

**ICOM**

**SERVICE  
MANUAL**

COMMUNICATIONS RECEIVER

**IC-R9000/L**

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## INTRODUCTION

This service manual describes the latest service information at the time of printing for the **IC-R9000 COMMUNICATIONS RECEIVER** and covers the following versions:

VERSION	VERSION NUMBER
U.S.A.	#02
Europe	#03
Australia	#04
Germany	#05
France	#06

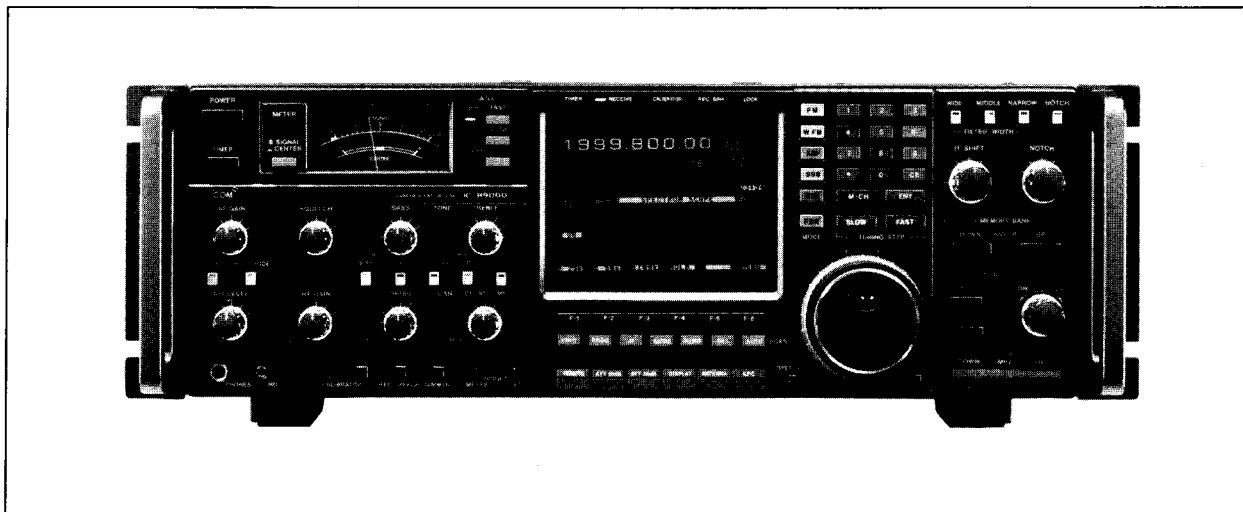
## DANGER

Use **ONLY** the specified AC voltage described on the AC power socket. Other voltages may cause receiver damage or personal injury.

**DO NOT** touch the REG UNIT after the receiver is connected to an AC outlet. An insulated tool must be used at all times.

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

**DO NOT** apply an RF signal of more than 100 mW (20 dBm) to the antenna connector. This could damage the receiver'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>

1130001000 IC  $\mu$ PD4066BC IC-R9000 MAIN UNIT 5 pieces  
8810004690 Screw BiH M4 x 5 ZK BS IC-R9000 Front cover 10 pieces

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

## REPAIR NOTE

1. Make sure a problem is internal before disassembling the receiver.
2. **DO NOT** open the receiver until the receiver is disconnected from a power source.
3. **USE** an external AC power supply to a receiver power source during testing.
4. **DO NOT** force any of the variable components. Turn them slowly and smoothly.
5. **DO NOT** short any circuits or electronic parts. An insulated tuning tool **MUST** be used for all adjustments.
6. **DO NOT** keep power ON for a long time when the receiver is defective.
7. **READ** the instructions of test equipment thoroughly before connecting equipment to the receiver.

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# SECTION 1 SPECIFICATIONS

• Frequency coverage :

VERSION	FREQUENCY COVERAGE			
U.S.A., Europe, Australia	0.10000 ~ 1999.80000			
Germany	13.95000~ 144.00000~ 1240.00000~1300.00000	14.50000 146.00000 1300.00000	28.00000~ 430.00000~	29.70000 440.00000
France	0.10000~	87.49999	108.00000~	1999.80000

(Unit: MHz)

• Mode : USB, LSB, CW, FSK, AM, FM, Wide FM

• Receive system : Superheterodyne system

• Intermediate frequencies :

FREQUENCY	0.10000~ 29.99999	30.00000~499.99999	500.00000~999.99999
1st IF	48.79376~ 48.80000	778.60001~778.70000	278.60001~278.70000
2nd IF	10.70000	10.70000	10.70000
3rd IF	0.45500	0.45500	0.45500
4th IF	10.70000	10.70000	10.70000

(Unit: MHz)

Frequencies above 1000 MHz use a crystal conversion system.

• Sensitivity :

MODE	SSB, CW, FSK	AM	FM	Wide FM
0.10000~ 0.49999	0.5 $\mu$ V	3.2 $\mu$ V	—	—
0.50000~ 1.79999	1.0 $\mu$ V	6.3 $\mu$ V	—	—
1.80000~ 29.99999	0.16 $\mu$ V	1.0 $\mu$ V	—	—
30.00000~ 999.99999	0.32 $\mu$ V	1.4 $\mu$ V	0.5 $\mu$ V	1.4 $\mu$ V
1000.00000~1239.99999	0.63 $\mu$ V	4.0 $\mu$ V	1.0 $\mu$ V	4.0 $\mu$ V
1240.00000~1299.99999	0.32 $\mu$ V	2.0 $\mu$ V	0.5 $\mu$ V	2.0 $\mu$ V
1300.00000~1599.99999	0.63 $\mu$ V	4.0 $\mu$ V	1.0 $\mu$ V	4.0 $\mu$ V
1600.00000~1999.80000	1.0 $\mu$ V	5.6 $\mu$ V	1.4 $\mu$ V	5.6 $\mu$ V

10 dB S/N for SSB, CW, FSK and AM.

12 dB SINAD for FM and Wide FM

Maximum sensitivity values are indicated in the chart above.

• Selectivity :

SSB, CW, FSK More than 2.4 kHz/−6 dB

AM More than 6 kHz/−6 dB

FM More than 15 kHz/−6 dB

Wide FM More than 150 kHz/−6 dB

• Audio output power :

More than 2.5 W at 10 % distortion with an 8  $\Omega$  load

• Audio impedance :

4~8  $\Omega$

• Power supply requirement :

100~120 V AC (U.S.A. version)

220~240 V AC (Australia, Europe and France versions)

220 V AC (Germany version)

• Antenna impedance :

50  $\Omega$  (unbalanced)

• Power consumption :

Less than 110 VA

• Usable temperature range :

−10  $^{\circ}$ C~+50  $^{\circ}$ C (+14  $^{\circ}$ F~+122  $^{\circ}$ F)

• Frequency stability :

0.1~30 MHz  $\pm$ 25 Hz

30~1999.8 MHz  $\pm$ 0.25 ppm

(0  $^{\circ}$ C~+50  $^{\circ}$ C; +32  $^{\circ}$ F~+122  $^{\circ}$ F)

• Dimensions :

424(W)  $\times$  150(H)  $\times$  365(D) mm 16.7(W)  $\times$  5.9(H)  $\times$  14.4(D) in.

(projections not included)

• Weight :

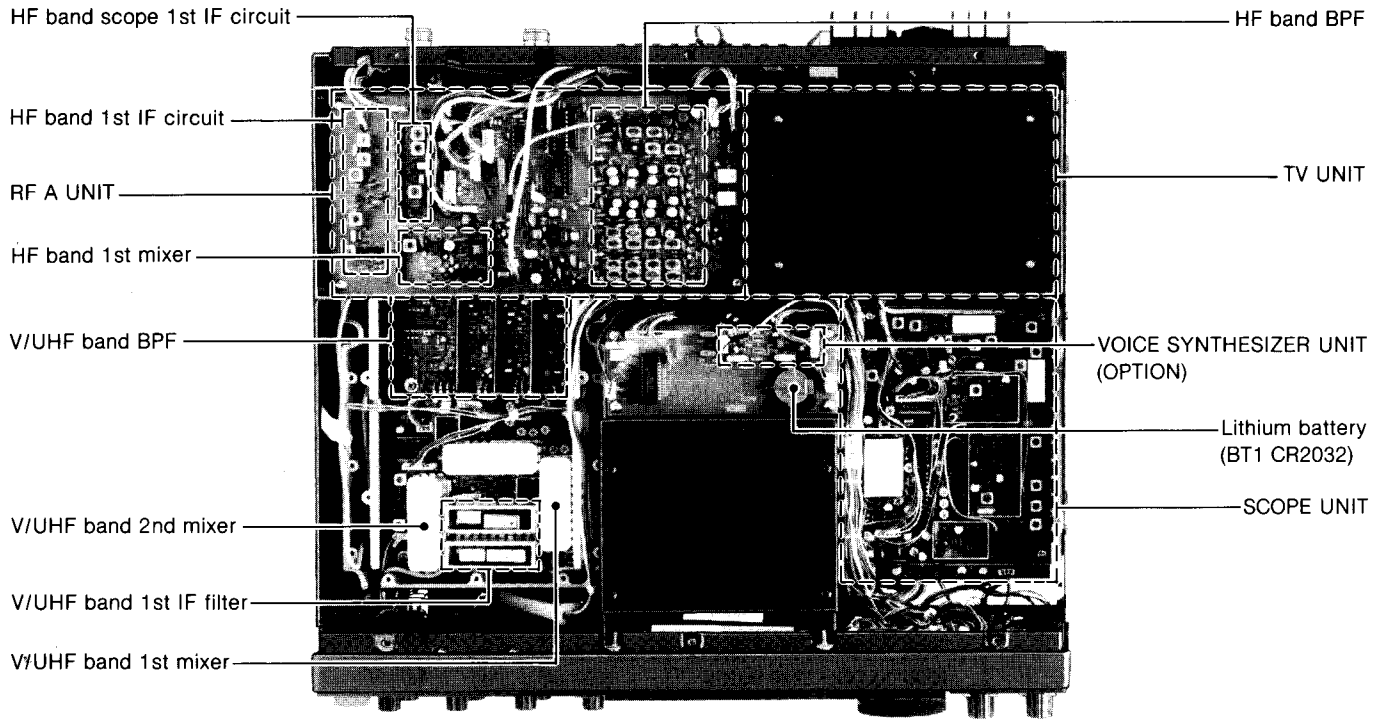
20.0 kg (44.1 lb)

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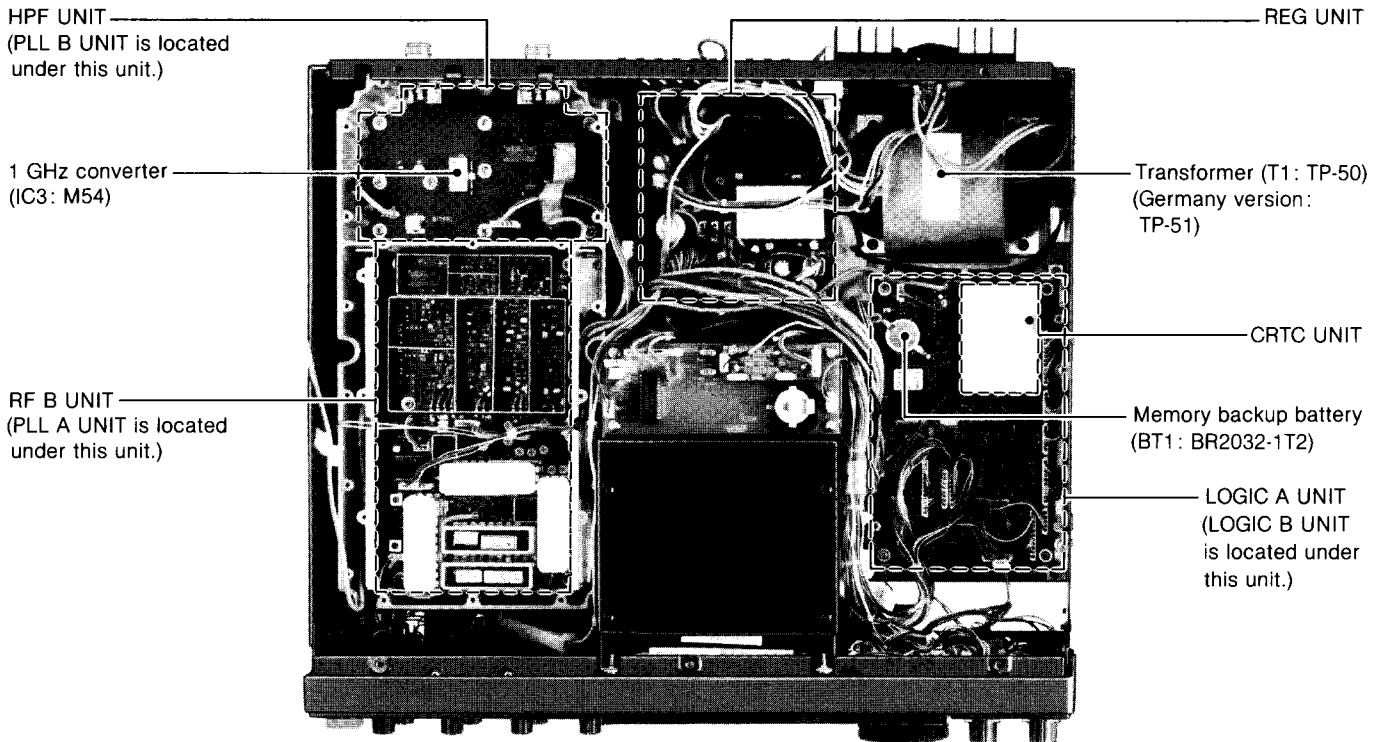
All stated specifications are subject to change without notice or obligation.

# SECTION 2 INSIDE VIEWS

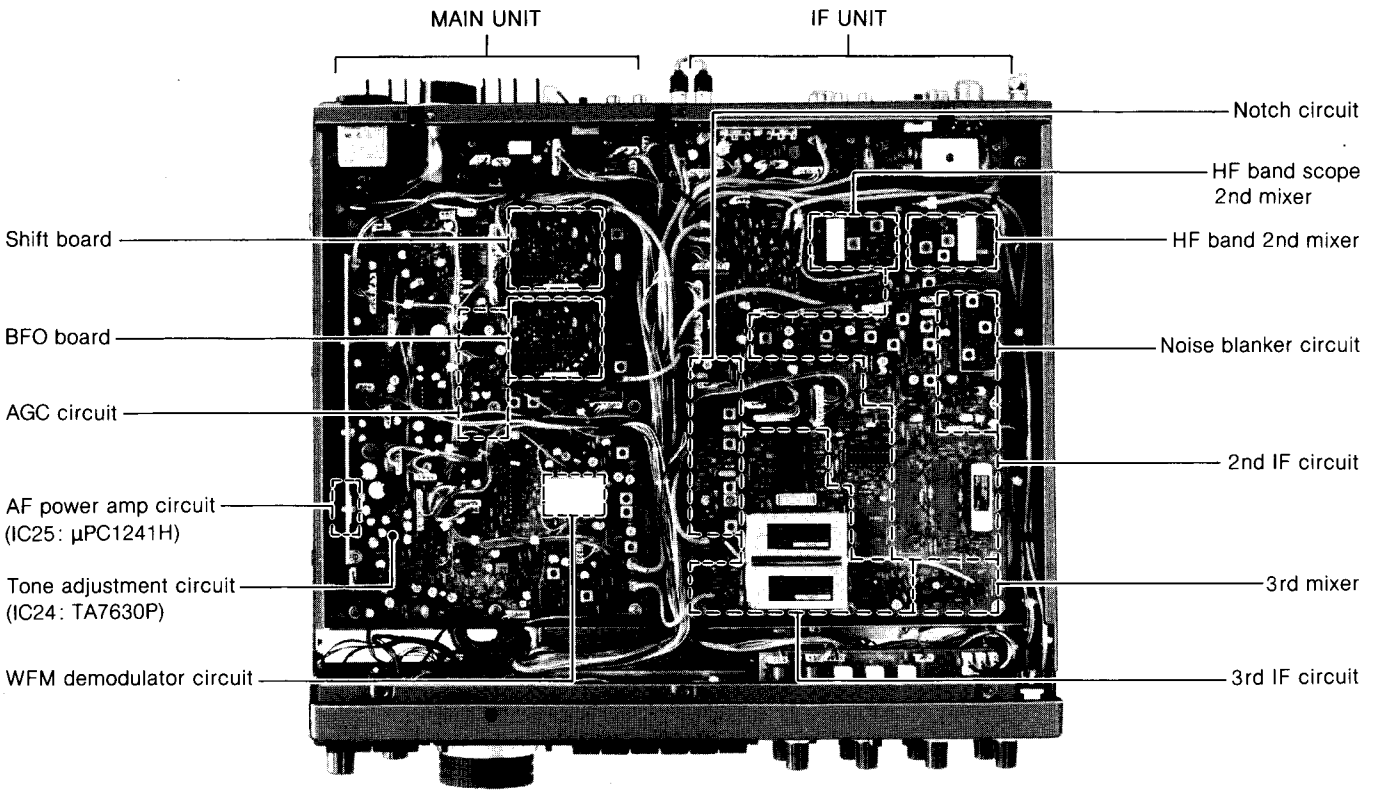
## • TOP VIEW



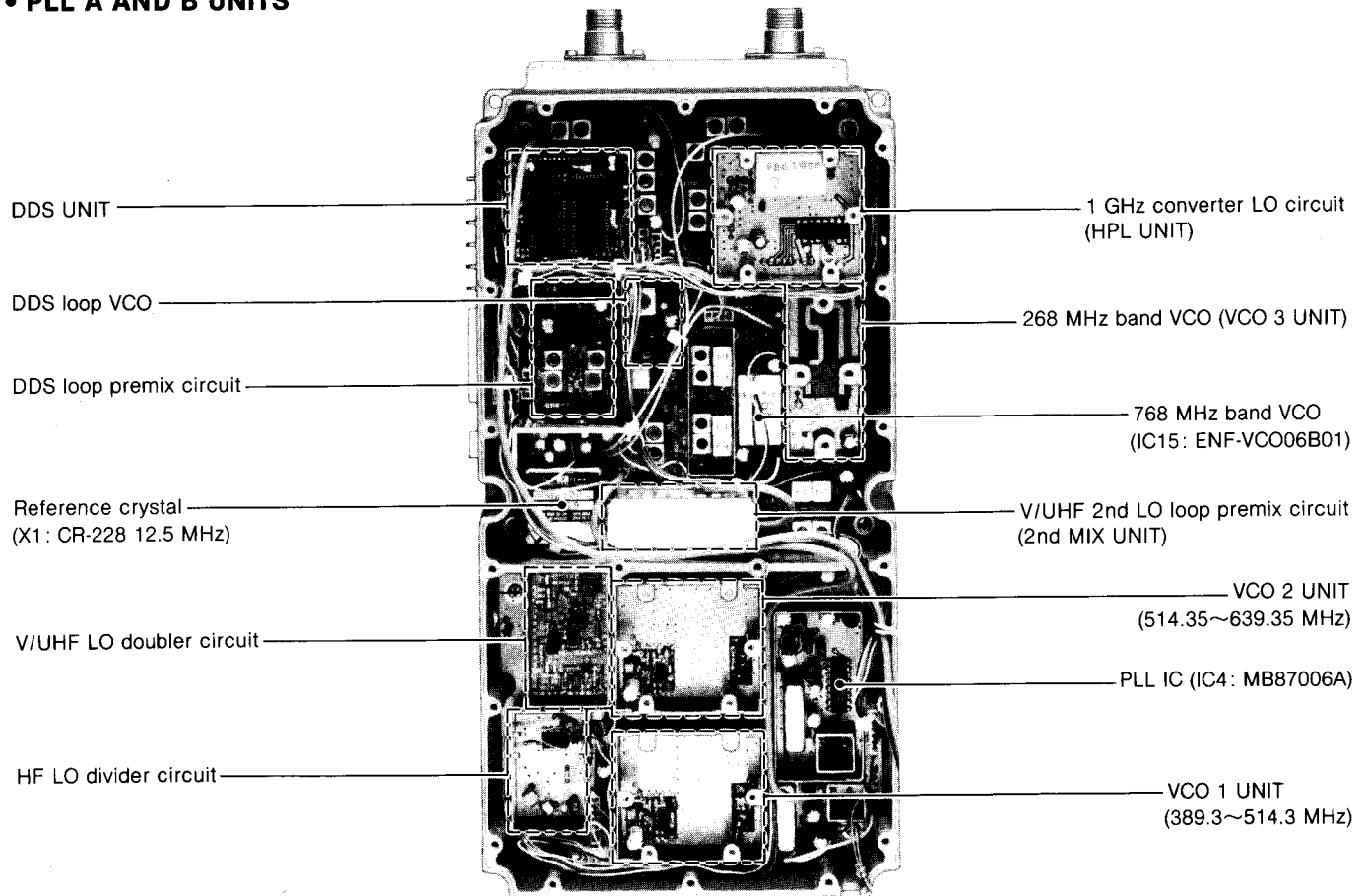
## • TOP VIEW (RF A AND TV UNITS ARE REMOVED)



• **BOTTOM VIEW**



• **PLL A AND B UNITS**



# SECTION 3 CIRCUIT DESCRIPTION

## 3-1 RECEIVER CIRCUITS

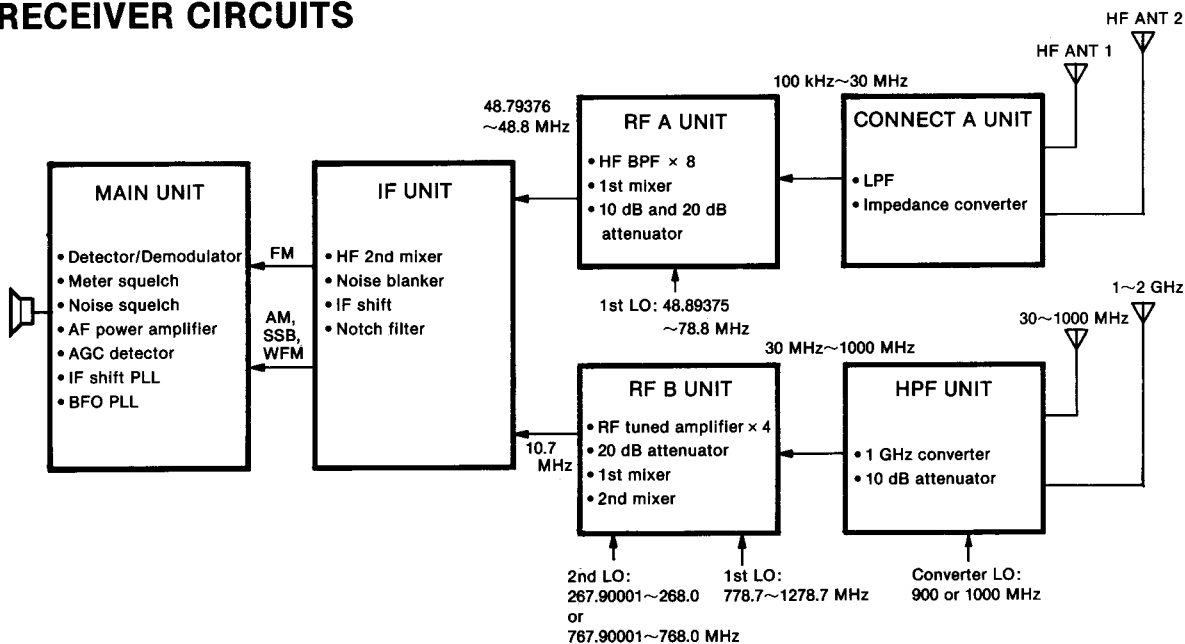


Fig. 1

### 3-1-1 ANTENNA SWITCHING CIRCUIT (CONNECT A AND HPF UNITS)

The IC-R9000 has 4 antenna connectors for a super wideband receiving range of 100 kHz to 1999.8 MHz. Received signals enter one of the 4 antenna connectors depending on the receive frequency range, [ANTENNA] switch and [HF ANT SW].

#### (1) 100 kHz~30 MHz (CONNECT A UNIT)

RF signals enter either the [HF ANT 1] connector or [HF ANT 2] jack depending on the [ANTENNA] switch and [HF ANT SW]. (See below)

SWITCH POSITION		SELECTED CONNECTOR
[HF ANT SW]	[ANTENNA]	
ANT 1	OFF	HF ANT 1
	ON	HF ANT 1
ANT 2	OFF	HF ANT 2
	ON	HF ANT 1

Table 1

RF signals from the [HF ANT 1] connector pass through C109, the HF antenna switching relay (RL102) and a low-pass filter. They are then applied to the RF A UNIT via J102.

RF signals from the [HF ANT 2] jack pass through the matching circuit (L106), the HF antenna switching relay (RL102) and a low-pass filter, and are then applied to the RF A UNIT via J102.

#### (2) 30 MHz~1000 MHz (HPF UNIT)

RF signals from the 30 MHz~1000 MHz antenna connector (J2) pass through the 1 GHz converter switching relay (RL1, RL2) and either bypass or are attenuated at the 10 dB attenuator, and are applied to the RF B UNIT via J3.

RL1 and RL2 are RF relay and are used for 1 GHz converter switching to ensure isolation. The attenuator control voltage (AT1) is obtained from the RF A UNIT.

#### (3) 1000 MHz~1999.8 MHz (HPF UNIT)

RF signals from the 1000 MHz~2000 MHz antenna connector (J1) pass through a high-pass filter and are applied to the wide range SHF amplifier (IC1). The amplifier provides 20 dB gain over a wide-band frequency range.

High-pass filter cut-off frequency is switched to either 900 MHz or 1000 MHz using varactor diodes (D1~D3) and Q1. The high-pass filter suppresses image signals below 1000 MHz and the LO signal from a 1 GHz converter circuit (IC3).

Amplified signals from IC1 are applied to the high-pass filter and mixed with the 1GLO signal from the PLL B UNIT to be converted to 100~999.8 MHz signals.

#### 1 GHz CONVERTER OUTPUT FREQUENCY

RECEIVE FREQUENCY	LO FREQUENCY	OUTPUT FREQUENCY
1000~1150	900	100~250
1150~1999.8	1000	150~999.8

Table 2

(Unit: MHz)

Converted signals are applied to the 3 dB attenuator (R19~R21) and then to the low-pass filter circuit where out-of-band signals above 1000 MHz are suppressed. The signals are applied to the 10 dB attenuator via RL2.

Strip lines, used in the high-pass and low-pass filters, provide GHz frequency stability.

### 3-1-2 HF RF BANDPASS FILTER (RF A UNIT)

The HF signals applied to the RF A UNIT either bypass or are selectively attenuated at 10 dB or 20 dB attenuators (30 dB when passing through both attenuators). The signals are then applied to RF filters.

The RF A UNIT has 8 RF bandpass filters for signals above 2.0 MHz and 3 low-pass filters for signals below 2.0 MHz. The signals pass through one of the bandpass or low-pass filters depending on the receive frequency range.

#### (1) 0.1~0.5 MHz

Signals are applied to a low-pass filter via D22. Diodes (D22, D24) are turned ON when the "B1" line is "HIGH." Filtered signals are applied to the 1st mixer circuit (Q1, Q2) via D24.

#### (2) 0.5~1.6 MHz

Signals are applied to a low-pass filter via D23. Diodes (D23, D25) are turned ON when the "B2" line is "HIGH." Filtered signals are applied to the 1st mixer circuit (Q1, Q2) via D25.

#### (3) 1.6~30 MHz

Signals are applied via D3 to a high-pass filter consisting of L5, L6, C5~C9. This filter suppresses strong signals below 1.6 MHz such as a broadcasting station.

Filtered signals below 2.0 MHz are applied to a low-pass filter via D4. Diodes (D4, D5) are turned ON when the "B3" line is "HIGH."

Filtered signals above 2.0 MHz are applied to one of 8 bandpass filters depending on the frequency of the signals.

After passing through a bandpass or low-pass filter, the signals are applied to the L-type attenuator by using D27 and D28. The attenuator functions as an RF AGC circuit. These diodes are pin diodes and are controlled by AGC bias voltage via Q4 and Q5. When strong signals are received, the AGC circuit increases the attenuation level, preventing front-end overloading.

The signals from the attenuator are amplified by the preamplifier circuit (Q8, Q9). The preamplifier provides stable gain over all HF band frequency range. Amplified signals are applied to the 1st mixer circuit (Q1, Q2) via D29.

#### (4) FILTER SWITCHING CIRCUIT

To obtain BPF or LPF switching voltage (B1~B11), a 4-bit band signal (D1~D4) from the LOGIC A UNIT is decoded at the expander (IC3) as shown below and the resulting signals are current-amplified at IC1 and IC2.

A diode switching current from the BPF or LPF is applied to contacts of the relay (RL1, RL2) to prevent bad contacts. Band switching voltage (B1~B4, BH) is also applied to the RF B UNIT.

**FREQUENCY AND SELECTED PORT OF IC3**

RECEIVE FREQUENCY	INPUT DATA				SELECTED PORT (HIGH)
	PIN 22: D4	PIN 21: D3	PIN 3: D2	PIN 2: D1	
0.03~ 0.49999	L	L	L	L	Pin 11: S0
0.5~ 1.59999	L	L	L	H	Pin 9 : S1
1.6~ 1.99999	L	L	H	L	Pin 10: S2
2.0~ 2.99999	L	L	H	H	Pin 8 : S3
3.0~ 3.99999	L	H	L	L	Pin 7 : S4
4.0~ 5.99999	L	H	L	H	Pin 6 : S5
6.0~ 7.99999	L	H	H	L	Pin 5 : S6
8.0~ 10.99999	L	H	H	H	Pin 4 : S7
11.0~ 15.49999	H	L	L	L	Pin 18: S8
15.5~ 21.99999	H	L	L	H	Pin 17: S9
22.0~ 29.99999	H	L	H	L	Pin 20: S10
30.0~ 89.99999	H	L	H	H	Pin 19: S11
90.0~ 249.99999	H	H	L	L	Pin 14: S12
1000.0~1249.99999	H	H	L	H	Pin 13: S13
250.0~ 499.99999	H	H	H	L	Pin 16: S14
1500.0~1749.99999	H	H	H	H	Pin 15: S15
750.0~ 999.99999	H	H	H	H	Pin 15: S15
1750.0~1999.8	H	H	H	H	Pin 15: S15

**Table 3**



### 3-1-3 HF 1ST MIXER CIRCUIT (RF A UNIT)

The signals from the HF RF bandpass filter are applied to a low-pass filter (L57~L59, C96~C100) cut off at 30 MHz. The signals enter the 1st mixer circuit (Q1, Q2) to be converted to a 48.79376~48.8 MHz 1st IF signal.

The 1st mixer circuit employs a balanced mixer using low-noise junction FETs (2SK125×2) to expand the dynamic range.

#### HF 1ST MIXER

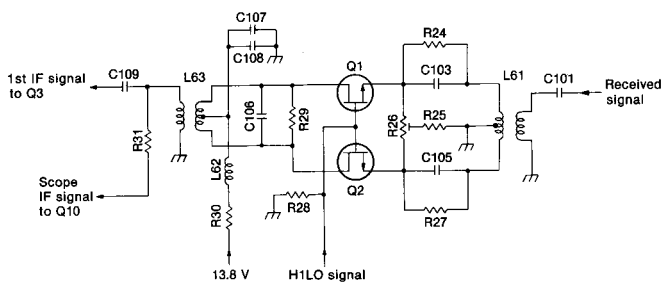


Fig. 2

The 1st LO signal (H1LO: 48.89375~78.8 MHz) enters the RF A UNIT from the PLL A UNIT via P7. The signal is filtered by a high-pass filter, amplified at Q6, filtered by a low-pass filter, and then applied to the 1st mixer circuit (Q1, Q2).

The 1st IF signal passes through an excellent reverse isolation buffer amplifier (Q3) adopting a grounded-gate buffer amplifier. The 1st IF signal is applied to the pair of MCF (Monolithic Crystal Filter; FI1(a)) to suppress out-of-band signals. The signal is amplified at the IF amplifier (Q7), and is filtered at the MCF (FI1(b)). The signal then enters the IF UNIT via J4 (IF UNIT: J1).

The 1st IF signal from the 1st mixer circuit is also applied to the scope amplifier Q10 via R31 and then to the IF UNIT via J5.

### 3-1-4 V/UHF RF CIRCUIT (RF B UNIT)

The V/UHF signals from the HPF UNIT are applied to a bandpass filter and either bypass or are attenuated at 20 dB attenuator (R2~R8, C8). C8 compensates an RF frequency attenuation level.

IC-R9000 has 4 tuned bandpass filters for V/UHF band signals (above 30 MHz). The signals pass through one of the bandpass filters depending on the receive frequency range.

Each tuned bandpass filter has a tuned RF amplifier which provides 10 dB gain. Table 4 shows a relation among receive frequencies, tuned filters and RF amplifiers.

RECEIVE FREQUENCY (MHz)	TUNED FILTER (RF AMPLIFIER)
30~ 90	BPF1 (Q1)
90~ 250 1000~1250	BPF2 (Q2)
250~ 500 1250~1500	BPF3 (Q3)
500~1000 1500~1999.8	BPF4 (Q4)

Table 4

Diode switches (D5, D11, D12, D18, D19, D25) and RF relays (RL1, RL2) are used for filter selection. BPF switching voltage (BPF1~BPF4) is obtained via IC5 by decoding band signals (B1~B4) from the RF A UNIT.

#### (1) BPF1

Signals passed through RL1 and D5 are applied to a parallel resonance circuit (D6, L11, C15) to suppress interference signals whose frequencies are half of receive frequencies. The signals are applied to the RF amplifier (Q1).

The RF amplifier input tuning circuit consists of D7, D8 and L12~L14. The RF amplifier output tuning circuit consists of D9, D10 and L16~L18. These tuning circuits are controlled by the tuned voltage from IC1a.

Zener diode D50 prevents over maximum rated charging to the varactor diodes.

#### (2) BPF2

Signals, passed through RL1 and D12, are applied to a parallel resonance circuit (D13, L22, C25) to suppress interference signals whose frequencies are half of receive frequencies. In addition, serial resonance circuit (D14, L70, C61) suppresses strong signals above 80 MHz and below 110 MHz such as an FM or TV broadcasting station. The signals are applied to the RF amplifier (Q2).

The RF amplifier input tuning circuit consists of D17, L23~L25 and C119. The RF amplifier output tuning circuit consists of D17, L27~L29 and C120. These tuning circuits are controlled by the tuned voltage from IC1b.

Diode D51 prevents applying minus voltage to the varactor diodes.

### (3) BPF3

Signals, passed through RL1 and D19, are applied to the 240 MHz cut-off high-pass filter to suppress interference signals. The signals are applied to the RF amplifier (Q3).

The RF amplifier input tuning circuit consists of D21, D22, L33 and L34. The RF amplifier output tuning circuit consists of D23, D24, L36 and L37. These tuning circuits are controlled by the tuned voltage from IC2a.

### (4) BPF4

Signals passed through RL1 are applied to a parallel resonance circuit (D26, L39, L45) to suppress interference signals whose frequencies are half of those of receive frequencies. The signals are applied to the RF amplifier (Q4).

The RF amplifier input and output tuning circuits use strip lines to provide GHz frequency stability. The tuned voltage from IC2b is applied to varactor diodes (D27~D30) in the tuning circuits.

### (5) 2ND RF AMPLIFIER

The signals passed through the bandpass filter are applied to the 2nd RF amplifier (Q7) and then to the tuned notch circuit. The RF amplifier provides 10 dB gain over a wideband frequency range.

## 3-1-5 TUNED NOTCH CIRCUIT (RF B UNIT)

The signals from Q7 pass through the tuned notch circuit and are then applied to the V/UHF 1st mixer circuit (IC6).

This notch circuit prevents the 1st LO signal (778.7~1278.7 MHz) leakage to the antenna connector and consists of strip lines and D31~D34. The notch frequency is controlled by the tuned voltage from IC3a and is tuned to the 1st LO frequency. The low-pass filter (C78, C82, C85, C89, C137 and strip lines) suppresses high harmonic components of the 1st LO signal.

## 3-1-6 TUNED CONTROL CIRCUIT (RF B UNIT)

This circuit converts the lock voltage from the PLL A UNIT to the tuned voltages for the tuned notch circuit and BPF1~BPF4. Fig. 3 shows a relation between the lock voltage and tuned voltages.

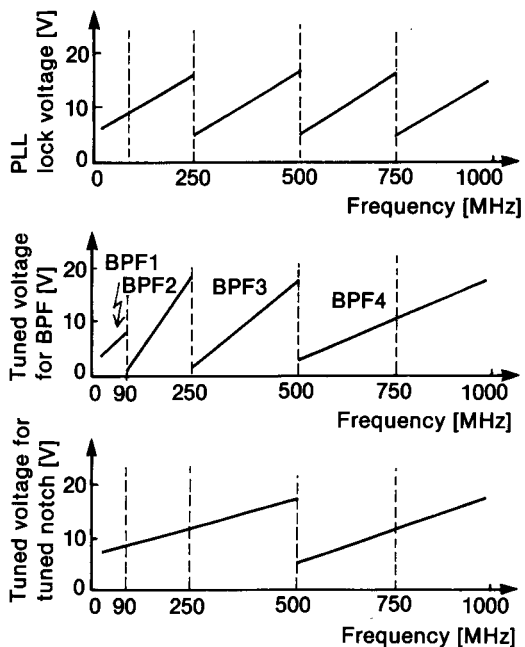


Fig. 3

The PLL lock voltage (CV) from the PLL A UNIT is impedance-converted at the DC-amplifier (IC3b) and is applied to the operational amplifiers (IC1, IC2, IC3a).

A tuned voltage for BPF4 is supplied from IC2b. The gain and offset voltage of IC2b are switched by Q9 and Q10 respectively to convert the variations of 2 PLL lock voltages to a continuous tuned voltage. Q9 and Q10 are controlled by the band signal (BH).

A tuned voltage for the tuned notch circuit is supplied from IC3a. The offset voltages of IC3a are switched by Q11 to convert the variations of 4 PLL lock voltages to 2 continuous tuned voltages.

## 3-1-7 V/UHF 1ST MIXER (RF B UNIT)

The signals passed through the tuned notch circuit are applied to the 1st mixer (IC6) and mixed with the 1st LO signal to be converted to the 1st IF signal as shown in the table below. IC6 is a DBM (Double Balanced Mixer).

V/UHF 1ST IF, 1ST LO AND 2ND LO FREQUENCIES

RECEIVE FREQUENCY [MHz]	1ST IF [MHz]	1ST LO FREQUENCY [MHz]	2ND LO FREQUENCY [MHz]
30~ 90	778.6~778.7	808.7~ 868.7	767.9~768.0
90~ 250 1000~1250	778.6~778.7	868.7~1028.7	767.9~768.0
250~ 500 1250~1500	778.6~778.7	1028.7~1278.7	767.9~768.0
500~1000 1500~1999.8	278.6~278.7	778.7~1278.7	267.9~268.0

The 1st LO signal (V1LO: 778.7~1278.7 MHz) from the PLL A UNIT is applied to the bandpass filter (strip line, L78, C53~C55, C59, C77, C134) to suppress out-of-band signals that cause spurious components. Filtered signals are amplified to 10 dBm at the 1st LO amplifier (Q5, Q6) and applied to the 1st mixer.

### 3-1-8 HF IF CIRCUIT (IF UNIT)

The HF 1st IF signal from the RF A UNIT is converted to a 10.7 MHz 2nd IF signal at the 2nd mixer (IC1). IC1 is a DBM.

The HF 2nd LO signal (H2LO: 38.09375~38.1 MHz) from the PLL B UNIT via J2 is amplified at Q4 and applied to the 2nd mixer. The converted 2nd IF signal via D1 or V/UHF 2nd IF signal from the RF B UNIT via D2 is applied to the 2nd IF circuit.

The HF scope signal (S1IF) entered from J4 is applied to the pin diode attenuator (D41, D42) which is controlled by a scope AGC circuit. The signal is mixed with the H2LO signal to be converted to a 10.7 MHz 2nd IF signal. The resulting signal enters the SCOPE UNIT via J12.

### 3-1-9 V/UHF IF CIRCUIT (RF B UNIT)

The 1st IF signal (278.7 MHz or 778.7 MHz band) from the 1st mixer (IC6) is applied to the IF amplifier (Q8) and then to the corresponding IF filter. Q8 provides 10 dB gain over a wideband frequency range.

### V/UHF 1ST IF FILTER CHARACTERISTICS

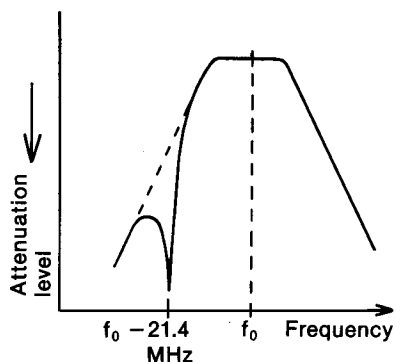


Fig. 4

#### (1) 30~500 MHz and 1000~1500 MHz

The 778.7 MHz band 1st IF signal is applied to the dielectric bandpass filter (F11) and dielectric notch filter (F12). The notch filter suppresses 757.3 MHz image signals.

The filtered signal is applied to the low-pass filter (strip line, C139~C141) to suppress high harmonic components and then to the 2nd mixer (IC7).

#### (2) 500~1000 MHz and 1500~1999.8 MHz

278.7 MHz band 1st IF signals are applied to the helical bandpass filter (L46) and notch filter (L67, C88). The notch filter suppresses 257.3 MHz image signals. To ensure out-of-band suppression, serial resonance circuits (L73, C86, L74, C90) are provided at the input and output tuning circuits.

The filtered signal is applied to the low-pass filter (strip lines, C162~C166) to suppress high harmonic components and then to the 2nd mixer (IC7).

### 3-1-10 V/UHF 2ND MIXER (RF B UNIT)

The signal from a 1st IF filter passes through the 1000 MHz cut-off low-pass filter and is converted to a 10.7 MHz 2nd IF signal at the 2nd mixer (IC7). The signal is applied to the 300 MHz cut-off low-pass filter to suppress high harmonic components, amplified at the IF amplifier (Q18), and then applied to J3 on the IF UNIT. The 2nd IF signal is then applied to a 2nd IF filter, F11, F13 or F14 where commonly used with an HF band.

A portion of the 2nd IF signal is buffer-amplified at Q19, filtered by the 20 MHz cut-off low-pass filter and is then applied to J5 on the IF UNIT. The signal is used in the SCOPE UNIT and applied to the [IF OUT] jack.

The 2nd LO signal (V2LO: 267.90001~268.0 MHz or 767.90001~768.0 MHz) from the PLL B UNIT is applied to the 1000 MHz cut-off low-pass filter and is amplified to 0 dBm at the 2nd LO amplifier (Q16, Q17). The LO signal passes through an attenuator and is applied to the 1st mixer (IC7).

### 3-1-11 2ND IF CIRCUIT (IF UNIT)

The 2nd IF circuit and later circuits are commonly used with the HF and V/UHF signal line. The common line is then separated by 3 depending on the operating mode: WFM, FM or another mode.

In WFM mode, the 2nd IF signal is applied to the wide IF filter (F11) and is then amplified at the 2nd IF amplifier (Q1). F11 has a 230 kHz passband width. The amplified signal passes through the IF filter (F12), is amplified at Q2 and Q3, and then enters the MAIN UNIT via J20 ("BIF" line).

In FM mode, the 2nd IF signal is applied to a 2nd IF filter (F13 for FM-w or F14 for FM-m/n) and is then amplified at the 2nd IF amplifier (Q5 or Q8). The amplified signal bypasses the 10.7 MHz filter and is converted to the 455 kHz 3rd IF signal at IC5. The 3rd IF signal passes through a 3rd IF filter (one of F18~F10) and buffer amplifier (Q13), then enters the MAIN UNIT via J15 ("AIF" line).

In another mode, the signal passes through the 2nd IF filter (F14) and the noise blanker gate (D9~D12) and is then amplified at the 2nd IF amplifier (Q8). The amplified signal bypasses (in AM mode) the 10.7 MHz filter (F17) or passes through it (in another mode).

The signal is buffer-amplified at Q9 and is then mixed with the 3rd LO signal (IFS) from the MAIN UNIT to be converted to a 455 kHz 3rd IF signal at IC5. The 3rd IF signal is amplified at the 3rd IF amplifier (Q10) and passes through one of the six 455 kHz filters (F18~F113).

The signal from a 455 kHz filter is applied to the buffer amplifier (Q14) and is then mixed with the 4th LO signal (IFS) to be converted to a 10.7 MHz 4th IF signal at IC4.

The converted signal either enters or bypasses the notch circuit and is applied to the IF filter (F17) to suppress out-of-band signals. The filtered signal enters the MAIN UNIT via J20 ("BIF" line).

Dual-gate FETs are used on the 2nd and 3rd IF amplifiers (Q1, Q3, Q5, Q8, Q10). The 2nd gates of the IF amplifiers are controlled by AGC bias voltage from the MAIN UNIT. The 10.7 MHz and 455 kHz filters are selected with control signals from the IF filter switching circuit. Refer to Section 3-1-21 IF FILTER SWITCHING CIRCUIT for information regarding filters and filter switch/operating mode combinations.

### 3-1-12 NOISE BLANKER CIRCUIT (IF UNIT)

The IC-R9000 uses a noise trigger noise blanker circuit.

A portion of the 2nd IF signal from F14 is amplified at the noise amplifier (Q17~Q19), which employs dual-gate FETs for a wide AGC dynamic range. The signal is detected at the noise detector (D90, D91). A detected voltage is applied to the noise AGC circuit (Q26) and fed back to the noise amplifier as the AGC voltage.

The time constant of the noise AGC circuit is determined by R191 and C161. This AGC circuit does not operate for pulse-type noise. By applying pulse-type noise to the noise gate control circuit, normal signal strength reduces the gain of the noise amplifier.

The detected voltage from the noise detector (D90, D91) is applied to the two pulse amplifiers (Q25 and Q27). Q27 amplifies narrow-width pulses with the differentiating circuit (C168, R203). Q25 amplifies high level noise by using D94. D94 adds the threshold voltage to Q25.

The threshold level of each pulse amplifier is controlled by the [NB-LEVEL] control. When the detected voltage exceeds the threshold level, Q24 outputs a blanking signal to activate the noise blanker gate (D9~D12).

The NB-wide circuits consist of a pulse width stretch (Q21, Q22), gate drive (Q23) and blank pulse delay circuits. The blanking signal from Q24 enters the pulse width stretch circuit and turns Q23 ON and OFF. The stretch length of the pulse width stretch circuit is switched by the [NAR/WIDE] switch. The blank pulse delay circuit (Q51, D92) deactivates Q21 when receiving a narrow-width pulse noise.

Q20 cancels the noise blanker operation after 2 msec. (when [NAR/WIDE] is OFF) or 15 msec. (when [NAR/WIDE] is ON).

### IF CIRCUIT

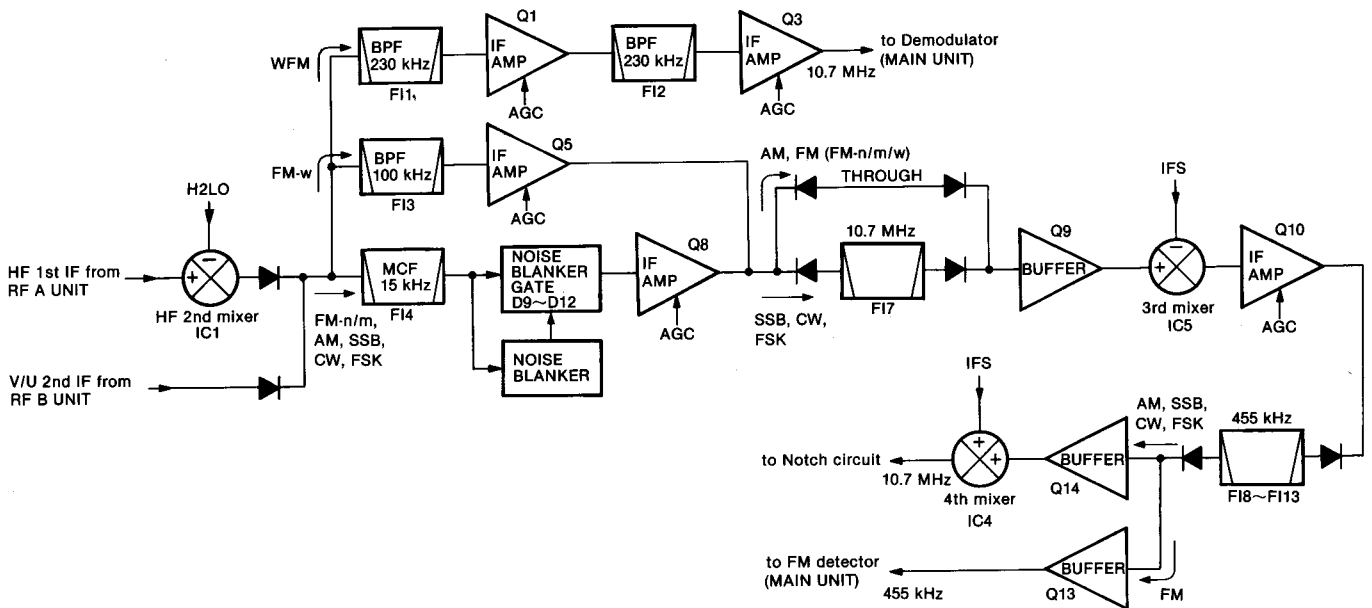


Fig. 5

### 3-1-13 NOTCH FILTER CIRCUIT (IF UNIT)

The converted 4th IF signal from IC4 is applied to the notch filter circuit (X1, D85, D86, L55). To adjust the notch frequency, a bias voltage controlled by the [NOTCH] control is applied to the varactor diode (D85). When the [NOTCH] switch is turned OFF, Q50 is turned ON and the 4th IF signal bypasses the notch filter through D81 and D83.

The signal from the notch filter is applied to the MCF (F114) to filter leaked signal components from the 4th LO signal used at IC4. The signal is then applied to the MAIN UNIT.

### 3-1-14 IF SHIFT OSCILLATOR (MAIN UNIT)

This oscillator circuit consists of a VCO (Q403), a dual modulus prescaler (IC402) and a PLL IC (IC403). A 12.5 MHz reference frequency oscillated at the PLL B UNIT is buffer-amplified at Q28 in the MAIN UNIT, and is applied to this oscillator circuit.

The output is applied to the 3rd and 4th mixers in the IF UNIT. The output frequency is adjusted by the [IF SHIFT] control to electronically change the center frequency of the 455 kHz IF filter.

A 90.2 MHz band signal (90.08~90.32) is oscillated at the VCO circuit (Q403) and is divided by 40 at IC401 to obtain 2.255 MHz. VCO output, buffer-amplified at Q401, passes through the low-pass filter where high harmonic components are reduced. The resulting signal is mixed with the 12.5 MHz reference signal to produce a 10.245 MHz signal.

The signal passes through the MCF (F11), is amplified at Q25, and is then applied to the IF UNIT as the IFS (IF Shift) signal.

### 3-1-15 BFO CIRCUIT (MAIN UNIT)

This circuit is similar to the IF shift oscillator, and consists of a VCO (Q503), a dual modulus prescaler (IC502) and a PLL IC (IC503). The 12.5 MHz reference frequency buffer-amplified at Q28 is applied to this oscillator circuit. The BFO signal is used in a product detector.

A 72 MHz band signal (71.932~72.088) is oscillated at VCO circuit (Q503) and is divided by 40 at IC501 to obtain 1.8 MHz. VCO output, buffer-amplified at Q501, passes through the low-pass filter and is mixed with the 12.5 MHz reference signal to produce a 10.7 MHz signal.

The signal passes through the crystal filter (F12), is amplified at Q27, and is then applied to the product detector. The frequency is controlled by N-data from the CPU to adjust the mode shift frequencies.

### 3-1-16 DEMODULATOR CIRCUIT (MAIN UNIT)

The IC-R9000 has 5 demodulator circuits for corresponding to SSB/CW/FSK, AM, WFM, FM-n/FM-m and FM-w modes. Any demodulated signals are applied to the common AF circuit via an AF input mode selector switch, IC23.

In SSB/CW/FSK mode, the 4th IF signal entered via J19 is amplified at Q19 and Q20 and is then mixed with the BFO signal at the product detector (IC19) for demodulation into an AF signal. The detected signal passes through the AF input mode selector switch (IC23 pins 1 and 2).

In AM mode, the 4th IF signal entered via J19 is amplified at Q19 and Q20 and is impedance-converted at Q21. The signal is then detected at D24, amplified at Q22, and passes through the AF input mode selector switch (IC23, pins 3 and 4).

In WFM mode, the 2nd IF signal entered via J19 is amplified at Q19 and Q20 and is impedance-converted at Q21. The signal is then applied to a WFM IF IC chip (IC20, pin 1). IC20 contains the limiter amplifier and an FM detector circuit. The WFM signal is amplified at the limiter amplifier section, passes through the filter section and is applied to the FM detector section to be demodulated into an AF signal. The signal is applied to the AF input mode selector switch (IC23, pins 10 and 11) and the center meter circuit (IC14).

#### WFM DEMODULATOR CIRCUIT

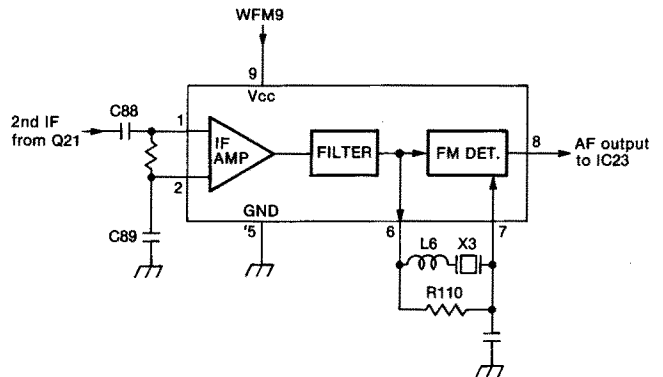


Fig. 6

In FM mode, the 3rd IF signal entered via J18 is amplified at the limiter amplifier (IC21, Q1, IC22) and is then applied to a detector circuit, X1 or X2.

In FM-n or FM-m mode, the signal from IC22 passed through Q2 is applied to the ceramic discriminator (X1) to demodulate the 3rd IF signal into an AF signal. The detected signal is applied to an active filter (Q3, Q4) to suppress unwanted signals. The signal is applied to the AF input mode selector switch (IC23, pins 8 and 9).

In FM-w mode, the signal from IC22 passes through Q6 and is applied to the ceramic discriminator (X2) to demodulate the 3rd IF signal into an AF signal. The detected signal is applied to an active filter (Q7) and then to the AF input mode selector switch (IC23, pins 8 and 9).

R279 and R280 compensate for the center frequency of discriminators, X1 and X2 respectively.

### 3-1-17 AF AMP CIRCUIT (MAIN UNIT)

The AF signal from the AF input mode selector switch is applied to the AF preamplifier (IC5, pin 3) and passes through the squelch gate (Q12).

In FM-n mode, Q8 is turned ON, stepping up the AF preamplifier gain. When the synthesized voice is applied to the speaker, the SPCO line becomes "HIGH," Q10 is turned ON and then Q9 is turned OFF, reducing the AF preamplifier gain to clear the synthesized voice.

The signal from Q12 is combined with output from the optional VOICE SYNTHESIZER UNIT and beep tone circuit (Q11). The resulting signal is applied to the gain and tone control circuit (IC24 pin 15) and LINE-OUT amplifier (Q16). The output from IC24 is power-amplified at IC25 and then applied to the speaker.

The output signal from the LINE-OUT amplifier is applied to the [ACC] socket and [REC] and [LINE OUT] jacks provided for external equipment.

### 3-1-18 AGC AND S-METER CIRCUIT (MAIN UNIT)

The receiver gain is determined by the voltage on the "AGC" line (Q42, emitter). When strong signals are received, the AGC circuit decreases the voltage on this line.

A portion of the IF signal from the impedance converter (Q21) passes through C144, is detected at D30 and D31, then applied to the base of Q29. Q29 applies a negative voltage to the "AGC2" line. The "AGC1" and "AGC2" lines form the AGC time constant line that determines the AGC release time.

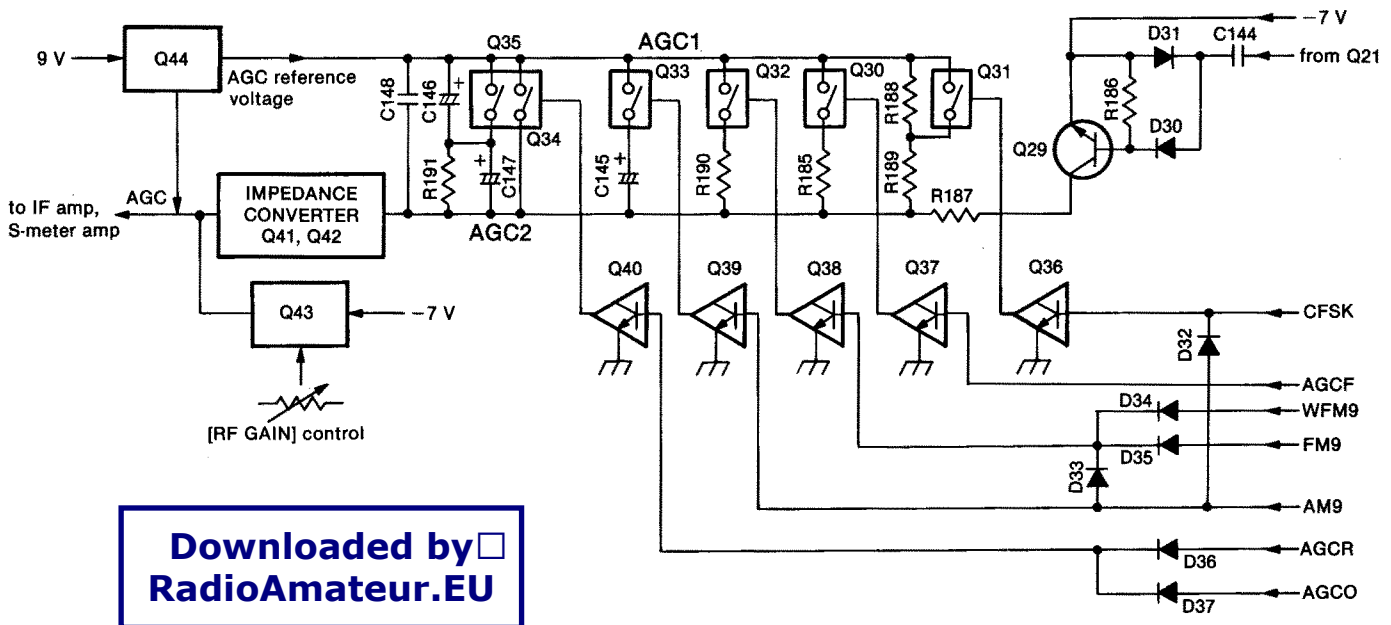
The "AGC2" line is connected to an impedance converter (Q41, Q42) which applies AGC bias voltage to the IF amplifiers in the RF A, RF B, IF and MAIN UNITS, to the L-type attenuator in the RF A UNIT, and to the tuned amplifiers in the RF B UNIT. Q44 supplies an AGC reference voltage to the AGC bias voltage line. The AGC bias voltage is controlled by Q43 using the [RF GAIN] control.

When the [AGC FAST] switch is turned ON, Q30 and Q37 are turned ON. R185 is then connected in parallel with the AGC time constant line to obtain a rapid AGC release time.

When the [AGC OFF] switch is turned ON, Q34, Q35 and Q40 are turned ON, determining the time constant to deactivate the AGC circuit.

In FM mode, the "FM9" line becomes "HIGH," turning ON Q32 and Q38. R190 is then connected in parallel with the AGC time constant line to obtain a rapid AGC release time.

### AGC CIRCUIT



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Fig. 7

In AM mode, the "AM9" line becomes "HIGH," turning ON Q39/Q33, Q36/Q31 and Q38/Q32. R180 is then shortened and R190 and C145 are connected in parallel with the AGC time constant line to obtain an appropriate time constant for AM.

In WFM mode, the broad IF bandwidth increases the detected voltage. Q55 then turns ON to reduce the output from Q21, matching the AGC characteristics in every mode.

The AGC bias voltage is applied to the differential amplifier (IC15, pin 6) where the difference between the bias and reference voltages is detected. The resulting S-meter signal passes through the [METER] switch and is then applied to the multi-function meter.

The S-meter signal is applied to the impedance converter (IC5 pin 5) and then to the [ACC] socket pin 8 and to IC3 on the LOGIC B UNIT. IC3 converts the S-meter signal into CI-V data.

### 3-1-19 SQUELCH CIRCUIT (MAIN UNIT)

The IC-R9000 has 2 squelch systems, S-meter squelch and noise squelch.

The S-meter squelch functions in any mode. The S-meter signal from IC15 pin 7 is applied to the comparator (IC15 pin 2) for comparison to a reference voltage controlled by the [SQL] control. This reference voltage is added to the S-meter voltage to indicate the squelch threshold level on the S-meter.

The noise squelch functions only in FM and WFM modes. The detected signal from the discriminator (X1, X2) or IC20 is applied to the noise amplifier (IC11) via the AF input mode selector switch (IC18). The amplified signal is then detected at D28 and D29. Q23 and Q24 control the gain of the noise amplifier to correspond to the input level in each FM mode.

The detected voltage is applied to the DC amplifier (IC10, pin 2) and then to the comparator (IC10, pin 6) for comparison to the reference voltage controlled by the [SQL] control.

The S-meter and noise squelch reference voltages are relatively supplied from IC4 pin 7 and 1 respectively. When the S-meter or noise squelch signal is lower than the threshold level, the comparator turns "HIGH" to activate the squelch gate (Q12). This signal is applied to Q52, turning OFF the [RECEIVE] indicator, and is also applied to the [ACC] socket pin 6.

While scanning, Q56 and Q57 are turned ON, reset voltage is applied to the AGC line and DC amplifier (IC10, pin 2), and then the receive signal is picked up faster for high-speed scanning.

### 3-1-20 CENTER METER CIRCUIT (MAIN UNIT)

The signal from FM or the WFM detector is applied to the inversion adder (IC14, pin 6) for conversion into a center meter signal. The resulting signal is inversion-amplified at IC14, pin 2, and then applied to the multi-function meter.

The center meter signal is also applied to the window comparator (IC12, IC13) and used for the center stop and AFC (Auto Frequency Control) detections.

### 3-1-21 IF FILTER SWITCHING CIRCUIT (IF UNIT)

The IC-R9000 has one 10.7 MHz IF filter (plus one bypass circuit) and six 455 kHz IF filters. It also has exclusive 10.7 MHz IF filters for WFM and FM-w. IF filter combinations are selected with sub-CPU output ("FIL1" ~ "FIL7") depending on the operating mode. IC3 is a voltage buffer that turns ON the filter switching diodes.

#### IF FILTER PASSBAND WIDTH IN EACH MODE

MODE	FILTER WIDTH SWITCHES	10.7 MHz FILTER		455 kHz FILTER
		1	2	
FM	WIDE	150 kHz	THROUGH	30 kHz
	MIDDLE	15 kHz		15 kHz
	NARROW			6 kHz
WFM	Any	230 kHz	230 kHz	—
AM	WIDE	15 kHz	THROUGH	15 kHz
	MIDDLE			6 kHz
	NARROW			2.6 kHz
SSB, CW, FSK	WIDE	15 kHz	6 kHz	2.6 kHz
	MIDDLE			2.4 kHz
	NARROW			500 Hz

Table 6

### 3-1-22 MODE VOLTAGE SWITCHING CIRCUIT (IF UNIT)

Q42~Q45 supply 9 V regulated voltage and switch the voltage for WFM (WFM9) or other modes (NAR9).

FM voltage (FM9) is supplied from Q46 and Q47. FM mode voltages (FMw9, FMm9, FMn9) from the FM9 line are switched by Q31~Q36.

SSB, CW and FSK mode voltage (SSB9) are supplied from Q52 and Q53. AM mode voltage (AM9) is supplied from Q54 and Q55.

### 3-1-23 MUTE CIRCUIT (IF UNIT)

The mute circuit prevents clicking when PLL data or the operating mode is changed. When PLL data are changed, the "UNL" signal (or "LMUT" when the operating mode is changed) is applied to the mute detector circuit (Q48, Q49). The mute detector circuit outputs the mute signal to the IF amplifier Q10 to cut off the receiver IF signal. The mute signal is also applied to the squelch gate (MAIN UNIT, Q12) to cut off the AF circuit.

### 3-1-24 VSC CIRCUIT (MAIN UNIT)

This circuit detects the audio signal during scanning and skips inconvenient signals such as signals with no modulation, beat signals and noise component signals.

A portion of the AF signal from the squelch gate (Q12) is limiter-amplified at IC7 and triggers the one-shot multivibrator (IC6). IC6 functions as an F-V converter and outputs a voltage corresponding to pulse numbers.

The output from IC6 is applied to the 3.5 Hz cut-off low-pass filter (IC8, pin 2) to detect audio signals. The resulting signal is applied to the comparator (IC9), turning Q51 ON. Q51 outputs "HIGH" signals to the CPU when an audio signal is detected. Q50 and Q53 reset the VSC circuit.

### 3-1-25 CI-V CONTROL CIRCUIT (MAIN UNIT)

The IC-R9000 can remotely control functions such as the [AF GAIN], [SQUELCH] and [RF GAIN] controls in addition to the conventional CI-V control system.

Control voltages from the front panel controls are applied to the analog switch (IC1). 5-bit parallel signals, output from the I/O expanders (IC1, IC2) on the LOGIC A UNIT, are converted into analog voltages at R29~R31 on the LOGIC A UNIT and are then applied to the analog switch (IC2).

The control voltages are selected by the "REMC" signal from the output expander (FRONT UNIT, IC102). The selected voltages are DC-amplified at IC3 and IC4 to obtain appropriate voltage characteristics. The voltages are then applied to the appropriate control circuit.

### CI-V CONTROL CIRCUIT

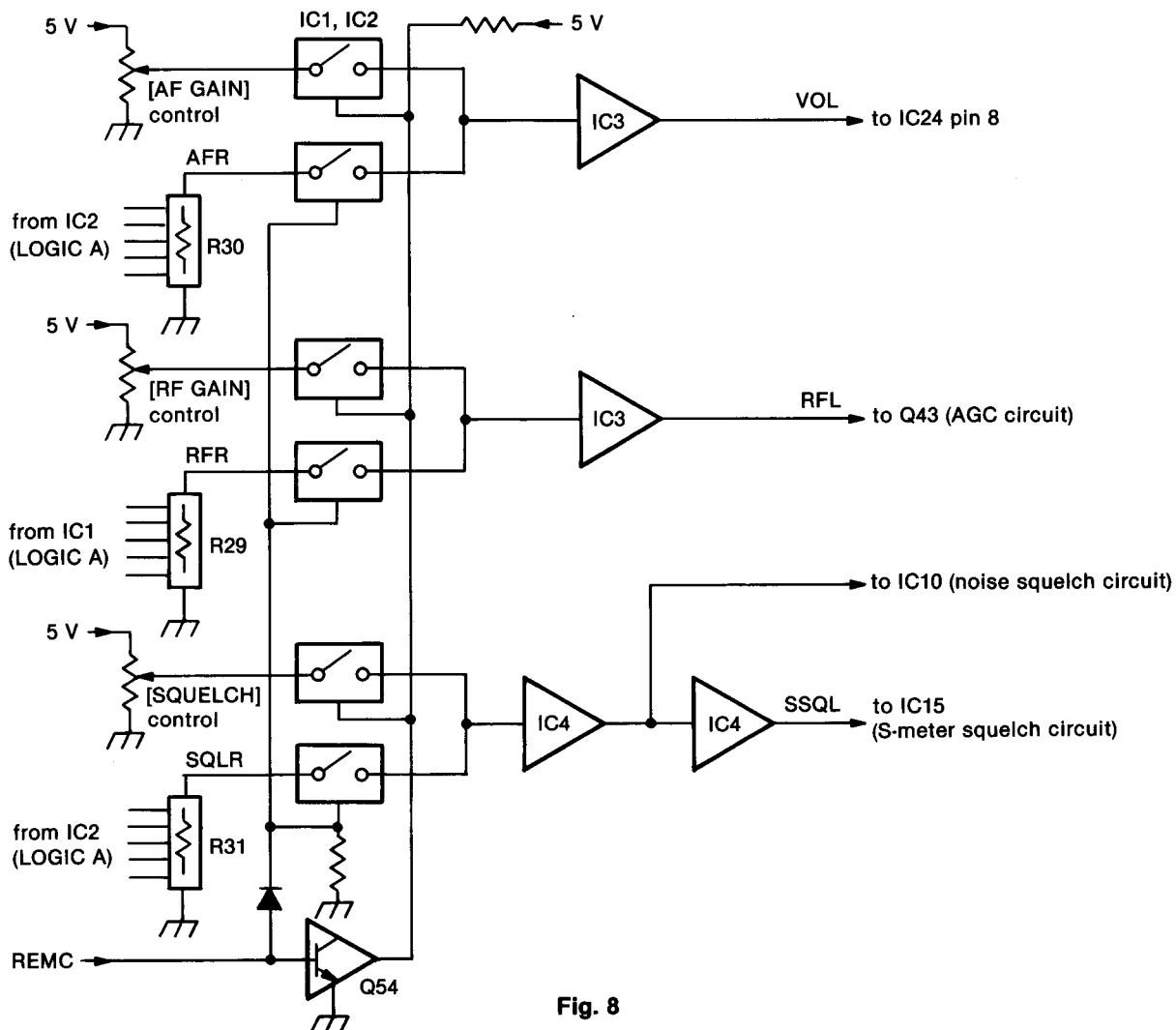


Fig. 8



## 3-2 PLL CIRCUITS

### 3-2-1 GENERAL DESCRIPTION

The PLL circuits are composed of the PLL A and B UNITS.

The PLL A UNIT generates an HF 1st LO signal (H1LO: 48.89375~78.8 MHz) used in the RF A UNIT and a V/UHF 1st LO signal (V1LO: 778.6~1278.7 MHz) used in the RF B UNIT. The marker signal is also generated in this unit.

The PLL B UNIT generates an HF 2nd LO signal (38.09376~38.1 MHz) used in the IF UNIT, a V/UHF 2nd LO signal (V2LO: 267.90001~268.0 MHz or 767.90001~768.0 MHz) used in the RF B UNIT, and a 1GLO signal (900 MHz or 1000 MHz) used in the HPF UNIT.

### PLL CIRCUITS: FREQUENCY CONSTRUCTION

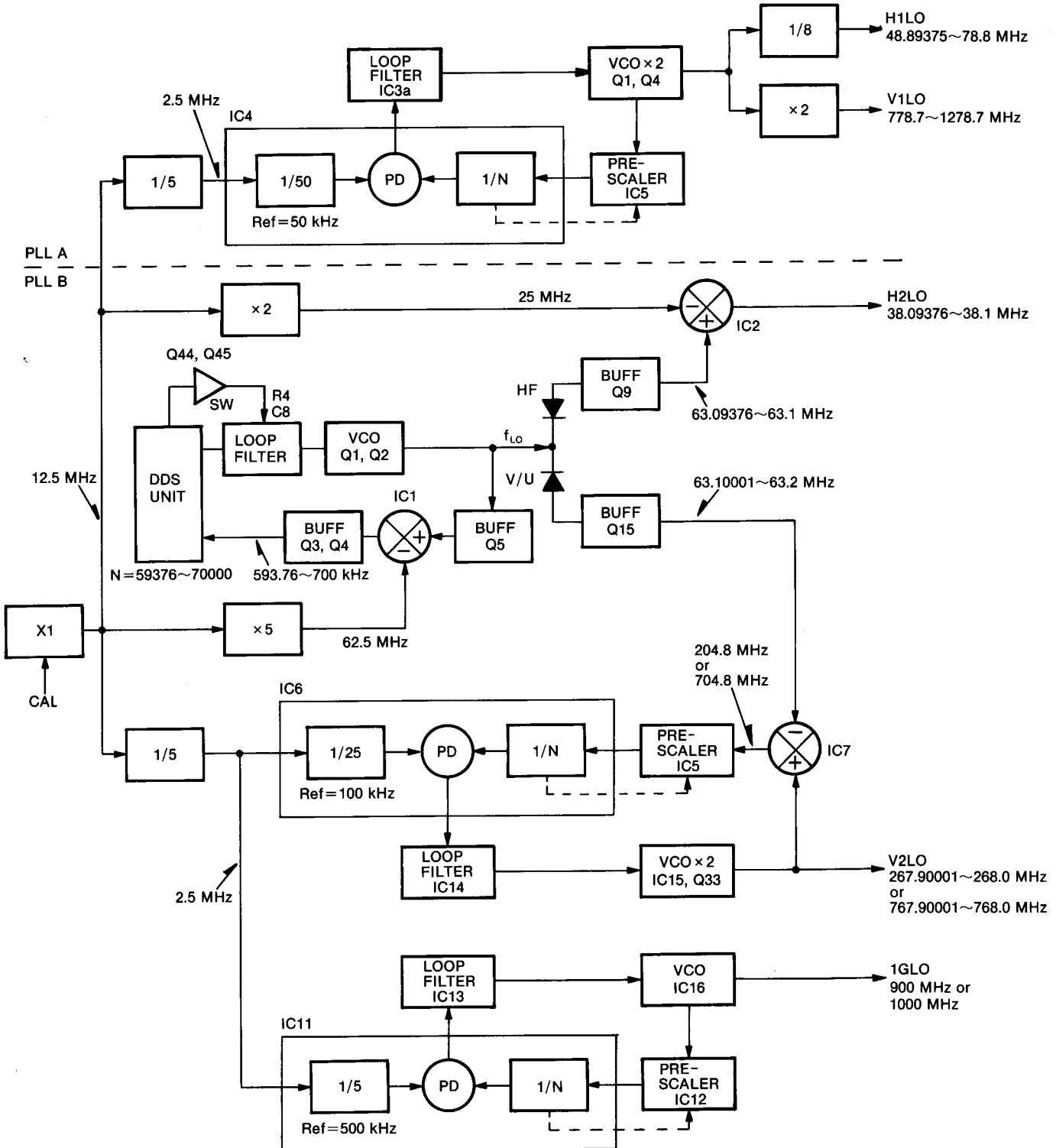


Fig. 9

### 3-2-2 REFERENCE OSCILLATOR CIRCUIT (PLL B UNIT)

The reference oscillator signal is used for all PLL circuits in the PLL A, PLL B and MAIN UNITS. Thus, the reference oscillator stability determines the receiver's frequency stability. Therefore, a constant temperature oven crystal unit with calibration control (CR-228) is used to maintain frequency stability within  $\pm 0.25$  ppm ( $-30^{\circ}\text{F} \sim +60^{\circ}\text{C}$ ;  $-22^{\circ}\text{F} \sim +140^{\circ}\text{F}$ ).

### 3-2-3 1ST LO PLL CIRCUIT (PLL A UNIT)

HF 1st LO and V/UHF 1st LO are generated at one PLL circuit and are obtained to be divided or multiplied respectively. The PLL circuit uses a pulse swallow counter system that generates 389.30~639.35 MHz signals in 50 kHz steps. Thus the minimum steps of the 1st LO are 6.25 kHz for HF and 100 kHz for V/UHF. Below the minimum steps are obtained in the 2nd LO (PLL B circuit).

The oscillated signal at one of the 2 VCOs (Q1, Q4; see Section 3-2-4 for details) is buffer-amplified at Q3 or Q5. The VCO output is amplified at the broadband amplifier (IC6) and is then applied to the prescaler (IC5). The signal, divided by 64 or 65, is applied to the PLL IC (IC4).

IC4 contains a phase detector, a programmable divider and a modulus controller for the dividing ratio in the IC chip. The phase of the divided signal at IC5, detected at IC4 using a reference frequency ( $f_{\text{REF}}$ ) of 50 kHz, is then output from pins 15 and 16. The 50 kHz frequency is obtained from the reference oscillator (X1). 12.5 MHz oscillated at X1, is divided by 5 at IC7 and divided by 50 at the programmable divider section of IC4.

The phase detected signal is then converted to the lock voltage at the loop filter (IC3a; see Section 3-2-5 for details), and applied to a VCO. Thus, the VCO output (PLL output) is locked to produce stable oscillation.

The PLL oscillation frequency is obtained with the following calculation:

$$f_V = N_T \times f_{\text{REF}}$$

$f_V$ : 1st LO PLL loop output

$N_T$ : Dividing ratio from the LOGIC A UNIT

$f_{\text{REF}}$ : Reference frequency (50 kHz)

### 3-2-4 VCO CIRCUIT

The receiver's C/N ratio is determined by the VCO and the loop filter. 2 VCO circuits keep the low noise and reduce spurious emissions. Q17~Q20 are VCO switches which select the operating VCO with "VCO1" and "VCO2" lines.

The VCO1 oscillates 389.3~514.3 MHz and the VCO2 oscillates 514.35~639.35 MHz. Each VCO circuit employs a Colpitts oscillator that uses strip lines in the tank circuits to obtain superior C/N ratios.

### 3-2-5 LOOP FILTER

The loop filter (IC3a) converts a pulse-type signal to a DC signal with no ripple. If ripple is present, VCO noise or spurious signals increase. However, when ripple is reduced, PLL lock-up time increases. To reduce ripple and create rapid lockup times, the active filter is used as a loop filter. A 16 V power source provides wide range lock voltages. When the frequency is greatly changed, D11 and D13 speed up lockup times.

### 3-2-6 HF LO DIVIDER CIRCUIT

The 1st LO PLL output is divided by 8 at IC2, passes through the low-pass filter and is amplified at the LO amplifier (Q6). The resulting signal is applied to the low-pass filter to suppress high harmonic components, and then to the RF A UNIT.

The 48.89375~78.8 MHz signal is controlled in 6.25 kHz steps; steps less than 6.25 kHz are controlled by the 2nd LO signal.

### 3-2-7 V/UHF LO DOUBLER CIRCUIT

The 1st LO PLL output is amplified at IC10, passes through the low-pass filter and is amplified at the LO amplifier (Q2). The signal is doubled at D1, D2 and L5, and the resulting signal is applied to the bandpass filter and then to the RF B UNIT.

The 778.7~1278.7 MHz signal is controlled in 100 kHz steps; steps less than 100 kHz are controlled by the 2nd LO signal.

### 3-2-8 MARKER CIRCUIT (PLL A UNIT)

A 2.5 MHz signal, output from IC7 pin 11, is divided by 5 at IC8 to obtain a 500 kHz signal. The 500 kHz signal is amplified at Q10 and applied to the RF A UNIT via J6 (RF A UNIT: J2).

### 3-2-9 HF 2ND LO CIRCUIT (PLL B UNIT)

The HF 2nd LO is obtained from the HF PLL (VCO: Q1) output plus a multiplied X1 oscillation signal. DDS (Direct Digital Synthesizer) is used as a reference oscillator in the HF PLL circuit. This circuit outputs an HF 2nd LO signal used in the IF UNIT.

The 63.09376~63.1 MHz output from the HF PLL (see Section 3-2-10 for details) passes through the grounded-gate buffer amplifier (Q9) and is then applied to the mixer (IC2) to be mixed with a 25 MHz signal. The generated signal at X1 (12.5 MHz) is multiplied by 2 at Q14 and the resulting 25 MHz signal is applied to IC2.

The IC2 output (38.09376~38.1 MHz) passes through the bandpass filter, buffer amplifier (Q12) and LO amplifier (Q13), and is then applied to the IF UNIT.

### 3-2-10 HF PLL CIRCUIT (PLL B UNIT)

This PLL generates 63.09376~63.2 MHz signals in 10 Hz steps using the DDS circuit.

The oscillated signal at the VCO (Q1) is buffer-amplified at Q5, passes through the low-pass filter and is then applied to the mixer (IC1). The mixer converts VCO output to a frequency of 593.76~700 kHz using a 62.5 MHz signal. The generated signal at X1 (12.5 MHz) is multiplied by 5 at Q6 and the resulting 62.5 MHz signal is applied to IC1. The IC1 output is applied to the buffer amplifier (Q3, Q4) and then to the DDS UNIT to phase detection.

The output pulse-type signal from the DDS UNIT passes through the lag-lead loop filter (R4, C8) where it is converted into a DC signal (lock voltage). The lock voltage is applied to the VCO to lock the oscillating frequency. When the DDS is unlocked, FET switches (Q44, Q45) are turned ON, changing the loop filter time constant.

### 3-2-11 V/UHF 2ND LO PLL CIRCUIT (PLL B UNIT)

This PLL loop, using a premix system with dual modulus prescaler as a main loop and the HF PLL as a sub loop. Therefore the PLL directly generates 267.90001~268.0 MHz or 767.90001~768.0 MHz signals in 10 Hz steps.

The oscillated signal at one of the 2 VCOs (IC15, Q33) is amplified at Q16 and Q17, and is mixed with the HF PLL output at IC7 to obtain a 204.8 MHz or 704.8 MHz IF signal. The IF signal, passed through D10 or D12, is applied to an appropriate bandpass filter and amplifier (IC3 or IC4). The signal is divided by 64 or 65 at the prescaler (IC5) and is detected in the out-of-step phase by the PLL IC (IC6) using a reference frequency of 100 kHz.

The 100 kHz reference frequency is obtained from the reference oscillator (X1). The 12.5 MHz signal is divided by 5 at IC10 and divided by 25 at the programmable divider section of IC6.

The phase detected signal is converted to the lock voltage at the loop filter (IC14) and applied to a VCO to lock the oscillating frequency.

The oscillating frequency is not controlled by the N-data, but by the DDS output. Hence, the 2 N-data are fixed corresponding to the 268 MHz and 768 MHz bands.

The VCO (Q33) employs a Colpitts oscillator that uses strip lines in the tank circuits and a 268 MHz band signal is output via the buffer amplifier (Q34). IC15 is a 768 MHz band VCO that uses a dielectric tank circuit. Each VCO output is applied to the RF B UNIT via the bandpass filter L73 (268 MHz band) or L69 (768 MHz band).

### 3-2-12 1 GHz CONVERTER LO CIRCUIT (PLL B UNIT)

This circuit generates a 1GLO signal (900 MHz or 1000 MHz) used in the HPF UNIT.

The PLL loop has similar circuitry to the 1st LO PLL loop and consists of the PLL IC (IC11), loop filter (IC13), prescaler (IC12) and VCO (IC16). The oscillating frequency is 900 MHz or 1000 MHz as shown in the table at p. 3-1.

The 500 kHz reference frequency is obtained from the reference oscillator (X1). The 12.5 MHz signal is divided by 5 at IC10 and divided by 5 at the programmable divider section of IC12.

## 3-3 LOGIC CIRCUITS

The LOGIC UNIT mainly consists of 2 CPUs, 2 output expanders, 5 input expanders and 3 I/O expanders. 2 CPUs, an 8-bit main CPU and a 4-bit sub CPU, control most functions including the CRT display. The input and output ports are described in the block diagram on the next page.

### 3-3-1 MODE INPUT DATA

Input expander IC104 pins 15~17 receive following data:

MODE	PIN NO. (PORT NO.)		
	15 (P60)	16 (P61)	17 (P62)
SSB	LOW	HIGH	HIGH
AM	LOW	LOW	HIGH
CW	HIGH	HIGH	LOW
FSK	LOW	HIGH	LOW
FM	HIGH	LOW	LOW
WFM	LOW	LOW	LOW

Table 7

### 3-3-2 SCAN SPEED AND DELAY

IC10 pins 6 and 8 on the LOGIC A UNIT are scan speed and delay input ports which receive scan clock signals. A scan speed clock signal is generated at IC2 (pins 1~3 and 11~13) and a scan delay clock signal is generated at IC2 (pins 4~6, 8~10) on the LOGIC B UNIT. Clock speed is determined by the [SCAN SPEED] control via the "SPD1 and SPD2" lines and the [DELAY TIME] control via the "DLY1 and DLY2" lines.

**LOGIC CIRCUITS: BLOCK DIAGRAM**

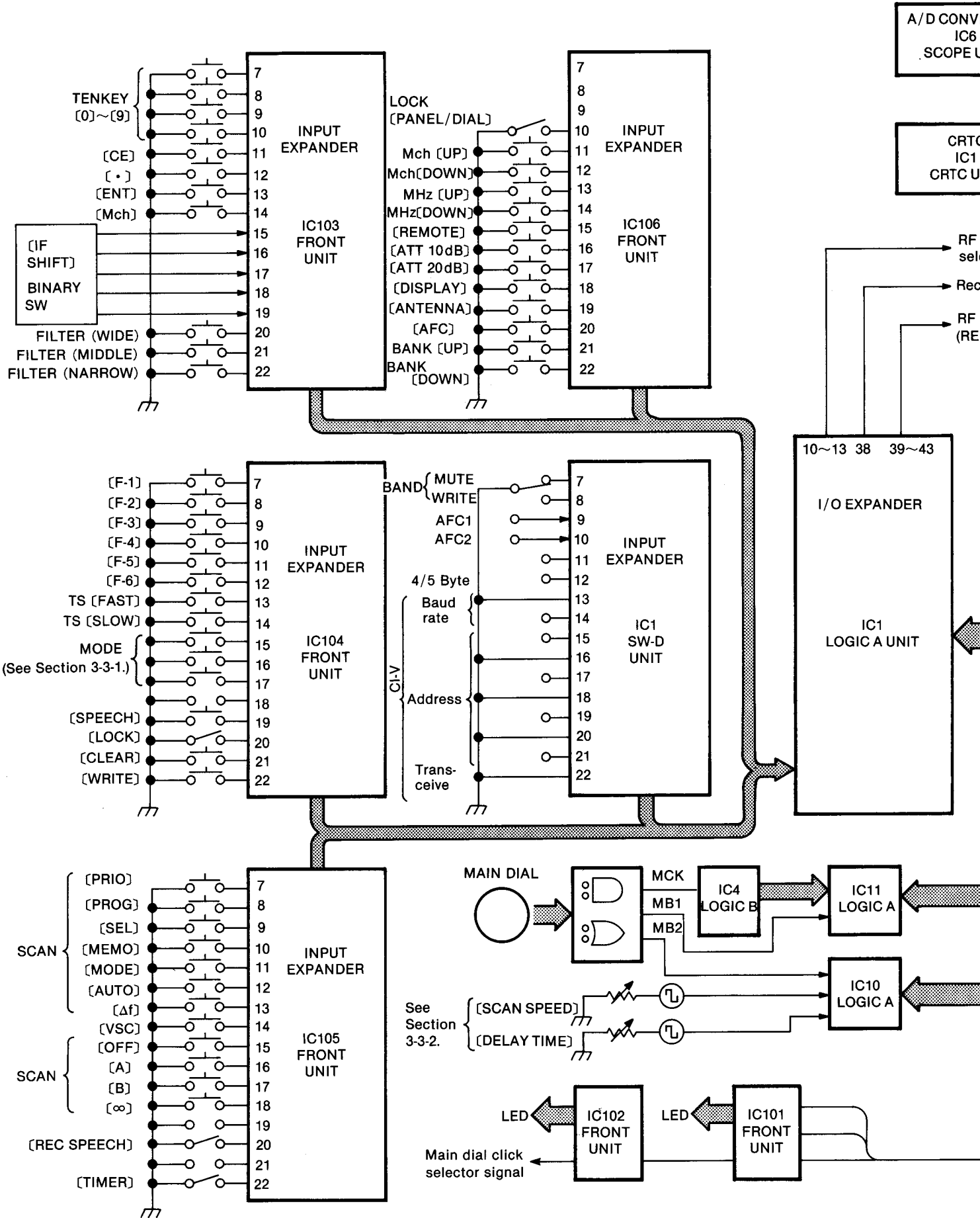


Fig. 1

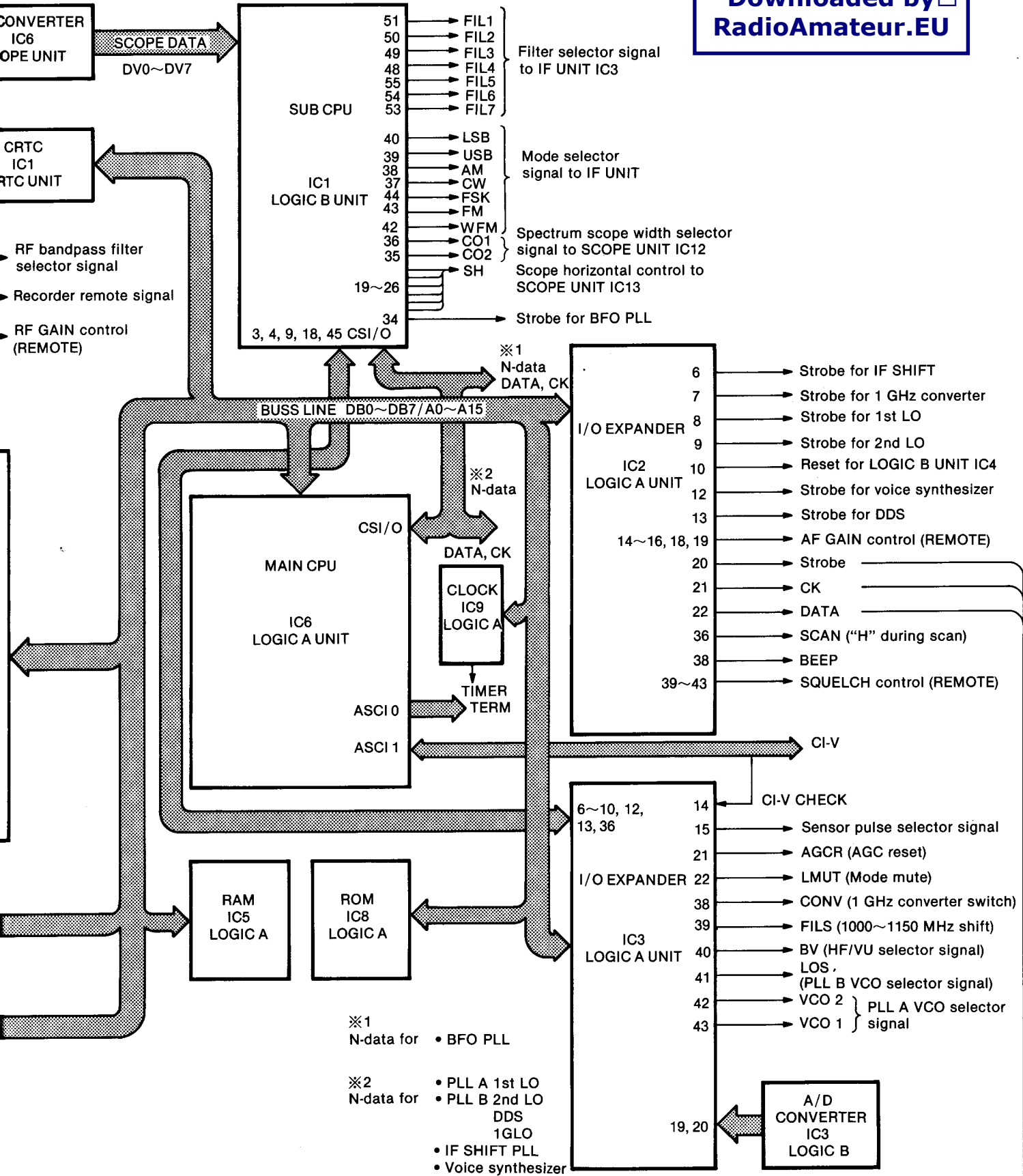


Fig. 10

### 3-3-3 CRTC UNIT

The CRTC (CRT Controller) UNIT converts the logic circuit data (DB0~DB7, A0~A3) into the composite picture signal.

IC1 generates R, G, B, L/d signals with data from the logic circuits. These signals are converted to the composite picture signal at IC2 and buffer-amplified at Q1. The amplified signal passes through the low-pass filter and is then applied to the DISPLAY UNIT via the video selector (IC101) on the CONNECT-A UNIT.

The composite picture signal, amplified at Q106 on the CONNECT-A UNIT, is applied to the [DATA IN] socket as video output for a TV set.

### 3-3-4 RESET CIRCUIT (LOGIC A UNIT)

The reset circuit uses a voltage detection IC (IC7) that resets the CPU until the 5 V line becomes approx. 4 V. The time constant (R39, C13) provides sufficient reset time.

### 3-3-5 REAL TIME CLOCK (LOGIC A UNIT)

IC-R9000 has a clock IC (IC9) with timer function. A 32.768 kHz is oscillated at X2 for clock reference. When the power switch is turned OFF, a voltage is applied to IC9 from the lithium backup battery to provide backup for the clock operation.

## 3-4 SCOPE UNIT

### 3-4-1 SCOPE RECEIVER CIRCUIT

The spectrum scope screen has a dynamic range of 60 dB and a sensitivity of 1.0  $\mu$ V. The spectrum scope not only has a high dynamic range and excellent sensitivity, but also is a precise instrument for signal analysis. Using a 10.7 MHz 2nd IF signal from the IF UNIT, the SCOPE UNIT creates an 8-bit scope signal.

The IF signal passes through the pin diode attenuator (IF UNIT, D41~D44) which is controlled by a scope AGC circuit and enters the SCOPE UNIT. The signal is applied to the ceramic filter (F11), amplified at Q1 and converted to a 4.5105 MHz band signal at IC1 with a 15.2 MHz sweep signal.

The sweep signal is generated at Q12. The generated frequency is controlled by IC12, D13 and D14 with the "SH" signal (a digital sawtooth waveform). The sweep width of  $\pm 25$  kHz,  $\pm 50$  kHz and  $\pm 100$  kHz is selected at IC12 using the "CO1" and "CO2" lines. The sweep signal is amplified at Q13 and applied to the mixer (IC11). A 16.49 MHz signal generated at Q9 is mixed with the sweep signal at IC11. The mixed signal is amplified at Q7 and applied to IC1 as the sweep signal.

The converted signal from IC1, filtered at the ceramic filter (F12), is amplified at Q2. The signal is mixed with the 4.1225 MHz LO signal at IC2 to be converted into a 388 kHz swept signal. The LO signal is obtained from Q9 output. 16.49 MHz, amplified at Q10, is divided by 4 at IC8, amplified at Q11 and is then applied to IC2.

## CRTC UNIT

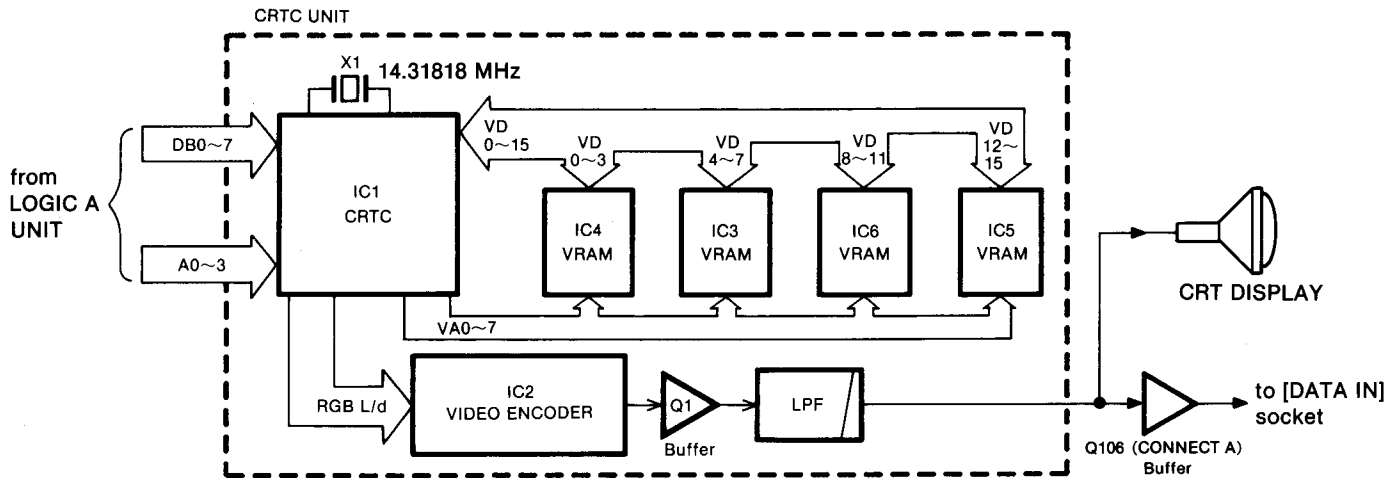


Fig. 11

The 388 kHz swept signal is filtered at a low-pass filter and the bandpass filter using ceramic resonators (X1, X2). These filters have characteristics of 600 Hz~1 kHz/ -3 dB. The filtered signal is amplified at Q3 and Q4, and applied to the logarithmic detector (IC4). IC4 detects the swept signal and converts it into DC voltage.

A DC voltage is differentially amplified at IC5 to obtain an output of 0~3 V DC. This output is converted to an 8-bit digital signal at IC6. The 8-bit digital signal is applied to the sub CPU (IC1) on the LOGIC B UNIT to display the detected signal on the spectrum scope screen.

### 3-4-2 AGC CIRCUIT

A portion of the 388 kHz swept signal is amplified at Q5 and detected at D3 and D4. The detected signal is inversion-amplified at IC3b and is then applied to the source of Q1, Q2 and Q4 as the bias voltage. The amplified signal at IC3b is also applied to the pin diode attenuator on the IF UNIT after inversion-amplification at IC3a.

### 3-4-3 AFC CIRCUIT

This circuit controls the center frequency of the sweep signal VCO (Q12) to compensate for temperature drift.

The output from Q12 is applied to the mixer (IC10) and mixed with an 824.5 kHz signal to be converted into a 455 kHz signal. To obtain the 824.5 kHz signal, the 16.49 MHz output from Q9 is divided by 2 at IC8 and then divided by 10 at IC9.

The 455 kHz signal is applied to the bandpass filter (F13), limiter-amplified at IC17, and is then detected at the ceramic discriminator (X4). The FM detected signal is applied to the analog switch (IC14).

IC14 outputs the center error signal using a "CENT" signal which becomes "HIGH" at the center of the "SH" signal. The error signal is converted into a DC voltage at IC15b, is applied to the varactor diode (D13, D14) and controls the oscillating frequency.

## 3-5 TV UNIT

(France version does not include this unit.)

The 2nd IF signal from the IF UNIT passes through the bandpass filter (L2~L4, C2~C9) to suppress out-of-band signals. (The passband width is 10~17 MHz.) The signal is amplified at Q1~Q3 and then applied to the notch circuit (L7, C12, R34) where the 10.7 MHz audio IF signal is suppressed by approx. 25 dB.

IC1 contains the video IF amplifier, detector and AGC circuits. The signal, input to IC1 pin 6 and 7, is amplified inside IC and is applied to the AM detector section (L12, C33 and detector section of IC1) to demodulate the IF signal into a video signal.

The video signal output from pin 16 of IC1 is applied to F12 to suppress a 4.5 MHz beat signal (5.5 MHz for some versions) and is then applied to the DISPLAY UNIT via the buffer amplifier (Q4) and [VIDEO] jacks.

An AGC level is adjusted with R15 connected to IC1 pin 9. The AGC voltage from IC1 pin 10 is applied to the 2nd gate of Q2.

## SCOPE UNIT: BLOCK DIAGRAM

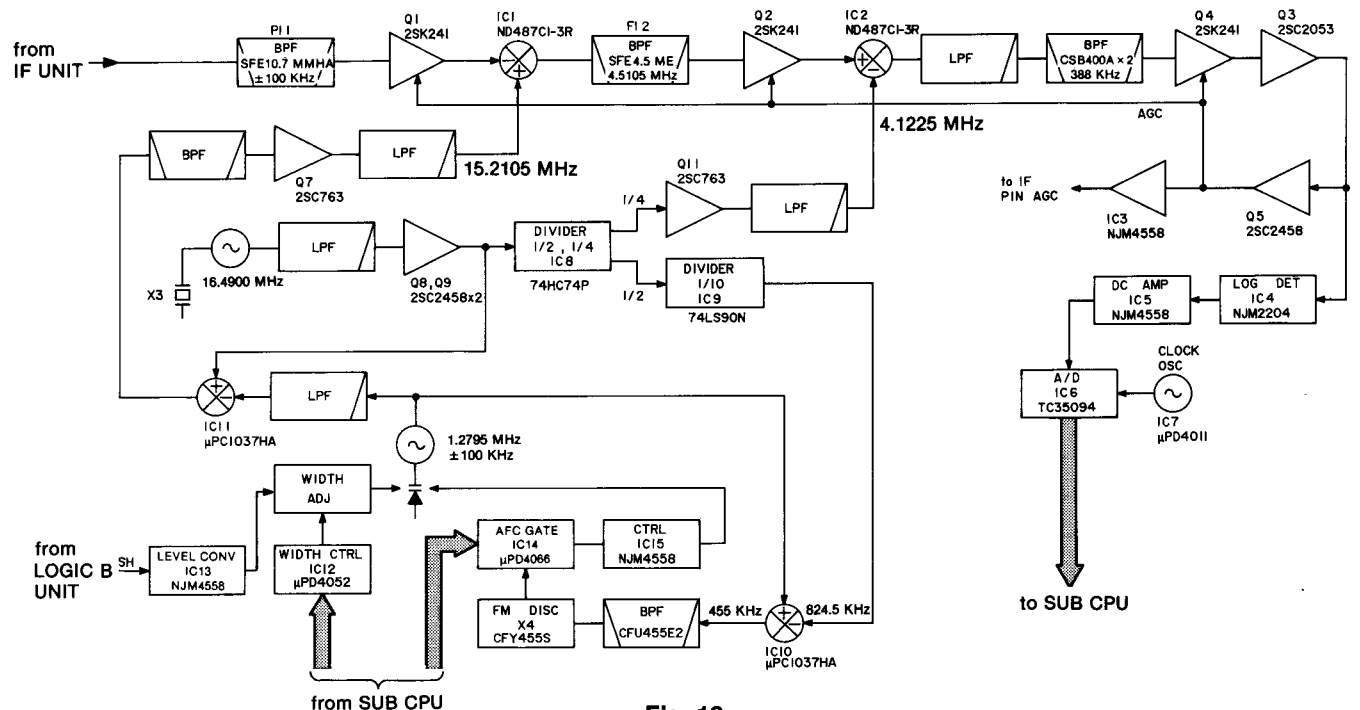


Fig. 12

## 3-6 REG UNIT

The power supply circuit mainly consists of a transformer, a 13.8 V DC regulator, a 12 V DC regulator and a 24, -7, -12 V converter.

An AC voltage from the AC power socket passes through the [POWER] switch and either 100 or 200 V AC input is selected by plugs, P6 and P7. The selected AC input is applied to a transformer (T1) and the resulting 16.5 V AC is rectified and filtered by D1, C5 and C6. In the Germany version, the AC voltage from the [POWER] switch is directly applied to the transformer (T1).

The filtered voltage is regulated to 13.8 V DC by Q1~Q3. Q3 controls the output voltage using the feedback voltage distributed at R5~R7.

13.8 V DC passes through the DC-DC power socket, [POWER] switch (except Germany version) and timer relay (RL1), and are applied to respective circuits.

When the timer function turns OFF the power, the "BU" signal line becomes "HIGH," turning RL1 ON. The 13.8 V DC voltage is only applied to the "HV" line. The HV voltage activates Q4.

### DC-DC CONVERTER CIRCUIT

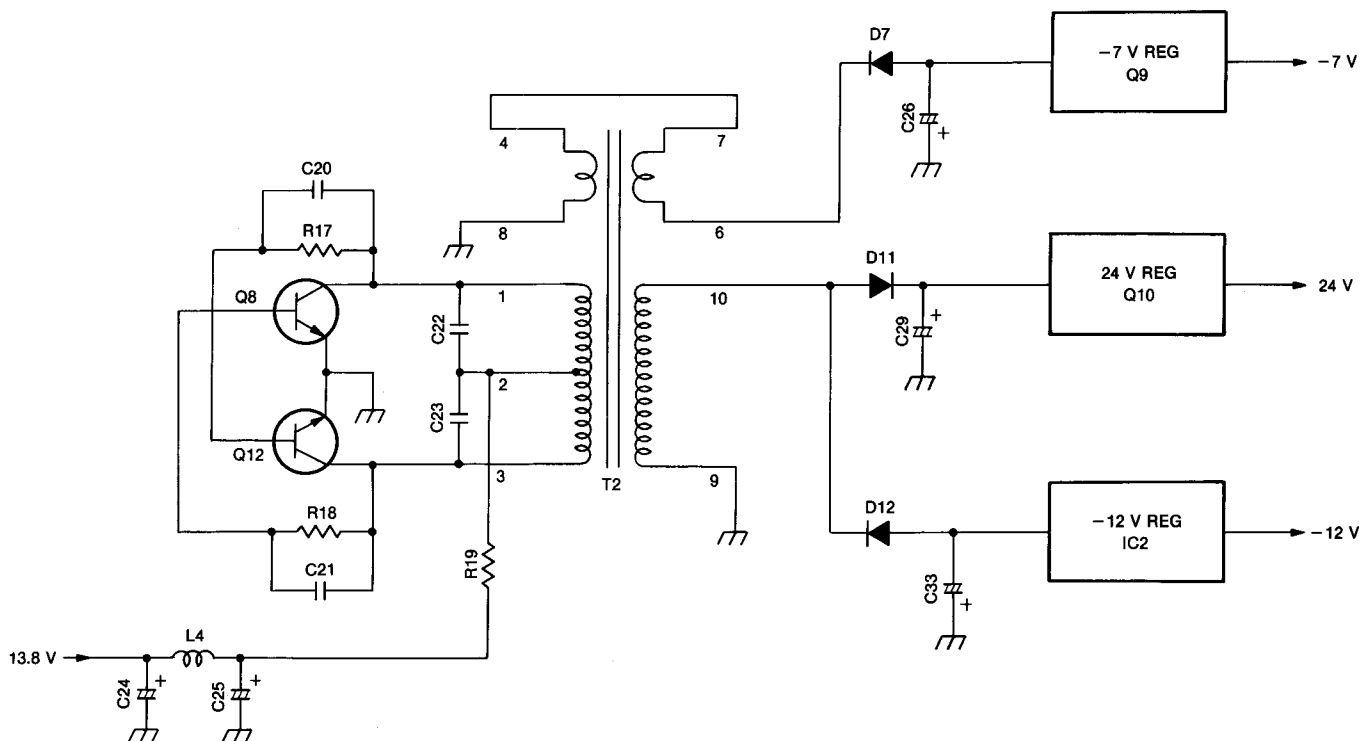


Fig. 13

## 3-6-1 REGULATOR CIRCUITS

Either 24, 12, -7 or -12 V DC are supplied from their corresponding regulator circuits. 12 V DC are regulated from 13.8 V DC. 24, -7 and -12 V DC are regulated from rectifying the DC-DC converter output.

The DC-DC converter generates an AC voltage (approx. 20 kHz) with a multivibrator (Q8, Q12, R17, R18, C20, C21). The AC voltage is applied to the transformer (T2) and is then rectified and regulated at the following circuits.

### (1) 12 V REGULATOR

12 V DC are regulated by the three-terminal voltage regulator (IC1) for the DISPLAY UNIT. The DISPLAY UNIT requires very stable 12 V DC. D13 protects IC1, and L2 and L3 suppress noise components from the CRT display.

### (2) 24 V REGULATOR

The AC voltage from T2 is rectified at D11 and applied to a 24 V regulator circuit (Q10, D9).

### (3) -7 V REGULATOR

The AC voltage from T2 is rectified at D7 and applied to a -7 V regulator circuit (Q9, D8).

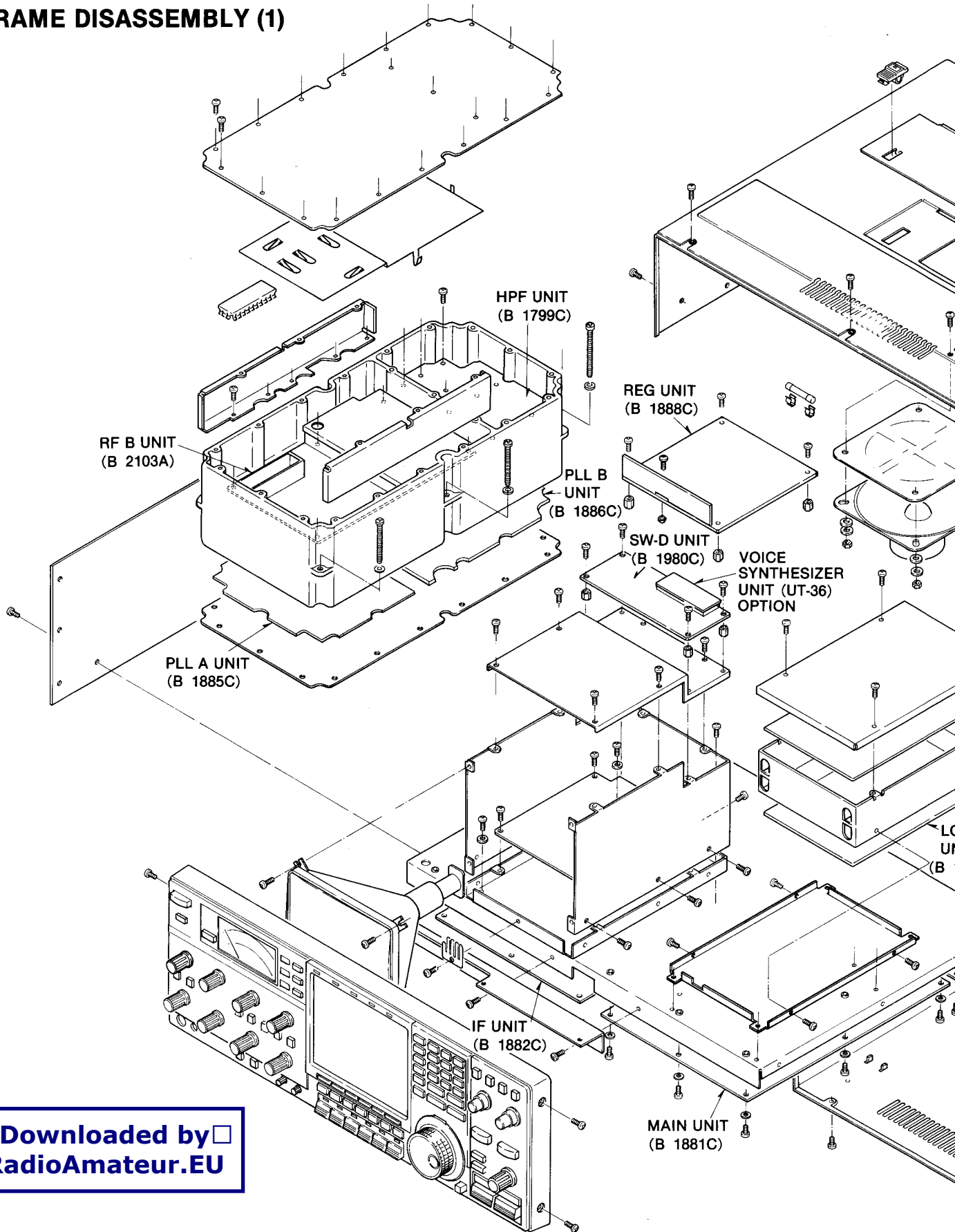
### (4) -12 V REGULATOR

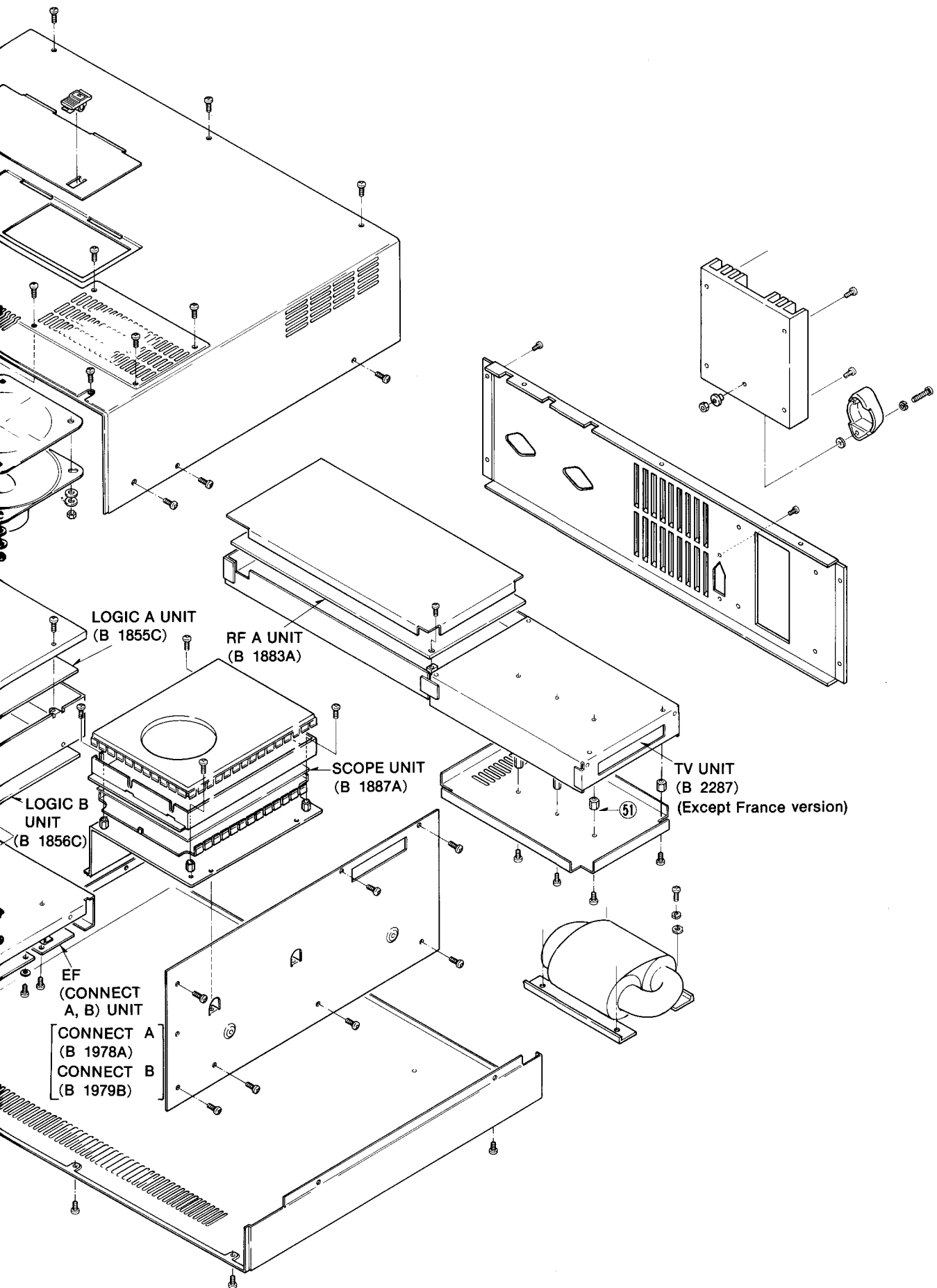
The AC voltage from T2 is rectified at D12 and applied to a -12 V three-terminal voltage regulator (IC2).



# SECTION 4 MECHANICAL PARTS AND DISASSEMBLY

## 4-1 FRAME DISASSEMBLY (1)





## 4-2 FRAME DISASSEMBLY (2)

LABEL NUMBER	ORDER NO.	DESCRIPTION	QTY.	LABEL NUMBER	ORDER NO.	DESCRIPTION	QTY.
①	8810001350	PH B1 M3×6	45	⑳	8810003150	Set screw (A) M3×5	4
②	8510003600	RF case (C) cover (A)	5	㉑	8510005620	418 LOGIC top casing	1
③	8510003630	RF shield plate access cover	1	㉒	8510005630	418 LOGIC bottom casing	1
④	8510005680	418 PLL bottom casing	1	㉓	8810002110	FH M2.6×5	8
⑤	8510006070	418 PLL case	1	㉔	8810003360	Set screw (C) M3×6	18
⑥	8510005670	418 PLL top casing	1	㉕	8810003160	Set screw (A) M3×6	10
⑦	8010008550	PLL angle (A)	1	㉖	8510005610	418 LOGIC case	1
⑧	8010008560	PLL angle (B)	1	㉗	8810003750	ICOM screw C9	4
⑨	8010008410	418 left chassis	1	㉘	8510006080	PLL upper cover (A)	1
⑩	8510003590	RF case (C)	3	㉙	8930012530	545 Sponge	1
⑪	8810004970	PH M4×6 SUS ZK	3	㉚	8930006070	Half thread spacer B	4
⑫	8010008401	418 Center chassis-1	1	㉛	8510005550	PLL under cover	1
⑬	8010008420	418 CRT angle	1	㉜	8110001960	PI cover	1
⑭	8510004960	CRT access cover	1	㉝	8810004970	PH M4×6 SUS ZK	11
⑮	8810003710	ICOM screw B5	6	㉞	8010006880	Right chassis	1
⑯	8810003760	ICOM screw C10	4	㉟	8110003260	Cover (A)	1
㉑	8830000100	Nut M3	1	㊱	8850000140	Flat washer M4 Ni BS	4
㉒	8810003160	Set screw (A) M3×6	1	㊲	8810003260	Set screw (A) M4×6	4
㉓	8810003770	ICOM screw C12	4	㊳	8810003920	ICOM screw C8 BS	4
㉔	8810005620	PH M4×45	6	㊴	8930006080	Half thread spacer C	4
㉕	8850000430	Spring washer M4 Ni	6	㊵	8930012021	Filter shield plate	1
㉖	8930006090	Half thread spacer D	4	㊶	8010008430	418 RF chassis	1
㉗	8930006080	Half thread spacer C	4	㊷	8930006070	Half thread spacer B	5
㉘	8930011660	Access cover latch	2	㊸	8810003760	ICOM screw C10	5
㉙	8110001990	Access cover	1	㊹	8510004880	RF shield plate	1
㉚	8810003120	OH M4×8 ZK BS	4	㊺	8810004690	BiH M4×5 ZK BS	4
㉛	8110003540	Top cover (speaker included)	1	㊻	8810003260	Set screw (A) M4×6	3
㉜	8810004690	BiH M4×5 ZK BS	18	㊼	8810003190	Set screw (A) M3×12	1
㉝	8830000110	Nut M4	4	㊽	8010008390	418 back panel	1
㉞	8850000430	Spring washer M4 Ni	4	㊾	8810003730	ICOM screw B8	4
㉟	8850000140	Flat washer M4 Ni BS	4	㊿	8410001300	418 Heatsink	1

### Screw type

Screw: M4×5, M3×12, M2.6×6, etc.

### ICOM standard screw

Set screw (A): Pan head screw with spring washer

Set screw (C): Pan head screw with spring washer and flat washer

### Screw head style

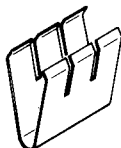
PH: Pan head    OH: Oval countersunk head    BiH: Binding head    FH: Flat head

ICOM screw (A): Button head screw (silver color)

ICOM screw (B): Button head screw (black color)

ICOM screw (C): Button head screw with half thread (silver color)

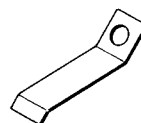
## • CONTACT SPRING



8930001180

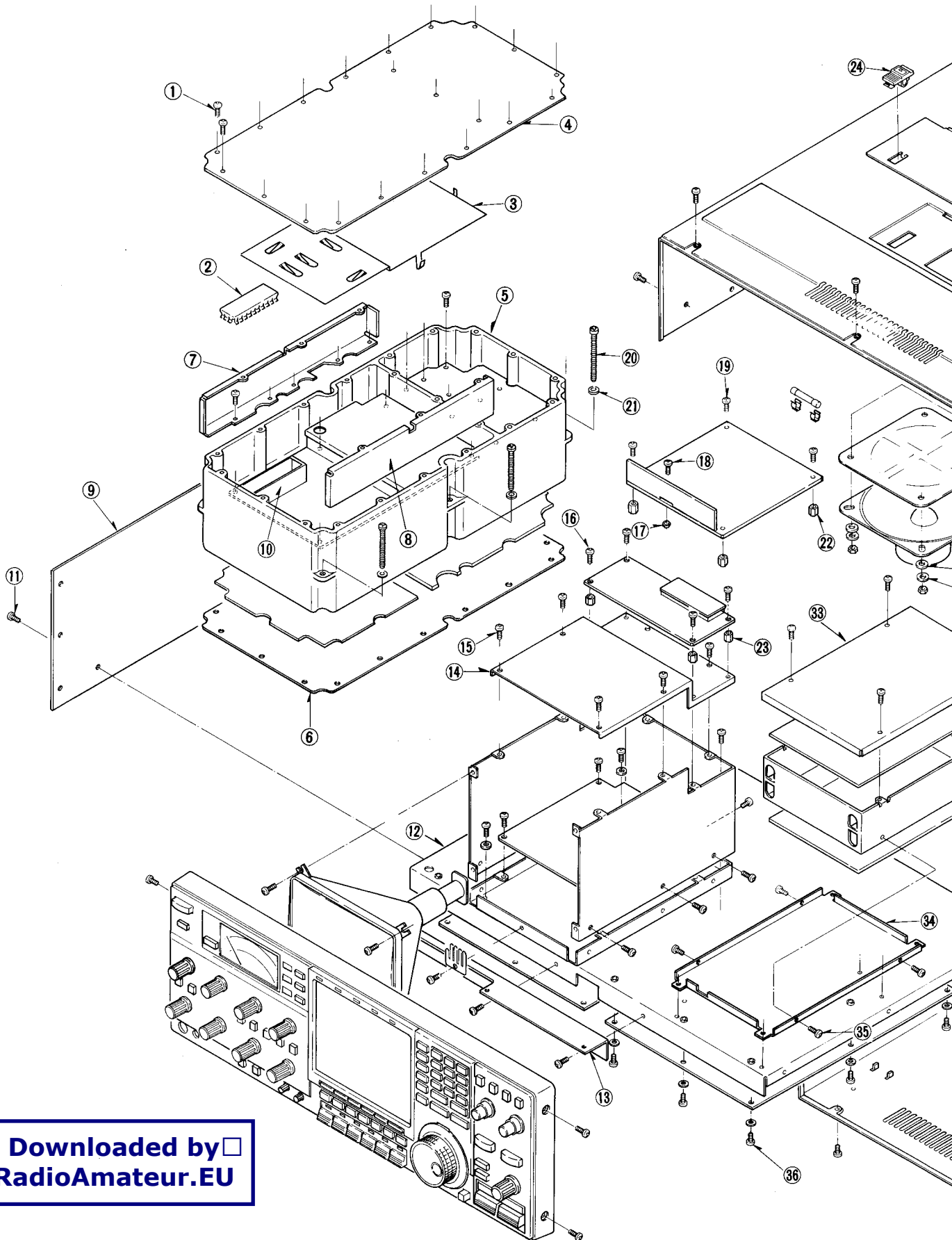


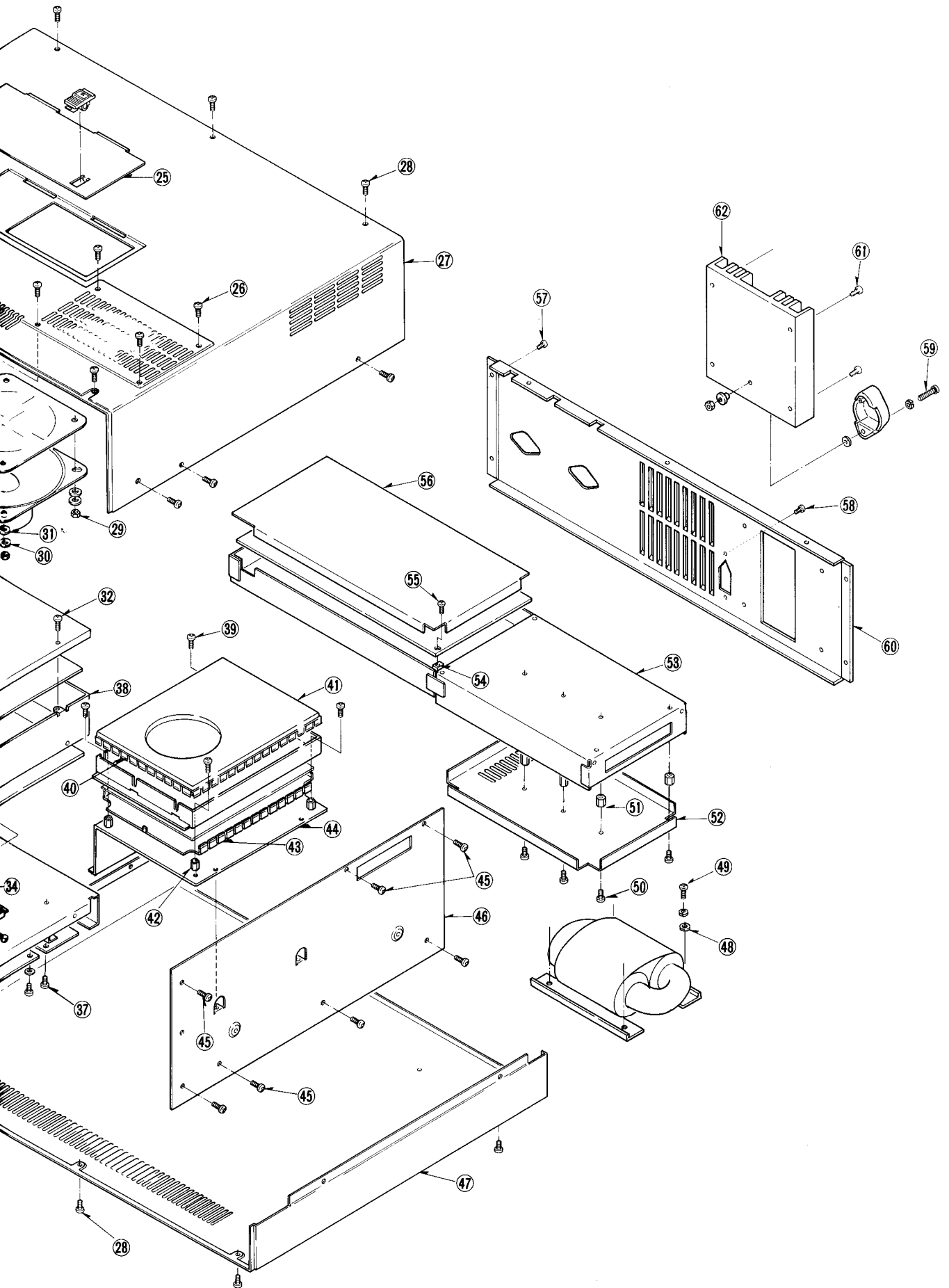
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8930001170

• FRAME DISASSEMBLY (2)





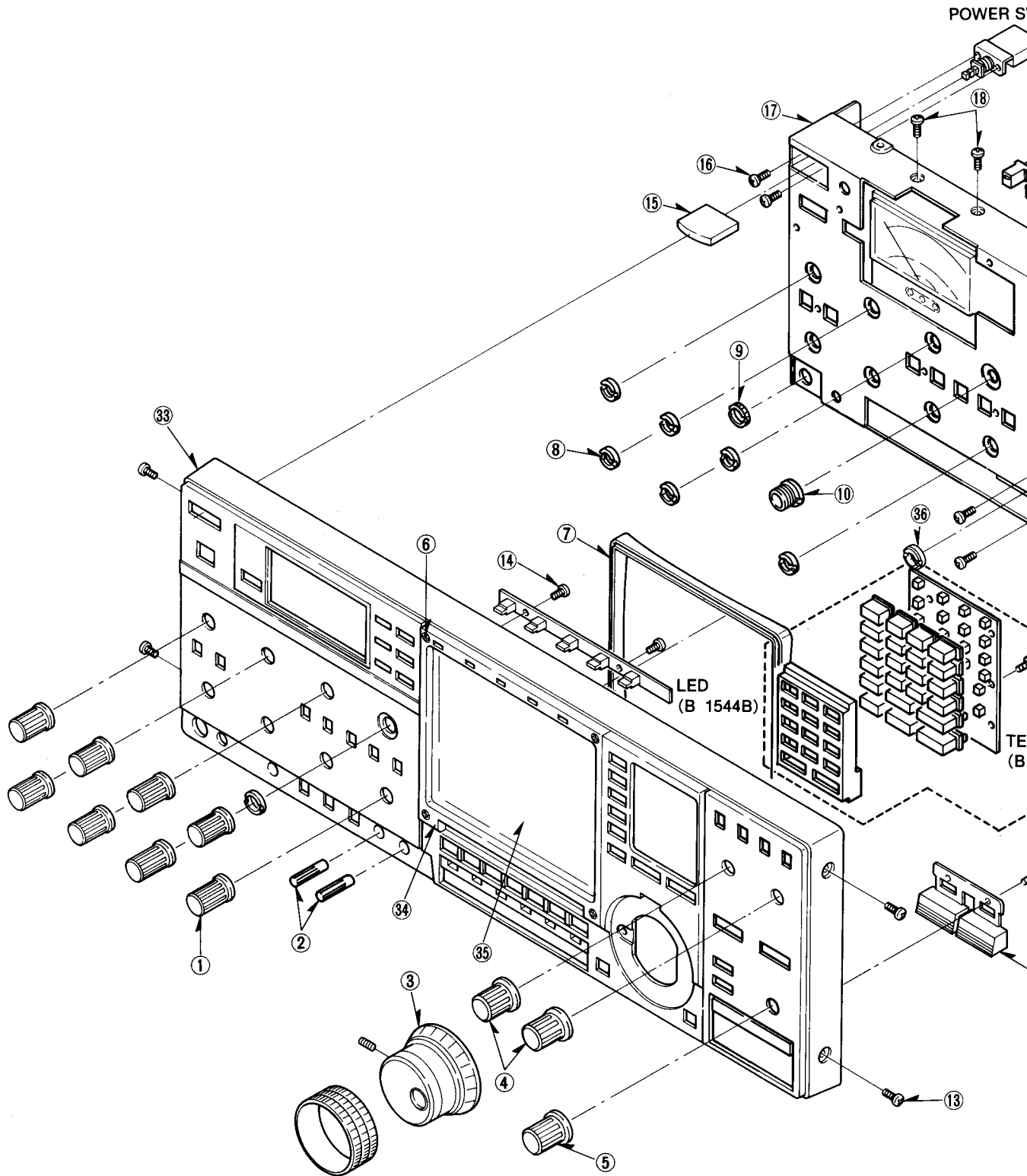
## 4-3 FRONT PANEL DISASSEMBLY (1)

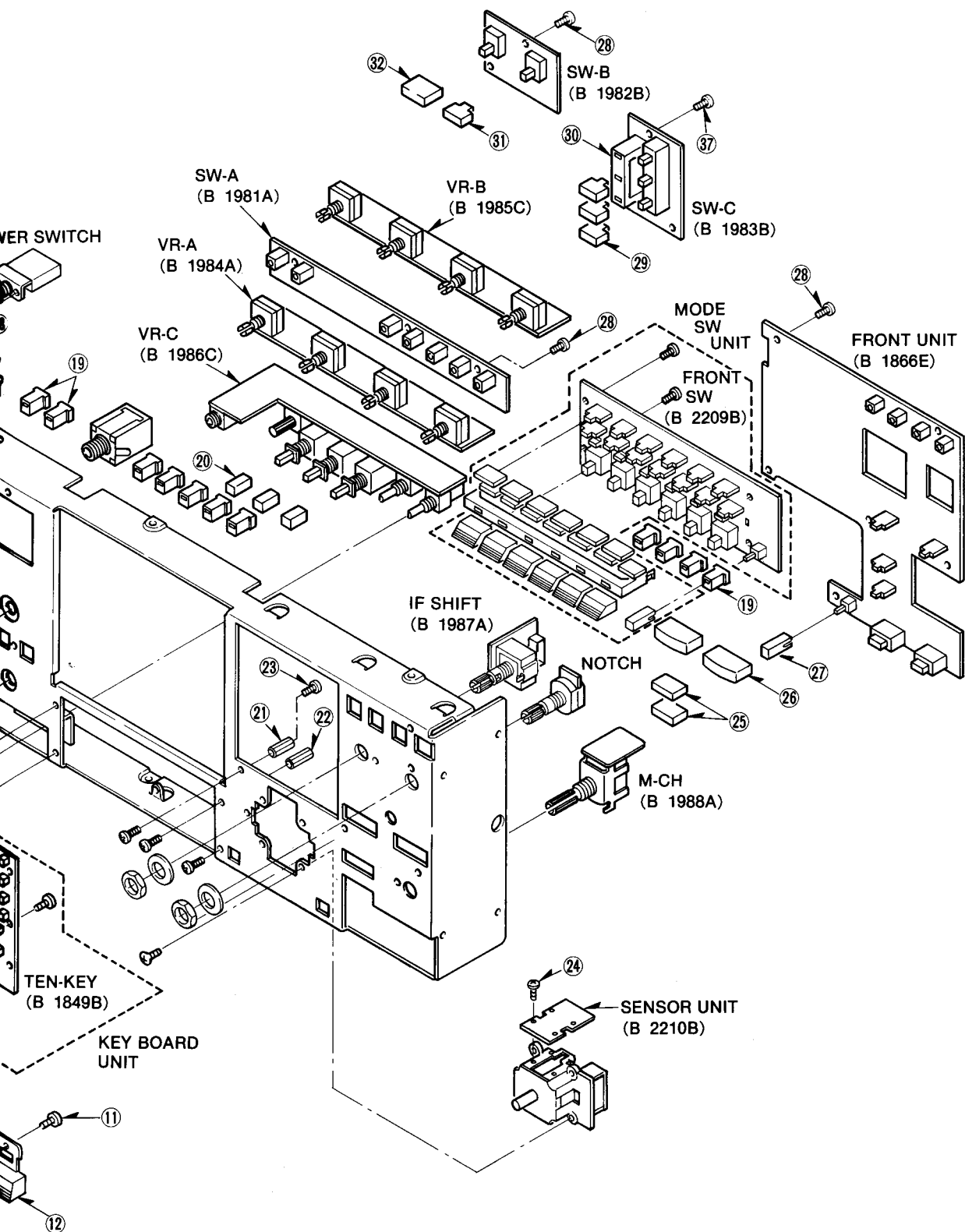
LABEL NUMBER	ORDER NO.	DESCRIPTION	QTY.
①	8610002800	Knob N113 [AF, SQL, TONE, etc.]	8
②	8610003630	Knob N102 (A) [BRIGHT]	2
③	8610004190	Knob N124 [MAIN]	1
④	8610005300	Knob N122 (A) [NOTCH, IF SHIFT]	2
⑤	8610004180	Knob N123 [MEMORY-CH]	1
⑥	8820000320	FFH M2.6 × 6 (—)	4
⑦	8930011670	CRT rubber seal	1
⑧	8830000550	VR nut (E)	7
⑨	8830000030	VR nut (C)	2
⑩	8830000050	VR nut (B)	1
⑪	8810001240	PH B1 M2 × 5	2
⑫	8610005290	Button K125 [MHz UP/DOWN]	1
⑬	8810004690	BIH M4 × 5 ZK BS	5
⑭	8810001230	PH B1 M2 × 4	2
⑮	8610002840	Button K79 [POWER]	1
⑯	8810003150	Set screw (A) M3 × 5	2
⑰	8010008441	418 Sub chassis	1
⑱	8810001040	PH B0 M2.6 × 6	2
⑲	8610004560	Button K102 (A) [NB, NAR, VSC, etc.]	11
⑳	8930006940	Push SW button [CAL, REC, DIMMER]	3
㉑	8930011520	Thread spacer (X)	4
㉒	8930000720	Thread spacer (V)	1
㉓	8810000220	PH M3 × 5	15
㉔	8810002170	FH M3 × 6	4
㉕	8610004140	Button K105 [WRITE, CLEAR]	2
㉖	8610005280	Button K127 [MEMORY BANK]	2
㉗	8610002540	Button K66 (A) [LOCK]	1
㉘	8810003150	Set screw (A) M3 × 5	14
㉙	8610003840	Button K97 [AGC]	3
㉚	8930014540	3-LED holder	1
㉛	8610003840	Button K97 [METER]	1
㉜	8610005270	Button K126 [TIMER]	1
㉝	8210004580	418 Front panel	1
㉞	8930014530	CRT panel (A)	1
㉟	8930011780	CRT filter	1
㊱	8830000580	418 nut	1
㊲	8810000980	PH B0 M2 × 4	3

**Screw type** Screw: M4 × 5, M3 × 2, M2.6 × 6, etc.

**Screw head style** FFH: Flat filister head PH: Pan head BIH: Binding head FH: Flat head

• FRONT PANEL DISASSEMBLY (1)



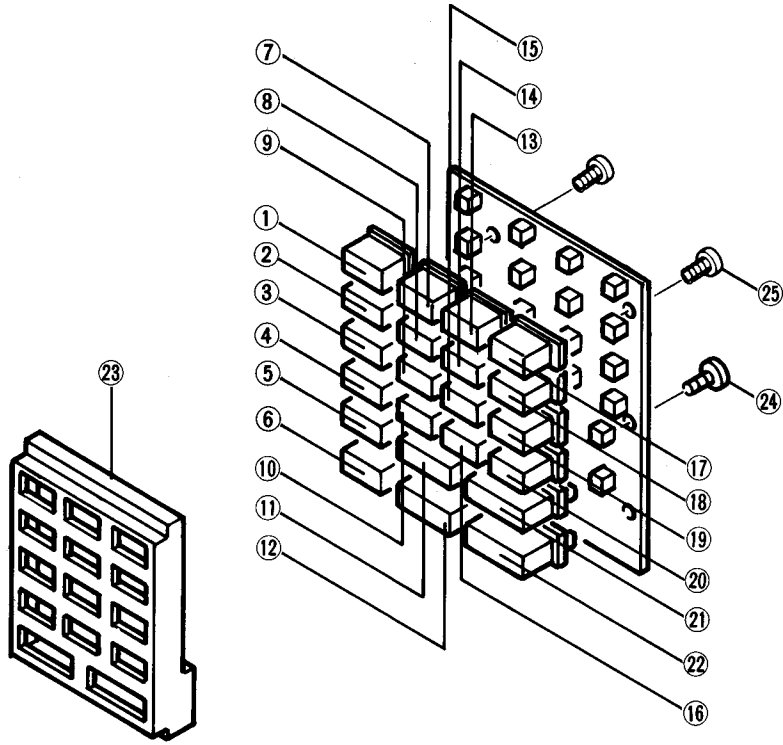


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## 4-4 FRONT PANEL DISASSEMBLY (2)

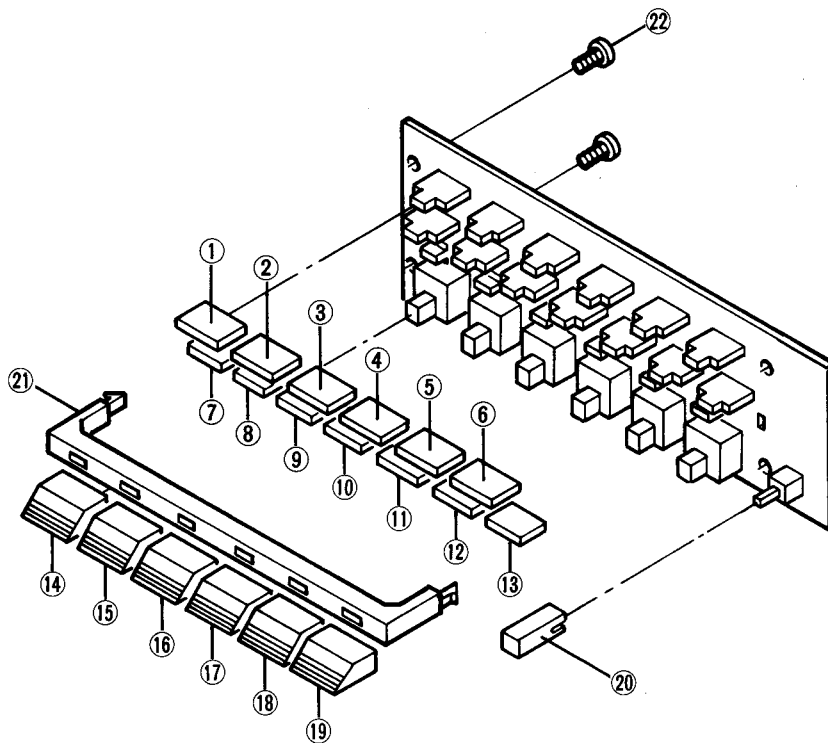
### • KEY BOARD UNIT



LABEL NUMBER	ORDER NO.	DESCRIPTION	QTY.
①	8610005050	Button K92 (Y) [FM]	1
②	8610005060	Button K92 (Z) [W FM]	1
③	8610005070	Button K92 (AA) [AM]	1
④	8610005080	Button K92 (AB) [SSB]	1
⑤	8610005090	Button K92 (AC) [CW]	1
⑥	8610005100	Button K92 (AD) [FSK]	1
⑦	8610005110	Button K92 (AE) [1]	1
⑧	8610005140	Button K92 (AH) [4]	1
⑨	8610005170	Button K92 (AK) [7]	1
⑩	8610005210	Button K92 (AO) [•]	1
⑪	8610005230	Button K104 (D) [M-CH]	1
⑫	8610005260	Button K104 (G) [SLOW]	1
⑬	8610005120	Button K92 (AF) [2]	1
⑭	8610005150	Button K92 (AI) [5]	1
⑮	8610005180	Button K92 (AL) [8]	1
⑯	8610005200	Button K92 (AN) [0]	1
⑰	8610005130	Button K92 (AG) [3]	1
⑱	8610005160	Button K92 (AJ) [6]	1
⑲	8610005190	Button K92 (AM) [9]	1
⑳	8610005220	Button K92 (AP) [CE]	1
㉑	8610005240	Button K104 (E) [ENT]	1
㉒	8610005250	Button K104 (F) [FAST]	1
㉓	8210002850	10 Key panel	1
㉔	8810000980	PH B0 M2×4	3
㉕	8810001230	PH B1 M2×4	6

Screw head style PH: Pan head

• MODE SW UNIT



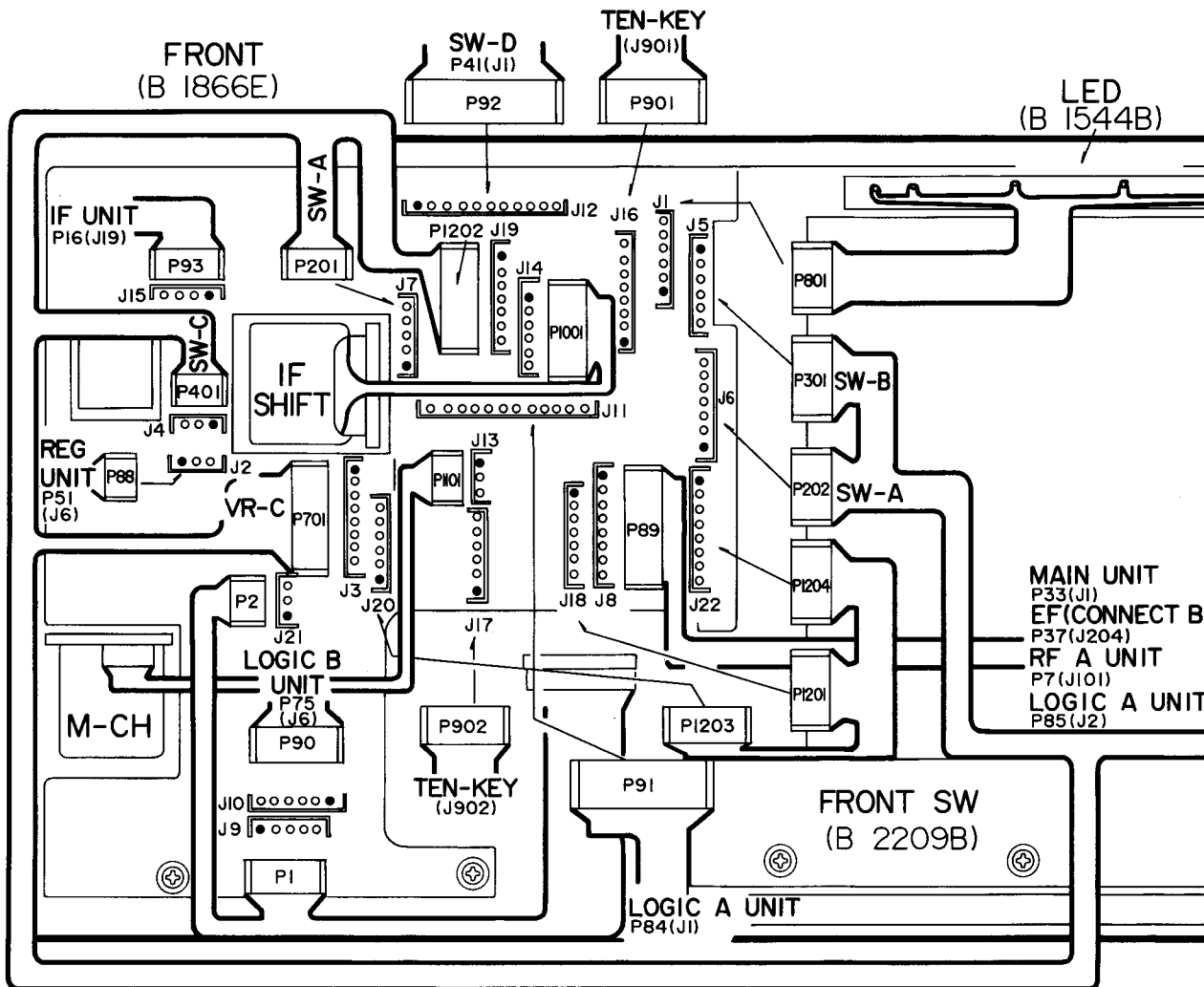
LABEL NUMBER	ORDER NO.	DESCRIPTION	QTY.
①	8610003860	Button K99 [F-1]	1
②	8610003870	Button K99 (A) [F-2]	1
③	8610003880	Button K99 (B) [F-3]	1
④	8610003890	Button K99 (C) [F-4]	1
⑤	8610003900	Button K99 (D) [F-5]	1
⑥	8610003910	Button K99 (E) [F-6]	1
⑦	8610004940	Button K100 (G) [PRIO]	1
⑧	8610004950	Button K100 (H) [PROG]	1
⑨	8610004960	Button K100 (I) [ $\Delta$ f]	1
⑩	8610004970	Button K100 (J) [MODE]	1
⑪	8610004980	Button K100 (K) [MEMO]	1
⑫	8610004990	Button K100 (L) [SEL]	1
⑬	8610005000	Button K100 (M) [AUTO]	1
⑭	8610004000	Button K101 (A) [ATT 10 dB]	1
⑮	8610004010	Button K101 (B) [ATT 20 dB]	1
⑯	8610005010	Button K101 (I) [REMOTE]	1
⑰	8610005020	Button K101 (J) [DISPLAY]	1
⑱	8610005030	Button K101 (K) [ANTENNA]	1
⑲	8610005040	Button K101 (L) [AFC]	1
⑳	8610002540	Button K66 (A) [SPEECH]	1
㉑	8930011620	6-LED holder	1
㉒	8810003150	Set screw (A) M3 $\times$ 5	5

**ICOM standard screw** Set screw (A): Pan head screw with spring washer

**Screw type** Screw: M4  $\times$  5, M3  $\times$  12, M2.6  $\times$  6, etc.

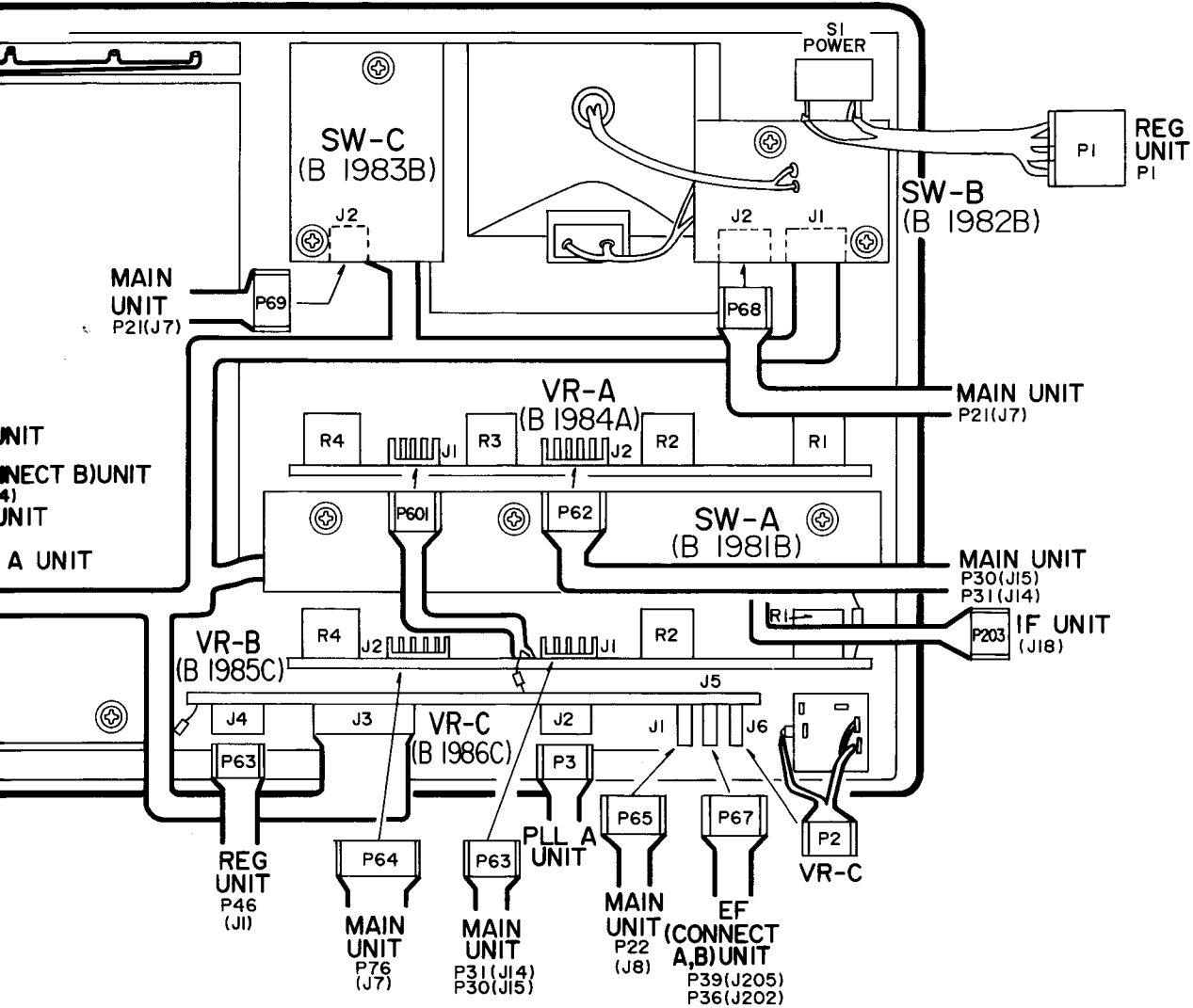
**Screw head style** PH: Pan head BIH: Binding head

# 4-5 FRONT UNIT CONNECTOR ASSEMBLY

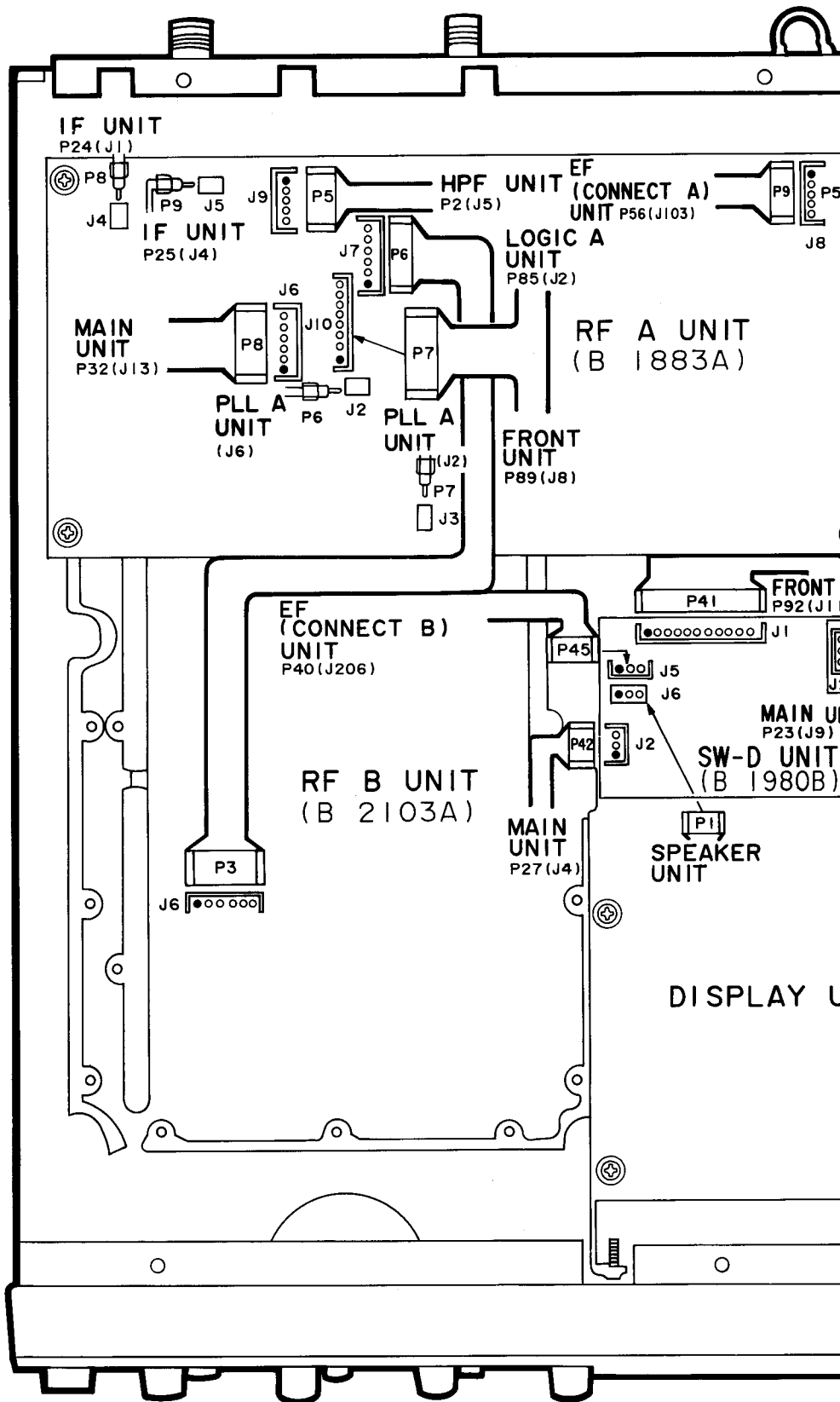


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4B)



# 4-6 TOP VIEW CONNECTOR ASSEMBLY (1)



EF (CONNECT A)  
UNIT (J102)

EF  
(CONNECT A)  
UNIT  
(J108)

TV UNIT  
(B 2287)

J3 P19 IF UNIT  
P3(J8)  
J4

VOICE  
SYNTHESIZER  
FRONT UNIT  
OPTION(UT-36)

IF UNIT  
P14(J14)

FRONT UNIT  
P92(J112)

J1 P55 J1  
J2 P54 J3  
MAIN UNIT  
P23(J9)  
-D UNIT  
(980B)  
LOGIC A  
UNIT  
P80(J12)

J1 P27  
IF UNIT  
(J12)  
IF UNIT  
P10(J6)  
J6

LOGIC A  
UNIT  
P81(J7)

J2 P58  
LOGIC B  
UNIT  
P78(J9)

SCOPE  
UNIT  
(B 1887A)

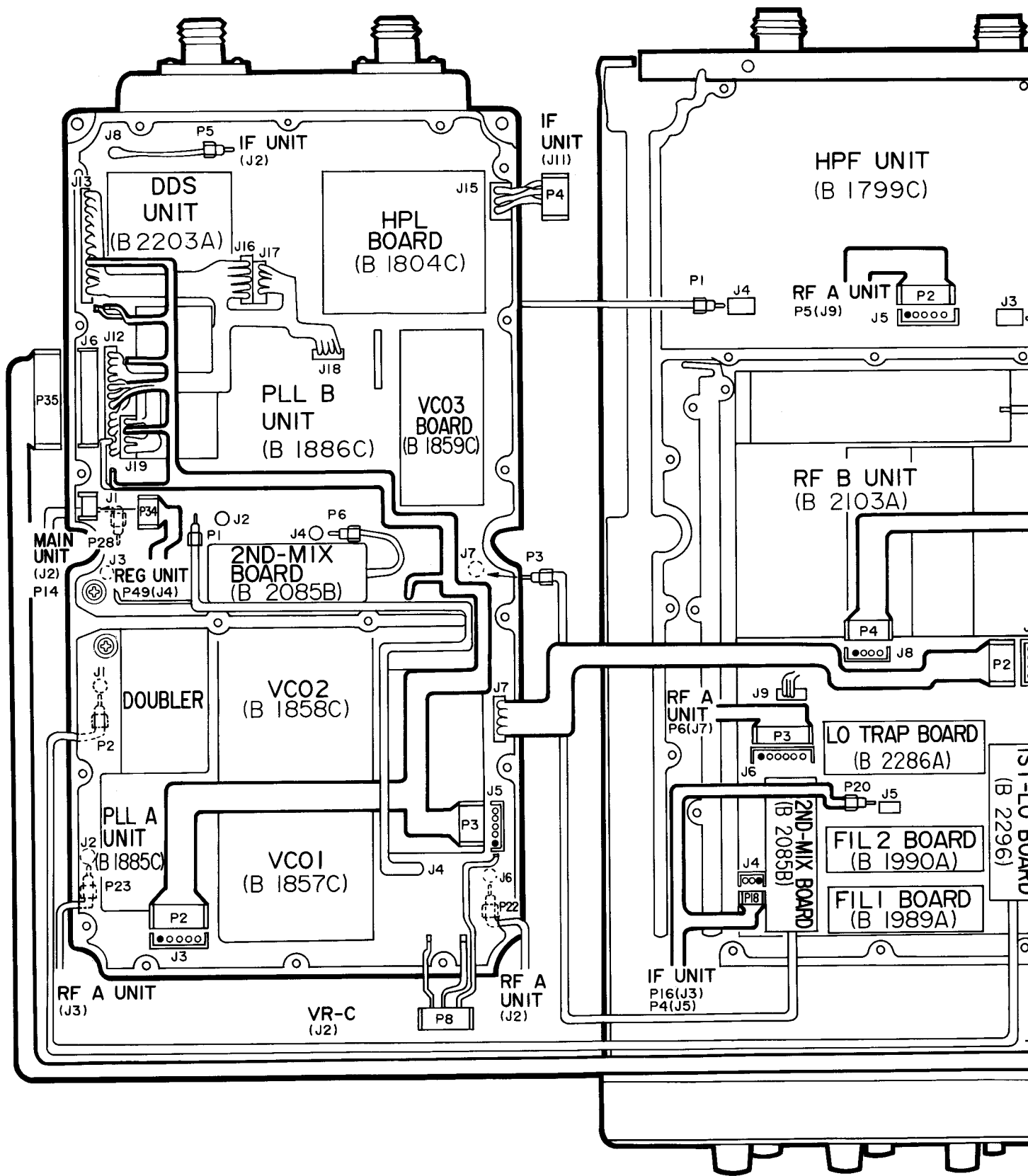
LOGIC B  
UNIT  
P73(J10)  
P60 J4

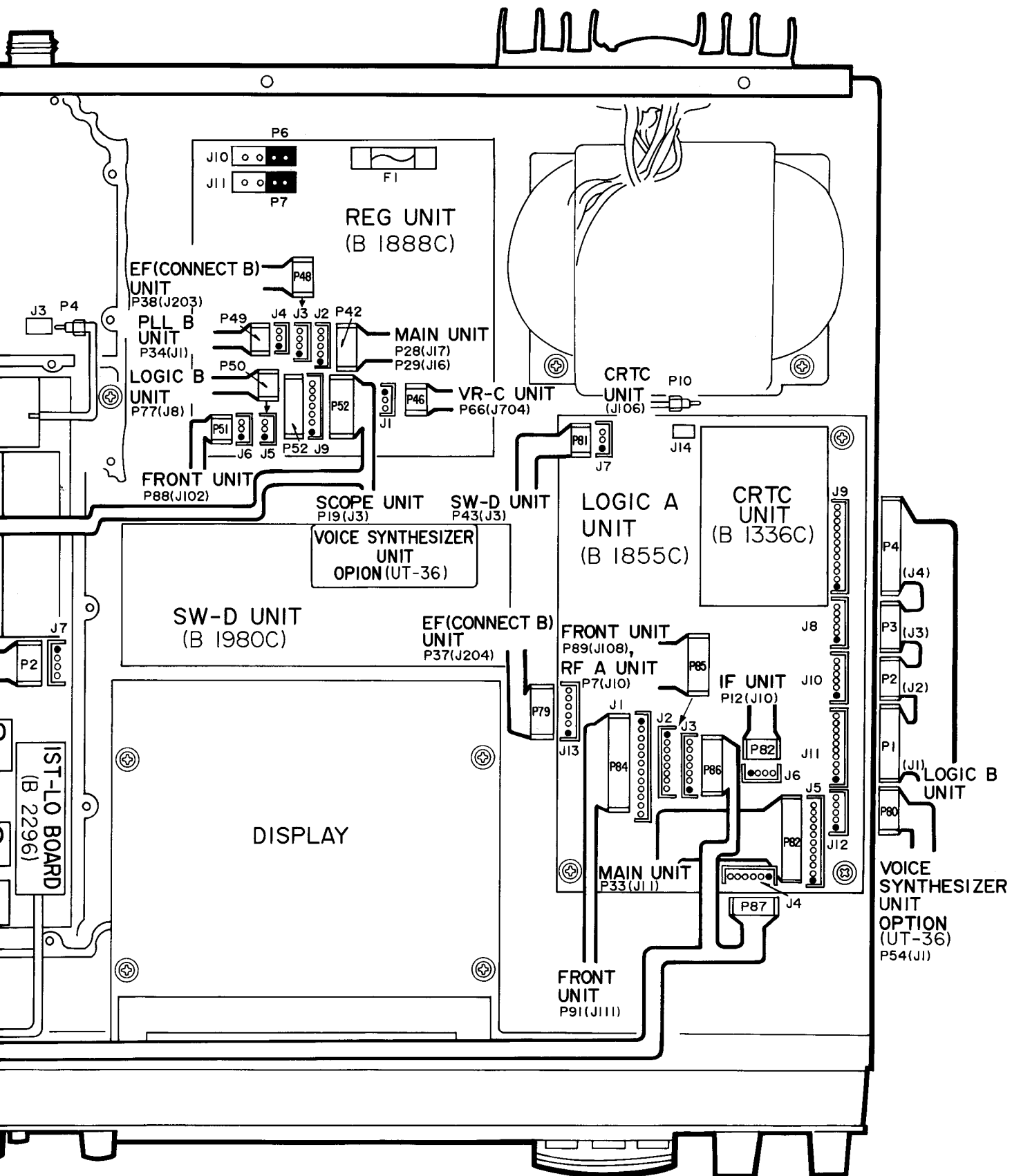
PLAY UNIT

J3 P59  
REG UNIT  
P52(J9)

# 4-7 TOP VIEW CONNECTOR ASSEMBLY (2)

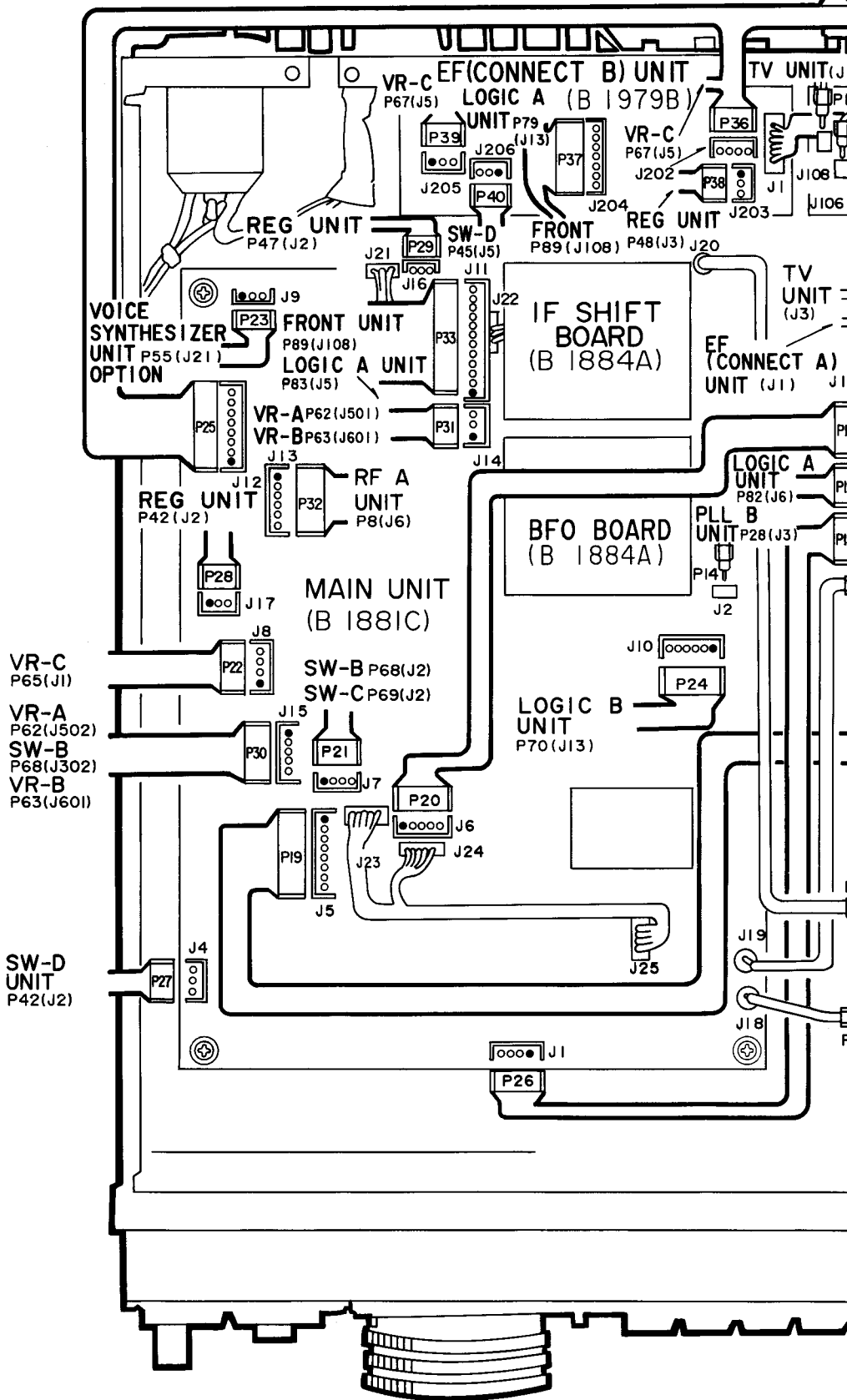
(BOTTOM)

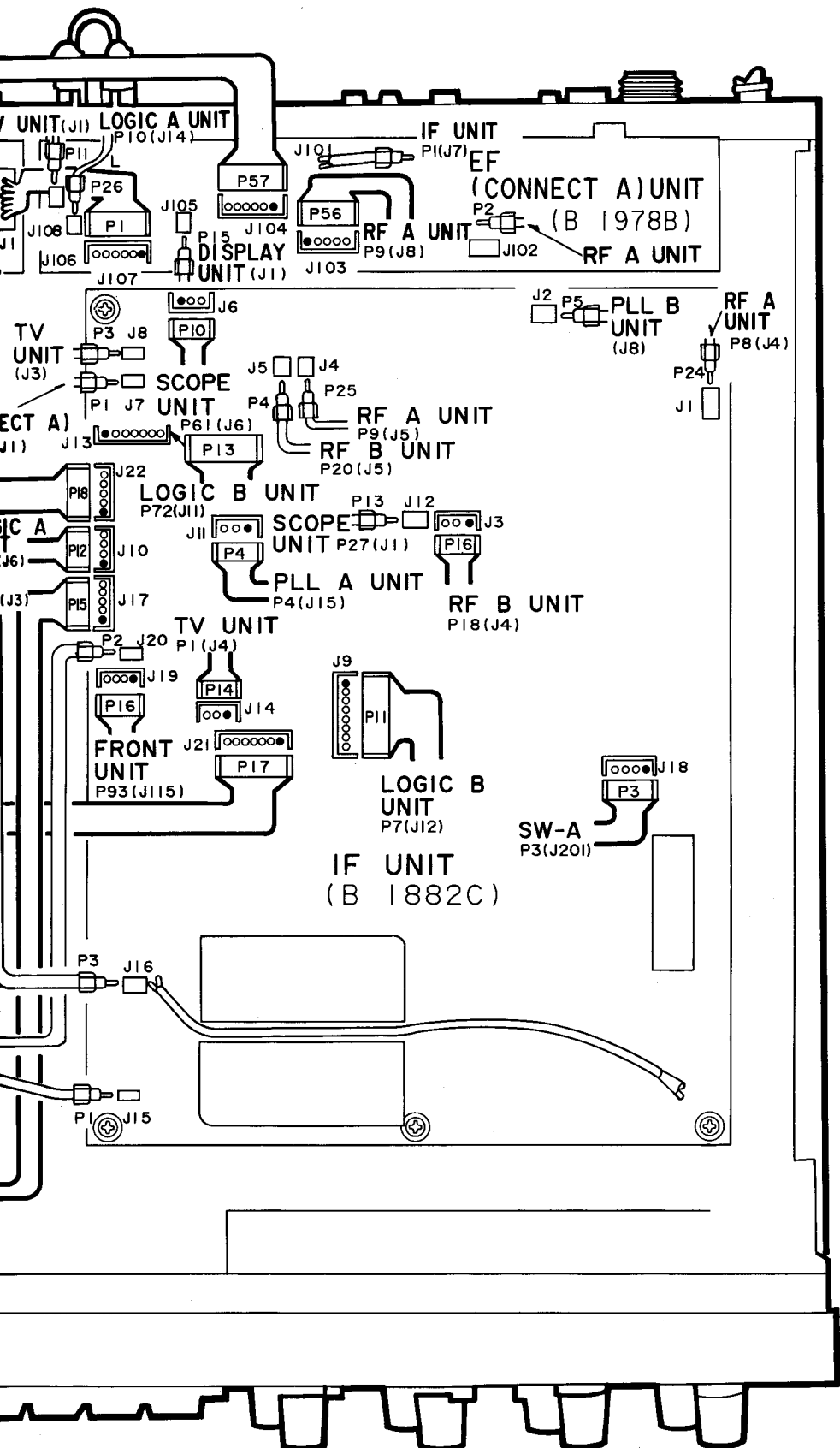






# 4-8 BOTTOM VIEW CONNECTOR ASSEMBLY



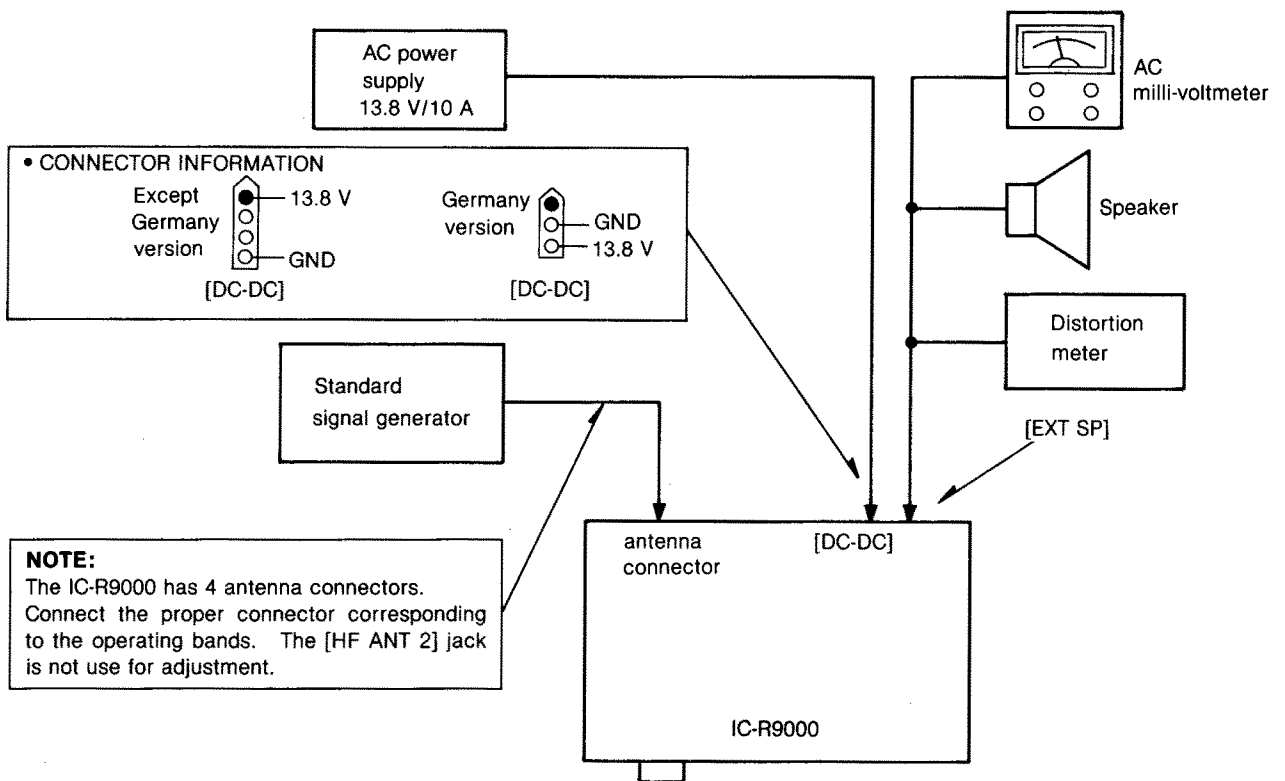


# SECTION 5 MAINTENANCE AND ADJUSTMENT

## 5-1 REQUIRED TEST EQUIPMENT

EQUIPMENT	GRADE AND RANGE	EQUIPMENT	GRADE AND RANGE
AC power supply	Output voltage : 13.8 V DC Current capacity : 10 A or more	External speaker	Impedance : 8 Ω
Frequency counter	Frequency range : 0.1 MHz~1 GHz Frequency accuracy : ±1 ppm or better Sensitivity : 100 mV or better	Ohm meter	Measuring range : 0.1~100 kΩ
		Audio generator	Frequency range : 50~2000 Hz Output level : 0~500 mV
RF voltmeter	Frequency range : 0.1~500 MHz Measuring range : 0.01~10 V	Distortion meter	Frequency range : 1 kHz±10 Hz Measuring range : 1~10 %
Oscilloscope	Frequency range : DC~50 MHz Measuring range : 0.01~10 V	Standard signal generator (SSG)	Frequency range : 0.1 MHz~2 GHz Output level : -127~-17 dBm (0.1 μV~32 mV)
DC voltmeter	Input impedance : 50 kΩ/DC or better		
AC milli-voltmeter	Measuring range : 10 mV~10 V		

## 5-2 TEST EQUIPMENT CONNECTION



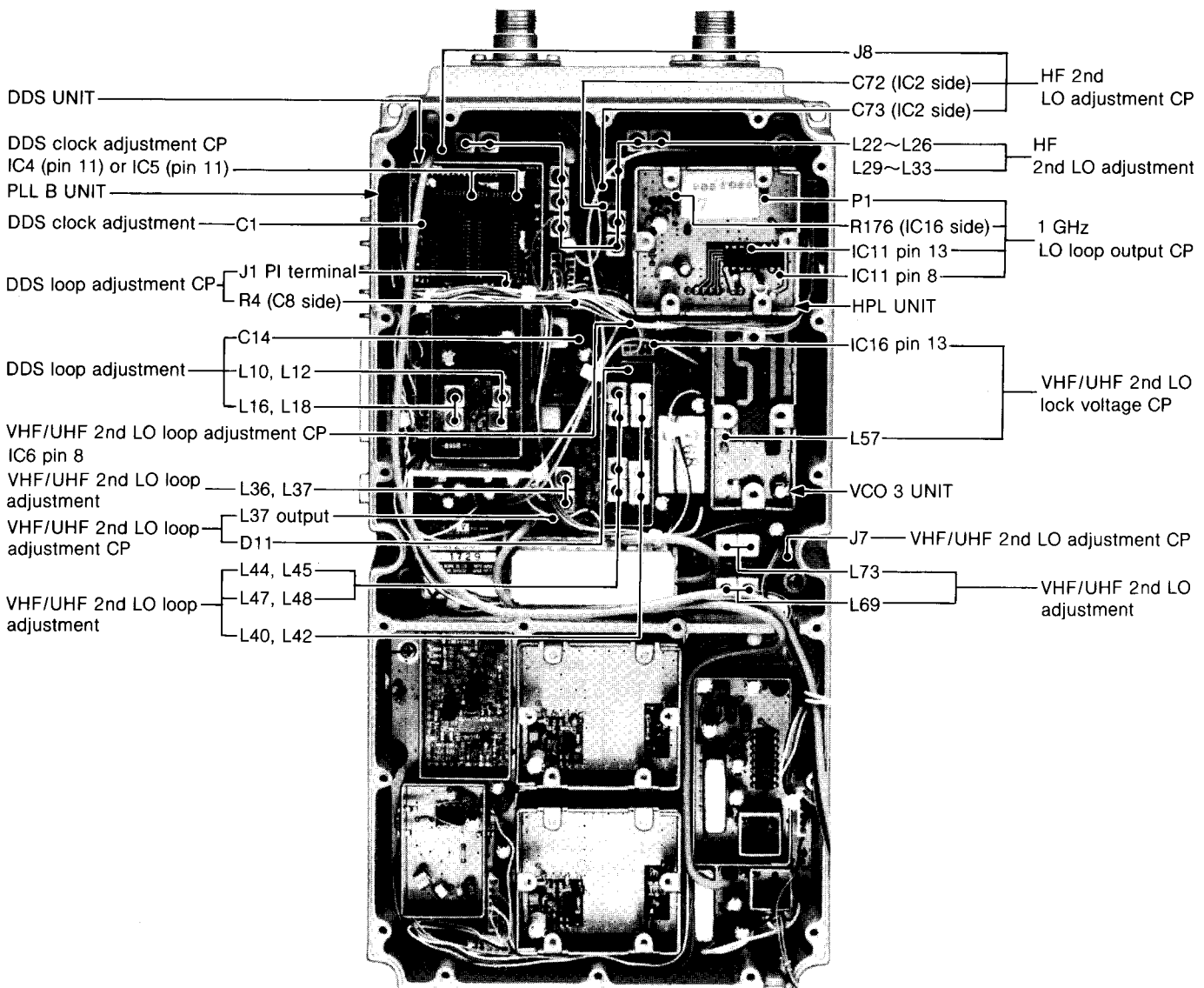
## 5-3 PLL ADJUSTMENT

ADJUSTMENT		ADJUSTMENT CONDITIONS	MEASUREMENT		VALUE	ADJUSTMENT POINT	
			UNIT	LOCATION		UNIT	ADJUST
DDS CLOCK	1	<ul style="list-style-type: none"> <li>Displayed frequency: 500.99999 MHz</li> <li>Mode : FM</li> </ul>	DDS	Connect the frequency counter to IC4 pin 11 or IC5 pin 11.	5.24288 MHz	DDS	C1
DDS LOOP	1	<ul style="list-style-type: none"> <li>Displayed frequency: 500.99999 MHz</li> <li>Mode : FM</li> </ul>	DDS	Connect the oscilloscope to J1 PI terminal.	Maximum wave form	PLL B	L16, L18
	2		PLL B	Connect the oscilloscope to R4 (C8 side).	1.5 V		C14
	3		DDS	Connect again the oscilloscope to J1 PI terminal.	Maximum wave form (More than 4.5 Vp-p)		L10, L12
HF BAND 2nd LO	1	<ul style="list-style-type: none"> <li>Displayed frequency: 14.10300 MHz</li> <li>Mode : FM</li> </ul>	PLL B	Connect the RF voltmeter to C73 (IC2 side).	Maximum level (0.05~0.1 V)	PLL B	L31~L33
	2			Connect the RF voltmeter to C72 (IC2 side).	Maximum level (0.05~0.1 V)		L22, L23
	3			Connect the RF voltmeter to J8 (unplug P5).	Maximum level with several times adjusting. (0.05~0.1 V)		L24~L26 L29, L30
	4	After adjustment, re-plug P5.					
VHF/UHF BAND 2nd LO LOOP	1	<ul style="list-style-type: none"> <li>Displayed frequency: 500.05000 MHz</li> <li>Mode : FM</li> </ul>	PLL B	Connect the RF voltmeter to land of L37 output.	Maximum level (More than 0.1 V)	PLL B	L36, L37
	2	<ul style="list-style-type: none"> <li>Displayed frequencies: 500.0000 MHz and 499.00000 MHz</li> </ul>		Connect the RF voltmeter to D11.	More than 22 mV		Verify
	When output level is less than 22 mV: Adjust L44, L45, L47, L48 for the maximum level with the displayed frequency 500.00000 MHz. Adjust L40, L42 for the maximum level with the displayed frequency 499.00000 MHz.						
	3	<ul style="list-style-type: none"> <li>Displayed frequency: 500.00000 MHz</li> </ul>	PLL B	Connect the oscilloscope to IC6 pin 8.	More than 1.5 Vp-p		Verify
VHF/UHF BAND 2nd LO LOCK VOLTAGE	1	<ul style="list-style-type: none"> <li>Displayed frequency: 500.00000 MHz</li> <li>Mode : FM</li> </ul>	PLL B	Connect the oscilloscope to IC6 pin 13.	10 μsec. More than 5 Vp-p		Verify
	2	<ul style="list-style-type: none"> <li>Displayed frequency: 500.00000 MHz</li> </ul>	VCO 3	Connect the oscilloscope to L57.	3~5 V		Verify
	3	<ul style="list-style-type: none"> <li>Displayed frequency: 499.00000 MHz</li> </ul>			4~6 V		Verify
VHF/UHF BAND 2nd LO OUTPUT	1	<ul style="list-style-type: none"> <li>Displayed frequency: 499.05000 MHz</li> <li>Mode : FM</li> </ul>	PLL B	Connect the RF voltmeter to land of J7.	Maximum level (0.028~0.056 V)	PLL B	L69
	2	<ul style="list-style-type: none"> <li>Displayed frequency: 500.05000 MHz</li> </ul>			Maximum level (0.016~0.032 V)		L73

# PLL ADJUSTMENT (CONTINUED)

ADJUSTMENT		ADJUSTMENT CONDITIONS	MEASUREMENT		VALUE	ADJUSTMENT POINT	
			UNIT	LOCATION		UNIT	ADJUST
1 GHz LOOP OUTPUT	1	<ul style="list-style-type: none"> <li>• Displayed frequency: 1150.00000 MHz</li> <li>• Mode : FM</li> </ul>	PLL B (HPL)	Connect the oscilloscope to IC11 pin 8.	More than 1.4 Vp-p		Verify
	2			Connect the oscilloscope to IC11 pin 13.			
	3	<ul style="list-style-type: none"> <li>• Displayed frequencies: 1149.00000 MHz and 1150.00000 MHz</li> </ul>		Connect the oscilloscope to R176 (IC16 side).	2.5~5.5 V		
	4			Connect the RF voltmeter to land of P1.	0.16~0.32 V		

## • DDS, PLL B AND VCO 3 UNITS



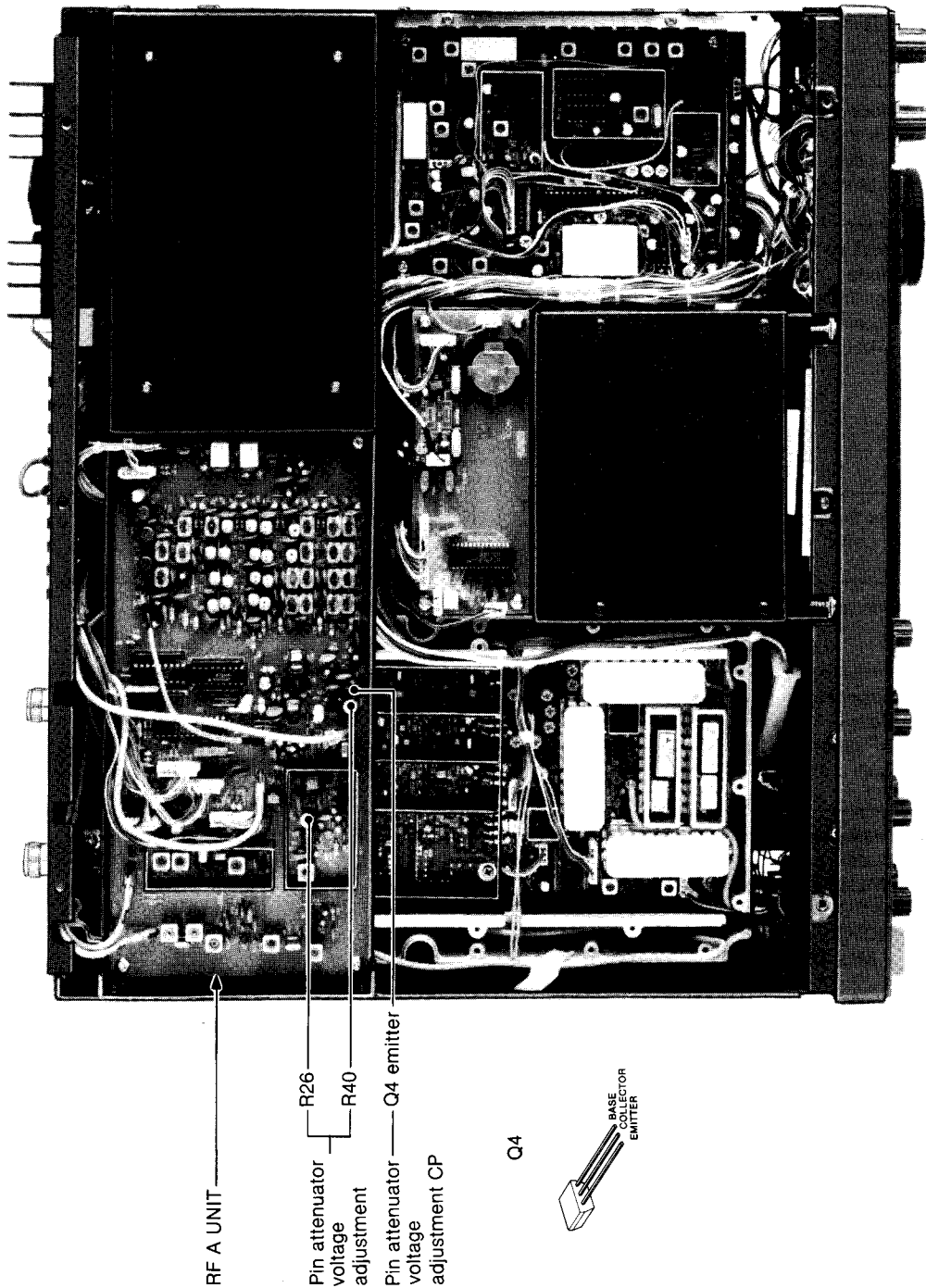
## 5-4 HF BAND RECEIVER ADJUSTMENT

ADJUSTMENT		ADJUSTMENT CONDITIONS	MEASUREMENT		VALUE	ADJUSTMENT POINT		
			UNIT	LOCATION		UNIT	ADJUST	
REFERENCE FREQUENCY AMP	1	<ul style="list-style-type: none"> <li>Displayed frequency: 14.10000 MHz</li> <li>Mode : USB</li> </ul>	MAIN	Connect the oscilloscope to R183.	Maximum level	MAIN	L17	
	2			Connect the frequency counter to R183.				12.50000 MHz
IF SHIFT LOCK VOLTAGE	1	<ul style="list-style-type: none"> <li>Displayed frequency: 14.10000 MHz</li> <li>Mode : AM</li> <li>[IF SHIFT] control : Center</li> </ul>	MAIN	Connect the oscilloscope to R419.	2.5 V	MAIN	L405	
BFO LOCK VOLTAGE	1	<ul style="list-style-type: none"> <li>Displayed frequency: 14.10000 MHz</li> <li>Mode : CW</li> </ul>	MAIN	Connect the oscilloscope to R519.	2.5 V	MAIN	L505	
	2	<ul style="list-style-type: none"> <li>Mode : SSB and FSK</li> </ul>			2~3 V			Verify
IF SHIFT	1	<ul style="list-style-type: none"> <li>Displayed frequency: 14.10000 MHz</li> <li>Mode : AM</li> <li>[IF SHIFT] control : Center</li> </ul>	IF	Connect the oscilloscope to J20 (unplug P3).	Maximum level	MAIN	L12	
	2	After adjustment, re-plug P3.						
BFO OUTPUT LEVEL	1	<ul style="list-style-type: none"> <li>Displayed frequency: 14.10000 MHz</li> <li>Mode : FSK</li> </ul>	MAIN	Connect the oscilloscope to R171.	Maximum level	MAIN	L15, L16	
AGC	1	<ul style="list-style-type: none"> <li>Displayed frequency: 14.10000 MHz</li> <li>Mode : USB</li> <li>[AGC] switch : FAST</li> </ul>	IF	Connect the oscilloscope to L60.	Pre-set to center.	MAIN	R201	
					3.8 V		R203	
IF AMP BIAS VOLTAGE	1	<ul style="list-style-type: none"> <li>Displayed frequency: 14.10000 MHz</li> <li>Mode : USB</li> </ul>	MAIN	Connect the oscilloscope to Q19 source.	2.5 V	MAIN	R126	
	2			Connect the oscilloscope to Q20 source.			R135	
	3			Connect the oscilloscope to Q10 source.			IF	R93
	4							Connect the oscilloscope to Q8 source.
	5	<ul style="list-style-type: none"> <li>Displayed frequency: 33.00000 MHz</li> <li>Mode : FM</li> <li>[FILTER WIDTH] switch: [WIDE]</li> </ul>	Connect the oscilloscope to Q5 source.	R33				
	6	<ul style="list-style-type: none"> <li>Mode : W FM</li> <li>[FILTER WIDTH] switch: [MIDDLE]</li> </ul>	Connect the oscilloscope to Q1 source.	R12				
	7	Connect the oscilloscope to Q3 source.	R21					

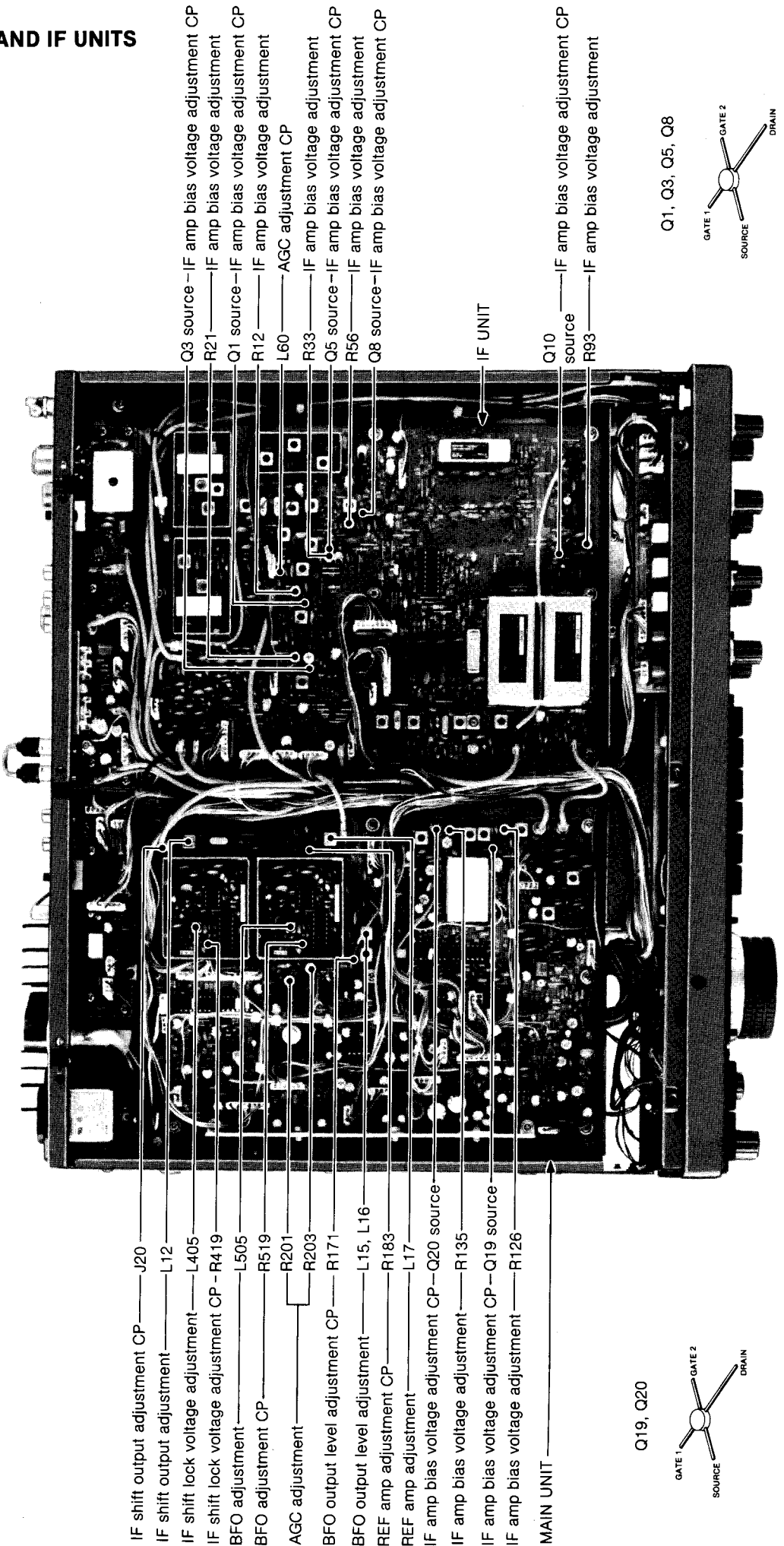
# HF BAND RECEIVER ADJUSTMENT (CONTINUED)

ADJUSTMENT	ADJUSTMENT CONDITIONS	MEASUREMENT		VALUE	ADJUSTMENT POINT	
		UNIT	LOCATION		UNIT	ADJUST
PIN ATTENUATOR	<ul style="list-style-type: none"> <li>• Displayed frequency: 14.10000 MHz</li> <li>• Mode : USB</li> <li>• [ATT] switches : OFF</li> <li>• [AGC] switch : OFF</li> <li>• [RF GAIN] control : Max. CW</li> </ul>	RF A	Connect the oscilloscope to Q4 emitter.	Pre-set to center.	RF A	R26, R40
				2.8 V		R40
	3	<ul style="list-style-type: none"> <li>• Displayed frequency: 2.00000 MHz</li> </ul>	Rear panel	Connect the AC milli-voltmeter to the [EXT SP] jack with an 8 Ω load.		Minimum noise level

## • RF A UNIT



• MAIN AND IF UNITS



- IF shift output adjustment CP — J20
- IF shift output adjustment — L12
- IF shift lock voltage adjustment — L405
- IF shift lock voltage adjustment CP — R419
- BFO adjustment — L505
- BFO adjustment CP — R519
- AGC adjustment — R201
- AGC adjustment — R203
- BFO output level adjustment CP — R171
- BFO output level adjustment — L15, L16
- REF amp adjustment CP — R183
- REF amp adjustment — L17
- IF amp bias voltage adjustment CP — Q20 source
- IF amp bias voltage adjustment — R135
- IF amp bias voltage adjustment CP — Q19 source
- IF amp bias voltage adjustment — R126

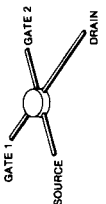
- Q3 source — IF amp bias voltage adjustment CP
- R21 — IF amp bias voltage adjustment
- Q1 source — IF amp bias voltage adjustment CP
- R12 — IF amp bias voltage adjustment
- L60 — AGC adjustment CP
- R33 — IF amp bias voltage adjustment
- Q5 source — IF amp bias voltage adjustment CP
- R56 — IF amp bias voltage adjustment
- Q8 source — IF amp bias voltage adjustment CP

IF UNIT

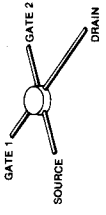
- Q10 source — IF amp bias voltage adjustment CP
- R93 — IF amp bias voltage adjustment

MAIN UNIT

Q19, Q20



Q1, Q3, Q5, Q8

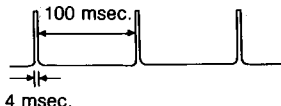




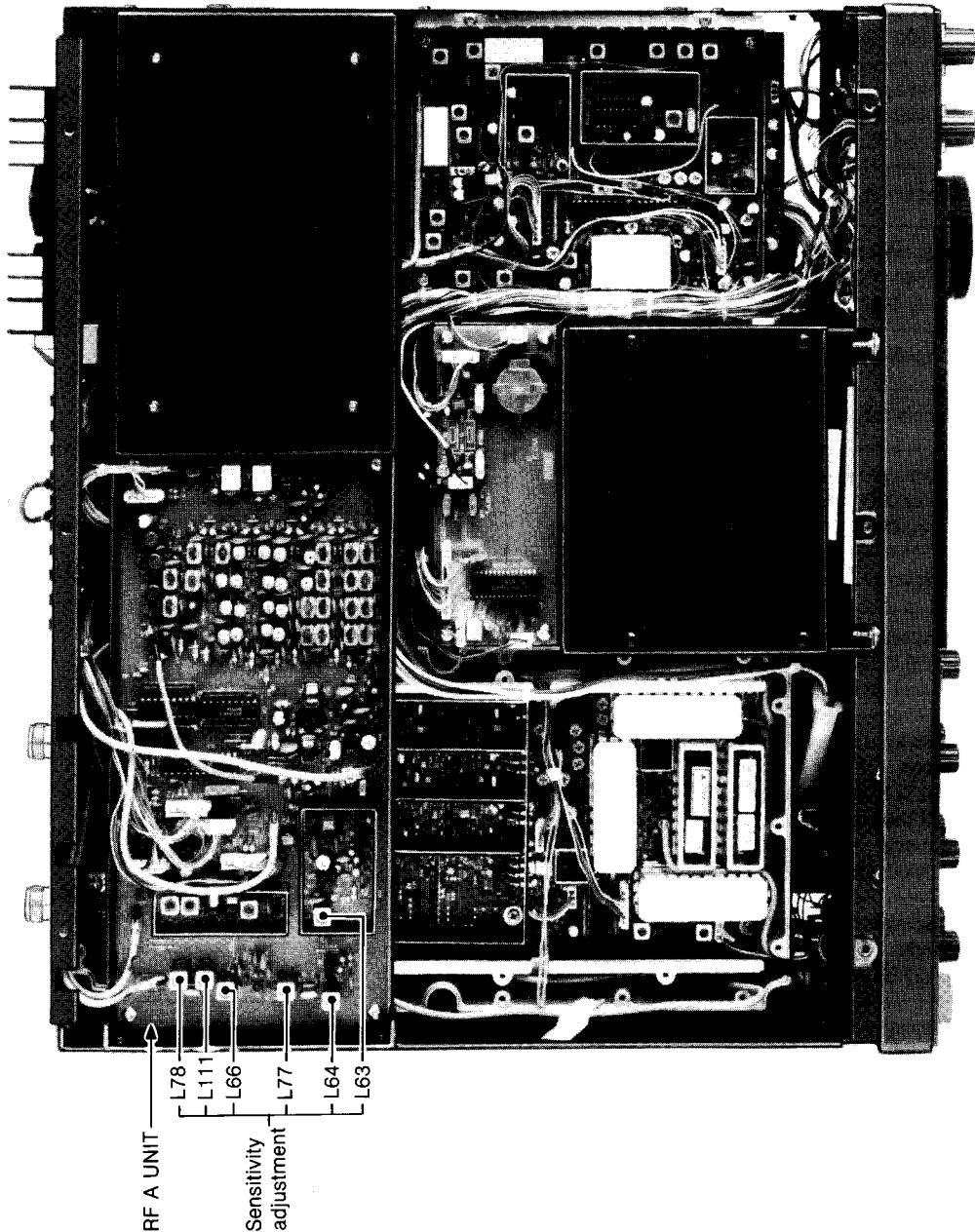
# HF BAND RECEIVER ADJUSTMENT (CONTINUED)

ADJUSTMENT	ADJUSTMENT CONDITIONS	MEASUREMENT		VALUE	ADJUSTMENT POINT		
		UNIT	LOCATION		UNIT	ADJUST	
SENSITIVITY	1	<ul style="list-style-type: none"> <li>Displayed frequency: 14.10000 MHz</li> <li>Mode : USB</li> <li>[ATT] switches : OFF</li> <li>[AGC] switch : FAST</li> <li>[NOTCH] switch : OFF</li> <li>[NB] switch : OFF</li> </ul>	Rear panel	Connect the AC milli-voltmeter to the [EXT SP] jack with an 8 Ω load.	Maximum audio output level	RF A	Adjust in sequence L63, L64 L77, L66 L111, L78
	2	<ul style="list-style-type: none"> <li>[FILTER WIDTH] switch: [MIDDLE]</li> <li>[RF GAIN] control : Max. CW</li> <li>[TREBLE] control : Center</li> <li>[BASS] control : Center</li> </ul>			Pre-set to center.	IF	L4
	3	<ul style="list-style-type: none"> <li>[SQUELCH] control: Max. CCW</li> <li>[IF SHIFT] control : Center</li> <li>Set the signal generator;                             <ul style="list-style-type: none"> <li>Level : 0.32 μV</li> <li>Modulation : OFF</li> </ul> </li> </ul>	Front panel	S-meter	Maximum value		L17, L5 L22~L25 L51, L57 L58
	4					MAIN	L7~L9 L14
	5	<ul style="list-style-type: none"> <li>Mode : FM</li> <li>Set the signal generator;                             <ul style="list-style-type: none"> <li>Level : 50 μV</li> <li>Modulation : OFF</li> </ul> </li> </ul>	MAIN	Connect the oscilloscope to Q6 base.	Maximum wave level	MAIN	L1, L2
TOTAL GAIN	1	<ul style="list-style-type: none"> <li>Displayed frequency: 14.10000 MHz</li> <li>Mode : USB</li> <li>Set the signal generator;                             <ul style="list-style-type: none"> <li>Level : 50 μV</li> <li>Modulation : OFF</li> </ul> </li> </ul>	Rear panel	Connect the AC milli-voltmeter to the [EXT SP] jack with an 8 Ω load.	Pre-set to max. CCW.	IF	R247
	2				Pre-set to center.	MAIN	R134
	3				0 dB	Front panel	[AF GAIN control]
	4	<ul style="list-style-type: none"> <li>Set the signal generator;                             <ul style="list-style-type: none"> <li>Level : OFF</li> </ul> </li> </ul>			-28 dB	IF	R251
	When above adjustment cannot obtain -28 dB, adjust R134 on the MAIN UNIT.						
BEEP TONE	1	<ul style="list-style-type: none"> <li>Displayed frequency: 14.10000 MHz</li> <li>Mode : USB</li> <li>[AF GAIN] control : Desired position</li> <li>Push a digit key</li> </ul>	Top cover	Output level from the speaker	Desired beep tone level	MAIN	R65
NOTCH FILTER	1	<ul style="list-style-type: none"> <li>Displayed frequency: 13.99850 MHz</li> <li>Mode : USB</li> <li>[CALIBRATOR] switch: ON</li> <li>[NOTCH] switch : ON</li> <li>[NOTCH] control: Max. CW and max. CCW</li> </ul>	Front panel	S-meter	Same level on the S-meter at [NOTCH] control CW and CCW rotation	IF	L55
	2	<ul style="list-style-type: none"> <li>[NOTCH] control : Center</li> </ul>	Rear panel	Connect the AC milli-voltmeter to the [EXT SP] jack with an 8 Ω load.	Minimum value	IF	C187, L53
	3	<ul style="list-style-type: none"> <li>Displayed frequency: 13.9972 MHz</li> <li>[NOTCH] control : 2~3 o'clock</li> </ul>			Same value as step 1		Verify
	4	<ul style="list-style-type: none"> <li>Displayed frequency: 13.9998 MHz</li> <li>[NOTCH] control : 9~11 o'clock</li> </ul>			Same value of step 1		Verify

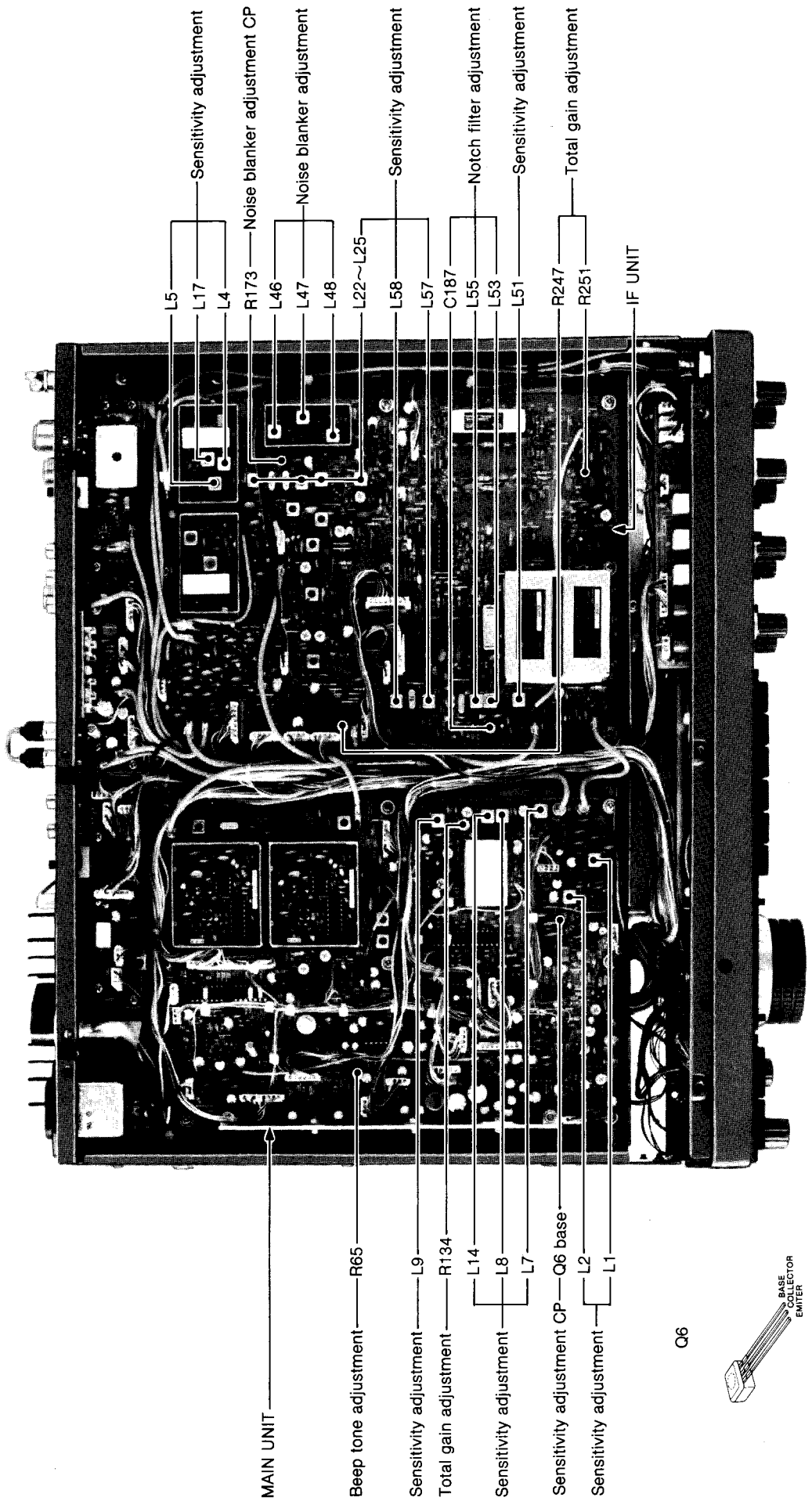
# HF BAND RECEIVER ADJUSTMENT (CONTINUED)

ADJUSTMENT	ADJUSTMENT CONDITIONS	MEASUREMENT		VALUE	ADJUSTMENT POINT		
		UNIT	LOCATION		UNIT	ADJUST	
NOISE BLANKER	1	<ul style="list-style-type: none"> <li>• Displayed frequency: 14.10000 MHz</li> <li>• Mode : USB</li> <li>• [CALIBRATOR] switch: OFF</li> <li>• [NOTCH] switch : OFF</li> <li>• [AGC] switch : OFF</li> <li>• [NB] switch : ON</li> <li>• [NB LEVEL] control: Max. CCW</li> <li>• Set the signal generator;                             <ul style="list-style-type: none"> <li>Level : 50 <math>\mu</math>V</li> <li>Modulation : OFF</li> </ul> </li> </ul>	IF	Connect the oscilloscope to R173.	Minimum voltage	IF	L46~L48
	2	<ul style="list-style-type: none"> <li>• Add the following pulse signal into signal generator output:</li> </ul> 	Rear panel	Connect the oscilloscope to the [EXT SP] jack with an 8 $\Omega$ load.	Noise is blanked when the [NB] switch is ON.		Verify

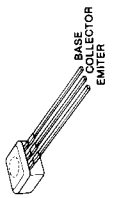
## • RF A UNIT



• MAIN AND IF UNITS



Q6

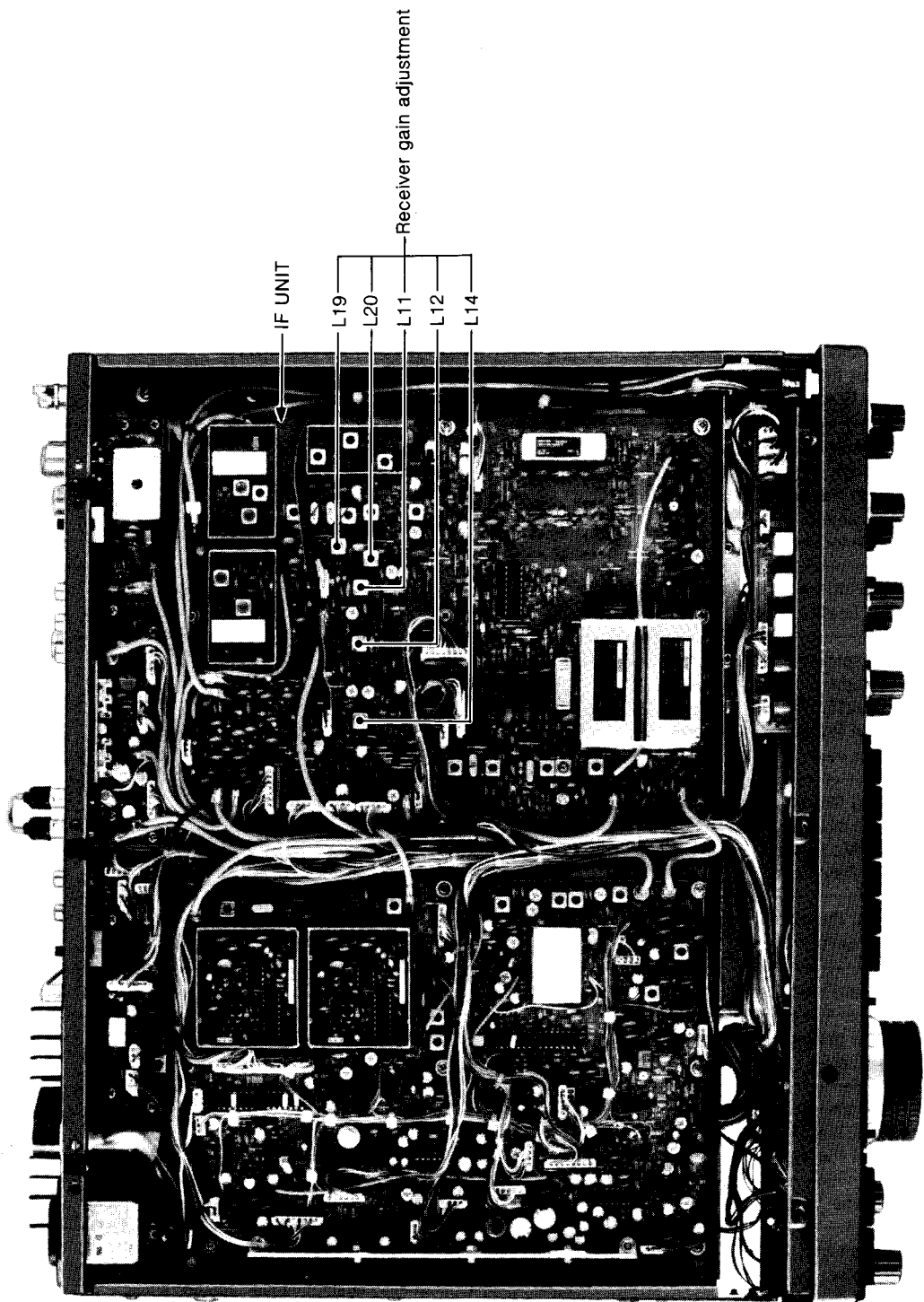


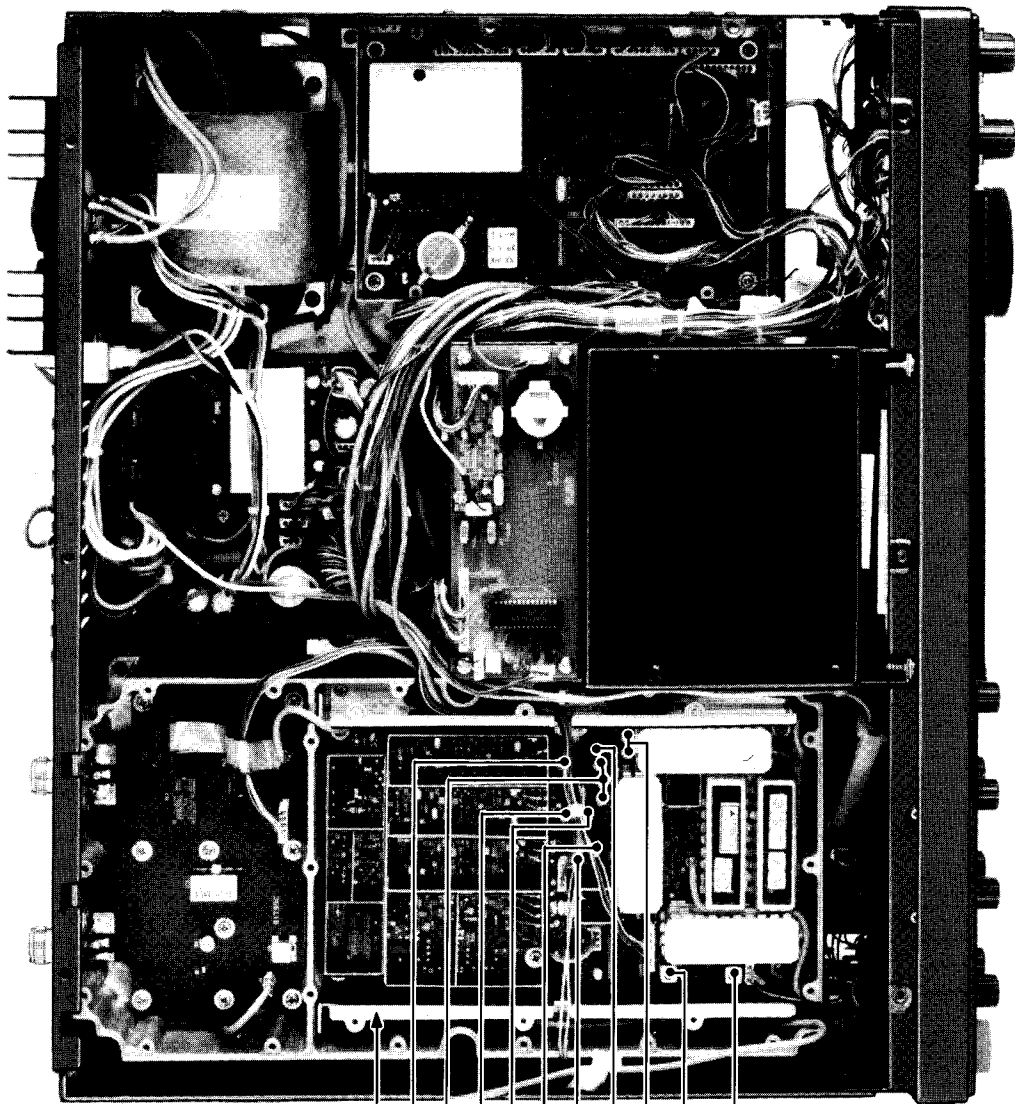
# 5-5 VHF/UHF BAND RECEIVER ADJUSTMENT

ADJUSTMENT		ADJUSTMENT CONDITIONS	MEASUREMENT		VALUE	ADJUSTMENT POINT	
			UNIT	LOCATION		UNIT	ADJUST
RECEIVER GAIN	1	<ul style="list-style-type: none"> <li>• Displayed frequency: 145.00000 MHz</li> <li>• Mode : FM</li> <li>• [FILTER WIDTH] switch: [WIDE]</li> <li>• Set the signal generator;                             <ul style="list-style-type: none"> <li>Level : 50 <math>\mu</math>V</li> <li>Modulation : 1 kHz</li> <li>Deviation : <math>\pm</math>3.5 kHz</li> </ul> </li> </ul>	Front panel	S-meter	Maximum value	IF	L19, L20
	2	<ul style="list-style-type: none"> <li>• Mode : WFM</li> </ul>					L11, L12 L14
BANDPASS FILTER	1	<ul style="list-style-type: none"> <li>• Displayed frequencies: 999.00000 MHz and 750.00000 MHz</li> <li>• Mode : FM</li> <li>• [FILTER WIDTH] switch: [MIDDLE]</li> <li>• Set the signal generator;                             <ul style="list-style-type: none"> <li>Level : 0.5 <math>\mu</math>V</li> <li>Modulation : 1 kHz</li> <li>Deviation : <math>\pm</math>3.5 kHz</li> </ul> </li> </ul>	Rear panel	Connect the distortion meter to the [EXT SP] jack with an 8 $\Omega$ load.	Minimum distortion level (Alternately adjust a couple of times at both frequencies.)	RF B	R90
	2	<ul style="list-style-type: none"> <li>• Displayed frequencies: 749.00000 MHz and 500.00000 MHz</li> </ul>					R89
	3	<ul style="list-style-type: none"> <li>• Displayed frequencies: 499.00000 MHz and 250.00000 MHz</li> </ul>					R79
	4	<ul style="list-style-type: none"> <li>• Displayed frequency: 350.00000 MHz</li> </ul>					R77
	5	<ul style="list-style-type: none"> <li>• Displayed frequencies: 249.00000 MHz and 90.00000 MHz</li> </ul>					R73
	6	<ul style="list-style-type: none"> <li>• Displayed frequency: 150.00000 MHz</li> </ul>					R71
	7	<ul style="list-style-type: none"> <li>• Displayed frequency: 200.00000 MHz</li> </ul>					Verify
	8	<ul style="list-style-type: none"> <li>• Displayed frequencies: 89.00000 MHz and 30.00000 MHz</li> </ul>					R68
	9	<ul style="list-style-type: none"> <li>• Displayed frequency: 55.00000 MHz</li> </ul>					R66
	10	<ul style="list-style-type: none"> <li>• Displayed frequencies: 80.00000 MHz, 70.00000 MHz and 40.00000 MHz</li> </ul>					Verify
SENSITIVITY	1	<ul style="list-style-type: none"> <li>• Displayed frequency: 751.00000 MHz</li> <li>• Mode : FM</li> <li>• [FILTER WIDTH] switch: [MIDDLE]</li> <li>• Set the signal generator;                             <ul style="list-style-type: none"> <li>Level : 50 <math>\mu</math>V</li> <li>Modulation : OFF</li> </ul> </li> </ul>	Front panel	S-meter	Maximum value	RF B	L57, L58
1st LO NOTCH	1	<ul style="list-style-type: none"> <li>• Displayed frequency: 250.00000 MHz</li> <li>• Mode : FM</li> <li>• [FILTER WIDTH] switch: [MIDDLE]</li> </ul>	RF B	Connect the DC voltmeter to IC3 pin 1.	9 V	RF B	R105
	2	<ul style="list-style-type: none"> <li>• Displayed frequency: 499.00000 MHz</li> </ul>			13~15 V		Verify
	3	<ul style="list-style-type: none"> <li>• Displayed frequency: 249.00000 MHz</li> </ul>			9 V		R104
	4	<ul style="list-style-type: none"> <li>• Displayed frequency: 30.00000 MHz</li> </ul>			4~5 V		Verify

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• IF UNIT





RF B UNIT

R68  
R73, R71, R66  
R79

BPF adjustment

R77  
R89  
R90

1st LO notch adjustment CP - IC3 (pin 1)

1st LO notch adjustment R105, R104

Sensitivity adjustment

L57  
L58

# VHF/UHF BAND RECEIVER ADJUSTMENT (CONTINUED)

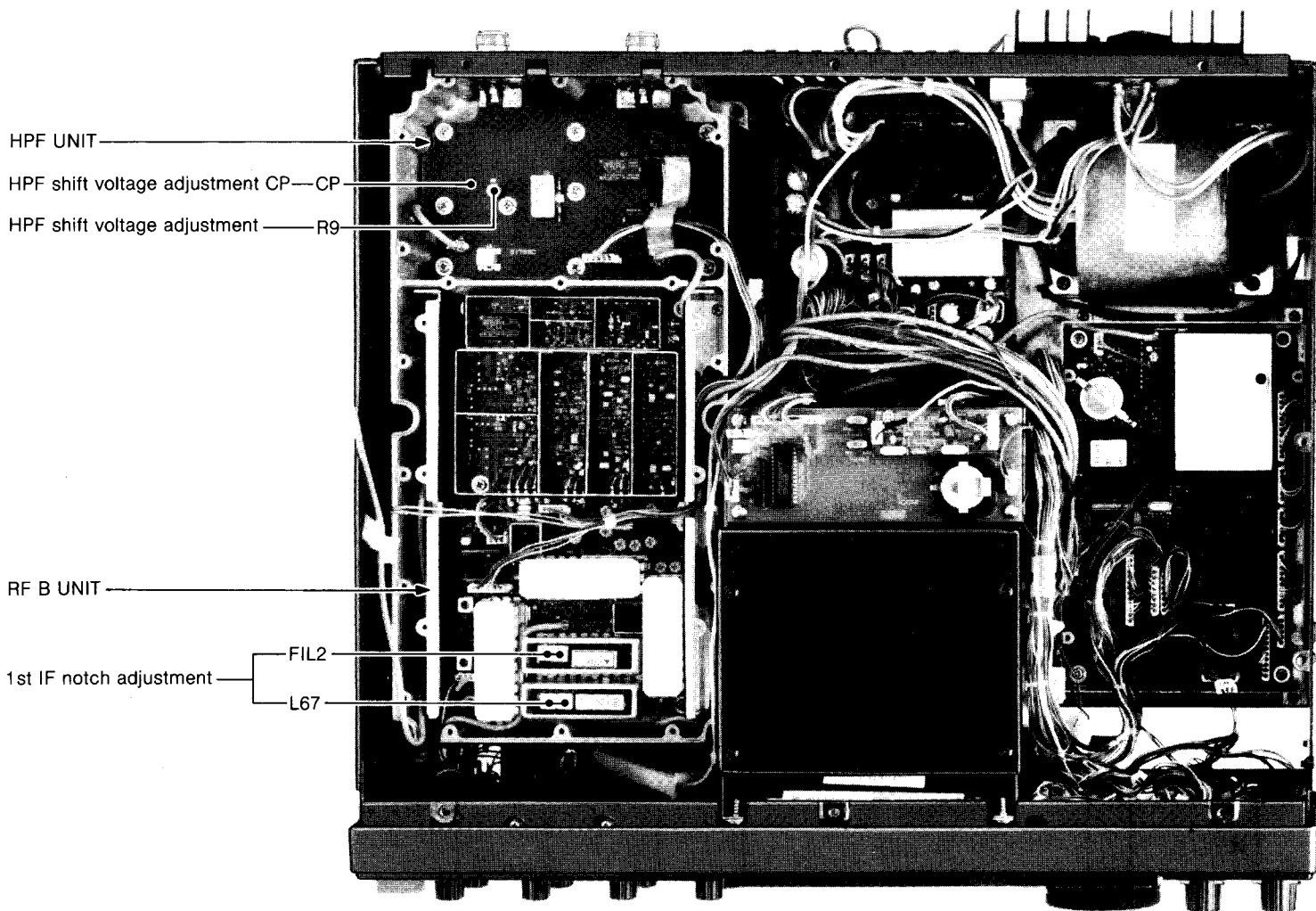
ADJUSTMENT		ADJUSTMENT CONDITIONS	MEASUREMENT		VALUE	ADJUSTMENT POINT		
			UNIT	LOCATION		UNIT	ADJUST	
1st IF NOTCH	1	<ul style="list-style-type: none"> <li>Displayed frequency: 678.60000 MHz</li> <li>Mode : FM</li> <li>[FILTER WIDTH] switch: [MIDDLE]</li> <li>Set the signal generator;                             <ul style="list-style-type: none"> <li>Frequency : 700.0000 MHz</li> <li>Level : 32 mV</li> <li>Modulation : OFF</li> </ul> </li> </ul>	Front panel	S-meter	Minimum value (Less than S5)	RF B	L67	
	2	<ul style="list-style-type: none"> <li>Displayed frequency: 378.60000 MHz</li> <li>Set the signal generator;                             <ul style="list-style-type: none"> <li>Frequency : 400.000 MHz</li> </ul> </li> </ul>					FIL2	
TOTAL GAIN	1	<ul style="list-style-type: none"> <li>Displayed frequency: 751.00000 MHz</li> <li>Mode : USB</li> <li>Set the signal generator;                             <ul style="list-style-type: none"> <li>Level : 50 <math>\mu</math>V</li> <li>Modulation : OFF</li> </ul> </li> </ul>	Rear panel	Connect the AC milli-voltmeter to the [EXT SP] jack with an 8 $\Omega$ load.	0 dB	Front panel	[AF GAIN]	
	2	<ul style="list-style-type: none"> <li>Set the signal generator;                             <ul style="list-style-type: none"> <li>Level : OFF</li> </ul> </li> </ul>			-25 dB		IF	R247
S-METER	1	<ul style="list-style-type: none"> <li>Displayed frequency: 751.00000 MHz</li> <li>Mode : FM</li> <li>[FILTER WIDTH] switch: [MIDDLE]</li> <li>Set the signal generator;                             <ul style="list-style-type: none"> <li>Level : OFF</li> </ul> </li> </ul>	Front panel	S-meter	S0	MAIN	R201	
	2	<ul style="list-style-type: none"> <li>Set the signal generator;                             <ul style="list-style-type: none"> <li>Level : 50 mV</li> <li>Modulation : 1 kHz</li> <li>Deviation : <math>\pm</math>3.5 kHz</li> </ul> </li> </ul>			S9+60 dB		R198	
	3	<ul style="list-style-type: none"> <li>Set the signal generator;                             <ul style="list-style-type: none"> <li>Level : 50 <math>\mu</math>V</li> </ul> </li> </ul>			S9		R203	
	4	Repeat step 2 and 3 a couple of times.						
	5	<ul style="list-style-type: none"> <li>Set the signal generator;                             <ul style="list-style-type: none"> <li>Level : OFF</li> </ul> </li> </ul>			S0		Verify	
	6	<ul style="list-style-type: none"> <li>Mode : FM</li> <li>[FILTER WIDTH] switch: [MIDDLE]</li> <li>Set the signal generator: ON</li> </ul>			S1		Signal generator	Output level
	7	<ul style="list-style-type: none"> <li>Mode : WFM</li> </ul>			S1		MAIN	R342
CENTER METER	1	<ul style="list-style-type: none"> <li>Displayed frequency: 751.0000 MHz</li> <li>Mode : WFM</li> <li>Set the signal generator;                             <ul style="list-style-type: none"> <li>Level : OFF</li> </ul> </li> </ul>	MAIN	Connect the DC voltmeter to W125.	4.5 V	MAIN	R228	
	2	<ul style="list-style-type: none"> <li>[METER] switch : [CENTER]</li> <li>Set the signal generator;                             <ul style="list-style-type: none"> <li>Level : 50 <math>\mu</math>V</li> <li>Modulation : OFF</li> </ul> </li> <li>R220 in the MAIN UNIT: Center</li> </ul>			Connect the DC voltmeter to the cathode of D44.		4.5 V (When 4.5 V cannot be obtained, set R117 to maximum rotation.)	R117
	3		Front panel	Center meter	Center	R223		
	4	<ul style="list-style-type: none"> <li>Set the signal generator;                             <ul style="list-style-type: none"> <li>Level : OFF</li> </ul> </li> </ul>			Center	IF	L12	
	5	<ul style="list-style-type: none"> <li>Set the signal generator;                             <ul style="list-style-type: none"> <li>Level : 50 <math>\mu</math>V</li> <li>Modulation : OFF</li> </ul> </li> </ul>	MAIN	Connect the DC voltmeter to R226 (IC4 side).	6 V	Front panel	MAIN DIAL	
	6				Connect the DC voltmeter to R221.	2.3 V	MAIN	R220

# VHF/UHF BAND RECEIVER ADJUSTMENT (CONTINUED)

ADJUSTMENT	ADJUSTMENT CONDITIONS		MEASUREMENT		VALUE	ADJUSTMENT POINT		
			UNIT	LOCATION		UNIT	ADJUST	
CENTER METER (CONTINUED)	7	<ul style="list-style-type: none"> <li>• [AFC] switch : ON</li> <li>• Mode : WFM</li> </ul>	Front panel	Frequency readout	Stopping frequencies are the same when rotating the MAIN DIAL to CW and CCW.	MAIN	R228	
	8	<ul style="list-style-type: none"> <li>• Mode : FM</li> <li>• [FILTER WIDTH] switch: [MIDDLE]</li> </ul>					R229	
	9	<ul style="list-style-type: none"> <li>• [FILTER WIDTH] switch: [WIDE]</li> </ul>					R280	
	10	<ul style="list-style-type: none"> <li>• Mode : FM and WFM</li> <li>• [FILTER WIDTH] switch: [MIDDLE], [WIDE] and [NARROW]</li> </ul>		Center meter			Center	Verify
	11						Verify	
	12	<ul style="list-style-type: none"> <li>• Set the signal generator; Level : OFF</li> </ul>					Verify	
HPF SHIFT VOLTAGE	1	<ul style="list-style-type: none"> <li>• Displayed frequency: 1000.0000 MHz</li> <li>• Mode : FM</li> </ul>	HPF	Connect the DC voltmeter to CP (check point).	2.5 V	HPF	R9	
	2	<ul style="list-style-type: none"> <li>• Displayed frequency: 1200.0000 MHz</li> </ul>			Approx. 6.5 V		Verify	

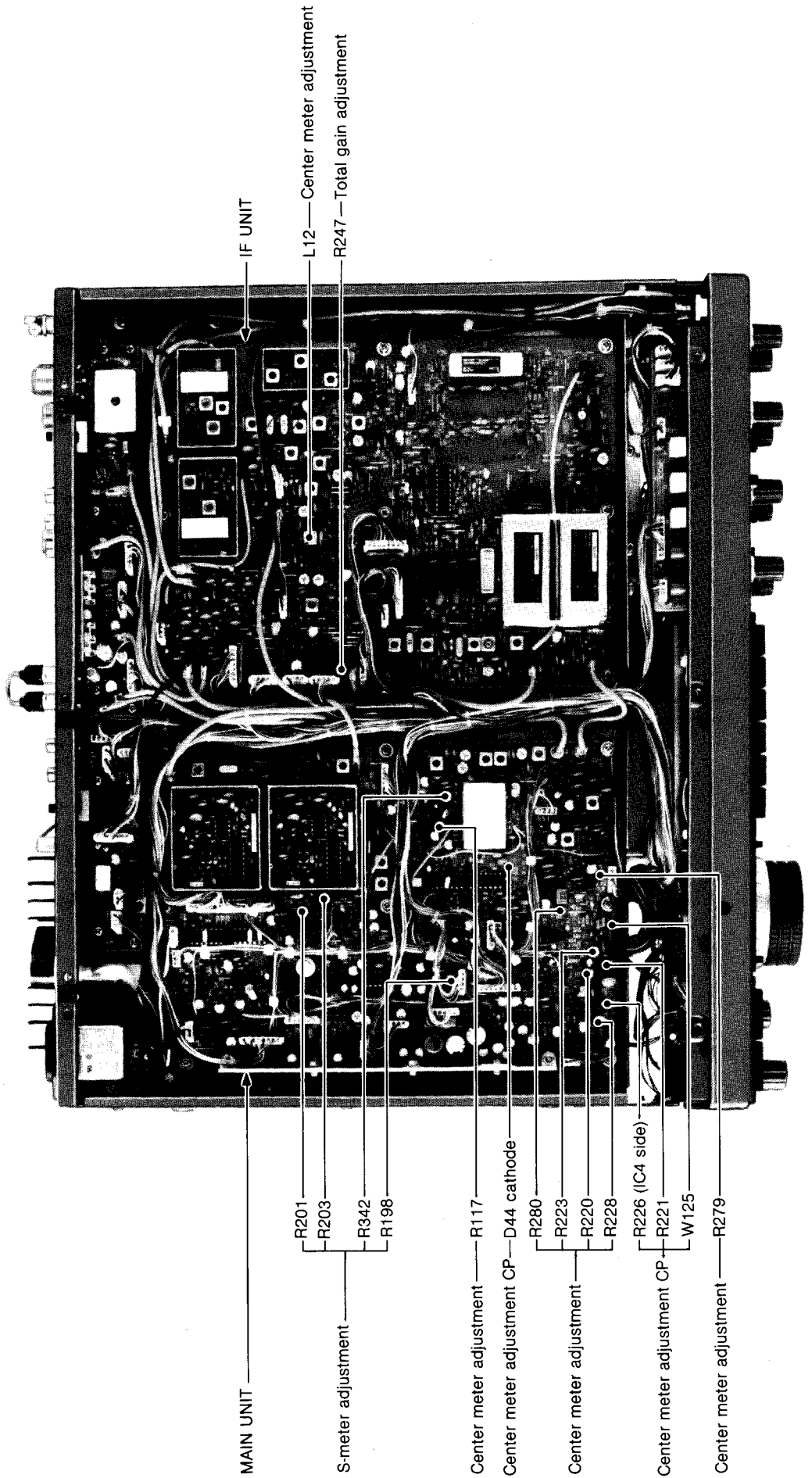
## • RF B AND HPF UNITS

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• MAIN AND IF UNITS



MAIN UNIT

IF UNIT

R201  
R203  
R342  
R198

S-meter adjustment

L12 — Center meter adjustment  
R247 — Total gain adjustment

Center meter adjustment — R117  
Center meter adjustment CP — D44 cathode

R280  
R223  
R220  
R228

Center meter adjustment

Center meter adjustment CP — (IC4 side)  
R226  
R221  
W125

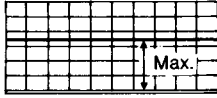
Center meter adjustment — R279

# 5-6 SCOPE ADJUSTMENT

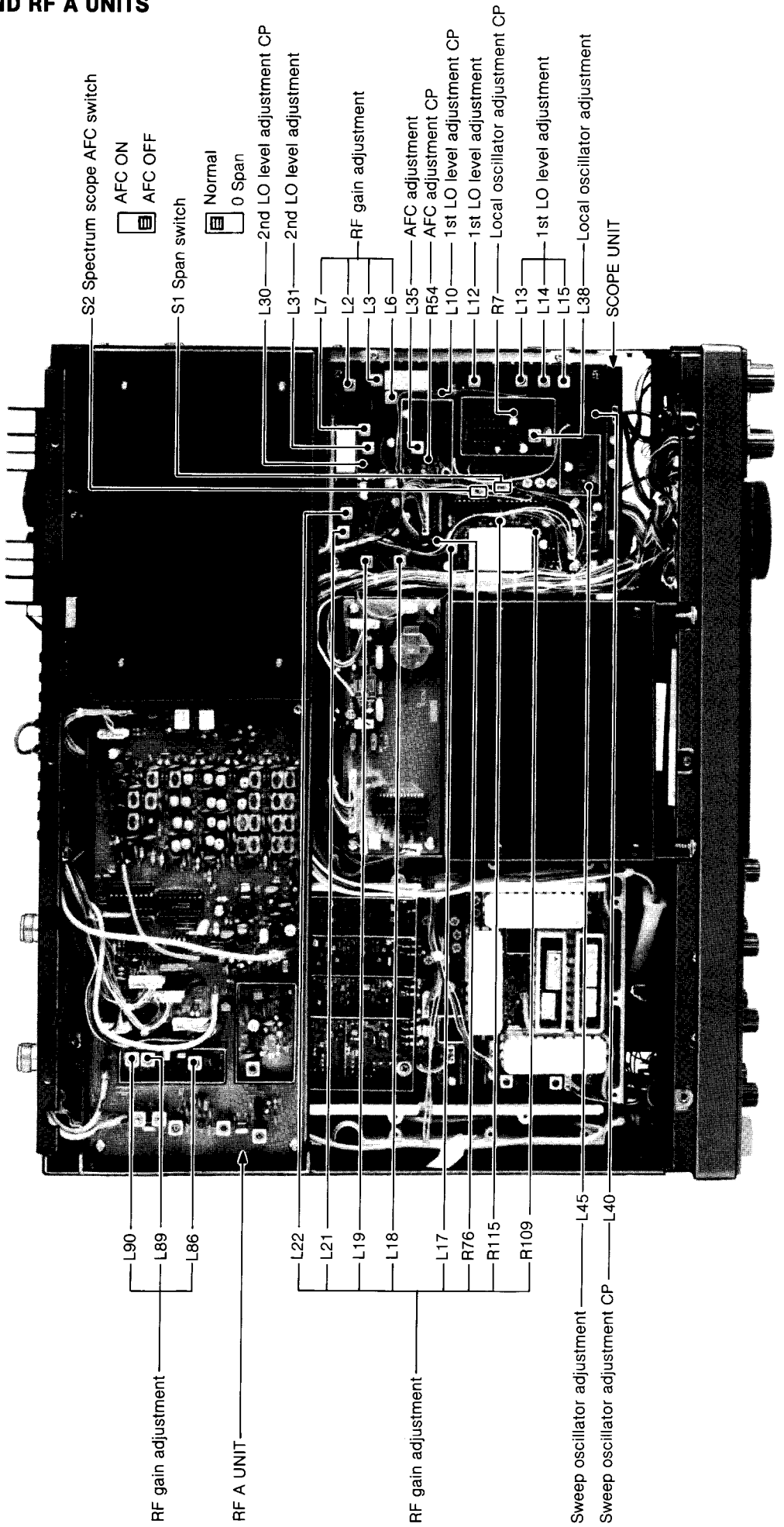
After scope adjustment, switches S1 and S2 must be set to the original positions as follows:

ORIGINAL POSITIONS S1: Front side (NORMAL)  
S2: Rear side (AFC ON)

**NOTE:** When changing the S2 position, wait 20 sec. before starting adjustment, because the switch has a time constant.

ADJUSTMENT	ADJUSTMENT CONDITIONS	MEASUREMENT		VALUE	ADJUSTMENT POINT			
		UNIT	LOCATION		UNIT	ADJUST		
SWEEP OSCILLATOR	1 <ul style="list-style-type: none"> <li>• Displayed frequency: 14.10000 MHz</li> <li>• Mode : FM</li> <li>• [ATT] switches : OFF</li> <li>• [IF SHIFT] control : Center</li> <li>• Select the spectrum scope screen.</li> <li>• S1: Front side (0 SPAN)</li> <li>• S2: Rear side (AFC OFF)</li> </ul>	SCOPE	Connect the frequency counter to L40.	1.280 MHz (Adjust L45 20 sec. after the S2 switch is set, because the AFC switch has time constant.)	SCOPE	L45		
LOCAL OSCILLATOR	1 <ul style="list-style-type: none"> <li>• Displayed frequency: 14.10000 MHz</li> <li>• Mode : FM</li> <li>• [ATT] switches : OFF</li> <li>• Select the spectrum scope screen.</li> <li>• S1: Front side (0 SPAN)</li> <li>• S2: Rear side (AFC OFF)</li> </ul>	SCOPE	Connect the frequency counter to R7.	16.490 MHz	SCOPE	L38		
1st LO LEVEL	1 <ul style="list-style-type: none"> <li>• Displayed frequency: 14.10000 MHz</li> <li>• Mode : FM</li> <li>• [ATT] switches : OFF</li> <li>• [IF SHIFT] control : Center</li> <li>• Select the spectrum scope screen.</li> <li>• S1: Front side (0 SPAN)</li> <li>• S2: Rear side (AFC OFF)</li> </ul>	SCOPE	Connect the oscilloscope to L10.	Maximum wave level and minimum AM components	SCOPE	L12~L15		
2nd LO LEVEL	1 <ul style="list-style-type: none"> <li>• Displayed frequency: 14.10000 MHz</li> <li>• Mode : FM</li> <li>• [ATT] switches : OFF</li> <li>• [IF SHIFT] control : Center</li> <li>• Select the spectrum scope screen.</li> <li>• S1: Front side (0 SPAN)</li> <li>• S2: Rear side (AFC OFF)</li> </ul>	SCOPE	Connect the oscilloscope to L30.	Maximum wave level	SCOPE	L31		
AFC ADJUSTMENT	1 <ul style="list-style-type: none"> <li>• Displayed frequency: 14.10000 MHz</li> <li>• Mode : FM</li> <li>• [ATT] switches : OFF</li> <li>• [IF SHIFT] control : Center</li> <li>• Select the spectrum scope screen.</li> <li>• S1: Rear side (NORMAL)</li> <li>• S2: Rear side (AFC OFF)</li> </ul>	SCOPE	Connect the oscilloscope to R54.	3.8 Vp-p	SCOPE	L35		
RF GAIN	1 <ul style="list-style-type: none"> <li>• Displayed frequency: 14.10000 MHz</li> <li>• Mode : FM</li> <li>• [IF SHIFT] control : Center</li> <li>• [ATT] switches : OFF</li> <li>• Select the spectrum scope screen.</li> </ul>	Front panel	Spectrum scope screen	Pre-set to center (Adjust at horizontal scale section later.)	SCOPE	R76 R109 R115		
	2 <ul style="list-style-type: none"> <li>• Set the signal generator;</li> <li>Level : 32 <math>\mu</math>V</li> <li>Modulation : OFF</li> </ul>					Maximum level	Front panel	MAIN DIAL
	3 <ul style="list-style-type: none"> <li>• S1: Front side (0 SPAN)</li> <li>• S2: Rear side (AFC OFF)</li> </ul>			Maximum level		RF A	L86, L89 L90	
	4					IF	L16, L59	
	5					SCOPE	L2, L3 L6, L7 L22, L21 L19, L18 L17	

• SCOPE AND RF A UNITS



L90  
L89  
L86

RF gain adjustment

RF A UNIT

L22  
L21  
L19  
L18  
L17  
R76  
R115  
R109

RF gain adjustment

Sweep oscillator adjustment

Sweep oscillator adjustment CP

S2 Spectrum scope AFC switch

AFC ON  
AFC OFF

S1 Span switch

Normal  
0 Span

L30 — 2nd LO level adjustment CP  
L31 — 2nd LO level adjustment

L7  
L2  
L3  
L6

RF gain adjustment

L35 — AFC adjustment  
R54 — AFC adjustment CP

L10 — 1st LO level adjustment CP  
L12 — 1st LO level adjustment

R7 — Local oscillator adjustment CP

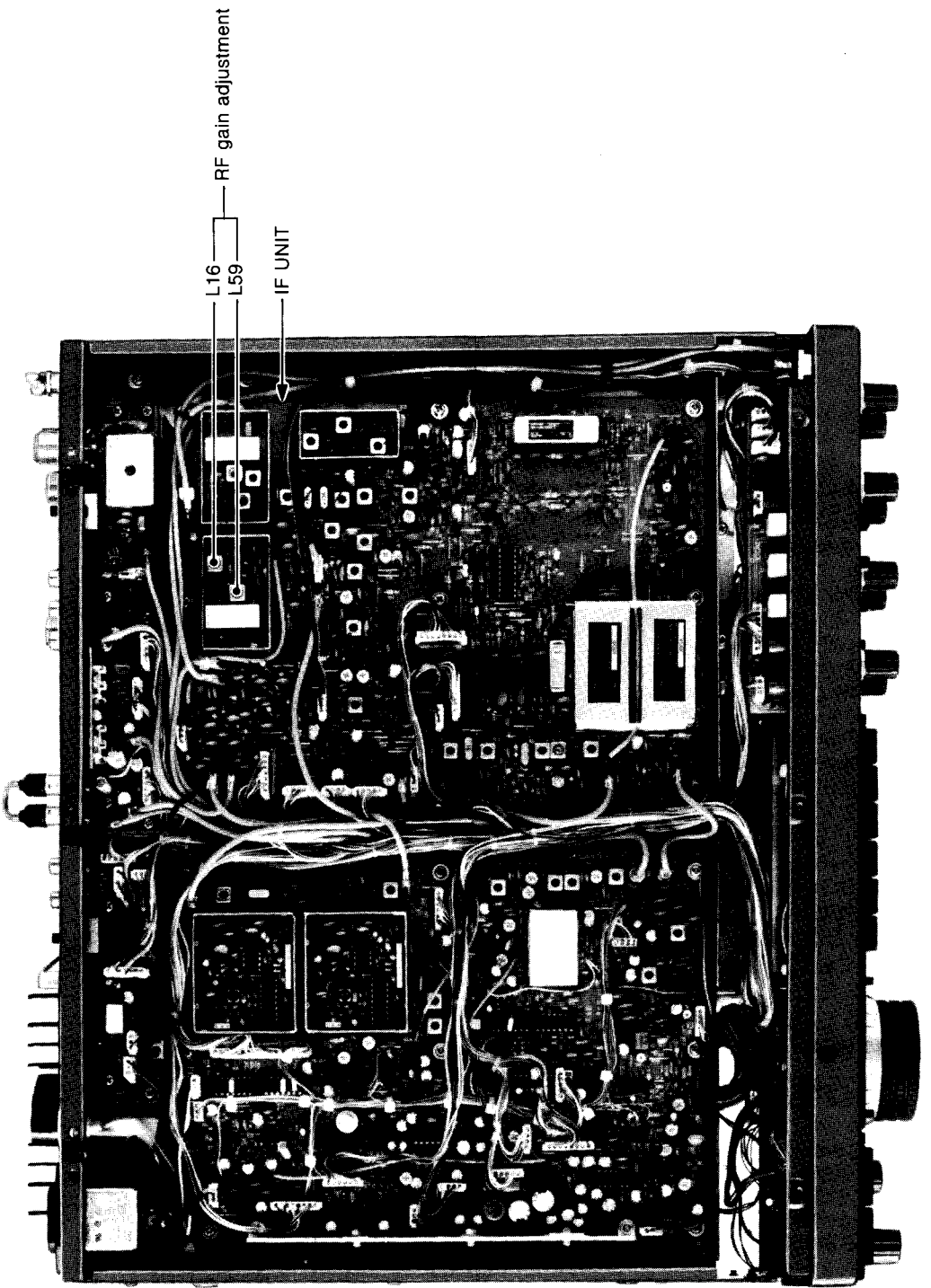
L13  
L14  
L15

1st LO level adjustment

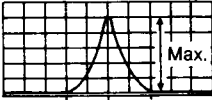
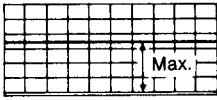
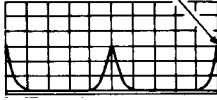
L38 — Local oscillator adjustment

SCOPE UNIT

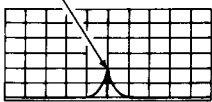
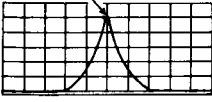
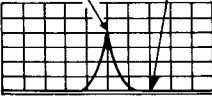

• IF UNIT



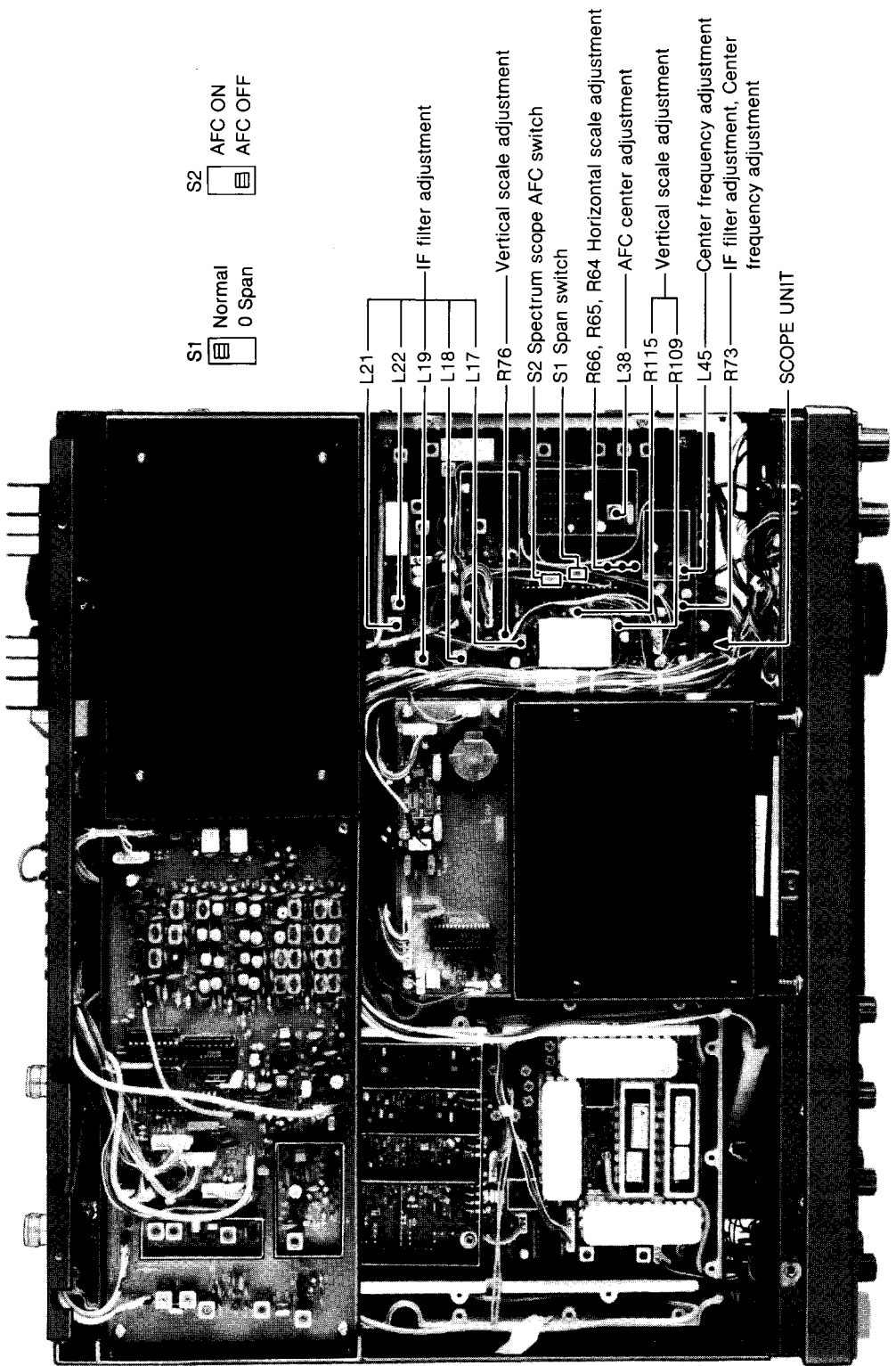
# SCOPE ADJUSTMENT (CONTINUED)


ADJUSTMENT		ADJUSTMENT CONDITIONS	MEASUREMENT		VALUE	ADJUSTMENT POINT			
			UNIT	LOCATION		UNIT	ADJUST		
IF FILTER	1	<ul style="list-style-type: none"> <li>Displayed frequency: 14.10000 MHz</li> <li>Mode : FM</li> <li>[ATT] switches : OFF</li> <li>Select the spectrum scope screen.</li> <li>Scope bandwidth : <math>\pm 25</math> kHz</li> </ul>	Front panel	Spectrum scope screen	Pre-set to center. (Adjust at center frequency and vertical scale sections.)	SCOPE	R64~R66 R73		
	2	<ul style="list-style-type: none"> <li>Set the signal generator;</li> <li>Level : 0.16 mV</li> <li>Modulation : OFF</li> </ul>			Set the displayed wave to the center.			Front panel	MAIN DIAL
	3	<ul style="list-style-type: none"> <li>S1: Rear side (NORMAL)</li> <li>S2: Rear side (AFC OFF)</li> </ul>			As follows:			SCOPE	L22, L21 L19~L17
				 <p>Symmetrical waves</p>					
CENTER FREQUENCY	1	<ul style="list-style-type: none"> <li>Displayed frequency: 14.10000 MHz</li> <li>Mode : FM</li> <li>[IF SHIFT] control : Center</li> <li>[CALIBRATOR] switch: ON</li> <li>Select the spectrum scope screen.</li> <li>Scope bandwidth : <math>\pm 25</math> kHz</li> <li>Set the signal generator;</li> <li>Level : OFF</li> <li>S1: Front side (0 SPAN)</li> <li>S2: Rear side (AFC OFF)</li> </ul>	Front panel	Spectrum scope screen	Maximum level of horizontal line	SCOPE	L45		
									
	2	<ul style="list-style-type: none"> <li>S2 : Rear side (NORMAL)</li> <li>Scope bandwidth: <math>\pm 25</math> kHz, <math>\pm 50</math> kHz and <math>\pm 100</math> kHz</li> </ul>			A peak of the displayed wave is the same position.			Verify (If not, adjust step 1 again.)	
	3	<ul style="list-style-type: none"> <li>Scope bandwidth : <math>\pm 25</math> kHz</li> </ul>			A peak of the displayed wave is the center position.			R73	
	4	<ul style="list-style-type: none"> <li>Scope bandwidth: <math>\pm 50</math> kHz and <math>\pm 100</math> kHz</li> </ul>			Verify				
HORIZONTAL SCALE	1	<ul style="list-style-type: none"> <li>Displayed frequency: 13.97500 MHz</li> <li>Mode : FM</li> <li>[ATT] switches : OFF</li> <li>[IF SHIFT] control : Center</li> <li>[CALIBRATOR] switch: ON</li> <li>Select the spectrum scope screen.</li> <li>Scope bandwidth : <math>\pm 25</math> kHz</li> <li>S1: Rear side (NORMAL)</li> <li>S2: Front side (AFC OFF)</li> </ul>	Front panel	Spectrum scope screen	A marker signal is on the right corner.	SCOPE	R64		
									
	2	<ul style="list-style-type: none"> <li>Displayed frequency: 13.95000 MHz</li> <li>Scope bandwidth : <math>\pm 50</math> kHz</li> </ul>			A marker signal is on the right corner.			R65	
	3	<ul style="list-style-type: none"> <li>Displayed frequency: 13.90000 MHz</li> <li>Scope bandwidth : <math>\pm 100</math> kHz</li> </ul>			A marker signal is on the right corner.			R66	
	4	<ul style="list-style-type: none"> <li>Displayed frequency: 14.00000 MHz</li> <li>Mode : USB</li> <li>Scope bandwidth : <math>\pm 25</math> kHz</li> </ul>			A peak of signal moves 1.5 kHz to the left.			Verify	
	5	<ul style="list-style-type: none"> <li>Mode : LSB</li> </ul>	A peak of signal moves 1.5 kHz to the right.	Verify					


# SCOPE ADJUSTMENT (CONTINUED)

ADJUSTMENT	ADJUSTMENT CONDITIONS	MEASUREMENT		VALUE	ADJUSTMENT POINT		
		UNIT	LOCATION		UNIT	ADJUST	
AFC CENTER	1	<ul style="list-style-type: none"> <li>Displayed frequency: 14.00000 MHz</li> <li>Mode : FM</li> <li>[ATT] switches : OFF</li> <li>[IF SHIFT] control : Center</li> <li>[CALIBRATOR] switch: ON</li> <li>Select the spectrum scope screen.</li> <li>Scope bandwidth : <math>\pm 25</math> kHz</li> <li>S1: Rear side (NORMAL)</li> <li>S2: Front side (AFC ON)</li> </ul>	Front panel	Spectrum scope screen	A peak of the displayed wave is the center position.	SCOPE	L38
	2	<ul style="list-style-type: none"> <li>Scope bandwidth : <math>\pm 50</math> kHz and <math>\pm 100</math> kHz</li> </ul>					A peak of the displayed wave is the center position.
VERTICAL SCALE	1	<ul style="list-style-type: none"> <li>Displayed frequency: 14.15000 MHz</li> <li>Mode : FM</li> <li>[ATT] switches : OFF</li> <li>[AGC] switch : OFF</li> <li>[IF SHIFT] control : Center</li> <li>[CALIBRATOR] switch: ON</li> <li>Select the spectrum scope screen.</li> <li>Scope bandwidth : <math>\pm 25</math> kHz</li> <li>Set the signal generator;                             <ul style="list-style-type: none"> <li>Level : 5.0 <math>\mu</math>V</li> <li>Modulation : OFF</li> </ul> </li> <li>S1: Rear side (NORMAL)</li> <li>S2: Rear side (AFC ON)</li> </ul>	Front panel	Spectrum scope screen	2nd scale from the lowest line	SCOPE	R109
					Adjustment point		
							
	2	<ul style="list-style-type: none"> <li>Set the signal generator;                             <ul style="list-style-type: none"> <li>Level : 0.16 mV</li> </ul> </li> </ul>			5th scale from the lowest line		R115
					Adjustment point		
							
	3	<ul style="list-style-type: none"> <li>Set the signal generator;                             <ul style="list-style-type: none"> <li>Level : 50 <math>\mu</math>V</li> </ul> </li> </ul>	4th scale from the lowest line	R76			
		Noise floor					
		Adjustment point					
							
	4		Noise floor appears.	R109			
		Noise floor					
		Adjustment point					
							
	5	<ul style="list-style-type: none"> <li>Set the signal generator;                             <ul style="list-style-type: none"> <li>Level : 5.0 mV</li> <li>[AGC] switch : ON</li> </ul> </li> </ul>	The wave peak attaches to the highest line.	Verify			
FINAL CHECK	1	<ul style="list-style-type: none"> <li>Select 100 kHz bandwidth.</li> </ul>	Front panel	Spectrum scope screen	Noise on the lowest line is the same level. If not, adjust 1st LO level again.		
	2	<ul style="list-style-type: none"> <li>Set the signal generator;                             <ul style="list-style-type: none"> <li>Level : 5.0 mV</li> </ul> </li> </ul>					No swell on the displayed wave.

• SCOPE UNIT



S1  Normal  
0 Span

S2  AFC ON  
AFC OFF

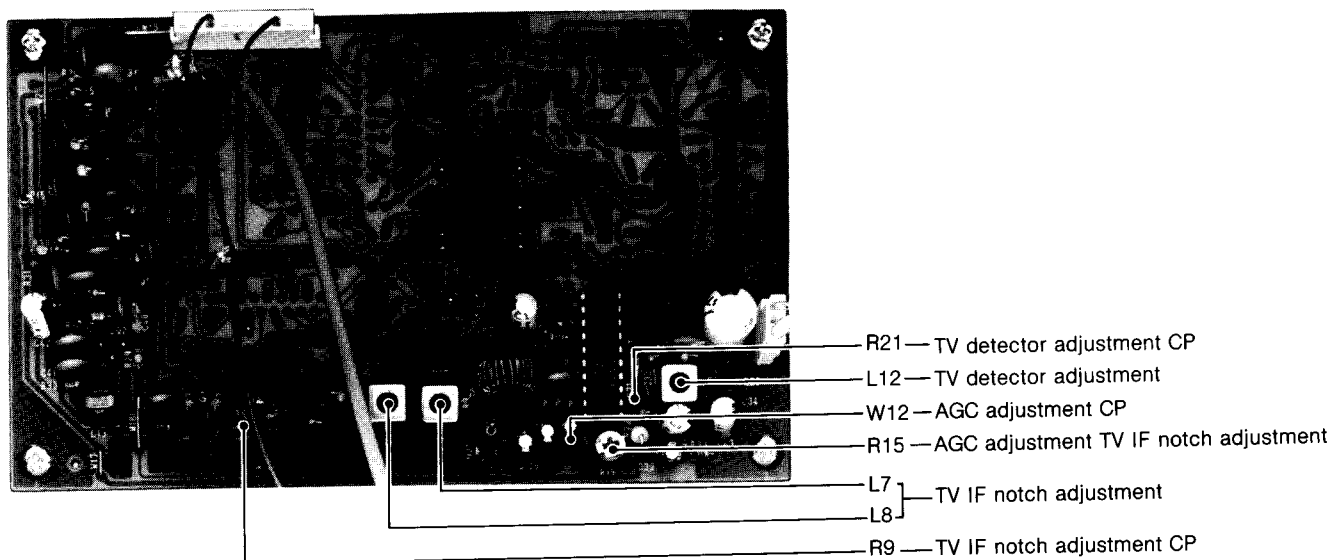
- L21
- L22
- L19
- L18
- L17
- IF filter adjustment
- R76
- Vertical scale adjustment
- S2 Spectrum scope AFC switch
- S1 Span switch
- R66, R65, R64 Horizontal scale adjustment
- L38
- R115
- R109
- AFC center adjustment
- Vertical scale adjustment
- L45
- Center frequency adjustment
- R73
- IF filter adjustment, Center frequency adjustment

SCOPE UNIT

## 5-7 TV UNIT ADJUSTMENT (Except France version)

ADJUSTMENT	ADJUSTMENT CONDITIONS	MEASUREMENT		VALUE	ADJUSTMENT POINT	
		UNIT	LOCATION		UNIT	ADJUST
TV IF NOTCH	1 <ul style="list-style-type: none"> <li>• Displayed frequency: 181.75000 MHz</li> <li>• Connect 2 signal generators via the hybrid combiner.</li> <li>• Set the signal generator 1;               <ul style="list-style-type: none"> <li>Frequency : 181.750 MHz</li> <li>Level : 22 mV</li> <li>Modulation : OFF</li> </ul> </li> <li>• Set the signal generator 2: OFF</li> <li>• R15 in the TV unit : Max. CW</li> </ul>	TV	Connect the oscilloscope to R9.	Minimum signal level	TV	L7
	2 <ul style="list-style-type: none"> <li>• Set the signal generator 1: OFF</li> <li>• Set the signal generator 2;</li> <li>Frequency:               <ul style="list-style-type: none"> <li>175.750 MHz (U.S.A. version)</li> <li>174.750 MHz (other versions)</li> </ul> </li> <li>Level : 2.2 mV</li> <li>Modulation : OFF</li> </ul>					L8
TV DETECTOR	1 <ul style="list-style-type: none"> <li>• Displayed frequency: 181.75000 MHz</li> <li>• Set the signal generator 1;               <ul style="list-style-type: none"> <li>Frequency : 181.750 MHz</li> <li>Level : 1.1 mV</li> <li>Modulation : OFF</li> </ul> </li> <li>• Set the signal generator 2;               <ul style="list-style-type: none"> <li>Frequency:                   <ul style="list-style-type: none"> <li>177.250 MHz (U.S.A. version)</li> <li>176.250 MHz (other versions)</li> </ul> </li> <li>Level : 2.2 mV</li> <li>Modulation : OFF</li> </ul> </li> </ul>	TV	Connect the oscilloscope to R21.	Maximum signal level (more than 220 mVp-p)	TV	L12
AGC	1 <ul style="list-style-type: none"> <li>• Displayed frequency: 181.75000 MHz</li> <li>• Set the signal generator 1;               <ul style="list-style-type: none"> <li>Frequency : 181.750 MHz</li> <li>Level: 1.1 mV+insertion loss of the hybrid combiner.</li> <li>Modulation : OFF</li> </ul> </li> <li>• Set the signal generator 2;               <ul style="list-style-type: none"> <li>Frequency:                   <ul style="list-style-type: none"> <li>177.250 MHz (U.S.A. version)</li> <li>176.250 MHz (other versions)</li> </ul> </li> <li>Level: 2.2 mV+insertion loss of the hybrid combiner.</li> <li>Modulation : OFF</li> </ul> </li> </ul>	TV	Connect the oscilloscope to W12.	3 V	TV	R15

### • TV UNIT

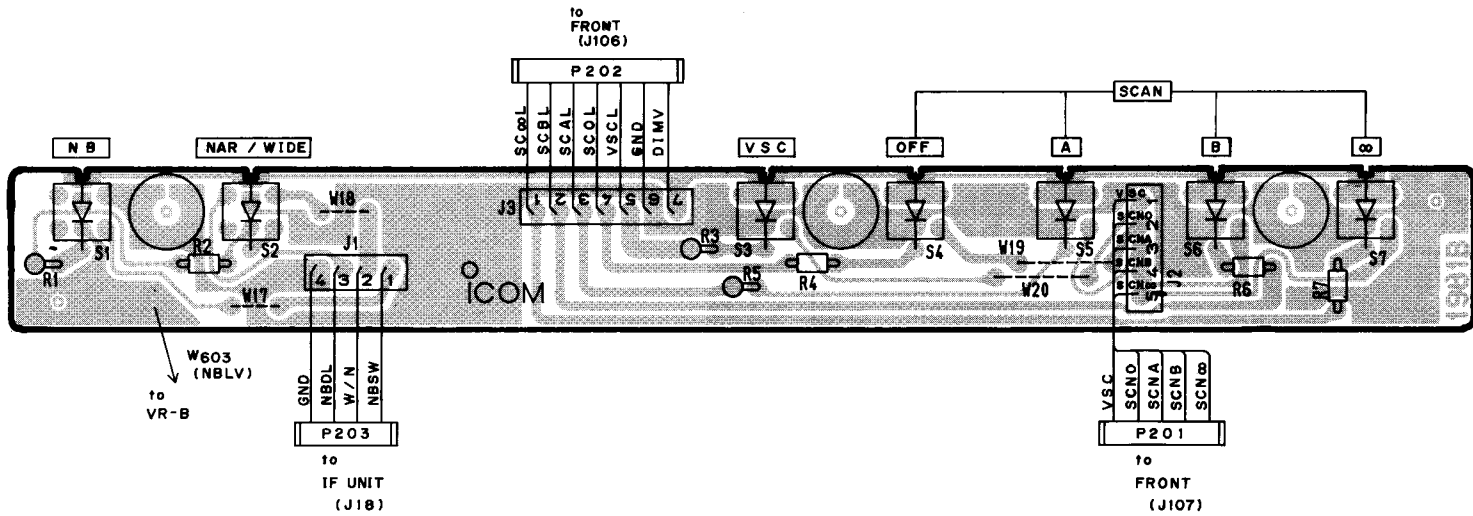




# SECTION 6 BOARD LAYOUTS

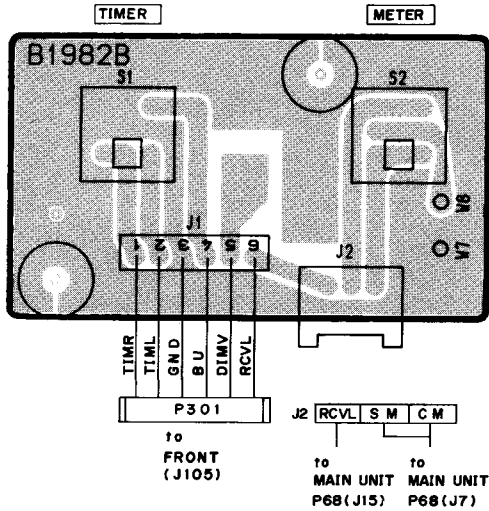
## 6-1 FRONT UNIT (1)

### • SW-A



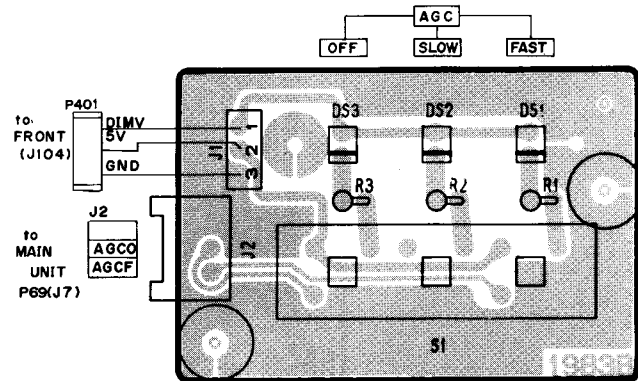
**NOTE:** Add "200" to the indicated number on the unit for actual part number respectively.

### • SW-B



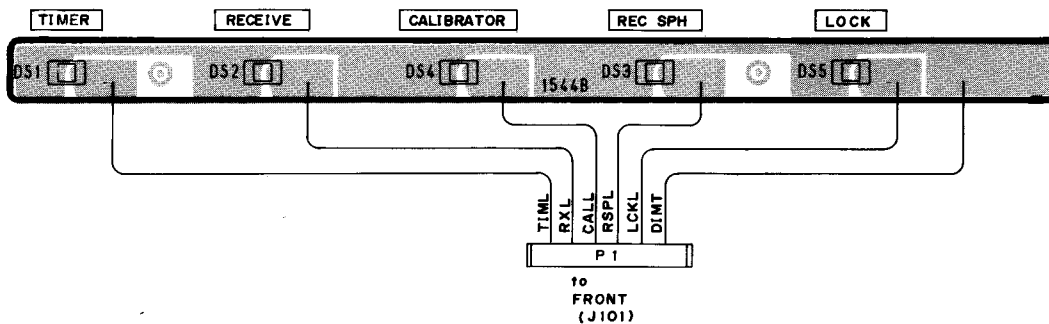
**NOTE:** Add "300" to the indicated number on the unit for actual part number respectively.

### • SW-C



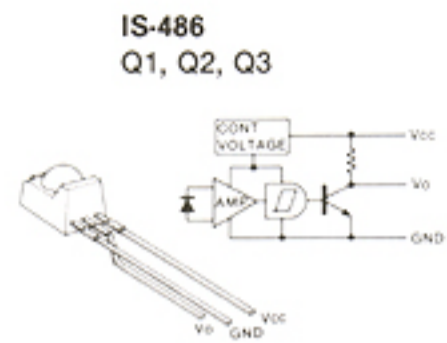
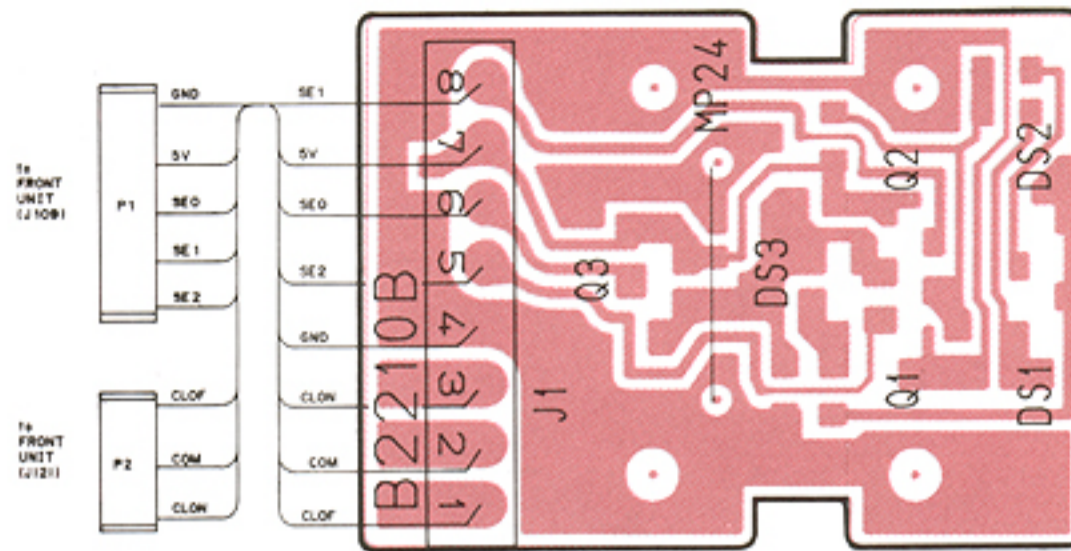
**NOTE:** Add "400" to the indicated number on the unit for actual part number respectively.

### • LED

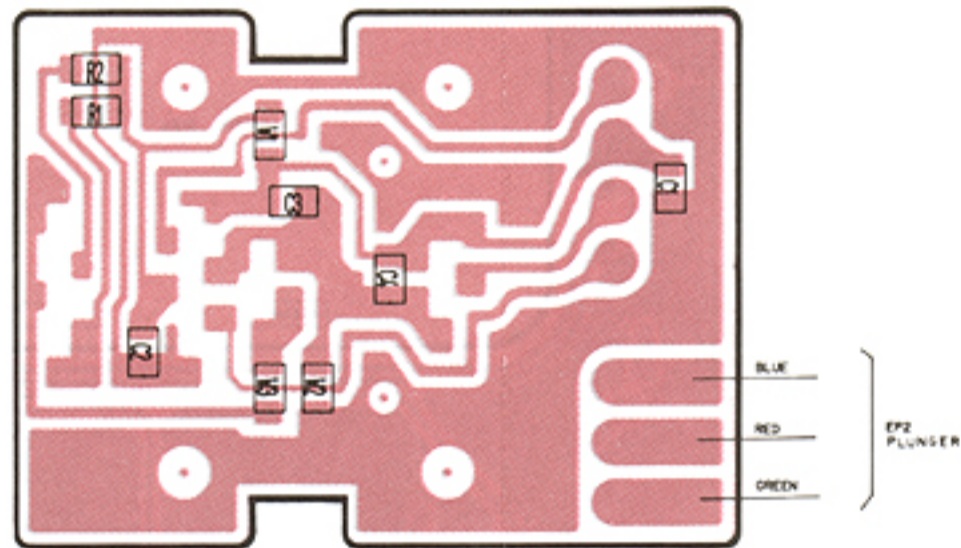


**NOTE:** Add "800" to the indicated number on the unit for actual part number respectively.

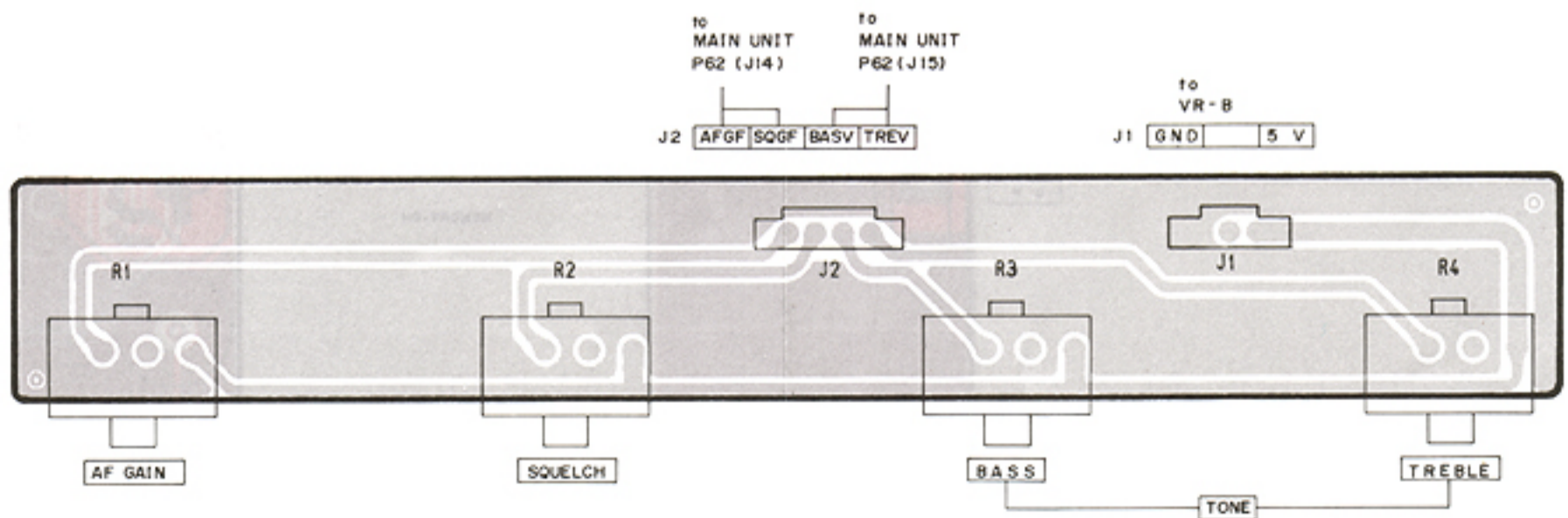
• **SENSOR UNIT**  
**COMPONENT SIDE**



**FOIL SIDE**



• **VR-A**

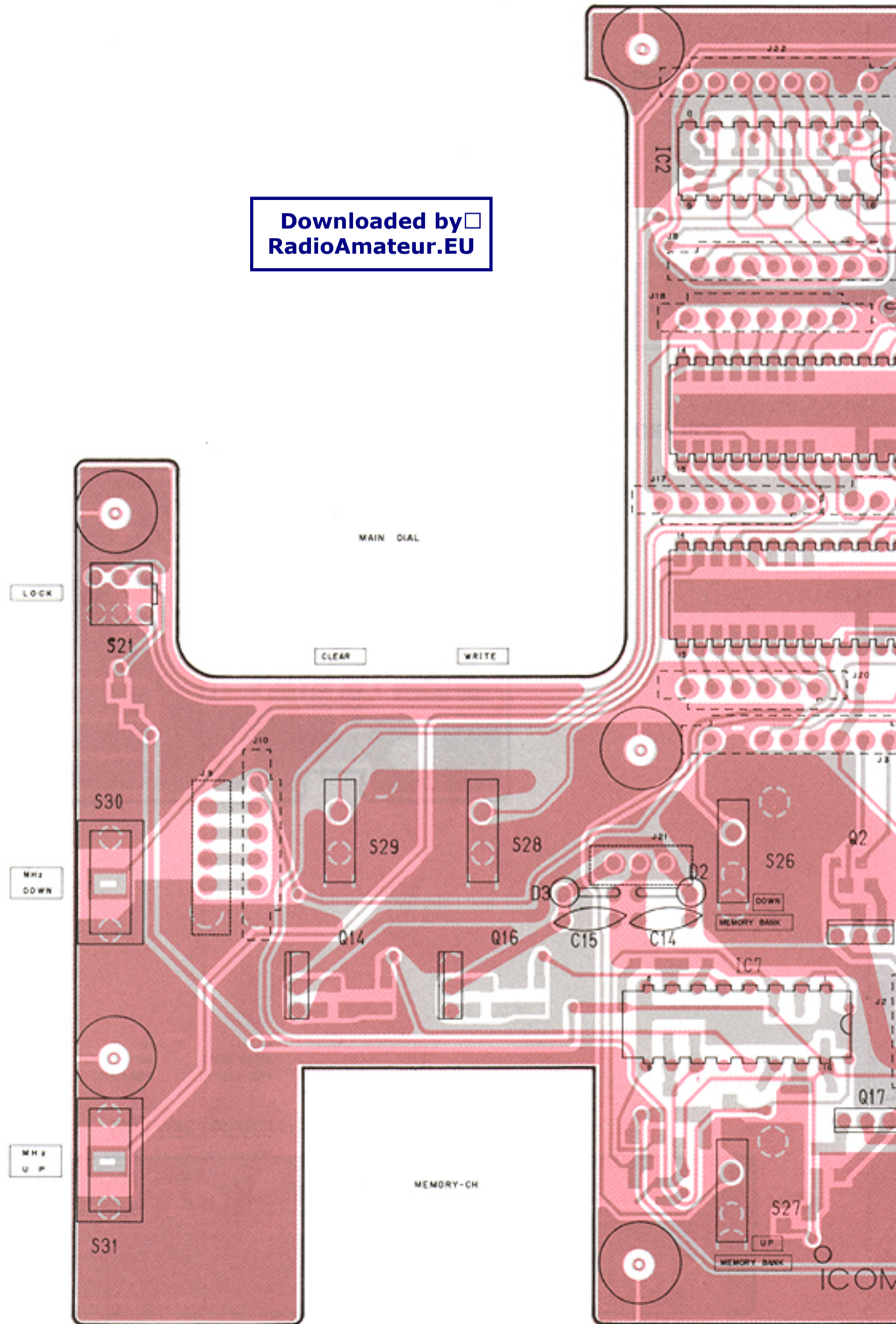


**NOTE:** Add "500" to the indicated number on the unit for actual part number respectively.

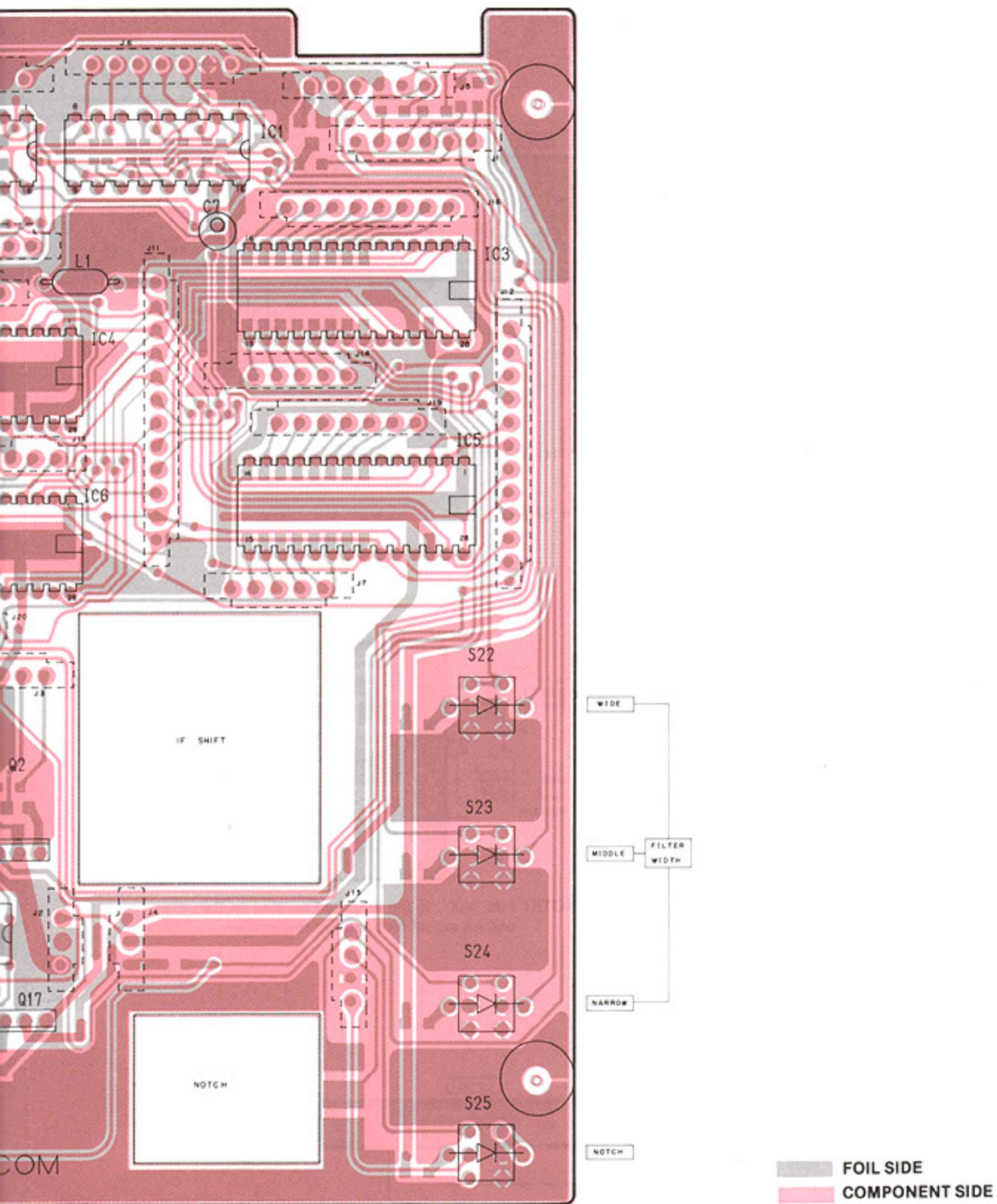
# 6-2 FRONT UNIT (2)

## • FRONT UNIT

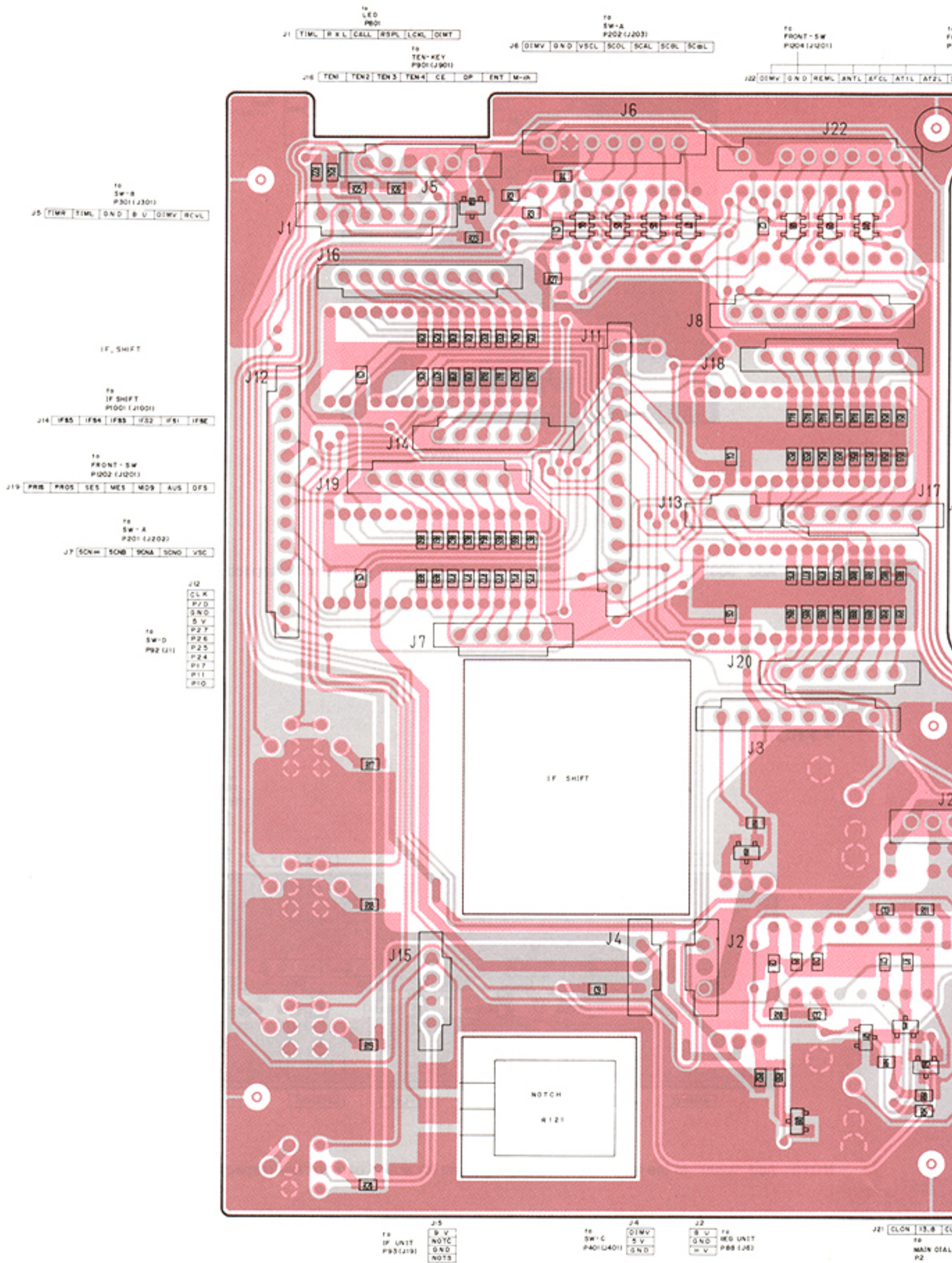
### COMPONENT SIDE

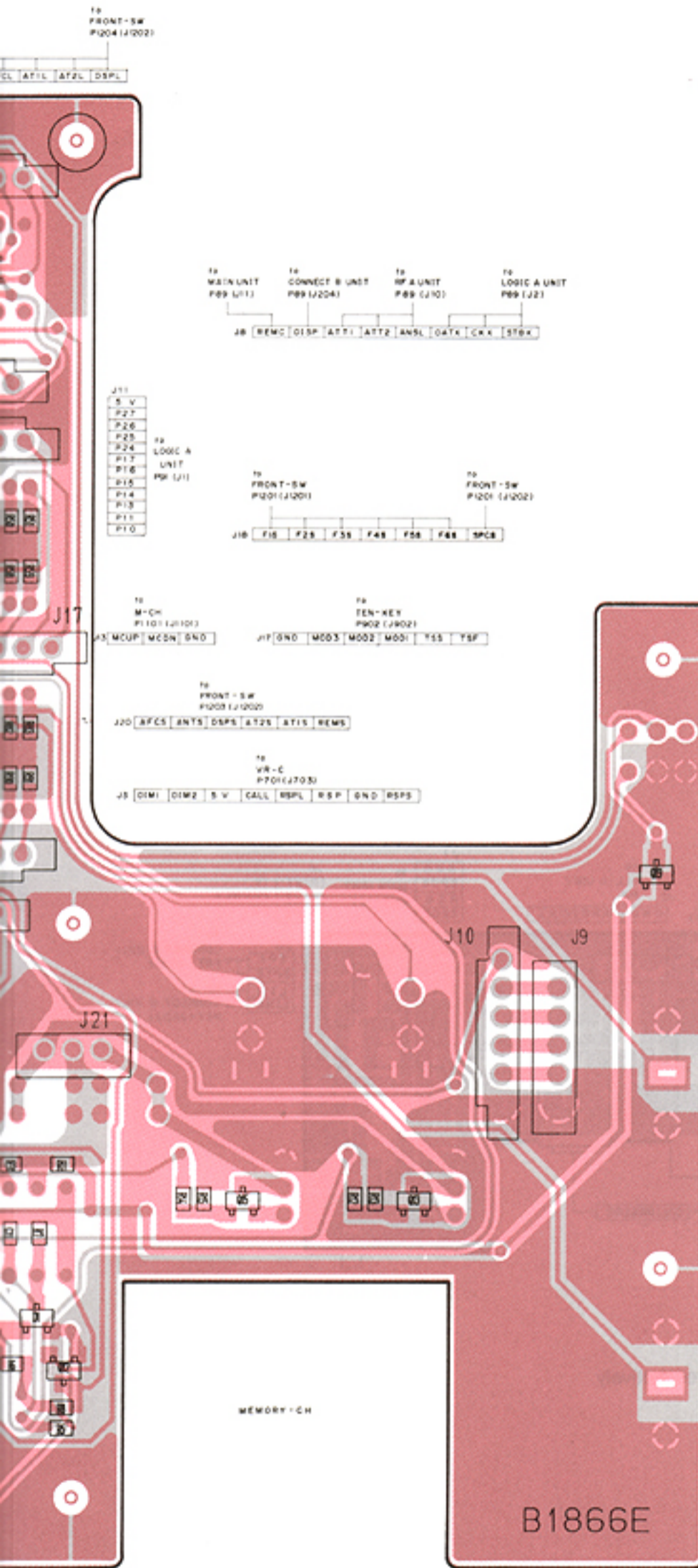


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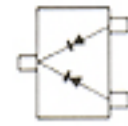


FOIL SIDE





1SS184  
D101

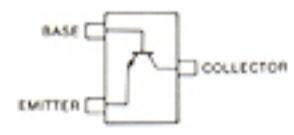


Symbol : B3

2SA1359-Y  
Q117



2SC2712-GR  
Q101, Q113, Q115

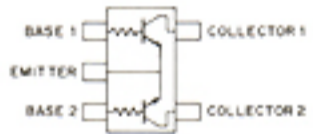


Symbol : LG

2SC3422-Y  
Q102, Q114, Q116

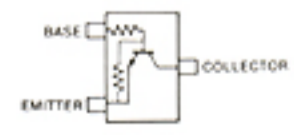


FMG4  
Q104, Q105, Q106,  
Q107, Q108, Q109,  
Q110



Symbol : G4

RN1404  
Q103, Q111, Q112  
Q118, Q119



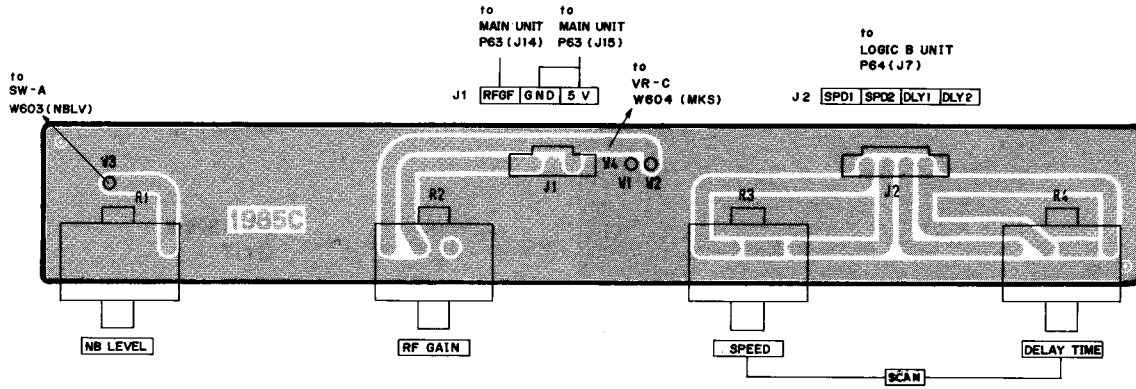
Symbol : XD

J10	MSPS	TO	J21	SE2	NR
SE2	LOGIC B	UNIT	SE1	MAN DIAL	
SE1	UNIT		SE0	S V	P1
SE0	UNIT		S V	GND	
S V	PROG				
GND					

FOIL SIDE  
COMPONENT SIDE

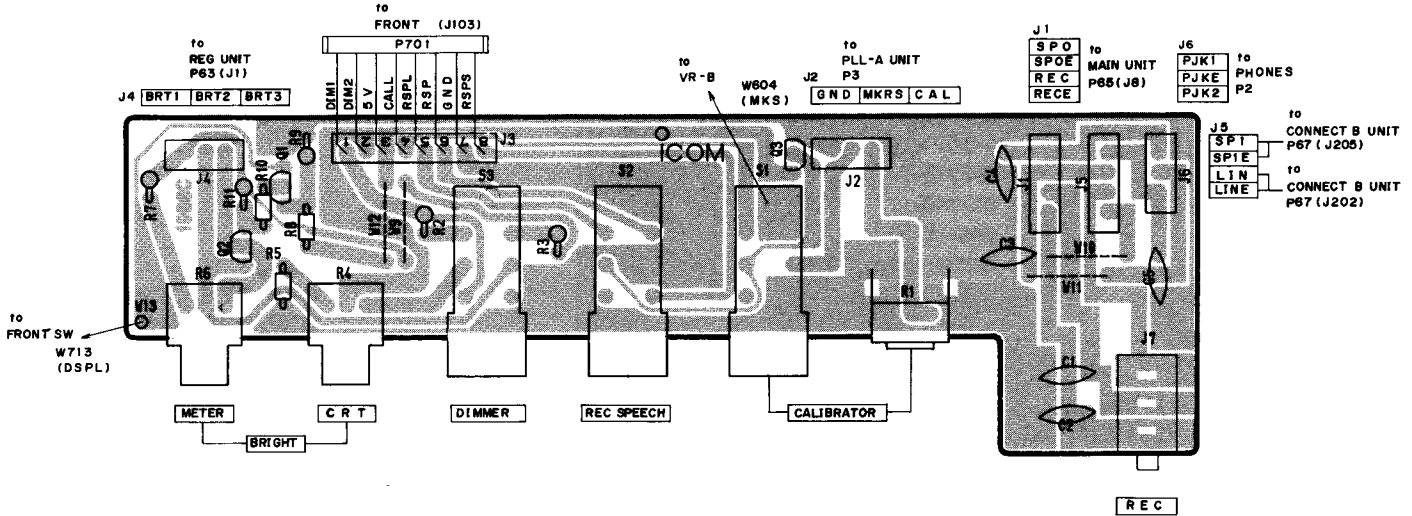
# 6-3 FRONT UNIT (3)

## • VR-B



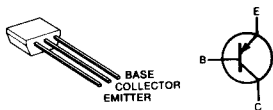
**NOTE:** Add "600" to the indicated number on the unit for actual part number respectively.

## • VR-C

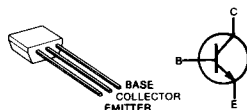


**NOTE:** Add "700" to the indicated number on the unit for actual part number respectively.

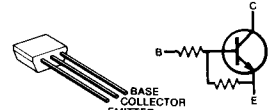
**2SA1048-GR**  
Q701



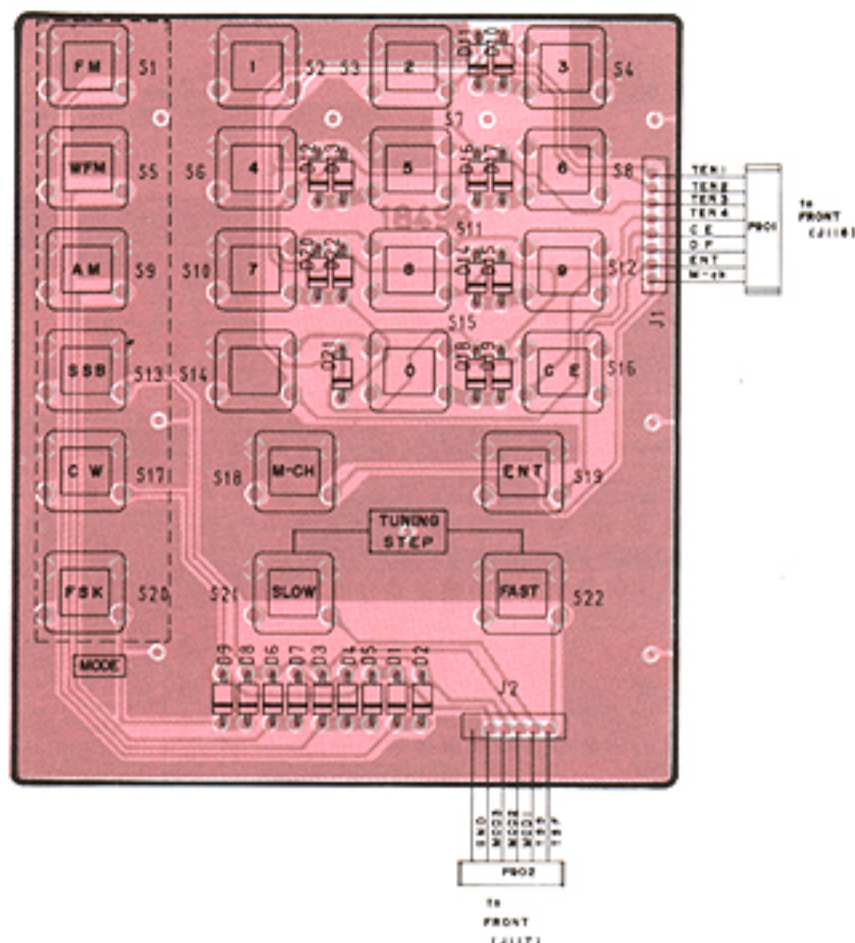
**2SC2458-GR**  
Q702



**RN1204**  
Q703

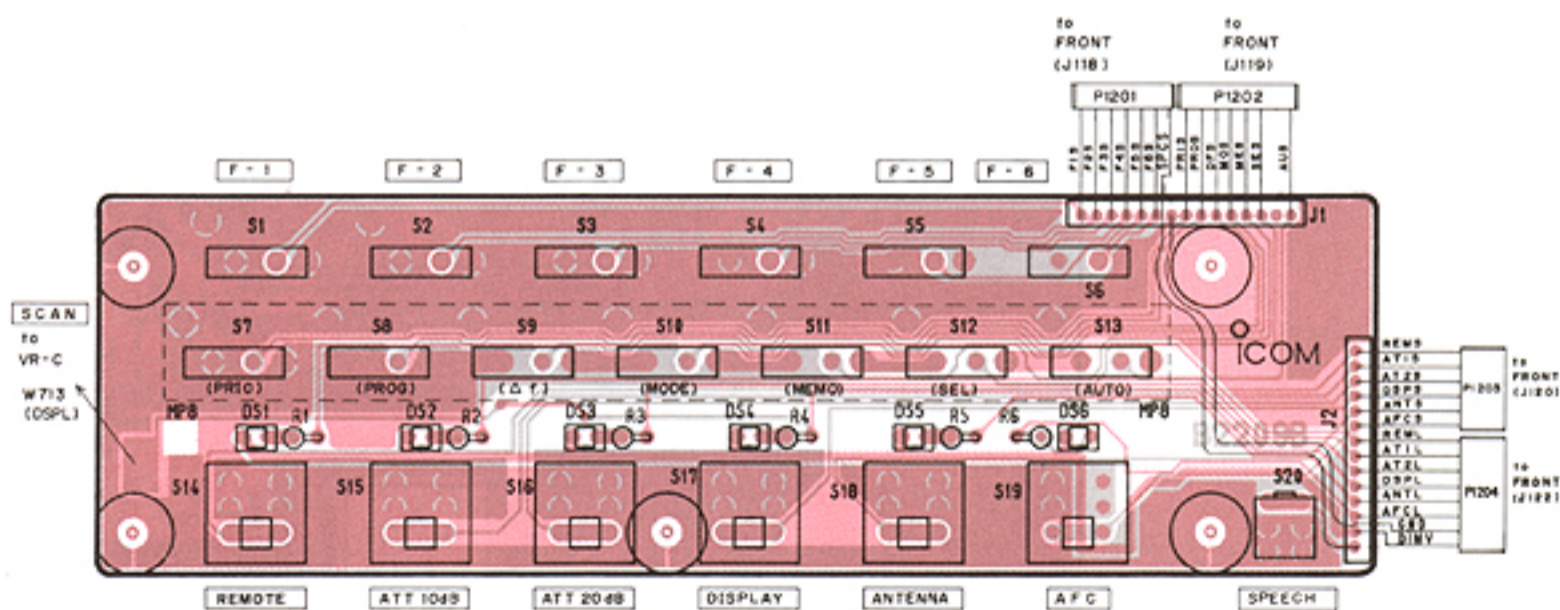


• TEN-KEY



**NOTE:** Add "900" to the indicated number on the unit for actual part number respectively.

• FRONT SW

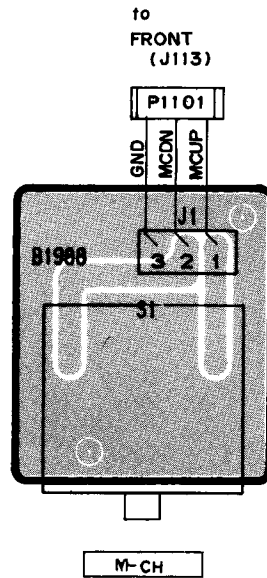
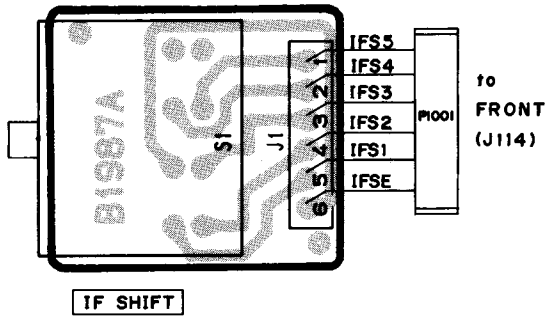


**NOTE:** Add "1200" to the indicated number on the unit for actual part number respectively.



# 6-4 FRONT UNIT (4)

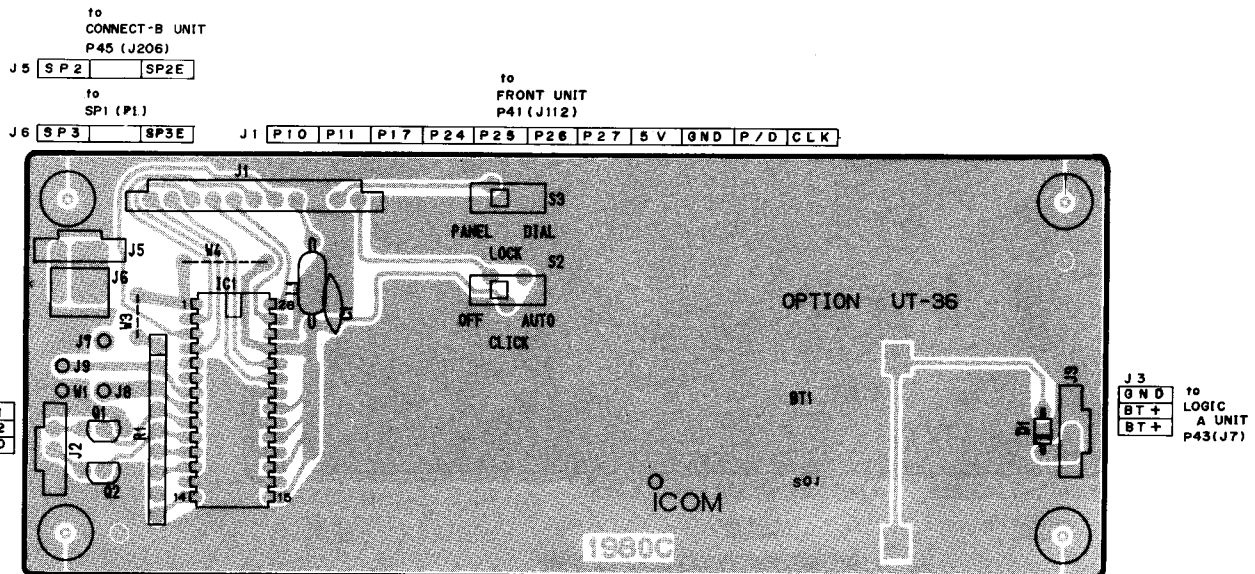
## • IF SHIFT



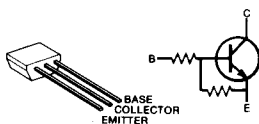
**NOTE:** Add "1000" to the indicated number on the unit for actual part number respectively.

**NOTE:** Add "1100" to the indicated number on the unit for actual part number respectively.

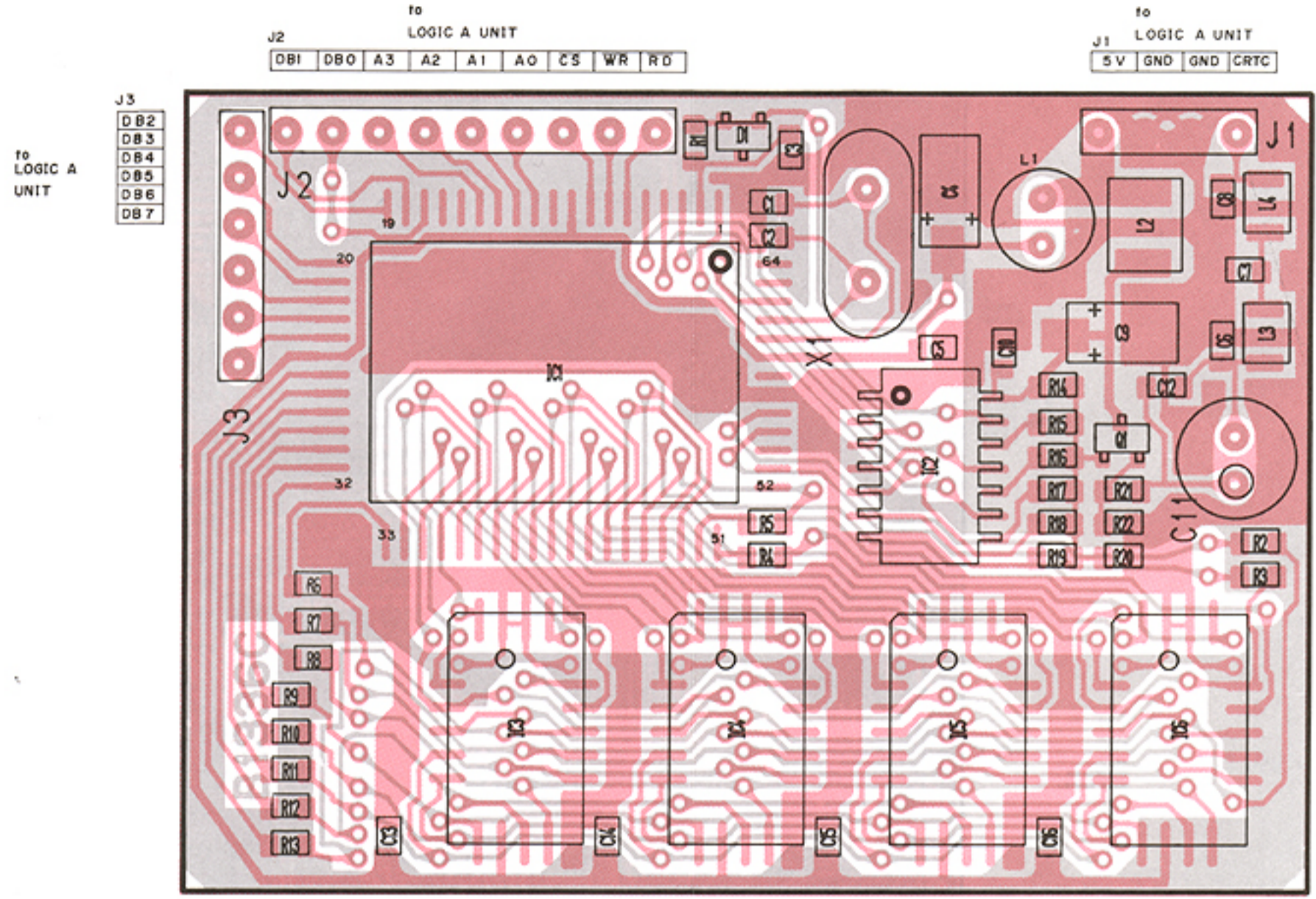
## • SW-D



**RN1204**  
Q1, Q2

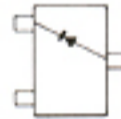


• CRTC UNIT



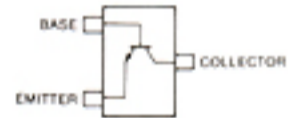
Downloaded by  RadioAmateur.EU

1SS187  
D1



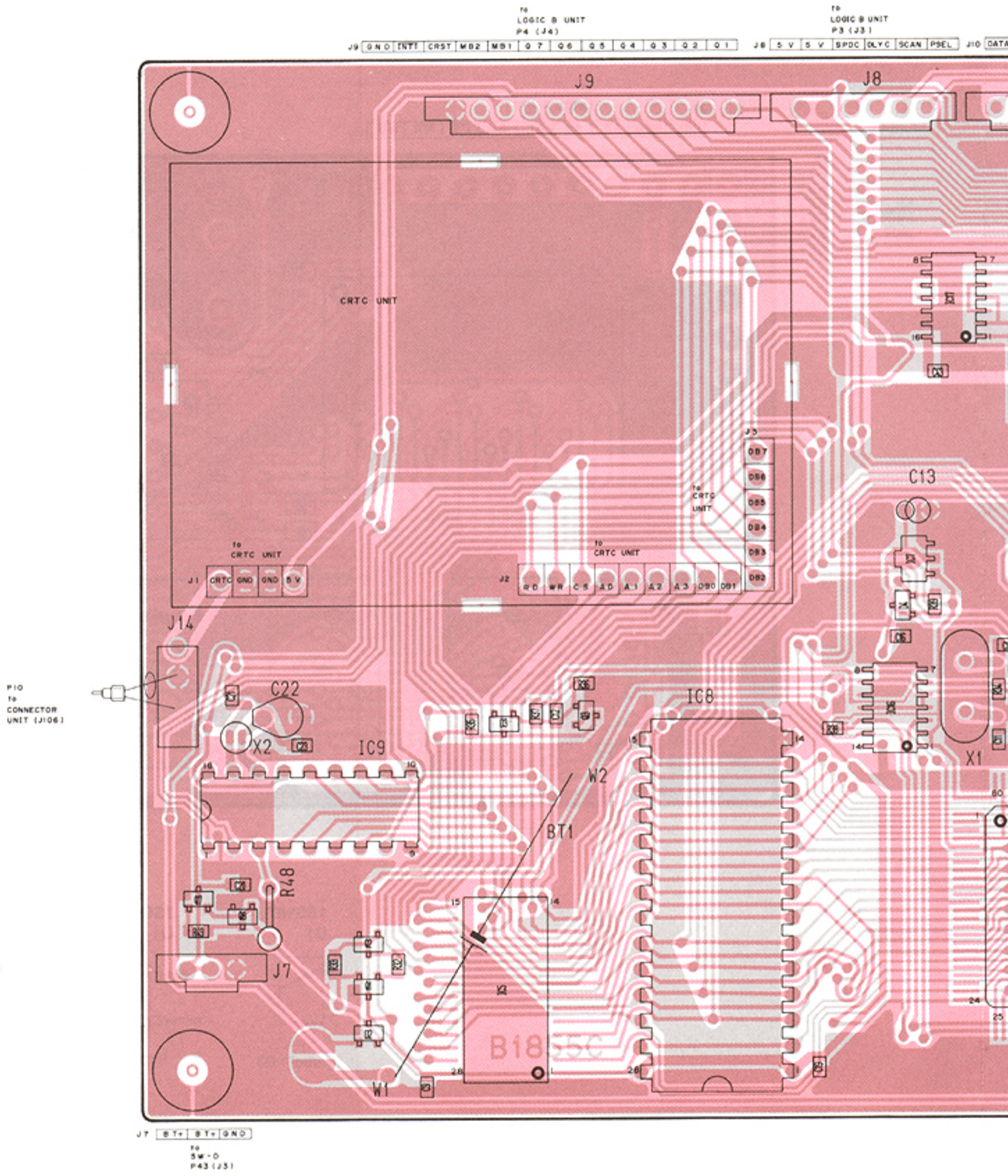
Symbol : D3

2SC2712-Y  
Q1



Symbol : LY

# 6-5 LOGIC A UNIT



16  
VOICE SYNTHESIZER UNIT  
P80 (J11)

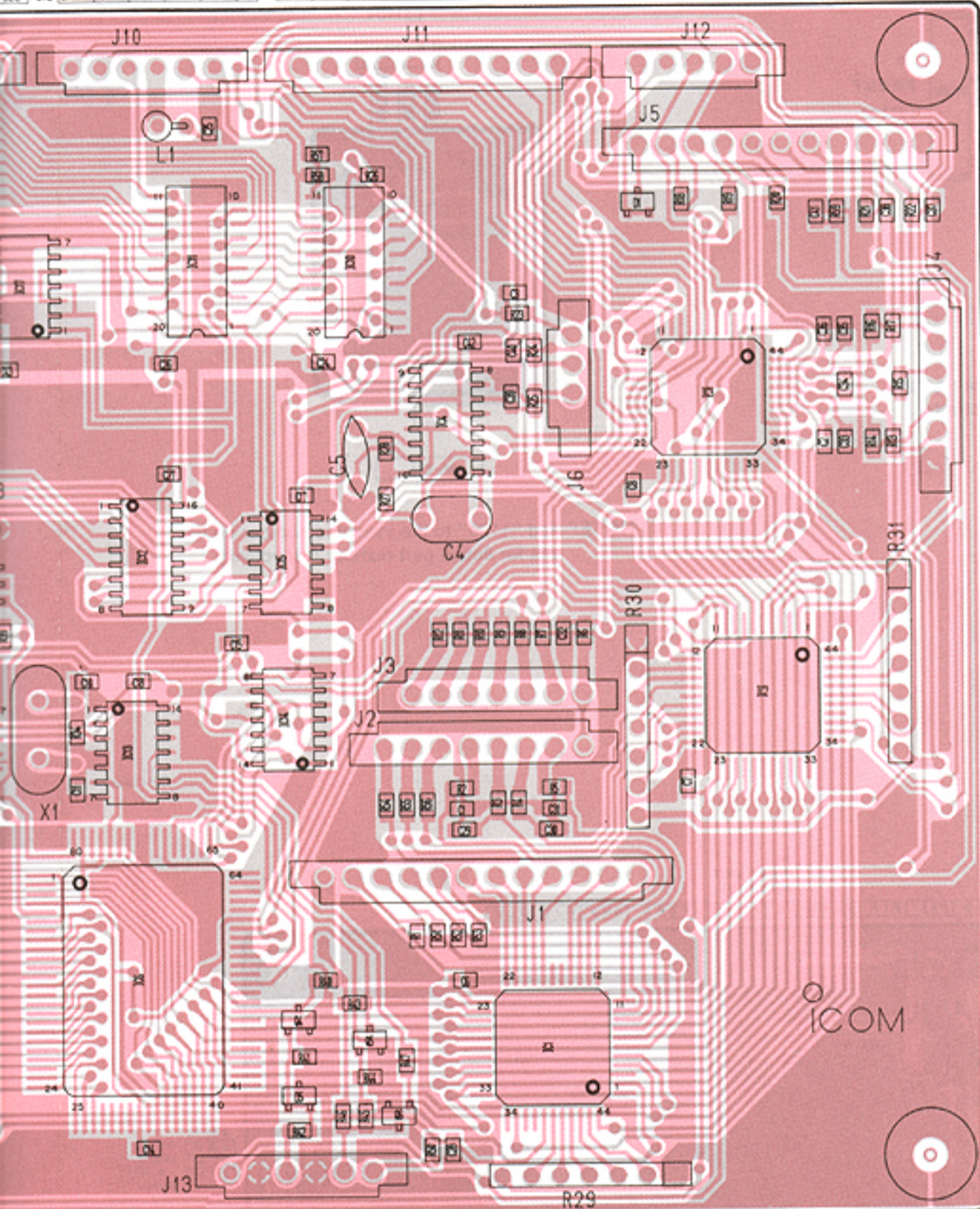
J2 B V STB5 C K DATA BUS37

16  
LOGIC B UNIT  
P2 (J2)

16  
LOGIC B UNIT  
P1 (J1)

16  
MAIN UNIT  
P83 (J12)

16  
J10 DATA C K RRS B V BUSY 20A 16  
J11 3CK DAT5 PTO1 PTO0 UNT4 TTD INTO S45T BCK ACC5 16  
J12 B V DATA C K STB5 AFR RFR 30LR BEEP STOP VSCO GND



J6  
OPTF  
LMCT  
BSCR  
GND

J4  
VCC1  
VCC2  
LOS  
B V  
FELS  
GND

J13 2CK DATE DAT1 CIVE CIVE BREM

J3 ENA4 ENA5 ENA2 ENA1 DATA C K CONV

16  
CONNECT B UNIT  
P79 (J204)

16  
PLL B UNIT  
P86 (J6)

J2 DATA C K STB5 D 4 D 3 D 2 D 1 CONV

16  
FRONT  
P89 (J108)

16  
RF-A  
P7 (J10)

J1 B V P27 P26 P25 P24 P17 P16 P15 P14 P13 P11 P10

16  
FRONT  
P84 (J113)

1SS190  
D1, D4, D5

Symbol : E3

1SS193  
D2, D3

Symbol : F3

2SA1162 Y  
Q1, Q7

Symbol : SY

2SC2712-Y  
Q3, Q4, Q5  
Q6

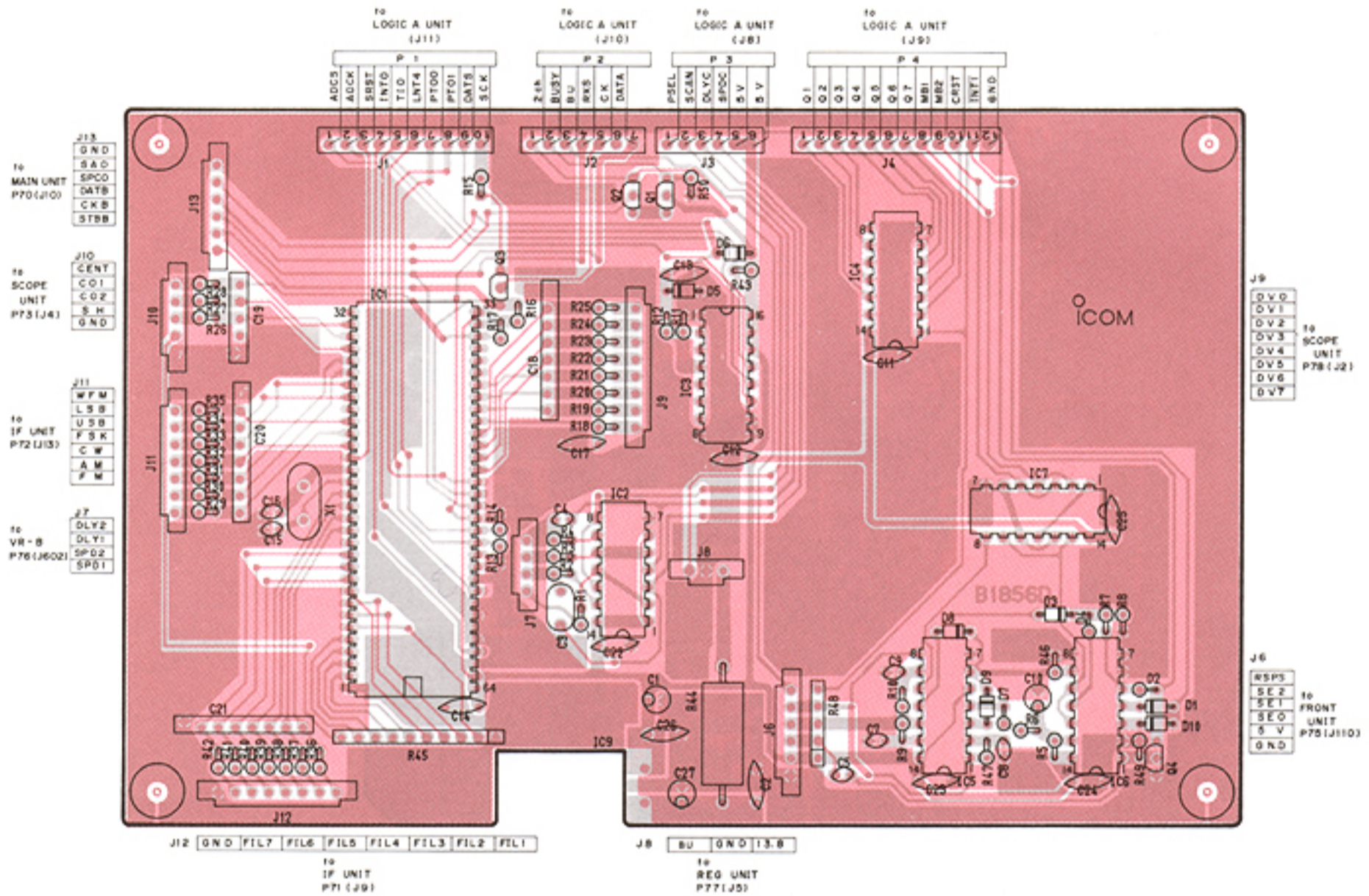
Symbol : LY

RN1404  
Q2, Q8

Symbol : XD

# 6-6 LOGIC B AND SCOPE UNITS

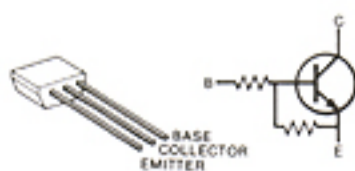
## • LOGIC B UNIT



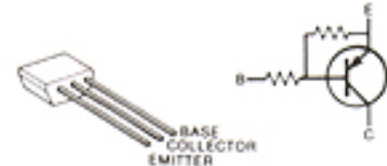
**2SA1048-Y**  
Q3



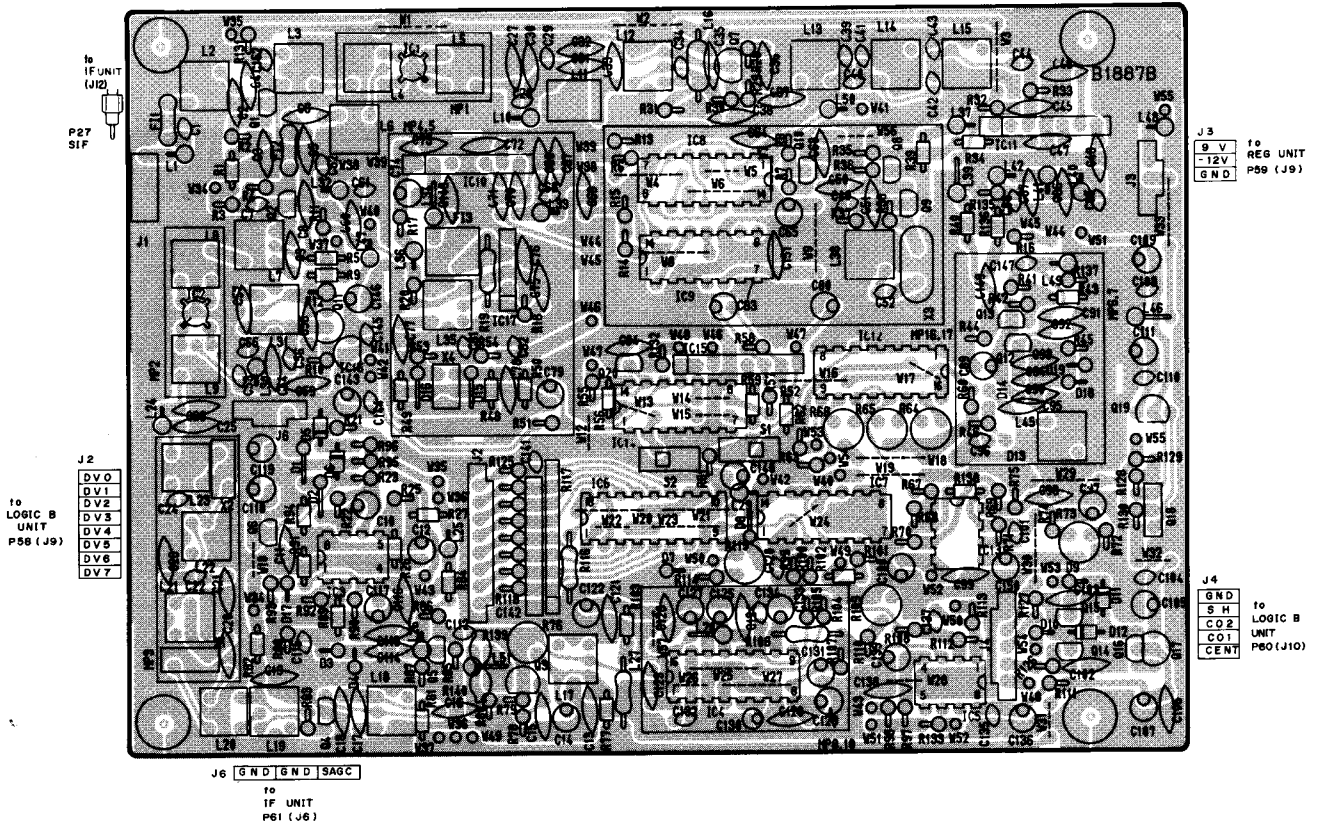
**RN1204**  
Q1, Q4



**RN2204**  
Q2



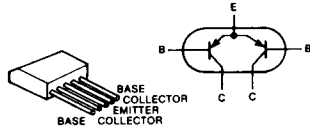
• SCOPE UNIT



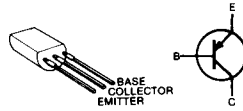
**2SA1048-GR**  
Q6



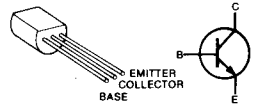
**2SA798 G**  
Q18



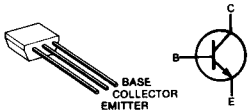
**2SB562C**  
Q17



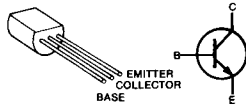
**2SC2053**  
Q3



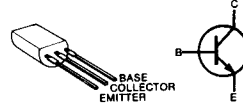
**2SC2458-GR**  
Q10, Q13, Q5  
Q8, Q9



**2SC763 C**  
Q11, Q7



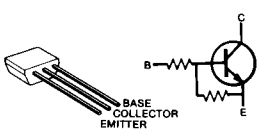
**2SD468C**  
Q19



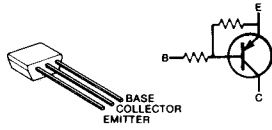
**2SK241-GR**  
Q1, Q12, Q2  
Q4



**RN1204**  
Q14, Q15, Q20

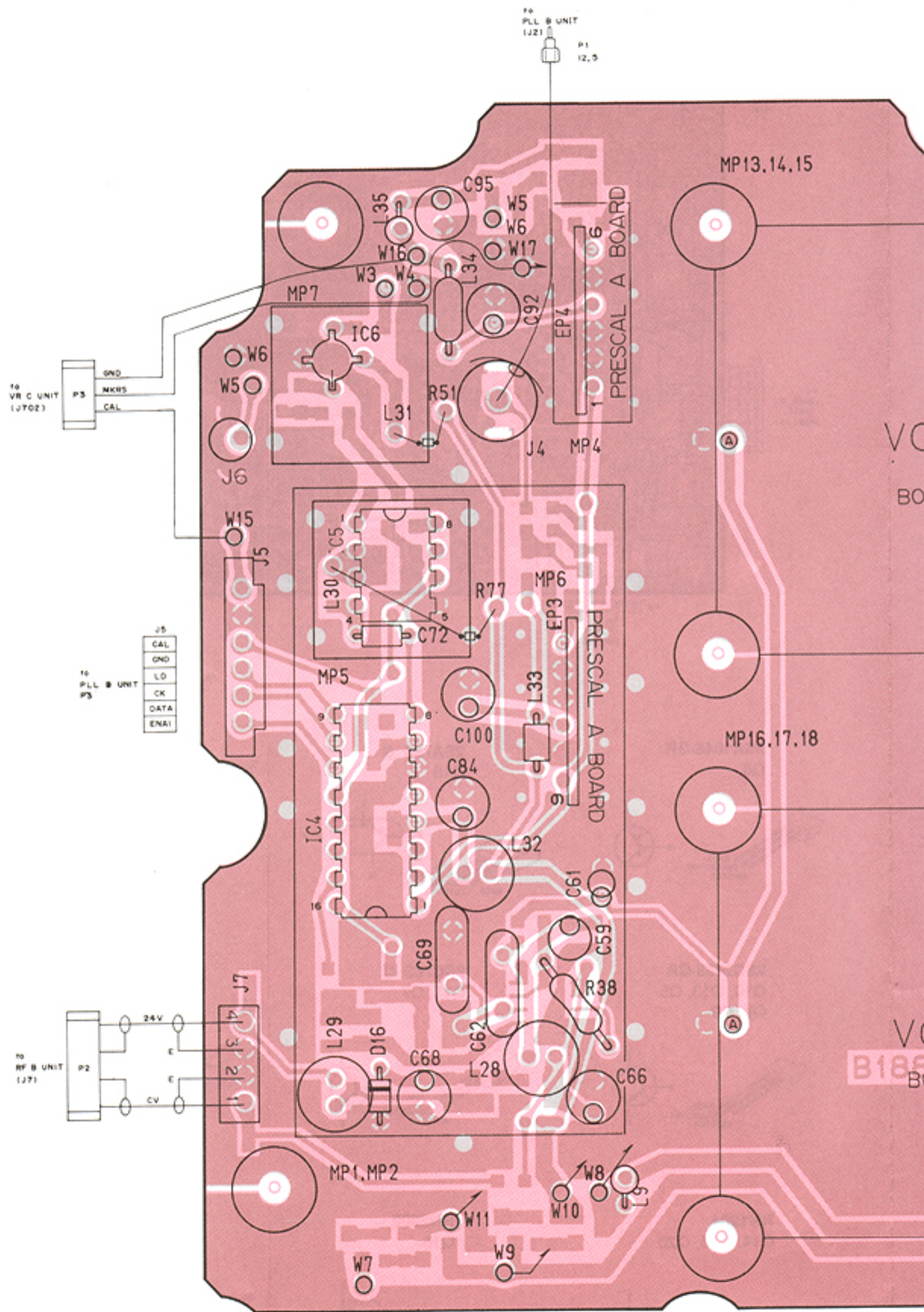


**RN2202**  
Q16



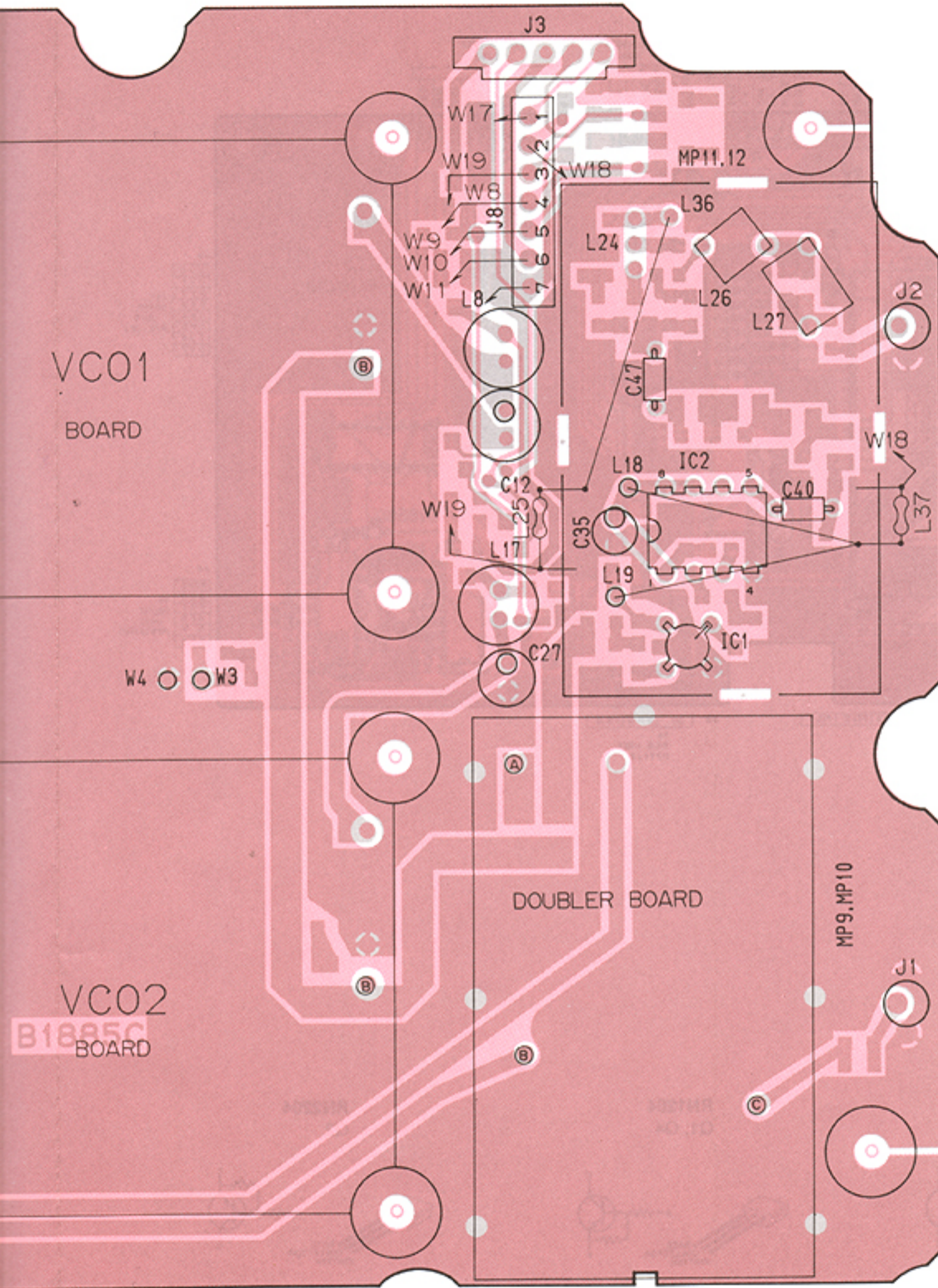
# 6-7 PLL A UNIT (1)

COMPONENT SIDE



To  
PLL B UNIT  
P2

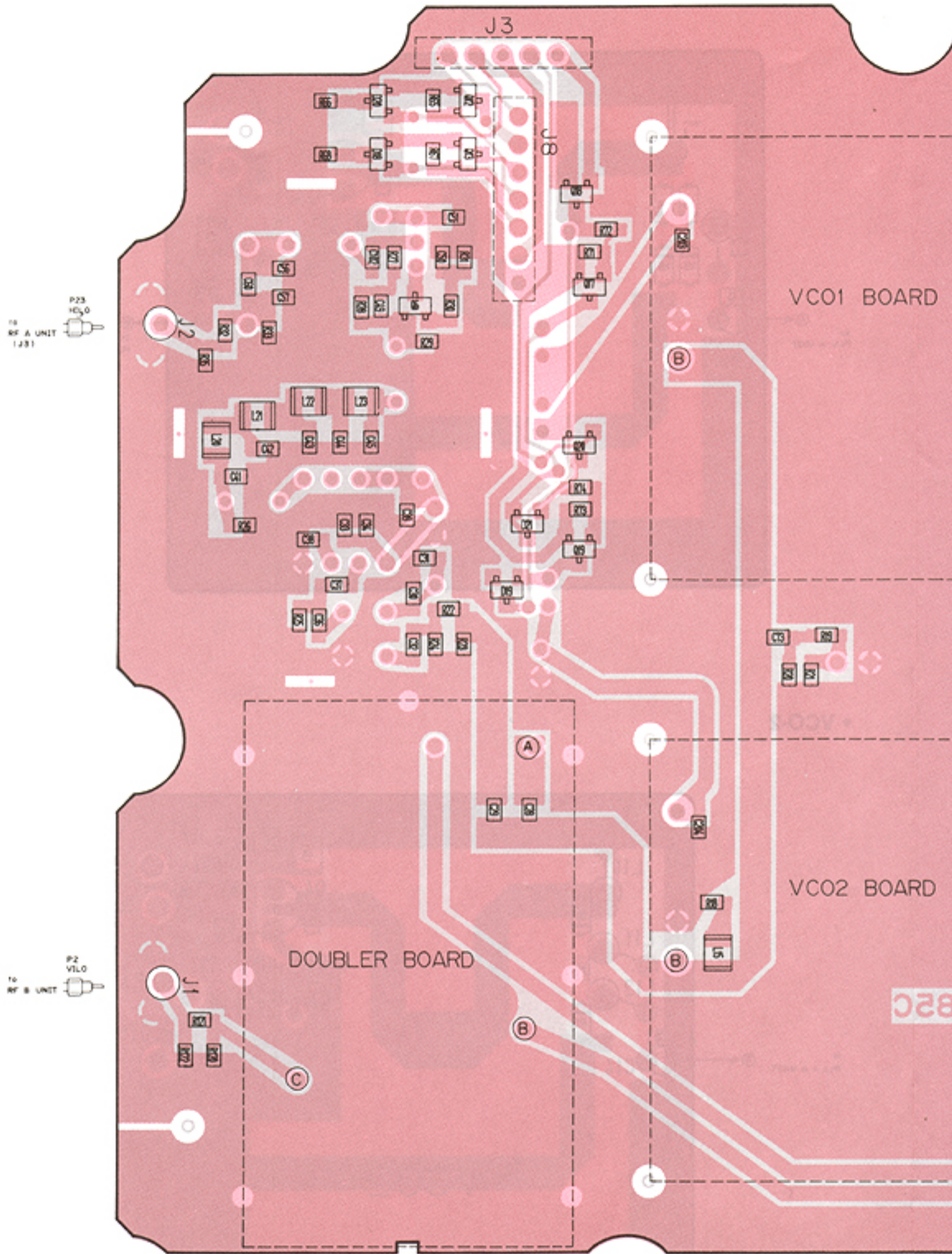
J3	VC01	VC02	5V	5V	5V
----	------	------	----	----	----



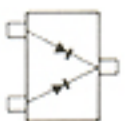
FOIL SIDE  
COMPONENT SIDE



FOIL SIDE

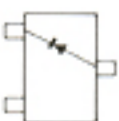


1SS184  
D18, D20



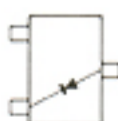
Symbol : B3

1SS187  
D21



Symbol : D3

1SS190  
D15



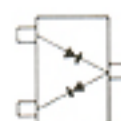
Symbol : E3

1SS193  
D19



Symbol : F3

HSM88AS-T  
D11, D13

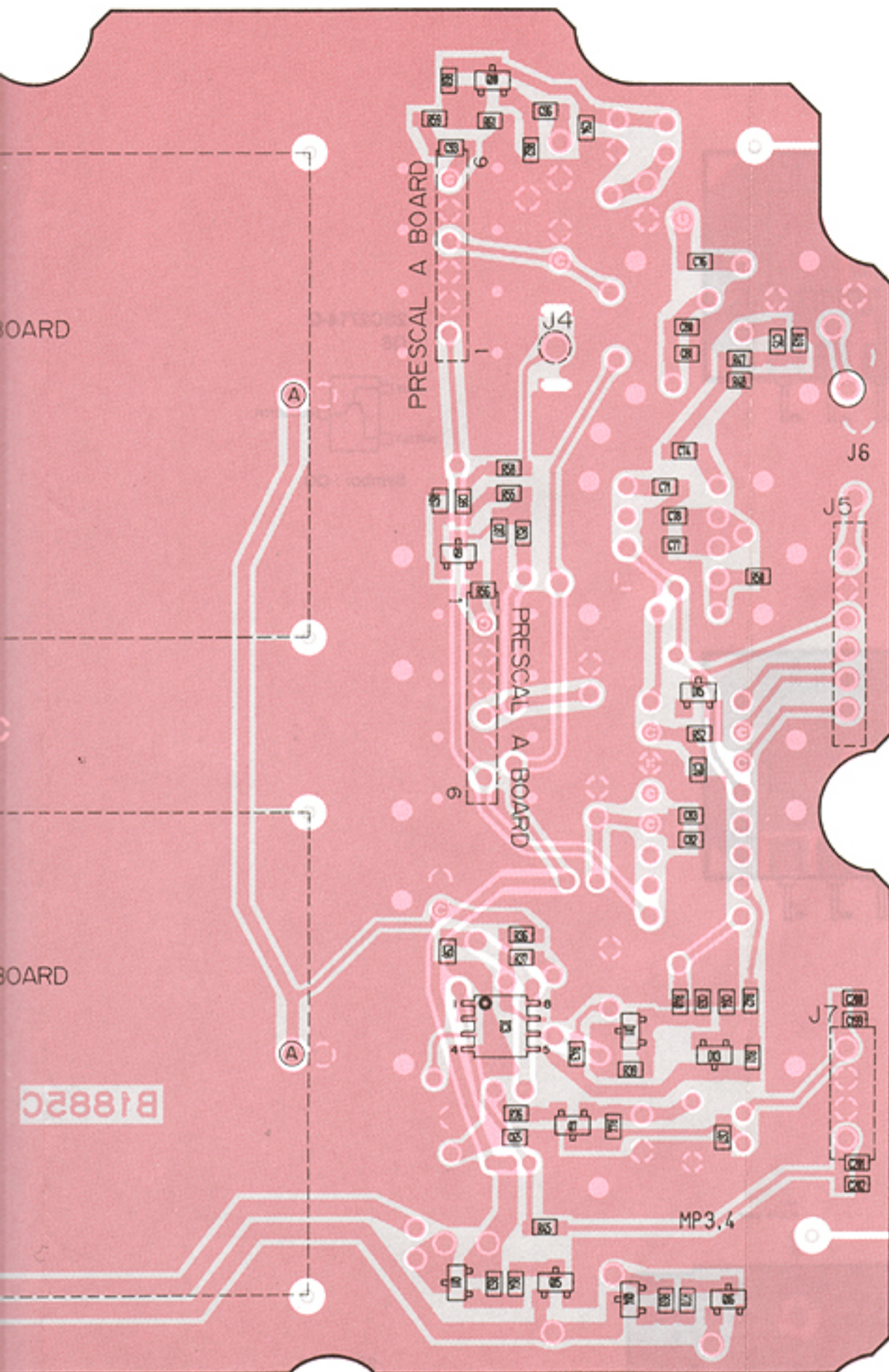


Symbol : C1

2SA1362-GR  
Q11, Q12, Q13  
Q14, Q17, Q19

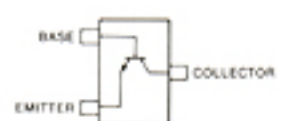


Symbol : AEG



FOIL SIDE  
 COMPONENT SIDE

2SC2712-GR  
Q10, Q9



Symbol : LG

2SC3661-TA  
Q7



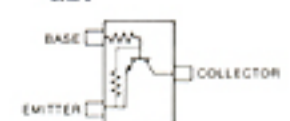
Symbol : CP

2SC3772-3-TA  
Q6



Symbol : LY3

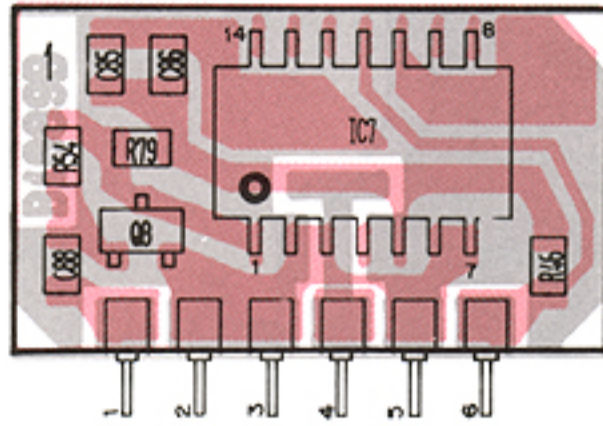
RN1402  
Q15, Q16, Q18  
Q20



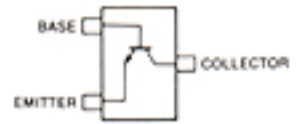
Symbol : XB

## 6-8 PLL A UNIT (2)

### • PRESCAL A (EP3)

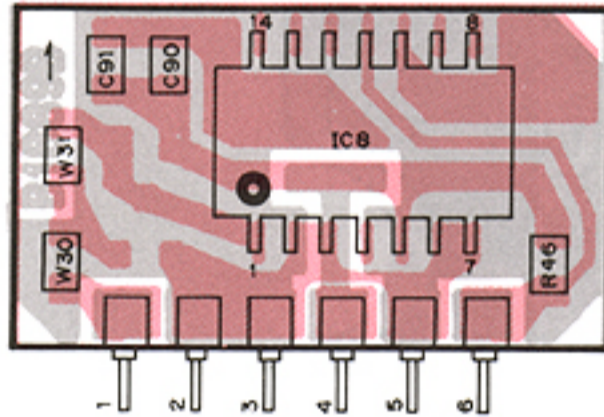


2SC2714-O  
Q8

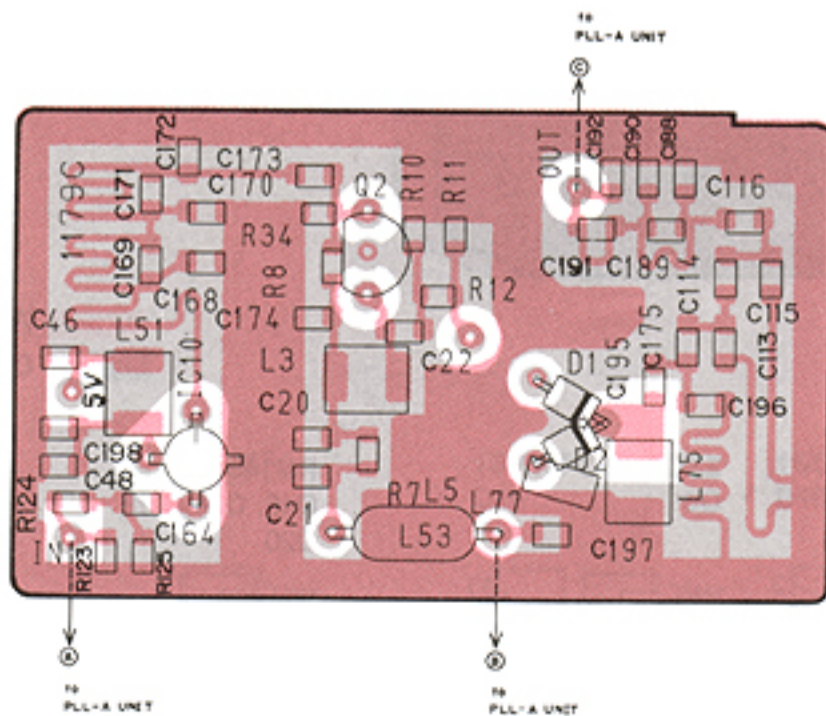


Symbol : QO

### • PRESCAL A (EP4)



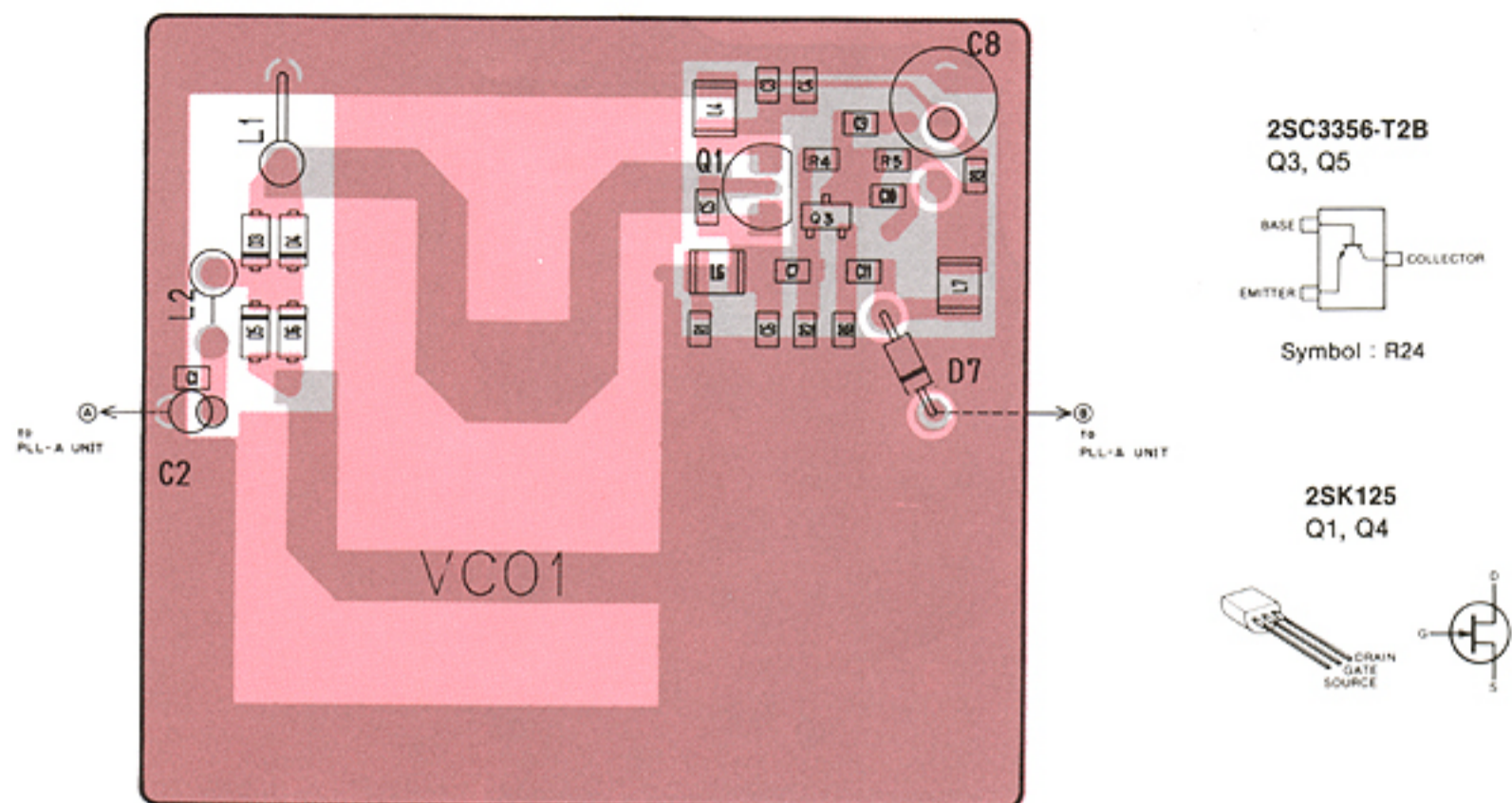
### • DOUBLER



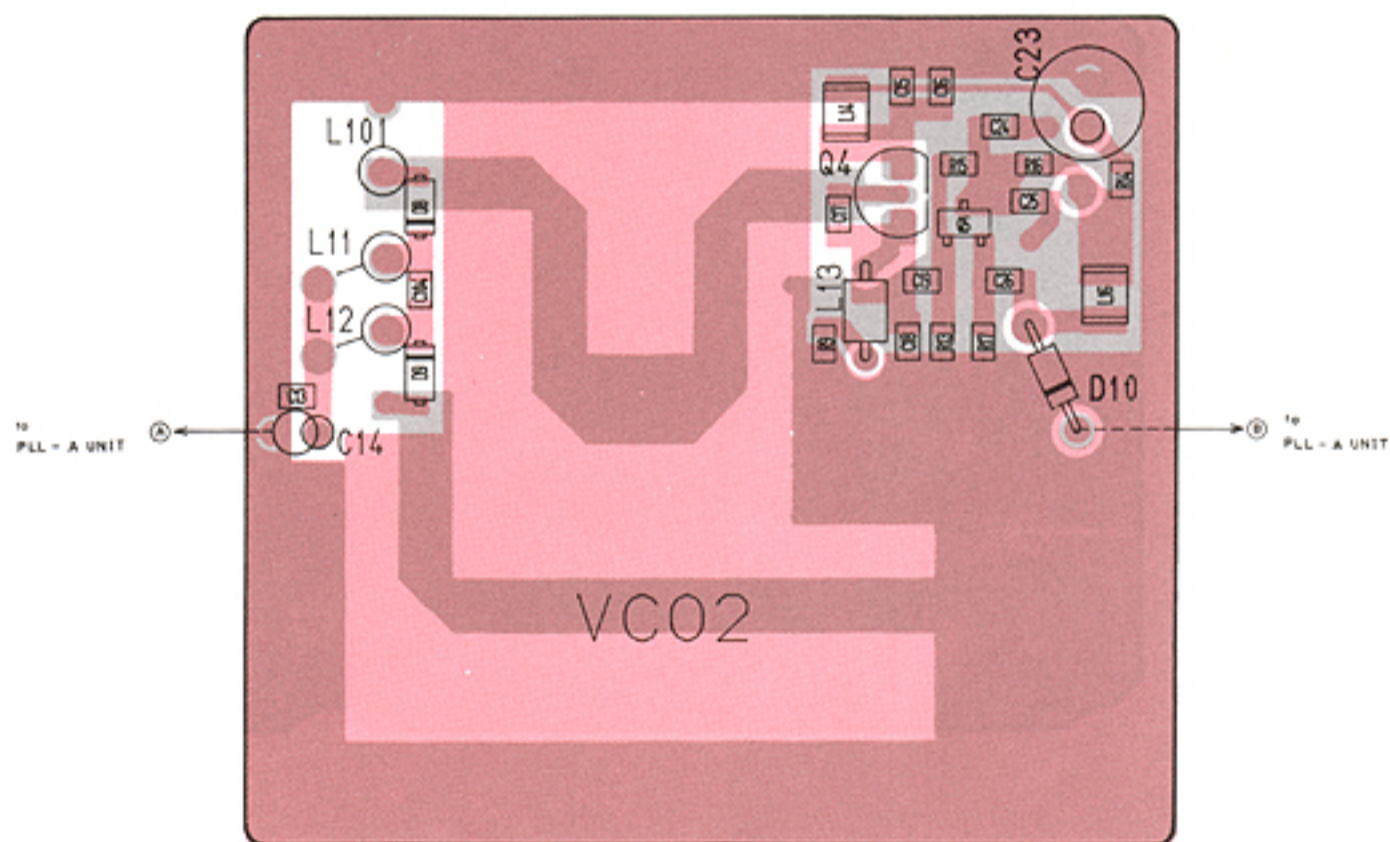
2SC3355  
Q2



• VCO-1



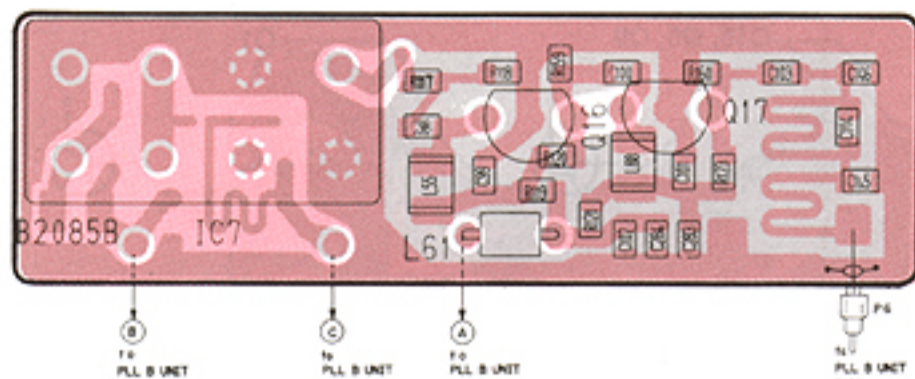
• VCO-2



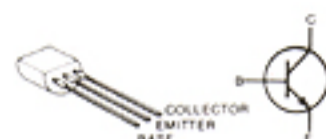
# 6-9 PLL B UNIT (1)

• 2ND-MIX

COMPONENT SIDE

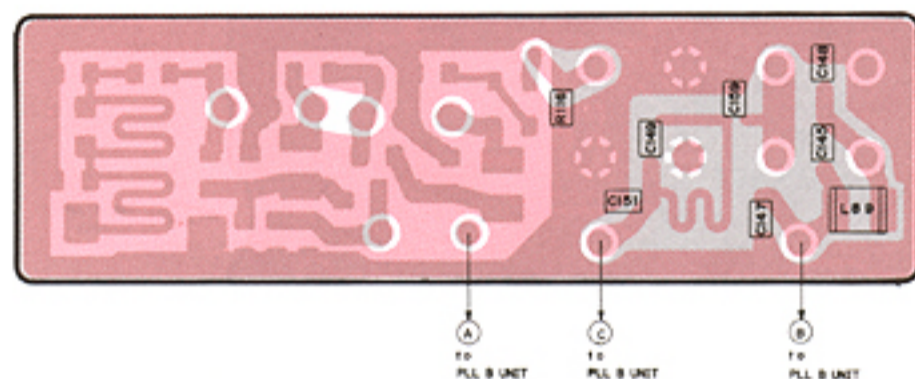


2SC3355  
Q16, Q17



FOIL SIDE  
COMPONENT SIDE

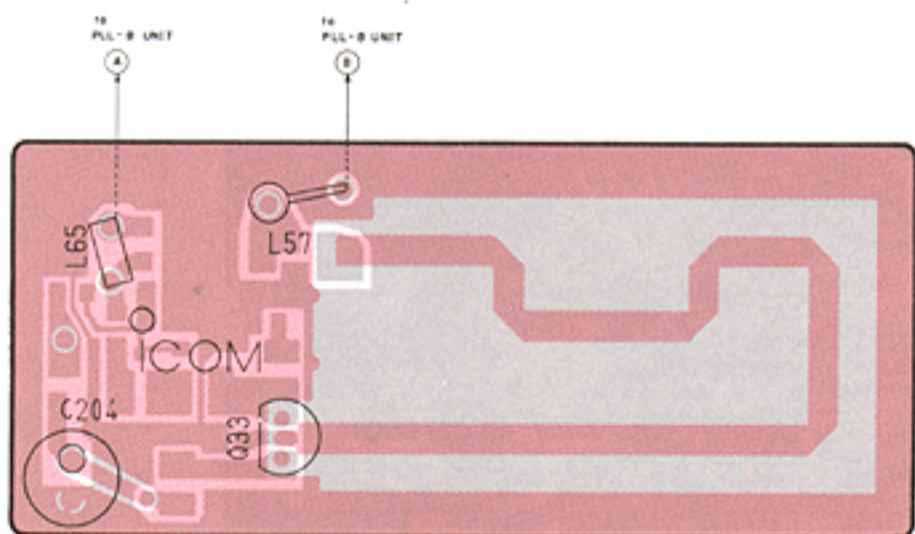
FOIL SIDE



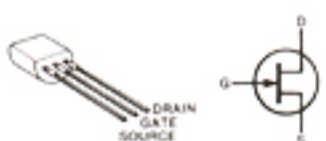
FOIL SIDE  
COMPONENT SIDE

• VCO-3

COMPONENT SIDE

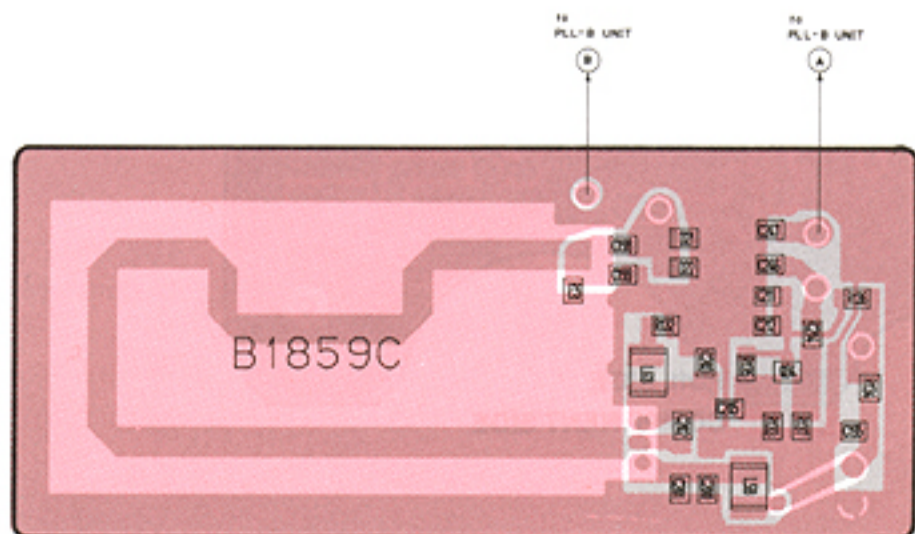


2SK125  
Q33



FOIL SIDE  
COMPONENT SIDE

FOIL SIDE



2SC3356-T2B  
Q34

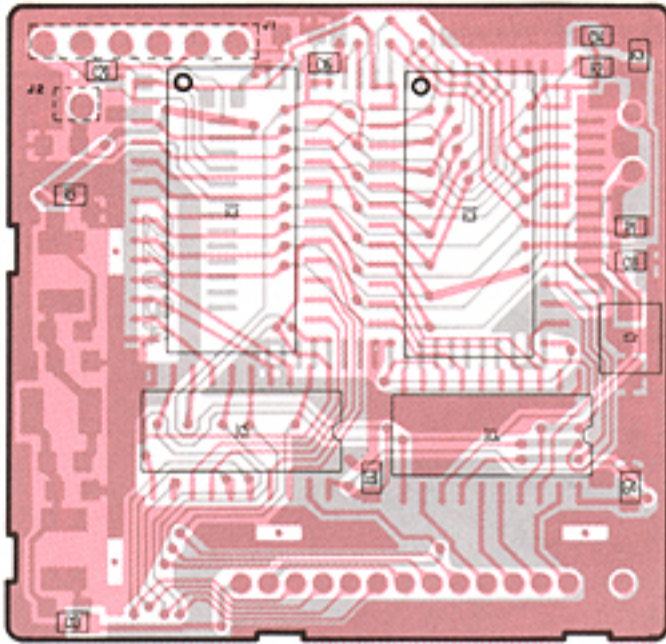


Symbol : R24

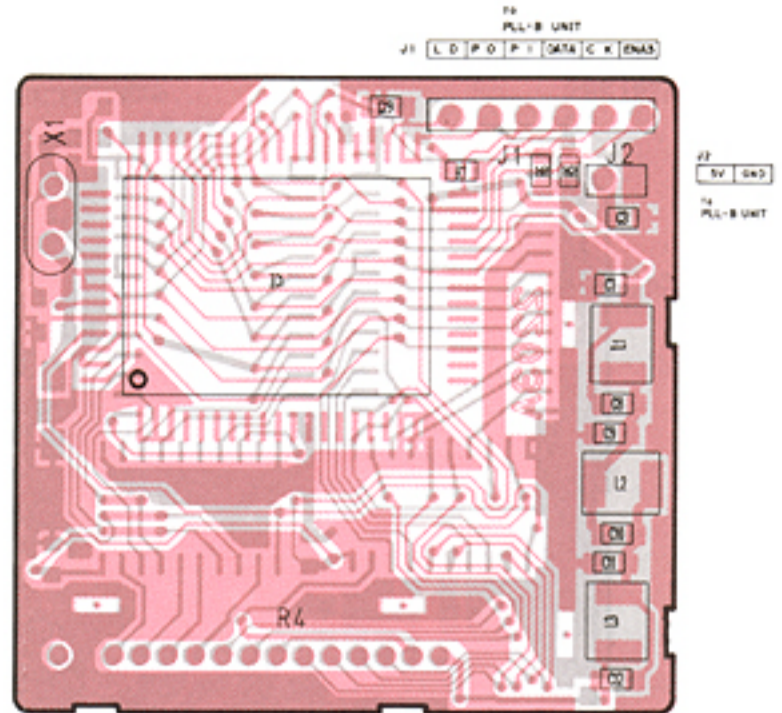
FOIL SIDE  
COMPONENT SIDE

• DDS UNIT

COMPONENT SIDE



FOIL SIDE

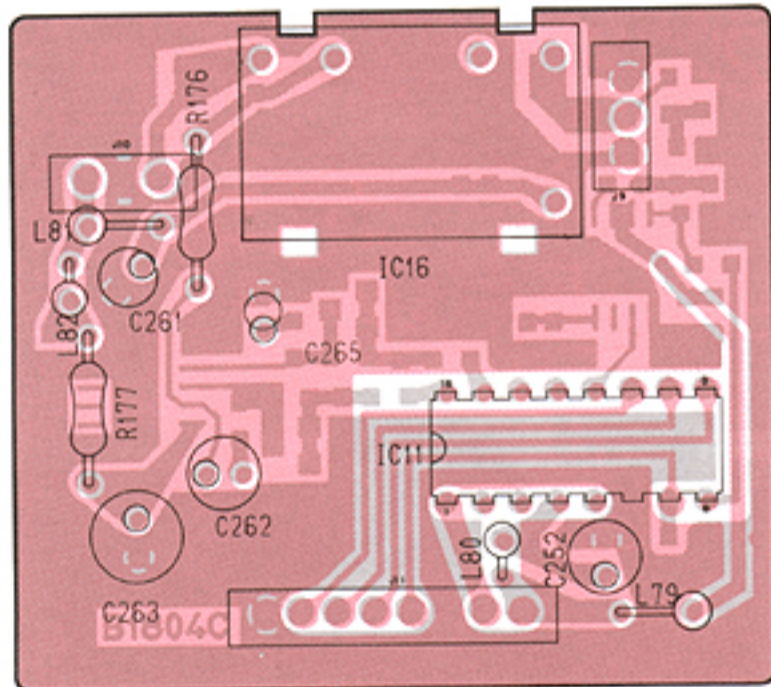


FOIL SIDE  
COMPONENT SIDE

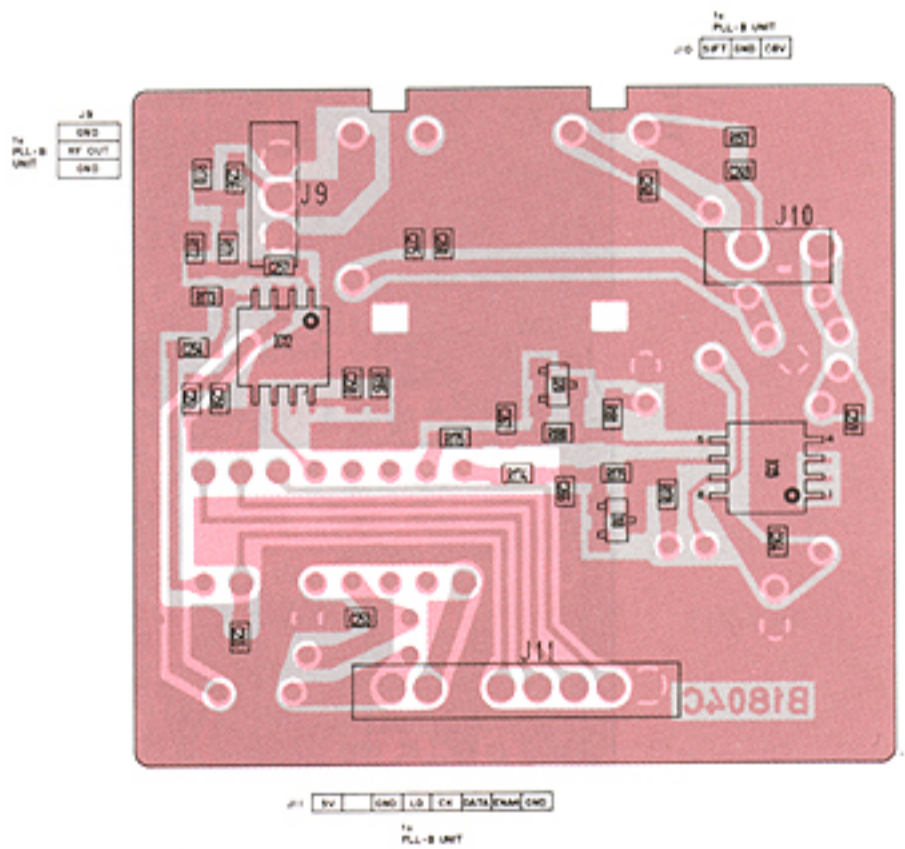
FOIL SIDE  
COMPONENT SIDE

• HPL

COMPONENT SIDE



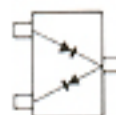
FOIL SIDE



FOIL SIDE  
COMPONENT SIDE

FOIL SIDE  
COMPONENT SIDE

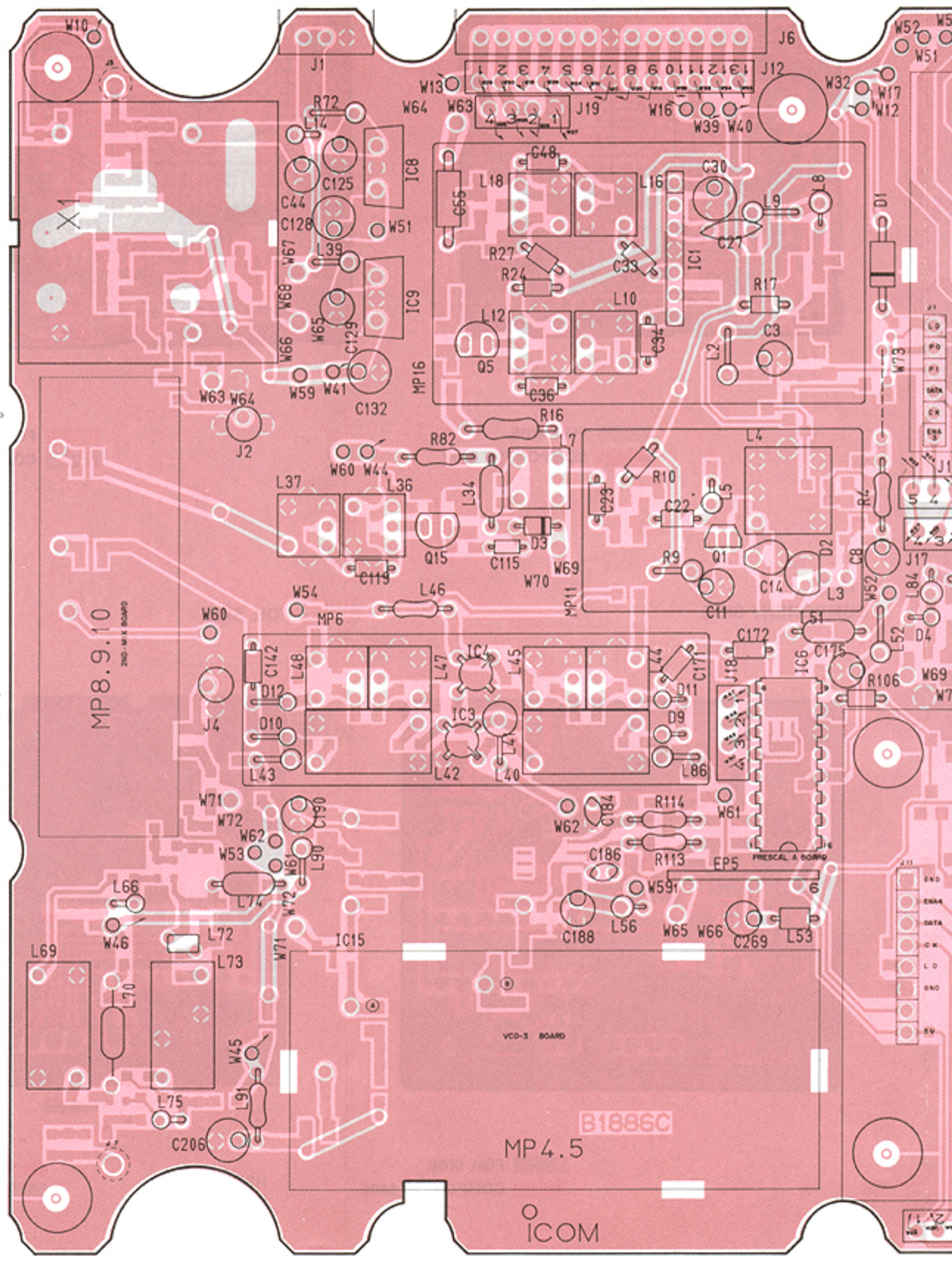
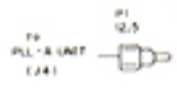
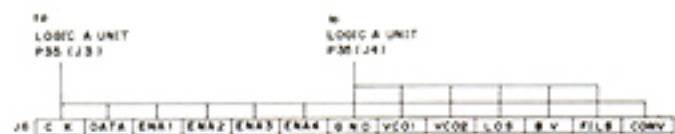
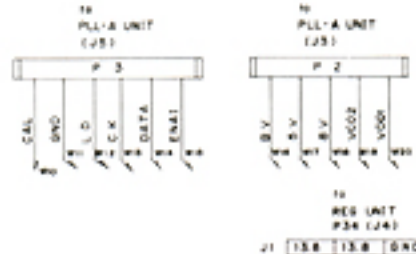
HSM88AS-TR  
D18, D20

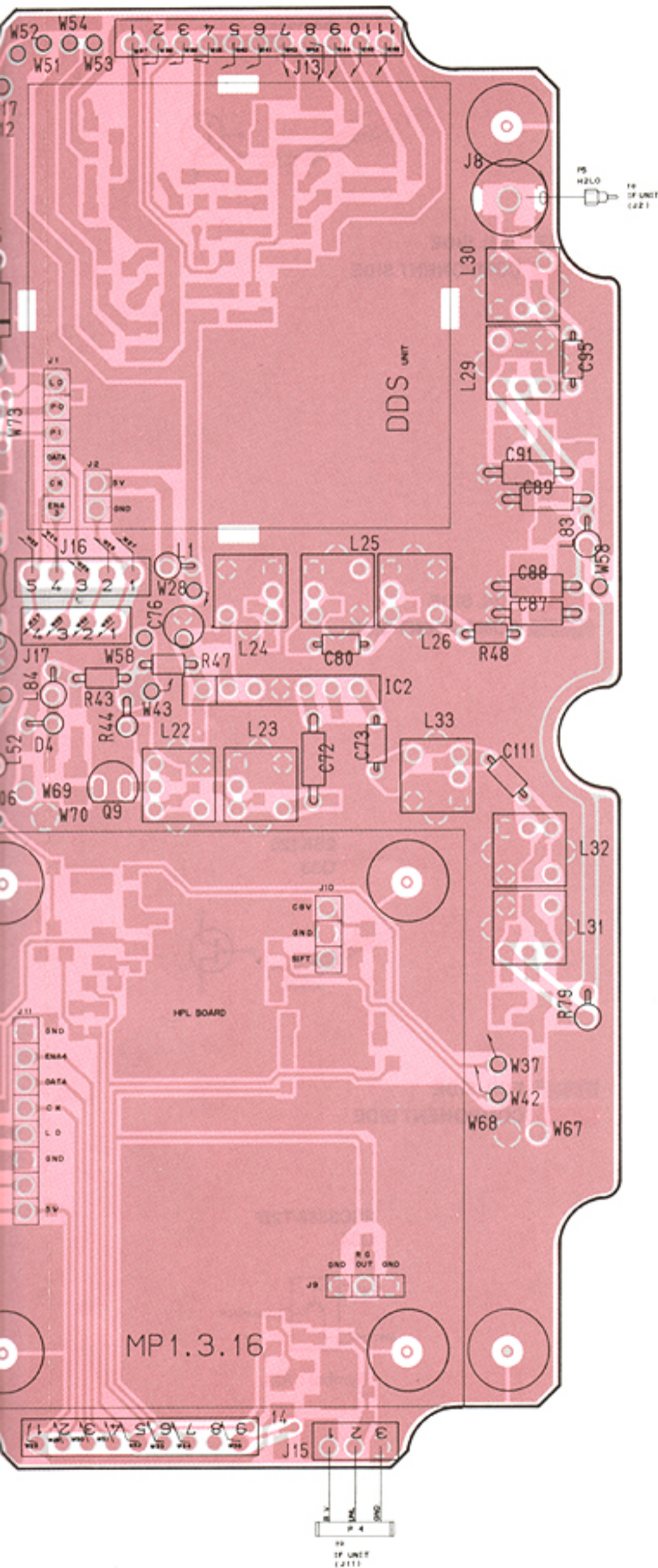


Symbol : C1

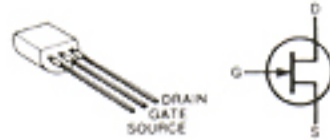
# 6-10 PLL B UNIT (2)

## COMPONENT SIDE





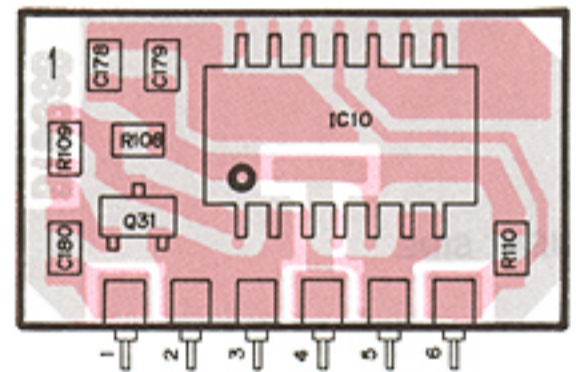
2SK125  
Q15, Q5, Q9



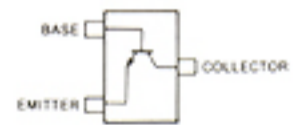
2SK192A-GR  
Q1



• PRESCALE A



2SC2714-O  
Q31

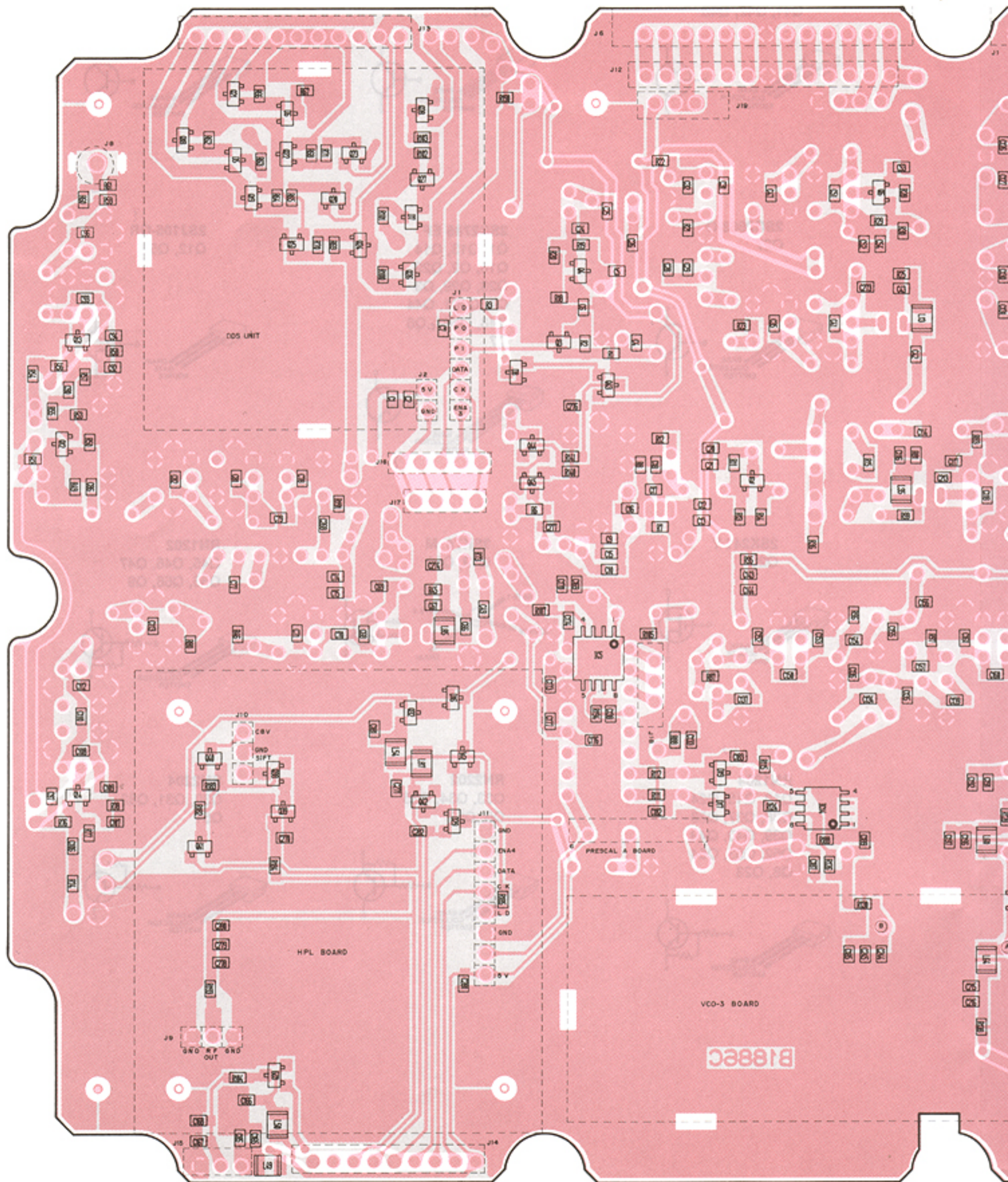


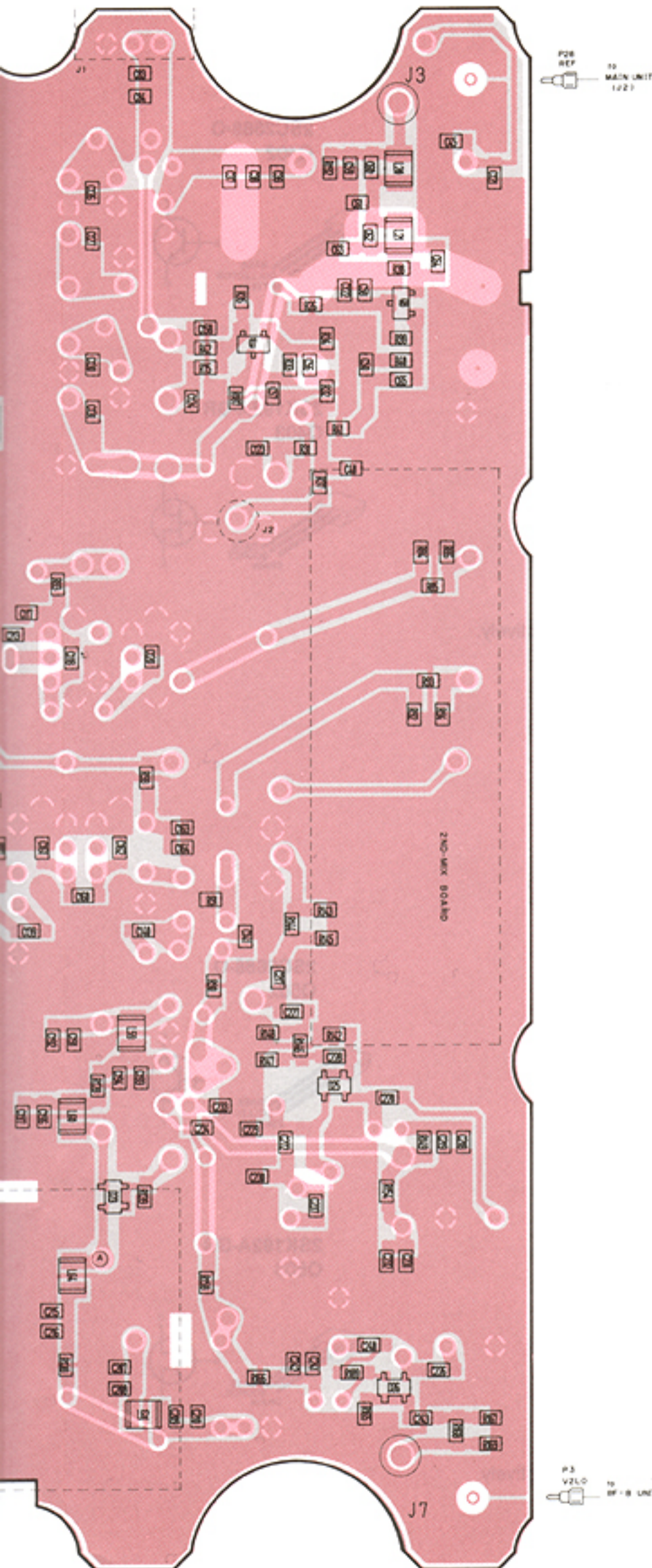
Symbol : QO

Downloaded by  RadioAmateur.EU

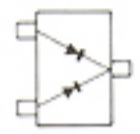
FOIL SIDE  
COMPONENT SIDE





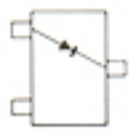


**1SS184**  
D29, D5, D6  
D7



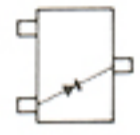
Symbol : B3

**1SS193**  
D15



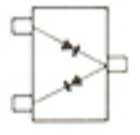
Symbol : F3

**1SS196**  
D16, D8



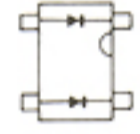
Symbol : G3

**HSM88AS-TR**  
D17, D19



Symbol : C1

**MA862**  
D23, D25, D26



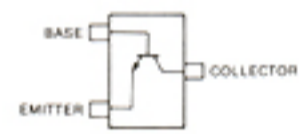
Symbol : M11

**2SA1362-GR**  
Q18, Q19, Q21  
Q22, Q24, Q26  
Q27, Q40



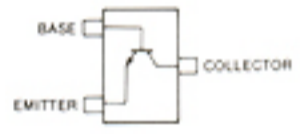
Symbol : AEG

**2SC2712-GR**  
Q12, Q39, Q4  
Q7, Q8



Symbol : LG

**2SC2714-O**  
Q13, Q14, Q2  
Q3, Q6



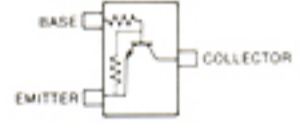
Symbol : QO

**2SK536-TA**  
Q44, Q45



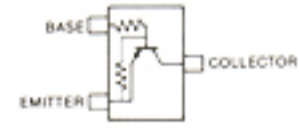
Symbol : BJ

**RN1402**  
Q20, Q23, Q25,  
Q28, Q41



Symbol : XB

**RN2404**  
Q29, Q32, Q38  
Q42, Q43

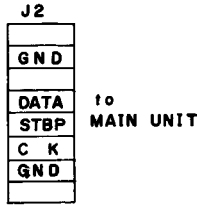
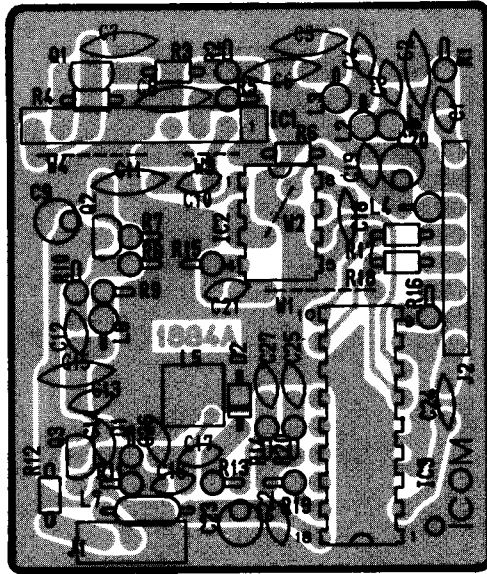


Symbol : YD

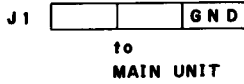
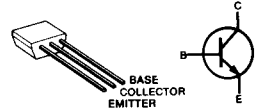
FOIL SIDE  
COMPONENT SIDE

# 6-11 MAIN UNIT

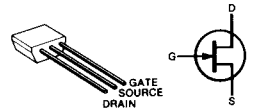
## • SHIFT



2SC2668-O  
Q402

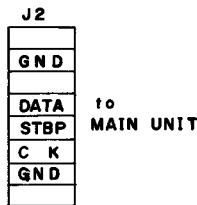
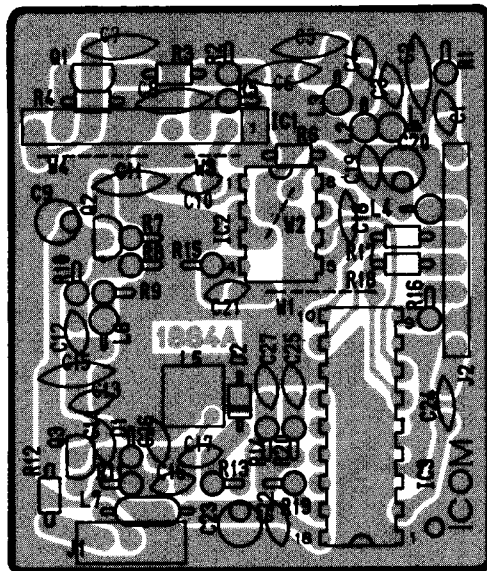


2SK192A-GR  
Q403

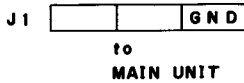
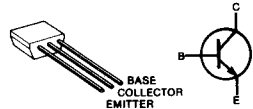


**NOTE:** Add "400" to the indicated number on the unit for actual part number respectively.

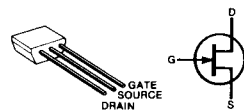
## • BFO



2SC2668-O  
Q502



2SK192A-GB  
Q503



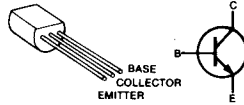
**NOTE:** Add "500" to the indicated number on the unit for actual part number respectively.

• MAIN UNIT

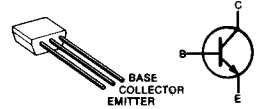
**2SA1048-Y**  
Q41, Q42, Q43



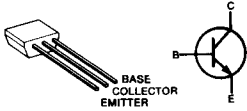
**2SC1645B**  
Q17



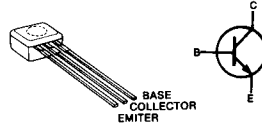
**2SC2458-GR**  
Q11, Q21



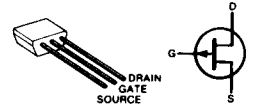
**2SC2668-O**  
Q27



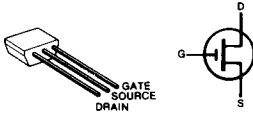
**2SC2785 EF**  
Q1, Q13, Q14  
Q16, Q2, Q22  
Q28, Q29, Q3  
Q4, Q401, Q44  
Q48, Q501, Q6  
Q7



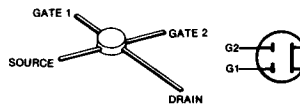
**2SJ105-GR**  
Q12, Q50



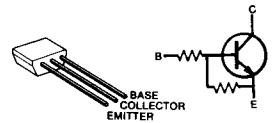
**2SK241-Y**  
Q25



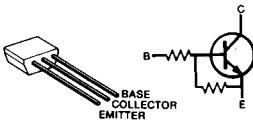
**3SK74 M**  
Q19, Q20



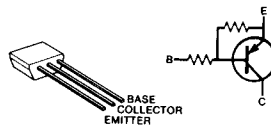
**RN1202**  
Q45, Q46, Q47  
Q55, Q56, Q9



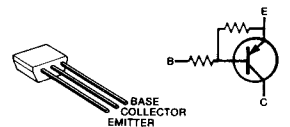
**RN1204**  
Q10, Q15, Q24  
Q36, Q37, Q38  
Q39, Q40, Q49  
Q52, Q53, Q54  
Q8, Q23

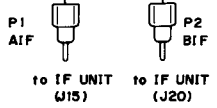
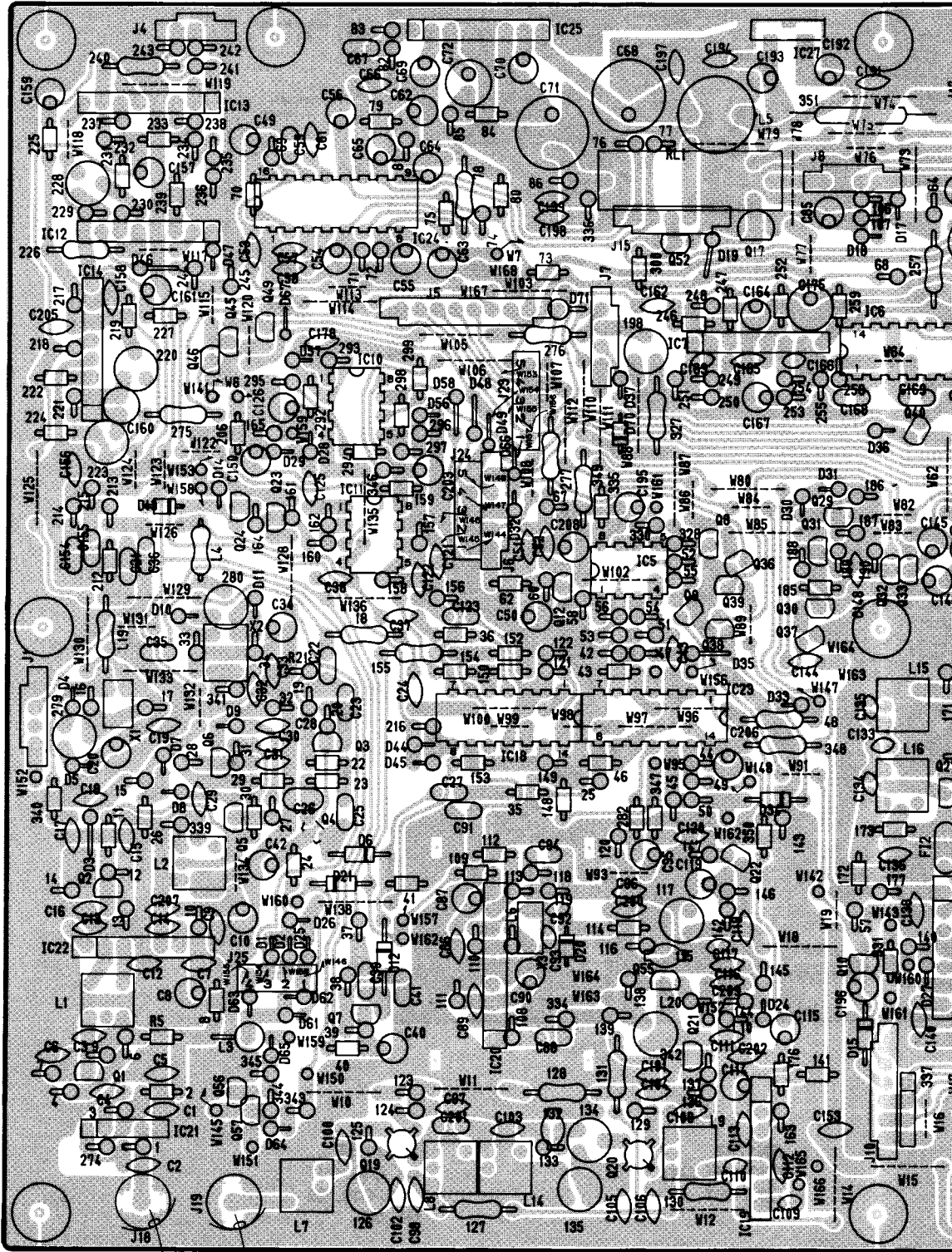
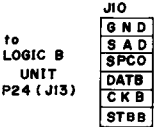
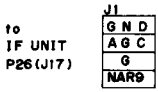
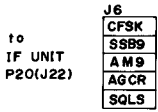
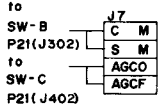
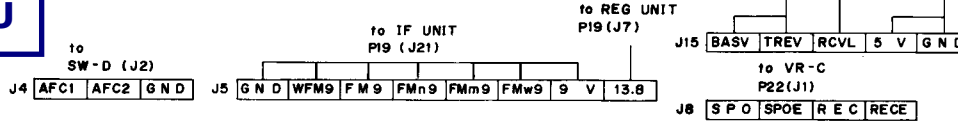


**RN2202**  
Q33, Q34, Q35  
Q5, Q57



**RN2204**  
Q30, Q31, Q32  
Q51





to SW-B P30(J302) to VR-B P30(J601)

RCVL 5 V GND

-C

REC RECE

J13 MMUT AGC 13.8 9 V 5 V GND

to RF A UNIT P32 (J6)

to CONNECT A UNIT P25 (J104)

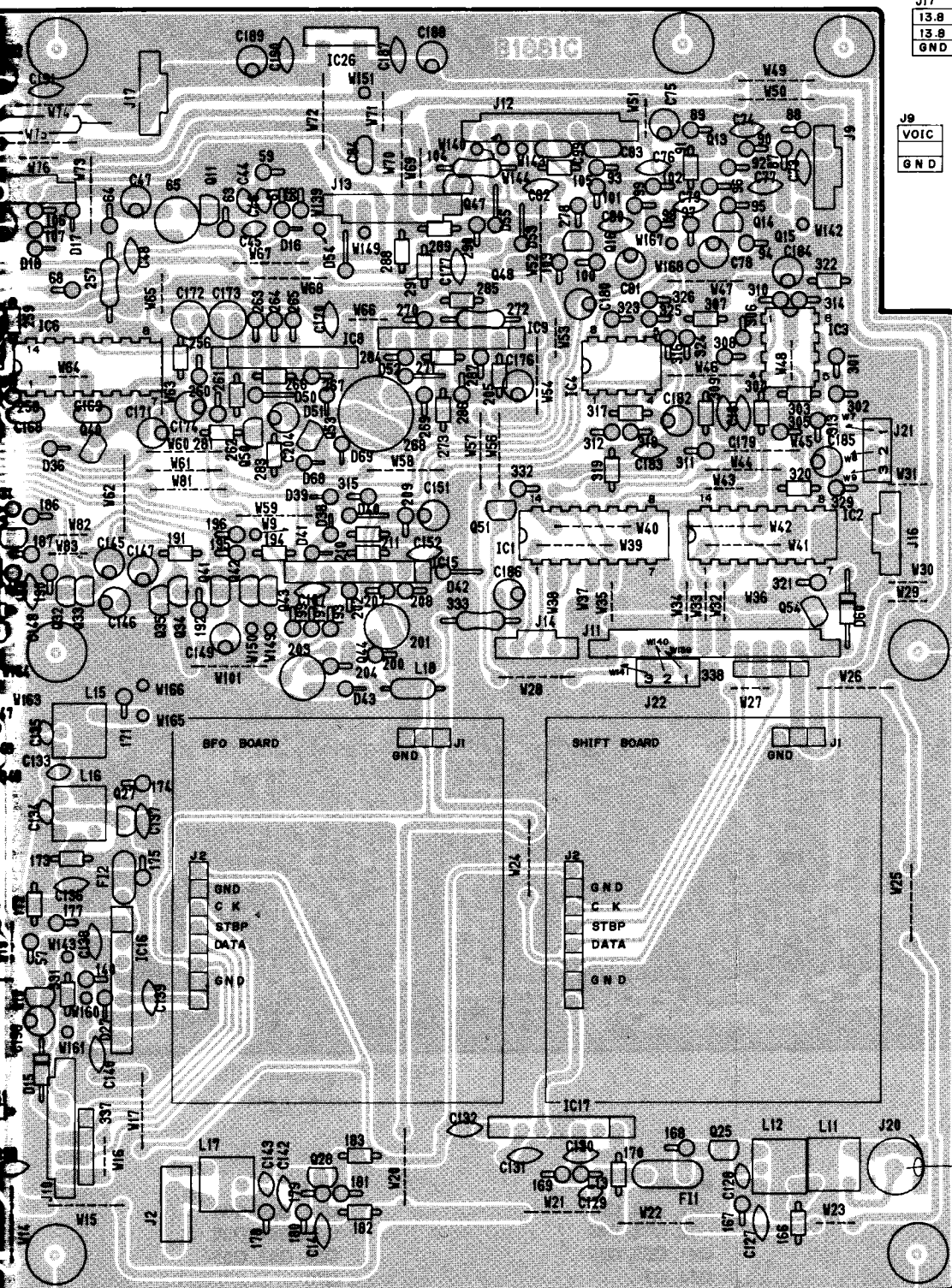
to CONNECT B UNIT P25 (J202)

J12 MUTE SCLS MOUT SLIN SLTNE A A F AAFE GND

J17 13.8 13.8 GND to REG UNIT P28 (J2)

J9 VOIC GND to VOICE SYNTHESIZER UNIT (OPTION) P23 (J2)

J16 9 V -7 V GND to REG UNIT P29 (J2)



to PLL B UNIT (J3)

J14 AFGF RFGF SQGF

to VR-A P31 (J501)

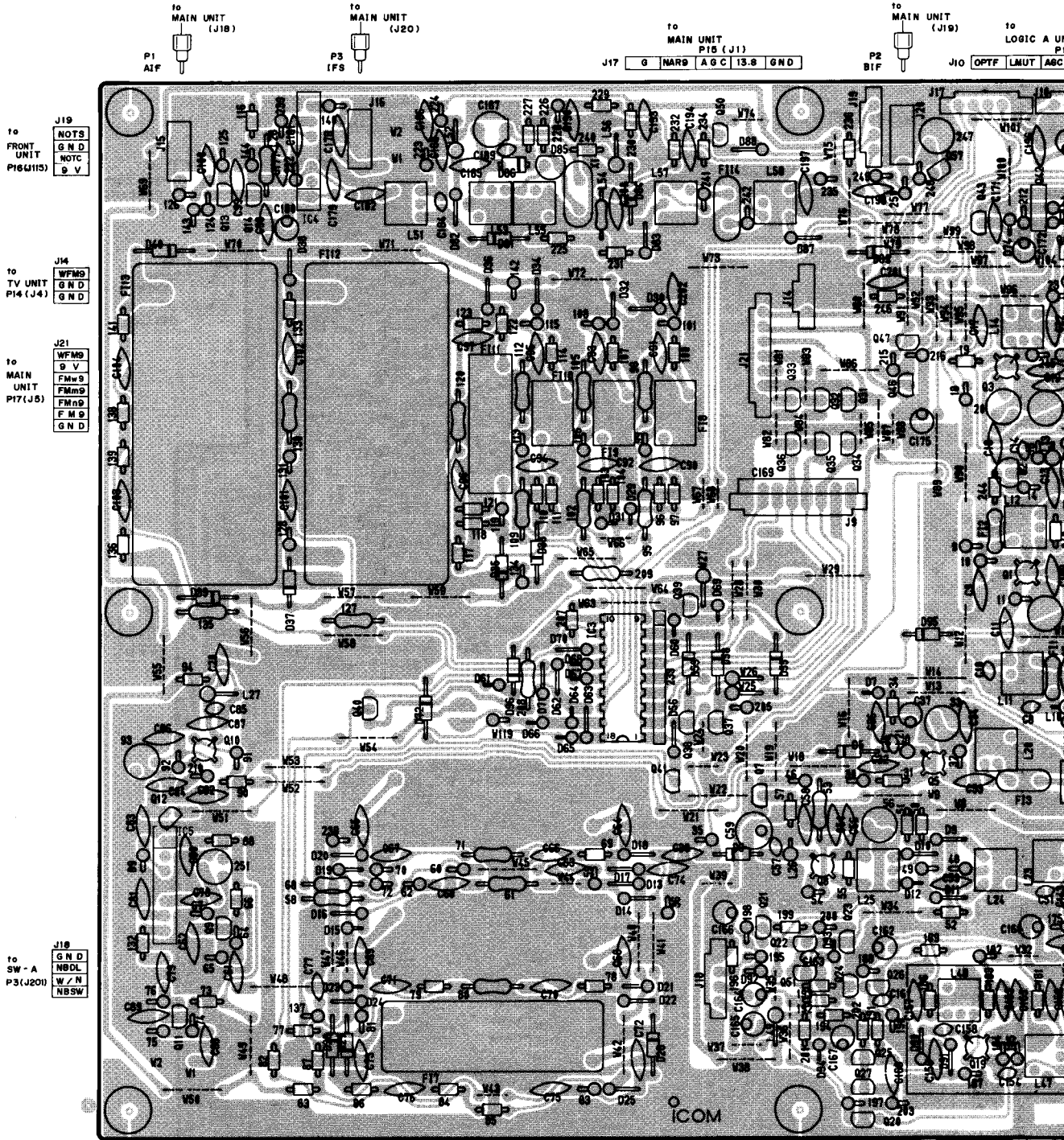
to VR-B P31 (J601)

J11 GND VSCO STOP BEEP SOLR RFR AFR STBP C K DATA 9 V REMC

to LOGIC A UNIT P33 (J5)

to FRONT UNIT P33 (J108)

# 6-12 IF UNIT



to  
FRONT  
UNIT  
P16(J15)

J19
NOTS
GND
NOTC
9V

to  
TV UNIT  
P14 (J4)

J14
WFM9
GND
GND

to  
MAIN  
UNIT  
P17(J5)

J21
WFM9
9V
FMw9
FMm9
FMn9
FM9
GND

to  
SW - A  
P3(J20)

J18
GND
NBDL
W/N
NBSW

to  
MAIN UNIT  
P15 (J1)

J17
G
NARD
AGC
13.6
GND

to  
MAIN UNIT  
(J19)

P2
BIF

to  
LOGIC A UNIT  
P1

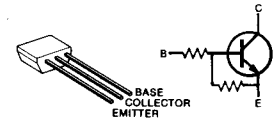
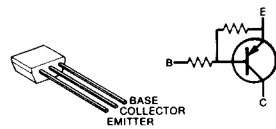
J10
OPTF
UMUT
ABC

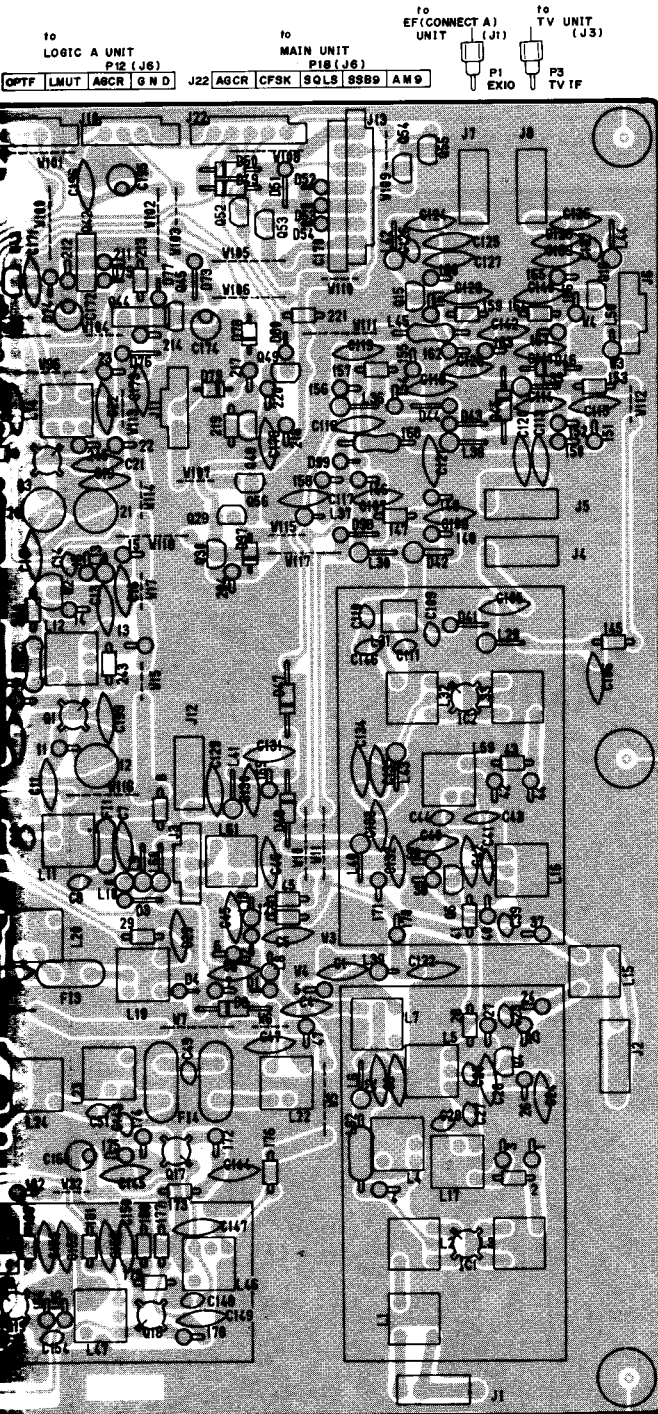
J9 | GND | FIL7 | FIL8 | FIL5 | FIL4 | FIL3 | FIL2 | FIL1

to  
LOGIC B UNIT  
P11 (J12)

- RN2202**  
 Q29, Q30, Q31  
 Q32, Q33, Q40  
 Q41, Q50, Q52  
 Q54, Q7

- RN1204**  
 Q12, Q34, Q35  
 Q36, Q37, Q38  
 Q39, Q53, Q55  
 Q56

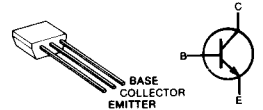




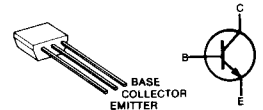
**2SA1048-GR**  
Q20, Q23, Q24  
Q46, Q49



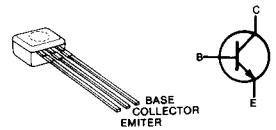
**2SC2458-GR**  
Q11, Q15, Q16  
Q21, Q22, Q25  
Q26, Q27, Q48  
Q9



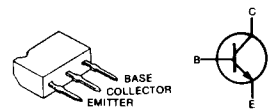
**2SC2668-O**  
Q4, Q6



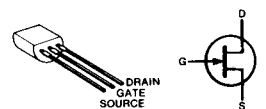
**2SC2785 EF**  
Q13, Q14



**2SD1225M R**  
Q42, Q44



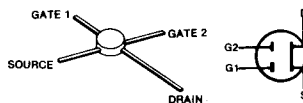
**2SK125**  
Q2



**RN1202**  
Q43, Q45, Q47  
Q51, Q57



**3SK74 M**  
Q1, Q10, Q17  
Q18, Q19, Q3  
Q5, Q8



to RF A UNIT (J4) P24 1TF

J13  
F M  
A M  
C W  
FSK  
USB  
LSB  
WFM  
to LOGIC B UNIT P13 (J11)

J6  
GND  
SAGC  
to SCOPE UNIT P10 (J6)

J11  
GND  
UNL  
B V  
to PLL B UNIT P4 (J11)

P4 EX1F  
to RF B UNIT (J5)  
P5  
to RF A UNIT (J5)

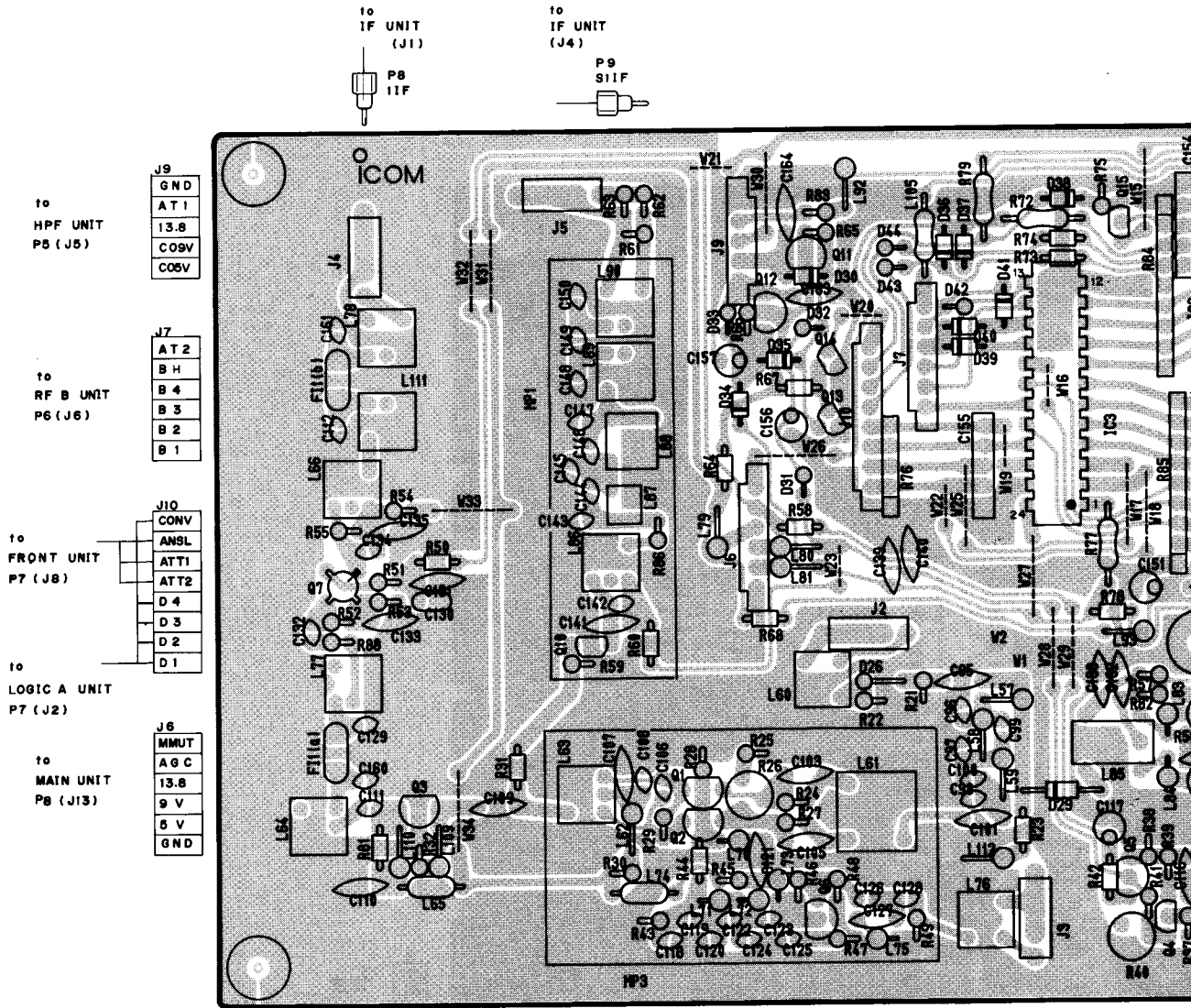
P15 SIF  
to SCOPE UNIT (J1)

J5  
AGC  
GND  
10.7  
to RF B UNIT P16 (J4)

P5 H2LO  
to PLL B UNIT (J8)



# 6-13 RF A UNIT



to  
HPF UNIT  
P5 (J5)

J9	GND
	AT 1
	13.8
	C09V
	C05V

to  
RF B UNIT  
P6 (J6)

J7	AT 2
	B H
	B 4
	B 3
	B 2
	B 1

to  
FRONT UNIT  
P7 (J8)

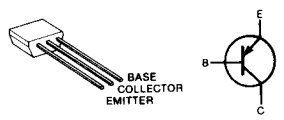
J10	CONV
	ANS1
	ATT1
	ATT2
	D 4
	D 3
	D 2
	D 1

to  
LOGIC A UNIT  
P7 (J2)

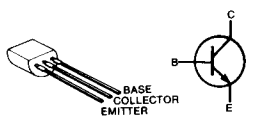
J6	MMUT
	A 6 C
	13.8
	9 V
	5 V
	GND

to  
MAIN UNIT  
P8 (J13)

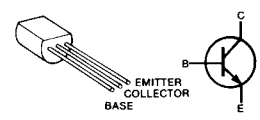
**2SA1048-Y**  
Q4



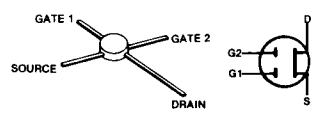
**2SC1571G**  
Q5



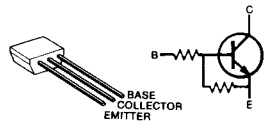
**2SC2053**  
Q6



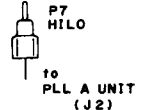
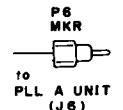
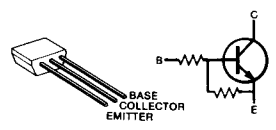
**3SK74 M**  
Q7



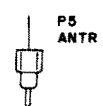
**RN1202**  
Q13



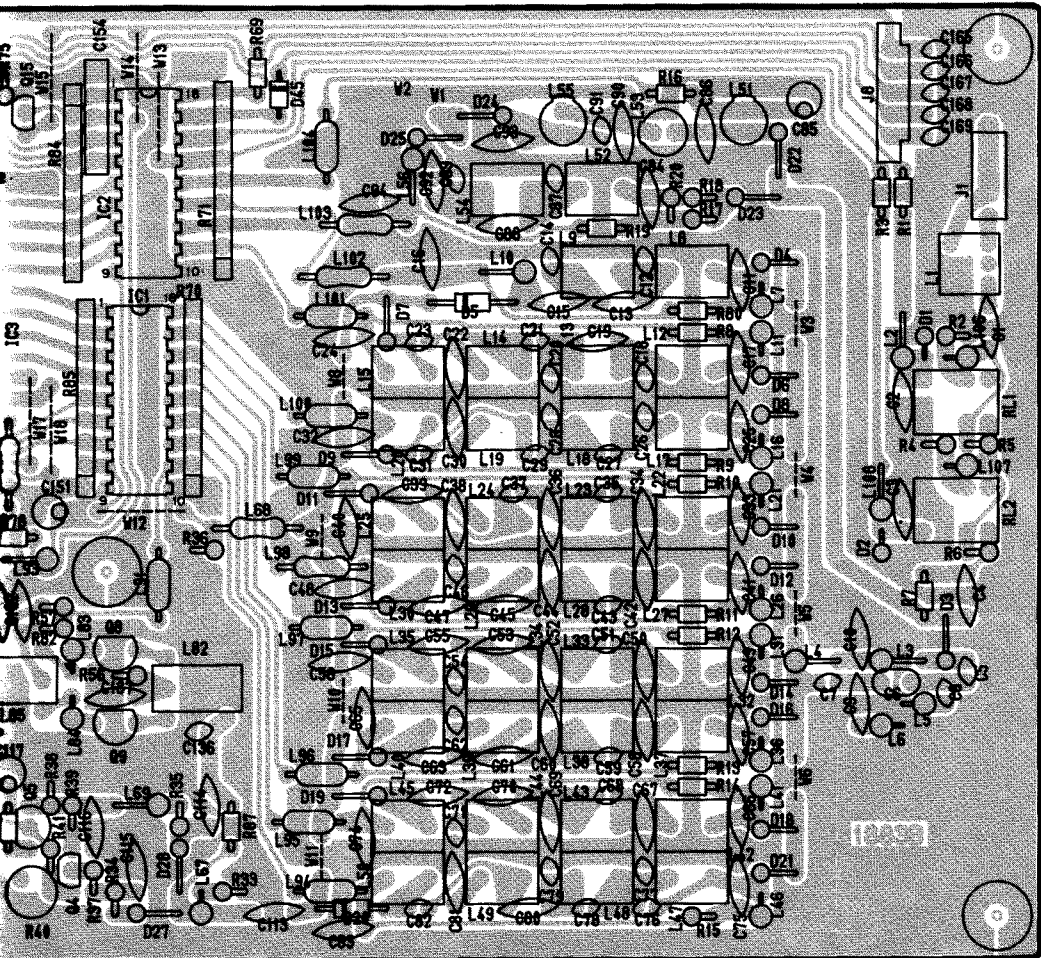
**RN1204**  
Q14



10  
CONNECT A  
UNIT (J102)

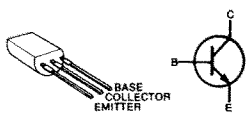


J8	10
13-B	CONNECT A
ANSW	UNIT
ANRL	P9 (J103)
ANTS	
TMUT	

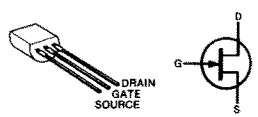


UNIT  
2)

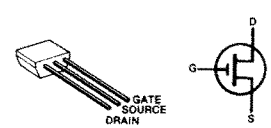
**2SD468C**  
Q11, Q12



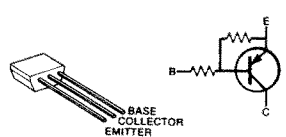
**2SK125**  
Q1, Q2, Q3  
Q8, Q9



**2SK241-Y**  
Q10



**RN2202**  
Q15



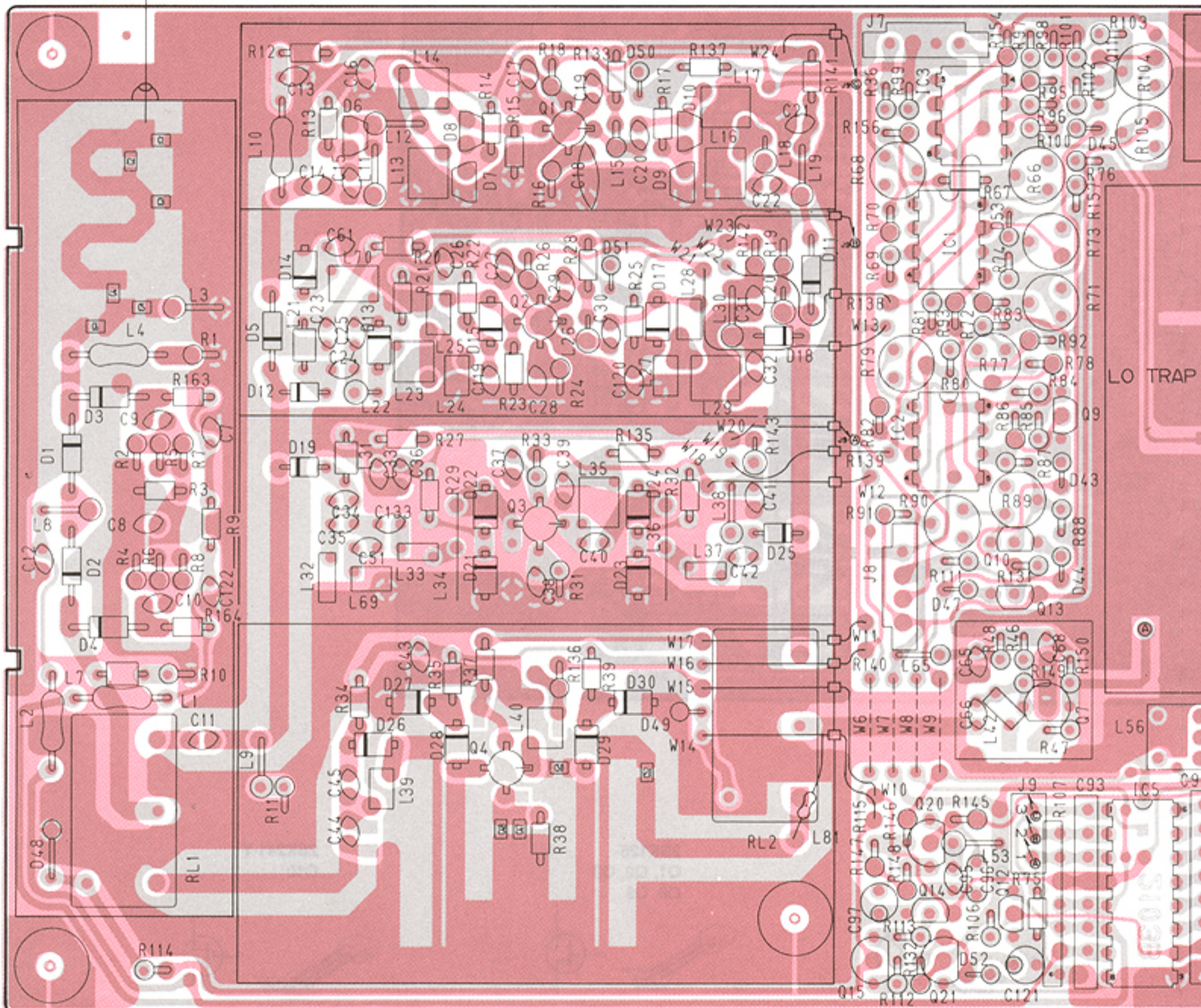
# 6-14 RF B UNIT (1)

## COMPONENT SIDE

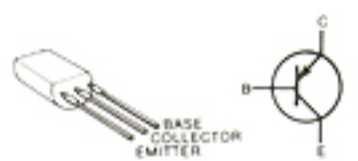
TO HPT UNIT  
J31

TO PLL A UNIT  
R2 (J3)

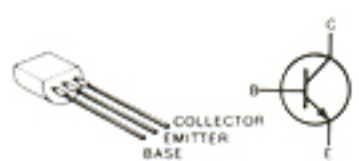
CV	E	E	24V
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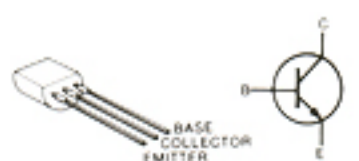
**2SB562C**  
Q15



**2SC3355**  
Q7, Q8

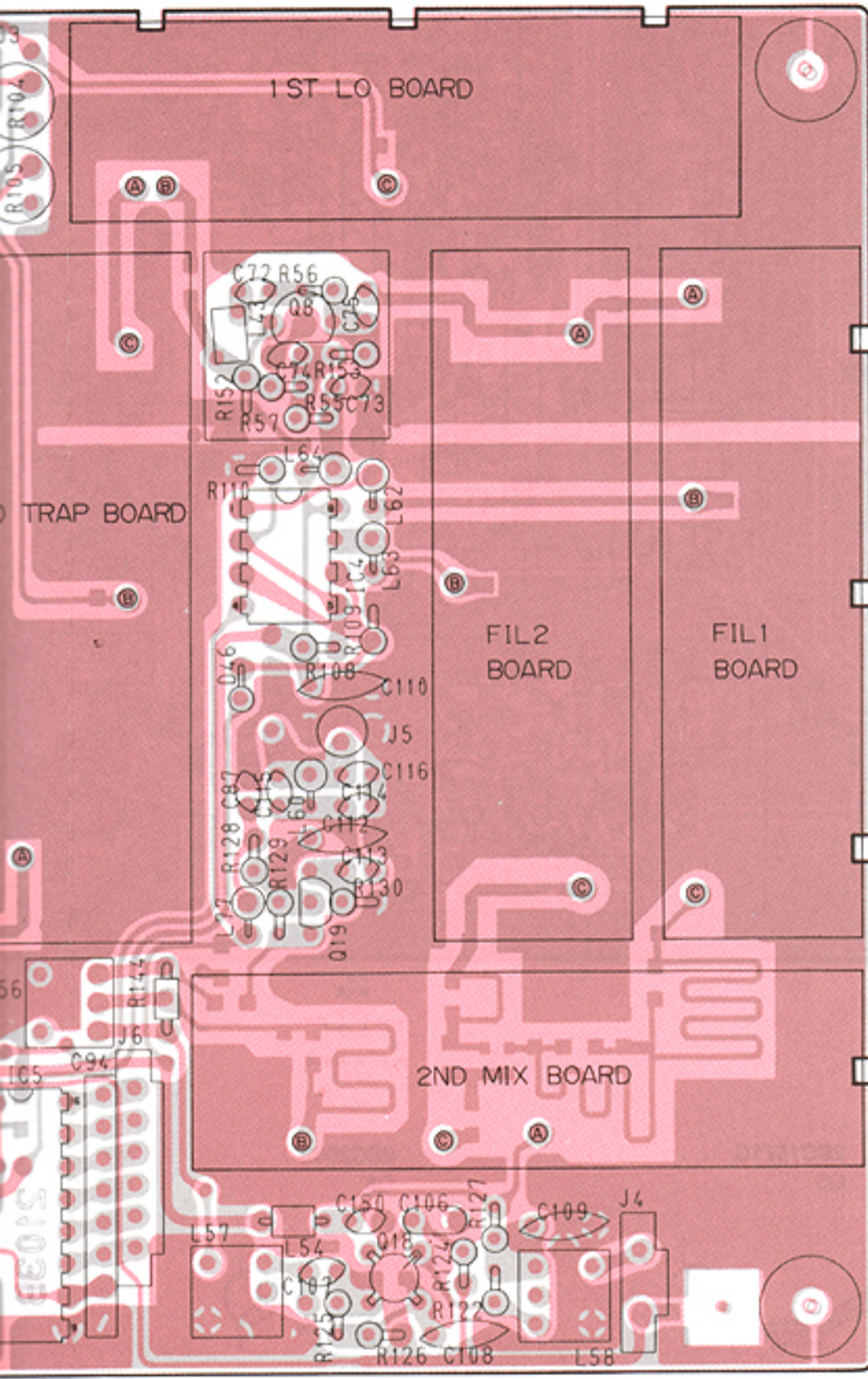


**2SC945 P**  
Q21

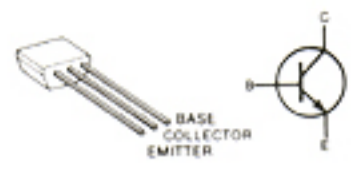


**2SK30ATM-Y**  
Q20

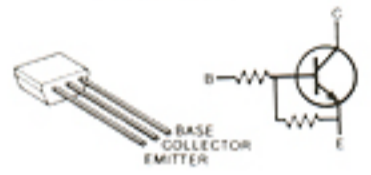




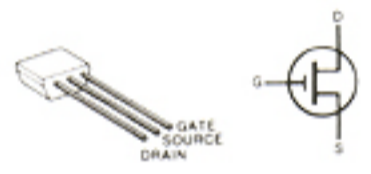
2SC2458-GR  
Q19



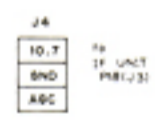
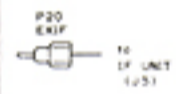
2SC3399  
Q10, Q11, Q12  
Q13, Q14,



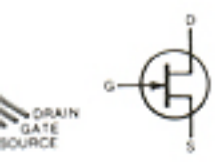
2SK241-GR  
Q9



3SK101-GR  
Q18



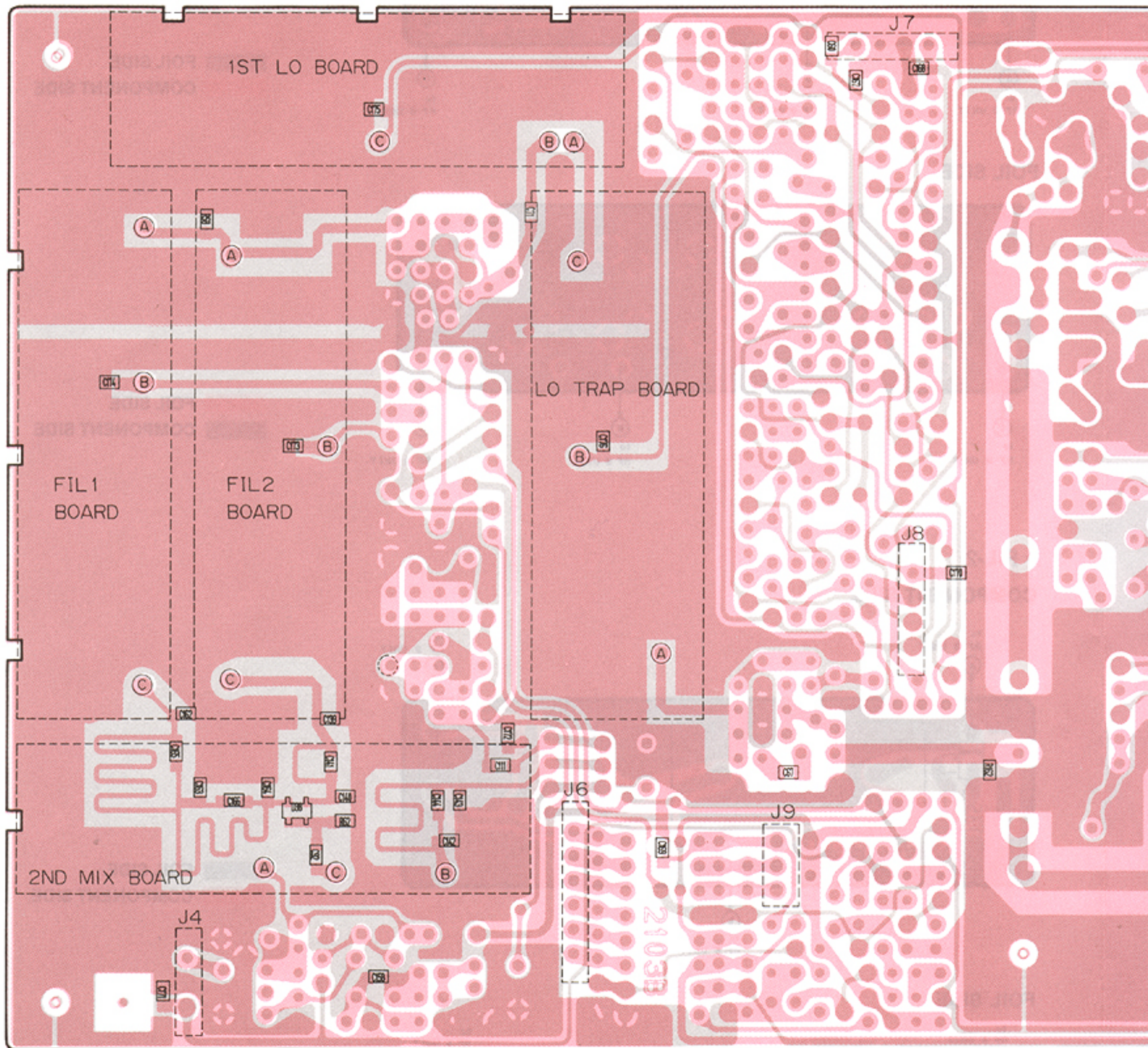
3K30ATM-Y  
Q1



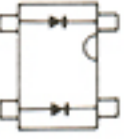
3SK121-Y  
Q1, Q2, Q3  
Q4



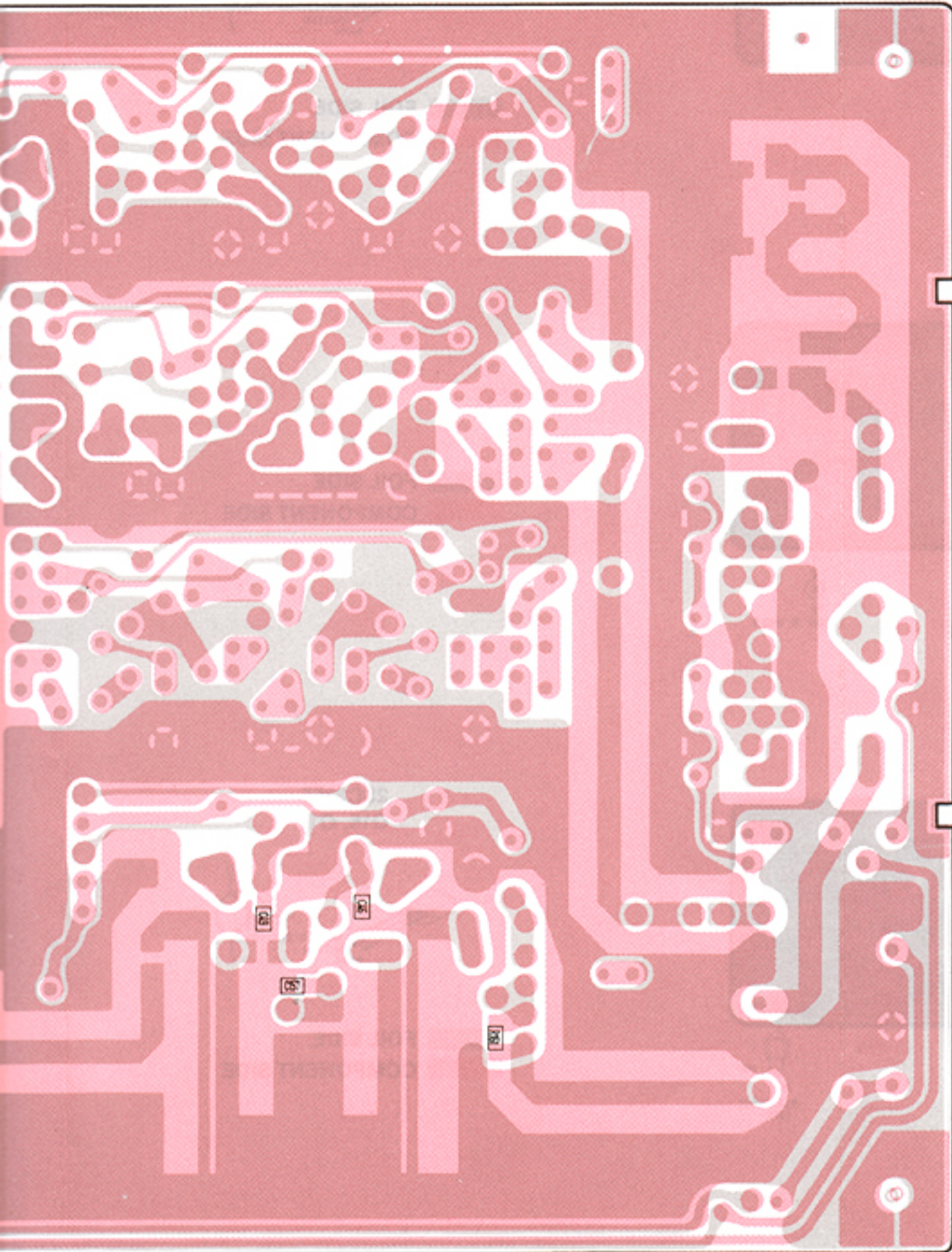
FOIL SIDE  
COMPONENT SIDE



MA862  
D38



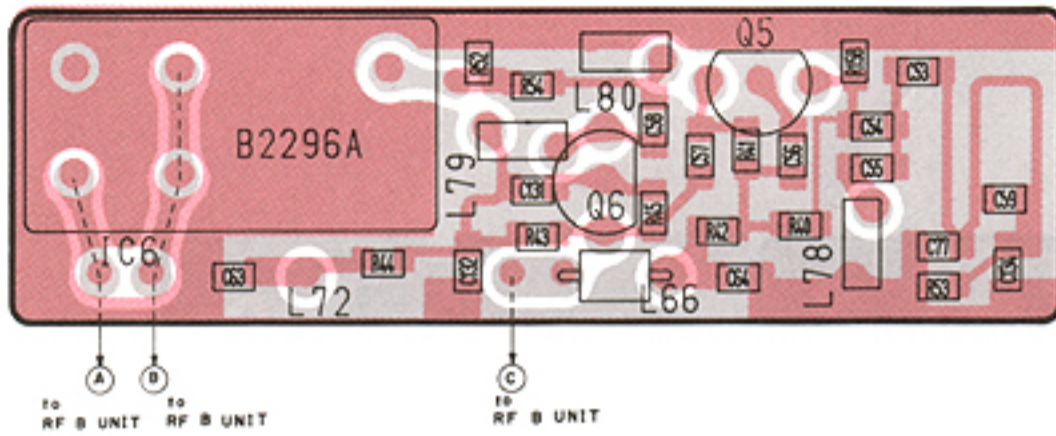
Symbol : M11



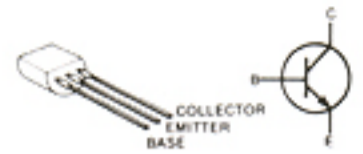
FOIL SIDE  
COMPONENT SIDE

# 6-15 RF B UNIT (2)

## • 1ST-LO

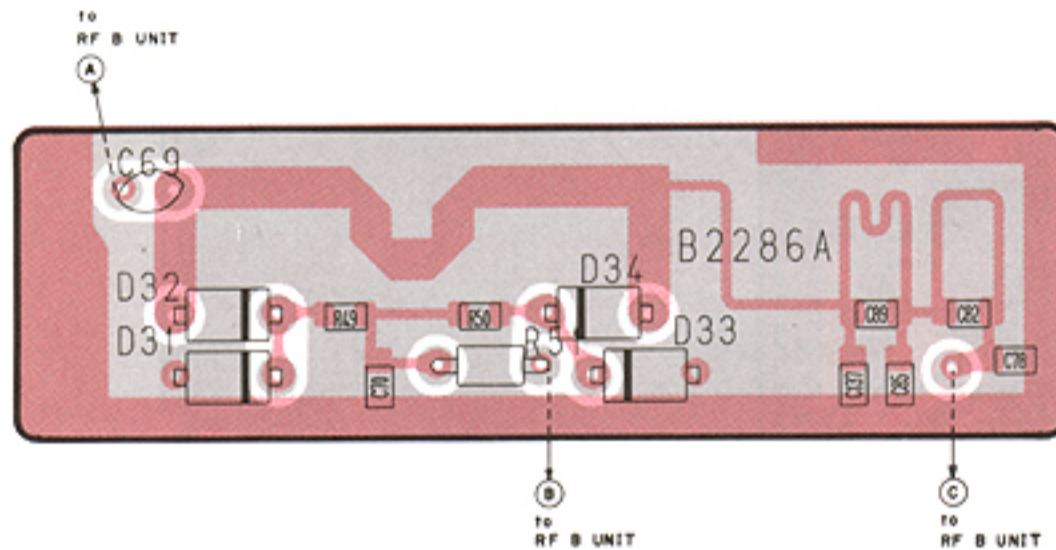


2SC3355  
Q5, Q6



FOIL SIDE  
COMPONENT SIDE

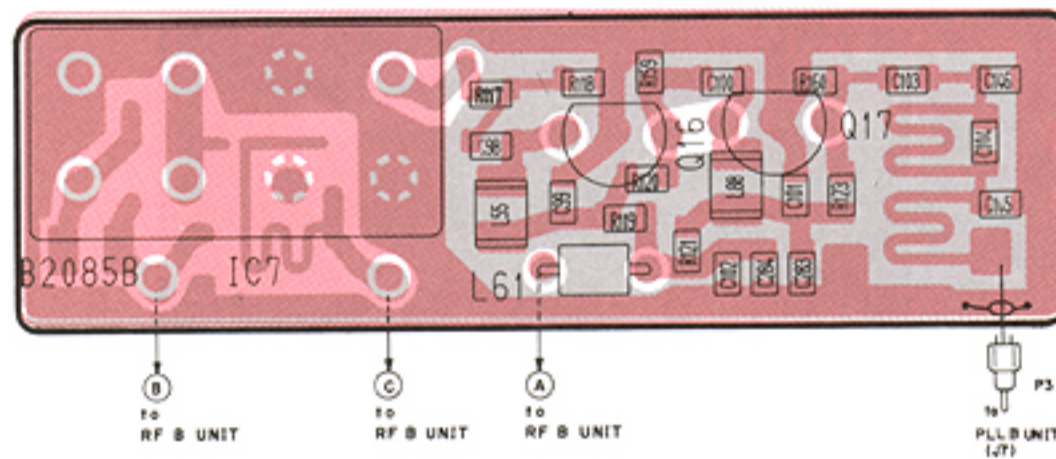
## • LO TRAP



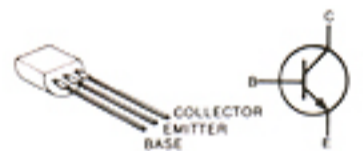
FOIL SIDE  
COMPONENT SIDE

## • 2ND-MIX

COMPONENT SIDE

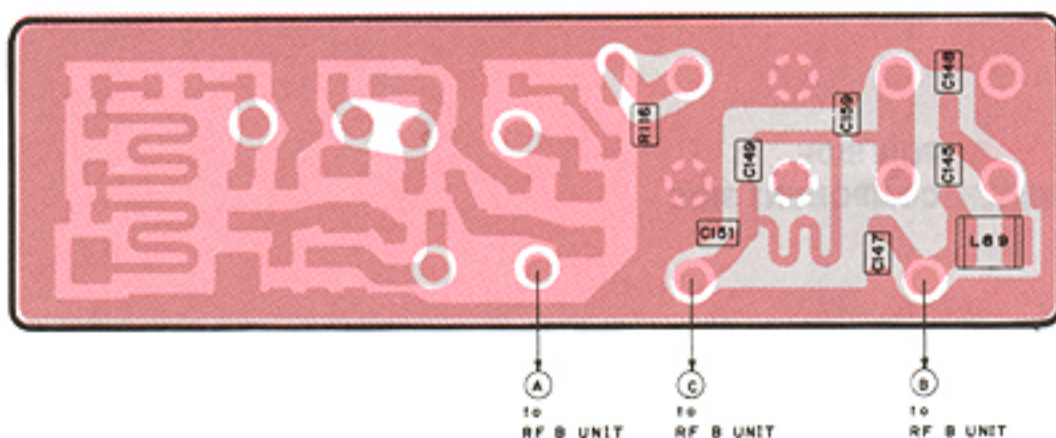


2SC3355  
Q16, Q17



FOIL SIDE  
COMPONENT SIDE

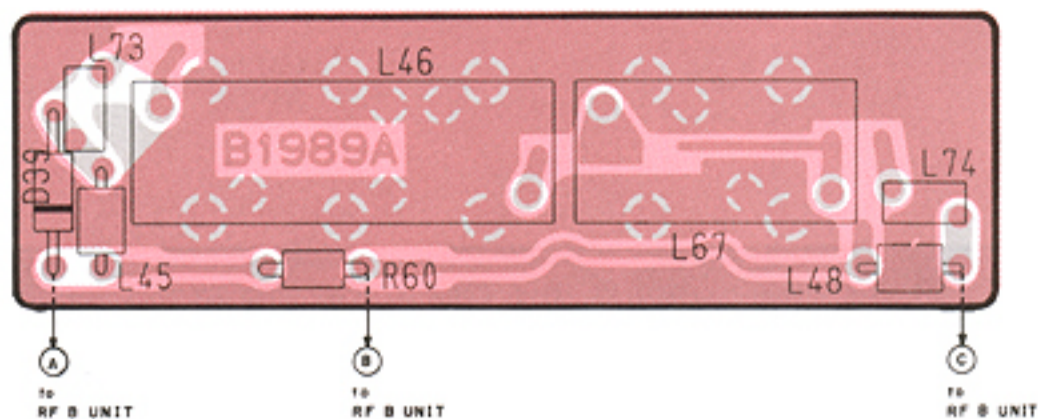
FOIL SIDE



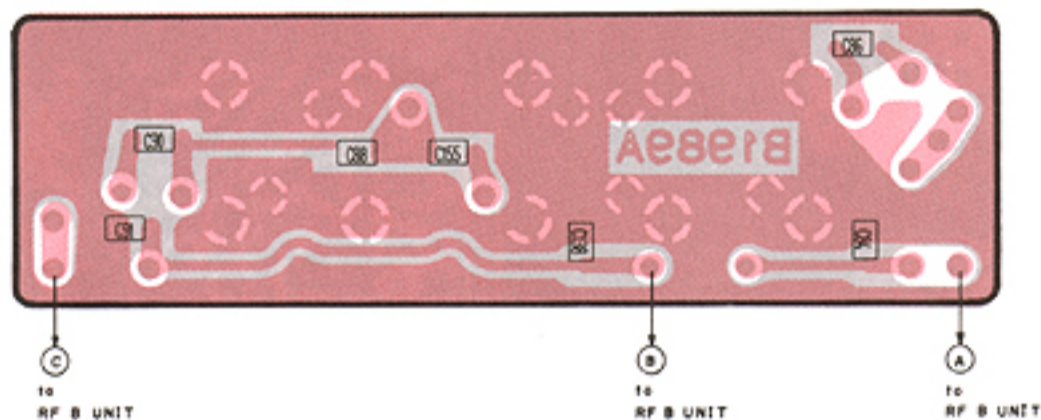
FOIL SIDE  
COMPONENT SIDE

• FIL-1

COMPONENT SIDE

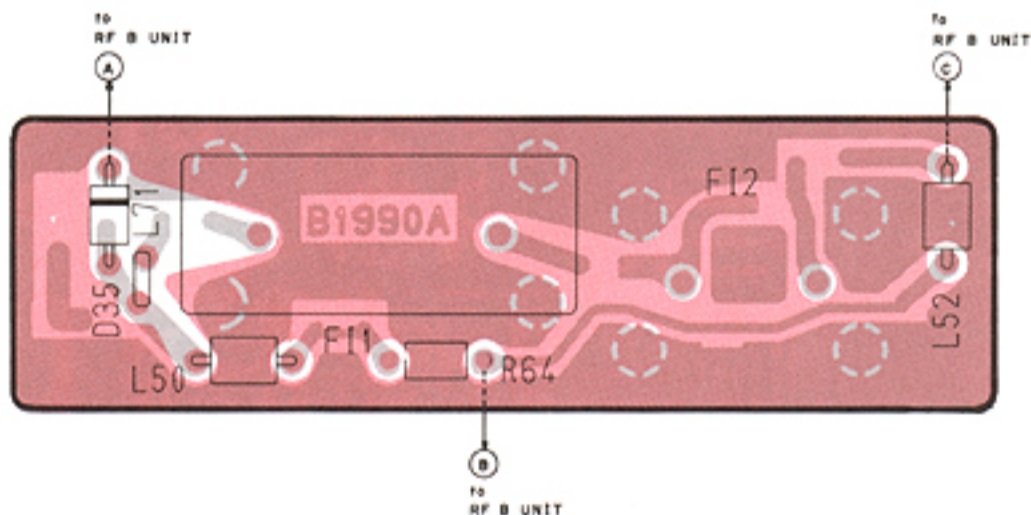


FOIL SIDE

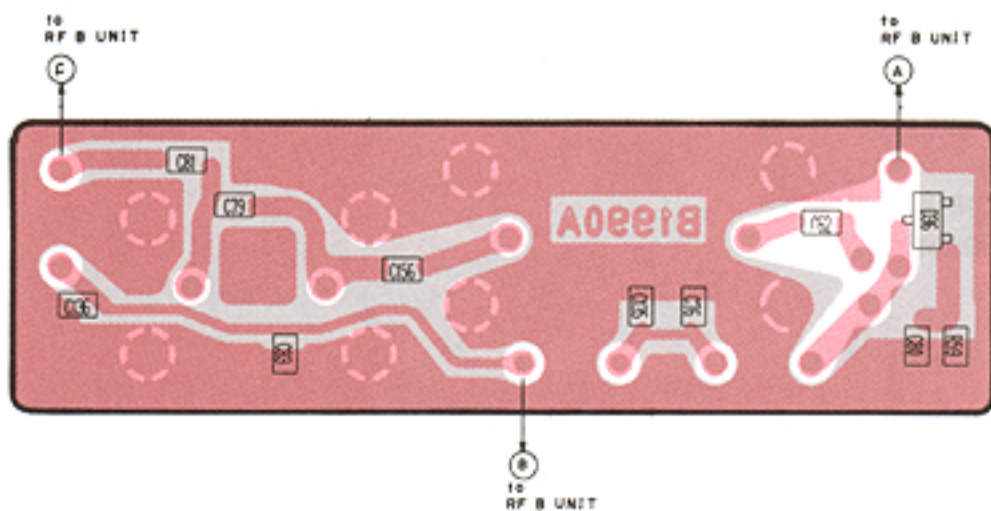


• FIL-2

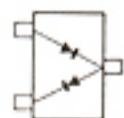
COMPONENT SIDE



FOIL SIDE



1SV172  
D36



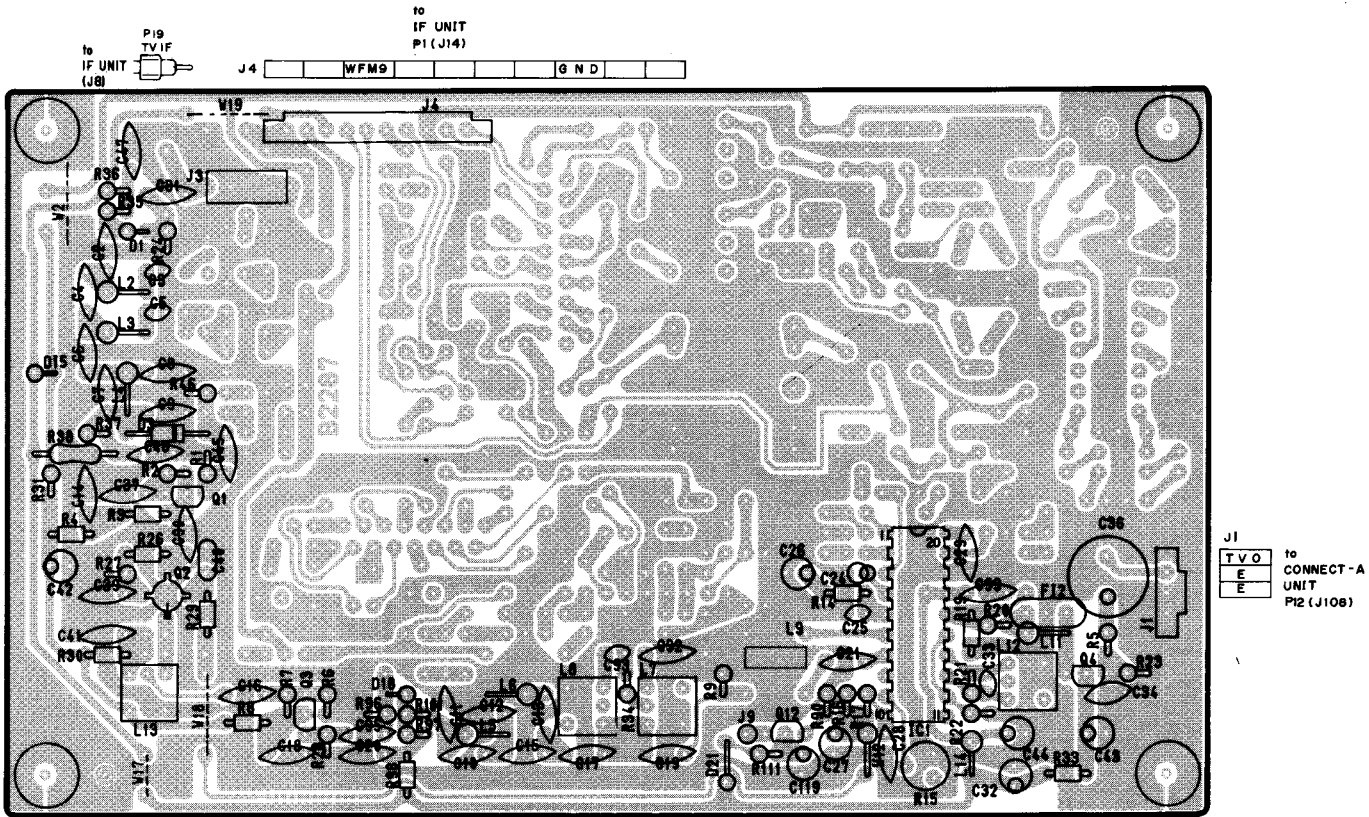
Symbol : BE

FOIL SIDE  
COMPONENT SIDE

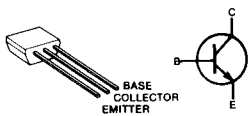


# 6-16 TV AND REG UNITS

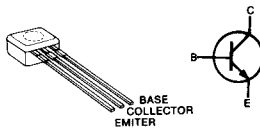
## • TV UNIT (Except France version)



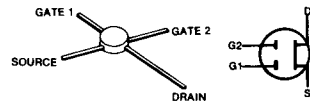
**2SC2668-O**  
Q1, Q3



**2SC2785 EF**  
Q12, Q4



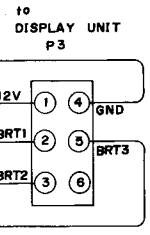
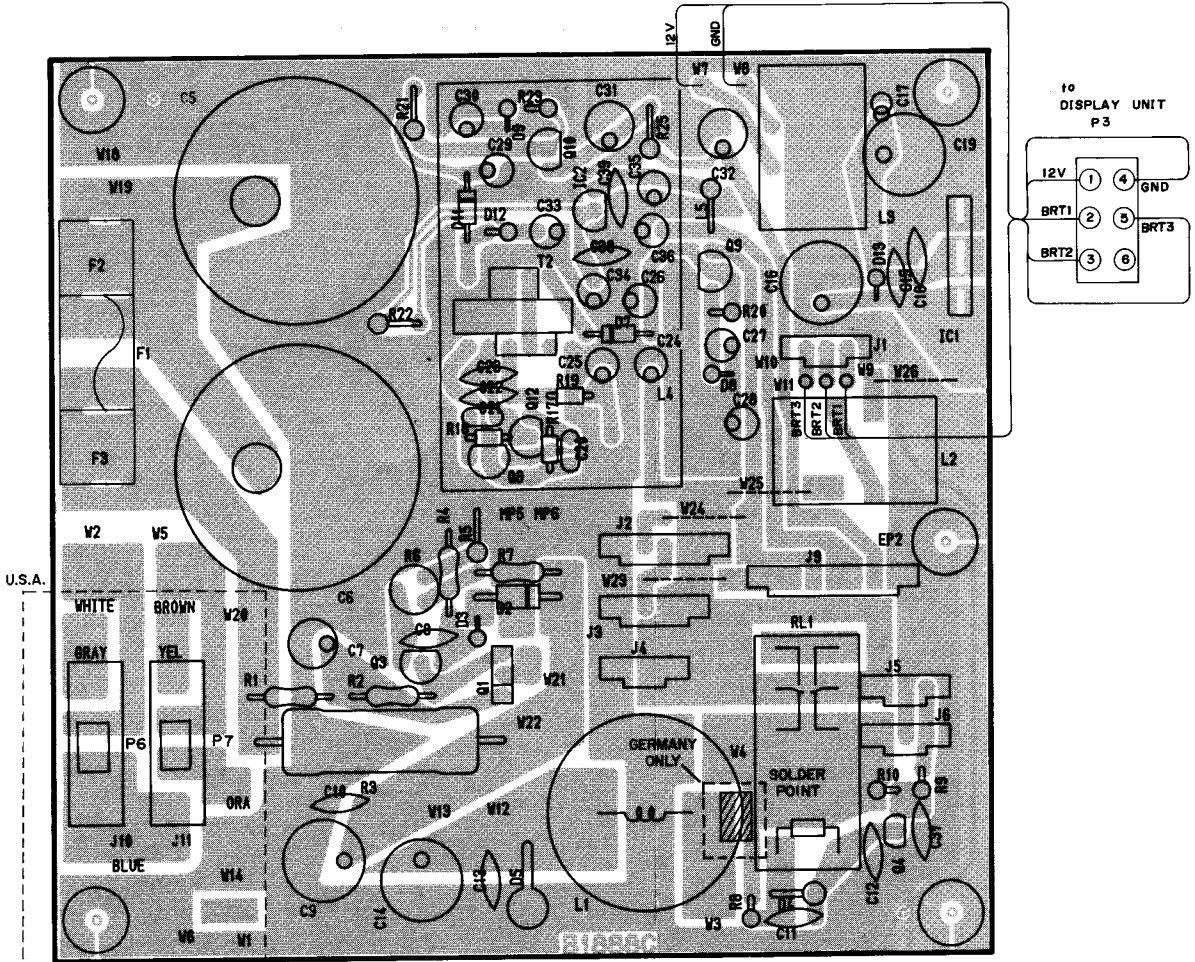
**3SK74 M**  
Q2



• REG UNIT

to  
VR - C  
P46 (J704)

J1 BRT3 BRT2 BRT1



U.S.A.

EUROPE,  
AUSTRALIA,  
FRANCE

J2 GND -7V 9V 13.8 13.8      J9 9V 9V -7V -12V -12V 24V GND

to  
MAIN UNIT  
P42 (J16)

to  
MAIN UNIT  
P42 (J17)

to  
RF B UNIT  
P52 (J8)

to  
SCOPE UNIT  
P52 (J3)

J3 GND 9V 13.8 13.8

to  
CONNECT-B UNIT  
P48 (J203)

J5 13.8 GND BU

to  
LOGIC B UNIT  
P50 (J8)

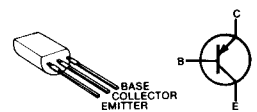
J4 GND 13.8 13.8

to  
PLL-B UNIT  
P49 (J1)

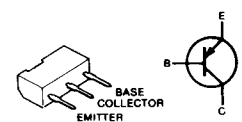
J6 HV GND BU

to  
FRONT  
P51 (J102)

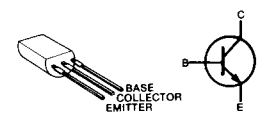
**2SB562C**  
Q9



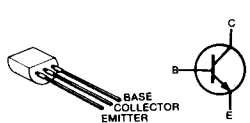
**2SB909M R**  
Q1



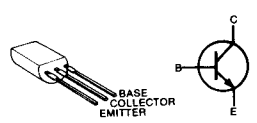
**2SC2655-Y**  
Q12, Q8



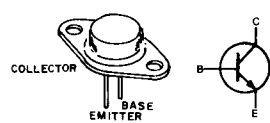
**2SC945 P**  
Q3



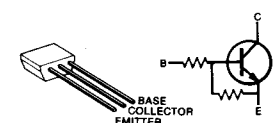
**2SD468C**  
Q10



**2SD797-Y**  
Q2

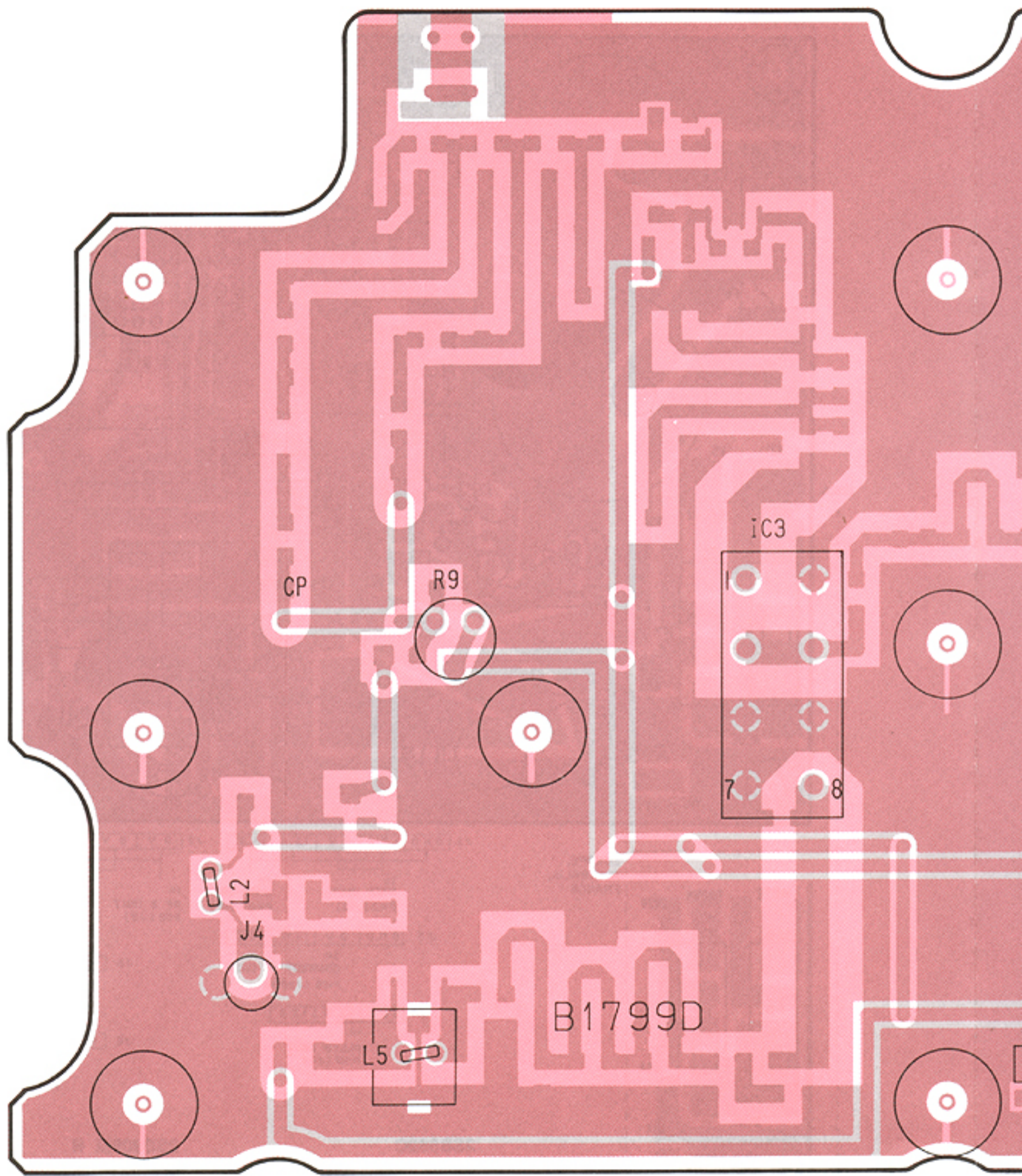


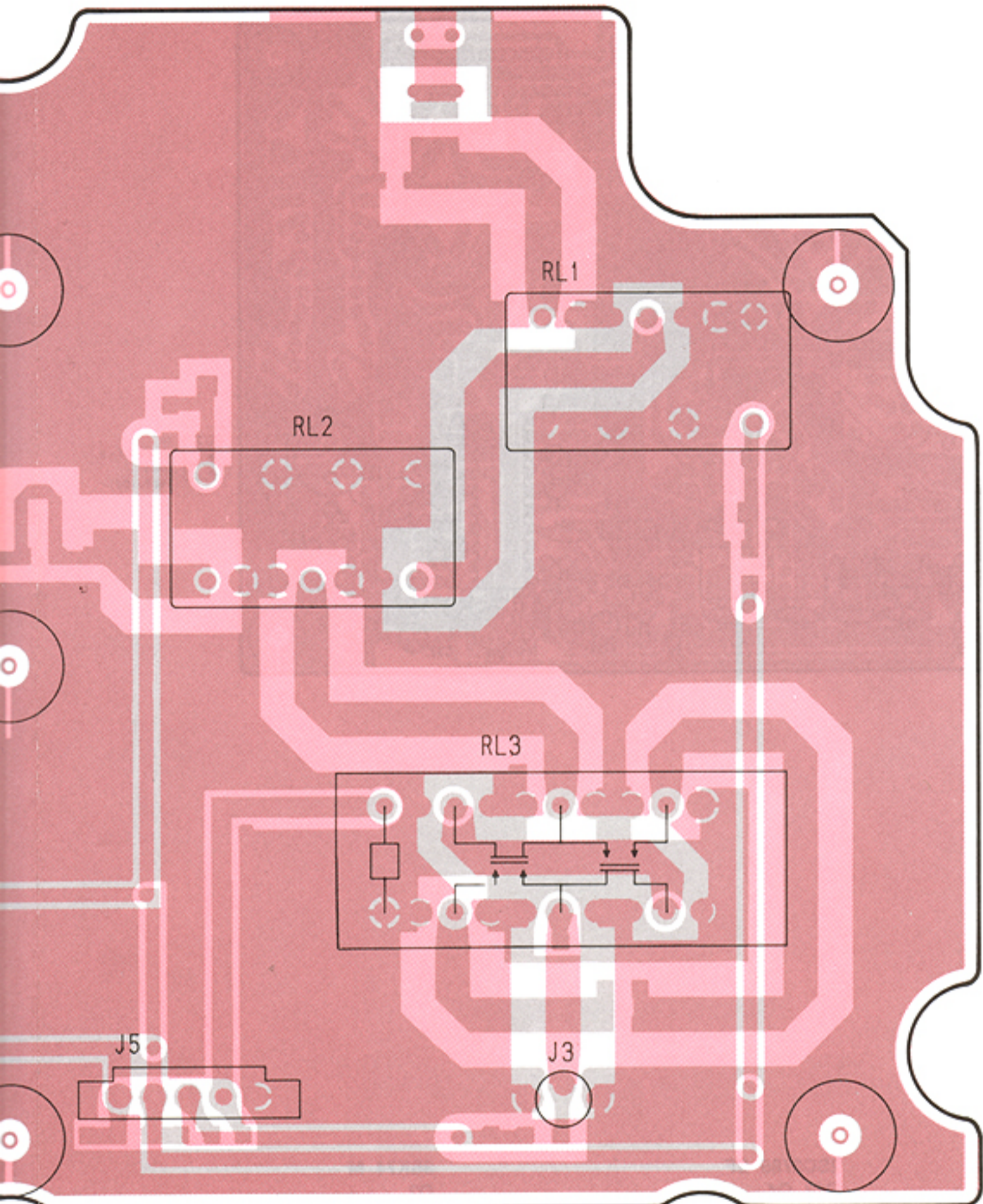
**RN1204**  
Q4



# 6-17 HPF UNIT

COMPONENT SIDE







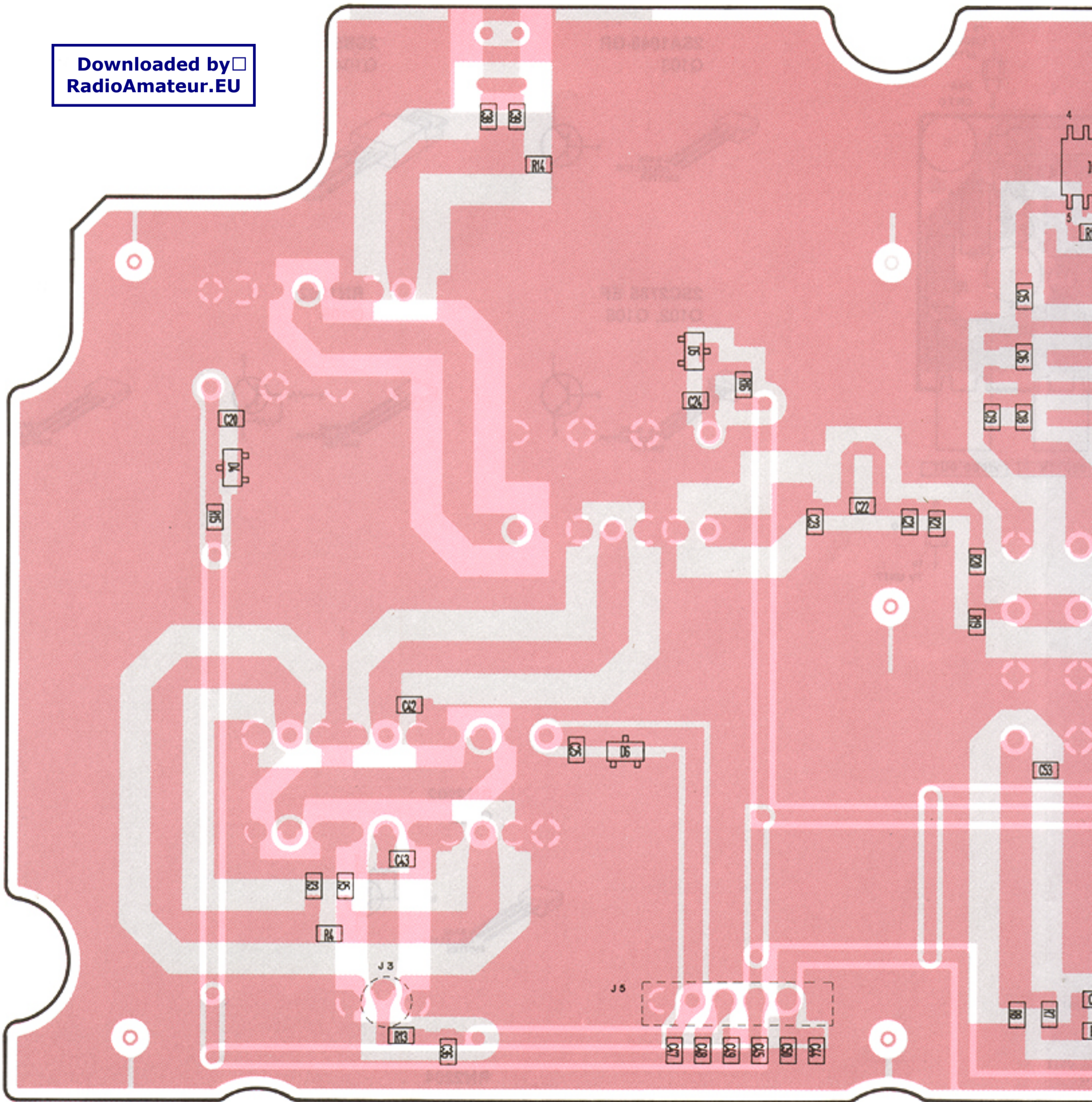
J5 C05V C09V 13.8 ATT GND

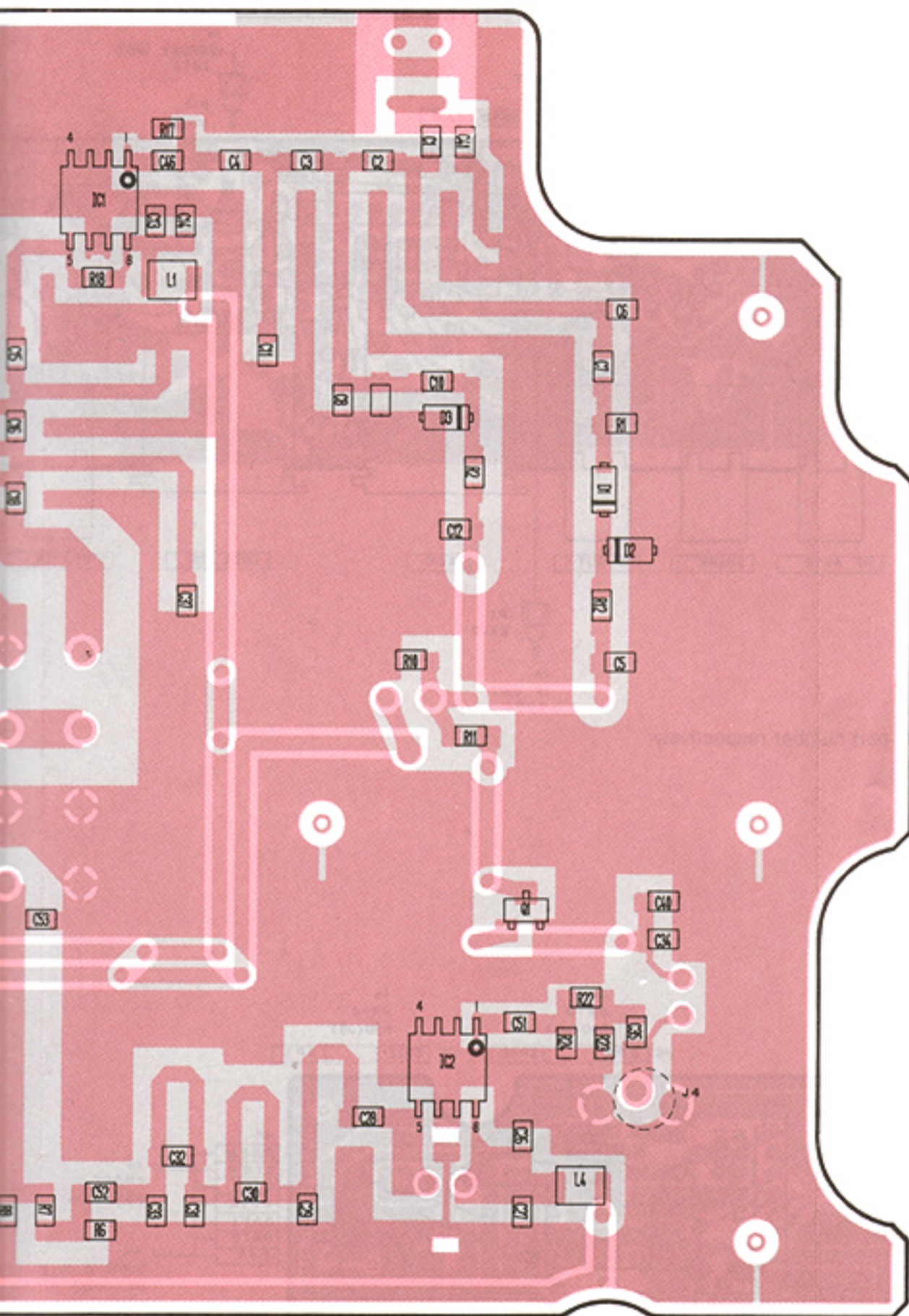
to  
RF-A UNIT  
P2 (J9)

 P4  
VANT  
to  
RF-B UNIT

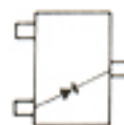
 FOIL SIDE  
 COMPONENT SIDE

Downloaded by  RadioAmateur.EU





**1SS196**  
D4, D5, D6



Symbol : G3

**MA333**  
D1, D2, D3



Symbol : 6C83

**RN1402**  
Q1

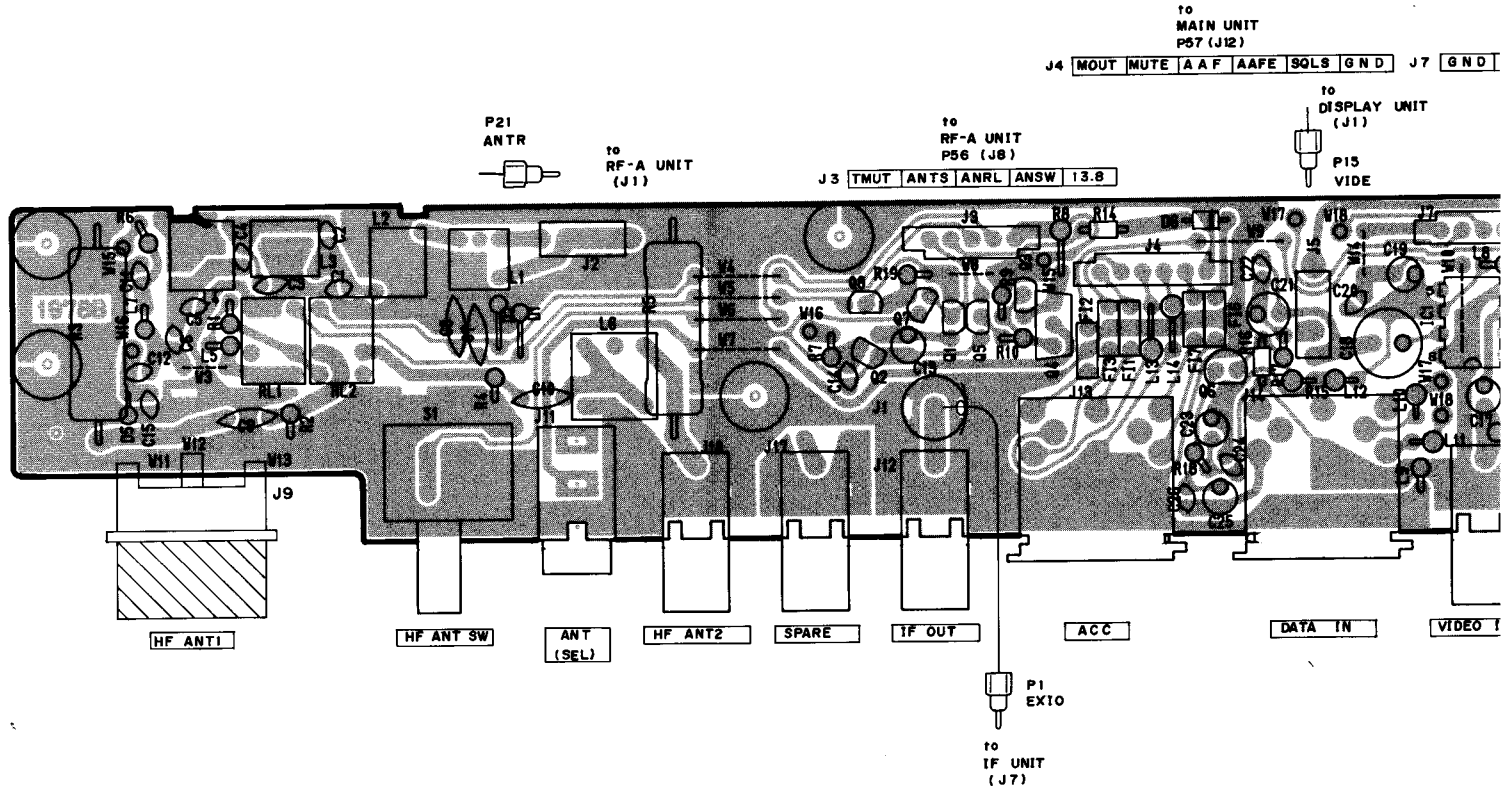


Symbol : XB

**FOIL SIDE**  
**COMPONENT SIDE**

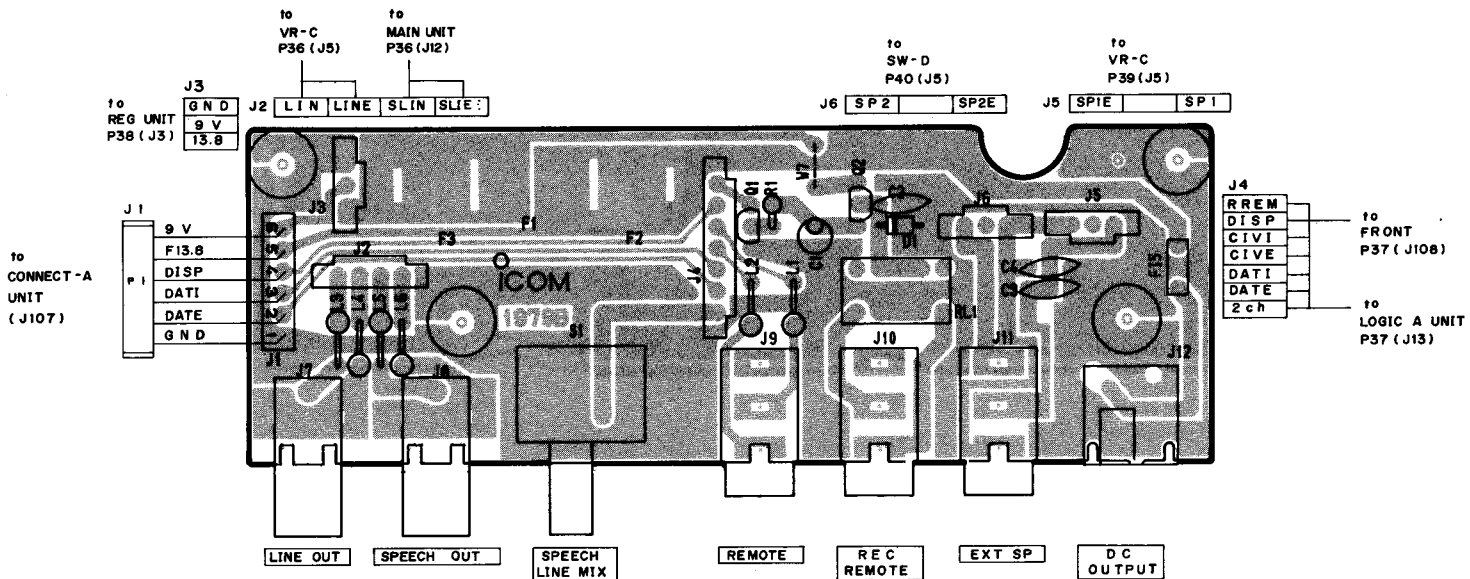
# 6-18 EF (CONNECT A, B) UNIT

## • CONNECT A UNIT



**NOTE:** Add "100" to the indicated number on the unit for actual part number respectively.

## • CONNECT B UNIT

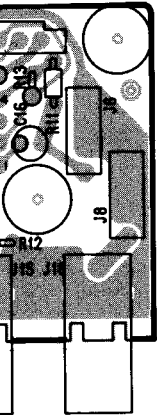


**NOTE:** Add "200" to the indicated number on the unit for actual part number respectively.

to  
CONNECT - B UNIT  
P1 (J201)

MATE DAT I DISP F13.8 9 V

to  
LOGIC A UNIT  
(J14)  
P26  
CRTC



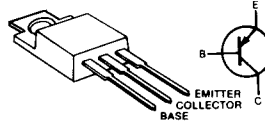
VIDEO OUT

P11  
TVO  
to  
TV UNIT

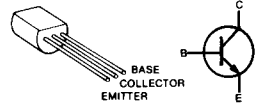
**2SA1048-GR**  
Q103



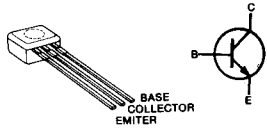
**2SB529 D**  
Q104



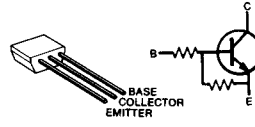
**2SC1214C**  
Q106



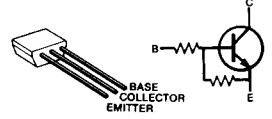
**2SC2785 EF**  
Q102, Q108



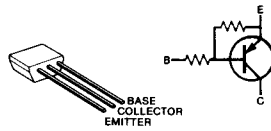
**RN1202**  
Q105



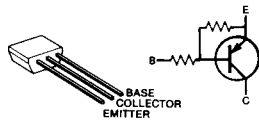
**RN1204**  
Q107, Q201



**RN2202**  
Q202



**RN2204**  
Q101





# SECTION 7 PARTS LIST

## [FRONT UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
IC101	1130001050	IC	μPD4094BC
IC102	1130001050	IC	μPD4094BC
IC103	1130003480	IC	M50784SP
IC104	1130003480	IC	M50784SP
IC105	1130003480	IC	M50784SP
IC106	1130003480	IC	M50784SP
IC107	1130004390	IC	TC74HC123AP
Q101	1530001950	Transistor	2SC2712-GR (TE85R)
Q102	1530002590	Transistor	2SC3422-Y
Q103	1590000420	Transistor	RN1404 (TE85R)
Q104	1590000450	Transistor	FMG4 T98
Q105	1590000450	Transistor	FMG4 T98
Q106	1590000450	Transistor	FMG4 T98
Q107	1590000450	Transistor	FMG4 T98
Q108	1590000450	Transistor	FMG4 T98
Q109	1590000450	Transistor	FMG4 T98
Q110	1590000450	Transistor	FMG4 T98
Q111	1590000420	Transistor	RN1404 (TE85R)
Q112	1590000420	Transistor	RN1404 (TE85R)
Q113	1530001950	Transistor	2SC2712-GR (TE85R)
Q114	1530002590	Transistor	2SC3422-Y
Q115	1530001950	Transistor	2SC2712-GR (TE85R)
Q116	1530002590	Transistor	2SC3422-Y
Q117	1510000370	Transistor	2SA1359-Y
Q118	1590000420	Transistor	RN1404 (TE85R)
Q119	1590000420	Transistor	RN1404 (TE85R)
Q701	1510000080	Transistor	2SA1048-GR
Q702	1530000110	Transistor	2SC2458-GR
Q703	1590000350	Transistor	RN1204
D101	1750000020	Diode	1SS184 (TE85R)
D102	1710000350	Diode	1N4002
D103	1710000350	Diode	1N4002
D901	1710000160	Diode	1SS133
D902	1710000160	Diode	1SS133
D903	1710000160	Diode	1SS133
D904	1710000160	Diode	1SS133
D905	1710000160	Diode	1SS133
D906	1710000160	Diode	1SS133
D907	1710000160	Diode	1SS133
D908	1710000160	Diode	1SS133
D909	1710000160	Diode	1SS133
D910	1710000160	Diode	1SS133
D911	1710000160	Diode	1SS133
D912	1710000160	Diode	1SS133
D913	1710000160	Diode	1SS133
D914	1710000160	Diode	1SS133
D915	1710000160	Diode	1SS133
D916	1710000160	Diode	1SS133
D917	1710000160	Diode	1SS133
D918	1710000160	Diode	1SS133
D919	1710000160	Diode	1SS133
D920	1710000160	Diode	1SS133
D921	1710000160	Diode	1SS133
D922	1710000160	Diode	1SS133
L101	6180000900	Coil	LAL 03NA 101K
R1	7010004720	Resistor	R50XJ 100 Ω
R2	7010004720	Resistor	R50XJ 100 Ω
R101	7030000380	Resistor	MCR10EZJH 1 kΩ (102)
R102	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R103	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R104	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R105	7030000580	Resistor	MCR10EZJH 47 kΩ (473)

## [FRONT UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
R106	7030000470	Resistor	MCR10EZJH 5.6 kΩ (562)
R107	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R108	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R109	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R110	7030000740	Resistor	MCR10EZJH 1 MΩ (105)
R111	7030000740	Resistor	MCR10EZJH 1 MΩ (105)
R112	7030000420	Resistor	MCR10EZJH 2.2 kΩ (222)
R113	7030000420	Resistor	MCR10EZJH 2.2 kΩ (222)
R114	7030000420	Resistor	MCR10EZJH 2.2 kΩ (222)
R115	7030000420	Resistor	MCR10EZJH 2.2 kΩ (222)
R117	7030000360	Resistor	MCR10EZJH 680 Ω (681)
R118	7030000360	Resistor	MCR10EZJH 680 Ω (681)
R119	7030000360	Resistor	MCR10EZJH 680 Ω (681)
R120	7030000380	Resistor	MCR10EZJH 1 kΩ (102)
R121	7210001700	Variable Resistor	RK124111003GA [NOTCH]
R122	7030000440	Resistor	MCR10EZJH 3.3 kΩ (332)
R123	7030000360	Resistor	MCR10EZJH 680 Ω (681)
R124	7030000360	Resistor	MCR10EZJH 680 Ω (681)
R125	7030000360	Resistor	MCR10EZJH 680 Ω (681)
R126	7030000440	Resistor	MCR10EZJH 3.3 kΩ (332)
R127	7030000700	Resistor	MCR10EZJH 470 kΩ (474)
R128	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R129	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R130	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R131	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R132	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R133	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R134	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R135	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R136	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R137	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R138	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R139	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R140	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R141	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R142	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R143	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R144	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R145	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R146	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R147	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R148	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R149	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R150	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R151	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R152	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R153	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R154	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R155	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R156	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R157	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R158	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R159	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R160	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R161	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R162	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R163	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R164	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R165	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R166	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R167	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R168	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R169	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R170	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R171	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R172	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R173	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R174	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R175	7030000580	Resistor	MCR10EZJH 47 kΩ (473)
R176	7030000580	Resistor	MCR10EZJH 47 kΩ (473)

## [FRONT UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
R177	7030000580	Resistor	MCR10EZJHJ 47 kΩ (473)
R178	7030000580	Resistor	MCR10EZJHJ 47 kΩ (473)
R179	7030000580	Resistor	MCR10EZJHJ 47 kΩ (473)
R180	7030000580	Resistor	MCR10EZJHJ 47 kΩ (473)
R181	7030000580	Resistor	MCR10EZJHJ 47 kΩ (473)
R182	7030000580	Resistor	MCR10EZJHJ 47 kΩ (473)
R183	7030000580	Resistor	MCR10EZJHJ 47 kΩ (473)
R184	7030000580	Resistor	MCR10EZJHJ 47 kΩ (473)
R185	7030000580	Resistor	MCR10EZJHJ 47 kΩ (473)
R186	7030000580	Resistor	MCR10EZJHJ 47 kΩ (473)
R187	7030000580	Resistor	MCR10EZJHJ 47 kΩ (473)
R188	7030000580	Resistor	MCR10EZJHJ 47 kΩ (473)
R189	7030000580	Resistor	MCR10EZJHJ 47 kΩ (473)
R190	7030000580	Resistor	MCR10EZJHJ 47 kΩ (473)
R191	7030000580	Resistor	MCR10EZJHJ 47 kΩ (473)
R192	7030000500	Resistor	MCR10EZJHJ 10 kΩ (103)
R193	7030000380	Resistor	MCR10EZJHJ 1 kΩ (102)
R201	7010003400	Resistor	ELR20J 1 kΩ
R202	7010004190	Resistor	R20J 1 kΩ
R203	7010003380	Resistor	ELR20J 680 Ω
R204	7010004170	Resistor	R20J 680 Ω
R205	7010003380	Resistor	ELR20J 680 Ω
R206	7010004170	Resistor	R20J 680 Ω
R207	7010004170	Resistor	R20J 680 Ω
R401	7010003390	Resistor	ELR20J 820 Ω
R402	7010003390	Resistor	ELR20J 820 Ω
R403	7010003390	Resistor	ELR20J 820 Ω
R501	7210001670	Variable Resistor	RV-106 (RK1411130001A) [AF GAIN]
R502	7210001670	Variable Resistor	RV-106 (RK1411130001A) [SQUELCH]
R503	7210001670	Variable Resistor	RV-106 (RK1411130001A) [TONE BASS]
R504	7210001670	Variable Resistor	RV-106 (RK1411130001A) [TONE TREBLE]
R601	7210001660	Variable Resistor	RV-104 (RK1411130000A) [NB LEVEL]
R602	7210001670	Variable Resistor	RV-106 (RK1411130001A) [RF GAIN]
R603	7210001710	Variable Resistor	RV-107 (RK1411130004A) [SCAN SPEED]
R604	7210001690	Variable Resistor	RV-105 (RK1411130003A) [SCAN DELAY TIME]
R701	7210001460	Variable Resistor	RK09K1110AAEA [CALIBRATOR]
R702	7010003530	Resistor	ELR20J 10 kΩ
R703	7010003490	Resistor	ELR20J 5.6 kΩ
R704	7210001130	Variable Resistor	RK097111T005A (10KB) [BRIGHT METER]
R705	7010004270	Resistor	R20J 4.7 kΩ
R706	7210001410	Variable Resistor	RK097111T00PA (100KB) [BRIGHT CRT]
R707	7010003610	Resistor	ELR20J 39 kΩ
R708	7010004350	Resistor	R20J 18 kΩ
R709	7010003480	Resistor	ELR20J 4.7 kΩ
R710	7010004490	Resistor	R20J 220 kΩ
R711	7010003700	Resistor	ELR20J 220 kΩ
R1201	7010003460	Resistor	ELR20J 3.3 kΩ
R1202	7010003400	Resistor	ELR20J 1 kΩ
R1203	7010003400	Resistor	ELR20J 1 kΩ
R1204	7010003460	Resistor	ELR20J 3.3 kΩ
R1205	7010003400	Resistor	ELR20J 1 kΩ
R1206	7010003400	Resistor	ELR20J 1 kΩ
C101	4030001150	Ceramic	GRM40 F 104Z 25PT
C102	4030001150	Ceramic	GRM40 F 104Z 25PT
C103	4030001150	Ceramic	GRM40 F 104Z 25PT
C104	4030001150	Ceramic	GRM40 F 104Z 25PT
C105	4030001150	Ceramic	GRM40 F 104Z 25PT
C106	4030001150	Ceramic	GRM40 F 104Z 25PT
C107	4510001470	Electrolytic	50 MS5 1 μF
C108	4030001150	Ceramic	GRM40 F 104Z 25PT
C109	4030001120	Ceramic	GRM40 B 472K 50PT
C110	4030001120	Ceramic	GRM40 B 472K 50PT

## [FRONT UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
C111	4030001120	Ceramic	GRM40 B 472K 50PT
C112	4030001150	Ceramic	GRM40 F 104Z 25PT
C113	4030001150	Ceramic	GRM40 F 104Z 25PT
C114	4010000520	Ceramic	DD108 B 472K 50V
C115	4010000520	Ceramic	DD108 B 472K 50V
C701	4010000520	Ceramic	DD108 B 472K 50V
C702	4010000520	Ceramic	DD108 B 472K 50V
C703	4010000520	Ceramic	DD108 B 472K 50V
C704	4010000520	Ceramic	DD108 B 472K 50V
C705	4010000520	Ceramic	DD108 B 472K 50V
DS1	5080000060	LED	BQ044-32582A
DS401	5040001090	LED	SLP251D-50
DS402	5040001090	LED	SLP251D-50
DS403	5040001090	LED	SLP251D-50
DS801	5040001060	LED	SLP151D-50
DS802	5040001090	LED	SLP251D-50
DS803	5040001100	LED	SLP451D-50
DS804	5040001100	LED	SLP451D-50
DS805	5040001060	LED	SLP151D-50
DS120	5040001060	LED	SLP151D-50
DS120	5040001090	LED	SLP251D-50
DS120	5040001090	LED	SLP251D-50
DS120	5040001060	LED	SLP151D-50
DS120	5040001090	LED	SLP251D-50
DS120	5040001100	LED	SLP451D-50
S1	2230000120	Switch	SDDS3159A [POWER]
S121	2230000550	Switch	SPPH23079A [LOCK]
S122	2230000640	Switch	SPPH25045A [FILTER WIDTH WIDE]
S123	2230000640	Switch	SPPH25045A [FILTER WIDTH MIDDLE]
S124	2230000640	Switch	SPPH25045A [FILTER WIDTH NARROW]
S125	2230000650	Switch	SPPH25044A [NOTCH]
S126	2230000600	Switch	SPPQ19178A [MEMORY BANK DOWN]
S127	2230000600	Switch	SPPQ19178A [MEMORY BANK UP]
S128	2230000600	Switch	SPPQ19178A [WRITE]
S129	2230000600	Switch	SPPQ19178A [CLEAR]
S130	2260000220	Switch	HKW0145-01-220 [MHz DOWN]
S131	2260000220	Switch	HKW0145-01-220 [MHz UP]
S201	2230000650	Switch	SPPH25044A [NB]
S202	2230000650	Switch	SPPH25044A [NB-NAR/WIDE]
S203	2230000640	Switch	SPPH25045A [VSC]
S204	2230000640	Switch	SPPH25045A [SCAN OFF]
S205	2230000640	Switch	SPPH25045A [SCAN A]
S206	2230000640	Switch	SPPH25045A [SCAN B]
S207	2230000640	Switch	SPPH25045A [SCAN ∞]
S301	2230000280	Switch	SPPH11089A [TIMER]
S302	2230000280	Switch	SPPH11089A [METER]
S401	2230000760	Switch	SW-105 (SPUV30017A) [AGC]
S701	2230000680	Switch	SPUL19233A [CALIBRATOR]
S702	2230000680	Switch	SPUL19233A [REC-SPEECH]
S703	2230000680	Switch	SPUL19233A [DIMMER]
S901	2260000750	Switch	SKHJAA025A [FM]
S902	2260000750	Switch	SKHJAA025A [1]
S903	2260000750	Switch	SKHJAA025A [2]
S904	2260000750	Switch	SKHJAA025A [3]
S905	2260000750	Switch	SKHJAA025A [W FM]
S906	2260000750	Switch	SKHJAA025A [4]
S907	2260000750	Switch	SKHJAA025A [5]
S908	2260000750	Switch	SKHJAA025A [6]
S909	2260000750	Switch	SKHJAA025A [AM]
S910	2260000750	Switch	SKHJAA025A [7]

**[FRONT UNIT]**

REF. NO.	ORDER NO.	DESCRIPTION	
S911	2260000750	Switch	SKHJAA025A [8]
S912	2260000750	Switch	SKHJAA025A [9]
S913	2260000750	Switch	SKHJAA025A [SSB]
S914	2260000750	Switch	SKHJAA025A [•]
S915	2260000750	Switch	SKHJAA025A [0]
S916	2260000750	Switch	SKHJAA025A [CE]
S917	2260000750	Switch	SKHJAA025A [CW]
S918	2260000750	Switch	SKHJAA025A [M-CH]
S919	2260000750	Switch	SKHJAA025A [ENT]
S920	2260000750	Switch	SKHJAA025A [FSK]
S921	2260000750	Switch	SKHJAA025A [TUNING STEP SLOW]
S922	2260000750	Switch	SKHJAA025A [TUNING STEP FAST]
S1001	2210000590	Switch	SRRS1S017A [IF SHIFT]
S1101	2210000210	Switch	SRBU1C005A [MEMORY-CH]
S1201	2230000600	Switch	SPPQ19178A [F-1]
S1202	2230000600	Switch	SPPQ19178A [F-2]
S1203	2230000600	Switch	SPPQ19178A [F-3]
S1204	2230000600	Switch	SPPQ19178A [F-4]
S1205	2230000600	Switch	SPPQ19178A [F-5]
S1206	2230000600	Switch	SPPQ19178A [F-6]
S1207	2230000600	Switch	SPPQ19178A [SCAN PRIO]
S1208	2230000600	Switch	SPPQ19178A [SCAN PROG]
S1209	2230000600	Switch	SPPQ19178A [SCAN Δf]
S1210	2230000600	Switch	SPPQ19178A [SCAN MODE]
S1211	2230000600	Switch	SPPQ19178A [SCAN MEMO]
S1212	2230000600	Switch	SPPQ19178A [SCAN SEL]
S1213	2230000600	Switch	SPPQ19178A [SCAN AUTO]
S1214	2230000560	Switch	SPPH15060A [REMOTE]
S1215	2230000560	Switch	SPPH15060A [ATT 10dB]
S1216	2230000560	Switch	SPPH15060A [ATT 20dB]
S1217	2230000560	Switch	SPPH15060A [DISPLAY]
S1218	2230000560	Switch	SPPH15060A [ANTENNA]
S1219	2230000560	Switch	SPPH15060A [AFC]
S1220	2230000530	Switch	SPPH23078A [SPEECH]
ME1	5510000330	Meter	ME-26
EP101	0910019565	P.C. Board	B 1866E (FRONT)
EP201	0910021252	P.C. Board	B 1981B (SW-A)
EP301	0910021262	P.C. Board	B 1982B (SW-B)
EP401	0910021272	P.C. Board	B 1983B (SW-C)
EP501	0910020821	P.C. Board	B 1984A (VR-A)
EP601	0910020813	P.C. Board	B 1985C (VR-B)
EP701	0910021283	P.C. Board	B 1986C (VR-C)
EP801	0910016302	P.C. Board	B 1544B (LED)
EP901	0910019122	P.C. Board	B 1849B (TEN-KEY)
EP1001	0910021291	P.C. Board	B 1987A (IF SHIFT)
EP1101	0910021301	P.C. Board	B 1988A (M-CH)
EP1201	0910022822	P.C. Board	B 2209B (FRONT-SW)

**[SW-D UNIT]**

REF. NO.	ORDER NO.	DESCRIPTION	
D1	1710000160	Diode	1SS133
L1	6180000900	Coil	LAL 03NA 101K
R1	7410000220	Resistor Array	RMX- 8 473K
C1	4040000260	Barrier Layer	UZE 08X 104M
S2	2220000360	Switch	ESD-1111212 [CLICK]
S3	2220000360	Switch	ESD-1111212 [LOCK]
SO1	6510008370	Socket	BBH-1
BT1	3020000110	Lithium Battery	CR2032
EP1	0910021683	P.C. Board	B 1980C

**[SENSOR UNIT]**

REF. NO.	ORDER NO.	DESCRIPTION	
Q1	1170000140	Transistor	IS-486
Q2	1170000140	Transistor	IS-486
Q3	1170000140	Transistor	IS-486
R1	7030000420	Resistor	MCR10EZHZ 2.2 kΩ (222)
R2	7030000420	Resistor	MCR10EZHZ 2.2 kΩ (222)
C1	4030001140	Ceramic	GRM40 F 103Z 50PT
C2	4030001140	Ceramic	GRM40 F 103Z 50PT
C3	4030001140	Ceramic	GRM40 F 103Z 50PT
C4	4030001140	Ceramic	GRM40 F 103Z 50PT
DS1	1170000150	Diode	GL-480
DS2	1170000150	Diode	GL-480
DS3	1170000150	Diode	GL-480
EP1	0910022872	P.C. Board	B 2210B
EP2	6910003560	Plunger	JSM5011-01-020

**[SW-D UNIT]**

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1130003480	IC	M50784SP
Q1	1590000350	Transistor	RN1204
Q2	1590000350	Transistor	RN1204

**[DISPLAY UNIT]**

REF. NO.	ORDER NO.	DESCRIPTION	
EP1	5070000010	CRT	MG-550CDM

[LOGIC A UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
IC1	1130004080	IC $\mu$ PD71055GB-3B4
IC2	1130004080	IC $\mu$ PD71055GB-3B4
IC3	1130004080	IC $\mu$ PD71055GB-3B4
IC4	1130002740	IC $\mu$ PD4528BG
IC5	1130004660	IC $\mu$ PD43256AGU
IC6	1140000930	IC HD64180R1F6
IC7	1110001550	IC S-8054ALB-LM-T1
IC8	1130004490	IC SC1115
IC9	1130003300	IC RP5C15
IC10	1130004110	IC $\mu$ PD74HC244GS-T1
IC11	1130004110	IC $\mu$ PD74HC244GS-T1
IC12	1130003130	IC $\mu$ PD74HC42G
IC13	1130001880	IC $\mu$ PD4069UBG-T1
IC14	1130004100	IC $\mu$ PD74HC32G-T1
IC15	1130004100	IC $\mu$ PD74HC32G-T1
IC16	1130003030	IC $\mu$ PD74HC00G
IC17	1130001910	IC $\mu$ PD4011BG-T1
Q1	1510000110	Transistor 2SA1162-Y (TE85R)
Q2	1590000420	Transistor RN1404 (TE85R)
Q3	1530000160	Transistor 2SC2712-Y (TE85R)
Q4	1530000160	Transistor 2SC2712-Y (TE85R)
Q5	1530000160	Transistor 2SC2712-Y (TE85R)
Q6	1530000160	Transistor 2SC2712-Y (TE85R)
Q7	1510000110	Transistor 2SA1162-Y (TE85R)
Q8	1590000420	Transistor RN1404 (TE85R)
D1	1750000040	Diode 1SS190 (TE85R)
D2	1750000050	Diode 1SS193 (TE85R)
D3	1750000050	Diode 1SS193 (TE85R)
D4	1750000040	Diode 1SS190 (TE85R)
D5	1750000040	Diode 1SS190 (TE85R)
X1	6050003350	Crystal RF-4A3 FAF NKD (9.270800M)
X2	6050004790	Crystal NC-38 32.768M
L1	6180000900	Coil LAL 03NA 101K
R1	7030000500	Resistor MCR10EZHZ 10 k $\Omega$ (103)
R2	7030000380	Resistor MCR10EZHZ 1 k $\Omega$ (102)
R3	7030000380	Resistor MCR10EZHZ 1 k $\Omega$ (102)
R4	7030000380	Resistor MCR10EZHZ 1 k $\Omega$ (102)
R5	7030000380	Resistor MCR10EZHZ 1 k $\Omega$ (102)
R6	7030000380	Resistor MCR10EZHZ 1 k $\Omega$ (102)
R7	7030000380	Resistor MCR10EZHZ 1 k $\Omega$ (102)
R8	7030000380	Resistor MCR10EZHZ 1 k $\Omega$ (102)
R9	7030000380	Resistor MCR10EZHZ 1 k $\Omega$ (102)
R10	7030000380	Resistor MCR10EZHZ 1 k $\Omega$ (102)
R11	7030000380	Resistor MCR10EZHZ 1 k $\Omega$ (102)
R12	7030000380	Resistor MCR10EZHZ 1 k $\Omega$ (102)
R13	7030000380	Resistor MCR10EZHZ 1 k $\Omega$ (102)
R14	7030000380	Resistor MCR10EZHZ 1 k $\Omega$ (102)
R15	7030000380	Resistor MCR10EZHZ 1 k $\Omega$ (102)
R16	7030000380	Resistor MCR10EZHZ 1 k $\Omega$ (102)
R17	7030000380	Resistor MCR10EZHZ 1 k $\Omega$ (102)
R18	7030000380	Resistor MCR10EZHZ 1 k $\Omega$ (102)
R19	7030000380	Resistor MCR10EZHZ 1 k $\Omega$ (102)
R20	7030000380	Resistor MCR10EZHZ 1 k $\Omega$ (102)
R21	7030000380	Resistor MCR10EZHZ 1 k $\Omega$ (102)
R22	7030000380	Resistor MCR10EZHZ 1 k $\Omega$ (102)
R23	7030000380	Resistor MCR10EZHZ 1 k $\Omega$ (102)
R24	7030000380	Resistor MCR10EZHZ 1 k $\Omega$ (102)
R25	7030000380	Resistor MCR10EZHZ 1 k $\Omega$ (102)
R26	7030000500	Resistor MCR10EZHZ 10 k $\Omega$ (103)
R27	7030000720	Resistor MCR10EZHZ 680 k $\Omega$ (684)
R28	7030000600	Resistor MCR10EZHZ 68 k $\Omega$ (683)
R29	7410000520	Resistor Array RKM7L 104J
R30	7410000520	Resistor Array RKM7L 104J
R31	7410000520	Resistor Array RKM7L 104J

[LOGIC A UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
R32	7030000580	Resistor MCR10EZHZ 47 k $\Omega$ (473)
R33	7030000500	Resistor MCR10EZHZ 10 k $\Omega$ (103)
R34	7030000740	Resistor MCR10EZHZ 1 M $\Omega$ (105)
R35	7030000380	Resistor MCR10EZHZ 1 k $\Omega$ (102)
R36	7030000460	Resistor MCR10EZHZ 4.7 k $\Omega$ (472)
R37	7030000500	Resistor MCR10EZHZ 10 k $\Omega$ (103)
R38	7030000500	Resistor MCR10EZHZ 10 k $\Omega$ (103)
R39	7030000420	Resistor MCR10EZHZ 2.2 k $\Omega$ (222)
R40	7030000500	Resistor MCR10EZHZ 10 k $\Omega$ (103)
R41	7030000420	Resistor MCR10EZHZ 2.2 k $\Omega$ (222)
R42	7030000460	Resistor MCR10EZHZ 4.7 k $\Omega$ (472)
R43	7030000580	Resistor MCR10EZHZ 47 k $\Omega$ (473)
R44	7030000500	Resistor MCR10EZHZ 10 k $\Omega$ (103)
R45	7030000500	Resistor MCR10EZHZ 10 k $\Omega$ (103)
R46	7030000580	Resistor MCR10EZHZ 47 k $\Omega$ (473)
R47	7030000500	Resistor MCR10EZHZ 10 k $\Omega$ (103)
R48	7010001400	Resistor R25J 100 k $\Omega$
R49	7030000500	Resistor MCR10EZHZ 10 k $\Omega$ (103)
R50	7030000380	Resistor MCR10EZHZ 1 k $\Omega$ (102)
R51	7030000500	Resistor MCR10EZHZ 10 k $\Omega$ (103)
R52	7030000500	Resistor MCR10EZHZ 10 k $\Omega$ (103)
R53	7030000500	Resistor MCR10EZHZ 10 k $\Omega$ (103)
R54	7030000380	Resistor MCR10EZHZ 1 k $\Omega$ (102)
R55	7030000380	Resistor MCR10EZHZ 1 k $\Omega$ (102)
R56	7030000380	Resistor MCR10EZHZ 1 k $\Omega$ (102)
R57	7030000500	Resistor MCR10EZHZ 10 k $\Omega$ (103)
R58	7030000500	Resistor MCR10EZHZ 10 k $\Omega$ (103)
R59	7030000380	Resistor MCR10EZHZ 1 k $\Omega$ (102)
C1	4030001120	Ceramic GRM40 B 472K 50PT
C2	4030001120	Ceramic GRM40 B 472K 50PT
C3	4030001120	Ceramic GRM40 B 472K 50PT
C4	4310000500	Mylar F2D 50V 154J
C5	4040000260	Barrier Layer UZE 08X 104M
C6	4030001150	Ceramic GRM40 F 104Z 25PT
C7	4030001150	Ceramic GRM40 F 104Z 25PT
C8	4030001150	Ceramic GRM40 F 104Z 25PT
C9	4030001150	Ceramic GRM40 F 104Z 25PT
C10	4030000630	Ceramic GRM40 SL 100D 50PT
C11	4030000630	Ceramic GRM40 SL 100D 50PT
C12	4030000700	Ceramic GRM40 SL 470J 50PT
C13	4550000350	Tantalum DN 1V 010M
C14	4030001150	Ceramic GRM40 F 104Z 25PT
C15	4030001150	Ceramic GRM40 F 104Z 25PT
C16	4030001150	Ceramic GRM40 F 104Z 25PT
C17	4030001150	Ceramic GRM40 F 104Z 25PT
C18	4030001150	Ceramic GRM40 F 104Z 25PT
C19	4030001150	Ceramic GRM40 F 104Z 25PT
C20	4030001150	Ceramic GRM40 F 104Z 25PT
C21	4030000690	Ceramic GRM40 SL 390J 50PT
C22	4610000780	Trimmer CV38D 2001
C23	4030000590	Ceramic GRM40 SL 050C 50PT
C24	4030001150	Ceramic GRM40 F 104Z 25PT
C25	4030001150	Ceramic GRM40 F 104Z 25PT
C26	4030001150	Ceramic GRM40 F 104Z 25PT
C27	4030001150	Ceramic GRM40 F 104Z 25PT
C28	4030001150	Ceramic GRM40 F 104Z 25PT
C29	4030001120	Ceramic GRM40 B 472K 50PT
C30	4030001120	Ceramic GRM40 B 472K 50PT
C31	4030001120	Ceramic GRM40 B 472K 50PT
C32	4030001120	Ceramic GRM40 B 472K 50PT
C33	4030001120	Ceramic GRM40 B 472K 50PT
C34	4030001120	Ceramic GRM40 B 472K 50PT
C35	4030001120	Ceramic GRM40 B 472K 50PT
C36	4030001120	Ceramic GRM40 B 472K 50PT
C37	4030001120	Ceramic GRM40 B 472K 50PT
C38	4030001120	Ceramic GRM40 B 472K 50PT
C39	4030001120	Ceramic GRM40 B 472K 50PT
C40	4030001120	Ceramic GRM40 B 472K 50PT
C41	4030001120	Ceramic GRM40 B 472K 50PT
C42	4030001150	Ceramic GRM40 F 104Z 25PT
C43	4030001150	Ceramic GRM40 F 104Z 25PT

**[LOGIC A UNIT]**

REF. NO.	ORDER NO.	DESCRIPTION	
BT1	302000020	Lithium Battery	BR2032-1T2
SO1	2610000200	Socket	ICC05-028 360T
EP1	0910019333	P.C. Board	B 1855C

**[CRTC UNIT]**

REF. NO.	ORDER NO.	DESCRIPTION	
C11	4510001210	Electrolytic	10 RC2 100 μF
C12	4030001140	Ceramic	GRM40 F 103Z 50PT
C13	4030001140	Ceramic	GRM40 F 103Z 50PT
C14	4030001140	Ceramic	GRM40 F 103Z 50PT
C15	4030001140	Ceramic	GRM40 F 103Z 50PT
C16	4030001140	Ceramic	GRM40 F 103Z 50PT
EP1	0910017923	P.C. Board	B 1336C

**[CRTC UNIT]**

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1130003310	IC	RF5C16A
IC2	1120001480	IC	SN74LS07NS
IC3	1130003460	IC	HM50464CP12
IC4	1130003460	IC	HM50464CP12
IC5	1130003460	IC	HM50464CP12
IC6	1130003460	IC	HM50464CP12
Q1	1530000160	Transistor	2SC2712-Y (TE85R)
D1	1750000030	Diode	1SS187(TE85R)
X1	6050004780	Crystal	RF-4A3 FAK NKD (14.31818M)
L1	6180001810	Coil	FL 5H 220K
L2	6200000040	Coil	LQN 5N 331K
L3	6200000730	Coil	LQH 3N 2R2M
L4	6200000730	Coil	LQH 3N 2R2M
R1	7030000620	Resistor	MCR10EZHJ 100 kΩ (104)
R2	7030000170	Resistor	MCR10EZHJ 18 Ω (180)
R3	7030000170	Resistor	MCR10EZHJ 18 Ω (180)
R4	7030000170	Resistor	MCR10EZHJ 18 Ω (180)
R5	7030000170	Resistor	MCR10EZHJ 18 Ω (180)
R6	7030000170	Resistor	MCR10EZHJ 18 Ω (180)
R7	7030000170	Resistor	MCR10EZHJ 18 Ω (180)
R8	7030000170	Resistor	MCR10EZHJ 18 Ω (180)
R9	7030000170	Resistor	MCR10EZHJ 18 Ω (180)
R10	7030000170	Resistor	MCR10EZHJ 18 Ω (180)
R11	7030000170	Resistor	MCR10EZHJ 18 Ω (180)
R12	7030000170	Resistor	MCR10EZHJ 18 Ω (180)
R13	7030000170	Resistor	MCR10EZHJ 18 Ω (180)
R14	7030000280	Resistor	MCR10EZHJ 150 Ω (151)
R15	7030000390	Resistor	MCR10EZHJ 1.2 kΩ (122)
R16	7030000360	Resistor	MCR10EZHJ 680 Ω (681)
R17	7030000340	Resistor	MCR10EZHJ 470 Ω (471)
R18	7030000320	Resistor	MCR10EZHJ 330 Ω (331)
R19	7030000300	Resistor	MCR10EZHJ 220 Ω (221)
R20	7030000360	Resistor	MCR10EZHJ 680 Ω (681)
R21	7030000240	Resistor	MCR10EZHJ 68 Ω (680)
R22	7030000260	Resistor	MCR10EZHJ 100 Ω (101)
C1	4030000700	Ceramic	GRM40 SL 470J 50PT
C2	4030000700	Ceramic	GRM40 SL 470J 50PT
C3	4030001140	Ceramic	GRM40 F 103Z 50PT
C4	4550000850	Tantalum	TESVC 1A 156M-12L
C5	4030001100	Ceramic	GRM40 B 102K 50PT
C6	4030001090	Ceramic	GRM40 B 471K 50PT
C7	4030001100	Ceramic	GRM40 B 102K 50PT
C8	4030001090	Ceramic	GRM40 B 471K 50PT
C9	4550000850	Tantalum	TESVC 1A 156M-12L
C10	4030001100	Ceramic	GRM40 B 102K 50PT

**[LOGIC B UNIT]**

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1140001120	IC	μPD75104CW-172
IC2	1130000620	IC	μPD4011BC
IC3	1130003860	IC	MB4052M-G
IC4	1130002060	IC	μPD4024BC
IC5	1130000970	IC	μPD4030BC
IC6	1130000600	IC	μPD4001BC
IC7	1130000600	IC	μPD4001BC
IC9	1180000190	IC	NJM7805A
Q1	1590000350	Transistor	RN1204
Q2	1590000370	Transistor	RN2204
Q3	1510000070	Transistor	2SA1048-Y
Q4	1590000350	Transistor	RN1204
D1	1710000160	Diode	1SS133
D2	1710000160	Diode	1SS133
D3	1710000160	Diode	1SS133
D4	1710000160	Diode	1SS133
D5	1710000160	Diode	1SS133
D6	1710000160	Diode	1SS133
D7	1710000160	Diode	1SS133
D8	1710000160	Diode	1SS133
D9	1710000160	Diode	1SS133
D10	1710000160	Diode	1SS133
X1	6050003110	Crystal	RF-4A3 FAC NKD (4.194304M)
R1	7080001180	Resistor	CRB25FX 56 kΩ
R2	7010003810	Resistor	ELR20J 2.2 MΩ
R3	7010003700	Resistor	ELR20J 2.20 kΩ
R4	7010003810	Resistor	ELR20J 2.2 MΩ
R5	7010003820	Resistor	ELR20J 3.3 MΩ
R6	7010003620	Resistor	ELR20J 47 kΩ
R7	7010003620	Resistor	ELR20J 47 kΩ
R8	7010003620	Resistor	ELR20J 47 kΩ
R9	7010003550	Resistor	ELR20J 15 kΩ
R10	7010003580	Resistor	ELR20J 22 kΩ
R11	7010003530	Resistor	ELR20J 10 kΩ
R12	7010003530	Resistor	ELR20J 10 kΩ
R13	7010003620	Resistor	ELR20J 47 kΩ
R14	7010003620	Resistor	ELR20J 47 kΩ
R15	7010003620	Resistor	ELR20J 47 kΩ
R16	7010003620	Resistor	ELR20J 47 kΩ
R17	7010003620	Resistor	ELR20J 47 kΩ
R18	7010003400	Resistor	ELR20J 1 kΩ
R19	7010003400	Resistor	ELR20J 1 kΩ
R20	7010003400	Resistor	ELR20J 1 kΩ
R21	7010003400	Resistor	ELR20J 1 kΩ
R22	7010003400	Resistor	ELR20J 1 kΩ
R23	7010003400	Resistor	ELR20J 1 kΩ
R24	7010003400	Resistor	ELR20J 1 kΩ

**[LOGIC B UNIT]**

REF. NO.	ORDER NO.	DESCRIPTION	
R25	7010003400	Resistor	ELR20J 1 kΩ
R26	7010003400	Resistor	ELR20J 1 kΩ
R27	7010003400	Resistor	ELR20J 1 kΩ
R28	7010003400	Resistor	ELR20J 1 kΩ
R29	7010003400	Resistor	ELR20J 1 kΩ
R30	7010003400	Resistor	ELR20J 1 kΩ
R31	7010003400	Resistor	ELR20J 1 kΩ
R32	7010003400	Resistor	ELR20J 1 kΩ
R33	7010003400	Resistor	ELR20J 1 kΩ
R34	7010003400	Resistor	ELR20J 1 kΩ
R35	7010003400	Resistor	ELR20J 1 kΩ
R36	7010003400	Resistor	ELR20J 1 kΩ
R37	7010003400	Resistor	ELR20J 1 kΩ
R38	7010003400	Resistor	ELR20J 1 kΩ
R39	7010003400	Resistor	ELR20J 1 kΩ
R40	7010003400	Resistor	ELR20J 1 kΩ
R41	7010003400	Resistor	ELR20J 1 kΩ
R42	7010003400	Resistor	ELR20J 1 kΩ
R43	7010003620	Resistor	ELR20J 47 kΩ
R44	7070000480	Resistor	CRH300 R-02J 10Ω (100)
R45	7410000340	Resistor Array	RKM10L 104J
R46	7010003620	Resistor	ELR20J 47 kΩ
R47	7010003550	Resistor	ELR20J 15 kΩ
R48	7410000050	Resistor Array	RMX- 4 103K
R49	7010003600	Resistor	ELR20J 33 kΩ
R50	7010003620	Resistor	ELR20J 47 kΩ
C1	4510002830	Electrolytic	25 SS 4R7 μF
C2	4040000250	Barrier Layer	UAT 08X 473M
C3	4310000120	Mylar	F2D 50V 473K
C4	4040000190	Barrier Layer	UAT 05X 103K
C5	4010000500	Ceramic	DD104 B 102K 50V
C7	4010000500	Ceramic	DD104 B 102K 50V
C8	4010000500	Ceramic	DD104 B 102K 50V
C9	4010000500	Ceramic	DD104 B 102K 50V
C10	4510002930	Electrolytic	50 SS R47 μF
C11	4040000260	Barrier Layer	UZE 08X 104M
C12	4040000260	Barrier Layer	UZE 08X 104M
C13	4040000260	Barrier Layer	UZE 08X 104M
C14	4040000260	Barrier Layer	UZE 08X 104M
C15	4010000200	Ceramic	DD104 SL 270J 50V
C16	4010000200	Ceramic	DD104 SL 270J 50V
C17	4010000520	Ceramic	DD108 B 472K 50V
C18	4530000250	Capacitor Array	B8XC0112-32N
C19	4530000050	Capacitor Array	B5RC0126-32N
C20	4530000250	Capacitor Array	B8XC0112-32N
C21	4530000250	Capacitor Array	B8XC0112-32N
C22	4040000260	Barrier Layer	UZE 08X 104M
C23	4040000260	Barrier Layer	UZE 08X 104M
C24	4040000260	Barrier Layer	UZE 08X 104M
C25	4040000260	Barrier Layer	UZE 08X 104M
C26	4040000250	Barrier Layer	UAT 08X 473M
C27	4510002830	Electrolytic	25 SS 4R7 μF
EP1	0910019194	P.C. Board	B 1856D

**[SCOPE UNIT]**

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1790000050	IC	ND487C1-3R
IC2	1790000050	IC	ND487C1-3R
IC3	1110000540	IC	NJM4558D
IC4	1110001480	IC	NJM2204AD
IC5	1110000540	IC	NJM4558D
IC6	1130003600	IC	TC35094P
IC7	1130000620	IC	μPD4011BC
IC8	1130004480	IC	TC74HC74AP

**[SCOPE UNIT]**

REF. NO.	ORDER NO.	DESCRIPTION	
IC9	1120000940	IC	SN74LS90N
IC10	1110001320	IC	μPC1037HA
IC11	1110001320	IC	μPC1037HA
IC12	1130002160	IC	μPD4052BC
IC13	1110000540	IC	NJM4558D
IC14	1130001000	IC	μPD4066BC
IC15	1110000330	IC	M5218L
IC16	1180000060	IC	NJM78L05A
IC17	1110001930	IC	M5215TL
Q1	1560000110	FET	2SK241-GR
Q2	1560000110	FET	2SK241-GR
Q3	1530000810	Transistor	2SC2053
Q4	1560000110	FET	2SK241-GR
Q5	1530000110	Transistor	2SC2458-GR
Q6	1510000080	Transistor	2SA1048-GR
Q7	1530000250	Transistor	2SC763 C
Q8	1530000110	Transistor	2SC2458-GR
Q9	1530000110	Transistor	2SC2458-GR
Q10	1530000110	Transistor	2SC2458-GR
Q11	1530000250	Transistor	2SC763 C
Q12	1560000110	FET	2SK241-GR
Q13	1530000110	Transistor	2SC2458-GR
Q14	1590000350	Transistor	RN1204
Q15	1590000350	Transistor	RN1204
Q16	1590000360	Transistor	RN2202
Q17	1520000060	Transistor	2SB562C
Q18	1510000130	Transistor	2SA798 G
Q19	1540000070	Transistor	2SD468C
Q20	1590000350	Transistor	RN1204
D1	1710000040	Diode	1S953
D2	1710000040	Diode	1S953
D3	1710000330	Diode	1K60
D4	1710000330	Diode	1K60
D5	1710000160	Diode	1SS133
D6	1710000160	Diode	1SS133
D7	1710000040	Diode	1S953
D8	1710000040	Diode	1S953
D9	1710000160	Diode	1SS133
D10	1710000160	Diode	1SS133
D11	1710000160	Diode	1SS133
D12	1710000160	Diode	1SS133
D13	1720000210	Varicap	SVC321A5-SP
D14	1720000210	Varicap	SVC321A5-SP
D15	1710000330	Diode	1K60
D16	1710000330	Diode	1K60
D17	1710000160	Diode	1SS133
D18	1710000160	Diode	1SS133
D19	1710000160	Diode	1SS133
FI1	2020000540	Filter	SFE10.7MMH-A
FI2	2020000500	Filter	SFE4.5MB
FI3	2020000080	Filter	CFU455E2
X1	6060000020	Crystal	CSB400A
X2	6060000020	Crystal	CSB400A
X3	6050005750	Crystal	CR-272
X4	2020000200	Crystal	CFY455S
L1	6180000800	Coil	LAL 03NA 1R8M
L2	6150001370	Coil	LS-151
L3	6150001370	Coil	LS-151
L4	6140000930	Coil	LR-116
L5	6140000930	Coil	LR-116
L6	6150001730	Coil	LS-194
L7	6150002350	Coil	LS-246
L8	6140000930	Coil	LR-116
L9	6140000930	Coil	LR-116
L10	6180000720	Coil	LAL 03NA R39M

[SCOPE UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
L11	6110001780	Coil	LA-267
L12	6150001750	Coil	LS-196
L13	6150001750	Coil	LS-196
L14	6150001750	Coil	LS-196
L15	6150001750	Coil	LS-196
L16	6180001710	Coil	LAL 03NA 561K
L17	6150002270	Coil	LS-238
L18	6150003520	Coil	LS-389
L19	6150002270	Coil	LS-238
L20	6140000930	Coil	LR-116
L21	6150002270	Coil	LS-238
L22	6150002270	Coil	LS-238
L23	6140000930	Coil	LR-116
L24	6180000930	Coil	LAL 03NA 220K
L25	6180001710	Coil	LAL 03NA 561K
L26	6180000960	Coil	LAL 03NA 102K
L27	6180000960	Coil	LAL 03NA 102K
L28	6180001710	Coil	LAL 03NA 561K
L29	6180001710	Coil	LAL 03NA 561K
L30	6180000790	Coil	LAL 03NA 1R5M
L31	6150001740	Coil	LS-195
L32	6180001500	Coil	LAL 03NA 390K
L33	6180001680	Coil	LAL 03NA 151K
L34	6180000920	Coil	LAL 03NA 221K
L35	6150002290	Coil	LS-240
L36	6180001460	Coil	LAL 03NA 681K
L37	6180001710	Coil	LAL 03NA 561K
L38	6150001530	Coil	LS-169A
L39	6180001710	Coil	LAL 03NA 561K
L40	6180001680	Coil	LAL 03NA 151K
L41	6180001680	Coil	LAL 03NA 151K
L42	6180001680	Coil	LAL 03NA 151K
L45	6150002840	Coil	LS-294
L46	6180000900	Coil	LAL 03NA 101K
L47	6180000900	Coil	LAL 03NA 101K
L48	6180000880	Coil	LAL 03NA 100K
L49	6180000960	Coil	LAL 03NA 102K
L50	6180001710	Coil	LAL 03NA 561K
L51	6180001710	Coil	LAL 03NA 561K
R1	7010004600	Resistor	R20J 2.2 MΩ
R2	7010003460	Resistor	ELR20J 3.3 kΩ
R3	7010003810	Resistor	ELR20J 2.2 MΩ
R4	7010003400	Resistor	ELR20J 1 kΩ
R5	7010004090	Resistor	R20J 150 Ω
R6	7010003550	Resistor	ELR20J 15 kΩ
R7	7010004460	Resistor	R20J 120 kΩ
R8	7010003360	Resistor	ELR20J 470 Ω
R9	7010004090	Resistor	R20J 150 Ω
R10	7010003280	Resistor	ELR20J 100 Ω
R11	7010003480	Resistor	ELR20J 4.7 kΩ
R12	7010003480	Resistor	ELR20J 4.7 kΩ
R13	7010003400	Resistor	ELR20J 1 kΩ
R14	7010003460	Resistor	ELR20J 3.3 kΩ
R15	7010003420	Resistor	ELR20J 1.5 kΩ
R16	7010003400	Resistor	ELR20J 1 kΩ
R17	7010003320	Resistor	ELR20J 220 Ω
R18	7010003460	Resistor	ELR20J 3.3 kΩ
R19	7010001190	Resistor	R25J 2.2 kΩ
R20	7010003300	Resistor	ELR20J 150 Ω
R21	7010003530	Resistor	ELR20J 10 kΩ
R22	7010004960	Resistor	ELR20J 1.5 MΩ
R23	7010003750	Resistor	ELR20J 560 kΩ
R25	7010003760	Resistor	ELR20J 680 kΩ
R26	7010004450	Resistor	R20J 100 kΩ
R27	7010004070	Resistor	R20J 100 Ω
R28	7010003280	Resistor	ELR20J 100 Ω
R29	7010003480	Resistor	ELR20J 4.7 kΩ
R30	7010003480	Resistor	ELR20J 4.7 kΩ
R31	7010003240	Resistor	ELR20J 47 Ω
R32	7010003240	Resistor	ELR20J 47 Ω
R33	7010003420	Resistor	ELR20J 1.5 kΩ
R34	7010004190	Resistor	R20J 1 kΩ
R35	7010003400	Resistor	ELR20J 1 kΩ

[SCOPE UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
R36	7010003440	Resistor	ELR20J 2.2 kΩ
R37	7010003530	Resistor	ELR20J 10 kΩ
R38	7010003530	Resistor	ELR20J 10 kΩ
R39	7010004170	Resistor	R20J 680 Ω
R40	7010003990	Resistor	R20J 22 Ω
R41	7010003530	Resistor	ELR20J 10 kΩ
R42	7010003620	Resistor	ELR20J 47 kΩ
R43	7010004410	Resistor	R20J 47 kΩ
R44	7010003400	Resistor	ELR20J 1 kΩ
R45	7010003620	Resistor	ELR20J 47 kΩ
R46	7010003700	Resistor	ELR20J 220 kΩ
R48	7010004320	Resistor	R20J 10 kΩ
R49	7010004320	Resistor	R20J 10 kΩ
R50	7010004350	Resistor	R20J 18 kΩ
R51	7010003550	Resistor	ELR20J 15 kΩ
R52	7010004070	Resistor	R20J 100 kΩ
R53	7010003620	Resistor	ELR20J 47 kΩ
R54	7010004410	Resistor	R20J 47 kΩ
R55	7010003660	Resistor	ELR20J 100 kΩ
R56	7010004450	Resistor	R20J 100 kΩ
R57	7010003700	Resistor	ELR20J 220 kΩ
R58	7010004960	Resistor	ELR20J 1.5 MΩ
R59	7010004490	Resistor	R20J 220 kΩ
R60	7010003530	Resistor	ELR20J 10 kΩ
R61	7010003660	Resistor	ELR20J 100 kΩ
R62	7010003660	Resistor	ELR20J 100 kΩ
R63	7010003660	Resistor	ELR20J 100 kΩ
R64	7310000790	Trimmer	RH0651C15J1UA (104)
R65	7310000770	Trimmer	RH0651CN4J0TA (333)
R66	7310000750	Trimmer	RH0651C14J2WA (103)
R67	7010003320	Resistor	ELR20J 220 Ω
R68	7010003650	Resistor	ELR20J 82 kΩ
R69	7010003630	Resistor	ELR20J 56 kΩ
R70	7010003620	Resistor	ELR20J 47 kΩ
R71	7010003610	Resistor	ELR20J 39 kΩ
R72	7010003630	Resistor	ELR20J 56 kΩ
R73	7310000750	Trimmer	RH0651C14J2WA (103)
R74	7010003620	Resistor	ELR20J 47 kΩ
R75	7010003280	Resistor	ELR20J 100 Ω
R76	7310000700	Trimmer	RH0651CS2J1HA (471)
R77	7010004010	Resistor	R20J 33 Ω
R78	7010003120	Resistor	ELR20J 4.7 Ω
R79	7010003480	Resistor	ELR20J 4.7 kΩ
R80	7010003390	Resistor	ELR20J 820 Ω
R81	7010004090	Resistor	R20J 150 Ω
R82	7010004190	Resistor	R20J 1 kΩ
R83	7010003660	Resistor	ELR20J 100 kΩ
R84	7010004110	Resistor	R20J 220 Ω
R85	7010003480	Resistor	ELR20J 4.7 kΩ
R86	7010003580	Resistor	ELR20J 22 kΩ
R87	7010003320	Resistor	ELR20J 220 Ω
R88	7010003660	Resistor	ELR20J 100 kΩ
R89	7010004450	Resistor	R20J 100 kΩ
R90	7010003670	Resistor	ELR20J 120 kΩ
R91	7010004540	Resistor	R20J 560 kΩ
R92	7010003780	Resistor	ELR20J 1 MΩ
R93	7010003580	Resistor	ELR20J 22 kΩ
R94	7010004320	Resistor	R20J 10 kΩ
R95	7010003540	Resistor	ELR20J 12 kΩ
R96	7010003780	Resistor	ELR20J 1 MΩ
R97	7010003280	Resistor	ELR20J 100 Ω
R98	7010003280	Resistor	ELR20J 100 Ω
R99	7010003550	Resistor	ELR20J 15 kΩ
R100	7010003530	Resistor	ELR20J 10 kΩ
R101	7010003620	Resistor	ELR20J 47 kΩ
R102	7010004390	Resistor	R20J 33 kΩ
R103	7010004030	Resistor	R20J 47 Ω
R104	7010003580	Resistor	ELR20J 22 kΩ
R105	7010003580	Resistor	ELR20J 22 kΩ
R106	7010001320	Resistor	R25J 22 kΩ
R107	7010003580	Resistor	ELR20J 22 kΩ
R108	7010003530	Resistor	ELR20J 10 kΩ
R109	7310000760	Trimmer	RH0651CJ4J01A (223)
R110	7010003620	Resistor	ELR20J 47 kΩ
R111	7010003280	Resistor	ELR20J 100 Ω

## [SCOPE UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
R112	7010003670	Resistor	ELR20J 120 kΩ
R113	7010003400	Resistor	ELR20J 1 kΩ
R114	7010003400	Resistor	ELR20J 1 kΩ
R115	7310000700	Trimmer	RH0651CS2J1HA (471)
R116	7010001360	Resistor	R25J 47 kΩ
R117	7410000220	Resistor Array	RMX- 8 473K
R118	7010003400	Resistor	ELR20J 1 kΩ
R119	7010003400	Resistor	ELR20J 1 kΩ
R120	7010003400	Resistor	ELR20J 1 kΩ
R121	7010003400	Resistor	ELR20J 1 kΩ
R122	7010003400	Resistor	ELR20J 1 kΩ
R123	7010003400	Resistor	ELR20J 1 kΩ
R124	7010003400	Resistor	ELR20J 1 kΩ
R125	7010003400	Resistor	ELR20J 1 kΩ
R126	7010003400	Resistor	ELR20J 1 kΩ
R127	7010003400	Resistor	ELR20J 1 kΩ
R128	7010003600	Resistor	ELR20J 33 kΩ
R129	7010003600	Resistor	ELR20J 33 kΩ
R130	7010003440	Resistor	ELR20J 2.2 kΩ
R131	7010003300	Resistor	ELR20J 150 Ω
R132	7010003320	Resistor	ELR20J 220 Ω
R133	7010003280	Resistor	ELR20J 100 Ω
R135	7010003490	Resistor	ELR20J 5.6 kΩ
R136	7010004200	Resistor	R20J 1.2 kΩ
R137	7010003320	Resistor	ELR20J 220 Ω
R138	7010004450	Resistor	R20J 100 kΩ
R139	7510000090	Thermistor	ERT-D2FGL202S
R140	7510000090	Thermistor	ERT-D2FGL202S
C1	4010000330	Ceramic	DD105 SL 101J 50V
C2	4010000520	Ceramic	DD108 B 472K 50V
C3	4040000250	Barrier Layer	UAT 08X 473M
C4	4010000520	Ceramic	DD108 B 472K 50V
C5	4010000370	Ceramic	DD106 SL 201J 50V
C6	4010000370	Ceramic	DD106 SL 201J 50V
C7	4040000190	Barrier Layer	UAT 05X 103K
C8	4040000250	Barrier Layer	UAT 08X 473M
C9	4010003200	Ceramic	DD109 TH 221J 50V
C10	4510002940	Electrolytic	50 SS 1 µF
C11	4010000520	Ceramic	DD108 B 472K 50V
C12	4510002840	Electrolytic	25 SS 10 µF
C13	4040000250	Barrier Layer	UAT 08X 473M
C14	4510002950	Electrolytic	50 SS 2R2 µF
C15	4040000260	Barrier Layer	UZE 08X 104M
C16	4040000250	Barrier Layer	UAT 08X 473M
C17	4010003200	Ceramic	DD109 TH 221J 50V
C18	4040000250	Barrier Layer	UAT 08X 473M
C19	4040000250	Barrier Layer	UAT 08X 473M
C20	4040000460	Barrier Layer	RAU 08SA 821K
C21	4010003120	Ceramic	DD107 TH 101J 50V
C22	4010000260	Ceramic	DD104 SL 470J 50V
C23	4010003120	Ceramic	DD107 TH 101J 50V
C24	4010000340	Ceramic	DD105 SL 121J 50V
C25	4040000380	Barrier Layer	UAT 06V 822K
C26	4040000380	Barrier Layer	UAT 06V 822K
C27	4010000410	Ceramic	DD107 SL 331J 50V
C28	4010000340	Ceramic	DD105 SL 121J 50V
C29	4010000240	Ceramic	DD104 SL 390J 50V
C30	4010000410	Ceramic	DD107 SL 331J 50V
C31	4010000420	Ceramic	DD108 SL 391J 50V
C32	4010000380	Ceramic	DD107 SL 221J 50V
C33	4010000520	Ceramic	DD108 B 472K 50V
C34	4010000140	Ceramic	DD104 SL 120J 50V
C35	4040000260	Barrier Layer	UZE 08X 104M
C36	4040000250	Barrier Layer	UAT 08X 473M
C37	4010000520	Ceramic	DD108 B 472K 50V
C38	4040000250	Barrier Layer	UAT 08X 473M
C39	4010000140	Ceramic	DD104 SL 120J 50V
C40	4010000010	Ceramic	DD104 SL 0R5C 50V
C41	4010000140	Ceramic	DD104 SL 120J 50V
C42	4010000010	Ceramic	DD104 SL 0R5C 50V
C43	4010000140	Ceramic	DD104 SL 120J 50V
C44	4010000040	Ceramic	DD104 SL 020C 50V
C45	4010000520	Ceramic	DD108 B 472K 50V

## [SCOPE UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
C46	4040000250	Barrier Layer	UAT 08X 473M
C47	4010000520	Ceramic	DD108 B 472K 50V
C48	4010000520	Ceramic	DD108 B 472K 50V
C49	4040000150	Barrier Layer	UAT 05X 472K
C50	4010000940	Ceramic	DD107 CH 101J 50V
C51	4010000940	Ceramic	DD107 CH 101J 50V
C52	4010002920	Ceramic	DD104 TH 150J 50V
C53	4040000080	Barrier Layer	UAT 04X 122K
C54	4010000380	Ceramic	DD107 SL 321J 50V
C55	4040000080	Barrier Layer	UAT 04X 122K
C56	4040000150	Barrier Layer	UAT 05X 472K
C57	4010000350	Ceramic	DD106 SL 151J 50V
C58	4040000250	Barrier Layer	UAT 08X 473M
C59	4040000250	Barrier Layer	UAT 08X 473M
C60	4010000520	Ceramic	DD108 B 472K 50V
C61	4010000240	Ceramic	DD104 SL 390J 50V
C62	4010000240	Ceramic	DD104 SL 390J 50V
C63	4010000520	Ceramic	DD108 B 472K 50V
C64	4010000520	Ceramic	DD108 B 472K 50V
C65	4510002950	Electrolytic	50 SS 2R2 µF
C66	4040000250	Barrier Layer	UAT 08X 473M
C67	4010000410	Ceramic	DD107 SL 331J 50V
C68	4010000270	Ceramic	DD104 SL 510J 50V
C69	4010000410	Ceramic	DD107 SL 331J 50V
C70	4040000250	Barrier Layer	UAT 08X 473M
C71	4040000250	Barrier Layer	UAT 08X 473M
C72	4040000250	Barrier Layer	UAT 08X 473M
C73	4040000250	Barrier Layer	UAT 08X 473M
C74	4510002950	Electrolytic	50 SS 2R2 µF
C75	4040000260	Barrier Layer	UZE 08X 104M
C76	4040000260	Barrier Layer	UZE 08X 104M
C77	4010000520	Ceramic	DD108 B 472K 50V
C78	4040000250	Barrier Layer	UAT 08X 473M
C79	4510002800	Electrolytic	16 SS 33 µF
C80	4510002780	Electrolytic	16 SS 10 µF
C81	4010000460	Ceramic	DD104 B 471K 50V
C82	4010000460	Ceramic	DD104 B 471K 50V
C83	4510001770	Electrolytic	16 RBP 10 µF
C84	4010000520	Ceramic	DD108 B 472K 50V
C85	4010000340	Ceramic	DD105 SL 121J 50V
C86	4010000380	Ceramic	DD107 SL 221J 50V
C87	4010000380	Ceramic	DD107 SL 221J 50V
C88	4010000340	Ceramic	DD105 SL 121J 50V
C89	4510002950	Electrolytic	50 SS 2R2 µF
C90	4040000250	Barrier Layer	UAT 08X 473M
C91	4010003660	Ceramic	DD109 UJ 221J 50V
C92	4010003660	Ceramic	DD109 UJ 221J 50V
C93	4010003660	Ceramic	DD109 UJ 221J 50V
C94	4010003660	Ceramic	DD109 UJ 221J 50V
C95	4010003580	Ceramic	DD106 UJ 101J 50V
C96	4040000150	Barrier Layer	UAT 05X 472K
C97	4510002850	Electrolytic	25 SS 22 µF
C98	4010000520	Ceramic	DD108 B 472K 50V
C99	4010000520	Ceramic	DD108 B 472K 50V
C100	4510002850	Electrolytic	25 SS 22 µF
C101	4010000180	Ceramic	DD104 SL 220J 50V
C102	4010000520	Ceramic	DD108 B 472K 50V
C103	4010000520	Ceramic	DD108 B 472K 50V
C104	4040000150	Barrier Layer	UAT 05X 472K
C105	4510002810	Electrolytic	16 SS 47 µF
C106	4010000520	Ceramic	DD108 B 472K 50V
C107	4510002810	Electrolytic	16 SS 47 µF
C108	4040000150	Barrier Layer	UAT 05X 472K
C109	4510002850	Electrolytic	25 SS 22 µF
C110	4040000150	Barrier Layer	UAT 05X 472K
C111	4510002850	Electrolytic	25 SS 22 µF
C112	4010000220	Ceramic	DD104 SL 330J 50V
C113	4040000260	Barrier Layer	UZE 08X 104M
C114	4040000250	Barrier Layer	UAT 08X 473M
C115	4010000460	Ceramic	DD104 B 471K 50V
C116	4010000520	Ceramic	DD108 B 472K 50V
C117	4510002840	Electrolytic	25 SS 10 µF
C118	4510002840	Electrolytic	25 SS 10 µF
C119	4510002810	Electrolytic	16 SS 47 µF
C120	4010000340	Ceramic	DD105 SL 121J 50V



[SCOPE UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
C121	4040000250	Barrier Layer	UAT 08X 473M
C122	4510002730	Electrolytic	10 SS 100 μF
C123	4010000520	Ceramic	DD108 B 472K 50V
C124	4040000250	Barrier Layer	UAT 08X 473M
C125	4510001170	Electrolytic	50 MS7 2R2 μF
C126	4040000250	Barrier Layer	UAT 08X 473M
C127	4510001150	Electrolytic	50 MS7 R47 μF
C128	4040000250	Barrier Layer	UAT 08X 473M
C129	4510001150	Electrolytic	50 MS7 R47 μF
C130	4510001470	Electrolytic	50 MS5 1 μF
C131	4510001170	Electrolytic	50 MS7 2R2 μF
C132	4310000060	Mylar	F2D 50V 223K
C133	4510001160	Electrolytic	50 MS7 1 μF
C134	4310000060	Mylar	F2D 50V 223K
C135	4040000150	Barrier Layer	UAT 05X 472K
C136	4510002840	Electrolytic	25 SS 10 μF
C137	4310000110	Mylar	F2D 50V 472K
C138	4010000520	Ceramic	DD108 B 472K 50V
C139	4510002840	Electrolytic	25 SS 10 μF
C140	4550000380	Tantalum	DN 1A 100M
C141	4010000500	Ceramic	DD104 B 102K 50V
C142	4530000270	Capacitor Array	B8XC0114-32N
C143	4510002840	Electrolytic	25 SS 10 μF
C144	4040000150	Barrier Layer	UAT 05X 472K
C145	4040000150	Barrier Layer	UAT 05X 472K
C146	4510002840	Electrolytic	25 SS 10 μF
C147	4040000150	Barrier Layer	UAT 05X 472K
C148	4010000420	Ceramic	DD108 SL 391J 50V
C149	4010000520	Ceramic	DD108 B 472K 50V
C150	4510002840	Electrolytic	25 SS 10 μF
C151	4010000520	Ceramic	DD108 B 472K 50V
C152	4010000210	Ceramic	DD104 SL 300J 50V
S1	2220000360	Switch	ESD-1111212 [SPAN SELECTOR]
S2	2220000360	Switch	ESD-1111212 [SPECTRUM SCOPE AFC]
EP1	0910021672	P.C. Board	B 1887B

[PLL A UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
Q14	1510000580	Transistor	2SA1362-GR (TE85R)
Q15	1590000460	Transistor	RN1402 (TE85R)
Q16	1590000460	Transistor	RN1402 (TE85R)
Q17	1510000580	Transistor	2SA1362-GR (TE85R)
Q18	1590000460	Transistor	RN1402 (TE85R)
Q19	1510000580	Transistor	2SA1362-GR (TE85R)
Q20	1590000460	Transistor	RN1402 (TE85R)
D1	1710000580	Diode	1SS265
D2	1710000580	Diode	1SS265
D3	1720000250	Varicap	1T32A-T8
D4	1720000250	Varicap	1T32A-T8
D5	1720000250	Varicap	1T32A-T8
D6	1720000250	Varicap	1T32A-T8
D7	1710000580	Diode	1SS265
D8	1720000250	Varicap	1T32A-T8
D9	1720000250	Varicap	1T32A-T8
D10	1710000580	Diode	1SS265
D11	1790000490	Diode	HSM88AS-TR
D13	1790000490	Diode	HSM88AS-TR
D15	1750000040	Diode	1SS190 (TE85R)
D16	1730000270	Zener	RD16E B2
D18	1750000020	Diode	1SS184 (TE85R)
D19	1750000050	Diode	1SS193 (TE85R)
D20	1750000020	Diode	1SS184 (TE85R)
D21	1750000030	Diode	1SS187 (TE85R)
L1	6170000230	Coil	LW-25
L2	6170000190	Coil	LW-20
L3	6200000010	Coil	LQN 5N 1R0M
L4	6200000140	Coil	LQH 3N 1R0M
L5	6140001490	Coil	LR-168
L6	6200000140	Coil	LQH 3N 1R0M
L7	6200000140	Coil	LQH 3N 1R0M
L8	6180001450	Coil	RFC S4 102K
L9	6180000880	Coil	LAL 03NA 100K
L10	6170000230	Coil	LW-25
L11	6170000210	Coil	LW-22
L12	6170000190	Coil	LW-20
L13	6180002550	Coil	LAL 02KR R68K
L14	6200000140	Coil	LQH 3N 1R0M
L15	6200000140	Coil	LQH 3N 1R0M
L16	6200000140	Coil	LQH 3N 1R0M
L17	6180001450	Coil	RFC S4 102K
L18	6180000900	Coil	LAL 03NA 101K
L19	6170000180	Coil	LW-19
L20	6200000260	Coil	LQN 2A R10K
L21	6200000260	Coil	LQN 2A R10K
L22	6200000260	Coil	LQN 2A R10K
L23	6200000260	Coil	LQN 2A R10K
L24	6140001730	Coil	LR-192
L25	6180000900	Coil	LAL 03NA 101K
L26	6110001640	Coil	LA-247
L27	6110001690	Coil	LA-255
L28	6180001440	Coil	RFC S4 101K
L29	6180001450	Coil	RFC S4 102K
L30	6180000880	Coil	LAL 03NA 100K
L31	6180000880	Coil	LAL 03NA 100K
L32	6180001440	Coil	RFC S4 101K
L33	6180001510	Coil	LAL 02NA 101K
L34	6180000900	Coil	LAL 03NA 101K
L35	6180000900	Coil	LAL 03NA 101K
L36	6180000900	Coil	LAL 03NA 101K
L37	6180000880	Coil	LAL 03NA 100K
L51	6200000010	Coil	LQN 5N 1R0M
L53	6180000900	Coil	LAL 03NA 101K
L75	6200000010	Coil	LQN 5N 1R0M
L77	6110001530	Coil	LA-233
R1	7030000280	Resistor	MCR10EZHZ 150 Ω (151)
R2	7030000400	Resistor	MCR10EZHZ 1.5 kΩ (152)
R3	7030000140	Resistor	MCR10EZHZ 10 Ω (100)

[PLL A UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1110001000	IC	μPC1651G
IC2	1110001880	IC	μPB565C
IC3	1110001900	IC	μPC4570G2-T1
IC4	1110001490	IC	MB87006AP-G
IC5	1110000940	IC	MB501LP-G
IC6	1110001000	IC	μPC1651G
IC7	1120001610	IC	MB74LS90PF-G-BND
IC8	1120001610	IC	MB74LS90PF-G-BND
IC10	1110001000	IC	μPC1651G
Q1	1560000140	FET	2SK125
Q2	1530001810	Transistor	2SC3355
Q3	1530000370	Transistor	2SC3356-T2B
Q4	1560000140	FET	2SK125
Q5	1530000370	Transistor	2SC3356-T2B
Q6	1530002030	Transistor	2SC3772-3-TA
Q7	1530002050	Transistor	2SC3661-TA
Q8	1530002370	Transistor	2SC2714-O (TE85R)
Q9	1530001950	Transistor	2SC2712-GR (TE85R)
Q10	1530001950	Transistor	2SC2712-GR (TE85R)
Q11	1510000580	Transistor	2SA1362-GR (TE85R)
Q12	1510000580	Transistor	2SA1362-GR (TE85R)
Q13	1510000580	Transistor	2SA1362-GR (TE85R)

## [PLL A UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
R4	7030000450	Resistor	MCR10EZHZ 3.9 k $\Omega$ (392)
R5	7030000260	Resistor	MCR10EZHZ 100 $\Omega$ (101)
R6	7030000260	Resistor	MCR10EZHZ 100 $\Omega$ (101)
R7	7030000180	Resistor	MCR10EZHZ 22 $\Omega$ (220)
R8	7030000480	Resistor	MCR10EZHZ 6.8 k $\Omega$ (682)
R9	7030000240	Resistor	MCR10EZHZ 68 $\Omega$ (680)
R10	7030000310	Resistor	MCR10EZHZ 270 $\Omega$ (271)
R11	7030000310	Resistor	MCR10EZHZ 270 $\Omega$ (271)
R12	7030000160	Resistor	MCR10EZHZ 15 $\Omega$ (150)
R13	7030000400	Resistor	MCR10EZHZ 1.5 k $\Omega$ (152)
R14	7030000140	Resistor	MCR10EZHZ 10 $\Omega$ (100)
R15	7030000450	Resistor	MCR10EZHZ 3.9 k $\Omega$ (392)
R16	7030000260	Resistor	MCR10EZHZ 100 $\Omega$ (101)
R17	7030000260	Resistor	MCR10EZHZ 100 $\Omega$ (101)
R18	7030000400	Resistor	MCR10EZHZ 1.5 k $\Omega$ (152)
R19	7030000240	Resistor	MCR10EZHZ 68 $\Omega$ (680)
R20	7030000260	Resistor	MCR10EZHZ 100 $\Omega$ (101)
R21	7030000260	Resistor	MCR10EZHZ 100 $\Omega$ (101)
R22	7030000210	Resistor	MCR10EZHZ 39 $\Omega$ (390)
R23	7030000280	Resistor	MCR10EZHZ 150 $\Omega$ (151)
R24	7030000280	Resistor	MCR10EZHZ 150 $\Omega$ (151)
R25	7030000220	Resistor	MCR10EZHZ 47 $\Omega$ (470)
R26	7030000230	Resistor	MCR10EZHZ 56 $\Omega$ (560)
R27	7030000350	Resistor	MCR10EZHZ 560 $\Omega$ (561)
R28	7030000460	Resistor	MCR10EZHZ 4.7 k $\Omega$ (472)
R29	7030000400	Resistor	MCR10EZHZ 1.5 k $\Omega$ (152)
R30	7030000130	Resistor	MCR10EZHZ 8.2 $\Omega$ (8R2)
R31	7030000220	Resistor	MCR10EZHZ 47 $\Omega$ (470)
R32	7030000170	Resistor	MCR10EZHZ 18 $\Omega$ (180)
R33	7030000310	Resistor	MCR10EZHZ 270 $\Omega$ (271)
R34	7030000380	Resistor	MCR10EZHZ 1 k $\Omega$ (102)
R35	7030000310	Resistor	MCR10EZHZ 270 $\Omega$ (271)
R36	7030000200	Resistor	MCR10EZHZ 33 $\Omega$ (330)
R37	7030000400	Resistor	MCR10EZHZ 1.5 k $\Omega$ (152)
R38	7010001530	Resistor	R25J 1 M $\Omega$
R39	7030000480	Resistor	MCR10EZHZ 6.8 k $\Omega$ (682)
R40	7030000390	Resistor	MCR10EZHZ 1.2 k $\Omega$ (122)
R41	7030000480	Resistor	MCR10EZHZ 6.8 k $\Omega$ (682)
R42	7030000390	Resistor	MCR10EZHZ 1.2 k $\Omega$ (122)
R43	7030000400	Resistor	MCR10EZHZ 1.5 k $\Omega$ (152)
R44	7030000460	Resistor	MCR10EZHZ 4.7 k $\Omega$ (472)
R45	7030000500	Resistor	MCR10EZHZ 10 k $\Omega$ (103)
R46	7030000460	Resistor	MCR10EZHZ 4.7 k $\Omega$ (472)
R47	7030000210	Resistor	MCR10EZHZ 39 $\Omega$ (390)
R48	7030000280	Resistor	MCR10EZHZ 150 $\Omega$ (151)
R49	7030000280	Resistor	MCR10EZHZ 150 $\Omega$ (151)
R50	7030000420	Resistor	MCR10EZHZ 2.2 k $\Omega$ (222)
R51	7010003990	Resistor	R20J 22 $\Omega$
R52	7030000500	Resistor	MCR10EZHZ 10 k $\Omega$ (103)
R53	7030000260	Resistor	MCR10EZHZ 100 $\Omega$ (101)
R54	7030000520	Resistor	MCR10EZHZ 15 k $\Omega$ (153)
R55	7030000500	Resistor	MCR10EZHZ 10 k $\Omega$ (103)
R56	7030000300	Resistor	MCR10EZHZ 220 $\Omega$ (221)
R57	7030000460	Resistor	MCR10EZHZ 4.7 k $\Omega$ (472)
R58	7030000380	Resistor	MCR10EZHZ 1 k $\Omega$ (102)
R59	7030000500	Resistor	MCR10EZHZ 10 k $\Omega$ (103)
R60	7030000580	Resistor	MCR10EZHZ 47 k $\Omega$ (473)
R61	7030000580	Resistor	MCR10EZHZ 47 k $\Omega$ (473)
R62	7030000380	Resistor	MCR10EZHZ 1 k $\Omega$ (102)
R63	7030000500	Resistor	MCR10EZHZ 10 k $\Omega$ (103)
R64	7030000420	Resistor	MCR10EZHZ 2.2 k $\Omega$ (222)
R65	7030000500	Resistor	MCR10EZHZ 10 k $\Omega$ (103)
R66	7030000420	Resistor	MCR10EZHZ 2.2 k $\Omega$ (222)
R67	7030000500	Resistor	MCR10EZHZ 10 k $\Omega$ (103)
R68	7030000420	Resistor	MCR10EZHZ 2.2 k $\Omega$ (222)
R69	7030000500	Resistor	MCR10EZHZ 10 k $\Omega$ (103)
R70	7030000420	Resistor	MCR10EZHZ 2.2 k $\Omega$ (222)
R71	7030000500	Resistor	MCR10EZHZ 10 k $\Omega$ (103)
R72	7030000420	Resistor	MCR10EZHZ 2.2 k $\Omega$ (222)
R73	7030000500	Resistor	MCR10EZHZ 10 k $\Omega$ (103)
R74	7030000420	Resistor	MCR10EZHZ 2.2 k $\Omega$ (222)
R76	7030000140	Resistor	MCR10EZHZ 10 $\Omega$ (100)
R77	7010003990	Resistor	R20J 22 $\Omega$
R79	7030000380	Resistor	MCR10EZHZ 1 k $\Omega$ (102)
R120	7030000310	Resistor	MCR10EZHZ 270 $\Omega$ (271)

## [PLL A UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
R121	7030000170	Resistor	MCR10EZHZ 18 $\Omega$ (180)
R122	7030000310	Resistor	MCR10EZHZ 270 $\Omega$ (271)
R123	7030000280	Resistor	MCR10EZHZ 150 $\Omega$ (151)
R124	7030000210	Resistor	MCR10EZHZ 39 $\Omega$ (390)
R125	7030000280	Resistor	MCR10EZHZ 150 $\Omega$ (151)
C1	4030001090	Ceramic	GRM40 B 471K 50PT
C2	4550000310	Tantalum	DN 1V 2R2M
C3	4030001090	Ceramic	GRM40 B 471K 50PT
C4	4030001090	Ceramic	GRM40 B 471K 50PT
C5	4030000840	Ceramic	GRM40 CJ 030C 50PT
C6	4030000840	Ceramic	GRM40 CJ 030C 50PT
C7	4030000540	Ceramic	GRM40 SL 0R5C 50PT
C8	4510002740	Electrolytic	10 SS 220 $\mu$ F
C9	4030001090	Ceramic	GRM40 B 471K 50PT
C10	4030001090	Ceramic	GRM40 B 471K 50PT
C11	4030000600	Ceramic	GRM40 SL 060D 50PT
C12	4510002730	Electrolytic	10 SS 100 $\mu$ F
C13	4030001090	Ceramic	GRM40 B 471K 50PT
C14	4550000310	Tantalum	DN 1V 2R2M
C15	4030001090	Ceramic	GRM40 B 471K 50PT
C16	4030001090	Ceramic	GRM40 B 471K 50PT
C17	4030000840	Ceramic	GRM40CJ 030C 50PT
C18	4030000840	Ceramic	GRM40 CJ 030C 50PT
C19	4030000540	Ceramic	GRM40 SL 0R5C 50PT
C20	4030001090	Ceramic	GRM40 B 471K 50PT
C21	4030001090	Ceramic	GRM40 B 471K 50PT
C22	4030000670	Ceramic	GRM40 SL 220J 50PT
C23	4510002740	Electrolytic	10 SS 220 $\mu$ F
C24	4030001090	Ceramic	GRM40 B 471K 50PT
C25	4030001090	Ceramic	GRM40 B 471K 50PT
C26	4030000600	Ceramic	GRM40 SL 060D 50PT
C27	4510002730	Electrolytic	10 SS 100 $\mu$ F
C28	4030000600	Ceramic	GRM40 SL 060D 50PT
C29	4030000600	Ceramic	GRM40 SL 060D 50PT
C30	4030000740	Ceramic	GRM40 SL 101J 50PT
C31	4030001100	Ceramic	GRM40 B 102K 50PT
C32	4030000670	Ceramic	GRM40 SL 220J 50PT
C33	4030000740	Ceramic	GRM40 SL 101J 50PT
C34	4030001120	Ceramic	GRM40 B 472K 50PT
C35	4510002780	Electrolytic	16 SS 10 $\mu$ F
C36	4030000670	Ceramic	GRM40 SL 220J 50PT
C37	4030001140	Ceramic	GRM40 F 103Z 50PT
C38	4030001100	Ceramic	GRM40 B 102K 50PT
C39	4030001120	Ceramic	GRM40 B 472K 50PT
C40	4020000650	Cylinder	EP050 X 472M
C41	4030000730	Ceramic	GRM40 SL 820J 50PT
C42	4030000750	Ceramic	GRM40 SL 121J 50PT
C43	4030000750	Ceramic	GRM40 SL 121J 50PT
C44	4030000750	Ceramic	GRM40 SL 121J 50PT
C45	4030000730	Ceramic	GRM40 SL 820J 50PT
C46	4030001090	Ceramic	GRM40 B 471K 50PT
C47	4020000650	Cylinder	EP050 X 472M
C48	4030001090	Ceramic	GRM40 B 471K 50PT
C49	4030001140	Ceramic	GRM40 F 103Z 50PT
C50	4030001140	Ceramic	GRM40 F 103Z 50PT
C51	4030001140	Ceramic	GRM40 F 103Z 50PT
C56	4030000700	Ceramic	GRM40 SL 470J 50PT
C57	4030000680	Ceramic	GRM40 SL 330J 50PT
C58	4030001150	Ceramic	GRM40 F 104Z 25PT
C59	4510002640	Electrolytic	25 SS 47 $\mu$ F
C60	4030000650	Ceramic	GRM40 SL 150J 50PT
C61	4550000010	Tantalum	DN 1C 4R7M
C62	4560000040	Ceramic	D67X5T 1H 684M
C63	4030001150	Ceramic	GRM40 F 104Z 25PT
C64	4030001150	Ceramic	GRM40 F 104Z 25PT
C65	4030001150	Ceramic	GRM40 F 104Z 25PT
C66	4510002870	Electrolytic	25 SS 100 $\mu$ F
C67	4030001090	Ceramic	GRM40 B 471K 50PT
C68	4510002870	Electrolytic	25 SS 100 $\mu$ F
C69	4560000040	Ceramic	D67X5T 1H 684M
C70	4030001140	Ceramic	GRM40 F 103Z 50PT
C71	4030001100	Ceramic	GRM40 B 102K 50PT
C72	4020000650	Cylinder	EP050 X 472M

**[PLL A UNIT]**

REF. NO.	ORDER NO.	DESCRIPTION	
C73	4030000600	Ceramic	GRM40 SL 060D 50PT
C74	4030001100	Ceramic	GRM40 B 102K 50PT
C75	4030000670	Ceramic	GRM40 SL 220J 50PT
C76	4030000670	Ceramic	GRM40 SL 220J 50PT
C77	4030001090	Ceramic	GRM40 B 471K 50PT
C78	4030001120	Ceramic	GRM40 B 472K 50PT
C80	4030001090	Ceramic	GRM40 B 471K 50PT
C81	4030001120	Ceramic	GRM40 B 472K 50PT
C82	4030001150	Ceramic	GRM40 F 104Z 25PT
C83	4030001100	Ceramic	GRM40 B 102K 50PT
C84	4510002810	Electrolytic	16 SS 47 $\mu$ F
C85	4030001150	Ceramic	GRM40 F 104Z 25PT
C86	4030001100	Ceramic	GRM40 B 102K 50PT
C87	4030001120	Ceramic	GRM40 B 472K 50PT
C88	4030001100	Ceramic	GRM40 B 102K 50PT
C89	4030001100	Ceramic	GRM40 B 102K 50PT
C90	4030001150	Ceramic	GRM40 F 104Z 25PT
C91	4030001100	Ceramic	GRM40 B 102K 50PT
C92	4510002780	Electrolytic	16 SS 10 $\mu$ F
C93	4030001150	Ceramic	GRM40 F 104Z 25PT
C94	4030001150	Ceramic	GRM40 F 104Z 25PT
C95	4510002780	Electrolytic	16 SS 10 $\mu$ F
C96	4030001150	Ceramic	GRM40 F 104Z 25PT
C100	4510002780	Electrolytic	16 SS 10 $\mu$ F
C102	4030001120	Ceramic	GRM40 B 472K 50PT
C104	4030000910	Ceramic	GRM40 CH 120J 50PT
C113	4030000650	Ceramic	GRM40 SL 150J 50PT
C114	4030000580	Ceramic	GRM40 SL 040C 50PT
C115	4030000660	Ceramic	GRM40 SL 180J 50PT
C116	4030000570	Ceramic	GRM40 SL 030C 50PT
C164	4030000670	Ceramic	GRM40 SL 220J 50PT
C168	4030000580	Ceramic	GRM40 SL 040C 50PT
C169	4030000560	Ceramic	GRM40 SL 020C 50PT
C170	4030000580	Ceramic	GRM40 SL 040C 50PT
C171	4030000550	Ceramic	GRM40 SL 010C 50PT
C172	4030000580	Ceramic	GRM40 SL 040C 50PT
C173	4030000670	Ceramic	GRM40 SL 220J 50PT
C174	4030000750	Ceramic	GRM40 SL 121J 50PT
C175	4030000570	Ceramic	GRM40 SL 030C 50PT
C188	4030000560	Ceramic	GRM40 SL 020C 50PT
C189	4030000560	Ceramic	GRM40 SL 020C 50PT
C190	4030000580	Ceramic	GRM40 SL 040C 50PT
C191	4030000570	Ceramic	GRM40 SL 030C 50PT
C192	4030000570	Ceramic	GRM40 SL 030C 50PT
C195	4030000560	Ceramic	GRM40 SL 020C 50PT
C196	4030000650	Ceramic	GRM40 SL 150J 50PT
C197	4030001090	Ceramic	GRM40 B 471K 50PT
C198	4030000750	Ceramic	GRM40 SL 121J 50PT
C199	4030000740	Ceramic	GRM40 SL 101J 50PT
C200	4030001100	Ceramic	GRM40 B 102K 50PT
C201	4030000740	Ceramic	GRM40 SL 101J 50PT
C202	4030001100	Ceramic	GRM40 B 102K 50PT
C203	4030001150	Ceramic	GRM40 F 104Z 25PT
C204	4030001150	Ceramic	GRM40 F 104Z 25PT
EP1	0910019813	P.C. Board	B 1885C
EP2	0910012633	P.C. Board	B 1179C (DOUBLER)
EP3	0910019652	P.C. Board	B 1889B (PRESCAL A)
EP4	0910019652	P.C. Board	B 1889B (PRESCAL A)
EP5	6910001400	Lead Frame	VD2.54-0.7-7
EP6	0910019343	P.C. Board	B 1857C (VCO 1)
EP7	0910019353	P.C. Board	B 1858C (VCO 2)

**[PLL B UNIT]**

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1110001320	IC	$\mu$ PC1037HA
IC2	1110001320	IC	$\mu$ PC1037HA
IC3	1110001000	IC	$\mu$ PC1651G
IC4	1110001000	IC	$\mu$ PC1651G
IC5	1110001640	IC	MB501LPF-G-BND
IC6	1110001490	IC	MB87006AP-G
IC7	6910001380	IC	DM-88XB
IC8	1180000190	IC	NJM7805A
IC9	1180000300	IC	$\mu$ A7808UC
IC10	1120001610	IC	MB74LS90PF-G-BND
IC11	1110001490	IC	MB87006AP-G
IC12	1110001640	IC	MB501LPF-G-BND
IC13	1110001900	IC	$\mu$ PC4570G2-T1
IC14	1110001900	IC	$\mu$ PC4570G2-T1
IC15	6910003040	IC	ENF-VCO06B01
IC16	6910003030	IC	ENF-VCO02101
Q1	1560000090	FET	2SK192A-GR
Q2	1530002370	Transistor	2SC2714-O (TE85R)
Q3	1530002370	Transistor	2SC2714-O (TE85R)
Q4	1530001950	Transistor	2SC2712-GR (TE85R)
Q5	1560000130	FET	2SK125
Q6	1530002370	Transistor	2SC2714-O (TE85R)
Q7	1530001950	Transistor	2SC2712-GR (TE85R)
Q8	1530001950	Transistor	2SC2712-GR (TE85R)
Q9	1560000130	FET	2SK125
Q12	1530001950	Transistor	2SC2712-GR (TE85R)
Q13	1530002370	Transistor	2SC2714-O (TE85R)
Q14	1530002370	Transistor	2SC2714-O (TE85R)
Q15	1560000130	FET	2SK125
Q16	1530001810	Transistor	2SC3355
Q17	1530001810	Transistor	2SC3355
Q18	1510000580	Transistor	2SA1362-GR (TE85R)
Q19	1510000580	Transistor	2SA1362-GR (TE85R)
Q20	1590000460	Transistor	RN1402 (TE85R)
Q21	1510000580	Transistor	2SA1362-GR (TE85R)
Q22	1510000580	Transistor	2SA1362-GR (TE85R)
Q23	1590000460	Transistor	RN1402 (TE85R)
Q24	1510000580	Transistor	2SA1362-GR (TE85R)
Q25	1590000460	Transistor	RN1402 (TE85R)
Q26	1510000580	Transistor	2SA1362-GR (TE85R)
Q27	1510000580	Transistor	2SA1362-GR (TE85R)
Q28	1590000460	Transistor	RN1402 (TE85R)
Q29	1590000410	Transistor	RN2404 (TE85R)
Q31	1530002370	Transistor	2SC2714-O (TE85R)
Q32	1590000410	Transistor	RN2404 (TE85R)
Q33	1560000140	FET	2SK125
Q34	1530000370	Transistor	2SC3356-T2B
Q38	1590000410	Transistor	RN2404 (TE85R)
Q39	1530001950	Transistor	2SC2712-GR (TE85R)
Q40	1510000580	Transistor	2SA1362-GR (TE85R)
Q41	1590000460	Transistor	RN1402 (TE85R)
Q42	1590000410	Transistor	RN2404 (TE85R)
Q43	1590000410	Transistor	RN2404 (TE85R)
Q44	1560000400	FET	2SK536-TA
Q45	1560000400	FET	2SK536-TA
D1	1710000050	Diode	1SS53
D2	1720000120	Varicap	FC52M
D3	1710000410	Diode	MI105
D4	1710000580	Diode	1SS265
D5	1750000020	Diode	1SS184 (TE85R)
D6	1750000020	Diode	1SS184 (TE85R)
D7	1750000020	Diode	1SS184 (TE85R)
D8	1750000060	Diode	1SS196 (TE85R)
D9	1710000580	Diode	1SS265
D10	1710000580	Diode	1SS265
D11	1710000410	Diode	MI105
D12	1710000410	Diode	MI105
D15	1750000050	Diode	1SS193 (TE85R)
D16	1750000060	Diode	1SS196 (TE85R)
D17	1790000490	Diode	HSM88AS-TR
D18	1790000490	Diode	HSM88AS-TR

## [PLL B UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
D19	1790000490	Diode HSM88AS-TR
D20	1790000490	Diode HSM88AS-TR
D21	1720000220	Varicap 1SV166-T2B
D22	1720000220	Varicap 1SV166-T2B
D23	1790000450	Diode MA862 (TX)
D25	1790000450	Diode MA862 (TX)
D26	1790000450	Diode MA862 (TX)
D29	1750000020	Diode 1SS184 (TE85R)
X1	6050004970	Crystal CR-228 (12500KHZ)
L1	6180000900	Coil LAL 03NA 101K
L2	6180000900	Coil LAL 03NA 101K
L3	6140000580	Coil LR-79
L4	6150003100	Coil LS-316
L5	6170000230	Coil LW-25
L7	6140001600	Coil LR-178
L8	6180001990	Coil LAL 03NA 560K
L9	6180001990	Coil LAL 03NA 560K
L10	6150000990	Coil LS-114
L12	6150000990	Coil LS-114
L13	6200000780	Coil LQH3N 100K
L14	6910000670	Coil BT01RN1-A61-001
L16	6150002550	Coil LS-284
L18	6150002550	Coil LS-284
L20	6200000240	Coil LQH 3N R68M
L21	6200000820	Coil LQH 3N R82M
L22	6150002550	Coil LS-284
L23	6150002550	Coil LS-284
L24	6150002360	Coil LS-247
L25	6150002360	Coil LS-247
L26	6150001700	Coil LS-191
L29	6150001770	Coil LS-198
L30	6150001770	Coil LS-198
L31	6150002100	Coil LS-215
L32	6150001850	Coil LS-207
L33	6150001850	Coil LS-207
L34	6180000900	Coil LAL 03NA 101K
L35	6200000020	Coil LQH 3N 101K-S
L36	6150000760	Coil LS-94
L37	6150000760	Coil LS-94
L39	6180000990	Coil LAL 04NA 101K
L40	6190000470	Coil 252HXPk-2302F
L41	6170000230	Coil LW-25
L42	6190000470	Coil 252HXPk-2302F
L43	6170000230	Coil LW-25
L44	6150002220	Coil LS-230A
L45	6150002220	Coil LS-230A
L46	6180000900	Coil LAL 03NA 101K
L47	6150002220	Coil LS-230A
L48	6150002220	Coil LS-230A
L49	6200000020	Coil LQH 3N 101K-S
L50	6200000020	Coil LQH 3N 101K-S
L51	6180000900	Coil LAL 03NA 101K
L52	6180000900	Coil LAL 03NA 101K
L53	6180001510	Coil LAL 02NA 101K
L54	6200000020	Coil LQH 3N 101K-S
L55	6200000100	Coil LQN 2A 22NM
L56	6180000900	Coil LAL 03NA 101K
L57	6180000830	Coil LAL 03NA 3R3K
L58	6200000830	Coil LQH 3N 3R3M
L59	6200000780	Coil LQH 3N 100K
L60	6200000140	Coil LQH 3N 1R0M
L61	6180001300	Coil LAL 02NA 100K
L62	6200000780	Coil LQH 3N 100K
L63	6200000830	Coil LQH 3N 3R3M
L64	6200000140	Coil LQH 3N 1R0M
L65	6110001520	Coil LA-232
L66	6170000230	Coil LW-25
L69	6190000100	Coil 252HA-1822F
L70	6170000180	Coil LW-19
L72	6110002130	Coil LA-383
L73	6190000490	Coil 252HEP-2559A

## [PLL B UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
L74	6180000770	Coil LAL 03NA 1R0M
L75	6180000770	Coil LAL 03NA 1R0M
L79	6180000880	Coil LAL 03NA 100K
L80	6180000900	Coil LAL 03NA 101K
L81	6180000900	Coil LAL 03NA 101K
L82	6180000900	Coil LAL 03NA 101K
L83	6180000900	Coil LAL 03NA 101K
L84	6180000900	Coil LAL 03NA 101K
L85	6200000020	Coil LQH 3N 101K-S
L86	6170000230	Coil LW-25
L87	6200000020	Coil LQH 3N 101K-S
L88	6200000100	Coil LQN 2A 22NM
L89	6200000100	Coil LQN 2A 22NM
L90	6180000900	Coil LAL 03NA 101K
L91	6180000900	Coil LAL 03NA 101K
R1	7030000380	Resistor MCR10EZHZ 1 kΩ (102)
R2	7030000520	Resistor MCR10EZHZ 15 kΩ (153)
R3	7030000500	Resistor MCR10EZHZ 10 kΩ (103)
R4	7010001450	Resistor R25J 220 kΩ
R6	7030000220	Resistor MCR10EZHZ 47 Ω (470)
R7	7030000620	Resistor MCR10EZHZ 100 kΩ (104)
R8	7030000620	Resistor MCR10EZHZ 100 kΩ (104)
R9	7010003280	Resistor ELR20J 100 Ω
R10	7010004070	Resistor R20J 100 Ω
R11	7030000500	Resistor MCR10EZHZ 10 kΩ (103)
R12	7030000280	Resistor MCR10EZHZ 150 Ω (151)
R13	7030000420	Resistor MCR10EZHZ 2.2 kΩ (222)
R14	7030000280	Resistor MCR10EZHZ 150 Ω (151)
R15	7030000220	Resistor MCR10EZHZ 47 Ω (470)
R16	7010000990	Resistor R25J 47 Ω
R17	7010004070	Resistor R20J 100 Ω
R18	7030000220	Resistor MCR10EZHZ 47 Ω (470)
R19	7030000460	Resistor MCR10EZHZ 4.7 kΩ (472)
R20	7030000350	Resistor MCR10EZHZ 560 Ω (561)
R21	7030000440	Resistor MCR10EZHZ 3.3 kΩ (332)
R22	7030000260	Resistor MCR10EZHZ 100 Ω (101)
R23	7030000230	Resistor MCR10EZHZ 56 Ω (560)
R24	7010004070	Resistor R20J 100 Ω
R25	7030000260	Resistor MCR10EZHZ 100 Ω (101)
R26	7030000260	Resistor MCR10EZHZ 100 Ω (101)
R27	7010004070	Resistor R20J 100 Ω
R28	7030000300	Resistor MCR10EZHZ 220 Ω (221)
R29	7030000540	Resistor MCR10EZHZ 22 kΩ (223)
R30	7030000500	Resistor MCR10EZHZ 10 kΩ (103)
R31	7030000340	Resistor MCR10EZHZ 470 Ω (471)
R32	7030000340	Resistor MCR10EZHZ 470 Ω (471)
R33	7030000500	Resistor MCR10EZHZ 10 kΩ (103)
R34	7030000420	Resistor MCR10EZHZ 2.2 kΩ (222)
R35	7030000300	Resistor MCR10EZHZ 220 Ω (221)
R36	7030000400	Resistor MCR10EZHZ 1.5 kΩ (152)
R37	7030000340	Resistor MCR10EZHZ 470 Ω (471)
R38	7030000300	Resistor MCR10EZHZ 220 Ω (221)
R39	7030000500	Resistor MCR10EZHZ 10 kΩ (103)
R40	7030000420	Resistor MCR10EZHZ 2.2 kΩ (222)
R41	7030000390	Resistor MCR10EZHZ 1.2 kΩ (122)
R42	7030000340	Resistor MCR10EZHZ 470 Ω (471)
R43	7010004070	Resistor R20J 100 Ω
R44	7010003280	Resistor ELR20J 100 Ω
R45	7030000260	Resistor MCR10EZHZ 100 Ω (101)
R46	7030000230	Resistor MCR10EZHZ 56 Ω (560)
R47	7010004070	Resistor R20J 100 Ω
R48	7010004030	Resistor R20J 47 Ω
R49	7030000500	Resistor MCR10EZHZ 10 kΩ (103)
R50	7030000420	Resistor MCR10EZHZ 2.2 kΩ (222)
R51	7030000260	Resistor MCR10EZHZ 100 Ω (101)
R53	7030000280	Resistor MCR10EZHZ 150 Ω (151)
R54	7030000260	Resistor MCR10EZHZ 100 Ω (101)
R55	7030000260	Resistor MCR10EZHZ 100 Ω (101)
R56	7030000540	Resistor MCR10EZHZ 22 kΩ (223)
R57	7030000500	Resistor MCR10EZHZ 10 kΩ (103)
R58	7030000300	Resistor MCR10EZHZ 220 Ω (221)
R59	7030000270	Resistor MCR10EZHZ 120 Ω (121)
R60	7030000220	Resistor MCR10EZHZ 47 Ω (470)

[PLL B UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
R61	7030000270	Resistor	MCR10EZHJ 120 Ω (121)
R62	7030000500	Resistor	MCR10EZHJ 10 kΩ (103)
R63	7030000420	Resistor	MCR10EZHJ 2.2 kΩ (222)
R64	7030000500	Resistor	MCR10EZHJ 10 kΩ (103)
R65	7030000420	Resistor	MCR10EZHJ 2.2 kΩ (222)
R66	7030000500	Resistor	MCR10EZHJ 10 kΩ (103)
R67	7030000420	Resistor	MCR10EZHJ 2.2 kΩ (222)
R68	7030000500	Resistor	MCR10EZHJ 10 kΩ (103)
R69	7030000500	Resistor	MCR10EZHJ 10 kΩ (103)
R70	7030000420	Resistor	MCR10EZHJ 2.2 kΩ (222)
R71	7030000420	Resistor	MCR10EZHJ 2.2 kΩ (222)
R72	7010004670	Resistor	R50XJ 22 Ω
R73	7030000400	Resistor	MCR10EZHJ 1.5 kΩ (152)
R74	7030000260	Resistor	MCR10EZHJ 100 Ω (101)
R75	7030000300	Resistor	MCR10EZHJ 220 Ω (221)
R76	7030000540	Resistor	MCR10EZHJ 22 kΩ (223)
R77	7030000500	Resistor	MCR10EZHJ 10 kΩ (103)
R78	7030000420	Resistor	MCR10EZHJ 2.2 kΩ (222)
R79	7010003280	Resistor	ELR20J 100 Ω
R80	7030000230	Resistor	MCR10EZHJ 56 Ω (560)
R81	7030000260	Resistor	MCR10EZHJ 100 Ω (101)
R82	7010001030	Resistor	R25J 100 Ω
R83	7030000260	Resistor	MCR10EZHJ 100 Ω (101)
R84	7030000310	Resistor	MCR10EZHJ 270 Ω (271)
R85	7030000170	Resistor	MCR10EZHJ 18 Ω (180)
R86	7030000310	Resistor	MCR10EZHJ 270 Ω (271)
R87	7030000400	Resistor	MCR10EZHJ 1.5 kΩ (152)
R88	7030000260	Resistor	MCR10EZHJ 100 Ω (101)
R89	7030000260	Resistor	MCR10EZHJ 100 Ω (101)
R90	7030000260	Resistor	MCR10EZHJ 100 Ω (101)
R91	7030000400	Resistor	MCR10EZHJ 1.5 kΩ (152)
R92	7030000310	Resistor	MCR10EZHJ 270 Ω (271)
R93	7030000170	Resistor	MCR10EZHJ 18 Ω (180)
R94	7030000310	Resistor	MCR10EZHJ 270 Ω (271)
R95	7030000260	Resistor	MCR10EZHJ 100 Ω (101)
R96	7030000230	Resistor	MCR10EZHJ 56 Ω (560)
R97	7030000230	Resistor	MCR10EZHJ 56 Ω (560)
R98	7030000260	Resistor	MCR10EZHJ 100 Ω (101)
R99	7030000220	Resistor	MCR10EZHJ 47 Ω (470)
R100	7030000500	Resistor	MCR10EZHJ 10 kΩ (103)
R101	7030000420	Resistor	MCR10EZHJ 2.2 kΩ (222)
R102	7030000500	Resistor	MCR10EZHJ 10 kΩ (103)
R103	7030000420	Resistor	MCR10EZHJ 2.2 kΩ (222)
R104	7030000460	Resistor	MCR10EZHJ 4.7 kΩ (472)
R105	7030000260	Resistor	MCR10EZHJ 100 Ω (101)
R106	7010004320	Resistor	R20J 10 kΩ
R107	7030000420	Resistor	MCR10EZHJ 2.2 kΩ (222)
R108	7030000380	Resistor	MCR10EZHJ 1 kΩ (102)
R109	7030000520	Resistor	MCR10EZHJ 15 kΩ (153)
R110	7030000460	Resistor	MCR10EZHJ 4.7 kΩ (472)
R111	7030000450	Resistor	MCR10EZHJ 3.9 kΩ (392)
R112	7030000450	Resistor	MCR10EZHJ 3.9 kΩ (392)
R113	7010001220	Resistor	R25J 3.9 kΩ
R114	7010001220	Resistor	R25J 3.9 kΩ
R115	7030000500	Resistor	MCR10EZHJ 10 kΩ (103)
R116	7030000310	Resistor	MCR10EZHJ 270 Ω (271)
R117	7030000170	Resistor	MCR10EZHJ 18 Ω (180)
R118	7030000310	Resistor	MCR10EZHJ 270 Ω (271)
R119	7030000220	Resistor	MCR10EZHJ 47 Ω (470)
R120	7030000460	Resistor	MCR10EZHJ 4.7 kΩ (472)
R121	7030000240	Resistor	MCR10EZHJ 68 Ω (680)
R123	7030000460	Resistor	MCR10EZHJ 4.7 kΩ (472)
R124	7030000500	Resistor	MCR10EZHJ 10 kΩ (103)
R126	7030000360	Resistor	MCR10EZHJ 680 Ω (681)
R128	7030000260	Resistor	MCR10EZHJ 100 Ω (101)
R130	7030000360	Resistor	MCR10EZHJ 680 Ω (681)
R131	7030000350	Resistor	MCR10EZHJ 560 Ω (561)
R132	7030000280	Resistor	MCR10EZHJ 150 Ω (151)
R133	7030000400	Resistor	MCR10EZHJ 1.5 kΩ (152)
R134	7030000140	Resistor	MCR10EZHJ 10 Ω (100)
R135	7030000450	Resistor	MCR10EZHJ 3.9 kΩ (392)
R136	7030000260	Resistor	MCR10EZHJ 100 Ω (101)
R137	7030000260	Resistor	MCR10EZHJ 100 Ω (101)
R138	7030000260	Resistor	MCR10EZHJ 100 Ω (101)
R139	7030000400	Resistor	MCR10EZHJ 1.5 kΩ (152)
R140	7030000740	Resistor	MCR10EZHJ 1 MΩ (105)

[PLL B UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
R141	7030000380	Resistor	MCR10EZHJ 1 kΩ (102)
R142	7030000400	Resistor	MCR10EZHJ 1.5 kΩ (152)
R143	7030000290	Resistor	MCR10EZHJ 180 Ω (181)
R144	7030000200	Resistor	MCR10EZHJ 33 Ω (330)
R145	7030000290	Resistor	MCR10EZHJ 180 Ω (181)
R146	7030000200	Resistor	MCR10EZHJ 33 Ω (330)
R147	7030000290	Resistor	MCR10EZHJ 180 Ω (181)
R148	7030000290	Resistor	MCR10EZHJ 180 Ω (181)
R149	7030000260	Resistor	MCR10EZHJ 100 Ω (101)
R154	7030000260	Resistor	MCR10EZHJ 100 Ω (101)
R157	7030000460	Resistor	MCR10EZHJ 4.7 kΩ (472)
R158	7030000260	Resistor	MCR10EZHJ 100 Ω (101)
R159	7030000380	Resistor	MCR10EZHJ 1 kΩ (102)
R160	7030000380	Resistor	MCR10EZHJ 1 kΩ (102)
R165	7030000400	Resistor	MCR10EZHJ 1.5 kΩ (152)
R166	7030000260	Resistor	MCR10EZHJ 100 Ω (101)
R167	7030000310	Resistor	MCR10EZHJ 270 Ω (271)
R168	7030000170	Resistor	MCR10EZHJ 18 Ω (180)
R169	7030000310	Resistor	MCR10EZHJ 270 Ω (271)
R170	7030000310	Resistor	MCR10EZHJ 270 Ω (271)
R171	7030000170	Resistor	MCR10EZHJ 18 Ω (180)
R172	7030000310	Resistor	MCR10EZHJ 270 Ω (271)
R173	7030000420	Resistor	MCR10EZHJ 2.2 kΩ (222)
R174	7030000460	Resistor	MCR10EZHJ 4.7 kΩ (472)
R175	7030000460	Resistor	MCR10EZHJ 4.7 kΩ (472)
R176	7010001160	Resistor	R25J 1.2 kΩ
R177	7010001030	Resistor	R25J 100 Ω
R178	7030000400	Resistor	MCR10EZHJ 1.5 kΩ (152)
R179	7030000460	Resistor	MCR10EZHJ 4.7 kΩ (472)
R180	7030000460	Resistor	MCR10EZHJ 4.7 kΩ (472)
R181	7030000400	Resistor	MCR10EZHJ 1.5 kΩ (152)
R182	7030000420	Resistor	MCR10EZHJ 2.2 kΩ (222)
R183	7030000500	Resistor	MCR10EZHJ 10 kΩ (103)
R184	7030000500	Resistor	MCR10EZHJ 10 kΩ (103)
R185	7030000500	Resistor	MCR10EZHJ 10 kΩ (103)
R187	7030000260	Resistor	MCR10EZHJ 100 Ω (101)
R188	7030000500	Resistor	MCR10EZHJ 10 kΩ (103)
R189	7030000230	Resistor	MCR10EZHJ 56 Ω (560)
R190	7030000500	Resistor	MCR10EZHJ 10 kΩ (103)
R191	7030000230	Resistor	MCR10EZHJ 56 Ω (560)
R192	7030000260	Resistor	MCR10EZHJ 100 Ω (101)
R193	7030000460	Resistor	MCR10EZHJ 4.7 kΩ (472)
R194	7030000740	Resistor	MCR10EZHJ 1 MΩ (105)
R195	7030000740	Resistor	MCR10EZHJ 1 MΩ (105)
C1	4030001150	Ceramic	GRM40 F 104Z 25PT
C2	4030001100	Ceramic	GRM40 B 102K 50PT
C3	4510002780	Electrolytic	16 SS 10 μF
C4	4030001150	Ceramic	GRM40 F 104Z 25PT
C5	4030001150	Ceramic	GRM40 F 104Z 25PT
C6	4030001150	Ceramic	GRM40 F 104Z 25PT
C7	4030001140	Ceramic	GRM40 F 103Z 50PT
C8	4510002730	Electrolytic	10 SS 100 μF
C9	4030000870	Ceramic	GRM40 CH 060D 50PT
C10	4030000940	Ceramic	GRM40 CH 220J 50PT
C11	4510002730	Electrolytic	10 SS 100 μF
C12	4030001120	Ceramic	GRM40 B 472K 50PT
C13	4030000740	Ceramic	GRM40 SL 101J 50PT
C14	4610000770	Trimmer	CV38D 1001
C15	4030000980	Ceramic	GRM40 CH 560J 50PT
C16	4030000970	Ceramic	GRM40 CH 470J 50PT
C17	4030000910	Ceramic	GRM40 CH 120J 50PT
C18	4030000910	Ceramic	GRM40 CH 120J 50PT
C20	4030001150	Ceramic	GRM40 F 104Z 25PT
C21	4030001100	Ceramic	GRM40 B 102K 50PT
C22	4020000550	Cylinder	UP050 SL 010M
C23	4020000650	Cylinder	EP050 X 472M
C24	4030000740	Ceramic	GRM40 SL 101J 50PT
C25	4030000780	Ceramic	GRM40 SL 221J 50PT
C26	4030000740	Ceramic	GRM40 SL 101J 50PT
C27	4040000260	Barrier Layer	UZE 08X 104M
C28	4030001150	Ceramic	GRM40 F 104Z 25PT
C29	4030001100	Ceramic	GRM40 B 102K 50PT
C30	4510002780	Electrolytic	16 SS 10 μF

[PLL B UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
C31	4030001100	Ceramic GRM40 B 102K 50PT
C32	4030001150	Ceramic GRM40 F 104Z 25PT
C33	4020000400	Cylinder UP050 B 102K
C34	4020000400	Cylinder UP050 B 102K
C35	4030000630	Ceramic GRM40 SL 100D 50PT
C36	4020000550	Cylinder UP050 SL 010M
C37	4030001140	Ceramic GRM40 F 103Z 50PT
C38	4030001090	Ceramic GRM40 B 471K 50PT
C39	4030000700	Ceramic GRM40 SL 470J 50PT
C40	4030000750	Ceramic GRM40 SL 121J 50PT
C41	4030000630	Ceramic GRM40 SL 100D 50PT
C42	4030000700	Ceramic GRM40 SL 470J 50PT
C43	4030001140	Ceramic GRM40 F 103Z 50PT
C44	4510002640	Electrolytic 25 SS 47 µF
C45	4030001120	Ceramic GRM40 B 472K 50PT
C47	4030000630	Ceramic GRM40 SL 100D 50PT
C48	4020000550	Cylinder UP050 SL 010M
C49	4030000700	Ceramic GRM40 SL 470J 50PT
C50	4030000740	Ceramic GRM40 SL 101J 50PT
C51	4030000620	Ceramic GRM40 SL 080D 50PT
C52	4030001140	Ceramic GRM40 F 103Z 50PT
C53	4030001120	Ceramic GRM40 B 472K 50PT
C54	4030001120	Ceramic GRM40 B 472K 50PT
C55	4020000250	Cylinder UP125 X 472M
C56	4030001120	Ceramic GRM40 B 472K 50PT
C57	4030001150	Ceramic GRM40 F 104Z 25PT
C58	4030001150	Ceramic GRM40 F 104Z 25PT
C59	4030003180	Ceramic GRM40 SL 271J 50PT
C60	4030000660	Ceramic GRM40 SL 180J 50PT
C61	4030001090	Ceramic GRM40B 471K 50PT
C62	4030000700	Ceramic GRM40 SL 470J 50PT
C63	4030000780	Ceramic GRM40 SL 221J 50PT
C64	4030001140	Ceramic GRM40 F 103Z 50PT
C65	4030001100	Ceramic GRM40 B 102K 50PT
C66	4030000700	Ceramic GRM40 SL 470J 50PT
C67	4030001150	Ceramic GRM40 F 104Z 25PT
C68	4030000630	Ceramic GRM40 SL 100D 50PT
C69	4030001150	Ceramic GRM40 F 104Z 25PT
C70	4030000540	Ceramic GRM40 SL 0R5C 50PT
C71	4030000630	Ceramic GRM40 SL 100D 50PT
C72	4020000250	Cylinder UP125 X 472M
C73	4020000650	Cylinder EP050 X 472M
C74	4030001090	Ceramic GRM40 B 471K 50PT
C75	4030001120	Ceramic GRM40 B 472K 50PT
C76	4510002780	Electrolytic 16 SS 10 µF
C77	4030001140	Ceramic GRM40 F 103Z 50PT
C78	4030000650	Ceramic GRM40 SL 150J 50PT
C79	4030000540	Ceramic GRM40 SL 0R5C 50PT
C80	4020000550	Cylinder UP050 SL 010M
C81	4030000650	Ceramic GRM40 SL 150J 50PT
C82	4030003050	Ceramic GRM40 SL 270J 50PT
C83	4030001100	Ceramic GRM40 B 102K 50PT
C84	4030001100	Ceramic GRM40 B 102K 50PT
C85	4030001100	Ceramic GRM40 B 102K 50PT
C86	4030001120	Ceramic GRM40 B 472K 50PT
C87	4020000260	Cylinder TP125 X 103M
C88	4020000180	Cylinder UP125 B 471K
C89	4020000260	Cylinder TP125 X 103M
C90	4030001120	Ceramic GRM40 B 472K 50PT
C91	4020000250	Cylinder UP125 X 472M
C92	4030001120	Ceramic GRM40 B 472K 50PT
C93	4030000660	Ceramic GRM40 SL 180J 50PT
C94	4030001140	Ceramic GRM40 F 103Z 50PT
C95	4020000550	Cylinder UP050 SL 010M
C96	4030000660	Ceramic GRM40 SL 180J 50PT
C97	4030001140	Ceramic GRM40 F 103Z 50PT
C98	4030000750	Ceramic GRM40SL 121J 50PT
C99	4030000760	Ceramic GRM40 SL 151J 50PT
C100	4030000570	Ceramic GRM40 SL 030C 50PT
C101	4030001100	Ceramic GRM40 B 102K 50PT
C102	4030001100	Ceramic GRM40 B 102K 50PT
C103	4030000600	Ceramic GRM40 SL 060D 50PT
C104	4030000560	Ceramic GRM40 SL 020C 50PT
C105	4030000580	Ceramic GRM40 SL 040C 50PT
C106	4030001120	Ceramic GRM40 B 472K 50PT

[PLL B UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
C107	4030001140	Ceramic GRM40 F 103Z 50PT
C108	4030000630	Ceramic GRM40 SL 100D 50PT
C109	4030001140	Ceramic GRM40 F 103Z 50PT
C110	4030000540	Ceramic GRM40 SL 0R5C 50PT
C111	4020000550	Cylinder UP050 SL 010M
C112	4030000630	Ceramic GRM40 SL 100D 50PT
C113	4030000630	Ceramic GRM40SL 100D 50PT
C114	4030001120	Ceramic GRM40 B 472K 50PT
C115	4020000670	Cylinder UP050 SL 470J
C116	4030001120	Ceramic GRM40 B 472K 50PT
C117	4030001150	Ceramic GRM40 F 104Z 25PT
C118	4030000650	Ceramic GRM40 SL 150J 50PT
C119	4020000550	Cylinder UP050 SL 010M
C120	4030000650	Ceramic GRM40 SL 150J 50PT
C121	4030000700	Ceramic GRM40 SL 470J 50PT
C122	4030000700	Ceramic GRM40 SL 470J 50PT
C123	4030000740	Ceramic GRM40 SL 101J 50PT
C124	4030000740	Ceramic GRM40 SL 101J 50PT
C125	4510002640	Electrolytic 25 SS 47 µF
C126	4030001150	Ceramic GRM40 F 104Z 25PT
C127	4030001150	Ceramic GRM40 F 104Z 25PT
C128	4510002740	Electrolytic 10 SS 220 µF
C129	4510002640	Electrolytic 25 SS 47 µF
C130	4030001150	Ceramic GRM40 F 104Z 25PT
C131	4030001150	Ceramic GRM40 F 104Z 25PT
C132	4510002740	Electrolytic 10 SS 220 µF
C133	4030001100	Ceramic GRM40 B 102K 50PT
C134	4030000670	Ceramic GRM40 SL 220J 50PT
C135	4030000740	Ceramic GRM40 SL 101J 50PT
C136	4030001100	Ceramic GRM40 B 102K 50PT
C137	4030000670	Ceramic GRM40 SL 220J 50PT
C138	4030001100	Ceramic GRM40 B 102K 50PT
C139	4030000670	Ceramic GRM40 SL 220J 50PT
C140	4030000670	Ceramic GRM40 SL 220J 50PT
C141	4030001100	Ceramic GRM40 B 102K 50PT
C142	4020000630	Cylinder UP050 B 101K
C143	4030001100	Ceramic GRM40 B 102K 50PT
C144	4030000740	Ceramic GRM40 SL 101J 50PT
C145	4030000580	Ceramic GRM40 SL 040C 50PT
C146	4030000600	Ceramic GRM40 SL 060D 50PT
C147	4030000650	Ceramic GRM40 SL 150J 50PT
C148	4030000650	Ceramic GRM40 SL 150J 50PT
C149	4030000560	Ceramic GRM40 SL 020C 50PT
C150	4030003140	Ceramic GRM40 SL 1R5C 50PT
C151	4030000580	Ceramic GRM40 SL 040C 50PT
C152	4030000640	Ceramic GRM40 SL 120J 50PT
C153	4030000640	Ceramic GRM40 SL 120J 50PT
C154	4030000700	Ceramic GRM40 SL 470J 50PT
C155	4030000740	Ceramic GRM40 SL 101J 50PT
C156	4030001100	Ceramic GRM40 B 102K 50PT
C157	4030000700	Ceramic GRM40 SL 470J 50PT
C158	4030000740	Ceramic GRM40 SL 101J 50PT
C159	4030000580	Ceramic GRM40 SL 040C 50PT
C160	4030003140	Ceramic GRM40 SL 1R5C 50PT
C161	4030000640	Ceramic GRM40 SL 120J 50PT
C162	4030000640	Ceramic GRM40 SL 120J 50PT
C163	4030000740	Ceramic GRM40 SL 101J 50PT
C164	4030001100	Ceramic GRM40 B 102K 50PT
C165	4030001150	Ceramic GRM40 F 104Z 25PT
C166	4030001150	Ceramic GRM40 F 104Z 25PT
C167	4030001150	Ceramic GRM40 F 104Z 25PT
C168	4030001100	Ceramic GRM40 B 102K 50PT
C169	4030001090	Ceramic GRM40 B 471K 50PT
C170	4030001120	Ceramic GRM40 B 472K 50PT
C171	4020000630	Cylinder UP050 B 101K
C172	4020000630	Cylinder UP050 B 101K
C173	4030001140	Ceramic GRM40 F 103Z 50PT
C174	4030001120	Ceramic GRM40 B 472K 50PT
C175	4510002810	Electrolytic 16 SS 47 µF
C176	4030001150	Ceramic GRM40 F 104Z 25PT
C177	4030001100	Ceramic GRM40 B 102K 50PT
C178	4030001150	Ceramic GRM40 F 104Z 25PT
C179	4030001100	Ceramic GRM40 B 102K 50PT
C180	4030001100	Ceramic GRM40 B 102K 50PT
C181	4030001120	Ceramic GRM40 B 472K 50PT

[PLL B UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
C182	4030001150	Ceramic GRM40 F 104Z 25PT
C183	4030001150	Ceramic GRM40 F 104Z 25PT
C184	4560000020	Ceramic D33Y5V 1E 104Z21
C185	4030001150	Ceramic GRM40 F 104Z 25PT
C186	4560000020	Ceramic D33Y5V 1E 104Z21
C187	4030001150	Ceramic GRM40 F 104Z 25PT
C188	4510002730	Electrolytic 10 SS 100 µF
C189	4030001120	Ceramic GRM40 B 472K 50PT
C190	4510002730	Electrolytic 10 SS 100 µF
C191	4030001150	Ceramic GRM40 F 104Z 25PT
C192	4030001100	Ceramic GRM40 B 102K 50PT
C193	4030001100	Ceramic GRM40 B 102K 50PT
C194	4030000740	Ceramic GRM40 SL 101J 50PT
C195	4030000700	Ceramic GRM40 SL 470J 50PT
C196	4030001100	Ceramic GRM40 B 102K 50PT
C197	4030000740	Ceramic GRM40 SL 101J 50PT
C198	4030001000	Ceramic GRM40 CH 820J 50PT
C199	4030002670	Ceramic GRM40 UJ 330J 50PT
C200	4030001100	Ceramic GRM40 B 102K 50PT
C201	4030001100	Ceramic GRM40 B 102K 50PT
C202	4030000890	Ceramic GRM40 CH 080D 50PT
C203	4030000890	Ceramic GRM40 CH 080D 50PT
C204	4510001090	Electrolytic 10 MS7 100 µF
C205	4030000540	Ceramic GRM40 SL 0R5C 50PT
C206	4510002730	Electrolytic 10 SS 100 µF
C207	4030001100	Ceramic GRM40 B 102K 50PT
C208	4030001150	Ceramic GRM40 F 104Z 25PT
C209	4030001100	Ceramic GRM40 B 102K 50PT
C210	4030001150	Ceramic GRM40 F 104Z 25PT
C211	4030001100	Ceramic GRM40 B 102K 50PT
C212	4030001100	Ceramic GRM40 B 102K 50PT
C213	4030001100	Ceramic GRM40 B 102K 50PT
C214	4030000580	Ceramic GRM40 SL 040C 50PT
C215	4030001100	Ceramic GRM40 B 102K 50PT
C216	4030001150	Ceramic GRM40 F 104Z 25PT
C217	4030000550	Ceramic GRM40 SL 010C 50PT
C218	4030001100	Ceramic GRM40 B 102K 50PT
C219	4030000700	Ceramic GRM40 SL 470J 50PT
C220	4030000700	Ceramic GRM40 SL 470J 50PT
C226	4030000670	Ceramic GRM40 SL 220J 50PT
C227	4030000600	Ceramic GRM40 SL 060D 50PT
C228	4030000700	Ceramic GRM40 SL 470J 50PT
C229	4030000650	Ceramic GRM40 SL 150J 50PT
C230	4030000650	Ceramic GRM40 SL 150J 50PT
C231	4030001100	Ceramic GRM40 B 102K 50PT
C232	4030000700	Ceramic GRM40 SL 470J 50PT
C233	4030001100	Ceramic GRM40 B 102K 50PT
C234	4030000740	Ceramic GRM40 SL 101J 50PT
C237	4030000740	Ceramic GRM40 SL 101J 50PT
C240	4030000700	Ceramic GRM40 SL 470J 50PT
C241	4030001100	Ceramic GRM40 B 102K 50PT
C242	4030000740	Ceramic GRM40 SL 101J 50PT
C243	4030000740	Ceramic GRM40 SL 101J 50PT
C244	4030000700	Ceramic GRM40 SL 470J 50PT
C245	4030000740	Ceramic GRM40 SL 101J 50PT
C246	4030003050	Ceramic GRM40 SL 270J 50PT
C247	4030000700	Ceramic GRM40 SL 470J 50PT
C248	4030001150	Ceramic GRM40 F 104Z 25PT
C249	4030000740	Ceramic GRM40 SL 101J 50PT
C250	4030001100	Ceramic GRM40 B 102K 50PT
C251	4030001150	Ceramic GRM40 F 104Z 25PT
C252	4510002780	Electrolytic 16 SS 10 µF
C253	4030001120	Ceramic GRM40 B 472K 50PT
C254	4030001120	Ceramic GRM40 B 472K 50PT
C255	4030001140	Ceramic GRM40 F 103Z 50PT
C256	4030000590	Ceramic GRM40 SL 050C 50PT
C257	4030001100	Ceramic GRM40 B 102K 50PT
C258	4030001100	Ceramic GRM40 B 102K 50PT
C259	4030001150	Ceramic GRM40 F 104Z 25PT
C260	4030001100	Ceramic GRM40 B 102K 50PT
C261	4510002810	Electrolytic 16 SS 47 µF
C262	4510001730	Electrolytic 50 RBP 0.47 µF
C263	4510002810	Electrolytic 16 SS 47 µF
C264	4030001150	Ceramic GRM40 F 104Z 25PT
C265	4550000360	Tantalum DN 1V R47M

[PLL B UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
C266	4030001120	Ceramic GRM40 B 472K 50PT
C267	4030001120	Ceramic GRM40 B 472K 50PT
C268	4030001120	Ceramic GRM40 B 472K 50PT
C269	4510001100	Electrolytic 16 MS7 10 µF
C270	4030001100	Ceramic GRM40 B 102K 50PT
C271	4030001150	Ceramic GRM40 F 104Z 25PT
C272	4030000580	Ceramic GRM40 SL 040C 50PT
C273	4030001140	Ceramic GRM40 F 103Z 50PT
C274	4030001120	Ceramic GRM40 B 472K 50PT
C275	4030000700	Ceramic GRM40 SL 470J 50PT
C276	4030001150	Ceramic GRM40 F 104Z 25PT
C277	4030001150	Ceramic GRM40 F 104Z 25PT
C278	4030001150	Ceramic GRM40 F 104Z 25PT
C279	4030001100	Ceramic GRM40 B 102K 50PT
C280	4030000700	Ceramic GRM40 SL 470J 50PT
C281	4030001150	Ceramic GRM40 F 104Z 25PT
C282	4030001150	Ceramic GRM40 F 104Z 25PT
C283	4030001100	Ceramic GRM40 B 102K 50PT
C284	4030001100	Ceramic GRM40 B 102K 50PT
EP1	0910020093	P.C. Board B 1886C
EP2	0910019023	P.C. Board B 1804C (HPL)
EP3	0910019363	P.C. Board B 1859C (VCO 3)
EP4	0910021892	P.C. Board B 2085B (2nd MIX)
EP5	0910019652	P.C. Board B 1889B (PRESCAL A)
EP6	6910001400	Lead Frame VD2.54-0.7-7
EP7	6910000630	Lead Frame FSOH070RN

[DDS UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
IC1	1140000500	IC SC1051
IC2	1130002600	IC SC1052
IC3	1130002610	IC SC1053
IC4	1130002461	IC TC74HCT374AF
IC5	1130002461	IC TC74HCT374AF
X1	6050003230	Crystal CR-180
L1	6200000040	Coil LQN 5N 331K
L2	6200000040	Coil LQN 5N 331K
L3	6200000040	Coil LQN 5N 331K
R1	7030000740	Resistor MCR10EZHZ 1 MΩ (105)
R2	7030000360	Resistor MCR10EZHZ 680 Ω (681)
R3	7030000420	Resistor MCR10EZHZ 2.2 kΩ (222)
R4	7410000320	Resistor Array GF 5096
R5	7030000500	Resistor MCR10EZHZ 10 kΩ (103)
R6	7030000500	Resistor MCR10EZHZ 10 kΩ (103)
R7	7030000500	Resistor MCR10EZHZ 10 kΩ (103)
C1	4610000520	Trimmer TZB04N100BA006
C2	4030000950	Ceramic GRM40 CH 330J 50PT
C3	4030001150	Ceramic GRM40 F 104Z 25PT
C7	4030000720	Ceramic GRM40 SL 680J 50PT
C8	4030000560	Ceramic GRM40 SL 020C 50PT
C9	4030000750	Ceramic GRM40 SL 121J 50PT
C10	4030000610	Ceramic GRM40 SL 070D 50PT
C11	4030000750	Ceramic GRM40 SL 121J 50PT
C12	4030000640	Ceramic GRM40 SL 120J 50PT
C13	4030000720	Ceramic GRM40 SL 680J 50PT
C14	4030001150	Ceramic GRM40 F 104Z 25PT

## [DDS UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
C15	4030001150	Ceramic	GRM40 F 104Z 25PT
C16	4030001150	Ceramic	GRM40 F 104Z 25PT
C17	4030001150	Ceramic	GRM40 F 104Z 25PT
C18	4030002430	Ceramic	GRM40 TH 220J 50PT
C19	4030001100	Ceramic	GRM40 B 102K 50PT
C20	4030001100	Ceramic	GRM40 B 102K 50PT
EP1	0910022511	P.C. Board	B 2203A

## [MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
Q23	1590000350	Transistor	RN1204
Q24	1590000350	Transistor	RN1204
Q25	1560000100	FET	2SK241-Y
Q27	1530000150	Transistor	2SC2668-O
Q28	1530000590	Transistor	2SC2785 EF
Q29	1530000590	Transistor	2SC2785 EF
Q30	1590000370	Transistor	RN2204
Q31	1590000370	Transistor	RN2204
Q32	1590000370	Transistor	RN2204
Q33	1590000360	Transistor	RN2202
Q34	1590000360	Transistor	RN2202
Q35	1590000360	Transistor	RN2202
Q36	1590000350	Transistor	RN1204
Q37	1590000350	Transistor	RN1204
Q38	1590000350	Transistor	RN1204
Q39	1590000350	Transistor	RN1204
Q40	1590000350	Transistor	RN1204
Q41	1510000070	Transistor	2SA1048-Y
Q42	1510000070	Transistor	2SA1048-Y
Q43	1510000070	Transistor	2SA1048-Y
Q44	1530000590	Transistor	2SC2785 EF
Q45	1590000340	Transistor	RN1202
Q46	1590000340	Transistor	RN1202
Q47	1590000340	Transistor	RN1202
Q48	1530000590	Transistor	2SC2785 EF
Q49	1590000350	Transistor	RN1204
Q50	1590000310	FET	2SJ105-GR
Q51	1590000370	Transistor	RN2204
Q52	1590000350	Transistor	RN1204
Q53	1590000350	Transistor	RN1204
Q54	1590000350	Transistor	RN1204
Q55	1590000340	Transistor	RN1202
Q56	1590000340	Transistor	RN1202
Q57	1590000360	Transistor	RN2202
Q401	1530000590	Transistor	2SC2785 EF
Q402	1530000150	Transistor	2SC2668-O
Q403	1560000090	FET	2SK192A-GR
Q501	1530000590	Transistor	2SC2785 EF
Q502	1530000150	Transistor	2SC2668-O
Q503	1560000090	FET	2SK192A-GR
D1	1710000050	Diode	1SS53
D2	1710000050	Diode	1SS53
D3	1710000050	Diode	1SS53
D4	1710000330	Diode	1K60
D5	1710000330	Diode	1K60
D6	1710000050	Diode	1SS53
D7	1710000050	Diode	1SS53
D8	1710000050	Diode	1SS53
D9	1710000050	Diode	1SS53
D10	1710000330	Diode	1K60
D11	1710000330	Diode	1K60
D12	1710000050	Diode	1SS53
D13	1710000160	Diode	1SS133
D14	1710000160	Diode	1SS133
D15	1710000050	Diode	1SS53
D16	1710000040	Diode	1S953
D17	1730000140	Zener	RD6.8E B2
D18	1710000050	Diode	1SS53
D19	1710000050	Diode	1SS53
D20	1710000440	Varicap	1S2208 (B)
D21	1710000050	Diode	1SS53
D24	1710000330	Diode	1K60
D25	1710000050	Diode	1SS53
D26	1710000050	Diode	1SS53
D27	1710000160	Diode	1SS133
D28	1710000040	Diode	1S953
D29	1710000040	Diode	1S953
D30	1790000240	Diode	1SS99
D31	1790000240	Diode	1SS99
D32	1710000050	Diode	1SS53
D33	1710000050	Diode	1SS53
D34	1710000050	Diode	1SS53
D35	1710000050	Diode	1SS53

## [MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1130001000	IC	μPD4066BC
IC2	1130001000	IC	μPD4066BC
IC3	1110000540	IC	NJM4558D
IC4	1110000540	IC	NJM4558D
IC5	1110000540	IC	NJM4558D
IC6	1130000040	IC	TC4011UBP
IC7	1110000330	IC	M5218L
IC8	1110000330	IC	M5218L
IC9	1110000330	IC	M5218L
IC10	1110000540	IC	NJM4558D
IC11	1110000540	IC	NJM4558D
IC12	1110000330	IC	M5218L
IC13	1110000330	IC	M5218L
IC14	1110000330	IC	M5218L
IC15	1110000330	IC	M5218L
IC16	1110001320	IC	μPC1037HA
IC17	1110001320	IC	μPC1037HA
IC18	1130001000	IC	μPD4066BC
IC19	1110001320	IC	μPC1037HA
IC20	1110001010	IC	TA7303P-C
IC21	1110001930	IC	M5215TL
IC22	1110001310	IC	μPC577HA
IC23	1130001000	IC	μPD4066BC
IC24	1110001920	IC	TA7630P
IC25	1110000890	IC	μPC1241H
IC26	1180000190	IC	NJM7805A
IC27	1180000200	IC	NJM7809A
IC401	1130003490	IC	TD6109P
IC402	1110000970	IC	MB504P-G
IC403	1130002960	IC	TC9181P
IC501	1130003490	IC	TD6109P
IC502	1110000970	IC	MB504P-G
IC503	1130002960	IC	TC9181P
Q1	1530000590	Transistor	2SC2785 EF
Q2	1530000590	Transistor	2SC2785 EF
Q3	1530000590	Transistor	2SC2785 EF
Q4	1530000590	Transistor	2SC2785 EF
Q5	1590000360	Transistor	RN2202
Q6	1530000590	Transistor	2SC2785 EF
Q7	1530000590	Transistor	2SC2785 EF
Q8	1590000350	Transistor	RN1204
Q9	1590000340	Transistor	RN1202
Q10	1590000350	Transistor	RN1204
Q11	1530000110	Transistor	2SC2458-GR
Q12	1590000310	FET	2SJ105-GR
Q13	1530000590	Transistor	2SC2785 EF
Q14	1530000590	Transistor	2SC2785 EF
Q15	1590000350	Transistor	RN1204
Q16	1530000590	Transistor	2SC2785 EF
Q17	1530000660	Transistor	2SC1645B
Q19	1580000110	FET	3SK74 M
Q20	1580000110	FET	3SK74 M
Q21	1530000110	Transistor	2SC2458-GR
Q22	1530000590	Transistor	2SC2785 EF



## [MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
D36	1710000050	Diode	1SS53
D37	1710000050	Diode	1SS53
D38	1790000070	Diode	1SS237
D39	1790000070	Diode	1SS237
D40	1710000050	Diode	1SS53
D41	1710000050	Diode	1SS53
D42	1710000050	Diode	1SS53
D43	1790000020	Diode	MV5W
D44	1710000040	Diode	1S953
D45	1710000040	Diode	1S953
D46	1710000050	Diode	1SS53
D47	1710000050	Diode	1SS53
D48	1710000050	Diode	1SS53
D49	1710000050	Diode	1SS53
D50	1710000050	Diode	1SS53
D51	1710000050	Diode	1SS53
D52	1710000050	Diode	1SS53
D53	1710000050	Diode	1SS53
D54	1710000050	Diode	1SS53
D55	1710000050	Diode	1SS53
D56	1790000020	Diode	MV5W
D57	1710000040	Diode	1S953
D58	1710000050	Diode	1SS53
D60	1710000050	Diode	1SS53
D61	1710000050	Diode	1SS53
D62	1710000050	Diode	1SS53
D63	1710000050	Diode	1SS53
D64	1710000040	Diode	1S953
D65	1710000040	Diode	1S953
D66	1710000160	Diode	1SS133
D67	1710000160	Diode	1SS133
D68	1710000160	Diode	1SS133
D69	1710000160	Diode	1SS133
D70	1710000160	Diode	1SS133
D71	1710000160	Diode	1SS133
D401	1790000070	Diode	1SS237
D402	1720000050	Varicap	1SV50E
D501	1790000070	Diode	1SS237
D502	1720000050	Varicap	1SV50E
FI1	2010000980	Filter	10M15AD (FL-112)
FI2	2020000450	Filter	SFE10.7MJ-A
X1	2020000200	Crystal	CFY455S
X2	2020000650	Crystal	SFD455S4
X3	6070000020	Crystal	CDA10.7MG8-A
L1	6150001080	Coil	LS-122
L2	6150000160	Coil	LS-16
L3	6180001000	Coil	LAL 04NA 102K
L4	6180000960	Coil	LAL 03NA 102K
L5	6170000140	Coil	LW-15
L6	6180001480	Coil	LAL 03NA 120K
L7	6150002960	Coil	LS-307
L8	6150001370	Coil	LS-151
L9	6150001370	Coil	LS-151
L10	6180000900	Coil	LAL 03NA 101K
L11	6140000640	Coil	LR-86
L12	6150001440	Coil	LS-157
L13	6180000860	Coil	LAL 03NA 5R6K
L14	6150001370	Coil	LS-151
L15	6150001480	Coil	LS-164
L16	6150001480	Coil	LS-164
L17	6150001440	Coil	LS-157
L18	6180000900	Coil	LAL 03NA 101K
L19	6180000960	Coil	LAL 03NA 102K
L20	6180000900	Coil	LAL 03NA 101K
L401	6180001210	Coil	LAL 03NA 8R2K
L402	6180000880	Coil	LAL 03NA 100K
L403	6180001210	Coil	LAL 03NA 8R2K
L404	6180000900	Coil	LAL 03NA 101K
L405	6150003410	Coil	LS-375

## [MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
L406	6180000830	Coil	LAL 03NA 3R3K
L407	6180000900	Coil	LAL 03NA 101K
L501	6180000880	Coil	LAL 03NA 100K
L502	6180001480	Coil	LAL 03NA 120K
L503	6180000880	Coil	LAL 03NA 100K
L504	6180000900	Coil	LAL 03NA 101K
L505	6150003410	Coil	LS-375
L506	6170000230	Coil	LW-25
L507	6180000900	Coil	LAL 03NA 101K
R1	7010003440	Resistor	ELR20J 2.2 kΩ
R2	7010004070	Resistor	R20J 100 Ω
R3	7010003400	Resistor	ELR20J 1 kΩ
R4	7010003530	Resistor	ELR20J 10 kΩ
R5	7010004070	Resistor	R20J 100 Ω
R6	7010003550	Resistor	ELR20J 15 kΩ
R7	7010003400	Resistor	ELR20J 1 kΩ
R8	7010003950	Resistor	R20J 10 Ω
R9	7010003440	Resistor	ELR20J 2.2 kΩ
R10	7010003240	Resistor	ELR20J 47 Ω
R11	7010003950	Resistor	R20J 10 Ω
R12	7010003530	Resistor	ELR20J 10 kΩ
R13	7010003550	Resistor	ELR20J 15 kΩ
R14	7010003400	Resistor	ELR20J 1 kΩ
R15	7010003320	Resistor	ELR20J 220 Ω
R16	7010003530	Resistor	ELR20J 10 kΩ
R17	7010003530	Resistor	ELR20J 10 kΩ
R18	7010001230	Resistor	R25J 4.7 kΩ
R19	7010003610	Resistor	ELR20J 39 kΩ
R20	7010003680	Resistor	ELR20J 150 kΩ
R21	7010003600	Resistor	ELR20J 33 kΩ
R22	7010004370	Resistor	R20J 22 kΩ
R23	7010004370	Resistor	R20J 22 kΩ
R24	7010004070	Resistor	R20J 100 Ω
R25	7010003480	Resistor	ELR20J 4.7 kΩ
R26	7010004320	Resistor	R20J 10 kΩ
R27	7010003280	Resistor	ELR20J 100 Ω
R28	7010003530	Resistor	ELR20J 10 kΩ
R29	7010004340	Resistor	R20J 15 kΩ
R30	7010004030	Resistor	R20J 47 Ω
R31	7010003240	Resistor	ELR20J 47 Ω
R32	7010003400	Resistor	ELR20J 1 kΩ
R33	7010003490	Resistor	ELR20J 5.6 kΩ
R34	7010003490	Resistor	ELR20J 5.6 kΩ
R35	7010004320	Resistor	R20J 10 kΩ
R36	7010004350	Resistor	R20J 18 kΩ
R37	7010003530	Resistor	ELR20J 10 kΩ
R38	7010003530	Resistor	ELR20J 10 kΩ
R39	7010003700	Resistor	ELR20J 220 kΩ
R40	7010004070	Resistor	R20J 100 Ω
R41	7010004340	Resistor	R20J 15 kΩ
R42	7010003620	Resistor	ELR20J 47 kΩ
R43	7010004410	Resistor	R20J 47 kΩ
R44	7010003620	Resistor	ELR20J 47 kΩ
R45	7010003620	Resistor	ELR20J 47 kΩ
R46	7010004410	Resistor	R20J 47 kΩ
R47	7010003480	Resistor	ELR20J 4.7 kΩ
R48	7010001230	Resistor	R25J 4.7 kΩ
R49	7010003480	Resistor	ELR20J 4.7 kΩ
R50	7010003480	Resistor	ELR20J 4.7 kΩ
R51	7010003660	Resistor	ELR20J 100 kΩ
R52	7010003580	Resistor	ELR20J 22 kΩ
R53	7010003660	Resistor	ELR20J 100 kΩ
R54	7010003620	Resistor	ELR20J 47 kΩ
R55	7010003600	Resistor	ELR20J 33 kΩ
R56	7010003660	Resistor	ELR20J 100 kΩ
R57	7010003530	Resistor	ELR20J 10 kΩ
R58	7010003620	Resistor	ELR20J 47 kΩ
R59	7010003450	Resistor	ELR20J 2.7 kΩ
R60	7010003580	Resistor	ELR20J 22 kΩ
R61	7010003450	Resistor	ELR20J 2.7 kΩ
R62	7010004270	Resistor	R20J 4.7 kΩ
R63	7010003760	Resistor	ELR20J 680 kΩ
R64	7010003320	Resistor	ELR20J 220 Ω

[MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
R65	7310000740	Trimmer	RH0651CS3J2KA (472)
R66	7010003530	Resistor	ELR20J 10 kΩ
R67	7010003620	Resistor	ELR20J 47 kΩ
R68	7010003620	Resistor	ELR20J 47 kΩ
R69	7010003660	Resistor	ELR20J 100 kΩ
R70	7010004450	Resistor	R20J 100 kΩ
R71	7010003440	Resistor	ELR20J 2.2 kΩ
R72	7010003580	Resistor	ELR20J 22 kΩ
R73	7010003990	Resistor	R20J 22 Ω
R74	7010003430	Resistor	ELR20J 1.8 kΩ
R75	7010004350	Resistor	R20J 18 kΩ
R76	7010003620	Resistor	ELR20J 47 kΩ
R77	7010003620	Resistor	ELR20J 47 kΩ
R78	7010001280	Resistor	R25J 10 kΩ
R79	7010004320	Resistor	R20J 10 kΩ
R80	7010004210	Resistor	R20J 1.5 kΩ
R81	7010003420	Resistor	ELR20J 1.5 kΩ
R82	7010003410	Resistor	ELR20J 1.2 kΩ
R83	7010003530	Resistor	ELR20J 10 kΩ
R84	7010004190	Resistor	R20J 1 kΩ
R85	7010003100	Resistor	ELR20J 3.3 Ω
R86	7010003320	Resistor	ELR20J 220 Ω
R87	7010003530	Resistor	ELR20J 10 kΩ
R88	7010003530	Resistor	ELR20J 10 kΩ
R89	7010003580	Resistor	ELR20J 22 kΩ
R90	7010003580	Resistor	ELR20J 22 kΩ
R91	7010004110	Resistor	R20J 220 Ω
R92	7010003420	Resistor	ELR20J 1.5 kΩ
R93	7010003530	Resistor	ELR20J 10 kΩ
R94	7010003580	Resistor	ELR20J 22 kΩ
R95	7010003580	Resistor	ELR20J 22 kΩ
R96	7010003320	Resistor	ELR20J 220 Ω
R97	7010003420	Resistor	ELR20J 1.5 kΩ
R98	7010003530	Resistor	ELR20J 10 kΩ
R99	7010003400	Resistor	ELR20J 1 kΩ
R100	7010003580	Resistor	ELR20J 22 kΩ
R101	7010003630	Resistor	ELR20J 56 kΩ
R102	7010003320	Resistor	ELR20J 220 Ω
R103	7010003380	Resistor	ELR20J 680 Ω
R104	7010001280	Resistor	R25J 10 kΩ
R105	7010004320	Resistor	R20J 10 kΩ
R106	7010003400	Resistor	ELR20J 1 kΩ
R107	7010003580	Resistor	ELR20J 22 kΩ
R108	7010003340	Resistor	ELR20J 330 Ω
R109	7010004030	Resistor	R20J 47 Ω
R110	7010003470	Resistor	ELR20J 3.9 kΩ
R111	7010003530	Resistor	ELR20J 10 kΩ
R112	7010004510	Resistor	R20J 330 kΩ
R113	7010003400	Resistor	ELR20J 1 kΩ
R114	7010004450	Resistor	R20J 100 kΩ
R115	7510000070	Thermistor	ERT-D2FHL503S
R116	7010003580	Resistor	ELR20J 22 kΩ
R117	7310000780	Trimmer	RH0651CS4J25A (473)
R118	7010003400	Resistor	ELR20J 1 kΩ
R119	7010003560	Resistor	ELR20J 18 kΩ
R120	7010003460	Resistor	ELR20J 3.3 kΩ
R121	7010003580	Resistor	ELR20J 22 kΩ
R122	7010003580	Resistor	ELR20J 22 kΩ
R123	7010003280	Resistor	ELR20J 100 Ω
R124	7010003250	Resistor	ELR20J 56 Ω
R125	7010003440	Resistor	ELR20J 2.2 kΩ
R126	7310000700	Trimmer	RH0651CS2J1HA (471)
R127	7010001030	Resistor	R25J 100 Ω
R128	7010001030	Resistor	R25J 100 Ω
R129	7010003250	Resistor	ELR20J 56 Ω
R130	7010001030	Resistor	R25J 100 Ω
R131	7010001030	Resistor	R25J 100 Ω
R132	7510000130	Thermistor	ERT-D2FHL333S
R133	7010003660	Resistor	ELR20J 100 kΩ
R134	7310000750	Trimmer	RH0651C14J2WA (103)
R135	7310000700	Trimmer	RH0651CS2J1HA (471)
R136	7010003580	Resistor	ELR20J 22 kΩ
R137	7010003550	Resistor	ELR20J 15 kΩ
R138	7010003280	Resistor	ELR20J 100 Ω
R139	7010003280	Resistor	ELR20J 100 Ω

[MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
R140	7010003400	Resistor	ELR20J 1 kΩ
R141	7010004110	Resistor	R20J 220 Ω
R142	7010003280	Resistor	ELR20J 100 Ω
R143	7010003530	Resistor	ELR20J 10 kΩ
R144	7010003530	Resistor	ELR20J 10 kΩ
R145	7010003620	Resistor	ELR20J 47 kΩ
R146	7010003740	Resistor	ELR20J 470 kΩ
R147	7010003480	Resistor	ELR20J 4.7 kΩ
R148	7010004410	Resistor	R20J 47 kΩ
R149	7010003620	Resistor	ELR20J 47 kΩ
R150	7010004410	Resistor	R20J 47 kΩ
R152	7010004410	Resistor	R20J 47 kΩ
R153	7010004270	Resistor	R20J 4.7 kΩ
R154	7010004270	Resistor	R20J 4.7 kΩ
R155	7010001230	Resistor	R25J 4.7 kΩ
R156	7010003440	Resistor	ELR20J 2.2 kΩ
R157	7010003800	Resistor	ELR20J 1.8 MΩ
R158	7010003800	Resistor	ELR20J 1.8 MΩ
R159	7010004450	Resistor	R20J 100 kΩ
R160	7010003520	Resistor	ELR20J 8.2 kΩ
R161	7010003540	Resistor	ELR20J 12 kΩ
R162	7010003660	Resistor	ELR20J 100 kΩ
R163	7010003460	Resistor	ELR20J 3.3 kΩ
R164	7010003630	Resistor	ELR20J 56 kΩ
R165	7010003580	Resistor	ELR20J 22 kΩ
R166	7010004040	Resistor	R20J 56 Ω
R167	7010003340	Resistor	ELR20J 330 Ω
R168	7010003580	Resistor	ELR20J 22 kΩ
R169	7010003440	Resistor	ELR20J 2.2 kΩ
R170	7010004110	Resistor	R20J 220 Ω
R171	7010004040	Resistor	R20J 56 Ω
R172	7010004070	Resistor	R20J 100 Ω
R173	7010004370	Resistor	R20J 22 kΩ
R174	7010003320	Resistor	ELR20J 220 Ω
R175	7010003530	Resistor	ELR20J 10 kΩ
R176	7010004210	Resistor	R20J 1.5 kΩ
R177	7010003320	Resistor	ELR20J 220 Ω
R178	7010003440	Resistor	ELR20J 2.2 kΩ
R179	7010003580	Resistor	ELR20J 22 kΩ
R180	7010003580	Resistor	ELR20J 22 kΩ
R181	7010003340	Resistor	ELR20J 330 Ω
R182	7010004130	Resistor	R20J 330 Ω
R183	7010004030	Resistor	R20J 47 Ω
R185	7010004530	Resistor	R20J 470 kΩ
R186	7010003620	Resistor	ELR20J 47 kΩ
R187	7010003400	Resistor	ELR20J 1 kΩ
R188	7010003770	Resistor	ELR20J 820 kΩ
R189	7010004960	Resistor	ELR20J 1.5 MΩ
R190	7010003670	Resistor	ELR20J 120 kΩ
R191	7010004280	Resistor	R20J 5.6 kΩ
R192	7010003780	Resistor	ELR20J 1 MΩ
R193	7010003480	Resistor	ELR20J 4.7 kΩ
R194	7010004280	Resistor	R20J 5.6 kΩ
R195	7010003700	Resistor	ELR20J 220 kΩ
R196	7010003280	Resistor	ELR20J 100 Ω
R197	7010003660	Resistor	ELR20J 100 kΩ
R198	7310000770	Trimmer	RH0651CN4J0TA (333)
R199	7010003700	Resistor	ELR20J 220 kΩ
R200	7010003660	Resistor	ELR20J 100 kΩ
R201	7310000800	Trimmer	RH0651CJ5J01A (224)
R202	7010003660	Resistor	ELR20J 100 kΩ
R203	7310000720	Trimmer	RH0651CJ3J0CA (222)
R204	7010003360	Resistor	ELR20J 470 Ω
R205	7010004450	Resistor	R20J 100 kΩ
R206	7010004070	Resistor	R20J 100 Ω
R207	7010003780	Resistor	ELR20J 1 MΩ
R208	7010003810	Resistor	ELR20J 2.2 MΩ
R209	7010003530	Resistor	ELR20J 10 kΩ
R210	7010004320	Resistor	R20J 10 kΩ
R211	7010004320	Resistor	R20J 10 kΩ
R212	7010004430	Resistor	R20J 68 kΩ
R213	7010003620	Resistor	ELR20J 47 kΩ
R214	7010003630	Resistor	ELR20J 56 kΩ
R215	7010003590	Resistor	ELR20J 27 kΩ
R216	7010003740	Resistor	ELR20J 470 kΩ

[MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
R217	7010003750	Resistor ELR20J 560 kΩ
R218	7010003660	Resistor ELR20J 100 kΩ
R219	7010004410	Resistor R20J 47 kΩ
R220	7310000780	Trimmer RH0651CS4J25A (473)
R221	7010004450	Resistor R20J 100 kΩ
R222	7010004410	Resistor R20J 47 kΩ
R223	7310000790	Trimmer RH0651C15J1UA (104)
R224	7010004320	Resistor R20J 10 kΩ
R225	7010004410	Resistor R20J 47 kΩ
R226	7010000990	Resistor R25J 47 Ω
R227	7010004030	Resistor R20J 47 Ω
R228	7310000710	Trimmer RH0651C13J1YA (102)
R229	7010003400	Resistor ELR20J 1 kΩ
R230	7010003660	Resistor ELR20J 100 kΩ
R231	7010004150	Resistor R20J 470 Ω
R232	7010003300	Resistor ELR20J 150 Ω
R233	7010004090	Resistor R20J 150 Ω
R234	7010003360	Resistor ELR20J 470 Ω
R235	7010003420	Resistor ELR20J 1.5 kΩ
R236	7010003290	Resistor ELR20J 120 Ω
R237	7010003660	Resistor ELR20J 100 kΩ
R238	7010003660	Resistor ELR20J 100 kΩ
R239	7010004450	Resistor R20J 100 kΩ
R240	7010001280	Resistor R25J 10 kΩ
R241	7010003530	Resistor ELR20J 10 kΩ
R242	7010003560	Resistor ELR20J 18 kΩ
R243	7010003560	Resistor ELR20J 18 kΩ
R244	7010003530	Resistor ELR20J 10 kΩ
R245	7010003620	Resistor ELR20J 47 kΩ
R246	7010004270	Resistor R20J 4.7 kΩ
R247	7010004450	Resistor R20J 100 kΩ
R248	7010003360	Resistor ELR20J 470 Ω
R249	7010003660	Resistor ELR20J 100 kΩ
R250	7010003580	Resistor ELR20J 22 kΩ
R251	7010003530	Resistor ELR20J 10 kΩ
R252	7010004450	Resistor R20J 100 kΩ
R253	7010003360	Resistor ELR20J 470 Ω
R254	7010003700	Resistor ELR20J 220 kΩ
R255	7010003530	Resistor ELR20J 10 kΩ
R256	7010004340	Resistor R20J 15 kΩ
R257	7010000990	Resistor R25J 47 Ω
R258	7010003550	Resistor ELR20J15 kΩ
R259	7010004230	Resistor R20J 2.2 kΩ
R260	7010003520	Resistor ELR20J 8.2 kΩ
R261	7010003690	Resistor ELR20J 180 kΩ
R262	7010004310	Resistor R20J 8.2 kΩ
R263	7010003690	Resistor ELR20J 180 kΩ
R264	7010003440	Resistor ELR20J 2.2 kΩ
R265	7010003480	Resistor ELR20J 4.7 kΩ
R266	7010004320	Resistor R20J 10 kΩ
R267	7010003530	Resistor ELR20J 10 kΩ
R268	7310000870	Trimmer RH1051D14J0PA (103)
R269	7010003600	Resistor ELR20J 33 kΩ
R270	7010003510	Resistor ELR20J 6.8 kΩ
R271	7010004330	Resistor R20J 12 kΩ
R272	7010001360	Resistor R25J 47 kΩ
R273	7010004150	Resistor R20J 470 Ω
R274	7010003460	Resistor ELR20J 3.3 kΩ
R275	7010001170	Resistor R25J 1.5 kΩ
R276	7010001230	Resistor R25J 4.7 kΩ
R277	7010001190	Resistor R25J 2.2 kΩ
R278	7010003440	Resistor ELR20J 2.2 kΩ
R279	7310001740	Trimmer RH0421CJ2J02A (221)
R280	7310001700	Trimmer RH0421C13J09A (102)
R281	7010004530	Resistor R20J 470 kΩ
R282	7010004410	Resistor R20J 47 kΩ
R283	7010004320	Resistor R20J 10 kΩ
R284	7010003400	Resistor ELR20J 1 kΩ
R285	7010004510	Resistor R20J 330 kΩ
R286	7010003780	Resistor ELR20J 1 MΩ
R287	7010003680	Resistor ELR20J 150 kΩ
R288	7010004270	Resistor R20J 4.7 kΩ
R289	7010004270	Resistor R20J 4.7 kΩ
R290	7010003620	Resistor ELR20J 47 kΩ
R291	7010004340	Resistor R20J 15 kΩ

[MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
R292	7010004450	Resistor R20J 100 kΩ
R293	7010003680	Resistor ELR20J 150 kΩ
R294	7010004410	Resistor R20J 47 kΩ
R295	7010003460	Resistor ELR20J 3.3 kΩ
R296	7010003550	Resistor ELR20J 15 kΩ
R297	7010003480	Resistor ELR20J 4.7 kΩ
R298	7010004550	Resistor R20J 680 kΩ
R299	7010004450	Resistor R20J 100 kΩ
R300	7010004320	Resistor R20J 10 kΩ
R301	7010003400	Resistor ELR20J 1 kΩ
R302	7010003620	Resistor ELR20J 47 kΩ
R303	7010004410	Resistor R20J 47 kΩ
R304	7010004190	Resistor R20J 1 kΩ
R305	7010003780	Resistor ELR20J 1 MΩ
R306	7010003780	Resistor ELR20J 1 MΩ
R307	7010004320	Resistor R20J 10 kΩ
R308	7010003770	Resistor ELR20J 820 kΩ
R309	7010004190	Resistor R20J 1 kΩ
R310	7010003740	Resistor ELR20J 470 kΩ
R311	7010003780	Resistor ELR20J 1 MΩ
R312	7010003550	Resistor ELR20J 15 kΩ
R313	7010003560	Resistor ELR20J 18 kΩ
R314	7010003610	Resistor ELR20J 39 kΩ
R315	7010003400	Resistor ELR20J 1 kΩ
R316	7010003620	Resistor ELR20J 47 kΩ
R317	7010004270	Resistor R20J 4.7 kΩ
R318	7010003620	Resistor ELR20J 47 kΩ
R319	7010004190	Resistor R20J 1 kΩ
R320	7010004570	Resistor R20J 1 MΩ
R321	7010003620	Resistor ELR20J 47 kΩ
R322	7010004070	Resistor R20J 100 Ω
R323	7010003660	Resistor ELR20J 100 kΩ
R324	7010003490	Resistor ELR20J 5.6 kΩ
R325	7010003640	Resistor ELR20J 68 kΩ
R326	7010003520	Resistor ELR20J 8.2 kΩ
R327	7010001490	Resistor R25J 470 kΩ
R328	7010003660	Resistor ELR20J 100 kΩ
R329	7010003240	Resistor ELR20J 47 Ω
R330	7010003400	Resistor ELR20J 1 kΩ
R331	7010004320	Resistor R20J 10 kΩ
R332	7010003620	Resistor ELR20J 47 kΩ
R333	7010001030	Resistor R25J 100 Ω
R334	7010003400	Resistor ELR20J 1 kΩ
R335	7010004070	Resistor R20J 100 Ω
R336	7010003040	Resistor ELR20J 1 Ω
R337	7410000290	Resistor Array RMX- 3 473K
R338	7410000290	Resistor Array RMX- 3 473K
R339	7010003550	Resistor ELR20J 15 kΩ
R340	7010004190	Resistor R20J 1 kΩ
R341	7010003380	Resistor ELR20J 680 Ω
R342	7310000720	Trimmer RH0651CJ3J0CA (222)
R343	7010003480	Resistor ELR20J 4.7 kΩ
R344	7010003480	Resistor ELR20J 4.7 kΩ
R345	7010003400	Resistor ELR20J 1 kΩ
R346	7010003280	Resistor ELR20J 100 Ω
R347	7010004410	Resistor R20J 47 kΩ
R348	7010001030	Resistor R25J 100 Ω
R349	7010000990	Resistor R25J 47 Ω
R350	7010004340	Resistor R20J 15 kΩ
R351	7100000120	Resistor SRW2P 3Ω (3R0)
R401	7010003280	Resistor ELR20J 100 Ω
R402	7010003320	Resistor ELR20J 220 Ω
R403	7010004150	Resistor R20J 470 Ω
R404	7010004320	Resistor R20J 10 kΩ
R405	7010003650	Resistor ELR20J 82 kΩ
R406	7010004070	Resistor R20J 100 Ω
R407	7010003340	Resistor ELR20J 330 Ω
R408	7010003530	Resistor ELR20J 10 kΩ
R409	7010003300	Resistor ELR20J 150 Ω
R410	7010003530	Resistor ELR20J 10 kΩ
R411	7010003620	Resistor ELR20J 47 kΩ
R412	7010004070	Resistor R20J 100 Ω
R413	7010003600	Resistor ELR20J 33 kΩ
R414	7010003400	Resistor ELR20J 1 kΩ
R415	7010003480	Resistor ELR20J 4.7 kΩ

[MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
R416	7010003400	Resistor	ELR20J 1 kΩ
R417	7010004190	Resistor	R20J 1 kΩ
R418	7010004190	Resistor	R20J 1 kΩ
R419	7010004340	Resistor	R20J 15 kΩ
R420	7010003700	Resistor	ELR20J 220 kΩ
R501	7010003280	Resistor	ELR20J 100 Ω
R502	7010003320	Resistor	ELR20J 220 Ω
R503	7010004150	Resistor	R20J 470 Ω
R504	7010004320	Resistor	R20J 10 kΩ
R505	7010003650	Resistor	ELR20J 82 kΩ
R506	7010004070	Resistor	R20J 100 Ω
R507	7010003340	Resistor	ELR20J 330 Ω
R508	7010003530	Resistor	ELR20J 10 kΩ
R509	7010003300	Resistor	ELR20J 150 Ω
R510	7010003530	Resistor	ELR20J 10 kΩ
R511	7010003620	Resistor	ELR20J 47 kΩ
R512	7010004070	Resistor	R20J 100 Ω
R513	7010003600	Resistor	ELR20J 33 kΩ
R514	7010003400	Resistor	ELR20J 1 kΩ
R515	7010003480	Resistor	ELR20J 4.7 kΩ
R516	7010003400	Resistor	ELR20J 1 kΩ
R517	7010004190	Resistor	R20J 1 kΩ
R518	7010004190	Resistor	R20J 1 kΩ
R519	7010004340	Resistor	R20J 15 kΩ
R520	7010003660	Resistor	ELR20J 100 kΩ
C1	4040000260	Barrier Layer	UZE 08X 104M
C2	4040000260	Barrier Layer	UZE 08X 104M
C3	4040000260	Barrier Layer	UZE 08X 104M
C4	4010000520	Ceramic	DD108 B 472K 50V
C5	4040000260	Barrier Layer	UZE 08X 104M
C6	4040000260	Barrier Layer	UZE 08X 104M
C7	4040000260	Barrier Layer	UZE 08X 104M
C8	4510002830	Electrolytic	25 SS 4R7 μF
C9	4040000260	Barrier Layer	UZE 08X 104M
C10	4510002830	Electrolytic	25 SS 4R7 μF
C12	4040000260	Barrier Layer	UZE 08X 104M
C13	4040000260	Barrier Layer	UZE 08X 104M
C14	4040000260	Barrier Layer	UZE 08X 104M
C15	4040000250	Barrier Layer	UAT 08X 473M
C16	4040000260	Barrier Layer	UZE 08X 104M
C17	4040000250	Barrier Layer	UAT 08X 473M
C18	4040000260	Barrier Layer	UZE 08X 104M
C19	4040000260	Barrier Layer	UZE 08X 104M
C20	4510002830	Electrolytic	25 SS 4R7 μF
C21	4310000020	Mylar	F2D 50V 103K
C22	4310000020	Mylar	F2D 50V 103K
C23	4310000020	Mylar	F2D 50V 103K
C24	4010000520	Ceramic	DD108 B 472K 50V
C25	4310000080	Mylar	F2D 50V 332K
C26	4310000010	Mylar	F2D 50V 102K
C27	4310000060	Mylar	F2D 50V 223K
C28	4040000260	Barrier Layer	UZE 08X 104M
C29	4040000250	Barrier Layer	UAT 08X 473M
C30	4010000520	Ceramic	DD108 B 472K 50V
C31	4040000260	Barrier Layer	UZE 08X 104M
C32	4040000250	Barrier Layer	UAT 08X 473M
C33	4040000260	Barrier Layer	UZE 08X 104M
C34	4510002830	Electrolytic	25 SS 4R7 μF
C35	4310000010	Mylar	F2D 50V 102K
C36	4310000020	Mylar	F2D 50V 103K
C37	4010000520	Ceramic	DD108 B 472K 50V
C38	4310000120	Mylar	F2D 50V 473K
C39	4310000080	Mylar	F2D 50V 332K
C40	4510002830	Electrolytic	25 SS 4R7 μF
C41	4310000110	Mylar	F2D 50V 472K
C42	4510002830	Electrolytic	25 SS 4R7 μF
C43	4040000260	Barrier Layer	UZE 08X 104M
C44	4040000150	Barrier Layer	UAT 05X 472K
C45	4040000150	Barrier Layer	UAT 05X 472K
C46	4040000150	Barrier Layer	UAT 05X 472K
C47	4510002780	Electrolytic	16SS 10 μF
C48	4010000520	Ceramic	DD108 B 472K 50V
C49	4510002810	Electrolytic	16 SS 47 μF

[MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
C50	4510001140	Electrolytic	50 MS7 R22 μF
C51	4010000520	Ceramic	DD108 B 472K 50V
C52	4040000260	Barrier Layer	UZE 08X 104M
C53	4040000260	Barrier Layer	UZE 08X 104M
C54	4510002930	Electrolytic	50 SS R47 μF
C55	4510002930	Electrolytic	50 SS R47 μF
C56	4510003040	Electrolytic	16 SS 100 μF
C57	4010000520	Ceramic	DD108 B 472K 50V
C58	4010000520	Ceramic	DD108 B 472K 50V
C59	4310000020	Mylar	F2D 50V 103K
C61	4040000260	Barrier Layer	UZE 08X 104M
C62	4510002810	Electrolytic	16 SS 47 μF
C63	4510002930	Electrolytic	50 SS R47 μF
C64	4510002930	Electrolytic	50 SS R47 μF
C65	4510002930	Electrolytic	50 SS R47 μF
C66	4040000260	Barrier Layer	UZE 08X 104M
C67	4310000090	Mylar	F2D 50V 333K
C68	4510002380	Electrolytic	16 SS 470 μF (10X12.5)
C69	4510002810	Electrolytic	16 SS 47 μF
C70	4510002810	Electrolytic	16 SS 47 μF
C71	4510002380	Electrolytic	16 SS 470 μF (10X12.5)
C72	4510003040	Electrolytic	16 SS 100 μF
C73	4010000520	Ceramic	DD108 B 472K 50V
C74	4040000260	Barrier Layer	UZE 08X 104M
C75	4510002830	Electrolytic	25 SS 4R7 μF
C76	4040000260	Barrier Layer	UZE 08X 104M
C77	4040000260	Barrier Layer	UZE 08X 104M
C78	4510002830	Electrolytic	25 SS 4R7 μF
C79	4040000260	Barrier Layer	UZE 08X 104M
C80	4040000260	Barrier Layer	UZE 08X 104M
C81	4510002830	Electrolytic	25 SS 4R7 μF
C82	4040000260	Barrier Layer	UZE 08X 104M
C83	4310000110	Mylar	F2D 50V 472K
C84	4310000110	Mylar	F2D 50V 472K
C85	4510002800	Electrolytic	16 SS 33 μF
C86	4040000260	Barrier Layer	UZE 08X 104M
C87	4510002930	Electrolytic	50 SS R47 μF
C88	4010000330	Ceramic	DD105 SL 101J 50V
C89	4010000520	Ceramic	DD108 B 472K 50V
C90	4510002940	Electrolytic	50 SS 1 μF
C91	4310000020	Mylar	F2D 50V 103K
C92	4010000160	Ceramic	DD104 SL 180J 50V
C93	4010000050	Ceramic	DD104 SL 030C 50V
C94	4310000020	Mylar	F2D 50V 103K
C95	4510002930	Electrolytic	50 SS R47 μF
C96	4010000520	Ceramic	DD108 B 472K 50V
C97	4010000520	Ceramic	DD108 B 472K 50V
C98	4010000520	Ceramic	DD108 B 472K 50V
C99	4310000020	Mylar	F2D 50V 103K
C100	4010000520	Ceramic	DD108 B 472K 50V
C101	4010000520	Ceramic	DD108 B 472K 50V
C102	4010000520	Ceramic	DD108 B 472K 50V
C103	4010000520	Ceramic	DD108 B 472K 50V
C104	4010000520	Ceramic	DD108 B 472K 50V
C105	4010000520	Ceramic	DD108 B 472K 50V
C106	4010000520	Ceramic	DD108 B 472K 50V
C107	4040000250	Barrier Layer	UAT 08X 473M
C108	4010000520	Ceramic	DD108 B 472K 50V
C109	4040000150	Barrier Layer	UAT 05X 472K
C110	4010000220	Ceramic	DD104 SL 330J 50V
C111	4010000520	Ceramic	DD108 B 472K 50V
C112	4010000520	Ceramic	DD108 B 472K 50V
C113	4010000520	Ceramic	DD108 B 472K 50V
C114	4510002830	Electrolytic	25 SS 4R7 μF
C115	4510001970	Electrolytic	50 MS7 0R1 μF
C116	4010000410	Ceramic	DD107 SL 331J 50V
C117	4010000500	Ceramic	DD104 B 102K 50V
C118	4040000250	Barrier Layer	UAT 08X 473M
C119	4510002830	Electrolytic	25 SS 4R7 μF
C120	4040000260	Barrier Layer	UZE 08X 104M
C121	4010000380	Ceramic	DD107 SL 221J 50V
C122	4010000380	Ceramic	DD107 SL 221J 50V
C123	4310000010	Mylar	F2D 50V 102K
C125	4010000520	Ceramic	DD108 B 472K 50V
C126	4510001160	Electrolytic	50 MS7 1 μF

**[MAIN UNIT]**

REF. NO.	ORDER NO.	DESCRIPTION
C127	4010000520	Ceramic DD108 B 472K 50V
C128	4010000340	Ceramic DD105 SL 121J 50V
C129	4010000270	Ceramic DD104 SL 510J 50V
C130	4010000520	Ceramic DD108 B 472K 50V
C131	4010000520	Ceramic DD108 B 472K 50V
C132	4010000520	Ceramic DD108 B 472K 50V
C133	4010000030	Ceramic DD104 SL 1R5C 50V
C134	4010000340	Ceramic DD105 SL 121J 50V
C135	4010000340	Ceramic DD105 SL 121J 50V
C136	4040000260	Barrier Layer UZE 08X 104M
C137	4010000520	Ceramic DD108 B 472K 50V
C138	4010000520	Ceramic DD108 B 472K 50V
C139	4010000520	Ceramic DD108 B 472K 50V
C140	4010000520	Ceramic DD108 B 472K 50V
C141	4010000520	Ceramic DD108 B 472K 50V
C142	4010000520	Ceramic DD108 B 472K 50V
C143	4010000310	Ceramic DD104 SL 750J 50V
C144	4010000520	Ceramic DD108 B 472K 50V
C145	4510002800	Electrolytic 16 SS 33 μF
C146	4510002830	Electrolytic 25 SS 4R7 μF
C147	4510001950	Electrolytic 50 MS7 R33 μF
C148	4040000260	Barrier Layer UZE 08X 104M
C149	4510001100	Electrolytic 16 MS7 10 μF
C150	4510001120	Electrolytic 25 MS7 4R7 μF
C151	4510002780	Electrolytic 16 SS 10 μF
C152	4010000520	Ceramic DD108 B 472K 50V
C153	4040000260	Barrier Layer UZE 08X 104M
C154	4310000020	Mylar F2D 50V 103K
C155	4310000020	Mylar F2D 50V 103K
C156	4040000260	Barrier Layer UZE 08X 104M
C157	4510002830	Electrolytic 25 SS 4R7 μF
C158	4010000520	Ceramic DD108 B 472K 50V
C159	4510002830	Electrolytic 25 SS 4R7 μF
C160	4510001740	Electrolytic 50 RBP 1 μF
C161	4510002780	Electrolytic 16 SS 10 μF
C162	4010000520	Ceramic DD108 B 472K 50V
C163	4010000460	Ceramic DD104 B 471K 50V
C164	4510002950	Electrolytic 50 SS 2R2 μF
C165	4040000250	Barrier Layer UAT 08X 473M
C166	4010000460	Ceramic DD104 B 471K 50V
C167	4510002950	Electrolytic 50 SS 2R2 μF
C168	4310000020	Mylar F2D 50V 103K
C169	4310000020	Mylar F2D 50V 103K
C170	4010000520	Ceramic DD108 B 472K 50V
C171	4510002810	Electrolytic 16 SS 47 μF
C172	4510001770	Electrolytic 16 RBP 10 μF
C173	4510001730	Electrolytic 50 RBP 0.47 μF
C174	4510002830	Electrolytic 25 SS 4R7 μF
C175	4510003040	Electrolytic 16 SS 100 μF
C176	4510001170	Electrolytic 50 MS7 2R2 μF
C177	4010000520	Ceramic DD108 B 472K 50V
C178	4010000520	Ceramic DD108 B 472K 50V
C179	4010000520	Ceramic DD108 B 472K 50V
C180	4510002930	Electrolytic 50 SS R47 μF
C181	4010000520	Ceramic DD108 B 472K 50V
C182	4510002930	Electrolytic 50 SS R47 μF
C183	4010000520	Ceramic DD108 B 472K 50V
C184	4510002830	Electrolytic 25 SS 4R7 μF
C185	4510002830	Electrolytic 25 SS 4R7 μF
C186	4510002830	Electrolytic 25 SS 4R7 μF
C187	4040000260	Barrier Layer UZE 08X 104M
C188	4510002780	Electrolytic 16 SS 10 μF
C189	4510002830	Electrolytic 25 SS 4R7 μF
C190	4040000260	Barrier Layer UZE 08X 104M
C191	4040000260	Barrier Layer UZE 08X 104M
C192	4510002810	Electrolytic 16 SS 47 μF
C193	4510002830	Electrolytic 25 SS 4R7 μF
C194	4040000260	Barrier Layer UZE 08X 104M
C195	4510001120	Electrolytic 25 MS7 4R7 μF
C196	4510002830	Electrolytic 25 SS 4R7 μF
C197	4040000260	Barrier Layer UZE 08X 104M
C198	4040000260	Barrier Layer UZE 08X 104M
C199	4010000520	Ceramic DD108 B 472K 50V
C200	4010000520	Ceramic DD108 B 472K 50V
C201	4010000050	Ceramic DD104 SL 030C 50V

**[MAIN UNIT]**

REF. NO.	ORDER NO.	DESCRIPTION
C202	4310000120	Mylar F2D 50V 473K
C203	4510002830	Electrolytic 25 SS 4R7 μF
C204	4510001160	Electrolytic 50 MS7 1 μF
C205	4310000030	Mylar F2D 50V 104K
C206	4510001120	Electrolytic 25 MS7 4R7 μF
C207	4010000520	Ceramic DD108 B 472K 50V
C208	4510002830	Electrolytic 25 SS 4R7 μF
C209	4040000260	Barrier Layer UZE 08X 104M
C401	4040000190	Barrier Layer UAT 05X 103K
C402	4040000450	Barrier Layer RAU 08SA 681K
C403	4040000080	Barrier Layer UAT 04X 122K
C404	4040000080	Barrier Layer UAT 04X 122K
C405	4040000450	Barrier Layer RAU 08SA 681K
C406	4010000520	Ceramic DD108 B 472K 50V
C407	4040000260	Barrier Layer UZE 08X 104M
C408	4010000520	Ceramic DD108 B 472K 50V
C409	4510001100	Electrolytic 16 MS7 10 μF
C410	4010000330	Ceramic DD105 SL 101J 50V
C411	4010000410	Ceramic DD107 SL 331J 50V
C412	4010000020	Ceramic DD104 SL 010C 50V
C413	4010000070	Ceramic DD104 SL 050C 50V
C414	4010000070	Ceramic DD104 SL 050C 50V
C415	4010000520	Ceramic DD108 B 472K 50V
C416	4010000220	Ceramic DD104 SL 330J 50V
C417	4010000170	Ceramic DD104 SL 200J 50V
C418	4010000500	Ceramic DD104 B 102K 50V
C419	4010000500	Ceramic DD104 B 102K 50V
C420	4510001100	Electrolytic 16 MS7 10 μF
C421	4010000500	Ceramic DD104 B 102K 50V
C422	4040000150	Barrier Layer UAT 05X 472K
C423	4510001100	Electrolytic 16 MS7 10 μF
C424	4010000330	Ceramic DD105 SL 101J 50V
C425	4040000190	Barrier Layer UAT 05X 103K
C426	4010000120	Ceramic DD104 SL 100D 50V
C427	4010000500	Ceramic DD104 B 102K 50V
C501	4040000190	Barrier Layer UAT 05X 103K
C502	4040000460	Barrier Layer RAU 08SA 821K
C503	4040000090	Barrier Layer UAT 04X 152K
C504	4040000090	Barrier Layer UAT 04X 152K
C505	4040000460	Barrier Layer RAU 08SA 821K
C506	4010000520	Ceramic DD108 B 472K 50V
C507	4040000260	Barrier Layer UZE 08X 104M
C508	4010000520	Ceramic DD108 B 472K 50V
C509	4510001100	Electrolytic 16 MS7 10 μF
C510	4010000330	Ceramic DD105 SL 101J 50V
C511	4010000410	Ceramic DD107 SL 331J 50V
C512	4010000020	Ceramic DD104 SL 010C 50V
C513	4010000140	Ceramic DD104 SL 120J 50V
C514	4010000140	Ceramic DD104 SL 120J 50V
C515	4010000520	Ceramic DD108 B 472K 50V
C516	4010000280	Ceramic DD104 SL 560J 50V
C517	4010000220	Ceramic DD104 SL 330J 50V
C518	4010000500	Ceramic DD104 B 102K 50V
C519	4010000500	Ceramic DD104 B 102K 50V
C520	4510001100	Electrolytic 16 MS7 10 μF
C521	4010000500	Ceramic DD104 B 102K 50V
C522	4040000150	Barrier Layer UAT 05X 472K
C523	4510001100	Electrolytic 16 MS7 10 μF
C524	4010000330	Ceramic DD105 SL 101J 50V
C525	4040000190	Barrier Layer UAT 05X 103K
C526	4010000170	Ceramic DD104 SL 200J 50V
C527	4010000500	Ceramic DD104 B 102K 50V
RL1	6330000540	Relay OMR-109F
EP1	0910019773	P.C. Board B 1881C
EP401	0910021661	P.C. Board B 1884A (IF SHIFT)
EP501	0910021661	P.C. Board B 1884A (BFO)

[IF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1790000050	IC	ND487C1-3R
IC2	1790000050	IC	ND487C1-3R
IC3	1120000970	IC	M54562P
IC4	1110001320	IC	μPC1037HA
IC5	1110001320	IC	μPC1037HA
Q1	1580000110	FET	3SK74 M
Q2	1560000130	FET	2SK125
Q3	1580000110	FET	3SK74 M
Q4	1530000150	Transistor	2SC2668-O
Q5	1580000110	FET	3SK74 M
Q6	1530000150	Transistor	2SC2668-O
Q7	1590000360	Transistor	RN2202
Q8	1580000110	FET	3SK74 M
Q9	1530000110	Transistor	2SC2458-GR
Q10	1580000110	FET	3SK74 M
Q11	1530000110	Transistor	2SC2458-GR
Q12	1590000350	Transistor	RN1204
Q13	1530000590	Transistor	2SC2785 EF
Q14	1530000590	Transistor	2SC2785 EF
Q15	1530000110	Transistor	2SC2458-GR
Q16	1530000110	Transistor	2SC2458-GR
Q17	1580000110	FET	3SK74 M
Q18	1580000110	FET	3SK74 M
Q19	1580000110	FET	3SK74 M
Q20	1510000080	Transistor	2SA1048-GR
Q21	1530000110	Transistor	2SC2458-GR
Q22	1530000110	Transistor	2SC2458-GR
Q23	1510000080	Transistor	2SA1048-GR
Q24	1510000080	Transistor	2SA1048-GR
Q25	1530000110	Transistor	2SC2458-GR
Q26	1530000110	Transistor	2SC2458-GR
Q27	1530000110	Transistor	2SC2458-GR
Q29	1590000360	Transistor	RN2202
Q30	1590000360	Transistor	RN2202
Q31	1590000360	Transistor	RN2202
Q32	1590000360	Transistor	RN2202
Q33	1590000360	Transistor	RN2202
Q34	1590000350	Transistor	RN1204
Q35	1590000350	Transistor	RN1204
Q36	1590000350	Transistor	RN1204
Q37	1590000350	Transistor	RN1204
Q38	1590000350	Transistor	RN1204
Q39	1590000350	Transistor	RN1204
Q40	1590000360	Transistor	RN2202
Q41	1590000360	Transistor	RN2202
Q42	1540000150	Transistor	2SD1225M R
Q43	1590000340	Transistor	RN1202
Q44	1540000150	Transistor	2SD1225M R
Q45	1590000340	Transistor	RN1202
Q46	1510000080	Transistor	2SA1048-GR
Q47	1590000340	Transistor	RN1202
Q48	1530000110	Transistor	2SC2458-GR
Q49	1510000080	Transistor	2SA1048-GR
Q50	1590000360	Transistor	RN2202
Q51	1590000340	Transistor	RN1202
Q52	1590000360	Transistor	RN2202
Q53	1590000350	Transistor	RN1204
Q54	1590000360	Transistor	RN2202
Q55	1590000350	Transistor	RN1204
Q56	1590000350	Transistor	RN1204
Q57	1590000340	Transistor	RN1202
D1	1710000050	Diode	1SS53
D2	1710000050	Diode	1SS53
D3	1710000050	Diode	1SS53
D4	1710000050	Diode	1SS53
D5	1710000050	Diode	1SS53
D6	1710000050	Diode	1SS53
D7	1710000050	Diode	1SS53
D8	1710000050	Diode	1SS53
D9	1710000050	Diode	1SS53
D10	1710000050	Diode	1SS53

[IF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
D11	1710000050	Diode	1SS53
D12	1710000050	Diode	1SS53
D13	1710000050	Diode	1SS53
D14	1710000050	Diode	1SS53
D15	1710000050	Diode	1SS53
D16	1710000050	Diode	1SS53
D17	1710000050	Diode	1SS53
D18	1710000050	Diode	1SS53
D19	1710000050	Diode	1SS53
D20	1710000050	Diode	1SS53
D21	1710000050	Diode	1SS53
D22	1710000050	Diode	1SS53
D23	1710000050	Diode	1SS53
D24	1710000050	Diode	1SS53
D25	1710000050	Diode	1SS53
D26	1710000050	Diode	1SS53
D27	1710000050	Diode	1SS53
D28	1710000050	Diode	1SS53
D29	1710000050	Diode	1SS53
D30	1710000050	Diode	1SS53
D31	1710000050	Diode	1SS53
D32	1710000050	Diode	1SS53
D33	1710000050	Diode	1SS53
D34	1710000050	Diode	1SS53
D35	1710000050	Diode	1SS53
D36	1710000050	Diode	1SS53
D37	1710000050	Diode	1SS53
D38	1710000050	Diode	1SS53
D39	1710000050	Diode	1SS53
D40	1710000050	Diode	1SS53
D41	1710000270	Diode	MI204
D42	1710000270	Diode	MI204
D43	1710000270	Diode	MI204
D44	1710000270	Diode	MI204
D45	1710000050	Diode	1SS53
D46	1710000050	Diode	1SS53
D47	1710000050	Diode	1SS53
D48	1710000050	Diode	1SS53
D49	1710000050	Diode	1SS53
D50	1710000050	Diode	1SS53
D51	1710000050	Diode	1SS53
D52	1710000050	Diode	1SS53
D53	1710000050	Diode	1SS53
D54	1710000050	Diode	1SS53
D55	1710000050	Diode	1SS53
D56	1710000050	Diode	1SS53
D58	1710000050	Diode	1SS53
D59	1710000050	Diode	1SS53
D60	1710000050	Diode	1SS53
D61	1710000050	Diode	1SS53
D62	1710000050	Diode	1SS53
D63	1710000050	Diode	1SS53
D64	1710000050	Diode	1SS53
D65	1710000050	Diode	1SS53
D66	1710000050	Diode	1SS53
D67	1710000050	Diode	1SS53
D68	1710000050	Diode	1SS53
D69	1710000050	Diode	1SS53
D70	1710000050	Diode	1SS53
D71	1710000050	Diode	1SS53
D72	1710000050	Diode	1SS53
D73	1710000050	Diode	1SS53
D74	1710000050	Diode	1SS53
D75	1710000050	Diode	1SS53
D76	1710000050	Diode	1SS53
D77	1710000050	Diode	1SS53
D78	1710000160	Diode	1SS133
D79	1710000160	Diode	1SS133
D80	1710000160	Diode	1SS133
D81	1710000270	Diode	MI204
D82	1710000270	Diode	MI204
D83	1710000270	Diode	MI204
D84	1710000270	Diode	MI204
D85	1720000110	Varicap	FC51M
D86	1720000050	Varicap	1SV50E

(IF UNIT)

REF. NO.	ORDER NO.	DESCRIPTION	
D87	1710000050	Diode	1SS53
D88	1710000050	Diode	1SS53
D89	1710000050	Diode	1SS53
D90	1710000330	Diode	1K60
D91	1710000330	Diode	1K60
D92	1710000160	Diode	1SS133
D93	1710000160	Diode	1SS133
D94	1710000160	Diode	1SS133
D95	1710000050	Diode	1SS53
D96	1710000050	Diode	1SS53
D97	1710000160	Diode	1SS133
D98	1710000050	Diode	1SS53
D99	1710000050	Diode	1SS53
F11	2020000540	Filter	SFE10.7MMH-A
F12	2020000540	Filter	SFE10.7MMH-A
F13	2020000450	Filter	SFE10.7MJ-A
F14	2010000090	Filter	10M15BA (FL-75)
F17	2010000990	Filter	10M 6C4 (FL-117)
F18	2020000610	Filter	CFW455B
F19	2020000120	Filter	CFW455E
F110	2020000150	Filter	CFW455HT
F111	2020000210	Filter	CFJ455K5 (FL-65)
F112	2010000390	Filter	X00F24A (FL-44A)
F113	2010000440	Filter	X00F05A (FL-52A)
F114	2010001000	Filter	10M30A2 (FL-118)
X1	6050005740	Crystal	CR-271
L1	6140000640	Coil	LR-86
L2	6140000930	Coil	LR-116
L3	6140000930	Coil	LR-116
L4	6150001590	Coil	LS-175
L5	6150002380	Coil	LS-249
L6	6180000770	Coil	LAL 03NA 1R0M
L7	6140000630	Coil	LR-85A
L8	6180000900	Coil	LAL 03NA 101K
L9	6180000900	Coil	LAL 03NA 101K
L10	6180000800	Coil	LAL 03NA 1R8M
L11	6150000950	Coil	LS-110A
L12	6150002990	Coil	LS-310
L13	6180000880	Coil	LAL 03NA 100K
L14	6150002960	Coil	LS-307
L15	6140000930	Coil	LR-116
L16	6150002380	Coil	LS-249
L17	6150001770	Coil	LS-198
L18	6180000900	Coil	LAL 03NA 101K
L19	6150002090	Coil	LS-214
L20	6150002090	Coil	LS-214
L21	6180000880	Coil	LAL 03NA 100K
L22	6150002960	Coil	LS-307
L23	6150002960	Coil	LS-307
L24	6150002890	Coil	LS-303
L25	6150002890	Coil	LS-303
L26	6180000880	Coil	LAL 03NA 100K
L27	6180000900	Coil	LAL 03NA 101K
L28	6180000960	Coil	LAL 03NA 102K
L29	6180000880	Coil	LAL 03NA 100K
L30	6180000880	Coil	LAL 03NA 100K
L31	6110001560	Coil	LA-236
L32	6140000930	Coil	LR-116
L33	6140000930	Coil	LR-116
L35	6180000900	Coil	LAL 03NA 101K
L36	6180000900	Coil	LAL 03NA 101K
L37	6180000900	Coil	LAL 03NA 101K
L38	6180000900	Coil	LAL 03NA 101K
L39	6180000900	Coil	LAL 03NA 101K
L40	6180000900	Coil	LAL 03NA 101K
L41	6180000750	Coil	LAL 03NA R68M
L42	6180000710	Coil	LAL 03NA R33M
L43	6180000750	Coil	LAL 03NA R68M
L44	6180000710	Coil	LAL 03NA R33M

(IF UNIT)

REF. NO.	ORDER NO.	DESCRIPTION	
L45	6180000900	Coil	LAL 03NA 101K
L46	6150001370	Coil	LS-151
L47	6150001370	Coil	LS-151
L48	6150001370	Coil	LS-151
L49	6180000900	Coil	LAL 03NA 101K
L50	6180000900	Coil	LAL 03NA 101K
L51	6150001440	Coil	LS-157
L52	6180000900	Coil	LAL 03NA 101K
L53	6150001200	Coil	LS-133
L54	6180000900	Coil	LAL 03NA 101K
L55	6150001370	Coil	LS-151
L56	6180000900	Coil	LAL 03NA 101K
L57	6150002960	Coil	LS-307
L58	6150002960	Coil	LS-307
L59	6150001770	Coil	LS-198
L60	6180000900	Coil	LAL 03NA 101K
L61	6140000640	Coil	LR-86
L62	6180000760	Coil	LAL 03NA R82M
R1	7010003330	Resistor	ELR20J 270 Ω
R2	7010003980	Resistor	R20J 18 Ω
R3	7010003330	Resistor	ELR20J 270 Ω
R4	7010003240	Resistor	ELR20J 47 Ω
R5	7010003280	Resistor	ELR20J 100 Ω
R6	7010003480	Resistor	ELR20J 4.7 kΩ
R7	7010003480	Resistor	ELR20J 4.7 kΩ
R8	7010004270	Resistor	R20J 4.7 kΩ
R9	7010003670	Resistor	ELR20J 120 kΩ
R10	7010003250	Resistor	ELR20J 56 Ω
R11	7010003480	Resistor	ELR20J 4.7 kΩ
R12	7310000700	Trimmer	RH0651CS2J1HA (471)
R13	7010003280	Resistor	ELR20J 100 Ω
R14	7010003340	Resistor	ELR20J 330 Ω
R15	7010003320	Resistor	ELR20J 220 Ω
R16	7010003400	Resistor	ELR20J 1 kΩ
R18	7010003740	Resistor	ELR20J 470 kΩ
R19	7010004040	Resistor	R20J 56 Ω
R20	7310000750	Trimmer	RH0651C14J2WA (103)
R21	7310000700	Trimmer	RH0651CS2J1HA (471)
R22	7010003320	Resistor	ELR20J 220 Ω
R23	7010003480	Resistor	ELR20J 4.7 kΩ
R24	7010003240	Resistor	ELR20J 47 Ω
R25	7010003580	Resistor	ELR20J 22 kΩ
R26	7010003320	Resistor	ELR20J 220 Ω
R27	7010003580	Resistor	ELR20J 22 kΩ
R28	7010004110	Resistor	R20J 220 Ω
R29	7010004270	Resistor	R20J 4.7 kΩ
R30	7010003670	Resistor	ELR20J 120 kΩ
R31	7010004040	Resistor	R20J 56 Ω
R32	7010003460	Resistor	ELR20J 3.3 kΩ
R33	7310000700	Trimmer	RH0651CS2J1HA (471)
R34	7010004070	Resistor	R20J 100 Ω
R35	7010003480	Resistor	ELR20J 4.7 kΩ
R36	7010003480	Resistor	ELR20J 4.7 kΩ
R37	7010003240	Resistor	ELR20J 47 Ω
R38	7010003580	Resistor	ELR20J 22 kΩ
R39	7010003320	Resistor	ELR20J 220 Ω
R40	7010003580	Resistor	ELR20J 22 kΩ
R41	7010004110	Resistor	R20J 220 Ω
R42	7010003330	Resistor	ELR20J 270 Ω
R43	7010003980	Resistor	R20J 18 Ω
R44	7010003330	Resistor	ELR20J 270 Ω
R45	7010004270	Resistor	R20J 4.7 kΩ
R46	7010003530	Resistor	ELR20J 10 kΩ
R47	7010003480	Resistor	ELR20J 4.7 kΩ
R48	7010003400	Resistor	ELR20J 1 kΩ
R49	7010003320	Resistor	ELR20J 220 Ω
R50	7010004230	Resistor	R20J 2.2 kΩ
R51	7010004230	Resistor	R20J 2.2 kΩ
R52	7010004070	Resistor	R20J 100 Ω
R53	7010001410	Resistor	R25J 120 kΩ
R54	7010003250	Resistor	ELR20J 56 Ω
R55	7010004270	Resistor	R20J 4.7 kΩ
R56	7310000700	Trimmer	RH0651CS2J1HA (471)

## [IF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
R57	7010004070	Resistor R20J 100 Ω
R58	7010001070	Resistor R25J 220 Ω
R59	7010003420	Resistor ELR20J 1.5 kΩ
R60	7010003490	Resistor ELR20J 5.6 kΩ
R61	7010000990	Resistor R25J 47 Ω
R62	7010003420	Resistor ELR20J 1.5 kΩ
R63	7010004270	Resistor R20J 4.7 kΩ
R64	7010003580	Resistor ELR20J 22 kΩ
R65	7010003580	Resistor ELR20J 22 kΩ
R66	7010004110	Resistor R20J 220 Ω
R67	7010003440	Resistor ELR20J 2.2 kΩ
R68	7010001070	Resistor R25J 220 Ω
R69	7010004210	Resistor R20J 1.5 kΩ
R70	7010003490	Resistor ELR20J 5.6 kΩ
R71	7010001050	Resistor R25J 150 Ω
R72	7010003420	Resistor ELR20J 1.5 kΩ
R73	7010004110	Resistor R20J 220 Ω
R74	7010003580	Resistor ELR20J 22 kΩ
R75	7010003580	Resistor ELR20J 22 kΩ
R76	7010003440	Resistor ELR20J 2.2 kΩ
R77	7010004110	Resistor R20J 220 Ω
R78	7010004210	Resistor R20J 1.5 kΩ
R79	7010004280	Resistor R20J 5.6 kΩ
R80	7010001050	Resistor R25J 150 Ω
R81	7010003420	Resistor ELR20J 1.5 kΩ
R82	7010004110	Resistor R20J 220 Ω
R83	7010003420	Resistor ELR20J 1.5 kΩ
R84	7010004280	Resistor R20J 5.6 kΩ
R85	7010004090	Resistor R20J 150 Ω
R86	7010004210	Resistor R20J 1.5 kΩ
R87	7010004090	Resistor R20J 150 Ω
R88	7010004110	Resistor R20J 220 Ω
R89	7010003440	Resistor ELR20J 2.2 kΩ
R90	7010004530	Resistor R20J 470 kΩ
R91	7010003250	Resistor ELR20J 56 Ω
R92	7010003480	Resistor ELR20J 4.7 kΩ
R93	7310000700	Trimmer RH0651CS2J1HA (471)
R94	7010004090	Resistor R20J 150 Ω
R95	7010001070	Resistor R25J 220 Ω
R96	7010004270	Resistor R20J 4.7 kΩ
R97	7010004120	Resistor R20J 270 Ω
R98	7010001030	Resistor R25J 100 Ω
R99	7010003620	Resistor ELR20J 47 kΩ
R100	7010004190	Resistor R20J 1 kΩ
R101	7010003480	Resistor ELR20J 4.7 kΩ
R102	7010001070	Resistor R25J 220 Ω
R103	7010004270	Resistor R20J 4.7 kΩ
R104	7010004110	Resistor R20J 220 Ω
R105	7010001030	Resistor R25J 100 Ω
R106	7010003620	Resistor ELR20J 47 kΩ
R107	7010004110	Resistor R20J 220 Ω
R108	7010003480	Resistor ELR20J 4.7 kΩ
R109	7010001070	Resistor R25J 220 Ω
R110	7010004270	Resistor R20J 4.7 kΩ
R111	7010004110	Resistor R20J 220 Ω
R112	7010001030	Resistor R25J 100 Ω
R113	7010003620	Resistor ELR20J 47 kΩ
R114	7010004110	Resistor R20J 220 Ω
R115	7010003480	Resistor ELR20J 4.7 kΩ
R116	7010004070	Resistor R20J 100 Ω
R117	7010004110	Resistor R20J 220 Ω
R118	7010004270	Resistor R20J 4.7 kΩ
R119	7010003320	Resistor ELR20J 220 Ω
R120	7010001030	Resistor R25J 100 Ω
R121	7010004410	Resistor R20J 47 kΩ
R122	7010004110	Resistor R20J 220 Ω
R123	7010004270	Resistor R20J 4.7 kΩ
R124	7010003580	Resistor ELR20J 22 kΩ
R125	7010003440	Resistor ELR20J 2.2 kΩ
R126	7010003240	Resistor ELR20J 47 Ω
R127	7010001070	Resistor R25J 220 Ω
R128	7010003480	Resistor ELR20J 4.7 kΩ
R129	7010004270	Resistor R20J 4.7 kΩ
R130	7010001030	Resistor R25J 100 Ω
R131	7010003620	Resistor ELR20J 47 kΩ

## [IF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
R132	7010004110	Resistor R20J 220 Ω
R133	7010004270	Resistor R20J 4.7 kΩ
R134	7010003480	Resistor ELR20J 4.7 kΩ
R135	7010001070	Resistor R25J 220 Ω
R136	7010004270	Resistor R20J 4.7 kΩ
R137	7010003480	Resistor ELR20J 4.7 kΩ
R138	7010004070	Resistor R20J 100 Ω
R139	7010004410	Resistor R20J 47 kΩ
R140	7010003320	Resistor ELR20J 220 Ω
R141	7010004270	Resistor R20J 4.7 kΩ
R142	7010003480	Resistor ELR20J 4.7 kΩ
R143	7010003580	Resistor ELR20J 22 kΩ
R144	7010003440	Resistor ELR20J 2.2 kΩ
R145	7010004200	Resistor R20J 1.2 kΩ
R146	7010003360	Resistor ELR20J 470 Ω
R147	7010004270	Resistor R20J 4.7 kΩ
R148	7010003240	Resistor ELR20J 47 Ω
R149	7010003530	Resistor ELR20J 10 kΩ
R150	7010003210	Resistor ELR20J 27 Ω
R151	7010003230	Resistor ELR20J 39 Ω
R152	7010003210	Resistor ELR20J 27 Ω
R153	7010004200	Resistor R20J 1.2 kΩ
R154	7010003240	Resistor ELR20J 47 Ω
R155	7010003530	Resistor ELR20J 10 kΩ
R156	7010003360	Resistor ELR20J 470 Ω
R157	7010004270	Resistor R20J 4.7 kΩ
R158	7010003480	Resistor ELR20J 4.7 kΩ
R159	7010004110	Resistor R20J 220 Ω
R160	7010003440	Resistor ELR20J 2.2 kΩ
R161	7010003580	Resistor ELR20J 22 kΩ
R162	7010003580	Resistor ELR20J 22 kΩ
R163	7010003480	Resistor ELR20J 4.7 kΩ
R164	7010004110	Resistor R20J 220 Ω
R165	7010003440	Resistor ELR20J 2.2 kΩ
R166	7010003580	Resistor ELR20J 22 kΩ
R167	7010003580	Resistor ELR20J 22 kΩ
R168	7010001230	Resistor R25J 4.7 kΩ
R169	7010003480	Resistor ELR20J 4.7 kΩ
R170	7010003480	Resistor ELR20J 4.7 kΩ
R171	7010003480	Resistor ELR20J 4.7 kΩ
R172	7010003250	Resistor ELR20J 56 Ω
R173	7010004240	Resistor R20J 2.7 kΩ
R174	7010003620	Resistor ELR20J 47 kΩ
R175	7010003340	Resistor ELR20J 330 Ω
R176	7010004090	Resistor R20J 150 Ω
R177	7010004320	Resistor R20J 10 kΩ
R178	7010003250	Resistor ELR20J 56 Ω
R179	7010004320	Resistor R20J 10 kΩ
R180	7010004130	Resistor R20J 330 Ω
R181	7010004090	Resistor R20J 150 Ω
R182	7010003530	Resistor ELR20J 10 kΩ
R183	7010004040	Resistor R20J 56 Ω
R184	7010003530	Resistor ELR20J 10 kΩ
R185	7010003320	Resistor ELR20J 220 Ω
R186	7010004090	Resistor R20J 150 Ω
R187	7010003630	Resistor ELR20J 56 kΩ
R188	7010003660	Resistor ELR20J 100 kΩ
R189	7010004320	Resistor R20J 10 kΩ
R190	7010003640	Resistor ELR20J 68 kΩ
R191	7010004410	Resistor R20J 47 kΩ
R192	7010004320	Resistor R20J 10 kΩ
R193	7010004270	Resistor R20J 4.7 kΩ
R194	7010004410	Resistor R20J 47 kΩ
R195	7010003410	Resistor ELR20J 1.2 kΩ
R196	7010004280	Resistor R20J 5.6 kΩ
R197	7010003580	Resistor ELR20J 22 kΩ
R198	7010003530	Resistor ELR20J 10 kΩ
R199	7010004270	Resistor R20J 4.7 kΩ
R200	7010003530	Resistor ELR20J 10 kΩ
R201	7010004280	Resistor R20J 5.6 kΩ
R202	7010004410	Resistor R20J 47 kΩ
R203	7010003660	Resistor ELR20J 100 kΩ
R204	7010003530	Resistor ELR20J 10 kΩ
R205	7010003530	Resistor ELR20J 10 kΩ
R207	7010004320	Resistor R20J 10 kΩ



[IF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
R208	7010001280	Resistor R25J 10 kΩ
R209	7010001280	Resistor R25J 10 kΩ
R210	7010003480	Resistor ELR20J 4.7 kΩ
R211	7010003160	Resistor ELR20J 10 Ω
R212	7010003400	Resistor ELR20J 1 kΩ
R213	7010003950	Resistor R20J 10 Ω
R214	7010003400	Resistor ELR20J 1 kΩ
R215	7010003530	Resistor ELR20J 10 kΩ
R216	7010003530	Resistor ELR20J 10 kΩ
R217	7010003530	Resistor ELR20J 10 kΩ
R218	7010003740	Resistor ELR20J 470 kΩ
R219	7010004370	Resistor R20J 22 kΩ
R220	7010003740	Resistor ELR20J 470 kΩ
R221	7010004320	Resistor R20J 10 kΩ
R222	7010003440	Resistor ELR20J 2.2 kΩ
R223	7010003330	Resistor ELR20J 270 Ω
R224	7010003440	Resistor ELR20J 2.2 kΩ
R225	7010004190	Resistor R20J 1 kΩ
R226	7010004450	Resistor R20J 100 kΩ
R227	7010004420	Resistor R20J 56 kΩ
R228	7010003680	Resistor ELR20J 150 kΩ
R229	7010004370	Resistor R20J 22 kΩ
R230	7010004190	Resistor R20J 1 kΩ
R231	7010004190	Resistor R20J 1 kΩ
R232	7010004150	Resistor R20J 470 Ω
R233	7410000180	Resistor Array RMX- 8 103K
R234	7010004320	Resistor R20J 10 kΩ
R235	7010003480	Resistor ELR20J 4.7 kΩ
R236	7010004270	Resistor R20J 4.7 kΩ
R238	7010003480	Resistor ELR20J 4.7 kΩ
R239	7010003240	Resistor ELR20J 47 Ω
R240	7010004210	Resistor R20J 1.5 kΩ
R241	7010003320	Resistor ELR20J 220 Ω
R242	7010003360	Resistor ELR20J 470 Ω
R243	7010004340	Resistor R20J 15 kΩ
R244	7010004110	Resistor R20J 220 Ω
R245	7010003480	Resistor ELR20J 4.7 kΩ
R246	7010004270	Resistor R20J 4.7 kΩ
R247	7310000690	Trimmer RH0651CN2J02A (331)
R248	7010003250	Resistor ELR20J 56 Ω
R249	7010003190	Resistor ELR20J 18 Ω
R250	7010003190	Resistor ELR20J 18 Ω
R251	7310001700	Trimmer RH0421C13J09A (102)
C1	4010000520	Ceramic DD108 B 472K 50V
C2	4010000420	Ceramic DD108 SL 391J 50V
C3	4010000410	Ceramic DD107 SL 331J 50V
C4	4010000520	Ceramic DD108 B 472K 50V
C5	4010000520	Ceramic DD108 B 472K 50V
C6	4010000520	Ceramic DD108 B 472K 50V
C7	4010000520	Ceramic DD108 B 472K 50V
C8	4010000330	Ceramic DD105 SL 101J 50V
C9	4040000260	Barrier Layer UZE 08X 104M
C10	4010000250	Ceramic DD104 SL 430J 50V
C11	4010000520	Ceramic DD108 B 472K 50V
C13	4010000520	Ceramic DD108 B 472K 50V
C14	4010000180	Ceramic DD104 SL 220J 50V
C16	4010000520	Ceramic DD108 B 472K 50V
C17	4040000260	Barrier Layer UZE 08X 104M
C18	4010000520	Ceramic DD108 B 472K 50V
C19	4010000520	Ceramic DD108 B 472K 50V
C20	4010000520	Ceramic DD108 B 472K 50V
C21	4010000520	Ceramic DD108 B 472K 50V
C22	4010000520	Ceramic DD108 B 472K 50V
C23	4010000500	Ceramic DD104 B 102K 50V
C24	4010000520	Ceramic DD108 B 472K 50V
C25	4010000150	Ceramic DD104 SL 150J 50V
C26	4010000520	Ceramic DD108 B 472K 50V
C27	4040000480	Barrier Layer RAU 04AK R75C
C28	4010000150	Ceramic DD104 SL 150J 50V
C29	4010000520	Ceramic DD108 B 472K 50V
C32	4040000260	Barrier Layer UZE 08X 104M
C33	4010000520	Ceramic DD108 B 472K 50V
C34	4010000520	Ceramic DD108 B 472K 50V

[IF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
C35	4010000180	Ceramic DD104 SL 220J 50V
C36	4010000520	Ceramic DD108 B 472K 50V
C37	4510002930	Electrolytic 50 SS R47 μF
C38	4010000520	Ceramic DD108 B 472K 50V
C39	4010000500	Ceramic DD104 B 102K 50V
C40	4010000520	Ceramic DD108 B 472K 50V
C41	4010000150	Ceramic DD104 SL 150J 50V
C42	4010000520	Ceramic DD108 B 472K 50V
C43	4040000480	Barrier Layer RAU 04AK R75C
C44	4010000150	Ceramic DD104 SL 150J 50V
C45	4010000520	Ceramic DD108 B 472K 50V
C46	4010000520	Ceramic DD108 B 472K 50V
C47	4010000520	Ceramic DD108 B 472K 50V
C49	4010000060	Ceramic DD104 SL 040C 50V
C51	4010000050	Ceramic DD104 SL 030C 50V
C53	4040000250	Barrier Layer UAT 08X 473M
C54	4040000260	Barrier Layer UZE 08X 104M
C56	4010000520	Ceramic DD108 B 472K 50V
C57	4010000180	Ceramic DD104 SL 220J 50V
C58	4010000520	Ceramic DD108 B 472K 50V
C59	4510002930	Electrolytic 50 SS R47 μF
C60	4010000520	Ceramic DD108 B 472K 50V
C61	4010000520	Ceramic DD108 B 472K 50V
C62	4010000520	Ceramic DD108 B 472K 50V
C63	4040000250	Barrier Layer UAT 08X 473M
C64	4010000520	Ceramic DD108 B 472K 50V
C65	4010000520	Ceramic DD108 B 472K 50V
C66	4040000250	Barrier Layer UAT 08X 473M
C67	4040000250	Barrier Layer UAT 08X 473M
C68	4010000520	Ceramic DD108 B 472K 50V
C69	4010000520	Ceramic DD108 B 472K 50V
C70	4040000250	Barrier Layer UAT 08X 473M
C71	4040000250	Barrier Layer UAT 08X 473M
C72	4010000520	Ceramic DD108 B 472K 50V
C73	4010000520	Ceramic DD108 B 472K 50V
C74	4040000250	Barrier Layer UAT 08X 473M
C75	4040000250	Barrier Layer UAT 08X 473M
C76	4040000250	Barrier Layer UAT 08X 473M
C77	4040000250	Barrier Layer UAT 08X 473M
C78	4010000520	Ceramic DD108 B 472K 50V
C79	4010000520	Ceramic DD108 B 472K 50V
C80	4040000260	Barrier Layer UZE 08X 104M
C81	4010000520	Ceramic DD108 B 472K 50V
C82	4040000260	Barrier Layer UZE 08X 104M
C83	4010000520	Ceramic DD108 B 472K 50V
C84	4010000520	Ceramic DD108 B 472K 50V
C85	4040000080	Barrier Layer UAT 04X 122K
C86	4040000260	Barrier Layer UZE 08X 104M
C87	4040000260	Barrier Layer UZE 08X 104M
C88	4010000520	Ceramic DD108 B 472K 50V
C89	4010000520	Ceramic DD108 B 472K 50V
C90	4040000260	Barrier Layer UZE 08X 104M
C91	4040000260	Barrier Layer UZE 08X 104M
C92	4040000260	Barrier Layer UZE 08X 104M
C93	4040000260	Barrier Layer UZE 08X 104M
C94	4040000260	Barrier Layer UZE 08X 104M
C95	4040000260	Barrier Layer UZE 08X 104M
C96	4040000260	Barrier Layer UZE 08X 104M
C97	4040000260	Barrier Layer UZE 08X 104M
C98	4010000520	Ceramic DD108 B 472K 50V
C99	4040000260	Barrier Layer UZE 08X 104M
C100	4010000520	Ceramic DD108 B 472K 50V
C101	4040000260	Barrier Layer UZE 08X 104M
C102	4040000260	Barrier Layer UZE 08X 104M
C103	4040000260	Barrier Layer UZE 08X 104M
C104	4040000260	Barrier Layer UZE 08X 104M
C105	4010000520	Ceramic DD108 B 472K 50V
C106	4010000520	Ceramic DD108 B 472K 50V
C107	4010000520	Ceramic DD108 B 472K 50V
C108	4010000520	Ceramic DD108 B 472K 50V
C109	4010000300	Ceramic DD104 SL 680J 50V
C110	4010000320	Ceramic DD104 SL 820J 50V
C111	4010000300	Ceramic DD104 SL 680J 50V
C113	4010000520	Ceramic DD108 B 472K 50V
C114	4010000520	Ceramic DD108 B 472K 50V

[IF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
C115	4010000520	Ceramic DD108 B 472K 50V
C116	4010000520	Ceramic DD108 B 472K 50V
C117	4010000520	Ceramic DD108 B 472K 50V
C118	4010000520	Ceramic DD108 B 472K 50V
C119	4010000520	Ceramic DD108 B 472K 50V
C120	4010000520	Ceramic DD108 B 472K 50V
C121	4010000520	Ceramic DD108 B 472K 50V
C122	4010000520	Ceramic DD108 B 472K 50V
C123	4010000520	Ceramic DD108 B 472K 50V
C124	4010000520	Ceramic DD108 B 472K 50V
C125	4010000380	Ceramic DD107 SL 221J 50V
C126	4010000300	Ceramic DD104 SL 680J 50V
C127	4010000380	Ceramic DD107 SL 221J 50V
C128	4010000520	Ceramic DD108 B 472K 50V
C129	4010000380	Ceramic DD107 SL 221J 50V
C130	4010000380	Ceramic DD107 SL 221J 50V
C131	4010000520	Ceramic DD108 B 472K 50V
C132	4010000520	Ceramic DD108 B 472K 50V
C133	4010000520	Ceramic DD108 B 472K 50V
C134	4010000380	Ceramic DD107 SL 221J 50V
C135	4010000380	Ceramic DD107 SL 221J 50V
C136	4010000520	Ceramic DD108 B 472K 50V
C137	4010000300	Ceramic DD104 SL 680J 50V
C138	4010000380	Ceramic DD107 SL 221J 50V
C139	4010000380	Ceramic DD107 SL 221J 50V
C140	4010000520	Ceramic DD108 B 472K 50V
C141	4010000520	Ceramic DD108 B 472K 50V
C142	4010000520	Ceramic DD108 B 472K 50V
C143	4010000070	Ceramic DD104 SL 050C 50V
C144	4010000520	Ceramic DD108 B 472K 50V
C145	4010000520	Ceramic DD108 B 472K 50V
C146	4010000500	Ceramic DD104 B 102K 50V
C147	4010000520	Ceramic DD108 B 472K 50V
C148	4010000500	Ceramic DD104 B 102K 50V
C149	4010000520	Ceramic DD108 B 472K 50V
C150	4010000520	Ceramic DD108 B 472K 50V
C152	4010000520	Ceramic DD108 B 472K 50V
C153	4010000520	Ceramic DD108 B 472K 50V
C154	4010000500	Ceramic DD104 B 102K 50V
C155	4010000520	Ceramic DD108 B 472K 50V
C157	4010000520	Ceramic DD108 B 472K 50V
C158	4010000330	Ceramic DD105 SL 101J 50V
C159	4010000410	Ceramic DD107 SL 331J 50V
C160	4510002950	Electrolytic 50 SS 2R2 $\mu$ F
C161	4310000110	Mylar F2D 50V 472K
C162	4510002780	Electrolytic 16 SS 10 $\mu$ F
C163	4310000020	Mylar F2D 50V 103K
C164	4510002830	Electrolytic 25 SS 4R7 $\mu$ F
C165	4510002940	Electrolytic 50 SS 1 $\mu$ F
C166	4550002440	Tantalum DN 1V R68M
C167	4510002780	Electrolytic 16 SS 10 $\mu$ F
C168	4310000120	Mylar F2D 50V 473K
C169	4530000350	Capacitor Array B8ZC0111-32N
C170	4530000250	Capacitor Array B8XC0112-32N
C171	4040000260	Barrier Layer UZE 08X 104M
C172	4510002940	Electrolytic 50 SS 1 $\mu$ F
C173	4040000260	Barrier Layer UZE 08X 104M
C174	4510002940	Electrolytic 50 SS 1 $\mu$ F
C175	4510002780	Electrolytic 16 SS 10 $\mu$ F
C176	4040000250	Barrier Layer UAT 08X 473M
C177	4010000520	Ceramic DD108 B 472K 50V
C178	4010000520	Ceramic DD108 B 472K 50V
C179	4040000260	Barrier Layer UZE 08X 104M
C180	4510002930	Electrolytic 50 SS R47 $\mu$ F
C181	4040000260	Barrier Layer UZE 08X 104M
C182	4010000520	Ceramic DD108 B 472K 50V
C183	4010000520	Ceramic DD108 B 472K 50V
C184	4010000340	Ceramic DD105 SL 121J 50V
C185	4010000520	Ceramic DD108 B 472K 50V
C186	4010000520	Ceramic DD108 B 472K 50V
C187	4610000100	Trimmer CV05A0601
C189	4010000170	Ceramic DD104 SL 200J 50V
C190	4010000520	Ceramic DD108 B 472K 50V
C193	4010000520	Ceramic DD108 B 472K 50V
C194	4010000520	Ceramic DD108 B 472K 50V

[IF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
C195	4510002870	Electrolytic 25 SS 100 $\mu$ F
C196	4040000260	Barrier Layer UZE 08X 104M
C197	4010000520	Ceramic DD108 B 472K 50V
C198	4010000520	Ceramic DD108 B 472K 50V
C199	4010000520	Ceramic DD108 B 472K 50V
C200	4010000520	Ceramic DD108 B 472K 50V
C201	4010000520	Ceramic DD108 B 472K 50V
C202	4010000350	Ceramic DD106 SL 151J 50V
EP1	0910019823	P.C. Board B 1882C

[RF A UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
IC1	1120000970	IC M54562P
IC2	1120000970	IC M54562P
IC3	1130004350	IC MC74HC4514N
Q1	1560000130	FET 2SK125
Q2	1560000130	FET 2SK125
Q3	1560000130	FET 2SK125
Q4	1510000070	Transistor 2SA1048-Y
Q5	1530000940	Transistor 2SC1571G
Q6	1530000810	Transistor 2SC2053
Q7	1580000110	FET 3SK74 M
Q8	1560000130	FET 2SK125
Q9	1560000130	FET 2SK125
Q10	1560000100	FET 2SK241-Y
Q11	1540000070	Transistor 2SD468C
Q12	1540000070	Transistor 2SD468C
Q13	1590000340	Transistor RN1202
Q14	1590000350	Transistor RN1204
Q15	1590000360	Transistor RN2202
D1	1710000050	Diode 1SS53
D2	1710000050	Diode 1SS53
D3	1710000270	Diode MI204
D4	1710000050	Diode 1SS53
D5	1710000050	Diode 1SS53
D6	1710000050	Diode 1SS53
D7	1710000050	Diode 1SS53
D8	1710000050	Diode 1SS53
D9	1710000050	Diode 1SS53
D10	1710000050	Diode 1SS53
D11	1710000050	Diode 1SS53
D12	1710000050	Diode 1SS53
D13	1710000050	Diode 1SS53
D14	1710000050	Diode 1SS53
D15	1710000050	Diode 1SS53
D16	1710000050	Diode 1SS53
D17	1710000050	Diode 1SS53
D18	1710000050	Diode 1SS53
D19	1710000050	Diode 1SS53
D20	1710000050	Diode 1SS53
D21	1710000050	Diode 1SS53
D22	1710000270	Diode MI204
D23	1710000270	Diode MI204
D24	1710000270	Diode MI204
D25	1710000270	Diode MI204
D26	1710000050	Diode 1SS53
D27	1710000270	Diode MI204
D28	1710000270	Diode MI204
D29	1710000270	Diode MI204
D30	1710000160	Diode 1SS133
D31	1710000160	Diode 1SS133
D32	1710000160	Diode 1SS133

## [RF A UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
D33	1710000160	Diode	1SS133
D34	1710000160	Diode	1SS133
D35	1710000160	Diode	1SS133
D36	1710000160	Diode	1SS133
D37	1710000160	Diode	1SS133
D38	1710000160	Diode	1SS133
D39	1710000160	Diode	1SS133
D40	1710000160	Diode	1SS133
D41	1710000160	Diode	1SS133
D42	1710000160	Diode	1SS133
D43	1710000160	Diode	1SS133
D44	1710000160	Diode	1SS133
D45	1710000160	Diode	1SS133
F11	2010000970	Filter	48M20B1 (FL-111)
L1	6140000640	Coil	LR-86
L2	6180001710	Coil	LAL 03NA 561K
L3	6180000960	Coil	LAL 03NA 102K
L4	6180000960	Coil	LAL 03NA 102K
L5	6180000870	Coil	LAL 03NA 6R8K
L6	6180000850	Coil	LAL 03NA 4R7K
L7	6180000960	Coil	LAL 03NA 102K
L8	6180000240	Coil	LB4-6R2J
L9	6180000220	Coil	LB4-5R1J
L10	6180000960	Coil	LAL 03NA 102K
L11	6180001710	Coil	LAL 03NA 561K
L12	6180000210	Coil	LB4-4R3J
L13	6180002060	Coil	EL0606SKI-3R3K
L14	6180002060	Coil	EL0606SKI-3R3K
L15	6180002050	Coil	EL0606SKI-2R7K
L16	6180001710	Coil	LAL 03NA 561K
L17	6180002050	Coil	EL0606SKI-2R7K
L18	6180002040	Coil	EL0606SKI-2R2K
L19	6180002030	Coil	EL0606SKI-1R8K
L20	6180002030	Coil	EL0606SKI-1R8K
L21	6180000900	Coil	LAL 03NA 101K
L22	6180002030	Coil	EL0606SKI-1R8K
L23	6180002020	Coil	EL0606SKI-1R5K
L24	6180002020	Coil	EL0606SKI-1R5K
L25	6180002020	Coil	EL0606SKI-1R5K
L26	6180000900	Coil	LAL 03NA 101K
L27	6180002010	Coil	EL0606SKI-1R2K
L28	6180002010	Coil	EL0606SKI-1R2K
L29	6180002010	Coil	EL0606SKI-1R2K
L30	6180002000	Coil	EL0606SKI-1R0K
L31	6180000900	Coil	LAL 03NA 101K
L32	6180002000	Coil	EL0606SKI-1R0K
L33	6180002000	Coil	EL0606SKI-1R0K
L34	6180000140	Coil	LB4-R83J
L35	6180000130	Coil	LB4-R70J
L36	6180000900	Coil	LAL 03NA 101K
L37	6180000120	Coil	LB4-R65J
L38	6180000120	Coil	LB4-R65J
L39	6180000120	Coil	LB4-R65J
L40	6180000110	Coil	LB4-R54J
L41	6180000900	Coil	LAL 03NA 101K
L42	6180000110	Coil	LB4-R54J
L43	6180000100	Coil	LB4-R50J
L44	6180000090	Coil	LB4-R45J
L45	6180000090	Coil	LB4-R45J
L46	6180000900	Coil	LAL 03NA 101K
L47	6180000070	Coil	LB4-R36J
L48	6180000060	Coil	LB4-R34J
L49	6180000070	Coil	LB4-R36J
L50	6180000060	Coil	LB4-R34J
L51	6180001450	Coil	RFC S4 102K
L52	6180000220	Coil	LB4-5R1J
L53	6180002240	Coil	RFC S4 220K
L54	6180000240	Coil	LB4-6R2J
L55	6180002240	Coil	RFC S4 220K
L56	6180000960	Coil	LAL 03NA 102K
L57	6180000730	Coil	LAL 03NA R47M

## [RF A UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
L58	6180000740	Coil	LAL 03NA R56M
L59	6180000740	Coil	LAL 03NA R56M
L60	6140000640	Coil	LR-86
L61	6140001500	Coil	LR-171
L62	6180000880	Coil	LAL 03NA 100K
L63	6150002980	Coil	LS-309
L64	6150002390	Coil	LS-250
L65	6180000880	Coil	LAL 03NA 100K
L66	6150001700	Coil	LS-191
L67	6180001710	Coil	LAL 03NA 561K
L68	6180000960	Coil	LAL 03NA 102K
L69	6180001710	Coil	LAL 03NA 561K
L70	6180000710	Coil	LAL 03NA R33M
L71	6180000730	Coil	LAL 03NA R47M
L72	6180000710	Coil	LAL 03NA R33M
L73	6180000810	Coil	LAL 03NA 2R2M
L74	6180000880	Coil	LAL 03NA 100K
L75	6180000690	Coil	LAL 03NA R22M
L76	6140000640	Coil	LR-86
L77	6150002390	Coil	LS-250
L78	6150002360	Coil	LS-247
L79	6180000990	Coil	LAL 04NA 101K
L80	6180000900	Coil	LAL 03NA 101K
L81	6180000900	Coil	LAL 03NA 101K
L82	6140001050	Coil	LR-129
L83	6180000850	Coil	LAL 03NA 4R7K
L84	6180000850	Coil	LAL 03NA 4R7K
L85	6140001060	Coil	LR-130
L86	6150000990	Coil	LS-114
L87	6110001580	Coil	LA-238
L88	6110001710	Coil	LA-257
L89	6150002430	Coil	LS-254
L90	6150002430	Coil	LS-254
L91	6180000900	Coil	LAL 03NA 101K
L92	6180000900	Coil	LAL 03NA 101K
L93	6180000990	Coil	LAL 04NA 101K
L94	6180000900	Coil	LAL 03NA 101K
L95	6180000900	Coil	LAL 03NA 101K
L96	6180000900	Coil	LAL 03NA 101K
L97	6180000900	Coil	LAL 03NA 101K
L98	6180000900	Coil	LAL 03NA 101K
L99	6180000900	Coil	LAL 03NA 101K
L100	6180001710	Coil	LAL 03NA 561K
L101	6180001710	Coil	LAL 03NA 561K
L102	6180001710	Coil	LAL 03NA 561K
L103	6180001710	Coil	LAL 03NA 561K
L104	6180001710	Coil	LAL 03NA 561K
L105	6180000900	Coil	LAL 03NA 101K
L106	6180000960	Coil	LAL 03NA 102K
L107	6180000960	Coil	LAL 03NA 102K
L108	6180001710	Coil	LAL 03NA 561K
L109	6180000880	Coil	LAL 03NA 100K
L110	6180000880	Coil	LAL 03NA 100K
L111	6150002360	Coil	LS-247
L112	6180000960	Coil	LAL 03NA 102K
R1	7010003950	Resistor	R20J 10 Ω
R2	7010003270	Resistor	ELR20J 82 Ω
R3	7010003950	Resistor	R20J 10 Ω
R4	7010003250	Resistor	ELR20J 56 Ω
R5	7010003290	Resistor	ELR20J 120 Ω
R6	7010003360	Resistor	ELR20J 470 Ω
R7	7010004150	Resistor	R20J 470 Ω
R8	7010004070	Resistor	R20J 100 Ω
R9	7010004070	Resistor	R20J 100 Ω
R10	7010004070	Resistor	R20J 100 Ω
R11	7010004070	Resistor	R20J 100 Ω
R12	7010004070	Resistor	R20J 100 Ω
R13	7010004070	Resistor	R20J 100 Ω
R14	7010004070	Resistor	R20J 100 Ω
R15	7010003280	Resistor	ELR20J 100 Ω
R16	7010004070	Resistor	R20J 100 Ω
R17	7010003280	Resistor	ELR20J 100 Ω
R18	7010003260	Resistor	ELR20J 68 Ω

## [RF A UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
R19	7010004070	Resistor	R20J 100 Ω
R20	7010003280	Resistor	ELR20J 100 Ω
R21	7010003340	Resistor	ELR20J 330 Ω
R22	7010003670	Resistor	ELR20J 120 kΩ
R23	7010004150	Resistor	R20J 470 Ω
R24	7010003370	Resistor	ELR20J 560 Ω
R25	7010003280	Resistor	ELR20J 100 Ω
R26	7310000740	Trimmer	RH0651CS3J2KA (472)
R27	7010003370	Resistor	ELR20J 560 Ω
R28	7010003310	Resistor	ELR20J 180 Ω
R29	7010003530	Resistor	ELR20J 10 kΩ
R30	7010003240	Resistor	ELR20J 47 Ω
R31	7010004180	Resistor	R20J 820 Ω
R32	7010003280	Resistor	ELR20J 100 Ω
R33	7010003240	Resistor	ELR20J 47 Ω
R34	7010003240	Resistor	ELR20J 47 Ω
R35	7010003280	Resistor	ELR20J 100 Ω
R36	7010003350	Resistor	ELR20J 390 Ω
R37	7010003240	Resistor	ELR20J 47 Ω
R38	7010003530	Resistor	ELR20J 10 kΩ
R39	7010003440	Resistor	ELR20J 2.2 kΩ
R40	7310000720	Trimmer	RH0651CJ3J0CA (222)
R41	7010003440	Resistor	ELR20J 2.2 kΩ
R42	7010004320	Resistor	R20J 10 kΩ
R43	7010003410	Resistor	ELR20J 1.2 kΩ
R44	7010004050	Resistor	R20J 68 Ω
R45	7010003280	Resistor	ELR20J 100 Ω
R46	7010003490	Resistor	ELR20J 5.6 kΩ
R47	7010003200	Resistor	ELR20J 22 Ω
R48	7010003390	Resistor	ELR20J 820 Ω
R49	7010003400	Resistor	ELR20J 1 kΩ
R50	7010004530	Resistor	R20J 470 kΩ
R51	7010003240	Resistor	ELR20J 47 Ω
R52	7010003510	Resistor	ELR20J 6.8 kΩ
R53	7010003280	Resistor	ELR20J 100 Ω
R54	7010003320	Resistor	ELR20J 220 Ω
R55	7010003440	Resistor	ELR20J 2.2 kΩ
R56	7010003240	Resistor	ELR20J 47 Ω
R57	7010003240	Resistor	ELR20J 47 Ω
R58	7010004330	Resistor	R20J 12 kΩ
R59	7010003660	Resistor	ELR20J 100 kΩ
R60	7010004110	Resistor	R20J 220 Ω
R61	7010003330	Resistor	ELR20J 270 Ω
R62	7010003190	Resistor	ELR20J 18 Ω
R63	7010003330	Resistor	ELR20J 270 Ω
R64	7010003870	Resistor	R20J 2.2 Ω
R65	7010003480	Resistor	ELR20J 4.7 kΩ
R66	7010003480	Resistor	ELR20J 4.7 kΩ
R67	7010004320	Resistor	R20J 10 kΩ
R68	7010003910	Resistor	R20J 4.7 Ω
R69	7010004070	Resistor	R20J 100 Ω
R70	7410000220	Resistor Array	RMX- 8 473K
R71	7410000220	Resistor Array	RMX- 8 473K
R72	7010001230	Resistor	R25J 4.7 kΩ
R73	7010004270	Resistor	R20J 4.7 kΩ
R74	7010004270	Resistor	R20J 4.7 kΩ
R75	7010003530	Resistor	ELR20J 10 kΩ
R76	7410000080	Resistor Array	RMX- 4 473K
R77	7010001360	Resistor	R25J 47 kΩ
R78	7010004320	Resistor	R20J 10 kΩ
R79	7010001150	Resistor	R25J 1 kΩ
R80	7010004070	Resistor	R20J 100 Ω
R81	7010004160	Resistor	R20J 560 Ω
R82	7010003240	Resistor	ELR20J 47 Ω
R83	7010003280	Resistor	ELR20J 100 Ω
R84	7410000180	Resistor Array	RMX- 8 103K
R85	7410000180	Resistor Array	RMX- 8 103K
R86	7010003200	Resistor	ELR20J 22 Ω
R87	7010004190	Resistor	R20J 1 kΩ
R88	7010003200	Resistor	ELR20J 22 Ω
C1	4040000260	Barrier Layer	UZE 08X 104M
C2	4010000520	Ceramic	DD108 B 472K 50V
C3	4010000520	Ceramic	DD108 B 472K 50V

## [RF A UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
C4	4040000260	Barrier Layer	UZE 08X 104M
C5	4040000290	Barrier Layer	UAT 04V 152K
C6	4040000270	Barrier Layer	UAT 04V 102K
C7	4040000280	Barrier Layer	UAT 04V 122K
C8	4040000320	Barrier Layer	UAT 05V 272K
C9	4040000370	Barrier Layer	UAT 06V 682K
C10	4040000260	Barrier Layer	UZE 08X 104M
C11	4040000250	Barrier Layer	UAT 08X 473M
C12	4040000310	Barrier Layer	UAT 04V 222K
C13	4010000390	Ceramic	DD107 SL 271J 50V
C14	4040000310	Barrier Layer	UAT 04V 222K
C15	4040000250	Barrier Layer	UAT 08X 473M
C16	4040000250	Barrier Layer	UAT 08X 473M
C17	4040000250	Barrier Layer	UAT 08X 473M
C18	4040000290	Barrier Layer	UAT 04V 152K
C19	4010000370	Ceramic	DD106 SL 201J 50V
C20	4040000270	Barrier Layer	UAT 04V 222K
C21	4040000300	Barrier Layer	UAT 04V 182K
C22	4040000390	Barrier Layer	UAT 06V 103K
C23	4040000280	Barrier Layer	UAT 04V 122K
C24	4040000250	Barrier Layer	UAT 08X 473M
C25	4040000250	Barrier Layer	UAT 08X 473M
C26	4040000290	Barrier Layer	UAT 04V 152K
C27	4010000330	Ceramic	DD105 SL 101J 50V
C28	4040000270	Barrier Layer	UAT 04V 102K
C29	4040000280	Barrier Layer	UAT 04V 122K
C30	4040000370	Barrier Layer	UAT 06V 682K
C31	4040000270	Barrier Layer	UAT 04V 102K
C32	4040000250	Barrier Layer	UAT 08X 473M
C33	4040000250	Barrier Layer	UAT 08X 473M
C34	4040000450	Barrier Layer	RAU 08SA 681K
C35	4010000330	Ceramic	DD105 SL 101J 50V
C36	4040000450	Barrier Layer	RAU 08SA 681K
C37	4040000270	Barrier Layer	UAT 04V 102K
C38	4040000360	Barrier Layer	UAT 06V 562K
C39	4040000440	Barrier Layer	RAU 06SA 561K
C40	4040000250	Barrier Layer	UAT 08X 473M
C41	4040000250	Barrier Layer	UAT 08X 473M
C42	4040000440	Barrier Layer	RAU 06SA 561K
C43	4010000310	Ceramic	DD104 SL 750J 50V
C44	4010000420	Ceramic	DD108 SL 391J 50V
C45	4010000430	Ceramic	DD109 SL 471J 50V
C46	4040000320	Barrier Layer	UAT 05V 272K
C47	4010000420	Ceramic	DD108 SL 391J 50V
C48	4040000250	Barrier Layer	UAT 08X 473M
C49	4040000250	Barrier Layer	UAT 08X 473M
C50	4010000420	Ceramic	DD108 SL 391J 50V
C51	4010000270	Ceramic	DD104 SL 510J 50V
C52	4010000350	Ceramic	DD106 SL 151J 50V
C53	4010000410	Ceramic	DD107 SL 331J 50V
C54	4040000310	Barrier Layer	UAT 04V 222K
C55	4010000400	Ceramic	DD107 SL 301J 50V
C56	4040000250	Barrier Layer	UAT 08X 473M
C57	4040000250	Barrier Layer	UAT 08X 473M
C58	4010000400	Ceramic	DD107 SL 301J 50V
C59	4010000210	Ceramic	DD104 SL 300J 50V
C60	4010000390	Ceramic	DD107 SL 271J 50V
C61	4010000410	Ceramic	DD107 SL 331J 50V
C62	4040000300	Barrier Layer	UAT 04V 182K
C63	4010000380	Ceramic	DD107 SL 221J 50V
C65	4040000250	Barrier Layer	UAT 08X 473M
C66	4040000250	Barrier Layer	UAT 08X 473M
C67	4010000360	Ceramic	DD106 SL 181J 50V
C68	4010000220	Ceramic	DD104 SL 330J 50V
C69	4010000350	Ceramic	DD106 SL 151J 50V
C70	4010000400	Ceramic	DD107 SL 301J 50V
C71	4040000280	Barrier Layer	UAT 04V 122K
C72	4010000350	Ceramic	DD106 SL 151J 50V
C74	4040000250	Barrier Layer	UAT 08X 473M
C75	4040000250	Barrier Layer	UAT 08X 473M
C76	4010000210	Ceramic	DD104 SL 300J 50V
C77	4010000330	Ceramic	DD105 SL 101J 50V
C78	4010000260	Ceramic	DD104 SL 470J 50V
C79	4010000260	Ceramic	DD104 SL 470J 50V
C80	4010000390	Ceramic	DD107 SL 271J 50V

## [RF A UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
C81	4040000460	Barrier Layer RAU 08SA 821K
C82	4010000330	Ceramic DD105 SL 101J 50V
C83	4040000250	Barrier Layer UAT 08X 473M
C84	4040000260	Barrier Layer UZE 08X 104M
C85	4510002840	Electrolytic 25 SS 10 $\mu$ F
C86	4040000260	Barrier Layer UZE 08X 104M
C87	4040000330	Barrier Layer UAT 05V 332K
C88	4010000420	Ceramic DD108 SL 391J 50V
C89	4040000330	Barrier Layer UAT 05V 332K
C90	4040000380	Barrier Layer UAT 06V 822K
C91	4040000270	Barrier Layer UAT 04V 102K
C92	4040000260	Barrier Layer UZE 08X 104M
C93	4040000370	Barrier Layer UAT 06V 682K
C94	4040000260	Barrier Layer UZE 08X 104M
C95	4010003790	Ceramic DD06 SL 020C 500V
C96	4010000300	Ceramic DD104 SL 680J 50V
C97	4010000300	Ceramic DD104 SL 680J 50V
C98	4010000280	Ceramic DD104 SL 560J 50V
C99	4010000200	Ceramic DD104 SL 270J 50V
C100	4010004640	Ceramic DD104 SL 130J 50V
C101	4040000260	Barrier Layer UZE 08X 104M
C103	4040000260	Barrier Layer UZE 08X 104M
C105	4040000260	Barrier Layer UZE 08X 104M
C106	4010000140	Ceramic DD104 SL 120J 50V
C107	4040000260	Barrier Layer UZE 08X 104M
C108	4010000500	Ceramic DD104 B 102K 50V
C109	4010000520	Ceramic DD108 B 472K 50V
C110	4010000520	Ceramic DD108 B 472K 50V
C111	4010000500	Ceramic DD104 B 102K 50V
C112	4010000080	Ceramic DD104 SL 060D 50V
C113	4040000250	Barrier Layer UAT 08X 473M
C114	4040000250	Barrier Layer UAT 08X 473M
C115	4040000250	Barrier Layer UAT 08X 473M
C116	4040000250	Barrier Layer UAT 08X 473M
C117	4510002950	Electrolytic 50 SS 2R2 $\mu$ F
C118	4010000040	Ceramic DD104 SL 020C 50V
C119	4010000040	Ceramic DD104 SL 020C 50V
C120	4010000150	Ceramic DD104 SL 150J 50V
C121	4010000520	Ceramic DD108 B 472K 50V
C122	4010000070	Ceramic DD104 SL 050C 50V
C123	4010000500	Ceramic DD104 B 102K 50V
C124	4010000100	Ceramic DD104 SL 080D 50V
C125	4010000340	Ceramic DD105 SL 121J 50V
C126	4010000320	Ceramic DD104 SL 820J 50V
C127	4010000380	Ceramic DD107 SL 221J 50V
C128	4010000320	Ceramic DD104 SL 820J 50V
C129	4010000110	Ceramic DD104 SL 090D 50V
C130	4310000060	Mylar F2D 50V 223K
C131	4010000520	Ceramic DD108 B 472K 50V
C132	4010000500	Ceramic DD104 B 102K 50V
C133	4010000520	Ceramic DD108 B 472K 50V
C134	4010000150	Ceramic DD104 SL 150J 50V
C135	4010000520	Ceramic DD108 B 472K 50V
C136	4010000260	Ceramic DD104 SL 470J 50V
C137	4040000250	Barrier Layer UAT 08X 473M
C138	4040000250	Barrier Layer UAT 08X 473M
C139	4040000250	Barrier Layer UAT 08X 473M
C140	4040000250	Barrier Layer UAT 08X 473M
C141	4010000520	Ceramic DD108 B 472K 50V
C142	4010000150	Ceramic DD104 SL 150J 50V
C143	4010000310	Ceramic DD104 SL 750J 50V
C144	4010000280	Ceramic DD104 SL 560J 50V
C145	4010000340	Ceramic DD105 SL 121J 50V
C146	4010000170	Ceramic DD104 SL 200J 50V
C147	4010000330	Ceramic DD105 SL 101J 50V
C148	4010000180	Ceramic DD104 SL 220J 50V
C149	4010000040	Ceramic DD104 SL 020C 50V
C150	4010000170	Ceramic DD104 SL 200J 50V
C151	4510002970	Electrolytic 50 SS 4R7 $\mu$ F
C154	4530000060	Capacitor Array B5RC0127-32N
C155	4530000050	Capacitor Array B5RC0126-32N
C156	4510002930	Electrolytic 50 SS R47 $\mu$ F
C157	4510002930	Electrolytic 50 SS R47 $\mu$ F
C160	4010000110	Ceramic DD104 SL 090D 50V
C161	4010000080	Ceramic DD104 SL 060D 50V

## [RF A UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
C162	4040000260	Barrier Layer UZE 08X 104M
C163	4040000260	Barrier Layer UZE 08X 104M
C164	4040000260	Barrier Layer UZE 08X 104M
C165	4560000020	Ceramic D33Y5V 1E 104Z21
C166	4560000020	Ceramic D33Y5V 1E 104Z21
C167	4560000020	Ceramic D33Y5V 1E 104Z21
C168	4560000020	Ceramic D33Y5V 1E 104Z21
C169	4560000020	Ceramic D33Y5V 1E 104Z21
RL1	6330000070	Relay FBR21D12-P
RL2	6330000070	Relay FBR21D12-P
EP1	0910021702	P.C. Board B 1883B

## [RF B UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
IC1	1110000540	IC NJM4558D
IC2	1110000540	IC NJM4558D
IC3	1110000540	IC NJM4558D
IC4	1110000540	IC NJM4558D
IC5	1110000290	IC BA618
IC6	6910001370	IC DM-88XA
IC7	6910001380	IC DM-88XB
Q1	1580000050	FET 3SK121-Y
Q2	1580000050	FET 3SK121-Y
Q3	1580000050	FET 3SK121-Y
Q4	1580000050	FET 3SK121-Y
Q5	1530001810	Transistor 2SC3355
Q6	1530001810	Transistor 2SC3355
Q7	1530001810	Transistor 2SC3355
Q8	1530001810	Transistor 2SC3355
Q9	1560000110	FET 2SK241-GR
Q10	1530000960	Transistor 2SC3399
Q11	1530000960	Transistor 2SC3399
Q12	1530000960	Transistor 2SC3399
Q13	1530000960	Transistor 2SC3399
Q14	1530000960	Transistor 2SC3399
Q15	1520000060	Transistor 2SB562C
Q16	1530001810	Transistor 2SC3355
Q17	1530001810	Transistor 2SC3355
Q18	1580000010	FET 3SK101-GR
Q19	1530000110	Transistor 2SC2458-GR
Q20	1560000040	FET 2SK30ATM-Y
Q21	1530000440	Transistor 2SC945 P
D1	1710000580	Diode 1SS265
D2	1710000580	Diode 1SS265
D3	1710000270	Diode MI204
D4	1710000270	Diode MI204
D5	1710000580	Diode 1SS265
D6	1720000210	Varicap SVC321A5-SP
D7	1720000210	Varicap SVC321A5-SP
D8	1720000210	Varicap SVC321A5-SP
D9	1720000210	Varicap SVC321A5-SP
D10	1720000210	Varicap SVC321A5-SP
D11	1710000580	Diode 1SS265
D12	1710000270	Diode MI204
D13	1720000200	Varicap 1SV88
D14	1720000200	Varicap 1SV88
D15	1720000200	Varicap 1SV88
D17	1720000200	Varicap 1SV88
D18	1710000270	Diode MI204
D19	1710000580	Diode 1SS265

## [RF B UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
D21	1720000060	Varicap	1SV50 (1) E
D22	1720000060	Varicap	1SV50 (1) E
D23	1720000060	Varicap	1SV50 (1) E
D24	1720000060	Varicap	1SV50 (1) E
D25	1710000580	Diode	1SS265
D26	1710000440	Varicap	1S2208 (B)
D27	1710000440	Varicap	1S2208 (B)
D28	1710000440	Varicap	1S2208 (B)
D29	1710000440	Varicap	1S2208 (B)
D30	1710000440	Varicap	1S2208 (B)
D31	1710000440	Varicap	1S2208 (B)
D32	1710000440	Varicap	1S2208 (B)
D33	1710000440	Varicap	1S2208 (B)
D34	1710000440	Varicap	1S2208 (B)
D35	1710000410	Diode	MI105
D36	1720000240	Diode	1SV172 (TE85R)
D38	1790000450	Diode	MA862 (TX)
D39	1710000270	Diode	MI204
D43	1710000050	Diode	1SS53
D44	1730000250	Zener	RD12E B2
D45	1730000250	Zener	RD12E B2
D46	1710000050	Diode	1SS53
D47	1730000250	Zener	RD12E B2
D48	1710000050	Diode	1SS53
D49	1710000050	Diode	1SS53
D50	1730000250	Zener	RD12E B2
D51	1710000050	Diode	1SS53
D52	1730000170	Zener	RD8.2E B1
D53	1710000160	Diode	1SS133
F11	2020000460	Filter	EZF-B778BT13
F12	2020000640	Filter	EZFN757AT13
L1	6180000880	Coil	LAL 03NA 100K
L2	6180000880	Coil	LAL 03NA 100K
L3	6180000710	Coil	LAL 03NA R33M
L4	6180000880	Coil	LAL 03NA 100K
L7	6180001410	Coil	LAL 02KR 100K
L8	6180000880	Coil	LAL 03NA 100K
L9	6180000880	Coil	LAL 03NA 100K
L10	6180000900	Coil	LAL 03NA 101K
L11	6180000740	Coil	LAL 03NA R56M
L12	6180000730	Coil	LAL 03NA R47M
L13	6110001640	Coil	LA-247
L14	6110001640	Coil	LA-247
L15	6180000850	Coil	LAL 03NA 4R7K
L16	6110001640	Coil	LA-247
L17	6110001640	Coil	LA-247
L18	6180000730	Coil	LAL 03NA R47M
L19	6180000900	Coil	LAL 03NA 101K
L20	6180000880	Coil	LAL 03NA 100K
L21	6180001410	Coil	LAL 02KR 100K
L22	6180000710	Coil	LAL 03NA R33M
L23	6110001570	Coil	LA-237
L24	6110001540	Coil	LA-234
L25	6110001540	Coil	LA-234
L26	6180000770	Coil	LAL 03NA 1R0M
L27	6110001540	Coil	LA-234
L28	6110001540	Coil	LA-234
L29	6110001650	Coil	LA-248
L30	6180000880	Coil	LAL 03NA 100K
L31	6180001410	Coil	LAL 02KR 100K
L32	6110001590	Coil	LA-242
L33	6110001520	Coil	LA-232
L34	6110001820	Coil	LA-158
L35	6110001640	Coil	LA-247
L36	6110001820	Coil	LA-158
L37	6110001530	Coil	LA-233
L38	6180000880	Coil	LAL 03NA 100K
L39	6110001540	Coil	LA-234
L40	6110001550	Coil	LA-235
L42	6110001530	Coil	LA-233
L43	6110001540	Coil	LA-234

## [RF B UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
L45	6180001400	Coil	LAL 02KR 4R7K
L46	6190000460	Coil	302HEP-1063A
L48	6180001400	Coil	LAL 02KR 4R7K
L50	6180001400	Coil	LAL 02KR 4R7K
L52	6180001400	Coil	LAL 02KR 4R7K
L53	6180000880	Coil	LAL 03NA 100K
L54	6180001410	Coil	LAL 02KR 100K
L55	6200000100	Coil	LQN 2A 22NM
L56	6140000630	Coil	LR-85A
L57	6150002960	Coil	LS-307
L58	6150002960	Coil	LS-307
L60	6180000710	Coil	LAL 03NA R33M
L61	6180001300	Coil	LAL 02NA 100K
L62	6180000880	Coil	LAL 03NA 100K
L63	6180000880	Coil	LAL 03NA 100K
L64	6180000880	Coil	LAL 03NA 100K
L65	6180000880	Coil	LAL 03NA 100K
L66	6180001410	Coil	LAL 02KR 100K
L67	6190000480	Coil	252HEP-2560A
L69	6110001540	Coil	LA-234
L70	6110001630	Coil	LA-246
L71	6110001980	Coil	LA-222
L72	6180000880	Coil	LAL 03NA 100K
L73	6110001530	Coil	LA-233
L74	6110001530	Coil	LA-233
L77	6180000880	Coil	LAL 03NA 100K
L78	6110001520	Coil	LA-232
L79	6110001520	Coil	LA-232
L80	6110001520	Coil	LA-232
L81	6180000830	Coil	LAL 03NA 3R3K
L88	6200000100	Coil	LQN 2A 22NM
L89	6200000100	Coil	LQN 2A 22NM
R1	7010003390	Resistor	ELR20J 820 Ω
R2	7010003280	Resistor	ELR20J 100 Ω
R3	7010004070	Resistor	R20J 100 Ω
R4	7010003280	Resistor	ELR20J 100 Ω
R5	7010003260	Resistor	ELR20J 68 Ω
R6	7010003260	Resistor	ELR20J 68 Ω
R7	7010003310	Resistor	ELR20J 180 Ω
R8	7010003310	Resistor	ELR20J 180 Ω
R9	7010004070	Resistor	R20J 100 Ω
R10	7010003390	Resistor	ELR20J 820 Ω
R11	7010003350	Resistor	ELR20J 390 Ω
R12	7010004070	Resistor	R20J 100 Ω
R13	7010004410	Resistor	R20J 47 kΩ
R14	7010004410	Resistor	R20J 47 kΩ
R15	7010004190	Resistor	R20J 1 kΩ
R16	7010003290	Resistor	ELR20J 120 Ω
R17	7010004410	Resistor	R20J 47 kΩ
R18	7010003740	Resistor	ELR20J 470 kΩ
R19	7010003350	Resistor	ELR20J 390 Ω
R20	7010004070	Resistor	R20J 100 Ω
R21	7010004410	Resistor	R20J 47 kΩ
R22	7010004410	Resistor	R20J 47 kΩ
R23	7010004190	Resistor	R20J 1 kΩ
R24	7010003290	Resistor	ELR20J 120 Ω
R25	7010004410	Resistor	R20J 47 kΩ
R26	7010003740	Resistor	ELR20J 470 kΩ
R27	7010004070	Resistor	R20J 100 Ω
R28	7010004100	Resistor	R20J 180 Ω
R29	7010004410	Resistor	R20J 47 kΩ
R31	7010003290	Resistor	ELR20J 120 Ω
R32	7010004410	Resistor	R20J 47 kΩ
R33	7010003740	Resistor	ELR20J 470 kΩ
R34	7010004410	Resistor	R20J 47 kΩ
R35	7010004410	Resistor	R20J 47 kΩ
R36	7010003660	Resistor	ELR20J 100 kΩ
R37	7010004530	Resistor	R20J 470 kΩ
R38	7010004080	Resistor	R20J 120 Ω
R39	7010004410	Resistor	R20J 47 kΩ
R40	7030000480	Resistor	MCR10EZHJ 6.8 kΩ (682)
R41	7030000260	Resistor	MCR10EZHJ 100 Ω (101)
R42	7030000260	Resistor	MCR10EZHJ 100 Ω (101)

## [RF B UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
R43	7030000480	Resistor MCR10EZHZ 6.8 kΩ (682)
R44	7030000260	Resistor MCR10EZHZ 100 Ω (101)
R45	7030000380	Resistor MCR10EZHZ 1 kΩ (102)
R46	7010003510	Resistor ELR20J 6.8 kΩ
R47	7010003300	Resistor ELR20J 150 Ω
R48	7010003280	Resistor ELR20J 100 Ω
R49	7030000580	Resistor MCR10EZHZ 47 kΩ (473)
R50	7030000580	Resistor MCR10EZHZ 47 kΩ (473)
R51	7010004450	Resistor R20J 100 kΩ
R52	7030000310	Resistor MCR10EZHZ 270 Ω (271)
R53	7030000260	Resistor MCR10EZHZ 100 Ω (101)
R54	7030000160	Resistor MCR10EZHZ 15 Ω (150)
R55	7010003510	Resistor ELR20J 6.8 kΩ
R56	7010003300	Resistor ELR20J 150 Ω
R57	7010003280	Resistor ELR20J 100 Ω
R58	7030000380	Resistor MCR10EZHZ 1 kΩ (102)
R59	7030000430	Resistor MCR10EZHZ 2.7 kΩ (272)
R60	7010004070	Resistor R20J 100 Ω
R62	7030000420	Resistor MCR10EZHZ 2.2 kΩ (222)
R64	7010004070	Resistor R20J 100 Ω
R66	7310000810	Trimmer RH0651CS5J10A (474)
R67	7010004400	Resistor R20J 39 kΩ
R68	7310000770	Trimmer RH0651CN4J0TA (333)
R69	7010003620	Resistor ELR20J 47 kΩ
R70	7010003530	Resistor ELR20J 10 kΩ
R71	7310000750	Trimmer RH0651C14J2WA (103)
R72	7010003520	Resistor ELR20J 8.2 kΩ
R73	7310000810	Trimmer RH0651CS5J10A (474)
R74	7010003700	Resistor ELR20J 220 kΩ
R75	7010004320	Resistor R20J 10 kΩ
R76	7010003550	Resistor ELR20J 15 kΩ
R77	7310000810	Trimmer RH0651CS5J10A (474)
R78	7010003670	Resistor ELR20J 120 kΩ
R79	7310000810	Trimmer RH0651CS5J10A (474)
R80	7010003660	Resistor ELR20J 100 kΩ
R81	7010003620	Resistor ELR20J 47 kΩ
R82	7010003620	Resistor ELR20J 47 kΩ
R83	7010003530	Resistor ELR20J 10 kΩ
R84	7010003590	Resistor ELR20J 27 kΩ
R85	7010003740	Resistor ELR20J 470 kΩ
R86	7010003590	Resistor ELR20J 27 kΩ
R87	7010003630	Resistor ELR20J 56 kΩ
R88	7010003560	Resistor ELR20J 18 kΩ
R89	7310000760	Trimmer RH0651CJ4J01A (223)
R90	7310000770	Trimmer RH0651CN4J0TA (333)
R91	7010003440	Resistor ELR20J 2.2 kΩ
R92	7010003590	Resistor ELR20J 27 kΩ
R93	7010003630	Resistor ELR20J 56 kΩ
R95	7010003700	Resistor ELR20J 220 kΩ
R96	7010003620	Resistor ELR20J 47 kΩ
R97	7010003700	Resistor ELR20J 220 kΩ
R98	7010003660	Resistor ELR20J 100 kΩ
R99	7010003660	Resistor ELR20J 100 kΩ
R100	7010003650	Resistor ELR20J 82 kΩ
R101	7010003600	Resistor ELR20J 33 kΩ
R102	7010003640	Resistor ELR20J 68 kΩ
R103	7010003530	Resistor ELR20J 10 kΩ
R104	7310000790	Trimmer RH0651C15J1UA (104)
R105	7310000750	Trimmer RH0651C14J2WA (103)
R106	7010003530	Resistor ELR20J 10 kΩ
R107	7410000110	Resistor Array RMX-6 103K
R108	7010003620	Resistor ELR20J 47 kΩ
R109	7010003620	Resistor ELR20J 47 kΩ
R110	7010003530	Resistor ELR20J 10 kΩ
R111	7010003660	Resistor ELR20J 100 kΩ
R112	7010003530	Resistor ELR20J 10 kΩ
R113	7010003530	Resistor ELR20J 10 kΩ
R114	7010003160	Resistor ELR20J 10 Ω
R115	7010000910	Resistor R25J 10 Ω
R116	7030000310	Resistor MCR10EZHZ 270 Ω (271)
R117	7030000170	Resistor MCR10EZHZ 18 Ω (180)
R118	7030000310	Resistor MCR10EZHZ 270 Ω (271)
R119	7030000220	Resistor MCR10EZHZ 47 Ω (470)
R120	7030000460	Resistor MCR10EZHZ 4.7 kΩ (472)
R121	7030000240	Resistor MCR10EZHZ 68 Ω (680)

## [RF B UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
R122	7010003480	Resistor ELR20J 4.7 kΩ
R123	7030000460	Resistor MCR10EZHZ 4.7 kΩ (472)
R124	7010003740	Resistor ELR20J 470 kΩ
R125	7010003480	Resistor ELR20J 4.7 kΩ
R126	7010003360	Resistor ELR20J 470 Ω
R127	7010003360	Resistor ELR20J 470 Ω
R128	7010003400	Resistor ELR20J 1 kΩ
R129	7010003720	Resistor ELR20J 330 kΩ
R130	7010003440	Resistor ELR20J 2.2 kΩ
R131	7010003700	Resistor ELR20J 220 kΩ
R132	7010003300	Resistor ELR20J 150 Ω
R133	7010004100	Resistor R20J 180 Ω
R135	7010003990	Resistor R20J 22 Ω
R136	7010003200	Resistor ELR20J 22 Ω
R137	7010004320	Resistor R20J 10 kΩ
R138	7010001280	Resistor R25J 10 kΩ
R139	7010001280	Resistor R25J 10 kΩ
R140	7010001280	Resistor R25J 10 kΩ
R141	7010004070	Resistor R20J 100 Ω
R142	7010003280	Resistor ELR20J 100 Ω
R143	7010003280	Resistor ELR20J 100 Ω
R144	7010004070	Resistor R20J 100 Ω
R145	7010003780	Resistor ELR20J 1 MΩ
R146	7010003320	Resistor ELR20J 220 Ω
R147	7010003550	Resistor ELR20J 15 kΩ
R148	7010003460	Resistor ELR20J 3.3 kΩ
R149	7010003400	Resistor ELR20J 1 kΩ
R150	7080000730	Resistor CRB25FX 100 Ω
R152	7010003400	Resistor ELR20J 1 kΩ
R153	7080000730	Resistor CRB25FX 100 Ω
R154	7010003730	Resistor ELR20J 390 kΩ
R156	7010003580	Resistor ELR20J 22 kΩ
R157	7010003690	Resistor ELR20J 180 kΩ
R158	7030000380	Resistor MCR10EZHZ 1 kΩ (102)
R159	7030000380	Resistor MCR10EZHZ 1 kΩ (102)
R160	7030000380	Resistor MCR10EZHZ 1 kΩ (102)
R161	7030000500	Resistor MCR10EZHZ 10 kΩ (103)
R162	7030000500	Resistor MCR10EZHZ 10 kΩ (103)
R163	7010004150	Resistor R20J 470 Ω
R164	7010004150	Resistor R20J 470 Ω
C1	4030000570	Ceramic GRM40 SL 030C 50PT
C2	4030000560	Ceramic GRM40 SL 020C 50PT
C3	4030000560	Ceramic GRM40 SL 020C 50PT
C4	4030000740	Ceramic GRM40 SL 101J 50PT
C5	4030001100	Ceramic GRM40 B 102K 50PT
C6	4030000740	Ceramic GRM40 SL 101J 50PT
C7	4010000500	Ceramic DD104 B 102K 50V
C8	4010000040	Ceramic DD104 SL 020C 50V
C9	4010000500	Ceramic DD104 B 102K 50V
C10	4010000500	Ceramic DD104 B 102K 50V
C11	4010000500	Ceramic DD104 B 102K 50V
C12	4010000500	Ceramic DD104 B 102K 50V
C13	4010000500	Ceramic DD104 B 102K 50V
C14	4010000500	Ceramic DD104 B 102K 50V
C15	4010000500	Ceramic DD104 B 102K 50V
C16	4010000500	Ceramic DD104 B 102K 50V
C17	4010000500	Ceramic DD104 B 102K 50V
C18	4010000520	Ceramic DD108 B 472K 50V
C19	4010000500	Ceramic DD104 B 102K 50V
C20	4010000100	Ceramic DD104 SL 080D 50V
C21	4010000500	Ceramic DD104 B 102K 50V
C22	4010000500	Ceramic DD104 B 102K 50V
C23	4010000500	Ceramic DD104 B 102K 50V
C24	4010000220	Ceramic DD104 SL 330J 50V
C25	4010000500	Ceramic DD104 B 102K 50V
C26	4010000500	Ceramic DD104 B 102K 50V
C27	4010000500	Ceramic DD104 B 102K 50V
C28	4010000500	Ceramic DD104 B 102K 50V
C29	4010000500	Ceramic DD104 B 102K 50V
C30	4010000050	Ceramic DD104 SL 030C 50V
C31	4010000500	Ceramic DD104 B 102K 50V
C32	4010000500	Ceramic DD104 B 102K 50V
C33	4010000500	Ceramic DD104 B 102K 50V

## [RF B UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
C34	4010000330	Ceramic DD105 SL 101J 50V
C35	4010000120	Ceramic DD104 SL 100D 50V
C36	4010000500	Ceramic DD104 B 102K 50V
C37	4010000500	Ceramic DD104 B 102K 50V
C38	4010000500	Ceramic DD104 B 102K 50V
C39	4010000500	Ceramic DD104 B 102K 50V
C40	4010000040	Ceramic DD104 SL 020C 50V
C41	4010000500	Ceramic DD104 B 102K 50V
C42	4010000500	Ceramic DD104 B 102K 50V
C43	4010000500	Ceramic DD104 B 102K 50V
C44	4010000140	Ceramic DD104 SL 120J 50V
C45	4010000460	Ceramic DD104 B 471K 50V
C46	4030001100	Ceramic GRM40 B 102K 50PT
C47	4030001100	Ceramic GRM40 B 102K 50PT
C48	4030001090	Ceramic GRM40 B 471K 50PT
C49	4030001100	Ceramic GRM40 B 102K 50PT
C50	4030000560	Ceramic GRM40 SL 020C 50PT
C51	4010000160	Ceramic DD104 SL 180J 50V
C52	4030000640	Ceramic GRM40 SL 120J 50PT
C53	4030000580	Ceramic GRM40 SL 040C 50PT
C54	4030000570	Ceramic GRM40 SL 030C 50PT
C55	4030000590	Ceramic GRM40 SL 050C 50PT
C56	4030001100	Ceramic GRM40 B 102K 50PT
C57	4030000570	Ceramic GRM40 SL 030C 50PT
C58	4030000750	Ceramic GRM40 SL 121J 50PT
C59	4030000540	Ceramic GRM40 SL 0R5C 50PT
C60	4030001100	Ceramic GRM40 B 102K 50PT
C61	4010000140	Ceramic DD104 SL 120J 50V
C62	4030000580	Ceramic GRM40 SL 040C 50PT
C63	4030001100	Ceramic GRM40 B 102K 50PT
C64	4030001100	Ceramic GRM40 B 102K 50PT
C65	4010000500	Ceramic DD104 B 102K 50V
C66	4010000300	Ceramic DD104 SL 680J 50V
C67	4030000700	Ceramic GRM40 SL 470J 50PT
C68	4010000500	Ceramic DD104 B 102K 50V
C69	4010000340	Ceramic DD105 SL 121J 50V
C70	4030001100	Ceramic GRM40 B 102K 50PT
C71	4030000700	Ceramic GRM40 SL 470J 50PT
C72	4010000180	Ceramic DD104 SL 220J 50V
C73	4010000500	Ceramic DD104 B 102K 50V
C74	4010000500	Ceramic DD104 B 102K 50V
C75	4010000340	Ceramic DD105 SL 121J 50V
C76	4030001100	Ceramic GRM40 B 102K 50PT
C77	4030000550	Ceramic GRM40 SL 010C 50PT
C78	4030000570	Ceramic GRM40 SL 030C 50PT
C79	4030000830	Ceramic GRM40 CK 020C 50PT
C80	4030001090	Ceramic GRM40 B 471K 50PT
C81	4030000660	Ceramic GRM40 SL 180J 50PT
C82	4030000550	Ceramic GRM40 SL 010C 50PT
C83	4030001100	Ceramic GRM40 B 102K 50PT
C84	4030001100	Ceramic GRM40 B 102K 50PT
C85	4030000580	Ceramic GRM40 SL 040C 50PT
C86	4030000630	Ceramic GRM40 SL 100D 50PT
C87	4010000260	Ceramic DD104 SL 470J 50V
C88	4030000930	Ceramic GRM40 CH 180J 50PT
C89	4030003140	Ceramic GRM40 SL 1R5C 50PT
C90	4030000630	Ceramic GRM40 SL 100D 50PT
C91	4030001100	Ceramic GRM40 B 102K 50PT
C92	4030000740	Ceramic GRM40 SL 101J 50PT
C93	4530000350	Capacitor Array B8ZC0111-32N
C94	4530000350	Capacitor Array B8ZC0111-32N
C95	4010000500	Ceramic DD104 B 102K 50V
C96	4310000060	Mylar F2D 50V 223K
C97	4510001120	Electrolytic 25 MS7 4R7 $\mu$ F
C98	4030000750	Ceramic GRM40 SL 121J 50PT
C99	4030000760	Ceramic GRM40 SL 151J 50PT
C100	4030000570	Ceramic GRM40 SL 030C 50PT
C101	4030001100	Ceramic GRM40 B 102K 50PT
C102	4030001100	Ceramic GRM40 B 102K 50PT
C103	4030000600	Ceramic GRM40 SL 060D 50PT
C104	4030000560	Ceramic GRM40 SL 020C 50PT
C105	4030000580	Ceramic GRM40 SL 040C 50PT
C106	4310000010	Mylar F2D 50V 102K
C107	4040000190	Barrier Layer UAT 05X 103K
C108	4010000520	Ceramic DD108 B 472K 50V

## [RF B UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
C109	4010000520	Ceramic DD108 B 472K 50V
C110	4010000520	Ceramic DD108 B 472K 50V
C111	4030001100	Ceramic GRM40 B 102K 50PT
C112	4010000520	Ceramic DD108 B 472K 50V
C113	4010000500	Ceramic DD104 B 102K 50V
C114	4040000430	Barrier Layer RAU 05SA 221K
C115	4010000300	Ceramic DD104 SL 680J 50V
C116	4040000430	Barrier Layer RAU 05SA 221K
C119	4040000540	Barrier Layer RAU 05SA 181K
C120	4040000540	Barrier Layer RAU 05SA 181K
C121	4510001220	Electrolytic 16 RC2 10 $\mu$ F
C122	4010000500	Ceramic DD104 B 102K 50V
C131	4030000750	Ceramic GRM40 SL 121J 50PT
C132	4030000750	Ceramic GRM40 SL 121J 50PT
C133	4010000150	Ceramic DD104 SL 150J 50V
C134	4030000570	Ceramic GRM40 SL 030C 50PT
C135	4030000750	Ceramic GRM40 SL 121J 50PT
C136	4030000750	Ceramic GRM40 SL 121J 50PT
C137	4030000570	Ceramic GRM40 SL 030C 50PT
C138	4030000750	Ceramic GRM40 SL 121J 50PT
C139	4030000590	Ceramic GRM40 SL 050C 50PT
C140	4030000580	Ceramic GRM40 SL 040C 50PT
C141	4030000580	Ceramic GRM40 SL 040C 50PT
C142	4030000650	Ceramic GRM40 SL 150J 50PT
C143	4030000650	Ceramic GRM40 SL 150J 50PT
C144	4030000580	Ceramic GRM40 SL 040C 50PT
C145	4030000580	Ceramic GRM40 SL 040C 50PT
C146	4030000600	Ceramic GRM40 SL 060D 50PT
C147	4030000650	Ceramic GRM40 SL 150J 50PT
C148	4030000650	Ceramic GRM40 SL 150J 50PT
C149	4030000560	Ceramic GRM40 SL 020C 50PT
C150	4010000260	Ceramic DD104 SL 470J 50V
C151	4030000580	Ceramic GRM40 SL 040C 50PT
C155	4030000860	Ceramic GRM40 CH 050C 50PT
C156	4030000850	Ceramic GRM40 CH 040C 50PT
C157	4030000700	Ceramic GRM40 SL 470J 50PT
C158	4030000550	Ceramic GRM40 SL 010C 50PT
C159	4030000580	Ceramic GRM40 SL 040C 50PT
C162	4030000650	Ceramic GRM40 SL 150J 50PT
C163	4030000670	Ceramic GRM40 SL 220J 50PT
C164	4030000650	Ceramic GRM40 SL 150J 50PT
C165	4030003140	Ceramic GRM40 SL 1R5C 50PT
C166	4030000580	Ceramic GRM40 SL 040C 50PT
C167	4030001100	Ceramic GRM40 B 102K 50PT
C168	4030001100	Ceramic GRM40 B 102K 50PT
C169	4030001100	Ceramic GRM40 B 102K 50PT
C170	4030001100	Ceramic GRM40 B 102K 50PT
C171	4030001100	Ceramic GRM40 B 102K 50PT
C172	4030001100	Ceramic GRM40 B 102K 50PT
C173	4030001100	Ceramic GRM40 B 102K 50PT
C174	4030001100	Ceramic GRM40 B 102K 50PT
C175	4030001100	Ceramic GRM40 B 102K 50PT
C176	4030000740	Ceramic GRM40 SL 101J 50PT
C283	4030001100	Ceramic GRM40 B 102K 50PT
C284	4030001100	Ceramic GRM40 B 102K 50PT
RL1	6330000550	Relay G5Y-154P DC9V
RL2	6330000550	Relay G5Y-154P DC9V
EP1	0910021922	P.C. Board B 2103B
EP2	0910023781	P.C. Board B 2286A (LO TRAP)
EP3	0910023791	P.C. Board B 2296A (1st LO)
EP4	0910021892	P.C. Board B 2085B (2nd MIX)
EP5	0910021861	P.C. Board B 1989A (FIL 1)
EP6	0910021851	P.C. Board B 1990A (FIL 2)
EP9	6910000640	Lead Frame FSOH090RN



## [HPF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1110001890	IC	μPC1678G
IC2	1110001890	IC	μPC1678G
IC3	6910003070	IC	M-54
Q1	1590000460	Transistor	RN1402 (TE85R)
D1	1790000530	Varicap	MA333 (TW)
D2	1790000530	Varicap	MA333 (TW)
D3	1790000530	Varicap	MA333 (TW)
D4	1750000060	Diode	1SS196 (TE85R)
D5	1750000060	Diode	1SS196 (TE85R)
D6	1750000060	Diode	1SS196 (TE85R)
L1	6200000840	Coil	NL 322522T-R22M
L2	6110001980	Coil	LA-222
L4	6200000840	Coil	NL 322522T-R22M
L5	6110001980	Coil	LA-222
R1	7030000500	Resistor	MCR10EZHZ 10 kΩ (103)
R2	7030000500	Resistor	MCR10EZHZ 10 kΩ (103)
R3	7030000260	Resistor	MCR10EZHZ 100 Ω (101)
R4	7030000240	Resistor	MCR10EZHZ 68 Ω (680)
R5	7030000260	Resistor	MCR10EZHZ 100 Ω (101)
R6	7030000310	Resistor	MCR10EZHZ 270 Ω (271)
R7	7030000170	Resistor	MCR10EZHZ 18 Ω (180)
R8	7030000310	Resistor	MCR10EZHZ 270 Ω (271)
R9	7310000730	Trimmer	RH0651CN3J01A (332)
R10	7030000480	Resistor	MCR10EZHZ 6.8 kΩ (682)
R11	7030000390	Resistor	MCR10EZHZ 1.2 kΩ (122)
R12	7030000500	Resistor	MCR10EZHZ 10 kΩ (103)
R13	7030000580	Resistor	MCR10EZHZ 47 kΩ (473)
R14	7030000500	Resistor	MCR10EZHZ 10 kΩ (103)
R15	7030000140	Resistor	MCR10EZHZ 10 Ω (100)
R16	7030000140	Resistor	MCR10EZHZ 10 Ω (100)
R17	7030000290	Resistor	MCR10EZHZ 180 Ω (181)
R18	7030000230	Resistor	MCR10EZHZ 56 Ω (560)
R19	7030000310	Resistor	MCR10EZHZ 270 Ω (271)
R20	7030000170	Resistor	MCR10EZHZ 18 Ω (180)
R21	7030000310	Resistor	MCR10EZHZ 270 Ω (271)
R22	7030000170	Resistor	MCR10EZHZ 18 Ω (180)
R23	7030000310	Resistor	MCR10EZHZ 270 Ω (271)
R24	7030000310	Resistor	MCR10EZHZ 270 Ω (271)
C1	4030000570	Ceramic	GRM40 SL 030C 50PT
C2	4030000560	Ceramic	GRM40 SL 020C 50PT
C3	4030000560	Ceramic	GRM40 SL 020C 50PT
C4	4030000560	Ceramic	GRM40 SL 020C 50PT
C5	4030001100	Ceramic	GRM40 B 102K 50PT
C6	4030000540	Ceramic	GRM40 SL 0R5C 50PT
C7	4030000570	Ceramic	GRM40 SL 030C 50PT
C8	4030000550	Ceramic	GRM40 SL 010C 50PT
C10	4030000570	Ceramic	GRM40 SL 030C 50PT
C11	4030000640	Ceramic	GRM40 SL 120J 50PT
C12	4030001100	Ceramic	GRM40 B 102K 50PT
C13	4030001100	Ceramic	GRM40 B 102K 50PT
C14	4030001100	Ceramic	GRM40 B 102K 50PT
C15	4030000560	Ceramic	GRM40 SL 020C 50PT
C16	4030000560	Ceramic	GRM40 SL 020C 50PT
C18	4030000570	Ceramic	GRM40 SL 030C 50PT
C19	4030003170	Ceramic	GRM40 SL 0R75C 50PT
C20	4030001100	Ceramic	GRM40 B 102K 50PT
C21	4030000580	Ceramic	GRM40 SL 040C 50PT
C22	4030000560	Ceramic	GRM40 SL 020C 50PT
C23	4030000570	Ceramic	GRM40 SL 030C 50PT
C24	4030001100	Ceramic	GRM40 B 102K 50PT
C25	4030001100	Ceramic	GRM40 B 102K 50PT
C26	4030001100	Ceramic	GRM40 B 102K 50PT
C27	4030001100	Ceramic	GRM40 B 102K 50PT
C28	4030000570	Ceramic	GRM40 SL 030C 50PT
C29	4030000560	Ceramic	GRM40 SL 020C 50PT

## [HPF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
C30	4030003140	Ceramic	GRM40 SL 1R5C 50PT
C31	4030000580	Ceramic	GRM40 SL 040C 50PT
C32	4030003140	Ceramic	GRM40 SL 1R5C 50PT
C33	4030000570	Ceramic	GRM40 SL 030C 50PT
C34	4030001090	Ceramic	GRM40 B 471K 50PT
C35	4030000570	Ceramic	GRM40 SL 030C 50PT
C36	4030001100	Ceramic	GRM40 B 102K 50PT
C37	4030000590	Ceramic	GRM40 SL 050C 50PT
C38	4030001090	Ceramic	GRM40 B 471K 50PT
C39	4030001120	Ceramic	GRM40 B 472K 50PT
C40	4030000700	Ceramic	GRM40 SL 470J 50PT
C41	4030000540	Ceramic	GRM40 SL 0R5C 50PT
C42	4030003140	Ceramic	GRM40 SL 1R5C 50PT
C43	4030000560	Ceramic	GRM40 SL 020C 50PT
C44	4030001150	Ceramic	GRM40 F 104Z 25PT
C45	4030001150	Ceramic	GRM40 F 104Z 25PT
C46	4030001130	Ceramic	GRM40 B 103K 50PT
C47	4030001100	Ceramic	GRM40 B 102K 50PT
C48	4030001100	Ceramic	GRM40 B 102K 50PT
C49	4030001100	Ceramic	GRM40 B 102K 50PT
C50	4030001100	Ceramic	GRM40 B 102K 50PT
C51	4030001100	Ceramic	GRM40 B 102K 50PT
C52	4030000600	Ceramic	GRM40 SL 060D 50P
C53	4030000560	Ceramic	GRM40 SL 020C 50PT
RL1	6330000550	Relay	G5Y-154P DC9V
RL2	6330000550	Relay	G5Y-154P DC9V
RL3	6330000690	Relay	G5Y-254P DC9V
EP1	0910018704	P.C. Board	B 1799D

## [TV UNIT] (Except France version)

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1120000950	IC	LA7530N
Q1	1530000150	Transistor	2SC2668-O
Q2	1580000110	FET	3SK74 M
Q3	1530000150	Transistor	2SC2668-O
Q4	1530000590	Transistor	2SC2785 EF
Q12	1530000590	Transistor	2SC2785 EF
D1	1710000050	Diode	1SS53
D3	1710000050	Diode	1SS53
D15	1710000050	Diode	1SS53
D18	1710000050	Diode	1SS53
D21	1710000050	Diode	1SS53
FI2	2020000520 2020000530	Filter Filter	TPS4.5MB (U.S.A.) TPS5.5MB (Europe, Australia, Germany)
L2	6180000770	Coil	LAL 03NA 1R0M
L3	6180000760	Coil	LAL 03NA R82M
L4	6180000700	Coil	LAL 03NA R27M
L5	6180000720 6180000700	Coil Coil	LAL 03NA R39M (U.S.A.) LAL 03NA R27M (Europe, Australia, Germany)
L6	6180000750	Coil	LAL 03NA R68M
L7	6150001480	Coil	LS-164
L8	6150000500	Coil	LS-69
L9	6140000660	Coil	LR-88
L11	6180000950	Coil	LAL 03NA 150K

[TV UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
L12	6150001480	Coil	LS-164
L13	6140000630	Coil	LR-85A
L14	6180000990	Coil	LAL 04NA 101K
R1	7010003400	Resistor	ELR20J 1 kΩ
R2	7010003700	Resistor	ELR20J 220 kΩ
R3	7010004270	Resistor	R20J 4.7 kΩ
R4	7010004150	Resistor	R20J 470 Ω
R5	7010003250	Resistor	ELR20J 56 Ω
R6	7010003530	Resistor	ELR20J 10 kΩ
R7	7010003560	Resistor	ELR20J 18 kΩ
R8	7010004210	Resistor	R20J 1.5 kΩ
R9	7010004030	Resistor	R20J 47 Ω
R14	7010004220	Resistor	R20J 1.8 kΩ
R15	7310000750	Trimmer	RH0651C14J2WA (103)
R16	7010003560	Resistor	ELR20J 18 kΩ
R17	7010003560	Resistor	ELR20J 18 kΩ
R19	7010004240	Resistor	R20J 2.7 kΩ
R20	7010003340	Resistor	ELR20J 330 Ω
R21	7010004260	Resistor	R20J 3.9 kΩ
R22	7010003400	Resistor	ELR20J 1 kΩ
R23	7010003310	Resistor	ELR20J 180 Ω
R24	7010003440	Resistor	ELR20J 2.2 kΩ
R26	7010004410	Resistor	R20J 47 kΩ
R27	7010003360	Resistor	ELR20J 470 Ω
R28	7010003380	Resistor	ELR20J 680 Ω
R29	7010004450	Resistor	R20J 100 kΩ
R30	7010004070	Resistor	R20J 100 Ω
R31	7010003280	Resistor	ELR20J 100 Ω
R33	7010003950	Resistor	R20J 10 Ω
R34	7010003400	Resistor	ELR20J 1 kΩ
R35	7010003440	Resistor	ELR20J 2.2 kΩ
R36	7010003280	Resistor	ELR20J 100 Ω
R37	7010003440	Resistor	ELR20J 2.2 kΩ
R38	7010001030	Resistor	R25J 100 Ω
R46	7010003440	Resistor	ELR20J 2.2 kΩ
R90	7010003590	Resistor	ELR20J 27 kΩ
R96	7010003440	Resistor	ELR20J 2.2 kΩ
R97	7010003440	Resistor	ELR20J 2.2 kΩ
R98	7010004190	Resistor	R20J 1 kΩ
R101	7010003160	Resistor	ELR20J 10 Ω
R111	7010003400	Resistor	ELR20J 1 kΩ
C2	4010000390	Ceramic	DD107 SL 271J 50V
C3	4010000460	Ceramic	DD104 B 471K 50V
C4	4010000350	Ceramic	DD106 SL 151J 50V
C5	4010004560	Ceramic	RPE131CH102J
C6	4010000410	Ceramic	DD107 SL 331J 50V
C7	4010001020	Ceramic	DD111 CH 221J 50V
C8	4010000360	Ceramic	DD106 SL 181J 50V
C9	4010000380	Ceramic	DD107 SL 221J 50V
C10	4010001010	Ceramic	DD110 CH 201J 50V
C11	4010000390	Ceramic	DD107 SL 271J 50V
C12	4010000410	Ceramic	DD107 SL 331J 50V
C13	4040000440	Barrier Layer	RAU 06SA 561K
C14	4010000520	Ceramic	DD108 B 472K 50V
C15	4010000390	Ceramic	DD107 SL 271J 50V
C16	4010000520	Ceramic	DD108 B 472K 50V
C17	4010000390	Ceramic	DD107 SL 271J 50V
C18	4010000520	Ceramic	DD108 B 472K 50V
C19	4010000410	Ceramic	DD107 SL 331J 50V
	4010000520	Ceramic	DD108 B 472K 50V (Europe, Australia, Germany)
C20	4010000520	Ceramic	DD108 B 472K 50V
C21	4010000520	Ceramic	DD108 B 472K 50V
C24	4550000320	Tantalum	DN 1V 0R1M
C25	4010000500	Ceramic	DD104 B 102K 50V
C26	4510002930	Electrolytic	50 SS R47 μF
C27	4510001100	Electrolytic	16 MS7 10 μF
C28	4040000260	Barrier Layer	UZE 08X 104M
C29	4040000260	Barrier Layer	UZE 08X 104M
C31	4010000520	Ceramic	DD108 B 472K 50V

[TV UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
C32	4510001100	Electrolytic	16 MS7 10 μF
C33	4010000260	Ceramic	DD104 SL 470J 50V
C34	4040000260	Barrier Layer	UZE 08X 104M
C36	4510002380	Electrolytic	16 SS 470 μF (10X12.5)
C37	4010000520	Ceramic	DD108 B 472K 50V
C39	4010000520	Ceramic	DD108 B 472K 50V
C40	4310000010	Mylar	F2D 50V 102K
C41	4010000520	Ceramic	DD108 B 472K 50V
C42	4510002780	Electrolytic	16 SS 10 μF
C43	4510002720	Electrolytic	10 SS 47 μF
C44	4510002780	Electrolytic	16 SS 10 μF
C45	4010000520	Ceramic	DD108 B 472K 50V
C47	4010000520	Ceramic	DD108 B 472K 50V
C48	4010000520	Ceramic	DD108 B 472K 50V
C90	4010000520	Ceramic	DD108 B 472K 50V
C92	4010003600	Ceramic	DD107 UJ 121J 50V
C93	4010003460	Ceramic	DD104 UJ 330J 50V
C95	4010000520	Ceramic	DD108 B 472K 50V
C99	4040000260	Barrier Layer	UZE 08X 104M
C119	4510001100	Electrolytic	16 MS7 10 μF
EP1	0910023770	P.C. Board	B 2287

[REG UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	6450000840	IC	SI-3122V
IC2	1180000310	IC	NJM79L12A
Q1	1520000080	Transistor	2SB909M R
Q2	1540000050	Transistor	2SD797-Y (FS)
Q3	1530000440	Transistor	2SC945 P
Q4	1590000350	Transistor	RN1204
Q8	1530002080	Transistor	2SC2655-Y
Q9	1520000060	Transistor	2SB562C
Q10	1540000070	Transistor	2SD468C
Q12	1530002080	Transistor	2SC2655-Y
D1	1790000190	Diode Bridge	KBPC806
D2	1730000100	Zener	RD5.1E B2
D3	1730000100	Zener	RD5.1E B2
D4	1710000350	Diode	1N4002
D5	1710000140	Diode	U05G
D7	1710000060	Diode	1SS55
D8	1730000170	Zener	RD8.2E B1
D9	1730000280	Zener	RD24E B2
D11	1710000060	Diode	1SS55
D12	1710000060	Diode	1SS55
D13	1710000060	Diode	1SS55
L1	6180002210	Coil	SK-24P-110-100
L2	6140000700	Coil	LR-92
L3	6140000700	Coil	LR-92
L4	6180001190	Coil	FL 9H 102J
L5	6180001000	Coil	LAL 04NA 102K
R1	7010000870	Resistor	R25J 4.7 Ω
R2	7010001280	Resistor	R25J 10 kΩ
R3	7100000230	Resistor	SRW5P 56Ω (560)
R4	7010001030	Resistor	R25J 100 Ω
R5	7010000350	Resistor	ELR25J 680 Ω
R6	7310000690	Trimmer	RH0651CN2J02A (331)
R7	7010001180	Resistor	R25J 1.8 kΩ
R8	7010003200	Resistor	ELR20J 22 Ω

## [REG UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
R9	7010003320	Resistor	ELR20J 220 Ω
R10	7010003530	Resistor	ELR20J 10 kΩ
R17	7010004280	Resistor	R20J 5.6 kΩ
R18	7010004280	Resistor	R20J 5.6 kΩ
R19	7010003870	Resistor	R20J 2.2 Ω
R20	7010003440	Resistor	ELR20J 2.2 kΩ
R21	7010000260	Resistor	ELR25J 120 Ω
R22	7010004780	Resistor	R50XJ 470 Ω
R23	7010003460	Resistor	ELR20J 3.3 kΩ
R25	7080000740	Resistor	CRB25FX 10Ω
C1	4010000530	Ceramic	DD112 B 103K 50V
C2	4010000530	Ceramic	DD112 B 103K 50V
C3	4010000530	Ceramic	DD112 B 103K 50V
C4	4010000530	Ceramic	DD112 B 103K 50V
C5	4510002370	Electrolytic	35 LPS 4700 μF (30X30)
C6	4510002370	Electrolytic	35 LPS 4700 μF (30X30)
C7	4510002870	Electrolytic	25 SS 100 μF
C8	4040000260	Barrier Layer	UZE 08X 104M
C9	4510002380	Electrolytic	16 SS 470 μF (10X12.5)
C10	4010000520	Ceramic	DD108 B 472K 50V
C11	4010000520	Ceramic	DD108 B 472K 50V
C12	4010000520	Ceramic	DD108 B 472K 50V
C13	4040000260	Barrier Layer	UZE 08X 104M
C14	4510002380	Electrolytic	16 SS 470 μF (10X12.5)
C15	4010000520	Ceramic	DD108 B 472K 50V
C16	4510002380	Electrolytic	16 SS 470 μF (10X12.5)
C17	4550000010	Tantalum	DN 1C 4R7M
C18	4010000520	Ceramic	DD108 B 472K 50V
C19	4510002380	Electrolytic	16 SS 470 μF (10X12.5)
C20	4010000500	Ceramic	DD104 B 102K 50V
C21	4010000500	Ceramic	DD104 B 102K 50V
C22	4010000520	Ceramic	DD108 B 472K 50V
C23	4010000520	Ceramic	DD108 B 472K 50V
C24	4510002800	Electrolytic	16 SS 33 μF
C25	4510002800	Electrolytic	16 SS 33 μF
C26	4510002830	Electrolytic	25 SS 4R7 μF
C27	4510002790	Electrolytic	16 SS 22 μF
C28	4510002780	Electrolytic	16 SS 10 μF
C29	4510002960	Electrolytic	50 SS 3R3 μF
C30	4510002850	Electrolytic	25 SS 22 μF
C31	4510002870	Electrolytic	25 SS 100 μF
C32	4510002870	Electrolytic	25 SS 100 μF
C33	4510002960	Electrolytic	50 SS 3R3 μF
C34	4510002850	Electrolytic	25 SS 22 μF
C35	4510002780	Electrolytic	16 SS 10 μF
C36	4510002780	Electrolytic	16 SS 10 μF
C37	4010000520	Ceramic	DD108 B 472K 50V
C38	4040000620	Barrier Layer	UAT 10X 104K
C39	4040000620	Barrier Layer	UAT 10X 104K
RL1	6330000630	Relay	AJR 3251 (JR2-DC12V)
F1	5210000130	Fuse	FGB 4A
F2	5220000020	Holder	S-N5051
F3	5220000020	Holder	S-N5051
T1	5910000590	Transformer	TP-50 (U.S.A., Europe, Australia, France)
	5910000630	Transformer	TP-51 (Germany)
T2	5920000100	Transformer	TO-9
EP1	0910019943	P.C. Board	B 1888C

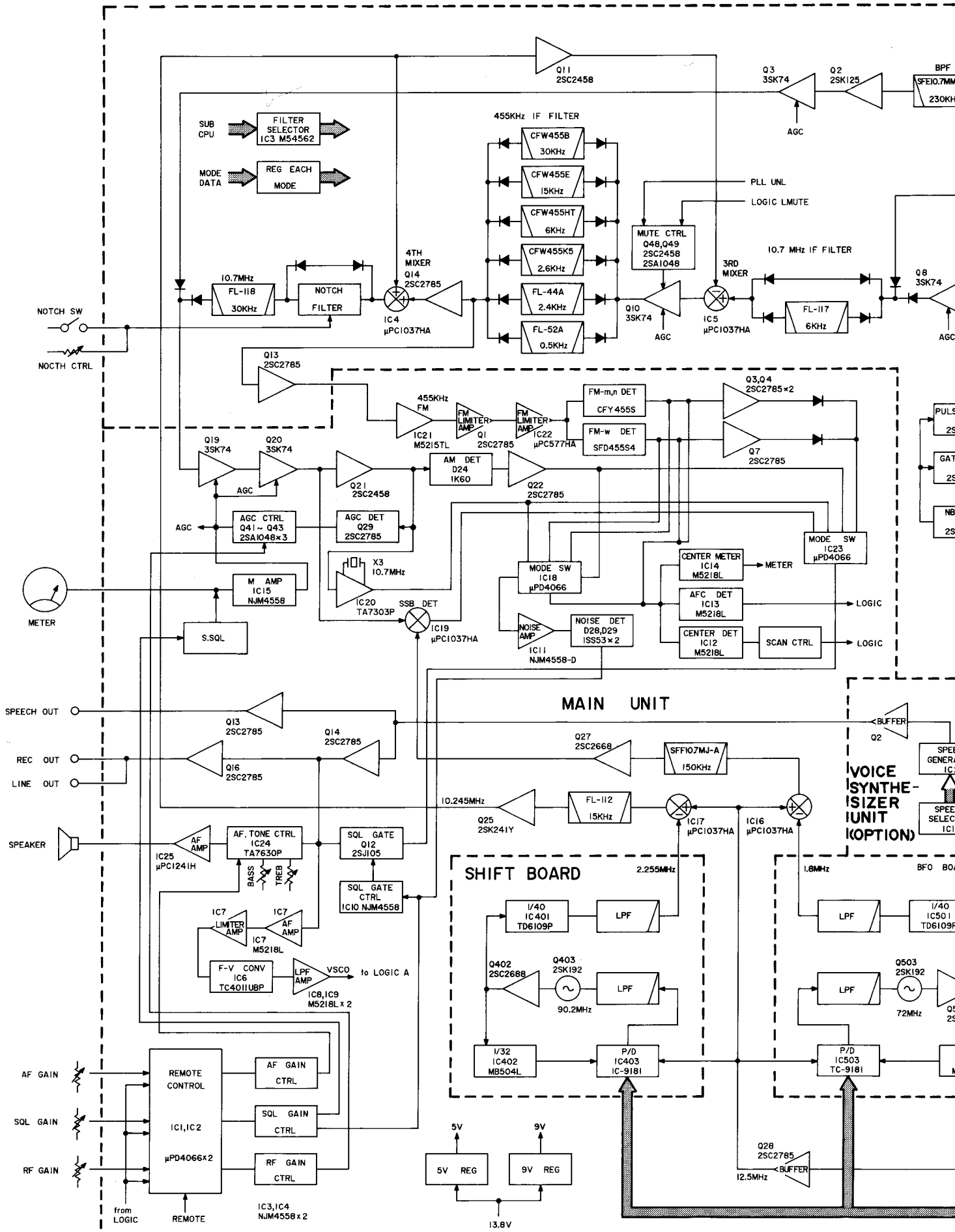
## [EF (CONNECT A, B) UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
IC101	1110001910	IC	NJM2243D
Q101	1590000370	Transistor	RN2204
Q102	1530000590	Transistor	2SC2785 EF
Q103	1510000080	Transistor	2SA1048-GR
Q104	1520000050	Transistor	2SB529 D
Q105	1590000340	Transistor	RN1202
Q106	1530000410	Transistor	2SC1214C
Q107	1590000350	Transistor	RN1204
Q108	1530000590	Transistor	2SC2785 EF
Q201	1590000350	Transistor	RN1204
Q202	1590000360	Transistor	RN2202
D101	1710000050	Diode	1SS53
D102	1710000050	Diode	1SS53
D105	1710000330	Diode	1K60
D106	1710000050	Diode	1SS53
D201	1710000050	Diode	1SS53
F1101	2040000210	Filter	EXC-EMT103DC
F1102	2040000210	Filter	EXC-EMT103DC
F1103	2040000210	Filter	EXC-EMT103DC
F1106	2040000210	Filter	EXC-EMT103DC
F1107	2040000210	Filter	EXC-EMT103DC
F1205	2040000210	Filter	EXC-EMT103DC
L101	6140000640	Coil	LR-86
L102	6110001780	Coil	LA-267
L103	6110001780	Coil	LA-267
L104	6110001790	Coil	LA-268
L105	6180000960	Coil	LAL 03NA 102K
L106	6140000060	Coil	LR-18
L107	6180000960	Coil	LAL 03NA 102K
L108	6180002470	Coil	LAL 03NA 471K
L109	6180000960	Coil	LAL 03NA 102K
L110	6910000670	Coil	BT01RN1-A61-001
L111	6910000670	Coil	BT01RN1-A61-001
L112	6180000900	Coil	LAL 03NA 101K
L113	6910000670	Coil	BT01RN1-A61-001
L114	6910000670	Coil	BT01RN1-A61-001
L201	6910000670	Coil	BT01RN1-A61-001
L202	6910000670	Coil	BT01RN1-A61-001
L203	6910000670	Coil	BT01RN1-A61-001
L204	6910000670	Coil	BT01RN1-A61-001
L205	6910000670	Coil	BT01RN1-A61-001
L206	6910000670	Coil	BT01RN1-A61-001
R101	7010003480	Resistor	ELR20J 4.7 kΩ
R102	7010003580	Resistor	ELR20J 22 kΩ
R103	7540000010	Absorber	DSA-301LA
R104	7010003580	Resistor	ELR20J 22 kΩ
R105	7540000010	Absorber	DSA-301LA
R106	7010003580	Resistor	ELR20J 22 kΩ
R107	7010003580	Resistor	ELR20J 22 kΩ
R108	7010000050	Resistor	ELR25J 2.2 Ω
R109	7010003530	Resistor	ELR20J 10 kΩ
R110	7010003440	Resistor	ELR20J 2.2 kΩ
R111	7010004060	Resistor	R20J 82 Ω
R112	7010003270	Resistor	ELR20J 82 Ω
R113	7010003620	Resistor	ELR20J 47 kΩ
R114	7010004190	Resistor	R20J 1 kΩ
R115	7010003530	Resistor	ELR20J 10 kΩ
R116	7010004230	Resistor	R20J 2.2 kΩ
R117	7010003280	Resistor	ELR20J 100 Ω
R118	7010003320	Resistor	ELR20J 220 Ω
R119	7010003400	Resistor	ELR20J 1 kΩ
R201	7010003580	Resistor	ELR20J 22 kΩ
C101	4010000330	Ceramic	DD105 SL 101J 50V

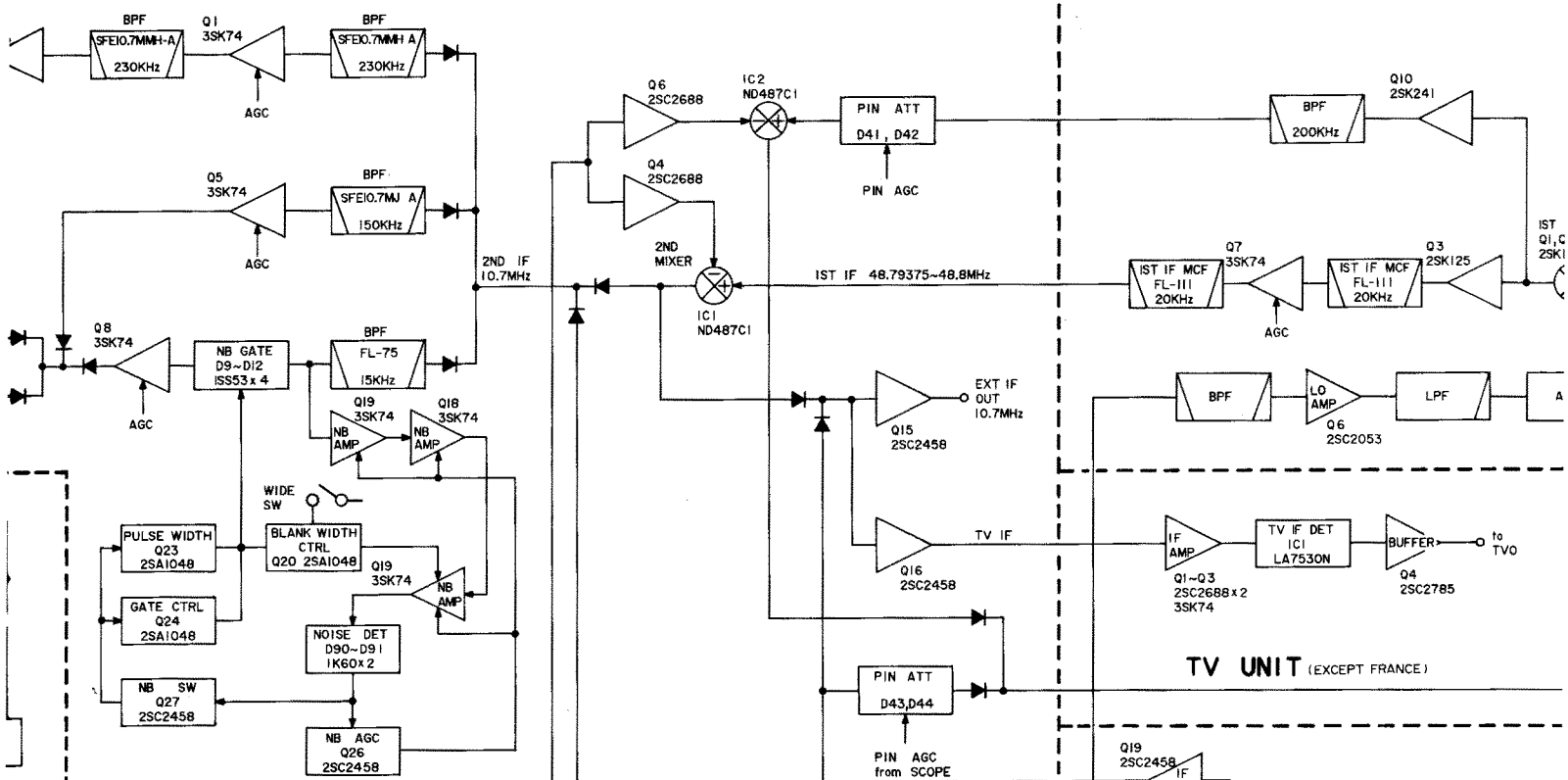
[EF (CONNECT A, B) UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
C102	4010000270	Ceramic	DD104 SL 510J 50V
C103	4010000340	Ceramic	DD105 SL 121J 50V
C104	4010000200	Ceramic	DD104 SL 270J 50V
C105	4010000280	Ceramic	DD104 SL 560J 50V
C106	4560000020	Ceramic	D33Y5V 1E 104Z21
C107	4010000520	Ceramic	DD108 B 472K 50V
C108	4010000520	Ceramic	DD108 B 472K 50V
C109	4040000260	Barrier Layer	UZE 08X 104M
C110	4040000260	Barrier Layer	UZE 08X 104M
C111	4040000150	Barrier Layer	UAT 05X 472K
C112	4010000120	Ceramic	DD104 SL 100D 50V
C113	4510002950	Electrolytic	50 SS 2R2 $\mu$ F
C114	4040000150	Barrier Layer	UAT 05X 472K
C115	4010000220	Ceramic	DD104 SL 330J 50V
C116	4510003040	Electrolytic	16 SS 100 $\mu$ F
C117	4510003040	Electrolytic	16 SS 100 $\mu$ F
C118	4510002760	Electrolytic	10 SS 470 $\mu$ F
C119	4510003040	Electrolytic	16 SS 100 $\mu$ F
C120	4040000190	Barrier Layer	UAT 05X 103K
C121	4510002730	Electrolytic	10 SS 100 $\mu$ F
C122	4040000190	Barrier Layer	UAT 05X 103K
C123	4510002730	Electrolytic	10 SS 100 $\mu$ F
C124	4040000150	Barrier Layer	UAT 05X 472K
C125	4510002730	Electrolytic	10 SS 100 $\mu$ F
C126	4040000190	Barrier Layer	UAT 05X 103K
C201	4510002810	Electrolytic	16 SS 47 $\mu$ F
C202	4010000520	Ceramic	DD108 B 472K 50V
C203	4010000520	Ceramic	DD108 B 472K 50V
C204	4010000520	Ceramic	DD108 B 472K 50V
RL101	6330000070	Relay	FBR21D12-P
RL102	6330000070	Relay	FBR21D12-P
RL201	63300000620	Relay	SY-12
F1	5210000040	Fuse	FGB 2A (U.S.A., Europe, Australia, France)
	5210000280	Fuse	FGMS 250V-2A (Germany)
F2	5220000050	Holder	FH-032C (U.S.A., Europe, Australia, France)
	5220000040	Holder	FH-033 (Germany)
F201	5210000020	Fuse	FGB 0.5A
F202	5220000020	Holder	S-N5051
F203	5220000020	Holder	S-N5051
S101	2220000160	Switch	HSW0474-01-050 [HF ANT SW]
S201	2220000160	Switch	HSW0474-01-050 [SPEECH LINE MIX]
EP1	0910021812	P.C. Board	B 1978B (CONNECT A)
EP2	0910021802	P.C. Board	B 1979B (CONNECT B)

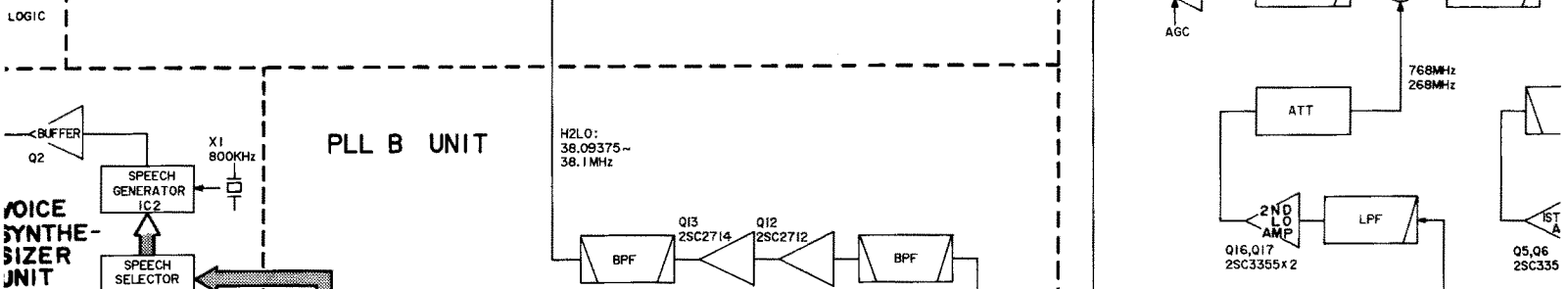
# SECTION 8 BLOCK DIAGRAM



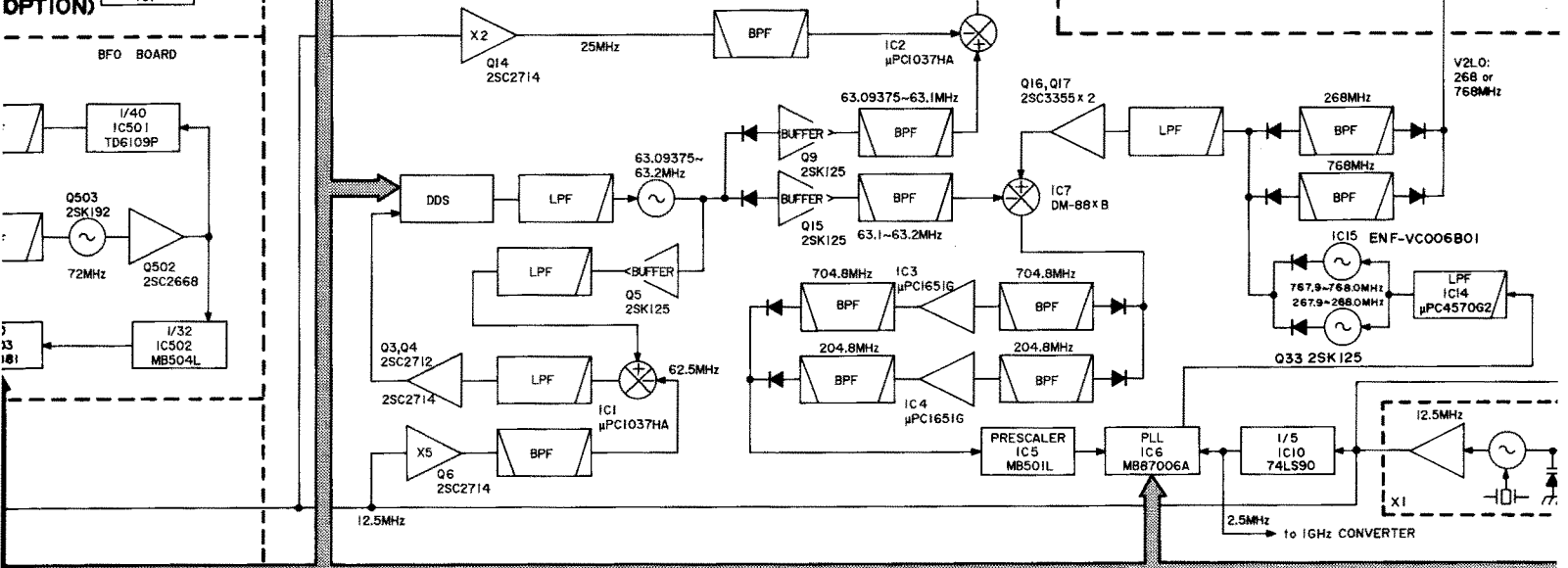
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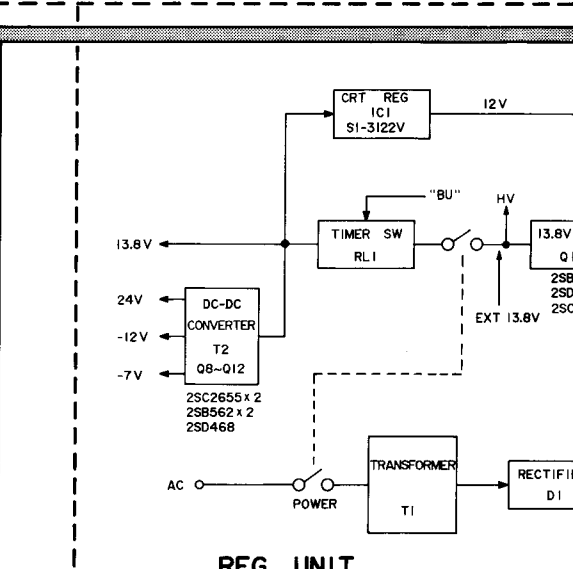
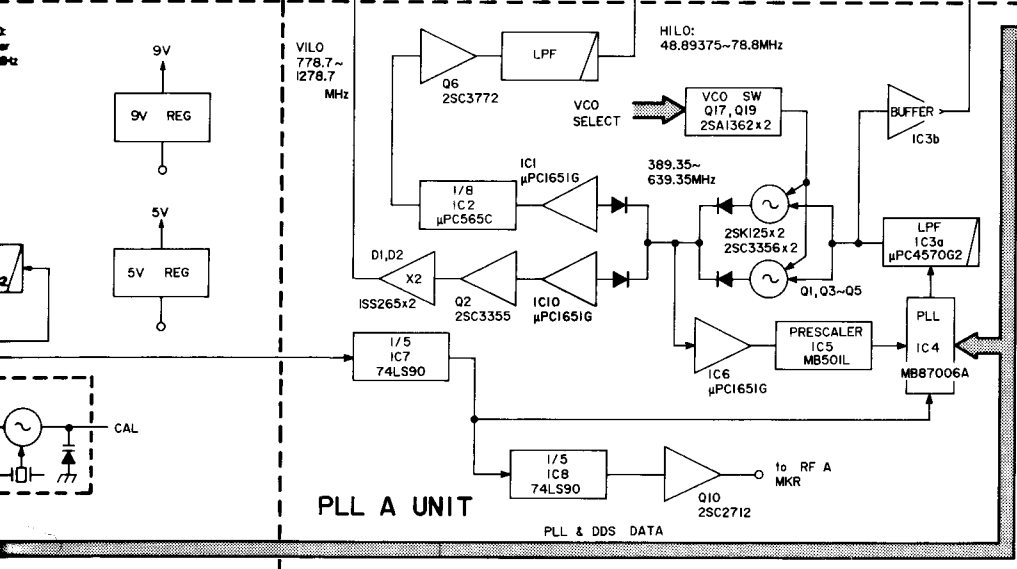
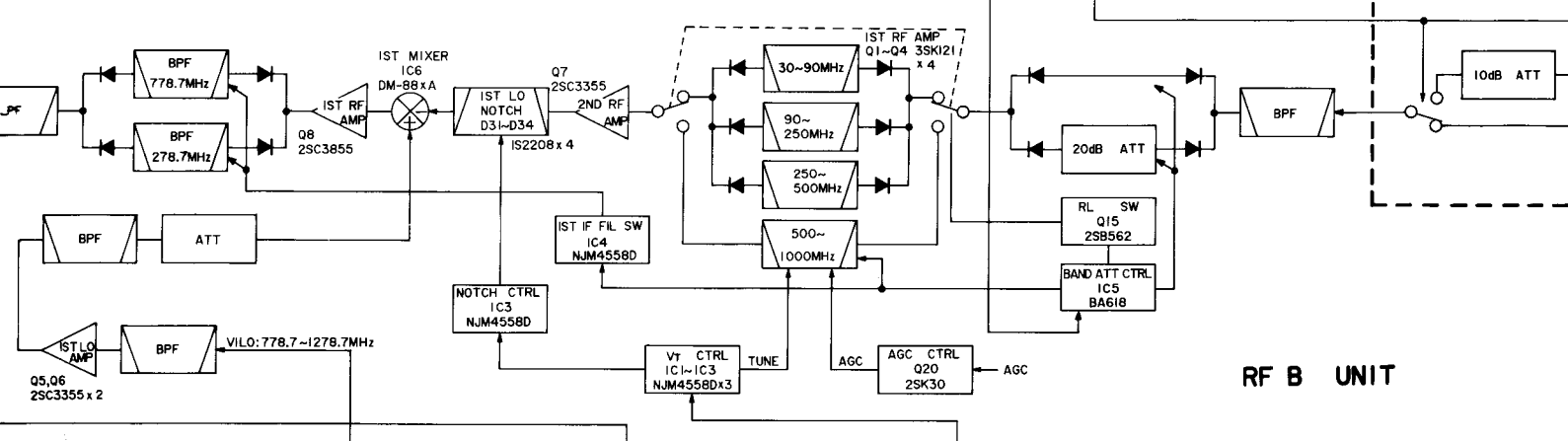
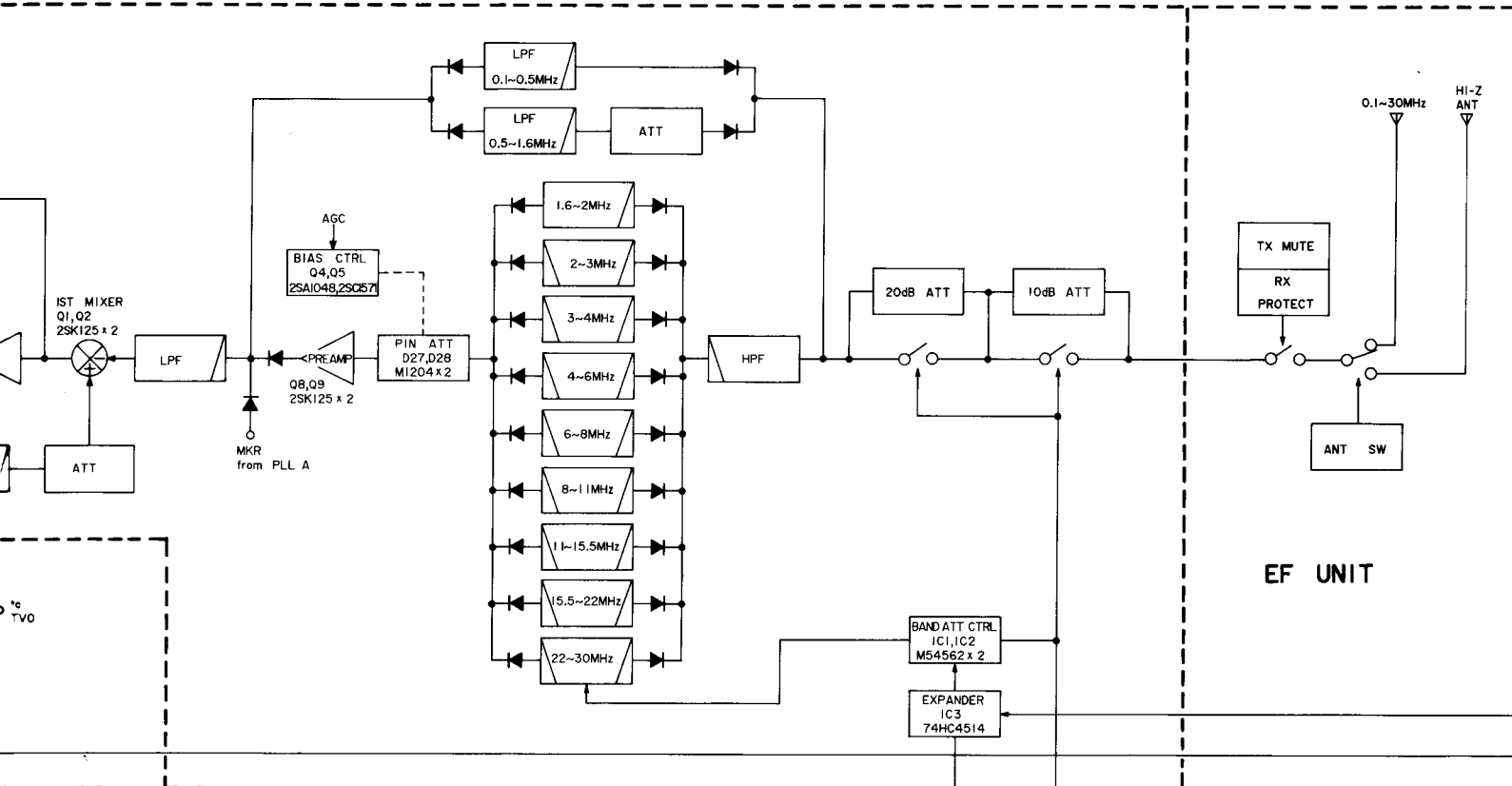


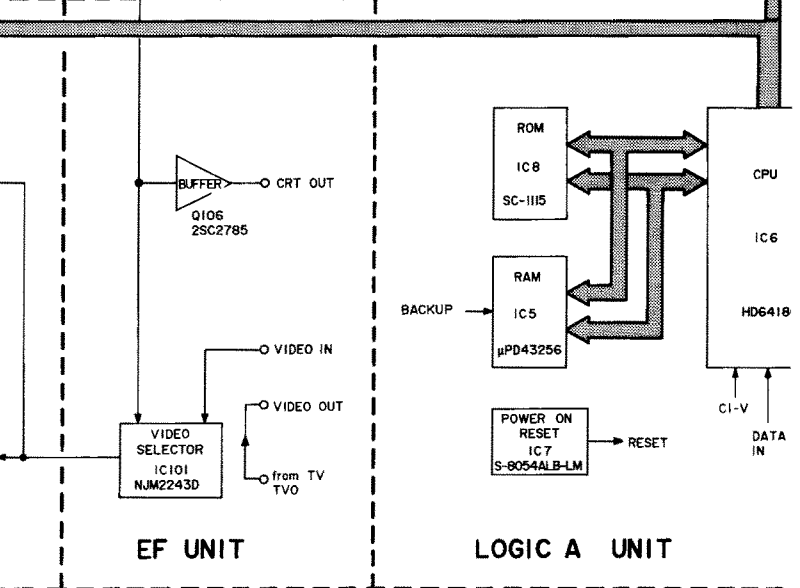
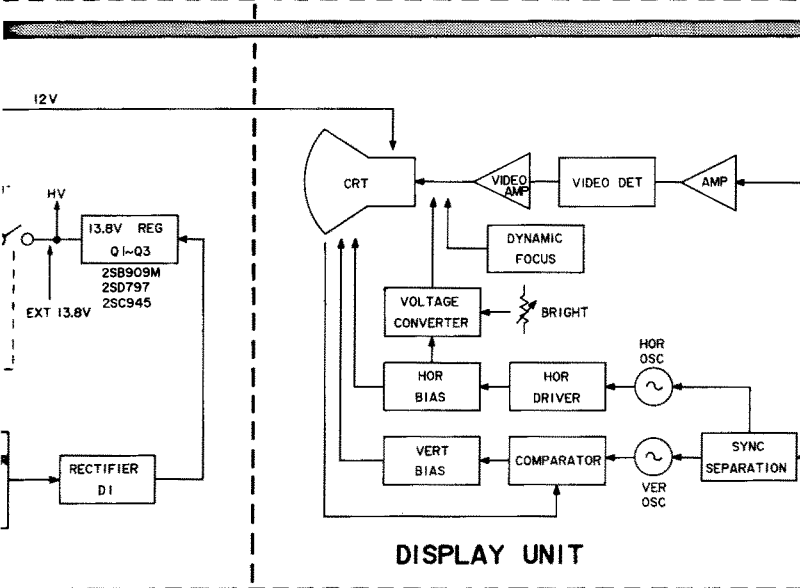
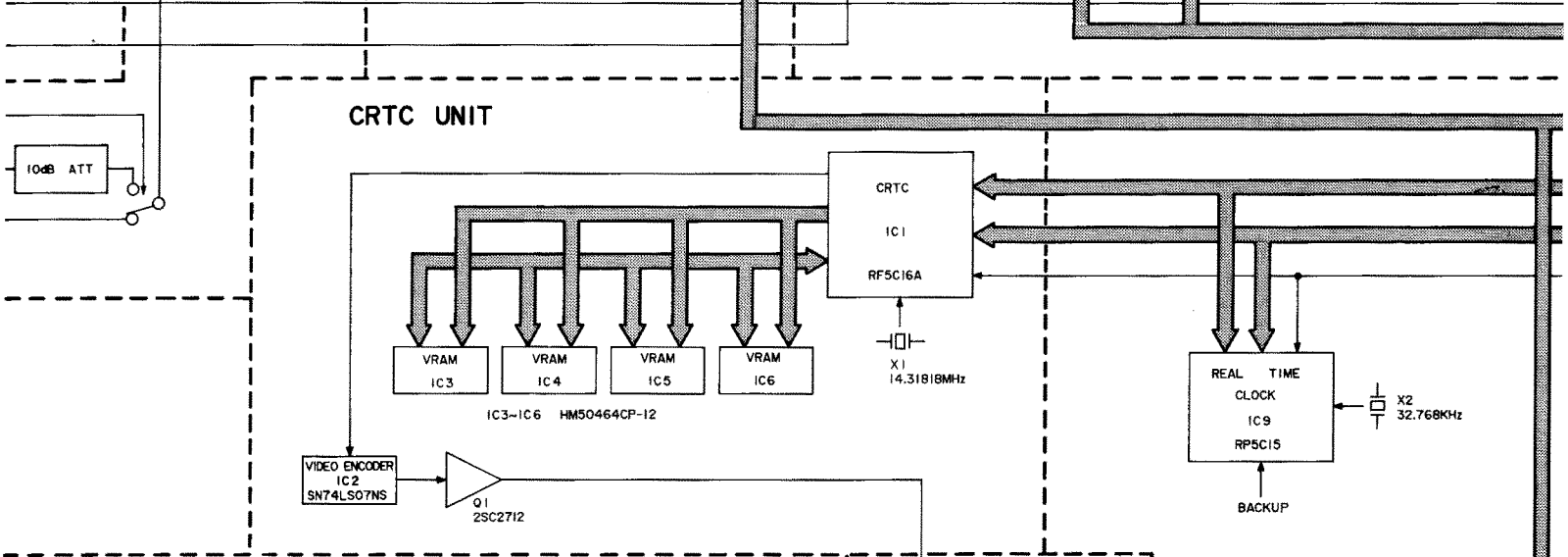
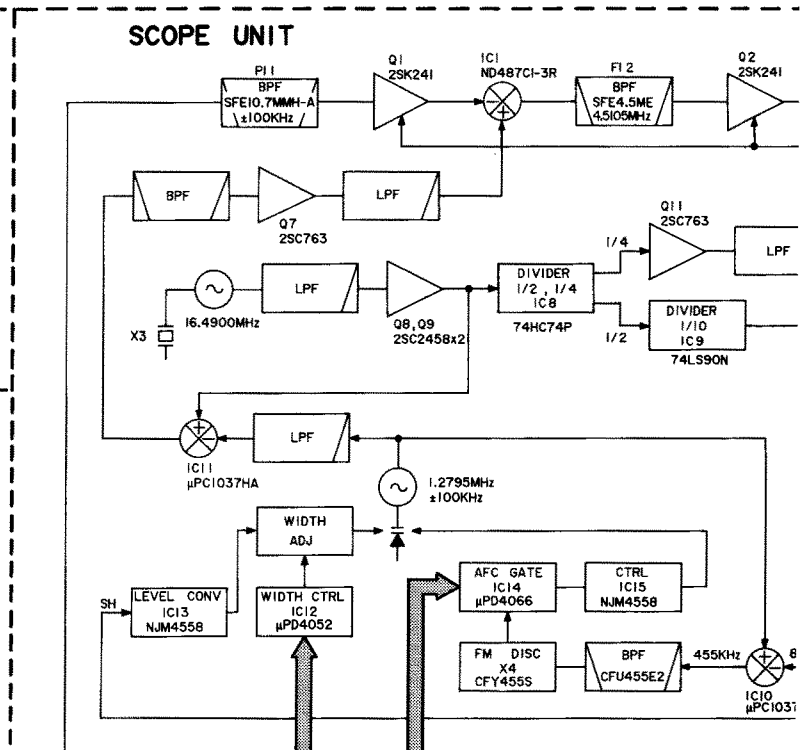
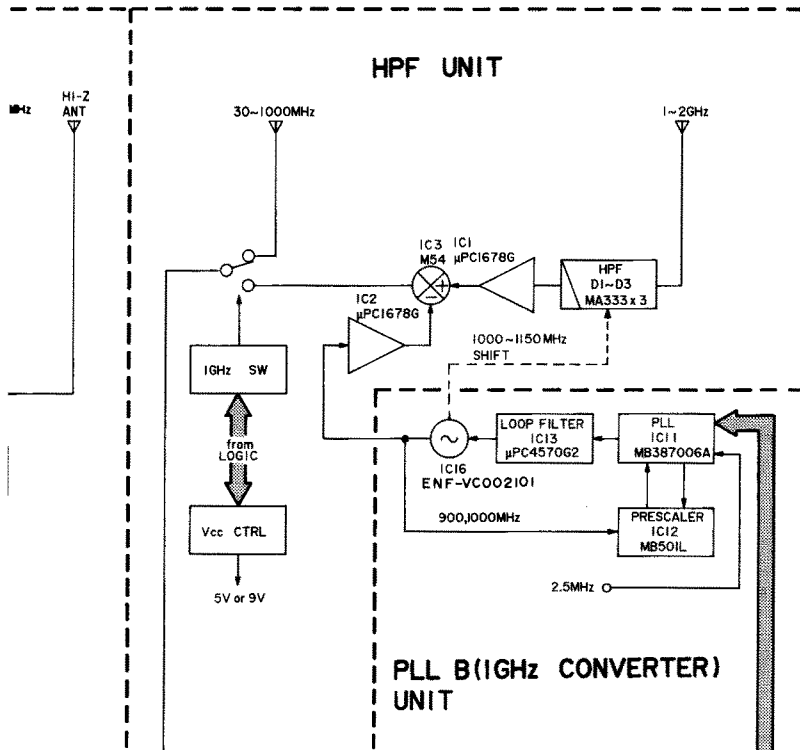
# IF UNIT



# TV UNIT (EXCEPT FRANCE)

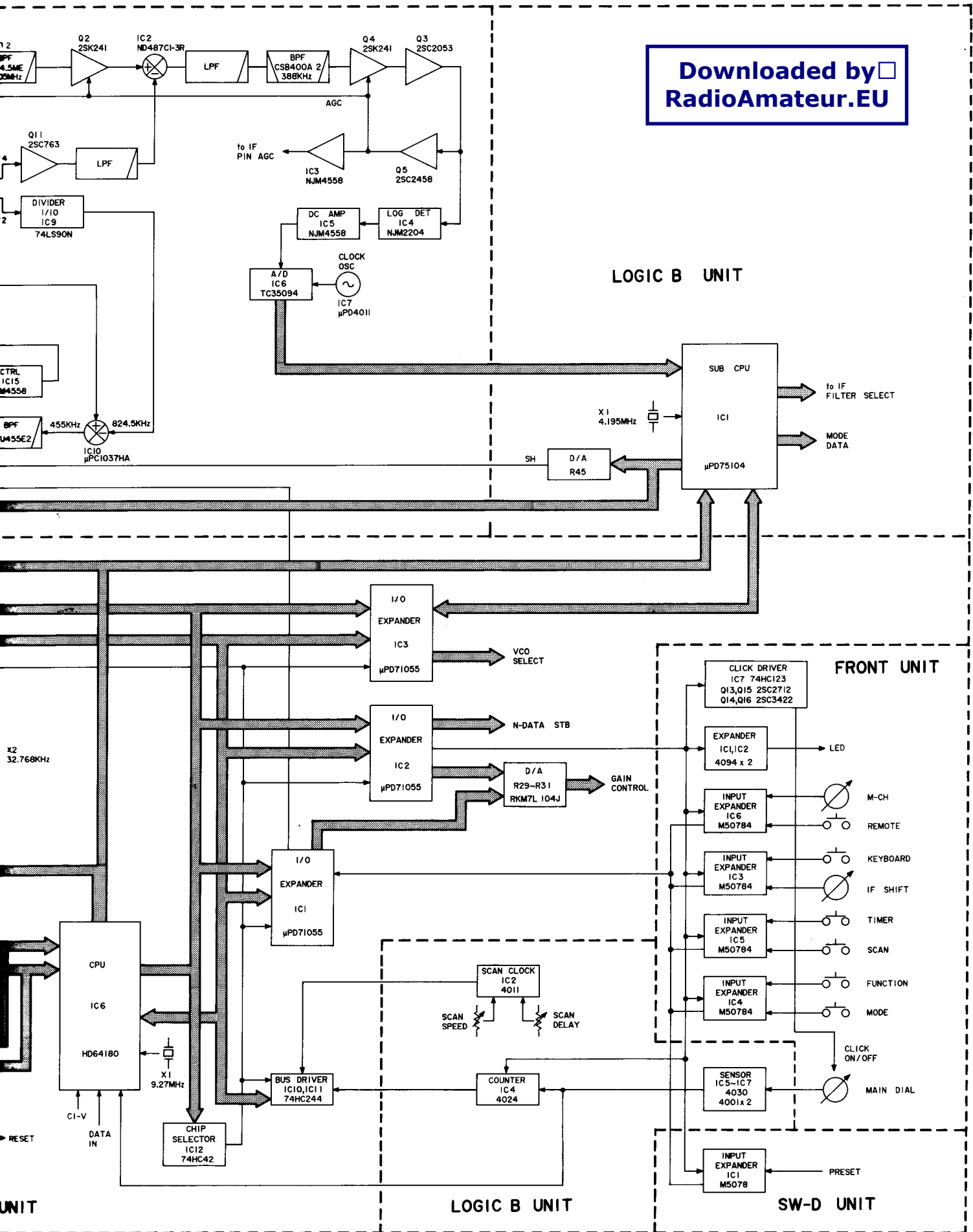








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LOGIC B UNIT

FRONT UNIT

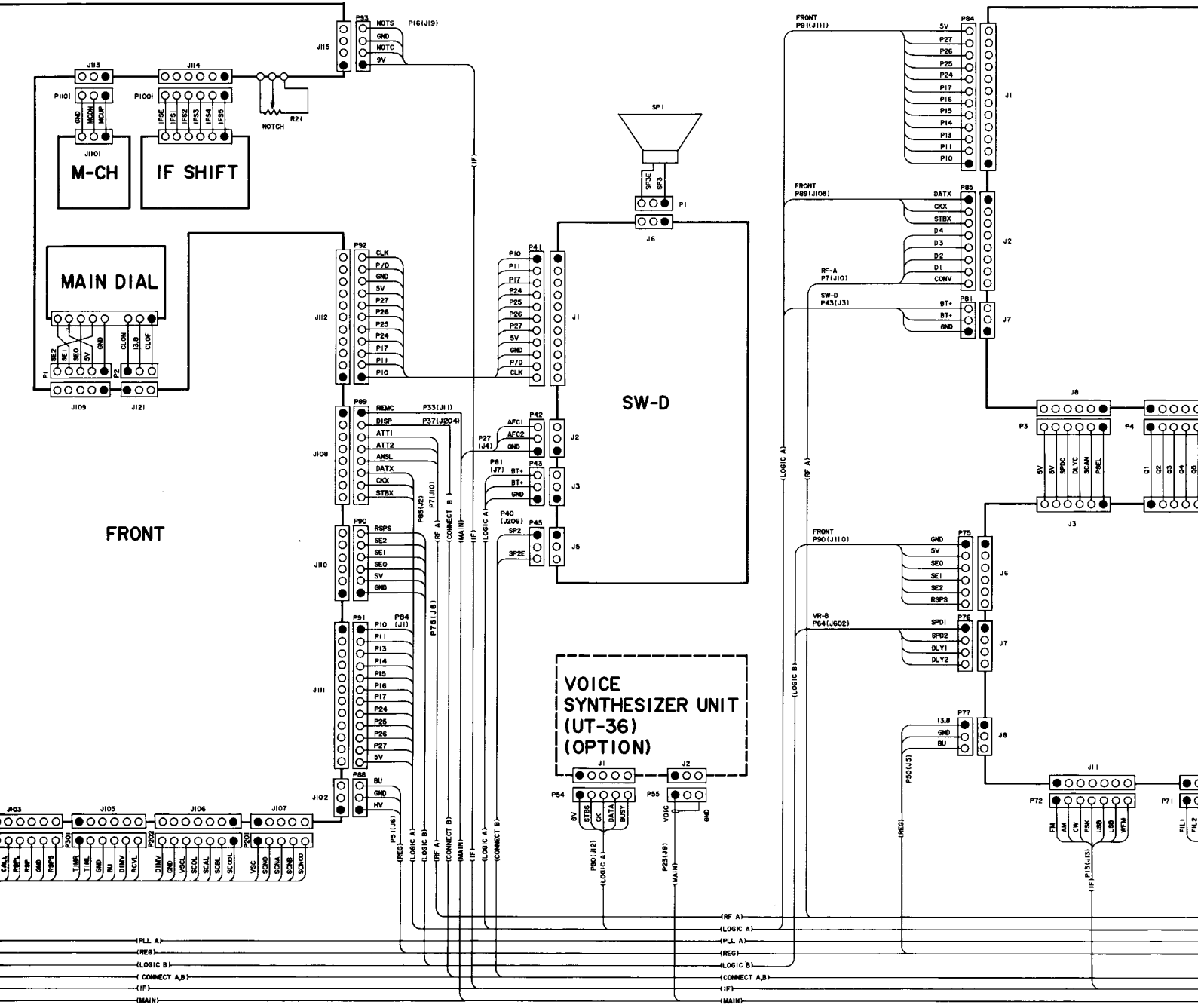
LOGIC B UNIT

SW-D UNIT



(REG)  
(CONNECT A)

(CONNECT A)



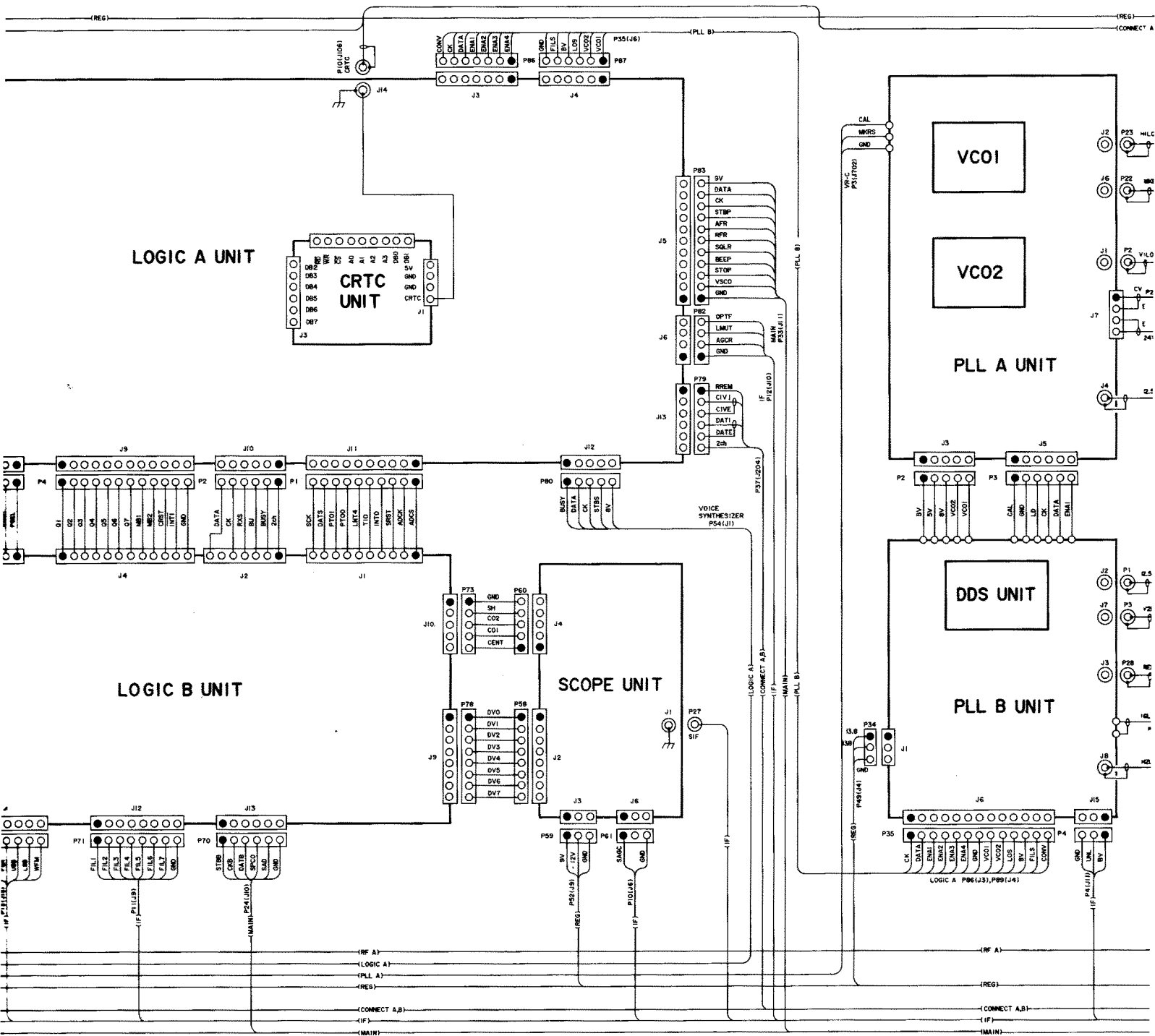
FRONT

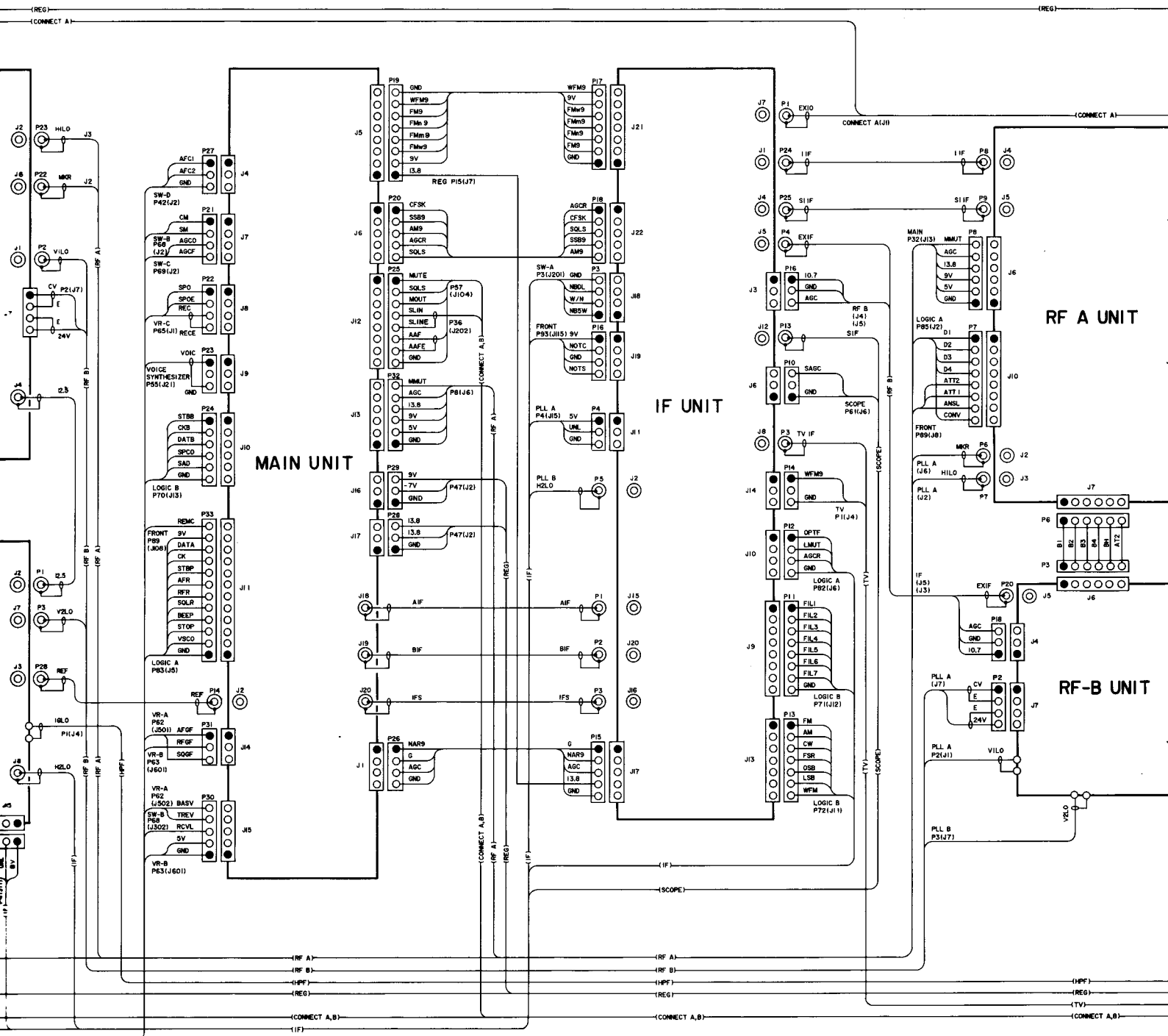
SW-D

VOICE  
SYNTHESIZER UNIT  
(UT-36)  
(OPTION)

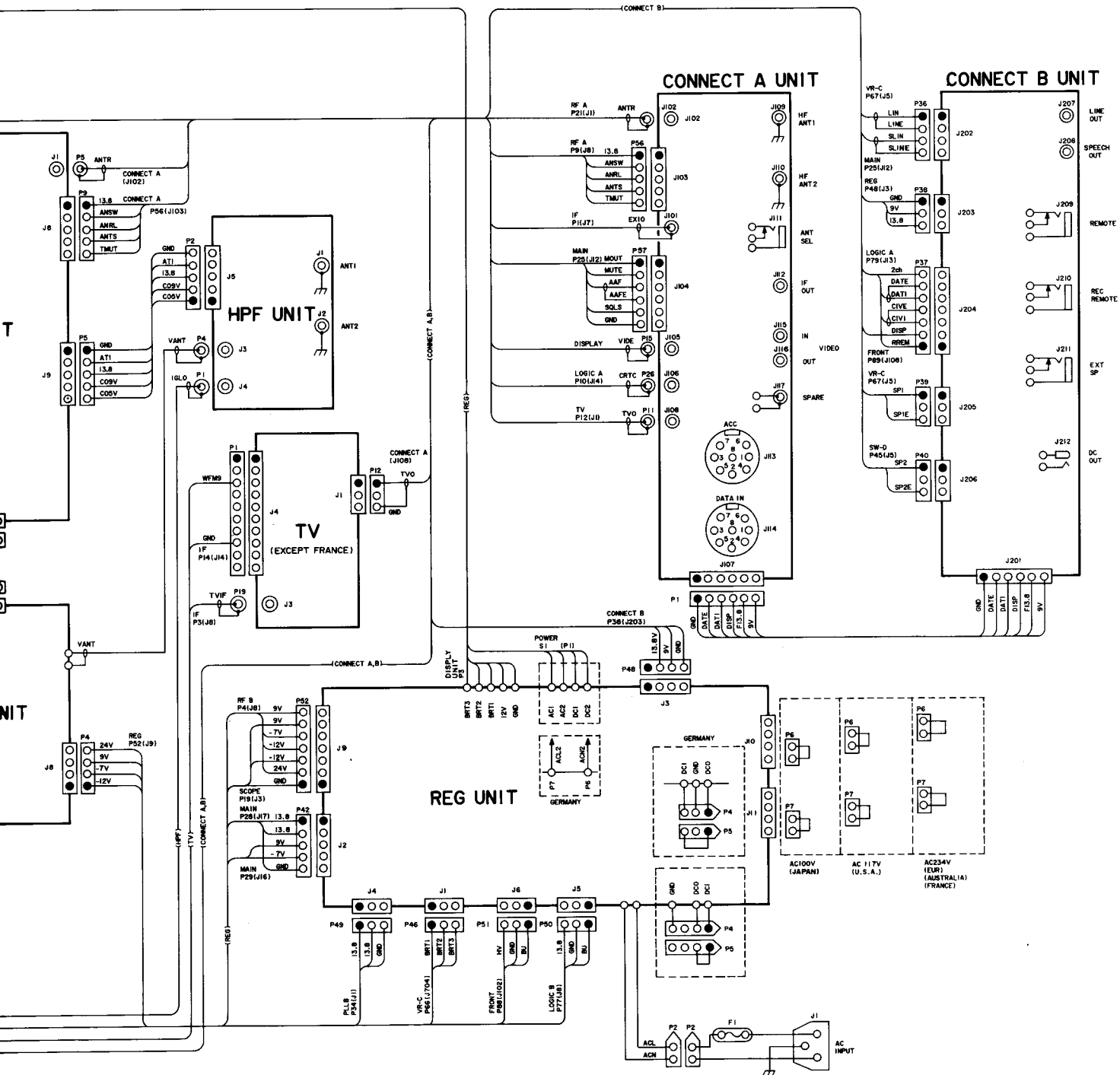
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(CONNECT A)  
(CONNECT B)  
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(MAIN)

(REG)  
(CONNECT A)  
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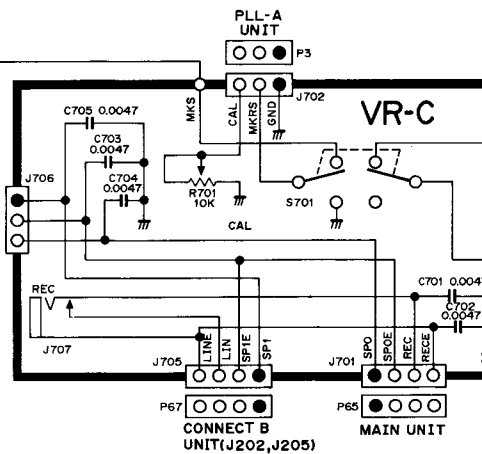
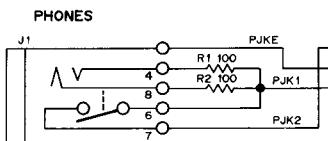
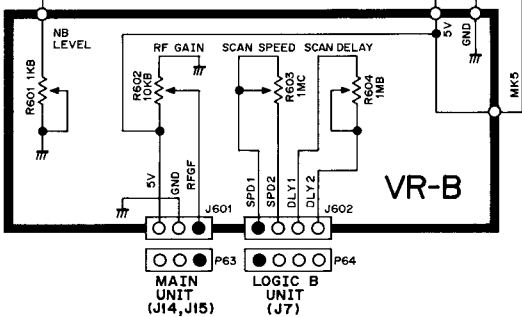
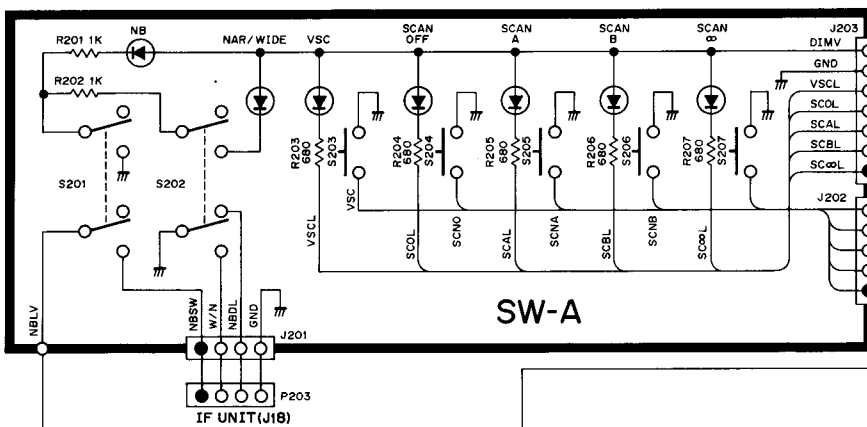
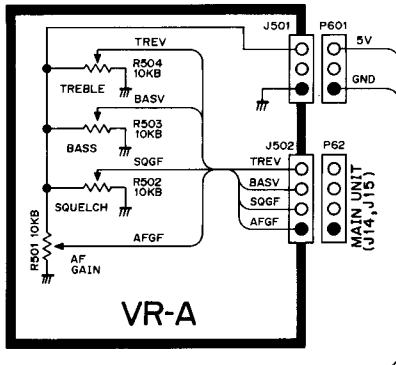
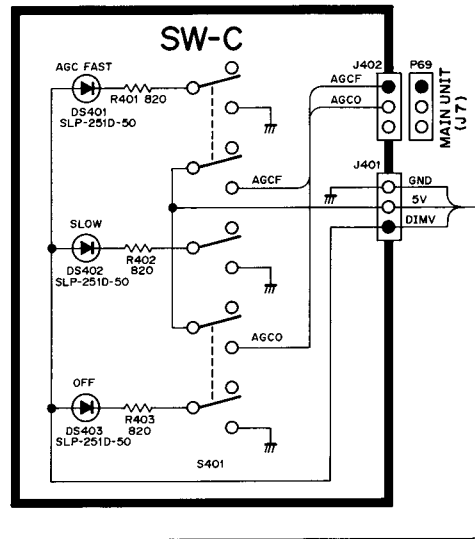
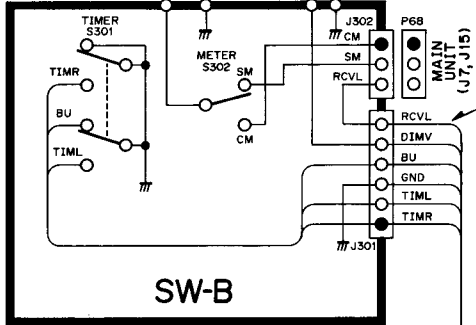
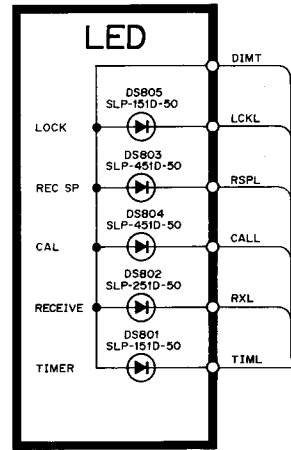
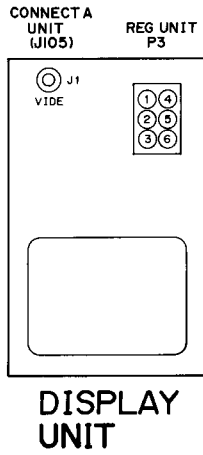
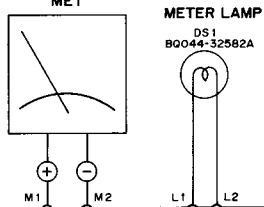
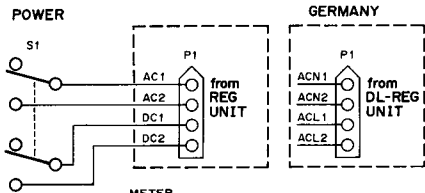


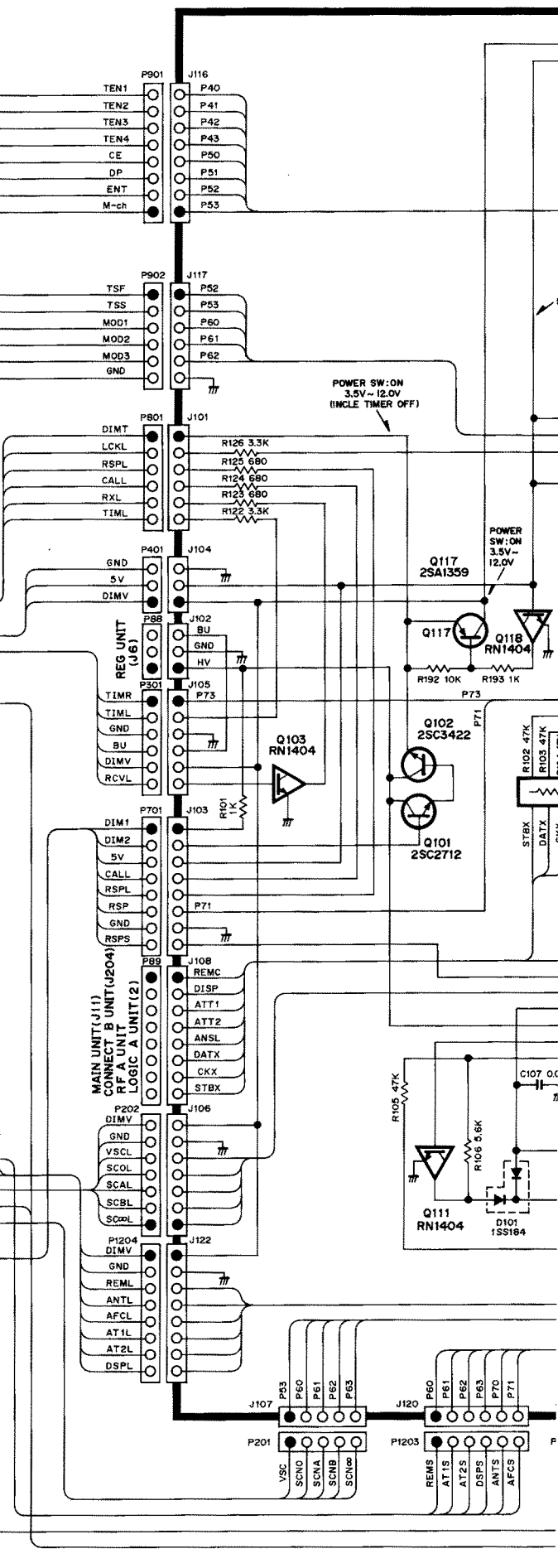
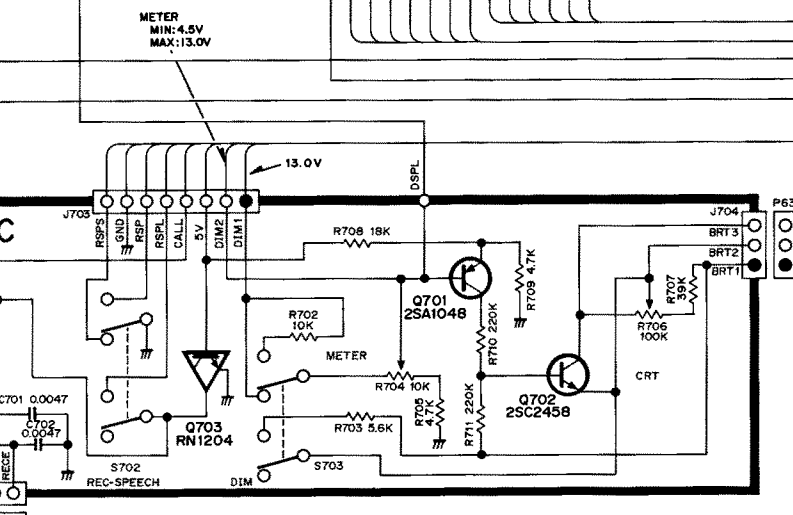
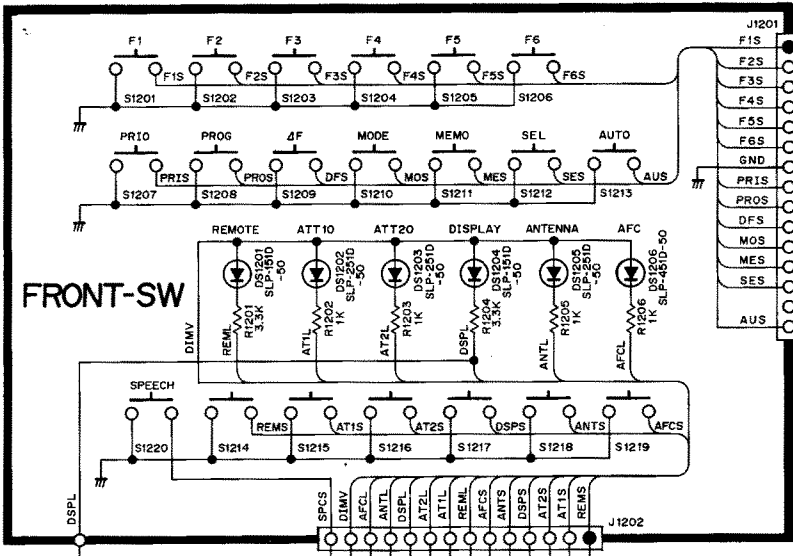
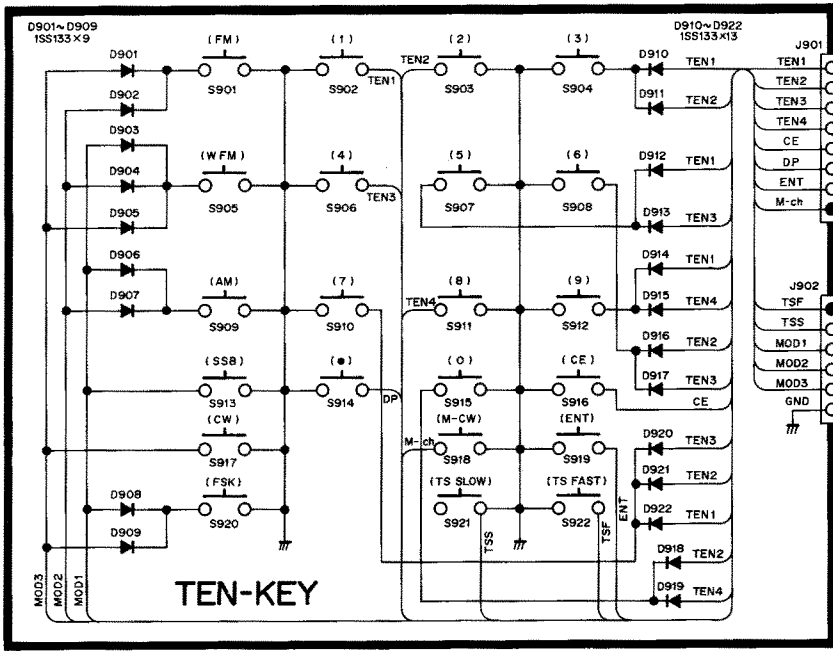


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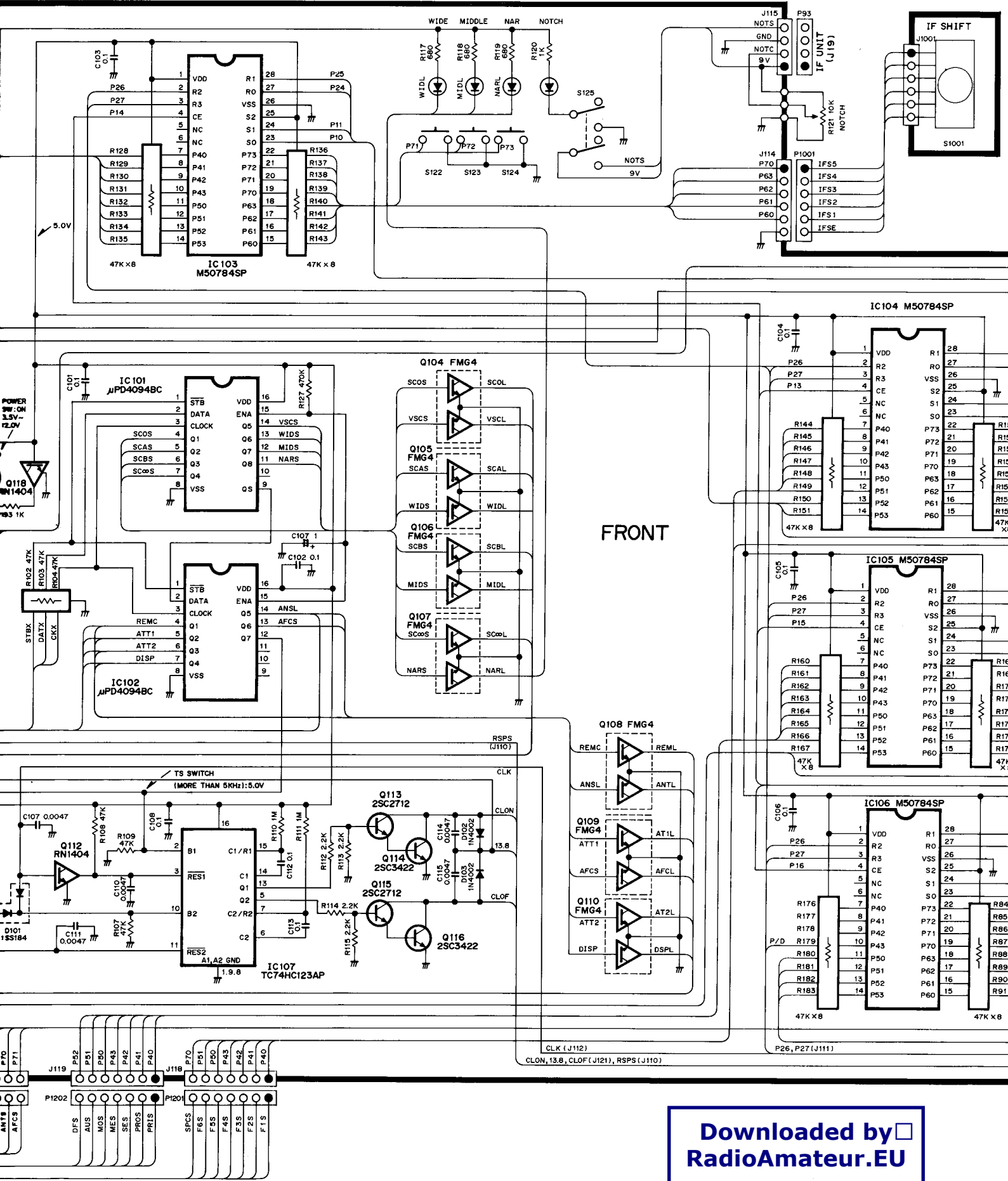


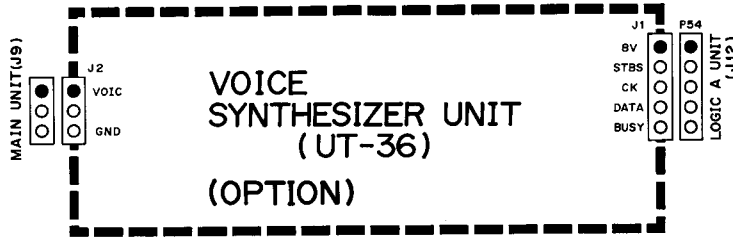
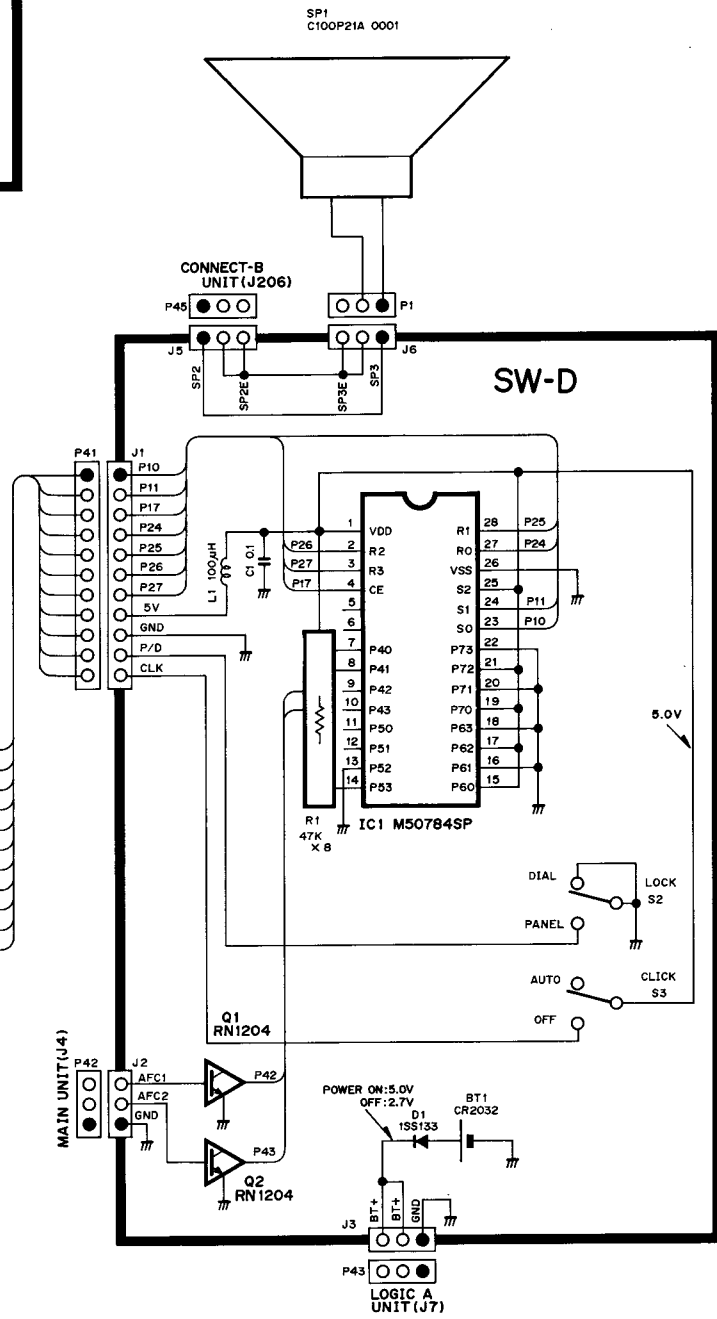
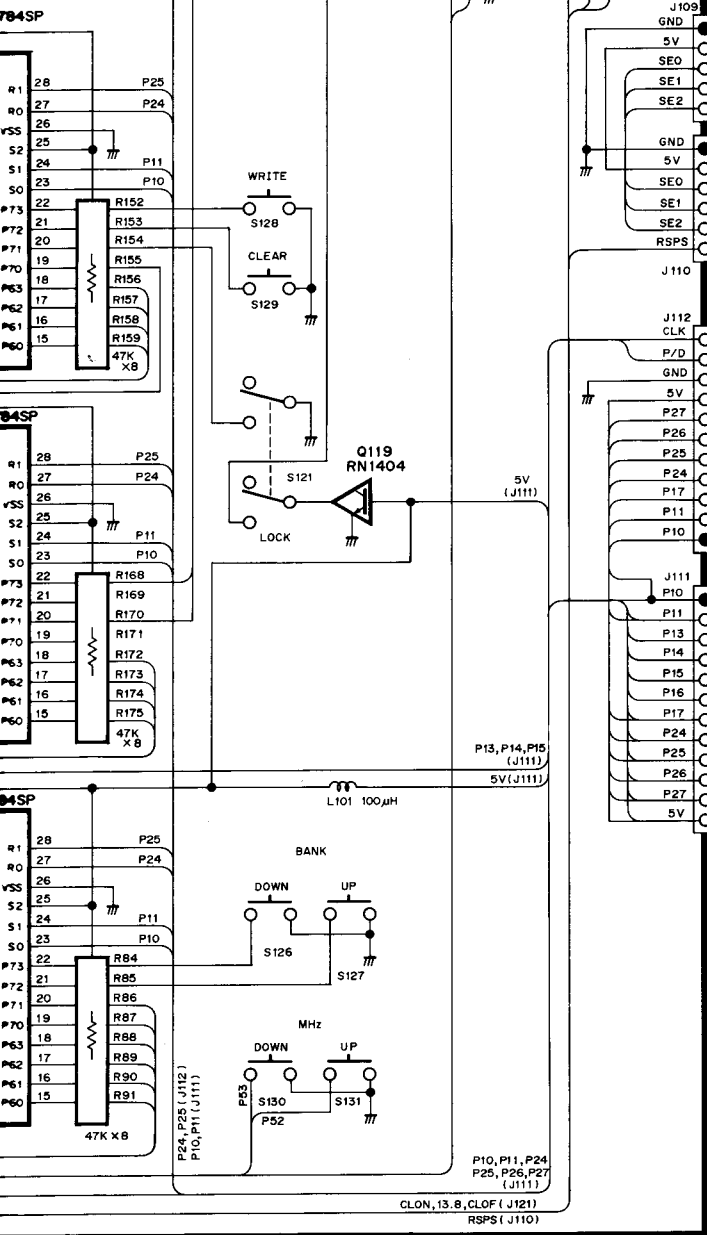
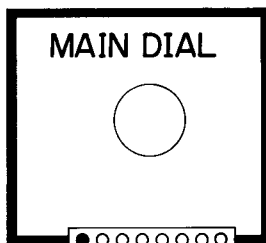
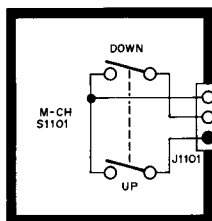
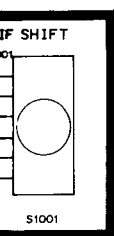
# 9-2 FRONT UNIT

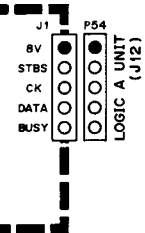
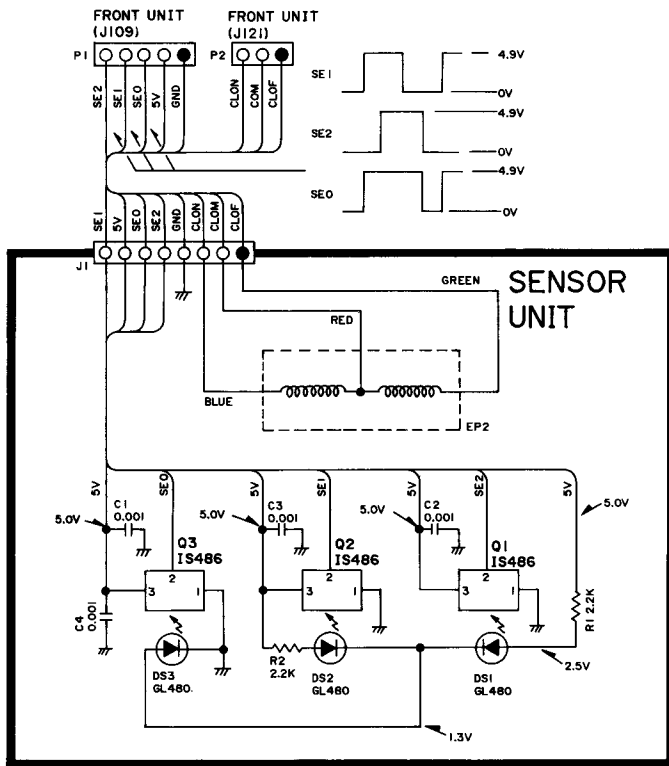




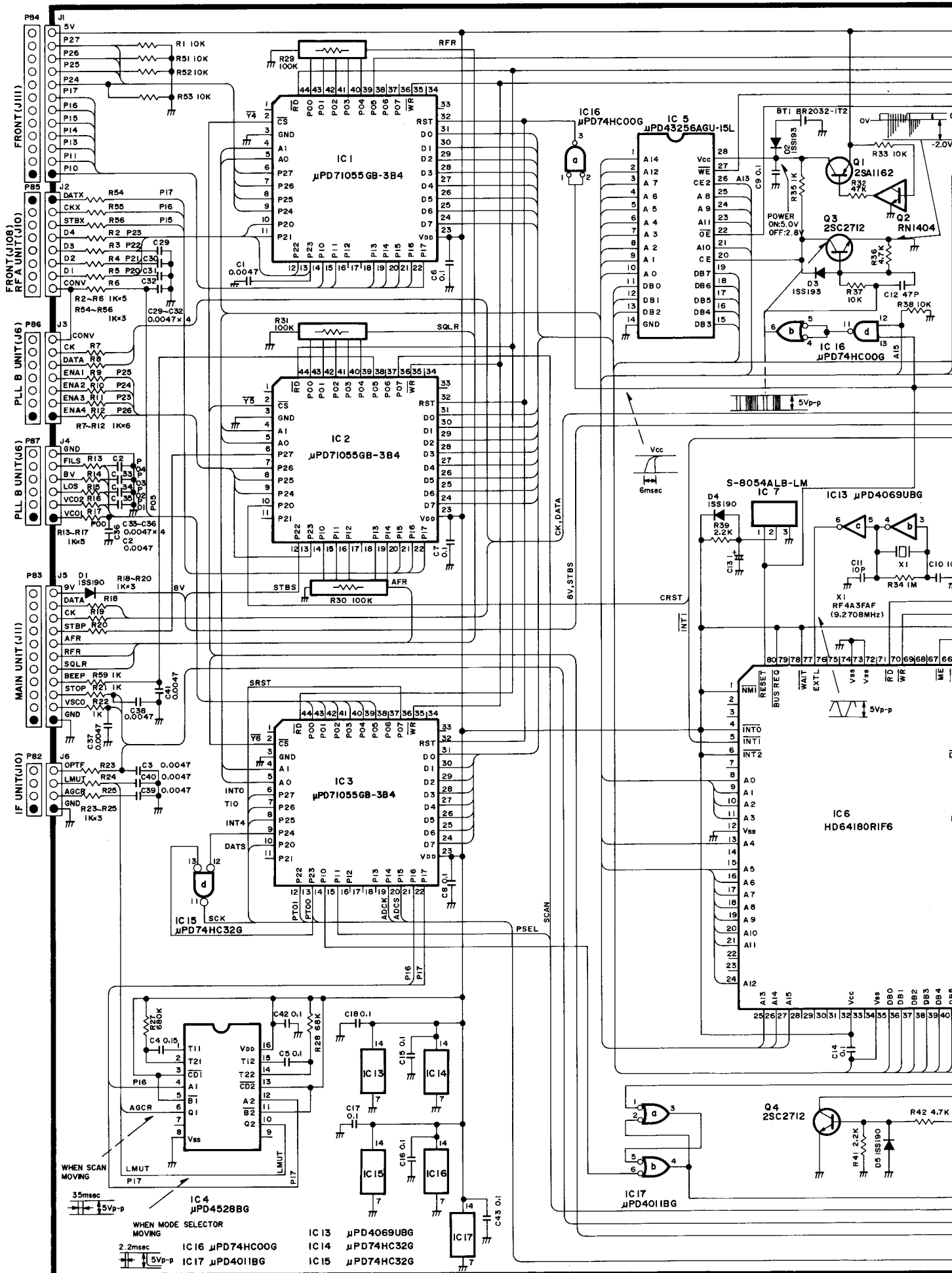




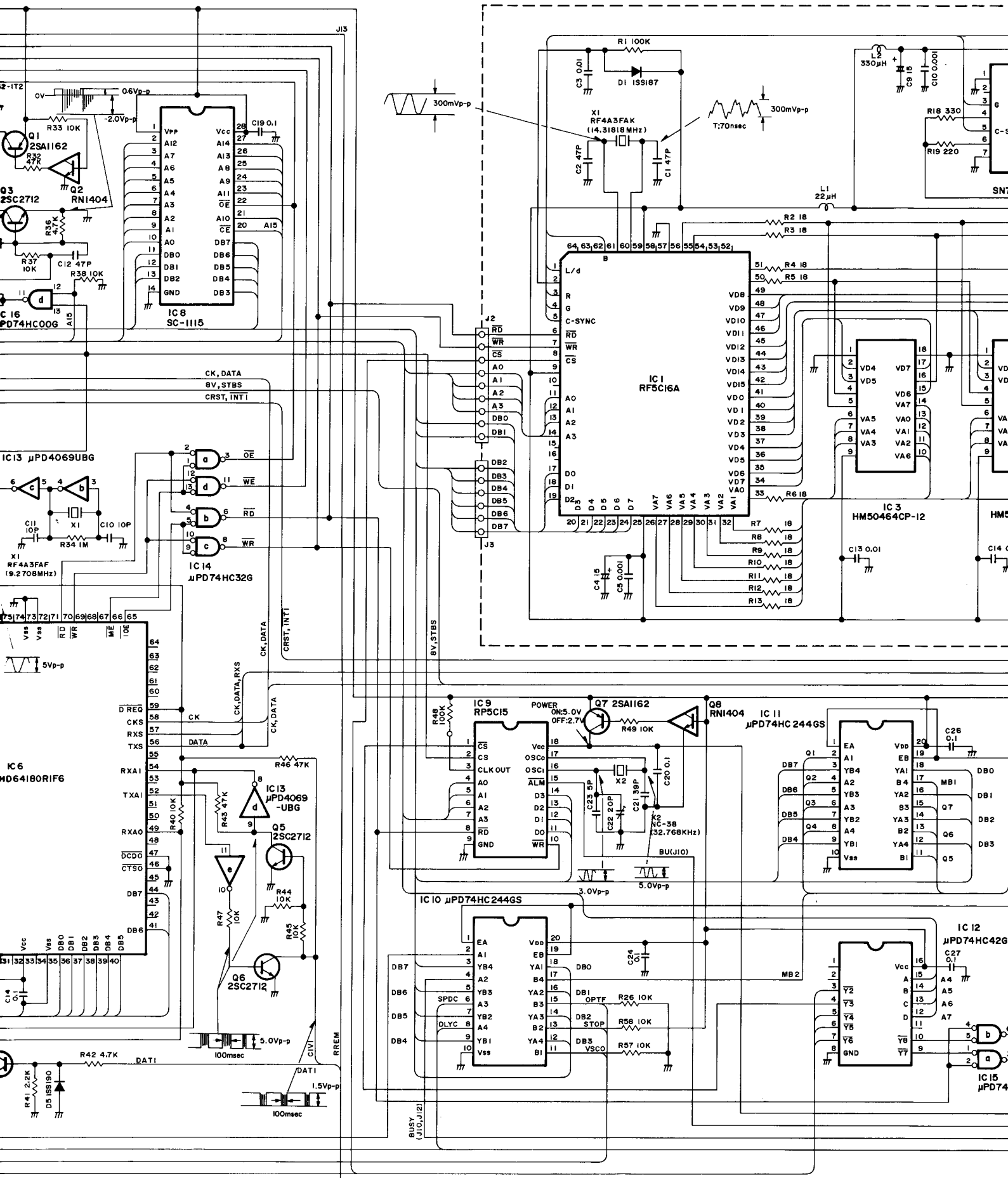




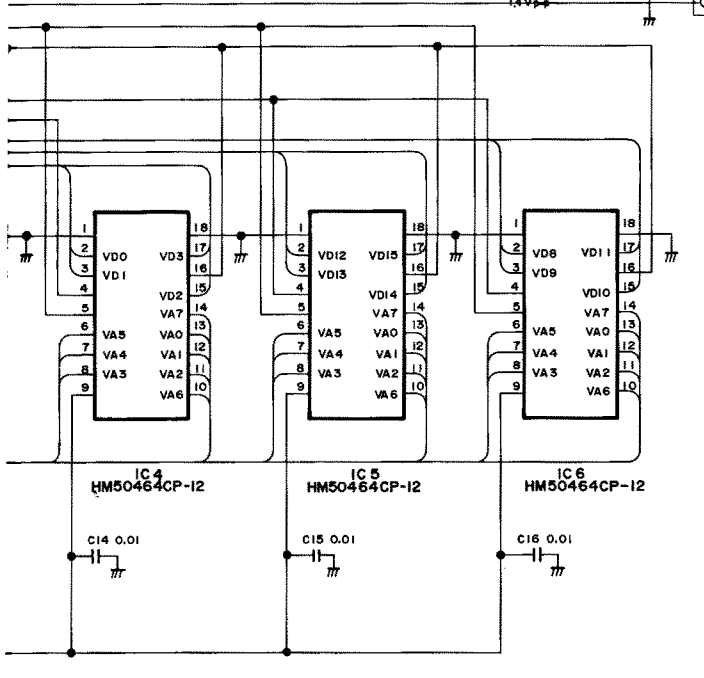
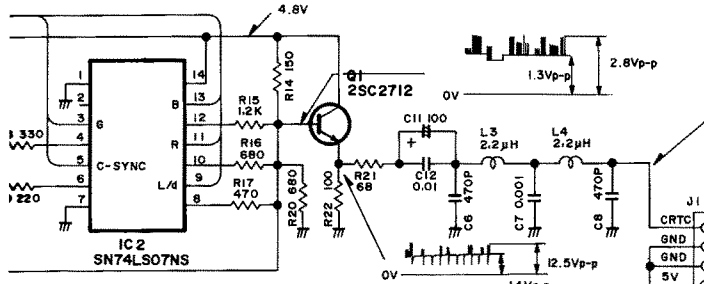
# 9-3 LOGIC A AND B UNITS



- 35msec  
5Vp-p
- WHEN SCAN MOVING
- WHEN MODE SELECTOR MOVING
- IC 4  $\mu\text{PD4528BG}$
  - IC 13  $\mu\text{PD4069UBG}$
  - IC 16  $\mu\text{PD74HC00G}$
  - IC 14  $\mu\text{PD74HC32G}$
  - IC 15  $\mu\text{PD74HC32G}$
  - IC 17  $\mu\text{PD4011BG}$

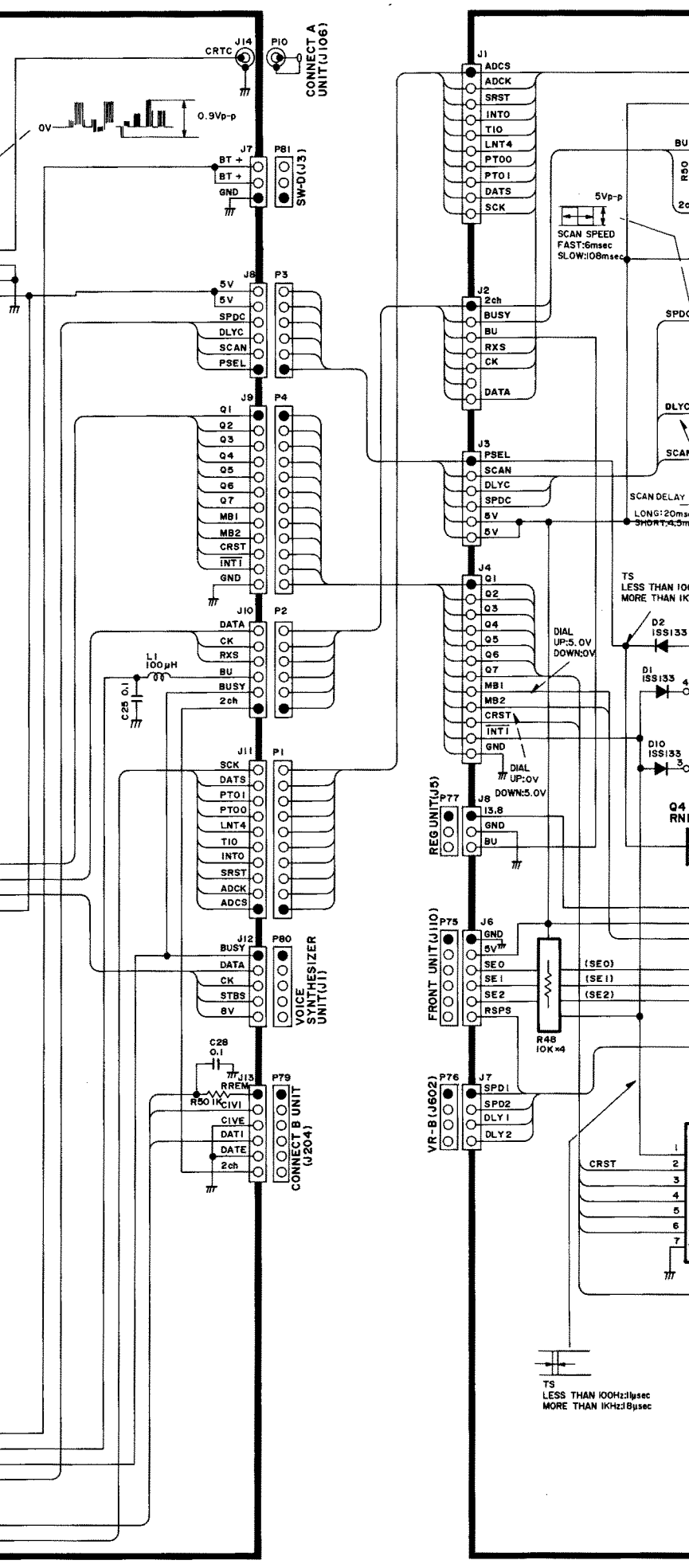
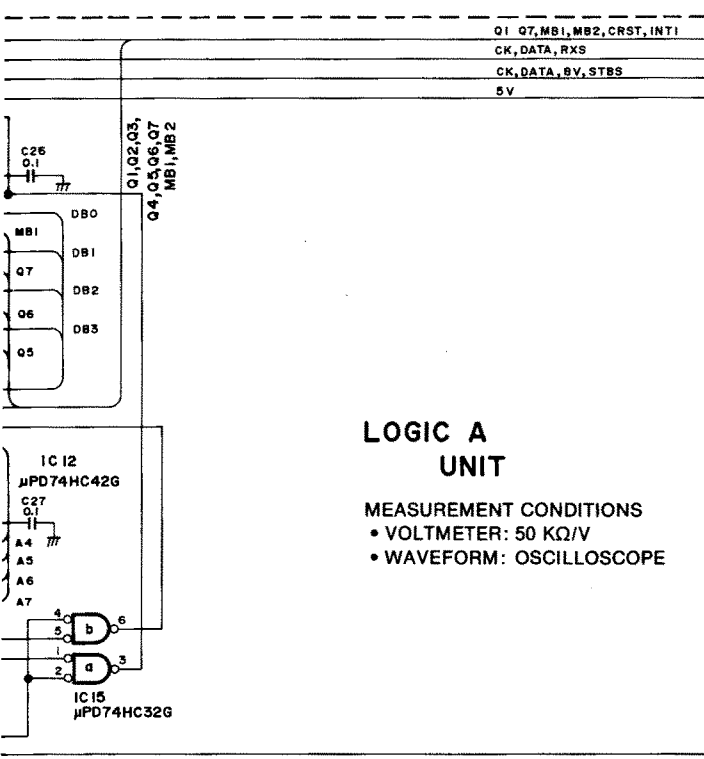


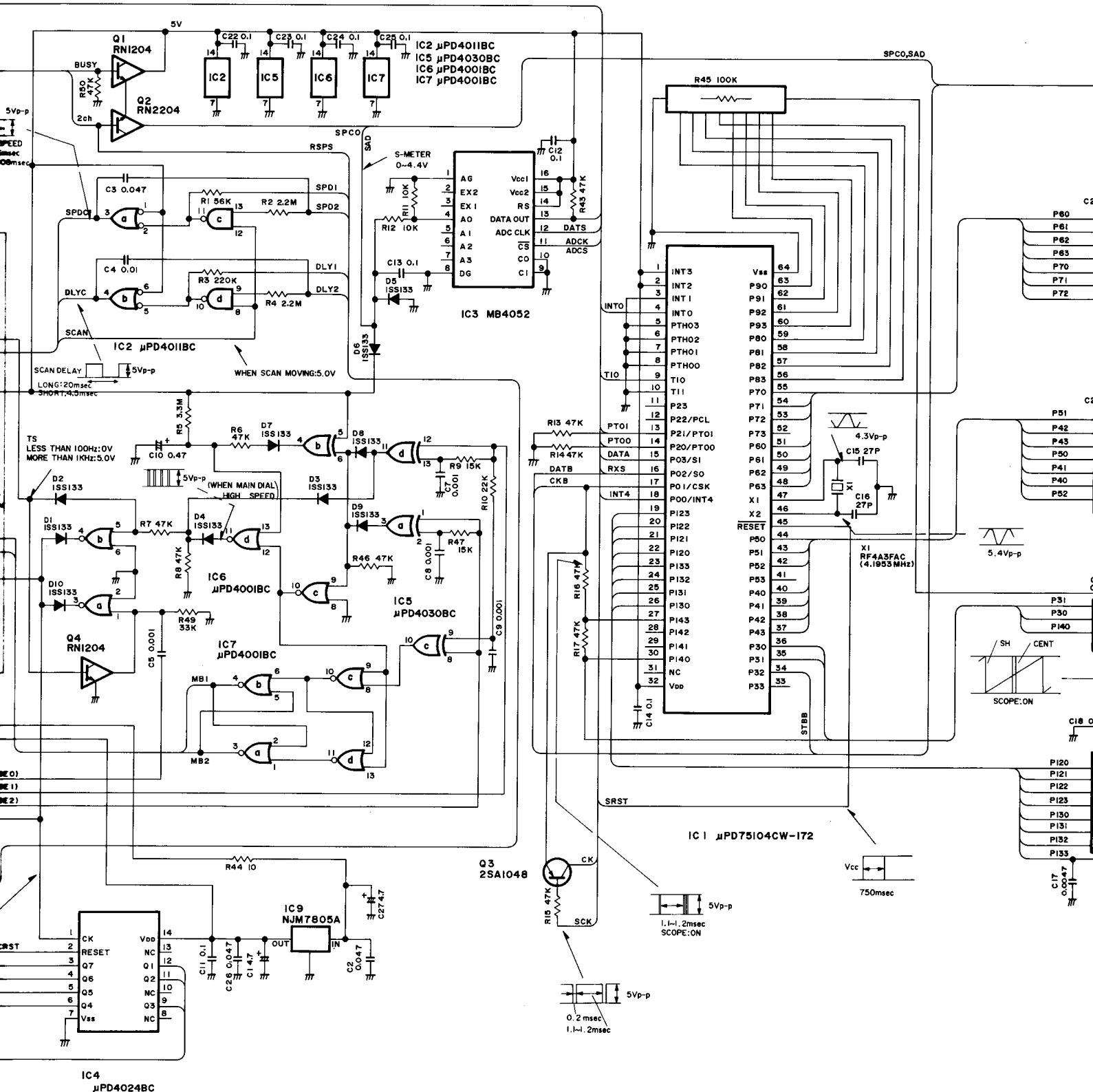
### CRTC UNIT



### LOGIC A UNIT

- MEASUREMENT CONDITIONS
- VOLTMETER: 50 KΩ/V
  - WAVEFORM: OSCILLOSCOPE

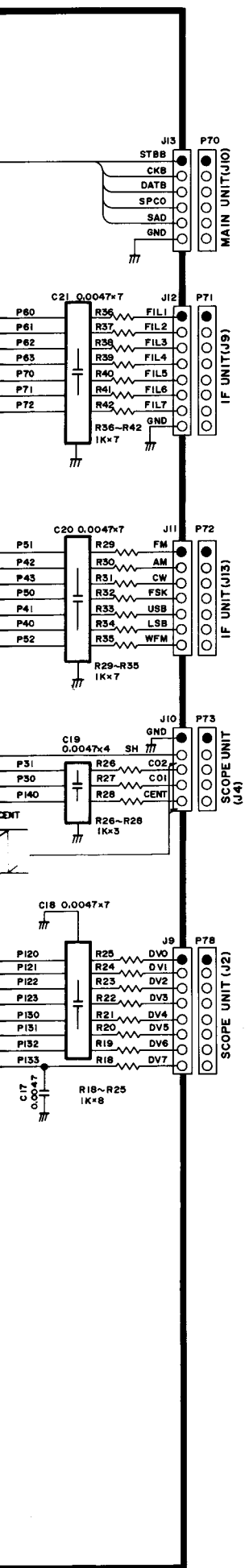




### LOGIC B UNIT

#### MEASUREMENT CONDITIONS

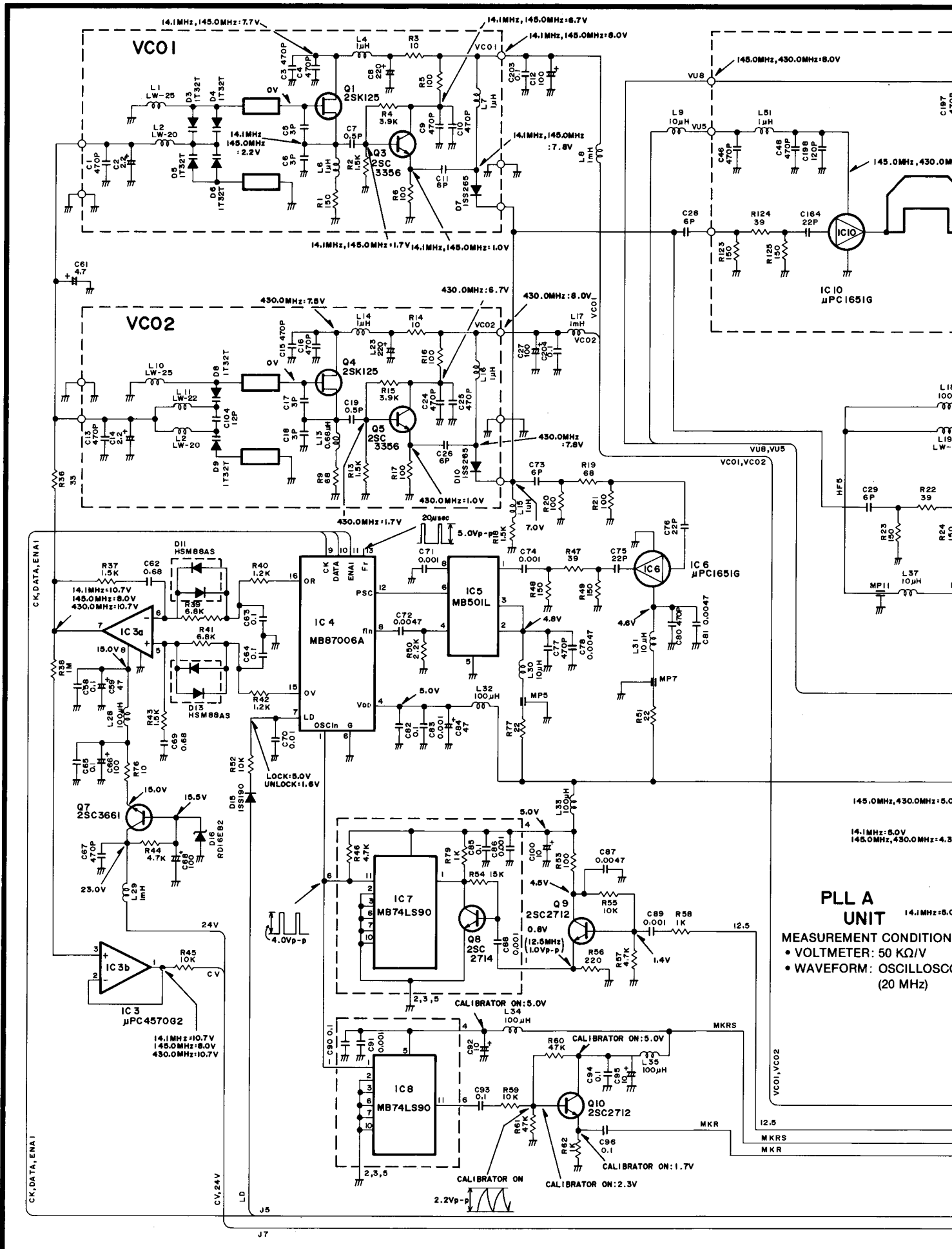
- VOLTMETER: 50 K $\Omega$ /V
- WAVEFORM: OSCILLOSCOPE



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# 9-4 PLL A AND SCOPE UNITS

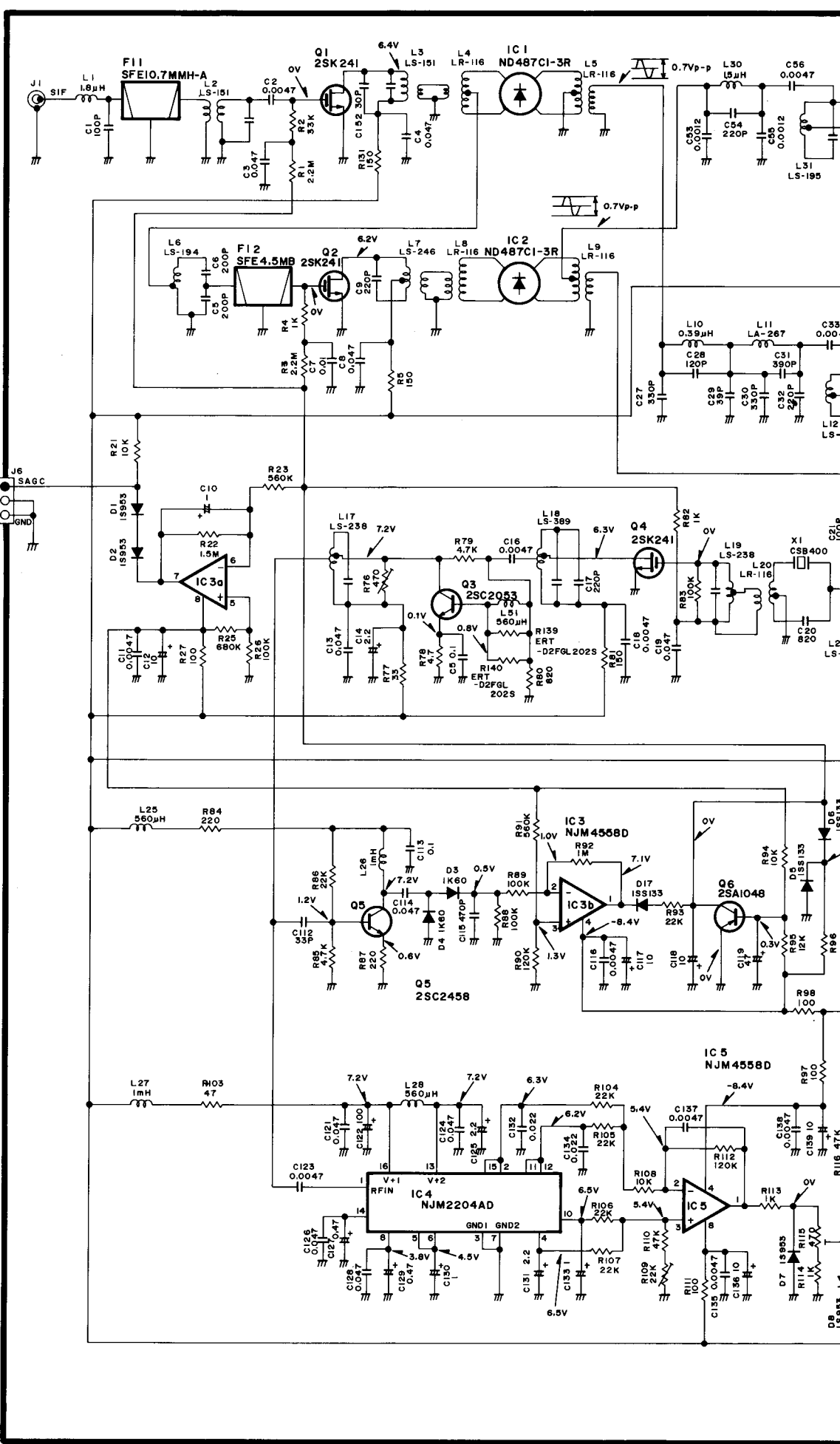
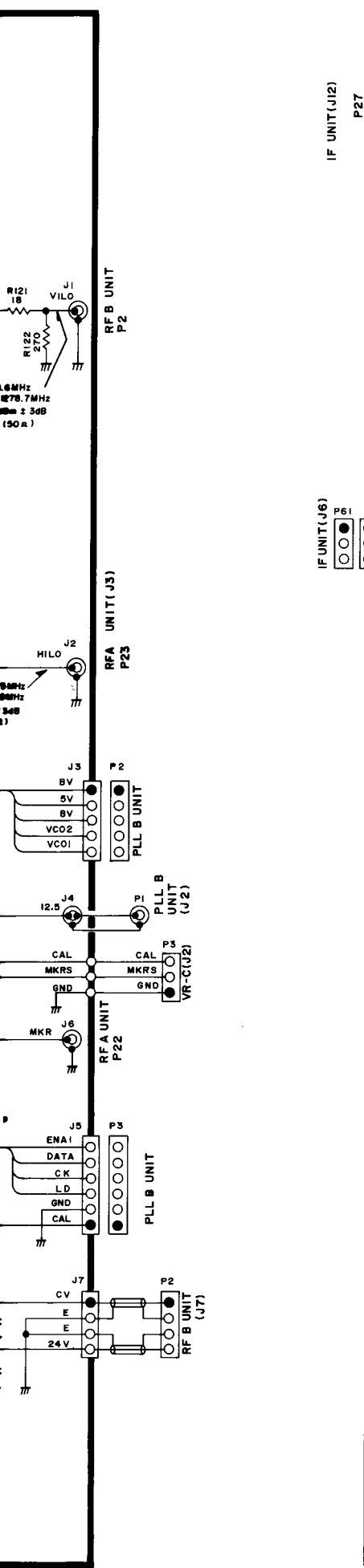


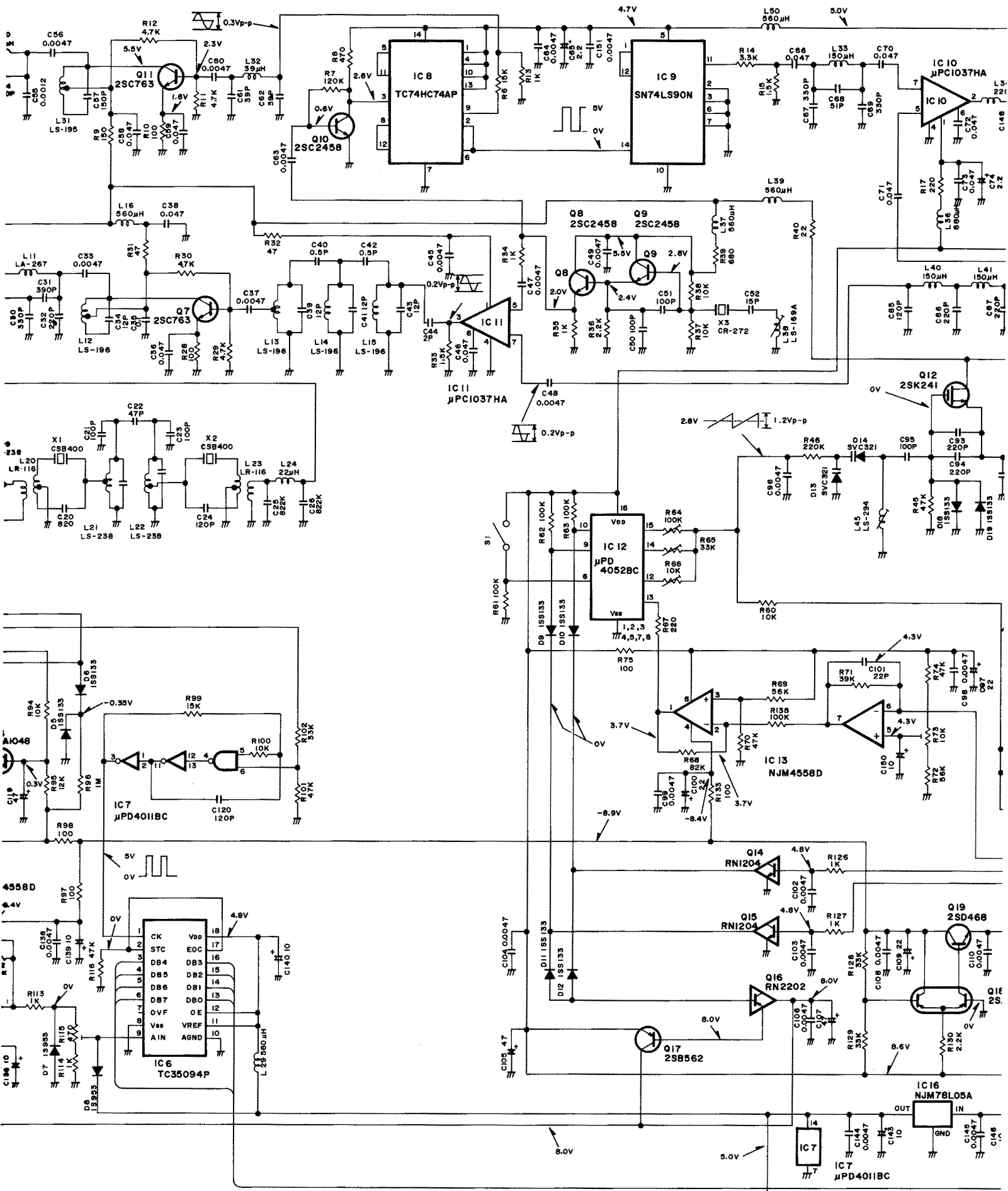
**PLL A UNIT**

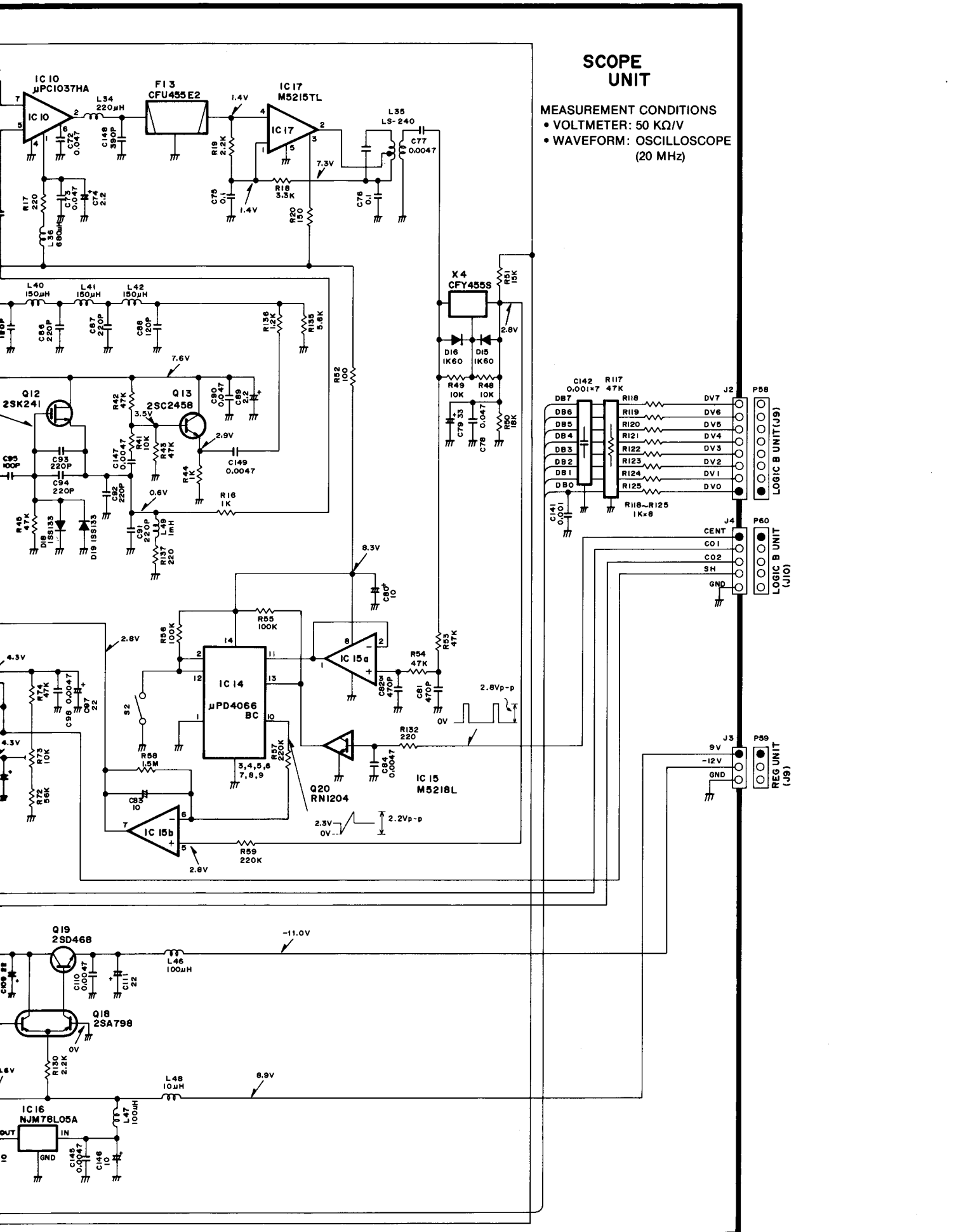
MEASUREMENT CONDITION

- VOLTMMETER: 50 KΩ/V
- WAVEFORM: OSCILLOSCOPE (20 MHz)

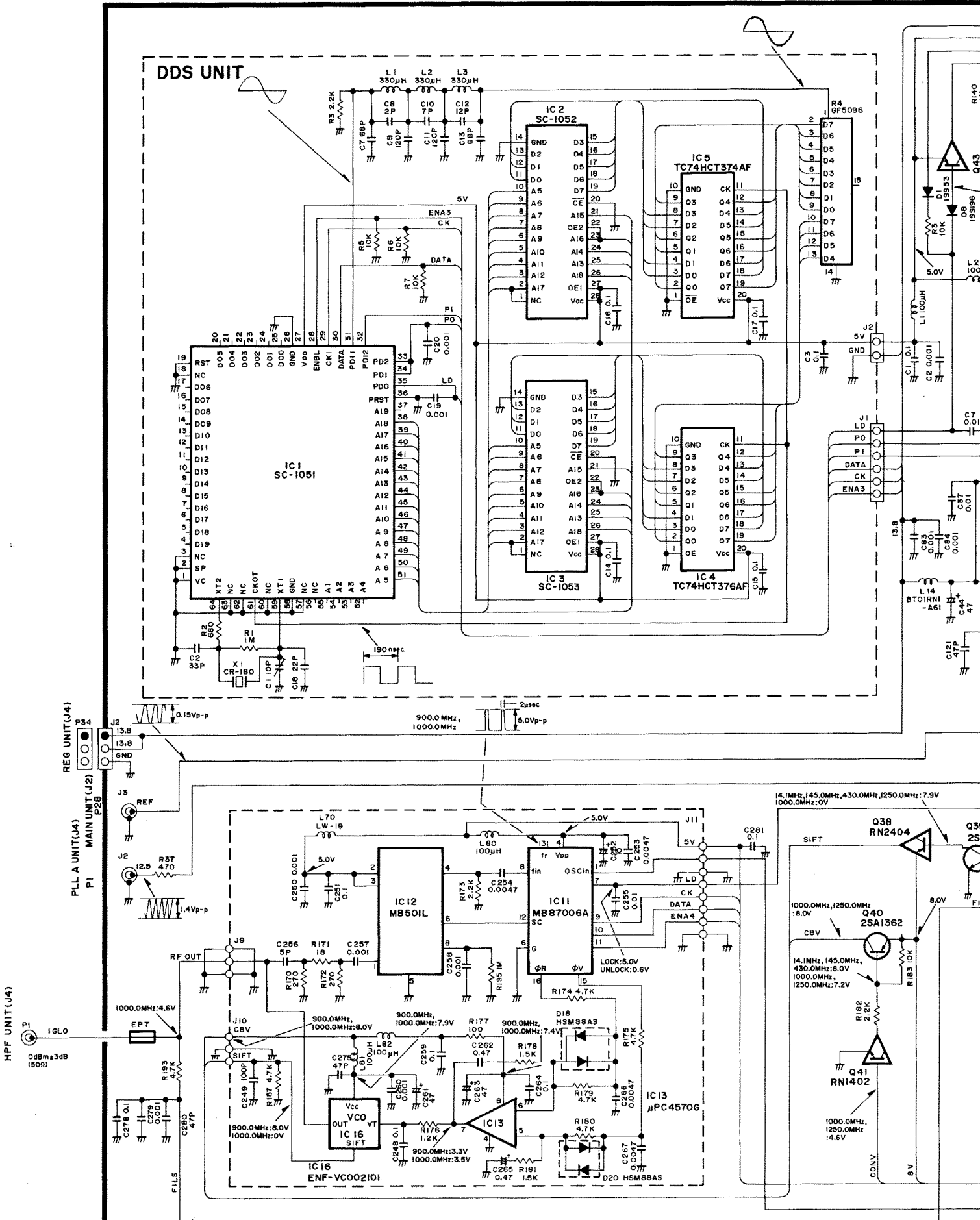


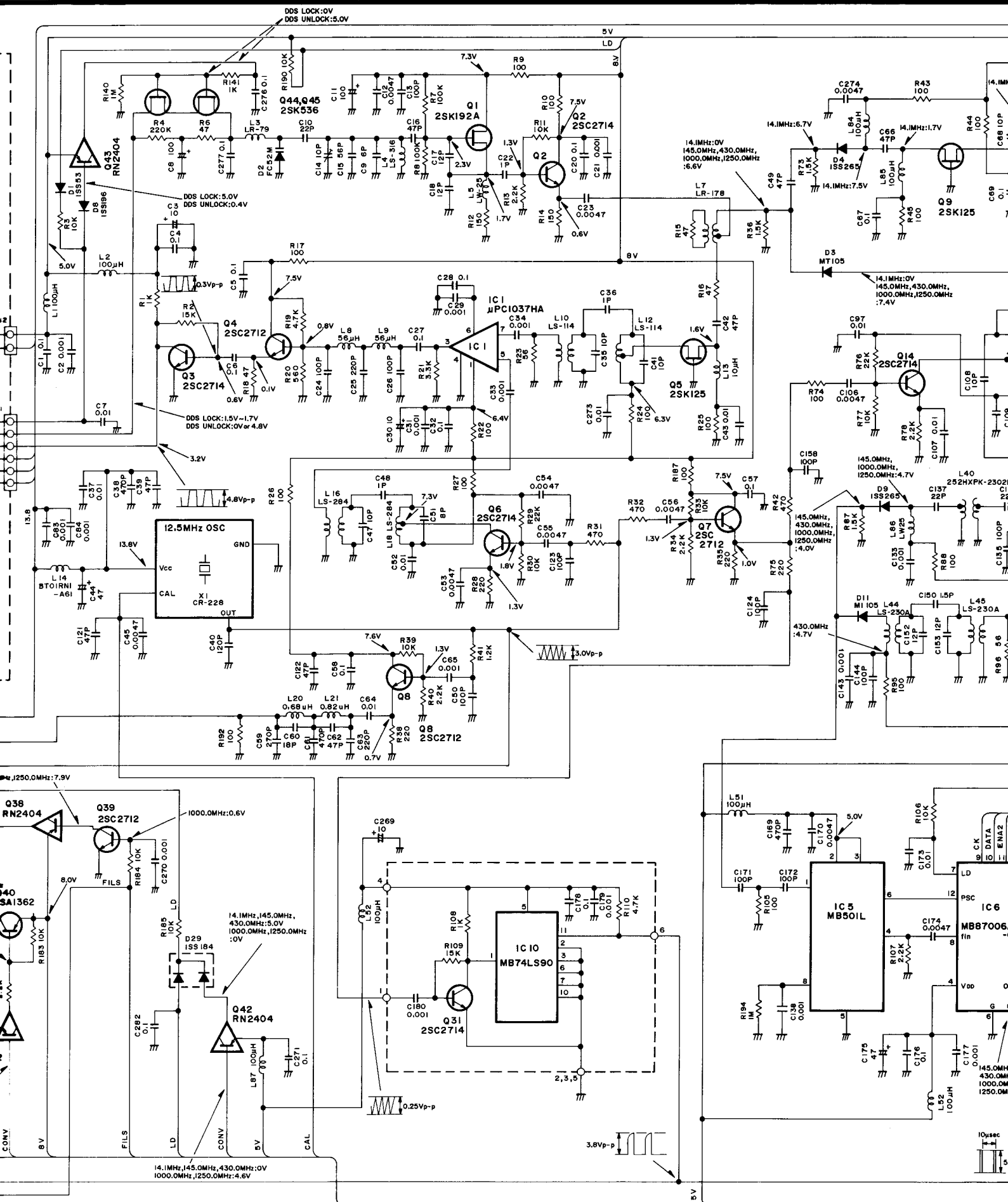






# 9-5 PLL B UNIT

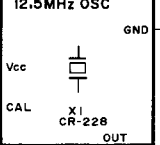




DDS LOCK:0V  
DDS UNLOCK:-5.0V

DDS LOCK:5.0V  
DDS UNLOCK:0.4V

DDS LOCK:1.5V-1.7V  
DDS UNLOCK:0V or 4.8V



1000.0MHz:0.6V

14.1MHz, 145.0MHz,  
430.0MHz:5.0V  
1000.0MHz, 1250.0MHz  
:0V

14.1MHz, 145.0MHz, 430.0MHz:0V  
1000.0MHz, 1250.0MHz:4.6V

5V

8V

8V

14.1MHz:0V  
145.0MHz, 430.0MHz,  
1000.0MHz, 1250.0MHz  
:6.6V

14.1MHz:6.7V  
14.1MHz:1.7V

14.1MHz:0V  
145.0MHz, 430.0MHz,  
1000.0MHz, 1250.0MHz  
:7.4V

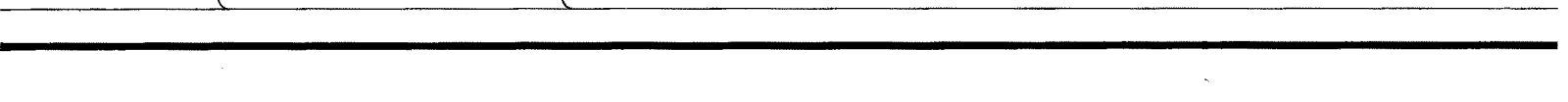
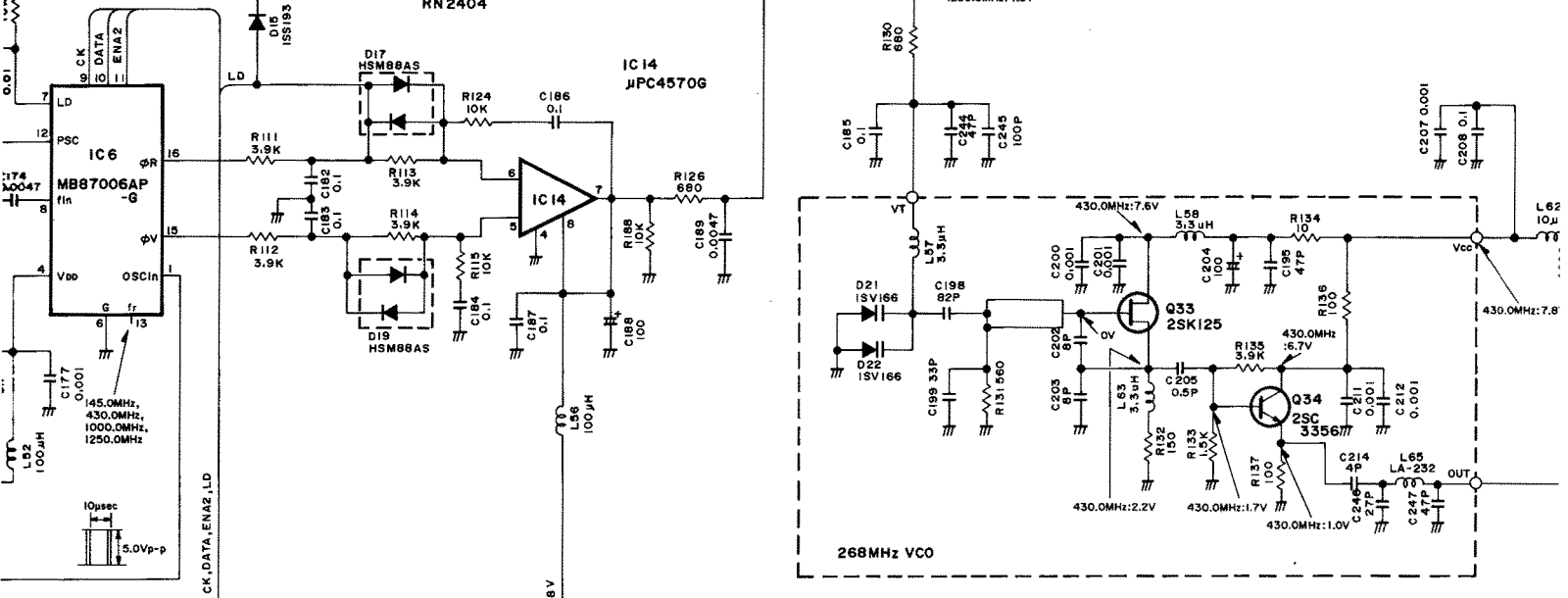
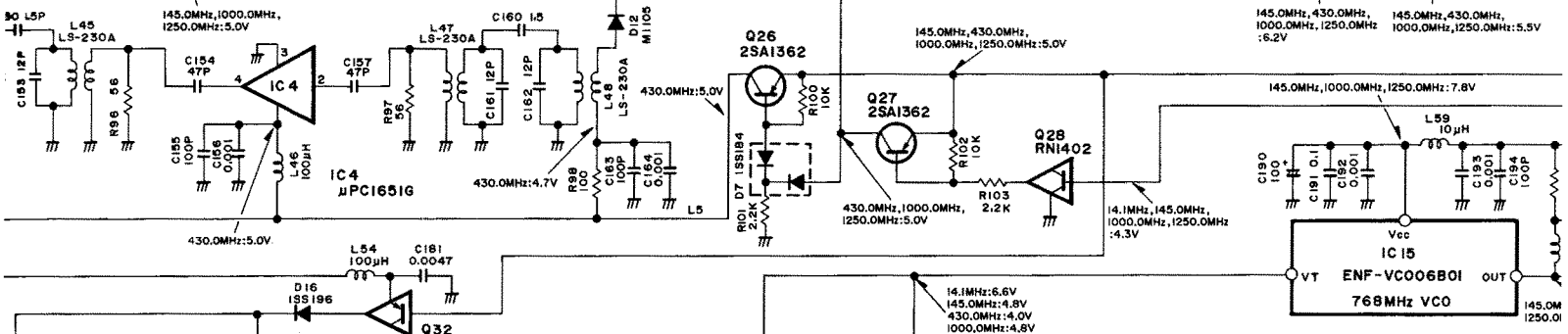
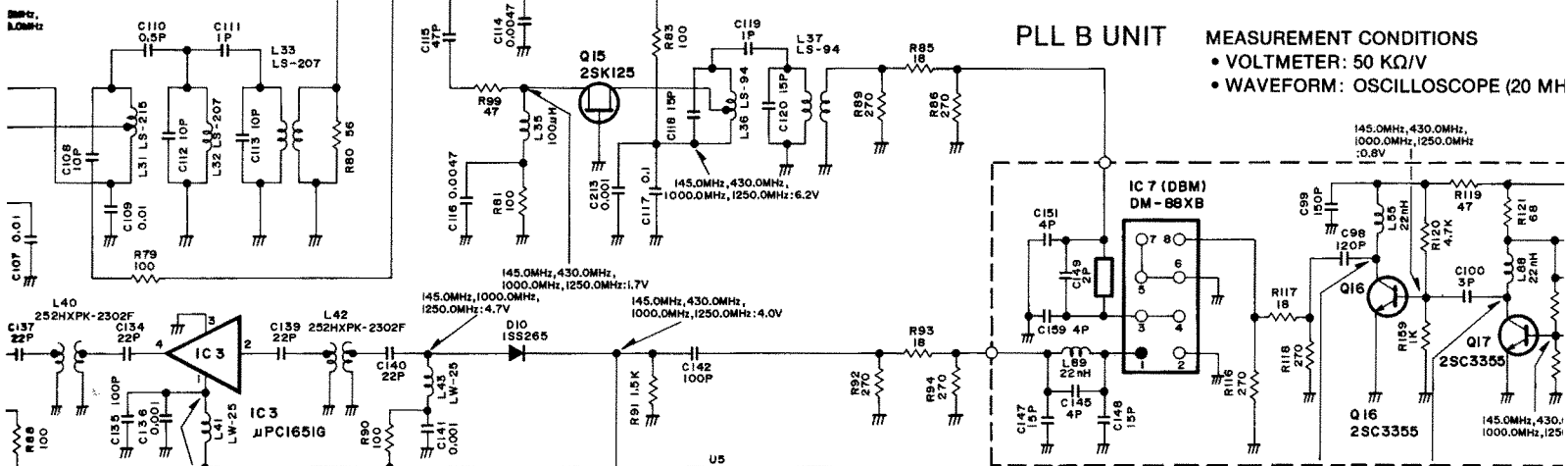
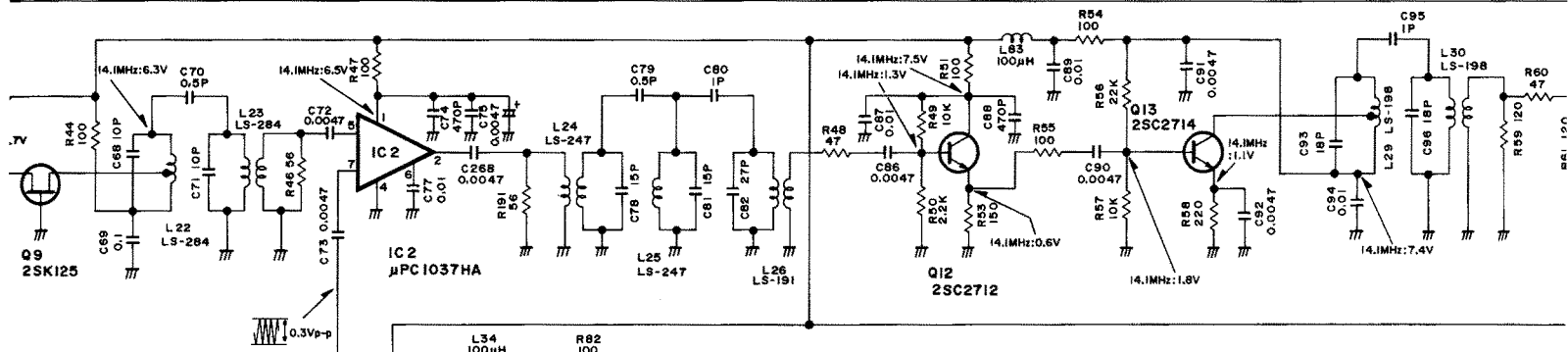
145.0MHz,  
1000.0MHz,  
1250.0MHz:4.7V

430.0MHz  
:4.7V

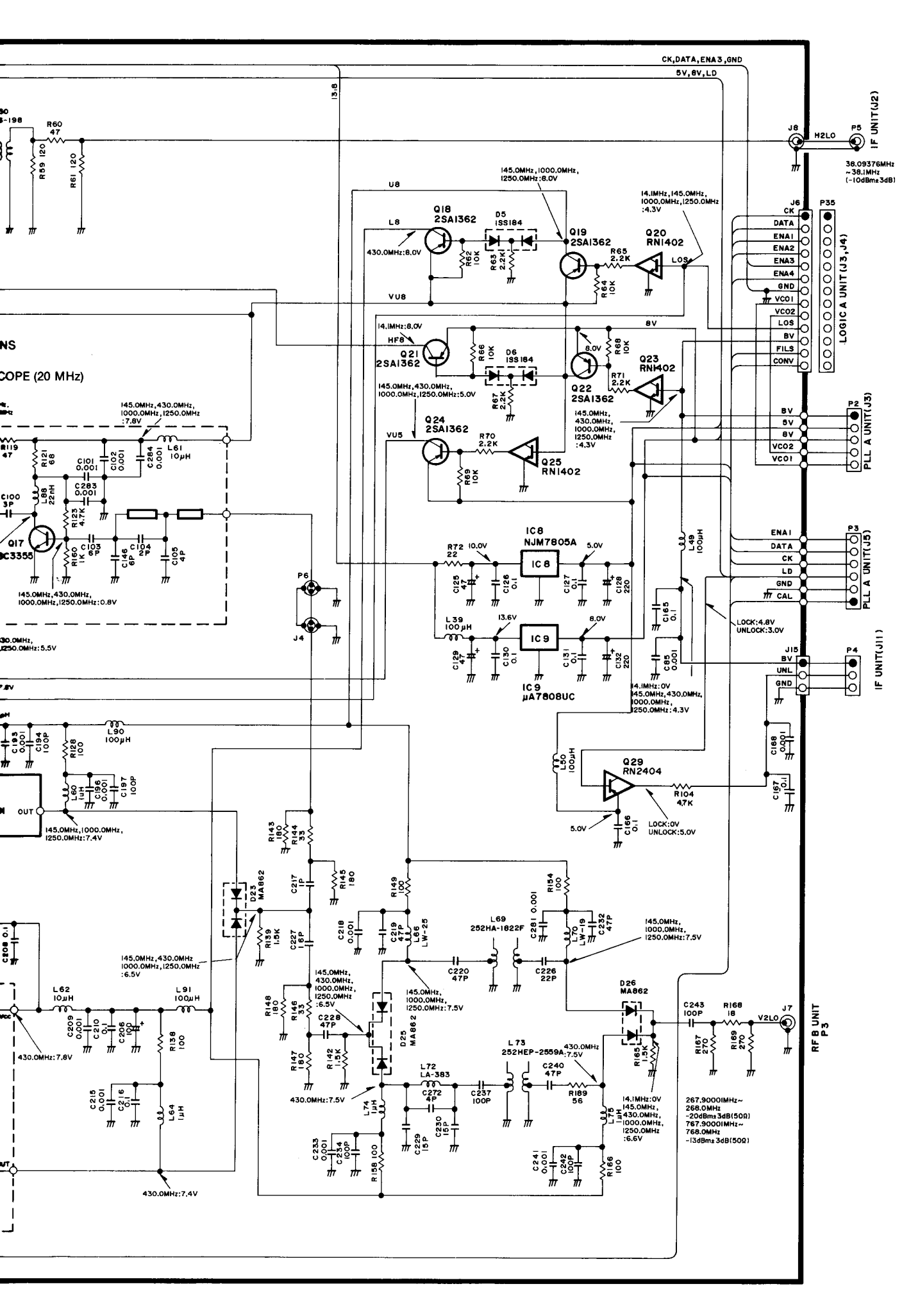
5.0V

145.0MHz  
430.0MHz  
1000.0MHz  
1250.0MHz









CK, DATA, ENA3, GND  
5V, 8V, LD

IF UNIT (J2)  
38.09376MHz  
-38.1MHz  
(-10dBm±3dB)

LOGIC A UNIT (J3, J4)  
DATA  
ENA1  
ENA2  
ENA3  
ENA4  
GND  
VCO1  
LOS  
BV  
FILS  
CONV

PLL A UNIT (J3)  
BV  
5V  
8V  
VCO1

PLL A UNIT (J5)  
ENA1  
DATA  
CK  
LD  
GND  
CAL

IF UNIT (J1)  
BV  
UNL  
GND

RF B UNIT  
P3  
V2LO

145.0MHz, 1000.0MHz,  
1250.0MHz: 8.0V

14.1MHz, 145.0MHz,  
1000.0MHz, 1250.0MHz  
: 4.3V

14.1MHz: 8.0V

145.0MHz, 430.0MHz,  
1000.0MHz, 1250.0MHz: 5.0V

145.0MHz, 430.0MHz,  
1000.0MHz, 1250.0MHz: 0.8V

145.0MHz, 430.0MHz,  
1000.0MHz, 1250.0MHz: 5.5V

14.1MHz: 0V  
145.0MHz, 430.0MHz,  
1000.0MHz, 1250.0MHz: 4.3V

145.0MHz, 430.0MHz,  
1000.0MHz, 1250.0MHz: 7.5V

145.0MHz, 430.0MHz,  
1000.0MHz, 1250.0MHz: 6.5V

145.0MHz, 1000.0MHz,  
1250.0MHz: 7.5V

14.1MHz: 0V  
145.0MHz, 430.0MHz,  
1000.0MHz, 1250.0MHz: 6.6V

145.0MHz, 1000.0MHz,  
1250.0MHz: 7.5V

267.90001MHz~  
268.0MHz  
-20dBm±3dB(50R)  
767.90001MHz~  
768.0MHz  
-13dBm±3dB(50R)

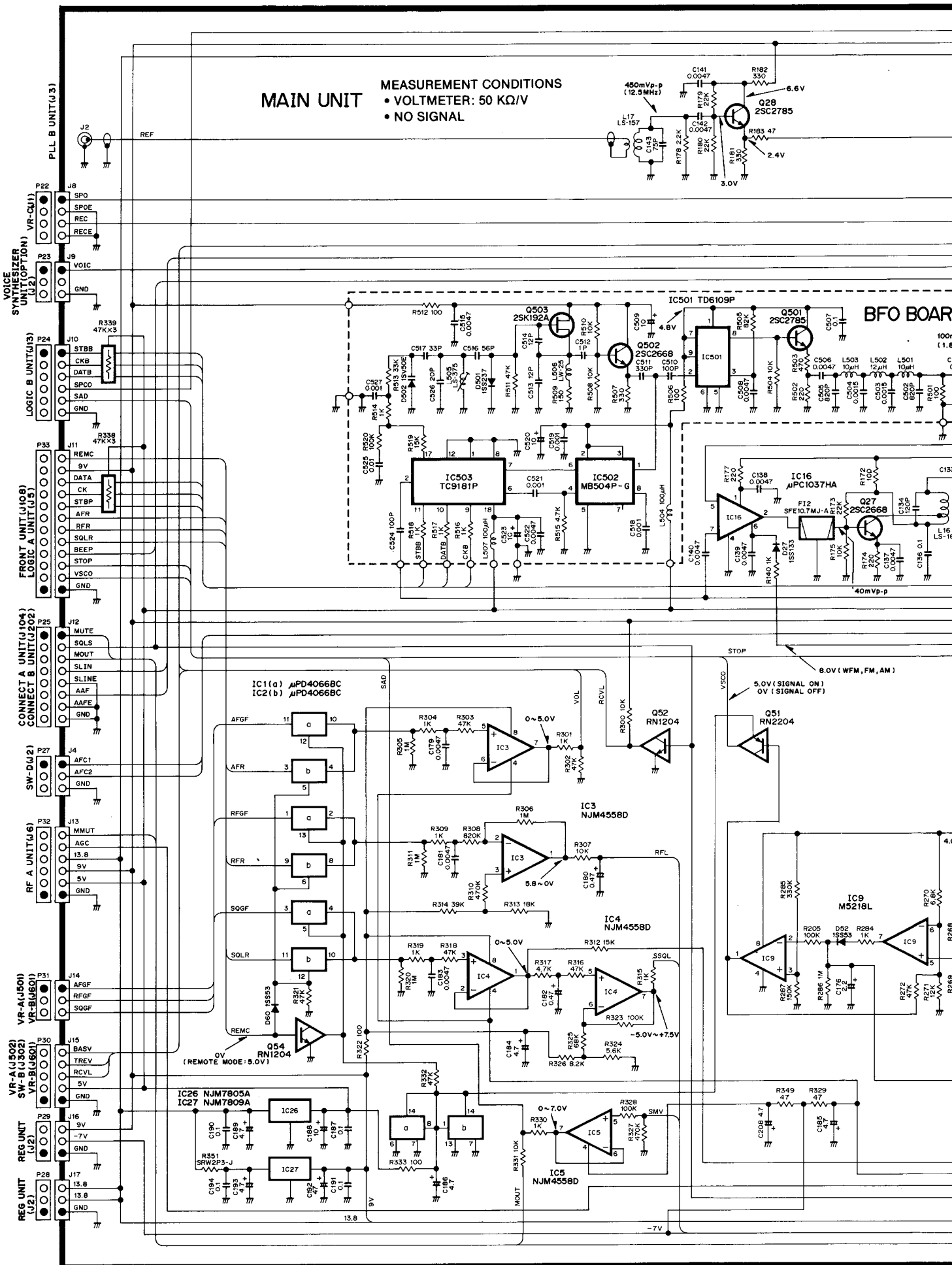
430.0MHz: 7.5V

430.0MHz: 7.4V

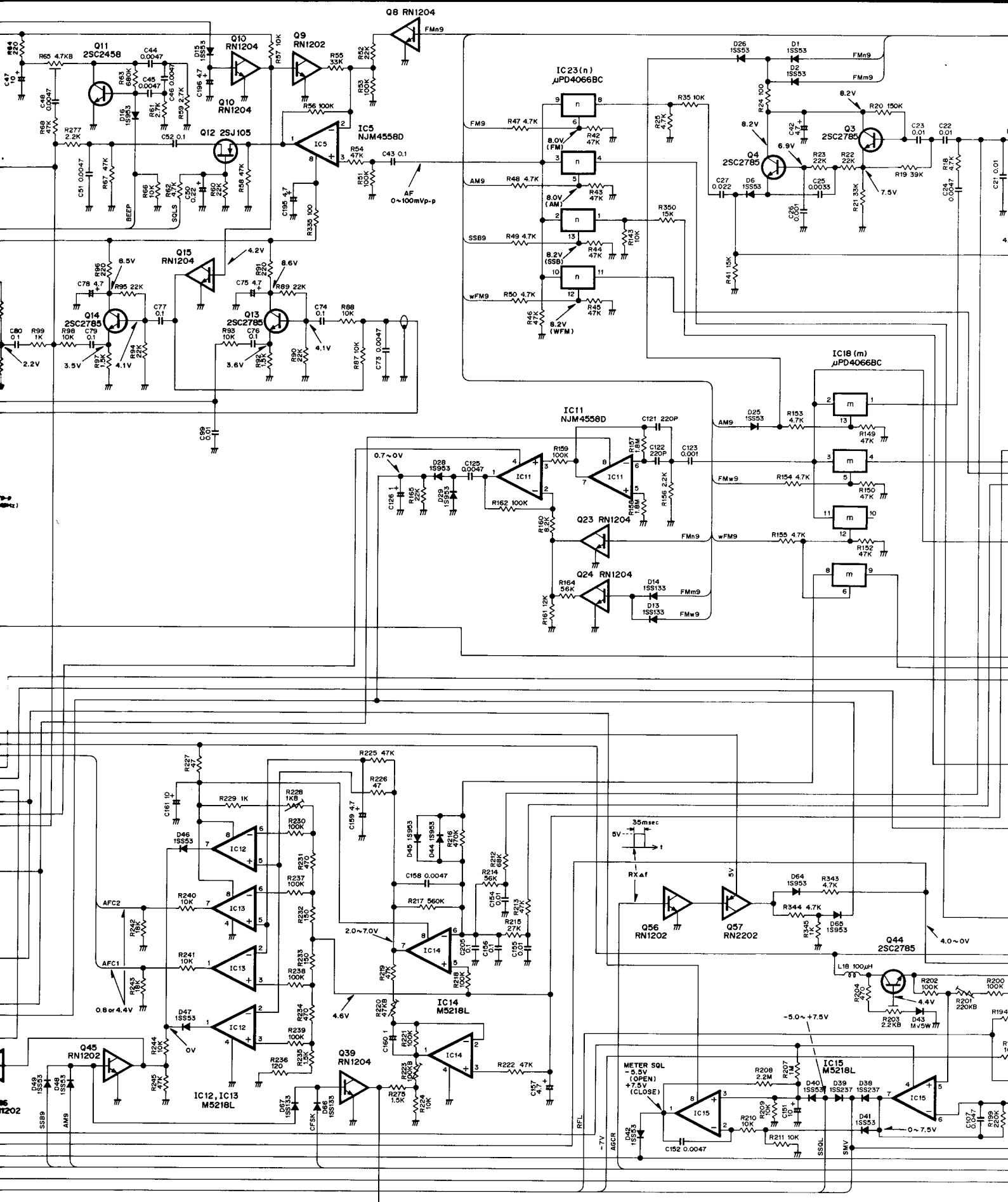
430.0MHz: 7.6V

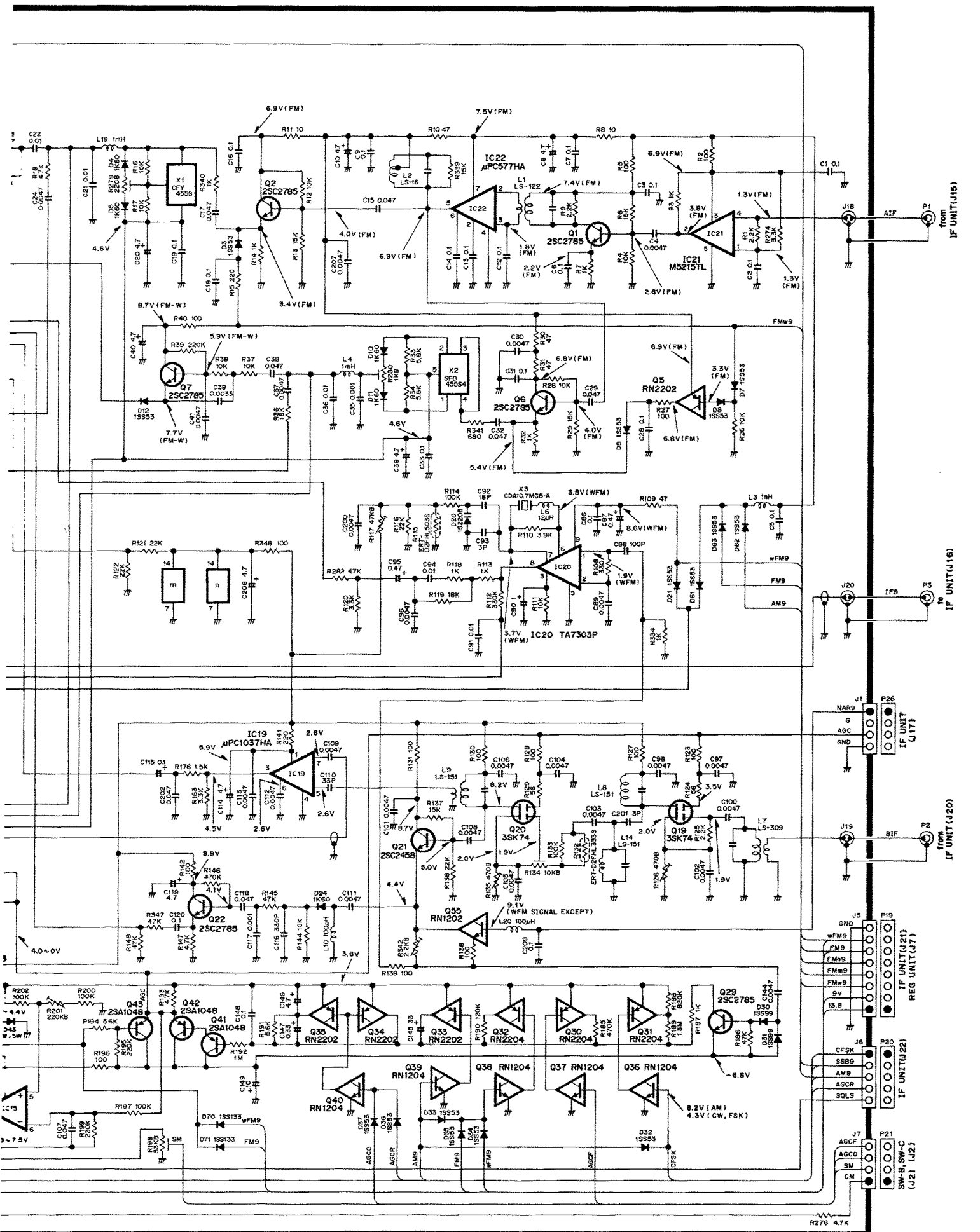
430.0MHz: 7.4V

430.0MHz: 7.4V









from IF UNIT(I5)

IF UNIT(I6)

from IF UNIT(I20)

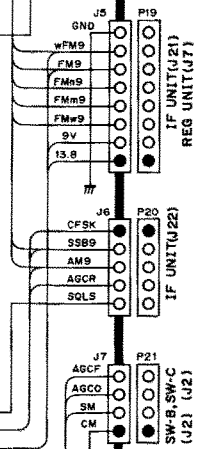
IF UNIT(I7)

IF UNIT(I21)

IF UNIT(I22)

REG UNIT(J7)

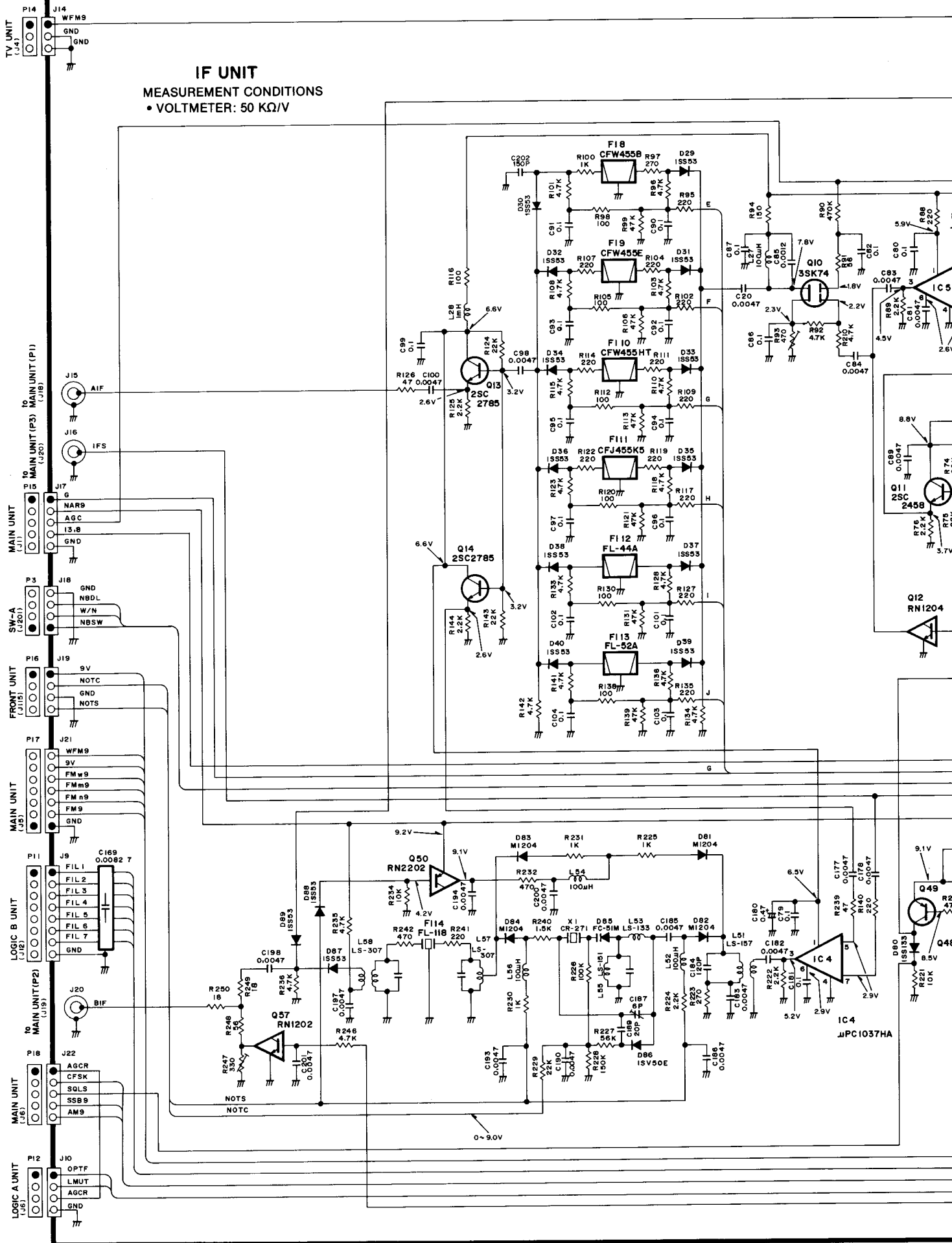
SW-B, SW-C (J2) (J2)

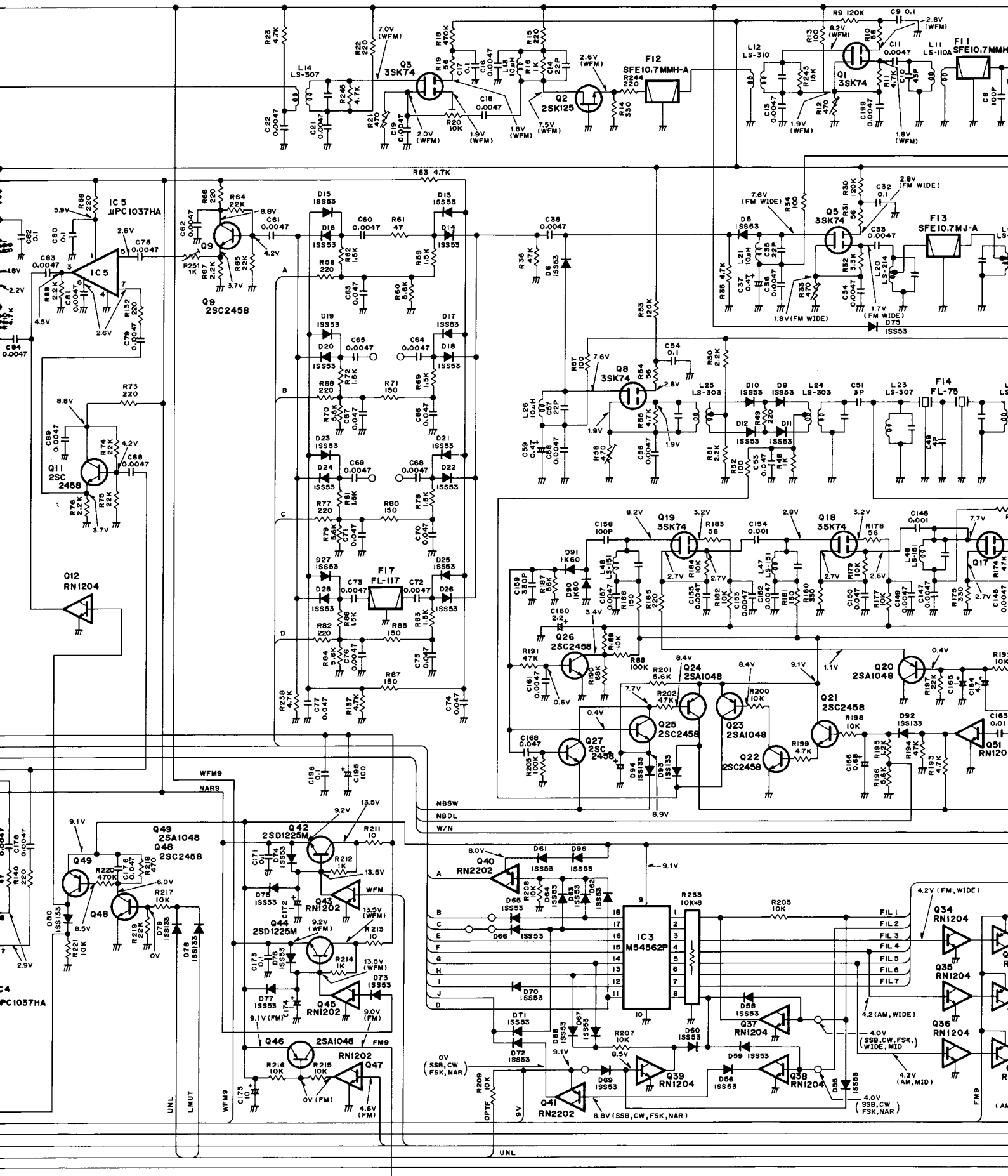


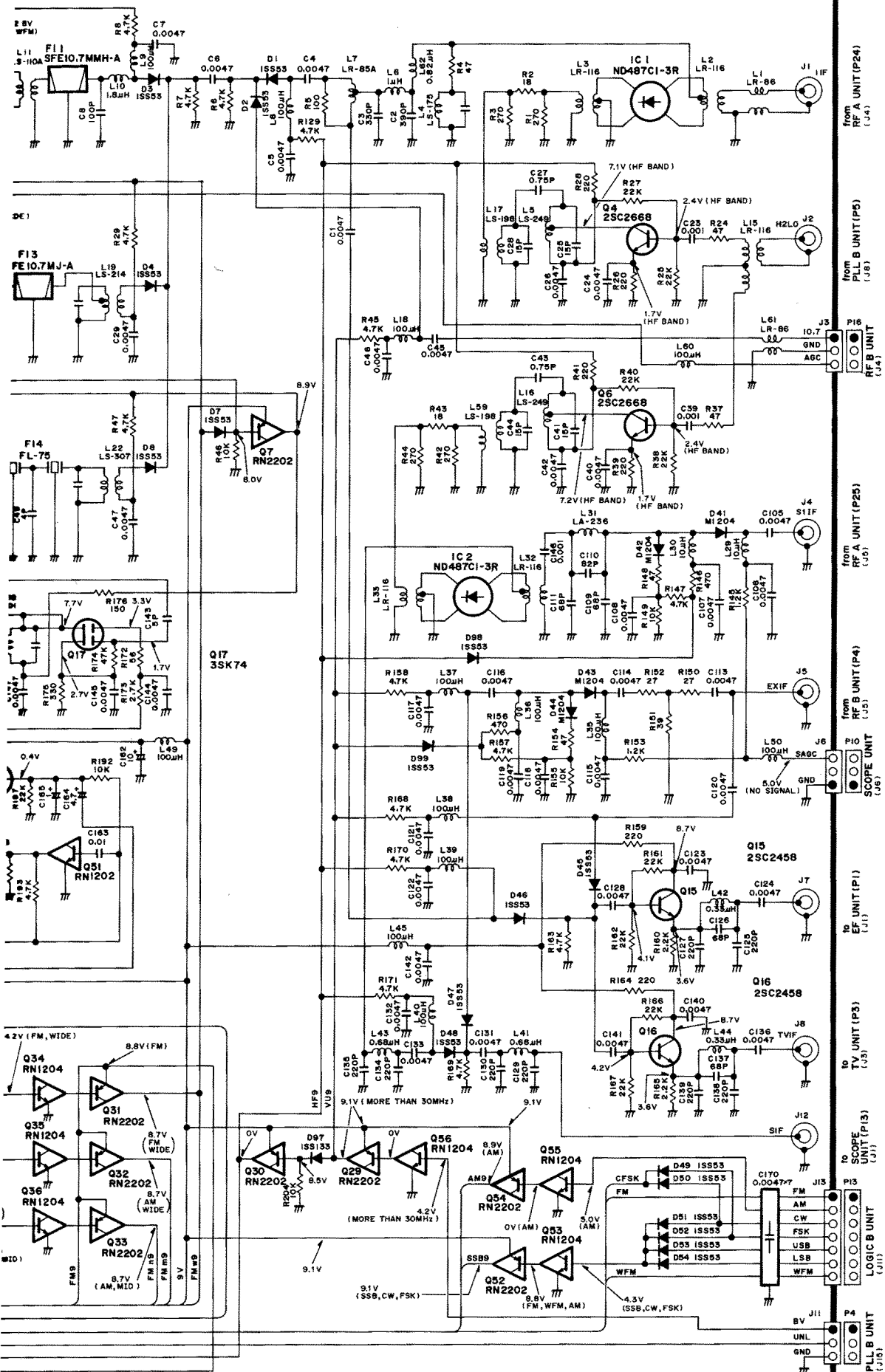
R276 4.7K

# 9-7 IF UNIT

IF UNIT  
MEASUREMENT CONDITIONS  
• VOLTMETER: 50 KΩ/V







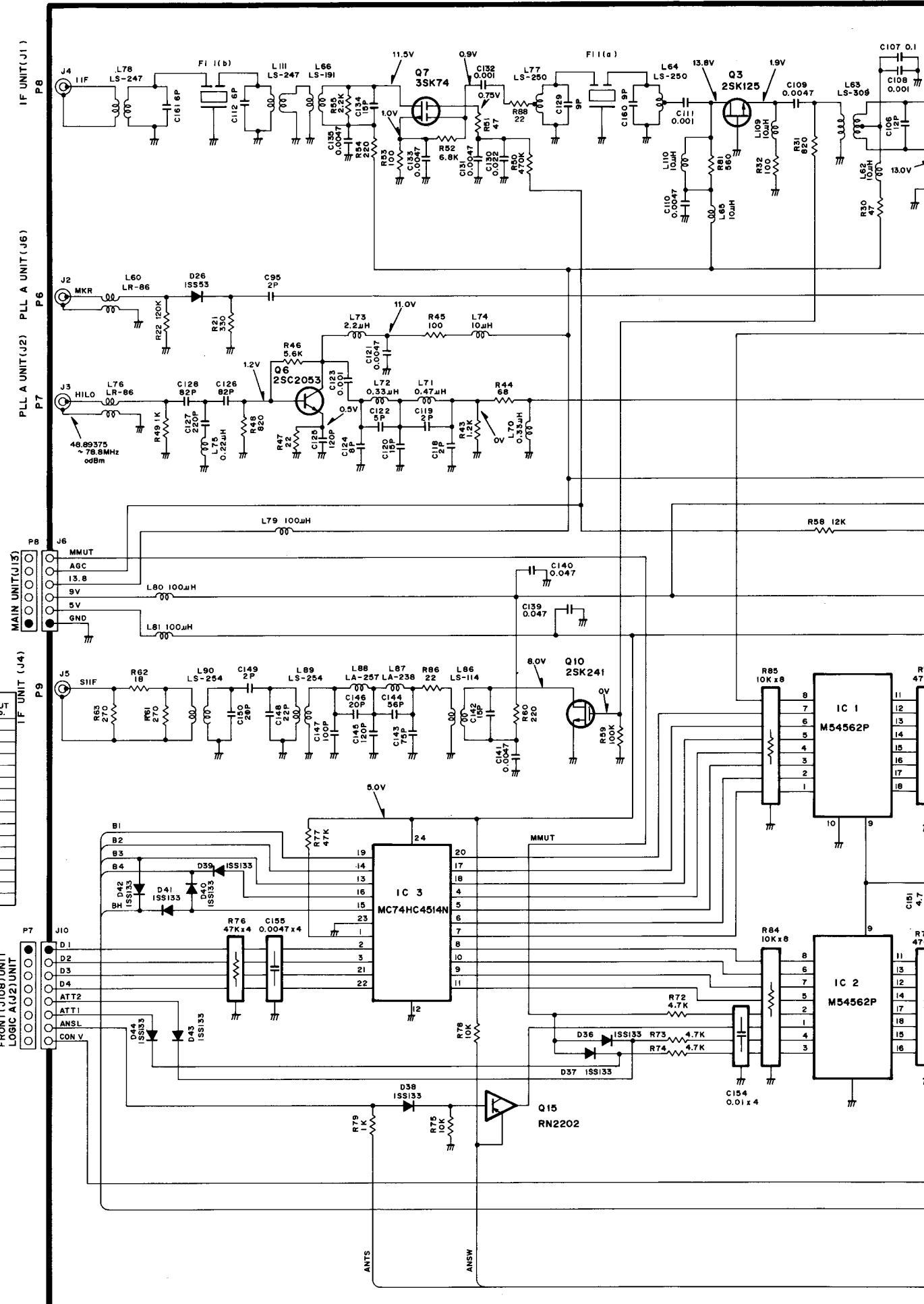
- from RF A UNIT (P24) (J4)
- from PLL B UNIT (P5) (J8)
- RF B UNIT (J4)
- from RF A UNIT (P25) (J5)
- from RF B UNIT (P4) (J5)
- SCOPE UNIT (J6)
- to EF UNIT (P1) (J1)
- TV UNIT (P3) (J3)
- to SCOPE UNIT (P13) (J1)
- LOGIC B UNIT (J11)
- PLL B UNIT (J10)

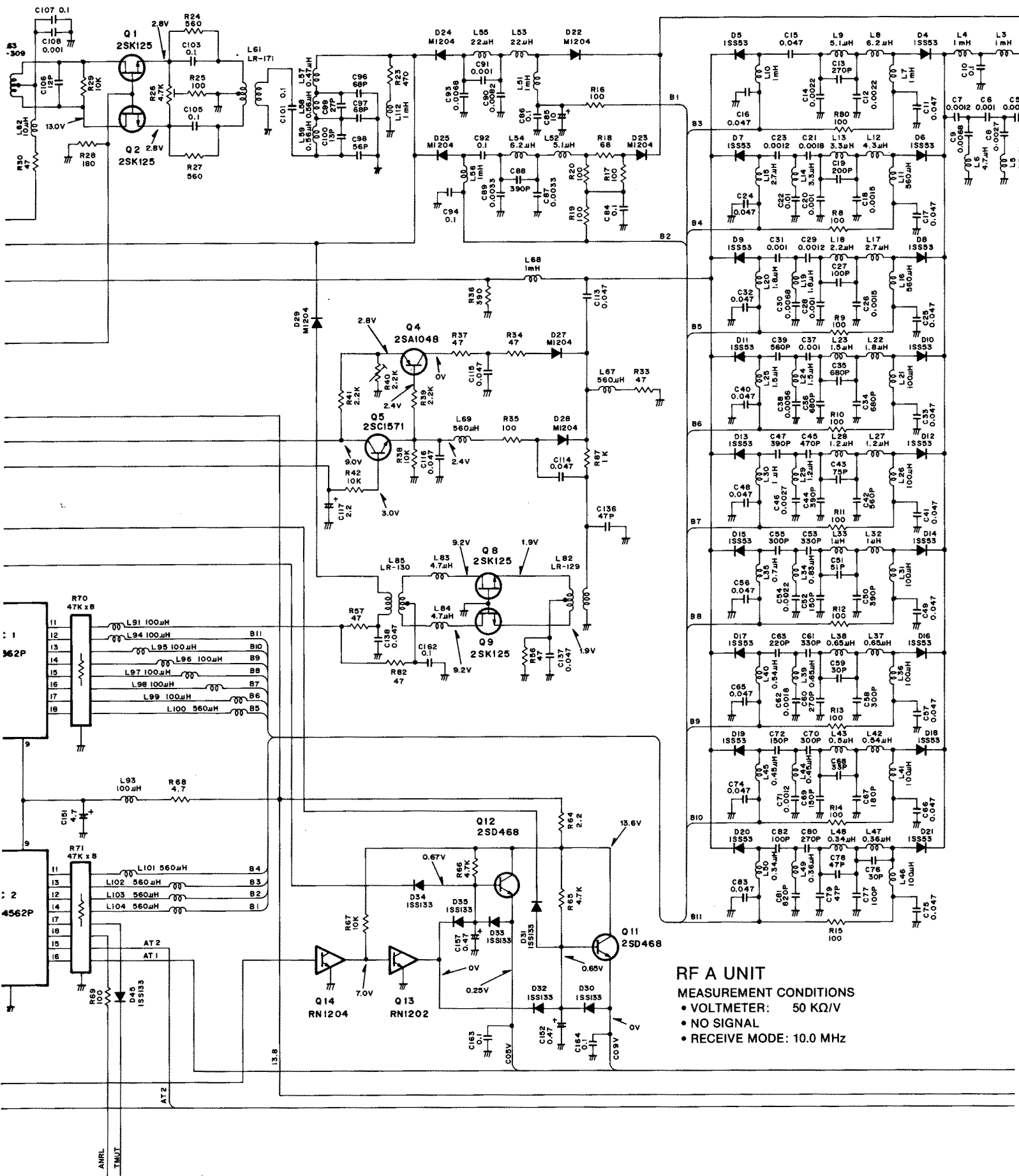


# 9-8 RF A AND B UNITS

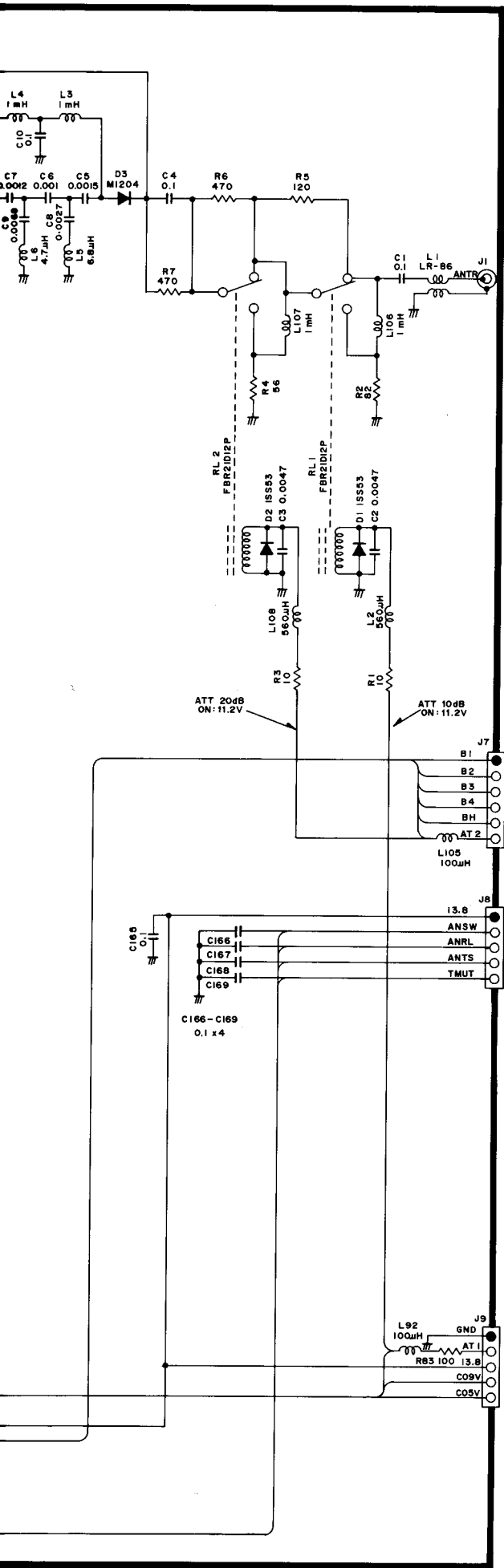
Rx f (MHz)	IC3 OUT PUT PIN No.
0.1 ~ 0.5	11
0.5 ~ 1.6	9
1.6 ~ 2.0	10
2.0 ~ 3.0	8
3.0 ~ 4.0	7
4.0 ~ 6.0	6
6.0 ~ 8.0	5
8.0 ~ 11.0	4
11.0 ~ 15.5	18
15.5 ~ 22.0	17
22.0 ~ 30.0	20
30 ~ 90	19
90 ~ 250	14
250 ~ 500	13
500 ~ 750	16
750 ~ 1000	15

(10.0MHz)





**RF A UNIT**  
**MEASUREMENT CONDITIONS**  
 • VOLT/METER: 50 KΩ/V  
 • NO SIGNAL  
 • RECEIVE MODE: 10.0 MHz



B1	30~89.99999MHz
B2	90~249.99999MHz
B3	250~499.99999MHz
B4	500~749.99999MHz
BH	750~999.99999MHz
BH	750~999.99999MHz

CONNECT-A  
UNIT (J2)  
P5

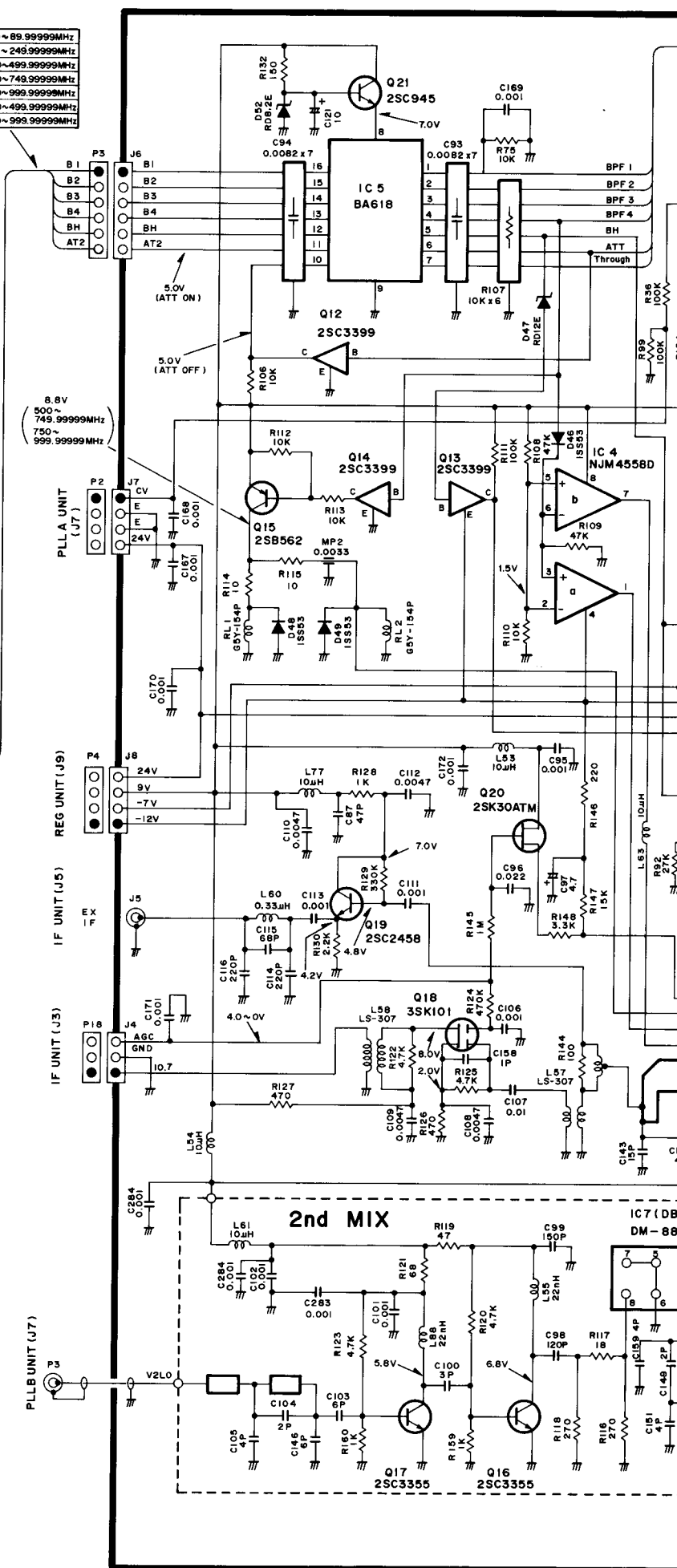
CONNECT - A  
UNIT  
P9

HPF UNIT  
P3

CONNECT-A  
UNIT (J2)  
P5

CONNECT - A  
UNIT  
P9

HPF UNIT  
P3



CONNECT-A  
UNIT (J2)  
P5

CONNECT - A  
UNIT  
P9

HPF UNIT  
P3

CONNECT-A  
UNIT (J2)  
P5

CONNECT - A  
UNIT  
P9

HPF UNIT  
P3

CONNECT-A  
UNIT (J2)  
P5

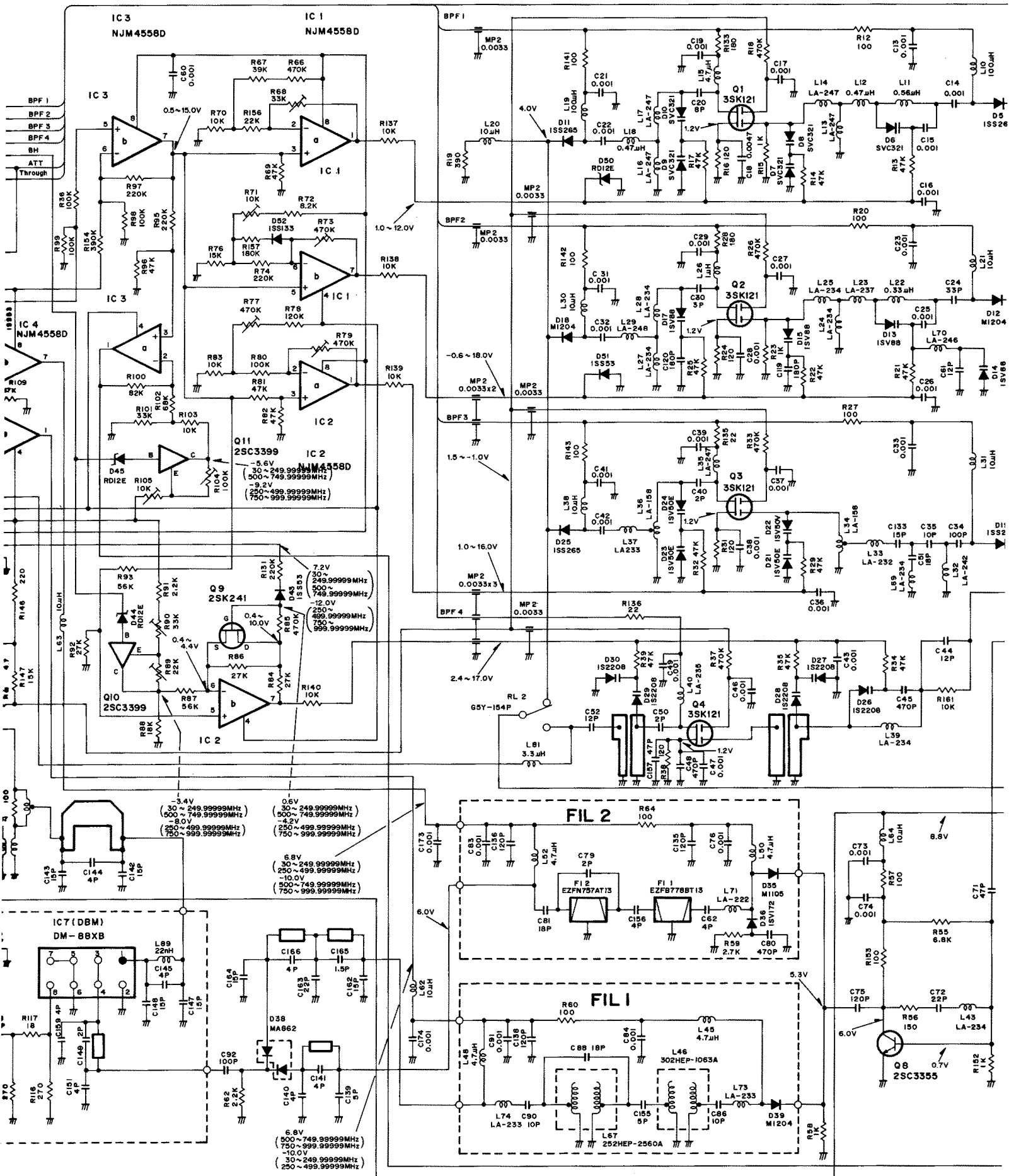
CONNECT - A  
UNIT  
P9

HPF UNIT  
P3

CONNECT-A  
UNIT (J2)  
P5

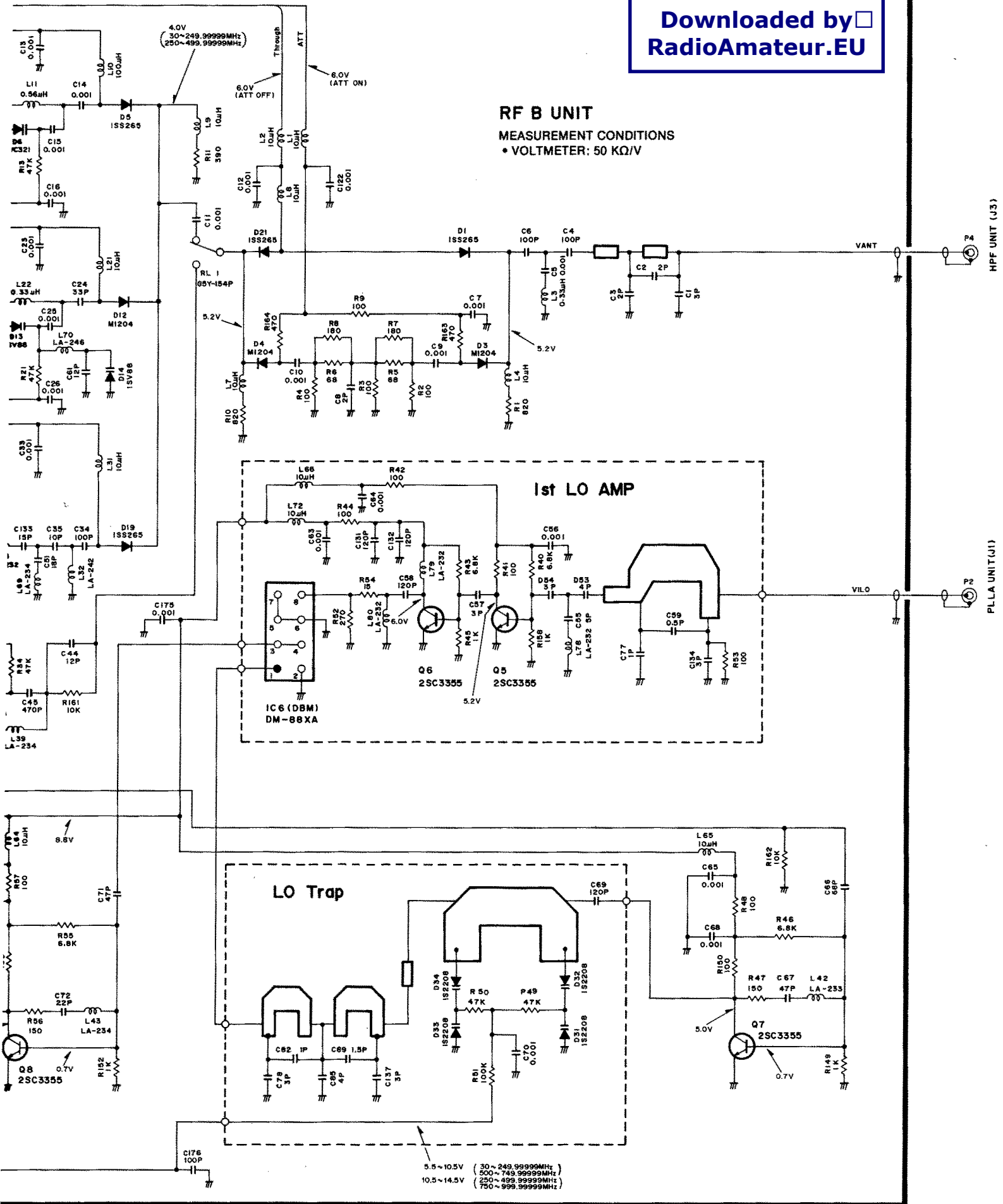
CONNECT - A  
UNIT  
P9

HPF UNIT  
P3

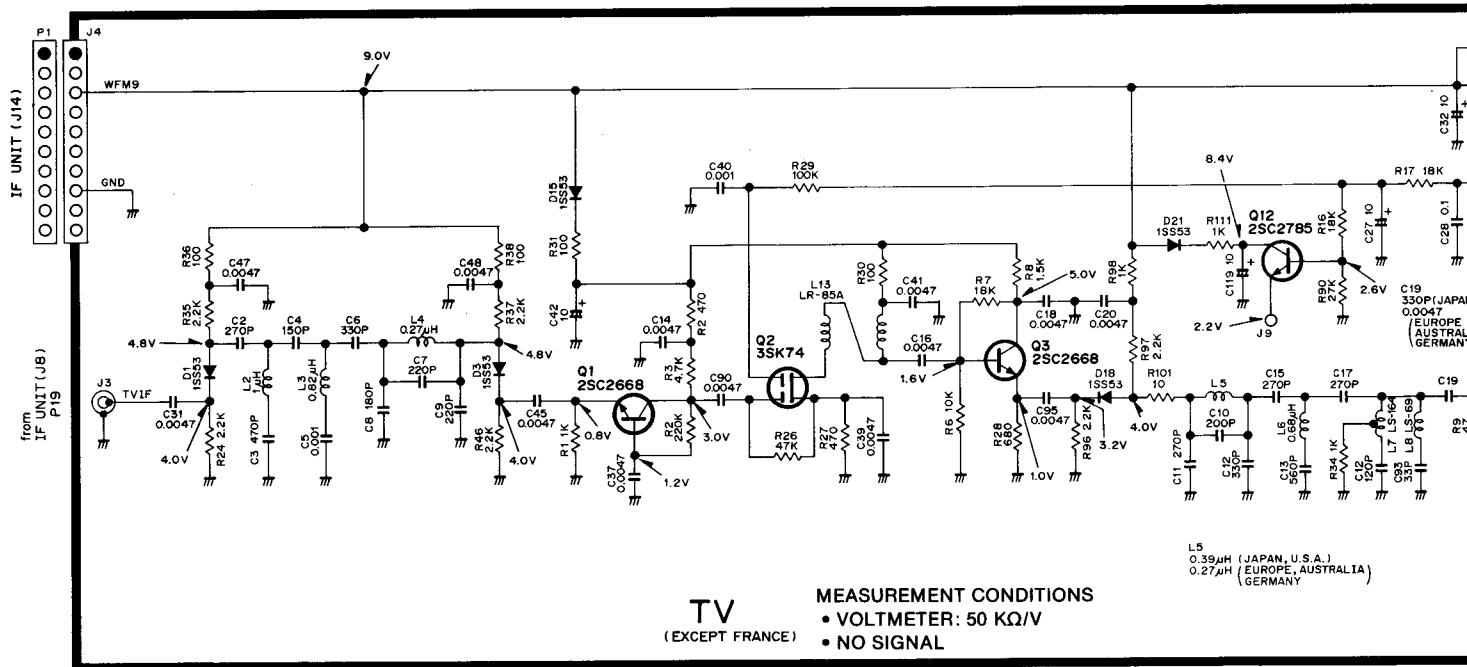
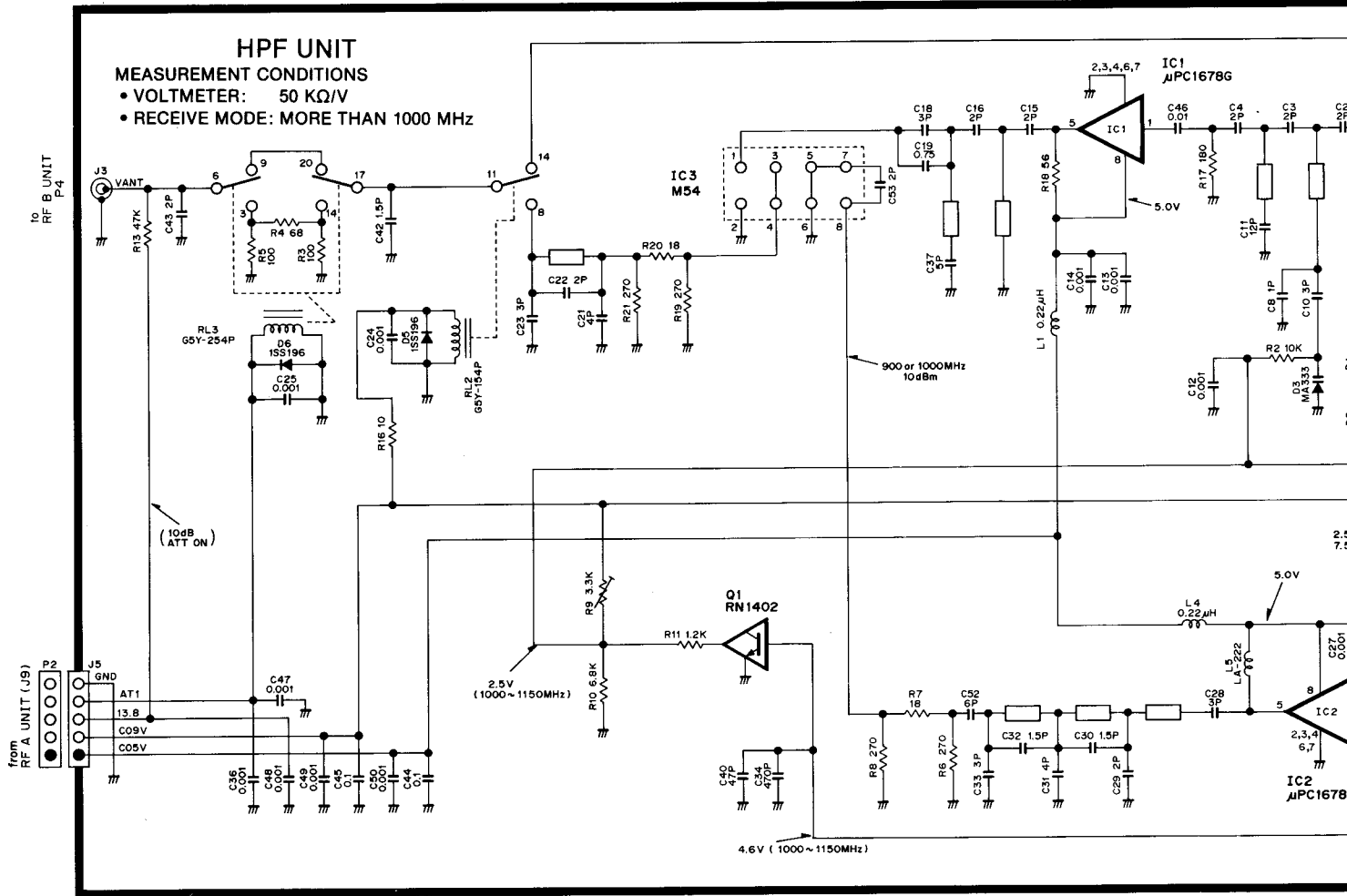


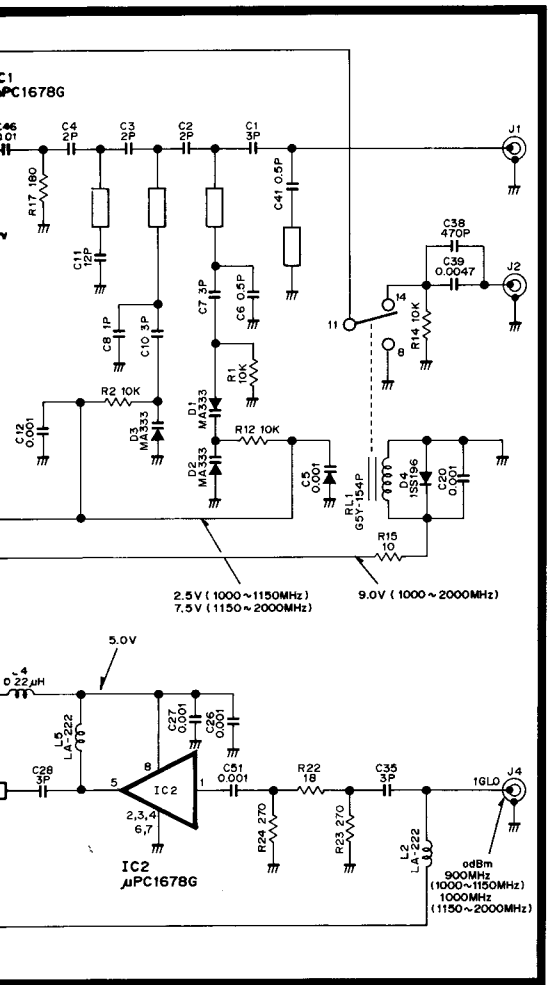
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**RF B UNIT**  
MEASUREMENT CONDITIONS  
• VOLTMETER: 50 KΩ/V

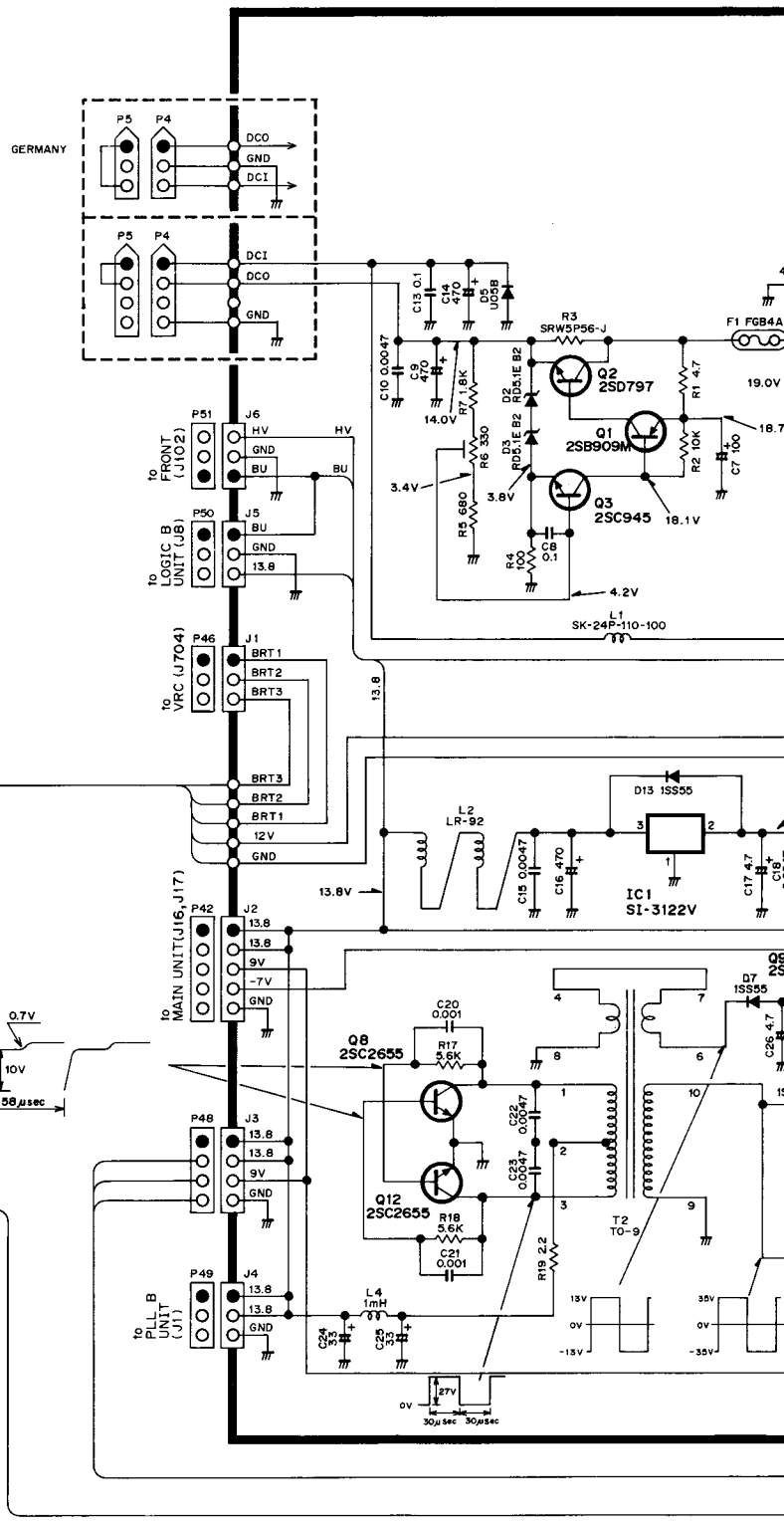
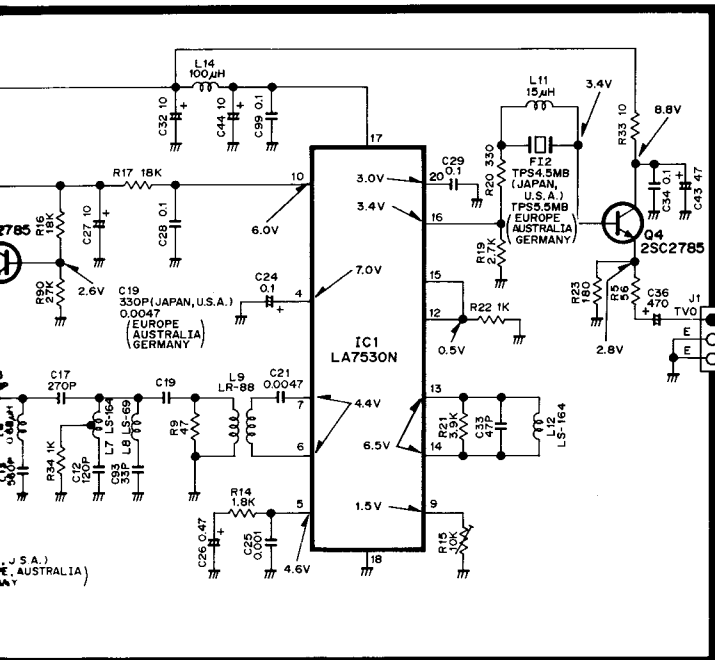
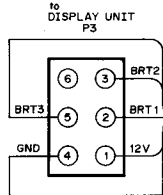


# 9-9 HPF, TV, REG AND EF (CONNECT A, B) UNITS

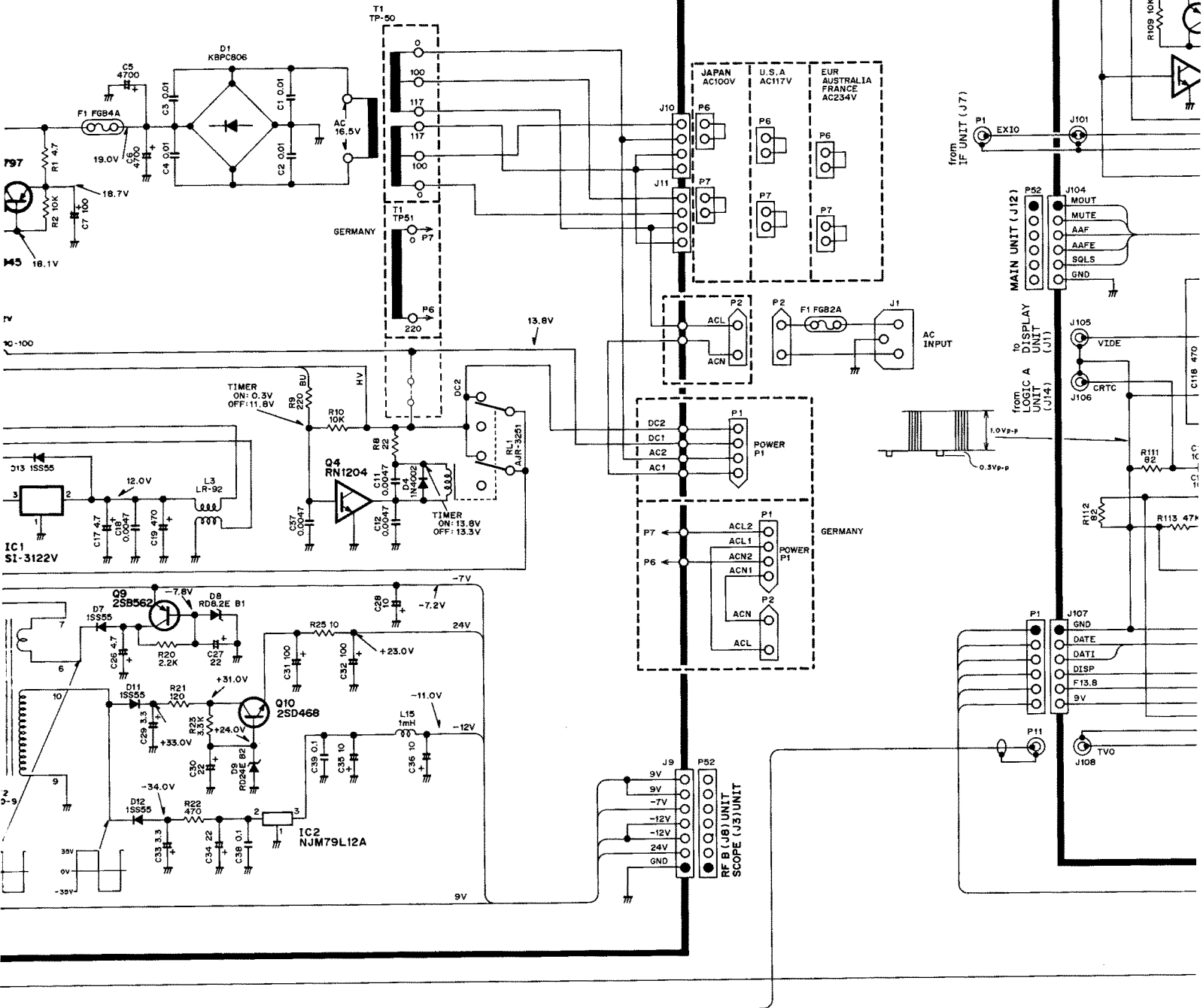




from PLL\_B UNIT (J4)



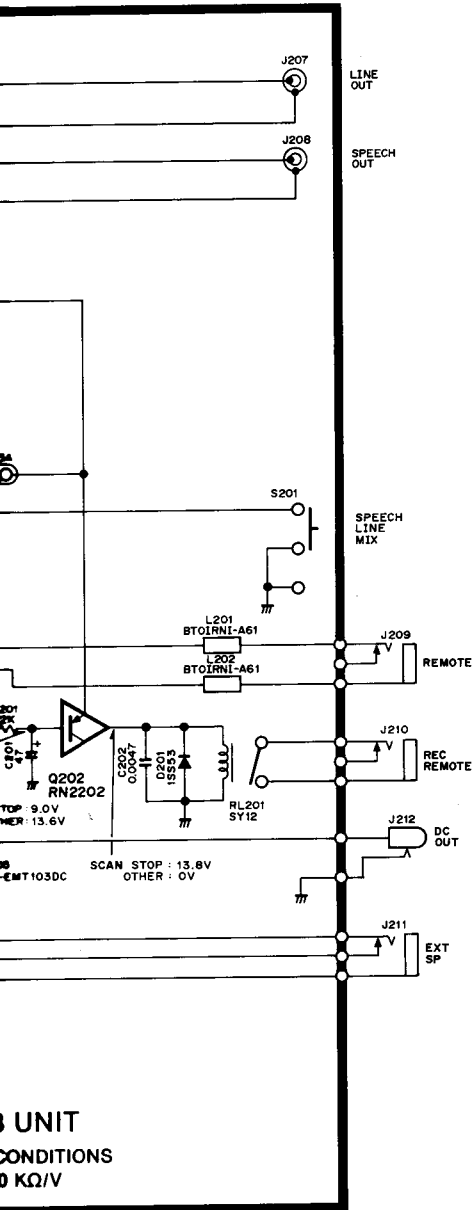
**REG UNIT** MEASUREMENT CONDITIONS  
 • VOLTMETER: 50 K $\Omega$ /V  
 • WAVEFORM: OSCILLOSCOPE (20 MHz)





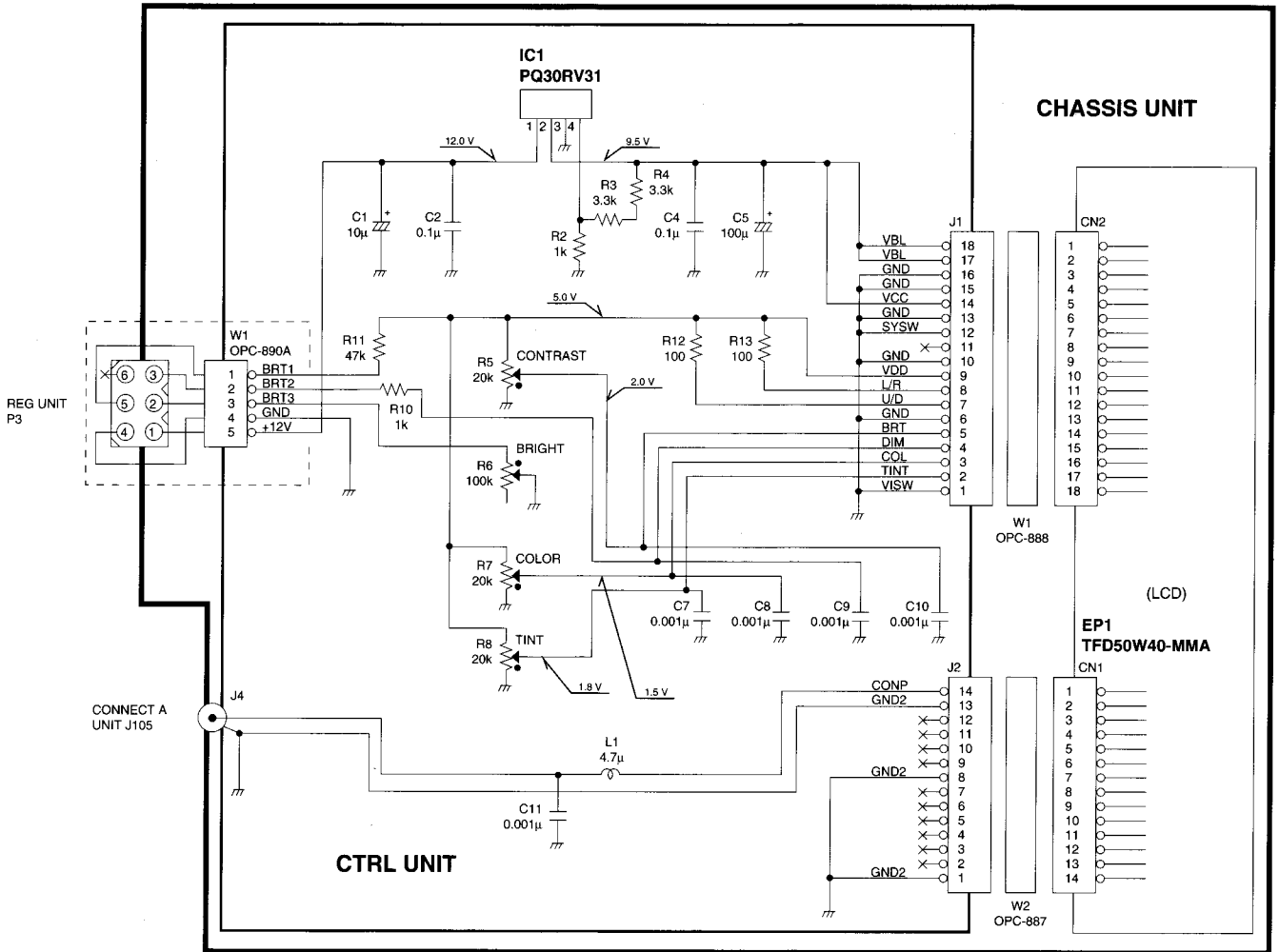


# 9-9 HPF, TV, REG AND EF (CONNECTOR A, B) UNITS



# SECTION 10 UX-R9000

## 10-1 VOLTAGE DIAGRAM



## 10-2 PARTS LIST

### [CTRL UNIT]

REF NO.	ORDER NO.	DESCRIPTION	
IC1	1180001530	IC	PQ30RV31
L1	6180000850	COIL	LAL 03NA 4R7K
R2	7010006940	RESISTOR	PSD1/4 1 kΩ
R3	7010006970	RESISTOR	PSD1/4 3.3 kΩ
R4	7010006970	RESISTOR	PSD1/4 3.3 kΩ
R5	7310003180	TRIMMER	EVN-2ACA00 B24 (203)
R6	7310003230	TRIMMER	EVN-2ACA00 B15 (104)
R7	7310003180	TRIMMER	EVN-2ACA00 B24 (203)
R8	7310003180	TRIMMER	EVN-2ACA00 B24 (203)
R10	7010006940	RESISTOR	PSD1/4 1 kΩ
R11	7010007320	RESISTOR	PSD1/4 47 kΩ
R12	7010007450	RESISTOR	PSD1/4 100 Ω
R13	7010007450	RESISTOR	PSD1/4 100 Ω
C1	4510003890	ELECTROLYTIC	16 MV 10 HW
C2	4040000260	BARRIERLAYR	UZE 08X 104M
C4	4040000260	BARRIERLAYR	UZE 08X 104M
C5	4510004990	ELECTROLYTIC	16 MV 100 HC
C7	4020000400	CYLINDER	UP050 B 102K
C8	4020000400	CYLINDER	UP050 B 102K
C9	4020000400	CYLINDER	UP050 B 102K
C10	4020000400	CYLINDER	UP050 B 102K
C11	4020000400	CYLINDER	UP050 B 102K

### [CTRL UNIT]

REF NO.	ORDER NO.	DESCRIPTION	
J1	6510021640	CONNECTOR	52030-1810
J2	6510019630	CONNECTOR	52030-1410
J4	6450000150	CONNECTOR	JPJ2545-01-510
W1	8900009151	CABLE	OPC-890A
EP1	0910051433	PCB	B 5311C

### [CHASSIS UNIT]

REF NO.	ORDER NO.	DESCRIPTION	
W1	8900009160	CABLE	OPC-887
W2	8900009170	CABLE	OPC-888
EP1	6910012450	UNIT BOARD	TFD50W40-MMA



## Icom Inc.

1-1-32, Kamiminami, Hirano-ku, Osaka 547-0003, Japan

Phone : 06 6793 5302

Fax : 06 6793 0013

URL : <http://www.icom.co.jp/world/index.html>

### Icom America Inc.

<Corporate Headquarters>  
2380 116th Avenue N.E., Bellevue, WA 98004, U.S.A.  
Phone : (425) 454-8155 Fax : (425) 454-1509  
URL : <http://www.icomamerica.com>  
<Customer Service>  
Phone : (425) 454-7619

### Icom Canada

Glenwood Centre #150-6165  
Highway 17 Delta, B.C., V4K 5B8, Canada  
Phone : (604) 952-4266 Fax : (604) 952-0090  
URL : <http://www.icomcanada.com>

### Icom (Australia) Pty. Ltd.

A.B.N. 88 006 092 575  
290-294 Albert Street, Brunswick, Victoria, 3056, Australia  
Phone : 03 9387 0666 Fax : 03 9387 0022  
URL : <http://www.icom.net.au>

### Icom New Zealand

146A Harris Road, East Tamaki,  
Auckland, New Zealand  
Phone : 09 274 4062 Fax : 09 274 4708  
URL : <http://www.icom.co.nz>

### Icom (Europe) GmbH

Communication Equipment  
Himmelgeister Str. 100, D-40225 Düsseldorf, Germany  
Phone : 0211 346047 Fax : 0211 333639  
URL : <http://www.icomeurope.com>

### Icom Spain S.L.

Crta. de Gracia a Manresa Km. 14,750  
08190 Sant Cugat del Valles Barcelona, SPAIN  
Phone : (93) 590 26 70 Fax : (93) 589 04 46  
URL : <http://www.icomspain.com>

### Icom (UK) Ltd.

Unit 9, Sea St., Herne Bay, Kent, CT6 8LD, U.K.  
Phone : 01227 741741 Fax : 01227 741742  
URL : <http://www.icomuk.co.uk>

### Icom France S.a

Zac de la Plaine, Rue Brindejenc des Moulinais  
BP 5804, 31505 Toulouse Cedex, France  
Phone : 561 36 03 03 Fax : 561 36 03 00  
URL : <http://www.icom-france.com>

### Asia Icom Inc.

6F No. 68, Sec. 1 Cheng-Teh Road, Taipei, Taiwan, R.O.C.  
Phone : (02) 2559 1899 Fax : (02) 2559 1874

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