



# SERVICE MANUAL

VHF MARINE TRANSCEIVER

**IC-M1**

**IC-M1 EURO**

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## INTRODUCTION

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This service manual describes the latest service information for the **IC-M1** and **IC-M1 EURO** VHF MARINE TRANSCEIVER at the time of publication.

MODEL	VERSION	SYMBOL
IC-M1	U.S.A.	USA
	SE Asia	SEA
	Australia	AUS
IC-M1 EURO	U.K.	UK
	France	FRA
	Italy	ITA

To upgrade quality, any electrical or mechanical parts and internal circuits are subject to change without notice or obligation.

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## DANGER

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**NEVER** connect the transceiver to an AC outlet or to a DC power supply that uses more than 10 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.

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## ORDERING PARTS

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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>

1130007690 S.IC BU4066BCF IC-M1 MAIN UNIT 5 pieces  
8810009140 Screw PH B0 M2 x 5 SUS ZK IC-M1 Rear panel 10 pieces

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

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## REPAIR NOTES

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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 40 dB to 50 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

		IC-M1	IC-M1EURO	
<b>GENERAL</b>	Frequency coverage	Transmit 156.025–157.425 MHz Receive 156.025–163.275 MHz	Transmit 156.025–157.425 MHz Receive 156.025–162.025 MHz	
	Mode	FM(16K0G3E)		
	Power supply requirement	BP-185 (8.4 V DC) or BP-186 (7.2 V DC)		
	Current drain (with BP-185)	Transmit at 5 W                      1.8 A max. at 1 W                         0.8 A max. at 0.15 W                         0.35 A max. Receive maximum audio            300 mA max. Squelched                            13 mA typ.		
	Frequency stability	± 0.001 %	± 1.5 kHz	
	Usable temperature range	- 20°C to +60°C ; - 4°F to +140°F		
	Antenna connector	Type SMA / 50 Ω		
	Dimensions (with BP-185)	52.5(W) × 129(H) × 30(D) mm ; 2 1/16(W) × 5 3/32(H) × 1 3/16(D) in		
	Weight (with BP-185)	280 g ; 9.9 oz		
	<b>TRANSMITTER</b>	RF output power (with supplied battery pack)	5 W / 1 W / 0.15 W (High / Low / Extra low)	U.K. : 5 W / 1W / 0.15 W (High / Low / Extra low) Italy : 4.5 W / 1 W / 0.15 W (High / Low / Extra low) France : 1 W / 0.15 W (High / Low)
Modulation system		Variable reactance phase modulation		
Max. frequency deviation		± 5.0 kHz		
Spurious emissions		65 dB	0.25 μW	
Microphone impedance		2 kΩ		
Audio frequency response		- 3 dB to +1 dB in a 6 dB/octave range with 300 Hz to 3000 Hz input		
Ham and noise		40 dB		
<b>RECEIVER</b>	Receive system	Double conversion superheterodyne		
	Intermediate frequencies	1st: 30.85 MHz	2nd: 450 kHz	
	Sensitivity	0.35 μV for 12 dB SINAD	1 μV for 20 dB SINAD	
	Squelch sensitivity	Adjustable up to 23 dB SINAD		
	Adjacent channel selectivity	70 dB	70 dB	
	Spurious response rejection	70 dB	70 dB	
	Intermodulation rejection	70 dB	68 dB	
	Audio output power	400 mW at 5 % distortion with an 8 Ω load		
	Audio output impedance	8 Ω		
Measurement method	EIA-152C & EIA-204D(E)	ETS 300 162		

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

## ■ VHF MARINE CHANNEL LIST

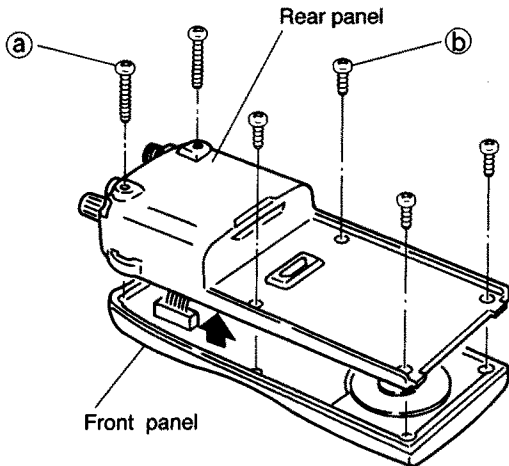
Channel number			Frequency (MHz)		Channel number			Frequency (MHz)	
INT	USA	CAN	Transmit	Receive	INT	USA	CAN	Transmit	Receive
01		01	156.050	160.650		61A	61A	156.075	156.075
	01A		156.050	156.050	62			156.125	160.725
02		02	156.100	160.700		62A	62A	156.125	156.125
	02A		156.100	156.100	63			156.175	160.775
03		03	156.150	160.750		63A		156.175	156.175
	03A		156.150	156.150	64		64	156.225	160.825
04			156.200	160.800		64A	64A	156.225	156.225
	04A	04A	156.200	156.200	65			156.275	160.875
05			156.250	160.850		65A	65A	156.275	156.275
	05A	05A	156.250	156.250	66			156.325	160.925
06	06	06	156.300	156.300		66A	66A	156.325	156.325
07			156.350	160.950	67	67	67	156.375	156.375
	07A	07A	156.350	156.350	68	68	68	156.425	156.425
08	08	08	156.400	156.400	69	69	69	156.475	156.475
09	09	09	156.450	156.450	70	70	70	156.525	156.525
10	10	10	156.500	156.500	71	71	71	156.575	156.575
11	11	11	156.550	156.550	72	72	72	156.625	156.625
12	12	12	156.600	156.600	73	73	73	156.675	156.675
13	13	13	156.650	156.650	74	74	74	156.725	156.725
14	14	14	156.700	156.700	77	77	77	156.875	156.875
15	15	15	156.750	156.750	78			156.925	161.525
16	16	16	156.800	156.800		78A	78A	156.925	156.925
17	17	17	156.850	156.850	79			156.975	161.575
18			156.900	161.500		79A	79A	156.975	156.975
	18A	18A	156.900	156.900	80			157.025	161.625
19			156.950	161.550		80A	80A	157.025	157.025
	19A	19A	156.950	156.950	81			157.075	161.675
20	20	20	157.000	161.600		81A	81A	157.075	157.075
	20A		157.000	157.000	82			157.125	161.725
21		21	157.050	161.650		82A	82A	157.125	157.125
	21A	21A	157.050	157.050	83		83	157.175	161.775
22			157.100	161.700		83A	83A	157.175	157.175
	22A	22A	157.100	157.100	84	84	84	157.225	161.825
23		23	157.150	161.750		84A		157.225	157.225
	23A		157.150	157.150	85	85	85	157.275	161.875
24	24	24	157.200	161.800		85A		157.275	157.275
25	25	25	157.250	161.850	86	86	86	157.325	161.925
26	26	26	157.300	161.900		86A		157.325	157.325
27	27	27	157.350	161.950	87	87	87	157.375	161.975
28	28	28	157.400	162.000		87A		157.375	157.375
60		60	156.025	160.625	88	88	88	157.425	162.025
	60A		156.025	156.025		88A		157.425	157.425
61			156.075	160.675					

Weather channel (U.S.A version only)	Frequency (MHz)		Weather channel (U.S.A. version only)	Frequency (MHz)	
	Transmitter	Receiver		Transmitter	Receiver
WX 01	RX only	162.550	WX 06	RX only	162.500
WX 02	RX only	162.400	WX 07	RX only	162.525
WX 03	RX only	162.475	WX 08	RX only	161.650
WX 04	RX only	162.425	WX 09	RX only	161.775
WX 05	RX only	162.450	WX 10	RX only	163.275

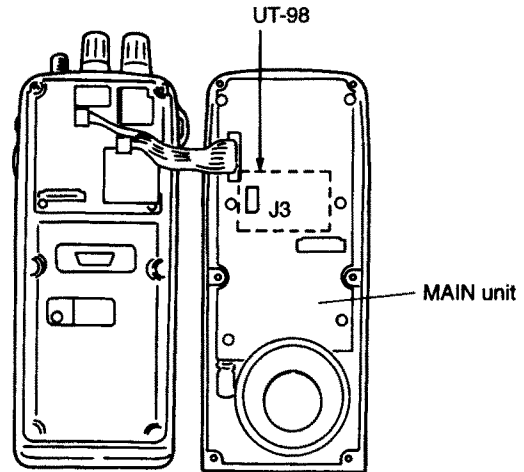
## SECTION 2 OPTION INSTALLATIONS AND DISASSEMBLY

### ■ Option installation

- Unscrew 2 screws (a) and 4 screws (b) from the rear panel.

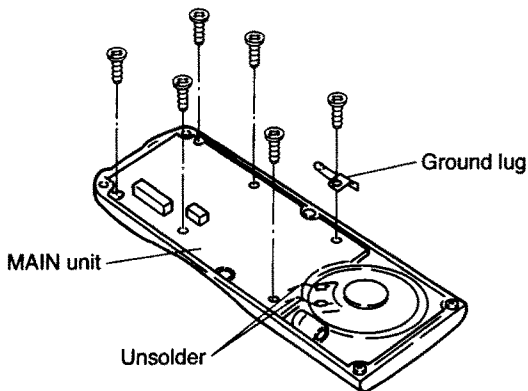


- Install the optional unit (UT-98) to the connector (MAIN unit J3).



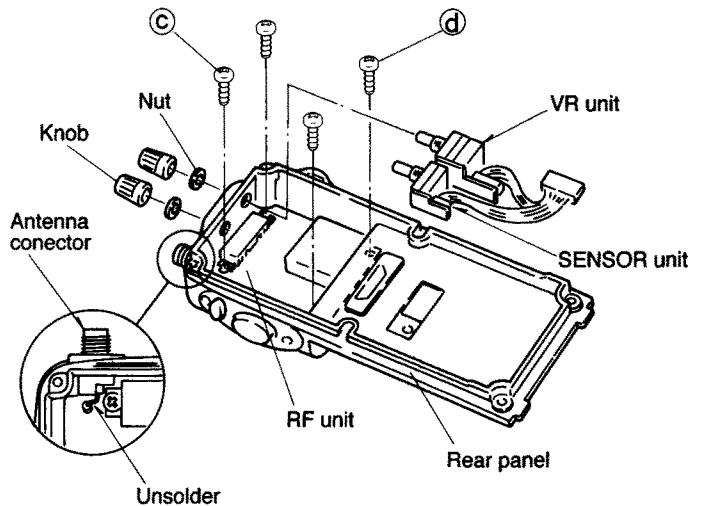
### ■ Opening MAIN unit

- Unsolder jumper wires from the speaker as shown below.
- Unscrew 6 screws from the MAIN unit.

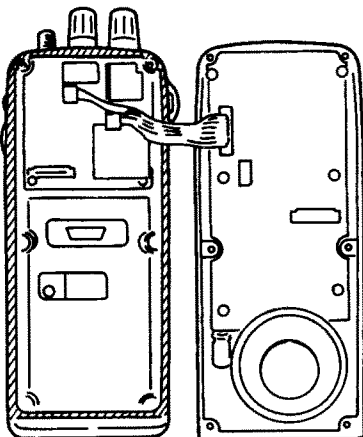



### ■ Opening RF unit

- Pull the 2 knobs off, and then unscrew the 2 nuts.
- Remove the VR unit and SENSOR unit.
- Unsolder a jumper wire from the antenna connector as shown below.
- Unscrew 2 screws (c) and 2 screws (d) from the RF unit.



### ■ Before assembling the transceiver

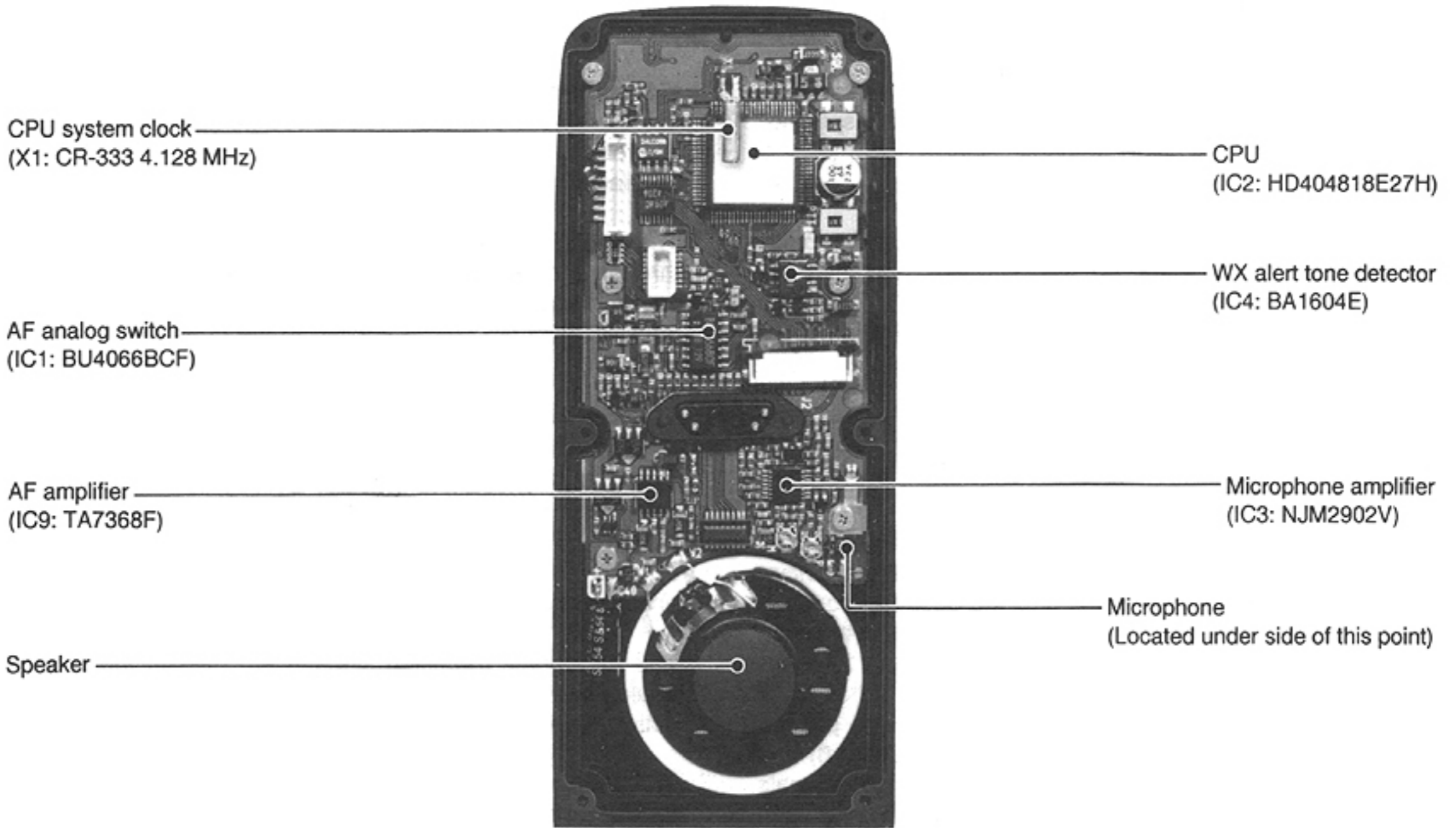


- Once the front panel is removed, grease must be applied to  areas before assembly.

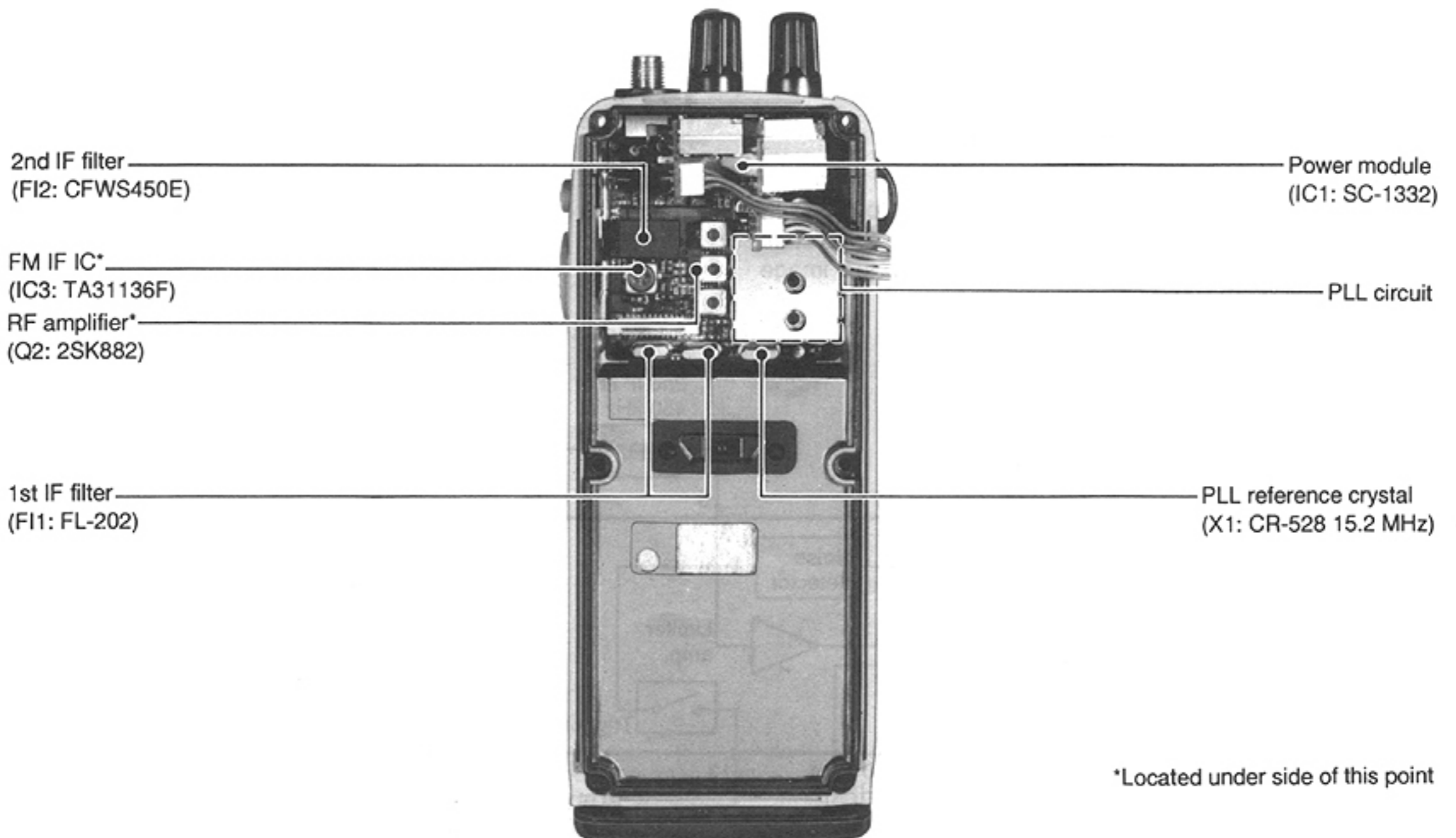
Manufacture : Shin-Etsu Chemical  
Type : G-501

## SECTION 3 INSIDE VIEWS

### ● MAIN UNIT



### ● RF UNIT



## SECTION 4 CIRCUIT DESCRIPTION

### 4-1 RECEIVER CIRCUITS

#### 4-1-1 ANTENNA SWITCHING CIRCUIT (RF UNIT)

The antenna switching circuit functions as a low-pass filter while receiving and a resonator circuit while transmitting. The circuit does not allow transmit signals to enter the receiver circuit.

Received signals from the antenna connector pass through the low-pass filter (L1–L3, C1, C2, C5, C6), and then the  $1/4 \lambda$  type antenna switching circuit (D3, C23, C25, L5). The filtered signals are then applied to the RF amplifier (Q2).

#### 4-1-2 RF AND 1ST MIXER CIRCUITS (RF UNIT)

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 will be passed through a pair of crystal filters at the next stage of the 1st mixer.

The signals from the antenna switching circuit are passed through the tunable bandpass filter (D4, C26, C27, L6) and amplified at the RF amplifier (Q2). The amplified signals are passed through another tunable bandpass filter (D5, D6, C30, C31, C33, C34, L7, L8), and then applied to the 1st mixer circuit (Q3).

The filtered signals are mixed at the 1st mixer (Q3) with a 1st LO signal coming from the PLL circuit to produce a 30.85 MHz 1st IF signal. The 1st IF signal is passed through a pair of crystal filters (F11) and is then amplified at the IF amplifier (Q4).

#### 4-1-3 2ND IF AND DEMODULATOR CIRCUITS (RF UNIT)

The 2nd mixer circuit converts the 1st IF signal to a 2nd IF signal. A double conversion superheterodyne system (which converts receive signal twice) improves the image rejection and obtains stable receiver gain.

The 1st IF signal is applied to a 2nd mixer section of the FM IF IC (IC3 pin 16). The signal is then mixed with a 2nd LO signal for conversion to a 450 kHz 2nd IF signal.

IC3 contains the 2nd mixer, limiter amplifier, quadrature detector and active filter circuits. A 30.4 MHz 2nd LO signal is produced at the PLL circuit by dividing it's reference frequency.

The 2nd IF signal from the 2nd mixer (IC3 pin 3) passes through a ceramic filter (F12) to remove unwanted heterodyned frequencies. It is then amplified at the limiter amplifier (IC3 pin 5) and applied to the quadrature detector (IC3 pins 10, 11) to demodulate the 2nd IF signal into AF signals.

#### 4-1-4 AF CIRCUIT (MAIN UNIT)

AF signals from the FM IF IC (IC3 pin 9 in the RF unit) are fed to the optional voice scrambler unit to demodulate scrambled audio or are bypassed around the unit via the analog switch (IC1).

The AF signals (detected signals) are passed through the analog switch IC (IC1 pins 8, 9) and are then applied to the active high-pass filter (Q4).

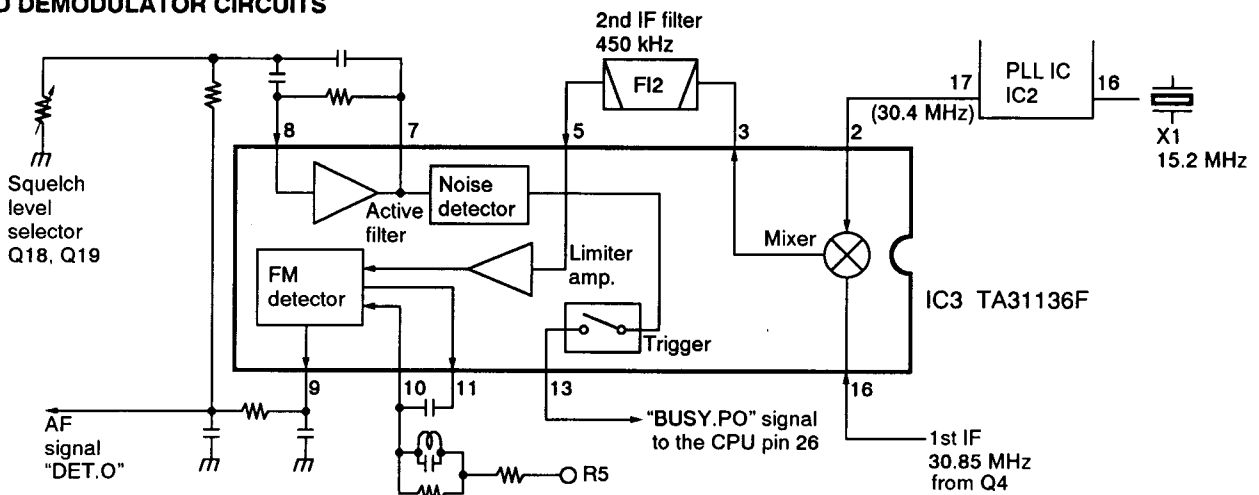
The filtered AF signals are passed through the [VOL] control and then de-emphasis circuit (R77, C32). The passed signals are applied to the AF power amplifier (IC9).

#### 4-1-5 SQUELCH CIRCUIT (RF UNIT)

A squelch circuit cuts out AF signals when no RF signals are received. By detecting noise components in the AF signals, the squelch switches the AF mute switch.

A portion of the AF signals from the FM IF IC (IC3 pin 9) are applied to the active filter section (IC3 pin 8) where noise components above 20 kHz are amplified and detected with an internal noise detector. The squelch input level selector (Q18, Q19) is connected in parallel to the active filter input (pin 8) to control the input noise level.

#### 2nd IF AND DEMODULATOR CIRCUITS





The trigger circuit converts the detected signals to a HIGH or LOW signal and applies this (from pin 13) to the CPU (MAIN unit IC2 pin 26) as the "BSY/PO" signal. When the CPU receives a HIGH level "BSY/PO" signal, the CPU controls the "MUTE" line via the data expander IC (MAIN unit IC7 pin 14) to cut the AF signals at the analog switch IC (IC1). At the same time, the "AFV" line controls the AF regulator circuit (Q9, Q10, D2) to cut out the VCC power source for the AF power amplifier (IC9).

## 4-2 TRANSMITTER CIRCUITS

### 4-2-1 MICROPHONE AMPLIFIER (MAIN UNIT)

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

The AF signals from the microphone are passed through the pre-emphasis circuit (R14, C6) and are then applied to the microphone amplifier (IC3b). The amplified AF signals are applied to the optional voice scrambler unit to scramble the audio, or are bypassed around the unit via an analog switch (IC1 pins 3, 4).

The amplified AF signals are amplified again at the buffer-amplifier (IC3a) and then applied to the low-pass filter (IC3c) via a limiter circuit (D1). The filtered audio is applied to the RF unit as the "MOD" signal.

### 4-2-2 MODULATION CIRCUIT (RF UNIT)

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

The audio signals (MOD) change the reactance of D9 to modulate an oscillated signal at the transmitter VCO (Q6). The oscillated signal is amplified at the buffer-amplifiers (Q7, Q9), then applied to the LO switching circuit (D10).

### 4-2-3 DRIVE/POWER AMPLIFIER CIRCUITS (RF UNIT)

The signal from the VCO circuit passes through the transmit/receive switching circuit (D10) and is amplified by the power amplifiers (Q1, IC1) to obtain 5 W of RF power (at 8.4 V and 1 W only for Eur. GENE versions). The amplified signal passes through the antenna switching

circuit (D1), and low-pass filter (L1-L3, C1, C2, C5, C6) and is then applied to the antenna connector.

The bias current of the RF amplifier (IC1) is controlled by the APC circuit to stabilize the output power.

### 4-2-4 APC CIRCUIT (RF AND MAIN UNITS)

The APC circuit provides stable output power from the power amplifier even when the input voltage or temperature changes; and, selects HIGH, LOW or EXTRA LOW output power. The APC circuit consists of an APC sensor and APC control circuits.

#### APC SENSOR CIRCUIT (RF UNIT)

The APC sensor circuit (D2, C12, C13, R63, R65) detects the transmit output power level and converts it to DC voltage as an "RF. DET" signal. The detected signal is applied to the APC control circuit.

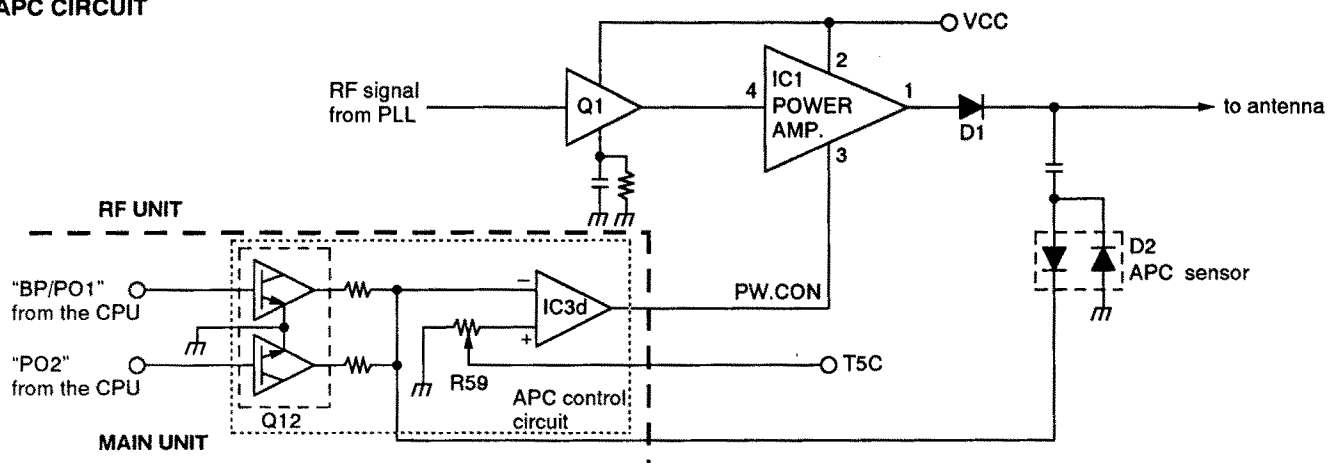
#### APC CONTROL CIRCUIT (MAIN UNIT)

The "RF. DET" signal from the APC sensor circuit is applied to the APC control circuit (Q11, Q12, IC3d).

The "RF. DET" signal is applied to the inverting amplifier (IC3d pin 13) to control the input voltage of the RF power amplifier IC (RF unit IC1 pin 3). When the output power changes, the inverting amplifier (IC3d) controls the "PW. CON" line to stabilize the output power.

Q12 is controlled by the CPU (IC2) to select HIGH, LOW or EXTRA LOW output power.

### APC CIRCUIT



### 4-3 PLL CIRCUIT (RF UNIT)

A PLL circuit provides stable oscillation of the transmit frequency and receive 1st LO frequency. The PLL output compares the phase of the divided VCO frequency to the reference frequency. The PLL output frequency is controlled by the divided ratio (N-data) of a programmable divider.

The PLL circuit contains both a receiver VCO (Q5, D7) and a transmitter VCO (Q6, D8, D9). The oscillated signal is amplified at the buffer-amplifiers (Q7, Q8) and then applied to the PLL IC (IC2 pin 2).

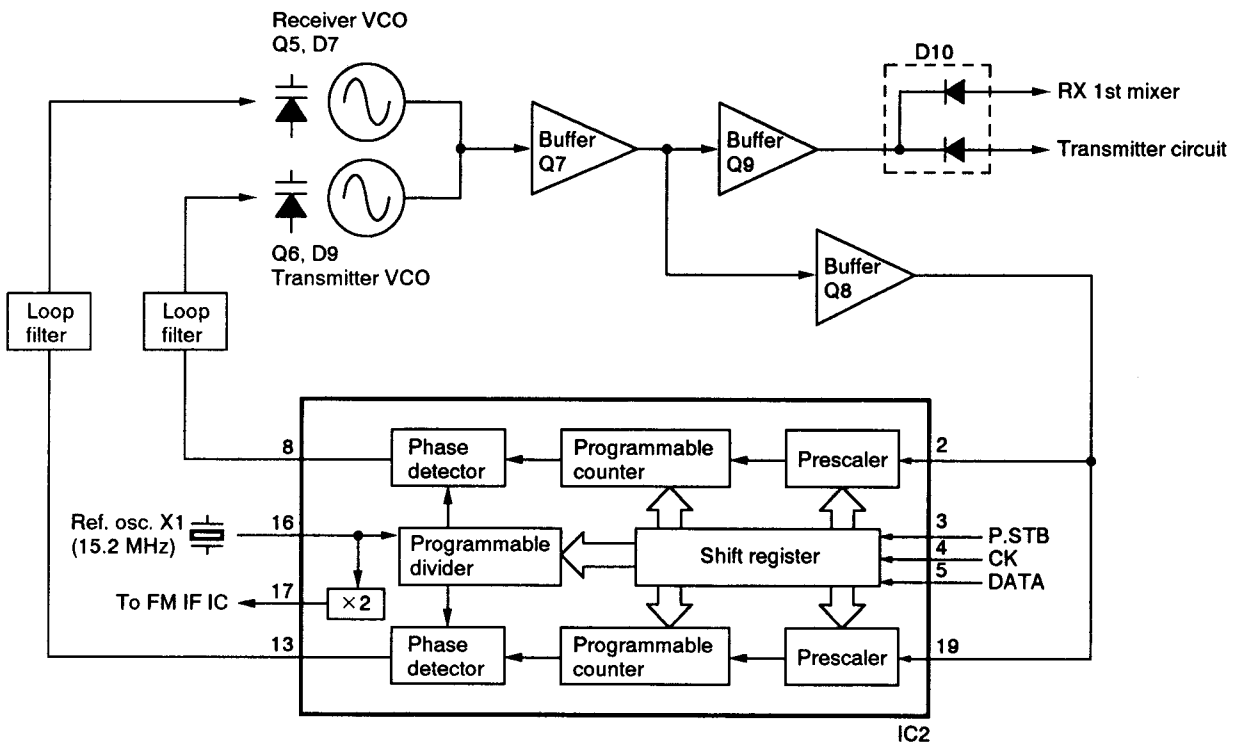
The PLL IC contains two prescalers, programmable counters, programmable dividers, phase selectors and charge pumps, etc. The entered signal is divided at one of the prescaler and programmable counter sections by the N-data ratio from the CPU. The divided signal is detected on phase at the phase detector using the reference frequency.

If the oscillated signal drifts, the phase of its frequency changes from the reference frequency, causing a lock voltage change to compensate for the drift in the oscillated frequency.

A portion of the VCO signal is amplified at the buffer-amplifiers (Q7, Q9) and is then applied to the receive 1st mixer or transmit driver circuit via the LO switching diode (D10).

The lock voltage is also used for the receiver tunable bandpass filter to match the filter's center frequency to the desired receive frequency. The lock voltage is amplified at the buffer-amplifier (Q13) and then applied to the bandpass filters.

#### PLL CIRCUIT



## 4-4 POWER SUPPLY CIRCUITS

### VOLTAGE LINE

Line	Description
HV	The voltage from the attached battery pack.
VCC	The same voltage as the HV line (battery voltage) which is controlled by the power switch ([OFF/VOL] control).
5 V	Common 5 V converted from the VCC line by the 5 V regulator circuit (MAIN unit Q2, Q14) using the reference regulator (IC5).
R5	5 V for receiver circuit converted from the VCC line by the R5 regulator circuit (RF unit Q14, Q15).
T5	5 V for transmitter circuit converted from the VCC line by the T5 regulator circuit (RF unit Q16, Q17).
T5C	5 V for transmitter circuit converted from the VCC line by the T5C regulator circuit (MAIN unit Q5).
OPT5 V	5 V for optional units converted from the VCC line by the OPT5 V regulator circuit (MAIN unit Q3).

## 4-5 PORT ALLOCATIONS

### 4-5-1 EXPANDER IC (MAIN UNIT IC7)

Pin number	Port name	Description
4	TXV	Output port for transmit voltage control signal. "LOW": When transmit
5	R5C	Output port for receive voltage control signal. "LOW": When receive
6	AFV	Output port for AF amplifier voltage control signal. "LOW": AF amplifier is active
7	OPTV	Output port for optional unit voltage control signal. (Switching [MIC] or [DET] circuit.) "LOW": Optional unit is active.
11-13	SQL3 -SQL1	Output ports for squelch level control signal.
14	MUTE	Output port for transmit and receive mute control signal. "LOW": Muted

### 4-5-2 CPU (MAIN UNIT IC2)

Pin number	Port name	Description
1	P.STB	Outputs strobe signals to the PLL IC (RF unit IC2).
2	EX.STB	Outputs strobe signals to the expander IC (MAIN unit IC7).
3	S.STB	Outputs strobe signals to an optional unit.
5	UNLK	Input port for unlock signal. "HIGH" : PLL unlocked "LOW" : PLL locked
10	PTT	Input port for the [PTT] key. "LOW" : [PTT] is pressed.
15	LAMP	Output port for LCD/KEY back light control. "HIGH" : Light ON
16	PO2	Outputs transmit output power control signal for 0.15 W.
17, 18	DIAL.B DIAL.A	Input ports for pulse signal from the [DIAL] control.
19	KSQL	Input port for the [SQL] key.
20-22	KS0-KS2	Output ports for key matrix.
23, 24	KI0, KI1	Input ports for key matrix.
25	TONE	Input port for WX alert signal. "HIGH" : Alert signal is received
26	BSY/PO	Input port for; [Receive mode] : BSY Detects SQL open. "LOW" : Squelch open [Transmit mode] : PO Detects TX output power. "LOW" : Transmit output power is detected
27	BP/PO1	Output port for; [Receive mode] : BP Outputs beep audio signal. [Transmit mode] : PO1 Output transmit output power control signal. "HIGH" : Low power "LOW" : High power
30	WXV	Outputs power supply control signal for WX alert tone detector IC (MAIN unit IC4).
77	ECK	Output clock signal to the the EEPROM (MAIN unit IC6).
78	EDATA	DATA bus line for the EEPROM (MAIN unit IC6) data signal.
79	CK	Outputs serial clock.
80	DATA	Outputs serial data.

## SECTION 5 ADJUSTMENT PROCEDURES

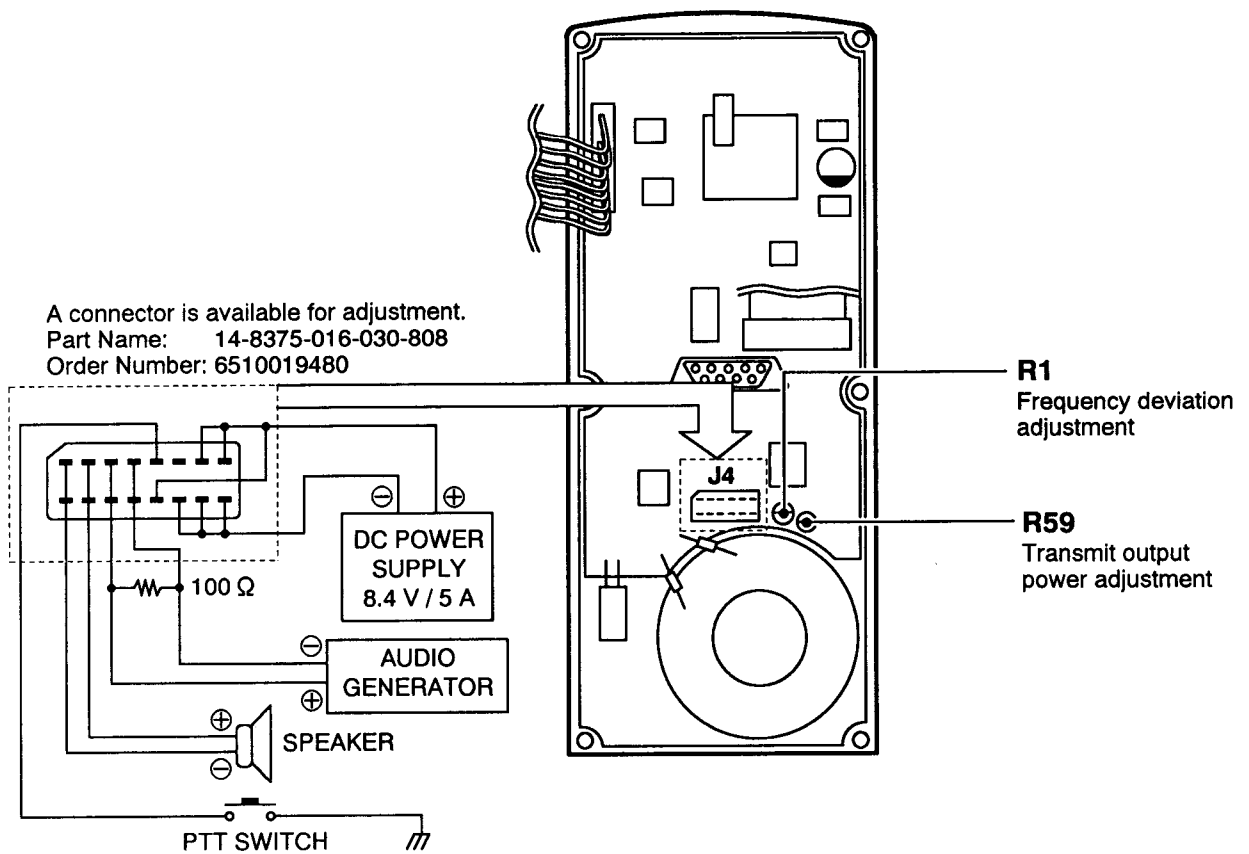
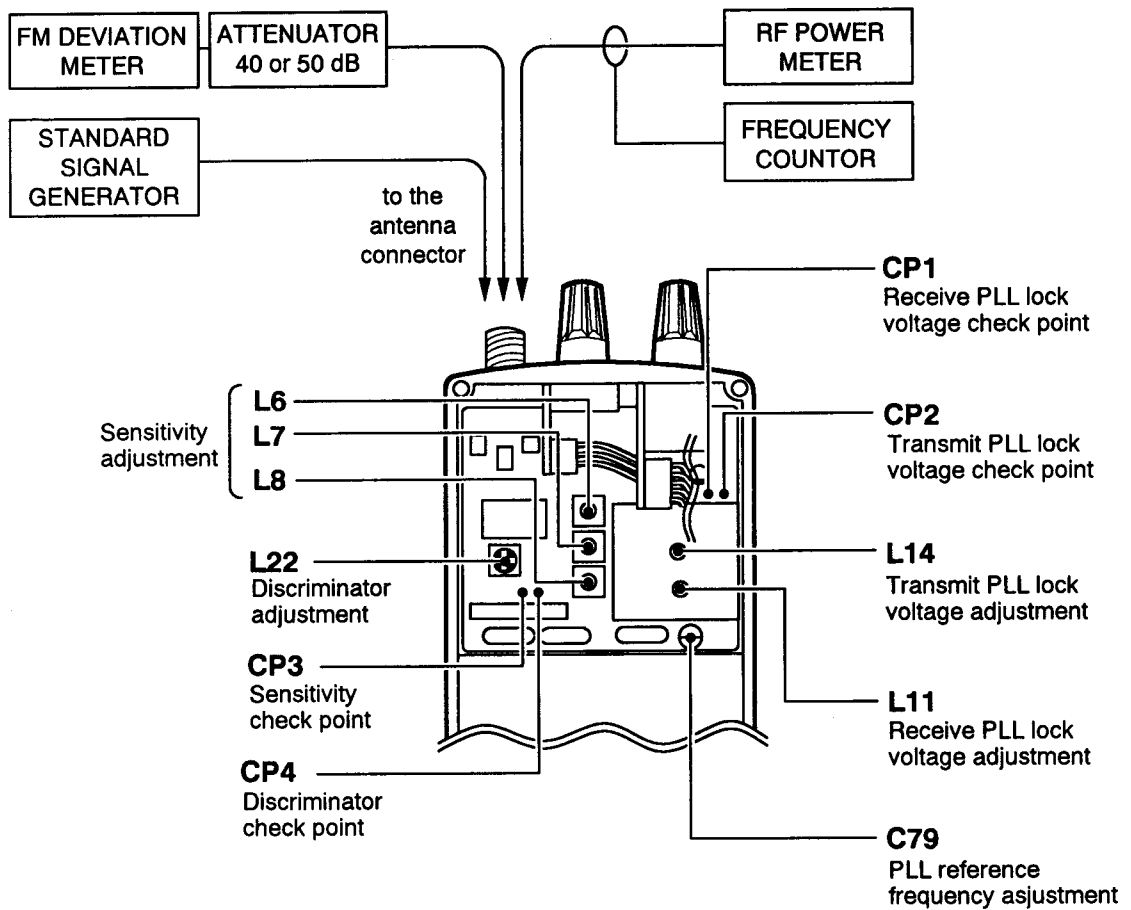
### 5-1 PLL AND TRANSMITTER ADJUSTMENTS

ADJUSTMENT		ADJUSTMENT CONDITIONS	MEASUREMENT		VALUE	ADJUSTMENT	
			UNIT	LOCATION		UNIT	ADJUST
PLL LOCK VOLTAGE	1	<ul style="list-style-type: none"> <li>Operating channel: ch 16</li> <li>Receiving</li> </ul>	RF	Connect a digital multi-meter or oscilloscope to CP1.	2.7 V	RF	L11
	2	<ul style="list-style-type: none"> <li>Operating channel: ch 16</li> <li>Connect the RF power meter or 50 <math>\Omega</math> dummy load to the antenna connector.</li> <li>Transmitting</li> </ul>		Connect a digital multi-meter or oscilloscope to CP2.	2.5 V		L14
PLL REFERENCE FREQUENCY	1	<ul style="list-style-type: none"> <li>Operating channel: ch 16</li> <li>Connect the RF power meter or a 50 <math>\Omega</math> dummy load to the antenna connector.</li> <li>Transmitting</li> </ul>	Top panel	Loosely couple the frequency counter to the antenna connector.	156.800 MHz	RF	C79
OUTPUT POWER	1	<ul style="list-style-type: none"> <li>Operating channel: ch 16</li> <li>[H/L] switch: High</li> <li>Transmitting</li> </ul>	Top panel	Connect the RF power meter to the antenna connector.	5 W (1 W for FRA version)	MAIN	R59
	2	<ul style="list-style-type: none"> <li>[H/L] switch: Low</li> </ul>			0.6–1.2 W		Verify
	3	<ul style="list-style-type: none"> <li>[H/L] switch: Extra low</li> </ul>			0.07–0.3 W		
FM DEVIATION	1	<ul style="list-style-type: none"> <li>Operating channel: ch 16</li> <li>[H/L] switch: High</li> <li>Apply an audio generator to MAIN unit J4 and set as: 1 kHz/15 mVrms</li> <li>Set the FM deviation meter as: HPF : OFF LPF : 20 kHz De-emphasis : OFF Detector : (P – P)/2</li> <li>Transmitting</li> </ul>	Top panel	Connect the FM deviation meter to the antenna connector through the attenuator.	$\pm 4.5$ kHz	MAIN	R1

### 5-2 RECEIVER ADJUSTMENT

ADJUSTMENT		ADJUSTMENT CONDITIONS	MEASUREMENT		VALUE	ADJUSTMENT	
			UNIT	LOCATION		UNIT	ADJUST
SENSITIVITY	1	<ul style="list-style-type: none"> <li>Operating channel: ch 16</li> <li>Connect the SSG to the antenna connector and set as: Frequency : 156.800 MHz Level : 32 <math>\mu</math>V* (– 77 dBm) Modulation : OFF</li> <li>Receiving</li> </ul>	MAIN	Connect a digital multi-meter or oscilloscope to CP3.	Maximum level	RF	Adjust in sequence: L6, L7, L8
DISCRIMINATOR	1	<ul style="list-style-type: none"> <li>Operating channel: ch 16</li> <li>Connect the SSG to the antenna connector and set as: Frequency : 156.800 MHz Level : 1 mV* (– 47 dBm) Modulation : OFF</li> <li>Receiving</li> </ul>	RF	Connect a voltmeter to CP4.	1.2 V	RF	L22

\*This output level of the standard signal generator (SSG) is indicated as SSG's open circuit.



# SECTION 6 PARTS LIST

[MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1130007690	S.IC	BU4086BCF-T1
IC2	1140005720	S.IC	HD404818E27H
IC3	1110003780	S.IC	NJM2902V-TE1
IC4	1110003840	S.IC	BA1604F-T
IC5	1110003390	S.IC	AN8005M-(E1)
IC6	1190000260	S.IC	24LC08BTI/SN
IC7	1130007510	S.IC	BU4094BCFV-E1
IC8	1110001550	S.IC	S-8054ALB-LM-T1
IC9	1110001810	S.IC	TA7388F(TP1)
Q1	1530000160	S.TRANSISTOR	2SC2712-Y (TE85RTEM)
Q2	1590001190	S.TRANSISTOR	XP6501-(TX).AB
Q3	1510000580	S.TRANSISTOR	2SA1362-GR (TE85R)
Q4	1530002060	S.TRANSISTOR	2SC4081 T107 R
Q5	1510000580	S.TRANSISTOR	2SA1362-GR (TE85R)
Q6	1590000430	S.TRANSISTOR	DTC144EU T107
Q7	1530002060	S.TRANSISTOR	2SC4081 T107 R
Q9	1520000460	S.TRANSISTOR	2SB1132 T100 R
Q10	1590001190	S.TRANSISTOR	XP6501-(TX).AB
Q11	1590000720	S.TRANSISTOR	DTA144EU T107
Q12	1590001400	S.TRANSISTOR	XP1214(TX)
Q13	1590000430	S.TRANSISTOR	DTC144EU T107
Q14	1520000460	S.TRANSISTOR	2SB1132 T100 R
Q15	1590000860	S.TRANSISTOR	DTA114YU T107
Q16	1530000160	S.TRANSISTOR	2SC2712-Y (TE85RTEM)
Q18	1590000850	S.TRANSISTOR	DTC114YU T107
D1	1790000490	S.DIODE	HSM88AS-TR
D2	1730000820	S.ZENER	RD8.2M-T2B3
D3	1750000390	S.DIODE	1SS353 TE-17
D4	1750000390	S.DIODE	1SS353 TE-17
D5	1160000070	S.DIODE	DAN202K T146
D6	1160000070	S.DIODE	DAN202K T146
D7	1160000070	S.DIODE	DAN202K T146
D9	1160000070	S.DIODE	DAN202K T146
D11	1730000820	S.ZENER	RD8.2M-T2B3
X1	6050006980	XTAL	CR-333 (4.182 MHz)
R1	7310002800	S.TRIMMER	RV-110 (RH03A3AS4X0AA) 473
R2	7030003590	S.RESISTOR	ERJ3GEYJ 183 V (18 kΩ)
R3	7030003460	S.RESISTOR	ERJ3GEYJ 152 V (1.5 kΩ)
R5	7030003580	S.RESISTOR	ERJ3GEYJ 153 V (15 kΩ)
R6	7030003670	S.RESISTOR	ERJ3GEYJ 823 V (82 kΩ)
R7	7030003670	S.RESISTOR	ERJ3GEYJ 823 V (82 kΩ)
R8	7030003480	S.RESISTOR	ERJ3GEYJ 222 V (2.2 kΩ)
R9	7030003400	S.RESISTOR	ERJ3GEYJ 471 V (470 Ω)
R10	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R14	7030003600	S.RESISTOR	ERJ3GEYJ 223 V (22 kΩ)
R15	7030003760	S.RESISTOR	ERJ3GEYJ 474 V (470 kΩ)
R16	7030003800	S.RESISTOR	ERJ3GEYJ 105 V (1 MΩ)
R17	7030003650	S.RESISTOR	ERJ3GEYJ 583 V (58 kΩ)
R18	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R19	7030003470	S.RESISTOR	ERJ3GEYJ 182 V (1.8 kΩ)
R20	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R21	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R22	7030003620	S.RESISTOR	ERJ3GEYJ 333 V (33 kΩ)
R23	7030003760	S.RESISTOR	ERJ3GEYJ 474 V (470 kΩ)
R24	7030003760	S.RESISTOR	ERJ3GEYJ 474 V (470 kΩ)
R25	7030003760	S.RESISTOR	ERJ3GEYJ 474 V (470 kΩ)
R26	7030003600	S.RESISTOR	ERJ3GEYJ 223 V (22 kΩ)
R27	7030003690	S.RESISTOR	ERJ3GEYJ 124 V (120 kΩ)
R29	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R30	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R31	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)

[MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
R32	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R33	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R34	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R35	7030003760	S.RESISTOR	ERJ3GEYJ 474 V (470 kΩ)
R36	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R37	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R39	7030003480	S.RESISTOR	ERJ3GEYJ 222 V (2.2 kΩ)
R40	7030007590	S.RESISTOR	RR0818R-433-D (43 kΩ)
R41	7030003840	S.RESISTOR	ERJ3GEYJ 225 V (2.2 MΩ)
R43	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R44	7030003840	S.RESISTOR	ERJ3GEYJ 225 V (2.2 MΩ)
R46	7030003500	S.RESISTOR	ERJ3GEYJ 332 V (3.3 kΩ)
R47	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R48	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R49	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R50	7030003760	S.RESISTOR	ERJ3GEYJ 474 V (470 kΩ)
R51	7030003760	S.RESISTOR	ERJ3GEYJ 474 V (470 kΩ)
R52	7030003760	S.RESISTOR	ERJ3GEYJ 474 V (470 kΩ)
R53	7030003760	S.RESISTOR	ERJ3GEYJ 474 V (470 kΩ)
R54	7030003200	S.RESISTOR	ERJ3GEYJ 100 V (10 Ω)
R56	7030003640	S.RESISTOR	ERJ3GEYJ 473 V (47 kΩ)
R57	7030003580	S.RESISTOR	ERJ3GEYJ 153 V (15 kΩ)
R58	7030003350	S.RESISTOR	ERJ3GEYJ 181 V (180 Ω)
R59	7310002800	S.TRIMMER	RV-110 (RH03A3AS4X0AA) 473
R60	7030003630	S.RESISTOR	ERJ3GEYJ 393 V (39 kΩ)
R61	7030003420	S.RESISTOR	ERJ3GEYJ 681 V (680 Ω)
R62	7030003800	S.RESISTOR	ERJ3GEYJ 105 V (1 MΩ)
R63	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R64	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R65	7030003570	S.RESISTOR	ERJ3GEYJ 123 V (12 kΩ)
R66	7030003800	S.RESISTOR	ERJ3GEYJ 105 V (1 MΩ)
R67	7030003510	S.RESISTOR	ERJ3GEYJ 392 V (3.9 kΩ)
R68	7030003450	S.RESISTOR	ERJ3GEYJ 122 V (1.2 kΩ)
R69	7030003280	S.RESISTOR	ERJ3GEYJ 470 V (47 Ω)
R70	7030003240	S.RESISTOR	ERJ3GEYJ 220 V (22 Ω)
R71	7030003600	S.RESISTOR	ERJ3GEYJ 223 V (22 kΩ)
R72	7030003600	S.RESISTOR	ERJ3GEYJ 223 V (22 kΩ)
R73	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R74	7030003670	S.RESISTOR	ERJ3GEYJ 823 V (82 kΩ)
R77	7030003580	S.RESISTOR	ERJ3GEYJ 153 V (15 kΩ)
R78	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R79	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R80	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R81	7030003690	S.RESISTOR	ERJ3GEYJ 124 V (120 kΩ)
R82	7030005510	S.RESISTOR	RR0818P-303-D (30 kΩ)
R83	7030005970	S.RESISTOR	RR0818R-683-D (68 kΩ)
R84	7030007600	S.RESISTOR	RR0818R-913-D (91 kΩ)
R85	7030005510	S.RESISTOR	RR0818P-303-D (30 kΩ)
R86	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R87	7410000730	S.ARRAY	EXB-V8V 104JV (100 kΩ)
R88	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R89	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R90	7030003590	S.RESISTOR	ERJ3GEYJ 183 V (18 kΩ)
R91	7030003280	S.RESISTOR	ERJ3GEYJ 470 V (47 Ω)
R92	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R93	7030003310	S.RESISTOR	ERJ3GEYJ 820 V (82 Ω)
R94	7030003380	S.RESISTOR	ERJ3GEYJ 331 V (330 Ω)
R95	7030003380	S.RESISTOR	ERJ3GEYJ 331 V (330 Ω)
R96	7030003380	S.RESISTOR	ERJ3GEYJ 331 V (330 Ω)
R97	7030003620	S.RESISTOR	ERJ3GEYJ 333 V (33 kΩ)
R98	7030003620	S.RESISTOR	ERJ3GEYJ 333 V (33 kΩ)
R99	7030003720	S.RESISTOR	ERJ3GEYJ 224 V (220 kΩ)
R100	7030003620	S.RESISTOR	ERJ3GEYJ 333 V (33 kΩ)
C1	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C2	4030010750	S.CERAMIC	C1608 CH 1H 201J-T-A
C3	4030007130	S.CERAMIC	C1608 CH 1H 101J-T-A
C4	4030006880	S.CERAMIC	C1608 JB 1H 102K-T-A

S.=Surface mount

[MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
C6	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C7	4030006890	S.CERAMIC	C1608 JF 1H 103Z-T-A
C8	4030010740	S.CERAMIC	C1608 JB 1A 104K-T-A
C9	4030006890	S.CERAMIC	C1608 JF 1H 103Z-T-A
C10	4550003290	S.TANTALUM	TESVA 0G 475M1-8L
C11	4030009970	S.CERAMIC	C1608 JB 1H 182K-T-A
C12	4030008630	S.CERAMIC	C1608 JF 1C 104Z-T-A
C13	4030006890	S.CERAMIC	C1608 JF 1H 103Z-T-A
C14	4030006890	S.CERAMIC	C1608 JF 1H 103Z-T-A
C15	4550006080	S.TANTALUM	TEMSVB2 1C 106M-8L
C16	4030006890	S.CERAMIC	C1608 JF 1H 103Z-T-A
C17	4550006050	S.TANTALUM	TEMSVA 0J 106M8L
C18	4030008630	S.CERAMIC	C1608 JF 1C 104Z-T-A
C19	4030008660	S.CERAMIC	C1608 JB 1H 102K-T-A
C21	4030008660	S.CERAMIC	C1608 JB 1H 102K-T-A
C23	4030008630	S.CERAMIC	C1608 JF 1C 104Z-T-A
C24	4030008630	S.CERAMIC	C1608 JF 1C 104Z-T-A
C25	4030008660	S.CERAMIC	C1608 JB 1C 153K-T-A
C26	4550006050	S.TANTALUM	TEMSVA 0J 106M8L
C27	4030006890	S.CERAMIC	C1608 JF 1H 103Z-T-A
C28	4030008630	S.CERAMIC	C1608 JF 1C 104Z-T-A
C29	4340000010	S.MYLAR	ECWU 1C 223JB5
C30	4550000460	S.TANTALUM	TESVA 1C 105M1-8L
C31	4550002890	S.TANTALUM	TESVA 1A 225M1-8L
C32	4030010740	S.CERAMIC	C1608 JB 1A 104K-T-A
C33	4030008680	S.CERAMIC	C2012 JF 1C 105Z-T-A
C35	4550006050	S.TANTALUM	TEMSVA 0J 106M8L
C37	4030008630	S.CERAMIC	C1608 JF 1C 104Z-T-A
C38	4030010740	S.CERAMIC	C1608 JB 1A 104K-T-A
C39	4030010740	S.CERAMIC	C1608 JB 1A 104K-T-A
C40	4510005960	ELECTROLITIC	10 MV 220 HC
C42	4550006050	S.TANTALUM	TEMSVA 0J 106M8L
C43	4030008920	S.CERAMIC	C1608 JB 1C 473K-T-A
C45	4550006250	S.TANTALUM	TEMSVA 1A 106M-8L
C46	4030008660	S.CERAMIC	C1608 JB 1H 102K-T-A
C47	4030008630	S.CERAMIC	C1608 JF 1C 104Z-T-A
C48	4030006890	S.CERAMIC	C1608 JF 1H 103Z-T-A
C49	4030008660	S.CERAMIC	C1608 JB 1H 102K-T-A
C50	4510005320	S.ELECTROLITIC	ECEV0JA101SP
C51	4030010740	S.CERAMIC	C1608 JB 1A 104K-T-A
C52	4030006890	S.CERAMIC	C1608 JF 1H 103Z-T-A
C53	4030006980	S.CERAMIC	C1608 CH 1H 070D-T-A
C54	4030006980	S.CERAMIC	C1608 CH 1H 070D-T-A
C55	4030006890	S.CERAMIC	C1608 JF 1H 103Z-T-A
C56	4030007020	S.CERAMIC	C1608 CH 1H 120J-T-A
C57	4030008680	S.CERAMIC	C2012 JF 1C 105Z-T-A
C58	4030008630	S.CERAMIC	C1608 JF 1C 104Z-T-A
C59	4030006890	S.CERAMIC	C1608 JF 1H 103Z-T-A
C60	4550002950	S.TANTALUM	TESVA 0J 335M1-8L
C61	4030008660	S.CERAMIC	C1608 JB 1H 102K-T-A
C62	4030008660	S.CERAMIC	C1608 JB 1H 102K-T-A
C63	4030008660	S.CERAMIC	C1608 JB 1H 102K-T-A
C64	4030008660	S.CERAMIC	C1608 JB 1H 102K-T-A
C65	4030008660	S.CERAMIC	C1608 JB 1H 102K-T-A
C66	4030008660	S.CERAMIC	C1608 JB 1H 102K-T-A
C67	4030008660	S.CERAMIC	C1608 JB 1H 102K-T-A
C68	4030008660	S.CERAMIC	C1608 JB 1H 102K-T-A
C69	4030008660	S.CERAMIC	C1608 JB 1H 102K-T-A
C70	4030006890	S.CERAMIC	C1608 JF 1H 103Z-T-A
C71	4030006890	S.CERAMIC	C1608 JF 1H 103Z-T-A
C72	4030006890	S.CERAMIC	C1608 JF 1H 103Z-T-A
C73	4030008660	S.CERAMIC	C1608 JB 1H 102K-T-A
C74	4030008660	S.CERAMIC	C1608 JB 1H 102K-T-A
C77	4030007090	S.CERAMIC	C1608 CH 1H 470J-T-A
C78	4030006870	S.CERAMIC	C1608 JB 1H 222K-T-A
C79	4030009490	S.CERAMIC	C1608 JB 1H 821K-T-A
DS1	5030001330	LCD	LM-1403B
DS2	5040001920	S.LED	SML-110MT T86
DS3	5040001920	S.LED	SML-110MT T86
DS4	5010000120	S.LED	LN1371G-(TR)
DS5	5010000120	S.LED	LN1371G-(TR)
S1	2260002140	S.SWITCH	SKQLLC

[MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
S3	2260002140	S.SWITCH	SKQLLC
J1	6510019490	S.CONNECTOR	52435-2291
J2	6510016710	CONNECTOR	YM-263
J3	6510016430	S.CONNECTOR	53307-1491
J4	6510019470	S.CONNECTOR	24-8375-016-000-808
J5	6510019420	S.CONNECTOR	B8B-ZR-SM3-TF
W1	7120000380	JUMPER	JPW 01 R-01
W2	7120000380	JUMPER	JPW 01 R-01
SP1	2510Q00910	SPEAKER	SU-36W08040B
MC1	7700002050	MICROPHONE	KUB2823-011010
EP1	0910046772	PCB	B 4632B

[RF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1150001780	IC	SC-1332
IC2	1130007610	S.IC	μPD3140GS-E1 (DS8)
IC3	1110003490	S.IC	TA31136FN(D,EL)
Q1	1530002920	S.TRANSISTOR	2SC4226-T2 R25
Q2	1560000550	S.FET	2SK882-Y (TE85R)
Q3	1580000280	S.FET	3SK131-T1
Q4	1530002360	S.TRANSISTOR	2SC2714-Y (TE85R)
Q5	1560000330	S.FET	2SK210-GR (TE85R)
Q6	1560000650	S.FET	2SK1577-2-T7
Q7	1530002800	S.TRANSISTOR	2SC4215-O (TE85R)
Q8	1530002800	S.TRANSISTOR	2SC4215-O (TE85R)
Q9	1530002800	S.TRANSISTOR	2SC4215-O (TE85R)
Q13	1560000540	S.FET	2SK880-Y (TE85R)
Q14	1520000460	S.TRANSISTOR	2SB1132 T100 R
Q15	1590001190	S.TRANSISTOR	XP6501-(TX).AB
Q16	1520000460	S.TRANSISTOR	2SB1132 T100 R
Q17	1590001190	S.TRANSISTOR	XP6501-(TX).AB
Q18	1590001400	S.TRANSISTOR	XP1214(TX)
Q19	1590000850	S.TRANSISTOR	DTC114YU T107
D1	1790000620	S.DIODE	MA77(TW)
D2	1790000490	S.DIODE	HSM88AS-TR
D3	1790000450	S.DIODE	MA862(TX)
D4	1720000370	S.VARICAP	HVU350TRF
D5	1720000370	S.VARICAP	HVU350TRF
D6	1720000370	S.VARICAP	HVU350TRF
D7	1790000640	S.VARICAP	MA363B(TX)
D8	1790000640	S.VARICAP	MA363B(TX)
D9	1790000640	S.VARICAP	MA363B(TX)
D10	1790000450	S.DIODE	MA862(TX)
D11	1750000020	S.DIODE	1SS184 (TE85R)
D12	1750000390	S.DIODE	1SS353 TE-17
FI1	2010001610	MONOLITHIC	FL-202 (30.850 MHz)
FI2	2020001210	CERAMIC	CFWS450E
X1	6050009640	XTAL	CR-528 (15.2 MHz)

S.=Surface mount

[RF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
L1	6110002140	COIL	LA-384
L2	6110002070	COIL	LA-227
L3	6110002070	COIL	LA-227
L4	6200004700	S.COIL	MLR1608M R10K-T
L5	6200004430	S.COIL	LL1608-F56NK
L6	6150004360	S.COIL	LS-491
L7	6150004360	S.COIL	LS-491
L8	6150004360	S.COIL	LS-491
L9	6200004790	S.COIL	MLF1608D R47K-T
L10	6200002160	S.COIL	ELJNC 82NK-F
L11	6130002360	S.COIL	LB-257
L12	6200003090	S.COIL	NL 322522T-2R7J-3
L13	6200003100	S.COIL	NL 322522T-3R9J-3
L14	6130002370	S.COIL	LB-258
L15	6200003090	S.COIL	NL 322522T-2R7J-3
L16	6200003320	S.COIL	NL 322522T-3R3J-3
L17	6200004700	S.COIL	MLR1608M R10K-T
L18	6200004700	S.COIL	MLR1608M R10K-T
L20	6200003090	S.COIL	NL 322522T-2R7J-3
L21	6200003090	S.COIL	NL 322522T-2R7J-3
L22	6150004840	S.COIL	LS-510
L23	6200004660	S.COIL	MLF1608A 1R8K-T
L24	6200004660	S.COIL	MLF1608A 1R8K-T
L25	6200004700	S.COIL	MLR1608M R10K-T
L26	6200004400	S.COIL	LL1608-F47NK
R1	7030003310	S.RESISTOR	ERJ3GEYJ 820 V (82 Ω)
R2	7030003310	S.RESISTOR	ERJ3GEYJ 820 V (82 Ω)
R4	7030003310	S.RESISTOR	ERJ3GEYJ 820 V (82 Ω)
R5	7030003450	S.RESISTOR	ERJ3GEYJ 122 V (1.2 kΩ)
R6	7030003500	S.RESISTOR	ERJ3GEYJ 332 V (3.3 kΩ)
R7	7030003260	S.RESISTOR	ERJ3GEYJ 330 V (33 Ω)
R8	7030004050	S.RESISTOR	ERJ3GEYJ 1R0 V (1 Ω)
R9	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R10	7030003320	S.RESISTOR	ERJ3GEYJ 101 V (100 Ω)
R11	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R12	7030003790	S.RESISTOR	ERJ3GEYJ 824 V (820 kΩ)
R13	7030003280	S.RESISTOR	ERJ3GEYJ 470 V (47 Ω)
R14	7030003500	S.RESISTOR	ERJ3GEYJ 332 V (3.3 kΩ)
R15	7030003600	S.RESISTOR	ERJ3GEYJ 223 V (22 kΩ)
R16	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R17	7030003480	S.RESISTOR	ERJ3GEYJ 222 V (2.2 kΩ)
R18	7030003200	S.RESISTOR	ERJ3GEYJ 100 V (10 Ω)
R19	7030003800	S.RESISTOR	ERJ3GEYJ 105 V (1 MΩ)
R20	7030003800	S.RESISTOR	ERJ3GEYJ 105 V (1 MΩ)
R21	7030003800	S.RESISTOR	ERJ3GEYJ 105 V (1 MΩ)
R22	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R23	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R24	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R25	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R26	7030003410	S.RESISTOR	ERJ3GEYJ 561 V (560 Ω)
R27	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R28	7030003460	S.RESISTOR	ERJ3GEYJ 152 V (1.5 kΩ)
R29	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R30	7030003460	S.RESISTOR	ERJ3GEYJ 152 V (1.5 kΩ)
R31	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R32	7030003610	S.RESISTOR	ERJ3GEYJ 273 V (27 kΩ)
R33	7030003660	S.RESISTOR	ERJ3GEYJ 683 V (68 kΩ)
R34	7030003630	S.RESISTOR	ERJ3GEYJ 393 V (39 kΩ)
R35	7030003660	S.RESISTOR	ERJ3GEYJ 683 V (68 kΩ)
R36	7030003420	S.RESISTOR	ERJ3GEYJ 681 V (680 Ω)
R37	7030003420	S.RESISTOR	ERJ3GEYJ 681 V (680 Ω)
R38	7030003390	S.RESISTOR	ERJ3GEYJ 391 V (390 Ω)
R39	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R40	7030003280	S.RESISTOR	ERJ3GEYJ 470 V (47 Ω)
R41	7030003320	S.RESISTOR	ERJ3GEYJ 101 V (100 Ω)
R42	7030003280	S.RESISTOR	ERJ3GEYJ 470 V (47 Ω)
R43	7030003280	S.RESISTOR	ERJ3GEYJ 470 V (47 Ω)
R44	7030003410	S.RESISTOR	ERJ3GEYJ 561 V (560 Ω)
R45	7030003550	S.RESISTOR	ERJ3GEYJ 822 V (82 kΩ)
R46	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R47	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R48	7030003590	S.RESISTOR	ERJ3GEYJ 183 V (18 kΩ)
R49	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R50	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)

[RF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
R51	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R52	7030003380	S.RESISTOR	ERJ3GEYJ 331 V (330 Ω)
R54	7030003380	S.RESISTOR	ERJ3GEYJ 331 V (330 Ω)
R55	7030003320	S.RESISTOR	ERJ3GEYJ 101 V (100 Ω)
R57	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R58	7030003500	S.RESISTOR	ERJ3GEYJ 332 V (3.3 kΩ)
R59	7030003400	S.RESISTOR	ERJ3GEYJ 471 V (470 Ω)
R60	7030003500	S.RESISTOR	ERJ3GEYJ 332 V (3.3 kΩ)
R61	7030003690	S.RESISTOR	ERJ3GEYJ 124 V (120 kΩ)
R62	7030003390	S.RESISTOR	ERJ3GEYJ 391 V (390 Ω)
R63	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R64	7030003320	S.RESISTOR	ERJ3GEYJ 101 V (100 Ω)
R65	7030003490	S.RESISTOR	ERJ3GEYJ 272 V (2.7 kΩ)
R66	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R67	7030003640	S.RESISTOR	ERJ3GEYJ 473 V (47 kΩ)
R69	7030003460	S.RESISTOR	ERJ3GEYJ 152 V (1.5 kΩ)
R70	7030003400	S.RESISTOR	ERJ3GEYJ 471 V (470 Ω)
R71	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R72	7030003630	S.RESISTOR	ERJ3GEYJ 393 V (39 kΩ)
R73	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R74	7030003580	S.RESISTOR	ERJ3GEYJ 153 V (15 kΩ)
R75	7030003540	S.RESISTOR	ERJ3GEYJ 682 V (6.8 kΩ)
R76	7030003500	S.RESISTOR	ERJ3GEYJ 332 V (3.3 kΩ)
R77	7030003580	S.RESISTOR	ERJ3GEYJ 153 V (15 kΩ)
R78	7030003640	S.RESISTOR	ERJ3GEYJ 473 V (47 kΩ)
R79	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
C1	4030006980	S.CERAMIC	C1608 CH 1H 070D-T-A
C2	4030009550	S.CERAMIC	C1608 CH 1H 2R5B-T-A
C5	4030007030	S.CERAMIC	C1608 CH 1H 150J-T-A
C6	4030007030	S.CERAMIC	C1608 CH 1H 150J-T-A
C8	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C9	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C10	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C12	4030009520	S.CERAMIC	C1608 CH 1H 020B-T-A
C13	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C14	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C15	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C16	4030006990	S.CERAMIC	C1608 CH 1H 080D-T-A
C17	4030007050	S.CERAMIC	C1608 CH 1H 220J-T-A
C18	4030010740	S.CERAMIC	C1608 JB 1A 104K-T-A
C19	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C20	4510004630	S.ELECTROLITIC	ECEV1CA100SR
C21	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C22	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C23	4030007030	S.CERAMIC	C1608 CH 1H 150J-T-A
C24	4030007010	S.CERAMIC	C1608 CH 1H 100D-T-A
C25	4030007010	S.CERAMIC	C1608 CH 1H 100D-T-A
C26	4030006970	S.CERAMIC	C1608 CH 1H 060D-T-A
C27	4030009510	S.CERAMIC	C1608 CH 1H 010B-T-A
C28	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C29	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C30	4030009910	S.CERAMIC	C1608 CH 1H 040B-T-A
C31	4030006970	S.CERAMIC	C1608 CH 1H 060D-T-A
C32	4030009570	S.CERAMIC	C1608 CH 1H 0R3B-T-A
C33	4030006970	S.CERAMIC	C1608 CH 1H 060D-T-A
C34	4030009510	S.CERAMIC	C1608 CH 1H 010B-T-A
C35	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C36	4030006960	S.CERAMIC	C1608 CH 1H 050C-T-A
C37	4030007100	S.CERAMIC	C1608 CH 1H 560J-T-A
C38	4030006860	S.CERAMIC	C1608 JB 1C 223K-T-A
C39	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C40	4030007010	S.CERAMIC	C1608 CH 1H 100D-T-A
C41	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C42	4030006960	S.CERAMIC	C1608 CH 1H 050C-T-A
C43	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C44	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C45	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C46	4030007040	S.CERAMIC	C1608 CH 1H 180J-T-A
C47	4030007120	S.CERAMIC	C1608 CH 1H 820J-T-A
C48	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C49	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C50	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C51	4030009660	S.CERAMIC	C1608 JF 1C 224Z-T-A
C52	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A

S.=Surface mount



[RF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
C53	4030009520	S.CERAMIC	C1808 CH 1H 020B-T-A
C54	4030008190	S.CERAMIC	C1808 UJ 1H 040C-T-A
C55	4030008310	S.CERAMIC	C1808 UJ 1H 390J-T-A
C56	4030009910	S.CERAMIC	C1808 CH 1H 040B-T-A
C57	4030009530	S.CERAMIC	C1808 CH 1H 030B-T-A
C58	4030008360	S.CERAMIC	C1808 UJ 1H 101J-T-A
C59	4550006220	S.TANTALUM	TEMSVA 0J 156M-8L
C80	4550006220	S.TANTALUM	TEMSVA 0J 156M-8L
C81	4030006860	S.CERAMIC	C1808 JB 1H 102K-T-A
C82	4030006860	S.CERAMIC	C1808 JB 1H 102K-T-A
C83	4030009500	S.CERAMIC	C1808 CH 1H 0R5B-T-A
C84	4030010740	S.CERAMIC	C1808 JB 1A 104K-T-A
C86	4030009570	S.CERAMIC	C1808 CH 1H 0R3B-T-A
C87	4030009560	S.CERAMIC	C1808 CH 1H R75B-T-A
C89	4030006860	S.CERAMIC	C1808 JB 1H 102K-T-A
C70	4030007020	S.CERAMIC	C1808 CH 1H 120J-T-A
C71	4030009920	S.CERAMIC	C1808 CH 1H 050B-T-A
C72	4030007040	S.CERAMIC	C1808 CH 1H 180J-T-A
C73	4030006860	S.CERAMIC	C1808 JB 1H 102K-T-A
C76	4030006860	S.CERAMIC	C1808 JB 1H 102K-T-A
C77	4030007030	S.CERAMIC	C1808 CH 1H 150J-T-A
C78	4030007070	S.CERAMIC	C1808 CH 1H 330J-T-A
C79	4610001910	S.TRIMMER	CTZ3E-10A-W1
C80	4030008880	S.CERAMIC	C1808 JB 1C 223K-T-A
C81	4030006900	S.CERAMIC	C1808 JB 1E 103K-T-A
C82	4030006860	S.CERAMIC	C1808 JB 1H 102K-T-A
C83	4030008880	S.CERAMIC	C1808 JB 1C 223K-T-A
C84	4030006860	S.CERAMIC	C1808 JB 1H 102K-T-A
C85	4030008920	S.CERAMIC	C1808 JB 1C 473K-T-A
C86	4030008920	S.CERAMIC	C1808 JB 1C 473K-T-A
C87	4550000730	S.TANTALUM	TESVA 0J 225M1-8L
C88	4030010740	S.CERAMIC	C1808 JB 1A 104K-T-A
C89	4030010740	S.CERAMIC	C1808 JB 1A 104K-T-A
C90	4030009990	S.CERAMIC	C1808 CH 1H 200J-T-A
C93	4030006860	S.CERAMIC	C1808 JB 1H 102K-T-A
C96	4030006860	S.CERAMIC	C2012 JF 1C 105Z-T-A
C97	4030006900	S.CERAMIC	C1808 JB 1E 103K-T-A
C98	4030010740	S.CERAMIC	C1808 JB 1A 104K-T-A
C99	4030007170	S.CERAMIC	C1808 CH 1H 221J-T-A
C100	4030006860	S.CERAMIC	C1808 JB 1H 102K-T-A
C101	4030008920	S.CERAMIC	C1808 JB 1C 473K-T-A
C102	4030007010	S.CERAMIC	C1808 CH 1H 100D-T-A
C103	4030006900	S.CERAMIC	C1808 JB 1E 103K-T-A
C104	4030006860	S.CERAMIC	C1808 JB 1H 102K-T-A
C105	4030006860	S.CERAMIC	C1808 JB 1H 102K-T-A
C106	4030006900	S.CERAMIC	C1808 JB 1E 103K-T-A
C107	4030007170	S.CERAMIC	C1808 CH 1H 221J-T-A
C108	4030006860	S.CERAMIC	C1808 JB 1H 102K-T-A
C109	4030006860	S.CERAMIC	C1808 JB 1H 102K-T-A
C110	4030006860	S.CERAMIC	C1808 JB 1H 102K-T-A
C111	4030006860	S.CERAMIC	C1808 JB 1H 102K-T-A
C112	4030010740	S.CERAMIC	C1808 JB 1A 104K-T-A
C113	4030010740	S.CERAMIC	C1808 JB 1A 104K-T-A
C114	4510005430	S.ELECTROLITIC	ECEV0JA220SR
C115	4510005430	S.ELECTROLITIC	ECEV0JA220SR
C118	4030006860	S.CERAMIC	C1808 JB 1H 102K-T-A
C119	4030006860	S.CERAMIC	C1808 JB 1H 102K-T-A
C120	4030006860	S.CERAMIC	C1808 JB 1H 102K-T-A
C121	4030006860	S.CERAMIC	C1808 JB 1H 102K-T-A
C122	4030006860	S.CERAMIC	C1808 JB 1H 102K-T-A
C123	4030006860	S.CERAMIC	C1808 JB 1H 102K-T-A
C124	4030006860	S.CERAMIC	C1808 JB 1H 102K-T-A
C125	4030006860	S.CERAMIC	C1808 JB 1H 102K-T-A
C126	4030006860	S.CERAMIC	C1808 JB 1H 102K-T-A
C127	4030006860	S.CERAMIC	C1808 JB 1H 102K-T-A
C128	4030006860	S.CERAMIC	C1808 JB 1H 102K-T-A
C129	4030006860	S.CERAMIC	C1808 JB 1H 102K-T-A
C130	4030006860	S.CERAMIC	C1808 JB 1H 102K-T-A
C131	4030006860	S.CERAMIC	C1808 JB 1H 102K-T-A
C132	4030006860	S.CERAMIC	C1808 JB 1H 102K-T-A
C133	4030009910	S.CERAMIC	C1808 CH 1H 040B-T-A
C134	4030006990	S.CERAMIC	C1808 CH 1H 080D-T-A
C135	4030009520	S.CERAMIC	C1808 CH 1H 020B-T-A
C136	4030006980	S.CERAMIC	C1808 CH 1H 070D-T-A
C137	4030009530	S.CERAMIC	C1808 CH 1H 030B-T-A
C139	4030009990	S.CERAMIC	C1808 CH 1H 200J-T-A

[RF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
C140	4030009550	S.CERAMIC	C1808 CH 1H 2R5B-T-A
C141	4030009990	S.CERAMIC	C1808 CH 1H 200J-T-A
J1	6510019500	S.CONNECTOR	52559-2280
W1	7120000380	JUMPER	JPW 01 R-01
W2	8900006530	CABLE	OPC-618
EP1	0910046782	PCB	B 4633B

[VR UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
R1	7210002530	VARIABLE	TP96N937N-15F-10KA -1540
WS1	8600034940	CABLE	P01*J01*02VR
EP1	0910046790	PCB	B 4702

[SENSOR UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
S1	2250000220	ENCODER	TP90N937E20-15F-1540
EP1	0910046800	PCB	B 4703

S.=Surface mount

# SECTION 7 MECHANICAL PARTS

## [CHASSIS PARTS]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
J1	6510019610	Connector SMA-R209	1
EP1	8930039280	LCD contact SRCN-1757-ZNN-505	1
MP1	8210013650	1757 front panel [USA], [SEA]	1
	8210013660	1757 front panel (A) [UK], [ITA]	1
	8210013670	1757 front panel (B) [FRA]	1
MP2	8210013431	1757 rear panel -1	1
MP4	8930039050	1757 6-key [USA]	1
	8930039220	1757 6-key (A) [UK], [ITA], [FRA]	1
MP5	8930039060	1757 rubber	1
MP6	8930039010	1757 LCD holder	1
MP7	8930039040	1757 main seal	1
MP8	8930039030	1757 PTT rubber	1
MP9	8210013410	1757 PTT cover	1
MP10	8310037700	1757 SW plate	1
MP11	8930039020	1757 connector seal	1
MP12	8930039240	O ring (R)	2
MP13	8930039840	1757 ANT seal	1
MP14	8930039850	Sealing washer (J)	1
MP15	8610010150	Knob N246	1
MP16	8610010160	Knob N247	1
MP19	8930039000	1757 sheet	1
MP20	8830001140	VR nut (J)	2
MP21	8830001160	VR nut (K)	1
MP22	8810009170	Screw PH B0 M2 x 5 SUS ZK	4
MP23	8810009160	Screw PH B0 M2 x 20 SUS ZK	2
MP24	8810008640	Screw FH BT No.0 M2 x 4 NI-ZU	6
MP26	8810005360	Screw PH No.0 M2 X3 ZK	2
MP27	8810009290	Screw PH No.0-1 M2 x 3 SUS ZK	2
MP28	8810009000	Screw PH No.0 M2.6 x 5 ZK	2
MP29	8810009290	Screw PH No.0-1 M2 x 3 SUS ZK	1
MP30	8860000990	1757 ground lug	1
MP31	8810009340	Screw PH M2 x 5 SUS ZK	1
MP32	8930039680	1757 LCD filter	1
MP33	8510010410	1757 module cover	1

## [MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
J2	6510016710	Connector YM-263	1
DS1	5030001330	LCD LM-1403B	1
MC1	7700002050	Microphone KUB2823-011010	1
SP1	2510000910	Speaker SU-36W08040B	1

## [RF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
W2	8900006530	Cable OPC-618	1
MP1	8510009460	1620 VCO case	1

## [VR UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
R1	7210002530	Variable resistor TP96N937N-15F-10KA-1540	1

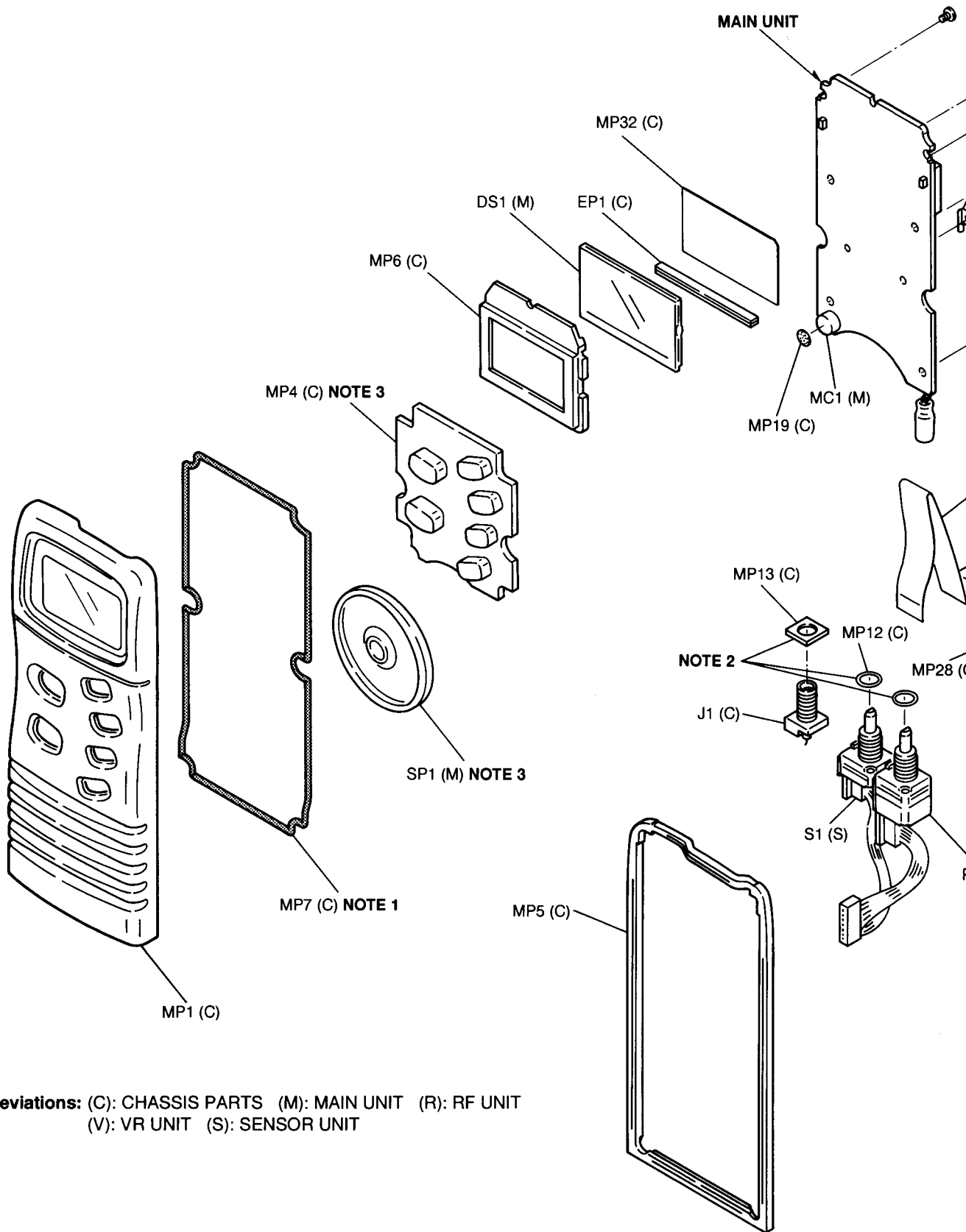
## [SENSOR UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
S1	2250000220	Encoder TP90N937E20-15F-1540	1

## [UNPACKING]


REF. NO.	ORDER NO.	DESCRIPTION	QTY.
EP1	Optional product	Antenna FA-S57V	1
EP2	Optional product	Charger BC-122A [USA]	1
	Optional product	Charger BC-122E [FRA], [ITA], [SEA]	1
	Optional product	Charger BC-122V [AUS]	1
EP3	Optional product	Battery BP-185 except ITA version	1
	Optional product	Battery BP-186 [ITA]	1
EP4	Optional product	Adapter AD-58	1
MP1	8010011960	Strap belt HK-005	1
MP2	8930039290	1757 belt clip	1
MP3	8810009270	Screw M3 x 4 SUS ZK	2

**Screw abbreviations** B0, BT: Self-tapping PH: Pan head  
 FH: Flat head NI-ZU: Nickel-Zinc  
 SUS: Stainless ZK: Black



**Unit abbreviations:** (C): CHASSIS PARTS (M): MAIN UNIT (R): RF UNIT  
 (V): VR UNIT (S): SENSOR UNIT

**NOTE1**

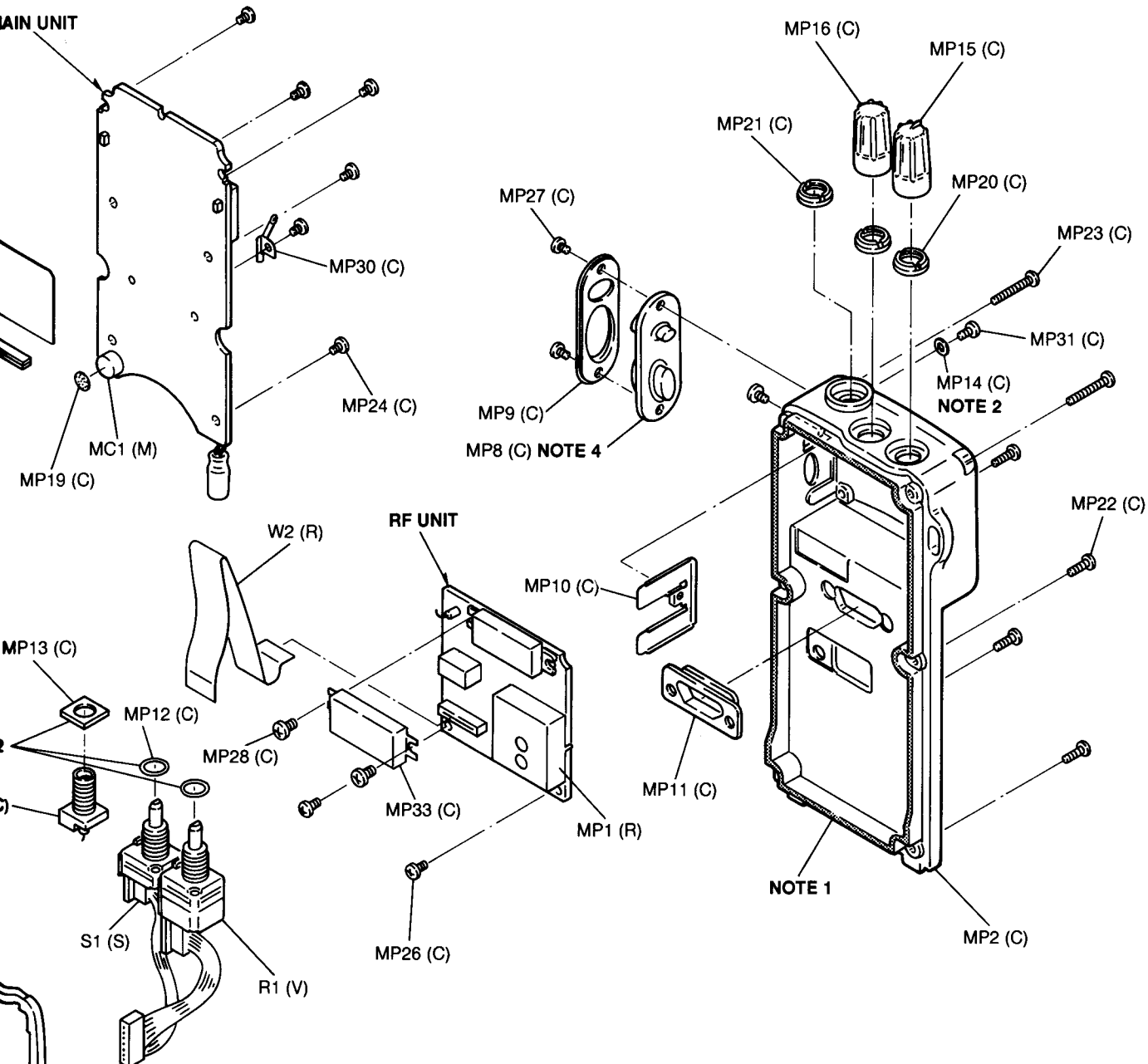
Once the front panel is removed, grease must be applied to  areas before assembly.


Manufacture : Shin-Etsu Chemical  
 Type : G-501

**NOTE2**

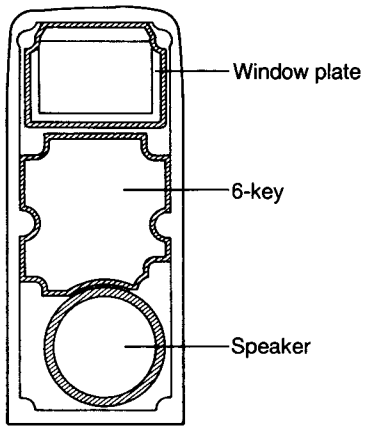
Once the following parts are removed, a O ring or sealing must be replaced with new one before reattachment.

Mother part	Daughter part for relayed replacement
J1 (C) Antenna connector .....	MP13 (C) ANT seal
S1 (S) Channel selector switch .....	MP12 (C) O ring
R1 (V) AF control volume .....	MP12 (C) O ring
MP31 (C) Screw .....	MP14 (C) Sealing washer

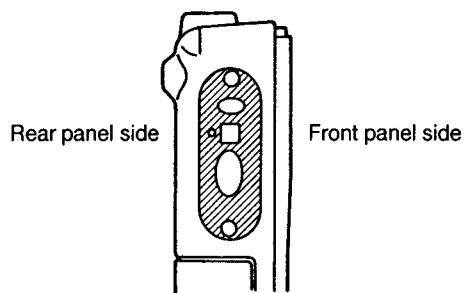


**NOTE3**  
 The glue must be applied to the  areas when the front panel is replaced with new one, to ensure water tightness.  
 Manufacture : Semedain Co.  
 Type : Super-X

**NOTE4**  
 Once the PTT rubber (MP8 (C)) is removed, the glue must be applied between the PTT rubber and rear panel.



Rear view of the front panel



O ring or sealing must be  
 ment.  
 r part for relayed  
 ment  
 MP13 (C) ANT seal  
 MP12 (C) O ring  
 MP12 (C) O ring  
 MP14 (C) Sealing washer

• AD-58

[CHARGE UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
Q1	1590001800	S.TRANSISTOR UMH2	1
Q2	1590002160	S.TRANSISTOR XP6401	1
Q3	1510000110	S.TRANSISTOR 2SA1162 Y	1
Q4	1520000600	S.TRANSISTOR 2SB1184 Q	1
Q5	1590001190	S.TRANSISTOR XP6501 AB	1
D1	1790000670	S.DIODE SB07-03C	1
D2	1160000070	S.DIODE DAN202K	1
D3	1160000070	S.DIODE DAN202K	1
D4	1730000880	S.ZENER RD11M B2	1
D5	1750000390	S.DIODE 1SS353	1
D6	1730000840	S.ZENER RD9.1M B2	1
R1	7030000450	S.RESISTOR MCR10 392 (3.9 kΩ)	1
R2	7030000450	S.RESISTOR MCR10 392 (3.9 kΩ)	1
R3	7030003760	S.RESISTOR ERJ3GEYJ 474 V (470 kΩ)	1
R4	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	1
R5	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	1
R7	7030001250	S.RESISTOR MCR50 102 (1 kΩ)	1
R8	7030000170	S.RESISTOR MCR10 180 (18 Ω)	1
R9	7030000160	S.RESISTOR MCR10 150 (15 Ω)	1
R10	7030000170	S.RESISTOR MCR10 180 (18 Ω)	1
R11	7030000320	S.RESISTOR MCR10 331 (330 Ω)	1
R12	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	1
R13	7030000460	S.RESISTOR MCR10 472 (4.7 kΩ)	1
R14	7030000460	S.RESISTOR MCR10 472 (4.7 kΩ)	1
R15	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	1
R16	7030000450	S.RESISTOR MCR10 392 (3.9 kΩ)	1
R17	7030000450	S.RESISTOR MCR10 392 (3.9 kΩ)	1
C1	4030004760	S.CERAMIC C2012 JF 1E 104Z-T-A	1
C2	4030008630	S.CERAMIC C1608 JF 1C 104Z-T-A	1
C3	4030004760	S.CERAMIC C2012 JF 1E 104Z-T-A	1
J1	6450000410	CONNECTOR HEC0470-01-630	1
DS1	5040001760	S.LED SEC2422C	1
EP1	0910047052	PCB B 4761B (CHARGE)	1

S.=Surface mount

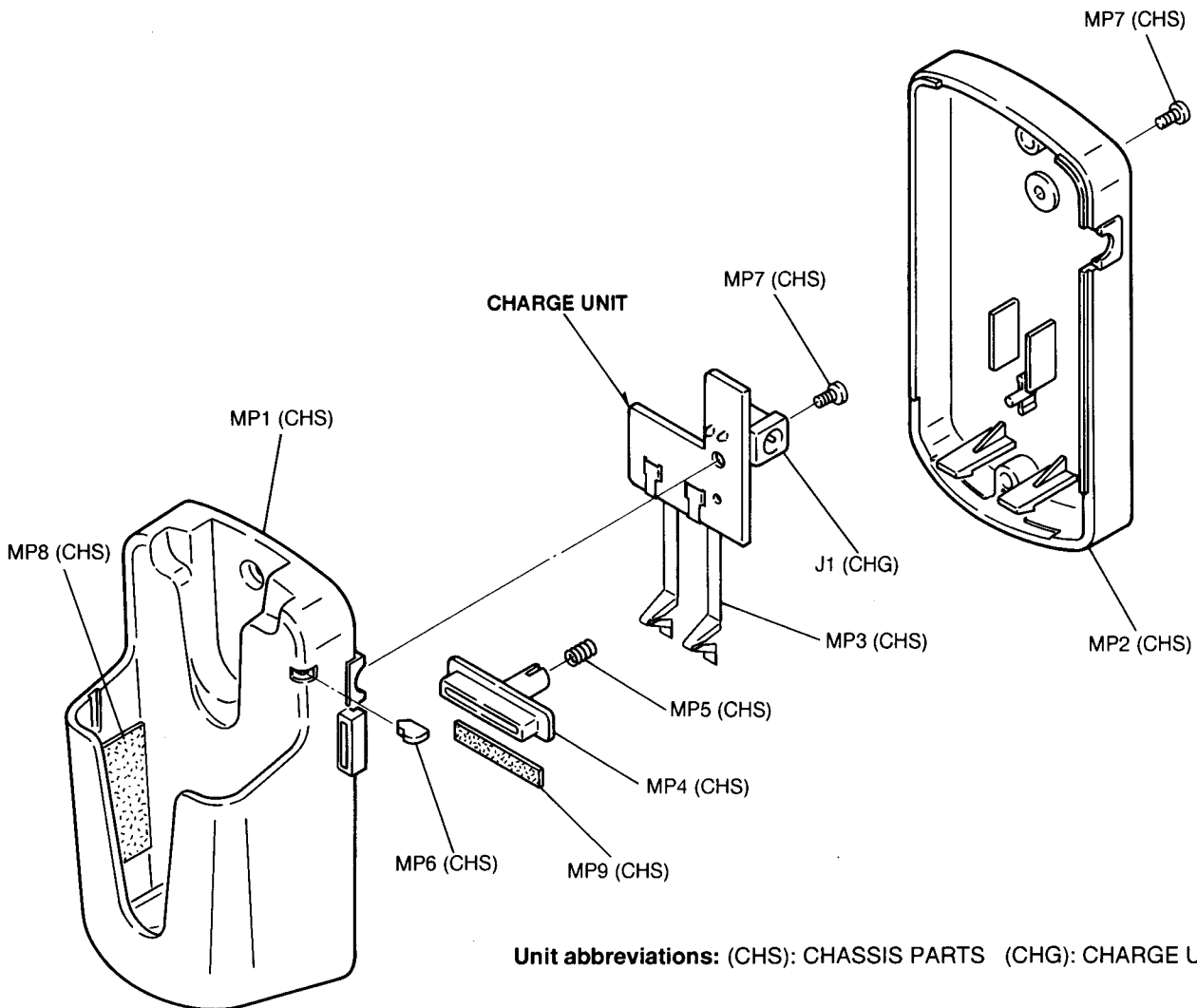
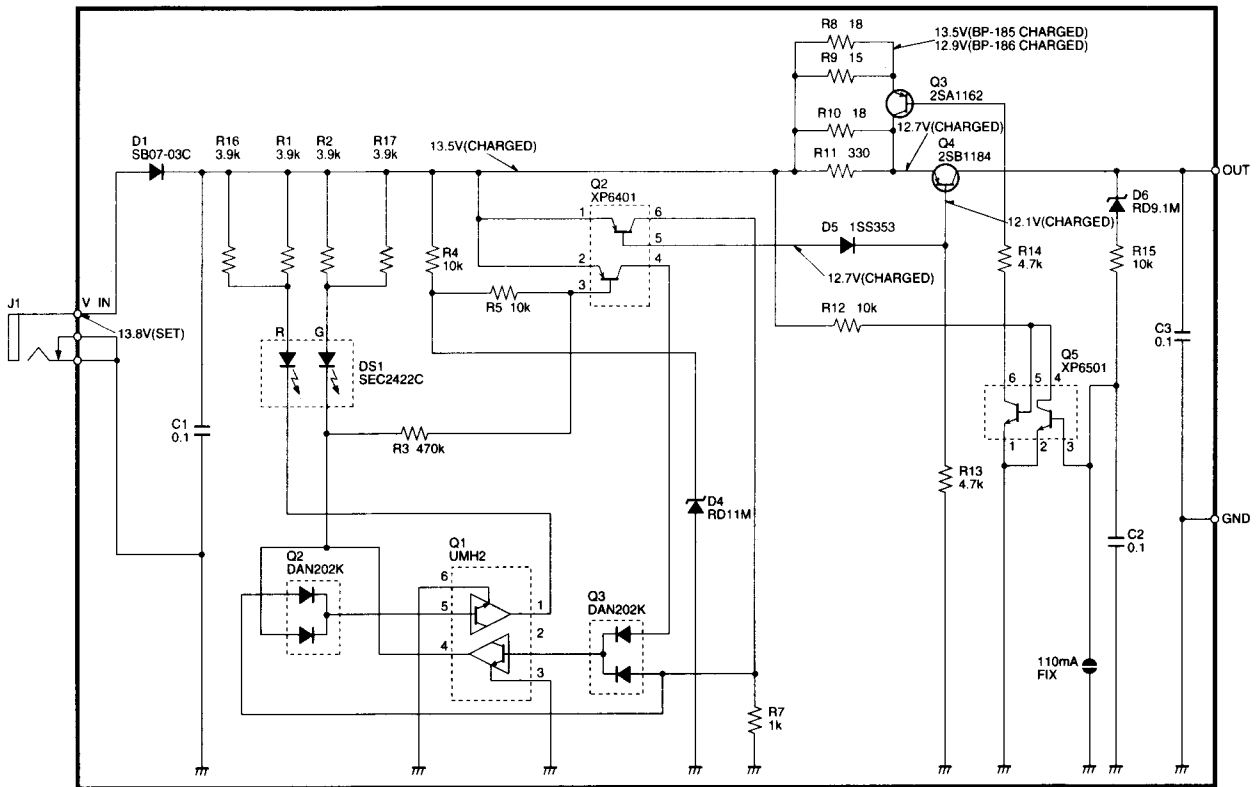
[CHASSIS PARTS]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
MP1	8210013520	1798 front panel	1
MP2	8210013530	1798 rear panel	1
MP3	8930039520	1798 terminal	2
MP4	8930039510	1798 lock button	1
MP5	8930035131	Spring (V) -1	1
MP6	8930039530	1798 lens	1
MP7	8810009210	Screw PH B0 M3 x 6 SUS ZK	2
MP8	8930040080	Sheet (BL)	2
MP9	8930040070	Sheet (BK)	1

[UNPACKING]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
MP1	8810001470	Screw PH A0 M3.5 x 30 SUS	2

**Screw abbreviations** A0, B0: Self-tapping  
 PH: Pan head SUS: Stainless  
 ZK: Black








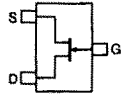
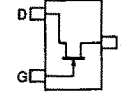
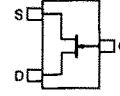
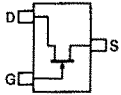
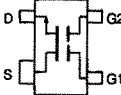








Unit abbreviations: (CHS): CHASSIS PARTS (CHG): CHARGE UNIT







# SECTION 8

# SEMI-CONDUCTOR INFORMATION

## • TRANSISTORS AND FETS

<b>2SA1362 GR</b> (Symbol: AEG) 	<b>2SB1132 R</b> (Symbol: BARB) 	<b>2SC2712 Y</b> (Symbol: LY) 	<b>2SC2714 Y</b> (Symbol: QY) 	<b>2SC4081 R</b> (Symbol: BR) 
<b>2SC4215 O</b> (Symbol: QO) 	<b>2SC4226 R25</b> (Symbol: R25) 	<b>2SK1577 2</b> (Symbol: P2) 	<b>2SK210 GR</b> (Symbol: YG) 	<b>2SK880 Y</b> (Symbol: XY) 
<b>2SK882 Y</b> (Symbol: TY) 	<b>3SK131</b> (Symbol: M11) 	<b>DTA114YU</b> (Symbol: 54) 	<b>DTA144EU</b> (Symbol: 16) 	<b>DTC114YU</b> (Symbol: 64) 
<b>DTC144EU</b> (Symbol: 26) 	<b>XP1214</b> (Symbol: 9H) 	<b>XP6501</b> (Symbol: 5N) 		

## • DIODES

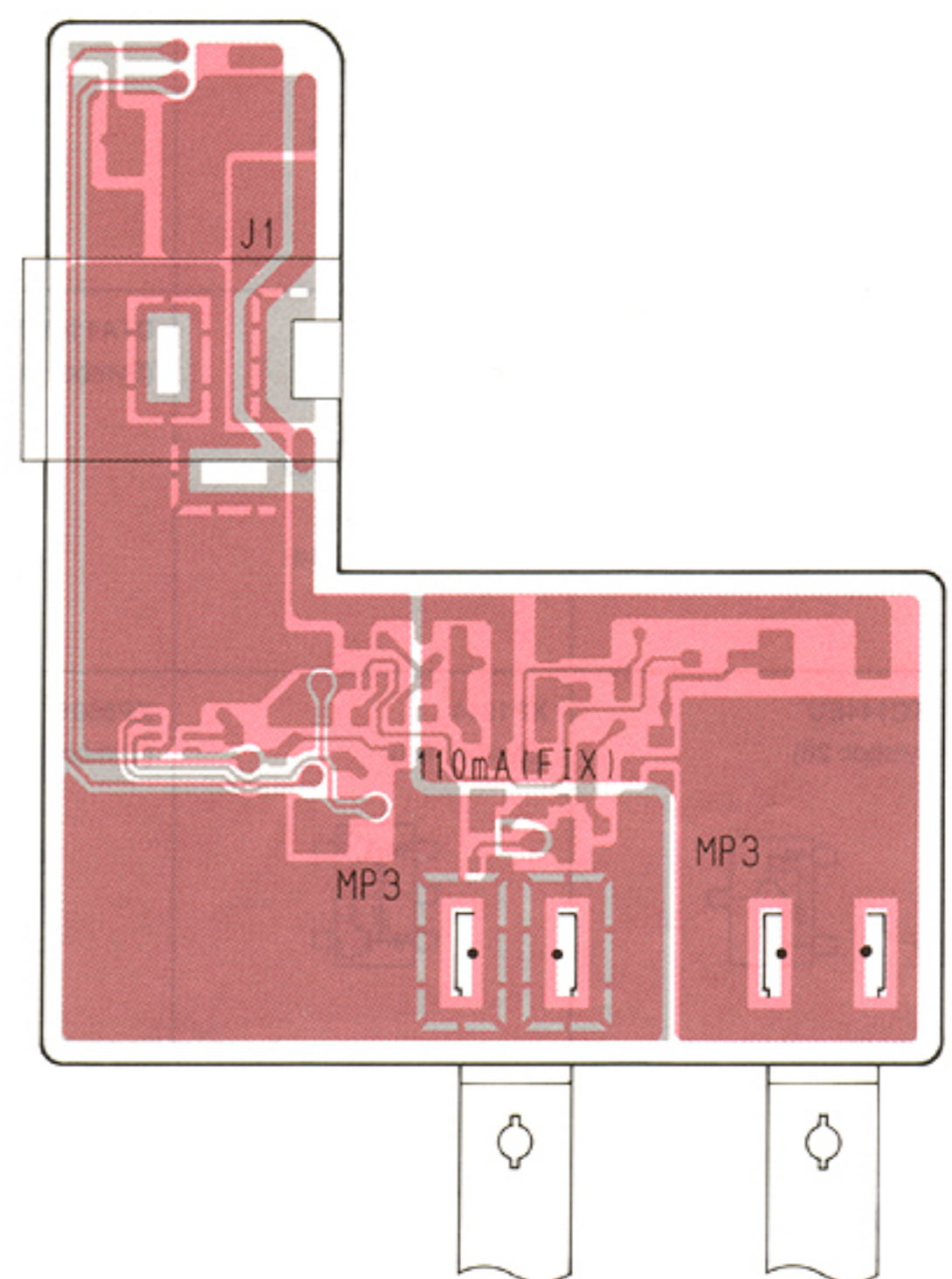
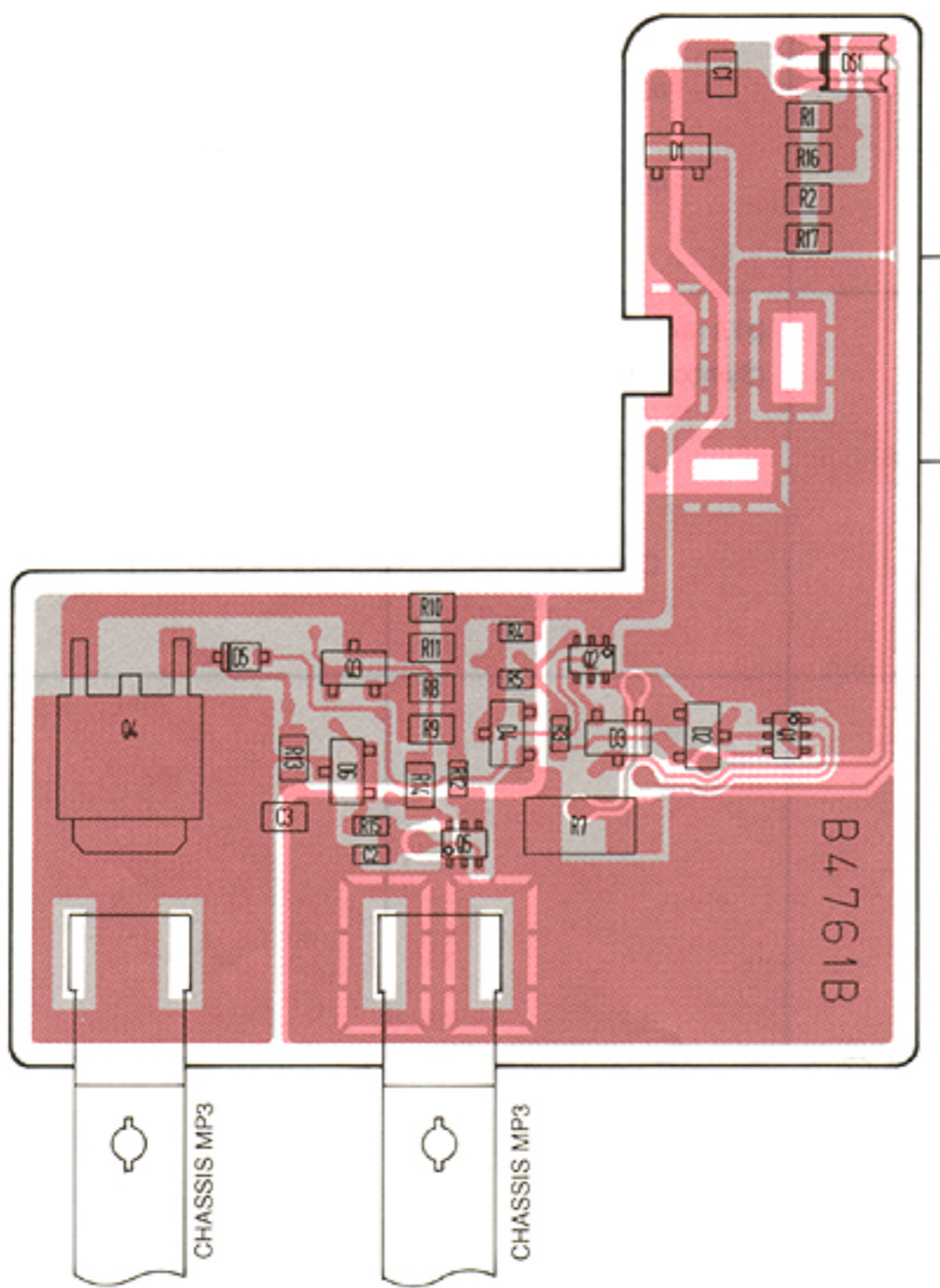
<b>1SS184</b> (Symbol: B3) 	<b>DAN202K</b> (Symbol: N) 	<b>HSM88AS</b> (Symbol: C1) 	<b>HVU350TRF</b> (Symbol: 4) 	<b>MA363B</b> (Symbol: 6D on anode area) 
<b>MA862</b> (Symbol: M11) 				

# SECTION 9 BOARD LAYOUTS

9-1 AD-58

● CHARGE UNIT (side A)

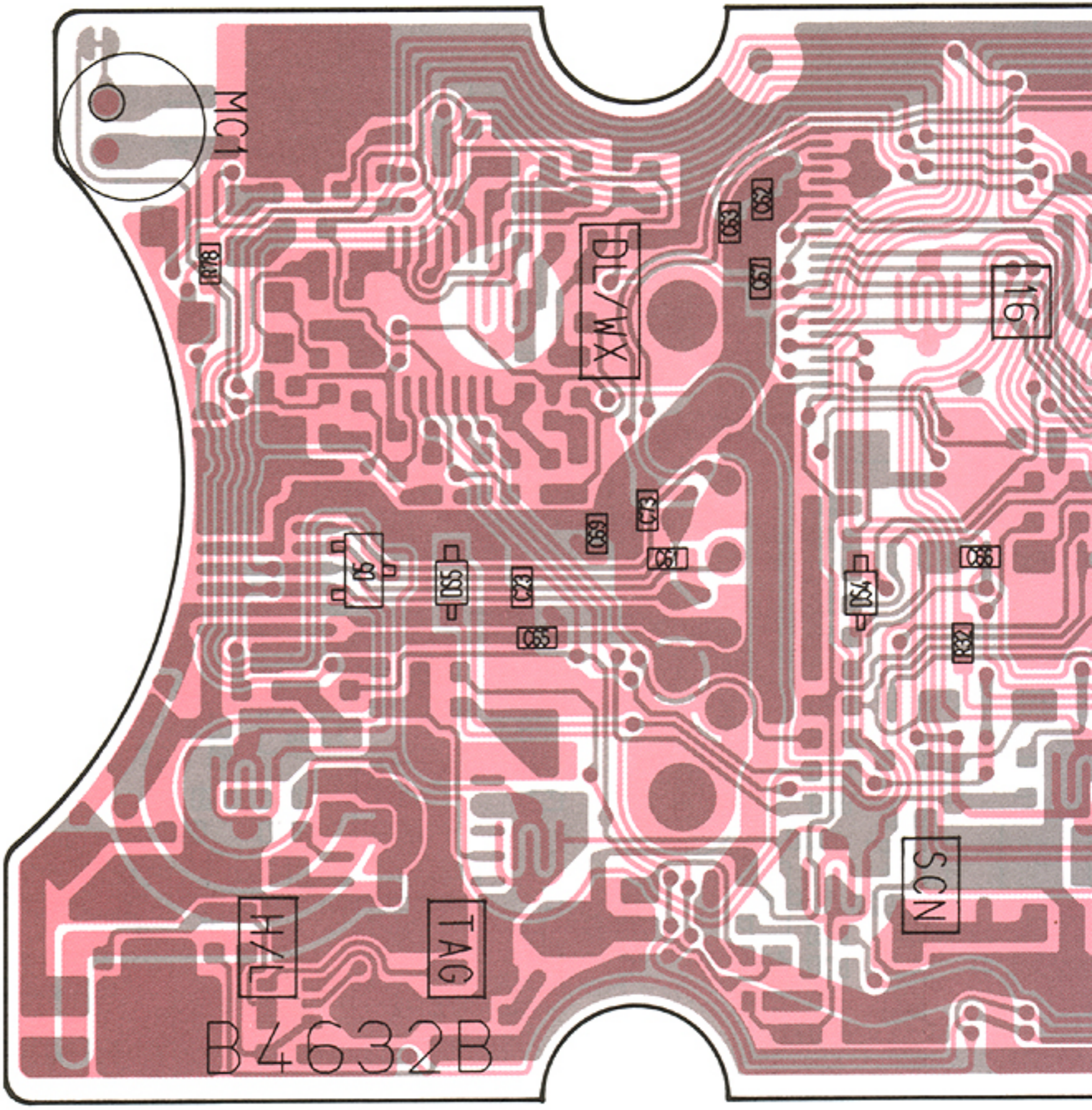
● CHARGE UNIT (side B)

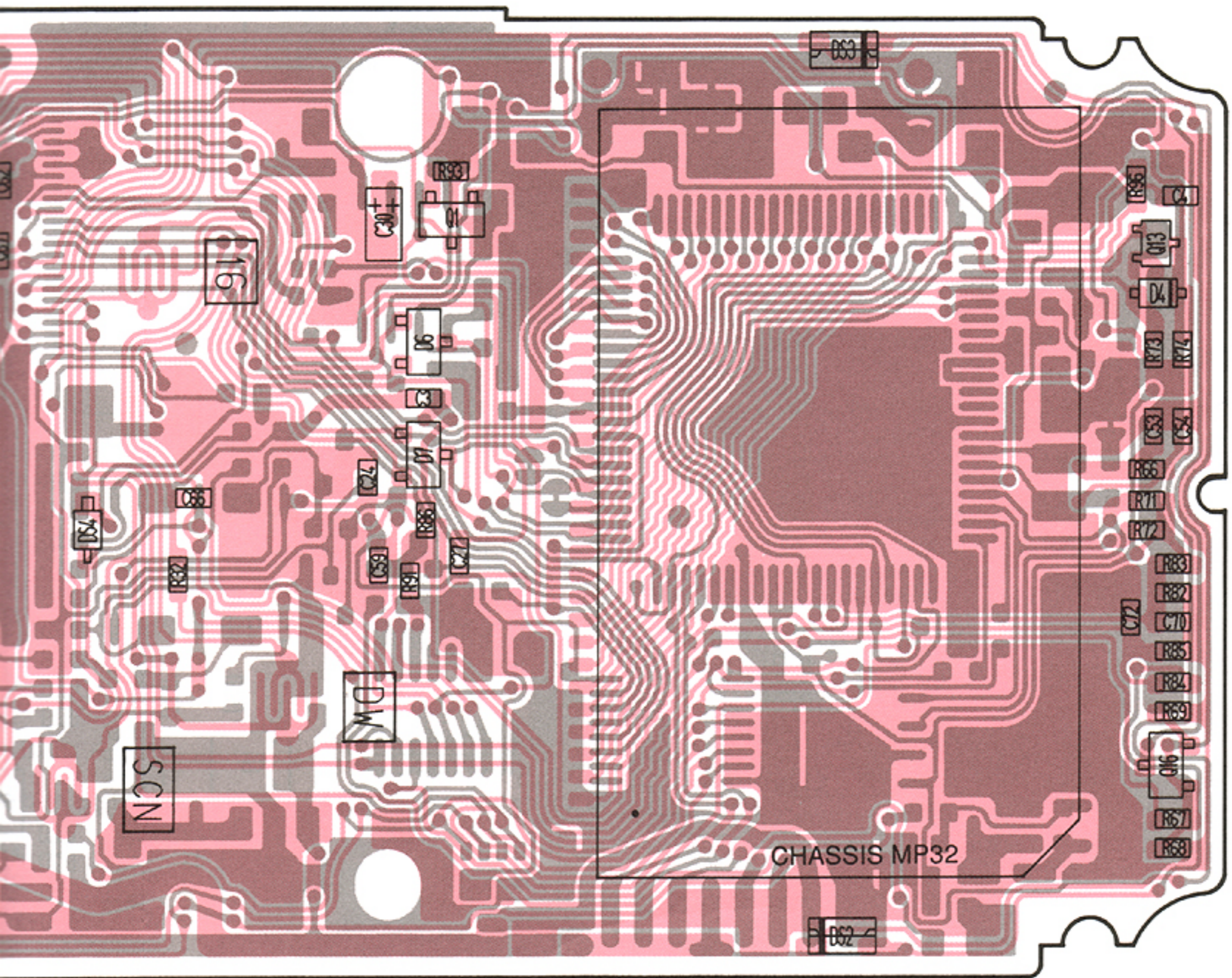




9-2 MAIN AND RF UNITS

● MAIN UNIT

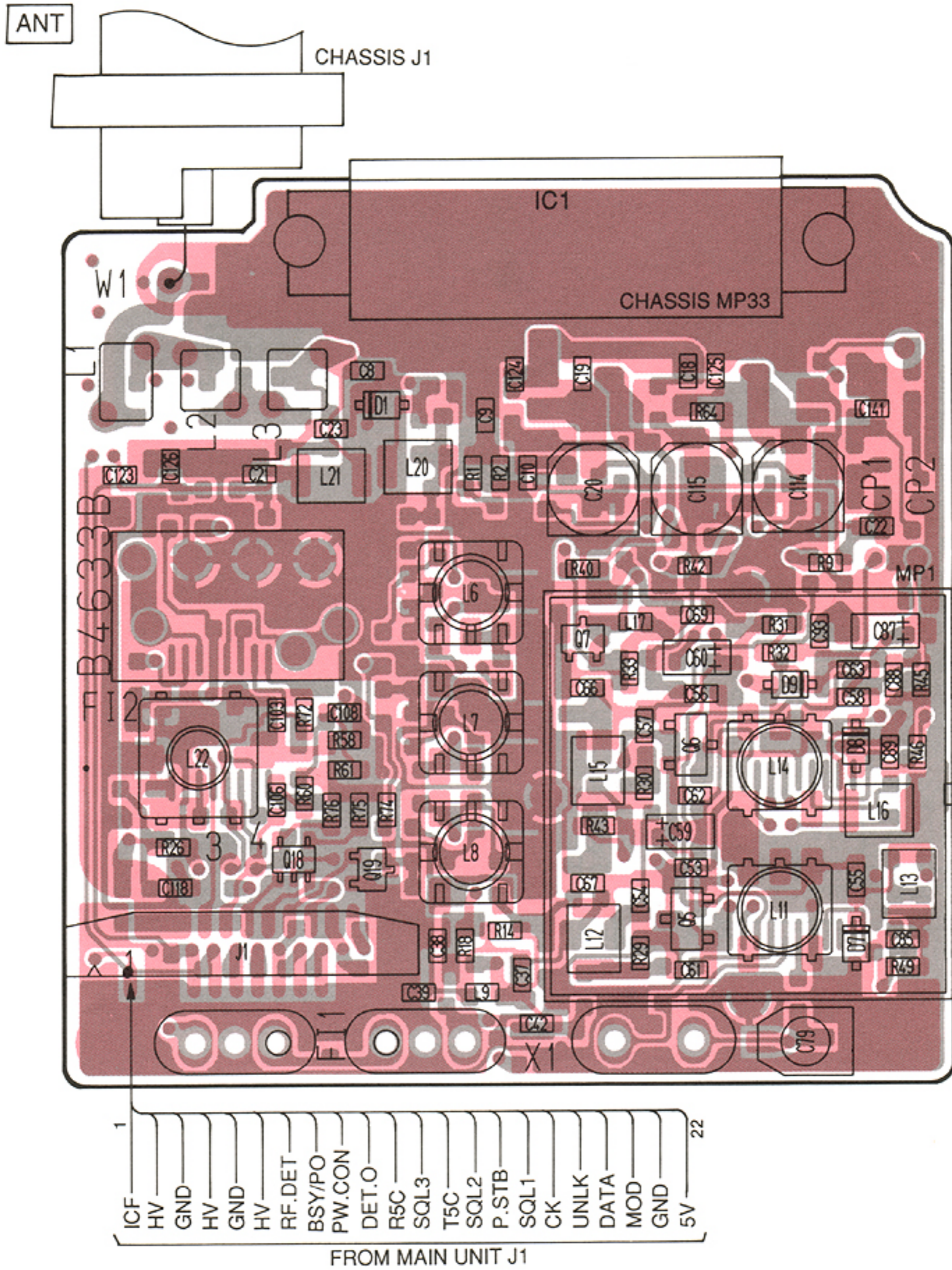




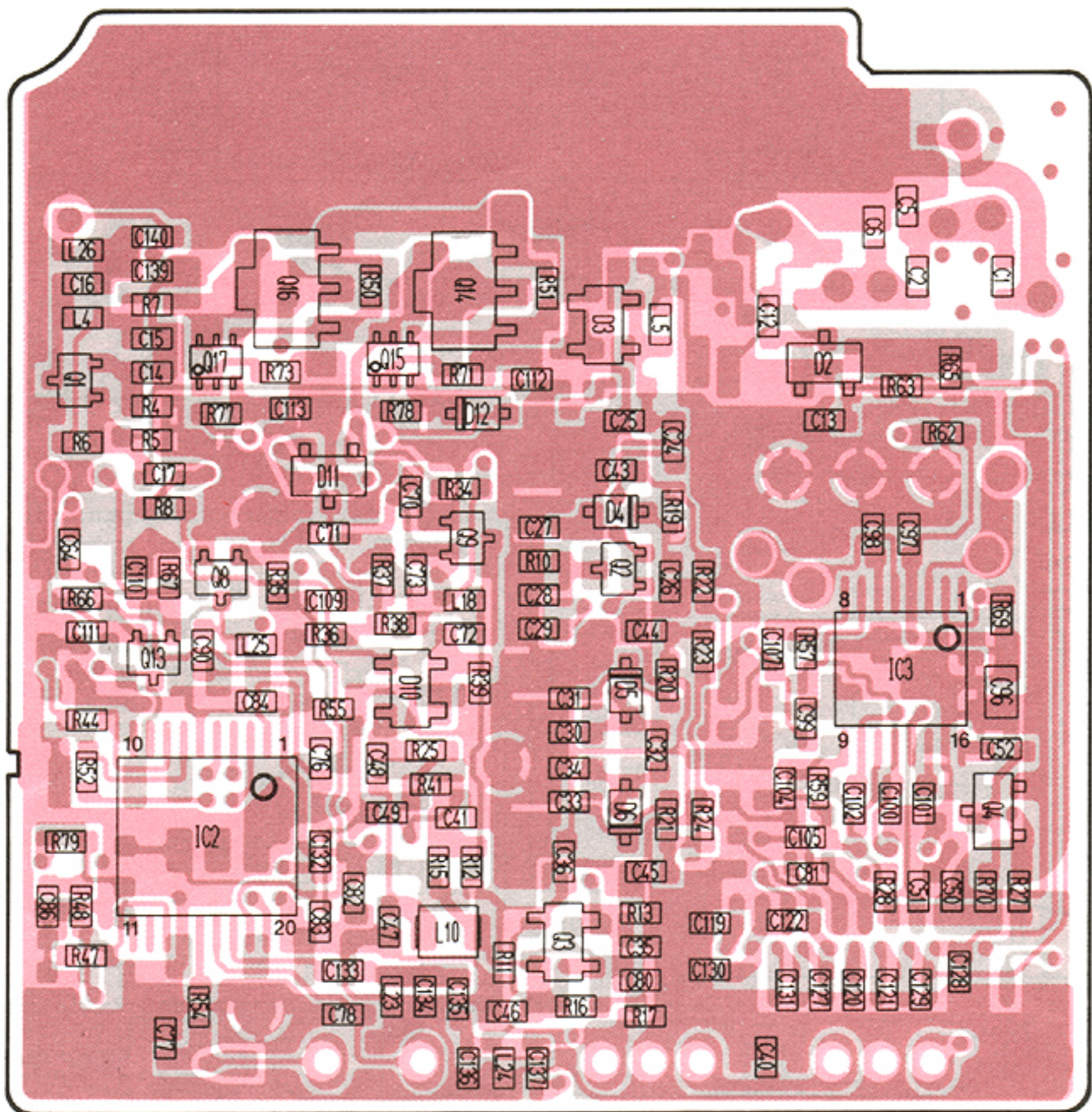
CHASSIS MP32

The combination of this page and the next page show the unit layout in the same configuration as the actual P. C. Board.

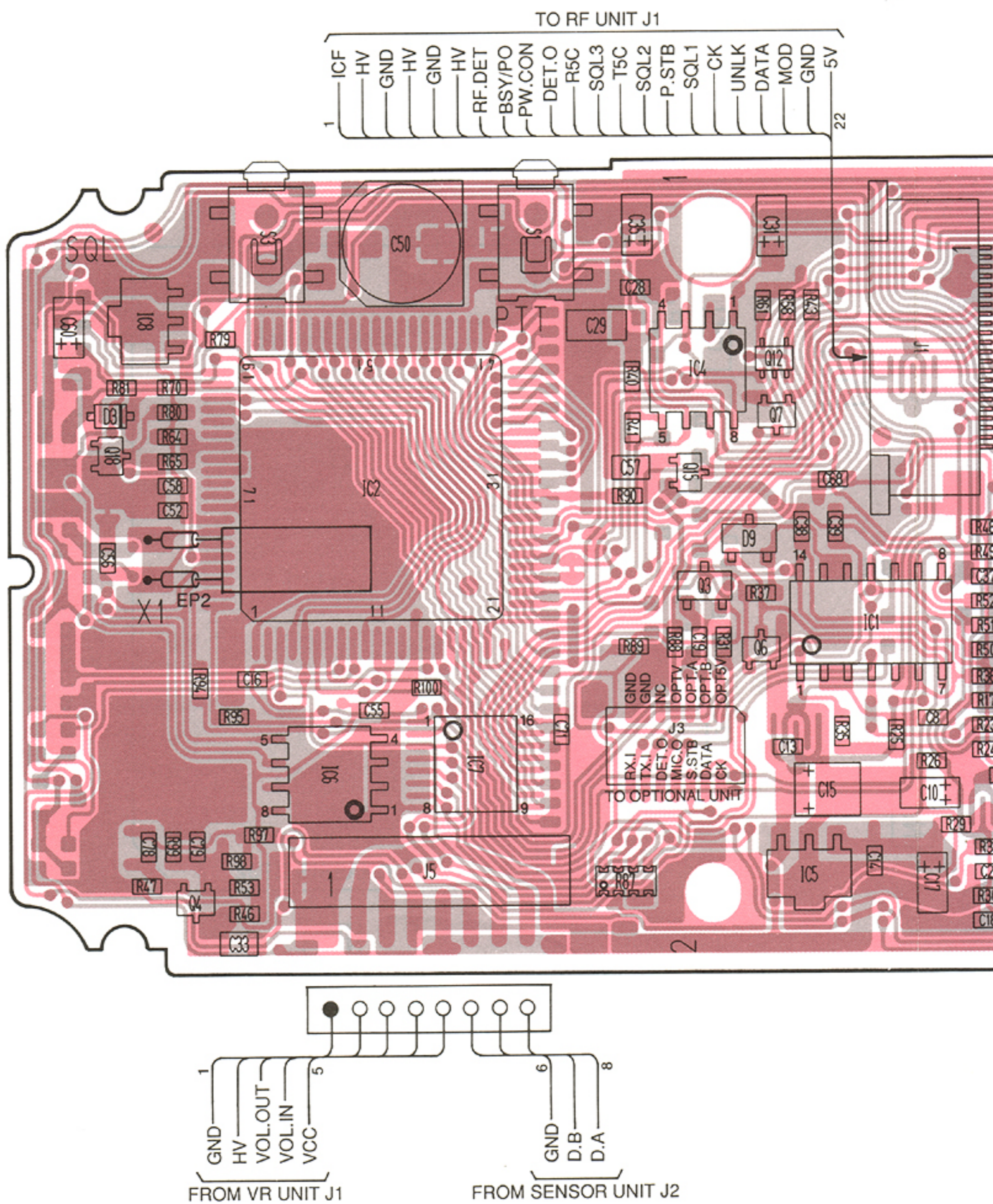
● RF UNIT

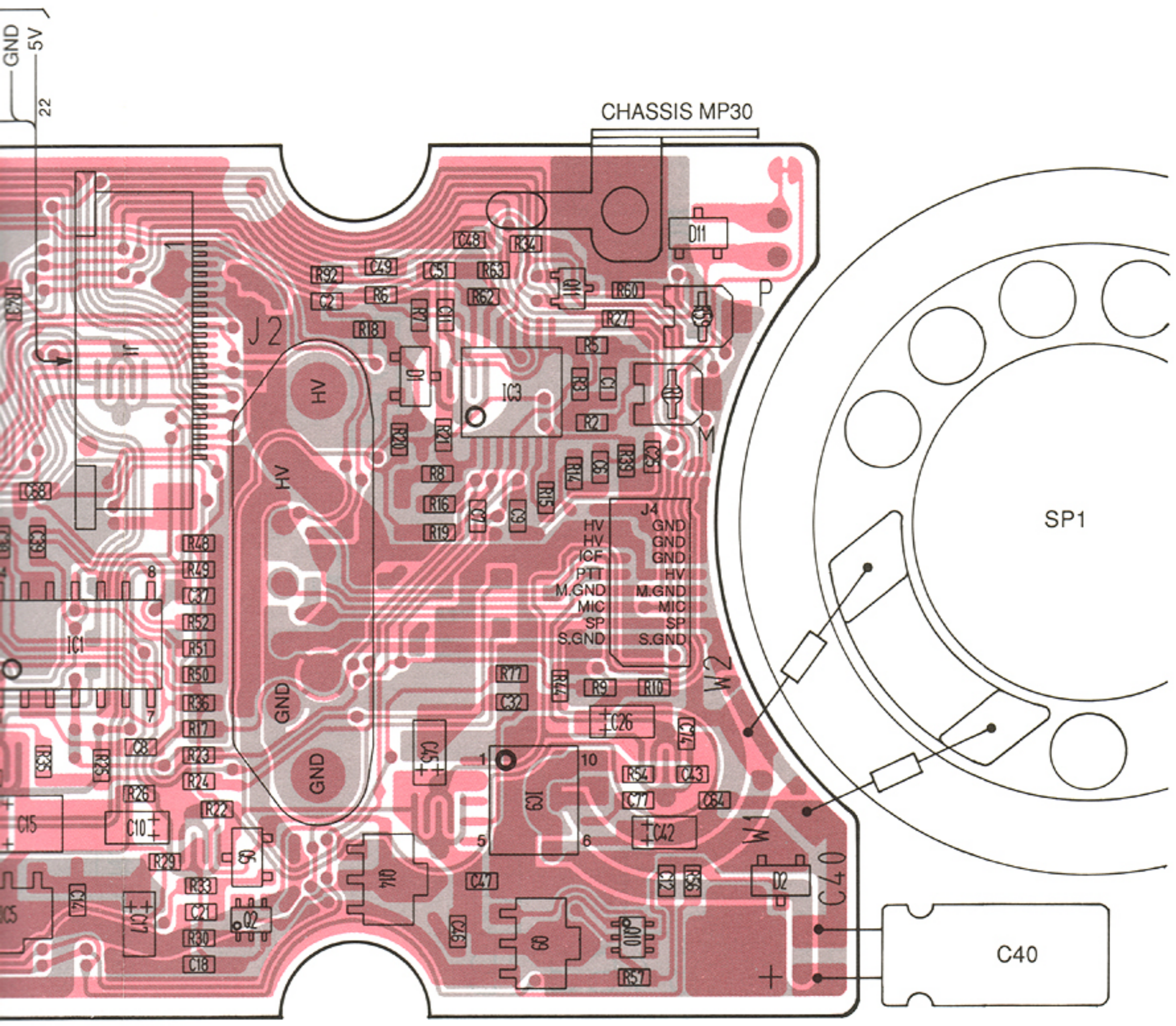


● RF UNIT

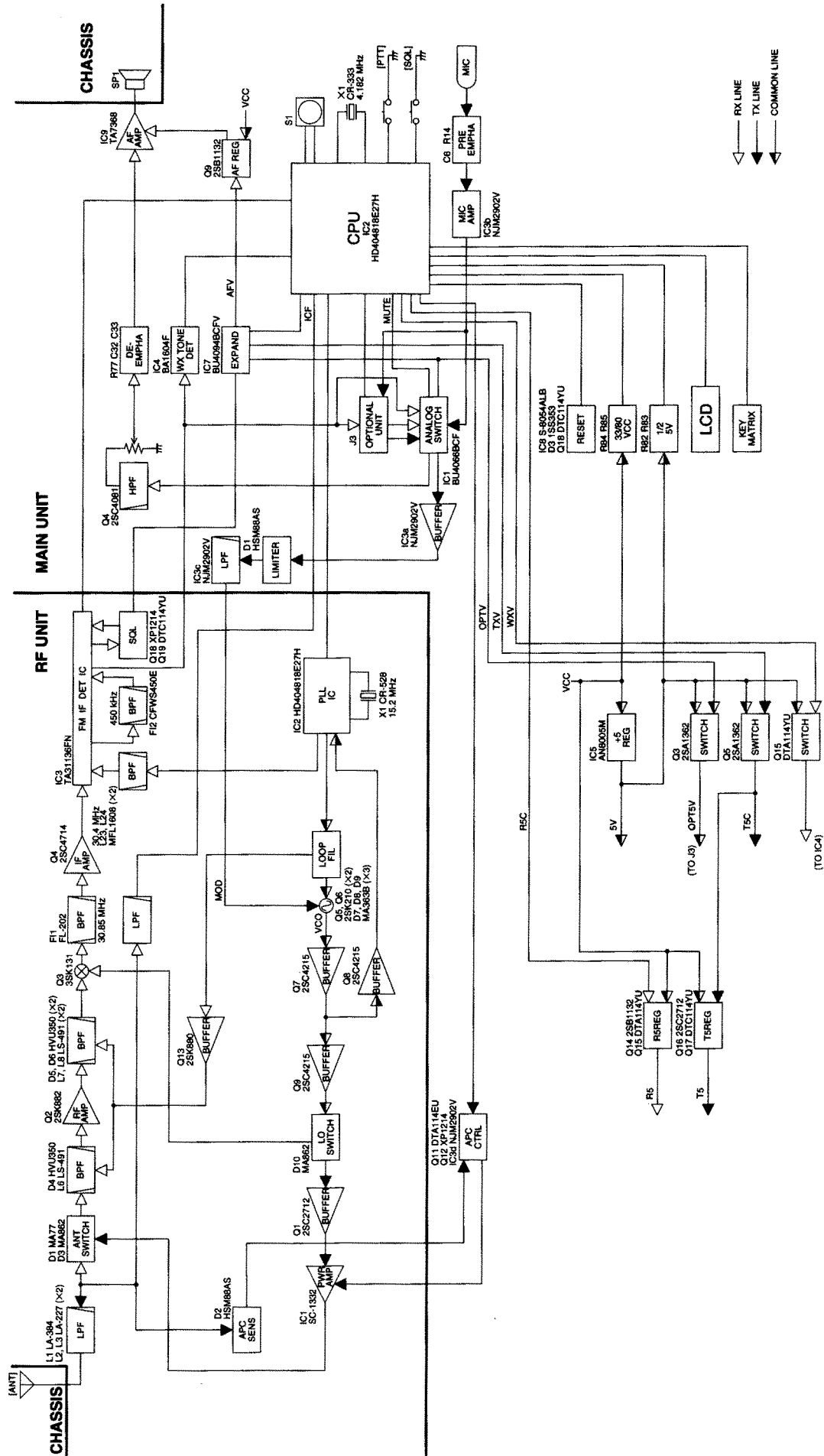


● MAIN UNIT



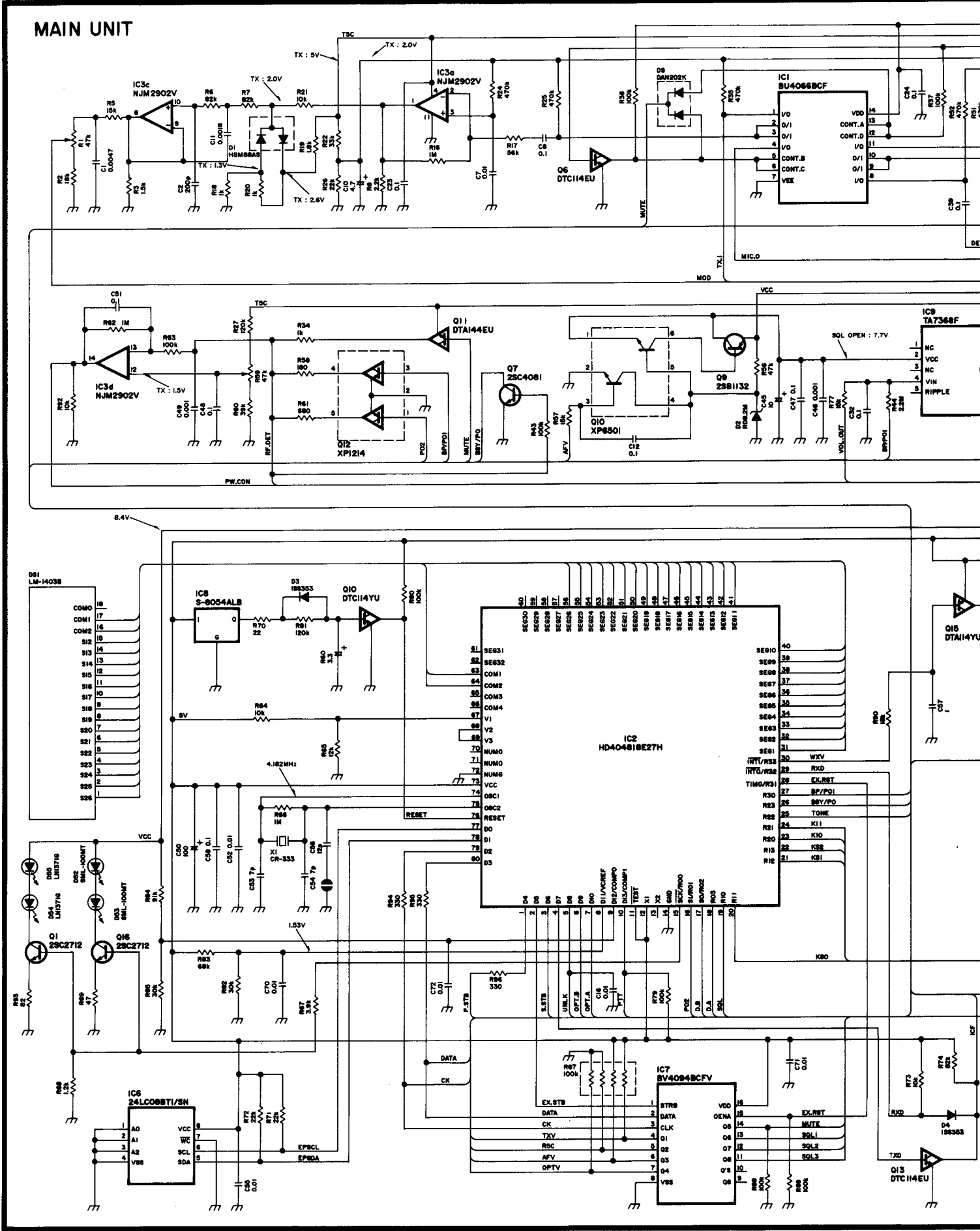


# SECTION 10 BLOCK DIAGRAM

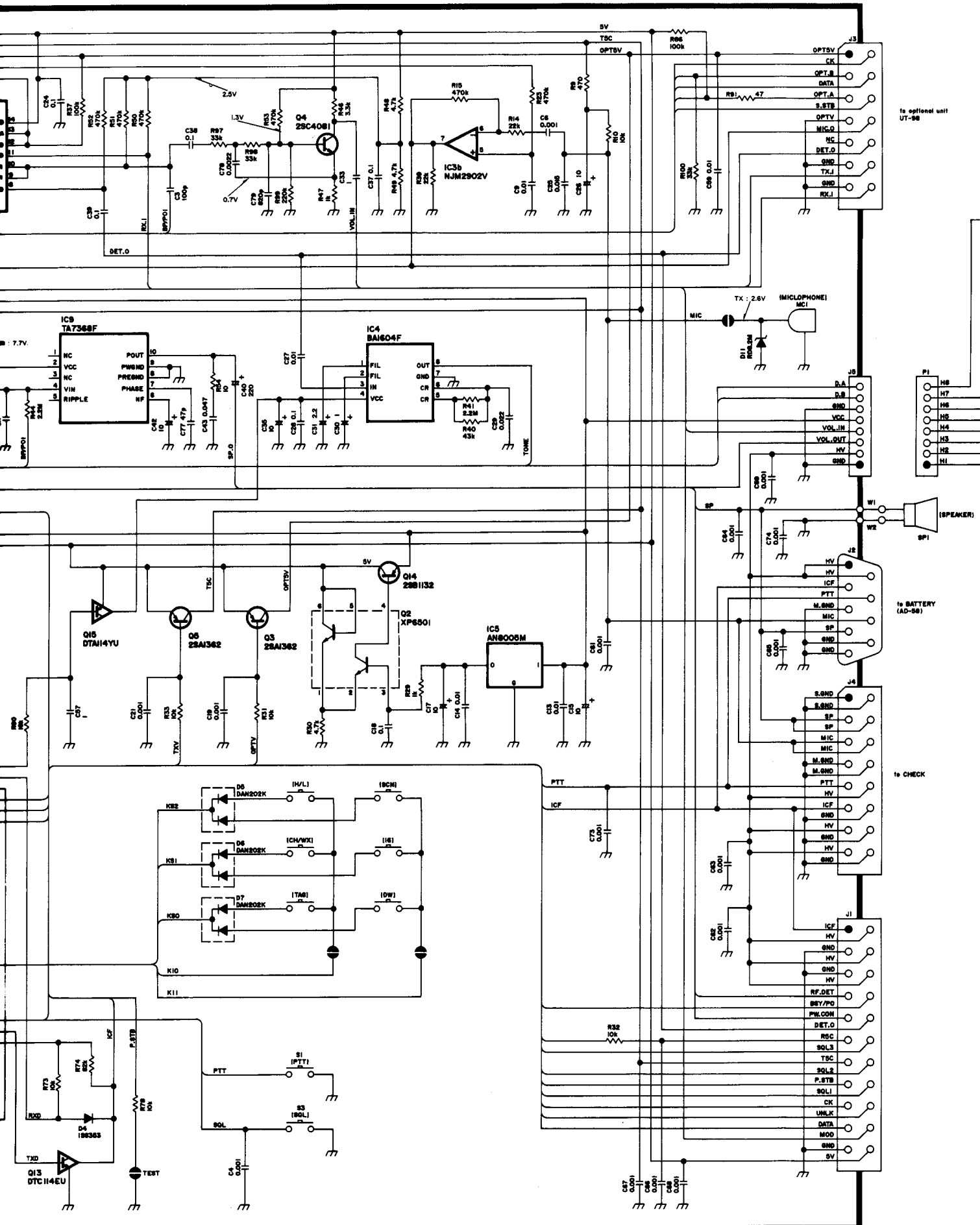


# SECTION 11 VOLTAGE DIAGRAM

## MAIN UNIT





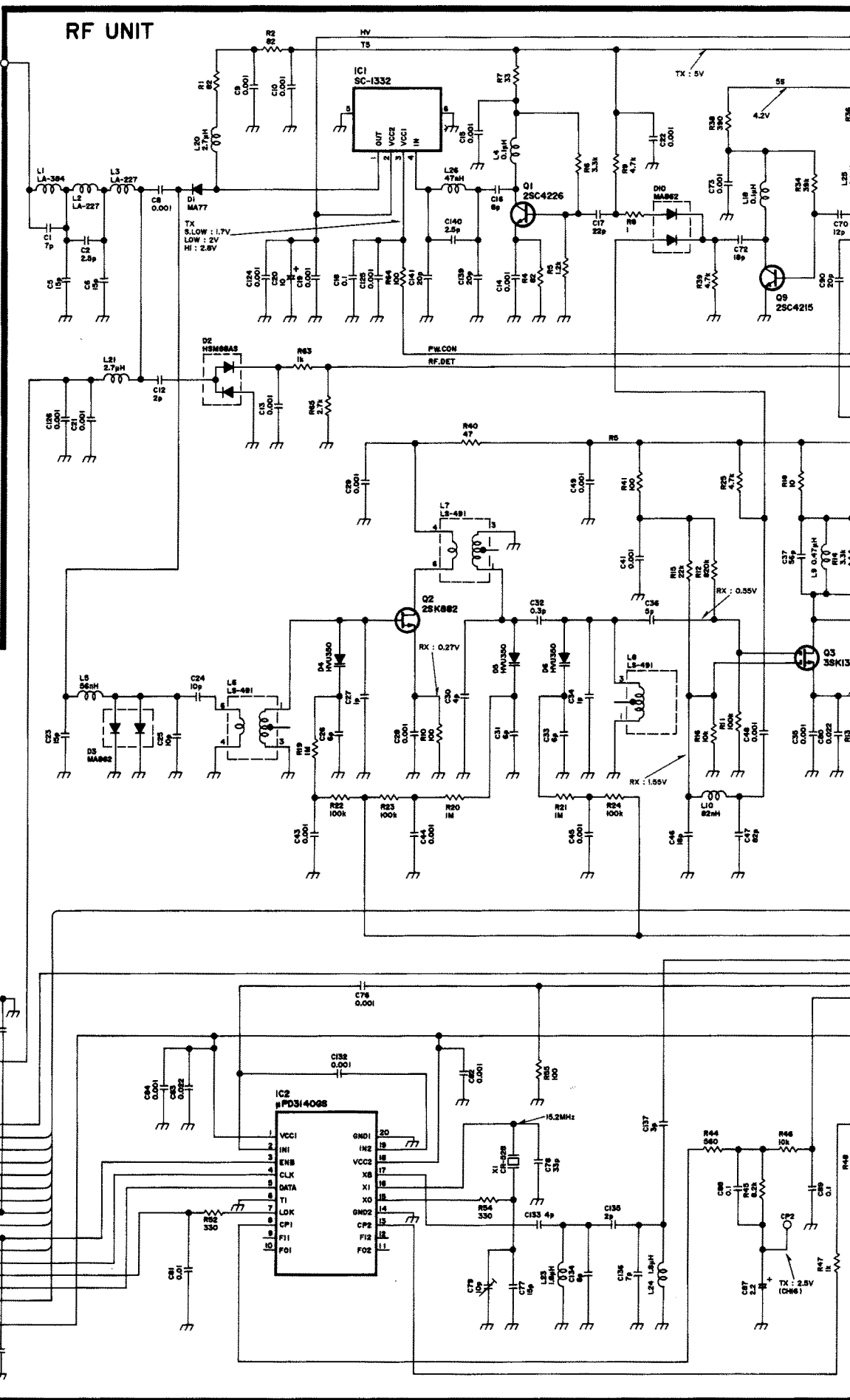
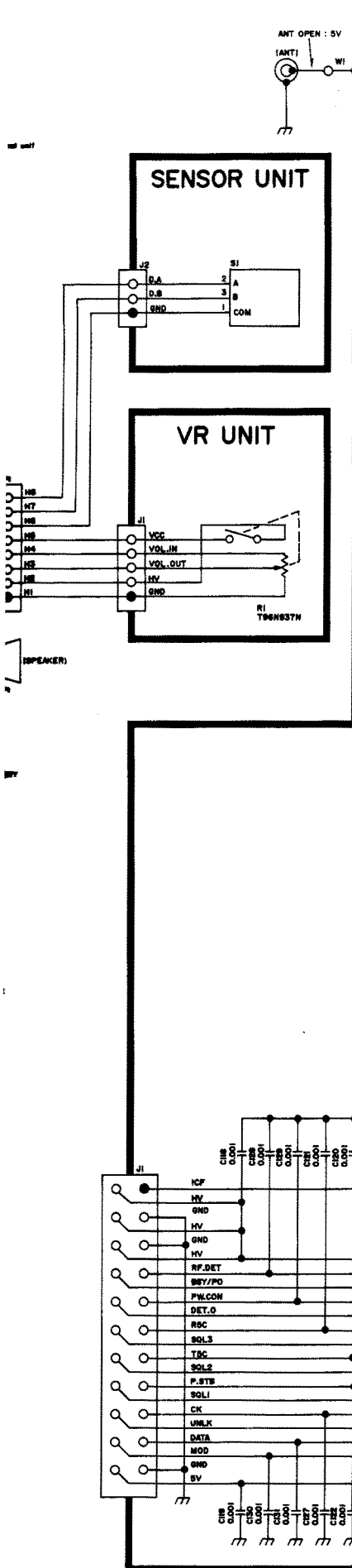


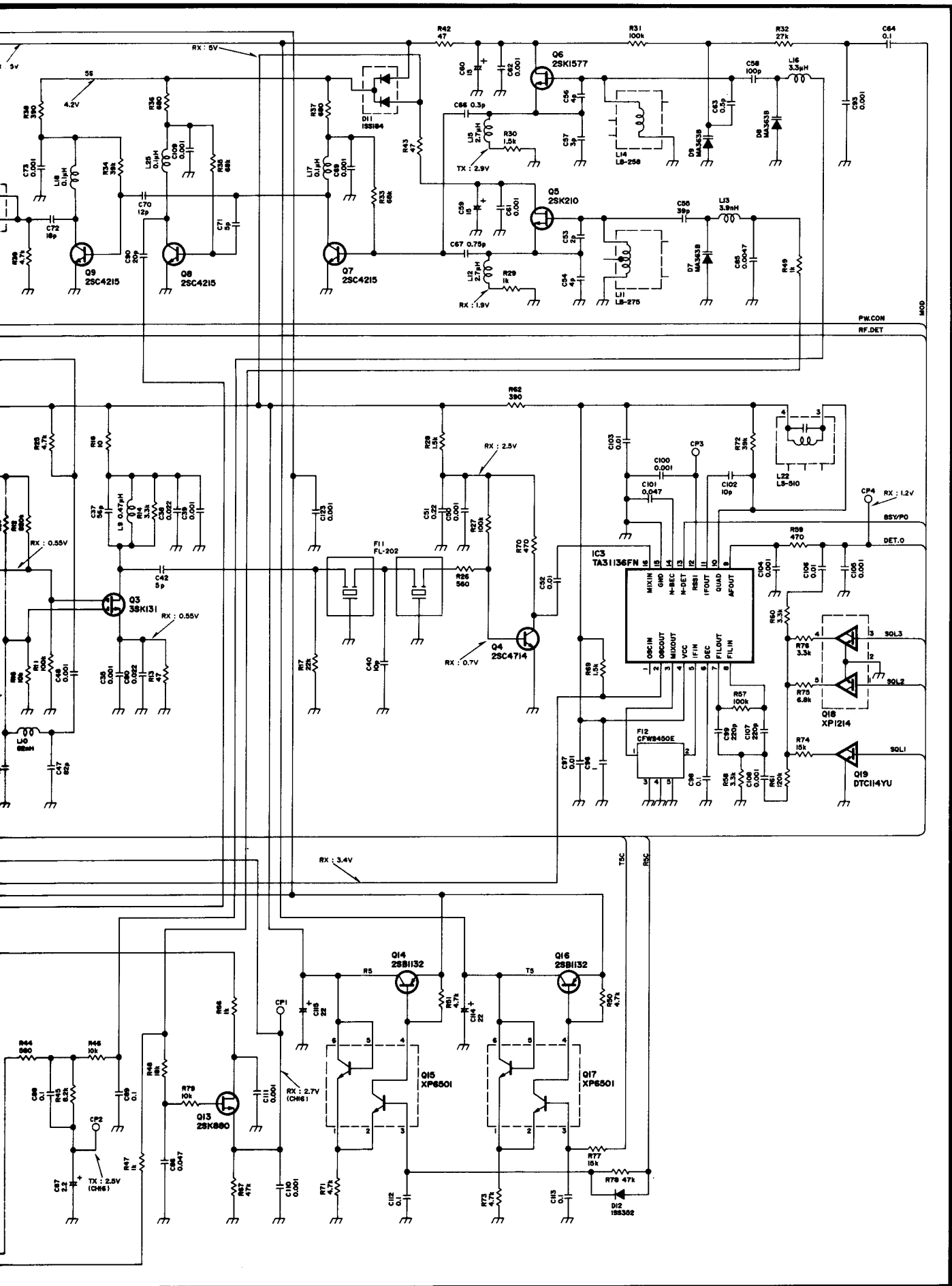
to optional unit UT-98

to BATTERY (AD-50)

to CHECK

to optional unit UT-98





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Fax : 61. 36. 03. 00  
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Count on us!

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