February 2022

SERVICE MANUAL ADDENDUM

ID-52A/ID-52E

NOTE: Use these amended pages as one addendum set.
Do not mix them up with the previous master pages.

	Definitions
Replacement page	The page to replace the original one.
Addendum page	The page to be added to the original set.
Amended page	The page to be added as change history, including corrections.

Page number information

The number of revisions can be easily understood by the addendum service manual's page number.
The number of revisions (a, b, c, ...) is added after the page number.

CONTENTS

Version List

MODEL	Version Number†	Version	Installed Unit				Remarks
			MAIN	LOGIC	GPS	SP	
ID-52E	#12	EUR-01	✓	✓	✓	✓	–
ID-52A	#15	USA-01	✓	✓	✓	✓	–

This addendum service manual provides service information for the versions listed above, excluding out of production versions.
†The first two digits of the serial number show its Version Number.
✓: Applicable

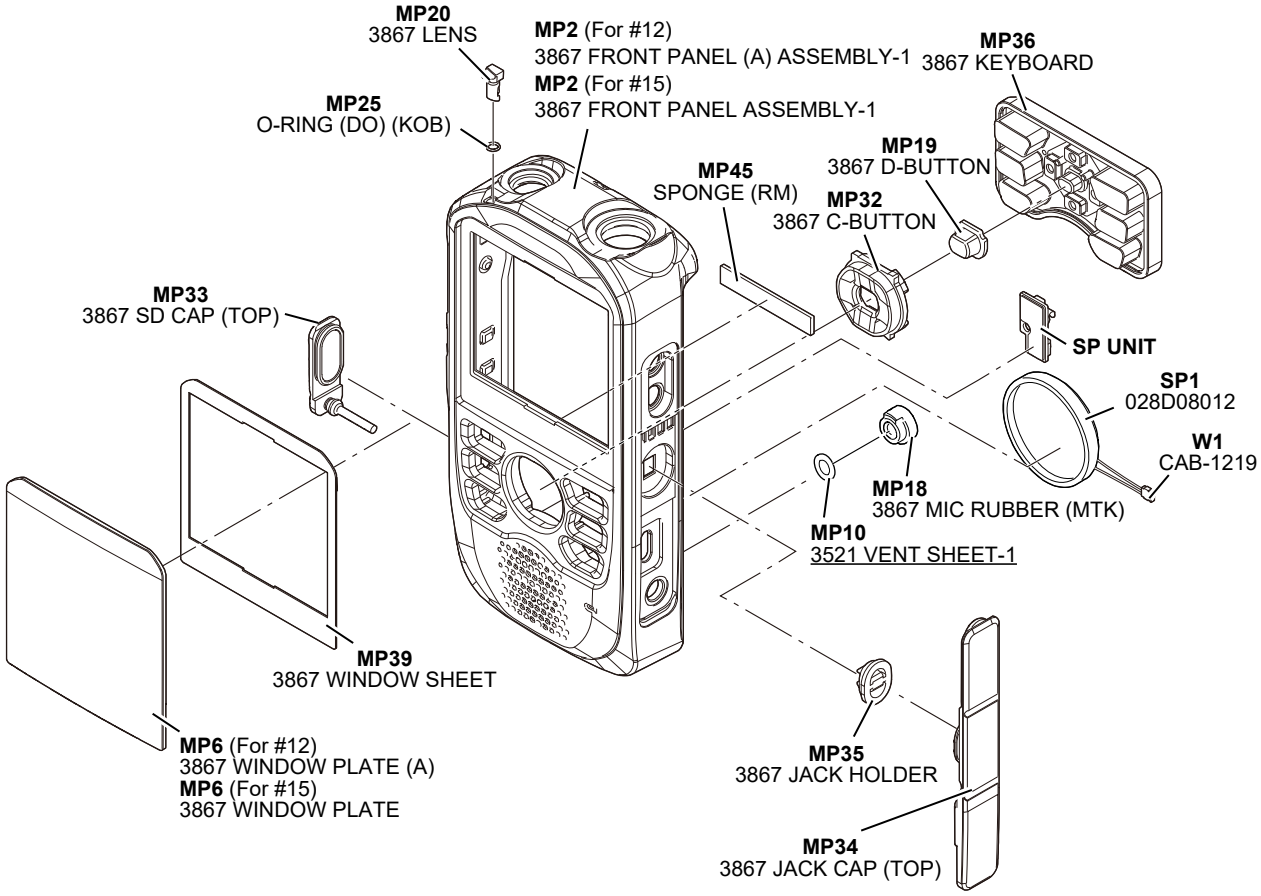
SECTION 5 SPARE PARTS AND UNITS

The underlined parts have been updated from the addendum of the previous version, or from the original page.

■ ASSEMBLED FRONT PANEL

Spare unit name	Order Number	Applicable Version	Remarks
C ID-52E #12 F-PANEL	0338671202	#12	–
C ID-52A #15 F-PANEL	0338671502	#15	

See the illustrations below for the individual parts in the unit.

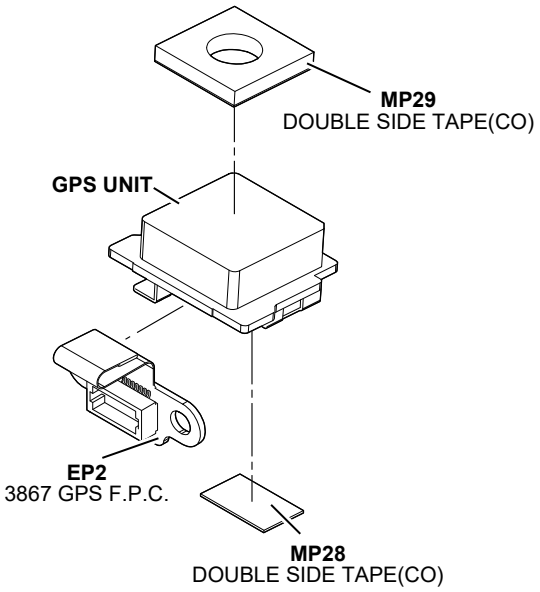


The underlined parts have been updated from the addendum of the previous version, or from the original page.

■ASSEMBLED GPS UNIT

Spare unit name	Order Number	Applicable Version	Remarks
C ID-52E #12 GPS	0338671203	All	–

See the illustrations below for the individual parts in the unit.

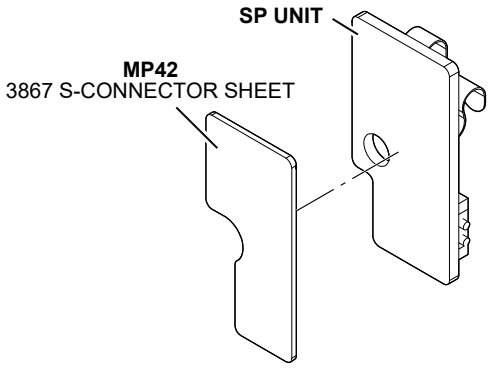


The underlined parts have been updated from the addendum of the previous version, or from the original page.

■ ASSEMBLED SP UNIT

Spare unit name	Order Number	Applicable Version	Remarks
C ID-52E #12 SP	0338671204	All	–

See the illustrations below for the individual parts in the unit.



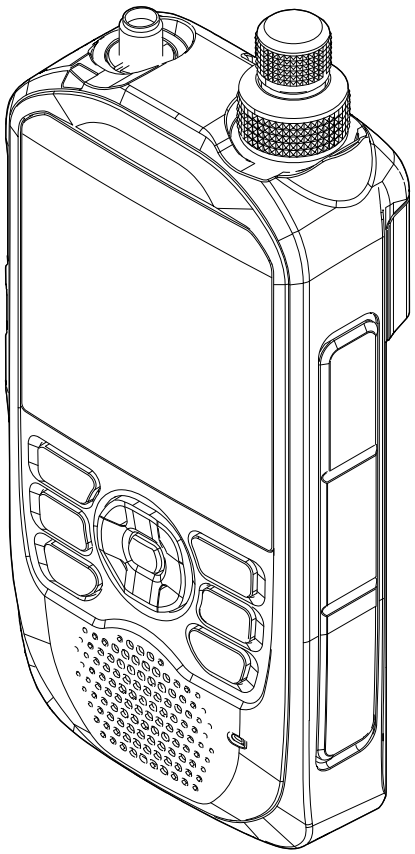
The underlined parts have been updated from the addendum of the previous version, or from the original page.

■ ASSEMBLED UNIT SET

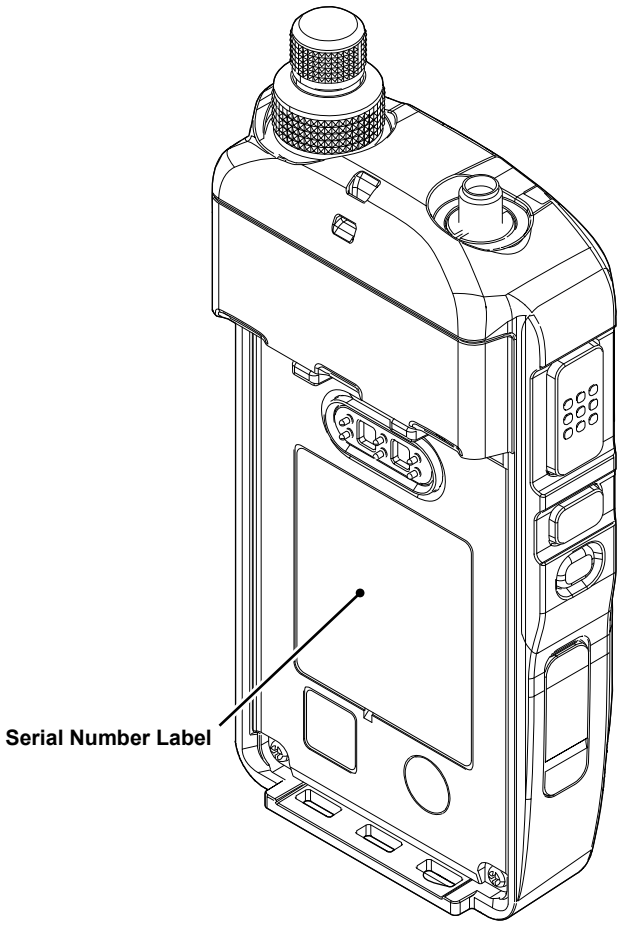
Spare unit name	Order Number	Applicable Version	Remarks
C ID-52E #12 UNITSET	0338671201	#12	–
C ID-52A #15 UNITSET	0338671501	#15	

The spare set is completely assembled and adjusted.
The serial number label is attached.

<Front view>



<Rear view>

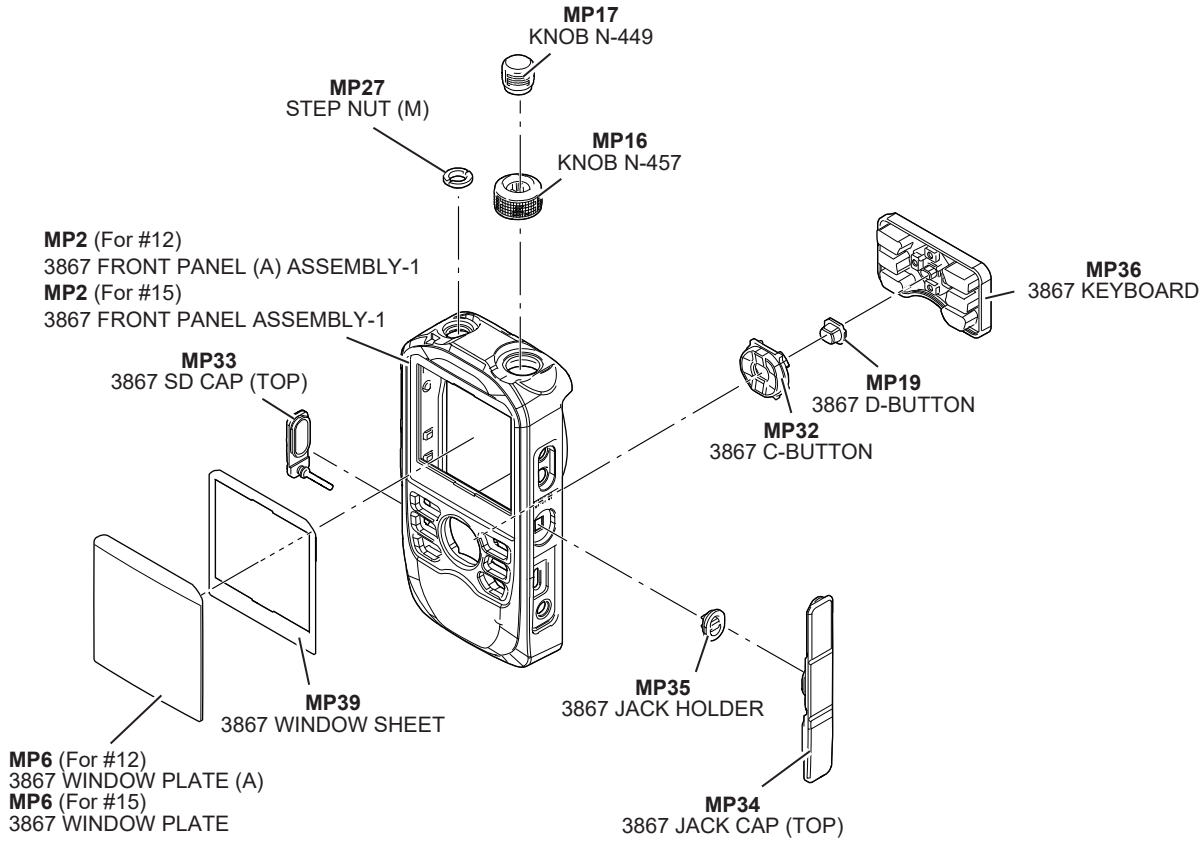


The underlined parts have been updated from the addendum of the previous version, or from the original page.

■ SPARE PARTS INFORMATION

• For the CHASSIS unit (1/2)

	Reference Number	Parts Name	Order Number	Applicable Versions	Remarks
KNOB	MP16	KNOB N-457	8610016550	All	–
KNOB	MP17	KNOB N-449	8610016330		
SCREW	MP27	STEP NUT (M)	8830003660		
BUTTON	MP19	3867 D-BUTTON	8930102620		
BUTTON	MP32	3867 C-BUTTON	8930102610		
KEY	MP36	3867 KEYBOARD	8930102690		
CAP	MP33	3867 SD CAP (TOP)	8930102700		
CAP	MP34	3867 JACK CAP (TOP)	8930102740		
HOLDER	MP35	3867 JACK HOLDER	8930102750		
SHEET	MP39	3867 WINDOW SHEET	8930105050		
PLATE	MP6	3867 WINDOW PLATE (A)	8310096140	#12	
		3867 WINDOW PLATE	8310095670	#15	
PANEL	MP2	3867 FRONT PANEL (A) ASSEMBLY-1	8210035411	#12	
		3867 FRONT PANEL ASSEMBLY-1	8210034861	#15	

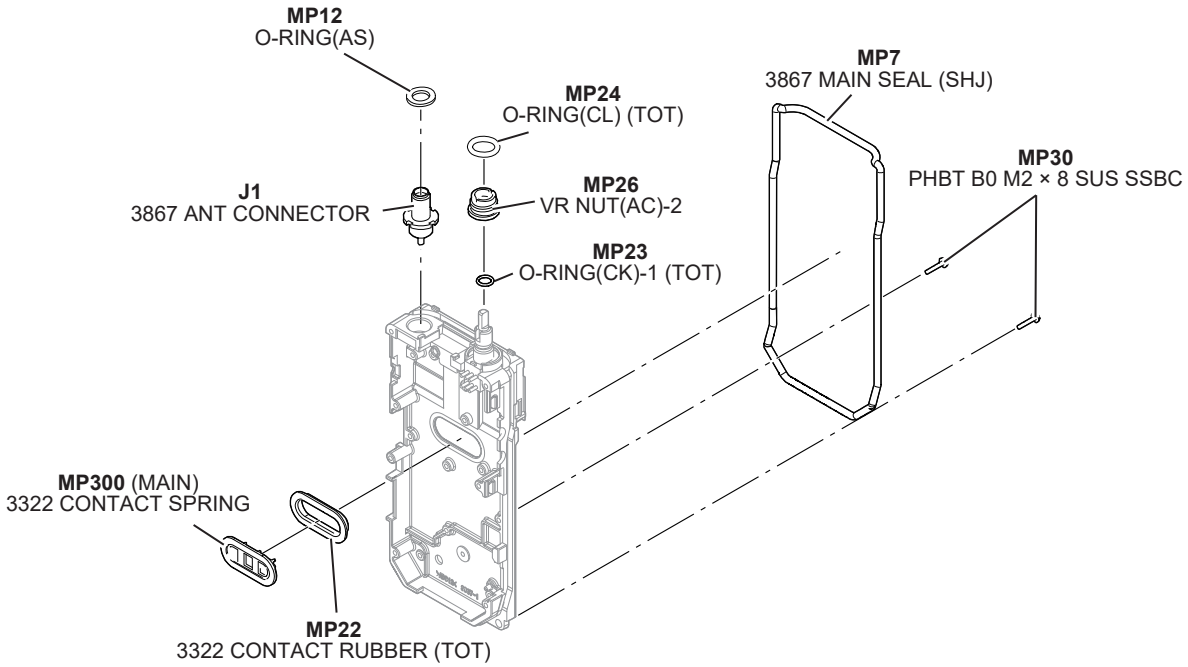


The underlined parts have been updated from the addendum of the previous version, or from the original page.

■ SPARE PARTS INFORMATION (CONTINUED)

• For the CHASSIS unit (2/2)

	Reference Number	Parts Name	Order Number	Applicable Versions	Remarks
CONNECTOR	J1	3867 ANT CONNECTOR	6510033430	All	–
SCREW	MP26	VR NUT (AC)-2	8830003672		
SCREW	MP30	PH BT B0 M2×8 SUS SSBC	8810010850		
RUBBER	MP22	3322 CONTACT RUBBER (TOT)	8930083140		
SEAL	MP7	3867 MAIN SEAL (SHJ)	8930102730		
SEAL	MP12	O-RING(AS)	8930058550		
SEAL	MP23	O-RING(CK)-1 (TOT)	8930083881		
SEAL	MP24	O-RING(CL) (TOT)	8930083670		
M.OTHER	MP300	3322 CONTACT SPRING	8950007850		



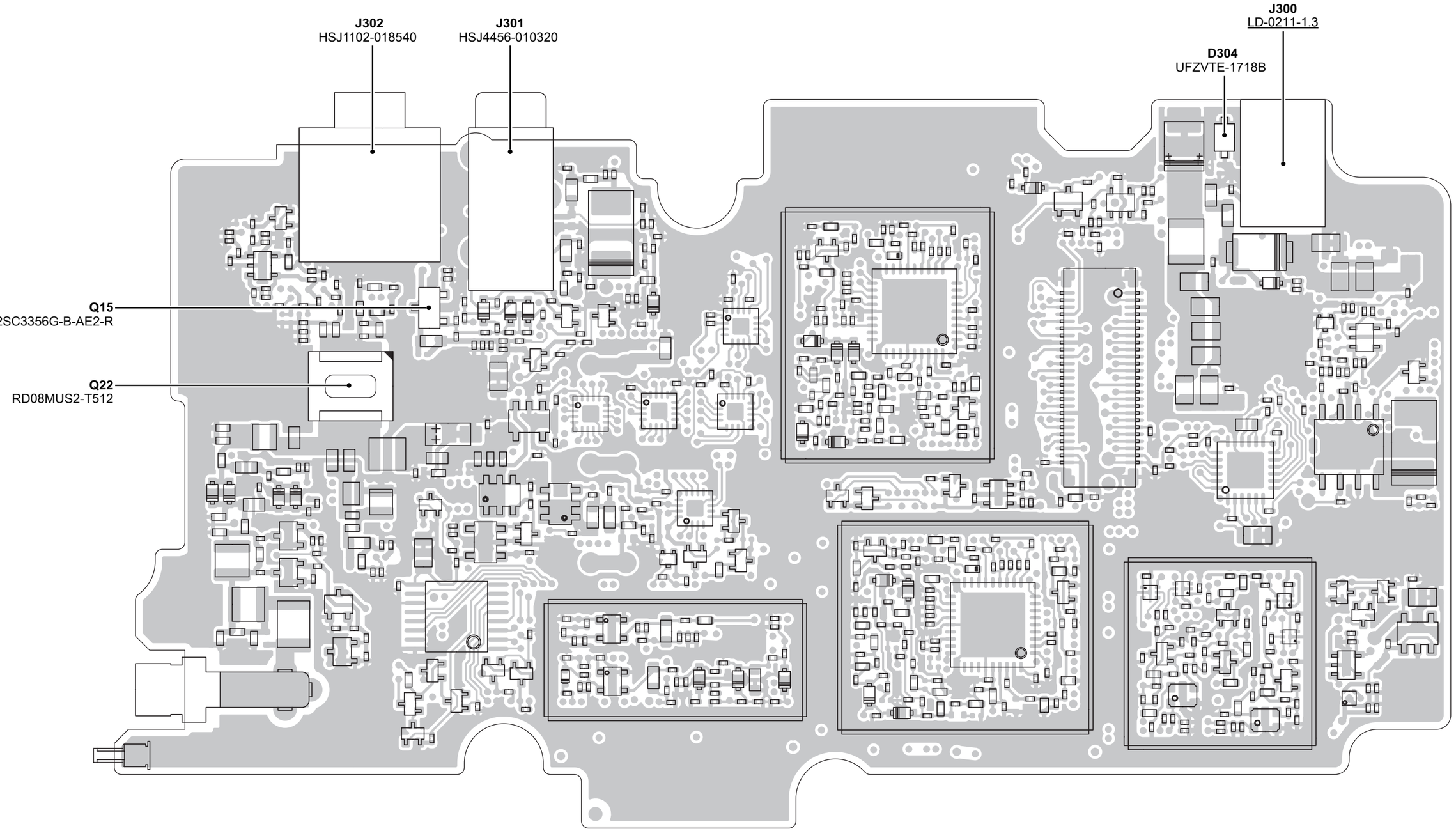
NOTE: The parts that are not listed, see SECTION 6 MECHANICAL PARTS for details.

■ SPARE PARTS INFORMATION (CONTINUED)

The underlined parts have been updated from the addendum of the previous version, or from the original page.

• **For the MAIN unit (Top view)**

	Reference Number	Parts Name	Order Number	Applicable Versions	Remarks
TRANSISTOR	Q15	2SC3356G-B-AE2-R	1530004560	All	YGR amplifier
FET	Q22	RD08MUS2-T512	1560002460		Power amplifier
DIODE	D304	UFZVTE-1718B	1750004490		Over-voltage protector
CONNECTOR	J300	LD-0211-1.3	6450002850		[DC] jack
CONNECTOR	J301	HSJ4456-010320	6450002530		[SP] jack
CONNECTOR	J302	HSJ1102-018540	6450000131		[MIC] jack

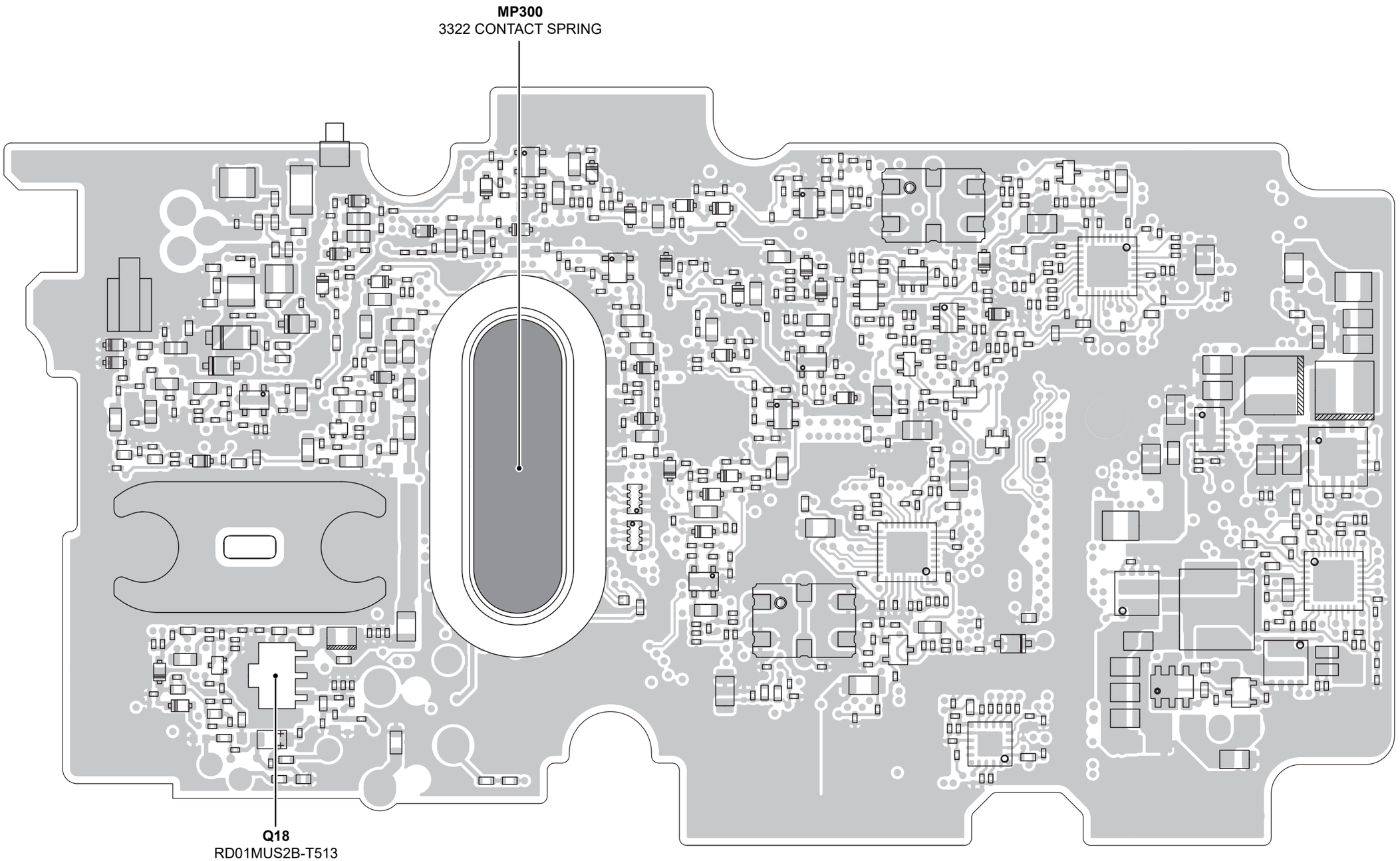


■ SPARE PARTS INFORMATION (CONTINUED)

The underlined parts have been updated from the addendum of the previous version, or from the original page.

• For the MAIN unit (Bottom view)

	Reference Number	Parts Name	Order Number	Applicable Versions	Remarks
FET	Q18	RD01MUS2B-T513	1560002420	All	Drive amplifier
CONTACT	MP300	3322 CONTACT SPRING	8950007850		Battery contact

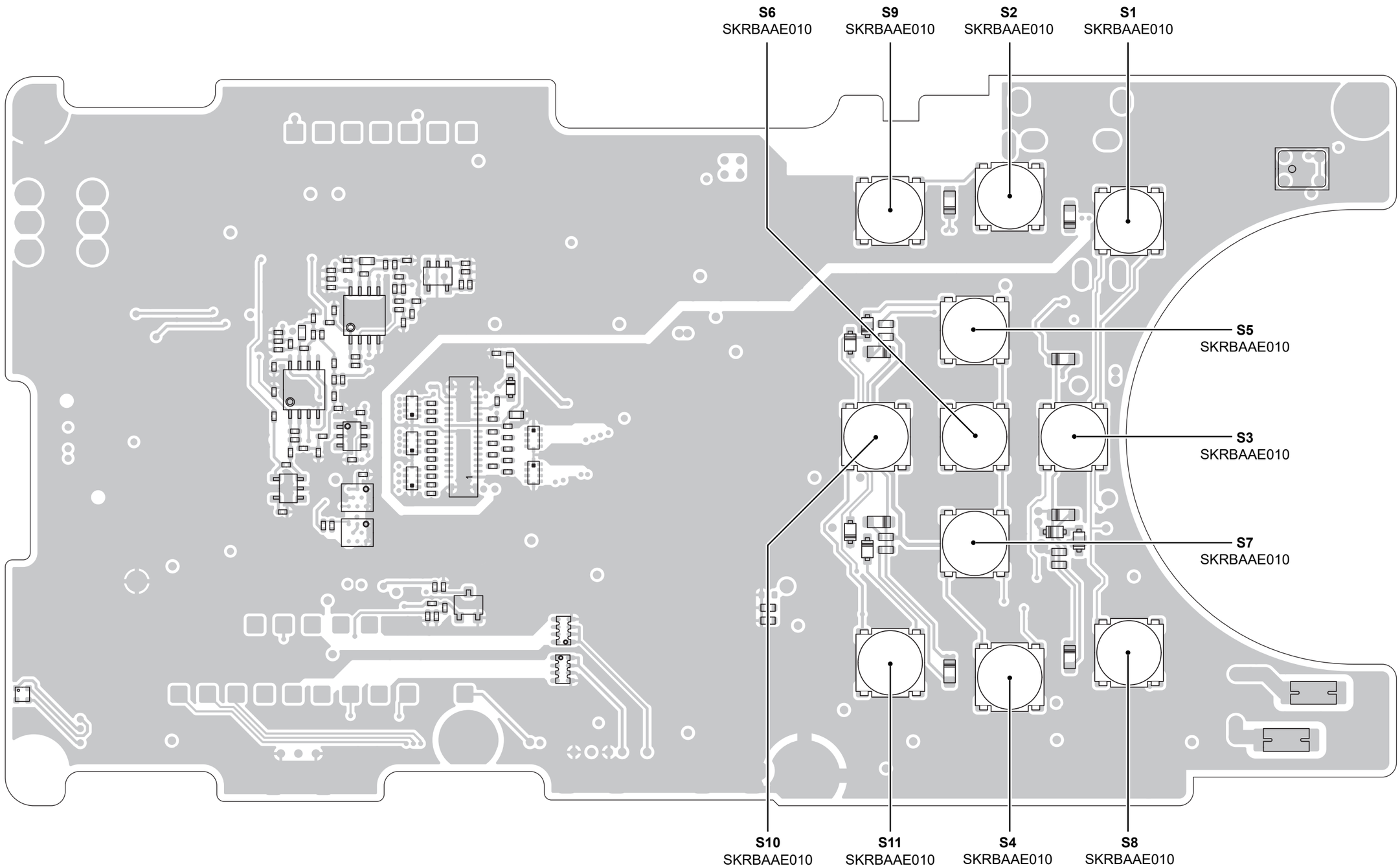


■ SPARE PARTS INFORMATION (CONTINUED)

• For the LOGIC unit (Top view)

The underlined parts have been updated from the addendum of the previous version, or from the original page.

	Reference Number	Parts Name	Order Number	Applicable Versions	Remarks
SWITCH	S1 ~ S11	SKRBAAE010	2260003600	All	–

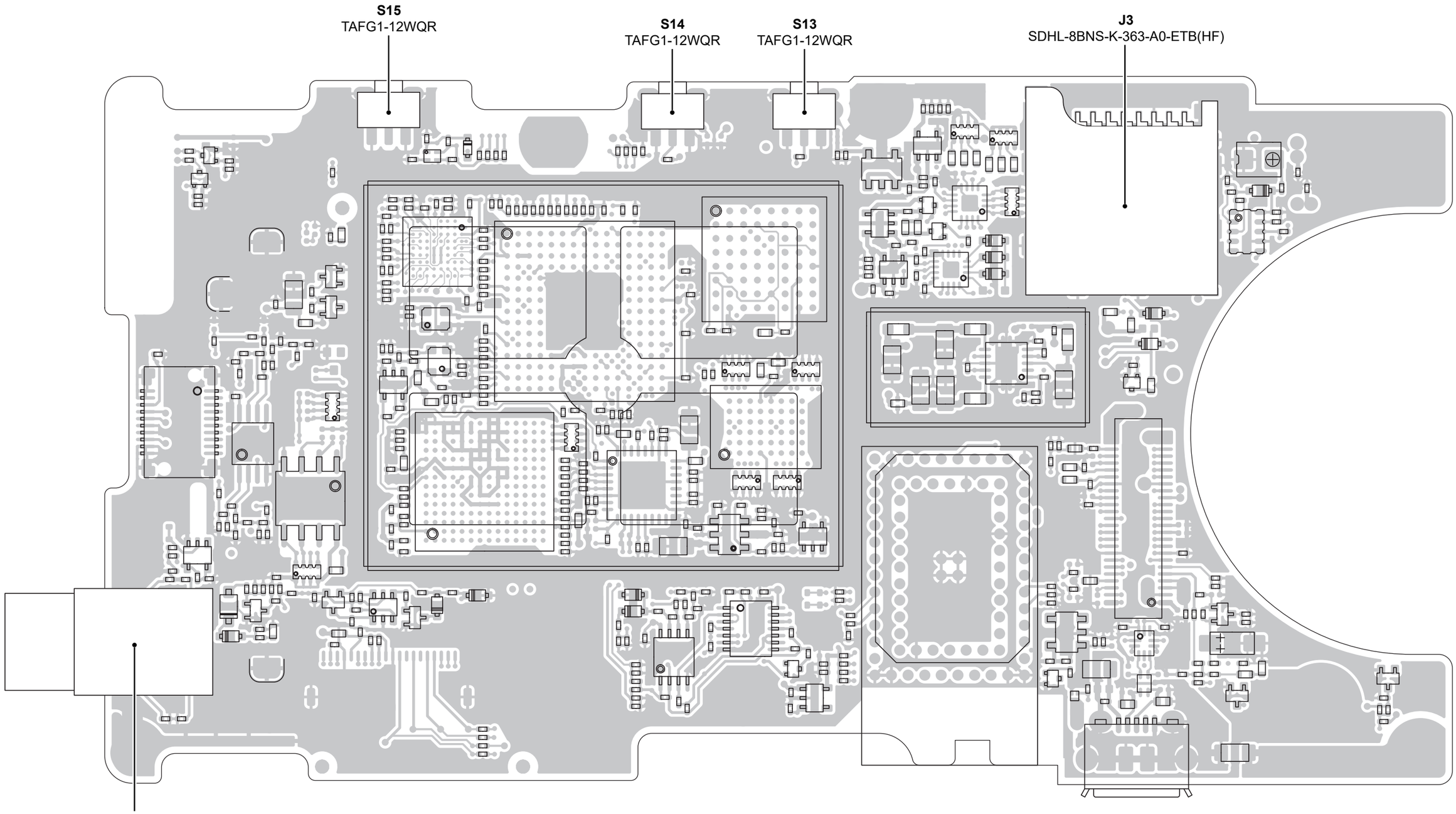


■SPARE PARTS INFORMATION (CONTINUED)

The underlined parts have been updated from the addendum of the previous version, or from the original page.

• For the LOGIC unit (Bottom view)

	Reference Number	Parts Name	Order Number	Applicable Versions	Remarks
ENCODER	S12	F082EN7510W-1+C L20FX6	2250000710	All	[VOL]/[DIAL] encoder
SWITCH	S13 ~ S15	TAFG1-12WQR	2260003810		–
CONNECTOR	J3	SDHL-8BNS-K-363-A0-ETB(HF)	6510028170		[microSD] slot



SECTION 6 MECHANICAL PARTS

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[CHASSIS UNIT]

REF NO.	PART NO.	DESCRIPTION		QTY.
J1	6510033430	3867 ANT CONNECTOR		1
SP1	2510002200	028D08012		1
W1	8920001910	CAB-1219		1
MP1	8010025220	3867 CHASSIS M500		1
MP2	8210035411	3867 FRONT PANEL (A) ASSEMBLY-1	[#12]	1
	8210034861	3867 FRONT PANEL ASSEMBLY-1	[#15]	1
MP3	8210034851	3867 REAR PANEL-1		1
MP6	8310096140	3867 WINDOW PLATE (A)	[#12]	1
	8310095670	3867 WINDOW PLATE	[#15]	1
MP7	8930102730	3867 MAIN SEAL (SHJ)		1
MP10	8930088671	3521 VENT SHEET-1		1
MP11	8930030920	1301 SHEET		1
MP12	8930058550	O-RING (AS)		1
MP13	8930084870	3384 REAR SHEET		1
MP16	8610016550	KNOB N-457		1
MP17	8610016330	KNOB N-449		1
MP18	8930102720	3867 MIC RUBBER (MTK)		1
MP19	8930102620	3867 D-BUTTON		1
MP20	8930102600	3867 LENS		1
MP22	8930083140	3322 CONTACT RUBBER (TOT)		1
MP23	8930083881	O-RING (CK)-1 (TOT)		1
MP24	8930083670	O-RING (CL) (TOT)		1
MP25	8930105220	O-RING (DO) (KOB)		1
MP26	8830003672	VR NUT (AC)-2		1
MP27	8830003660	STEP NUT (M)		1
MP28	8930105800	DOUBLE SIDE TAPE (CO)		1
MP29	8930083690	3322 GPS SPONGE		1
MP30	8810010850	PHBT B0 M2X8 SUS SSBC		2
MP32	8930102610	3867 C-BUTTON		1
MP33	8930102700	3867 SD CAP (TOP)		1
MP34	8930102740	3867 JACK CAP (TOP)		1
MP35	8930102750	3867 JACK HOLDER		1
MP36	8930102690	3867 KEYBOARD		1
MP39	8930105050	3867 WINDOW SHEET		1
MP40	8930105230	3867 LCD HOLDER		1
MP41	8930105270	DOUBLE SIDE TAPE (CM)		2
MP42	8930105160	3867 S-CONNECTOR SHEET		1
MP43	8810011050	BT M2 × 3 NI-ZC3		19
MP45	8930105280	SPONGE (RM)		1
MP46	8930083180	SPONGE (LG)		2
MP47	8930105820	3867 FERRITE SHEET		1
MP48	8930105790	FERRITE SHEET (CA)		1
MP49	8930105810	INSULATION SHEET (PJ)		2
MP50	8930050474	SHIELD SPONGE (A)-4		2
MP52	8930109300	FERRITE SHEET (CI)	[#12]	1
	8930106050	INSULATION SHEET (PK)	[#15]	1
MP54	8930106040	SPONGE (RU)		1

[MAIN UNIT]

REF NO.	PART NO.	DESCRIPTION		QTY.
J300	6450002850	LD-0211-1.3		1
J301	6450002530	HSJ4456-010320		1
J302	6450000131	HSJ1102-018540		1
J303*	6510033110	50RF-JMCS-G-1-TF (N) (LF) (SN)		1
MP1*	8410003240	3867 PA HEATSINK		1
MP2*	8930102540	3867 ANT SPRING		1
MP3*	8510022970	3867 RF CASE		1
MP4*	8510022680	OG-363050G		1
MP5*	8930105310	OGSC-T-302020		1
MP6*	8510021210	OGSC-402030		1
MP7	8930109290	SHIELD SPONGE (FH)	[#12]	1
	8930085730	SHIELD SPONGE (CY)	[#15]	1
MP8	8930099290	SHIELD TAPE (AE)	Only [#12]	1
MP200*	8510022930	3867 SHIELD CASE		1
MP201*	8510022940	3867 VCO CASE		1
MP202*	8510022940	3867 VCO CASE		1
MP300	8950007850	3322 CONTACT SPRING		1

[LOGIC UNIT]

REF NO.	PART NO.	DESCRIPTION	QTY.
J1*	6510033130	30R-JAKK-GSAN-1-TF (HF)	1
J3*	6510028170	SDHL-8BNS-K-363-A0-ETB (HF)	1
J5*	6510031130	50P5.0-JMCS-G-TF (N)	1
J7*	6510030041	CSS5005-4R11FSZ	1
J8*	6510024930	20RF-JMCSG1BTF (N) (LF) (SN)	1
DS12	5030004711	M9-2323TRW-1	1
MC2*	7700003280	SPU0410HR5H-PB-7	1
S1*	2260003600	SKRBAAE010	1
S2*	2260003600	SKRBAAE010	1
S3*	2260003600	SKRBAAE010	1
S4*	2260003600	SKRBAAE010	1
S5*	2260003600	SKRBAAE010	1
S6*	2260003600	SKRBAAE010	1
S7*	2260003600	SKRBAAE010	1
S8*	2260003600	SKRBAAE010	1
S9*	2260003600	SKRBAAE010	1
S10*	2260003600	SKRBAAE010	1
S11*	2260003600	SKRBAAE010	1
S12	2250000710	F082EN7510W-1+C L20FX6	1
S13*	2260003810	TAFG1-12WQR	1
S14*	2260003810	TAFG1-12WQR	1
S15*	2260003810	TAFG1-12WQR	1
EP312*	6910028500	OGP-3216	1
EP313*	6910028500	OGP-3216	1
MP1*	8510022910	3867 CPU CASE	1
MP2*	8510022920	3867 DC-DC CASE	1
MP3	8510023350	3867 CPU COVER	1
MP4	8930105730	3867 LOGIC SHIELD	1
MP5	8930050474	SHIELD SPONGE (A)-4	1
MP6	8930076110	INSULATION SHEET (ME)	1
MP7	8930109500	3867 M-SPONGE	1

[GPS UNIT]

REF NO.	PART NO.	DESCRIPTION	QTY.
J3*	6510032540	20542-010E-01	1
EP1*	3310005440	PA012LQ0004	1
EP2	8940000250	3867 GPS F.P.C.	1
MP1*	8510023080	3867 GPS PLATE	1

[SP UNIT]

REF NO.	PART NO.	DESCRIPTION	QTY.
J1*	6510031400	BM02B-ACHSS-GAN-ETF (LF) (SN)	1
MP1*	8930102630	SG2030037B	1
MP2*	8930102630	SG2030037B	1

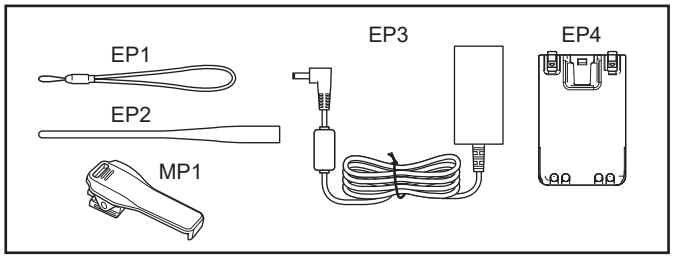
*: Refer to “BOARD LAYOUTS” for the location.
**: Refer to “GENERAL WIRING” for the connection
Screw abbreviations A, B0, BT: Self-tapping PH: Pan head BS: Brass NI: Nickel ZU: Zinc SUS: Stainless

The underlined parts have been updated from the addendum of the previous version, or from the original page.

[SUPPLIED ACCESSORIES]

REF NO.	PART NO.	DESCRIPTION	QTY.
EP1	6910028081	BLACK NYLON STRAP-1	1
EP2	3310002150	FA-S270C	1
EP3	–	BC-167SD† [#12]	1
	–	BC-167SA† [#15]	1
EP4	–	BP-272†	1
MP1	–	MB-127†	1

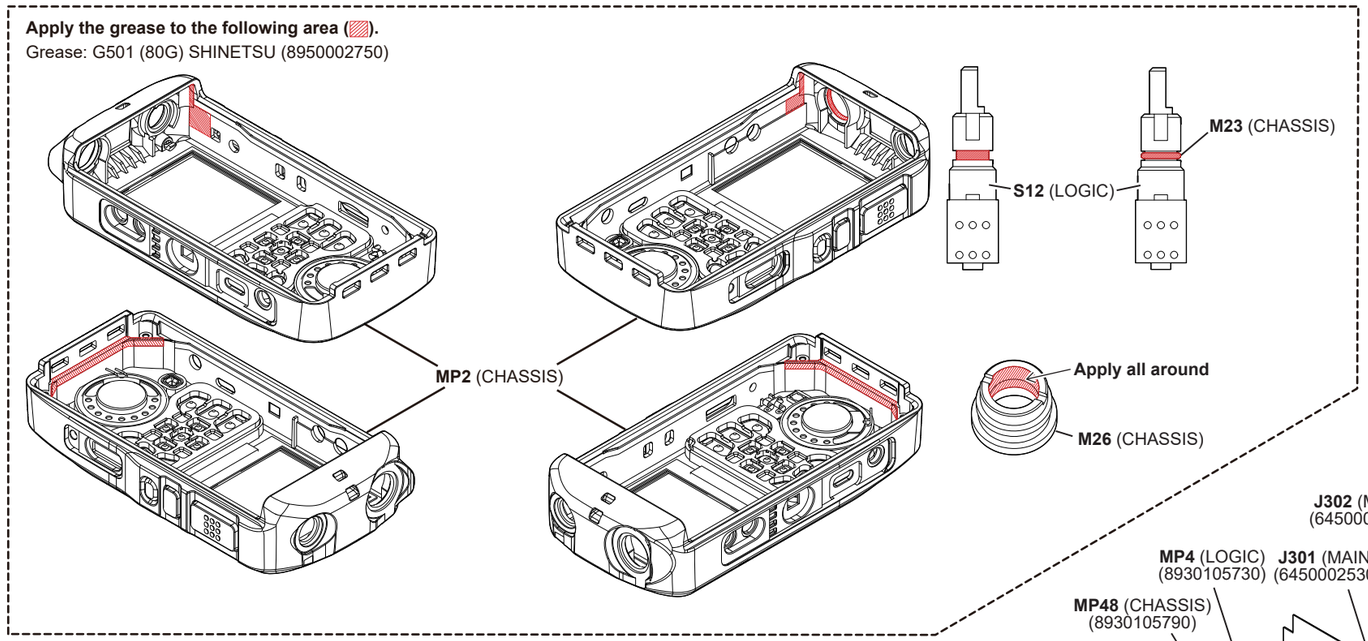
†: Sold as an option.

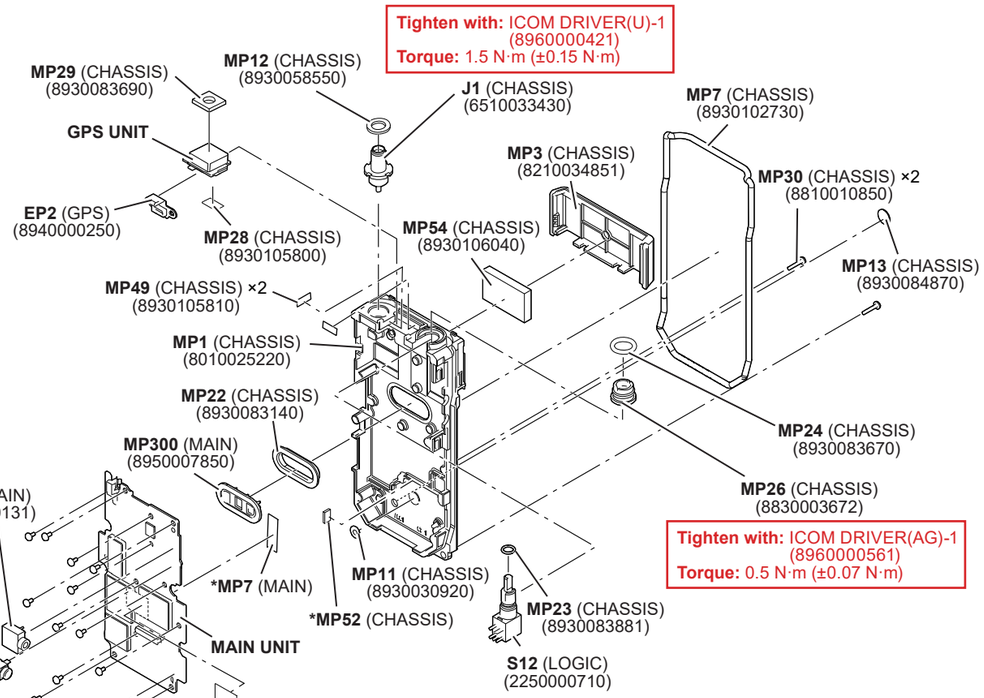


*: Refer to “BOARD LAYOUTS” for the location.
**: Refer to “GENERAL WIRING” for the connection
Screw abbreviations A, B0, BT: Self-tapping PH: Pan head BS: Brass NI: Nickel ZU: Zinc SUS: Stainless

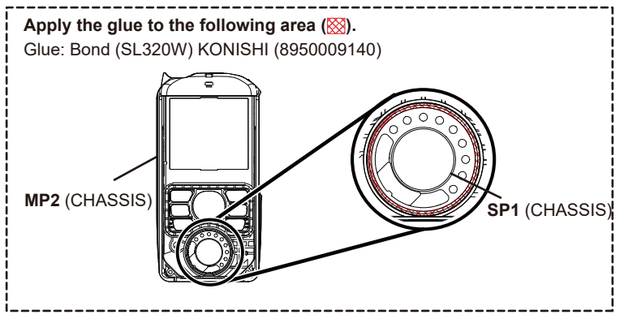
The underlined parts have been updated from the addendum of the previous version, or from the original page.

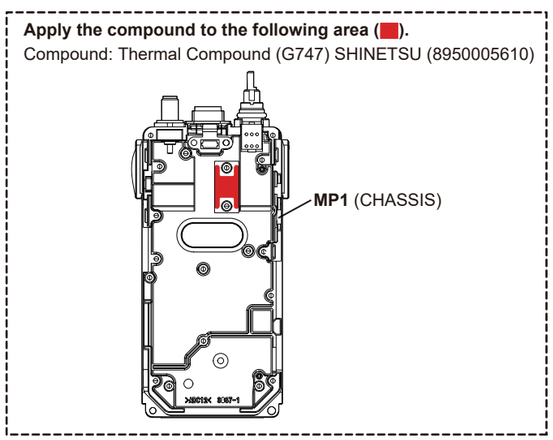
• Exploded view





Unless otherwise noted, the tighten to torque is 0.3 N·m (±0.05 N·m).





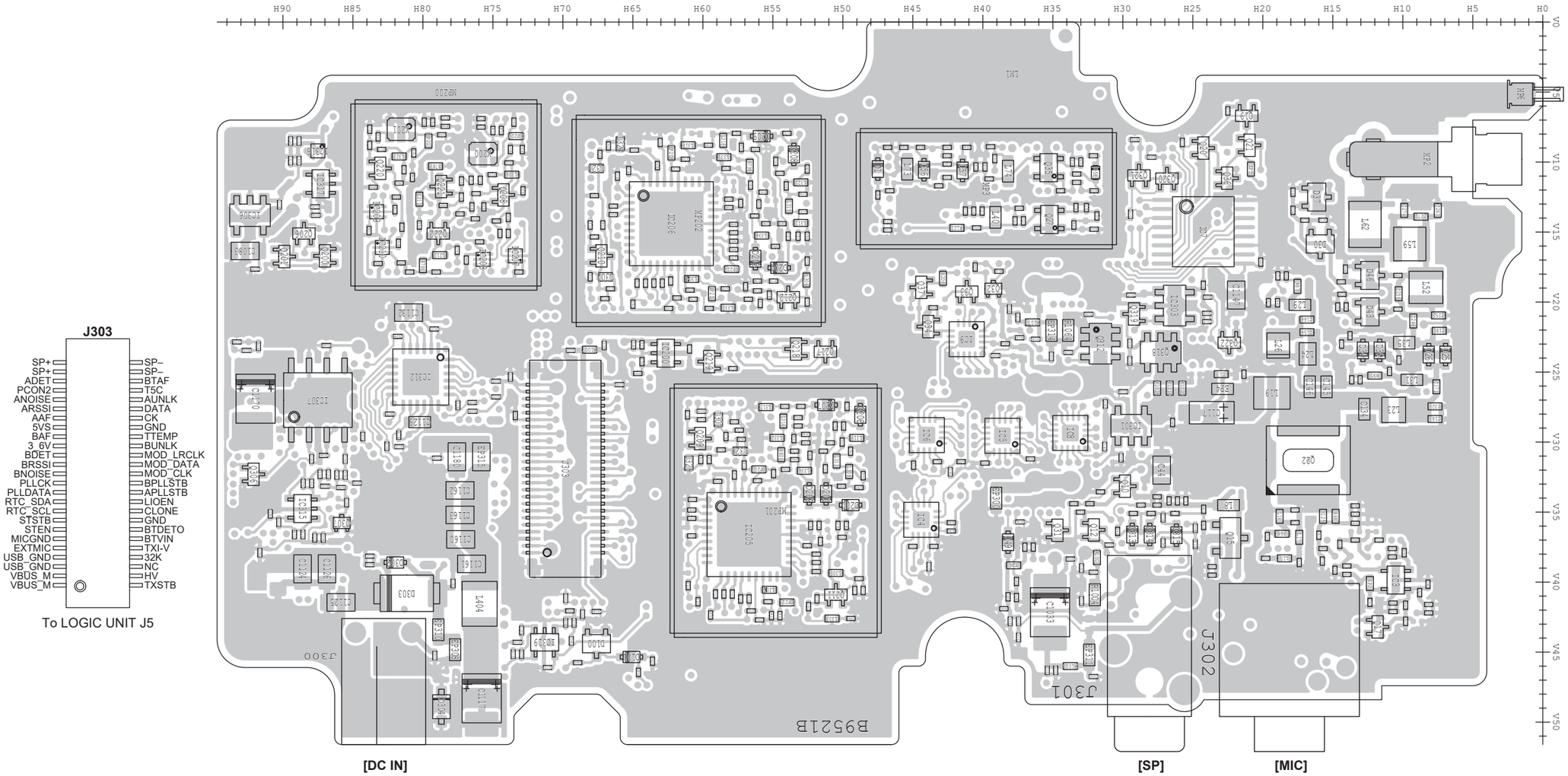
*Refer to the Mechanical Parts list.

(Amended page)

SECTION 7 BOARD LAYOUT

The underlined parts have been updated from the addendum of the previous version, or from the original page.

- **MAIN UNIT (B-9521B: Top view)**

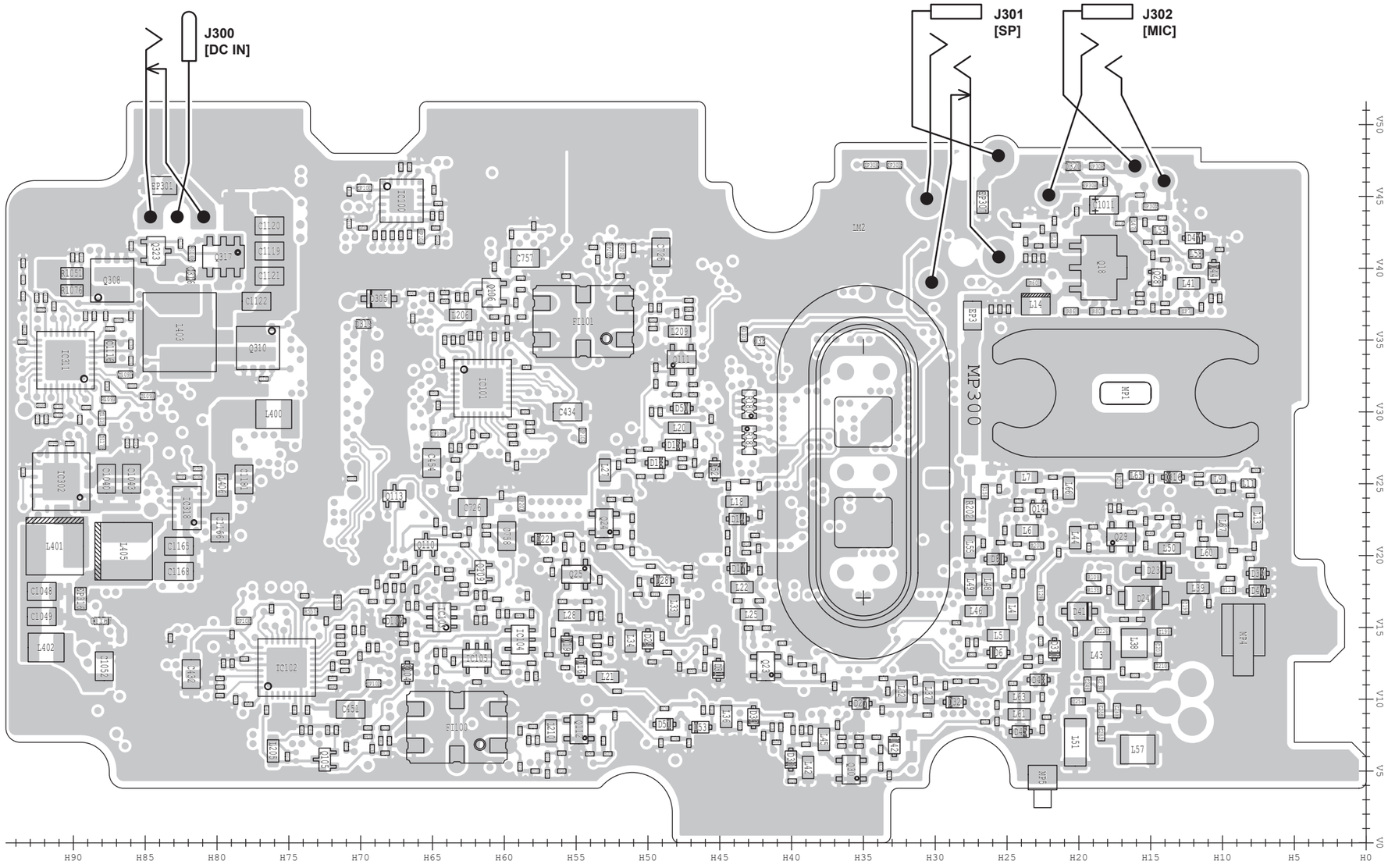


The serial numbers of transceivers used the PCB (B-9521B).
The serial numbers may change, depending on the transceiver's production plan.

Model Name	Version Number	Serial Numbers
ID-52E	#12	12002801 and above
ID-52A	#15	15005701 and above

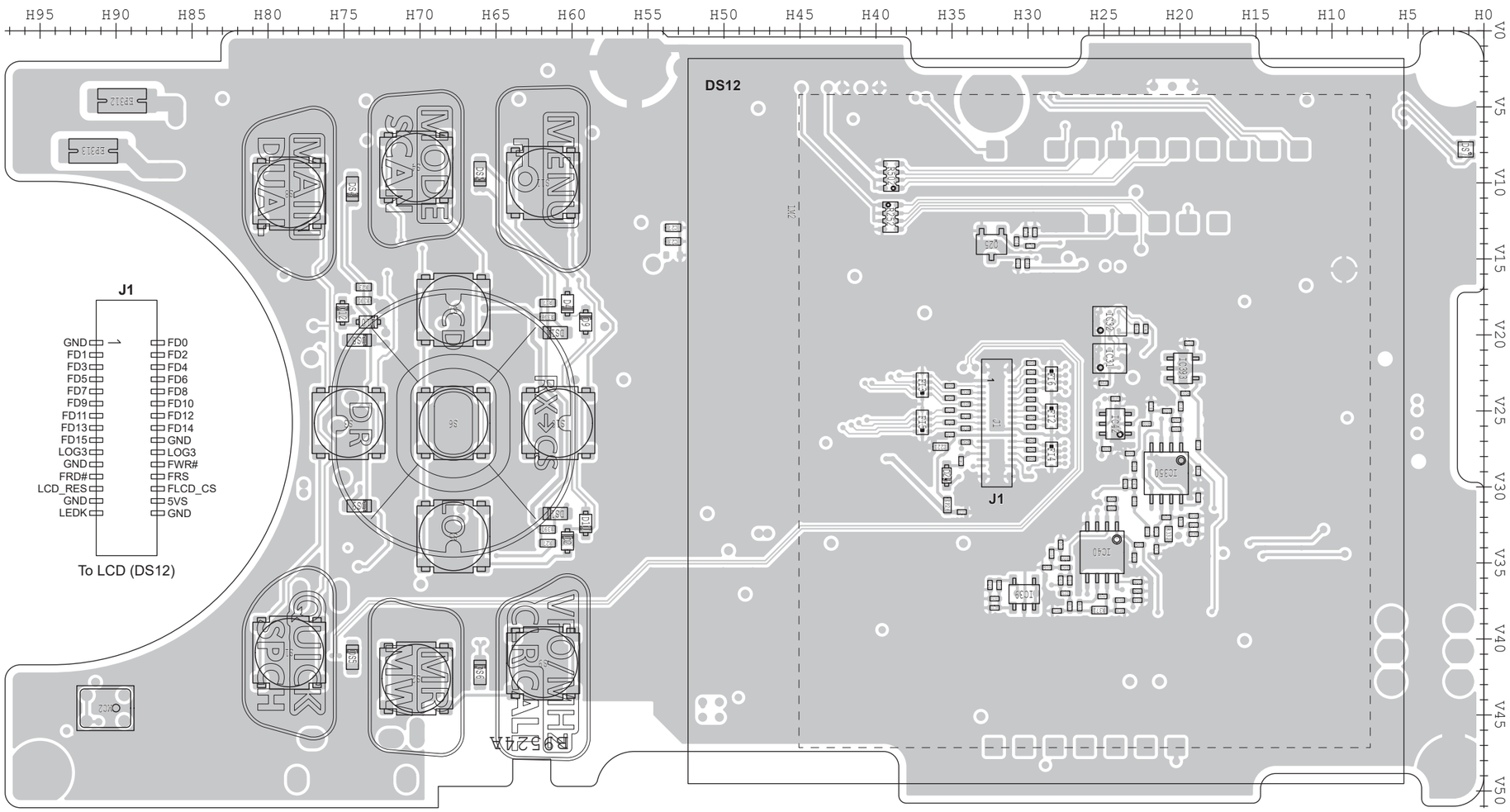
The underlined parts have been updated from the addendum of the previous version, or from the original page.

- **MAIN UNIT (B-9521B: Bottom view)**



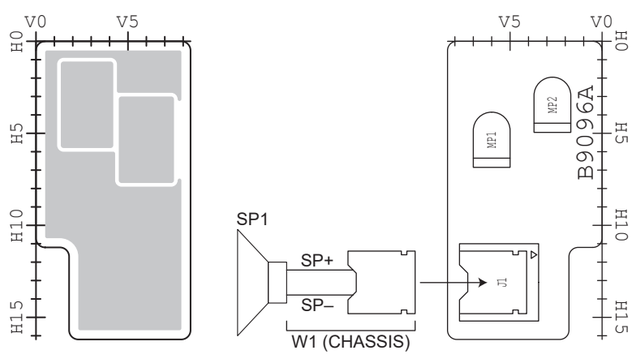
The underlined parts have been updated from the addendum of the previous version, or from the original page.

- **LOGIC UNIT (B-9524A: Top view)**



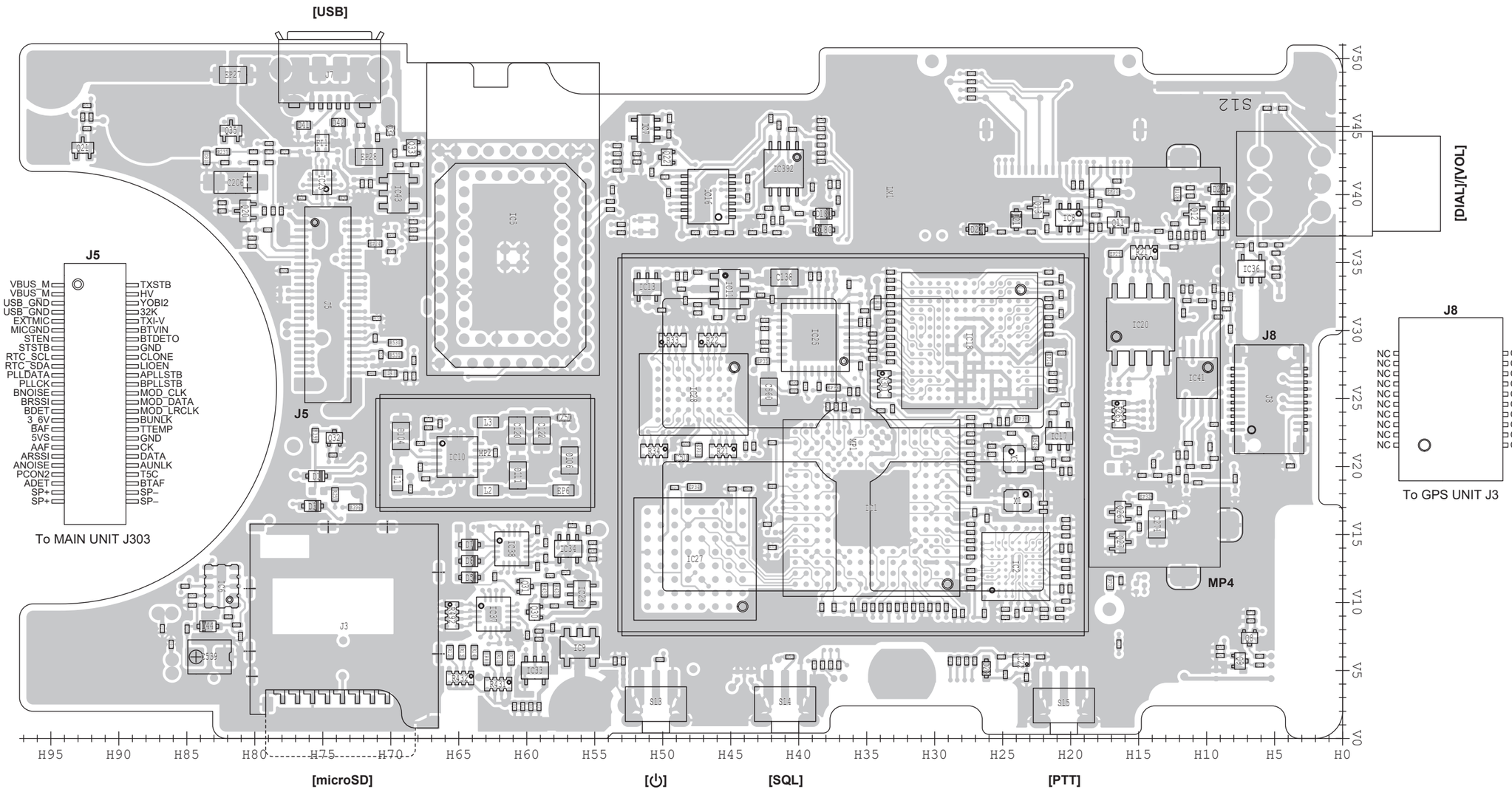
- **SP UNIT (B-9096A)**

(Top view) (Bottom view)

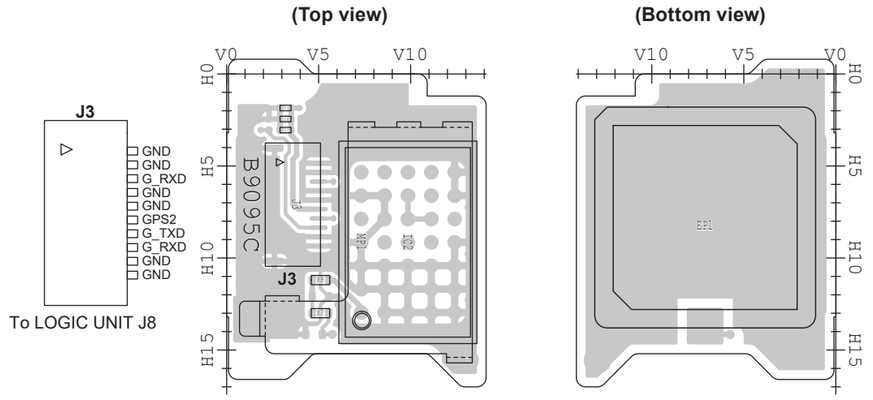


The underlined parts have been updated from the addendum of the previous version, or from the original page.

• LOGIC UNIT (B-9524A: Bottom view)



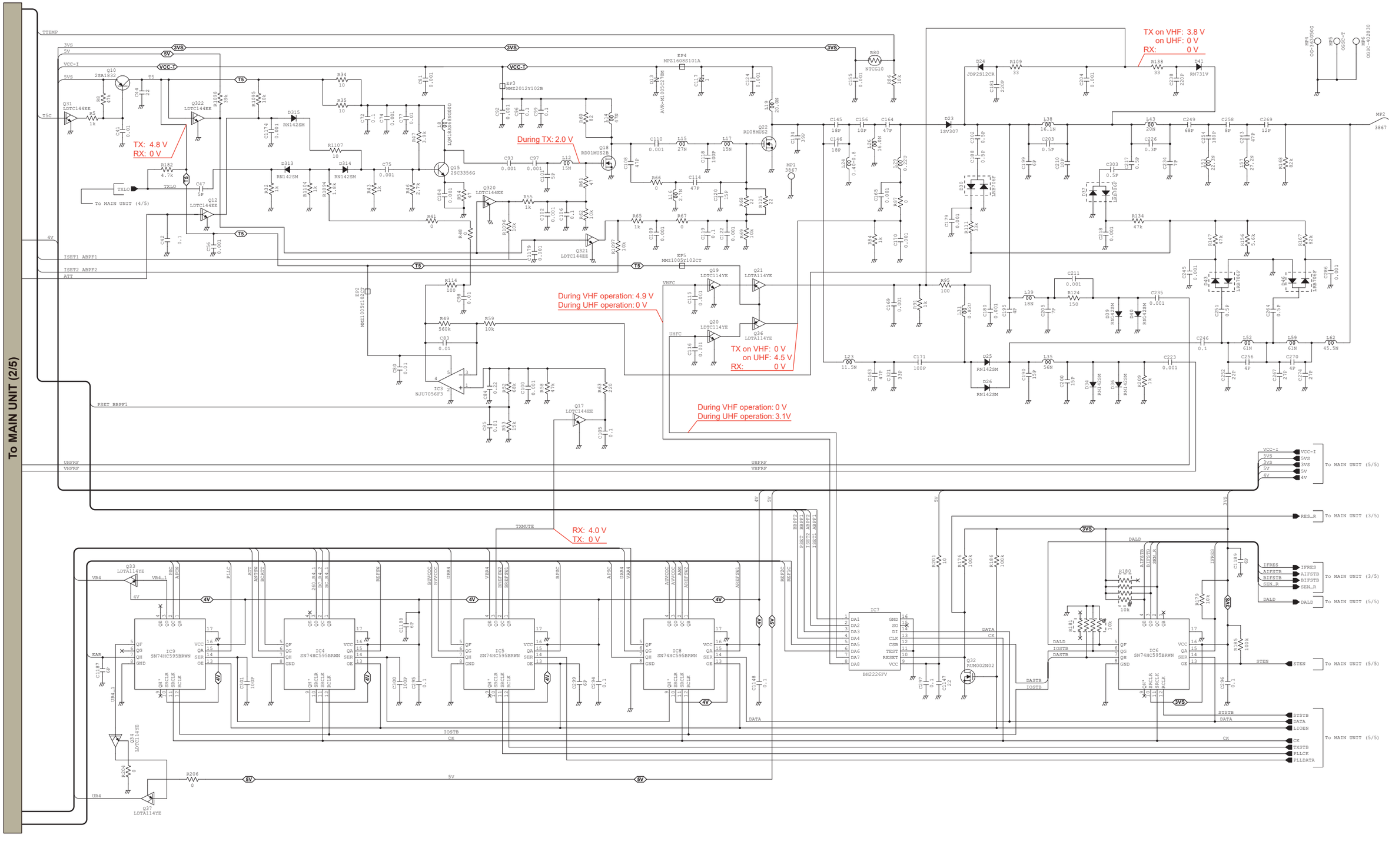
• GPS UNIT (B-9095C)



SECTION 9 VOLTAGE DIAGRAM

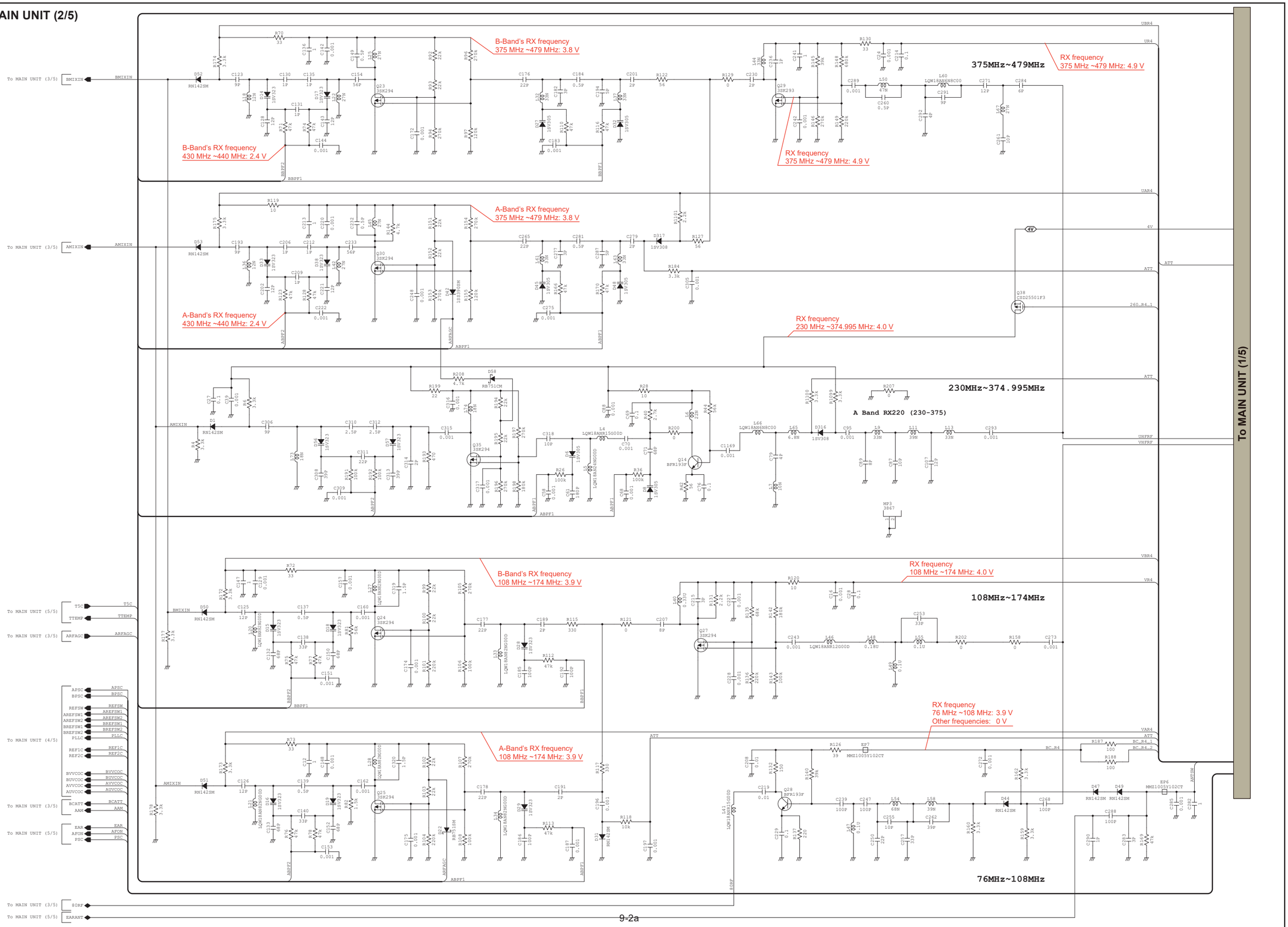
The underlined parts have been updated from the addendum of the previous version, or from the original page.

• MAIN UNIT (1/5)



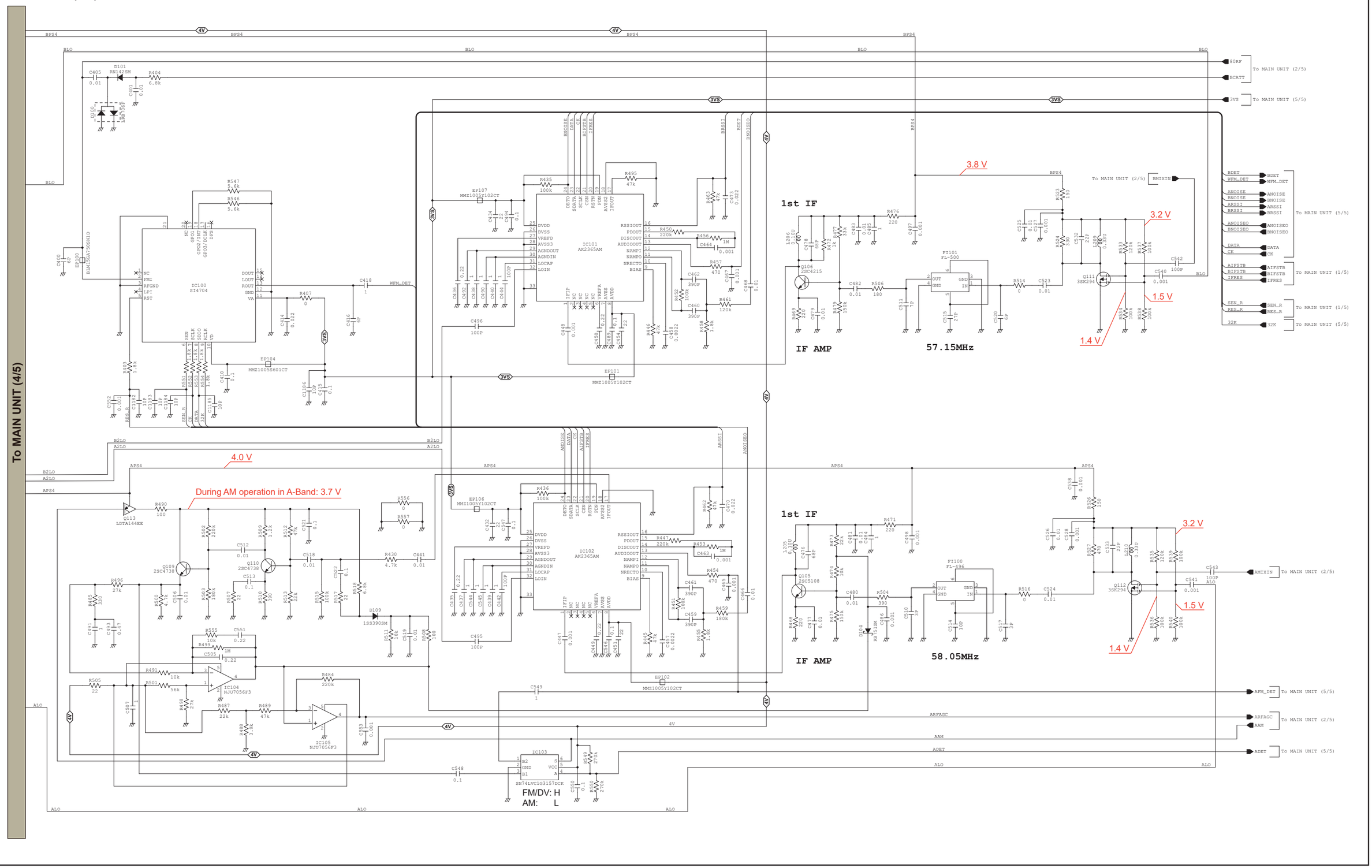
The underlined parts have been updated from the addendum of the previous version, or from the original page.

• MAIN UNIT (2/5)



The underlined parts have been updated from the addendum of the previous version, or from the original page.

• MAIN UNIT (3/5)



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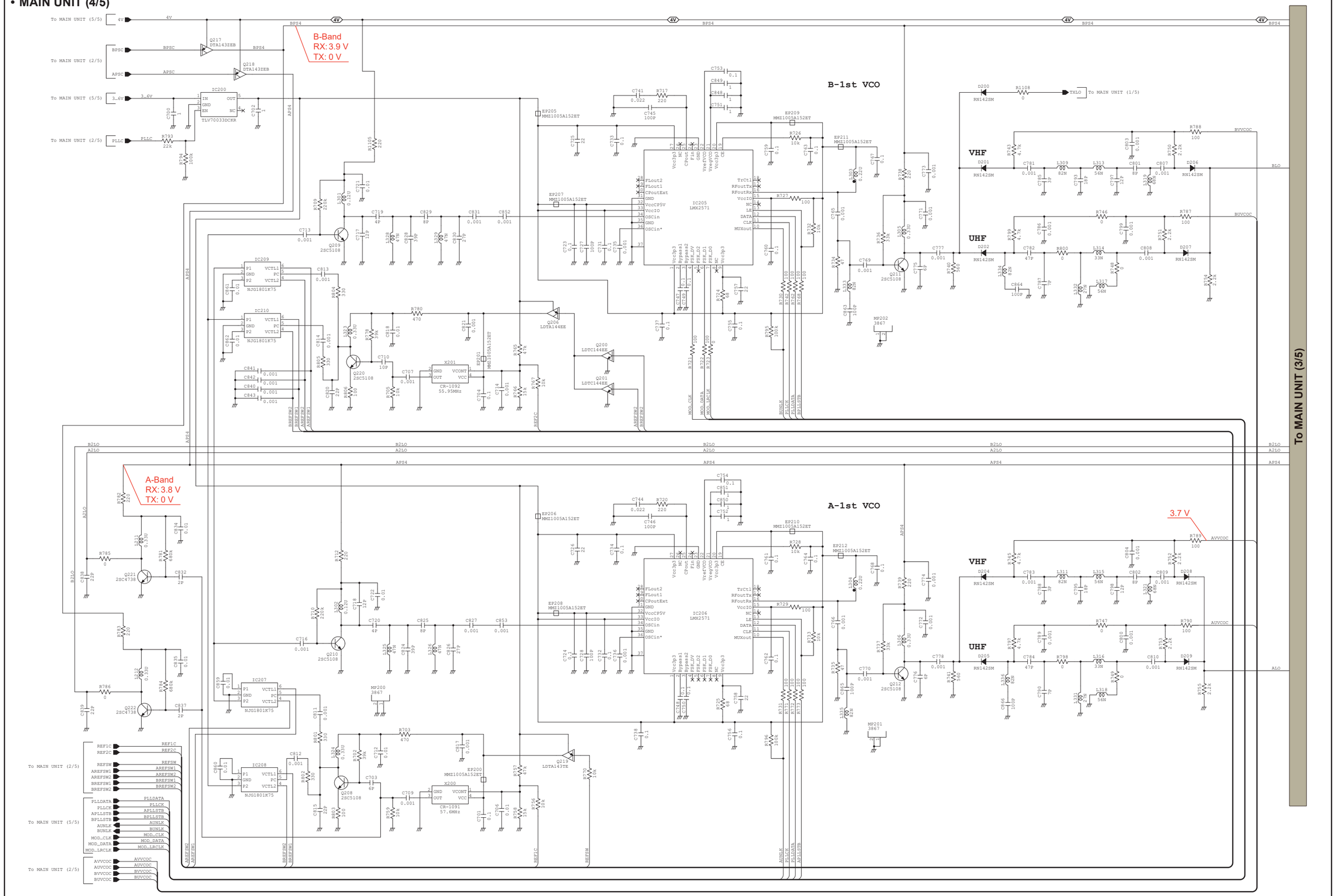
• MAIN UNIT (4/5)



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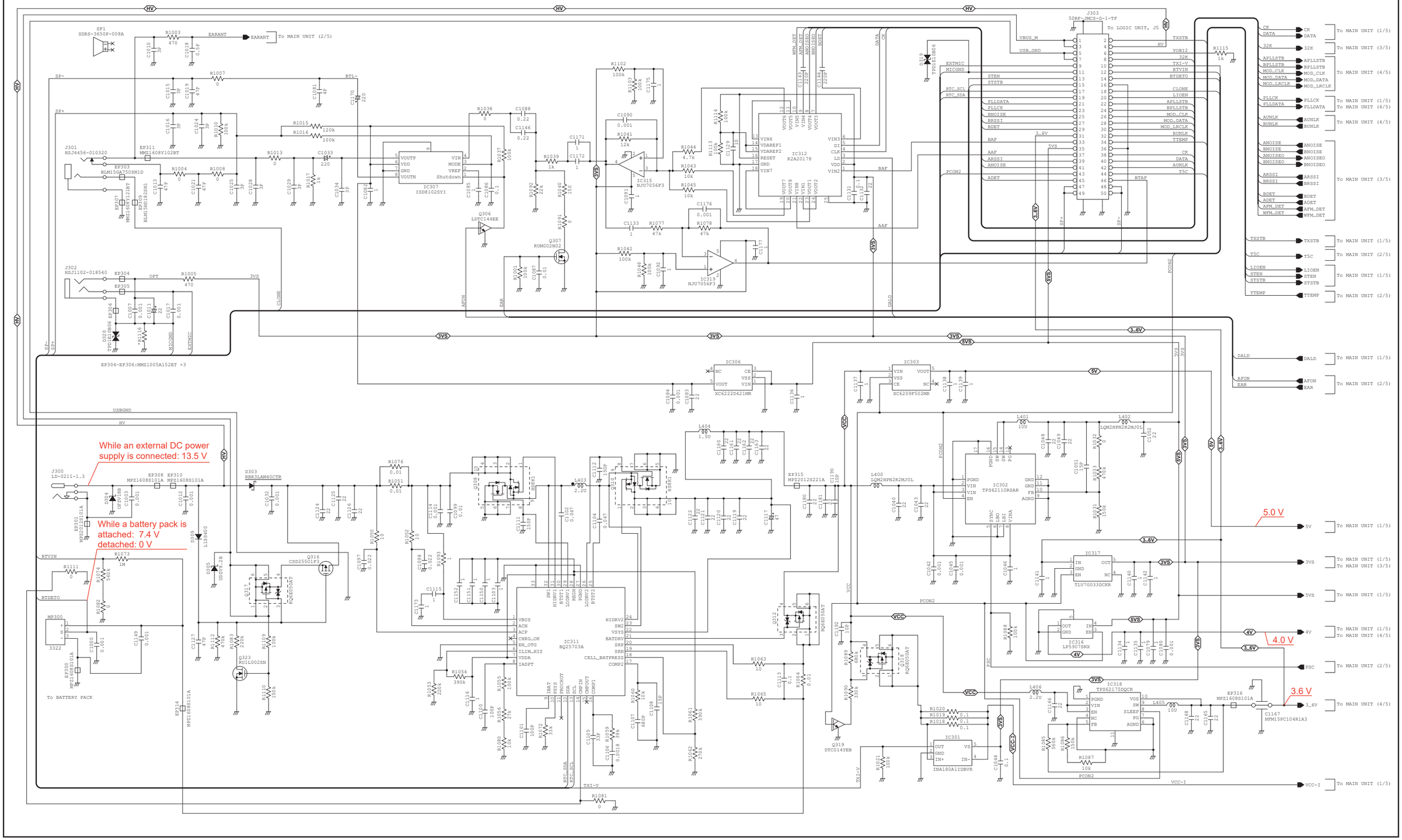
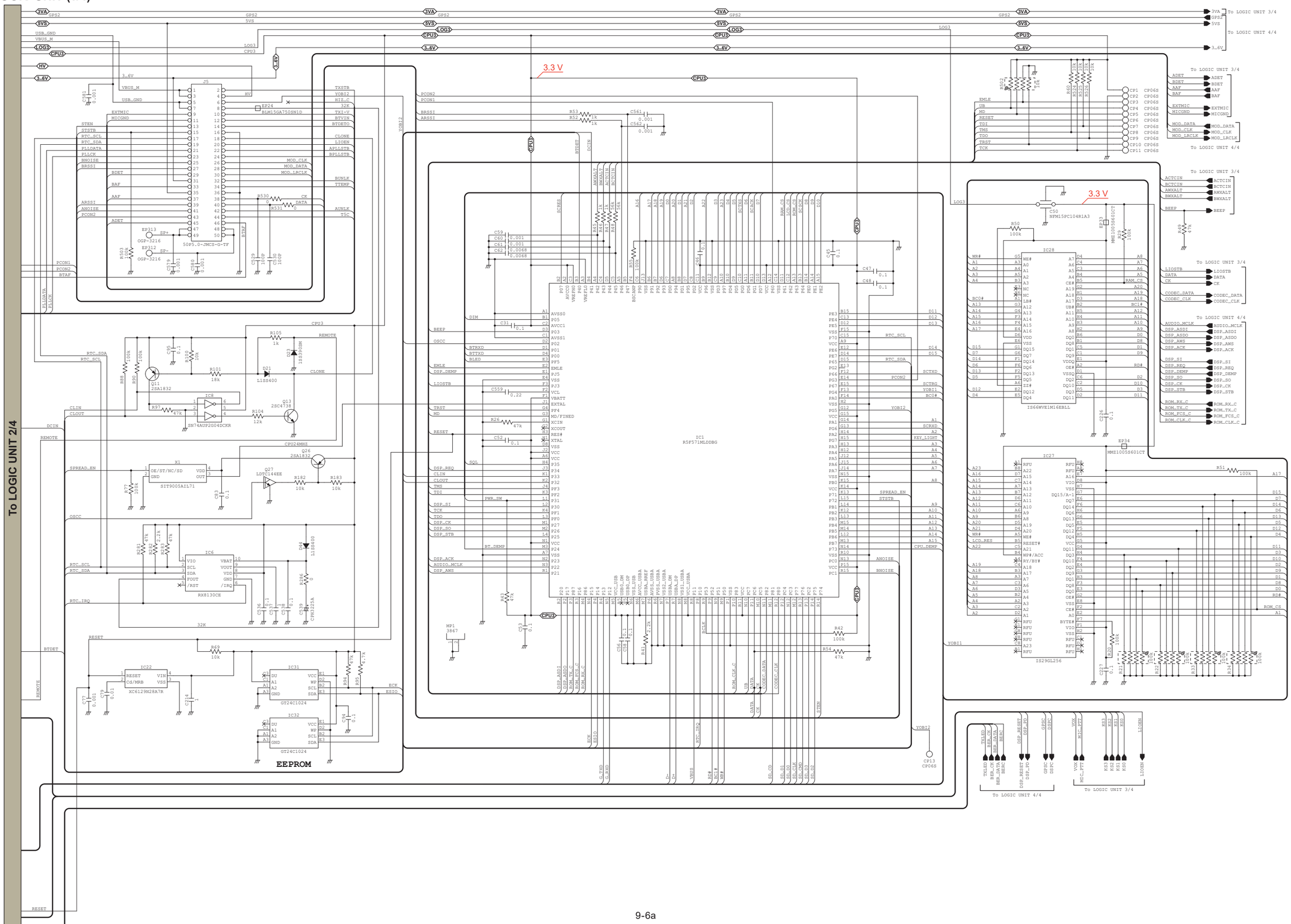
• MAIN UNIT (5/5)



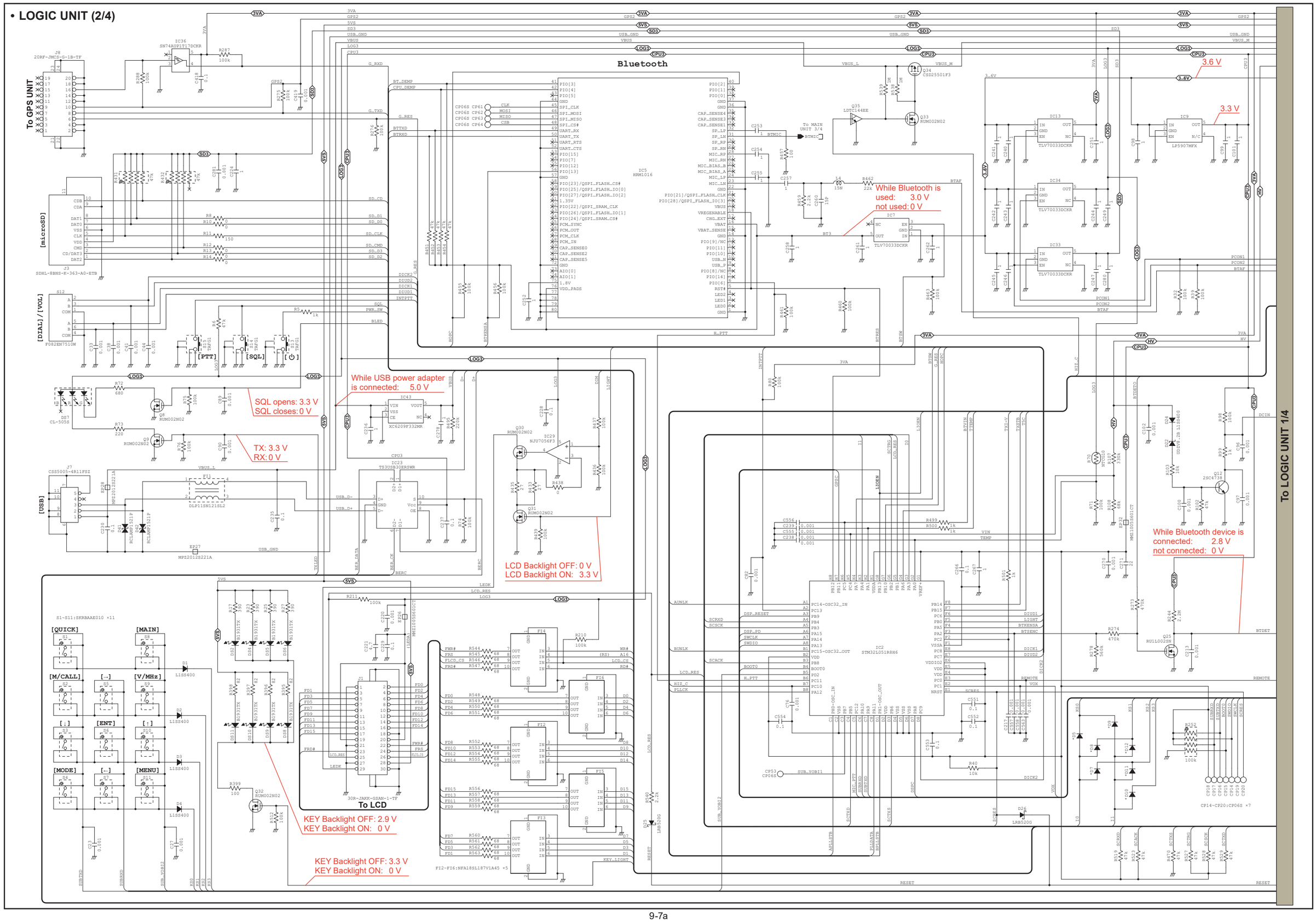
The underlined parts have been updated from the addendum of the previous version, or from the original page.

• LOGIC UNIT (1/4)



The underlined parts have been updated from the addendum of the previous version, or from the original page.

• LOGIC UNIT (2/4)



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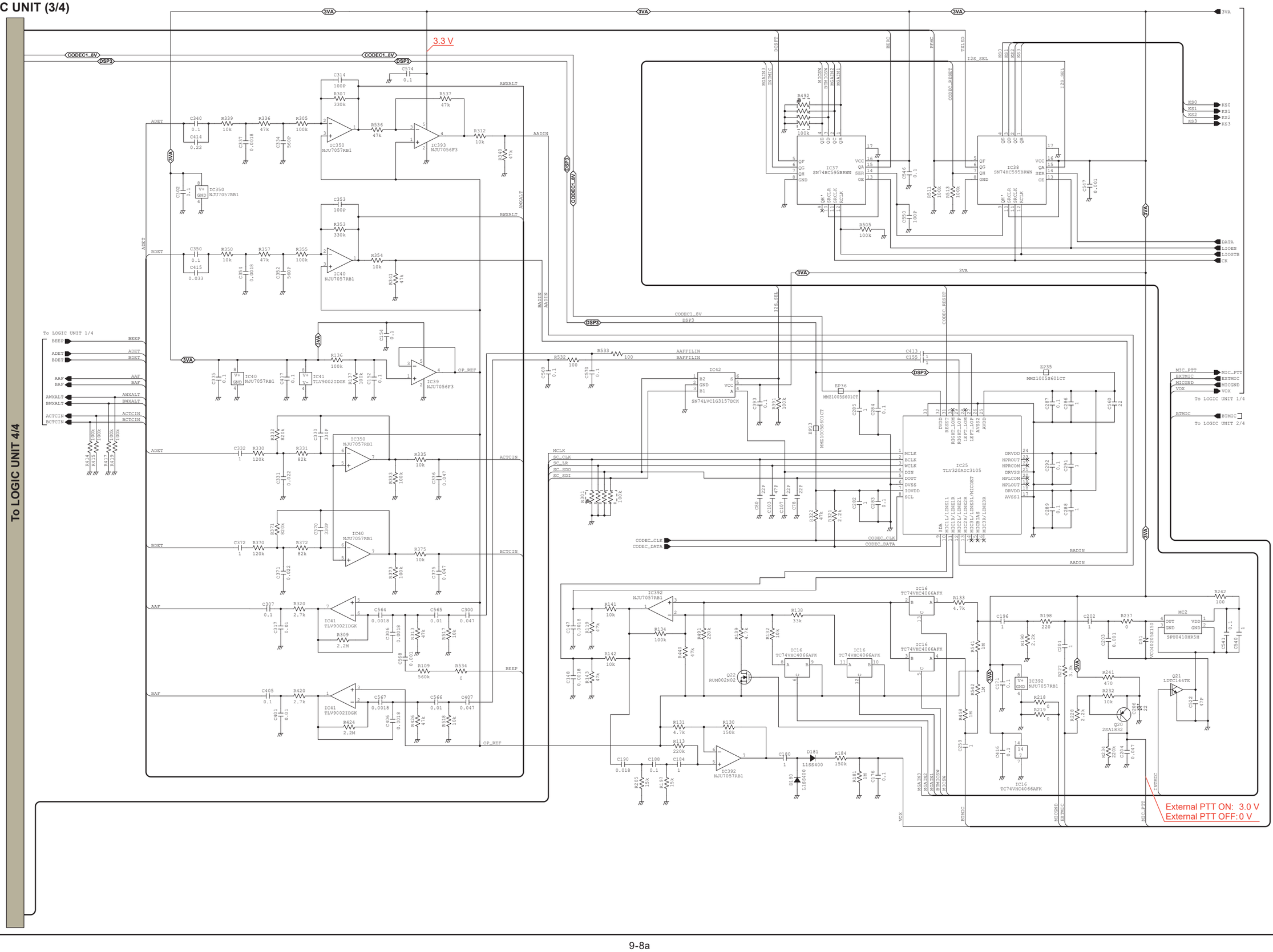
• LOGC UNIT (3/4)



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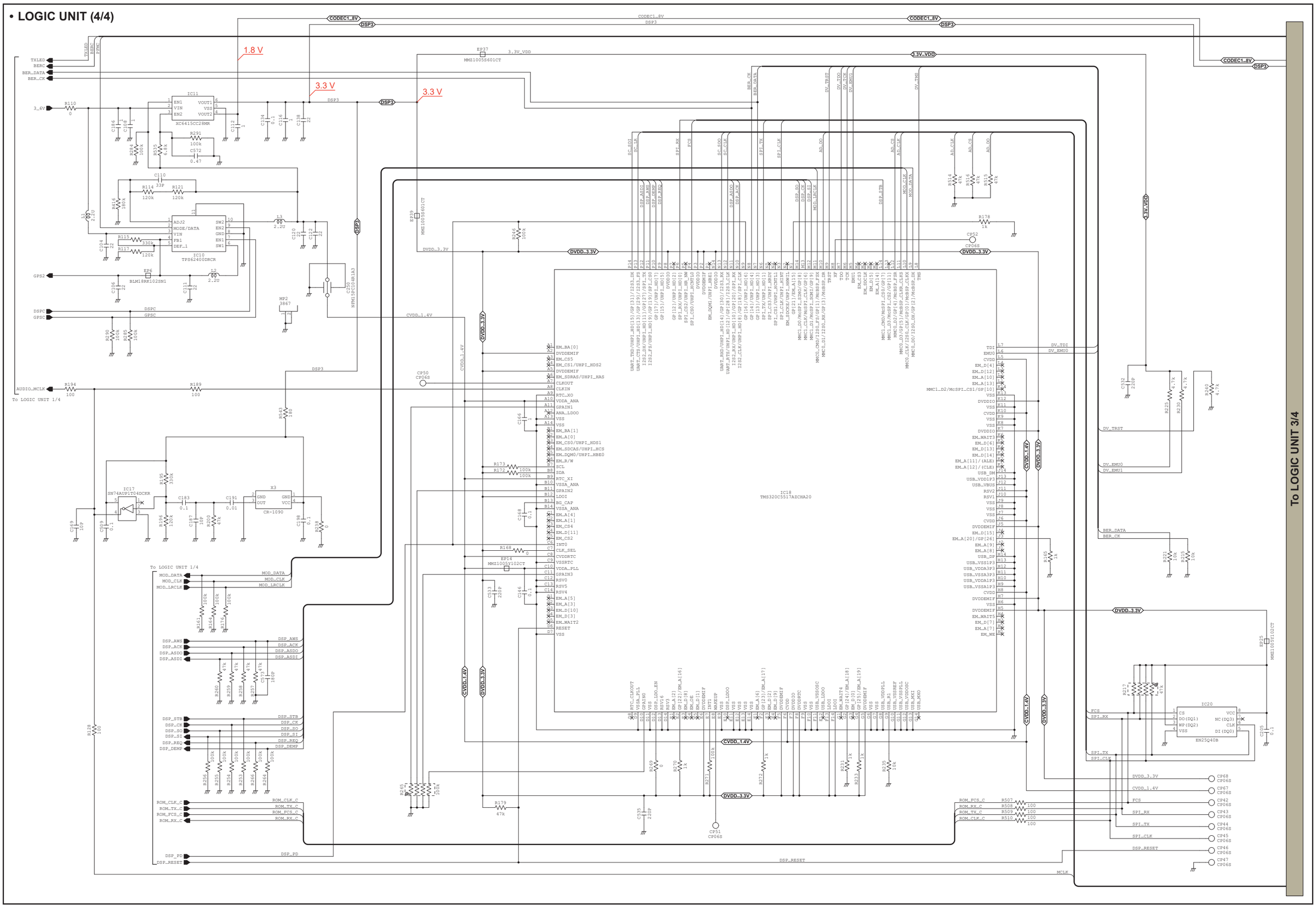
• LOGIC UNIT (4/4)



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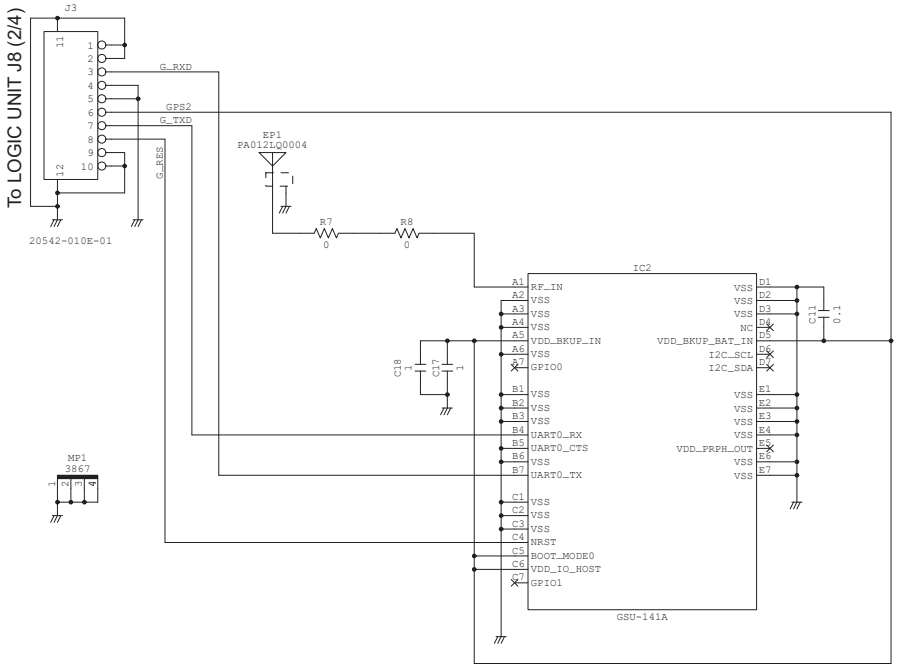
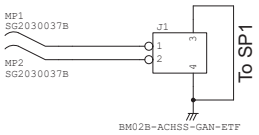
• GPS UNIT



• SP UNIT



SERVICE MANUAL

VHF/UHF TRANSCEIVER

ID-52A
ID-52E

S-15713XZ-C1
December 2021

Icom Inc.

INTRODUCTION

We will supply spare units for the ID-52A/ID-52E described in this service manual.
Accordingly, this service manual focuses on the spare units that can be supplied, consumable parts and parts that are considered necessary in case of physical damage, instead of those on the individual electronic parts list.

This service manual describes the latest technical information for the ID-52A/ID-52E VHF/UHF TRANSCEIVER at the time of publication.

Model	Version	Version number
ID-52E	EUR-01	#12
ID-52A	USA-01	#15

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

ID-52E

SERVICE CAUTION

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

DO NOT reverse the polarity of the DC power cable when directly applying power to the DUT/circuit.

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

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>

1560002420	RD01MUS2B-T513	ID-52A	MAIN UNIIT	3 pieces
8930102610	3867 C-BUTTON	ID-52A	CHASSIS	1 piece

REPAIR NOTES

1. Make sure that the problem is internal before disassembling the DUT.
2. **DO NOT** open the DUT until the DUT is disconnected from its power source.
3. **DO NOT** short any circuits or electronic parts.
4. **DO NOT** keep power ON for a long time when the DUT is defective.
5. **NEVER** transmit power into a Standard Signal Generator or a Sweep Generator.
   Otherwise the RF power may damage them.
6. **ALWAYS** connect a 30 dB to 40 dB attenuator between the DUT and such test equipment.
7. **READ** the instructions of the test equipment thoroughly before connecting it to the DUT.

TABLE OF CONTENTS

SECTION 1 SPECIFICATIONS

■ GENERAL

• Frequency coverage (unit: MHz):

USA version		
[A band]	Receive:	108.000 ~ 174.000 (Guaranteed only 144 ~ 148 MHz)
		225.000 ~ 479.000 (Guaranteed only 440 ~ 450 MHz)
	Transmit:	144.000 ~ 148.000
		430.000 ~ 450.000 (Guaranteed only 440 ~ 450 MHz)
[B band]	Receive:	137.000 ~ 174.000 (Guaranteed only 144 ~ 148 MHz)
		375.000 ~ 479.000 (Guaranteed only 440 ~ 450 MHz)
	Transmit:	144.000 ~ 148.000
		430.000 ~ 450.000 (Guaranteed only 440 ~ 450 MHz)
[BC band (WFM)]	Receive:	88.000 ~ 108.000
EUR version		
[A band]	Receive:	108.000 ~ 174.000 (Guaranteed only 144 ~ 146 MHz)
		225.000 ~ 479.000 (Guaranteed only 430 ~ 440 MHz)
	Transmit:	144.000 ~ 146.000
		430.000 ~ 440.000
[B band]	Receive:	137.000 ~ 174.000 (Guaranteed only 144 ~ 146 MHz)
		375.000 ~ 479.000 (Guaranteed only 430 ~ 440 MHz)
	Transmit:	144.000 ~ 146.000
		430.000 ~ 440.000
[BC band (WFM)]	Receive:	76.000 ~ 108.000

• Modes: FM/FM-N (F2D/F3E), AM/AM-N (A3E)*, DV (F7W) * RX only
• The number of Memory channels: 1000 channels (in 100 groups)
• The number of Skip channels: 100 channels
• The number of FM Radio memory channels:
500 channels (in 26 groups)
• The number of Program Scan Edges: 25 channels (2 edge frequencies in each channel)
• The number of Call channels: 4 channels (2 channels × 2 bands)
• Number of repeater memories: 2500 (in 50 groups)
• Number of GPS memories: 300
• Usable temperature range: –20°C ~ +60°C, –4°F ~ +140°F
• Tuning steps: 5, 6.25, 8.33*, 10, 12.5, 15, 20, 25, 30, 50, 100, 125, and 200 kHz
* For only 108.000 MHz ~ 136.991 MHz
• Frequency stability: ±2.5 ppm (–20°C ~ +60°C, –4°F ~ +140°F)
• Power supply: 10.0 ~ 16.0 V DC for external DC power
7.4 V DC specified Icom's battery pack
5.5 V DC specified Icom's battery case
• Current drain (at 7.4 V DC):
Transmit (at 5 W) 2.5 A or less
Receive (Maximum output, 8 Ω load)
FM/FM-N 400 mA or less
DV 450 mA or less
• Antenna connector: SMA (50 Ω)
• Dimensions: 61.1 (W) × 121.6 (H) × 29.7 (D) mm,
(projections not included) 2.4 (W) × 4.8 (H) × 1.2 (D) inches
• Weight (approximate): 330 g, 11.6 oz (Including battery pack and antenna)

■ TRANSMITTER

• Modulation system:
FM/FM-N Variable reactance frequency modulation
DV GMSK reactance frequency modulation
• Output power (at 7.4 V DC): High: 5.0 W, Mid: 2.5 W, Low2: 1.0 W, Low1: 0.5 W, S-Low: 0.1 W
• SAR 10g: 5.49 W/kg
• Maximum frequency deviation:
FM ±5.0 kHz
FM-N ±2.5 kHz
• Spurious emissions: –60 dBc or less at High/Mid
–13 dBm or less at Low2/Low1/S-Low
• Microphone impedance: 2.2 kΩ

■ RECEIVER

• Receive system: Double Conversion Superheterodyne
• Intermediate frequencies:
A band 1st IF 58.05 MHz, 2nd IF 450 kHz
B band 1st IF 57.15 MHz, 2nd IF 450 kHz
• Sensitivity:
Ham band FM/FM-N 0.18 µV (PD) or less (at 12 dB SINAD)
DV 0.2 µV (PD) or less (at 1% BER)
Outside Ham band

Band	Frequency range (MHz)	FM/FM-N/WFM*1 (12 dB SINAD)	AM/AM-N*2 (10dB S/N)
BC band	76.000 ~ 108.000	1 µV (PD) or less	–
A band	108.000 ~ 136.991	–	1 µV (PD) or less
	137.000 ~ 142.000	0.18 µV (PD) or less	1 µV (PD) or less
	142.005 ~ 148.000	0.18 µV (PD) or less	–
	148.005 ~ 174.000	0.32 µV (PD) or less	–
	225.000 ~ 259.995	0.56 µV (PD) or less	1.8 µV (PD) or less
	260.000 ~ 354.995	0.32 µV (PD) or less	1 µV (PD) or less
	355.000 ~ 374.995	0.5 µV (PD) or less	1.8 µV (PD) or less
	375.000 ~ 399.995	0.5 µV (PD) or less	–
	400.000 ~ 479.000	0.32 µV (PD) or less	–
B band	137.000 ~ 148.000	0.18 µV (PD) or less	–
	148.005 ~ 174.000	0.32 µV (PD) or less	–
	375.000 ~ 399.995	0.5 µV (PD) or less	–
	400.000 ~ 479.000	0.32 µV (PD) or less	–

*1 “WFM” is for only BC band. “FM” and “FM-N” is for only A/B band.
*2 “AM-N” is for only 108.000 MHz ~ 143.995 MHz.

• Audio output power:
Internal speaker 0.75 W or more at 10% distortion into the 8 Ω load
External speaker 0.2 W or more at 10% distortion into an 8 Ω load
• Selectivity:
FM 55 dB or more
FM-N/DV 50 dB or more
• Spurious and image rejection ratio:
60 dB or more
• Squelch Sensitivity:
Ham band 0.18 µV (PD) or less (threshold)
Outside Ham band

Band	Frequency range (MHz)	FM/FM-N/WFM*1	AM/AM-N*2
BC band	76.000 ~ 108.000	1.8 µV (PD) or less	–
A band	108.000 ~ 136.991	–	1 µV (PD) or less
	137.000 ~ 142.000	0.32 µV (PD) or less	1 µV (PD) or less
	142.005 ~ 148.000	0.32 µV (PD) or less	–
	148.005 ~ 174.000	0.32 µV (PD) or less	–
	225.000 ~ 259.995	0.56 µV (PD) or less	1.8 µV (PD) or less
	260.000 ~ 374.995	0.32 µV (PD) or less	1 µV (PD) or less
	375.000 ~ 399.995	0.32 µV (PD) or less	–
	400.000 ~ 479.000	0.32 µV (PD) or less	–
B band	137.000 ~ 148.000	0.32 µV (PD) or less	–
	148.005 ~ 174.000	0.32 µV (PD) or less	–
	375.000 ~ 399.995	0.32 µV (PD) or less	–
	400.000 ~ 479.000	0.32 µV (PD) or less	–

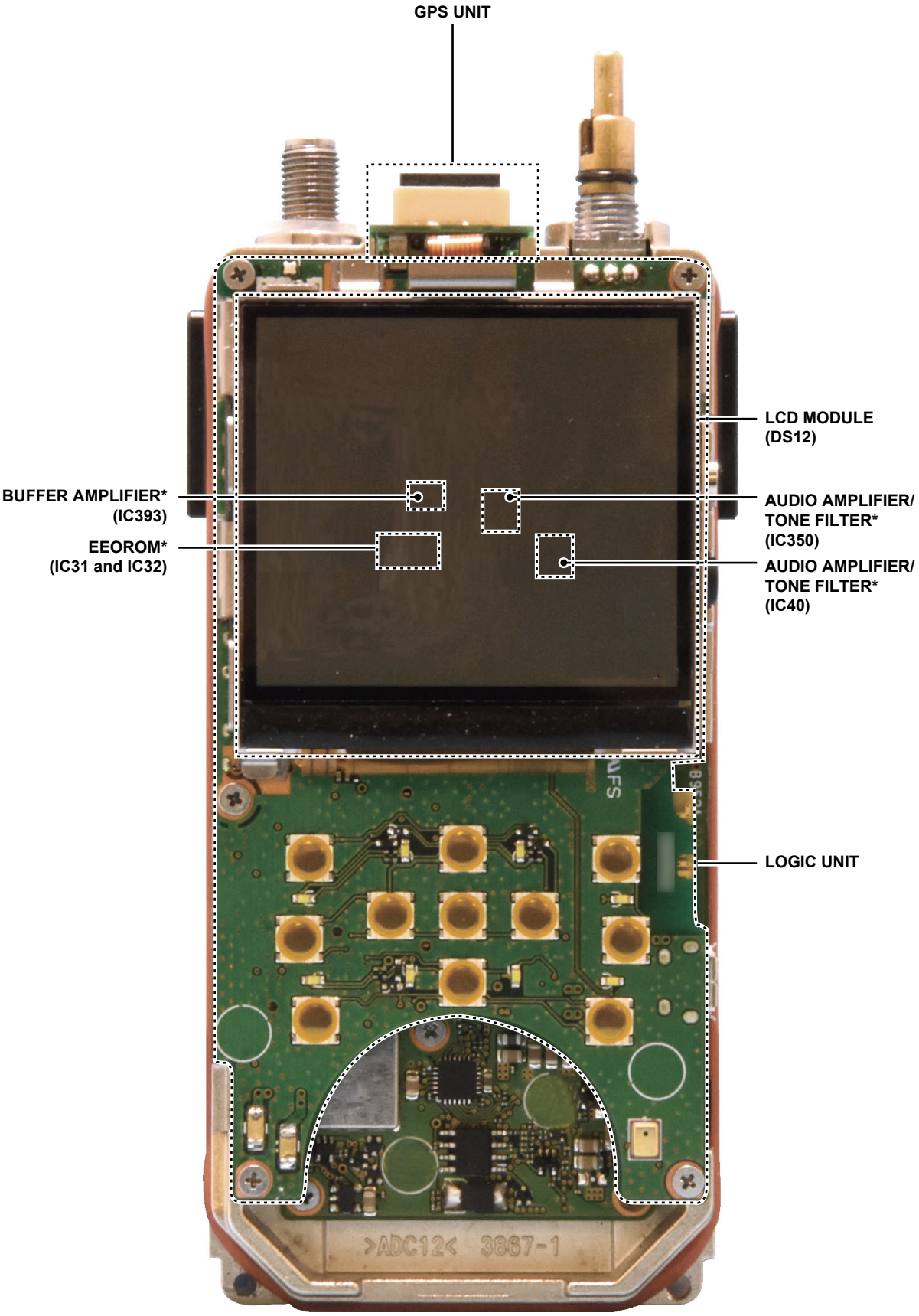
*1 “WFM” is for only BC band. “FM” and “FM-N” is for only A/B band.
*2 “AM-N” is for only 108.000 MHz ~ 143.995 MHz.

■ BLUETOOTH

• Version: Bluetooth Version 4.2
• Transmission Output: Class 2
• Profile: HFP, HSP, SPP, GATT (Serial) over LE
• The maximum number of paired Bluetooth devices:
7 devices
NOTE: Maximum headsets or data devices are 4 devices each, and the maximum combination is 5 devices in total. Maximum Bluetooth Low Energy devices are 2 devices.
• Device Name: ICOM BT(ID-52) (at default)
• Passkey: 0000 (four zeros)

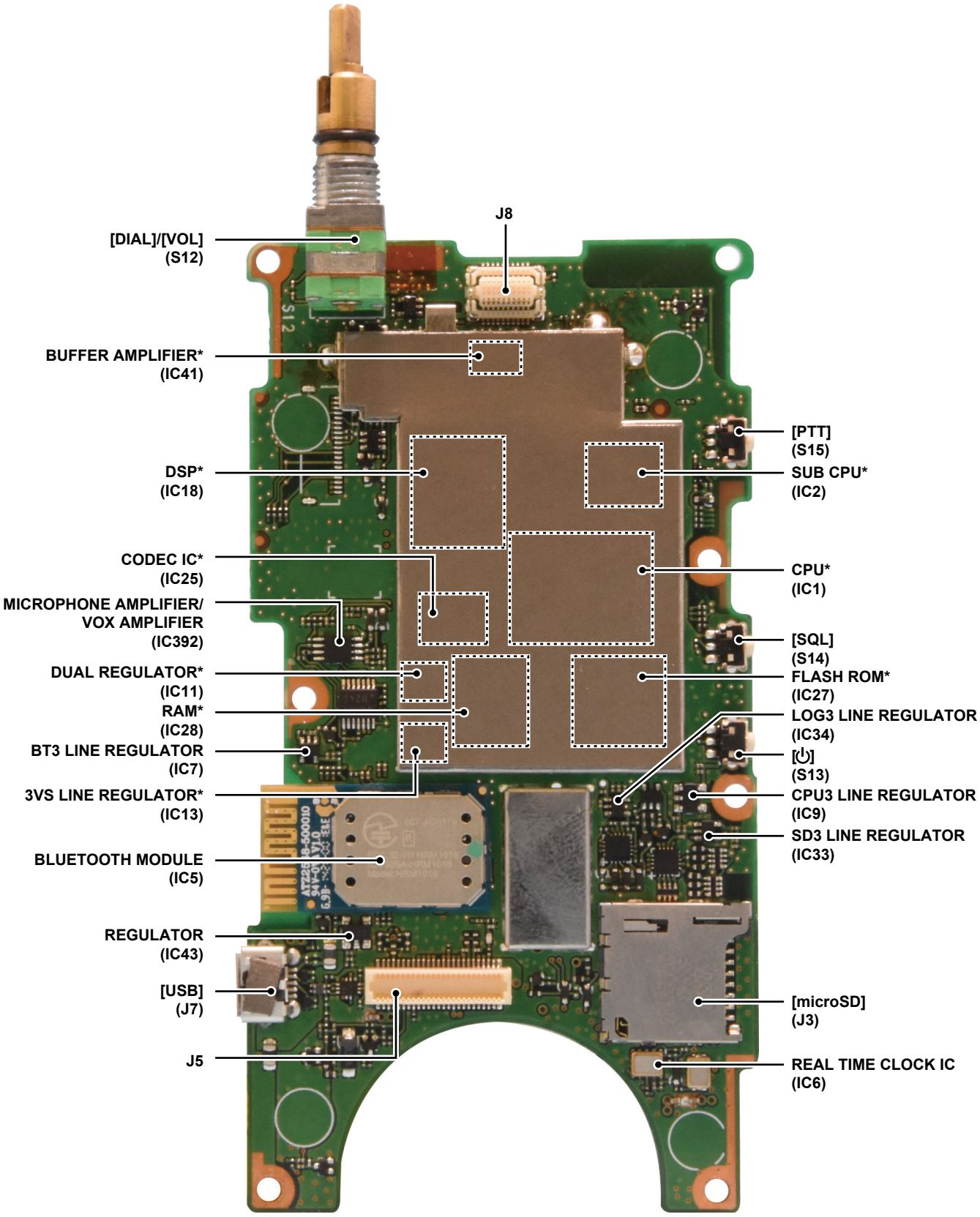
SECTION 2 INSIDE VIEWS

• **LOGIC UNIT (Top View)**



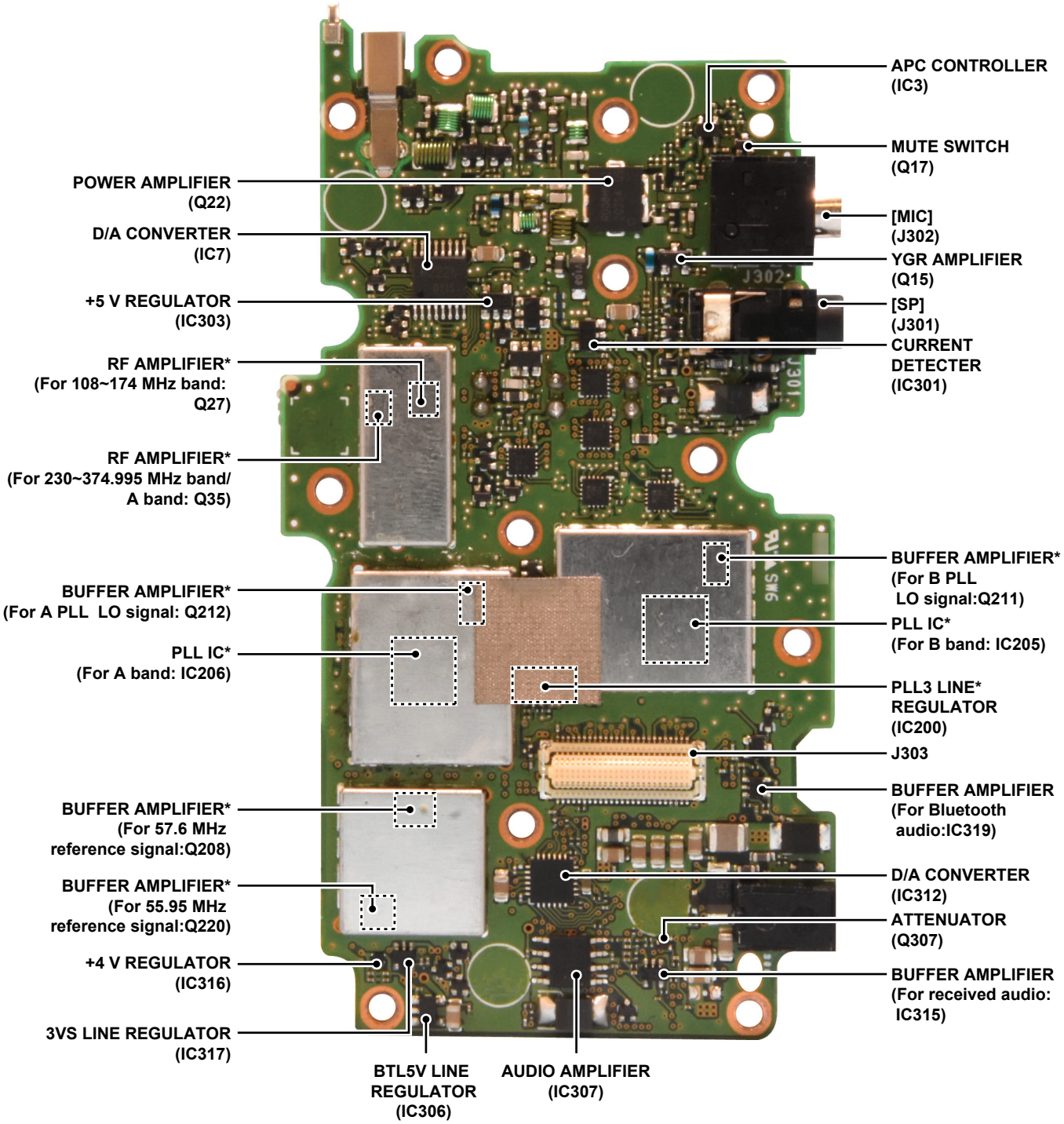
*Mounted under the LCD module.

• **LOGIC UNIT (Bottom View)**



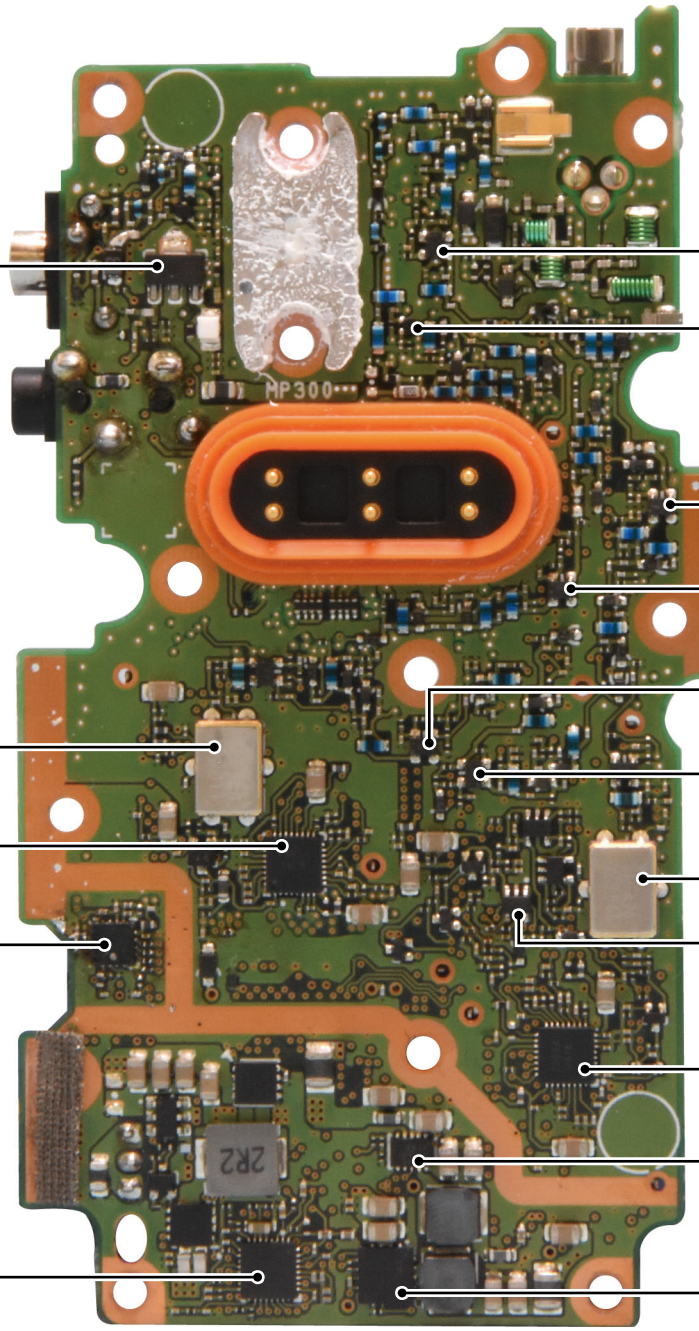
*Mounted under the shield cover.

• **MAIN UNIT (Top View)**



*Mounted under the shield cover.

• **MAIN UNIT (Bottom View)**



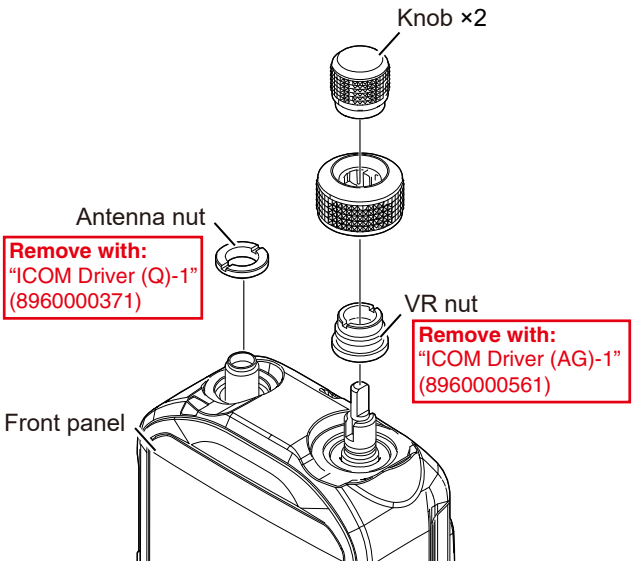
SECTION 3 DISASSEMBLY INSTRUCTION

Before disassembling:
REMOVE the microSD card if inserted. Otherwise the front panel and chassis cannot be separated.
See ID-52A/E BASIC INSTRUCTIONS for removal details.

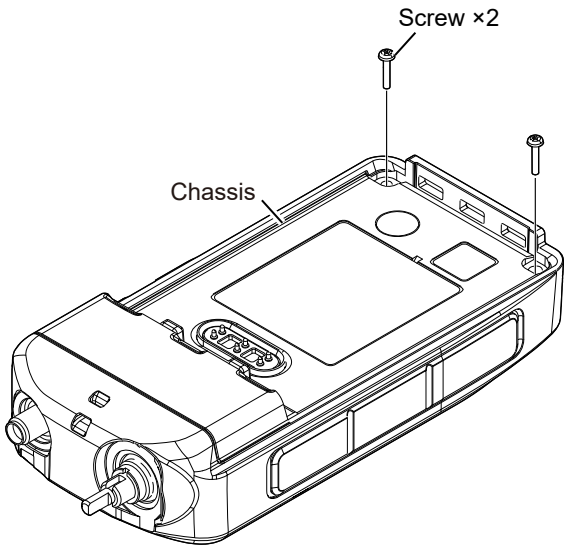
IMPORTANT: After the reassembling
After reassembling the DUT, the waterproof check must be performed. Otherwise, waterproof performance can not be guaranteed.

1. REMOVING THE LOGIC UNIT

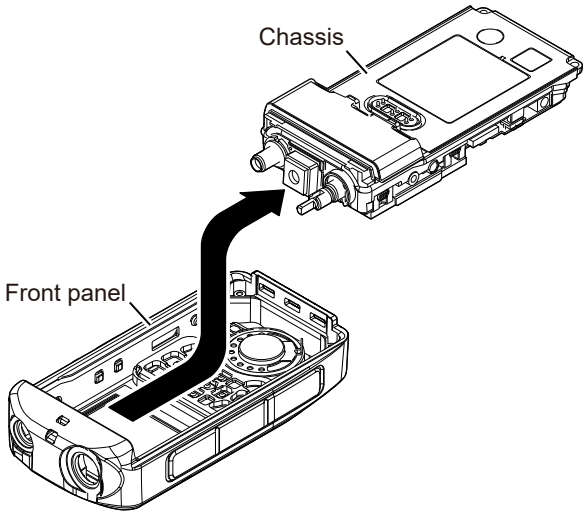
1) Remove 2 knobs, Antenna nut, and VR nut from the front panel.



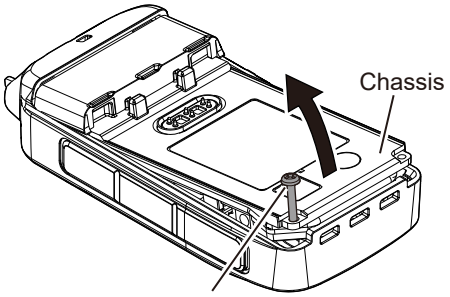
2) Remove 2 screws from the bottom side of the chassis.



3) Take out the chassis from the front panel.



For easy separation of the chassis:
Use an M3 screw to lift the bottom of the chassis up in the direction of the arrow.

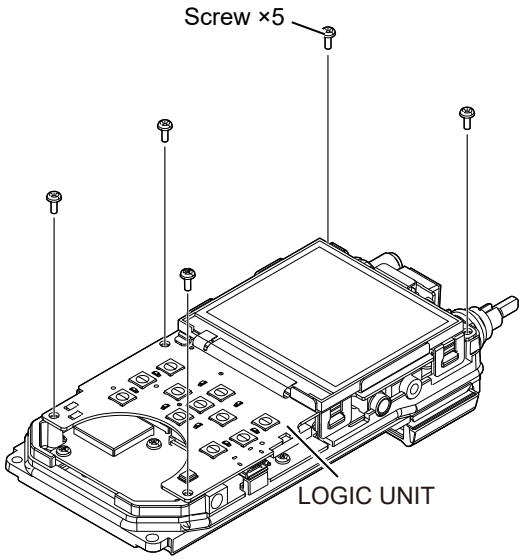


M3 screw (screw thread pitch: 0.5 mm)

The M3 screws are commercially available.
When ordering parts, the following parts are recommended.
"PH M3×16 SUS" (8810000620)

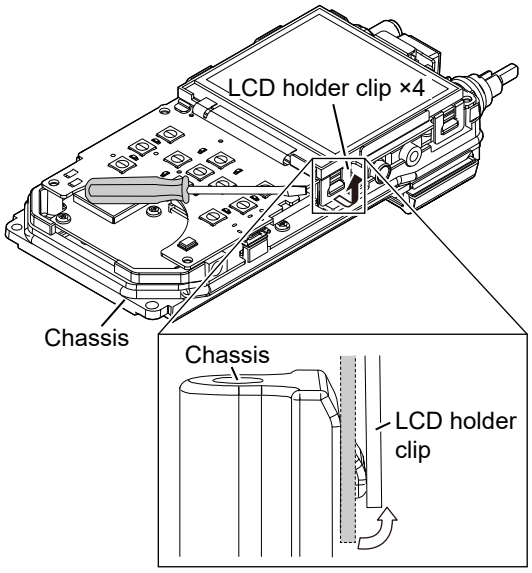
1. REMOVING THE LOGIC UNIT (CONTINUED)

4) Remove the 5 screws from the LOGIC UNIT.



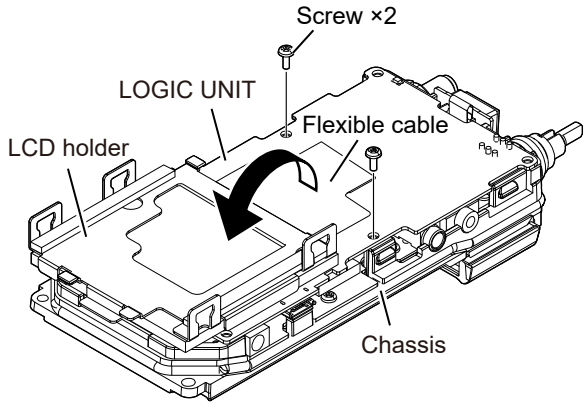
5) Unclip the 4 LCD holder clips from the chassis.

For easy separation of the LCD holder clip:
Use the tip of a flat-head screwdriver to release the LCD holder clip, and avoid injury.



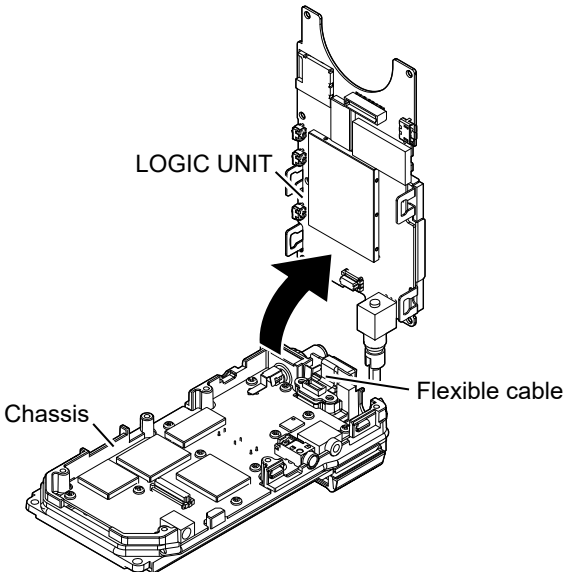
6) Flip the LCD holder in the direction of the arrow, then remove the 2 screws from the LOGIC UNIT.

BE CAREFUL not to damage the flexible cable when you flip the LCD holder.



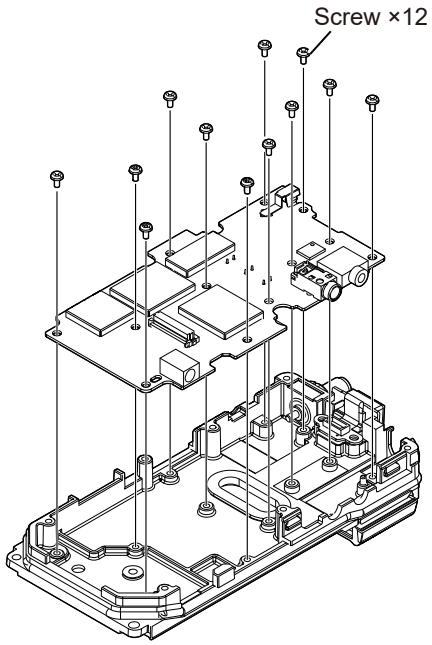
7) Separate the LOGIC UNIT from the chassis by lifting it up in the direction of the arrow, then disconnect the flexible cable from the LOGIC UNIT.

BE CAREFUL not to damage the flexible cable when separating the LOGIC UNIT from the chassis.



2. REMOVING THE MAIN UNIT

1) Remove the 12 screws from the MAIN UNIT, then remove it.



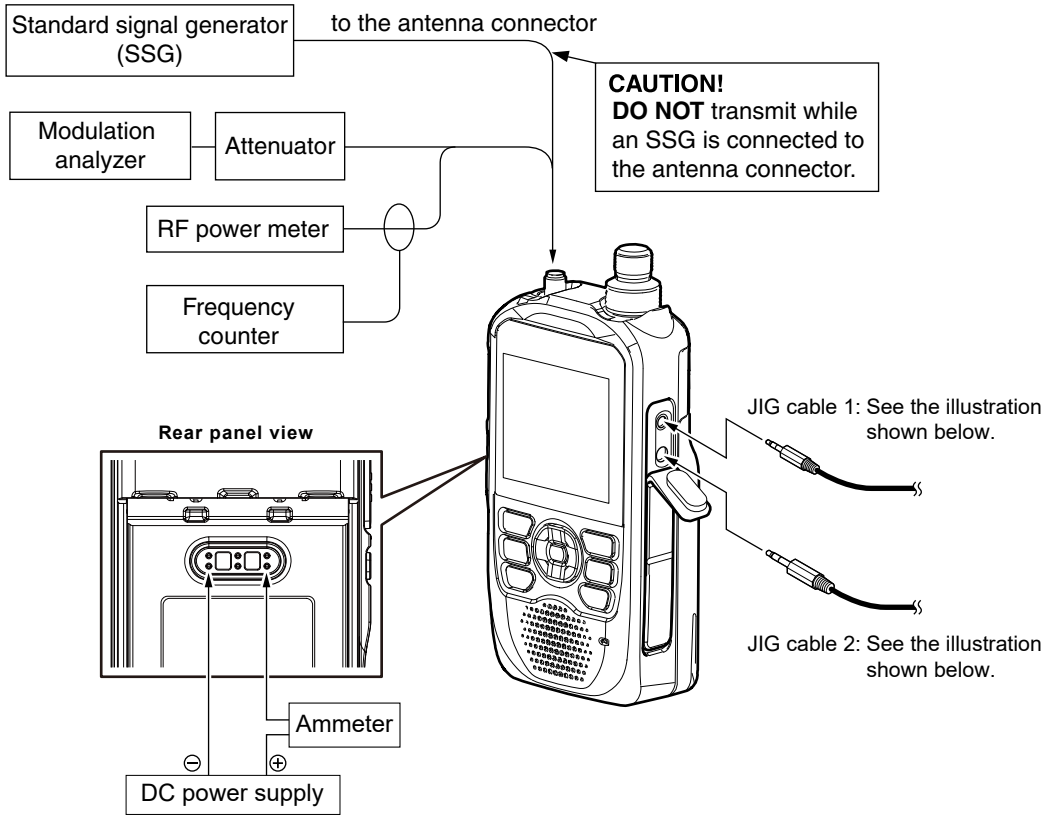
SECTION 4 ADJUSTMENT PROCEDURE

4-1 PREPARATION

■ REQUIRED EQUIPMENT

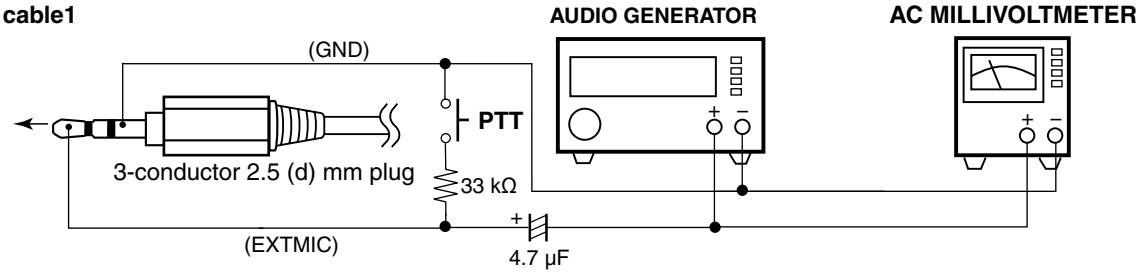
EQUIPMENT	GRADE AND RANGE	EQUIPMENT	GRADE AND RANGE
AC millivoltmeter	Measuring range: 10 mV to 10 V	Standard signal generator (SSG)	Frequency range: Up to 500 MHz Output level: –20 to 90 dBμ (–127 to –17 dBm)
DC power supply	Output voltage: 5.5 V or 7.4 V Rated output current: 3 A or more		
RF power meter (50 Ω terminated)	Measuring range: 0.1~10 W Frequency range: 100~300 MHz	Modulation analyzer	Frequency range: Up to 500 MHz Measuring range: 0 to ±10 kHz
Audio generator (AG)	Frequency range: Up to 3000 Hz Output level: 1~500 mV	Frequency counter	Frequency range: Up to 500 MHz Measuring accuracy: ±1 ppm or better
Attenuator	Power attenuation: 40 dB Rated input power: 10 W or more	JIG cable 1 and JIG cable 2	Modified 3-conductor plugs (See the illustration shown below.)
Ammeter	Measuring range: 500 mA ~ 5 A		

■ CONNECTIONS

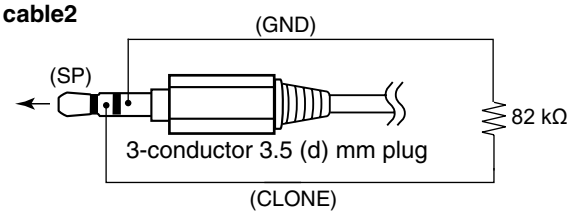


■ JIG CABLE

• JIG cable1



• JIG cable2

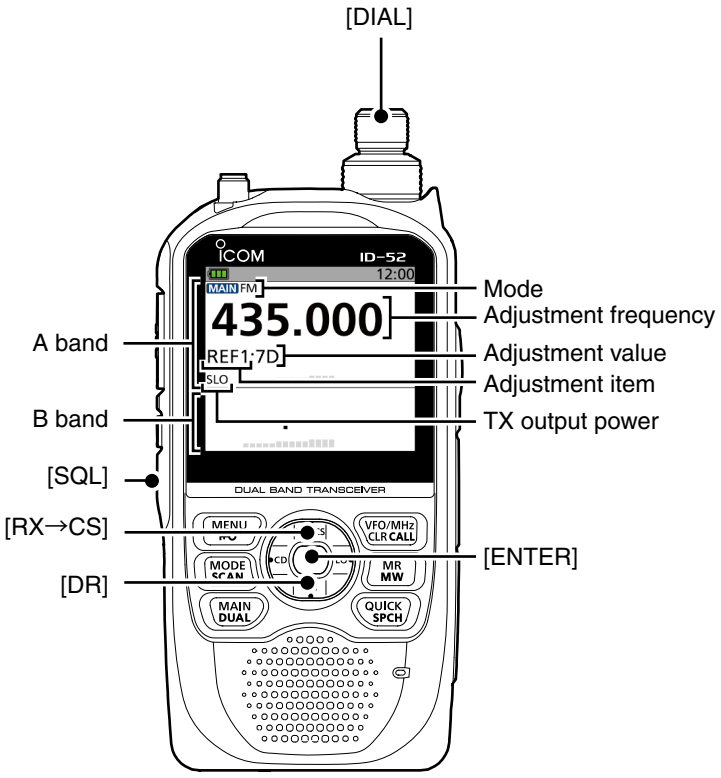


■ ENTERING THE ADJUSTMENT MODE

1) Connect the JIG cable 2 to [SP].
2) While holding down [SQL] and [QUICK/SPCH], turn ON the power.

■ KEY ASSIGNMENTS FOR THE ADJUSTMENT MODE

- Push [RX→CS] to select the next adjustment item, push [DR] to select the previous adjustment item.
- Rotate [DIAL] to adjust the value of the item.
- Push [ENTER] to start automatic adjustment, or store the adjusted value.



■ QUITING THE ADJUSTMENT MODE

1) Turn OFF the power, and then remove the JIG cable 2 from [SP].
2) Turn ON the power.

4-2 FREQUENCY ADJUSTMENTS

Select an adjustment item using [RX→CS]/[DR], and then set the adjustment value as specified using [DIAL].

ADJUSTMENT		ADJUSTMENT ITEM DISPLAY	OPERATION	VALUE
REFERENCE FREQUENCY	1	• Adjustment item: REF1 • Adjustment frequency: **Expect for [USA]**: 435.000 **For only [USA]:** 445.000	• Connect the RF power meter to the antenna connector. • Loosely couple the frequency counter to the antenna connector. • While transmitting, adjust the frequency using [DIAL], and then push [ENTER] to store the adjustment value.	Displayed frequecny (Within ±200 Hz)
	2	• Adjustment item: REF2 • Adjustment frequency: **Expect for [USA]**: 432.000 **For only [USA]:** 442.000		

4-3 TRANSMIT ADJUSTMENTS

Select an adjustment item using [RX→CS]/[DR], and then set the adjustment value as specified using [DIAL].

ADJUSTMENT		DUT'S CONDITION	OPERATION	VALUE
IDLING ADJUSTMENT ~Drive amplifier~ -At 5.5 V- **(VHF)**	1	• Adjustment item: ID5 • Adjustment frequency: **Expect for [USA]**: 145.000 **For only [USA]:** 146.000	• Connect the ammeter between the DC power supply and the DUT. • Connect the RF power meter to the antenna connector. • While transmitting, set the DC power supply voltage to 5.5 V. • While transmitting, adjust the idling current using [DIAL], and then push [ENTER] to store the adjustment value.	20 mA (Within ±5 mA)
(UHF)	2	• Adjustment item: ID5 • Adjustment frequency: **Expect for [USA]**: 435.000 **For only [USA]:** 445.000		
~Power amplifier~ **(VHF)**	3	• Adjustment item: IP5 • Adjustment frequency: **Expect for [USA]**: 145.000 **For only [USA]:** 146.000		100 mA (Within ±20 mA)
(UHF)	4	• Adjustment item: IP5 • Adjustment frequency: **Expect for [USA]**: 435.000 **For only [USA]:** 445.000		

Continued on the next page…

4-3 TRANSMIT ADJUSTMENTS (CONTINUED)

Select an adjustment item using [RX→CS]/[DR], and then set the adjustment value as specified using [DIAL].

ADJUSTMENT		DUT'S CONDITION	OPERATION	VALUE
IDLING ADJUSTMENT ~Drive amplifier~ -At 7.4 V- (VHF) (High Power)	1	• Adjustment item: ID7 • Adjustment frequency: **Expect for [USA]**: 145.000 **For only [USA]:** 146.000	• Connect the ammeter between the DC power supply and the DUT. • Connect the RF power meter to the antenna connector. • While transmitting, set the DC power supply voltage to 7.4 V. • While transmitting, adjust the idling current using [DIAL], and then push [ENTER] to store the adjustment value.	100 mA (Within ±10 mA)
(Mid Power)	2	• Adjustment item: ID7 • Adjustment frequency: **Expect for [USA]**: 145.000 **For only [USA]:** 146.000		20 mA (Within ±5 mA)
(Low2 Power)	3	• Adjustment item: ID7 • Adjustment frequency: **Expect for [USA]**: 145.000 **For only [USA]:** 146.000		
(Low1 Power)	4	• Adjustment item: ID7 • Adjustment frequency: **Expect for [USA]**: 145.000 **For only [USA]:** 146.000		
(S-low Power)	5	• Adjustment item: ID7 • Adjustment frequency: **Expect for [USA]**: 145.000 **For only [USA]:** 146.000		
(UHF) (High Power)	6	• Adjustment item: ID7 • Adjustment frequency: **Expect for [USA]**: 435.000 **For only [USA]:** 445.000		100 mA (Within ±10 mA)
(Mid Power)	7	• Adjustment item: ID7 • Adjustment frequency: **Expect for [USA]**: 435.000 **For only [USA]:** 445.000		20 mA (Within ±5 mA)
(Low2 Power)	8	• Adjustment item: ID7 • Adjustment frequency: **Expect for [USA]**: 435.000 **For only [USA]:** 445.000		
(Low1 Power)	9	• Adjustment item: ID7 • Adjustment frequency: **Expect for [USA]**: 435.000 **For only [USA]:** 445.000		
(S-low Power)	10	• Adjustment item: ID7 • Adjustment frequency: **Expect for [USA]**: 435.000 **For only [USA]:** 445.000		

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4-3 TRANSMIT ADJUSTMENTS (CONTINUED)

Select an adjustment item using [RX→CS]/[DR], and then set the adjustment value as specified using [DIAL].

ADJUSTMENT		DUT'S CONDITION	OPERATION	VALUE
IDLING ADJUSTMENT ~Power amplifier~ -At 7.4 V- (VHF) (High Power)	1	• Adjustment item: IP7 • Adjustment frequency: **Expect for [USA]**: 145.000 **For only [USA]:** 146.000	• Connect the ammeter between the DC power supply and the DUT. • Connect the RF power meter to the antenna connector. • While transmitting, set the DC power supply voltage to 7.4 V. • While transmitting, adjust the idling current using [DIAL], and then push [ENTER] to store the adjustment value.	200 mA (Within ±20 mA)
(Mid Power)	2	• Adjustment item: IP7 • Adjustment frequency: **Expect for [USA]**: 145.000 **For only [USA]:** 146.000		100 mA (Within ±20 mA)
(Low2 Power)	3	• Adjustment item: IP7 • Adjustment frequency: **Expect for [USA]**: 145.000 **For only [USA]:** 146.000		
(Low1 Power)	4	• Adjustment item: IP7 • Adjustment frequency: **Expect for [USA]**: 145.000 **For only [USA]:** 146.000		
(S-low Power)	5	• Adjustment item: IP7 • Adjustment frequency: **Expect for [USA]**: 145.000 **For only [USA]:** 146.000		
(UHF) (High Power)	6	• Adjustment item: IP7 • Adjustment frequency: **Expect for [USA]**: 435.000 **For only [USA]:** 445.000		200 mA (Within ±20 mA)
(Mid Power)	7	• Adjustment item: IP7 • Adjustment frequency: **Expect for [USA]**: 435.000 **For only [USA]:** 445.000		100 mA (Within ±20 mA)
(Low2 Power)	8	• Adjustment item: IP7 • Adjustment frequency: **Expect for [USA]**: 435.000 **For only [USA]:** 445.000		
(Low1 Power)	9	• Adjustment item: IP7 • Adjustment frequency: **Expect for [USA]**: 435.000 **For only [USA]:** 445.000		
(S-low Power)	10	• Adjustment item: IP7 • Adjustment frequency: **Expect for [USA]**: 435.000 **For only [USA]:** 445.000		

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4-3 TRANSMIT ADJUSTMENTS (CONTINUED)

Select an adjustment item using [RX→CS]/[DR], and then set the adjustment value as specified using [DIAL].

ADJUSTMENT		DUT'S CONDITION	OPERATION	VALUE
TRANSMIT OUTPUT POWER -At 5.5 V- (VHF) (Band low)	1	• Adjustment item: PO5 • Adjustment frequency: 144.000	• Connect the RF power meter to the antenna connector. • While transmitting, set the DC power supply voltage to 5.5 V. • While transmitting, adjust the TX output power using [DIAL], and then push [ENTER] to store the adjustment value.	0.1 W (Within ±0.02 W)
(Band High)	2	• Adjustment item: PO5 • Adjustment frequency: **Expect for [USA]**: 146.000 **For only [USA]:** 148.000		
(UHF) (Band low)	3	• Adjustment item: PO5 • Adjustment frequency: **Expect for [USA]**: 430.000 **For only [USA]:** 440.000		
(Band High)	4	• Adjustment item: PO5 • Adjustment frequency: **Expect for [USA]**: 440.000 **For only [USA]:** 445.000		
-At 7.4 V- (High power) (VHF) (Band low)	5	• Adjustment item: PO7 • Adjustment frequency: 144.000	• While transmitting, set the DC power supply voltage to 7.4 V. • While transmitting, adjust the TX output power using [DIAL], and then push [ENTER] to store the adjustment value.	5.0 W (Within ±0.2 W)
(Band High)	6	• Adjustment item: PO7 • Adjustment frequency: **Expect for [USA]**: 146.000 **For only [USA]:** 148.000		
(UHF) (Band low)	7	• Adjustment item: PO7 • Adjustment frequency: **Expect for [USA]**: 430.000 **For only [USA]:** 440.000		
(Band High)	8	• Adjustment item: PO7 • Adjustment frequency: **Expect for [USA]**: 440.000 **For only [USA]:** 445.000		
(Mid power) (VHF) (Band low)	9	• Adjustment item: PO7 • Adjustment frequency: 144.000		2.5 W (Within ±0.2 W)
(Band High)	10	• Adjustment item: PO7 • Adjustment frequency: **Expect for [USA]**: 146.000 **For only [USA]:** 148.000		
(UHF) (Band low)	11	• Adjustment item: PO7 • Adjustment frequency: **Expect for [USA]**: 430.000 **For only [USA]:** 440.000		
(Band High)	12	• Adjustment item: PO7 • Adjustment frequency: **Expect for [USA]**: 440.000 **For only [USA]:** 445.000		

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4-3 TRANSMIT ADJUSTMENTS (CONTINUED)

Select an adjustment item using [RX→CS]/[DR], and then set the adjustment value as specified using [DIAL].

ADJUSTMENT		DUT'S CONDITION	OPERATION	VALUE
TRANSMIT OUTPUT POWER -At 7.4 V- (Low2 power) (VHF) (Band low)	1	• Adjustment item: PO7 • Adjustment frequency: 144.000	• Connect the RF power meter to the antenna connector. • While transmitting, set the DC power supply voltage to 7.4 V. • While transmitting, adjust the TX output power using [DIAL], and then push [ENTER] to store the adjustment value.	1.0 W (Within ±0.1 W)
(Band High)	2	• Adjustment item: PO7 • Adjustment frequency: **Expect for [USA]**: 146.000 **For only [USA]:** 148.000		
(UHF) (Band low)	3	• Adjustment item: PO7 • Adjustment frequency: **Expect for [USA]**: 430.000 **For only [USA]:** 440.000		
(Band High)	4	• Adjustment item: PO7 • Adjustment frequency: **Expect for [USA]**: 440.000 **For only [USA]:** 445.000		
(Low1 power) (VHF) (Band low)	5	• Adjustment item: PO7 • Adjustment frequency: 144.000		0.5 W (Within ±0.1 W)
(Band High)	6	• Adjustment item: PO7 • Adjustment frequency: **Expect for [USA]**: 146.000 **For only [USA]:** 148.000		
(UHF) (Band low)	7	• Adjustment item: PO7 • Adjustment frequency: **Expect for [USA]**: 430.000 **For only [USA]:** 440.000		
(Band High)	8	• Adjustment item: PO7 • Adjustment frequency: **Expect for [USA]**: 440.000 **For only [USA]:** 445.000		
(S-low power) (VHF) (Band low)	9	• Adjustment item: PO7 • Adjustment frequency: 144.000		0.1 W (Within ±0.02 W)
(Band High)	10	• Adjustment item: PO7 • Adjustment frequency: **Expect for [USA]**: 146.000 **For only [USA]:** 148.000		
(UHF) (Band low)	11	• Adjustment item: PO7 • Adjustment frequency: **Expect for [USA]**: 430.000 **For only [USA]:** 440.000		
(Band High)	12	• Adjustment item: PO7 • Adjustment frequency: **Expect for [USA]**: 440.000 **For only [USA]:** 445.000		

4-4 DEVIATION ADJUSTMENTS

Select an adjustment item using [RX→CS]/[DR], and then set the adjustment value as specified using [DIAL].
† The output level of the standard signal generator (SSG) is measured at the load end (PD).

ADJUSTMENT		DUT'S CONDITION	OPERATION	VALUE
FM DEVIATION (VHF)	1	• Adjustment item: MFM • Adjustment frequency: 144.000	• Connect the modulation analyzer to the antenna connector, through the attenuator, and set it to: HPF: OFF LPF: 20 kHz De-emphasis: OFF Detector: (P–P)/2 • Connect the audio generator with the AC millivoltmeter to microphone connector, through the JIG cable 1, and set it to: Frequency: 1 kHz Level: 90 mVrms • While transmitting, adjust the deviation using [DIAL], and then push [ENTER] to store the adjustment value.	4.2 kHz (Within ±0.1 kHz)
(UHF)	2	• Adjustment item: MFM • Adjustment frequency: **Expect for [USA]:** 430.000 **For only [USA]:** 440.000		
DV DEVIATION (VHF)	1	• Adjustment item: MDV • Adjustment frequency: 144.000	• Connect the modulation analyzer to the antenna connector, through the attenuator, and set it to: HPF: OFF LPF: 20 kHz De-emphasis: OFF Detector: (P–P)/2 • No audio signal is applied to [MIC]. • While transmitting, adjust the deviation using [DIAL], and then push [ENTER] to store the adjustment value.	1.05 kHz (Within ±0.1 kHz)
(UHF)	2	• Adjustment item: MDV • Adjustment frequency: **Expect for [USA]**: 430.000 **For only [USA]:** 440.000		
DTCS DEVIATION (VHF)	1	• Adjustment item: MDT • Adjustment frequency: **Expect for [USA]**: 145.000 **For only [USA]:** 146.000	• Connect the modulation analyzer to the antenna connector, through the attenuator, and set it to: HPF: OFF LPF: 20 kHz De-emphasis: OFF Detector: (P–P)/2 • No audio signal is applied to [MIC]. • While transmitting, adjust the deviation using [DIAL], and then push [ENTER] to store the adjustment value.	0.75 kHz (Within ±0.05 kHz)
(UHF)	2	• Adjustment item: MDT • Adjustment frequency: **Expect for [USA]**: 435.000 **For only [USA]:** 445.000		
CTCSS DEVIATION (VHF)	1	• Adjustment item: MCT • Adjustment frequency: **Expect for [USA]**: 145.000 **For only [USA]:** 146.000	• Connect the modulation analyzer to the antenna connector, through the attenuator, and set it to: HPF: OFF LPF: 20 kHz De-emphasis: OFF Detector: (P–P)/2 • No audio signal is applied to [MIC]. • While transmitting, adjust the deviation using [DIAL], and then push [ENTER] to store the adjustment value.	0.75 kHz (Within ±0.05 kHz)
(UHF)	2	• Adjustment item: MCT • Adjustment frequency: **Expect for [USA]**: 435.000 **For only [USA]:** 445.000		
DTMF DEVIATION (VHF)	1	• Adjustment item: MDM • Adjustment frequency: **Expect for [USA]**: 145.000 **For only [USA]:** 146.000	• Connect the modulation analyzer to the antenna connector, through the attenuator, and set it to: HPF: OFF LPF: 20 kHz De-emphasis: OFF Detector: (P–P)/2 • No audio signal is applied to [MIC]. • While transmitting, adjust the deviation using [DIAL], and then push [ENTER] to store the adjustment value.	3.5 kHz (Within ±0.1 kHz)
(UHF)	2	• Adjustment item: MDM • Adjustment frequency: **Expect for [USA]**: 435.000 **For only [USA]:** 445.000		
EUR-TONE (VHF)	1	• Adjustment item: MET • Adjustment frequency: **Expect for [USA]**: 145.000 **For only [USA]:** 146.000	• Connect the modulation analyzer to the antenna connector, through the attenuator, and set it to: HPF: OFF LPF: 20 kHz De-emphasis: OFF Detector: (P–P)/2 • No audio signal is applied to [MIC]. • While transmitting, adjust the deviation using [DIAL], and then push [ENTER] to store the adjustment value.	3.5 kHz (Within ±0.1 kHz)
(UHF)	2	• Adjustment item: MET • Adjustment frequency: **Expect for [USA]**: 435.000 **For only [USA]:** 445.000		

4-5 RECEIVE ADJUSTMENTS

Select an adjustment item using [RX→CS]/[DR].

† The output level of the standard signal generator (SSG) is measured at the load end (PD).

ADJUSTMENT		DUT'S CONDITION	OPERATION	VALUE
RECEIVE SENSITIVITY -137.0 MHz ~ 174.0 MHz- (Band low)	1	**For A band** • Adjustment item: BPL • Adjustment frequency: 137.020	• Connect the SSG to the antenna connector, and set it to: Frequency: "Adjustment frequency" is displayed on the DUT's LCD. Level: 0 dBμ† (–107 dBm) Modulation: OFF	Push [ENTER]. (Automatic adjustment)
	2	**For B band** • Adjustment item: BPL • Adjustment frequency: 137.020		
(Band center)	3	**For A band** • Adjustment item: BPM • Adjustment frequency: **Expect for [USA]**: 145.020 **For only [USA]:** 146.020		
	4	**For B band** • Adjustment item: BPM • Adjustment frequency: **Expect for [USA]**: 145.020 **For only [USA]:** 146.020		
(Band High)	5	**For A band** • Adjustment item: BPH • Adjustment frequency: 173.980		
	6	**For B band** • Adjustment item: BPH • Adjustment frequency: 173.980		

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4-5 RECEIVE ADJUSTMENTS (CONTINUED)

Select an adjustment item using [RX→CS]/[DR].
† The output level of the standard signal generator (SSG) is measured at the load end (PD).

ADJUSTMENT		DUT'S CONDITION	OPERATION	VALUE
RECEIVE SENSITIVITY -375.0 MHz ~ 479.0 MHz- (Band low)	1	**For A band** • Adjustment item: BPL • Adjustment frequency: 375.020 • Mode: FM	• Connect the SSG to the antenna connector, and set it to: Frequency: "Adjustment frequency" is displayed on the DUT's LCD. Level: 0 dBμ† (–107 dBm) Modulation: OFF	Push [ENTER]. (Automatic adjustment)
	2	**For B band** • Adjustment item: BPL • Adjustment frequency: 375.020 • Mode: FM		
(Band center)	3	**For A band** • Adjustment item: BPM • Adjustment frequency: **Expect for [USA]**: 435.020 **For only [USA]:** 445.020 • Mode: FM		
	4	**For B band** • Adjustment item: BPM • Adjustment frequency: **Expect for [USA]**: 435.020 **For only [USA]:** 445.020 • Mode: FM		
(Band High)	5	**For A band** • Adjustment item: BPH • Adjustment frequency: 478.980 • Mode: FM		
	6	**For B band** • Adjustment item: BPH • Adjustment frequency: 478.980 • Mode: FM		
-108.0 MHz ~ 142.0 MHz- (Band low)	7	**For A band** • Adjustment item: BPL • Adjustment frequency: 108.020 • Mode: AM		
(Band Center)	8	**For A band** • Adjustment item: BPM • Adjustment frequency: 127.020 • Mode: AM		
-230.0 MHz ~ 375.0 MHz- (Band low)	9	**For A band** • Adjustment item: BPL • Adjustment frequency: 230.020 • Mode: FM		
(Band Center)	10	**For A band** • Adjustment item: BPM • Adjustment frequency: 302.520 • Mode: FM		
(Band High)	11	**For A band** • Adjustment item: BPH • Adjustment frequency: 374.980 • Mode: FM		

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4-5 RECEIVE ADJUSTMENTS (CONTINUED)

Select an adjustment item using [RX→CS]/[DR].
† The output level of the standard signal generator (SSG) is measured at the load end (PD).

ADJUSTMENT		DUT'S CONDITION	OPERATION	VALUE
S-METER -76.0 MHz ~ 108.0MHz-	1	• Adjustment item: SC0 • Adjustment frequency: 87.500 • Mode: WFM	• Connect the SSG to the antenna connector, and set it to: Frequency: "Adjustment frequency" is displayed on the DUT's LCD. Level: 2 dBμ† (–105 dBm) Modulation: OFF	Push [ENTER]. (Automatic adjustment)
	2	• Adjustment item: SC3 • Adjustment frequency: 87.500 • Mode: WFM	• Set the SSG as: Level: 6 dBμ† (–101 dBm)	
	3	• Adjustment item: SCF • Adjustment frequency: 87.500 • Mode: WFM	• Set the SSG as: Level: 17 dBμ† (–90 dBm)	
-108.0 MHz ~ 142.0MHz-	4	**For A band** • Adjustment item: SC0 • Adjustment frequency: 127.020 • Mode: AM	• Set the SSG as: Level: –10 dBμ† (–117 dBm)	
	5	**For A band** • Adjustment item: SC3 • Adjustment frequency: 127.020 • Mode: AM	• Set the SSG as: Level: –6 dBμ† (–113 dBm)	
	6	**For A band** • Adjustment item: SCF • Adjustment frequency: 127.020 • Mode: AM	• Set the SSG as: Level: 5 dBμ† (–102 dBm)	

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4-5 RECEIVE ADJUSTMENTS (CONTINUED)

Select an adjustment item using [RX→CS]/[DR].
† The output level of the standard signal generator (SSG) is measured at the load end (PD).

ADJUSTMENT		DUT'S CONDITION	OPERATION	VALUE
S-METER **-137.0 MHz ~** **174.0MHz-**	1	**For A band** • Adjustment item: SC0 • Adjustment frequency: **Expect for [USA]**: 145.020 **For only [USA]:** 146.020 • Mode: FM	• Connect the SSG to the antenna connector, and set it to: Frequency: "Adjustment frequency" is displayed on the DUT's LCD. Level: –10 dBμ† (–117 dBm) Modulation: OFF	Push [ENTER]. (Automatic adjustment)
	2	**For B band** • Adjustment item: SC0 • Adjustment frequency: **Expect for [USA]**: 145.020 **For only [USA]:** 146.020 • Mode: FM		
	3	**For A band** • Adjustment item: SC3 • Adjustment frequency: **Expect for [USA]**: 145.020 **For only [USA]:** 146.020 • Mode: FM	• Set the SSG as: Level: –6 dBμ† (–113 dBm)	
	4	**For B band** • Adjustment item: SC3 • Adjustment frequency: **Expect for [USA]**: 145.020 **For only [USA]:** 146.020 • Mode: FM		
	5	**For A band** • Adjustment item: SCF • Adjustment frequency: **Expect for [USA]**: 145.020 **For only [USA]:** 146.020 • Mode: FM	• Set the SSG as: Level: 5 dBμ† (–102 dBm)	
	6	**For B band** • Adjustment item: SCF • Adjustment frequency: **Expect for [USA]**: 145.020 **For only [USA]:** 146.020 • Mode: FM		

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4-5 RECEIVE ADJUSTMENTS (CONTINUED)

Select an adjustment item using [RX→CS]/[DR].
† The output level of the standard signal generator (SSG) is measured at the load end (PD).

ADJUSTMENT		DUT'S CONDITION	OPERATION	VALUE
S-METER **-230.0 MHz ~ 375.0MHz-**	1	**For A band** • Adjustment item: S3 • Adjustment frequency: 302.520 • Mode: FM	• Connect the SSG to the antenna connector, and set it to: Frequency: "Adjustment frequency" is displayed on the DUT's LCD. Level: –6 dBμ† (–113 dBm) Modulation: OFF	Push [ENTER]. (Automatic adjustment)
	2	**For A band** • Adjustment item: S3 • Adjustment frequency: 302.520 • Mode: AM		
-375.0 MHz ~ 479.0MHz-	3	**For A band** • Adjustment item: S3 • Adjustment frequency: **Expect for [USA]**: 435.020 **For only [USA]:** 445.020 • Mode: FM		
	4	**For B band** • Adjustment item: S3 • Adjustment frequency: **Expect for [USA]**: 435.020 **For only [USA]:** 445.020 • Mode: FM		

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4-5 RECEIVE ADJUSTMENTS (CONTINUED)

Select an adjustment item using [RX→CS]/[DR].
† The output level of the standard signal generator (SSG) is measured at the load end (PD).

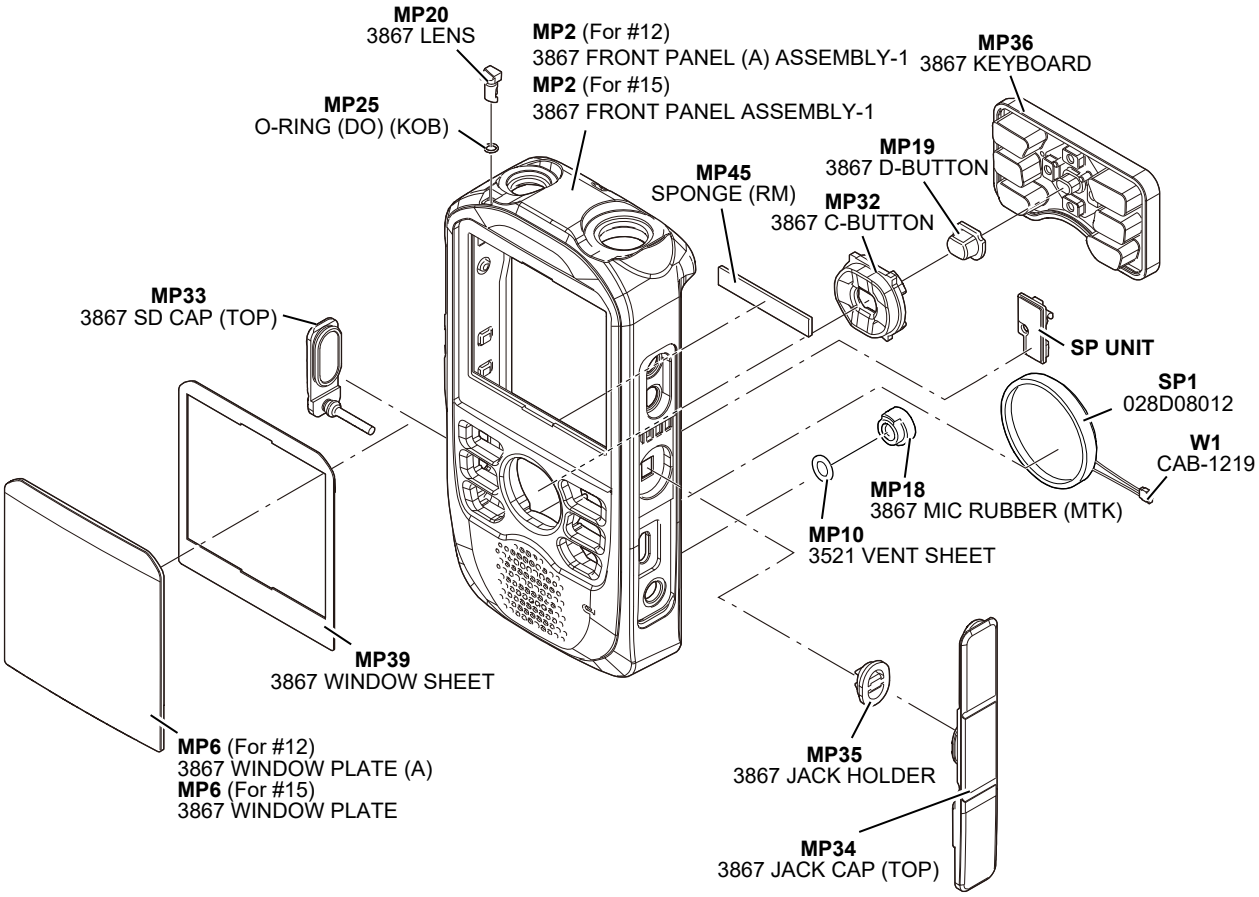
ADJUSTMENT		DUT'S CONDITION	OPERATION	VALUE
SQUELCH THRESH -76.0 MHz ~ 108.0MHz-	1	• Adjustment item: WSQ • Adjustment frequency: 87.500 • Mode: WFM	• Connect the SSG to the antenna connector, and set it to: Frequency: "Adjustment frequency" is displayed on the DUT's LCD. Level: –3 dBμ† (–133 dBm) Deviation : 52.5 kHz	Push [ENTER]. (Automatic adjustment)
-108.0 MHz ~ 142.0MHz-	2	**For A band** • Adjustment item: NSQL • Adjustment frequency: 127.020 • Mode: FM	• Set the SSG as: Level: –26 dBμ† (–133 dBm) Modulation: 1 kHz Deviation : 3.5 kHz	
	3	**For A band** • Adjustment item: NSQL • Adjustment frequency: 127.020 • Mode: AM	• Set the SSG as: Level: –23 dBμ† (–130 dBm)	
-137.0 MHz ~ 174.0MHz-	4	**For A band** • Adjustment item: NSQL • Adjustment frequency: **Expect for [USA]**: 145.020 **For only [USA]:** 146.020 • Mode: FM	• Set the SSG as: Level: –26 dBμ† (–133 dBm)	
	5	**For B band** • Adjustment item: NSQL • Adjustment frequency: **Expect for [USA]**: 145.020 **For only [USA]:** 146.020 • Mode: FM		
-230.0 MHz ~ 375.0MHz-	6	**For A band** • Adjustment item: NSQL • Adjustment frequency: 302.520 • Mode: FM		
	7	**For A band** • Adjustment item: NSQL • Adjustment frequency: 302.520 • Mode: AM	• Set the SSG as: Level: –23 dBμ† (–130 dBm)	
-375.0 MHz ~ 479.0MHz-	8	**For A band** • Adjustment item: NSQL • Adjustment frequency: **Expect for [USA]**: 435.020 **For only [USA]:** 445.020 • Mode: FM	• Set the SSG as: Level: –26 dBμ† (–133 dBm)	
	9	**For B band** • Adjustment item: NSQL • Adjustment frequency: **Expect for [USA]**: 435.020 **For only [USA]:** 445.020 • Mode: FM		

SECTION 5 SPARE PARTS AND UNITS

■ ASSEMBLED FRONT PANEL

Spare unit name	Order Number	Applicable Version	Remarks
C ID-52E #12 F-PANEL	0338671202	#12	–
C ID-52A #15 F-PANEL	0338671502	#15	

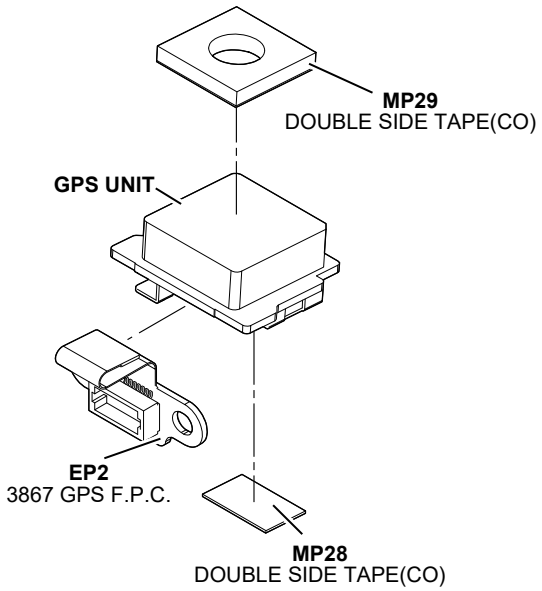
See the illustrations below for the individual parts in the unit.



■ASSEMBLED GPS UNIT

Spare unit name	Order Number	Applicable Version	Remarks
C ID-52E #12 GPS	0338671203	All	–

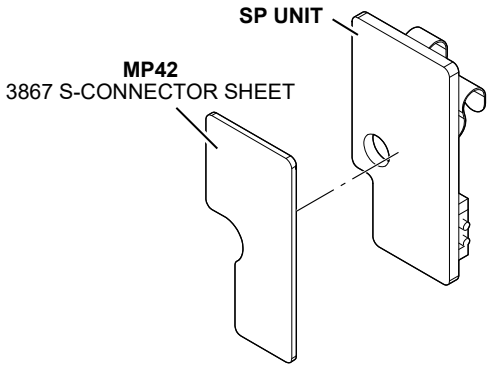
See the illustrations below for the individual parts in the unit.



■ASSEMBLED SP UNIT

Spare unit name	Order Number	Applicable Version	Remarks
C ID-52E #12 SP	0338671204	All	–

See the illustrations below for the individual parts in the unit.

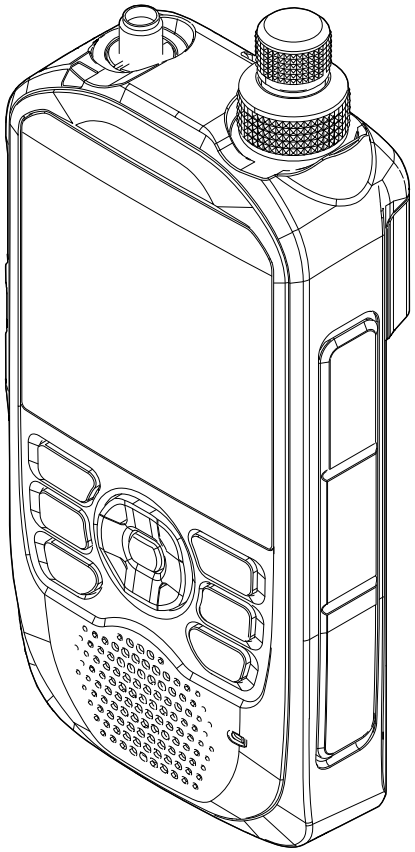


■ ASSEMBLED UNIT SET

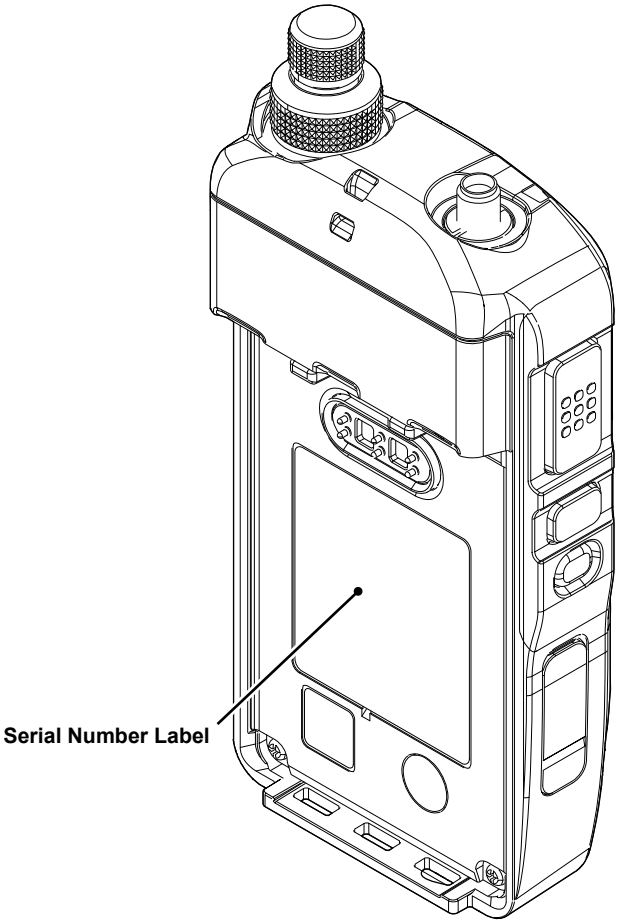
Spare unit name	Order Number	Applicable Version	Remarks
C ID-52E #12 UNITSET	0338671201	#12	–
C ID-52A #15 UNITSET	0338671501	#15	

The spare set is completely assembled and adjusted.
The serial number label is attached.

<Front view>



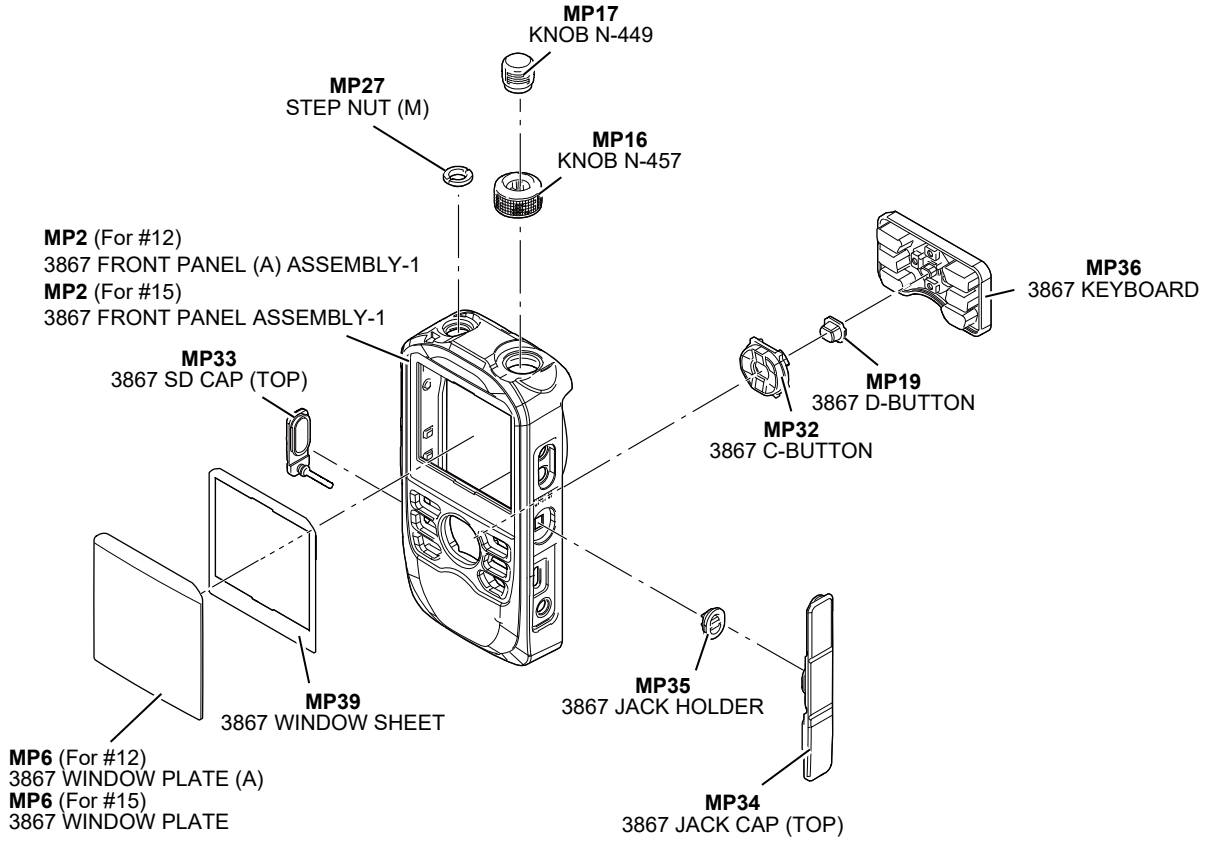
<Rear view>



■ SPARE PARTS INFORMATION

• For the CHASSIS unit (1/2)

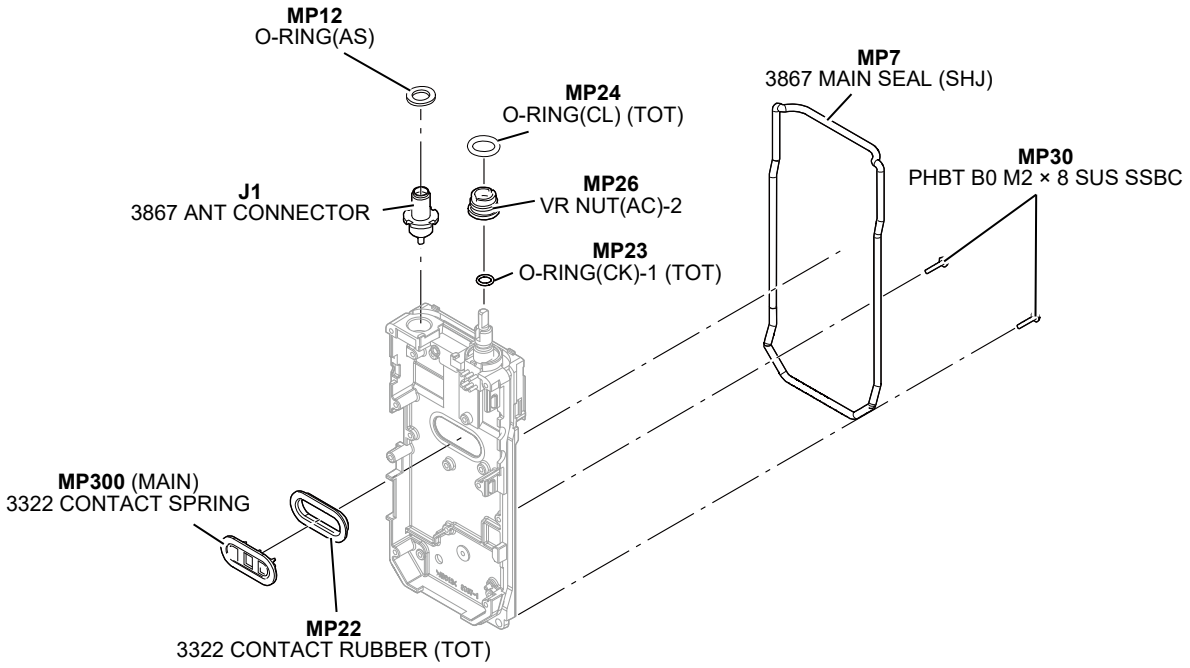
	Reference Number	Parts Name	Order Number	Applicable Versions	Remarks
KNOB	MP16	KNOB N-457	8610016550	All	–
KNOB	MP17	KNOB N-449	8610016330		
SCREW	MP27	STEP NUT (M)	8830003660		
BUTTON	MP19	3867 D-BUTTON	8930102620		
BUTTON	MP32	3867 C-BUTTON	8930102610		
KEY	MP36	3867 KEYBOARD	8930102690		
CAP	MP33	3867 SD CAP (TOP)	8930102700		
CAP	MP34	3867 JACK CAP (TOP)	8930102740		
HOLDER	MP35	3867 JACK HOLDER	8930102750		
SHEET	MP39	3867 WINDOW SHEET	8930105050		
PLATE	MP6	3867 WINDOW PLATE (A)	8310096140	#12	
		3867 WINDOW PLATE	8310095670	#15	
PANEL	MP2	3867 FRONT PANEL (A) ASSEMBLY-1	8210035411	#12	
		3867 FRONT PANEL ASSEMBLY-1	8210034861	#15	



■ SPARE PARTS INFORMATION (CONTINUED)

• For the CHASSIS unit (2/2)

	Reference Number	Parts Name	Order Number	Applicable Versions	Remarks
CONNECTOR	J1	3867 ANT CONNECTOR	6510033430	All	–
SCREW	MP26	VR NUT(AC)-2	8830003672		
SCREW	MP30	PH BT B0 M2×8 SUS SSBC	8810010850		
RUBBER	MP22	3322 CONTACT RUBBER (TOT)	8930083140		
SEAL	MP7	3867 MAIN SEAL (SHJ)	8930102730		
SEAL	MP12	O-RING(AS)	8930058550		
SEAL	MP23	O-RING(CK)-1 (TOT)	8930083881		
SEAL	MP24	O-RING(CL) (TOT)	8930083670		
M.OTHER	MP300	3322 CONTACT SPRING	8950007850		

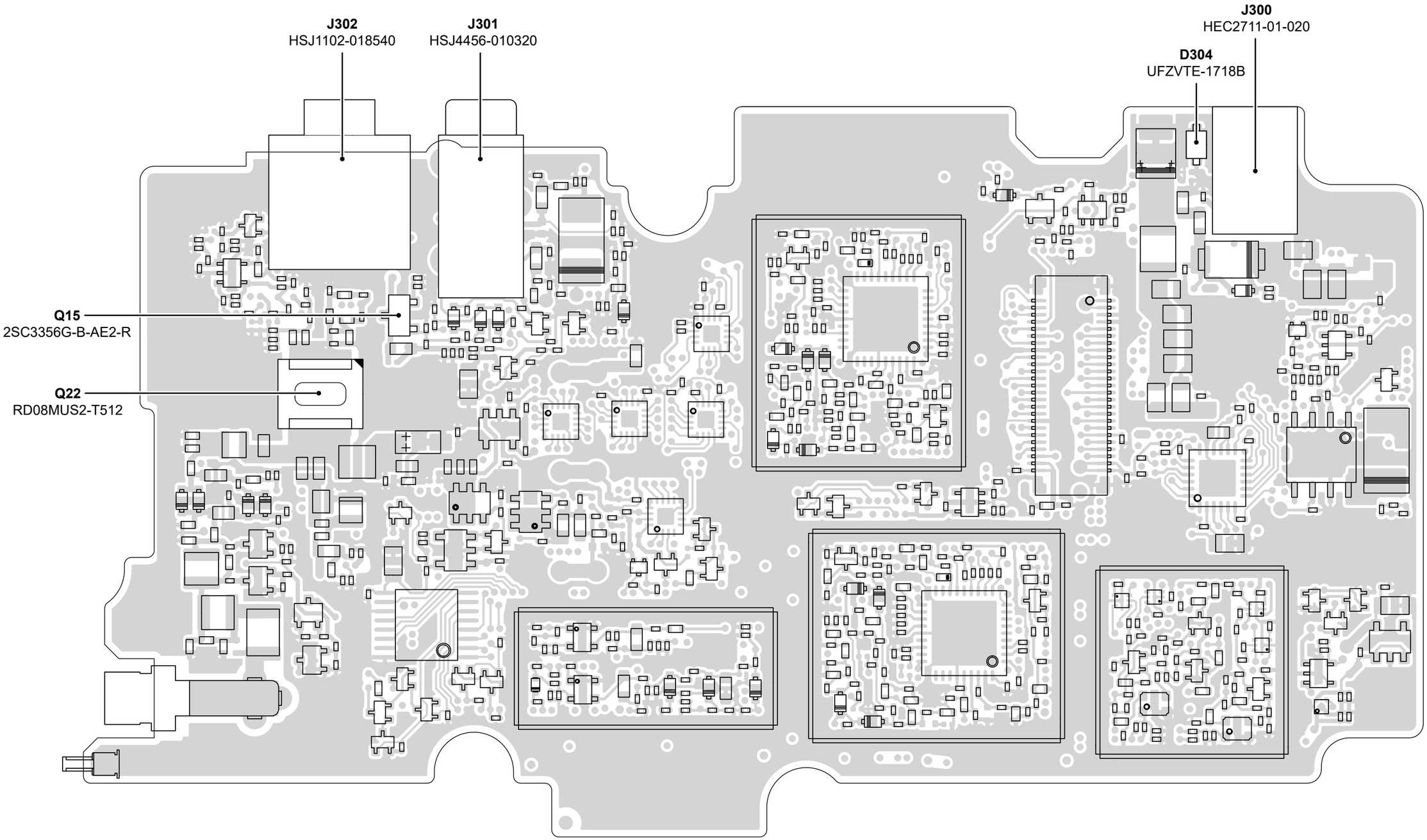


NOTE: The parts that are not listed, see SECTION 6 MECHANICAL PARTS for details.

■SPARE PARTS INFORMATION (CONTINUED)

• For the MAIN unit (Top view)

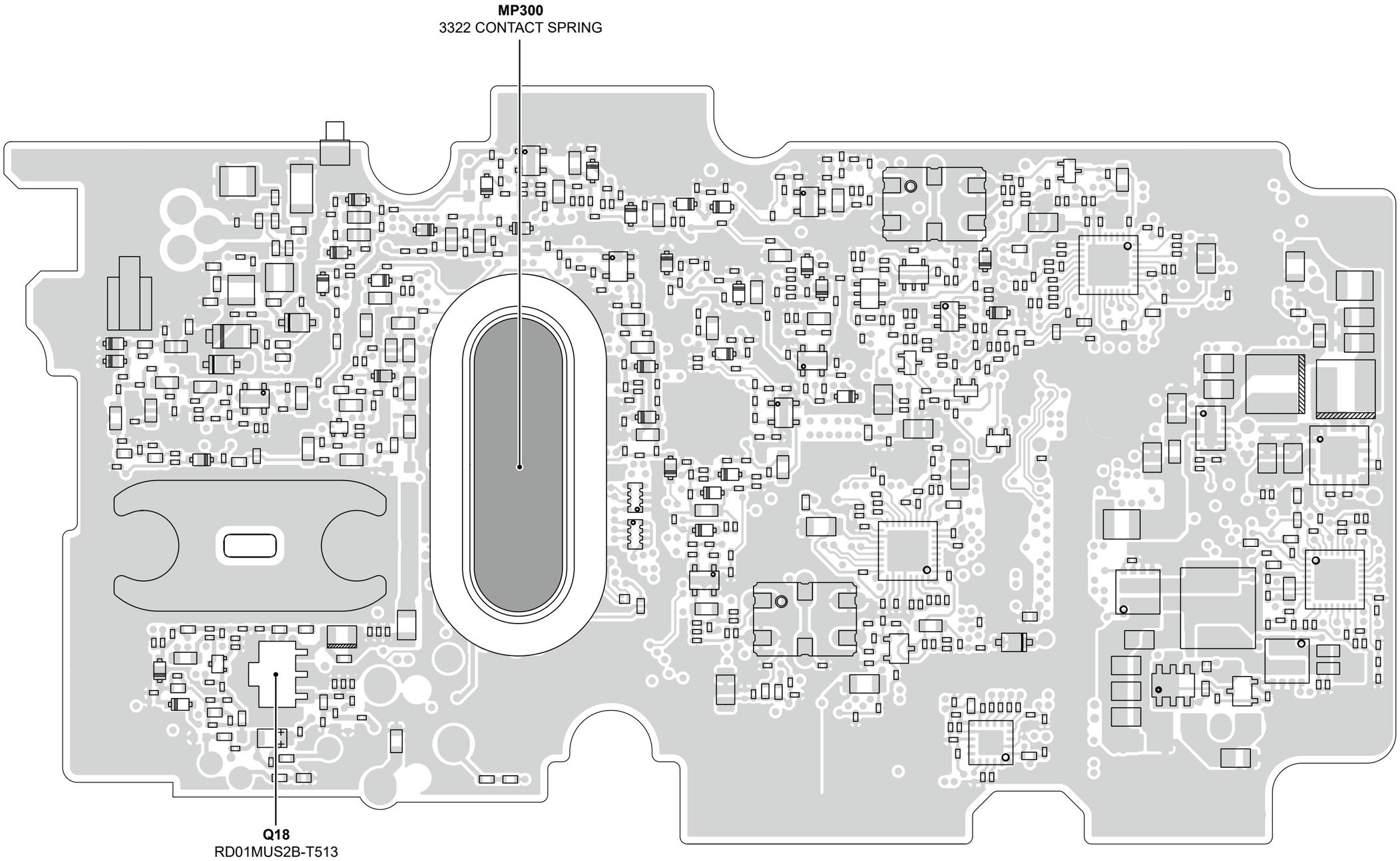
	Reference Number	Parts Name	Order Number	Applicable Versions	Remarks
TRANSISTOR	Q15	2SC3356G-B-AE2-R	1530004560	All	YGR amplifier
FET	Q22	RD08MUS2-T512	1560002460		Power amplifier
DIODE	D304	UFZVTE-1718B	1750004490		Over-voltage protector
CONNECTOR	J300	HEC2711-01-020	6450000870		[DC] jack
CONNECTOR	J301	HSJ4456-010320	6450002530		[SP] jack
CONNECTOR	J302	HSJ1102-018540	6450000131		[MIC] jack



■SPARE PARTS INFORMATION (CONTINUED)

• For the MAIN unit (Bottom view)

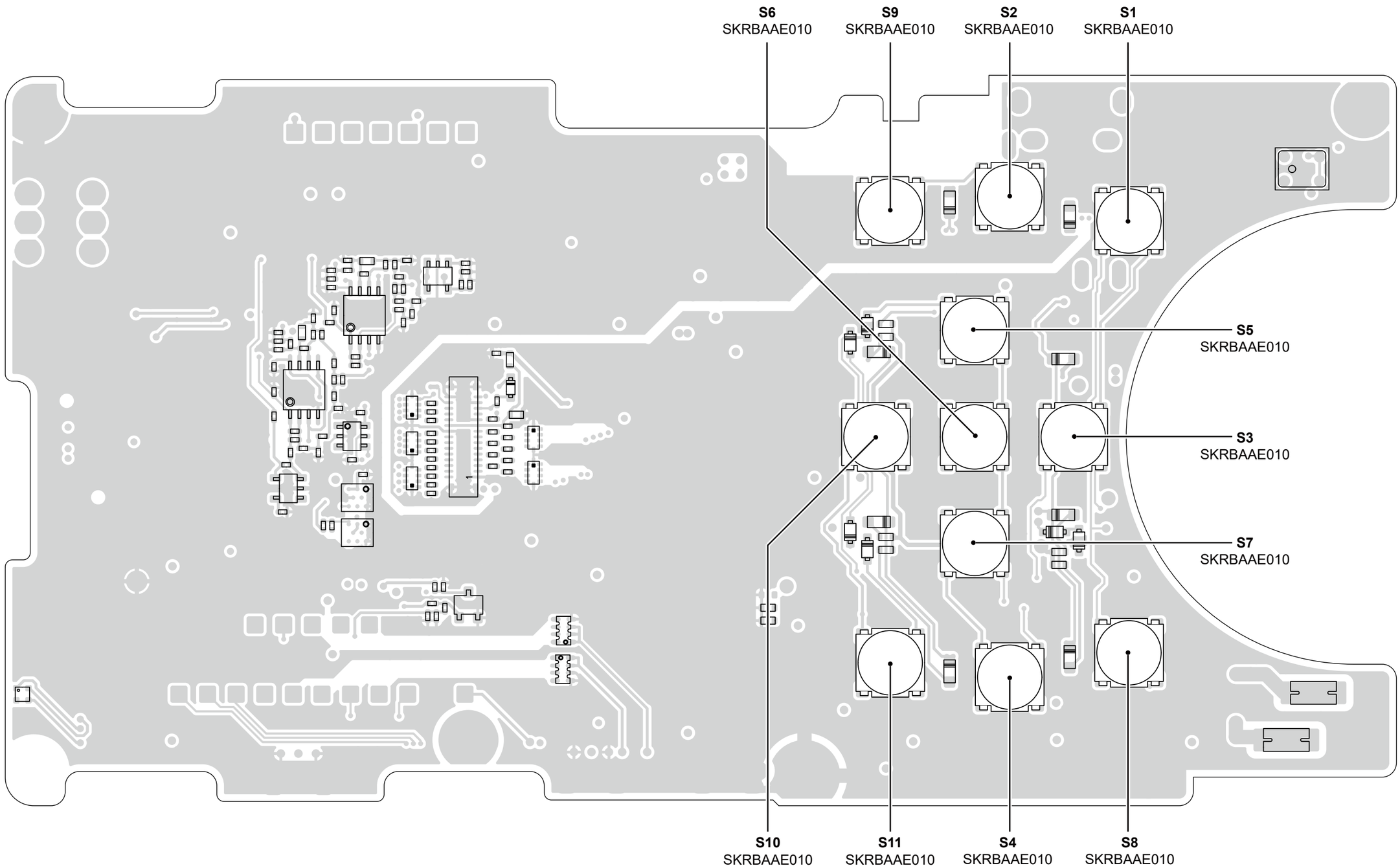
	Reference Number	Parts Name	Order Number	Applicable Versions	Remarks
FET	Q18	RD01MUS2B-T513	1560002420	All	Drive amplifier
CONTACT	MP300	3322 CONTACT SPRING	8950007850		Battery contact



■SPARE PARTS INFORMATION (CONTINUED)

• For the LOGIC unit (Top view)

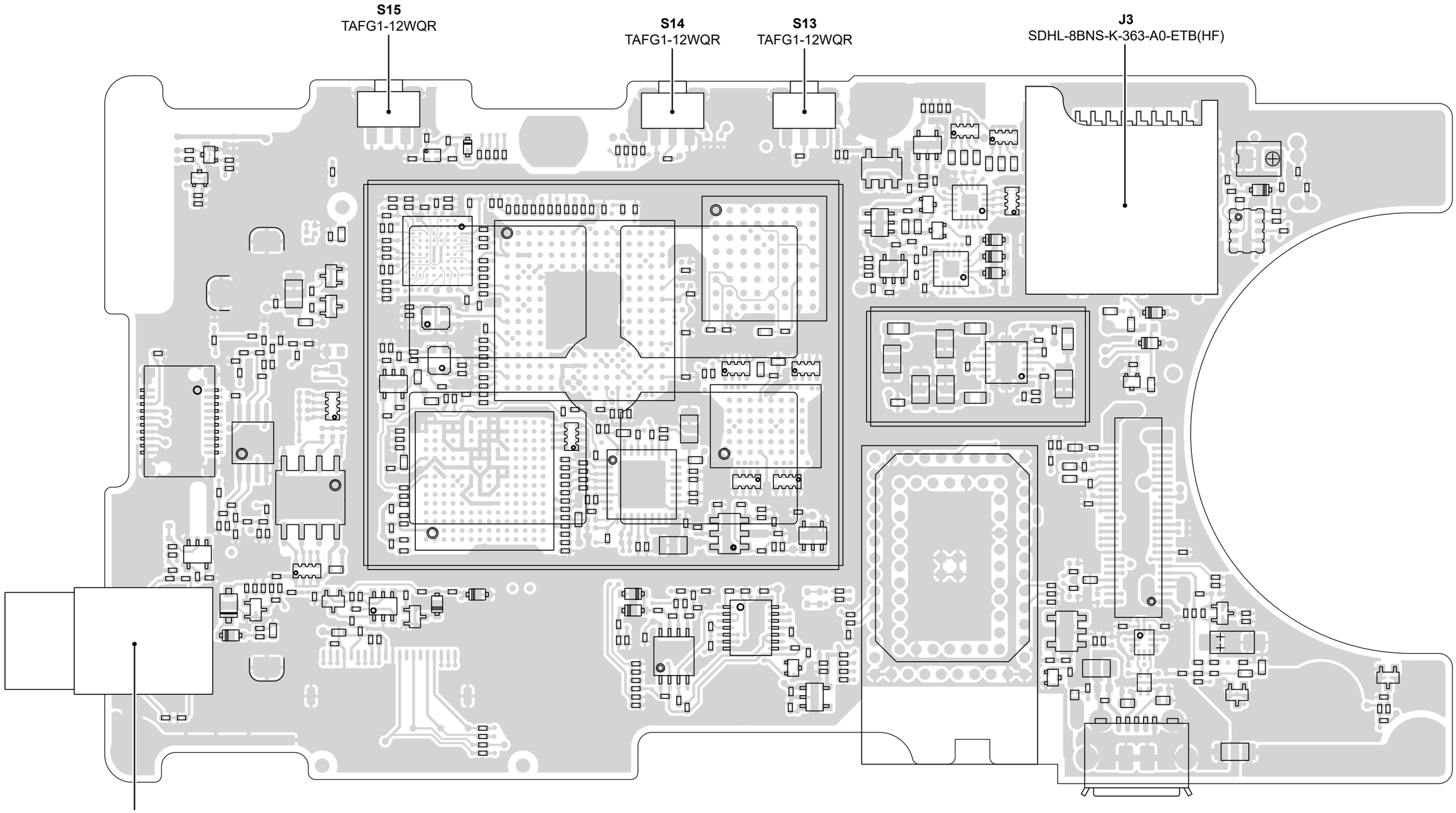
	Reference Number	Parts Name	Order Number	Applicable Versions	Remarks
SWITCH	S1 ~ S11	SKRBAAE010	2260003600	All	–



■SPARE PARTS INFORMATION (CONTINUED)

• For the LOGIC unit (Bottom view)

	Reference Number	Parts Name	Order Number	Applicable Versions	Remarks
ENCODER	S12	F082EN7510W-1+C L20FX6	2250000710	All	[VOL]/[DIAL] encoder
SWITCH	S13 ~ S15	TAFG1-12WQR	2260003810		–
CONNECTOR	J3	SDHL-8BNS-K-363-A0-ETB(HF)	6510028170		[microSD] slot



SECTION 6 MECHANICAL PARTS

[CHASSIS UNIT]

REF NO.	PART NO.	DESCRIPTION		QTY.
J1	6510033430	3867 ANT CONNECTOR		1
SP1	2510002200	028D08012		1
W1	8920001910	CAB-1219		1
MP1	8010025220	3867 CHASSIS		1
MP2	8210035411	3867 FRONT PANEL (A) ASSEMBLY-1	[#12]	1
	8210034861	3867 FRONT PANEL ASSEMBLY-1	[#15]	1
MP3	8210034851	3867 REAR PANEL-1		1
MP6	8310096140	3867 WINDOW PLATE (A)	[#12]	1
	8310095670	3867 WINDOW PLATE	[#15]	1
MP7	8930102730	3867 MAIN SEAL (SHJ)		1
MP10	8930088670	3521 VENT SHEET		1
MP11	8930030920	1301 SHEET		1
MP12	8930058550	O-RING (AS)		1
MP13	8930084870	3384 REAR SHEET		1
MP16	8610016550	KNOB N-457		1
MP17	8610016330	KNOB N-449		1
MP18	8930102720	3867 MIC RUBBER (MTK)		1
MP19	8930102620	3867 D-BUTTON		1
MP20	8930102600	3867 LENS		1
MP22	8930083140	3322 CONTACT RUBBER (TOT)		1
MP23	8930083881	O-RING (CK)-1 (TOT)		1
MP24	8930083670	O-RING (CL) (TOT)		1
MP25	8930105220	O-RING (DO) (KOB)		1
MP26	8830003672	VR NUT (AC)-2		1
MP27	8830003660	STEP NUT (M)		1
MP28	8930105800	DOUBLE SIDE TAPE (CO)		1
MP29	8930083690	3322 GPS SPONGE		1
MP30	8810010850	PHBT B0 M2 × 8 SUS SSBC		2
MP32	8930102610	3867 C-BUTTON		1
MP33	8930102700	3867 SD CAP (TOP)		1
MP34	8930102740	3867 JACK CAP (TOP)		1
MP35	8930102750	3867 JACK HOLDER		1
MP36	8930102690	3867 KEYBOARD		1
MP39	8930105050	3867 WINDOW SHEET		1
MP40	8930105230	3867 LCD HOLDER		1
MP41	8930105270	DOUBLE SIDE TAPE (CM)		2
MP42	8930105160	3867 S-CONNECTOR SHEET		1
MP43	8810011050	BT No. O M2 × 3 NI-ZC3		19
MP45	8930105280	SPONGE (RM)		1
MP46	8930083180	SPONGE (LG)		2
MP47	8930105820	3867 FERRITE SHEET		1
MP48	8930105790	FERRITE SHEET (CA)		1
MP49	8930105810	INSULATION SHEET (PJ)		2
MP50	8930050473	SHIELD SPONGE (A)-3		2
MP52	8930109300	FERRITE SHEET (CI)	[#12]	1
	8930106050	INSULATION SHEET (PK)	[#15]	1
MP54	8930106040	SPONGE (RU)		1

[MAIN UNIT]

REF NO.	PART NO.	DESCRIPTION		QTY.
J300	6450000870	HEC2711-01-020		1
J301	6450002530	HSJ4456-010320		1
J302	6450000131	HSJ1102-018540		1
J303*	6510033110	50RF-JMCS-G-1-TF (N) (LF) (SN)		1
MP1*	8410003240	3867 PA HEATSINK		1
MP2*	8930102540	3867 ANT SPRING		1
MP3*	8510022970	3867 RF CASE		1
MP4*	8510022680	OG-363050G		1
MP5*	8930105310	OGSC-T-302020		1
MP6*	8510021210	OGSC-402030		1
MP7	8930109290	SHIELD SPONGE (FH)	[#12]	1
	8930085730	SHIELD SPONGE (CY)	[#15]	1
MP8	8930099290	SHIELD TAPE (AE)	Only [#12]	1
MP200*	8510022930	3867 SHIELD CASE		1
MP201*	8510022940	3867 VCO CASE		1
MP202*	8510022940	3867 VCO CASE		1
MP300	8950007850	3322 CONTACT SPRING		1

[LOGIC UNIT]

REF NO.	PART NO.	DESCRIPTION	QTY.
J1*	6510033130	30R-JAKK-GSAN-1-TF (HF)	1
J3*	6510028170	SDHL-8BNS-K-363-A0-ETB (HF)	1
J5*	6510031130	50P5.0-JMCS-G-TF (N)	1
J7*	6510030041	CSS5005-4R11FSZ	1
J8*	6510024930	20RF-JMCSG1BTF (N) (LF) (SN)	1
DS12	5030004711	M9-2323TRW-1	1
MC2*	7700003280	SPU0410HR5H-PB-7	1
S1*	2260003600	SKRBAAE010	1
S2*	2260003600	SKRBAAE010	1
S3*	2260003600	SKRBAAE010	1
S4*	2260003600	SKRBAAE010	1
S5*	2260003600	SKRBAAE010	1
S6*	2260003600	SKRBAAE010	1
S7*	2260003600	SKRBAAE010	1
S8*	2260003600	SKRBAAE010	1
S9*	2260003600	SKRBAAE010	1
S10*	2260003600	SKRBAAE010	1
S11*	2260003600	SKRBAAE010	1
S12	2250000710	F082EN7510W-1	1
S13*	2260003810	TAFG1-12WQR	1
S14*	2260003810	TAFG1-12WQR	1
S15*	2260003810	TAFG1-12WQR	1
EP312*	6910028500	OGP-3216	1
EP313*	6910028500	OGP-3216	1
MP1*	8510022910	3867 CPU CASE	1
MP2*	8510022920	3867 DC-DC CASE	1
MP3	8510023350	3867 CPU COVER	1
MP4	8930105730	3867 LOGIC SHIELD	1
MP5	8930050473	SHIELD SPONGE (A)-3	1
MP6	8930076110	INSULATION SHEET (ME)	1

[GPS UNIT]

REF NO.	PART NO.	DESCRIPTION	QTY.
J3*	6510032540	20542-010E-01	1
EP1*	3310005440	PA012LQ0004	1
EP2	8940000250	3867 GPS F.P.C.	1
MP1*	8510023080	3867 GPS PLATE	1

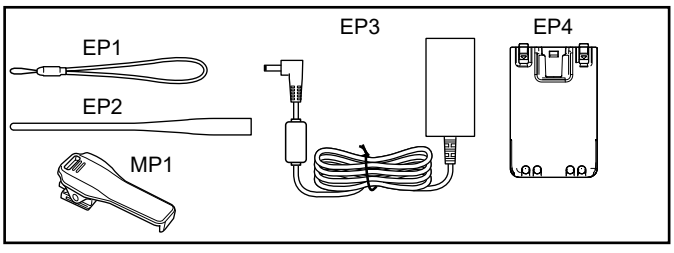
[SP UNIT]

REF NO.	PART NO.	DESCRIPTION	QTY.
J1*	6510031400	BM02B-ACHSS-GAN-ETF (LF) (SN)	1
MP1*	8930102630	SG2030037B	1
MP2*	8930102630	SG2030037B	1

[SUPPLIED ACCESSORIES]

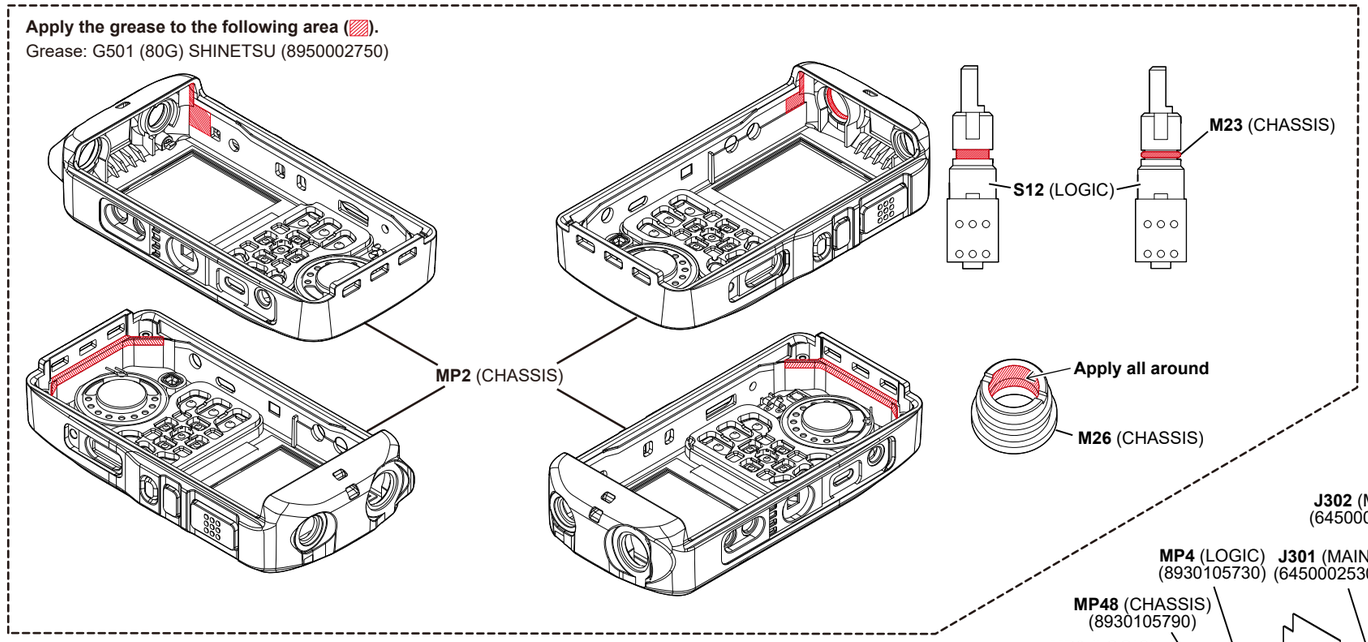
REF NO.	PART NO.	DESCRIPTION		QTY.
EP1	6910028081	BLACK NYLON STRAP-1		1
EP2	3310002150	FA-S270C		1
EP3	–	BC-167SD†	[#12]	1
	–	BC-167SA†	[#15]	1
EP4	–	BP-272†		1
MP1	–	MB-127†		1

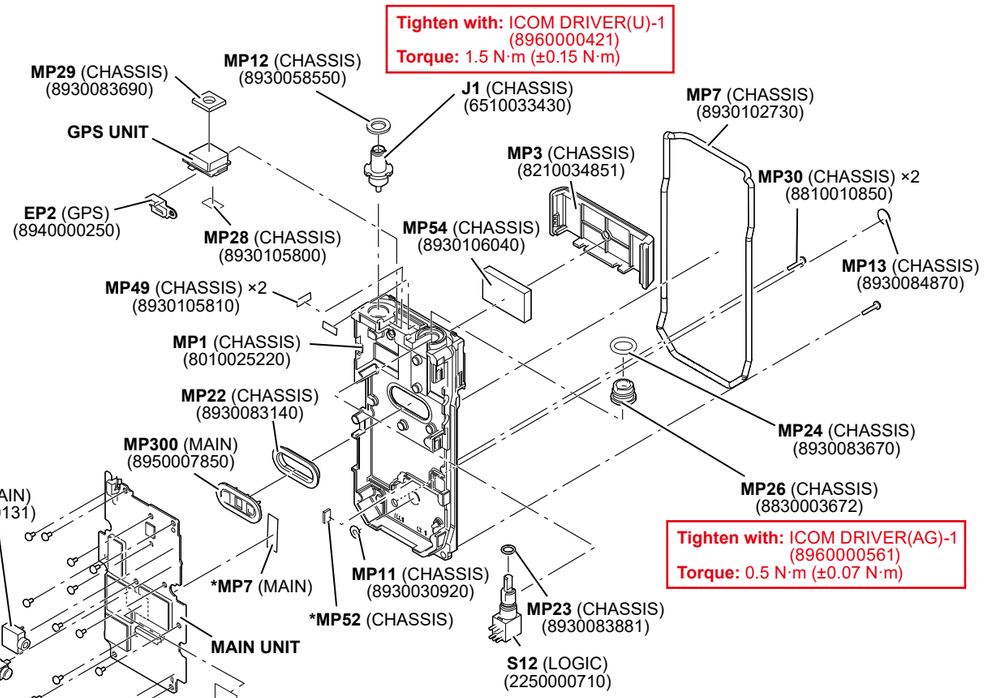
†: Sold as an option.



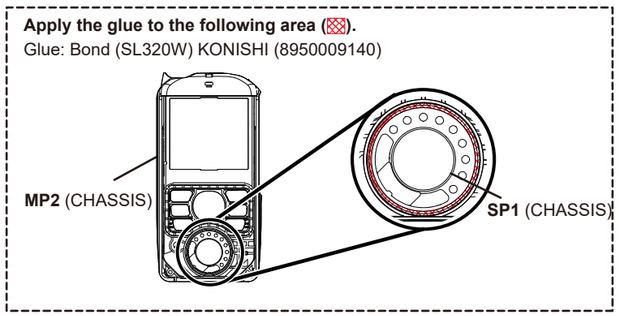
*: Refer to “BOARD LAYOUTS” for the location.
**: Refer to “GENERAL WIRING” for the connection
Screw abbreviations A, B0, BT: Self-tapping PH: Pan head BS: Brass NI: Nickel ZU: Zinc SUS: Stainless

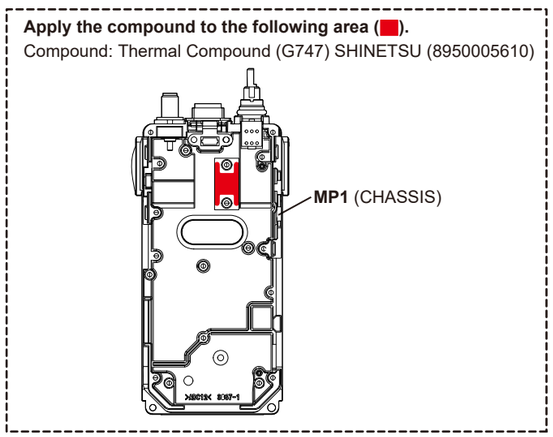
• Exploded view





Unless otherwise noted, the tighten to torque is 0.3 N·m (±0.05 N·m).

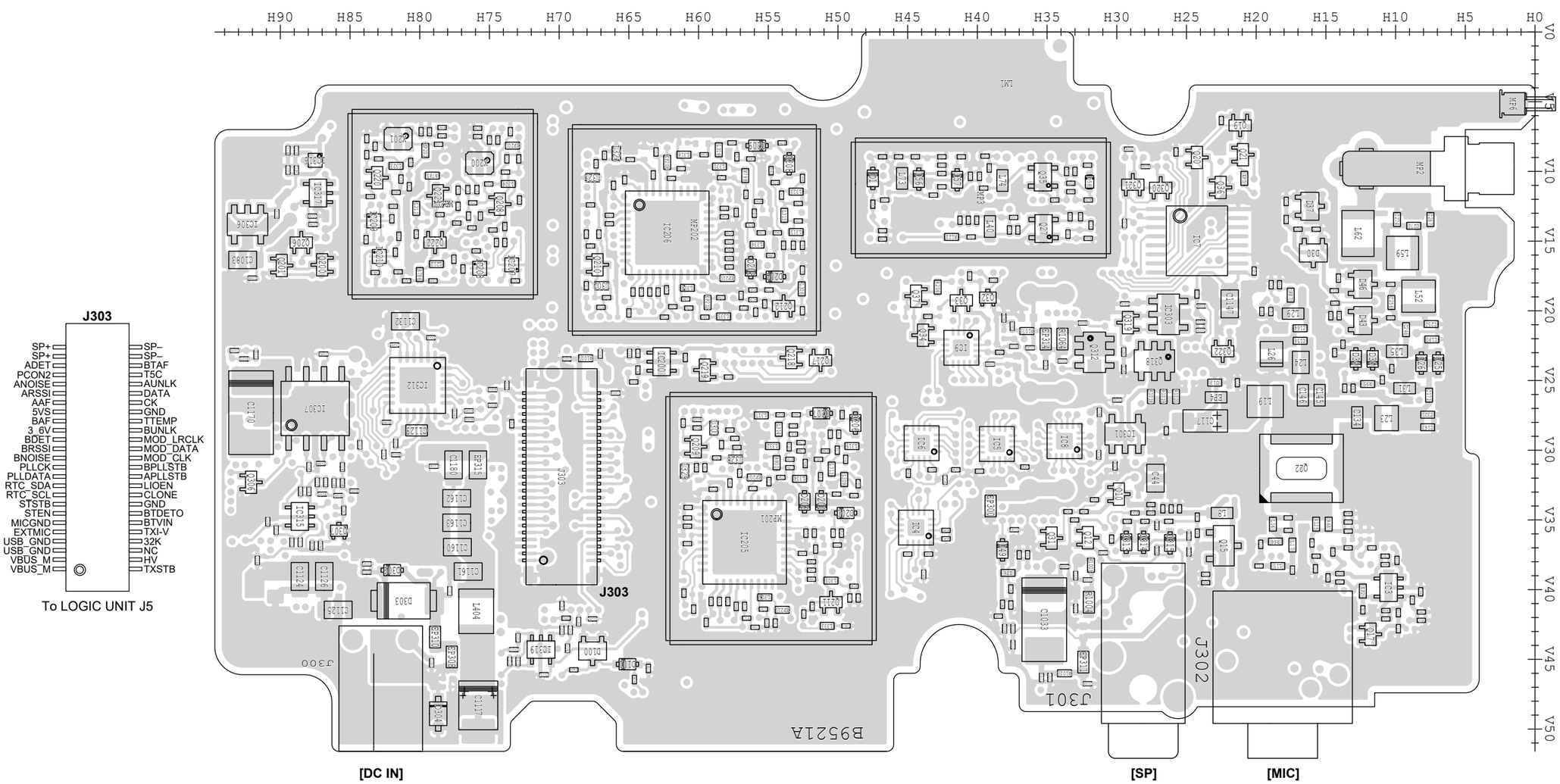




*Refer to the Mechanical Parts list.

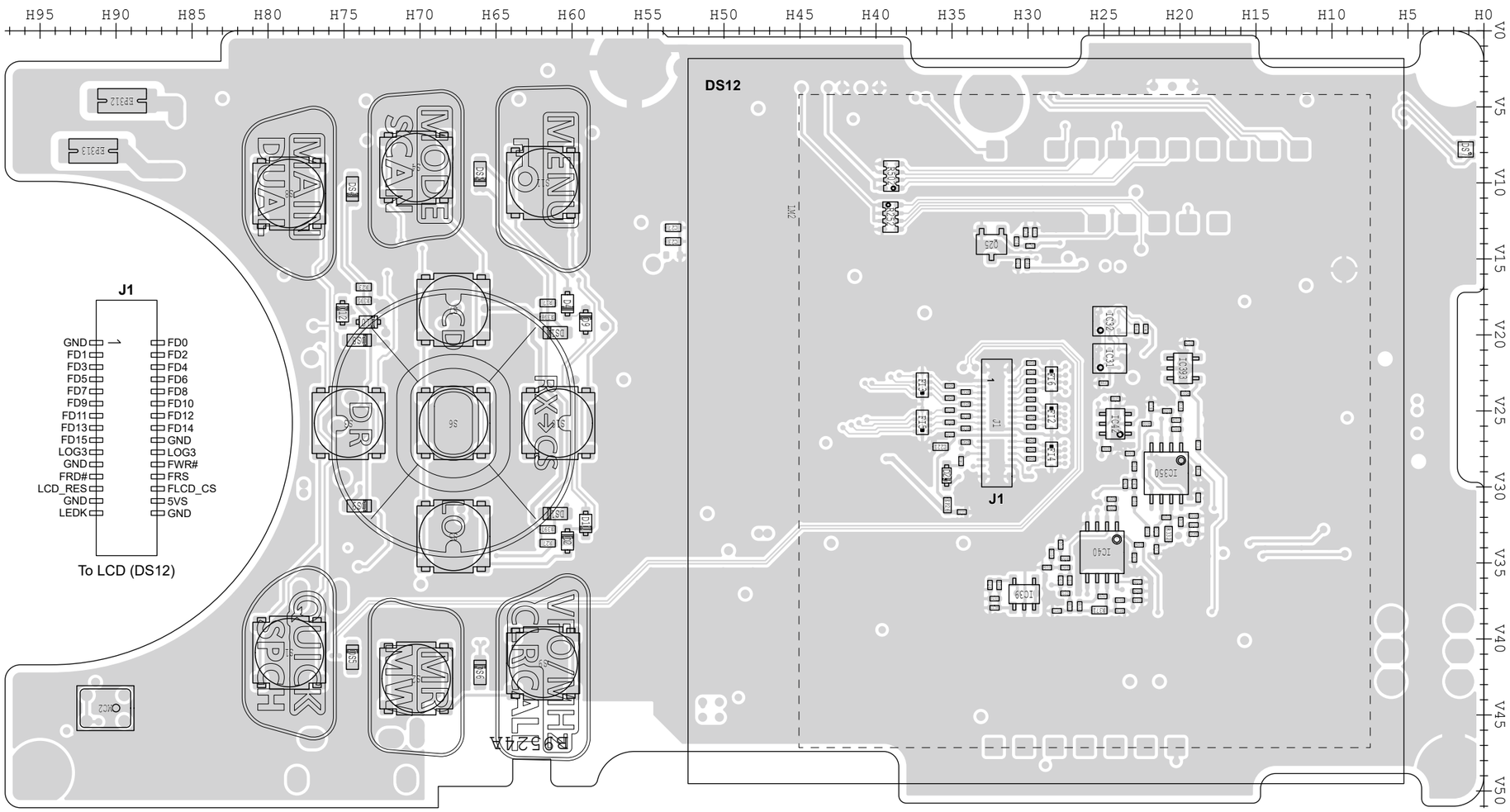
SECTION 7 BOARD LAYOUT

• **MAIN UNIT (B9521A: Top view)**



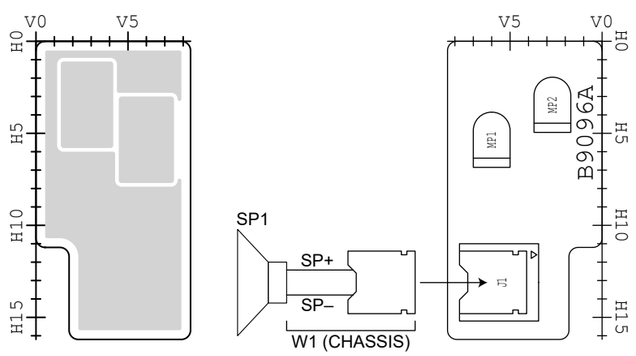
• **MAIN UNIT (B9521A: Bottom view)**

• **LOGIC UNIT (B9524A: Top view)**

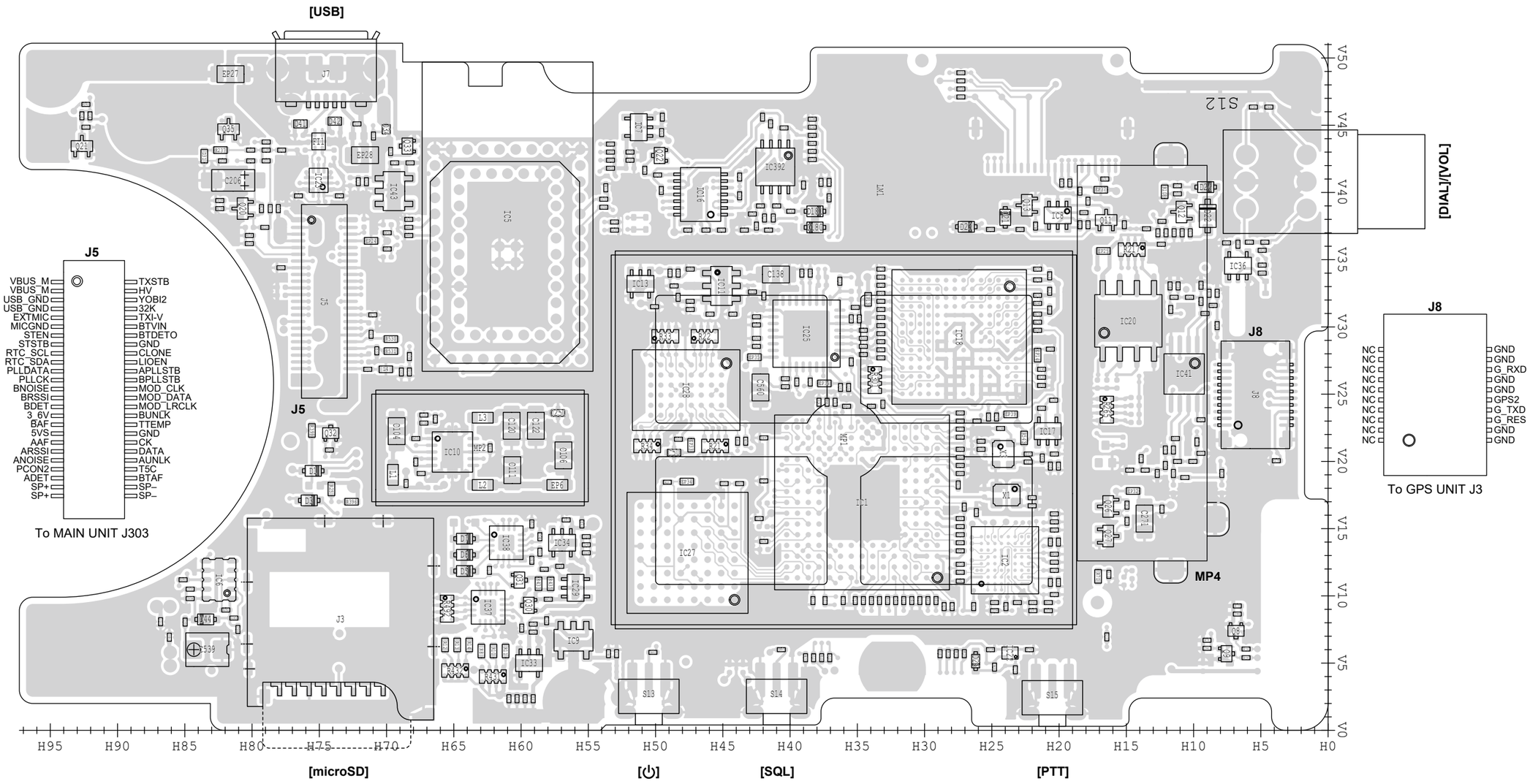


• **SP UNIT (B9096A)**

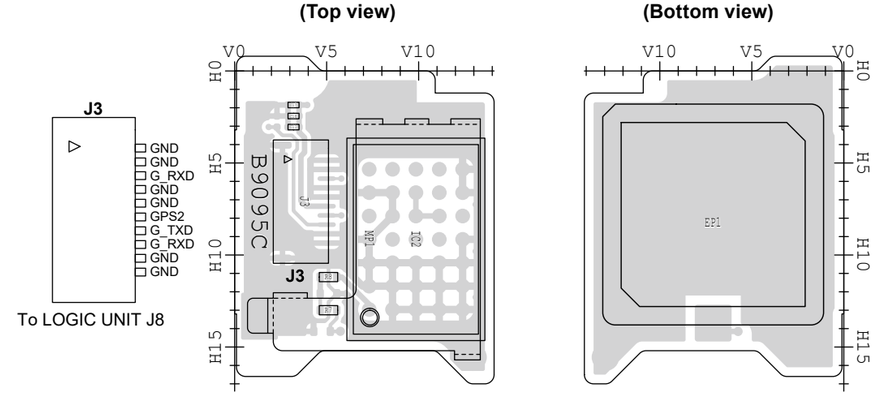
(Top view) **(Bottom view)**



• **LOGIC UNIT (B9524A: Bottom view)**

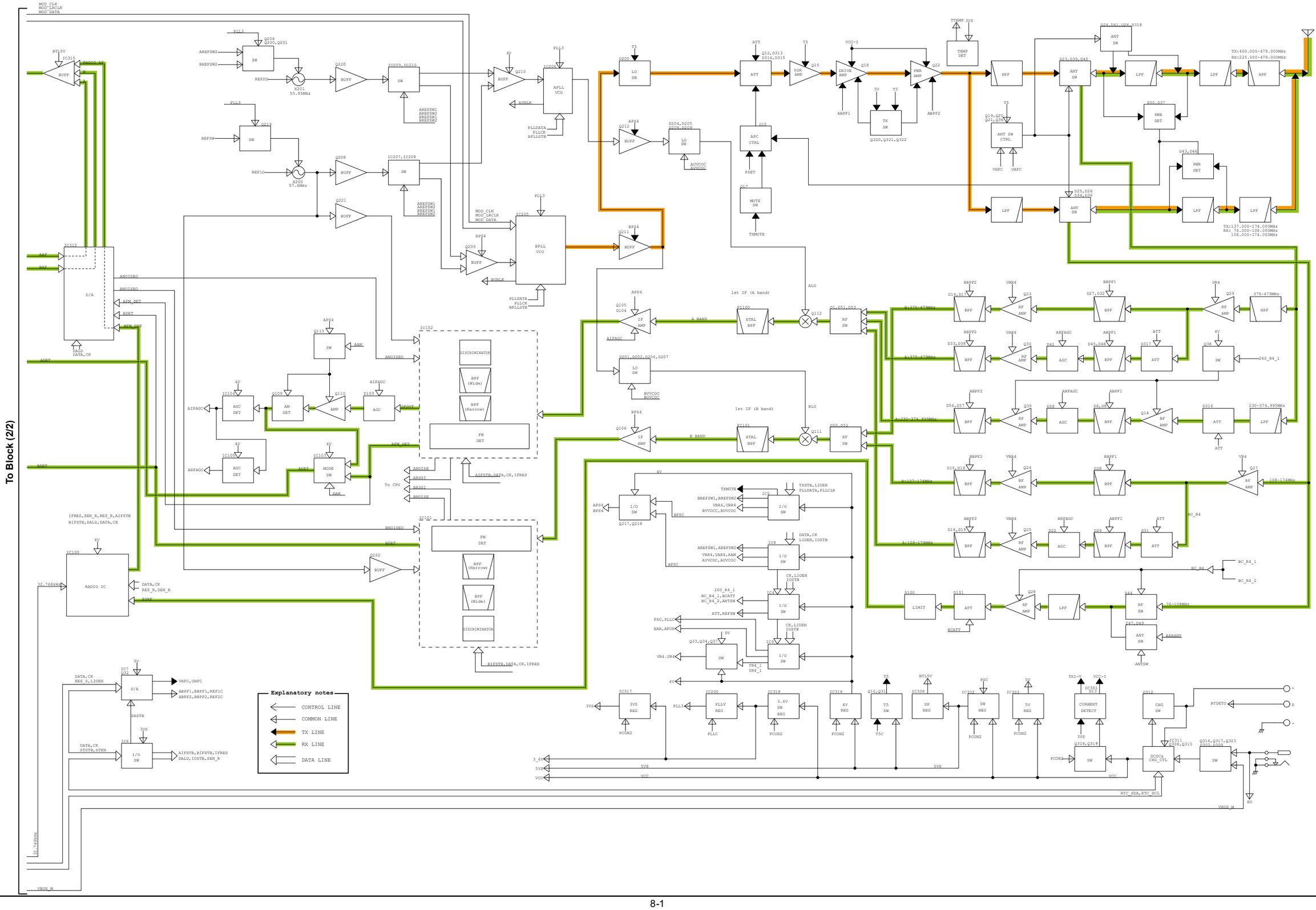


• **GPS UNIT (B9095C)**

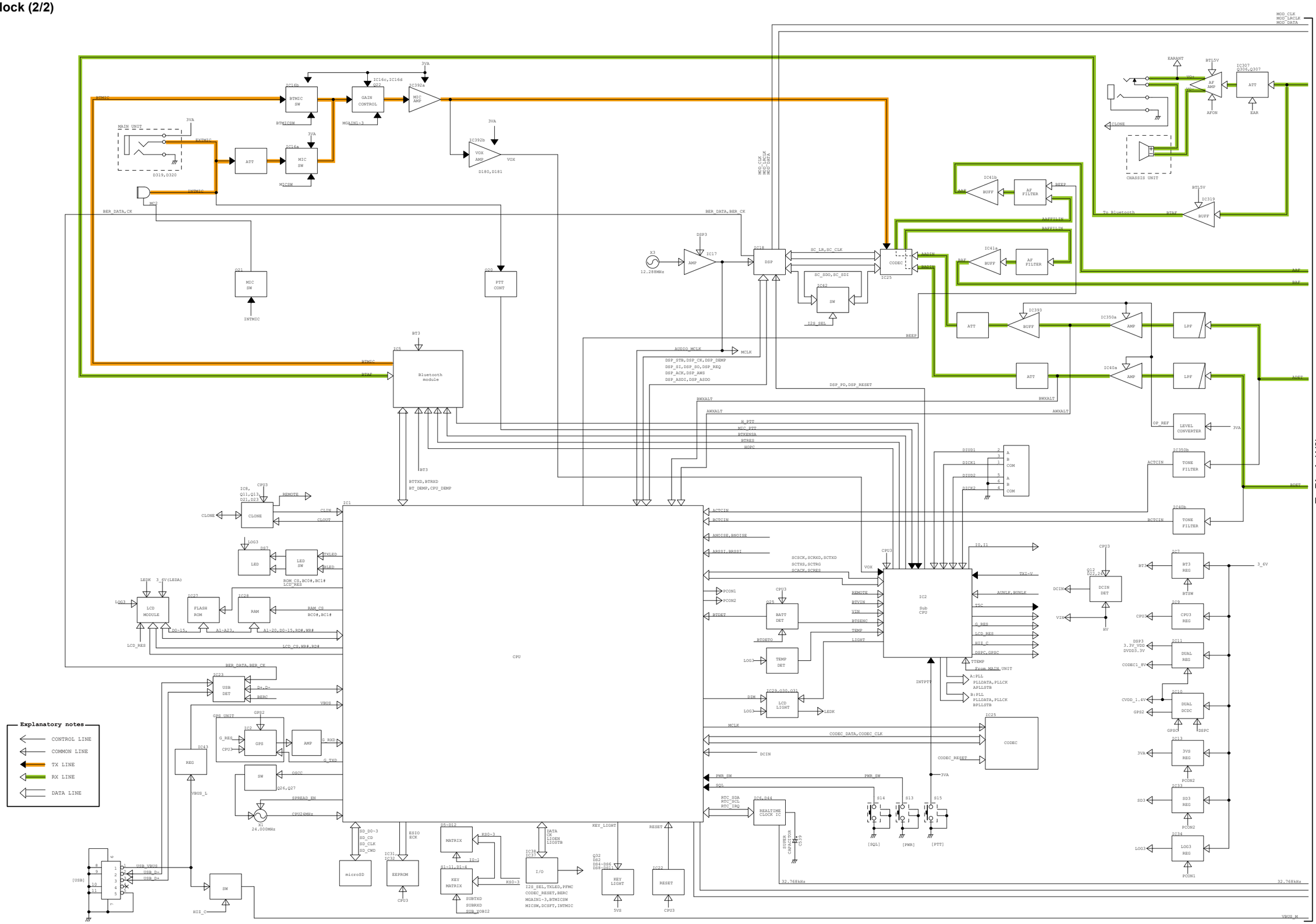


SECTION 8 BLOCK DIAGRAM

- **Block (1/2)**

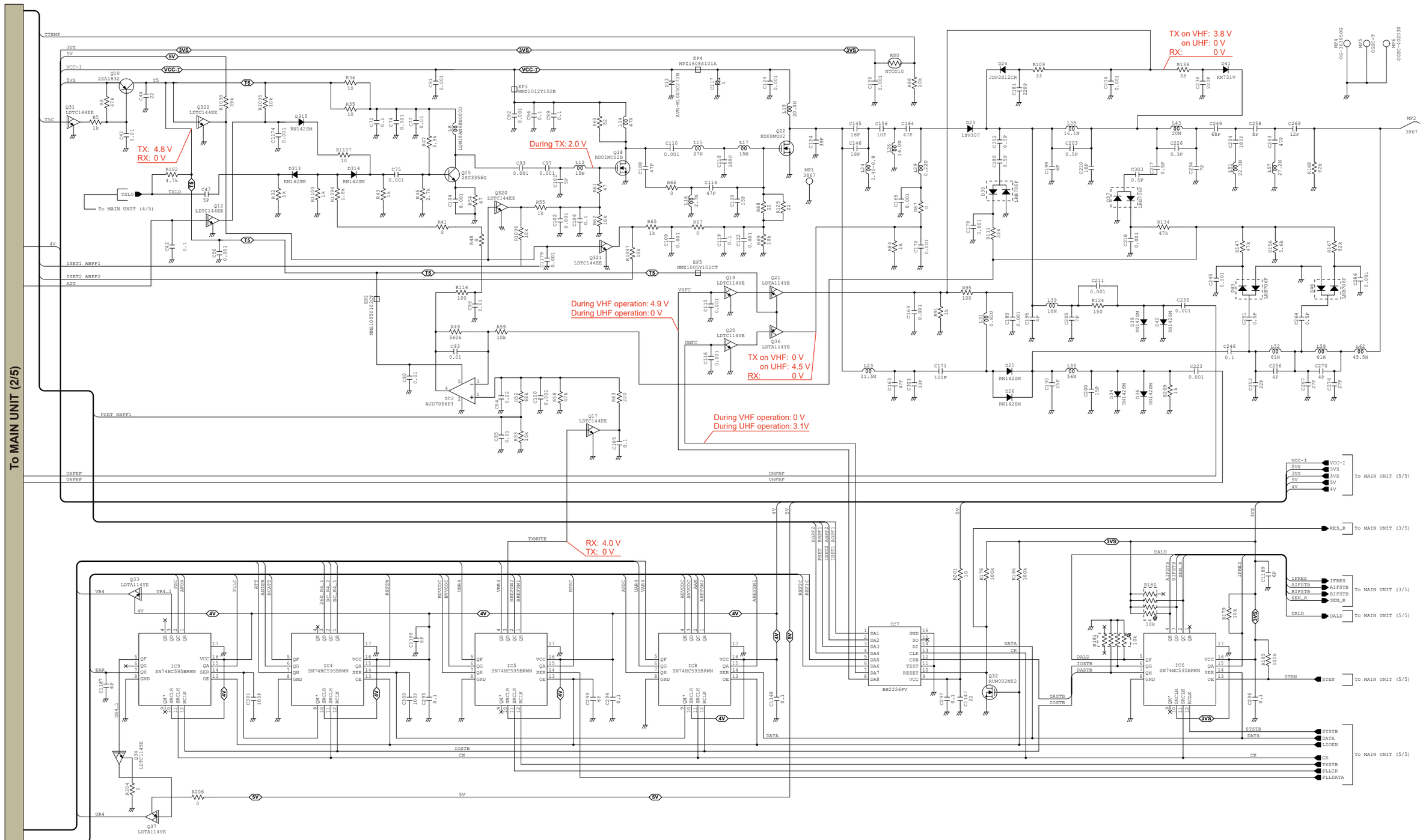


• **Block (2/2)**


MOD_CLK
MOD_LRCLK
MOD_DATA
EARANT
BTL5V
IC307
Q306,Q307
AF AMP
ATT
AFON
EAR
VOL
CLONE
CHASSIS UNIT
IC41b
BUFF
AF FILTER
BEEP
AAFFILIN
To Bluetooth
BTAF
IC319
BUFF
BTL5V
RTMIC
3VA
IC16b
RTMIC SW
IC16c,IC16d
Q22
GAIN CONTROL
IC392a
MIC AMP
BTMICSW
MGAIN1-3
MAIN UNIT
EXTMIC
D319,D320
ATT
IC16a
MIC SW
MICSW
INTMIC
MIC
IC392b
VOX AMP
VOX
D180,D181
BER_DATA,BER_CK
Q21
MIC SW
INTMIC
Q20
PTT CONT
DSP3
X3
12.288MHz
AMP
IC17
IC18
DSP
SC_LR,SC_CLK
SC_SDO,SC_SDI
IC42
SW
I2S_SEL
CODEC
IC25
AADIN
ABDIN
IC41a
BUFF
AF FILTER
AAF
ABF
IC393
BUFF
ATT
IC350a
AMP
LPF
BEEP
AUDIO_MCLK
MCLK
DSP_STB,DSP_CK,DSP_DEMP
DSP_SI,DSP_SO,DSP_REQ
DSP_ACK,DSP_ANS
DSP_ASDI,DSP_ASDO
DSP_PD,DSP_RESET
BWXALT
AWXALT
ATT
IC40a
AMP
LPF
ASET
QP_REF
LEVEL CONVERTER
3VA
BT3
Bluetooth module
BTRXD
BTAF
BTTXD,BTRXD
BT_DEMP,CPU_DEMP
H_PTT
MIC_PTT
BTKEN2A
BTRES
RSTC
DIUD1
DICK1
DIUD2
DICK2
A
B
COM
IC350b
TONE FILTER
ACTCIN
BSET
IC40b
TONE FILTER
BCTCIN
CPU3
IC8,
Q11,Q13
D21,D23
REMOTE
CLONE
CLIN
CLOUT
IC1
CPU
ACTCIN
BCTCIN
ANOISE,BNOISE
ARSSI,BRSSI
SCSCK,SCRXD,SCTXD
SCTXS,SCTRG
SCACK,SCRES
VOX
IO,I1
TXI-V
AUNLK,BUNLK
TSC
G_RES
LCD_RES
HIZ_C
DSPC,GPSC
TTEMP
From MAIN UNIT
A:PLL
PLLDATA,PLLCK
APLLSTB
B:PLL
PLLDATA,PLLCK
BPLLSTB
IC2
Sub CPU
PCON1
PCON2
BTDET
Q25
BATT DET
BTDETC
TEMP DET
LOG3
REMOTE
BTVIN
VIN
BTSENC
TEMP
LIGHT
DIM
LCD LIGHT
LEDK
IC29,Q30,Q31
INTPTT
MCLK
CODEC_DATA,CODEC_CLK
DCIN
CODEC_RESET
IC25
CODEC
PWR_SW
SQL
RTC_SDA
RTC_SCL
RTC_IRQ
IC6,R44
REALTIME CLOCK IC
SUPER CAPACITOR
C335
32.768kHz
S14
S13
S15
[SQL]
[PWR]
[PTT]
CPU3
Q12
D22,23
DCIN DET
DCIN
VIN
RV
IC7
BT3 REG
BTSW
3_6V
IC9
CPU3 REG
IC11
DUAL REG
IC12
DUAL DCDC
IC13
3VS REG
IC33
SD3 REG
IC34
LOG3 REG
DSP3
3.3V_VDD
DVDD3.3V
CODEC1_8V
CVDD_1.4V
GPS2
GPSC
DSPC
PCON2
PCON1
3VA
SD3
LOG3
CPU3
IC8,
Q11,Q13
D21,D23
REMOTE
CLONE
CLIN
CLOUT
LOG3
D87
LED
LED SW
BTXLED
BLED
ROM_CS,BC0#,BC1#
LCD_RES
LEDK
3_6V(LEDA)
LOG3
LCD MODULE
IC27
FLASH ROM
IC28
RAM
RAM_CS
BC0#,BC1#
D0-15,
A1-A23,
A1-20,D0-15,RD#,WR#
LCD_RES
LCD_CS,WR#,RD#
BER_DATA,BER_CK
IC23
USB DET
D+,D-
RESC
VBUS
GPS_UNIT
GPS2
IC2
GPS
AMP
G_RXD
G_TXD
G_RES
CPU3
IC43
REG
VBUS_L
SW
OSCC
Q26,Q27
SPREAD_EN
CPU24MHz
X1
24.000MHz
SD_D0-3
SD_CD
SD_CLK
SD_CMD
microSD
ESIO
ECK
IC31,
IC32
EEPROM
CPU3
D5-D12
MATRIX
KS0-3
IO-1
S1-11,D1-4
KEY MATRIX
SUBTXD
SUBRXD
SUB_XOBI2
DATA
CK
LIOEN
LIOSTB
IC38
IC37
I/O
I2S_SEL,TXLED,PFMC
CODEC_RESET,RESC
MGAIN1-3,BTMICSW
MICSW,DCSFT,INTMIC
KEY_LIGHT
Q32
DS2
DB4-DS6
DS8-DS11
KEY LIGHT
5VS
RESET
IC22
RESET
CPU3
USB_VBUS
USB_D-
USB_D+
[USB]
HIZ_C
VBUS_M
Explanatory notes
CONTROL LINE
COMMON LINE
TX LINE
RX LINE
DATA LINE
To Block (1/2)

SECTION 9 VOLTAGE DIAGRAM

• MAIN UNIT (1/5)



• MAIN UNIT (2/5)

B-Band's RX frequency
375 MHz ~479 MHz: 3.8 V

B-Band's RX frequency
430 MHz ~440 MHz: 2.4 V

375MHz~479MHz

RX frequency
375 MHz ~479 MHz: 4.9 V

RX frequency
375 MHz ~479 MHz: 4.9 V

A-Band's RX frequency
375 MHz ~479 MHz: 3.8 V

A-Band's RX frequency
430 MHz ~440 MHz: 2.4 V

RX frequency
230 MHz ~374.995 MHz: 4.0 V

230MHz~374.995MHz

A Band RX220 (230-375)

B-Band's RX frequency
108 MHz ~174 MHz: 3.9 V

RX frequency
108 MHz ~174 MHz: 4.0 V

108MHz~174MHz

A-Band's RX frequency
108 MHz ~174 MHz: 3.9 V

RX frequency
76 MHz ~108 MHz: 3.9 V
Other frequencies: 0 V

76MHz~108MHz

To MAIN UNIT (1/5)

• **MAIN UNIT (3/5)**

To MAIN UNIT (4/5)

1st IF

IF AMP

57.15MHz

58.05MHz

3.8 V

3.2 V

1.5 V

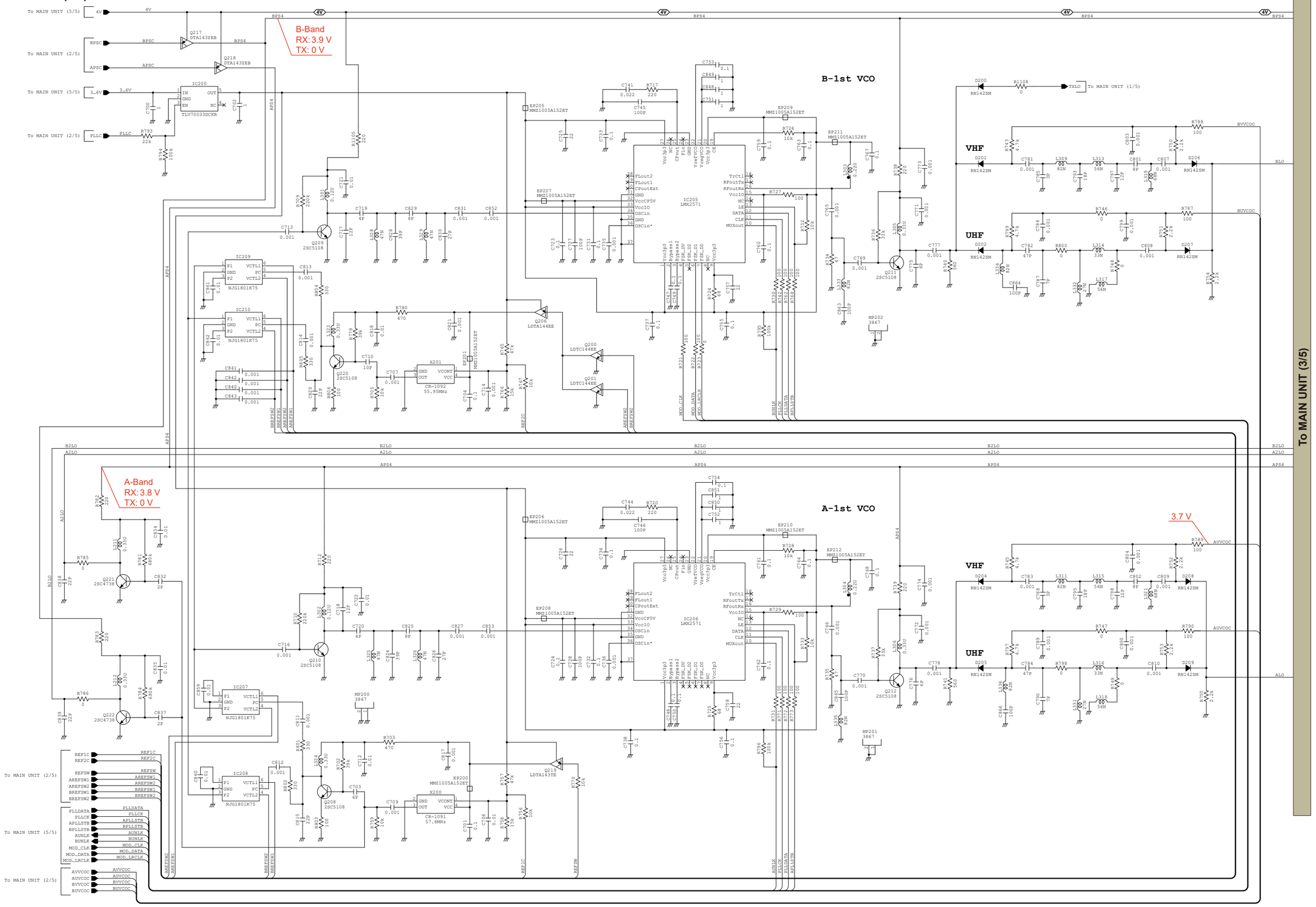
1.4 V

4.0 V

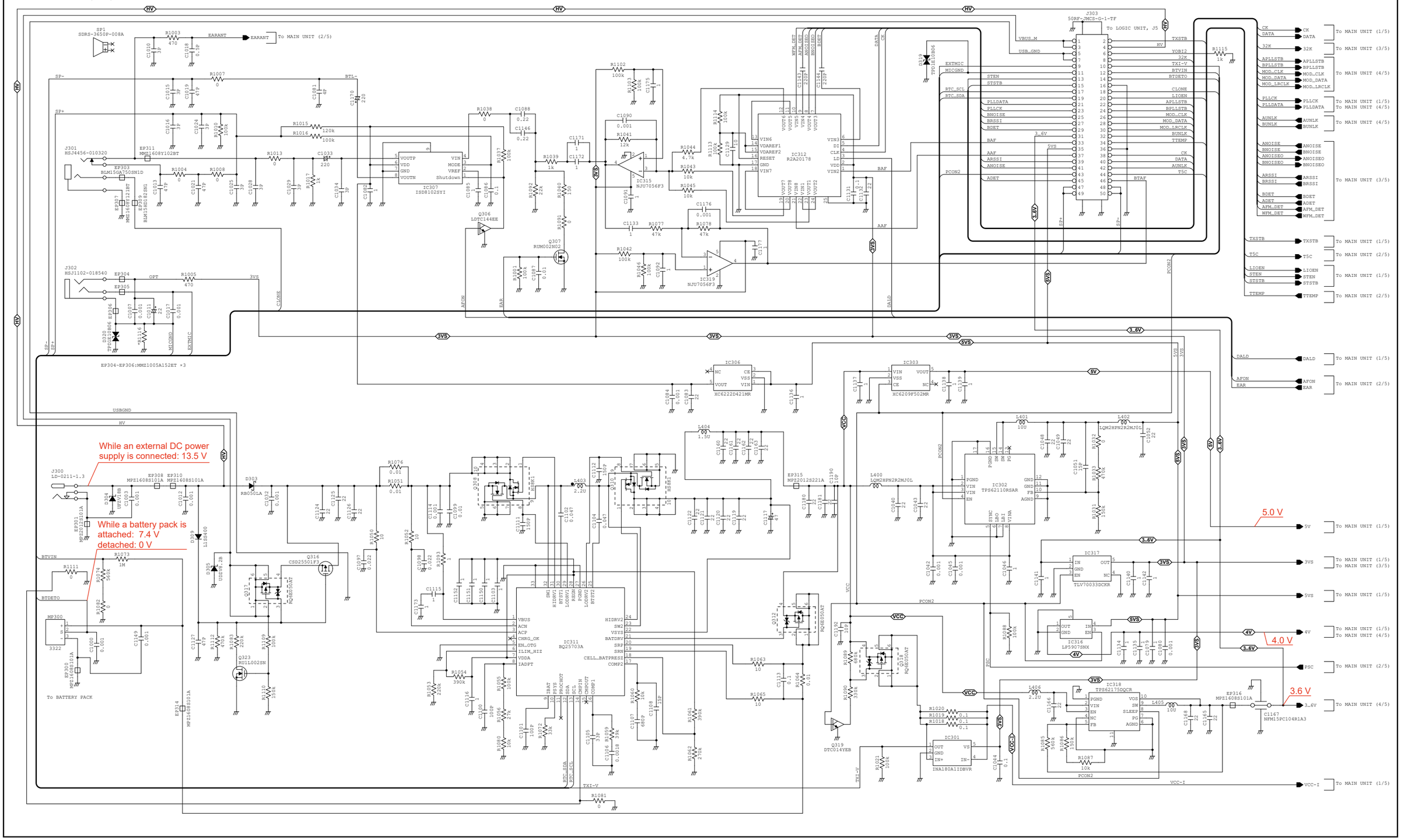
During AM operation in A-Band: 3.7 V

FM/DV: H
AM: L

• MAIN UNIT (4/5)


B-Band
RX: 3.9 V
TX: 0 V
A-Band
RX: 3.8 V
TX: 0 V
B-1st VCO
A-1st VCO
VHF
UHF
3.7 V
IC205 LMX2571
IC206 LMX2571
IC200 TLV70033DCKR
IC209 NJG1801K75
IC210 NJG1801K75
IC207 NJG1801K75
IC208 NJG1801K75
X201 CR-1092 55.95MHz
X200 CR-1091 57.6MHz
Q209 2SC5108
Q210 2SC5108
Q211 2SC5108
Q212 2SC5108
Q220 2SC5108
Q208 2SC5108
Q221 2SC4738
Q222 2SC4738
Q206 LDTA144EE
Q200 LDTC144EE
Q201 LDTC144EE
Q219 LDTA143TE
Q217 DTA143ZEB
Q218 DTA143ZEB
To MAIN UNIT (1/5)
To MAIN UNIT (2/5)
To MAIN UNIT (3/5)
To MAIN UNIT (5/5)

• MAIN UNIT (5/5)


While an external DC power supply is connected: 13.5 V
While a battery pack is attached: 7.4 V
detached: 0 V
5.0 V
4.0 V
3.6 V
To BATTERY PACK
To LOGIC UNIT, J5
To MAIN UNIT (1/5)
To MAIN UNIT (2/5)
To MAIN UNIT (3/5)
To MAIN UNIT (4/5)

• LOGIC UNIT (1/4)

To LOGIC UNIT 2/4

IC1 R5F571MLDDBG

IC28 IS66WVE1M16EBLL

IC27 IS29GL256

IC22 XC6129N28A7R

IC31 GT24C1024

IC32 GT24C1024

IC8 SN74AUP2G04DCKR

IC6 RX8130CE

X1 SIT9005AIL71

Q11 2SA1832

Q13 2SC4738

Q26 2SA1832

Q27 LDTC144EE

J5 50P5.0-JMCS-G-TF

EP24 BLM15GA750SN1D

EP313 OGF-3216

EP312 OGF-3216

EP34 MM21005S601CT

EP33 MM21005S601CT

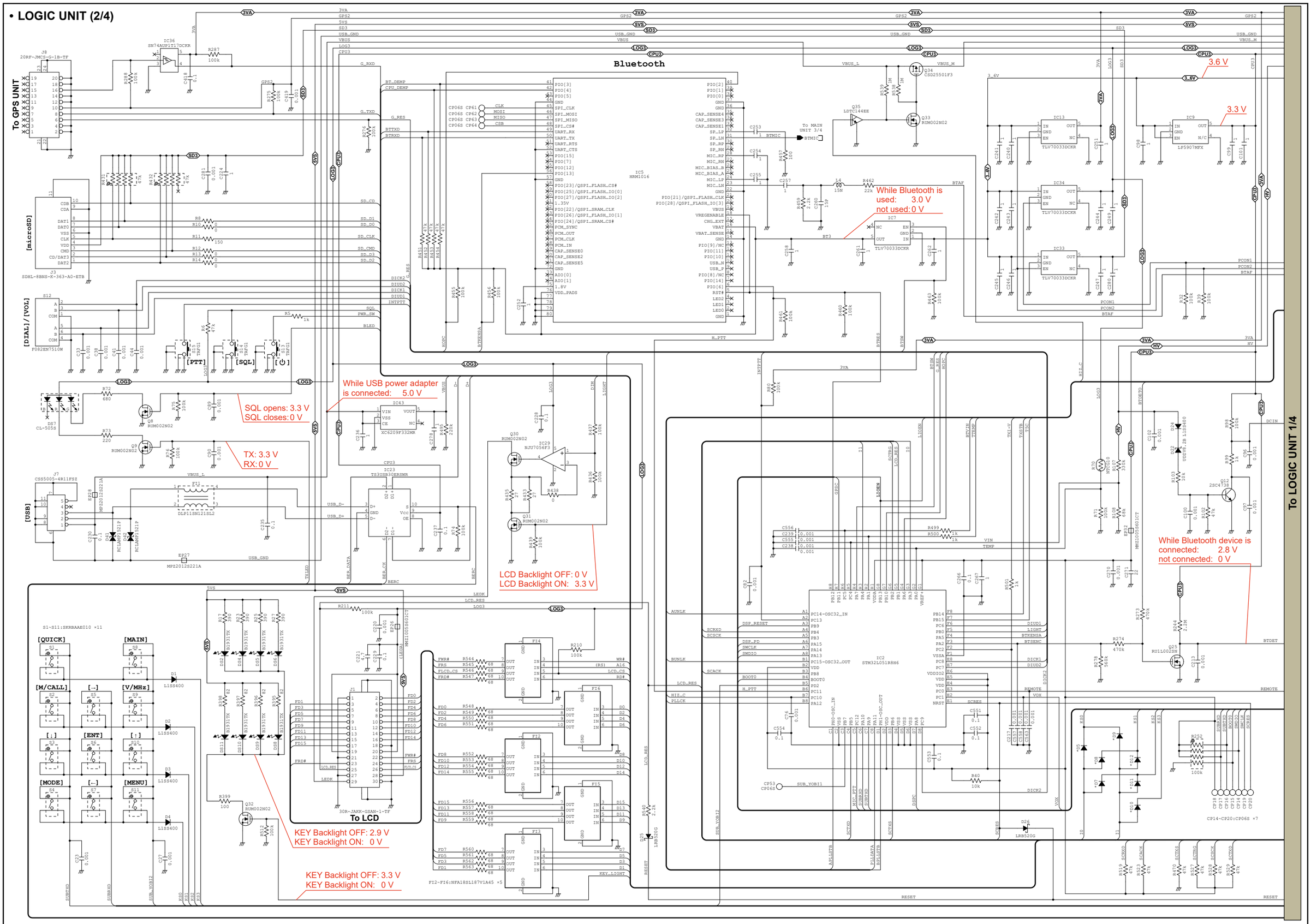
CP1 CP065 … CP13 CP065

EEPROM

To LOGIC UNIT 3/4

To LOGIC UNIT 4/4

• LOGIC UNIT (2/4)



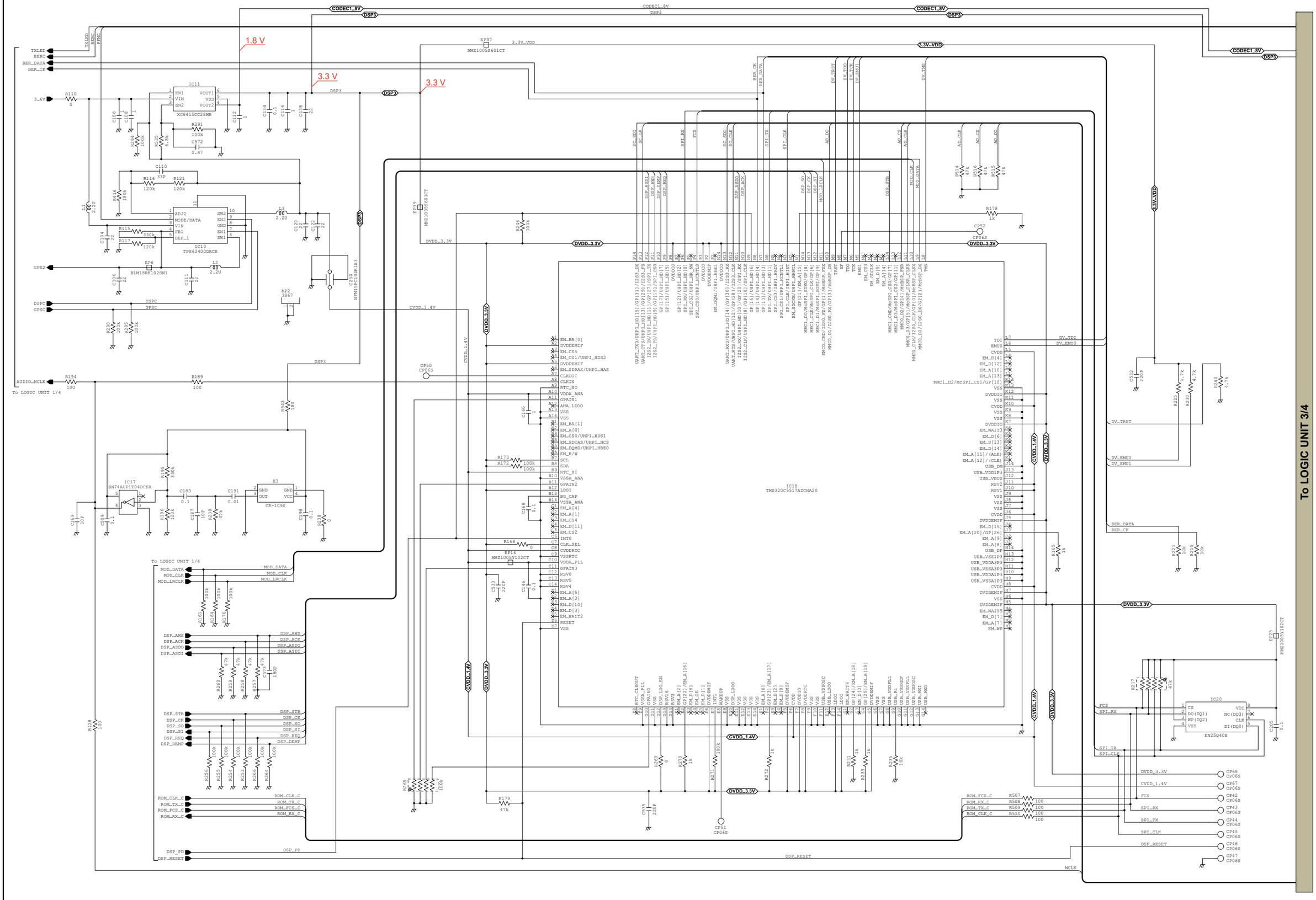
• LOGC UNIT (3/4)

To LOGIC UNIT 4/4

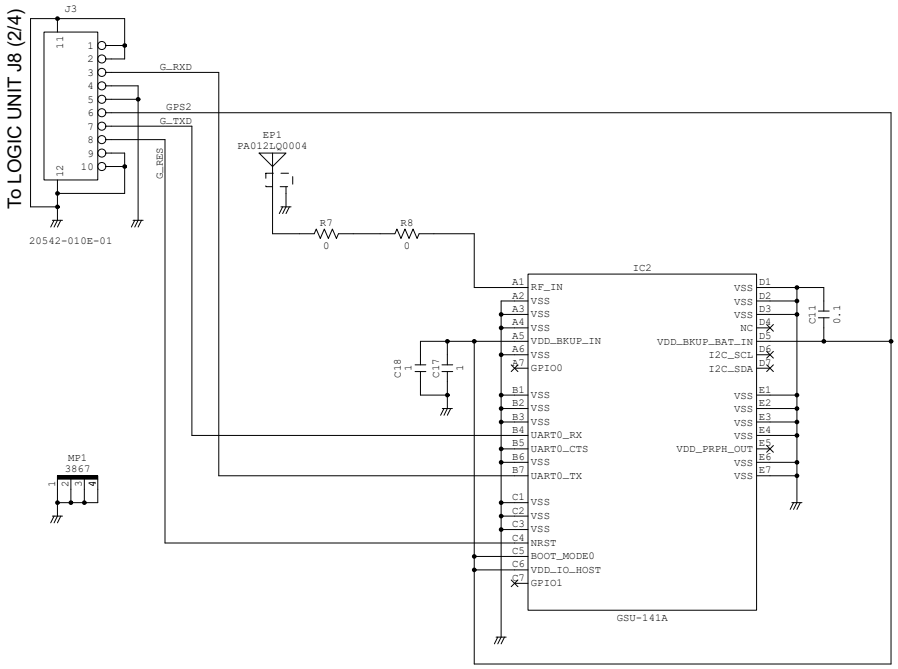
3.3 V

External PTT ON: 3.0 V
External PTT OFF: 0 V

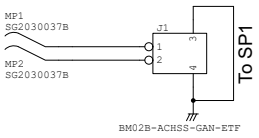
• LOGIC UNIT (4/4)



• GPS UNIT



• SP UNIT



If you have any inquiries regarding service, contact your distributor. The contact number or E-mail address of your distributor can be found on our website.

https://www.icomjapan.com/

How the World Communicates

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