



# SERVICE MANUAL

WLAN TRANSCEIVER

# IP110H

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S-16102XZ-C1  
June 2024

Icom Inc.

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## INTRODUCTION

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We will supply spare units for the IP110H 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 IP110H WLAN TRANSCEIVER at the time of publication.

Model	Version	Version Number	Supplied power adapter	Supplied cradle
IP110H	EXP-21	[#21]	—	—
	USA-22	[#22]	—	—
	EXP-32	[#32]	—	—
	USA-33	[#33]	—	—
	EXP-42	[#42]	—	—
	USA-43	[#43]	BC-258A	—
	EUR-44	[#44]	BC-258E	BC-257

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

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## SERVICE CAUTION

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**NEVER** connect the DUT to an AC outlet or to a DC power supply that uses 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.

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## ORDERING PARTS

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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>

0339954201 C IP110H#42 UNIT-SET IP110H UNITSET 1 pcs  
8210036510 4245 WINDOW PLATE(B) IP110H CHASSIS 1 pcs



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## REPAIR NOTES

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1. Be sure that the problem is repairable before disassembling the DUT.
2. Unit replacement must be done according to your local regulation and law.
3. **DO NOT** short any circuits or electronic parts.

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**■ GENERAL**

- **Power supply:** Built-in Li-ion battery pack (3.75 V/3200 mAh)
- **Maximum current drain:** 1.5 A or less
- **Operating temperature range:** -10°C to +60°C (+14°F to +140°F)
- **Operating humidity range:** 95% or less (without condensation)
- **Continuous operating time:** 20 hours or more (TX : RX : Stand-by = 1 : 1 : 8)
- **Dimensions (projections not included):** 96.9 (H) × 57.0 (W) × 25.1 (D) mm; 3.8 (H) × 2.2 (W) × 1.0 (D) in
- **Weight (approximate):** 146 g; 5.2 oz

**■ WIRELESS LAN**

- **Frequency range:**
  - 2.4 GHz Band 2412 ~ 2462 MHz
  - 5 GHz Band 5180 ~ 5320 MHz and 5500 ~ 5700 MHz
- **Number of channels:**
  - 2.4 GHz
    - 20 MHz bandwidth 11
    - 40 MHz bandwidth 7
  - 5 GHz [#21], [#32], [#42], and [#44]
    - 20 MHz bandwidth 19
    - 40 MHz bandwidth 9
    - 80 MHz bandwidth 4
  - [#22], [#33], and [#43]
    - 20 MHz bandwidth 21
    - 40 MHz bandwidth 9
    - 80 MHz bandwidth 4
- **IEEE standard:** IEEE802.11a, IEEE802.11b, IEEE802.11g, IEEE802.11ac, and IEEE802.11n,
- **Transmission power:** 10 mW/MHz or less
- **Encryption protocol:** WEP (64/128-bit), WPA-PSK (TKIP/AES), and WPA2-PSK (TKIP/AES)
- **Protocol:** TCP/IP
- **Maximum data transmission speed (theoretical value):** 11/54/150/433 Mbps

**■ AUDIO**

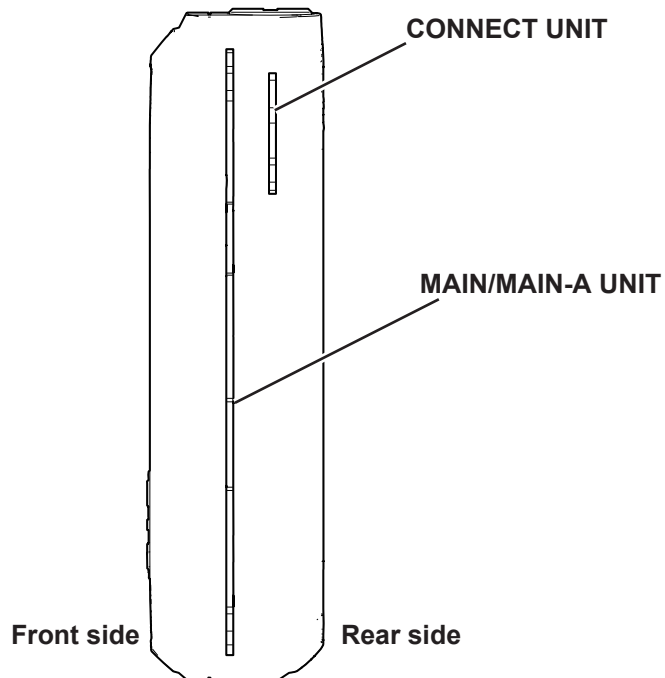
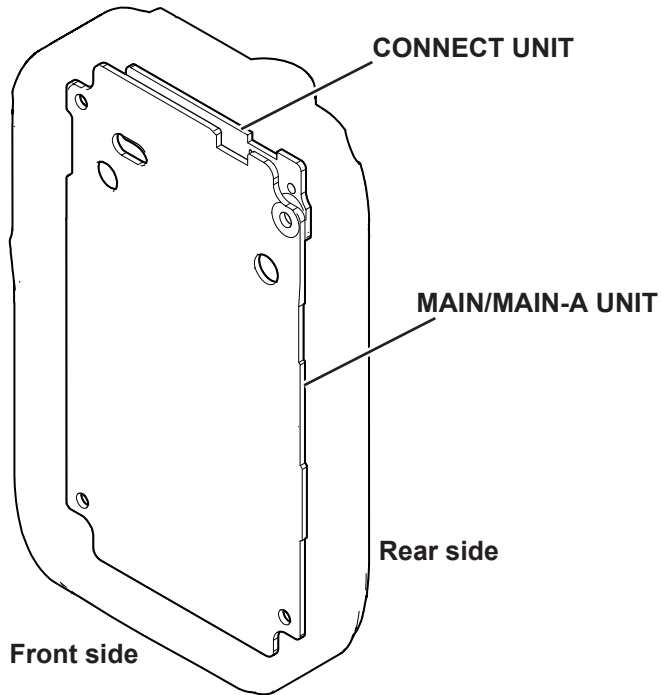
- **Codec:** G.711  $\mu$ -LAW (64 kbps)
- **Audio response:** 300 ~ 3400 Hz
- **Microphone impedance:** 2.2 k $\Omega$
- **Audio input level:** 10 mV rms  $\pm$ 3 dB
- **Audio output power:**
  - Internal speaker 1 W or more (at 10% distortion into the 8  $\Omega$  load)
  - External speaker 0.3 W or more (at 10% distortion into an 8  $\Omega$  load)
- **Audio output impedance:** 8  $\Omega$

**■ BLUETOOTH**

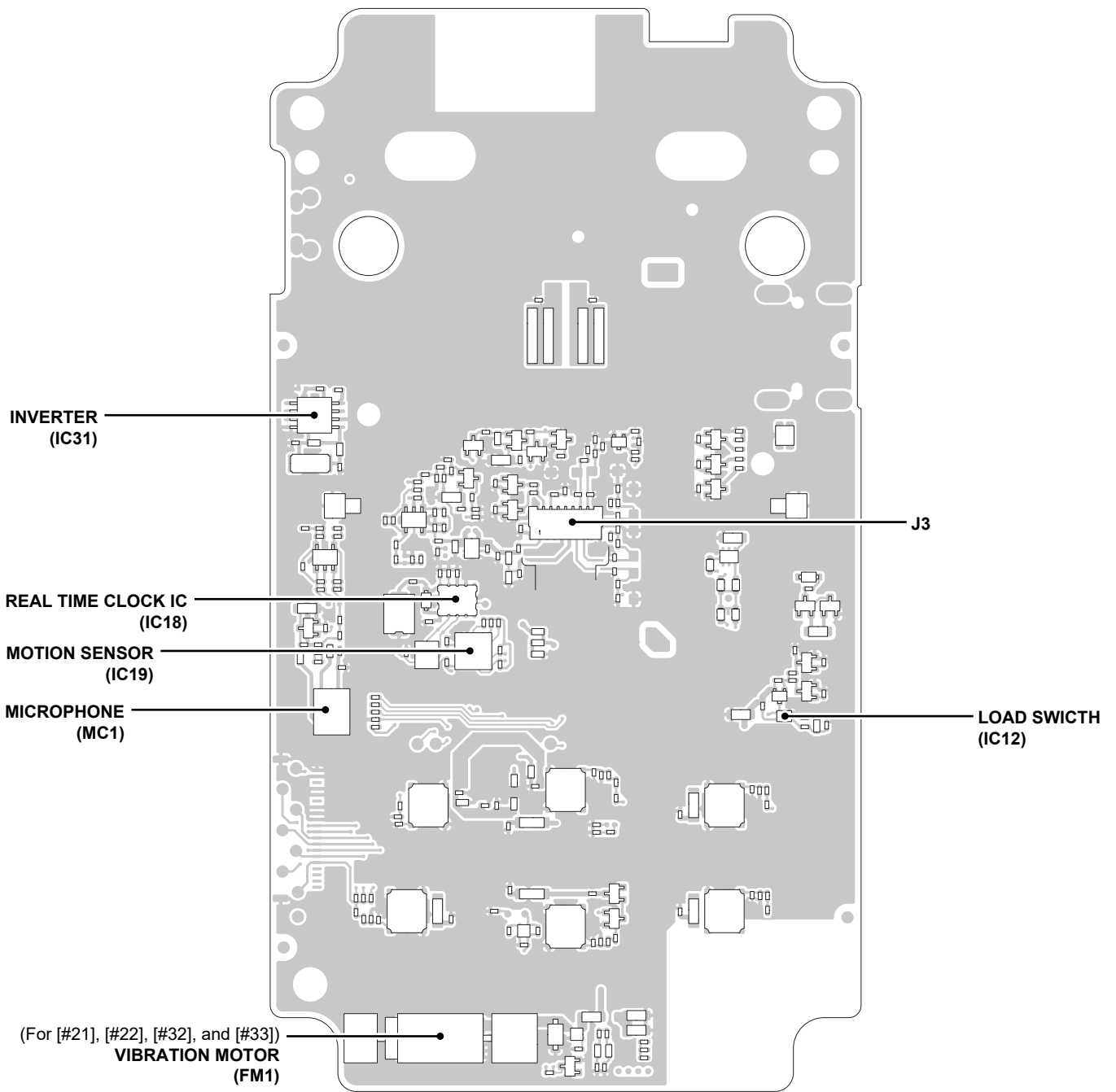
- **Version:** 4.2
- **Output power:** Class 2
- **Profile:** HFP and HSP
- **Modulation:** GFSK,  $\pi/4$ -DQPSK, and 8DPSK

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

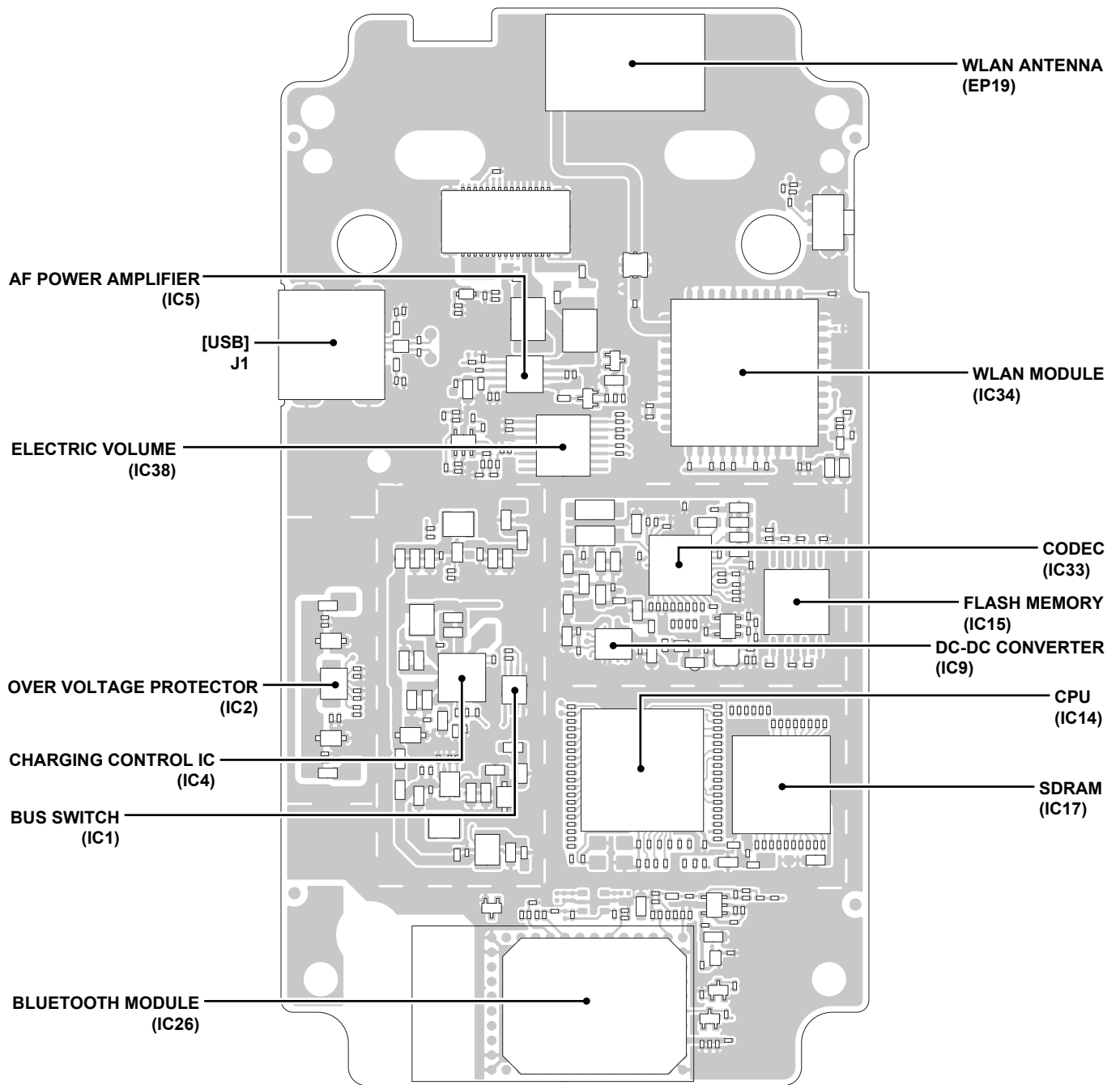
- Transparent views



• MAIN/MAIN-UNIT (Top view)



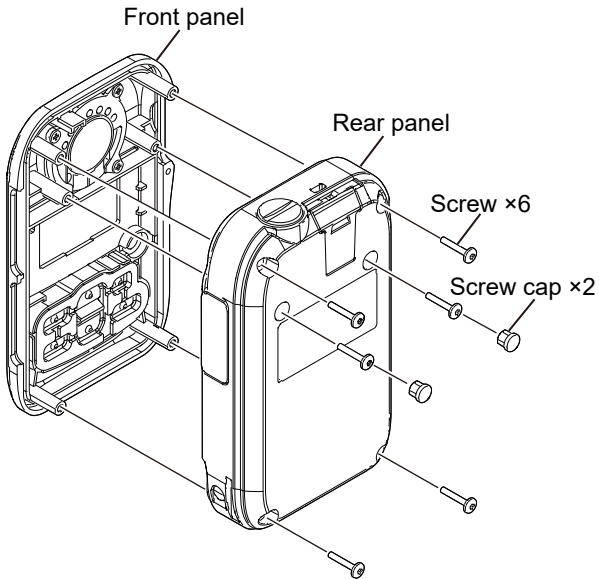
• MAIN/MAIN-UNIT (Bottom view)



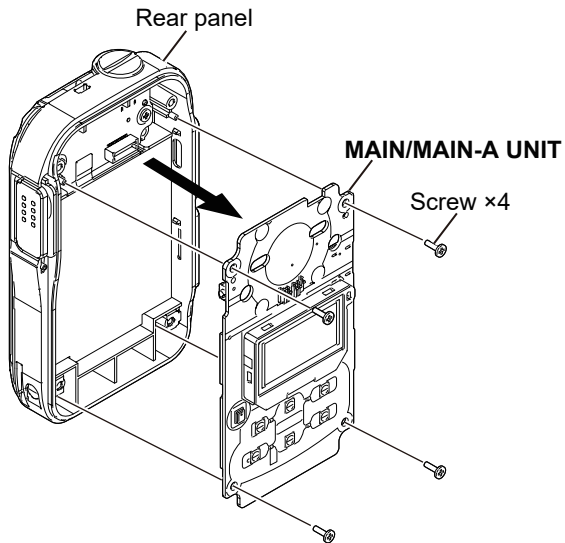
# SECTION 3 DISASSEMBLY INSTRUCTION

## 1. Removing the MAIN/MAIN-A UNIT

- 1) Remove the 2 screw caps and 6 screws from the rear panel, then remove the front panel.

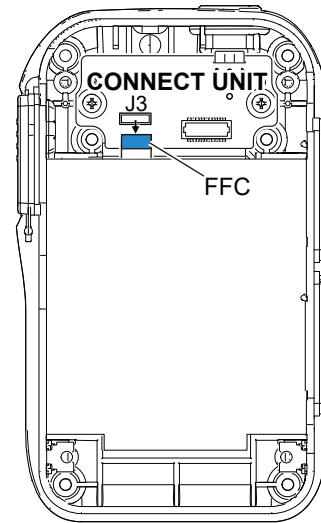


- 2) Remove the 4 screws from the MAIN/MAIN-A UNIT, then remove it from the rear panel.

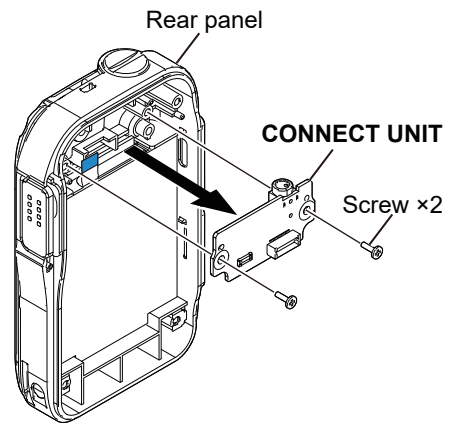


## 2. Removing the CONNECT UNIT

- 1) Disconnect the FFC from J3 on the CONNECT UNIT.



- 2) Remove the 2 screws from the CONNECT UNIT, then remove it from the rear panel.



## SECTION 4

## ERROR CODE/MESSAGE

### ■ DISPLAY EXAMPLE

The IP110H displays an error code/message when a communication or system error is received/detected, as shown in the example below.



(Error message example)

The display style differs, depending on the received/detected error.

### ■ ERROR/CODE MESSAGE LIST

If one of the following error codes/messages is displayed, verify or try the solution described below.

Error/Code Message	Possible caused	Solution (Example)
<b>Setup Failed</b>	Failed to obtain provisioning settings.	Ask the system administrator.
<b>Init. Failed</b>	Abnormal condition detected.	Try restart the transceiver. If the problem remains, it needs repairing.
<b>Over voltage</b>	The battery pack is failed.	Replace the assembled rear panel (battery included) to a new one.
	The voltage detection circuit is failed.	Needs repairing. • Check the power supply voltage detecting circuit.
<b>Batt. Degrade</b>	Battery degraded.	Replace the assembled rear panel (battery included) to a new one.
<b>Ext. Line Cut</b>	External audio device connection failure.	Check the connection.
<b>Firmware Update failed Rebooting</b>	The firmware update failed.	• Place the transceiver in a good signal level area and wait for the next updating. • Ask the system administrator.
<b>Delete data Failed</b>	Failed to delete the selected audio file.	Try restart the transceiver. If the problem remains, it needs repairing.

**NOTE:** There are no adjustment procedures for the WLAN transceiver. Adjustments can only be made by the supplier. Only simple verification is described in this manual.

## 5-1 PREPARATION

### ■ REQUIRED EQUIPMENT

EQUIPMENT	GRADE AND RANGE
WLAN transceiver	IP110H (or equivalent IP transceiver)

## 5-2 COMMUNICATION TEST

- 1) Configure the DUT to make a call to, or receive a call from, the WLAN transceiver.
- 2) Check the signal strength icon on the display for the registration status and connection to the WLAN Transceiver Controller.
- 3) Speak into the DUT's microphone at your normal voice level and check the received audio on the WLAN transceiver for clarity.
- 4) Speak into the WLAN transceiver microphone and check the received audio of the DUT for clarity.

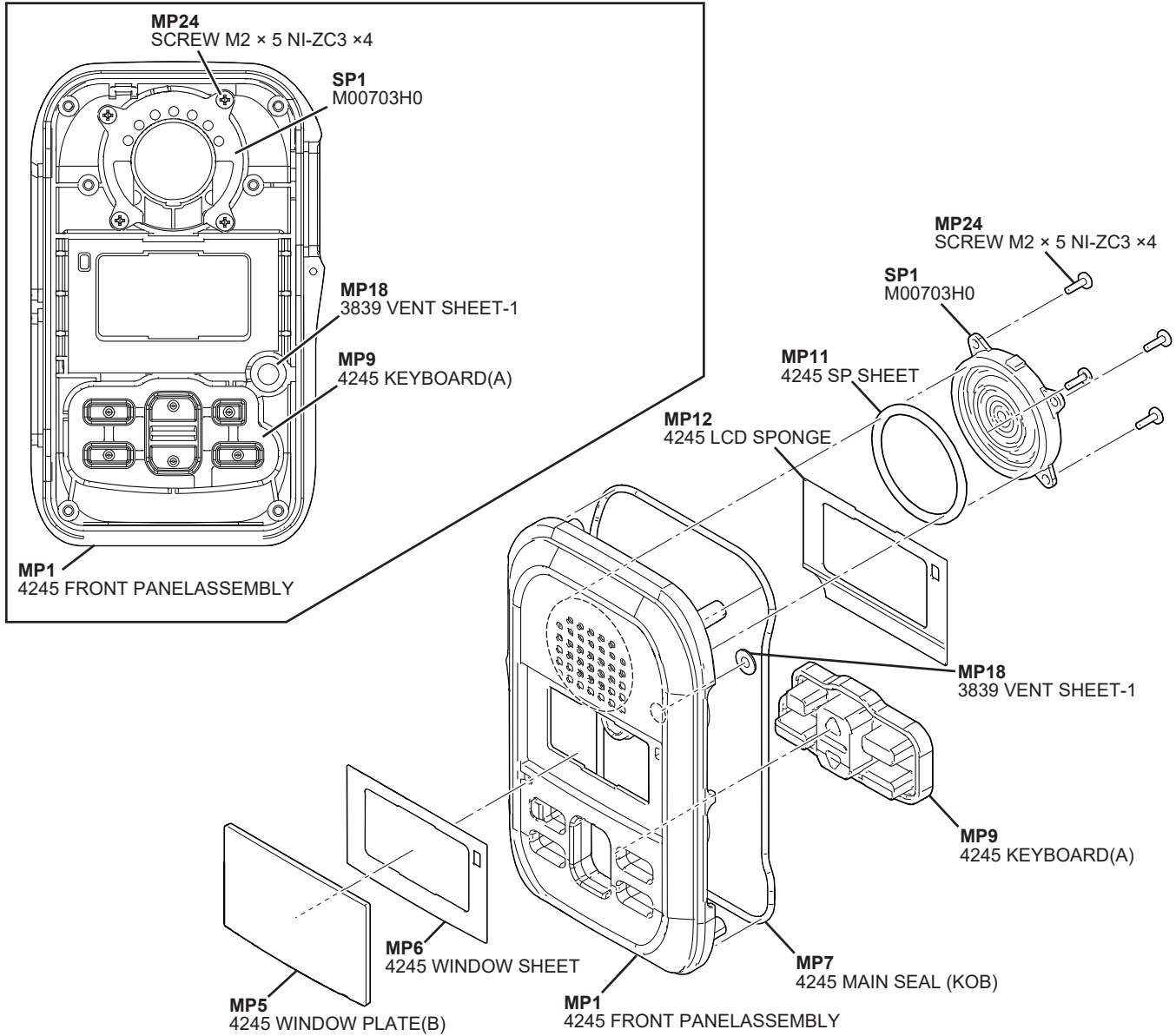
# SECTION 6

# SPARE PARTS AND UNITS

## ASSEMBLED FRONT PANEL

Spare unit name	Order Number	Applicable Version
C IP110H#42 F-PANEL	0339954202	ALL

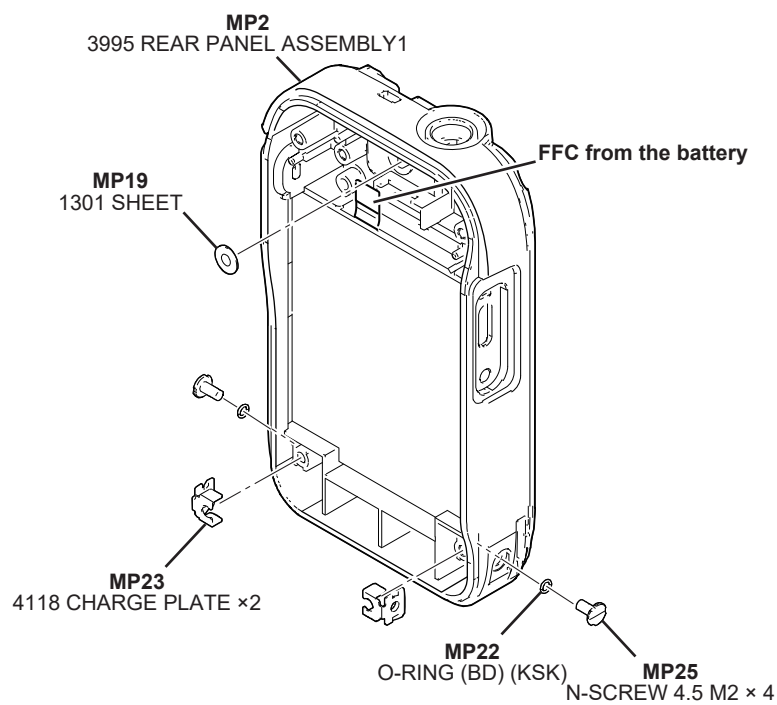
See the illustrations below for the individual parts in the front panel.



## ■ ASSEMBLED REAR PANEL

Spare unit name	Order Number	Applicable Version	Remark
C IP110H#42 R-PANEL	0339954203	ALL	Battery included

See the illustrations below for the individual parts in the rear panel.

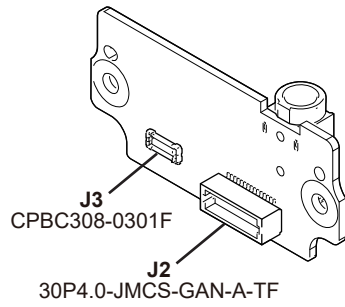


## ■ ASSEMBLED CONNECT UNIT

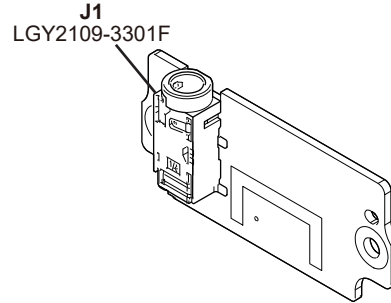
Spare unit name	Order Number	Applicable Version	Remark
C IP110H#42 CONNECT	0339954204	ALL	-

See the illustrations below for the individual parts in the CONNECT UNIT.

<Top view>



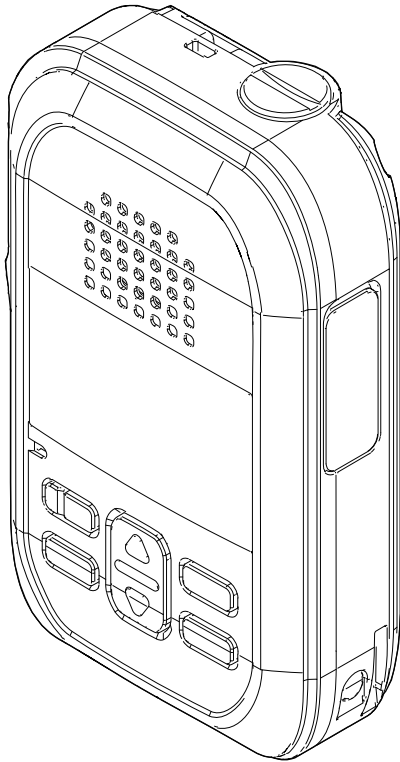
<Bottom view>



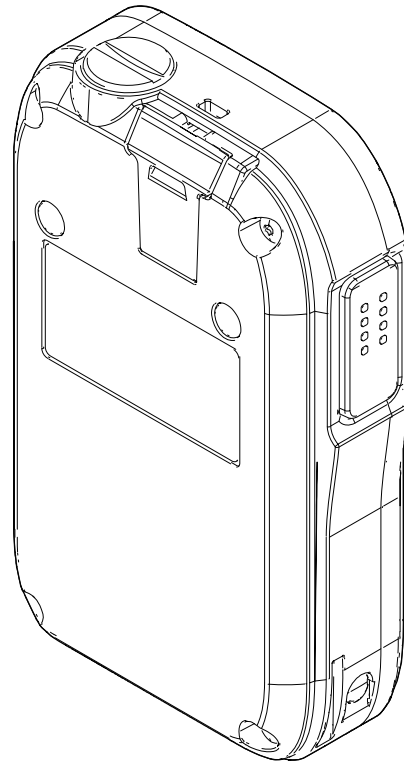
## ■ ASSEMBLED UNIT SET

Spare unit name	Order Number	Applicable Version	Remarks
C IP110H#42 UNIT-SET	0339954201	[#42]	-
C IP110H#43 UNIT-SET	0339954301	[#43]	-
C IP110H#44 UNIT-SET	0339954401	[#44]	-

<Front view>



<Rear view>



**NOTE:** The serial number label is attached, and the corresponding ESN has already been programmed into the spare unit assembly.

## ■ SPARE PARTS INFORMATION

### • For the MAIN/MAIN-A unit

REF NO.	PART NO.	DESCRIPTION	M.	H/V LOCATION
J1	6510033720	S.CON DX07S024JA1R1300	B	60.5/4.8
S1	2260003890	S.SWI LS17C2F-T	T	23.3/35.6
S2	2260003890	S.SWI LS17C2F-T	T	14.7/37.3
S3	2260003890	S.SWI LS17C2F-T	T	13.4/24.4
S4	2260003810	S.SWI TAFG1-12WQR	B	70.5/45.2
S5	2260003890	S.SWI LS17C2F-T	T	24.5/24.4
S6	2260003890	S.SWI LS17C2F-T	T	23.3/11.5
S7	2260003890	S.SWI LS17C2F-T	T	14.7/11.5

### • For the CONNECT unit

REF NO.	PART NO.	DESCRIPTION	M.	H/V LOCATION
J1	6450002640	S.CON LGY2109-3301F	B	29.0/10.4

# SECTION 7

# MECHANICAL PARTS

These parts are considered necessary in case of physical damage.

### [CHASSIS UNIT]

NOTE: These parts are considered necessary in case of physical damage.

REF NO.	PART NO.	DESCRIPTION	QTY.
SP1	2510002351	M00703H0	1
MP1	8210035870	4245 FRONT PANEL ASSEMBLY	1
MP2	8210036520	3995 REAR PANEL ASSEMBLY1	1
MP3	8930106170	4245 PTT BUTTON	1
MP4	8110011990	4245 CLIP COVER	1
MP5	8210036510	4245 WINDOW PLATE (B)	1
MP6	8930106330	4245 WINDOW SHEET	1
MP7	8930106180	4245 MAIN SEAL (KOB)	1
MP8	8930106090	4245 SIDE CAP (MTK)	1
MP9	8930109010	4245 KEYBOARD (A)	1
MP10	8930106350	4245 PROTECTION SHEET	1
MP11	8930106360	4245 SP SHEET	1
MP12*	8930106340	4245 LCD SPONGE	1
MP13	8930109020	3995 JACK CAP	1
MP14	8930071260	O-RING (BL) (KSK)	1
MP18	8930095911	3839 VENT SHEET-1	1
MP19	8930030920	1301 SHEET	1
MP21	8830004930	3995 NUT	1
MP22	8930066590	O-RING (BD) (KSK)	2
MP23	8930103210	4118 CHARGE PLATE	2
MP24	8810009181	BT M2 x 5 NI-ZC3	10
MP25	8820001970	N-SCREW 4.5 M2 x 4	2
MP26	8820001980	SCREW TBIND B0 2 x 10 SSBC (BT)	6
MP27	8930106000	4118 SCREW CAP (A) (MTK)	2
MP28	8930066240	SPONGE (IM)	1
MP29	8930109430	SPONGE (SH)	1

### [MAIN UNIT] (For [#21], [#22], [#32], and [#33])

REF NO.	PART NO.	DESCRIPTION	QTY.
J1*	6510033720	DX07S024JA1R1300	1
J2*	6510025121	30RF-JMCS-G-1B-TF (N) (LF) (SN)	1
J3*	6510031390	15FXVL-RSM1-GAN-TF-1 (HF)	1
J5*	6510030950	MM8030-2610RJ3	1
F1*	5210001170	ERBRE2R50V	1
F2*	5210001170	ERBRE2R50V	1
F1000*	5210001170	ERBRE2R50V	1
F1001*	5210001170	ERBRE2R50V	1
DS10	5030004760	4245 LCD TS-GG128064597W	1
MC1*	7700003280	SPU0410HR5H-PB-7	1
S1*	2260003890	LS17C2F-T	1
S2*	2260003890	LS17C2F-T	1
S3*	2260003890	LS17C2F-T	1
S4*	2260003810	TAFG1-12WQR	1
S5*	2260003890	LS17C2F-T	1
S6*	2260003890	LS17C2F-T	1
S7*	2260003890	LS17C2F-T	1
MF1*	2710001210	BGS-3879	1
EP19*	3310005640	AN01DL25C00R3200	1
MP1*	8930105310	OGSC-T-302020	1
MP2*	8930105310	OGSC-T-302020	1
MP3*	8510023060	4087 C-SHIELD CASE	1
MP4*	8510024130	3995 A-SHIELD CASE	1
MP5*	8510023090	OG-450818	1
MP6*	8510023090	OG-450818	1
MP7*	8510023090	OG-450818	1
MP8*	8510023090	OG-450818	1
MP10*	8510024140	3995 B-SHIELD CASE	1
MP11*	8510023020	4087 C-SHIELD COVER	1
MP12	8930082280	SPONGE (LB)	1

### [CONNECT UNIT]

REF NO.	PART NO.	DESCRIPTION	QTY.
J1*	6450002640	LGY2109-3301F	1
J2*	6510035670	30P4.0-JMCS-GAN-A-TF	1
J3*	6510033760	CPBC308-0301F	1

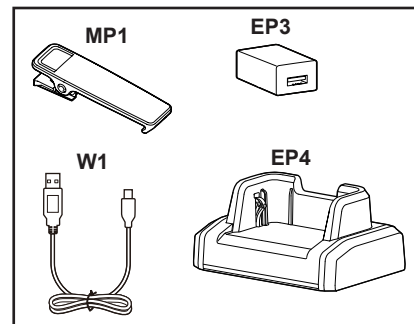
### [MAIN-A UNIT] (For [#42]~[#44])

REF NO.	PART NO.	DESCRIPTION	QTY.
J1*	6510033720	DX07S024JA1R1300	1
J2*	6510035680	30RF-JMCS-GAN-1-TF	1
J3*	6510031390	15FXVL-RSM1-GAN-TF-1 (HF)	1
J5*	6510030950	MM8030-2610RJ3	1
F1*	5210001170	ERBRE2R50V	1
F2*	5210001170	ERBRE2R50V	1
F1000*	5210001170	ERBRE2R50V	1
F1001*	5210001170	ERBRE2R50V	1
DS10	5030004761	4245 LCD-1 TS-GG128064597W	1
MC1*	7700003280	SPU0410HR5H-PB-7	1
S1*	2260003890	LS17C2F-T	1
S2*	2260003890	LS17C2F-T	1
S3*	2260003890	LS17C2F-T	1
S4*	2260003810	TAFG1-12WQR	1
S5*	2260003890	LS17C2F-T	1
S6*	2260003890	LS17C2F-T	1
S7*	2260003890	LS17C2F-T	1
MF1*	2710001210	BGS-3879	1
EP19*	3310005640	AN01DL25C00R3200	1
MP1*	8930105310	OGSC-T-302020	1
MP2*	8930105310	OGSC-T-302020	1
MP3*	8510023060	4087 C-SHIELD CASE	1
MP4*	8510024130	3995 A-SHIELD CASE	1
MP5*	8510023090	OG-450818	1
MP6*	8510023090	OG-450818	1
MP7*	8510023090	OG-450818	1
MP8*	8510023090	OG-450818	1
MP10*	8510024140	3995 B-SHIELD CASE	1
MP11*	8510023020	4087 C-SHIELD COVER	1
MP12	8930082280	SPONGE (LB)	1

### [SUPPLIED ACCESSORIES]

REF NO.	PART NO.	DESCRIPTION	QTY.
W1	-	OPC-2480†	1
EP3	-	BC-258A†	[#43] 1
	-	BC-258E†	[#44] 1
EP4	-	BC-257†	Only [#44] 1
MP1	-	MBB-1†	1

†Sold as an option.



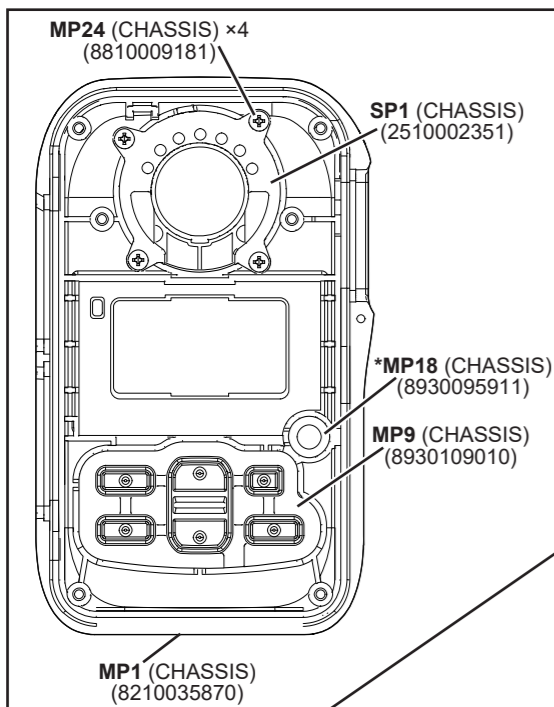
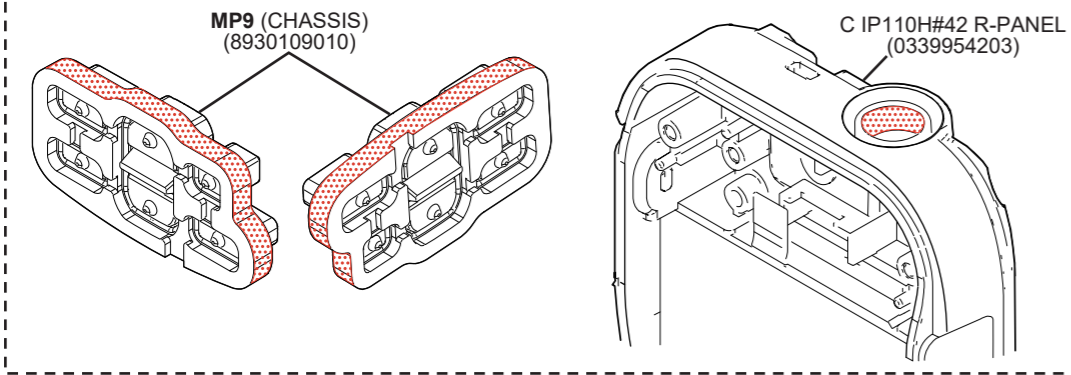
\*: Refer to "BOARD LAYOUTS" for the location.

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

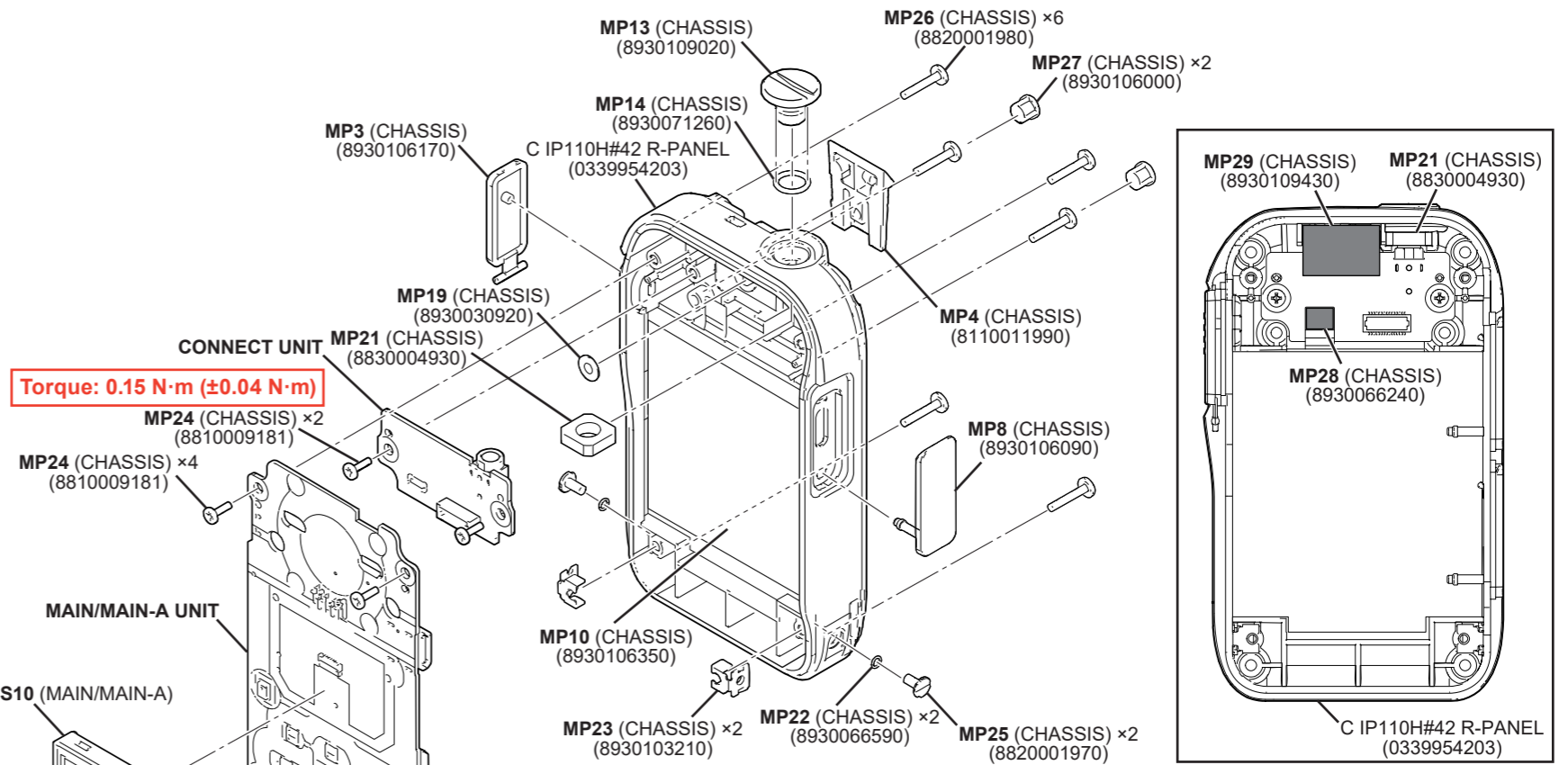
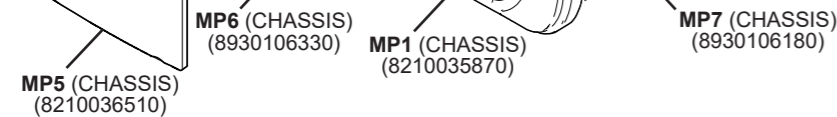
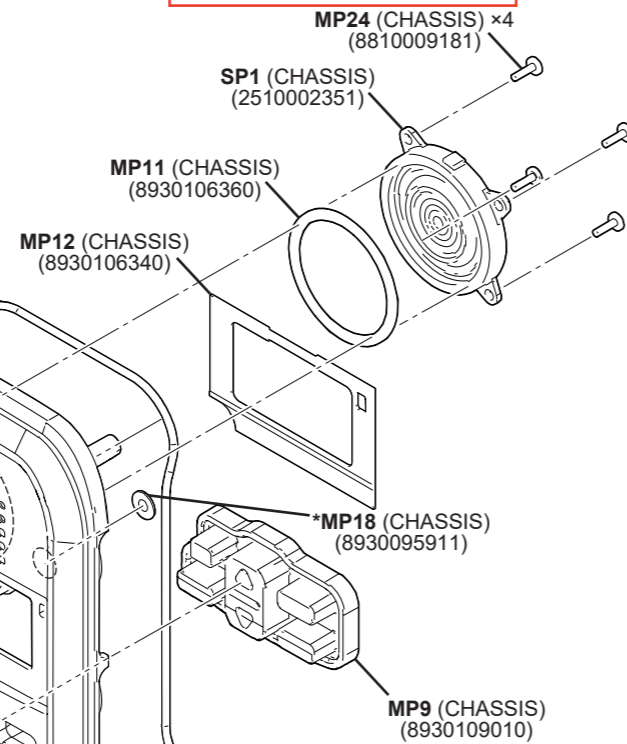
• Exploded view

Apply the grease to the following area (■) of the front panel and chassis.

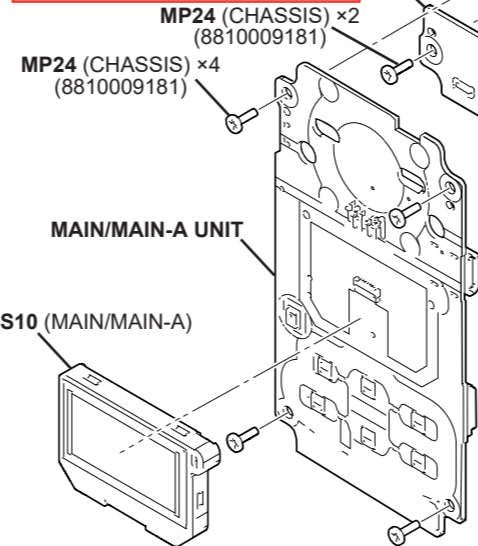
Used grease: G501 (80G) SHINETSU (8950002750)



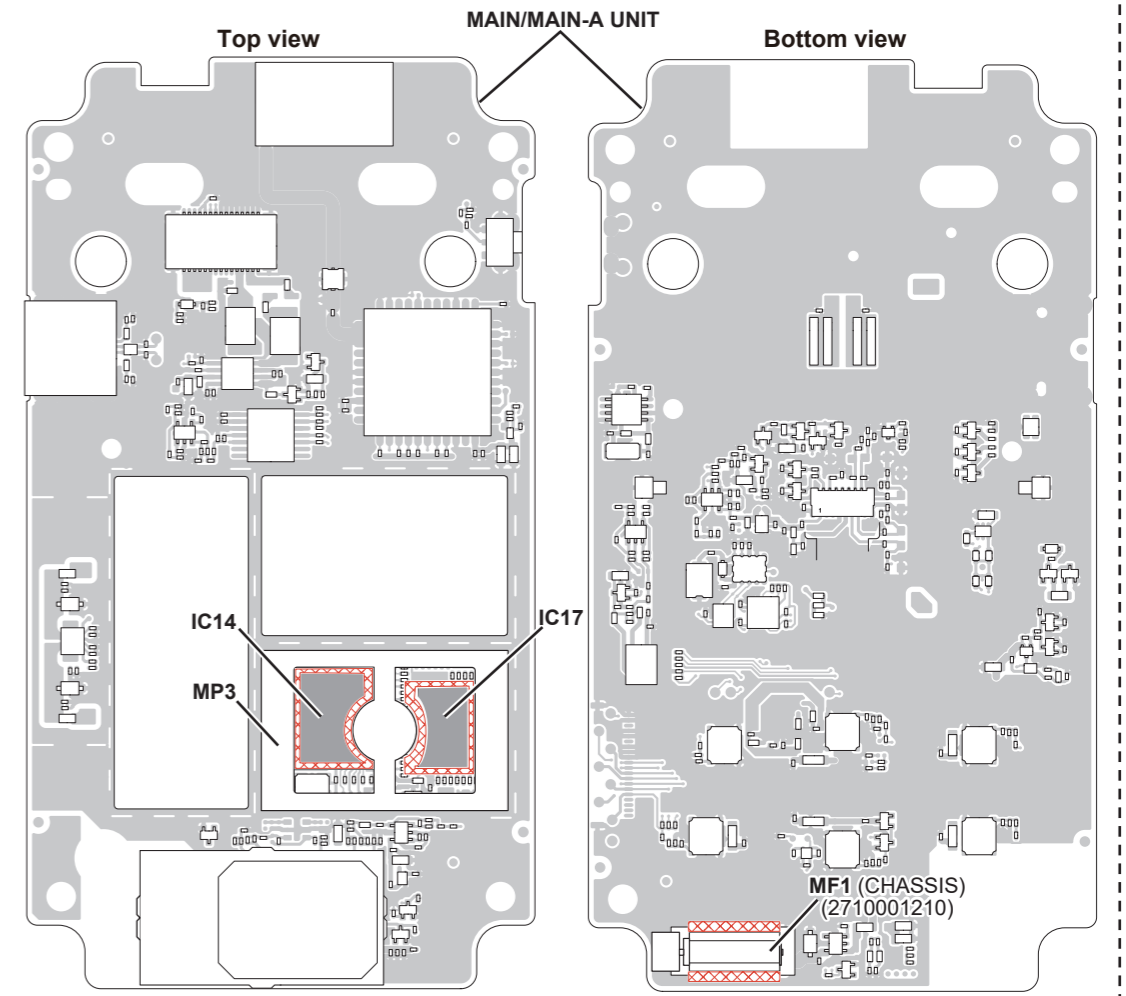
Torque: 0.15 N·m (±0.04 N·m)



Torque: 0.15 N·m (±0.04 N·m)



Apply the glue to the following area (■).  
Glue type: Super X 8008 White (8950008070)



Legend:
Ref.No. Unit Name
MP1 (CHASSIS)
(1234567890)
Parts No.

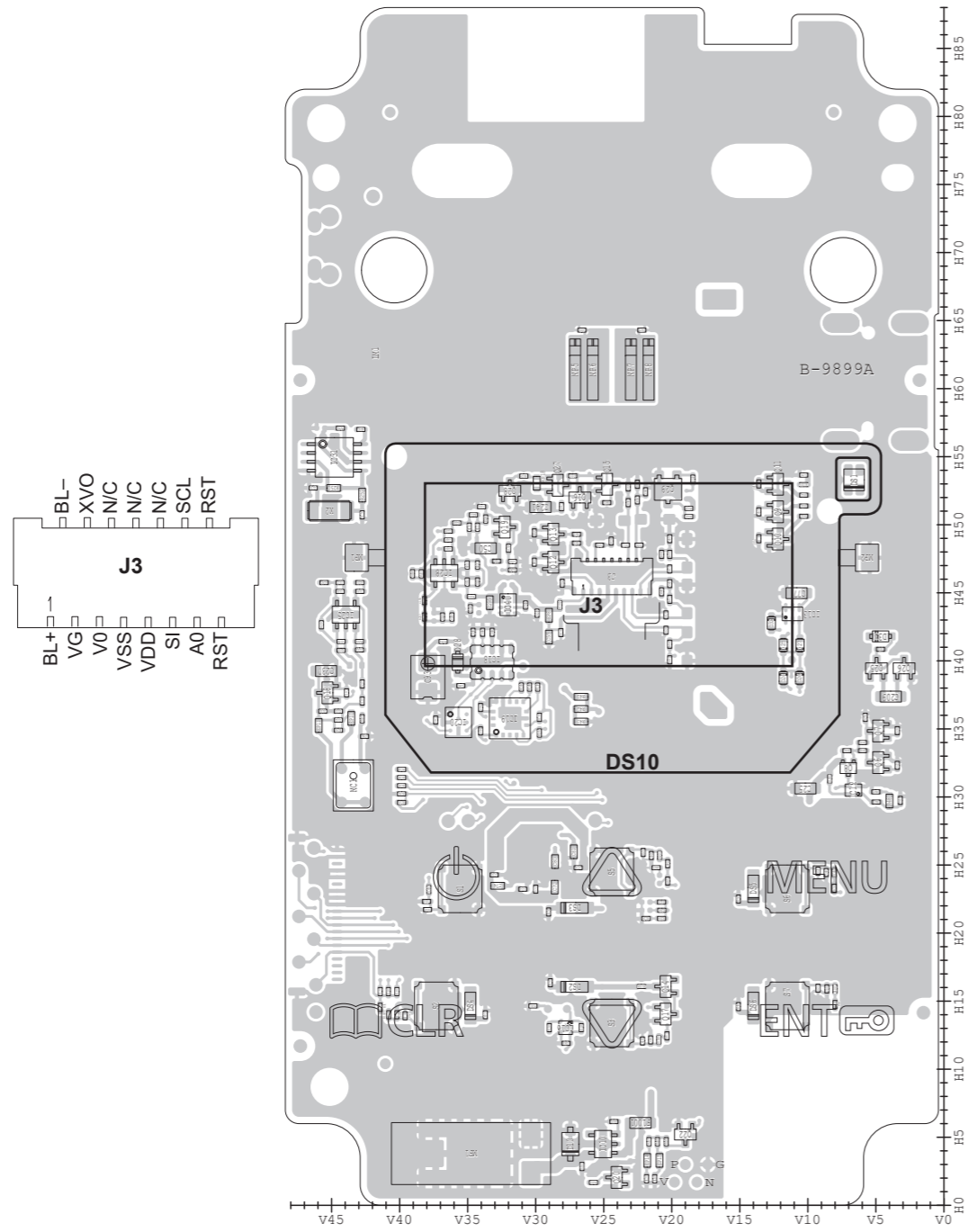
Unless otherwise noted, the tighten to torque is 0.3 N·m (±0.05 N·m).

NOTE: When replacing a flat cable, form the new one in the same shape as the original.

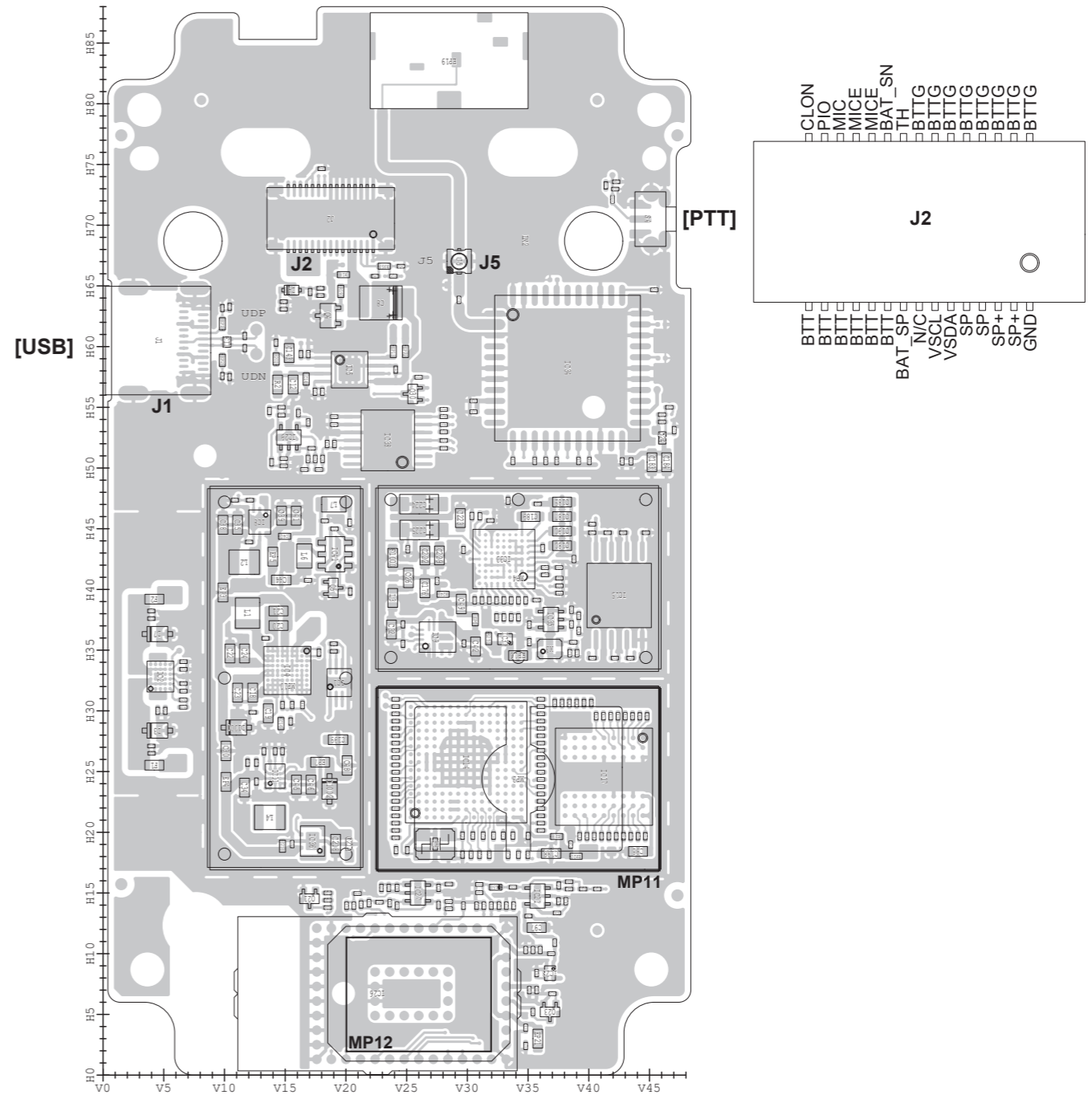
\*Refer to the Mechanical Parts list.



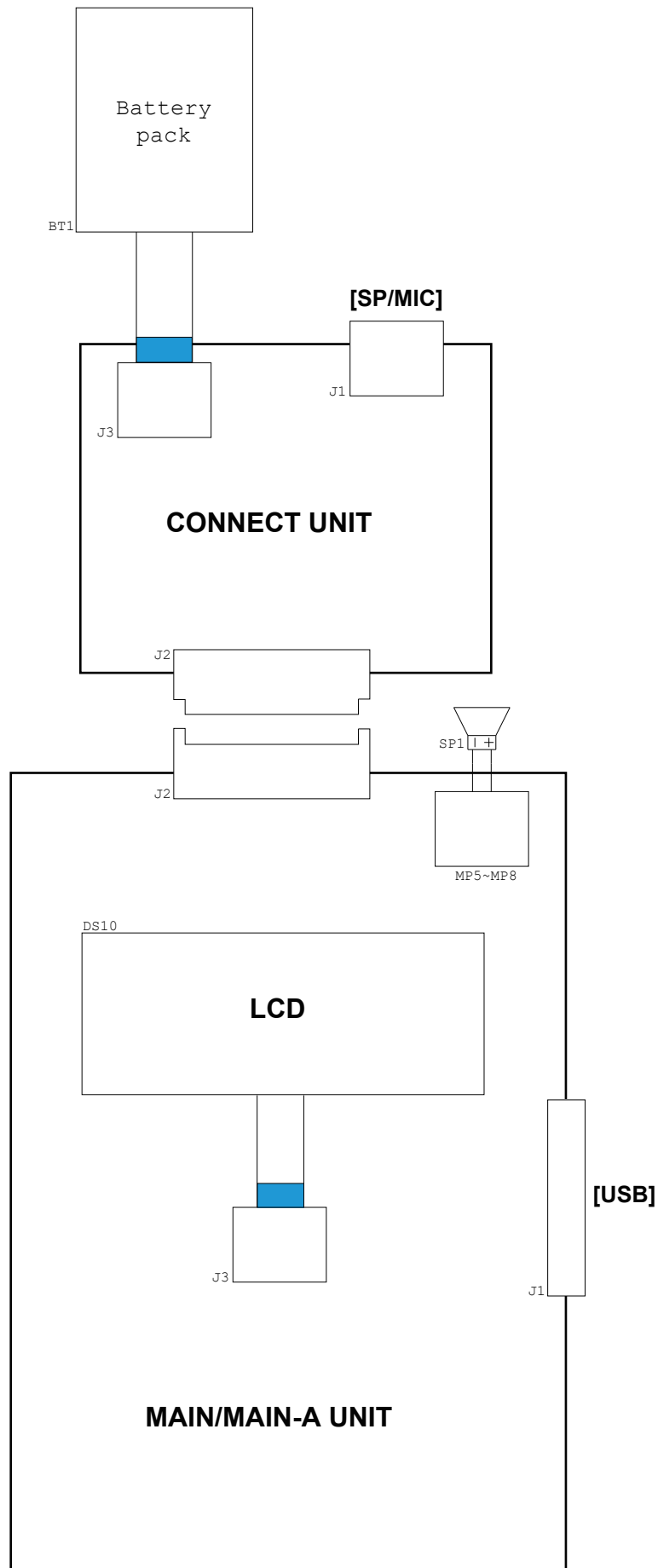
• MAIN-A UNIT (For [#42], [#43], and [#44]: B-9899A)  
(Top view)



(Bottom view)



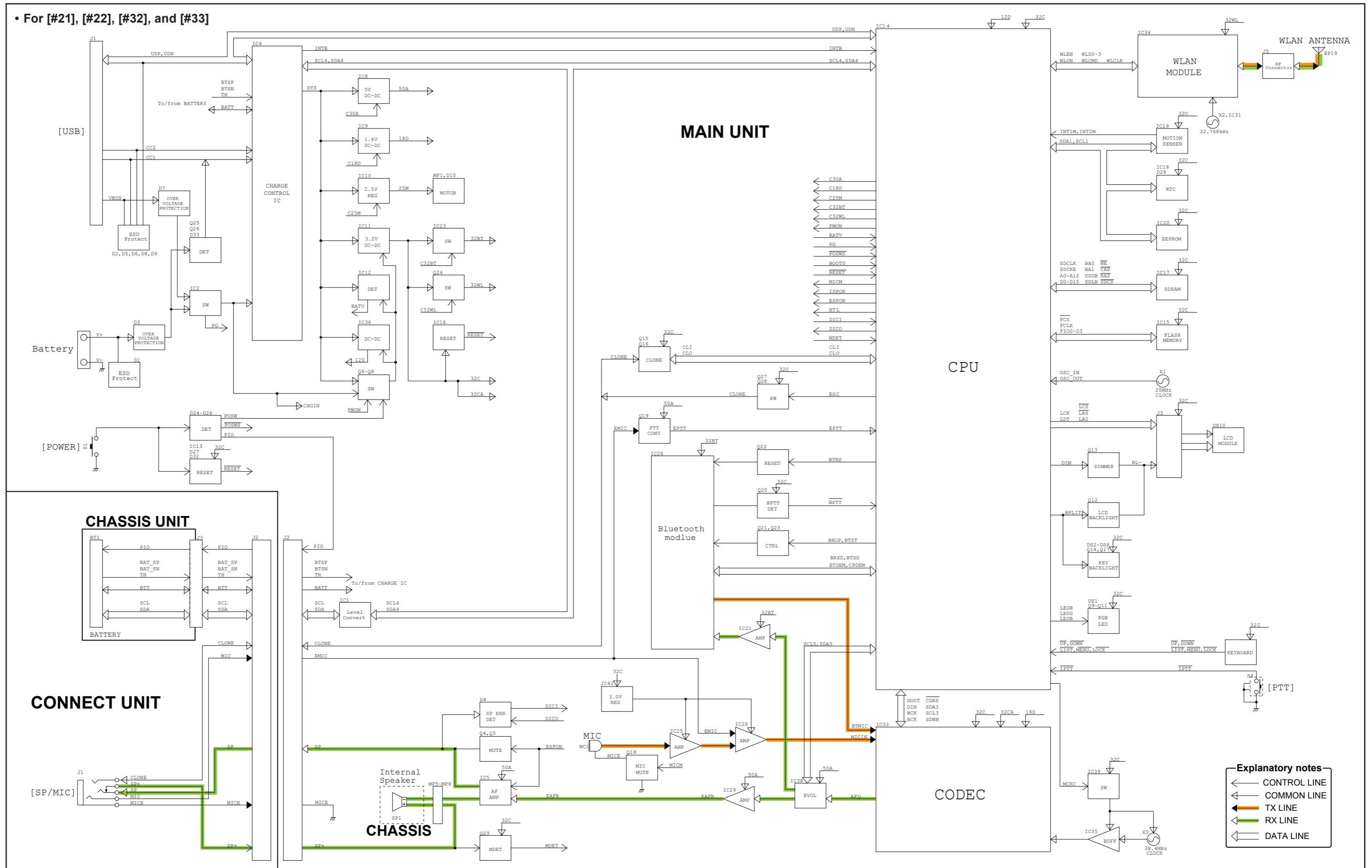
CHASSIS UNIT



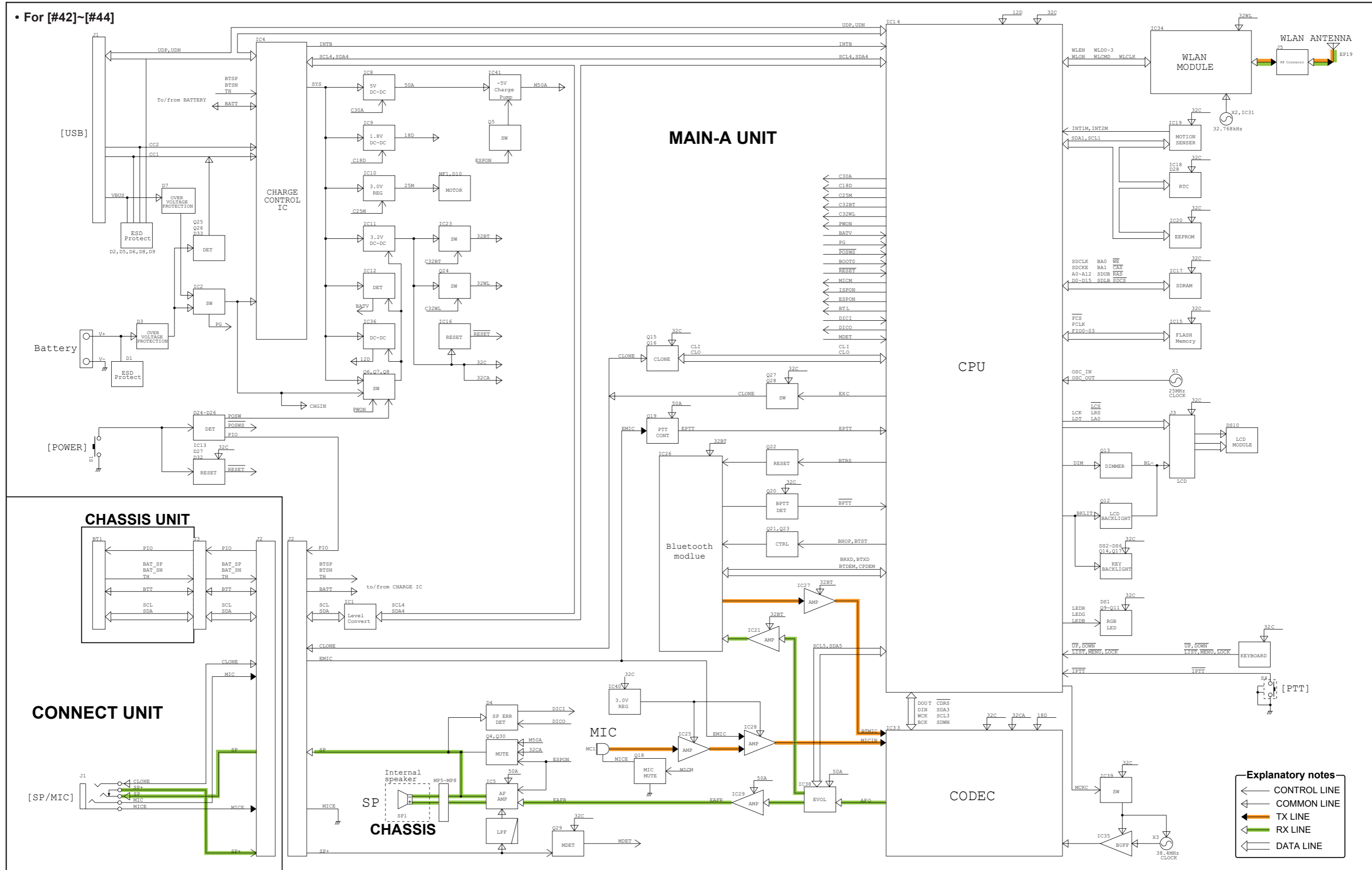
# SECTION 10

# BLOCK DIAGRAM

• For [#21], [#22], [#32], and [#33]

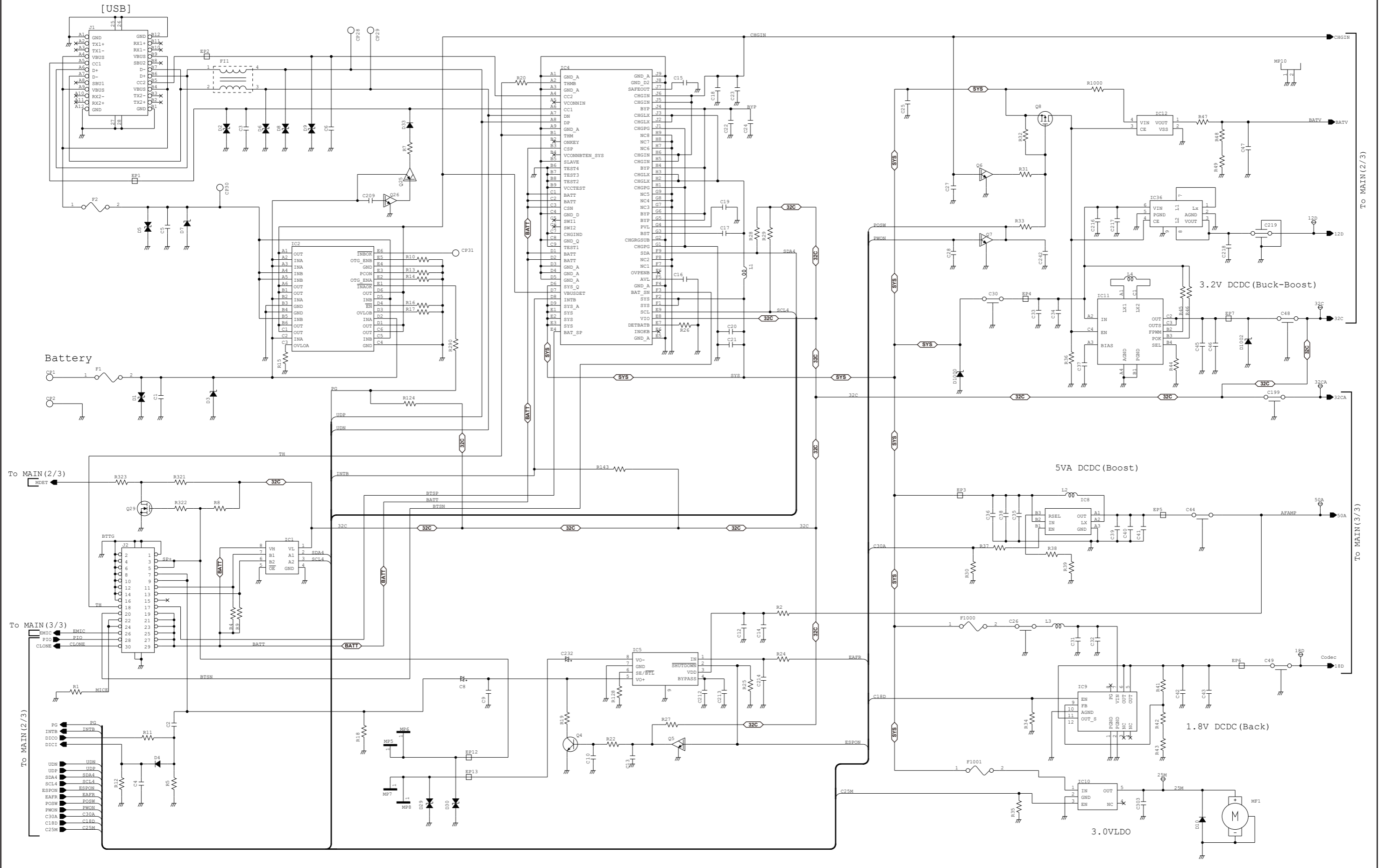


• For [#42]~[#44]

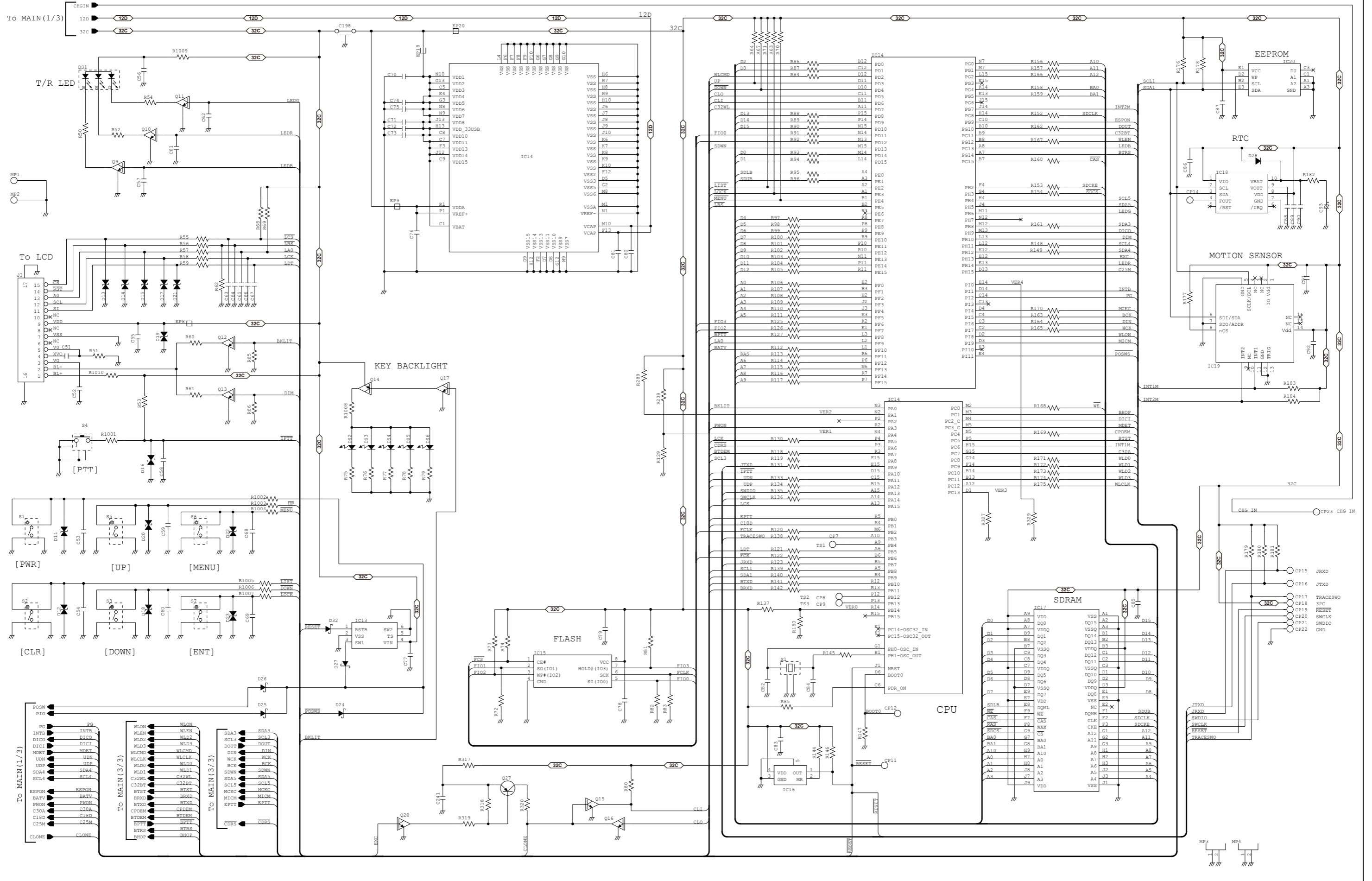


# SECTION 11 SCHEMATIC DIAGRAM

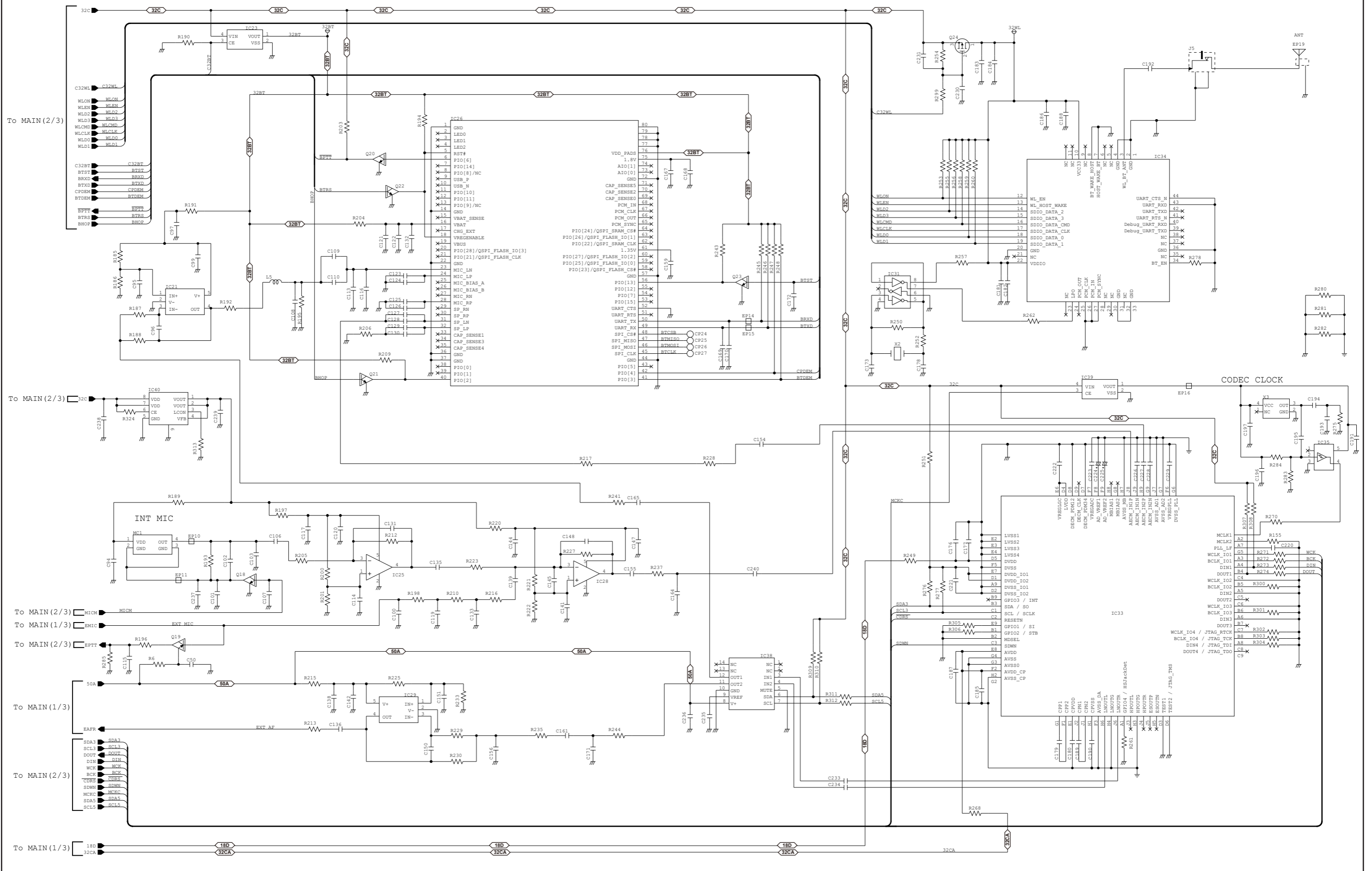
• MAIN UNIT (For [#21], [#22], [#32], and [#33]: 1/3)



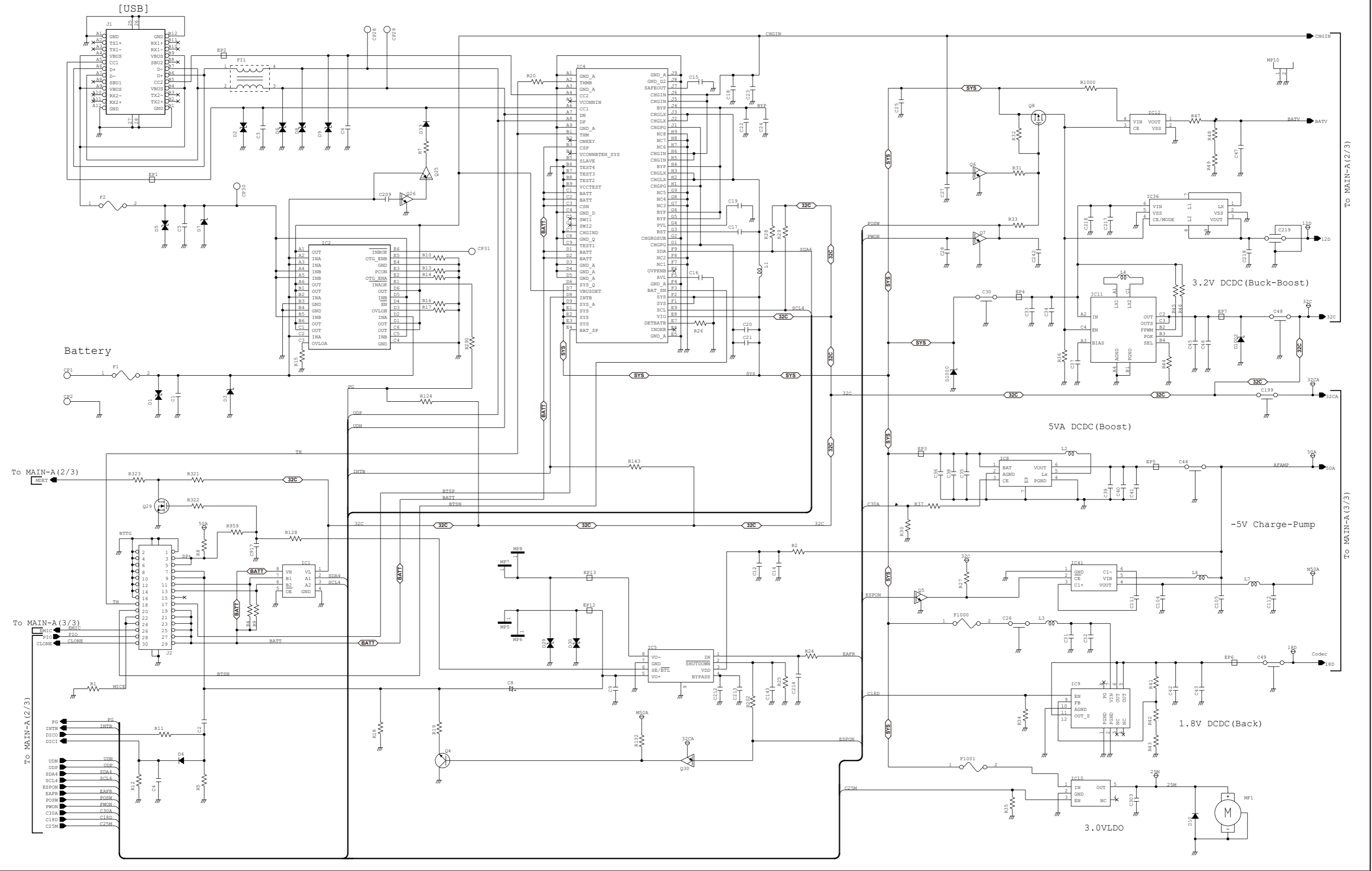
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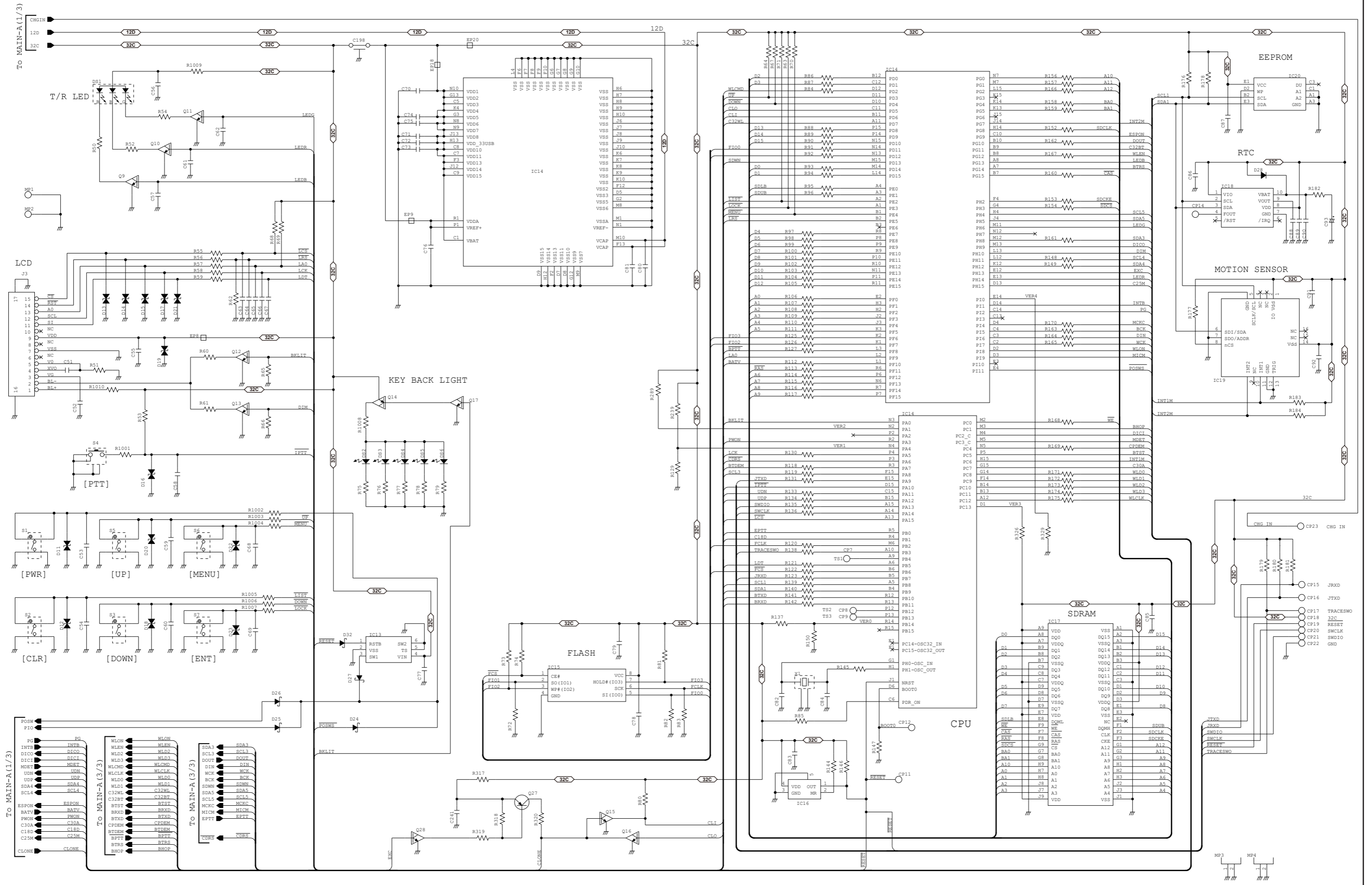
• MAIN UNIT (For [#21], [#22], [#32], and [#33]: 3/3)



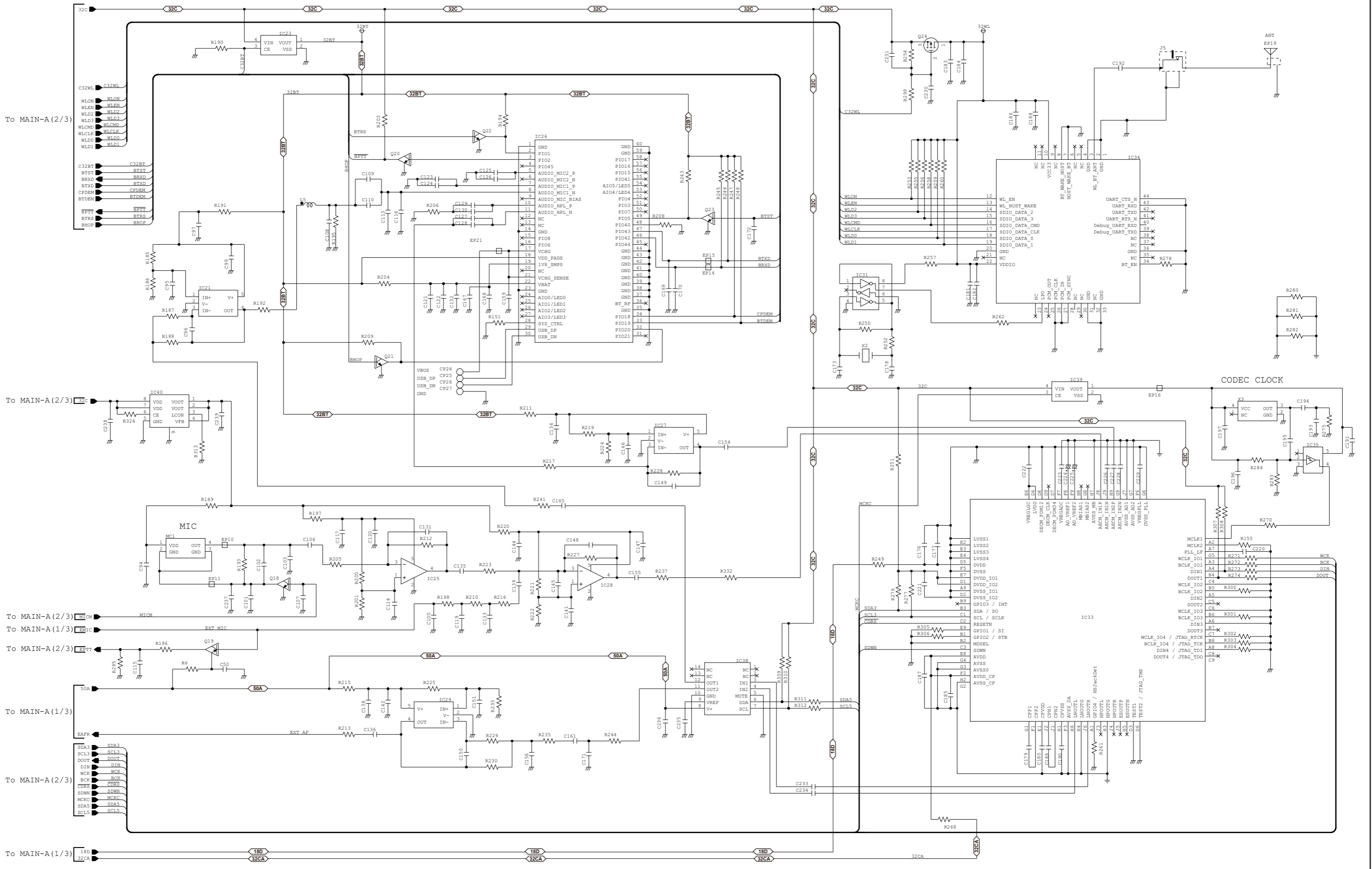
• MAIN-A UNIT (For [#42]~[#44]: 1/3)



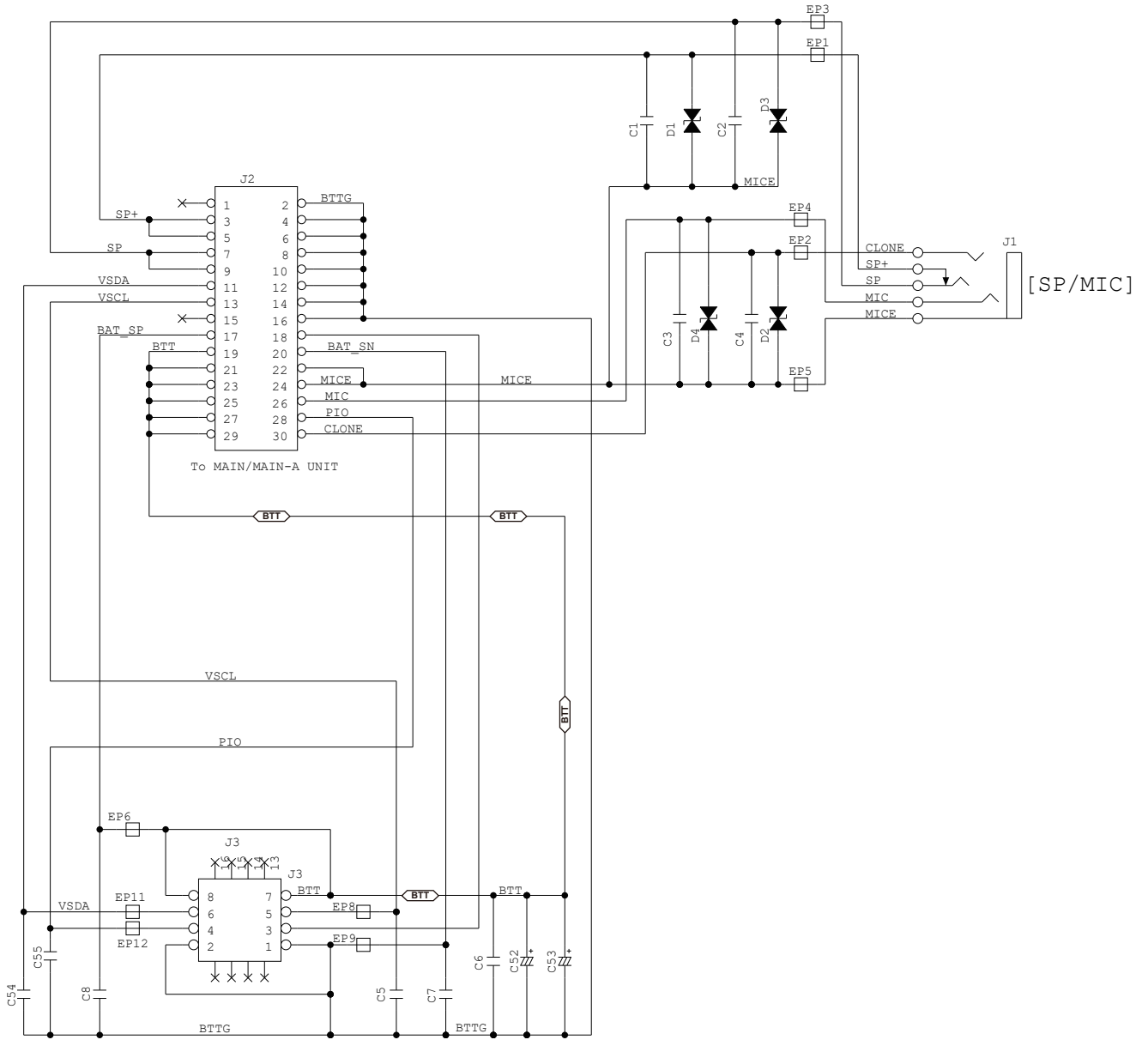
• MAIN-A UNIT (For [#42]~[#44]: 2/3)



• MAIN-A UNIT (For [#42]~[#44]: 3/3)



• CONNECT UNIT



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