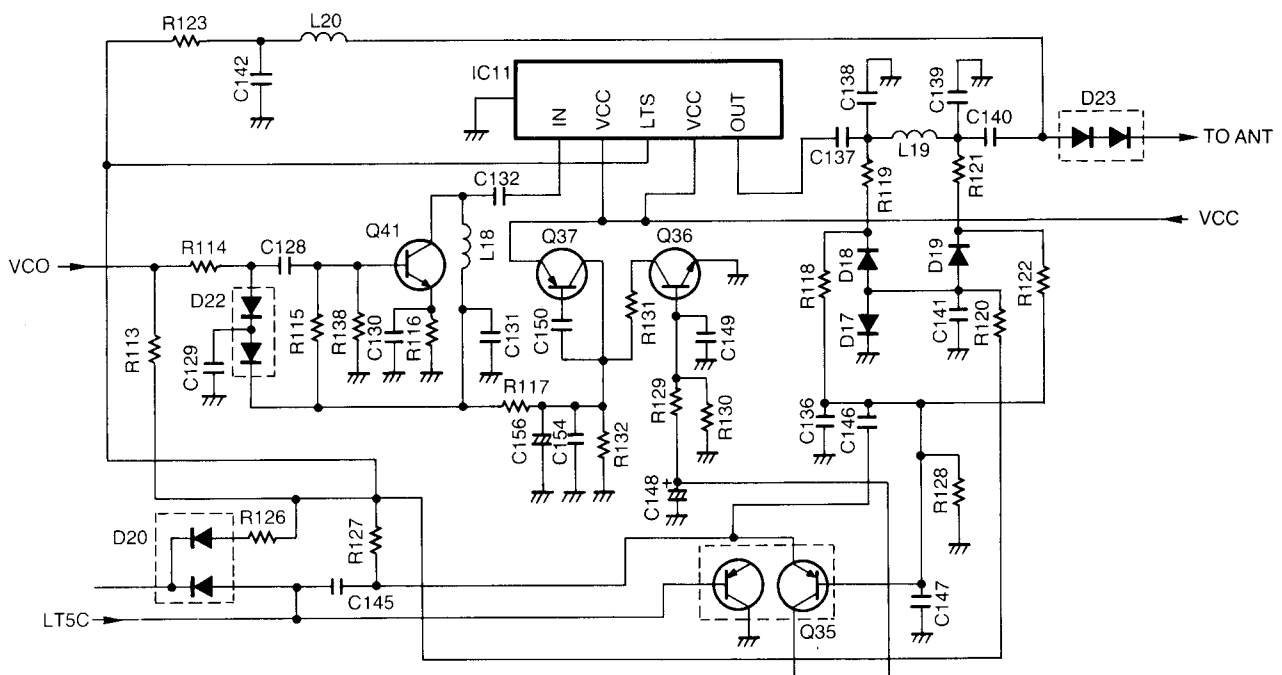
IC11 is a power module which provides a stable 5 W (DC 13.5 V) of output power.

The drive amplifier (Q41) and power amplifier (IC11) amplify the VCO oscillating signal to an output level. The output signal passes through the APC circuit (D17~19) and bandpass circuit and is applied to the antenna connector. Collector voltage for the drive amplifier is controlled by the APC circuit.

3-2-5 APC CIRCUIT (VHF RF UNIT)

An APC circuit protects the power module (IC11) from a mismatched output load and selects HIGH or LOW output power.

The APC circuit (D17~19, L19, R119, R121, C138, C139) detects the output signal from the power module (IC11, pin 5). Q35 compares the APC detected voltages and reference voltages. When the APC detected voltages are higher than the reference voltages, Q35 reduces the collector voltages of Q36 and Q37. This voltage is applied to the drive amplifier (Q41) to reduce the RF output power.



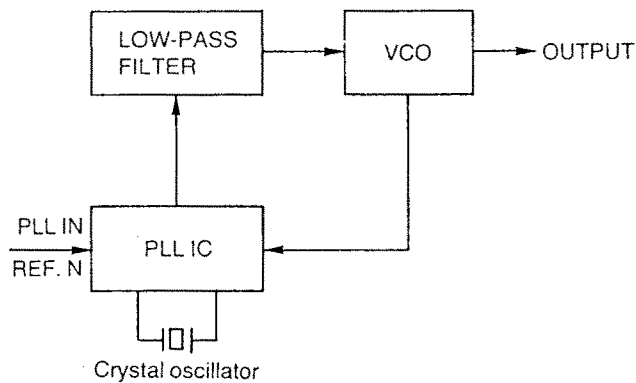
VHF APC CIRCUIT

3-3 HAM BAND PLL CIRCUITS

3-3-1 GENERAL (VHF RF UNIT)

A PLL circuit provides stable oscillation of the transmit frequency and the receive local frequency. The PLL circuit compares the phase of the divided VCO frequency to the reference frequency. The PLL output frequency is controlled by a crystal oscillator and the divided ratio of a programmed divider.

The PLL circuit, using a one chip PLL IC (IC8), directly generates the transmit and 1st LO frequency with a VCO. The PLL IC sets the divided ratio based on serial data from the CPU (HAM BAND: IC2, RECEIVER BAND: IC1) on the LOGIC UNIT and compares the phases of a VCO signal and the reference oscillator frequency. The PLL IC detects the out-of-step phase and output from pin 12. The reference frequency is oscillated at X3.



PLL CIRCUIT

3-3-2 VHF CHARGE PUMP AND LOOP FILTER CIRCUITS (VHF RF UNIT)

Phase-detected signals from IC8 are converted to DC voltage by a constant-current circuit (Q17~19) and a lag-loop filter to control the VCO oscillating signals. The PLL lock voltage changes the reactance of varactor diodes in the VCO circuit.

The DC voltage of the VHF PLL is also used for the receiver tuning circuit on the VRFA UNIT.

3-3-3 VHF VCO CIRCUIT (VHF RF UNIT)

The VCO circuit oscillates the PLL output frequency controlling varactor diodes.

D10, a varactor diode, provides the frequency control. The control signal from IC8 (pin 6) turns Q42 ON or OFF to switch the VCO frequency between transmission and reception.

3-4 RECEIVER BAND CIRCUITS

3-4-1 GENERAL

The IC-2SRA/E's wideband receiver circuit is designed for the following bands (25~905 MHz) and modes (AM, FM, WFM).

3-4-2 BANDPASS FILTER CIRCUITS (RX UNIT AND BPF A UNITS)

The received signal enters the receiver unit and passes through a limiter diode (D1) and then passes to a bandpass filter. The received signal is applied to the BPF A UNIT (25~534.190 MHz) or RF UNIT (534.200~950.000 MHz) which suppress out-of-band signals.

(1) 25~267.795 MHz (BA1)

RF signals from the band switch (D2) pass through the low-pass filter (C4~C12, L1~L3). The signals are applied to the RF amplifier (Q1) on the RX UNIT via the band switch (D3).

(2) 267.800~534.190 MHz (BA2)

RF signals from the band switch (D4) pass through the bandpass filter (C15~C25, L6~L10, L29). The signals are applied to the RF amplifier (Q1) on the RX UNIT via the band switch (D5).

(3) 534.200~800.895 MHz (BA3)

RF signals from the band switch (D1) pass through the bandpass filter (C1~C10, L1~L5). The signals are applied to the RF amplifier (Q1) on the RX UNIT via the band switch (D2).

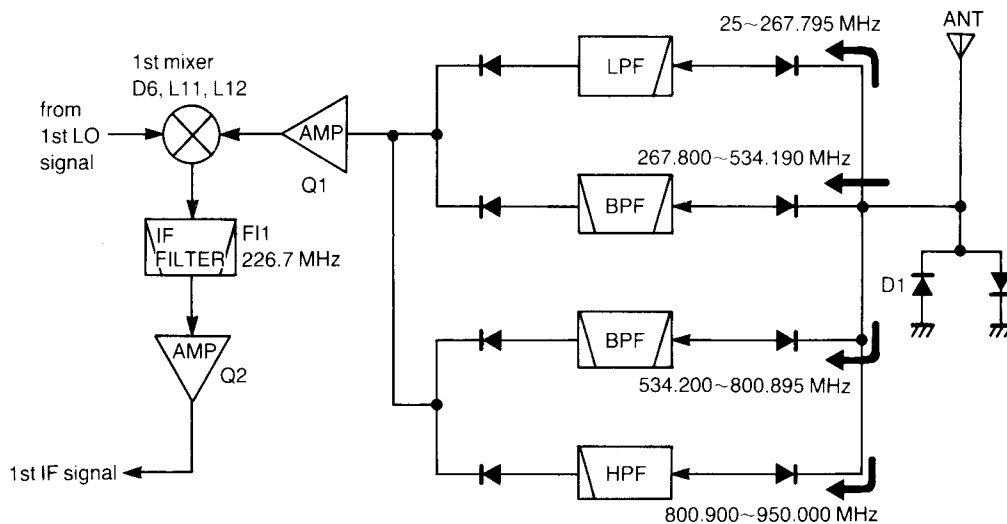
(4) 800.900~950.000 MHz (BA4)

RF signals from the band switch (D3) pass through the bandpass filter (C14~C19, L6~L8). The signals are applied to the RF amplifier (Q1) on the RX UNIT via the band switch (D4).

3-4-3 1ST MIXER AND 1ST IF CIRCUITS (RX UNIT)

The signals from the bandpass filter circuit are amplified at the RF amplifier (Q1, IC1). The amplified signals are mixed with the 1st LO signal from the RX VCO UNIT at the 1st mixer (double balanced mixer, D6, L11, L12) to produce a 226.7 MHz 1st IF signal.

The 1st IF signal is applied to an IF filter (F11) to suppress out-of-band signals. The 1st IF signal is amplified at an IF amplifier (Q2) and then applied to the 2nd mixer (Q3).



RECEIVER RF CIRCUIT

3-4-4 2ND MIXER AND 2ND IF CIRCUITS (RX AND BPF B UNITS)

The 2nd mixer circuit converts the 1st IF signal to a 2nd IF signal.

The 1st IF signal from the IF amplifier (Q2) is applied to the 2nd mixer (Q3) and mixed with a 256 MHz 2nd LO signal from the BPF B UNIT to be converted to a 10.7 MHz 2nd IF signal. The 2nd IF signal passes through the crystal filter (F12) to suppress out-of-band signals. The signal is then amplified at (Q4) and is applied to the IF IC (IC2, pin16).

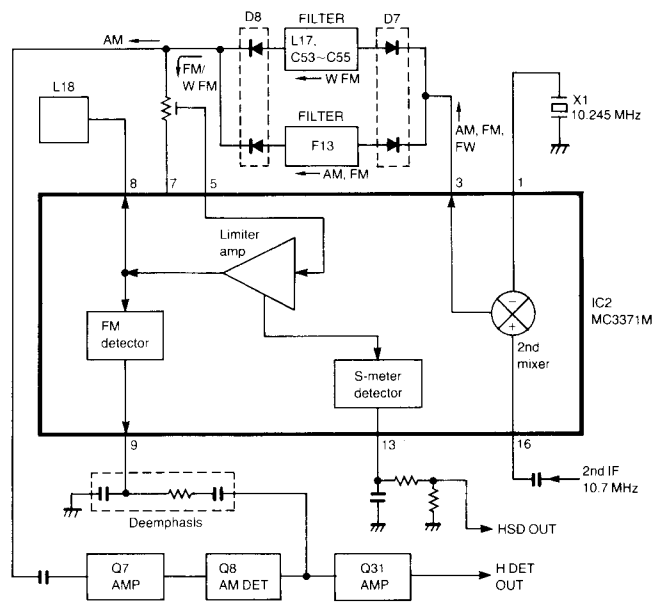
3-4-5 3RD IF AND DEMODULATOR CIRCUITS (RX UNIT)

The 3rd mixer circuit converts the 2nd IF signal to a 3rd IF signal.

IC2 contains the 3rd mixer, 3rd local oscillator, limiter, amplifier, quadrature detector, and S-meter detector circuit. The 3rd local oscillator section and X1 generate 10.245 MHz for the 3rd local oscillator signal.

The 2nd IF signal from the IF amplifier (Q4) is applied to the 3rd mixer section of IC2 and is mixed with a 3rd LO signal to be converted to a 455 kHz 3rd IF signal.

In AM/FM mode, the 3rd IF signal from IC2 (pin 3) passes through the ceramic filter (F13), where unwanted signals are suppressed. In WFM mode, the 3rd IF signal passes through the filter circuit (L17, C53-C55). After passing each filter, the WFM or FM signal is applied to the limiter amplifier section IC2 (pin 5), and the quadrature detector section (IC2, pin 10 and L18) to demodulate the 3rd IF signal to an AF signals. The AM signal is amplified at Q7 and is converted to an AF signal at Q8. The AF signals are applied to Q31 and to the LOGIC UNIT.



3RD IF AND DEMODULATOR CIRCUIT

3-4-6 AF AND SQUELCH CIRCUITS (LOGIC UNIT)

These circuits are nearly same as the HAM BAND circuit. Refer to section 3-1-4~3-1-5.

3-5 RECEIVER BAND PLL CIRCUITS

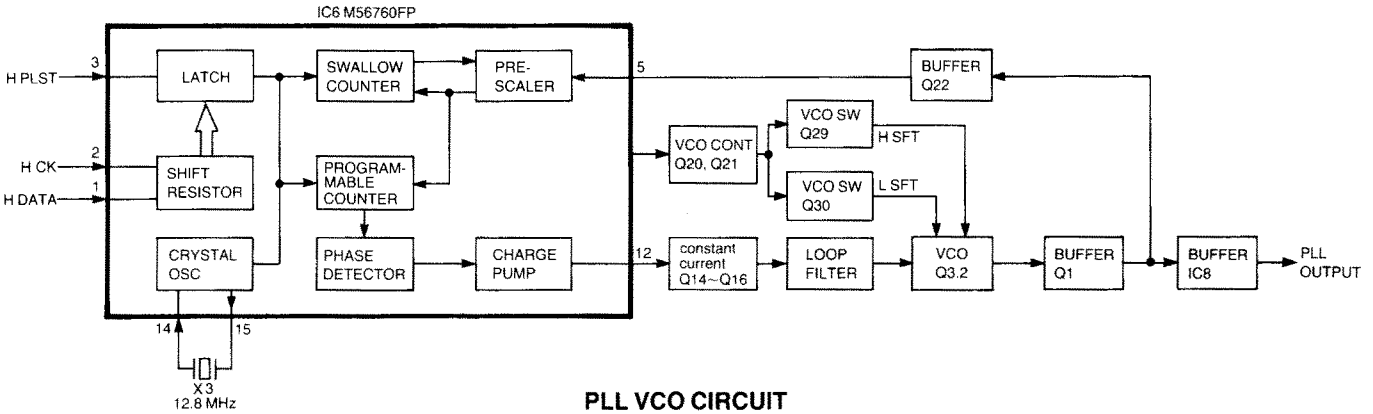
3-5-1 GENERAL (RF UNIT)

The PLL circuit, using a one chip PLL IC (IC6), directly generates the 1st local frequency with a VCO. The PLL IC sets the divided ratio based on serial data from the CPU on the LOGIC UNIT and compares the phases of VCO signals to the reference oscillator frequency. The PLL IC detects the out-of-step phase and output from IC6 (pin 12). The reference frequency is oscillated at X3.

3-5-2 VCO CIRCUIT (RX AND RX VCO UNITS)

The VCO circuit oscillates the PLL output frequency controlling varactor diodes.

The varactor diodes (D1, D2) provide the frequency control. The control signal from IC6 (pin 6) controls the VCO control circuits (Q20, Q21, Q29, Q30) to switch the VCO frequency.



PLL VCO CIRCUIT

3-5-3 LOOP FILTER CIRCUIT (RF AND RX VCO UNITS)

Phase-detected signals from IC6 (pin 12) are converted to DC voltage by a constant-current circuit (Q14~Q16) and a lag-loop filter (C82, C83, C85, R62, R63) to control the VCO oscillating signal. The PLL lock voltage changes the reactance of varactor diodes in the RX VCO circuit.

The RX VCO output signal is applied to the buffer amplifiers (IC8 and Q22). The PLL output signal passes through the LO filter switches (D14, D15) and then to a 1st mixer circuit.

3-6 OTHER CIRCUITS

3-6-1 VOLTAGE LINES

LINE	DESCRIPTION
VCC	This voltage is supplied from a battery pack or external DC power supply.
L+5M	VHF band common 5 V converted from the VCC at Q27 and Q28 on the VHF RF UNIT.
LR5S	VHF band receive 5 V controlled by the power saver function and LSEND signal line. This voltage is converted from the VCC at Q29 and Q30 on the VHF RF UNIT.
L+5S	VHF band 5 V controlled by the power saver function. This voltage is converted from VCC at Q31 and Q32 on the VHF RF UNIT.
LT5	VHF band transmit 5 V controlled by the LTMT signal line. This voltage is converted from VCC at Q33 and Q34 on the VHF RF UNIT.
H+5M	HF band common 5 V converted from the VCC at Q16 and Q17 on the UHF RF UNIT.

3-6-2 BATTERY CHARGING CIRCUIT (PRT UNIT)

The transceiver has a constant-current regulated circuit for charging the connected battery pack. This circuit charges the battery pack in about 15 hours.

The voltage from the external power supply is divided at D6, R6 and R8. This voltage is then applied to Q2. Q2 controls Q1, and the external power supply charges the battery pack.

3-6-3 S-METER CIRCUIT (VHF AND RX UNITS)

The S-meter signal (VHF: "LSD" line, RX: "HSD" line) from the VHF/RX UNIT is applied to the meter comparator (VHF: IC9, pin 3; RX: IC8, pin 3). Pin 2 of the meter comparator receives a reference signal from the CPU. The counting signal is increased step by step.

Pin 1 is "HIGH" when a reference signal is lower than the S-meter signal and becomes "LOW" when a reference signal is higher than the S-meter signal. Pin 1 is applied to the CPU (IC1 or IC2).

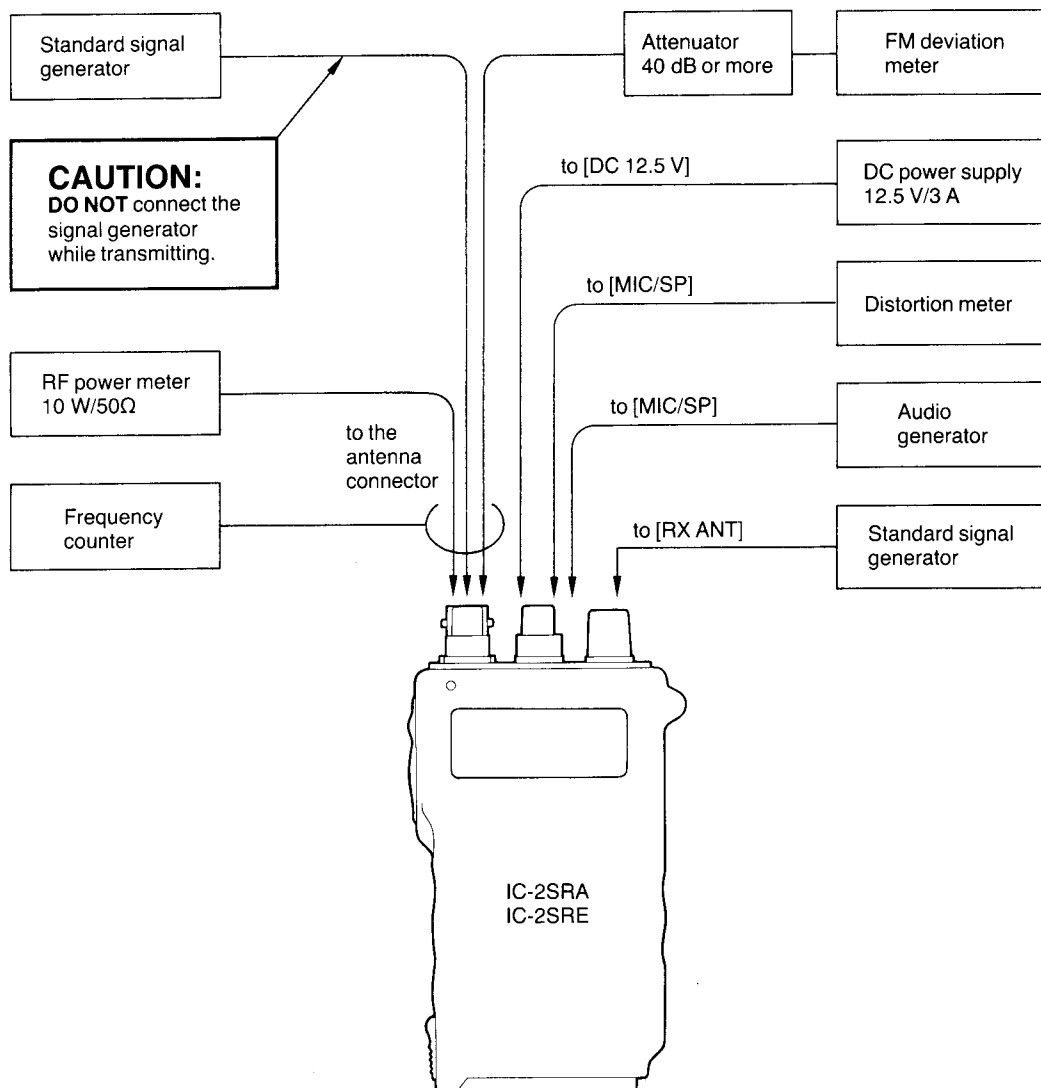
SECTION 4 ADJUSTMENT PROCEDURES

4-1 PREPARATION BEFORE SERVICING

■ REQUIRED TEST EQUIPMENT

EQUIPMENT	GRADE AND RANGE	EQUIPMENT	GRADE AND RANGE
DC power supply	Output voltage : 12.5 V DC (13.5 V DC for adjusting output power)	Standard signal generator (SSG)	Frequency range : 0.1~470 MHz Output level : -127~-17 dBm (0.1 μV~32 mV)
	Current capacity : 3 A or more	DC voltmeter	Input impedance : 50 kΩ/V DC or better
RF power meter (terminated type)	Measuring range : 1~10 W	Audio generator (AG)	Frequency range : 300~3000 Hz Measuring range : 1~500 mW
	Frequency range : 0.1~180 MHz Input impedance : 50Ω SWR : 1.2:1 or better	Attenuator	Attenuation : 40 dB or more Capacity : 10 W or more
Frequency counter	Frequency range : 0.1~300 MHz Frequency accuracy : ±1 ppm or better Sensitivity : 100 mV or better	FM deviation meter	Frequency minimum : 180 MHz Measuring range : 0~±10 kHz
Oscilloscope	Frequency range : DC~20 MHz Output range : 0.01~10 V		


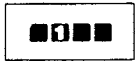
■ CONNECTION



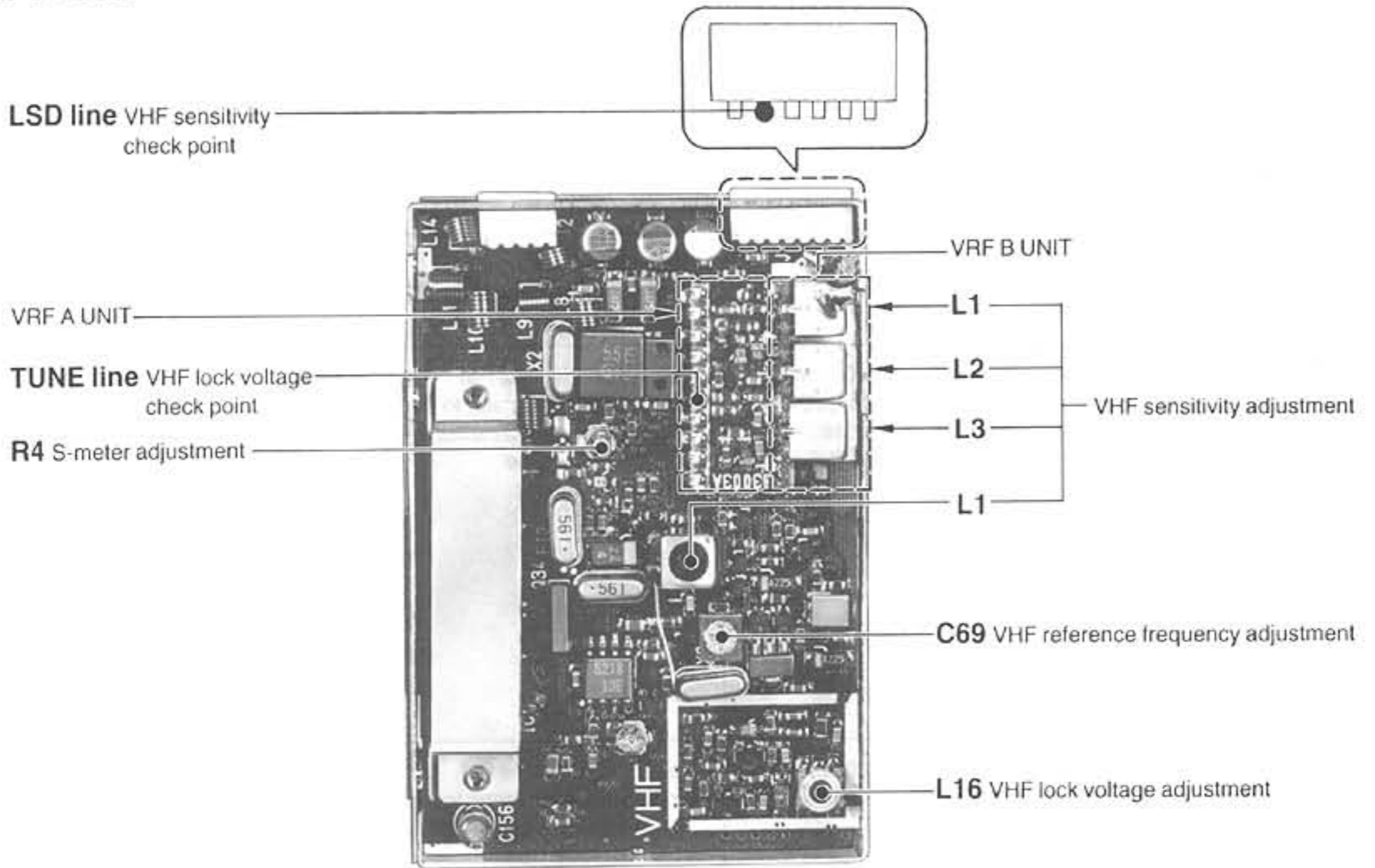
4-2 PLL ADJUSTMENT

ADJUSTMENT		ADJUSTMENT CONDITIONS	MEASUREMENT		VALUE	ADJUSTMENT POINT	
			UNIT	LOCATION		UNIT	ADJUST
VHF LOCK VOLTAGE	1	<ul style="list-style-type: none"> Displayed frequency: 145.000 MHz Adjust either the transmit lock voltage or receive lock voltage (whichever is lower). 	VRF A	Connect the DC voltmeter to the TUNE line.	1.6 V	VHF RF	L16
RECEIVER BAND VOLTAGE	1	<ul style="list-style-type: none"> Displayed frequency: 800.900 MHz Receiving 	RX	Connect the oscilloscope to CP1.	1.0 V	RX VCO	L2
VHF REFERENCE FREQUENCY	1	<ul style="list-style-type: none"> Displayed frequency: 145.000 MHz Transmitting 	Top panel	Loosely couple the frequency counter to the antenna connector.	145.000 MHz	VHF RF	C69
RECEIVER BAND 1st LO FREQUENCY	1	<ul style="list-style-type: none"> Displayed frequency: 233.300 MHz Receiving 	RX	Connect the frequency counter to CP2.	500.00 MHz	RX	C73
RECEIVER BAND 2nd LO FREQUENCY	1	<ul style="list-style-type: none"> Displayed frequency: 233.300 MHz Receiving 	BPFB	Connect the frequency counter to CP1.	256.00 MHz	RX	L20

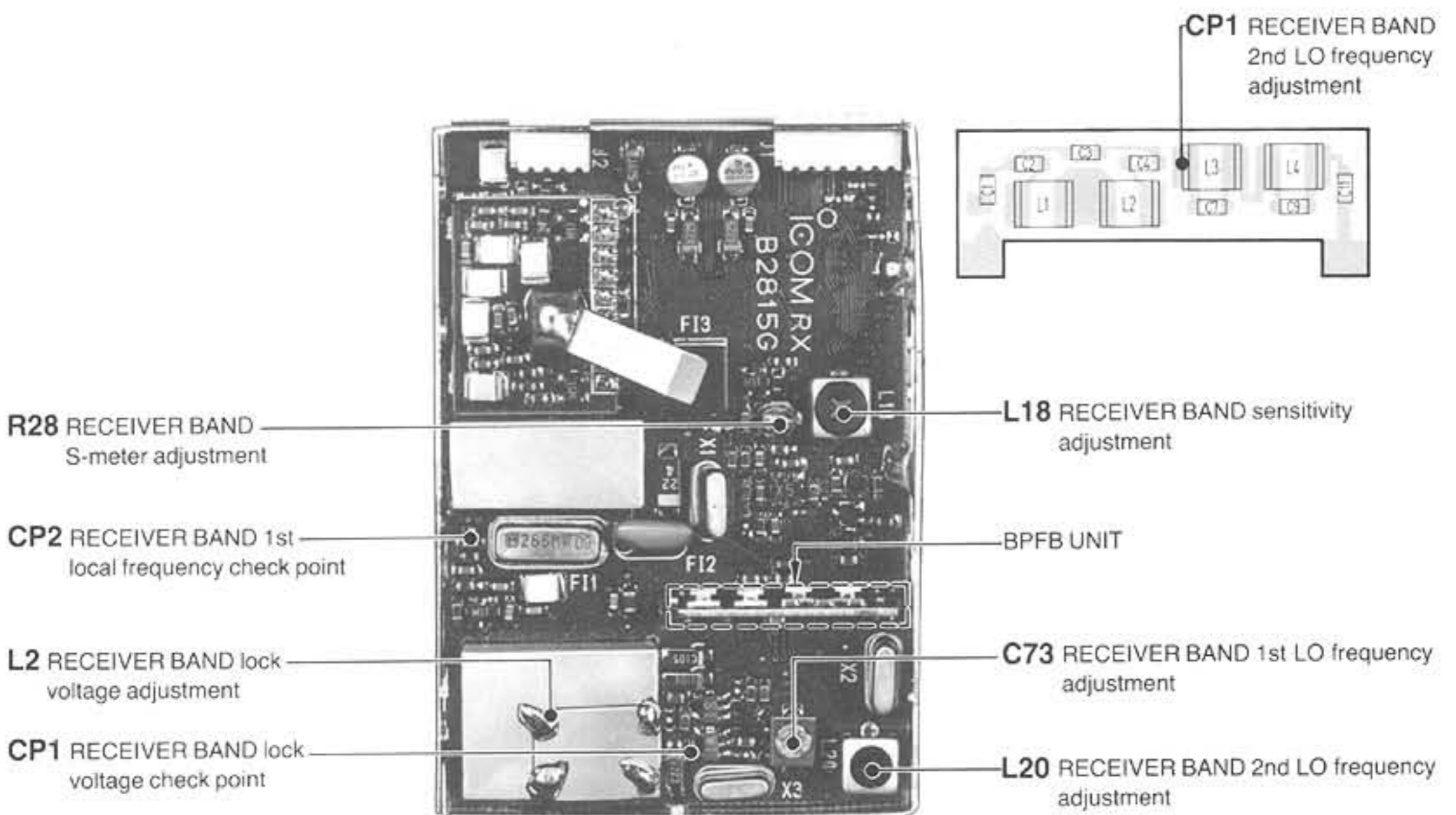
4-3 RECEIVER ADJUSTMENT

ADJUSTMENT		ADJUSTMENT CONDITIONS	MEASUREMENT		VALUE	ADJUSTMENT POINT	
			UNIT	LOCATION		UNIT	ADJUST
VHF SENSITIVITY	1	<ul style="list-style-type: none"> Displayed frequency: 145.000 MHz Connect the SSG to the antenna connector and set as: Level : 20 μV (-87 dBm) MOD. : 1 kHz DEV. : \pm3.5 kHz Receiving 	VHF RF	Connect the oscilloscope to LSD line.	Maximum	Adjust in sequence	
						VRF B	L1, L2, L3
						VHF RF	L1
RECEIVER BAND SENSITIVITY	1	<ul style="list-style-type: none"> Displayed frequency: 450.000 MHz MODE: FM Connect the SSG to the [RX UNIT] connector and set as: Level : 1 mV (-47 dBm) MOD. : 1 kHz DEV. : \pm3.5 kHz Receiving 	RX	Connect the distortion meter to the [MIC/SP] jack with an 8 Ω load.	Minimum distortion level (Less than 5%)	RX	L18
VHF S-METER	1	<ul style="list-style-type: none"> Displayed frequency: 145.000 MHz Connect the SSG to the antenna connector and set as: Level : 0.32 mV (-117 dBm) MOD. : 1 kHz DEV. : \pm3.5 kHz Receiving 	LCD display	S/R/F indicator	S3 (4 dots) 	VHF RF	R4
RECEIVER BAND S-METER	1	<ul style="list-style-type: none"> Displayed frequency: 450.000 MHz MODE: FM Connect the SSG to the [RX ANT] connector and set as: Level : 1 μV (-107 dBm) MOD. : 1 kHz DEV. : \pm3.5 kHz Receiving 	LCD display	S/R/F indicator	S3 (4 dots) 	RX	R28

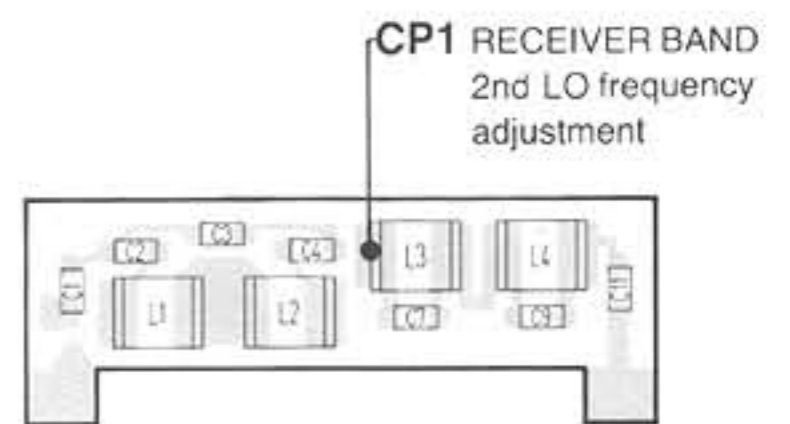
■ VHF RF UNIT



■ RX UNIT



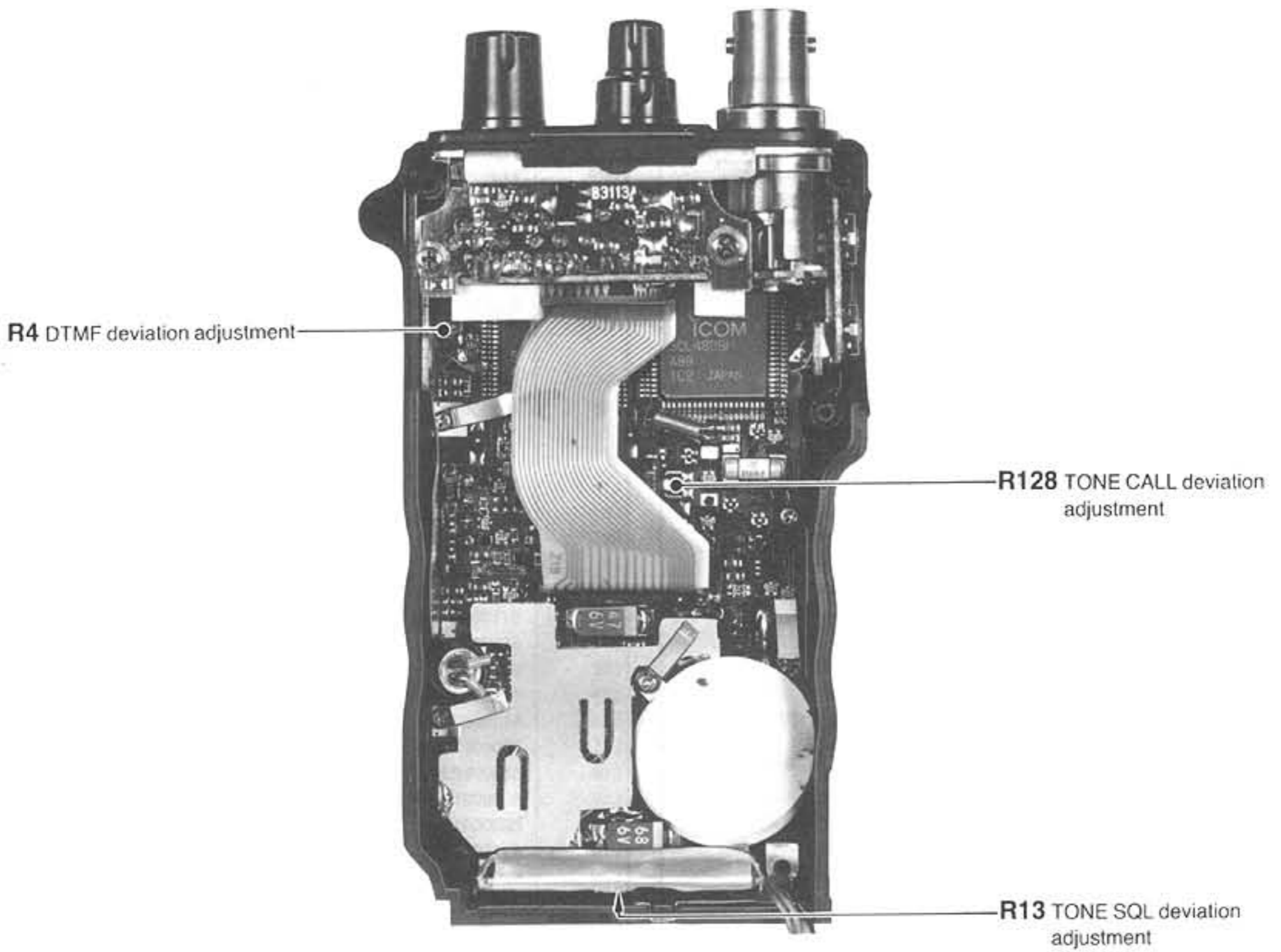
■ BPF B UNIT



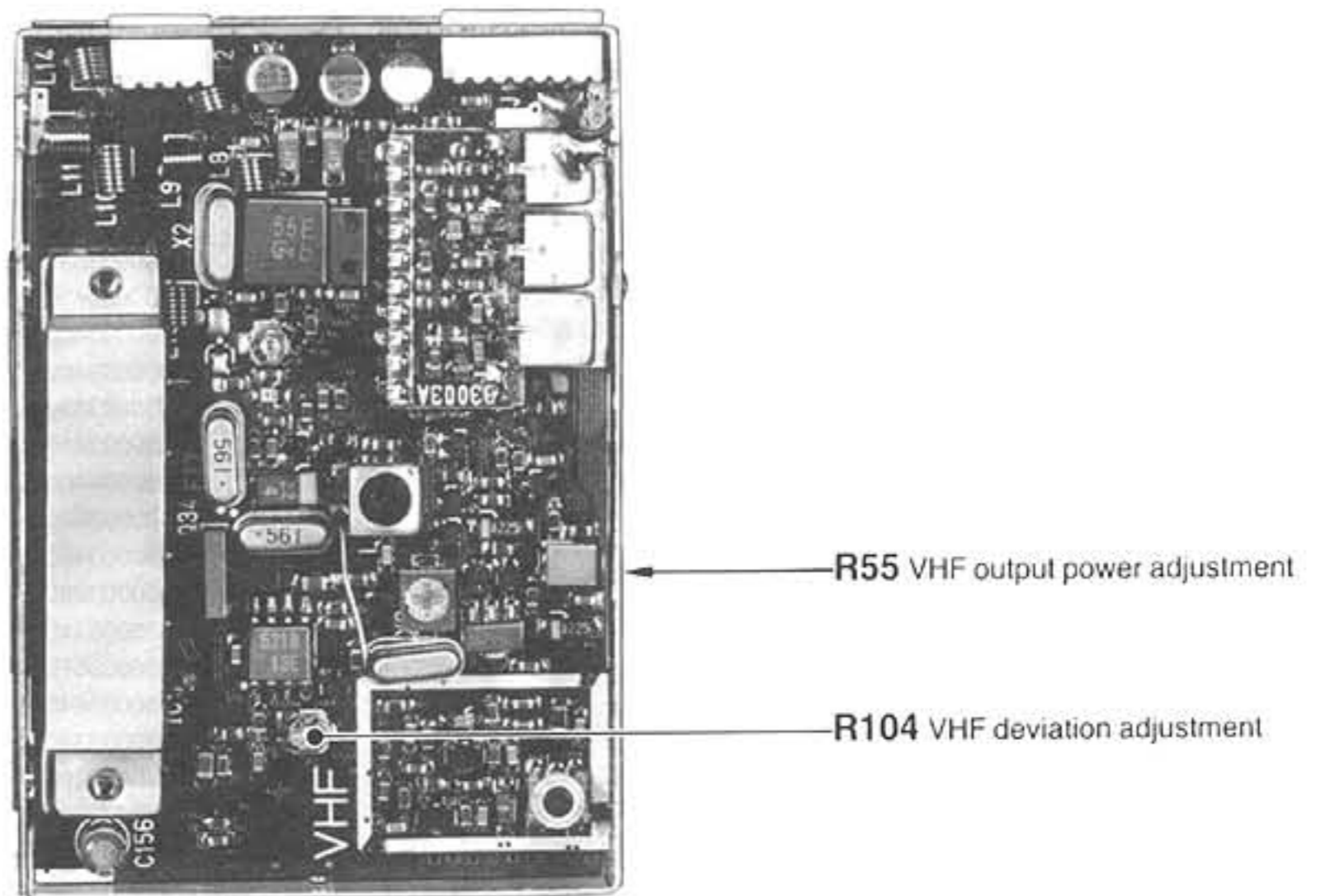
4-4 TRANSMITTER ADJUSTMENT

ADJUSTMENT	ADJUSTMENT CONDITIONS	MEASUREMENT		VALUE	ADJUSTMENT POINT	
		UNIT	LOCATION		UNIT	ADJUST
(Note: When adjusting the output power, adjust according to the power supply requirement of 13.5 V.)						
VHF OUTPUT POWER	1 <ul style="list-style-type: none"> Displayed frequency: 145.000 MHz [HI/LOW] key: HI Transmitting 	Top panel	Connect the RF power meter to the antenna connector.	5.0 W	VHF RF	R55
VHF DEVIATION	1 <ul style="list-style-type: none"> Displayed frequency: 145.000 MHz Connect the audio generator to the [MIC/SP] connector and set as <ul style="list-style-type: none"> Level : 160 mV (USA) : 80 mV (All other versions) MOD. : 1.0 kHz Set the FM deviation meter as: <ul style="list-style-type: none"> HPF : 50 Hz LPF : 20 kHz De-emphasis : OFF DET : (P-P)/2 Transmitting 	Top panel	Connect the FM deviation meter to the antenna connector through the attenuator.	±4.8 kHz	VHF RF	R104
DTMF DEVIATION	1 <ul style="list-style-type: none"> Displayed frequency: 145.000 MHz Push and hold the [D] key while transmitting. 	Top panel	Connect the FM deviation meter to the antenna connector through the attenuator.	±3.5 kHz	LOGIC	R4
TONE CALL DEVIATION	1 <ul style="list-style-type: none"> Displayed frequency: 145.000 MHz Push and hold the [HAM] key while transmitting. 	Top panel	Connect the FM deviation meter to the antenna connector through the attenuator.	±3.5 kHz	LOGIC	R4
TONE SQL DEVIATION	1 <ul style="list-style-type: none"> Displayed frequency : 146.000 MHz (USA) TONE frequency : 88.5 Hz Transmitting 	Top panel	Connect the FM deviation meter to the antenna connector through the attenuator.	±0.75 kHz	UT-63	R13 (Refer to 8-1)

■ LOGIC UNIT



■ VHF RF UNIT



SECTION 5 PARTS LIST

[VHF RF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1110002200	IC	MC3372MR
IC3	1130000830	IC	μPD4094BG-T1
IC5	1130003760	IC	TC4S81F (TE85R)
IC6	1130003760	IC	TC4S81F (TE85R)
IC7	1130003760	IC	TC4S81F (TE85R)
IC8	1130005700	IC	M56760FP
IC9	1110002490	IC	M5218FP-73A
IC10	1180000530	IC	S-81250HG-RD-T1
IC11	1150000960	IC	SC1142
Q1	1530002280	Transistor	2SC4081 T107 S
Q2	1530002280	Transistor	2SC4081 T107 S
Q4	1590000830	Transistor	FMG2 T149
Q5	1530002020	Transistor	2SC3770-3-TA
Q6	1560000550	FET	2SK882-Y (TE85R)
Q9	1530002560	Transistor	2SC4403-3-TR
Q10	1530002560	Transistor	2SC4403-3-TR
Q11	1530002560	Transistor	2SC4403-3-TR
Q13	1590000650	Transistor	DTA144TU T107
Q14	1590000430	Transistor	DTC144EU T107
Q15	1590000690	Transistor	IMD6 T108
Q16	1590000660	Transistor	DTC144TU T107
Q17	1590000910	Transistor	IMZ2 T108
Q18	1590000670	Transistor	FMW1 T148
Q19	1590000620	Transistor	FMS1 T148
Q21	1560000540	FET	2SK880-Y (TE85R)
Q22	1590001110	Transistor	IMT1 T110
Q23	1530000371	Transistor	2SC3356 R25-T2B
Q24	1530000371	Transistor	2SC3356 R25-T2B
Q25	1590000780	Transistor	IMX5 T109
Q26	1590000780	Transistor	IMX5 T109
Q27	1530002280	Transistor	2SC4081 T107 S
Q28	1510000620	Transistor	2SA1576 T107 S
Q29	1530002280	Transistor	2SC4081 T107 S
Q30	1510000620	Transistor	2SA1576 T107 S
Q31	1530002280	Transistor	2SC4081 T107 S
Q32	1520000200	Transistor	2SB798-T2 DK
Q33	1530002280	Transistor	2SC4081 T107 S
Q34	1520000080	Transistor	2SB909M R
Q35	1590000620	Transistor	FMS1 T148
Q36	1530002280	Transistor	2SC4081 T107 S
Q37	1520000200	Transistor	2SB798-T2 DK
Q38	1510000510	Transistor	2SA1576 T107 R
Q39	1590000430	Transistor	DTC144EU T107
Q40	1590000720	Transistor	DTA144EU T107
Q41	1530002030	Transistor	2SC3772-3-TA
Q42	1530002280	Transistor	2SC4081 T107 S
D9	1790000450	Diode	MA862 (TX)
D10	1790000530	Diode	MA333 (TW)
D11	1790000620	Diode	MA77 (TW)
D12	1750000160	Diode	DA114 T107
D13	1750000160	Diode	DA114 T107
D14	1750000160	Diode	DA114 T107
D15	1750000160	Diode	DA114 T107
D16	1790000450	Diode	MA862 (TX)
D17	1790000590	Diode	MA110 (TW)
D18	1790000660	Diode	MA728 (TW)
D19	1790000660	Diode	MA728 (TW)
D20	1160000060	Diode	DAN202U T107
D21	1750000120	Diode	DWA010-TE
D22	1720000240	Varicap	1SV172 (TE85R)

[VHF RF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
D23	1790000450	Diode	MA862 (TX)
D24	1790000590	Diode	MA110 (TW)
X1	6070000080	Discriminator	CDBM455C16
X2	6050007190	Crystal	CR-325 UM-1/T 30.39500 MHz
X3	6050007230	Crystal	CR-329 UM-1/T 12.80000 MHz
F11	2020000550	Ceramic Filter	CFUM455E
F12	2010001220	Filter	30M15B9 (FL-150)
L1	6150003210	Coil	LS-319
L6	6200000100	Coil	LQN 2A 22NM
L7	6200000100	Coil	LQN 2A 22NM
L8	6110002000	Coil	LA-226
L9	6110002070	Coil	LA-227
L10	6110002120	Coil	LA-228
L11	6110002120	Coil	LA-228
L12	6110002010	Coil	LA-224
L13	6200000130	Coil	LQN 2A 47NM
L14	6110002000	Coil	LA-226
L15	6200001520	Coil	MLF2012D R82K-T
L16	6130002360	Coil	LB-257
L17	6200001500	Coil	MLF2012D R12K-T
L18	6200001510	Coil	MLF2012D R10K-T
L19	6110002070	Coil	LA-227
L20	6200001520	Coil	MLF2012D R82K-T
R1	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 kΩ)
R2	7030003640	Resistor	ERJ3GEYJ 473 V (47 kΩ)
R3	7030003340	Resistor	ERJ3GEYJ 151 V (150Ω)
R4	7310002590	Trimmer	RV-109 (RH03 A3AJ3X0BA) 222
R5	7030003530	Resistor	ERJ3GEYJ 562 V (5.6 kΩ)
R7	7030003760	Resistor	ERJ3GEYJ 474 V (470 kΩ)
R8	7030003640	Resistor	ERJ3GEYJ 473 V (47 kΩ)
R9	7030003680	Resistor	ERJ3GEYJ 104 V (100 kΩ)
R10	7030003740	Resistor	ERJ3GEYJ 334 V (330 kΩ)
R11	7030003470	Resistor	ERJ3GEYJ 182 V (1.8 kΩ)
R12	7030003760	Resistor	ERJ3GEYJ 474 V (470 kΩ)
R13	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 kΩ)
R16	7030003840	Resistor	ERJ3GEYJ 225 V (2.2 MΩ)
R18	7030003630	Resistor	ERJ3GEYJ 393 V (39 kΩ)
R19	7030003430	Resistor	ERJ3GEYJ 821 V (820Ω)
R20	7030003400	Resistor	ERJ3GEYJ 471 V (470Ω)
R21	7030003400	Resistor	ERJ3GEYJ 471 V (470Ω)
R22	7030003630	Resistor	ERJ3GEYJ 393 V (39 kΩ)
R23	7030003410	Resistor	ERJ3GEYJ 561 V (560Ω)
R24	7030003400	Resistor	ERJ3GEYJ 471 V (470Ω)
R25	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 kΩ)
R26	7030003480	Resistor	ERJ3GEYJ 222 V (2.2 kΩ)
R27	7030003290	Resistor	ERJ3GEYJ 560 V (56Ω)
R40	7030003440	Resistor	ERJ3GEYJ 102 V (1 kΩ)
R41	7030003610	Resistor	ERJ3GEYJ 273 V (27 kΩ)
R42	7030003640	Resistor	ERJ3GEYJ 473 V (47 kΩ)
R45	7030003340	Resistor	ERJ3GEYJ 151 V (150Ω)
R46	7030003290	Resistor	ERJ3GEYJ 560 V (56Ω)
R47	7030003630	Resistor	ERJ3GEYJ 393 V (39 kΩ)
R48	7030003280	Resistor	ERJ3GEYJ 470 V (47Ω)
R49	7030003290	Resistor	ERJ3GEYJ 560 V (56Ω)
R50	7030003630	Resistor	ERJ3GEYJ 393 V (39 kΩ)

[VHF RF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
R51	7030003700	Resistor ERJ3GEYJ 154 V (150 kΩ)
R52	7030003680	Resistor ERJ3GEYJ 104 V (100 kΩ)
R53	7030003720	Resistor ERJ3GEYJ 224 V (220 kΩ)
R54	7030003620	Resistor ERJ3GEYJ 333 V (33 kΩ)
R55	7310003520	Trimmer RV-224 (RH03 AVA15J) 104
R56	7030003200	Resistor ERJ3GEYJ 100 V (10Ω)
R57	7030003640	Resistor ERJ3GEYJ 473 V (47 kΩ)
R58	7030003400	Resistor ERJ3GEYJ 471 V (470Ω)
R59	7030003800	Resistor ERJ3GEYJ 105 V (1 MΩ)
R60	7030003560	Resistor ERJ3GEYJ 103 V (10 kΩ)
R61	7030003560	Resistor ERJ3GEYJ 103 V (10 kΩ)
R62	7030003470	Resistor ERJ3GEYJ 182 V (1.8 kΩ)
R64	7030003200	Resistor ERJ3GEYJ 100 V (10Ω)
R66	7030003560	Resistor ERJ3GEYJ 103 V (10 kΩ)
R67	7030003700	Resistor ERJ3GEYJ 154 V (150 kΩ)
R68	7030003620	Resistor ERJ3GEYJ 333 V (33 kΩ)
R69	7030003640	Resistor ERJ3GEYJ 473 V (47 kΩ)
R71	7030003320	Resistor ERJ3GEYJ 101 V (100Ω)
R72	7030003380	Resistor ERJ3GEYJ 331 V (330Ω)
R73	7030003460	Resistor ERJ3GEYJ 152 V (1.5 kΩ)
R74	7030003320	Resistor ERJ3GEYJ 101 V (100Ω)
R75	7030003320	Resistor ERJ3GEYJ 101 V (100Ω)
R76	7030003360	Resistor ERJ3GEYJ 221 V (220Ω)
R77	7030003550	Resistor ERJ3GEYJ 822 V (8.2 kΩ)
R78	7030003550	Resistor ERJ3GEYJ 822 V (8.2 kΩ)
R79	7030003360	Resistor ERJ3GEYJ 221 V (220Ω)
R80	7030003570	Resistor ERJ3GEYJ 123 V (12 kΩ)
R82	7030003640	Resistor ERJ3GEYJ 473 V (47 kΩ)
R83	7030003380	Resistor ERJ3GEYJ 331 V (330Ω)
R84	7030003570	Resistor ERJ3GEYJ 123 V (12 kΩ)
R85	7030003600	Resistor ERJ3GEYJ 223 V (22 kΩ)
R86	7030003330	Resistor ERJ3GEYJ 121 V (120Ω)
R87	7030003260	Resistor ERJ3GEYJ 330 V (33Ω)
R88	7030003520	Resistor ERJ3GEYJ 472 V (4.7 kΩ)
R89	7030003880	Resistor ERJ3GEYJ 244 V (240 kΩ)
R90	7030003370	Resistor ERJ3GEYJ 271 V (270Ω)
R91	7030003710	Resistor ERJ3GEYJ 184 V (180 kΩ)
R92	7030003440	Resistor ERJ3GEYJ 102 V (1 kΩ)
R93	7030003660	Resistor ERJ3GEYJ 683 V (68 kΩ)
		(EUR-1~4, UK, UK-1, AUS, SEA)
	7030003620	Resistor ERJ3GEYJ 333 V (33 kΩ) (USA)
R94	7030003670	Resistor ERJ3GEYJ 823 V (82 kΩ)
R95	7030003740	Resistor ERJ3GEYJ 334 V (330 kΩ)
R96	7030003680	Resistor ERJ3GEYJ 104 V (100 kΩ)
R97	7030003760	Resistor ERJ3GEYJ 474 V (470 kΩ)
R98	7030003630	Resistor ERJ3GEYJ 393 V (39 kΩ)
R99	7030003630	Resistor ERJ3GEYJ 393 V (39 kΩ)
R100	7510000180	Thermistor DTN-T203S223LS (T)
R101	7030003570	Resistor ERJ3GEYJ 123 V (12 kΩ)
R102	7030003560	Resistor ERJ3GEYJ 103 V (10 kΩ)
R103	7030003540	Resistor ERJ3GEYJ 682 V (6.8 kΩ)
R104	7310002600	Trimmer RV-110 (RH03 A3AS4X0AA) 473
R105	7030003640	Resistor ERJ3GEYJ 473 V (47 kΩ)
R106	7030003720	Resistor ERJ3GEYJ 224 V (220 kΩ)
R107	7030003400	Resistor ERJ3GEYJ 471 V (470Ω)
R108	7030003520	Resistor ERJ3GEYJ 472 V (4.7 kΩ)
R109	7030003560	Resistor ERJ3GEYJ 103 V (10 kΩ)
R110	7030003560	Resistor ERJ3GEYJ 103 V (10 kΩ)
R111	7030003560	Resistor ERJ3GEYJ 103 V (10 kΩ)
R112	7030003520	Resistor ERJ3GEYJ 472 V (4.7 kΩ)
R113	7030003480	Resistor ERJ3GEYJ 222 V (2.2 kΩ)
R114	7030003260	Resistor ERJ3GEYJ 330 V (33Ω)
R115	7030003620	Resistor ERJ3GEYJ 333 V (33 kΩ)
R116	7030003320	Resistor ERJ3GEYJ 101 V (100Ω)
R117	7030003350	Resistor ERJ3GEYJ 181 V (180Ω)
R118	7030003380	Resistor ERJ3GEYJ 331 V (330Ω)

[VHF RF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
R119	7030003490	Resistor ERJ3GEYJ 272 V (2.7 kΩ)
R120	7030003550	Resistor ERJ3GEYJ 822 V (8.2 kΩ)
R121	7030003480	Resistor ERJ3GEYJ 222 V (2.2 kΩ)
R122	7030003380	Resistor ERJ3GEYJ 331 V (330Ω)
R123	7030003340	Resistor ERJ3GEYJ 151 V (150Ω)
R124	7510000200	Thermistor DTN-T203U473LS (T)
R125	7030003440	Resistor ERJ3GEYJ 102 V (1 kΩ)
R126	7030003570	Resistor ERJ3GEYJ 123 V (12 kΩ)
R127	7030003670	Resistor ERJ3GEYJ 823 V (82 kΩ)
R128	7030003600	Resistor ERJ3GEYJ 223 V (22 kΩ)
R129	7030003720	Resistor ERJ3GEYJ 224 V (220 kΩ)
R130	7030003770	Resistor ERJ3GEYJ 564 V (560 kΩ)
R131	7030003520	Resistor ERJ3GEYJ 472 V (4.7 kΩ)
R132	7030000440	Resistor MCR10EZHU 3.3 kΩ (332)
R133	7030003320	Resistor ERJ3GEYJ 101 V (100Ω)
R134	7030003680	Resistor ERJ3GEYJ 104 V (100 kΩ)
R135	7030003680	Resistor ERJ3GEYJ 104 V (100 kΩ)
R136	7030003680	Resistor ERJ3GEYJ 104 V (100 kΩ)
R137	7030003720	Resistor ERJ3GEYJ 224 V (220 kΩ)
R138	7030003530	Resistor ERJ3GEYJ 562 V (5.6 kΩ)
R139	7030003680	Resistor ERJ3GEYJ 104 V (100 kΩ)
R140	7030003200	Resistor ERJ3GEYJ 100 V (10Ω)
R141	7030003750	Resistor ERJ3GEYJ 394 V (390 kΩ)
R142	7030003710	Resistor ERJ3GEYJ 184 V (180 kΩ)
R143	7030003560	Resistor ERJ3GEYJ 103 V (10 kΩ)
R144	7010003970	Resistor R20J 15Ω
C1	4030004060	Ceramic GRM39 SL 270J 50PT
C2	4030008790	Ceramic GRM39 F 104Z 25PT
C3	4030008790	Ceramic GRM39 F 104Z 25PT
C4	4030008790	Ceramic GRM39 F 104Z 25PT
C5	4030008790	Ceramic GRM39 F 104Z 25PT
C6	4030004110	Ceramic GRM39 SL 560J 50PT
C7	4030003880	Ceramic GRM39 SL 180J 50PT
C9	4030008790	Ceramic GRM39 F 104Z 25PT
C10	4030004240	Ceramic GRM39 B 102K 50PT
C11	4030009000	Ceramic C2012 JB 1C 224K-T-A
C13	4030004100	Ceramic GRM39 SL 470J 50PT
C14	4030004100	Ceramic GRM39 SL 470J 50PT
C15	4030004310	Ceramic GRM39 B 103K 25PT
C16	4030004240	Ceramic GRM39 B 102K 50PT
C17	4030004310	Ceramic GRM39 B 103K 25PT
C18	4030004310	Ceramic GRM39 B 103K 25PT
C19	4550003000	Tantalum TEMSVB 0G 226M-12 L
C20	4030003890	Ceramic GRM39 B 471K 50PT
C21	4030004030	Ceramic GRM39 SL 120J 50PT
C22	4030004240	Ceramic GRM39 B 102K 50PT
C23	4030004050	Ceramic GRM39 SL 220J 50PT
C24	4030004240	Ceramic GRM39 B 102K 50PT
C25	4030004240	Ceramic GRM39 B 102K 50PT
C26	4030004100	Ceramic GRM39 SL 470J 50PT
C44	4030003890	Ceramic GRM39 B 471K 50PT
C45	4030003930	Ceramic GRM39 SL 0R5C 50PT
C46	4030004040	Ceramic GRM39 SL 150J 50PT
C49	4030003890	Ceramic GRM39 B 471K 50PT
C50	4030004040	Ceramic GRM39 SL 150J 50PT
C51	4030003890	Ceramic GRM39 B 471K 50PT
C52	4030003880	Ceramic GRM39 SL 180J 50PT
C53	4030004070	Ceramic GRM39 SL 330J 50PT
C54	4030004050	Ceramic GRM39 SL 220J 50PT
C55	4030004240	Ceramic GRM39 B 102K 50PT
C56	4030003880	Ceramic GRM39 SL 180J 50PT
C57	4030003960	Ceramic GRM39 SL 030C 50PT
C58	4030004060	Ceramic GRM39 SL 270J 50PT
C59	4030003990	Ceramic GRM39 SL 060D 50PT
C60	4030004050	Ceramic GRM39 SL 220J 50PT
C61	4030003970	Ceramic GRM39 SL 040C 50PT
C62	4030004000	Ceramic GRM39 SL 070D 50PT

[VHF RF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
C63	4030004000	Ceramic	GRM39 SL 070D 50PT
C64	4030004100	Ceramic	GRM39 SL 470J 50PT
C65	4030004000	Ceramic	GRM39 SL 070D 50PT
C66	4030004240	Ceramic	GRM39 B 102K 50PT
C67	4030008790	Ceramic	GRM39 F 104Z 25PT
C68	4030008810	Ceramic	GRM39 CH 150J 50PT
C69	4610001260	Trimmer	ECRJA020E12W
C70	4030008820	Ceramic	GRM39 CH 390J 50PT
C71	4030008920	Ceramic	C1608 JB 1C 473K-T-A
C72	4030004240	Ceramic	GRM39 B 102K 50PT
C73	4030004240	Ceramic	GRM39 B 102K 50PT
C74	4030004240	Ceramic	GRM39 B 102K 50PT
C76	4030008790	Ceramic	GRM39 F 104Z 25PT
C77	4550002950	Tantalum	TESVA 0J 335M1-8L
C78	4030008960	Ceramic	C2012 JB 1C 104K-T-A
C79	4550000460	Tantalum	TESVA 1C 105M1-8L
C80	4030004240	Ceramic	GRM39 B 102K 50PT
C81	4030004240	Ceramic	GRM39 B 102K 50PT
C82	4030004070	Ceramic	GRM39 SL 330J 50PT
C83	4030004240	Ceramic	GRM39 B 102K 50PT
C84	4030004240	Ceramic	GRM39 B 102K 50PT
C85	4030004240	Ceramic	GRM39 B 102K 50PT
C86	4030004240	Ceramic	GRM39 B 102K 50PT
C87	4030004240	Ceramic	GRM39 B 102K 50PT
C88	4030003940	Ceramic	GRM39 SL 010C 50PT
C89	4030003940	Ceramic	GRM39 SL 010C 50PT
C90	4030004240	Ceramic	GRM39 B 102K 50PT
C91	4030003930	Ceramic	GRM39 SL 0R5C 50PT
C92	4030004240	Ceramic	GRM39 B 102K 50PT
C93	4030004050	Ceramic	GRM39 SL 220J 50PT
C94	4030004240	Ceramic	GRM39 B 102K 50PT
C95	4030004240	Ceramic	GRM39 B 102K 50PT
C97	4030004240	Ceramic	GRM39 B 102K 50PT
C100	4030004100	Ceramic	GRM39 SL 470J 50PT
C101	4030004280	Ceramic	GRM39 B 472K 50PT
C102	4550003030	Tantalum	TEMSVA 0J 475M-8L
C103	4030003890	Ceramic	GRM39 B 471K 50PT
C104	4030008960	Ceramic	C2012 JB 1C 104K-T-A
C105	4030003890	Ceramic	GRM39 B 471K 50PT
C106	4030003890	Ceramic	GRM39 B 471K 50PT
C107	4030004260	Ceramic	GRM39 B 272K 50PT
C108	4030004180	Ceramic	GRM39 SL 121J 50PT
C109	4030004310	Ceramic	GRM39 B 103K 25PT
C110	4030004310	Ceramic	GRM39 B 103K 25PT
C111	4030004240	Ceramic	GRM39 B 102K 50PT
C112	4030004310	Ceramic	GRM39 B 103K 25PT
C113	4510004430	Electrolytic	ECEV1CV220WR
C114	4030003890	Ceramic	GRM39 B 471K 50PT
C116	4510004420	Electrolytic	ECEV0JV330SR
C117	4030003890	Ceramic	GRM39 B 471K 50PT
C118	4550003030	Tantalum	TEMSVA 0J 475M-8L
C119	4030003890	Ceramic	GRM39 B 471K 50PT
C120	4030003890	Ceramic	GRM39 B 471K 50PT
C121	4550003030	Tantalum	TEMSVA 0J 475M-8L
C122	4030003890	Ceramic	GRM39 B 471K 50PT
C123	4550002890	Tantalum	TESVA 1A 225M1-8L
C124	4030003890	Ceramic	GRM39 B 471K 50PT
C125	4550002890	Tantalum	TESVA 1A 225M1-8L
C126	4030003890	Ceramic	GRM39 B 471K 50PT
C127	4550003040	Tantalum	TEMSVB2 0J 106M-8 L
C128	4030003890	Ceramic	GRM39 B 471K 50PT
C129	4030004240	Ceramic	GRM39 B 102K 50PT
C130	4030004240	Ceramic	GRM39 B 102K 50PT
C131	4030004240	Ceramic	GRM39 B 102K 50PT
C132	4030004030	Ceramic	GRM39 SL 120J 50PT
C133	4510004430	Electrolytic	ECEV1CV220WR
C134	4030004240	Ceramic	GRM39 B 102K 50PT
C136	4030004240	Ceramic	GRM39 B 102K 50PT
C137	4030004180	Ceramic	GRM39 SL 121J 50PT

[VHF RF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
C138	4030004050	Ceramic	GRM39 SL 220J 50PT
C139	4030004050	Ceramic	GRM39 SL 220J 50PT
C140	4030004240	Ceramic	GRM39 B 102K 50PT
C141	4030004240	Ceramic	GRM39 B 102K 50PT
C142	4030004240	Ceramic	GRM39 B 102K 50PT
C143	4030008790	Ceramic	GRM39 F 104Z 25PT
C144	4030003890	Ceramic	GRM39 B 471K 50PT
C145	4030003890	Ceramic	GRM39 B 471K 50PT
C146	4030003890	Ceramic	GRM39 B 471K 50PT
C147	4030003890	Ceramic	GRM39 B 471K 50PT
C148	4550003030	Tantalum	TEMSVA 0J 475M-8L
C149	4030003890	Ceramic	GRM39 B 471K 50PT
C150	4030003890	Ceramic	GRM39 B 471K 50PT
C151	4030004240	Ceramic	GRM39 B 102K 50PT
C152	4030003890	Ceramic	GRM39 B 471K 50PT
C154	4030004310	Ceramic	GRM39 B 103K 25PT
C156	4510001350	Electrolytic	16 MS5 10 µF
C158	4030004240	Ceramic	GRM39 B 102K 50PT
C159	4030004050	Ceramic	GRM39 SL 220J 50PT
C160	4030004020	Ceramic	GRM39 SL 100D 50PT
C161	4030008920	Ceramic	C1608 JB 1C 473K-T-A
C163	4030004240	Ceramic	GRM39 B 102K 50PT
C164	4030003980	Ceramic	GRM39 SL 050C 50PT
EP1	0910030732	P.C. Board	B 3119B (VHF RF)

[V RFA UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
Q1	1530002570	Transistor	2SC4405-3-TR
Q2	1530002560	Transistor	2SC4403-3-TR
D1	1790000620	Diode	MA77 (TW)
D2	1790000640	Diode	MA363B (TX)
D3	1790000620	Diode	MA77 (TW)
D4	1790000640	Diode	MA363B (TX)
D5	1790000640	Diode	MA363B (TX)
D6	1790000620	Diode	MA77 (TW)
R1	7030003560	Resistor	ERJ3GEYJ 103 V (10 kΩ)
R2	7030003680	Resistor	ERJ3GEYJ 104 V (100 kΩ)
R3	7030003240	Resistor	ERJ3GEYJ 220 V (22Ω)
R4	7030003560	Resistor	ERJ3GEYJ 103 V (10 kΩ)
R5	7030003280	Resistor	ERJ3GEYJ 470 V (47Ω)
R6	7030003560	Resistor	ERJ3GEYJ 103 V (10 kΩ)
R7	7030003680	Resistor	ERJ3GEYJ 104 V (100 kΩ)
R8	7030003680	Resistor	ERJ3GEYJ 104 V (100 kΩ)
R9	7030003560	Resistor	ERJ3GEYJ 103 V (10 kΩ)
R10	7030003580	Resistor	ERJ3GEYJ 153 V (15 kΩ)
R11	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 kΩ)
R14	7030003330	Resistor	ERJ3GEYJ 121 V (120Ω)
C1	4030003880	Ceramic	GRM39 SL 180J 50PT
C2	4030004070	Ceramic	GRM39 SL 330J 50PT
C3	4030004000	Ceramic	GRM39 SL 070D 50PT
C4	4030004030	Ceramic	GRM39 SL 120J 50PT
C5	4030003890	Ceramic	GRM39 B 471K 50PT
C6	4030004000	Ceramic	GRM39 SL 070D 50PT
C7	4030004110	Ceramic	GRM39 SL 560J 50PT
C8	4030003940	Ceramic	GRM39 SL 010C 50PT
C9	4030004000	Ceramic	GRM39 SL 070D 50PT
C10	4030004240	Ceramic	GRM39 B 102K 50PT
C11	4030004110	Ceramic	GRM39 SL 560J 50PT
C12	4030004000	Ceramic	GRM39 SL 070D 50PT

[V RFA UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
C13	4030004240	Ceramic	GRM39 B 102K 50PT
C18	4030004240	Ceramic	GRM39 B 102K 50PT
C20	4030004240	Ceramic	GRM39 B 102K 50PT
C21	4030004240	Ceramic	GRM39 B 102K 50PT
C22	4030004240	Ceramic	GRM39 B 102K 50PT
EP1	0910031331	P.C. Board	B 3003A (V RFA)
EP3	6510008580	Lead Frame	PT2.0-0.7-16.5 (K)

[V RFB UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
L1	6150003120	Coil	LS-321
L2	6150003120	Coil	LS-321
L3	6150003430	Coil	LS-378
EP1	0910020185	P.C. Board	B 1946E (V RFB)

[RX UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1110001971	IC	μPC1676G-T1
IC2	1110002430	IC	MC3371MR
IC4	1130000830	IC	μPD4094BG-T1
IC5	1130003760	IC	TC4S81F (TE85R)
IC6	1130005700	IC	M56760FP
IC7	1180000530	IC	S-81250HG-RD-T1
IC8	1110001971	IC	μPC1676G-T1
Q1	1530002640	Transistor	2SC3583 R34-T2B
Q2	1530002570	Transistor	2SC4405-3-TR
Q3	1530002560	Transistor	2SC4403-3-TR
Q4	1530002020	Transistor	2SC3770-3-TA
Q5	1590000720	Transistor	DTA144EU T107
Q6	1590000720	Transistor	DTA144EU T107
Q7	1590000780	Transistor	IMX5 T109
Q8	1530002280	Transistor	2SC4081 T107 S
Q9	1530002280	Transistor	2SC4081 T107 S
Q10	1590000660	Transistor	DTC144TU T107
Q11	1530002560	Transistor	2SC4403-3-TR
Q12	1530002560	Transistor	2SC4403-3-TR
Q13	1590000430	Transistor	DTC144EU T107
Q14	1590001210	Transistor	XP5601-(TX).AB
Q15	1590000620	Transistor	FMS1 T148
Q16	1590000670	Transistor	FMW1 T148
Q20	1590000430	Transistor	DTC144EU T107
Q21	1590000440	Transistor	DTA143ZU T107
Q22	1530002560	Transistor	2SC4403-3-TR
Q23	1520000200	Transistor	2SB798-T2 DK
Q24	1530002280	Transistor	2SC4081 T107 S
Q25	1510000510	Transistor	2SA1576 T107 R
Q26	1530002280	Transistor	2SC4081 T107 S
Q27	1590000440	Transistor	DTA143ZU T107
Q28	1590000430	Transistor	DTC144EU T107
Q29	1590000650	Transistor	DTA144TU T107
Q30	1590001050	Transistor	DTC114TU T107
Q31	1530002280	Transistor	2SC4081 T107 S

[RX UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
D1	1790000490	Diode	HSM88AS-TR
D2	1790000450	Diode	MA862 (TX)
D3	1790000450	Diode	MA862 (TX)
D4	1790000450	Diode	MA862 (TX)
D5	1790000450	Diode	MA862 (TX)
D6	1790000890	Diode	ND433G
D7	1790000450	Diode	MA862 (TX)
D8	1790000450	Diode	MA862 (TX)
D14	1790000450	Diode	MA862 (TX)
D15	1790000450	Diode	MA862 (TX)
D16	1160000060	Diode	DAN202U T107
D17	1160000060	Diode	DAN202U T107
D18	1750000160	Diode	DA114 T107
D19	1750000160	Diode	DA114 T107
X1	6050007430	Crystal	CR-355
X2	6050007420	Crystal	CR-354
X3	6050007230	Crystal	CR-329 UM-1/T 12.80000 MHz
F11	2020000760	Ceramic Filter	EFCH266MWNS2
F12	2020000820	Ceramic Filter	SFE10.7MS2W-A
F13	2020000550	Ceramic Filter	CFUM455E
L1	6200000130	Coil	LQN 2A 47NM
L2	6200000110	Coil	LQN 2A 33NM
L3	6200000110	Coil	LQN 2A 33NM
L4	6200000080	Coil	LQH 3N R56M
L5	6200000050	Coil	LQH 3N R39M
L6	6200000090	Coil	LQN 2A 18NM
L7	6200000110	Coil	LQN 2A 33NM
L8	6200000110	Coil	LQN 2A 33NM
L9	6200000720	Coil	LQN 2A 10NM
L10	6200000720	Coil	LQN 2A 10NM
L11	6200001460	Coil	B5F (458DB-1013=P1)
L12	6200001460	Coil	B5F (458DB-1013=P1)
L13	6200000110	Coil	LQN 2A 33NM
L14	6200000130	Coil	LQN 2A 47NM
L15	6200000100	Coil	LQN 2A 22NM
L16	6200001610	Coil	MLF2012A 3R3K-T
L17	6200001450	Coil	LQH 3N 221K
L18	6150002770	Coil	LS-293
L19	6200000130	Coil	LQN 2A 47NM
L20	6150002930	Coil	LS-287
L23	6200000130	Coil	LQN 2A 47NM
L24	6200000720	Coil	LQN 2A 10NM
L25	6200000100	Coil	LQN 2A 22NM
L26	6200000110	Coil	LQN 2A 33NM
L28	6200000720	Coil	LQN 2A 10NM
L29	6200000720	Coil	LQN 2A 10NM
R1	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 kΩ)
R2	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 kΩ)
R3	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 kΩ)
R4	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 kΩ)
R5	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 kΩ)
R6	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 kΩ)
R7	7030003630	Resistor	ERJ3GEYJ 393 V (39 kΩ)
R8	7030003380	Resistor	ERJ3GEYJ 331 V (330Ω)
R9	7030003400	Resistor	ERJ3GEYJ 471 V (470Ω)
R10	7030003200	Resistor	ERJ3GEYJ 100 V (10Ω)
R12	7030003630	Resistor	ERJ3GEYJ 393 V (39 kΩ)
R13	7030003380	Resistor	ERJ3GEYJ 331 V (330Ω)
R14	7030003400	Resistor	ERJ3GEYJ 471 V (470Ω)
R15	7030003690	Resistor	ERJ3GEYJ 124 V (120 kΩ)
R16	7030003440	Resistor	ERJ3GEYJ 102 V (1 kΩ)

[RX UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
R17	7030003410	Resistor ERJ3GEYJ 561 V (560Ω)
R19	7030003430	Resistor ERJ3GEYJ 821 V (820Ω)
R20	7030003360	Resistor ERJ3GEYJ 221 V (220Ω)
R21	7030003400	Resistor ERJ3GEYJ 471 V (470Ω)
R22	7030003640	Resistor ERJ3GEYJ 473 V (47 kΩ)
R23	7030003600	Resistor ERJ3GEYJ 223 V (22 kΩ)
R24	7030003520	Resistor ERJ3GEYJ 472 V (4.7 kΩ)
R25	7030003600	Resistor ERJ3GEYJ 223 V (22 kΩ)
R26	7030003600	Resistor ERJ3GEYJ 223 V (22 kΩ)
R27	7030003600	Resistor ERJ3GEYJ 223 V (22 kΩ)
R28	7310002590	Trimmer RV-109 (RH03 A3AJ3X0BA) 222
R29	7030003320	Resistor ERJ3GEYJ 101 V (100Ω)
R30	7030003530	Resistor ERJ3GEYJ 562 V (5.6 kΩ)
R31	7030003590	Resistor ERJ3GEYJ 183 V (18 kΩ)
R32	7030003790	Resistor ERJ3GEYJ 824 V (820 kΩ)
R33	7030003580	Resistor ERJ3GEYJ 153 V (15 kΩ)
R34	7030003720	Resistor ERJ3GEYJ 224 V (220 kΩ)
R35	7030003580	Resistor ERJ3GEYJ 153 V (15 kΩ)
R36	7030003520	Resistor ERJ3GEYJ 472 V (4.7 kΩ)
R37	7030003540	Resistor ERJ3GEYJ 682 V (6.8 kΩ)
R38	7030003400	Resistor ERJ3GEYJ 471 V (470Ω)
R40	7030003680	Resistor ERJ3GEYJ 104 V (100 kΩ)
R41	7030003200	Resistor ERJ3GEYJ 100 V (10Ω)
R42	7030003740	Resistor ERJ3GEYJ 334 V (330 kΩ)
R43	7030003680	Resistor ERJ3GEYJ 104 V (100 kΩ)
R44	7030003630	Resistor ERJ3GEYJ 393 V (39 kΩ)
R45	7030003420	Resistor ERJ3GEYJ 681 V (680Ω)
R46	7030003660	Resistor ERJ3GEYJ 683 V (68 kΩ)
R47	7030003320	Resistor ERJ3GEYJ 101 V (100Ω)
R48	7030003480	Resistor ERJ3GEYJ 222 V (2.2 kΩ)
R49	7030003700	Resistor ERJ3GEYJ 154 V (150 kΩ)
R50	7030003680	Resistor ERJ3GEYJ 104 V (100 kΩ)
R51	7030003440	Resistor ERJ3GEYJ 102 V (1 kΩ)
R52	7030003680	Resistor ERJ3GEYJ 104 V (100 kΩ)
R53	7030003680	Resistor ERJ3GEYJ 104 V (100 kΩ)
R54	7030003560	Resistor ERJ3GEYJ 103 V (10 kΩ)
R55	7030003200	Resistor ERJ3GEYJ 100 V (10Ω)
R56	7030003680	Resistor ERJ3GEYJ 104 V (100 kΩ)
R57	7030003400	Resistor ERJ3GEYJ 471 V (470Ω)
R59	7030003560	Resistor ERJ3GEYJ 103 V (10 kΩ)
R60	7030003560	Resistor ERJ3GEYJ 103 V (10 kΩ)
R62	7030003460	Resistor ERJ3GEYJ 152 V (1.5 kΩ)
R63	7030003560	Resistor ERJ3GEYJ 103 V (10 kΩ)
R68	7030003680	Resistor ERJ3GEYJ 104 V (100 kΩ)
R69	7030003570	Resistor ERJ3GEYJ 123 V (12 kΩ)
R77	7030003320	Resistor ERJ3GEYJ 101 V (100Ω)
R78	7030003420	Resistor ERJ3GEYJ 681 V (680Ω)
R79	7030003660	Resistor ERJ3GEYJ 683 V (68 kΩ)
R80	7030003520	Resistor ERJ3GEYJ 472 V (4.7 kΩ)
R81	7030003520	Resistor ERJ3GEYJ 472 V (4.7 kΩ)
R82	7030003520	Resistor ERJ3GEYJ 472 V (4.7 kΩ)
R83	7030003430	Resistor ERJ3GEYJ 821 V (820Ω)
R84	7030003520	Resistor ERJ3GEYJ 472 V (4.7 kΩ)
R85	7030003400	Resistor ERJ3GEYJ 471 V (470Ω)
R87	7030003520	Resistor ERJ3GEYJ 472 V (4.7 kΩ)
R88	7030003520	Resistor ERJ3GEYJ 472 V (4.7 kΩ)
R89	7030003440	Resistor ERJ3GEYJ 102 V (1 kΩ)
R90	7030003520	Resistor ERJ3GEYJ 472 V (4.7 kΩ)
R91	7030003680	Resistor ERJ3GEYJ 104 V (100 kΩ)
R92	7030003600	Resistor ERJ3GEYJ 223 V (22 kΩ)
R93	7030003630	Resistor ERJ3GEYJ 393 V (39 kΩ)
R94	7030003390	Resistor ERJ3GEYJ 391 V (390Ω)
R95	7030003420	Resistor ERJ3GEYJ 681 V (680Ω)
R96	7030003770	Resistor ERJ3GEYJ 564 V (560 kΩ)
R97	7030003440	Resistor ERJ3GEYJ 102 V (1 kΩ)
R98	7030003480	Resistor ERJ3GEYJ 222 V (2.2 kΩ)
R99	7030003290	Resistor ERJ3GEYJ 560 V (56Ω)

[RX UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
C1	4030004310	Ceramic GRM39 B 103K 25PT
C2	4030004310	Ceramic GRM39 B 103K 25PT
C3	4030003890	Ceramic GRM39 B 471K 50PT
C4	4030004030	Ceramic GRM39 SL 120J 50PT
C5	4030003970	Ceramic GRM39 SL 040C 50PT
C6	4030004040	Ceramic GRM39 SL 150J 50PT
C7	4030003960	Ceramic GRM39 SL 030C 50PT
C8	4030003960	Ceramic GRM39 SL 030C 50PT
C9	4030004170	Ceramic GRM39 SL 101J 50PT
C10	4030004210	Ceramic GRM39 SL 221J 50PT
C11	4030004110	Ceramic GRM39 SL 560J 50PT
C12	4030009210	Ceramic GRM39 SL 391J 50PT
C13	4030004150	Ceramic GRM39 SL 820J 50PT
C14	4030003890	Ceramic GRM39 B 471K 50PT
C15	4030003890	Ceramic GRM39 B 471K 50PT
C16	4030004020	Ceramic GRM39 SL 100D 50PT
C17	4030004050	Ceramic GRM39 SL 060D 50PT
C18	4030004020	Ceramic GRM39 SL 100D 50PT
C19	4030004060	Ceramic GRM39 SL 270J 50PT
C20	4030008800	Ceramic GRM39 SL 090D 50PT
C21	4030003990	Ceramic GRM39 SL 060D 50PT
C22	4030003970	Ceramic GRM39 SL 040C 50PT
C23	4030003990	Ceramic GRM39 SL 220J 50PT
C24	4030003960	Ceramic GRM39 SL 030C 50PT
C25	4030003960	Ceramic GRM39 SL 030C 50PT
C27	4030004310	Ceramic GRM39 B 103K 25PT
C28	4030008790	Ceramic GRM39 F 104Z 25PT
C29	4030004240	Ceramic GRM39 B 102K 50PT
C30	4030004240	Ceramic GRM39 B 102K 50PT
C31	4030004310	Ceramic GRM39 B 103K 25PT
C32	4030003890	Ceramic GRM39 B 471K 50PT
C33	4030004310	Ceramic GRM39 B 103K 25PT
C34	4030004240	Ceramic GRM39 B 102K 50PT
C35	4030003990	Ceramic GRM39 SL 060D 50PT
C36	4030003890	Ceramic GRM39 B 471K 50PT
C37	4550003000	Tantalum TEMSVB 0G 226M-12 L
C38	4030004310	Ceramic GRM39 B 103K 25PT
C39	4030003890	Ceramic GRM39 B 471K 50PT
C40	4030004080	Ceramic GRM39 SL 390J 50PT
C41	4030004080	Ceramic GRM39 SL 390J 50PT
C42	4030004310	Ceramic GRM39 B 103K 25PT
C43	4030003890	Ceramic GRM39 B 471K 50PT
C44	4030003890	Ceramic GRM39 B 471K 50PT
C45	4030004310	Ceramic GRM39 B 103K 25PT
C46	4030004240	Ceramic GRM39 B 102K 50PT
C47	4030004310	Ceramic GRM39 B 103K 25PT
C48	4030004240	Ceramic GRM39 B 102K 50PT
C49	4030004050	Ceramic GRM39 SL 220J 50PT
C50	4030004130	Ceramic GRM39 SL 680J 50PT
C51	4030008790	Ceramic GRM39 F 104Z 25PT
C52	4030008790	Ceramic GRM39 F 104Z 25PT
C53	4030004210	Ceramic GRM39 SL 221J 50PT
C54	4030004210	Ceramic GRM39 SL 221J 50PT
C55	4030004210	Ceramic GRM39 SL 221J 50PT
C56	4030008790	Ceramic GRM39 F 104Z 25PT
C57	4030008790	Ceramic GRM39 F 104Z 25PT
C58	4030008790	Ceramic GRM39 F 104Z 25PT
C59	4030003890	Ceramic GRM39 B 471K 50PT
C60	4030003890	Ceramic GRM39 B 471K 50PT
C61	4030004240	Ceramic GRM39 B 102K 50PT
C62	4030004310	Ceramic GRM39 B 103K 25PT
C63	4030008920	Ceramic C1608 JB 1C 473K-T-A
C64	4030004240	Ceramic GRM39 B 102K 50PT
C65	4030003890	Ceramic GRM39 B 471K 50PT
C66	4030003890	Ceramic GRM39 B 471K 50PT
C67	4030009180	Ceramic GRM39 UJ 060D 50PT
C68	4030003890	Ceramic GRM39 B 471K 50PT
C69	4030003890	Ceramic GRM39 B 471K 50PT
C70	4030009200	Ceramic GRM39 UJ 100D 50PT

[RX UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
C71	4030009190	Ceramic	GRM39 UJ 080D 50PT
C72	4030003890	Ceramic	GRM39 B 471K 50PT
C73	4610001260	Trimmer	ECRJA020E12W
C74	4030008810	Ceramic	GRM39 CH 150J 50PT
C75	4030008820	Ceramic	GRM39 CH 390J 50PT
C76	4030008790	Ceramic	GRM39 F 104Z 25PT
C77	4030003890	Ceramic	GRM39 B 471K 50PT
C78	4030008790	Ceramic	GRM39 F 104Z 25PT
C79	4030004240	Ceramic	GRM39 B 102K 50PT
C80	4030004000	Ceramic	GRM39 SL 070D 50PT
C82	4550002850	Tantalum	TESVA 1V 104K1-8L
C83	4550000460	Tantalum	TESVA 1C 105M1-8L
C85	4550000490	Tantalum	TESVA 1V 223M1-8L
C89	4030004240	Ceramic	GRM39 B 102K 50PT
C91	4030004240	Ceramic	GRM39 B 102K 50PT
C98	4030008790	Ceramic	GRM39 F 104Z 25PT
C99	4030003890	Ceramic	GRM39 B 471K 50PT
C100	4030003890	Ceramic	GRM39 B 471K 50PT
C101	4030004020	Ceramic	GRM39 SL 100D 50PT
C102	4030003890	Ceramic	GRM39 B 471K 50PT
C103	4030003980	Ceramic	GRM39 SL 050C 50PT
C104	4030003980	Ceramic	GRM39 SL 050C 50PT
C105	4030003980	Ceramic	GRM39 SL 050C 50PT
C106	4030003970	Ceramic	GRM39 SL 040C 50PT
C107	4030004010	Ceramic	GRM39 SL 080D 50PT
C108	4030003970	Ceramic	GRM39 SL 040C 50PT
C109	4030003890	Ceramic	GRM39 B 471K 50PT
C110	4030004240	Ceramic	GRM39 B 102K 50PT
C111	4550002890	Tantalum	TESVA 1A 225M1-8L
C112	4030004240	Ceramic	GRM39 B 102K 50PT
C113	4550002890	Tantalum	TESVA 1A 225M1-8L
C114	4030003890	Ceramic	GRM39 B 471K 50PT
C115	4550003030	Tantalum	TEMSVA 0J 475M-8L
C116	4510004420	Electrolytic	ECEV0JV330SR
C118	4030003890	Ceramic	GRM39 B 471K 50PT
C120	4030003890	Ceramic	GRM39 B 471K 50PT
C121	4510004430	Electrolytic	ECEV1CV220WR
C122	4030003980	Ceramic	GRM39 SL 050C 50PT
C123	4030003890	Ceramic	GRM39 B 471K 50PT
C124	4030003890	Ceramic	GRM39 B 471K 50PT
C125	4030004040	Ceramic	GRM39 SL 150J 50PT
C126	4030003890	Ceramic	GRM39 B 471K 50PT
C127	4030003980	Ceramic	GRM39 SL 050C 50PT
C128	4030008920	Ceramic	C1608 JB 1C 473K-T-A
C129	4030008790	Ceramic	GRM39 F 104Z 25PT
C130	4030004310	Ceramic	GRM39 B 103K 25PT
C131	4030008920	Ceramic	C1608 JB 1C 473K-T-A
C132	4030003970	Ceramic	GRM39 SL 040C 50PT
C133	4030003970	Ceramic	GRM39 SL 040C 50PT
C134	4030004100	Ceramic	GRM39 SL 470J 50PT
C135	4030004100	Ceramic	GRM39 SL 470J 50PT
EP1	0910031307	P.C. Board	B 2815G (RX)

[BPF A UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
D1	1790000450	Diode	MA862 (TX)
D2	1790000450	Diode	MA862 (TX)
D3	1790000450	Diode	MA862 (TX)
D4	1790000450	Diode	MA862 (TX)
L1	6200000110	Coil	LQN 2A 33NM
L2	6200000100	Coil	LQN 2A 22NM

[BPF A UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
L3	6200000090	Coil	LQN 2A 18NM
L4	6200000720	Coil	LQN 2A 10NM
L5	6200000720	Coil	LQN 2A 10NM
L6	6200000720	Coil	LQN 2A 10NM
L7	6200000720	Coil	LQN 2A 10NM
L8	6200000720	Coil	LQN 2A 10NM
R1	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 kΩ)
R2	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 kΩ)
R3	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 kΩ)
R4	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 kΩ)
C1	4030003980	Ceramic	GRM39 SL 050C 50PT
C2	4030003960	Ceramic	GRM39 SL 030C 50PT
C3	4030003960	Ceramic	GRM39 SL 030C 50PT
C4	4030004020	Ceramic	GRM39 SL 100D 50PT
C5	4030003960	Ceramic	GRM39 SL 030C 50PT
C6	4030003950	Ceramic	GRM39 SL 020C 50PT
C7	4030008840	Ceramic	GRM39 SL 1R5C 50PT
C8	4030003970	Ceramic	GRM39 SL 040C 50PT
C9	4030008840	Ceramic	GRM39 SL 1R5C 50PT
C10	4030003970	Ceramic	GRM39 SL 040C 50PT
C11	4030003890	Ceramic	GRM39 B 471K 50PT
C12	4030003890	Ceramic	GRM39 B 471K 50PT
C13	4030003890	Ceramic	GRM39 B 471K 50PT
C14	4030003960	Ceramic	GRM39 SL 030C 50PT
C15	4030003980	Ceramic	GRM39 SL 050C 50PT
C16	4030003960	Ceramic	GRM39 SL 030C 50PT
C17	4030004020	Ceramic	GRM39 SL 100D 50PT
C18	4030003970	Ceramic	GRM39 SL 040C 50PT
C19	4030003890	Ceramic	GRM39 B 471K 50PT
EP1	0910028063	P.C. Board	B 2832C (BPFA)
EP2	6510008580	Lead Frame	PT2.0-0.7-16.5 (K)

[BPF B UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
L1	6200000110	Coil	LQN 2A 33NM
L2	6200000130	Coil	LQN 2A 47NM
L3	6200000100	Coil	LQN 2A 22NM
L4	6200000100	Coil	LQN 2A 22NM
C1	4030008800	Ceramic	GRM39 SL 090D 50PT
C2	4030004100	Ceramic	GRM39 SL 470J 50PT
C3	4030004000	Ceramic	GRM39 SL 070D 50PT
C4	4030004020	Ceramic	GRM39 SL 100D 50PT
C5	4030004030	Ceramic	GRM39 SL 120J 50PT
C6	4030004050	Ceramic	GRM39 SL 220J 50PT
C7	4030003970	Ceramic	GRM39 SL 040C 50PT
C8	4030004060	Ceramic	GRM39 SL 270J 50PT
C9	4030004000	Ceramic	GRM39 SL 070D 50PT
C10	4030004030	Ceramic	GRM39 SL 120J 50PT
C11	4030003930	Ceramic	GRM39 SL 0R5C 50PT
EP1	0910028070	P.C. Board	B 2833 (BPFB)

[RX VCO UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
Q1	1530002560	Transistor	2SC4403-3-TR
Q2	1530000371	Transistor	2SC3356 R25-T2B
Q3	1530000371	Transistor	2SC3356 R25-T2B
D1	1790000530	Diode	MA333 (TW)
D2	1790000530	Diode	MA333 (TW)
D3	1790000620	Diode	MA77 (TW)
L1	6110001980	Coil	LA-222
L2	6110001990	Coil	LA-223
L3	6200001040	Coil	MLF2012E 6R8M-T
R1	7030003400	Resistor	ERJ3GEYJ 471 V (470Ω)
R2	7030003640	Resistor	ERJ3GEYJ 473 V (47 kΩ)
R3	7030003320	Resistor	ERJ3GEYJ 101 V (100Ω)
R4	7030003360	Resistor	ERJ3GEYJ 221 V (220Ω)
R5	7030003550	Resistor	ERJ3GEYJ 822 V (8.2 kΩ)
R6	7030003360	Resistor	ERJ3GEYJ 221 V (220Ω)
R7	7030003550	Resistor	ERJ3GEYJ 822 V (8.2 kΩ)
R8	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 kΩ)
R9	7030003560	Resistor	ERJ3GEYJ 103 V (10 kΩ)
R10	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 kΩ)
C1	4030004240	Ceramic	GRM39 B 102K 50PT
C2	4030003930	Ceramic	GRM39 SL 0R5C 50PT
C3	4030004240	Ceramic	GRM39 B 102K 50PT
C4	4030004240	Ceramic	GRM39 B 102K 50PT
C5	4030004020	Ceramic	GRM39 SL 100D 50PT
C6	4030003940	Ceramic	GRM39 SL 010C 50PT
C7	4030003940	Ceramic	GRM39 SL 010C 50PT
C8	4550000550	Tantalum	TESVA 1V 224M1-8L
C9	4550002950	Tantalum	TESVA 0J 335M1-8L
C10	4030004240	Ceramic	GRM39 B 102K 50PT
C11	4030004240	Ceramic	GRM39 B 102K 50PT
C12	4030003890	Ceramic	GRM39 B 471K 50PT
EP1	0910030520	P.C. Board	B 3109 (RX VCO)

[PRT UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
C1	4030004240	Ceramic	GRM39 B 102K 50PT
C2	4030004240	Ceramic	GRM39 B 102K 50PT
C3	4030004100	Ceramic	GRM39 SL 470J 50PT
C4	4030004240	Ceramic	GRM39 B 102K 50PT
C5	4030004240	Ceramic	GRM39 B 102K 50PT
C6	4030004240	Ceramic	GRM39 B 102K 50PT
EP1	0910029600	P.C. Board	B 2874 (PRT)

[LOGIC UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1140001750	IC	SC-4608H A86
IC2	1140001770	IC	SC-L4808H A89
IC6	1110002400	IC	NJM2107F (TE1)
IC7	1110002400	IC	NJM2107F (TE1)
IC8	1110002410	IC	NJM2406F (TE1)
IC9	1110002410	IC	NJM2406F (TE1)
IC10	1130003710	IC	TC4S71F (TE85R)
IC11	1180000680	IC	S-87050EF-VR-T1
IC12	1130003760	IC	TC4S81F (TE85R)
IC13	1130004330	IC	LC7385M
IC14	1130005640	IC	TC4W53F (TE12L)
IC15	1130003610	IC	TC4SU69F (TE85R)
IC16	1130003610	IC	TC4SU69F (TE85R)
IC17	1130003610	IC	TC4SU69F (TE85R)
IC18	1130004200	IC	TC4S66F (TE85R)
IC19	1130004170	IC	TC4S01F (TE85R)
IC20	1110002400	IC	NJM2107F (TE1)
Q1	1540000350	Transistor	2SD2216-S (TX)
Q2	1540000350	Transistor	2SD2216-S (TX)
Q3	1510000510	Transistor	2SA1576 T107 R
Q4	1590001130	Transistor	UN9110 (TX)
Q5	1590001150	Transistor	UN9211 (TX)
Q10	1540000350	Transistor	2SD2216-S (TX)
Q11	1540000350	Transistor	2SD2216-S (TX)
Q12	1540000350	Transistor	2SD2216-S (TX)
Q18	1590001180	Transistor	XP1210 (TX)
Q19	1590001180	Transistor	XP1210 (TX)
Q20	1590001180	Transistor	XP1210 (TX)
Q21	1590001180	Transistor	XP1210 (TX)
Q23	1590001140	Transistor	UN9210 (TX)
Q24	1590001140	Transistor	UN9210 (TX)
Q26	1520000430	Transistor	2SB1462-R (TX)
Q27	1540000350	Transistor	2SD2216-S (TX)
Q28	1510000510	Transistor	2SA1576 T107 R
Q29	1540000350	Transistor	2SD2216-S (TX)
Q30	1540000350	Transistor	2SD2216-S (TX)
Q31	1590001140	Transistor	UN9210 (TX)
Q32	1590001130	Transistor	UN9110 (TX)
Q33	1590001140	Transistor	UN9210 (TX)
D3	1790000860	Diode	MA133 (TX)
D4	1790000590	Diode	MA110 (TW)
D5	1790000820	Diode	MA132K (TX)
D6	1790000840	Diode	MA132WA (TX)
D7	1790000870	Diode	MA1S121 (TX)
D8	1790000840	Diode	MA132WA (TX)
D9	1790000840	Diode	MA132WA (TX)
D10	1790000840	Diode	MA132WA (TX)
D11	1790000840	Diode	MA132WA (TX)
D12	1790000840	Diode	MA132WA (TX)
D13	1790000840	Diode	MA132WA (TX)
D14	1790000840	Diode	MA132WA (TX)
R1	7030003250	Resistor	ERJ3GEYJ 270 V (27Ω)
R2	7030003380	Resistor	ERJ3GEYJ 331 V (330Ω)
R3	7030003440	Resistor	ERJ3GEYJ 102 V (1 kΩ)
R4	7030003600	Resistor	ERJ3GEYJ 223 V (22 kΩ)
R5	7030003470	Resistor	ERJ3GEYJ 182 V (1.8 kΩ)
R6	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 kΩ)
R7	7030003320	Resistor	ERJ3GEYJ 101 V (100Ω)
R8	7030003440	Resistor	ERJ3GEYJ 102 V (1 kΩ)
R9	7030003250	Resistor	ERJ3GEYJ 270 V (27Ω)

[PRT UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
Q1	1520000200	Transistor	2SB798-T2 DK
Q2	1530002280	Transistor	2SC4081 T107 S
D1	1790000680	Diode	SB20-03P-TD
D2	1790000670	Diode	SB07-03C-TA
D5	1790000590	Diode	MA110 (TW)
D6	1730002160	Zener	02CZ5.1-Z (TE85R)

[LOGIC UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
D15	1790000850	Diode	MA132WK (TX) (AUS)
	1790000830	Diode	MA132HK (TX) (EUR-1, UK)
	1790000820	Diode	MA132K (TX) (EUR-2)
D16	1790000830	Diode	MA132HK (TX) (USA, SEA)
D18	1790000830	Diode	MA132HK (TX)
D19	1790000860	Diode	MA133 (TX) (EUR-2)
D22	1790000810	Diode	MA132A (TX)
D25	1750000190	Diode	1SS322 (TE85R)
D26	1790000810	Diode	MA132A (TX)
D27	1790000850	Diode	MA132WK (TX)
D28	1790000490	Diode	HSM88AS-TR
D29	1790000490	Diode	HSM88AS-TR
D30	1790000850	Diode	MA132WK (TX)
D31	1790000860	Diode	MA133 (TX)
D32	1790000850	Diode	MA132WK (TX)
D33	1790000860	Diode	MA133 (TX)
D34	1790000860	Diode	MA133 (TX)
D35	1790000860	Diode	MA133 (TX)
D36	1790000660	Diode	MA728 (TW)
D37	1790000860	Diode	MA133 (TX)
D38	1790000860	Diode	MA133 (TX)
X1	6060000391	Crystal	CSB800J201T
X2	6060000391	Crystal	CSB800J201T
X3	6050005800	Crystal	DT-26S 32.768 kHz
X4	6060000150	Crystal	CSAC3.58MGC300CD
R1	7410000610	Resistor Array	EXB-V4V 153J
R3	7030003800	Resistor	ERJ3GEYJ 105 V (1 M Ω)
R4	7310002600	Trimmer	RV-110 (RH03 A3AS4X0AA) 473
R8	7030003560	Resistor	ERJ3GEYJ 103 V (10 k Ω)
R9	7030003580	Resistor	ERJ3GEYJ 153 V (15 k Ω)
R11	7030003800	Resistor	ERJ3GEYJ 105 V (1 M Ω)
R12	7030003550	Resistor	ERJ3GEYJ 822 V (8.2 k Ω)
R13	7410000610	Resistor Array	EXB-V4V 153J
R15	7030003480	Resistor	ERJ3GEYJ 222 V (2.2 k Ω)
R16	7030003720	Resistor	ERJ3GEYJ 224 V (220 k Ω)
R17	7030003760	Resistor	ERJ3GEYJ 474 V (470 k Ω)
R18	7030003620	Resistor	ERJ3GEYJ 333 V (33 k Ω)
R19	7030003440	Resistor	ERJ3GEYJ 102 V (1 k Ω)
R20	7030003450	Resistor	ERJ3GEYJ 122 V (1.2 k Ω)
R21	7030003560	Resistor	ERJ3GEYJ 103 V (10 k Ω)
R22	7030003440	Resistor	ERJ3GEYJ 102 V (1 k Ω)
R23	7030003840	Resistor	ERJ3GEYJ 225 V (2.2 M Ω) (EUR-1~4, UK, UK-1, AUS, SEA)
	7030003800	Resistor	ERJ3GEYJ 105 V (1 M Ω) (USA)
R24	7030003400	Resistor	ERJ3GEYJ 471 V (470 Ω)
R25	7030003720	Resistor	ERJ3GEYJ 224 V (220 k Ω)
R26	7030003720	Resistor	ERJ3GEYJ 224 V (220 k Ω)
R27	7030003440	Resistor	ERJ3GEYJ 102 V (1 k Ω)
R28	7030003720	Resistor	ERJ3GEYJ 224 V (220 k Ω)
R29	7030003800	Resistor	ERJ3GEYJ 105 V (1 M Ω)
R30	7030003720	Resistor	ERJ3GEYJ 224 V (220 k Ω)
R31	7030003580	Resistor	ERJ3GEYJ 153 V (15 k Ω)
R32	7030003680	Resistor	ERJ3GEYJ 104 V (100 k Ω)
R34	7030003600	Resistor	ERJ3GEYJ 223 V (22 k Ω)
R35	7030003610	Resistor	ERJ3GEYJ 273 V (27 k Ω)
R36	7030003580	Resistor	ERJ3GEYJ 153 V (15 k Ω)
R41	7030003200	Resistor	ERJ3GEYJ 100 V (10 Ω) (EUR-1~4, UK, UK-1)
R42	7030003360	Resistor	ERJ3GEYJ 221 V (220 Ω)
R43	7030003360	Resistor	ERJ3GEYJ 221 V (220 Ω)
R44	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 k Ω)
R45	7030003550	Resistor	ERJ3GEYJ 822 V (8.2 k Ω)

[LOGIC UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
R46	7030003330	Resistor	ERJ3GEYJ 121 V (120 Ω)
R63	7030003760	Resistor	ERJ3GEYJ 474 V (470 k Ω)
R64	7030003880	Resistor	ERJ3GEYJ 244 V (240 k Ω)
R65	7030003690	Resistor	ERJ3GEYJ 124 V (120 k Ω)
R66	7030003720	Resistor	ERJ3GEYJ 224 V (220 k Ω)
R67	7030003800	Resistor	ERJ3GEYJ 105 V (1 M Ω)
R68	7030003800	Resistor	ERJ3GEYJ 105 V (1 M Ω)
R69	7410000560	Resistor Array	EXB-V4V 474J
R73	7030003800	Resistor	ERJ3GEYJ 105 V (1 M Ω)
R74	7410000590	Resistor Array	EXB-V4V 473J
R76	7410000590	Resistor Array	EXB-V4V 473J
R78	7410000590	Resistor Array	EXB-V4V 473J
R80	7030003670	Resistor	ERJ3GEYJ 823 V (82 k Ω)
R81	7410000560	Resistor Array	EXB-V4V 474J
R83	7030003880	Resistor	ERJ3GEYJ 244 V (240 k Ω)
R84	7030003710	Resistor	ERJ3GEYJ 184 V (180 k Ω)
R85	7030003880	Resistor	ERJ3GEYJ 244 V (240 k Ω)
R86	7030003530	Resistor	ERJ3GEYJ 562 V (5.6 k Ω)
R87	7030003880	Resistor	ERJ3GEYJ 244 V (240 k Ω)
R88	7030003730	Resistor	ERJ3GEYJ 274 V (270 k Ω)
R89	7030003880	Resistor	ERJ3GEYJ 244 V (240 k Ω)
R90	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 k Ω)
R91	7410000560	Resistor Array	EXB-V4V 474J
R92	7410000580	Resistor Array	EXB-V4V 224J
R93	7410000560	Resistor Array	EXB-V4V 474J (EUR-1~4, UK, UK-1)
R95	7410000600	Resistor Array	EXB-V4V 222J
R97	7030003560	Resistor	ERJ3GEYJ 103 V (10 k Ω)
R98	7030003560	Resistor	ERJ3GEYJ 103 V (10 k Ω)
R100	7030003720	Resistor	ERJ3GEYJ 224 V (220 k Ω)
R101	7030003600	Resistor	ERJ3GEYJ 223 V (22 k Ω)
R102	7030003760	Resistor	ERJ3GEYJ 474 V (470 k Ω)
R103	7030003680	Resistor	ERJ3GEYJ 104 V (100 k Ω)
R104	7030004020	Resistor	ERJ3GEYJ 243 V (24 k Ω)
R105	7030003360	Resistor	ERJ3GEYJ 221 V (220 Ω)
R106	7030003360	Resistor	ERJ3GEYJ 221 V (220 Ω)
R107	7030003800	Resistor	ERJ3GEYJ 105 V (1 M Ω)
R108	7030003800	Resistor	ERJ3GEYJ 105 V (1 M Ω)
R109	7030003800	Resistor	ERJ3GEYJ 105 V (1 M Ω)
R110	7030003560	Resistor	ERJ3GEYJ 103 V (10 k Ω)
R111	7030003560	Resistor	ERJ3GEYJ 103 V (10 k Ω)
R112	7030003560	Resistor	ERJ3GEYJ 103 V (10 k Ω)
R113	7030003680	Resistor	ERJ3GEYJ 104 V (100 k Ω)
R114	7030003680	Resistor	ERJ3GEYJ 104 V (100 k Ω)
R115	7030003740	Resistor	ERJ3GEYJ 334 V (330 k Ω)
R116	7030003700	Resistor	ERJ3GEYJ 154 V (150 k Ω)
R117	7030003720	Resistor	ERJ3GEYJ 224 V (220 k Ω)
R118	7030003610	Resistor	ERJ3GEYJ 273 V (27 k Ω)
R121	7410000570	Resistor Array	EXB-V8V 474J
R122	7410000570	Resistor Array	EXB-V8V 474J
R123	7410000570	Resistor Array	EXB-V8V 474J
R124	7410000570	Resistor Array	EXB-V8V 474J
R127	7030003800	Resistor	ERJ3GEYJ 105 V (1 M Ω)
R128	7310002600	Trimmer	RV-110 (RH03 A3AS4X0AA) 473 (EUR-1~4, UK, UK-1)
R130	7030003840	Resistor	ERJ3GEYJ 225 V (2.2 M Ω) (EUR-1~4, UK, UK-1)
R131	7030003600	Resistor	ERJ3GEYJ 223 V (22 k Ω)
R132	7030003800	Resistor	ERJ3GEYJ 105 V (1 M Ω)
R134	7030003690	Resistor	ERJ3GEYJ 124 V (120 k Ω)
R135	7030003680	Resistor	ERJ3GEYJ 104 V (100 k Ω)
R136	7030003680	Resistor	ERJ3GEYJ 104 V (100 k Ω)
R137	7030003800	Resistor	ERJ3GEYJ 105 V (1 M Ω)
R138	7030003600	Resistor	ERJ3GEYJ 223 V (22 k Ω)
R139	7030003800	Resistor	ERJ3GEYJ 105 V (1 M Ω)
R140	7030003690	Resistor	ERJ3GEYJ 124 V (120 k Ω)
R141	7030003680	Resistor	ERJ3GEYJ 104 V (100 k Ω)
R142	7030003680	Resistor	ERJ3GEYJ 104 V (100 k Ω)
R143	7030003800	Resistor	ERJ3GEYJ 105 V (1 M Ω)

[LOGIC UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
R144	7030003800	Resistor	ERJ3GEYJ 105 V (1 MΩ)
R145	7410000560	Resistor Array	EXB-V4V 474J
R146	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 kΩ)
R147	7030003640	Resistor	ERJ3GEYJ 473 V (47 kΩ)
R148	7030003600	Resistor	ERJ3GEYJ 223 V (22 kΩ)
R149	7030003630	Resistor	ERJ3GEYJ 393 V (39 kΩ)
R150	7030003760	Resistor	ERJ3GEYJ 474 V (470 kΩ)
R151	7030003620	Resistor	ERJ3GEYJ 333 V (33 kΩ)
R152	7030003690	Resistor	ERJ3GEYJ 124 V (120 kΩ)
R153	7030003880	Resistor	ERJ3GEYJ 244 V (240 kΩ)
R154	7030003760	Resistor	ERJ3GEYJ 474 V (470 kΩ)
R155	7030003200	Resistor	ERJ3GEYJ 100 V (10Ω)
R156	7030003650	Resistor	ERJ3GEYJ 563 V (56 kΩ)
R157	7030003650	Resistor	ERJ3GEYJ 563 V (56 kΩ)
R158	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 kΩ)
R159	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 kΩ)
R160	7030003800	Resistor	ERJ3GEYJ 105 V (1 MΩ)
R161	7030003800	Resistor	ERJ3GEYJ 105 V (1 MΩ)
R163	7030003760	Resistor	ERJ3GEYJ 474 V (470 kΩ)
R164	7030003800	Resistor	ERJ3GEYJ 105 V (1 MΩ)
R165	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 kΩ)
R167	7030003560	Resistor	ERJ3GEYJ 103 V (10 kΩ)
R168	7030003800	Resistor	ERJ3GEYJ 105 V (1 MΩ)
R169	7030003380	Resistor	ERJ3GEYJ 331 V (330Ω)
R170	7030003680	Resistor	ERJ3GEYJ 104 V (100 kΩ)
R171	7030003800	Resistor	ERJ3GEYJ 105 V (1 MΩ)
C2	4030004240	Ceramic	GRM39 B 102K 50PT
C3	4030004150	Ceramic	GRM39 SL 820J 50PT
C4	4030004210	Ceramic	GRM39 SL 221J 50PT
C6	4030008960	Ceramic	C2012 JB 1C 104K-T-A
C7	4030004150	Ceramic	GRM39 SL 820J 50PT
C8	4030004210	Ceramic	GRM39 SL 221J 50PT
C9	4030008810	Ceramic	GRM39 CH 150J 50PT
C10	4030008810	Ceramic	GRM39 CH 150J 50PT
C11	4030008920	Ceramic	C1608 JB 1C 473K-T-A
C12	4550003040	Tantalum	TEMSVB2 0J 106M-8 L
C13	4030004240	Ceramic	GRM39 B 102K 50PT
C14	4030004240	Ceramic	GRM39 B 102K 50PT
C15	4030004240	Ceramic	GRM39 B 102K 50PT
C16	4030008920	Ceramic	C1608 JB 1C 473K-T-A
C17	4030008920	Ceramic	C1608 JB 1C 473K-T-A
C18	4030008920	Ceramic	C1608 JB 1C 473K-T-A
C19	4030008830	Ceramic	GRM39 B 223K 25PT
C20	4030008830	Ceramic	GRM39 B 223K 25PT
C21	4550003030	Tantalum	TEMSVA 0J 475M-8L
C22	4030004240	Ceramic	GRM39 B 102K 50PT
C23	4030008920	Ceramic	C1608 JB 1C 473K-T-A
C28	4030004240	Ceramic	GRM39 B 102K 50PT
C30	4030004240	Ceramic	GRM39 B 102K 50PT
C31	4030004040	Ceramic	GRM39 SL 150J 50PT
C32	4030004210	Ceramic	GRM39 SL 221J 50PT
C33	4030004210	Ceramic	GRM39 SL 221J 50PT
C34	4030004240	Ceramic	GRM39 B 102K 50PT
C35	4030004070	Ceramic	GRM39 SL 330J 50PT
C36	4030004240	Ceramic	GRM39 B 102K 50PT
C37	4030003890	Ceramic	GRM39 B 471K 50PT
C38	4030004310	Ceramic	GRM39 B 103K 25PT
C39	4030004310	Ceramic	GRM39 B 103K 25PT
C40	4030008900	Ceramic	C1608 JB 1C 333K-T-A
C41	4030008900	Ceramic	C1608 JB 1C 333K-T-A
C42	4030004210	Ceramic	GRM39 SL 221J 50PT
C43	4550003060	Tantalum	TEMSVC 0J 336M-12 L
C44	4030008960	Ceramic	C2012 JB 1C 104K-T-A
C45	4030008960	Ceramic	C2012 JB 1C 104K-T-A
C46	4550004000	Tantalum	TEMSVD 0J 686M-12 L
C47	4030004240	Ceramic	GRM39 B 102K 50PT
C48	4030004240	Ceramic	GRM39 B 102K 50PT

[LOGIC UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
C49	4550004020	Tantalum	TEMSVD 1C 336M-12 L
C50	4550003040	Tantalum	TEMSVB2 0J 106M-8 L
C51	4030004240	Ceramic	GRM39 B 102K 50PT
C52	4550000790	Tantalum	TESVD 0J 476M-12L
C53	4030004070	Ceramic	GRM39 SL 330J 50PT
C54	4030004080	Ceramic	GRM39 SL 390J 50PT
C55	4030008790	Ceramic	GRM39 F 104Z 25PT
C56	4030008790	Ceramic	GRM39 F 104Z 25PT
C57	4030004240	Ceramic	GRM39 B 102K 50PT
C58	4030003890	Ceramic	GRM39 B 471K 50PT
C60	4030003890	Ceramic	GRM39 B 471K 50PT
C62	4030003890	Ceramic	GRM39 B 471K 50PT
C63	4030003890	Ceramic	GRM39 B 471K 50PT
C64	4030005100	Ceramic	C2012 JB 1H 273K-T-A
C65	4030008960	Ceramic	C2012 JB 1C 104K-T-A
C68	4030008830	Ceramic	GRM39 B 223K 25PT
C69	4030008830	Ceramic	GRM39 B 223K 25PT
C70	4030008960	Ceramic	C2012 JB 1C 104K-T-A
C71	4030008960	Ceramic	C2012 JB 1C 104K-T-A
C72	4030004240	Ceramic	GRM39 B 102K 50PT
C73	4030008790	Ceramic	GRM39 F 104Z 25PT
C74	4030008960	Ceramic	C2012 JB 1C 104K-T-A
C75	4030008960	Ceramic	C2012 JB 1C 104K-T-A
C76	4030008790	Ceramic	GRM39 F 104Z 25PT
C77	4030008790	Ceramic	GRM39 F 104Z 25PT
C79	4550003030	Tantalum	TEMSVA 0J 475M-8L
C80	4550003030	Tantalum	TEMSVA 0J 475M-8L
C81	4030004310	Ceramic	GRM39 B 103K 25PT
C82	4030004310	Ceramic	GRM39 B 103K 25PT
C83	4030004240	Ceramic	GRM39 B 102K 50PT
C84	4030004070	Ceramic	GRM39 SL 330J 50PT
C85	4030004310	Ceramic	GRM39 B 103K 25PT
DS1	5030000650	LCD	LD-BU5225J (E-5402)
DS2	5040001110	LED	SLM-23VMWS T97B
DS3	5040000880	LED	SLM-13MWS T97B
DS4	5040000880	LED	SLM-13MWS T97B
BT1	3020000160	Lithium Battery	VL2020-1VC
MC1	7700000861	Microphone	WM-62A103
SP1	2510000530	Speaker	T028S14I0810
EP1	8930020150	LCD contact strip	SRCN-873-W
EP2	8930020160	LCD contact strip	SRCN-873
EP3	0910030394	P.C. Board	B 3074D (LOGIC)
EP4	0910028842	P.C. Board	B 2873B

[PTT UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
R1	7210001910	Variable Resistor	RV-199 (RK0972210)10KB
R2	7210001910	Variable Resistor	RV-199 (RK0972210)10KB
S1	2260001320	Switch	SW-121 (SKHUPF)
S2	2260001320	Switch	SW-121 (SKHUPF)
S3	2260001400	Switch	SW-122 (RK097103H)
EP1	0910031153	P.C. Board	B 2871C (PTT)
EP2	0910029831	P.C. Board	B 3039A

[JACK UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
D1	1790000680	Diode	SB20-03P-TD
D2	1790000620	Diode	MA77 (TW)
R1	7030000340	Resistor	MCR10EZHZ 470Ω (471)
R2	7030003240	Resistor	ERJ3GEYJ 220 V (22Ω)
C1	4030004240	Ceramic	GRM39 B 102K 50PT
C2	4030004240	Ceramic	GRM39 B 102K 50PT
C3	4030004240	Ceramic	GRM39 B 102K 50PT
C4	4030004240	Ceramic	GRM39 B 102K 50PT
C7	4030004240	Ceramic	GRM39 B 102K 50PT
C9	4030004240	Ceramic	GRM39 B 102K 50PT
C10	4030004240	Ceramic	GRM39 B 102K 50PT
C11	4030004240	Ceramic	GRM39 B 102K 50PT
C12	4030004310	Ceramic	GRM39 B 103K 25PT
C13	4030004100	Ceramic	GRM39 SL 470J 50PT
EP1	0910030661	P.C. Board	B 3113A (JACK)

[AF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1110002420	IC	NJM2073M (T1)
Q1	1590001170	Transistor	XP1501-(TX).AB
Q2	1520000270	Transistor	2SB1182 TL Q
R1	7030003200	Resistor	ERJ3GEYJ 100 V (10Ω)
R2	7030003200	Resistor	ERJ3GEYJ 100 V (10Ω)
R3	7030003570	Resistor	ERJ3GEYJ 123 V (12 kΩ)
R4	7030003570	Resistor	ERJ3GEYJ 123 V (12 kΩ)
R5	7030003330	Resistor	ERJ3GEYJ 121 V (120Ω)
R6	7030003330	Resistor	ERJ3GEYJ 121 V (120Ω)
R7	7030003570	Resistor	ERJ3GEYJ 123 V (12 kΩ)
R8	7030003570	Resistor	ERJ3GEYJ 123 V (12 kΩ)
R9	7030003560	Resistor	ERJ3GEYJ 103 V (10 kΩ)
R10	7030003450	Resistor	ERJ3GEYJ 122 V (1.2 kΩ)
R11	7030003790	Resistor	ERJ3GEYJ 824 V (820 kΩ)
R12	7030003460	Resistor	ERJ3GEYJ 152 V (1.5 kΩ)
C1	4030008920	Ceramic	C1608 JB 1C 473K-T-A
C2	4030008920	Ceramic	C1608 JB 1C 473K-T-A
C3	4030008920	Ceramic	C1608 JB 1C 473K-T-A
C4	4510003180	Electrolytic	6.3 RC2 100 μF (D=5.0)

[AF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
C5	4510003180	Electrolytic	6.3 RC2 100 μF (D=5.0)
C6	4550002960	Tantalum	TESVA 1C 155M1-8L
C7	4030003890	Ceramic	GRM39 B 471K 50PT
C8	4550002960	Tantalum	TESVA 1C 155M1-8L
C9	4030008920	Ceramic	C1608 JB 1C 473K-T-A
C10	4030003890	Ceramic	GRM39 B 471K 50PT
C11	4030008920	Ceramic	C1608 JB 1C 473K-T-A
C12	4510003180	Electrolytic	6.3 RC2 100 μF (D=5.0)
C13	4030003890	Ceramic	GRM39 B 471K 50PT
C14	4030003890	Ceramic	GRM39 B 471K 50PT
EP1	6910003420	Lead Frame	AR1.27-0.7-12.3
EP2	0910031323	P.C. Board	B 2870C (AF)

[CONNECTOR UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
Q1	1530002280	Transistor	2SC4081 T107 S
L1	6200001280	Coil	MLF2012A 2R7M-T
R1	7030003560	Resistor	ERJ3GEYJ 103 V (10 kΩ)
R2	7030003600	Resistor	ERJ3GEYJ 223 V (22 kΩ)
R5	7030003560	Resistor	ERJ3GEYJ 103 V (10 kΩ)
R6	7030003320	Resistor	ERJ3GEYJ 101 V (100Ω)
R7	7030003330	Resistor	ERJ3GEYJ 121 V (120Ω)
C1	4550003030	Tantalum	TEMSVA 0J 475M-8L
C2	4030004240	Ceramic	GRM39 B 102K 50PT
C3	4030004310	Ceramic	GRM39 B 103K 25PT
C13	4030004240	Ceramic	GRM39 B 102K 50PT
C14	4030004240	Ceramic	GRM39 B 102K 50PT
C15	4030004240	Ceramic	GRM39 B 102K 50PT
C16	4030004240	Ceramic	GRM39 B 102K 50PT
EP1	0910031032	P.C. Board	B 3114B (CONNECT)
EP2	0910028791	P.C. Board	B 2875A

[AF FIL UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
Q1	1540000350	Transistor	2SD2216-S (TX)
Q2	1590001170	Transistor	XP1501-(TX).AB
Q3	1590001190	Transistor	XP6501-(TX).AB
Q4	1540000350	Transistor	2SD2216-S (TX)
Q5	1590001170	Transistor	XP1501-(TX).AB
Q6	1590001190	Transistor	XP6501-(TX).AB
D1	1790000860	Diode	MA133 (TX)
D2	1790000860	Diode	MA133 (TX)
D3	1790000830	Diode	MA132HK (TX)
D4	1790000860	Diode	MA133 (TX)
R2	7030003600	Resistor	ERJ3GEYJ 223 V (22 kΩ)
R3	7030003560	Resistor	ERJ3GEYJ 103 V (10 kΩ)
R4	7030003560	Resistor	ERJ3GEYJ 103 V (10 kΩ)
R5	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 kΩ)
R6	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 kΩ)

[AF FIL UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
R7	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 kΩ)
R8	7030003630	Resistor	ERJ3GEYJ 393 V (39 kΩ)
R9	7030003630	Resistor	ERJ3GEYJ 393 V (39 kΩ)
R10	7030003480	Resistor	ERJ3GEYJ 222 V (2.2 kΩ)
R11	7030003550	Resistor	ERJ3GEYJ 822 V (8.2 kΩ)
R12	7030003760	Resistor	ERJ3GEYJ 474 V (470 kΩ)
R13	7030003700	Resistor	ERJ3GEYJ 154 V (150 kΩ)
R14	7030003580	Resistor	ERJ3GEYJ 153 V (15 kΩ)
R16	7030003600	Resistor	ERJ3GEYJ 223 V (22 kΩ)
R17	7030003560	Resistor	ERJ3GEYJ 103 V (10 kΩ)
R18	7030003560	Resistor	ERJ3GEYJ 103 V (10 kΩ)
R19	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 kΩ)
R20	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 kΩ)
R21	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 kΩ)
R22	7030003630	Resistor	ERJ3GEYJ 393 V (39 kΩ)
R23	7030003630	Resistor	ERJ3GEYJ 393 V (39 kΩ)
R24	7030003480	Resistor	ERJ3GEYJ 222 V (2.2 kΩ)
R25	7030003550	Resistor	ERJ3GEYJ 822 V (8.2 kΩ)
R26	7030003760	Resistor	ERJ3GEYJ 474 V (470 kΩ)
R27	7030003700	Resistor	ERJ3GEYJ 154 V (150 kΩ)
R28	7030003580	Resistor	ERJ3GEYJ 153 V (15 kΩ)
R29	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 kΩ)
R30	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 kΩ)
C1	4550004010	Tantalum	TEMSVA2 1A 105M-8 L
C2	4030008960	Ceramic	C2012 JB 1C 104K-T-A
C3	4030004240	Ceramic	GRM39 B 102K 50PT
C4	4030004250	Ceramic	GRM39 B 222K 50PT
C5	4030004310	Ceramic	GRM39 B 103K 25PT
C6	4030004310	Ceramic	GRM39 B 103K 25PT
C7	4550004010	Tantalum	TEMSVA2 1A 105M-8 L
C8	4030008960	Ceramic	C2012 JB 1C 104K-T-A
C9	4030004240	Ceramic	GRM39 B 102K 50PT
C10	4030004250	Ceramic	GRM39 B 222K 50PT
C11	4030004310	Ceramic	GRM39 B 103K 25PT
C12	4030004310	Ceramic	GRM39 B 103K 25PT
C13	4030004240	Ceramic	GRM39 B 102K 50PT
C14	4030008960	Ceramic	C2012 JB 1C 104K-T-A
C15	4030004240	Ceramic	GRM39 B 102K 50PT
C16	4030008960	Ceramic	C2012 JB 1C 104K-T-A
EP1	0910028941	P.C. Board	B 2925A (AFFIL)

[TSQL UNIT] (USA version only)

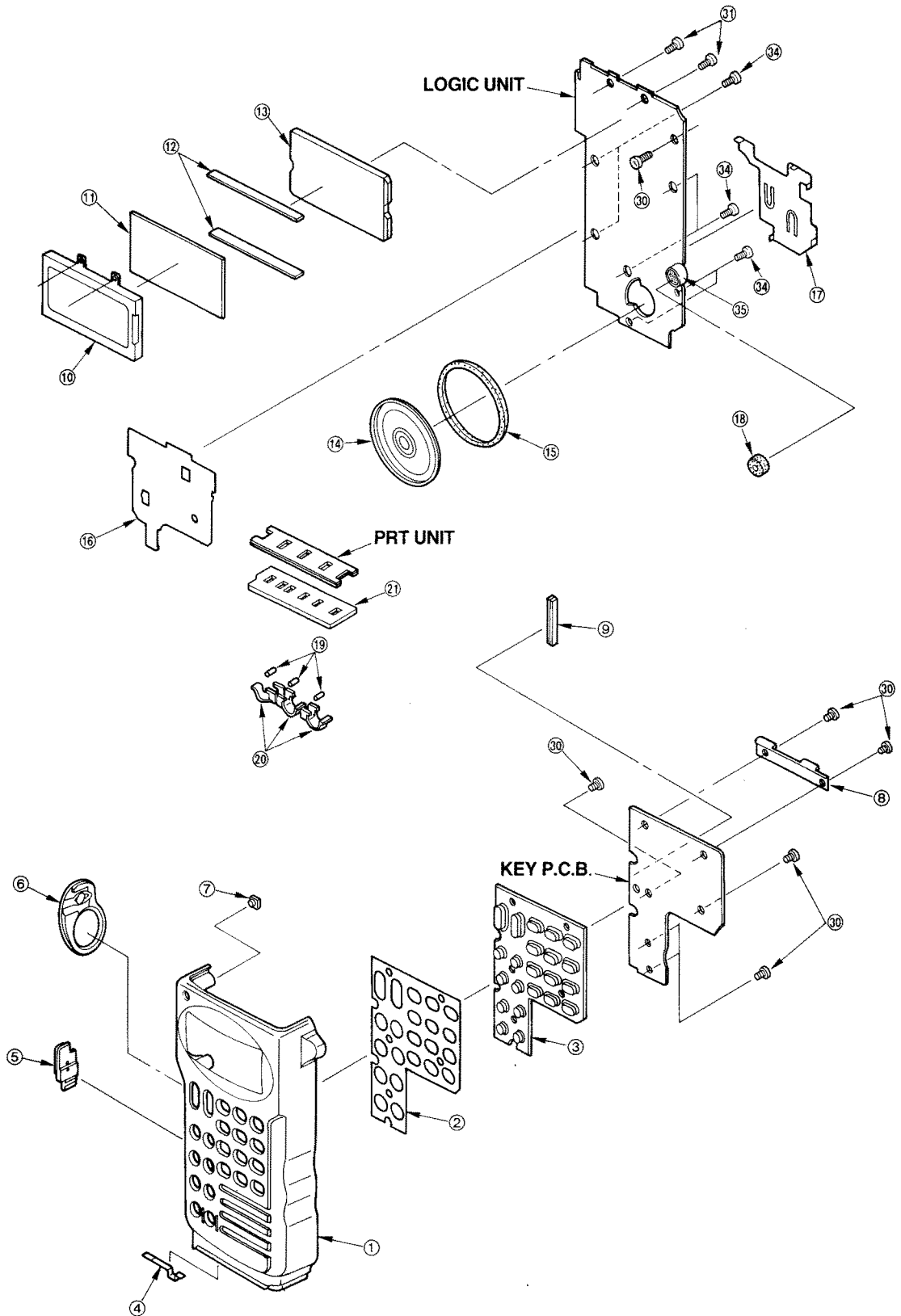
REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1130005100	IC	FX365LG
IC2	1130005100	IC	FX365LG
IC3	1130003610	IC	TC4SU69F (TE85R)
Q1	1590000430	Transistor	DTC144EU T107
Q2	1510000580	Transistor	2SA1362-GR (TE85R)
Q3	1590000430	Transistor	DTC144EU T107
Q4	1510000580	Transistor	2SA1362-GR (TE85R)
Q5	1530002280	Transistor	2SC4081 T107 S
Q6	1530002280	Transistor	2SC4081 T107 S
Q7	1530002280	Transistor	2SC4081 T107 S
D1	1790000590	Diode	MA110 (TW)
D2	1790000590	Diode	MA110 (TW)
D3	1790000870	Diode	MA1S121 (TX)
D4	1160000060	Diode	DAN202U T107
D5	1790000870	Diode	MA1S121 (TX)

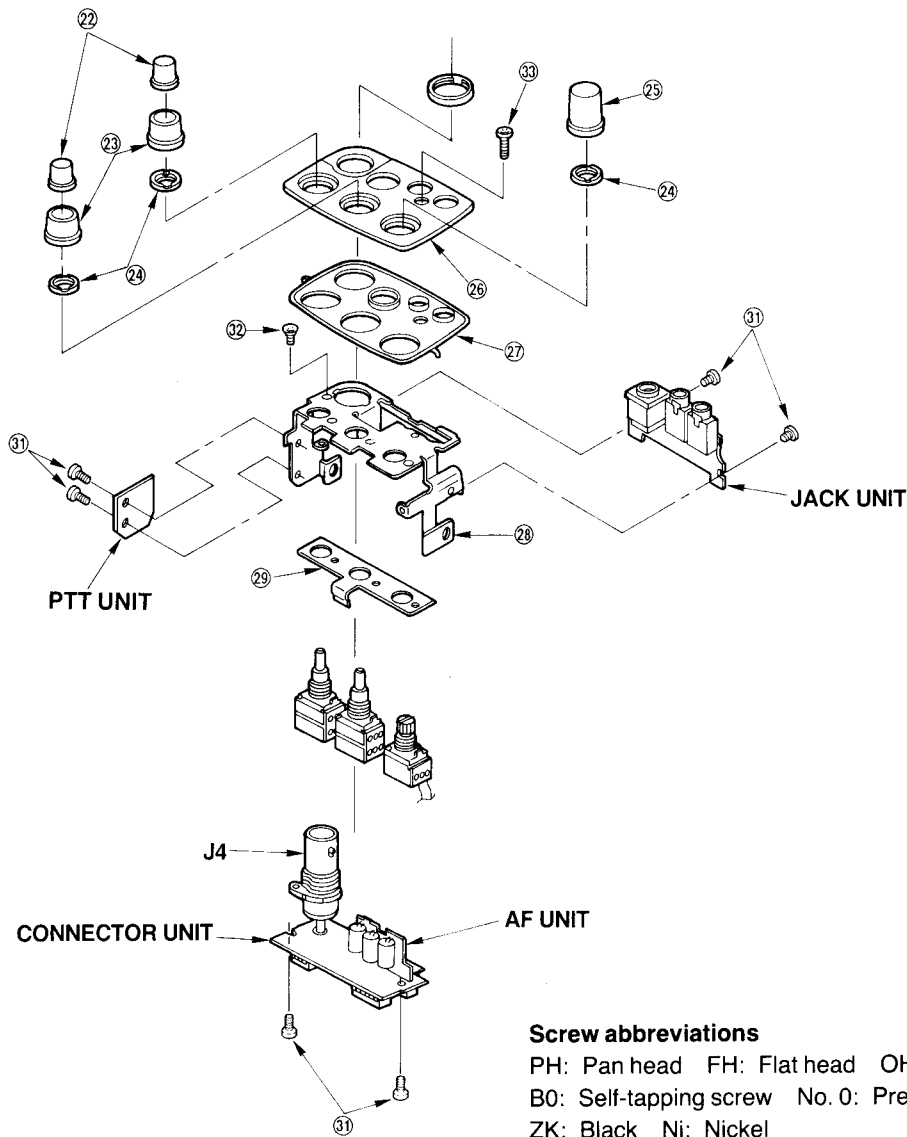
[TSQL UNIT] (USA version only)

REF. NO.	ORDER NO.	DESCRIPTION	
X1	6060000480	Crystal	CSB1000J221T
R1	7030003570	Resistor	ERJ3GEYJ 123 V (12 kΩ)
R2	7030003700	Resistor	ERJ3GEYJ 154 V (150 kΩ)
R3	7030003840	Resistor	ERJ3GEYJ 225 V (2.2 MΩ)
R4	7030003740	Resistor	ERJ3GEYJ 334 V (330 kΩ)
R5	7030003600	Resistor	ERJ3GEYJ 223 V (22 kΩ)
R6	7030003680	Resistor	ERJ3GEYJ 104 V (100 kΩ)
R7	7030003800	Resistor	ERJ3GEYJ 105 V (1 MΩ)
R9	7030003570	Resistor	ERJ3GEYJ 123 V (12 kΩ)
R10	7030003700	Resistor	ERJ3GEYJ 154 V (150 kΩ)
R11	7030003560	Resistor	ERJ3GEYJ 103 V (10 kΩ)
R12	7030003560	Resistor	ERJ3GEYJ 103 V (10 kΩ)
R13	7310003550	Trimmer	MVR32HXBR N473
R14	7030003840	Resistor	ERJ3GEYJ 225 V (2.2 MΩ)
R15	7030003740	Resistor	ERJ3GEYJ 334 V (330 kΩ)
R16	7030003600	Resistor	ERJ3GEYJ 223 V (22 kΩ)
R17	7030003680	Resistor	ERJ3GEYJ 104 V (100 kΩ)
R18	7030003780	Resistor	ERJ3GEYJ 684 V (680 kΩ)
R19	7030003680	Resistor	ERJ3GEYJ 104 V (100 kΩ)
R20	7030003800	Resistor	ERJ3GEYJ 105 V (1 MΩ)
R21	7030003800	Resistor	ERJ3GEYJ 105 V (1 MΩ)
R22	7030003800	Resistor	ERJ3GEYJ 105 V (1 MΩ)
R23	7030003480	Resistor	ERJ3GEYJ 222 V (2.2 kΩ)
R24	7030003520	Resistor	ERJ3GEYJ 472 V (4.7 kΩ)
R25	7030003480	Resistor	ERJ3GEYJ 222 V (2.2 kΩ)
R26	7030003780	Resistor	ERJ3GEYJ 684 V (680 kΩ)
R27	7030003800	Resistor	ERJ3GEYJ 105 V (1 MΩ)
R28	7030003800	Resistor	ERJ3GEYJ 105 V (1 MΩ)
R29	7030003800	Resistor	ERJ3GEYJ 105 V (1 MΩ)
R30	7030003680	Resistor	ERJ3GEYJ 104 V (100 kΩ)
R31	7030003640	Resistor	ERJ3GEYJ 473 V (47 kΩ)
R32	7030003710	Resistor	ERJ3GEYJ 184 V (180 kΩ)
R33	7030003710	Resistor	ERJ3GEYJ 184 V (180 kΩ)
R34	7030003580	Resistor	ERJ3GEYJ 153 V (15 kΩ)
C1	4030008920	Ceramic	C1608 JB 1C 473K-T-A
C2	4030006850	Ceramic	C1608 JB 1H 471K-T-A
C3	4030006900	Ceramic	C1608 JB 1E 103K-T-A
C4	4550000420	Tantalum	TESVA 1A 105M1-8L
C5	4550000530	Tantalum	TESVA 1V 104M1-8L
C6	4030006540	Ceramic	C1608 SL 1H 030C-T-A
C7	4550002950	Tantalum	TESVA 0J 335M1-8L
C8	4030007170	Ceramic	C1608 CH 1H 221J-T-A
C9	4030007170	Ceramic	C1608 CH 1H 221J-T-A
C10	4030008920	Ceramic	C1608 JB 1C 473K-T-A
C11	4030006850	Ceramic	C1608 JB 1H 471K-T-A
C12	4030006900	Ceramic	C1608 JB 1E 103K-T-A
C13	4550000420	Tantalum	TESVA 1A 105M1-8L
C15	4030006540	Ceramic	C1608 SL 1H 030C-T-A
C16	4550000530	Tantalum	TESVA 1V 104M1-8L
C17	4550002950	Tantalum	TESVA 0J 335M1-8L
C18	4030008920	Ceramic	C1608 JB 1C 473K-T-A
C19	4030008920	Ceramic	C1608 JB 1C 473K-T-A
C20	4030006860	Ceramic	C1608 JB 1H 102K-T-A
EP1	0910030531	P.C. Board	B 3110A (TSQL)

SECTION 6 MECHANICAL PARTS AND DISASSEMBLY

6-1 FRONT PARTS



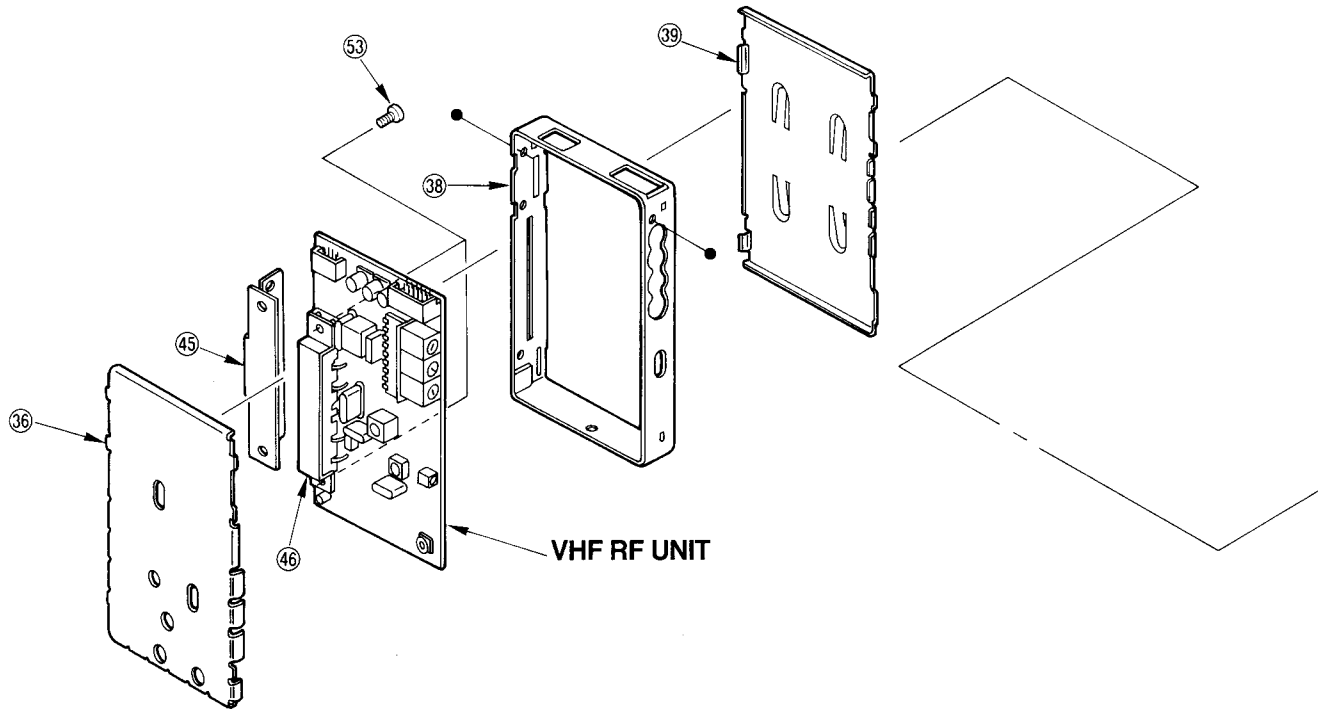


Screw abbreviations

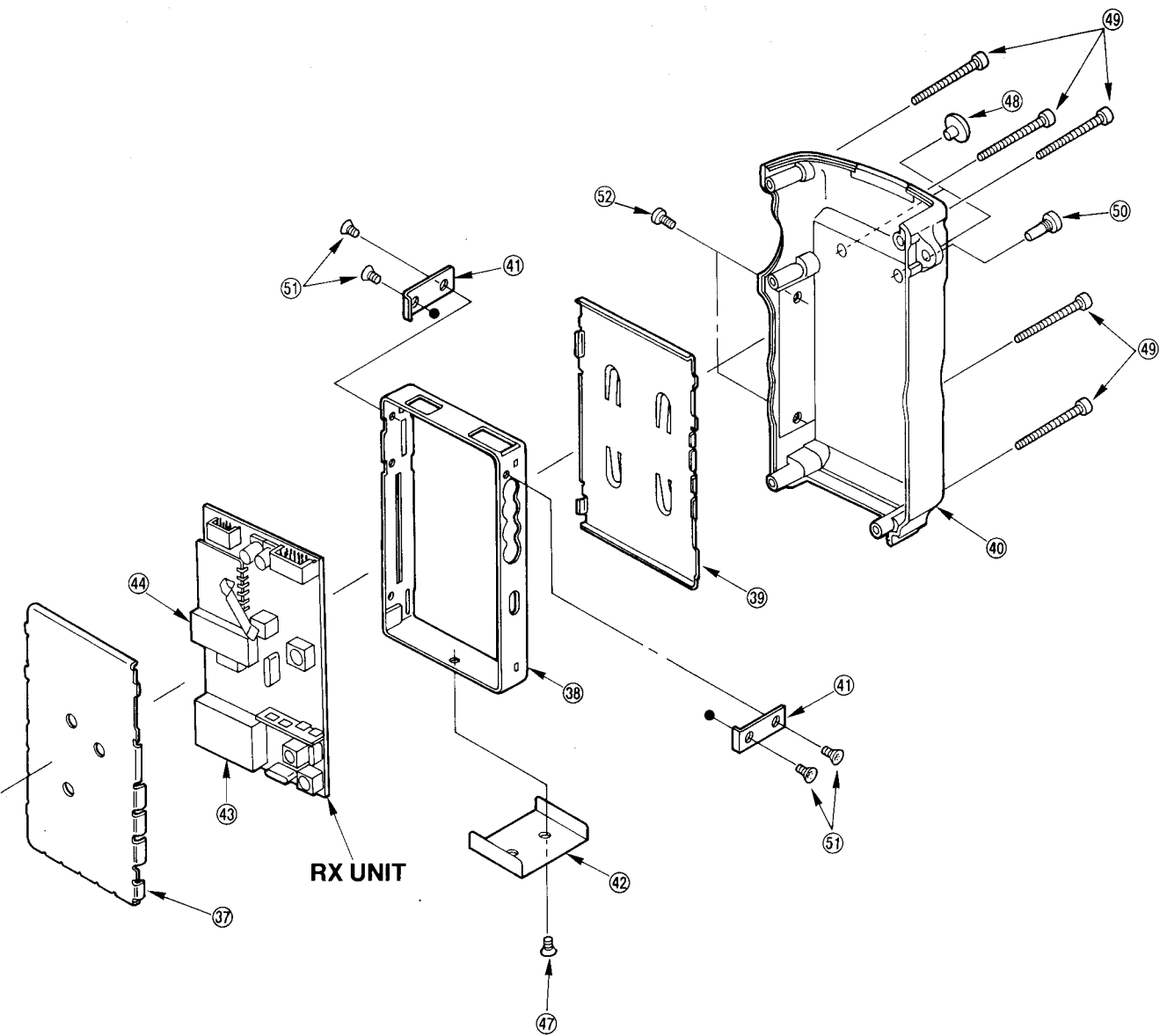
PH: Pan head FH: Flat head OH: Oval countersunk head
 B0: Self-tapping screw No. 0: Precision-type screw
 ZK: Black Ni: Nickel

LABEL NUMBER	ORDER NO.	DESCRIPTION	QTY.	LABEL NUMBER	ORDER NO.	DESCRIPTION	QTY.
①	8210006140	Front panel (E) (#02~04, #12~14)	1	⑱	8930021570	873 microphone holder	1
	8210006130	Front panel (D) (#05, #07, #09)	1	⑲	8930016560	Terminal rubber	3
②	8510006880	873 Key shield	1	⑳	8930014852	752 battery terminal-2	3
③	8010010700	873 Key board	1	㉑	8930014971	752 terminal holder-1	1
④	8930020240	873 spring	1	㉒	8610006780	Knob N161	2
⑤	8930019850	873 release button	1	㉓	8610006790	Knob N162	2
⑥	8930019861	873 PTT rubber (1)	1	㉔	8830000570	643 nut (A)	3
⑦	8930019780	LED lens	1	㉕	8610006800	Knob N163	1
⑧	8510006960	873 shield	1	㉖	8210006400	932 top panel (A)	1
⑨	8930020160	Contact strip SRCN-873	1	㉗	8930019871	873 top seal-1	1
⑩	8930019930	873 LCD holder	1	㉘	8010010760	873 top plate	1
⑪	5030000650	LCD LD-BU 5225J	1	㉙	8510006910	LOGIC shield	1
⑫	8930020150	LCD contact strip SRCN-873-W	2	⑳	8810001700	PH No. 0 M1.4×3	7
⑬	8010010690	873 LCD reflector	1	㉑	8810004870	PH No. 0 M2×2.5	8
⑭	2510000530	Speaker TO28S14I0810	1	㉒	8810005580	FH No. 0 M2×2.5	1
⑮	8930018080	870-SP ring	1	㉓	8810005360	PH No. 0 M2×3 ZK	1
⑯	8930020140	CPU shield	1	㉔	8810001720	PH No. 0 M1.4×4	6
⑰	8510006920	LOGIC-A shield	1	㉕	7700000861	Microphone WM-62A 103	1

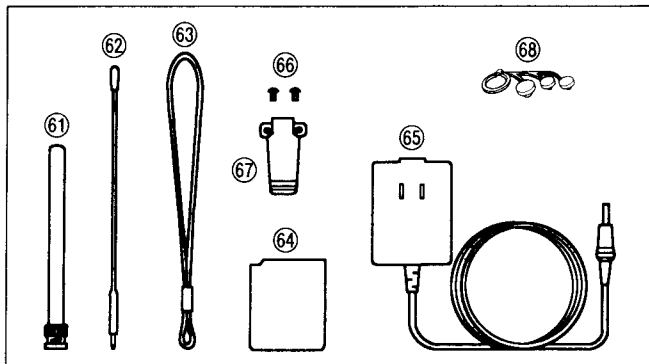
6-2 CHASSIS PARTS



LABEL NUMBER	ORDER NO.	DESCRIPTION	QTY.	LABEL NUMBER	ORDER NO.	DESCRIPTION	QTY.
③⑥	8510006890	873 top shield	1	④⑤	8930020930	930 plate	1
③⑦	8510007150	930 top shield	1	④⑥	8930019950	M holder	1
③⑧	8510006860	873 unit case	2	④⑦	8810005580	FH No. 0 M2×2.5	1
③⑨	8510006870	873 bottom shield	2	④⑧	8010007602	Hole bushing (A)×2	2
④⑩	8010010720	873 rear panel	1	④⑨	8810006490	PH B0 M2×25 ZK	5
④①	8930019960	873 unit plate	2	⑤⑩	8820000620	873 screw	1
④②	8930020340	873 under plate	1	⑤①	8810005580	FH No. 0 M2×2.5	4
④③	8510007090	930 VCO case	1	⑤②	8810005700	PH No. 0 M2×4 ZK	2
④④	8510007120	930 DBM case	1	⑤③	8810001770	PH M2×5 Ni	2



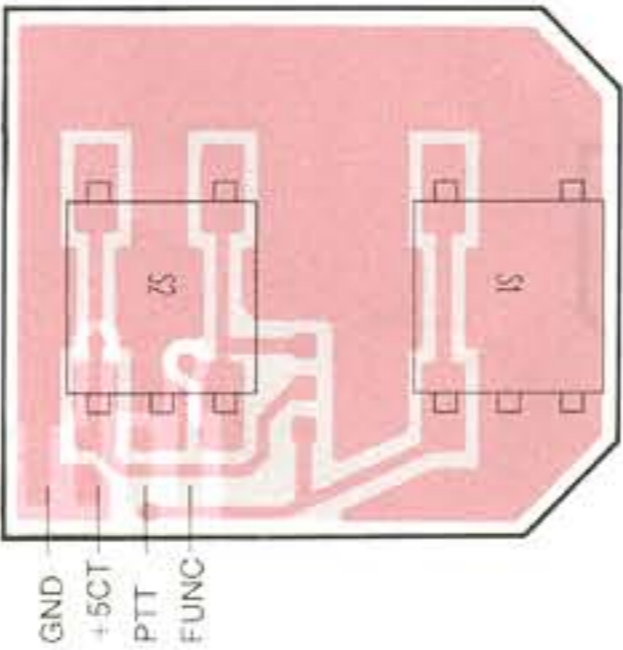
6-3 ACCESSORIES



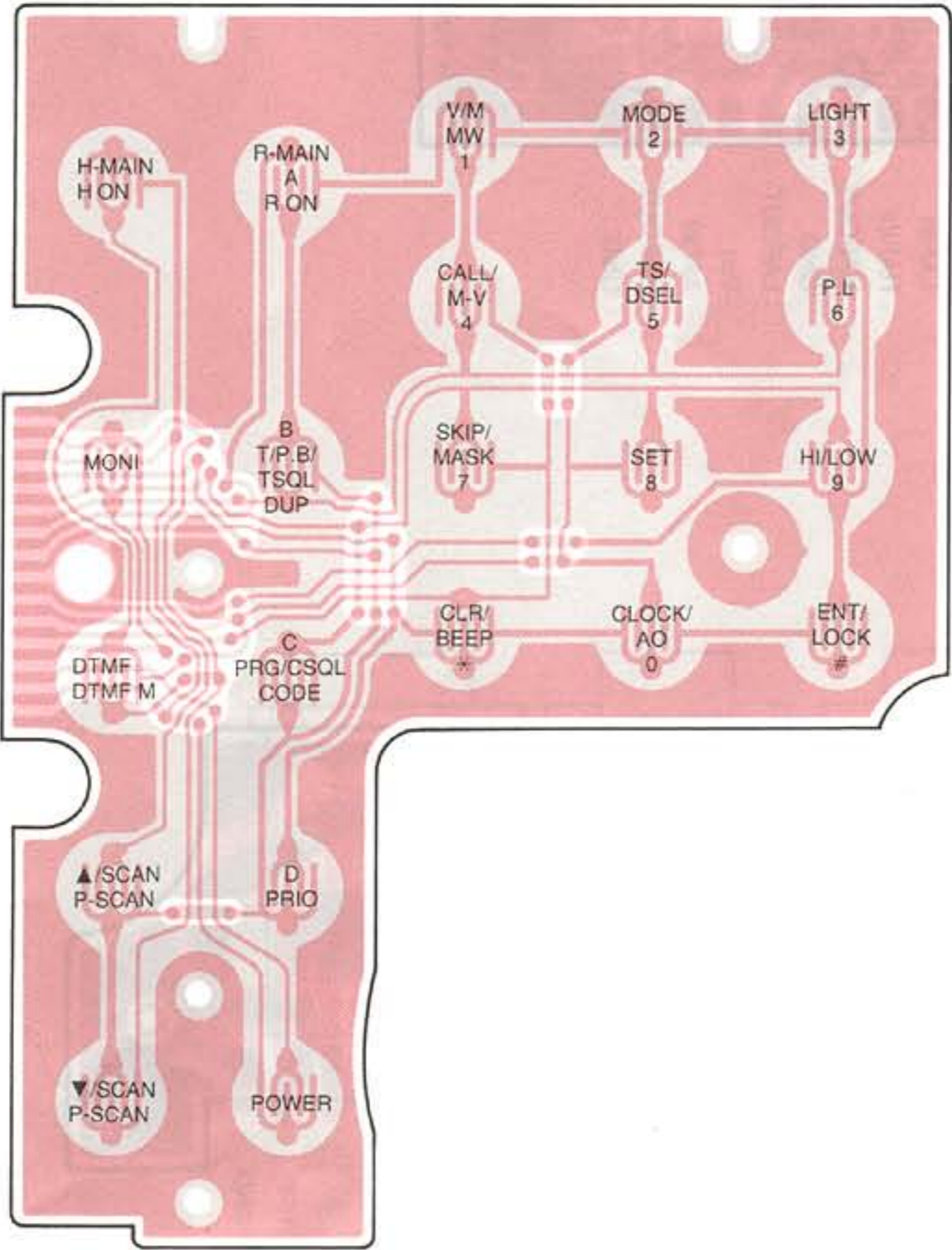
LABEL NUMBER	ORDER NO.	DESCRIPTION	QTY.
61	Optional product	FA-140BB	1
62	Optional product	AH-20	1
63	8010008970	Strap belt HK-002	1
64	Optional product	BP-82 (#02~04, #07)	1
		BP-83 (#12~14)	1
		BP-84 (#05)	1
		BP-90 (#09)	1
65	Optional product	BC-77A (#05)	1
		BC-77D (#12)	1
		BC-77E (#13, #14)	1
		BC-77V (#07)	1
		BC-78D (#02, #04)	1
		BC-78E (#03)	1
66	8810005730	Screw OH M3×3 ZK	2
67	8010008620	752 belt clip	1
68	8930020211	873 connector seal	1

SECTION 7 BOARD LAYOUTS

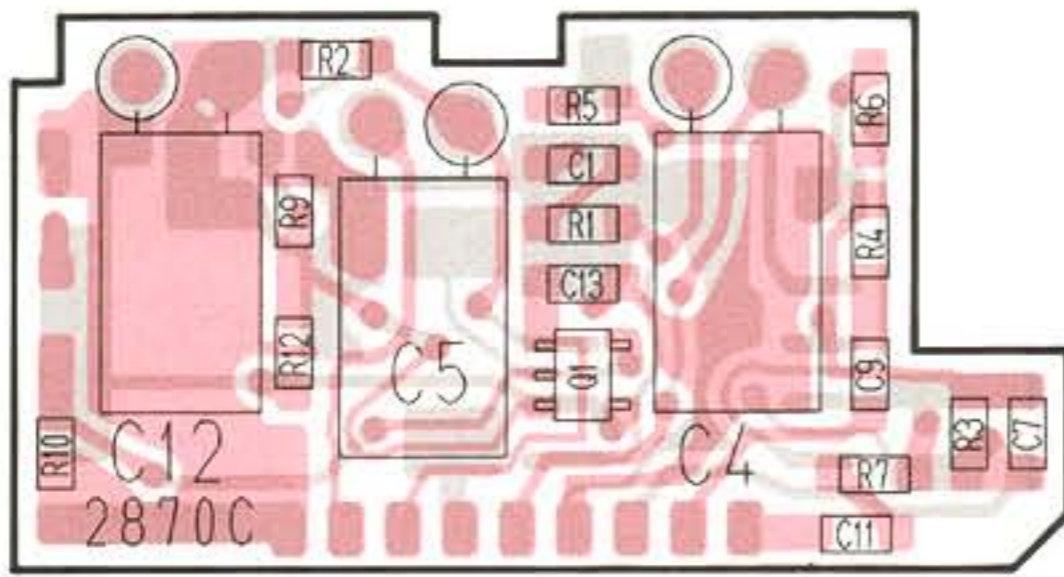
7-1 PTT UNIT



7-2 KEY UNIT

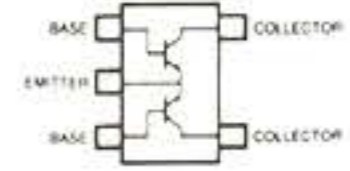


7-3 AF UNIT

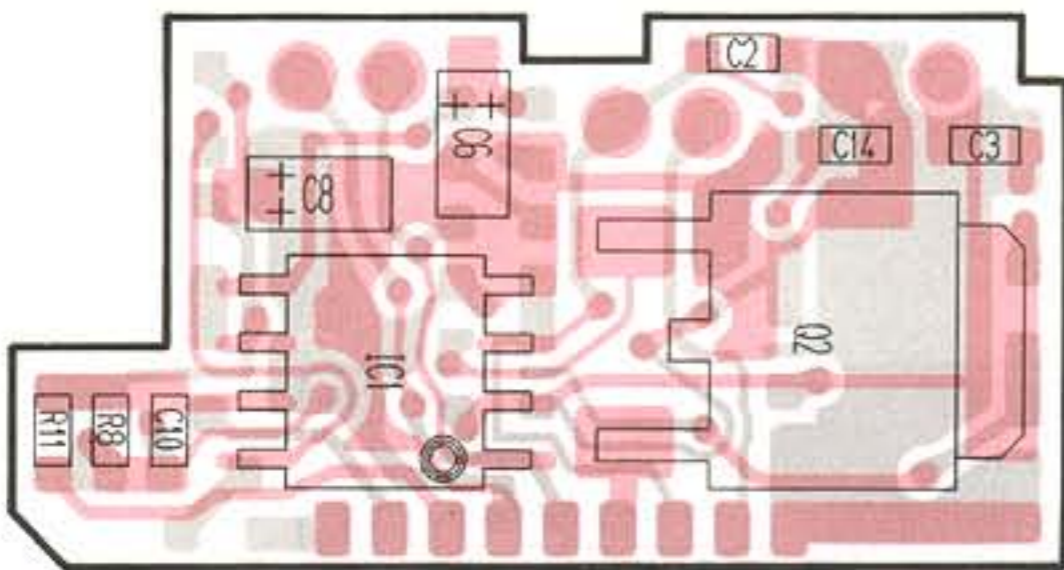


GND
HAFOUT
AFON
Vcc
LAFOUT
GND
HAFOUT
HAFIN
LAFIN

XP1501
Q1



Symbol: 5R

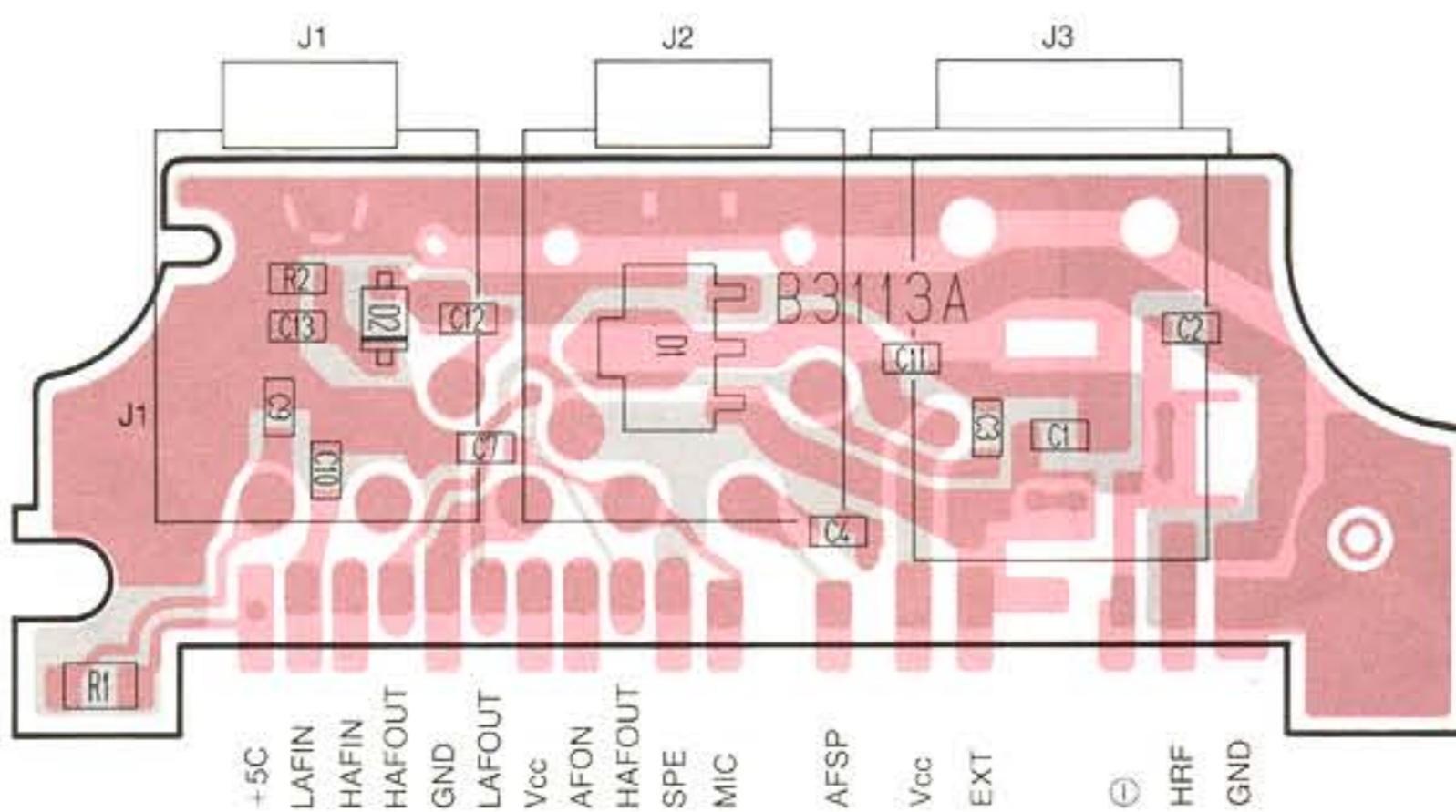


LAFIN
HAFIN
HAFOUT
GND
LAFOUT
Vcc
AFON
HAFOUT
GND

2SB1182
Q2

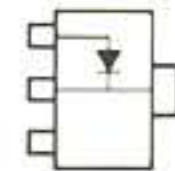


7-4 JACK UNIT



+5C
LAFIN
HAFIN
HAFOUT
GND
LAFOUT
Vcc
AFON
HAFOUT
SPE
MIC
AFSP
Vcc
EXT
⊖
HRF
GND

SB20
D1



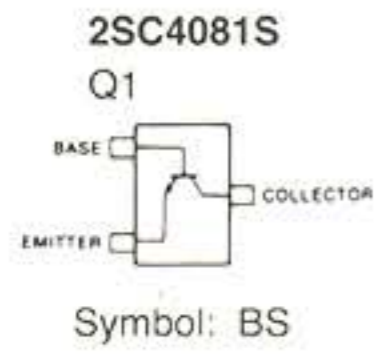
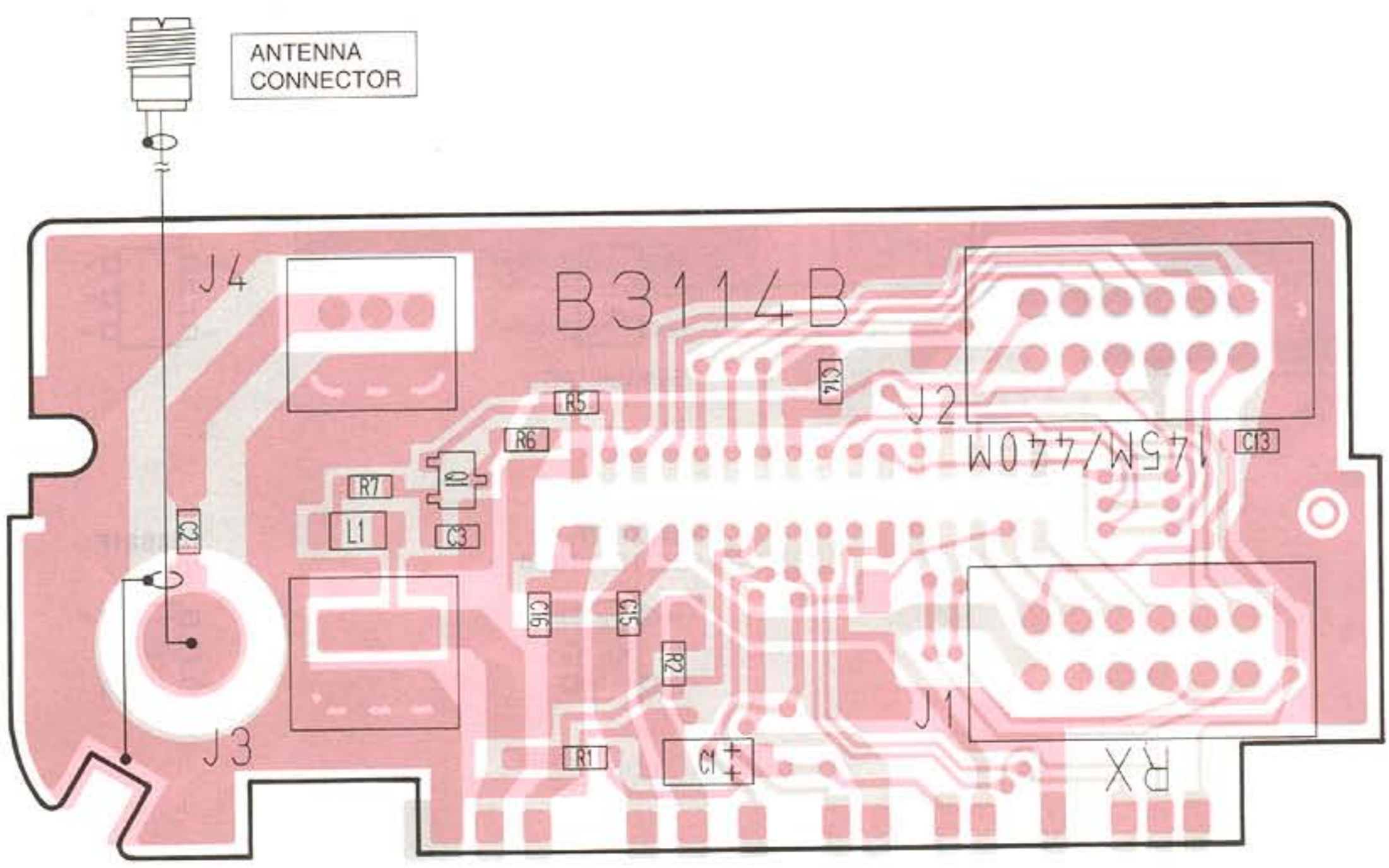
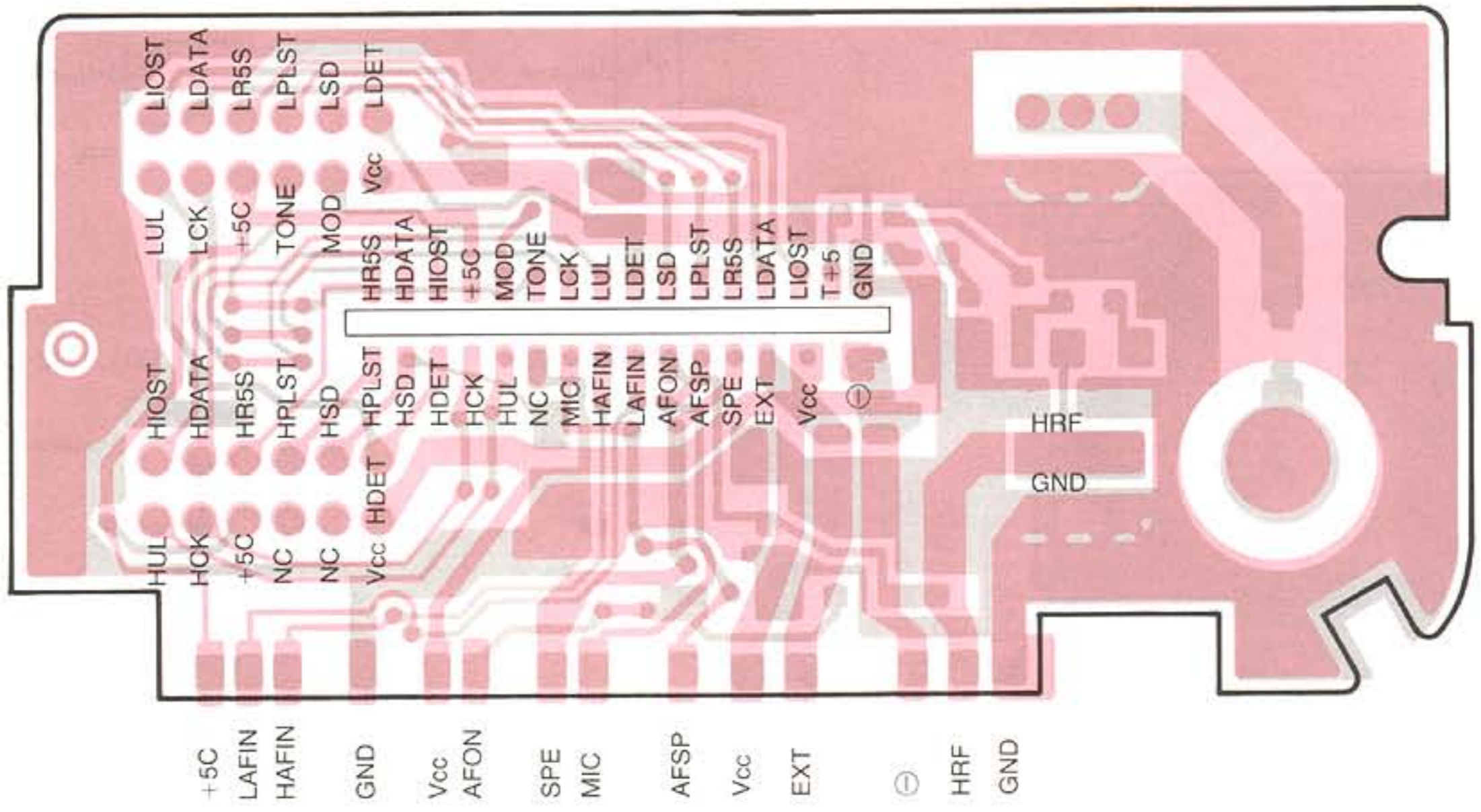
Symbol: 3C

MA77
D2

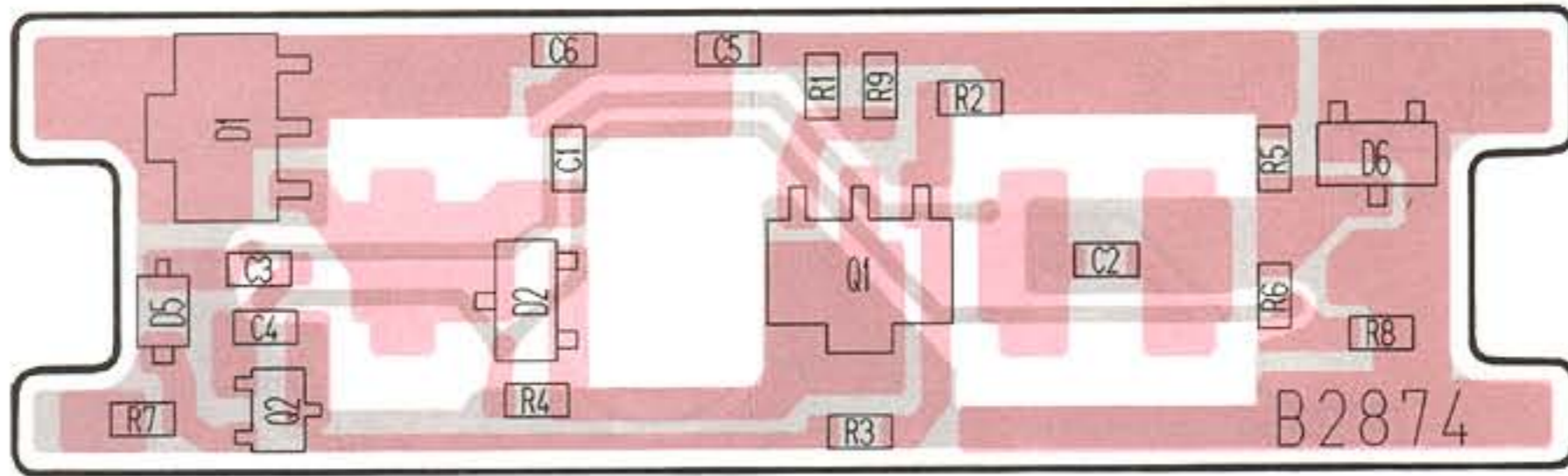


Symbol: 4B

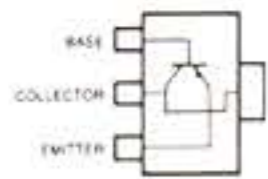
7-5 CONNECTOR UNIT



7-6 PRT UNIT

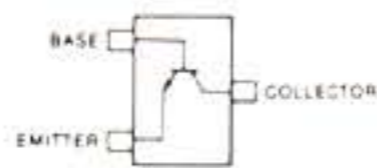


2SB798 DK
Q1



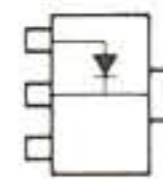
Symbol: DK

2SC4081S
Q2



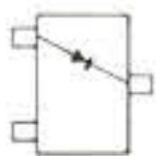
Symbol: BS

SB20
D1



Symbol: SC

SB07
D2



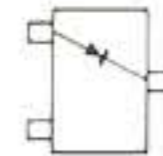
Symbol: J

MA110
D5



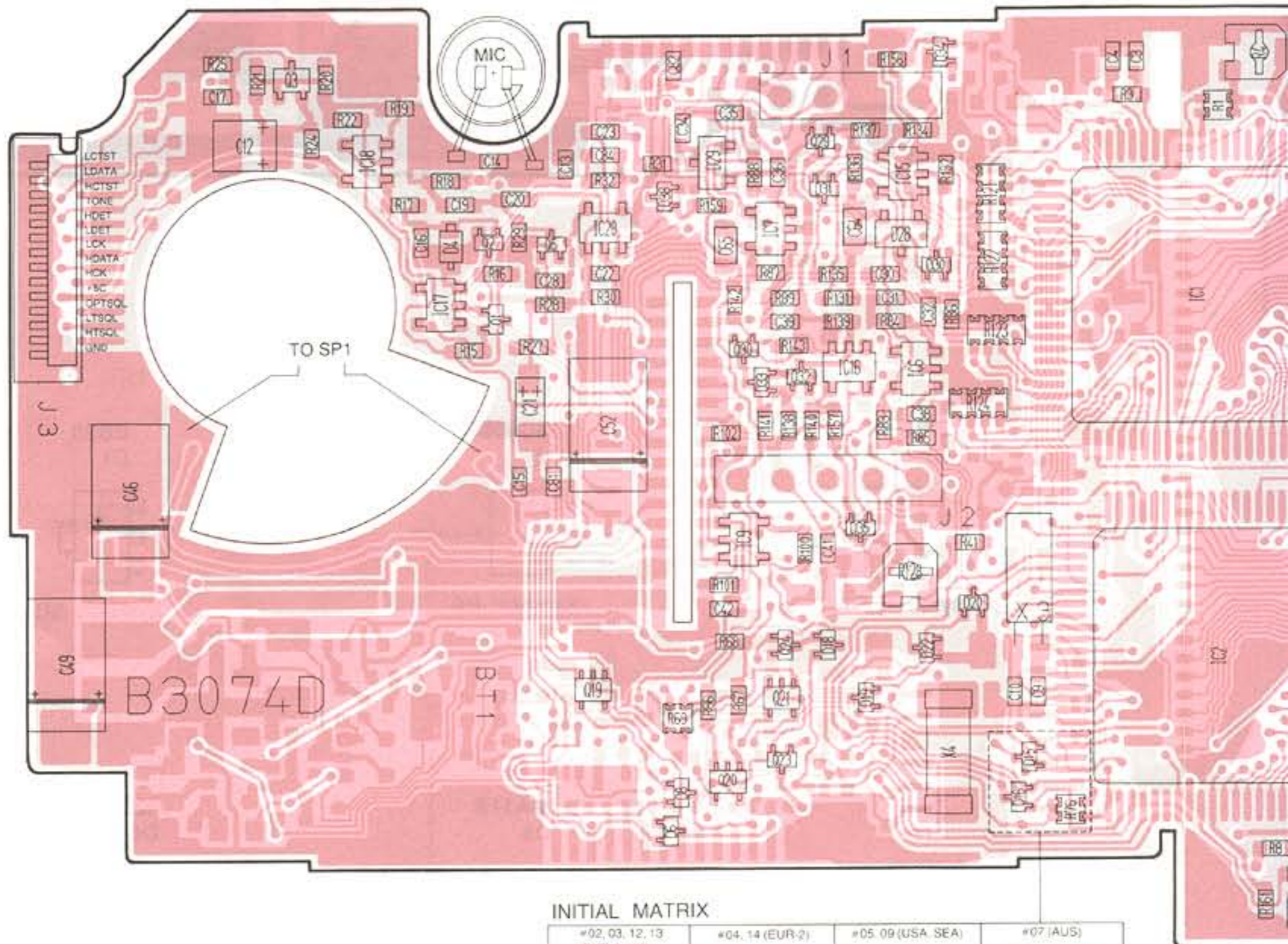
Symbol: 1A

02CZ5.1-Z
D6







Symbol: 5.1S

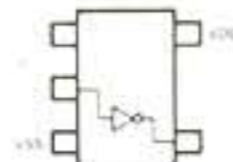
7-7 LOGIC UNIT



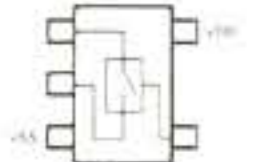
INITIAL MATRIX

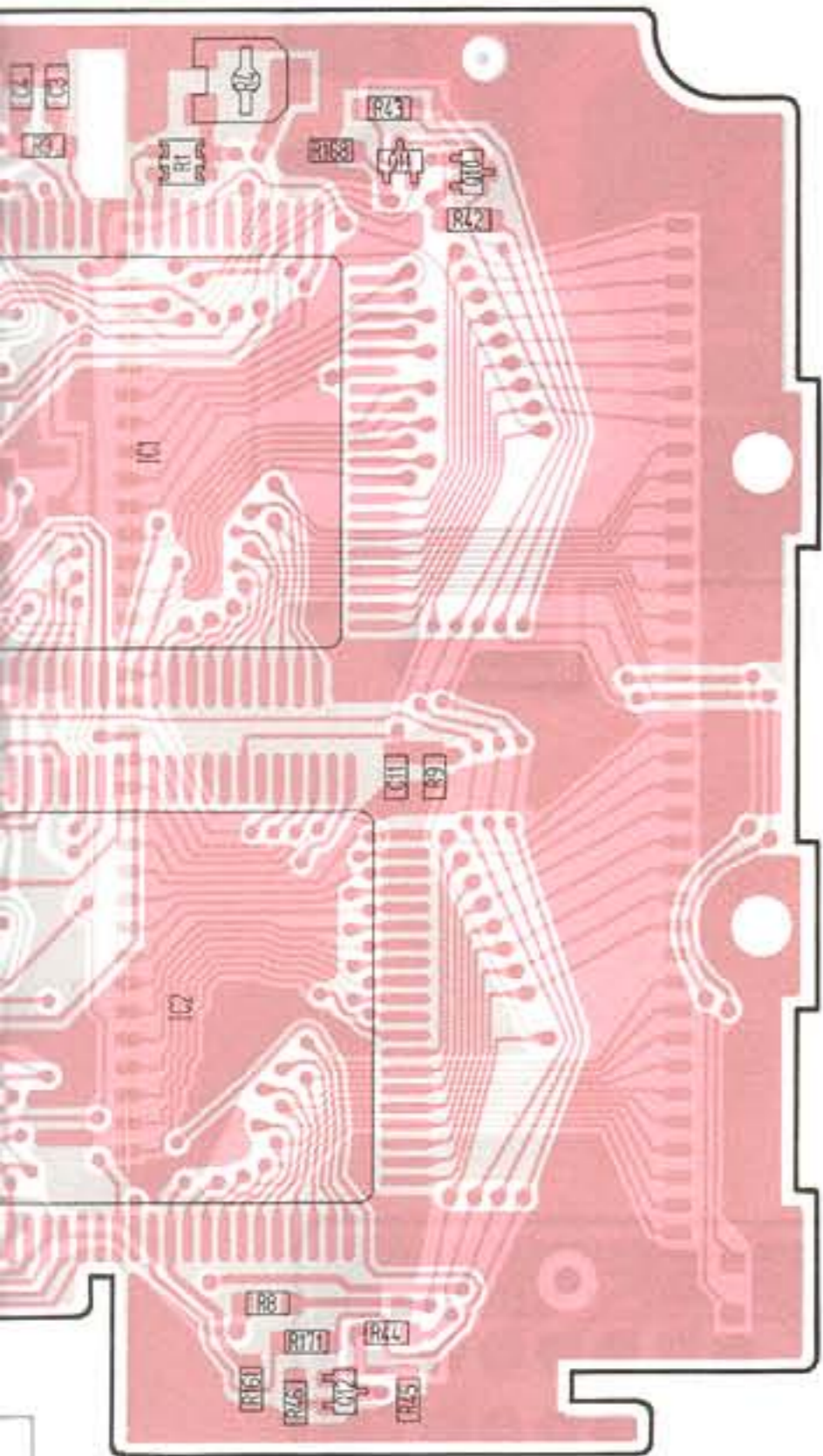
#02, 03, 12, 13 (EUR-1, UK)	#04, 14 (EUR-2)	#05, 09 (USA, SEA)	#07 (AUS)
			

TC4SU69F
IC15, IC16, IC17

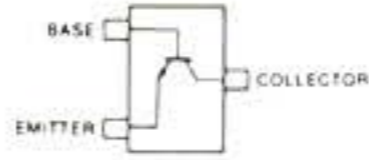


TC4S66F
IC18

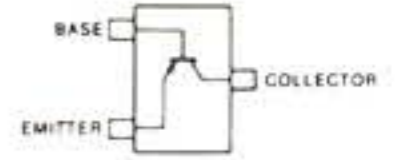




2SD2216-S
Q1, Q2, Q10, Q11,
Q12, Q27, Q29, Q30

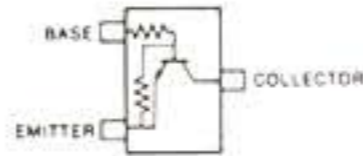


2SA1576R
Q3, Q28



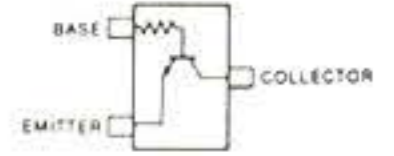
Symbol: FR

UN9211
Q5



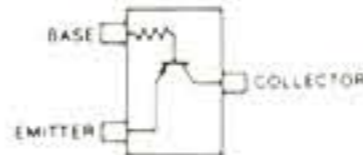
Symbol: 8A

UN9210
Q23, Q24, Q31, Q33



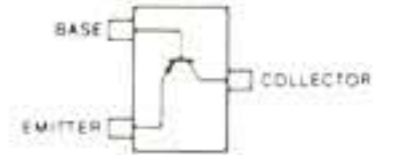
Symbol: 8L

UN9110
Q4, Q32

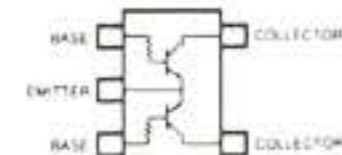


Symbol: 6L

2SB1462R
Q26

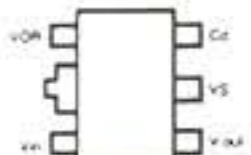


XP1210
Q18, Q19, Q20, Q21

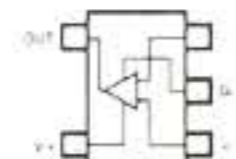


Symbol: AC

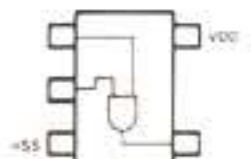
S-87050EF
IC11



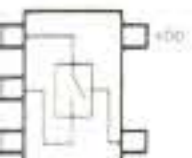
NJM2107F
IC6, IC7, IC20



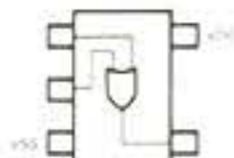
TC4S81F
IC12



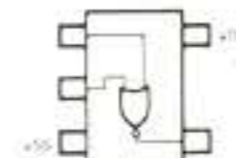
TC4S66F
IC18



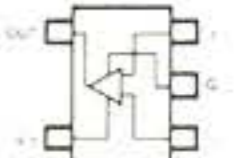
TC4S71F
IC10



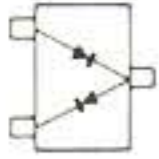
TC4S01F
IC19



NJM2406F
IC8, IC9

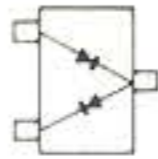


MA133
D3, D19 (EUR-1, 3), D31,
D33, D34, D35, D37, D38



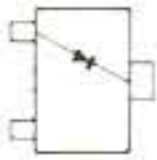
Symbol: MP

HSM88AS
D28, D29



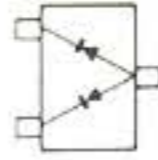
Symbol: C1

MA132K
D5
D15 (EUR-2, 4)



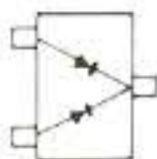
Symbol: MI

MA132WA
D6, D8, D9, D10,
D11, D12, D13, D14



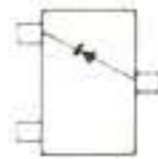
Symbol: MO

MA132WK
D15 (AUS)
D27, D30, D32



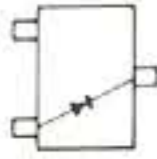
Symbol: MU

MA132A
D22, D26



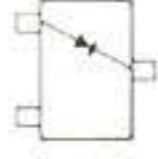
Symbol: MB

MA132HK
D15 (EUR-1, 3, UK, UK-1)
D16 (USA, SEA)
D18



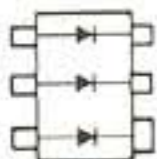
Symbol: M3N

1SS322
D25



Symbol: A9

MA1S121
D7



Symbol: M2D

MA728
D36

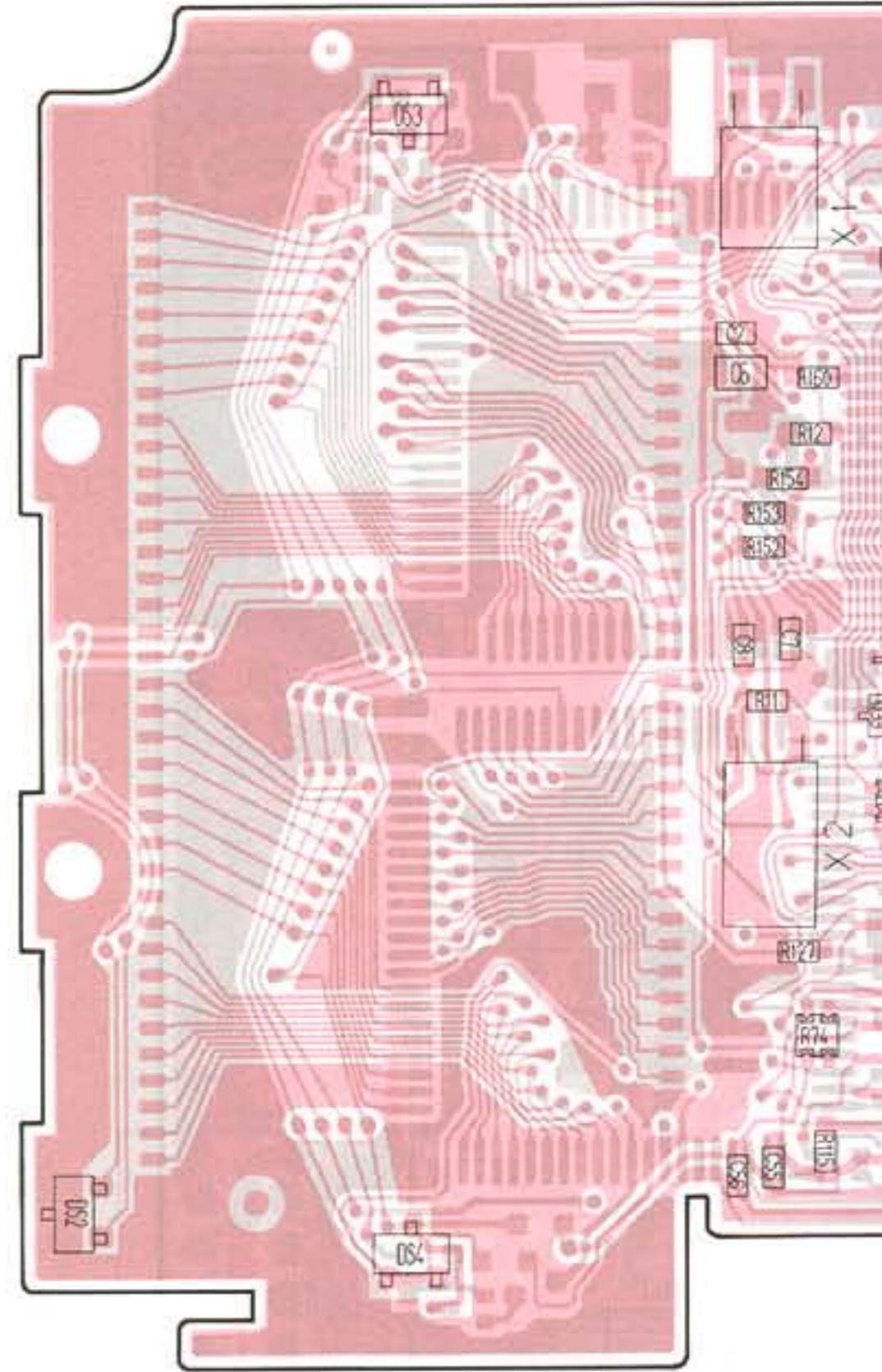


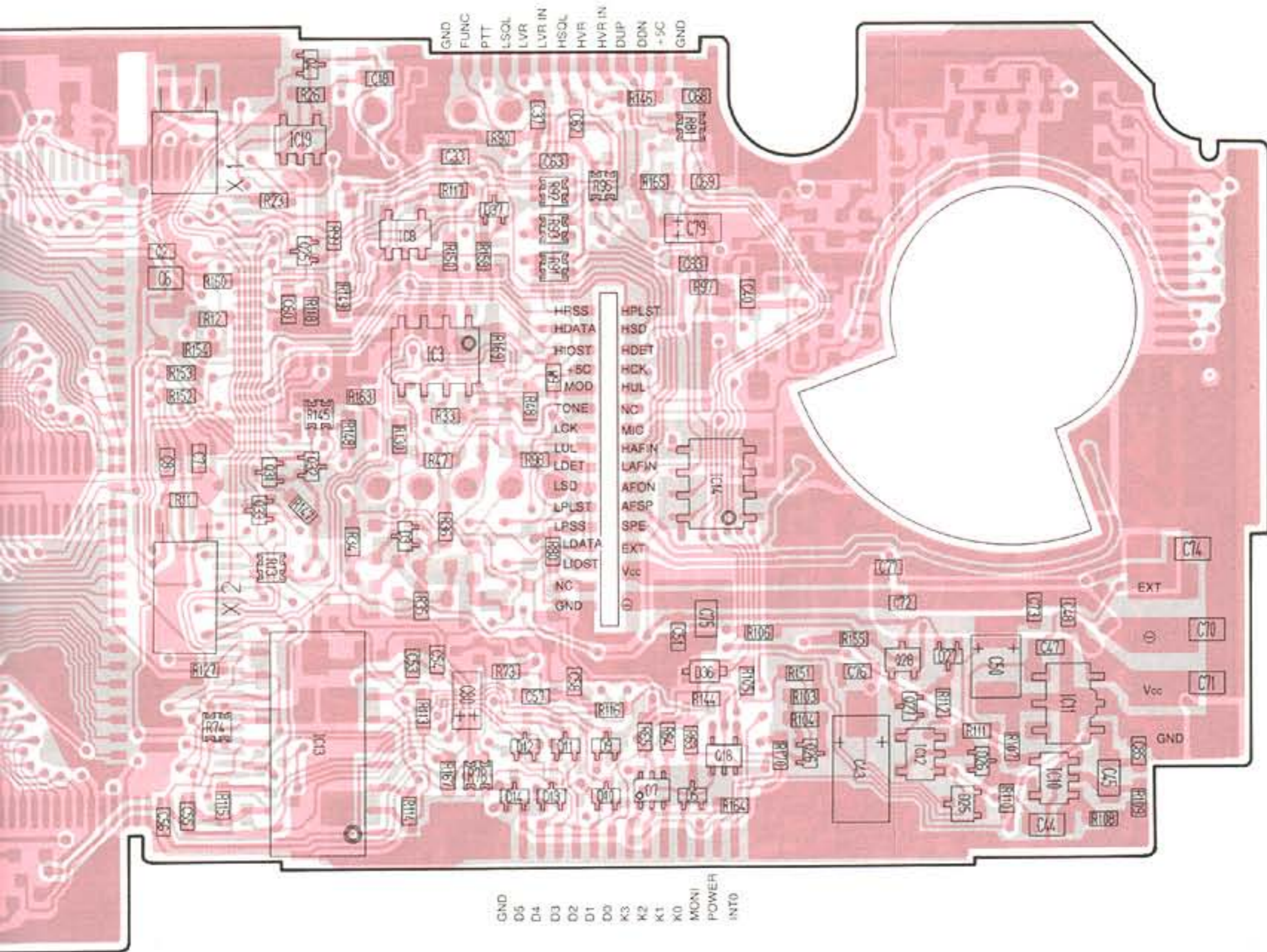
Symbol: 2A

MA110
D4

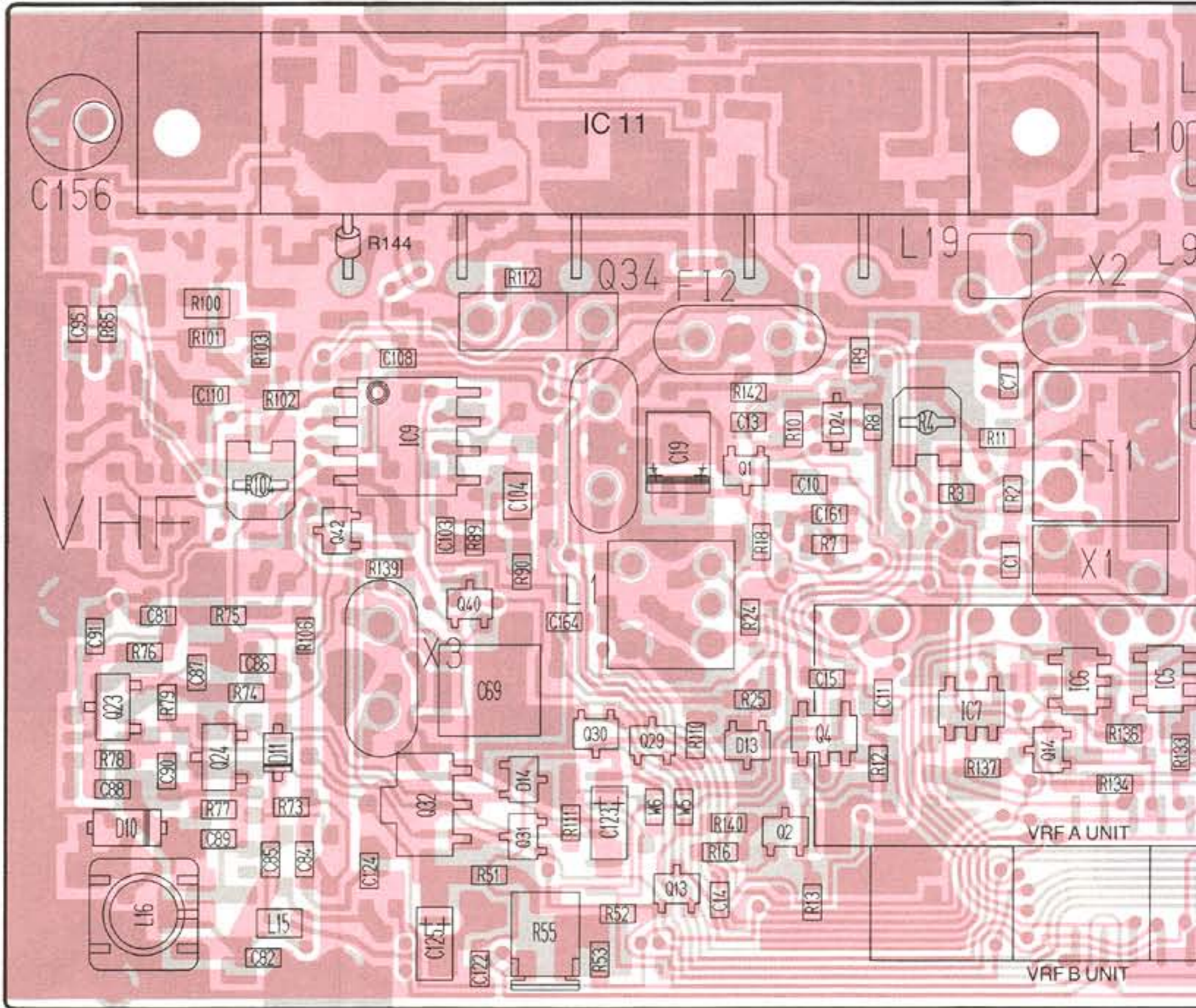


Symbol: 1A

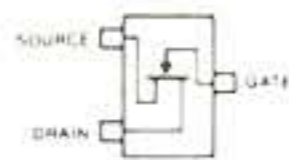




7-8 VHF RF UNIT

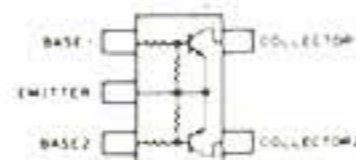


2SK880Y
Q21



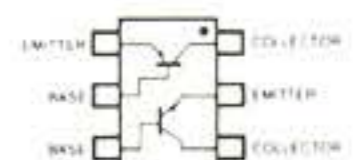
Symbol: XY

FMG2
Q4

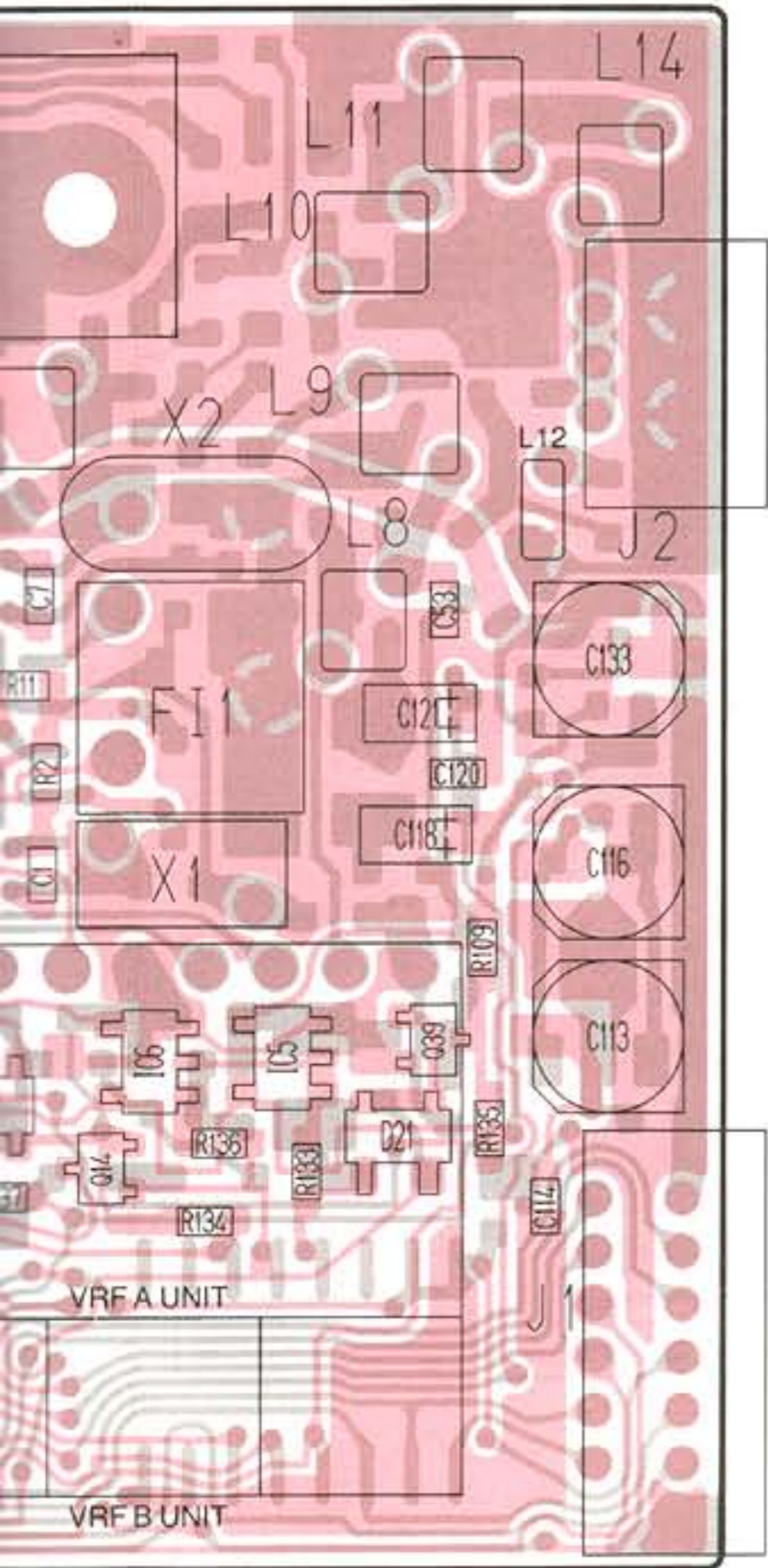


Symbol: G2

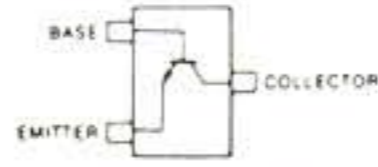
IMZ2
Q17



Symbol: Z2

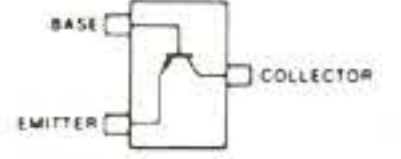


2SC3772-3
Q41



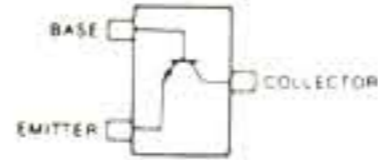
Symbol: LY3

2SA1576-R
Q38



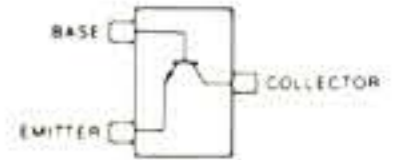
Symbol: FR

2SC4403-3
Q9, Q10, Q11



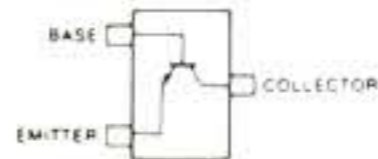
Symbol: LY3

2SC4081S
Q1, Q2, Q27, Q29
Q31, Q33, Q36, Q42



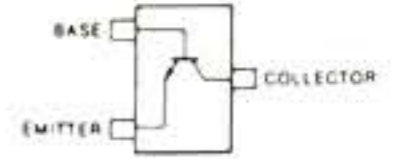
Symbol: BS

2SC3770-3
Q5



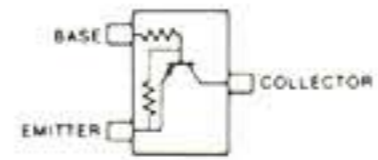
Symbol: JY3

2SC3356
Q23, Q24



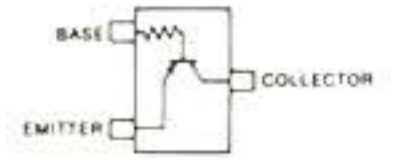
Symbol: R25

DTA144EU
Q40



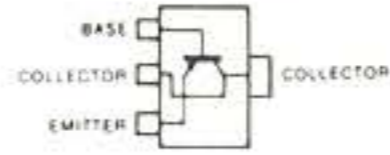
Symbol: 16

DTA144TU
Q13



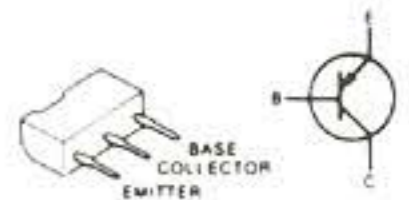
Symbol: 96

2SB798DK
Q32, Q37

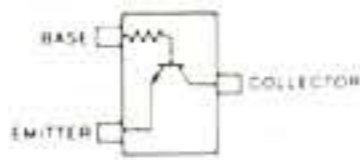


Symbol: DK

2SB909M
Q34

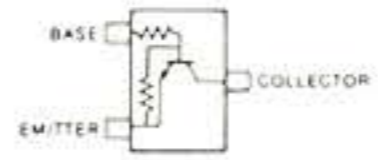


DTC144TU
Q16



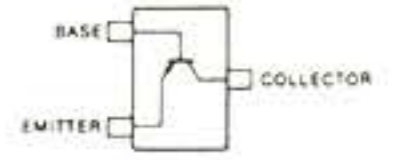
Symbol: 06

DTC144EU
Q14, Q39



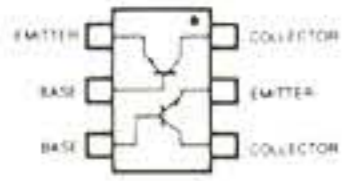
Symbol: 26

2SA1576-S
Q28, Q30



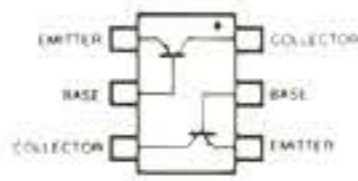
Symbol: FS

IMX5
Q25, Q26



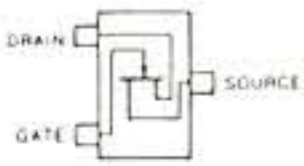
Symbol: X5

IMT1
Q22



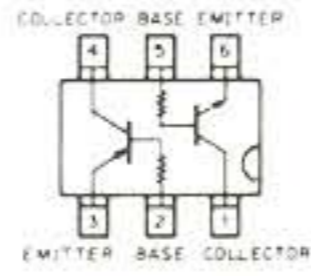
Symbol: T1

2SK882-Y
Q6



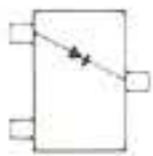
Symbol: TY

IMD6
Q15



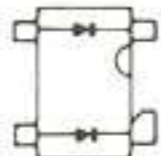
Symbol: D6

DA114
D12, D13, D14, D15



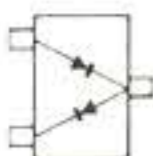
Symbol: AV

MA862
D9, D16, D23



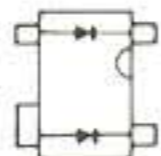
Symbol: M1 I

1SV172
D22



Symbol: BE

DWA010
D21



Symbol: W8

MA333
D10



Symbol: 6C83

MA77
D11



Symbol: 4B

MA110
D17, D24



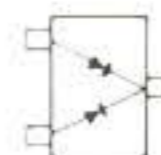
Symbol: 1A

MA728
D18, D19



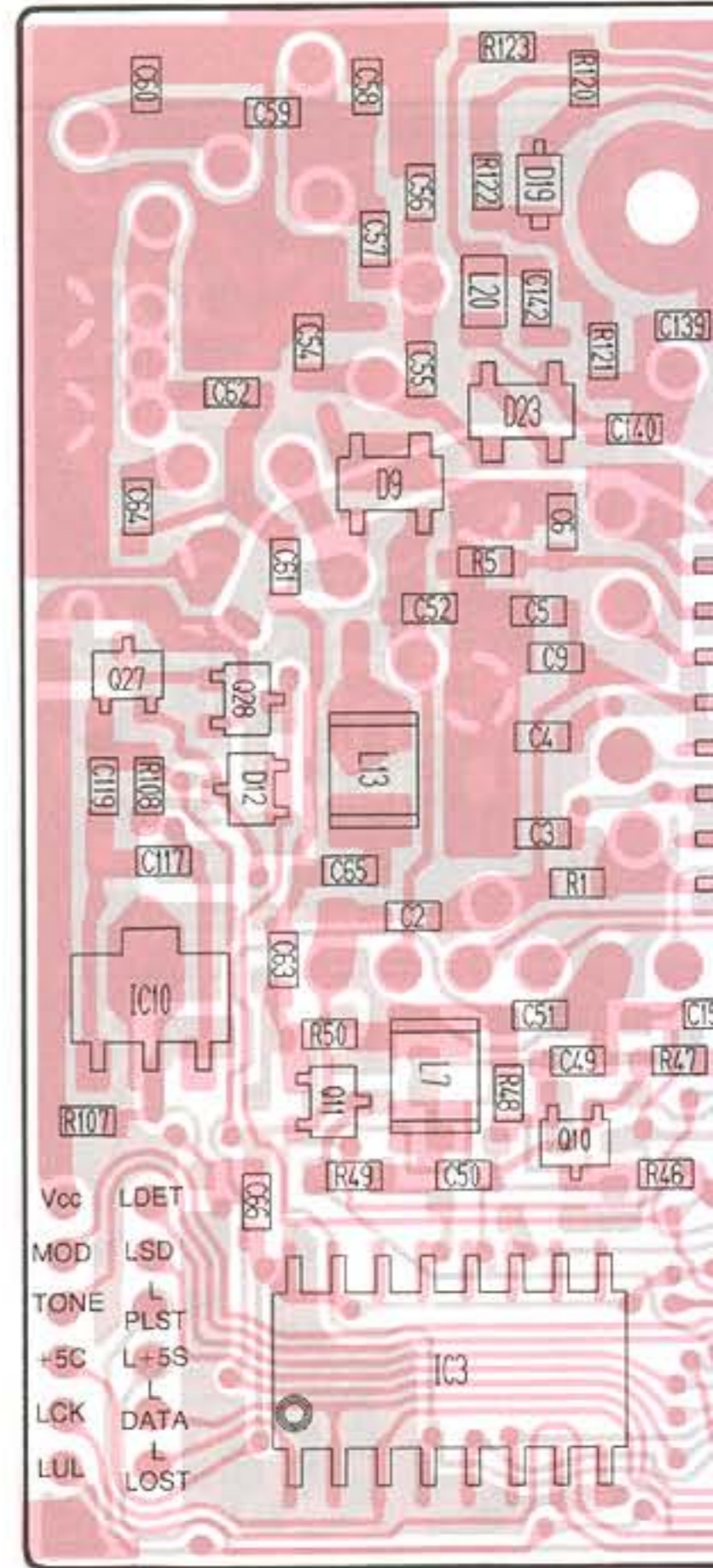
Symbol: 2A

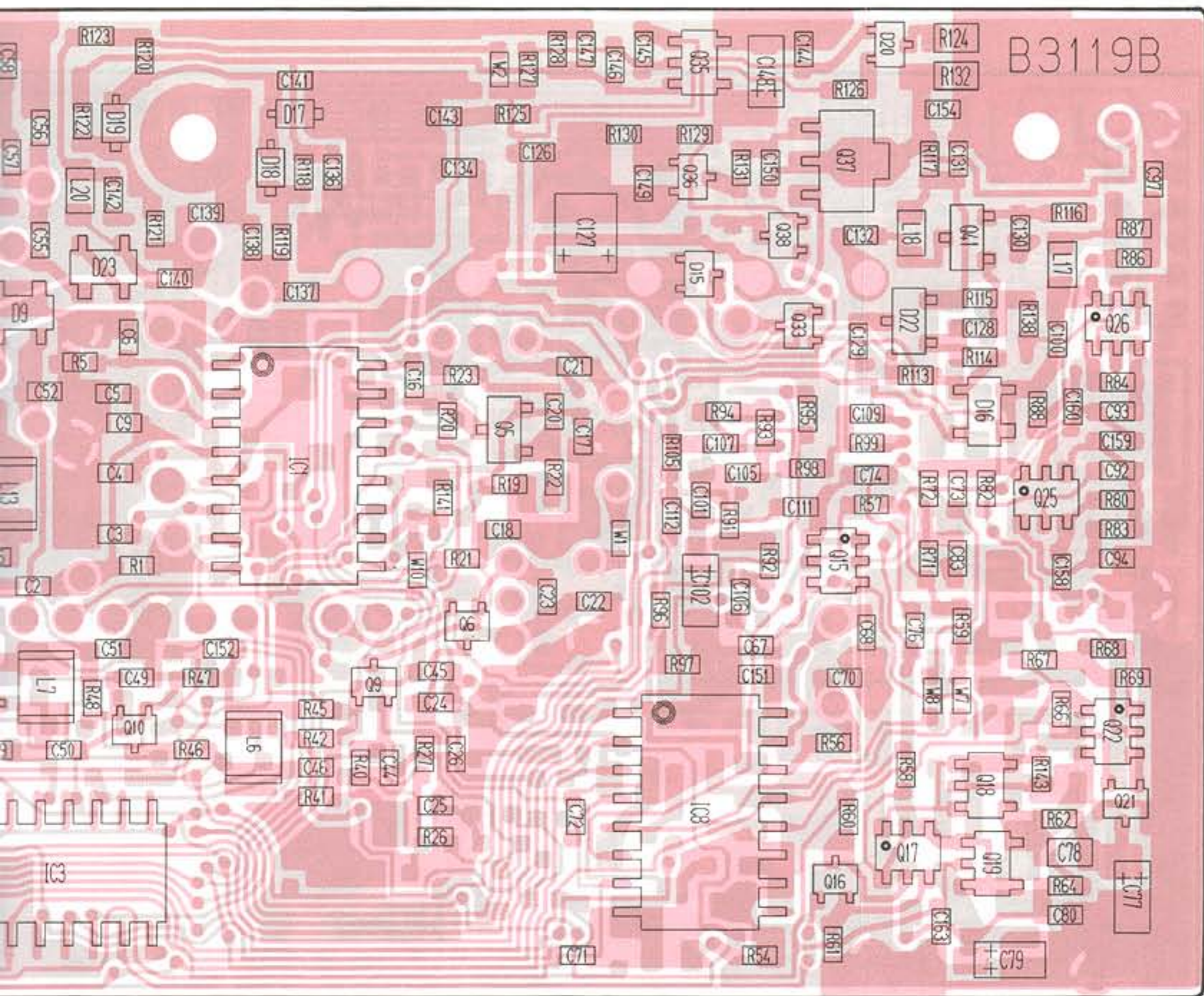
DAN202U
D20



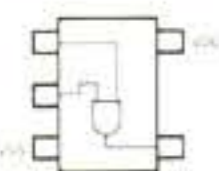
Symbol: N

TC4S81F
IC5, IC6, IC7

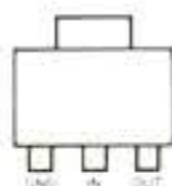




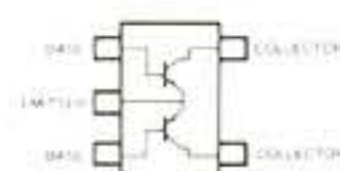
TC4S81F
IC5, IC6, IC7



S-81250HG
IC10

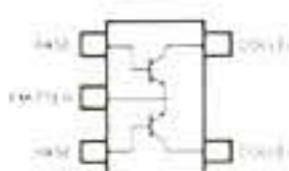


FMS1
Q19, Q35



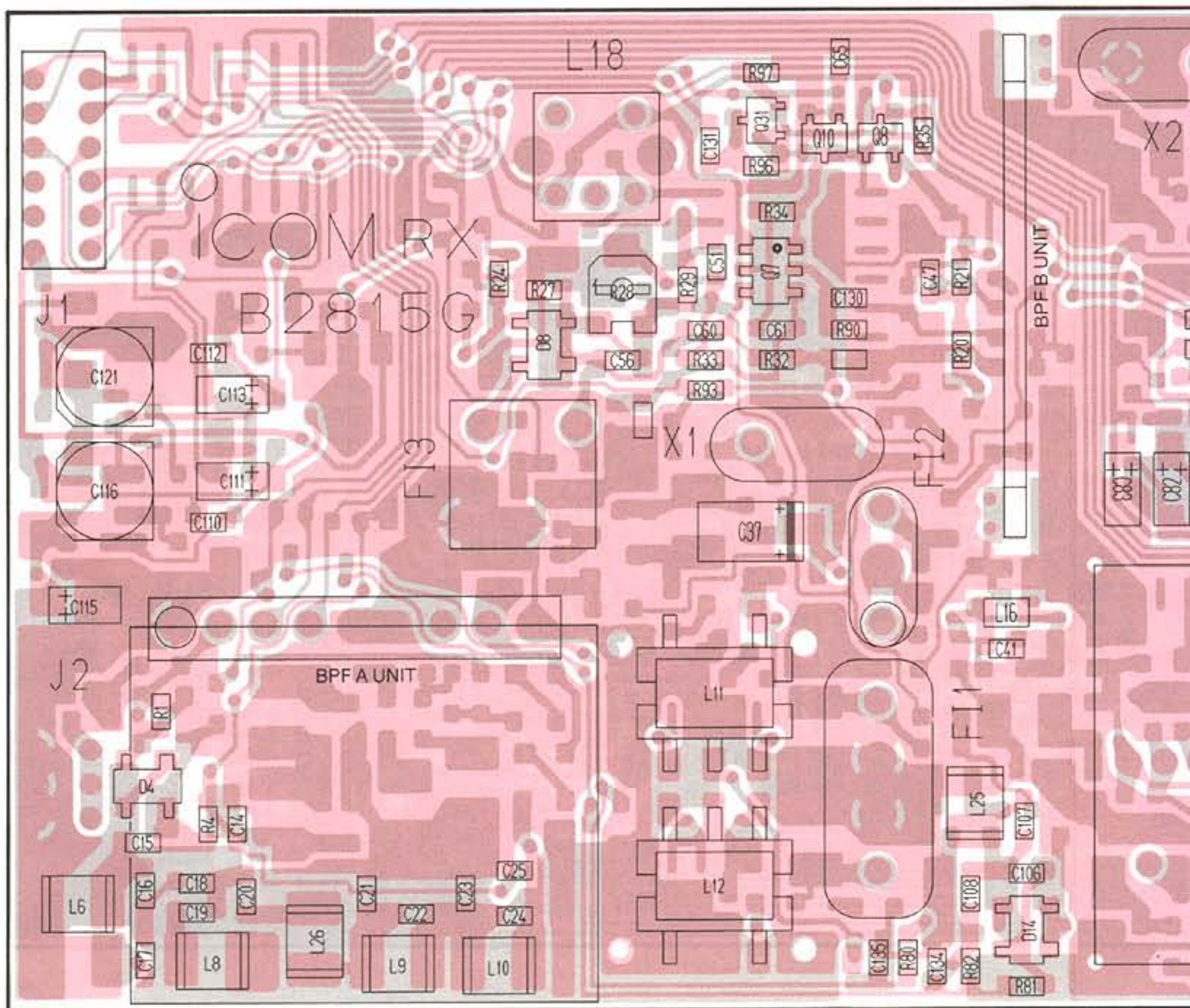
Symbol: S1

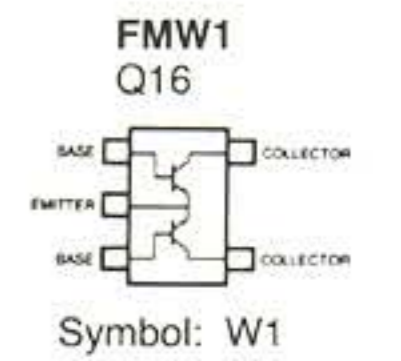
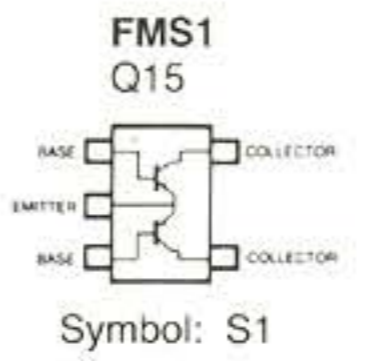
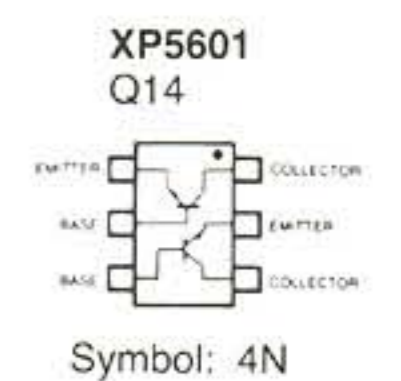
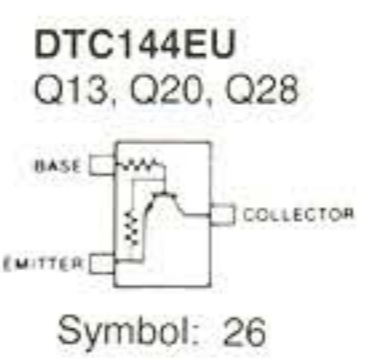
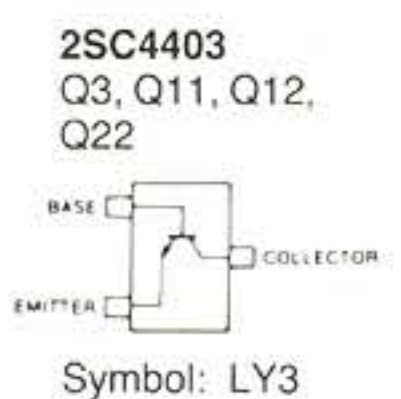
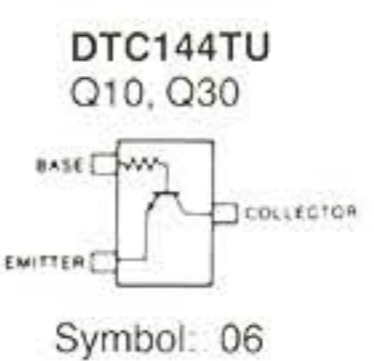
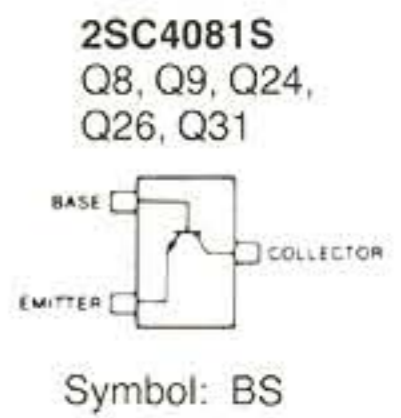
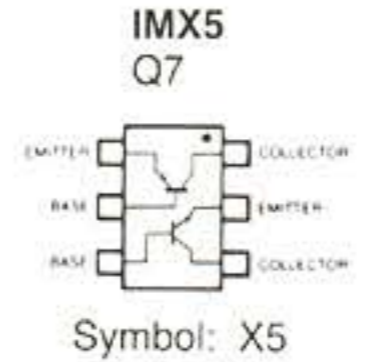
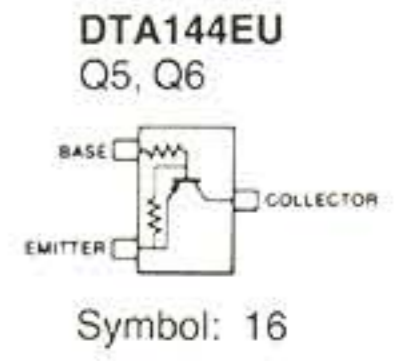
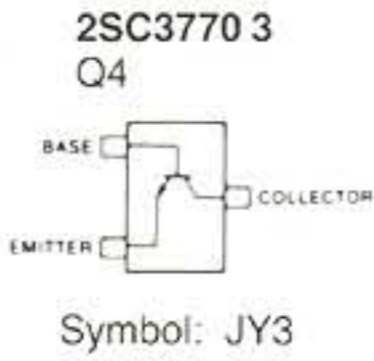
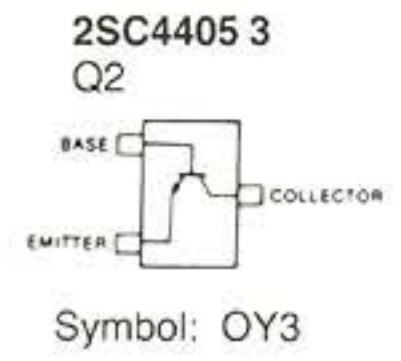
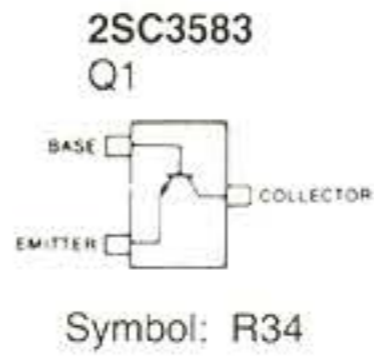
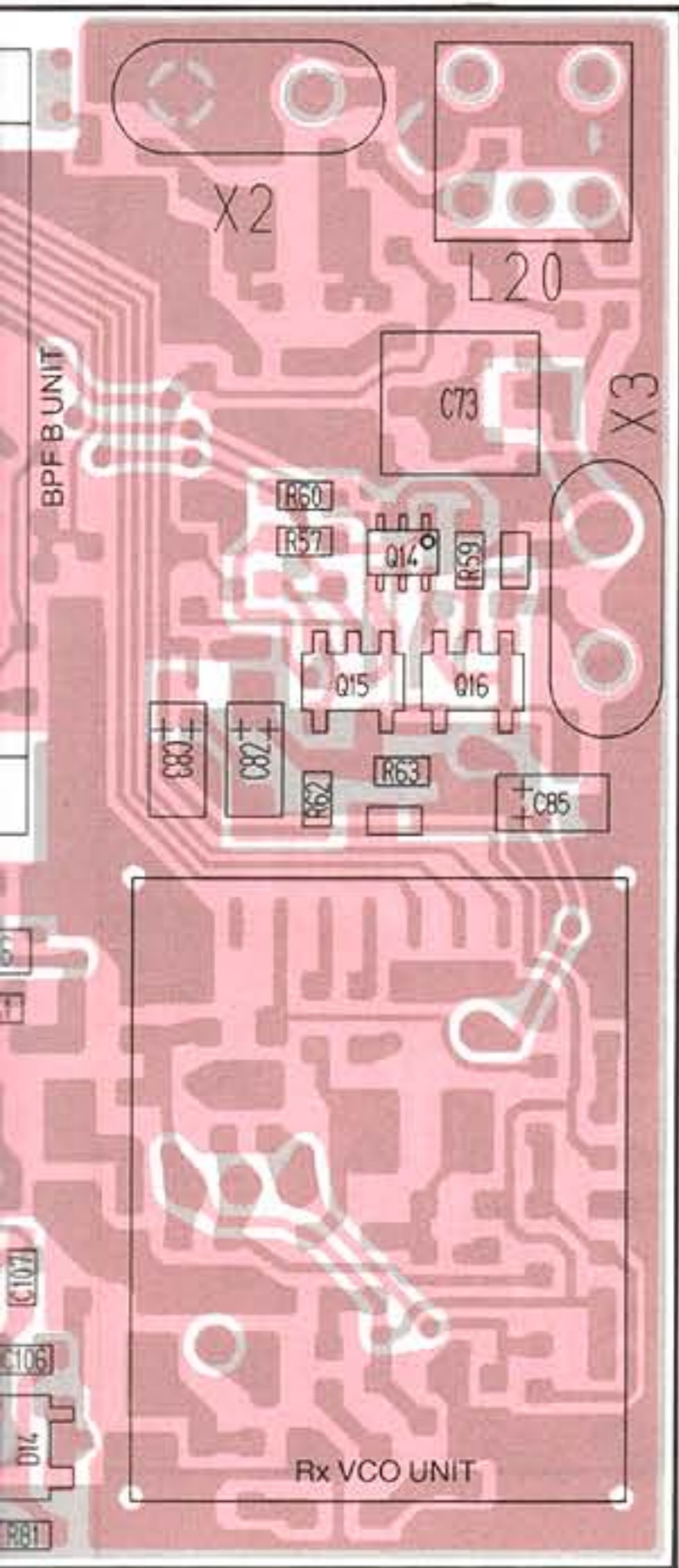
FMW1
Q18



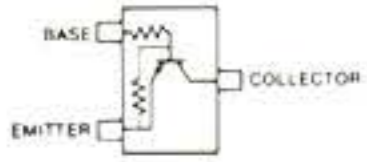
Symbol: W1

7-9 RX UNIT



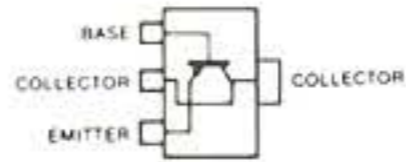


DTA143ZU
Q21, Q27



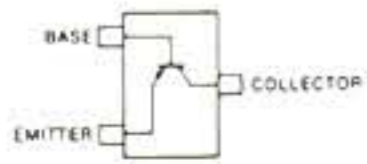
Symbol: 123

2SB798 DK
Q23



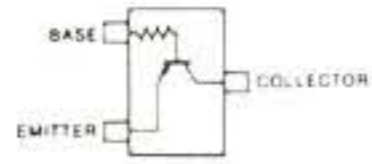
Symbol: DK

2SA1576 R
Q25



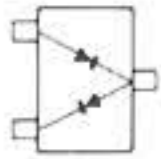
Symbol: FR

DTA144TU
Q29



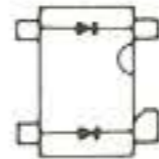
Symbol: 96

HSM88AS
D1



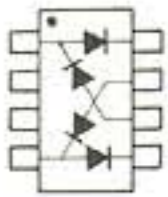
Symbol: C1

MA862
D2, D3, D4, D5,
D7, D8, D14, D15



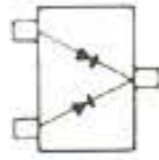
Symbol: N11

ND433G
D6



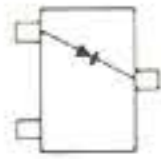
Symbol: 433

DAN202U
D16, D17

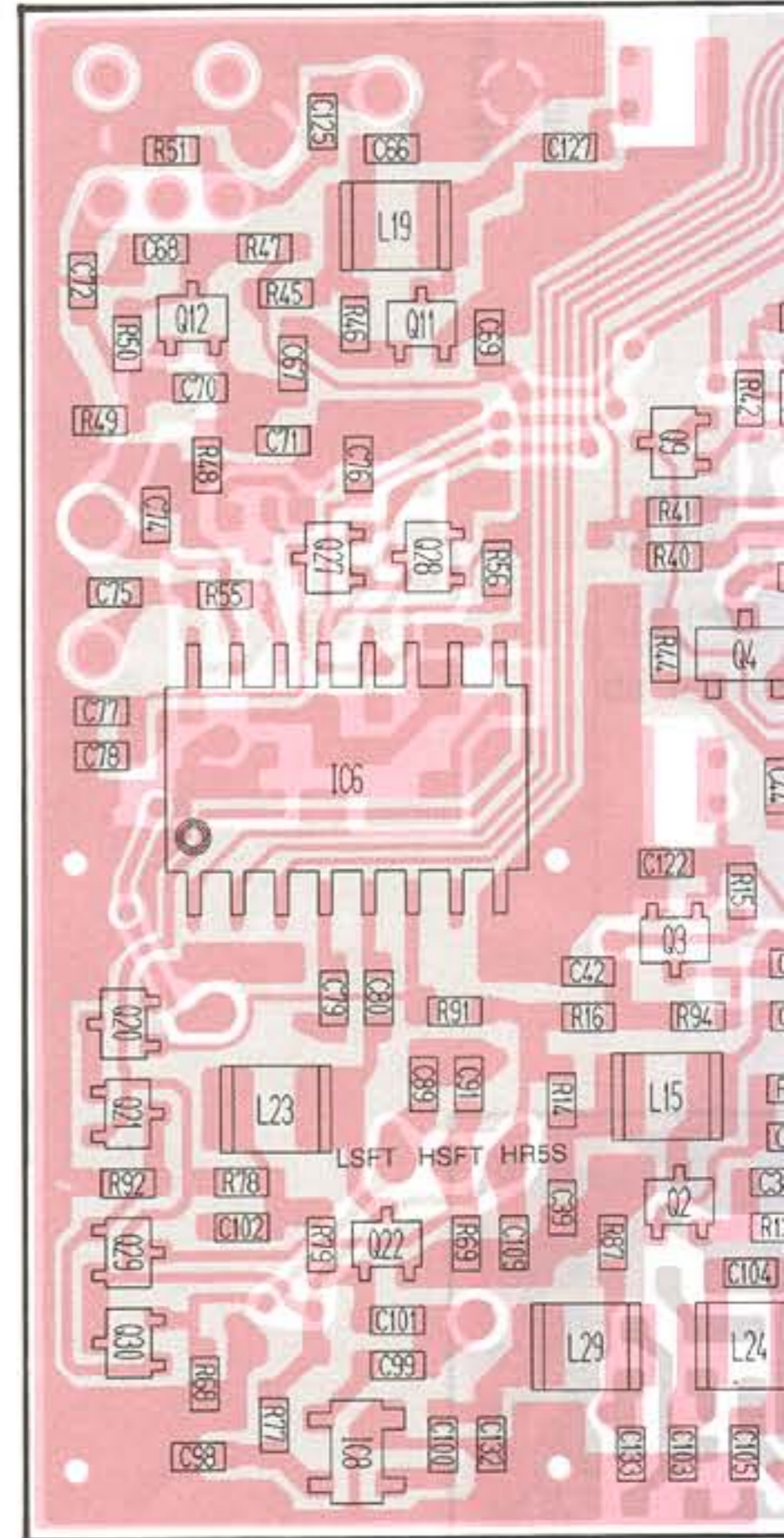


Symbol: N

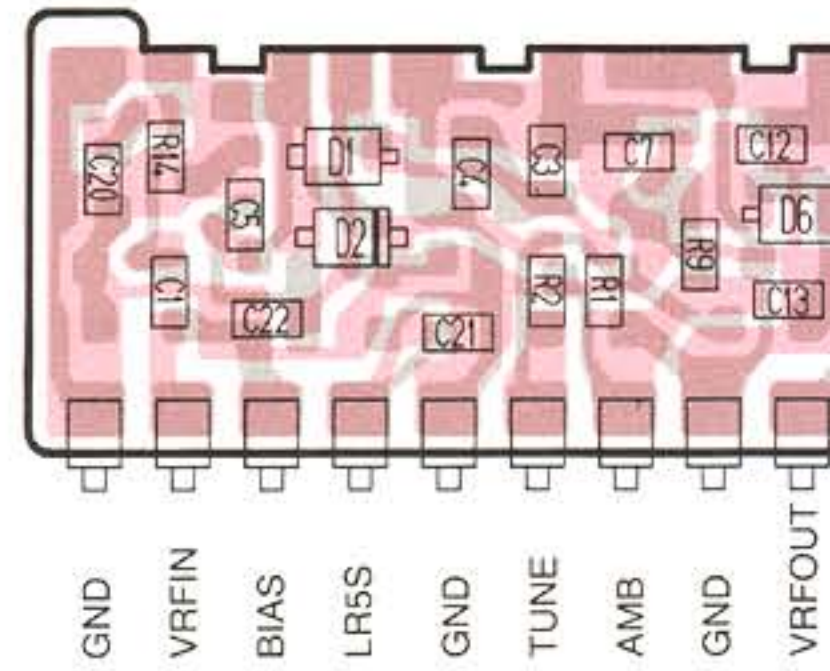
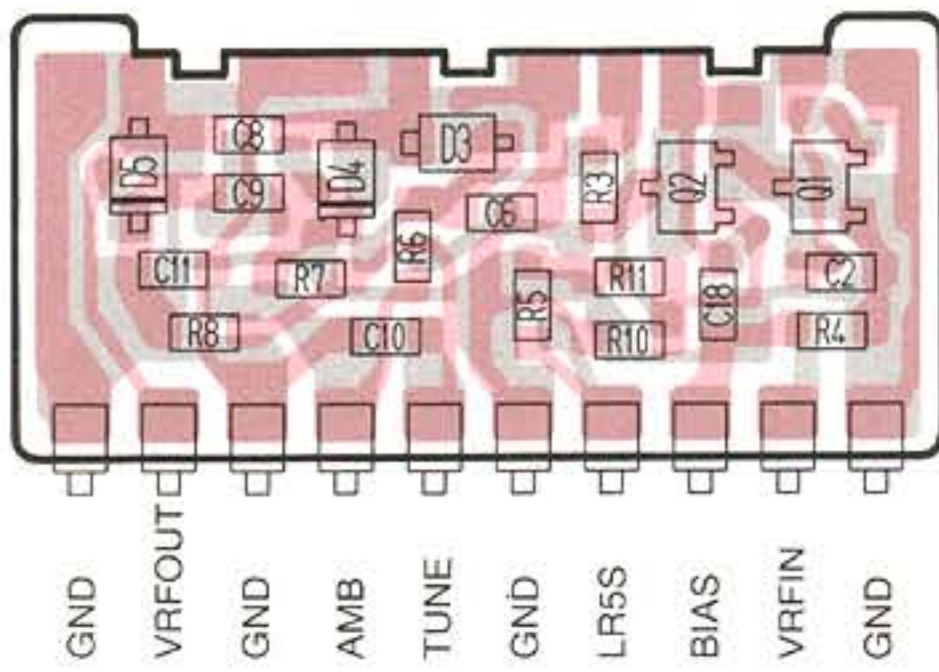
DA114
D18, D19



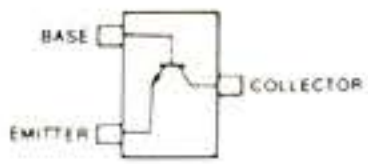
Symbol: AV



7-10 VRF A UNIT

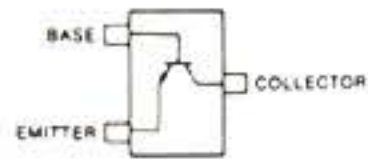


2SC4403-3
Q2



Symbol: LY3

2SC4405-3
Q1



Symbol: OY3

MA77
D1, D3, D6



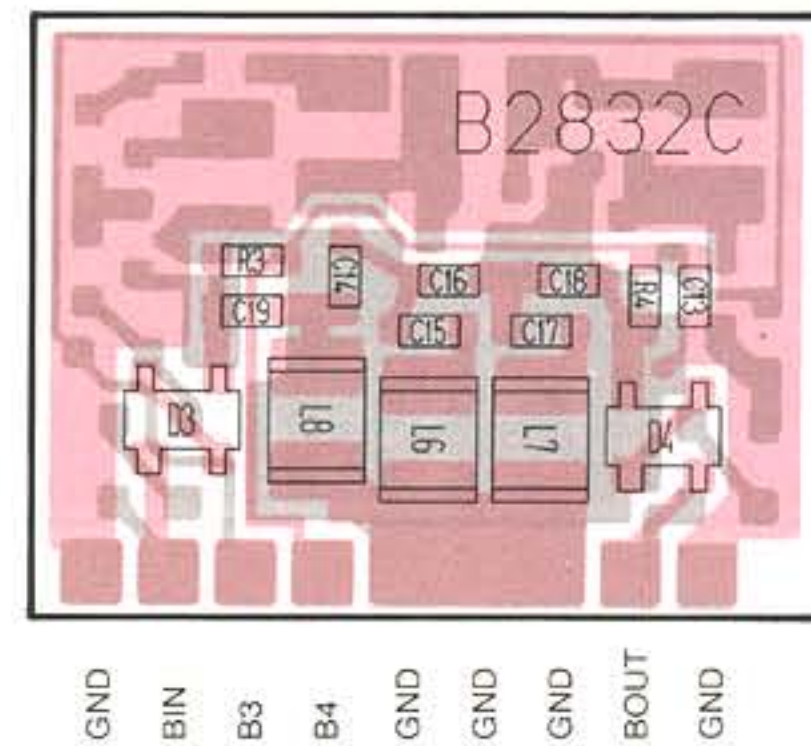
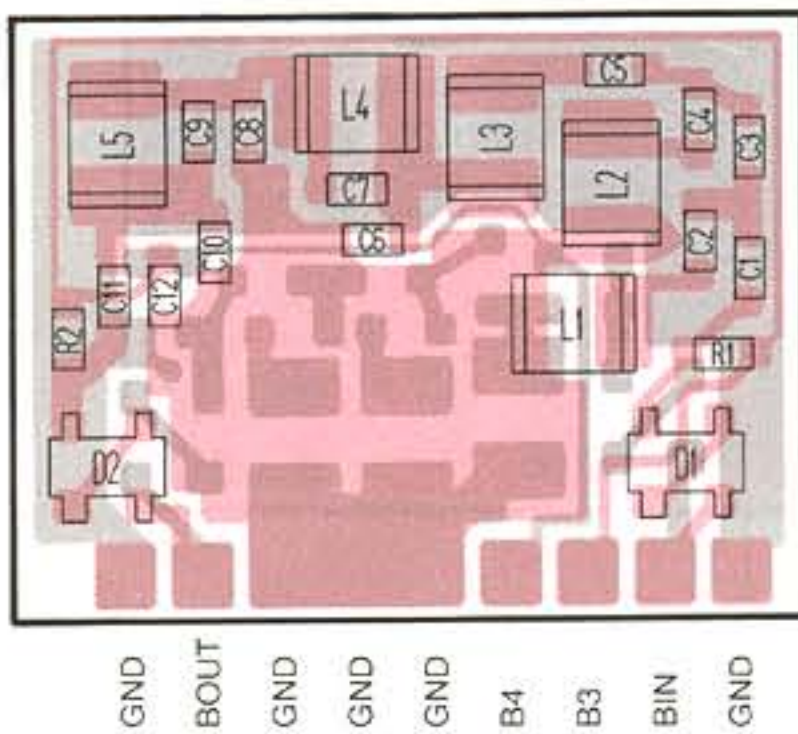
Symbol: 4B

MA363B
D2, D4, D5

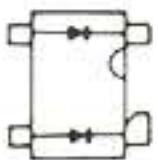


Symbol: 6D

7-12 BPF A UNIT

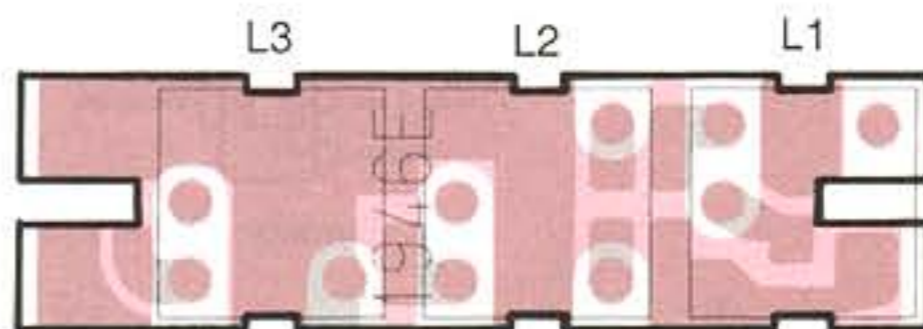
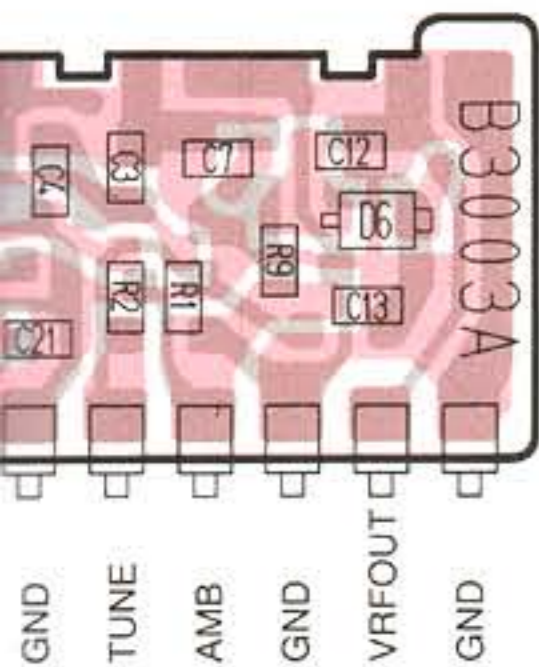


MA862
D1, D2, D3, D4



Symbol: M11

7-11 VRF B UNIT

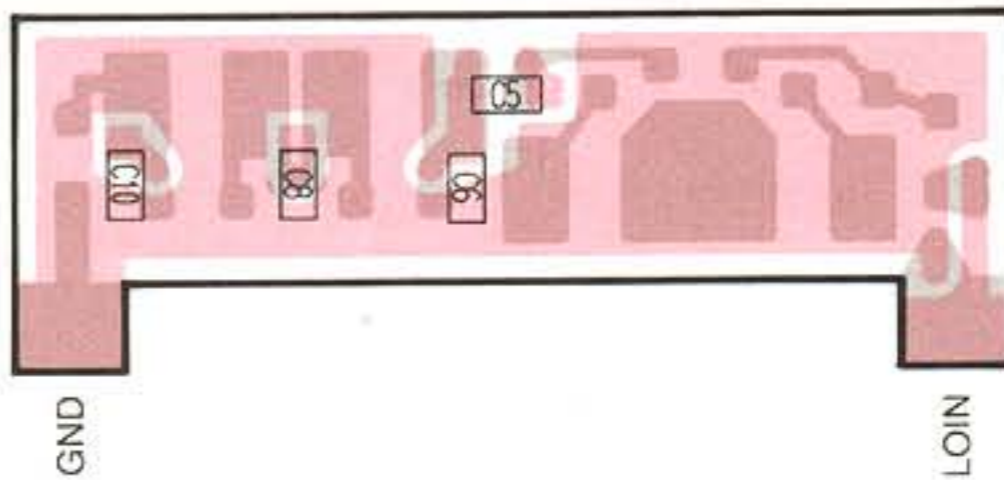
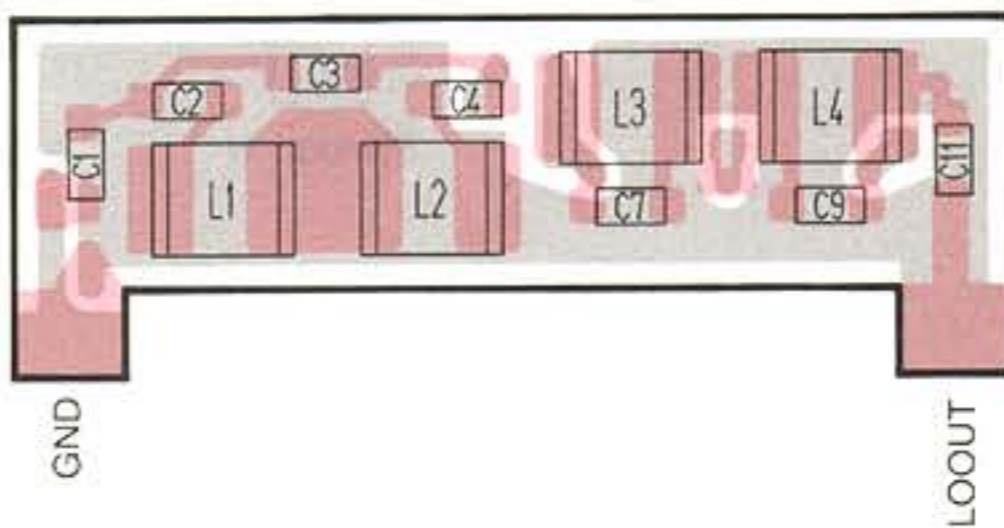
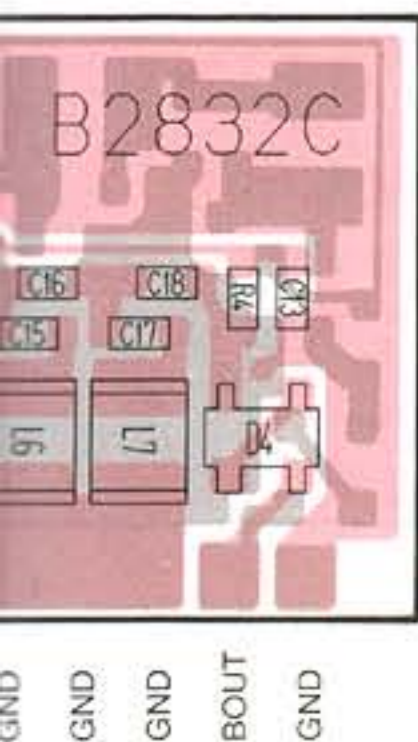


MA363B
D2, D4, D5

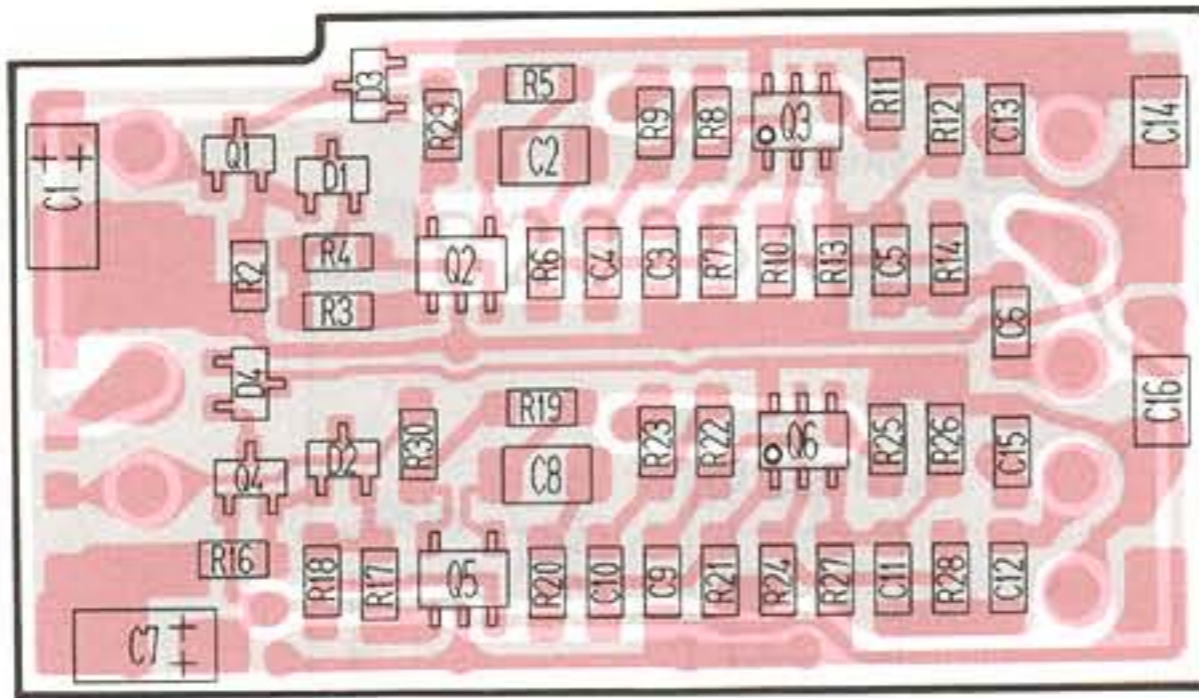


Symbol: 6D

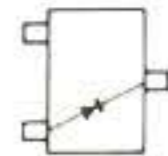
7-13 BPF B UNIT



7-14 AF FIL UNIT

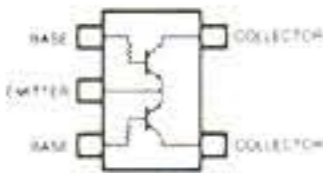


MA132HK
D3



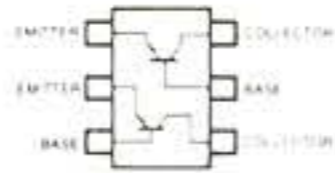
Symbol: M3N

XP1501
Q2, Q5



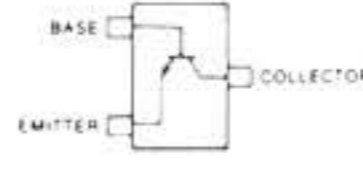
Symbol: 5R

XP6501
Q3, Q6

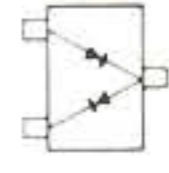


Symbol: 5N

2SD2216
Q1, Q4

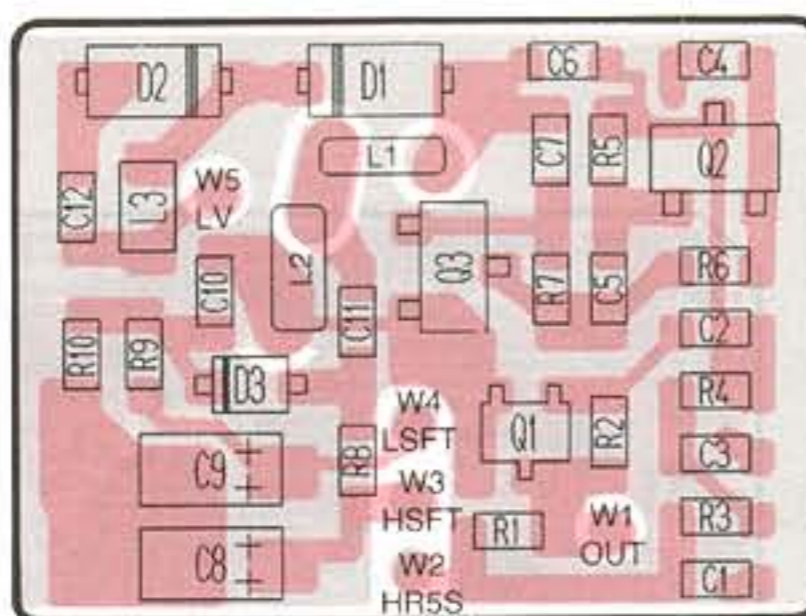


MA133
D1, D2, D4

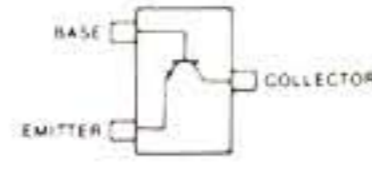


Symbol: MP

7-15 RX VCO UNIT

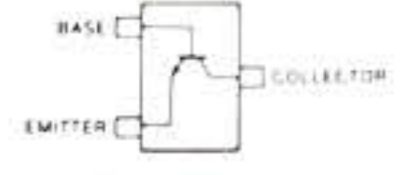


2SC3356
Q2, Q3



Symbol: R25

2SC4403-3
Q1



Symbol: LY3

MA333
D1, D2



Symbol: MP

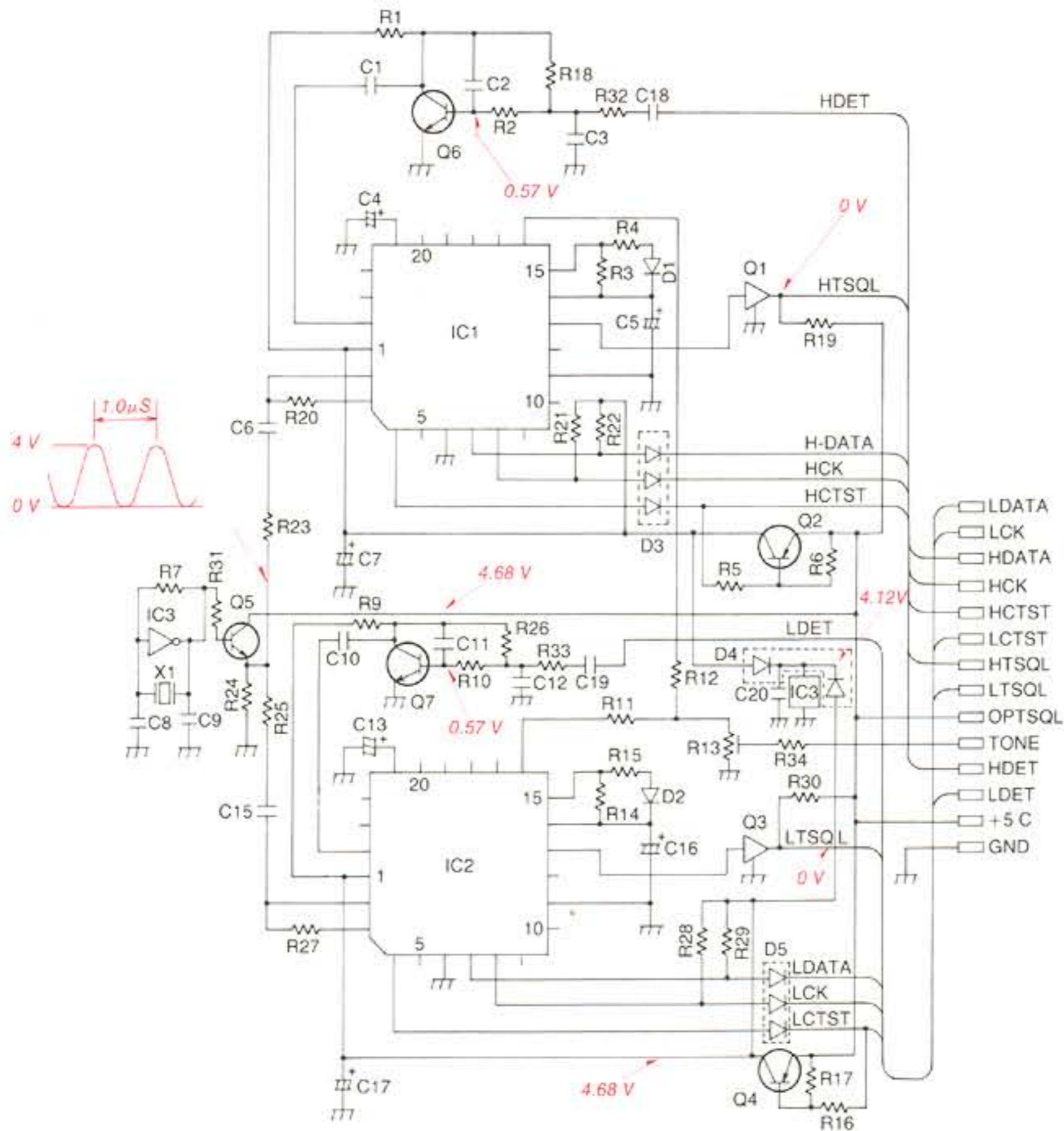
MA77
D3



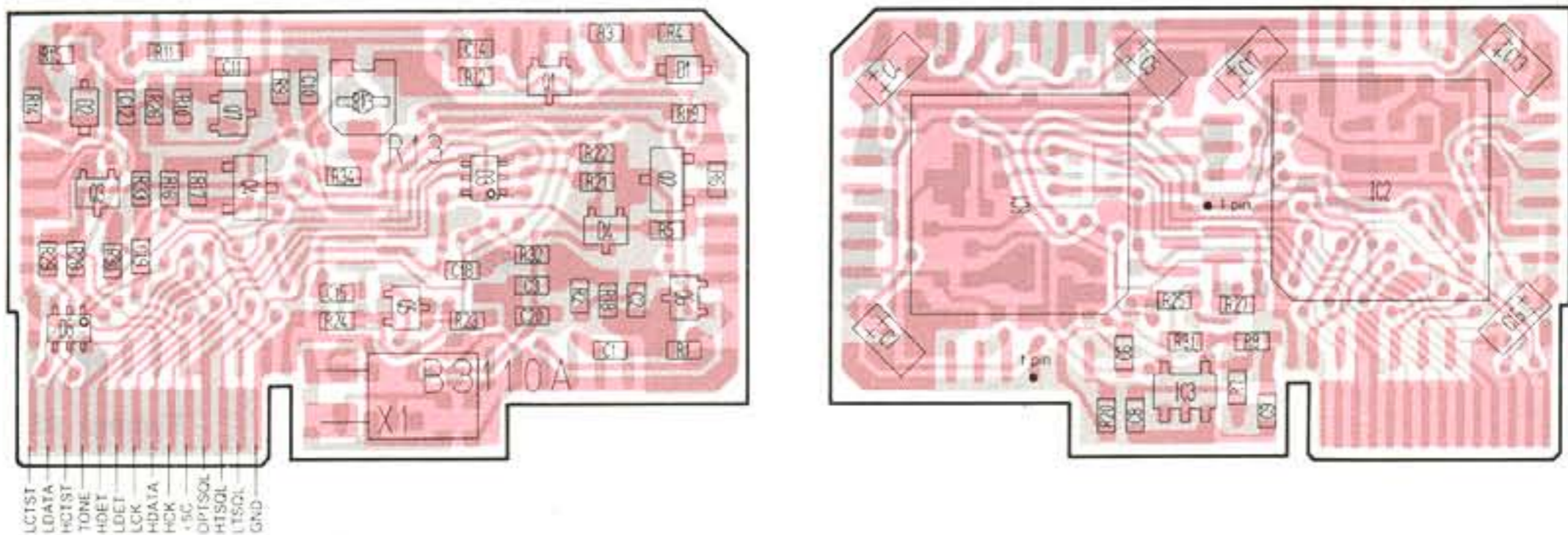
Symbol: 4B

SECTION 8 OPTIONAL UNIT

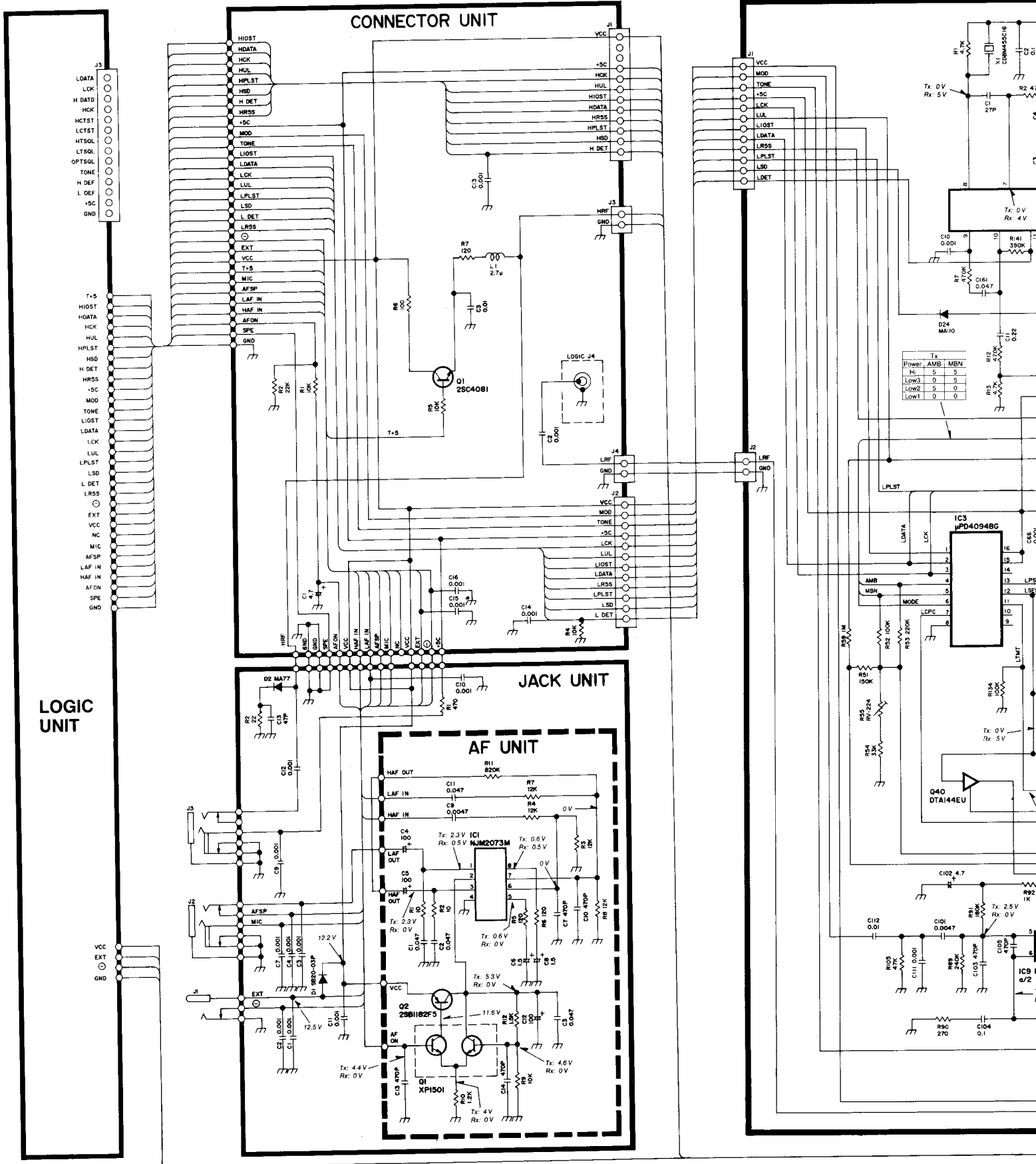
8-1 UT-63 TONE SQUELCH UNIT

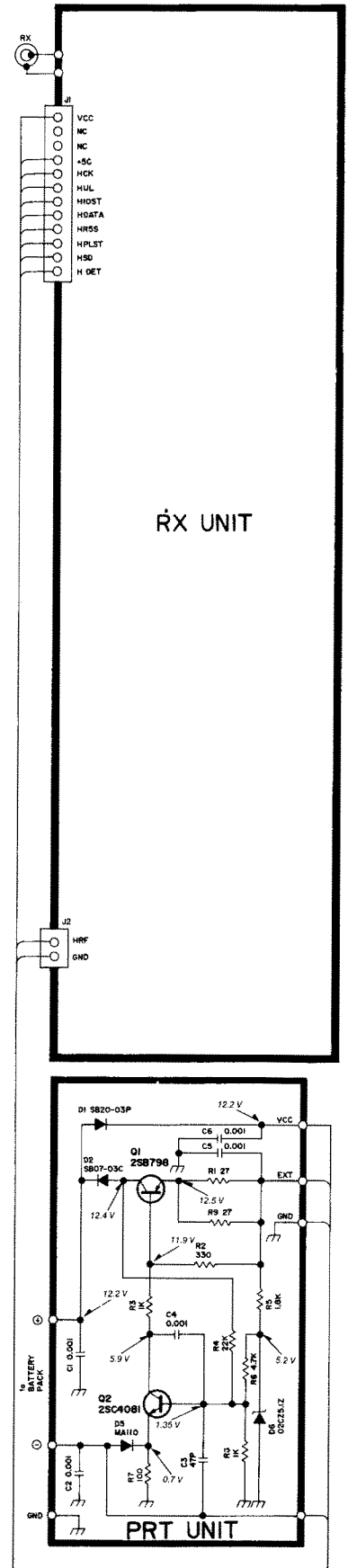
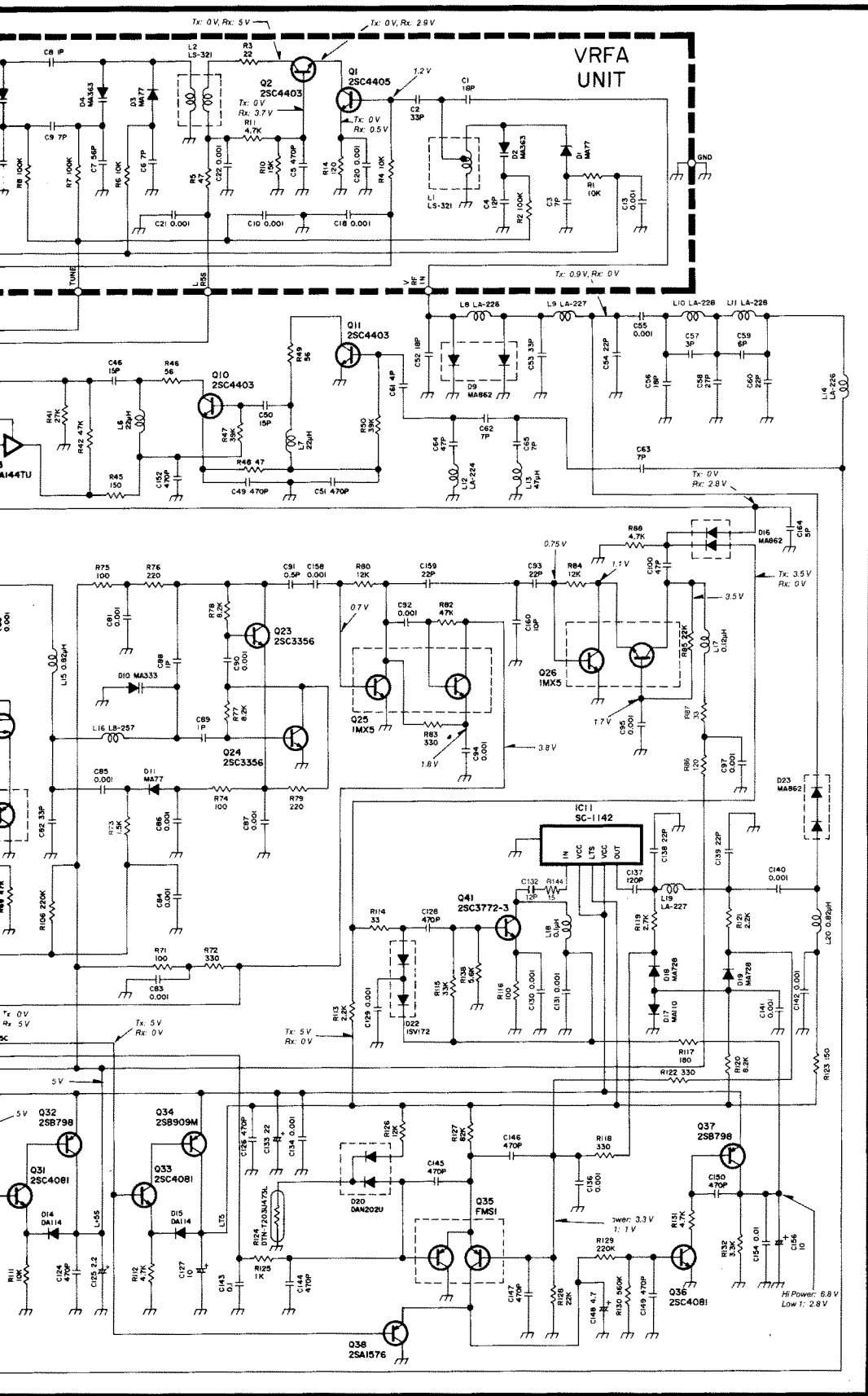


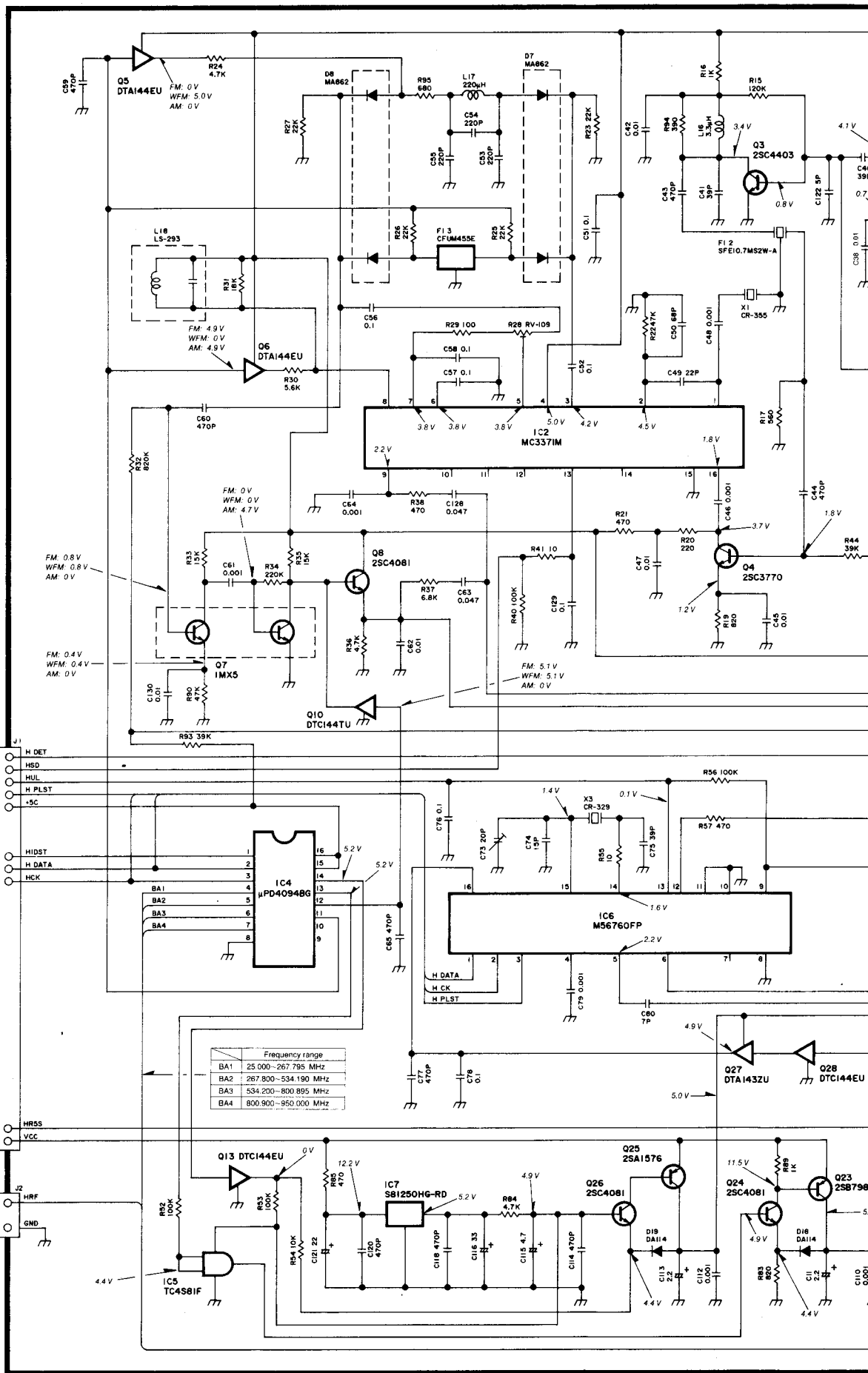
•BOARD LAYOUTS

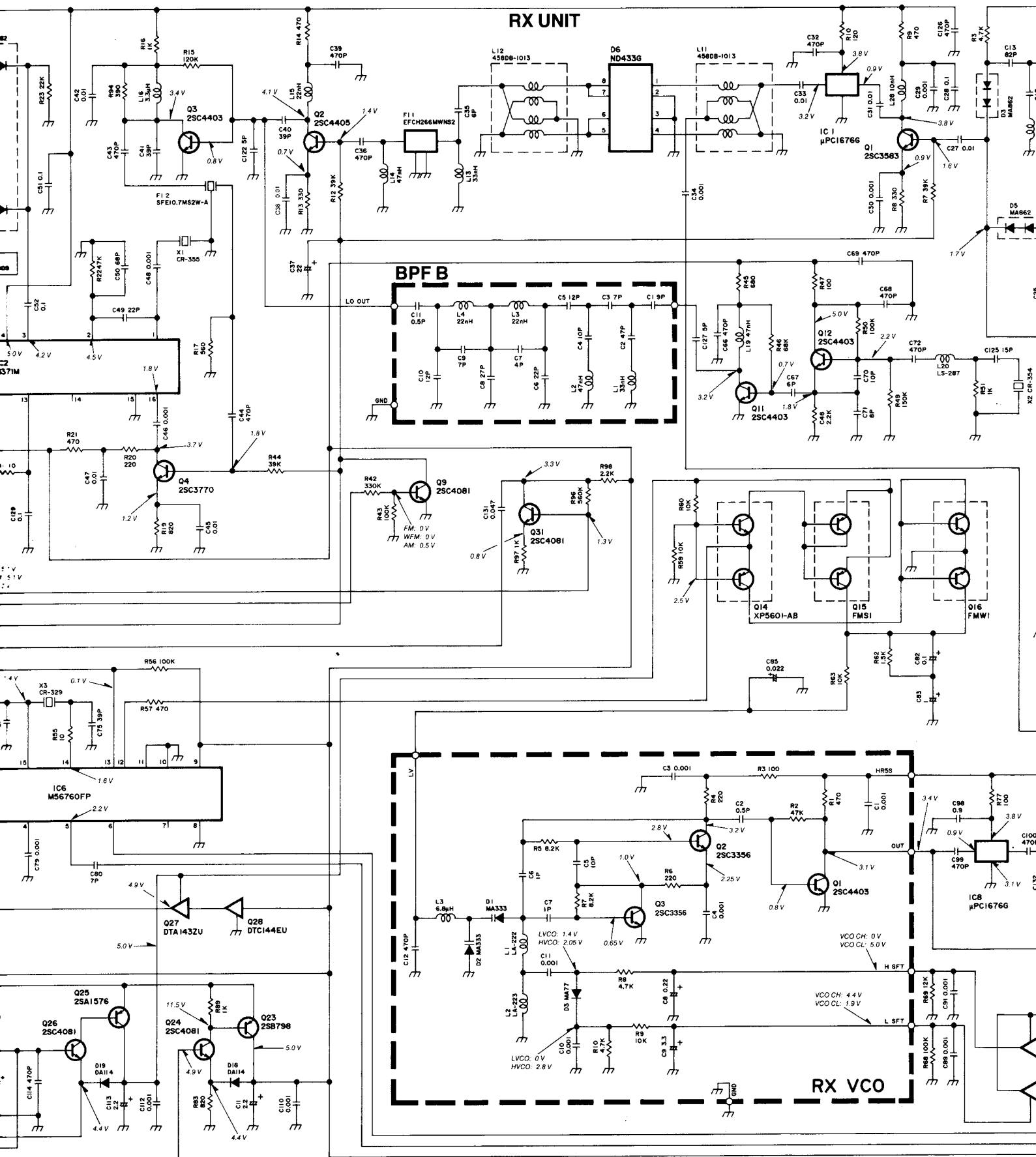


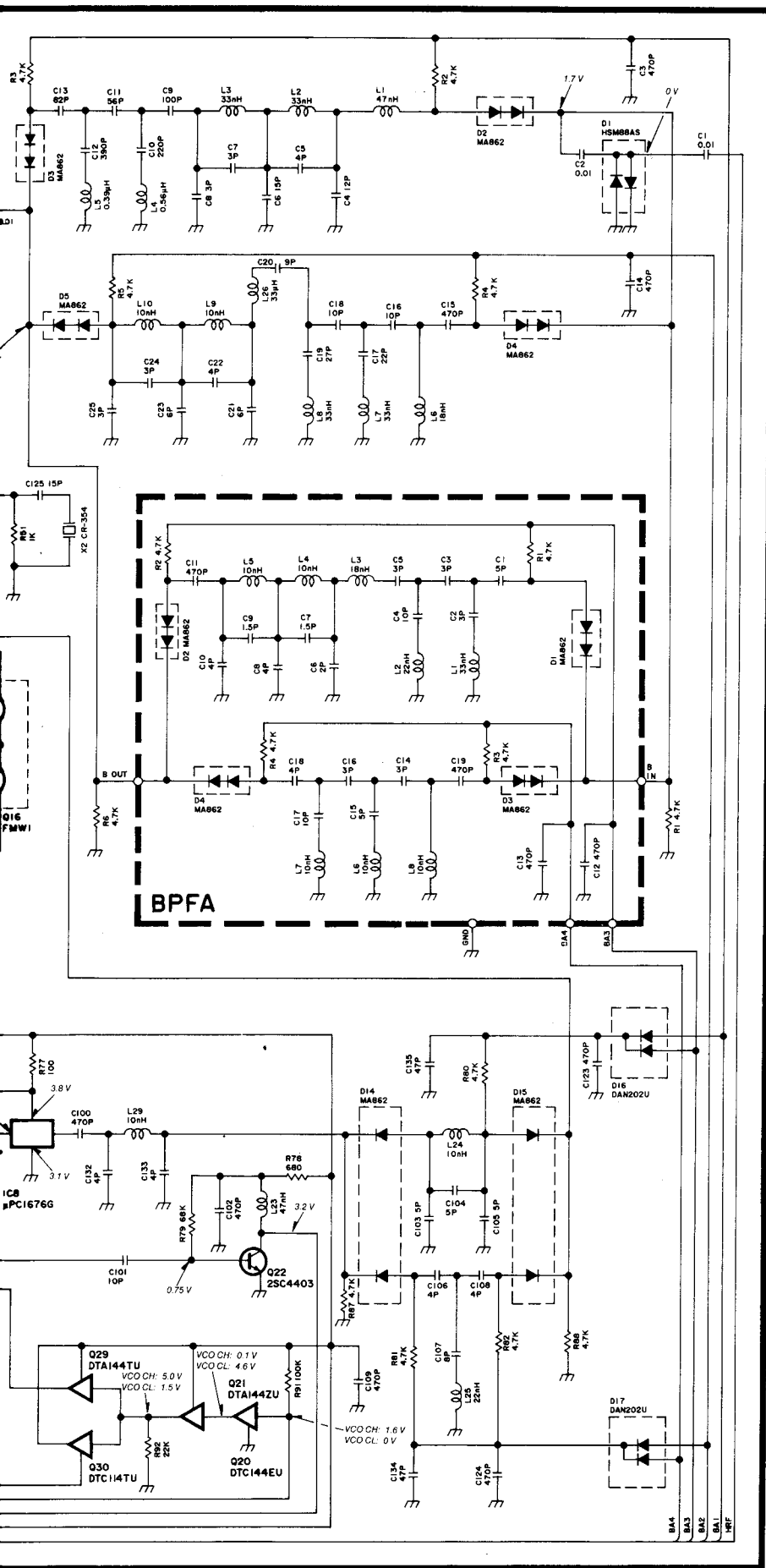
SECTION 9 VOLTAGE DIAGRAM

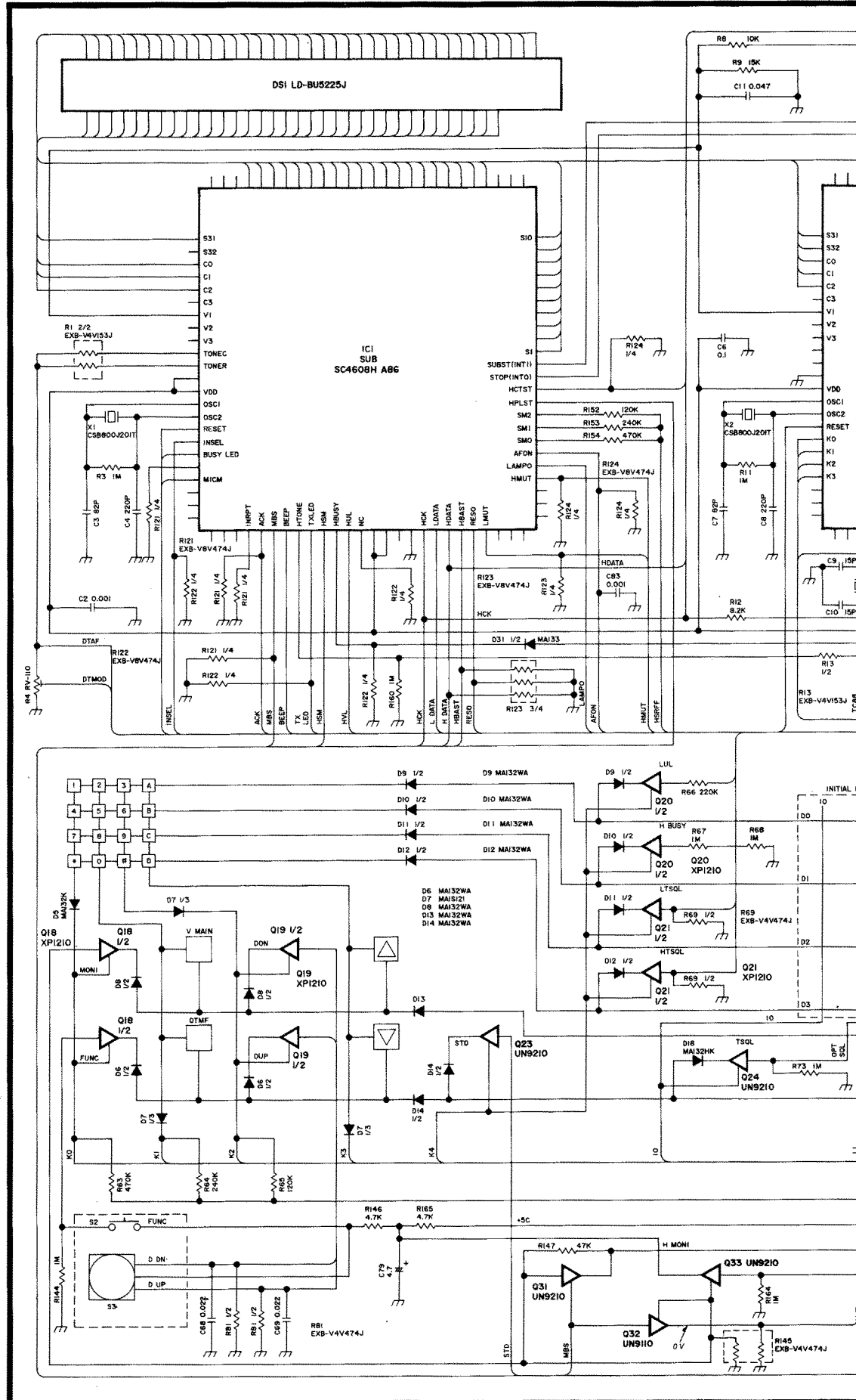
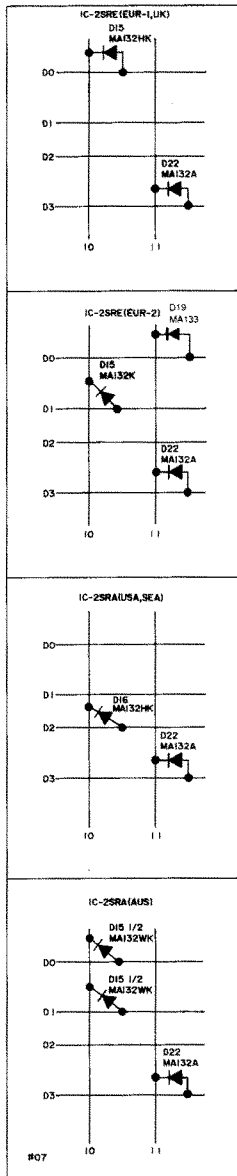


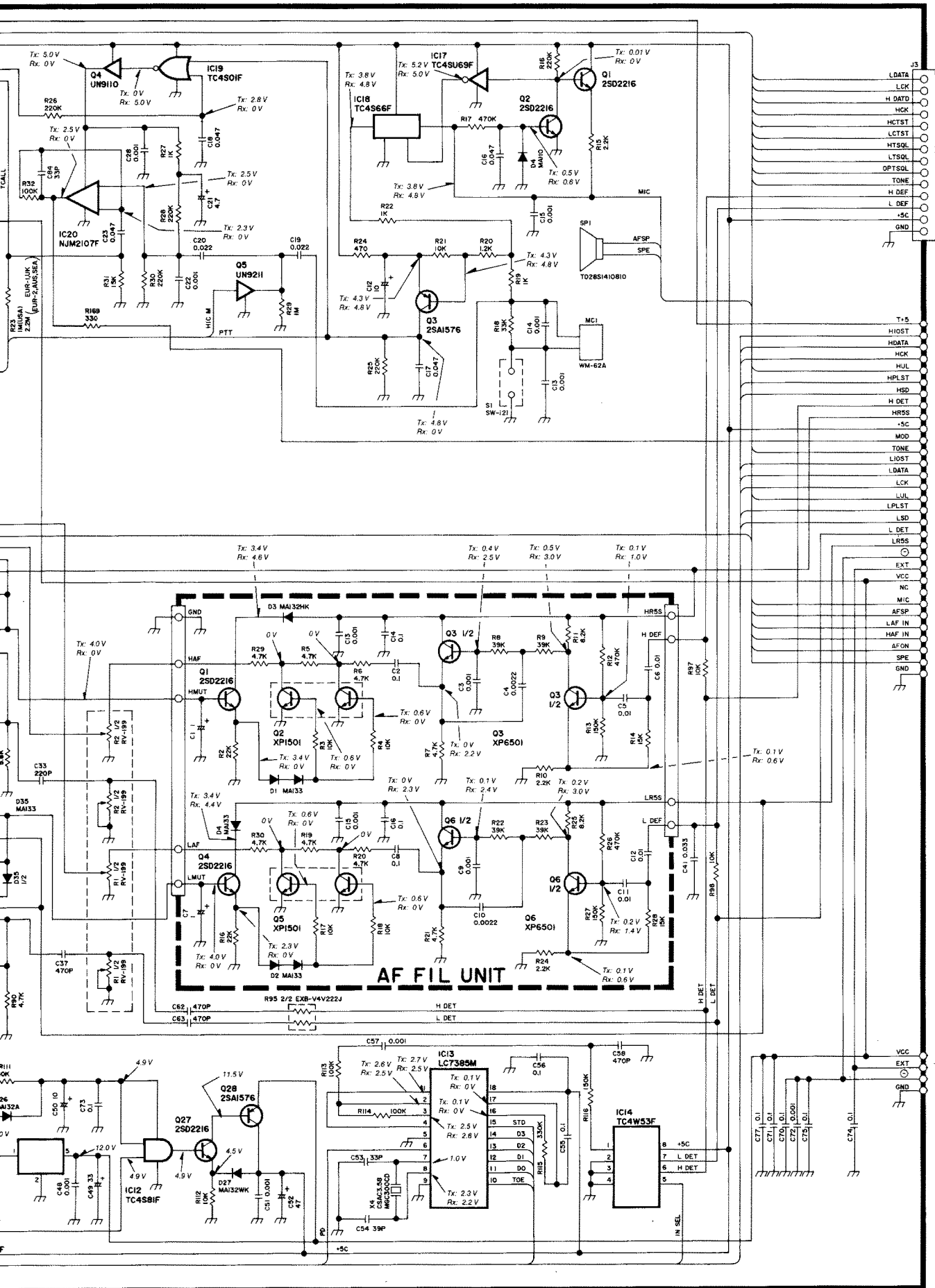








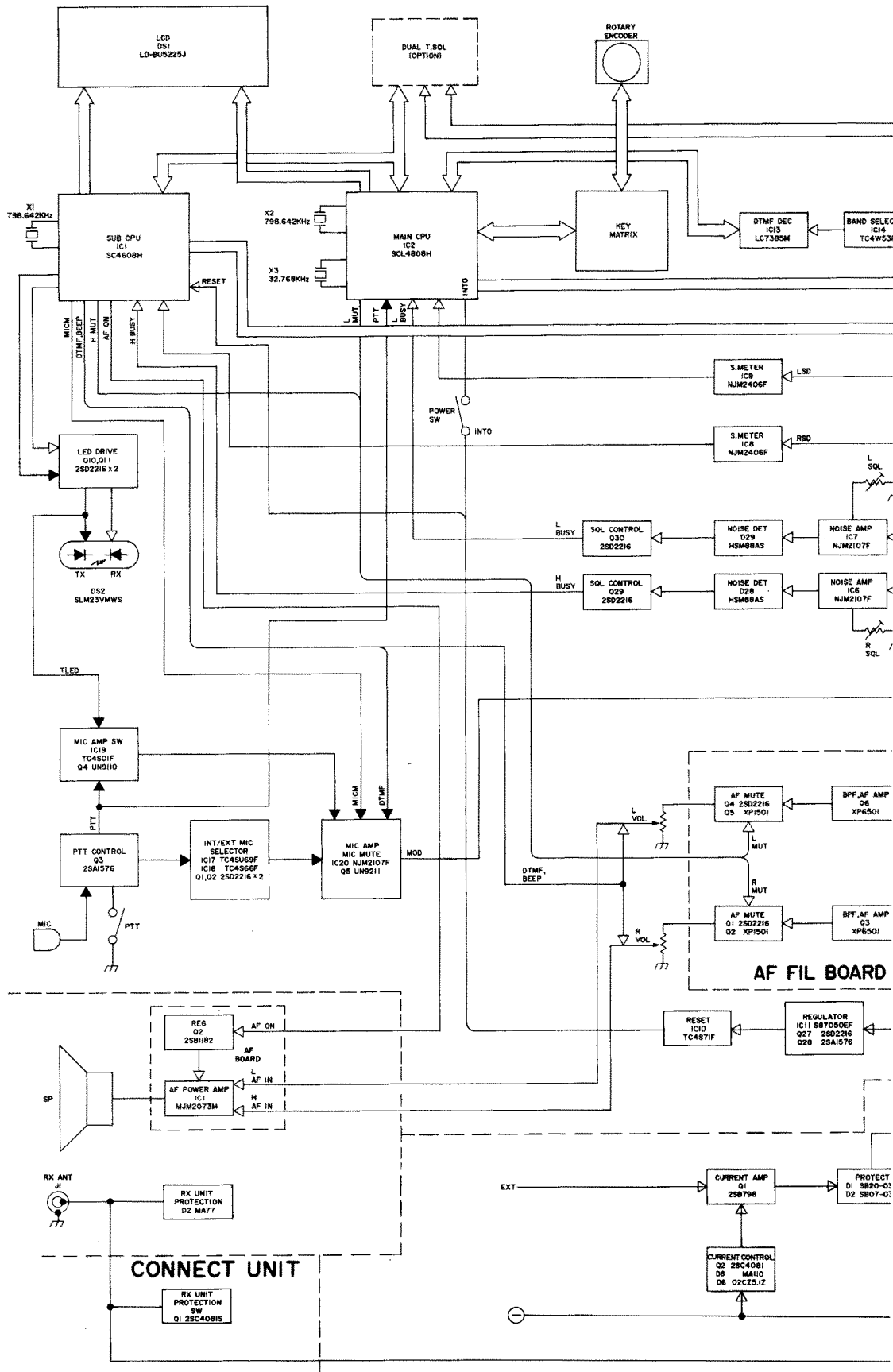




- J3
- LDATA
 - LCK
 - H DATD
 - HCK
 - HCTST
 - LCTST
 - HTSOL
 - LTSOL
 - OPTSOL
 - TOPE
 - H DEF
 - L DEF
 - +5C
 - GND
-
- T+5
 - HIOST
 - HDATA
 - HCK
 - HUL
 - HPLST
 - HSD
 - H DET
 - HRSS
 - +5C
 - MOD
 - TOPE
 - LIOST
 - LDATA
 - LCK
 - LUL
 - LPLST
 - LSD
 - L DET
 - LRSS
 - EXT
 - VCC
 - NC
 - MIC
 - AFSP
 - LAF IN
 - HAF IN
 - AFON
 - SPE
 - GND
-
- VCC
 - EXT
 - GND

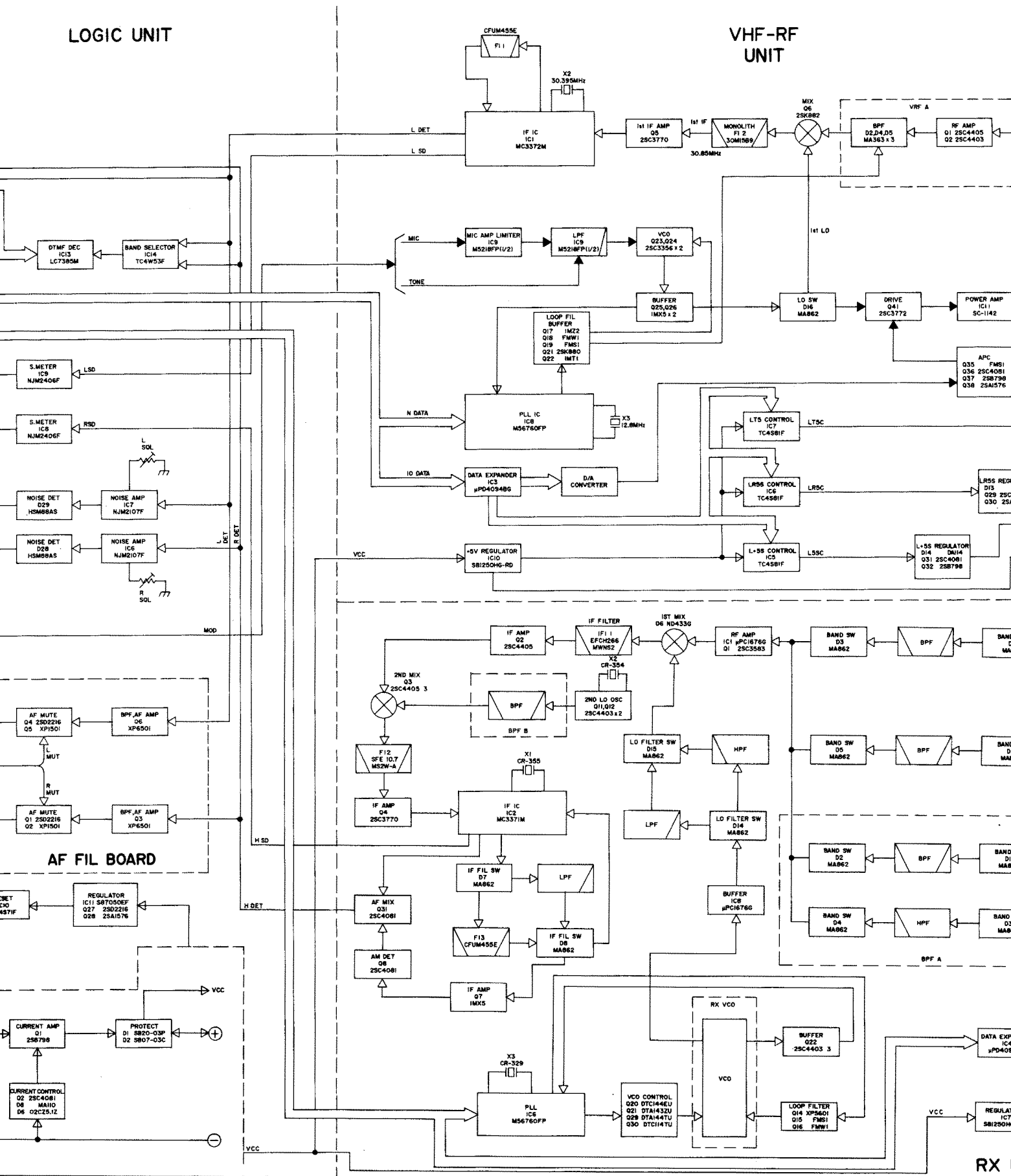
SECTION 10 BLOCK DIAGRAM

LOGIC UNIT

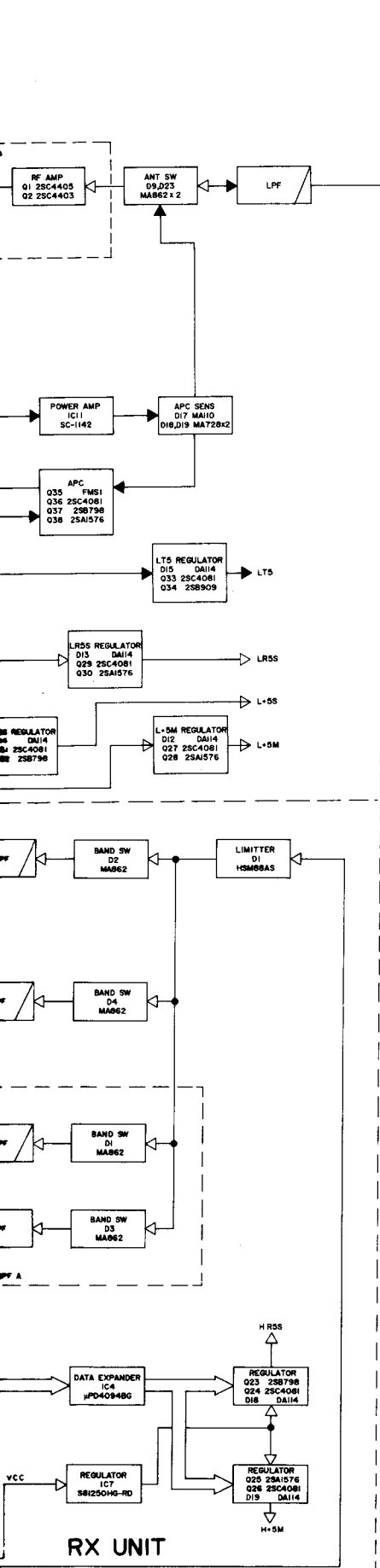


LOGIC UNIT

VHF-RF UNIT



RX



Icom Inc.

6-9-16, Kamihigashi, Hirano-ku, Osaka 547, Japan
Phone: 06 793 5301
Fax : 06 793 0013
Telex : 05277822 ICOMTR J

Icom America Inc.

<Corporate Headquarters>
2380 116th Avenue N.E., Bellevue, WA 98004, U.S.A.
Phone: (206) 454-8155
Fax : (206) 454-1509
Telex : 152210 ICOM AMER BVUE

<Customer Service>
Phone: (206) 454-7619

<Regional Customer Service Centers>
18102 Sky Park South, Suite 52-B, Irvine, CA 92714, U.S.A.
Phone: (714) 852-8026
Fax : (714) 852-8716

1777 Phoenix Parkway, Suite 201, Atlanta, GA 30349, U.S.A.
Phone: (404) 991-6166
Fax : (404) 991-6327

Icom Canada

A Division of Icom America Inc.
3071 #5 Road, Unit 9, Richmond, B.C., V6X 2T4, Canada
Phone: (604) 273-7400
Fax : (604) 273-1900

Icom (Europe) GmbH

Communication Equipment
Himmelgeister Str. 100, 4000 Düsseldorf 1, F.R.G.
Phone: 0211 346047
Fax : 0211 333639
Telex : 8588082 ICOM D

Icom (Australia) Pty. Ltd.

A.C.N 006 092 575
7 Duke Street, Windsor, Victoria, 3181, Australia
Phone: 03 529 7582
Fax : 03 529 8485
Telex : AA 35521 ICOM AS

Icom (UK) Ltd.

Unit 9, Sea St., Herne Bay, Kent, CT6 8LD, U.K.
Phone: 0227 741741
Fax : 0227 360155
Telex : 965179 ICOM G

Icom France S.a

Zac de la Plaine, Rue Brindejont des Moulinais
BP 5804, 31505 Toulouse Cedex, France
Phone : 61. 20. 31. 49 Fax : 61. 34. 05. 91
Telex : 521515 ICOM FRA

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