



SERVICE MANUAL

HF/50 MHz TRANSCEIVER

IC-7410

S-14719XZ-C1
May. 2011

Icom Inc.

INTRODUCTION

This service manual describes the latest technical information for the **IC-7410** HF/50 MHz TRANSCEIVER, at the time of publication.

MODEL	VERSION
IC-7410	USA
	EUR
	EUR-01
	ITR
	ESP
	TPE
	KOR
	CHN
	FRA
EXP	

CAUTION

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

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

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

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

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

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

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

<ORDER EXAMPLE>

1110003491	S.IC	TA31136FNG	IC-7410	MAIN UNIT	5 pieces
8820001210	Screw	2438 screw	IC-7410	Top cover	10 pieces

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

REPAIR NOTES

1. Make sure that 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 tuning tool **MUST** be used for all adjustments.
5. **DO NOT** keep power ON for a long time when the transceiver is defective.
6. **DO NOT** transmit power into a Standard 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 the test equipment thoroughly before connecting it to the transceiver.

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General

- Frequency coverage : (unit: MHz)
 - Receive
0.030–60.000^{*1*}
 - Transmit
1.800–1.999^{*2}, 3.500–3.999^{*2},
5.330500^{*3}, 5.346500^{*3}, 5.366500^{*3},
5.371500^{*3}, 5.403500^{*3},
7.000–7.300^{*2}, 10.100–10.150^{*2},
14.000–14.350^{*2}, 18.068–18.168^{*2},
21.000–21.450^{*2}, 24.890–24.990^{*2},
28.000–29.700^{*2}, 50.000–54.000^{*2}
- *1 Some frequency bands are not guaranteed.
- *2 Depending on version. *3 Only USA version.
- Mode : USB, LSB, CW, RTTY, AM, FM
- No. of memory channels : 101CH (99 regular, 2 scan edges)
- Antenna impedance : 50 Ω (at Antenna Tuner OFF)
- Antenna connector type : SO-239 × 2
- Usable temperature range : 0°C to +50°C (+32°F to +122°F)
- Frequency stability : Less than ±0.5 ppm 5 min. after power ON. (0°C to +50°C; +32°F to +122°F)
- Frequency resolution : 1 Hz
- Power supply : 13.8 V DC ±15% (negative ground)
- Power consumption
 - Transmit
Max. power : 23.0 A
 - Receive
Standby : 2.2 A
Max. audio : 3.0 A
- Dimensions : 315(W) × 116(H) × 343(D) mm
(projections not included) 12.4(W) × 4.57(H) × 13.5(D) in
- Weight (approx.) : 10.2 kg; 22.4 lb
- ACC connector : 13-pin
- CI-V connector : 2-conductor 3.5 (d) mm ($\frac{1}{8}$ "

Transmitter

- Output power (continuously adjustable)
 - SSB/CW/RTTY/FM : 2 to 100 W
 - AM : 2 to 27 W* (*Carrier power)
(at 13.8 V DC/+25°C)
- Modulation system
 - SSB : Digital PSN modulation
 - AM : Digital Low power modulation
 - FM : Digital Phase modulation
- Spurious emission
 - HF bands : Less than –50 dB
 - 50 MHz band : Less than –63 dB
- Carrier suppression : More than 40 dB
- Unwanted sideband suppression : More than 55 dB
- ΔTX variable range : ±9.999 kHz
- Microphone connector : 8-pin connector (600 Ω)
- ELEC-KEY connector : 3-conductor 6.35(d) mm ($\frac{1}{4}$ "
- KEY connector : 3-conductor 6.35(d) mm ($\frac{1}{4}$ "
- SEND connector : Phono jack (RCA)
- ALC connector : Phono jack (RCA)

Receiver

- Receive system : Double superheterodyne system
- Intermediate frequencies
 - 1st : 64.455 MHz
 - 2nd : 36 kHz
- Sensitivity
 - SSB, CW : 0.16 μV (1.80–29.99 MHz)^{*4}
 - (10 dB S/N) BW=2.4 kHz : 0.13 μV (50.0–54.0 MHz)^{*5}
 - AM (10 dB S/N) : 12.6 μV (0.5–1.799 MHz)^{*4}
 - BW=6 kHz : 2.0 μV (1.80–29.99 MHz)^{*4}
 - 1.6 μV (50.0–54.0 MHz)^{*5}
 - FM (12 dB SINAD) : 0.5 μV (28.0–29.7 MHz)^{*4}
 - BW=15 kHz : 0.32 μV (50.0–54.0 MHz)^{*5}
- Squelch sensitivity

Frequency band	Squelch sensitivity
HF	SSB : Less than 5.6 μV ^{*4}
	FM : Less than 0.32 μV ^{*4}
50 MHz	SSB : Less than 5.6 μV ^{*5}
	FM : Less than 0.32 μV ^{*5}

*4 Preamp 1 is ON.

*5 Preamp 2 is ON.

- Selectivity (IF filter shape is set to SHARP.)
 - SSB (BW: 2.4 kHz) : More than 2.4 kHz/–6 dB
Less than 3.4 kHz/–40 dB
 - CW (BW: 500 Hz) : More than 500 Hz/–6 dB
Less than 700 Hz/–40 dB
 - RTTY (BW: 350 Hz) : More than 500 Hz/–6 dB
Less than 800 Hz/–40 dB
 - AM (BW: 6 kHz) : More than 6.0 kHz/–6 dB
Less than 10.0 kHz/–40 dB
 - FM (BW: 15 kHz) : More than 12.0 kHz/–6 dB
Less than 22.0 kHz/–40 dB
- Spurious and image rejection ratio : More than 70 dB
- AF output power : More than 2.0 W at 10%
(at 13.8 V DC)
distortion with an 8 Ω load
- RIT variable range : ±9.999 kHz
- PHONES connector : 3-conductor 6.35 (d) mm ($\frac{1}{4}$ "
- External SP connector : 2-conductor 3.5 (d) mm
($\frac{1}{8}$ ")/8 Ω
- DSP ANF attenuation : More than 30 dB
(with 1 kHz single tone)
- DSP MNF attenuation : More than 70 dB
- DSP NR attenuation : More than 6 dB
(noise rejection in SSB)

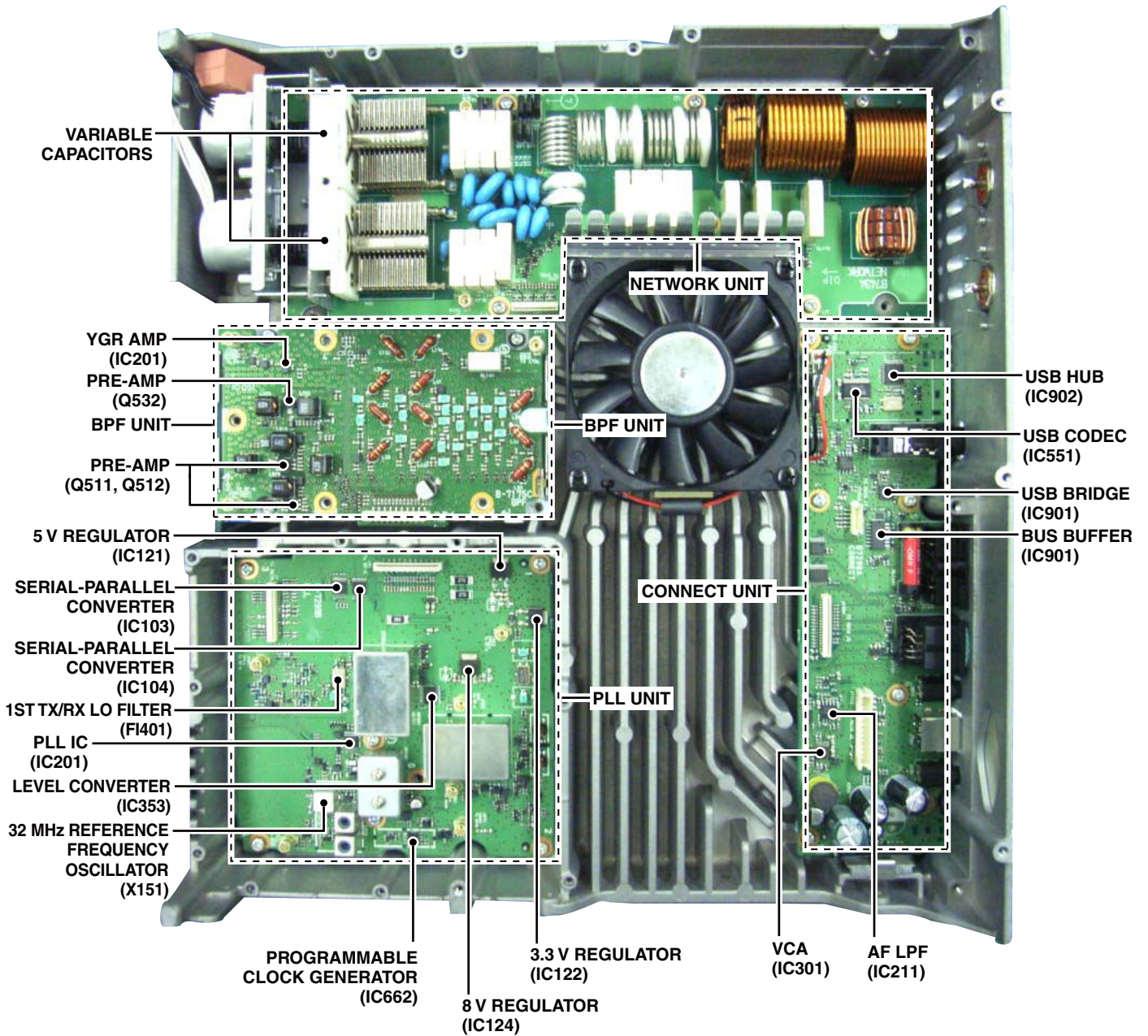
Antenna tuner

- Matching impedance range
 - HF bands : 16.7 to 150 Ω unbalanced
(Less than VSWR 1:3)
 - 50 MHz band : 20 to 125 Ω unbalanced
(Less than VSWR 1:2.5)
- Minimum operating input power : 8 W (HF bands)
15 W (50MHz band)
- Tuning accuracy : VSWR 1:1.5 or less
- Insertion loss (after tuning at RF power 100W)
 - 1.8 MHz band : 1.2 dB or less
 - Bands other than 1.8 MHz : 1.0 dB or less

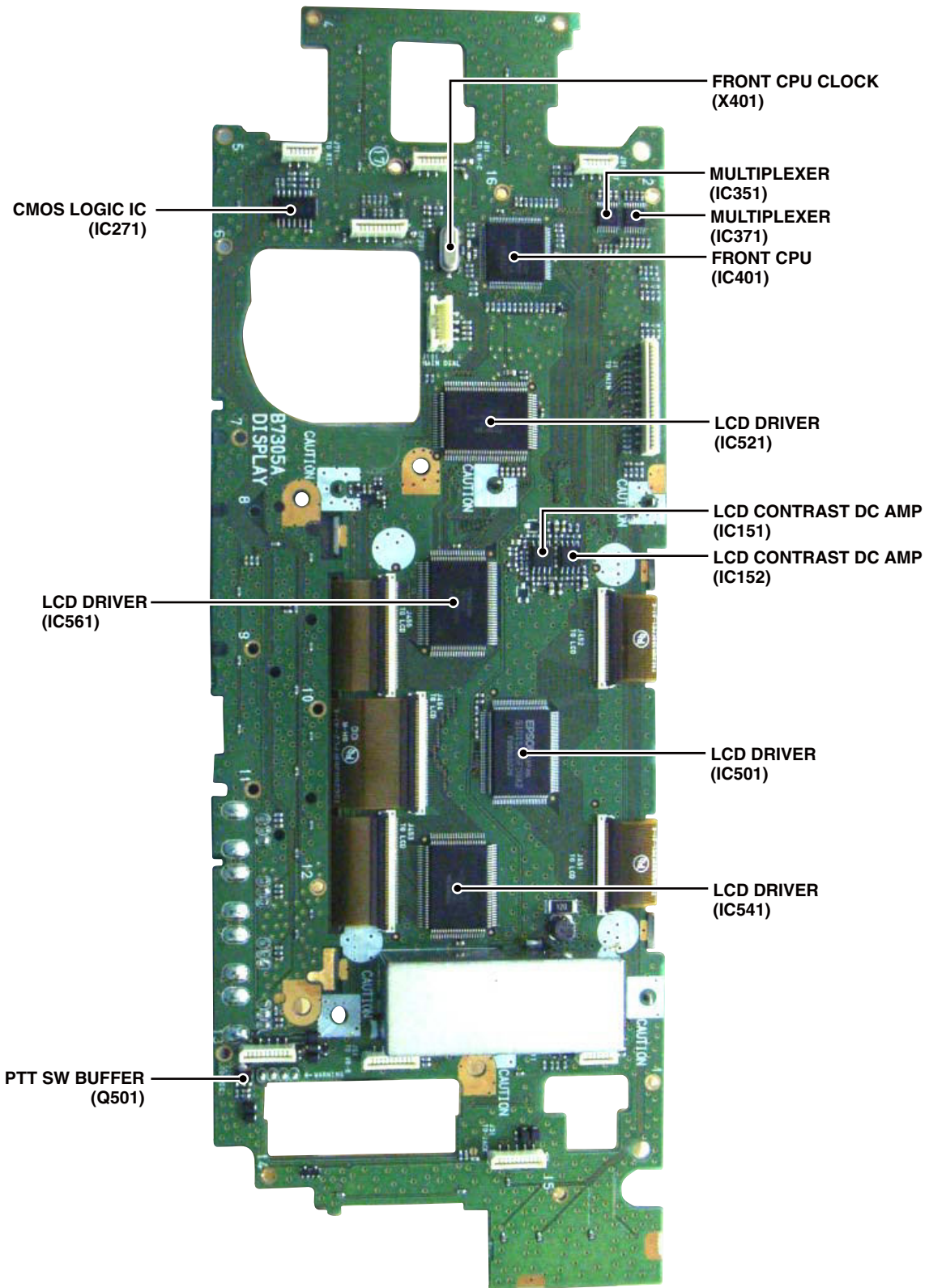
SECTION 2

INSIDE VIEWS

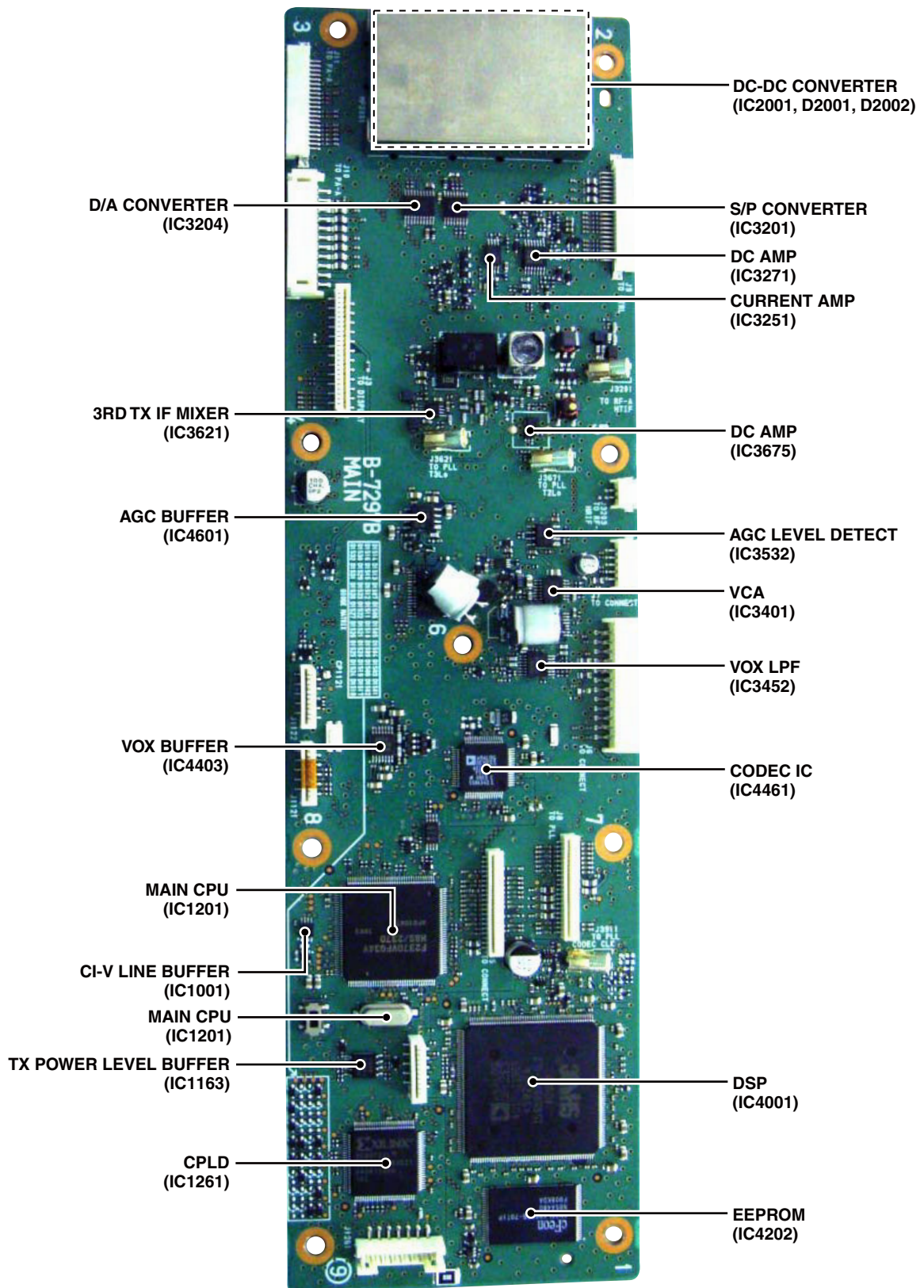
• THE VIEW FROM THE BOTTOM OF CHASSIS



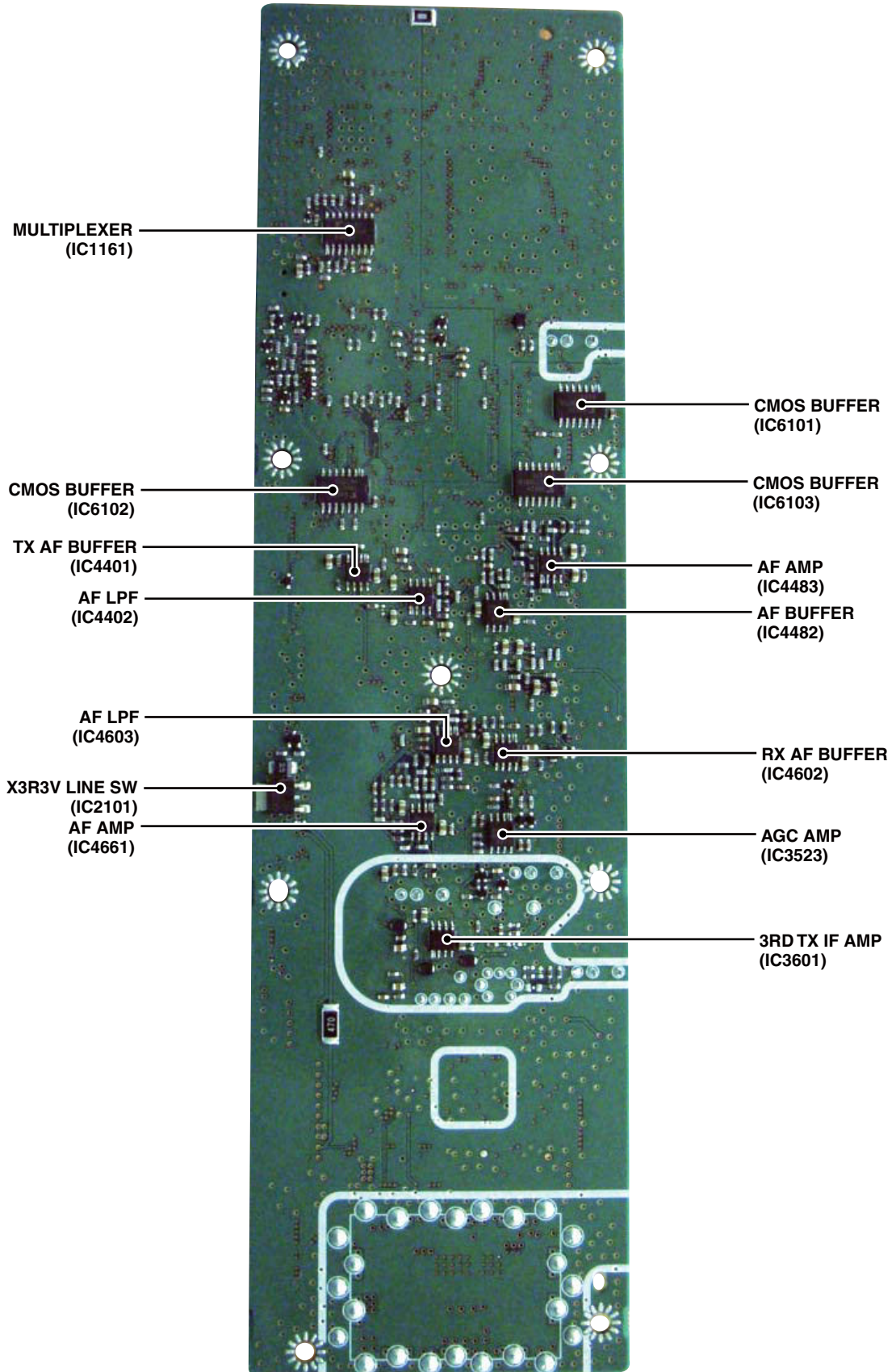
• DISPLAY UNIT



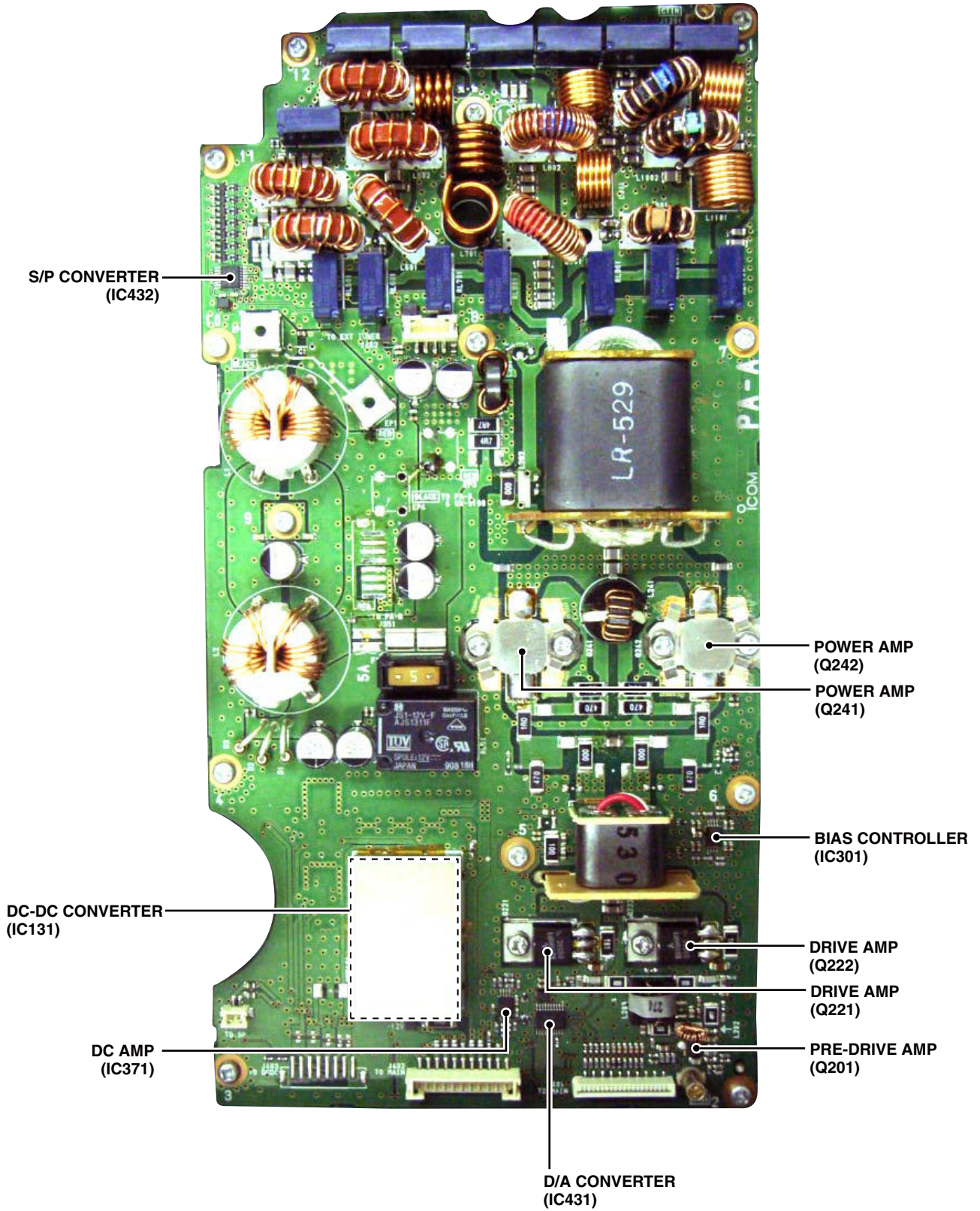
• MAIN UNIT
(TOP VIEW)



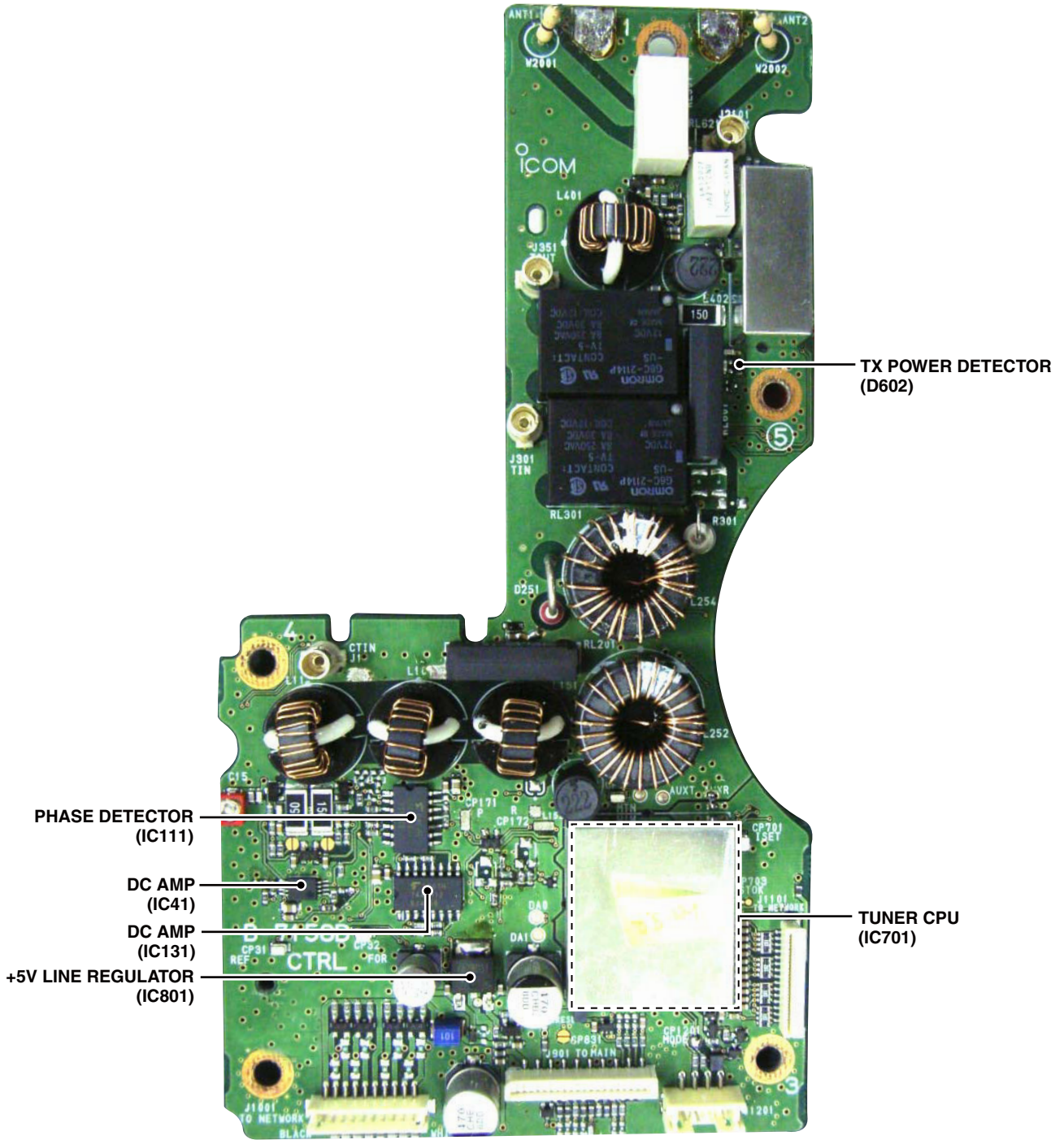
• MAIN UNIT
(BOTTOM VIEW)



• PA-A UNIT



• CTRL UNIT



3-1 RECEIVER CIRCUITS

ANTENNA SWITCHING CIRCUITS (CTRL UNIT)

RX signal from the antenna connector [ANT1] (J1) or [ANT2] (J2) is passed through the antenna switch (RL501), current detector (D401), tuner switches (RL351 and RL301), RX line switches (RL601 and RL621) and LPF, and then applied to the BPF UNIT.

ATTENUATOR CIRCUITS (BPF UNIT)

The RX signal from the CTRL UNIT is passed through or bypassed the attenuator circuit (RL141, R141–R143), depending on the setting.

The RX signal, which is passed through or bypassed the attenuator circuit (RL141, R141–R143), is applied to the BPF circuits.

BPF CIRCUITS (BPF UNIT)

The RX signal from the attenuator circuits is passed through an LPF or one of BPFs, depending on the operating frequency, to remove unwanted out-of-band signals.

The filtered RX signal is applied to or bypassed the preamplifier circuits.

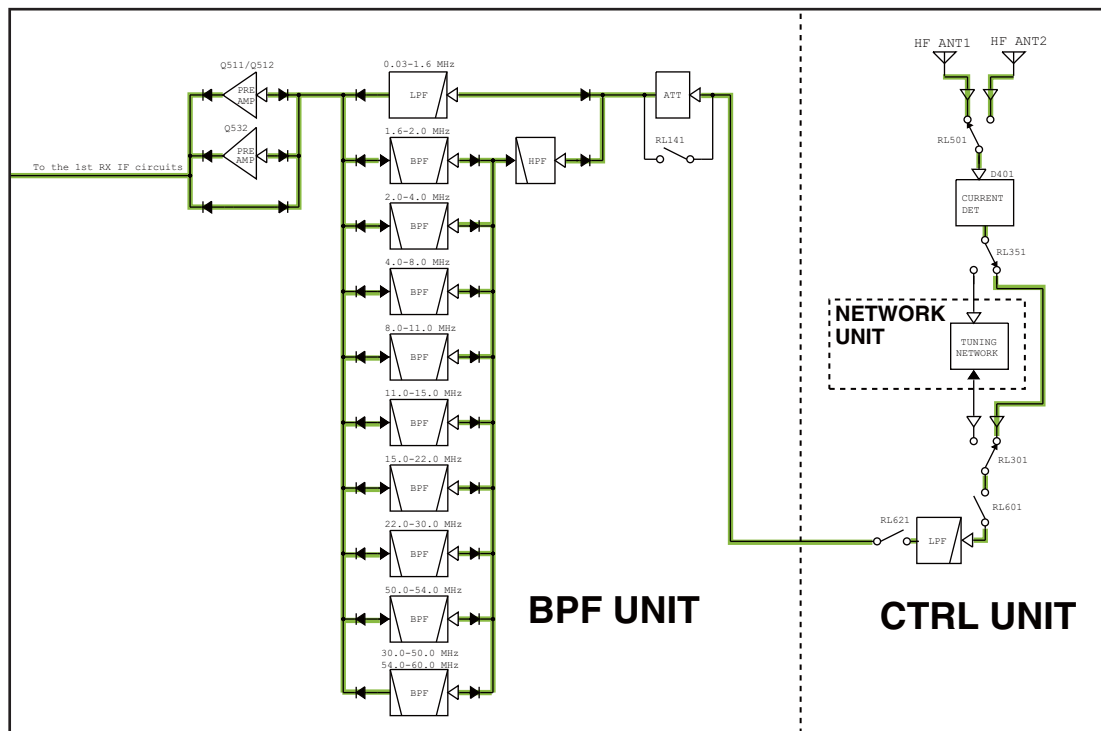
PREAMPLIFIER CIRCUITS (BPF UNIT)

The RX signal from the BPF circuits is applied to or bypassed the preamplifier.

When the Preamplifier function is activated, the RX signal is amplified by one of preamplifiers (Q511, Q512 (for 1.8–2.1 MHz) or Q532 (for 24–50 MHz)).

The amplified or bypassed RX signal is applied to the RF-A UNIT.

• ANTENNA SWITCHING CIRCUITS TO PREAMPLIFIER CIRCUITS



1ST RX IF CIRCUITS (RF-A UNIT)

The RX signal from the BPF UNIT is passed through the LPF, which removes unwanted signals (60 MHz and higher), and then applied to the 1st RX IF mixer (Q721–Q724) to be mixed with the 1st RX LO signal (64.485–124.455 MHz) from the PLL UNIT, resulting in the 64.455 MHz 1st RX IF signal.

The 1st RX IF signal is amplified by the 1st RX IF AMP (Q741) and passed through one of the 1st IF filters (FI911; FL-434, or optional FL-430 or FL-431), which has different passband widths, according to the IF filter setting.

The filtered 1st RX IF signal is amplified by the RX IF AMPs (Q1051 and Q1071, Q1072), and then applied to the 2nd RX IF circuits.

2ND RX IF CIRCUITS (RF-A UNIT)

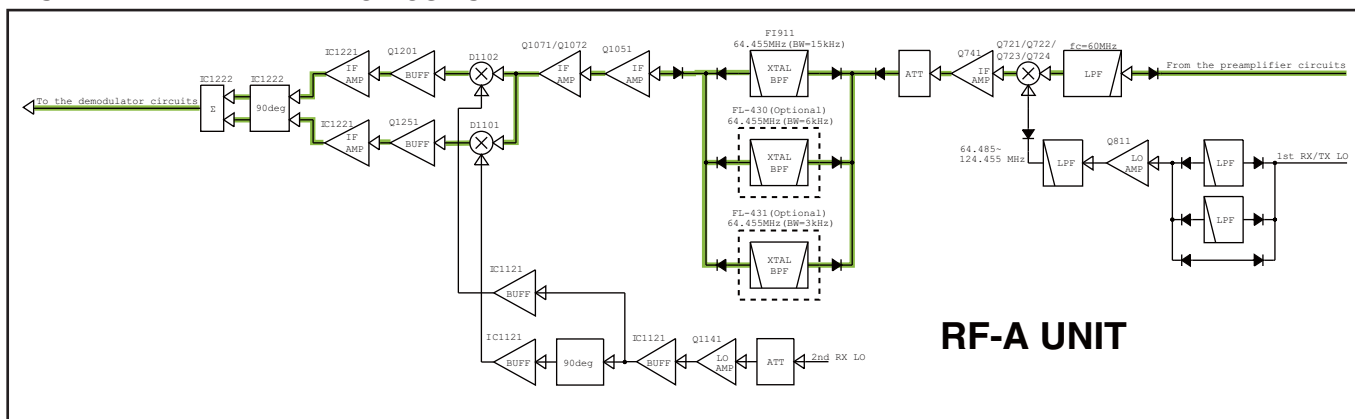
The 1st RX IF signal from the 1st RX IF circuits is divided into two paths, and then each signal is applied to the 2nd RX IF mixers (the image reduction mixers; D1102/D1101) to be mixed with the 2nd RX LO signal (64.491 MHz) from the PLL UNIT, resulting in the 36 kHz 2nd RX IF signal.

The image reduction mixer removes image frequency components by using two LO signals which are 90 degrees phase-shifted from each other.

The 2nd RX IF signals are independently amplified by the buffers (Q1201/Q1251) and IF AMPs (IC1221).

These amplified 2nd RX IF signals are 90 degrees phase-shifted and combined by the combiner (IC1222), and then applied to the MAIN UNIT.

• 1ST RX IF AND 2ND RX IF CIRCUITS



RF-A UNIT

DEMODULATOR CIRCUITS (MAIN UNIT)

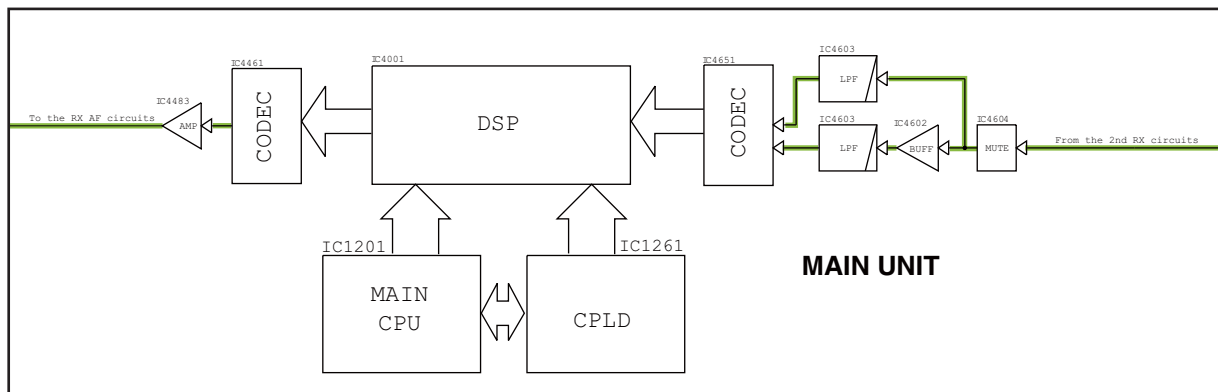
The 2nd RX IF signal from the 2nd RX IF circuits is passed through the RX mute SW (IC4604) and the balance-unbalance converter (Balun; IC4602/IC4603), and then applied to the CODEC (IC4651) to be converted into digital audio signal.

The converted digital audio signal is applied to the DSP (IC4001), and demodulated and processed.

The demodulated signal is applied to another CODEC (IC4461) to be converted into analog AF signal, and then applied to the buffer amplifier (IC4483).

The buffer amplified AF signal is applied to the CONNECT UNIT.

• DEMODULATOR CIRCUITS



MAIN UNIT

RX AF CIRCUITS (CONNECT UNIT)

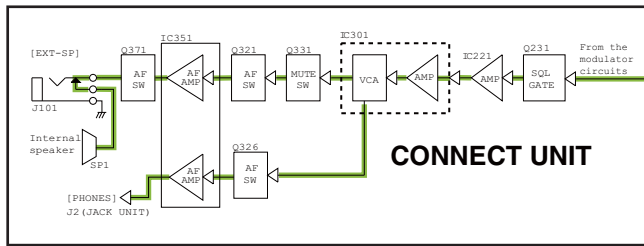
• AUDIO OUTPUT FROM THE SP/HEADPHONES

The AF signal from the demodulator circuits is applied to the AF AMP (IC221), through the squelch gate (Q231). The amplified AF signal is applied to the Voltage Controlled Amplifier (VCA; IC301) to be adjusted in level (=audio output level).

The level-adjusted AF signal is applied to the AF power AMP (IC351), through the mute SW (Q331) and AF SW (Q321).

The amplified AF signal is passed through the AF mute switch (Q371), and then applied to the internal speaker or external speaker jack (J101), or the amplified AF signal is applied to the headphones jack (JACK BORD: J2).

• RX AF CIRCUITS



3-2 TRANSMITTER CIRCUITS

TX AF CIRCUITS (MAIN UNIT)

The audio signal from the microphone (MIC signal) is applied to the MAIN UNIT, through the MICROPHONE CONNECTOR (MIC BOARD; J1), and then applied to the Voltage Controlled Amplifier (VCA; IC3401).

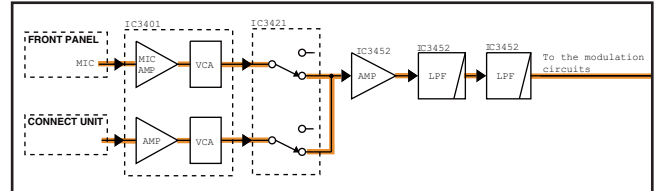
The applied MIC signal is amplified by the MIC AMP, and adjusted in level (=MIC gain) by the VCA circuit.

The level-adjusted MIC signal is passed through the MIC line SW (IC3421), amplified by the AF AMP (IC3452), and then applied to the modulation circuits, through the two LPFs (IC3452).

The MIC signal from the accessory socket [ACC1] on the rear panel, is directly applied to the AF AMP (IC3452), through the MIC line SW (IC3421).

The amplified MIC signal is applied to the modulation circuits.

• TX AF CIRCUITS



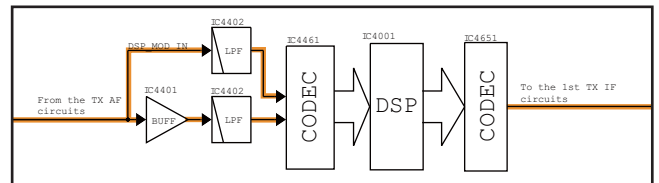
MODULATION CIRCUITS (MAIN UNIT)

The MIC signal from the TX AF circuits is passed through the Balance-Unbalance converter (Balun; IC4401, IC4402), and then applied to the CODEC (IC4461), to be converted into digital audio signal.

The converted digital audio signal is applied to the DSP (IC4001), and processed and modulated.

The modulation signal is converted into analog audio signal by the CODEC (IC4651), and then applied to the 3rd TX IF circuits as the 3rd TX IF signal.

• MODULATION CIRCUITS



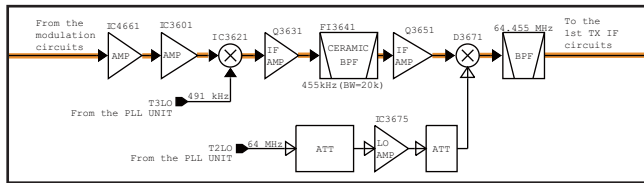
3RD TX IF AND 2ND TX IF CIRCUITS (MAIN UNIT)

The 3rd TX IF signal from the modulation circuits is amplified by two AMPs (IC4661 and IC3601), and then applied to the 3rd TX mixer (IC3621) to be mixed with the 3rd TX LO signal from the PLL UNIT, resulting in the 455 kHz 2nd TX IF signal.

The converted 2nd TX IF signal is amplified by the IF AMP (Q3631), and then passed through the 2nd TX filter (FI3641). The filtered 2nd TX IF signal is amplified by the 2nd TX IF AMP (Q3651), and then applied to the 2nd TX mixer (D3671). The 2nd TX IF signal is mixed with the 64 MHz 2nd TX LO signal from the PLL UNIT, resulting in the 64.455 MHz 1st TX IF signal.

The 1st TX IF signal is applied to the 1st TX IF circuits on the RF-A UNIT.

• 3RD TX IF AND 2ND TX IF CIRCUITS



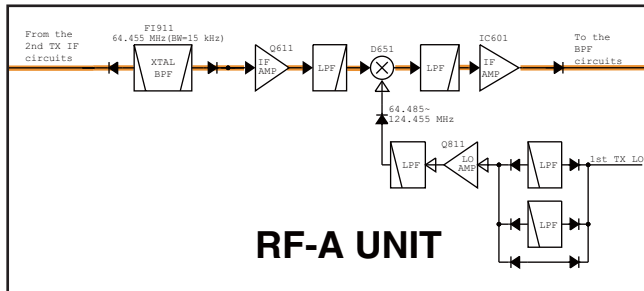
1ST TX IF CIRCUITS (RF-A UNIT)

The 1st TX IF signal from the 2nd TX IF circuits is passed through the 1st TX IF filter (FI911) to remove unwanted signals. The filtered signal is amplified by the IF AMP (Q611), and then applied to the 1st TX mixer (D651), through the LPF.

The 1st TX IF signal is mixed with the 1st TX LO signal from the PLL UNIT, resulting in the TX signal (TX frequency itself).

The converted TX signal is passed through the LPF, and amplified by the AMP (IC601), and then applied to the BPF circuits.

• 1ST TX IF CIRCUITS

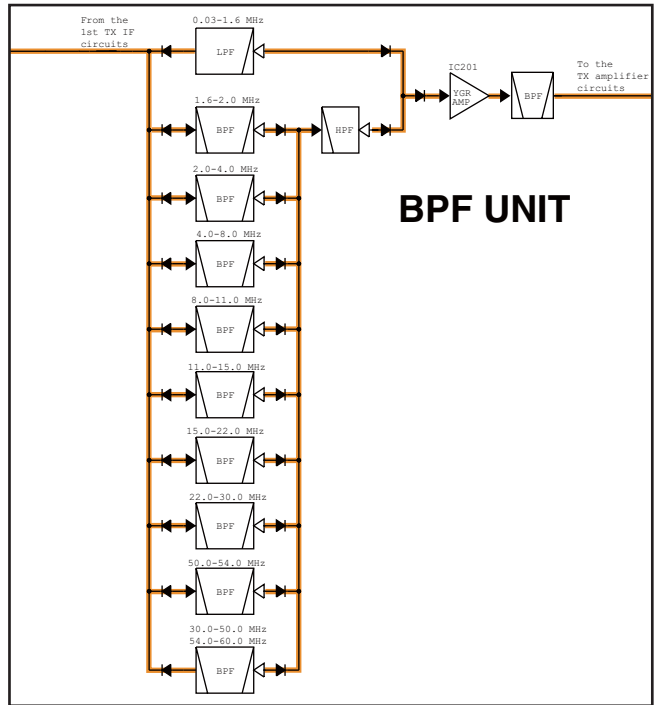


BPF CIRCUITS

The TX signal from the 1st TX IF circuits is passed through an LPF or one of BPFs, depending on the transmitting frequency, to remove unwanted signals contained in the TX signal.

The filtered TX signal is amplified by the YGR AMP (IC201), and then applied to the PA-A UNIT, through the BPF.

• BPF CIRCUITS



TX AMPLIFIER CIRCUITS (PA-A UNITS)

The TX signal from the BPF UNIT is sequentially amplified by the pre-drive AMP (Q201), drive AMP (Q221, Q222), and power AMP (Q241, Q242).

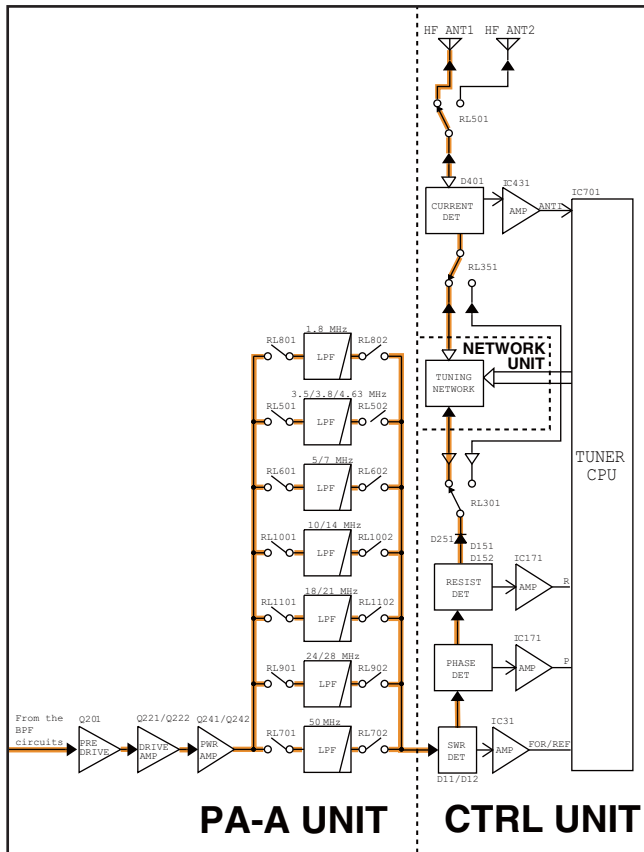
The amplified TX signal is applied to the TX filter circuits.

TX FILTER CIRCUITS (PA-A UNIT)

The amplified TX signal from the power AMP (Q241, Q242) is passed through one of LPFs, depending on the transmitting frequency, to remove harmonic components contained in the TX signal.

The filtered TX signal is applied to the CTRL UNIT.

• TX AMPLIFIER AND TX FILTER CIRCUITS



ANTENNA TUNING AND SWITCHING CIRCUITS (CTRL UNIT)

The TX signal from the PA-A UNIT is passed through 4 detection circuits on the CTRL UNIT, before being applied to the antenna connector [ANT1] or [ANT2].

Referring to the detected parameters, the tuner CPU (IC701) controls the tuning networks on the NETWORK UNIT, to match the transceiver and connected antenna.

SWR DETECTION CIRCUIT

The forward wave is rectified by D12 at the current detect transformer (L11). The rectified voltage is amplified by the DC AMP (IC41), and then applied to the A/D port of the tuner CPU (IC701).

The reflected wave is rectified by D11 at the current detect transformer (L11). The rectified voltage is amplified by the DC AMP (IC41), and then applied to the A/D port of the tuner CPU (IC701).

REACTANCE DETECTION CIRCUIT

The TX signal which is picked up at the current detect transformer (L101), and the TX signal which is picked up by C101, C105 and R105, are rectified by D102 and D101, and amplified by C-MOS IC (IC111).

The amplified signal is applied to IC131, through the buffer (IC121) for phase comparison. The resulting signal of phase comparison is rectified by D131 and D132, and composed and amplified by IC51, then applied to the A/D port of the tuner CPU (IC171).

RESISTANCE DETECTION CIRCUIT

A portion of the TX signal is picked up by L151 and C152, and rectified by D152 to be converted into DC voltage.

Another portion of the TX signal is rectified by D151 to be converted into DC voltage too.

And these voltages are the same when the connected load (=antenna) is matched to 50 Ω. Thus the difference of these voltages represents the resistance components.

By comparing the difference of these voltages, the transceiver detects the resistance components.

The detected resistance components are buffered by Q151 and amplified by IC171, and then applied to the A/D port of the tuner CPU (IC701).

CURRENT DETECTION CIRCUIT

A portion of the TX signal is picked up by L401, rectified by D401, and applied to IC431 to be level-compared with the voltage from the SWR detection circuit.

When the resistance of connected load (=antenna) is less than 10 Ω, the TX signal is bypassed the NETWORK UNIT, through the tuner compulsorily switches (RL301 and RL351), to protect the circuit on the NETWORK UNIT from reflected waves.

3-3 FREQUENCY SYNTHESIZER (PLL UNIT)

REFERENCE FREQUENCY OSCILLATOR CIRCUIT

The crystal oscillator (X151) generates the 32 MHz reference frequency signal. This reference signal is applied to the Local Oscillator (LO) circuits, through the buffer (Q151) and LPF (L153, C156–158).

3RD TX LO CIRCUIT

The 32 MHz reference signal from the crystal oscillator (X151) is doubled by the doubler (Q551, L551, L552), resulting in the 64 MHz reference clock signal. Using the 64 MHz reference clock signal, the 491 kHz 3rd TX LO signal is directly generated by 10-bit DDS (IC702) and D/A converter (R703–R722). The generated 491 kHz 3rd TX LO signal is passed through the LPF (L702, C713, C715), buffer (Q701), LO SW (D851), BPF (L851–L853, C851, C853, C855, C856, C858), and then applied to the MAIN UNIT.

2ND TX LO CIRCUIT

The 32 MHz reference signal from the reference frequency oscillator circuit is doubled by the doubler (Q551, L551, L552) to extract the 64 MHz of 2nd harmonic component. The 64 MHz signal is applied to the MAIN UNIT as the 2nd TX LO signal, through the buffers (Q552 and Q571).

The 2nd TX LO signal is amplified by the LO AMP (MAIN UNIT: IC3675), and then applied to the 2nd TX mixer (MAIN UNIT: D3671).

2ND RX LO CIRCUIT

The 64 MHz reference signal from the buffer (Q552) and the 491 kHz signal from the 3rd TX LO circuit is mixed by the 2nd RX LO mixer (D951), to generate the 2nd RX LO signal.

The 2nd RX LO signal is filtered by the crystal filter (FI981), and then applied to the RF-A UNIT as the 2nd RX LO signal.

The 2nd RX LO signals which are 90 degrees phase-shifted from each other, is applied to the 2nd IF mixers (D1101 and D1102), through the buffers (IC1121).

1ST RX LO/TX LO CIRCUITS

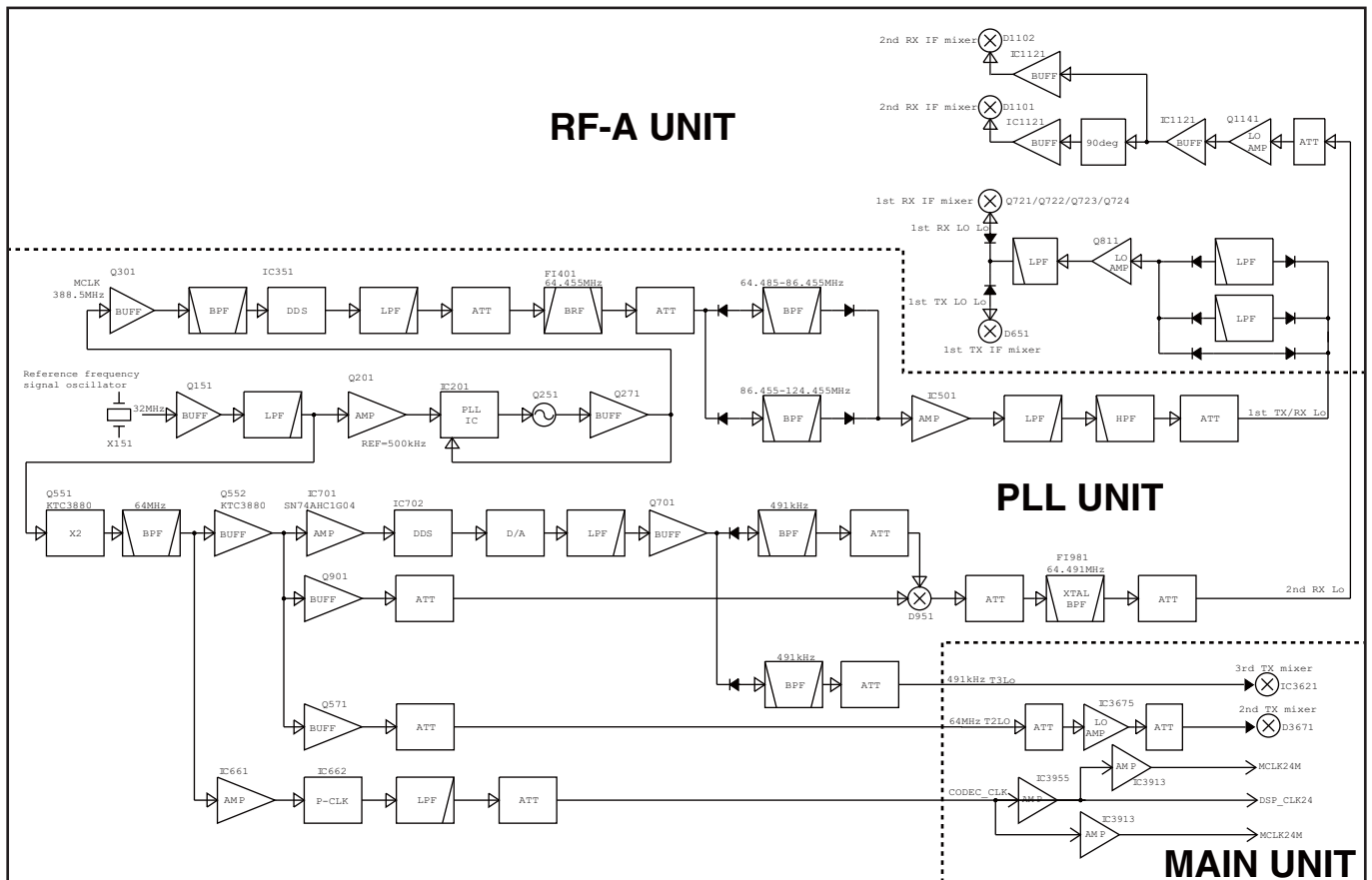
The 32 MHz reference signal from the reference frequency oscillator circuit is amplified by Q201, and applied to the PLL IC (IC201) as the reference frequency signal. The PLL IC (IC201) generates the 388.5 MHz master clock signal, using the applied 32 MHz reference signal as the reference.

The generated 388.5 MHz master clock signal is passed through the buffer (Q301) and BPF (L301–L304, C305–C312), and then applied to the DDS IC (IC351).

Using the applied DDS master clock signal as the reference, the DDS IC generates the 1st RX/TX LO signal. The generated 1st RX/TX LO signal is passed through the LPF (L381, C381, C382), MCF notch filter (FI401), BPF (L421–L423, C421–C428 or L451–L453, C451–C458, C462; depending on the operating frequency), and amplified by the LO AMP (IC501). The amplified signal is applied to the RF-A UNIT, through the LPF (L502, L503, C504–C509), HPF (L504, C510–512).

The 1st RX/TX LO signal is passed through the harmonic filter (RF-A UNIT; L868–L870, C872–C876 or L861–L864, C866–C870 or L871, C879, C880), and amplified by the LO AMP (Q811), and then applied to the 1st RX mixer (Q721–Q724) or 1st TX mixer (D651), through the LPF (L831–L833, C831–C836) and LO SW (D851, D852).

• FREQUENCY SYNTHESIZER CIRCUITS



3-4 CPU PORT ALLOCATIONS

• MAIN CPU (MAIN UNIT: IC1201)

Pin No.	Line Name	Description	I/O
3	VBUS	VBUS connection detect for USB HUB. H=USB connection detected.	I
8	DAVOX	MIC signal detect. H=Input detect.	I
9	CTFL	CW TX status.	I
11	RTKI	RTTY keying input. H="Space" input.	I
12	UNLK	PLL (ADF4630) unlock detect. L=Unlock detected.	I
14	VSQM	Squelch level input. H=Squelch open.	I
16	RTDM	RTTY decode data from the DSP.	I
19	MHSK0	Handshake signal from the DSP.	I
23	FRES	Front CPU reset signal.	O
26	HIFOP1K	Optional IF filter (bandwidth=6 kHz) installation detect. L=Installed.	O
27	HIFOP2K	Optional IF filter (bandwidth=3 kHz) installation detect. L=Installed.	O
31	TRVI	Transverter input (from [ACC2]). L=A transverter is connected.	I
33	UDTXD	Data output port for [USB] connector.	O
35	PWRS	Transceiver power ON/OFF control. H=Power ON.	O
36	UPWS	USB HUB power control. H=USB power ON.	O
37	H8_CS6#	Dual-port SRAM chip select signal. L=Selected.	O
38	H8_CS7#	Expander chip select signal. L=Selected.	O
42	PCK	PLL serial clock.	O
43	PDAT	PLL serial data.	O
44	PSL	PLL strobe.	O
45	PST	PLL strobe output.	O
46	SKYS	Straight key/electronic keyer input. (A/D) L=Key down.	I
47	EXRL	External SEND relay output. H=Relay ON	O
48	ESTA	External tuner "START" signal output. L=Tuning start.	O
49	EKEY	External tuner "KEY" signal input. L=While tuning/tune NG.	I
51	MCK	Common serial clock.	O
52	MDAT	Common serial data.	O
53	TCON	External tuner connection detect.	I
54	CTXD	CI-V (UART) output.	O
55	CRXD/ CBSY	CI-V (UART) input/CI-V bus busy input. L=Data "1" /Busy.	I
56	PCK/ CON0	DDS clock.	O
56	DSPCK	DSP clock.	O
57	DSPR	DSP data.	O
59	UDRXD	USB data input.	I
73- 80	H8_D8- H8_D15	DSP address bus.	O
82	TND	QPSK (L) decode data.	I

Pin No.	Line Name	Description	I/O
83	NSQ	Noise pulse.	I
84	PSENI	Microphone PTT input. H=While transmitting.	I
84	H8_WAIT#	Bus control "Wait" signal.	I
85	TRAS	SEND signal.	O
87	H8_LWR#	(Bus control) "L" write signal. L=While writing.	O
88	H8_HWR#	(Bus control) "H" write signal. L=While writing.	O
89	H8_RD#	(Bus control) Read signal. L=While reading.	O
90	H8_AS#	(Bus control) Address strobe.	O
92	RES	CPU reset. H=Reset.	O
94	SENI	PTT/ACC SEND signal. H=While transmitting.	I
105	DSKY	DSP CW/RTTY keying signal. L=Key down/space.	O
115	VOXL	VOX level input.	I
121	DX1	TX/RX DSP data.	I
124	THRI	Internal tuner through signal. H=Tuner through.	I
125	BEEP	Beep audio.	O
126	STON	Side tone.	O
133	LTXD	Data output (UART) for the communication with the front CPU.	O
134	LRXD	Data input (UART) for the communication with the front CPU.	I
135	PWRK	[POWER] input. (Pull-up)	I
137	EDT	EEPROM data.	I/O
138	ECK	EEPROM clock.	O
140	IKEY	Internal tuner "KEY" input (UART). L=Tuner ON.	I
142	ISTA	Internal tuner "START" signal (UART).	O

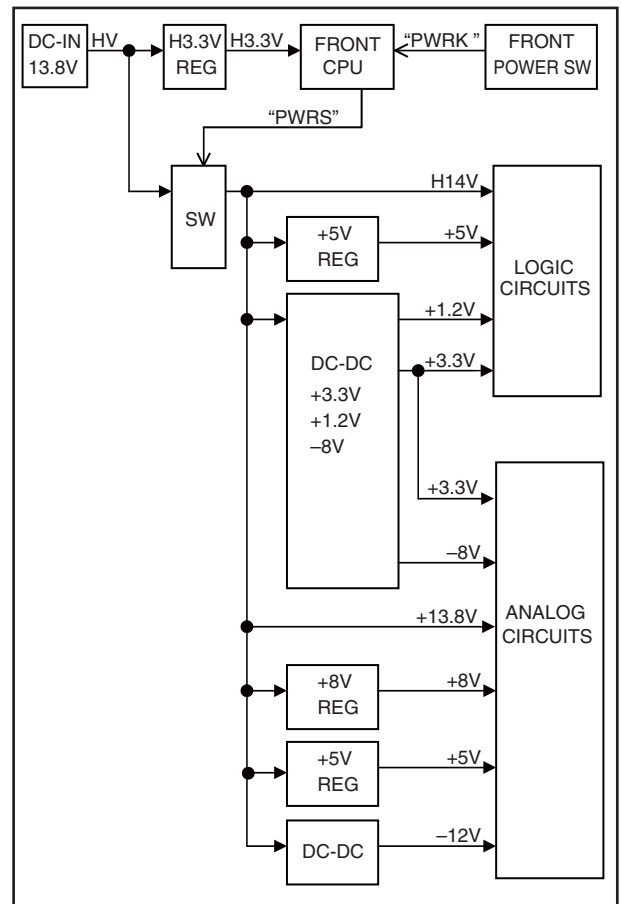
• EXPANDER (MAIN UNIT: IC1161)

Pin No.	Line Name	Description	I/O
12	FORL	Forward wave detect voltage. (A/D)	I
1	REFL	Reflected wave detect voltage. (A/D)	I
14	ALCL	ALC meter voltage input. (A/D)	I
5	IDL	Drive AMP current (ID) detect voltage. (A/D)	I
4	VDL	Drive AMP voltage (VD). (A/D)	I
15	THML	Temperature sensing voltage from the thermal sensor on the PA-A UNIT. (A/D)	I

• FRONT CPU (DISPLAY BOARD: IC401)

Pin No.	Line Name	Description	I/O
1	CNT2V	LCD contrast control. (segment area) (1-2.3 V)	O
2	CNT1V	LCD contrast control. (dot area) (1-2.3 V)	O
10	FRES	Front CPU Reset. L=Reset.	I
19	RITDBK	[RIT/ΔTX] dial phase-B.	I
20	RITDAK	[RIT/ΔTX] dial phase-A.	I
21	MAINDAK	[MAIN] dial phase-A.	I
22	MAINDBK	[MAIN] dial phase-B.	I
23	TDS	TX LED control. H=Lights. (While transmitting)	O
24	BKLV	LCD backlight control. (PWM)	O
29	DTXD	UART port (TX)	O
30	DRXD	UART port (RX)	I
33	LTXD	Data output (UART) for the communication with the main CPU.	O
34	LRXD	Data input (UART) for the communication with the main CPU.	I
35	DOTK	Ele-key input. (Dot)	I
36	DSHK	Ele-key input. (Dash)	I
37	PHNK	Headphones connection detect. H=Connected.	I
38	NOTK	[NOTCH] input. (Pull-up)	I
40	LOCKK	[LOCK] input. (Pull-up)	I
43	PBCLK	[PBT-CLK] input. (Pull-up)	I
45	RITCLK	[CLEAR] input. (Pull-up)	I
46	DTXK	[ΔTX] input. (Pull-up)	I
47	FILK	[FILTER] input. (Pull-up)	I
48	XFCK	[XFC] input. (Pull-up)	I
49	MENUK	[MENU] input. (Pull-up)	I
50	RITK	[RIT] input. (Pull-up)	I
51	F5K	[F-5] input. (Pull-up)	I
52	F4K	[F-4] input. (Pull-up)	I
53	F3K	[F-3] input. (Pull-up)	I
54	F2K	[F-2] input. (Pull-up)	I
55	F1K	[F-1] input. (Pull-up)	I
56	NBK	[NB] input. (Pull-up)	I
57	NRK	[NR] input. (Pull-up)	I
58	ANTK	[ANT] input. (Pull-up)	I
59	TUNK	[TUNER] input. (Pull-up)	I
61	TRAK	[TRANSMIT] input. (Pull-up)	I
63-70	LD7-LD0	LCD segment ports.	O
83	PBT2BK	[PBT] outer dial phase-B.	I
84	PBT2AK	[PBT] outer dial phase-A.	I
85	PBT1BK	[PBT] inner dial phase-B.	I
86	PBT1AK	[PBT] inner dial phase-A.	I
88	PITCHL	[CW PITCH] dial input.	I
90	NRL	[NR] dial input.	I
91	NOTL	[NOTCH] dial input.	I
92	MUDL	[MIC] Up/Down input.	I
98-100	ASL2-ASL0	Analog SW (CD4501) control.	O

3-5 VOLTAGE BLOCK DIAGRAM



SECTION 4 ADJUSTMENT PROCEDURE

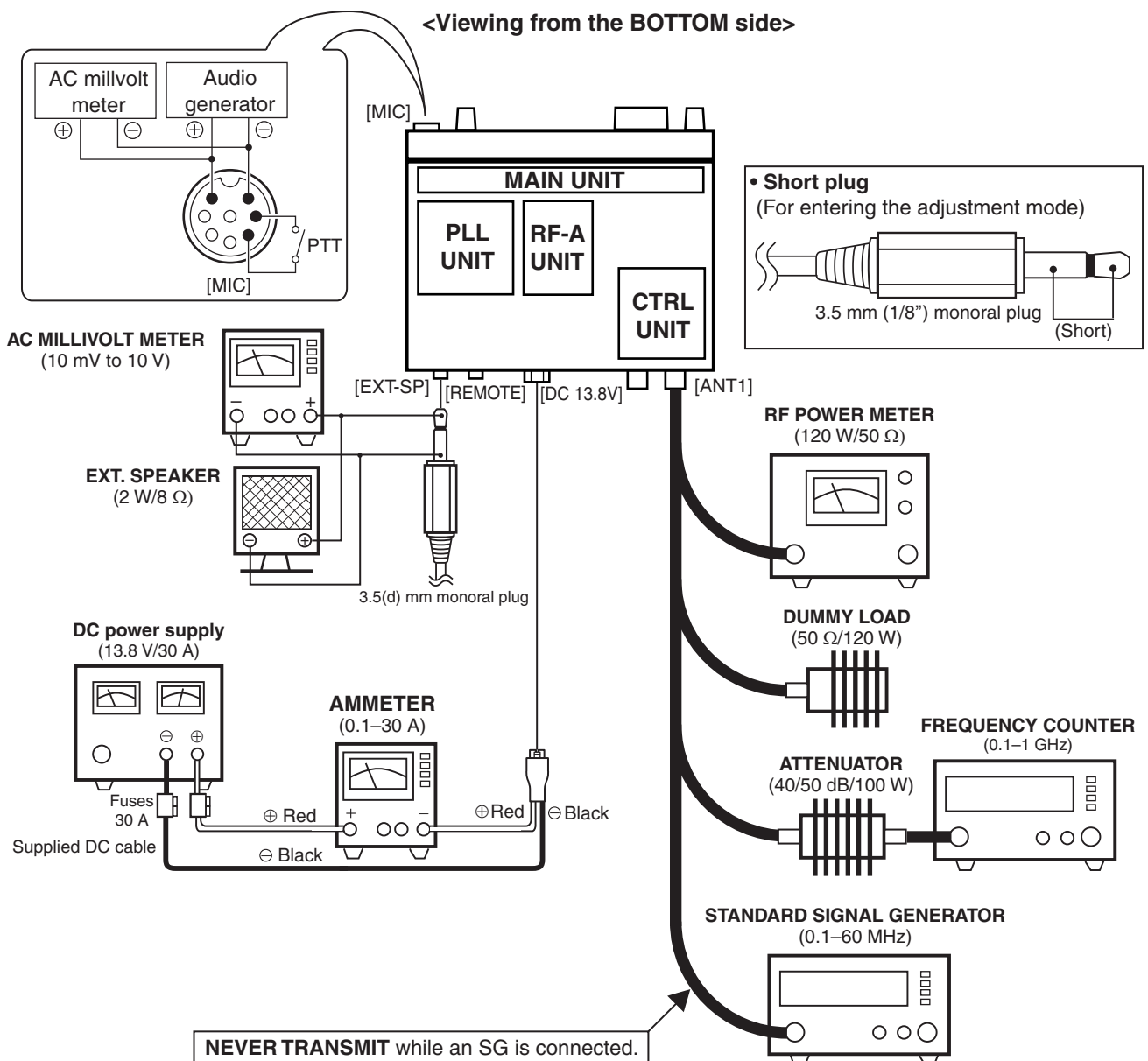
4-1 PREPARATION

REQUIRED EQUIPMENTS

EQUIPMENT	GRADE AND RANGE	EQUIPMENT	GRADE AND RANGE
Short plug	Modified 3.5 mm (1/8") monoral plug (See the illust below)	Audio generator (AG)	Frequency range : 300–3000 Hz Output level : 1–500 mV
RF voltmeter (50 Ω terminated)	Measuring range : 20–200 mV Frequency range : 0.1–50 MHz	AC Millivoltmeter	Measuring range : 10 mV to 10 V
RF power meter (50 Ω terminated)	Measuring range : 5–120 W Frequency range : 0.1–50 MHz SWR : Less than 1.2 : 1	Digital multimeter	Measuring range : 0–10 V (Voltage) 1–30 A (Current) Input impedance : More than 50 kΩ
Frequency counter	Frequency range : 0.1–100 MHz Frequency accuracy : ±1 ppm or better Input level : Less than 1 mW	External speaker	Input impedance : 8 Ω Capacity : More than 2 W
Standard signal generator (SSG)	Frequency range : 0.1–100 MHz Output level : 0.1 mV to 32 mV (–127 to –17 dBm)	Spectrum Analyzer	Frequency range : At least 90 MHz Bandwidth : 100 kHz
		Dummy Loads	Impedance : 50 Ω and 100 Ω/120 W

CAUTION!: SAVE the originally programmed contents (Memory channel contents, set mode settings, etc.), before starting adjustment. When all adjustments are completed, these contents in the transceiver may be cleared.

GENERAL CONNECTION AND UNIT LOCATION

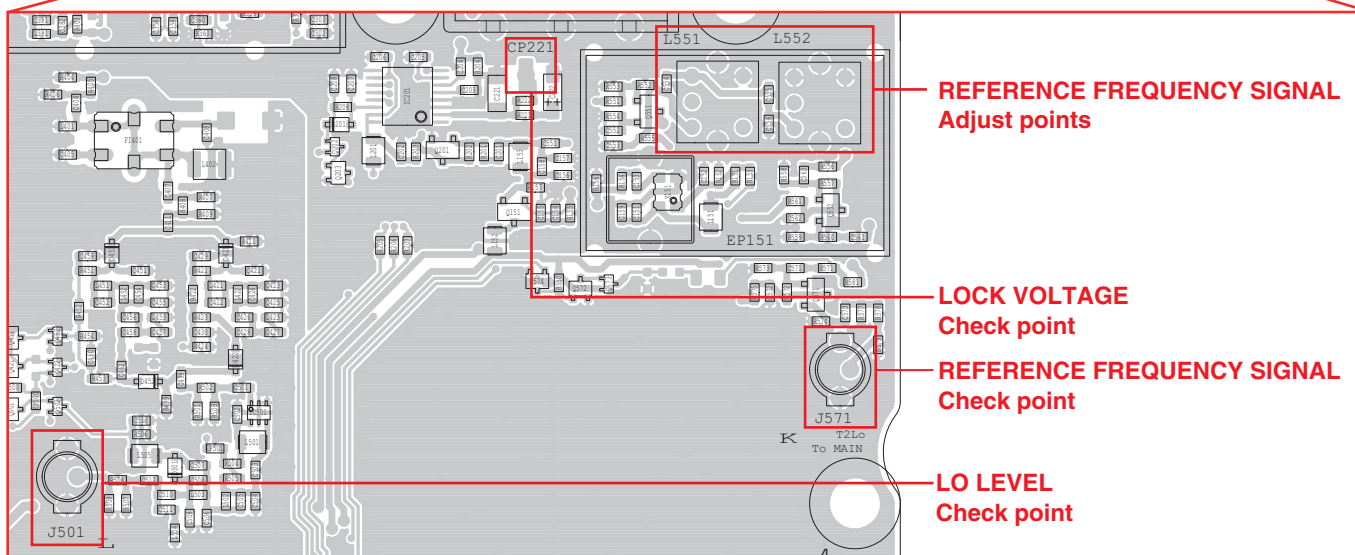
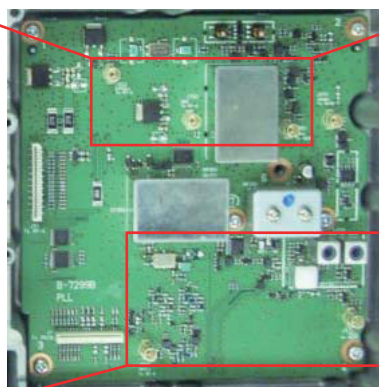
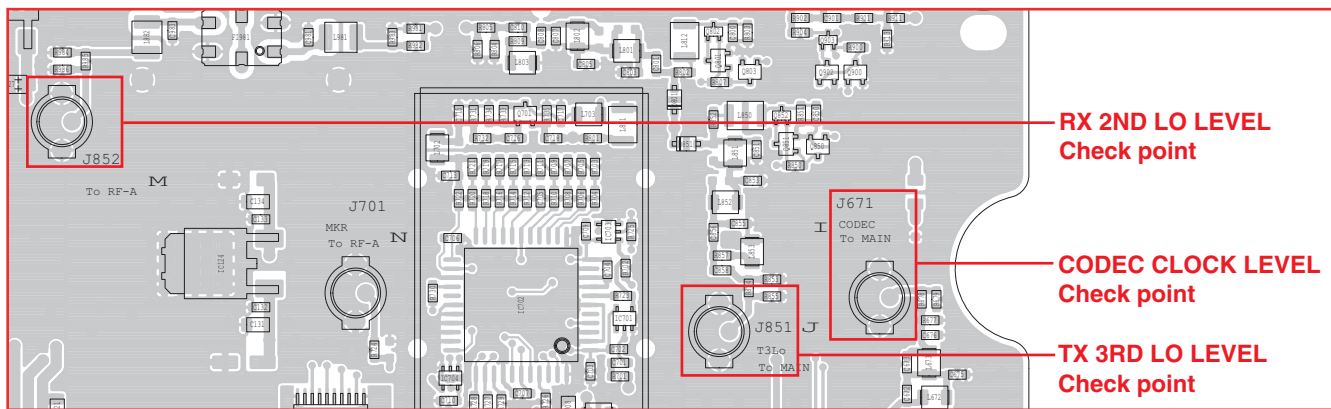


4-2 ADJUSTMENTS ON THE PLL UNIT

ADJUSTMENT ITEM	TRANSCEIVER'S CONDITION	OPERATION	MEASURE POINT	ADJUST POINT	VALUE
REFERENCE FREQUENCY SIGNAL	1 • Frequency: 14.10000 MHz • Mode: USB • Transmitting	• Connect a frequency counter to J571.	J571	(Verify)	64.000000 MHz (±300 Hz)
	2 • Frequency: 14.10000 MHz • Mode: USB • Receiving	• Connect an RF voltmeter to J571.	J571	L551, L552 (Repeatedly)	Max. voltage
	3			–	–10 dBm (±3 dB) (Verify)
LOCK VOLTAGE	• Frequency: 14.10000 MHz • Receiving	• Connect a voltmeter to CP221.	CP221	(Verify)	1.0–4.0 V
1ST LO LEVEL	1 • Frequency: 0.1 MHz* 1.8 MHz** • Receiving	• Connect an RF voltmeter to J501.	J501	(Verify)	+4 dBm (±3 dB)
	2 • Frequency: 4.0 MHz* 3.5625 MHz** • Receiving				
	3 • Frequency: 7.9 MHz* 7.1 MHz** • Receiving				
	4 • Frequency: 8.0 MHz* 10.1 MHz** • Receiving				
	5 • Frequency: 15.0 MHz* 14.35 MHz** • Receiving				
	6 • Frequency: 21.9 MHz* 21.45 MHz** • Receiving				
	7 • Frequency: 22.0 MHz* 24.89 MHz** • Receiving				
	8 • Frequency: 50.0 MHz • Receiving				
	9† • Frequency: 54.0 MHz • Receiving				
RX 2ND LO LEVEL	• Receiving	• Connect an RF voltmeter to the J852.	J852	(Verify)	–10 dBm (±3 dB)
TX 3RD LO LEVEL	• Transmitting	• Connect an RF voltmeter to the J851.	J851	(Verify)	
CODEC CLOCK LEVEL	• Receiving	• Connect an RF voltmeter to the J601.	J671	(Verify)	–12 dBm (±3 dB)

*: For all models except [TPE] and [KOR]. **: For [TPE] and [KOR]. †: Except [TPE].

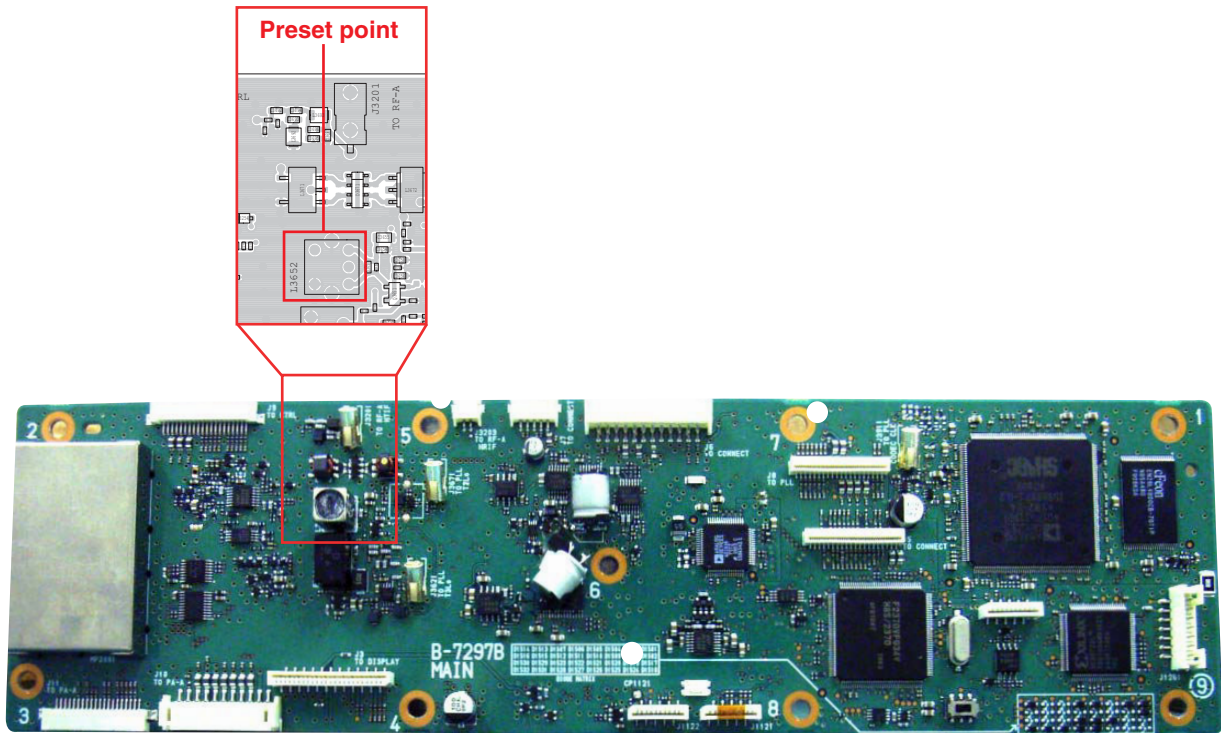
• THE LOCATION OF ADJUST/CHECK POINTS ON THE PLL UNIT



4-3 ADJUSTMENTS ON THE MAIN UNIT

ADJUSTMENT ITEM	TRANSCIVER'S CONDITION	OPERATION	MEASURE POINT	ADJUST POINT	VALUE
PRESET	• Receiving	—	—	L3652	Screw the core all the way inside the coil.

• THE LOCATION OF ADJUST/CHECK POINTS ON THE MAIN UNIT

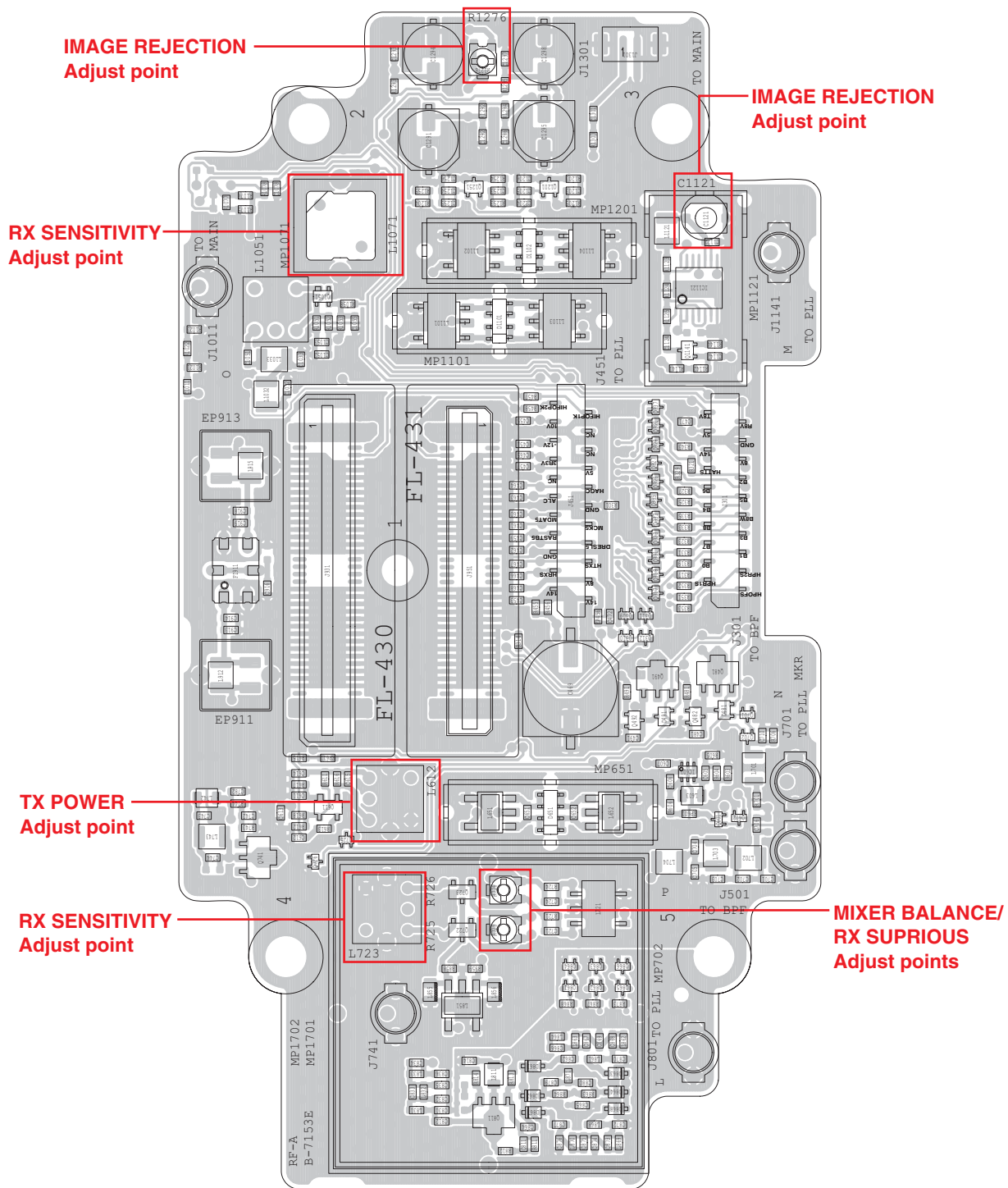


4-4 ADJUSTMENTS ON THE RF-A UNIT

ADJUSTMENT ITEM	TRANSCIVER'S CONDITION	OPERATION	MEASURE POINT	ADJUST POINT	VALUE
TX ADJUSTMENT (TX power)	• Frequency: 14.010 MHz • Mode: USB • Transmitting	1) Connect an RF power meter to [ANT1]. 2) Connect an audio generator and millivoltmeter to [MIC], and then set it as; Frequency : 1.5 kHz Level : 1 mV	[ANT1]	L612	Max. TX power
RX ADJUSTMENT (Sensitivity)	• Frequency: 14.150 MHz • Mode: USB • Receiving	1) Connect an SSG to [ANT1], and then set it as; Frequency : 14.1515 MHz Level : -10 dBμ (-117 dBm) Modulation: None 2) Connect a millivoltmeter and a speaker to [EXT-SP].	[EXT-SP]	L723, L1071	Max. voltage
MIXER BALANCE	• Frequency: 14.150 MHz • Mode: USB • Receiving	1) Connect a terminator to [ANT1]. 2) Connect a spectrum analyzer to the J741.	J741	R725, R726	Min. level
RX SUPRIIOUS*	• Frequency: 3.621565 MHz • Mode: USB • [PREAMP]: OFF • Receiving	• Connect a millivoltmeter to [EXT-SP].	[EXT-SP]		Min. AF output level
IMAGE REJECTION	• Frequency: 14.150 MHz • Mode: USB • Receiving	1) Connect an SSG to [ANT1], and then set it as; Frequency : 14.0765 MHz Level : +50 dBμ (-57 dBm) Modulation: None 2) Connect a millivoltmeter and a speaker to [EXT-SP].	[EXT-SP]	R1276, C1121 (Repeatedly)	Min. AF output level

*: For all models except [TPE] and [KOR].

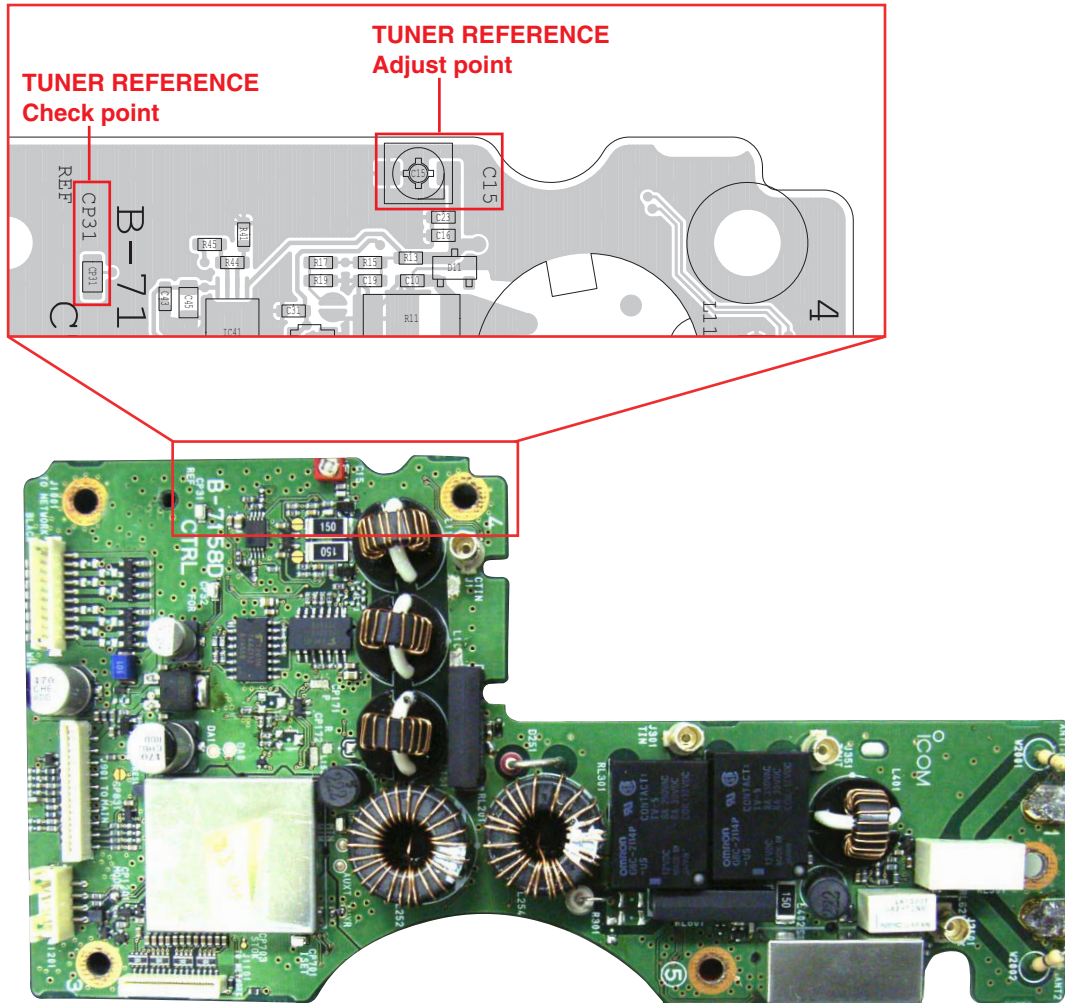
• THE LOCATION OF ADJUST/CHECK POINTS ON THE RF-A UNIT



4-5 ADJUSTMENTS ON THE CTRL UNIT

ADJUSTMENT ITEM	TRANSCIVER'S CONDITION	OPERATION	MEASURE POINT	ADJUST POINT	VALUE	
TUNER REFERENCE	1	<ul style="list-style-type: none"> Frequency: 3.55 MHz [TUNER]: Through 	<ul style="list-style-type: none"> Connect a 50 ohms dummy load to [ANT1]. 	CP31	C15	Min. voltage
	2	<ul style="list-style-type: none"> TX power: Max. Transmitting 	<ol style="list-style-type: none"> Turn OFF the power. Connect the short plug (Page 4-1) to [REMOTE]. Hold down [MENU] and [FILTER], and then turn ON the power. Push [F-5] (STR). 	—	—	Verify the message " *** OK *** " is displayed.
	3	Turn OFF the power.				

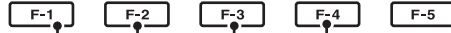
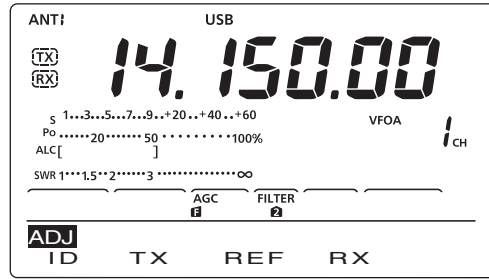
• THE LOCATION OF ADJUST/CHECK POINTS ON THE CTRL UNIT



4-6 ADJUSTMENTS ON THE FUNCTION DISPLAY

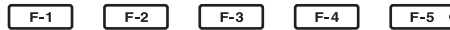
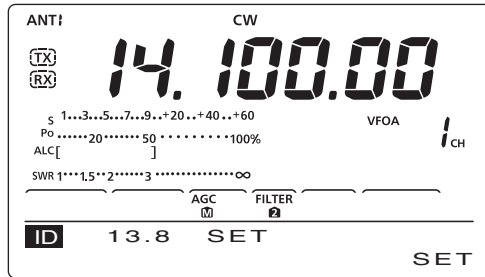
- 1) Connect the short plug (Page 4-1) to [REMOTE], and while holding down [MENU] and [SSB], turn ON the power.
- 2) The main adjustment menu appears.

MAIN ADJUSTMENT MENU



- Select the ID adjustment (See below) — F-1
- Select the transmit adjustment (Page 4-8) — F-2
- Select the receive adjustment (Page 4-10) — F-4
- Select the reference frequency/APC reference adjustment (Page 4-9) — F-3

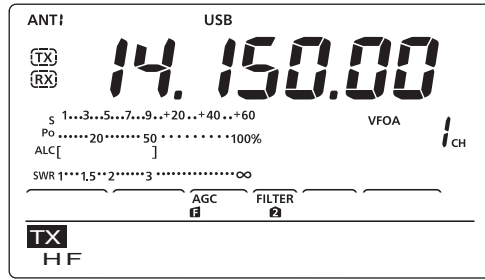
ID ADJUSTMENTS



- Stores the value and move to the next item. — F-5
- Returns to the previous screen. — [MENU]

ADJUSTMENT ITEM	TRANSCIVER'S CONDITION	OPERATION	MEASURE POINT	ADJUST POINT	VALUE
LOADING REFERENCE VOLTAGE	<ul style="list-style-type: none"> • Display: "13.8 SET" • Receiving 	<ul style="list-style-type: none"> • Set the power supply voltage to 13.8 V. 	—	—	Push [F-5]. (A beep sounds, and then another beeps sound 0.5 sec. later)
SETTING ID REFERENCE LEVEL	1 <ul style="list-style-type: none"> • Display: "ID HF+1.0A" • Transmitting 	<ul style="list-style-type: none"> • Connect a dummy load to [ANT1]. 	—	—	Push [F-5].
	2 <ul style="list-style-type: none"> • Display: "IPD HF+1.0A" • Transmitting 				
ID ADJUSTMENT	1 <ul style="list-style-type: none"> • Display: "ID SET HF" • Transmitting 	1) Connect a dummy load to [ANT1]. 2) Connect an ammeter to the power supply line.	Power supply line	—	Push [F-5]. (Measure the current and note it as the reference.)
	2 <ul style="list-style-type: none"> • Display: "HFID1V" • Transmitting 			[MAIN DIAL]	1.0 A more than the reference. Push [F-5].
	3 <ul style="list-style-type: none"> • Display: "HFID2V" • Transmitting 			—	Push [F-5]. (A beep sounds, and then another beeps sound 3 sec. later)
	4 <ul style="list-style-type: none"> • Display: "HDID1V" • Transmitting 			[MAIN DIAL]	1.0 A more than "Step3." Push [F-5].
	5 <ul style="list-style-type: none"> • Display: "HDID2V" • Transmitting 			—	Push [F-5]. (A beep sounds, and then another beeps sound 3 sec. later)
	6 <ul style="list-style-type: none"> • Display: "HPID1V" • Transmitting 			—	Push [F-5]. (A beep sounds, and then another beeps sound 3 sec. later)
Automatically returns to the main adjustment menu.					

■ TRANSMIT ADJUSTMENTS



F-1 F-2 F-3 F-4 F-5 → Stores the value and move to the next item.

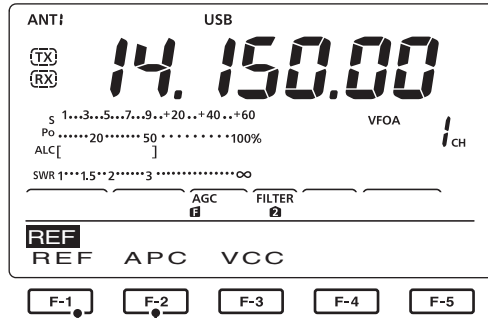
MENU → Returns to the previous screen.

F-1 → Starts the transmit adjustment.

ADJUSTMENT ITEM	TRANSCIVER'S CONDITION	OPERATION	MEASURE POINT	ADJUST POINT	VALUE	
PREPARATION	—	<ul style="list-style-type: none"> Connect an AG and millivoltmeter to [MIC], and then set it as; Frequency : 1.5 kHz Level : 1 mV Connect a power meter to [ANT1]. Connect a 25 ohm dummy load to [ANT2]. 	—	—	—	
TX TOTAL GAIN	1	<ul style="list-style-type: none"> Display: "Total Gain HF" Receiving 	—	[MAIN DIAL]	50 W Push [F-5].	
TX POWER & POWER METER SETTING	2	<ul style="list-style-type: none"> Display: "POWER HF" Receiving 	—	—	Push [F-5].	
	3	<ul style="list-style-type: none"> Display: "POWER HF Min" Transmitting 	—	[ANT1]	1.5 W Push [F-5].	
	4	<ul style="list-style-type: none"> Display: "POWER HF 10%" Transmitting 	—	[MAIN DIAL]	10 W Push [F-5].	
	5	<ul style="list-style-type: none"> Display: "POWER HF Tuner" Transmitting 	—	[MAIN DIAL]	10 W Push [F-5].	
	6	<ul style="list-style-type: none"> Display: "POWER HF 50%" Transmitting 	—	[MAIN DIAL]	50 W Push [F-5].	
	7	<ul style="list-style-type: none"> Display: "POWER HF 75%" Transmitting 	—	[MAIN DIAL]	80 W Push [F-5].	
	8	<ul style="list-style-type: none"> Display: "POWER HF 100%" Transmitting 	—	[MAIN DIAL]	105 W Push [F-5].	
	9	<ul style="list-style-type: none"> Display: "POWER 50M" Receiving 	<ul style="list-style-type: none"> Push [F-5]. (Automatically starts to transmit.) 	—	—	Push [F-5].
	10	<ul style="list-style-type: none"> Display: "POWER 50M Min" Transmitting 	—	[ANT1]	1.5 W Push [F-5].	
	11	<ul style="list-style-type: none"> Display: "POWER 50M 10%" Transmitting 	—	[MAIN DIAL]	10 W Push [F-5].	
	12	<ul style="list-style-type: none"> Display: "POWER 50M Tuner" Transmitting 	—	[MAIN DIAL]	10 W Push [F-5].	
	13	<ul style="list-style-type: none"> Display: "POWER 50M 50%" Transmitting 	—	[MAIN DIAL]	50 W Push [F-5].	
	14	<ul style="list-style-type: none"> Display: "POWER 50M 75%" Transmitting 	—	[MAIN DIAL]	80 W Push [F-5].	
	15	<ul style="list-style-type: none"> Display: "POWER 50M 100%" Transmitting 	—	[MAIN DIAL]	100 W Push [F-5].	
	POWER DOWN SETTING	16	<ul style="list-style-type: none"> Display: "POWER Down HF/50M" Transmitting 	—	[MAIN DIAL]	50 W Push [F-5].
AM CARRIER POWER RATIO	17	<ul style="list-style-type: none"> Display: "POWER AM Ratio HF" Transmitting 	—	[MAIN DIAL]	27 W Push [F-5].	
ID APC	18	<ul style="list-style-type: none"> Display: "ID-APC" Receiving 	1) Connect an ammeter to the power supply line. 2) Push [F-5]. (Automatically starts to transmit.)	Power supply line	[MAIN DIAL] 23.5–24.0 A Push [F-5].	
ALC METER	19	<ul style="list-style-type: none"> Display: "ALC HF/50M" Transmitting 	<ul style="list-style-type: none"> Set the AG as; Frequency : 1.5 kHz Level : 10 mV 	—	—	Push [F-5].
DRIVE GAIN	20	<ul style="list-style-type: none"> Display: "DRIVE HF/50M" Transmitting 	—	—	—	Push [F-5].
SWR METER	21	<ul style="list-style-type: none"> Display: "SWR HF/50M" Transmitting 	—	—	—	Push [F-5].
Automatically returns to the transmit adjustment menu.						

REFERENCE ADJUSTMENTS

Reference adjustment menu.

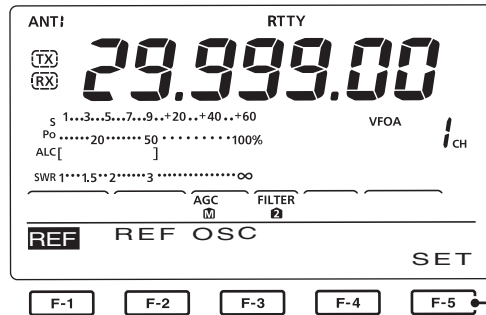


Returns to the previous screen. — **MENU**

Select the reference frequency adjustment. —

Select the APC reference adjustment. —

REFERENCE FREQUENCY ADJUSTMENT

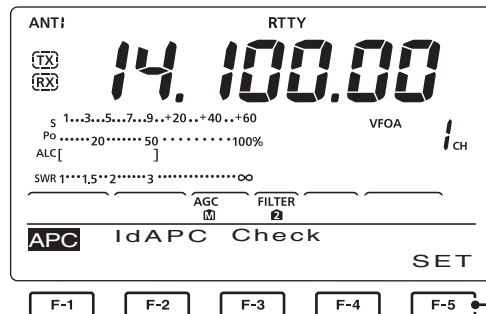


Returns to the previous screen. — **MENU**

Stores the value and move to the next item. —

ADJUSTMENT ITEM	TRANSCIVER'S CONDITION	OPERATION	MEASURE POINT	ADJUST POINT	VALUE
REFERENCE FREQUENCY	1	—	—	—	—
	2	<ul style="list-style-type: none"> • Display: "REF OSC" • Transmitting 	<ul style="list-style-type: none"> • Push [F-5]. (Automatically starts to transmit.) 	[ANT1]	[MAIN DIAL]
Automatically returns to the reference adjustment menu. Push [MENU] to return to the main adjustment menu (Page 4-6).					

APC REFERENCE ADJUSTMENT

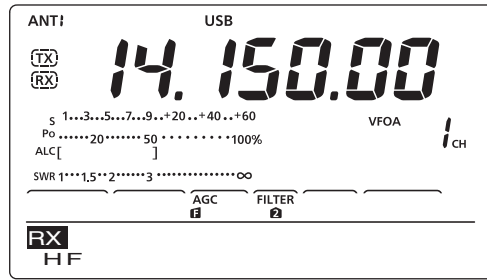


Returns to the previous screen. — **MENU**

Stores the value and move to the next item. —

ADJUSTMENT ITEM	TRANSCIVER'S CONDITION	OPERATION	MEASURE POINT	ADJUST POINT	VALUE
ID APC VERIFICATION	<ul style="list-style-type: none"> • Display: "IdAPC Check" • Transmitting 	<ul style="list-style-type: none"> • Push [F-5]. (Automatically starts to transmit.) 	—	—	Push [F-5]. (Beeps sound 1 sec. later)
Automatically returns to the reference adjustment menu. Push [MENU] to return to the main adjustment menu (Page 4-6).					

RECEIVE ADJUSTMENTS



F-1 F-2 F-3 F-4 F-5 — Stores the value and move to the next item

MENU — Returns to the previous screen.

F-1 — Starts the receive adjustment.

ADJUSTMENT ITEM	TRANSCEIVER'S CONDITION	OPERATION	MEASURE POINT	ADJUST POINT	VALUE	
PREPARATION	—	<ul style="list-style-type: none"> Connect an SSG to [ANT1], and then set it as; Frequency : 14.1515 MHz Modulation : None Level : +20 dBu (−87 dBm) 	—	—	—	
TOTAL GAIN ADJUSTMENT	1	<ul style="list-style-type: none"> Display: "Total Gain HF POFF" Receiving 	—	—	Push [F-5]. (Beeps sound 12 sec. later)	
	2	<ul style="list-style-type: none"> Display: "Total Gain HF PON" Receiving 	—	—	Push [F-5]. (Beeps sound 12 sec. later)	
EXTERNAL AGC	3	<ul style="list-style-type: none"> Display: "AGC (HF)" Receiving 	—	—	Push [F-5]. (Beeps sound 22 sec. later)	
S-METER	NOTE: DO NOT change the output level of the SSG until the beep sounds.					
	4	<ul style="list-style-type: none"> Display: "S0 Level HF" Receiving 	<ul style="list-style-type: none"> Set the SSG as; Level : OFF 	—	—	Push [F-5]. (Beep sounds, and then another beep sounds 0.5 sec. later)
	5	<ul style="list-style-type: none"> Display: "S9 Level HF" Receiving 	<ul style="list-style-type: none"> Set the SSG as; Level : +34 dBu (−73 dBm) 	—	—	Push [F-5]. (Beep sounds, and then another beep sounds 1 sec. later)
	6	<ul style="list-style-type: none"> Display: "S9+60 Level HF" Receiving 	<ul style="list-style-type: none"> Set the SSG as; Level : +90 dBu (−17 dBm) 	—	—	
Automatically returns to the receive adjustment menu.						

[MAIN UNIT]

Table with columns: REF NO., PARTS NO., DESCRIPTION, M., H/V LOCATION. Contains detailed parts list for the left main unit.

[MAIN UNIT]

Table with columns: REF NO., PARTS NO., DESCRIPTION, M., H/V LOCATION. Contains detailed parts list for the right main unit.

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

[MAIN UNIT]

Table with columns: REF NO., PARTS NO., DESCRIPTION, M., H/V LOCATION. Contains 488 rows of part specifications.

[MAIN UNIT]

Table with columns: REF NO., PARTS NO., DESCRIPTION, M., H/V LOCATION. Contains 488 rows of part specifications.

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

[CONNECT UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
EP1026	6910014690	S.BEA MPZ1608S221A-T	T	148.8/29.8
EP1029	6910012350	S.BEA MMZ1608Y 102BT	T	69.8/14.6
EP1101	6910014690	S.BEA MPZ1608S221A-T	B	103.3/34.7
EP1102	6910014640	S.BEA MPZ2012S221A-T	B	106.1/33.6
EP1103	6910018930	S.BEA MPZ2012S601A	B	115.6/34.4
EP1104	6910014640	S.BEA MPZ2012S221A-T	B	120.0/38.6
EP1106	6910012350	S.BEA MMZ1608Y 102BT	B	109.6/43.1
EP1301	6910012350	S.BEA MMZ1608Y 102BT	B	48.1/43.5
EP1401	6910018930	S.BEA MPZ2012S601A	B	73.3/50.4

[PLL UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
IC103	1130011760	S.IC CD4094BPWR	T	13.3/41.0
IC104	1130011760	S.IC CD4094BPWR	T	13.3/48.3
IC121	1180001072	S.IC TA7805F(TE16L1NQ)	T	7.0/100.7
IC122	1180003560	S.REG BA33BC0FP-E2	T	24.0/111.9
IC123	1180003210	S.REG NJM2831F10-TE1-#ZZZB	T	17.7/74.8
IC124	1180001252	S.IC TA7808F(TE16L1NQ)	T	42.8/89.0
IC201	1130013270	S.IC ADF4116BRUZ-REEL7 <FE>	T	71.1/44.4
IC351	1190002101	S.IC AD9951YSVZ <FE>	T	52.9/57.4
IC352	1180003200	S.REG UPD120N18TA-E1-AT	T	37.8/72.0
IC353	1130010560	S.IC SN74AHC244PWR	T	53.0/74.3
IC501	1110006870	S.IC UPC2709TB-E3	T	58.0/16.5
IC661	1130012600	S.IC SN74AHC1G04DCKR	T	107.5/58.8
IC662	1130015150	S.IC CY22381FXC(SX-3073G)	T	107.6/67.2
IC701	1130012600	S.IC SN74AHC1G04DCKR	T	78.9/84.1
IC702	1140014960	S.IC TC190G02EFG-0058/SC1287A	T	69.8/85.3
IC703	1130013010	S.IC SN74AHC1G08DCK3	T	77.5/91.8
IC704	1130013010	S.IC SN74AHC1G08DCK3	T	63.5/78.9
Q151	1530003890	S.TRA KTC3880S Y-RTK/P	T	80.5/34.2
Q201	1530003890	S.TRA KTC3880S Y-RTK/P	T	74.2/39.7
Q202	1590003770	S.TRA KRA302E-RTK/P	T	64.7/40.0
Q203	1590003680	S.TRA KRC402 RTK/P	T	65.0/37.7
Q251	1560000491	S.FET 2SK508-T2B-A K52	T	90.1/57.4
Q252	1530003900	S.TRA KTC4075 BL-RTK/P	T	91.0/66.0
Q271	1530004011	S.TRA KTC3770U-C-RTK/P	T	77.4/58.5
Q301	1530004011	S.TRA KTC3770U-C-RTK/P	T	63.1/56.9
Q421	1590003680	S.TRA KRC402 RTK/P	T	36.1/20.6
Q422	1590003770	S.TRA KRA302E-RTK/P	T	40.2/20.5
Q451	1560000841	S.FET 2SK1829(TE85RF)	T	36.1/23.1
Q452	1590003770	S.TRA KRA302E-RTK/P	T	40.2/23.3
Q501	1590003680	S.TRA KRC402 RTK/P	T	36.1/16.8
Q502	1590003770	S.TRA KRA302E-RTK/P	T	40.2/17.1
Q551	1530003890	S.TRA KTC3880S Y-RTK/P	T	92.3/43.1
Q552	1530003890	S.TRA KTC3880S Y-RTK/P	T	108.4/34.4
Q571	1530003890	S.TRA KTC3880S Y-RTK/P	T	107.1/26.9
Q572	1590003680	S.TRA KRC402 RTK/P	T	86.3/27.5
Q573	1590003770	S.TRA KRA302E-RTK/P	T	88.8/27.9
Q574	1590003680	S.TRA KRC402 RTK/P	T	82.5/28.1
Q701	1530003900	S.TRA KTC4075 BL-RTK/P	T	70.1/102.2
Q801	1590003680	S.TRA KRC402 RTK/P	T	87.1/106.9
Q802	1590003770	S.TRA KRA302E-RTK/P	T	86.7/109.4
Q803	1590003680	S.TRA KRC402 RTK/P	T	89.9/105.9
Q850	1590003680	S.TRA KRC402 RTK/P	T	95.9/99.3
Q851	1590003680	S.TRA KRC402 RTK/P	T	93.1/99.5
Q852	1590003770	S.TRA KRA302E-RTK/P	T	92.7/102.0
Q900	1590003680	S.TRA KRC402 RTK/P	T	99.2/105.8
Q901	1530003890	S.TRA KTC3880S Y-RTK/P	T	96.1/113.0
Q902	1590003680	S.TRA KRC402 RTK/P	T	96.7/105.8
Q903	1590003770	S.TRA KRA302E-RTK/P	T	96.8/108.7
D201	1750001320	S.DIO KDS4148U RTK/P	T	65.1/41.9
D251	1720000641	S.VAR 1SV284(TPH3F)	T	82.7/54.4
D421	1750001310	S.DIO KDS114 RTK/PA	T	55.1/30.6
D422	1750001310	S.DIO KDS114 RTK/PA	T	55.9/21.2
D451	1750001310	S.DIO KDS114 RTK/PA	T	45.0/30.6
D452	1750001310	S.DIO KDS114 RTK/PA	T	48.2/19.3
D501	1750001310	S.DIO KDS114 RTK/PA	T	50.6/11.7
D801	1750001310	S.DIO KDS114 RTK/PA	T	83.3/103.4
D851	1750001310	S.DIO KDS114 RTK/PA	T	84.3/99.5
D951	1750000431	S.DIO HSB88WSTR-E	T	71.5/114.8
FI401	2030000680	S.MON DSF753SDF 64.455 MHz (FL-423)	T	47.0/40.5
FI981	2030000820	S.MON MFT64.4R2 64.491 MHz (FL-436)	T	45.1/108.9
X151	6050012990	S.XTA CR-893 TTS18NSH 32 MHz	T	94.0/36.0
L151	6200005011	S.COI NLV25T-100J	T	97.8/33.75
L152	6200005011	S.COI NLV25T-100J	T	78.8/31.7
L153	6200002651	S.COI NLV25T-R18J	T	81.0/39.1
L201	6200005011	S.COI NLV25T-100J	T	68.1/39.6
L251	6200010960	S.COI C2520C-R47G-A (0.47U)	T	81.6/58.0
L252	6200010150	S.COI AS080340-15N	T	86.2/56.4
L301	6200005671	S.COI ELJRE 12NGFA	T	63.1/62.4
L302	6200005691	S.COI ELJRE 18NGFA	T	62.1/66.0
L303	6200005681	S.COI ELJRE 15NGFA	T	59.1/65.9
L304	6200005691	S.COI ELJRE 18NGFA	T	156.3/13.6
L351	6200004961	S.COI NLV25T-R33J	T	42.1/65.6
L353	6200004961	S.COI NLV25T-R33J	T	47.4/71.9
L354	6140002810	S.COI LR-317	T	39.5/56.9
L355	6200004961	S.COI NLV25T-R33J	T	44.6/71.4
L381	6200010910	S.COI LQW18AN56NG00D	T	38.8/49.9
L401	6200004940	S.COI MLF1608D R27K-T	T	41.1/41.8
L402	6200010740	S.COI C2520C-R27G-A	T	53.6/38.4
L421	6200011650	S.COI LQW18AN68NG00D	T	54.3/27.7
L422	6200011770	S.COI LQW18ANR10G00D	T	56.1/27.0
L423	6200011680	S.COI LQW18ANR12G00D	T	59.3/24.9
L451	6200005731	S.COI ELJRE 39NGFA	T	44.2/27.7
L452	6200006991	S.COI ELJRE 56NGFA	T	46.1/27.0
L453	6200009531	S.COI ELJRE R15GFA	T	49.2/24.9
L501	6200001981	S.COI NLV25T-1R0J	T	57.4/13.9
L502	6200009290	S.COI LQW18AN47NG00D (LQW1608A47NG00)	T	55.1/8.7
L503	6200011650	S.COI LQW18AN68NG00D	T	52.6/9.3
L504	6200011680	S.COI LQW18ANR12G00D	T	50.6/5.9
L505	6200005011	S.COI NLV25T-100J	T	47.9/12.7
L551	6150004250	COI LS-471A (C-14922)	T	
L552	6150004250	COI LS-471A (C-14922)	T	
L661	6200001831	S.COI NLV32T-100J	T	98.6/64.7

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

[PLL UNIT]

Table with 5 columns: REF NO., PARTS NO., DESCRIPTION, M., H/V LOCATION. Rows include components like C709, C710, C713, C715, C716, C717, C718, C800, C801, C803, C805, C807, C808, C810, C850, C851, C853, C855, C856, C858, C901, C902, C903, C904, C981, C982, C983, J1, J81, J501, J571, J671, J701, J851, J852, EP6, EP7, EP8, EP9, EP10, EP11, EP83, EP84, EP85, EP86, EP95, EP96, EP121, EP151, EP354, EP355, EP500, EP501, EP661.

[RF-A UNIT]

Table with 5 columns: REF NO., PARTS NO., DESCRIPTION, M., H/V LOCATION. Rows include components like IC303, IC305, IC601, IC1121, IC1221, IC1222, Q309, Q310, Q311, Q312, Q317, Q319, Q321, Q323, Q325, Q327, Q329, Q331, Q333, Q335, Q337, Q481, Q482, Q491, Q492, Q601, Q602, Q611, Q701, Q702, Q721, Q722, Q723, Q724, Q725, Q726, Q741, Q811, Q861, Q862, Q863, Q864, Q865, Q866, Q1051, Q1071, Q1072, Q1141, Q1201, Q1251, D481, D491, D601, D602, D651, D701, D702, D781, D851, D852, D861, D862, D863, D864, D865, D866, D867, D868, D869, D870, D911, D912, D931, D932, D951, D952, D1011, D1031, D1101, D1102, F1911, L501, L601, L602, L603, L611, L612, L613, L631, L632, L651, L652, L671, L672, L701, L702, L703.

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

S.=Surface mount

[RF-A UNIT]

Table with columns: REF NO., PARTS NO., DESCRIPTION, M., H/V LOCATION. Contains parts list for RF-A UNIT with 1221 rows.

[RF-A UNIT]

Table with columns: REF NO., PARTS NO., DESCRIPTION, M., H/V LOCATION. Contains parts list for RF-A UNIT with 1222 rows.

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

[RF-A UNIT]

Table with 5 columns: REF NO., PARTS NO., DESCRIPTION, M., H/V LOCATION. Rows include parts like ERA3YED 151V (150), ERA3YED 103V (10K), ERA3YED 102V (1K), etc.

[RF-A UNIT]

Table with 5 columns: REF NO., PARTS NO., DESCRIPTION, M., H/V LOCATION. Rows include parts like C1608 JB 1E 104K-T, C1608 CH 1H 150J-T, C1608 CH 1H 100J-T, etc.

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

[CTRL UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
C301	4030006900	S.CER C1608 JB 1H 103K-T	B	69.9/102.7
C302	4030011070	S.CER GRM31M2C2H5R0CY21L (GRM42-6 CH)	B	50.6/103.8
C304	4030006900	S.CER C1608 JB 1H 103K-T	B	67.5/105.8
C351	4030006900	S.CER C1608 JB 1H 103K-T	B	69.3/113.6
C352	4030006900	S.CER C1608 JB 1H 103K-T	B	68.0/121.0
C401	4030006860	S.CER C1608 JB 1H 102K-T	B	62.6/135.9
C408	4030007130	S.CER C1608 CH 1H 101J-T	T	65.8/129.9
C431	4030006860	S.CER C1608 JB 1H 102K-T	T	68.7/137.7
C432	4030006860	S.CER C1608 JB 1H 102K-T	T	64.7/144.4
C433	4030011600	S.CER C1608 JB 1E 104K-T	B	63.6/143.6
C501	4030006900	S.CER C1608 JB 1H 103K-T	T	70.9/150.6
C502	4030006900	S.CER C1608 JB 1H 103K-T	T	66.3/146.3
C601	4030006900	S.CER C1608 JB 1H 103K-T	B	72.8/114.0
C604	4030009520	S.CER C1608 CH 1H 020B-T	T	76.0/122.4
C605	4030007050	S.CER C1608 CH 1H 220J-T	T	77.8/120.0
C606	4030010760	S.CER C1608 CH 1H 331J-T	T	76.0/119.3
C608	4030006860	S.CER C1608 JB 1H 102K-T	B	74.7/110.4
C620	4030006900	S.CER C1608 JB 1H 103K-T	T	75.1/135.2
C621	4030007060	S.CER C1608 CH 1H 270J-T	B	81.8/140.5
C622	4030007010	S.CER C1608 CH 1H 100D-T	B	78.6/141.2
C623	4030007080	S.CER C1608 CH 1H 390J-T	B	79.7/138.7
C624	4030007090	S.CER C1608 CH 1H 470J-T	B	81.9/134.9
C625	4030007080	S.CER C1608 CH 1H 390J-T	B	79.8/129.0
C626	4030007080	S.CER C1608 CH 1H 390J-T	B	81.9/128.3
C651	4030011340	S.CER C1608 CH 1H 471J-T	T	80.0/109.5
C654	4030011600	S.CER C1608 JB 1E 104K-T	B	83.5/126.8
C701	4030006900	S.CER C1608 JB 1H 103K-T	T	55.2/43.5
C702	4030006900	S.CER C1608 JB 1H 103K-T	T	55.2/42.3
C703	4030006900	S.CER C1608 JB 1H 103K-T	T	55.2/41.1
C704	4030006900	S.CER C1608 JB 1H 103K-T	T	57.9/40.7
C705	4030011600	S.CER C1608 JB 1E 104K-T	T	57.8/35.8
C706	4030011600	S.CER C1608 JB 1E 104K-T	T	58.4/26.7
C707	4030007020	S.CER C1608 CH 1H 120J-T	T	67.5/30.1
C708	4030007020	S.CER C1608 CH 1H 120J-T	T	63.9/30.1
C710	4030011600	S.CER C1608 JB 1E 104K-T	T	70.3/30.1
C712	4030011600	S.CER C1608 JB 1E 104K-T	B	70.2/108.4
C713	4030011600	S.CER C1608 JB 1E 104K-T	B	66.0/31.7
C801	4510009880	S.ELE EEEHBC471UAP	T	47.6/25.9
C802	4030011600	S.CER C1608 JB 1E 104K-T	T	42.5/24.3
C803	4510009920	S.ELE 16 CE 100 LH	T	30.3/27.2
C804	4030011600	S.CER C1608 JB 1E 104K-T	T	34.5/24.3
C811	4030006900	S.CER C1608 JB 1H 103K-T	T	45.1/15.5
C821	4030006900	S.CER C1608 JB 1H 103K-T	T	76.3/19.9
C841	4030011600	S.CER C1608 JB 1E 104K-T	T	56.8/18.3
C851	4030006900	S.CER C1608 JB 1H 103K-T	B	57.8/25.7
C901	4030006900	S.CER C1608 JB 1H 103K-T	T	64.3/18.8
C907	4030011340	S.CER C1608 CH 1H 471J-T	T	56.4/1.7
C912	4030006900	S.CER C1608 JB 1H 103K-T	T	49.3/18.8
C913	4030006900	S.CER C1608 JB 1H 103K-T	T	42.5/13.0
C914	4510009880	S.ELE EEEHBC471UAP	T	38.3/8.4
C1001	4030019180	S.CER TMK212BJ105KG-T	T	17.2/2.0
C1002	4030019180	S.CER TMK212BJ105KG-T	T	19.0/2.0
C1003	4030019180	S.CER TMK212BJ105KG-T	T	20.7/2.0
C1004	4030019180	S.CER TMK212BJ105KG-T	T	22.5/2.0
C1005	4030019180	S.CER TMK212BJ105KG-T	T	24.2/2.0
C1006	4030019180	S.CER TMK212BJ105KG-T	T	26.0/2.0
C1007	4030019180	S.CER TMK212BJ105KG-T	T	27.7/2.0
C1008	4030019180	S.CER TMK212BJ105KG-T	T	29.5/2.0
C1101	4030006900	S.CER C1608 JB 1H 103K-T	T	78.3/19.6
C1102	4030006900	S.CER C1608 JB 1H 103K-T	B	79.8/20.3
C1103	4030006900	S.CER C1608 JB 1H 103K-T	B	79.1/21.9
C1104	4030006900	S.CER C1608 JB 1H 103K-T	T	79.7/21.0
C1105	4030006900	S.CER C1608 JB 1H 103K-T	T	79.7/22.2
C1106	4030006900	S.CER C1608 JB 1H 103K-T	T	79.7/23.4
C1107	4030006900	S.CER C1608 JB 1H 103K-T	T	79.7/24.6
C1108	4030006900	S.CER C1608 JB 1H 103K-T	T	79.5/34.2
C1109	4030006900	S.CER C1608 JB 1H 103K-T	T	79.5/33.0
C1110	4030006900	S.CER C1608 JB 1H 103K-T	T	79.5/31.8
C1111	4030006900	S.CER C1608 JB 1H 103K-T	T	79.5/30.6
C1112	4030006900	S.CER C1608 JB 1H 103K-T	T	79.5/29.4
C1113	4030006900	S.CER C1608 JB 1H 103K-T	T	79.5/28.2
C1114	4030006900	S.CER C1608 JB 1H 103K-T	T	79.5/27.0
C1115	4030006900	S.CER C1608 JB 1H 103K-T	T	79.5/25.8
RL201	6330001770	REL SIP-1A-12Y		
RL301	6330001900	REL G6C-2114P-US DC12V		
RL351	6330001900	REL G6C-2114P-US DC12V		
RL501	6330001910	REL G6S-2 DC12V		
RL601	6330001770	REL SIP-1A-12Y		
RL621	6330001860	REL UA2-12NU		
CP31	6910009670	S.CHE HK3-S-T	T	9.3/30.7
J1	6510007020	CON TMP-J01X-V6		
J301	6510007020	CON TMP-J01X-V6		
J351	6510007020	CON TMP-J01X-V6		
J901	6510020081	S.CON 52808-2071(2090)	T	54.8/10.2
J1001	6510022031	S.CON B10B-ZR-SM4-TF(LF)(SN)	T	22.6/5.7
J1101	6510021722	S.CON 30FLT-SM2-TB(LF)(SN)(M)	T	86.6/25.7
J1201	6510018971	S.CON B4B-PH-SM4-TB(LF)(SN)	T	73.5/5.7
J2101	6510007020	CON TMP-J01X-V6		
	7030012280	JUM RD25TOR0 [EUR]		
	7030012280	JUM RD25TOR0 [EUR-01]		
	7030012280	JUM RD25TOR0 [EUR]		
	7030012280	JUM RD25TOR0 [EUR-01]		
W2001	7030012280	JUM RD25TOR0		
W2002	7030012280	JUM RD25TOR0		

[CTRL UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
EP281	6910014690	S.BEA MPZ1608S221A-T	B	60.4/56.4
EP282	6910014690	S.BEA MPZ1608S221A-T	B	68.9/80.8
EP701	6910014690	S.BEA MPZ1608S221A-T	T	70.0/31.5
EP901	6910014690	S.BEA MPZ1608S221A-T	T	42.5/14.3
EP902	6910014690	S.BEA MPZ1608S221A-T	T	52.8/4.8
EP903	6910014690	S.BEA MPZ1608S221A-T	T	55.2/4.8
EP904	6910014690	S.BEA MPZ1608S221A-T	T	51.6/4.8
EP905	6910014690	S.BEA MPZ1608S221A-T	T	56.4/4.8
EP906	6910014690	S.BEA MPZ1608S221A-T	T	58.8/4.8
EP907	6910014690	S.BEA MPZ1608S221A-T	T	49.0/15.9
EP1101	6910014690	S.BEA MPZ1608S221A-T	T	86.7/35.1
EP1102	6910014690	S.BEA MPZ1608S221A-T	T	88.0/39.0

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

S.=Surface mount

[NETWORK UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
Q15	1590003680	S.TRA KRC402 RTK/P	T	139.5/62.0
Q25	1590003680	S.TRA KRC402 RTK/P	T	148.2/73.1
Q35	1590003680	S.TRA KRC402 RTK/P	T	144.3/67.4
Q45	1590003680	S.TRA KRC402 RTK/P	T	147.2/67.9
Q55	1590003680	S.TRA KRC402 RTK/P	T	122.1/61.6
Q65	1590003680	S.TRA KRC402 RTK/P	T	126.6/61.6
Q75	1590003680	S.TRA KRC402 RTK/P	T	131.1/61.6
Q85	1590003680	S.TRA KRC402 RTK/P	T	135.6/61.7
Q105	1590003680	S.TRA KRC402 RTK/P	T	113.9/64.7
Q115	1590003680	S.TRA KRC402 RTK/P	T	108.4/64.7
Q125	1590003680	S.TRA KRC402 RTK/P	T	102.9/64.7
Q135	1590003680	S.TRA KRC402 RTK/P	T	97.4/64.7
Q145	1590003680	S.TRA KRC402 RTK/P	T	91.9/64.7
Q155	1590003680	S.TRA KRC402 RTK/P	T	69.5/65.1
Q165	1590003680	S.TRA KRC402 RTK/P	T	58.6/64.8
Q175	1590003680	S.TRA KRC402 RTK/P	T	46.7/69.6
D15	1750001180	S.DIO KDS122 RTK/P	T	138.4/59.5
D25	1750001180	S.DIO KDS122 RTK/P	T	147.5/70.6
D35	1750001180	S.DIO KDS122 RTK/P	T	142.6/65.0
D45	1750001180	S.DIO KDS122 RTK/P	T	146.1/65.0
D55	1750001180	S.DIO KDS122 RTK/P	T	120.3/59.1
D65	1750001180	S.DIO KDS122 RTK/P	T	124.8/59.1
D75	1750001180	S.DIO KDS122 RTK/P	T	129.3/59.1
D85	1750001180	S.DIO KDS122 RTK/P	T	133.8/59.1
D105	1750001180	S.DIO KDS122 RTK/P	T	113.9/60.9
D115	1750001180	S.DIO KDS122 RTK/P	T	108.4/60.9
D125	1750001180	S.DIO KDS122 RTK/P	T	102.9/60.9
D135	1750001180	S.DIO KDS122 RTK/P	T	97.4/60.9
D145	1750001180	S.DIO KDS122 RTK/P	T	91.9/60.9
D155	1750001180	S.DIO KDS122 RTK/P	T	69.5/61.1
D165	1750001180	S.DIO KDS122 RTK/P	T	58.6/60.8
D175	1750001180	S.DIO KDS122 RTK/P	T	46.6/65.8
L55	6180003291	COI BM27-400-6A-LF		
L56	6180003291	COI BM27-400-6A-LF		
L65	6180003291	COI BM27-400-6A-LF		
L66	6180003291	COI BM27-400-6A-LF		
L75	6180003291	COI BM27-400-6A-LF		
L76	6180003291	COI BM27-400-6A-LF		
L85	6180003291	COI BM27-400-6A-LF		
L86	6180003291	COI BM27-400-6A-LF		
L101	6110003600	COI LA-555		
L111	6110003590	COI LA-554		
L121	6110003020	COI LA-489		
L131	6110003030	COI LA-490		
L141	6110003020	COI LA-489		
L151	6110003030	COI LA-490		
L161	6110004030	COI LA-626		
L171	6110004040	COI LA-627		
L181	6110004050	COI LA-628		
L182	6140004310	COI LR-471		
R211	7410000810	S.RES EXB-V8V JPW	T	147.3/81.2
R212	7410000810	S.RES EXB-V8V JPW	T	151.3/81.2
C1	4620000160	VAR KV-150-05 150P		
C11	4010008551	CER DEA1X3F390JC3B-Z		
C21	4010004820	CER DEC1X3J121JC4B (DE1410SL121J)		
C22	4010004810	CER DEC1X3J101JC4B (DE1310SL101J)		
C26	4030006900	S.CER C1608 JB 1H 103K-T	T	149.8/71.3
C31	4010004830	CER DEC1X3J151JC4B (DE1510SL151J)		
C35	4030006900	S.CER C1608 JB 1H 103K-T	T	161.2/80.4
C36	4030006900	S.CER C1608 JB 1H 103K-T	T	144.6/69.3
C41	4010004800	CER DEC1X3J820JC4B (DE1210SL820J)		
C45	4030006900	S.CER C1608 JB 1H 103K-T	T	165.3/80.4
C46	4030006900	S.CER C1608 JB 1H 103K-T	T	150.7/68.0
C51	4010004790	CER DEC1X3J680JC4B (DE1210SL680J)		
C52	4010004790	CER DEC1X3J680JC4B (DE1210SL680J)		
C53	4010004780	CER DEC1X3J560JC4B (DE1010SL560J)		
C55	4030006900	S.CER C1608 JB 1H 103K-T	T	143.7/7.5
C56	4030006900	S.CER C1608 JB 1H 103K-T	T	195.5/50.1
C61	4010004830	CER DEC1X3J151JC4B (DE1510SL151J)		
C66	4030006900	S.CER C1608 JB 1H 103K-T	T	124.7/57.2
C72	4010004810	CER DEC1X3J101JC4B (DE1310SL101J)		
C75	4030006900	S.CER C1608 JB 1H 103K-T	T	149.7/7.5
C76	4030006900	S.CER C1608 JB 1H 103K-T	T	129.2/57.2
C81	4010008551	CER DEA1X3F390JC3B-Z		
C85	4030006900	S.CER C1608 JB 1H 103K-T	T	133.7/57.2
C86	4030006900	S.CER C1608 JB 1H 103K-T	T	161.2/7.5
C91	4620000160	VAR KV-150-05 150P		
C105	4030006900	S.CER C1608 JB 1H 103K-T	T	111.9/61.0
C106	4030006900	S.CER C1608 JB 1H 103K-T	T	114.0/62.8
C115	4030006900	S.CER C1608 JB 1H 103K-T	T	106.4/61.0
C116	4030006900	S.CER C1608 JB 1H 103K-T	T	108.5/62.8
C125	4030006900	S.CER C1608 JB 1H 103K-T	T	100.9/61.0
C126	4030006900	S.CER C1608 JB 1H 103K-T	T	103.0/62.8
C135	4030006900	S.CER C1608 JB 1H 103K-T	T	95.4/61.0
C136	4030006900	S.CER C1608 JB 1H 103K-T	T	97.5/62.8
C145	4030006900	S.CER C1608 JB 1H 103K-T	T	89.9/61.0
C146	4030006900	S.CER C1608 JB 1H 103K-T	T	92.0/62.8
C155	4030006900	S.CER C1608 JB 1H 103K-T	T	68.4/59.1

[NETWORK UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
C156	4030006900	S.CER C1608 JB 1H 103K-T	T	69.7/63.1
C165	4030006900	S.CER C1608 JB 1H 103K-T	T	57.5/58.8
C166	4030006900	S.CER C1608 JB 1H 103K-T	T	58.8/62.8
C175	4030006900	S.CER C1608 JB 1H 103K-T	T	45.0/63.9
C176	4030006900	S.CER C1608 JB 1H 103K-T	T	46.6/67.7
C201	4030006900	S.CER C1608 JB 1H 103K-T	T	117.7/54.8
C202	4030006900	S.CER C1608 JB 1H 103K-T	T	137.1/77.2
C203	4030006900	S.CER C1608 JB 1H 103K-T	T	138.3/77.2
C204	4030006900	S.CER C1608 JB 1H 103K-T	T	139.5/77.2
C205	4030006900	S.CER C1608 JB 1H 103K-T	T	140.7/77.1
C206	4030006900	S.CER C1608 JB 1H 103K-T	T	141.9/76.7
C207	4030006900	S.CER C1608 JB 1H 103K-T	T	143.1/76.9
C208	4030006900	S.CER C1608 JB 1H 103K-T	T	144.3/77.2
C209	4030006900	S.CER C1608 JB 1H 103K-T	T	145.5/77.2
C211	4030006900	S.CER C1608 JB 1H 103K-T	T	119.2/56.0
C212	4030006900	S.CER C1608 JB 1H 103K-T	T	146.7/76.9
C213	4030006900	S.CER C1608 JB 1H 103K-T	T	148.0/77.0
C214	4030006900	S.CER C1608 JB 1H 103K-T	T	149.2/77.0
C215	4030006900	S.CER C1608 JB 1H 103K-T	T	150.4/77.2
C216	4030006900	S.CER C1608 JB 1H 103K-T	T	152.3/77.6
C217	4030006900	S.CER C1608 JB 1H 103K-T	T	154.2/78.9
C218	4030006900	S.CER C1608 JB 1H 103K-T	T	154.2/80.1
RL15	6330001610	REL NY-12W-K-IE		
RL25	6330001610	REL NY-12W-K-IE		
RL35	6330001610	REL NY-12W-K-IE		
RL45	6330001610	REL NY-12W-K-IE		
RL55	6330001610	REL NY-12W-K-IE		
RL65	6330001610	REL NY-12W-K-IE		
RL75	6330001610	REL NY-12W-K-IE		
RL85	6330001610	REL NY-12W-K-IE		
RL105	6330001610	REL NY-12W-K-IE		
RL115	6330001610	REL NY-12W-K-IE		
RL125	6330001610	REL NY-12W-K-IE		
RL135	6330001610	REL NY-12W-K-IE		
RL145	6330001610	REL NY-12W-K-IE		
RL155	6330001610	REL NY-12W-K-IE		
RL165	6330001610	REL NY-12W-K-IE		
RL175	6330001610	REL NY-12W-K-IE		
J1	6510007020	CON TMP-J01X-V6		
J91	6510007020	CON TMP-J01X-V6		
J201	6510021722	S.CON 30FLT-SM2-TB(LF)(SN)(M)	T	144.5/85.0
EP201	6910014730	S.BEA MPZ2012S331A-T	T	116.9/57.6
EP211	6910014730	S.BEA MPZ2012S331A-T	T	118.1/60.9

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

[DISPLAY UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
IC111	1130012620	S.IC SN74AHCT1G86DCKR	T	238.8/90.8
IC151	1110000960	S.IC NJM4558M-TE1-#FMZB	T	130.1/77.4
IC152	1110000960	S.IC NJM4558M-TE1-#FMZB	T	130.1/84.2
IC271	1130013470	S.IC CD4071BNSR	T	48.6/19.4
IC351	1130011880	S.IC CD4051BPWR	T	49.4/93.5
IC371	1130011880	S.IC CD4051BPWR	T	49.4/100.0
IC401	1140015710	S.IC M30622F8PGP(SX-3183C-1)	T	58.4/71.4
IC501	1130009121	S.IC S1D15206F00A200	T	175.9/72.2
IC521	1130014400	S.IC T6B66BFG(C)	T	98.3/64.1
IC541	1130014390	S.IC T6B65AFG(C)	T	207.2/57.5
IC561	1130014390	S.IC T6B65AFG(C)	T	141.0/57.5
Q111	1530003900	S.TRA KTC4075 BL-RTK/P	T	235.8/84.7
Q112	1520000651	S.TRA 2SB1201S-TL-E	T	229.5/88.9
Q113	1530003301	S.TRA 2SC3647S-TD-E	T	238.6/71.7
Q114	1530003301	S.TRA 2SC3647S-TD-E	T	227.5/69.2
Q252	1590003680	S.TRA KRC402 RTK/P	T	274.7/24.1
Q253	1590003680	S.TRA KRC402 RTK/P	T	274.7/21.6
Q501	1540000441	S.TRA 2SD1619T-TD-E	T	251.4/7.1
Q502	1530003900	S.TRA KTC4075 BL-RTK/P	T	114.2/38.8
Q503	1590003770	S.TRA KRC302E-RTK/P	T	118.1/39.6
D201	1750001710	S.DIO RB751V-40 TE-17	T	246.7/26.6
D202	1750001180	S.DIO KDS122 RTK/P	T	247.4/80.7
D203	1750001180	S.DIO KDS122 RTK/P	T	247.4/83.2
D204	1750001710	S.DIO RB751V-40 TE-17	T	71.5/81.8
D501	1750001320	S.DIO KDS4148U RTK/P	T	114.6/34.1
X401	6050011810	S.XTA CR-755 SMD-49 15.9744 MHZ <KDS>	T	57.9/55.6
L21	6200002041	S.COI NLV25T-101J	T	258.8/8.6
L22	6200002041	S.COI NLV25T-101J	T	247.7/23.5
L23	6200002041	S.COI NLV25T-101J	T	261.3/8.6
L24	6200009300	S.COI ELJPA 100KF 10U	T	245.0/23.5
L25	6200002041	S.COI NLV25T-101J	T	242.2/23.5
L31	6200002041	S.COI NLV25T-101J	T	266.8/73.5
L32	6200002041	S.COI NLV25T-101J	T	266.8/76.0
L111	6200008631	S.COI CDS4NP-101KCI	T	217.4/82.2
L112	6190001191	S.COI D10F-#A814AY-101K	T	228.7/78.7
R3	7030003360	S.RES ERJ3GEYJ 221 V (220)	T	101.3/97.9
R4	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	102.6/97.9
R5	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	103.9/97.9
R6	7030003360	S.RES ERJ3GEYJ 221 V (220)	T	105.2/97.9
R7	7030003360	S.RES ERJ3GEYJ 221 V (220)	T	98.3/97.9
R8	7030003360	S.RES ERJ3GEYJ 221 V (220)	T	99.6/97.9
R21	7030003680	S.RES ERJ3GEYJ 104 V (100K)	T	272.4/61.7
R22	7030003480	S.RES ERJ3GEYJ 222 V (2.2K)	T	271.6/58.4
R23	7030003860	S.RES ERJ3GE JPW V	T	246.8/20.1
R31	7030003360	S.RES ERJ3GEYJ 221 V (220)	T	267.2/71.6
R32	7030003860	S.RES ERJ3GE JPW V	T	272.4/78.9
R51	7030003520	S.RES ERJ3GEYJ 472 V (4.7K)	T	114.3/32.4
R52	7030003620	S.RES ERJ3GEYJ 333 V (33K)	T	114.3/35.7
R53	7030003580	S.RES ERJ3GEYJ 153 V (15K)	T	112.0/38.7
R54	7030003560	S.RES ERJ3GEYJ 103 V (10K)	T	256.1/7.7
R55	7030003340	S.RES ERJ3GEYJ 151 V (150)	T	255.6/5.6
R56	7030003520	S.RES ERJ3GEYJ 472 V (4.7K)	T	116.4/39.5
R112	7030010960	S.RES ERJ1TYJ 120U (12)	T	212.4/82.2
R113	7030003560	S.RES ERJ3GEYJ 103 V (10K)	T	237.3/87.5
R115	7030003360	S.RES ERJ3GEYJ 221 V (220)	T	240.4/85.5
R116	7030003500	S.RES ERJ3GEYJ 332 V (3.3K)	T	239.0/67.3
R117	7030003500	S.RES ERJ3GEYJ 332 V (3.3K)	T	239.0/68.5
R118	7030003640	S.RES ERJ3GEYJ 473 V (47K)	T	241.3/91.7
R141	7030003320	S.RES ERJ3GEYJ 101 V (100)	T	135.1/80.0
R142	7030003320	S.RES ERJ3GEYJ 101 V (100)	T	127.1/73.4
R143	7030003320	S.RES ERJ3GEYJ 101 V (100)	T	133.0/87.6
R144	7030003320	S.RES ERJ3GEYJ 101 V (100)	T	125.9/80.8
R150	7030003630	S.RES ERJ3GEYJ 393 V (39K)	T	130.3/70.6
R151	7030003580	S.RES ERJ3GEYJ 153 V (15K)	T	128.7/70.6
R154	7030003720	S.RES ERJ3GEYJ 224 V (220K)	T	125.2/73.2
R155	7030003720	S.RES ERJ3GEYJ 224 V (220K)	T	134.0/77.2
R156	7030003560	S.RES ERJ3GEYJ 103 V (10K)	T	123.1/84.1
R157	7030003560	S.RES ERJ3GEYJ 103 V (10K)	T	136.4/83.9
R158	7030003570	S.RES ERJ3GEYJ 123 V (12K)	T	123.0/78.9
R159	7030003640	S.RES ERJ3GEYJ 473 V (47K)	T	137.1/75.4
R162	7030003820	S.RES ERJ3GEYJ 155 V (1.5M)	T	125.2/82.8
R163	7030003820	S.RES ERJ3GEYJ 155 V (1.5M)	T	135.1/82.7
R164	7030003840	S.RES ERJ3GEYJ 225 V (2.2M)	T	129.5/73.2
R165	7030003790	S.RES ERJ3GEYJ 824 V (820K)	T	125.2/76.0
R166	7030003840	S.RES ERJ3GEYJ 225 V (2.2M)	T	131.1/73.2
R167	7030003790	S.RES ERJ3GEYJ 824 V (820K)	T	135.2/74.6
R168	7030003820	S.RES ERJ3GEYJ 155 V (1.5M)	T	125.2/78.7
R169	7030003820	S.RES ERJ3GEYJ 155 V (1.5M)	T	135.1/77.3
R170	7030003790	S.RES ERJ3GEYJ 824 V (820K)	T	125.2/85.6
R171	7030003790	S.RES ERJ3GEYJ 824 V (820K)	T	135.1/85.4
R172	7030003650	S.RES ERJ3GEYJ 563 V (56K)	T	128.7/80.8
R173	7030003650	S.RES ERJ3GEYJ 563 V (56K)	T	131.5/80.8
R174	7030003400	S.RES ERJ3GEYJ 471 V (47K)	T	123.1/85.9
R175	7030003400	S.RES ERJ3GEYJ 471 V (47K)	T	137.1/86.0
R185	7030003560	S.RES ERJ3GEYJ 103 V (10K)	T	37.7/84.0
R186	7030003560	S.RES ERJ3GEYJ 103 V (10K)	T	39.0/81.2
R187	7030003560	S.RES ERJ3GEYJ 103 V (10K)	T	37.7/81.2
R188	7030003560	S.RES ERJ3GEYJ 103 V (10K)	T	39.0/84.0
R190	7030003640	S.RES ERJ3GEYJ 473 V (47K)	T	77.6/59.9
R191	7030003640	S.RES ERJ3GEYJ 473 V (47K)	T	76.3/59.9
R195	7030003560	S.RES ERJ3GEYJ 103 V (10K)	T	250.3/80.1
R196	7030003670	S.RES ERJ3GEYJ 823 V (82K)	T	75.0/59.9
R197	7030003670	S.RES ERJ3GEYJ 823 V (82K)	T	78.9/59.9
R201	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	250.3/83.2

[DISPLAY UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
R202	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	250.3/81.4
R203	7030004730	S.RES ERJ3GEYF 222 V (2.2K)	T	71.2/77.7
R204	7030003640	S.RES ERJ3GEYJ 473 V (47K)	T	71.2/79.0
R211	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	250.3/78.3
R212	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	291.8/89.8
R213	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	291.8/77.2
R214	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	291.8/68.6
R215	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	278.3/69.7
R216	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	252.1/72.4
R217	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	213.4/23.2
R218	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	192.6/23.2
R219	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	171.8/23.2
R220	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	151.0/23.2
R221	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	130.2/23.2
R223	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	218.1/19.8
R224	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	71.2/76.4
R225	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	127.2/14.8
R226	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	24.4/34.5
R227	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	10.3/34.5
R228	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	33.5/69.6
R229	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	38.3/34.5
R231	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	47.9/6.3
R232	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	15.1/69.6
R237	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	41.1/84.7
R238	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	41.1/80.4
R239	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	41.1/81.9
R240	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	41.1/83.3
R241	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	38.4/57.9
R242	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	246.8/96.9
R243	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	248.2/96.9
R244	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	37.0/57.9
R251	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	248.2/50.1
R252	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	246.9/50.1
R253	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	249.5/50.1
R254	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	245.6/50.1
R255	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	236.2/14.8
R256	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	221.2/15.5
R257	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	206.7/15.5
R258	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	190.1/15.5
R259	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	131.1/9.4
R260	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	142.1/19.8
R261	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	75.0/104.9
R262	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	67.8/105.6
R263	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	63.9/104.9
R264	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	110.0/101.4
R265	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	49.3/53.1
R266	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	48.0/53.1
R271	7030003680	S.RES ERJ3GEYJ 104 V (100K)	T	40.4/21.4
R272	7030003680	S.RES ERJ3GEYJ 104 V (100K)	T	40.4/18.6
R273	7030003720	S.RES ERJ3GEYJ 224 V (220K)	T	41.7/41.2
R274	7030003720	S.RES ERJ3GEYJ 224 V (220K)	T	41.7/18.6
R275	7030003680	S.RES ERJ3GEYJ 104 V (100K)	T	42.5/23.5
R276	7030003680	S.RES ERJ3GEYJ 104 V (100K)	T	42.5/16.6
R277	7030003800	S.RES ERJ3GEYJ 105 V (1M)	T	43.2/21.4
R278	7030003800	S.RES ERJ3GEYJ 105 V (1M)	T	43.2/18.6
R287	7030003560	S.RES ERJ3GEYJ 103 V (10K)	T	46.2/40.7
R288	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	49.4/35.5
R289	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	49.4/38.1
R290	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	49.4/39.4
R291	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	49.4/40.7
R292	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	49.4/42.0
R293	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	49.4/44.3
R296	7030003640	S.RES ERJ3GEYJ 473 V (47K)	T	46.2/35.5
R297	7030003680	S.RES ERJ3GEYJ 104 V (100K)	T	44.9/43.4
R298	7030003640	S.RES ERJ3GEYJ 473 V (47K)	T	46.2/36.8
R299	7030003640	S.RES ERJ3GEYJ 473 V (47K)	T	46.2/38.1
R300	7030003640	S.RES ERJ3GEYJ 473 V (47K)	T	46.2/39.4
R301	7030003640	S.RES ERJ3GEYJ 473 V (47K)	T	71.2/66.0
R401	7030003640	S.RES ERJ3GEYJ 473 V (47K)	T	46.1/71.6
R403	7030003640	S.RES ERJ3GEYJ 473 V (47K)	B	66.2/135.9
R404	7030003640	S.RES ERJ3GEYJ 473 V (47K)	T	41.1/46.1
R405	7030003640	S.RES ERJ3GEYJ 473 V (47K)	T	43.2/45.3
R411	7030003640	S.RES ERJ3GEYJ 473 V (47K)	T	51.6/81.6
R412	7030003640	S.RES ERJ3GEYJ 473 V (47K)	T	52.8/81.6
R413	7030003640	S.RES ERJ3GEYJ 473 V (47K)	T	54.0/82.0
R414	7030003640	S.RES ERJ3GEYJ 473 V (47K)	T	54.5/60.8
R415	7030003640	S.RES ERJ3GEYJ 473 V (47K)	T	53.2/60.8
R416	7030003640	S.RES ERJ3GEYJ 473 V (47K)	T	51.9/60.8
R417	7030003800	S.RES ERJ3GEYJ 105 V (1M)	T	57.9/59.0
R418	7030003640	S.RES ERJ3GEYJ 473 V (47K)	T	61.6/60.4
R419	7030003640	S.RES ERJ3GEYJ 473 V (47K)	T	71.2/75.1
R420	7030003640	S.RES ERJ3GEYJ 473 V (47K)	T	71.2/73.8
R421	7030003560	S.RES ERJ3GEYJ 103 V (10K)	T	71.2/72.5
R422	7030003640	S.RES ERJ3GEYJ 473 V (47K)	T	71.2/71.2
R423	7030003640	S.RES ERJ3GEYJ 473 V (47K)	T	71.2/69.9
R424	7030003640	S.RES ERJ3GEYJ		

[VR-A UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
R1	7210003410	VAR RV-324	T	8.6/8.6
R2	7030003520	S.RES ERJ3GEYJ 472 V (4.7K)	T	8.6/13.2
R3	7030003520	S.RES ERJ3GEYJ 472 V (4.7K)	T	
C2	4030006900	S.CER C1608 JB 1H 103K-T	T	177.6/102.1
C3	4030006900	S.CER C1608 JB 1H 103K-T	T	127.0/107.0
J2	6510027290	S.CON 52808-0671	T	3.4/10.4

[VR-B UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
R1	7210002970	VAR RV-314(RK0972210 10KB/10KB)	T	18.1/7.7
R4	7030003520	S.RES ERJ3GEYJ 472 V (4.7K)	T	19.3/7.7
R5	7030003520	S.RES ERJ3GEYJ 472 V (4.7K)	T	
R6	7210002970	VAR RV-314(RK0972210 10KB/10KB)	T	12.5/7.7
R7	7030003520	S.RES ERJ3GEYJ 472 V (4.7K)	T	14.9/7.7
R8	7030003520	S.RES ERJ3GEYJ 472 V (4.7K)	T	
C3	4030006900	S.CER C1608 JB 1H 103K-T	T	20.5/7.7
C4	4030006900	S.CER C1608 JB 1H 103K-T	T	16.9/7.7
C5	4030006900	S.CER C1608 JB 1H 103K-T	T	13.7/7.7
C6	4030006900	S.CER C1608 JB 1H 103K-T	T	11.3/7.7
J2	6510019971	S.CON 52808-1071	T	15.4/3.4

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

[VR-C UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
R1	7210003410	VAR RV-324	T	11.2/8.0
R2	7030003520	S.RES ERJ3GEYJ 472 V (4.7K)	T	10.9/3.0
R3	7030003520	S.RES ERJ3GEYJ 472 V (4.7K)	T	10.9/3.0
C2	4030006900	S.CER C1608 JB 1H 103K-T	T	12.6/8.0
C3	4030006900	S.CER C1608 JB 1H 103K-T	T	12.1/3.0
J1	6510027290	S.CON 52808-0671	T	92.5/102.8

[PBT UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
J1	6510027290	S.CON 52808-0671	T	16.4/5.8
S1	2250000410	ENC TP90D96E20-30F-2178-1		

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

[RIT UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
J1	6510027290	S.CON 52808-0671	T	16.4/5.3
S1	2250000650	ENC EVEGC2F2524B		

[JACK UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
R1	7030006240	S.RES ERJ12YJ181U (180)	T	30.3/4.9
R2	7030006240	S.RES ERJ12YJ181U (180)	T	34.0/4.9
C1	4030006900	S.CER C1608 JB 1H 103K-T	T	15.0/17.1
C2	4030006900	S.CER C1608 JB 1H 103K-T	T	22.1/10.1
J1	6510020711	S.CON 52793-1070(1090)	T	18.6/13.8
J2	6510027890	CON 01J0370-00		
J102	6510023900	CON LGR4619-7000		
EP1	6910014690	S.BEA MPZ1608S221A-T	T	27.7/6.1
EP2	6910014690	S.BEA MPZ1608S221A-T	T	23.8/3.0
EP3	6910014690	S.BEA MPZ1608S221A-T	T	23.8/1.7
EP4	6910012350	S.BEA MMZ1608Y 102BT	T	15.5/13.4
EP5	6910012350	S.BEA MMZ1608Y 102BT	T	13.3/15.4
EP6	6910012350	S.BEA MMZ1608Y 102BT	T	10.6/16.6
EP101	6910012350	S.BEA MMZ1608Y 102BT	T	6.7/16.6
EP102	6910012350	S.BEA MMZ1608Y 102BT	T	4.1/16.6

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

[MIC UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
C1	4030006900	S.CER C1608 JB 1H 103K-T	T	15.5/16.2
C2	4030006900	S.CER C1608 JB 1H 103K-T	T	13.3/16.6
C3	4030006900	S.CER C1608 JB 1H 103K-T	T	12.0/16.4
C4	4030007130	S.CER C1608 CH 1H 101J-T	T	8.2/3.7
C5	4030006900	S.CER C1608 JB 1H 103K-T	T	17.5/2.5
C6	4030006900	S.CER C1608 JB 1H 103K-T	T	8.2/2.5
C7	4030006900	S.CER C1608 JB 1H 103K-T	T	7.8/11.4
C8	4030007090	S.CER C1608 CH 1H 470J-T	T	15.0/15.6
J1	6510000191	CON FM214-8SS(P)-1		
J2	6510019971	S.CON 52808-1071	T	4.0/10.2
EP2	6910012350	S.BEA MMZ1608Y 102BT	T	18.2/3.7
EP3	6910012350	S.BEA MMZ1608Y 102BT	T	11.7/2.5
EP4	6910012350	S.BEA MMZ1608Y 102BT	T	13.2/16.4
EP5	6910012350	S.BEA MMZ1608Y 102BT	T	21.4/12.1
EP6	6910018930	S.BEA MPZ2012S601A	T	8.0/8.4
EP7	6910018930	S.BEA MPZ2012S601A	T	9.5/13.3
EP9	6910015130	S.BEA MMZ1608D 301BT	T	8.2/4.9
EP10	6910015130	S.BEA MMZ1608D 301BT	T	8.2/6.1
EP11	6910012350	S.BEA MMZ1608Y 102BT	T	16.9/16.4
EP12	6910018930	S.BEA MPZ2012S601A1	T	9.8/16.9

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

SECTION 6

MECHANICAL PARTS

[CHASSIS PARTS]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1	6510000370	MR-DS-01 <SSC>	1
J2	6510000370	MR-DS-01 <SSC>	1
SP1	2510000761	SM-C77KY0208	1
MF1	2710000630	FBA08T12HC ()	1
W1**	8900019230	OPC-2025 (P1N20L80)	1
W4**	8900019230	OPC-2025 (P1N20L80)	1
W5**	8900015160	OPC-916A (P1N22L120)	1
W6**	8900014070	OPC-1438 (P0.5N40L120)	1
W7**	8900019260	OPC-2028 (P0.5N40L330)	1
W8**	8900019270	OPC-2029 (P1N20L190)	1
W9**	8900017140	OPC-927A (P1N24L100)	1
W10**	8900019290	OPC-2031 (P0.5N30L110)	1
W117**	8970025210	1.5DCOAXIAL250MM C31/C31	1
W119**	8970024401	1.5DCOAXIAL360MM-1 C31/C31	1
W121**	8970024411	1.5DCOAXIAL330MM-1 C31/C31	1
W123**	8970024091	1.5DCOAXIAL210MM-1 C31/C31	1
W125**	8970024291	1.5DCOAXIAL300MM-1 C31/C31	1
W127**	8970025210	1.5DCOAXIAL250MM C31/C31	1
W129**	8970024091	1.5DCOAXIAL210MM-1 C31/C31	1
W131**	8970024730	1.5DCOAXIAL 80MM C31/C31	1
W133**	8970024401	1.5DCOAXIAL360MM-1 C31/C31	1
W135**	8970024201	1.5DCOAXIAL300MM-1 C31/C31	1
W137**	8970024201	1.5DCOAXIAL300MM-1 C31/C31	1
W139**	8970024341	1.5DCOAXIAL190MM-1 C31/C31	1
W141**	8970024082	1.5DCOAXIAL180MM-2 C31/C31	1
W1001**	8600037310	SX3183 P1001*P1002CH	1
W1031**	8600037330	SX3183 P1031*P1032CH	1
W1041**	8600037400	SX3182 P1041*P1042CH	1
W1061**	8600037410	SX3182 P1061*P1062CH	1
W1091**	8600037370	SX3183 P1091*P1092*P1093CH	1
W1101**	8600037380	SX3183 J1101*P1102CH	1
W1121**	8600037390	SX3183 P1121CH	1
W1131**	8900019320	OPC-2034	1
MP1	8010021840	3182 CHASSIS	1
MP2	8110009830	3183 U-COVERASSEMBLY	1
MP3	8110009781	3183 L-COVER-1	1
MP4	8510019470	3183 SHIELD COVER	1
MP6	8930081440	3183 SP S-DAMPER	1
MP7	8810006501	BIND M4 X20 ZK3	4
MP8	8510019490	3183 TUNER PLATE	1
MP9	8510019480	3183 PLL PLATE	1
MP10	8510019510	3183 BPF PLATE	1
MP11	8510019501	3183 BPF CASE-1	1
MP15	8810003361	SETSCREWC M3 X 6 ZC3	2
MP16	8930052450	2355 EARTH PLATE	2
MP18	8810008661	PHBT M3 X 8 NI-ZC3	4
MP19	8930077030	3073 MAIN STAND	2
MP20	8930077040	3073 SUB STAND	2
MP21	8810008661	PHBT M3 X 8 NI-ZC3	2
MP22	8930077020	3073 A-STAND SHEET	2
MP23	8930077490	3073 B-STAND SHEET	2
MP24	8930040590	RUBBER LEG (K)	2
MP25	8930077650	3073 SIDE HANDLE (5)	1
MP26	8810010870	ROUND FLAT M4 X12 ZK3	2
MP27	8930079690	RUBBER STAND (Q)	4
MP28	8820000530	FLANGE BOLT M4 X 8 NI	1
MP29	8850000140	FLAT WASHER M 4 NI BS	2
MP30	8850000430	S-WASHER M 4 NI	1
MP31	8810005771	BIND M3 X 8 ZK3BLACK	12
MP32	8810005771	BIND M3 X 8 ZK3BLACK	6
MP33	8810008661	PHBT M3 X 8 NI-ZC3	22
MP34	8810009651	FLAT BT M3 X 8 NI-ZC3	4
MP35	8810008661	PHBT M3 X 8 NI-ZC3	7
MP36	8810008661	PHBT M3 X 8 NI-ZC3	8
MP37	8810003361	SETSCREWC M3 X 6 ZC3	5
MP38	8810008661	PHBT M3 X 8 NI-ZC3	7
MP39	8810008661	PHBT M3 X 8 NI-ZC3	1
MP40	8930027480	1126 TR-A CLIP Y124	1
MP41	8810008661	PHBT M3 X 8 NI-ZC3	9
MP42	8810008661	PHBT M3 X 8 NI-ZC3	7
MP43	8810008661	PHBT M3 X 8 NI-ZC3	9
MP44	8810008661	PHBT M3 X 8 NI-ZC3	5
MP45	8810005771	BIND M3 X 8 ZK3BLACK	5
MP46	8810008661	PHBT M3 X 8 NI-ZC3	4
MP48	8810008661	PHBT M3 X 8 NI-ZC3	13
MP49	8810007231	SETSCREWH M3 X 8 ZC3	2
MP50	8810007231	SETSCREWH M3 X 8 ZC3	4
MP51	8930075440	3015 RUG SPRING Y1115	2
MP59	8810007231	SETSCREWH M3 X 8 ZC3	2
MP62	8310050190	2355 ANT PLATE	3
MP64	8930080830	THERMAL SHEET (BV)TC300HSV1.4 (5X19.5	1
MP65	8810008661	PHBT M3 X 8 NI-ZC3	4
MP66	8010021630	3183 MAIN CHASSIS	1

[CHASSIS PARTS]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
MP67	8930079060	3073 DC PLATE	1
MP72	8930080990	3183 FAN SPRING Y1196	1
MP73	8930081060	3183 AL SHEET	1
MP74	8930070510	THERMAL SHEET (BF)TC-600HS-1.4 (14.5X	1
MP93	8510019940	3183 BPF SHIELD PLATE	1
MP94	8930043800	DOUBLE SIDE TAPE (S)	1
MP95	8930082150	SPONGE (KZ)	1
MP96	8950003640	CAOTING CLIP CS-2 (UL)	1
MP97	8950003640	CAOTING CLIP CS-2 (UL)	1
MP98	8930082150	SPONGE (KZ)	1
MP99	8930081420	SPONGE (KX)	1
MP100	8930081420	SPONGE (KX)	1
MP101	8930081420	SPONGE (KX)	1
MP102	8930081420	SPONGE (KX)	1
MP103	8930081420	SPONGE (KX)	1
MP104	8930081420	SPONGE (KX)	1
MP105*	8930043020	RUBBER SHEET (AC)	1
MP108**	8930081420	SPONGE (KX)	1
MP110	8930070510	THERMAL SHEET (BF)TC-600HS-1.4 (14.5X	1
MP111	8930070510	THERMAL SHEET (BF)TC-600HS-1.4 (14.5X	1

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J3*	6510021561	52808-2470 (2490) TAPING	1
J5*	6510022472	40FLT-SM2-TB (LF) (SN) (M)	1
J6*	6510026180	S12B-PH-SM4-TB (LF) (SN)	1
J7*	6510027710	S5B-ZR-SM4-TF (LF) (SN)	1
J8*	6510022472	40FLT-SM2-TB (LF) (SN) (M)	1
J9*	6510024111	52793-2070 (2090)	1
J10*	6510027500	S11B-PH-SM4-TB (LF) (SN)	1
J11*	6510024111	52793-2070 (2090)	1
J1122*	6510019971	52808-1071	1
J3201	6510018450	TMP-S01X-B1	1
J3203*	6510018301	S2B-ZR-SM4-TF (LF) (SN)	1
J3621	6510018450	TMP-S01X-B1	1
J3671	6510018450	TMP-S01X-B1	1
J3911	6510018450	TMP-S01X-B1	1
MP2001	8510019780	3183 A-MAIN CASE	1
MP2002	8510019790	3183 B-MAIN CASE	1
MP2003	8930081481	INSULATION SHEET (IA)-1	1

[CONNECT UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J101*	6510023720	LG Y6501-0600C	1
J151*	6510018961	B2B-PH-SM4-TB (LF) (SN)	1
J611*	6510023720	LG Y6501-0600C	1
J751*	6510026540	UBB-4R-D14T-4D (LF) (SN)	1
J1001*	6510022472	40FLT-SM2-TB (LF) (SN) (M)	1
J1002*	6510027040	B12B-PH-SM4-TB (LF) (SN)	1
J1003*	6510025760	B5B-ZR-SM4-TF (LF) (SN)	1
J1101*	6450001641	TCS5044-0141177	1
J1301*	6510023900	LGR4619-7000	1
J1401	6450001130	JPJ2042-01-110	1

[PLL UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1*	6510022472	40FLT-SM2-TB (LF) (SN) (M)	1
J81*	6510019991	52808-2271 (2291) TAPING	1
J501*	6510007020	TMP-J01X-V6	1
J571*	6510007020	TMP-J01X-V6	1
J671*	6510007020	TMP-J01X-V6	1
J701*	6510007020	TMP-J01X-V6	1
J851*	6510007020	TMP-J01X-V6	1
J852*	6510007020	TMP-J01X-V6	1
EP151*	6910002161	CASE-BM7H-LF	1
EP354*	6910002161	CASE-BM7H-LF	1
MP291*	8510019980	3183 B-VCO CASE Y1205	1
MP292	8510019990	3183 B-VCO COVER Y1206	1
MP293	8810008490	SETSCREWH M2.6X 8 NI	2
MP351*	8510019710	3182 PLL CASE Y1187	1
MP701*	8510019710	3182 PLL CASE Y1187	1

*: Refer to "BOARD LAYOUTS" for the location.

** : Refer to "GENERAL WIRING" for the connection

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

[RF-A UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J301*	6510020081	52808-2071 (2090)	1
J451*	6510019991	52808-2271 (2291) TAPING	1
J501*	6510007020	TMP-J01X-V6	1
J701*	6510007020	TMP-J01X-V6	1
J741*	6510007020	TMP-J01X-V6	1
J801*	6510007020	TMP-J01X-V6	1
J931*	6510027650	AXN480C330P	1
J951*	6510027660	AXN380C038P	1
J1011*	6510007020	TMP-J01X-V6	1
J1141*	6510007020	TMP-J01X-V6	1
J1301*	6510014961	B2B-ZR-SM4-TF (LF) (SN)	1
EP911*	6910002161	CASE-BM7H-LF	1
EP913*	6910002161	CASE-BM7H-LF	1
MP651*	8510012400	2177 D/A CASE Y454	1
MP911*	8930065741	2590 D-EARTH SPRING-1	1
MP1071*	6910001130	10MSHIELD CASE (P10L-A)	1
MP1101*	8510012400	2177 D/A CASE Y454	1
MP1121*	8510015900	2590 M-2LO CASE Y697	1
MP1201*	8510012400	2177 D/A CASE Y454	1
MP1701*	8510010760	1876 DDS CASE	1
MP1702*	8510010770	1876 DDS COVER	1

[BPF UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J141*	6510007020	TMP-J01X-V6	1
J201*	6510007020	TMP-J01X-V6	1
J301*	6510007020	TMP-J01X-V6	1
J302*	6510020081	52808-2071 (2090)	1
MP31*	8930062740	2590 M-SPRING	1

[PA-A UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J201*	6510007020	TMP-J01X-V6	1
J401*	6510020081	52808-2071 (2090)	1
J402*	6510020051	B11B-PH-SM4-TB (LF) (SN)	1
J451*	6510014961	B2B-ZR-SM4-TF (LF) (SN)	1
J462*	6510018971	B4B-PH-SM4-TB (LF) (SN)	1
J1201*	6510007020	TMP-J01X-V6	1
F1*	5220000400	FHA010-01F	1
F2*	5210001050	ICP-S0.5TN	1
F3*	5210000940	1205	1
EP1*	6910020710	OT-047 M3	1
EP2*	6910020710	OT-047 M3	1
MP131*	8510020100	3182 DC-DC CASE Y1220	1
MP132*	8930082270	3182 DC-DC PLATE Y1221	1

[CTRL UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1*	6510007020	TMP-J01X-V6	1
J301*	6510007020	TMP-J01X-V6	1
J351*	6510007020	TMP-J01X-V6	1
J901*	6510020081	52808-2071 (2090)	1
J1001*	6510022031	B10B-ZR-SM4-TF (LF) (SN)	1
J1101*	6510021722	30FLT-SM2-TB (LF) (SN) (M)	1
J1201*	6510018971	B4B-PH-SM4-TB (LF) (SN)	1
J2101*	6510007020	TMP-J01X-V6	1
W2001*	7030012280	RD25TOR0	1
W2002*	7030012280	RD25TOR0	1
MP401*	8930065741	2590 D-EARTH SPRING-1	1
MP601*	8510002020	MIXSHIELD CASE SX155	1
MP701*	8510018851	2355 A-SHIELD CASE-1 Y1086A	1
MP702*	8510002280	VCOSHIELD (A) FX 15	1

[NETWORK UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1	6510007020	TMP-J01X-V6	1
J91	6510007020	TMP-J01X-V6	1
J201*	6510021722	30FLT-SM2-TB (LF) (SN) (M)	1
MF1	2710000800	MP24ZA (STEPPING MOTOR)	1
MF2	2710000800	MP24ZA (STEPPING MOTOR)	1
MP1	8930041091	1876 A-ANGLE-1	1
MP2	8810008661	PHBT M3 X 8 NI-ZC3	1
MP3	8810009061	FLAT M3 X 6 ZK3	4
MP4	8930041111	1876 B-ANGLE-1	1
MP5	8810009061	FLAT M3 X 6 ZK3	2
MP6	8820000881	1528 SCREW-1	4
MP7	8930030112	1414 PLATE-2	2
MP8	8950003200	UJ6-5 (UNIVERSAL COUPLING)	2
MP9*	8930051580	2178 TUNER PLATE Y503	1

[FRONT UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
W1	8900019300	OPC-2032 (P1N6L50)	1
W2	8900018000	OPC-1344A (P1N10L70)	1
W3	8900018000	OPC-1344A (P1N10L70)	1
W4	8900018000	OPC-1344A (P1N10L70)	1
W5	8900019300	OPC-2032 (P1N6L50)	1
W6	8900019300	OPC-2032 (P1N6L50)	1
W7	8900019300	OPC-2032 (P1N6L50)	1
EP1	0880002940	EX-2500 #04 SENSOR	1
EP2	6910015650	S-G2218-3#01 (MOUNT PLATE) 0	1
EP3	6910015650	S-G2218-3#01 (MOUNT PLATE) 0	1
MP1	8210026220	3183 FRONT PANEL (A)ASSEMBLY	1
MP2	8010021650	3183 SUB CHASSISASSEMBLY	1
MP4	8310076250	3183 WINDOW PLATE (A)	1
MP5	8930080710	3183 KEYBOARD (A) (SHJ)	1
MP6	8610014220	KNOB K-295 (A)	1
MP7	8610014050	KNOB K-294	1
MP9	8610014090	KNOB K-293	1
MP10	8610014020	KNOB K-290	1
MP11	8610014200	KNOB K-291 (A)	1
MP12	8610014210	KNOB K-292 (A)	1
MP13	8610014110	KNOB N-379 (A)	1
MP14	8610014230	KNOB K-297 (A)	1
MP15	8610014240	KNOB K-296 (A)	1
MP16	8610014100	KNOB N-378 (A)	4
MP18	8610013922	KNOB N-268ASSEMBLY (A)-2	1
MP20	8930076900	3073 D-RUBBER (TOP)	1
MP27	8930076910	3073 BRAKE BUTTON	1
MP28	8930077360	3073 BRAKE PAD	2
MP29	8610011830	KNOBK301	1
MP30	8610013290	KNOB N-361	4
MP31	8610014140	KNOB N-380ASSEMBLY (A)	1
MP32	8810008761	PHBT M2 X 8 NI-ZC3	17
MP34	8810008661	PHBT M3 X 8 NI-ZC3	10
MP35	8930081070	3183 WINDOW SHEET	1
MP37	8930074940	SPONGE (JY)	1
MP38	8930082280	SPONGE (LB)	1
MP39	8930082260	SPONGE (LA)	1
MP40	8930082260	SPONGE (LA)	1
MP41	8930082320	SPONGE (LC)	1
MP42	8930082320	SPONGE (LC)	1

*: Refer to "BOARD LAYOUTS" for the location.

** : Refer to "GENERAL WIRING" for the connection

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

[DISPLAY UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
R722	7210003370	R0904N-B10KL-20KQ-R1080<SKD>	1
R724	7210003370	R0904N-B10KL-20KQ-R1080<SKD>	1
R726	7210003370	R0904N-B10KL-20KQ-R1080<SKD>	1
R728	7210003370	R0904N-B10KL-20KQ-R1080<SKD>	1
J1*	6510021561	52808-2470 (2490) TAPING	1
J21*	6510019971	52808-1071	1
J31*	6510019971	52808-1071	1
J51*	6510019971	52808-1071	1
J61*	6510027290	52808-0671	1
J71*	6510027290	52808-0671	1
J81*	6510027290	52808-0671	1
J91*	6510027290	52808-0671	1
J101*	6510018971	B4B-PH-SM4-TB (LF) (SN)	1
J111*	6510003401	B04B-EH-S (LF) (SN)	1
J281*	6510019971	52808-1071	1
J451*	6510027390	40FHY-RSM1-GAN-TF (LF) (SN)	1
J452*	6510027390	40FHY-RSM1-GAN-TF (LF) (SN)	1
J453*	6510027400	50FHY-RSM1-GAN-TF (LF) (SN)	1
J454*	6510027400	50FHY-RSM1-GAN-TF (LF) (SN)	1
J455*	6510027400	50FHY-RSM1-GAN-TF (LF) (SN)	1
DS111	5080000421	MBS 3 UA1W 70N ASSY	1
DS451	5030003360	TSC2G0379-E <SKD>	1
S601*	2260002740	LS8J2M-T	1
S602*	2260002740	LS8J2M-T	1
S603*	2260002740	LS8J2M-T	1
S604*	2260002740	LS8J2M-T	1
S611*	2260002740	LS8J2M-T	1
S612*	2260002740	LS8J2M-T	1
S613*	2260002740	LS8J2M-T	1
S614*	2260002740	LS8J2M-T	1
S621*	2260002740	LS8J2M-T	1
S622*	2260002740	LS8J2M-T	1
S623*	2260002740	LS8J2M-T	1
S624*	2260002740	LS8J2M-T	1
S631*	2260002740	LS8J2M-T	1
S632*	2260002740	LS8J2M-T	1
S633*	2260002740	LS8J2M-T	1
S634*	2260002740	LS8J2M-T	1
S641*	2260002740	LS8J2M-T	1
S642*	2260002740	LS8J2M-T	1
S643*	2260002740	LS8J2M-T	1
S644*	2260002740	LS8J2M-T	1
S651*	2260002740	LS8J2M-T	1
S652*	2260002740	LS8J2M-T	1
S653*	2260002740	LS8J2M-T	1
S654*	2260002740	LS8J2M-T	1
S661*	2260002740	LS8J2M-T	1
S662*	2260002740	LS8J2M-T	1
S663*	2260002740	LS8J2M-T	1
S664*	2260002740	LS8J2M-T	1
S671*	2260002740	LS8J2M-T	1
S673*	2260002740	LS8J2M-T	1
S681*	2260002740	LS8J2M-T	1
S682*	2260002740	LS8J2M-T	1
S683*	2260002740	LS8J2M-T	1
S691*	2260002740	LS8J2M-T	1
S692*	2260002740	LS8J2M-T	1
S693*	2260002740	LS8J2M-T	1
S694*	2260002740	LS8J2M-T	1
S695*	2260002740	LS8J2M-T	1
S701*	2260002740	LS8J2M-T	1
S702*	2260002740	LS8J2M-T	1
S703*	2260002740	LS8J2M-T	1
S704*	2260002740	LS8J2M-T	1
S711*	2260002740	LS8J2M-T	1
S712*	2260002740	LS8J2M-T	1
S713*	2260002740	LS8J2M-T	1
S714*	2260002740	LS8J2M-T	1
S731*	2260002740	LS8J2M-T	1
S732*	2260002740	LS8J2M-T	1
S733*	2260002740	LS8J2M-T	1
S734*	2260002740	LS8J2M-T	1
S735*	2260002740	LS8J2M-T	1
S736*	2260002740	LS8J2M-T	1
T113*	5910001150	6373-T170 (CEPH145B)	1
MP111*	8510019770	3183 CFL CASE	1
MP112*	8930081100	THERMAL SHEET (BX)TC1000HS1.4	1
MP451	8930079340	3183 LCD HOLDER	1
MP452	8930079360	3183 LCD SPONGE	1
MP453	8210025710	3183 REFLECTOR	1
MP454	8930079370	3183 WHITE SHEET	1
MP455	8930079730	3183 LCD FILTER	1
MP456	8930074720	SPONGE (JX)	4

[VR-A UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J2*	6510027290	52808-0671	1

[VR-B UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J2*	6510019971	52808-1071	1

[VR-C UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1*	6510027290	52808-0671	1

[PBT UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1*	6510027290	52808-0671	1
S1	2250000410	TP90D96E20-30F-2178-1	1

[RIT UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1*	6510027290	52808-0671	1
S1	2250000650	EVEGEC2F2524B	1

[JACK UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1*	6510020711	52793-1070 (1090)	1
J2*	6510027890	01J0370-00	1
J102*	6510023900	LGR4619-7000	1

[MIC UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1	6510000191	FM214-8SS (P)-1	1
J2*	6510019971	52808-1071	1

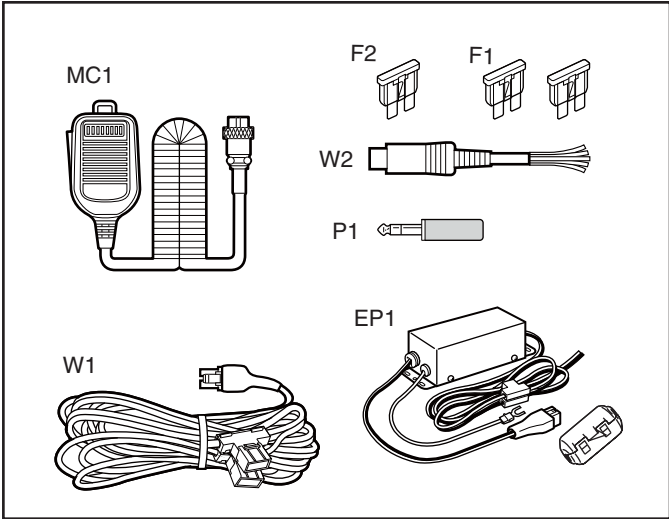
*: Refer to "BOARD LAYOUTS" for the location.

** : Refer to "GENERAL WIRING" for the connection

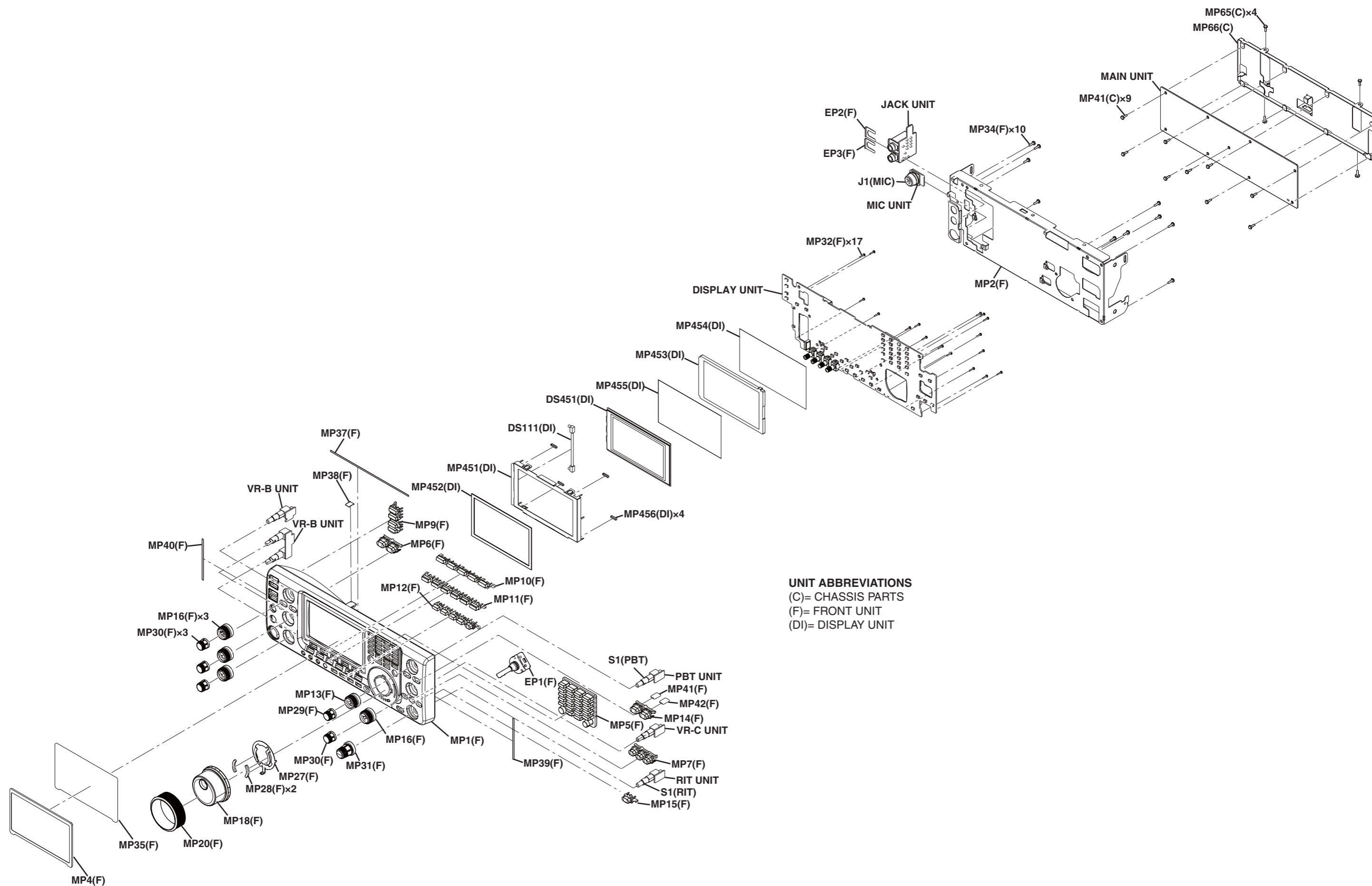
Screw abbreviations A, B0, BT: Self-tapping PH: Pan head ZK: Black NI-ZU: Nickel-Zinc SUS: Stainless

[ACCESSORIES]

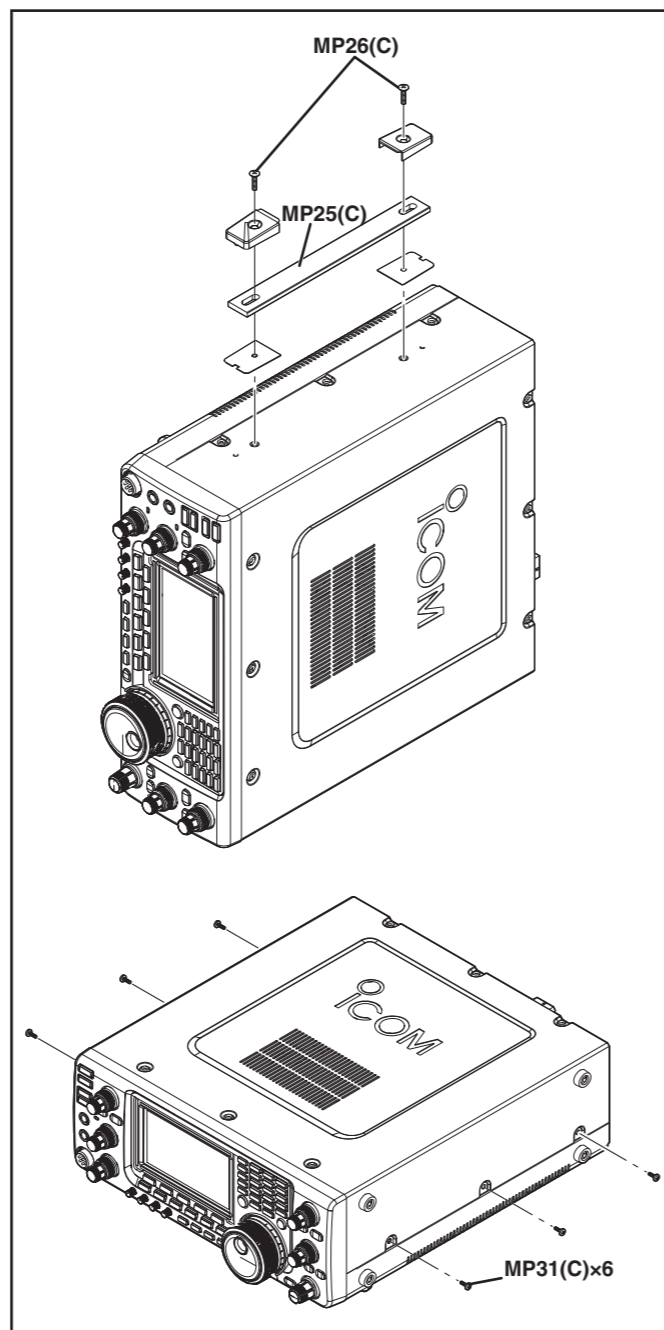
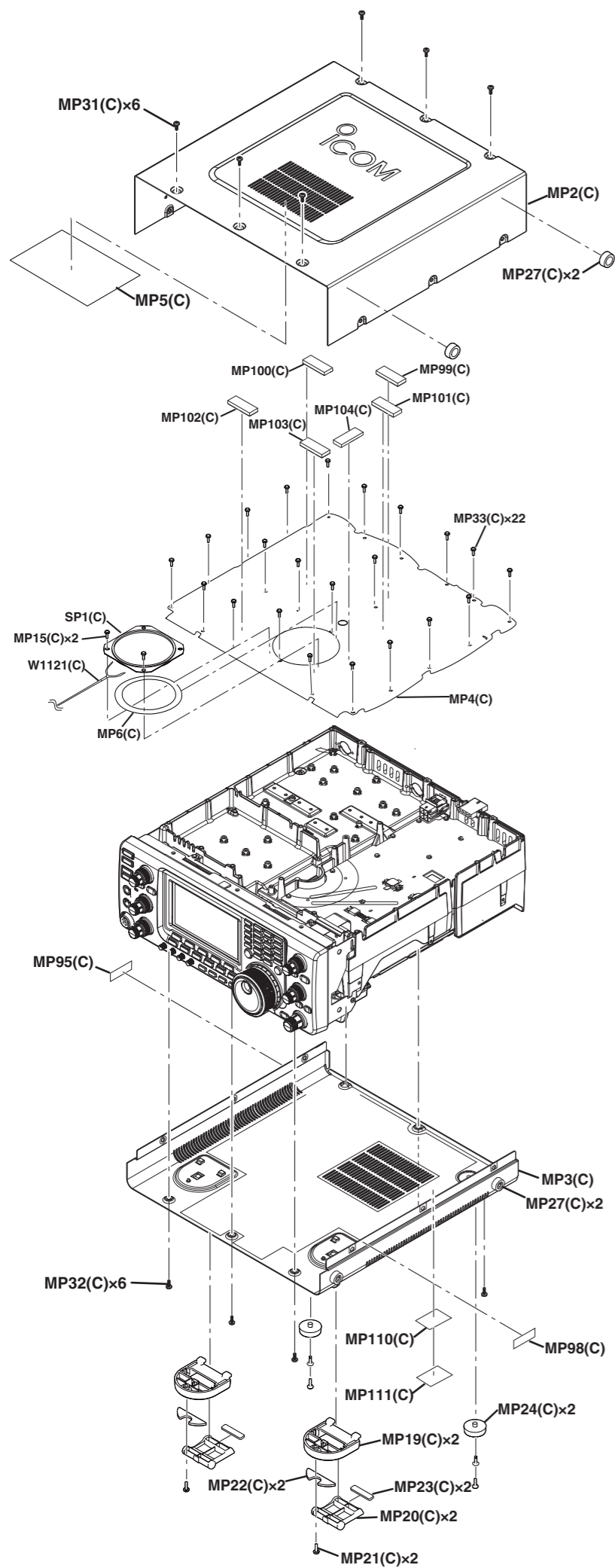
REF NO.	ORDER NO.	DESCRIPTION	QTY.
P1	5610000410	AP-319	1
F1	5210000840	FUSE ATC-30	2
F2	5210000940	FUSE 1205	1
MC1	(Optional)	HM-36	1
W1	8900013980	OPC-1457	[USA] 1
	8900013980	OPC-1457	[TPE] 1
	8900013980	OPC-1457	[KOR] 1
	8900013980	OPC-1457	[CHN] 1
	8900013980	OPC-1457	[EXP] 1
W2	8900006110	OPC-596	1
EP1	0880003060	EX-1874 #03 OPC-2095	[EUR] 1
	0880003060	EX-1874 #03 OPC-2095	[EUR-01] 1
	0880003060	EX-1874 #03 OPC-2095	[ITR] 1
	0880003060	EX-1874 #03 OPC-2095	[ESP] 1
	0880003060	EX-1874 #03 OPC-2095	[FRA] 1



• FRONT UNIT

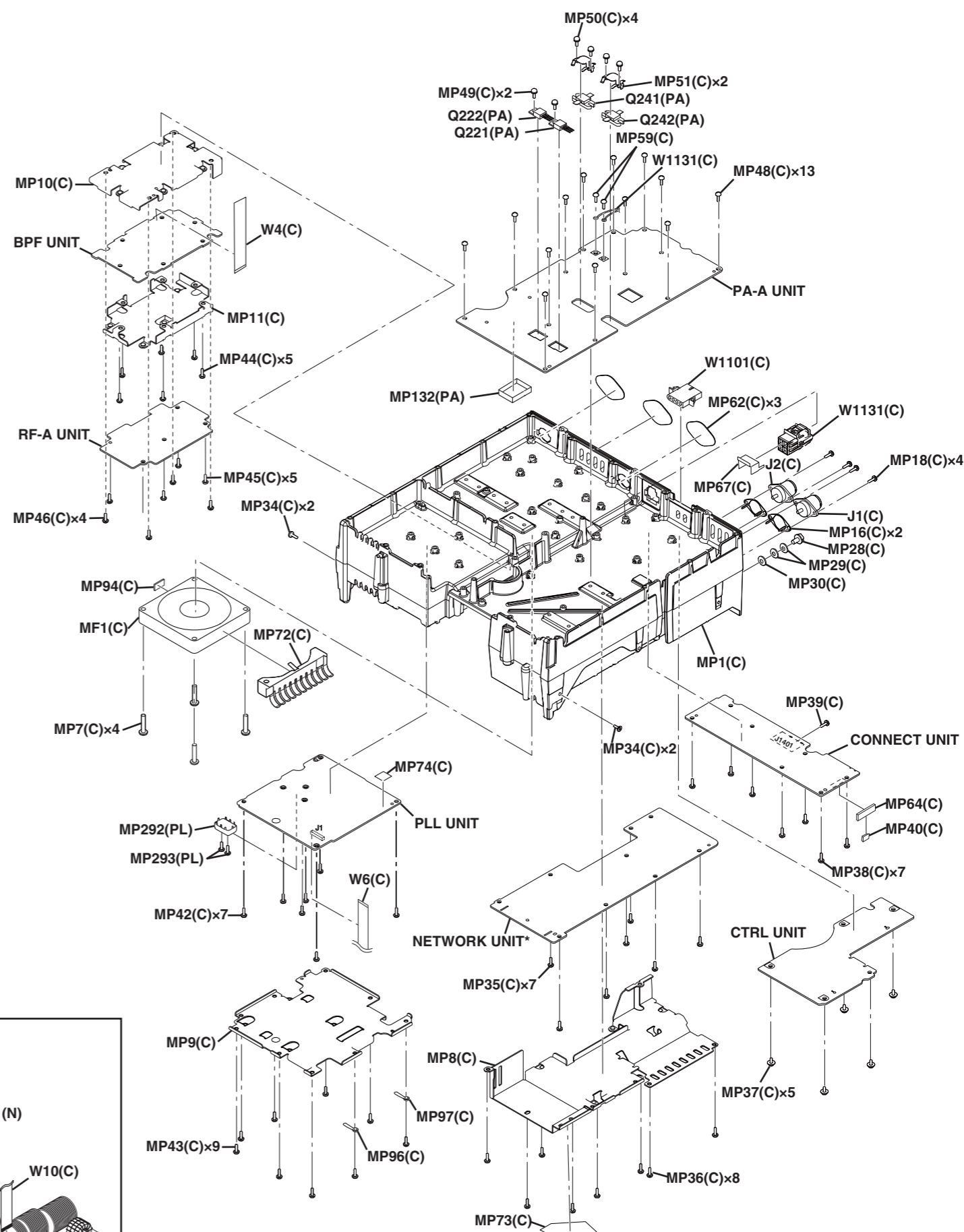
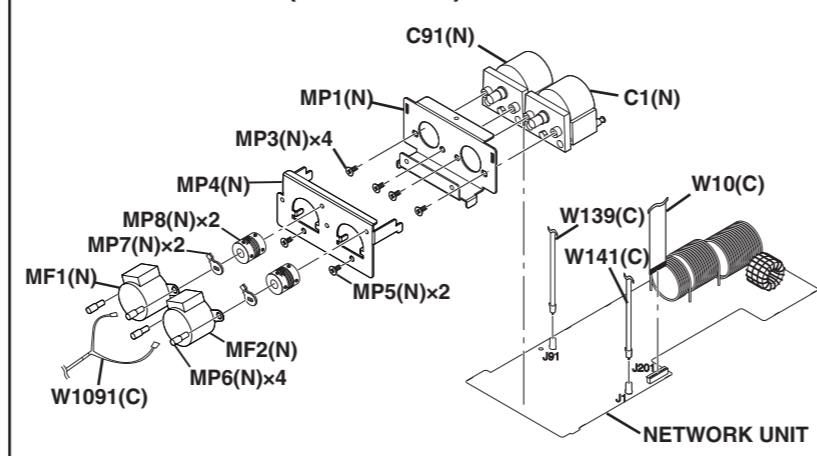


• CHASSIS

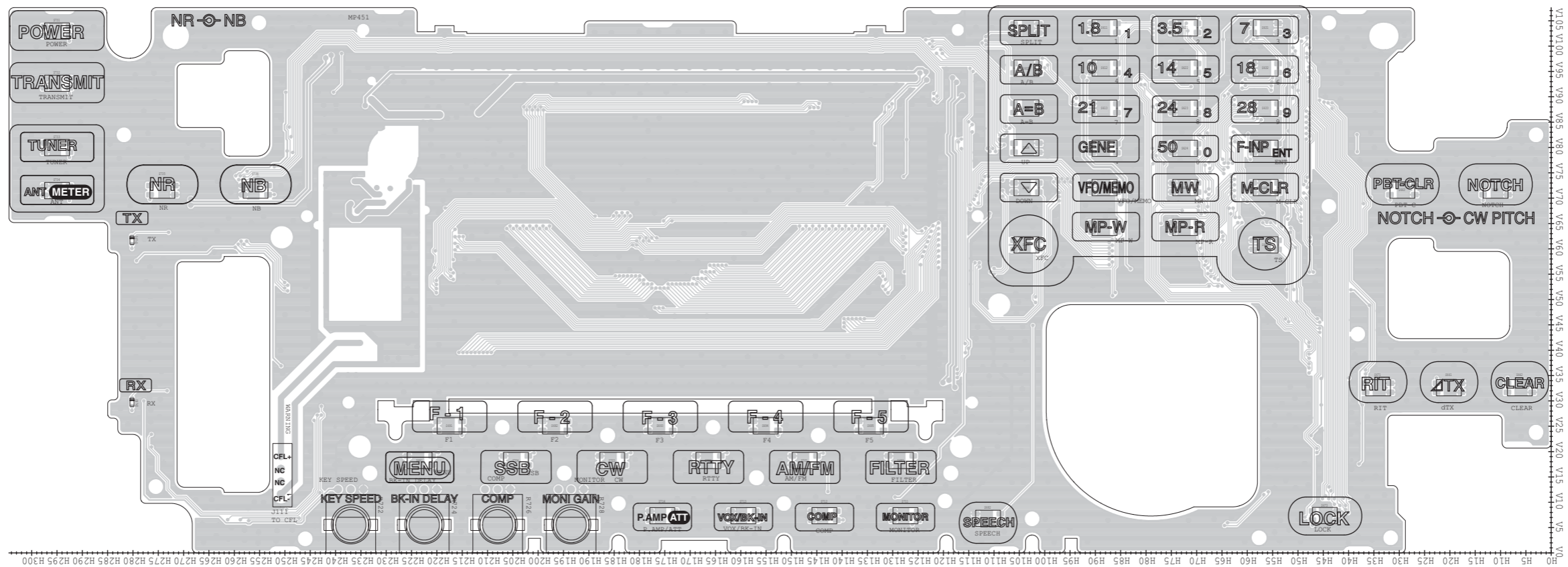


UNIT ABBREVIATIONS
 (C)= CHASSIS PARTS
 (PL)= PLL UNIT
 (PA)= PA-A UNIT
 (N)= NETWORK UNIT

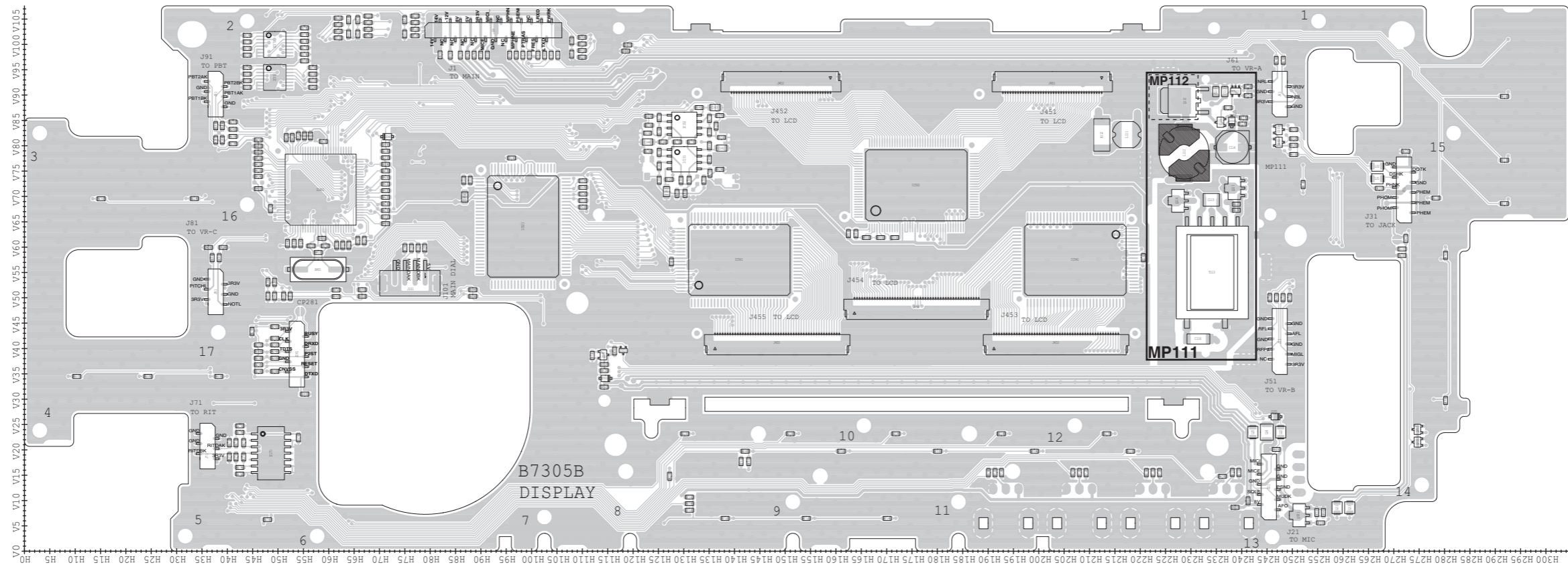
***NETWORK UNIT (TOP VIEW)**



• DISPLAY BOARD
(TOP VIEW)

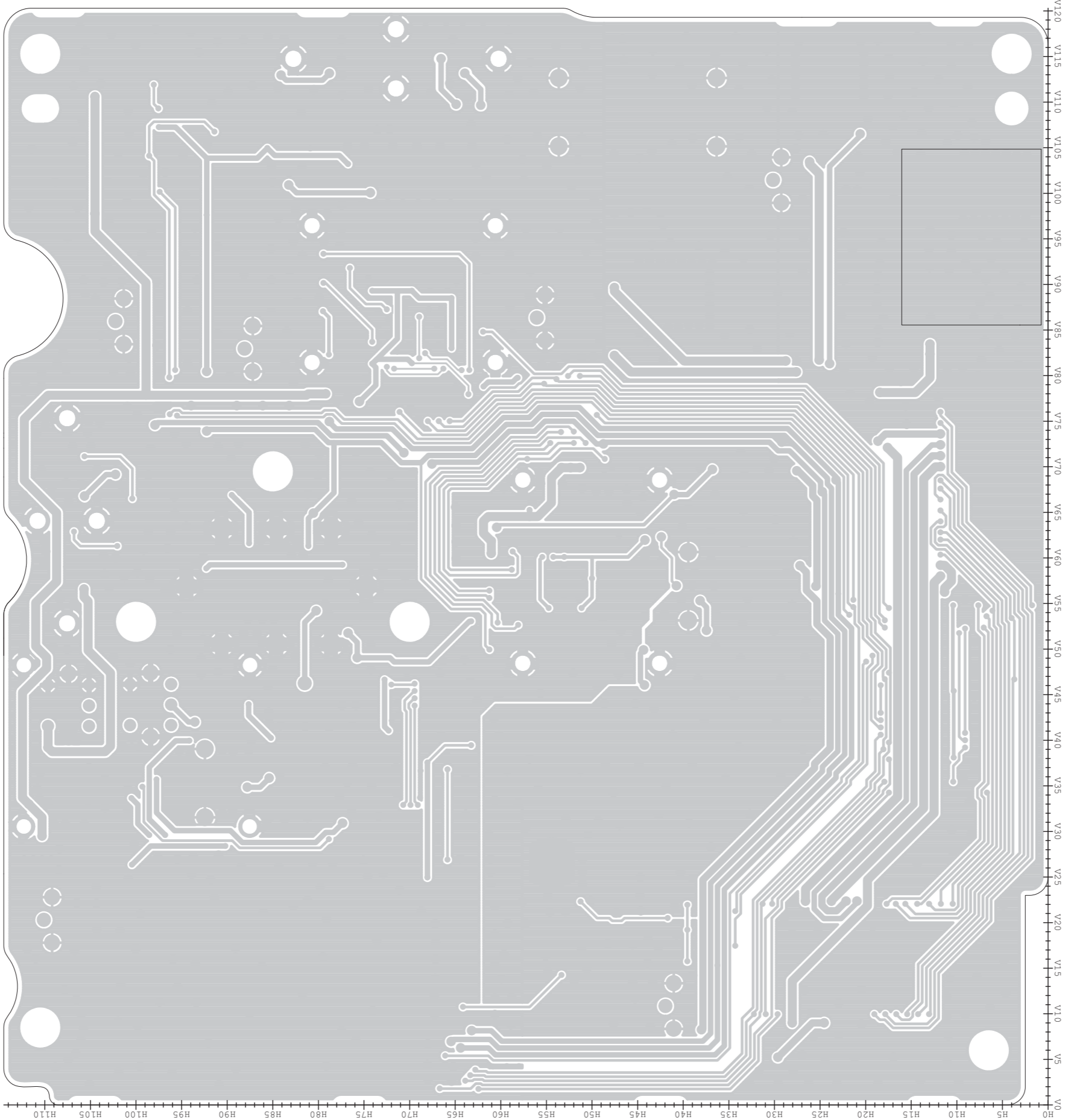


• DISPLAY BOARD
(BOTTOM VIEW)

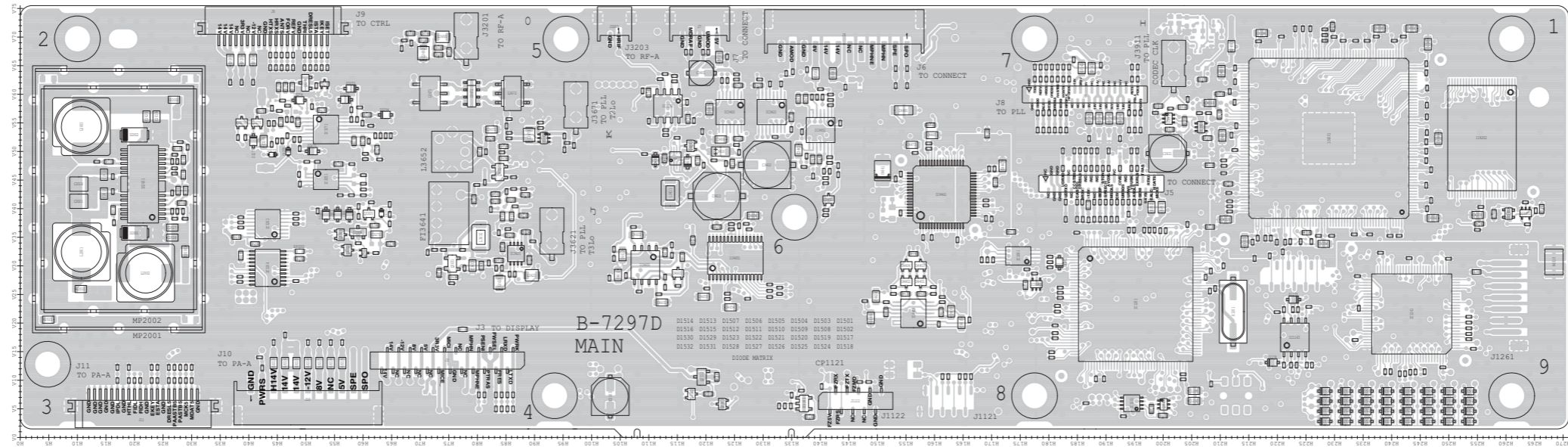


The combination of this page and next page shows the top side and bottom side of actual P.C. board.

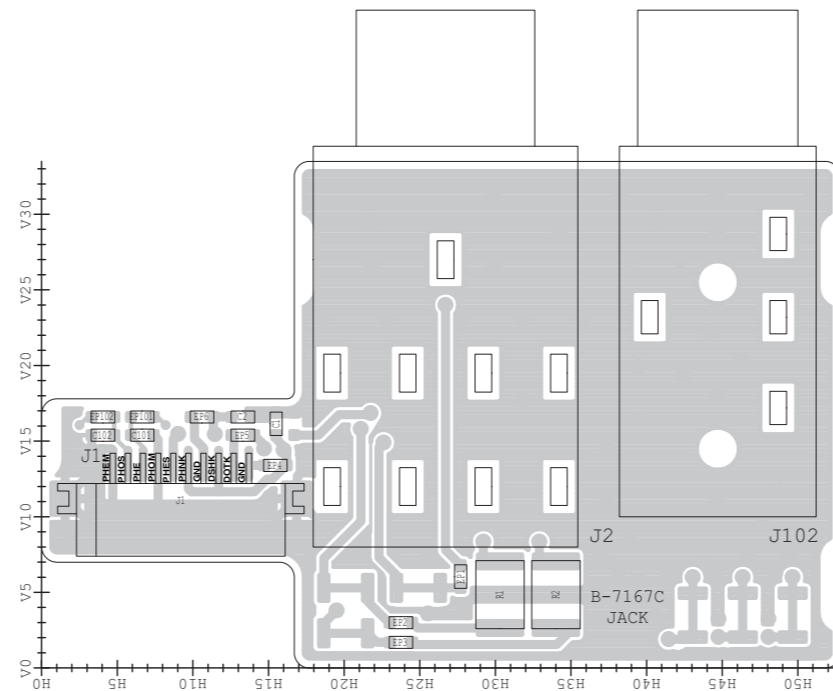
• PLL UNIT
(BOTTOM VIEW)



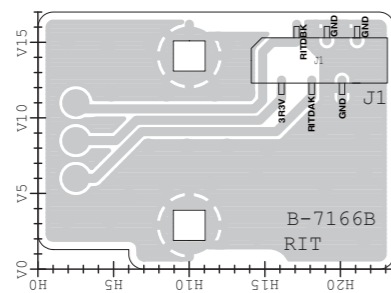
• MAIN UNIT
(TOP VIEW)



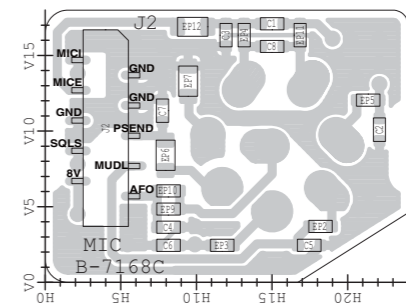
• JACK UNIT
(TOP VIEW)



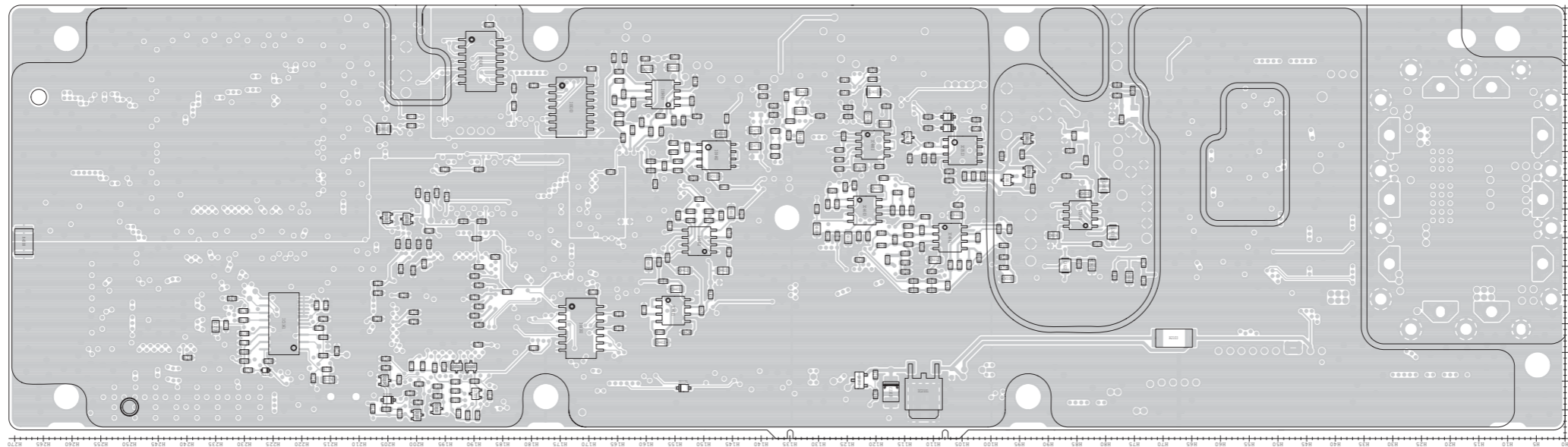
• RIT UNIT
(TOP VIEW)



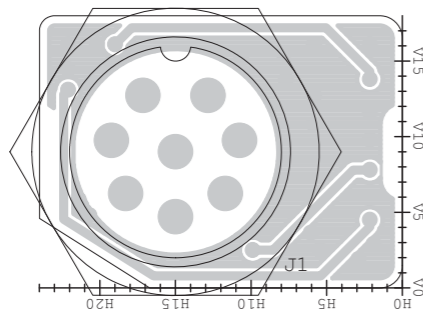
• MIC UNIT
(TOP VIEW)



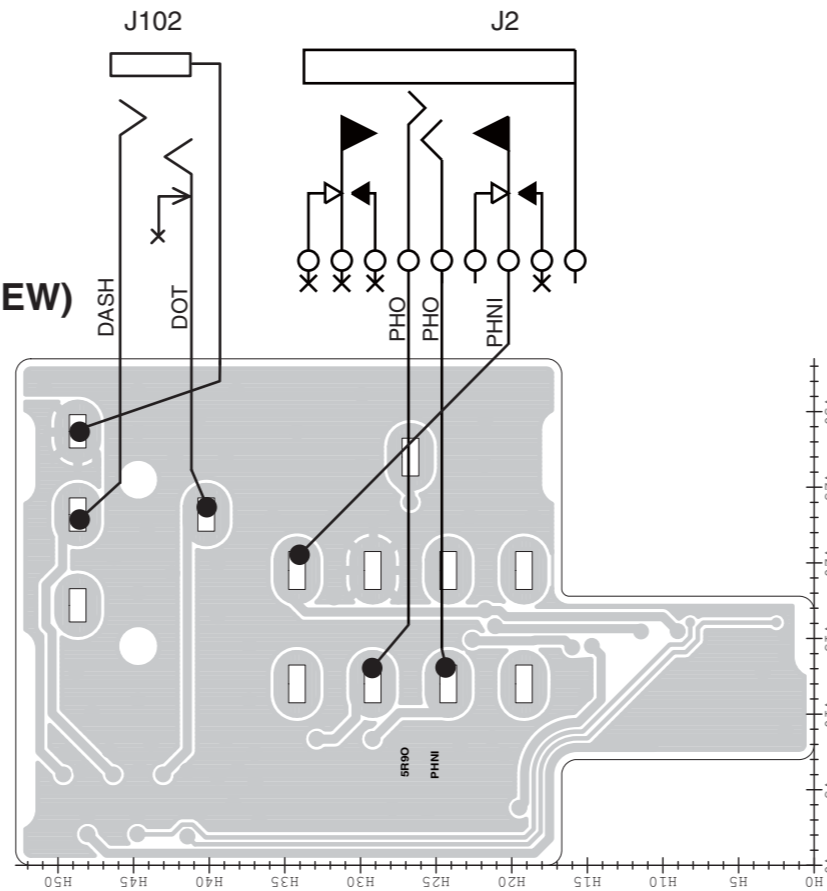
• MAIN UNIT
(BOTTOM VIEW)



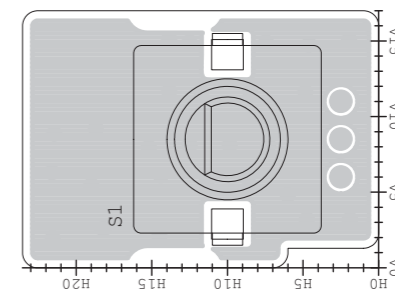
• MIC UNIT
(BOTTOM VIEW)



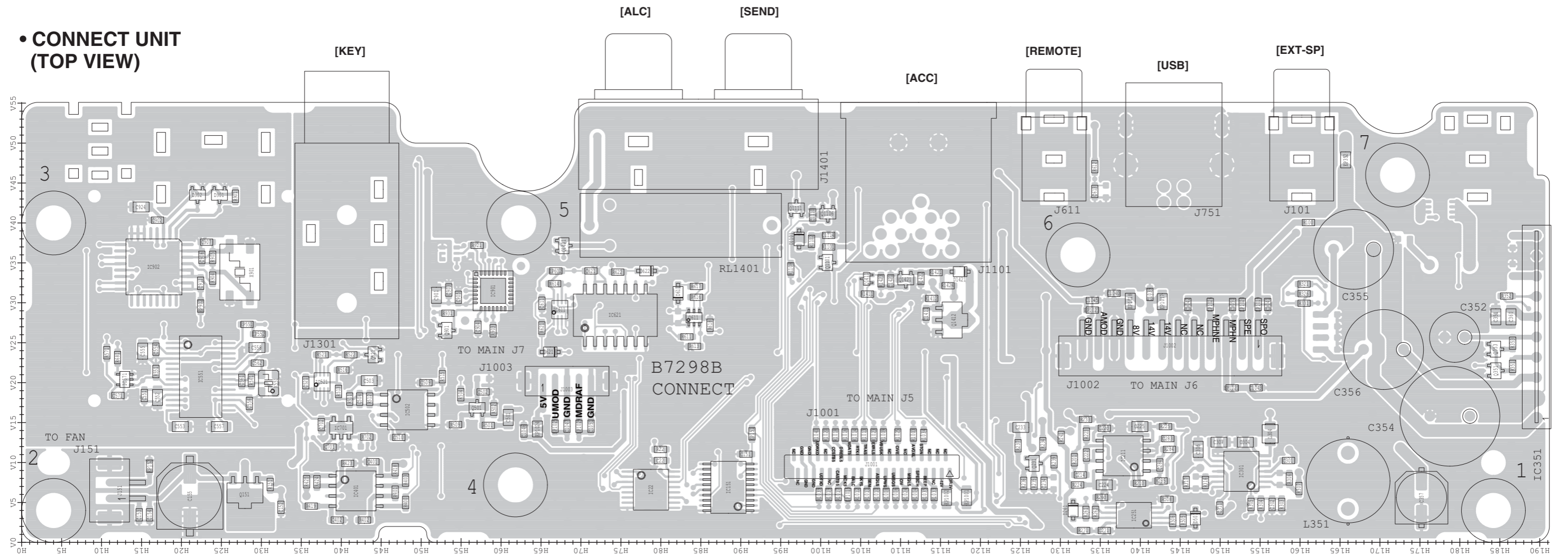
• JACK UNIT
(BOTTOM VIEW)

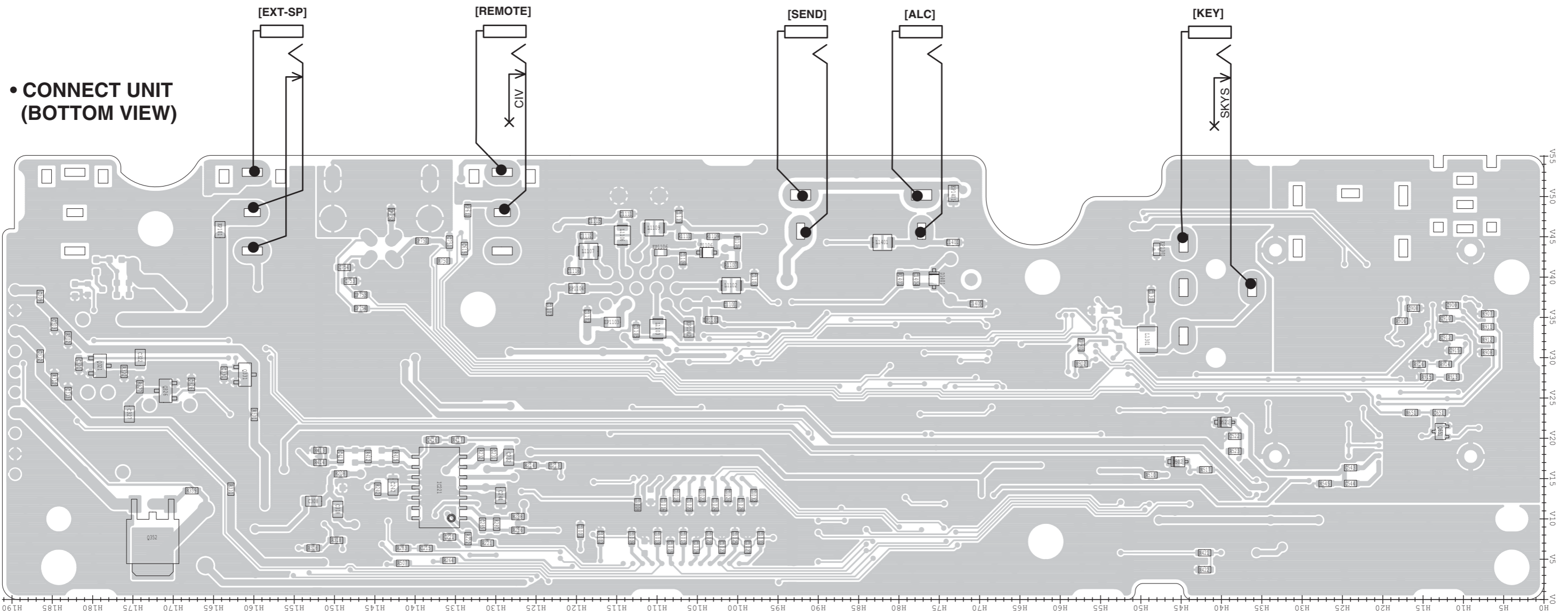


• RIT UNIT
(BOTTOM VIEW)

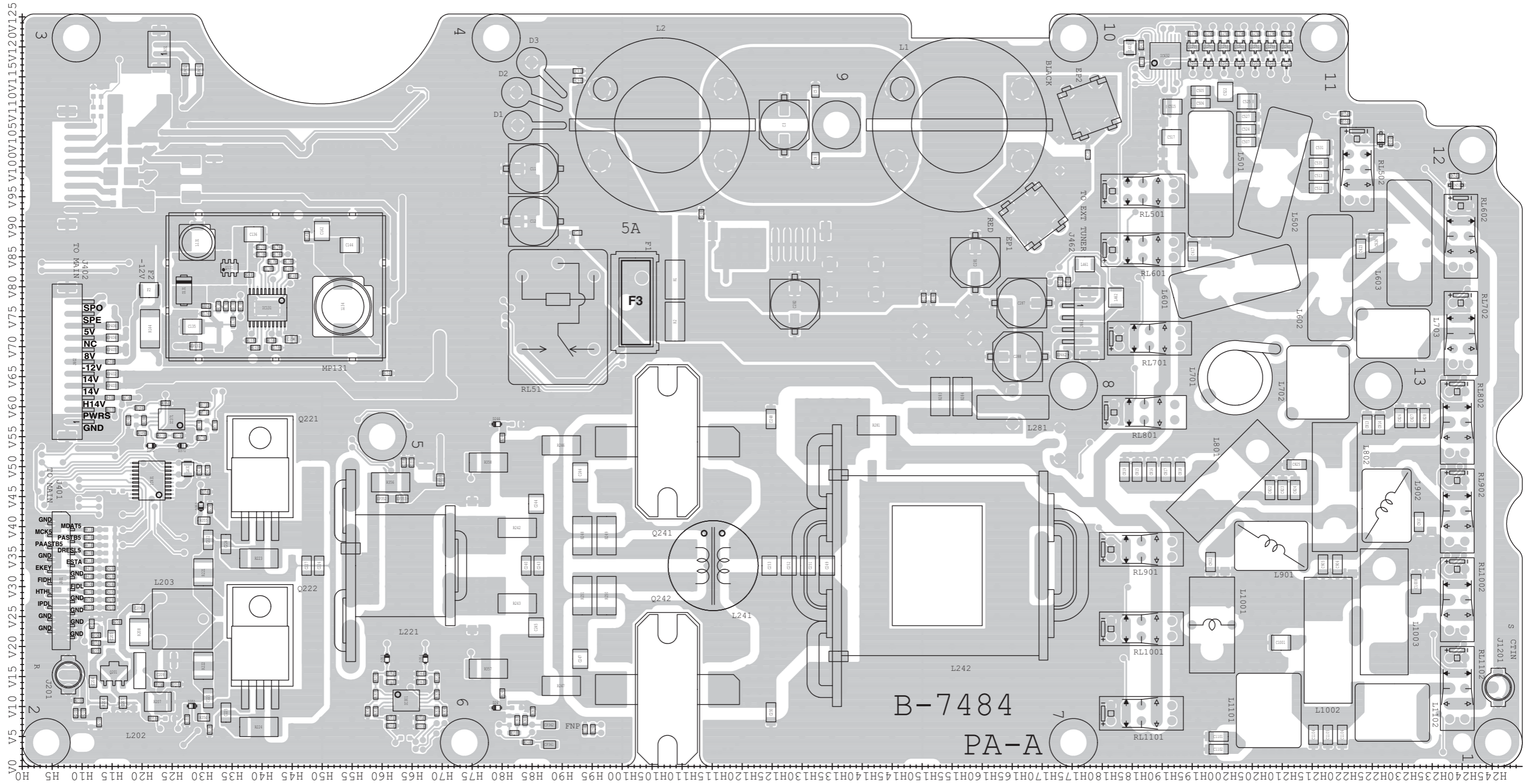


• CONNECT UNIT
(TOP VIEW)

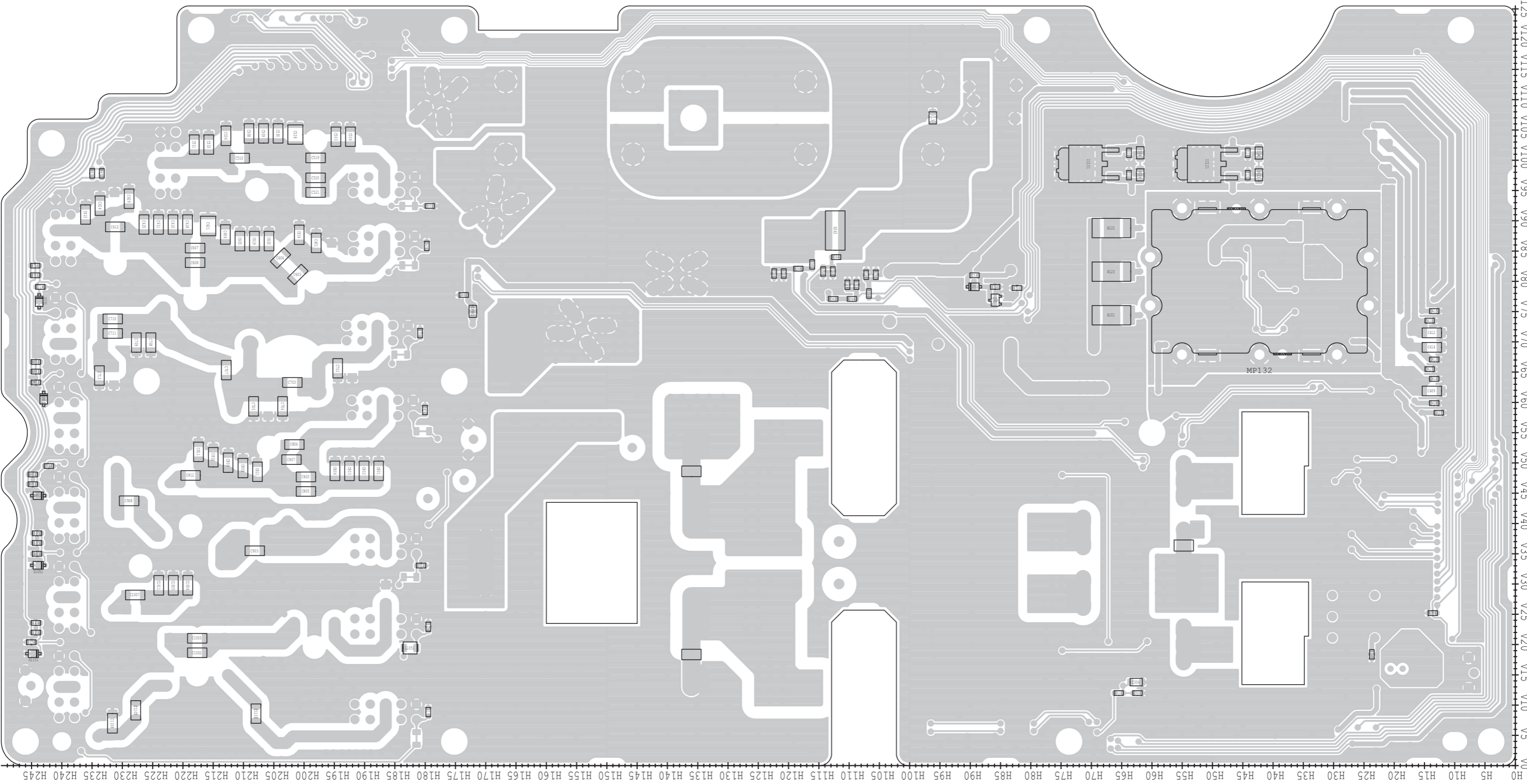




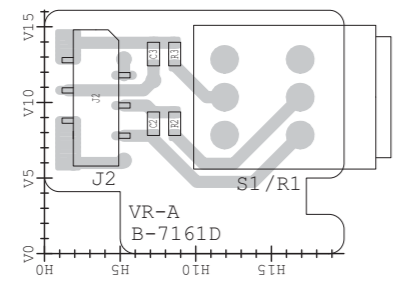
• PA-A UNIT
(TOP VIEW)



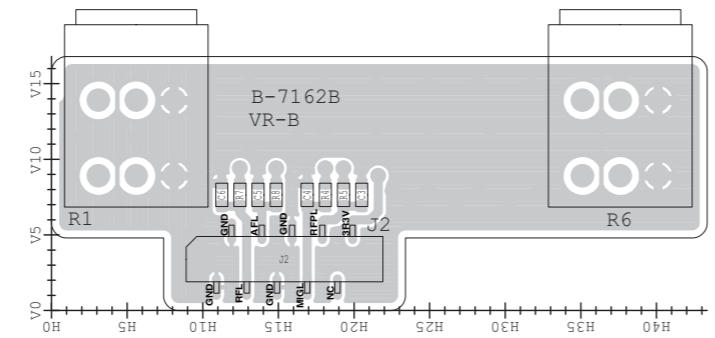
• PA-A UNIT
(BOTTOM VIEW)



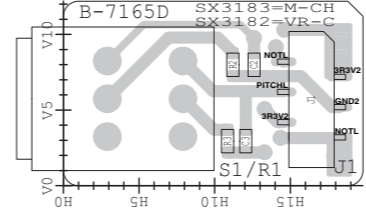
• VR-A UNIT (TOP VIEW)



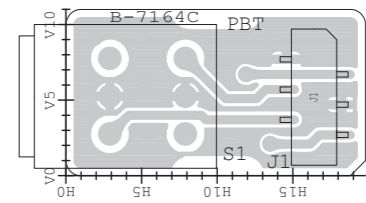
• VR-B UNIT (TOP VIEW)



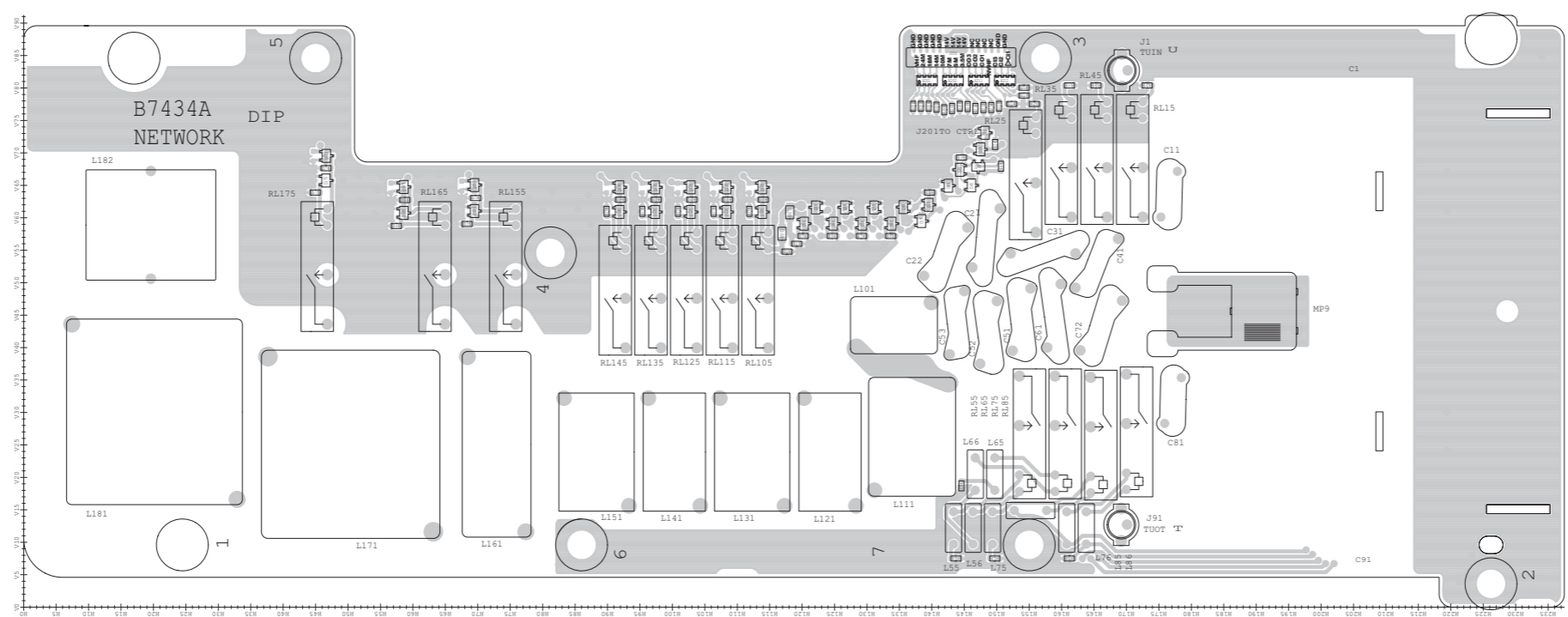
• VR-C UNIT (TOP VIEW)



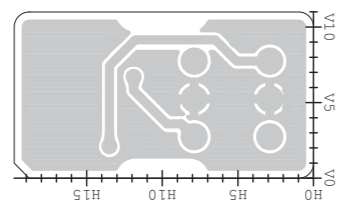
• PBT UNIT (TOP VIEW)



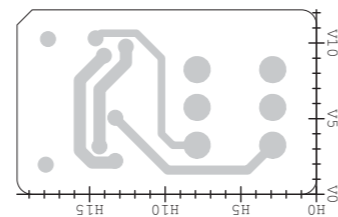
• NETWORK UNIT (TOP VIEW)



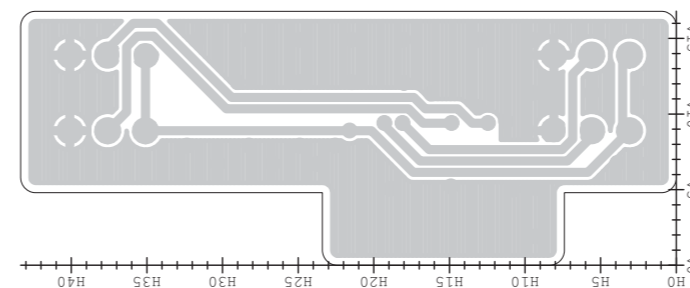
• PBT UNIT
(BOTTOM VIEW)



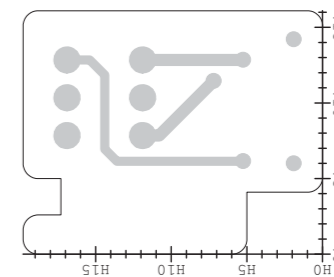
• VR-C UNIT
(BOTTOM VIEW)



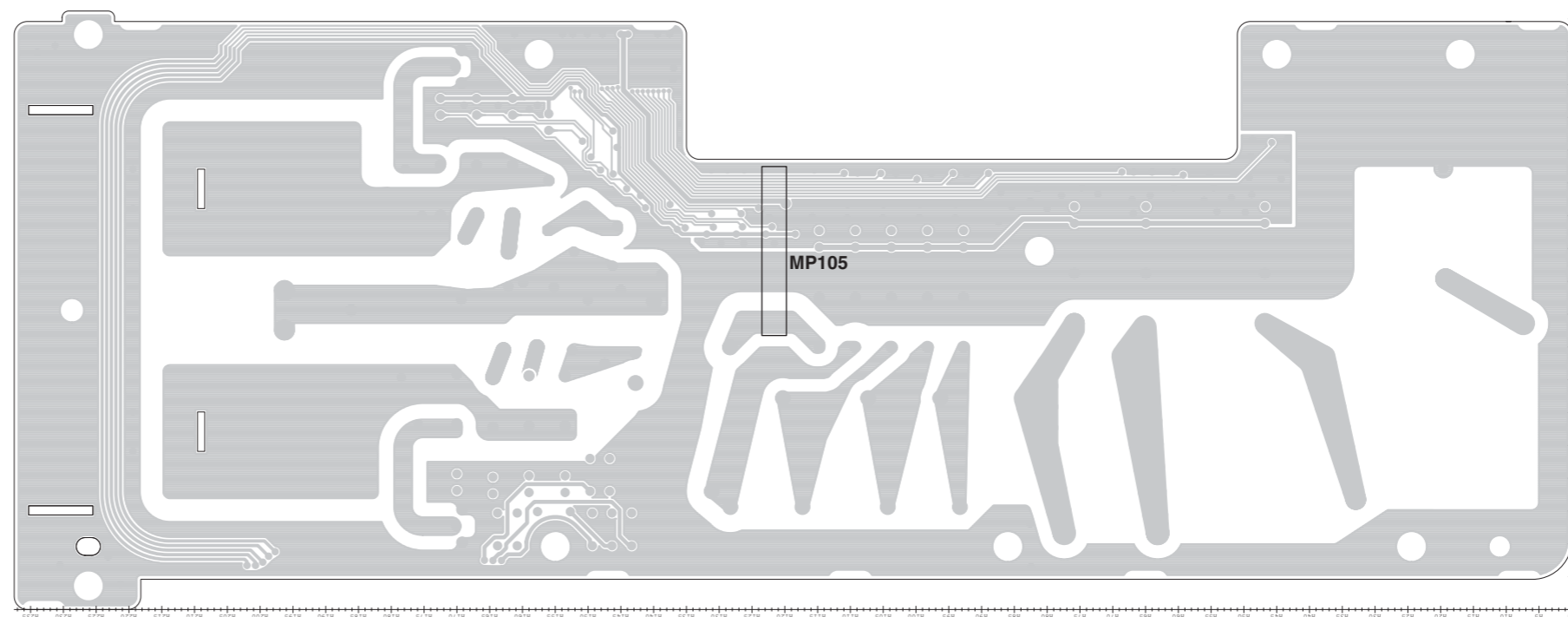
• VR-B UNIT
(BOTTOM VIEW)



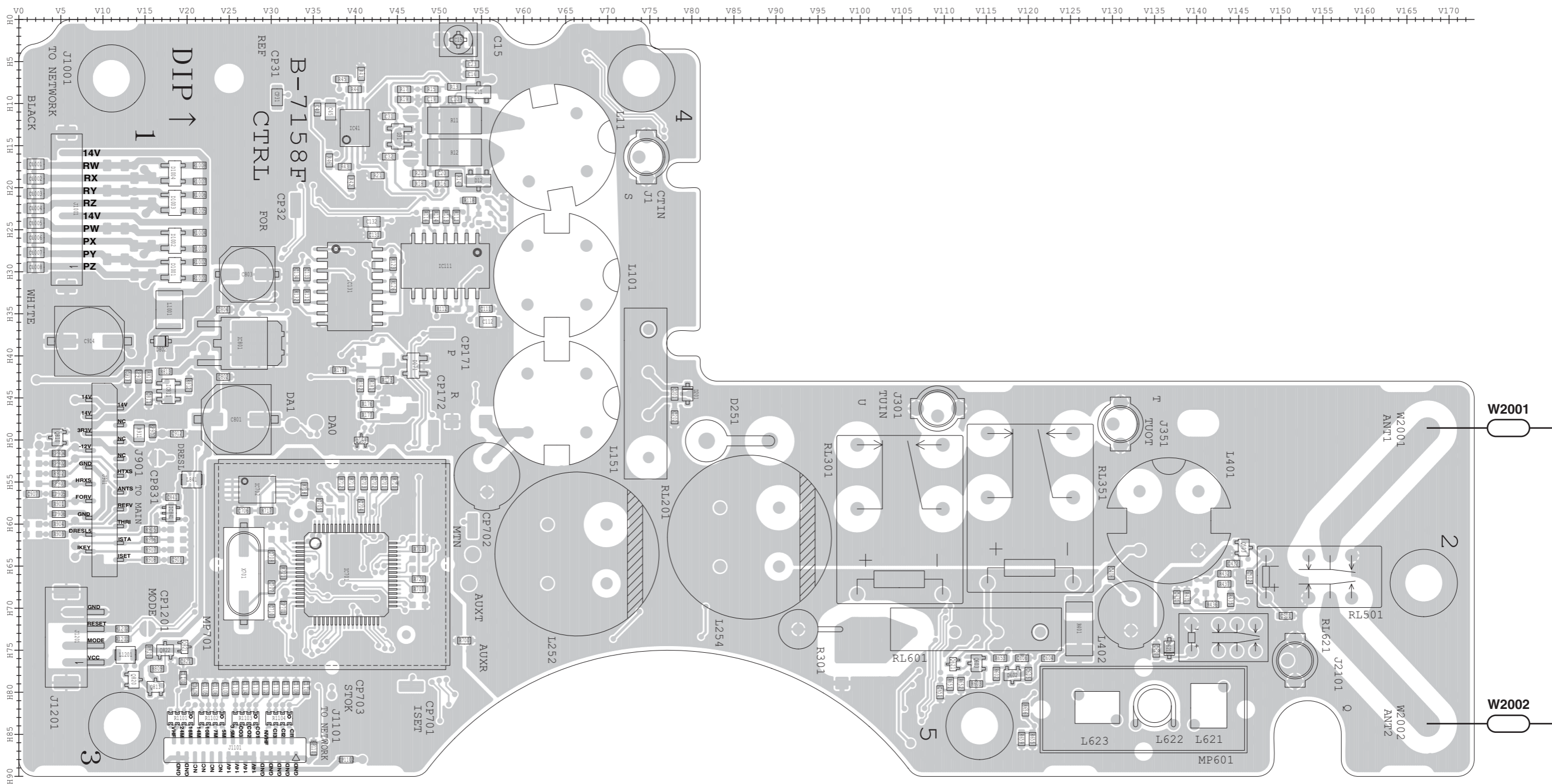
• VR-A UNIT
(BOTTOM VIEW)



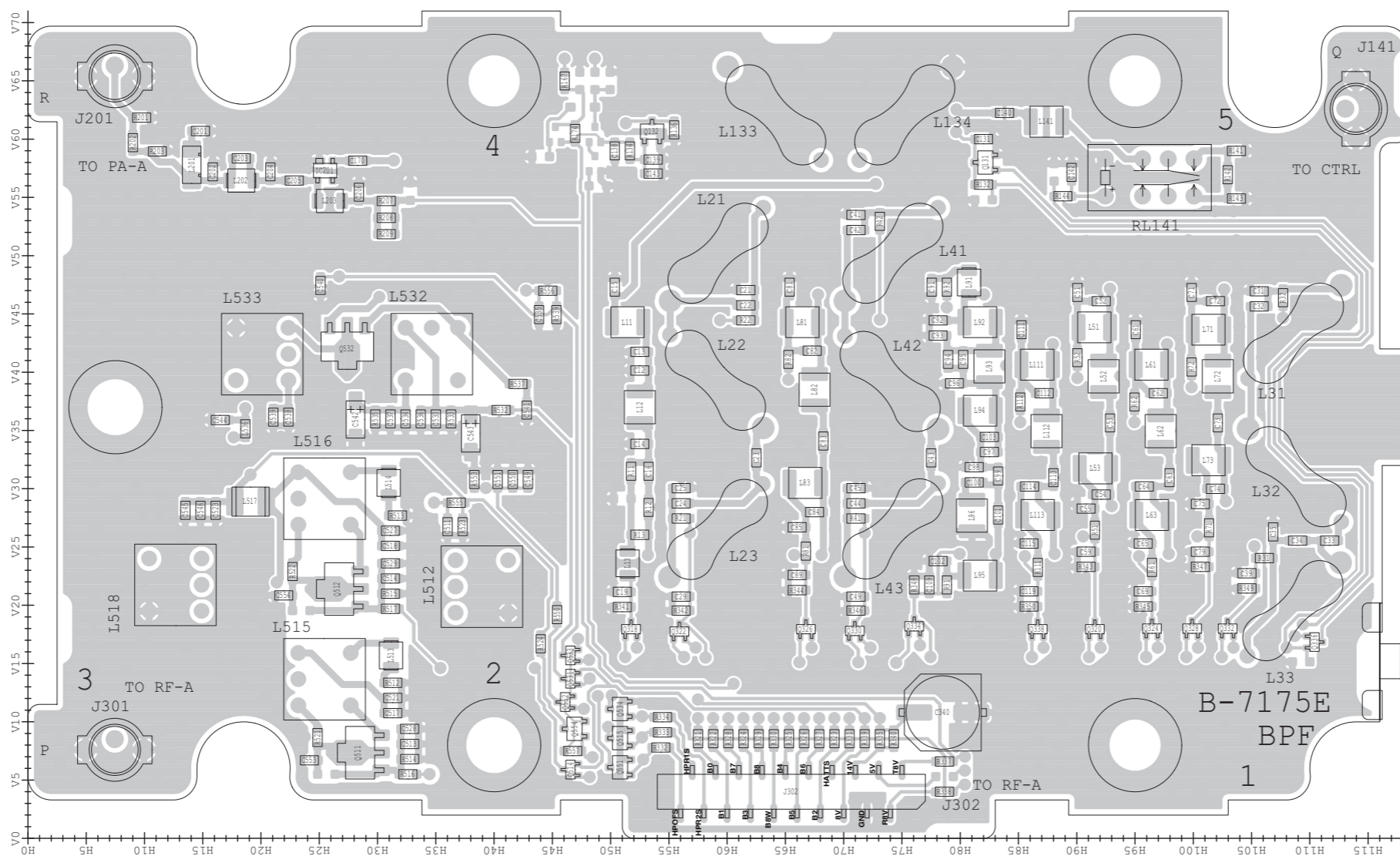
• NETWORK UNIT
(BOTTOM VIEW)



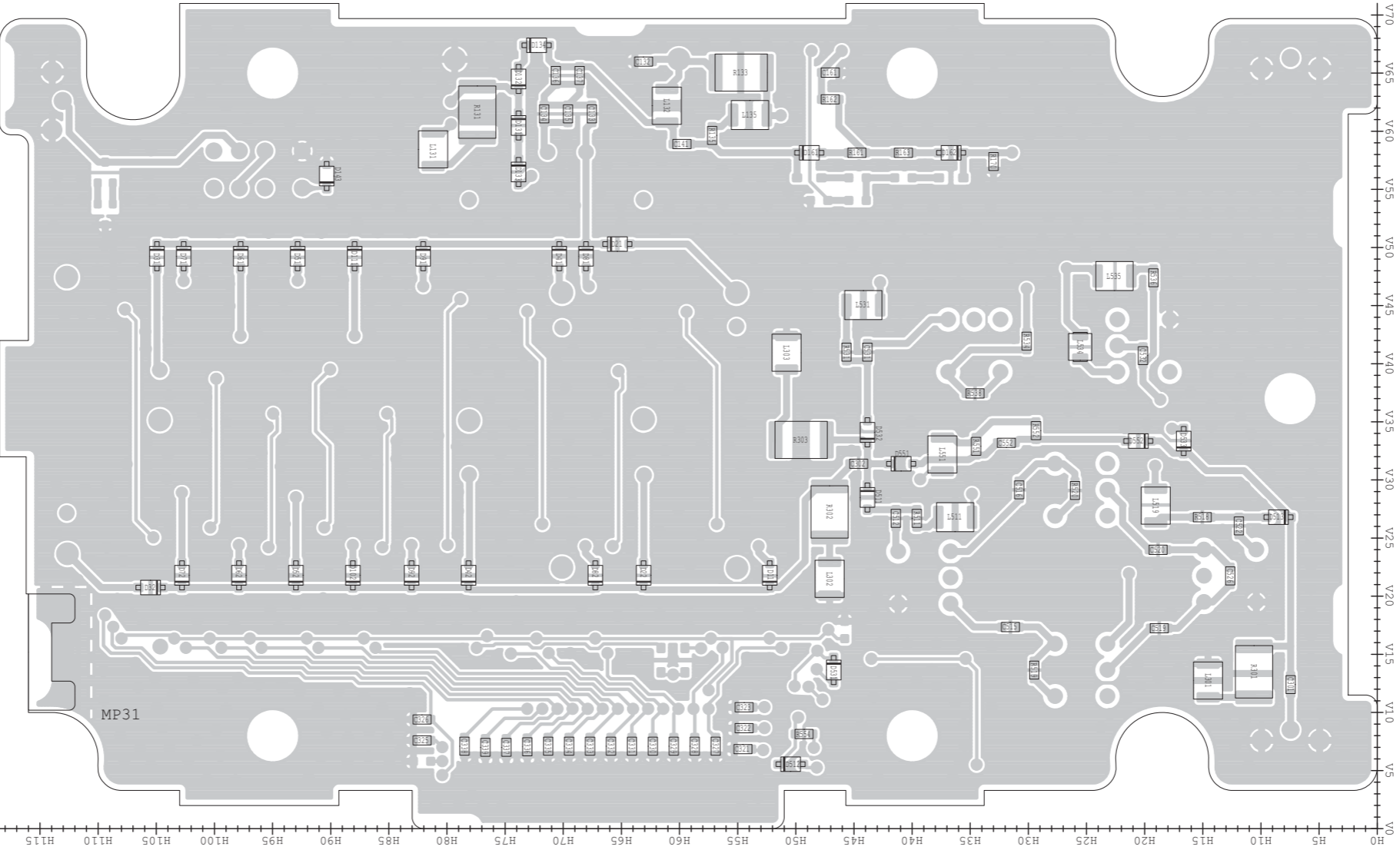
• CTRL UNIT (TOP VIEW)



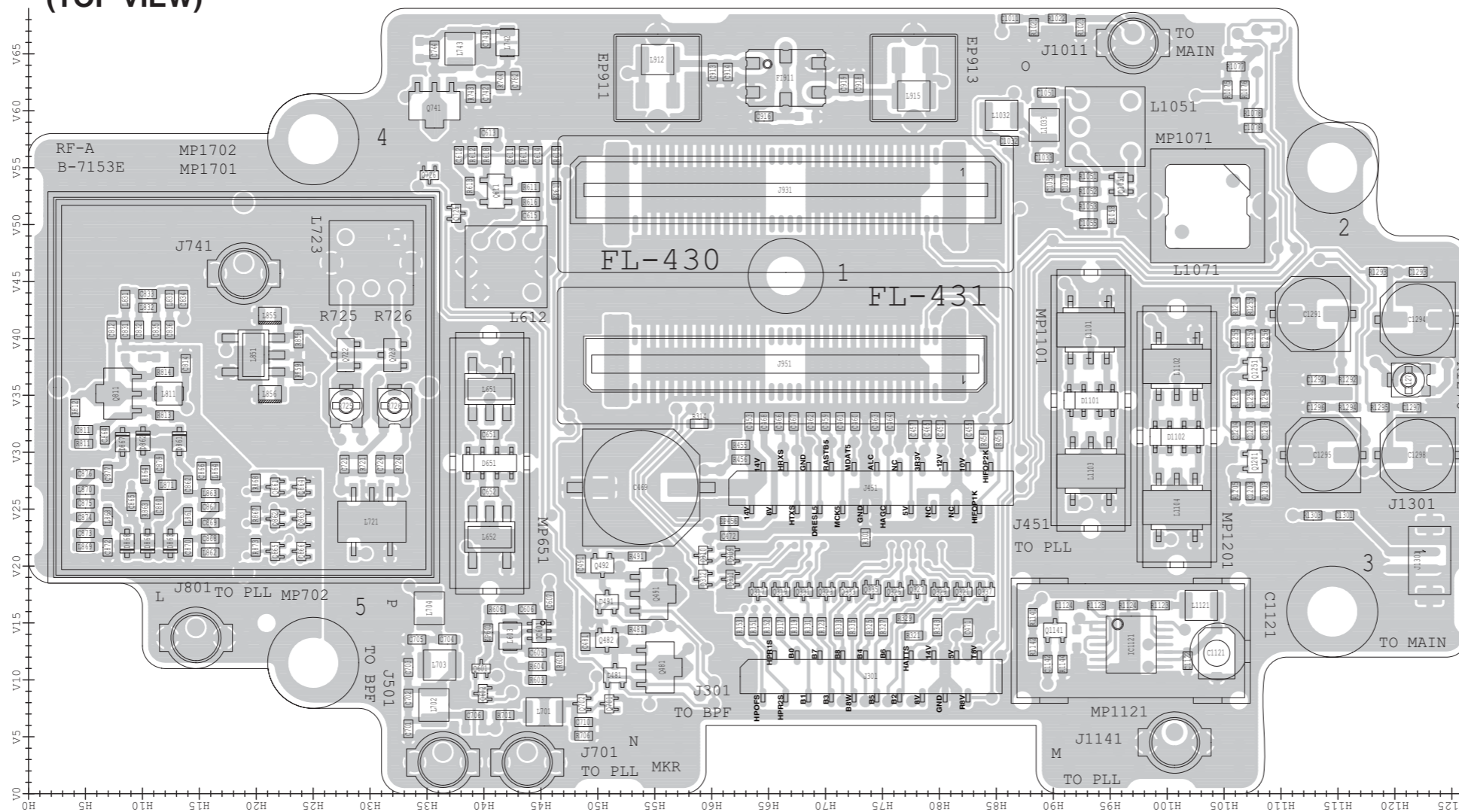
• BPF UNIT
(TOP VIEW)



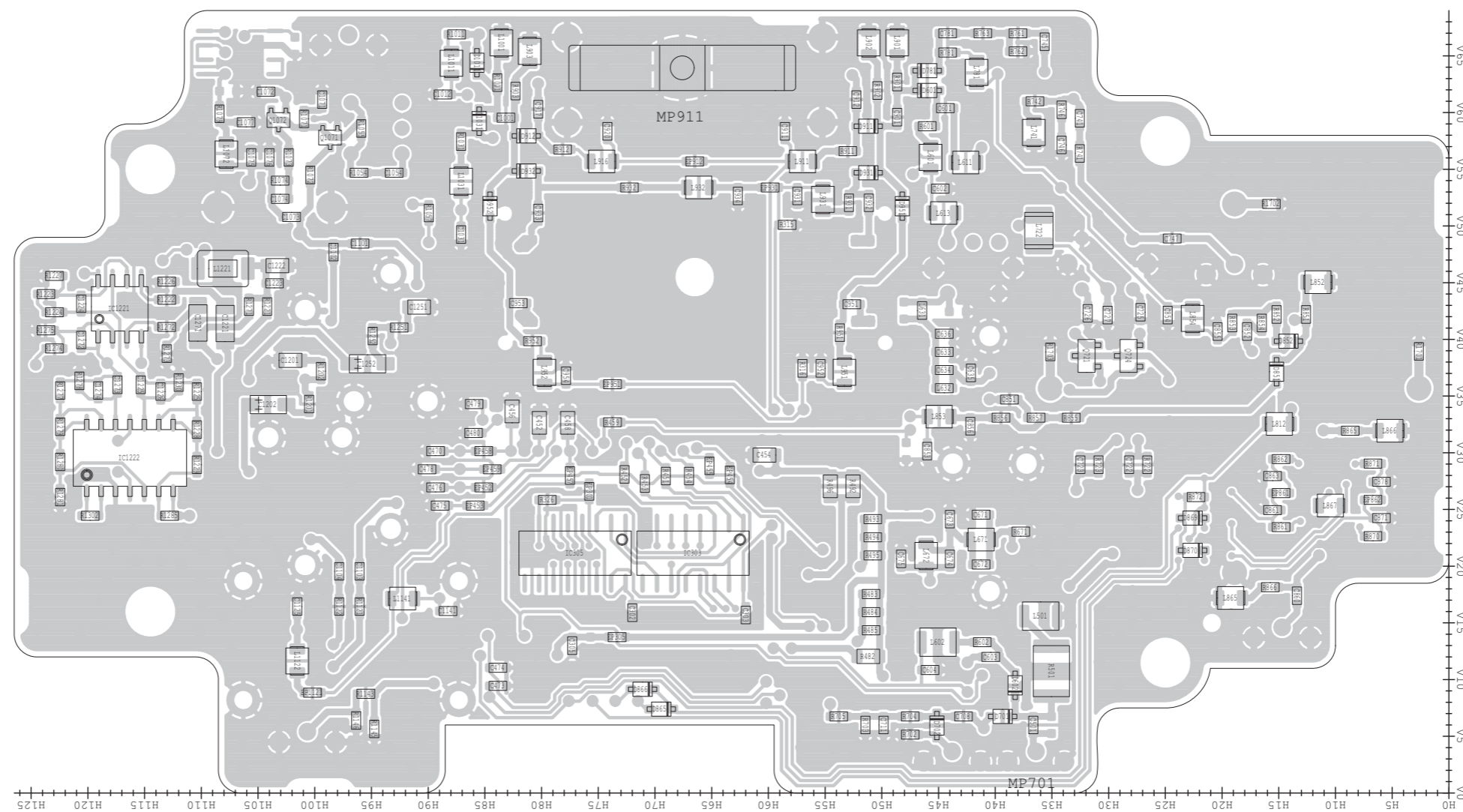
• BPF UNIT
(BOTTOM VIEW)

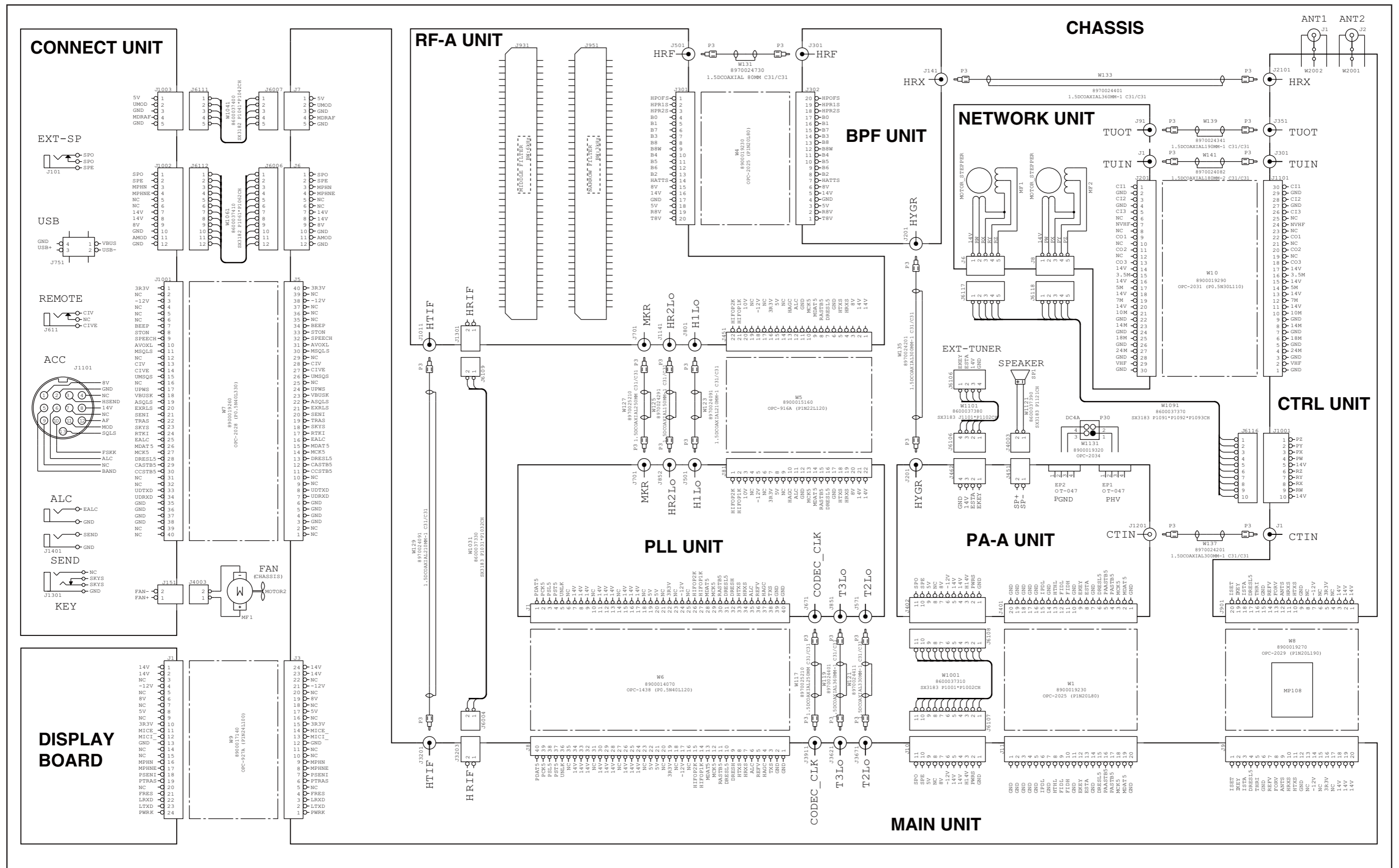


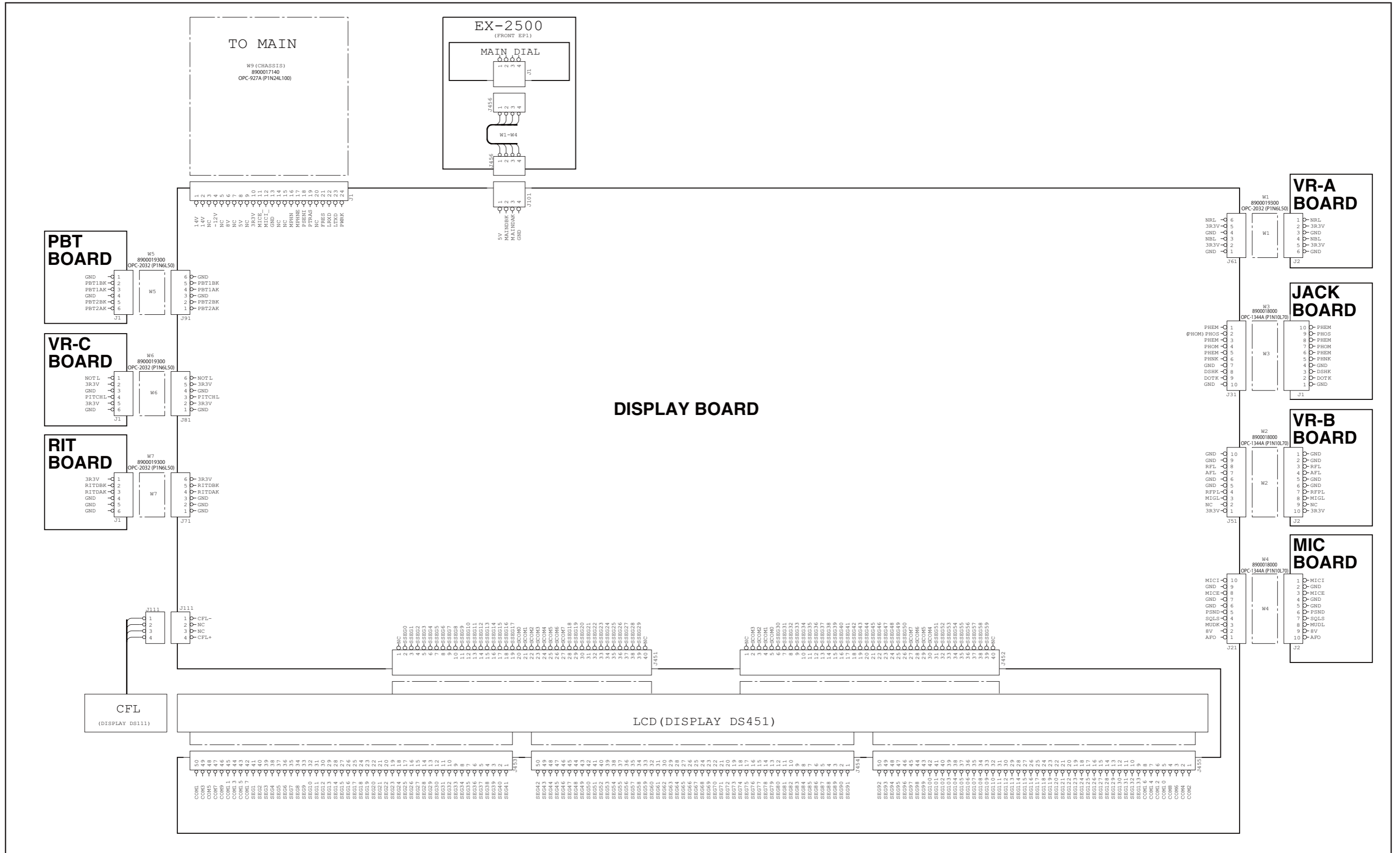
• RF-A UNIT
(TOP VIEW)



• RF-A UNIT
(BOTTOM VIEW)

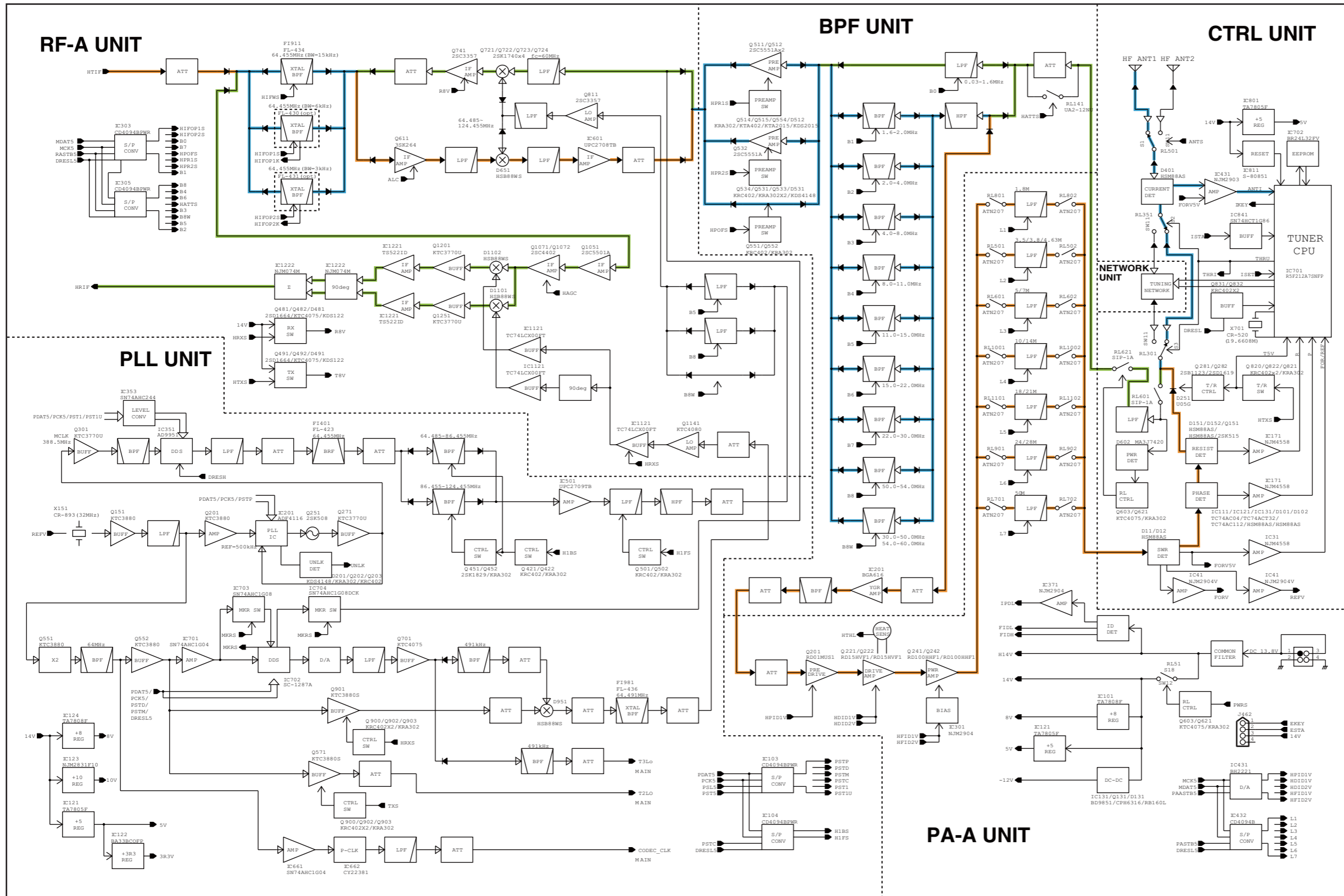


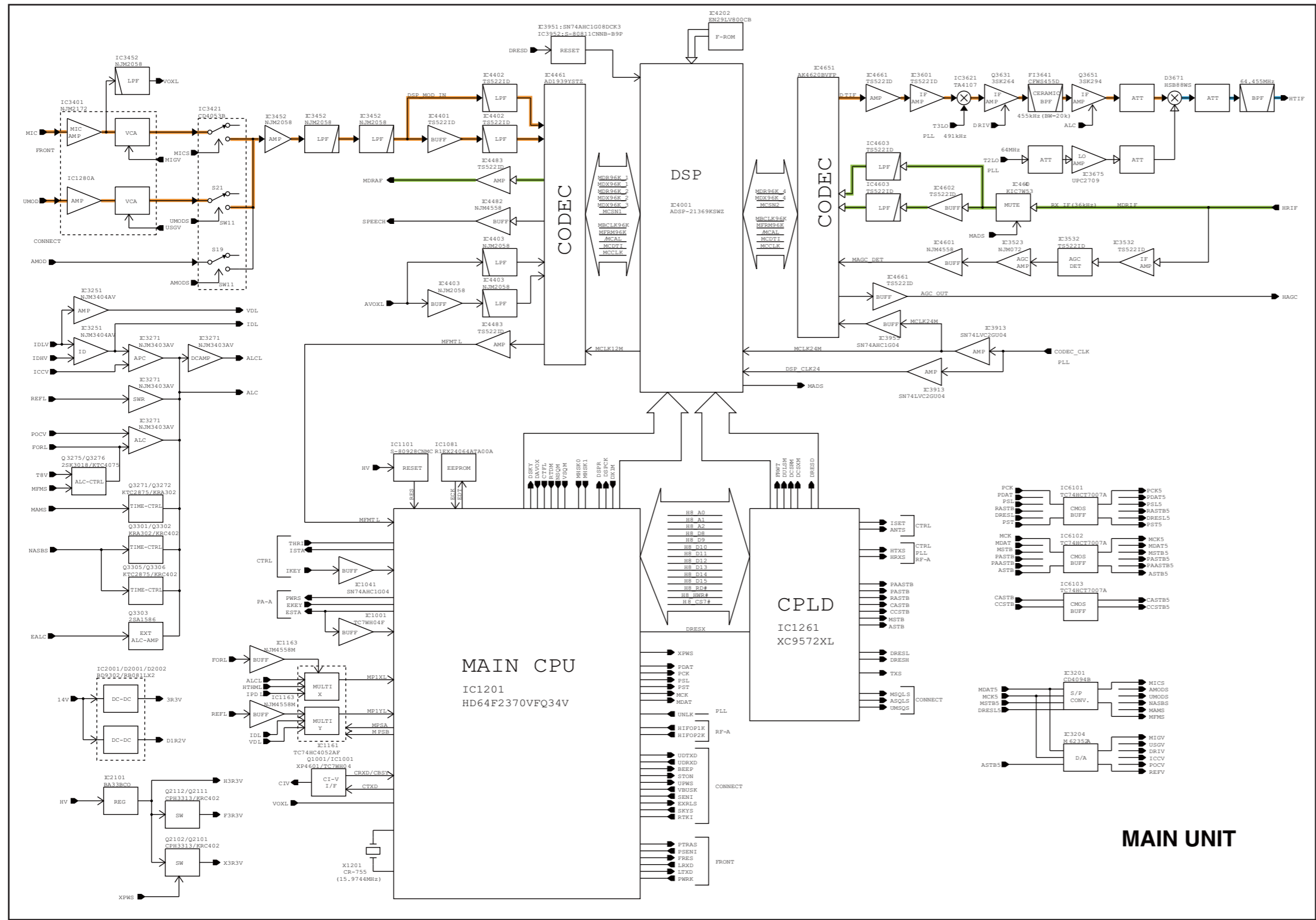




SECTION 9

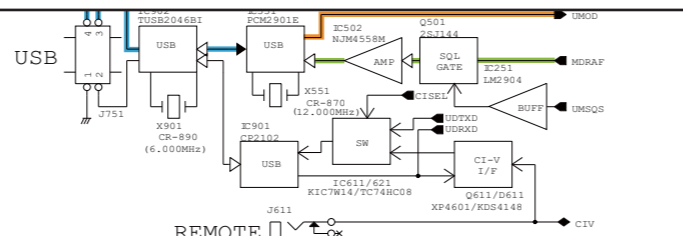
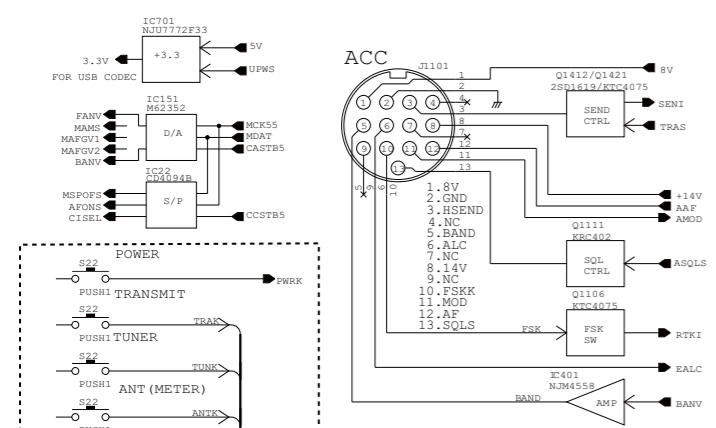
BLOCK DIAGRAM



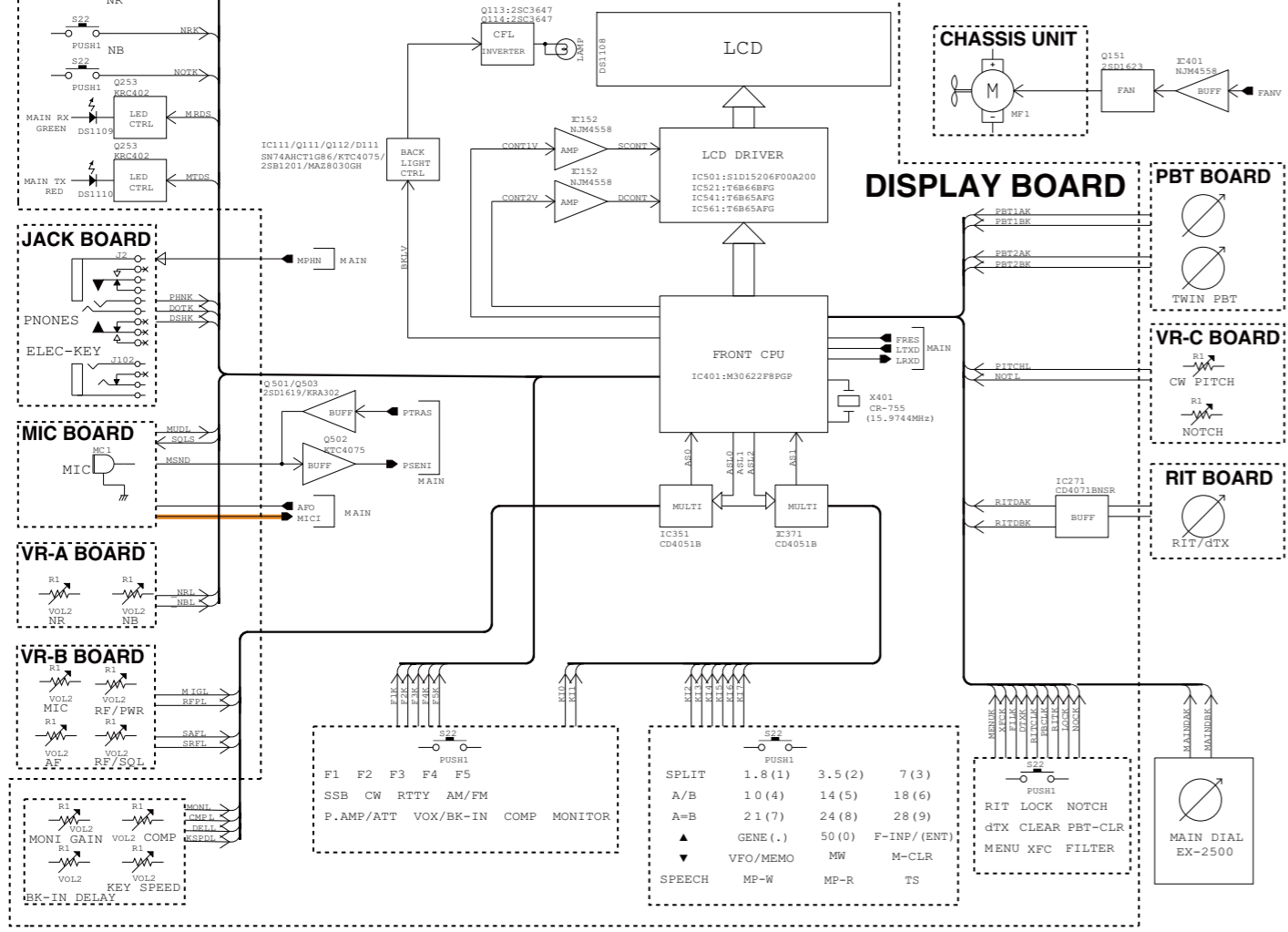


MAIN UNIT

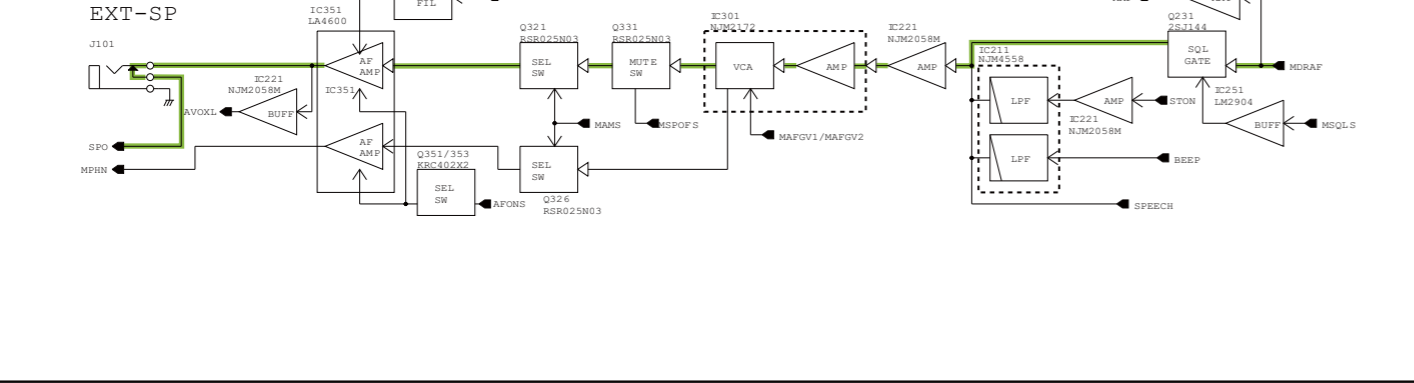
CONNECT UNIT



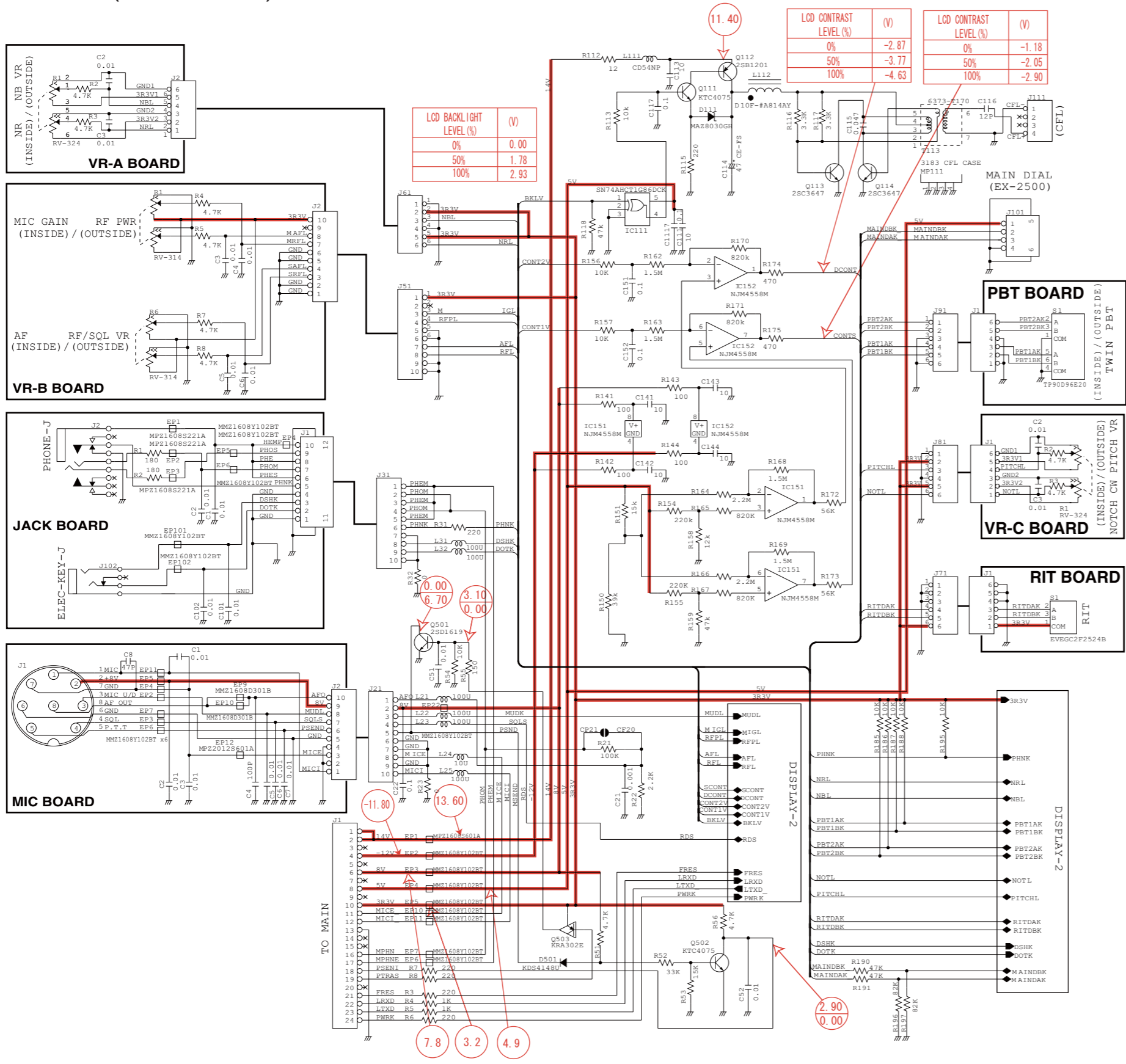
FRONT UNIT



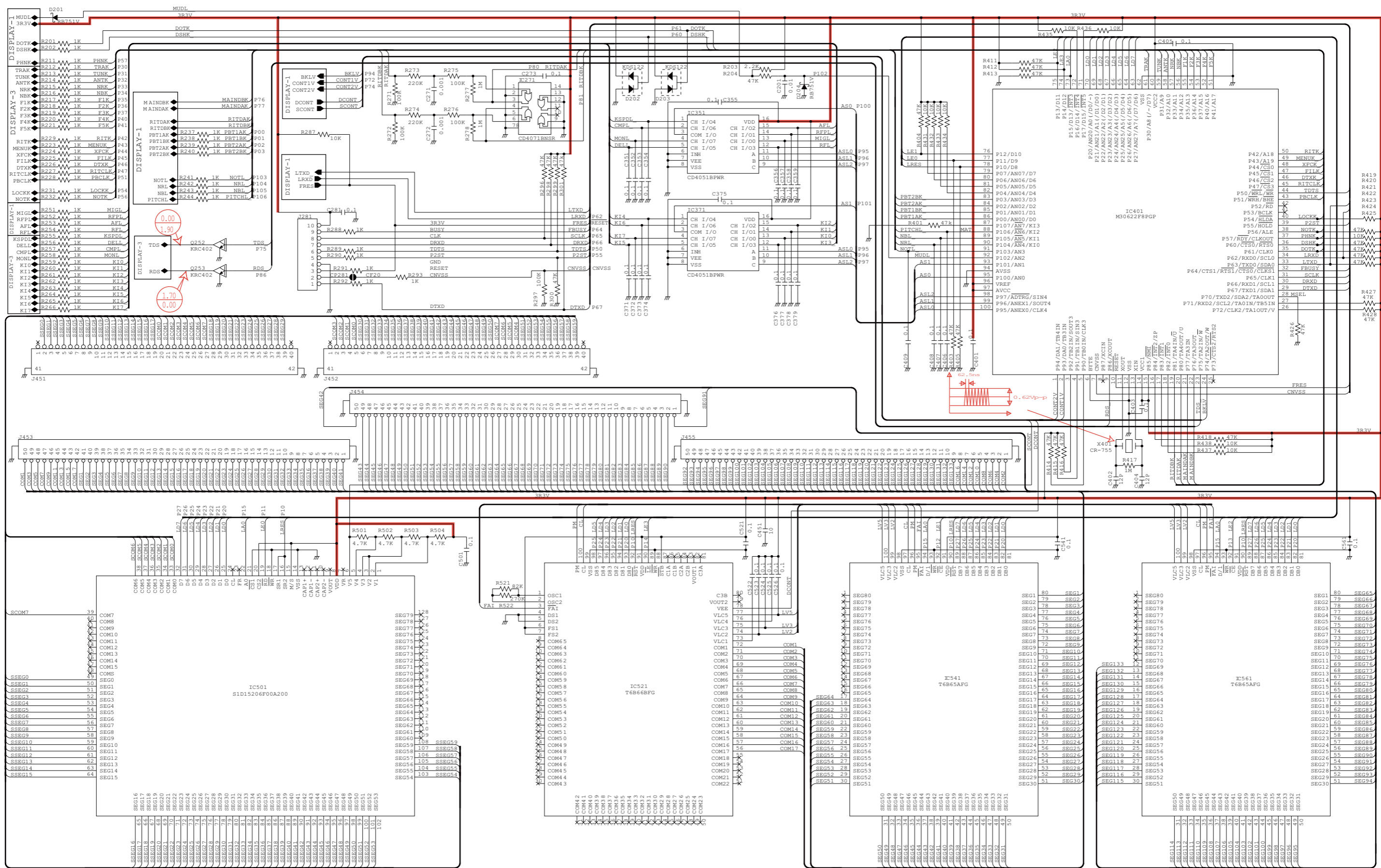
CONNECT UNIT



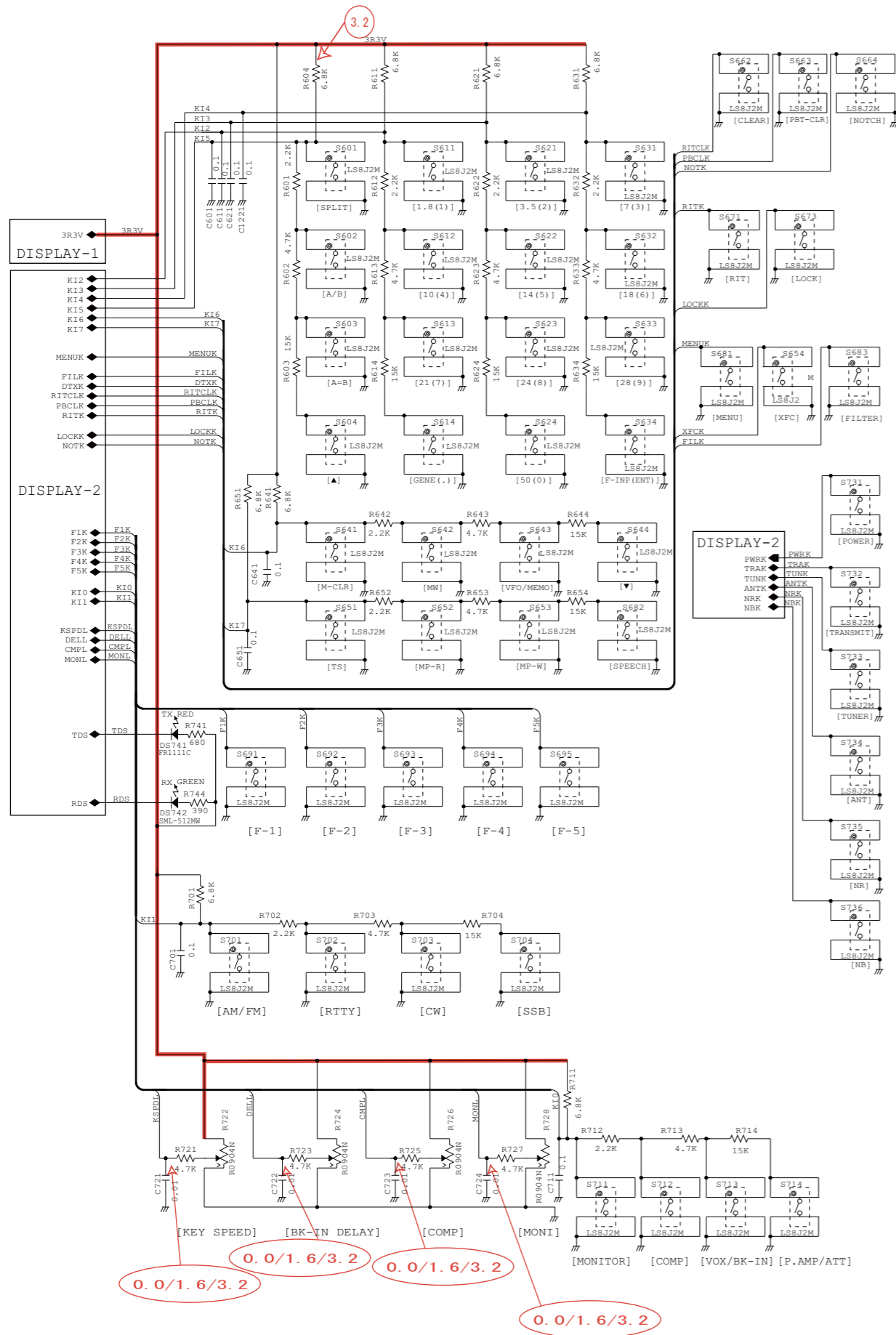
• DISPLAY BOARD (DISPLAY BOARD-1)



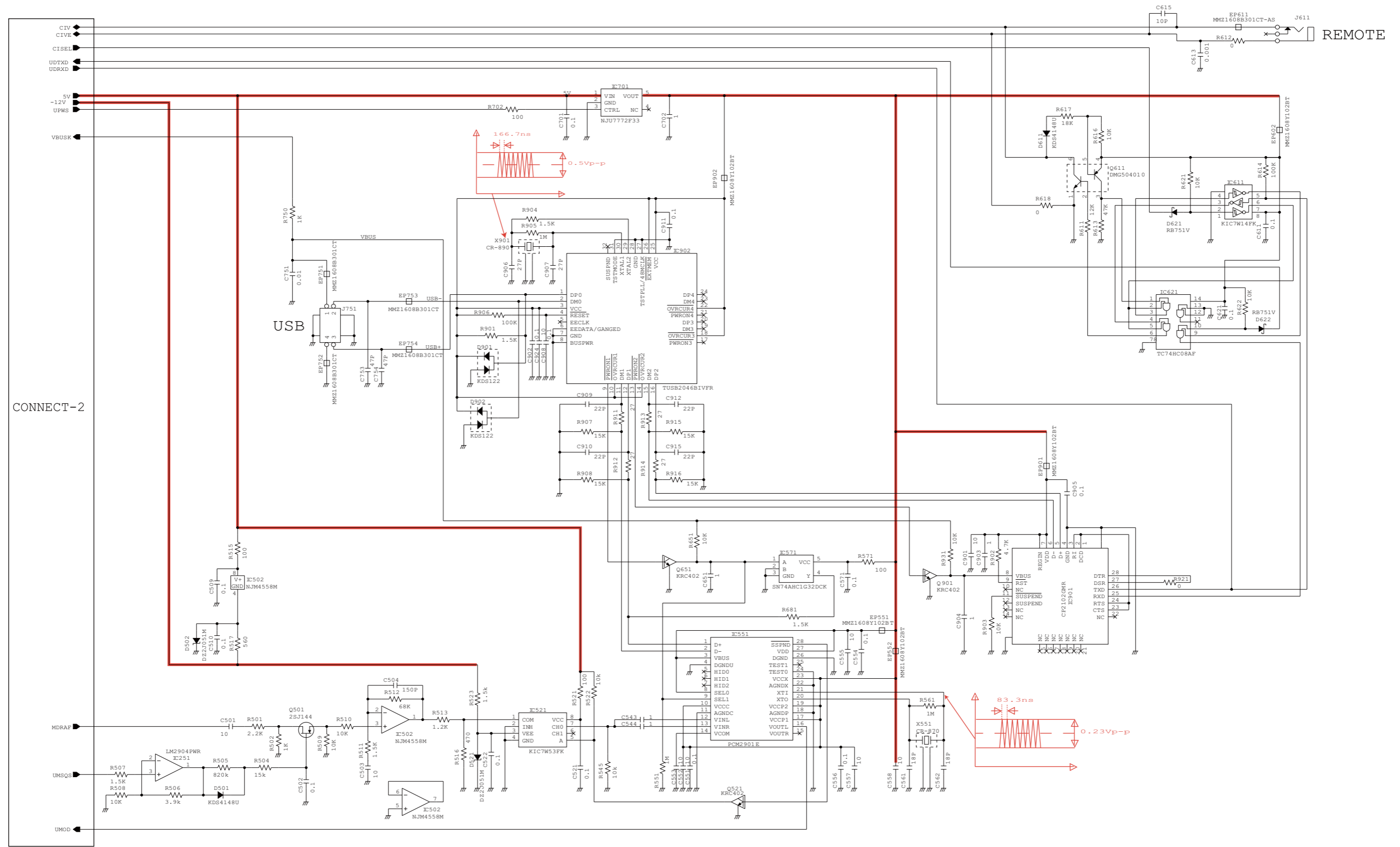
• DISPLAY BOARD (DISPLAY BOARD-2)



• DISPLAY BOARD (DISPLAY BOARD-3)

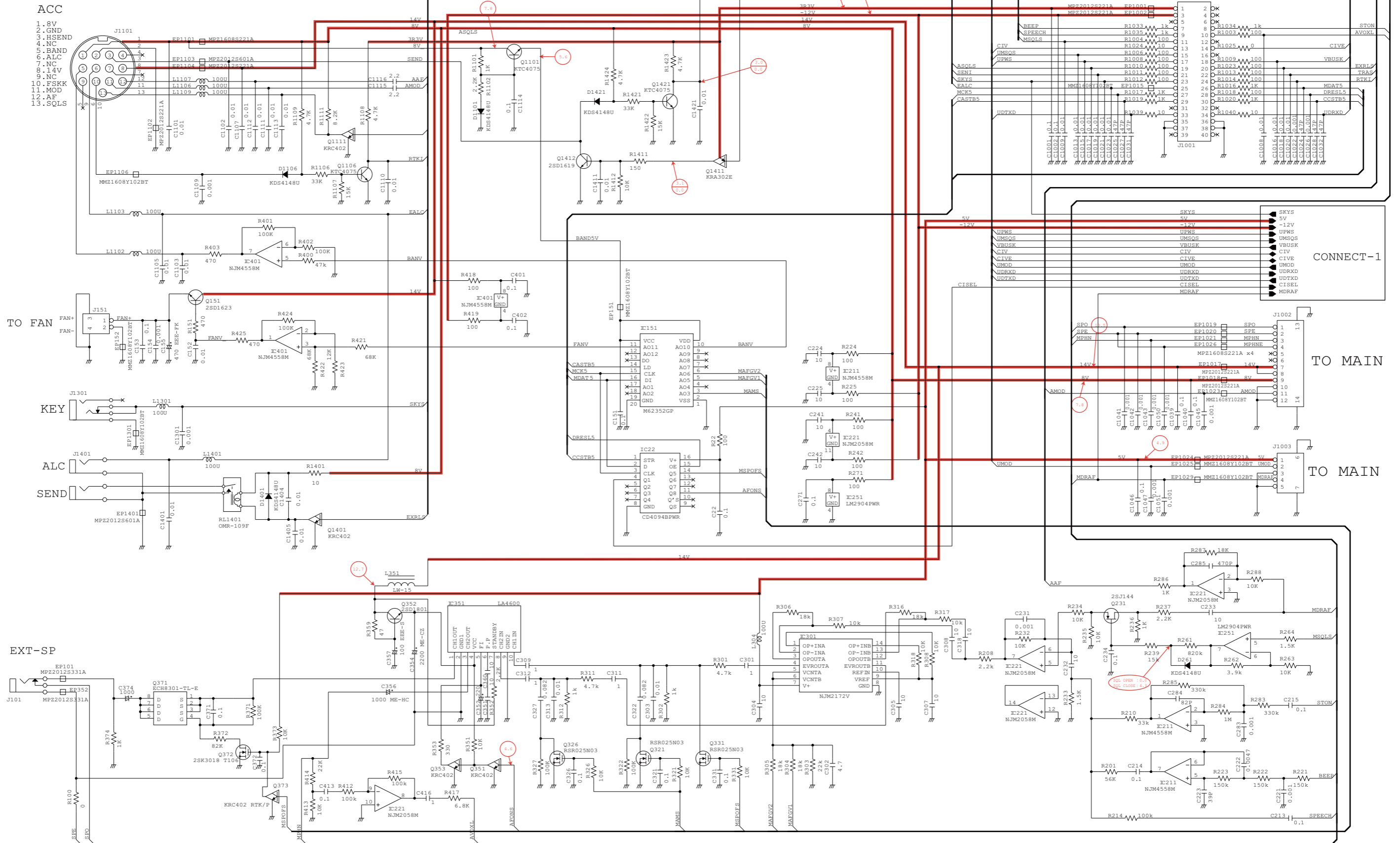


• CONNECT UNIT (CONNECT-1)

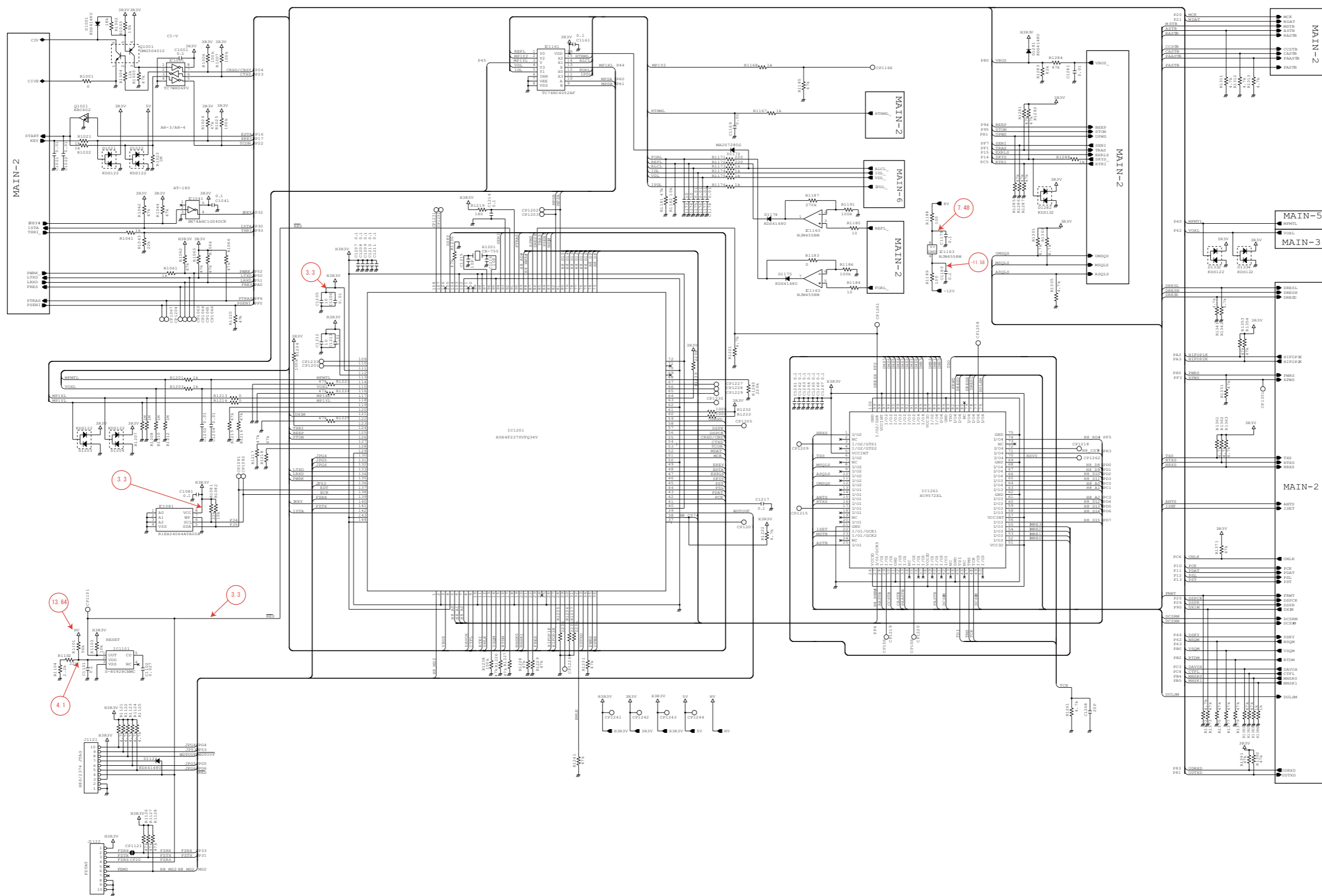


CONNECT-2

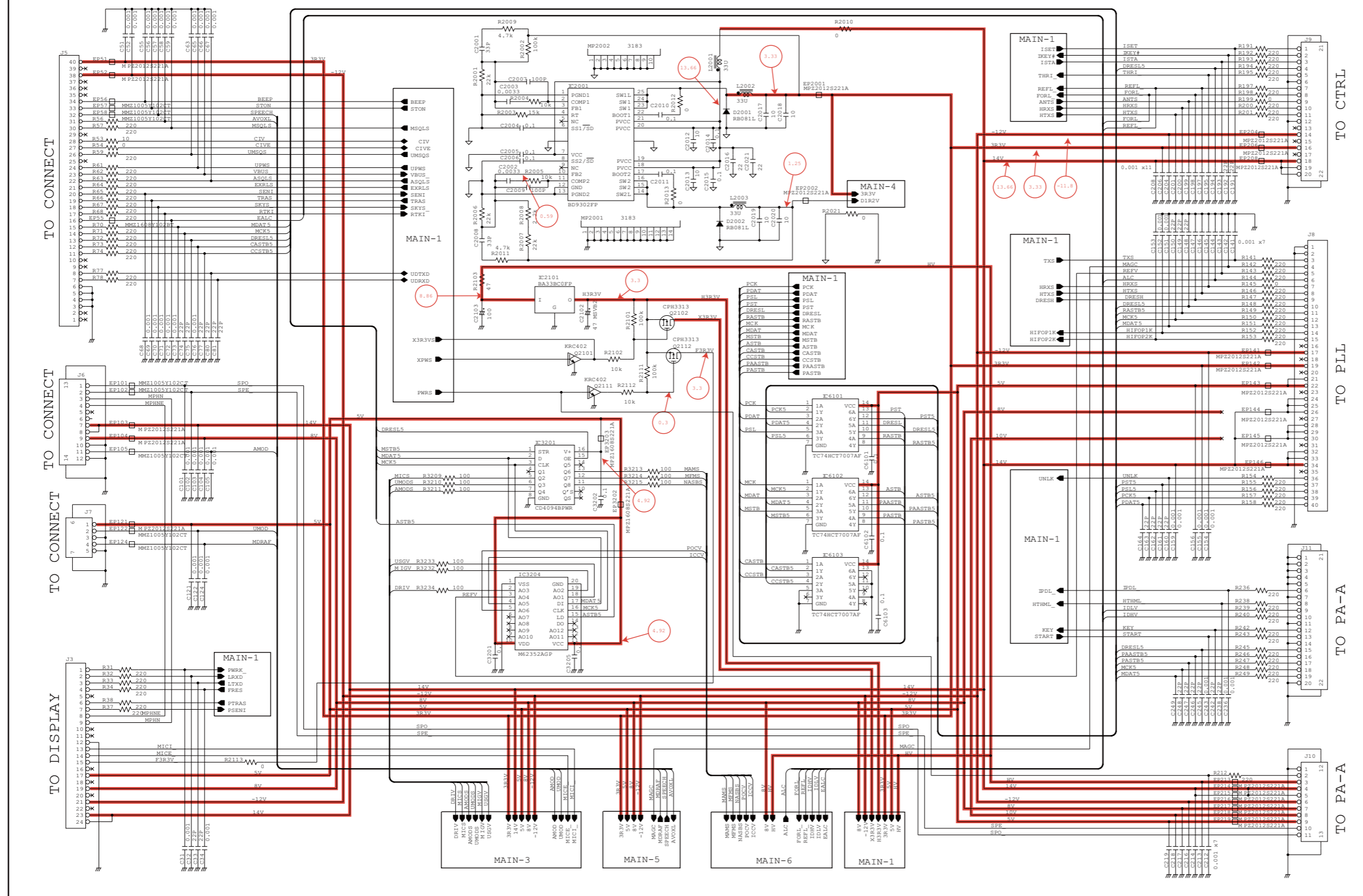
• CONNECT UNIT (CONNECT-2)



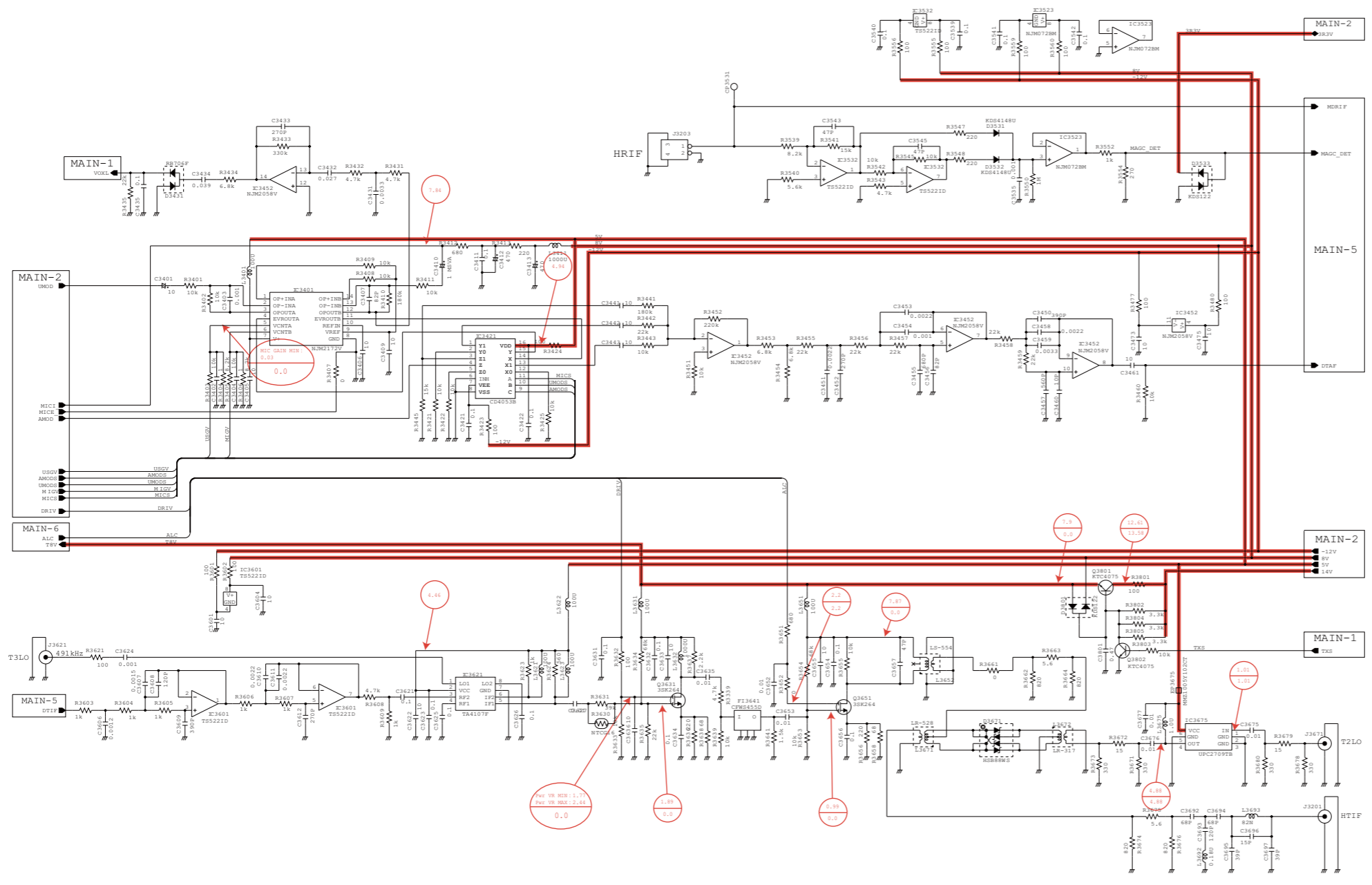
• MAIN UNIT (MAIN-1)



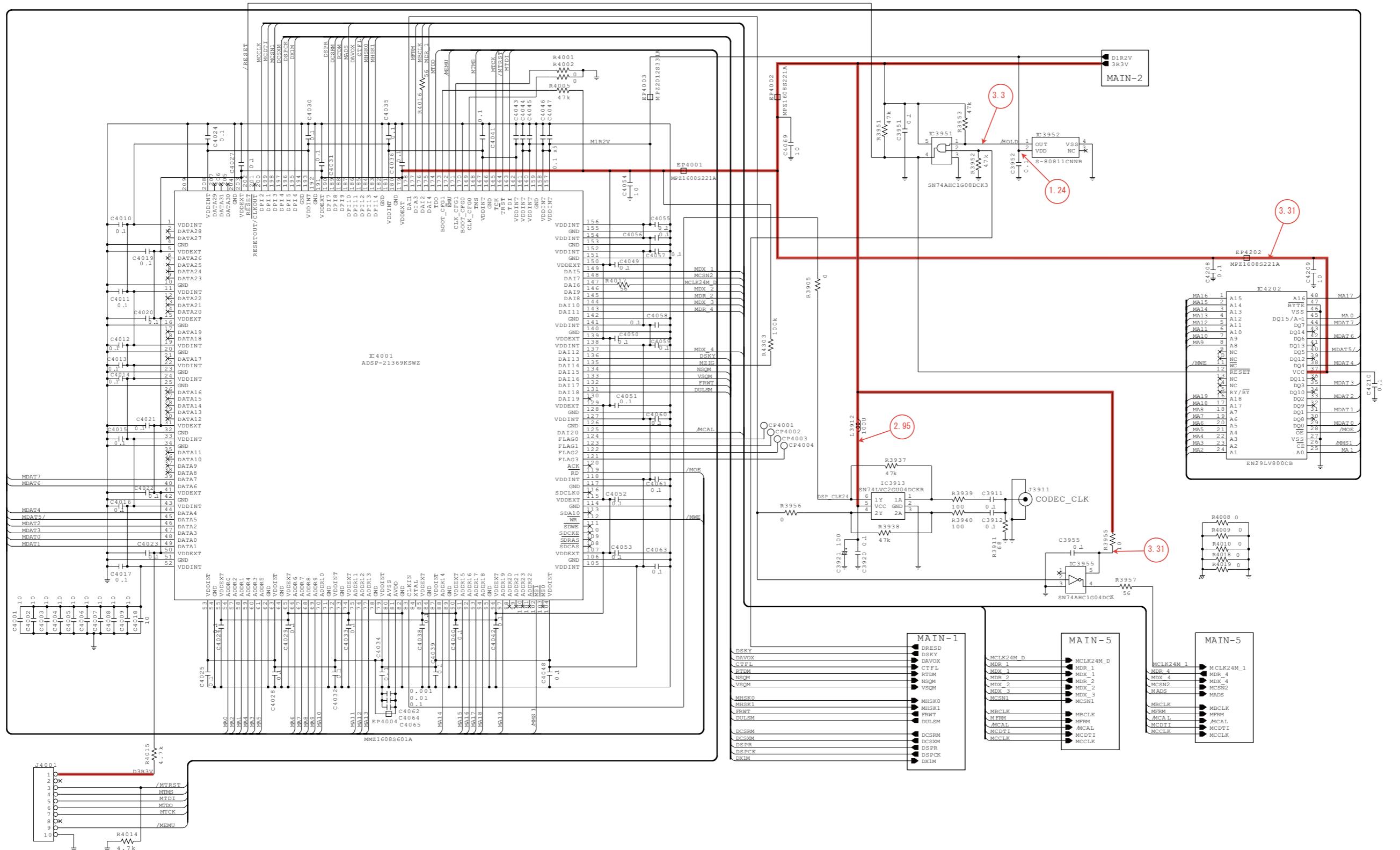
• MAIN UNIT (MAIN-2)



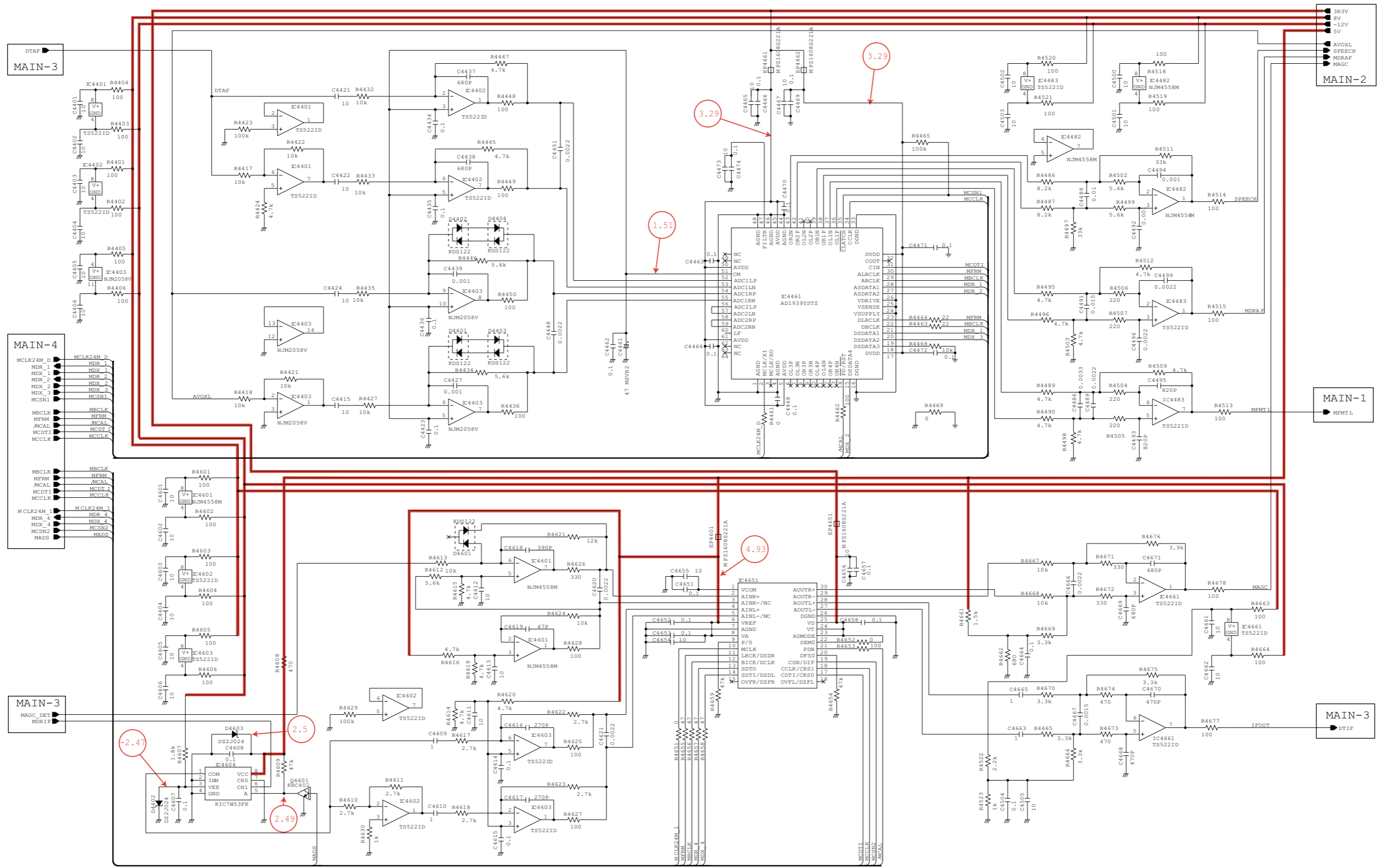
• MAIN UNIT (MAIN-3)



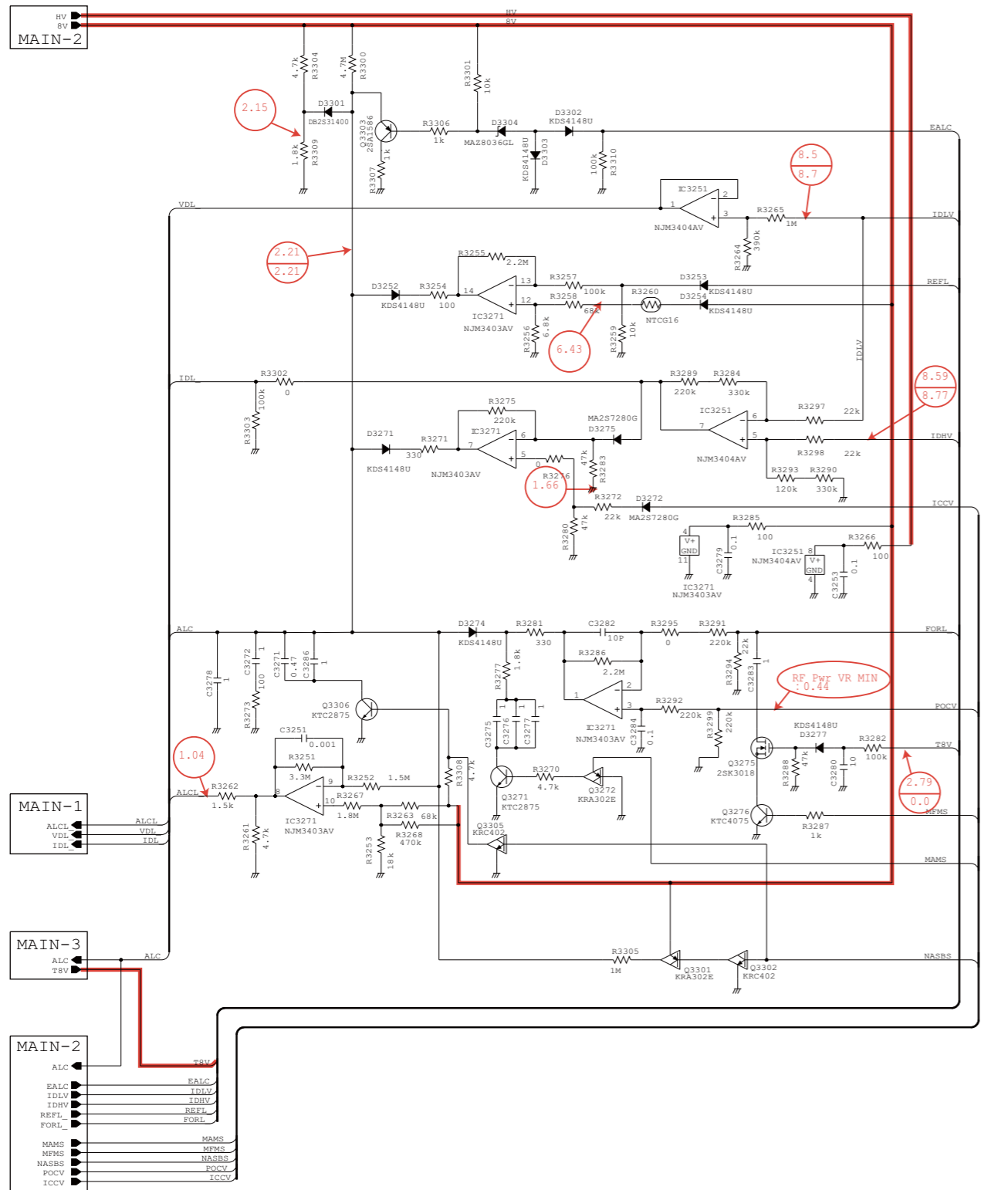
• MAIN UNIT (MAIN-4)



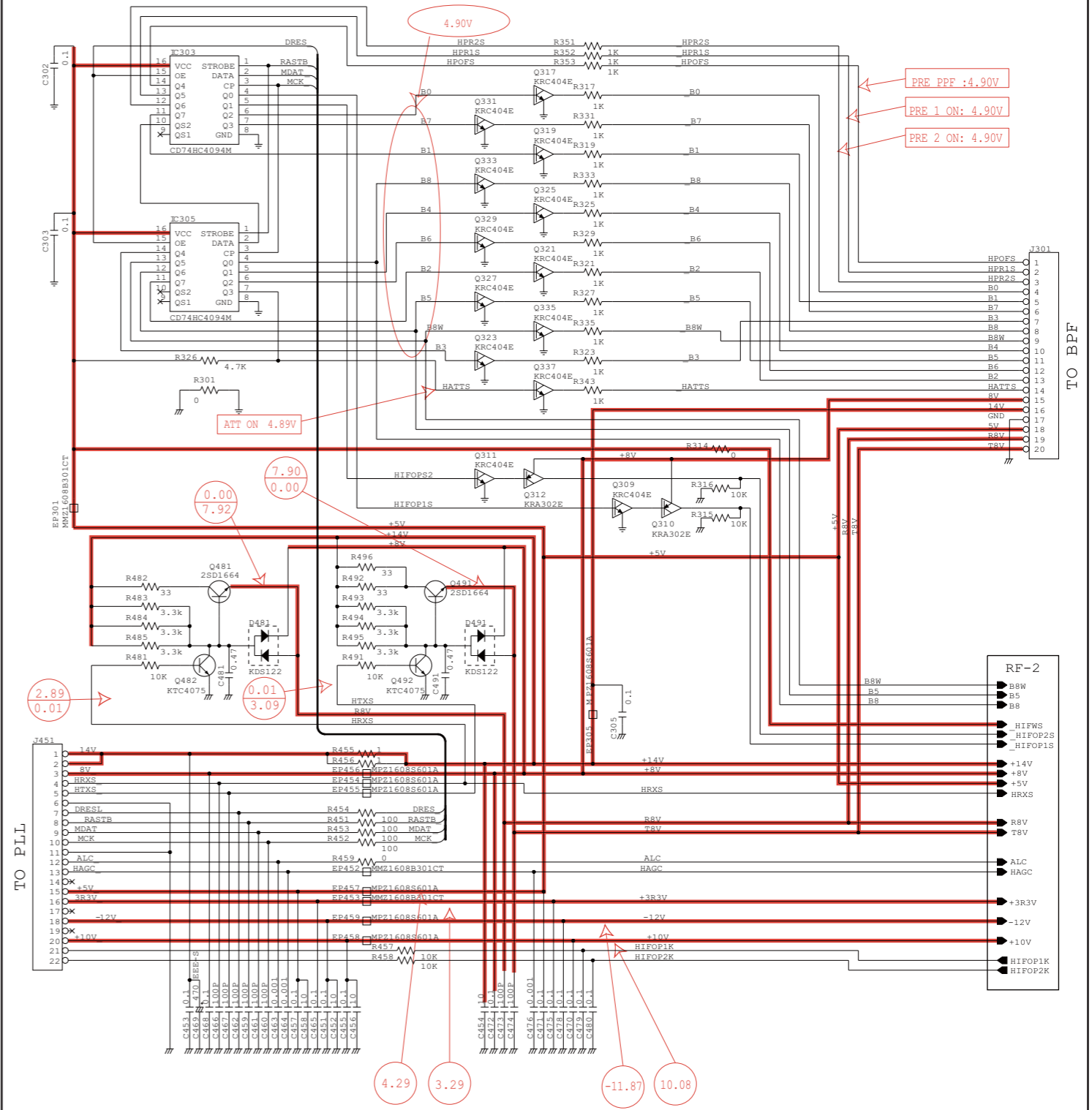
• MAIN UNIT (MAIN-5)



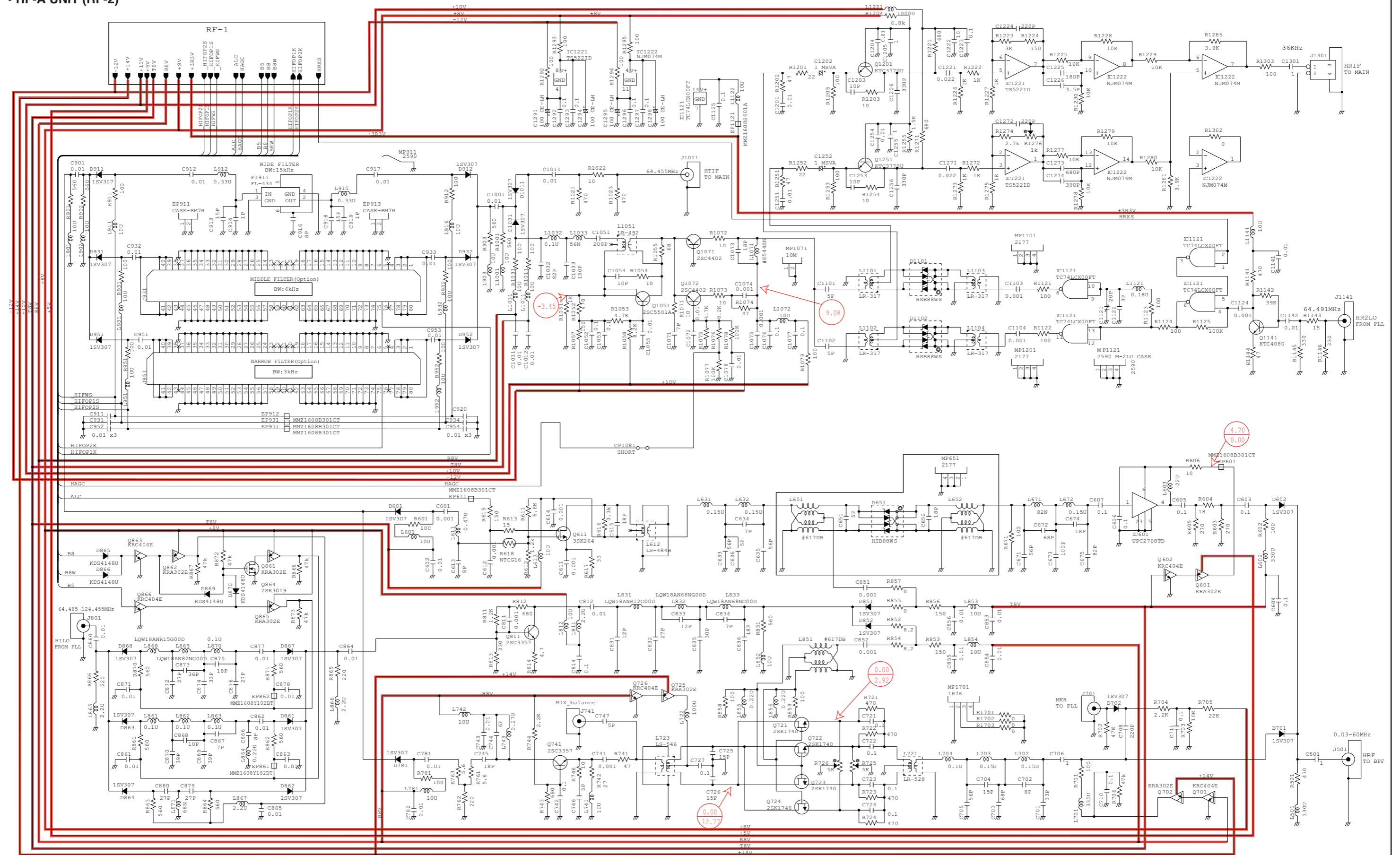
• MAIN UNIT (MAIN-6)



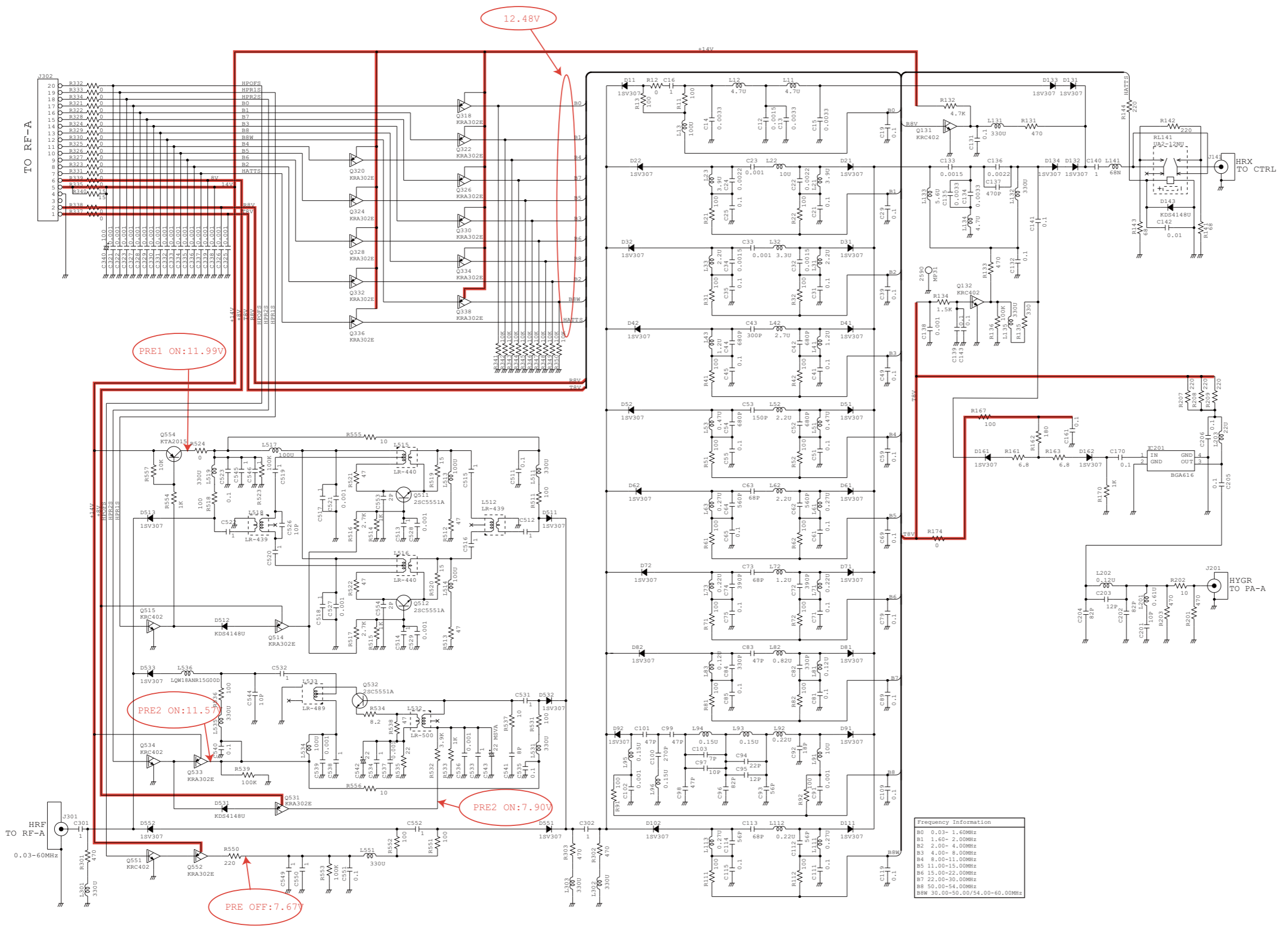
• RF-A UNIT (RF-1)



• RF-A UNIT (RF-2)



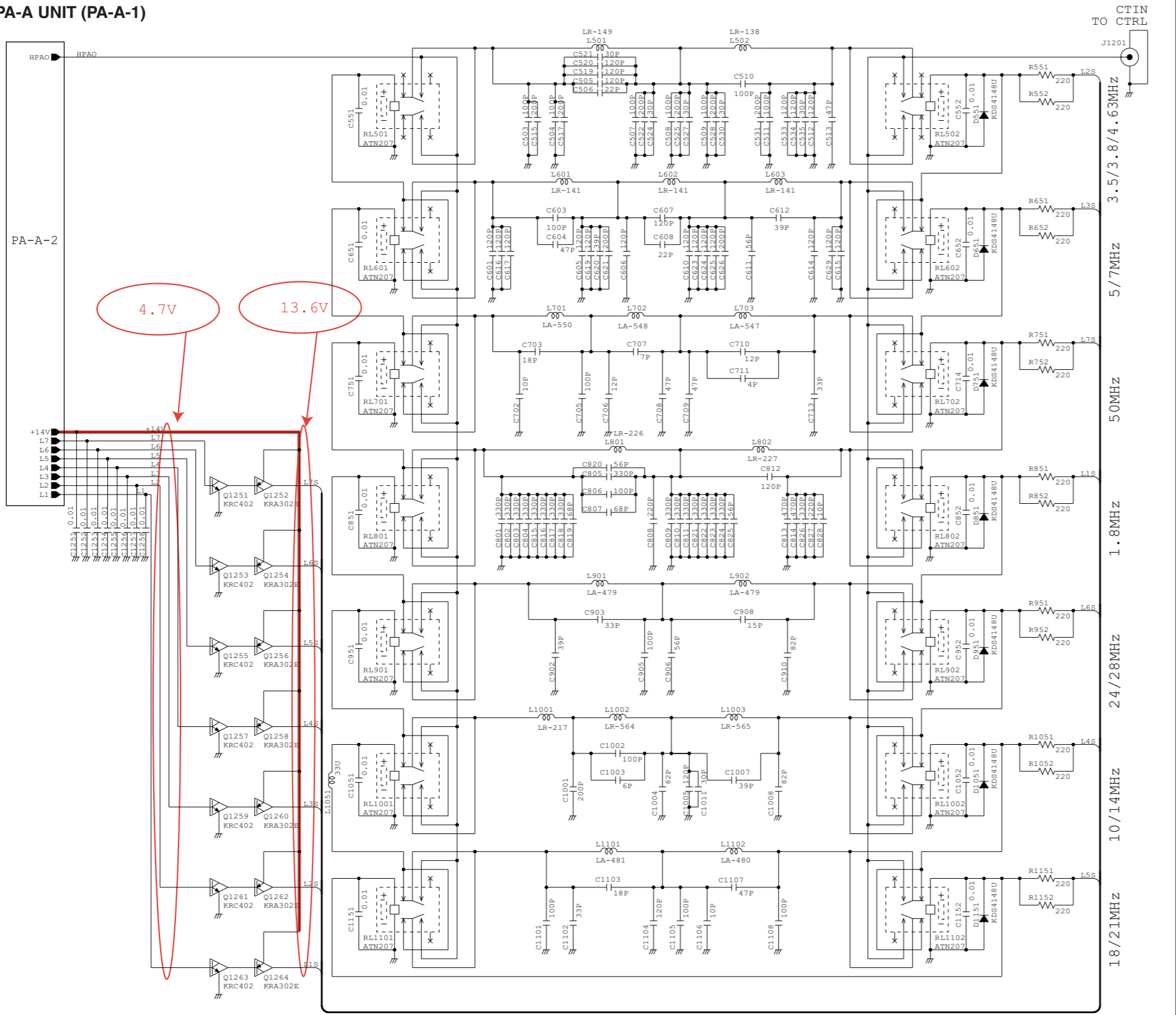
• BPF UNIT



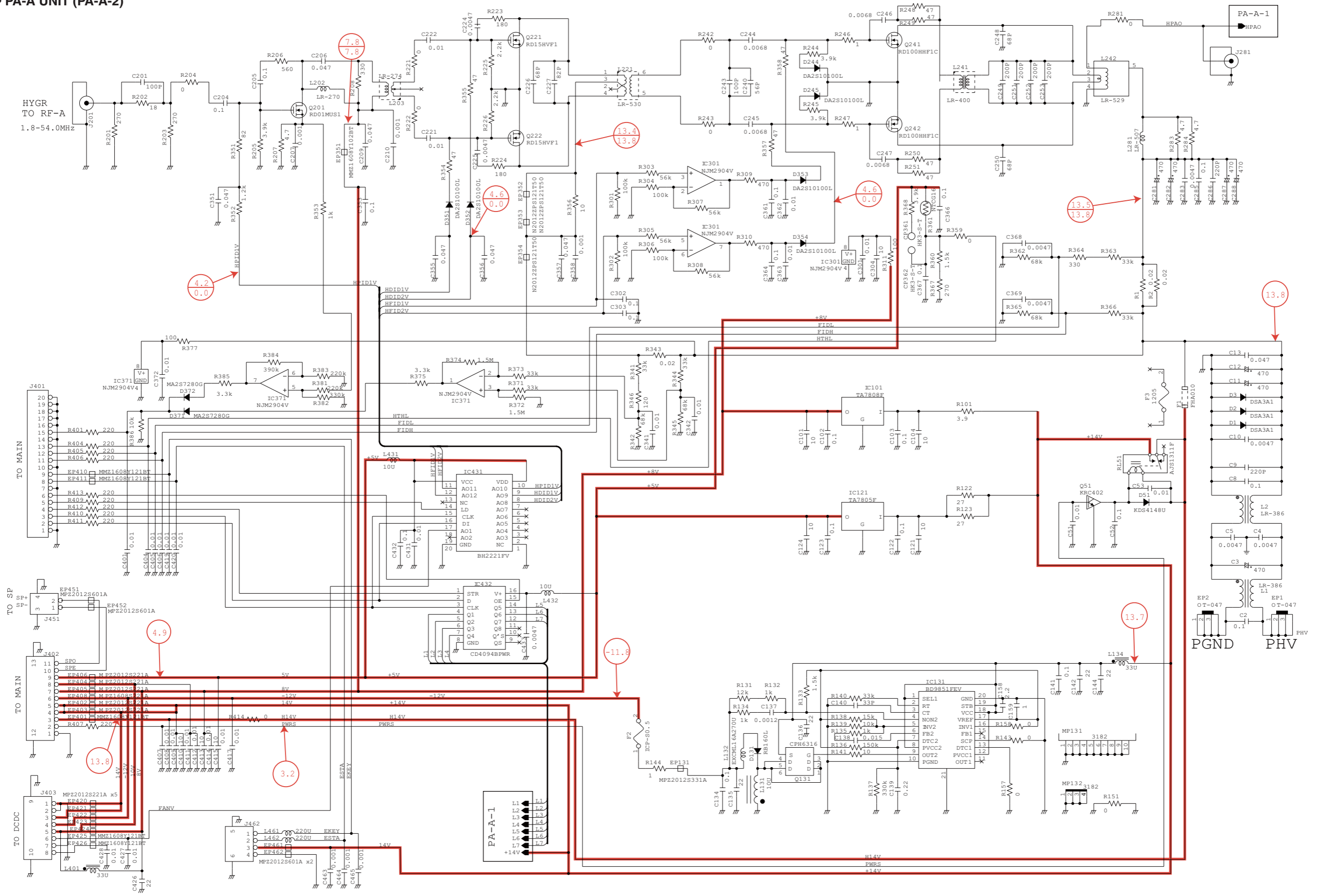
Frequency Information

B0	0.03-1.60MHz
B1	1.60-2.00MHz
B2	2.00-4.00MHz
B3	4.00-8.00MHz
B4	8.00-11.00MHz
B5	11.00-15.00MHz
B6	15.00-22.00MHz
B7	22.00-30.00MHz
B8	50.00-54.00MHz
B9	50.00-50.00/54.00-60.00MHz

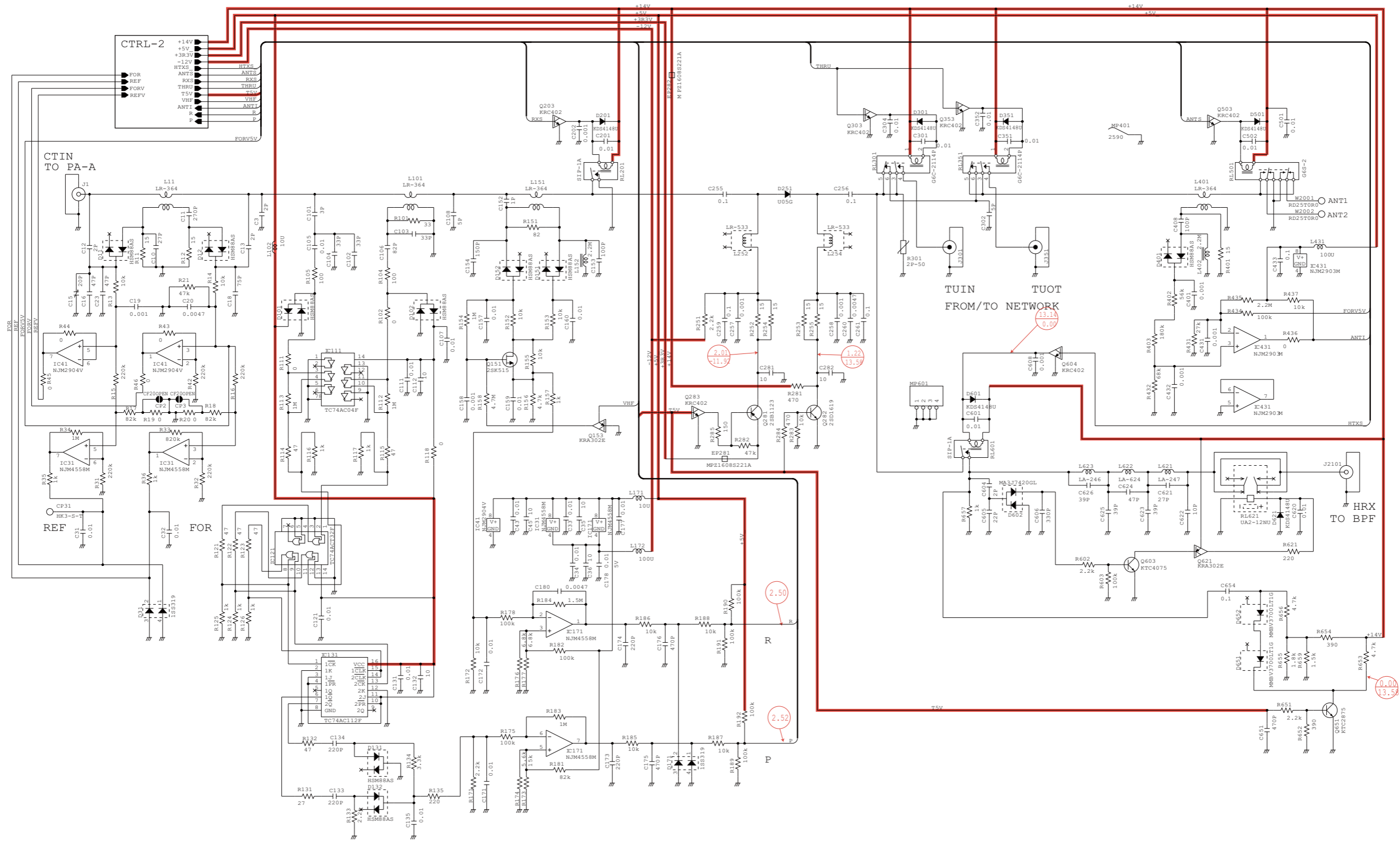
• PA-A UNIT (PA-A-1)



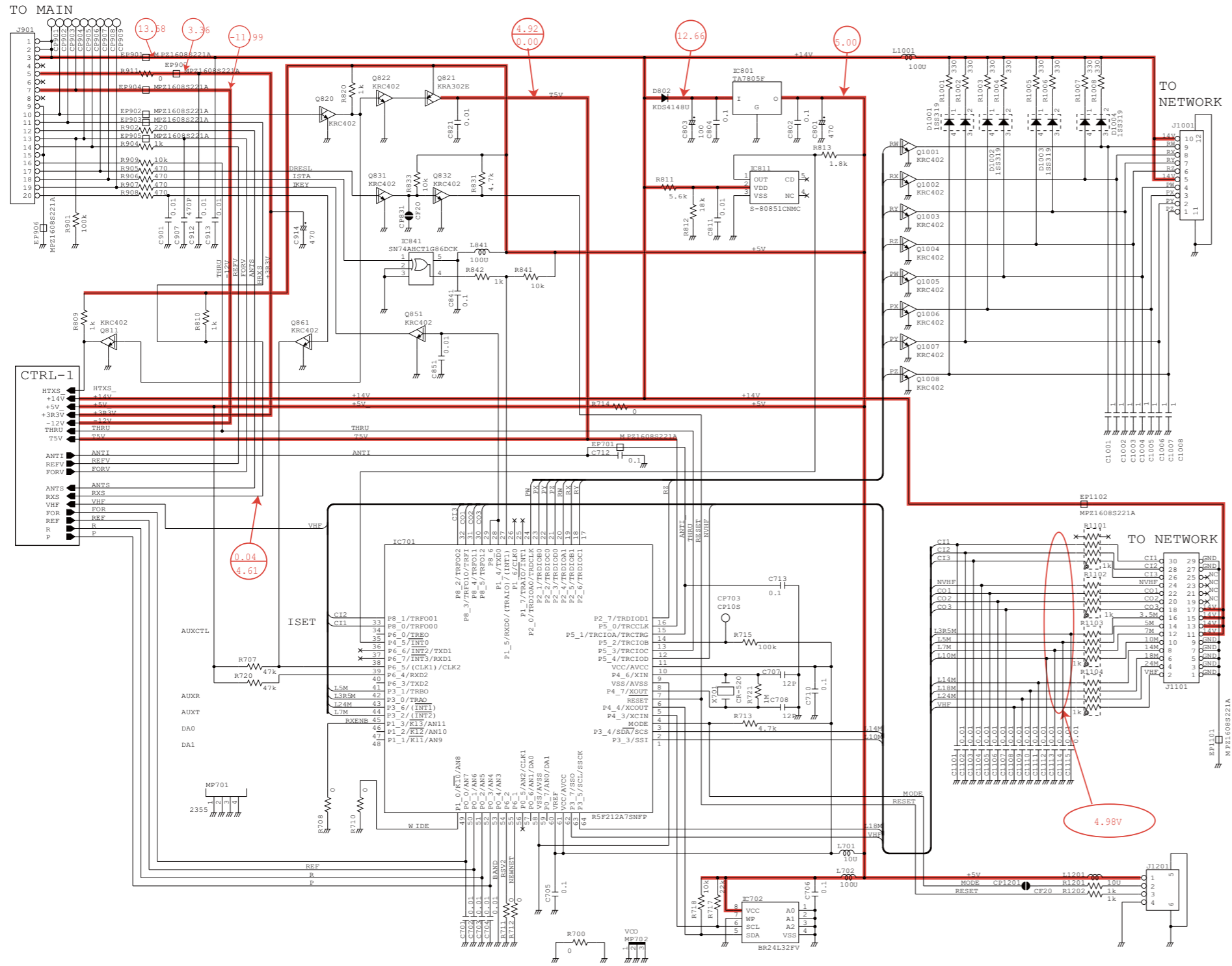
• PA-A UNIT (PA-A-2)



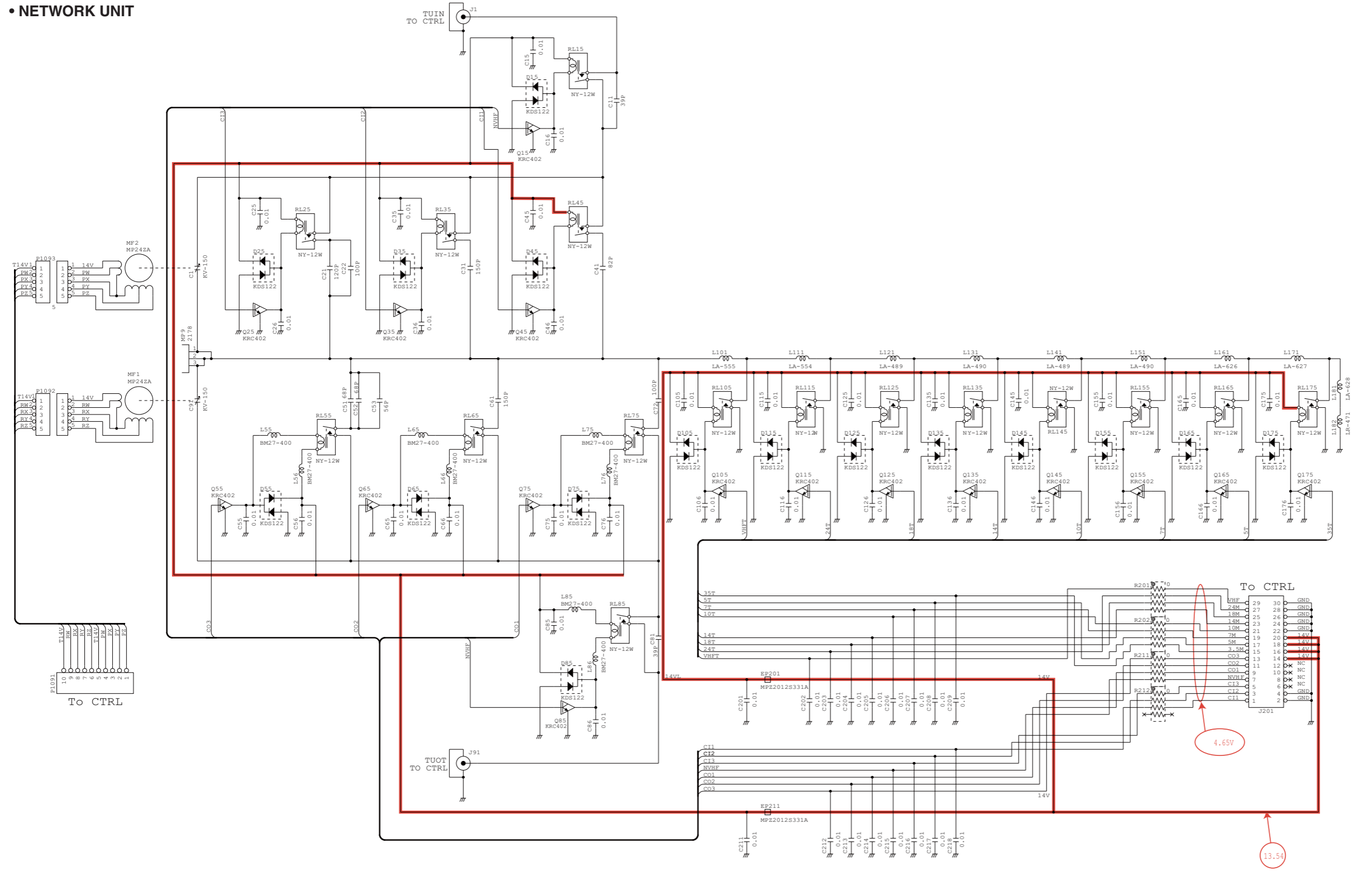
• CTRL UNIT (CTRL-1)



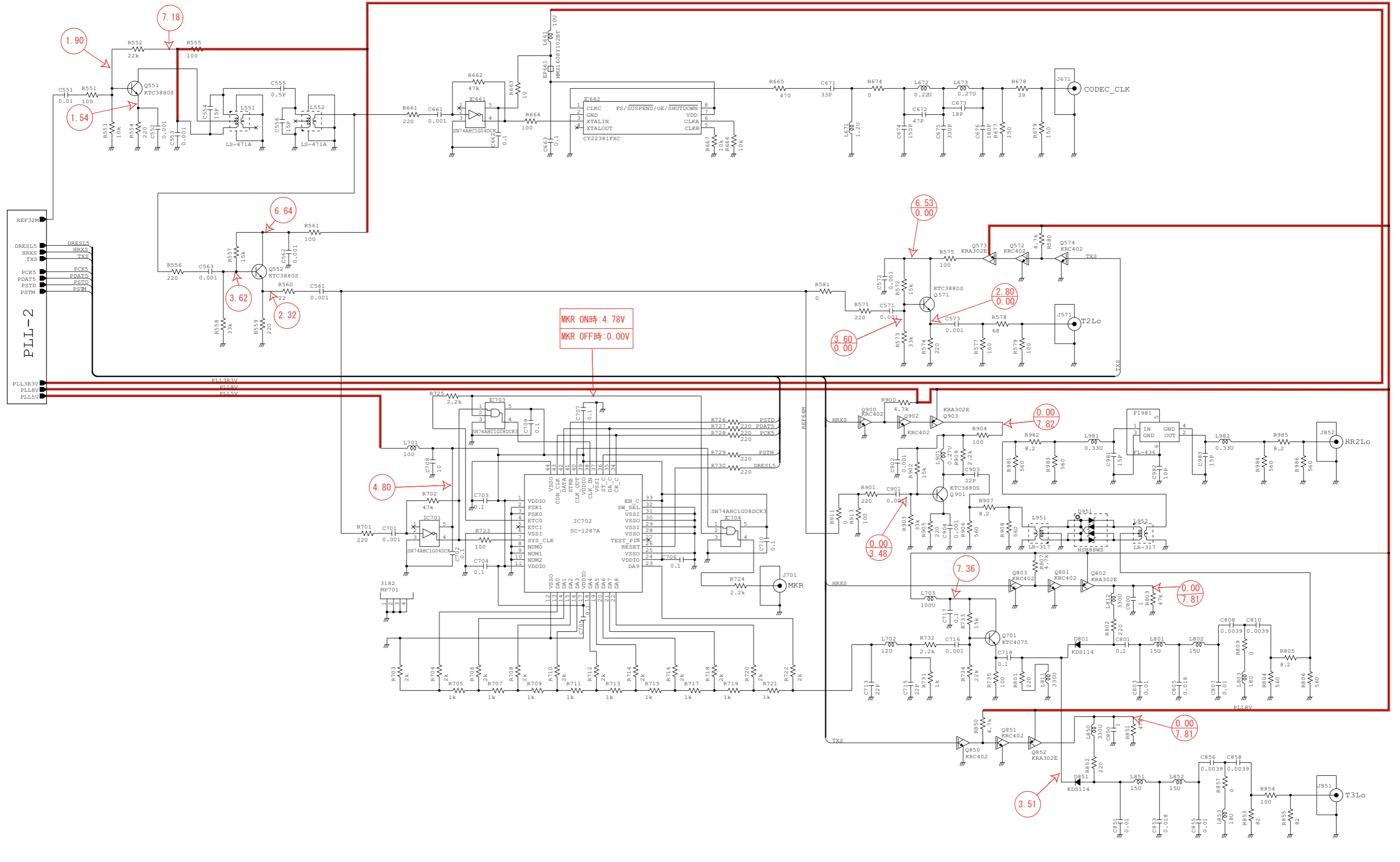
• CTRL UNIT (CTRL-2)



• NETWORK UNIT

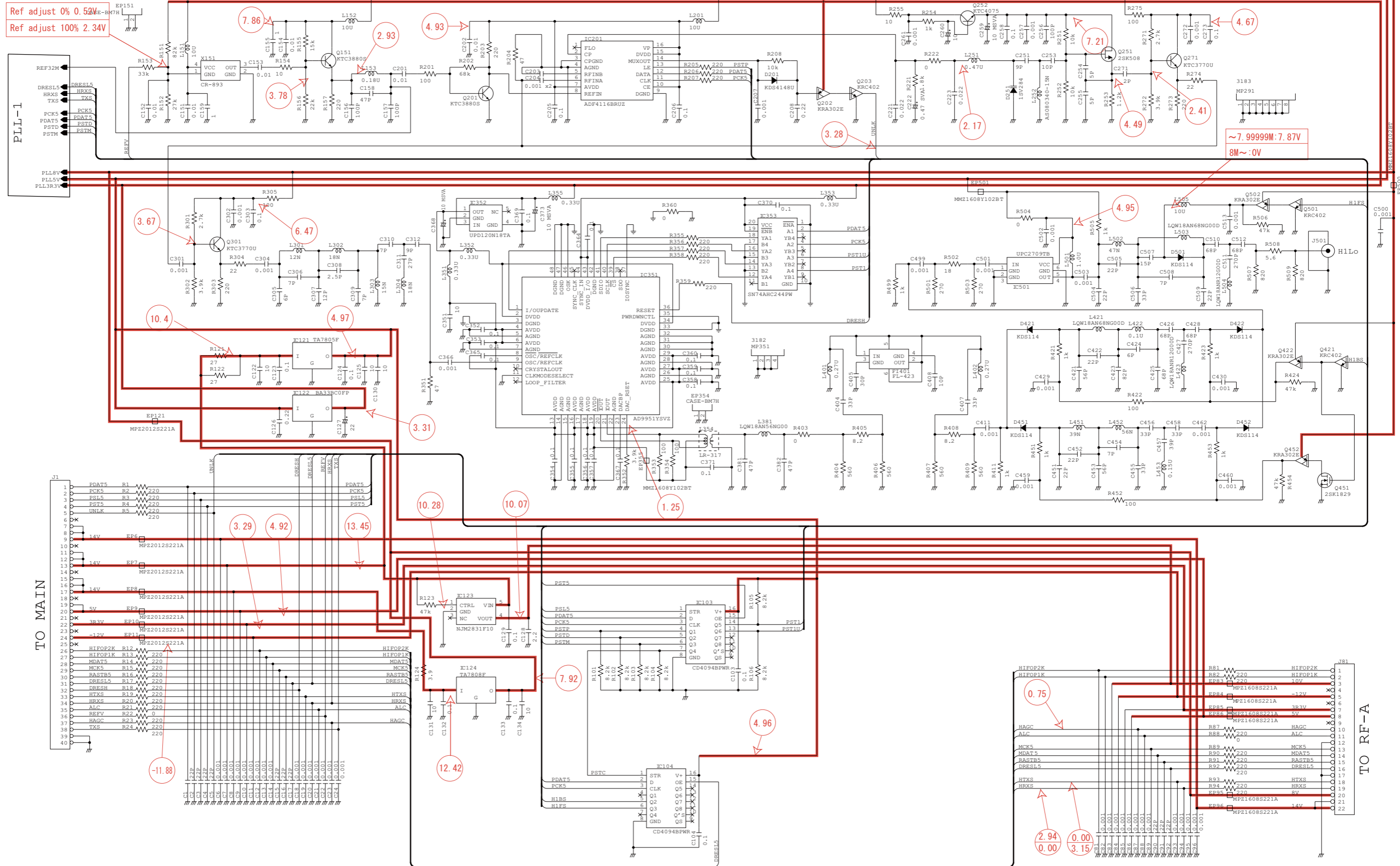


• PLL UNIT (PLL-1)



• PLL UNIT (PLL-2)

Ref adjust 0% 0.52V
Ref adjust 100% 2.34V



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