



SERVICE MANUAL

HF/VHF/UHF ALL MODE TRANSCEIVER

IC-7100

S-15008XZ-C1
July 2013

Icom Inc.

INTRODUCTION

This service manual describes the latest technical information for the **IC-7100** HF/VHF/UHF ALL MODE TRANSCEIVER, at the time of publication.

MODEL	VERSION	VERSION NUMBER
IC-7100	USA	#02
	EUR	#03
	EUR-01	#04
	ITR	#05
	ESP	#06
	TPE	#07
	KOR	#08
	CHN	#09
	FRA	#12
	EXP	#13

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 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.



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-7100 MAIN UNIT 5 pieces
8820001210 Screw 2438 screw IC-7100 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 dis-assembling 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 40 dB to 50 dB attenuator between the transceiver and a Deviation Meter or Spectrum Analyzer, when using such test equipment.
8. **READ** the instructions of the test equipment thoroughly before connecting it to the transceiver.

TABLE OF CONTENTS

SECTION 1	SPECIFICATIONS	
SECTION 2	INSIDE VIEWS	
SECTION 3	CIRCUIT DESCRIPITON	
3-1	RECEIVER CIRCUITS.....	3-1
3-2	TRANSMITTER CIRCUITS.....	3-2
3-3	FREQUENCY SYNTHESIZER CIRCUITS	3-4
3-4	VOLTAGE BLOCK DIAGRAM	3-4
3-5	PORT ALLOCATIONS	3-5
SECTION 4	ADJUSTMENT PROCEDURES	
4-1	PREPARATION	4-1
4-2	FREQUENCY ADJUSTMENT	4-3
4-3	TRANSMIT ADJUSTMENT.....	4-4
4-4	RECEIVE ADJUSTMENT	4-5
SECTION 5	PARTS LIST	
SECTION 6	MECHANICAL PARTS	
SECTION 7	BOARD LAYOUTS	
SECTION 8	WIRING DIAGRAM	
SECTION 9	BLOCK DIAGRAM	
SECTION 10	VOLTAGE DIAGRAM	

◇ General

- Frequency coverage: (unit: MHz)

Receive

0.030000–199.999999*1*2
400.000000–470.000000*1*2

Transmit

1.800000– 1.999999*2, 3.500000– 3.999999*2,
5.255000– 5.405000*1*3,
5.332000*3*4, 5.348000*3*4, 5.358500*3*4,
5.373000*3*4, 5.405000*3*4,
7.000000– 7.300000*2, 10.100000– 10.150000*2,
14.000000– 14.350000*2, 18.068000– 18.168000*2,
21.000000– 21.450000*2, 24.890000– 24.990000*2,
28.000000– 29.700000*2, 50.000000– 54.000000*2,
70.000000– 70.500000*2, 144.000000–148.000000*2,
430.000000–450.000000*2

*1Some frequency ranges are not guaranteed.

*2Depending on version. *3USA version only.

*4Center frequency.

- Mode: USB, LSB, CW, RTTY, AM, FM, WFM (RX only), DV
- No. of memory channels: 495CH (99CH × 5 bank)
- No. of scan edge memory channels: 6 CH (2 × 3 edges)
- No. of call channels: 4 CH (2 × 2 band)
- Antenna connector: SO-239 × 2
- Antenna impedance: 50 Ω
- Usable temperature range: –10°C to +60°C; +14°F to +140°F
- Frequency stability: Less than ±0.5 ppm, 5 minutes after power ON. (0°C to +50°C; +32°F to +122°F at 430 MHz band)
- Frequency resolution: 1 Hz
- Power supply: 13.8 V DC ±15% (negative ground)
- Power consumption:
 - Transmit
 - Max. power: 22.0 A
 - Receive
 - Standby: 0.9 A
 - Max. audio: 1.2 A
- Dimensions (projections not included):
 - Main unit: 167(W) × 58(H) × 225(D) mm; 6.6(W) × 2.3(H) × 8.9(D) in
 - Controller: 165(W) × 64(H) × 78.5(D) mm; 6.5(W) × 2.5(H) × 3.1(D) in
- Weight (approximately):
 - Main unit: 2.3 kg; 5.1 lb
 - Controller: 0.5 kg; 1.1 lb
- ACC connector: 13-pin
- DATA1 connector: 3-conductor 2.5 (d) mm (1/10")
- DATA2 connector: 6-pin
- REMOTE connector: 2-conductor 3.5 (d) mm (1/8")

◇ Transmitter

- Output power (at 13.8 V DC/+25°C): (continuously adjustable)

Frequency band	Output power
HF/50 MHz	2 to 100 W (AM: 1 to 30 W)*
70 MHz	2 to 50 W (AM: 1 to 15 W)*
144 MHz	2 to 50 W
430 MHz	2 to 35 W

* In the AM mode, transmission can be performed only on the HF/50/70 MHz frequency band.

- Modulation system:
 - SSB: Digital PSN modulation
 - AM: Digital Low power modulation
 - FM: Digital Phase modulation
 - DV: GMSK Digital Phase modulation
- Spurious emission:
 - (Spurious domain)
 - HF bands: Less than –50 dB
 - 50 MHz band: Less than –63 dB
 - 70/144/430 MHz bands: Less than –60 dB
 - (Out-of-band domain)
 - HF bands: Less than –40 dB
 - 50/70/144/430 MHz bands: Less than –60 dB
- Carrier suppression: More than 50 dB
- Unwanted sideband suppression: More than 50 dB
- Microphone connector: 8-pin modular jack
- Microphone impedance: 600 Ω
- ELEC-KEY connector: 3-conductor 3.5(d) mm (1/8")
- KEY connector: 2-conductor 3.5(d) mm (1/8")

◇ Receiver

- Receive system

SSB/CW/RTTY/AM/FM/DV: Triple superheterodyne system
 WFM: Double superheterodyne system

- Intermediate frequencies

1st: 124.487 MHz
 (SSB/CW/RTTY/AM/FM/DV)
 134.732 MHz (WFM)
 2nd: 455 kHz
 (SSB/CW/RTTY/AM/FM/DV)
 10.7 MHz (WFM)
 3rd: 36 kHz
 (SSB/CW/RTTY/AM/FM/DV)

- Sensitivity

SSB, CW (10 dB S/N): 0.15 μ V (1.80...29.9950 MHz)^{*1}
 0.12 μ V (50 MHz)^{*2}
 0.15 μ V (70 MHz)^{*2}
 0.11 μ V (144/430 MHz)^{*3}
 AM (10 dB S/N): 13.0 μ V (0.5...1.8 MHz)^{*1}
 2.0 μ V (1.80...29.9950 MHz)^{*1}
 1.0 μ V (50/70 MHz)^{*2}
 1.0 μ V (144/430 MHz)
 FM (12 dB SINAD): 0.5 μ V (28.0...29.7 MHz)^{*1}
 0.25 μ V (50/70 MHz)^{*2}
 0.18 μ V (144/430 MHz)^{*3}
 WFM (12 dB SINAD): 10.0 μ V (76...108 MHz)^{*3}
 DV (1% BER): 1.0 μ V (28.0...29.7 MHz)^{*1}
 0.63 μ V (50/70 MHz)^{*2}
 0.35 μ V (144/430 MHz)^{*3}

*1 Preamp 1 is ON, *2 Preamp 2 is ON, *3 Preamp is ON

- Squelch sensitivity

Frequency band	Squelch sensitivity
HF ^{*1}	SSB : Less than 5.6 μ V
	FM : Less than 0.3 μ V
50/70 MHz ^{*2}	SSB : Less than 5.6 μ V
	FM : Less than 0.3 μ V
144/430 MHz ^{*3}	SSB : Less than 5.6 μ V
	FM : Less than 0.3 μ V

*1 Preamp 1 is ON, *2 Preamp 2 is ON, *3 Preamp 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: 500 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
 DV (CH space: 12.5 kHz): More than ...50 dB

- Spurious and image rejection ratio

HF band: More than 70 dB
 50/70 MHz bands*: More than 70 dB
 *except 1/2 IF through on 50/70 MHz bands
 144/430 MHz bands*: More than 65 dB
 *except IF through on 144 MHz band

- AF output power:

More than 2.0 W at 10% distortion with an 8 Ω load

- AF output impedance:

8 Ω

- RIT variable range:

\pm 9.999 kHz

- PHONES connector:

3-conductor 3.5 (d) mm (1 $\frac{1}{4}$ "

- External SP connector:

2-conductor 3.5 (d) mm (1 $\frac{1}{4}$ ")/
 8 Ω

- DSP ANF attenuation:

More than 30 dB
 (with 1 kHz single tone)

- DSP MNF attenuation:

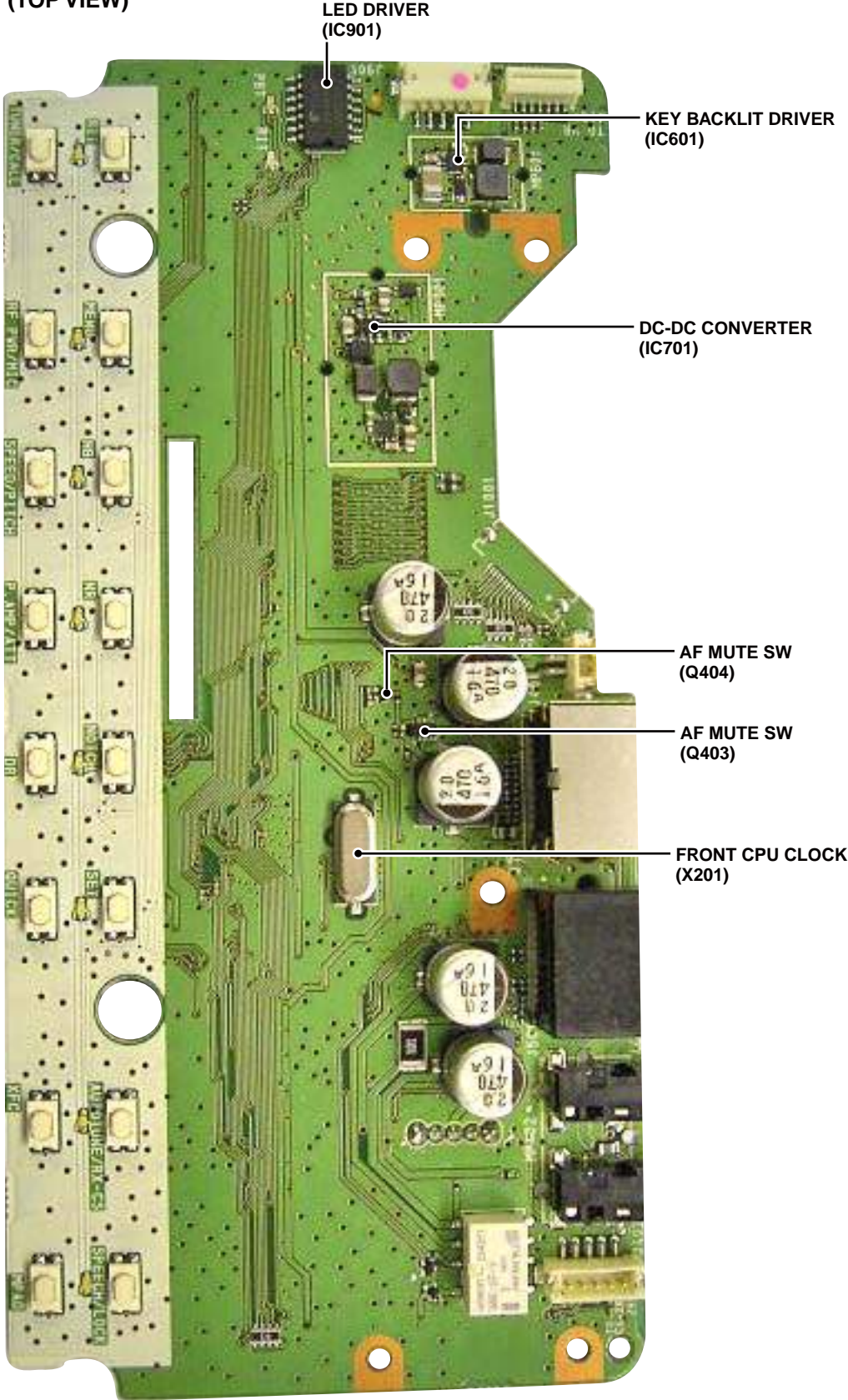
More than 70 dB

- DSP NR attenuation:

More than 6 dB
 (noise rejection in SSB)

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

• DISPLAY UNIT
(TOP VIEW)



• DISPLAY UNIT
(BOTTOM VIEW)

AF OUTPUT CONTROL
(Q401)

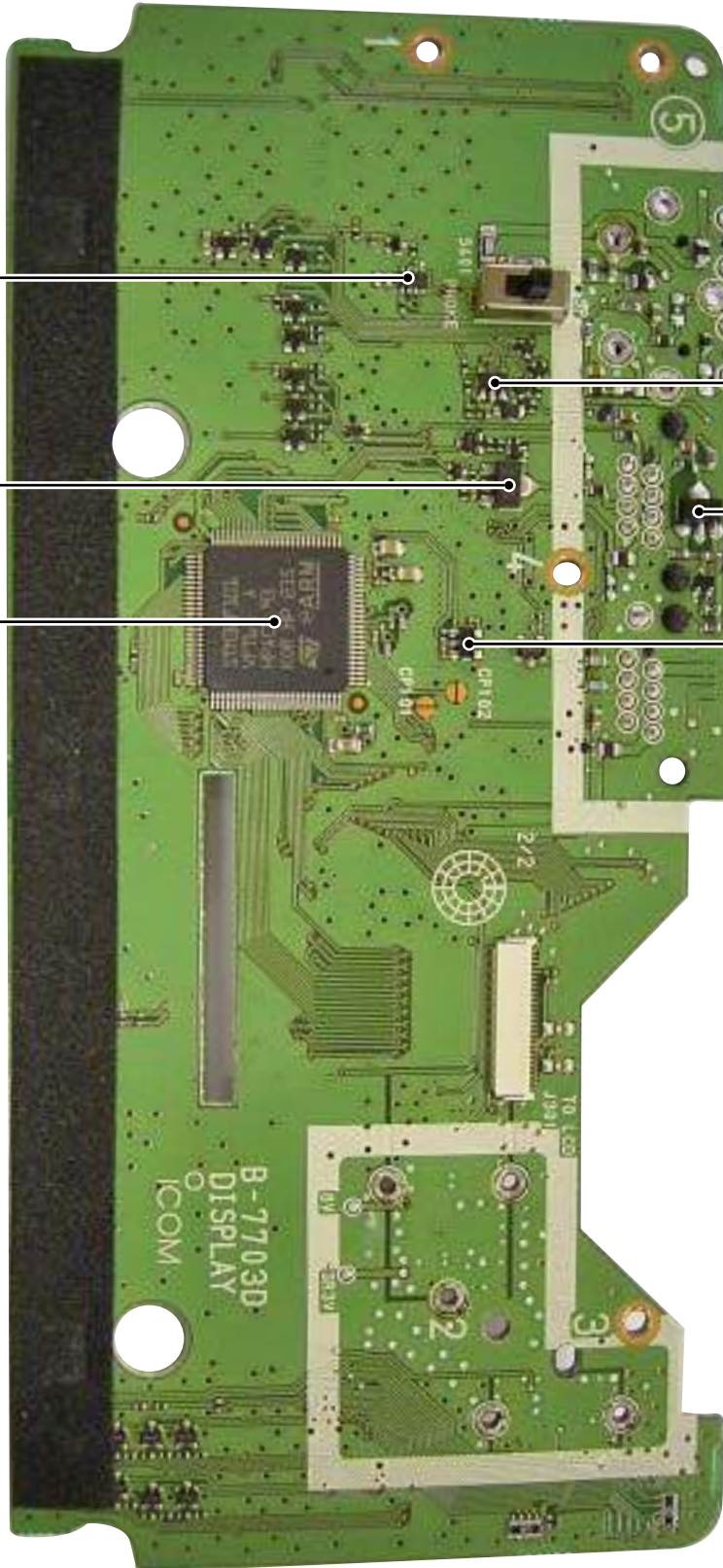
EXTERNAL SEND SW
(Q502)

FRONT CPU
(IC201)

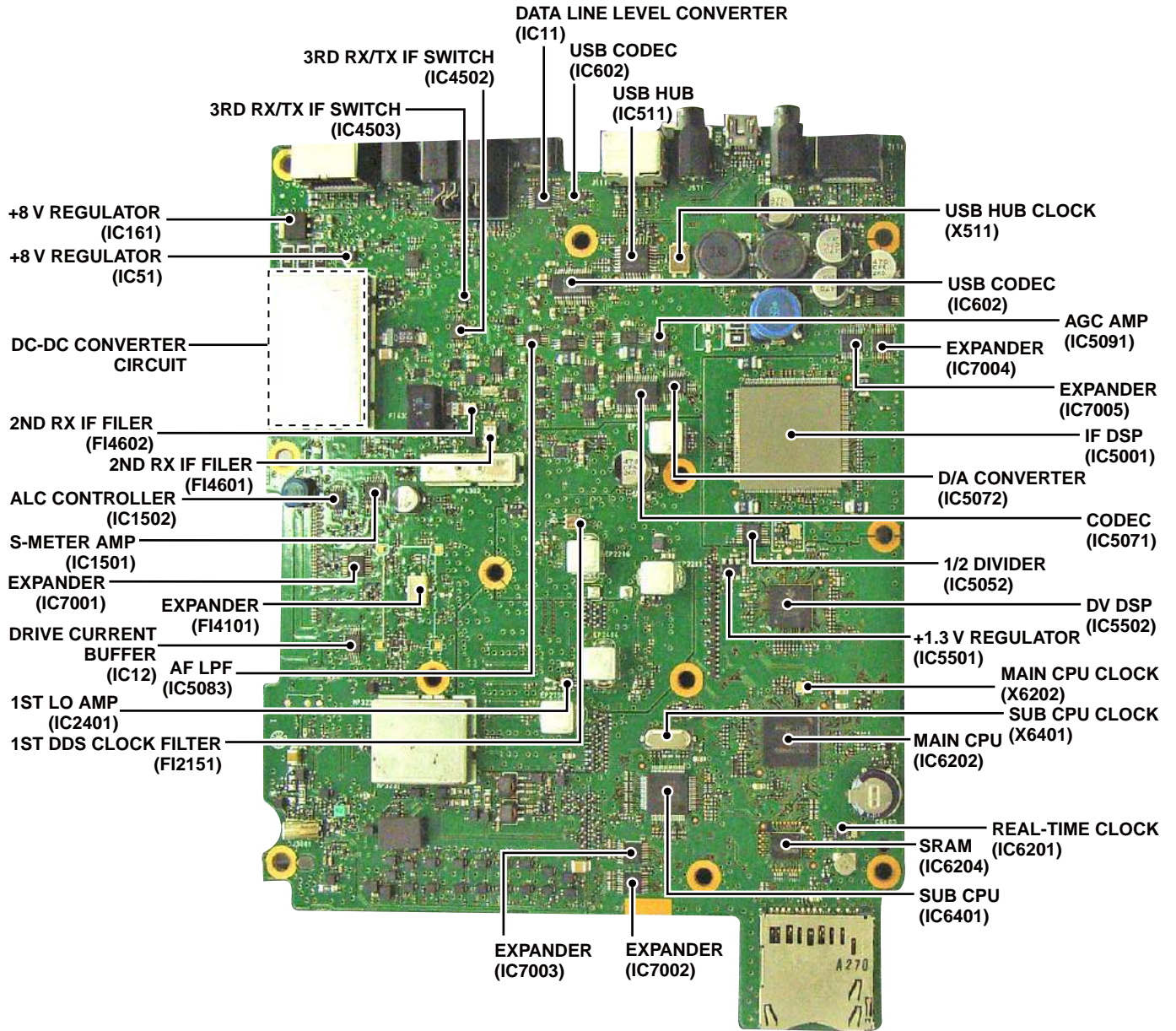
CONTROL DATA INTERFACE
(IC501)

CURRENT LIMITER
(Q501)

RESET IC
(IC202)



• MAIN UNIT



• PA UNIT

HF/50 MHz/70 MHz BAND
TX POWER DETECT BUFFER
(IC960)

144 MHz/430 MHz BAND
TX POWER DETECT BUFFER
(IC651)

SERIAL TO PARALLEL
CONVERTER
(IC751)

TX POWER AMP
(Q301)

TX POWER AMP
(Q302)

"T8V" LINE SWITCH
(Q492)

"T8V" LINE CONTROLLER
(Q292)

"14V" LINE SWITCH
(Q391)

DRIVE AMP
(Q251)



3-1 RECEIVER CIRCUITS

RF CIRCUIT (PA UNIT)

• While operating on the HF, 50 MHz and 70 MHz bands
 The RX signal from the antenna connector ([ANT1]: J1) is passed through the power/SWR detect circuit (D961 and D962) and one of the LPFs, depending on the operating band, to remove unwanted out-of-band signals. (See the LPF TABLE below.)

The filtered RX signal is passed through the TX/RX SW (RL801) and LPF (L801, L802, C801, C803 and C805) for further removal of unwanted signals, and then passed through the mute SWs (D181 and D182).

When the attenuator is turned ON, the RX signal is passed through the 18 dB attenuator (MAIN UNIT: D3082 and D3083).

The RF signal is passed through one of the BPFs, depending on the operating frequency, to remove unwanted signals. (See the BPF TABLE on page 3-2.)

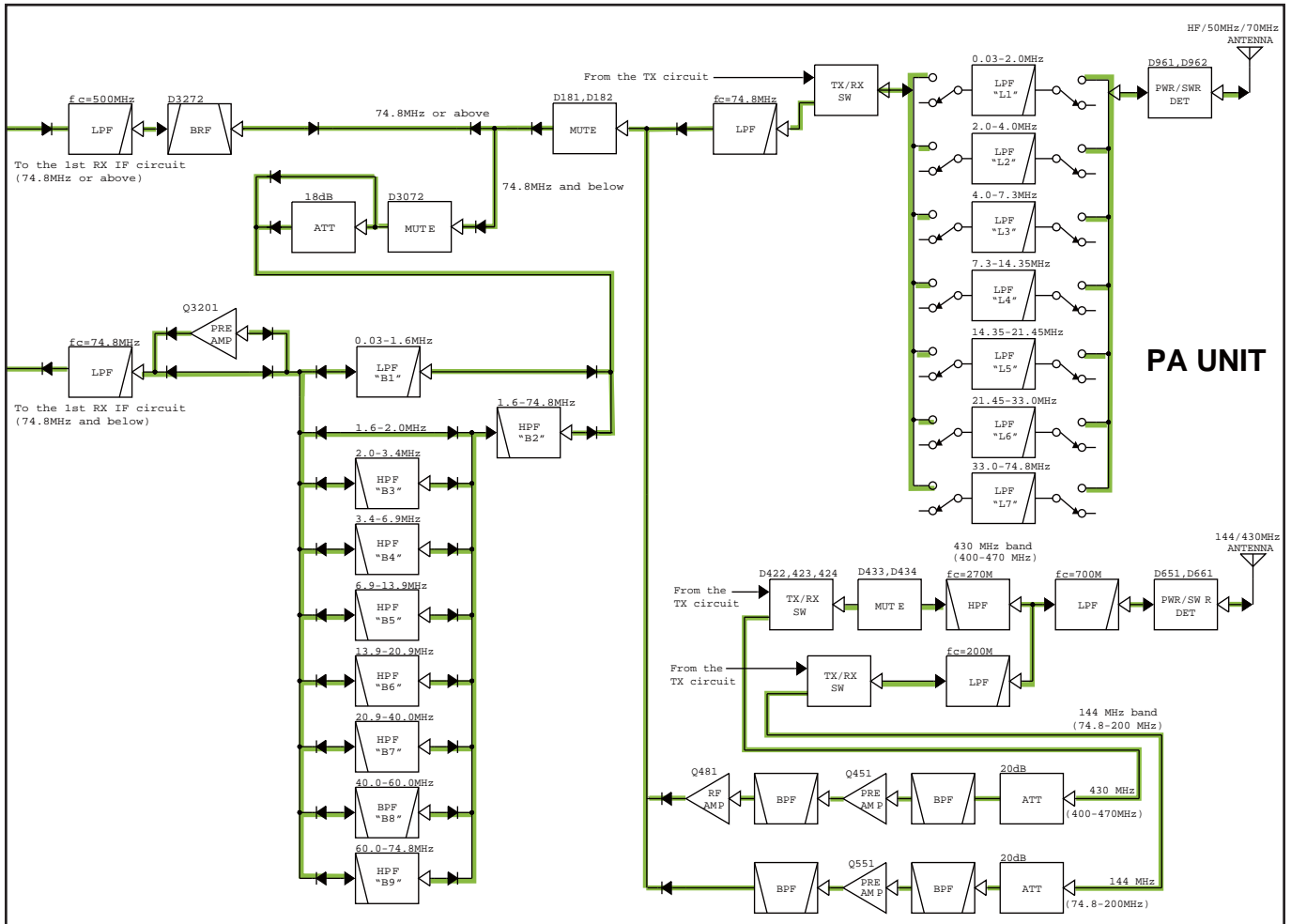
The filtered signal is applied to the pre-AMP circuit.

PRE-AMP CIRCUIT (MAIN UNIT)

When the pre-AMP is turned ON, the RX signal is amplified by the pre-AMP (Q3201).

The amplified signal is applied to the 1st RX IF circuits.

• RF CIRCUITS



• LPF TABLE

Filter	Operating frequency (MHz)	Filter switches	Components	Control line (Active High)
L1	0.030000 to 1.999999	RL880 RL881	L881, L882 C882 to C886, C888 to C890, C893, C894, C896, C897, C899	L1
L2	2.000000 to 3.999999	RL920 RL921	L921, L922, C922 to C929, C933, C984	L2
L3	4.000000 to 7.300000	RL840 RL841	L841 to L843, C842 to C848, C850, C854 to C859	L3
L4	7.300001 to 14.350000	RL900 RL901	L901 to L903, C902, C907	L4
L5	14.350001 to 21.450000	RL940 RL941	L942, L943, C944 to C947, C950, C953	L5
L6	21.450001 to 32.999999	RL820 RL821	L822, L823, C824 to C828, C833, C835	L6
L7	33.000000 to 74.799999	RL860 RL861	L861 to L863, C863 to C866, C868, C869, C873, C875 to C878	L7

• While operating on the 144 MHz and 430 MHz bands

The RX signal from the antenna connector ([ANT2]) is passed through the power/SWR detect circuit (D651 and D661) and LPF (L591 to L593, C591 and C592).

144 MHz BAND SIGNAL

The RX signal is passed through the LPF (L541 to L543, C542 to C547) and TX/RX SW (RL531).

When the attenuator is turned ON, the RX signal is also passed through the 20 dB attenuator (D551 and D552).

The RX signal is then passed through the BPF (MAIN UNIT : D553 to D556, L552, L553 and C553) and applied to the pre-AMP (Q551).

The amplified signal is passed through another BPF (MAIN UNIT: D557 to D560, L557 and C561), RX mute (D181 and D182), BPF (MAIN UNIT: D3272, L3271, L3272, C3271 to C3273) and LPF (L3261 to L3263, C3261 to C3267), and then applied to the 1st RX IF circuit.

430 MHz BAND SIGNAL

The RX signal is passed through the HPF (L441, L442, C441 to C443), mute SW (D433 and D434) and TX/RX SW (D422 to D424).

When the attenuator is turned ON, the RX signal is also passed through the 18 dB attenuator (D451 and D452).

The RX signal is then passed through the BPF (MAIN UNIT : D454, L452 and C454) and applied to the pre-AMP (Q451). The amplified signal is passed through the 2-staged BPF (MAIN UNIT: D455, L453, C468 and D456, L454, C473), and applied to the RF AMP (Q481).

The amplified signal is passed through the RX mute (D181 and D182), BPF (D3272, L3271, L3272, C3271 to C3273) and LPF (L3261 to L3263, C3261 to C3267), and then applied to the 1st RX IF circuit.

• BPF TABLE

Filter	Operating frequency (MHz)	Filter switches	Components	Control line (Active High)
B0	0.030000 to 1.599999	D3111 D3112	L3112, C3112, C3113, C3115	B0
B1	1.600000 to 1.999999	D3121 D3122	L3103 to L3106, C3102 to C3106	B1
B1 and B2	2.000000 to 3.399999	D3121 D3122 and D3131 D3132	L3103 to L3106, C3102 to C3106 and L3132, L3133, C3132 to C3137	B2
B1 and B3	3.400000 to 6.899999	D3121 D3122 and D3141 D3142	L3103 to L3106, C3102 to C3106 and L3142, L3143, C3142 to C3146	B3
B1 and B4	6.900000 to 13.899999	D3121 D3122 and D3151 D3152	L3103 to L3106, C3102 to C3106 and L3152, L3153, C3152 to C3156	B4
B1 and B5	13.900000 to 20.899999	D3121 D3122 and D3161 D3162	L3103 to L3106, C3102 to C3106 and L3162, L3163, C3162 to C3166	B5
B1 and B6	20.900000 to 39.999999	D3121 D3122 and D3171 D3172	L3103 to L3106, C3102 to C3106 and L3172, L3173, C3172 to C3176	B6
B1 and B7	40.000000 to 59.999999	D3121 D3122 and D3181 D3182	L3103 to L3106, C3102 to C3106 and L3182, L3183, C3182 to C3187	B7
B1 and B8	60.000000 to 74.799999	D3121 D3122 and D3191 D3192	L3103 to L3106, C3102 to C3106 and L3192, L3193, C3192 to C3196	B8

1ST RX IF CIRCUIT (MAIN UNIT)

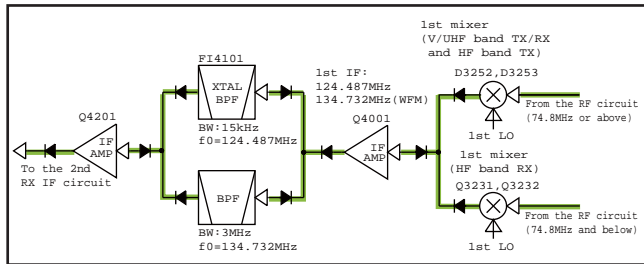
The RX signal from the RF circuit is applied to the 1st IF mixer (For the HF band: Q3231 and Q3232, For the VHF/UHF band: D3252 and D3253), and mixed with the 1st LO signal, resulting in the 124.487 MHz (WFM:134.732 MHz) 1st RX IF signal.

The 1st RX IF signal is amplified by the 1st RX IF AMP (Q4001), and then passed through the 1st RX IF filter FI4101.

When the receiving mode is WFM, the 1st RX IF signal is by-passed FI4101.

The filtered signal is further amplified by another 1st IF AMP (Q4201), and then applied to the 2nd RX IF circuit.

• 1ST RX IF CIRCUIT



2ND RX IF CIRCUIT (MAIN UNIT)

The 1st RX IF signal from the 1st RX IF circuit is applied to the 2nd IF mixer (D4301 and D4302), and mixed with the 124.032 MHz 2nd LO signal, resulting in the 455 kHz (WFM:10.7 MHz) 2nd RX IF signal.

• The WFM mode

The 2nd RX IF signal is passed through the diplexer (L4304, L4351, L4352, C4302, C4303, C4351) and 2nd RX IF filter (FI4601), and then applied to the 2nd RX IF AMP (Q4601). The amplified signal is passed through another 2nd RX IF filter (FI4602), and then applied to the IF IC (IC4601).

IC4601 contains an IF AMP and quadrature detector circuit, and demodulates the WFM signal into the AF signal.

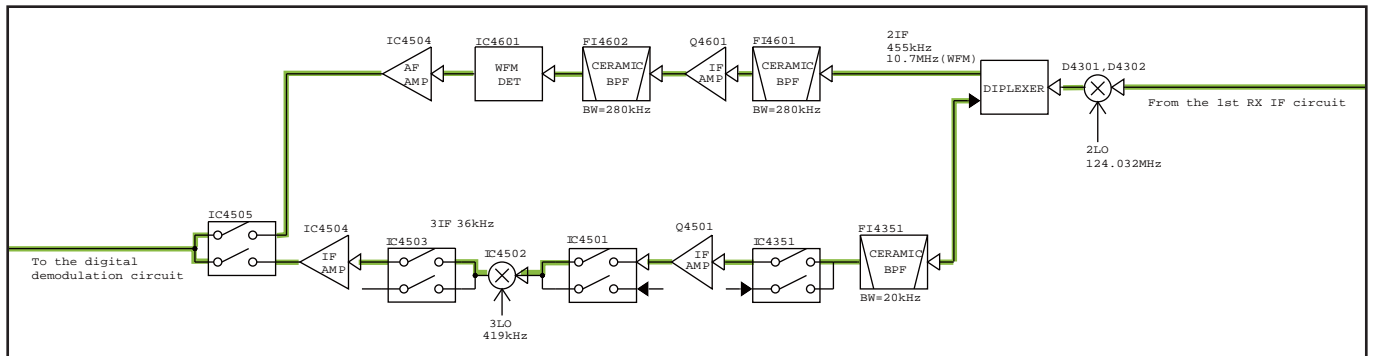
The demodulated AF signal is passed through the de-emphasis circuit (R4606, R4610, C4612, C4615 and C4616) to obtain +6 dB of alteration of the amplitude-versus-frequency characteristics, then amplified by the AF AMP (IC4504), and then applied to the digital demodulation circuit, through the mode SW (IC4505).

• Other than WFM mode

The 2nd RX IF signal is passed through the diplexer (L4304, L4351, L4352, C4302, C4303, C4351) and 2nd RX IF filter (FI4351), and then applied to the 2nd RX IF AMP (Q4501), through the TX/RX 2nd IF SW (IC4501). The amplified signal is applied to the 3rd IF mixer (IC4502), through another TX/RX 2nd IF SW (IC4501), and mixed with the 419 kHz 3rd LO signal, resulting in the 36 kHz 3rd RX IF signal.

The 3rd RX IF signal is applied to the 3rd RX IF AMP (IC4504), through the TX/RX 3rd IF SW (IC4503). and then applied to the digital demodulation circuit, through the mode SW (IC4505).

• 2ND AND 3RD RX IF CIRCUITS



DIGITAL DEMODULATION CIRCUIT (MAIN UNIT)

The 3rd RX IF signal (and frequency-demodulated signal in the WFM mode) is passed through the TX/RX IF SW (IC5213) and LPF (IC5161), and then applied to the IF AMP (IC5162). The amplified signal is applied to the CODEC (IC5071).

IC5071 is a 24-Bit 192 kHz Stereo Audio CODEC and contains D/A and A/D converters inside.

The applied signal is converted into a digital audio signal by the A/D converter inside, and then applied to the DSP (Analog mode: IC5001 or DV mode: IC5502).

The digital audio signal is demodulated and processed by the DSP, and then applied to the D/A converter in the CODEC (IC5071), to be converted into an analog audio signal.

The analog AF signal is amplified by the active LPF (IC5082), and passed through two LPFs (IC5083A and IC5083B), whose cut-off frequencies are 16 kHz and 3.5 kHz. In the WFM mode, the AF signal is passed through only the 16 kHz LPF (IC5083A).

The filtered signal is applied to the AF output circuit, through the mode SW (IC5151).

AF OUTPUT CIRCUIT (MAIN UNIT)

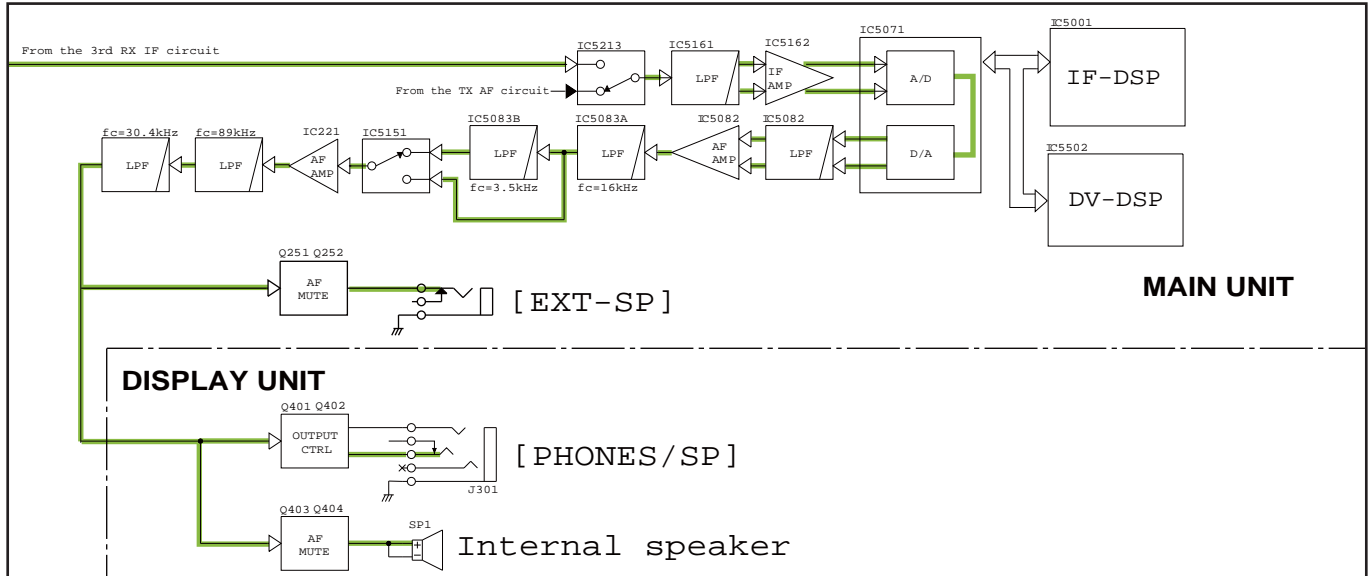
The RX AF signal from the digital demodulation circuit is amplified by the AF AMP (IC221), and passed through two LPFs (L231, R231, C231, C232 and L232, R233, R234, C233 to C235).

The RX AF signal is output to the internal speaker, through the AF mute SW (Q403 and Q404).

The AF signal is output to external speaker or headphones, through the AF output controller (Q401 and Q402), when it is connected to the [PHONES/SP] jack (DISPLAY UNIT: J402),

The AF signal is also output to the external speaker, through the AF mute SW (Q251 and Q252), when it is connected to the [EXT-SP] jack (MAIN UNIT: J191).

• DIGITAL DEMODULATION AND AF OUTPUT CIRCUITS



3-2 TRANSMITTER CIRCUITS

TX AF CIRCUIT (MAIN UNIT)

The audio signal from the microphone (MIC signal) is applied to the MAIN UNIT, through the MICROPHONE CONNECTOR (MIC UNIT: J1), and then amplified by the MIC AMP (IC141). The amplified signal is applied to the AF AMP (IC5163), through the LPF (IC5161).

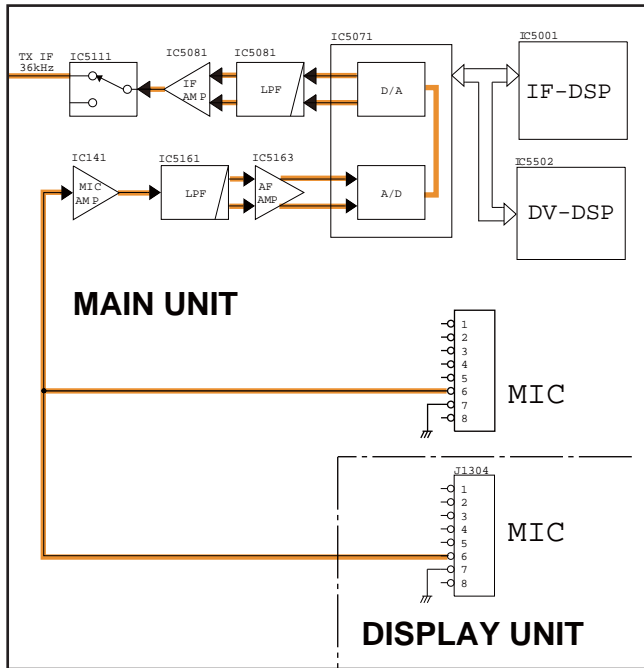
The audio signal from the accessory socket [ACC] on the rear panel, is passed through the MIC line SWs (IC5211 and IC5212), TX/RX AF SW (IC5213) and LPF (IC5161), and then applied to the AF AMP (IC5162).

The amplified signal is applied to the A/D converter (IC5071) and converted into a digital audio signal.

The converted digital audio signal is applied to the DSP (Analog mode: IC5001 or DV mode: IC5502), and demodulated and processed. The demodulated signal is applied to the D/A converter (IC5071), converted into the 36 kHz 3rd TX IF signal, and then amplified by the active LPF (IC5081).

The amplified 3rd TX IF signal is applied to the 3rd TX IF circuit, through the 3rd TX IF SW (IC5111).

• TX AF CIRCUIT



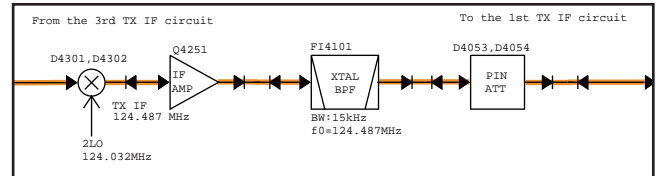
3RD TX IF CIRCUIT (MAIN UNIT)

The 3rd TX IF signal from the modulation circuit is applied to the 3rd TX mixer (IC4502), through the TX/RX 2nd IF SW (IC4501), mixed with the 419 kHz 3rd TX LO signal, resulting in the 455 kHz 2nd TX IF signal.

The converted 2nd TX IF signal is applied to the 2nd TX IF AMP (Q4401) through another 2nd IF SW (IC4503). The amplified signal is applied to the 2nd IF filter (FI4351), through the 2nd IF SW (IC4351), to remove unwanted signals.

The filtered 2nd TX IF signal is applied to the 2nd TX IF circuit, through the diplexer (L4304, L4351, L4352, C4302, C4303, C4351).

• 3rd TX IF CIRCUIT



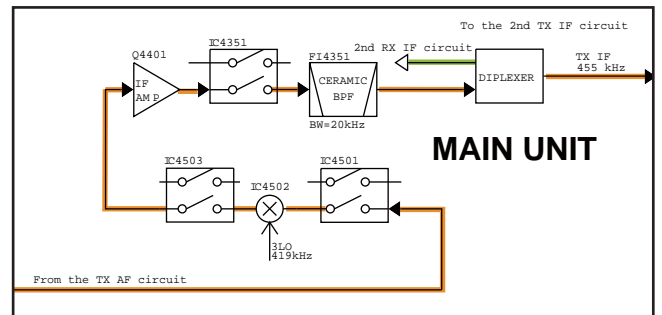
2ND TX IF CIRCUIT (MAIN UNIT)

The 2nd TX IF signal from the 3rd TX IF circuit is applied to the 2nd IF mixer (D4301 and D4302), then mixed with the 124.032 MHz 2nd TX LO signal, resulting in the 124.487 MHz 1st TX IF signal.

The converted 2nd TX IF signal is amplified by the 1st TX IF AMP (Q4251), passed through the 1st IF filter (FI4101) to remove unwanted signals, and then to the variable attenuator (D4053 and D4054) to adjust the signal level.

The level-adjusted 1st TX IF signal is applied to the 1st TX IF circuit.

• 2nd TX IF CIRCUIT



1ST TX IF CIRCUIT (MAIN UNIT)

The 1st TX IF signal from the 2nd TX IF circuit is applied to the 1st TX mixer (D3252 and D3253), then mixed with the 1st TX LO signal, resulting in a signal at the TX frequency.

The converted TX signal is applied to the TX amplifier circuit.

• While operating on the HF, 50 MHz and 70 MHz bands -

The TX signal is passed through the LPF (L3261 to L3263, C3216 to C3267) and one of the BPFs, depending on the operating frequency, to remove unwanted signals.

The filtered signal is applied to the TX power amplifier circuit.

• While operating on the 144 MHz and 430 MHz bands -

The TX signal is passed through the LPF (L3261 to L3263, C3216 to C3267) and BRF (D3272, L3271, L3272, C3271 to C3273).

• 144 MHz band signal

The TX signal is passed through the 3 dB attenuator (R3035 to R3037) and 146 MHz BPF (MAIN UNIT: L3032 to L3035, C3036 to C3046), and then amplified by the RF AMP (IC3031).

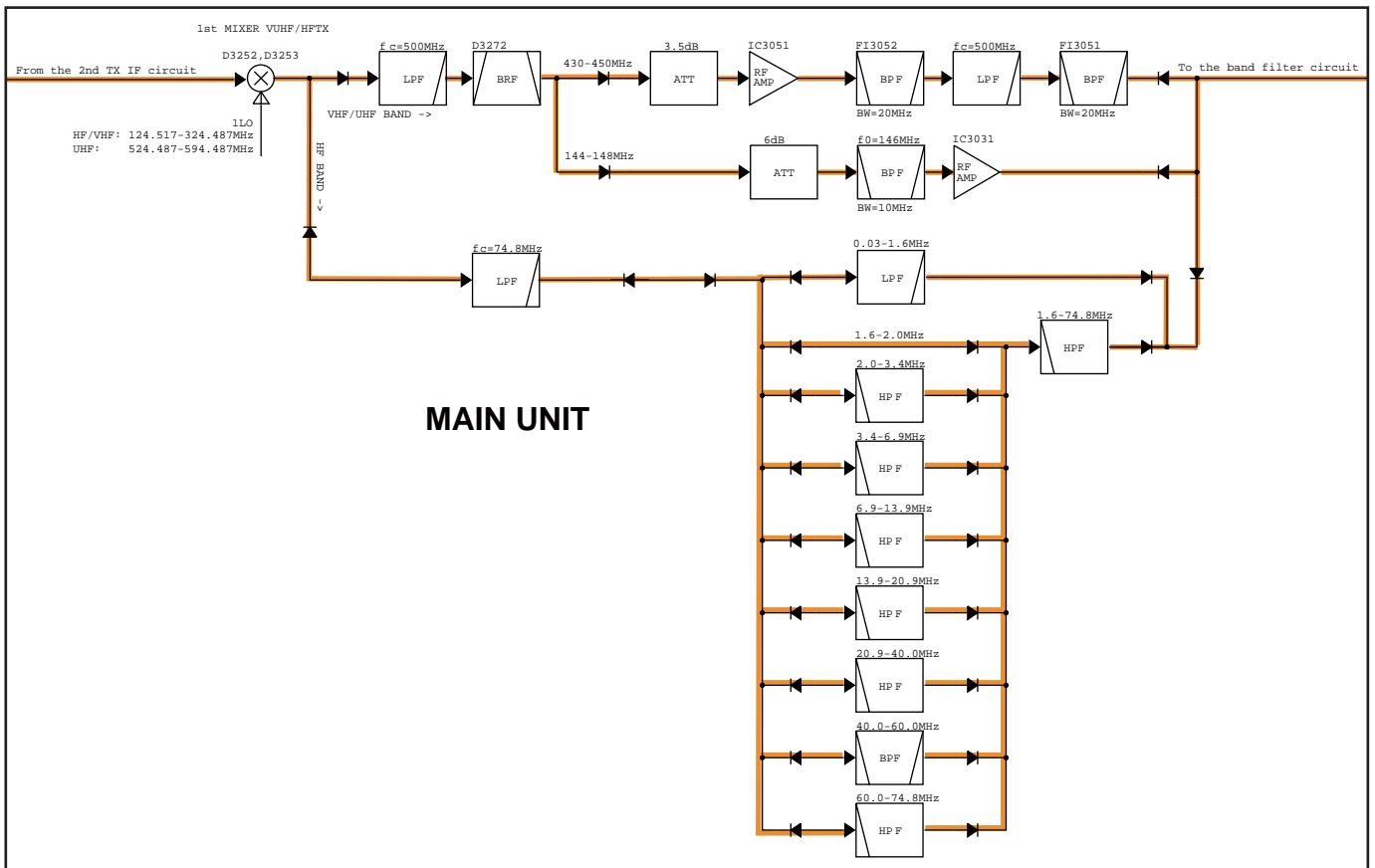
The amplified signal is applied to the TX power amplifier circuit.

• 430 MHz band signal

The TX signal is passed through the 3.5 dB attenuator (R3052 to R3054), and amplified by the RF AMP (IC3051). The amplified TX signal is sequentially passed through the BPF (FI3052), LPF (L3052, C3053, C3054) and BPF (FI3051).

The filtered signal is applied to the TX power amplifier circuit.

• 1st TX IF CIRCUIT



TX AMPLIFIER CIRCUIT (MAIN AND PA UNITS)

The TX signal from the band filter circuit is applied to the YGR AMP (IC3021), through the 3 dB attenuator (R3022 to R3024).

The amplified signal is passed through the 72 MHz LPF (L3014, C3015 to C3017), or the 124 MHz HPF (L3012, L3013, C3012 to C3014). The filtered signal is passed through two attenuators (3 dB: R3011 to R3013 and 6 dB: R101 to R103), and then sequentially amplified by the RF AMP (Q101), pre-drive AMP (Q102) and drive AMP (Q251).

•While operating on the HF, 50 MHz and 70 MHz bands

The amplified signal is applied to the power AMP (Q301 and Q302), through the diplexer (L411, C413, C513, C514, C515). The amplified signal is passed through the TX/RX SW (RL801) and one of the LPFs, depending on the operating band, to remove harmonic components.

The filtered signal is applied to the antenna connector ([ANT1]: J1) through the power and SWR detect circuit (D961 and D962).

•While operating on the 144 MHz and 430 MHz bands

The amplified signal is applied to the power AMP (Q501), through the diplexer (L203, L204, C214, C216, C262, C266). The amplified signal is passed through another diplexer (L411, C413, C513, C514, C515), which separates the band signal.

- 144 MHz band signal

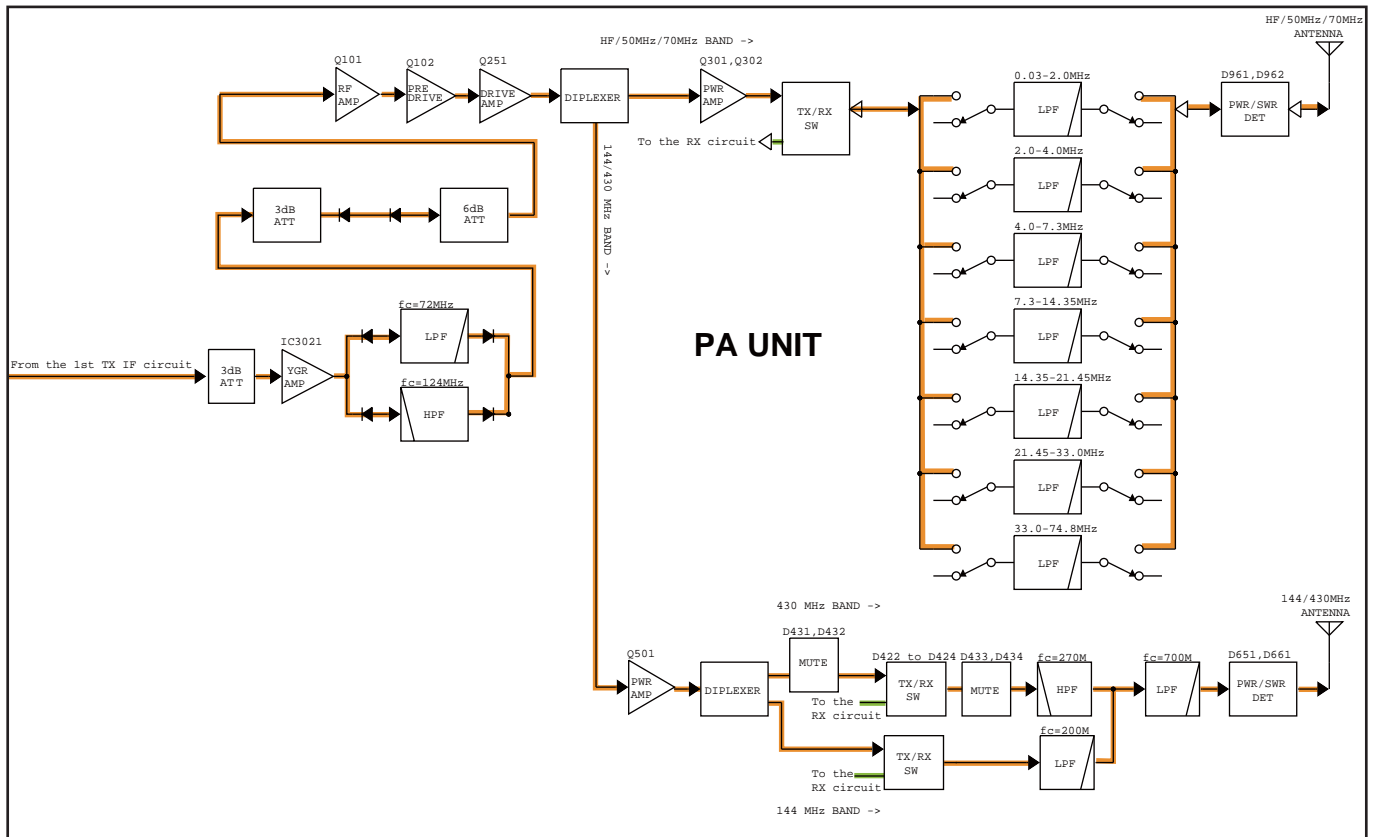
The TX signal is passed through the TX/RX SW (RL531) and LPF (L541 to L543, C542 to C547).

- 430 MHz band signal

The TX signal is sequentially passed through the TX mute SW (D431 and D432), TX/RX SW (D422 to D424), another mute SW (D433 and D434) and HPF (L441, L442, C441 to C444).

The filtered 144 MHz/430 MHz band signal is applied to the antenna connector ([ANT2]: J2), through the LPF (L591 to L593, C591 and C592), which removes harmonic components, and the SWR detect circuit (D651 and D661).

•TX AMPLIFIER CIRCUIT



3-3 LOCAL OSCILLATOR CIRCUITS (MAIN UNIT) REFERENCE FREQUENCY OSCILLATOR CIRCUIT

The crystal oscillator (X2001) generates the 41.344 MHz reference frequency signal. This reference signal is applied to the Local Oscillator (LO) circuits, through the buffer (Q2001 and Q2002), and used as the reference clock signal of DDS (IC2002) or the 2nd LO signal.

3RD TX/RX LO CIRCUIT

The 41.344 MHz reference signal from the crystal oscillator (X2001) is amplified by the buffer (Q2001 and Q2002) and LO AMP (IC2001), and then divided into 1/4 (10.336 MHz) by the divider (IC2003), resulting in the 10.336 MHz reference clock signal. The clock signal is applied to the DDS (IC2002).

Using the applied signal as the reference clock, the DDS (IC2002) directly generates the 491 kHz 3rd TX LO signal.

The 491 kHz 3rd TX LO signal is amplified by the LO AMP (Q2003), and passed through the LPF (L2004 and C2018), and then applied to the 3rd IF mixer (IC4502).

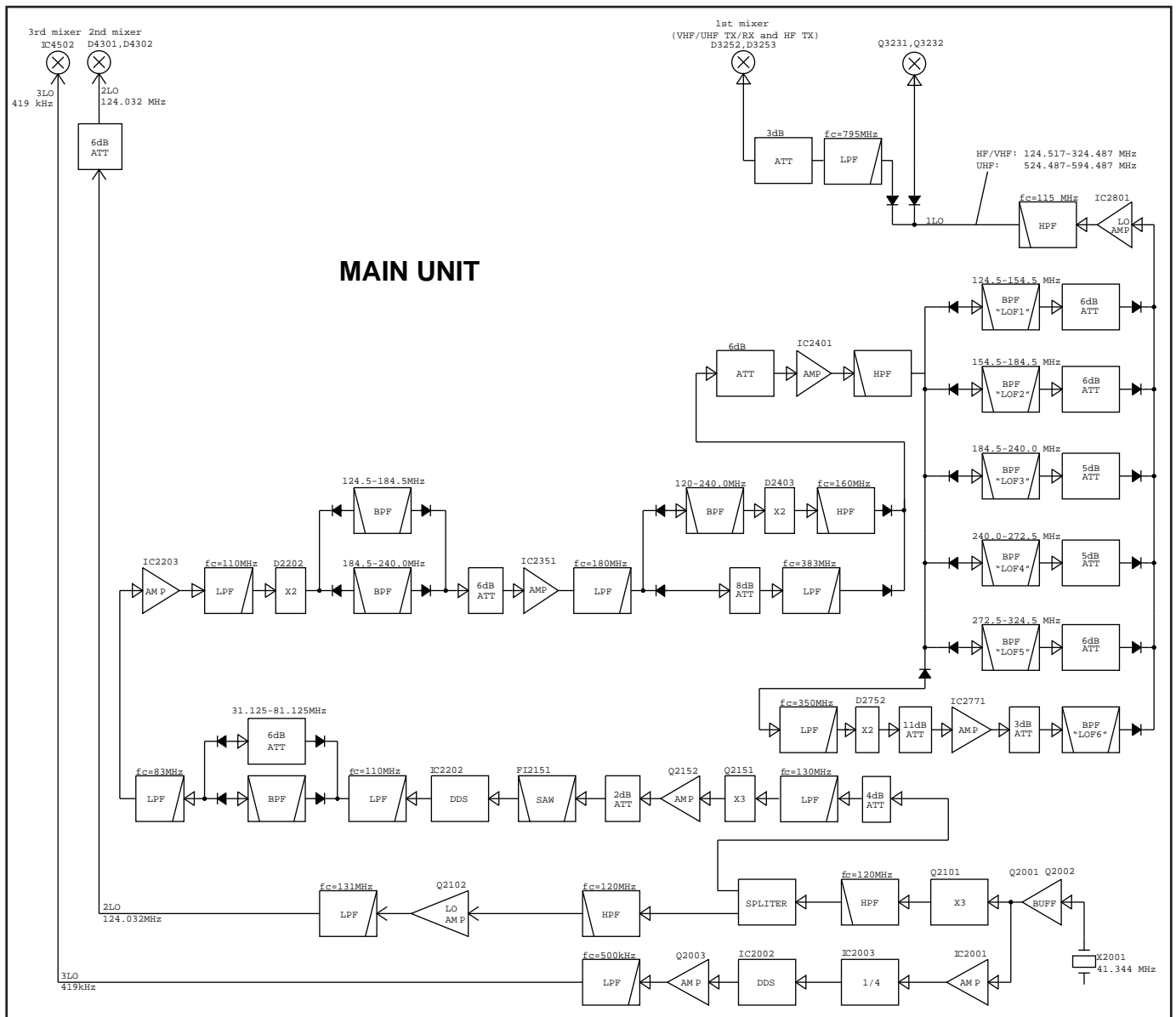
2ND TX/RX LO CIRCUIT

The 41.344 MHz reference signal from the crystal oscillator (X2001) is amplified by the buffer (Q2001 and Q2002), and then applied to the frequency multiplying circuit (Q2101), which extracts the 3rd harmonic component, resulting in the 124.032 MHz 2nd LO signal.

The 124.032 MHz 2nd LO signal is passed through two HPFs (L2103, C2105, C2108 and L2106, C2112, C2114) and splitter (L2104, L2105, C2110 and C2111), and then applied to the LO AMP (Q2102).

The amplified signal is applied to the 2nd IF mixer (D4301 and D4302), through the LPF (L2109, L2110, C2119 to C2123) and 6 dB attenuator (R4302 to R4304).

• LOCAL OSCILLATOR CIRCUITS



1ST RX/TX LO CIRCUIT

The 41.344 MHz reference signal from the crystal oscillator (X2001) is amplified by the buffer (Q2001 and Q2002), and then applied to the frequency multiplying circuit (Q2101), which extracts the 3rd harmonic component, resulting in the 124.032 MHz signal.

The 124.032 MHz signal is passed through two HPFs (L2103, C2105, C2106 and C2108), splitter (L2104, L2105, C2110 and C2111), 4 dB attenuator (R2151 to R2153) and LPF (L2152, C2151 to C2153), and then applied to the frequency multiplying circuit (Q2151), which extracts the 3rd harmonic component, resulting in the 372.096 MHz reference clock signal.

The clock signal is amplified by the clock AMP (Q2152), and passed through the 2 dB attenuator (R2164 to R2166) and SAW filter (FI2151), and then applied to the DDS (IC2202).

Using the 372.096 MHz reference clock signal, the DDS (IC2202) directly generates the 38.62 to 77.24 MHz 1st TX/RX LO signal.

The 1st TX/RX LO signal is passed through the LPF (L2241, L2242, C2241 to C2243) and 6 dB attenuator (R2262 to R2264), and then applied to the LO AMP (IC2203).

When the operating frequency is 400 to 470 MHz, the 1st TX/RX LO signal is passed through the BPF (L2251 to L2253, C2252 to C2254), instead of the 6 dB attenuator (R2262 to R2264).

The amplified signal is passed through the LPF (L2208, L2210, C2228, C2231 and C2233), and applied to the frequency multiplying circuit (D2202 and L2211), which extracts the 2nd harmonic component, resulting in the 77.24 to 162.24 MHz signal. The 1st TX/RX LO signal is then passed through either BPF.

When the operating frequency is 30 to 107.999 MHz, the 1st TX/RX LO signal is filtered by the BPF (L2322 to L2327, C2321 to C2334).

When the operating frequency is 0.03 to 29.999 MHz and 108 to 470 MHz, the 1st TX/RX LO signal is filtered by the BPF (L2303 to L2308, C2302 to C2314).

The filtered signal is passed through the 6 dB attenuator (R2324 to R2326), and then applied to the LO AMP (IC2351).

The amplified signal is passed through the LPF (L2352, C2354 and C2355), and then applied to the frequency multiplying circuit or LPF.

When the operating frequency is 30 to 470 MHz, the 1st TX/RX LO signal is passed through the BPF (L2402, L2403, C2405 to C2411), and applied to the frequency multiplying circuit (D2403 and L2404), which extracts the 2nd harmonic component, resulting in the 154.487 to 324.487 MHz signal.

The 1st TX/RX LO signal is passed through the HPF (L2407, C2416, C2418 and C2419).

When the operating frequency is 29.999 MHz and below, the 1st TX/RX LO signal is passed through the LPF (L2405, C2414, C2415 and C2417).

The filtered signal is passed through the 6 dB attenuator (R2414 to R2416), and applied to the LO AMP (IC2401). The amplified signal is passed through the 360 MHz LPF (L2414, and C2429 and C2430), 120 MHz HPF (L2412, C2425 and C2426) and one on the BPFs, depending on the frequency, to remove unwanted signals. (See the 1ST LO BPF TABLE below.)

When the operating frequency is 30 to 470 MHz, the 1st TX/RX LO signal is passed through the LPF (L2754, C27532 and C2755) and applied to the frequency multiplying circuit (D2752 and L2756), which extracts the 2nd harmonic component, resulting in the to 594.487 MHz signal.

The filtered 1st LO signal is amplified by the LO AMP (IC2801), and passed through the HPF (L2802, C2805 and C2806), and then applied to the 1st IF mixer.

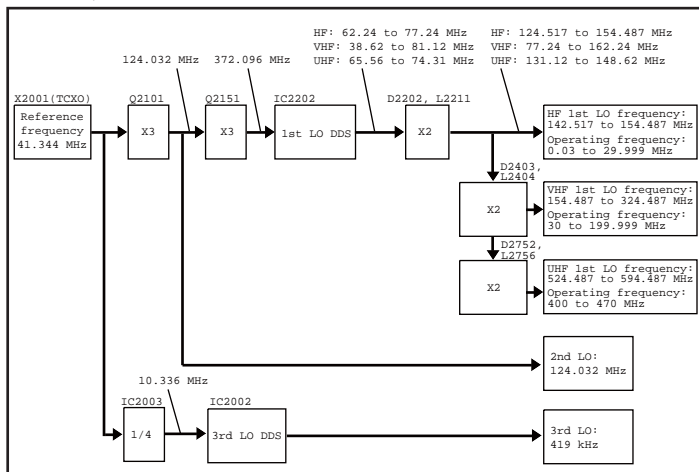
• While receiving on the HF band

The 1st LO signal is applied to the 1st IF mixer (Q3231 and Q3232).

• While operating on the VHF/UHF band or transmitting on the HF band

The 1st LO signal is applied to the 1st IF mixer (D3252 and D3253), through the LPF (L3256, C3244 to C3246) and 3 dB attenuator (R3254 to R3256).

• FREQUENCY CONFIGURATION DIAGRAM



• 1ST LO BPF TABLE

Filter	Operating frequency (MHz)	Filter switches	Components	Control line (Active High)
BLF1	0.03 to 29.999999	D2501 D2502	L2502 to L2506, C2501 to 2511	BLF1
BLF2	30.0 to 59.999999	D2551 D2552	L2552 to L2557, C2551 to C2565	BLF2
BLF3	60.0 to 115.512999	D2601 D2602	L2602 to L2607, C2601 to C2613, C2615	BLF3
BLF4	115.513 to 148.0	D2651 D2652	L2652 to L2657, C2652 to C2665	BLF4
BLF5	148.000001 to 199.999999	D2701 D2702	L2702 to L2707, C2701 to C2714	BLF5
BLF6	400.000000 to 470.000000	D2751 D2753	L2755, L2757 to L2759, L2761	BLF6

3-4 PORT ALLOCATIONS

• MAIN CPU (MAIN UNIT: IC6202)

BALL No.	LINE NAME	DESCRIPTION	I/O
A4	FORL	Forward wave in the TX signal sensing voltage.	I
A5	MUDL	Microphone [UP]/[DN] key input. 1.6 V or higher="OFF" 1.2 to 1.6 V=[DN] 1.2 V or lower=[UP]	I
A6	FMTL	Repeater tone, CTCSS and DTCS signals.	I
A8	FRWT	DSP firmware writing control. High=Write mode.	O
A11	PWRS	Main power line control. High=While the transceiver's power IS ON.	O
A12	RTC_SCL	Real-time clock IC serial clock.	O
B4	THML	TX power AMP temperature sensing voltage.	I
B5	ALCL	ALC level sensing voltage.	I
B7	DRESID	DSP reset. Low=Reset.	O
B9	MDAT	Expander serial data.	O
C2	REFV	Reference frequency adjustment voltage.	O
C4	IDL	TX power AMP/driver AMP current sensing voltage.	I
C5	DPTL	SEND signal from the [DATA1]/[DATA2] jack.	I
C7	WFML	RSSI voltage in the WFM mode.	I
C9	MSTB1	BPF select expander serial strobe.	O
C11	UPWS	USB peripheral devices power supply control. High=A USB device is connected.	O
D1	RTC_IRQ	Real-time clock interrupt request. Real-time clock IC serial clock.	I
D2	UDRXD	USB serial data.	I
D4	VDL	Power supply voltage.	I
D5	REFL	Reflected wave in the TX signal sensing voltage.	I
D8	MCK	Expander serial clock.	O
D9	MSTB2	DDS filter select expander serial strobe.	O
D11	RTC_SDA	Real-time clock IC serial data.	I/O
D15	DSTB	Main expander serial strobe.	O
E4	UDTXD	USB serial data.	O
E13	EDT	EEPROM serial data.	I/O
E14	ECK	EEPROM serial clock.	O
G3	HSK0	DSP handshake data. (1 of 2)	I
G4	HSK1	DSP handshake data. (2 of 2)	I
J4	PDV	Power down detect. Low=Power line is shutting down.	I
K1	USSENI	PTT input through the connected USB device. High=While transmitting.	I
K2	MMDK	Microphone control data.	I
K3	USKI	CW/RTTY input through the connected USB device. Low=While keying in the CW/RTTY.	I
M1	SKYS	Keying input from the connected telegraph key. Low=While keying in the CW/RTTY.	I
M2	LTXD	Front CPU communication data.	O
M5	PLDA	Record/Playback audio data.	O
M7	DPWS	The DSP IC power control. High=While the DSP is used.	O
M9	DSPR	DSP serial data.	O
N1	LRXD	Front CPU communication data.	I
N2	RTKI	RTTY keying input. High=Inputting Space.	I

BALL No.	LINE NAME	DESCRIPTION	I/O
N3	SD_TXD	microSD card serial data.	O
N4	REDA	Record/Playback audio data.	I
N5	CRXD/ CBSY	CI-V data/Bus busy signal.	I
N7	SD_PTC	microSD card write protect mode detect. High=While in the write protect mode.	I
N9	DSPCK	DSP data serial clock.	O
N14	RXS	RX circuit (All bands) control. High=While receiving.	O
P1	SD_CS	microSD card chip select. Low=While the inserted microSD card is busy.	O
P2	SD_SCK	microSD card serial clock.	O
P4	PLCK	Record/Playback audio output control clock.	O
P5	VBUS	USB device connect detect. High=A USB device is connected.	I
P7	ESTA	External antenna tuner START signal. Low=Tuning start.	O
P13	DRXD	Low speed communication data from the connected device.	I
P14	VRXS	VHF band RX circuit control. High=While receiving on the VHF band.	O
R1	SD_RXD	microSD card serial data.	I
R2	RECK	Record/Playback audio input control clock.	O
R4	CTXD	CI-V data.	O
R5	PWRK	[PWR] input. Low=Pushed.	I
R6	HSENI	External SEND signal input. High=Transmitting.	I
R7	SD_SENC	microSD card insertion detect. High=A microSD card is inserted.	I
R8	DSPX	DSP serial data.	I
R9	EKEY	External antenna tuner KEY signal input. Low=While tuning or when the tune is failed.	I
R10	SCRES	Sub CPU reset control. Low=Reset.	O
R14	URXS	UHF band RX circuit control. High=While receiving on the UHF band.	O
R15	HRXS	HF/50 MHz/70 MHz band RX circuit control. High=While receiving on the HF band.	O

• SUB CPU (MAIN UNIT: IC6401)

PIN No.	LINE NAME	DESCRIPTION	I/O
1	ICCV	APC AMP reference voltage.	O
2	FANV	Cooling fan rotation control voltage.	O
15	3DST	3rd LO DDS strobe.	O
16	1CN1	1st Lo DDS control bit. (OSK)	O
17	1CN0	1st Lo DDS control bit. (IOUPDATE)	O
18	1DST	1st Lo DDS strobe.	O
19	PDAT	DDS serial data.	O
20	PCK	DDS serial clock.	O
21	HTXS	The HF/50 MHz/70 MHz band TX circuit control. High=While transmitting on the HF/50 MHz/70 MHz band.	O
22	VTXS	The VHF band TX circuit control. High=While transmitting on the VHF band.	O
23	UTXS	The UHF band TX circuit control. High=While transmitting on the HF/50 MHz/70 MHz band.	O
24	LOF5	1st LO filter select. High=While operating on 148.000000 to 199.999999 MHz.	O
25	LOF6	1st LO filter select. High=While operating on 400.000000 to 470.000000 MHz.	O
28	LOF4	1st LO filter select. High=While operating on 115.5130000 to 148.000000 MHz.	O
29	LOF3	1st LO filter select. High=While operating on 60.000000 to 115.512999 MHz.	O
30	LOF2	1st LO filter select. High=While operating on 15.000000 to 59.999999 MHz.	O
31	LOF1	1st LO filter select. High=While operating on 0.030000 to 14.999999 MHz.	O
33	TCON	External antenna tuner connection detect. Low=An antenna tuner is connected.	I
34	MMSL	Microphone type detect. Low=HM-151 is connected.	I
36	RSPK	Speaker plug insertion detect. High=A speaker is connected on the rear speaker jack.	I
39	PRESL	DDS reset. Low=Reset.	O
40	DBRS	1st LO filter select. High=While operating on 30.000000 to 470.000000MHz.	O
44	DLF1	DDS filter switching control. High=While operating on 30.000000 to 107.999999 MHz.	O
47	DLF2	DDS filter switching control. High=While operating on 0.030000 to 29.999999 MHz, 108.000000 to 199.999999 MHz or 400.000000 to 470.000000 MHz	O
51	DLF3	DDS filter switching control. High=While operating on 0.030000 to 199.999999 MHz.	O
54	TXS	TX circuit (All bands) control. High=While transmitting.	O

• D/A CONVERTER (MAIN UNIT: IC7006)

PIN No.	LINE NAME	DESCRIPTION	I/O
2	VUID1V	VHF/UHF band TX power AMP idling current control.	O
3	DIDV	TX drive AMP idling current control.	O
4	VUT1V	VHF/UHF band BPF tuning voltage. (1 of 2)	O
5	VUT2V	VHF/UHF band BPF tuning voltage. (2 of 2)	O
6	VTRV	VHF band 1st IF trap circuit tuning voltage.	O
7	BANV	Operating band selecting voltage.	O
8	POCV	TX output power control voltage.	O
9	DRIV	TX drive AMP gain control voltage.	O
12	IFT1V	1st IF filter tuning voltage. (1 of 2)	O
13	IFT2V	1st IF filter tuning voltage. (2 of 2)	O
18	HFID1V	HF/50 MHz/70 MHz band TX power AMP idling current control. (1 of 2)	O
19	HFID2V	HF/50 MHz/70 MHz band TX power AMP idling current control. (2 of 2)	O

• EXPANDER (MAIN UNIT: IC7001)

PIN No.	LINE NAME	DESCRIPTION	I/O
1	UPRES	UHF band pre-AMP control. Low=The Pre-AMP is ON.	O
2	VUATTS	144/430 MHz band attenuator control. High=Attenuator ON.	O
3	VBANDS	VHF band tuned BPFs switching. High=While operating on the VHF band (74.800000 to 128.999999 MHz).	O
4	FMS	Operating mode select. High=While operating in the FM or DV mode.	O
5	NASBS	Operating mode select. High=While operating in the mode other than SSB or AM.	O
6	AMS	AM mode select. High=While operating in the AM mode	O
7	WFMS	WFM mode select. High=While operating in the WFM mode	O
15	VPRES	VHF band pre-AMP control. Low=The Pre-AMP is ON.	O

• EXPANDER (MAIN UNIT: IC7002)

PIN No.	LINE NAME	DESCRIPTION	I/O
1	B1	HF/50 HMz/70 MHz band select. High= While operating on 1.600000 to 1.999999 MHz	O
2	B2	HF/50 HMz/70 MHz band select. High= While operating on 2.000000 to 3.399999 MHz	O
3	B3	HF/50 HMz/70 MHz band select. High= While operating on 3.400000 to 6.899999 MHz	O
4	B4	HF/50 HMz/70 MHz band select. High=While operating on 6.900000 to 13.899999 MHz	O
5	B5	HF/50 HMz/70 MHz band select. High=While operating on 13.900000 to 20.899999 MHz	O
6	B6	HF/50 HMz/70 MHz band select. High=While operating on 20.900000 to 39.999999 MHz	O
7	B7	HF/50 HMz/70 MHz band select. High=While operating on 40.000000 to 59.999999 MHz	O
15	B0	HF/50 MHz/70 MHz band BPFs switching. High=While operating on 0.030000 to 1.599999 MHz	O

• EXPANDER (MAIN UNIT: IC7003)

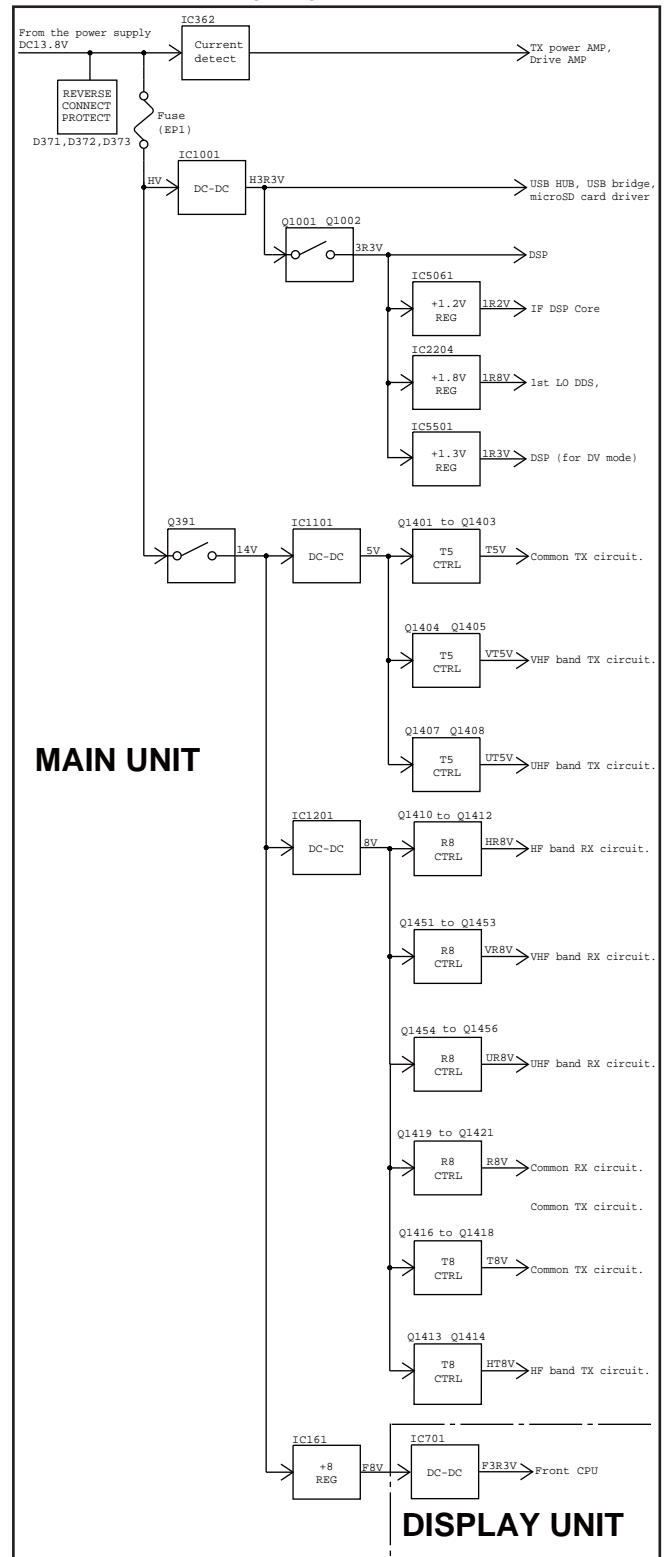
PIN No.	LINE NAME	DESCRIPTION	I/O
1	VTRS	VHF band 1st IF trap circuit switching. High=While operating on 108.000000 to 143.999999 MHz.	O
3	HPR2S	HF/50 MHz/70 MHz band pre-AMP 2 control. High=The Pre-AMP is ON.	O
4	HPR1S	HF/50 MHz/70 MHz band pre-AMP 1 control. Low=The Pre-AMP is ON.	O
6	HATTS	HF/50 MHz/70 MHz band attenuator control. Low=The attenuator is ON.	O
15	B8	HF/50 MHz/70 MHz band select. High=While operating on 60.000000 to 74.799999 MHz.	O

• EXPANDER (MAIN UNIT: IC7004)

PIN No.	LINE NAME	DESCRIPTION	I/O
1	RSPS	Rear speaker mute control. Low=External speaker output (Rear) is mute.	O
4	ASQLS	Squelch signal to the [ACC] and [DATA] connectors. High=While the squelch is open.	O
7	UMODS	Modulation signal select. High= USB audio signal is selected.	O
15	AFONS	AF output mute control. Low=The AF output is mute.	O

3-5 VOLTAGE DIAGRAM

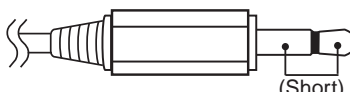
Voltage from the power supply is routed throughout the transceiver, through regulators and switches.



SECTION 4 ADJUSTMENT PROCEDURE

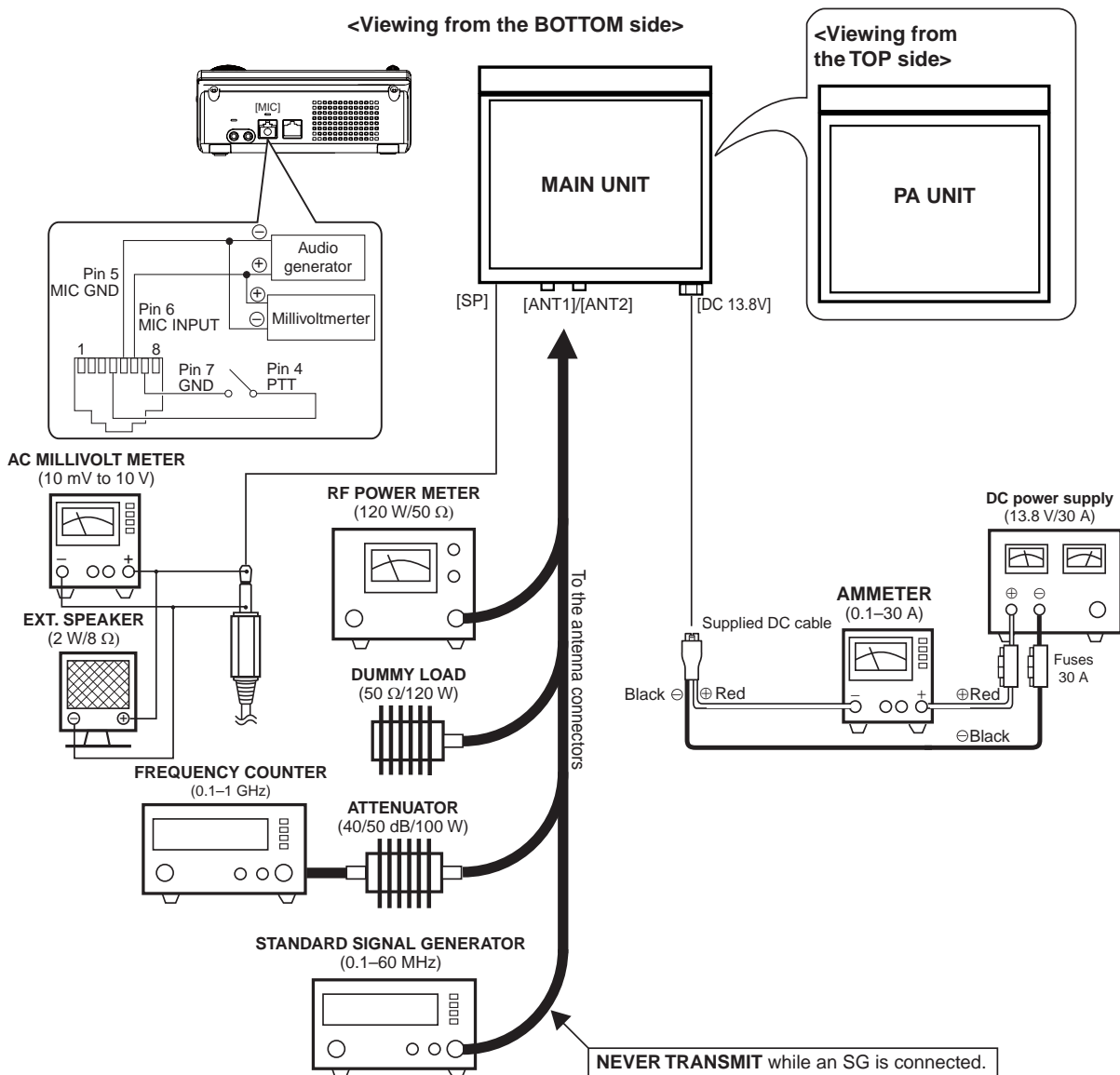
4-1 PREPARATION

REQUIRED EQUIPMENTS

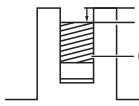
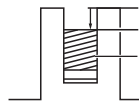
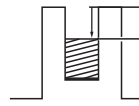
EQUIPMENT	GRADE AND RANGE	EQUIPMENT	GRADE AND RANGE
Short plug	Modified 3.5 mm (1/8") monoral plug  (Short)	Audio generator (AG)	Frequency range : 300–3000 Hz Output level : 1–500 mV Output signal : sine wave
RF voltmeter (50 Ω terminated)	Measuring range : 20–200 mV Frequency range : 0.1–600 MHz	AC Millivoltmeter	Measuring range : 10 mV to 10 V
RF power meter (50 Ω terminated)	Measuring range : 5–120 W Frequency range : 0.1–600 MHz SWR : Less than 1.2 : 1	Multimeter	Measuring range : 0–10 V (Voltage) 1–30 A (Current)
Frequency counter	Frequency range : 0.1–600 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 : 0.1–600 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

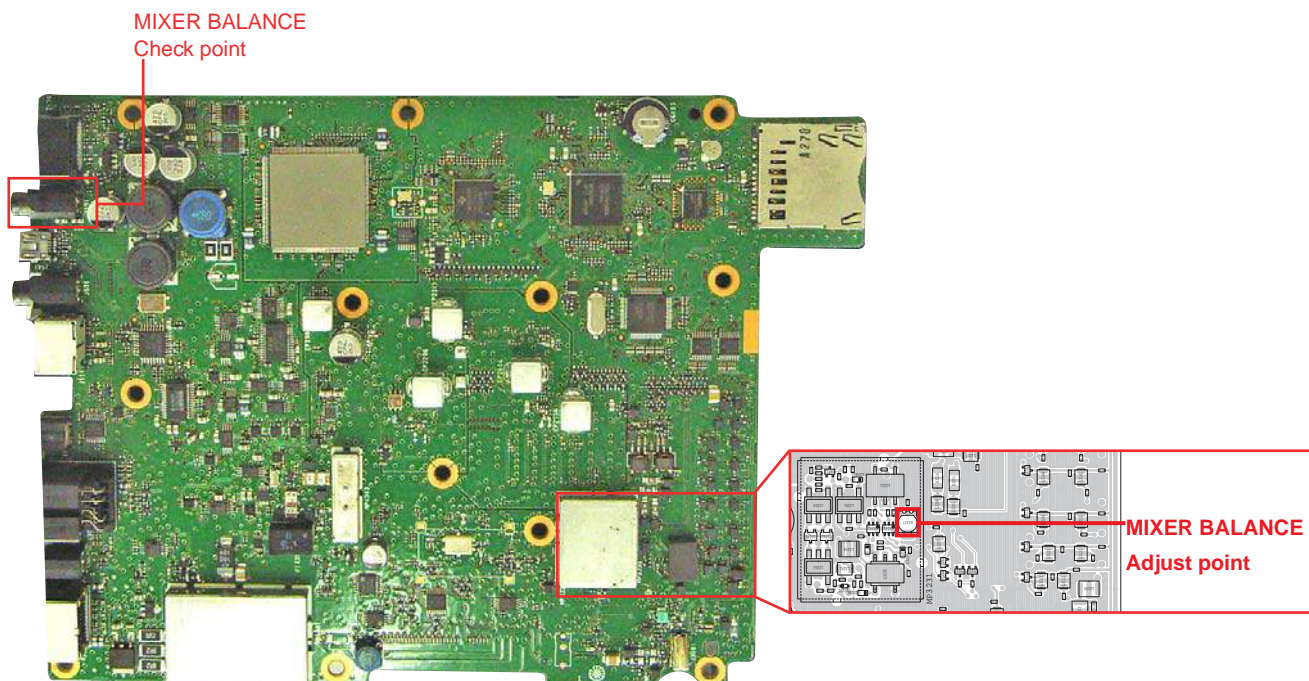


4-2 ADJUSTMENT ON THE MAIN UNIT

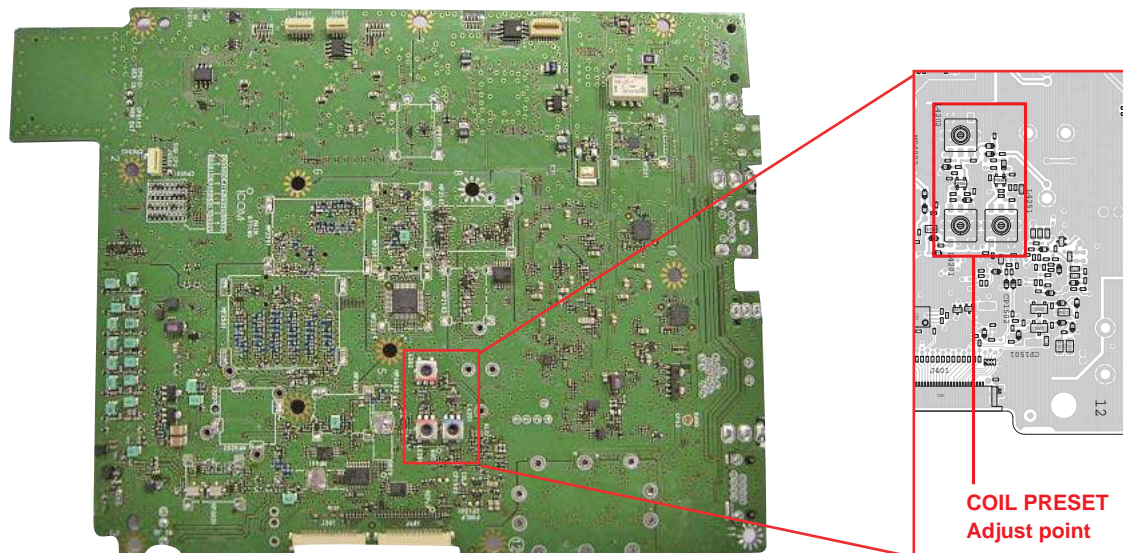
ADJUSTMENT ITEM	TRANSCIVER'S CONDITION	OPERATION	CHECK POINT	ADJUST POINT	VALUE
COIL PRESET	• Receive	• Set the coils as follows.	-	L4201	 <p>3 rotations Core</p>
				L4202	 <p>2.5 rotations Core</p>
				L4251	 <p>Core's Bottom</p>
MIXER BALANCE	<ul style="list-style-type: none"> • Frequency : 1.821 MHz • Mode : LSB • PREAMP : OFF • Receive 	<ol style="list-style-type: none"> 1) Connect the millivoltmeter to [SP]. 2) Adjust the noise level. 	[SP]	R3237	Minimum noise level

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

<TOP VIEW>



<BOTTOM VIEW>

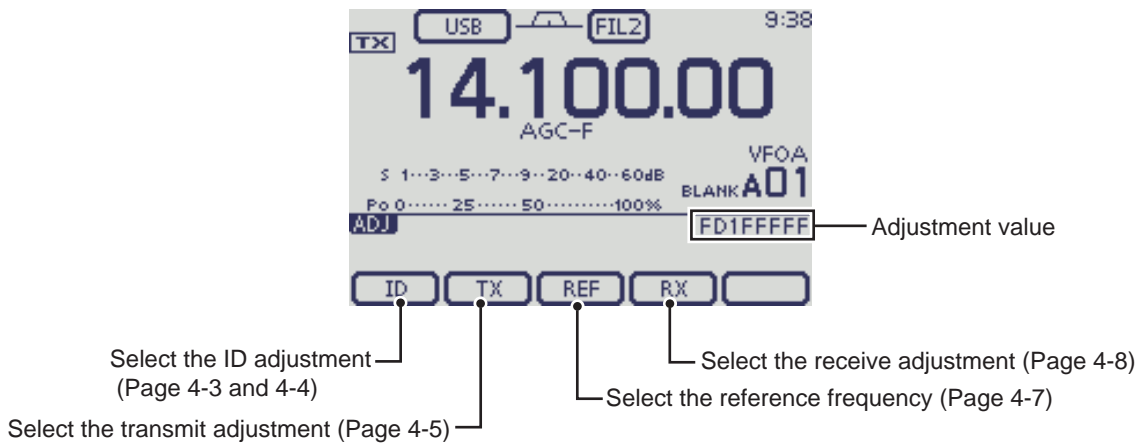


4-3 ADJUSTMENTS IN THE ADJUSTMENT MODE

ENTERING THE ADJUSTMENT MODE

- 1) Connect the short plug (Page 4-1) to [REMOTE], and while holding down [MIC/RF PWR] and [SPEED/PITCH], turn ON the power to enter the Adjustment mode.
- 2) The main adjustment menu appears.

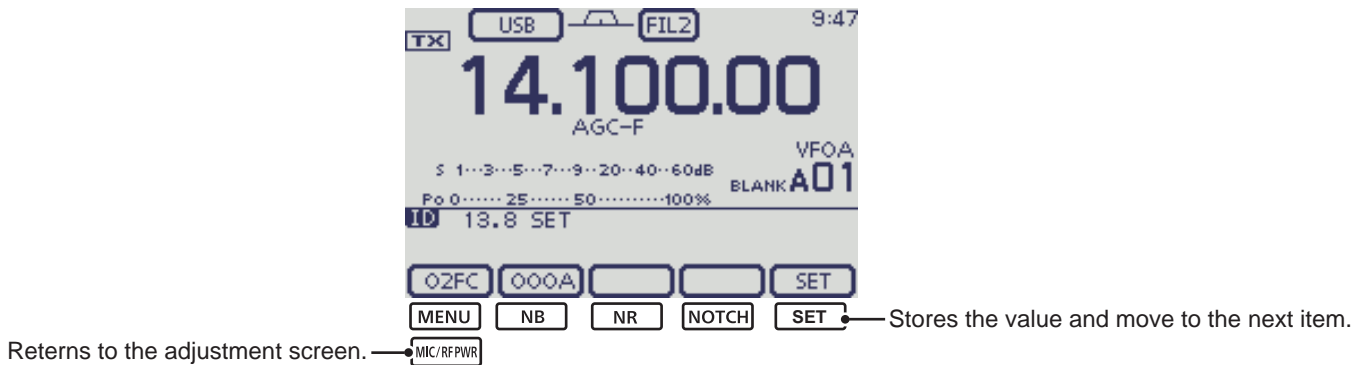
MAIN ADJUSTMENT MENU SCREEN



QUITTING THE ADJUSTMENT MODE

- 1) Remove the short plug from [REMOTE], and then turn OFF the power.
- 2) Turn ON the power again.

4-4 ID ADJUSTMENTS



- 1) Set or modify the adjustment value as specified by rotating [MAIN DIAL].
- 2) Push [SET] to store the value.

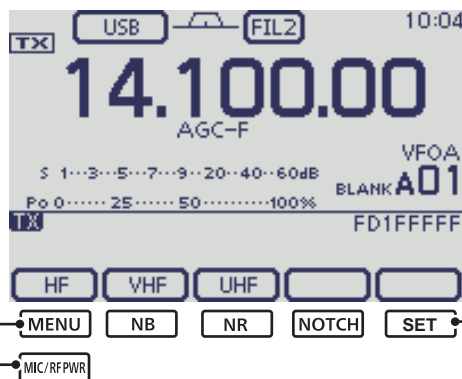
ADJUSTMENT ITEM	TRANSCEIVER'S CONDITION	OPERATION	ADJUST POINT	VALUE
ID REFERENCE VOLTAGE LOAD	1	• Display: "13.8 SET" • Power supply voltage: 13.8 V	-	Push [SET]. (A beep sounds, and then another beeps sound 0.5 sec. later. Then the next adjustment item is selected.)
	2	• Display: "ID HF+1.0A"		Push [SET]. (The next adjustment item is selected.)
3	• Display: "ID V/UHF+1.0A"			
4	• Display: "DID +0.7A"			

4-4 ID ADJUSTMENTS (continued)

- 1) Set or modify the adjustment value as specified by rotating [MAIN DIAL].
- 2) Push [SET] to store the value.

ADJUSTMENT ITEM	TRANSCIVER'S CONDITION	OPERATION	ADJUST POINT	VALUE
ID ADJUSTMENT	1 • Display: "ID SET HF"	• Connect the 50 Ω dummy load to [ANT1]. • Push [SET]. (Automatically starts to transmit.)	-	Push [SET].
	2 • Display: "HFID1V"			Push [SET] again. (A beep sounds, and then beeps sound 3 sec. later. Then next adjustment item is selected.)
	3 • Display: "HFID2V" • Transmit continues	-		Push [SET]. (A beep sounds, transmission stops, and then beeps sound 3 sec. later. Then next adjustment item is selected.)
	4 • Display: "DID SET"			Push [SET]. (Then the next adjustment item is selected, and automatically starts to transmit.)
	5 • Display: "DIDV"			Push [SET]. (A beep sounds, transmission stops, and then beeps sound 3 sec. later. Then next adjustment item is selected.)
	6 • Display: "ID SET V/UHF"			Push [SET]. (Then the next adjustment item is selected, and automatically starts to transmit.)
	7 • Display: "VUIDV"			Push [SET]. (A beep sounds, transmission stops, and then beeps sound 3 sec. later.)
ID-APC OPERATING POINT ADJUSTMENT	1 • Display: "ID-APC HF"			-
Push [MIC/RF PWR] to return to the main adjustment menu.				
VD ADJUSTMENT	Push [NR] to enter the REF adjustment menu.			
VD-APC ADJUSTMENT	1 -	• Connect the 50 Ω dummy load to [ANT1].	-	Push [NB].
	2 • Display: "VD-APC"			Push [SET].
	3 • Display: "VD-APC START 11.8V"			11.9 V Push [SET].
	4 • Display: "VD-APC 75% 11.0V"			11.1 V Push [SET].
The REF adjustment menu is displayed. Push [MIC/RF PWR] to return to the main adjustment menu.				

4-5 TRANSMIT ADJUSTMENTS (HF/50 MHz/70 MHz BANDS)



Starts the transmit adjustment. — [MENU] [NB] [NR] [NOTCH] [SET] — Stores the value and move to the next item.

Returns to the adjustment screen. — [MIC/RFPWR]

- 1) Set or modify the adjustment value as specified by rotating [MAIN DIAL].
- 2) Push [SET] to store the value.

ADJUSTMENT ITEM	TRANSCIVER'S CONDITION	OPERATION	ADJUST POINT	VALUE
PREPARATION	—	<ul style="list-style-type: none"> • Connect the AG and millivoltmeter to [MIC], and then set it as; Frequency : 1.5 kHz Level : 30 mVrms • Connect a power meter to [ANT1]. 	—	Push [NB].
[HF/50/70M BAND]	Push [MENU] to enter the Transmit adjustment menu.			
TX TOTAL GAIN ADJUSTMENT	1	• Display: "Total Gain HF"	—	Push [SET]. (Automatically starts to transmit.)
	2	• Display: "Total Gain HF2"	[MAIN DIAL]	50 W Push [SET]*.
	3	• Display: "Total Gain HF1"	—	Push [SET]. (Automatically starts to transmit. A beep sounds, and then another beeps sound 3 sec. later.*)
	4	• Display: "Total Gain HF3"	—	Push [SET]. (Automatically starts to transmit. A beep sounds, and then another beeps sound 3 sec. later)
	5	• Display: "Total Gain 50M" • Transmit continues	[MAIN DIAL]	50 W Push [SET].
	6	• Display: "Total Gain 70M" • Transmit continues	[MAIN DIAL]	25 W Push [SET]*.
TX POWER & POWER METER SETTING	1	• Display: "POWER HF"	—	—
	2	• Display: "POWER HF Min" • Transmit continues	[MAIN DIAL]	2 W Push [SET].
	3	• Display: "POWER HF 10%" • Transmit continues	[MAIN DIAL]	10 W Push [SET].
	4	• Display: "POWER HF Tuner" • Transmit continues	[MAIN DIAL]	10 W Push [SET].
	5	• Display: "POWER HF 50%" • Transmit continues	[MAIN DIAL]	50 W Push [SET].
	6	• Display: "POWER HF 100%" • Transmit continues	[MAIN DIAL]	105 W Push [SET]*.

*: Stop transmitting.

4-5 TRANSMIT ADJUSTMENTS (HF/50 MHz/70 MHz BANDS) (continued)

- 1) Set or modify the adjustment value as specified by rotating [MAIN DIAL].
- 2) Push [SET] to store the value.

ADJUSTMENT ITEM	TRANSCEIVER'S CONDITION	OPERATION	ADJUST POINT	VALUE
AM CARRIER POWER RATIO	1 • Display: "POWER AM Ratio HF" • Receive	• Push [SET]. (Automatically starts to transmit.)	[MAIN DIAL]	30 W Push [SET]*.
TX POWER & POWER METER SETTING (50 M)	1 • Display: "POWER 50M"	–	–	Push [SET]. (Automatically starts to transmit.)
	2 • Display: "POWER 50M Min" • Transmit continues		[MAIN DIAL]	2 W Push [SET].
	3 • Display: "POWER 50M 10%" • Transmit continues			10 W Push [SET].
	4 • Display: "POWER 50M Tuner" • Transmit continues			10 W Push [SET].
	5 • Display: "POWER 50M 50%" • Transmit continues			50 W Push [SET].
	6 • Display: "POWER 50M 100%" • Transmit continues			100 W Push [SET]*.
AM CARRIER POWER RATIO (At 50 MHz)	1 • Display: "POWER AM Ratio 50M" • Receive	• Push [SET]. (Automatically starts to transmit.)		30 W Push [SET]*.
TX POWER & POWER METER SETTING (At 70 MHz)	1 • Display: "POWER 70M" • Receive	–	–	Push [SET]. (Automatically starts to transmit.)
	2 • Display: "POWER 70M Min" • Transmit continues		[MAIN DIAL]	2 W Push [SET].
	3 • Display: "POWER 70M 10%" • Transmit continues			5 W Push [SET].
	4 • Display: "POWER 70M Tuner" • Transmit continues			10 W Push [SET].
	5 • Display: "POWER 70M 50%" • Transmit continues			25 W Push [SET].
	6 • Display: "POWER 70M 100%" • Transmit continues			50 W Push [SET]*.
AM CARRIER POWER RATIO (At 70 MHz)	1 • Display: "POWER AM Ratio 70M"	• Push [SET]. (Automatically starts to transmit.)		15 W Push [SET]*.
ID APC (Verify)	1 • Display: "ID-APC CHECK"	–	–	Push [SET]. (Automatically starts to transmit. A beep sounds, and then another beeps sound 3 sec. later.*)
ALC METER	1 • Display: "ALC HF"			
	2 • Display: "ALC 70M"			
DRIVE GAIN	1 • Display: "DRIVE HF/50M"			
	2 • Display: "DRIVE HF/70M"			
SWR METER	1 • Display: "SWR HF/50M"	• Connect the 100 Ω dummy load to [ANT1].		
	2 • Display: "SWR 70M"			
The Transmit adjustment menu is displayed.				

*; Stop transmitting.

4-6 TRANSMIT ADJUSTMENTS (VHF BAND)

- 1) Set or modify the adjustment value as specified by rotating [MAIN DIAL].
- 2) Push [SET] to store the value.

ADJUSTMENT ITEM	TRANSCEIVER'S CONDITION	OPERATION	ADJUST POINT	VALUE
PREPARATION	1	–	–	Push [NB].
		• Connect the AG and millivoltmeter to [MIC], and then set it as; Frequency : 1.5 kHz Level : 30 mVrms • Connect the power meter to [ANT2].		
TX TOTAL GAIN ADJUSTMENT (VHF BAND)	Push [NB] to enter the Transmit menu.			
	2	• Display: "Total Gain VHF"	• Push [SET]. (Automatically starts to transmit.)	[MAIN DIAL] 25 W Push [SET]*.
TX POWER & POWER METER SETTING (VHF BAND)	3	• Display: "POWER VHF"	–	– Push [SET]. (Automatically starts to transmit.)
	4	• Display: "POWER VHF Min"		[MAIN DIAL] 2 W Push [SET].
	5	• Display: "POWER VHF 10%" • Transmit continues		5 W Push [SET].
	6	• Display: "POWER VHF 50%" • Transmit continues		25 W Push [SET].
	7	• Display: "POWER VHF 100%" • Transmit continues		50 W Push [SET]*.
ALC METER (VHF BAND)	8	• Display: "ALC VHF"		– Push [SET]. (Automatically starts to transmit.)
DRIVE GAIN (VHF BAND)	9	• Display: "DRIVE VHF"		A beep sounds, and then another beeps sound 3 sec. later.*)
SWR METER (VHF BAND)	10	• Display: "SWR VHF"	• Connect the 100 Ω dummy load to [ANT2].	
The Transmit adjustment menu is displayed.				

*: Stop transmitting.

4-7 TRANSMIT ADJUSTMENTS (UHF BAND)

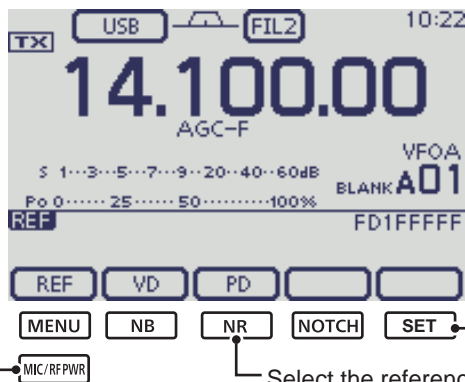
- 1) Set or modify the adjustment value as specified by rotating [MAIN DIAL].
- 2) Push [SET] to store the value.

ADJUSTMENT ITEM	TRANSCEIVER'S CONDITION	OPERATION	ADJUST POINT	VALUE
PREPARATION	1	–	–	Push [NB].
		• Connect the AG and millivoltmeter to [MIC], and then set it as; Frequency : 1.5 kHz Level : 30 mVrms • Connect a power meter to [ANT2].		
TX TOTAL GAIN ADJUSTMENT [UHF BAND]	Push [NR] to enter the Transmit menu.			
	2	• Display: "Total Gain UHF"	• Push [SET]. (Automatically starts to transmit.)	[MAIN DIAL] 17.5 W Push [SET]*.
TX POWER & POWER METER SETTING	3	• Display: "POWER UHF"	–	– Push [SET]. (Automatically starts to transmit.)
	4	• Display: "POWER UHF Min" • Transmit continues		[MAIN DIAL] 2 W Push [SET].
	5	• Display: "POWER UHF 10%" • Transmit continues		3.5 W Push [SET].
	6	• Display: "POWER UHF 50%" • Transmit continues		17.5 W Push [SET].
	7	• Display: "POWER UHF 100%" • Transmit continues		35 W Push [SET]*.
ALC METER	8	• Display: "ALC UHF"		– Push [SET]. (Automatically starts to transmit.)
DRIVE GAIN	9	• Display: "DRIVE UHF"		A beep sounds, and then another beeps sound 3 sec. later.*)
SWR METER	10	• Display: "SWR UHF"	• Connect the 100 Ω dummy load to [ANT2].	
The transmit adjustment menu is displayed. Push [MIC/RF PWR] to return to the main adjustment menu.				

*: Stop transmitting.

4-8 REFERENCE FREQUENCY ADJUSTMENT

• REFERENCE FREQUENCY ADJUSTMENT MENU



Reterns to the adjustment screen. — [MIC/RF PWR]

Select the reference frequency adjustment.

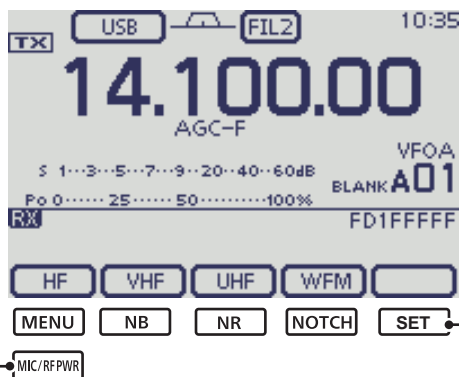
Stores the value and move to the next item.

- 1) Set or modify the adjustment value as specified by rotating [MAIN DIAL].
- 2) Push [SET] to store the value.

ADJUSTMENT ITEM		TRANSCIEVER'S CONDITION	OPERATION	ADJUST POINT	VALUE	
REFERENCE FREQUENCY	1	—	• Connect the frequency counter to [ANT2], through a 40 dB to 50 dB attenuator.	—	Push [NR].	
	Push [MENU] REF adjustment menu.					
	2	• Display: "REF OSC" • TX power: 50%	• Push [SET]. (Automatically starts to transmit.)	[MAIN DIAL]	440.000000 MHz (±30 Hz) Push [SET]*.	
Automatically returns to the reference adjustment menu. Push [MIC/RF PWR] to return to the main adjustment menu.						

*: Stop transmitting.

4-9 RECEIVE ADJUSTMENTS (HF BAND)



Stores the value and move to the next item. — [SET]
 Returns to the adjustment screen. — [MIC/RF PWR]

- 1) Set or modify the adjustment value as specified by rotating [MAIN DIAL].
- 2) Push [SET] to store the value.

ADJUSTMENT ITEM	TRANSCEIVER'S CONDITION	OPERATION	ADJUST POINT	VALUE
PREPARATION	1	<ul style="list-style-type: none"> • Frequency: 14.1515 MHz • Receive 	-	Push [NOTCH]. (To enter to the receive adjustment menu.)
	1) Connect the SSG to [ANT1], and then set it as; Frequency : 14.1515 MHz Level : +34 dB μ (-73 dBm) Modulation: None 2) Connect the millivoltmeter and a speaker to [EXT-SP]. 3) Push [MENU]. Push [MENU] to enter the Receive adjustment menu.			
RX-IFT	2	<ul style="list-style-type: none"> • Display: "RX-IFT" • Receive 	-	Push [SET]. (A beep sounds, and then another beeps sound 5 sec. later)
RX TOTAL GAIN	3	<ul style="list-style-type: none"> • Display: "Total Gain HF POFF" • Receive 		
	4	<ul style="list-style-type: none"> • Display: "Total Gain HF PON" • Receive 	-	Push [SET]. (A beep sounds, and then another beeps sound 20 to 30 sec. later)
S-METER	NOTE: DO NOT change the SSG output level until the beep sounds.			
	5	<ul style="list-style-type: none"> • Display: "S9 Level HF" • Receive 	-	Push [SET]. (A beep sounds, and then another beep sounds 1 sec. later)
	6	<ul style="list-style-type: none"> • Display: "S9+60 Level HF" • Receive 	<ul style="list-style-type: none"> • Set the SSG as; Level : +90 dBμ (-17 dBm) 	
Automatically returns to the receive adjustment menu.				

4-10 RECEIVE ADJUSTMENTS (VHF BAND)

- 1) Set or modify the adjustment value as specified by rotating [MAIN DIAL].
- 2) Push [SET] to store the value.

ADJUSTMENT ITEM	TRANSCEIVER'S CONDITION	OPERATION	ADJUST POINT	VALUE	
PREPARATION	1	<ul style="list-style-type: none"> • Frequency: 75.2015 MHz • Receive 	1) Connect the SSG to [ANT2], and then set it as; Frequency : 75.2015 MHz Level : +10 dB μ (-97 dBm) Modulation: None 2) Connect the millivoltmeter and a speaker to [EXT-SP].	-	Push [NB].
	TUNED BPF	2	<ul style="list-style-type: none"> • Display: "Tuned BPF VHF1-L" • Receive 		-
	3	<ul style="list-style-type: none"> • Display: "Tuned BPF VHF1-M" • Receive 	<ul style="list-style-type: none"> • Set the SSG as; Frequency : 90.2015 MHz 		
	4	<ul style="list-style-type: none"> • Display: "Tuned BPF VHF1-H" • Receive 	<ul style="list-style-type: none"> • Set the SSG as; Frequency : 128.8015 MHz 		
	5	<ul style="list-style-type: none"> • Display: "Tuned BPF VHF2-L" • Receive 	<ul style="list-style-type: none"> • Set the SSG as; Frequency : 129.2015 MHz 		
	6	<ul style="list-style-type: none"> • Display: "Tuned BPF VHF2-M" • Receive 	<ul style="list-style-type: none"> • Set the SSG as; Frequency : 146.0215 MHz 		
	7	<ul style="list-style-type: none"> • Display: "Tuned BPF VHF2-H" • Receive 	<ul style="list-style-type: none"> • Set the SSG as; Frequency : 170.2015 MHz 		
IF-TRAP	8	<ul style="list-style-type: none"> • Display: "IF-Trap" • Receive 	<ul style="list-style-type: none"> • Set the SSG as; Frequency : 124.4870 MHz Level : +50 dBμ (-57 dBm) Modulation: None 	-	Push [SET]. (A beep sounds, and then another beeps sound 20 to 30 sec. later)
RX TOTAL GAIN	9	<ul style="list-style-type: none"> • Display: "Total Gain VHF" • Receive 	<ul style="list-style-type: none"> • Set the SSG as; Frequency : 146.0215 MHz Level : +10 dBμ (-97 dBm) Modulation: None 	-	Push [SET]. (A beep sounds, and then another beeps sound 15 to 20 sec. later)
S-METER	NOTE: DO NOT change the output level of the SSG until the beep sounds.				
	10	<ul style="list-style-type: none"> • Display: "S9 Level VHF" • Receive 	-	-	Push [SET]. (A beep sounds, and then another beep sounds 1 sec. later)
	11	<ul style="list-style-type: none"> • Display: "S9+60 Level VHF" • Receive 	<ul style="list-style-type: none"> • Set the SSG as; Level : +70 dBμ (-37 dBm) 		
Automatically returns to the receive adjustment menu.					

4-11 RECEIVE ADJUSTMENTS (UHF BAND)

- 1) Set or modify the adjustment value as specified by rotating [MAIN DIAL].
- 2) Push [SET] to store the value.

ADJUSTMENT ITEM	TRANSCEIVER'S CONDITION	OPERATION	ADJUST POINT	VALUE	
PREPARATION	1 • Frequency: 400.2015 MHz • Receive	1) Connect the SSG to [ANT2], and then set it as; Frequency : 400.2015 MHz Level : +10 dB μ (-97 dBm) Modulation: None 2) Connect the millivoltmeter and a speaker to [EXT-SP].	-	Push [NR].	
TUNED BPF	2 • Display: "Tuned BPF UHF1-L" • Receive	-		-	Push [SET]. (A beep sounds, and then another beeps sound 3 sec. later)
	3 • Display: "Tuned BPF2 UHF-M" • Receive	• Set the SSG as; Frequency : 435.0215 MHz			
	4 • Display: "Tuned BPF UHF-H" • Receive	• Set the SSG as; Frequency : 469.8015 MHz Level : +20 dB μ (-87 dBm) Modulation: None			
RX TOTAL GAIN	5 • Display: "Total Gain UHF" • Receive	• Set the SSG as; Frequency : 435.0215 MHz Level : +10 dB μ (-97 dBm) Modulation: None	-	Push [SET]. (A beep sounds, and then another beeps sound 10 sec. later)	
S-METER	NOTE: DO NOT change the SSG output level until the beep sounds.				
	6 • Display: "S9 Level UHF" • Receive	• Set the SSG as; Level : +10 dB μ (-97 dBm)	-	Push [SET]. (A beep sounds, and then another beeps sound 1 sec. later)	
	7 • Display: "S9+60 Level UHF" • Receive	• Set the SSG as; Level : +70 dB μ (-37 dBm)			
Automatically returns to the receive adjustment menu.					

4-12 RECEIVE ADJUSTMENTS (In the WFM mode)

- 1) Set or modify the adjustment value as specified by rotating [MAIN DIAL].
- 2) Push [SET] to store the value.

ADJUSTMENT ITEM	TRANSCEIVER'S CONDITION	OPERATION	ADJUST POINT	VALUE
PREPARATION	1 • Frequency: 90.200 MHz • Receive	1) Connect the SSG to [ANT2], and then set it as; Frequency : 90.200 MHz Level : -5 dB μ (-112 dBm) Modulation: None 2) Connect the millivoltmeter and a speaker to [EXT-SP].	-	Push [NOTCH].
S-METER	NOTE: DO NOT change the SSG output level until the beep sounds.			
	2 • Display: "S0 Level WFM" • Receive	-	-	Push [SET]. (A beep sounds, and then another beeps sound 1 sec. later)
	3 • Display: "S9 Level WFM" • Receive	• Set the SSG as; Level : +10 dB μ (-97 dBm)		
	4 • Display: "S9+60 Level WFM" • Receive	• Set the SSG as; Level : +50 dB μ (-57 dBm)		
Automatically returns to the receive adjustment menu. Push [MIC/RF PWR] to return to the main adjustment menu.				

[MAIN UNIT]

Table with columns: REF NO., PARTS NO., DESCRIPTION, M., H/V LOCATION. Contains multiple rows of component data for the left unit.

Eqv.= This component is equivalent to the REF No. component listed above, and may be substituted on parts orders and repairs.

[MAIN UNIT]

Table with columns: REF NO., PARTS NO., DESCRIPTION, M., H/V LOCATION. Contains multiple rows of component data for the right 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. Lists parts for the main unit, including various ERJ2GGEJ components like resistors and capacitors with their respective locations and part numbers.

Eqv.= This component is equivalent to the REF No. component listed above, and may be substituted on parts orders and repairs.

[MAIN UNIT]

Table with columns: REF NO., PARTS NO., DESCRIPTION, M., H/V LOCATION. Lists parts for the main unit, including various ERJ2GGEJ components like resistors and capacitors with their respective locations and part numbers.

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

[PA UNIT]

Table with 5 columns: REF NO., PARTS NO., DESCRIPTION, M., H/V LOCATION. Contains part numbers and descriptions for PA UNIT components, including various ERJ and MCR components.

Eqv.= This component is equivalent to the REF No. component listed above, and may be substituted on parts orders and repairs.

[PA UNIT]

Table with 5 columns: REF NO., PARTS NO., DESCRIPTION, M., H/V LOCATION. Contains part numbers and descriptions for PA UNIT components, including various C, S, and GRM components.

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

[PA UNIT]

Table with columns: REF NO., PARTS NO., DESCRIPTION, M., H/V LOCATION. Contains parts list items for the [PA UNIT] category, including components like S.MIC UC342H 1200J-T, S.CER C3225 JB 2E 104K-T, and various resistors and capacitors.

Eqv.= This component is equivalent to the REF No. component listed above, and may be substituted on parts orders and repairs.

[PA UNIT]

Table with columns: REF NO., PARTS NO., DESCRIPTION, M., H/V LOCATION. Contains parts list items for the [PA UNIT] category, including components like S.CER GRM31A5C2J270JW01D, S.CER GRM31M4C2H2R0CY21D, and various resistors and capacitors.

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

[CONTROL UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
W2	8600037390	SX3183 P1121CH		
DS1	5030003680	LCD CMF2P2117-E <SKD>		
SP1	2510001720	SPE 4050P0803 <FG>		
W1	8900013541	CAB OPC-1410A (P0.5N14L50) <TJM>		
EP1	0880003480	UNI EX-2832		
EP2	6910023900	E.O WT5036-E <SKD>		

[DISPLAY UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
IC201	1140016780	S.IC STM32F101VF(SX-3393E-3) <TOMEN>	B	92.5/26.0
IC202	1110005731	S.IC S-80928CNMC-G8Y-G	B	90.4/44.4
IC301	1190003500	S.IC TPS61160ADRV	T	45.3/43.5
IC501	1110002751	S.IC TA75S01F(TE85RF)	B	115.7/47.0
IC601	1190003620	S.IC TPS61161ADRV	T	13.3/52.3
IC701	6910022350	S.DC R1240N001A-TR-FE	T	33.5/41.9
IC901	1130005252	S.IC TC74HC08AF(ELF)	T	6.8/37.2
Q401	1550000240	S.FET TPCF8107(TE85LF)	B	125.6/39.2
Q402	1560001730	S.FET RUE002N02 TL	B	129.1/37.6
Q403	1550000240	S.FET TPCF8107(TE85LF)	T	79.4/46.8
Q404	1560001730	S.FET RUE002N02 TL	T	75.3/42.5
Q501	1520000910	S.TRA 2SB1132L-R-AB3-R <SLVJ>	B	103.6/67.6
Q502	1530004210	S.TRA DSC7004S0L	B	105.8/48.4
Q503	1590004690	S.TRA LDTA143ZET1G <SLVJ>	B	115.3/49.8
Q504	1590004310	S.TRA LDTA114EET1G <SLVJ>	B	117.0/51.5
Q505	1510001200	S.TRA L2SA1576ART1G <SLVJ>	B	96.7/67.8
Q506	1590004310	S.TRA LDTA114EET1G <SLVJ>	B	107.0/43.5
Q507	1530004140	S.TRA L2SC4081RT1G <SLVJ>	B	109.8/44.7
Q508	1590004690	S.TRA LDTA143ZET1G <SLVJ>	B	119.3/50.4
Q801	1590004690	S.TRA LDTA143ZET1G <SLVJ>	T	138.9/46.5
Q901	1530004140	S.TRA L2SC4081RT1G <SLVJ>	B	7.9/13.9
Q902	1530004140	S.TRA L2SC4081RT1G <SLVJ>	B	7.9/17.3
Q903	1530004140	S.TRA L2SC4081RT1G <SLVJ>	B	9.0/7.1
Q904	1530004140	S.TRA L2SC4081RT1G <SLVJ>	B	9.0/10.5
Q905	1530004140	S.TRA L2SC4081RT1G <SLVJ>	B	14.0/7.1
Q906	1530004140	S.TRA L2SC4081RT1G <SLVJ>	B	14.0/10.5
Q907	1530004140	S.TRA L2SC4081RT1G <SLVJ>	B	14.0/13.9
Q908	1530004140	S.TRA L2SC4081RT1G <SLVJ>	B	14.0/17.3
D101	1750002230	S.DIO LRB751S-40T1G <SLVJ>	B	110.8/34.0
D102	1750001820	S.DIO LRB706F-40T1G <SLVJ>	B	128.8/21.2
D103	1750001820	S.DIO LRB706F-40T1G <SLVJ>	B	122.6/27.8
D104	1750001820	S.DIO LRB706F-40T1G <SLVJ>	B	119.7/27.8
D105	1750001820	S.DIO LRB706F-40T1G <SLVJ>	B	116.0/27.8
D301	1750002110	S.DIO LRB551V-30T1G <SLVJ>	T	43.2/45.5
D302	1750001820	S.DIO LRB706F-40T1G <SLVJ>	B	113.1/27.8
D303	1750001820	S.DIO LRB706F-40T1G <SLVJ>	B	110.2/27.8
D501	1750001810	S.DIO L1SS400T1G <SLVJ>	B	108.9/49.4
D502	1750001980	S.ZEN DZ2J056M0L	B	113.1/48.6
D601	1750001520	S.DIO CUS04(TE85LQ)	T	16.4/52.9
D701	1750002110	S.DIO LRB551V-30T1G <SLVJ>	T	33.6/45.5
D702	1750001820	S.DIO LRB706F-40T1G <SLVJ>	B	128.8/24.7
D703	1750001820	S.DIO LRB706F-40T1G <SLVJ>	B	127.6/27.9
D801	1750001810	S.DIO L1SS400T1G <SLVJ>	T	141.7/47.2
X201	6050013180	S.XTA CR-910(HC-49US/9.8304 MHz) <JJE>	T	93.0/39.0
L302	6200009060	S.COI LQH32CN101K23L	T	40.0/41.3
L303	6200014850	S.COI LQH44PN220MPOL	T	39.6/45.5
L601	6200009060	S.COI LQH32CN101K23L	T	12.2/56.7
L602	6200014850	S.COI LQH44PN220MPOL	T	16.1/56.4
L701	6200014280	S.COI BRC2012T4R7MD	T	29.0/46.4
L702	6200005011	S.COI NLV25T-100J	T	36.4/40.7
R101	7030005220	S.RES ERJ2GEJ 223 X (22K)	B	130.5/23.1
R102	7410000720	S.ARR EXB-V8V 473JV (47K)	T	145.9/28.4
R103	7030007340	S.RES ERJ2GEJ 153 X (15K)	B	122.6/29.8
R107	7410000800	S.ARR EXB-V8V 103JV (10K)	B	4.5/65.3
R108	7030007290	S.RES ERJ2GEJ 222 X (2.2K)	B	116.0/29.8
R110	7030005240	S.RES ERJ2GEJ 473 X (47K)	B	119.7/29.8
R111	7030005240	S.RES ERJ2GEJ 473 X (47K)	B	116.9/29.8
R113	7030005090	S.RES ERJ2GEJ 104 X (100K)	B	129.2/22.9
R114	7030007340	S.RES ERJ2GEJ 153 X (15K)	B	123.1/26.1
R117	7030005240	S.RES ERJ2GEJ 473 X (47K)	B	130.0/26.5
R118	7030005240	S.RES ERJ2GEJ 473 X (47K)	B	128.1/30.3
R119	7030005120	S.RES ERJ2GEJ 102 X (1K)	T	18.8/27.0
R120	7030005120	S.RES ERJ2GEJ 102 X (1K)	T	18.8/27.9
R201	7030005530	S.RES ERJ2GEJ 100 X (10)	B	97.0/36.0
R203	7030005050	S.RES ERJ2GEJ 103 X (10K)	B	91.2/42.1
R301	7030005300	S.RES ERJ2GEJ 150 X (15)	T	46.5/41.5
R306	7030005240	S.RES ERJ2GEJ 473 X (47K)	B	110.2/29.8
R310	7030005240	S.RES ERJ2GEJ 473 X (47K)	B	113.1/29.8
R313	7030005120	S.RES ERJ2GEJ 102 X (1K)	B	114.0/29.8
R314	7030005240	S.RES ERJ2GEJ 473 X (47K)	B	58.7/52.7
R315	7030005120	S.RES ERJ2GEJ 102 X (1K)	B	111.1/29.8
R318	7030005240	S.RES ERJ2GEJ 473 X (47K)	T	65.6/30.5
R401	7030003440	S.RES ERJ3GEYJ 102 V (1K)	B	127.4/57.0
R403	7030007520	S.RES ERJ8ENF 1000V (100)	B	129.0/46.6
R404	7030007520	S.RES ERJ8ENF 1000V (100)	B	127.5/50.0
R405	7030005120	S.RES ERJ2GEJ 102 X (1K)	T	79.7/56.5
R408	7030005120	S.RES ERJ2GEJ 102 X (1K)	T	128.8/55.2
R409	7030005110	S.RES ERJ2GEJ 224 X (220K)	B	128.7/39.3
R410	7030005110	S.RES ERJ2GEJ 224 X (220K)	T	75.8/44.1
R412	7030005110	S.RES ERJ2GEJ 224 X (220K)	B	125.6/35.1
R413	7030005110	S.RES ERJ2GEJ 224 X (220K)	T	79.4/43.4
R414	7030005050	S.RES ERJ2GEJ 103 X (10K)	T	74.8/40.5
R415	7030005050	S.RES ERJ2GEJ 103 X (10K)	B	130.1/33.7
R416	7030005000	S.RES ERJ2GEJ 471 X (470)	B	123.1/38.2
R417	7030005000	S.RES ERJ2GEJ 471 X (470)	T	81.6/45.0
R503	7030003520	S.RES ERJ3GEYJ 472 V (4.7K)	B	99.4/65.3
R504	7030005050	S.RES ERJ2GEJ 103 X (10K)	T	110.9/56.5
R507	7030007270	S.RES ERJ2GEJ 151 X (150)	B	106.5/45.0
R508	7030004040	S.RES ERJ3GEYJ 4R7 V (4.7)	B	94.0/68.7
R509	7030005040	S.RES ERJ2GEJ 472 X (4.7K)	B	110.1/49.0
R510	7030005060	S.RES ERJ2GEJ 333 X (33K)	B	109.6/47.7
R511	7030007340	S.RES ERJ2GEJ 153 X (15K)	B	109.6/46.7
R512	7030004980	S.RES ERJ2GEJ 101 X (100)	B	117.3/44.2

Eqv.= This component is equivalent to the REF No. component listed above, and may be substituted on parts orders and repairs.

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

[VR UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
R1	7210003600	VAR TP96D00APY-17F-10KBX2-2427		
J1	6510022022	S.CON 14FLT-SM2-TB(LF)(SN)(M)	T	27.4/16.1
DS1	5040003320	S.LED HT-210USD/UYG <KOU>	T	23.5/5.3
S1	2250000820	ENC TP90D96AE20PY-17F-1352		

Eqv.= This component is equivalent to the REF No. component listed above, and may be substituted on parts orders and repairs.

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

SECTION 6

MECHANICAL PARTS

[CHASSIS UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1	6510028410	MR-DS-01-1 <GA>	1
J2	6510028410	MR-DS-01-1 <GA>	1
MF1	2710000790	AFB0512HB-4L50 <USE>HK	1
W1**	8910000140	FFC-1015 (P0.5N30L80)	1
W2**	8910000140	FFC-1015 (P0.5N30L80)	1
W3**	8900016990	OPC-1741 (1.5DCOAXIAL110MM)	1
W5**	8900019320	OPC-2034	1
W6**	8600037380	SX3183 J1101*P1102CH	1
MP1	8010022550	3393 CHASSIS	1
MP2	8110010360	3393 U-COVER Y2168	1
MP3	8110010370	3393 L-COVER Y2167	1
MP4	8210028270	3393 CHASSIS PANEL	1
MP5	8930086820	3393 FAN HOLDER <KN>	1
MP6	8310081740	3393 NAME PLATE	1
MP11	8930087840	3393 ANT PLATE Y1291	2
MP12	8930066431	2427 A-NET-1	1
MP13	8930079690	RUBBER STAND (Q)	4
MP14	8810008661	PHBT M3 X 8 NI-ZC3	11
MP15	8810008661	PHBT M3 X 8 NI-ZC3	12
MP16	8810008661	PHBT M3 X 8 NI-ZC3	4
MP17	8810009061	FLAT M3 X 6 ZK3	9
MP18	8810009061	FLAT M3 X 6 ZK3	9
MP19	8820000530	FLANGE BOLT M4 X 8 NI	1
MP20	8850000140	FLAT WASHER M 4 NI BS	1
MP22	8810008661	PHBT M3 X 8 NI-ZC3	2
MP23	8810010780	PH BT M3 X20 NI-ZK3	4
MP24	8810003171	SET SCREWA M3 X 8 ZC3	1
MP25*	8810003171	SET SCREWA M3 X 8 ZC3	4
MP26	8810003381	SET SCREWC M3 X10 ZC3	2
MP27*	8810003361	SET SCREWC M3 X 6 ZC3	2
MP28	8930068370	2427 A-MAGNETIC SHIELD	1
MP30*	8930078840	SHIELD SPONGE (CM)	1
MP31*	8930082340	SHIELD SPONGE (CR)	1
MP32*	8930082340	SHIELD SPONGE (CR)	1
MP33*	8930082340	SHIELD SPONGE (CR)	1
MP34*	8930082340	SHIELD SPONGE (CR)	1
MP35	6910008240	59TN4772 (SPCC)	1
MP36*	8930082340	SHIELD SPONGE (CR)	1
MP37*	8930088280	FERRITE SHEET (AL)	1
MP38	8930088330	FERRITE SHEET (AM)	1
MP39*	8930088000	SPONGE (MH)	1
MP40	8930063000	THERMAL SHEET (AQ) TC-700HS-1.4	1
MP41	8930064840	SHIELD SPONGE (AO)	1 [USA]
	8930064840	SHIELD SPONGE (AO)	1 [EUR]
	8930064840	SHIELD SPONGE (AO)	1 [EUR-01]
	8930064840	SHIELD SPONGE (AO)	1 [ITR]
	8930064840	SHIELD SPONGE (AO)	1 [ESP]
	8930064840	SHIELD SPONGE (AO)	1 [FRA]
MP42	8930064840	SHIELD SPONGE (AO)	1 [USA]
	8930064840	SHIELD SPONGE (AO)	1 [EUR]
	8930064840	SHIELD SPONGE (AO)	1 [EUR-01]
	8930064840	SHIELD SPONGE (AO)	1 [ITR]
	8930064840	SHIELD SPONGE (AO)	1 [ESP]
	8930064840	SHIELD SPONGE (AO)	1 [FRA]
MP43	8930048971	SHIELD TAPE (C)-1	1 [USA]
	8930074740	SHIELD SPONGE (CE)	1 [EUR]
	8930074740	SHIELD SPONGE (CE)	1 [EUR-01]
	8930074740	SHIELD SPONGE (CE)	1 [ITR]
	8930074740	SHIELD SPONGE (CE)	1 [ESP]
	8930074740	SHIELD SPONGE (CE)	1 [FRA]
MP44*	8930068000	SHIELD SPONGE (AT)	1 [USA]
	8930068000	SHIELD SPONGE (AT)	1 [EUR]
	8930068000	SHIELD SPONGE (AT)	1 [EUR-01]
	8930068000	SHIELD SPONGE (AT)	1 [ITR]
	8930068000	SHIELD SPONGE (AT)	1 [ESP]
	8930068000	SHIELD SPONGE (AT)	1 [FRA]
MP45	8930057790	SHIELD SPONGE (K)	1 [EUR]
	8930057790	SHIELD SPONGE (K)	1 [EUR-01]
	8930057790	SHIELD SPONGE (K)	1 [ITR]
	8930057790	SHIELD SPONGE (K)	1 [ESP]
	8930057790	SHIELD SPONGE (K)	1 [FRA]
MP46	8930057790	SHIELD SPONGE (K)	1 [EUR]
	8930057790	SHIELD SPONGE (K)	1 [EUR-01]
	8930057790	SHIELD SPONGE (K)	1 [ITR]
	8930057790	SHIELD SPONGE (K)	1 [ESP]
	8930057790	SHIELD SPONGE (K)	1 [FRA]
MP47*	8930082340	SHIELD SPONGE (CR)	Only [USA]
MP48*	8930068000	SHIELD SPONGE (AT)	Only [USA]
MP49*	8930057870	2429 EARTH SPRING	Only [USA]
MP50**	8930018700	THERMAL SHEET Z	Only [USA]
MP51**	8930018700	THERMAL SHEET Z	Only [USA]

[MAIN PARTS]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1*	6510023720	LGY6501-0600C	1
J11*	6510027740	HSJ2462-010010	1
J31*	6450001641	TCS5044-0141177	1
J111*	6450001841	TCS7568-4320177	1
J151*	6510029830	3008S-8824 (50U) <KIN>	1
J171*	6510023110	3008L-8P8C <KIN>	1
J191*	6510023720	LGY6501-0600C	1
J261*	6510028980	SCDABA0500	1
J301*	6510024880	52689-3087	1
J401*	6510024880	52689-3087	1
J501*	6510028200	UB-M5BR-S14-4S (LF) (SN)	1
J571*	6510023720	LGY6501-0600C	1
J3001*	6510018450	TMP-S01X-B1	1
J5002*	6510025840	AXN316C038P	1
J5501*	6510027111	08FLT-SM2-TB (LF) (SN) (M)	1
J6501*	6510024522	12FLT-SM2-TB (LF) (SN) (M)	1
J6502*	6510025142	10FLT-SM2-TB (LF) (SN) (M)	1
BT6201*	3020000390	ML414HIV01E	1
EP2004*	6910002161	CASE-BM7H-LF	1
EP2206*	6910002161	CASE-BM7H-LF	1
EP2211*	6910002161	CASE-BM7H-LF	1
EP2404*	6910002161	CASE-BM7H-LF	1
EP2756*	6910002161	CASE-BM7H-LF	1
MP221*	8510020800	3393 C-SHIELD PLATE Y1292	1
MP401*	8930071160	2427 F-EARTH SPRING Y896	1
MP501*	8930071160	2427 F-EARTH SPRING Y896	1 [EUR]
	8930071160	2427 F-EARTH SPRING Y896	1 [EUR-01]
	8930071160	2427 F-EARTH SPRING Y896	1 [ITR]
	8930071160	2427 F-EARTH SPRING Y896	1 [ESP]
	8930071160	2427 F-EARTH SPRING Y896	1 [FRA]
MP1001*	8510020100	3182 DC-DC CASE Y1220	1
MP2101*	8510020790	3393 B-SHIELD PLATE <KN>	1
MP2102*	8510020800	3393 C-SHIELD PLATE Y1292	1
MP2201*	8510020800	3393 C-SHIELD PLATE Y1292	1
MP2202*	8510020790	3393 B-SHIELD PLATE <KN>	1
MP2301*	8510020830	3393 D-SHIELD PLATE Y1295	1
MP2501*	8510020780	3393 A-SHIELD PLATE <KN>	1
MP3031*	8510020800	3393 C-SHIELD PLATE Y1292	1
MP3231*	8510020770	3393 A-SHIELD CASE <KN>	1
MP3232*	8510020840	3393 E-SHIELD PLATE Y1296	1
MP4001*	8510020800	3393 C-SHIELD PLATE Y1292	1
MP4002*	8930071160	2427 F-EARTH SPRING Y896	1
MP4302*	8510012400	2177 D/A CASE Y454	1
MP5051*	8510020800	3393 C-SHIELD PLATE Y1292	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

[PA UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J101	6510028210	SJ050010 (TMP-J01X-V6)	1
J701*	6510021722	30FLT-SM2-TB (LF) (SN) (M)	1
J711*	6510021722	30FLT-SM2-TB (LF) (SN) (M)	1
J741*	6510018971	B4B-PH-SM4-TB (LF) (SN)	1
J791*	6510019371	B3B-ZR-SM4-TF (LF) (SN)	1
F1*	5220000341	FHA010-03F	1
F2*	5210000940	1205	1
EP3*	6910020710	OT-047 M3	1
EP4*	6910020710	OT-047 M3	1
MP301*	8930075440	3015 RUG SPRING Y1115	1
MP302*	8930075440	3015 RUG SPRING Y1115	1
MP381*	8930004071	EARTH SPRING (C)-1 (SX-166)	1
MP502*	8930062580	SHIELD TAPE (Q)	1
MP503*	8930088820	3393 EARTH SPRING Y1308	[EUR] 1
	8930088820	3393 EARTH SPRING Y1308	[EUR-01] 1
	8930088820	3393 EARTH SPRING Y1308	[ITR] 1
	8930088820	3393 EARTH SPRING Y1308	[ESP] 1
	8930088820	3393 EARTH SPRING Y1308	[FRA] 1
MP504*	8930063270	2590 EARTH SPRING Y733	[EUR] 1
	8930063270	2590 EARTH SPRING Y733	[EUR-01] 1
	8930063270	2590 EARTH SPRING Y733	[ITR] 1
	8930063270	2590 EARTH SPRING Y733	[ESP] 1
	8930063270	2590 EARTH SPRING Y733	[FRA] 1
MP601*	8930075430	3015 ANT SPRING Y1091	1
MP602*	8930062740	2590 M-SPRING	1
MP711*	8930071160	2427 F-EARTH SPRING Y896	1
MP712*	8930071160	2427 F-EARTH SPRING Y896	1
MP871*	8930071160	2427 F-EARTH SPRING Y896	1
MP872*	8930071160	2427 F-EARTH SPRING Y896	1
MP901*	8930075430	3015 ANT SPRING Y1091	1

[CONTROL UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
DS1	5030003680	CMF2P2117-E <SKD>	1
SP1	2510001720	4050P0803	1
W1**	8900013541	OPC-1410A (P0.5N14L50)	1
W2	8600037390	SX3183 P1121CH	1
EP1	0880003480	EX-2832	1
EP2	6910023900	WT5036-E <SKD>	1
MP1	8210028251	3393 FRONT PANEL-1 ASSEMBLY	[USA] 1
	8210028741	3393 FRONT PANEL (A)-1 ASSEMBLY	[EUR] 1
	8210028741	3393 FRONT PANEL (A)-1 ASSEMBLY	[EUR-01] 1
	8210028741	3393 FRONT PANEL (A)-1 ASSEMBLY	[ITR] 1
	8210028741	3393 FRONT PANEL (A)-1 ASSEMBLY	[ESP] 1
	8210028251	3393 FRONT PANEL-1 ASSEMBLY	[TPE] 1
	8210028251	3393 FRONT PANEL-1 ASSEMBLY	[KOR] 1
	8210028251	3393 FRONT PANEL-1 ASSEMBLY	[CHN] 1
	8210028741	3393 FRONT PANEL (A)-1 ASSEMBLY	[FRA] 1
	8210028251	3393 FRONT PANEL-1 ASSEMBLY	[EXP] 1
MP2	8210028260	3393 REAR PANEL ASSEMBLY	1
MP3	8930086230	3393 STAND	2
MP6	8610014530	KNOB N-406	1
MP7	8610014540	KNOB N-406 COVER (TOT)	1
MP8	8610014550	KNOB N-407	1
MP9	8610014560	KNOB N-408	1
MP10	8610014570	KNOB N-409	1
MP11	8610014580	KNOB N-410	1
MP12	8930086270	3393 KEY <YAM>	1
MP13	8930086871	3393 RUBBER-1 TOP	1
MP15	8930086260	3393 BRAKE BUTTON	1
MP16	8010022570	3393 SUB CHASSIS Y2166	1
MP17	8930086310	3393 SPRING	2
MP19	8930086300	3393 SP HOLDER	1
MP20	8930086960	3393 LCD SPONGE	1
MP21	8930087880	3393 LCD PLATE Y1293	1
MP22	8930086360	LEG CUSHION (L)	1
MP24	8850003230	PLAIN WASHER (AT)	1
MP25	8930086981	3393 SHEET-1	2
MP26	8850002610	PLAIN WASHER (AI)	1
MP29	8830002441	2427 NUT-1 ROHS	1
MP30	8930036740	1691 BRAKE PAD	2
MP31	8810003560	M4 X 6 SUS	1
MP32	8810009991	PHBT M3 X 8 NI-ZK3	6
MP33	8810009181	BT M2 X 5 NI-ZC3	4
MP34	8810009561	PHBT M2 X 6 NI-ZK3	5
MP35	8810000101	PH M2 X 4 ZK3	5
MP36	8810004431	PH M3 X 6 ZK3	1
MP37	8930086990	3393 MODULAR SPONGE	1
MP41	8930088310	SPONGE (MM)	2
MP42	8930088440	HIMELON SHEET (DC)	1
MP43	8930088350	HIMELON SHEET (DB)	1
MP44	8930088600	HIMELON SHEET (DE)	2
MP45	8930088610	HIMELON SHEET (DF)	2
MP46	8930088620	HIMELON SHEET (DG)	1
MP47	8930088640	HIMELON SHEET (DI)	1
MP48	8930088630	HIMELON SHEET (DH)	1
MP49	8930088650	SPONGE (MQ)	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]

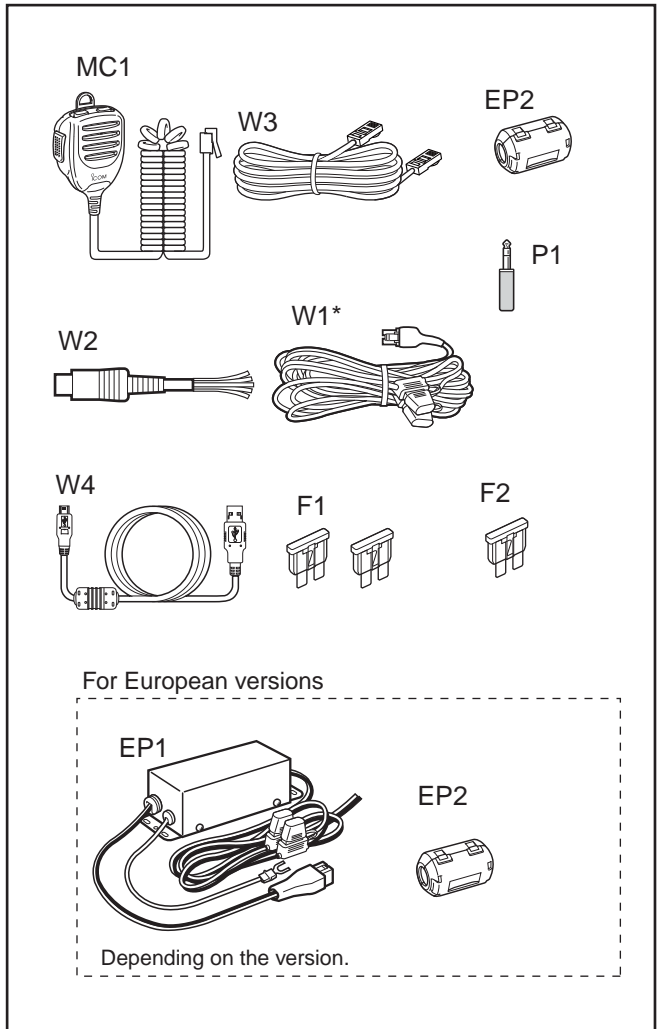
REF NO.	ORDER NO.	DESCRIPTION	QTY.
J101*	6510022022	14FLT-SM2-TB (LF) (SN) (M)	1
J301*	6510029840	I1MSA-9690S-27Y902	1
J401*	6510014961	B2B-ZR-SM4-TF (LF) (SN)	1
J402*	6510025771	03-935H1-72BKA	1
J403*	6510025771	03-935H1-72BKA	1
J405*	6510025760	B5B-ZR-SM4-TF (LF) (SN)	1
J501	6510023110	3008L-8P8C <KIN>	1
J701	6510029830	3008S-8824 (50U) <KIN>	1
J901*	6510027710	S5B-ZR-SM4A-TF (LF) (SN)	1
S401*	2220000780	MCS121D-1001	1
S601*	2260002740	LS8J2M-T	1
S602*	2260002740	LS8J2M-T	1
S603*	2260002740	LS8J2M-T	1
S604*	2260002740	LS8J2M-T	1
S605*	2260002740	LS8J2M-T	1
S606*	2260002740	LS8J2M-T	1
S607*	2260002740	LS8J2M-T	1
S608*	2260002740	LS8J2M-T	1
S609*	2260002740	LS8J2M-T	1
S610*	2260002740	LS8J2M-T	1
S611*	2260002740	LS8J2M-T	1
S612*	2260002740	LS8J2M-T	1
S613*	2260002740	LS8J2M-T	1
S614*	2260002740	LS8J2M-T	1
S615*	2260002740	LS8J2M-T	1
S616*	2260002740	LS8J2M-T	1
MP301*	8510020810	3393 SHIELD CASE Y1290	1
MP402*	8930086320	3393 JACK HOLDER Y1289	1
MP601*	8510020820	3393 LED DRIVER CASE Y1294	1

[VR UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1*	6510022022	14FLT-SM2-TB (LF) (SN) (M)	1
S1*	2250000820	TP90D96AE20PY-17F-1352	1

[ACCESSORIES]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
P1	5610000420	AP-338 (BK1)	1
F1	5210000840	ATC-30	2
F2	5210000940	1205	1
MC1	(Optional)	HM-198	1
W1	8900021450	OPC-1457	[USA] 1
	8900021450	OPC-1457	[TPE] 1
	8900021450	OPC-1457	[KOR] 1
	8900021450	OPC-1457	[CHN] 1
	8900021450	OPC-1457	[EXP] 1
W2	8900006110	OPC-596	1
W3	(Optional)	OPC-2253	1
W4	8900015431	OPC-1637A <KOU>	1
EP1	0880003060	OPC-2095	[EUR] 1
	0880003060	OPC-2095	[EUR-01] 1
	0880003060	OPC-2095	[ITR] 1
	0880003060	OPC-2095	[ESP] 1
	0880003060	OPC-2095	[FRA] 1
EP2	6910011941	ZCAT2436-1330A-BK	1
EP3	6910011941	ZCAT2436-1330A-BK	[EUR] 1
	6910011941	ZCAT2436-1330A-BK	[EUR-01] 1
	6910011941	ZCAT2436-1330A-BK	[ITR] 1
	6910011941	ZCAT2436-1330A-BK	[ESP] 1
	6910011941	ZCAT2436-1330A-BK	[FRA] 1

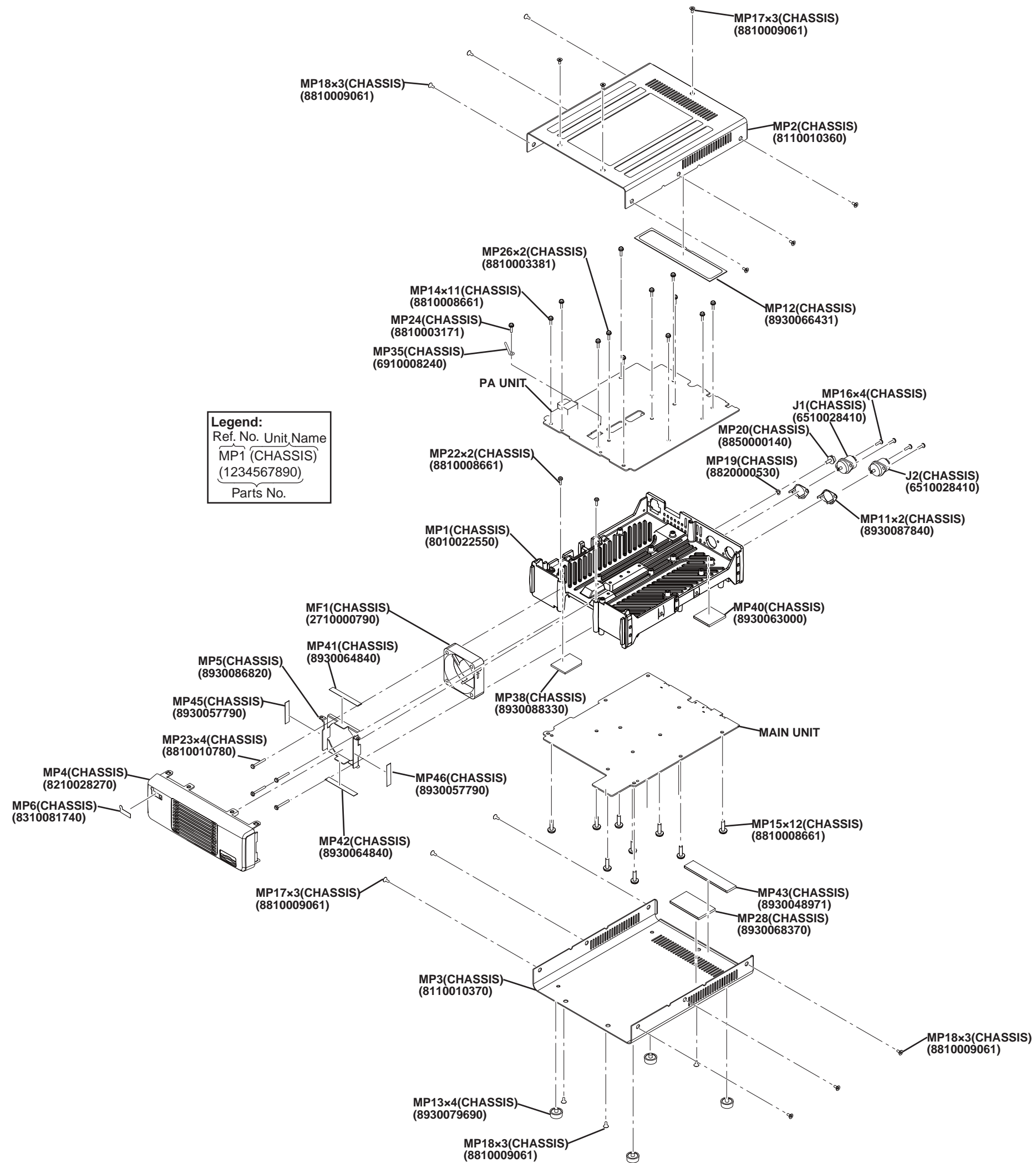


*: Refer to "BOARD LAYOUTS" for the location.

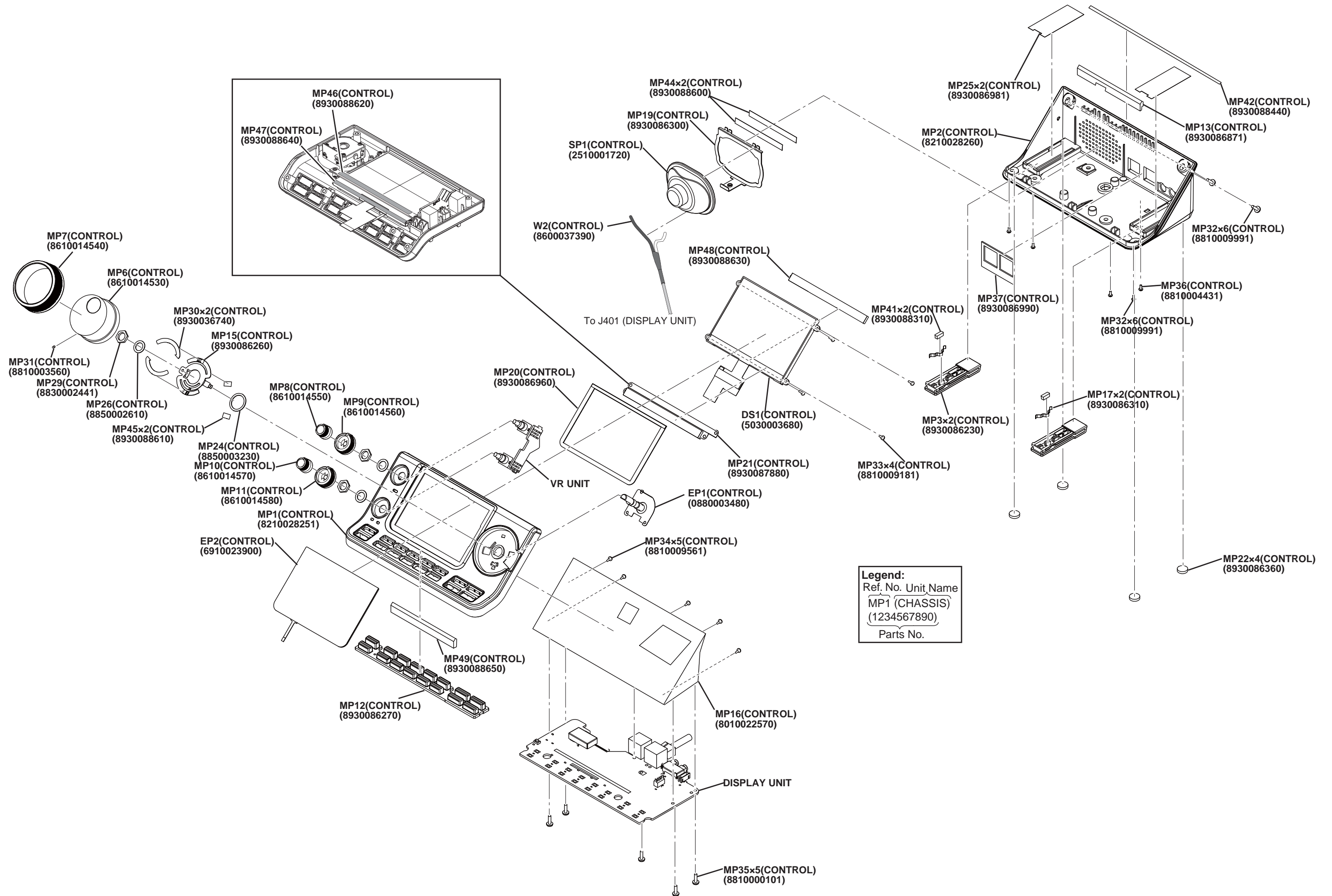
** : Refer to "GENERAL WIRING" for the connection

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

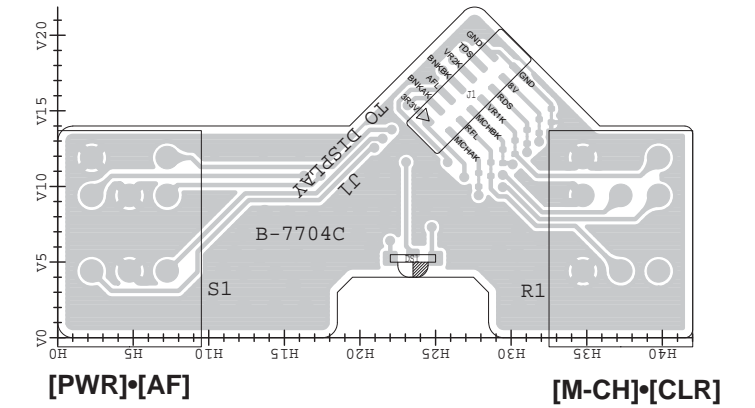
• CHASSIS



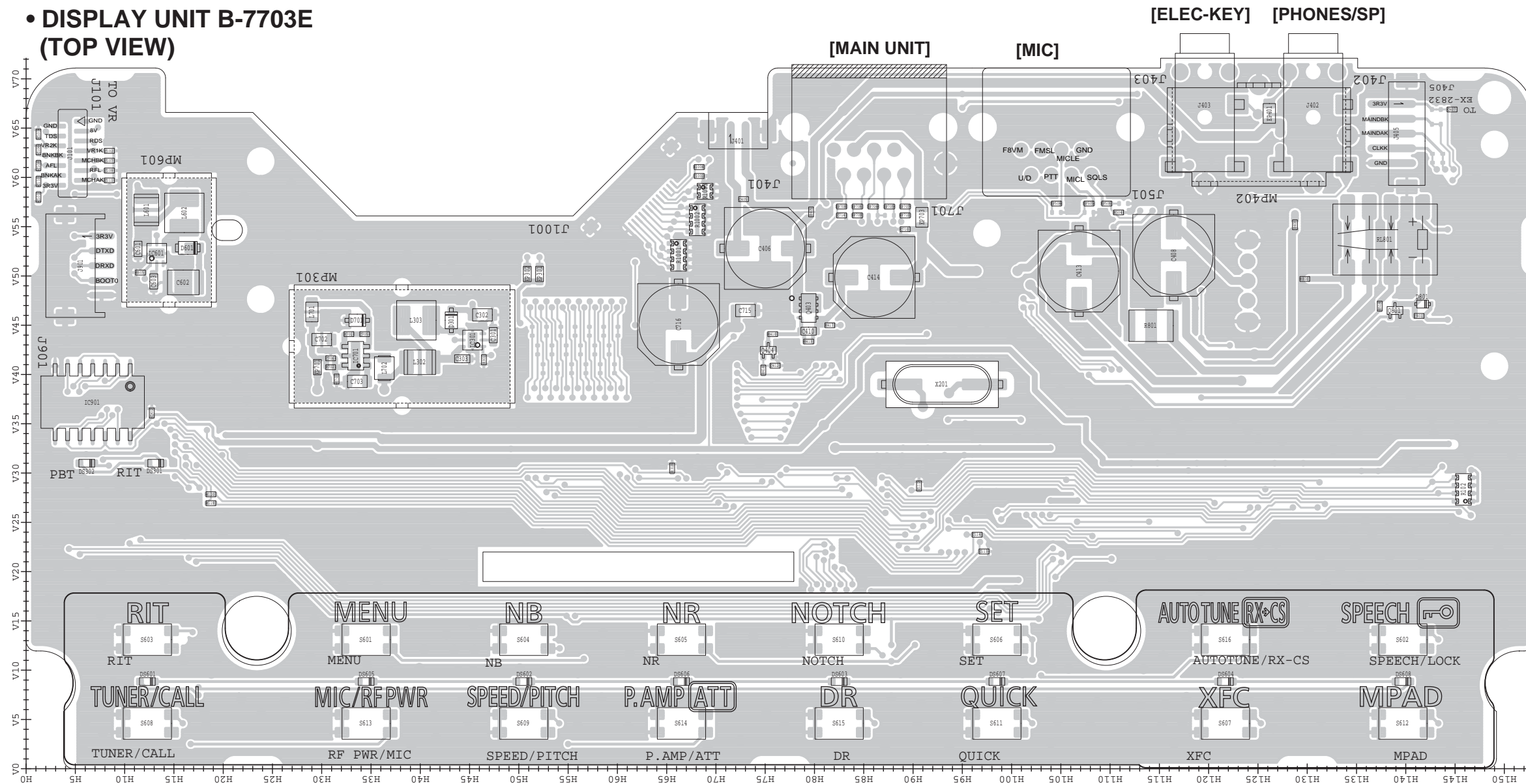
• CONTROL UNIT



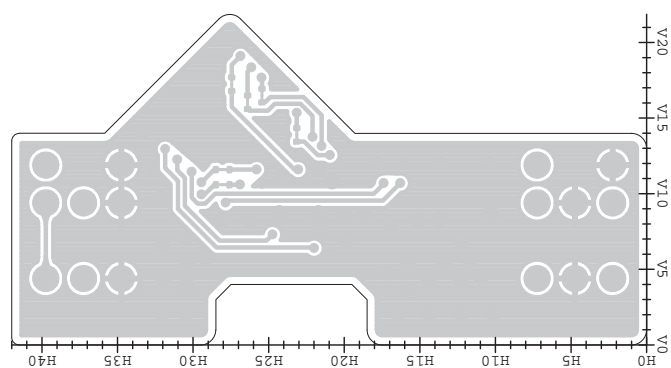
• VR UNIT B-7704C
(TOP VIEW)



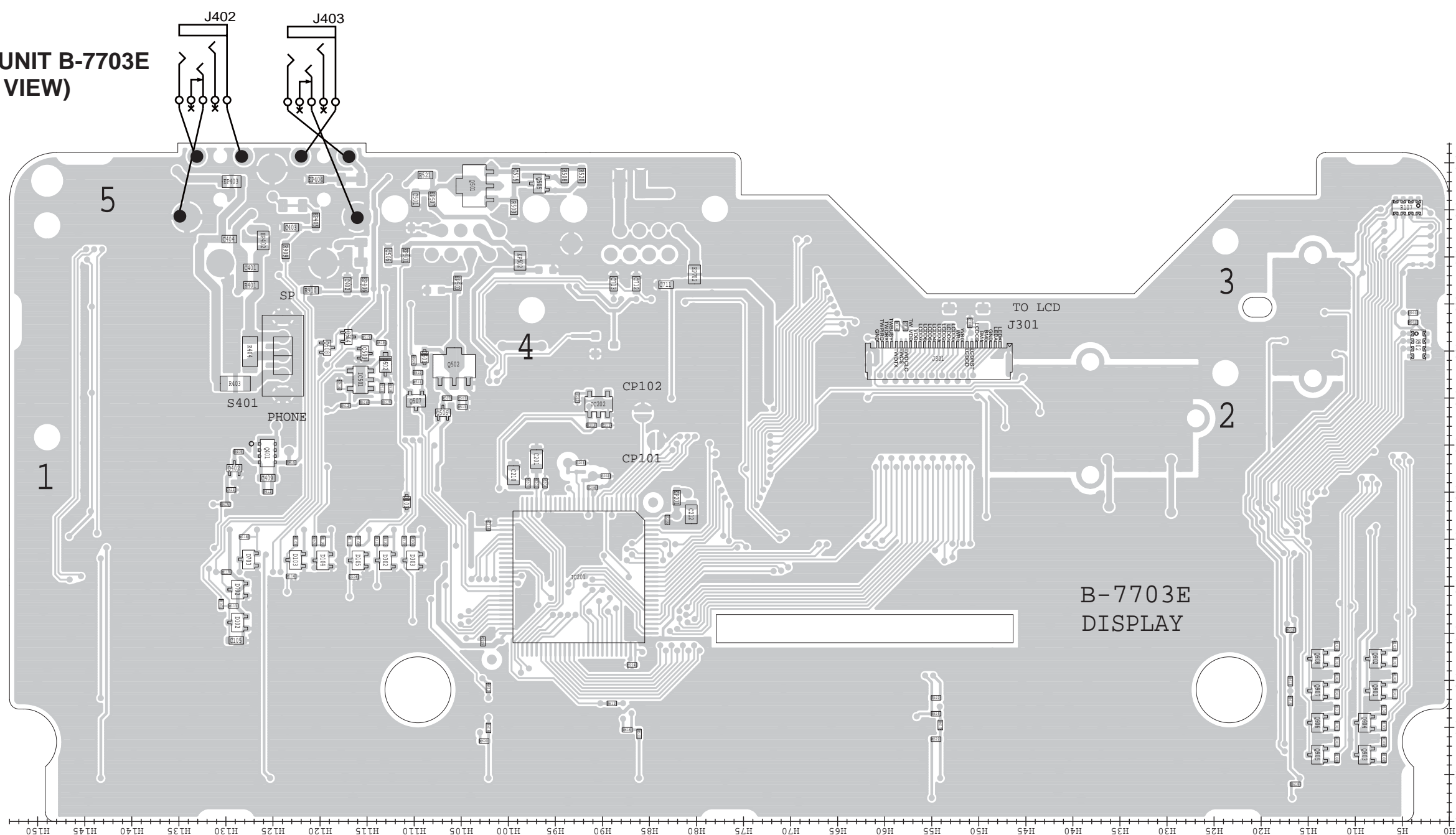
• DISPLAY UNIT B-7703E
(TOP VIEW)



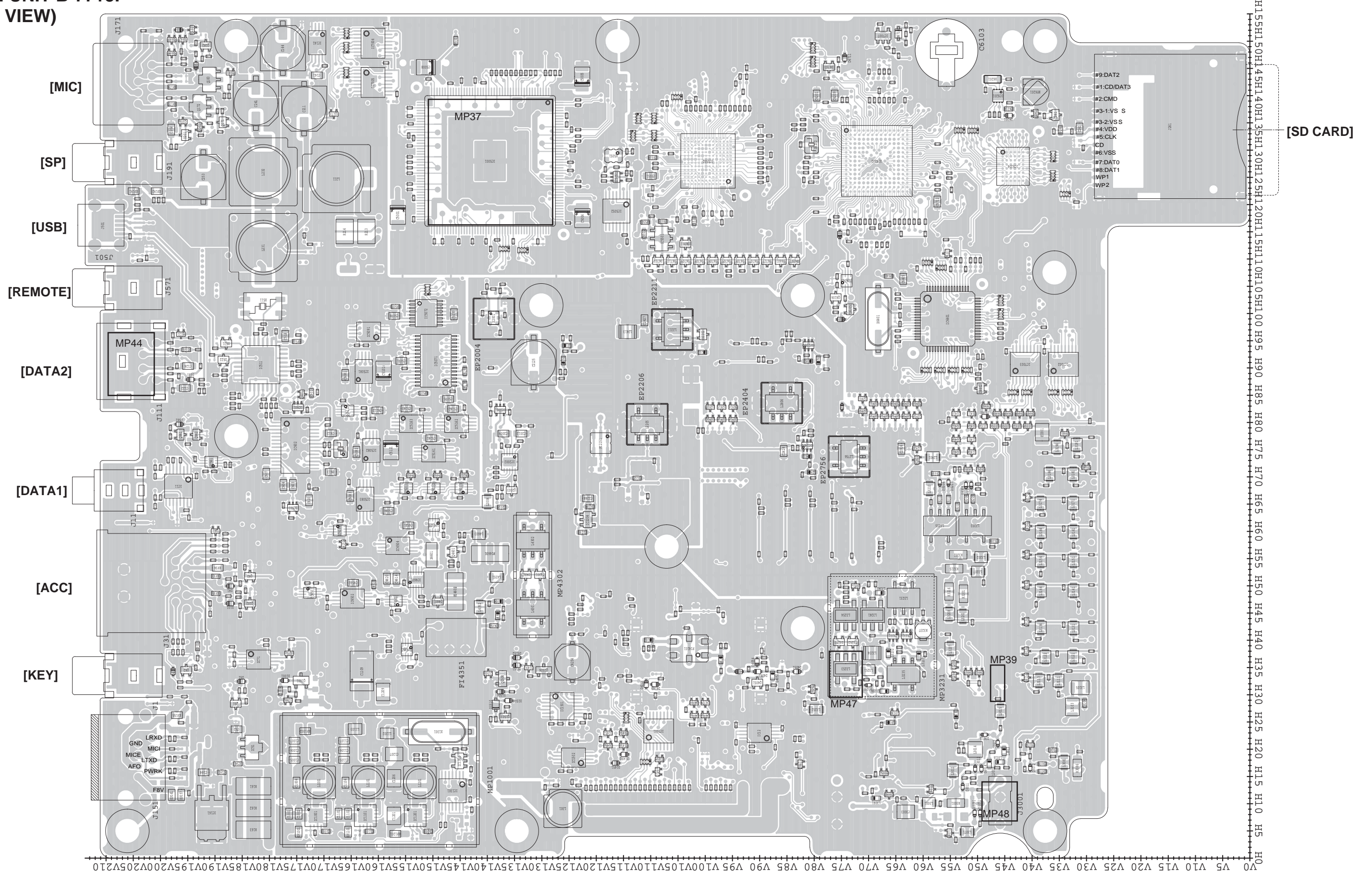
• VR UNIT B-7704C
(BOTTOM VIEW)



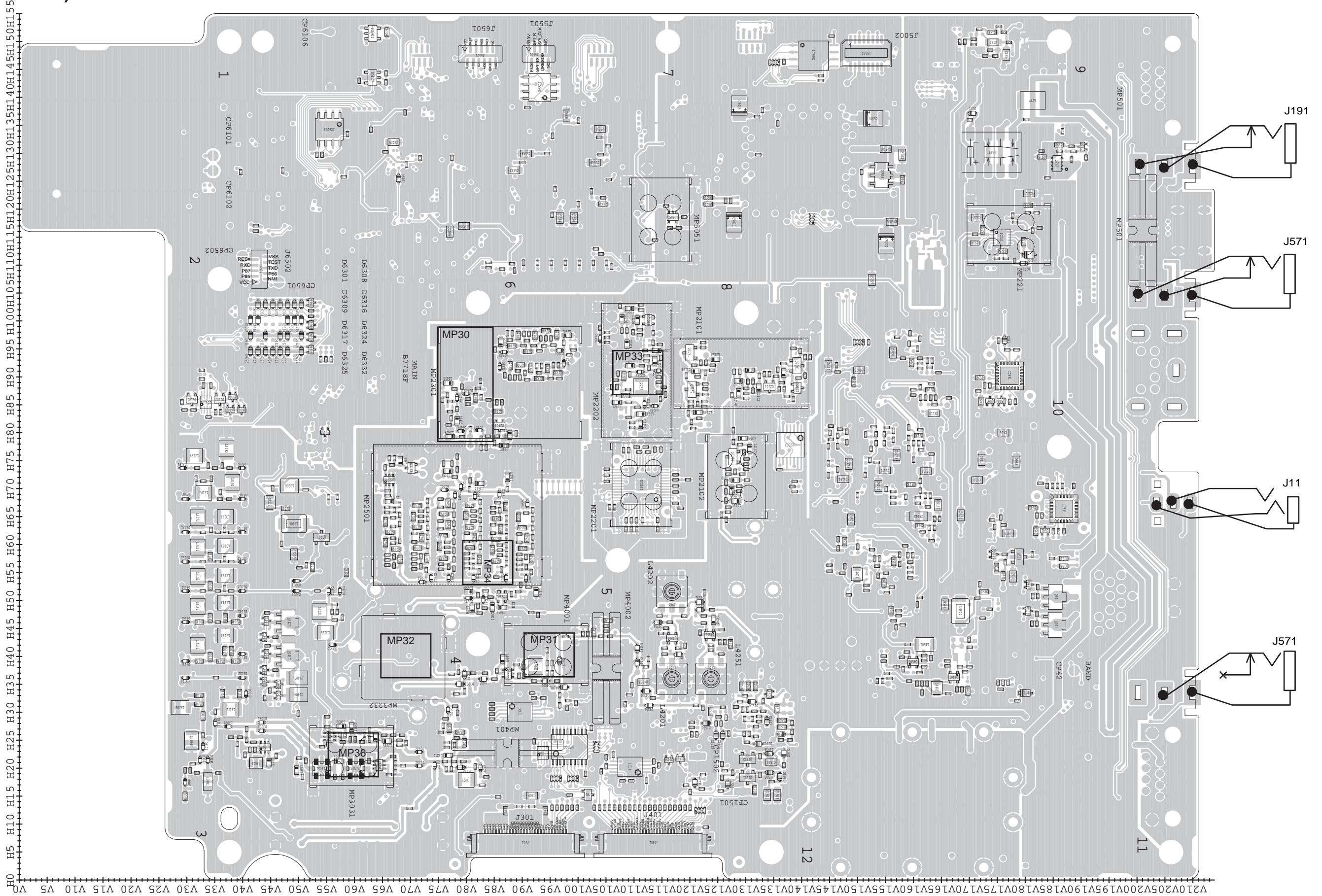
• DISPLAY UNIT B-7703E
(BOTTOM VIEW)



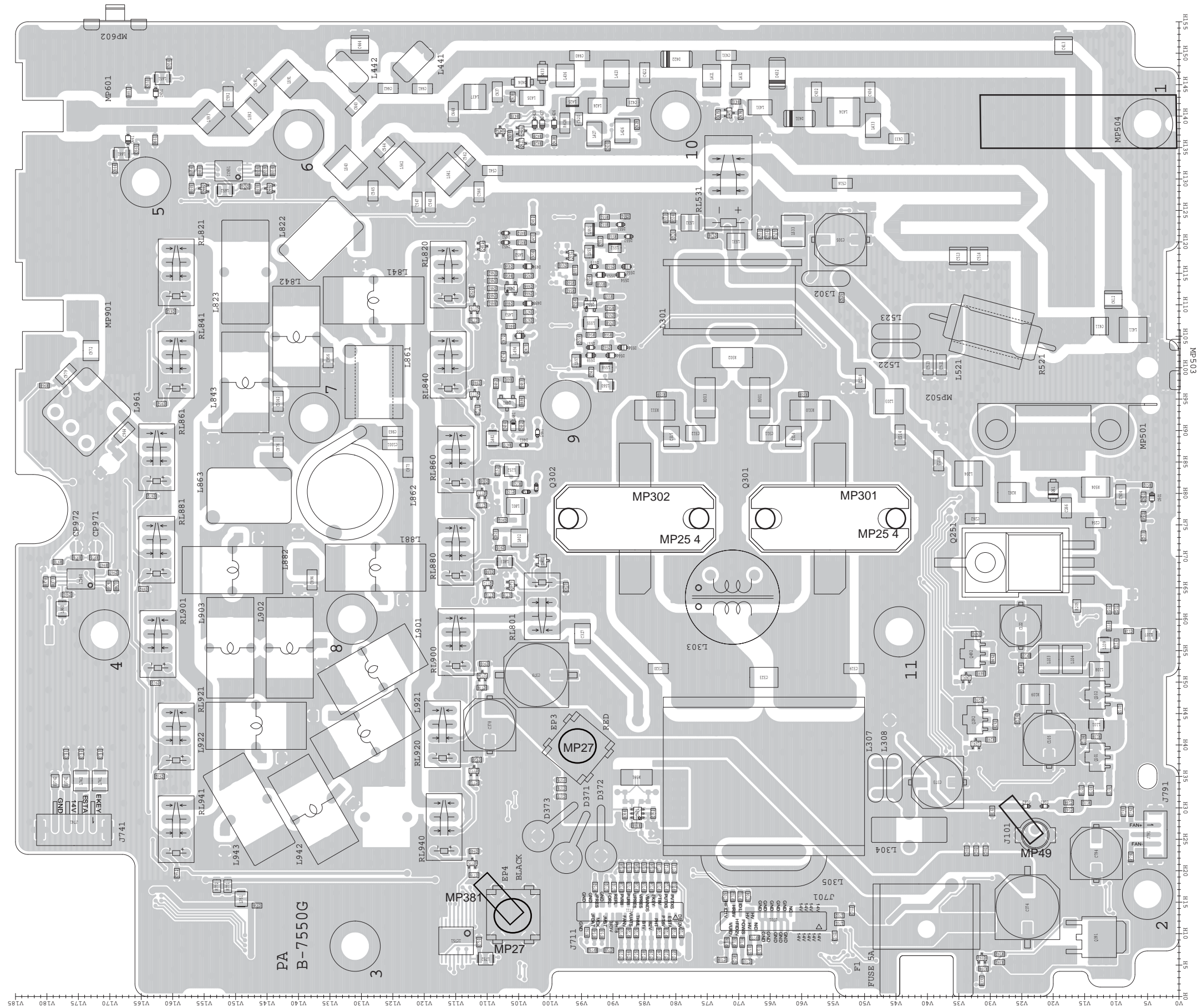
• MAIN UNIT B-7718F
(TOP VIEW)



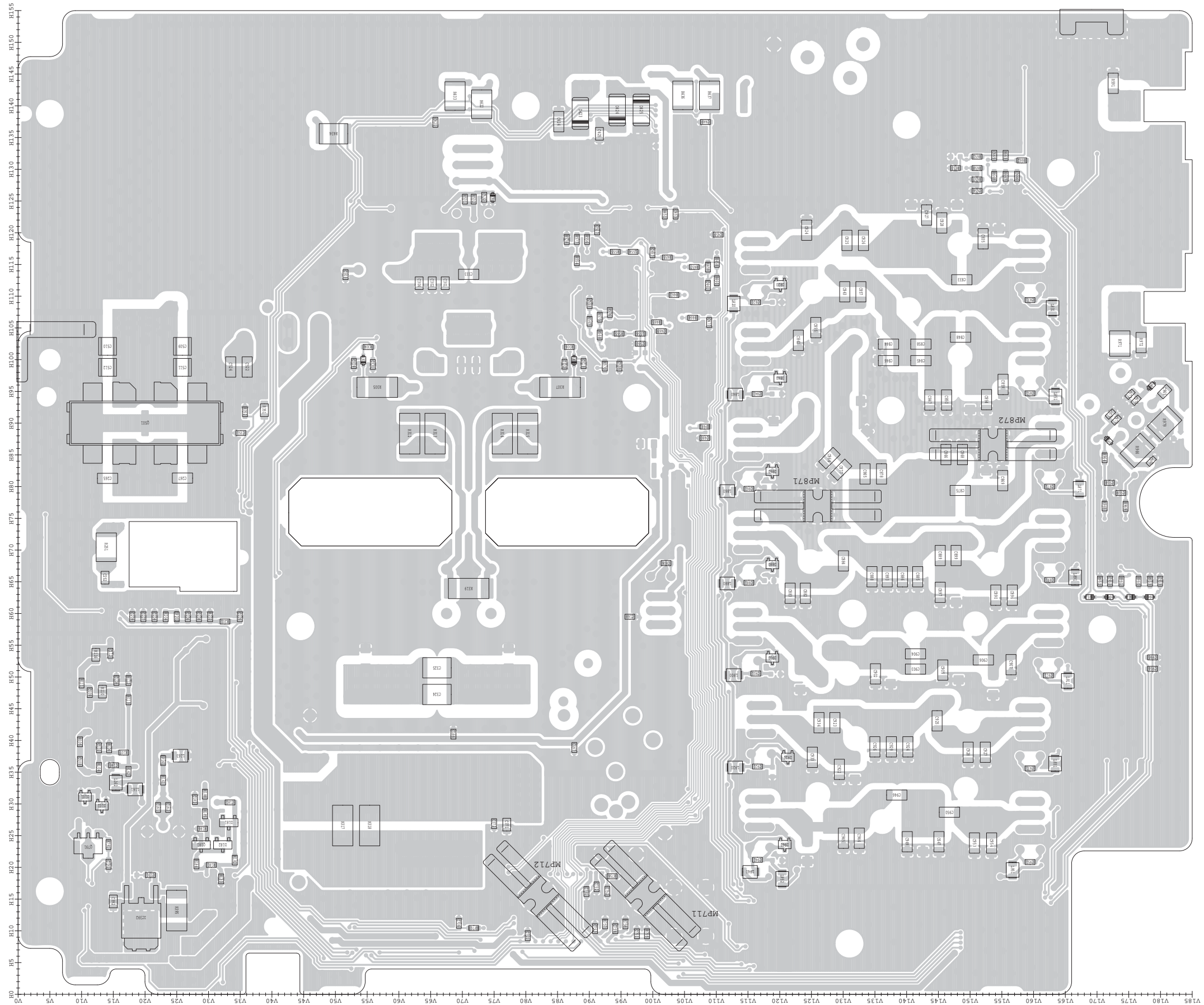
• MAIN UNIT B-7718F
(BOTTOM VIEW)

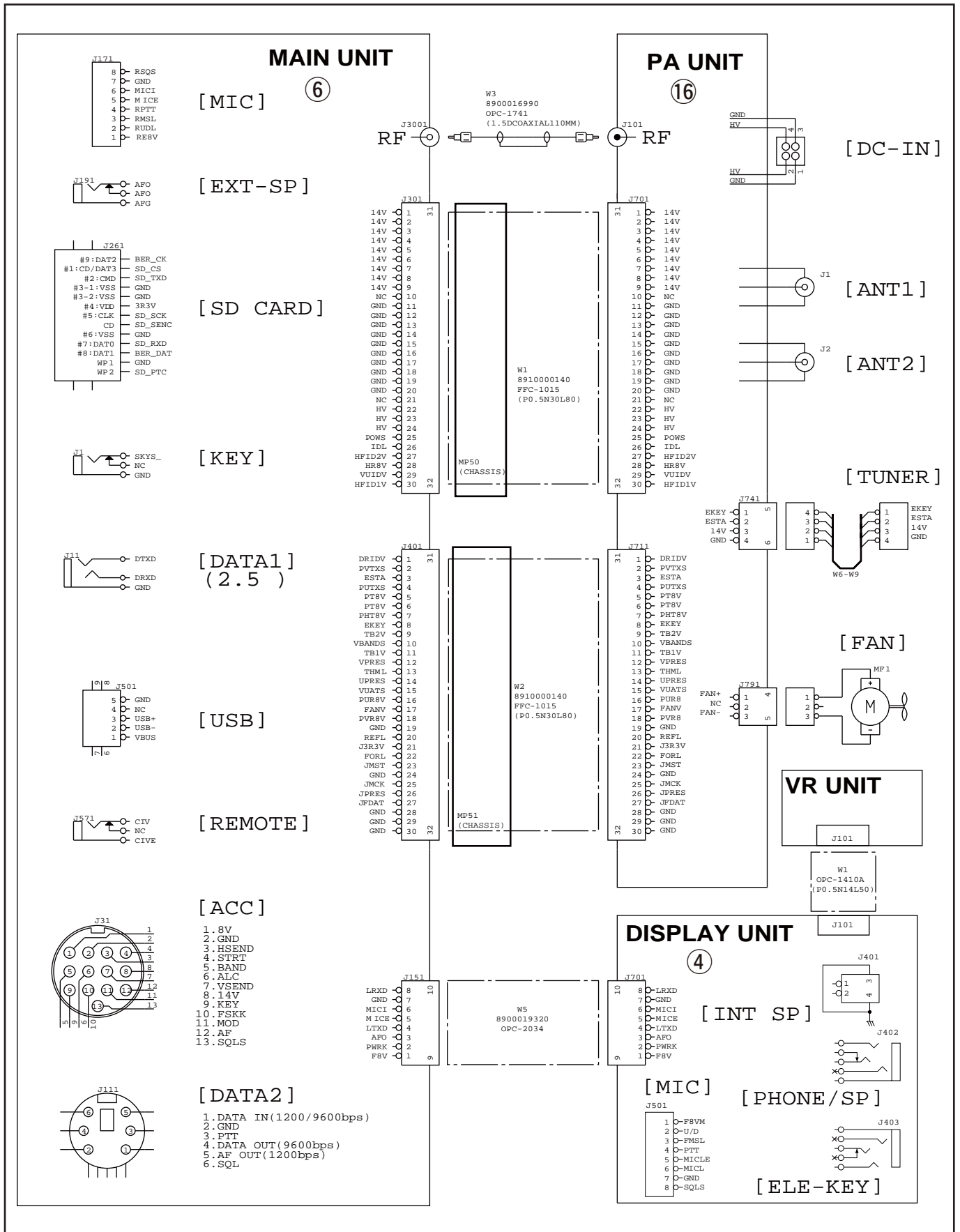


• PA UNIT B-7550G
(TOP VIEW)



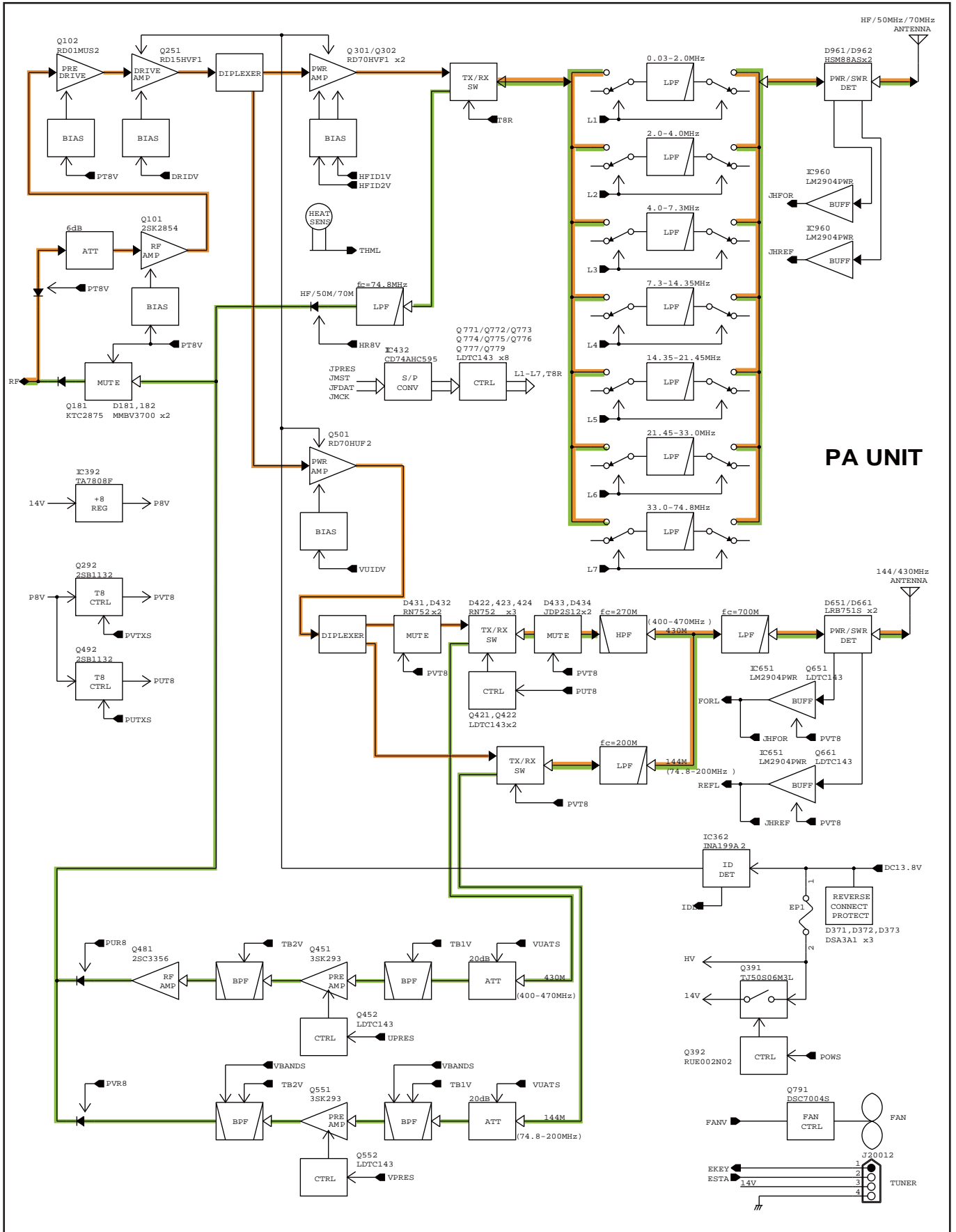
•PA UNIT B-7550G
(BOTTOM VIEW)

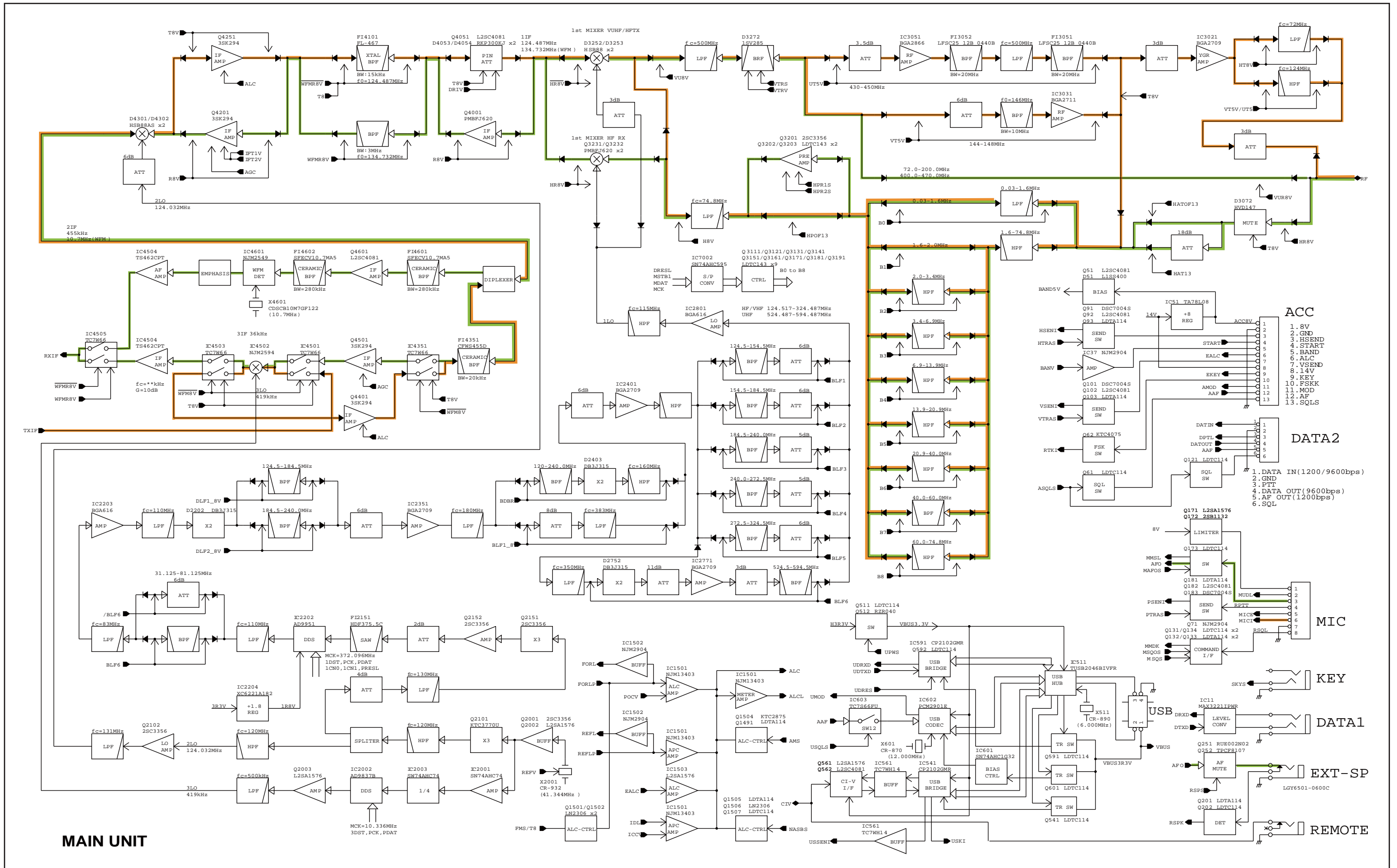


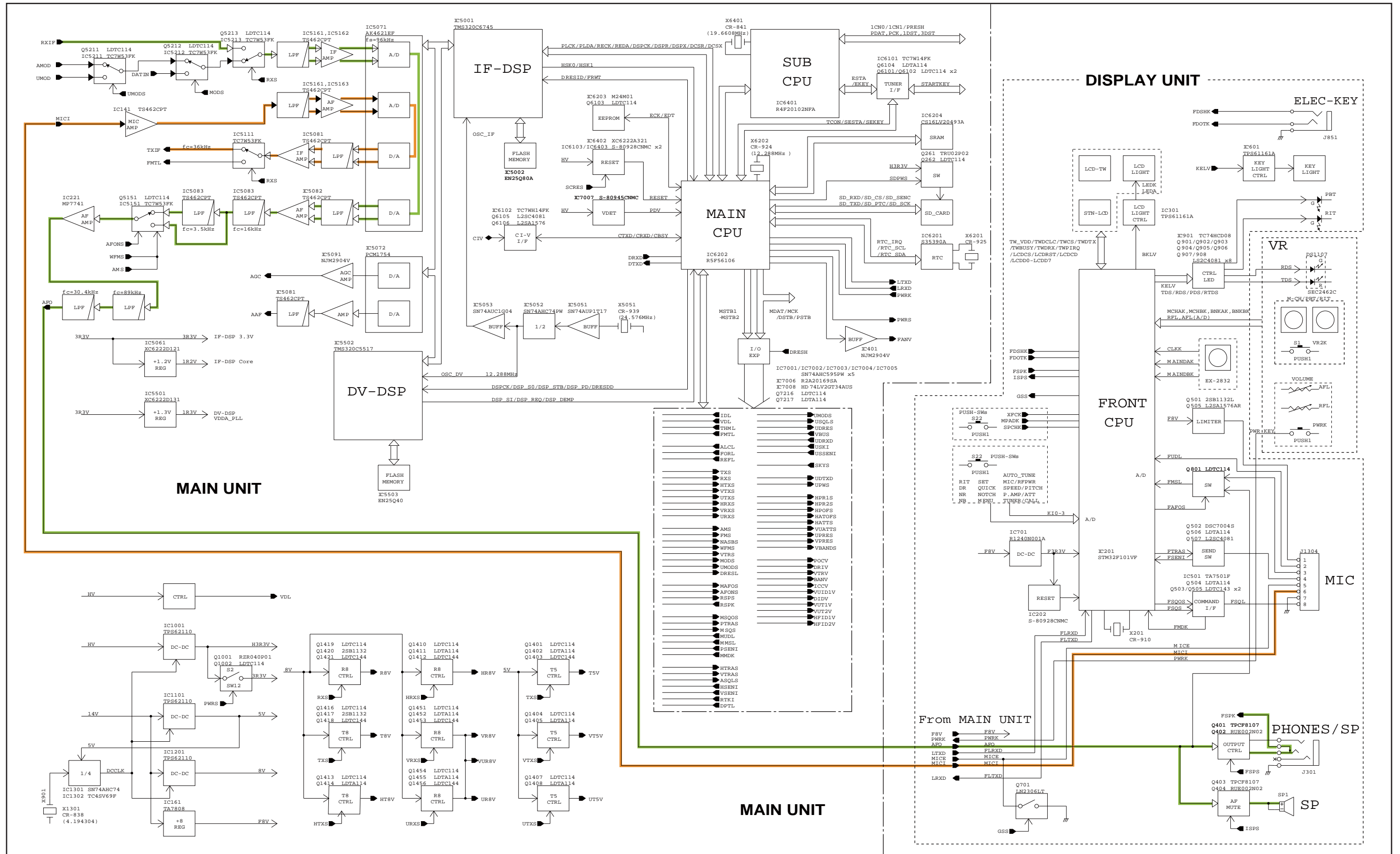


SECTION 9

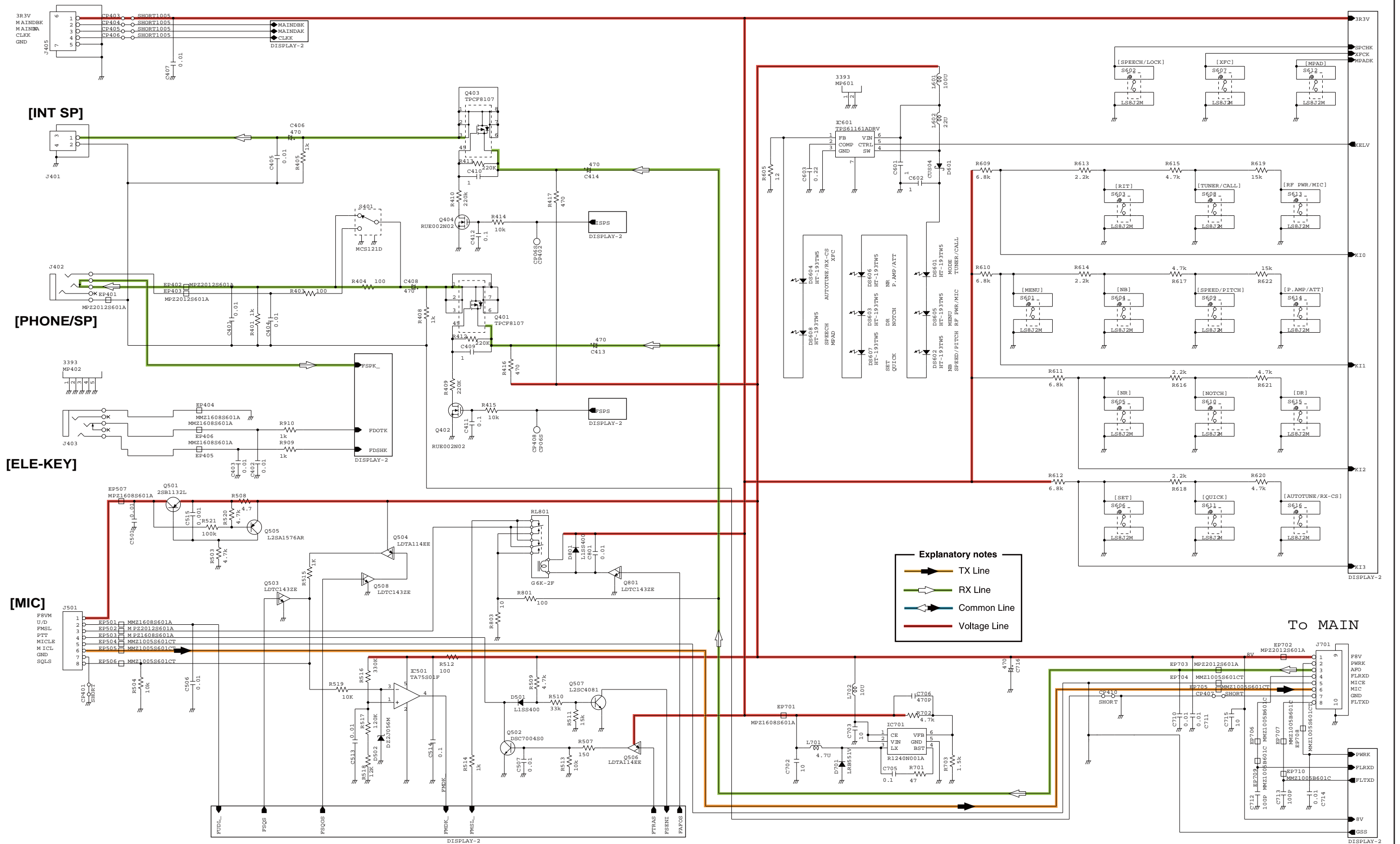
BLOCK DIAGRAM





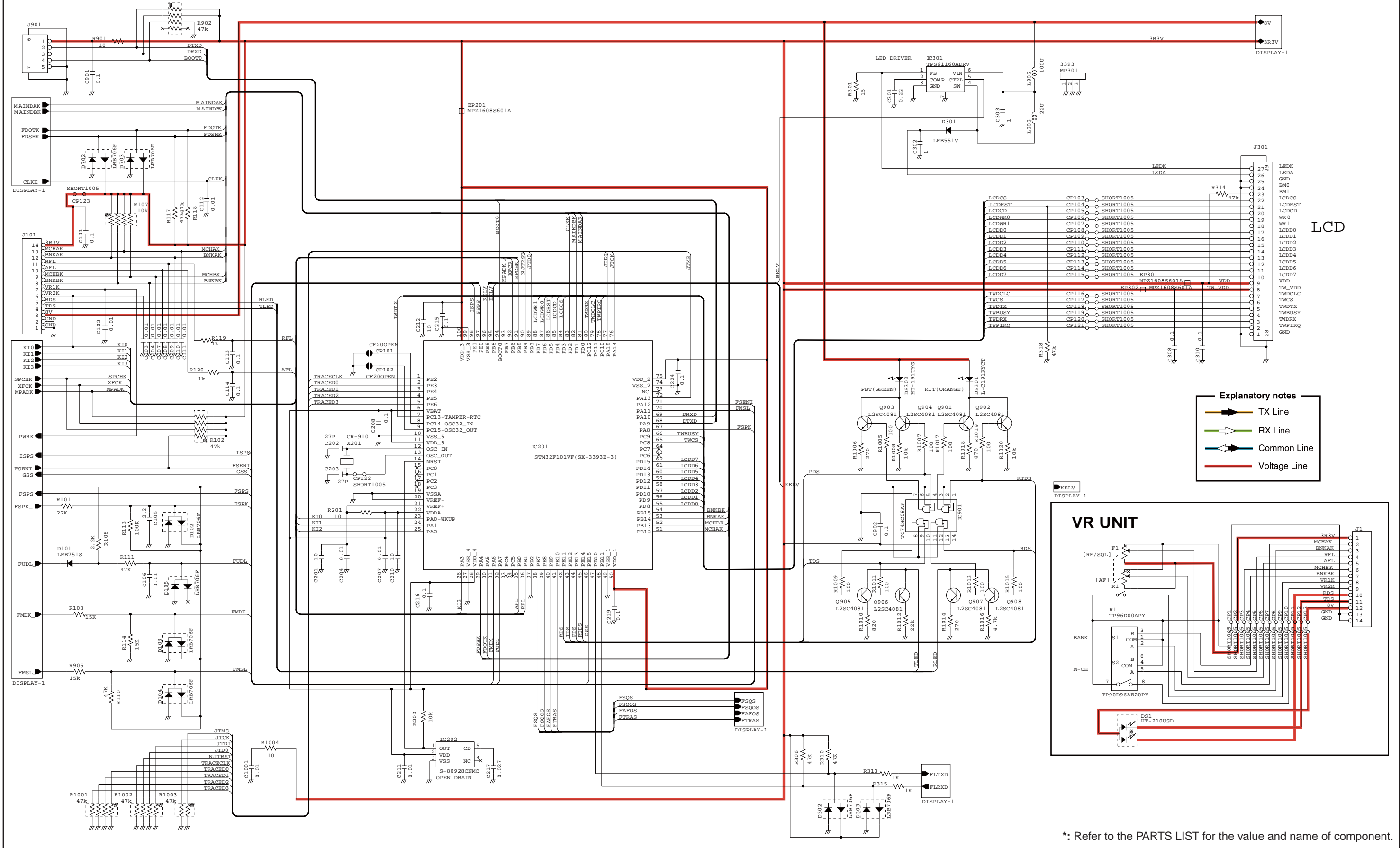


• DISPLAY UNIT (DISPLAY-1)



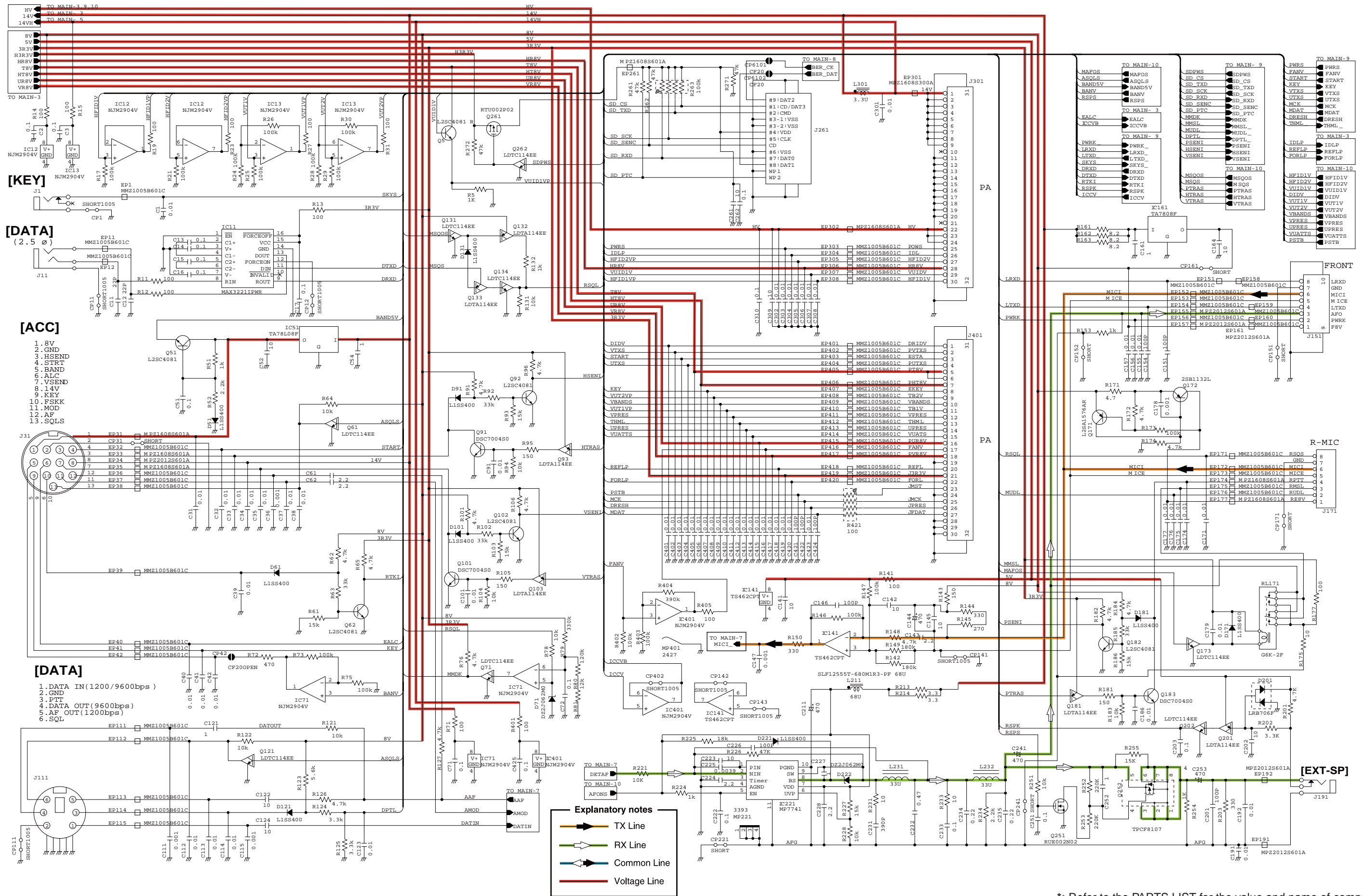
*: Refer to the PARTS LIST for the value and name of component.

• DISPLAY UNIT (DISPLAY-2)



*: Refer to the PARTS LIST for the value and name of component.

• MAIN UNIT (MAIN-1)

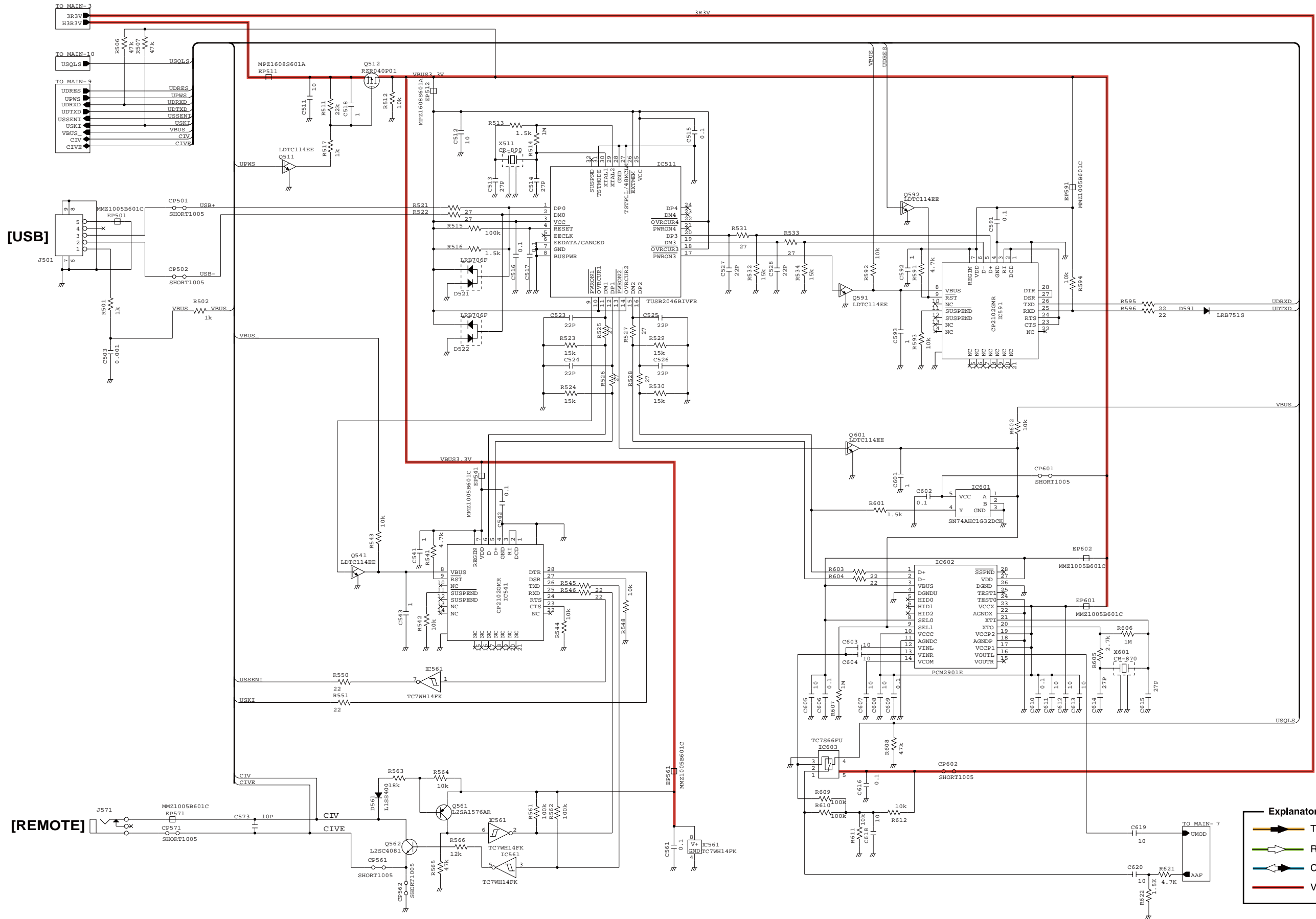


Explanatory notes

- TX Line
- RX Line
- Common Line
- Voltage Line

*: Refer to the PARTS LIST for the value and name of component.

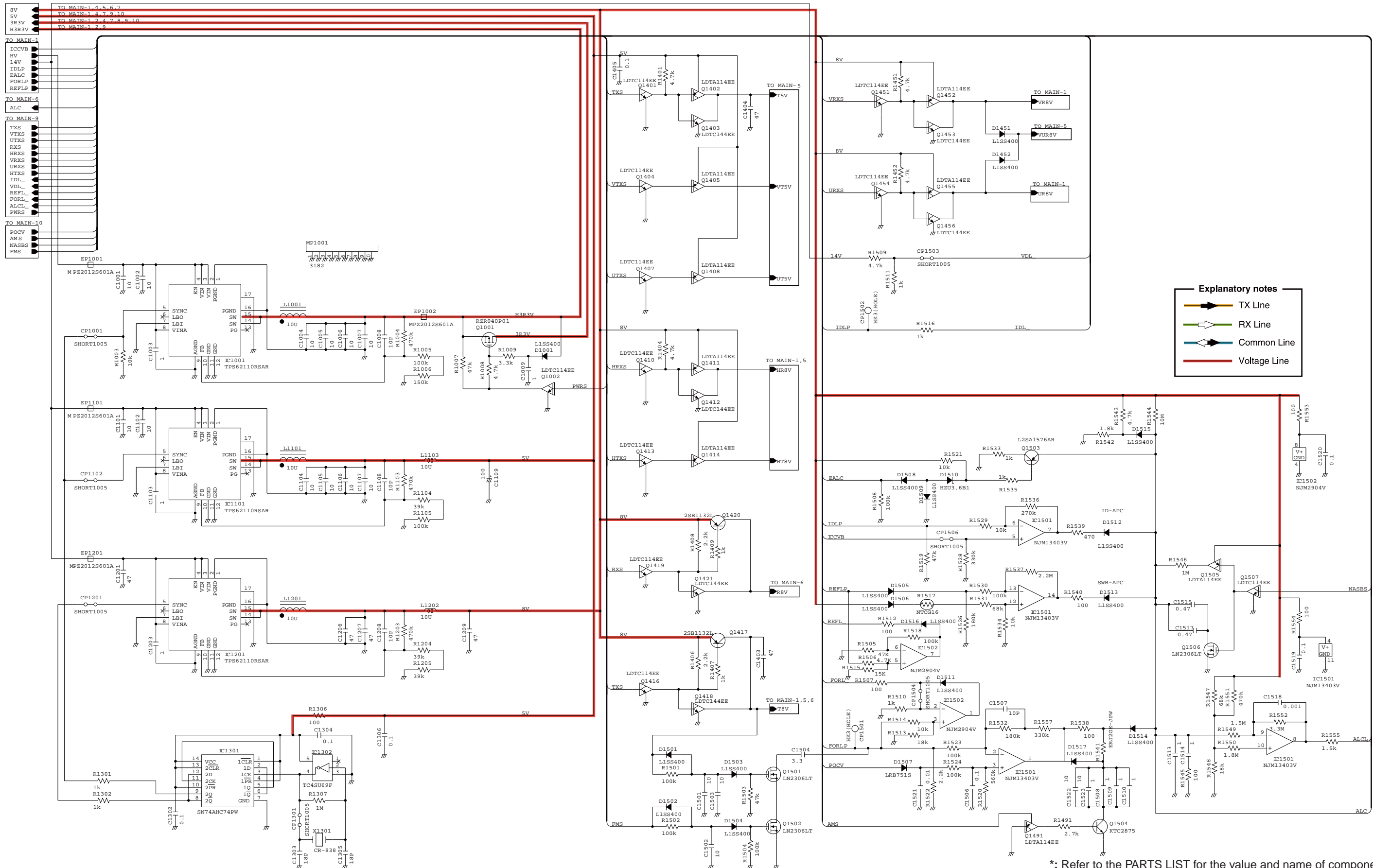
• MAIN UNIT (MAIN-2)



- Explanatory notes**
- ▶ TX Line
 - ▶ RX Line
 - ▶ Common Line
 - ▶ Voltage Line

*: Refer to the PARTS LIST for the value and name of component.

• MAIN UNIT (MAIN-3)

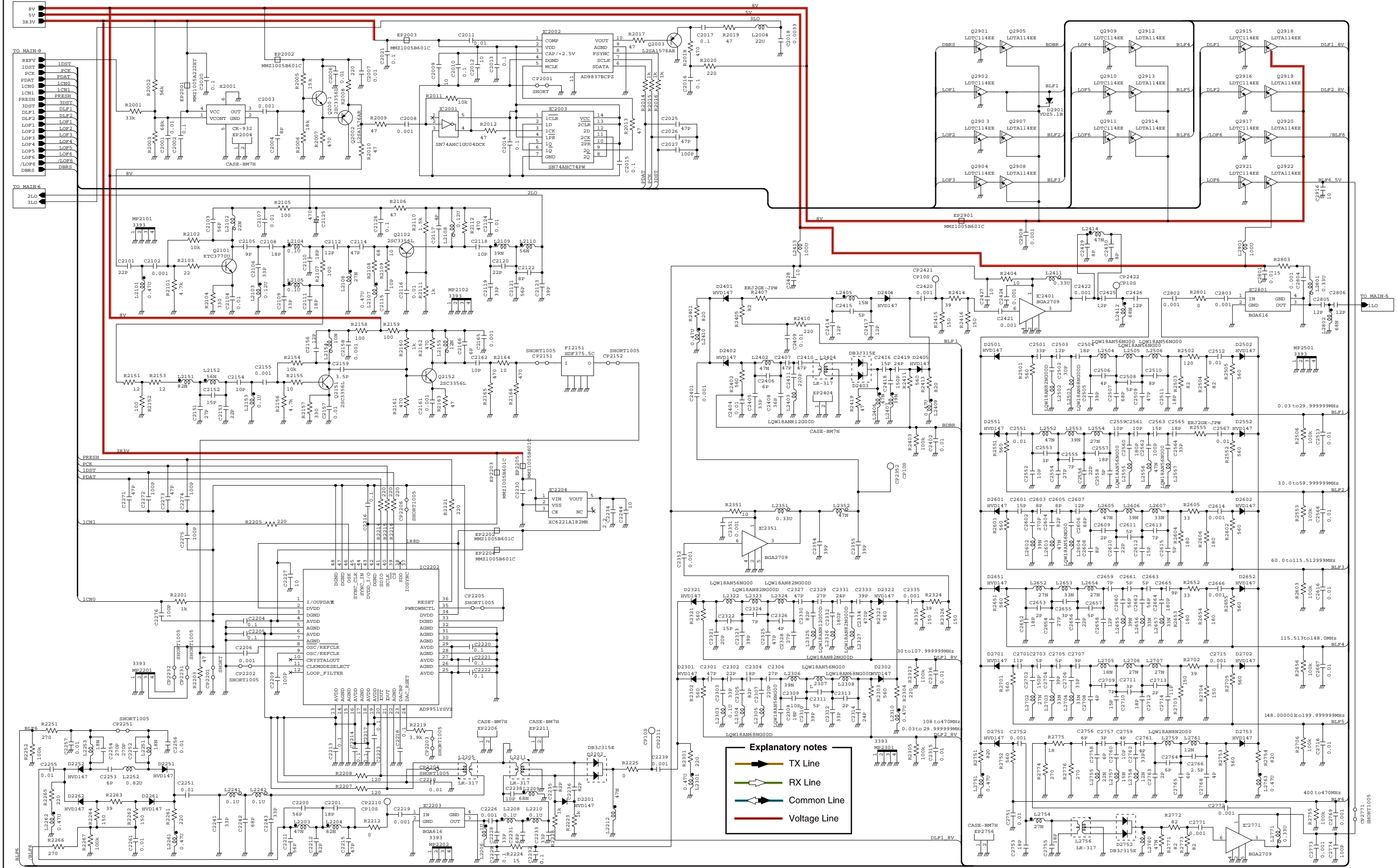


Explanatory notes

- TX Line
- RX Line
- Common Line
- Voltage Line

*: Refer to the PARTS LIST for the value and name of component.

• MAIN UNIT (MAIN-4)

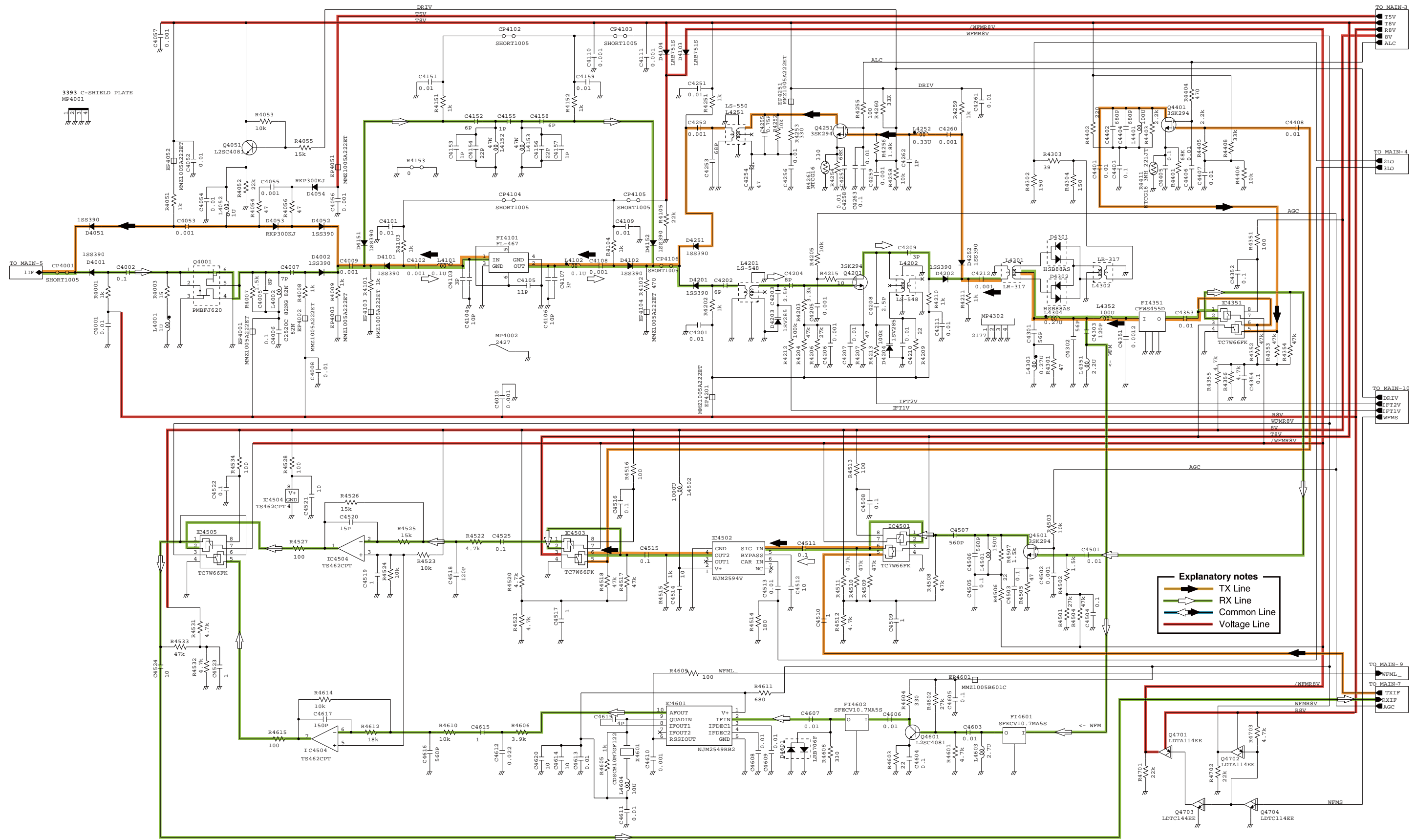


Explanatory notes

- ▶ TX Line
- ▶ RX Line
- ▶ Common Line
- ▶ Voltage Line

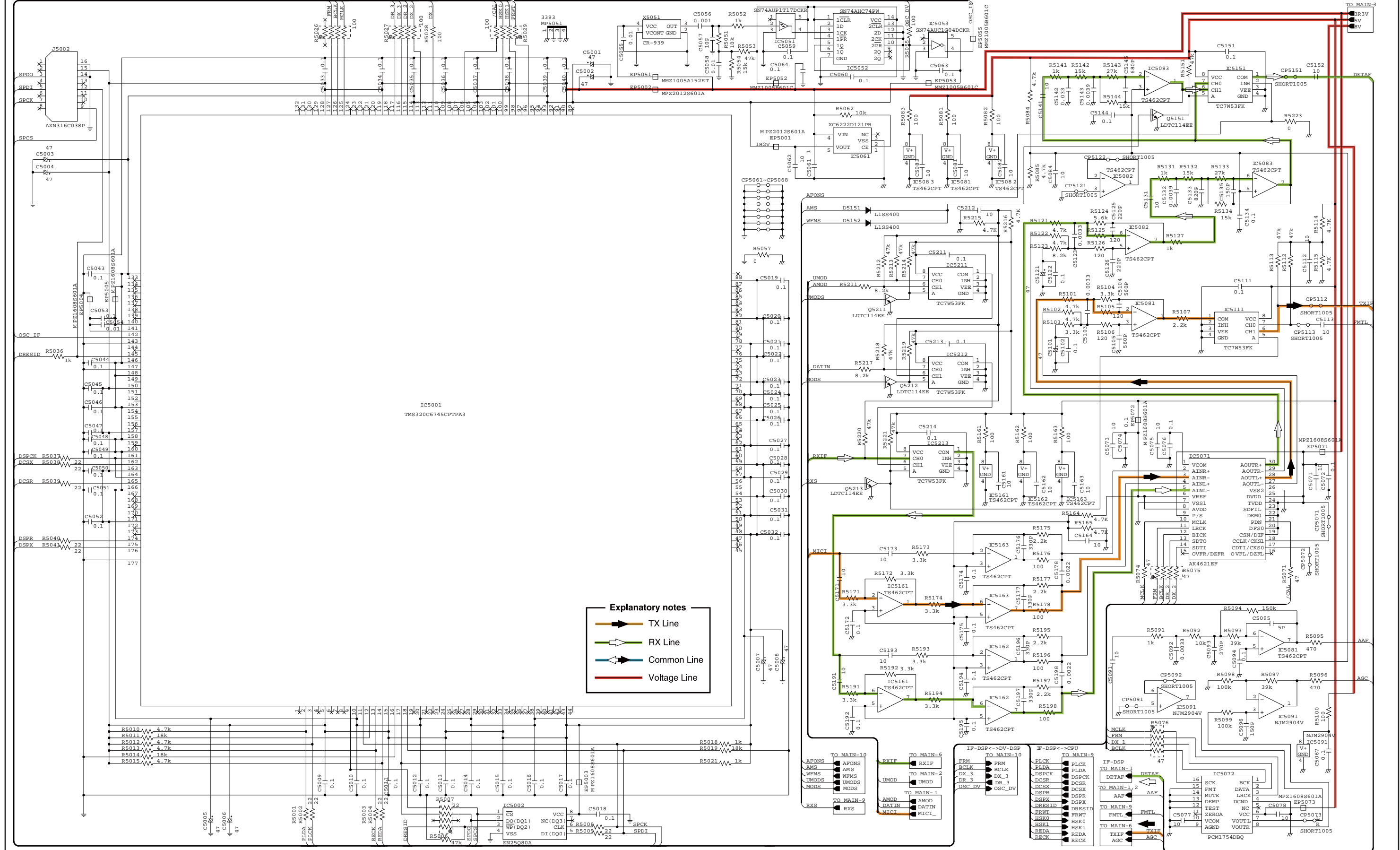
*: Refer to the PARTS LIST for the value and name of component.

• MAIN UNIT (MAIN-6)



*: Refer to the PARTS LIST for the value and name of component.

• MAIN UNIT (MAIN-7)

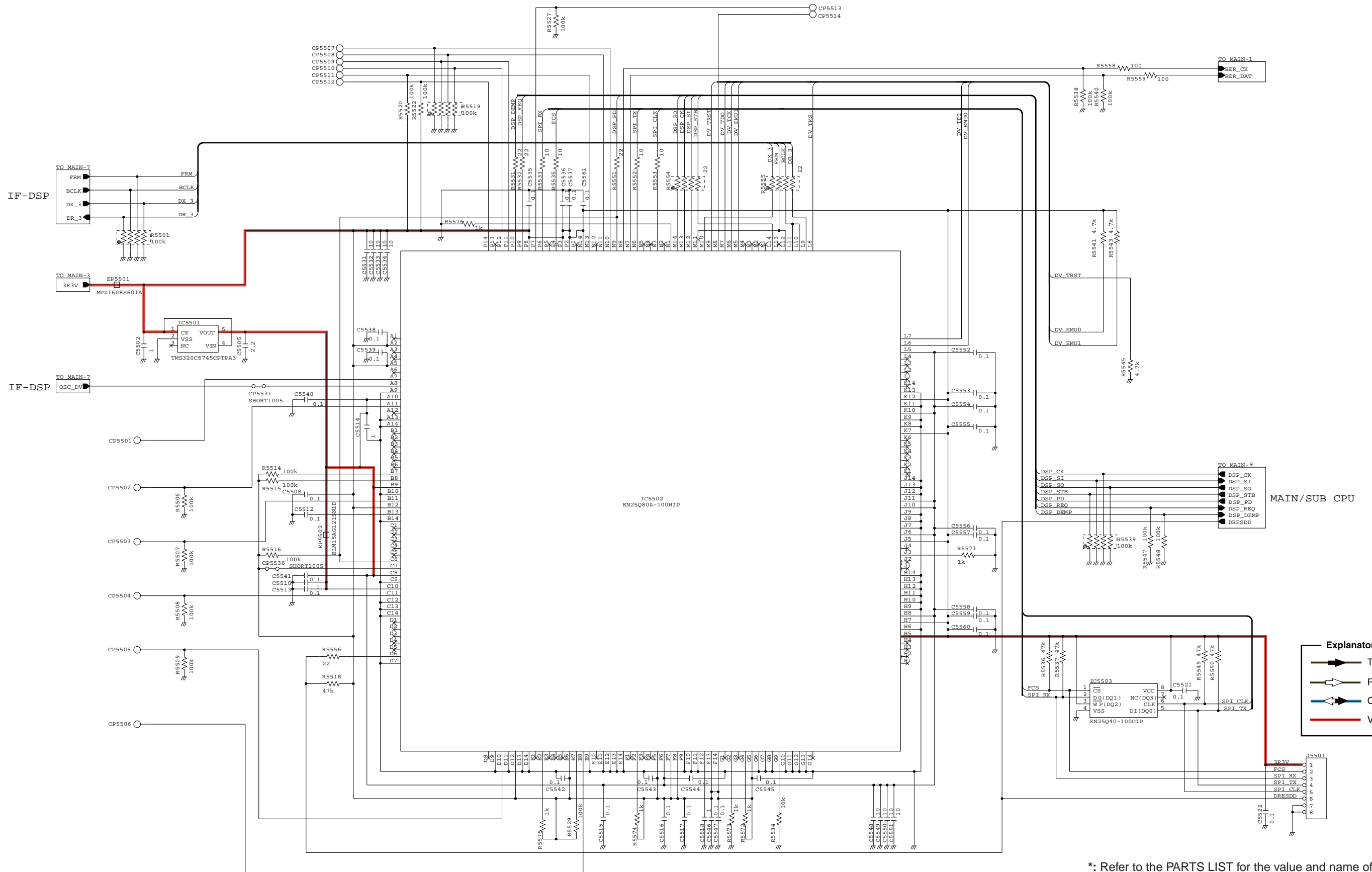


Explanatory notes

- TX Line
- RX Line
- Common Line
- Voltage Line

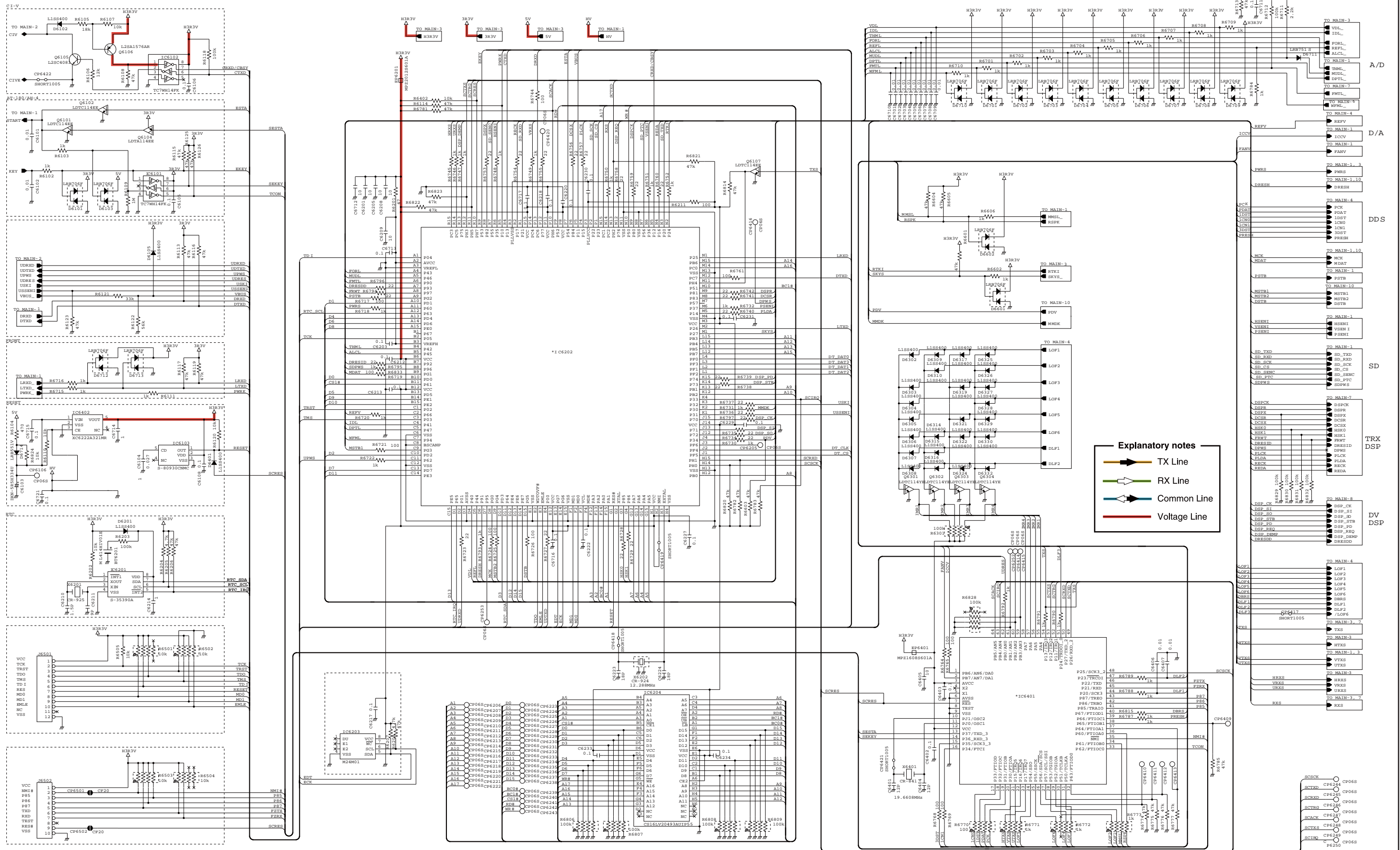
*: Refer to the PARTS LIST for the value and name of component.

• MAIN UNIT (MAIN-8)



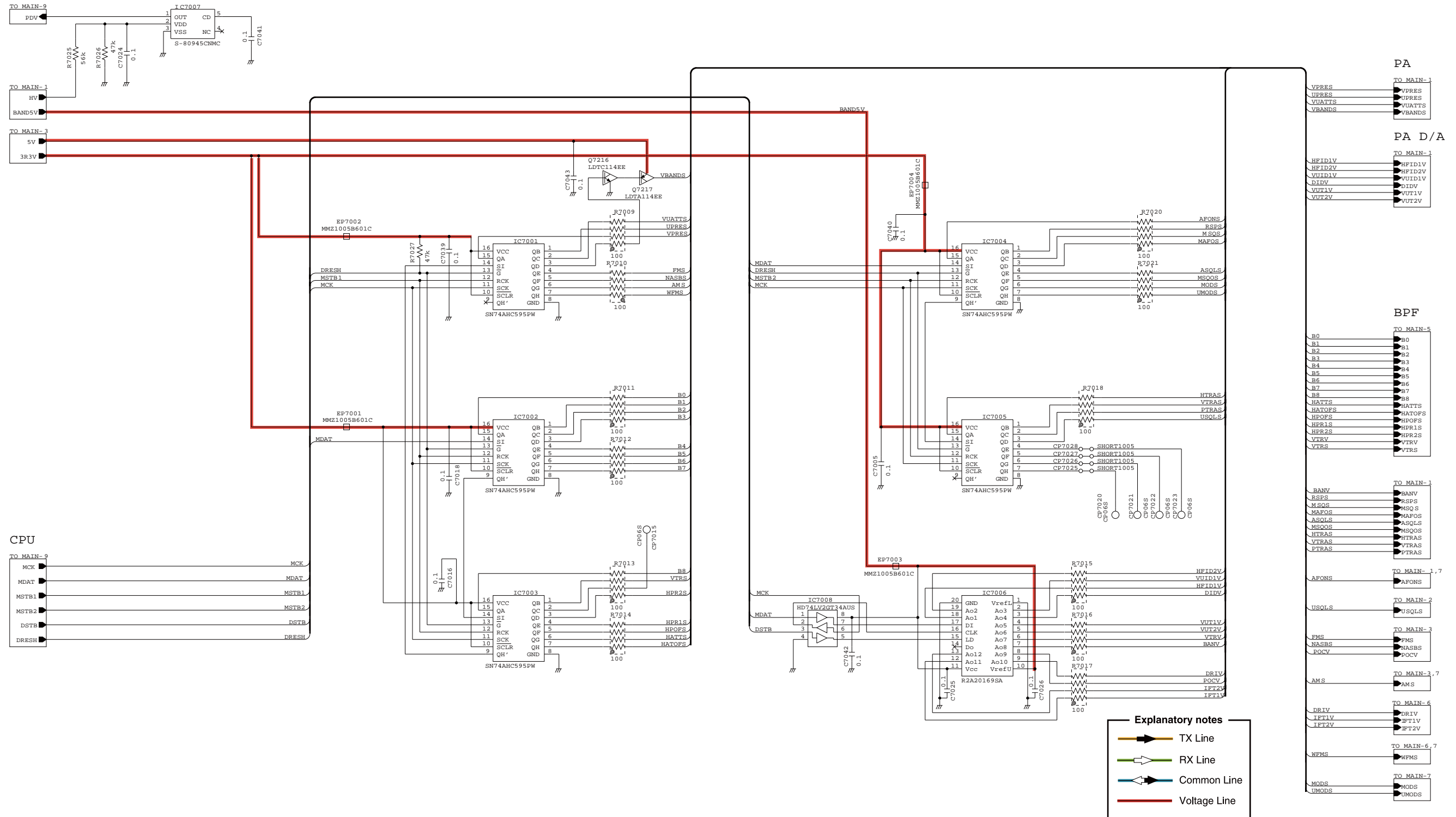
*: Refer to the PARTS LIST for the value and name of component.

• MAIN UNIT (MAIN-9)



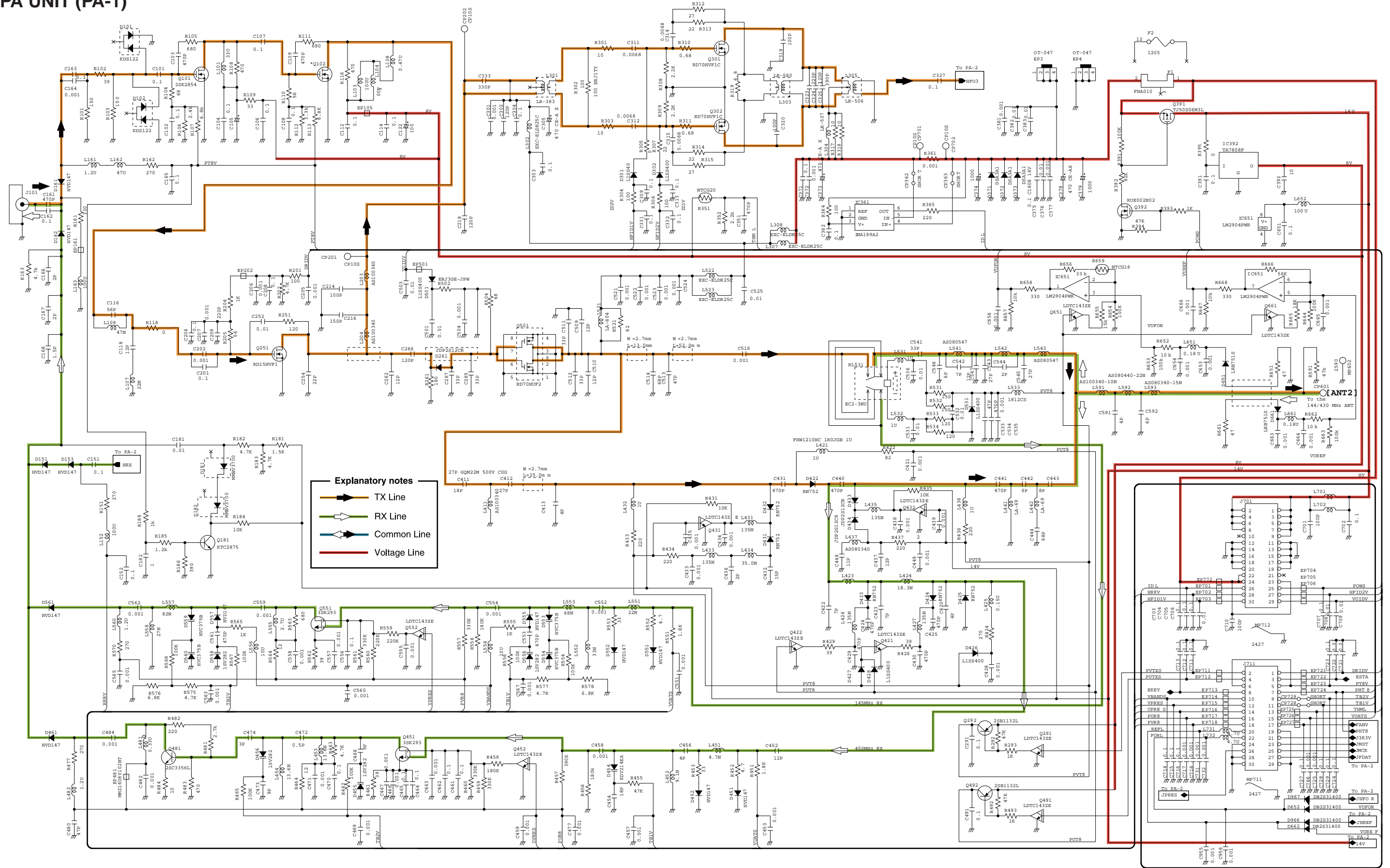
*: Refer to the PARTS LIST for the value and name of component.

• MAIN UNIT (MAIN-10)



*: Refer to the PARTS LIST for the value and name of component.

• PA UNIT (PA-1)



Explanatory notes

- TX Line
- RX Line
- Common Line
- Voltage Line

*: Refer to the PARTS LIST for the value and name of component.

Icom Inc.

1-1-32, Kamiminami, Hirano-ku, Osaka 547-0003, Japan
Phone : +81 (06) 6793 5302
Fax : +81 (06) 6793 0013
URL : <http://www.icom.co.jp/world/index.html>

Icom America Inc.

<Corporate Headquarters>
2380 116th Avenue N.E., Bellevue, WA 98004, U.S.A.
Phone : +1 (425) 454-8155 Fax : +1 (425) 454-1509
URL : <http://www.icomamerica.com>
E-mail : sales@icomamerica.com
<Customer Service>
Phone : +1 (425) 454-7619

Icom Canada

Glenwood Centre #150-6165
Highway 17 Delta, B.C., V4K 5B8, Canada
Phone : +1 (604) 952-4266 Fax : +1 (604) 952-0090
URL : <http://www.icomcanada.com>
E-mail : info@icomcanada.com

Icom (Australia) Pty. Ltd.

Unit 1 / 103 Garden Road, Clayton VIC 3168 Australia
Phone : +61 (03) 9549-7500 Fax : +61 (03) 9549-7505
URL : <http://www.icom.net.au>
E-mail : sales@icom.net.au

Icom New Zealand

146A Harris Road, East Tamaki,
Auckland, New Zealand
Phone : +64 (09) 274 4062 Fax : +64 (09) 274 4708
URL : <http://www.icom.co.nz>
E-mail : inquiries@icom.co.nz

Shanghai Icom Ltd.

No.101, Building 9, Caifuxingyuan Park, No.188 Maoting Road,
Chedun Town, Songjiang District, Shanghai, 201611, China
Phone : +86 (021) 6153 2768
Fax : +86 (021) 5765 9987

Icom Brazil

Rua Itororó, 444 Padre Eustáquio Belo Horizonte MG,
CEP: 30130-150 Brazil
Phone : +55 (31) 3582 8847 Fax : +55 (31) 3582 8987
E-mail : sales@icombrasil.com

Icom (Europe) GmbH

Communication Equipment
Auf der Krautweide 24
65812 Bad Soden am Taunus, Germany
Phone : +49 (6196) 76685-0 Fax : +49 (6196) 76685-50
URL : <http://www.icomeurope.com>
E-mail : info@icomeurope.com

Icom Spain S.L

Ctra. Rubi, No. 88 Bajos A 08174, Sant Cugat del Valles, Barcelona, Spain
Phone : +34 (93) 590 26 70 Fax : +34 (93) 589 04 46
URL : <http://www.icomspain.com>
E-mail : icom@icomspain.com

Icom (UK) Ltd.

Blacksale House, Altira Park, Herne Bay, Kent CT6 6GZ, UK
Phone : +44 (0) 1227 741741 Fax : +44 (0) 1227 741742
URL : <http://www.icomuk.co.uk>
E-mail : info@icomuk.co.uk

Icom France s.a.s.

Zac de la Plaine
1 Rue Brindejone des Moulinais BP 5804
31505 Toulouse Cedex, France
Phone : +33 (5) 61 36 03 03 Fax : +33 (5) 61 36 03 00
URL : <http://www.icom-france.com>
E-mail : icom@icom-france.com

Asia Icom Inc.

6F No.68, Sec. 1 Cheng-Teh Road, Taipei, Taiwan, R.O.C.
Phone : +886 (02) 2559 1899 Fax : +886 (02) 2559 1874
URL : <http://www.asia-icom.com>
E-mail : sales@asia-icom.com

Icom Polska Sp. Z o.o.

80-286 Gdansk, Jaskowa Dolina St. 75, Poland
Phone : +48 (58) 551 0484 Fax : +48 (58) 551 4720
E-mail : icompolska@icompolska.pl
URL : <http://www.icompolska.pl>

Count on us!

Icom Inc.

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

S-15008XZ-C1
© 2013 Icom Inc.