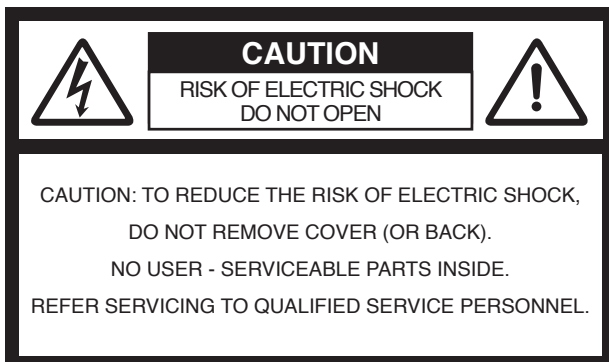

Service Manual

MIR 16 HD

MIR 16 HD/CD

DIGITAL MULTITRACKER

Fostex[®]



"WARNING"

"TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE."

SAFETY INSTRUCTIONS

1. Read Instructions - All the safety and operating instructions should be read before the appliance is operated.
2. Retain Instructions - The safety and operating instructions should be retained for future reference.
3. Heed Warnings - All warnings on the appliance and in the operating instructions should be adhered to.
4. Follow Instructions - All operating and use instructions should be followed.
5. Water and Moisture - The appliance should not be used near water - for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, and the like.
6. Carts and Stands - The appliance should be used only with a cart or stand that is recommended by the manufacturer.



An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

7. Wall or Ceiling Mounting - The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
8. Ventilation - The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, place in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
9. Heat - The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
10. Power Sources - The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
11. Grounding or Polarization - The precautions that should be taken so that the grounding or polarization means of an appliance is not defeated.
12. Power Cord Protection - Power supply cords should be routed so that they are not likely to be walked on

CAUTION:

TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

ATTENTION:

POUR ÉVITER LES CHOCS ÉLECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU' AU FOND.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

13. Cleaning - The appliance should be cleaned only as recommended by the manufacturer.
14. Nonuse Periods - The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
15. Object and Liquid Entry - Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
16. Damage Requiring Service - The appliance should be serviced by qualified service personnel when:
 - A. The power supply cord or the plug has been damaged; or
 - B. Objects have fallen, or liquid has been spilled into the appliance; or
 - C. The appliance has been exposed to rain; or
 - D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
 - E. The appliance has been dropped, or the enclosure damaged.
17. Servicing - The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.
18. The appliance should be situated away from drops of water or spray of water.
19. Objects containing liquid such as vase must not be put on the appliance. The appliance is not completely isolated from the power supply even if the power switch is at off position.
20. Apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus.
21. Only use attachments/accessories specified by the manufacturer.
22. An appliance with a protective earth terminal should be connected to mains outlet with a protective earth connection.
23. An appliance should be placed in a position where an AC plug / inlet can be easily pulled out by hand.
24. Main plug is used as the disconnection device. It shall remain readily operable and should not be obstructed during intended use. To be completely disconnected the apparatus from supply mains, the main plug of the apparatus shall be disconnected from the mains socket outlet completely.

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NOTES

- * PCB assembly, parts list and circuit diagrams are given in this manual to assist the service technician in maintaining the Model MR16HD and MR16HD/CD. To make it simple, MR16HD and MR16HD/CD are just described as "MR16" hereafter in this manual. If a distinction is required between the two, the model number "MR16HD" and "MR16HD/CD" are described.

- * The following accessories are supplied with MR-16HD, MR-16HD/CD as the standard accessories.

Owner's manual, MR-16HD, ENG	: 8588088000 (452186)
Owner's manual, MR-16HD, JPN	: 8588089000 (452188)
Owner's manual supplement, MR-16HD, ENG	: 8588093000 (456636)
Owner's manual supplement, MR-16HD/CD, ENG	: 8588095000 (456638)
Owner's manual supplement, MR-16HD, JPN	: 8588094000 (456637)
Owner's manual supplement, MR-16HD/CD, JPN	: 8588096000 (456639)

- * The following is the packing material for MR-16HD/CD.

Carton, inner, MR-16HD	: 8528101000 (452153)
Poly, Form, L, MR-16HD	: 8528099000 (452151)
Poly, Form, R, MR-16HD	: 8528100000 (452152)

CAUTION

- △ Parts marked with this sign are safety critical components. They must always be replaced with identical components. Refer to the Fostex Parts List and ensure exact replacement.

1. SPECIFICATIONS

SPECIFICATION UNIT 0 dBV = 1.0 Vrms, 0 dBu = 0.775 Vrms

REFERENCE LEVEL 12 dB below full scale level

< INPUT & OUTPUT >

ANALOG IN (A ~ D)

Connector	XLR-3-31 type (Pin-1: GND, Pin-2: Hot, Pin-3: COLD) / Ø 6 mm TRS phone balanced (Inserting TRS phone jack breaks signal fed to XLR connector.)
Input Level	- 48 dBu (MIC) ~ + 4 dBu (LINE)
Input Impedance	1.5 kΩ or more 400 kΩ or more (INPUT SW: GTR)
Reference Input Level	
LINE	+ 4 dBu
MIC	- 48 dBu
Phantom	- 48 V, On/Off switchable by MENU setting. Fed to XLR connector only.

INSERT (A)

Connector	Ø 6 mm TRS phone (Tip: output, Ring: Input, Sleeve: GND)
Load Impedance	10 kΩ or more
Reference Output Level	- 10 dBV
Input Impedance	10 kΩ or more
Reference Input Level	- 10 dBV

STEREO OUT (L, R)

Connector	Ø 6 mm phone
Reference Output Level	- 10 dBV (Unbalanced)
Load Impedance	10 kΩ or more

AUX OUT (x 2)

Connector	Ø 6 mm phone
Reference Output Level	- 10 dBV (Unbalanced)
Load Impedance	10 kΩ or more

PHONES (x 2)

Connector	Ø 6 mm STEREO phone
Load Impedance	16 Ω or more
Maximum Output Level	50 mW or more at 32 Ω

MIDI OUT

Connector	DIN 5-pin
Format	MIDI Standard

FOOT SW

Connector	Ø 6 mm phone
ON/OFF Level	TTL Level
Type	Unlatched type

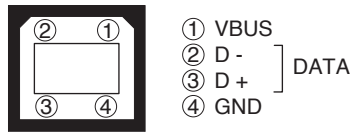
S/P DIF OUT

Connector	Optical
Format	IEC60958 (S/P DIF)

USB

Device USB 1.1. USB logo certificate not acquired. Connecting a USB key board and a storage device for file transfer is possible.

Connector A type



USB

Device USB 2.0 high speed. USB logo certificate not acquired. File transfer between PC and MR16 is possible.

Format B type



< MAJOR SPECS. >

Record & Playback

Medium Internal 3.5" HD

Sampling Frequency 44.1 kHz

Resolution 16 bits linear

File System FAT-32

Number of Track 16

A/D & D/A Converter

A/D 24 bits delta-sigma, Cirrus Logic CS5331

D/A 24 bits delta-sigma, Cirrus Logic CS4345

Fader

256 steps, 30 mm

CD-R/RW Drive Accession No.

0221205

< CHARACTERISTICS >

Maximum Output Level

ST OUT + 2 dBV ± 1 dB (full scale level)

AUX OUT + 2 dBV ± 1 dB (full scale level)

PHONES 50 mW or more (32 Ω load, 1 kHz)

Reference Output Level

ST OUT - 10 dBV ± 4 dB (Fader fixed at standard position (0 dB), 1 kHz)

AUX OUT - 10 dBV ± 4 dB (Fader fixed at standard position (0 dB), 1 kHz)

Frequency Response

ST OUT 20 Hz ~ 20 kHz + 2 dB, - 3 dB (MIC/LINE)

AUX OUT 20 Hz ~ 20 kHz + 2 dB, - 3 dB (MIC/LINE)

PHONES 50 Hz ~ 15 kHz + 2 dB, - 3 dB (50 mW, 32 Ω load)

T.H.D.

MIC -> ST OUT 0.1 % or less (Full scale level - 2 dB, 1 kHz)

LINE -> ST OUT 0.1 % or less (Full scale level - 2 dB, 1 kHz)

LINE -> PHONES 0.1 % or less (50 mW, 32 Ω load, 1 kHz)

Dynamic Range

89 dB or more

S/N

LINE 89 dB or more (IHF A, input terminated by 150 Ω resistor.)

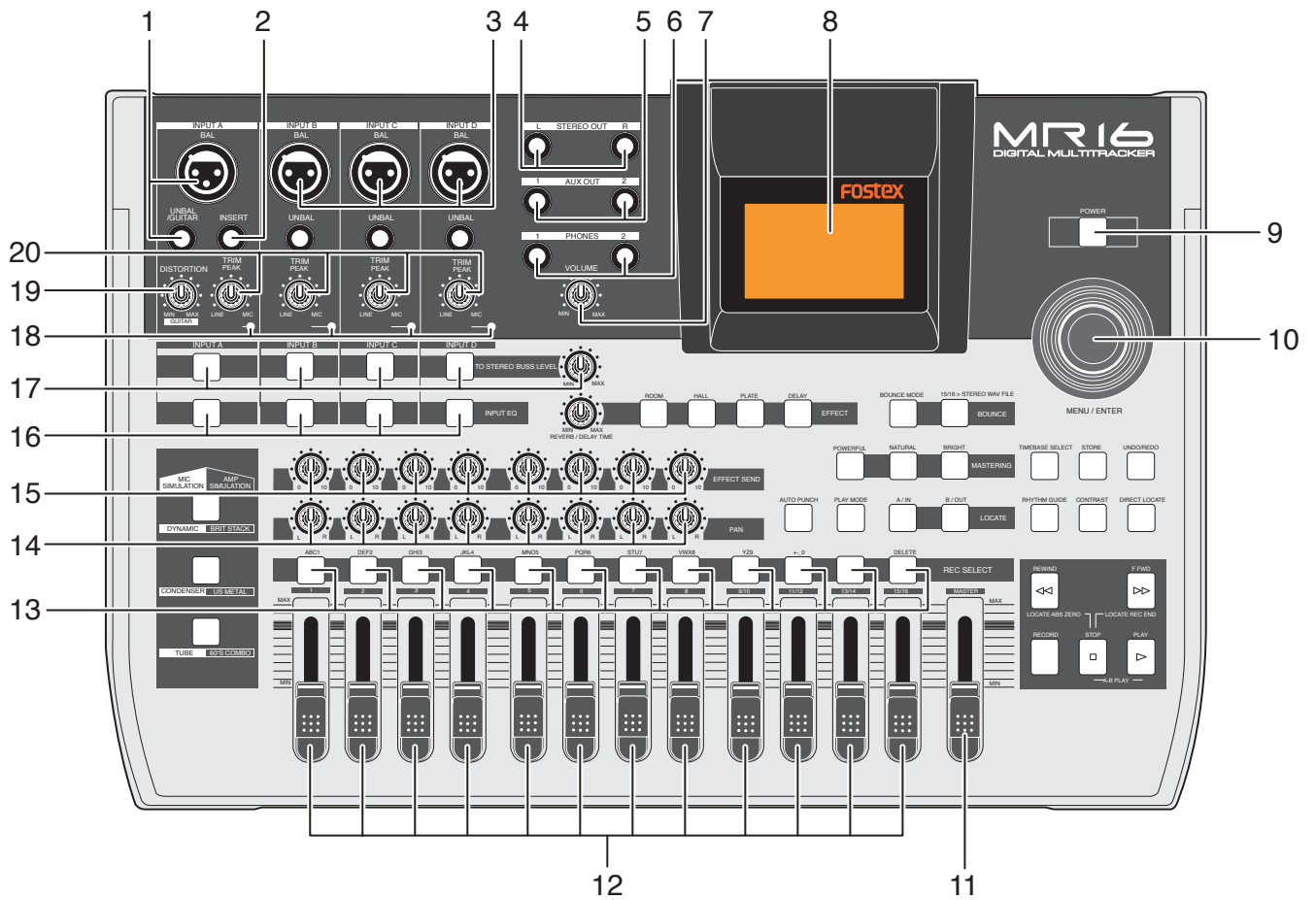
MIC 80 dB or more (IHF A, input terminated by 150 Ω resistor.)

Residual Noise	
LINE	- 87 dBV or less (DIN, input terminated by 150 Ω resistor.)
MIC	- 78 dBV or less (DIN, input terminated by 150 Ω resistor.)
PHONES	- 85 dBV or less (DIN)
Crosstalk	65 dB or more (1 kHz)
LINE (TRIM : MIN)	85 dB or more (1 kHz, full scale level is input to adjacent channel.)
MIC (TRIM : MAX)	75 dB or more (1 kHz, full scale level is input to adjacent channel.)
Click Noise	
Power On/Off	- 20 dBVp-p or less (ST OUT)
Others	- 30 dBVp-p or less (ST OUT)
Phantom	
Voltage	+ 48 \pm 2 V, On/Off on all channels at once by MENU setting.
< OTHERS >	
Dimensions	400 (W) x 85 (H) x 265 (D) mm (including protruding portion)
Weight	3.3 kg
Power	
JPN	100 V AC
USA	120 V AC
EUR/UK	230 V AC
Power Consumption	14 W
Usage Condition	Horizontal, continuous operation
Environmental Condition	
Standard Temperature	20 \pm 2 $^{\circ}$ C
Standard humidity	65 \pm 5 %
Characteristics Guaranteed	
Temperature	+ 5 $^{\circ}$ C ~ + 40 $^{\circ}$ C
Humidity	30 % ~ 70 %
Voltage deviation	\pm 5 % or less
Operation Guaranteed	
Temperature	+ 5 $^{\circ}$ C ~ + 45 $^{\circ}$ C
Humidity	85 % or less
Voltage deviation	\pm 10 % or less
< STANDARDS >	
Vibration & Drop Tests	Comply to Fostex Company technical standards
Safety Standard	IEC60065
Others	
EMI	EN55011 Group 1 Class B EN61000-3-2 & 3-3
EMS	EN61000-6-1 (Year 2001 version)
Environment Response	RoHS directive compliance

Specifications and physical appearance are subject to change without notice for product improvement.

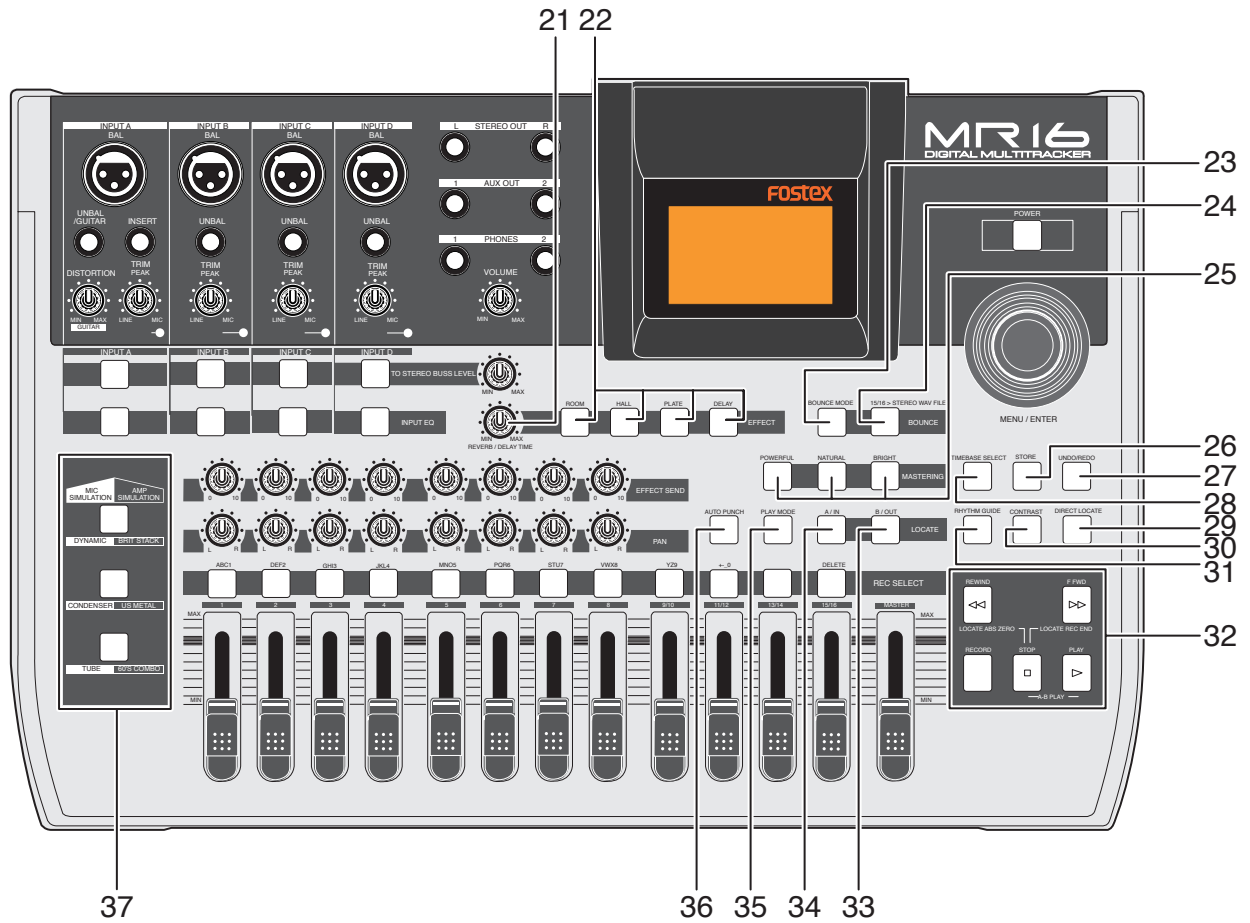
2. CONTROLS, INDICATORS & CONNECTORS

< Top Panel Section 1 >



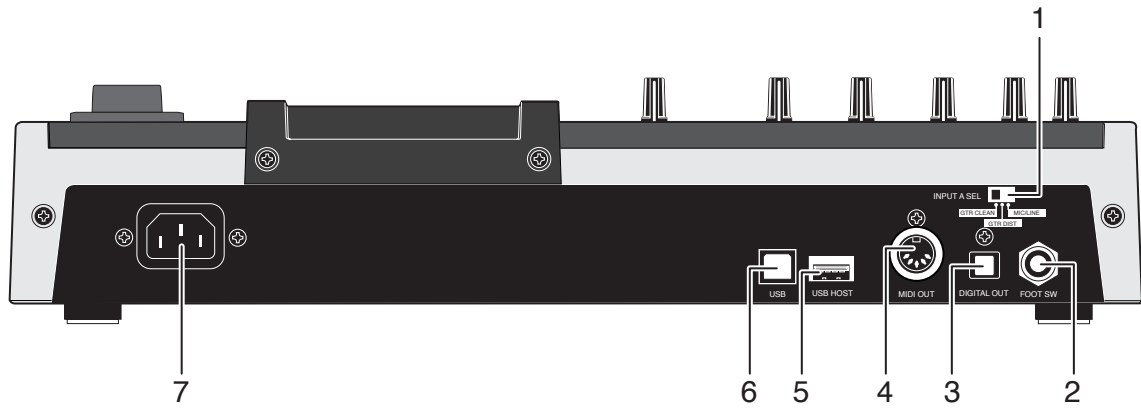
- | | |
|-------------------------------------|--------------------------------|
| 1. [INPUT A] input connectors | 15. [EFFECT SEND] controls |
| 2. [INSERT] connector | 16. [INPUT EQ] keys |
| 3. [INPUT B, C, D] input connectors | 17. [TO STEREO BUSS] keys |
| 4. [STEREO OUT] jacks | [TO STEREO BUSS LEVEL] control |
| 5. [AUX OUT] jacks | 18. [PEAK] indicators |
| 6. [PHONES] jacks | 19. [DISTORTION] control |
| 7. [PHONES VOL] control | 20. [TRIM] controls |
| 8. LCD display | |
| 9. [POWER] switch | |
| 10. [MENU/ENTER] rotary / push knob | |
| 11. [MASTER] fader | |
| 12. Track faders | |
| 13. [REC SELECT] keys | |
| 14. [PAN] controls | |

< Top Panel Section 2 >



- | | |
|---|--|
| <ul style="list-style-type: none"> 21. [REVERB/DELAY TIME] control 22. [EFFECT] keys 23. [BOUNCE MODE] key 24. [15/16 > STEREO WAV FILE] key 25. [MASTERING] keys
[POWERFUL] key
[NATURAL] key
[BRIGHT] key 26. [STORE] key 27. [UNDO/REDO] key 28. [TIME BASE SEL] key 29. [DIRECT LOCATE] key 30. [CONTRAST] key | <ul style="list-style-type: none"> 31. [RHYTHM GUIDE] key 32. Transport keys
[PLAY] key
[STOP] key
[RECORD] key
[F FWD] key
[REWIND] key 33. [LOCATE B/OUT] key 34. [LOCATE A/IN] key 35. [PLAY MODE] key 36. [AUTO PUNCH] key 37. Insert effect selection keys |
|---|--|

< Rear Panel Section >



1. [INPUT A SELECT] switch
2. [FOOT SW] jack
3. [DIGITAL OUT] connector
4. [MIDI OUT] jack
5. [USB HOST] connector
6. [USB] port
7. [AC IN] connector

< Side Panel Section >



1. Internal CD-R/RW drive

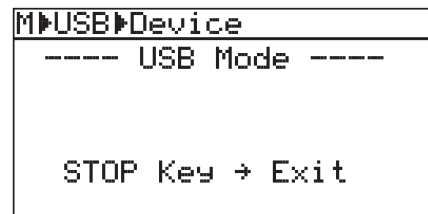
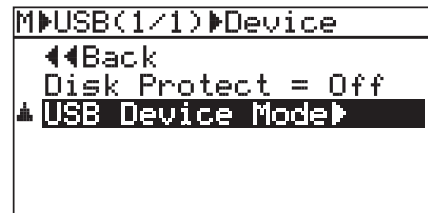
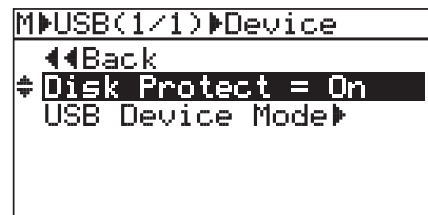
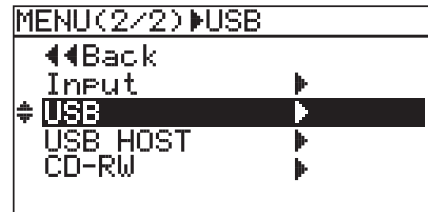
3. SOFTWARE UPDATE

- 1) Connect the AC power cable to the AC IN connector.
- 2) Press the MR16 power switch.
- 3) Press the [MENU/ENTER] dial to enter the MENU mode.
- 4) Rotate the [MENU/ENTER] dial and select the "USB" menu.
- 5) Press the [MENU/ENTER] dial.

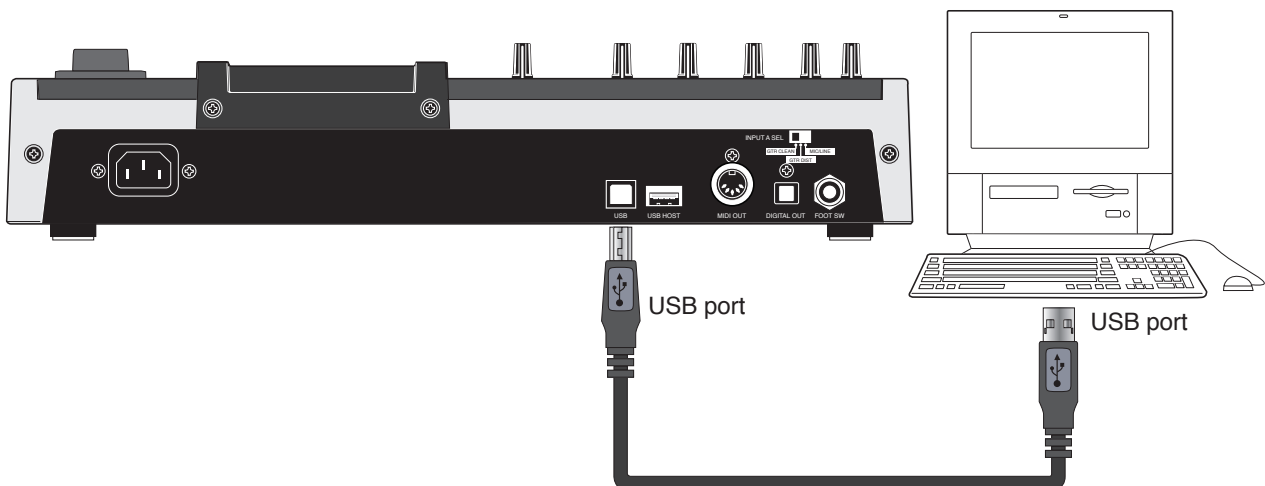
- 6) Rotate the [MENU/ENTER] dial and select the "Disk Protect" menu.
- 7) Press the [MENU/ENTER] dial and set "Disk Protect" to "Off" by rotating the [MENU/ENTER] dial. Then, press the [MENU/ENTER] dial. With this setting, the Disk Protect mode is turned off indicating the condition that the software update file can be copied to the MR16 internal HDD.
- 8) Rotate the [MENU/ENTER] dial to select the "<< Back" menu and press the [MENU/ENTER] dial.

- 9) Rotate the [MENU/ENTER] dial and select the "USB Device Mode" menu.
- 10) Press the [MENU/ENTER] dial. If MR16 is correctly put into the USB mode, the display on the right will appear on the LCD. Now MR16 is ready to connect to PC or Macintosh.

- 11) Connect the USB cable from the MR16 USB port to PC on which Windows XP/2000 is running or Macintosh on which OS X is running.



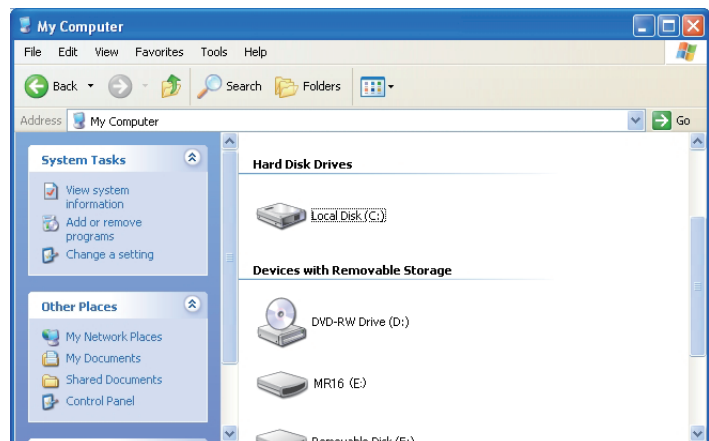
CAUTION: MR16 can be connected to PC on which Windows XP/2000 is running or Macintosh on which OS X is running for software update as well as audio data transfer. Of course PC/Macintosh has to be equipped with a USB port.



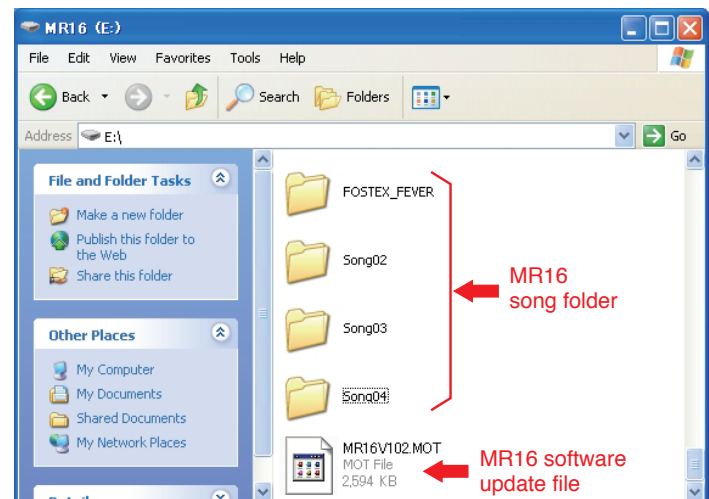
12) PC or Macintosh recognizes MR16 as an external removable disk.

(a) Windows XP/2000

The example on the right indicates that MR16 is recognized as a removable disk (E) in the My Computer on Windows XP PC. Unzip the software update file with “zip” extension (e.g. MR16_V102.zip) normally sent together with a technical bulletin. If you do so, a software update file (e.g. MR16V102.MOT) will be created. Place a newly created software update file with “MOT” (motorola format) extension in the root directory tree of the Removable disk (E).

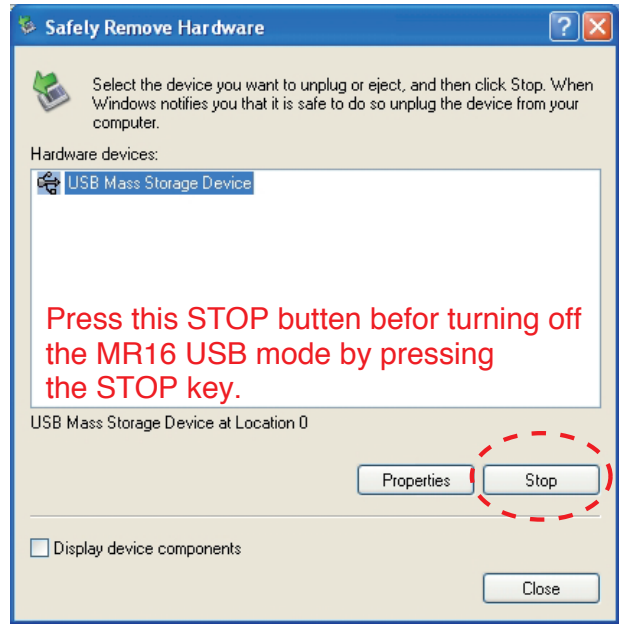
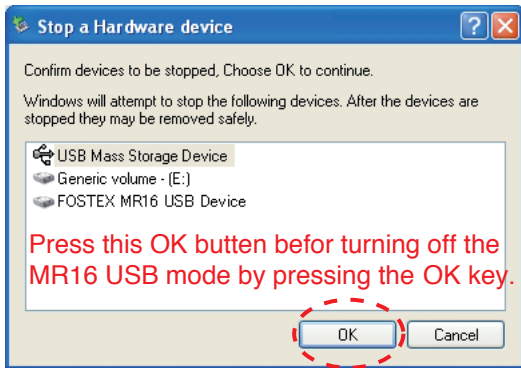


By double-clicking the removable drive (E) (MR16), the window on the right will appear. You can see that the software update file (MR16V102.MOT) is placed in the top directory tree of the Removable Disk (E).



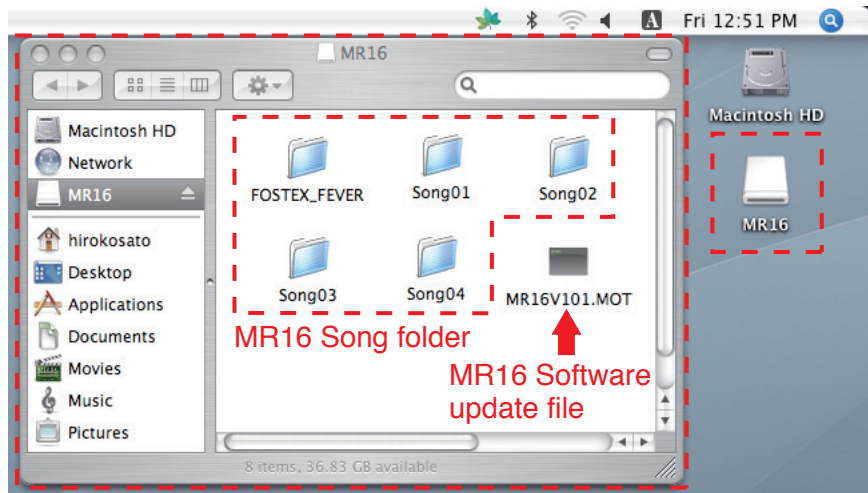
Continue to the next page.

After transferring the software update file is completed, **do not turn off the USB connection by pressing the MR16 STOP key. First, you need to safely remove the MR16 from PC side by opening the “Safety Removable Hardware” in the tool bar and pressing the “Stop” button on Windows XP/2000 PC.** Then, you can turn off the USB connection from the MR16 side.



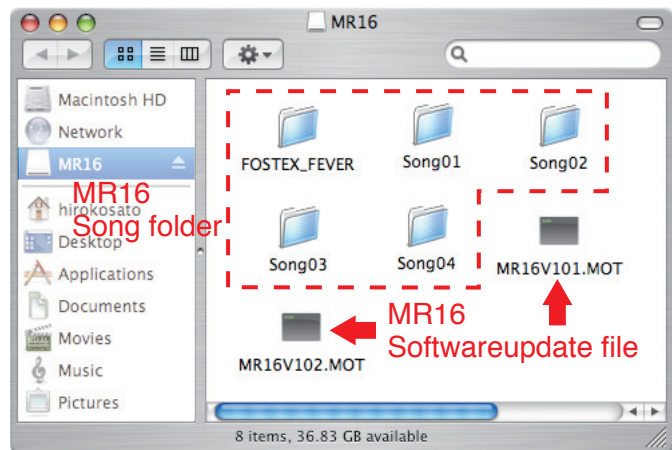
(b) Macintosh OS X

MR16 is recognized as “MR16” on the Macintosh OS X desktop. By double-clicking the MR16 icon, the window on the right will appear. There are five song folders and one software update file “MR16V101.MOT”.

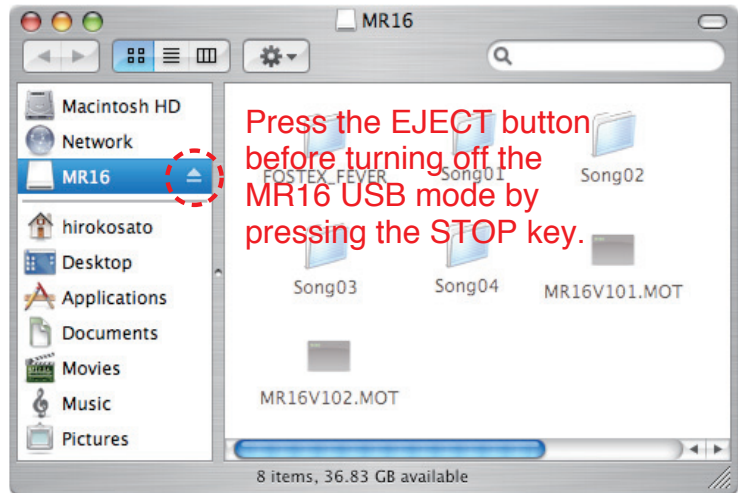


Unzip the software update file with “zip” extension (e.g. MR16_V102.zip) normally sent together with a technical bulletin.

Copy and paste a newly created software file with “MOT” (motorola format) extension (e.g. MR16V102.MOT) onto a root directory of MR16 HDD connected to Macintosh (OS X).

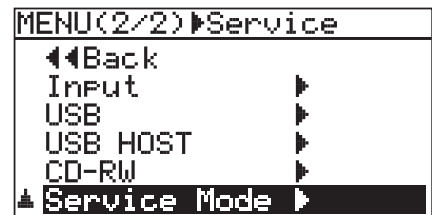
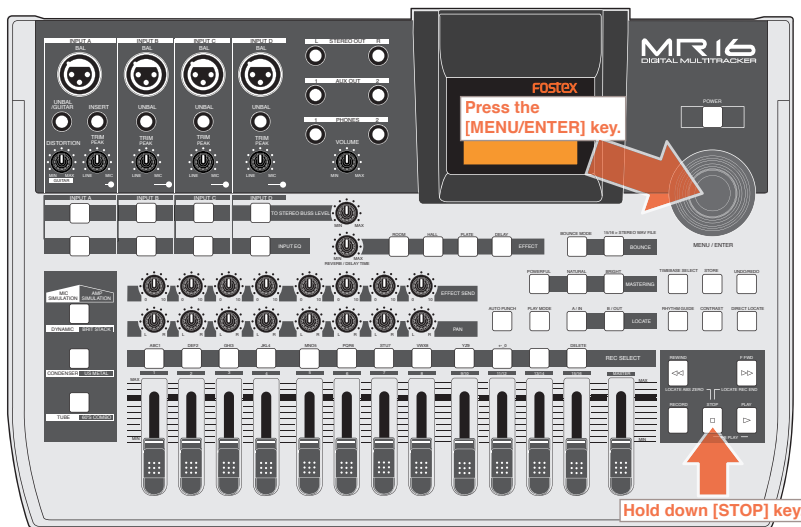


After transferring the software update file is completed, **do not turn off the USB connection by pressing the MR16 STOP key. First, as shown on the right, you need to press the EJECT button on Macintosh.** Then, you can turn off the USB connection from the MR16 side.



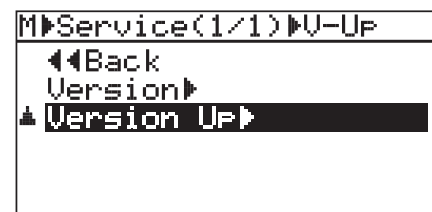
CAUTION: There is a case that it takes time for PC or Macintosh to recognize MR16 as an external device. While the “ACC” (access) indication on the upper right of the MR16 LCD is flashing in the USB mode, do not disconnect the USB cable between MR16 and PC / Macintosh.

- 13) Disconnect the USB cable between MR16 and PC / Macintosh.
- 14) On MR16 with the normal display appears, press the [MENU/ENTER] dial while holding down the [STOP] key to access the Service Mode menu.



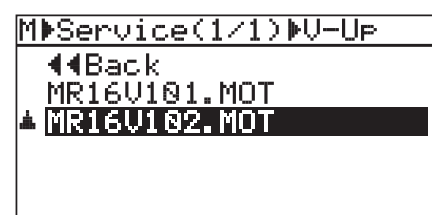
NOTE: Pressing the [MENU/ENTER] dial while holding down the [STOP] key allows to access the "Version" and "Version Up" Service menu only. To fully access all the Service menus, as mentioned on page 16, press the [MENU/ENTER] dial while holding down the [STOP] and [POWER] keys.

- 15) Rotate the [MENU/ENTER] dial and select the “Service Mode” menu.
- 16) Press the [MENU/ENTER] dial.
- 17) Rotate the [MENU/ENTER] dial and select the “Version Up” menu.



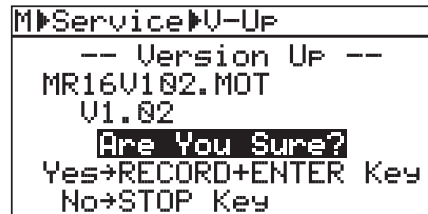
- 18) Press the [MENU/ENTER] dial.
- 19) Rotate the [MENU/ENTER] dial and select a software update file with the version number you would like to update.

NOTE: As long as the file name is different, up to five software update files can be placed in the root directory.

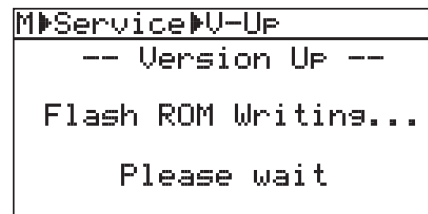
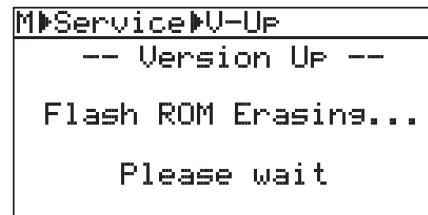
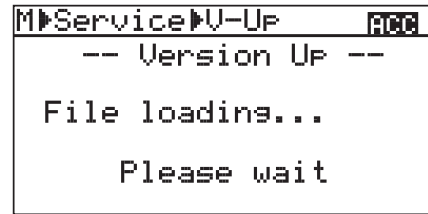


- 20) Press the [MENU/ENTER] dial.

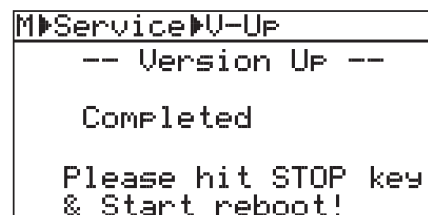
21) The selected software file is displayed together with the software version number. To go on, press the [MENU/ENTER] dial while holding down the [REC] key.



22) The software updating procedures begin. "File loading...", "Flash ROM Erasing..." and "Flash ROM Writing..." will appear in order. It will take about one minute to complete the procedures.



23) Upon completion, "Completed" will appear on the LCD.



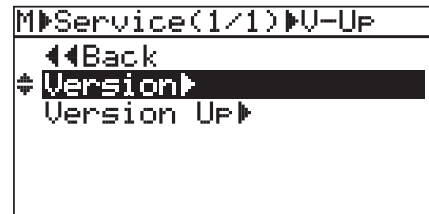
24) Turn off the power once and then back on to complete the software update procedures. In the meantime, confirm the software version number and the programming date displayed for a short instance in the boot-up process.



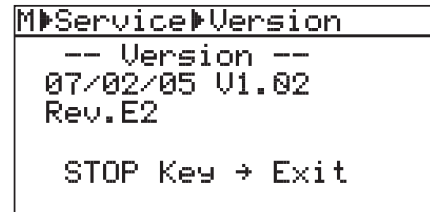
The software version can be checked by the "Version" Service Mode menu. In the condition with normal display appears, press the [MENU/ENTER] dial while holding down the [STOP] key to access the Service Mode menu. If you do so, the display on the right will appear on the LCD. Rotate the [MENU/ENTER] dial to select the "Service Mode" menu and press the [MENU/ENTER] dial.



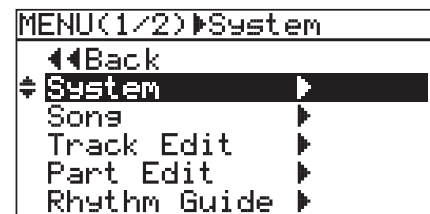
Select the “Version” menu and press the [MENU/ENTER] dial.



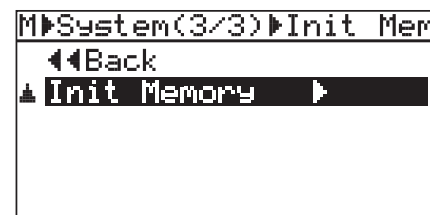
The display on the right will appear on the LCD. It indicates that the programming date is February 5th, 2007, the version number is V1.02 and the CPU revision number is E2. To get back to the normal display, press the [STOP] key.



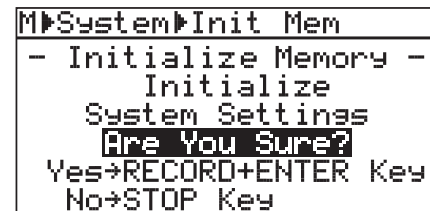
- 25) Press the [STOP] key to return to the normal display mode. Then, press the [MENU/ENTER] dial to enter the MENU mode.
- 26) Rotate the [MENU/ENTER] dial to select the "System" menu and press the [MENU/ENTER] dial.



- 27) Rotate the [MENU/ENTER] dial and select the “Init Memory” menu.



- 28) Press the [MENU/ENTER] dial.
- 29) The display contents on the right appear on the LCD. Press the [MENU/ENTER] dial while holding down the [RECORD] key. This operation will initialize all the system settings to default.



CAUTION: The “Initialize Memory” operation sets all the system settings to the default values. For example, the “Disk Protect” setting in the USB menu is set to “ON” after initializing the memory. If you would like to update the software in future, please remember that it has to be set to “OFF” again.

4. SERVICE MENU

In addition to various MENU modes, SERVICE menus are available to check and maintain the MR16 condition. Please utilize them when servicing MR16.

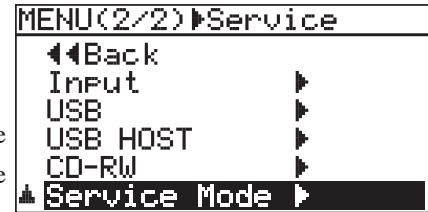
4-1. Entering Service Menu

- 1) Connect the AC cable and power on MR16. After the bootup procedure is completed, the display on the right will appear on the MR16 LCD.



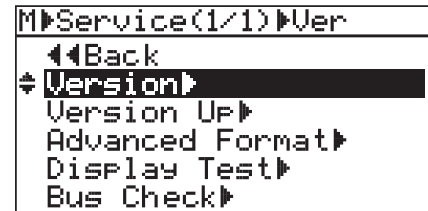
- 2) Press the [MENU/ENTER] dial while holding down the [STOP] and [POWER] keys. If you do so, "Service Mode" is displayed on the MR16 LCD.

CAUTION: If the [POWER] key is held down for more than three seconds, MR16 turns off. Please be careful to expedite the above manipulation 2).



- 3) Rotate the [MENU/ENTER] dial and select "Service Mode". Then, press the [MENU/ENTER] dial. You can see that the following service menus will appear on the MR16 LCD.

Select one of the service menus you would like to execute and press the [MENU/ENTER] dial.

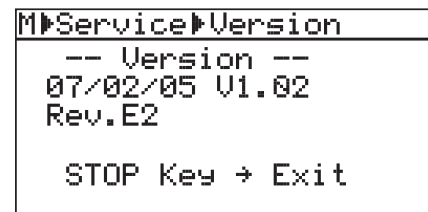
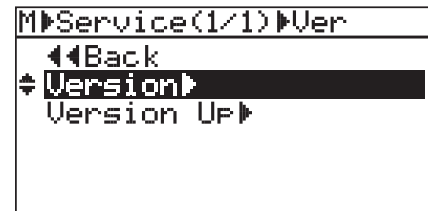


4-2. Version

In the "Version" service menu, the current MR16 software version as well as the corresponding software programming date can be checked.

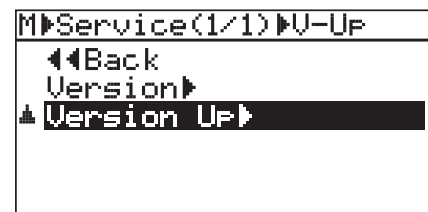
- 1) After selecting the "Version" menu, press the [MENU/ENTER] dial to check the current software version and the programming date. The example on the right indicates that the software version is "V1.02" the programming date is February 5th, 2007 and the CPU revision number is E2.

By pressing the STOP key, MR16 returns to the service menu select condition.



4-3. Version Up

The "Version Up" service menu allows you to update the MR16 software by placing the software update file in the root directory tree of the MR16 3.5" internal hard disk. For the update procedures, refer to the previous section "3. SOFTWARE UPDATE" on page 10 in detail.



4-4. Advanced Format

MR16 checks the remaining capacity / partition information written on the internal HD in the bootup process after powering on. In case this information does not match the current HD condition, the “Advanced Format” service menu can be used. For example, even if no song has been created (recorded) but the remaining capacity indicates only 10MB, execute the “Advanced Format” menu.

As indicated on the right, please remember that executing the “Advanced Format” deletes all the songs recorded on the internal HD.

Upon completion of “Advanced Format”, the message “Boot Sector Clear” appears on the LCD.

NOTE: In case MR16 is not booted up correctly and displays an alert message such as “Please Wait!” permanently, power if off once. Then, while holding down the [STOP] key, power on MR16. This mode allows to boot up without loading any recorded songs. Next, execute the “Advanced Format” menu.

4-5. CD-RW Disk Erase

Executing the “Disk Erase” service menu erases all existing song data on the CD-RW disk put into the MR16HD/CD internal CD-R/RW drive.

- 1) Rotate the [MENU/ENTER] dial and select “CD-RW”. Then, press the [MENU/ENTER] dial.
- 2) Rotate the [MENU/ENTER] dial and select “Disk Erase”. Then, press the [MENU/ENTER] dial.
- 3) To go on, press the [MENU/ENTER] dial while holding down the [REC] key.
- 4) The CD-RW disk erasing procedures begin. “Erasing...” will appear. It will take about one minute to complete the procedures.
- 5) Upon completion, “Completed!” will appear on the LCD.

```
M▶Service(1/1)▶A-Forma
◀◀Back
Version▶
Version Up▶
+ Advanced Format▶
Display Test▶
Bus Check▶
```

```
M▶Service▶A-Format
--Advanced Format--
Delete All Songs!
Can't Undo!
Are You Sure?
Yes→RECORD+ENTER Key
No→STOP Key
```

```
M▶Service▶A-Format
--Advanced Format--
Boot Sector Clear
Completed!

Press ENTER Key!
```

```
MENU(2/2)▶CD-RW
◀◀Back
Input ▶
USB ▶
USB HOST ▶
+ CD-RW ▶
Service Mode ▶
```

```
M▶CD-RW(2/2)▶Erase
◀◀Back
Songs Import ▶
+ Disk Erase ▶
```

```
M▶CD-RW▶Disk Erase
-- CD Erase --
Can't Undo!
Are You Sure?
Yes→RECORD+ENTER Key
No→STOP Key
```

```
M▶CD-RW▶Disk Erase
-- CD Erase --

Please wait

Erasing...
```

```
M▶CD-RW▶Disk Erase
-- CD Erase --

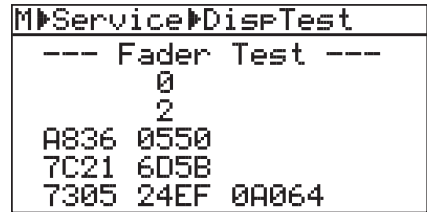
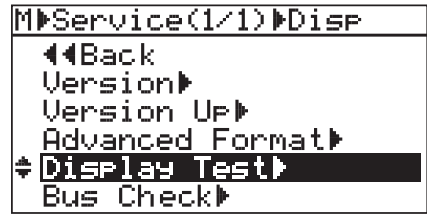
Completed!

Press ENTER Key!
```

4-6. Display Test

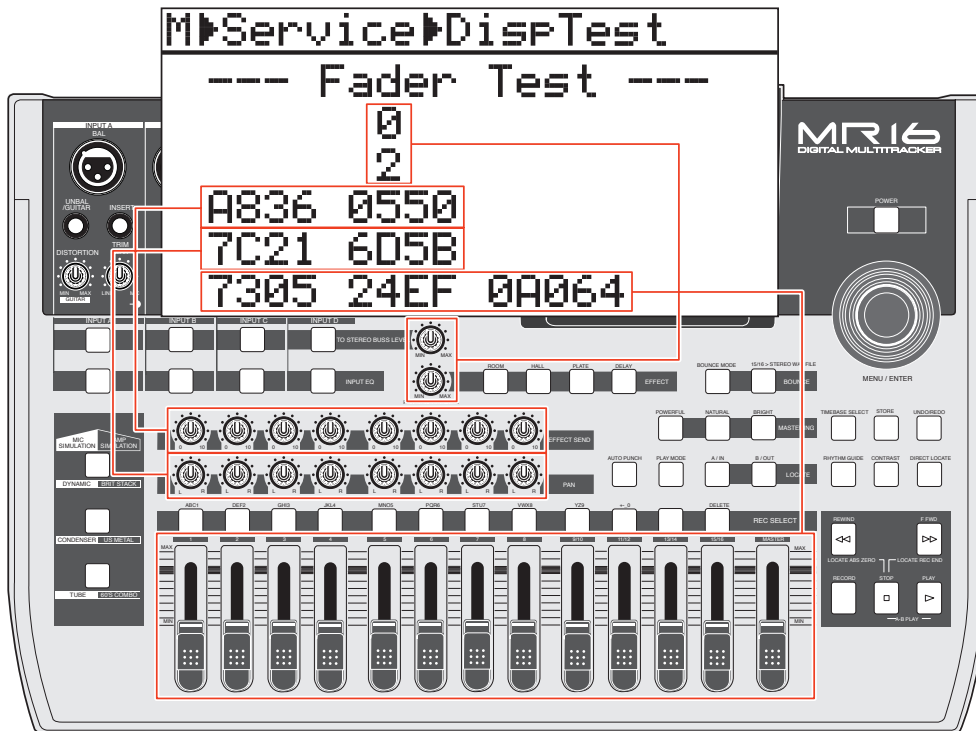
This menu checks if the EFFECT SEND / PAN / REVERB/DELAY pots & faders / self-illuminating tact switches are working properly.

- 1) After selecting the "Display Test" menu, press the [MENU/ENTER] dial.
- 2) Press the [MENU/ENTER] dial again. If you do so, the display on the right will appear on the MR16 LCD.



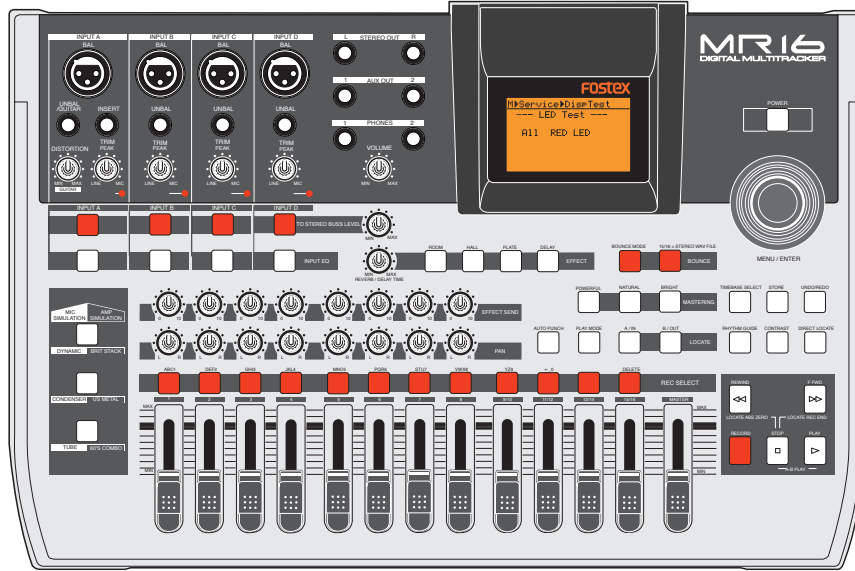
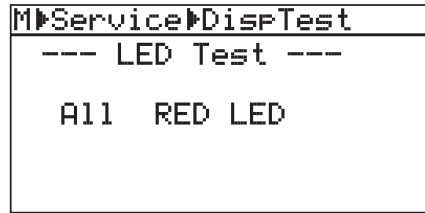
As shown in the drawing below, each value the EFFECT SEND / PAN / TO STEREO BUSS LEVEL / REVERB/DELAY pots & faders position. Rotate the EFFECT SEND / PAN pots and move the faders to check if the value changes from "0" to "F" in hexadecimal depending on the pots / fades position as follow.

EFFECT SEND Pots 1 ~ 8:	0 (CCW) ~ F (CW)
PAN pots 1 ~ 8:	0 (CCW) ~ F (CW)
TO STEREO BUSS LEVEL pot:	0 (CCW) ~ F (CW)
REVERB/DELAY pot:	0 (CCW) ~ F (CW)
Channel faders (1 ~ 8, 9/10, 11/12, 13/14, 15/16):	0 (down) ~ F (up)
Master fader:	0 (down) ~ F (up)



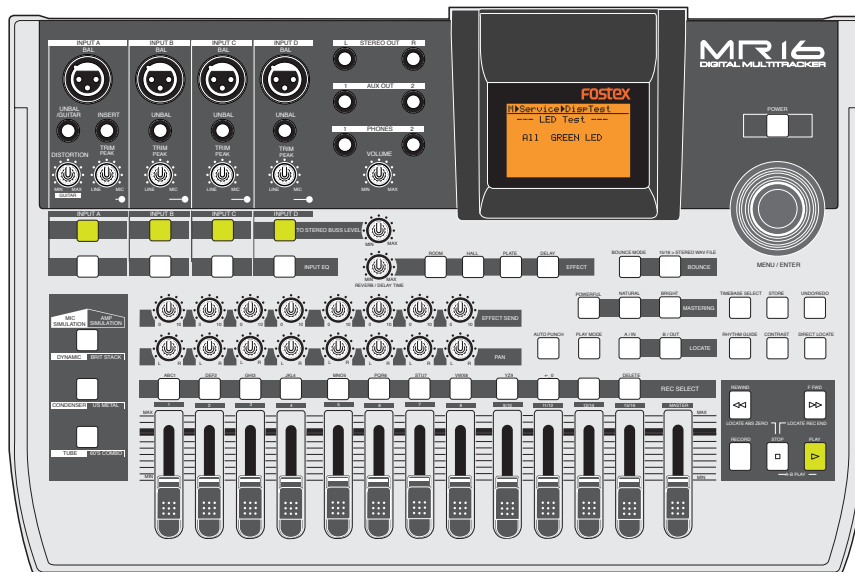
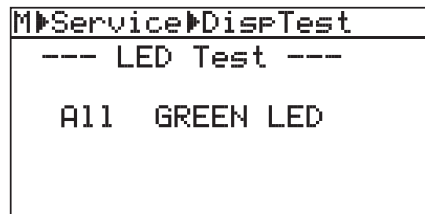
- 3) After checking, press the [MENU/ENTER] dial to proceed the next Display Test. The next test is to check if the self-illuminating tact switches are lit in red.

Check if the self-illuminating tact switches are properly lit in red as indicated in the drawing below.



- 4) After checking, press the [MENU/ENTER] dial to proceed the next Display Test. The next test is to check if the self-illuminating tact switches are lit in green.

Check if the self-illuminating tact switches are properly lit in green as indicated in the drawing below.

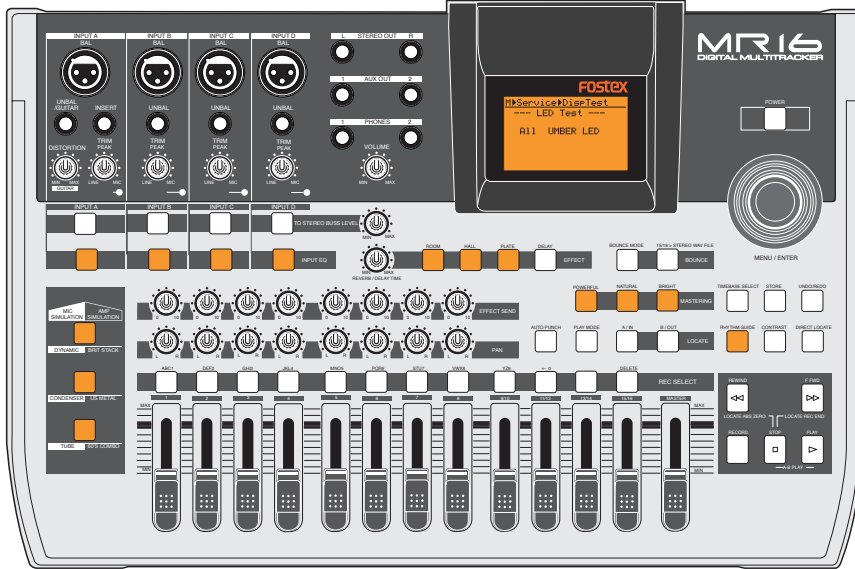


- 5) After checking, press the [MENU/ENTER] dial to proceed the next Display Test. The next test is to check if the self-illuminating tact switches are lit in umber.

```

M>Service>Dis>Test
--- LED Test ---
A11 UMBER LED
    
```

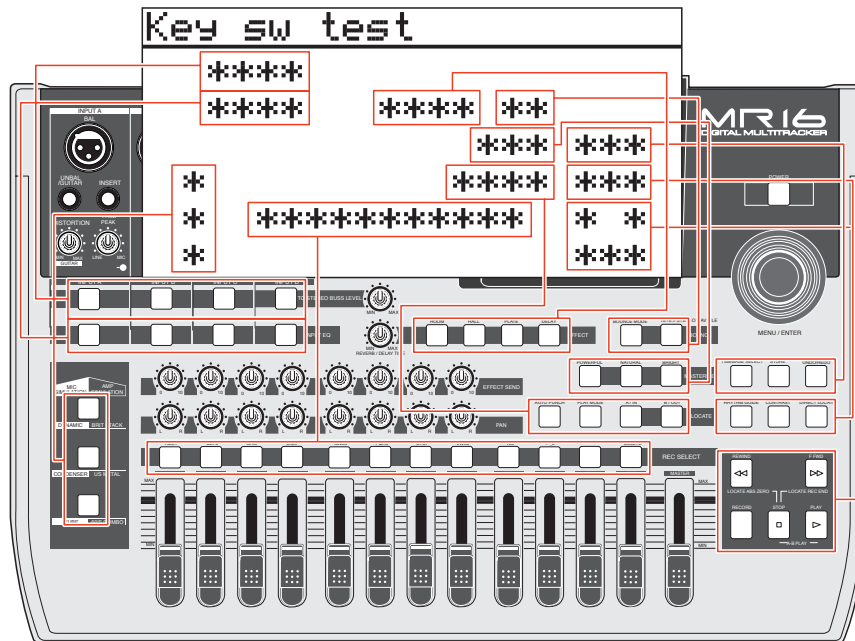
Check if the self-illuminating tact switches are properly lit in orange as indicated in the drawing below.



- 6) After checking, press the [MENU/ENTER] dial to proceed the next Display Test. The next test is to check if the tact switches on the MR16 top panel except the POWER SW is in good contact. If the tact switch is pressed, the corresponding asterisk mark on the MR16 LCD will go out. If not, the tact switch might be worn out and be replaced. After all the tact switches are confirmed to be in good contact, the

```

Key sw test
****
****  **** **
          *** ***
*          **** ***
*  **** *
*
    
```



display on the right will appear on the MR16 LCD.

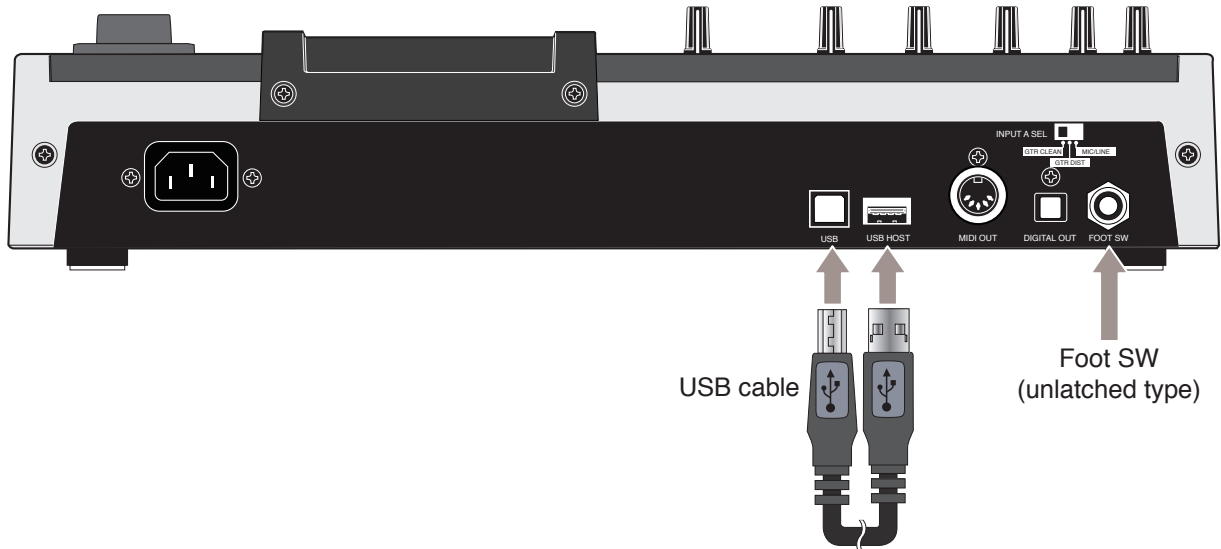
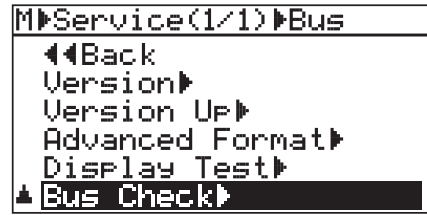
```

Key sw test
key switches OK!
Press ENTER key
    
```

4-6. Bus Check

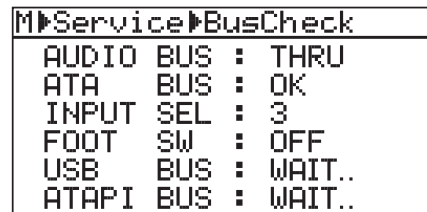
This menu checks if various bus signals connected to the CPU are correctly working or not.

- 1) After selecting the “Bus Check” menu, connect the foot SW to the foot SW jack and the USB cable between the USB and USB HOST ports.
- 2) Press the [MENU/ENTER] dial to initiate the Bus Check mode.



- AUDIO BUS

The AUDIO BUS setting is fixed at “THRU” in this menu. In the “THRU” setting, the A/D and D/A converters are internally connected. Also the CHAN A/C and B/D PAN setting are set to left and right respectively. Thus, the signals fed to CHAN A and C are summed and output from the STEREO OUT L and the signal fed to CHAN B and D are summed and output from the STEREO OUT R. This mode is convenient when checking the input circuit.



- ATA BUS

The “OK” sign indicates that the ATA bus communication between the internal HD and the CPU is properly made. If the “NG” sign appears, something must be wrong with the ATA bus communication.

- INPUT SEL

The “INPUT SEL” indicates the number corresponding to the INPUT A SELECT switch setting as follow.

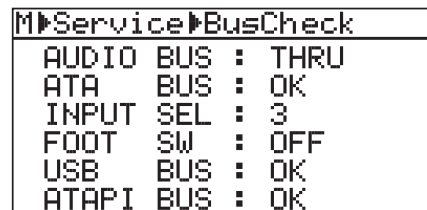
- GTR CLEAR: 2
- GTR DISTORTION: 1
- MIC/LINE: 3

- FOOT SW

When an unlatched type foot switch is connected and it is pressed, the “ON” indication will appear. If the foot switch is released or is not connected, the “OFF” sign will appear.

- USB BUS

If the “USB BUS” section indicates the “OK” sign 3 ~ 5 seconds after the “WAIT..” sign is displayed, the USB HOST function works properly. If the “NG” sign is displayed, press the [MENU/ENTER] dial and then try to enter the Bus Check mode again by pressing the [MENU/ENTER] dial.

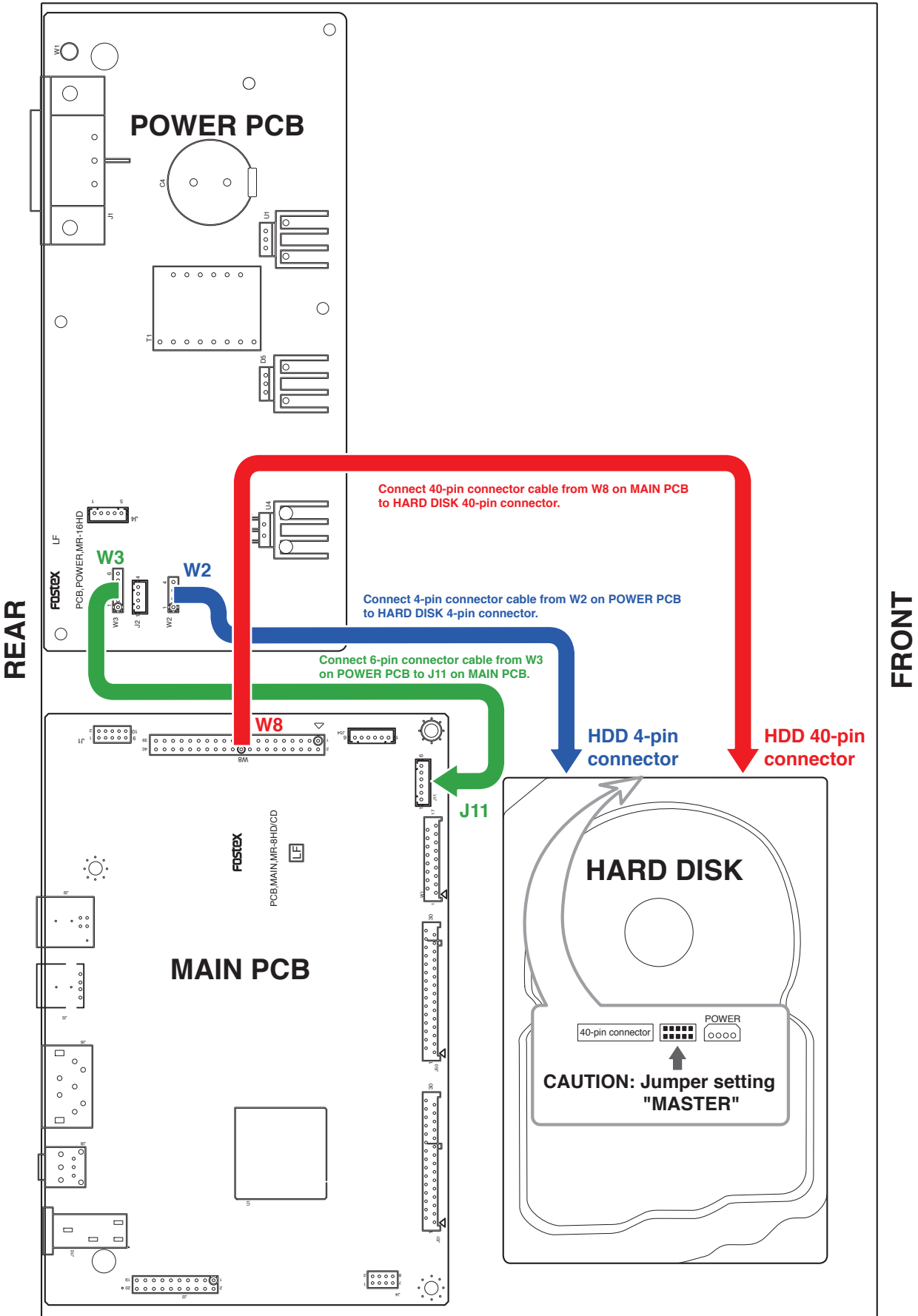


- ATAPI BUS

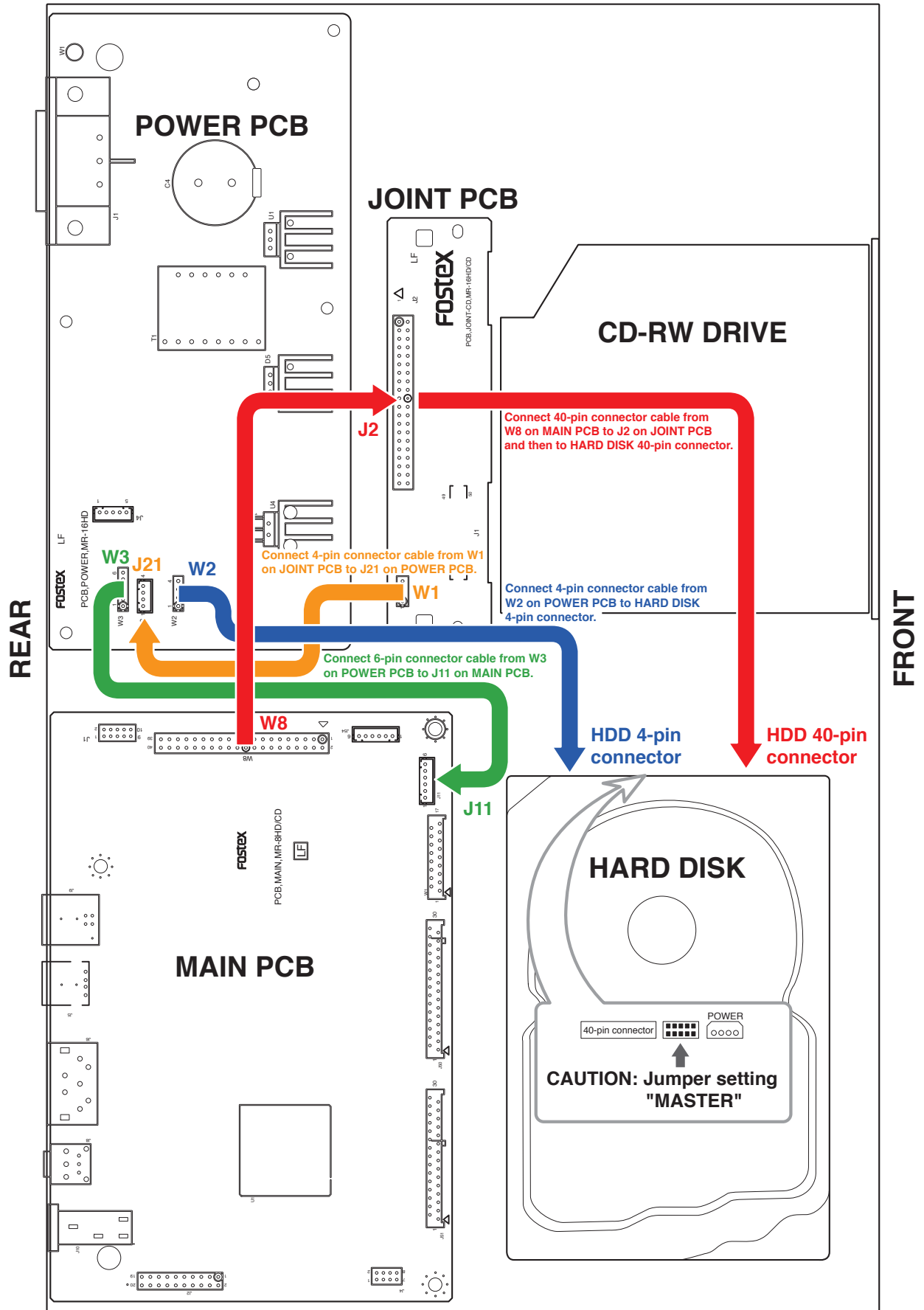
The “OK” sign indicates that the ATAPI bus communication between the CD-R/RW drive and the CPU is properly made. If the “NG” sign appears, something must be wrong with the ATAPI bus communication.

5. MR16HD & MR16HD/CD PCB CONNECTION

- MR16HD



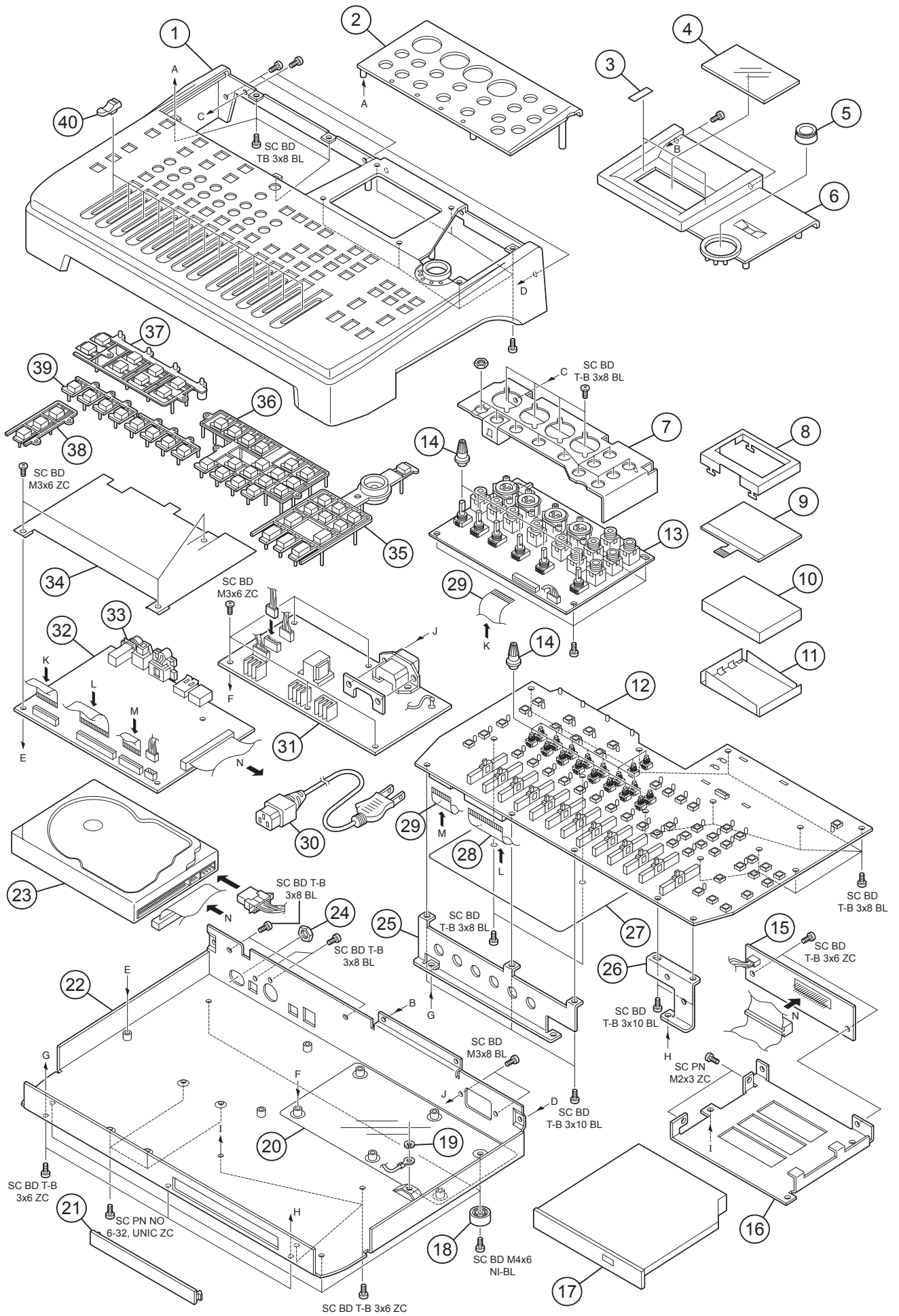
• MR16HD/CD



6. EXPLODED VIEW, PCB ASSEMBLY & PARTS LIST

• MR16HD, MR16HD/CD Exploded View

Ref. No.	Part No.	MFR Part No.	Description
1	8512 0660 00	452144	PANEL, TOP, SILVER, MR-16
	8512 0660 01	460710	PANEL, TOP, BLACK, MR-16 (USA VERSION Only)
2	8518 1020 00	453297	LABEL, SERIAL, MR-16
3	8518 0050 00	340358	TAPE, DOUBLE SIDE, 45x5, VF08
4	8512 0420 00	417155	WINDOW, LCD, MR-8HD
5	8526 0310 00	417158	KNOB, ENTER, MR-8HD
6	8512 0670 00	452145	PANEL, LCD, MR-16
7	8520 1300 00	452175	BRACKET, JACK, MR-16
8	8520 1060 00	432515	BRACKET, LCD, MR-8HD
9	8256 1971 00	418215	MODULE, DISPLAY, LCD, 132X65, TRULY
10	8516 0553 00	443444	SHEET, LCD, FR-2
11	8512 0240 00	388903	PLATE, REFLECT, LCD, FR-2
12	8573 0630 00	451391	PCB ASSY, KEY, MR-16HD
13	8573 0640 00	451378	PCB ASSY, ANALOG, MR-16HD
14	8526 0100 01	442213	KNOB, TRIM, MR-8MK2
15	8573 0660 00	451392	PCB ASSY, JOINT-CD, MR-16HD/CD (MR-16HD/CD Only)
16	8520 1280 00	452173	BRACKET, CD, A, MR-16 (MR-16HD/CD Only)
17	8270 9560 00	448718	CD-RW, DRIVE, SSC-2485K (MR-16HD/CD Only)
18		080564	MOLD FOOT, A658A0
19		075759	WS, SP, M4, ZMC3
20	8516 1110 00	454016	SHEET, ISOLATION, POWER, MR-16
21	8520 1320 00	452177	PANEL, BLANK, MR-16
22	8520 1311 00	459808	PANEL, BOTTOM, MR-16
23	8270 9440 02	428351	HARD DISK ASSY, IDE, 3.5INCH, WD800BB (80G)
	8270 9440 01	427204	HARD DISK ASSY, IDE, 3.5INCH, WD400BB (40G)
24	8245 3400 00	165819	NUT, PHONE JACK
25	8520 1260 00	452171	BRACKET, FRONT, A, MR-16
26	8520 1270 00	452172	BRACKET, FRONT, B, MR-16
27	8516 1091 00	459804	SHIELD, KEY, MR-16
28	8276 8396 30	340016	CABLE, FLAT, FFC, 17P, L300
29	8276 8409 30	417356	CABLE, FLAT, FFC, 30P, L300
△ 30		369532	CORD, AC, (UC), PJ8C2E1G10A-082
		444741	CORD, AC, (E), PG8B9CICA0A-082, LF
	8276 9170 00	185370	CORD, POWER, BS, 3C, KP610-KS31A
	8276 8000 00	175816	CORD, POWER, DM
△ 31	8573 0650 00	451379	PCB ASSY, POWER, MR-16HD
32	8573 0620 00	451377	PCB ASSY, MAIN, MR-16HD
33	8516 0301 00	430163	SHIELD, PHONE, MR-8
34	8516 1101 00	459805	SHIELD, MAIN, MR-16
35	8526 0470 00	452146	BUTTON, CONTROL, MR-16
36	8526 0480 00	452147	BUTTON, LOCATE, MR-16
37	8526 0500 00	452149	BUTTON, INPUT, MR-16
38	8526 0510 00	452150	BUTTON, SIMULATION, MR-16
39	8526 0490 00	452148	BUTTON, REC SEL, MR-16
40	8526 0180 02	442543	KNOB, FADER, B, MR-8



• MAIN PCB

Ref. No.	Part No.	MFR Part No.	Description
	8551 0481 00	459215	PCB assy, Main, MR16-HD

ICs

Ref. No.	Part No.	MFR Part No.	Description
U001	8236 8204 01	449939	BGA, DG, CPU, EP9312-CB-E2
U002	8236 5459 04	184524	ST, TSSOP, 74VHCU04
U003	8236 5704 01	164377	ST, DG, DRIVER, DTA114EK
U004	8236 8211 01	447004	ST, SO, DG, SPI-FROM, M25P16
U005, 006	8236 0901 00	187029	TSOP, DG, SDRAM, K4S561632E-UC75
U007	8236 5450 08	340049	ST, TSSOP, 74VHC08
U008	8236 5452 45	366950	ST, TSSOP, 74VHC245
U009	8236 5452 45	366950	ST, TSSOP, 74VHC245
U010	8236 5455 41	340232	ST, TSSOP, 74VHC541
△ U012	8236 5648 15	417337	ST, AN, REGULATOR, PQ1X151M2ZPH
U013	8236 5701 01	164373	ST, DG, DRIVER, DTC114EK
U014	8236 5704 01	164377	ST, DG, DRIVER, DTA114EK
U015	8236 5455 41	340232	ST, TSSOP, 74VHC541
U016	8236 5452 45	366950	ST, TSSOP, 74VHC245
U017	8236 5704 01	164377	ST, DG, DRIVER, DTA114EK
U018	8236 5455 41	340232	ST, TSSOP, 74VHC541
U019			N/A
U020	8236 5701 01	164373	ST, DG, DRIVER, DTC114EK
U021	8236 5704 01	164377	ST, DG, DRIVER, DTA114EK
U022	8236 5701 01	164373	ST, DG, DRIVER, DTC114EK
U023	8236 5645 01	366949	ST, AN, RESET, PST598IN
U024	8236 5701 01	164373	ST, DG, DRIVER, DTC114EK
U025	8236 0933 00	417334	ST, QFP, DG, USB2.0, M66592FP
U026	8236 0934 00	417335	ST, TSSOP, DG, DAIT, CS8406
U027	8236 5450 14	184516	ST, TSSOP, 74VHC14
U028			N/A
U029			N/A
U030	8236 5701 01	164373	ST, DG, DRIVER, DTC114EK
U031, 032	8236 5704 01	164377	ST, DG, DRIVER, DTA114EK
U033~035	8236 5701 01	164373	ST, DG, DRIVER, DTC114EK
U036	8236 5704 01	164377	ST, DG, DRIVER, DTA114EK
△ U038	8236 5651 00	366951	ST, AN, REGULATOR, PQ1CZ21H2ZP
△ U039	8236 5654 01	390845	ST, AN, REGULATOR, PQ070XZ5MZPH
△ U040	8256 2020 01	436180	PROTECTOR, ST, PTH, 0.75A, 6V, NANOSMDC075F

TRANSISTORS

Ref. No.	Part No.	MFR Part No.	Description
Q001	8234 8002 00	436230	ST, P-FET, CPH6312

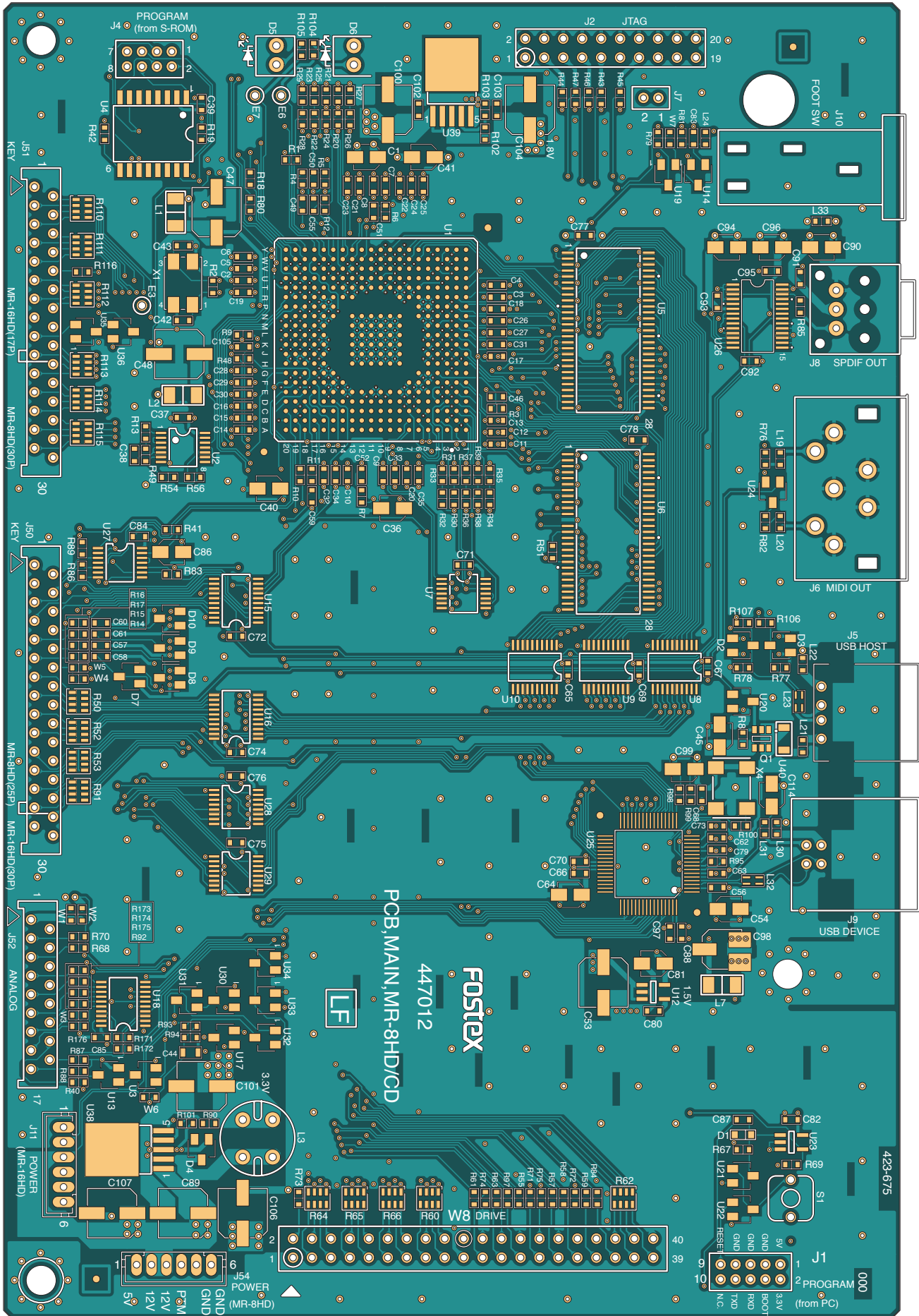
DIODES

Ref. No.	Part No.	MFR Part No.	Description
D001	8234 5059 00	368096	ST, 1SS355TE-17
D002, 003		069423	DAN217, T146
D004	8234 5513 00	387931	ST, SCHOTTKY, SB10-015C
D005, 006			N/A
D007~010		069423	DAN217, T146

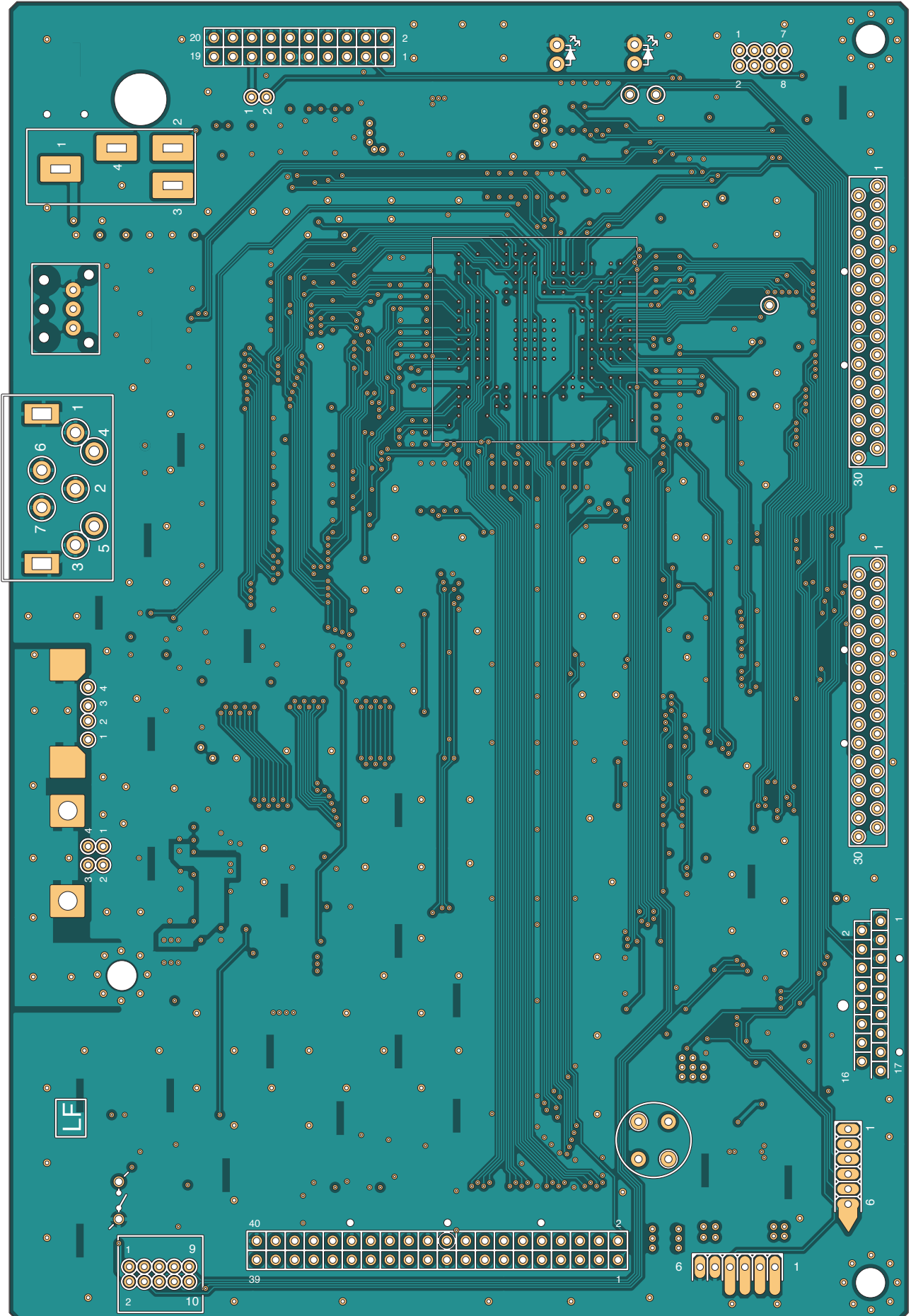
RESISTORS

Ref. No.	Part No.	MFR Part No.	Description
R001		067493	RCHIP, MCR03, 101J, T
R002		067500	RCHIP, MCR03, 105J, T
R003		067517	RCHIP, MCR03, 220J, T
R004~007		067546	RCHIP, MCR03, 473J, T
R008		067497	RCHIP, MCR03, 103J, T
R009, 010		067546	RCHIP, MCR03, 473J, T
R011, 012		067493	RCHIP, MCR03, 101J, T
R013		067497	RCHIP, MCR03, 103J, T
R014~017		067517	RCHIP, MCR03, 220J, T
R018		067493	RCHIP, MCR03, 101J, T
R019		067546	RCHIP, MCR03, 473J, T
R020		067497	RCHIP, MCR03, 103J, T
R021			N/A
R022		067497	RCHIP, MCR03, 103J, T
R023, 024			N/A
R025		067519	RCHIP, MCR03, 222J, T
R026			N/A
R027		067519	RCHIP, MCR03, 222J, T
R028		067497	RCHIP, MCR03, 103J, T
R029			N/A
R030		067497	RCHIP, MCR03, 103J, T
R031			N/A
R032		067497	RCHIP, MCR03, 103J, T
R033, 034			N/A
R035		067519	RCHIP, MCR03, 222J, T
R036			N/A
R037		067519	RCHIP, MCR03, 222J, T
R038		067497	RCHIP, MCR03, 103J, T
R039			N/A
R040		067497	RCHIP, MCR03, 103J, T
R041		067547	RCHIP, MCR03, 474J, T
R042		067546	RCHIP, MCR03, 473J, T
R043~047		067545	RCHIP, MCR03, 472J, T
R048		067493	RCHIP, MCR03, 101J, T
R049		067539	RCHIP, MCR03, 392J, T
R050	8230 5083 30	186686	ST, ARRAY, 33X4, 5%, CN1J4
R051		067497	RCHIP, MCR03, 103J, T
R052, 053	8230 5083 30	186686	ST, ARRAY, 33X4, 5%, CN1J4
R054		067531	RCHIP, MCR03, 332J, T
R055		067560	RCHIP, MCR03, 820J, T
R056		067546	RCHIP, MCR03, 473J, T
R057		067517	RCHIP, MCR03, 220J, T
R058		067560	RCHIP, MCR03, 820J, T
R059		067529	RCHIP, MCR03, 330J, T
R060	8230 5083 30	186686	ST, ARRAY, 33X4, 5%, CN1J4
R061		067560	RCHIP, MCR03, 820J, T
R062	8230 5083 30	186686	ST, ARRAY, 33X4, 5%, CN1J4
R063		067517	RCHIP, MCR03, 220J, T
R064~066	8230 5083 30	186686	ST, ARRAY, 33X4, 5%, CN1J4
R067, 068		067497	RCHIP, MCR03, 103J, T
R069		067545	RCHIP, MCR03, 472J, T
R070		067497	RCHIP, MCR03, 103J, T

• Parts side of MAIN PCB



• Foil side of MAIN PCB



Ref. No.	Part No.	MFR Part No.	Description
R071		067495	RCHIP, MCR03, 102J, T
R072		067562	RCHIP, MCR03, 822J, T
R073, 074		067553	RCHIP, MCR03, 562J, T
R075		067544	RCHIP, MCR03, 471J, T
R076		067518	RCHIP, MCR03, 221J, T
R077, 078		067509	RCHIP, MCR03, 153J, T
R079			N/A
R080		067497	RCHIP, MCR03, 103J, T
R081		067545	RCHIP, MCR03, 472J, T
R082		067518	RCHIP, MCR03, 221J, T
R083		067495	RCHIP, MCR03, 102J, T
R084		067529	RCHIP, MCR03, 330J, T
R085		067493	RCHIP, MCR03, 101J, T
R086~089		067497	RCHIP, MCR03, 103J, T
R090		085048	RCHIP, MCR03, 202J, T
R091	8230 5083 30	186686	ST, ARRAY, 33X4, 5%, CN1J4
R092		067493	RCHIP, MCR03, 101J, T
R093, 094		067497	RCHIP, MCR03, 103J, T
R095		067552	RCHIP, MCR03, 562F, T
R097		067517	RCHIP, MCR03, 220J, T
R098		067497	RCHIP, MCR03, 103J, T
R099			N/A
R100		067492	RCHIP, MCR03, 100J, T
R101, 102		067503	RCHIP, MCR03, 122J, T
R103		067526	RCHIP, MCR03, 272J, T
R104, 105			N/A
R106, 107		085399	RCHIP, MCR03, 270J, T
R110~112	8230 5083 30	186686	ST, ARRAY, 33X4, 5%, CN1J4
R113~115			N/A
R116		067529	RCHIP, MCR03, 330J, T
R171~176		067493	RCHIP, MCR03, 101J, T

CAPACITORS

ALU = Electrolytic type

CER = Ceramic type

Ref. No.	Part No.	MFR Part No.	Description
C001		066074	ELECIP, MV, 16V, 100M, T
C002~035		065547	CIPCERA, F1608, 25V, 104Z, T
C036		066074	ELECIP, MV, 16V, 100M, T
C037		065547	CIPCERA, F1608, 25V, 104Z, T
C038		065559	CIPCERA, R1608, 50V, 332K, T
C039		065549	CIPCERA, R1608, 50V, 103K, T
C040, 041		066074	ELECIP, MV, 16V, 100M, T
C042, 043		065839	CIPCERA, C1608, 50V, 180J, T
C044		050117	CIPCERA, EMK212BJ474KG-T, 2125, 16V, 474K, T
C045		066074	ELECIP, MV, 16V, 100M, T
C046		065841	CIPCERA, C1608, 50V, 220J, T
C047, 048	8233 3221 07	366801	ST, ALU, 16V, 100UF, 20%, MVY
C049~052		051711	CIPCERA, C1608, 50V, 101J, T
C053	8233 3221 07	366801	ST, ALU, 16V, 100UF, 20%, MVY
C054		066074	ELECIP, MV, 16V, 100M, T
C055			N/A
C056		065549	CIPCERA, R1608, 50V, 103K, T

Ref. No.	Part No.	MFR Part No.	Description
C057, 058		065841	CIPCERA, C1608, 50V, 220J, T
C059			N/A
C060, 061		065841	CIPCERA, C1608, 50V, 220J, T
C062, 063		065549	CIPCERA, R1608, 50V, 103K, T
C064		066074	ELECIP, MV, 16V, 100M, T
C065		065547	CIPCERA, F1608, 25V, 104Z, T
C066		065549	CIPCERA, R1608, 50V, 103K, T
C067		065547	CIPCERA, F1608, 25V, 104Z, T
C068		065549	CIPCERA, R1608, 50V, 103K, T
C069		065547	CIPCERA, F1608, 25V, 104Z, T
C070		065549	CIPCERA, R1608, 50V, 103K, T
C071, 072		065547	CIPCERA, F1608, 25V, 104Z, T
C073		065549	CIPCERA, R1608, 50V, 103K, T
C074		065547	CIPCERA, F1608, 25V, 104Z T
C075, 076			N/A
C077, 078		065547	CIPCERA, F1608, 25V, 104Z, T
C079		065549	CIPCERA, R1608, 50V, 103K, T
C080		065547	CIPCERA, F1608, 25V, 104Z, T
C081		066074	ELECIP, MV, 16V, 100M, T
C082~085		065549	CIPCERA, R1608, 50V, 103K, T
C086		066081	ELECIP, MV, 25V, 478M, T
C087		065547	CIPCERA, F1608, 25V, 104Z, T
C088		065549	CIPCERA, R1608, 50V, 103K, T
C089	8233 3221 07	366801	ST, ALU, 16V, 100UF, 20%, MVY
C090		066074	ELECIP, MV, 16V, 100M, T
C091		065547	CIPCERA, F1608, 25V, 104Z, T
C092		051711	CIPCERA, C1608, 50V, 101J, T
C093		065549	CIPCERA, R1608, 50V, 103K, T
C094		066074	ELECIP, MV, 16V, 100M, T
C095		065549	CIPCERA, R1608, 50V, 103K, T
C096		066074	ELECIP, MV, 16V, 100M, T
C097		051711	CIPCERA, C1608, 50V, 101J, T
C098	8233 3241 06	186823	ST, ALU, 35V, 10UF, 20%, MVY
C099		066074	ELECIP, MV, 16V, 100M, T
C100	8233 3203 37	340337	ST, ALU, 6.3V, 330UF, 20%, MVY
C101	8233 3221 07	366801	ST, ALU, 16V, 100UF, 20%, MVY
C102, 103		065547	CIPCERA, F1608, 25V, 104Z, T
C104	8233 3221 07	366801	ST, ALU, 16V, 100UF, 20%, MVY
C105		051711	CIPCERA, C1608, 50V, 101J, T
C106	8233 3314 76	391917	ST, ALU, 6.3V, 47UF, 20%, MVA
C107	8233 3221 07	366801	ST, ALU, 16V, 100UF, 20%, MVY
C114		066074	ELECIP, MV, 16V, 100M, T

MISCELLANEOUS

Ref. No.	Part No.	MFR Part No.	Description
J001	8245 3220 10	392907	CONN, PI, HEADER, 10P, P2.0, 9210B
J002			N/A
J004			N/A
J005	8245 4120 00	390866	CONN, PL, USB, YKF45-0001
J006	8245 4210 00	366798	CONN, PL, JACK, DIN5P(SHIELD), YKF51-5061
J007			N/A
J008	8245 5520 30	454843	CONN, OPT, GP1FAV51TKOF
J009	8245 3880 00	366797	CONN, PL, USB, YKF45-0018

Part No.	MFR Part No.	Description
J010	8245 3390 04	165815 CNCTR, PHONEJACK, YKB21-5074
J011		081712 CONNECTOR, B06B-PH-K-S
J050	8245 2720 30	368097 CONN, PI, JACK, FPC, 30P
J051, 052	8245 2720 17	165735 CONN, PI, JACK, FPC, 17P
J054		N/A
L001, 002	8242 5000 21	390852 COIL, ST, 22UH, LFC32
L003	8242 2941 81	387209 COIL, V, 180UH, RCR110D
L007	8242 5000 21	390852 COIL, ST, 22UH, LFC32
L019~022	8242 5111 21	368719 FILTER, ST, EMI, MLB-160808-0120L
L023	8242 5151 81	390853 FILTER, ST, LINE, 181, DLW21SN
L024	8242 5111 21	368719 FILTER, ST, EMI, MLB-160808-0120L
L030, 031	8242 5111 21	368719 FILTER, ST, EMI, MLB-160808-0120L
L032	8242 5229 00	420140 FILTER, ST, LINE, 900, DLW21HN
L033	8242 5111 21	368719 FILTER, ST, EMI, MLB-160808-0120L
S001		N/A
W001		N/A
W002		067491 RCHIP, MCR03, 000J, T
W003, 004		N/A
W005		067491 RCHIP, MCR03, 000J, T
W006		N/A
W007		067491 RCHIP, MCR03, 000J, T
W008	8576 0520 35	451371 CABLE, ASSY, FC, 40P, /B-L180/F-L180/F, L360
X001	8256 5008 02	390764 RESONATOR, ST, XTAL, 14.745MHZ, FSX-7M
X004	8256 5007 48	370399 MODULE, ST, OSC, 48MHZ, FCO-736

• ANALOG PCB

Part No.	MFR Part No.	Description
	8551 0481 00	459215 PCB assy, Analog, MR-16HD

ICs

Ref. No.	Part No.	MFR Part No.	Description
U101		070170	NJM2068M-D, TE1
U151		070170	NJM2068M-D, TE1
U152, 153	8236 5702 01	164375	ST, DRIVER, DTC314TK
U154		070202	NJM4556AL
U155, 156	8236 5703 01	164376	ST, DRIVER, DTC323TK
U157		070170	NJM2068M-D, TE1
U158	8236 5702 01	164375	ST, DRIVER, DTC314TK
U201		070170	NJM2068M-D, TE1
U252, 253	8236 5702 01	164375	ST, DRIVER, DTC314TK
U255, 256	8236 5703 01	164376	ST, DRIVER, DTC323TK
U258	8236 5702 01	164375	ST, DRIVER, DTC314TK
U301..501		070170	NJM2068M-D, TE1
△ U551		375084	PQ05DZ5UJ00H, T, LF
U552	8236 8201 00	427335	TSSOP, DG, AD, CS5351
U553	8236 0931 00	412923	TSSOP, DG, DA, CS4345
U554	8236 8201 00	427335	TSSOP, DG, AD, CS5351
U555	8236 0931 00	412923	TSSOP, DG, DA, CS4345
U556, 557		070170	NJM2068M-D, TE1
U558	8236 5710 02	390832	ST, DG, DRIVER, IMH11A
U560	8236 5708 03	340114	ST, DG, DRIVER, DTB114E

TRANSISTORS

Ref. No.	Part No.	MFR Part No.	Description
Q501	8234 7000 04	368195	ST, NPN, 2SK209GR/BL

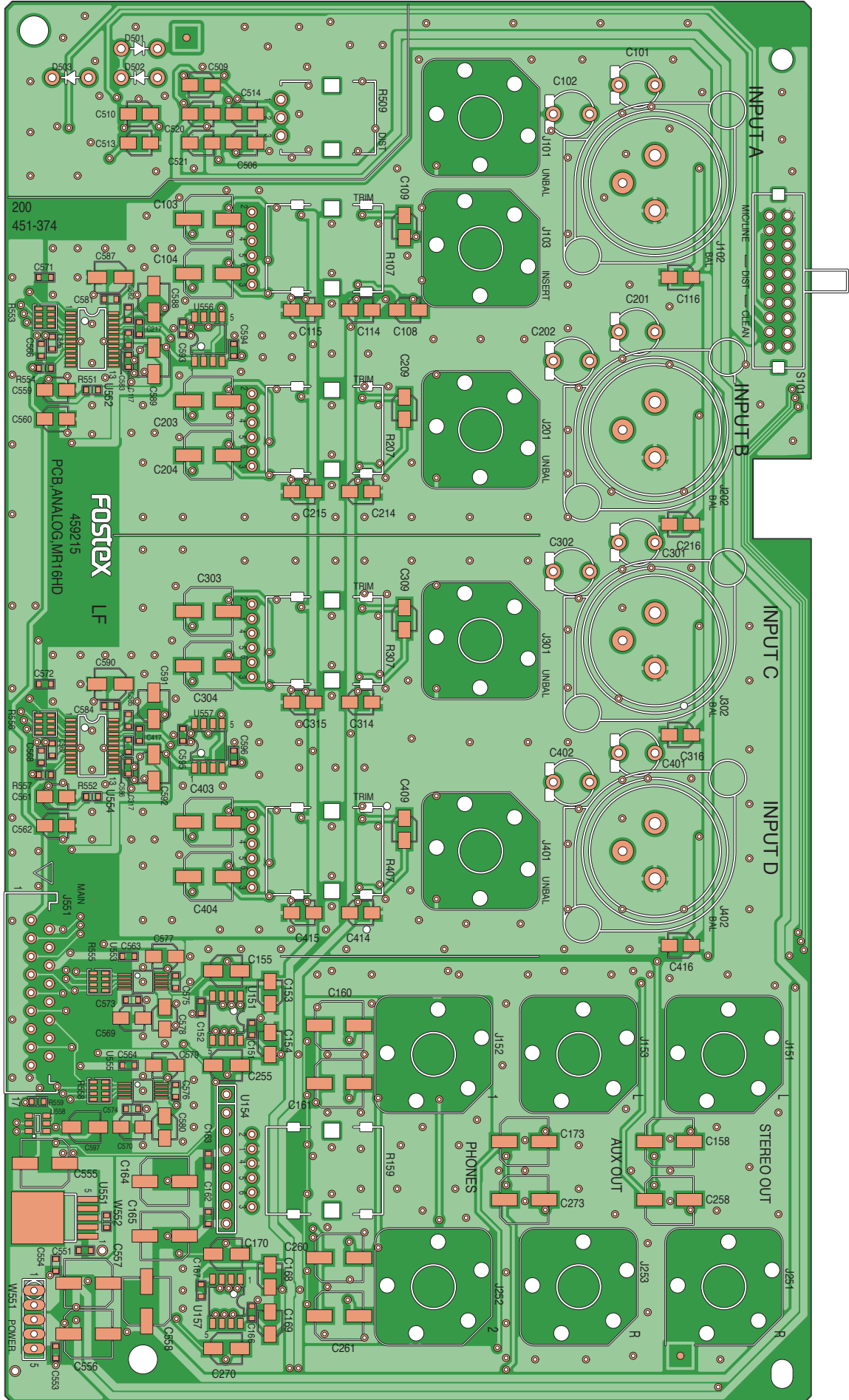
DIODES

Ref. No.	Part No.	MFR Part No.	Description
D101, 102		069423	DAN217, T146
D201, 202		069423	DAN217, T146
D301, 302		069423	DAN217, T146
D401, 402		069423	DAN217, T146
D501~503		069460	1SS133, T-77
D504, 505	8234 5059 00	368096	ST, 1SS355TE-17

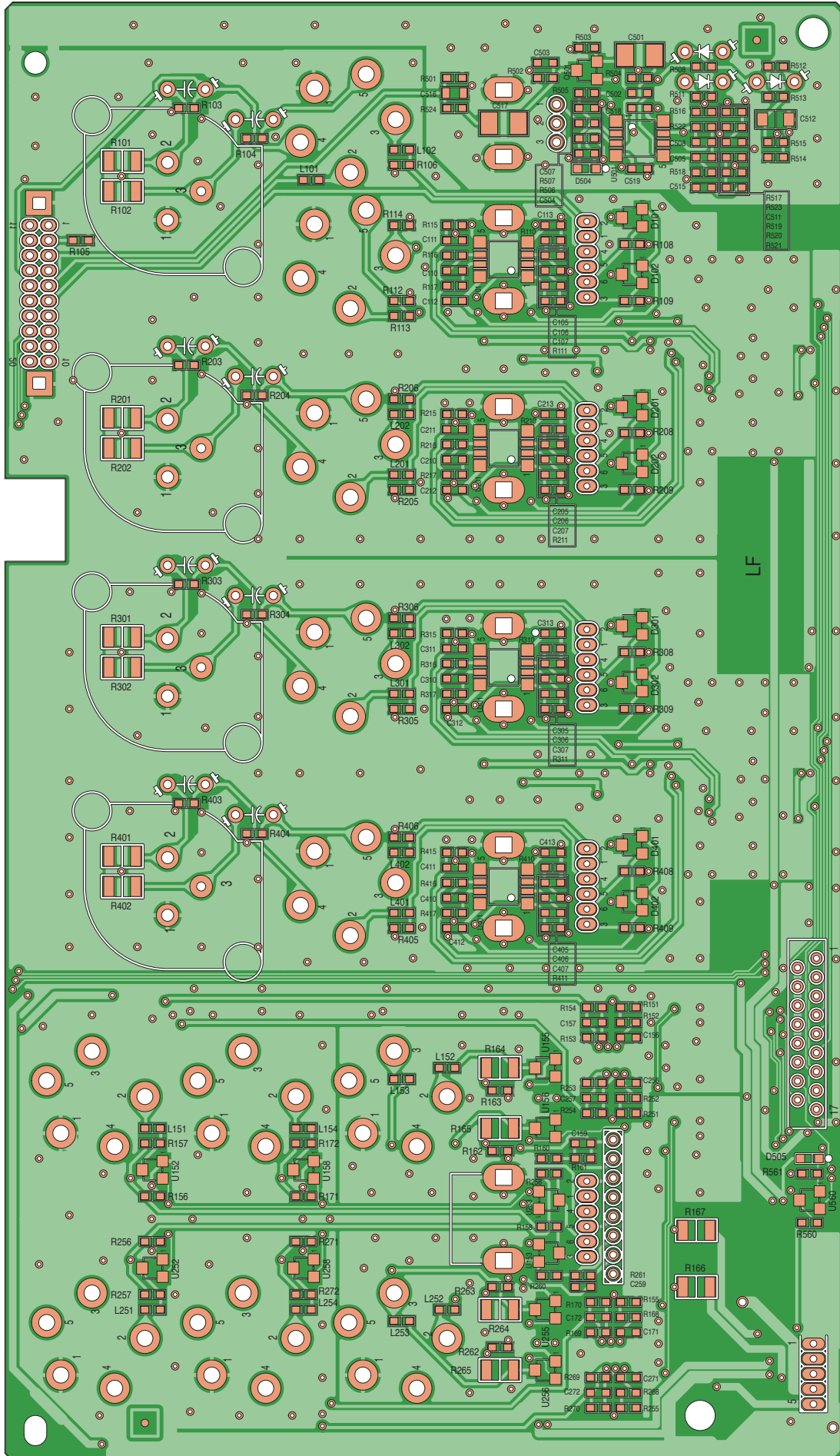
RESISTORS

Ref. No.	Part No.	MFR Part No.	Description
R101, 102	8230 5196 82	391984	ST, METAL, 1/4W, 6.8K, 0.5%, RR
R103~106		067499	RCHIP, MCR03, 104J, T
R107	8240 2940 04	340045	POT, PI, RT12, 500KCC, EVJY95
R108, 109		085046	RCHIP, MCR03, 132J, T
R110~112		067499	RCHIP, MCR03, 104J, T
R113		067545	RCHIP, MCR03, 472J, T
R114, 115		067499	RCHIP, MCR03, 104J, T
R116		067544	RCHIP, MCR03, 471J, T
R117		417486	RCHIP, RK73B1JTDD910J, T, LF
R151		067497	RCHIP, MCR03, 103J, T
R152		067508	RCHIP, MCR03, 152J, T
R153			N/A
R154		067491	RCHIP, MCR03, 000J, T
R155		067497	RCHIP, MCR03, 103J, T
R156		067499	RCHIP, MCR03, 104J, T
R157, 158		067495	RCHIP, MCR03, 102J, T
R159	8240 2940 02	340046	POT, PI, RT12, 10KAA, EVJY15
R160		067495	RCHIP, MCR03, 102J, T
R161		067497	RCHIP, MCR03, 103J, T
R162, 163		067499	RCHIP, MCR03, 104J, T
R164, 165		067824	RCHIP, MCR25, 101J, T
R166, 167		438181	RCHIP, RK73B2ETTE470J, T, LF
R168		067508	RCHIP, MCR03, 152J, T
R169			N/A
R170		067491	RCHIP, MCR03, 000J, T
R171		067499	RCHIP, MCR03, 104J, T
R172		067495	RCHIP, MCR03, 102J, T
R201, 202	8230 5196 82	391984	ST, METAL, 1/4W, 6.8K, 0.5%, RR
R203~206		067499	RCHIP, MCR03, 104J, T
R207	8240 2940 04	340045	POT, PI, RT12, 500KCC, EVJY95
R208, 209		085046	RCHIP, MCR03, 132J, T
R210, 211		067499	RCHIP, MCR03, 104J, T
R215		067499	RCHIP, MCR03, 104J, T
R216		067544	RCHIP, MCR03, 471J, T
R217		417486	RCHIP, RK73B1JTDD910J, T, LF
R251		067497	RCHIP, MCR03, 103J, T
R252		067508	RCHIP, MCR03, 152J, T
R253			N/A
R254		067491	RCHIP, MCR03, 000J, T

• Parts side of ANALOG PCB



• Foil side of ANALOG PCB



Ref. No.	Part No.	MFR Part No.	Description
R255		067497	RCHIP, MCR03, 103J, T
R256		067499	RCHIP, MCR03, 104J, T
R257, 258		067495	RCHIP, MCR03, 102J, T
R260		067495	RCHIP, MCR03, 102J, T
R261		067497	RCHIP, MCR03, 103J, T
R262, 263		067499	RCHIP, MCR03, 104J, T
R264, 265		067824	RCHIP, MCR25, 101J, T
R268		067508	RCHIP, MCR03, 152J, T
R269			N/A
R270		067491	RCHIP, MCR03, 000J, T
R271		067499	RCHIP, MCR03, 104J, T
R272		067495	RCHIP, MCR03, 102J, T
R301, 302	8230 5196 82	391984	ST, METAL, 1/4W, 6.8K, 0.5%, RR
R303~306		067499	RCHIP, MCR03, 104J, T
R307	8240 2940 04	340045	POT, PI, RT12, 500KCC, EVJY95
R308, 309		085046	RCHIP, MCR03, 132J, T
R310, 311		067499	RCHIP, MCR03, 104J, T
R315		067499	RCHIP, MCR03, 104J, T
R316		067544	RCHIP, MCR03, 471J, T
R317		417486	RCHIP, RK73B1JT7D910J, T, LF
R401, 402	8230 5196 82	391984	ST, METAL, 1/4W, 6.8K, 0.5%, RR
R403~406		067499	RCHIP, MCR03, 104J, T
R407	8240 2940 04	340045	POT, PI, RT12, 500KCC, EVJY95
R408, 409		085046	RCHIP, MCR03, 132J, T
R410, 411		067499	RCHIP, MCR03, 104J, T
R415		067499	RCHIP, MCR03, 104J, T
R416		067544	RCHIP, MCR03, 471J, T
R417		417486	RCHIP, RK73B1JT7D910J, T, LF
R501, 502		067500	RCHIP, MCR03, 105J, T
R503		067495	RCHIP, MCR03, 102J, T
R504		067499	RCHIP, MCR03, 104J, T
R505		067543	RCHIP, MCR03, 470J, T
R506		067551	RCHIP, MCR03, 561J, T
R507		067519	RCHIP, MCR03, 222J, T
R508		067531	RCHIP, MCR03, 332J, T
R509	8240 2930 14	428978	POT, PI, RT9, 100KA, EVUF2L, 21.5
R511		085052	RCHIP, MCR03, 911J, T
R512		067508	RCHIP, MCR03, 152J, T
R513		391069	RCHIP, RK73B1JT7D752J, T, LF
R514		067495	RCHIP, MCR03, 102J, T
R515		067564	RCHIP, MCR03, 823J, T
R516		067504	RCHIP, MCR03, 123J, T
R517		067564	RCHIP, MCR03, 823J, T
R518		067499	RCHIP, MCR03, 104J, T
R519		085052	RCHIP, MCR03, 911J, T
R520		067520	RCHIP, MCR03, 223J, T
R521		067532	RCHIP, MCR03, 333J, T
R522		067508	RCHIP, MCR03, 152J, T
R523		067509	RCHIP, MCR03, 153J, T
R524		067497	RCHIP, MCR03, 103J, T
R551, 552		067492	RCHIP, MCR03, 100J, T
R553	8230 5081 00	404195	R, ST-N, ARRAY, 10X4, 5%, CN1J4
R554		067493	RCHIP, MCR03, 101J, T

Ref. No.	Part No.	MFR Part No.	Description
R555, 556	8230 5081 00	404195	ST-N, ARRAY, 10X4, 5%, CN1J4
R557		067493	RCHIP, MCR03, 101J, T
R558	8230 5081 00	404195	ST-N, ARRAY, 10X4, 5%, CN1J4
R559		067495	RCHIP, MCR03, 102J, T
R560		067497	RCHIP, MCR03, 103J, T
R561		067519	RCHIP, MCR03, 222J, T

CAPACITORS

ALU = Electrolytic type

CER = Ceramic type

FLM = Film type

Ref. No.	Part No.	MFR Part No.	Description
C101, 102	8232 2964 76	340106	VT, ALU, 50V, 47UF, 20%, LLA
C103, 104	8233 3782 26	186836	ST, ALU, 16V, 22UF, 20%, MVKBP
C105		065841	CIPCERA, C1608, 50V, 220J, T
C106			N/A
C107		065841	CIPCERA, C1608, 50V, 220J, T
C108, 109		066074	ELECIP, MV, 16V, 100M, T
C110		065975	CIPCERA, R1608, 50V, 471K, T
C111			N/A
C112, 113		065549	CIPCERA, R1608, 50V, 103K, T
C114, 115		066074	ELECIP, MV, 16V, 100M, T
C116		066077	ELECIP, MV, 50V, 108M, T
C117		065549	CIPCERA, R1608, 50V, 103K, T
C151, 152		065549	CIPCERA, R1608, 50V, 103K, T
C153, 154		066074	ELECIP, MV, 16V, 100M, T
C155	8233 3314 76	391917	ST, ALU, 6.3V, 47UF, 20%, MVA
C156		065554	ST, CER, 50V, .0022UF, 15%, CC11R
C157			N/A
C158		066080	ELECIP, MV, 16V, 470M, T
C159		065841	CIPCERA, C1608, 50V, 220J, T
C160, 161	8233 3221 07	366801	ST, ALU, 16V, 100UF, 20%, MVY
C162, 163		065549	CIPCERA, R1608, 50V, 103K, T
C164, 165	8233 3221 07	366801	ST, ALU, 16V, 100UF, 20%, MVY
C166, 167		065549	CIPCERA, R1608, 50V, 103K, T
C168, 169		066074	ELECIP, MV, 16V, 100M, T
C170	8233 3314 76	391917	ST, ALU, 6.3V, 47UF, 20%, MVA
C171		065554	ST, CER, 50V, .0022UF, 15%, CC11R
C172			N/A
C173		066080	ELECIP, MV, 16V, 470M, T
C201, 202	8232 2964 76	340106	VT, ALU, 50V, 47UF, 20%, LLA
C203, 204	8233 3782 26	186836	ST, ALU, 16V, 22UF, 20%, MVKBP
C205		065841	CIPCERA, C1608, 50V, 220J, T
C206			N/A
C207		065841	CIPCERA, C1608, 50V, 220J, T
C209		066074	ELECIP, MV, 16V, 100M, T
C210		065975	CIPCERA, R1608, 50V, 471K, T
C211			N/A
C212, 213		065549	CIPCERA, R1608, 50V, 103K, T
C214, 215		066074	ELECIP, MV, 16V, 100M, T
C216		066077	ELECIP, MV, 50V, 108M, T
C217		065549	CIPCERA, R1608, 50V, 103K, T
C255	8233 3314 76	391917	ST, ALU, 6.3V, 47UF, 20%, MVA

Ref. No.	Part No.	MFR Part No.	Description
C256		065554	ST, CER, 50V, .0022UF, 15%, CC11R
C257			N/A
C258		066080	ELECIP, MV, 16V, 470M, T
C259		065841	CIPCERA, C1608, 50V, 220J, T
C260, 261	8233 3221 07	366801	ST, ALU, 16V, 100UF, 20%, MVY
C270	8233 3314 76	391917	ST, ALU, 6.3V, 47UF, 20%, MVA
C271		065554	ST, CER, 50V, .0022UF, 15%, CC11R
C272			N/A
C273		066080	ELECIP, MV, 16V, 470M, T
C301, 302	8232 2964 76	340106	VT, ALU, 50V, 47UF, 20%, LLA
C303, 304	8233 3782 26	186836	ST, ALU, 16V, 22UF, 20%, MVKBP
C305		065841	CIPCERA, C1608, 50V, 220J, T
C306			N/A
C307		065841	CIPCERA, C1608, 50V, 220J, T
C309		066074	ELECIP, MV, 16V, 100M, T
C310		065975	CIPCERA, R1608, 50V, 471K, T
C311			N/A
C312, 313		065549	CIPCERA, R1608, 50V, 103K, T
C314, 315		066074	ELECIP, MV, 16V, 100M, T
C316		066077	ELECIP, MV, 50V, 108M, T
C317		065549	CIPCERA, R1608, 50V, 103K, T
C401, 402	8232 2964 76	340106	VT, ALU, 50V, 47UF, 20%, LLA
C403, 404	8233 3782 26	186836	ST, ALU, 16V, 22UF, 20%, MVKBP
C405		065841	CIPCERA, C1608, 50V, 220J, T
C406			N/A
C407		065841	CIPCERA, C1608, 50V, 220J, T
C409		066074	ELECIP, MV, 16V, 100M, T
C410		065975	CIPCERA, R1608, 50V, 471K, T
C411			N/A
C412, 413		065549	CIPCERA, R1608, 50V, 103K, T
C414, 415		066074	ELECIP, MV, 16V, 100M, T
C416		066077	ELECIP, MV, 50V, 108M, T
C417		065549	CIPCERA, R1608, 50V, 103K, T
C501	8233 6053 93	186909	ST, FLM, 50V, 0.039UF, 5%, CHA
C502		368365	CIPCERA, F10, 50V, 473Z, T
C503			N/A
C504, 505		065841	CIPCERA, C1608, 50V, 220J, T
C506		066081	ELECIP, MV, 25V, 478M, T
C507, 508		051711	CIPCERA, C1608, 50V, 101J, T
C509, 510		066077	ELECIP, MV, 50V, 108M, T
C511		065559	CIPCERA, R1608, 50V, 332K, T
C512	8233 6053 32	391112	ST, FLM, 50V, 0.0033UF, 5%, CHA
C513, 514		366959	ELECIP, MV, 35V, 228M, T
C515		065549	CIPCERA, R1608, 50V, 103K, T
C516	8233 6051 02	391496	ST, FLM, 50V, 0.001UF, 5%, CHA
C517	8233 6052 23	391111	ST, FLM, 50V, 0.022UF, 5%, CHA
C518, 519		065549	CIPCERA, R1608, 50V, 103K, T
C520, 521		066074	ELECIP, MV, 16V, 100M, T
C551		065549	CIPCERA, R1608, 50V, 103K, T
C553, 554		065549	CIPCERA, R1608, 50V, 103K, T
C555	8233 3203 37	340337	ST, ALU, 6.3V, 330UF, 20%, MVY
C556, 557	8233 3221 07	366801	ST, ALU, 16V, 100UF, 20%, MVY
C558	8233 3364 76	186830	ST, ALU, 50V, 47UF, 20%, MVA

Ref. No.	Part No.	MFR Part No.	Description
C559~562		066074	ELECIP, MV, 16V, 100M, T
C563, 564		065547	CIPCERA, F1608, 25V, 104Z, T
C565~568		065549	CIPCERA, R1608, 50V, 103K, T
C569, 570		066074	ELECIP, MV, 16V, 100M, T
C571, 572			N/A
C573~576		065549	CIPCERA, R1608, 50V, 103K, T
C577		066077	ELECIP, MV, 50V, 108M, T
C578		066074	ELECIP, MV, 16V, 100M, T
C579		066077	ELECIP, MV, 50V, 108M, T
C580		066074	ELECIP, MV, 16V, 100M, T
C581~586		065549	CIPCERA, R1608, 50V, 103K, T
C587~592	8233 3314 76	391917	ST, ALU, 6.3V, 47UF, 20%, MVA
C593~596		065549	CIPCERA, R1608, 50V, 103K, T
C597	8233 3314 76	391917	ST, ALU, 6.3V, 47UF, 20%, MVA

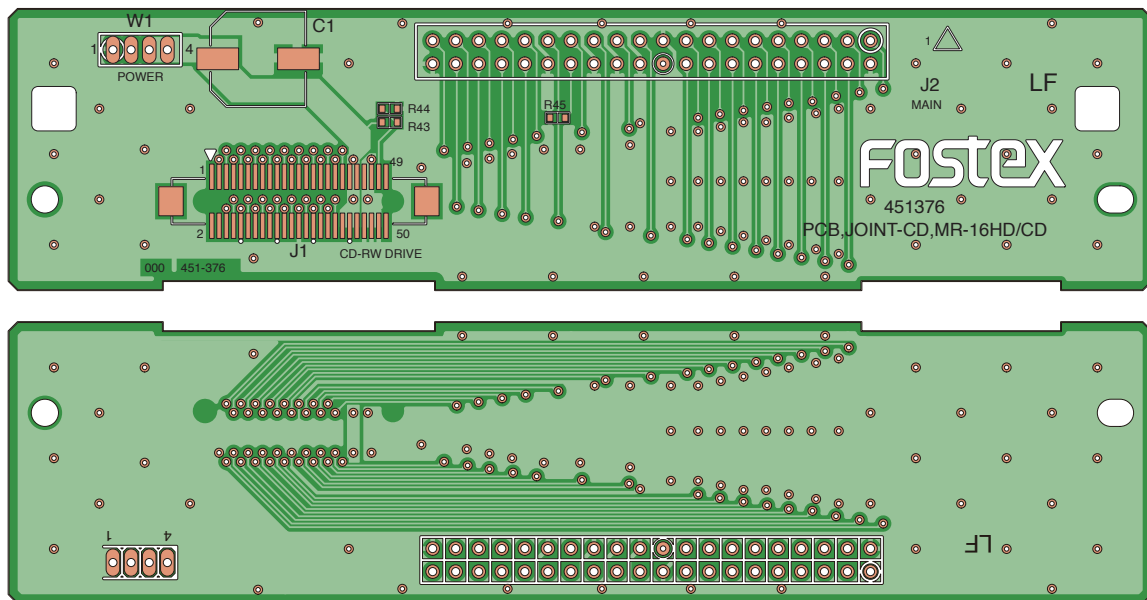
MISCELLANEOUS

Ref. No.	Part No.	MFR Part No.	Description
J101	8545 0160 00	447451	CONN, PI, JACK, PHONE, MSJ-064-20A
J102	8545 0030 00	359935	CONN, PI, JACK, XLR-31, 3P, JY-5033
J103	8545 0160 00	447451	CONN, PI, JACK, PHONE, MSJ-064-20A
J151~153	8545 0160 00	447451	CONN, PI, JACK, PHONE, MSJ-064-20A
J201	8545 0160 00	447451	CONN, PI, JACK, PHONE, MSJ-064-20A
J202	8545 0030 00	359935	CONN, PI, JACK, XLR-31, 3P, JY-5033
J251~253	8545 0160 00	447451	CONN, PI, JACK, PHONE, MSJ-064-20A
J301	8545 0160 00	447451	CONN, PI, JACK, PHONE, MSJ-064-20A
J302	8545 0030 00	359935	CONN, PI, JACK, XLR-31, 3P, JY-5033
J401	8545 0160 00	447451	CONN, PI, JACK, PHONE, MSJ-064-20A
J402	8545 0030 00	359935	CONN, PI, JACK, XLR-31, 3P, JY-5033
J551	8245 2721 17	165740	CONN, PL, JACK, FPC, 17P
L101, 102	8242 5111 21	368719	FILTER, ST, EMI, MLB-160808-0120L
L151~154	8242 5111 21	368719	FILTER, ST, EMI, MLB-160808-0120L
L201, 202	8242 5111 21	368719	FILTER, ST, EMI, MLB-160808-0120L
L251~254	8242 5111 21	368719	FILTER, ST, EMI, MLB-160808-0120L
L301, 302	8242 5111 21	368719	FILTER, ST, EMI, MLB-160808-0120L
L401, 402	8242 5111 21	368719	FILTER, ST, EMI, MLB-160808-0120L
S101	8553 0010 01	378558	SW, PL, SLIDE, 4-3, NONSH, SK-43D28-G9NS, L09
W551	8277 6270 15	417342	CABLE ASSY, 5P, WHT, PHR/F-SAN/BS, #24, L150
W552			N/A

• JOINT PCB (MR16HD/CD Only)

Ref. No.	Part No.	MFR Part No.	Description
	8551 0500 00	451376	PCB assy, JOINT-CD, MR-16HD

Ref. No.	Part No.	MFR Part No.	Description
R043			N/A
R044, 045		067491	RCHIP, MCR03, 000J, T
C001			N/A
J001	8245 3790 00	339909	CONN, PI, RECEPTACLE, 50P, 5600
J002	8245 3670 00	340249	CONN, PI, HEADER, 40P, KEY20, IMSA-9201B-2
W001	8576 0370 15	452348	CABLE ASSY, 4P, PH/F-SAN/BS, #26, L150



• KEY PCB

Ref. No.	Part No.	MFR Part No.	Description
	8551 0470 00	451373	PCB assy, Key, MR-16HD

ICs

Ref. No.	Part No.	MFR Part No.	Description
U001	8236 5451 39	366946	ST, TSSOP, 74VHC139
U002	8236 5452 45	366950	ST, TSSOP, 74VHC245
U003~005	8236 5452 73	340048	ST, TSSOP, 74VHC273
U006	8236 5450 14	184516	ST, TSSOP, 74VHC14
U007~013		069351	TR, DTD113ZK, T146
U014			N/A
U015~018	8236 5640 51	442451	ST, DG, 74HC4051

TRANSISTORS

Ref. No.	Part No.	MFR Part No.	Description
Q001~008	8234 5001 04	163455	ST, PNP, 2SA1577Q/R

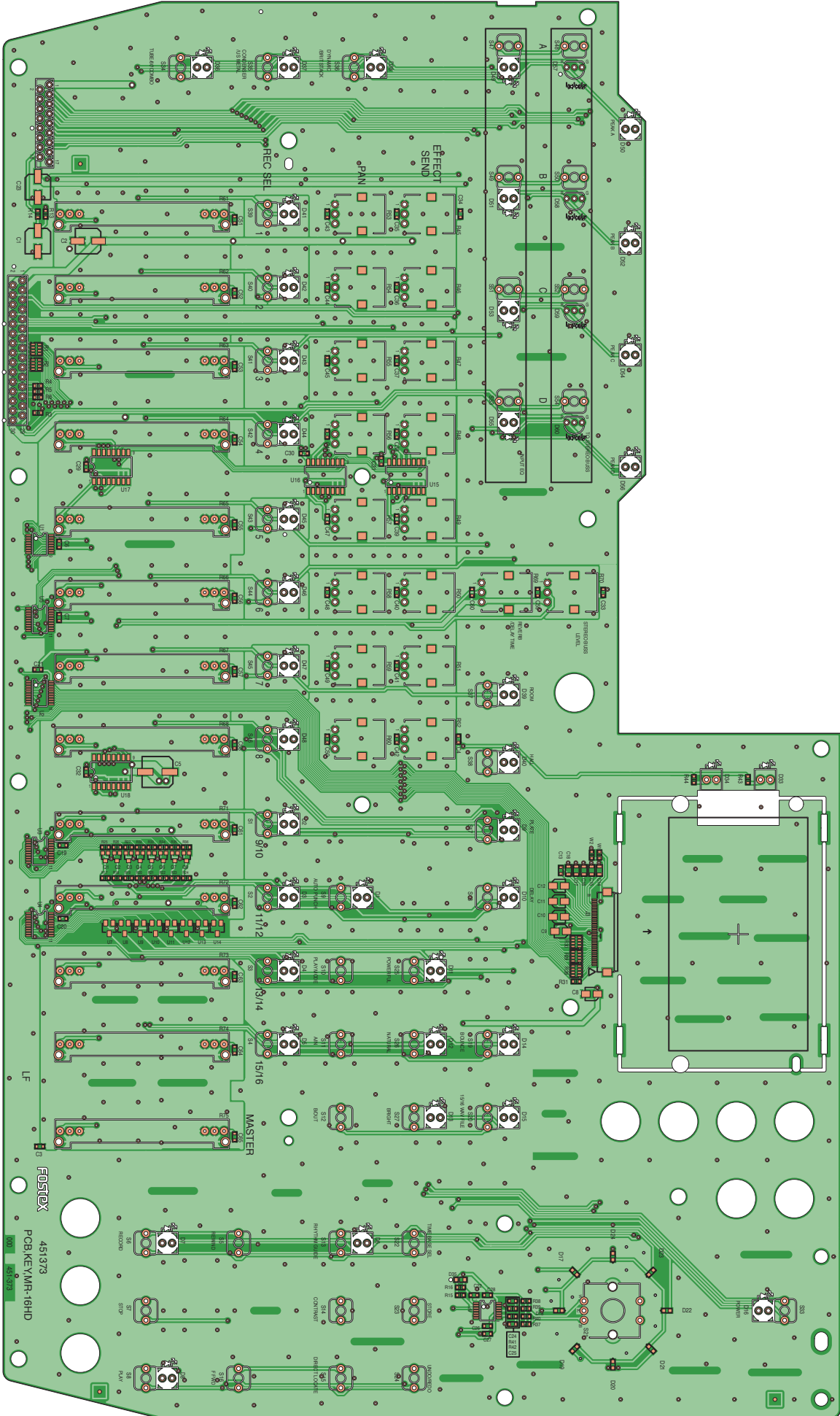
DIODES

Ref. No.	Part No.	MFR Part No.	Description
D001~005	8234 5040 01	184502	OPT, VT, LED, RED, LT3D31W
D006	8234 5040 03	184504	OPT, VT, LED, YLW, LT3H31W
D007	8234 5040 01	184502	OPT, VT, LED, RED, LT3D31W
D008	8234 5040 04	184505	OPT, VT, GRN, LT3E31W
D009~013	8234 5040 03	184504	OPT, VT, LED, YLW, LT3H31W
D014~016	8234 5040 01	184502	OPT, VT, LED, RED, LT3D31W
D017~024	8234 5521 03	447916	OPT, ST, LED, GRN, SML-512MW
D033, 034	8234 2059 03	392260	OPT, V, LED, YLW, SLI-343YC
D035	8234 5059 00	368096	ST, 1SS355TE-17
D036~040	8234 5040 03	184504	OPT, VT, LED, YLW, LT3H31W
D041~048	8234 5040 01	184502	OPT, VT, LED, RED, LT3D31W
D049	8234 5040 03	184504	OPT, VT, LED, YLW, LT3H31W
D050	8234 5040 01	184502	OPT, VT, LED, RED, LT3D31W
D051	8234 5040 03	184504	OPT, VT, LED, YLW, LT3H31W
D052	8234 5040 01	184502	OPT, VT, LED, RED, LT3D31W
D053	8234 5040 03	184504	OPT, VT, LED, YLW, LT3H31W
D054	8234 5040 01	184502	OPT, VT, LED, RED, LT3D31W
D055	8234 5040 03	184504	OPT, VT, LED, YLW, LT3H31W
D056	8234 5040 01	184502	OPT, VT, LED, RED, LT3D31W
D057~060		069996	LED, GL-3ED8

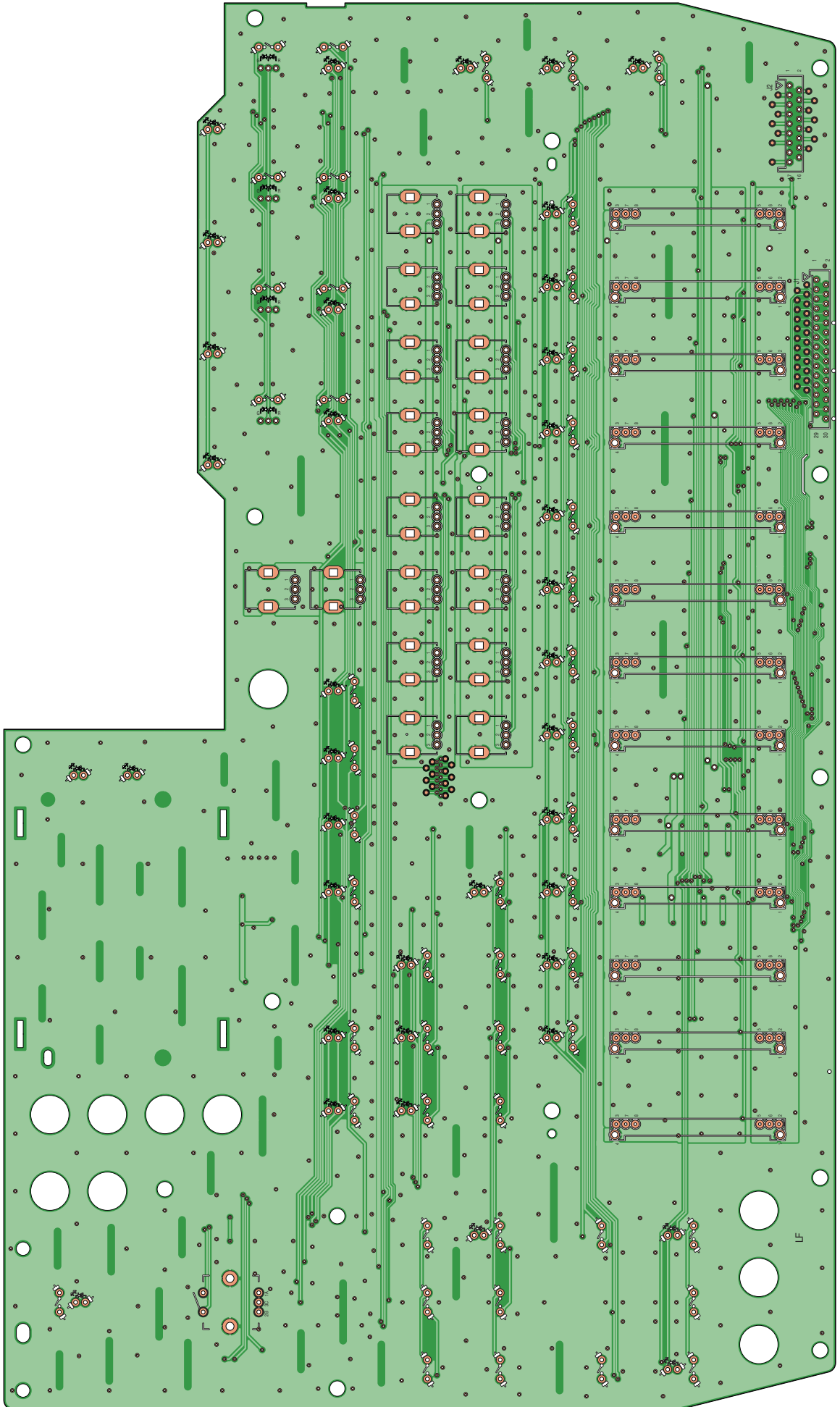
RESISTORS

Ref. No.	Part No.	MFR Part No.	Description
R001, 002	8230 5083 30	186686	ST, ARRAY, 33X4, 5%, CN1J4
R003~006		067491	RCHIP, MCR03, 000J, T
R013		067493	RCHIP, MCR03, 101J, T
R014		067491	RCHIP, MCR03, 000J, T
R015, 016		067497	RCHIP, MCR03, 103J, T
R017~024		067517	RCHIP, MCR03, 220J, T
R025		067557	RCHIP, MCR03, 681J, T
R026		067557	RCHIP, MCR03, 681J, T
R027		067557	RCHIP, MCR03, 681J, T
R028~030	8230 5083 30	186686	ST, ARRAY, 33X4, 5%, CN1J4

• Parts side of KEY PCB



• Foil side of KEY PCB



Ref. No.	Part No.	MFR Part No.	Description
R031		067529	RCHIP, MCR03, 330J, T
R032~036		067557	RCHIP, MCR03, 681J, T
R037, 038		067497	RCHIP, MCR03, 103J, T
R039~042		067499	RCHIP, MCR03, 104J, T
R043, 044		067560	RCHIP, MCR03, 820J, T
R045~052	8240 3060 01	448955	POT, PL, RT9, 10KB, XV09213NPV20F
R053~060	8240 3090 01	453121	POT, PI, RT9, 10KB, XV09213NPV20F, CC
R061~068	8240 2740 06	340188	POT, PI, SL30, 10KA, RS30H111, L5
R069, 070	8240 3060 01	448955	POT, PL, RT9, 10KB, XV09213NPV20F
R071~075	8240 2740 06	340188	POT, PI, SL30, 10KA, RS30H111, L5

CAPACITORS

ALU = Electrolytic type

CER = Ceramic type

Ref. No.	Part No.	MFR Part No.	Description
C001, 002	8233 3221 07	366801	ST, ALU, 16V, 100UF, 20%, MVY
C003, 004			N/A
C005	8233 3224 77	366802	ST, ALU, 16V, 470UF, 20%, MV
C006, 007		065549	CIPCERA, R1608, 50V, 103K, T
C008, 009		066074	ELECIP, MV, 16V, 100M, T
C010~012		391288	ELECIP, MV, 50VC, 479M, B55, T
C013		065549	CIPCERA, R1608, 50V, 103K, T
C014~018		050117	CIPCERA, EMK212BJ474KG-T, 2125, 16V, 474K, T
C019~021		065549	CIPCERA, R1608, 50V, 103K, T
C022		065547	CIPCERA, F1608, 25V, 104Z, T
C023	8233 3221 07	366801	ST, ALU, 16V, 100UF, 20%, MVY
C024, 025		065549	CIPCERA, R1608, 50V, 103K, T
C026, 027		065975	CIPCERA, R1608, 50V, 471K, T
C028		065547	CIPCERA, F1608, 25V, 104Z, T
C029~032		065549	CIPCERA, R1608, 50V, 103K, T
C033, 034			N/A
C035~065		065549	CIPCERA, R1608, 50V, 103K, T

MISCELLANEOUS

Ref. No.	Part No.	MFR Part No.	Description
J001	8245 2720 30	368097	CONN, PI, JACK, FPC, 30P
J002	8245 2720 17	165735	CONN, PI, JACK, FPC, 17P
J003	8245 8230 35	408040	CONN, SLT, JACK, FPC, 35P, P0.5, BTM, 9637S
S001~020	8553 0060 01	423663	SW, PT, TACT, SKQNABD010
S021	8253 4720 02	390871	SW, PI, ENCODER, EC12E2424407
S022~027	8553 0060 01	423663	SW, PT, TACT, SKQNABD010
S033~054	8553 0060 01	423663	SW, PT, TACT, SKQNABD010
W001			N/A
W002		067491	RCHIP, MCR03, 000J, T

• POWER PCB

Ref. No.	Part No.	MFR Part No.	Description
△	8551 0490 00	451375	PCB assy, Power, MR-16HD

ICs

Ref. No.	Part No.	MFR Part No.	Description	
△	U001	8236 5420 06	340097	V, AN, POWER, MIP0226SY
△	U002	8234 1081 00	183538	OPT, H, PHOTOCOUPLER, ON3171
△	U003	8236 5409 00	183554	VT, AN, REGULATOR, AN1431T
△	U004	8236 0872 01	339916	V, AN, DC-DC, PQ1CG2032FZH

TRANSISTORS

Ref. No.	Part No.	MFR Part No.	Description
Q004		068738	2SC1627A-OY(TPE6 F), T
Q005		068572	2SA817A, OY, TPE6
Q006		068738	2SC1627A-OY(TPE6 F), T

DIODEs

Ref. No.	Part No.	MFR Part No.	Description	
D001	8234 1102 01	339914	V, VARISTOR, TNR7V431K	
△	D002	8234 1077 00	183534	STACK, 600VAC, 1.5A, D2SBA60
D003	8234 1078 00	183535	HT, 600V, 1.0A, D1N60-5084	
D004	8234 1079 00	183536	HT, 80V, 0.2A, MA171	
D005	8234 1104 00	340452	V, 200V, 5.0A, MA6D49	
△	D008	8234 1110 00	398315	VF, SCHOTTKY, RK46
D009~013	8234 1085 00	340094	HT, FAST, RECOVERY, D1NL40	

RESISTORS

Ref. No.	Part No.	MFR Part No.	Description
R001		054434	METAL, R, MOS2CM20U104J
R015		054395	METAL, R, MOS1/2CT26A330J, T

CAPACITORS

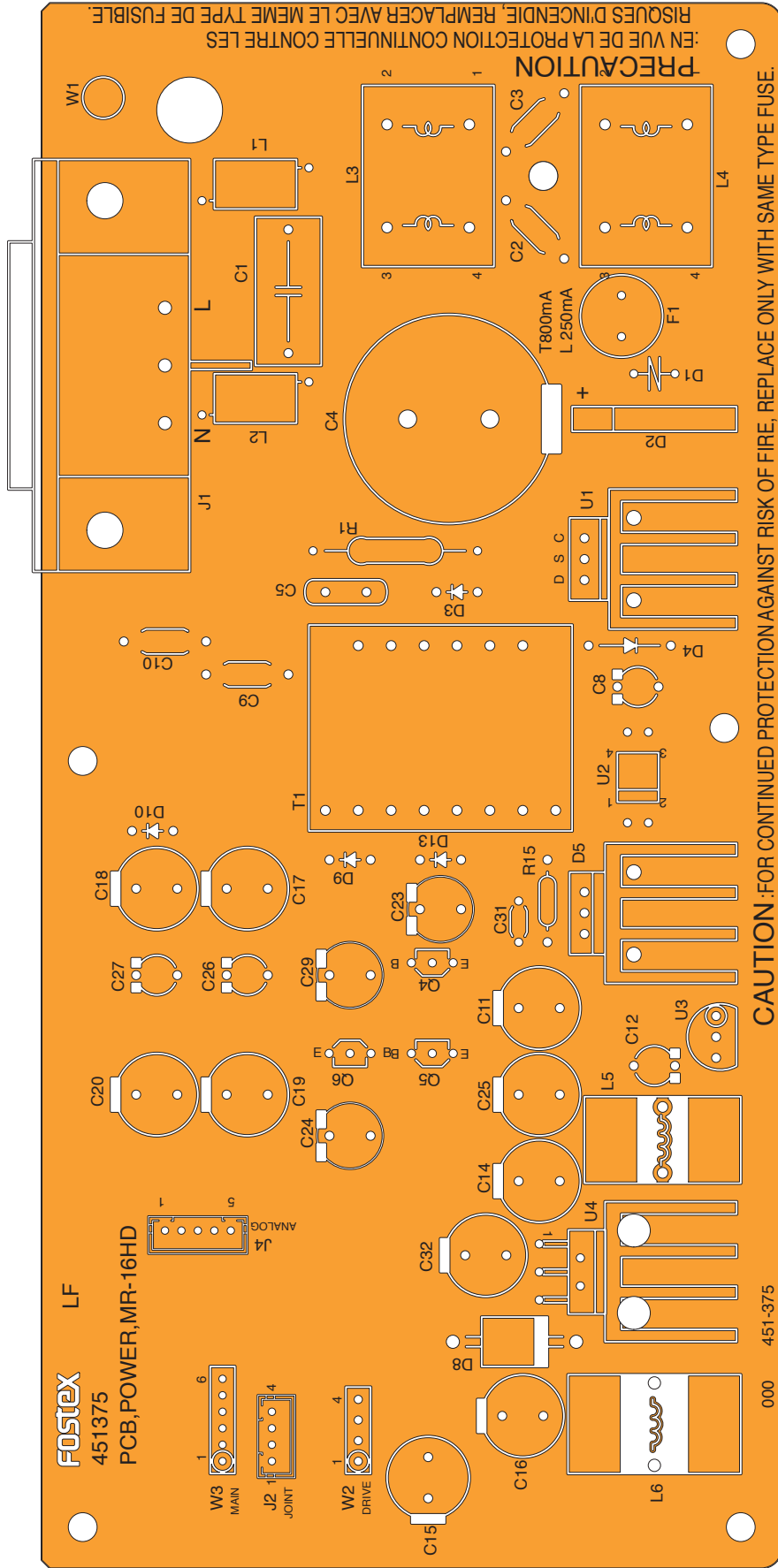
ALU = Electrolytic type

CER = Ceramic type

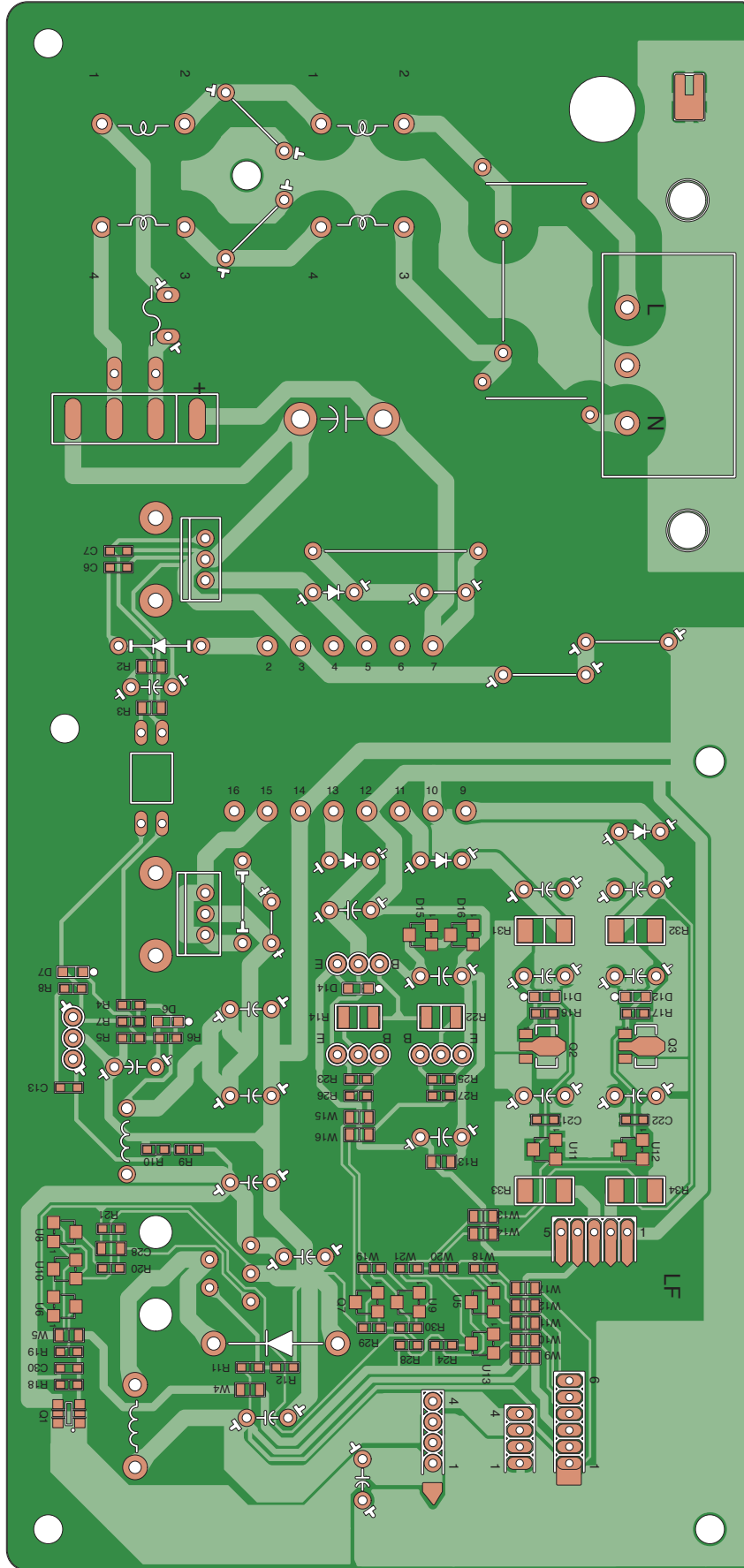
PES = Mylar type

Ref. No.	Part No.	MFR Part No.	Description
C001	8232 3521 04	183527	V, PES, 250VAC, 0.1UF, 20%, ECQ-UMV
C002, 003	8232 3542 22	183529	VT, CER, 250V, .0022UF, 20%
C004	8232 3241 07	183525	V, ALU, 400V, 100UF, 20%, SM
C005	8232 3491 03	183526	VT, PES, 630V, 0.01UF, 10%, EC
C008		413049	ELECT, SMG, 16V, 470M-E0, T, LF
C009, 010	8232 3542 22	183529	VT, CER, 250V, .0022UF, 20%
C011		054394	ELECT, LXV, 25VB, 471M, J20, T
C012		413049	ELECT, SMG, 16V, 470M-E0, T, LF
C014	8232 4531 28	186812	V, ALU, 16V, 1200UF, 20%, LXZ
C015~020		054394	ELECT, LXV, 25VB, 471M, J20, T
C023, 024		330372	ELECT, LXV, 63VB, 470M, H12, T
C025		054394	ELECT, LXV, 25VB, 471M, J20, T
C026, 027		418845	ELECT, SMG, 16V, 100M-E0, T, LF
C029		330372	ELECT, LXV, 63VB, 470M, H12, T
C031	8232 3533 91	183528	VT, CER, 500V, 390PF, 10%
C032	8232 4531 28	186812	V, ALU, 16V, 1200UF, 20%, LXZ

• Parts side of POWER PCB



• Foil side of POWER PCB



MISCELLANEOUS

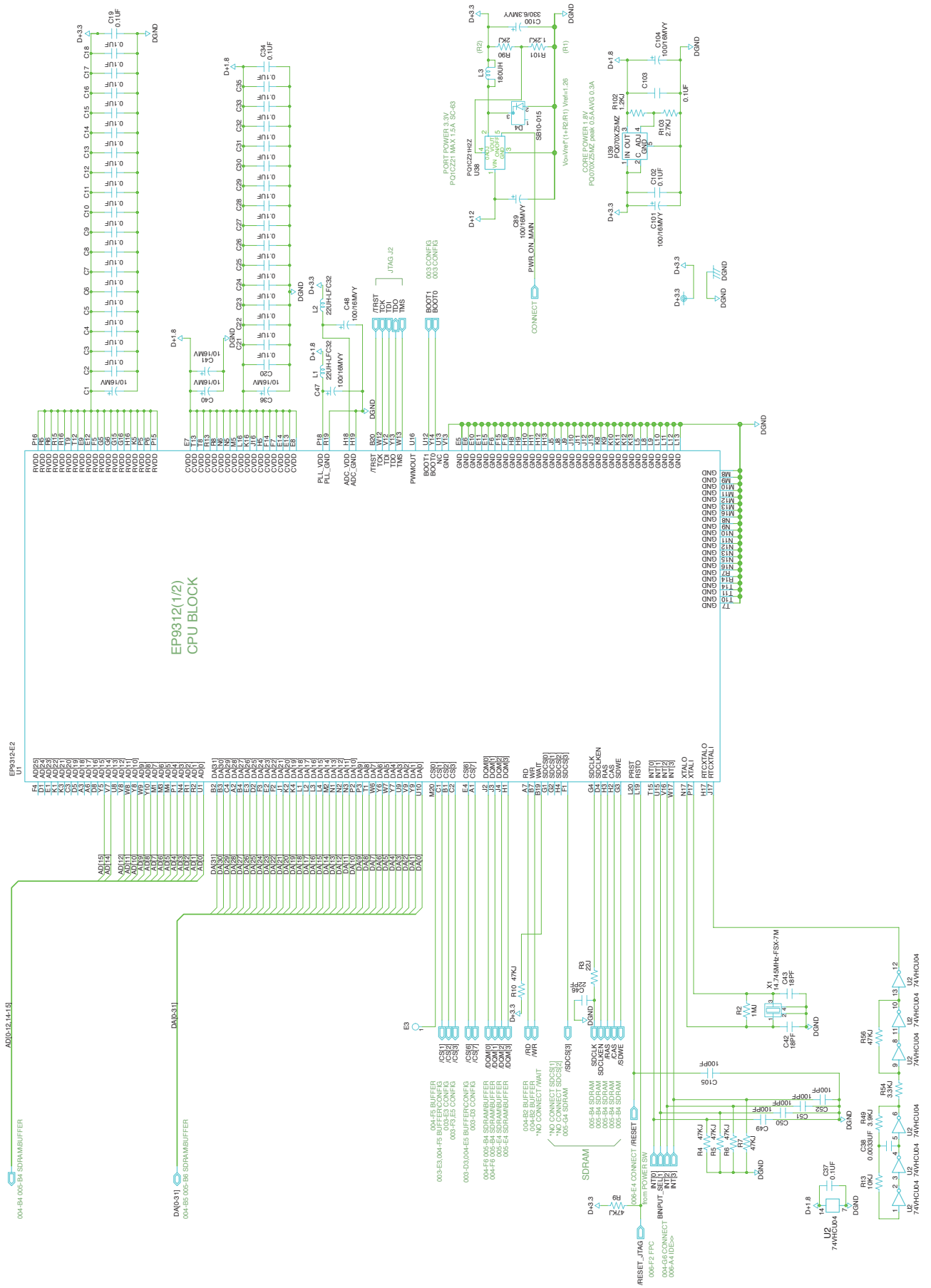
Ref. No.	Part No.	MFR Part No.	Description
△ F001	8239 8010 08	340104	FUSE, VT, SEMKO, TLAG, 0.8A, 250
J001	8545 0010 00	340295	CONN, PL, JACK, AC-INLET, 3P, IS-7
J002		081698	CONNECTOR, B04B-PH-K-S
J004		081702	CONNECTOR, B05B-PH-K-S
L001, 002		358631	FERRITE, F5, R6H, 6.0*10.0(2.5TS)
L003	8242 2491 02	184039	FILTER, LINE, 1MH, 2.2AELFI5NO22A
L004	8242 2491 93	184040	FILTER, LINE, 19MH, 0.5A,ELFI5NOO
L005	8242 2981 00	398145	CORE, V, 4A, 10UH, TOROIDAL
L006	8242 2640 01	340105	COIL, DC-DC, R17, 256UH
△ T001	8242 5250 00	451201	TRANS, SW POWER, ER2810, D12-A15-A53
W001	8277 1630 15	340015	CABLE ASSY, EARTH LUG-SIN1.8, L150
W002	8277 3184 15	176317	CABLE ASSY, 4P,5395-CNC, L150
W003	8277 6280 15	417343	CABLE ASSY, 6P, WHT, PHR/F-SAN/BS, #24, L150
△ Y002	8207 0015 00	154642	HEATSINK, OSH-1625-SP
△ Y003	8207 8100 00	441848	HEATSINK, BLK, 16X25, SE930006A

● Abbreviation

AN:	Analog	QFP:	Quad Flat Package
BGA:	Ball Grid Array	LQFP:	Low profile Quad Flat Package
CONN:	Connector	SOT:	Small Outline Transistor
DG:	Digital	SSOP:	Shrink Small Outline Package
DIP:	Dual In-line Package	ST:	Surface mount Taping device
H:	Horizontal	TQFP:	Thin Quad Flat Package
HT:	Horizontal mount Taping device	TSOP:	Thin Small Outline Package
PI:	Penetrate mount I form (straight)	TSSOP:	Thin Shrink Small Outline Package
PL:	Penetrate mount L form (right angle)	V:	Vertical
PT:	Penetrate mount Taping device	VT:	Vertical mount Taping device
OPT:	Optical		

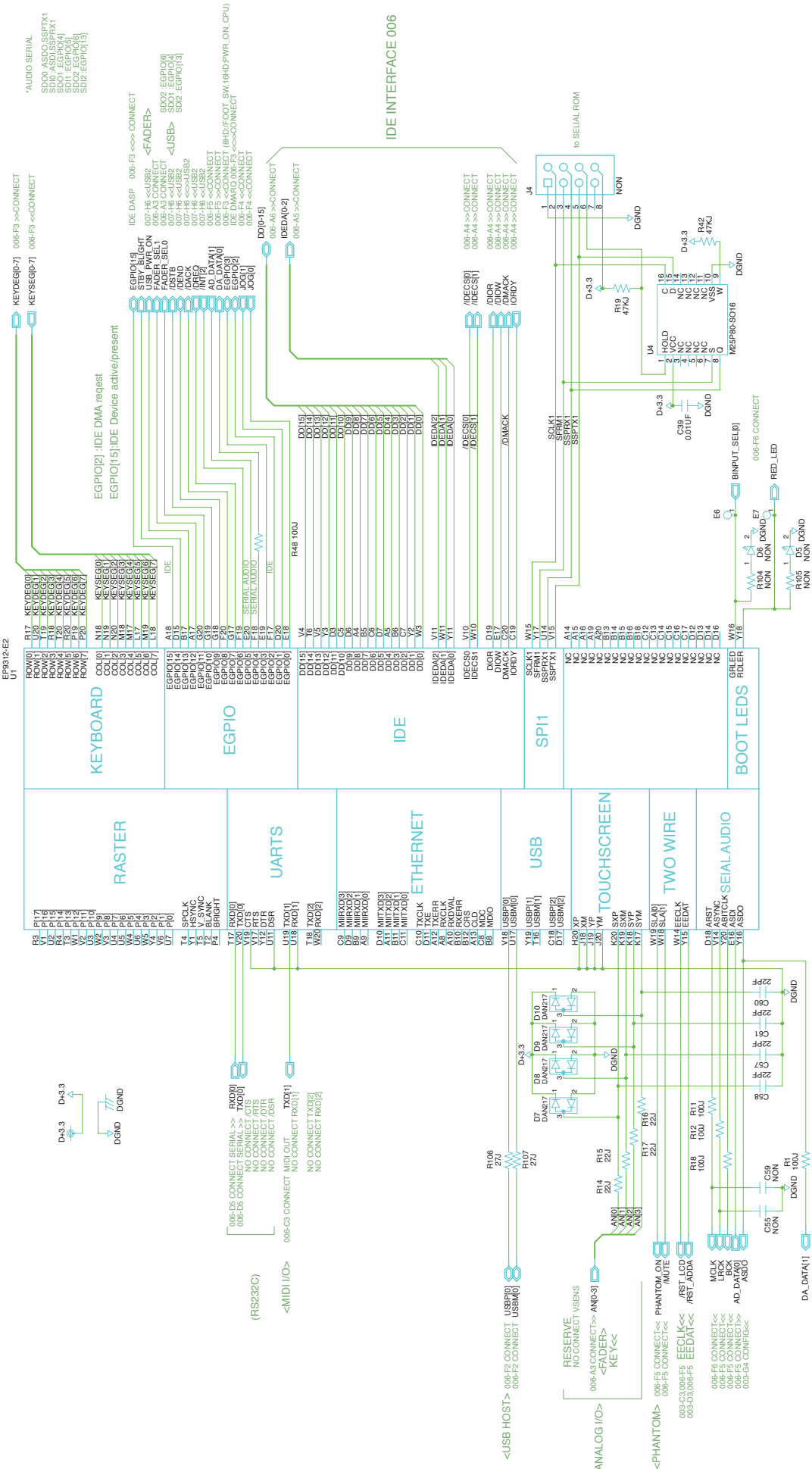
7. CIRCUIT DIAGRAM

• CPU1, MAIN PCB (1/7)

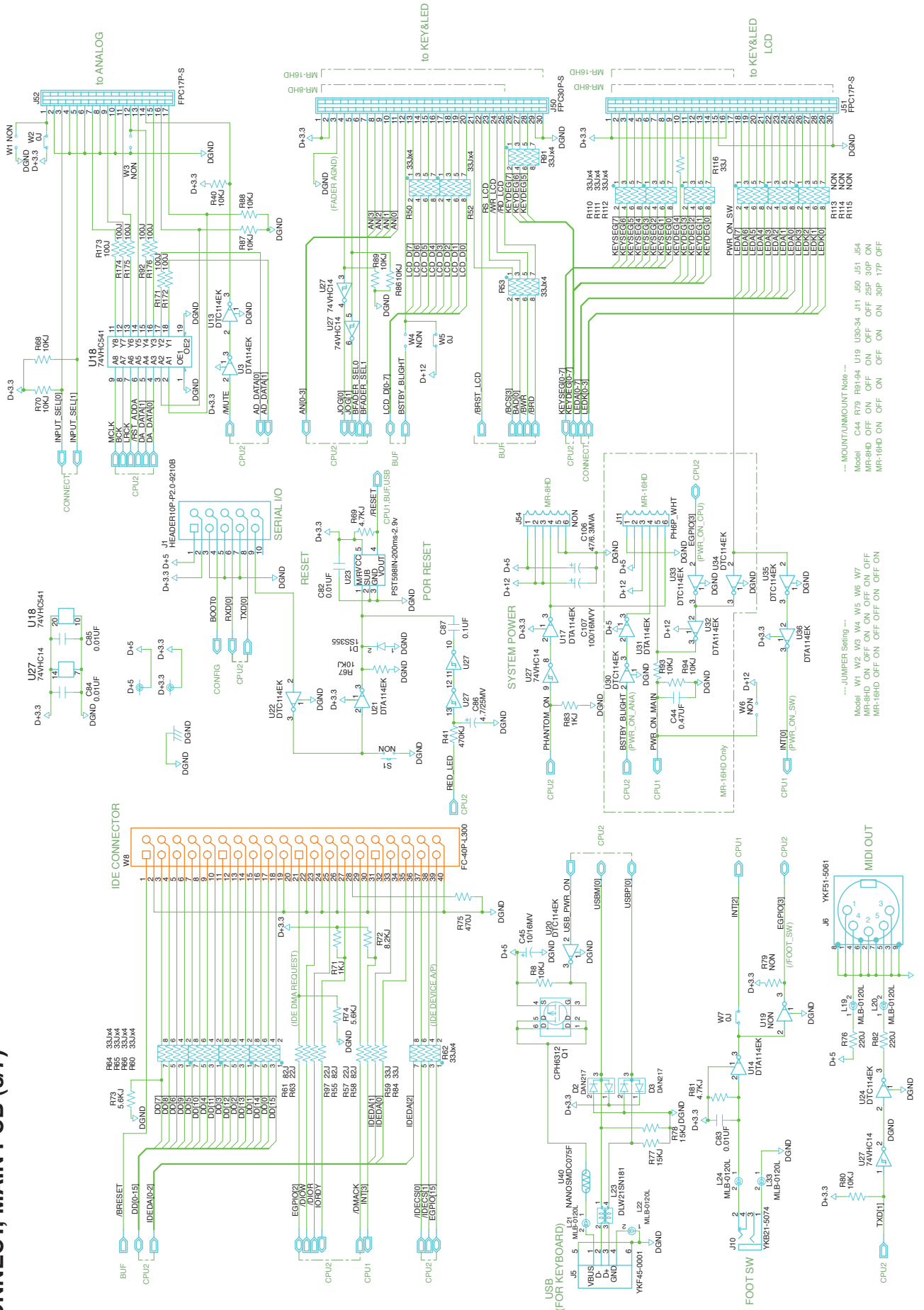


• CPU2, MAIN PCB (2/7)

EP9312(2/2) PERIPHERAL



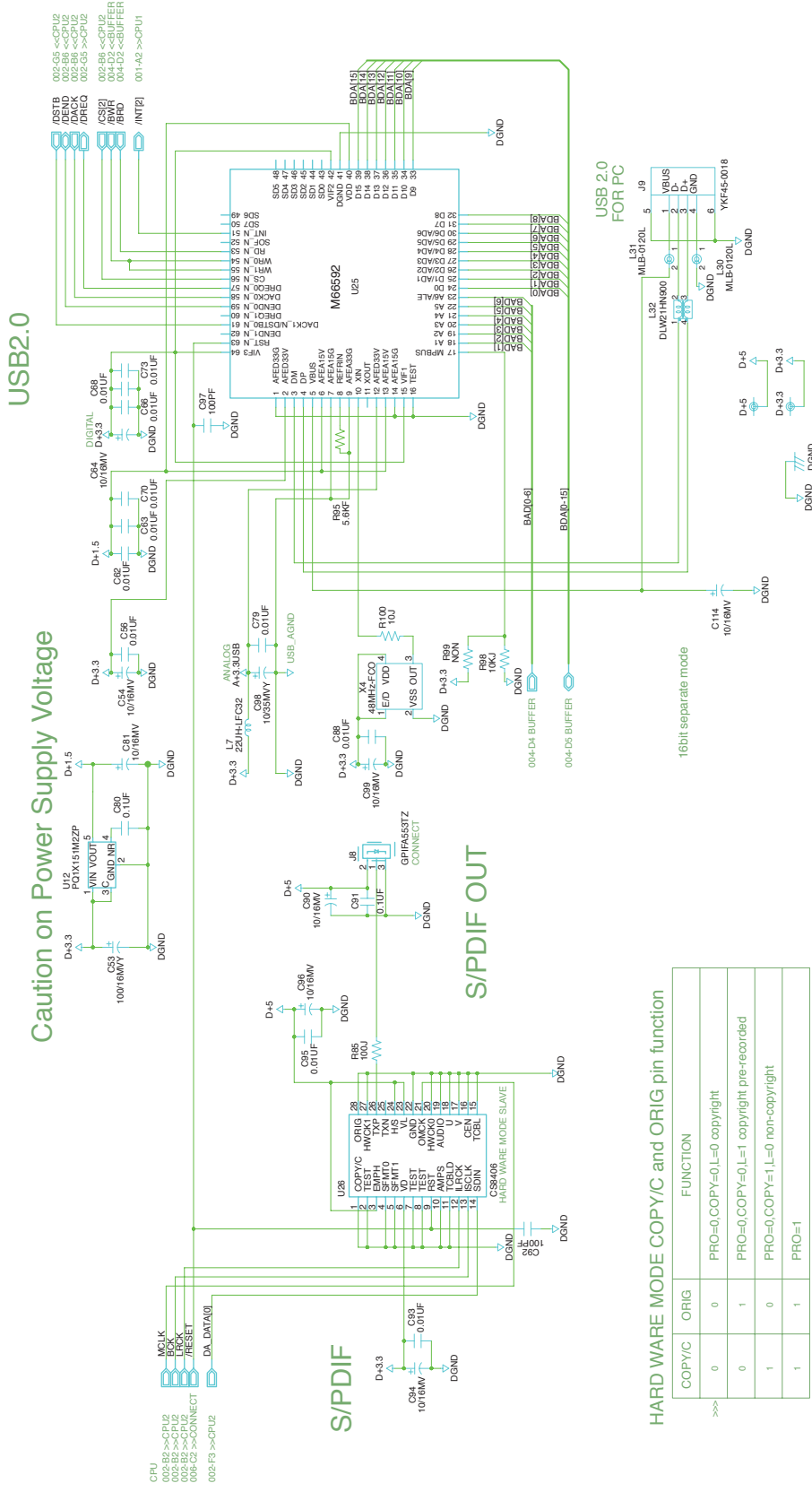
• CONNECT, MAIN PCB (5/7)



--- MOUNT/UNMOUNT Note ---
 Model# W1 W2 W3 W4 W5 W6 W7
 MR-8HD OFF ON OFF ON OFF ON OFF ON OFF ON OFF ON OFF ON OFF ON OFF ON OFF ON
 MR-16HD ON OFF ON OFF ON OFF ON OFF ON OFF ON OFF ON OFF ON OFF ON OFF ON OFF ON

--- JUMPER Setting ---
 Model# W1 W2 W3 W4 W5 W6 W7
 MR-8HD OFF ON OFF ON OFF ON OFF ON OFF ON OFF ON OFF ON OFF ON OFF ON OFF ON
 MR-16HD OFF ON OFF ON OFF ON OFF ON OFF ON OFF ON OFF ON OFF ON OFF ON OFF ON OFF ON

• USB2.0, MAIN PCB (6/7)



Caution on Power Supply Voltage

USB2.0

HARD WARE MODE COPY/C and ORIG pin function

COPY/C	ORIG	FUNCTION
>>> 0	0	PRO=0,COPY=0,L=0 copyright
0	1	PRO=0,COPY=0,L=1 copyright pre-recorded
1	0	PRO=0,COPY=1,L=0 non-copyright
1	1	PRO=1

SERIAL AUDIO PORT FORMAT SECTION

SFMT1	SFMT0	Function
>>> 0	0	Serial Input Format (F1-Left Justified)
0	1	Serial Input Format (F2-Left Justified)
1	0	Serial Input Format (F3-Right Justified,24bit data)
1	1	Serial Input Format (F4-Right Justified,16bit data)

Equivalent Register Settings of Serial Audio Input Formats Available in Hardware Mode

	SISF	SIRESY/O	SIUUST	SIDEL	SISPOL	SILRPOL
>>> IF1-Left Justified	0	00	0	0	0	0
IF2-Left	0	00	0	1	0	1
IF3-Right Justified,24bit data	0	00	1	0	0	0
IF4-Right Justified,16bit data	0	10	1	0	0	0

OMCK Clock Ratio Section

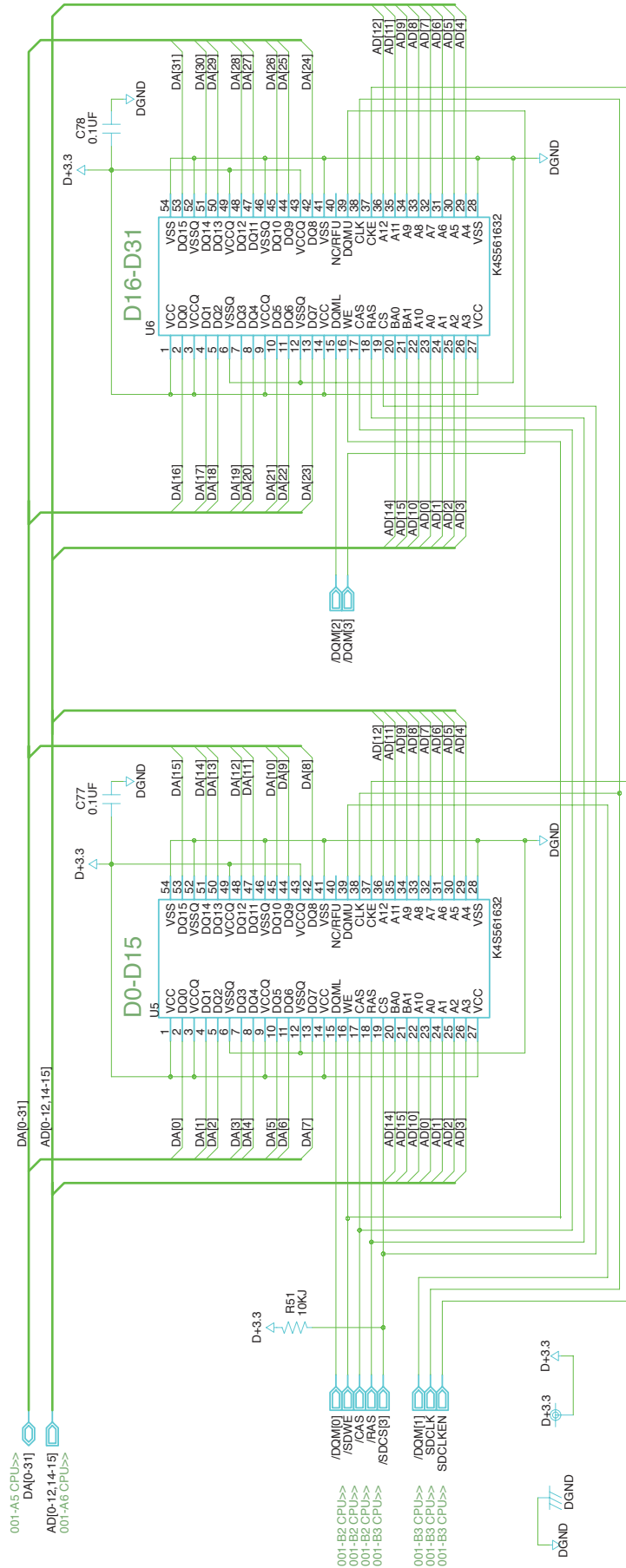
HWCK1	HWCK0	Function
0	0	OMCK Frequency is 256Fs
0	1	OMCK F frequency is 128Fs
1	0	OMCK Frequency is 612Fs
1	1	OMCK Frequency is 256Fs

USB 2.0 FOR PC

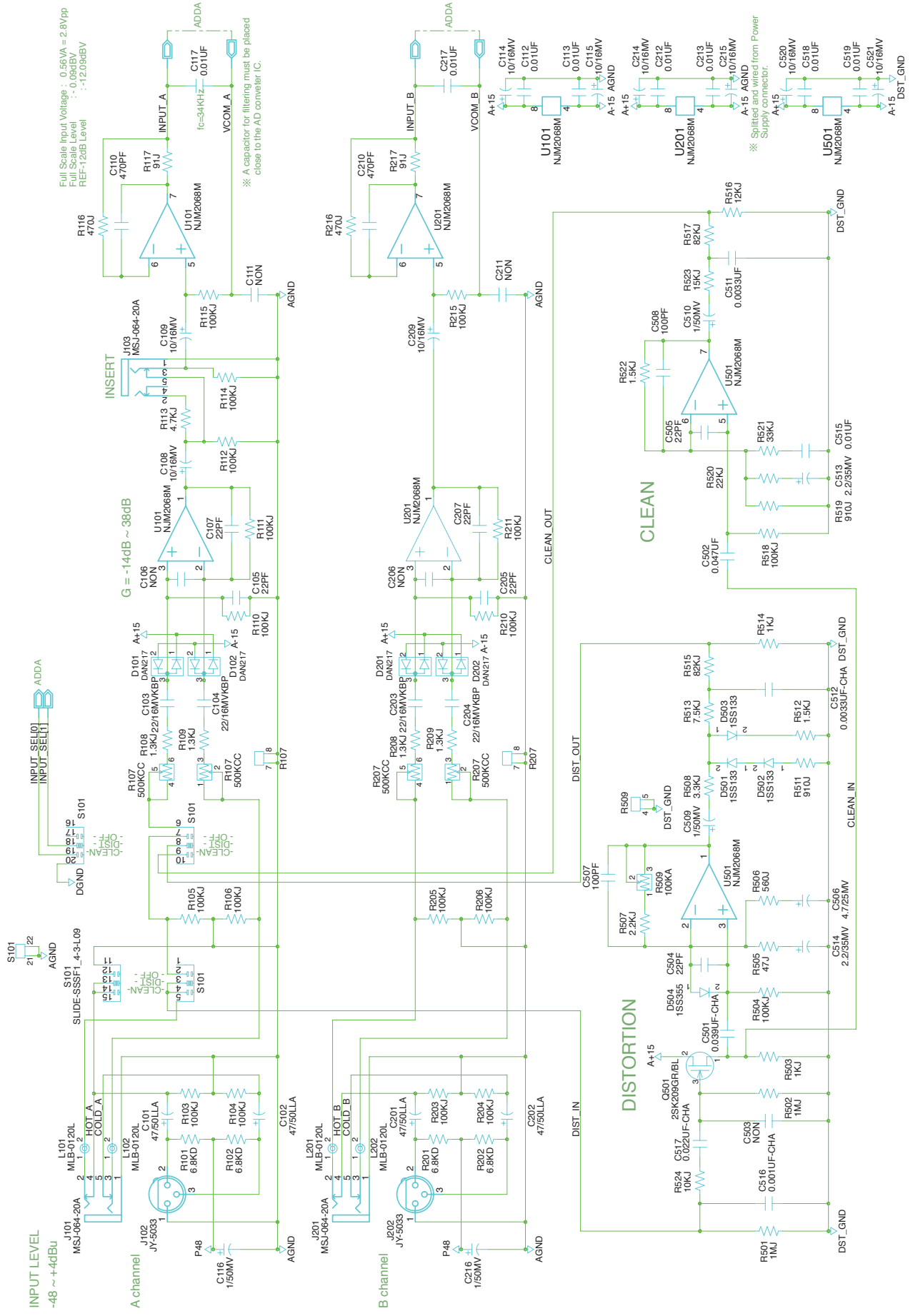
16bit separate mode

• MEMORY, MAIN PCB (777)

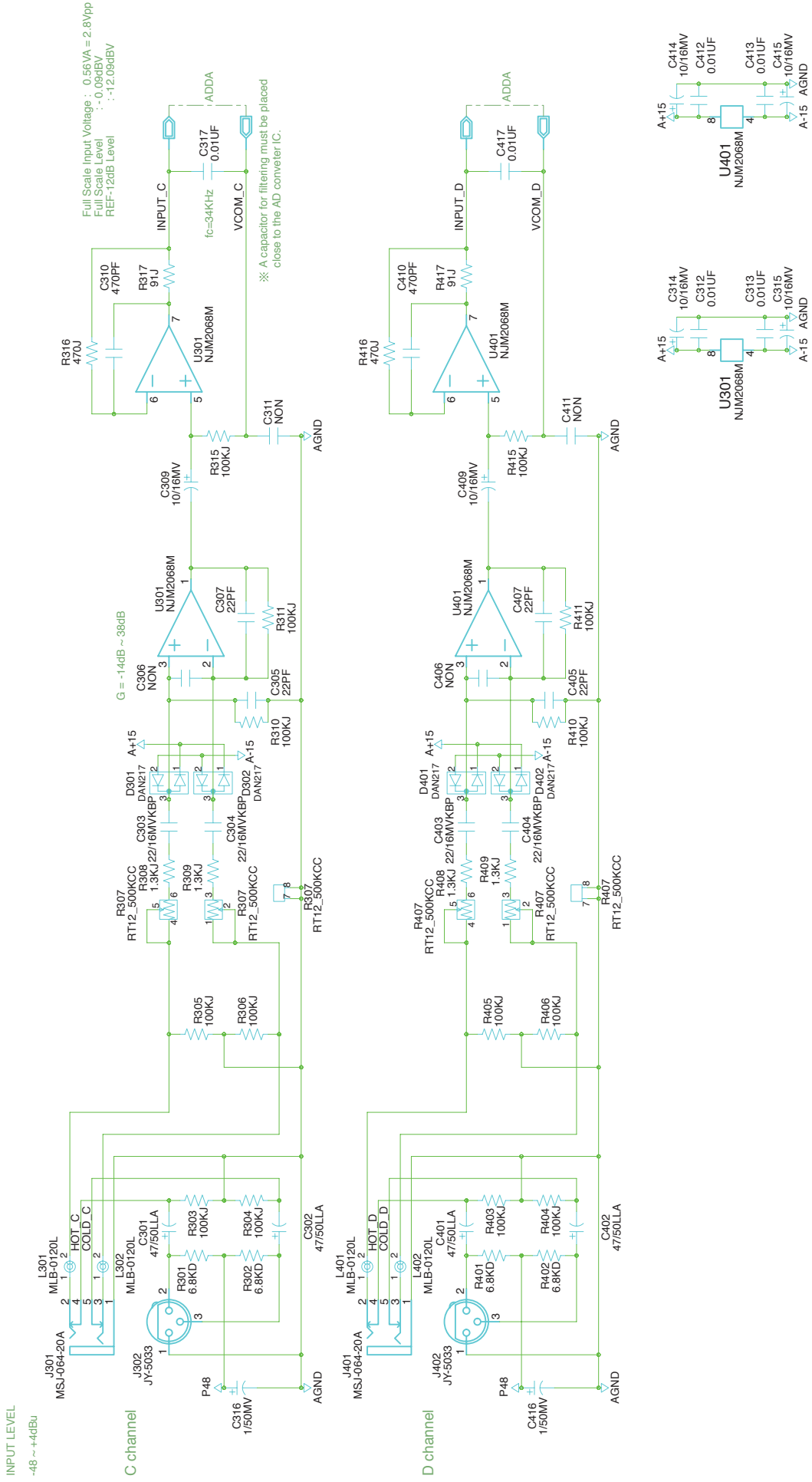
SDRAM(256Mb)



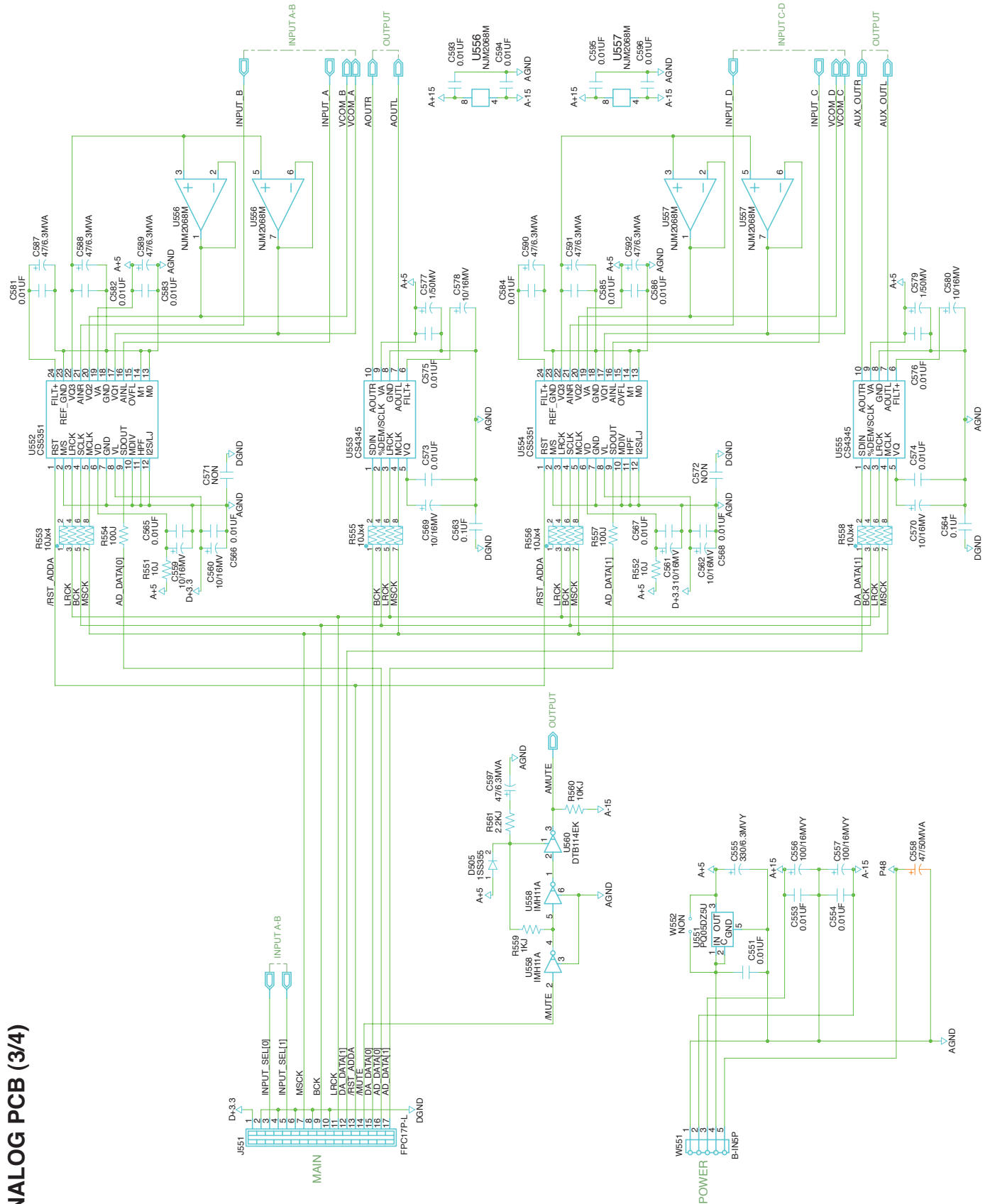
• IN_AB, ANALOG PCB (1/4)



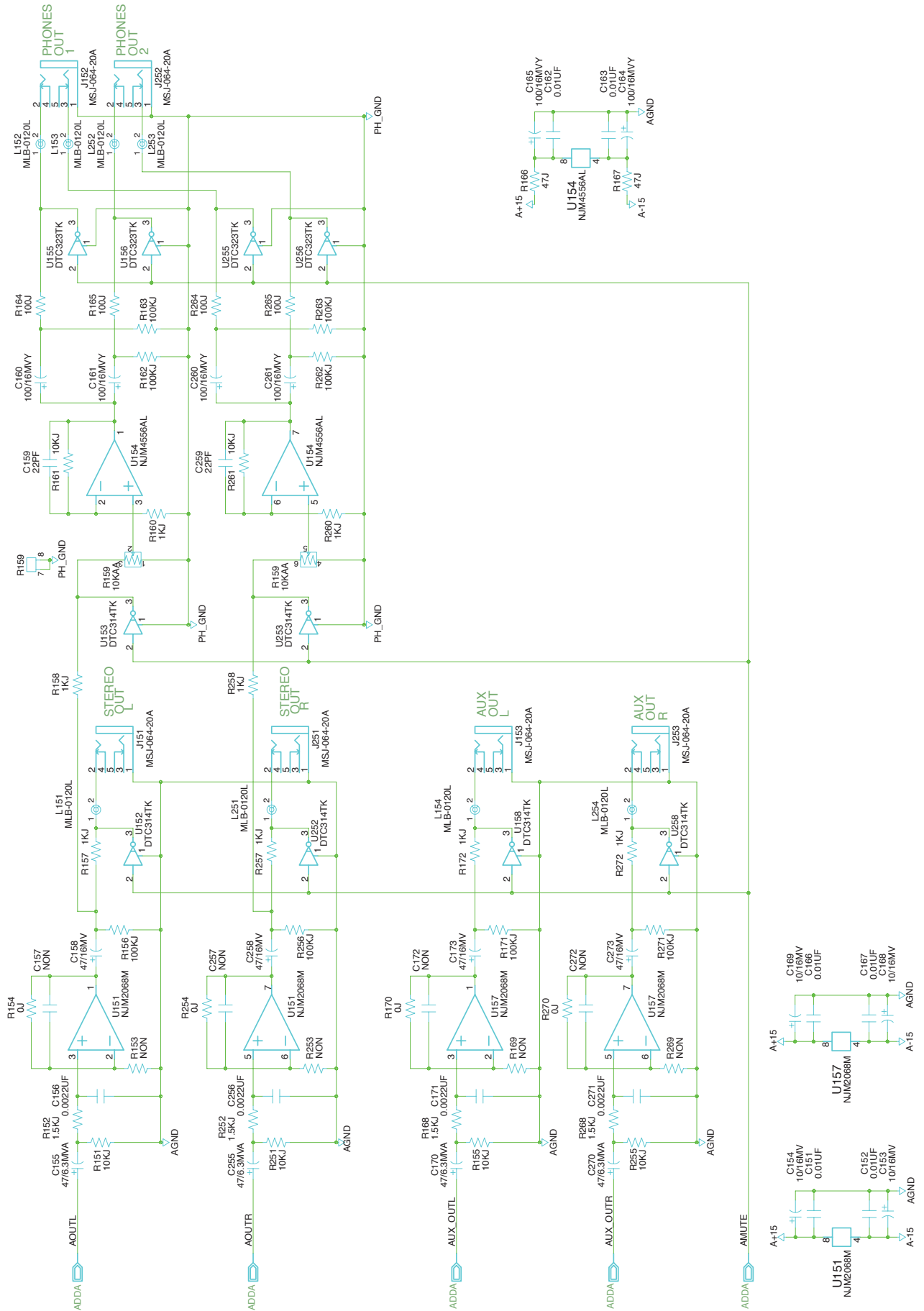
• IN_CD, ANALOG PCB (2/4)



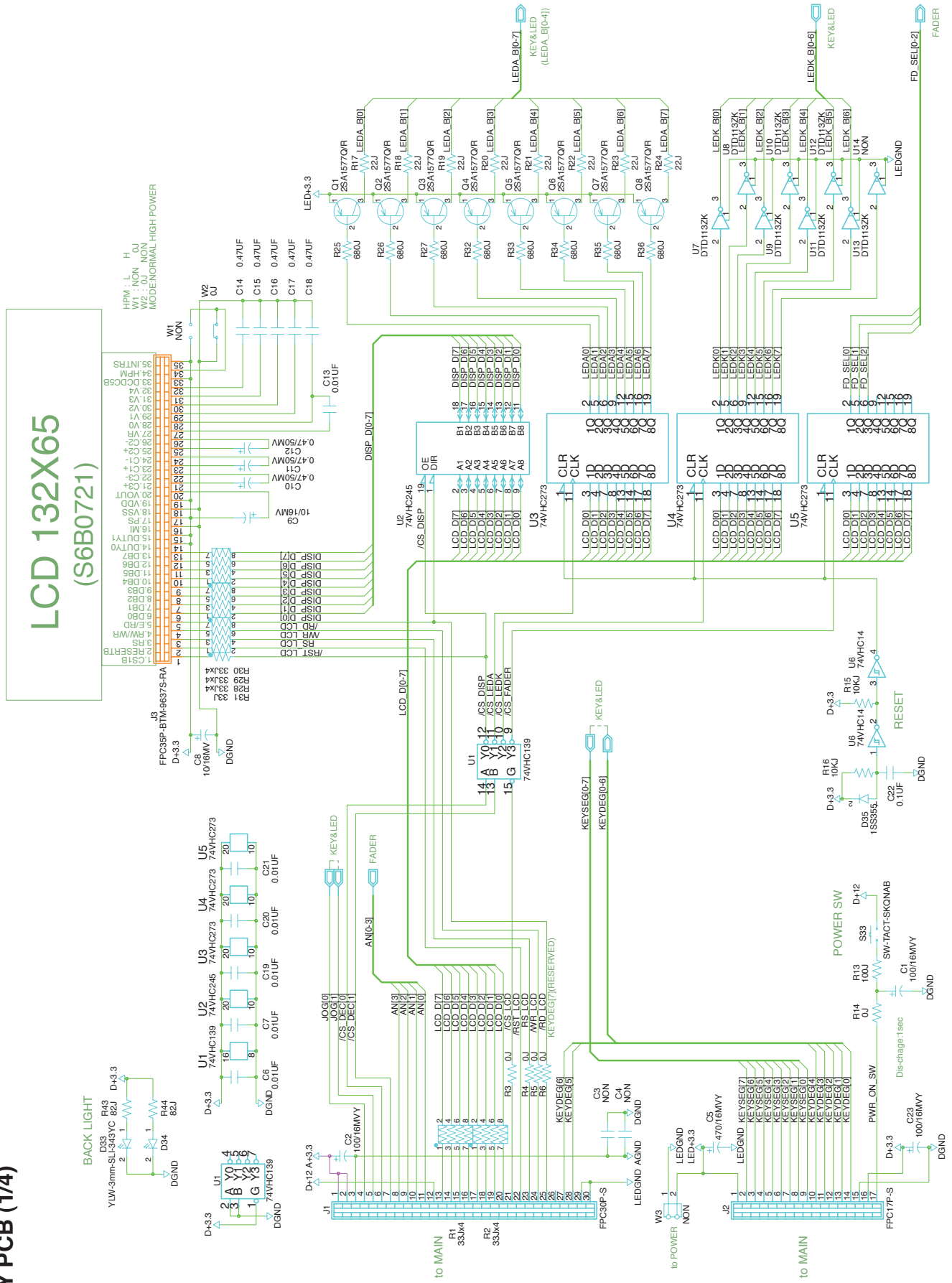
• AD, ANALOG PCB (3/4)



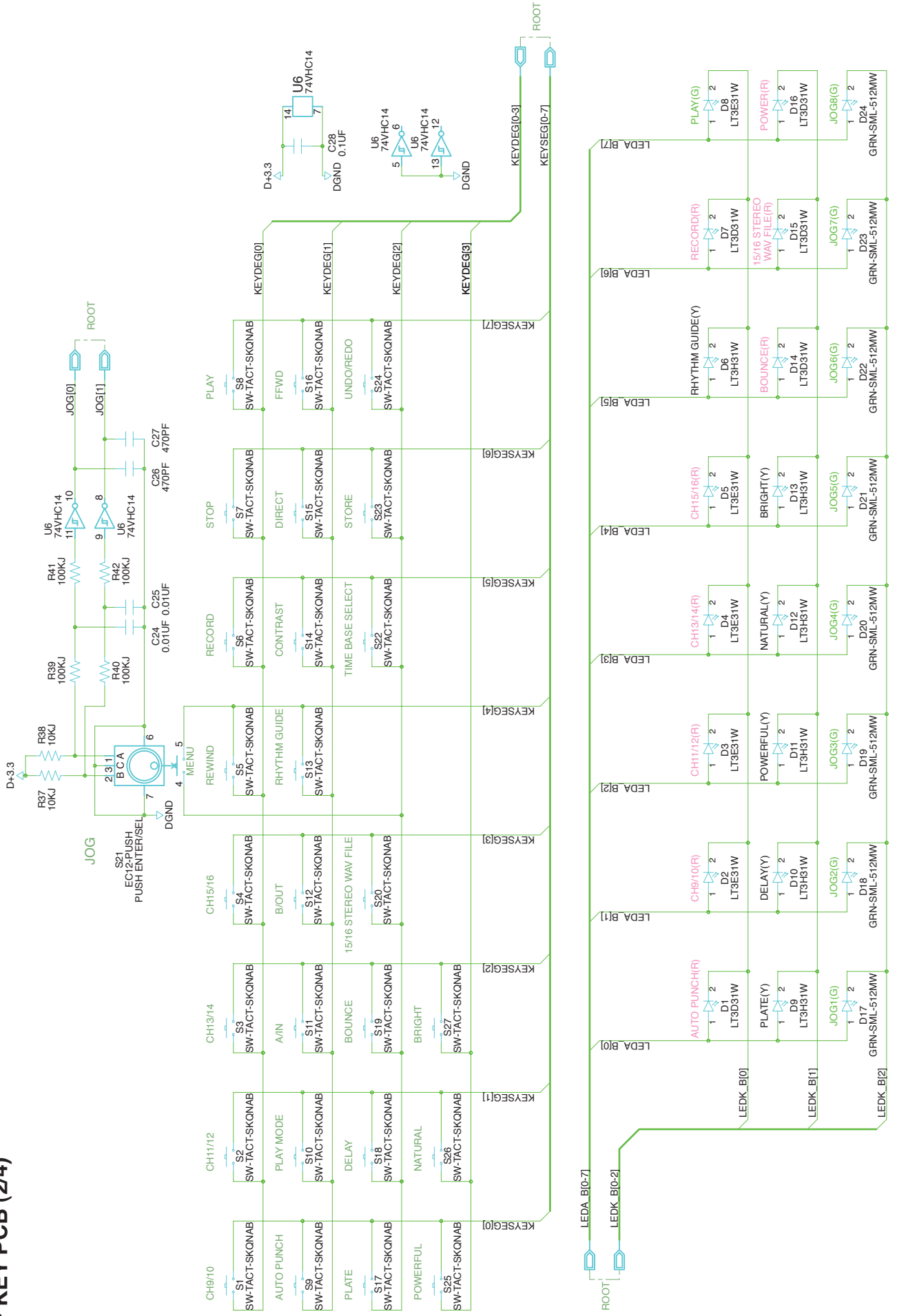
• OUT, ANALOG PCB (4/4)



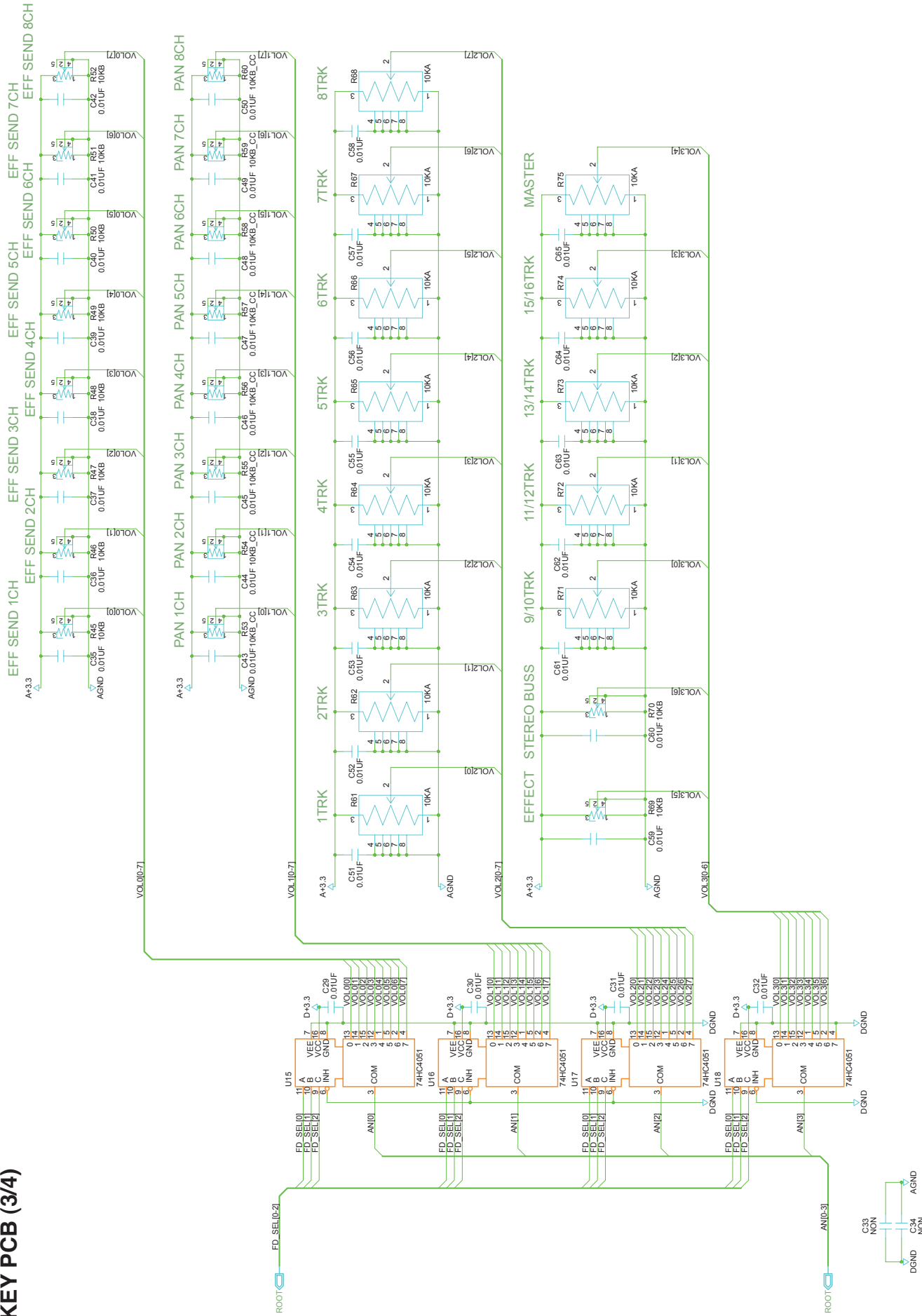
• KEY PCB (1/4)



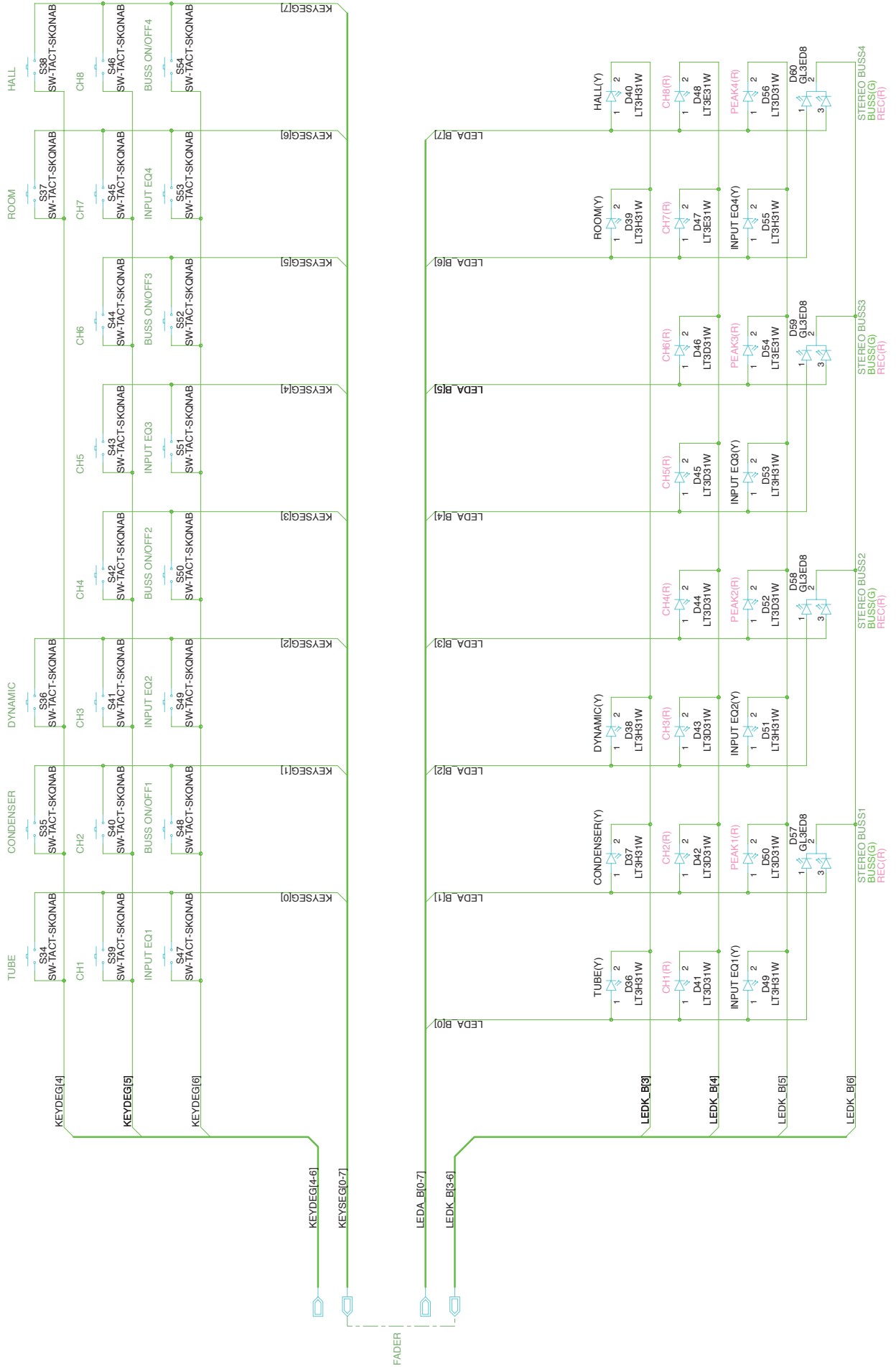
• KEY PCB (2/4)



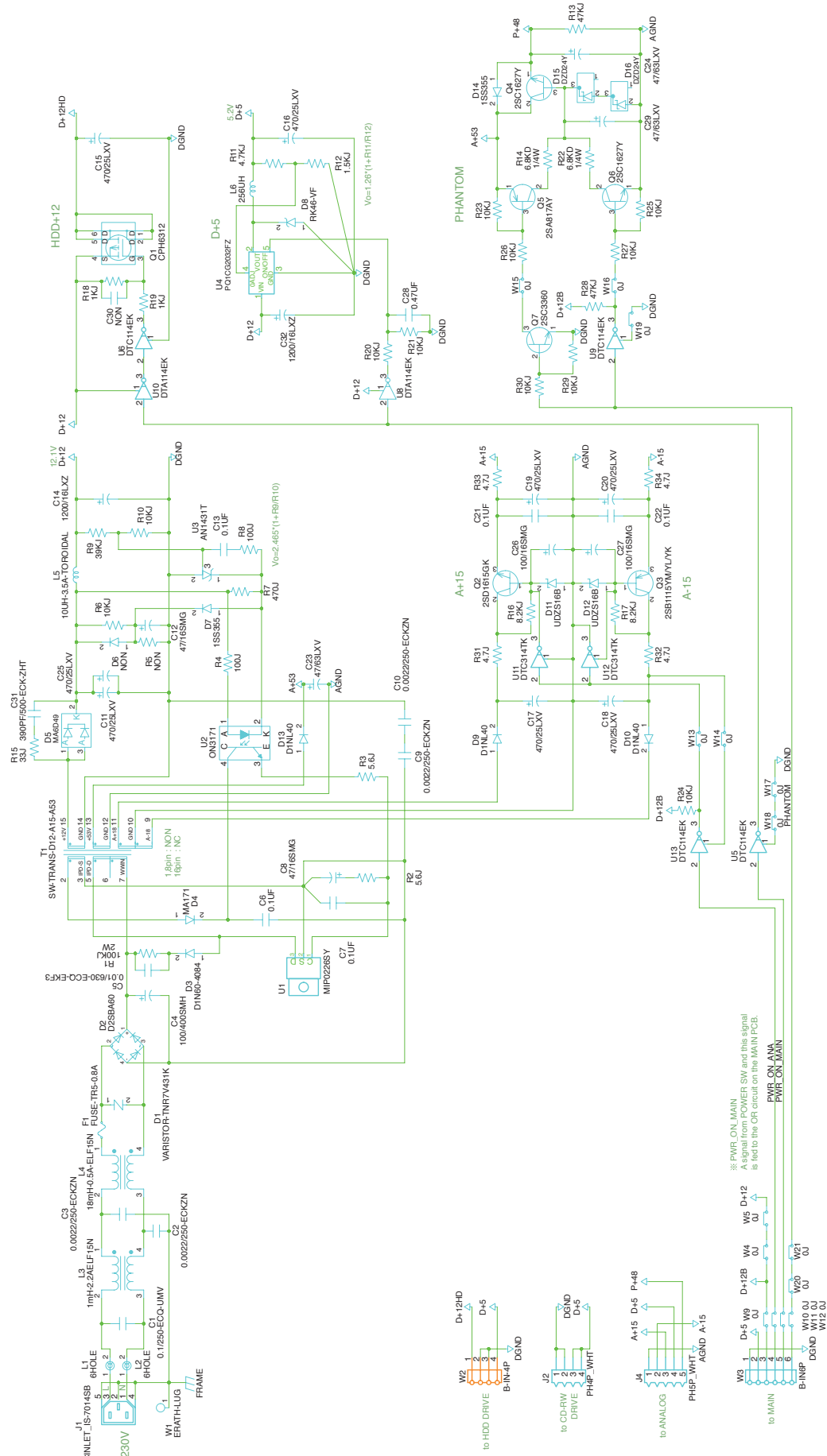
• KEY PCB (3/4)



• KEY PCB (4/4)



• POWER PCB

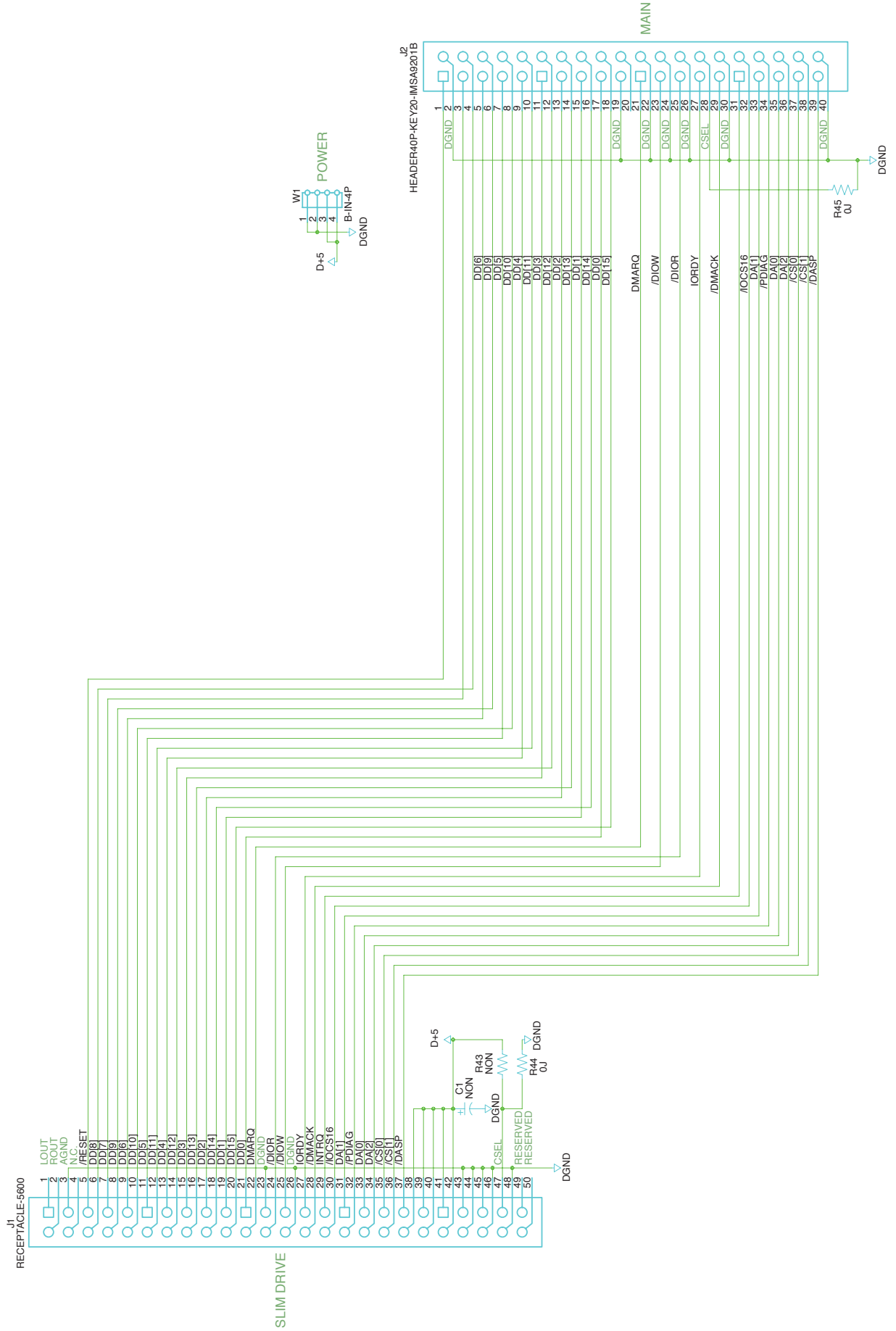


※ Connected to the screw GND at one point

※ PWR_ON_MAIN
 A signal from POWER SW and this signal
 is tied to the OR circuit on the MAIN PCB.



• JOINT PCB



8. ERROR CODE

ERROR CODE	DESCRIPTION	SOLUTION
FILE ERR: 05	Access error to the MR16 internal HD.	If this error code appears frequently, access the MR16 internal hard disk from PC side and check if there are any error regions exist. Back up all data in the internal HD to PC and format it.
FILE ERR: 08	The MBR (Master Boot Record) region, BPB (Boot Parameter Block) region or the cluster chain might be in a bad condition.	Back up data in the internal HD to PC and format it.
FILE ERR: 02 FILE ERR: 11	The file format is illegal.	Check if the ADL / WAV files included in the target file are in good condition from PC side.
FILE ERR: 0D	No access authorization to the file or folder.	
FILE ERR: 1C	No disk remaining capacity	

<NOTE>

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