



SERVICE MANUAL

HF/VHF/UHF ALL MODE TRANSCEIVER

IC-7000

S-14214HZ-C1
Dec. 2005

Icom Inc.

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INTRODUCTION

This service manual describes the latest service information for the **IC-7000** HF/VHF/UHF ALL MODE TRANSCEIVER at the time of publication.

VER.NO.	VERSION	SYMBOL
#02	Europe	EUR
#03	France	FRA
#04	Spain	ESP
#05	U.S.A.	USA
#08	Export	EXP
#10	United Kingdom	UK

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

DANGER

NEVER connect the transceiver to an AC outlet or to a DC power supply that uses more than 16 V. Such a connection could cause a fire or electric hazard.

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

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

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



ORDERING PARTS

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

1. 10-digit Icom parts number
2. Component name and informations
3. Equipment model name and unit name
4. Quantity required

<SAMPLE ORDER>

5030002820 LCD	LTA025A161A	IC-7000	Front unit	5 pieces
8810009610 Screw	FH M2.6 × 6 ZK	IC-7000	Top cover	10 pieces

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

REPAIR NOTES

1. Make sure the problem is internal before disassembling the transceiver.
2. **DO NOT** open the transceiver until the transceiver is disconnected from its power source.
3. **DO NOT** force any of the variable components. Turn them slowly and smoothly.
4. **DO NOT** short any circuits or electronic parts. An insulated turning tool **MUST** be used for all adjustments.
5. **DO NOT** keep power ON for a long time when the transceiver is defective.
6. **DO NOT** transmit power into a signal generator or a sweep generator.
7. **ALWAYS** connect a 50 dB to 60 dB attenuator between the transceiver and a deviation meter or spectrum analyzer when using such test equipment.
8. **READ** the instructions of test equipment thoroughly before connecting equipment to the transceiver.

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SECTION 1 SPECIFICATIONS

GENERAL

- Frequency coverage :
 - Receive : 0.030 – 199.999999 MHz^{*1,*2}
400.000 – 470.000000 MHz^{*1,*2}
 - Transmit : 1.800 – 1.999999 MHz^{*2}
3.500 – 3.999999 MHz^{*2}
5.260 – 5.405000 MHz^{*2}
7.000 – 7.300000 MHz^{*2}
10.100 – 10.150000 MHz
14.000 – 14.350000 MHz
18.068 – 18.168000 MHz
21.000 – 21.450000 MHz
24.890 – 24.990000 MHz
28.000 – 29.700000 MHz
50.000 – 54.000000 MHz^{*2}
144.000 – 148.000000 MHz^{*2}
430.000 – 450.000000 MHz^{*2}
- ^{*1} Some frequency bands are not guaranteed.
- ^{*2} Depending on version.
- Mode : USB, LSB, CW, RTTY (FSK), AM, FM, WFM (WFM is for receiver only)
- Number of memory ch. : 503 (495 split, 6 scan edges, 2 call)
- Antenna connector : SO-239 × 2
(for HF/50 MHz and 144/430 MHz)/50 Ω
- Power supply requirement : 13.8 V DC ±15% (negative ground)
- Frequency stability : Less than ±0.5 ppm
(0°C to +50°C ; +32°F to +122°F)
- Current drain :
 - Transmit : at 100 W 22 A
 - Receive : standby 1.3 A
max. audio 1.6 A
- Usable temperature range : -10°C to +60°C (+14°F to +140°F)
- Dimensions : 167(W) × 58(H) × 180(D) mm
(proj. not included) 6⁹/₁₆(W) × 2⁹/₃₂(H) × 7³/₃₂(D) inch
- Weight (approx.) : 2.3 kg (5 lb 1 oz)
- CI-V connectors : 2-conductor 3.5 (d) mm (1/8")
- Video connector : 2-conductor 3.5 (d) mm (1/8")
- ACC connector : 13-pin
- Data connector : 6-pin

TRANSMITTER

- Output power :

	SSB/CW/RTTY/FM	AM
1.8–50 MHz bands	2–100 W	1–40 W
144 MHz band	2–50 W	2–20 W
430 MHz band	2–35 W	2–14 W
- Modulation system :
 - SSB : Digital PSN modulation
 - AM : Digital Low Power modulation
 - FM : Digital Phase modulation
- Spurious emissions :
 - below 30 MHz bands : Less than -50 dB
 - above 50 MHz bands : Less than -60 dB
- Carrier suppression : More than 50 dB
- Unwanted sideband : More than 50 dB
- Microphone connector : 8-pin modular jack (600 Ω)
- KEY connector : 3-conductor 6.35 (d) mm (1/4")
- RTTY connector : 3-conductor 3.5 (d) mm (1/8")

RECEIVER

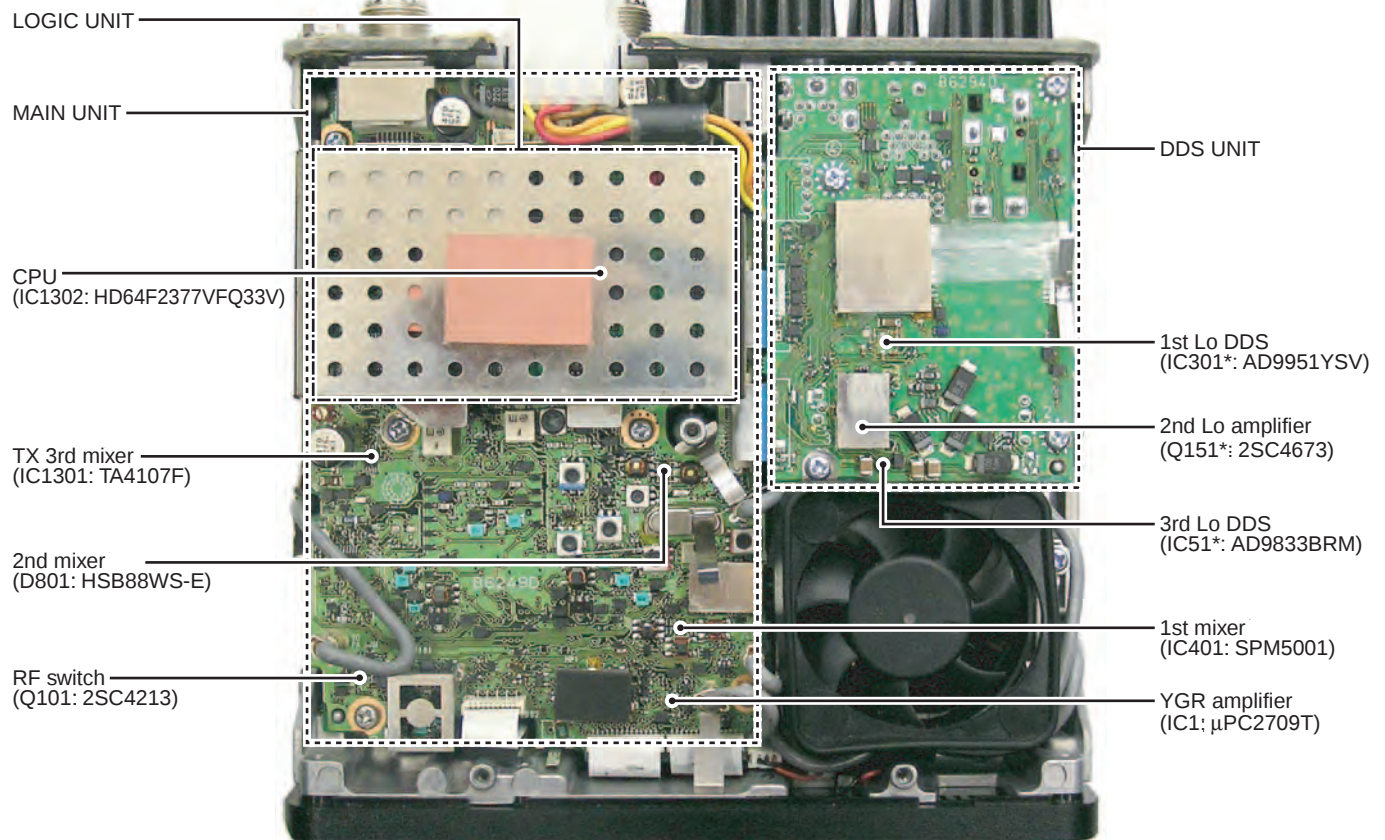
- Receive system :
 - SSB/CW/AM/FM : Triple conversion superheterodyne
 - WFM : Double conversion superheterodyne
- Intermediate frequencies :

	1st IF	2nd IF	3rd IF
SSB/CW/AM/RTTY/FM	124.487 MHz	455 kHz	16.15 kHz
WFM	134.732 MHz	10.700 MHz	—
- Receive sensitivity : (pre-amp ON)

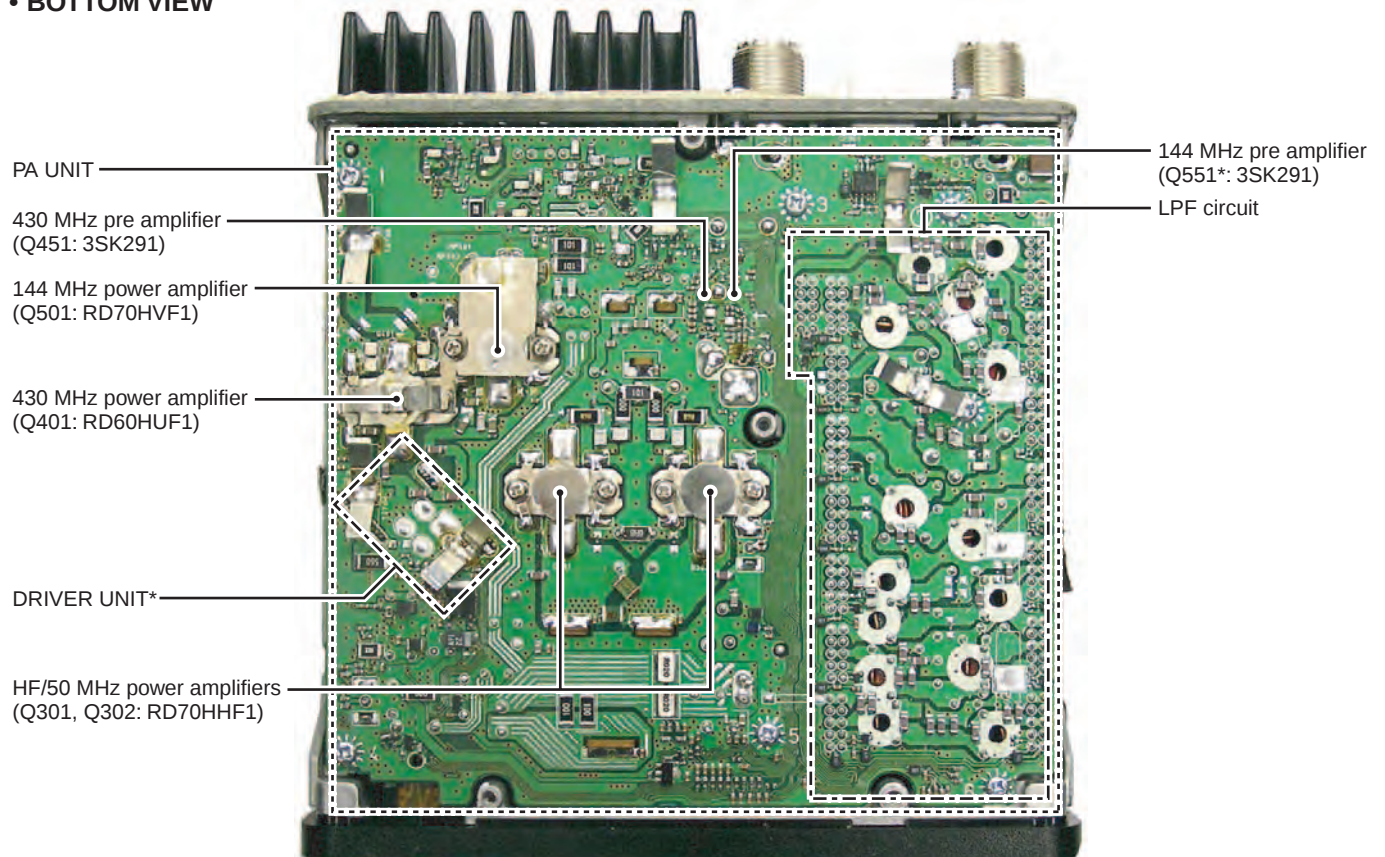
	SSB/CW/RTTY	AM	FM	WFM
0.5–1.8 MHz	—	13 μV	—	—
1.8–28 MHz ^{*1}	0.15 μV	2.0 μV	—	—
28–29.995 MHz ^{*2}			0.5 μV	—
50 MHz band	0.12 μV	1.0 μV	0.25 μV	—
76–108 MHz	—	—	—	10 μV
144/430 MHz bands	0.11 μV	1.0 μV	0.18 μV	—
- Note: SSB, CW and AM modes are measured at 10 dB S/N; FM mode at 12 dB SINAD.
- ^{*1} Except 4–4.5 MHz, 8–9 MHz.
- ^{*2} FM mode: 28–29.7 MHz
- Squelch Sensitivity : (pre-amp ON)
 - SSB : Less than 5.6 μV
 - FM : Less than 0.3 μV
- Selectivity : (Sharp filter is selected)
 - SSB (BW=2.4 kHz) : More than 2.4 kHz/-6 dB
Less than 3.6 kHz/-60 dB
 - CW (BW=500 Hz) : More than 500 Hz/-6 dB
Less than 900 Hz/-60 dB
 - RTTY (BW=350 Hz) : More than 360 kHz/-6 dB
Less than 650 kHz/-60 dB
 - AM (BW=6 kHz) : More than 6.0 kHz/-6 dB
Less than 15 kHz/-60 dB
 - FM (BW=15 kHz) : More than 12 kHz/-6 dB
Less than 20 kHz/-60 dB
- Spurious and image rejection ratio:
 - HF bands : More than 70 dB
 - 50 MHz band : More than 70 dB (except IF/2 through)
 - 144/430 MHz bands : More than 65 dB
(except 144 MHz band IF through)
- Audio output power : More than 2.0 W at 10% distortion with an 8 Ω load
- RIT variable range : ±9.99 kHz
- PHONES connector : 3-conductor 3.5 (d) mm (1/8")/8 Ω
- EXT SP connector : 2-conductor 3.5 (d) mm (1/8")/8 Ω

SECTION 2 INSIDE VIEWS

• TOP VIEW



• BOTTOM VIEW



*Located under side of the point

SECTION 3 CIRCUIT DESCRIPTION

3-1 RECEIVER CIRCUITS

3-1-1 HF/50 MHz RF CIRCUIT (MAIN AND PA UNITS)

The HF/50 MHz RF filters pass only the desired band signals and suppress undesired band signals. The HF/50 MHz RF circuit has 7 low-pass and 5 high-pass filters for specified band use.

The HF/50 MHz RF signals from the [ANT1] connector, pass through one of 7 low-pass filters as below, the TX/RX switch (PA unit; RL801), low-pass filter (PA unit; L801, L802, C801–C805) and band switch (D151), and are then applied to the MAIN unit via J101 (MAIN unit).

• Used RF low-pass filter (PA unit)

Frequency (MHz)	Control signal	Entrance relay	Frequency (MHz)	Control signal	Entrance relay
0.03–2 MHz	L1	RL881	15–22 MHz	L5	RL941
2–4 MHz	L2	RL921	22–30 MHz	L6	RL821
4–8 MHz	L3	RL841	30–60 MHz	L7	RL861
8–15 MHz	L4	RL901			

The signals from the PA unit are applied to the RF switch (Q101) via the band switch (D113) and then passed through the 20 dB attenuator (D101, D102).

The signals below 1.8 MHz are passed through the low-pass filter (L103, L104, C106, C110, C111) and then applied to the preamplifier circuit.

The other band signals (1.8–60 MHz) are passed through the high-pass filter (L105, L109, L110, L116, L117, C108, C109, C114–C116) to suppress strong signals below 1.8 MHz and then applied to the low-pass and high-pass filter circuits.

(1) 1.8–2 MHz

The filtered signals from the high-pass filter are passed through the low-pass filter (L205, L207, C209–C213) and then applied to the preamplifier circuits.

(2) 2–30 MHz

The filtered signals from the high-pass filter are applied to one of 5 high-pass filters as at right above after passed through the low-pass filter (L205, L207, C209–C213) and are then applied to the preamplifier circuit.

• Used RF high-pass filter (MAIN unit)

Frequency (MHz)	Control signal	Entrance diode	Frequency (MHz)	Control signal	Entrance diode
1.8–2 MHz	B1	D204	13.9–20.9 MHz	B5	D210
2–3.4 MHz	B2	D205	20.9–30 MHz	B6	D211
3.4–6.9 MHz	B3	D208	30–60 MHz	B7	D212
6.9–13.9 MHz	B4	D209			

(3) 30–60 MHz

The filtered signals from the high-pass filter are passed through another high-pass filter (L215, L217, C228, C229, C237, C238) and then amplified at the RF amplifier (Q211).

The amplified signals are applied to the preamplifier circuit.

3-1-2 VHF AND UHF RF CIRCUITS (PA UNIT)

The VHF and UHF RF circuits filter and amplify only the desired band signals and suppress undesired band signals. The both RF circuits have preamplifiers and bandpass filters.

• VHF RF CIRCUIT

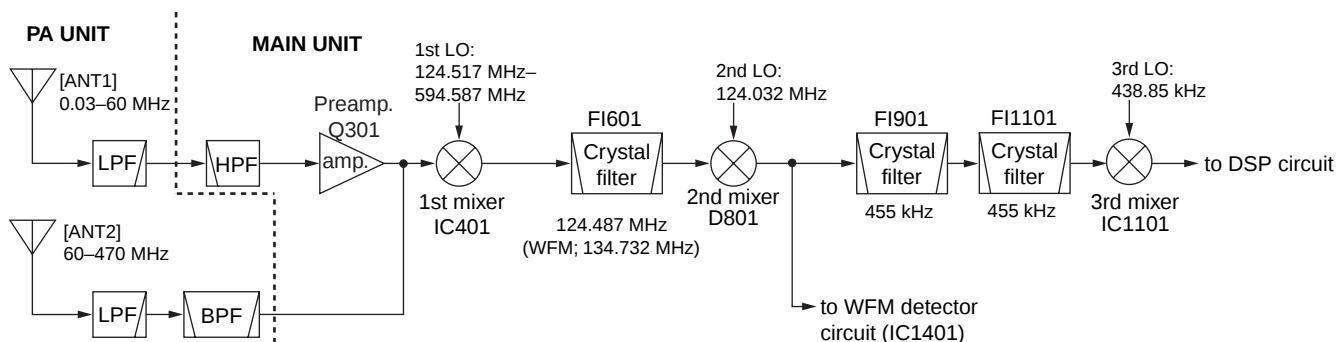
The VHF RF signals from the [ANT2] connector pass through the low-pass filters (L506, L508, L510, L601–L603, C516, C519, C521, C601, C602) and antenna switching circuit (D507–D509). The switched signals are passed through the attenuator (D551, D552) and bandpass filter (D553, D554, D556). The filtered signals are applied to the preamplifier (Q551) and then passed through another bandpass filter (D558–D560).

The filtered signals are passed through the band switch (D462) and then applied to the 1st mixer circuit (MAIN unit) via J101 (MAIN unit).

• UHF RF CIRCUIT

The UHF RF signals from the [ANT2] connector pass through the low-pass (L601–L603, C601, C602) and high-pass (L413, L414, C428, C429, C431, C433) filters and then applied to the antenna switching circuit (D408–D410). The switched signals are passed through the attenuator (D451, D452) and then amplified at the preamplifier (Q451) between the 2 bandpass filters (D453–D456). The filtered signals are amplified at another preamplifier (IC471, pins 1, 4).

• RECEIVER CONSTRUCTION



The amplified signals are passed through the band switch (D461) and then applied to the 1st mixer circuit (MAIN unit) via J101 (MAIN unit).

D453–D456, D553, D554, D556 and D558–D560 are varactor diodes that tune the center frequency of an RF passband for wide bandwidth receiving and good image response rejection.

When receiving the signals, higher than 129 MHz, are received, the switching diodes (D555, D557) are turned off by the control signal “2MBL” from the CPU (LOGIC unit; IC1302) via Q2150, then the varactor diodes (D556, D558) are disconnected to shift the filtering frequencies.

3-1-3 PREAMPLIFIER CIRCUIT (MAIN UNIT)

The preamplifier circuit amplifies received RF signals for wide band frequency range.

When the preamplifier is turned ON, the RF signals (HF/50 MHz bands) from the high-pass filters are applied to the preamplifier (Q301) via the preamplifier switches (D301, D302).

When the preamplifier is turned OFF, the RF signals (HF/50 MHz bands) are passed through the bypass switches (D301, D303).

The amplified or bypassed signals are applied to the 1st mixer circuit (IC401).

3-1-4 1ST MIXER CIRCUIT (MAIN UNIT)

The 1st mixer circuit mixes the received RF signals with the 1st LO signal to convert the receive signal frequencies to the 1st IF frequency.

While receiving the HF/50 MHz bands signals, the amplified signals from the preamplifier switch (D304) or the bypassed signals from the bypass switch (D303) are passed through the low-pass filter (L310, L312, C314, C316, C318, C320, C322) and then applied to the 1st mixer circuit (IC401) via the band switch (D305).

While receiving the VHF/UHF bands signals, the signals from the VHF/UHF RF circuit (PA unit) are passed through the low-pass filter (L309, L311, L313, C313, C315, C317, C319, C321, C323, C325) and then applied to the 1st mixer circuit (IC401) via the band switch (D306).

The applied signals are mixed with the 1st LO signal (124.517–594.487 MHz) and convert into the 1st IF signal.

The 1st LO signal is generated in the DDS unit, and applied to the 1st mixer circuit (IC401, pins 1, 6) after being amplified and attenuated at the 1st LO amplifier (IC421, pins 1, 4) and the attenuators (R416–R418, R421–R423), respectively.

The converted 1st IF signal is applied to the 1st IF circuit.

3-1-5 1ST IF CIRCUIT (MAIN UNIT)

The 1st IF circuit filters and amplifies the 1st IF signal.

The converted 1st IF signal is applied to the IF amplifier (Q502) via RX switches (D502, D505).

• 1st IF frequency

Mode	1st IF
USB	124.48850 MHz
LSB	124.48550 MHz
CW	124.48700 MHz
RTTY	124.48683 MHz
AM/FM	124.48700 MHz
WFM	134.73200 MHz

The 124.487 MHz 1st IF signal (except WFM mode) passes through the crystal filter (FI601) via the mode switches (D602, D604), and the 134.732 MHz 1st IF signal (WFM mode) passes through the bandpass filter (L607, L609, C602, C606, C608–C610, C617, C618) via the mode switches (D601, D603) to suppress out-of-band signals.

Then the filtered signal is applied to the IF amplifier (Q702) and then applied to the 2nd mixer circuit (D801) via the RX switches (D702, D704).

3-1-6 2ND MIXER CIRCUIT (MAIN UNIT)

The 2nd mixer circuit mixes the 1st IF signal with the 2nd LO signal to convert into the 2nd IF frequency.

The amplified signal from the IF amplifier (Q702) is applied to the 2nd mixer circuit (D801) and then mixed with the 2nd LO signal (124.032 MHz) to convert into the 455 kHz (other than WFM) or 10.7 MHz (WFM) 2nd IF signal.

The 2nd LO signal is generated in the DDS unit, and applied to the 2nd mixer circuit (D801) after being filtered and attenuated at the low-pass filter (L808, C816, C817) and the attenuators (R801, R805, R806, R809–R811), respectively.

The converted 2nd IF signal is applied to the 2nd IF circuit.

3-1-7 2ND IF CIRCUIT (MAIN UNIT)

The 2nd IF circuit amplifies and filters the 2nd IF signal.

The converted 2nd IF signal is applied to the bandpass filter (FI901) to suppress undesired signals.

The 455 kHz 2nd IF signal (except WFM mode) is passed through the bandpass filter (FI901) via the mode switch (D803) and then amplified at the IF amplifier (Q902). The amplified signal is passed through the bandpass filter (FI1001) and then applied to another IF amplifier (Q1001).

• 2nd IF frequency

Mode	2nd IF
USB	456.500 kHz
LSB	453.500 kHz
CW	455.000 kHz
RTTY	454.830 kHz
AM/FM	455.000 kHz
WFM	10.700 MHz

The amplified signal is applied to the 3rd mixer circuit.

The 10.7 MHz 2nd IF signal for WFM mode is passed through the low-pass filter (L1402, C1402–C1404) via the mode switch (D802) and then applied to the IF amplifier (Q1401). The amplified signal is passed through the bandpass filter (FI1401) and then applied another IF amplifier (Q1402).

The amplified IF signal is passed through the bandpass filter (FI1402) and then applied to the WFM demodulator circuit (IC1401).

3-1-8 3RD MIXER CIRCUIT (MAIN UNIT)

The 3rd mixer circuit mixes the 2nd IF signal with the 3rd LO signal to convert into the 3rd IF frequency.

The amplified signal from the IF amplifier (Q1001) are mixed with the 3rd LO signal (438.85 kHz), where come from the DDS unit via J2406, at the 3rd mixer circuit (IC1101) to convert into the 16.15 kHz 3rd IF signal.

The converted 3rd IF signal is applied to the 3rd IF circuit.

3-1-9 3RD IF CIRCUIT (MAIN UNIT)

The 3rd IF circuit filters and amplifies the 3rd IF signal.

The converted 3rd IF signal is amplified at the 3rd IF amplifier (IC1203, pins 5, 7) and then passed through the low-pass filter (IC1203, pins 1, 3). The filtered signal is passed through the mode switches (IC1201, pins 1, 7; IC1202, pins 1, 7) and then applied to the analog switch (IC1256, pins 11, 13).

The switched signal is applied to the DSP circuit (LOGIC unit) via the J2251 (pin 1).

3-1-10 DEMODULATOR CIRCUITS (MAIN UNIT)

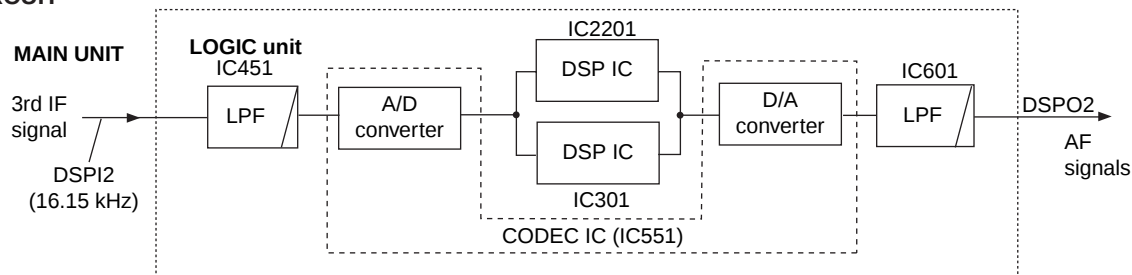
• WFM mode

The demodulator circuit converts the 2nd IF signal into the AF signals.

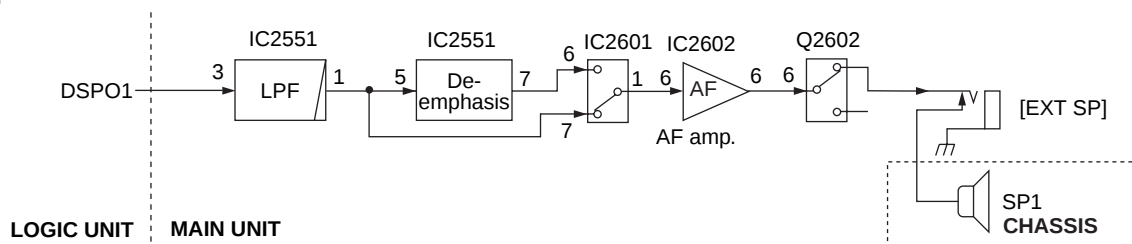
The filtered signal from the bandpass filter (FI1402) is applied to the IF amplifier section inside the WFM demodulator (IC1401, pin 1) and then applied to the quadrature detector section to convert into AF signals. The detected AF signals are output from pin 6 (IC1401) and then applied to the mode switches (IC1201, pins 1, 7; IC1202, pins 1, 6).

The switched AF signals are applied to the analog switch (IC1256, pins 11, 13) and then applied to the DSP circuit (LOGIC unit) via J2251 (pin 1).

• DSP CIRCUIT



• AF CIRCUIT



3-1-11 DSP CIRCUIT (LOGIC UNIT)

The DSP (Digital Signal Processor) circuit enables digital IF filter, manual notch, digital twin PBT and phase demodulation, etc.

The 3rd IF or demodulated AF (WFM mode) signals are passed through the low-pass filter (IC451, pins 1, 2) and then applied to the A/D converter (IC551, pin 4). The converted signals are applied to the DSP ICs (IC301, IC2201) for the digital IF filter, demodulation, automatic notch and noise reduction, etc.

The output digital audio signals from the DSP IC (IC301) are applied to the D/A converter (IC551) to convert into the analog audio signals.

The converted audio signals from the D/A converter (IC551, pins 25, 26) are passed through the low-pass filter (IC601, pins 5–7), and then applied to the AF amplifier circuit (MAIN unit) via J701 (pin 14).

3-1-12 AF AMPLIFIER CIRCUIT (MAIN UNIT)

The AF amplifier amplifies the demodulated AF signals to drive speaker.

The filtered signal from the low-pass filter (LOGIC unit; IC601, pins 5–7) are passed through another low-pass filter (IC2551, pins 1, 3).

While in FM mode, the filtered AF signals from the low-pass filter (IC2551, pin 1) are applied to the de-emphasis circuit (IC2551, pins 5–7) to obtain the –6 dB/octave characteristics and then applied to the AF switch (IC2601, pins 1, 6).

While except FM mode, the filtered AF signals from low-pass filter (IC2551, pin 1) are applied to the AF switch (IC2601, pins 1, 7).

The switched AF signals are amplified at the AF power amplifier (IC2602, pins 1, 4) and then applied to the speaker switch (Q2602).

The switched signal is applied to the internal speaker that is connected to J2601 via [EXT SP] jack (J2602).

3-1-13 AGC CIRCUIT (MAIN UNIT)

The AGC (Automatic Gain Control) circuit adjusts IF amplify gain to keep the audio output at a constant level. The receiver gain is determined by the voltage on the AGC line from the DSP circuit.

The AGC voltage is detected at the AGC detector section inside the DSP ICs (LOGIC unit; IC301, IC2201) and the AGC voltage is applied to the D/A converter (IC2155). The converted AGC voltage is applied to the IF amplifiers (Q702, Q902, Q1001) after being amplified at IC1201 (pin 12) and sets the receiver gain with [RF/SQ] control.

When receiving strong signals, the detected voltage increases and the AGC voltage decreases. As the AGC voltage is used for the bias voltage of the IF amplifiers (Q702, Q902, Q1001), IF amplifier gain is decreased.

3-1-14 S-METER CIRCUIT (LOGIC UNIT)

The S-meter circuit indicates the relative received signal strength while receiving.

The received signal strength is detected inside the DSP ICs (IC301, IC2201) and then applied to the main CPU (IC1302).

The S-meter signal for WFM mode is output from the FM detector IC (IC401, pin 4) and then applied to the main CPU (IC1302, pin 123).

The S-meter signal from the main CPU (IC1302) is applied to the sub CPU (DISPLAY unit; IC2003) and is then displayed on the LCD display.

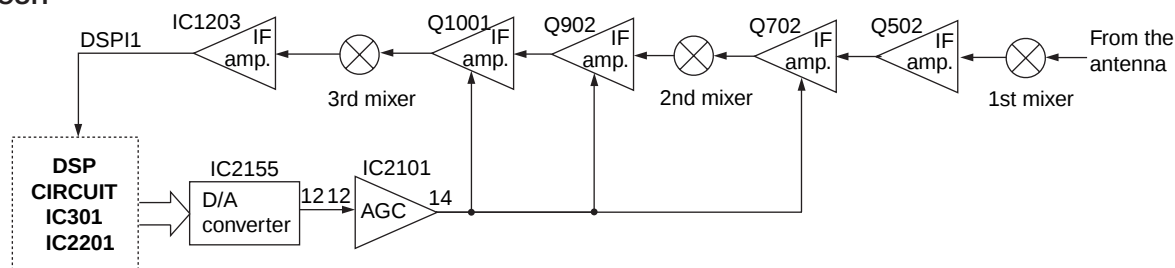
3-1-15 SQUELCH CIRCUIT (MAIN UNIT)

The squelch circuit mutes audio output when the S-meter signal is lower than the [RF/SQ] control setting level.

The S-meter signal from the DSP IC is applied to the main CPU (LOGIC unit; IC1302) and is compared with the threshold level set by the [RF/SQ] control. The [RF/SQ] setting is picked up at the sub CPU (DISPLAY unit; IC2003, pin 74). The main CPU (LOGIC unit; IC1302) compares the S-meter signal and [RF/SQ] setting, and outputs the mute signal via the DSP IC (IC301, pin B4) to the AF switch (IC2601, pin 2) to cut AF signals via Q2607.

While receiving WFM mode, the S-meter signal is output from the WFM demodulator (IC401, pin 4) and applied to the main CPU (LOGIC unit; IC1302, pin 123). The main CPU (LOGIC unit; IC1302) compares the S-meter signal and [RF/SQ] setting, and outputs the mute signal via the DSP IC (IC301, pin B4) to the AF switch (IC2601, pin 2) to cut AF signals via Q2607.

• AGC CIRCUIT



3-2 TRANSMITTER CIRCUITS

3-2-1 MICROPHONE AMPLIFIER CIRCUIT (MAIN UNIT)

The microphone amplifier circuit amplifies microphone audio signal to a level needed for the DSP circuit.

Audio signals from the [MIC] connector (FRONT unit; J303 or MAIN unit; J2003) are amplified at the microphone amplifier (IC2007, pins 1, 2) and then applied to the DSP circuit (LOGIC unit) via J2251 (pin 3).

3-2-2 DSP CIRCUIT (LOGIC UNIT)

The DSP (Digital Signal Processor) circuit enables digital PSN modulator, digital Low Power modulator, digital Phase modulator, transmitter monitor and side tone, etc.

The amplified microphone signals are passed through the low-pass filter (IC502, pins 1, 2) and then applied to the A/D converter (IC551, pin 3). The converted digital audio signal are applied to the DSP ICs (IC301, IC2201) to convert into the modulated 16.15 kHz 3rd IF signal. The modulated 3rd IF signal from the DSP IC (IC301) is applied to the D/A converter (IC551) to convert into the analog 3rd IF signal. The converted analog 3rd IF signal is output from pins 27, 28 (IC551) and then passed through the low-pass filter (IC601, pins 1–3).

The filtered IF signal is applied to the 3rd mixer circuit (MAIN unit) via the J701 (pin 12).

3-2-3 3RD MIXER CIRCUIT (MAIN UNIT)

The 3rd mixer circuit mixes the 3rd IF signal with the 3rd LO signal to convert into the 2nd IF frequency.

The filtered signal from the low-pass filter (LOGIC unit; IC601) is applied to the analog switch (IC2251, pins 1, 7) and then applied to the 3rd mixer circuit (IC1301, pins 3, 5). The applied signal is mixed with the 3rd LO signal (438.85 kHz) coming from DDS unit via J2406 (pin 13) and converted into the 455 kHz 2nd IF signal.

The converted 2nd IF signal is applied to the 2nd IF circuit.

3-2-4 2ND IF CIRCUIT (MAIN UNIT)

The 2nd IF circuit filters and amplifies the 2nd IF signal.

The converted 2nd IF signal is applied to the 2nd IF amplifier (Q901) and then passed through the bandpass filter (FI901) via the TX switch (D903) to suppress unwanted signals.

The filtered signal is applied to the 2nd mixer circuit.

3-2-5 2ND MIXER CIRCUIT (MAIN UNIT)

The 2nd mixer circuit mixes the 2nd IF signal with the 2nd LO signal to convert into the 1st IF frequency.

The filtered signal from the bandpass filter (FI901) is applied to the 2nd mixer circuit (D801) and mixed with 2nd LO signal (124.032 MHz) to convert into the 1st IF signal.

The 2nd LO signal is generated in the DDS unit, and applied to the 2nd mixer circuit (D801) after being filtered and attenuated at the low-pass filter (L808, C816, C817) and the attenuators (R801, R805, R806, R809–R811), respectively.

The converted 1st IF signal is applied to the 1st IF circuit.

3-2-6 1ST IF CIRCUIT (MAIN UNIT)

The 1st IF circuit amplifies and filters the 1st IF signal.

The converted 1st IF signal is applied to the IF amplifier (Q701) via the TX switch (D703) and then passed through the bandpass filter (FI601) to suppress unwanted signals via the filter switches (D601, D602).

The filtered signals are applied to the 1st mixer circuit.

3-2-7 1ST MIXER CIRCUIT (MAIN UNIT)

The 1st mixer circuit mixes the 1st IF signal with the 1st LO signal to convert into the RF frequency.

The filtered signal is applied to the 1st mixer circuit (IC401) via the TX switches (D501, D504) and mixed with the 1st LO signal (124.517–594.487 MHz) to convert into the RF signal.

The 1st LO signal is generated in the DDS unit, and applied to the 1st mixer circuit (IC401, pins 1, 6) after being amplified and attenuated at the 1st LO amplifier (IC421, pins 1, 4) and the attenuators (R416–R418, R421–R423), respectively.

The converted RF signal is applied to the RF circuit.

3-2-8 RF CIRCUIT (MAIN UNIT)

The RF circuit amplifies and filters the RF signal from the 1st mixer circuit.

The HF/50 MHz bands signal from the 1st mixer circuit (IC401) is passed through the low-pass filter (L310, L312, C314, C316, C318, C320, C322) via the band switch (D305).

The HF band signal is passed through one of 5 high-pass (Refer to 3-1 for used RF high-pass filter) and low-pass (L205, L207, C209–C213) filters.

The 50 MHz band signal is passed through the bandpass filter (L219, L220, L246–L248, C240–C242, C282, C285–C291).

The filtered HF/50 MHz bands signal is amplified at the YGR amplifier (IC1) after passed through the high-pass filter (L109, L110, L116, L117, C109, C114–C116) and attenuator (R5–R7).

The amplified HF/50 MHz bands signal is applied to the drive and power amplifier circuits (PA unit) via J1.

The VHF/UHF bands signal from the 1st mixer circuit (IC401) is passed through the low-pass filter (L309, L311, L313, C313, C315, C317, C319, C321, C323, C325) via the band switch (D306).

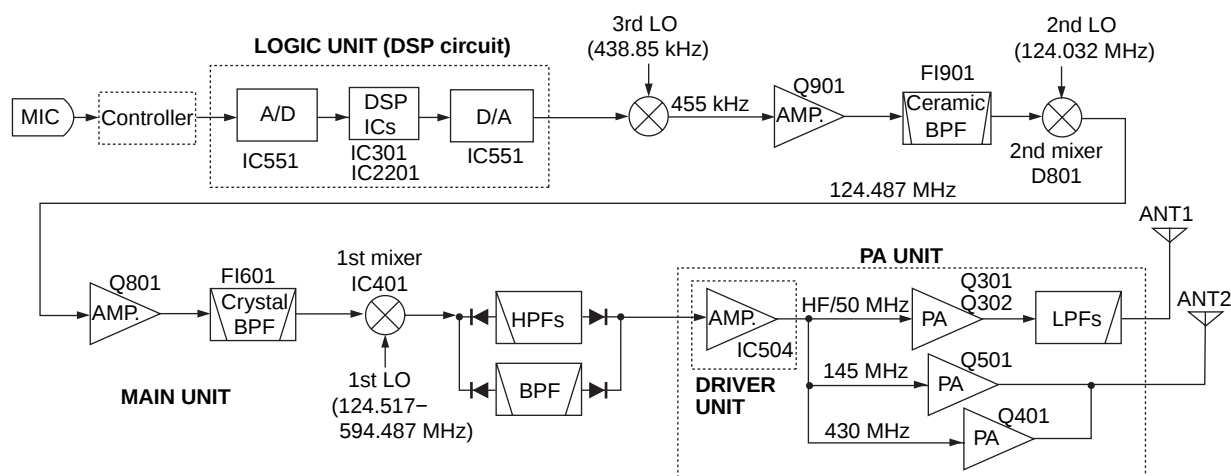
The VHF band signal is passed through the bandpass filter (L8, L10–L13, C18, C25, C26, C28, C29, C31–C33) via the band switches (D3, D10) and then amplified at the RF amplifier (IC2, pins 1, 3). The amplified signal is passed through the band switch (D1) and attenuator (R5–R7), and then applied to the YGR amplifier (IC1, pins 1, 4).

The amplified signal is passed through the high pass filter (L21, C50–C52) via the filter switches (D6, D8) and then applied to the drive and power amplifier circuits (PA unit) via J1.

The UHF band signal is amplified at the RF amplifier (IC3, pins 1, 3) via the band switch (D4) and passed through the bandpass filters (FI2, FI3). The filtered signal is amplified at the YGR amplifier (IC1, pins 1, 4) after passed through the band switch (D2), attenuator (R5–R7) and bypass switches (D7, D9).

The amplified signal is applied to the drive and power amplifier circuits (PA unit) via J1.

• TRANSMITTER CONSTRUCTION



3-2-9 DRIVE AND POWER AMPLIFIER CIRCUITS (PA AND DRIVER UNITS)

The drive and power amplifier circuits amplify the RF signal from the RF circuit (MAIN unit) to obtain 100 W of RF output power for the HF/50 MHz bands, 50 W for the VHF band and 35 W for the UHF band.

The RF signal from the MAIN unit is applied to the pre drive amplifiers (PA unit; Q101, Q102) after passed through the attenuator (PA unit; R101–R103). The amplified signal is applied to the drive amplifier (DRIVER unit; Q504) to amplify a level needed for the power amplifiers.

The amplified HF/50 MHz bands signal from the drive amplifier is amplified at the power amplifiers (PA unit; Q301, Q302) to obtain a stable 100 W of RF output power. The power amplified signal is passed through the TX/RX switch (RL801), one of the 7 low-pass filters, APC detector (PA unit; D961, D962) and then applied to the [ANT1] connector (CHASSIS; J1).

The amplified VHF RF signal from the drive amplifier is amplified at the power amplifier (Q501) to obtain a stable 50 W of RF output power. The power amplified signals are applied to the low-pass filter, APC detector (D501–D504), TX/RX switch (D506, D510), low-pass filters (L506, L508, L510, L601–L603, C516, C519, C521, C601, C602) and [ANT2] connector (CHASSIS; J2).

The amplified UHF RF signal from the drive amplifier is amplified at the power amplifier (Q401) to obtain a stable 35 W of RF output power. The power amplified signal is applied to the low-pass filter, APC detector (D401–D404), TX/RX switch (D406, D407), high-pass filter (L413, L414, C428, C429, C431, C433), low-pass filter (L601–L603, C601, C602) and [ANT2] connector (CHASSIS; J2).

3-2-10 ALC CIRCUIT (MAIN UNIT)

The ALC (Automatic Level Control) circuit reduces the gain of IF amplifiers in order for the transceiver to output a constant RF power set by the RF power setting even when the supplied voltage shifts, etc.

The HF/50 MHz power amplified signal from the power amplifiers (PA unit; Q301, Q302) is detected at the APC detector (PA unit; D961). The detected voltage is applied to the buffer amplifier (PA unit; IC960, pins 5, 7) and then applied to the MAIN unit as the "HFOR" voltage.

The VHF and UHF RF power amplified signal from the power amplifiers (PA unit; Q401, Q501) are detected at the APC detectors (PA unit; D401, D404, D501, D504) respectively. The detected voltages ("VFOR" and "UFOR") are combined to "VUFOR" voltage and then applied to the MAIN unit.

The "HFOR" and "VUFOR" voltages are combined to the "FORL" voltage and then applied to the ALC amplifier (IC1601, pins 1, 2). The "POCV" voltage from the D/A converter (IC2155, pin 19) via the buffer amplifier (IC2101, pins 5, 7), determined by the RF power setting, is applied to the ALC amplifier (IC1601, pin 3) as the reference voltage.

When the "FORL" voltage exceeds the "POCV" voltage, ALC bias voltage from IC1601 (pin 1) controls the IF amplifiers (Q701, Q901). This adjusts the output power to the level determined by the RF power setting until the "FORL" and "POCV" voltages are equalized.

In AM mode, IC1601 functions as an averaging ALC amplifier with Q1601. The AM switch (Q1602) is turn ON and shifts the "POCV" voltage to adjust the TX output power for the AM mode (maximum; 40 W for HF/50 MHz bands, 20 W for VHF band, 14 W for UHF band).

The ALC bias voltage from IC1601 is also applied to the main CPU (LOGIC unit; IC1302, pin 115) as the "ALCL" voltage for ALC meter indication.

The external ALC input (negative voltage) from the [ACC] socket (pin 6) is converted to a positive voltage at D1609 and is applied to the buffer amplifier (Q1604). External ALC operation is identical to that of the internal ALC.

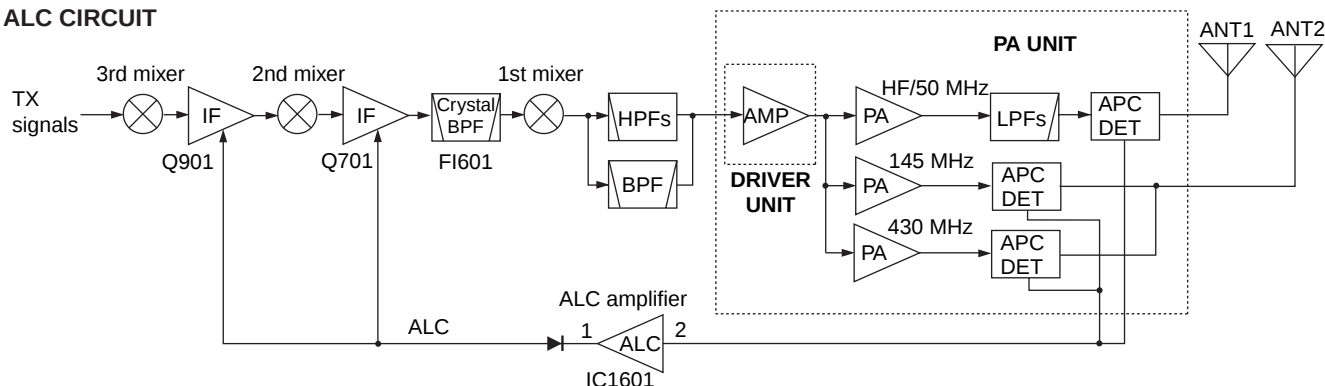
3-2-11 APC CIRCUIT (MAIN UNIT)

The APC (Automatic Power Control) circuit protects the power amplifiers on the PA unit from high SWR and excessive current.

The reflected wave signal appears and increases on the antenna connector when the antenna is mismatched.

The HF/50 MHz reflected signal level is detected at D962 (PA unit), and is amplified at the buffer amplifier (PA unit; IC960, pins 1, 3) and applied to the ALC amplifier (IC1601, pins 8, 9) as the "HREF" voltage.

• ALC CIRCUIT



The VHF/UHF APC detector circuits (PA unit; D501, D504, D401, D404) detect the forward and reflection signals and convert into DC voltages. The converted DC voltages are combined and applied to the ALC amplifier (pins 1, 2) as "VUFOR" voltage.

For the current APC, the driving current at the power amplifiers is detected in the voltages ("ICH" and "ICL") which appear at both terminals of detector resistors (PA unit; R721, R722). The detected voltages are applied to the APC amplifier (IC1601, pins 5–7).

When the current of the power amplifier exceeds 22 A, The output voltage from the APC amplifier (IC1601, pin 7) controls the ALC line to prevent excessive current flow.

3-2-12 RF, ALC, SWR METER CIRCUITS (LOGIC UNIT)

While transmitting, RF, ALC or SWR meter readings are available and can be selected with the [F3 (MET)] switch.

(1) Power meter

The "FOR," "VFOR" and "UFOR" voltages are combined to the "FORL" voltage, and it is then applied to the main CPU (IC1302, pin 113) for indicating the TX output power.

(2) ALC meter

The ALC bias voltage from the buffer amplifier (MAIN unit; IC1601, pin 14) is applied to the main CPU (IC1302, pin 115) via the "ALCL" signal line for indicating the ALC level.

(3) SWR meter

The "FORL" and "REFL" voltages are applied to the main CPU (IC1302, pins 113, 114) respectively. The main CPU compares the ratio of "FORL" to "REFL" voltage and indicates the SWR for the [ANT1] connector.

3-3 DDS CIRCUITS

3-3-1 GENERAL

The DDS unit generates a 1st LO (124.517–594.487 MHz), a 2nd LO (124.032 MHz) and a 3rd LO (438.85 kHz) frequencies.

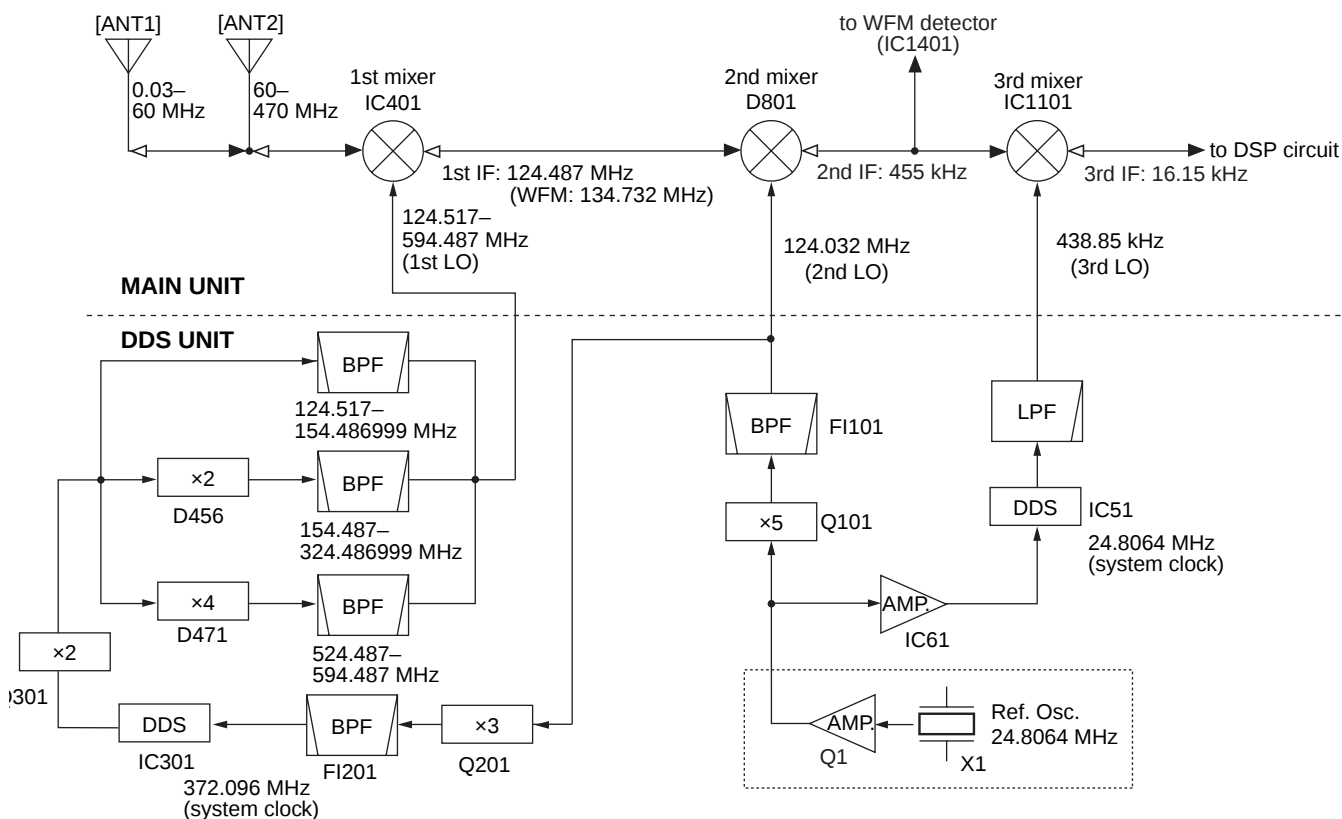
3-3-2 1ST LO CIRCUIT (DDS UNIT)

The 1st LO circuit generates a 1st LO signal based on the system clock that is tripled the 2nd LO frequency.

The 124.032 MHz 2nd LO signal is applied to the tripler circuit (Q201) and then passed through the high-pass filter (L205, L206, L210, C206–C210, C217–C219). The filtered signal is amplified at Q211 and then passed through the bandpass filter (FI201). The filtered signal is applied to the DDS IC (IC301) as the 372.096 MHz system clock. The DDS IC generates 38.62189–199.999999 MHz frequency based on the system clock. The output signal from the DDS IC (IC301, pins 20, 21) is applied to the doubler circuit (D301) and then amplified at IC401 (pins 1, 4) after being passed through the low-pass filter (L331, L332, C331, C332, C335). The amplified signal is applied to one of the multiplier circuits which is selected from the readout frequency and then amplified at IC451 (pins 1, 5). The amplified signal is passed through the bandpass filters.

The filtered signal is applied to the 1st mixer circuit (MAIN unit) via J851.

• FREQUENCY CONSTRUCTION



3-3-3 2ND LO AND REFERENCE OSCILLATOR CIRCUITS (DDS UNIT)

The reference oscillator (X1, Q1) generates a 24.8064 MHz frequency used for the 1st LO, 3rd LO and DSP circuits as a system clock and for the 2nd LO signal.

The oscillated signal is multiplied by 5 at Q101 and then passed through the bandpass filter (FI101). The filtered 124.032 MHz signal is amplified at Q151 and then applied to the 2nd mixer circuit (MAIN unit) after being passed through the low-pass filter (L153, C154–C156) and attenuator (R157–R159) via J151 as the 2nd LO signal.

3-3-4 3RD LO CIRCUIT (DDS UNIT)

The 3rd LO circuit generates a 3rd LO signal and shift the frequency for the operating mode needed.

The DDS IC (IC51) generates a 10-bit digital signal. The 24.8064 MHz system clock signal from the reference oscillator (X1, Q1) is buffer amplified at IC61 (pins 2, 4) and then applied to DDS IC (IC51, pins 5, 10). The DDS IC (IC51) generates the 438.85 kHz frequency signal and then output from pin 10. The output signal is applied to the low-pass filter (L53, C59–C61) and then applied to the 3rd mixer circuit (MAIN unit) via J952 (pin 13) as the 3rd LO signal.

• 3RD LO FREQUENCY

Mode	RX frequency [kHz]	TX frequency [kHz]
USB	440.350	440.350
LSB	437.350	437.350
CW	438.850 (–CW PITCH)	438.850
CW-R	438.850 (+CW PITCH)	438.850
RTTY	436.555*	436.555*
RTTY-R	440.975*	436.555*
AM	438.850	438.850
FM	438.850	438.850

*RTTY TONE: 2125 Hz, RTTY SHIFT: 170 Hz

3-4 LOGIC CIRCUITS

3-4-1 BAND SELECTION DATA

Frequency [MHz]	IC2151 (MAIN) IC2152 (MAIN)	IC2152 (MAIN) IC981 (PA)	IC901 (DDS)
	HPF (MAIN)	LPF (PA)	LOF (DDS)
0.03–1.599999	B0	L1	LOF1
1.6–1.999999	B1		
2.0–3.399999	B2	L2	
3.4–3.999999	B3		
4.0–6.899999			
6.9–7.300000	B4	L4	
7.300001–7.999999			
8.0–10.999999			
11.0–13.899999			
13.9–14.350000	B5	L5	
14.350001– 14.999999			
15.0–20.899999			
20.9–21.45		L6	
21.450001– 21.999999			
22.0–29.999999			
30.0–49.999999	T: B1 R: B7	L7	LOF2
50.0–54.0	B7		
54.000001– 59.999999	T: B1 R: B7	L8	
60.0–115.512999	L8		LOF4
115.513– 128.999999			
129.0–148.0			
148.000001– 199.999999			LOF5
400.0–470.0	L9	L9	LOF6

3-5 POWER SUPPLY CIRCUITS

3-5-1 FRONT UNIT VOLTAGE LINE

Line	Description
3.3 V	Common 3.3 V converted from the 5 V line by the 3.3 V regulator circuit (IC151). The output voltage is applied to the sub CPU (IC2003), etc.
5 V	Common 5 V converted from the 8 V line by the 5 V regulator circuit (IC101). The output voltage is applied to the LCD driver (IC506), etc.

3-5-2 MAIN UNIT VOLTAGE LINE

Line	Description
3.3 V	Common 3.3 V converted from the 5 V line by the 3.3 V regulator circuit (IC1801). The output voltage is applied to the D/A converter ICs (IC2151–IC5155), etc.
5 V	Common 5 V converted from the H V line by the 5 V regulator circuit (IC1951). The output voltage is applied to the CODEC IC (LOGIC unit; IC551), low-pass filters (LOGIC unit; IC451, IC502), etc.
8 V	Common 8 V line converted from the HV line by the 8 V regulator circuit (IC1901). The output voltage is applied to the buffer amplifiers (IC2101–IC2103), analog switches (IC2156, IC2251), etc.
T8	Transmit 8 V controlled by the T8 regulator circuit (Q1703, Q1704) using TXS signal from the CPU (LOGIC unit; IC1302, pin 106). The output voltage is applied to the RF switch (Q101), 2nd IF amplifier (Q701), 3rd IF amplifier (Q901), etc.
R8	Receive 8 V controlled by the R8 regulator circuit (Q1701, Q1702) using RXS signal from the CPU (LOGIC unit; IC1302, pin 105). The output voltage is applied to the 2nd IF amplifier (Q702), 3rd IF amplifier (Q1001), 3rd mixer (Q1101), etc.

3-6 PORT ALLOCATIONS

3-6-1 SUB-CPU (DISPLAY UNIT; IC2003)

Pin number	Port name	Description
3, 5	MDBK, MDAK	Input ports for [DIAL].
13, 14	S1AK, S1BK	Input ports for [PBT2/M-ch] control.
15, 16	S2AK, S2BK	Input ports for [PBT1/RIT] control.
21	VRK	Input port for [AF] switch.
22	PBTK	Input port for [PBT/M-ch] switch.
23	TUNK	Input port for [TUNER/CALL] key.
24	TSK	Input port for [TS] key.
25	LCKK	Input port for [LOCK] key.
26	BU PK	Input port for [▲(BAND)] key.
27	BDNK	Input port for [▼(BAND)] key.
28	FMSL	Input port for the HM-151 connection detection.
35	PHNK	Input port for the headphones connection detection.
37	LCK	Outputs clock signal for the LCD driver (IC506).

Pin number	Port name	Description
38	LDT	Outputs data signal for the LCD driver (IC506).
39	LDST	Outputs strobe signal for the LCD driver (IC506).
47	FSQS	Outputs the squelch control signal. High: Squelch is opened.
48	RXD	Outputs the RX LED control signal. High: While receiving or squelch is opened.
54	BLV	Outputs the dimmer control signal for the LCD backlights.
55	KLV	Outputs the dimmer control signal for the key backlights.
56	TXD	Outputs TX LED control signal. Low : While transmitting.
57	PBT1D	Outputs control signal for [PBT/M-ch/RIT] indicator. Low : While the RIT function is ON.
58	PBT2D	Outputs control signal for [PBT/M-ch/RIT] indicator. Low : While the PBT function is ON.
70	LRXD	Input port for data signal from the main CPU (LOGIC unit; IC1302).
71	LTXD	Outputs data signal to the main CPU (LOGIC unit; IC1302).
73	AFGL	Input port for [AF] control.
74	SQLL	Input port for [RF/SQL] control.
75	PTTL	Input port for PTT control signal from the microphone that is connected to the FRONT unit.
77	FUDL	Input port for [UP] and [DN] switches from the optional microphone (HM-103, SM-20) that is connected to the FRONT [MIC] connector.
78	KI0L	Input port for [MODE], [P.AMP/ATT], [▲(MENU/GRP)] and [▼(MENU/GRP)] keys.
79	KI1L	Input port for [F-1], [F-2], [F-3] and [F-4] keys.
80	KI2L	Input port for [NB LEV], [NR LEV], [N/ANF] and [SET/REC] keys.

3-6-2 MAIN CPU (LOGIC UNIT; IC1302)

Pin number	Port name	Description
26	CYDT	Outputs data signal for the clock generator (IC1201) for display control.
27	CYCK	Outputs clock signal for the clock generator (IC1201) for display control.
29	RTCDT	I/O port for the data signal from/to the clock IC (IC1304) for clock indication and timer function.
30	RTCCK	Outputs clock signal for the clock IC (IC1304) for clock indication and timer function.
42	LOST	Outputs strobe signal for the D/A converter (DDS unit; IC901).
43	MST	Outputs strobe signal for the D/A converter ICs (MAIN unit; IC2151–IC2154).
46	MMDK	Input port for the data signal from the microphone that is connected to the rear [MIC] connector.
47	DRES	Outputs the reset signal for the DSP ICs (IC301, IC2201).
48	PRES#	Outputs the reset signal for the LCD controller (IC1226) and DDS IC (DDS unit; IC301).
49	SQSS	Outputs the squelch control signal for the ACC connector and connected microphone.
51	MCK	Outputs clock signal for the D/A converter ICs (MAIN unit; IC2151–IC2154).
52	MDT	Outputs serial data signal for the D/A converter ICs (MAIN unit; IC2151–IC2154).
57	SDSS	Outputs the signal for H SEND or V SEND selection. High: While V SEND is selected.
58	TDAT	• Outputs data signal for AT-180. • Outputs start signal for AH-3/AH-4.
81	DTXD	Outputs data signal for the DSP IC (IC301).
82	DRXD	Input port for data signal from the DSP IC (IC301).
83	2T8V	Outputs the TX band signal. High: While transmitting the 144 MHz band.
104	4T8V	Outputs the TX band signal. High: While transmitting the 430 MHz band.
105	RXS	Outputs R8 regulator (Q1701, Q1702) control signal. Low : While receiving.
106	TXS	Outputs T8 regulator (Q1703, Q1704) control signal. Low :While transmitting.
107	POWS	Outputs the power control signal . High:When IC-7000 is power ON.

Pin number	Port name	Description
109	ECK	Outputs clock signal to the EEPROM (IC1301).
110	EDT	I/O port for the EEPROM (IC1301).
113	FORL	Input port for the forward voltage.
114	REFL	Input port for the reflection voltage .
115	ALCL	Input port for ALC level.
116	SNDL	Input port for PTT control signal from the FRONT unit or ACC connector.
117	DPTL	Input port for PTT control signal from the DATA connector.
118	THML	Input port for the temperature detection signal.
119	MUDL	Input port for [UP] and [DN] switches from the optional microphone (HM-103, SM-20) that is connected to the rear [MIC] connector.
121, 122	DASK, DOTK	Input ports for [KEY] jack.
124	MMSL	Input port for the HM-151 connection detection.
127	TKEY	Input port for tuner ON.
128	TRD	Input port for the detected signal for the tuner unit connection.
133	LTXD	Outputs data signal to the sub CPU (DISPLAY unit; IC2003).
134	LRXD	Inputs data signal from the sub CPU (DISPLAY unit; IC2003).
135	PWRK	Input port for [PWR] key. Low : While [PWR] key is pushed.
137	3DST	Outputs strobe signal to the DDS IC (DDS unit; IC51) for the 3rd LO signal.
138	PCK	Outputs clock signal for the DDS ICs (DDS unit; IC51, IC301) and D/A converter (DDS unit; IC901).
140	1DST	Output strobe signal to the DDS IC (DDS unit; IC301) for the 1st LO signal.
142	PDT	Outputs serial data signal for the DDS ICs (DDS unit; IC51, IC301) and D/A converter (DDS unit; IC901).

SECTION 4 ADJUSTMENT PROCEDURES

4-1 PREPARATION

Some adjustment must be performed on the adjustment mode.

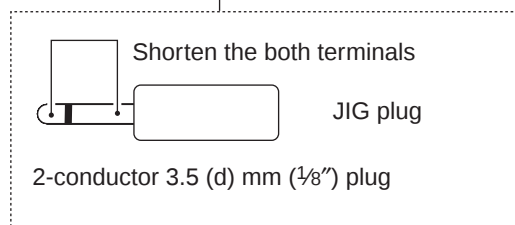
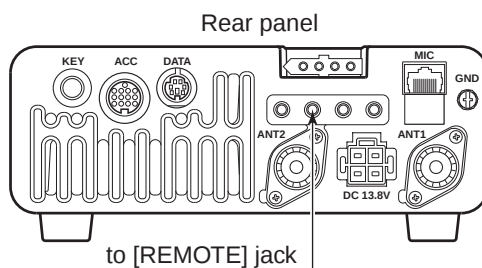
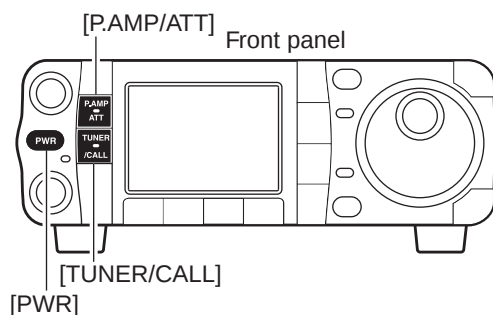
■ REQUIRED TEST EQUIPMENT

EQUIPMENT	GRADE AND RANGE	EQUIPMENT	GRADE AND RENG
DC power supply	Output voltage : 13.8 V DC Current capacity : 30 A or more	Distortion meter	Frequency range : 1 kHz $\pm$ 10 % Measuring range : 1–100 %
RF power meter (terminated type)	Measuring range : 0.5–200 W Frequency range : 1.8–500 MHz Impedance : 50 Ω SWR : 1.2 : 1 or better	Oscilloscope	Frequency range : DC–100 MHz Measuring range : 0.01–10 V
Frequency counter	Frequency range : 0.1–500 MHz Frequency accuracy : $\pm$ 1 ppm or better Sensitivity : 100 mV or better	Digital multimeter	Input impedance : 10 M Ω /DC or more
RF voltmeter	Frequency range : 0.1–500 MHz Measuring range : 0.01–10 V	AC millivoltmeter	Measuring range : 10 mV to 10 V
Standard signal generator (SSG)	Frequency range : 0.1–500 MHz Output level : 0.1 μ V to 32 mV (–127 to –17 dBm)	DC voltmeter	Input impedance : 50 k Ω /V DC or more
		DC ammeter	Measuring capability : 5 A/30 A
		Audio generator	Frequency range : 300–3000 Hz Measuring range : 1–500 mV
		External speaker	Input impedance : 8 Ω Capacity : 5 W or more

■ ENTERING THE ADJUSTMENT MODE

- ① Turn the transceiver's power OFF.
- ② Connect the JIG plug (see illustration below) to [REMOTE] jack on the rear panel.
- ③ While pushing and holding [P.AMP/ATT] and [TUNE/CALL], turn the transceiver power ON.

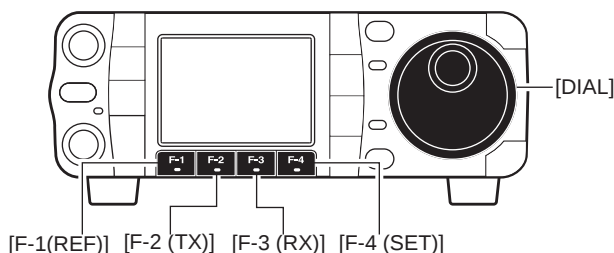
NOTE: Exiting from the adjustment mode when the transceiver's power is OFF.



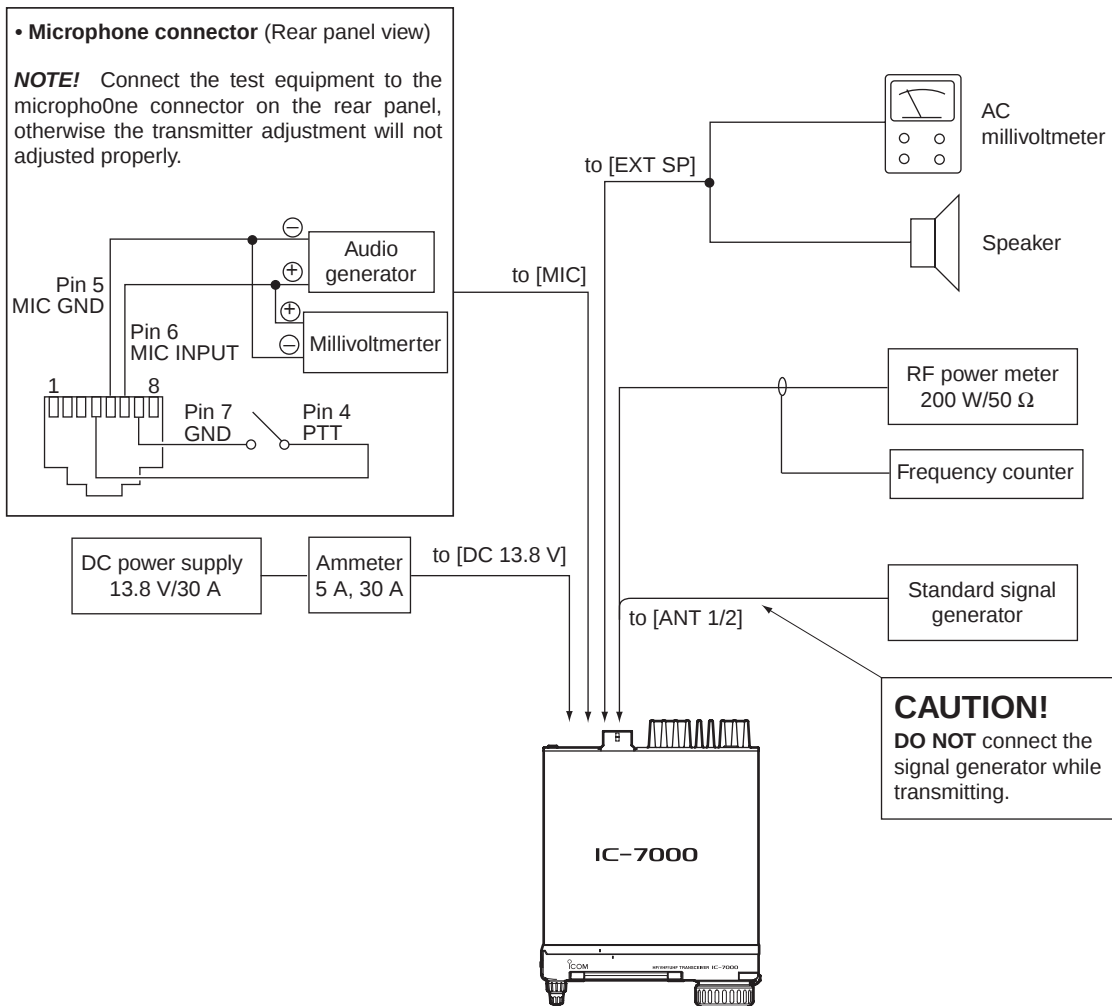
■ OPERATING ON THE ADJUSTMENT MODE

- Enter DDS adjustment mode. : Push [F-1 (REF)]
- Enter TX adjustment mode. : Push [F-2 (TX)]
- Enter RX adjustment mode. : Push [F-3 (RX)]
- Store the set value. : Push [F-4 (SET)]
- Adjust the value. : Rotate [DIAL]

CAUTION: Connect a dummy load to the antenna connectors during the transmitter adjustment, when the adjustment condition does not require a test equipment.



• CONNECTION



4-2 DDS ADJUSTMENT

ADJUSTMENT	ADJUSTMENT CONDITION	DISPLAY	OPERATION
REFERENCE FREQUENCY	1	• Enter the adjustment mode. • Push [F1 (REF)].	
	2	• Disconnect P4 from J801 (MAIN unit). • Receiving	REF OSC Connect a frequency counter to P4 and set 124.032000 MHz using [DIAL]. Then push [F-4 (SET)].
	After the adjustment, exit the adjustment mode and connect P4 to J801 (MAIN unit).		

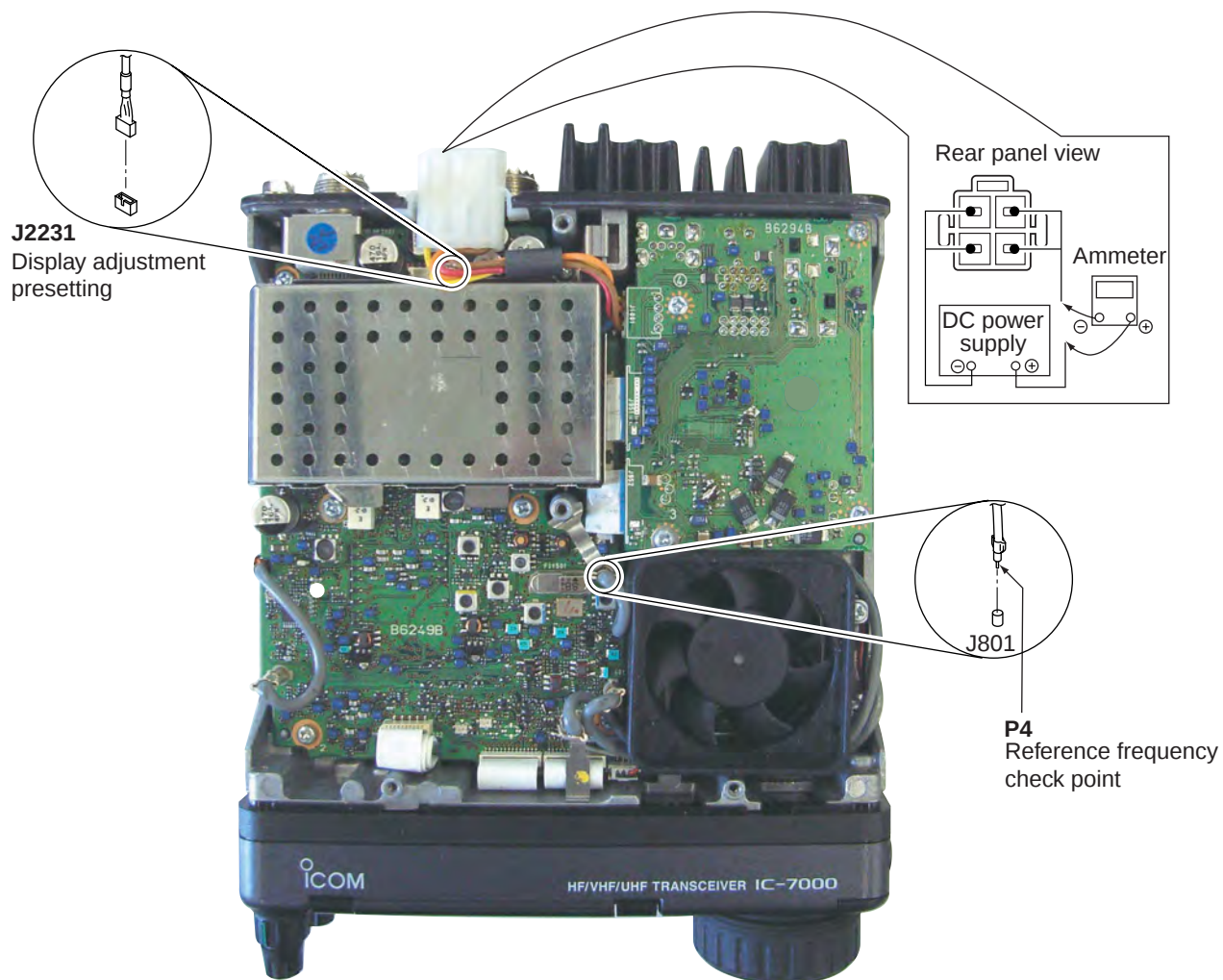
4-3 DISPLAY ADJUSTMENT

ADJUSTMENT		ADJUSTMENT CONDITION	MEASUREMENT		VALUE	ADJUSTMENT	
			UNIT	LOCATION		UNIT	ADJUST
DISPLAY	1	• Connect between DISPLAY unit ground and MAIN unit ground. • Disconnect J2231 (MAIN unit). • Receiving	DIS-PLAY	Connect a frequency counter to CP536 through a capacitor (0.0047 μF) and resistor (1 kΩ) in series.	3.579545 MHz [USA] 4.433619 MHz [Others]	DIS-PLAY	C536
	2	• Receiving		Connect a frequency counter to CP505.	15.734 kHz [USA] 15.625 kHz [Others]		
	After the adjustment, connect J2231 (MAIN unit) and disconnect jumper wire between DISPLAY unit ground and MAIN unit ground.						

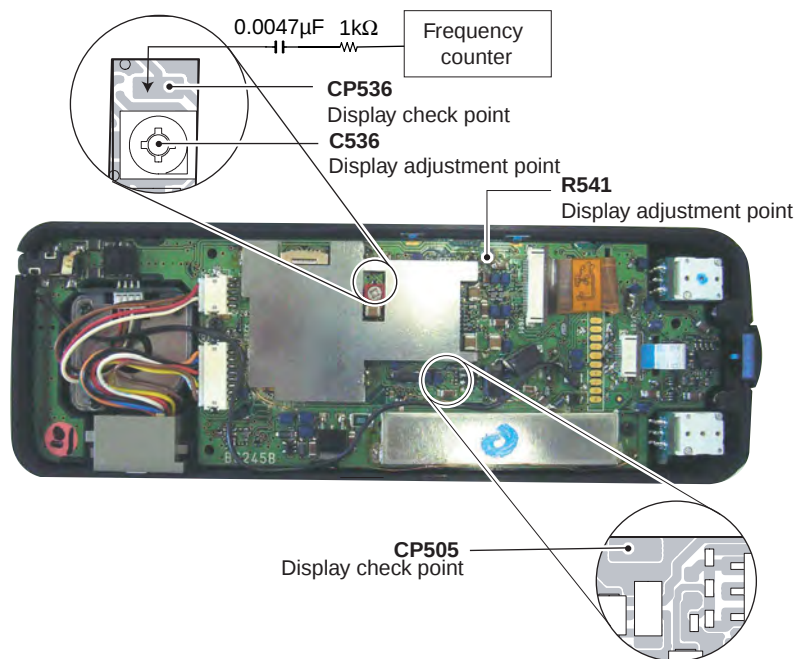
4-4 TRANSMITTER ADJUSTMENT

ADJUSTMENT	ADJUSTMENT CONDITION		DISPLAY	OPERATION
DRIVE/FINAL IDLING CURRENT	1	• Enter the adjustment mode. • Push [F-2 (TX)].		
	2	• Connect an RF power meter to [ANT1] and [ANT2] connectors. • Apply no audio signals to [MIC] jack. • Connect a DC ammeter (5 A type) between power supply and transceiver. • Transmitting	Driver Idle Cur	Preset the adjustment value to "00" using with [DIAL], and check the driving current.
	3			Rotate [DIAL] to set adjustment value to 1 A value from the driving current of "00" value. Then push [F-4 (SET)].
	4		Final Idle Cur(HF/50M)-1	Preset the adjustment value to "00" using with [DIAL], and check the driving current.
	5			Rotate [DIAL] to set adjustment value to 1 A value from the driving current of "00" value. Then push [F-4 (SET)].
	6		Final Idle Cur(HF/50M)-2	Preset the adjustment value to "00" using with [DIAL], and check the driving current.
	7			Rotate [DIAL] to set adjustment value to 1 A value from the driving current of "00" value. Then push [F-4 (SET)].
	8		Final Idle Cur(144M)	Preset the adjustment value to "00" using with [DIAL], and check the driving current.
	9			Rotate [DIAL] to set adjustment value to 2 A value from the driving current of "00" value. Then push [F-4 (SET)].
	10		Final Idle Cur(430M)	Preset the adjustment value to "00" using with [DIAL], and check the driving current.
	11			Rotate [DIAL] to set adjustment value to 2.5 A value from the driving current of "00" value. Then push [F-4 (SET)].
	After the adjustment, exit the adjustment mode.			

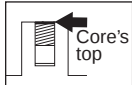
• MAIN UNIT



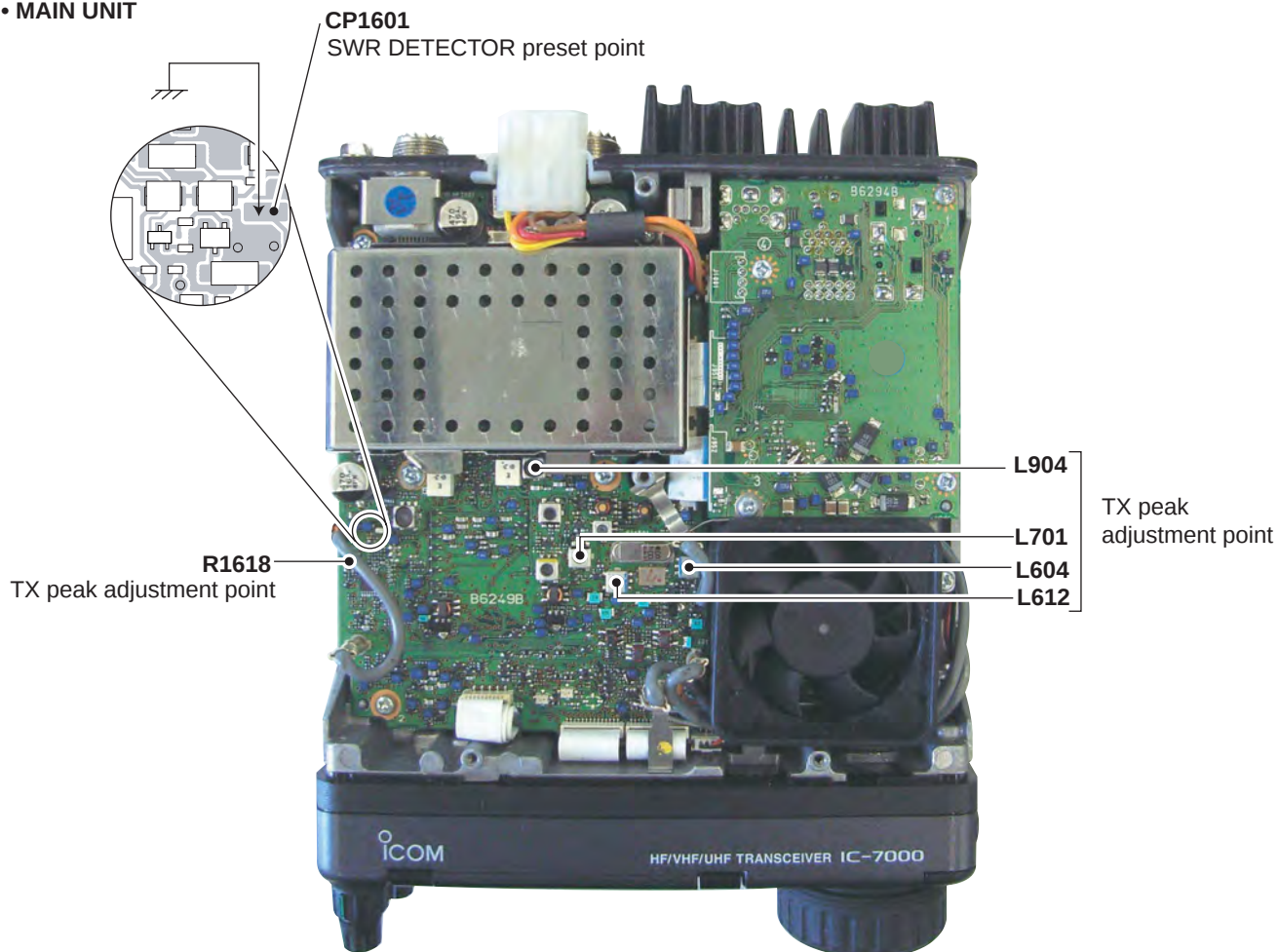
• FRONT UNIT



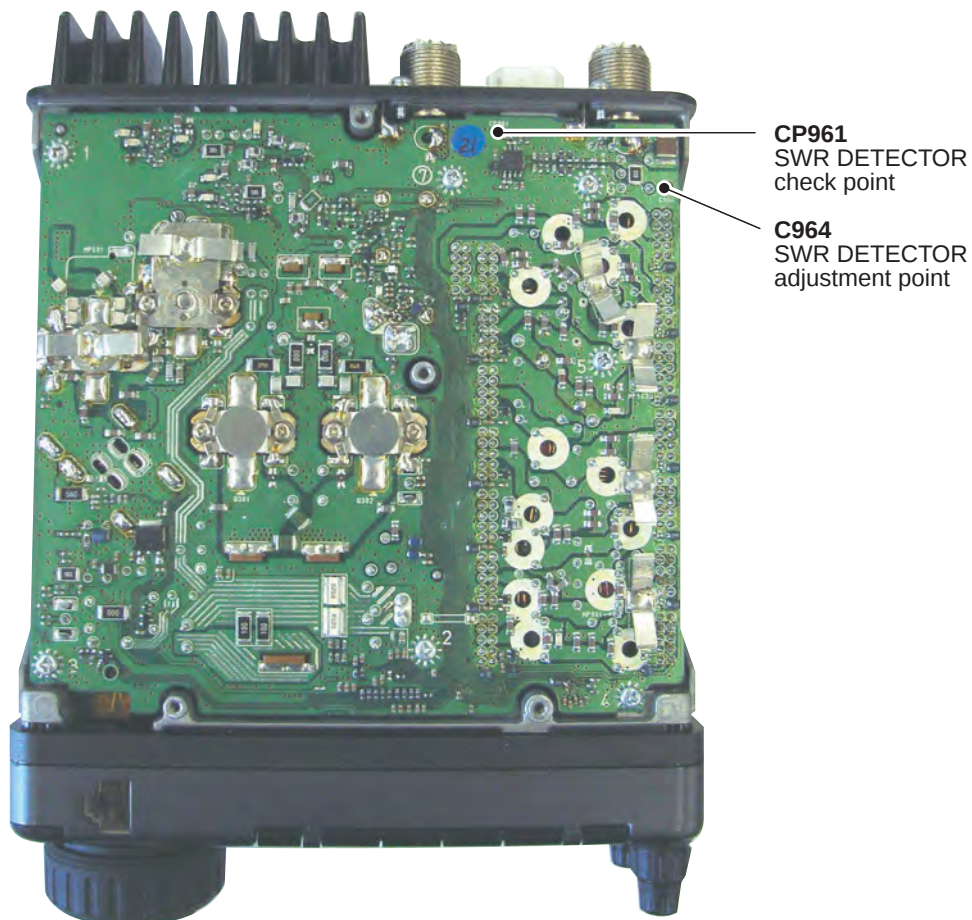
4-4 TRANSMITTER ADJUSTMENT (continue)

ADJUSTMENT		ADJUSTMENT CONDITION	MEASUREMENT		VALUE	ADJUSTMENT	
			UNIT	LOCATION		UNIT	ADJUST
SWR DETECTOR	1	• Operating freq : 10.10000 MHz • MODE : USB • RF Power : 100%	REAR panel	Connect an RF power meter to [ANT1] connector.	80 W	Audio generator	Output level
	2	• MIC Gain : 50% • Connect an audio generator to [MIC] connector and set as; Frequency : 1.5 kHz • Connect a wire between CP1601 (MAIN unit) and ground. • Transmitting	PA	Connect a DC voltmeter to CP961.	Minimum voltage	PA	C964
	After adjustment, disconnect the wire between CP1601 (MAIN unit) and ground.						
TX PEAK	1	• Operating freq. : 10.10000 MHz • MODE : USB • RF Power : 100% • MIC Gain : 50% • Preset R1618 (MAIN unit) as the illustration at right. • Preset L604, L612 and L904 (MAIN unit) as the illustration at right. • Connect an audio generator to [MIC] connector and set as ; Level : 1.5 kHz/3 mV (Adjust the audio generator output level to keep less than 50 W output power.) • Transmitting	REAR panel	Connect an RF power meter to [ANT1] connector.	Maximum output power	MAIN	L701
ADJUSTMENT		ADJUSTMENT CONDITION	DISPLAY		OPERATION		
TX TOTAL GAIN	1	• Enter the adjustment mode. • Push [F-2 (TX)].					
	2	• Connect an RF power meter to [ANT1] connector.	TX Total Gain(HF1)		Set the output power to 50 W using [DIAL]. Then push [F-4 (SET)].		
	3	• Connect an audio generator to [MIC] connector and set as; Level : 1.5 kHz/3 mV	TX Total Gain(HF2)		Set the output power to 50 W using [DIAL]. Then push [F-4 (SET)].		
	4	• Transmitting	TX Total Gain(HF3)		Set the output power to 50 W using [DIAL]. Then push [F-4 (SET)].		
	5		TX Total Gain(50M)		Set the output power to 50 W using [DIAL]. Then push [F-4 (SET)].		
	6	• Connect an RF power to [ANT2] connector.	TX Total Gain(144M)		Set the output power to 25 W using [DIAL]. Then push [F-4 (SET)].		
	7	• Transmitting	TX Total Gain(430M)		Set the output power to 17.5 W using [DIAL]. Then push [F-4 (SET)].		

• MAIN UNIT



• PA UNIT



4-4 TRANSMITTER ADJUSTMENT (Continue)

ADJUSTMENT		ADJUSTMENT CONDITION	DISPLAY	OPERATION
TX OUTPUT POWER (HF)	1	• Connect an RF power meter to [ANT1] connector. • Connect an audio generator to [MIC] connector and set as; Level : 1.5 kHz/30 mV • Transmitting	Po Min(HF)	Set the output power to 1 W using [DIAL]. Then push [F-4 (SET)] .
	2		Po Tune(HF)	Set the output power to 10 W using [DIAL]. Then push [F-4 (SET)].
	3		Po 25%(HF)	Set the output power to 25 W using [DIAL]. Then push [F-4 (SET)].
	4		Po 50%(HF)	Set the output power to 50 W using [DIAL]. Then push [F-4 (SET)].
	5		Po(HF APC Low Volt)	Set the output power to 75 W using [DIAL]. Then push [F-4 (SET)].
	6		Po 100%(HF)	Set the output power to 95 W using [DIAL]. Then push [F-4 (SET)].
	7		Po Max(HF)	Set the output power to 105 W using [DIAL]. Then push [F-4 (SET)] key.
			APC(HF)	Push [F-4 (SET)].
APC (HF)	1			
TX OUTPUT POWER (AM)	1	• Connect an RF power meter to [ANT1] connector. • Apply no audio signal to [MIC] connector. • Transmitting	AM POCV Ratio	Set the output power to 35 W using [DIAL]. Then push [F-4 (SET)].
TX OUTPUT POWER (50 MHz)	1	• Connect an RF power meter to [ANT1] connector. • Connect an audio generator to [MIC] connector and set as; Level : 1.5 kHz/30 mV • Transmitting	Po Min(50 M)	Set the output power to 1 W using [DIAL]. Then push [F-4 (SET)].
	2		Po Tune(50 M)	Set the output power to 10 W using [DIAL]. Then push [F-4 (SET)].
	3		Po 25%(50 M)	Set the output power to 25 W using [DIAL]. Then push [F-4 (SET)].
	4		Po 50%(50 M)	Set the output power to 50 W using [DIAL]. Then push [F-4 (SET)].
	5		Po 100%(50 M)	Set the output power to 90 W using [DIAL]. Then push [F-4 (SET)].
	6		Po Max(50 M)	Set the output power to 100 W using [DIAL]. Then push [F-4 (SET)].

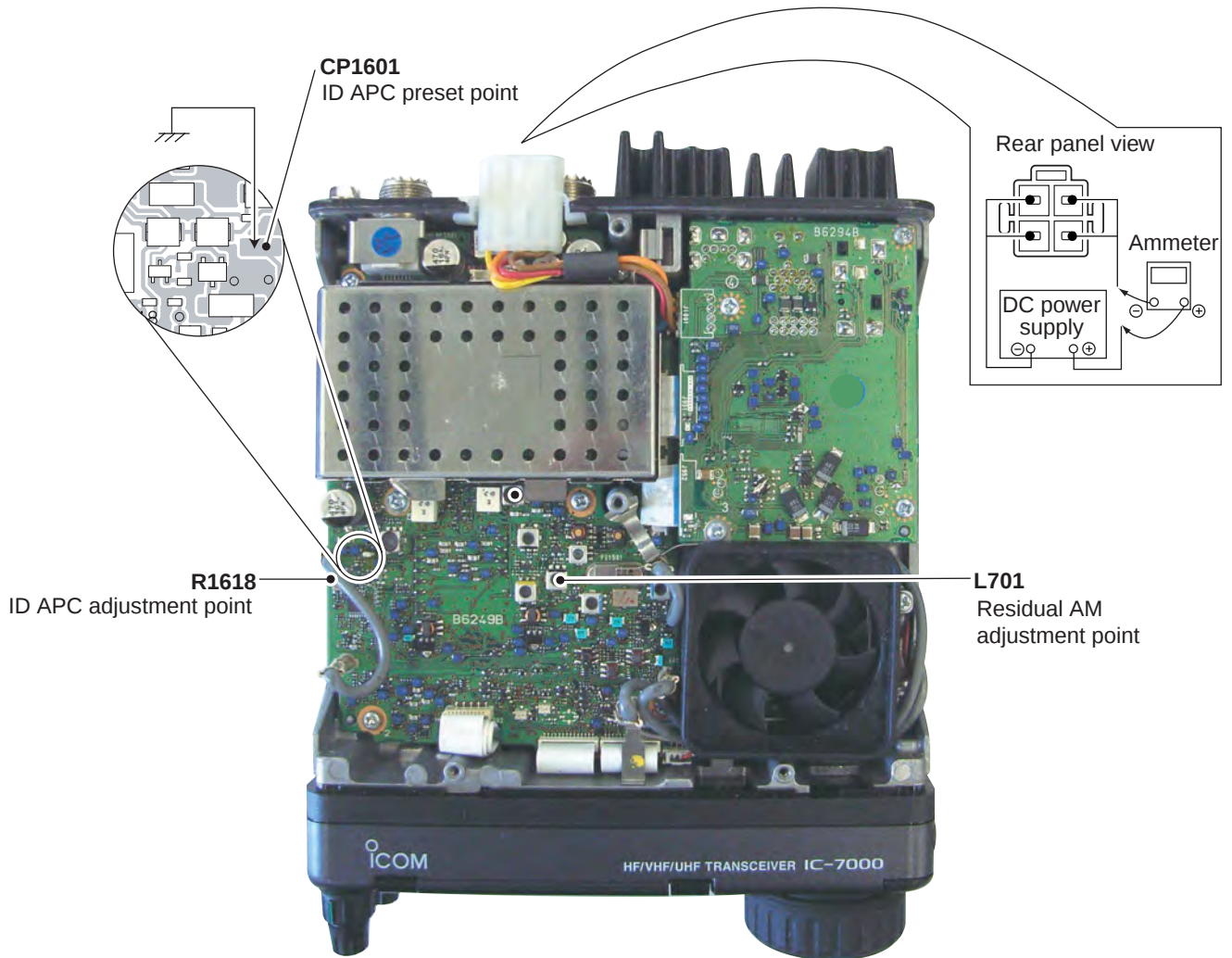
4-4 TRANSMITTER ADJUSTMENT (continue)

ADJUSTMENT		ADJUSTMENT CONDITION	DISPLAY	OPERATION
TX OUTPUT POWER (144 MHz)	1	• Connect an RF power to [ANT2] connector. • Connect an audio generator to [MIC] connector and set as; Level : 1.5 kHz/30 mV • Transmitting	Po Min(144 M)	Set the output power to 1 W using [DIAL]. Then push [F-4 (SET)].
	2		Po 25%(144 M)	Set the output power to 12.5 W using [DIAL]. Then push [F-4 (SET)].
	3		Po 50%(144 M)	Set the output power to 25 W using [DIAL]. Then push [F-4 (SET)].
	4		Po 100%(144 M)	Set the output power to 45 W using [DIAL]. Then push [F-4 (SET)].
	5		Po Max(144 M)	Set the output power to 50 W using [DIAL]. Then push [F-4 (SET)].
APC (VHF)	1		APC(VHF)	Push [F-4 (SET)].
TX OUTPUT POWER (430 MHz)	1	• Connect an RF power meter to [ANT2] connector. • Connect an audio generator to [MIC] connector and set as; Level : 1.5 kHz/30 mV • Transmitting	Po Min(430 M)	Set the output power to 1 W using [DIAL]. Then push [F-4 (SET)].
	2		Po 25%(430 M)	Set the output power to 8.75 W using [DIAL]. Then push [F-4 (SET)].
	3		Po 50%(430 M)	Set the output power to 17.5 W using [DIAL]. Then push [F-4 (SET)].
	4		Po 100%(430 M)	Set the output power to 31.5 W using [DIAL]. Then push [F-4 (SET)].
	5		Po Max(430 M)	Set the output power to 35 W using [DIAL]. Then push [F-4 (SET)].

4-4 TRANSMITTER ADJUSTMENT (continue)

ADJUSTMENT		ADJUSTMENT CONDITION	DISPLAY		OPERATION		
ALC	1	• Connect an RF power meter to [ANT1] connector. • Connect an audio generator to [MIC] connector and set as; Level : 1.5 kHz/30 mV • Transmitting	ALC		Push [F-4 (SET)].		
Drive Min (HF/50 MHz)	1	• Set an audio generator as; Level : 1.5 kHz/20 mV • Transmitting	Drive Min(HF/50 M)		Push [F-4 (SET)].		
ALC (144 MHz)	1	• Connect an RF power meter to [ANT2] connector. • Connect an audio generator to [MIC] connector and set as; Level : 1.5 kHz/30 mV • Transmitting	ALC(144 M)		Push [F-4 (SET)].		
Drive Min (144 MHz)	1	• Set an audio generator as; Level : 1.5 kHz/20 mV • Transmitting	Drive Min(144 M)		Push [F-4 (SET)].		
ALC (430 MHz)	1	• Connect an RF power meter to [ANT2] connector. • Connect an audio generator to [MIC] connector and set as; Level : 1.5 kHz/30 mV • Transmitting	ALC(430 M)		Push [F-4 (SET)].		
Drive Min (430 MHz)	1	• Set an audio generator as; Level : 1.5 kHz/20 mV • Transmitting	Drive Min(430 M)		Push [F-4 (SET)].		
SWR	1	• Connect a 50 Ω dummy load to [ANT1] connector. • Transmitting	SWR=1		Push [F-4 (SET)].		
	2	• Connect a 100 Ω dummy load to [ANT1] connector. • Transmitting	SWR=2		Push [F-4 (SET)].		
	After the adjustment, exit the adjustment mode.						
ADJUSTMENT	ADJUSTMENT CONDITION	MEASUREMENT		VALUE	ADJUSTMENT		
		UNIT	LOCATION		UNIT	ADJUST	
ID APC	1	• Operating freq. : 18.10000 MHz • MODE : USB • Preset R1618 (MAIN unit) as illustration at right.  • Connect a wire between CP1601 (MAIN unit) and ground. • Connect an RF power meter or dummy load to [ANT1] connector. • Connect an audio generator to [MIC] connector and set as; Level : 1.5 kHz/30 mV • Transmitting	REAR panel	Connect a DC ammeter (30 A type) between the DC power supply and transceiver.	22 A	MAIN	R1618
	After the adjustment, disconnect the wire between CP1601 and ground.						
RESIDUAL AM	1	• Operating freq. : 10.10000 MHz • MODE : FM • Connect an audio generator to [MIC] connector and set as; Level : 1 kHz/30 mV • Transmitting	REAR panel	Connect an RF power meter to [ANT1] connector.	Maximum output power	MAIN	L701

• MAIN UNIT

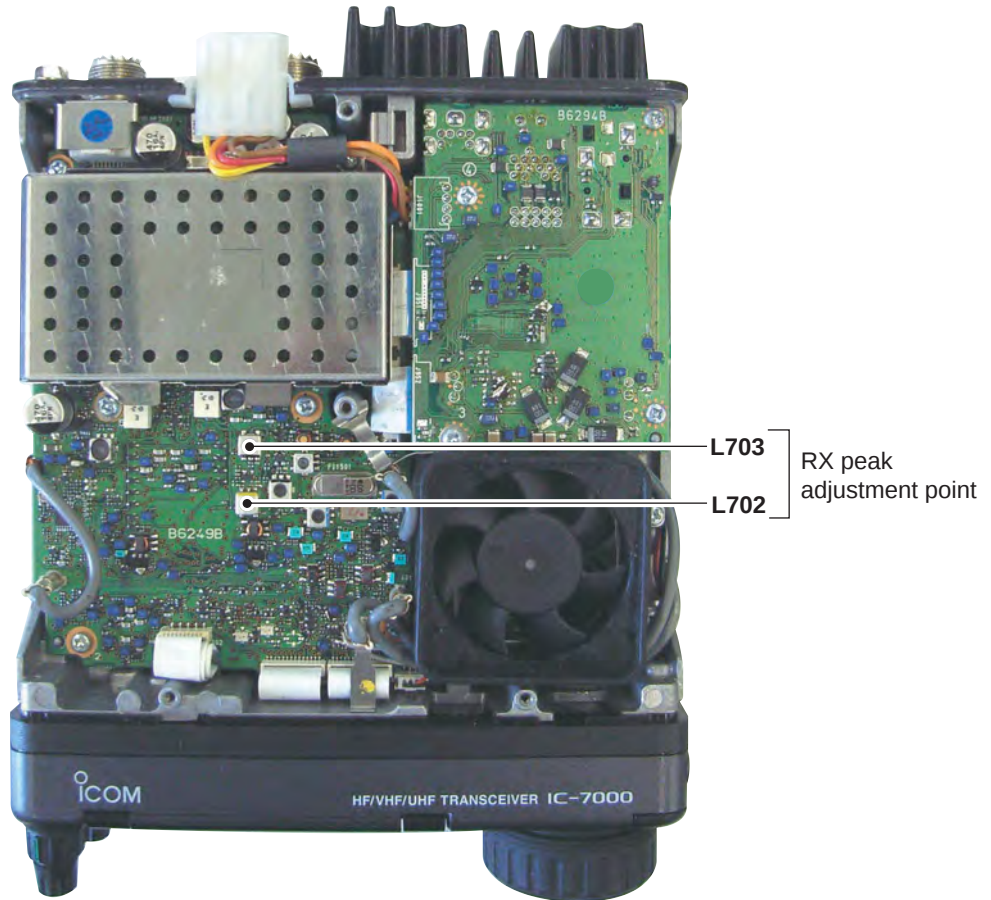


4-5 RECEIVER ADJUSTMENT

ADJUSTMENT		ADJUSTMENT CONDITION	MEASUREMENT		VALUE	ADJUSTMENT	
			UNIT	LOCATION		UNIT	ADJUST
RX PEAK (HF/50 MHz)	1	• Operating freq : 14.15000 MHz • MODE : USB • RIT : OFF • AGC : FAST • NB : OFF • Preamp : ON • Connect an SSG to [ANT1] connector and set as; Frequency : 14.15150 MHz Level : 500 μV* (−53 dBm) Modulation : OFF • Receiving	REAR panel	Connect an AC millivoltmeter to [EXT SP] jack with an 8 Ω load.	Maximum AF output level	MAIN	L702, L703
ADJUSTMENT		ADJUSTMENT CONDITION	DISPLAY		OPERATION		
TOTAL GAIN (HF/50 MHz)	1	• Enter the adjustment mode. • Push [F-3 (RX)].					
	2	• Connect an SSG to [ANT1] connector and set as; Level : 500 μV* (−53 dBm) or OFF Modulation : OFF • Connect an AC millivoltmeter to [EXT SP] jack with an 8 Ω load. • Receiving	Total Gain(HF/50 M)		Set 30 dB of AF level difference between 500 μV and no signal input from the SSG using with [DIAL]. Then push [F-4 (SET)].		
S-METER (HF/50 MHz)	1	• Connect an SSG to [ANT1] connector and set as; Frequency : 14.15150 MHz Level : OFF • Receiving	S0 Level		Push [F-4 (SET)].		
	2	• Set an SSG as; Level : 50 μV* (−73 dBm) • Receiving	S9 Level		Push [F-4 (SET)].		
	3	• Set an SSG as; Level : 32 mV* (−17 dBm) • Receiving	S9+60 Level		Push [F-4 (SET)].		
RECEIVE SENSITIVITY (VHF/UHF)	1	• Connect an SSG to [ANT2] connector and set as; Frequency : 60.2015 MHz Level : 10 μV* (−87 dBm) Modulation : OFF • Receiving	Tuned BPF(60 M)		Push [F-4 (SET)].		
	2	• Set an SSG as ; Frequency : 90.8015 MHz • Receiving	Tuned BPF(90 M)		Push [F-4 (SET)].		
	3	• Set an SSG as ; Frequency : 128.8015 MHz • Receiving	Tuned BPF(128 M)		Push [F-4 (SET)].		
	4	• Set an SSG as ; Frequency : 129.2015 MHz • Receiving	Tuned BPF(129 M)		Push [F-4 (SET)].		
	5	• Set an SSG as ; Frequency : 145.3015 MHz • Receiving	Tuned BPF(145 M)		Push [F-4 (SET)].		

*The output level of a standard signal generator (SSG) is indicated as SSG's open circuit.

• MAIN UNIT

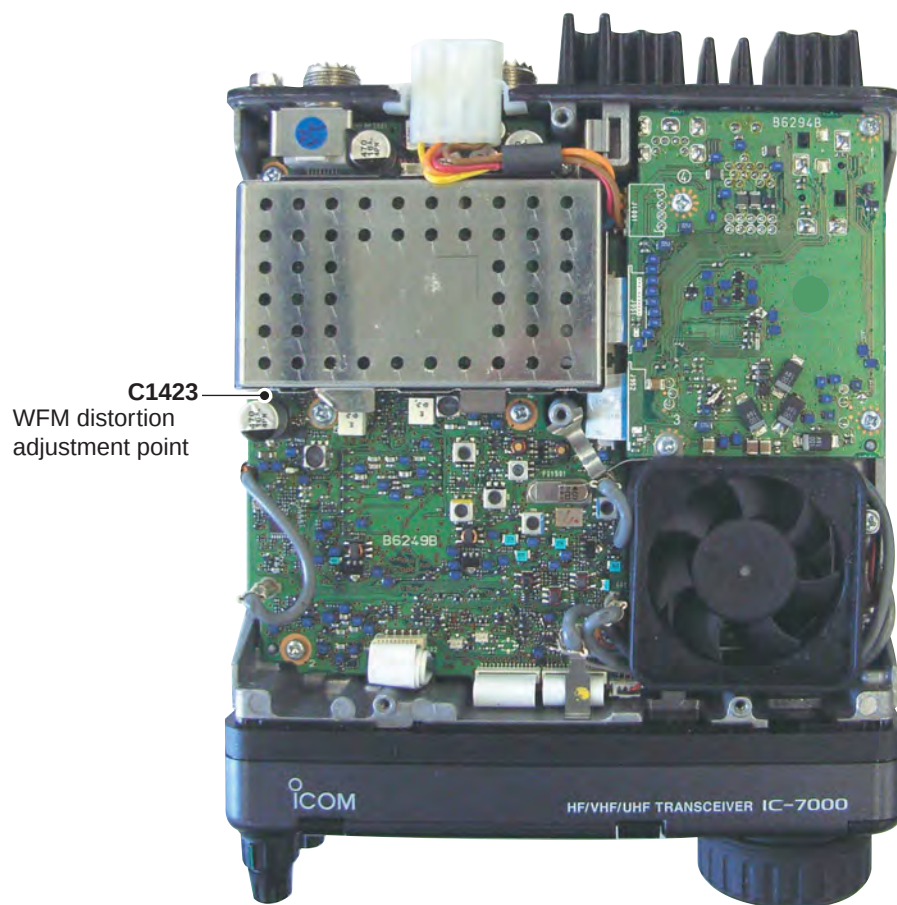


4-5 RECEIVER ADJUSTMENT (continue)

ADJUSTMENT		ADJUSTMENT CONDITION	DISPLAY	OPERATION			
RECEIVE SENSITIVITY (VHF/UHF)	6	• Set an SSG as ; Frequency : 169.8015 MHz • Receiving	Tuned BPF(170 M)	Push [F-4 (SET)].			
	7	• Set an SSG as ; Frequency : 400.2015 MHz • Receiving	Tuned BPF(400 M)	Push [F-4 (SET)].			
	8	• Set an SSG as ; Frequency : 435.2015 MHz • Receiving	Tuned BPF(435 M)	Push [F-4 (SET)].			
	9	• Set an SSG as ; Frequency : 469.8015 MHz • Receiving	Tuned BPF(470 M)	Push [F-4 (SET)].			
RX TOTAL GAIN (VHF/UHF)	1	• Connect an SSG to [ANT2] connector and set as; Frequency : 435.2015 MHz Level : 500 μV* (–53 dBm) or OFF Modulation : OFF • Connect an AC millivolt meter to [EXT SP] jack with an 8 Ω load. • Receiving	Total Gain(144M/430M)	Set 25 dB of AF level difference between 500 μV and no signal input from the SSG using with [DIAL]. Then push [F-4 (SET)].			
S-METER (WFM)	1	• Connect an SSG to the [ANT2] connector and set as; Frequency : 90.80 MHz Level : 0.56 μV* (–112 dBm) Modulation : OFF • Receiving	S0 Level(WFM)	Push [F-4 (SET)].			
	2	• Set an SSG as; Level : 3.2 μV* (–97 dBm) • Receiving	S9 Level(WFM)	Push [F-4 (SET)].			
	3	• Set an SSG as; Level : 32 μV* (–77 dBm) • Receiving	S9+60 Level(WFM)	Push [F-4 (SET)].			
	After the adjustment, exit the adjustment mode.						
ADJUSTMENT		ADJUSTMENT CONDITION	MEASUREMENT		VALUE	ADJUSTMENT	
			UNIT	LOCATION		UNIT	ADJUST
WFM DISTORTION	1	• Operating freq : 90.00000 MHz MODE : WFM Preamp : ON • Connect an SSG to [ANT2] connector and set as; Frequency : 90.0000 MHz Level : 3.2 μV* (–97 dBm) Modulation : 1 kHz Deviation : 50 kHz • Receiving	REAR panel	Connect a distortion meter to [EXT SP] jack with an 8 Ω load.	Minimum AF distortion level	MAIN	C1423

*The output level of a standard signal generator (SSG) is indicated as SSG's open circuit.

- MAIN UNIT



SECTION 5 PARTS LIST

[REPLACEMENT UNITS]

ORDER NO.	UNIT NAME
0324270102	U 7000 #02 FRONT [EUR], [FRA], [ESP], [EXP], [UK]
0324270105	U 7000 #05 FRONT [USA]

[FRONT UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.	H/V LOCATION
DS1	5030002820	LCD LTA025A161A		
W1	8900013940	CBL OPC-1447 (N=10, L=30)		
W2	8900013990	CBL OPC-1445		
EP1	880001670	UBD EX-2822 #01		

[DISPLAY UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.	H/V LOCATION
IC1	6910016730	S.DCC XC9504B092ARN	B	44.4/9.4
IC101	1180001071	S.IC TA7805F (TE16L, Q)	B	90.3/6.9
IC151	1180002201	S.IC RN5RZ33BA-TR-F	B	99.9/4.8
IC301	1110002751	S.IC TA75S01F (TE85R, F)	B	113.8/7.5
IC506	1120003010	S.IC AN2533FH-V	B	69/38.5
IC651	1110005420	S.IC BA15532F-E2	B	4.1/25.6
IC2003	1140013140	S.IC HD64338020SB68HV	B	93/26.3
IC2007	1110005821	S.IC R3112N281A-TR-F	B	108.7/46.9
Q1	1550000090	S.FET RSQ035P03TR	B	39.4/9.8
Q51	1560001330	S.FET RSR025N03	B	52.1/10.6
Q301	1560001290	S.FET 2SK3065 T100	T	110.8/31.4
Q302	1590003520	S.TR BCR108T	T	116.7/10.2
Q303	1590003530	S.TR BCR08PN	T	113.1/11.5
Q651	1590001650	S.TR XP4601 (TX)	B	10.6/28.8
Q652	1590001650	S.TR XP4601 (TX)	B	11.1/20.6
Q653	1590001650	S.TR XP4601 (TX)	B	10.6/26.2
Q654	1590001650	S.TR XP4601 (TX)	B	11.1/17
Q701	1530002060	S.TR 2SC4081 T106 R	T	19.1/50.3
Q721	1530002060	S.TR 2SC4081 T106 R	T	22/5.8
Q741	1530002060	S.TR 2SC4081 T106 R	T	94/50.1
Q761	1530002060	S.TR 2SC4081 T106 R	T	104.2/50.1
Q771	1530002060	S.TR 2SC4081 T106 R	T	18.4/25.1
Q781	1530002060	S.TR 2SC4081 T106 R	T	5.3/23.6
Q802	1520000460	S.TR 2SB1132 T100 R	B	58.8/21.6
Q2001	1590003520	S.TR BCR108T	B	81.6/23.7
Q2002	1590003570	S.TR BCR183T	B	81.2/30.1
D1	1790000970	S.DIO MA729 (TX)	B	36.8/10.1
D51	1750000730	S.DIO MA2SD1000L	B	51/8
D301	1790001250	S.DIO MA2S111-(TX)	B	111/32
D302	1790001520	S.ZEN MA8075-L (TX)	B	109.9/7.6
D601	1750000950	S.DIO MA732 (TX)	B	51.5/40
D602	1750000950	S.DIO MA732 (TX)	B	53.3/40
D801	1730002340	S.ZEN MA8047-M (TX)	B	35/40.4
D802	1730002340	S.ZEN MA8047-M (TX)	B	39.8/25.8
D803	1730002340	S.ZEN MA8047-M (TX)	B	38.6/22
D804	1730002340	S.ZEN MA8047-M (TX)	B	41.8/23
D2001	1750000950	S.DIO MA732 (TX)	T	107.4/26.5
D2002	1790001670	S.DIO RB706F-40T106	B	76.6/16.8
D2003	1790001670	S.DIO RB706F-40T106	T	116.4/36.7
D2004	1750000370	S.DIO DA221 TL	T	100.6/41.8
D2005	1750000370	S.DIO DA221 TL	B	101.7/42.8
D2006	1750000370	S.DIO DA221 TL	B	107.3/5.9
X501	6050012140	S.XTL CR-805 [USA]	B	87/43.5
	6050012150	S.XTL CR-806 [Others]	B	87/43.5
X2001	6050011550	S.XTL CR-747	B	106.5/27

[DISPLAY UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.	H/V LOCATION
L1	6190001561	S.COL CDRH5D18NP-101NC	B	68.4/6.3
L2	6190001561	S.COL CDRH5D18NP-101NC	B	34.6/5.2
L3	6200002041	S.COL NLV25T-101J	B	30.7/10.4
L51	6190001561	S.COL CDRH5D18NP-101NC	B	55.9/6.2
L53	6200002041	S.COL NLV25T-101J	B	60.9/10.9
L101	6200001831	S.COL NLV32T-100J	B	96/11.6
L151	6200001831	S.COL NLV32T-100J	B	96/8.6
L152	6200001831	S.COL NLV32T-100J	B	100.6/11.4
L251	6200003950	S.COL HF50ACC 322513-T	B	145.9/44
L252	6200003950	S.COL HF50ACC 322513-T	B	146/50.6
L301	6200002041	S.COL NLV25T-101J	B	109.6/16.7
L302	6200005011	S.COL NLV25T-100J	T	112.6/24
L303	6200002041	S.COL NLV25T-101J	T	112/20.3
L306	6200003261	S.COL NLV32T-101J	T	109.8/25.5
L307	6200002041	S.COL NLV25T-101J	T	115.4/26.6
L309	6200002041	S.COL NLV25T-101J	T	115.3/24
L310	6200002041	S.COL NLV25T-101J	T	115.4/21.5
L312	6200002041	S.COL NLV25T-101J	T	115.4/19
L313	6200002041	S.COL NLV25T-101J	T	115.7/16.3
L505	6200005521	S.COL NLV25T-470J	B	71.2/47.9
L506	6200005011	S.COL NLV25T-100J	B	67.9/20.2
L507	6200005011	S.COL NLV25T-100J	B	50.2/29
L508	6200005011	S.COL NLV25T-100J	B	49.3/24.3
L509	6200005011	S.COL NLV25T-100J	B	17.4/35.6
L601	6200002041	S.COL NLV25T-101J	B	70.6/25.2
L602	6200005011	S.COL NLV25T-100J	B	53.5/36.2
L603	6200005011	S.COL NLV25T-100J	B	51/43.6
L604	6200005011	S.COL NLV25T-100J	B	53.5/43.6
L605	6200005011	S.COL NLV25T-100J	B	50.9/36.2
L651	6200002041	S.COL NLV25T-101J	B	19.1/42.7
L701	6200002041	S.COL NLV25T-101J	B	21.1/37.5
L702	6200002041	S.COL NLV25T-101J	B	65.4/10.9
L703	6200002041	S.COL NLV25T-101J	B	27.9/11.3
L801	6200005011	S.COL NLV25T-100J	B	63.4/16.9
L802	6200002041	S.COL NLV25T-101J	B	19.1/47.5
L851	6200003950	S.COL HF50ACC 322513-T	B	33.2/17.2
L852	6200003950	S.COL HF50ACC 322513-T	B	35/21.3
L853	6200002041	S.COL NLV25T-101J	B	34.4/26.6
L854	6200002041	S.COL NLV25T-101J	B	34.4/24.1
L855	6200003950	S.COL HF50ACC 322513-T	B	36.4/17.2
R1	7030008141	S.RES ERA3YKD 224V (220 kΩ)	B	33.4/9.6
R2	7030005671	S.RES ERA3YKD 393V (39 kΩ)	B	33.4/11.6
R3	7030008051	S.RES ERA3YKD 184V (180 kΩ)	B	42.6/6.4
R4	7030005050	S.RES ERJ2GEJ 103 X (10 kΩ)	B	40.9/6.8
R5	7030005050	S.RES ERJ2GEJ 103 X (10 kΩ)	B	40.9/7.7
R51	7030008141	S.RES ERA3YKD 224V (220 kΩ)	B	49.7/10.8
R52	7030007911	S.RES ERA3YKD 563V (56 kΩ)	B	48.5/10.8
R53	7030006561	S.RES ERA3YED 223V (22 kΩ)	B	46.5/11.8
R54	7030005050	S.RES ERJ2GEJ 103 X (10 kΩ)	B	47.9/8.4
R55	7030005050	S.RES ERJ2GEJ 103 X (10 kΩ)	B	48.8/8.4
R201	7030010040	S.RES ERJ2GEJ-JPW	B	109.6/38
R202	7030010040	S.RES ERJ2GEJ-JPW	B	109.6/39
R251	7030005120	S.RES ERJ2GEJ 102 X (1 kΩ)	B	136.5/49.6
R252	7030000300	S.RES MCR10EZHZ 220 Ω	B	133.9/47.3
R253	7030000300	S.RES MCR10EZHZ 220 Ω	B	142/50.8
R254	7030000300	S.RES MCR10EZHZ 220 Ω	B	133.9/49
R255	7030000300	S.RES MCR10EZHZ 220 Ω	T	143.2/50.7
R301	7030005120	S.RES ERJ2GEJ 102 X (1 kΩ)	B	113.2/32
R302	7030005050	S.RES ERJ2GEJ 103 X (10 kΩ)	T	114/30.4
R303	7030005120	S.RES ERJ2GEJ 102 X (1 kΩ)	B	111/33.4
R304	7030007300	S.RES ERJ2GEJ 332 X (3.3 kΩ)	B	111.9/33.4
R305	7030007300	S.RES ERJ2GEJ 332 X (3.3 kΩ)	B	113.2/32.9
R306	7030005120	S.RES ERJ2GEJ 102 X (1 kΩ)	T	114.9/11
R307	7030005050	S.RES ERJ2GEJ 103 X (10 kΩ)	B	111.3/8.4
R308	7030005230	S.RES ERJ2GEJ 334 X (330 kΩ)	B	113.8/5.3
R309	7030005310	S.RES ERJ2GEJ 124 X (120 kΩ)	B	112/5.3
R310	7030008010	S.RES ERJ2GEJ 123 X (12 kΩ)	B	110.2/5.3
R521	7030008370	S.RES ERJ2GEJ 561 X (560 Ω)	B	60.8/46.1
R522	7030010040	S.RES ERJ2GEJ-JPW	B	65.3/47.4
R523	7030010040	S.RES ERJ2GEJ-JPW	B	65.4/48.7
R524	7030010900	S.RES ERJ3GEYJ 750 V (75 Ω)	B	63.1/48.9
R528	7030010040	S.RES ERJ2GEJ-JPW	B	60.8/42.6
R529	7030005050	S.RES ERJ2GEJ 103 X (10 kΩ)	B	58.6/43.8
R530	7030005080	S.RES ERJ2GEJ 823 X (82 kΩ)	B	60.8/43.6
R531	7030009290	S.RES ERJ2GEJ 562 X (5.6 kΩ)	B	76.3/42.9
R532	7030005050	S.RES ERJ2GEJ 103 X (10 kΩ)	B	60.8/37.2
R533	7030010040	S.RES ERJ2GEJ-JPW	B	56.5/32.3
R534	7030010040	S.RES ERJ2GEJ-JPW	B	60.8/36
R536	7030010040	S.RES ERJ2GEJ-JPW	B	62.6/29
R537	7030010040	S.RES ERJ2GEJ-JPW	B	64.6/29
R538	7030010040	S.RES ERJ2GEJ-JPW	B	66.6/29

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)
S.=Surface mount

[DISPLAY UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.	H/V LOCATION
C559	4030017460	S.CER ECJ0EB1E102K	B	29.3/43.9
C560	4030018960	S.CER C3216 JB 1C 106MT-N	B	17/33.2
C561	4030017330	S.CER ECJ0EF1C104Z	B	7.3/30.7
C562	4030017780	S.CER ECJ0EB1E472K	B	6.1/30.9
C601	4030016930	S.CER ECJ0EB1A104K	B	73.6/24.9
C602	4030016930	S.CER ECJ0EB1A104K	B	48.8/44.3
C603	4030016930	S.CER ECJ0EB1A104K	B	55/39.4
C604	4030018960	S.CER C3216 JB 1C 106MT-N	B	55.8/36.3
C605	4030016930	S.CER ECJ0EB1A104K	B	52.5/46.6
C606	4030018960	S.CER C3216 JB 1C 106MT-N	B	50.7/48
C607	4030011600	S.CER C1608 JB 1E 104K-T	B	55.4/40.6
C608	4030018960	S.CER C3216 JB 1C 106MT-N	B	55.8/43.7
C609	4030011600	S.CER C1608 JB 1E 104K-T	B	50.5/31.8
C610	4030018960	S.CER C3216 JB 1C 106MT-N	B	52.3/33.5
C611	4550007220	S.TAN F931A476MCMCMBMA	B	73.4/22.1
C651	4030018960	S.CER C3216 JB 1C 106MT-N	B	16.9/17.6
C652	4030018960	S.CER C3216 JB 1C 106MT-N	B	6.7/17.1
C653	4030011600	S.CER C1608 JB 1E 104K-T	B	15.7/19.3
C654	4030017490	S.CER C1608 JB 1A 105K-T	B	3.5/20.4
C655	4030016790	S.CER ECJ0EB1C103K	B	0.8/30.3
C656	4030019090	S.CER C2012 JB 1C 225M-T	B	7.8/25.5
C657	4030018520	S.CER C1608 JB 0J 225M-T	B	7/20.6
C658	4030017650	S.CER ECJ0EC1H270J	B	5.5/20.5
C659	4030017780	S.CER ECJ0EB1E472K	B	15.2/20.3
C701	4030018960	S.CER C3216 JB 1C 106MT-N	B	4.6/32.4
C702	4030018960	S.CER C3216 JB 1C 106MT-N	B	48.9/19
C801	4030016930	S.CER ECJ0EB1A104K	B	62.9/19.7
C802	4030011600	S.CER C1608 JB 1E 104K-T	B	21.5/48.5
C851	4030017780	S.CER ECJ0EB1E472K	B	32.1/23.9
C852	4030018960	S.CER C3216 JB 1C 106MT-N	B	40.3/15.8
C2001	4030018520	S.CER C1608 JB 0J 225M-T	B	78.5/16.7
C2002	4030017780	S.CER ECJ0EB1E472K	T	114.8/34.7
C2003	4030017630	S.CER ECJ0EC1H120J	B	103.3/28.7
C2004	4030017630	S.CER ECJ0EC1H120J	B	103.3/25.1
C2005	4030016790	S.CER ECJ0EB1C103K	B	103.3/35.7
C2006	4030016930	S.CER ECJ0EB1A104K	B	98/37.9
C2007	4030018960	S.CER C3216 JB 1C 106MT-N	B	105.8/47.7
C2008	4030017030	S.CER ECJ0EB1A273K	B	109.7/44.6
C2009	4030016930	S.CER ECJ0EB1A104K	B	99/37.9
C2010	4030016930	S.CER ECJ0EB1A104K	B	100/37.9
C2011	4030016930	S.CER ECJ0EB1A104K	B	79.6/29.7
C2012	4030017780	S.CER ECJ0EB1E472K	B	95.8/37.9
C2013	4030017780	S.CER ECJ0EB1E472K	B	93/37.9
C2014	4030016930	S.CER ECJ0EB1A104K	T	110.4/41.7
C2015	4030016930	S.CER ECJ0EB1A104K	B	103.3/35.7
C2016	4030016930	S.CER ECJ0EB1A104K	B	83.5/28
J202	6510023801	S.CNR S4B-ZR-SM4A-TF (LF) (SN)	B	115.9/39.4
J251	6510024680	S.CNR HSJ1636-011020	B	154.7/45.8
J303	6510021431	S.CNR S8B-ZR-SM4A-TF (LF) (SN)	B	115.9/20.9
J401	6510024840	S.CNR 52746-1070	B	21.3/26.3
J601	6510024780	S.CNR 52437-2472	B	45.1/42
J2001	6510024790	S.CNR 52559-1072	B	96.9/47.6
DS805	5040003190	S.LED NSSW008B	T	29.5/39.4
DS806	5040003190	S.LED NSSW008B	T	29.4/31.4
DS807	5040003190	S.LED NSSW008B	T	29.4/24.1
DS808	5040003190	S.LED NSSW008B	T	29.5/16.1
DS2001	5040002930	S.LED SML-512MW T86	T	110.2/15.8
DS2002	5040002020	S.LED CL-170UR-CD-T	T	110.2/36.8
DS2004	5040002930	S.LED SML-512MW T86	T	11.4/20.5
S201	2230001160	S.SW SPVP110100	T	157.7/34.3
S251	2220000330	S.SW HSW0880-01-210	B	139.7/46.5
S701	2230001150	S.SW LS9J2M-1FG-T	T	22.2/48.3
S702	2230001150	S.SW LS9J2M-1FG-T	T	21.7/36.5
S703	2230001150	S.SW LS9J2M-1FG-T	T	20.9/17
S704	2230001150	S.SW LS9J2M-1FG-T	T	21.6/2.7
S721	2230001150	S.SW LS9J2M-1FG-T	T	40.1/2.4
S722	2230001150	S.SW LS9J2M-1FG-T	T	54.3/2.4
S723	2230001150	S.SW LS9J2M-1FG-T	T	68.4/2.4
S724	2230001150	S.SW LS9J2M-1FG-T	T	82.6/2.4
S741	2230001150	S.SW LS9J2M-1FG-T	T	98.1/47.8
S742	2230001150	S.SW LS9J2M-1FG-T	T	99.1/32.1
S743	2230001150	S.SW LS9J2M-1FG-T	T	99.1/20.5
S744	2230001150	S.SW LS9J2M-1FG-T	T	98.1/5.7
S761	2230001150	S.SW LS9J2M-1FG-T	T	109.5/49.1
S762	2230001150	S.SW LS9J2M-1FG-T	T	109.5/3.5
S763	2230001150	S.SW LS9J2M-1FG-T	T	154.8/47.4
S764	2230001150	S.SW LS9J2M-1FG-T	T	154.8/5.1
S781	2230001150	S.SW LS9J2M-1FG-T	T	4.6/29
S782	2230001150	S.SW LS9J2M-1FG-T	T	21.7/25.8
EP1	6910014730	S.BEA MPZ2012S331A-T	B	64.1/6.6
R1	7210003230	VAR TP96D00A-17F-10KBX2		

[VR UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.	H/V LOCATION
R2	7030003860	S.RES ERJ3GE JPW V	T	1.3/32.6
R3	7030003860	S.RES ERJ3GE JPW V	T	2.3/30
J1	6510024850	S.CNR 54550-1094	T	3.3/22.2
S1	2250000170	ECR TP90D96AE20-17F (1352)		
EP4	6910012350	S.BEA MMZ1608Y 102BT	T	2.7/32.6
EP5	6910012350	S.BEA MMZ1608Y 102BT	T	3.7/30
EP6	6910012350	S.BEA MMZ1608Y 102BT	T	0.9/30
EP7	6910012350	S.BEA MMZ1608Y 102BT	T	0.9/14.5
EP8	6910012350	S.BEA MMZ1608Y 102BT	T	3.7/14.5
EP9	6910012350	S.BEA MMZ1608Y 102BT	T	2.7/11.8
EP10	6910012350	S.BEA MMZ1608Y 102BT	T	2.3/14.5
EP11	6910012350	S.BEA MMZ1608Y 102BT	T	1.3/11.8

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.	H/V LOCATION
IC1	1110004080	S.IC μPC2709T-E3	T	75.6/12.7
IC2	1110004101	S.IC TA4001F (TE85L,F)	T	63.9/18.8
IC3	1110004091	S.IC TA4002F (TE85L,F)	T	48.3/17.4
IC401	1190002051	S.IC SPM5001-YL-E	T	77.5/27.9
IC421	1110004080	S.IC μPC2709T-E3	T	86.4/19.4
IC801	1110004080	S.IC μPC2709T-E3	T	86/57.4
IC1101	1110006730	S.IC NJM2594V-TE1	T	5/83.3
IC1201	1130006221	S.IC TC4W53FU (TE12L,F)	T	24.2/81.6
IC1202	1130006221	S.IC TC4W53FU (TE12L,F)	T	19.8/81.4
IC1203	1110006570	S.IC TS462CPT	T	12.8/81.7
IC1301	1110005461	S.IC TA4107F (TE12L,F)	T	13.7/63.4
IC1401	1110006541	S.IC LA1225M-TLM-E	B	23.4/82.2
IC1501	1110006530	S.IC TA4019F (TE12L,F)	B	74.8/39
IC1502	1110005040	S.IC M52342FP 600C	B	79.7/57
IC1601	1110005320	S.IC NJM13403V-TE1	T	8.6/41.5
IC1801	1180002020	S.REG BA033FP-E2	B	22.8/106.5
IC1901	1180001251	S.IC TA7808F (TE16L,Q)	B	10.4/55.2
IC1951	1190002120	S.IC XC9201D09AKR	B	41.9/107.8
IC1952	1180002020	S.REG BA033FP-E2	B	14.7/125.8
IC2001	1180001251	S.IC TA7808F (TE16L,Q)	B	8.5/19
IC2007	1110006570	S.IC TS462CPT	T	15.8/121
IC2101	1110005320	S.IC NJM13403V-TE1	T	28.5/118.2
IC2102	1110005320	S.IC NJM13403V-TE1	T	49.5/111.9
IC2103	1110005140	S.IC NJM3403AV-TE1	T	49.5/121.2
IC2151	1130012720	S.IC CD74HC4094PWR	T	47.1/95.9
IC2152	1130012720	S.IC CD74HC4094PWR	T	37.9/95.9
IC2153	1130012720	S.IC CD74HC4094PWR	T	28.1/95.8
IC2154	1130012720	S.IC CD74HC4094PWR	T	28.2/101.5
IC2155	1110006680	S.IC BH2221FV-E2	T	38.2/118.1
IC2156	1130009100	S.IC BU4052BCFV-E2	T	10.1/107.6
IC2231	1110006640	S.IC NJM2244M-TE1	T	34.7/109.4
IC2251	1130008510	S.IC TC7W53FU (TE12L)	T	16.7/89.5
IC2501	1110006570	S.IC TS462CPT	B	12.7/91.4
IC2551	1110006570	S.IC TS462CPT	B	49.2/122
IC2601	1130006221	S.IC TC4W53FU (TE12L,F)	B	63.2/123.9
IC2602	1110003091	IC LA4425A-E		
Q101	1530003091	S.TR 2SC4213-B (TE85R,F)	T	11.2/17.5
Q102	1590003520	S.TR BCR108T	T	21.3/5.6
Q103	1590003530	S.TR BCR08PN	T	38.4/20.2
Q201	1590003520	S.TR BCR108T	T	16.1/31.1
Q202	1590003520	S.TR BCR108T	T	23.5/28.5
Q204	1590003520	S.TR BCR108T	B	44.7/38.6
Q205	1590003520	S.TR BCR108T	T	42.9/61.5
Q206	1590003520	S.TR BCR108T	B	24.5/55
Q207	1590003520	S.TR BCR108T	B	24.5/51.9
Q208	1590003520	S.TR BCR108T	B	24.2/48.8
Q209	1590003520	S.TR BCR108T	B	23.5/45.7
Q210	1590003520	S.TR BCR108T	B	42.9/41.4
Q211	1530003851	S.TR 2SC5551F-TD-E	T	27.6/30.1
Q301	1530003851	S.TR 2SC5551F-TD-E	T	56.7/32.4
Q402	1590003530	S.TR BCR08PN	T	82.8/22.8
Q403	1590003530	S.TR BCR08PN	T	70.6/23.6
Q502	1530003851	S.TR 2SC5551F-TD-E	T	82.8/37.1
Q701	1580000780	S.FET 3SK195 (TE85L,F)	T	62/56.5
Q702	1580000780	S.FET 3SK195 (TE85L,F)	T	54.6/51.8
Q901	1580000780	S.FET 3SK195 (TE85L,F)	T	36.6/65.7
Q902	1580000780	S.FET 3SK195 (TE85L,F)	T	35.9/73.2
Q1001	1580000780	S.FET 3SK195 (TE85L,F)	T	17.9/76
Q1201	1590003530	S.TR BCR08PN	T	28/78.6
Q1401	1530002060	S.TR 2SC4081 T106 R	B	42.5/74.3

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)
S.=Surface mount

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.	H/V LOCATION
Q1402	1530002060	S.TR 2SC4081 T106 R	B	36.7/80.1
Q1501	1590003530	S.TR BCR08PN	T	30.6/78.5
Q1521	1530002060	S.TR 2SC4081 T106 R	B	86.6/48.6
Q1601	1530003091	S.TR 2SC4213-B (TE85R,F)	T	8.3/52.9
Q1602	1590001870	S.TR DTA114EE TL	T	4.5/53
Q1603	1590003520	S.TR BCR108T	T	2.8/40.7
Q1604	1510000771	S.TR 2SA1586-GR (TE85R,F)	T	5.1/32.7
Q1606	1560001260	S.FET 2SK3018 T106	T	12.5/36.8
Q1701	1540000441	S.TR 2SD1619T-TD-E	B	52.4/48.2
Q1702	1590003520	S.TR BCR108T	B	54.3/52.1
Q1703	1540000441	S.TR 2SD1619T-TD-E	B	52.4/67.4
Q1704	1590003520	S.TR BCR108T	B	54.1/72.9
Q1901	1590003530	S.TR BCR08PN	T	35.8/78.5
Q1902	1590003530	S.TR BCR08PN	T	33.3/78.5
Q1903	1590003530	S.TR BCR08PN	B	23.6/17
Q1904	1590003530	S.TR BCR08PN	B	32.9/87.9
Q1905	1590003530	S.TR BCR08PN	B	46/40.9
Q1906	1590003530	S.TR BCR08PN	B	26.3/30.8
Q1907	1590003530	S.TR BCR08PN	T	40.9/78.5
Q1908	1590003530	S.TR BCR08PN	T	38.3/78.5
Q1909	1590003530	S.TR BCR08PN	B	22.1/11.8
Q1960	1550000090	S.FET RSQ035P03TR	B	37.9/103.6
Q2150	1590003530	S.TR BCR08PN	T	48.4/100.1
Q2151	1520000460	S.TR 2SB1132 T100 R	T	55.3/103.8
Q2152	1520000460	S.TR 2SB1132 T100 R	T	21.3/111
Q2153	1520000460	S.TR 2SB1132 T100 R	T	49.8/104.5
Q2154	1590003530	S.TR BCR08PN	T	44.7/100.1
Q2155	1590003530	S.TR BCR08PN	T	39.9/100.1
Q2156	1590003520	S.TR BCR108T	T	58.9/104.5
Q2157	1590003520	S.TR BCR108T	T	25.4/109.7
Q2158	1590003520	S.TR BCR108T	T	45.5/107.1
Q2159	1590003530	S.TR BCR08PN	T	6.7/118.2
Q2160	1590003530	S.TR BCR08PN	T	7.7/122.2
Q2231	1590003520	S.TR BCR108T	T	4.7/121.7
Q2232	1590003530	S.TR BCR08PN	T	57.3/114.8
Q2233	1590003530	S.TR BCR08PN	T	54.7/115.7
Q2301	1530002060	S.TR 2SC4081 T106 R	T	30.6/109
Q2401	1540000441	S.TR 2SD1619T-TD-E	B	80.1/26.4
Q2601	1560001260	S.FET 2SK3018 T106	B	36.2/125.3
Q2602	1560001220	S.FET ECH8301-TL	B	37.3/128.2
Q2603	1530002060	S.TR 2SC4081 T106 R	T	65.3/111.3
Q2605	1590003520	S.TR BCR108T	T	11.7/112.7
Q2606	1540000451	S.TR 2SD1623T-TD-E	B	89.5/119.9
Q2607	1590003520	S.TR BCR108T	B	65.4/120.5
Q2608	1590003520	S.TR BCR108T	B	45/128.6
D1	1750000581	S.DIO 1SV307 (TPH3, F)	T	70.2/16.6
D2	1750000581	S.DIO 1SV307 (TPH3, F)	T	70.1/14.8
D3	1750000581	S.DIO 1SV307 (TPH3, F)	T	45.2/19.8
D4	1750000581	S.DIO 1SV307 (TPH3, F)	T	41.9/19
D5	1750000581	S.DIO 1SV307 (TPH3, F)	T	70.6/18.3
D6	1790000620	S.DIO MA77 (TX)	B	80.5/16.4
D7	1790000620	S.DIO MA77 (TX)	T	78.5/15.8
D8	1790000620	S.DIO MA77 (TX)	B	81.5/10.6
D9	1790000620	S.DIO MA77 (TX)	T	79/11.5
D10	1750000581	S.DIO 1SV307 (TPH3, F)	T	42.4/20.9
D101	1750000581	S.DIO 1SV307 (TPH3, F)	T	13.3/22.5
D102	1750000581	S.DIO 1SV307 (TPH3, F)	T	15.7/19.2
D103	1750000581	S.DIO 1SV307 (TPH3, F)	T	19.9/8.5
D104	1750000581	S.DIO 1SV307 (TPH3, F)	T	34.7/17.9
D105	1750000581	S.DIO 1SV307 (TPH3, F)	T	23.1/12.7
D106	1750000581	S.DIO 1SV307 (TPH3, F)	T	29.6/21
D107	1750000581	S.DIO 1SV307 (TPH3, F)	T	44/23.6
D108	1750000950	S.DIO MA732 (TX)	B	27.1/18.2
D109	1750000950	S.DIO MA732 (TX)	B	24.7/20.3
D110	1790001240	S.DIO MA2S728-(TX)	B	51.6/26.4
D111	1790001240	S.DIO MA2S728-(TX)	B	51.6/24.7
D112	1750000581	S.DIO 1SV307 (TPH3, F)	T	15.7/20.9
D113	1750000581	S.DIO 1SV307 (TPH3, F)	T	10.2/19.7
D114	1790001250	S.DIO MA2S111-(TX)	T	35.7/21.3
D203	1750000581	S.DIO 1SV307 (TPH3, F)	T	19.3/35.7
D204	1750000581	S.DIO 1SV307 (TPH3, F)	T	25.7/58.2
D205	1750000581	S.DIO 1SV307 (TPH3, F)	T	25.7/56.3
D208	1750000581	S.DIO 1SV307 (TPH3, F)	T	25.7/53.4
D209	1750000581	S.DIO 1SV307 (TPH3, F)	T	25.7/50.6
D210	1750000581	S.DIO 1SV307 (TPH3, F)	T	25.7/47.7
D211	1750000581	S.DIO 1SV307 (TPH3, F)	T	25.7/44.8
D212	1750000581	S.DIO 1SV307 (TPH3, F)	T	25.7/39.2
D213	1750000581	S.DIO 1SV307 (TPH3, F)	T	25.7/41.5
D214	1750000581	S.DIO 1SV307 (TPH3, F)	T	47.7/59.3
D215	1750000581	S.DIO 1SV307 (TPH3, F)	T	47.7/56.3
D216	1750000581	S.DIO 1SV307 (TPH3, F)	T	47.9/53.6
D217	1750000581	S.DIO 1SV307 (TPH3, F)	T	47.8/49.7
D218	1750000581	S.DIO 1SV307 (TPH3, F)	B	41.7/47.2
D219	1750000581	S.DIO 1SV307 (TPH3, F)	B	38.9/41.6
D220	1750000581	S.DIO 1SV307 (TPH3, F)	B	44.6/28.5
D221	1750000581	S.DIO 1SV307 (TPH3, F)	B	40.4/36
D301	1750000581	S.DIO 1SV307 (TPH3, F)	T	47.3/28.5
D302	1750000581	S.DIO 1SV307 (TPH3, F)	T	49.5/30.3
D303	1750000581	S.DIO 1SV307 (TPH3, F)	T	64/29.9

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.	H/V LOCATION
D304	1750000581	S.DIO 1SV307 (TPH3, F)	T	62.4/35.2
D305	1750000581	S.DIO 1SV307 (TPH3, F)	T	73.4/35.2
D306	1750000581	S.DIO 1SV307 (TPH3, F)	T	64.5/25.1
D501	1750000531	S.DIO 1SV271 (TPH3, F)	T	90.5/32.2
D502	1750000581	S.DIO 1SV307 (TPH3, F)	T	86.2/31.4
D503	1750000581	S.DIO 1SV307 (TPH3, F)	T	89.4/29.7
D504	1750000531	S.DIO 1SV271 (TPH3, F)	T	89.7/37.7
D505	1750000581	S.DIO 1SV307 (TPH3, F)	T	86.7/40.1
D506	1750000581	S.DIO 1SV307 (TPH3, F)	B	87.2/35.5
D601	1750000581	S.DIO 1SV307 (TPH3, F)	B	90/38.5
D602	1750000581	S.DIO 1SV307 (TPH3, F)	T	92.4/41.5
D603	1750000581	S.DIO 1SV307 (TPH3, F)	B	76.2/46.5
D604	1750000581	S.DIO 1SV307 (TPH3, F)	T	66.7/43.7
D701	1750000581	S.DIO 1SV307 (TPH3, F)	T	61.2/43.7
D702	1750000581	S.DIO 1SV307 (TPH3, F)	T	65.1/41.3
D703	1750000581	S.DIO 1SV307 (TPH3, F)	T	62.7/61.4
D704	1750000581	S.DIO 1SV307 (TPH3, F)	T	62.7/63.2
D801	1750000431	S.DIO HSB88WSTR-E	T	74.1/60.3
D802	1750000581	S.DIO 1SV307 (TPH3, F)	T	63/73.3
D803	1750000581	S.DIO 1SV307 (TPH3, F)	T	65.5/64.6
D903	1750000581	S.DIO 1SV307 (TPH3, F)	T	39.5/69.4
D904	1750000581	S.DIO 1SV307 (TPH3, F)	T	39.5/72.8
D1301	1750000581	S.DIO 1SV307 (TPH3, F)	T	12.8/72.6
D1302	1750000581	S.DIO 1SV307 (TPH3, F)	T	13.9/70.8
D1521	1750000531	S.DIO 1SV271 (TPH3, F)	B	79.4/40.7
D1522	1750000531	S.DIO 1SV271 (TPH3, F)	B	79.4/42.4
D1601	1790001240	S.DIO MA2S728-(TX)	T	15.1/48.7
D1602	1790001240	S.DIO MA2S728-(TX)	T	18.3/53.1
D1604	1790001250	S.DIO MA2S111-(TX)	T	7.7/31.5
D1605	1790001250	S.DIO MA2S111-(TX)	T	7.7/32.8
D1606	1790001250	S.DIO MA2S111-(TX)	T	14.1/44.8
D1607	1790001250	S.DIO MA2S111-(TX)	T	14.1/43.5
D1608	1790001250	S.DIO MA2S111-(TX)	T	14.1/42.2
D1609	1790001330	S.ZEN MA8036-L (TX)	T	7.5/29.9
D1610	1790001250	S.DIO MA2S111-(TX)	T	12.3/34.9
D1701	1790001670	S.DIO RB706F-40T106	B	50.2/52.2
D1702	1790001670	S.DIO RB706F-40T106	B	51.8/71.8
D1951	1750001110	S.DIO SM240A-T	B	36.2/99.9
D2151	1790001250	S.DIO MA2S111-(TX) [USA] only	T	39/87.1
D2153	1790001250	S.DIO MA2S111-(TX) [USA] only	T	36.5/87.1
D2154	1790001250	S.DIO MA2S111-(TX)	T	36.5/88.4
D2155	1790001250	S.DIO MA2S111-(TX)	T	36.5/89.7
D2156	1790001250	S.DIO MA2S111-(TX)	T	39/90.5
D2157	1790001250	S.DIO MA2S111-(TX) except [FRA]	T	48.5/87.1
D2158	1790001250	S.DIO MA2S111-(TX)	T	48.5/88.4
D2159	1790001250	S.DIO MA2S111-(TX)	T	48.5/89.7
D2160	1790001250	S.DIO MA2S111-(TX)	T	48.5/91
D2162	1790001250	S.DIO MA2S111-(TX) [USA] only	T	46/88.4
D2163	1790001250	S.DIO MA2S111-(TX) [EUR], [FRA], [ESP], [UK] only	T	46/89.7
D2166	1790001250	S.DIO MA2S111-(TX) [ESP] only	T	29.4/88.2
D2168	1790001250	S.DIO MA2S111-(TX) [EUR], [ESP], [UK] only	T	29.4/90.6
D2169	1790001250	S.DIO MA2S111-(TX) [EUR], [ESP], [USA], [EXP] only	T	26.9/87.1
D2170	1790001250	S.DIO MA2S111-(TX) [EUR], [USA], [EXP] only	T	26.9/88.4
D2171	1790001250	S.DIO MA2S111-(TX) [FRA], [ESP], [EXP] only	T	26.9/89.7
D2172	1790001250	S.DIO MA2S111-(TX)	T	26.9/91
D2173	1790001250	S.DIO MA2S111-(TX)	T	6.4/120.2
D2174	1790001250	S.DIO MA2S111-(TX)	T	52/88.2
D2175	1790001250	S.DIO MA2S111-(TX)	T	52/87
D2176	1790001250	S.DIO MA2S111-(TX)	T	54.5/88.2
D2177	1790001250	S.DIO MA2S111-(TX)	T	54.5/87
D2201	1730002340	S.ZEN MA8047-M (TX)	T	10.5/123
D2205	1790001010	S.ZEN MA8043-L (TX)	T	13.5/115.2
D2211	1790001010	S.ZEN MA8043-L (TX)	T	21.5/118
D2231	1160000070	S.DIO DAN202K T146	T	57.6/117.8
D2232	1790001670	S.DIO RB706F-40T106	T	56.8/112.2
D2401	1160000070	S.DIO DAN202K T146	B	85.7/27.2
D2402	1790001250	S.DIO MA2S111-(TX)	T	63.5/113.2
D2551	1790001140	S.ZEN MA8039-L (TX)	B	45.3/116.8
D2601	1160000070	S.DIO DAN202K T146	B	42/126.3
D2602	1790001250	S.DIO MA2S111-(TX)	B	41.2/128.5
FI2	2040001420	S.LC LFB32440MSC1-955	T	59.4/13.9
FI3	2040001420	S.LC LFB32440MSC1-955	T	53.3/13.4
FI601	2010002640	S.XTL FL-374 (124.487 MHz)	T	81/43.7
FI901	2020002010	S.CER CFUCG455KF4A-R0	T	44.7/69.7
FI1001	2020002010	S.CER CFUCG455KF4A-R0	T	27.8/66.9
FI1401	2020001810	S.CER SFCEV10M7FA00-R0	B	37.5/76.4
FI1402	2020001810	S.CER SFCEV10M7FA00-R0	B	29.5/77.5
FI1501	2040001560	SAW WFSTSB6321D [Others]	T	
	2040001570	SAW WFSTSB6221D [USA]	T	
FI1502	2020001700	S.CER SFSKA4M50CF00-R1 [USA]	B	69.3/57.8
	2020001720	S.CER SFSKA5M50CF00-R1 [Others]	B	69.3/57.8
FI1503	2020001710	S.CER TPSKA4M50B00-R1 [USA]	B	73.5/78.7
	2020001730	S.CER TPSKA5M50B00-R1 [Others]	B	73.5/78.7

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)
S.=Surface mount

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.	H/V LOCATION
C2603	4030010210	S.CER C3216 JB 1C 105M-T	B	87.5/126
C2604	4030016790	S.CER ECJ0EB1C103K	B	89.1/128.6
C2605	4030017330	S.CER ECJ0EF1C104Z	B	85.4/135
C2606	4510009250	S.ELE EEEFK1C471P	T	69.2/137.4
C2607	4510008650	S.ELE EEEFK1C221P	T	58.6/138.3
C2608	4030017330	S.CER ECJ0EF1C104Z	B	87.5/128.6
C2610	4510009250	S.ELE EEEFK1C471P	T	6.2/65.3
C2612	4030017330	S.CER ECJ0EF1C104Z	B	33.9/124.3
C2613	4510009250	S.ELE EEEFK1C471P	T	31.7/132.1
C2616	4030017780	S.CER ECJ0EB1E472K	B	30/134.2
C2617	4030017780	S.CER ECJ0EB1E472K	T	33.2/126
C2618	4030017430	S.CER ECJ0EC1H101J	B	30/133.1
C2619	4030017780	S.CER ECJ0EB1E472K	T	67.7/112.6
C2620	4510008630	S.ELE 16 CE 47 FE	B	82.9/119.1
C2621	4510008500	S.ELE EEE1CA101WP	T	49.3/138.3
C2622	4510008500	S.ELE EEE1CA101WP	T	60.1/130.4
C2624	4030017330	S.CER ECJ0EF1C104Z	B	38.4/125.1
CP1601	6910009670	S.CHK HK3-S-T	T	11.7/54.7
J1	6510007020	CNR TMP-J01X-V6		
J101	6510007020	CNR TMP-J01X-V6		
J401	6510007020	CNR TMP-J01X-V6		
J801	6510007020	CNR TMP-J01X-V6		
J2002	6510019971	S.CNR 52808-1071	T	39/12.6
J2003	6510024860	S.CNR 406721-2	T	18.7/137.8
J2004	6510023510	S.CNR 28FLT-SM1-TB	T	82.4/4.9
J2005	6510023510	S.CNR 28FLT-SM1-TB	T	66/4.9
J2231	6510018961	S.CNR B2B-PH-SM4-TB (LF) (SN)	T	51.6/129.5
J2251	6510022880	S.CNR AXK5S30340P	T	12.3/96.6
J2252	6510024820	S.CNR AXK5S60340P	T	72.4/101.1
J2401	6510024680	S.CNR HSJ1636-011020	B	57.7/137.1
J2402	6510024680	S.CNR HSJ1636-011020	B	47/137.1
J2403	6510019371	S.CNR B3B-ZR-SM4-TF (LF) (SN)	T	94.8/1.8
J2405	6510024880	S.CNR 52689-3087	T	90.3/93.8
J2406	6510024880	S.CNR 52689-3087	T	90.3/70.9
J2407	6510024680	S.CNR HSJ1636-011020	B	68.4/137.1
J2601	6510014961	S.CNR B2B-ZR-SM4-TF (LF) (SN)	T	42.6/128.8
J2602	6510024680	S.CNR HSJ1636-011020	B	36.3/137.1
W1	9029701008	WIR 72/98/020/X98/X98		
W601	9029701008	WIR 72/98/020/X98/X98		
EP104	6910012350	S.BEA MMZ1608Y 102BT	T	61.2/28.1
EP511	6910012350	S.BEA MMZ1608Y 102BT	T	44.1/26.5
EP1951	6910014730	S.BEA MPZ2012S331A-T	B	61.3/116.7
EP1952	6910014730	S.BEA MPZ2012S331A-T	B	26.8/113.3
EP1953	6910014730	S.BEA MPZ2012S331A-T	B	9.9/104.5
EP1954	6910014730	S.BEA MPZ2012S331A-T	B	50.3/107.3
EP2001	6910012350	S.BEA MMZ1608Y 102BT	B	74.2/5.3
EP2002	6910012350	S.BEA MMZ1608Y 102BT	B	34.7/12.6
EP2003	6910012350	S.BEA MMZ1608Y 102BT	B	33.5/13.8
EP2004	6910012350	S.BEA MMZ1608Y 102BT	B	39.5/15.9
EP2006	6910014730	S.BEA MPZ2012S331A-T	B	42.2/13.3
EP2007	6910012350	S.BEA MMZ1608Y 102BT	B	45.2/11.4
EP2008	6910012350	S.BEA MMZ1608Y 102BT	B	45.1/14.8
EP2231	6910012350	S.BEA MMZ1608Y 102BT	T	59.8/125.7
EP2251	6910012350	S.BEA MMZ1608Y 102BT	T	4.5/95.5
EP2252	6910012350	S.BEA MMZ1608Y 102BT	T	7.5/95.8
EP2253	6910012350	S.BEA MMZ1608Y 102BT	T	66.1/109.3
EP2254	6910012350	S.BEA MMZ1608Y 102BT	T	65.7/108.1
EP2255	6910012350	S.BEA MMZ1608Y 102BT	T	17.8/101.5
EP2256	6910012350	S.BEA MMZ1608Y 102BT	T	65.1/106
EP2257	6910012350	S.BEA MMZ1608Y 102BT	T	65.1/104.8
EP2258	6910012350	S.BEA MMZ1608Y 102BT	B	77.9/93.4
EP2259	6910012350	S.BEA MMZ1608Y 102BT	B	68.1/102.5
EP2260	6910012350	S.BEA MMZ1608Y 102BT	B	68.1/101.3
EP2261	6910012350	S.BEA MMZ1608Y 102BT	B	66/98.2
EP2262	6910012350	S.BEA MMZ1608Y 102BT	T	69.9/85.5
EP2263	6910014730	S.BEA MPZ2012S331A-T	T	6.5/93.9
EP2264	6910012350	S.BEA MMZ1608Y 102BT	B	69.3/111.3
EP2265	6910012350	S.BEA MMZ1608Y 102BT	B	68.6/98.2
EP2266	6910012350	S.BEA MMZ1608Y 102BT	T	56.2/93.3
EP2271	6910012350	S.BEA MMZ1608Y 102BT	T	74.6/91.1
EP2402	6910012350	S.BEA MMZ1608Y 102BT	B	50.4/130.2
EP2403	6910012350	S.BEA MMZ1608Y 102BT	B	47.8/130.2
EP2404	6910012350	S.BEA MMZ1608Y 102BT	B	67.2/130.2
EP2405	6910012350	S.BEA MMZ1608Y 102BT	B	52.6/135.9
EP2408	6910012350	S.BEA MMZ1608Y 102BT	B	91.3/102.2
EP2409	6910012350	S.BEA MMZ1608Y 102BT	T	85.3/101.2
EP2410	6910012350	S.BEA MMZ1608Y 102BT	T	84.7/98.3
EP2411	6910012350	S.BEA MMZ1608Y 102BT	T	85.2/79.2
EP2412	6910012350	S.BEA MMZ1608Y 102BT	T	82.5/78.4
EP2413	6910012350	S.BEA MMZ1608Y 102BT	B	71.5/130.1
EP2414	6910012350	S.BEA MMZ1608Y 102BT	B	89.3/91
EP2415	6910012350	S.BEA MMZ1608Y 102BT	T	84.9/100
EP2416	6910012350	S.BEA MMZ1608Y 102BT	T	80/77.6

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.	H/V LOCATION
EP2417	6910012350	S.BEA MMZ1608Y 102BT	B	87.2/78.8
EP2602	6910014730	S.BEA MPZ2012S331A-T	T	35.7/125.6
EP2604	6910014730	S.BEA MPZ2012S331A-T	B	29.8/135.6
EP2605	6910014730	S.BEA MPZ2012S331A-T	T	41.6/135.5
EP2606	6910014730	S.BEA MPZ2012S331A-T	T	40.9/133.8

[PA UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.	H/V LOCATION
IC471	1110005630	S.IC μPC3215TB-E3-A	B	67.5/96.4
IC701	1180002010	S.REG BA08FP-E2	B	126.3/41.9
IC960	1110002700	S.IC NJM2904M-TE1	B	41/132.1
IC981	1130012720	S.IC CD74HC4094PWR	T	26.2/5.9
Q101	1560001091	S.FET 2SK2854 (T2L ICOM, F)	T	149.2/28.5
Q102	1560001241	S.FET RD01MUS1-T113	T	146/40.1
Q301	1560001391	FET RD70HHF1-101		
Q302	1560001391	FET RD70HHF1-101		
Q401	1560001401	FET RD60HUF1-101		
Q402	1590000680	S.TR DTC114EUA T106	B	88/133
Q403	1590000680	S.TR DTC114EUA T106	B	90.4/129.9
Q451	1580000691	S.FET 3SK291 (TE85L, F)	B	75.3/108.4
Q452	1590003520	S.TR BCR108T	B	67.5/115.8
Q453	1590003520	S.TR BCR108T	B	73.2/119.2
Q501	1560001191	FET RD70HVF1-121		
Q502	1590000680	S.TR DTC114EUA T106	T	87.7/107.5
Q503	1590000680	S.TR DTC114EUA T106	T	87.7/110
Q551	1580000691	S.FET 3SK291 (TE85L, F)	T	68.4/108.9
Q552	1590003520	S.TR BCR108T	T	63/110.1
Q700	1590003520	S.TR BCR108T	B	127/24.9
Q741	1590003520	S.TR BCR108T	B	80.1/11.1
Q742	1520000460	S.TR 2SB1132 T100 R	B	82.7/7.3
Q980	1590003520	S.TR BCR108T	T	51.3/84.6
Q981	1590003520	S.TR BCR108T	T	51.5/13.8
Q982	1590003520	S.TR BCR108T	T	53.8/97.3
Q983	1590003520	S.TR BCR108T	T	51.2/56.9
Q984	1590003520	S.TR BCR108T	T	51.6/97.2
Q985	1590003520	S.TR BCR108T	T	51.3/27.9
Q986	1590003520	S.TR BCR108T	T	51.3/71.4
Q987	1590003520	S.TR BCR108T	T	52.5/41.6
Q988	1590003530	S.TR BCR08PN	T	58.3/90.3
D101	1750000301	S.DIO 1SS302 (TE85R, F)	T	152.4/22.7
D102	1750000301	S.DIO 1SS302 (TE85R, F)	T	152.4/19.8
D151	1750000581	S.DIO 1SV307 (TPH3, F)	T	59.5/56.4
D152	1790001250	S.DIO MA2S111-(TX)	T	56.3/58.5
D301	1160000060	S.DIO DAN202U T106	T	105.1/80.8
D302	1160000060	S.DIO DAN202U T106	T	74.9/87.3
D401	1790001240	S.DIO MA2S728-(TX)	B	128/133.6
D402	1790001240	S.DIO MA2S728-(TX)	B	127.5/139.5
D403	1790001240	S.DIO MA2S728-(TX)	B	123.4/140.5
D404	1790001240	S.DIO MA2S728-(TX)	B	125.6/132.8
D406	1710001060	DIO XB15A407		
D407	1710001060	DIO XB15A407		
D408	1750000511	S.DIO UX9401F-STD/TR	B	97.7/136.4
D409	1750000511	S.DIO UX9401F-STD/TR	B	103.5/133
D410	1750000511	S.DIO UX9401F-STD/TR	B	104.7/130
D411	1790001250	S.DIO MA2S111-(TX)	B	94.2/129.2
D412	1160000070	S.DIO DAN202K T146	B	92/127
D451	1750000581	S.DIO 1SV307 (TPH3, F)	B	85.5/116.3
D452	1750000581	S.DIO 1SV307 (TPH3, F)	B	82.4/116
D453	1720000701	S.VCP 1SV305 (TPL3,F)	T	75.5/117.3
D454	1720000701	S.VCP 1SV305 (TPL3,F)	T	77.8/116.6
D455	1720000701	S.VCP 1SV305 (TPL3,F)	B	75.6/99.1
D456	1720000701	S.VCP 1SV305 (TPL3,F)	B	67.3/104.1
D461	1750000581	S.DIO 1SV307 (TPH3, F)	B	65/93.3
D462	1750000581	S.DIO 1SV307 (TPH3, F)	T	65.6/94.7
D501	1790000970	S.DIO MA729 (TX)	B	113.7/123.4
D502	1790000970	S.DIO MA729 (TX)	B	116.3/122.8
D503	1790000970	S.DIO MA729 (TX)	B	114.5/129.4
D504	1790000970	S.DIO MA729 (TX)	B	111/129.4
D506	1710001060	DIO XB15A407		
D507	1750000511	S.DIO UX9401F-STD/TR	B	92.1/117.4
D508	1750000511	S.DIO UX9401F-STD/TR	T	86.9/114.4
D509	1750000511	S.DIO UX9401F-STD/TR	T	81.9/120.3
D510	1710001060	DIO XB15A407		
D511	1750000581	S.DIO 1SV307 (TPH3, F)	B	95.4/112.2
D551	1750000581	S.DIO 1SV307 (TPH3, F)	T	74/116.7
D552	1750000581	S.DIO 1SV307 (TPH3, F)	T	72.2/116.7
D553	1750000610	S.VCP MA2SV0500L	T	67.2/118.5
D554	1750000610	S.VCP MA2SV0500L	T	69.6/117.8

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)
S.=Surface mount

[PA UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.	H/V LOCATION
EP759	6910012350	S.BEA MMZ1608Y 102BT	T	69.1/9.6
EP760	6910012350	S.BEA MMZ1608Y 102BT	T	60.6/10
EP761	6910012350	S.BEA MMZ1608Y 102BT	T	62.5/9.6
EP762	6910012350	S.BEA MMZ1608Y 102BT	B	61/4.6
EP763	6910012350	S.BEA MMZ1608Y 102BT	B	63.3/105.6
EP767	6910012350	S.BEA MMZ1608Y 102BT	B	76.4/5.2
EP772	6910012350	S.BEA MMZ1608Y 102BT	T	96.4/3.8
EP774	6910012350	S.BEA MMZ1608Y 102BT	T	72.8/9.6
EP775	6910012350	S.BEA MMZ1608Y 102BT	B	74.8/5.2
EP776	6910012350	S.BEA MMZ1608Y 102BT	B	73.2/5.2
EP777	6910012350	S.BEA MMZ1608Y 102BT	B	70/5.2
EP778	6910012350	S.BEA MMZ1608Y 102BT	B	71.6/5.2
EP779	6910012350	S.BEA MMZ1608Y 102BT	B	68.2/5.2

[DRIVER UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.	H/V LOCATION
Q504	1590003060	S.FET PD55015	T	20/9.7
R102	7070000271	RES ERG1SJ 101 (100 Ω)		
C101	4030004750	S.CER C2012 JB 1H 103K-T	T	24.6/18.2
C102	4030011230	S.CER GRM31M2C2H390JV01L	T	11.2/4.2
J101	6910016830	CNR IMSA-9230B-1-04Z149-PT1		
J102	6910016830	CNR IMSA-9230B-1-04Z149-PT1		
J103	6910016830	CNR IMSA-9230B-1-04Z149-PT1		
J104	6910016830	CNR IMSA-9230B-1-04Z149-PT1		
J107	6910016830	CNR IMSA-9230B-1-04Z149-PT1		

[LOGIC UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.	H/V LOCATION
IC1	1130013280	S.IC TC58FVM6T5BTG65GCH	T	27.9/30.2
IC2	1130011151	S.IC SN74AHC2G08HDCT3	B	40.2/38.2
IC3	1130011151	S.IC SN74AHC2G08HDCT3	B	42.0/32.5
IC4	1130012600	S.IC SN74AHC1G04DCKR	B	43.3/33.8
IC51	1130012841	S.IC CY7C1021CV33-15BAXIT	B	24.5/28.5
IC301	1140012541	S.IC ADSP-BF532SBBCZ400	B	28.6/39.2
IC401	1110004770	S.IC BU9480F-E2	B	17.4/21.6
IC451	1110006570	S.IC TS462CPT	B	29.1/7.9
IC452	1110006570	S.IC TS462CPT	T	39.1/8.5
IC502	1110006570	S.IC TS462CPT	T	30.7/5.4
IC551	1190001611	S.IC AK4528VFP-E2/P	T	17.9/8.1
IC601	1110006570	S.IC TS462CPT	B	12.7/10.8
IC701	1130012600	S.IC SN74AHC1G04DCKR	B	2.7/15.9
IC1201	1130012791	S.IC CY22150FZXT	B	44.5/4.5
IC1212	1140012170	S.IC BH7236AF-E2	T	57.7/7.7
IC1217	1130007181	S.IC TC7WU04FU (TE12L, F)	B	63.4/9.8
IC1218	1130012760	S.IC SN74AHC2G86HDCTR	B	52.7/6.5
IC1226	1130010870	S.IC S1D13706F00A	B	53.7/19.8
IC1251	1180002020	S.REG BA033FP-E2	T	79.5/5.2
IC1301	1130012690	S.IC HN58X24256FPPIE (SOP8)	T	81.4/36.2
IC1302	1140013133	S.IC HD64F2377VFAQ33V	T	54.9/25.2
IC1303	1110005771	S.IC S-80942CNMC-G9CT2G	T	81.2/10.4
IC1304	1130011551	S.IC RX-4581NB-F	B	71.9/7.2
IC1402	1130012780	S.IC SN74AHC2G04HDCTR	T	79.1/18.9
IC2002	1130012841	S.IC CY7C1021CV33-15BAXIT	B	32.7/28.3
IC2101	1130012850	S.IC SN74LVC3G34DCUR	T	44.5/44.7
IC2102	1130012850	S.IC SN74LVC3G34DCUR	T	44.4/41.2
IC2201	1140012541	S.IC ADSP-BF532SBBCZ400	B	28.6/17.7
Q201	1550000110	S.FET RTQ035P02TR	B	18.9/42.7
Q1101	1530002060	S.TR 2SC4081 T106 R	T	82.1/20.3
Q1102	1590003520	S.TR BCR108T	T	81.8/22.7
Q1103	1510000510	S.TR 2SA1576A T106R	T	81.8/16.4
Q1201	1590003520	S.TR BCR108T	T	44.8/13.2
D201	1750001280	S.DIO CUS02 (TE85L,Q)	B	19.2/45.3
D1001	1750000370	S.DIO DA221 TL	B	64.5/36.8
D1002	1750000370	S.DIO DA221 TL	B	64.9/34.5
D1101	1790001250	S.DIO MA2S111-(TX)	T	81.9/18.4
D1106	1750000950	S.DIO MA732 (TX)	T	80.1/29.6
D1107	1790001670	S.DIO RB706F-40T106	T	82.4/31.3
D1110	1790001670	S.DIO RB706F-40T106	T	75.7/32.3
D1111	1790001670	S.DIO RB706F-40T106	T	75.3/29.3
D1112	1790001670	S.DIO RB706F-40T106	B	79.2/29.1
D1113	1790001670	S.DIO RB706F-40T106	B	82.3/30.6
D1201	1790001250	S.DIO MA2S111-(TX)	B	83/40.4
D1301	1790000660	S.DIO MA728 (TX)	B	77.5/2.9
D1304	1750000370	S.DIO DA221 TL	T	76.1/19.9
D1305	1750000370	S.DIO DA221 TL	T	75.8/16.8
D1306	1750000370	S.DIO DA221 TL	B	49.3/32.9
D1307	1750000370	S.DIO DA221 TL	B	51.4/33.3
D1311	1790001250	S.DIO MA2S111-(TX)	B	80.9/19.6
D1312	1790001250	S.DIO MA2S111-(TX)	B	83.1/18.5
D1313	1790001250	S.DIO MA2S111-(TX)	B	80/22.6
D1314	1790001240	S.DIO MA2S728-(TX)	B	81.7/22.4
D1331	1790001250	S.DIO MA2S111-(TX)	B	65.6/17.5
X1201	6050012140	S.XTL CR-805	[USA]	B 61.3/3.1
	6050012150	S.XTL CR-806	[Others]	B 61.3/3.1
X1301	6050012190	S.XTL CR-809		B 60.4/30.8
L201	6200011900	S.COL LQH43CN100K03L	T	16/41.9
L202	6200009491	S.COL CDRH6D28NP-100NC	B	13.3/41.4
L551	6200005011	S.COL NLV25T-100J	T	11/9.8
L552	6200005011	S.COL NLV25T-100J	T	10.4/5.8
L1202	6200002041	S.COL NLV25T-101J	B	52.3/2.3
L1203	6200002041	S.COL NLV25T-101J	T	66.7/3.5
L1204	6200002041	S.COL NLV25T-101J	T	57.9/10.3
L2101	6200005011	S.COL NLV25T-100J	T	40.9/45
L2102	6200005011	S.COL NLV25T-100J	T	40.2/41.5
R2	7030005090	S.RES ERJ2GEJ 104 X (100 kΩ)	T	39.5/30.1
R3	7030005090	S.RES ERJ2GEJ 104 X (100 kΩ)	T	39.5/32.3
R4	7030005090	S.RES ERJ2GEJ 104 X (100 kΩ)	T	31.8/45.8
R5	7030005090	S.RES ERJ2GEJ 104 X (100 kΩ)	T	30.9/45.8
R6	7030005090	S.RES ERJ2GEJ 104 X (100 kΩ)	T	30/45.8
R203	7030000010	S.RES MCR10EZHZ JPW	T	20.7/45.6
R301	7030004980	S.RES ERJ2GEJ 101 X (100 Ω)	T	25.4/45.8
R302	7030005050	S.RES ERJ2GEJ 103 X (10 kΩ)	T	26.9/45.8
R303	7030005050	S.RES ERJ2GEJ 103 X (10 kΩ)	T	27.8/45.8
R306	7030005050	S.RES ERJ2GEJ 103 X (10 kΩ)	B	37.3/32.2
R307	7030005050	S.RES ERJ2GEJ 103 X (10 kΩ)	T	22/41.4
R308	7030005050	S.RES ERJ2GEJ 103 X (10 kΩ)	T	22/40.5
R310	7030005050	S.RES ERJ2GEJ 103 X (10 kΩ)	B	36.7/35.4
R312	7030010040	S.RES ERJ2GEJ-JPW	B	33.6/45.9
R313	7030010040	S.RES ERJ2GEJ-JPW	B	35.6/43.3

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)
S.=Surface mount

[LOGIC UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.	H/V LOCATION
C1311	4030016930	S.CER ECJ0EB1A104K	T	67/25.7
C1312	4030017620	S.CER ECJ0EC1H100C	T	67.4/29.1
C1313	4030017620	S.CER ECJ0EC1H100C	T	67.4/28.2
C1314	4030016930	S.CER ECJ0EB1A104K	T	79/9.8
C1315	4030017030	S.CER ECJ0EB1A273K	T	83.3/10.8
C1316	4030016930	S.CER ECJ0EB1A104K	B	75.9/2.3
C1317	4030018960	S.CER C3216 JB 1C 106MT-N	B	84.4/3
C1319	4030018960	S.CER C3216 JB 1C 106MT-N	B	16.8/6.6
C2016	4030016930	S.CER ECJ0EB1A104K	B	37.7/30.2
C2017	4030016930	S.CER ECJ0EB1A104K	B	37.7/31.3
C2101	4030016930	S.CER ECJ0EB1A104K	T	44/43
C2102	4030016930	S.CER ECJ0EB1A104K	T	45.8/43
C2202	4030016930	S.CER ECJ0EB1A104K	T	27/16.5
C2204	4030016930	S.CER ECJ0EB1A104K	T	26.5/19.2
C2205	4030016930	S.CER ECJ0EB1A104K	T	30.2/19.7
C2206	4030016930	S.CER ECJ0EB1A104K	T	26.6/11.1
C2207	4030016930	S.CER ECJ0EB1A104K	T	27.7/19.7
C2208	4030016930	S.CER ECJ0EB1A104K	T	21.5/23.4
C2209	4030016930	S.CER ECJ0EB1A104K	T	29.8/17.6
C2210	4030016930	S.CER ECJ0EB1A104K	T	26.6/17.8
C2211	4030016930	S.CER ECJ0EB1A104K	T	32.4/11.1
C2212	4030016930	S.CER ECJ0EB1A104K	T	35.2/14.6
C2213	4030016930	S.CER ECJ0EB1A104K	T	29.3/16.4
C2214	4030016930	S.CER ECJ0EB1A104K	T	35.2/17.3
C2215	4030016930	S.CER ECJ0EB1A104K	T	29.3/11.1
C2217	4030016930	S.CER ECJ0EB1A104K	T	29.8/18.5
C2218	4030016930	S.CER ECJ0EB1A104K	T	26.5/20.1
C2219	4030016930	S.CER ECJ0EB1A104K	T	30.2/16.4
C2220	4030016930	S.CER ECJ0EB1A104K	T	26.1/16.5
C2221	4030016930	S.CER ECJ0EB1A104K	T	27.9/16.5
C2222	4030016930	S.CER ECJ0EB1A104K	T	29.3/19.7
J651	6510024810	S.CNR AXK6S60635P	B	71/24.9
J701	6510022070	S.CNR AXK6S30635P	B	10.9/20.4
J1201	6510018890	S.CNR 52559-1390	B	77.5/38.2
J2101	6510020130	S.CNR AXN810535P	T	52.4/42.9
BT1301	3020000330	LTM ML920S/F9D		
EP2	6910012350	S.BEA MMZ1608Y 102BT	T	18.8/38.2
EP51	6910012350	S.BEA MMZ1608Y 102BT	B	18.1/29.7
EP201	6910014730	S.BEA MPZ2012S331A-T	T	13.3/40.6
EP301	6910012350	S.BEA MMZ1608Y 102BT	T	19.1/40
EP701	6910012350	S.BEA MMZ1608Y 102BT	B	5.6/15
EP2002	6910012350	S.BEA MMZ1608Y 102BT	B	38.2/28
EP2202	6910012350	S.BEA MMZ1608Y 102BT	T	19.1/22
EP2205	6910014730	S.BEA MPZ2012S331A-T	T	18.4/17.7
EP2217	6910015970	S.BEA MMZ1608B 301CT-AS	B	20.9/16.1

[DDS UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.	H/V LOCATION
IC51	1190001811	S.IC AD9833BRMZ	T	33.8/7
IC52	1130012780	S.IC SN74AHC2G04HDCR	T	45/5.6
IC61	1130012610	S.IC SN74AHC1GU04DCKR	T	37.5/7.5
IC62	1130012850	S.IC SN74LVC3G34DCUR	T	51.3/24.7
IC251	1180002321	S.REG TK11218CMCL-G	B	29.5/16.2
IC301	1190002101	S.IC SN65LVDS391D	T	37.5/28.2
IC401	1110004080	S.IC µPC2709T-E3	T	50.1/47
IC451	1110006430	S.IC µPC1678GV-E1-A	T	34.1/50.2
IC801	1110006430	S.IC µPC1678GV-E1-A	T	18/13.7
IC901	1130012720	S.IC CD74HC4094PWR	T	5.4/64.7
Q1	1530002381	S.TR 2SC4215-Y (YE85R ,F)	T	20.4/3.1
Q101	1530002561	S.TR 2SC4403-3-TL-E	T	26.5/6.4
Q151	1530003151	S.TR 2SC4673D-TD-E	T	41.4/13.7
Q201	1530003431	S.TR 2SC5226-4-TL-E	T	43.4/19.4
Q211	1530003431	S.TR 2SC5226-4-TL-E	B	43.5/15.2
Q301	1590000680	S.TR DTC114EUA T106	B	45.4/32.2
Q901	1590003530	S.TR BCR08PN	T	4/58.7
Q902	1590003530	S.TR BCR08PN	T	4.1/55.1
Q903	1590003530	S.TR BCR08PN	T	7.2/55.1
Q904	1590003530	S.TR BCR08PN	T	7.2/58.7
Q905	1590003530	S.TR BCR08PN	T	4.1/70.7
Q906	1590003530	S.TR BCR08PN	T	4.1/74.2
Q907	1590003530	S.TR BCR08PN	T	7.1/70.7
Q908	1590003530	S.TR BCR08PN	T	7.1/74.2
Q1101	1530002060	S.TR 2SC4081 T106 R	T	40.9/53.9
Q1102	1540000451	S.TR 2SD1623T-TD-E	T	45.5/54.3
D301	1750000620	S.DIO MA717WK (TX)	B	44.8/35.9
D341	1790001621	S.DIO 1SV308 (TPL3, F)	B	45.2/39.7
D451	1750000581	S.DIO 1SV307 (TPH3, F)	T	44.2/47.7
D452	1750000581	S.DIO 1SV307 (TPH3, F)	T	44/44.8
D453	1790001621	S.DIO 1SV308 (TPL3, F)	T	43.3/36.6
D454	1750000581	S.DIO 1SV307 (TPH3, F)	T	38.3/48.3
D456	1750000620	S.DIO MA717WK (TX)	B	35.1/42.8
D458	1750000581	S.DIO 1SV307 (TPH3, F)	T	33.8/45.6
D459	1750000581	S.DIO 1SV307 (TPH3, F)	T	31.3/38.8
D471	1750000620	S.DIO MA717WK (TX)	T	33.2/36.7
D501	1750000581	S.DIO 1SV307 (TPH3, F)	B	26.2/42.6
D502	1750000581	S.DIO 1SV307 (TPH3, F)	T	3/50.6
D551	1750000581	S.DIO 1SV307 (TPH3, F)	T	25.9/45.1
D552	1750000581	S.DIO 1SV307 (TPH3, F)	T	2.9/45.3
D601	1750000581	S.DIO 1SV307 (TPH3, F)	T	27.2/39.9
D602	1750000581	S.DIO 1SV307 (TPH3, F)	T	2.9/40.1
D651	1750000581	S.DIO 1SV307 (TPH3, F)	T	27.2/34.8
D652	1750000581	S.DIO 1SV307 (TPH3, F)	T	2.9/34.9
D701	1750000581	S.DIO 1SV307 (TPH3, F)	T	27.2/29.5
D702	1750000581	S.DIO 1SV307 (TPH3, F)	T	2.9/29.7
D751	1750000581	S.DIO 1SV307 (TPH3, F)	T	27/24.4
D752	1750000581	S.DIO 1SV307 (TPH3, F)	T	2.9/24.6
D801	1750000581	S.DIO 1SV307 (TPH3, F)	T	28.3/21.6
D802	1750000581	S.DIO 1SV307 (TPH3, F)	T	2.9/19.3
D1101	1750000301	S.DIO 1SS302 (TE85R, F)	T	40.9/57.7
D1102	1160000080	S.DIO DAP202K T146	B	27.9/63
FI101	2010002660	S.XTL FL-391 (124.032 MHz)	T	29.3/10.7
FI201	2040001860	S.SAW NSVS776	T	34.5/16.5
X1	6050012160	S.XTL CR-788 (24.8064 MHz)	T	14.2/3.9
L1	6200002641	S.COL NLV25T-R15J	T	26/3.7
L51	6200005011	S.COL NLV25T-100J	B	35.6/4.2
L52	6200005011	S.COL NLV25T-100J	B	38.8/3.8
L53	6200003241	S.COL NLV32T-221J	B	43.4/8.7
L101	6200003540	S.COL MLF1608D R22K-T	T	24.2/8.8
L105	6200004730	S.COL MLF1608A 1R2K-T	T	23.7/5.2
L151	6200004470	S.COL MLF1608D R12K-T	T	44.7/12.8
L153	6200004150	S.COL MLF1608D 47NM-T	T	46.9/15.7
L201	6200004150	S.COL MLF1608D 47NM-T	T	44.5/21.5
L202	6200005661	S.COL ELJRE 10NGFA	B	37.5/12.4
L204	6200003540	S.COL MLF1608D R22K-T	T	41.5/19.3
L205	6200005711	S.COL ELJRE 27NGFA	B	47.1/21.7
L206	6200005701	S.COL ELJRE 22NGFA	B	46.2/20.4
L210	6200005701	S.COL ELJRE 22NGFA	B	47/19.1
L212	6200002581	S.COL NLV25T-033J	B	41.9/12.8
L213	6200005681	S.COL ELJRE 15NGFA	B	40.1/17.8
L301	6140002810	S.COL LR-317	T	48.5/30
L302	6140002810	S.COL LR-317	T	48.7/38.9
L303	6200004150	S.COL MLF1608D 47NM-T	B	41.9/35.7
L304	6200003960	S.COL MLF1608A 1R0K-T	T	48.9/33.2
L321	6200011370	S.COL ELJNJ R10J	T	50.4/34.7
L322	6200011370	S.COL ELJNJ R10J	T	47.8/34.7
L323	6200010860	S.COL C2520C-R10G-A	T	53.7/30.6
L331	6200011540	S.COL ELJQE 47NJ	T	47.6/43.1
L332	6200011540	S.COL ELJQE 47NJ	T	50.2/43.1
L341	6200004470	S.COL MLF1608D R12K-T	B	41.1/37

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)
S.=Surface mount

[DDS UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.	H/V LOCATION
C1113	4030017780	S.CER ECJ0EB1E472K	T	37.1/59.7
C1114	4030017780	S.CER ECJ0EB1E472K	T	24.4/60.6
C1115	4030017780	S.CER ECJ0EB1E472K	T	35.3/59.8
C1116	4030017460	S.CER ECJ0EB1E102K	T	23.1/63.7
C1117	4030006860	S.CER C1608 JB 1H 102K-T	B	20.9/63.9
C1151	4030017780	S.CER ECJ0EB1E472K	T	50.5/66.3
C1152	4030017780	S.CER ECJ0EB1E472K	T	46.4/66.3
C1153	4030017780	S.CER ECJ0EB1E472K	T	43.7/68.2
C1154	4030017780	S.CER ECJ0EB1E472K	T	52/66.3
C1155	4030017780	S.CER ECJ0EB1E472K	T	57.9/68.3
RL1101	6330001721	RLY ATN207-K1		
J151	6510007020	CNR TMP-J01X-V6		
J851	6510018450	CNR TMP-S01X-B1		
J951	6510024880	S.CNR 52689-3087	T	59.2/35.3
J952	6510024880	S.CNR 52689-3087	T	59.2/12.4
J1001	6510003520	CNR S04B-EH-S		
J1051	6450001790	CNR HLJ7000-01-3010		
J1101	6450001641	CNR TCS5044-0141177		
J1151	6450001841	CNR TCS7568-43-201		
EP6	6910012350	S.BEA MMZ1608Y 102BT	B	12.9/8.4
EP251	6910012350	S.BEA MMZ1608Y 102BT	B	33.1/18.7
EP301	6910012350	S.BEA MMZ1608Y 102BT	B	49.7/25
EP302	6910012350	S.BEA MMZ1608Y 102BT	B	32.9/27.8
EP303	6910012350	S.BEA MMZ1608Y 102BT	B	32.9/26.1
EP304	6910012350	S.BEA MMZ1608Y 102BT	B	35.8/28.4
EP305	6910012350	S.BEA MMZ1608Y 102BT	B	41/27.1
EP451	6910012350	S.BEA MMZ1608Y 102BT	B	39.9/47.8
EP452	6910012350	S.BEA MMZ1608Y 102BT	B	48.6/44.6
EP809	6910012350	S.BEA MMZ1608Y 102BT	B	16.6/7.1
EP951	6910012350	S.BEA MMZ1608Y 102BT	B	53.3/24.3
EP952	6910012350	S.BEA MMZ1608Y 102BT	B	49.9/22.6
EP953	6910012350	S.BEA MMZ1608Y 102BT	T	54/43.4
EP954	6910012350	S.BEA MMZ1608Y 102BT	T	54/42.1
EP955	6910012350	S.BEA MMZ1608Y 102BT	T	54.2/40
EP956	6910012350	S.BEA MMZ1608Y 102BT	T	54.6/37
EP957	6910012350	S.BEA MMZ1608Y 102BT	B	39.5/46.1
EP958	6910012350	S.BEA MMZ1608Y 102BT	B	55.9/47.4
EP959	6910012350	S.BEA MMZ1608Y 102BT	B	55.9/32.7
EP960	6910012350	S.BEA MMZ1608Y 102BT	B	56.9/28.9
EP964	6910012350	S.BEA MMZ1608Y 102BT	B	53.3/22.2
EP981	6910012350	S.BEA MMZ1608Y 102BT	T	55.3/14.2
EP1003	6910016790	S.BEA FHH-1M3216-601	T	57.3/50.3
EP1004	6910016790	S.BEA FHH-1M3216-601	T	53.9/50
EP1051	6910012350	S.BEA MMZ1608Y 102BT	B	20.2/66.8
EP1052	6910012350	S.BEA MMZ1608Y 102BT	B	19.2/58.7
EP1100	6910012350	S.BEA MMZ1608Y 102BT	B	38.7/63.4
EP1101	6910012350	S.BEA MMZ1608Y 102BT	T	27.5/63.3
EP1102	6910012350	S.BEA MMZ1608Y 102BT	T	34.4/62.4
EP1103	6910012350	S.BEA MMZ1608Y 102BT	T	51.1/69.2
EP1104	6910012350	S.BEA MMZ1608Y 102BT	T	56.1/69.2
EP1105	6910014730	S.BEA MPZ2012S331A-T	B	41/67.8
EP1106	6910014730	S.BEA MPZ2012S331A-T	B	34.7/61.7
EP1107	6910014730	S.BEA MPZ2012S331A-T	B	31.4/61.7
EP1108	6910014730	S.BEA MPZ2012S331A-T	B	27.5/73.6

[CONNECT UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.	H/V LOCATION
J1	6510019971	S.CNR 52808-1071		
W1	8900014810	CBL OPC-1579		

[CHASSIS UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.	H/V LOCATION
J1	6510000370	CNR MR-DS		
J2	6510000370	CNR MR-DS		
SP1	2510000991	SP VS-C66Y0811A		
MF1	2710000790	FAN AFB0512HB-4L50		
W1	8600037110	WIR SP CABLE (P01CH)		
W3	8900015210	CBL OPC-1448A (P0.5, N28, L60)		
W4	8900015210	CBL OPC-1448A (P0.5, N28, L60)		
W5	8900015220	CBL OPC-1461A (P0.5, N30, L40)		
W6	8900015220	CBL OPC-1461A (P0.5, N30, L40)		
W7	8900013970	CBL OPC-1450 (N=10, L=53)		
W11	8600037122	WIR P02*J03CH-2 M500		
W15	8970024620	WIR 1.5D COAXIAL 95 mm		
W17	8970024630	WIR 1.5D COAXIAL 170 mm		

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)
S.=Surface mount

[HM-151]

REF NO.	ORDER NO.	DESCRIPTION	M.	H/V LOCATION
IC1	1140011490	S.IC μPD789071MC-041-5A4-E1	B	51.1/24.5
IC3	1110006310	S.IC BD5245G-TR	B	67.3/34.8
Q1	1530001941	S.TR 2SC2712-BL (TE85R,F)	B	26.1/11
Q2	1590000680	S.TR DTC114EUA T106	B	21.6/34.8
Q3	1590001330	S.TR DTA114EUA T106	B	24.7/34.8
Q5	1510000771	S.TR 2SA1586-GR (TE85R,F)	B	54.8/37.7
D1	1790000950	S.ZEN MA8056-M (TX)	B	23.1/17
D3	1750000940	S.DIO ISS400 TE61	B	64.7/23.2
D4	1750000940	S.DIO ISS400 TE61	B	64.7/29.2
D6	1750000940	S.DIO ISS400 TE61	B	58.7/20.8
D7	1750000940	S.DIO ISS400 TE61	B	42.8/16.7
D9	1750000940	S.DIO ISS400 TE61	B	34.1/16.3
D10	1750000940	S.DIO ISS400 TE61	B	34.9/17.8
D11	1750000940	S.DIO ISS400 TE61	B	38.8/14.5
D16	1730002280	S.ZEN MA8091-M (TX)	B	55.2/14.5
D17	1730002280	S.ZEN MA8091-M (TX)	B	48.8/14.5
D18	1730002280	S.ZEN MA8091-M (TX)	B	13.1/13.7
X1	6060000610	S.CER EFOS4914E3	B	42.6/22.3
L1	6200005051	S.COL NLV25T-330J	B	12.3/28.9
L2	6200005011	S.COL NLV25T-100J	B	11/13.9
R2	7030000400	S.RES MCR10EZHJ 1.5 kΩ	B	24.2/8.3
R3	7030000400	S.RES MCR10EZHJ 1.5 kΩ	B	41.9/8.3
R4	7030000400	S.RES MCR10EZHJ 1.5 kΩ	B	57.3/8.2
R5	7030003400	S.RES ERJ3GEYJ 471 V (470Ω)	B	28.6/11.2
R6	7030003620	S.RES ERJ3GEYJ 333 V (33 kΩ)	B	26.8/34.7
R7	7030003620	S.RES ERJ3GEYJ 333 V (33 kΩ)	B	23.3/36.8
R8	7030003550	S.RES ERJ3GEYJ 822 V (8.2 kΩ)	B	19.1/33.7
R11	7030003480	S.RES ERJ3GEYJ 222 V (2.2 kΩ)	B	53/35
R12	7030003560	S.RES ERJ3GEYJ 103 V (10 kΩ)	B	55/34.2
R14	7030003440	S.RES ERJ3GEYJ 102 V (1 kΩ)	B	47.2/6.1
R18	7030003560	S.RES ERJ3GEYJ 103 V (10 kΩ)	B	41.6/33.6
R19	7030003640	S.RES ERJ3GEYJ 473 V (47 kΩ)	B	38.4/34.5
R22	7030003520	S.RES ERJ3GEYJ 472 V (4.7 kΩ)	B	37.9/18.7
R23	7030003520	S.RES ERJ3GEYJ 472 V (4.7 kΩ)	B	56.1/18.1
R24	7030003520	S.RES ERJ3GEYJ 472 V (4.7 kΩ)	B	58/18.6
R25	7030003520	S.RES ERJ3GEYJ 472 V (4.7 kΩ)	B	59.8/18.9
R27	7030003560	S.RES ERJ3GEYJ 103 V (10 kΩ)	B	68.1/32.5
R35	7030000400	S.RES MCR10EZHJ 1.5 kΩ	B	69.1/11.9
R36	7030003560	S.RES ERJ3GEYJ 103 V (10 kΩ)	B	20.5/30.6
R37	7030003460	S.RES ERJ3GEYJ 152 V (1.5 kΩ)	B	19.1/30.6
R39	7030003480	S.RES ERJ3GEYJ 222 V (2.2 kΩ)	B	24.4/5.7
R40	7030003480	S.RES ERJ3GEYJ 222 V (2.2 kΩ)	B	24.4/3
R41	7030003580	S.RES ERJ3GEYJ 153 V (15 kΩ)	B	17/32.7
R42	7030003860	S.RES ERJ3GE JPW V	B	68.4/21.6
R44	7030003440	S.RES ERJ3GEYJ 102 V (1 kΩ)	B	57.3/22.1
R45	7030003440	S.RES ERJ3GEYJ 102 V (1 kΩ)	B	53.9/18
R46	7030003440	S.RES ERJ3GEYJ 102 V (1 kΩ)	B	37.8/15.8
R47	7030003440	S.RES ERJ3GEYJ 102 V (1 kΩ)	B	37.6/17.1
R48	7030003440	S.RES ERJ3GEYJ 102 V (1 kΩ)	B	45.3/17.6
R49	7030003440	S.RES ERJ3GEYJ 102 V (1 kΩ)	B	57.3/26.2
R50	7030003440	S.RES ERJ3GEYJ 102 V (1 kΩ)	B	58.1/23.4
C1	4030006850	S.CER C1608 JB 1H 471K-T	B	52/16.9
C2	4510008500	S.ELE EEE1CA101WP	B	35.5/5.8
C5	4030007050	S.CER C1608 CH 1H 220J-T	B	14.9/30.4
C9	4030007050	S.CER C1608 CH 1H 220J-T	B	20.8/16.8
C10	4030007050	S.CER C1608 CH 1H 220J-T	B	19.8/11.6
C11	4030007050	S.CER C1608 CH 1H 220J-T	B	17/5.6
C12	4030011600	S.CER C1608 JB 1E 104K-T	B	64.9/34.4
C13	4030011600	S.CER C1608 JB 1E 104K-T	B	44.3/27.6
C14	4030006900	S.CER C1608 JB 1H 103K-T	B	67.5/37.2
C16	4030006860	S.CER C1608 JB 1H 102K-T	B	14.7/13.6
C17	4030006880	S.CER C1608 JB 1H 472K-T	B	11.7/17.4
C18	4030006880	S.CER C1608 JB 1H 472K-T	B	10.4/17.4
C19	4030011600	S.CER C1608 JB 1E 104K-T	B	13/25.8
C21	4030011600	S.CER C1608 JB 1E 104K-T	B	11.7/25.8
C22	4030011600	S.CER C1608 JB 1E 104K-T	B	10.4/28.5
C23	4030011600	S.CER C1608 JB 1E 104K-T	B	23.1/14
C24	4030011600	S.CER C1608 JB 1E 104K-T	B	67.2/12.1
C25	4030011600	S.CER C1608 JB 1E 104K-T	B	25.6/32.2
C26	4030011600	S.CER C1608 JB 1E 104K-T	B	44.5/6.1
C27	4030011600	S.CER C1608 JB 1E 104K-T	B	51.7/35
C29	4510008540	S.ELE EEE1CA100SR	B	26.4/16
C30	4030010210	S.CER C3216 JB 1C 105M-T	B	19.8/4.6
C31	4510008540	S.ELE EEE1CA100SR	B	28.3/4.9
C32	4030011600	S.CER C1608 JB 1E 104K-T	B	55/35.7
J1	6510023110	CNR 3008L-8P8C		

[HM-151]

REF NO.	ORDER NO.	DESCRIPTION	M.	H/V LOCATION
DS1	5010000120	S.LED LN1371G-(TR)	T	21.9/11
DS2	5010000120	S.LED LN1371G-(TR)	T	21.9/32
DS3	5010000120	S.LED LN1371G-(TR)	T	39.3/11
DS4	5010000120	S.LED LN1371G-(TR)	T	39.3/32
DS5	5010000120	S.LED LN1371G-(TR)	T	55.9/2.5
DS6	5010000120	S.LED LN1371G-(TR)	T	56.2/26.8
DS7	5010000120	S.LED LN1371G-(TR)	T	71.7/14.8
DS8	5010000120	S.LED LN1371G-(TR)	T	72.2/33.8
DS10	5040002890	S.LED SML-310FT T86	T	51.6/5
DS11	5040002620	S.LED SML-311UT T86	T	51.6/38
MC1	7700002310	MIC EM-140		
S1	2260000980	SW SKHHLPO14A		
W1	8900011270	WIR OPC-1153		
EP1	6910012350	S.BEA MMZ1608Y 102BT	B	10.4/25.8
EP2	6910012350	S.BEA MMZ1608Y 102BT	B	14.3/17.4
EP3	6910012350	S.BEA MMZ1608Y 102BT	B	13/17.4
EP4	6910012350	S.BEA MMZ1608Y 102BT	B	14.7/11
EP5	6910012350	S.BEA MMZ1608Y 102BT	B	15/25

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)
S.=Surface mount

SECTION 6

MECHANICAL PARTS AND DISASSEMBLY

[FRONT UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
W1	8900013940	Cable OPC-1447 (N=10, L=30)	1
W2	8900013990	Cable OPC-1445	1
DS1	5030002820	LCD LTA025A161A	1
EP1	0880001670	Encoder EX-2832	1
MP1	8210021760	2427 front panel	1
MP2	8210021770	2427 rear panel	1
MP4	8310063800	2427 window plate	1
MP5	8930069540	2427 A-window sheet	1
MP11	8610012370	Knob N328	1
MP12	8610012380	Knob N328 (A)	1
MP13	8610012390	Knob N329	1
MP14	8610012400	Knob N330	1
MP18	8930065660	2427 brake button	1
MP19	8930065541	2427 power button-1	1
MP20	8930065550	2427 release button	1
MP21	8610012340	Knob K246	1
MP22	8610012330	Knob K247	1
MP23	8610012320	Knob K248	1
MP24	8610012311	Knob K249-1	1
MP25	8610012300	Knob K250	1
MP26	8610012290	Knob K251	1
MP27	8610012280	Knob K252	1
MP28	8610012270	Knob K253	1
MP29	8610012260	Knob K254	1
MP30	8610012250	Knob K255	1
MP31	8610012240	Knob K255 (A)	1
MP32	8610012210	Knob K256	1
MP33	8610012220	Knob K257	1
MP34	8610012230	Knob K258	1
MP35	8930065530	2427 TS lock button	1
MP41	8930065590	2427 LCD holder	1
MP42	8210021790	2427 reflector	1
MP43	8850002610	Plain washer (AI)	1
MP44	8830002440	2427 nut	1
MP51	8930065570	2427 A-release button	1
MP52	8930065580	2427 B-release button	1
MP61	8950006480	2427 B-contact base	1
MP64	8930065610	2427 LCD filter	1
MP65	8930069670	2427 A-LCD sheet	1
MP67	8930065600	Coil spring (AI)	2
MP72	8830001010	Hex nut (A)	2
MP74	8930036740	1691 brake pad	2
MP81	8810009220	Screw PH B0 M2 × 8 ZK (BT)	3
MP82	8810009220	Screw PH B0 M2 × 8 ZK (BT)	2
MP83	8930066680	Coil spring (AJ)	2
MP84	8850000110	Flat washer M2 NI BS	2
MP85	8810008640	Screw FH BT M2 × 4 NI-ZU	2
MP86	8930065560	2427 slide button	1
MP87	8010020110	2427 LCD frame	1
MP88	8930066450	2427 A-prism sheet	1
MP89	8930066440	2427 B-prism sheet	1
MP90	8930062190	Double side tape (AJ)	2
MP91	8610012551	Knob N331 assembly -1 (incl: Base, Cover, Finger reset, etc)	1
MP101	8930066760	2427 A-sponge	2
MP102	8930066750	2427 B-sponge	1
MP103	8930066740	2427 C-sponge	1
MP104	8930066730	2427 D-sponge	1
MP106	8930067580	Insulation sheet (LG)	1
MP107	8930049260	Himelon sheet CA	2
MP108	8930067710	2427 A-sheet	1
MP109	8930067720	2427 B-sheet	1
MP110	8930067700	2427 B.P. sheet	1
MP111	8930067960	Sponge (IQ)	1

[DISPLAY UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
MP1	8510016980	2427 shield case	1
MP2	8510016970	2427 shield plate	1

[VR UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
R1	7210003230	Variable resistor TP96D00A-17F-10KBX2	1
S1	2250000170	Encoder TP90D96AE20-17F (1352)	1

[MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
MP1	8510017200	2427 A-shield plate	1
MP2	8930067510	2427 B-earth spring	1
MP3	8930030380	Ferrite sheet (C) 15 × 8 × 2	1
MP4	8930068000	Shield sponge (AT)	1
MP101	8510017330	2427 LPF case Y807	1
MP102*	8930068000	Shield sponge (AT)	1
MP201	8510017210	2427 B-shield plate	1
MP501*	8510017620	2427 mix shield plate	1
MP802	8930067500	2427 A-earth spring	1
MP1951	8510017200	2427 A-shield plate	1
MP2001	8510017170	2427 mic plate	1
MP2002	8930068240	2427 C-earth spring	1

[LOGIC UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
BT1301	3020000330	Lithium battery ML920S/F9D	1
MP1	8510017000	2427 logic case	1
MP2	8510016990	2427 logic cover	1
MP3	8930068080	Thermally sheet (AU)	1
MP5	8930068370	2427 A-magnetic shield	1
MP6	8930056010	Enboss tape (K)	2
MP7	8930068370	2427 A-magnetic shield	1
MP201	8930055051	Thermally sheet (V)-1	1
MP301	8930062210	Thermally sheet (AL)	1
MP1301	8930052770	Double coated tape (Y)	1
MP2221	8930055051	Thermally sheet (V)-1	1

[DDS UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
J1051	6450001790	Connector HLJ7000-01-3010	1
J1101	6450001640	Connector TCS5044-01-4111	1
J1151	6450001840	Connector TCS7568-43-201	1
MP201	8510017200	2427 A-shield plate	1
MP202*	8510017440	2427 B-DDS plate	1
MP301*	8510017230	2427 DDS case	1
MP302	8930024170	Earth spring (G)	1
MP321*	8510017250	2427 DDS plate	1
MP451	8510017500	2427 C-shield plate	1
MP452*	8510017240	2427 A-DDS case	1
MP453*	8930063970	Shield sponge (AM)	1
MP601	8930067520	2427 DDS spring	1
MP801*	8930024170	Earth spring (G)	1
MP851	8510017260	2427 A-DDS plate	1
MP1101	8930067530	Sponge (IP)	1
MP1102	8930067520	2427 DDS spring	1

*: Refer to SEC 8 BOARD LAYOUTS.

[CHASSIS PARTS]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
J1	6510000370	Connector MR-DS	1
J2	6510000370	Connector MR-DS	1
W1	8600037110	SP cable	1
W3	8900015210	Cable OPC-1448A (N=28, L=60)	1
W4	8900015210	Cable OPC-1448A (N=28, L=60)	1
W5	8900015220	Cable OPC-1461A (N=30, L=40)	1
W6	8900015220	Cable OPC-1461A (N=30, L=40)	1
W7	8900013970	Cable OPC-1450 (N=10, L=53)	1
W11	8600037122	Cable SX2427 P02 × J03CH-2 M500	1
W15	8970024620	Wire 1.5D 95MM C31/C31	1
W17	8970024630	Wire 1.5D170MM C31/C31	1
SP1	2510000991	Speaker VS-C66Y0811A	1
MF1	2710000790	Fan AFB0512HB-4L50	1
EP2	9010001410	Tube	1
MP1	8010019970	2427 chassis	1
MP2	8110008491	2427 U-cover assembly -1 (incl: U-cover, SP net, A net, B net, etc)	1
MP3	8110008341	2427 L-cover-1	1
MP4	8860001370	2427 ANT lug	2
MP5	8930065990	2427 ANT plate	2
MP6	8210021781	2427 chassis panel-1	1
MP11	8930042440	1897 SP holder	1
MP13	8930002910	Rubber foot (B)	2
MP14	8810008660	Screw PH BT M3 × 8 NI-ZU	17
MP15	8810008660	Screw PH BT M3 × 8 NI-ZU	4
MP16	8810010590	Screw PH BT M3 × 20 NI-ZU	4
MP17	8810009560	Screw PH BT M2 × 6 ZK	1
MP18	8810004280	Screw PH M3 × 5 ZK	7
MP19	8810004430	Screw PH M3 × 6 ZK	4
MP20	8810009040	Setscrew H M2.6 × 10 NI	8
MP21	8810008020	Setscrew C M2.6 × 12 ZK	2
MP22	8810009610	Screw FH M2.6 × 6 ZK	16
MP23	8810009610	Screw FH M2.6 × 6 ZK	4
MP24	8810009070	Screw PH M2.6 × 8 ZK	2
MP25	8930048550	2177 clip	1
MP31	8930005790	Foot (A)	1
MP32	8930005800	Foot (B)	1
MP33	8930065980	2427 stand	1
MP35	8930065920	2427 fan holder	1
MP36	8930065930	2427 fan rubber	1
MP37	8810008660	Screw PH BT M3 × 8 NI-ZU	2
MP38	8930065910	2427 earth spring	1
MP40	8930065630	2427 fuse sheet	1
MP41	8930065910	2427 earth spring	1
MP42	8310064590	2427 plate	1
MP43	8820000530	Bolt M4 × 8 NI	1
MP44	8850000140	Flat washer M4 NI BS	1
MP45	8850001560	Washer M4	1
MP46	8930066720	2427 USB sheet	1
MP47	8930067490	2427 fan spring	1
MP48	8930067540	2427 shield tape	4
MP49	8930067740	2427 magnetic shield	1
MP50	8930067980	Shield sponge (AS)	1
MP51	8930068000	Shield sponge (AT)	1
MP52	8930068000	Shield sponge (AT)	1
MP53	8930063970	Shield sponge (AM)	1
MP54	8930063970	Shield sponge (AM)	1
MP55	8930027730	Sponge (DC)	1
MP56	8930063430	CU sheet (S)	1
MP57	8930068260	Thermally sheet (AV)	2
MP58	8930067980	Shield sponge (AS)	1
MP59	8930068390	2427 D-earth spring	1
MP60	8930068420	Sponge (IS)	1
MP61	8930068380	Sponge (IR)	1
MP62	8930032100	Sponge (DP)	2
MP63	8930069070	Shield sponge (AU)	1
MP64	8930043800	Double coated tape (S)	1

[PA UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
F1	5220000340	Holder FHA010-03	1
F2	5210000940	Fuse 1205	1
W701	8900013900	Cable OPC-1455	1
MP201*	8930068250	2427 PA plate	1
MP251*	8930014140	Earth spring (D)	1
MP301	8860001130	2177 PA shield plate	1
MP302	8860001130	2177 PA shield plate	1
MP401	8860001360	2427 PA shield plate	1
MP402	8930014140	Earth spring (D)	1
MP403*	8930014140	Earth spring (D)	1
MP404*	8930014140	Earth spring (D)	1
MP405	8930067570	2427 A-PA spring	1
MP410	8930067290	Shield sponge (AR)	1
MP501	8510016950	2427 PA cover	1
MP502*	8930014140	Earth spring (D)	1
MP531	8930068400	2427 E-earth spring	1
MP551*	8510012150	2177 PA S-plate	1
MP871*	8930014140	Earth spring (D)	1
MP901*	8930014140	Earth spring (D)	1

*: Refer to SEC 8 BOARD LAYOUTS.

[DRIVER UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
MP1	8410002480	2429 PA heatsink	1

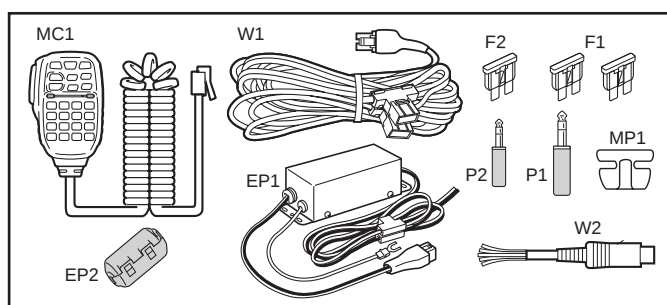
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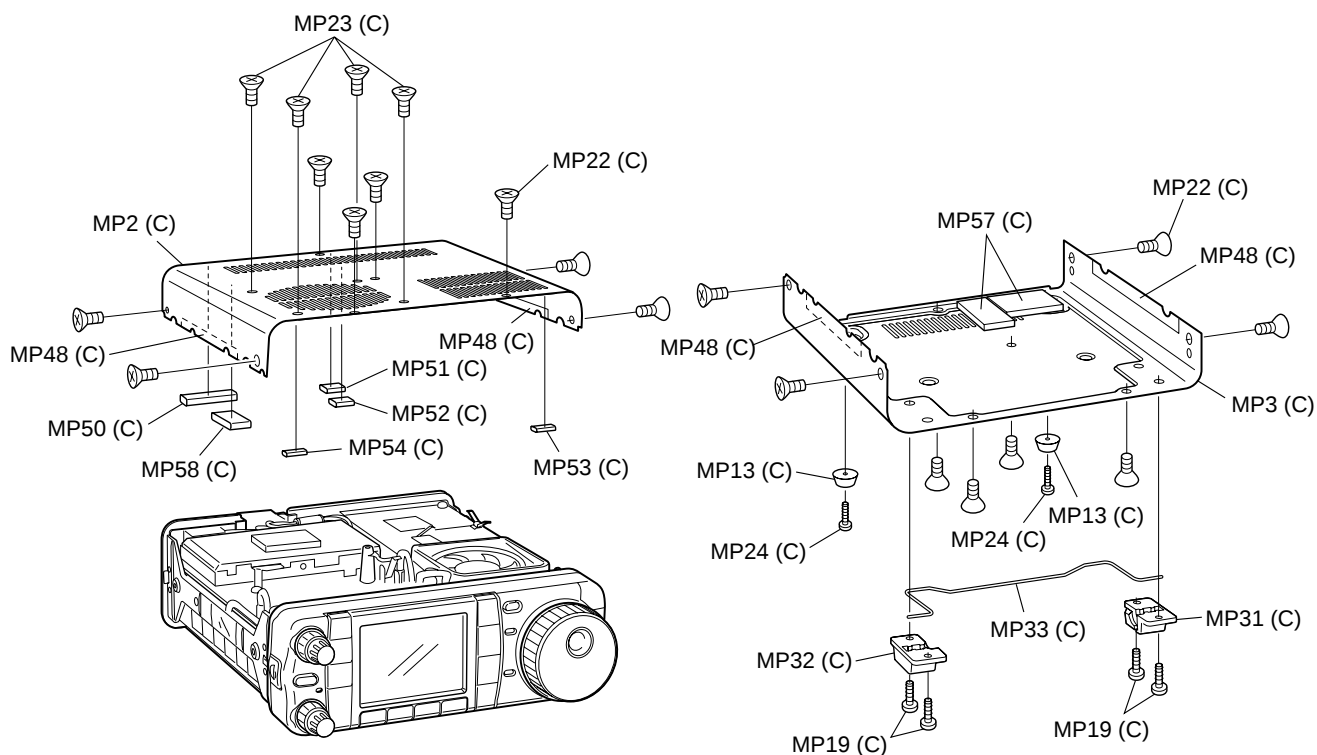
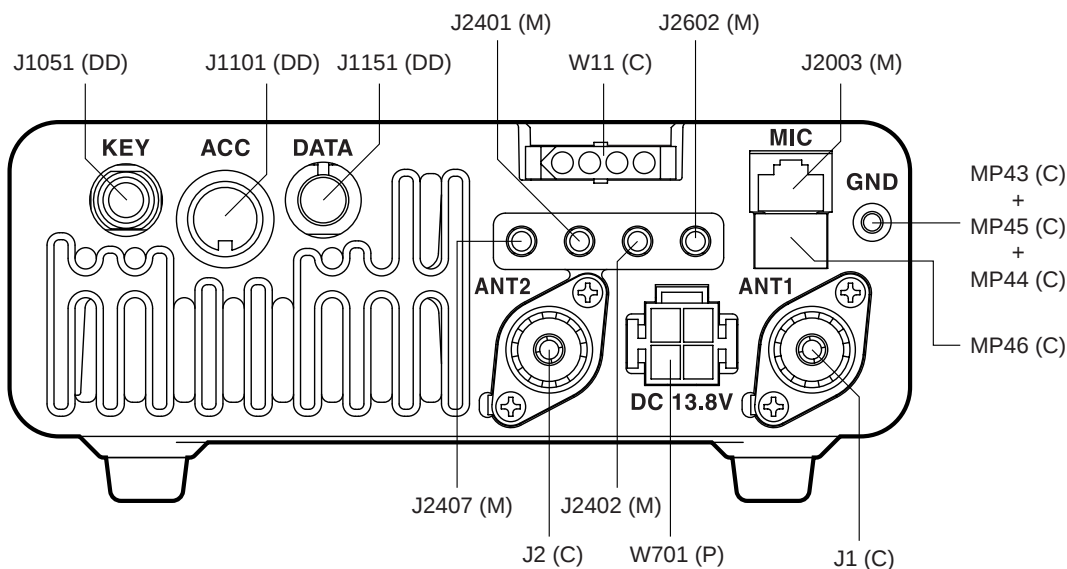
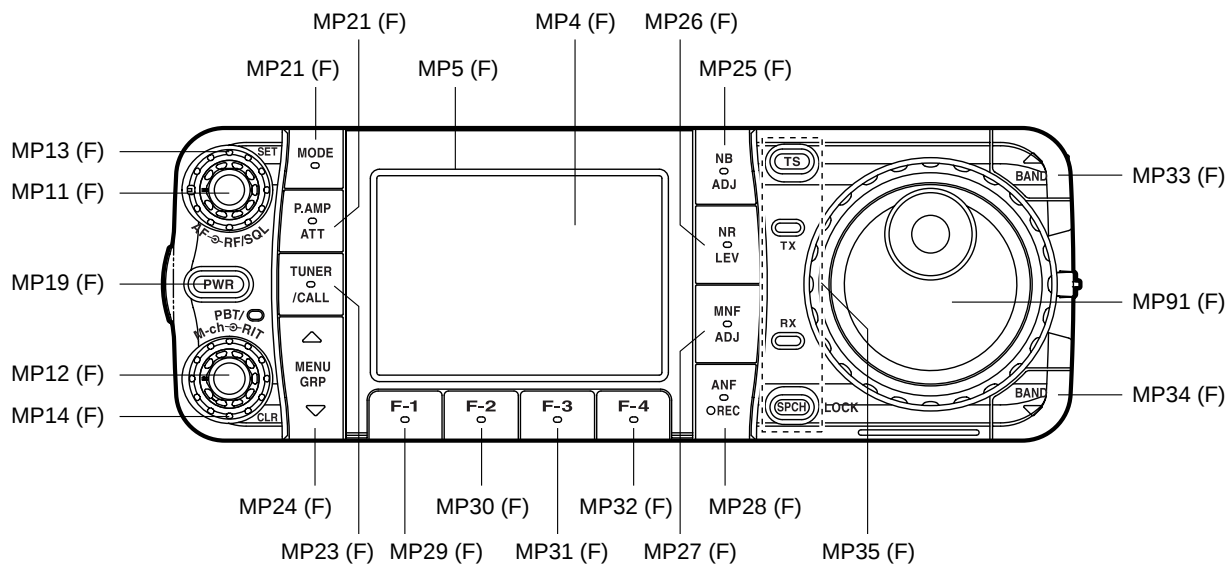
REF. NO.	ORDER NO.	DESCRIPTION	QTY.
W1	8900014810	Cable OPC-1579	1
MP1	8950006470	2427 A-contact base	1

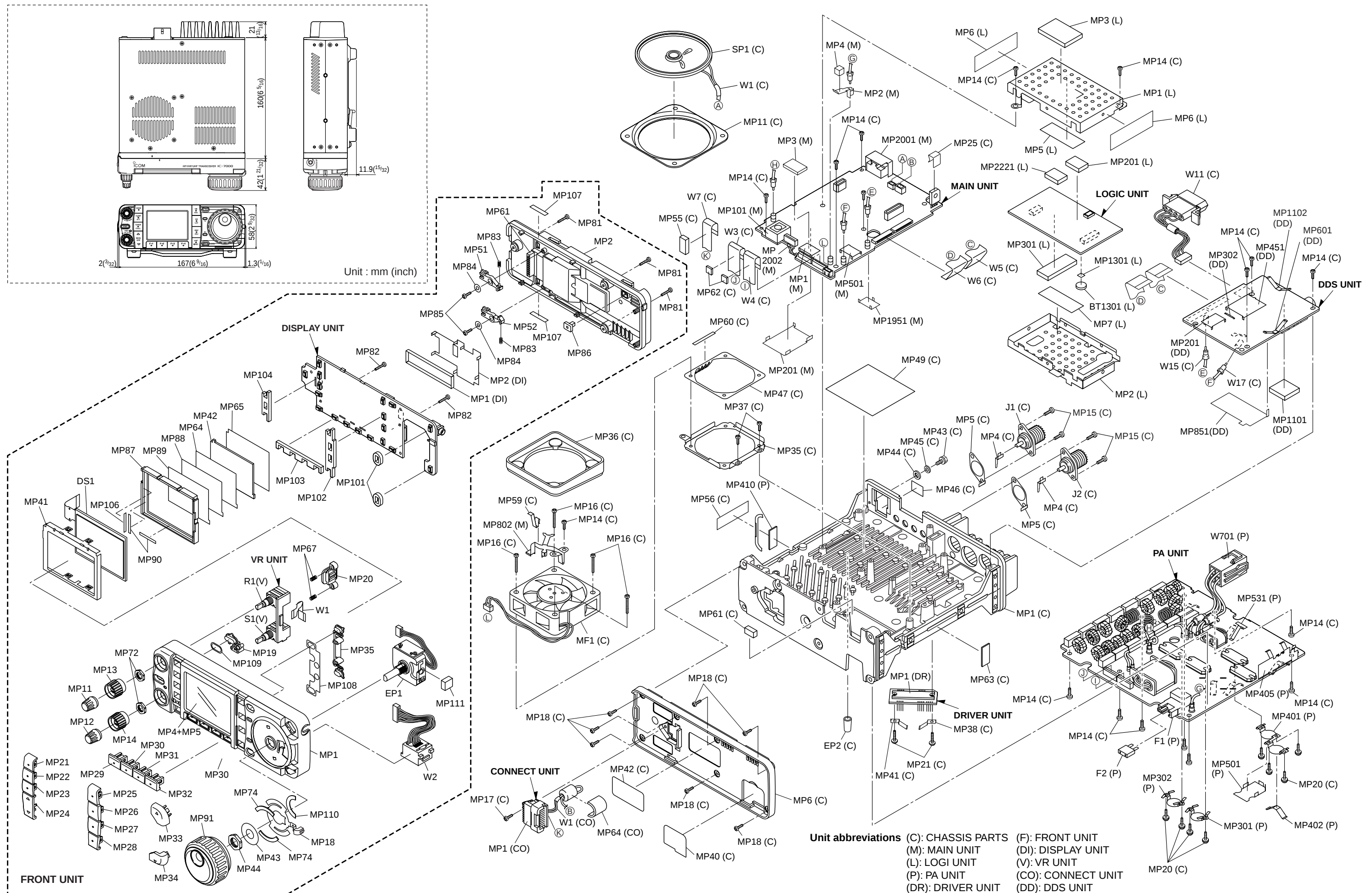
Screw abbreviations BT, B0: Self-tapping
 FH: Flat head PH: Pan head
 ZK: Black BS: Brass
 NI: Nickel NI-ZU: Nickel-Zinc

[ACCESSORIES]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
P1	5610000050	Plug AP330	1
P2	5610000170	Plug AP370B	1
F1	5210000840	Fuse ATC-30	2
F2	5210000940	Fuse 1205	1
W1	8900013980	Cable OPC-1457 [USA], [EXP] only	1
W2	8900006110	Cable OPC-596	1
EP1	0880001680	Cable OPC-1457R except [USA], [EXP]	1
EP2	6910011940	Bead ZCAT2436 except [USA], [EXP]	1
MC1	Optional product	Microphone HM-151	1
MP1	8930007300	Mic hanger	1







• HM-151

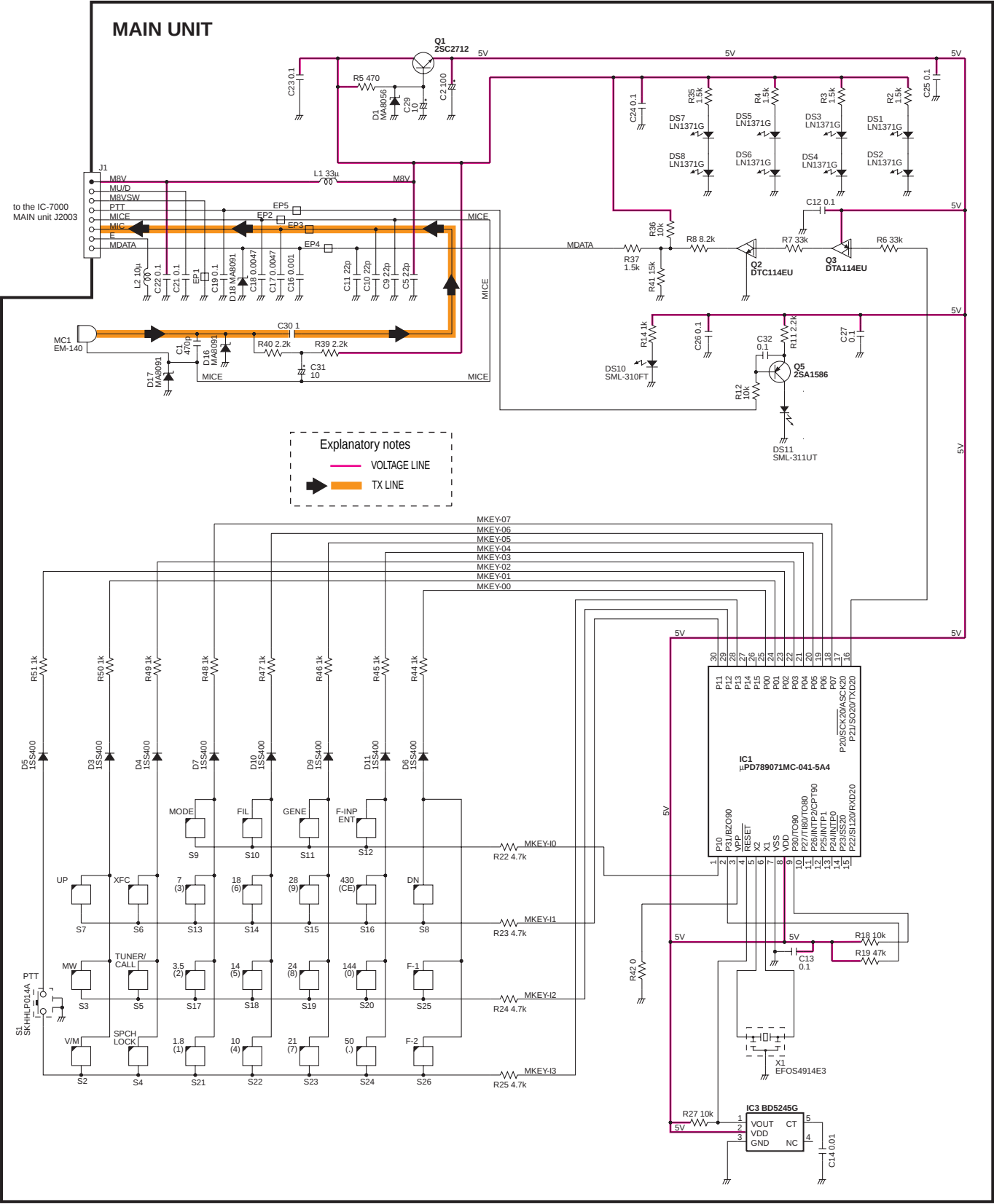
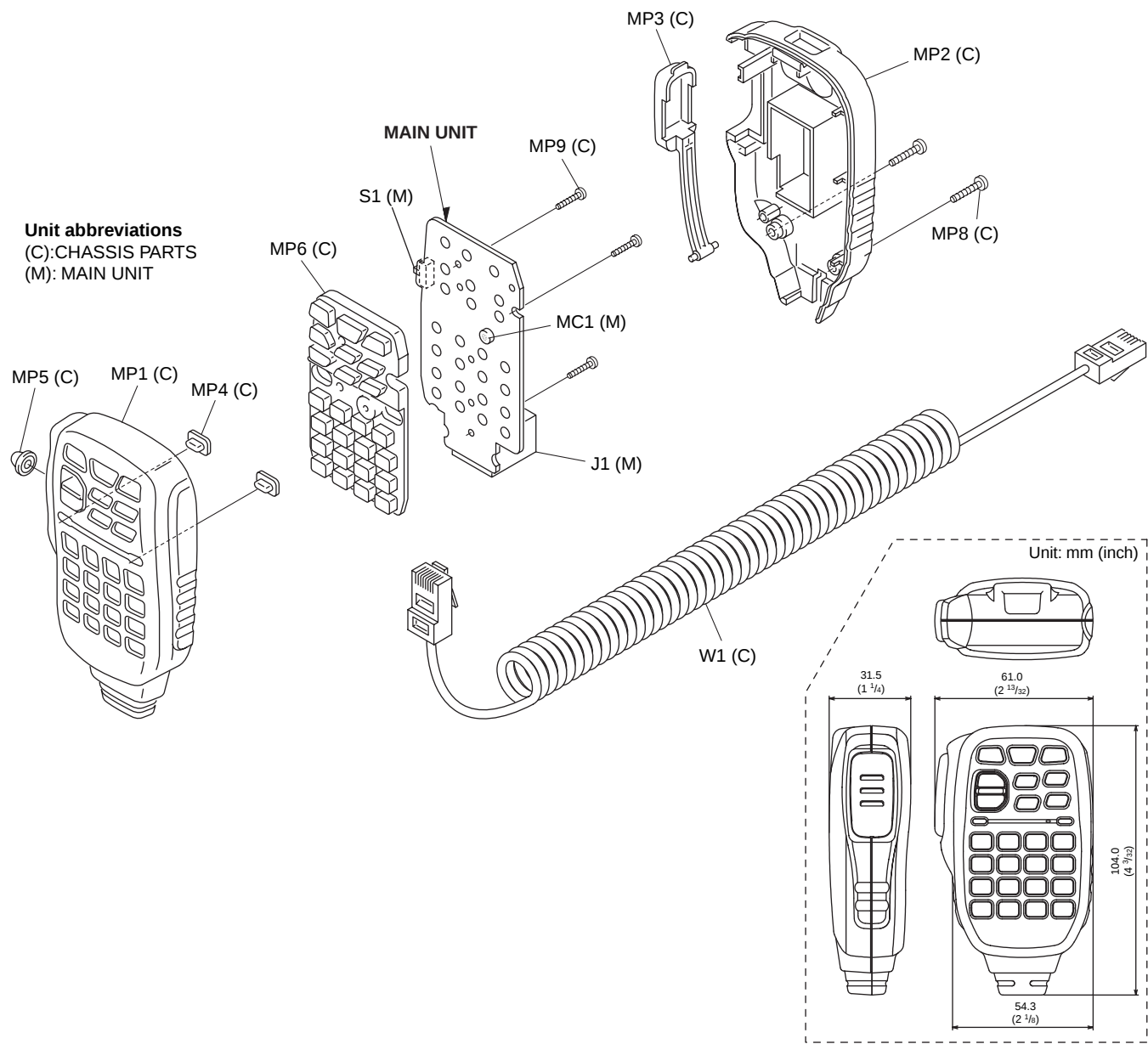
[CHASSIS PARTS]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
W1	8900011270	Cable OPC-1153	1
MP1	8210021920	2839 front panel (C)	1
MP2	8210018840	2539 rear panel	1
MP3	8930057380	2539 PTT button	1
MP4	8930057390	2539 LED lens	2
MP5	8930057570	2539 SW rubber	1
MP6	8930066540	2539 keyboard (C)	1
MP8	8810009370	Screw PH BT M3 × 12 ZK	2
MP9	8810009560	Screw PH BT M2 × 6 ZK	3

[MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
J1	6510023110	Connector 3008L-8P8C	1
S1	2260000980	Switch SKHHLP014A	1
MC1	7700002310	Microphone EM-140	1

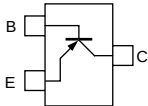
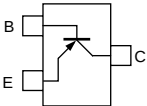
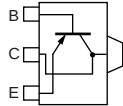
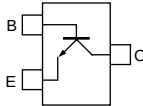
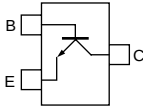
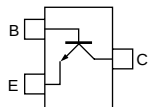
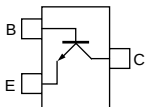
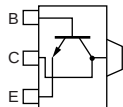
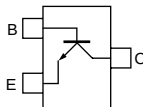
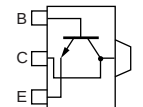
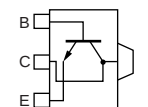
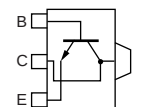
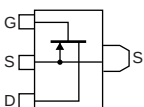
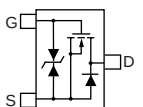
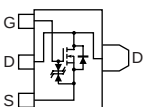
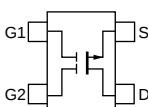
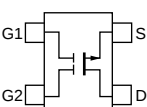
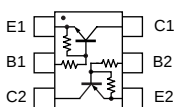
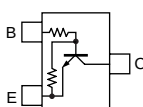
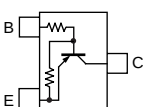
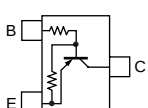
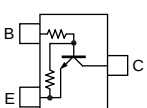
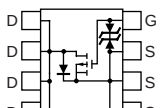
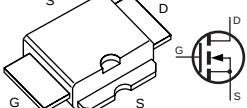
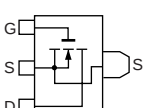
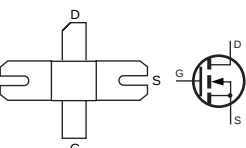
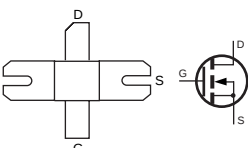
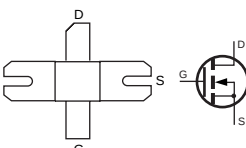
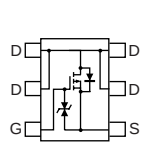
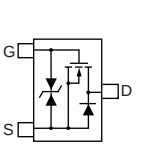
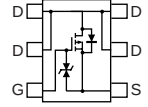
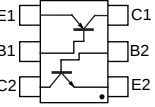
Screw abbreviations BT: Self-tapping
PH: Pan head ZK: Black



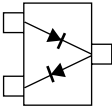
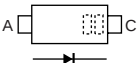
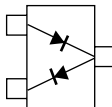
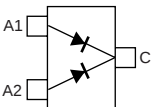
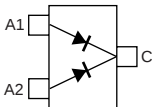
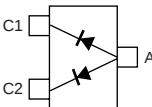
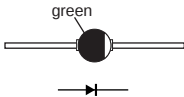
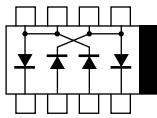
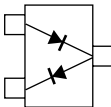
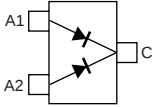
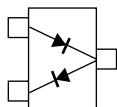
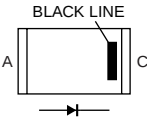
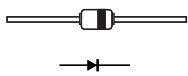
SECTION 7

SEMI-CONDUCTOR INFORMATION

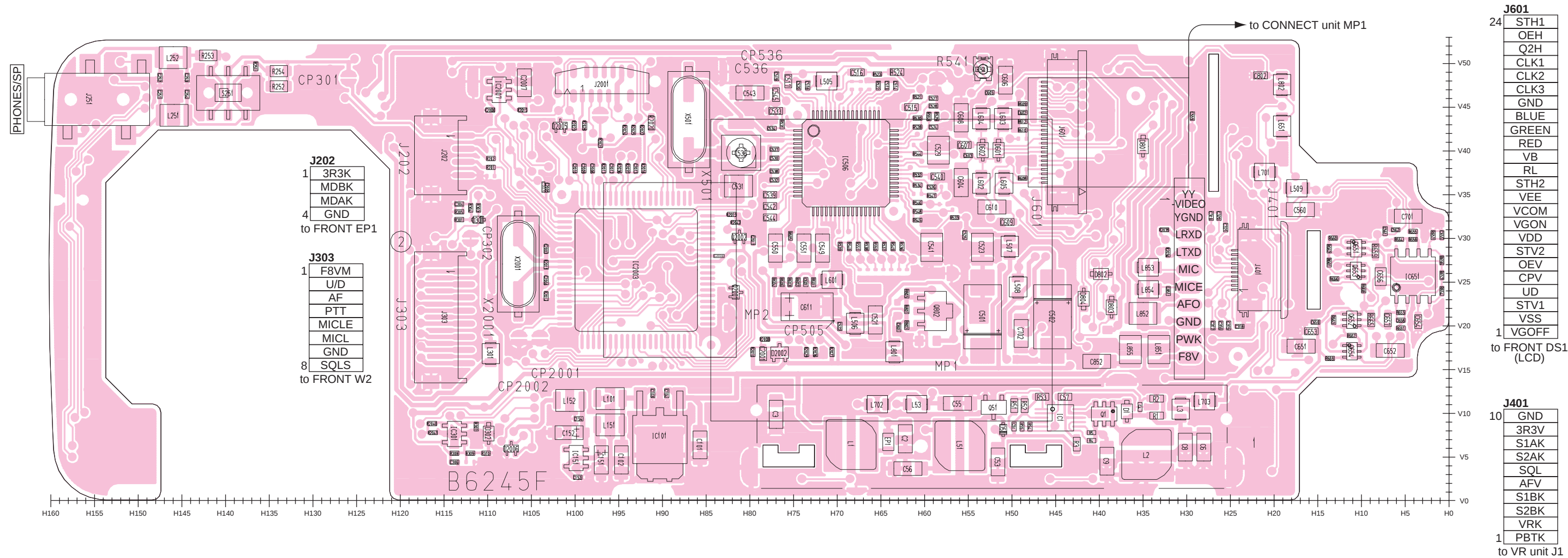
• TRANSISTORS AND FET'S

2SA1576A T106 R (Symbol: FR) 	2SA1586 GR (Symbol: SG) 	2SB1132 T100 R (Symbol: BAR) 	2SC4081 T106 R (Symbol: BR) 	2SC4213 B (Symbol: AB) 
2SC4215 Y (Symbol: QY) 	2SC4403 3 TL (Symbol: LY3) 	2SC4673 D TD (Symbol: CO) 	2SC5226 4 TL (Symbol: LN4) 	2SC5551 (Symbol: EB) 
2SD1619 T TD (Symbol: DB) 	2SD1623 TD (Symbol: DF) 	2SK2854 (Symbol: UP) 	2SK3018 T106 (Symbol: KN) 	2SK3065 T100 (Symbol: KE) 
3SK195 (Symbol: UJ) 	3SK291 (Symbol: UF) 	BCR08PN (Symbol: WFs) 	BCR108T (Symbol: WHs) 	BCR183T (Symbol: WMs) 
DTA114 EE TL (Symbol: 14) 	DTC114EUA T106 (Symbol: 24) 	ECH8301-TL (Symbol: JA) 	PD55015 (Symbol: PD55015) 	RD01MUS1 (Symbol: K2) 
RD60HUF1 (Symbol: RD60HUF1) 	RD70HHF1 (Symbol: RD70HH01) 	RD70HVF1 (Symbol: RD70HVF1) 	RSQ035P03 (Symbol: TM) 	RSR025N03 (Symbol: QY) 
RTQ035P02 (Symbol: TL) 	XP4601 (Symbol: 5C) 			

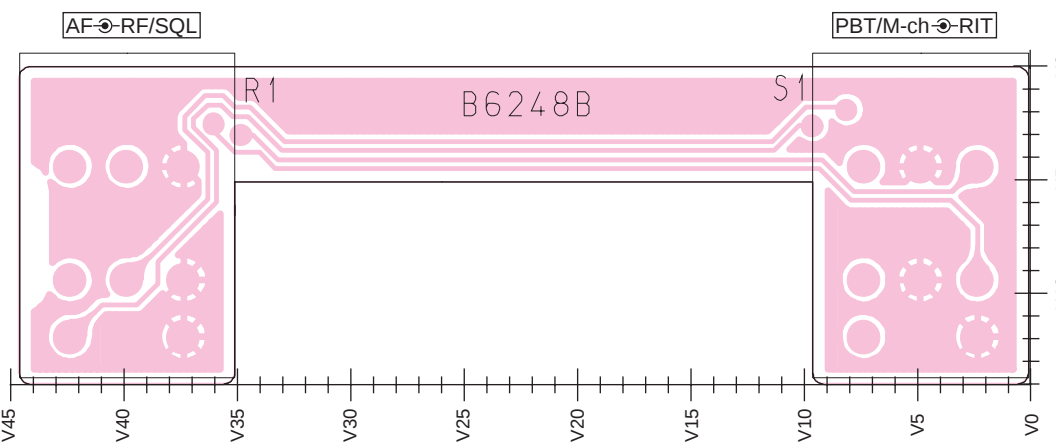
• DIODES

1SS302 (Symbol: C3) 	1SV271 (Symbol: TG) 	1SV305 (Symbol: TV) 	1SV307 (Symbol: TX) 	1SV308 (Symbol: TX) 
CUS02 (Symbol: 2) 	DA221 TL (Symbol: K) 	DAN202 K T146 (Symbol: N) 	DAN202 U T106 (Symbol: N) 	DAP202K T146 (Symbol: P) 
DSA3A1 (Color: Green) 	HSB88WSTR (Symbol: Silver line) 	HSM88AS TR (Symbol: C1) 	MA2S111 (Symbol: A) 	MA2S728 (Symbol: B) 
MA2SD10 (Symbol: 2L) 	MA2SV05 (Symbol: 3A) 	MA357 (Symbol: 7K) 	MA717 WK (Symbol: M3D) 	MA728 (Symbol: 2A) 
MA729 (Symbol: 2B) 	MA732 (Symbol: 2C) 	MA77 (Symbol: 4B) 	MA8036 L (Symbol: 3_6) 	MA8039 L (Symbol: 3_9) 
MA8043 L (Symbol: 4_3) 	MA8047 M (Symbol: 4-7) 	MA8075 L (Symbol: 7_5) 	RB706F-40 T106 (Symbol: 3J) 	SM240A-T (Symbol: 240A) 
UM9401F (Symbol: none) 	XB15A407 (Symbol: none) 			

• BOTTOM VIEW (DISPLAY UNIT)

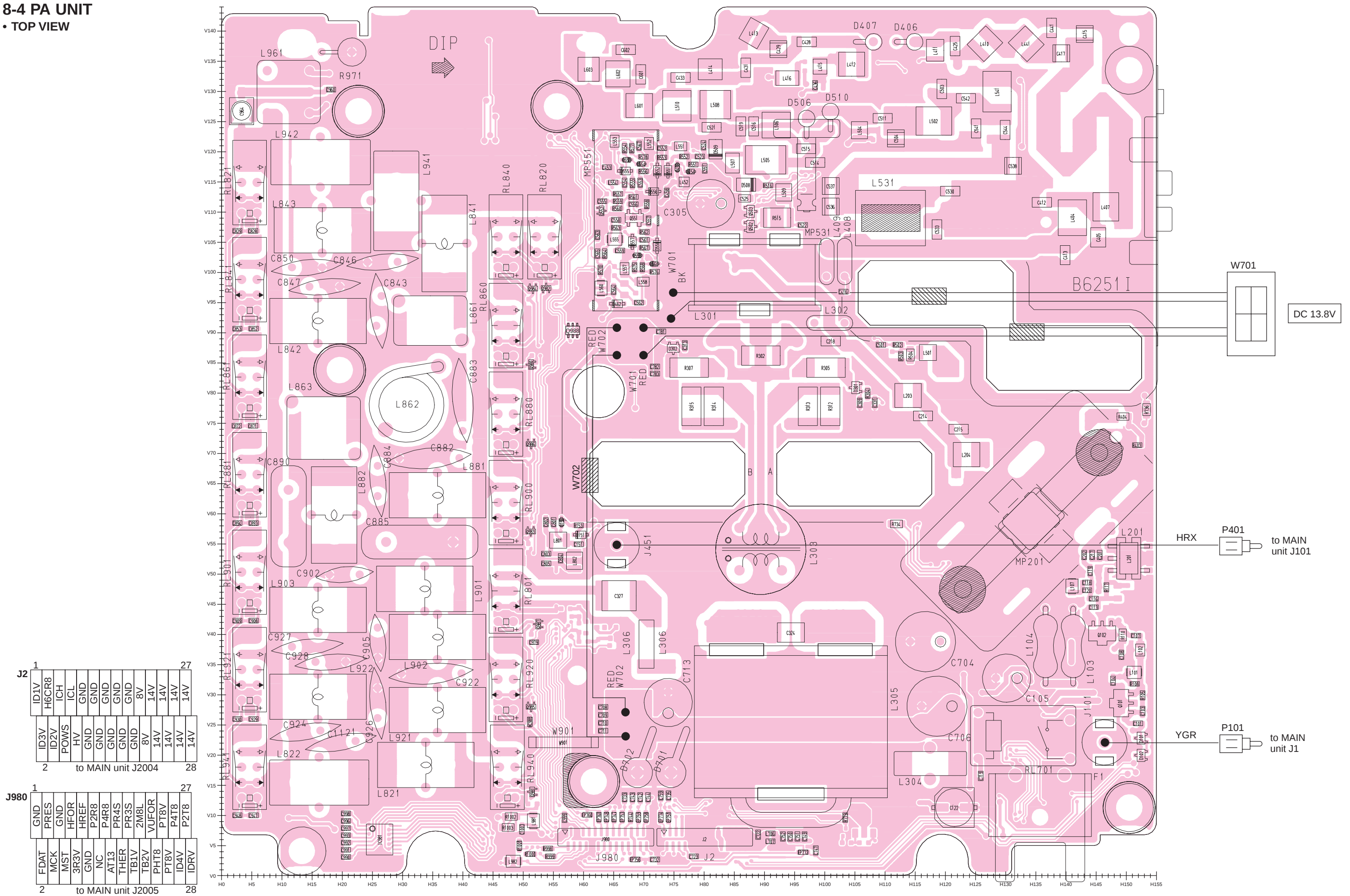


• BOTTOM VIEW (VR UNIT)



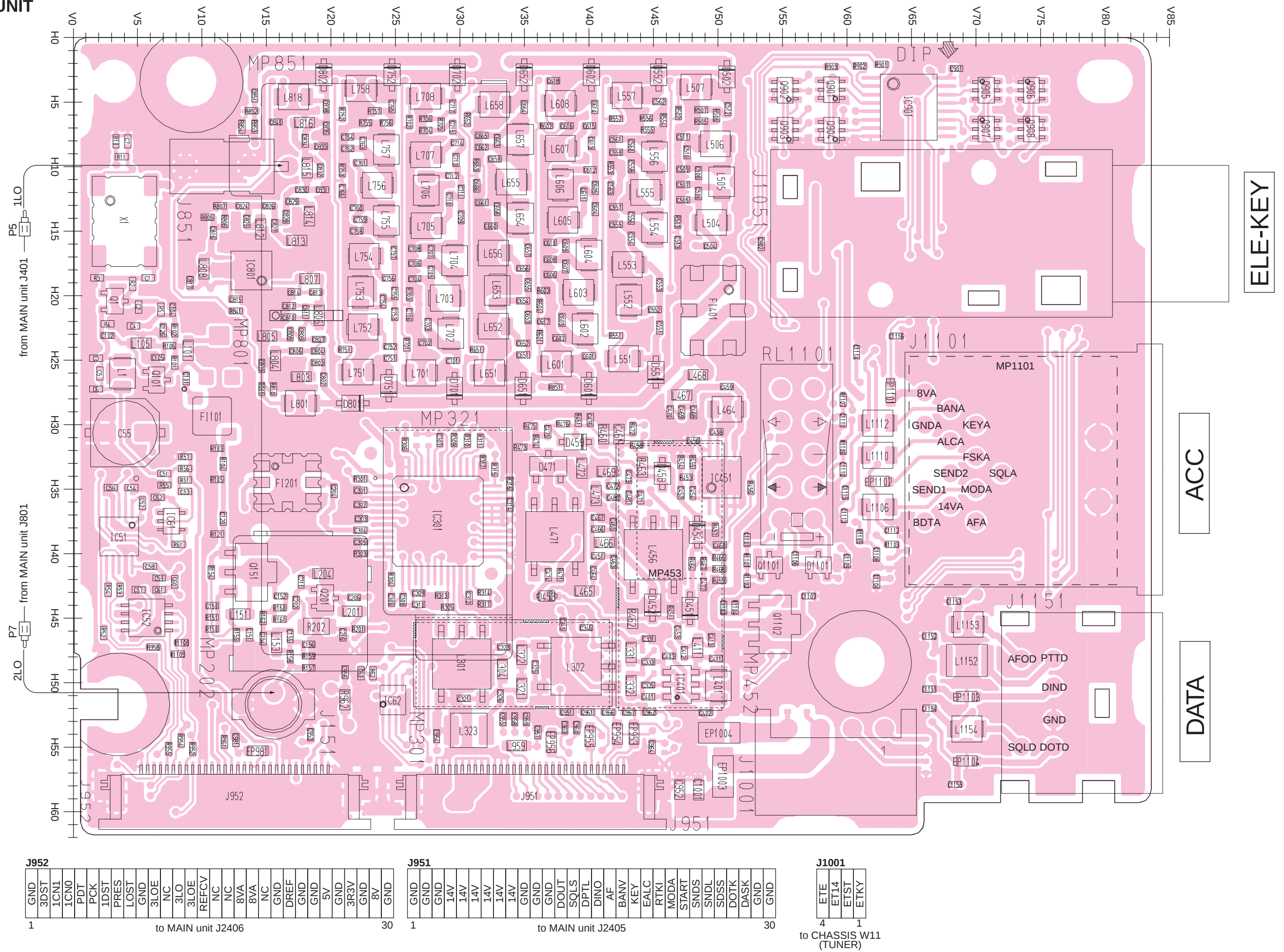
8-4 PA UNIT

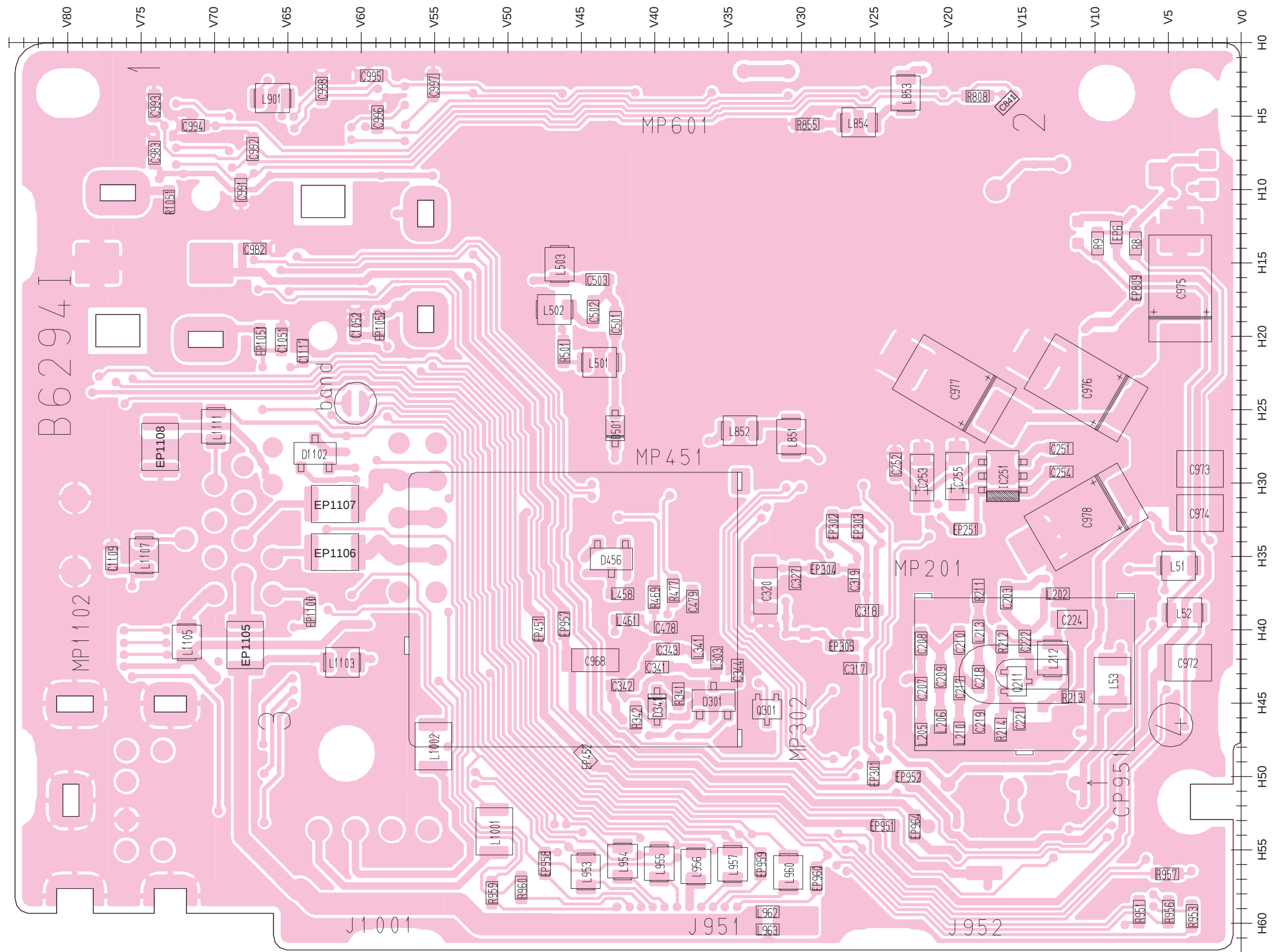
- TOP VIEW



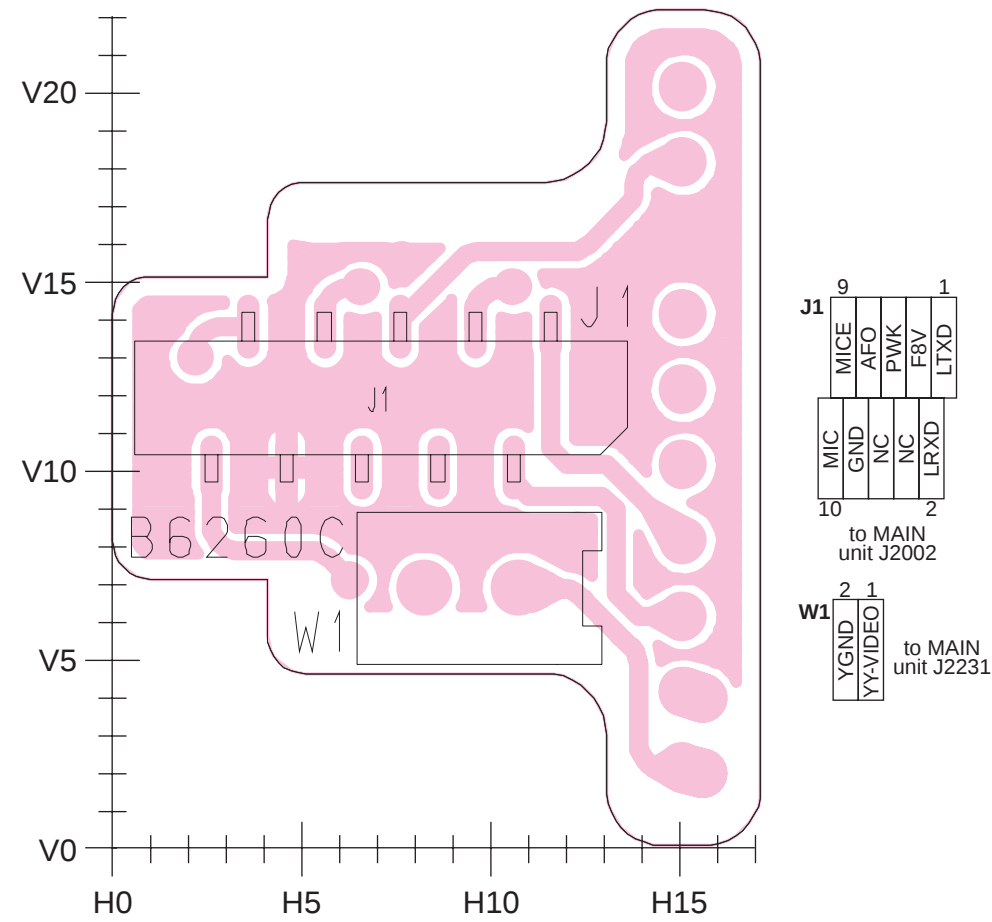
8-5 DDS UNIT

• TOP VIEW

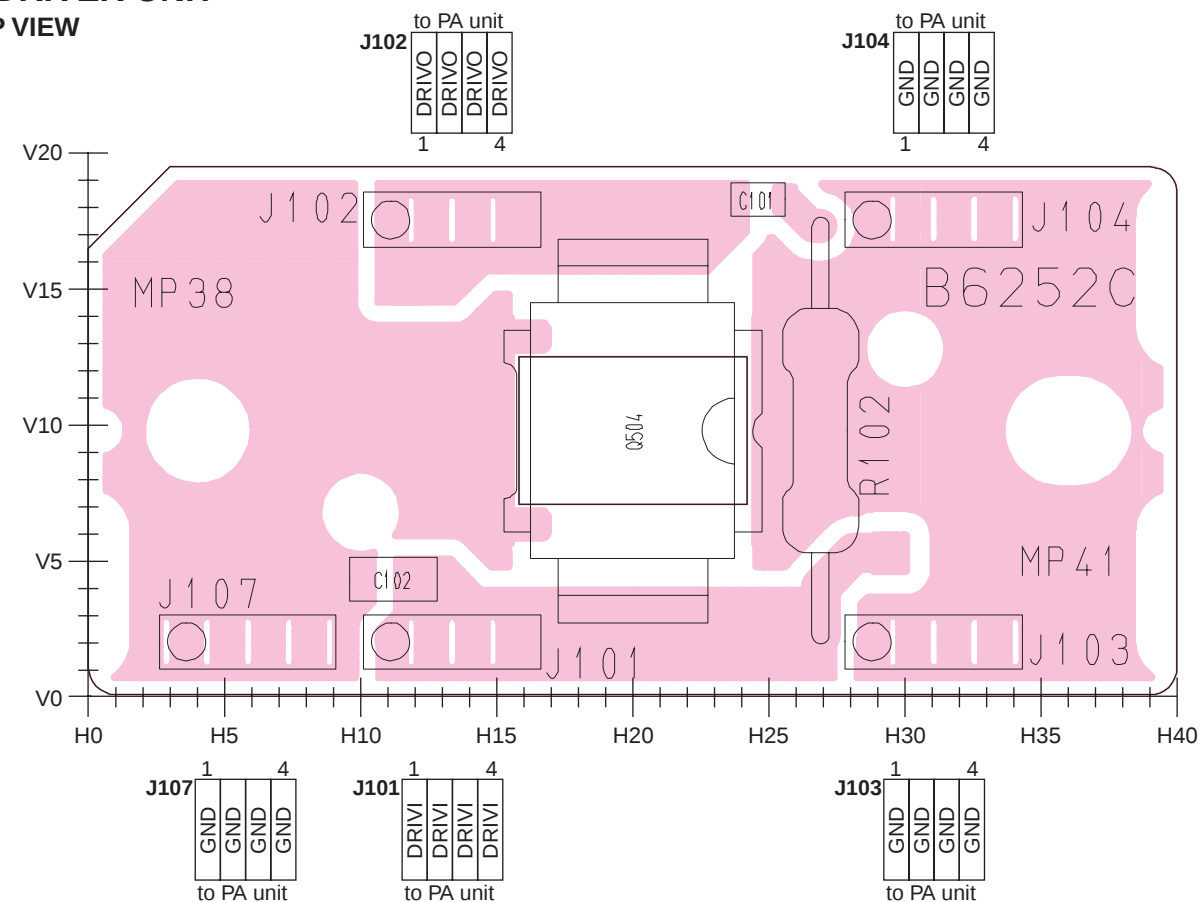




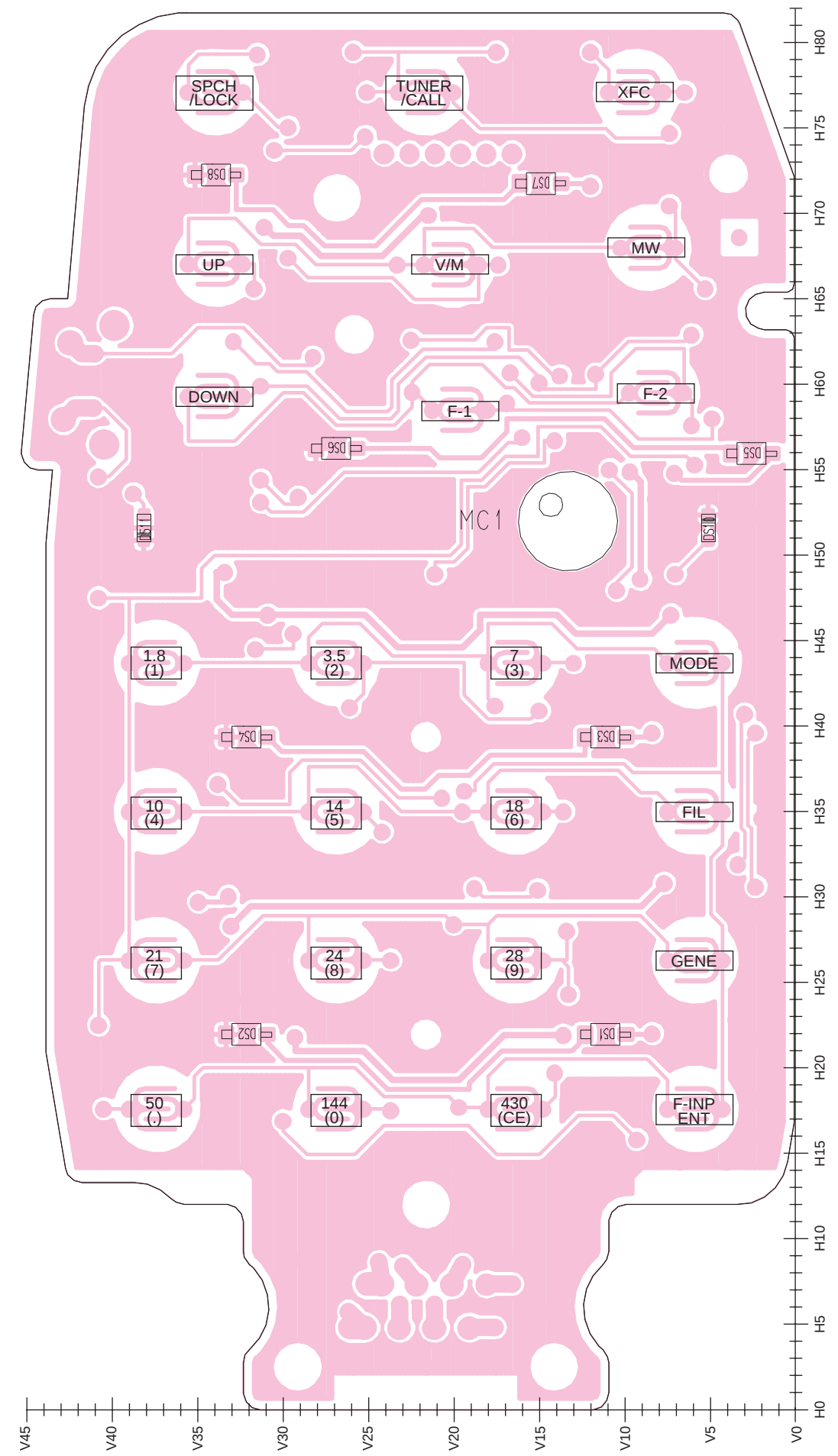
8-7 CONNECT UNIT
• TOP VIEW



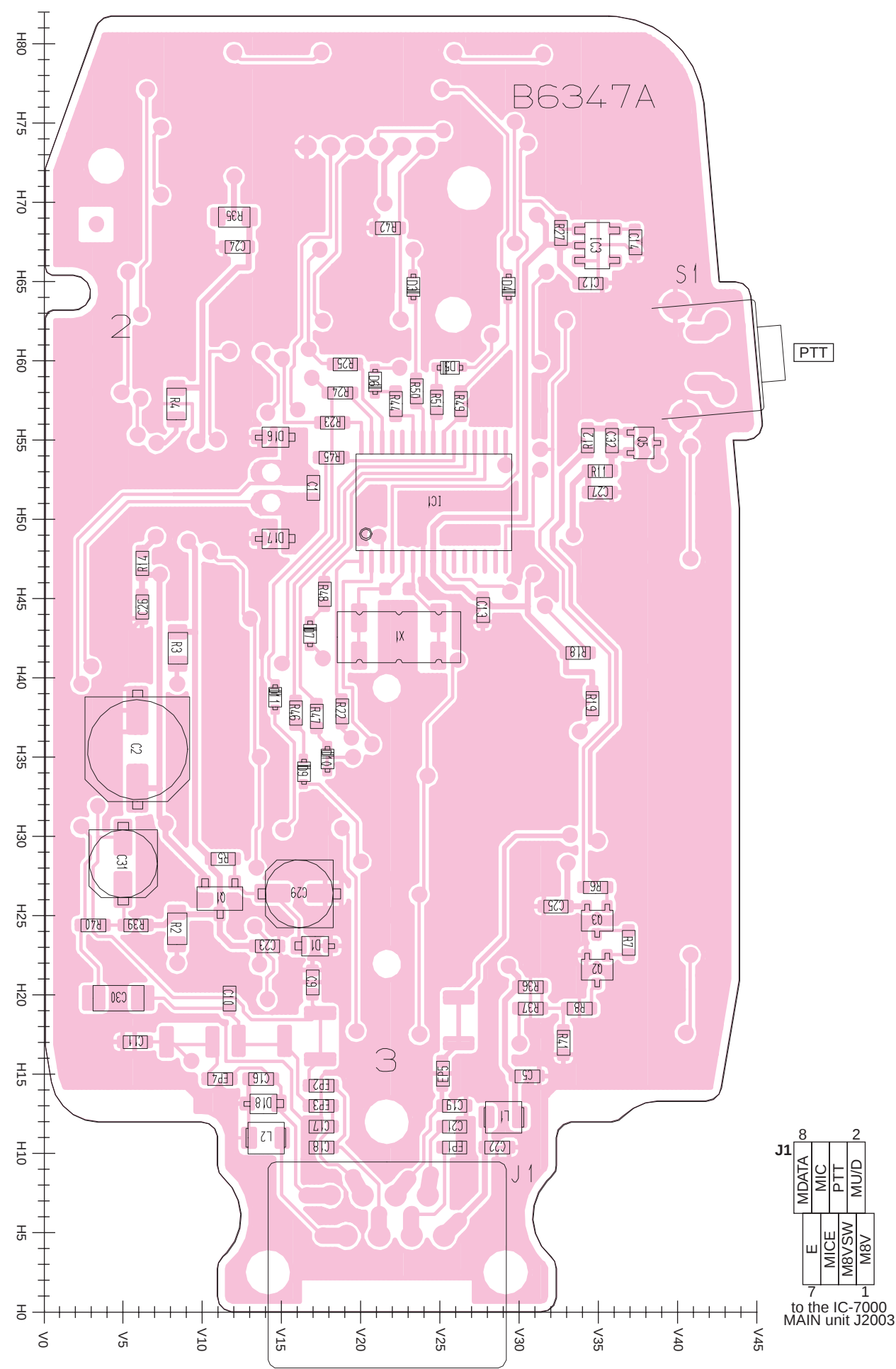
8-8 DRIVER UNIT
• TOP VIEW



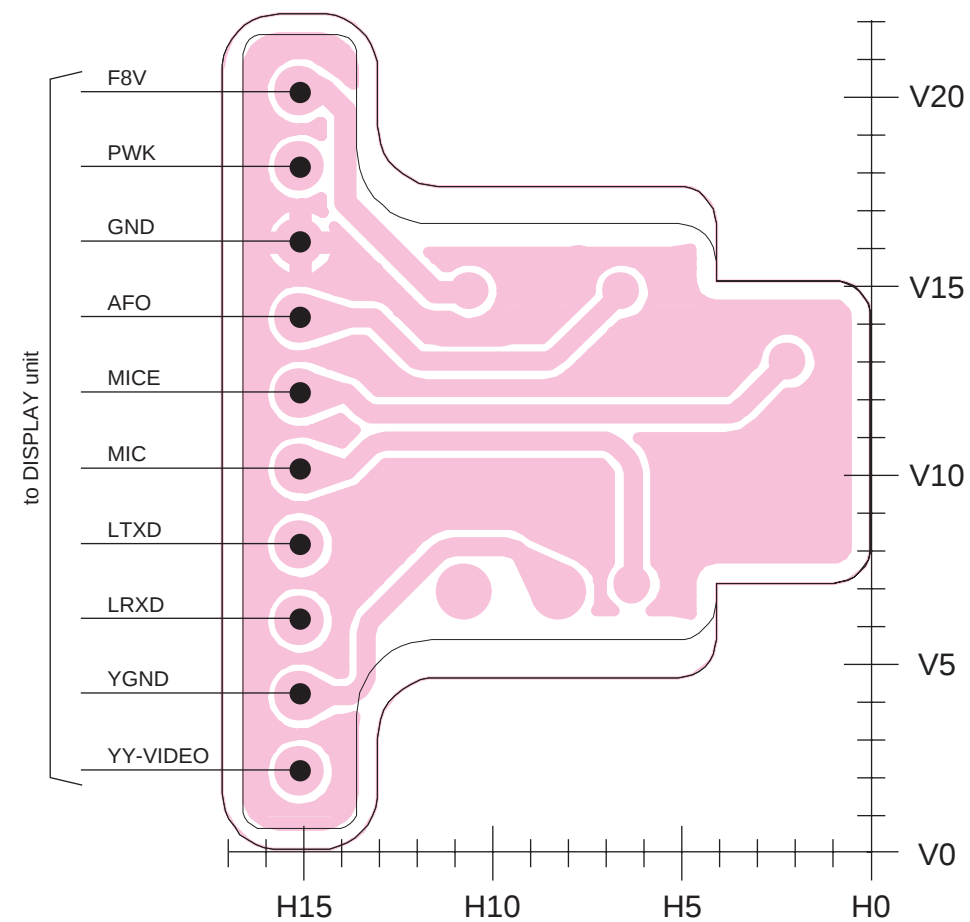
8-9 HM-151
• TOP VIEW



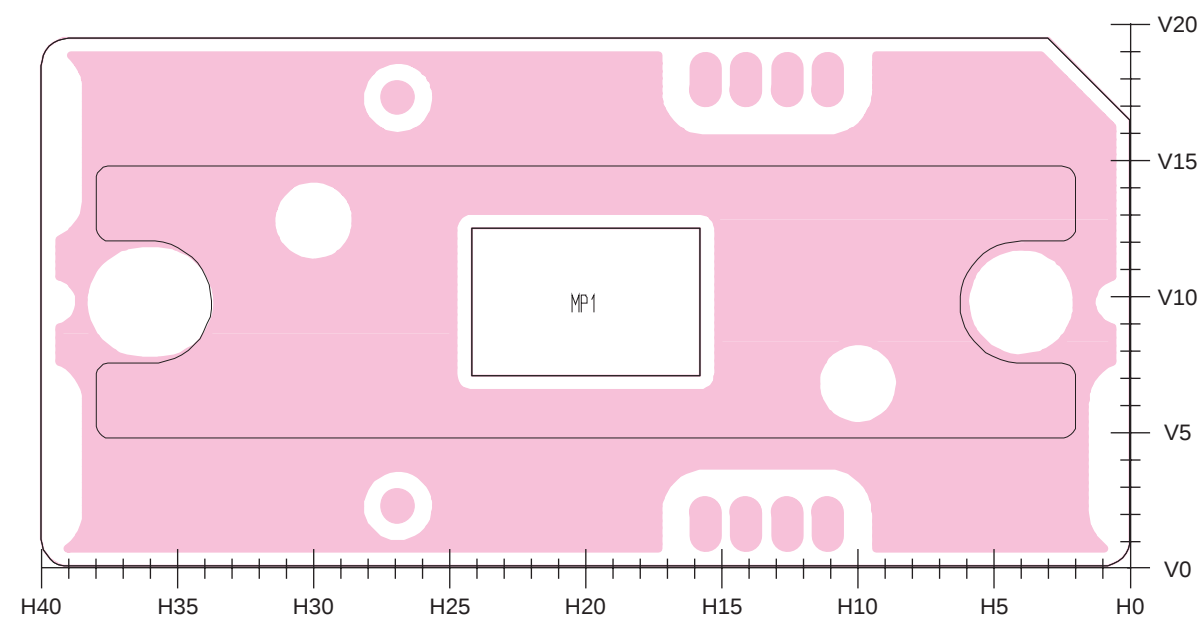
• BOTTOM VIEW (HM-151)



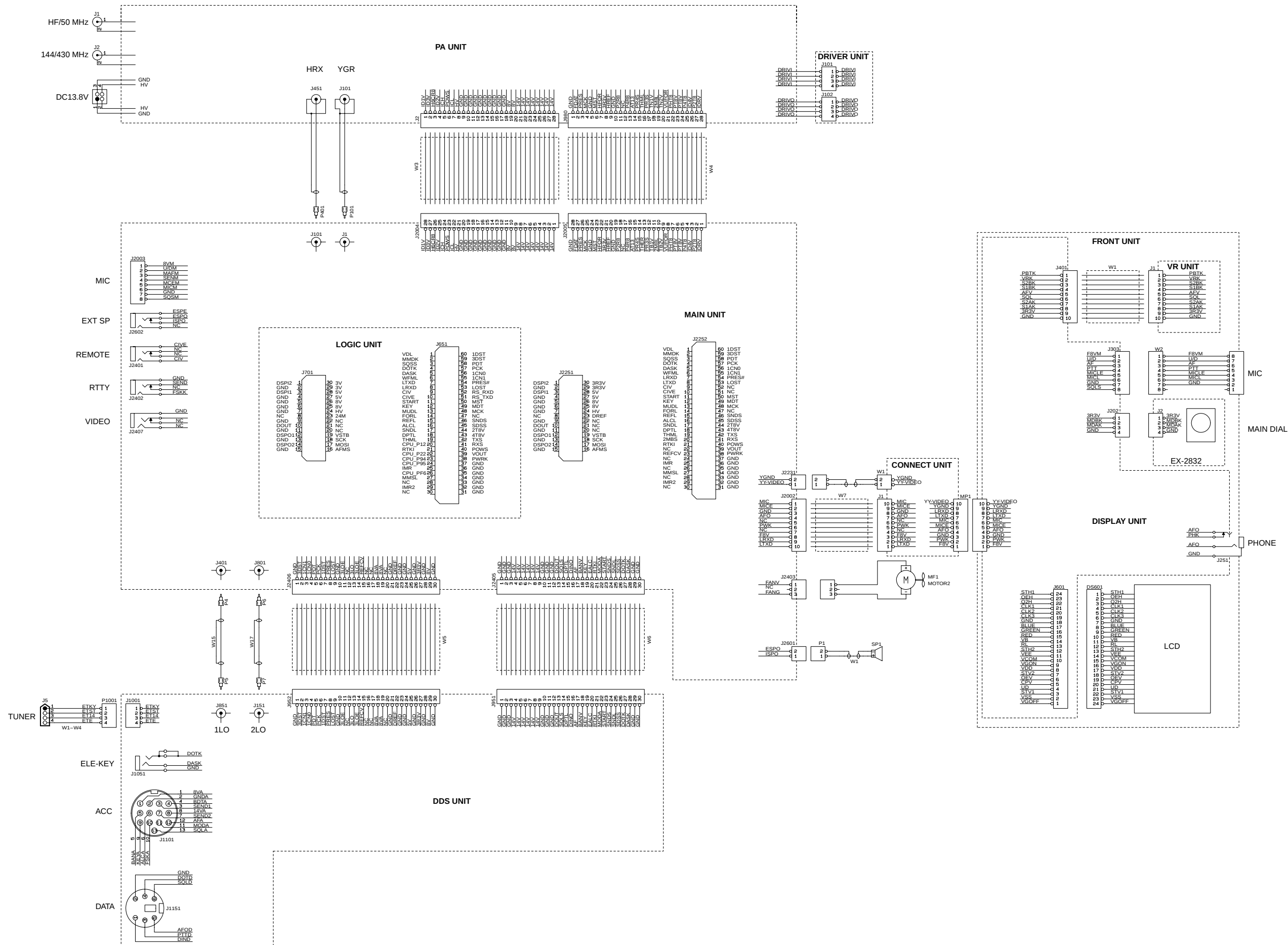
• BOTTOM VIEW (CONNECT UNIT)



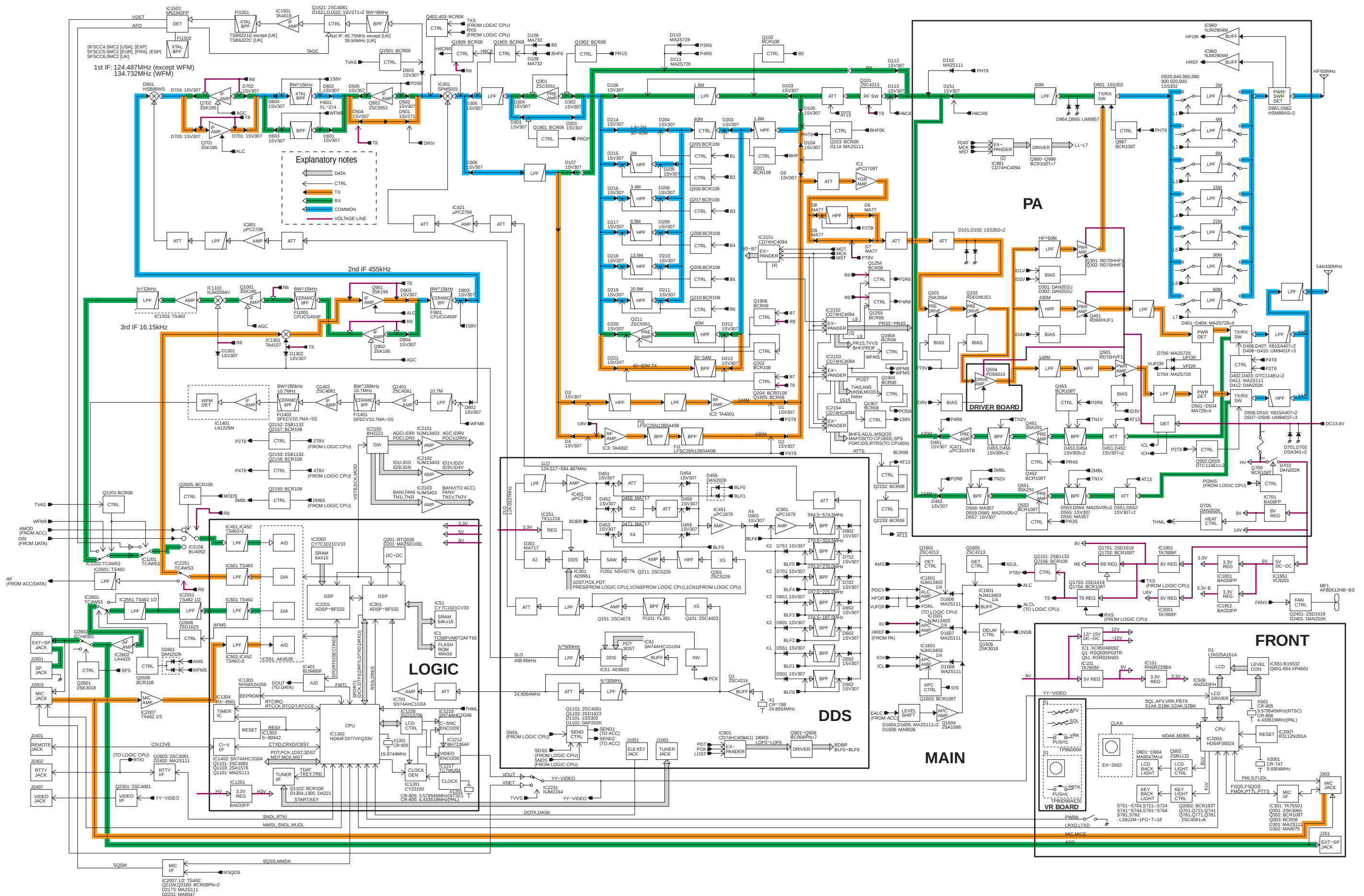
• BOTTOM VIEW (DRIVER UNIT)



SECTION 9 WIRING DIAGRAM

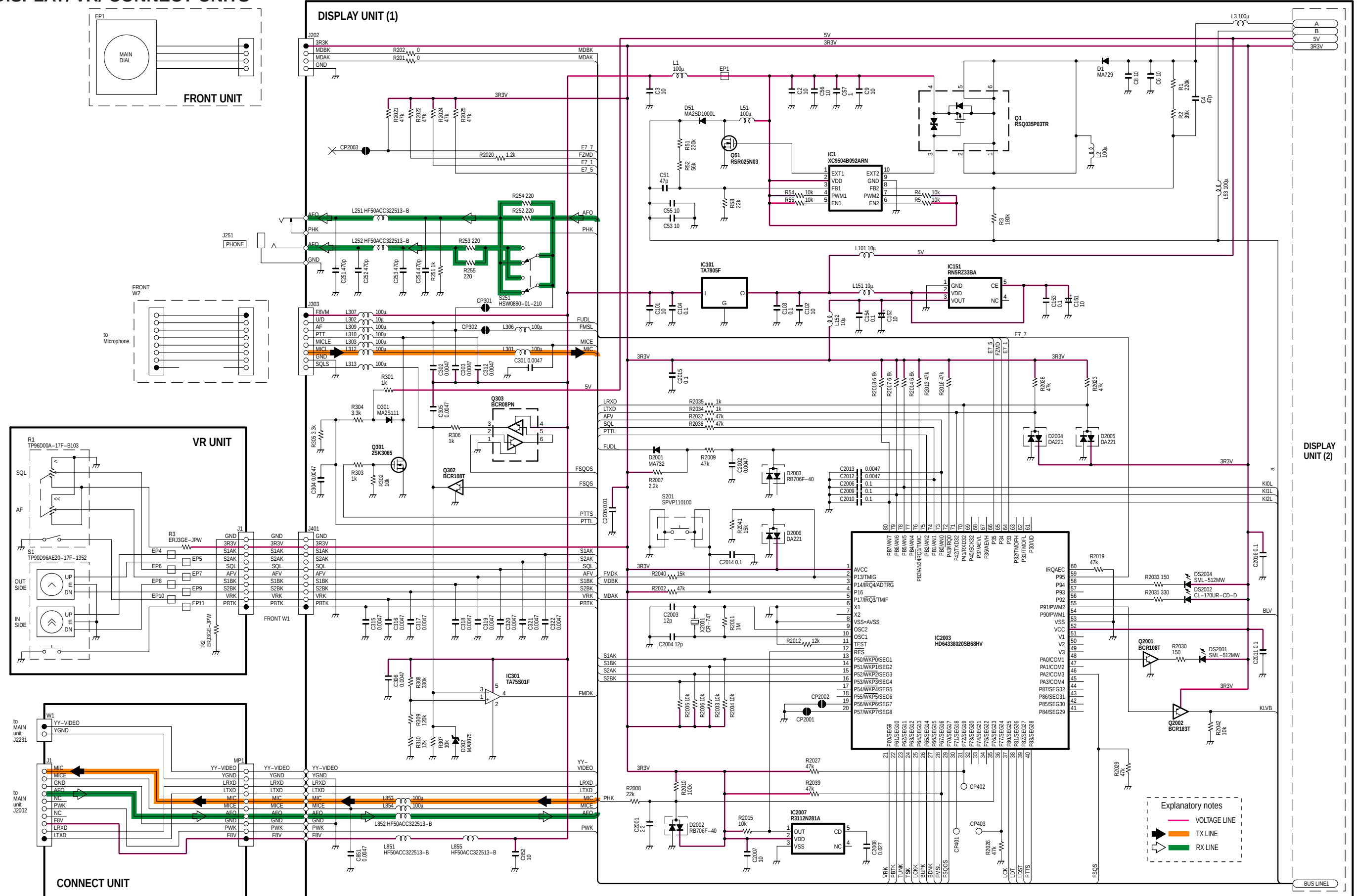


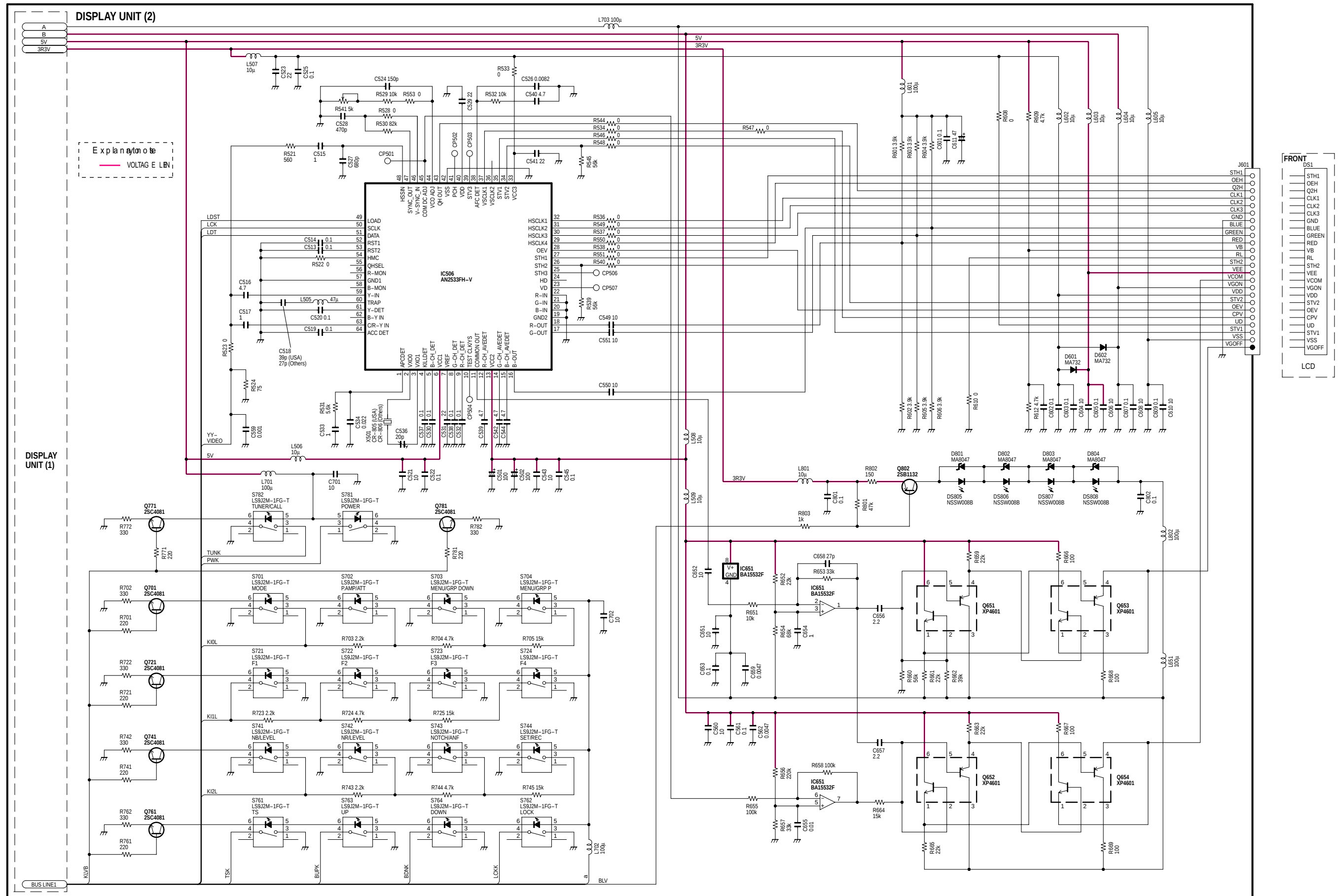
SECTION 10 BLOCK DIAGRAM

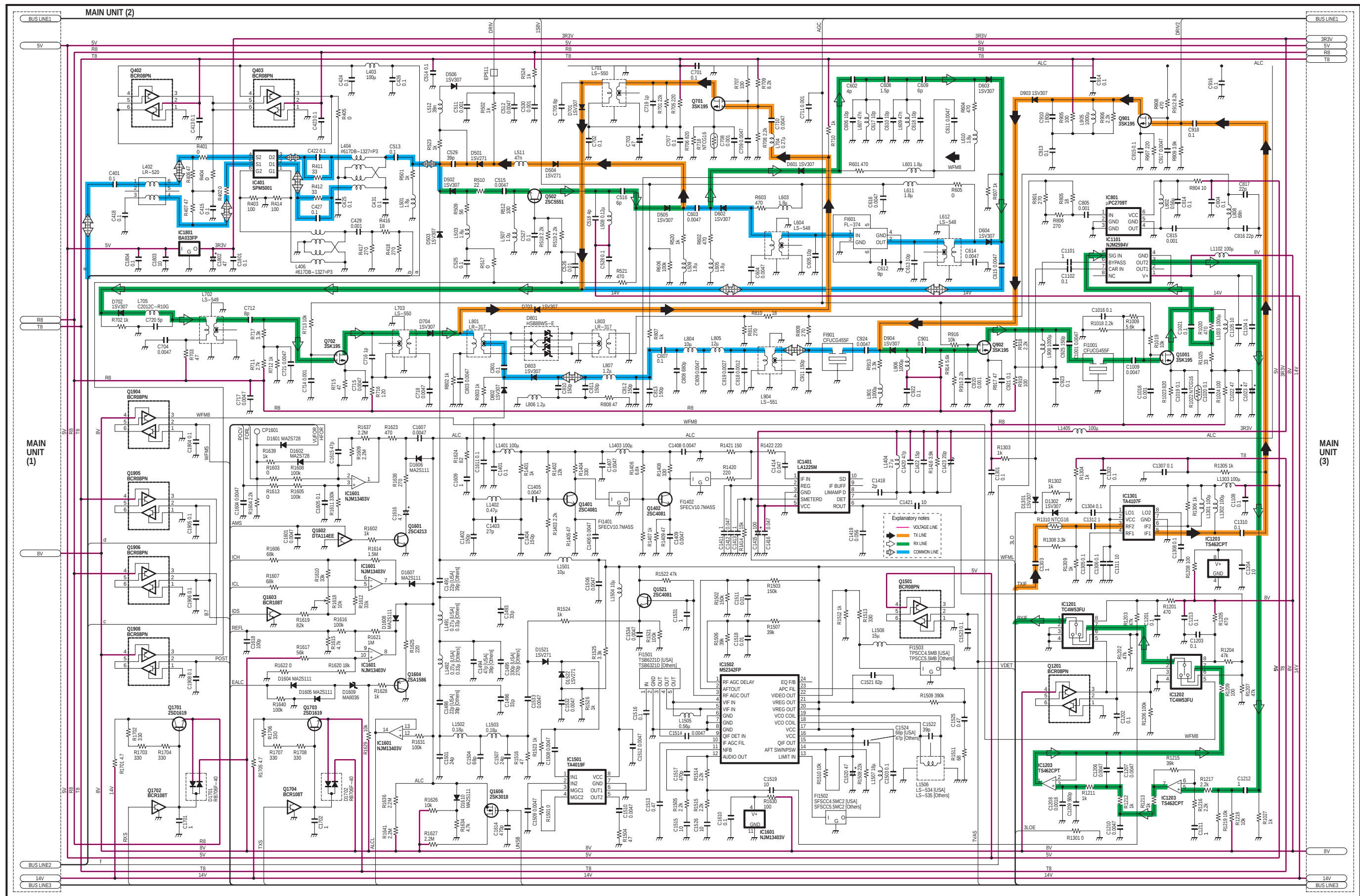


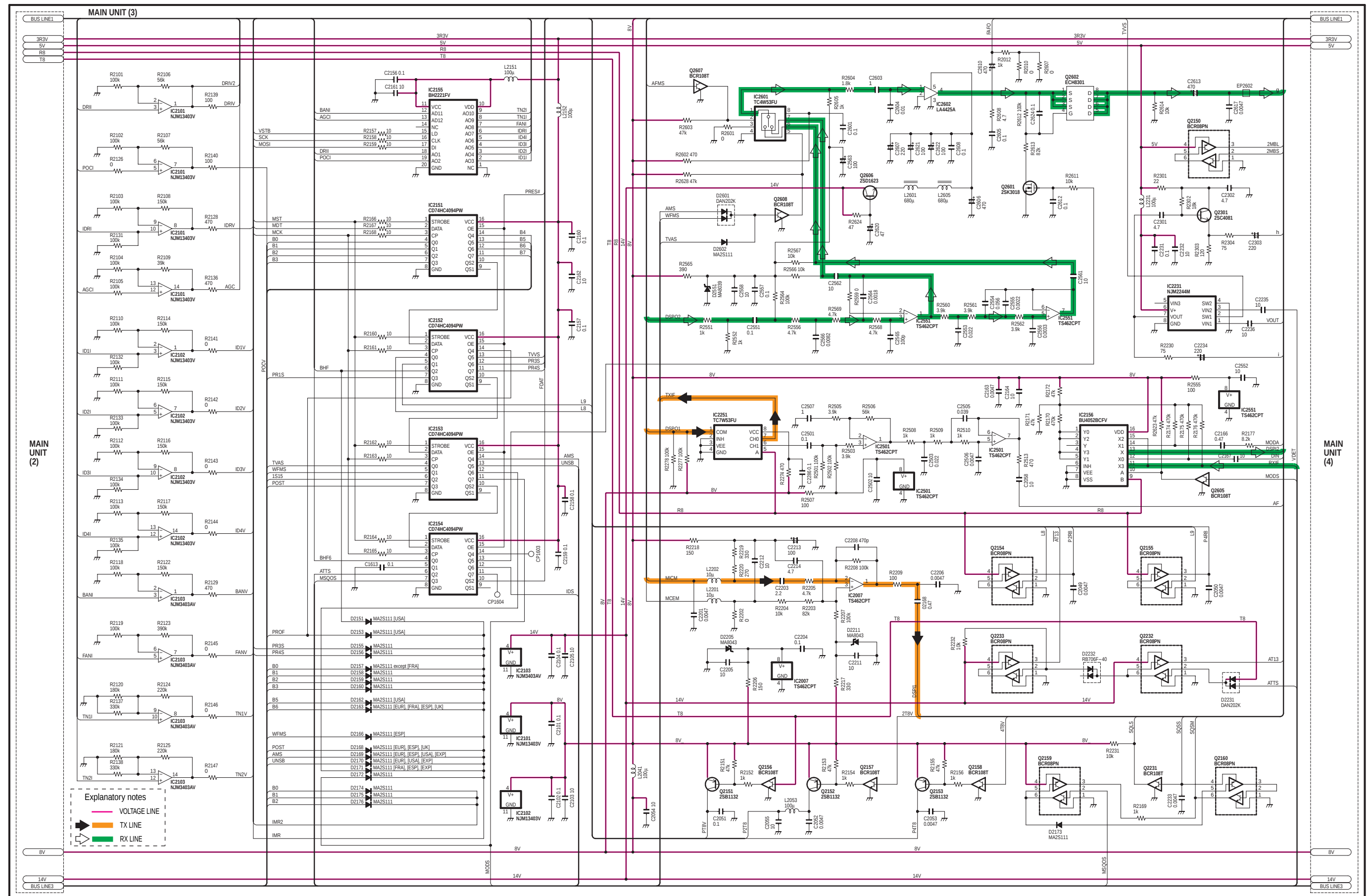
SECTION 11 CIRCUIT DIAGRAMS

11-1 DISPLAY/ VR/ CONNECT UNITS

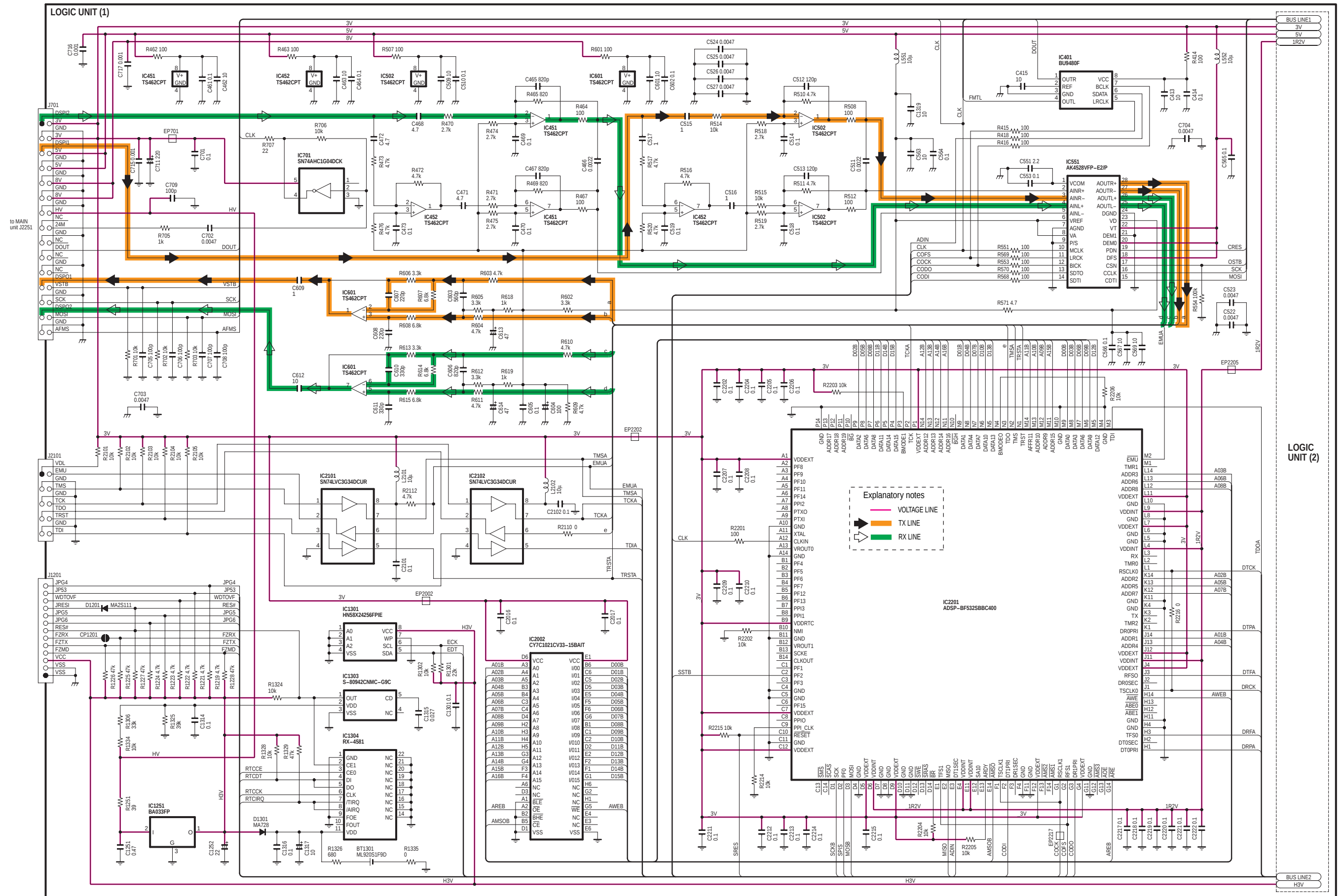


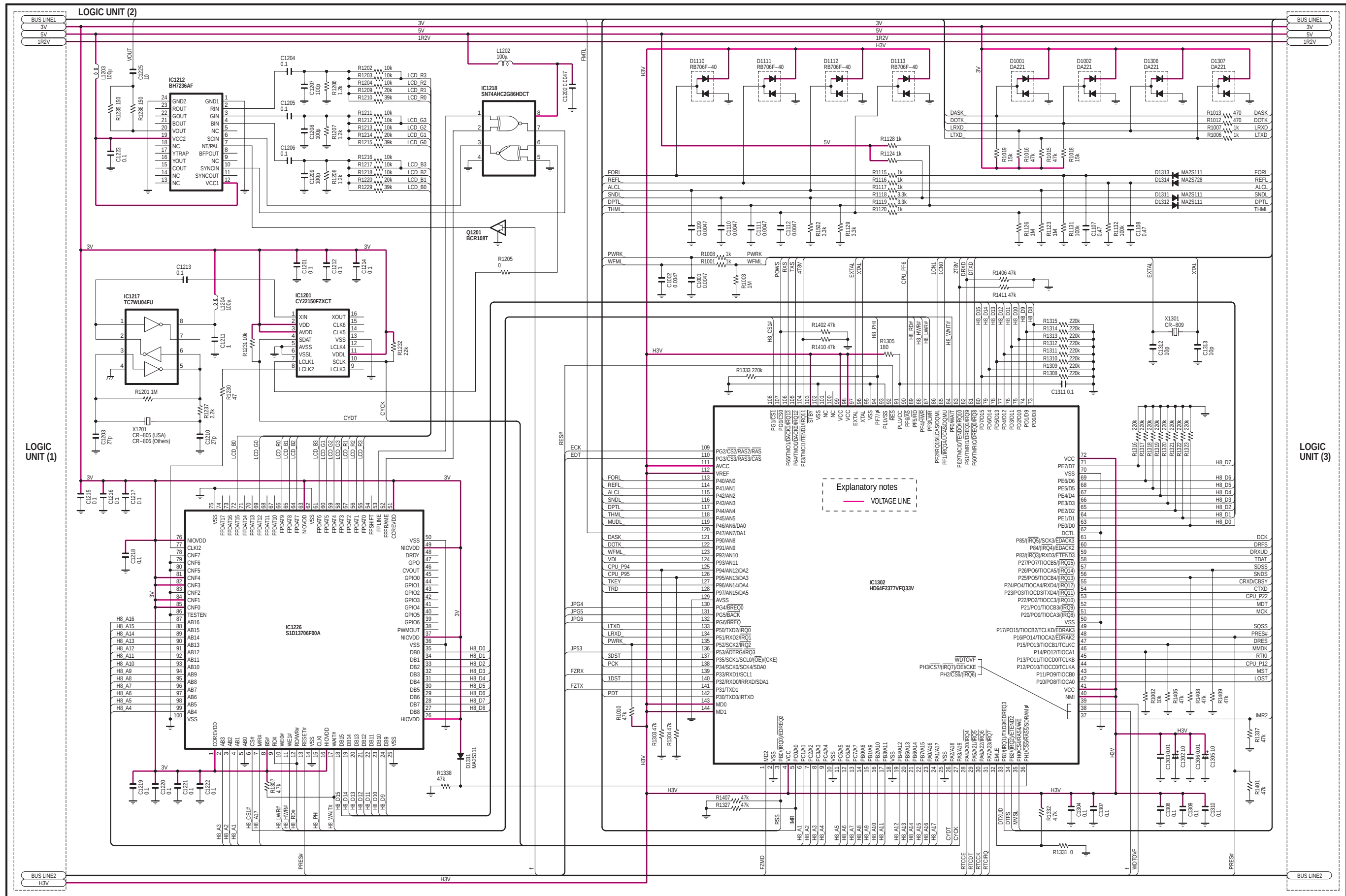


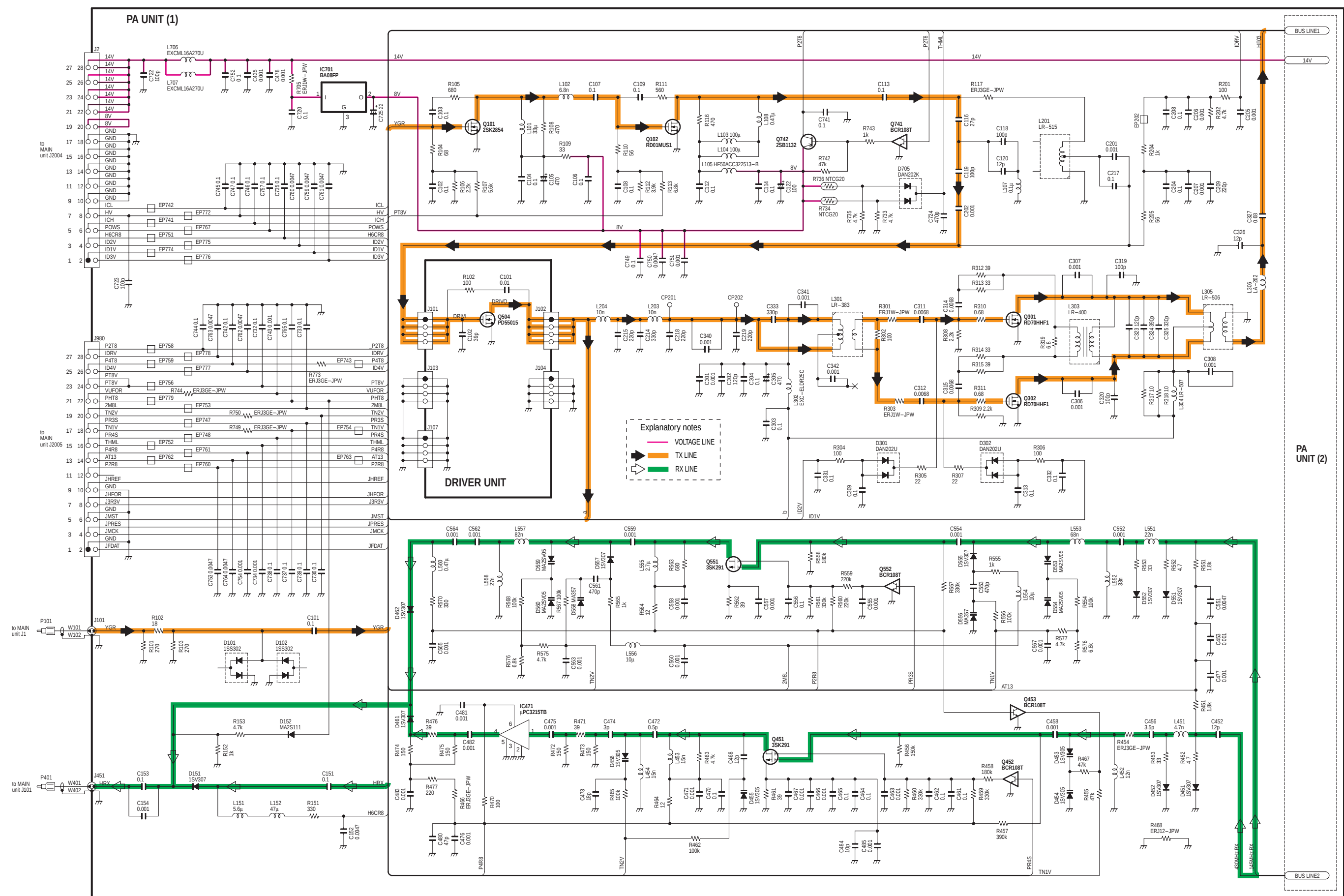




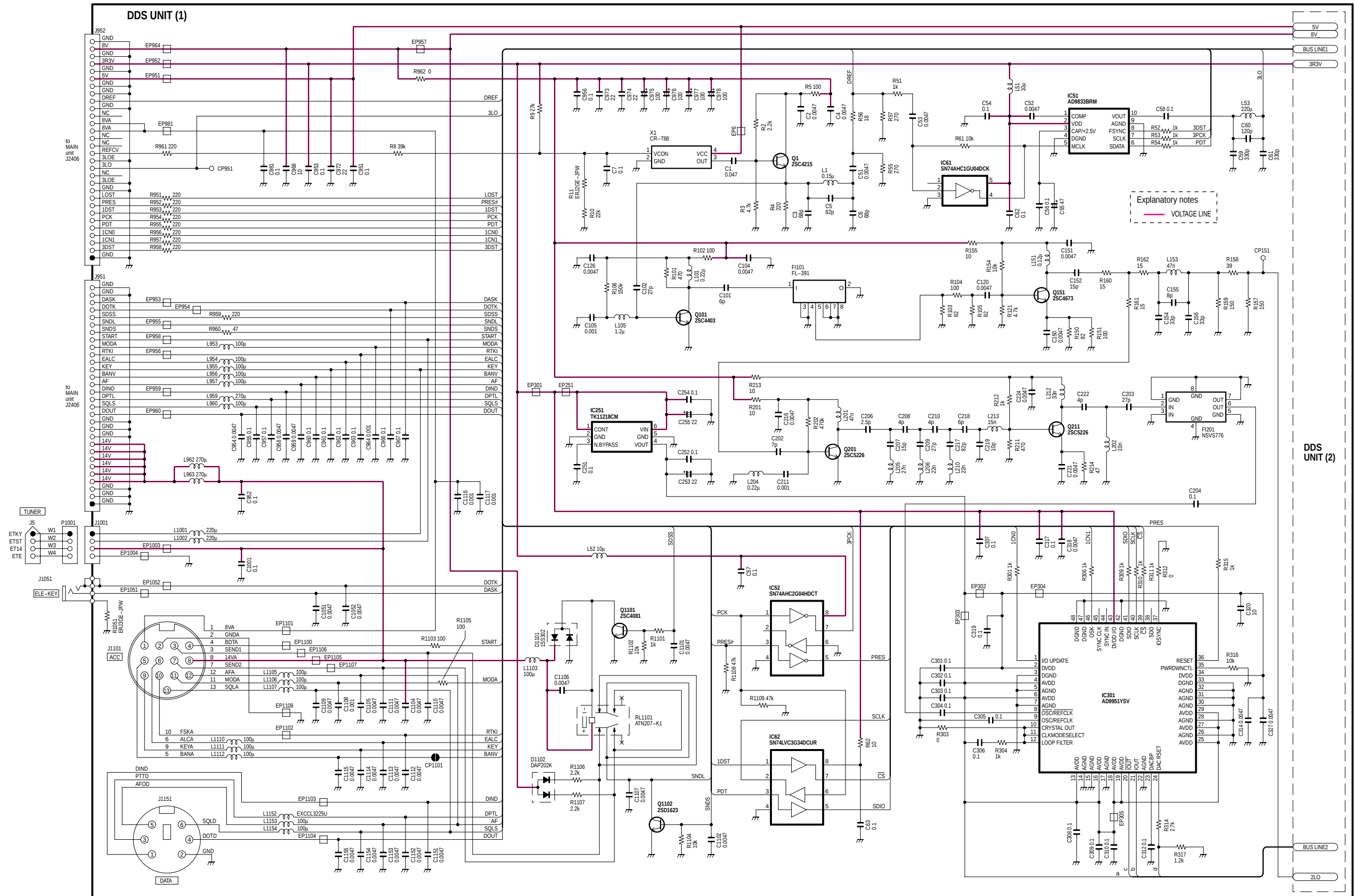
11-3 LOGIC UNIT







11-5 DDS UNIT





Icom Inc.

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