

Pioneer

Service Manual



DV-220V-K

ORDER NO.
RRV3978

DVD PLAYER

DV-220V-K

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

| Model | Type | Power Requirement | Region No. | Remarks |
|-----------|---------|-------------------|------------|---------|
| DV-220V-K | UCXZTSM | AC 120 V | 1 | |



For details, refer to "Important Check Points for good servicing".

PIONEER CORPORATION 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654, Japan
PIONEER ELECTRONICS (USA) INC. P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.
PIONEER EUROPE NV Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 253 Alexandra Road, #04-01, Singapore 159936
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T-ZZV JUNE 2009 Printed in Japan

SAFETY INFORMATION



This service manual is intended for qualified service technicians ; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING !

THE AEL (ACCESSIBLE EMISSION LEVEL) OF THE LASER POWER OUTPUT IS LESS THAN CLASS 1 BUT THE LASER COMPONENT IS CAPABLE OF EMITTING RADIATION EXCEEDING THE LIMIT FOR CLASS 1.
A SPECIALLY INSTRUCTED PERSON SHOULD DO SERVICING OPERATION OF THE APPARATUS.

LASER DIODE CHARACTERISTICS

FOR DVD : MAXIMUM OUTPUT POWER : 5 mW
WAVELENGTH : 650 nm
FOR CD : MAXIMUM OUTPUT POWER : 5 mW
WAVELENGTH : 780 nm

LABEL CHECK

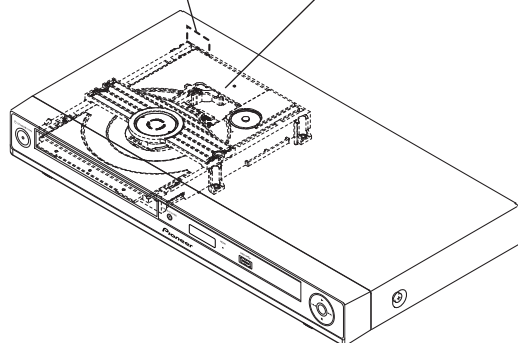


(Printed on the Rear Panel)

CAUTION: INVISIBLE LASER RADIATION WHEN OPEN
DO NOT STARE INTO BEAM

DANGER: INVISIBLE LASER RADIATION WHEN OPEN
AVOID DIRECT EXPOSURE TO THE BEAM

(Imprinted on the top of DVD mechanism)



Additional Laser Caution

1. • Laser diode is driving with Q2303 (650nm LD) and Q2302(780nm LD) on the DVD MT PCB Assy.
Therefore, when short-circuit between the emitter and collector of these transistors or the base voltage is supplied for transistors turn on, the laser oscillates. (failure mode)
• In the test mode *, there is the mode that the laser oscillates except for the disc judgment and playback. LD ON mode in the test mode oscillates with the laser forcibly.
2. When the cover is open, close viewing through the objective lens with the naked eye will cause exposure to the laser beam.

* : See page 24.

[Important Check Points for Good Servicing]

In this manual, procedures that must be performed during repairs are marked with the below symbol. Please be sure to confirm and follow these procedures.

1. Product safety



Please conform to product regulations (such as safety and radiation regulations), and maintain a safe servicing environment by following the safety instructions described in this manual.

- ① Use specified parts for repair.

Use genuine parts. Be sure to use important parts for safety.

- ② Do not perform modifications without proper instructions.

Please follow the specified safety methods when modification (addition/change of parts) is required due to interferences such as radio/TV interference and foreign noise.

- ③ Make sure the soldering of repaired locations is properly performed.

When you solder while repairing, please be sure that there are no cold solder and other debris. Soldering should be finished with the proper quantity. (Refer to the example)

- ④ Make sure the screws are tightly fastened.

Please be sure that all screws are fastened, and that there are no loose screws.

- ⑤ Make sure each connectors are correctly inserted.

Please be sure that all connectors are inserted, and that there are no imperfect insertion.

- ⑥ Make sure the wiring cables are set to their original state.

Please replace the wiring and cables to the original state after repairs. In addition, be sure that there are no pinched wires, etc.

- ⑦ Make sure screws and soldering scraps do not remain inside the product.

Please check that neither solder debris nor screws remain inside the product.

- ⑧ There should be no semi-broken wires, scratches, melting, etc. on the coating of the power cord.

Damaged power cords may lead to fire accidents, so please be sure that there are no damages. If you find a damaged power cord, please exchange it with a suitable one.

- ⑨ There should be no spark traces or similar marks on the power plug.

When spark traces or similar marks are found on the power supply plug, please check the connection and advise on secure connections and suitable usage. Please exchange the power cord if necessary.

- ⑩ Safe environment should be secured during servicing.

When you perform repairs, please pay attention to static electricity, furniture, household articles, etc. in order to prevent injuries. Please pay attention to your surroundings and repair safely.

2. Adjustments



To keep the original performance of the products, optimum adjustments and confirmation of characteristics within specification. Adjustments should be performed in accordance with the procedures/instructions described in this manual.

3. Lubricants, Glues, and Replacement parts



Use grease and adhesives that are equal to the specified substance. Make sure the proper amount is applied.

4. Cleaning



For parts that require cleaning, such as optical pickups, tape deck heads, lenses and mirrors used in projection monitors, proper cleaning should be performed to restore their performances.

5. Shipping mode and Shipping screws



To protect products from damages or failures during transit, the shipping mode should be set or the shipping screws should be installed before shipment. Please be sure to follow this method especially if it is specified in this manual.

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1. SERVICE PRECAUTIONS

- For environmental protection, lead-free solder is used on the printed circuit boards mounted in this unit.
Be sure to use lead-free solder and a soldering iron that can meet specifications for use with lead-free solders for repairs accompanied by reworking of soldering.
- Compared with conventional eutectic solders, lead-free solders have higher melting points, by approximately 40 °C. Therefore, for lead-free soldering, the tip temperature of a soldering iron must be set to around 373 °C in general, although the temperature depends on the heat capacity of the PC board on which reworking is required and the weight of the tip of the soldering iron.

Do NOT use a soldering iron whose tip temperature cannot be controlled.

Compared with eutectic solders, lead-free solders have higher bond strengths but slower wetting times and higher melting temperatures (hard to melt/easy to harden).

The following lead-free solders are available as service parts:

- Parts numbers of lead-free solder:
GYP1006 1.0 in dia.
GYP1007 0.6 in dia.
GYP1008 0.3 in dia.

PARENTAL CONTROL - RATING LEVEL 4 DIGIT PASSWORD CANCELLATION

If the stored 4 digit password in the Rating Level menu needs to be cancelled, please follow the steps below.

1. Set the DVD to the Stand-by Mode.
2. Press and hold the 'STOP' key on the front panel.
3. Simultaneously press and hold the POWER key on the front panel.
4. The 4 digit password has now been cleared.

NOTE: The above procedure will reset ALL of the player's settings to the default factory state.

PREPARATION OF SERVICING

The laser diode used for a pickup head may be destroyed with external static electricity. Moreover, even if it is operating normally after repair, when static electricity discharge is received at the time of repair, the life of the product may be shortened. Please perform the following measure against static electricity, be careful of destruction of a laser diode at the time of repair.

- Place the unit on a workstation equipped to protect against static electricity, such as conductive mat.
- Soldering iron with ground wire or ceramic type is used.
- A worker needs to use a ground conductive wrist strap for body.

2. SPECIFICATIONS

2.1 SPECIFICATIONS

- A
- Power requirements

AC 120 V, 60 Hz

Power consumption

11 W

Power consumption (standby)

0.6 W

Weight

1.3 kg (2 lb 14 oz)

External dimensions

.

360 mm (W) x 42 mm (H) x 202 mm (D)

(14 3/16 in, (W) x 1 11/16 in, (H) x 8 in, (D))

Tolerable operating temperature

+5 °C to +35 °C

(+41 °F to +95 °F)

Tolerable operating humidity

5 % to 85 %

(no condensation)

- B
- Video output

Output level

1 Vp-p (75 Ω)

Output terminal.

RCA terminal

Component video output (Y, C_B/ P_B, C_R/ P_R)

Y output level

1 Vp-p (75 Ω)

C_B/ P_B, C_R/ P_R output level.

0.7 Vp-p (75 Ω)

Output terminal.

RCA terminal

HDMI output

Output terminal.

19-pin

Audio output (stereo L/ R)

Audio output level.

200 mVrms (1 kHz, -20 dB)

Output terminal.

RCA terminal

Frequency response

4 Hz to 44 kHz

S/ N ratio

114 dB

Dynamic range

87 dB

Total harmonic distortion

0.007 %

Digital audio output


Coaxial digital output

RCA terminal

Additional information

USB port.

A type

- D
- 

Notes

The specifications and design of this product are subject to change without notice.









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2.2 DISC/CONTENT FORMAT

[1] Playable discs

| | |
|---|--|
|  | <ul style="list-style-type: none"> Commercially available DVD-Video discs DVD-R/-RW/-R DL and DVD+R/+RW/+R DL discs recorded in the Video mode and finalized |
|  | DVD-R/-RW/-R DL discs recorded in the VR mode |
|  | Video CDs (including Super VCDs) |
|  | <ul style="list-style-type: none"> Commercially available audio CDs CD-R/-RW/-ROM discs containing music recorded in the CD-DA format |
|  | JPEG files recorded on DVD-R/-RW/-R DL discs, CD-R/-RW/-ROM discs or USB devices |
|  | DivX video files recorded on DVD-R/-RW/-R DL discs, CD-R/-RW/-ROM discs or USB devices |
|  | WMA files recorded on DVD-R/-RW/-R DL discs, CD-R/-RW/-ROM discs or USB devices |
|  | MP3 files recorded on DVD-R/-RW/-R DL discs, CD-R/-RW/-ROM discs or USB devices |
| Fujicolor CD | |
| KODAK Picture CD | |

-  is a trademark of DVD Format/Logo Licensing Corporation.
-  is a trademark of FUJIFILM Corporation.

RW

- COMPATIBLE**
This label indicates playback compatibility with DVD-RW discs recorded in VR format (Video Recording format). However, for discs recorded with a record-only-once encrypted program, playback can only be achieved using a CPRM compatible device.



Notes

- This player does not support multisession discs or multiborder recording.
- Multisession/ multiborder recording is a method in which data is recorded on a single disc in two or more sessions/borders. A "session" or "border" is one recording unit, consisting of a complete set of data from lead-in to lead-out.

Discs that cannot be played

- DVD Audio discs
- DVD-RAM discs
- SACDs
- CD-G
- Blu-ray discs
- HD DVDs
- Discs that have not been finalized**
- Discs recorded with packet writing

About region numbers

DVD player and DVD-Video discs are assigned region numbers according to the region in which they are sold. This player's region number(s) is (are) as shown below.

- DVD-Video: 1

Discs not including these numbers cannot be played.

Discs playable on this player are as shown below.

- DVDs: 1 (including 1) and ALL

Regarding copy protected CDs

This player is designed to conform to the specifications of the audio CD format. This player does not support the playback or function of discs that do not conform to these specifications.

About playing DualDiscs

- A DualDisc is a new two-sided disc, one side of which contains DVD content — video, audio, etc. — while the other side contains non-DVD content such as digital audio material.
- The DVD side of a DualDisc can be played on this player (excluding any DVD-Audio content).
- The non-DVD, audio side of the disc is not compatible with this player.
- It is possible that when loading or ejecting a DualDisc, the opposite side to that being played will be scratched. Scratched discs may not be playable.
- For more detailed information on the DualDisc specification, please refer to the disc manufacturer or disc retailer.

Playing discs created on computers or BD/ DVD recorders

- It may not be possible to play discs recorded using a computer due to the application settings or computer's environment settings. Record discs in a format playable on this player. For details, contact the dealer.
- It may not be possible to play discs recorded using a computer or a BD/DVD recorder, if burn quality is not good due to characteristics of the disc, scratches, dirt on the disc, dirt on the recorder's lens, etc.

Playable files

- Only discs recorded in ISO9660 Level 1, Level 2 and Joliet can be played.
- Files protected by DRM (Digital Rights Management) cannot be played.
- Files other than the ones below (WMV, MPEG4-AAC, etc.) are not guaranteed to play.

Supported video file formats

DivX

- DivX is a media technology created by DivX, Inc. DivX media files contain image data.
- DivX files may also include such advanced playback functions as menu screens and selection of multiple subtitle languages/audio tracks.



- Plays DivX® video, including premium content
- DivX® is a registered trademark of DivX, Inc., and is used under license.

Supported image file formats

JPEG

- Resolution: Up to 3 072 x 2 048 pixels
- This player supports baseline JPEG.
- This player supports Exif Ver.2.2.
- This player does not support progressive JPEG.

Supported audio file formats

- This player does not support VBR (Variable Bit Rate).
- This player does not support lossless

Windows Media Audio (WMA)

- Sampling frequencies: 32 kHz, 44.1 kHz and 48 kHz
- Bit rate: Up to 192 kbps
- This player supports files encoded using Windows Media Player Ver. 7/ 7.1, Windows Media Player for Windows XP and Windows Media Player 9 Series.
- Windows Media is either a registered trademark or trademark of Microsoft Corporation in the United States and/or other countries.
- This product includes technology owned by Microsoft Corporation and cannot be used or distributed without a license from Microsoft Licensing, Inc.

MPEG-1 Audio Layer 3 (MP3)

- Sampling frequencies: 32 kHz, 44.1 kHz and 48 kHz

Playable file extensions

Video files

- .divx .avi
- Files not containing DivX video signals cannot be played, even if they have the extension “.avi”.

Image files

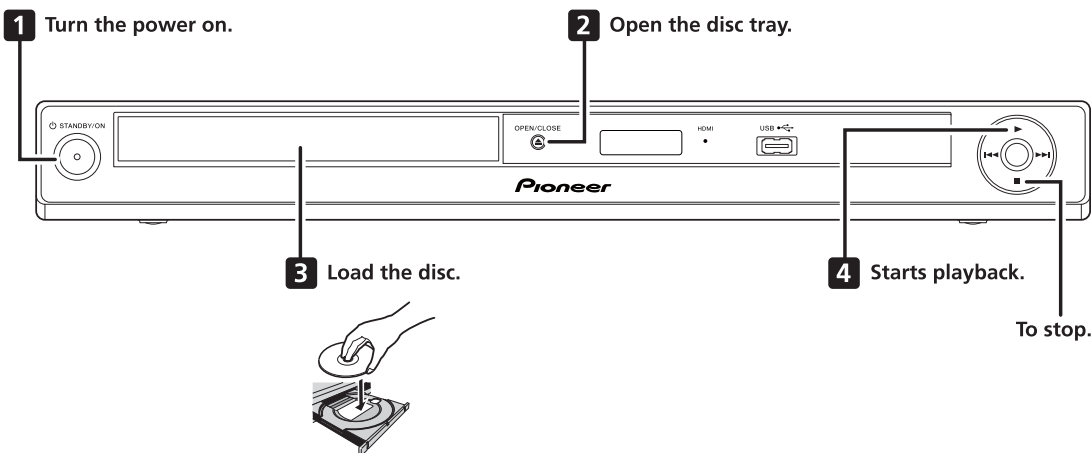
.jpg .jpeg

Audio files

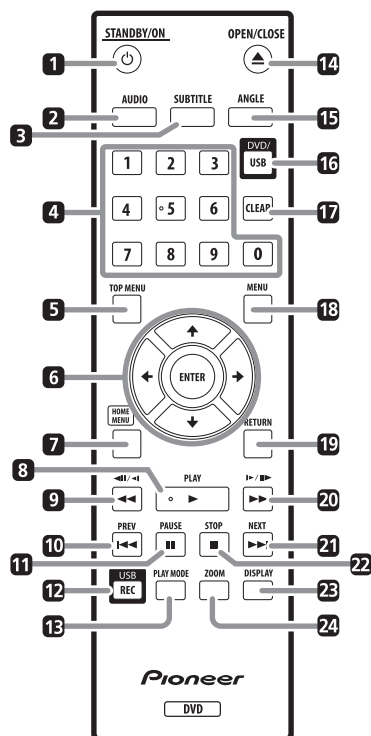
.wma .mp3

2.3 PANEL FACILITIES

[1] Front panel



[2] Remote control



1 STANDBY/ON

Press to turn the power on and off.

2 AUDIO

For discs or files including multiple audio streams/channels, the audio stream/channel can be switched during playback.

3 SUBTITLE

On DVD-Video or DivX discs containing subtitles in multiple languages, the subtitle can be switched during playback.

4 Number buttons (0 to 9)

Use these to specify and play the title, chapter, track or file you want to view/listen to. Also use them to select items on menu screens, etc.

5 TOP MENU

Press to display the top menu of the DVD-Video.

6

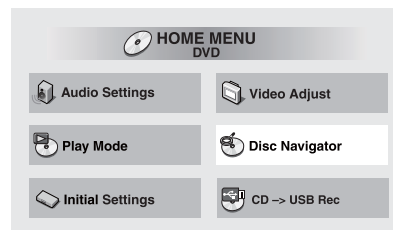
Use these to select items, change settings and move the cursor.

ENTER

Use this to implement the selected item or enter a setting that you have changed.

7 HOME MENU

Press to display/ hide the Home Menu.



- Audio Settings
- Video Adjust
- Play Mode
- Disc Navigator
- Initial Settings
- CD -> USB Rec

8 PLAY

Press to start playback.

9

- Press during playback to fast-reverse.
- Press in the pause mode to move backward frame-by-frame.
- Press and hold in while in the pause mode for slow play in the reverse direction.

10 PREVIOUS

Press to return to the beginning of the currently playing title, chapter, track or file. Press twice to move back to the beginning of the previous title, chapter, track or file.

11 PAUSE

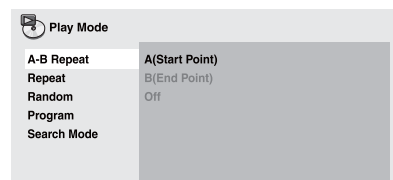
Press to stop playback temporarily. Press again to resume.

12 USB REC

Press to display the **CD -> USB Rec**.

13 PLAY MODE

Press to display/ hide the Play Mode screen.



• **A-B Repeat**

The specified section within a single title or track is played repeatedly.

• **Repeat**

Plays titles, chapters, tracks or files repeatedly.

• **Random**

Plays titles, chapters or tracks in random order.

• **Program**

Plays titles, chapters, tracks or files in the order in which you program them.

• **Search Mode**

Plays the specified number or time within the title, chapter, track or file.

The Play Mode function may not work for some discs or files.

14 ▲ OPEN/CLOSE

Open the disc tray and load the disc.

15 ANGLE

On DVD-Video discs containing multiple angles, the angle can be switched during playback.

16 DVD/USB

Press to switch between the DVD and USB modes.

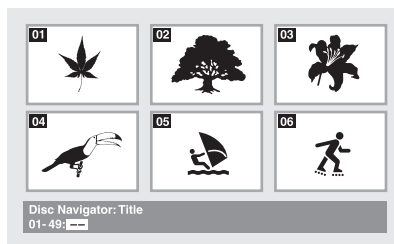
17 CLEAR

Press to clear the selected item. Use this for example if you input the wrong number.

18 MENU

- Press to display the menu screen or Disc Navigator.
- Select and play the title, chapter, track or file from the Disc Navigator.

Ex.: DVD video Disc Navigator



19 RETURN

Press to return to the previous screen.

20 ►►/|►/||►

- Press during playback to fast-forward.
- Press in the pause mode to move forward frame-by-frame.
- Press and hold in while in the pause mode for slow play in the forward direction.

21 ►►| NEXT

Press during playback to skip ahead to the beginning of the next title, chapter, track or file.

22 ■ STOP

When ■ **STOP** is pressed during playback, the point at which playback was stopped is stored in the memory. When ► **PLAY** is pressed, playback resumes from the point at which it was stopped.

23 DISPLAY

The elapsed time, amount remaining, etc., is displayed.

24 ZOOM

Zooming on the image

3. BASIC ITEMS FOR SERVICE

3.1 CHECK POINTS AFTER SERVICING

Items to be checked after servicing / DV

To keep the product quality after servicing, confirm recommended check points shown below.

| No. | Procedures | Check points |
|-----|---|--|
| 1 | Confirm the firmware version on Test Mode. | The version of the firmware must be latest. Update firmware to the latest one, if it is not the latest. |
| 2 | Confirm whether the customer complain has been solved. If the customer complain occurs with the specific disc, use it for the operation check. | The customer complain must not be reappeared. Video, audio and operations must be normal. |
| 3 | Play back a CD. (track search) | Audio and operations must be normal. |
| 4 | Play back a DVD. (Menu operation, Title/chapter search) | Video, audio and operations must be normal. |
| 5 | Check the appearance of the product. | No scratches or dirt on its appearance after receiving it for service. |

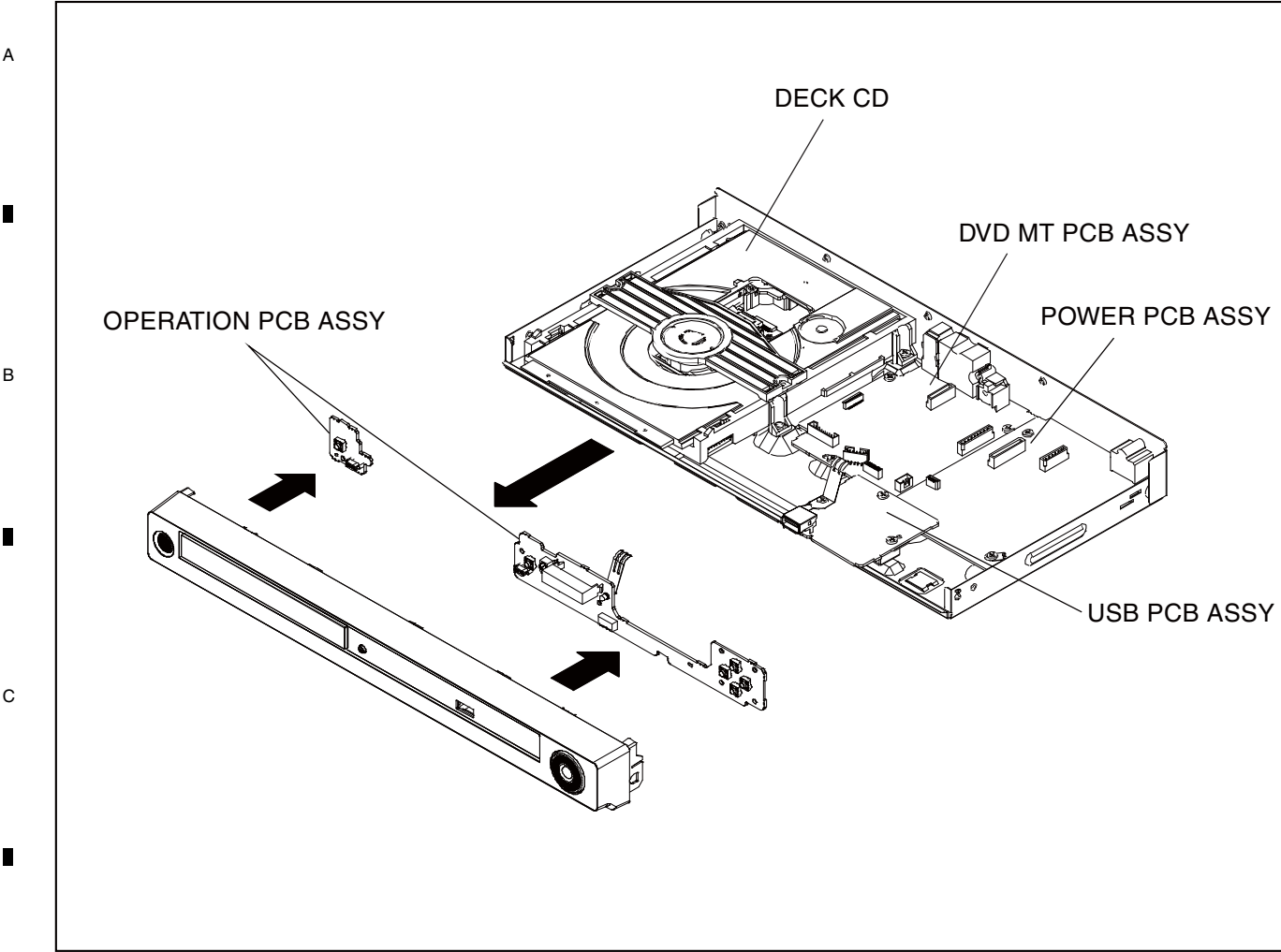
Specific Items to be Checked

| No. | Procedures | Check points |
|-----|--|---|
| 1 | Confirm playback error rates at the innermost and outermost tracks by using the following disc. DVD test disc (GGV1025) | The error rates must be less than 5.0e-4. (This procedure can determine if the drive is degraded.) |


See the table below for the items to be checked regarding video and audio.

| Item to be checked regarding video | Item to be checked regarding audio |
|------------------------------------|------------------------------------|
| Block noise | Distortion |
| Horizontal noise | Noise |
| Dot noise | Volume too low |
| Disturbed image (video jumpiness) | Volume too high |
| Too dark | Volume fluctuating |
| Too bright | Sound interrupted |
| Mottled color | |

3.2 PCB LOCATIONS



D

| Mark No. | Description | Part No. | Mark No. | Description | Part No. |
|---------------------------|-------------|------------|---|-------------|------------|
| LIST OF ASSEMBLIES | | | | | |
| 1..DVD MT PCB ASSY | | A2M211A130 | 1..USB PCB ASSY | | A2M109AFA0 |
| 1..OPERATION PCB ASSY | | A2M211A270 |  1..POWER PCB ASSY | | A2M211A240 |
| | | | 1..DECK CD | | 169B00047A |

3.3 JIGS LIST

■ Jigs list

E

| Name | Jig No. | Remarks |
|--------------------------------|---------|-----------------|
| Service Remote Control Unit | GGF1381 | diagnosis |
| DVD Test Disc (DVD-Video,NTSC) | GGV1025 | Operation Check |
| DVD Test Disc (DVD-Video,PAL) | GGV1101 | Operation Check |
| CD Test Disc | STD-905 | Operation Check |

F

■

5

■

6

■

7

■

8

■

A

■

B

■

C

■

D

■

E

■

F

■

5

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6

■

7

■

8

■

DV-220V-K

1 2 3 4

4. BLOCK DIAGRAM

4.1 OVERALL WIRING DIAGRAM

A

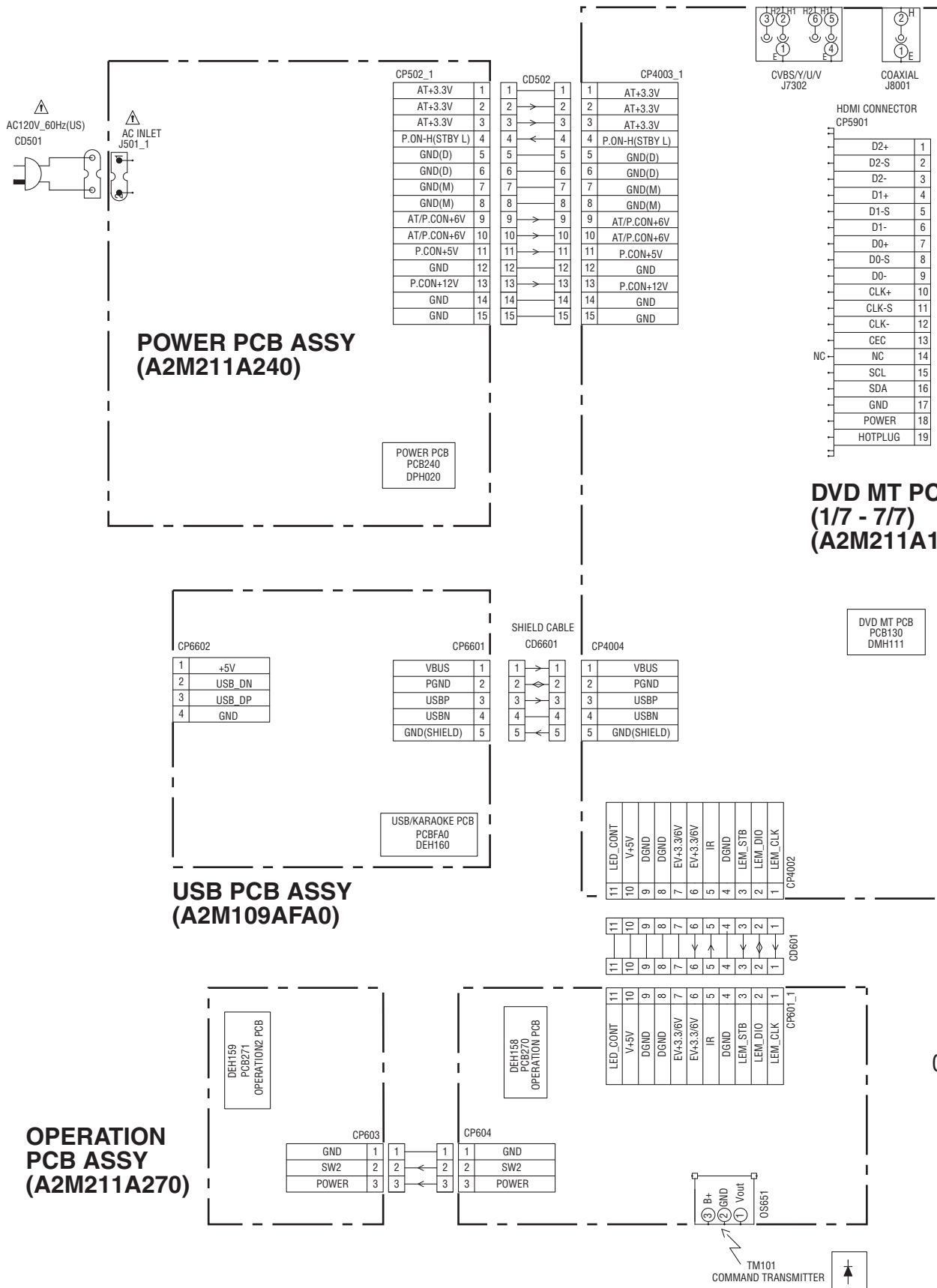
B

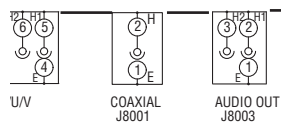
C

D

E

F



HDMI CONNECTOR
CP5901

| | |
|---------|----|
| D2+ | 1 |
| D2-S | 2 |
| D2- | 3 |
| D1+ | 4 |
| D1-S | 5 |
| D1- | 6 |
| D0+ | 7 |
| D0-S | 8 |
| D0- | 9 |
| CLK+ | 10 |
| CLK-S | 11 |
| CLK- | 12 |
| CEC | 13 |
| NC | 14 |
| SCL | 15 |
| SDA | 16 |
| GND | 17 |
| POWER | 18 |
| HOTPLUG | 19 |

DVD MT PCB ASSY (1/7 - 7/7) (A2M211A130)

DVD MT PCB
PCB130
DMH111

PICK-UP(GOLD)
CP2301

| | |
|-------------|----|
| F- | 1 |
| F+ | 2 |
| T+ | 3 |
| T- | 4 |
| C | 5 |
| D | 6 |
| SW | 7 |
| RF | 8 |
| A | 9 |
| B | 10 |
| F | 11 |
| GND | 12 |
| VC | 13 |
| VCC | 14 |
| E | 15 |
| NC | 16 |
| CD-VR(780) | 17 |
| DVD-VR(650) | 18 |
| CD-LD(780) | 19 |
| MPD | 20 |
| HFM-VCC | 21 |
| NC | 22 |
| DVD-LD(650) | 23 |
| LD-GND | 24 |

LOAD/SLED/SPINDLE
CP2302

| | |
|--------|---|
| SLD+ | 9 |
| SLD- | 8 |
| SPD+ | 7 |
| SPD- | 6 |
| SW_IN | 5 |
| COM | 4 |
| SW_OUT | 3 |
| LOAD- | 2 |
| LOAD+ | 1 |

DECK CD (169B00047A)

CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

ATTENTION: LES PIECES REPARÉES PAR UN ÉTANT DANGEREUSES AN POINT DE VUE SECURITE NUTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES

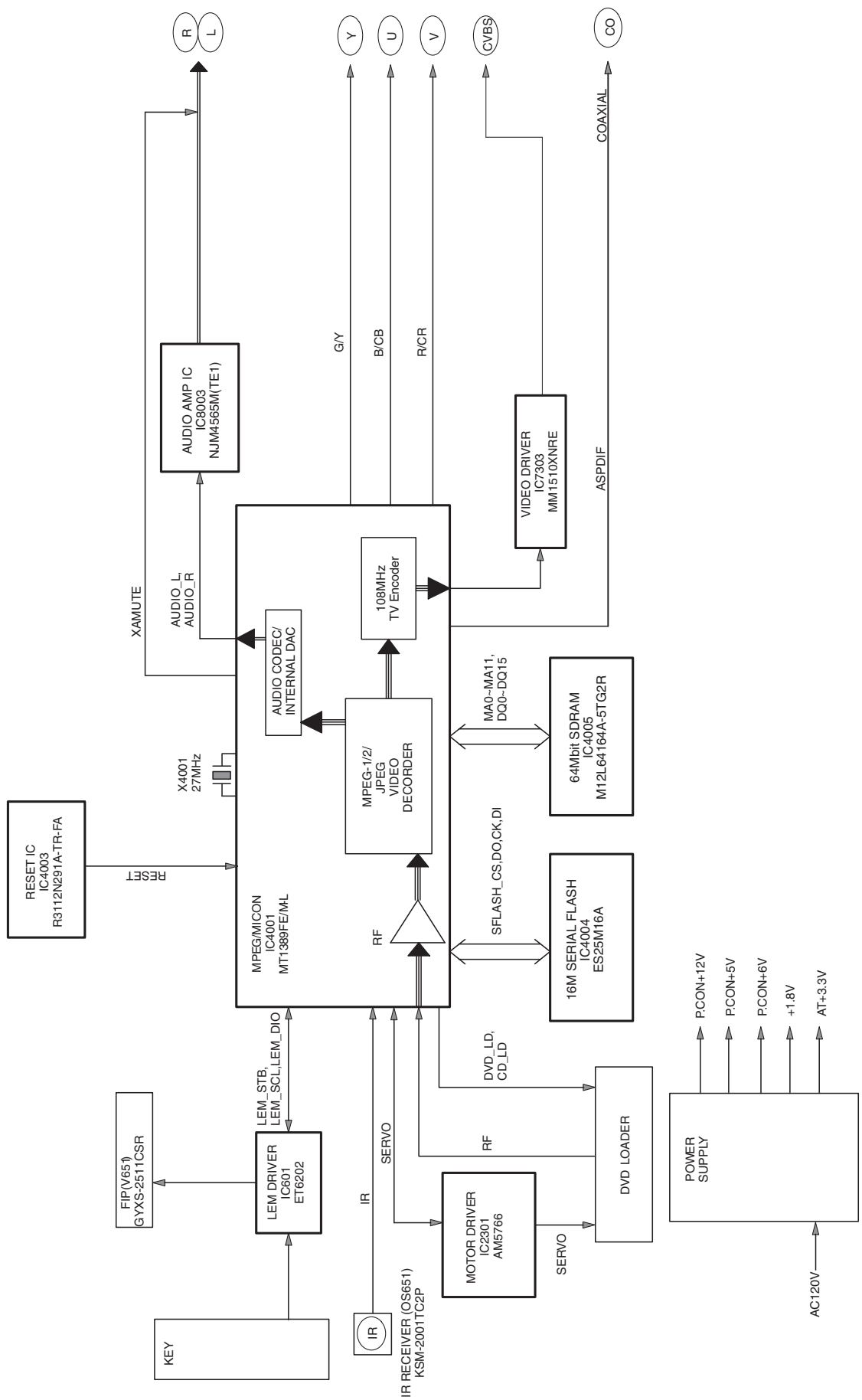
NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

ITER



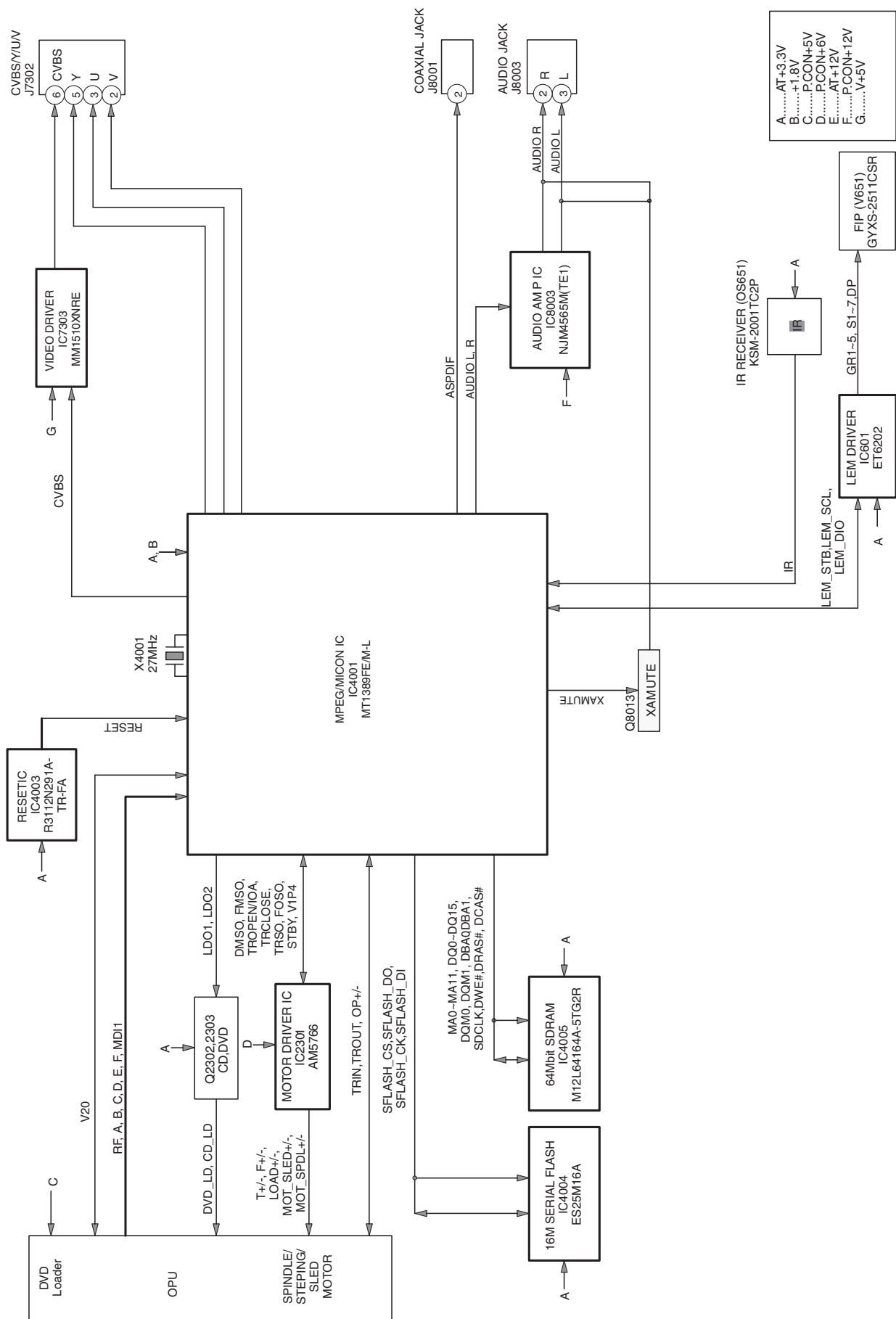
4.2 OVERALL BLOCK DIAGRAM

OVERALL WIRING BLOCK DIAGRAM

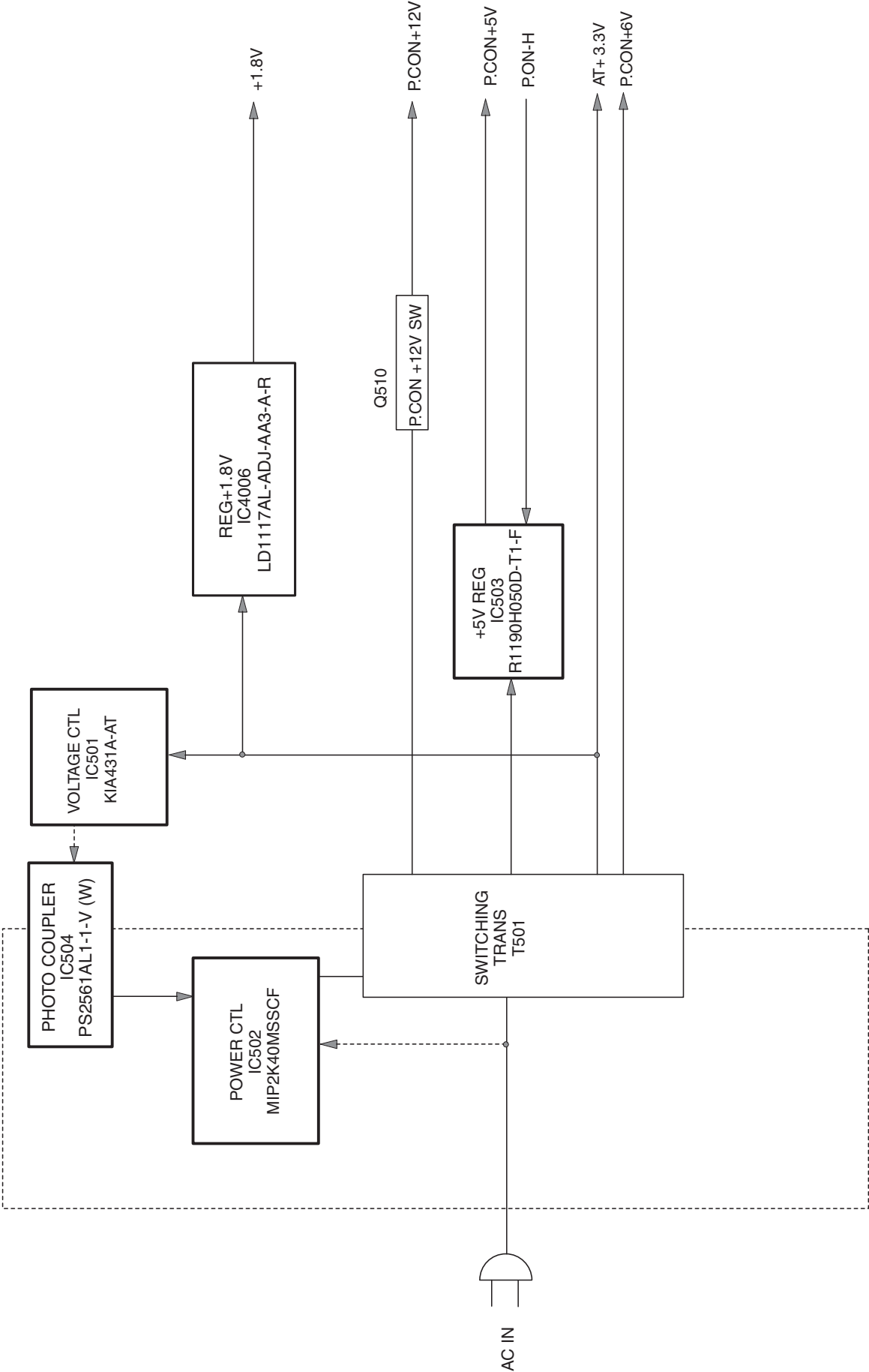


4.3 DVD LOADER/MPEG BLOCK DIAGRAM

DVD LOADER/MPEG BLOCK DIAGRAM

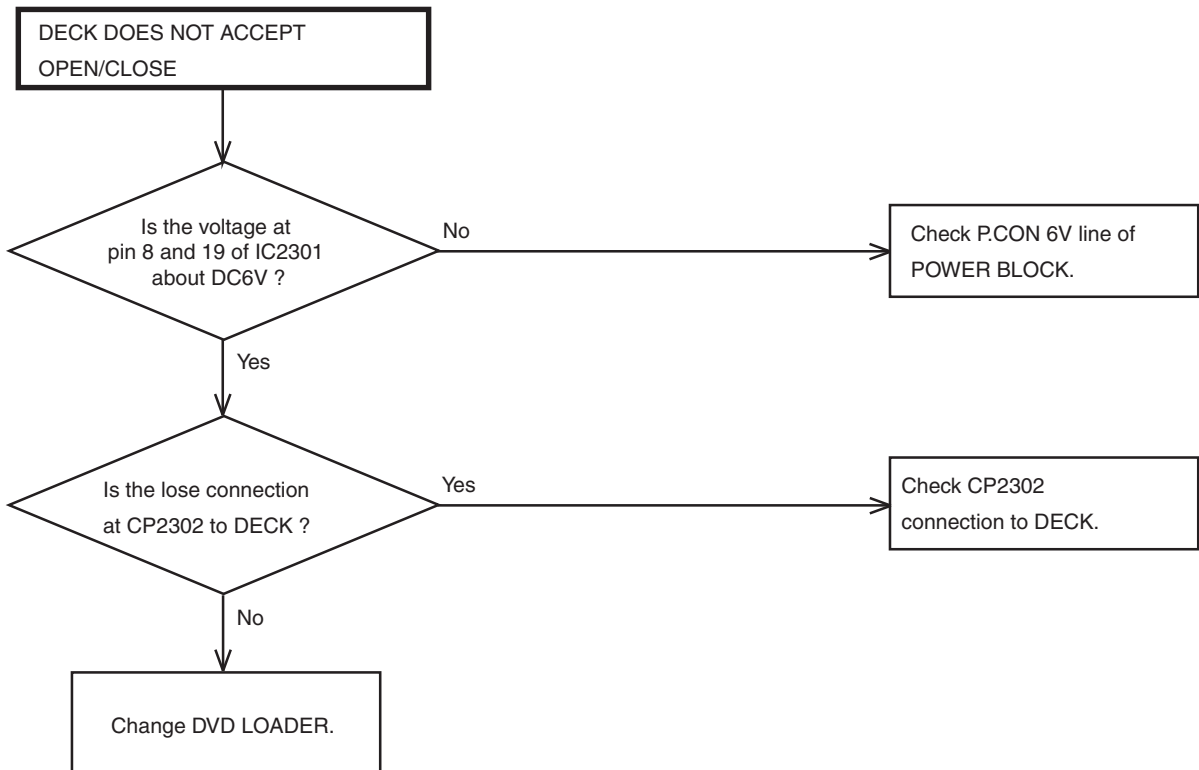
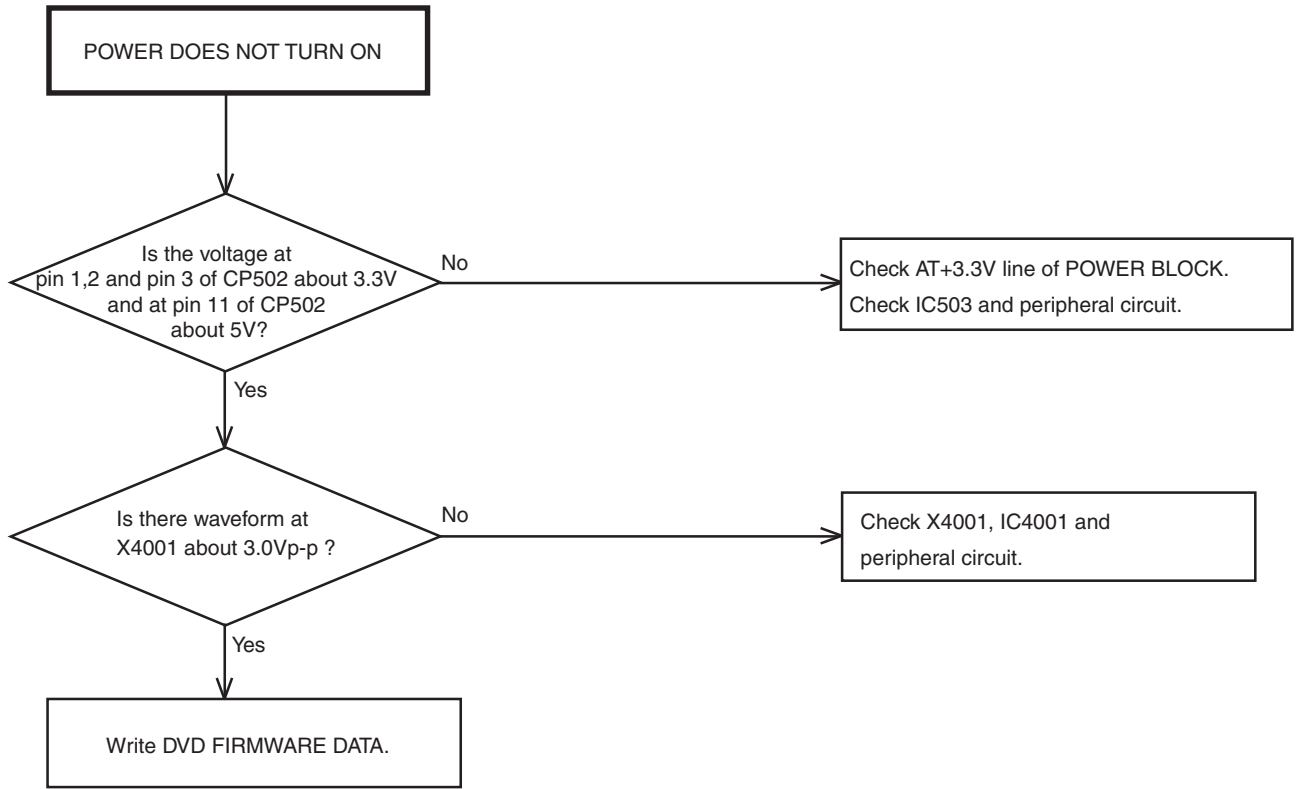


4.4 POWER BLOCK DIAGRAM



5. DIAGNOSIS

5.1 TROUBLE SHOOTING



A

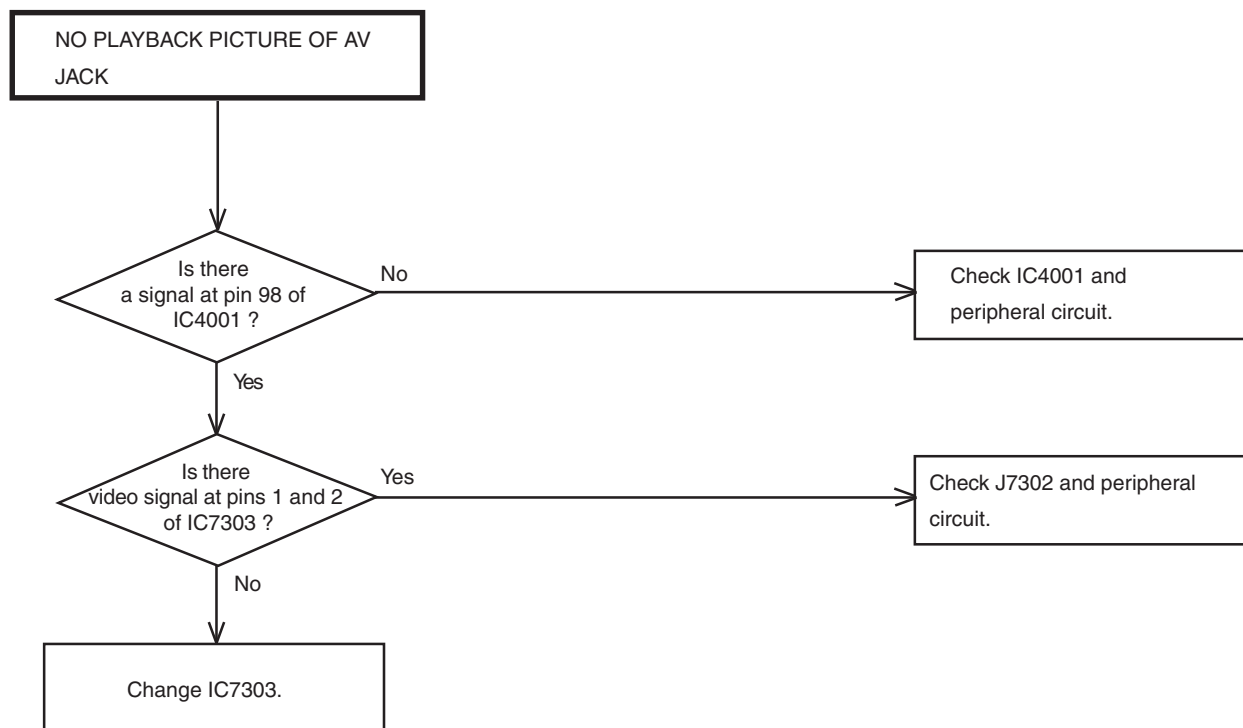
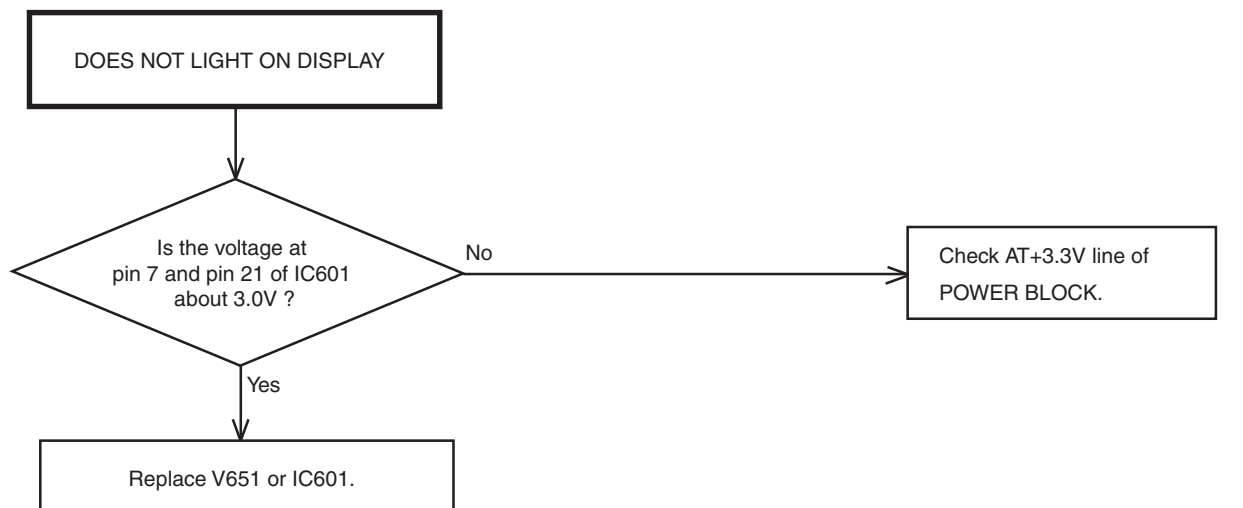
B

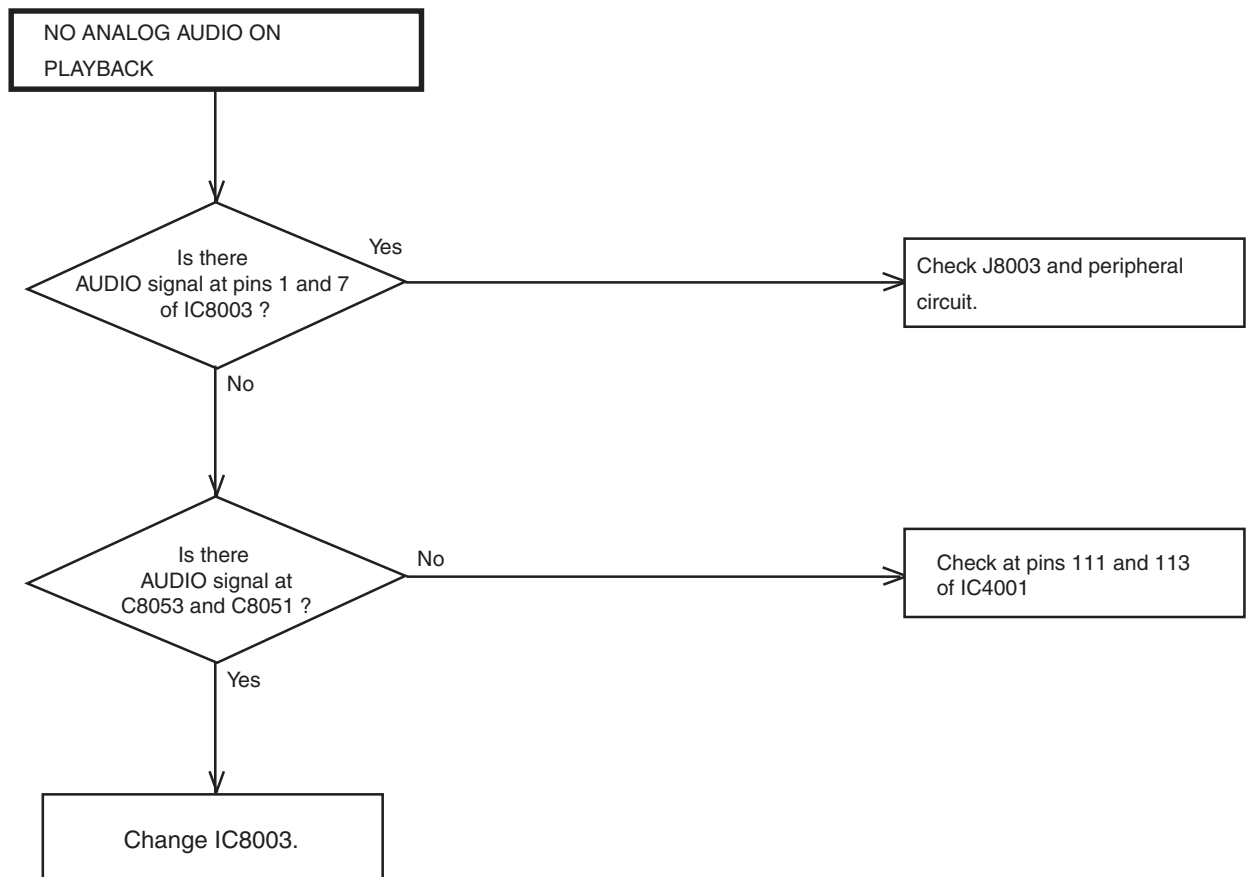
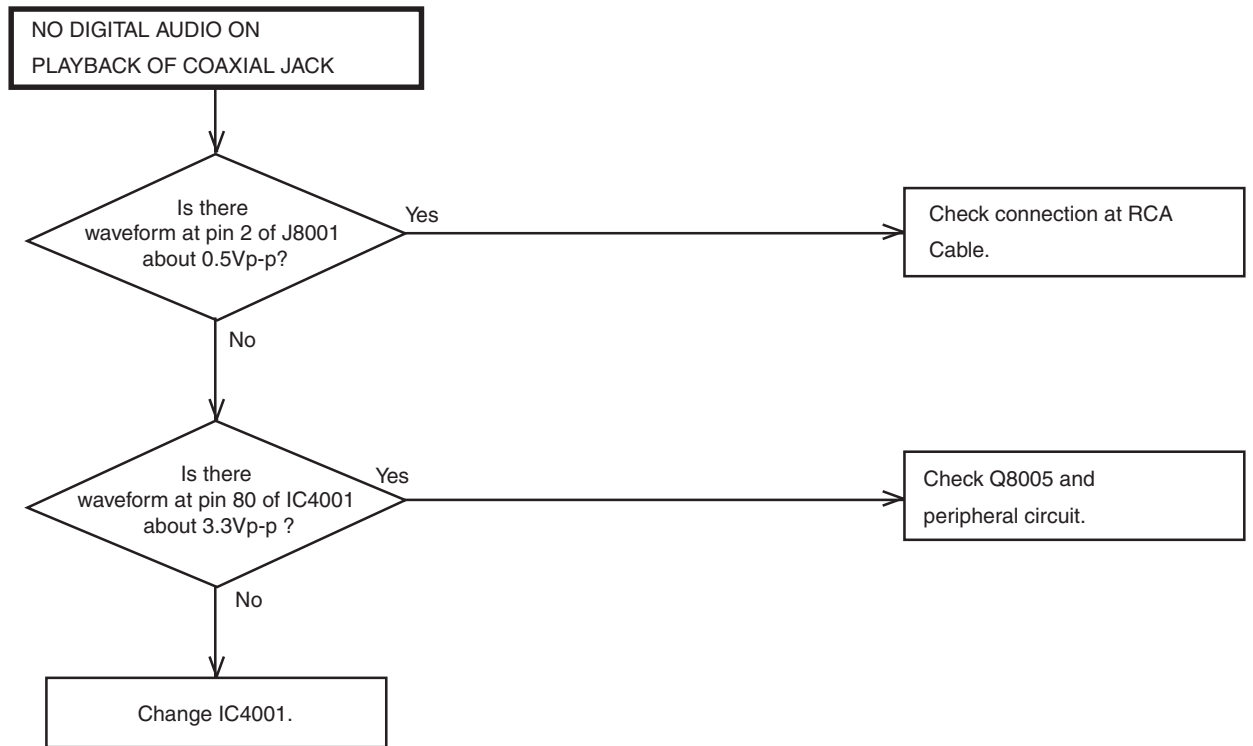
C

D

E

F





● Symptoms That May Occur When Any Of The Following ICs Is In Failure

| IC | Symptoms |
|--|---|
| 16M Flash ROM (DVD MT PCB Assy : IC4004) | The power cannot be turned on. Downloading of the firmware cannot be performed. |
| DVD IC (DVD MT PCB Assy : IC4001) | Any kind of symptoms (no power, a failure in any of the servo, video and audio systems, etc.) may be generated, because the DVD processing is performed by a single chip. |
| 64M SDRAM (DVD MT PCB Assy : IC4005) | No power. Block noise is generated during playback. |

5.2 METHOD FOR DIAGNOSING DEGRADATION OF THE LDS ON THE PICKUP ASSY

Case when this diagnosis is required :

When playback of any disc, including a test disc (DVD: GGV1025, CD: STD-905), cannot be performed

How to diagnose

In the case mentioned above, degradation of the laser diodes (LDs) mounted on the PICKUP Assy is suspected. Measure the voltage between the two ends of one of the resistors mentioned below.

• No playback of a DVD :

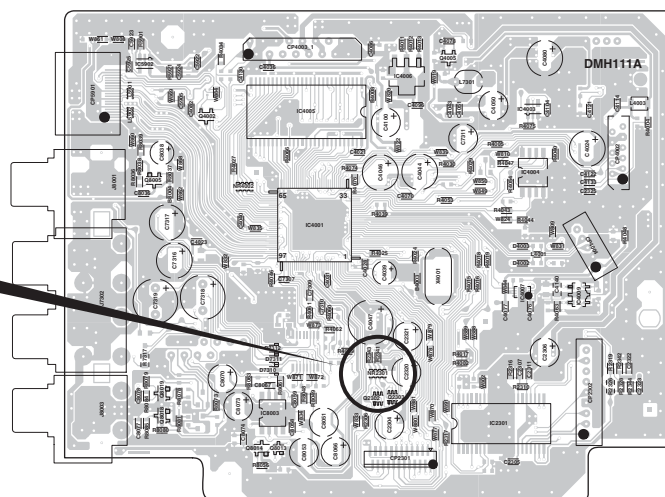
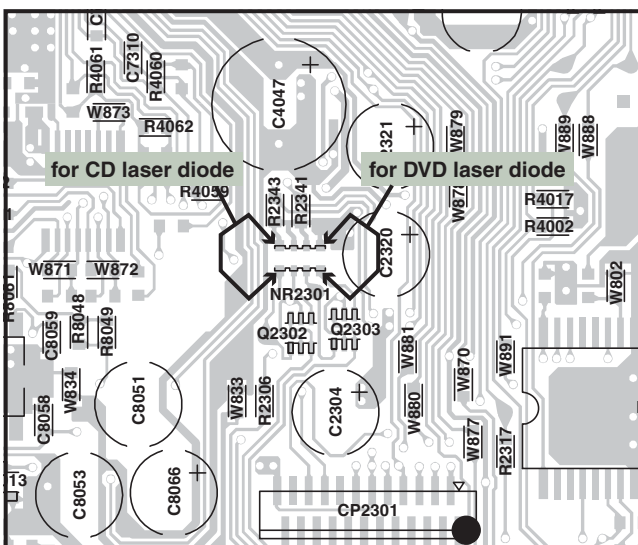
Measure the voltage between the two ends of NR2301 on the DVD MT PCB Assy. If the voltage is 0.17 V or higher, the 650-nm LD is degraded.

• No playback of a CD :

Measure the voltage between the two ends of NR2301 on the DVD MT PCB Assy. If the voltage is 0.20 V or higher, the 780-nm LD is degraded.

If the measurements show degradation of an LD, replace the PICKUP Assy.

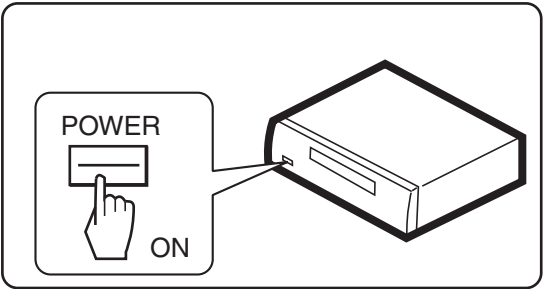
DVD MT PCB ASSY



SIDE A

A

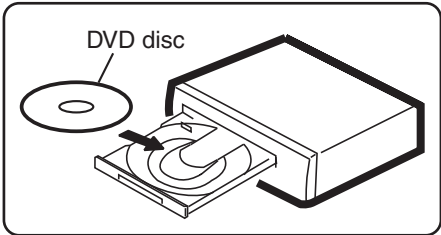
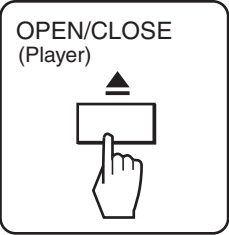
POWER ON



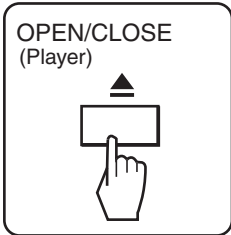
B

DISC SET

<TRAY OPEN>



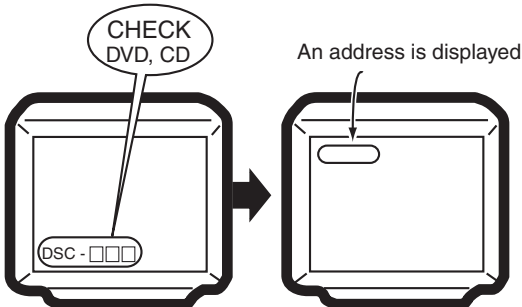
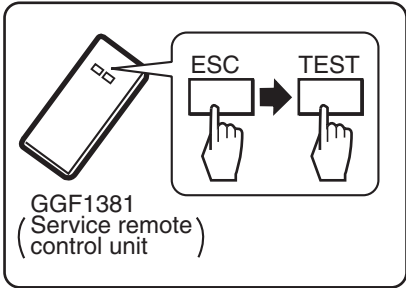
<TRAY CLOSE>



C

SERVICE MODE: PLAY

<PLAY>

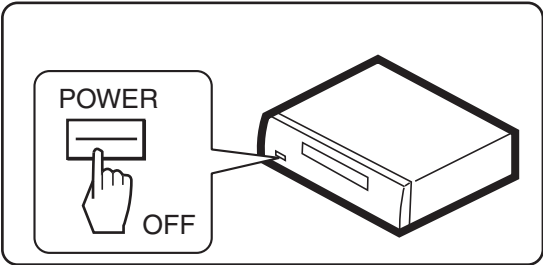


D

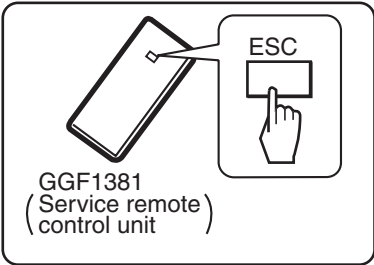
- Notes:
- After going into service mode, if you play back the disc, "DISC-NON" is displayed.
 - The video signal and the audio signal are outputted during the servicemode.
 - The SKIP key and the SCAN key are effective during the service mode.

E

SERVICE MODE: OFF



OR



F

6.2 SERVICE MODE IN

Service Mode Functional Specification

1 Service mode entry

- In the power ON state, press the [ESC] key and [TEST] key of the Service remote control unit.
- Light the all FL and LEDs.
 - OSD displays test mode.

Note:

* When pressing the keys of something, the FL displays "NO DISC" and the LED lighting disappears.

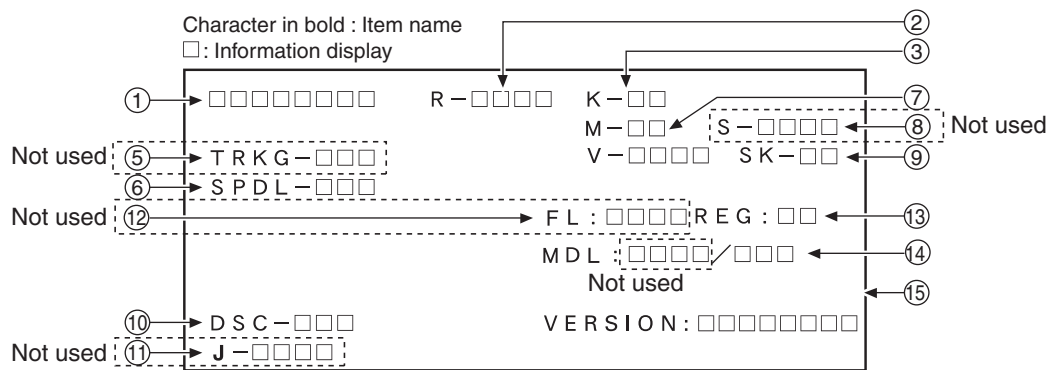
2 Release the Service mode

- Turn off the power.
- Press the [ESC] key of the remote control unit.

3 LD ON

- DVD : Press the [TEST] and [1] keys in order, and turn on the laser diode (650n).
CD : Press the [TEST] and [4] keys in order, and turn on the laser diode (780n).

6.3 DISPLAY SPECIFICATION OF THE SERVICE MODE



1 Address indication

The address being traced is displayed in number.
(as for the DVD, indication of decimal number is possible.)

DVD : ID indication (hexadecimal number, 8 digits)

[* * * * * * * *]

CD : ID indication [* * * * * * * *]

2 Code indication of remote control unit [R - * * * *]

In case of double code, display a 2nd code.

3 Main unit keycode indication [K - * *]

5 Tracking status [TRKG - * * *]

Tracking on : [ON] Tracking off : [OFF] Not used

6 Spindle status [SPDL - * * *]

[OFF], [CLV]

7 Mechanism (loading) position value [M - * *]

Unknown : [01] or [41]

Open state : [04]

Close state : [08]

During opening : [12]

During closing : [22] Not used

8 Slider position [S - * * * *]

In Side Switch ON: [01] In Side Switch OFF : [00]

* Because there is no slider position switch on this Drive Mechanism.

9 Output video system [V - * * * *]

NTSC system : [NTSC]

PAL system : [PAL]

Automatic setting: [AUTO]

Scart terminal output [SK - * *]

(Display only the WY model which can do the output setting of scart terminal.)

VIDEO : [00]

S-VIDEO : [01]

RGB : [02]

10 Disc sensing [DSC - * * *]

The type of discs loaded is displayed.

[DVD], [CD], [VCD], [] Not used

11 Jitter value [J - * * * *] Note: Don't use it.

12 Version of the FL controller [FL: * * * *]

13 Region setting of the player [REG: *]

Setting value : [1] to [6]

14 Destination setting of the FL controller

[MDL: * * * * / * * *] Not used

Four characters in the front represent code 01.

Three characters in the back represent the destination code.

J: /J, K: /KU, /KC, /KU/KC, R: /RL/RD, RAM : /RAM,

LB: /LB, WY: /WY

15 Version of the flash ROM [VERSION: * * * * * * * *]

6.4 FUNCTIONAL SPECIFICATION OF THE SHORTCUT KEY

Only during normal playback, the following shortcut keys can be assigned by pressing a required key after pressing the ESC key of the remote control unit. To quit, press the ESC key

| Command Contents | Conditions | Remote Control Key Name |
|--|---|--|
| Memory clear and region / revision indication | | CLEAR (*1) |
| Average value measurement of DVD error rate | | 5 (*1) |
| CD error rate measurement | | 5 (*1) |
| Scart terminal output : VIDEO | WY, models equipped with Scart terminal | AUDIO |
| Scart terminal output : S-VIDEO | | SUBTITLE |
| Scart terminal output : RGB | | ANGLE |
| Progressive OFF | Only for progressive models | R_SKIP |
| Progressive ON | | F_SKIP |
| ZOOM ON (X2 -> X4 -> x1) | | ZOOM |
| Service mode indication (error rate indication, etc.) | | CHP/TIM (*1) |
| Model information indication | | CHAP (*1) |
| Title search Input mode IN Title No. input Search execution | | SIDE A (*1) Numbers (*1) PLAY (*1) |
| Region confirmation mode | | A.MON (*1) Numbers (*1) |

*1 : Service remote control unit

• Service mode indication (ESC + CHP/TIM keys)

ID Address

The error rate is always displayed in exponential notation, e.g., *** e - *, for both DVDs and CDs.

EDC/ID/AV 1 error history (ID Address, EDC/ID Error, last eight errors)

• Calculation of the average error rate (ESC + "5" [Service remote control unit] keys)

The average of the last eight error rates is calculated and indicated in exponential notation. After the calculation is completed, "OK" or "NG" is displayed. If "NG" is displayed, the disc tray will open (for both DVDs and CDs)

For DVDs: OK with 5.0e-4 or less, for CDs: OK with 7.6e-3 or less

• Indication of model information (ESC + CHAP keys)

The items from 12 to 15 of the SERVICE MODE Indications are displayed. However, in the indications, S in the standard test mode is changed to CHIP VERSION, and M is changed to FL VERSION. (Not used FL VERSION)

• Region confirmation mode (ESC + A.MON [Service remote control unit] + "1"-"8" [Service remote control unit] keys)

After you press the A.MON key while holding the ESC key pressed and then input the region number, if the number is different from that set in the unit, an error message is displayed, and the tray opens.

6.5 FUNCTIONAL SPECIFICATION OF THE SERVICE MODE

- **Display during Service Mode**

To enter Service Mode, press the CHP/TIM key while holding the ESC key pressed.
To quit, press the ESC key.

Service mode display

- ① ID Address
- ② Error rate (always displayed), in exponential notation

ERROR RATE : * * * * *

(* * * *)

Number of error

- Calculation of the average error rate
For DVDs: OK with 5.0×10^{-4} or less, for CDs: OK with 7.6×10^{-3} or less

ex) For DVDs

- Step 1

 $\Delta\Delta e^- \square$

$\Delta\Delta$ e-6 : OK
 $\Delta\Delta$ e-5 : OK
 $\Delta\Delta$ e-4 : Refer to Step 2
 $\Delta\Delta$ e-3 : NG
 $\Delta\Delta$ e-2 : NG

- Step 2

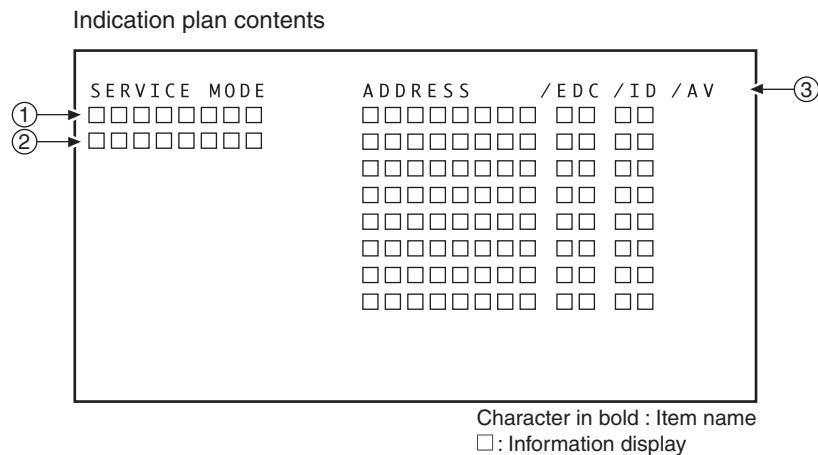
 $\Delta\Delta \text{ e}^{-4}$

```
3.0e -4 : OK
4.0e -4 : OK
5.0e -4 : OK
6.0e -4 : NG
7.0e -4 : NG
```

- ③ EDC/ID error history (ID Address, EDC/ID errors, last eight errors)

Note:

* Error of AV1 is not supported in this player.

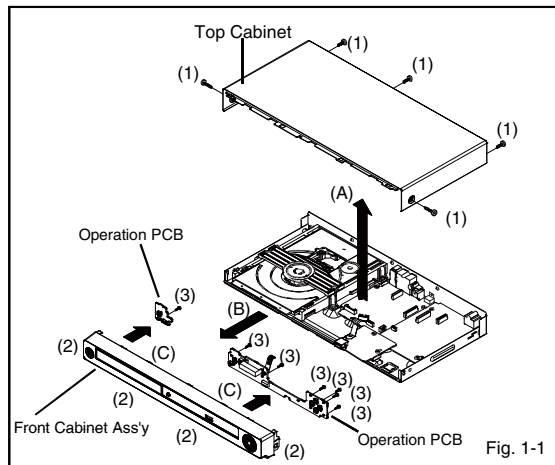


7. DISASSEMBLY

1. REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS

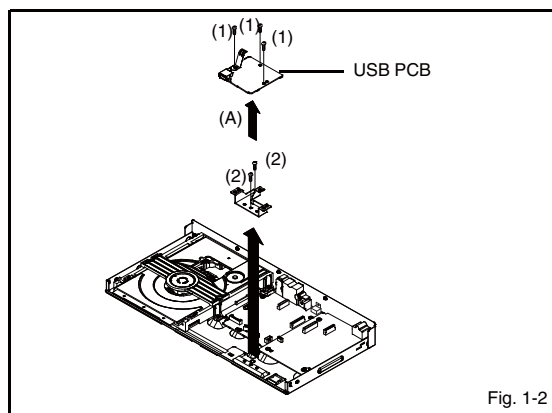
1-1: TOP CABINET/FRONT CABINET AND OPERATION (Refer to Fig. 1-1)

1. Remove the 5 screws (1).
2. Remove the Top Cabinet in the direction of arrow (A).
3. Disconnect the following connectors: **(CP4002)**.
4. Unlock the 4 supports (2).
5. Remove the Front Cabinet in the direction of arrow (B).
6. Remove the 7 screws (3).
7. Remove the Operation PCB in the direction of arrow (C).



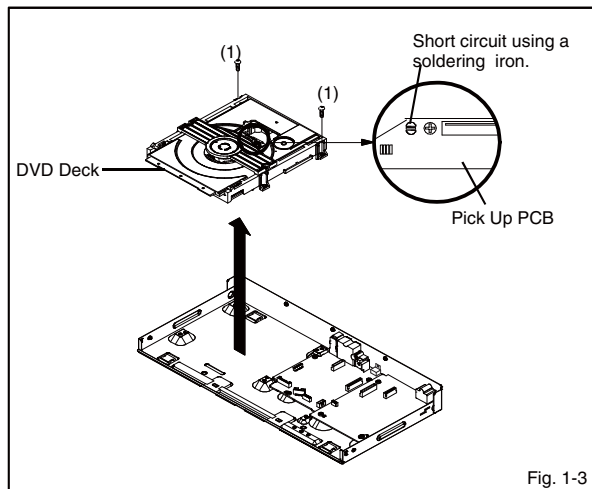
1-2: USB PCB (Refer to Fig. 1-2)

1. Disconnect the following connectors: **(CP4004)**.
2. Remove the 3 screws (1).
3. Remove the USB PCB in the direction of arrow (A).
4. Remove the 2 screws (2).
5. Remove the Angle PCB in the direction of arrow (B).



1-3: DVD DECK (Refer to Fig. 1-3)

1. Short circuit the position shown in **Fig. 1-3** using a soldering iron. If you remove the DVD Deck with no soldering, the Laser may be damaged.
2. Disconnect the following connectors: **(CP2301 and CP2302)**.
3. Remove the 2 screws (1).
4. Remove the DVD Deck in the direction of arrow.

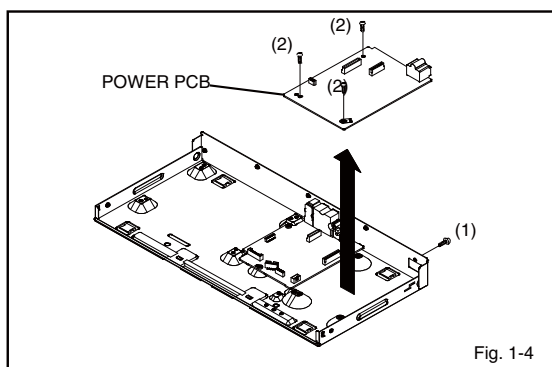


NOTE

1. Before your operation, please read "PREPARATION OF SERVICING".
2. Use the Lead Free solder.
3. Manual soldering conditions
 - Soldering temperature: 320 ± 20 °C
 - Soldering time: Within 3 seconds
 - Soldering combination: Sn-3.0Ag-0.5Cu
4. When Soldering/Removing of solder, use the drawing equipment over the Pick Up Unit to keep the Flux smoke away from it.
5. When installing the DVD Deck, remove all the soldering on the short circuit position after the connection of Pick Up PCB and DVD MT PCB connector.

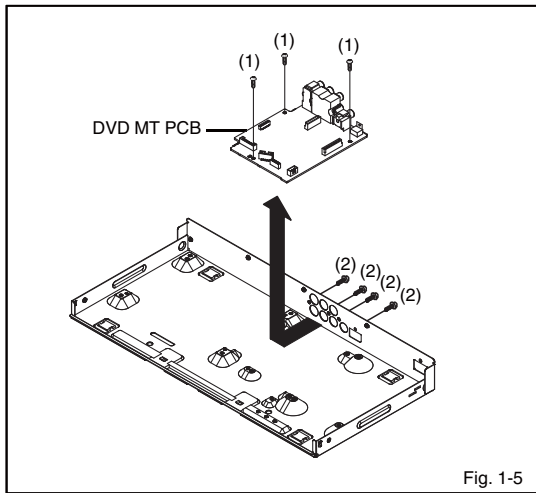
1-4: POWER PCB (Refer to Fig. 1-4)

1. Disconnect the following connectors: **(CP4003)**.
2. Remove the screw (1).
3. Remove the 3 screws (2).
4. Remove The Power PCB in the direction of arrow.



1-5 : DVD MT PCB (Refer to Fig. 1-5)

1. Remove the 3 screws (1).
2. Remove the 4 screws (2).
3. Remove the DVD MT PCB in the direction of arrow.



8. EACH SETTING AND ADJUSTMENT

8.1 RE-WRITE FOR DVD FIRMWARE

A 1. Purpose

After replacing the DVD MT PCB Assy, be sure to update the firmware to the latest version. The firmware of the Assy for service may not be the latest.

2. Procedures for creating the disc for updating

Necessary tools:

- ① PC with a CD-R/CD-RW drive
- ② Blank CD-R or CD-RW
- ③ Firmware file (*****.BIN)

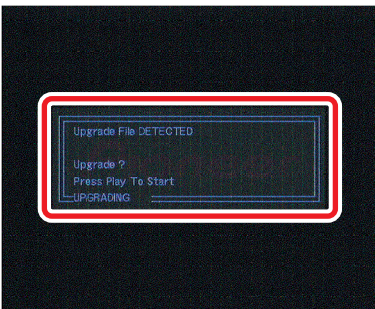
How to create:

- ① Start up the program for writing to CD.
- ② Load a blank disc in the CD-R/CD-RW drive.
- ③ Enter "PIONEER" as the volume label.
- ④ Select the .BIN file.
- ⑤ Write the latest version of the firmware in ISO 9660 format.

3. Procedures for updating the firmware

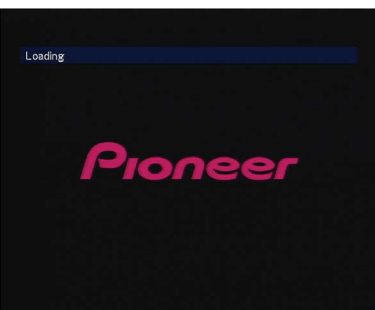
How to update:

- ① Turn on the main unit and open the disc tray.
- ② Place the disc for updating in the disc tray and close the tray.
- ③ Press the PLAY button.



While the screen shown at left is being displayed, updating is in progress.
DO NOT TURN OFF THE POWER DURING UPDATING.

- ④ Updating of the firmware is completed.



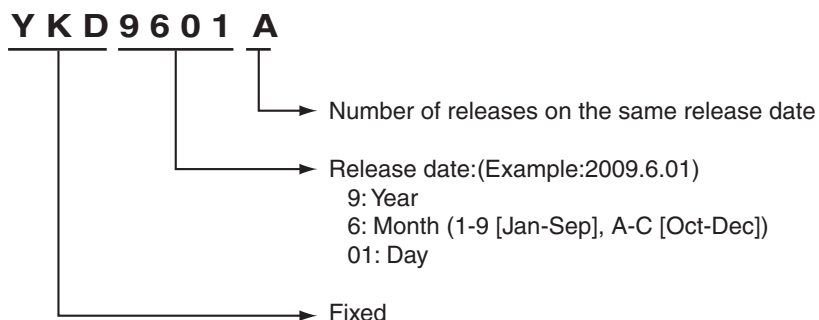
When the screen with the Pioneer logo is displayed, updating is completed.
The time required for updating is about 2 minutes.

4. How to confirm the version of the firmware

Press the ESC then the CHAP key on the remote control unit for servicing. The version of the firmware is labeled ROM NUMBER. Check if the version is the latest one.

| | | |
|-------------------|-----------------|----------|
| | AREA:K | REGION:1 |
| <u>ROM NUMBER</u> | <u>YKD9601A</u> | |
| REG CHK | 10 | |
| SUM CHK | 02AA | |
| FL VERSION | 1.16 | |
| CHIP VERSION | 1389FE | |

How to interpret the version code:



5. Troubleshooting

- ① If updating of the firmware failed
 If the main unit was turned off during updating, it cannot initialize and start up again properly. In such a case, replace the flash ROM on the DVD MT PCB Assy.
- ② If updating of the firmware using the disc for updating failed
 - Was the disc for updating recognized properly?
 Check if the volume label of the disc is PIONEER.
 - Is playback of a disc other than the disc for updating possible?
 If playback of a test CD is also impossible, a reading section, such as PU, may be defective. In such a case, repair the defective part first.
 If playback of a test CD is possible, the disc for updating may be defective. Check for any scratches or foreign matter, such as fingerprints, on the reading surface.
 If no problem is found with the disc, create a new disc for updating again.

A

- B



PACKING SECTION PARTS LIST

| <u>Mark No.</u> | <u>Description</u> | <u>Part No.</u> |
|-----------------|----------------------------------|-----------------|
| ⚠ | 1 Power Cable | 120Q119905 |
| | 2 Audio/Video Cable | 06EHBA2002 |
| | 3 Remote Control | 076E0PP141 |
| | 4 | |
| | 5 Operating Instructions (Es) | J2M21101A |
| | 6 Operating Instructions (En/Fr) | J2M21121A |
| | 7 | |
| | 8 | |
| | 9 Package | 792WHAA301 |
| | 10 Gift Box | 793WCDE117 |

A

B

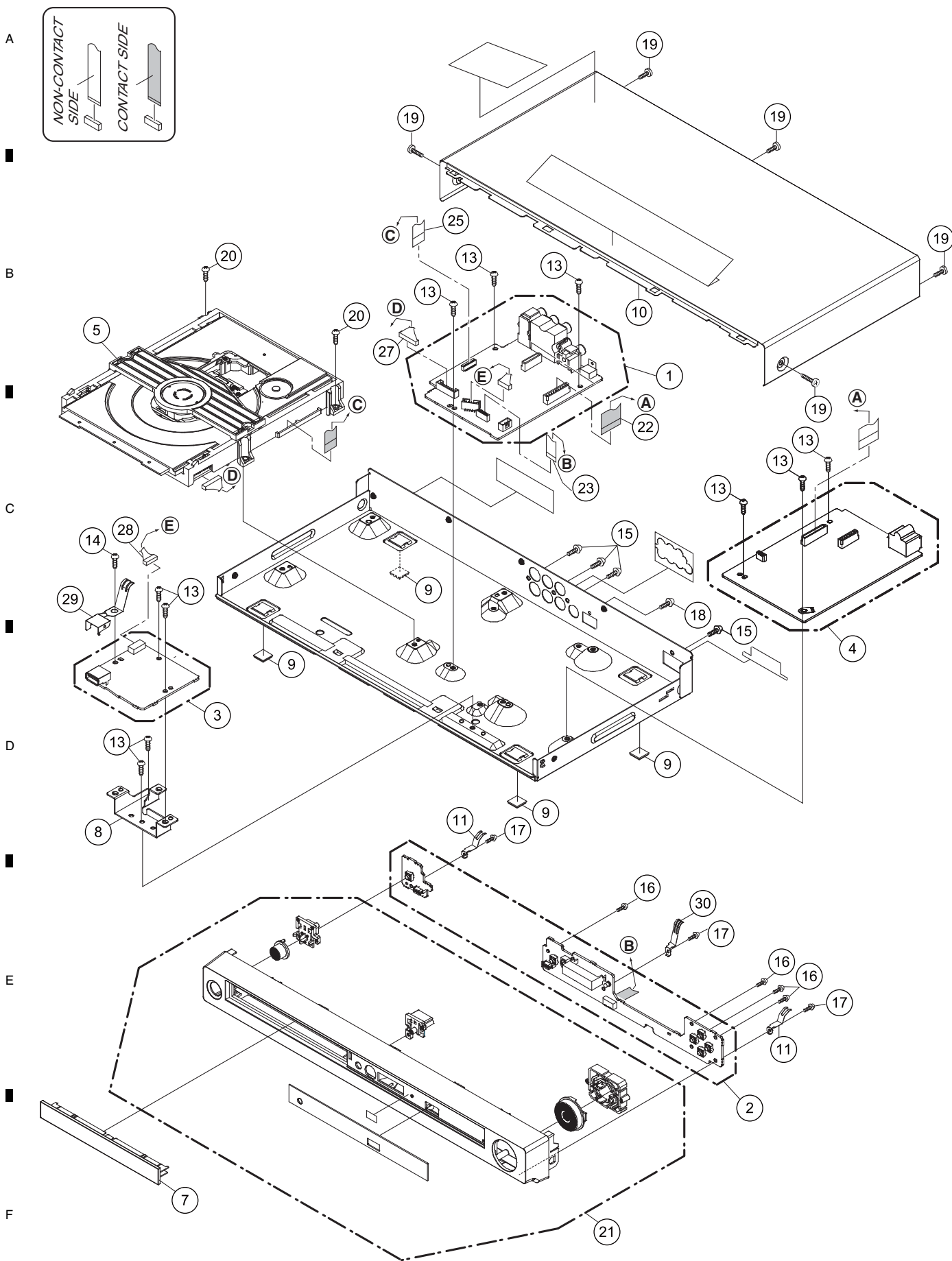
C

D

E

F

9.2 EXTERIOR SECTION



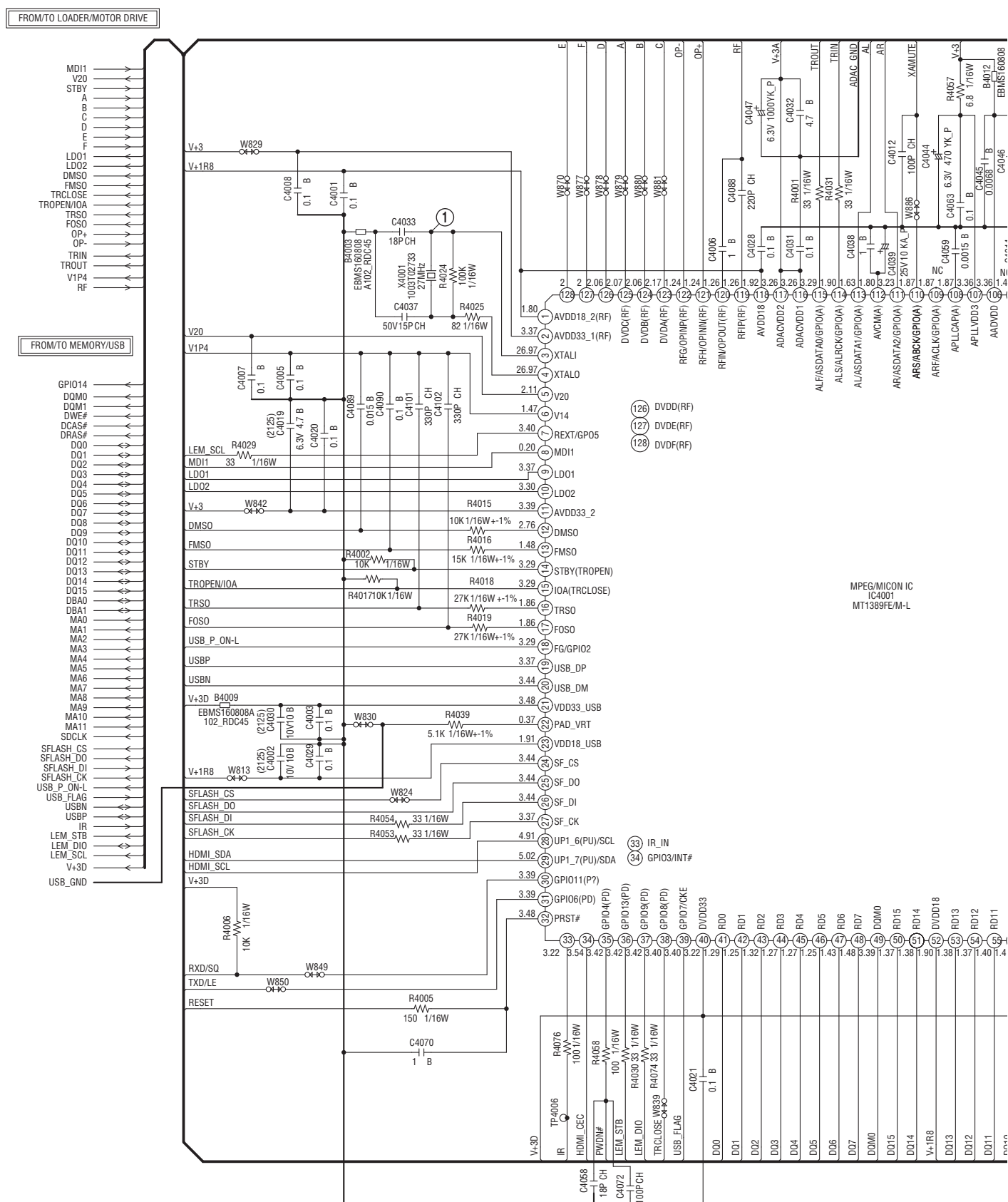
EXTERIOR SECTION PARTS LIST

| Mark | No. | Description | Part No. | |
|------|-----|---------------------------------------|------------|---|
| | 1 | DVD MT PCB ASSY | A2M211A130 | |
| | 2 | OPERATION PCB ASSY | A2M211A270 | A |
| | 3 | USB PCB ASSY | A2M109AFA0 | |
| ⚠ | 4 | POWER PCB ASSY | A2M211A240 | |
| | 5 | Deck CD | 169B00047A | |
| | 6 | | | ■ |
| | 7 | Tray Front | 712WPAA176 | |
| | 8 | Angle PCB | 761WSAA156 | |
| | 9 | Cushion,Leg | VEB1349 | |
| | 10 | Cabinet,Top | 702WSBA078 | |
| | 11 | Spring Earth | 743WKAA019 | B |
| | 12 | | | |
| | 13 | Screw,Tap Tite(S)-R (3x5.5) | 815223055U | |
| | 14 | Screw,Tap Tite(S) (3x5.5) | 8107D3055U | |
| | 15 | Screw,Tap Tite(B)Pan (3x6) | 810913060U | |
| | 16 | Screw,Tap Tite(P) (2.6x8) | 811022680U | ■ |
| | 17 | Screw,Tap Tite(P) Bind WH7 (2.6x8) | 8110I2680U | |
| | 18 | Screw Pan M(3x6) | 810213060U | |
| | 19 | Screw,Tap Tite(B) (3x6) | 810923060S | |
| | 20 | Screw,Tap Tite(S) (3x6.3) | 815223063U | C |
| | 21 | Front, Cabi Assy | 7A708A179A | |
| | 22 | Cord Jumper (CD502) | 12C10H0601 | |
| | 23 | Cord Jumper (CD601) | 122H0B1003 | |
| | 24 | | | ■ |
| | 25 | Cord Jumper (CD2301) | 12C14O1902 | |
| | 26 | | | |
| | 27 | Cord Connector (CD2302) | 06EH290901 | |
| | 28 | Cord Connector (CD6601) | 06EH250801 | D |
| | 29 | Spring Earth | 753WUAA021 | |
| | 30 | Spring Earth | 753WUAA023 | |

| | | | | |
|--|--|--|--|---|
| | | | | ■ |
| | | | | |
| | | | | E |
| | | | | |
| | | | | ■ |
| | | | | |
| | | | | F |

10.1 DVD MT PCB ASSY (1/7)

MPEG/MICON/DSP SCHEM



DVD MT PCB ASSY (1/7) (A2M211A130)



A



- F

4

A

B



| | |
|-----------|----|
| LED_CONT | 11 |
| V+5V | 10 |
| DGND | 9 |
| DGND | 8 |
| EV+3.3/6V | 7 |
| EV+3.3/6V | 6 |
| IR | 5 |
| DGND | 4 |
| LEM_STB | 3 |
| LEM_DIO | 2 |
| LEM_CLK | 1 |

| | |
|-------------------------------|---|
| CP4004 (CP6601) A2001WV-5A | |
| GND(SHIELD) | 5 |
| USBN | 4 |
| USBP | 3 |
| PGND | 2 |
| VBUS | 1 |

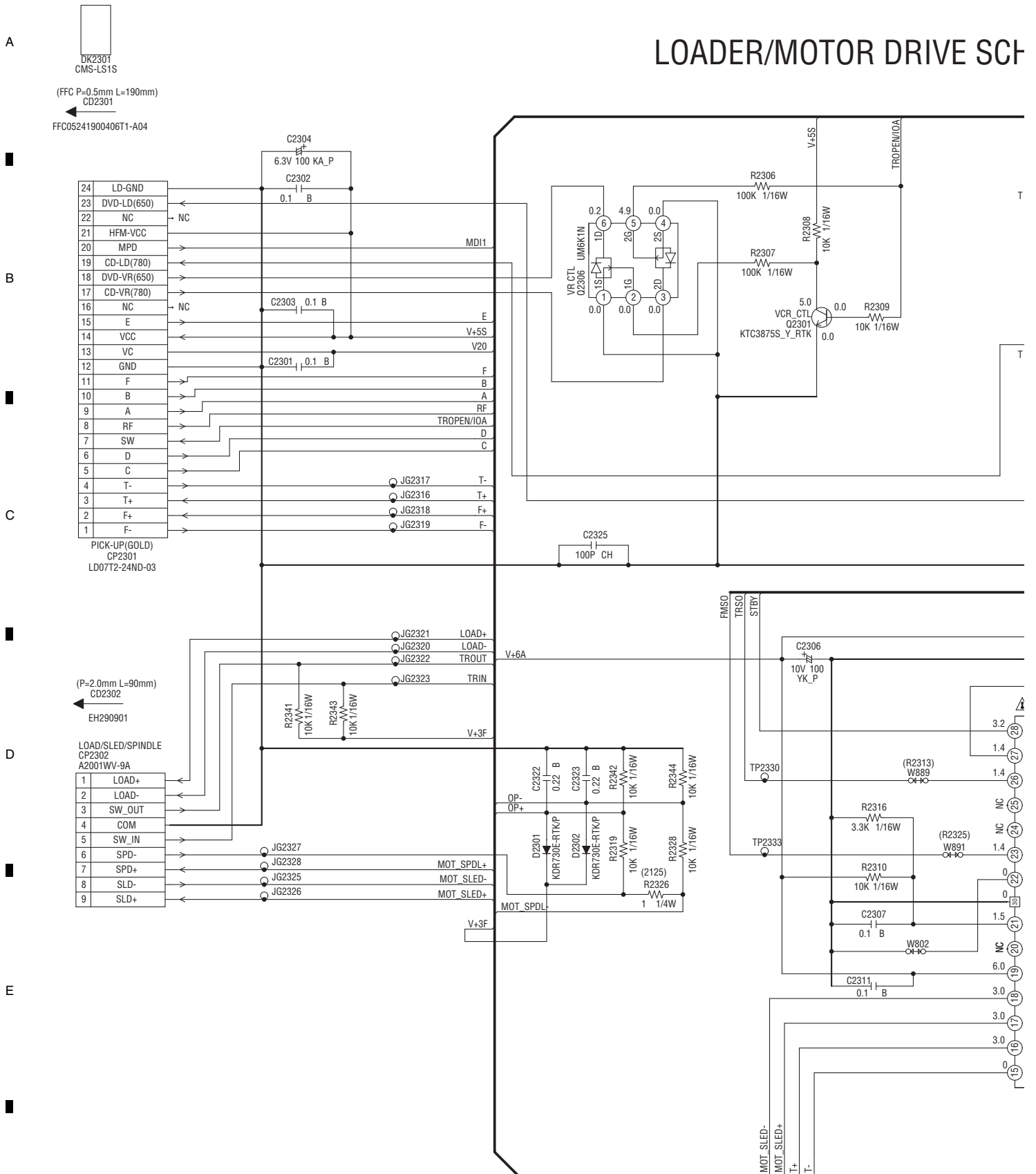
CAUTION: DIGITAL TRANSISTOR


NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.




10.3 DVD MT PCB ASSY (3/7)

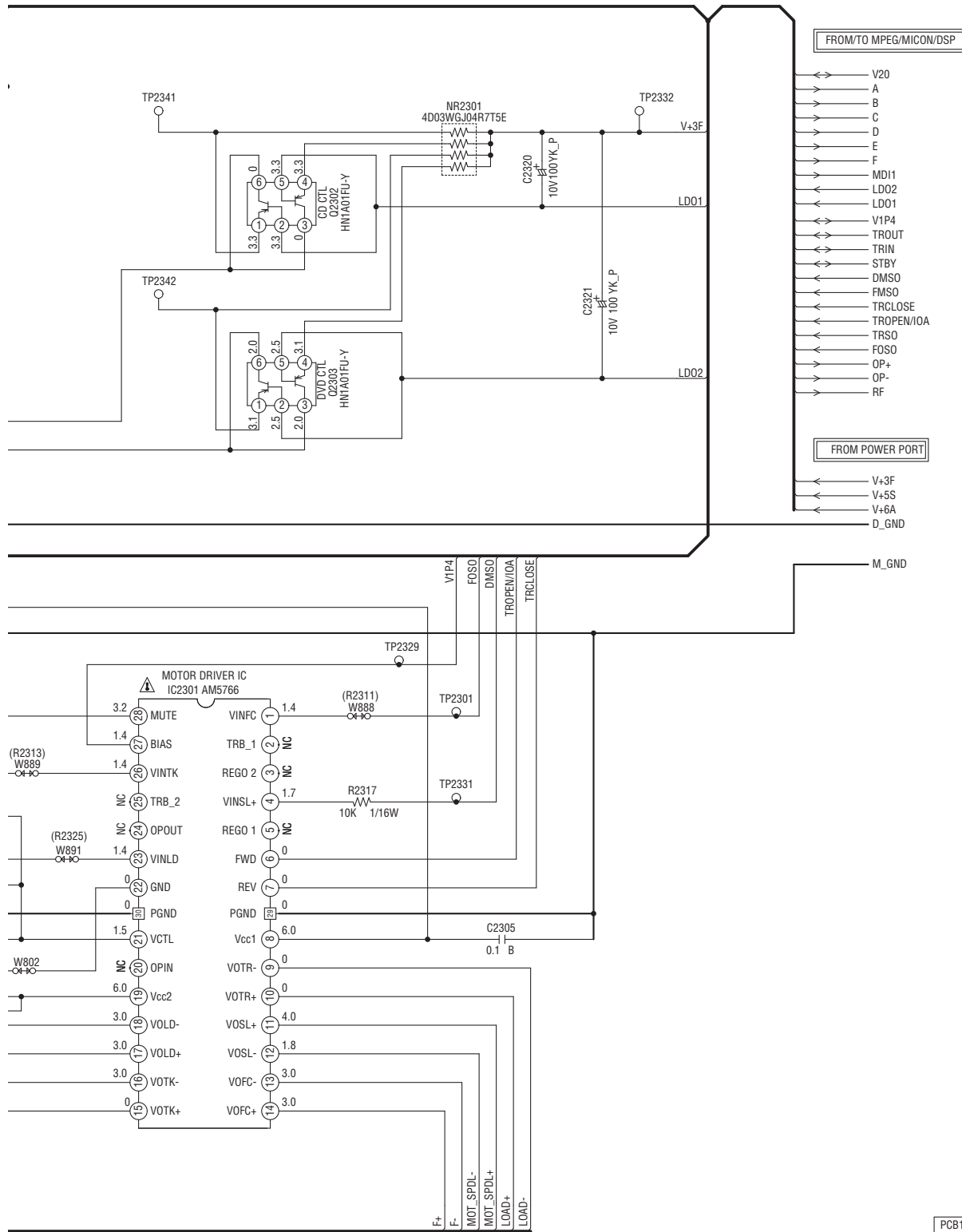
LOADER/MOTOR DRIVE SCH



CAUTION: SINCE THESE PARTS MARKED BY  ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY

ATTENTION: LES PIECES REPARÉES PAR UN  ÉTANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES

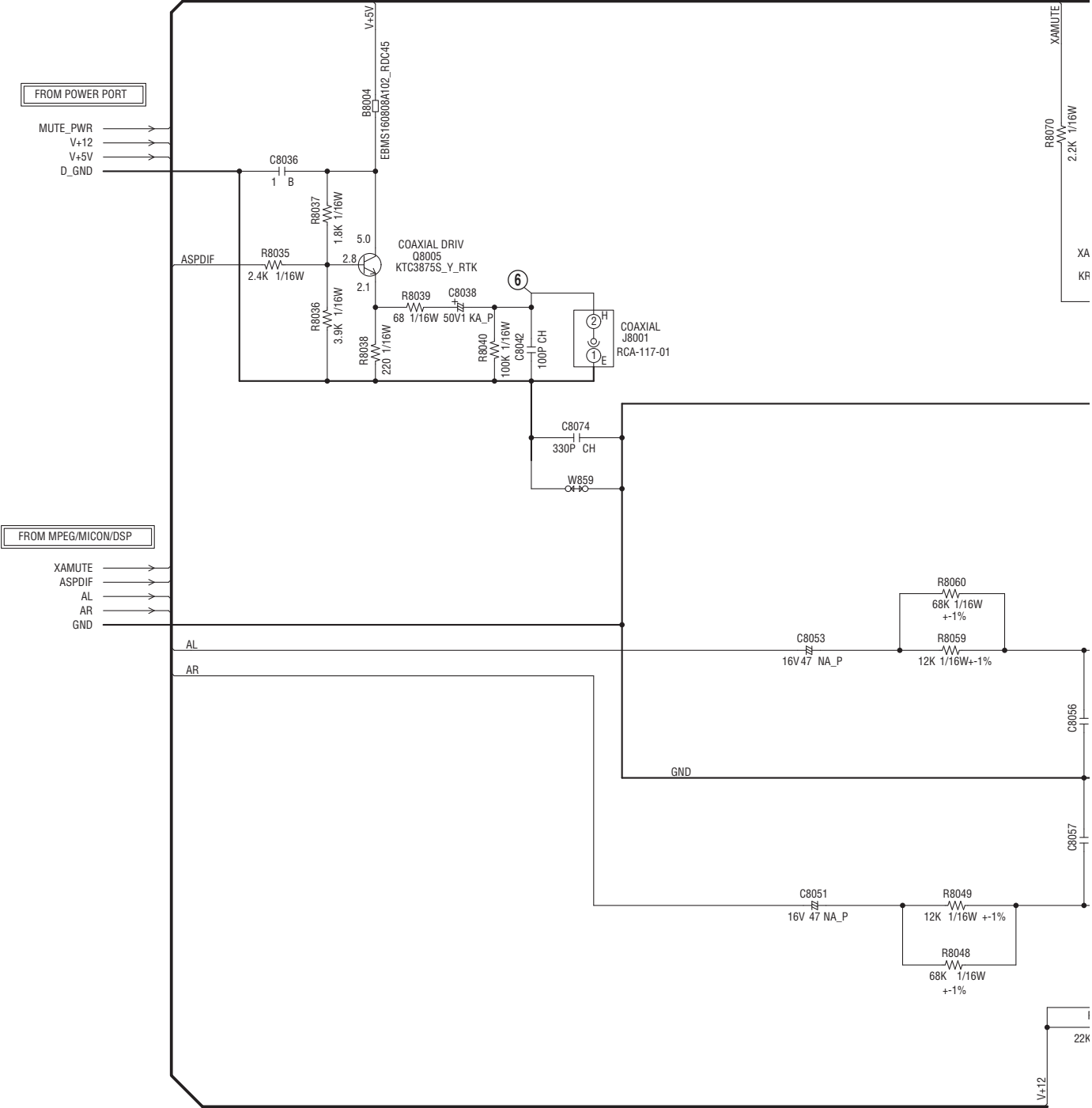
RIVE SCHEMATIC DIAGRAM

DVD MT PCB ASSY (3/7)
(A2M211A130)

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

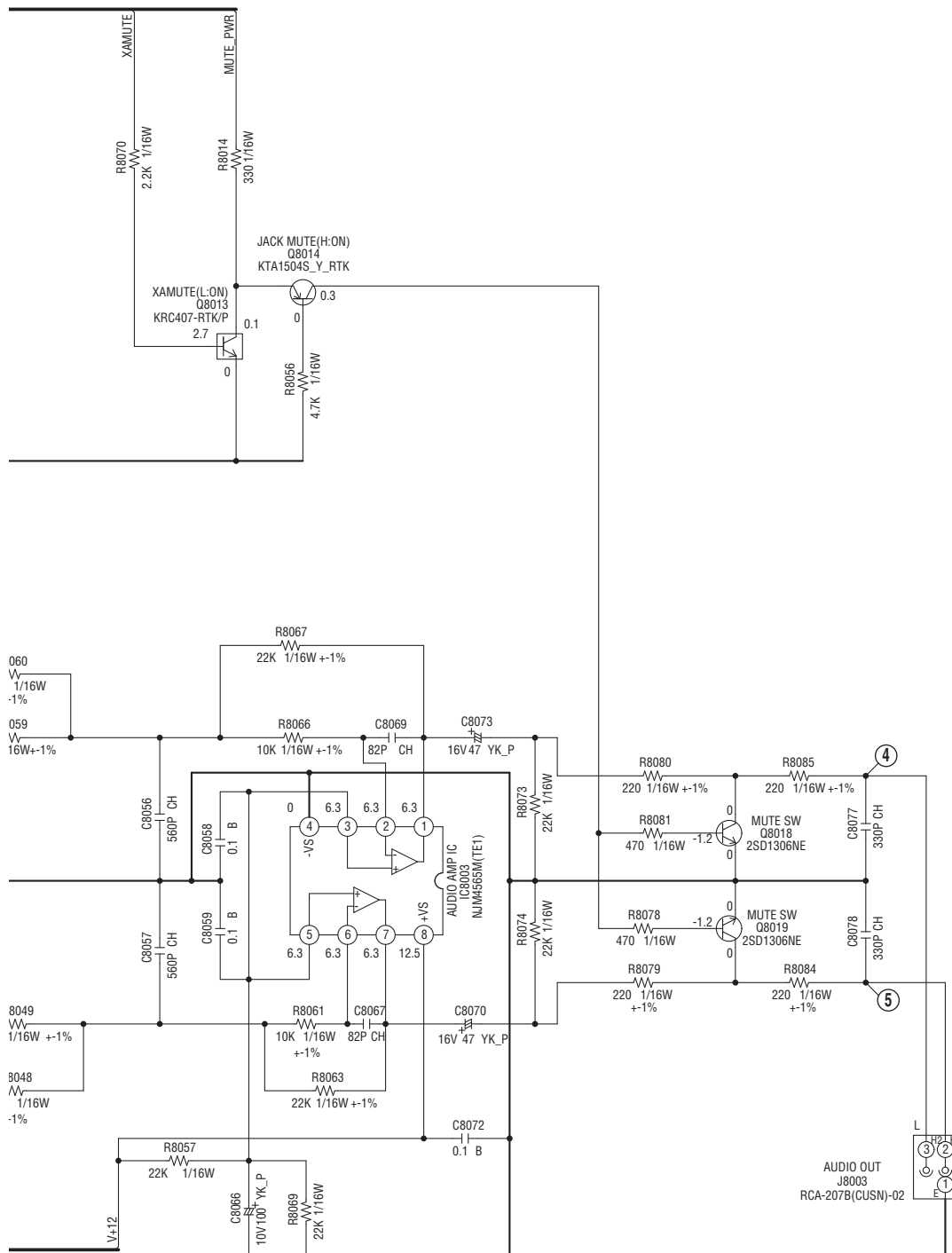
AUDIO JACK SCHEMAT



SCHEMATIC DIAGRAM

DVD MT PCB ASSY (4/7)
(A2M211A130)

A



B

C

D

E

NOTE: THE DC VOLTAGE EACH PART WAS
MEASURED WITH THE DIGITAL TESTER
DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

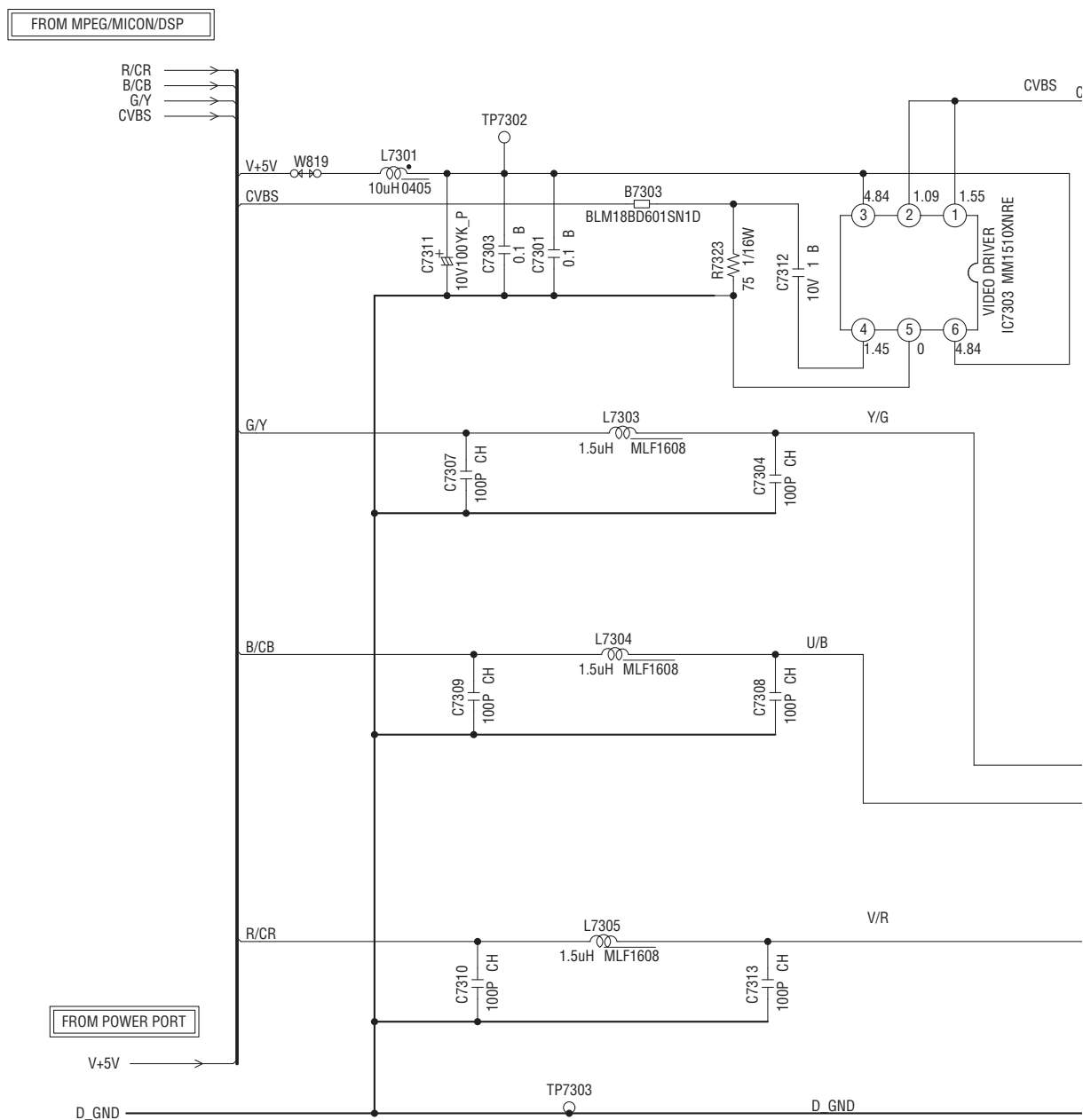
PCB130
DMH111

CAUTION: DIGITAL TRANSISTOR



F

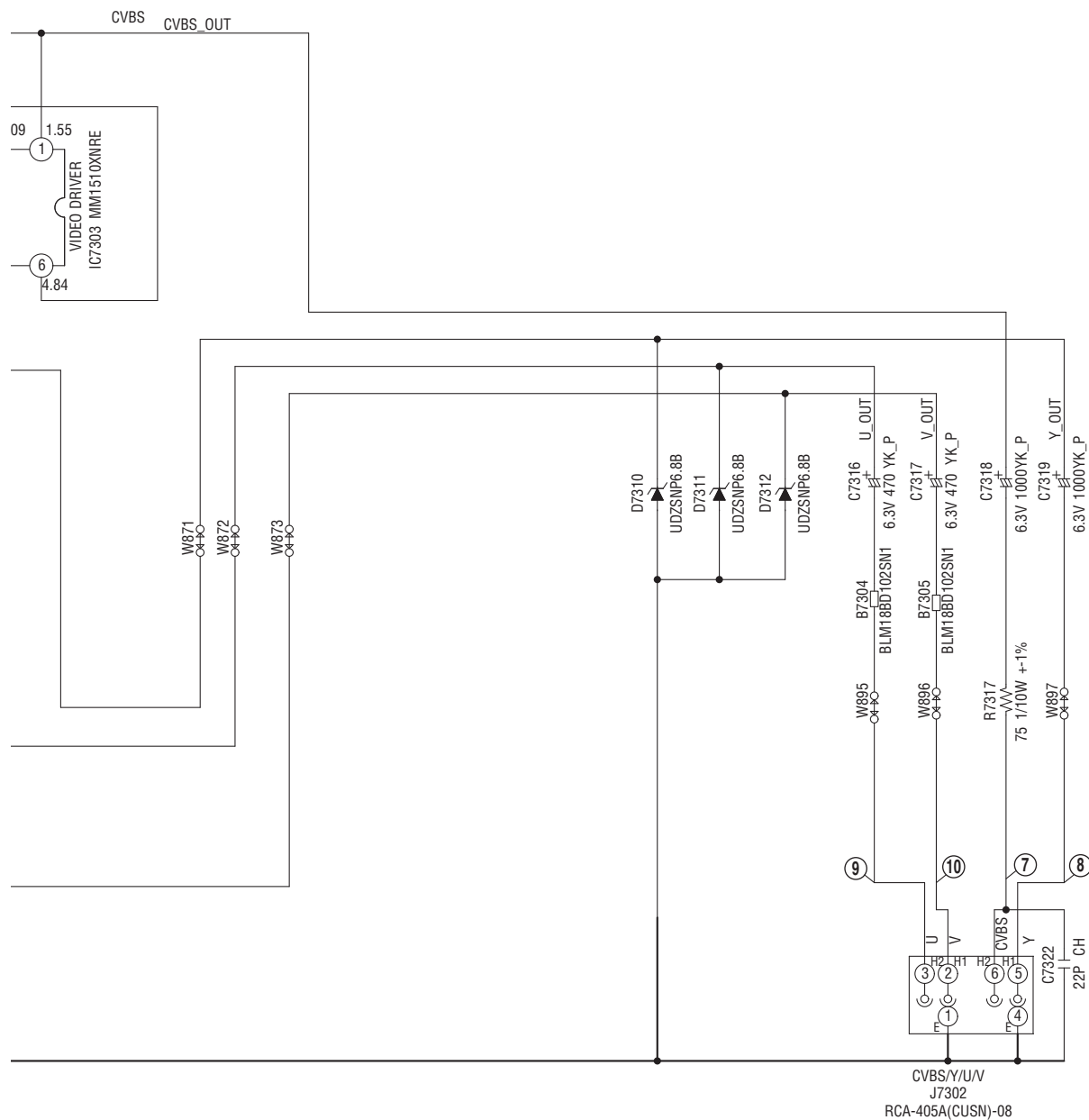
DV-220V-K



SCHEMATIC DIAGRAM

DVD MT PCB ASSY (5/7)
(A2M211A130)

A



B

C

D

E

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

NOTE: THE DC VOLTAGE EACH PART WAS
MEASURED WITH THE DIGITAL TESTER
DURING PLAYBACK.

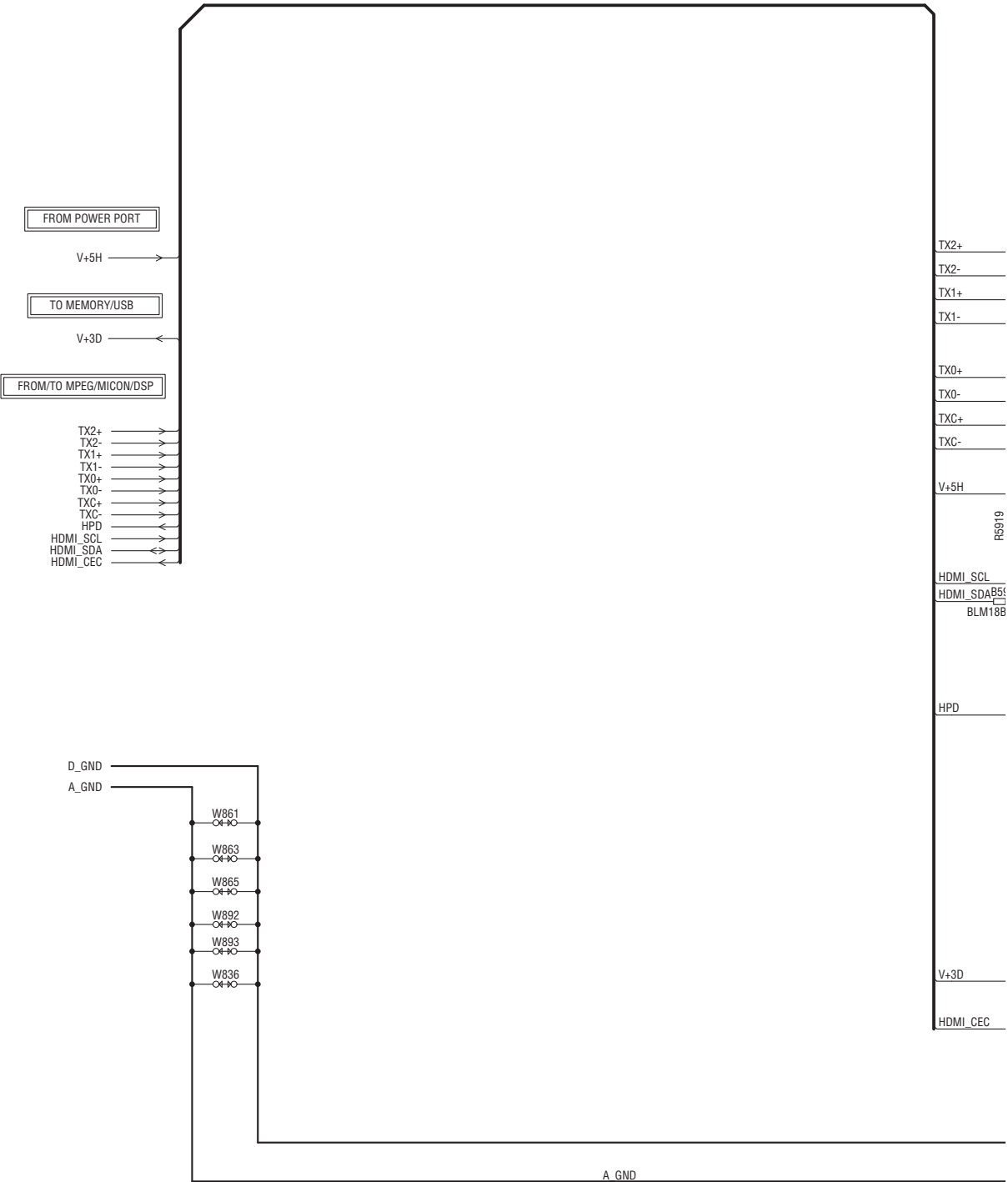
PCB130
DMH111

F

HDMI SCHEMATIC I

NOTE:THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.



SCHEMATIC DIAGRAM

DVD MT PCB ASSY (6/7) (A2M211A130)

A

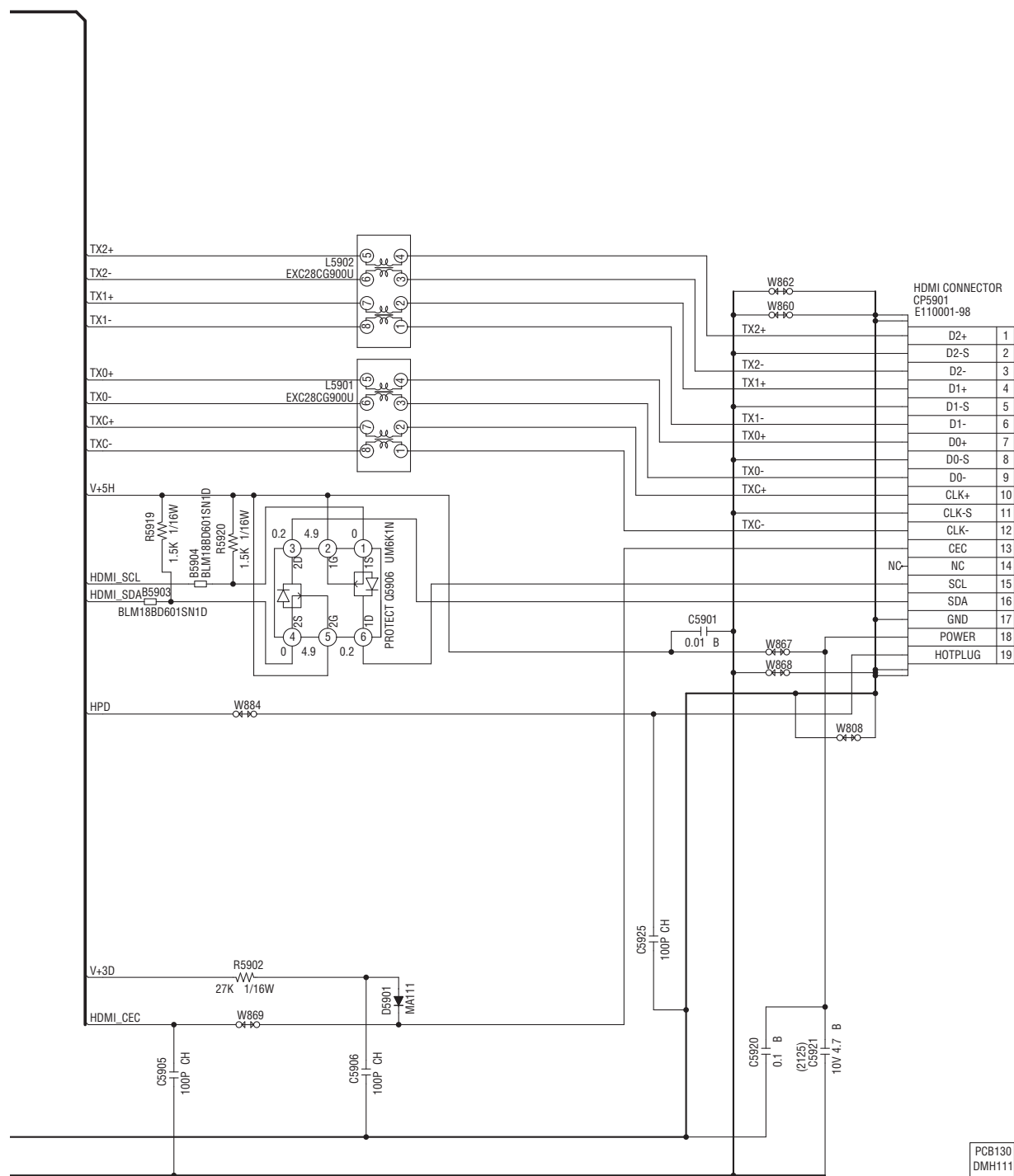
B

C


D

E


F



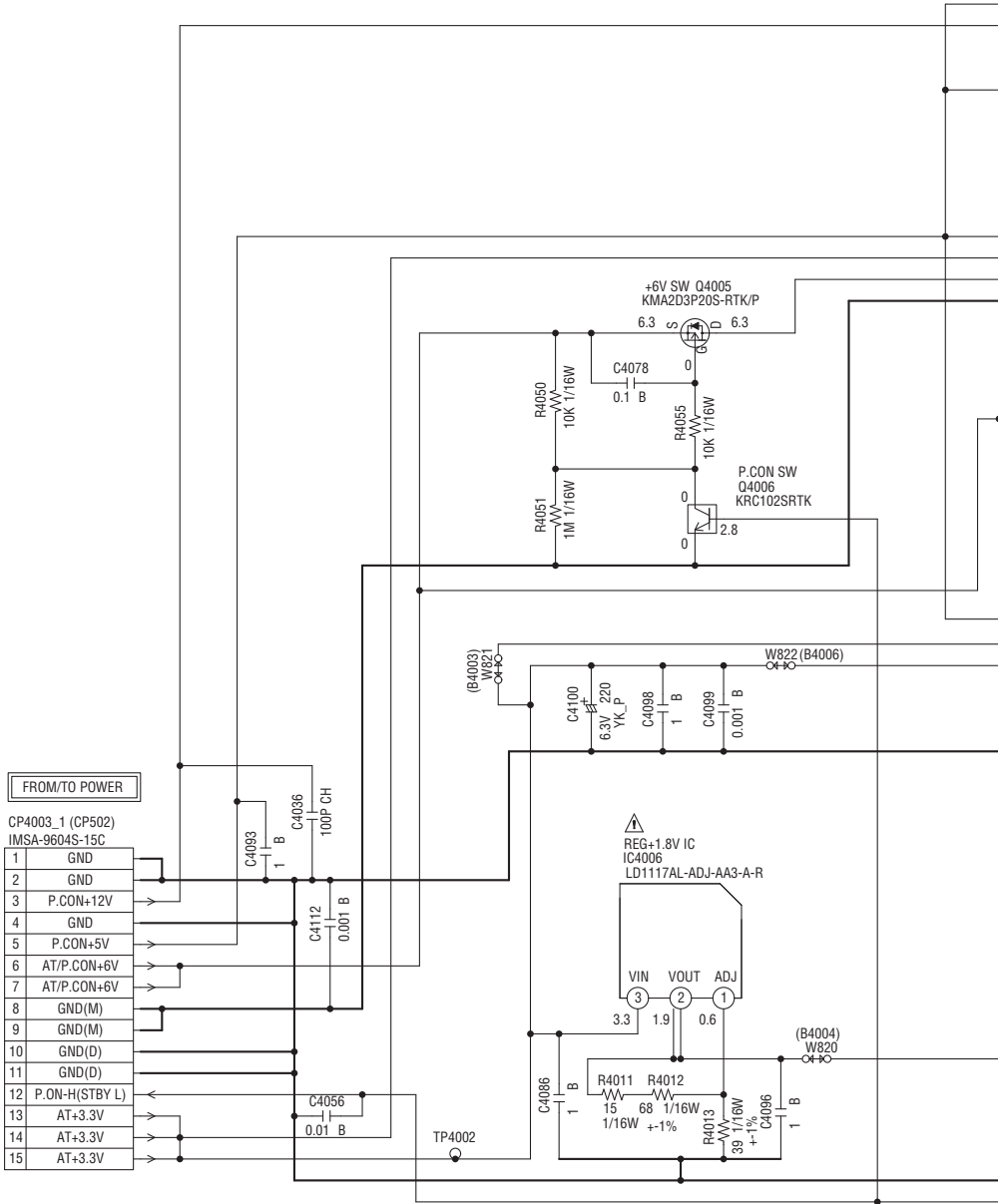
POWER PORT SCHEMA

CAUTION :SINCE THESE PARTS MARKED BY  ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY

NOTE:THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

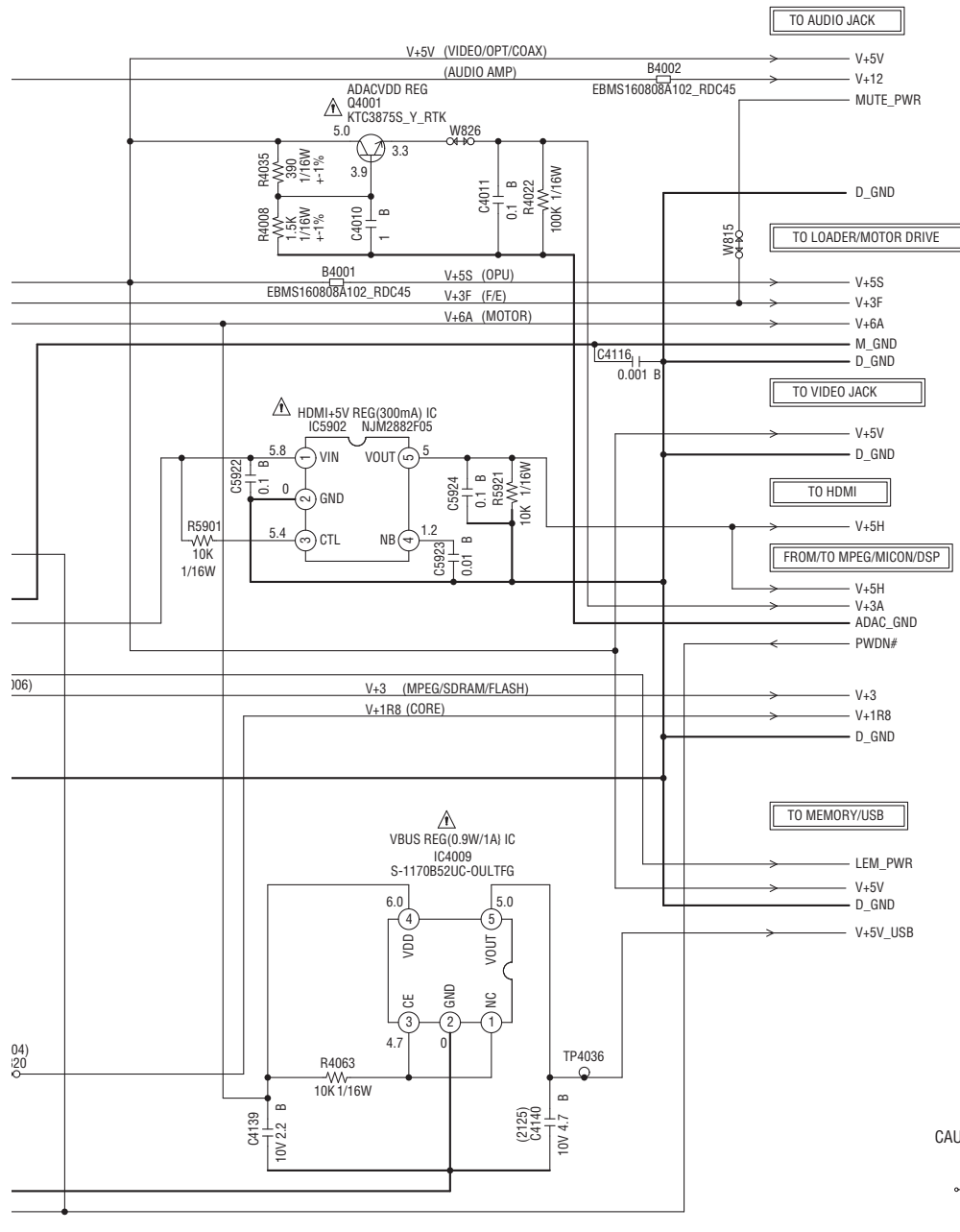
ATTENTION :LES PIECES REPARÉES PAR UN  ÉTANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES

NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.



DVD MT PCB ASSY (7/7) (A2M211A130)

SCHEMATIC DIAGRAM



△

A



C

D

E

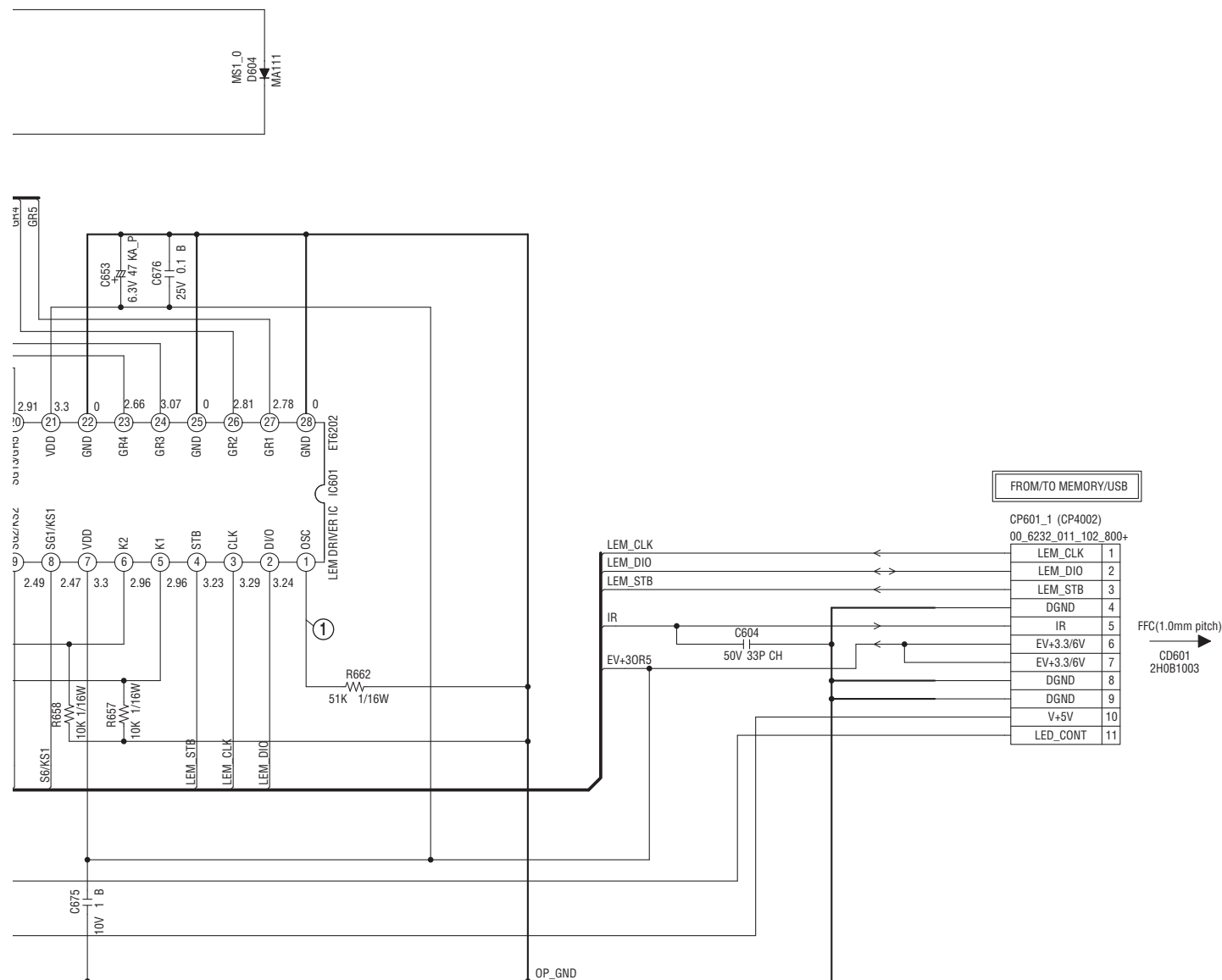
4

CHEMATIC DIAGRAM

OPERATION PCB ASSY (A2M211A270)

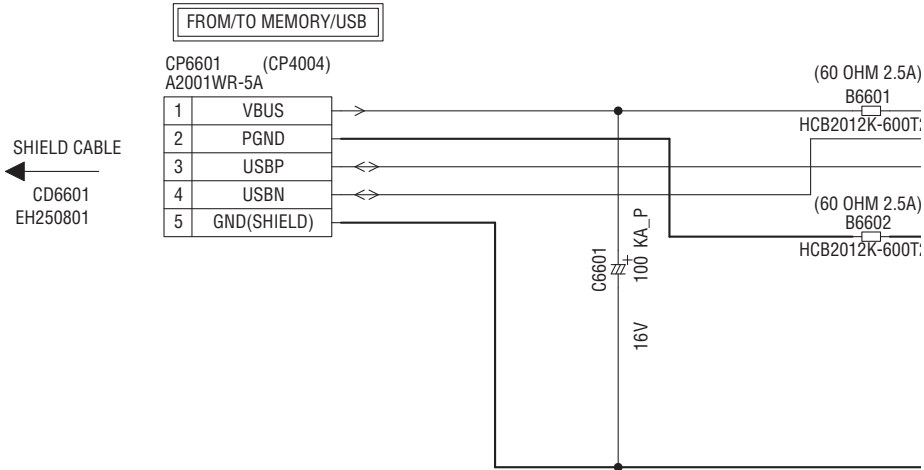
Switches

SW660 : STOP
SW662 : NEXT
SW663 : PLAY
SW664 : PREV
SW666 : OPEN/CLOSE



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

USB/KARAOKE SCHEM/



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

E SCHEMATIC DIAGRAM

USB PCB ASSY
(A2M109AFA0)

A

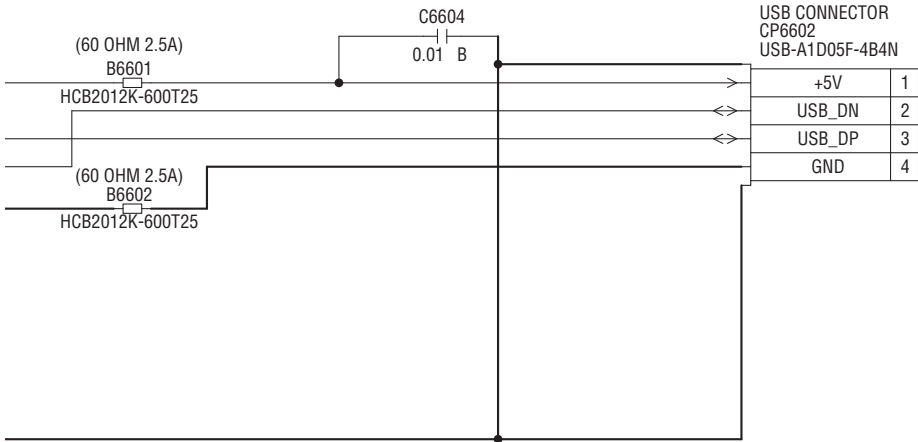
B

C

D

E

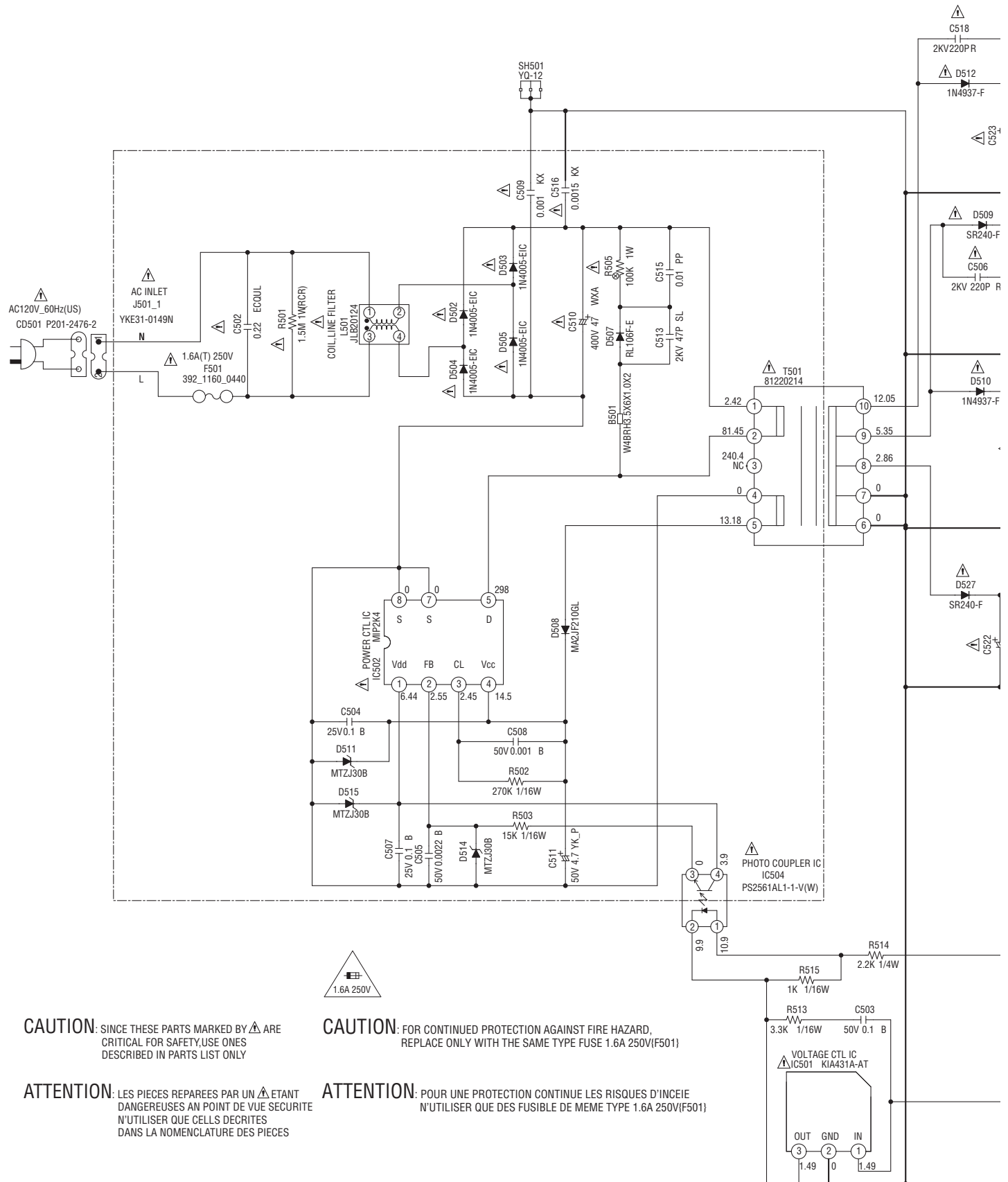
F



PCBFA0
DEH160

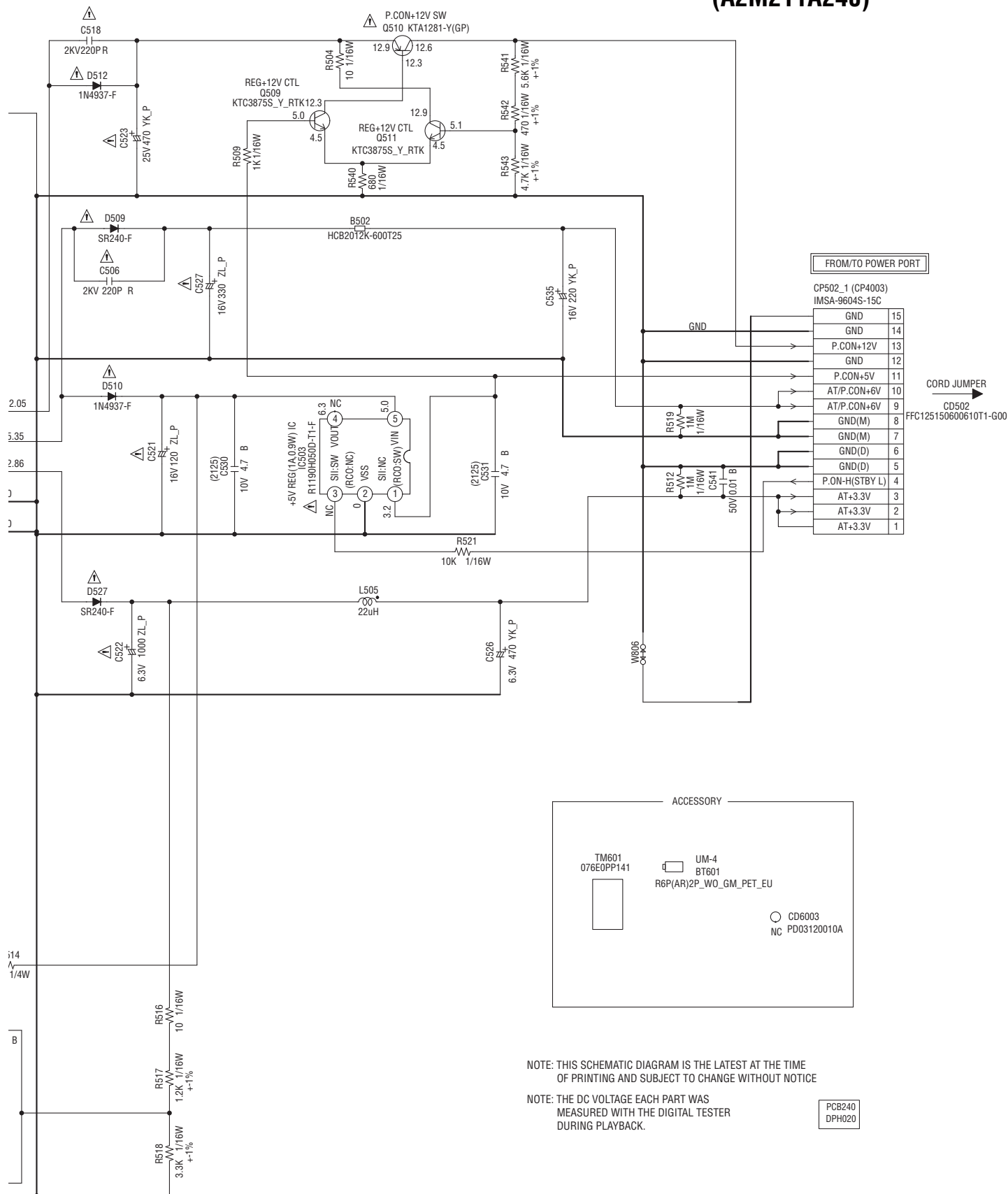
10.10 POWER PCB ASSY

POWER SCHEMATIC



SCHEMATIC DIAGRAM

POWER PCB ASSY (A2M211A240)



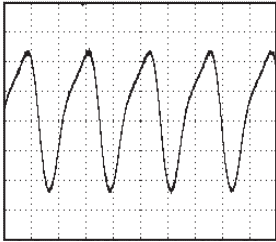
10.11 WAVEFORMS

Note : The encircled numbers denote measuring point in the schematic diagram.

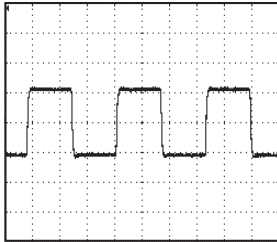
DVD MT PCB ASSY

MPEG/MICON/DSP

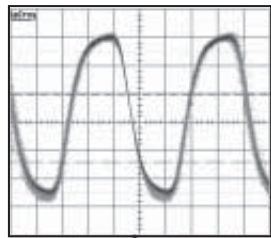
IC4001-pin3 (XTALI)
V:200mV/div. H:500μs/div.



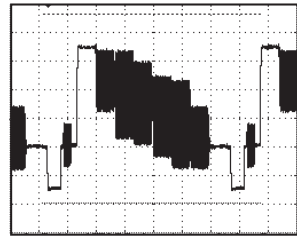
J8001-pin2 (Coaxial Out)
V:500mV/div. H:200ns/div.



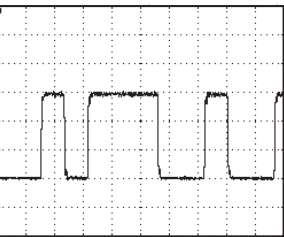
IC4001-pin60 (SDCLK)
V:1.0V/div. H:2ns/div.



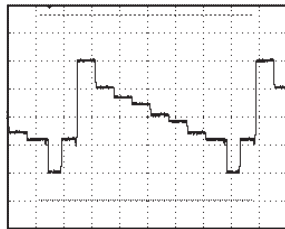
J7302-pin6 (CVBS_Out)
V:200mV/div. H:10μs/div.



IC4001-pin80 (SPDIF)
V:1.0V/div. H:200ns/div.

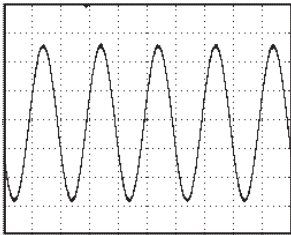


J7302-pin5 (Y_Out)
V:500mV/div. H:10μs/div.

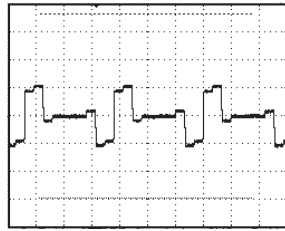


AUDIO JACK

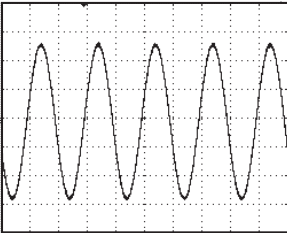
J8003-Pin3 (Lch_Out)
V:1.0V/div. H:500μs/div.



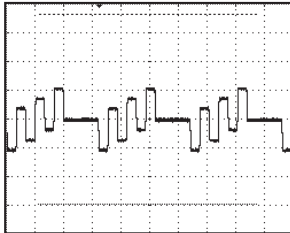
J7302-pin3 (U_Out)
V:500mV/div. H:20μs/div.



J8003-Pin2 (Rch_Out)
V:1.0V/div. H:500μs/div.



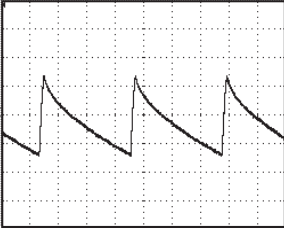
J7302-pin2 (V_Out)
V:500mV/div. H:20μs/div.



OPERATION PCB ASSY

DISPLAY

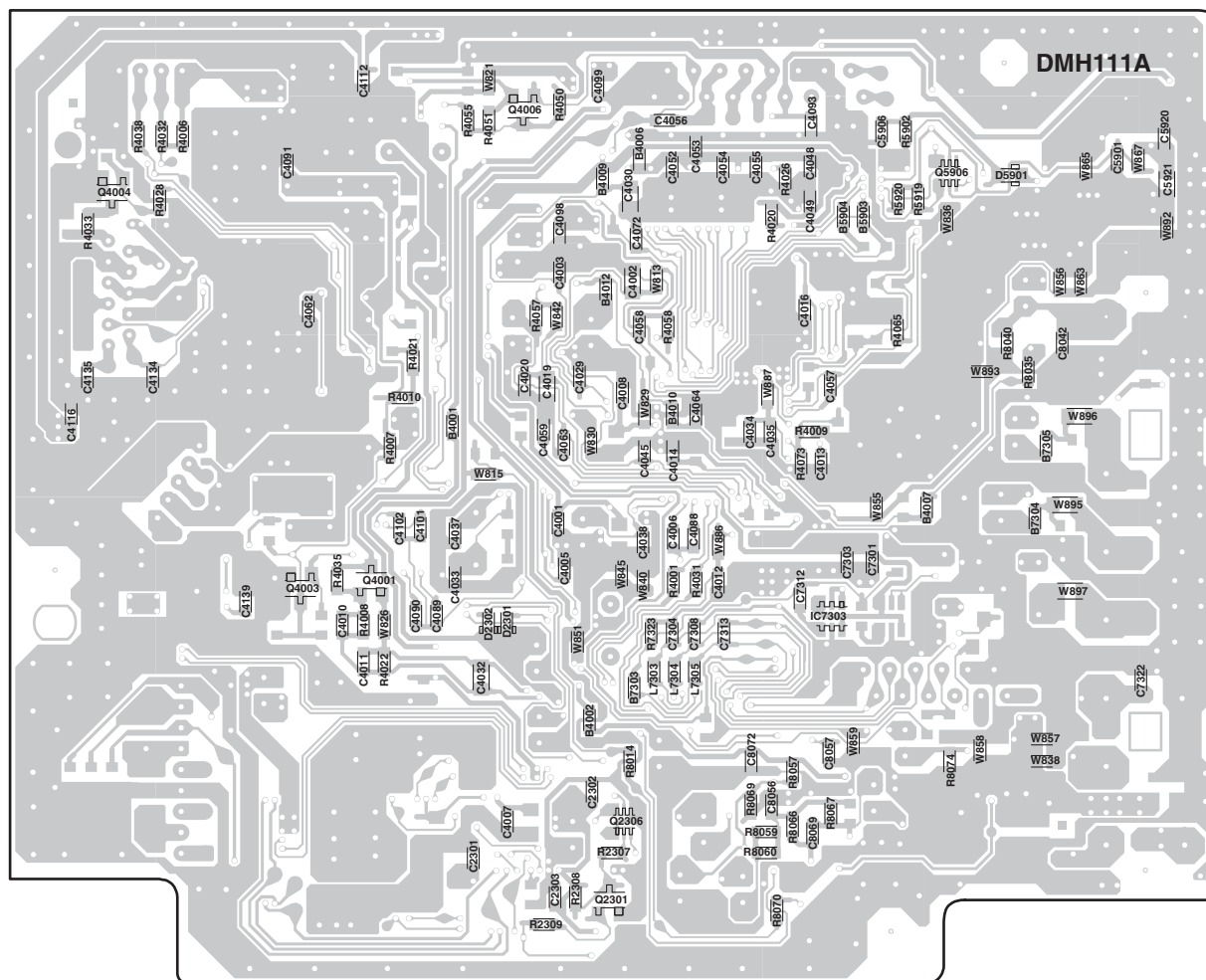
IC601-pin1 (OSC)
V:500mV/div. H:1μs/div.



A

SIDE B**SIDE B**

DVD MT PCB ASSY



B

C

D

E

F

11.2 OPERATION PCB ASSY

SIDE A

SIDE B

OPERATION PCB ASSY

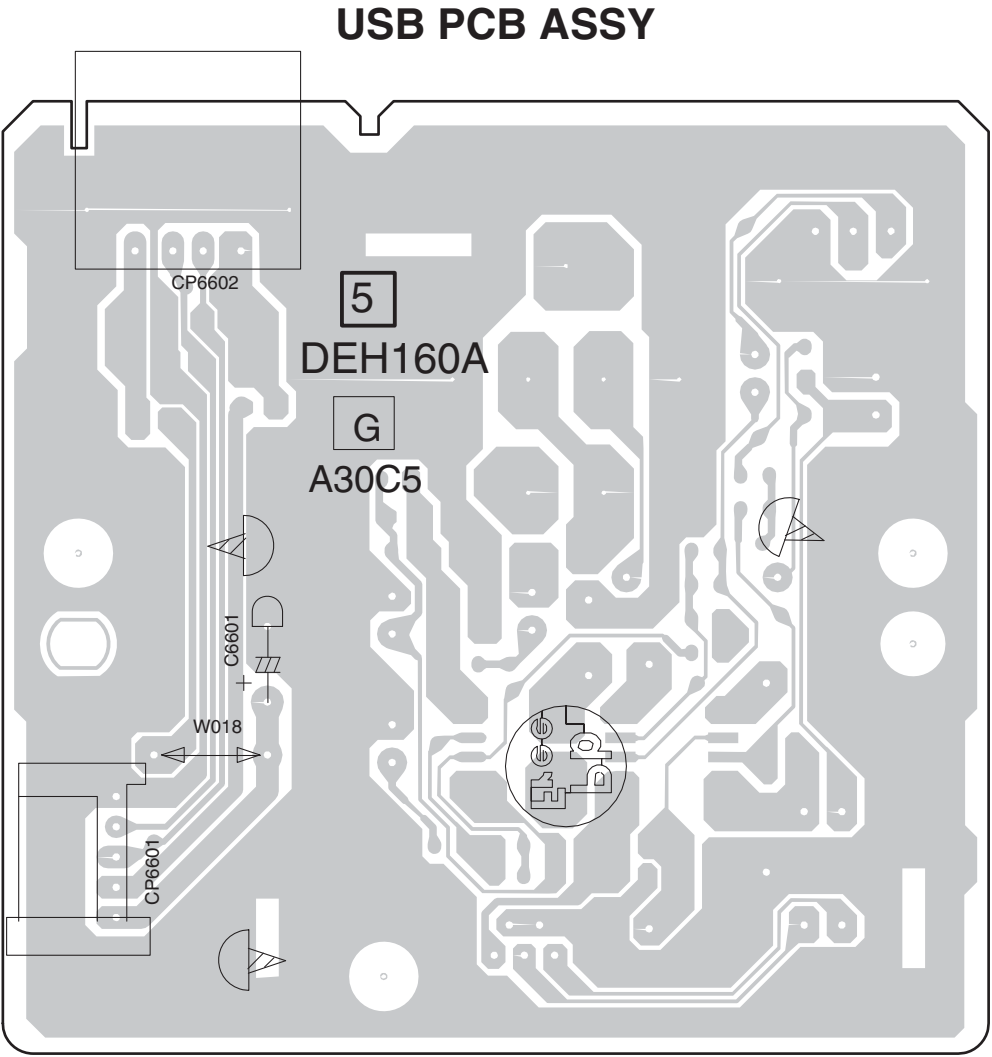
OPERATION PCB ASSY

DV-220V-K

11.3 USB PCB ASSY

SIDE A

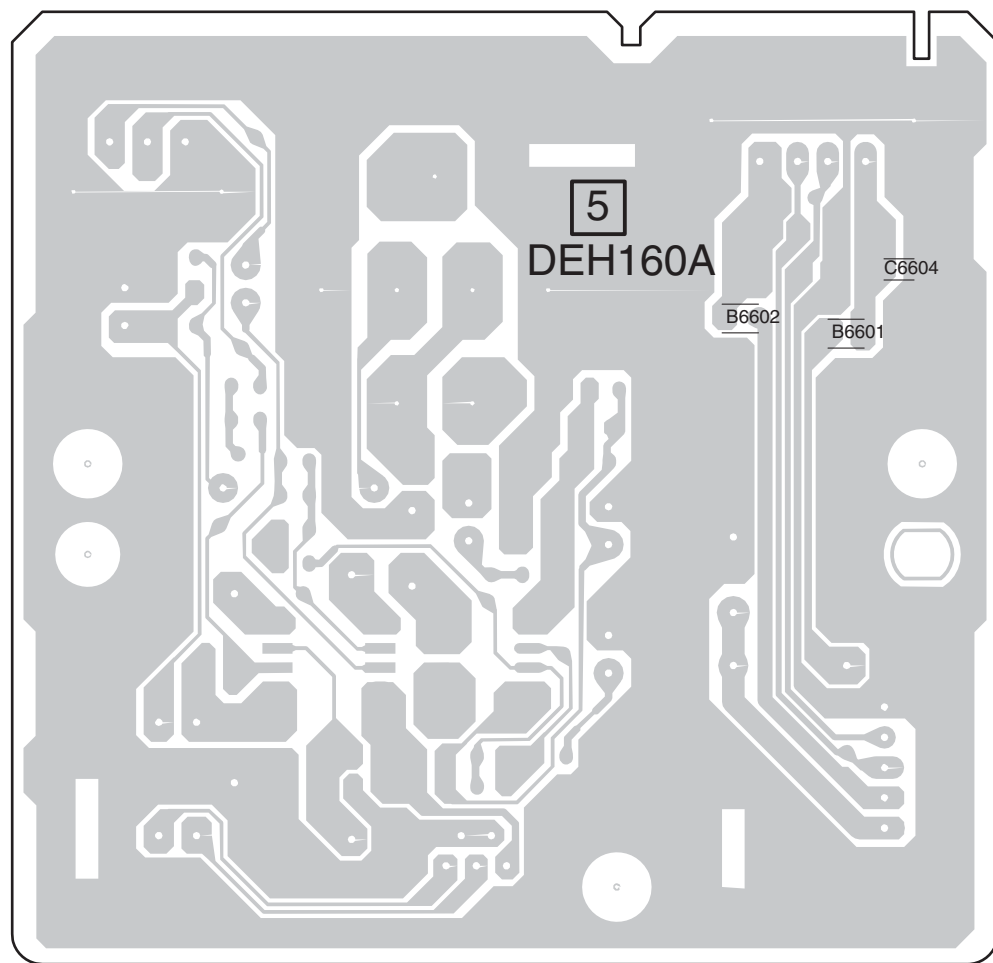
SIDE A



SIDE B

SIDE B

USB PCB ASSY

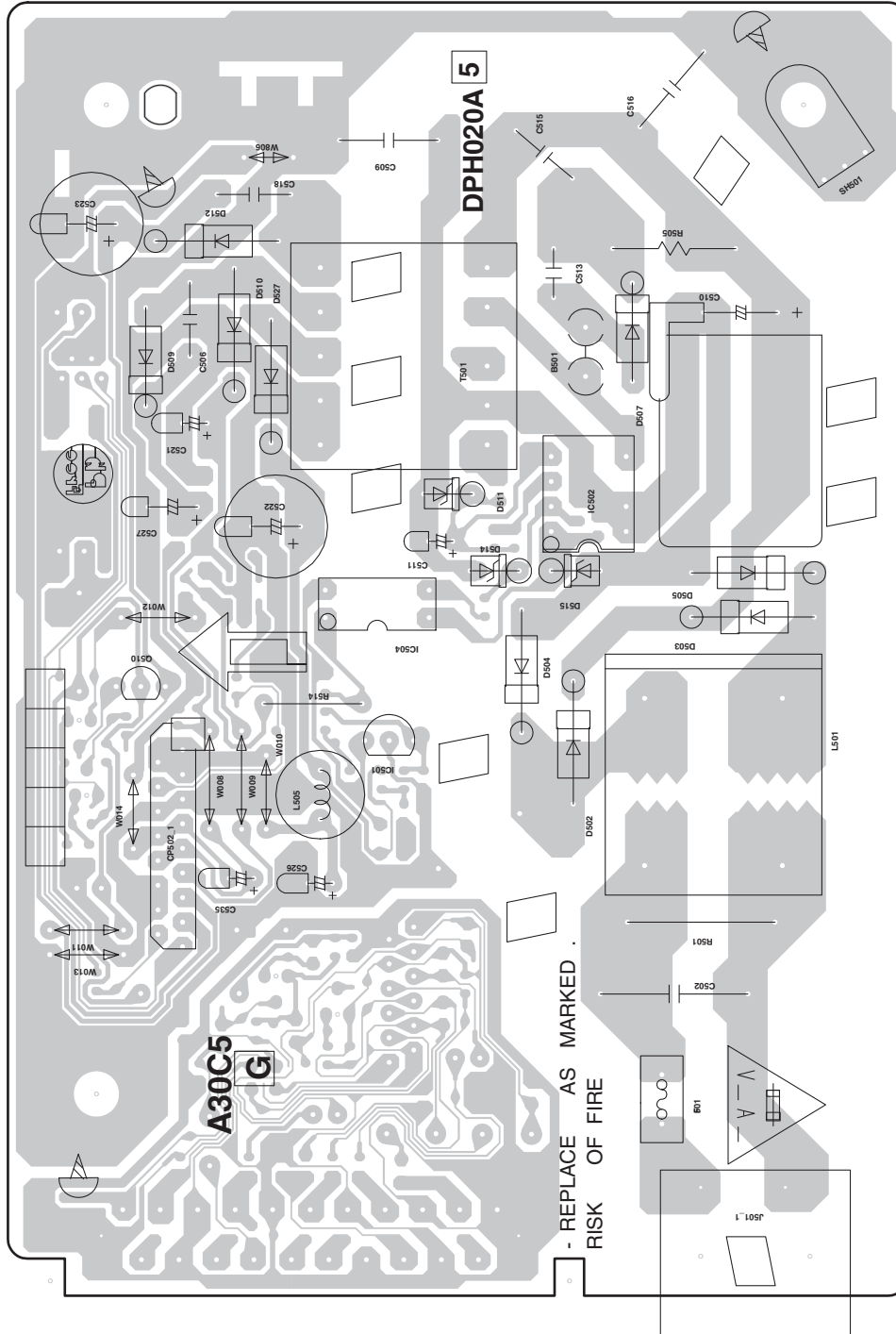


11.4 POWER PCB ASSY

SIDE A

SIDE A

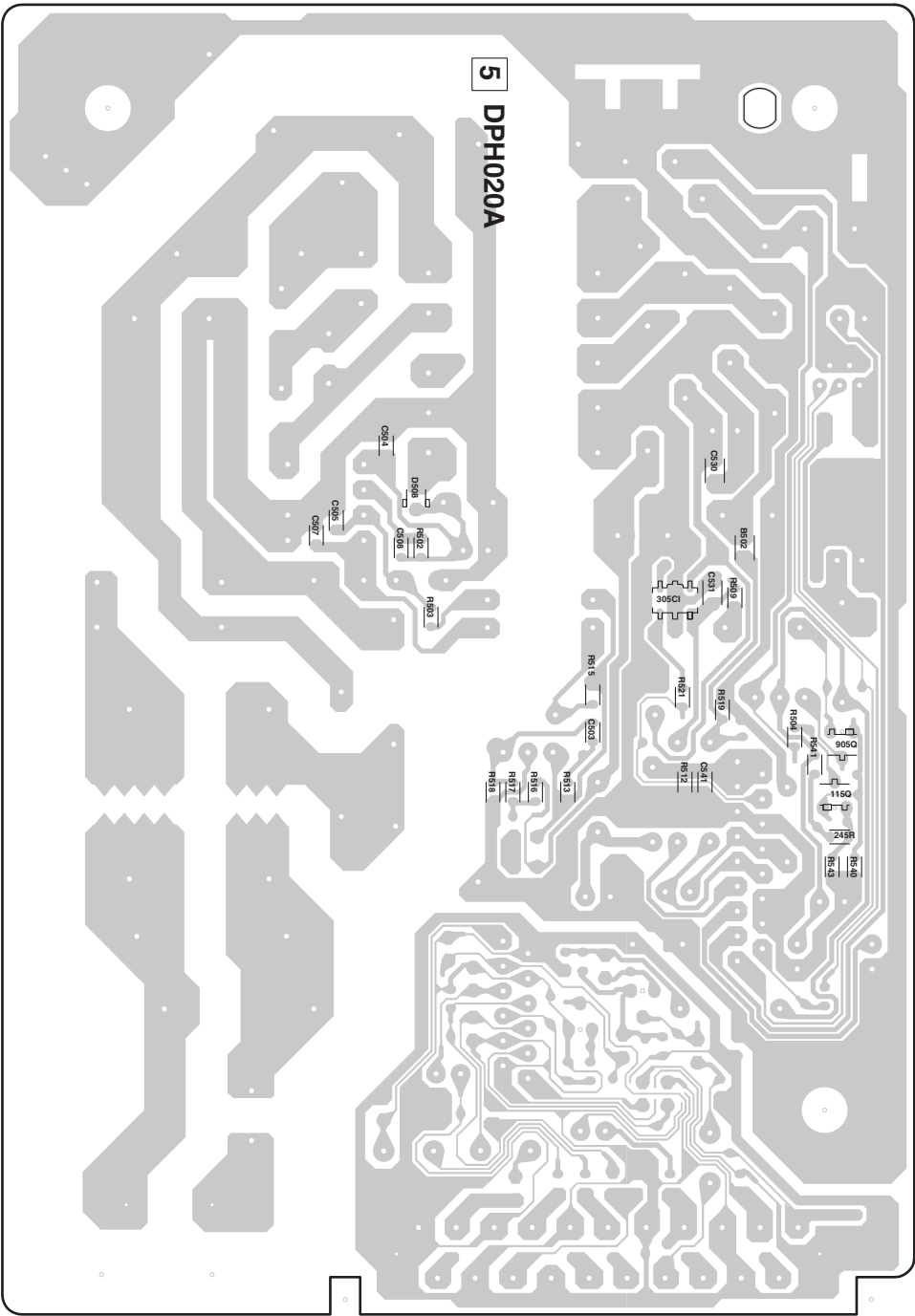
POWER PCB ASSY



SIDE B

SIDE B

POWER PCB ASSY



12. PCB PARTS LIST

NOTES: ● Parts marked by “NSP” are generally unavailable because they are not in our Master Spare Parts List.

● The \triangle mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

● When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47 k ohm (tolerance is shown by J = 5%, and K = 10%).

560 Ω \rightarrow 56×10^1 \rightarrow 561 RD1/4PU $\begin{matrix} 5 & 6 & 1 \end{matrix}$ J

47 k Ω \rightarrow 47×10^3 \rightarrow 473 RD1/4PU $\begin{matrix} 4 & 7 & 3 \end{matrix}$ J

0.5 Ω \rightarrow R50 RN2H $\begin{matrix} R & 5 & 0 \end{matrix}$ K

1 Ω \rightarrow 1R0 RS1P $\begin{matrix} 1 & R & 0 \end{matrix}$ K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62 k Ω \rightarrow 562×10^1 \rightarrow 5621 RN1/4PC $\begin{matrix} 5 & 6 & 2 & 1 \end{matrix}$ F

● Meaning of the figures and others in the parentheses in the parts list.

Example) IC 301 is on the point (face A, 91 of x-axis, and 111 of y-axis) of the corresponding PC board.

IC 301 (A, 91, 111) IC NJM2068V

Mark No. Description

Part No.

LIST OF ASSEMBLIES

1..DVD MT PCB ASSY A2M211A130

1..OPERATION PCB ASSY A2M211A270

1..USB PCB ASSY A2M109AFA0

\triangle 1..POWER PCB ASSY A2M211A240

Mark No. Description

Part No.

DVD MT PCB ASSY

SEMICONDUCTORS

IC 2301 IC AM5766 I1UFV5766S

IC 4001 IC MT1389FE/L-L IC8K0389M0

IC 4003 IC R3112N291A-TR-FA IE1F0291A0

IC 4004 IC ES25M16A S2M202AF01

IC 4005 IC M12L64164A-5TG2R IF9J04164E

IC 4006 IC LD1117AL-ADJ-AA3-A-R I1YF9117A0

IC 4007 IC MP6205DD-LF-Z I1JN062050

IC 4009 IC S-1170B52UC-OULTFG I5HJ9B52U0

IC 7303 IC MM1510XNRE IOUF015100

IC 8003 IC NJM4565M(Te1) IOQF045650

OTHERS

X 4001 CRYSTAL (27MHz) 1003T02733

OPERATION PCB ASSY

SEMICONDUCTORS

IC 601 IC ET6202 IL3J062020

SWITCHES

SW660, SW662-664, SW666, SW667 0504R01T38

OTHERS

V 651 LED DISLAY 0041Y55002

OS 651 REMOTE RECEIVER 077Q040004

USB PCB ASSY

USB PCB ASSY has no service part.

POWER PCB ASSY

POWER PCB ASSY has no service part.