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# Service Manual

DV-585A-S

ORDER NO.
**RRV3161**

## DVD PLAYER

# DV-585A-S

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

| Model | Type | Power Requirement | Region No. | Remarks |
|---|---|---|---|---|
| DV-585A-S | WYXTL | AC220-240V | 2 | |
| DV-585A-S | WVXTL | AC220-240V | 2 | |
| DV-585A-K | WYXTL | AC220-240V | 2 | |
| DV-585A-S | WYXTL/UR | AC220-240V | 5 | |

For details, refer to "Important Check Points for Good Servicing" .

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# 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 trainedto 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

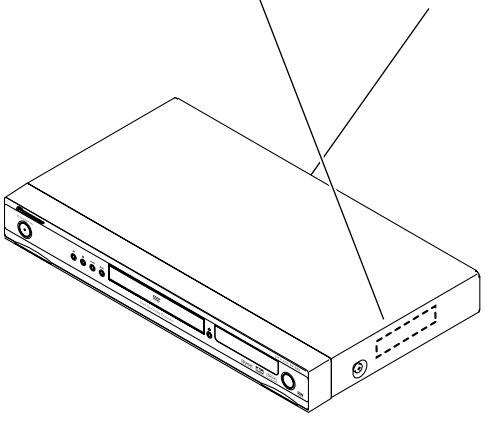
# LABEL CHECK

**Location: inside of the unit**

| | | |
|---|---|---|
| **CAUTION** | : VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM. | 7260000356 SH |
| **VORSICHT** | : SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG,WENNABDECKUNG GEÖFFNET NICHT DEM STRAHL AUSSETZEN ! | |
| **ADVARSEL** | : SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING UNDGÅ UDSÆTTELSE FOR STRÅLING. | |
| **VARNING** | : SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD BETRAKTA EJ STRÅLEN. | |
| **VARO!** | : AVATTAESSA ALTISTUT NÄKYVÄ JA NÄKYMÄTTÖMÄLLE LASERSATEIL YLLE. ÄLÄ KATSO SÄTEESEN. | |
| **CUIDADO** | : RADIACIÓN LÁSER VISIBLE E INVISIBLE AL ESTAR ABIERTO. EVITAR EXPOSICIÓN AL RAYO. | |

CLASS 1
LASER PRODUCT

(Printed on the Rear Panel)



**Additional Laser Caution**

1.
- Laser diode is driving with Q2303,Q2305(650nm LD) and Q2302, Q2304(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 49.

## [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. SPECIFICATIONS

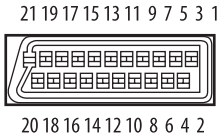
## Specifications

### General

System. . . . . .DVD player
Power requirements. . . AC 220–240 V, 50/60 Hz
Power consumption . . . . . .8W
Power consumption (standby) . . . . . 0.85 W
Weight . . . . . 1.7 kg
Dimensions
. . . . . 420 (W) x 49.5 (H) x 214.9 (D) mm
Operating temperature . . . . . .+5°C to +35°C
Operating humidity. . . . . 5% to 85%
(no condensation)

### AV connector output

AV Connector (21-pin connector assignment)
AV connector output . . . . . 21-pin connector
This connector provides the video and audio signals for connection to a compatible colour TV or monitor.




PIN no.
1 . . . . . Audio 2/R out
3 . . . . . Audio 1/L out
4 . . . . . GND
7 . . . . . .B out
8 . . . . . Status
11 . . . . . .G out
15 . . . . . .R out
17 . . . . . GND
19 . . . . . Video out
21 . . . . . GND

### Component video output

Y (luminance) - Output level. . . . . 1 Vp-p (75 Ω)
$P_B$ (color) - Output level . . . . . 0.7 Vp-p (75 Ω)
$P_R$ (color) - Output level. . . . . 0.7 Vp-p (75 Ω)
Jack . . . . . .RCA

### S-video output

Y (luminance) - Output level . . . . . 1 Vp-p (75 Ω)
C (color) - Output level . . . . . 286 mVp-p (75 Ω)
Jack. . . . . S-video

### Video output

Output level . . . . . .1 Vp-p (75 Ω)
Jack. . . . . RCA

### Audio output (1 stereo pair)

Output level . . . . . During audio output
200 mVrms (1 kHz, –20 dB)
Number of channels . . . . . .2
Jacks . . . . . RCA

### Audio output (multi-channel / L, R, C, SW, SL, SR)

Output level . . . . . During audio output
200 mVrms (1 kHz, –20 dB)
Number of channels . . . . . .6
Jacks . . . . . RCA jack

### Digital audio characteristics

Frequency response. . . . . .4 Hz to 44 kHz
(DVD fs: 96 kHz)
4 Hz to 48 kHz (DVD-Audio fs: 192 kHz)
S/N ratio . . . . . 115 dB
Dynamic range. . . . . 101 dB
Total harmonic distortion . . . . . 0.0023 %
Wow and flutter . . . . . Limit of measurement
(±0.001% W. PEAK) or lower

### Digital output

Coaxial digital output. . . . . RCA jack
Optical digital output . . . . . O ptical digital jack

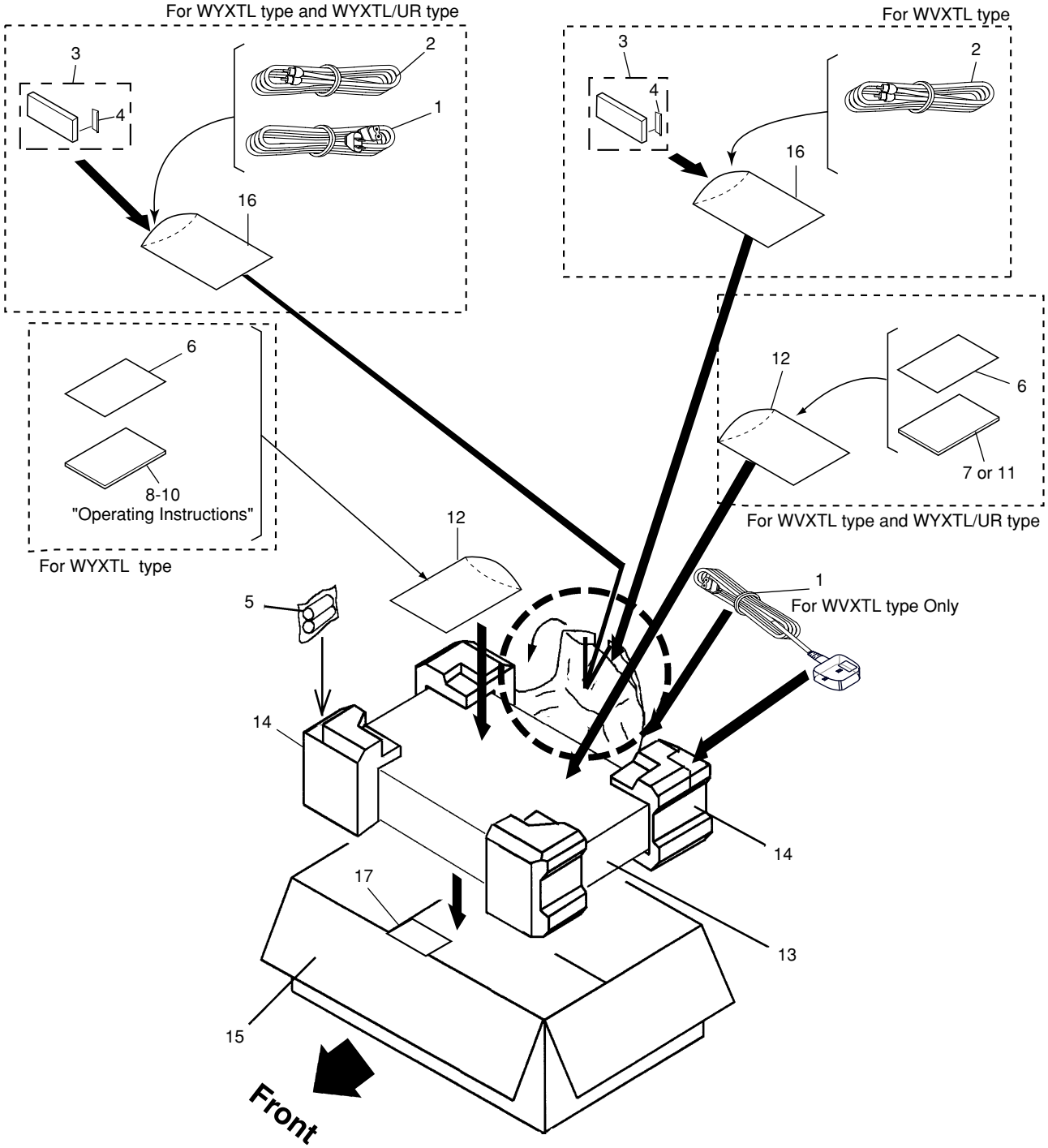
### Accessories

Audio/video cable . . . . . .1
Power cable . . . . . .. 1
Remote control . . . . . .1
AA/R6P dry cell batteries . . . . . .2
Warranty card . . . . . .1
Operating Instructions

# 2. EXPLODED VIEWS AND PARTS LIST

*NOTES:*
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ 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.*
- *Screws adjacent to ▼ mark on product are used for disassembly.*
- *For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions, apply as you think it appropriate.)*

## 2.1 PACKING SECTION



## PACKING SECTION parts List

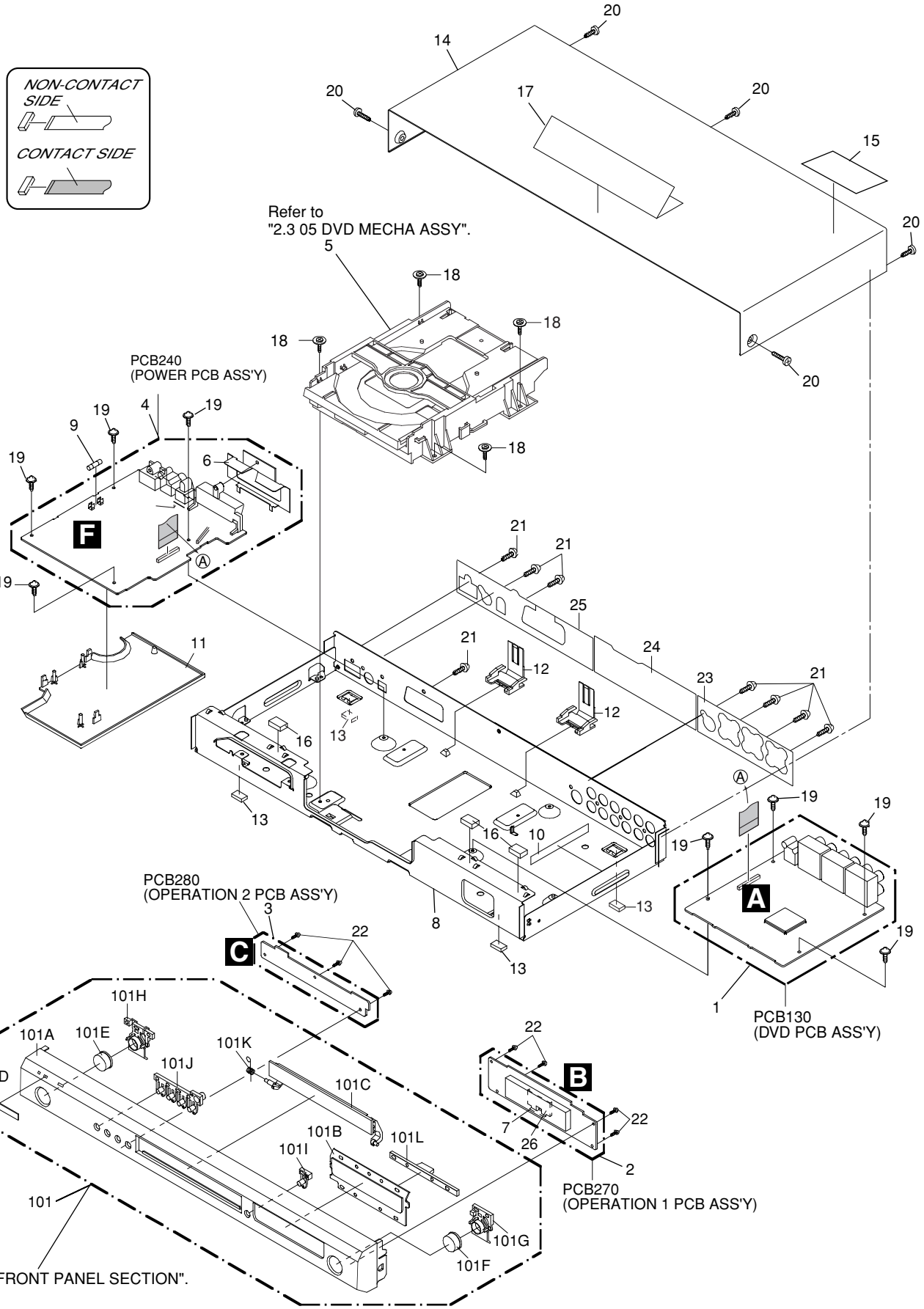
| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Cord set AC | See Contrast table (2) |
| | 2 | Cord, RCA Pin | 06CPBA2006 |
| | 3 | Remote Control | VXX2914 |
| | 4 | Battery Cover | VNK4998 |
| NSP | 5 | Battery,Mangan (AR, R6P) | 141L003010 |
| NSP | 6 | Guarantee Card | J2G60402A |
| | 7 | Operating Instructions | See Contrast table (2) |
| | 8 | Operating Instructions | See Contrast table (2) |
| | 9 | Operating Instructions | See Contrast table (2) |
| | 10 | Operating Instructions | See Contrast table (2) |
| | 11 | Operating Instructions | See Contrast table (2) |
| | 12 | Polyethylene Bag | See Contrast table (2) |
| | 13 | Gift Sheet | 791WHA0100 |
| | 14 | Package | See Contrast table (2) |
| | 15 | Gift Box | See Contrast table (2) |
| NSP | 16 | Poly. Bag | 791WHAA040 |
| | 17 | Package.Pad | 792WHA0604 |

## (2) CONTRAST TABLE

DV-585A-S/WYXTL, /WVXTL, /WYXTL/UR and DV-585A-K/WYXTL are constructed the same except for the following :

| Mark | No. | Symbol and Description | DV-585A-S/WYXTL | DV-585A-S/WVXTL | DV-585A-S/WYXTL/UR | DV-585A-K/WYXTL |
|---|---|---|---|---|---|---|
| ⚠ | 1 | Cord Set AC | 1206158802 | 1206138802 | 1206158802 | 1206158802 |
| | 7 | Operating Instructions (English) | Not used | J2G60301B | Not used | Not used |
| | 8 | Operating Instructions (English, Italian) | J2G60421A | Not used | Not used | J2G60421A |
| | 9 | Operating Instructions (German, French) | J2G60422A | Not used | Not used | J2G60422A |
| | 10 | Operating Instructions (Spanish, Duch) | J2G60423A | Not used | Not used | J2G60423A |
| | 11 | Operating Instructions (Russian) | Not used | Not used | J2G61001A | Not used |
| | 12 | Polyethylene Bag, Instruction | JB5UD400 | JB5UD200 | JB5UD200 | JB5UD400 |
| | 14 | Package | 792WHA0588 | 792WHA0597 | 792WHA0588 | 792WHA0588 |
| | 15 | Gift Box | 793WCDC698 | 793WCDC764 | 793WCDC763 | 793WCDC769 |

# 2.2 EXTERIOR SECTION



## EXTERIOR SECTION parts List

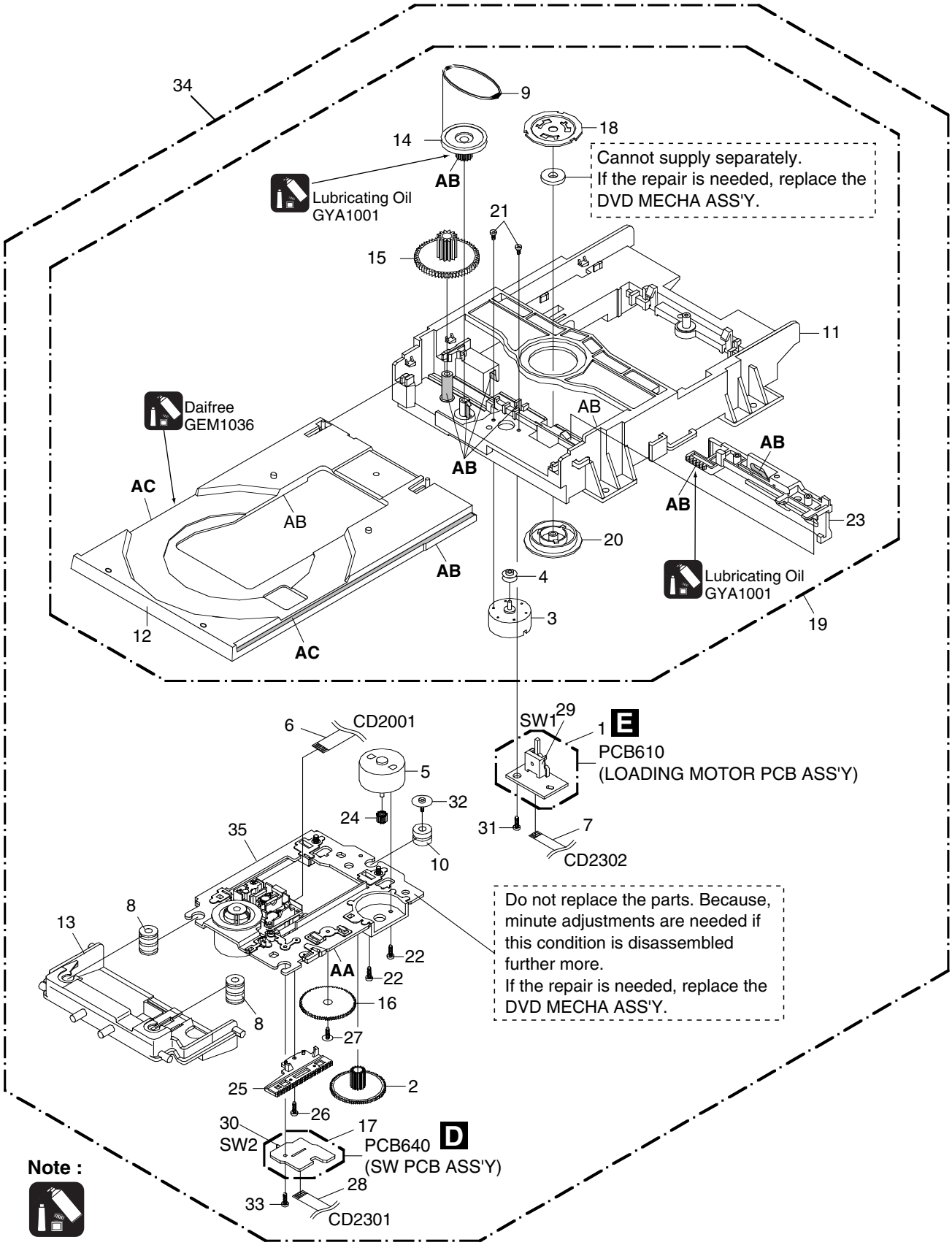
| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | DVD MT PCB Assy | A2G604A130 |
| | 2 | OPERATION PCB Assy | A2G604A270 |
| | 3 | OPERATION 2 PCB Assy | A2G502A280 |
| ⚠ | 4 | POWER PCB Assy | A2G604A240 |
| ⚠ | 5 | DVD MECHA ASSY | A2G512A650 |
| | 6 | Shield, 21Pin | 761WSA0237 |
| | 7 | Holder, Display | 762WSA0368 |
| NSP | 8 | Plate,Bottom | 702WSA0238 |
| ⚠ | 9 | Fuse (F501 : 1.6A) | 080NT1R604 |
| | 10 | Sheet, Caution | 7260000356 |
| | 11 | Plate,Cover Power | 755WPA0046 |
| | 12 | Holder,FFC | 761WPA0396 |
| | 13 | Cushion, Leg | VEB1349 |
| | 14 | Cabinet, Top | See Contrast table (2) |
| | 15 | Sheet, Caution | 725000A088 |
| | 16 | Cushion (15x20x16) | 8965TS1015 |
| NSP | 17 | POP Label | 7236310020 |
| | 18 | Screw,Tap Tite(S)Bind Wash. | 816423063U |
| | 19 | Screw,Tap Tite(S) (3x5.5) | 8107D3055U |
| | 20 | Screw,Tap Tite(B) (3x6.0) | See Contrast table (2) |
| | 21 | Screw,Tap Tite(B)Pan (3x6) | 810913060U |
| | 22 | Screw,Tap Tite(P)Bind (2.6x8) | 811022680U |
| | 23 | Sheet,Jack 1 | 7226310050 |
| | 24 | Sheet,Jack 2 | See Contrast table (2) |
| | 25 | Sheet,Jack 3 | See Contrast table (2) |
| | 26 | Double,Face-Tape | 7290000156 |
| | 27 | • • • • | |
| | 28 | • • • • | |
| | 101 | Front Cabi Assy | See Contrast table (2) |
| NSP | 101A | Cabinet, Front | See Contrast table (2) |
| NSP | 101B | Plate, Display | 711WPA0225 |
| | 101C | Flap, DVD | See Contrast table (2) |
| | 101D | Badge, Brand | See Contrast table (2) |
| NSP | 101E | Button, Cap Power | See Contrast table (2) |
| NSP | 101F | Button, Cap Play | See Contrast table (2) |
| NSP | 101G | Button, Frame 3 | 738WPA0131 |
| NSP | 101H | Button, Frame 4 | 738WPA0137 |
| NSP | 101I | Button, Frame 1 | See Contrast table (2) |
| NSP | 101J | Button, Frame 2 | See Contrast table (2) |
| | 101K | Spring,Flap-DVD | 743WKAA012 |
| NSP | 101L | Holder, Display | 761WPA0368 |

### (2) CONTRAST TABLE

DV-585A-S/WYXTL, /WVXTL, /WYXTL/UR and DV-585A-K/WYXTL are constructed the same except for the following :

| Mark | No. | Symbol and Description | DV-585A-S/WYXTL | DV-585A-S/WVXTL | DV-585A-S/WYXTL/UR | DV-585A-K/WYXTL |
|---|---|---|---|---|---|---|
| | 14 | Cabinet, Top | 702WSB0114 | 702WSB0114 | 702WSB0114 | 702WSB0115 |
| | 20 | Screw,Tap Tite(B) (3x6.0) | 8109K3060U | 8109K3060U | 8109K3060U | 8109K3060S |
| | 24 | Sheet,Jack 2 | 722631A027 | 722631A027 | 722631A027 | 722631A024 |
| | 25 | Sheet,Jack 3 | 722631A028 | 722631A028 | 722631A038 | 722631A028 |
| | 101 | Front Cabi Assy | 7A701A393A | 7A701A393A | 7A701A393A | 7A701A459A |
| NSP | 101A | Cabinet, Front | 701WPJD002 | 701WPJD002 | 701WPJD002 | 701WPJD061 |
| | 101C | Flap, DVD | 712WPJC151 | 712WPJC151 | 712WPJC151 | 712WPJC152 |
| | 101D | Badge, Brand | 7236310014 | 7236310014 | 7236310014 | 7236310009 |
| NSP | 101E | Button, Cap Power | 737WPEA001 | 737WPEA001 | 737WPEA001 | 737WPA0024 |
| NSP | 101F | Button, Cap Play | 737WPEA002 | 737WPEA002 | 737WPEA002 | 737WPA0025 |
| NSP | 101I | Button, Frame 1 | 738WPB0050 | 738WPB0050 | 738WPB0050 | 738WPA0156 |
| NSP | 101J | Button, Frame 2 | 738WPB0051 | 738WPB0051 | 738WPB0051 | 738WPA0157 |

## 2.3 05 DVD MECHA SECTION




**Note :**

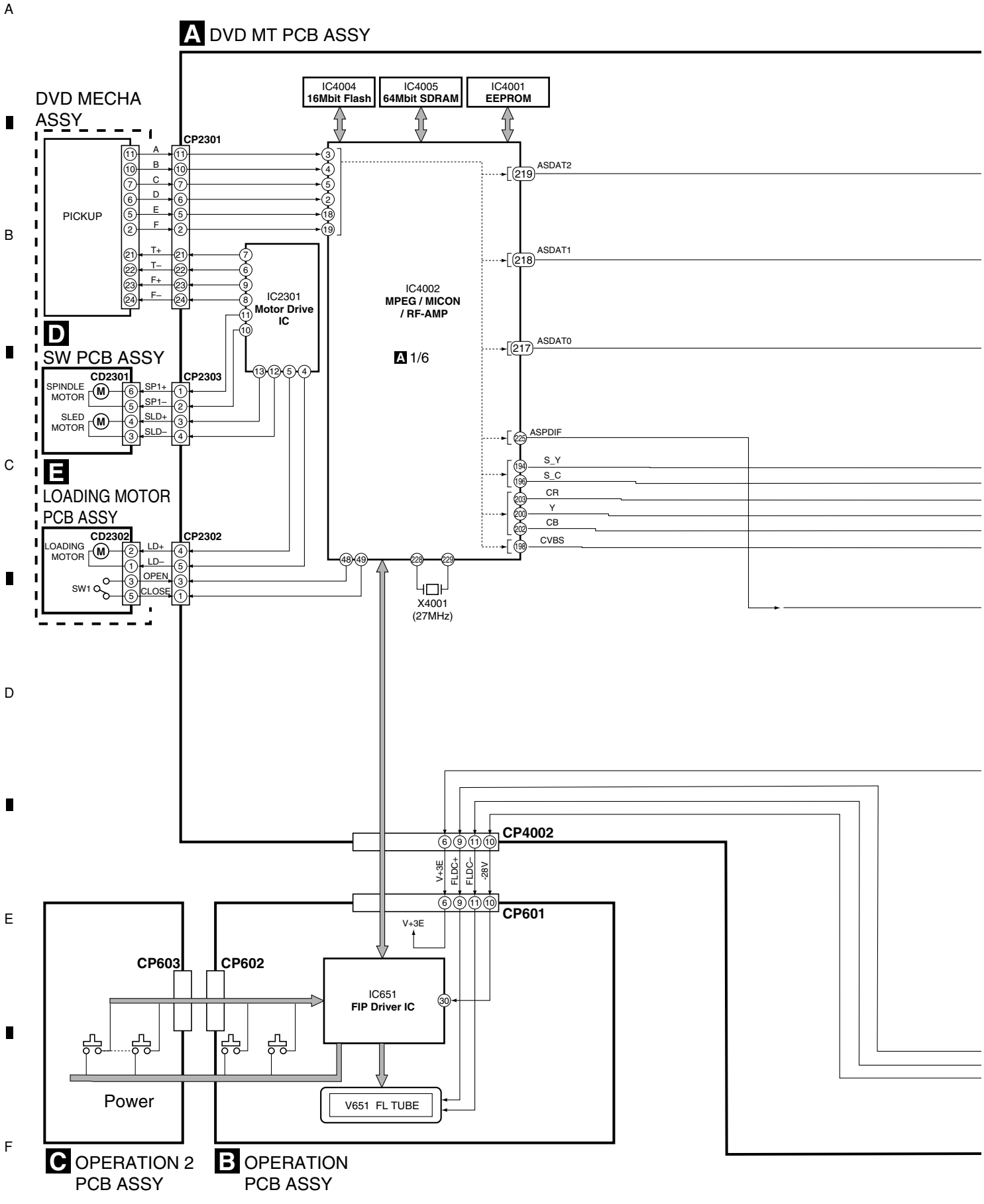
| CLASS | PART NO. | PART NAME | MARK |
|---|---|---|---|
| GREASE | GEM1018 | G-478B | **AA** |
| | GYA1001 | PN-397 | **AB** |
| | GEM1036 | ME-913A | **AC** |

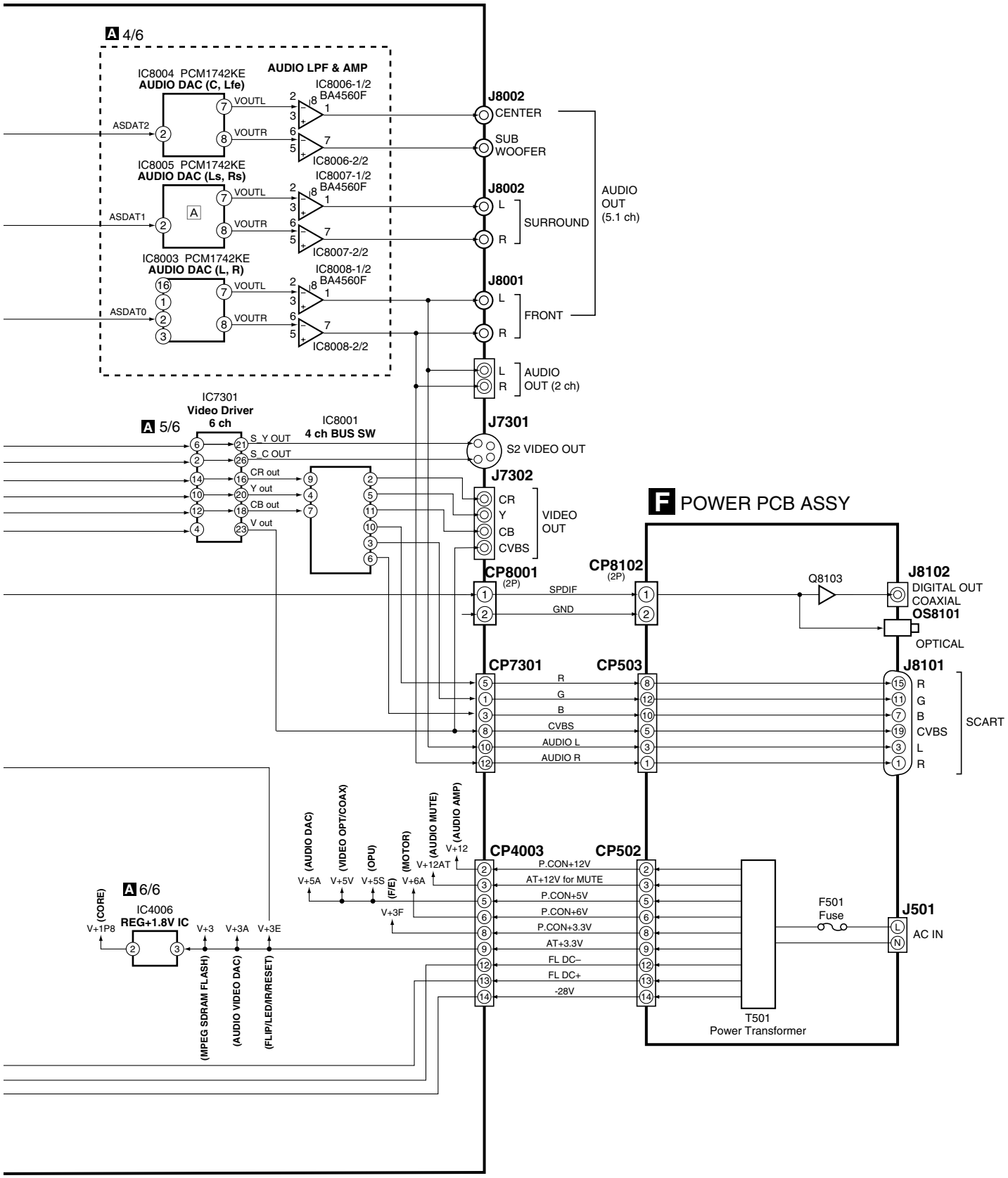
**NOTE:** Applying positions AA, AB and AC for the grease are displayed for this section.
Check if the correct grease is applied for each position.

## 05 DVD MECHA SECTION parts List

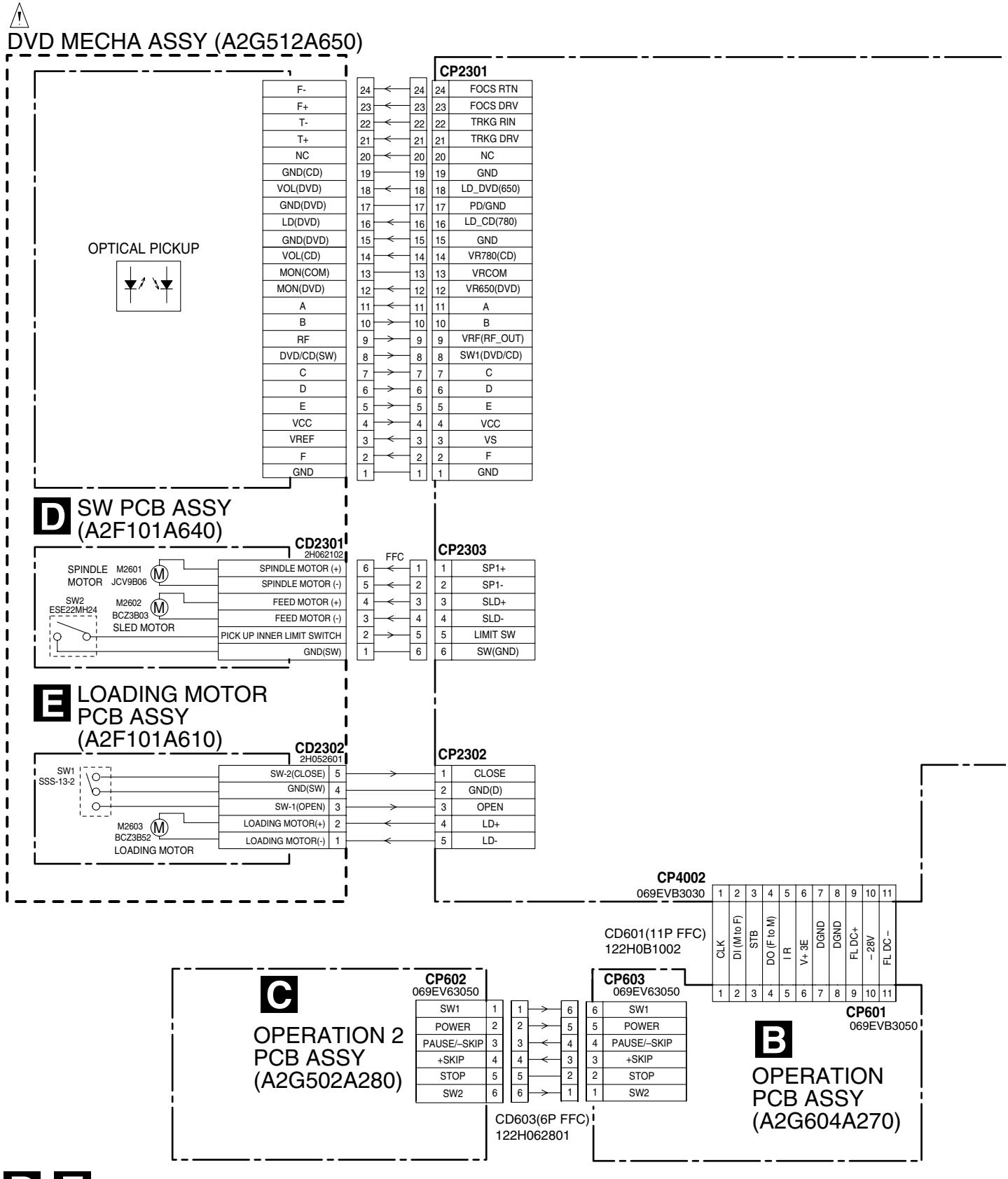
| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Loading Motor PCB Assy | A2F101A610 |
| | 2 | Gear,Middle | 92P100117A |
| ⚠ | 3 | Loading Motor | 1515S98004 |
| | 4 | Pulley,Motor | 92P100097A |
| ⚠ | 5 | FEED Motor | 1515S98004 |
| | 6 | Cord Jumper (24P)(CD2001) | 122H002305 |
| | 7 | Cord Jumper (CD2302) | 122H051602 |
| | 8 | Insulator (F) | 92P200013A |
| | 9 | Belt,Loading | 92P200015A |
| | 10 | Insulator (R) | 92P200016A |
| | 11 | Frame,main | 92P100119A |
| | 12 | Tray (B) | 92P100127A |
| | 13 | Holder ,Traverse | 92P100125A |
| | 14 | Gear,Pulley | 92P100123A |
| | 15 | Gear,Main | 92P100124A |
| | 16 | Gear,Feed | 92P100116A |
| | 17 | SW PCB Assy (PCB640) | A2F101A640 |
| | 18 | Plate,Clamper | 92P000023A |
| NSP | 19 | Loader SUB Assy | 92AAA0019A |
| | 20 | Clamper | 92P100122A |
| | 21 | Screw,Pan (M1.7x3 P3) | 814011730U |
| | 22 | Screw,Pan (M1.7x2.3 P3) | 814011723U |
| | 23 | Rack,Loading | 92P100121A |
| | 24 | Gear,Motor | 92P100088A |
| | 25 | Feed Rack Assy | 92AAA0017A |
| | 26 | Screw,T-Tite(B) (M1.7x5.0 P3) | 813381750U |
| | 27 | Screw,Gear Feed | 92P700007A |
| | 28 | Cord Jumper (CD2301) | 122H061605 |
| | 29 | Switch (SW1) | 0515S32003 |
| | 30 | Push Switch (SW2) | 0500101036 |
| | 31 | Screw,Tap Tite(P) (2.6x8) | 811022680U |
| | 32 | Sems.Tap Tite(P) (2x8) | 816112080U |
| | 33 | Screw (Bind 2x8) | 811022080U |
| ⚠ | 34 | DVD MECHA ASSY | A2G512A650 |
| NSP | 35 | Traverse SUB ASSY | 92AAA0016A |

# 3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM
## 3.1 BLOCK DIAGRAM

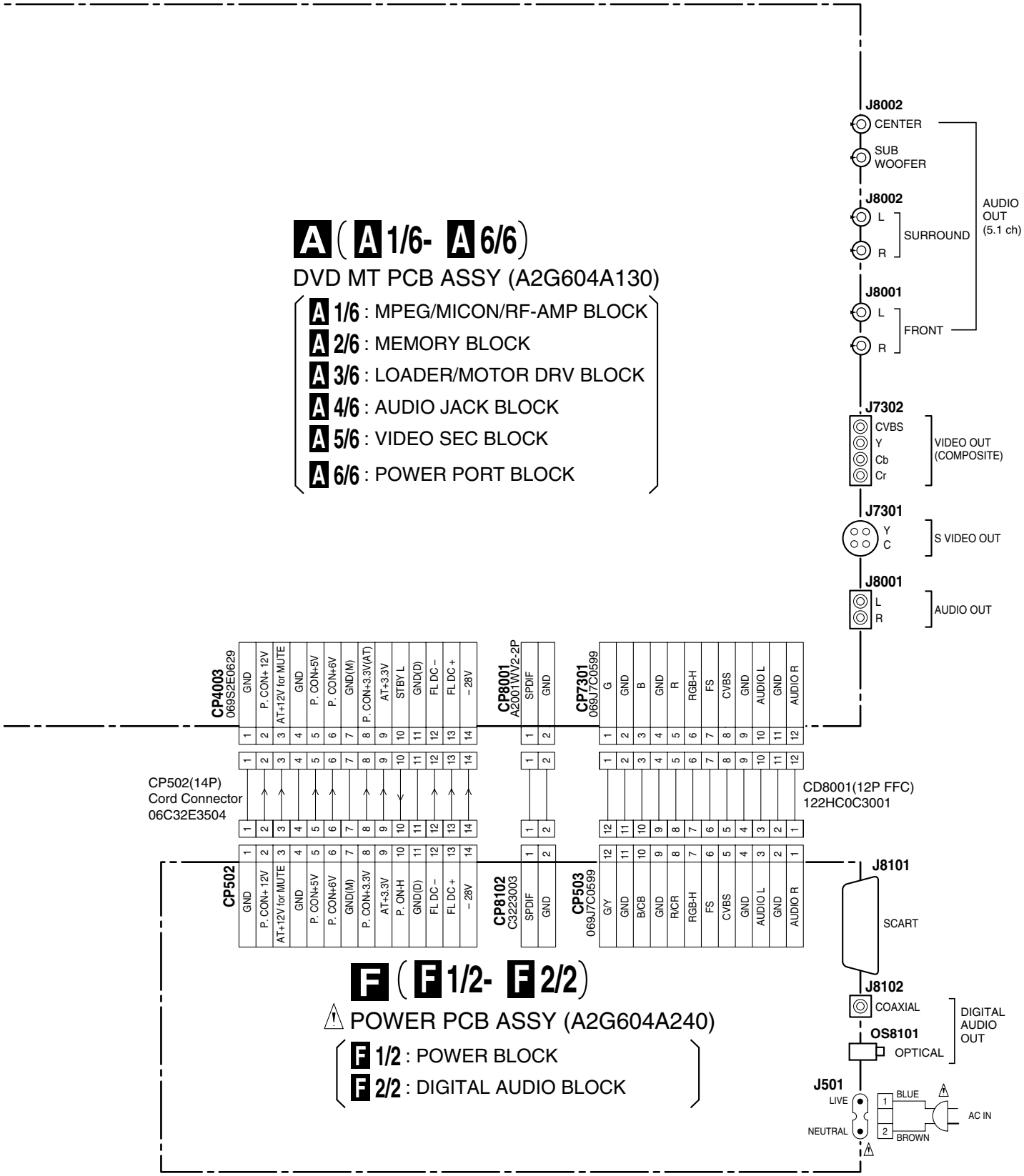



A 4/6
AUDIO LPF & AMP
IC8004 PCM1742KE
AUDIO DAC (C, Lfe)
IC8005 PCM1742KE
AUDIO DAC (Ls, Rs)
IC8003 PCM1742KE
AUDIO DAC (L, R)
VOUTL
VOUTR
ASDAT2
ASDAT1
ASDAT0
IC8006-1/2 BA4560F
IC8006-2/2
IC8007-1/2 BA4560F
IC8007-2/2
IC8008-1/2 BA4560F
IC8008-2/2
J8002
CENTER
SUB WOOFER
J8002
L
R
SURROUND
AUDIO OUT (5.1 ch)
J8001
L
R
FRONT
L
R
AUDIO OUT (2 ch)
IC7301
Video Driver
6 ch
A 5/6
IC8001
4 ch BUS SW
S_Y OUT
S_C OUT
CR out
Y out
CB out
V out
J7301
S2 VIDEO OUT
J7302
CR
Y
CB
CVBS
VIDEO OUT
F POWER PCB ASSY
CP8001
(2P)
SPDIF
GND
CP8102
(2P)
Q8103
J8102
DIGITAL OUT COAXIAL
OS8101
OPTICAL
CP7301
CP503
J8101
R
G
B
CVBS
AUDIO L
AUDIO R
SCART
(AUDIO DAC)
(VIDEO OPT/COAX)
(OPU)
(MOTOR)
(AUDIO MUTE)
(AUDIO AMP)
V+12
V+12AT
V+5A
V+5V
V+5S
(F/E)
V+6A
V+3F
CP4003
CP502
P.CON+12V
AT+12V for MUTE
P.CON+5V
P.CON+6V
P.CON+3.3V
AT+3.3V
FL DC–
FL DC+
-28V
A 6/6
IC4006
REG+1.8V IC
(CORE)
V+1P8
V+3
V+3A
V+3E
(MPEG SDRAM FLASH)
(AUDIO VIDEO DAC)
(FLIP/LED/IR/RESET)
F501
Fuse
J501
AC IN
T501
Power Transformer

# 3.2 OVERALL WIRING CONNECTION DIAGRAM



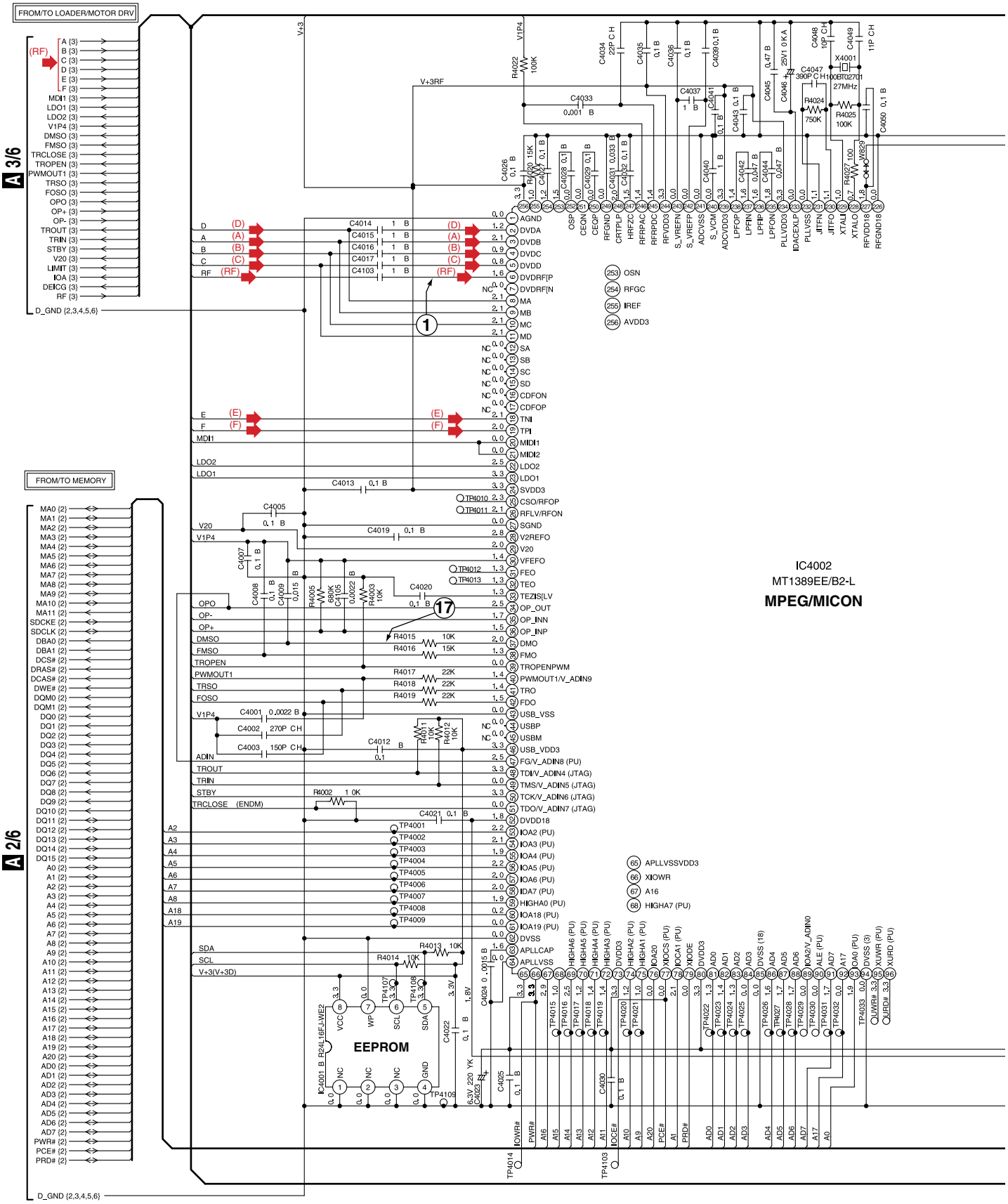
- When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- : The power supply is shown with the marked box.

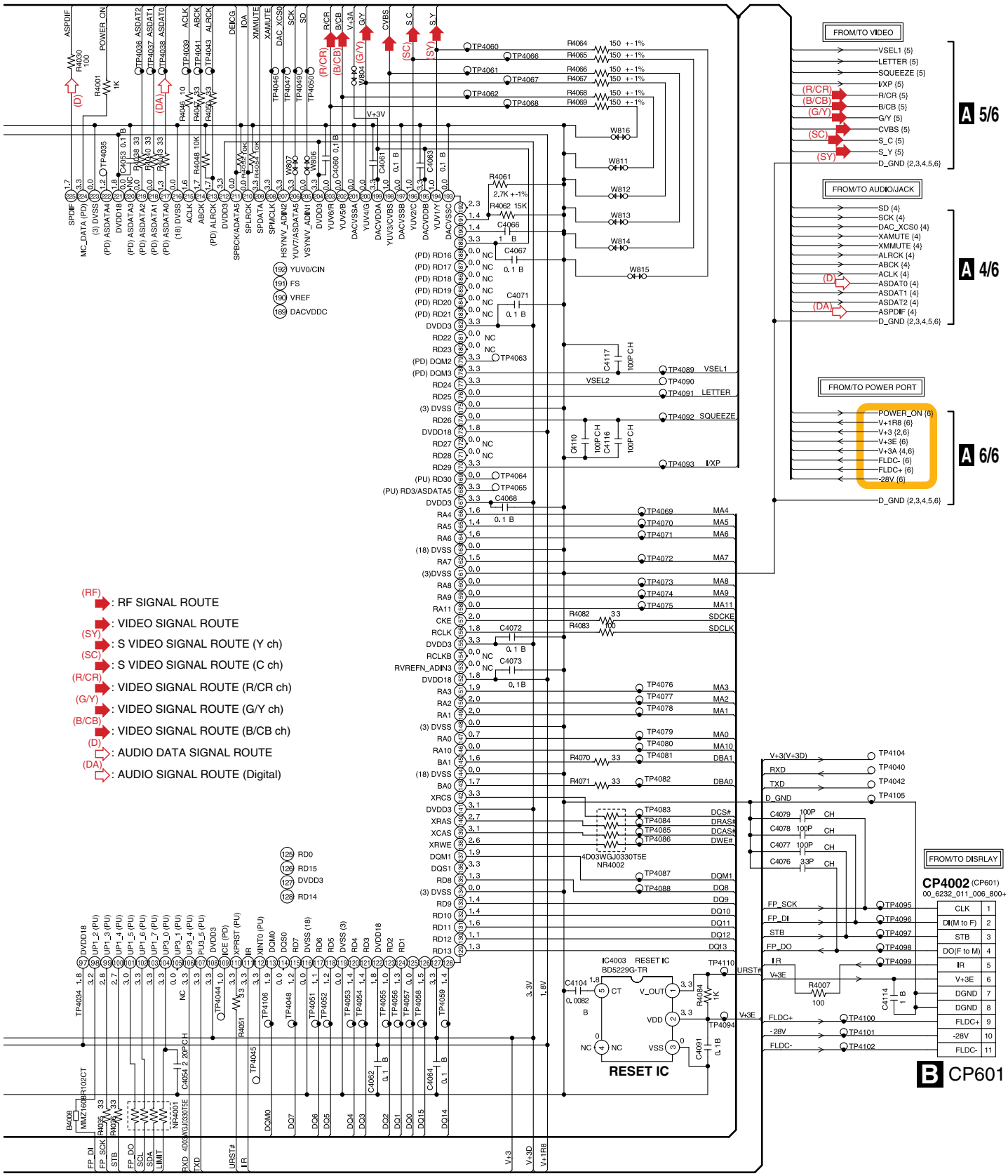


# 3.3 DVD MT PCB (1/6) ASSY

## A 1/6 DVD MT PCB ASSY (A2G604A130)

● **MPEG/MICON/RF-AMP BLOCK**

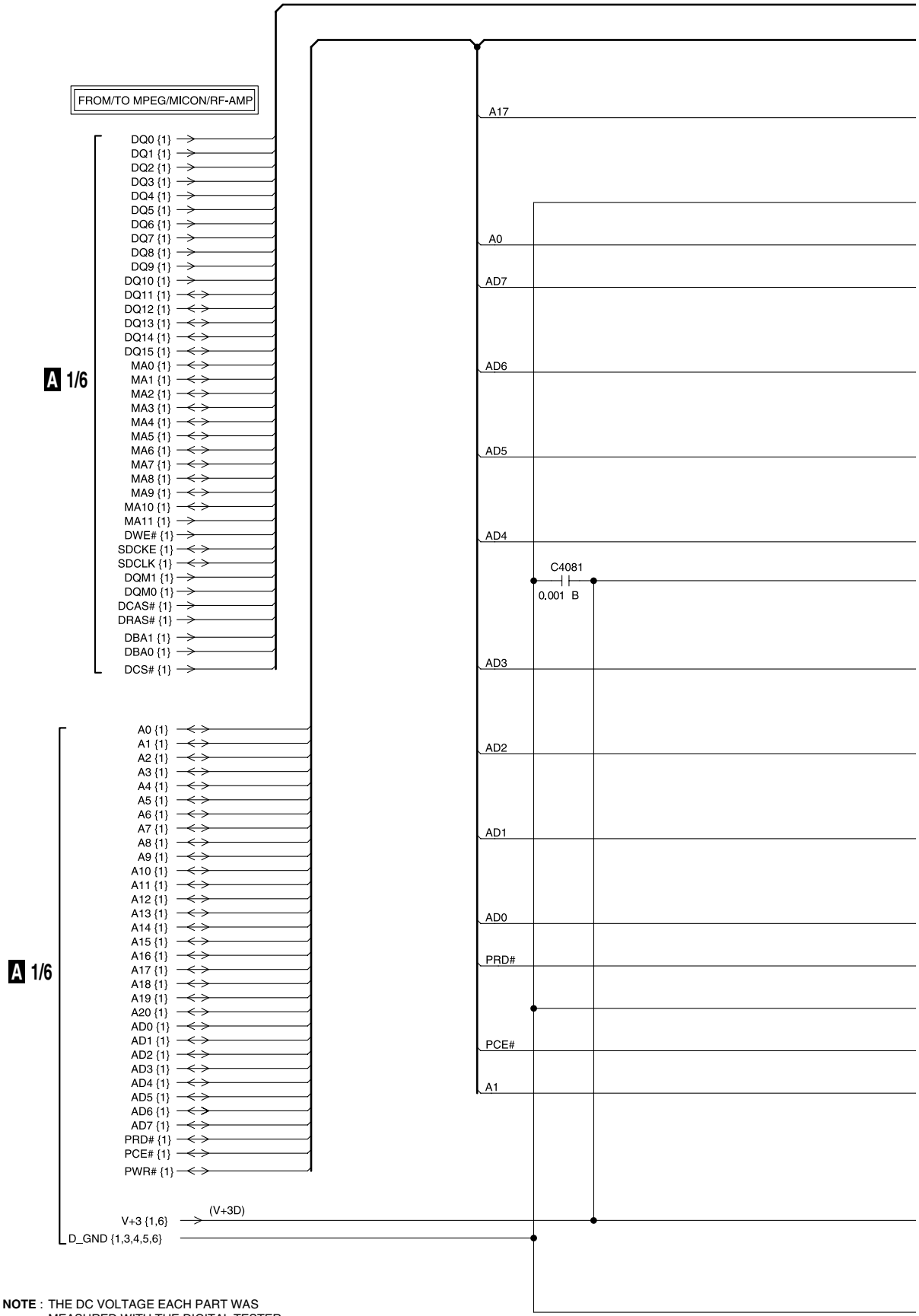



(RF): RF SIGNAL ROUTE
: VIDEO SIGNAL ROUTE
(SY): S VIDEO SIGNAL ROUTE (Y ch)
(SC): S VIDEO SIGNAL ROUTE (C ch)
(R/CR): VIDEO SIGNAL ROUTE (R/CR ch)
(G/Y): VIDEO SIGNAL ROUTE (G/Y ch)
(B/CB): VIDEO SIGNAL ROUTE (B/CB ch)
(D): AUDIO DATA SIGNAL ROUTE
(DA): AUDIO SIGNAL ROUTE (Digital)
FROM/TO VIDEO
FROM/TO AUDIO/JACK
FROM/TO POWER PORT
FROM/TO DISRLAY
A 5/6
A 4/6
A 6/6
B CP601
CP4002 (CP601)
RESET IC
A 1/6

# 3.4 DVD MT PCB (2/6) ASSY

## A 2/6 DVD MT PCB ASSY (A2G604A130)

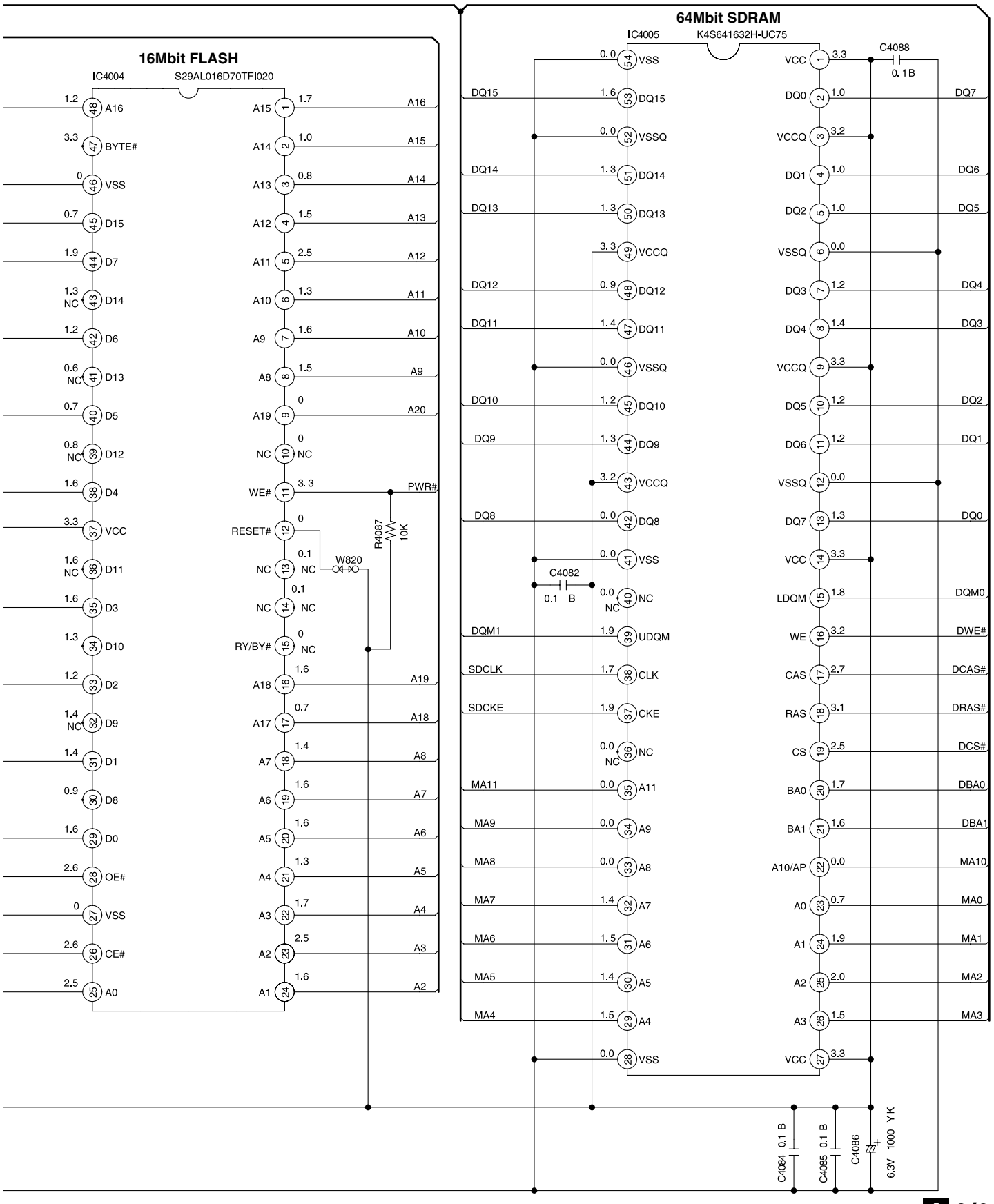
● **MEMORY BLOCK**




**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

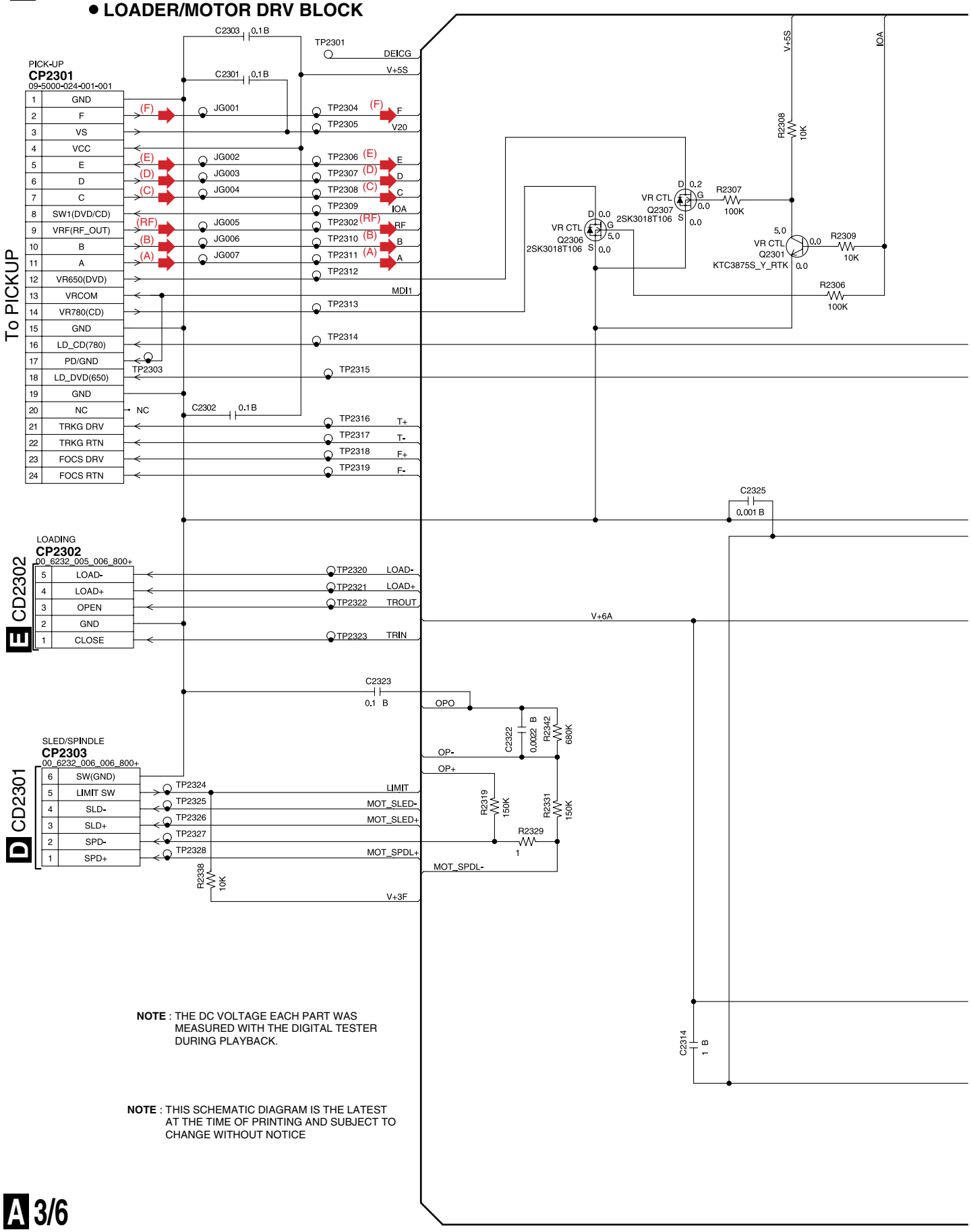
A 2/6


16Mbit FLASH
IC4004
S29AL016D70TFI020
64Mbit SDRAM
IC4005
K4S641632H-UC75
C4088
0.1B
C4082
0.1 B
R4087
10K
W820
C4084 0.1 B
C4085 0.1 B
C4086
6.3V 1000 Y K

# 3.5 DVD MT PCB (3/6) ASSY

## A 3/6 DVD MT PCB ASSY (A2G604A130)

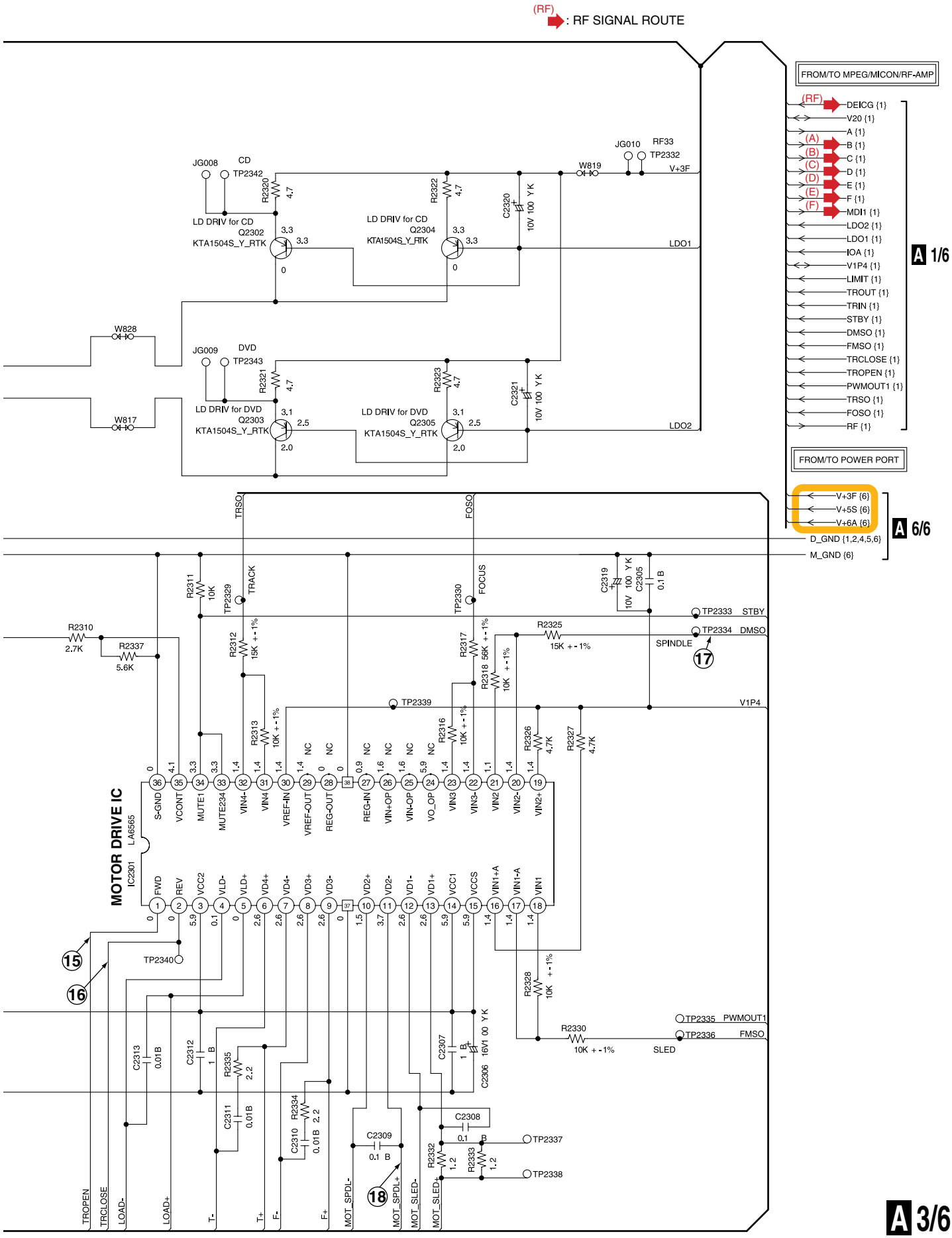
● **LOADER/MOTOR DRV BLOCK**




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

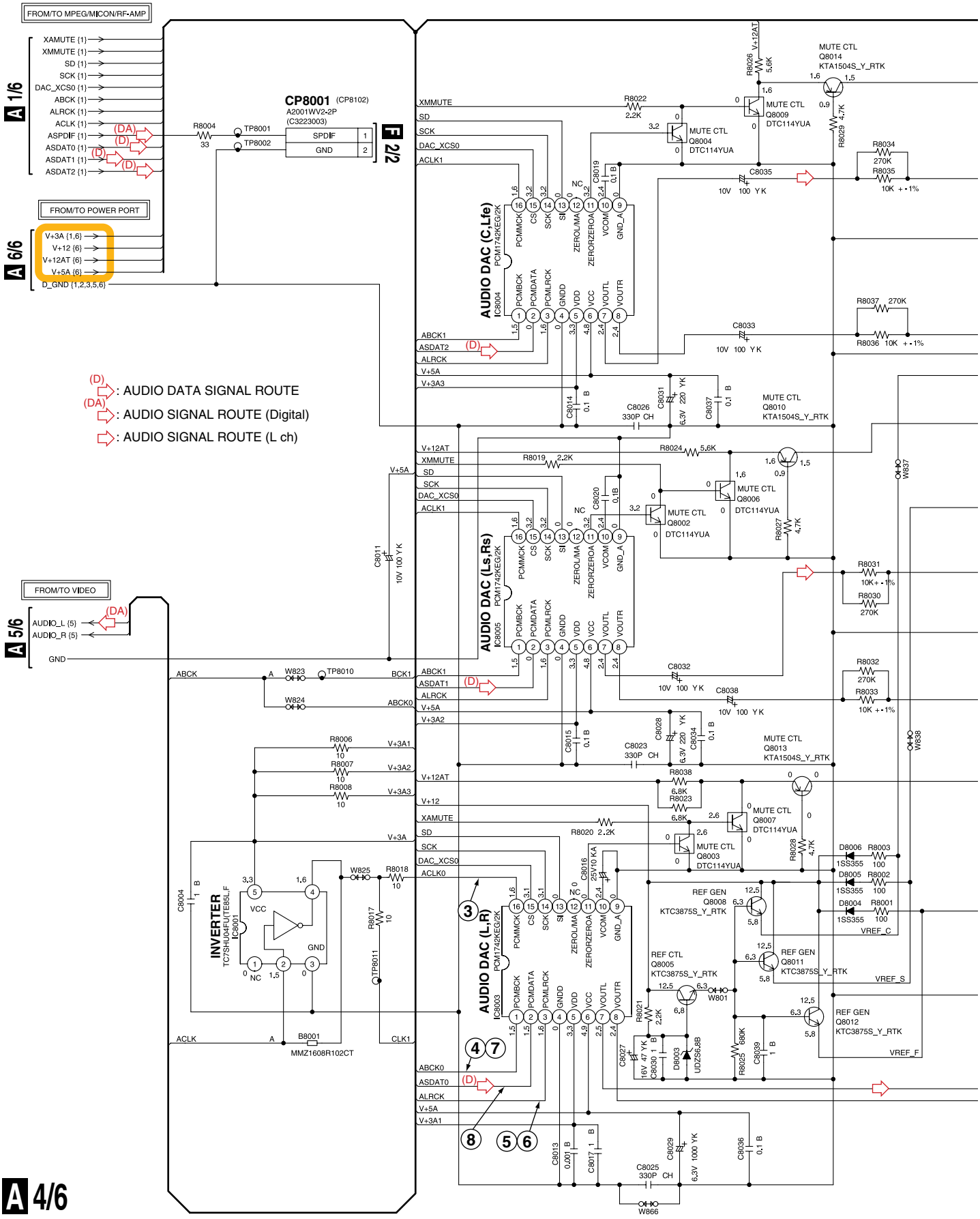
**NOTE** : THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

A 3/6


(RF) : RF SIGNAL ROUTE
FROM/TO MPEG/MICON/RF-AMP
(RF) DEICG {1}
V20 {1}
A {1}
(A) B {1}
(B) C {1}
(C) D {1}
(D) E {1}
(E) F {1}
(F) MDI1 {1}
LDO2 {1}
LDO1 {1}
IOA {1}
V1P4 {1}
LIMIT {1}
TROUT {1}
TRIN {1}
STBY {1}
DMSO {1}
FMSO {1}
TRCLOSE {1}
TROPEN {1}
PWMOUT1 {1}
TRSO {1}
FOSO {1}
RF {1}
A 1/6
FROM/TO POWER PORT
V+3F {6}
V+5S {6}
V+6A {6}
A 6/6
D_GND {1,2,4,5,6}
M_GND {6}
JG008 CD TP2342
JG010 RF33 TP2332
W819
V+3F
R2320 4.7
R2322 4.7
C2320 10V 100 Y K
LD DRIV for CD
Q2302 KTA1504S_Y_RTK
Q2304 KTA1504S_Y_RTK
LDO1
W828
W817
JG009 DVD TP2343
R2321 4.7
R2323 4.7
C2321 10V 100 Y K
LD DRIV for DVD
Q2303 KTA1504S_Y_RTK
Q2305 KTA1504S_Y_RTK
LDO2
TRSO
FOSO
R2311 10K
TP2329 TRACK
TP2330 FOCUS
C2319 10V 100 Y K
C2305 0.1 B
TP2333 STBY
TP2334 DMSO
SPINDLE
17
R2310 2.7K
R2337 5.6K
R2312 15K +-1%
R2317 56K +-1%
R2325 15K +-1%
R2318 10K +-1%
TP2339
V1P4
R2313 10K +-1%
R2316 10K +-1%
R2326 4.7K
R2327 4.7K
MOTOR DRIVE IC
IC2301 LA6565
S-GND VCONT MUTE1 MUTE234 VIN4- VIN4 VREF-IN VREF-OUT REG-OUT REG-IN VIN+OP VIN-OP VO_OP VIN3 VIN3- VIN2 VIN2- VIN2+
FWD REV VCC2 VLD- VLD+ VD4+ VD4- VD3+ VD3- VD2+ VD2- VD1- VD1+ VCC1 VCCS VIN1+A VIN1-A VIN1
15
16
TP2340
R2328 10K +-1%
TP2335 PWMOUT1
TP2336 FMSO
R2330 10K +-1%
SLED
C2313 0.01B
C2312 1 B
R2335 2.2
C2307 1 B 16V 100 Y K
C2306
C2311 0.01B
R2334 2.2
C2310 0.01B
C2308 0.1 B
TP2337
C2309 0.1 B
R2332 1.2
R2333 1.2
TP2338
18
TROPEN
TRCLOSE
LOAD-
LOAD+
T-
T+
F-
F+
MOT_SPDL-
MOT_SPDL+
MOT_SLED-
MOT_SLED+
A 3/6

# A 4/6 DVD MT PCB ASSY (A2G604A130)

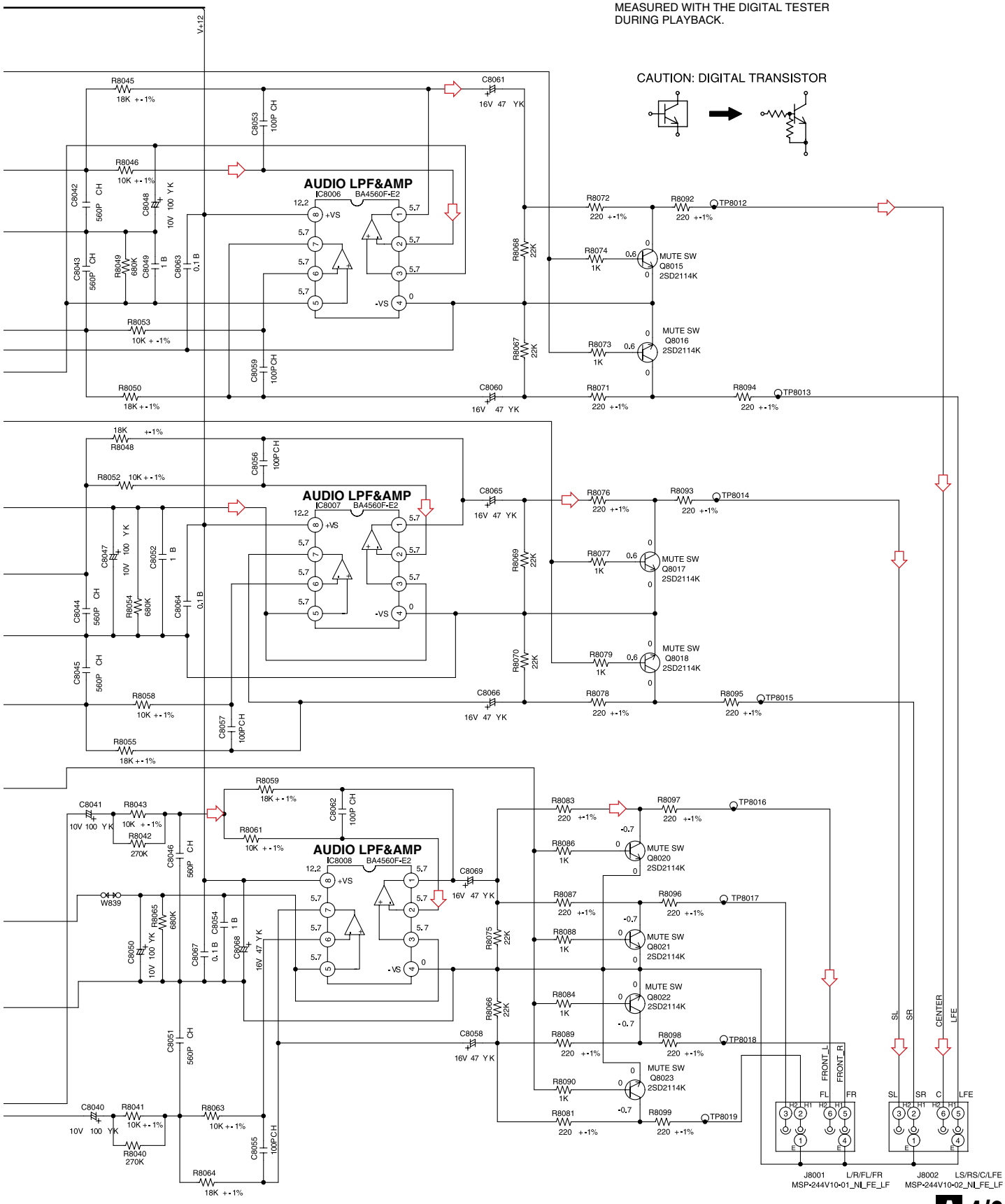
## ● AUDIO JACK BLOCK



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

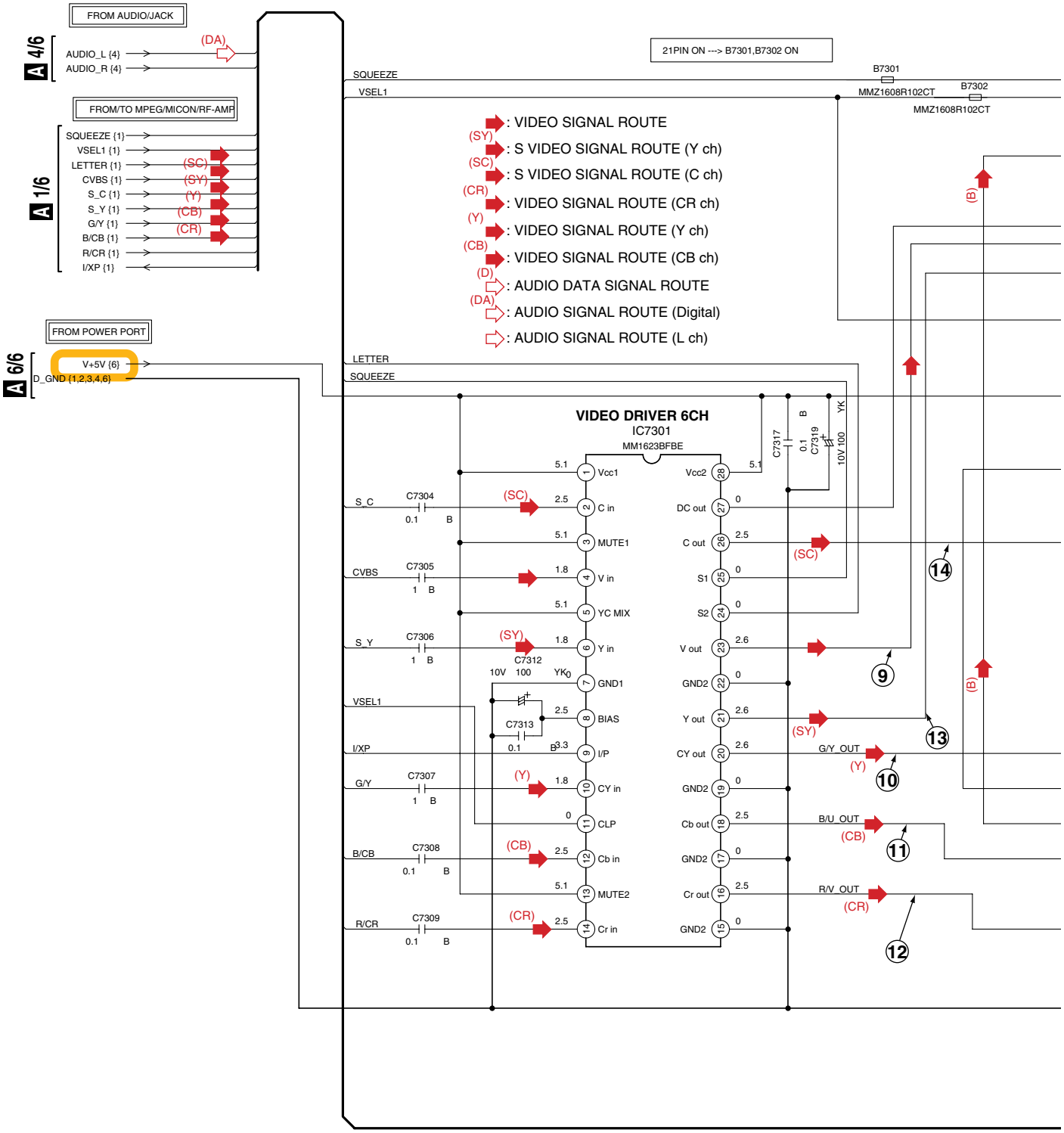
CAUTION: DIGITAL TRANSISTOR

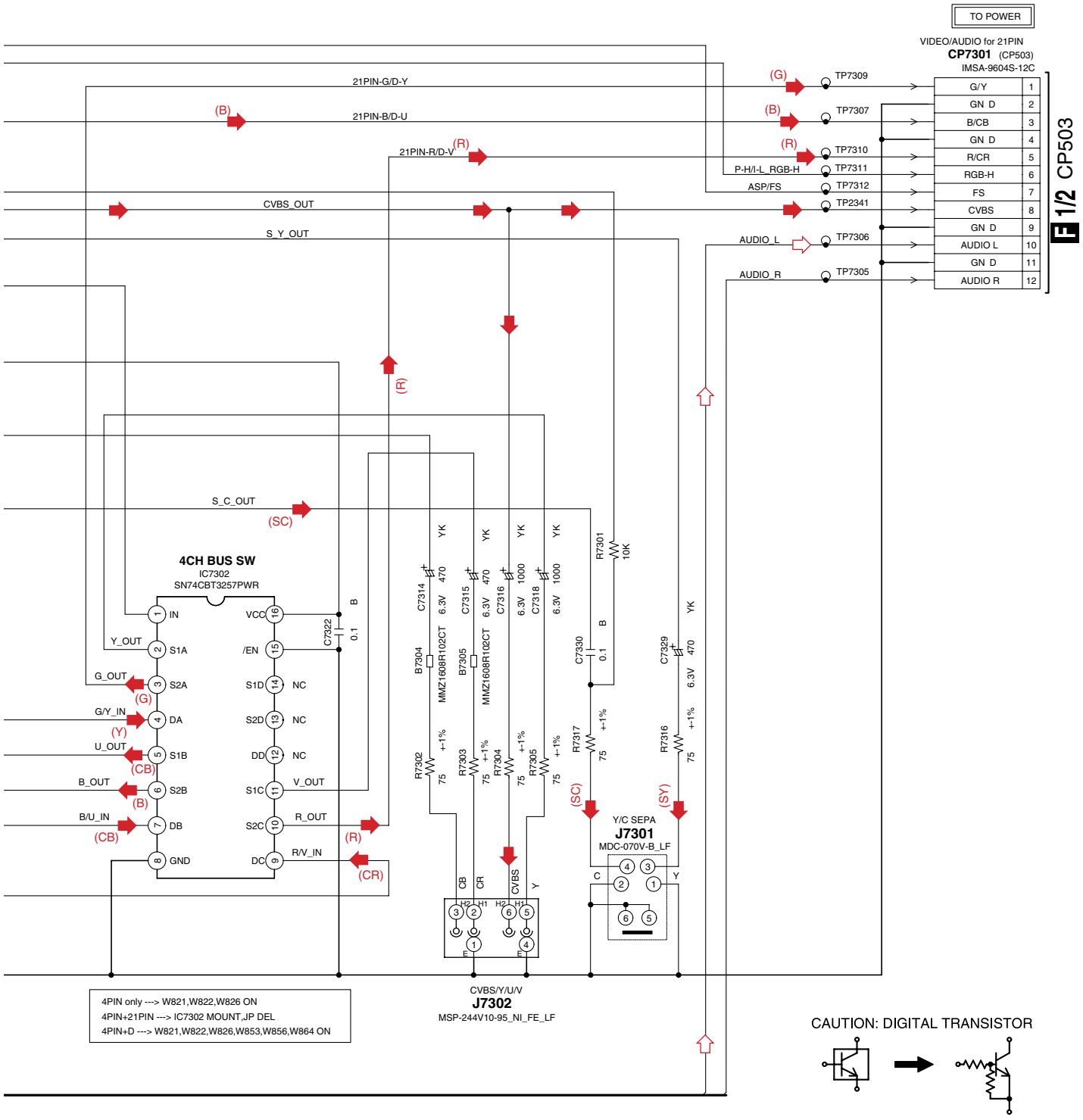




## A 5/6 DVD MT PCB ASSY (A2G604A130)

● **VIDEO SEC BLOCK**



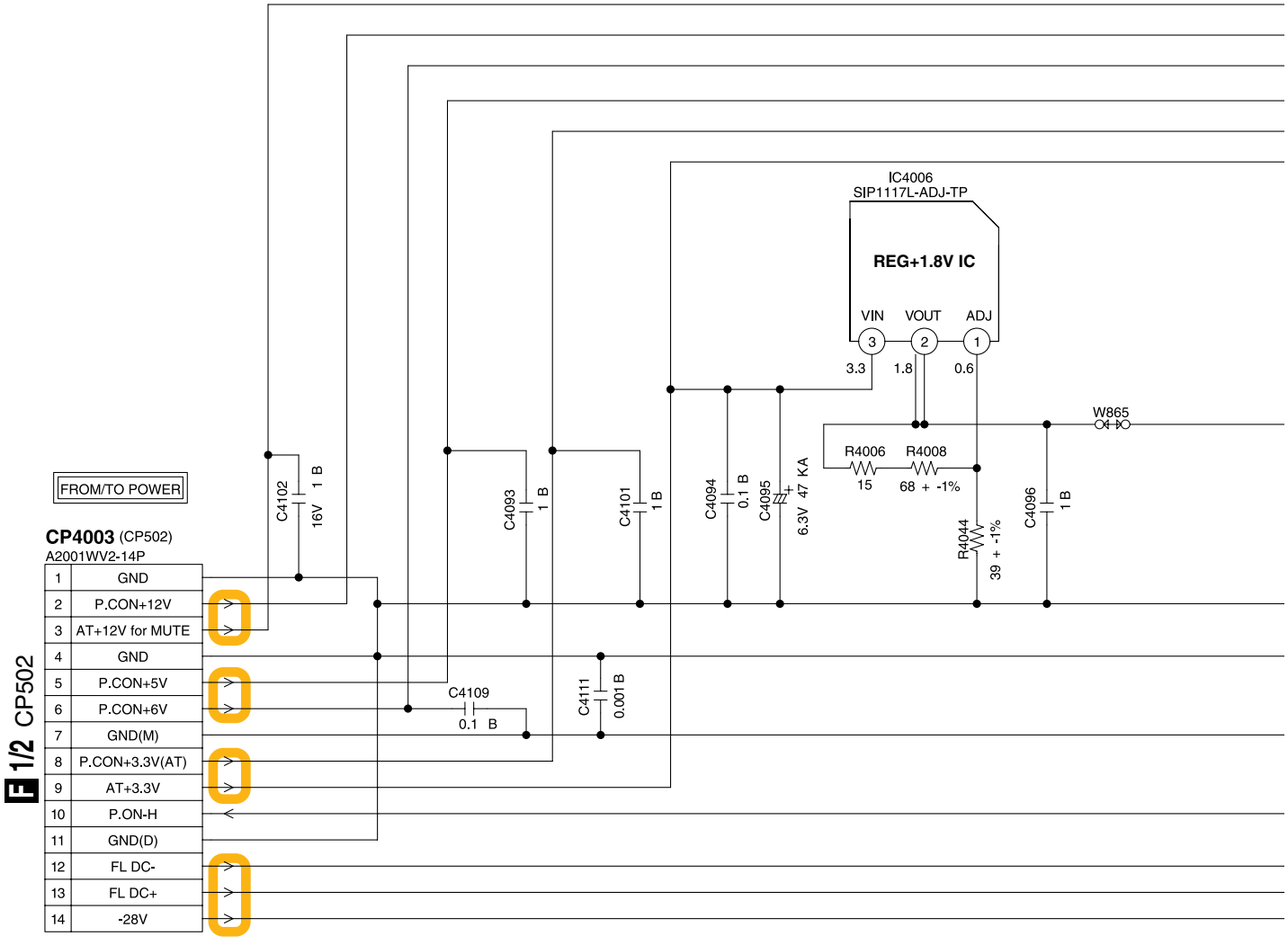


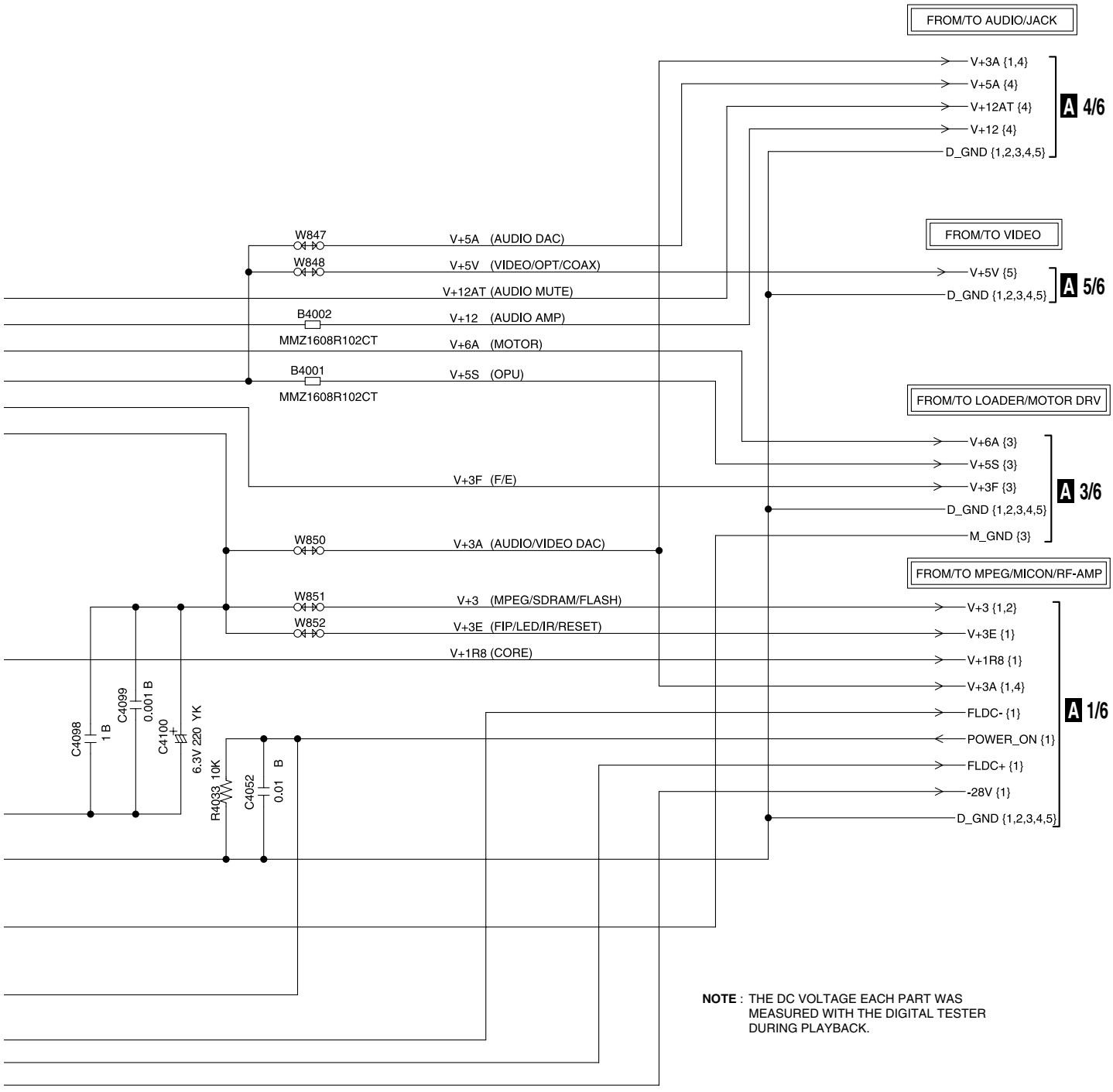

**NOTE** : THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

# 3.8 DVD MT PCB (6/6) ASSY

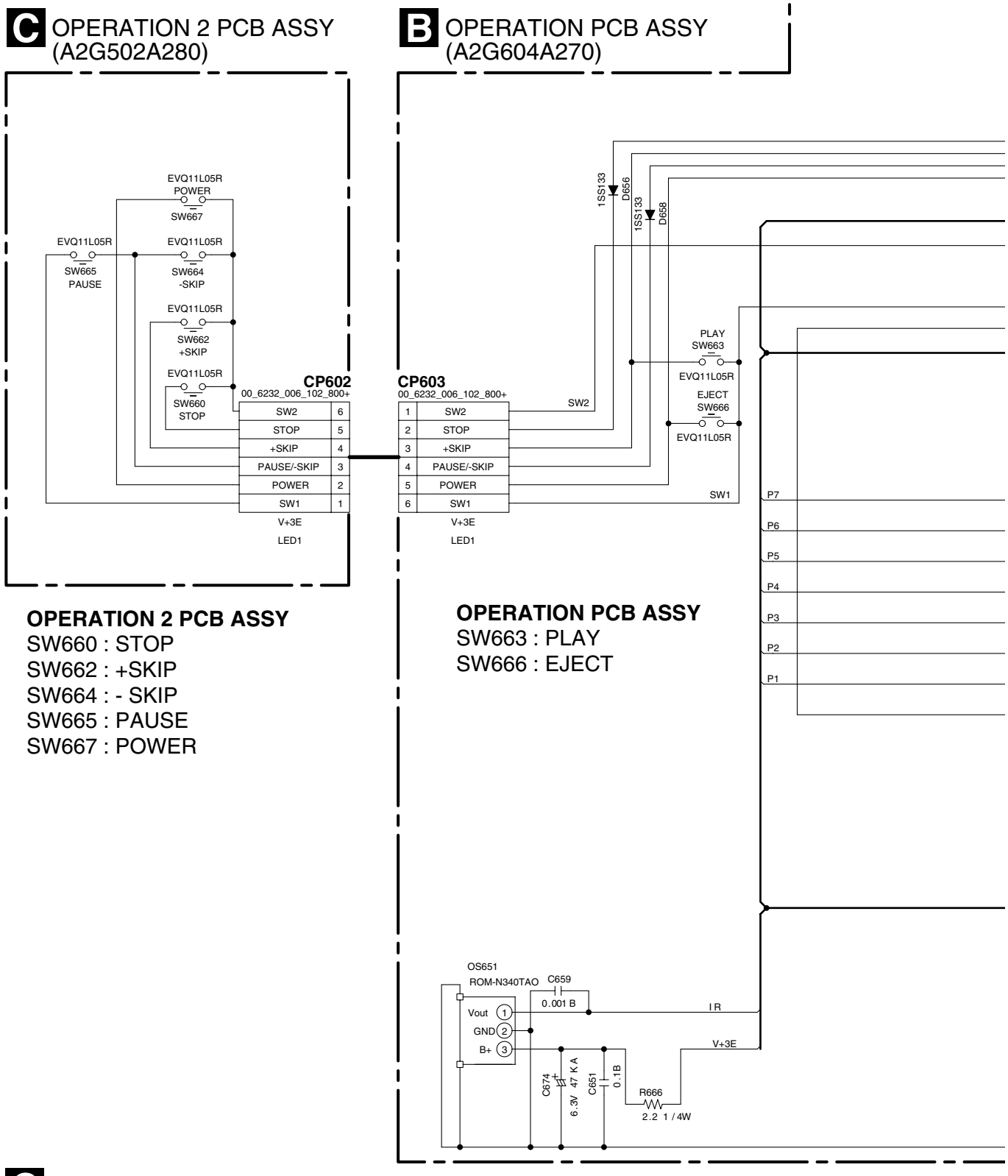
## A 6/6 DVD MT PCB ASSY (A2G604A130)

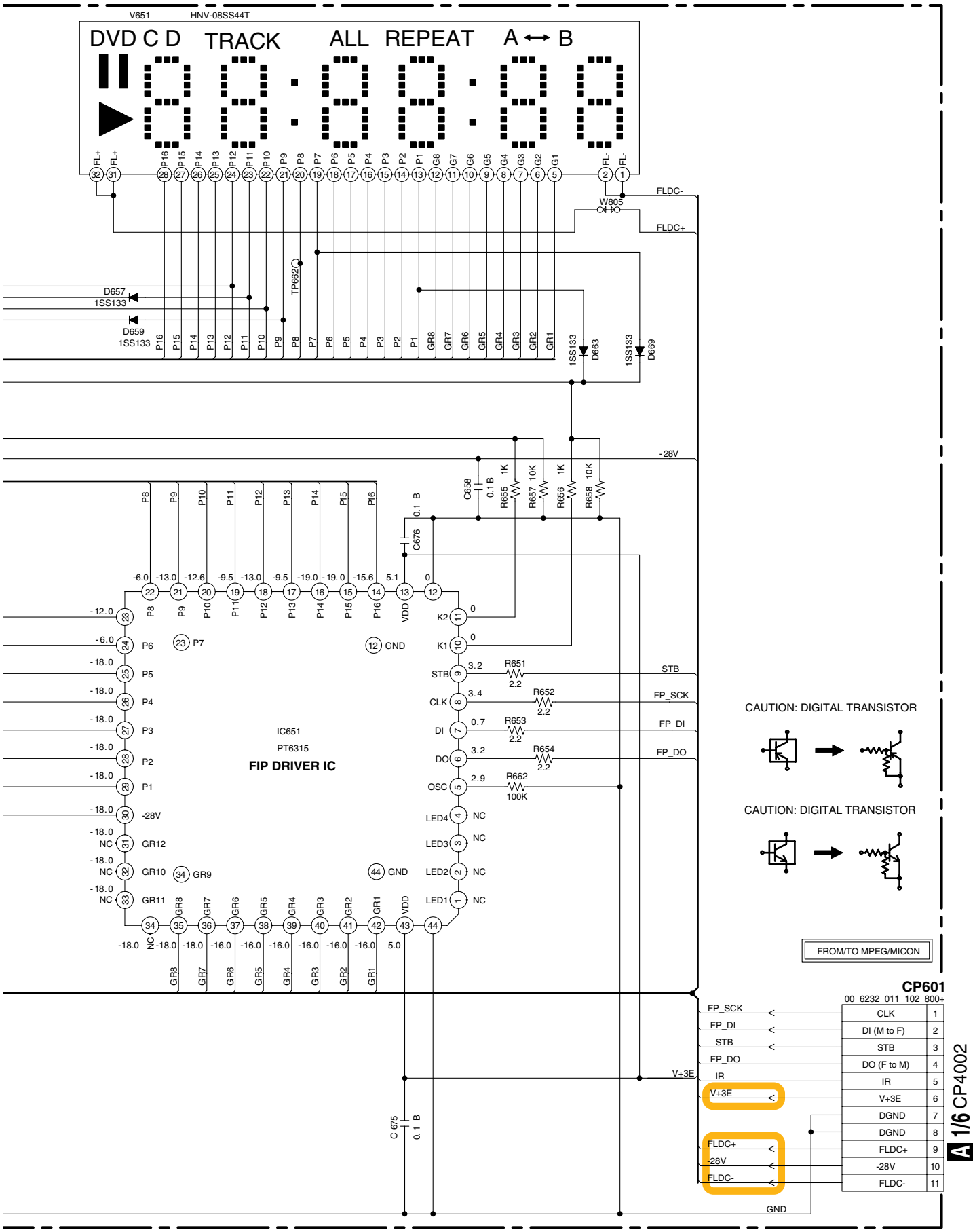
- **POWER PORT BLOCK**




FROM/TO AUDIO/JACK
V+3A {1,4}
V+5A {4}
V+12AT {4}
V+12 {4}
D_GND {1,2,3,4,5}
A 4/6
FROM/TO VIDEO
V+5V {5}
D_GND {1,2,3,4,5}
A 5/6
FROM/TO LOADER/MOTOR DRV
V+6A {3}
V+5S {3}
V+3F {3}
D_GND {1,2,3,4,5}
M_GND {3}
A 3/6
FROM/TO MPEG/MICON/RF-AMP
V+3 {1,2}
V+3E {1}
V+1R8 {1}
V+3A {1,4}
FLDC- {1}
POWER_ON {1}
FLDC+ {1}
-28V {1}
D_GND {1,2,3,4,5}
A 1/6
W847
V+5A (AUDIO DAC)
W848
V+5V (VIDEO/OPT/COAX)
V+12AT (AUDIO MUTE)
B4002
V+12 (AUDIO AMP)
MMZ1608R102CT
V+6A (MOTOR)
B4001
V+5S (OPU)
MMZ1608R102CT
V+3F (F/E)
W850
V+3A (AUDIO/VIDEO DAC)
W851
V+3 (MPEG/SDRAM/FLASH)
W852
V+3E (FIP/LED/IR/RESET)
V+1R8 (CORE)
C4098
1 B
C4099
0.001 B
C4100
6.3V 220 YK
R4033 10K
C4052
0.01 B
NOTE : THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

# 3.9 OPERATION and OPERATION 2 PCB ASSYS

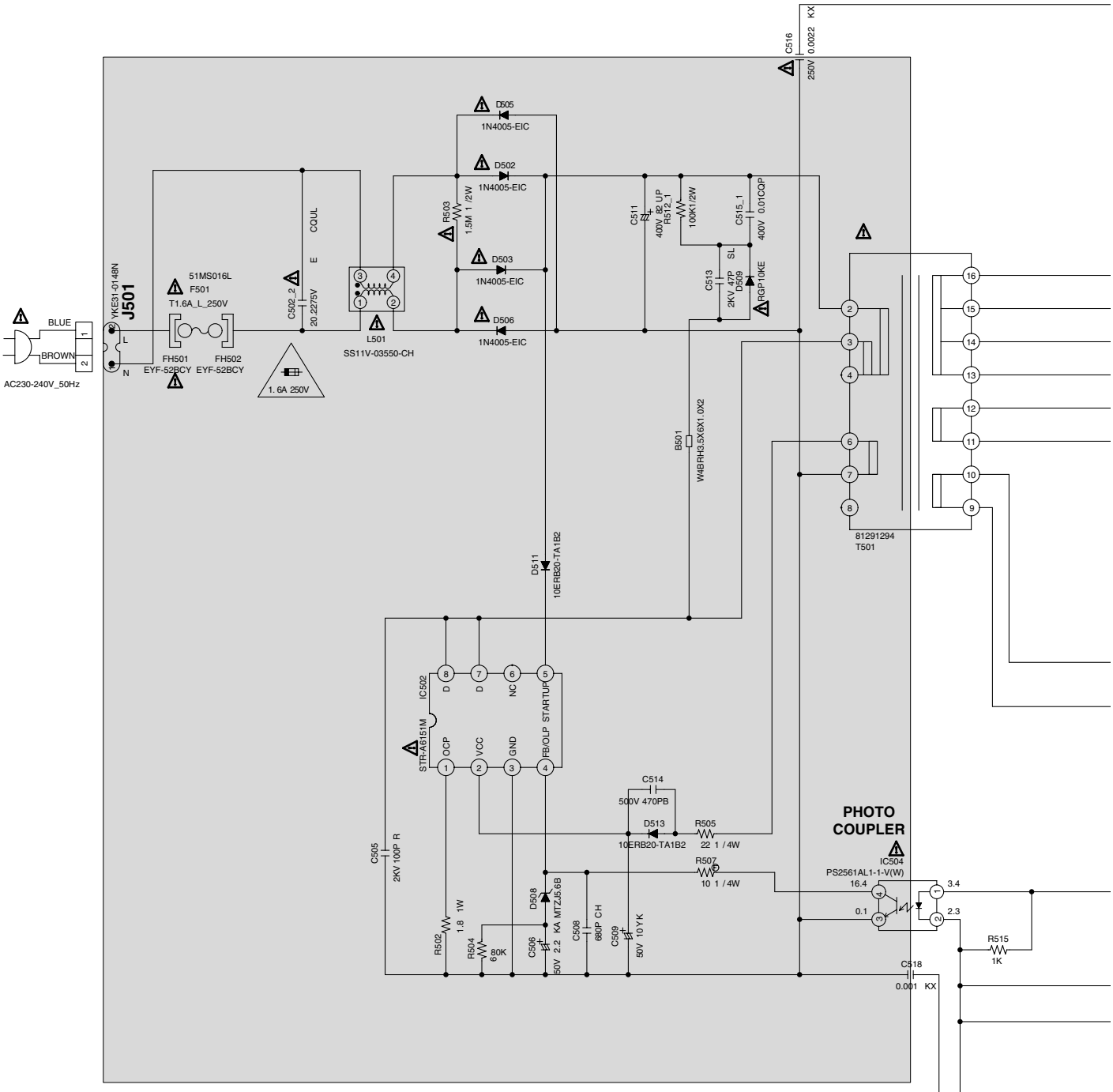



V651 HNV-08SS44T
DVD C D TRACK ALL REPEAT A ↔ B
FL+ FL+ P16 P15 P14 P13 P12 P11 P10 P9 P8 P7 P6 P5 P4 P3 P2 P1 G8 G7 G6 G5 G4 G3 G2 G1 FL- FL-
FLDC-
W805
FLDC+
TP662
D657 1SS133
D659 1SS133
D663 1SS133
D669 1SS133
-28V
C658 0.1 B
R655 1K
R657 10K
R656 1K
R658 10K
C676 0.1 B
IC651
PT6315
FIP DRIVER IC
STB
FP_SCK
FP_DI
FP_DO
R651 2.2
R652 2.2
R653 2.2
R654 2.2
R662 100K
CAUTION: DIGITAL TRANSISTOR
CAUTION: DIGITAL TRANSISTOR
FROM/TO MPEG/MICON
CP601
00_6232_011_102_800+
CLK 1
DI (M to F) 2
STB 3
DO (F to M) 4
IR 5
V+3E 6
DGND 7
DGND 8
FLDC+ 9
-28V 10
FLDC- 11
V+3E
GND
C 675 0.1 B

# 3.10 POWER PCB (1/2) ASSY

## F 1/2 POWER PCB ASSY (A2G604A240)

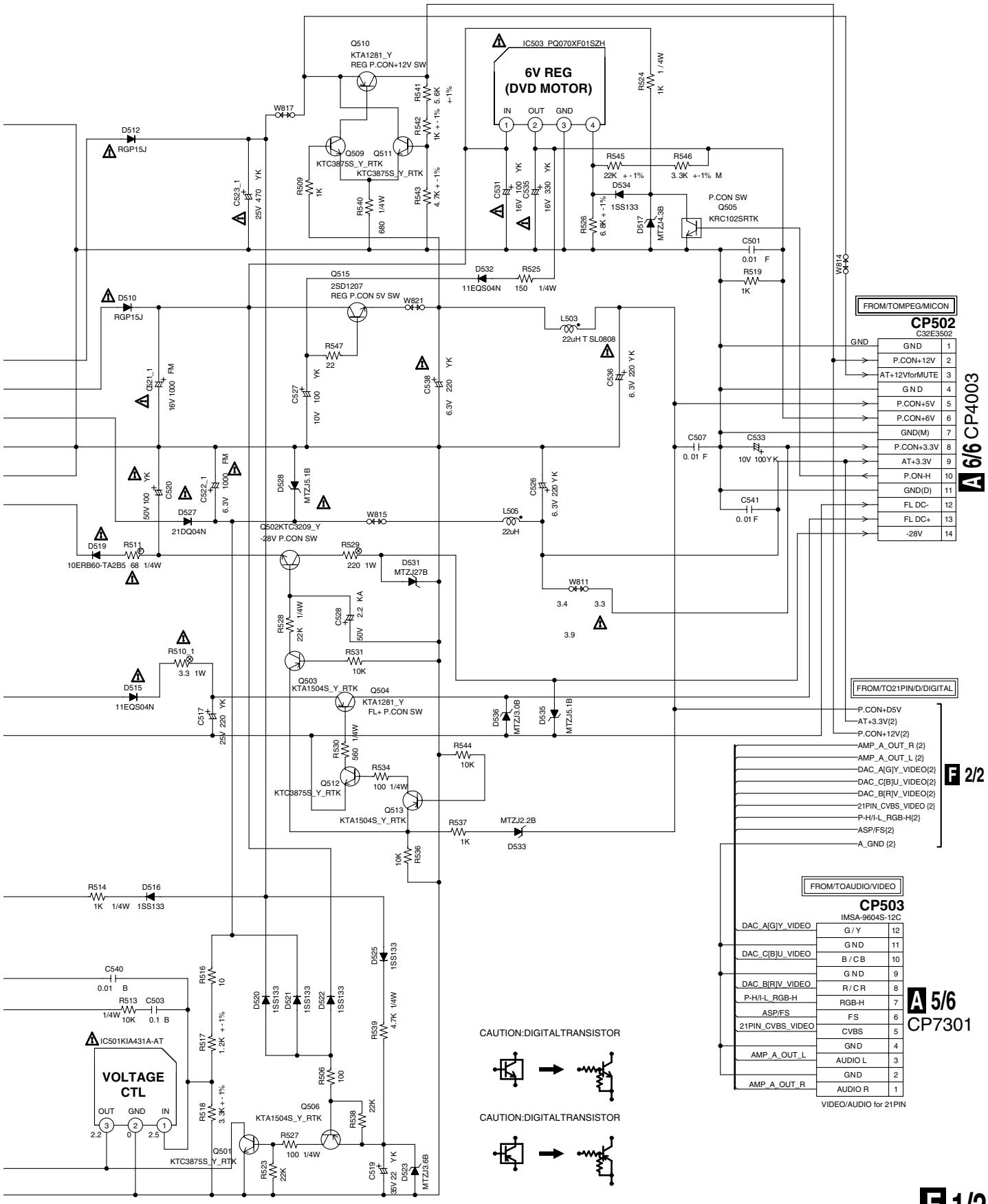
- **POWER BLOCK**




- NOTE FOR FUSE REPLACEMENT

**CAUTION -** FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE WITH SAME TYPE AND RATINGS OF FUSE.

F 1/2

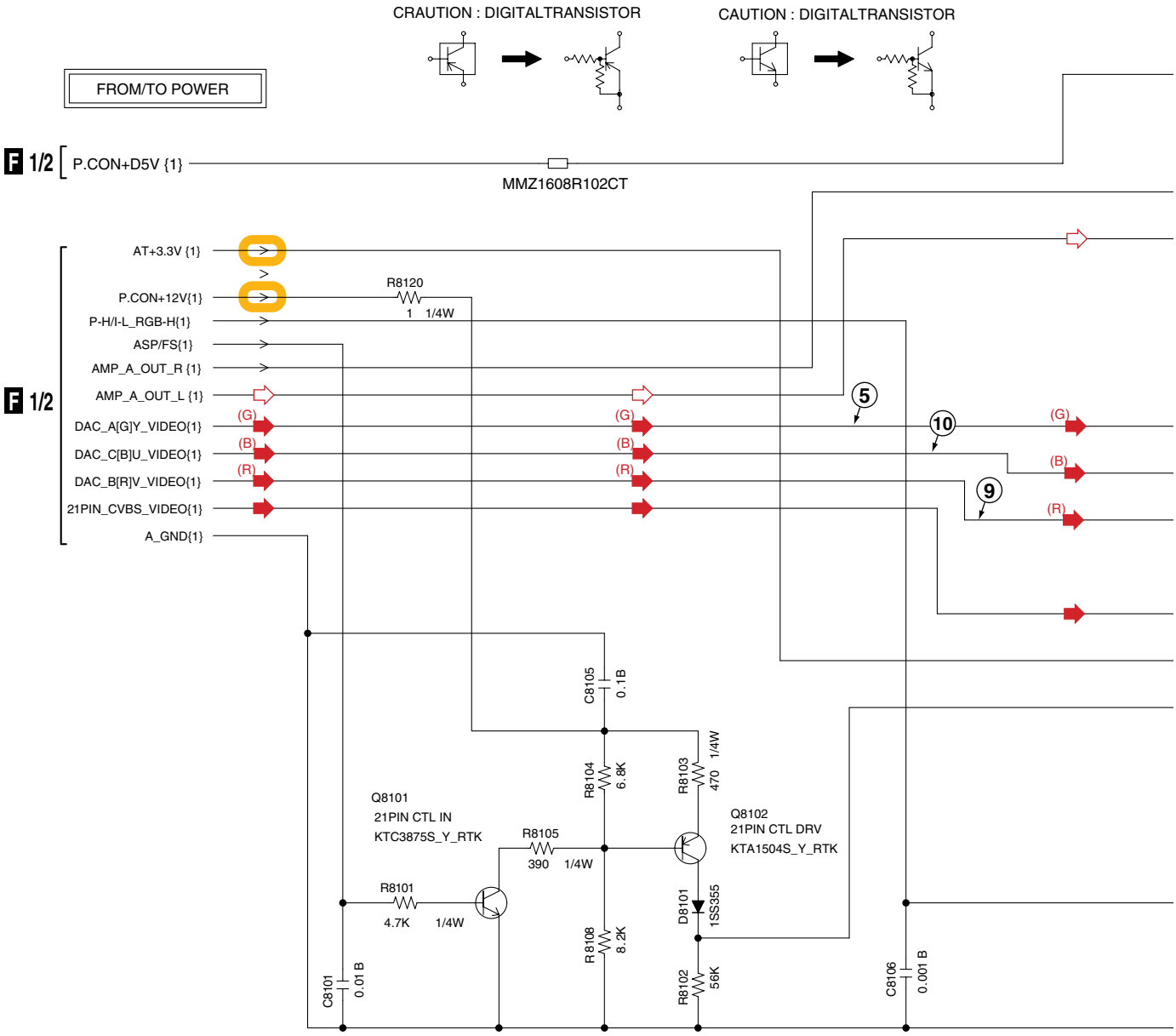

6V REG
(DVD MOTOR)
IC503 PQ070XF01SZH
IN OUT GND
Q510
KTA1281_Y
REG P.CON+12V SW
Q515
2SD1207
REG P.CON 5V SW
Q502KTC3209_Y
-28V P.CON SW
Q503
KTA1504S_Y_RTK
Q504
KTA1281_Y
FL+ P.CON SW
Q506
KTA1504S_Y_RTK
Q509 Q511
KTC3875S_Y_RTK
KTC3875S_Y_RTK
Q512
KTC3875S_Y_RTK
Q513
KTA1504S_Y_RTK
Q501
KTC3875S_Y_RTK
P.CON SW
Q505
KRC102SRTK
IC501KIA431A-AT
VOLTAGE
CTL
OUT GND IN
CAUTION:DIGITALTRANSISTOR
CAUTION:DIGITALTRANSISTOR
FROM/TOMPEG/MICON
CP502
C32E3502
GND 1
P.CON+12V 2
AT+12VforMUTE 3
GND 4
P.CON+5V 5
P.CON+6V 6
GND(M) 7
P.CON+3.3V 8
AT+3.3V 9
P.ON-H 10
GND(D) 11
FL DC- 12
FL DC+ 13
-28V 14
A 6/6 CP4003
FROM/TO21PIN/D/DIGITAL
P.CON+D5V
AT+3.3V{2}
P.CON+12V{2}
AMP_A_OUT_R {2}
AMP_A_OUT_L {2}
DAC_A[G]Y_VIDEO{2}
DAC_C[B]U_VIDEO{2}
DAC_B[R]V_VIDEO{2}
21PIN_CVBS_VIDEO {2}
P-H/I-L_RGB-H{2}
ASP/FS{2}
A_GND {2}
F 2/2
FROM/TOAUDIO/VIDEO
CP503
IMSA-9604S-12C
DAC_A[G]Y_VIDEO G / Y 12
GND 11
DAC_C[B]U_VIDEO B / C B 10
GND 9
DAC_B[R]V_VIDEO R / C R 8
P-H/I-L_RGB-H RGB-H 7
ASP/FS FS 6
21PIN_CVBS_VIDEO CVBS 5
GND 4
AMP_A_OUT_L AUDIO L 3
GND 2
AMP_A_OUT_R AUDIO R 1
VIDEO/AUDIO for 21PIN
A 5/6
CP7301
F 1/2

# 3.11 POWER PCB (2/2) ASSY

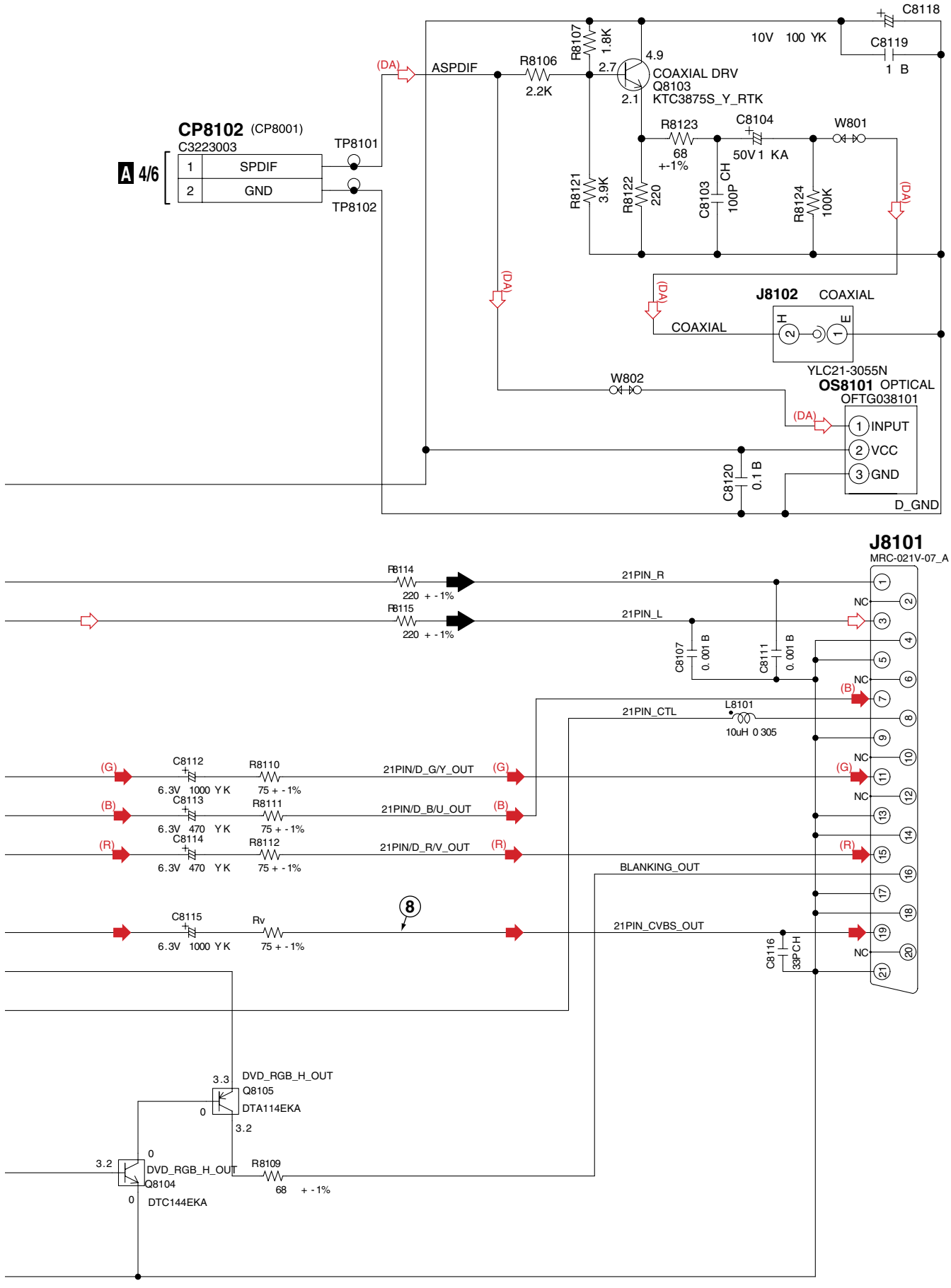
## F 2/2 POWER PCB ASSY (A2G604A240)

● **21PIN/D/DIGTAL AUDIO BLOCK**

: VIDEO SIGNAL ROUTE
(R) : VIDEO SIGNAL ROUTE (R ch)
(G) : VIDEO SIGNAL ROUTE (G ch)
(B) : VIDEO SIGNAL ROUTE (B ch)
: AUDIO SIGNAL ROUTE (L ch)
(DA) : AUDIO SIGNAL ROUTE (Digital)




F 2/2


CP8102 (CP8001)
C3223003
A 4/6
1 SPDIF
2 GND
TP8101
TP8102
(DA)
ASPDIF
R8106 2.2K
R8107 1.8K
2.7
4.9
2.1
COAXIAL DRV
Q8103
KTC3875S_Y_RTK
C8118
10V 100 YK
C8119
1 B
R8123 68 +-1%
C8104 50V 1 KA
W801
R8121 3.9K
R8122 220
C8103 100P CH
R8124 100K
J8102 COAXIAL
COAXIAL
H
E
YLC21-3055N
W802
OS8101 OPTICAL
OFTG038101
1 INPUT
2 VCC
3 GND
C8120 0.1 B
D_GND
J8101
MRC-021V-07_A
R8114 220 + - 1%
R8115 220 + - 1%
21PIN_R
21PIN_L
C8107 0. 001 B
C8111 0. 001 B
21PIN_CTL
L8101 10uH 0 305
C8112 6.3V 1000 Y K
R8110 75 + - 1%
21PIN/D_G/Y_OUT
C8113 6.3V 470 Y K
R8111 75 + - 1%
21PIN/D_B/U_OUT
C8114 6.3V 470 Y K
R8112 75 + - 1%
21PIN/D_R/V_OUT
BLANKING_OUT
C8115 6.3V 1000 Y K
Rv 75 + - 1%
21PIN_CVBS_OUT
C8116 33PCH
NC
3.3
DVD_RGB_H_OUT
Q8105
DTA114EKA
0
3.2
3.2
0
DVD_RGB_H_OUT
Q8104
DTC144EKA
0
R8109 68 + - 1%

F 2/2

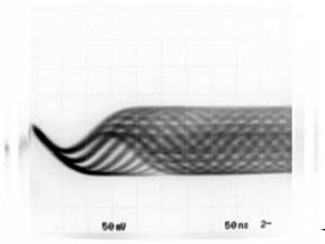
# 3.12 WAVEFORMS

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

Measurement condition : No. 1 to 2 and 9 to 14 : reference A1 (DVD), T2-chp 19, Color-bar
No. 3 to 8 : reference A1 (DVD), T2-chp 1

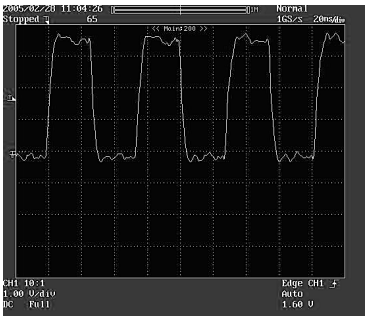
## A DVD MT PCB ASSY

**1** **Foot of C626 [RF]**(IC4002 - pin 6)
V: 200mV/div. H: 0.1µsec/div.

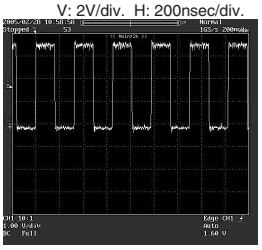


← GND

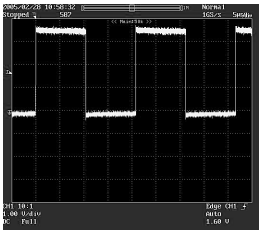
**3** **Foot of R8070** (IC8003 - pin 16)
**[AUDIO DAC -MCLK]**



**4** **Foot of R4004** (IC8003 - pin 1)
**[AUDIO DAC -BCK]**
V: 2V/div. H: 200nsec/div.



**5** **Foot of R4050** (IC8003 - pin 3)
**[AUDIO DAC -LRCK]**

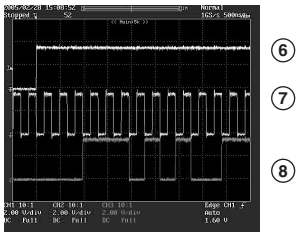


V: 2V/div. H: 5µsec/div.

**6** **Foot of R4050** (IC8003 - pin 3)
**[AUDIO DAC -LRCK]**

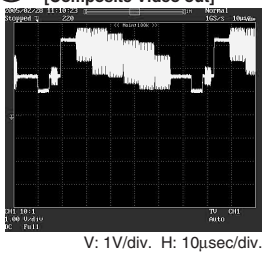
**7** **Foot of R8047** (IC8003 - pin 1)
**[AUDIO DAC -BCK]**

**8** **Foot of R4043** (IC8003 - pin 2)
**[AUDIO DAC -DATA]**
(Waveform of DATA is unsettled.)



V: 2V/div. H: 500nsec/div.

**9** (IC7301 - pin 23)
**[Composite Video out]**

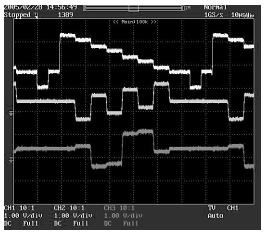


V: 1V/div. H: 10µsec/div.

**10** (IC7301 - pin 20)
**[Component Video out -Y]**
V: 1V/div. H: 10µsec/div.

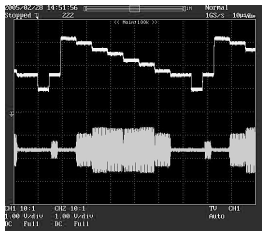
**11** (IC7301 - pin 18)
**[Component Video out -Pb]**
V: 2V/div. H: 10µsec/div.

**12** (IC7301 - pin 16)
**[Component Video out -Pr]**
V: 2V/div. H: 10µsec/div.



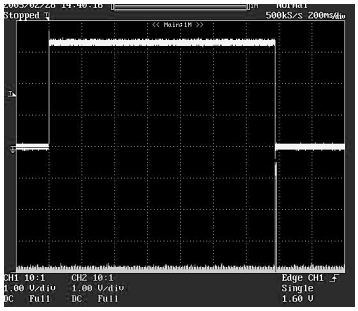
**13** (IC7301 - pin 21)
**[S Video out -Y]**
V: 1V/div. H: 10µsec/div.

**14** (IC7301 - pin 26)
**[S Video out -C]**
V: 1V/div. H: 10µsec/div.



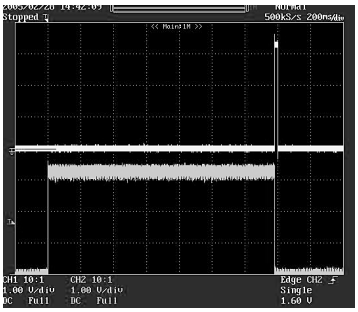
# A DVD MT PCB ASSY

**⑮ Foot of R4026**(IC2301 - pin 1) **[TROPEN]**
**[Tray is Open]**



V: 1V/div. H: 5µsec/div.

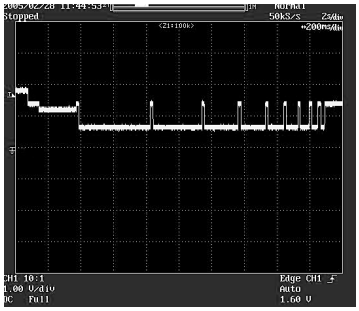
**⑯ Foot of R4002**(IC2301 - pin 2 **[TRCLOSE]**
**[Tray is closing]**



V: 1V/div. H: 5µsec/div.

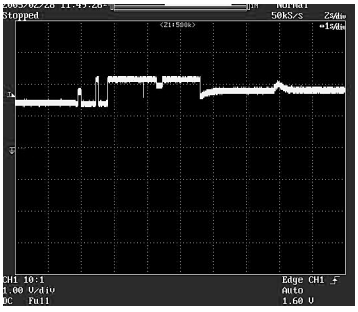
**⑰ Foot of R618** (IC4002 - pin 37) **[DMSO]**

**[DMSO_OPEN]**



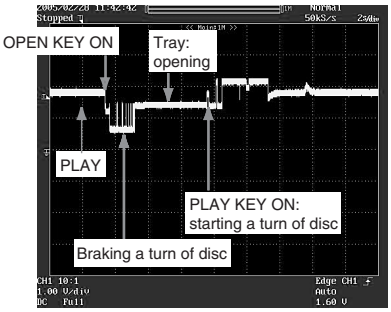
V: 1V/div. H: 10µsec/div.

**[DMSO_PLAY]**



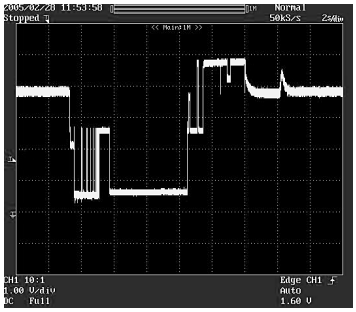
V: 1V/div. H: 10µsec/div.

**[DMS~3]**




V: 1V/div. H: 2sec/div.

**⑱ CN2303 - pin 1**
(IC2301 - pin 11)
**[MOT_SPDL+]**



V: 2V/div. H: 2msec/div.

A

B

C

D

E

F

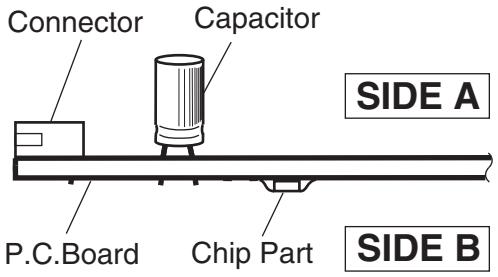
# 4. PCB CONNECTION DIAGRAM
## 4.1 LOADING and SW PCB ASSYS

### NOTE FOR PCB DIAGRAMS :

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

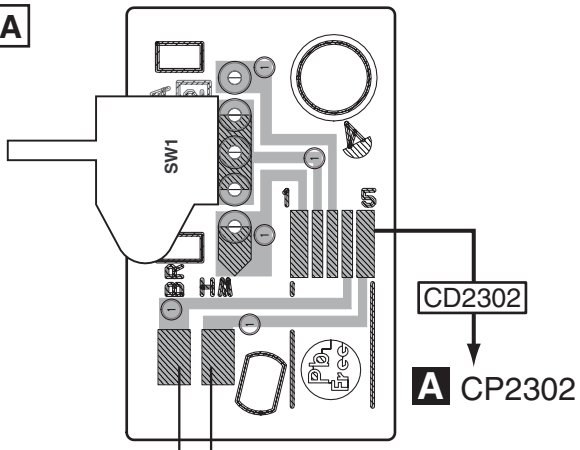
| Symbol In PCB Diagrams | Symbol In Schematic Diagrams | Part Name |
|---|---|---|
| B C E | B C E B C E | Transistor |
| B C E | B C E B C E | Transistor with resistor |
| D G S | D G S D G S | Field effect transistor |
| | | Resistor array |
| | | 3-terminal regulator |

3. The parts mounted on this PCB include all necessary parts for several destinations.
   For further information for respective destinations, be sure to check with the schematic diagram.
4. View point of PCB diagrams.




## E LOADING MOTOR PCB ASSY
**(INSERTED PARTS)**

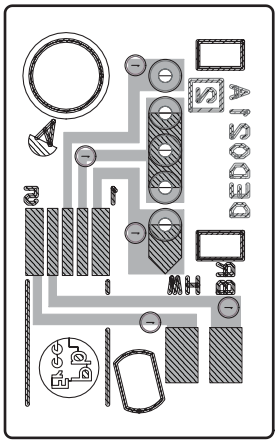
SIDE A



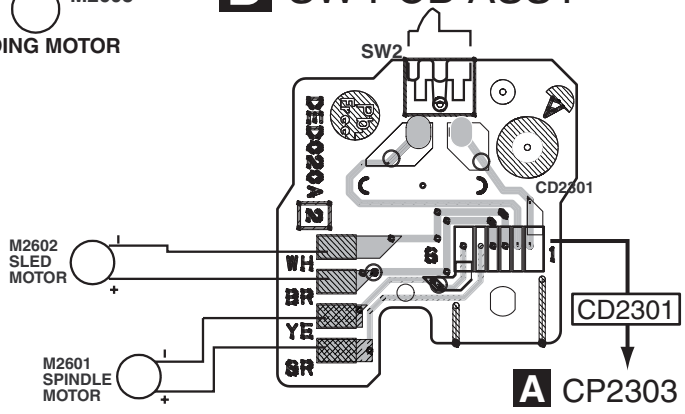


## E LOADING MOTOR PCB ASSY
**(CHIP MOUNTED PARTS)**

SIDE B



## D SW PCB ASSY



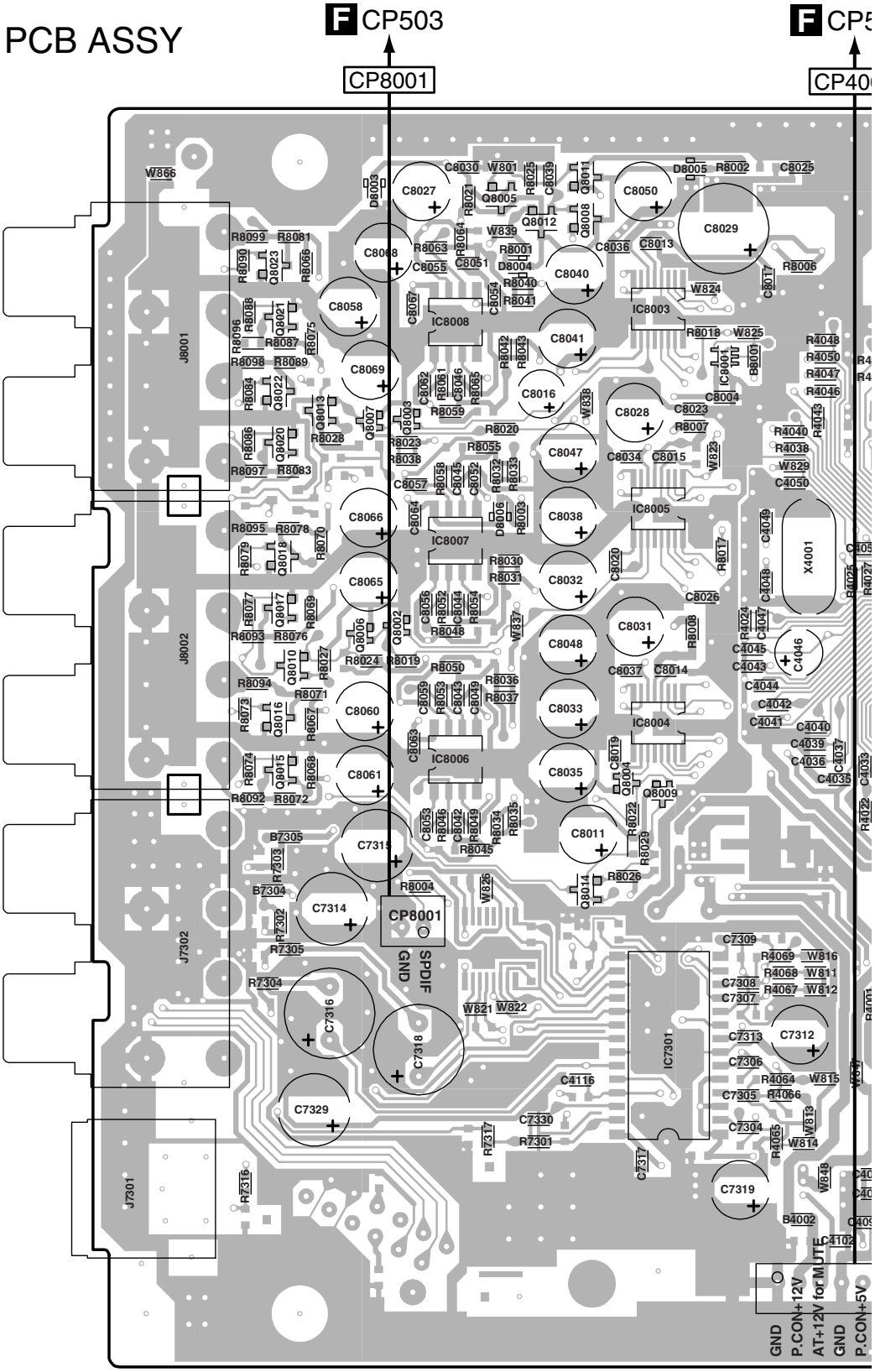

D E

D E

## 4.2 DVD MT PCB ASSY

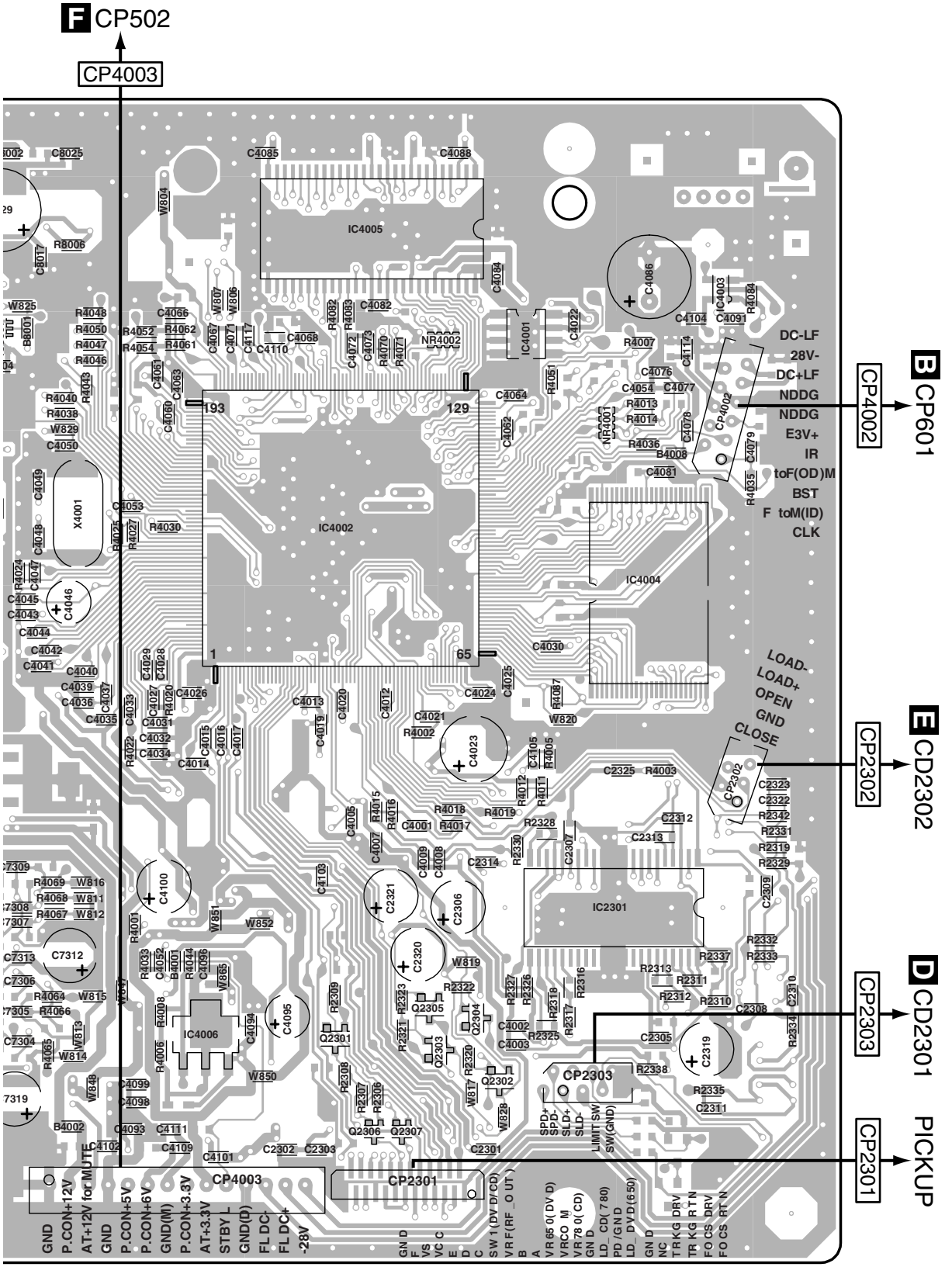
**SIDE A**

**A** DVD MT PCB ASSY




**A**

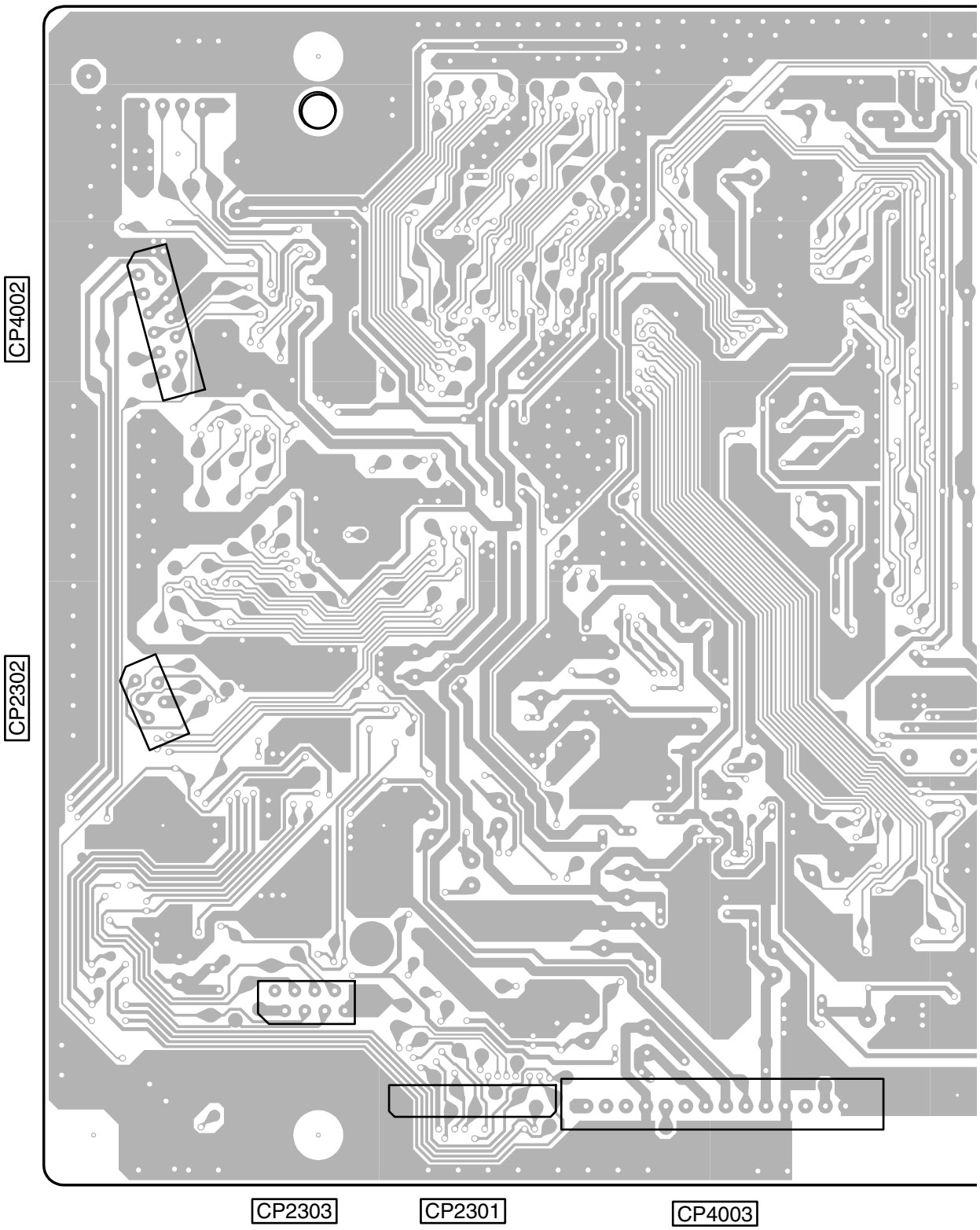
SIDE A



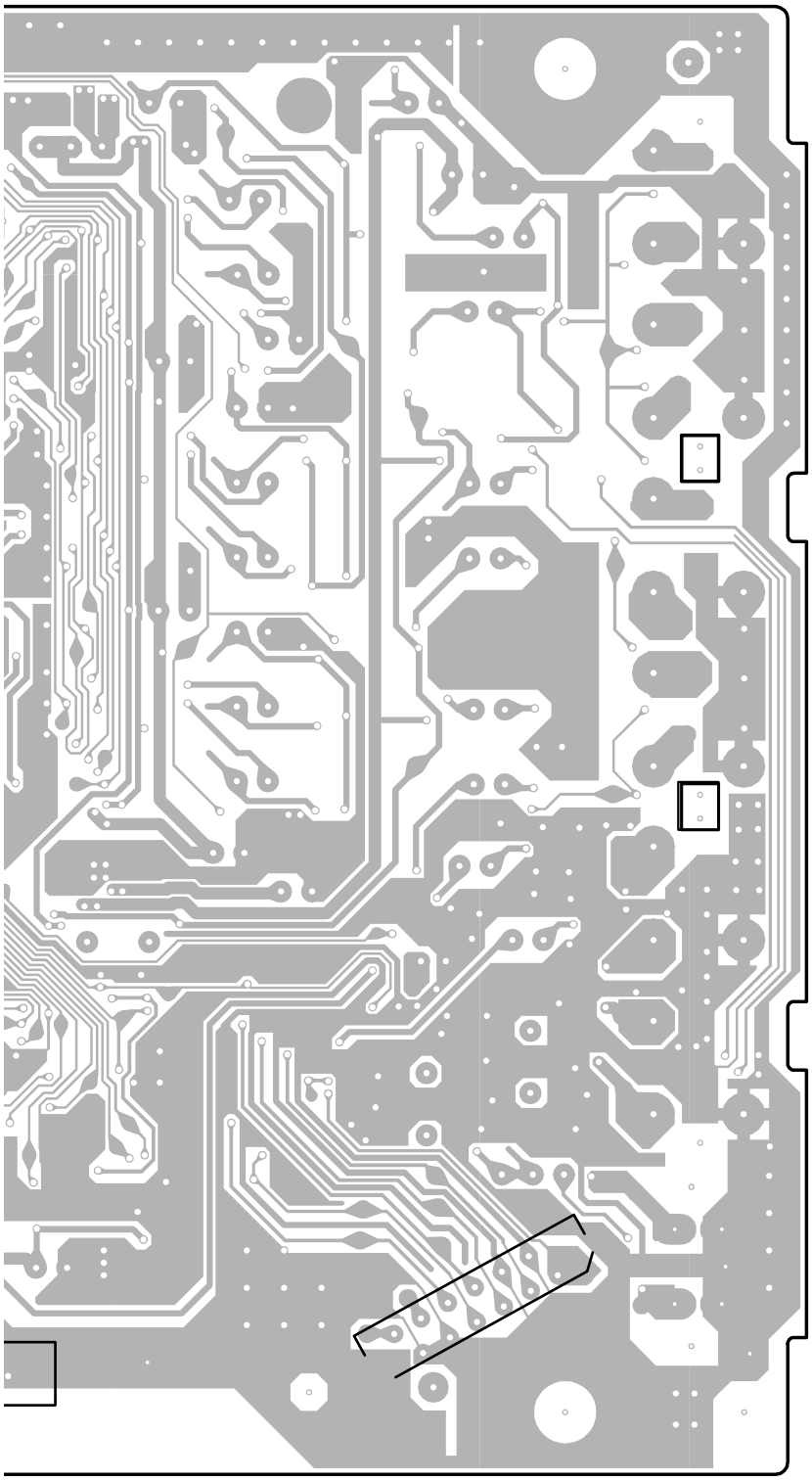

IC4006 IC4005 IC4002 Q2306 Q2307 Q2301 Q2305 Q2303 Q2302 Q2304 IC4004 IC2301

**SIDE B**

# A DVD MT PCB ASSY



**SIDE B**

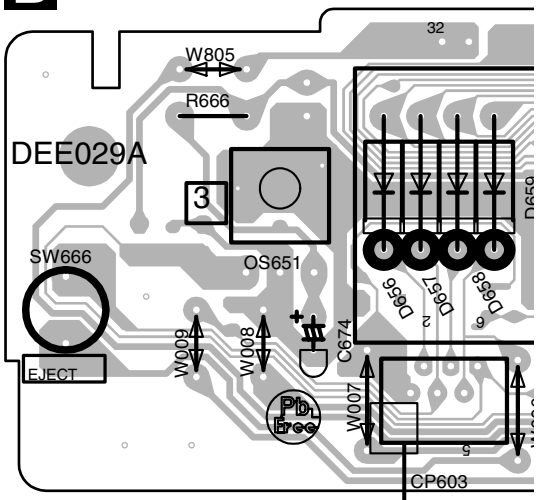


CP8001

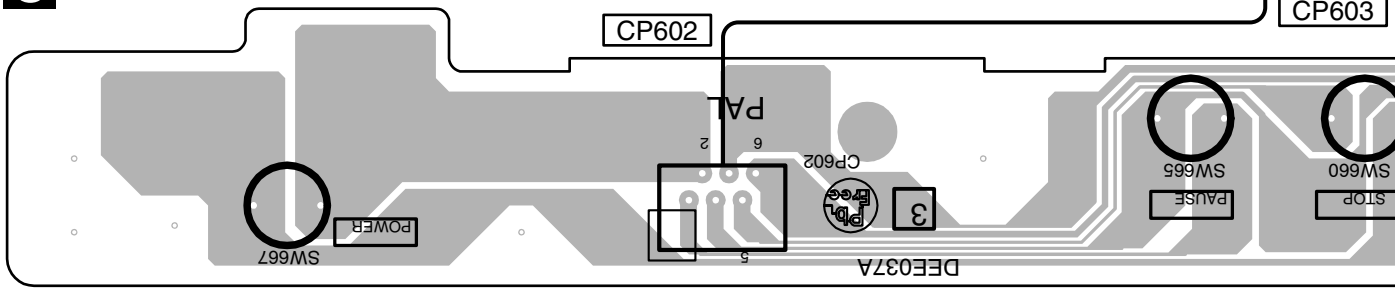
## 4.3 OPERATION and OPERATION 2 PCB ASSYS

**SIDE A**

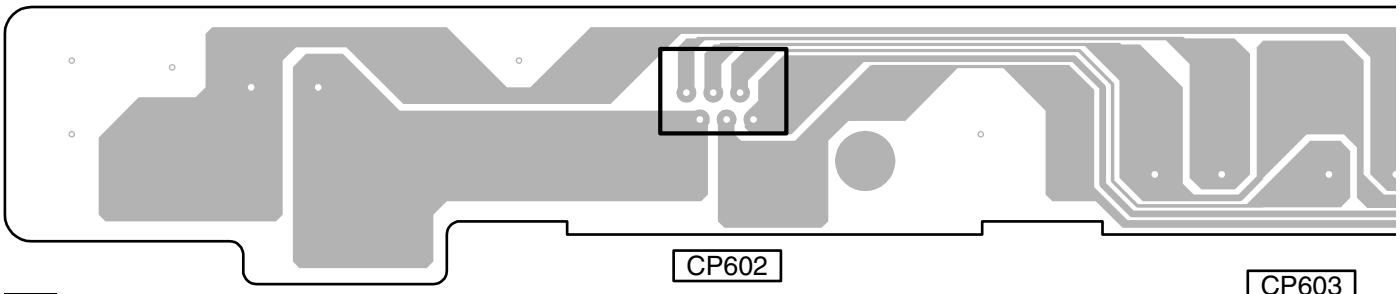
**B** OPERATION PCB ASSY



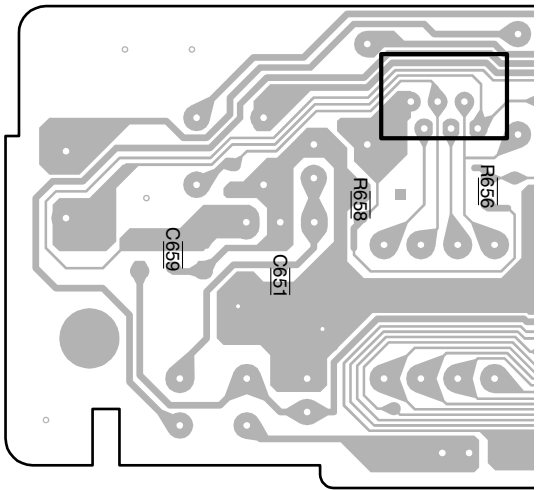

**C** OPERATION 2 PCB ASSY




**SIDE B**



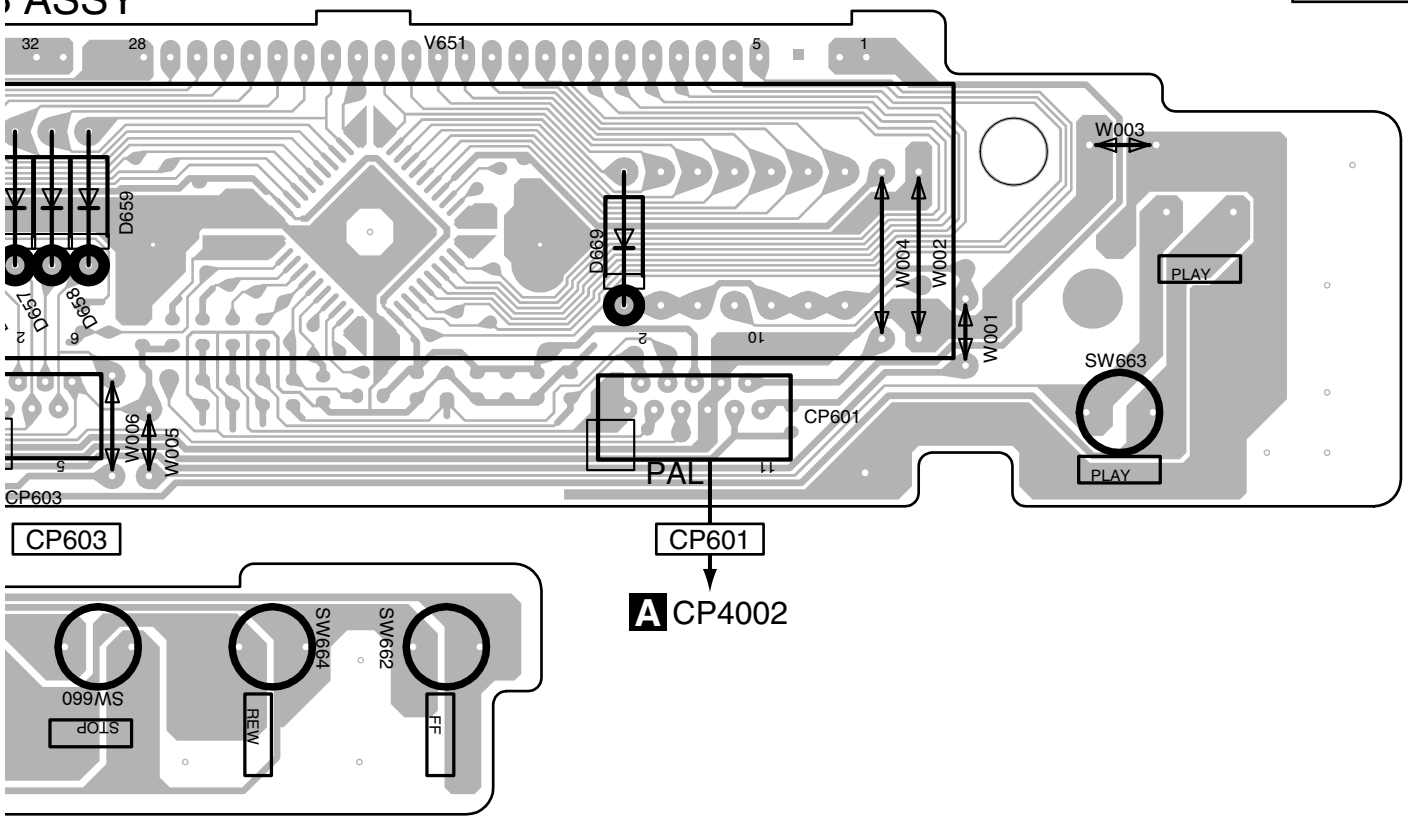

**C** OPERATION 2 PCB ASSY



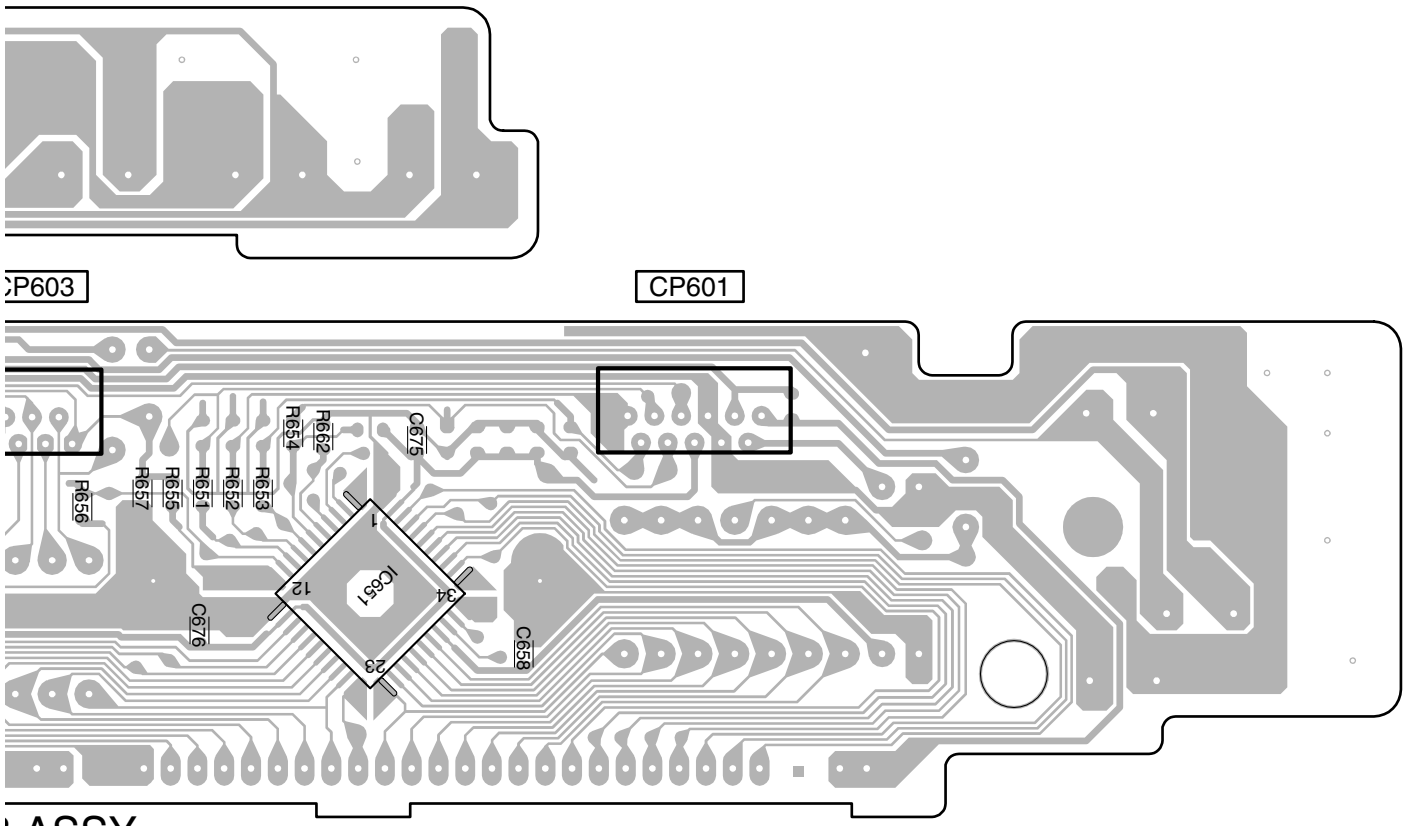

**B** OPERATION PCB ASSY

**B C**

SIDE A




SIDE B

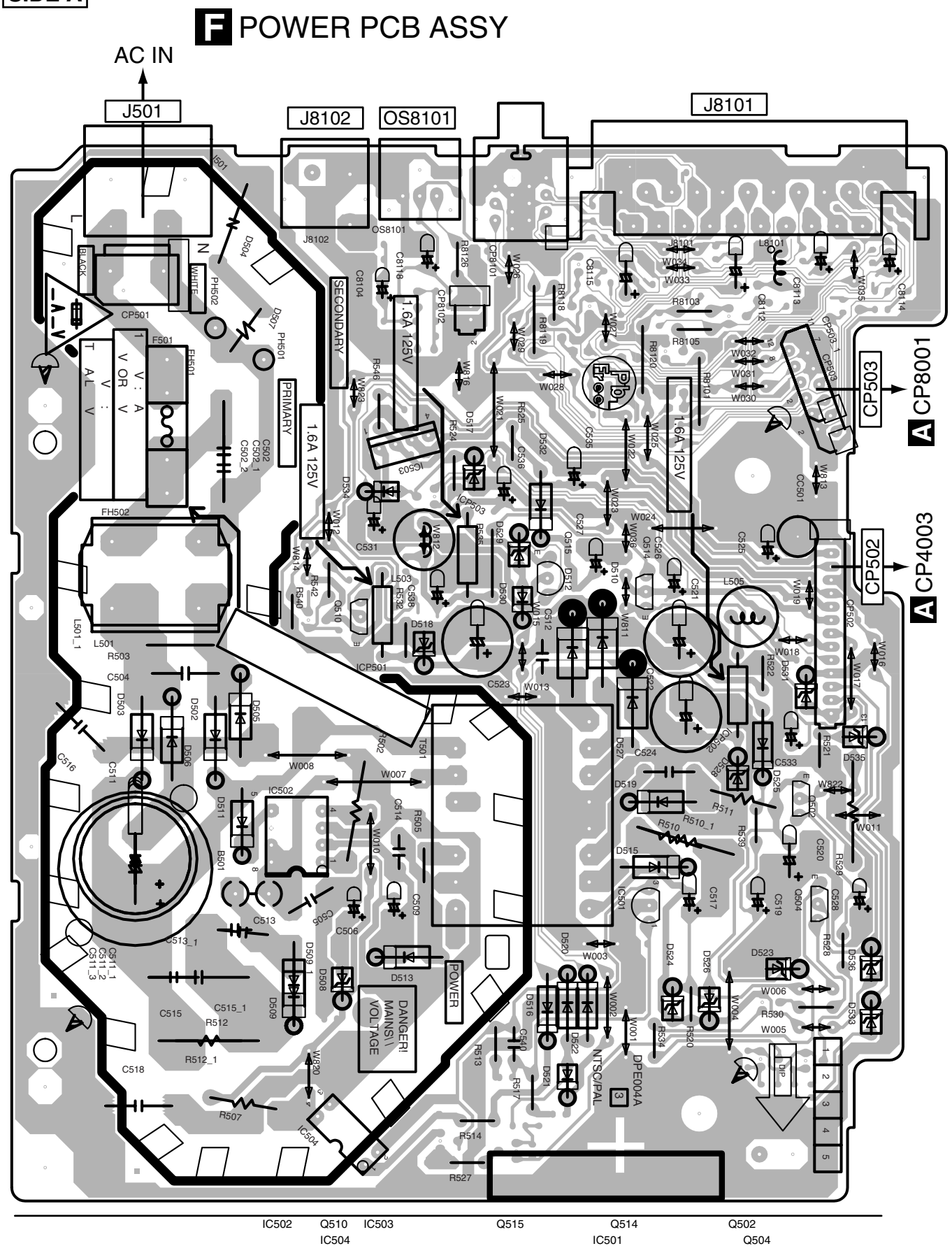



IC651

B C

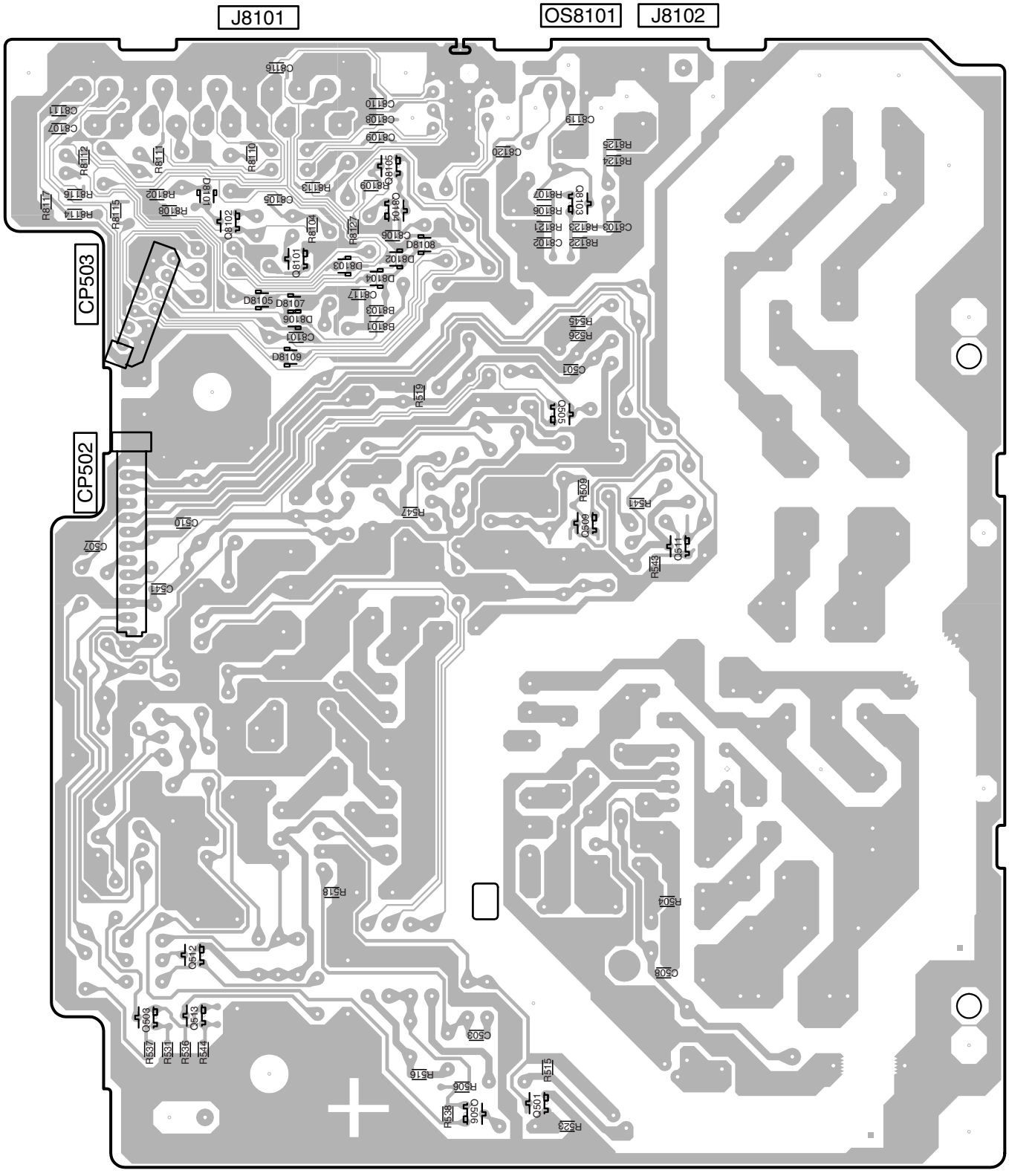
## 4.4 POWER PCB ASSY

**SIDE A**



SIDE B

# F POWER PCB ASSY



# 5. PCB PARTS LIST

*NOTES:* ● *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
● *The ⚠ 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 47k ohm (tolerance is shown by J=5%, and K=10%).*

*560 Ω → 56 x 10[1] → 561 ..... RD1/4PU 5 6 1 J*
*47k Ω → 47 x 10[3] → 473 ..... RD1/4PU 4 7 3 J*
*0.5 Ω → R50 ..... RN2H R 5 0 K*
*1 Ω → 1R0 ..... RS1P 1 R 0 K*

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

*5.62k Ω → 562 x 10[1] → 5621 ..... RN1/4PC 5 6 2 1 F*

## LIST OF ASSEMBLIES

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | .DVD MT PCB ASSY | A2G604A130 |
| | 1 | .OPERATION PCB ASSY | A2G604A270 |
| | 1 | .OPERATION 2 PCB ASSY | A2G502A280 |
| | 1 | .POWER PCB ASSSY | A2G604A240 |
| | 1 | .DVD MECHA ASSY | A2G512A650 |
| | 2 | ..LOADING PCB ASSY | A2F101A610 |
| | 2 | ..SW PCB ASSY | A2F101A640 |

## A DVD MT PCB ASSY

### SEMICONDUCTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | | IC4002 (MT1389EE/B2-L) | MT1389EE/B2-L-K |
| | | IC4001 (BR24L16FJ-WE2) | I57F04L160 |
| | | IC2301 (LA6565-TE) | I03F065650 |
| | | IC4003 (BD5229G-TR) | I97F052290 |
| | | IC4004 (S29AL016D70TF1020) | S2G602AF01 |
| | | IC4005 (K4S641632H-UC75) | IFLJ0632H7 |
| ⚠ | | IC4006 (SIP1117L-ADJ-TP) | I1HF9117L0 |
| | | IC7301 (MM1623BFBE) | MM1623BF-TBB |
| | | IC8003-IC8005 (PMC1742KEG/2K) | PCM1742KE-TBB |
| | | IC8006-IC8008 (BA4560F-E2) | I07F045600 |
| | | IC8001 (TC7SHU04FU) | I55F004FU0 |
| | | Q2301,Q8005,Q8011,Q8012(KTC3875S) | TCAA3875SY |
| | | Q8008(KTC3875S) | TCAA3875SY |
| | | Q2302-Q2305,Q8010 (KTA1504S) | TAAA1504SY |
| | | Q8013,Q8014 (KTA1504S) | TAAA1504SY |
| | | Q2306,Q2307 (2SK3018T106) | T27T030180 |
| | | Q8002-Q8004,Q8006 (DTC114YUA) | TN7J407001 |
| | | Q8007,Q8009 (DTC114YUA) | TN7J407001 |
| | | Q8015- Q8018 (2SD2114K) | T97A021140 |
| | | Q8020- Q8023 (2SD2114K) | T97A021140 |
| | | D8003 (UDZS6.8B) | DE7RB6R82B |
| | | D8004-D8006 (1SS355) | DD7R0S3550 |

### COILS AND FILTERS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | | B4001, B4002, B4008 (CHIP BEADS ) (CHIP BEADS : MMZ1608R102CT) | 0246C51024 |
| | | B8001, B7304- B7305 (CHIP BEADS ) (CHIP BEADS : MMZ1608R102CT) | 0246C51024 |
| | | X4001 CRYSTAL (27MHz) | 100BT02701 |

### RESISTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | | NR4001, NR4002 (R, NETWORK) | 110P43330M4 |

### OTHERS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | | CP2301 CONNECTOR PCB SIDE | 069GYOT119 |
| | | CP2302 CONNECTOR PCB SIDE | 069EV53030 |
| | | CP2303 CONNECTOR PCB SIDE | 069EV63030 |
| | | CP4002 CONNECTOR PCB SIDE | 069EVB3030 |
| | | CP4003 CONNECTOR PCB SIDE | 069S2E0629 |
| | | CP7301 CONNECTOR PCB SIDE | 069J7C0599 |
| | | CP8001 CONNECTOR PCB SIDE | 069S220629 |
| | | J7302 RCA JACK | 060J451008 |
| | | J7301 JACK | 063D700008 |
| | | J8001 RCA JACK | 060J451007 |
| | | J8002 RCA JACK | 060J411039 |
| | | OS8001 OPTICAL(OFTG038101) | 07AQ000009 |
| | | CD601 CORD JUMPER | 122H0B1002 |
| | | CD8001 CORD JUMPER | 122H0C3001 |

## B OPERATION PCB ASSY

### SEMICONDUCTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | | IC651 IC PT6315 | PT6315 |
| | | D656 1SS133T-77 | D1VT001330 |
| | | D657 1SS133T-77 | D1VT001330 |
| | | D658 1SS133T-77 | D1VT001330 |
| | | D659 1SS133T-77 | D1VT001330 |
| | | D663 1SS133T-77 | D1VT001330 |
| | | D669 1SS133T-77 | D1VT001330 |

### SWITCHES AND RELAYS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | | SW663 SWITCH TACT | 0504R01T38 |
| | | SW666 SWITCH TACT | 0504R01T38 |

### OTHERS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | | V651 TUBE FLUORESCENT | VAW1077 |
| | | CP601 CONNECTOR PCB SIDE | 069EVB3050 |
| | | CP603 CONNECTOR PCB SIDE | 069EV63050 |
| | | OS651 REMOTE RECEIVER | 077A040001 |
| | | CD603 CORD JUMPER | 122H062801 |

## C OPERATION 2 PCB ASSY

### SWITCHES AND RELAYS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | | SW660 SWITCH TACT | 0504R01T38 |
| | | SW662 SWITCH TACT | 0504R01T38 |
| | | SW664 SWITCH TACT | 0504R01T38 |
| | | SW665 SWITCH TACT | 0504R01T38 |
| | | SW667 SWITCH TACT | 0504R01T38 |

### OTHERS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | | CP602 CONNECTOR PCB SIDE | 069EV63050 |

| Mark | No. | Description | Part No. |
|---|---|---|---|

## F POWER PCB ASSY

### RESISTORS

| | | | |
|---|---|---|---|
| ⚠ | R511 | FUSE,Resistor | R65584680J |

### OTHERS

| | | |
|---|---|---|
| CP502 | CONNECTOR PCB SIDE | 06C32E3504 |
| CP503 | CONNECTOR | 069J7C0599 |
| J8101 | SOCKET, 21 PIN | 063D100050 |
| J8102 | RCA JACK | 060Q401115 |
| OS8101 | OPTICAL DRIVICE | 07AQ000009 |
| CP8102 | CONNECTOR PCB SIDE | 06C3223003 |

## D SW PCB ASSY

**There is no Service Parts**

## E LOADING MOTOR PCB ASSY

**There is no Service Parts**

# 6. ADJUSTMENT

## 6.1 WHEN REPLACING DVD DECK

### WHEN REPLACING DVD DECK

**[ Removing the DVD Deck ]**

Before removing Pick Up PCB and DVD PCB connector, short circuit the position shown in **Fig. 1** using a soldering iron. If you remove the DVD Deck with no soldering, the Laser may be damaged.

**[ Installing the DVD Deck ]**

Remove all the soldering on the short circuit position after the connection of Pick Up PCB and DVD PCB connector.

**NOTE**

- Before your operation, please read “PREPARATION OF SERVICING” .
- Use the Lead Free solder.
- Manual soldering conditions
  - Soldering temperature: 320 ± 20˚C
  - Soldering time: Within 3 seconds
  - Soldering combination: Sn-3.0Ag-0.5Cu
- When Soldering/Removing of solder, use the draw in equipment over the Pick Up Unit to prevent the Flux smoke from it.

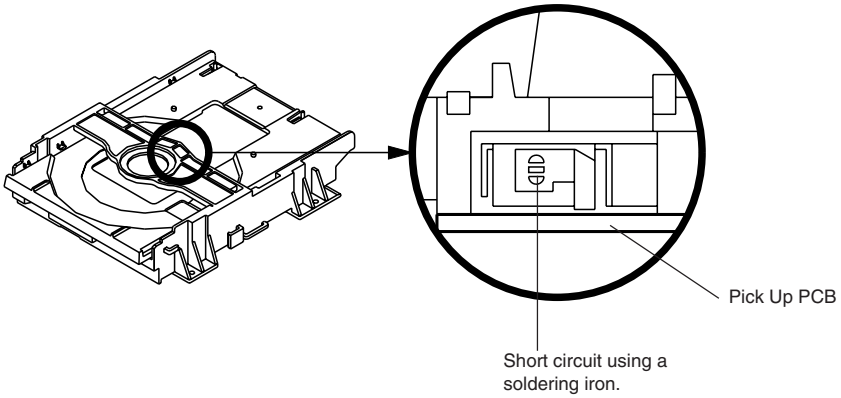
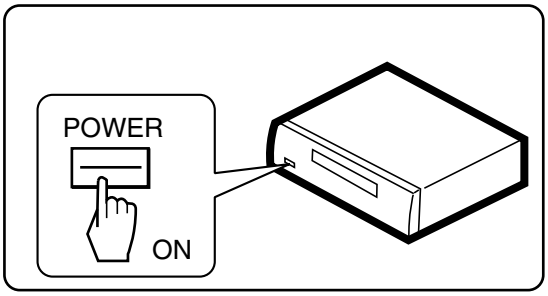
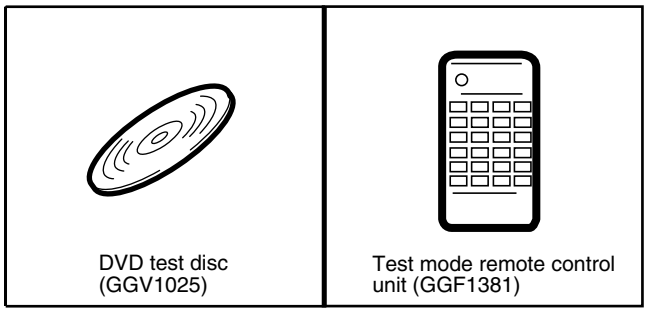



**Fig. 1**

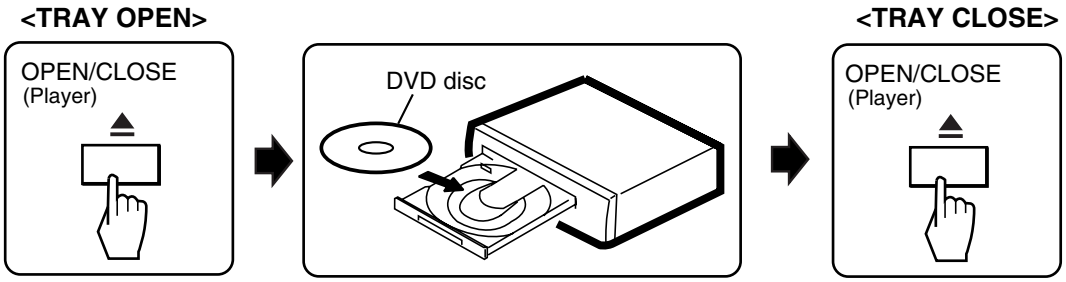
# 6.2 TEST MODE

## POWER ON

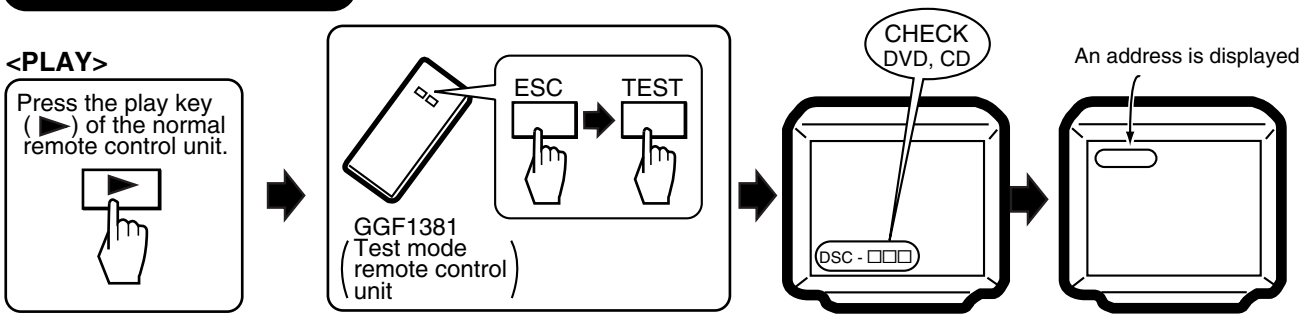



## DISC SET

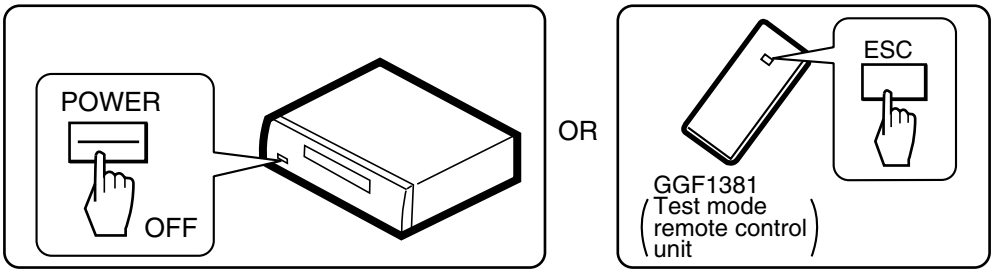



## TEST MODE: PLAY




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

## TEST MODE: OFF



# 6.3 TEST MODE IN

## Test Mode Functional Specification

### ① Test mode entry

In the power ON state, press the [ESC] (A8-5F) key and [TEST / RANDOM] (A8-5E) key in order of the Test mode 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 Test mode

- Turn off the power.
- Press the [ESC] (A8-5F) key of the remote control unit.

### ③ LD ON

DVD : Press the [TEST] (A8-5E) and [1] (A8-01) keys in order, and turn on the laser diode (650n).
CD : Press the [TEST] (A8-5E) and [4] (A8-04) keys in order, and turn on the laser diode (780n).

# 6.4 DISC REMOVAL METHOD

## DISC REMOVAL METHOD AT NO POWER SUPPLY

1. Remove the Top Cabinet and Front Cabinet. **(Refer to item 1 of the DISASSEMBLY INSTRUCTIONS.)**
2. Rotate the Main Gear in the direction of the arrow by hand.
   **(Refer to Fig. 1)**
3. Draw the Tray.

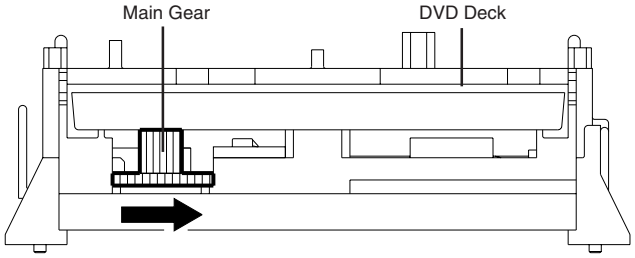



**Fig. 1**

## 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

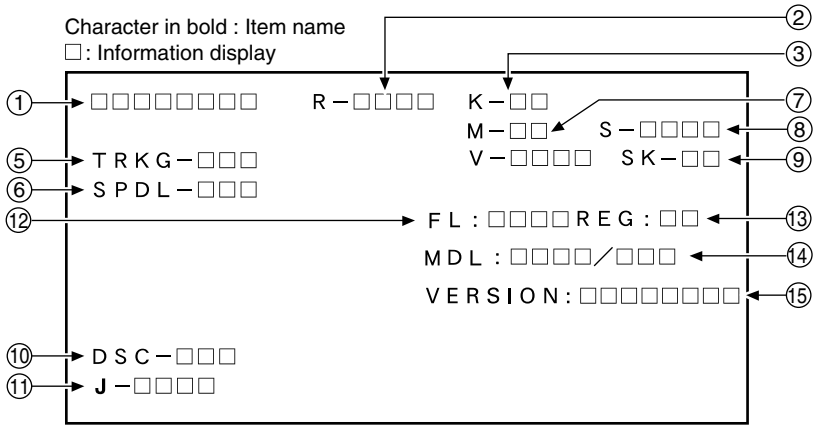
The laser diode used for a pickup head may be destroyed with external static electricity. Moreover, even if it is operating normally after repair, when static electricity discharge is received at the time of repair, the life of the product may be shortened.
Please perform the following measure against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

# 7. GENERAL INFORMATION

## 7.1 DIAGNOSIS

### 7.1.1 DISPLAY SPECIFICATION OF THE TEST 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]

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]

⑧ **Slider position [S – ＊＊＊＊]**
In Side Switch ON : [01]
In Side Switch OFF : [00]

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], [ ]

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: ＊＊＊＊ / ＊＊＊]**
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: ＊＊＊＊＊＊＊＊]**

## 7.1.2 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 | Remote Control Code |
|---|---|---|---|
| Memory clear and region / revision indication | | CLEAR (∗1) | A8-45 |
| Average value measurement of DVD error rate | | 5 (∗1) | A8-05 |
| CD error rate measurement | | 5 (∗1) | A8-05 |
| Scart terminal output : VIDEO | WY, models equipped with Scart terminal | AUDIO | AF-BE |
| Scart terminal output : S-VIDEO | | SUBTITLE | AF-36 |
| Scart terminal output : RGB | | ANGLE | AF-B5 |
| Progressive OFF | Only for progressive models | R_SKIP | A3-9D |
| Progressive ON | | F_SKIP | A3-9C |
| ZOOM ON (X2 -> X4 -> x1) | | ZOOM | AF-37 |
| Service mode indication (error rate indication, etc.) | | CHP/TIM (∗1) | A8-13 |
| Model information indication | | CHAP (∗1) | A8-40 |
| Title search Input mode IN<br>Title No. input<br>Search execution | | SIDE A (∗1)<br>Numbers (∗1)<br>PLAY (∗1) | A8-4D<br>A8-00 to A8-09<br>A8-17 |
| Region confimation mode | | A.MON (∗1)<br>Numbers (∗1) | A8-1E<br>A8-01 to A8-08 |

∗1 : Test mode 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" [Test mode 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

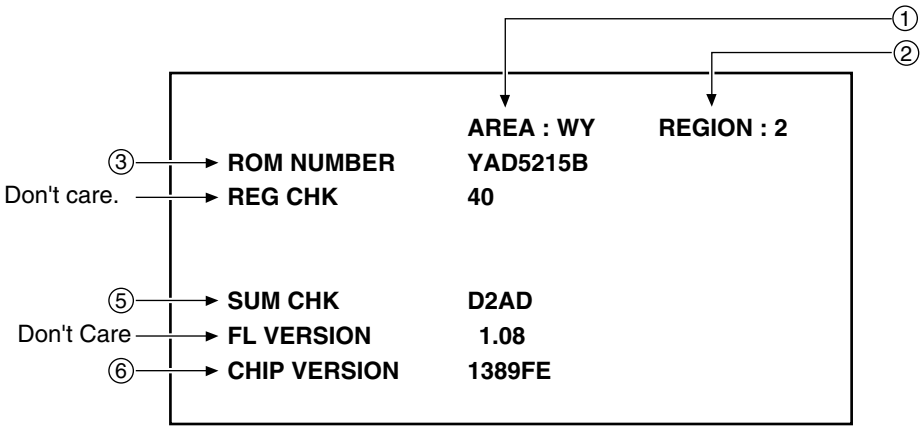
**• Indication of model information (ESC + CHAP keys)**
The items from 12 to 15 of the TEST MODE Indications are displayed. However, in the indications, S in the standard test mode is changed to CHIP VERSION, and M is changed to RF VERSION. For details, see 7.1.4.

**• Region confirmation mode (ESC + A.MON [Test mode remote control unit] + "1"-"8" [Test mode 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.

## 7.1.3 SPECIFICATION OF MODEL INFORMATION DISPLAY

To display model information : Press the ESC key then the CHAP key.
To close the model information display : Press the ESC key.

- **Display contents**




Character in bold : Item name
☐: Information display

① **Destination indication**
Display it according to model information set from the FL Driver IC.

② **Region No.**

③ **ROM number**
Rom display Version.

⑤ **SUM CHK** SUM value of E2P ROM displays with four places.

⑥ **CHIP VERSION**

## 7.1.4 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 5.0e-4 or less, for CDs: OK with 7.6e-3 or less

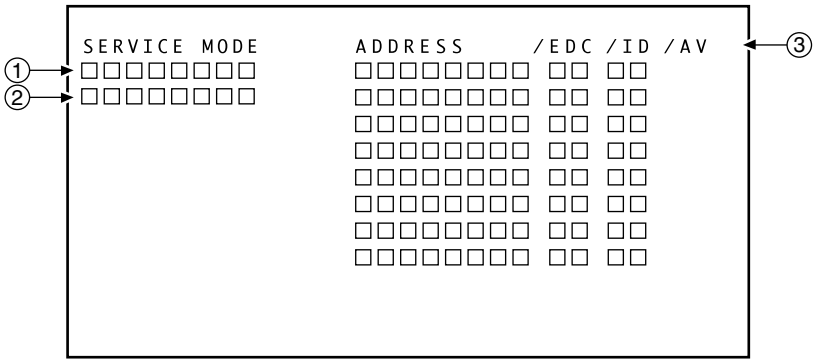
ex) For DVDs

| • Step 1 | | • Step 2 | |
|---|---|---|---|
| △△e -□ | | △△e -4 | |
| △△e -6 | : OK | 3.0e -4 | : OK |
| △△e -5 | : OK | 4.0e -4 | : OK |
| △△e -4 | : Refer to Step 2 | 5.0e -4 | : OK |
| △△e -3 | : NG | 6.0e -4 | : NG |
| △△e -2 | : 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.

Indication plan contents




Character in bold : Item name
□: Information display

## 7.1.5 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.

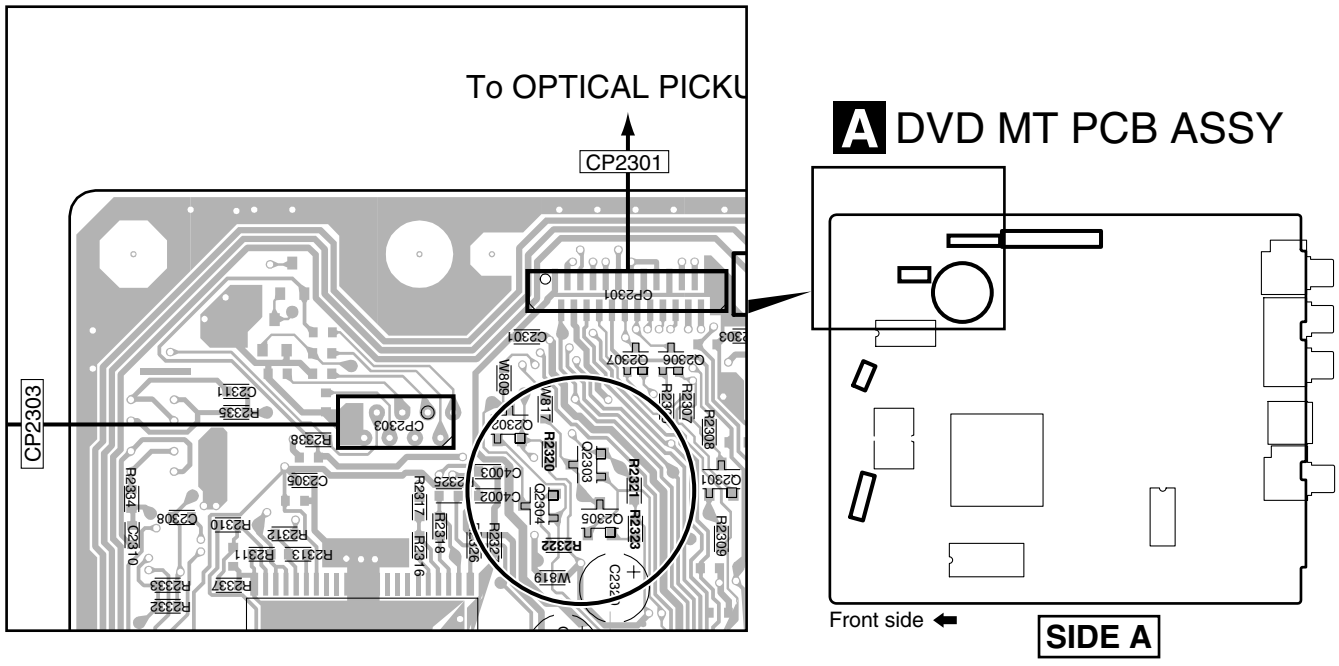
- **No playback of a DVD :**

  Measure the voltage between the two ends of R2321 or R2323 on the DVDM Assy. If the voltage is 0.4 V or higher, the 650-nm LD is degraded.

- **No playback of a CD :**

  Measure the voltage between the two ends of R2320 or R2322 on the DVDM Assy. If the voltage is 0.4 V or higher, the 780-nm LD is degraded.

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



## 7.1.6 TROUBLE SHOOTING

| No. | Symptoms | Diagnosis Contents | Possible Defective Points |
|---|---|---|---|
| 1 | The power is not turned on. | Check the voltage of AT+3.3V, –28V and FLDC on the POWER SUPPLY Unit. | **POWER PCB ASSY** |
| | | Are wires of output connector (POWER PCB ASSY) and CP4003 (DVDM Assy) disconnected or damaged ? | Connector / cable |
| | | Check that the voltage at IC651-pin 10 (K 1) on the FLKY Assy becomes about 2.7V when the POWER key is pressed and 0 V when it is released. | **OPERATION 2 Assy**<br>Tact SW<br>(when operation of only the POWER key on the main unit is not accepted) |
| | | Check that the voltage at OS651-pin 1 (IR) on the OPERATION1 Assy is in the range between 0 and 3.3 V while receiving signals from the remote control unit when any key on it is pressed. | **FLKY Assy**<br>Remote receiver section<br>(when operation of only the POWER key on the remote control unit is not accepted) |
| 2 | An opening screen is not displayed on the monitor (The FL display lights. The mechanism does not work.) | • Check the voltage of E+6.8V and SW+3.3V on the POWER SUPPLY Unit.<br>• Check the voltage of P.ON-H is about 2.8V on the POWER SUPPLY Unit. | **POWER SUPPLY Unit** |
| | | Check that the following voltage are output :<br>IC4006-pin 5 : 1.8V, on the DVD MT PCB Assy. | **DVD MT PCB Assy**<br>1.8V Regulator IC (IC4006) |
| | | Is a resonator (X4001 : 27MHz) on the DVDM Assy oscillating ? | **DVD MT PCB Assy**<br>Crystal resonator (X4001) |
| | | • Is a signal input into IC4004-pin26 (PCE#) on the DVDM Assy ?<br>(Is a signal "H" for 80 mS and then "L" after the power is turned on ?)<br>→ Communication with flash ROM.<br>• Are the signals input into IC4005-pin 16 (DWE#), pin 19 (DCS#) and pin 38 (SDCLK) on the DVDM Assy ?<br>(Is a signal fluctuating ?)<br>→ Communication with SDRAM | **DVD MT PCB Assy**<br>DVD IC (IC4002)<br>Flash ROM (IC4004)<br>SDRAM (IC4005) |
| | | Is a signal output from IC4004-pin 28 (PRD#) on the DVD MT Assy?<br>(Is a signal fluctuating for several hundred mS after the power is turned on ?) | **DVD MT PCB Assy**<br>Flash ROM (IC4004) |
| | | Are the signals of IC4001-pin 5(SDA) and pin 6(SCL) on the DVDM Assy fluctuating for one or two seconds after the power is turned ? | **DVD MT PCB Assy**<br>EEPROM (IC4001) |
| 3 | An opening screen is not displayed on the monitor (The FL display lights. The mechanism does not work.) | Check the video signal path between DVD IC (DVD MT Assy IC4002) and video-out terminal (see the block diagram) | **DVD MT PCB Assy**<br>Video circuit after DVD IC (IC4002) |

| No. | Symptoms | Diagnosis Contents | Possible Defective Points |
|---|---|---|---|
| 4 | A tray cannot be opened. (An opening screen is displayed on the monitor) | Does the voltage of CP2302-pin 3 and pin 1 on the DVD MT Assy change normally ?<br>Pin 5 (SW2(TRIN)): Tray is fully closed: "L"<br>Pin 3 (SW1(TROUT)): Tray is fully opened: "L" | Tray SW |
| | | Is a LOAD-DRV signal reaching ? | **DVD MT PCB Assy**<br>DVD IC (IC4002) |
| | | Are the signals output from IC2301-pin 36 and pin 37 (CP2302-pin 4 and pin 5) on the DVDM Assy ?<br>Pin 4: Approx. 4.5V during opening tray approx. 0V during closing tray.<br>Pin 5: Approx. 0V during opening tray approx. 4.5V during closing tray. | **DVD MT PCB Assy**<br>FTS Driver IC (IC2301) |
| | | Are wires of CP2302 and CP2303 on the DVDM Assy disconnected or damaged ? | Connector / cable |
| | | Does the voltage of CD2301-pin 5 change by pressing the Inside switch. | Inside switch |
| 5 | Playback impossible (no focusing) | Are the signals output from IC2301-pin 9 (F+) and pin 8 (F–) on the DVDM Assy ? | **DVD MT PCB Assy**<br>FTS Driver IC (IC2301) |
| | | Does 650-nm LD emit light ?<br>Does a pickup lens move up / down ?<br>Does an actuator spring bend ? | Pickup |
| | | Are plastic parts damaged ? Or is a shaft detached ?<br>Is the turntable detached or tilted ? | Mechanism section (motor) |
| | | Is flexible cable of CP2301 on the DVD MT Assy disconnected or damaged ? | Flexible cable / connector |
| | | Is signal output from IC4002-pin 42 (FOSO) on the DVDM Assy ?<br>(Device control of about 1.4 V is output usually. It is fluctuated by about ± 250 mV with focus up / down.) | **DVD MT PCB Assy**<br>DVD IC (IC4002) |
| 6 | Playback impossible (Spindle does not turn) | Are the signals output from IC2301-pin 10 (MOT SPDL–), and pin 11 (MOT SPDL+) on the DVD MT Assy ?<br>Is pin 33,34 (STBY) fixed LOW? | **DVD MT PCB Assy**<br>FTS Driver IC (IC2301) |
| | | Is there any part detached from the spindle motor ?<br>Or Is there any foreign object lodged in it ? | Mechanism section<br>(Spindle motor) |
| | | Are wires of CP2303 on the DVD MT Assy disconnected or damaged ? | Flexible cable / connector |
| | | Is signal output from IC4002-pin 37 (DMSO) on the DVDM Assy ? | **DVD MT PCB Assy**<br>DVD IC (IC4002) |
| 7 | Playback impossible (Playback stops) | Does 650-nm LD deteriorate ?<br>If the voltage at each both ends of R2303 and R2305 on the DVD MT Assy is 0.4 V or more, the 650-nm LD is definitely deteriorated. | 650-nm LD deteriorated.<br>(When playback of a DVD is impossible) |
| | | Does 780-nm LD deteriorate ?<br>If the voltage at each both ends of R2302 and R2304 on the DVD MT Assy is 0.4 V or more, the 780-nm LD is definitely deteriorated. | 780-nm LD deteriorated.<br>(When playback of a CD is impossible) |
| | | Are there scratches or dirt on the disc ? | Disc |
| 8 | Picture disturbance during playback (block noise, freeze, other) | Are there scratches or dirt on the disc ?<br>Is there a problem with the format of the disc ? | Disc |
| 9 | No sound (Picture is normal) | Check the waveform (ABCK, ALRCK, ACLK, ASDATA). | **DVD MT PCB Assy**<br>DVD IC (IC4002) |
| | | Is signal output from IC8004-pin 7 and pin 8 on the DVD MT Assy ? | **DVD MT PCB Assy**<br>Audio Dac IC (IC8004) |

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

| IC | Symptoms |
|---|---|
| **EEP ROM**<br>(DVD MT Assy : IC4001) | User's data cannot be stored in memory.<br>The ID number is lost. |
| **16M Flash ROM**<br>(DVD MT Assy : IC4004) | The power cannot be turned on.<br>Downloading of the firmware cannot be performed. |
| **DVD IC**<br>(DVD MT Assy : IC4002) | 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**<br>(DVD MT Assy : IC4005) | No power.<br>Block noise is generated during playback. |

# 7.2 DISASSEMBLY

## ■ REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS

### 1-1: TOP CABINET/FRONT CABINET/OPERATION 1/2PCB (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 connector: (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 1/2 PCB in the direction of arrow (C).

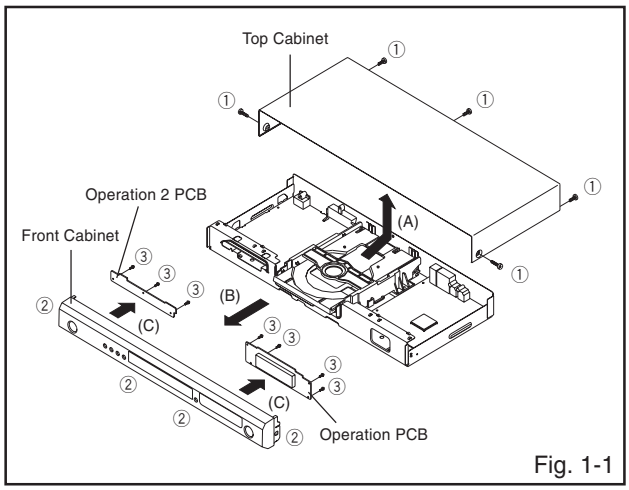


Fig. 1-1

### 1-2: POWER PCB (Refer to Fig. 1-2)

1. Disconnect the following connectors: (CP4003, CP8001).
2. Remove the 4 screws ①.
3. Remove the 4 screws ②.
4. Remove the Power PCB in the direction of arrow.

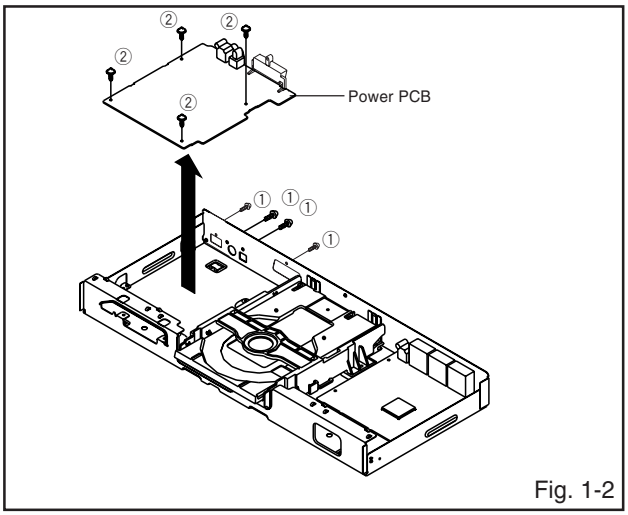


Fig. 1-2

### 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, CP2302, CP2303).
3. Remove the 4 screws ①.
4. Remove the DVD Deck in the direction of arrow.

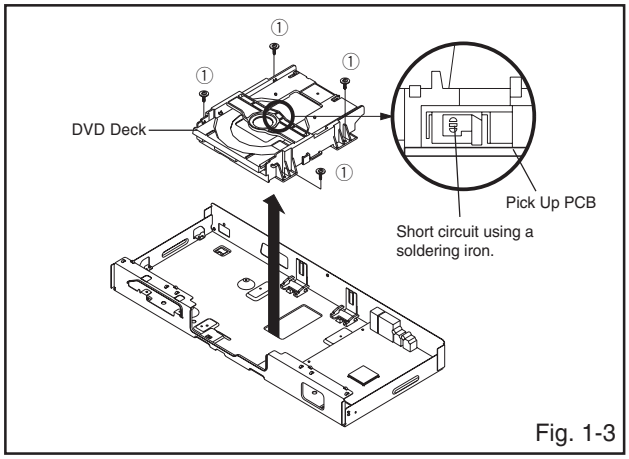


Fig. 1-3

**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 prevent the Flux smoke 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 PCB connector.

### 1-4: DVD PCB (Refer to Fig. 1-4)

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

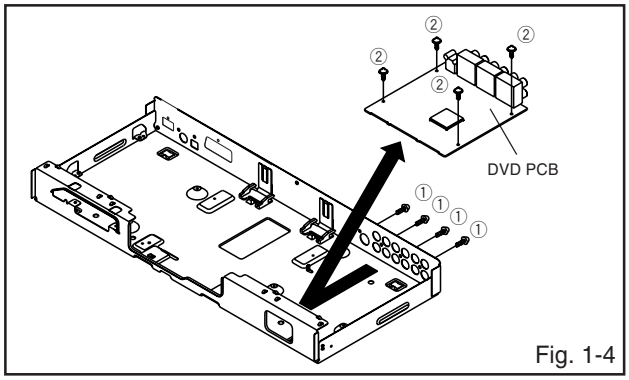


Fig. 1-4

# ■ REMOVAL OF DVD DECK PARTS

**NOTE**

1. Do not disassemble the DVD DECK PARTS except listed parts here. Minute adjustments are needed if the disassemble is done. If the repair is needed except listed parts, replace the DVD MECHA ASS'Y.

**2-1: TRAY (Refer to Fig. 2-1-A)**

1. Set the Tray opened. **(Refer to the DISC REMOVAL METHOD AT NO POWER SUPPLY)**
2. Unlock the 3 supports ① and draw it while sagging the Tray.

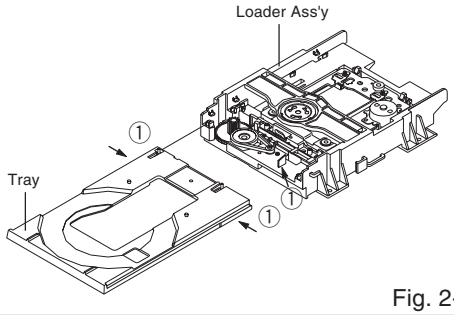


Fig. 2-1-A

**NOTE**

1. In case of the Tray installation, install them as the circled section of Fig. 2-1-B so that the each markers are met.

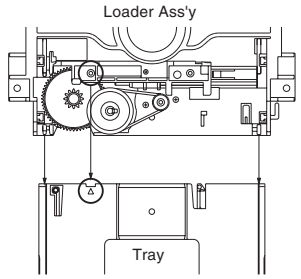


Fig. 2-1-B

**2-2: TRAVERSE ASS'Y (Refer to Fig. 2-2-A)**

1. Remove the screw ①.
2. Unlock the 2 supports ②.
3. Remove the Insulator (R) from the Loader Sub Ass'y.
4. Remove the Traverse Ass'y.

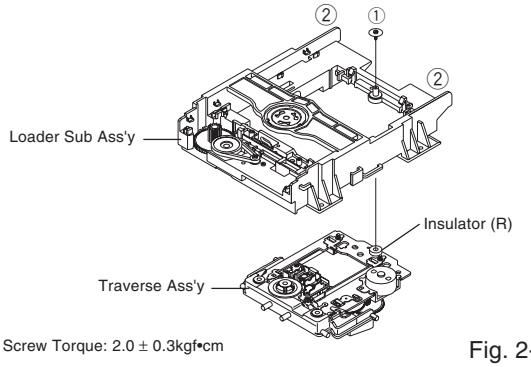


Fig. 2-2-A

**NOTE**

1. In case of the Traverse Ass'y, install it from (1) to (4) in order. **(Refer to Fig. 2-2-B)**
2. In case of the Traverse Ass'y installation, hook the wire on the Loader Ass'y as shown Fig. 2-2-C.

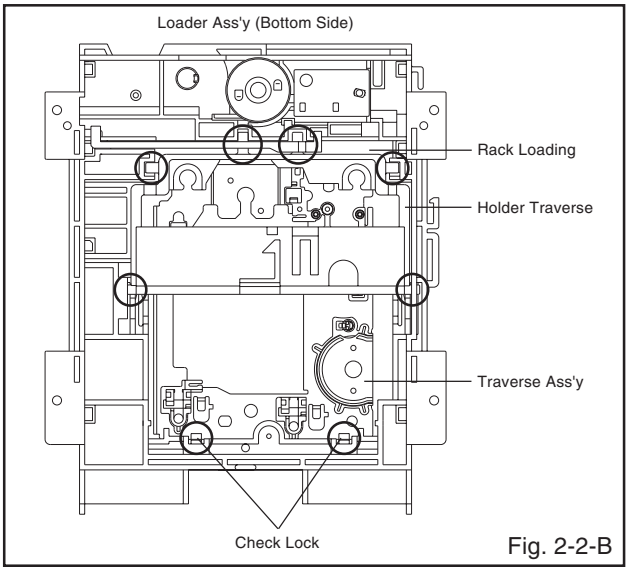


Fig. 2-2-B

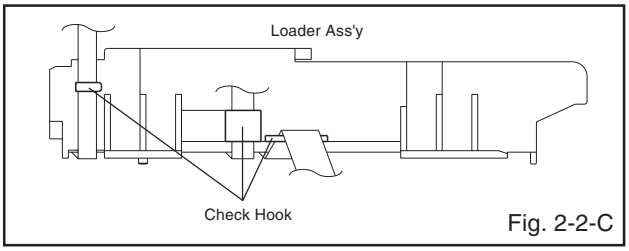


Fig. 2-2-C

**2-3: LOADING MOTOR PCB ASS'Y/ LOADING BELT (Refer to Fig. 2-3-A)**

1. Remove the Loading Belt.
2. Remove the screw ①.
3. Remove the Loading Motor PCB Ass'y.
4. Remove the 2 screws ②.
5. Remove the Loading Motor.
6. Remove the Gear Pulley.

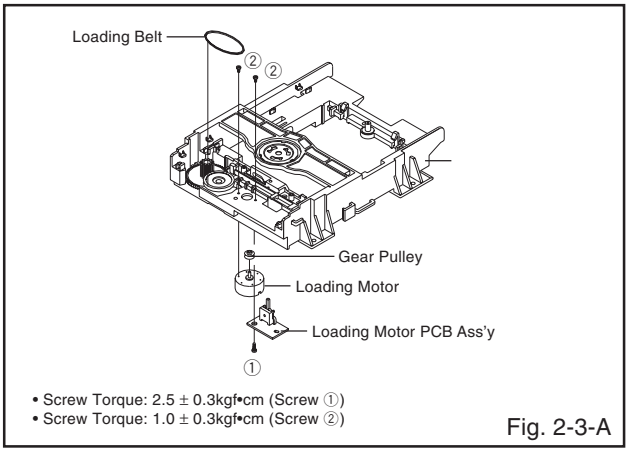


Fig. 2-3-A

**NOTE**

1. In case of the Pulley Motor installation, check if the value of the Fig. 2-3-B is correct.
2. When installing the wire of the Loading Motor PCB Ass'y, install it correctly as Fig. 2-3-C.
   Manual soldering conditions
   • Soldering temperature: 350 ± 5˚C
   • Soldering time: Within 4 seconds
   • Soldering combination: Sn-3.0Ag-0.5Cu
3. When installing the Loading Motor PCB Ass'y, install it correctly as Fig. 2-3-D.
4. In case of the Loading Motor PCB Ass'y installation, hook the wire on the Loader Sub Ass'y as shown Fig. 2-3-E.

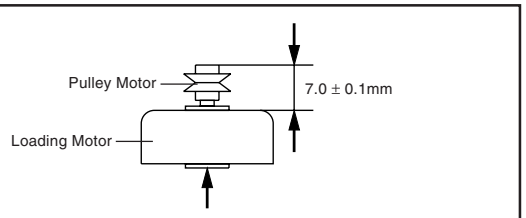


Fig. 2-3-B

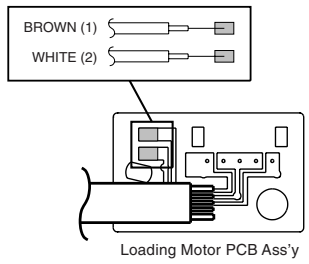


Fig. 2-3-C

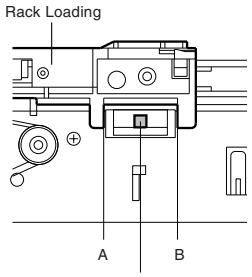


Fig. 2-3-D

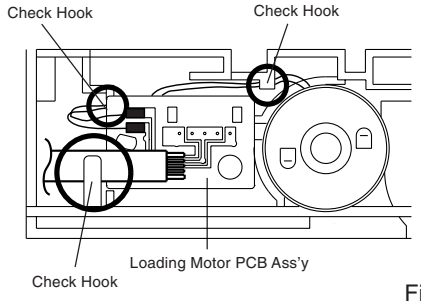


Fig. 2-3-E

**2-4: RACK LOADING/MAIN GEAR/PULLEY GEAR (Refer to Fig. 2-4-A)**

1. Unlock the support ① and remove the Gear Pulley.
2. Remove the Gear Main.
3. Press down the catcher ② and slide the Rack Loading.

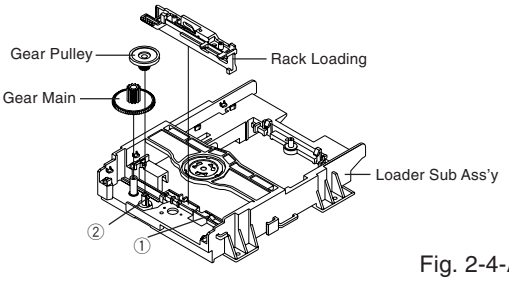


Fig. 2-4-A

**NOTE**

1. In case of the Rack Loading installation, hook the Rack Loading on the Loader Sub Ass'y as shown Fig. 2-4-B.
2. When installing the Gear Main, take care the direction of up or down as shown Fig. 2-4-C.

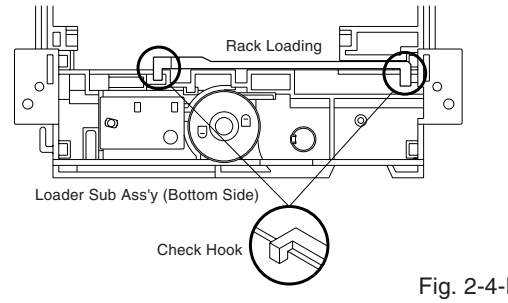


Fig. 2-4-B

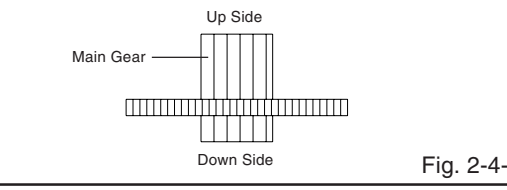


Fig. 2-4-C

**2-5: CLAMPER ASS'Y (Refer to Fig. 2-5-A)**

1. Press the Clamper and rotate the Plate Clamper clockwise, then unlock the 3 supports ①.
2. Remove the Plate Clamper, Magnet Clamper and Clamper.

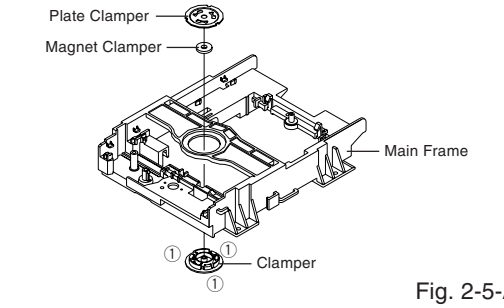


Fig. 2-5-A

**NOTE**

1. In case of the Clamper Ass'y installation, install correctly as Fig. 2-5-B.

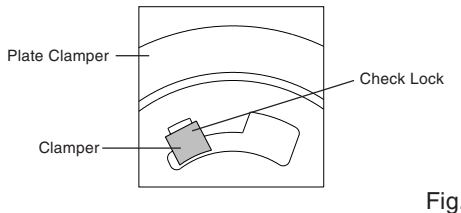



Fig. 2-5-B

### 2-6: HOLDER TRAVERSE/INSULATOR (F)/INSULATOR (R) (Refer to Fig. 2-6-A)

1. Remove the Holder Traverse.
2. Remove the 2 Insulator (F).
3. Remove the Insulator (R).

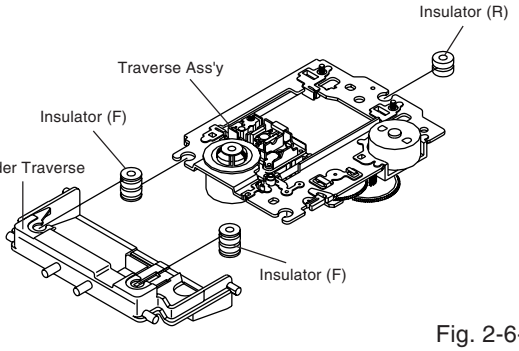



Fig. 2-6-A

**NOTE**

1. In case of the Insulator (F) installation, install correctly as Fig. 2-6-B.

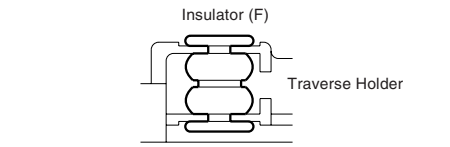
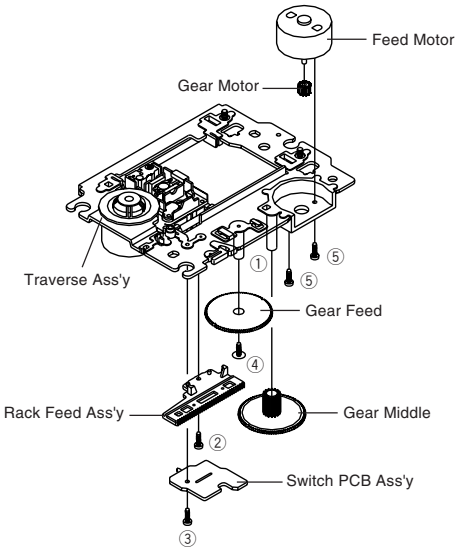



Fig. 2-6-B

### 2-7: SWITCH PCB ASS'Y/GEAR MIDDLE/GEAR FEED/RACK FEED ASS'Y/FEED MOTOR (Refer to Fig. 2-7-A)

1. Unlock the support ①.
2. Remove the Gear Middle.
3. Remove the screw ②.
4. Remove the Rack Feed Ass'y.
5. Remove the screw ③.
6. Remove the Switch PCB Ass'y.
7. Remove the screw ④.
8. Remove the Gear Feed.
9. Remove the 2 screws ⑤.
10. Remove the Feed Motor.
11. Remove the Gear Motor.




• Screw Torque: 1.3 ± 0.3kgf•cm (Screw ②)
• Screw Torque: 3.0 ± 0.3kgf•cm (Screw ③)
• Screw Torque: 1.0 ± 0.3kgf•cm (Screw ④, ⑤)

Fig. 2-7-A

**NOTE**

1. When installing the Rack Feed Ass'y, push both ends to align the teeth as shown Fig. 2-7-B. Then install it.
2. In case of the Gear Motor installation, check if the value of the Fig. 2-7-C is correct.
3. When installing the wire of the Switch PCB Ass'y, install it correctly as Fig. 2-7-D.
   Manual soldering conditions
   • Soldering temperature: 350 ± 5˚C
   • Soldering time: Within 4 seconds
   • Soldering combination: Sn-3.0Ag-0.5Cu
4. After the assembly of the Traverse Ass'y, hook the wire on the Traverse Ass'y as shown Fig. 2-7-E.

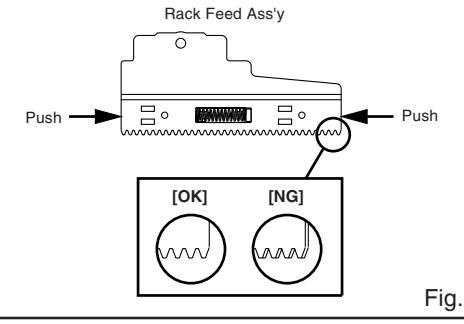



Fig. 2-7-B

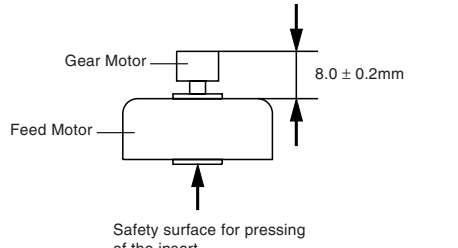



Fig. 2-7-C

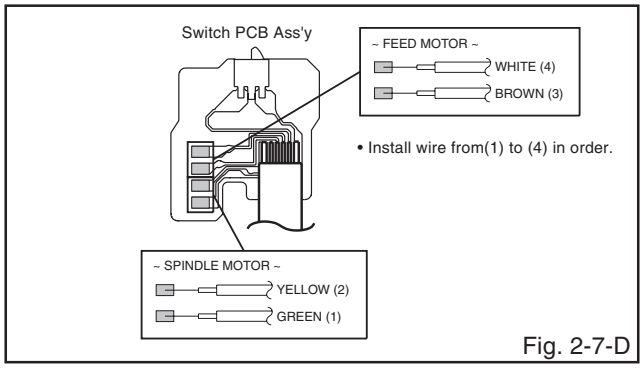



Fig. 2-7-D

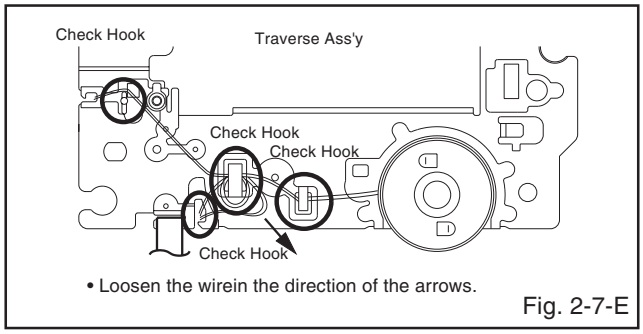



Fig. 2-7-E

**2-8: FFC WIRE HANDLING**

1. When installing the FFC, fold it correctly and install it as shown from Fig. 2-8.

**NOTE**

1. Do not make the folding lines except the specified positions for the FFC.

**[ 24 pin FFC ]**

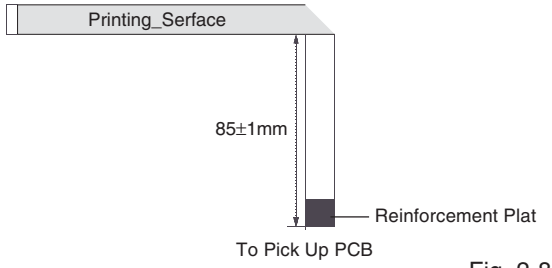



Fig. 2-8

# 7.3 IC INFORMATION

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

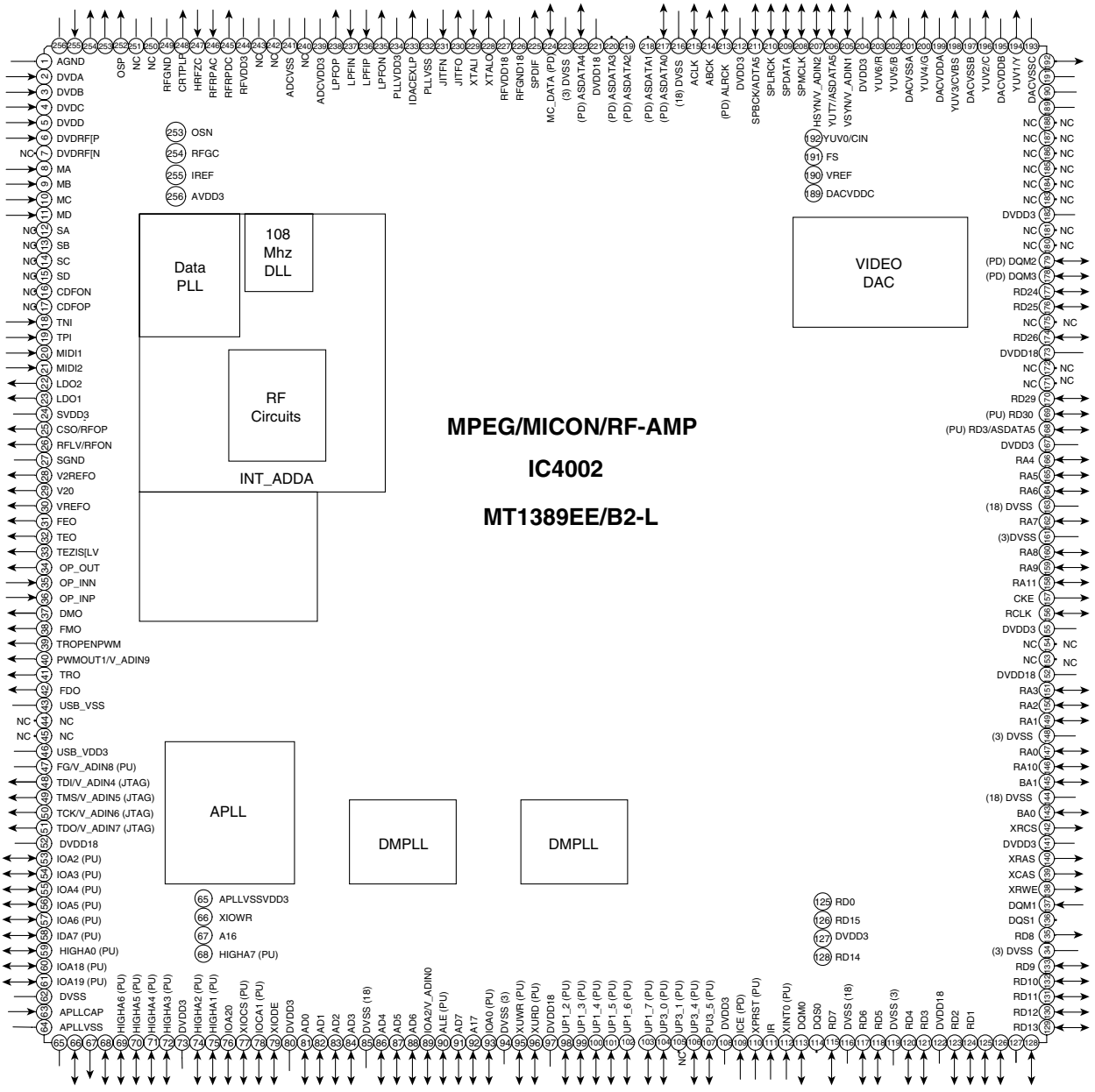
● **List of IC**

MT1389EE/B2-L, LA6565, PT6315

## ■ MT1389EE/B2-L (DVD MT ASSY: IC4002)

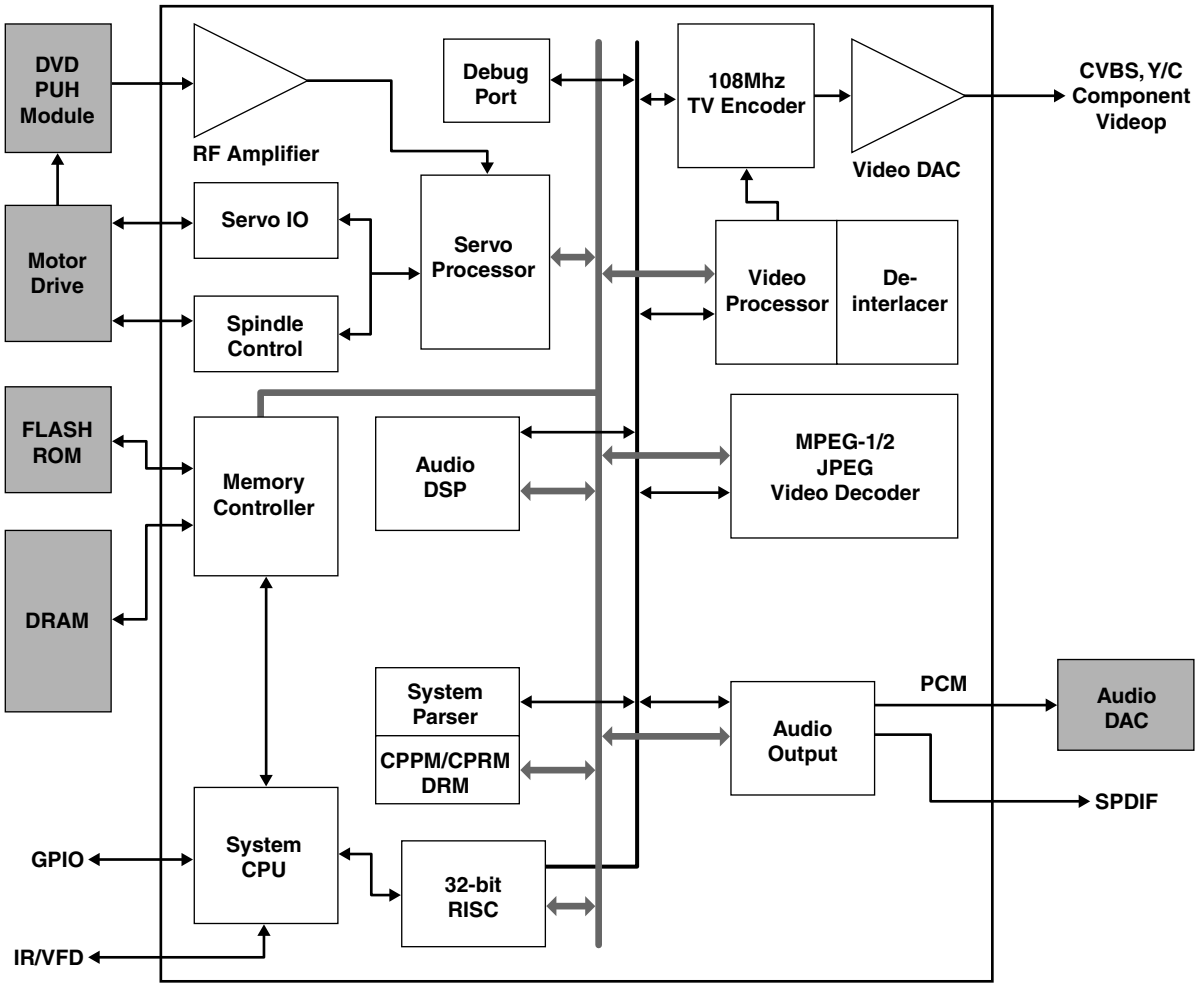
• MPEG / MICON / RF-AMP

● **Pin Arrangement (Top view)**



• MPEG / MICON / RF-AMP Microcomputer

## ● Block Diagram



## MT1389EE/B2-L (DVD MT ASSY : IC4002)

• MPEG/MICON/RF-AMP CPU

### ● Pin Function

| No. | Pin Name | I/O | Pin Function | No. | Pin Name | I/O | Pin Function |
|---|---|---|---|---|---|---|---|
| 1 | AGND | – | Analog ground | 48 | TDI | I | Serial interface port 3 data-out<br>Version AD input port 4<br>GPIO |
| 2 | DVDA | I | AC coupled input path A | | | | |
| 3 | DVDB | I | AC coupled input path B | 49 | TMS | I | Serial interface port 3 data-in<br>Version AD input port 5<br>GPIO |
| 4 | DVDC | I | AC coupled input path C | | | | |
| 5 | DVDD | I | AC coupled input path D | 50 | TCK | I | Serial interface port 3 clock pin<br>Version AD input port 6<br>GPIO |
| 6 | DVDRFIP | I | AC coupled DVD RF signal input RFIP | | | | |
| 7 | DVDRFIN | I | AC coupled DVD RF signal input RFIN | 51 | TDO | I | Serial interface port 3 chip-select<br>Version AD input port 7<br>GPO |
| 8 | MA | I | DC coupled main-beam RF signal input A | | | | |
| 9 | MB | I | DC coupled main-beam RF signal input B | 52 | DVDD18 | – | 1.8V power pin for internal digital circuitry |
| 10 | MC | I | DC coupled main-beam RF signal input C | 53 | IOA2 | I/O | Microcontroller address 2/IO |
| 11 | MD | I | DC coupled main-beam RF signal input D | 54 | IOA3 | I/O | Microcontroller address 3/IO |
| 12 | SA | I | DC coupled sub-beam RF signal input A | 55 | IOA4 | I/O | Microcontroller address 4/IO |
| 13 | SB | I | DC coupled sub-beam RF signal input B | 56 | IOA5 | I/O | Microcontroller address 5/IO |
| 14 | SC | I | DC coupled sub-beam RF signal input C | 57 | IOA6 | I/O | Microcontroller address 6/IO |
| 15 | SD | I | DC coupled sub-beam RF signal input D | 58 | IOA7 | I/O | Microcontroller address 7/IO |
| 16 | CDFON | I | CD focusing error negative input | 59 | HIGHA0 | I/O | Microcontroller address 8 |
| 17 | CDFOP | I | CD focusing error positive input | 60 | IOA18 | I/O | Flash address 18/IO |
| 18 | TNI | I | 3 beam satellite PD signal negative input | 61 | IOA19 | I/O | Flash address 19/IO |
| 19 | TPI | I | 3 beam satellite PD signal positive input | 62 | DVSS | – | 3.3V Ground pin for internal digital circuitry |
| 20 | MDI1 | I | Laser power monitor input | 63 | APLLCAP | I | APLL External Capacitance connection |
| 21 | MDI2 | I | Laser power monitor input | 64 | APLLVSS | – | Ground pin for sudio clock circuitry |
| 22 | LDO2 | O | Laser driver output | 65 | APLLVDD3 | – | 3.3V Power pin for audio clock circuity |
| 23 | LDO1 | O | Laser driver output | 66 | IOWR# | I/O | Flash write enable, active low/IO |
| 24 | SVDD3 | – | Analog power 3.3V | 67 | A16 | O | Flash adress 16 |
| 25 | CSO | O | Central servo/Positive main beam summing output | 68 | HIGHA7 | I/O | Microcontroller address 15 |
| 26 | RFLVL | O | RFRP low pass, or Negative main beam summing output | 69 | HIGHA6 | I/O | Microcontroller address 14 |
| 27 | SGND | – | Analog ground | 70 | HIGHA5 | I/O | Microcontroller address 13 |
| 28 | V2REFO | – | Reference voltage 2.8V | 71 | HIGHA4 | I/O | Microcontroller address 12 |
| 29 | V20 | I/O | Reference voltage 2.0V | 72 | HIGHA3 | I/O | Microcontroller address 11 |
| 30 | VREFO | I/O | Reference voltage 1.4V | 73 | DVDD3 | – | 3.3V power pin for internal digital circuitry |
| 31 | FEO | O | Focus error monitor output | 74 | HIGHA2 | I/O | Microcontroller adress 10 |
| 32 | TEO | O | Tracking error monitor output | 75 | HIGHA1 | I/O | Microcontroller adress 9 |
| 33 | TEZISLV | I/O | TE Slicing Level | 76 | IOA20 | I/O | Flash adress 20/IO |
| 34 | OP_OUT | O | Op amp output | 77 | IOCS# | I/O | Flash chip select, active low/IO |
| 35 | OP_INN | I | Op amp negative input | 78 | IOA1 | I/O | Microcontroller adress 1/IO |
| 36 | OP_INP | I | Op amp positive input | 79 | IOOE# | I/O | Flash output enable, active low/IO |
| 37 | DMO | O | Disk motor control output. PWM output | 80 | DVDD3 | – | 3.3V power pin for internal digital circuitry |
| 38 | FMO | O | Feed motor control. PWM output | 81 | AD0 | I | Microcontroller address/data 0 |
| 39 | TROPENP/WM | O | Tray PWM output/Tray open output | 82 | AD1 | I | Microcontroller address/data 1 |
| 40 | PWMOUT1 | O | 1st General PWM output, or Version AD input9 | 83 | AD2 | I | Microcontroller address/data 2 |
| 41 | TRO | O | Tracking servo output. PDM output of tracking servo compensator. | 84 | AD3 | I | Microcontroller address/data 3 |
| | | | | 85 | DVSS | – | 1.8V Ground pin for internal digital circuitry |
| 42 | FOO | O | Focus servo output. PDM output of focus servo compensator | 86 | AD4 | I | Microcontroller address/data 4 |
| | | | | 87 | AD5 | I | Microcontroller address/data 5 |
| 43 | DVSS | – | 1.8V Ground pin for internal digital | 88 | AD6 | I | Microcontroller address/data 6 |
| 44 | NC | – | – | 89 | IOA21 | I/O | Flash address 21/IO<br>While External FLASH size <= 2MB:<br>Version AD input port 0, or<br>GPIO |
| 45 | NC | – | – | | | | |
| 46 | DVDD3 | – | 3.3V power pin for internal digital circuitry | | | | |
| 47 | FG(Diogital pin) | – | Motor Hall sensor input, or Version AD input 8 | 90 | ALE | I/O | Microcontroller address latch enable |

| No. | Pin Name | I/O | Pin Function |
|---|---|---|---|
| 91 | AD7 | I | Microcontroller address/data 7 |
| 92 | A17 | O | Flash address 17 |
| 93 | IOA0 | I/O | Microcontroller address 0/IO |
| 94 | DVSS | – | 3.3V Ground pin for internal digital circuitry |
| 95 | UWR# | I | Microcontroller write strobe, active low |
| 96 | URD# | I | Microcontroller read strobe, active low |
| 97 | DVDD18 | – | 1.8V power pin for internal digital circuitry |
| 98 | UP1_2 | I/O | Microcontroller port 1-2 |
| 99 | UP1_3 | I/O | Microcontroller port 1-3 |
| 100 | UP1_4 | I/O | Microcontroller port 1-4 |
| 101 | UP1_5 | I/O | Microcontroller port 1-5 |
| 102 | UP1_6 | I/O | Microcontroller port 1-6<br>$I^2C$ clock pin |
| 103 | UP1_7 | I/O | Microcontroller port 1-7<br>$I^2C$ data pin |
| 104 | UP3_0 | I/O | Microcontroller port 3-0<br>8032 RS232 RXD |
| 105 | UP3_1 | I/O | Microcontroller port 3-1<br>8032 RS232 TXD |
| 106 | UP3_4 | I/O | Microcontroller port 3-4<br>Hardwired RD232 RXD<br>$I^2C$ clock pin |
| 107 | UP3_5 | I/O | Microcontroller port 3-5<br>Hardwired RD232 TXD<br>$I^2C$ data pin |
| 108 | DVDD3 | – | 3.3V power pin for internal digital circuitry |
| 109 | ICE | I | Microcontroller ICE mode enable |
| 110 | PRST# | I | Power on reset input, active low |
| 111 | IR | I | IR control signal input |
| 112 | INT0# | I/O | Microcontroller external interrupt 0, active low |
| 113 | DQM0 | I/O | Data mask 0 |
| 114 | DQS0 | I/O | GPIO |
| 115 | RD7 | I/O | DRAM data 7 |
| 116 | DVSS | – | 1.8V Ground pin for internal digital circuitry |
| 117 | RD6 | I/O | DRAM data 6 |
| 118 | RD5 | I/O | DRAM data 5 |
| 119 | DVSS | – | 3.3V Ground pin for internal digital circuitry |
| 120 | RD4 | I/O | DRAM data 4 |
| 121 | RD3 | I/O | DRAM data 3 |
| 122 | DVDD18 | – | 1.8V power pin for internal digital circuitry |
| 123 | RD2 | I/O | DRAM data 2 |
| 124 | RD1 | I/O | DRAM data 1 |
| 125 | RD0 | I/O | DRAM data 0 |
| 126 | RD15 | I/O | DRAM data 15 |
| 127 | DVDD3 | – | 3.3V power pin for internal digital circuitry |
| 128 | RD14 | I/O | DRAM data 14 |
| 129 | RD13 | I/O | DRAM data 13 |
| 130 | RD12 | I/O | DRAM data 12 |
| 131 | RD11 | I/O | DRAM data 11 |
| 132 | RD10 | I/O | DRAM data 10 |
| 133 | RD9 | I/O | DRAM data 9 |
| 134 | DVSS | – | 3.3V Ground pin for internal digital circuitry |
| 135 | RD8 | I/O | DRAM data 8 |
| 136 | DQS1 | I/O | GPIO |

| No. | Pin Name | I/O | Pin Function |
|---|---|---|---|
| 137 | DQM1 | I/O | Data mask 1 |
| 138 | RWE# | O | DRAM Write enable, active low |
| 139 | CAS# | O | DRAM column address strobe, active low |
| 140 | RAS# | O | DRAM row address strobe, active low |
| 141 | DVDD3 | – | 3.3V power pin for internal digital circuitry |
| 142 | RCS# | O | DRAM chip select, active low |
| 143 | BA0 | I/O | DRAM bank address 0 |
| 144 | DVSS | – | 1.8V Ground pin for internal digital circuitry |
| 145 | BA1 | I/O | DRAM bank address 1 |
| 146 | RA10 | I/O | DRAM address 10 |
| 147 | RA0 | I/O | DRAM address 0 |
| 148 | DVSS | – | 3.3V Ground pin for internal digital circuitry |
| 149 | RA1 | I/O | DRAM address 1 |
| 150 | RA2 | I/O | DRAM address 2 |
| 151 | RA3 | I/O | DRAM address 3 |
| 152 | DVDD18 | – | 1.8V power pin for internal digital circuitry |
| 153 | NC | – | – |
| 154 | NC | – | – |
| 155 | DVDD3 | – | 3.3V power pin for internal digital circuitry |
| 156 | RCLK | I/O | Dram clock |
| 157 | CKE | O | DRAM clock enable |
| 158 | RA11 | I/O | DRAM address bit 11 |
| 159 | RA9 | I/O | DRAM address 9 |
| 160 | RA8 | I/O | DRAM address 8 |
| 161 | DVSS | – | 3.3V Ground pin for internal digital circuitry |
| 162 | RA7 | I/O | DRAM address 7 |
| 163 | DVSS | – | 1.8V Ground pin for internal digital circuitry |
| 164 | RA6 | I/O | DRAM address 6 |
| 165 | RA5 | I/O | DRAM address 5 |
| 166 | RA4 | I/O | DRAM address 4 |
| 167 | DVDD3 | – | 3.3V power pin for internal digital circuitry |
| 168 | RD31 | I/O | GPIO |
| 169 | RD30 | I/O | GPIO |
| 170 | RD29 | I/O | GPIO |
| 171 | NC | – | – |
| 172 | NC | – | – |
| 173 | DVDD18 | – | 1.8V power pin for internal digital circuitry |
| 174 | RD26 | I/O | GPIO |
| 175 | NC | – | – |
| 176 | RD25 | I/O | GPIO |
| 177 | RD24 | I/O | GPIO |
| 178 | DQM3 | I/O | GPIO |
| 179 | DQM2 | I/O | GPIO |
| 180 | NC | – | – |
| 181 | NC | – | – |
| 182 | DVDD3 | – | 3.3V power pin for internal digital circuitry |
| 183 | NC | – | – |
| 184 | NC | – | – |
| 185 | NC | – | – |
| 186 | NC | – | – |
| 187 | NC | – | – |
| 188 | NC | – | – |

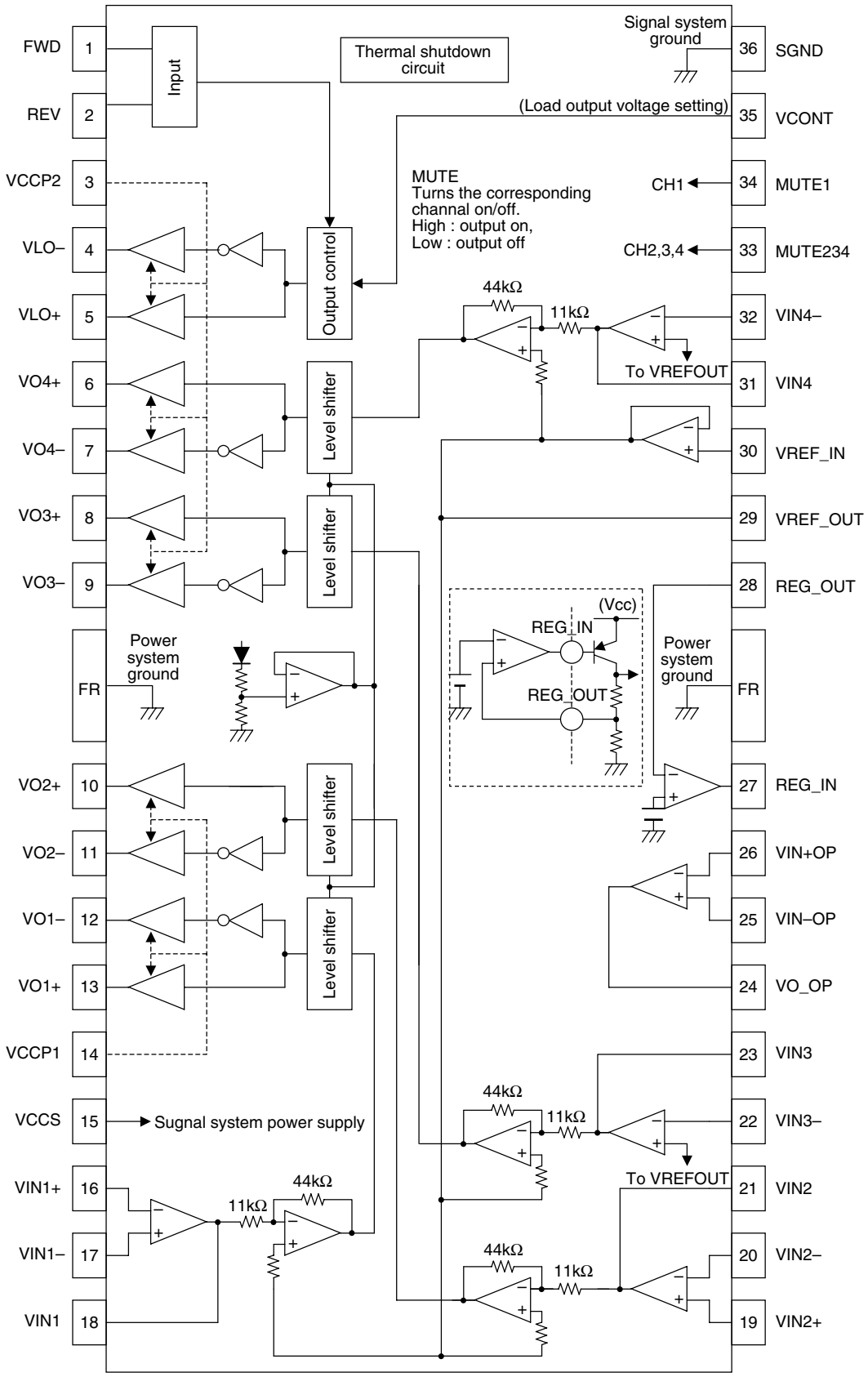
| No. | Pin Name | I/O | Pin Function |
|---|---|---|---|
| 189 | DACVDDC | – | 3.3V power pin for VIDEO DAC circuitry |
| 190 | VREF | – | Bandgap reference voltage |
| 191 | FS | – | Full scale adjustment |
| 192 | YUV0 | O | Video data output bit 0<br>Compensation capacitor |
| 193 | DACVSSC | – | Ground pin for VIDEO DAC circuitry |
| 194 | YUV1 | O | Video data output bit 1<br>Analog Y output |
| 195 | DACVDDB | – | 3.3V power pin for VIDEO DAC circuitry |
| 196 | YUV2 | O | Video data output bit 2<br>Analog chroma output |
| 197 | DACVSSB | – | Ground pin for VIDEO DAC circuitry |
| 198 | YUV3 | O | Video data output bit 3<br>Analog composite output |
| 199 | DACVDDA | – | 3.3V power pin for VIDEO DAC circuitry |
| 200 | YUV4 | O | Video data output bit 4<br>Green or Y |
| 201 | DACVSSA | – | Ground pin for VIDEO DAC circuitry |
| 202 | YUV5 | O | Video data output bit 5<br>Blue or CB |
| 203 | YUV6 | O | Video data output bit 6<br>Red or CR |
| 204 | DVDD3 | – | 3.3V power pin Video DAC digital circuitry only |
| 205 | VSYN | I/O | Vertical sync input/output<br>While no External TV-encoder:<br>Vertical sync for video-input<br>Version AD input port 1<br>GPIO |
| 206 | YUV7 | I/O | Video data output bit 7<br>While no External TV-encoder:<br>Microcontroller external interrupt 3<br>Audio serial data 5 part II:DSD data sub-woofer channel or Microphone output<br>GPIO |
| 207 | HSYN | I/O | Horizontal sync input/output<br>While no External TV-encoder:<br>Horizontal sync for video-input<br>Microcontroller external interrupt 4<br>Version AD input port 2<br>GPIO |
| 208 | SPMCLK | I/O | Audio DAC master clock of SPDIF input<br>While SPDIF input is not used:<br>Serial interface port 0 clock pin<br>GPIO |
| 209 | SPDATA | I/O | Audio data of SPDIF input<br>While SPDIF input is not used:<br>Serial interface port 0 data-in<br>GPIO |
| 210 | SPLRCK | I/O | Audio left/right channel clock of SPDIF input<br>While SPDIF input is not used:<br>Serial interface port 0 data-out<br>GPIO |
| 211 | SPBCK | I/O | Audio bit clock of SPDIF input<br>While SPDIF input is not used:<br>Serial interface port 0 chip select<br>Audio serial data 5 part I:DSD data sub-woofer channel or Microphone output<br>GPIO |
| 212 | DVDD3 | – | 3.3V power pin for internal digital circuitry |
| 213 | ALRCK | I/O | Audio left/right channel clock<br>Trap value in power-on reset:<br>1:use external 373<br>0:use internal 373 |
| 214 | ABCK | O | Audio bit clock<br>Phase de-modulation |
| 215 | ACLK | I/O | Audio DAC master clock |
| 216 | DVSS | – | 1.8V Ground pin for internal digital circuitry |
| 217 | ASDATA0 | I/O | Audio serial data 0 (Front-Left/Front-Right)<br>DSD data left channel<br>Trap value in power-on reset:<br>1:manufactory test mode<br>0:normal operation |
| 218 | ASDATA1 | I/O | Audio serial data 1 (Left-Surround/Right-Surround)<br>DSD data right channel<br>Trap value in power-on reset:<br>1:manufactory test mode<br>0:normal operation<br>While only 2 channels output:<br>GPO |
| 219 | ASDATA2 | I/O | Audio serial data 2 (Center/LFE)<br>DSD data left surround channel<br>Trap value in power-on reset:<br>1:manufactory test mode<br>0:normal operation<br>While only 2 channels output:<br>GPO |
| 220 | ASDATA3 | I/O | Audio serial data 3 (Center-back/Center-left-back/Center-right-back, in 6.1 or 7.1 mode)<br>DSD data right surround channel<br>Trap value in power-on reset:<br>1:manufactory test mode<br>0:normal operation<br>While only 2 channels output:<br>GPIO |
| 221 | DVDD18 | – | 1.8V power pin for internal digital circuitry |
| 222 | ASDATA4 | I/O | Audio serial data 4 (Down-mixed Left/Right)<br>DSD data center channel<br>Trap value in power-on reset:<br>1:manufactory test mode<br>0:normal operation<br>While only 2 channels output:<br>Microcontroller external interrupt 1<br>GPIO |
| 223 | DVSS | – | 3.3V Ground pin for internal digital circuitry |
| 224 | MC_DATA | I/O | Microphone serial input<br>While not support Microphone:<br>Microcontroller external interrupt 2<br>GPIO |
| 225 | SPDIF | O | SPDIF output |
| 226 | RFGND18 | – | Analog ground |
| 227 | RFVDD18 | – | Analog power 1.8V |
| 228 | XTALO | O | 27M crystal out |
| 229 | XTALI | I | 27M crystal in |
| 230 | JITFO | O | The output terminal of RF jitter meter |
| 231 | JITFN | I | The input terminal of RF jitter meter |
| 232 | PLLVSS | – | Ground pin for data PLL and related analog circuitry |
| 233 | IDACEXLP | O | Data PLL DAC Low-pass filter |
| 234 | PLLVDD3 | – | Power pin for data PLL and related analog circuitry |
| 235 | LPFON | O | The negative output of loop filter amplifier |
| 236 | LPFIP | I | The positive input terminal of loop filter amplifier |
| 237 | LPFIN | I | The negative input terminal of loop filter amplifier |
| 238 | LPFOP | O | The positive output of loop filter amplifier |

| No. | Pin Name | I/O | Pin Function | No. | Pin Name | I/O | Pin Function |
|---|---|---|---|---|---|---|---|
| 239 | ADCVDD3 | – | Analog 3.3V Power for ADC | 249 | RFGND | – | Analog Power |
| 240 | NC | – | – | 250 | NC | – | – |
| 241 | ADCVSS | – | Analog ground for ADC | 251 | NC | – | – |
| 242 | NC | – | – | 252 | OSP | O | RF Offset cancellation capacitor connecting |
| 243 | NC | – | – | 253 | OSN | O | RF Offset cancellation capacitor connecting |
| 244 | RFVDD3 | – | Analog Power | 254 | RFGC | O | RF AGC loop capacitor connecting for DVD-ROM |
| 245 | RFRPDC | O | RF ripple detect output | 255 | IREF | I | Current reference input. It generates reference current for RF path. Connect an external 15K resistor to this pin and AVSS |
| 246 | RFRPAC | I | RF ripple detect input (through AC-coupling) | | | | |
| 247 | HRFZC | I | High frequency RF ripple zero crossing | | | | |
| 248 | CRTPLP | O | Defect level filter capacitor connecting | 256 | AVDD3 | – | Analog power 3.3V |

## LA6565(I03F065650) : (DVD MT : IC2301)

• MOTOR DRIIVE

### ● Internal Block Diagram



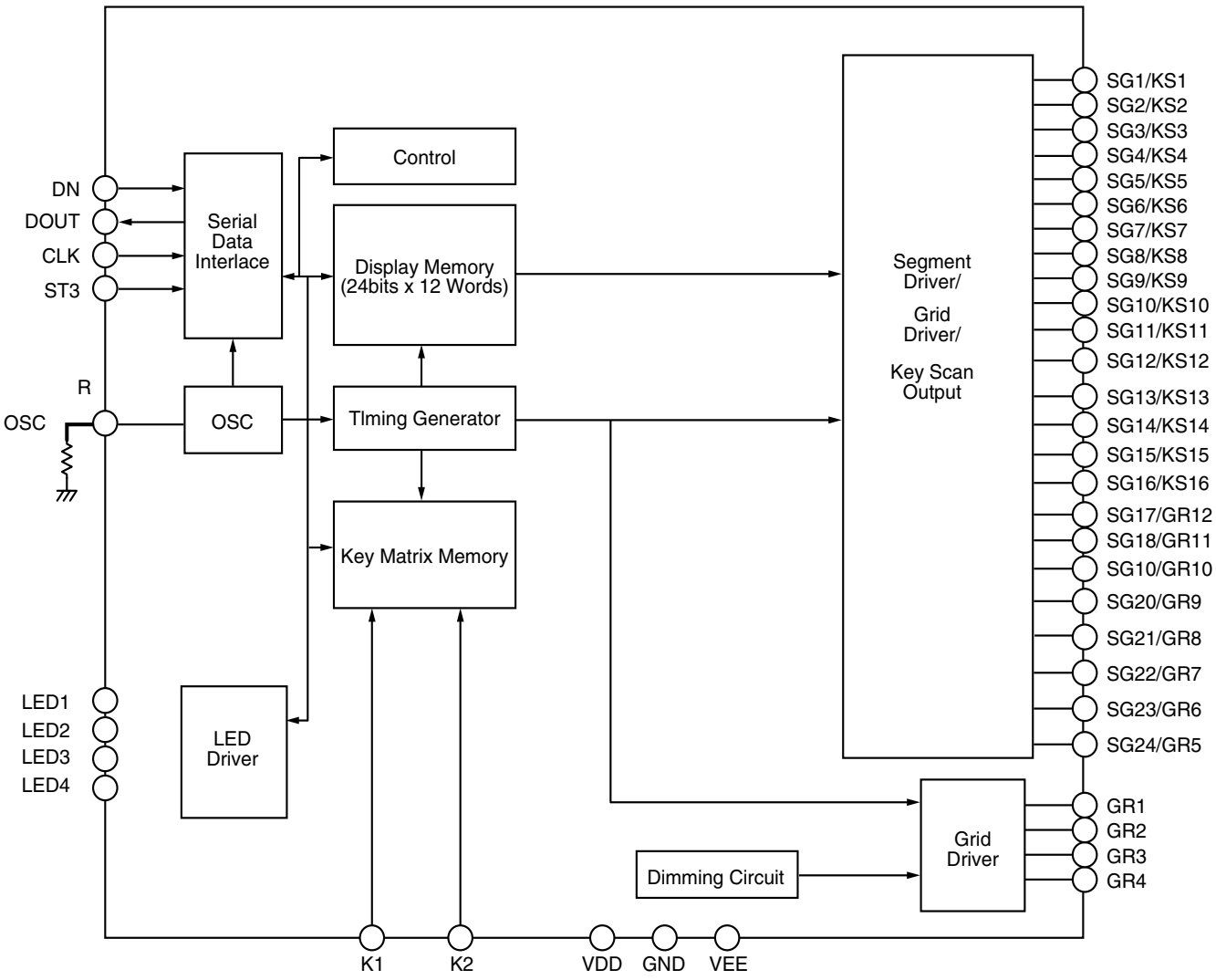
## ● Pin Functions

| Pin No. | Pin Name | Pin Descriptions |
|---|---|---|
| 1 | FWD | Loading output direction switching (FWD). Loading system logic input. |
| 2 | REV | Loading output direction switching (REV). Loading system logic input. |
| 3 | V CC 2 | Channels 3, 4, and loading power stage power supply |
| 4 | VLO – | Loading output (–) |
| 5 | VLO + | Loading output (+) |
| 6 | VO4 + | Channel 4 output (+) |
| 7 | VO4 – | Channel 4 output (–) |
| 8 | VO3 + | Channel 3 output (+) |
| 9 | VO3 – | Channel 3 output (–) |
| 10 | VO2 + | Channel 2 output (+) |
| 11 | VO1 – | Channel 2 output (–) |
| 12 | VO1 – | Channel 1 output (–) |
| 13 | VO1 + | Channel 1 output (+) |
| 14 | VCCP1 | Channel 1 and 2 power stage power supply |
| 15 | VCCS | Signal system power supply |
| 16 | VIN1 + | Channel 1 input. Input operational amplifier + input. |
| 17 | VIN1 – | Channal 1 input. Input operational amplifier – input. |
| 18 | VIN1 | Channel 1 input. Input operational amplifier output. |
| 19 | VIN2 + | Channal 2 input. Input operational amplifier + input. |
| 20 | VIN2 – | Channel 2 input. Input operational amplifier – input. |
| 21 | VIN2 | Channel 2 input. Input operational amplifier output. |
| 22 | VIN3 – | Channel 3 input. Input operational amplifier – input. |
| 23 | VIN3 | Channal 3 input. Input operational amplifier output. |
| 24 | VO_OP | Operational amplifier output |
| 25 | VIN–OP | Operational amplifier – input |
| 26 | VIN+OP | Operational amplifier + input |
| 27 | REG_IN | Regulator error amplifer output. Connect this pin to the base of the external pnp transistor. |
| 28 | REG_OUT | Regulator error amplifier input (+). |
| 29 | VREF_OUT | VREF amplifier (voltage follower) output. |
| 30 | VREF_IN | VREF input. Apply the external reference voltage to this pin. |
| 31 | VIN4 | Channal 4 input. Input operational amplifier output. |
| 32 | VIN4 – | Channal 4 input operational amplifier – input. |
| 33 | MUTE234 | Controls the on/off state of channals 2, 3, and 4. |
| 34 | MUTE1 | Channal 1 output on/off control |
| 35 | VCONT | Loading block output high–level voltage setting |
| 36 | S_GND | Signal system ground |

## PT6315 (OPERATION ASSY : IC651)

• FIP DRIIVE IC

### Block Diagram



## ● Pin Description

| Pin Name | I/O | Description | Pin No. |
|---|---|---|---|
| LED1 to LED4 | O | LED Output Pin | 1 to 4 |
| OSC | I | Oscillator Input Pin<br>A resistor is connected to this pin to determine the oscillation frequency | 5 |
| DOUT | O | Data Output Pin (N-Channel, Open-Drain)<br>This pin outputs serial data at the falling edge of the shift clock (starting from the lower bit). | 6 |
| DIN<br>(Schmitt Trigger) | I | Data Input Pin<br>This pin inputs serial data at the rising edge of the shift clock (starting from the lower bit) | 7 |
| CLK<br>(Schmitt Trigger) | I | Clock Input Pin<br>This pin reads serial data at the rising edge and outputs data at the falling edge. | 8 |
| STB<br>(Schmitt Trigger) | I | Serial Interface Strobe Pin<br>The data input after the STB has fallen is processed as a command.<br>When this pin is "HIGH", CLK is ignored. | 9 |
| K1 to K2 | I | Key Data Input Pins<br>The data inputted to these pins are latched at the end of the display cycle. | 10 ,11 |
| VSS | – | Logic Ground Pin | 12,44 |
| VDD | – | Logic Power Supply | 13,43 |
| SG1/KS1 to SG16/KS16 | O | High-Voltage Segment Output Pins<br>Also acts as the Key Source | 14 to 29 |
| VEE | – | Pull-Down Level | 30 |
| SG17/GR12 to SG24/GR5 | O | High Voltage Segment/Grid Output Pins | 31 to 38 |
| GR4 to GR1 | O | High-Voltage Grid Output Pins | 39 to 42 |

# 7.4 DISC / CONTENT FORMAT PLAYBACK COMPATIBILITY

## Disc / content format playback compatibility

This player is compatible with a wide range of disc types (media) and formats. Playable discs will generally feature one of the following logos on the disc and/or disc packaging. Note however that some disc types, such as recordable CD and DVD, may be in an unplayable format—see below for further compatibility information.

Please also note that recordable discs cannot be recorded using this player.

DVD-Audio DVD-Video DVD-R DVD-RW

Audio CD Video CD CD-R CD-RW

Super Audio CD

Fujicolor CD

- DVD is a trademark of DVD Format/Logo Licensing Corporation.
- is a trademark of Fuji Photo Film Co. Ltd.
- Also compatible with KODAK Picture CD
- About DualDisc playback

  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 non-DVD, audio side of the disc is not compliant with the CD Audio specification and therefore may not play.

  The DVD side of a DualDisc plays in this product.

  For more detailed information on the DualDisc specification, please refer to the disc manufacturer or disc retailer.

This player supports the IEC's Super VCD standard. Compared to the Video CD standard, Super VCD offers superior picture quality, and allows two stereo soundtracks to be recorded. Super VCD also supports the widescreen size.

Super VCD

### CD-R/RW compatibility

- Compatible formats: CD-Audio, Video CD/Super VCD, ISO 9660 CD-ROM* containing MP3, WMA, JPEG or DivX video files

  * ISO 9660 Level 1 or 2 compliant. CD physical format : Mode1, Mode2 XA Form1.

  Romeo and Joliet file systems are both compatible with this player.
- Multi-session playback: No
- Unfinalized disc playback: No
- Filestructure (may differ): Up to 299 folders on a disc; up to 648 folders and files (combined) within each folder

### DVD-R/RW compatibility

- Compatible formats: DVD-Video, Video Recording (VR)*

  * Editpoints may not play exactly as edited; screen may go momentarily blank at edited points.
- Unfinalized playback: No
- WMA/MP3/JPEG file playback on DVD-R/RW: No

### Compressed audio compatibility

- Compatible formats: MPEG-1 Audio Layer 3 (MP3), Windows Media Audio (WMA)
- Sampling rates: 32, 44.1 or 48kHz
- Bit-rates: Any (128Kbps or higher recommended)
- VBR (variable bit rate) MP3 playback: No
- VBR WMA playback: No
- WMA lossless encoding compatible: No
- DRM (Digital Rights Management) compatible: Yes (DRM-protected audio files will not play in this player—see also DRM in the Glossary on )
- Fileextensions: .mp3, .wma (these must be used for the player to recognize MP3 and WMA files – do not use for other file types)

### About WMA

The Windows Media ® logo printed on the box indicates that this player can playback Windows Media Audio content.

WMA is an acronym for Windows Media Audio and refers to an audio compression technology developed by Microsoft Corporation. WMA content can be encoded by using Windows Media® Player version 7, 7.1, Windows Media® Player for Windows® XP, or Windows MediaPlayer 9® Series.

Microsoft, Windows Media, and the Windows logo are trademarks, or registered trademarks of Microsoft Corporation in the United States and/or other countries.

## About DivX

DivX is a compressed digital video format created by the DivX® video codec from DivXNetworks, Inc. This player can play DivX video files burned on CD-R/RW/ROM discs. Keeping the same terminology as DVD-Video, individual DivX video files are called "Titles". When naming files/titles on a CD-R/RW disc prior to burning, keep in mind that by default they will be played in alphabetical order.

### Displaying DivX subtitle files

The font sets listed below are available for DivX external subtitle files. You can see the proper font set on-screen by setting the **Subtitle Language** (in Language settings ) to match the subtitle file.

This player supports the following language groups:

**Group 1:** Albanian (sq), Basque (eu), Catalan (ca), Danish (da), Dutch (nl), English (en), Faroese (fo), Finnish (fi), French (fr), German (de), Icelandic (is), Irish (ga), Italian (it), Norwegian (no), Portuguese (pt), Rhaeto-Romanic (rm), Scottish (gd), Spanish (es), Swedish (sv)
**Group 2:** Albanian (sq), Croatian (hr), Czech (cs), Hungarian (hu), Polish (pl), Romanian (ro), Slovak (sk), Slovenian (sl)
**Group 3:** Bulgarian (bg), Byelorussian (be), Macedonian (mk), Russian (ru), Serbian (sr), Ukrainian (uk)
**Group 4:** Hebrew (iw), Yiddish (ji)
**Group 5:** Turkish (tr)



- Some external subtitle files may be displayed incorrectly or not at all.
- For external subtitle files the following subtitle format filename extensions are supported (please note that these files are not shown within the disc navigation menu): .srt, .sub, .ssa, .smi
- The filename of the movie file has to be repeated at the beginning of the filename for the external subtitle file.
- The number of external subtitle files which can be switched for the same movie file is limited to a maximum of 10.

## DivX video compatibility


- Official DivX® Certified product.
- Plays DivX5,® DivX4,® DivX3® and DivX® VOD video content (in compliance with DivX® Certified technical requirements).
- File extensions: .avi and .divx (these must be used for the player to recognize DivX video files). Note that all files with the .avi extensionare recognized as MPEG4, but not all of these are necessarily DivX video files and therefore may not be playable on this player.



## JPEG file compatibility

- Compatible formats: Baseline JPEG and EXIF 2.2* still image files up to a resolution of 3072 x 2048.
  * File format used by digital still cameras
- Progressive JPEG compatible: No
- File extensions: .jpg (must be used for the player to recognize JPEG files – do not use for other file types)

## PC-created disc compatibility

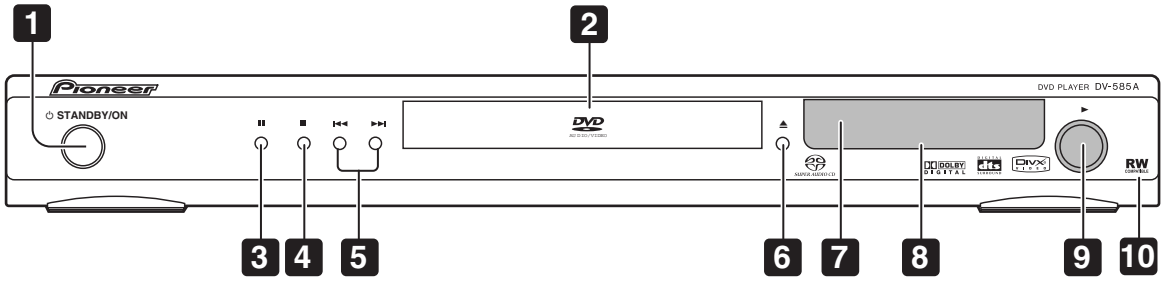
Discs recorded using a personal computer may not be playable in this unit due to the setting of the application software used to create the disc. In these particular instances, check with the software publisher for more detailed information.

Discs recorded in packet write mode (UDF format) are not compatible with this player.

Check the DVD-R/RW or CD-R/RW software disc boxes for additional compatibility information.

# 8. PANEL FACILITIES
## 8.1 FRONT PANEL SECTION

### Front panel




1 ⏻ **STANDBY/ON**

2 **Disc tray**

3 **II**

4 **■**

5 **I◄◄ and ►►I**

6 **▲ OPEN/CLOSE**

7 **Remote control sensor**

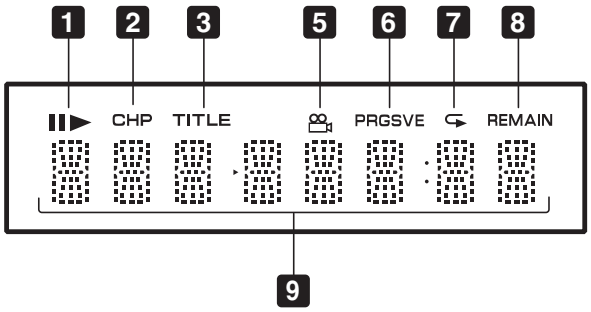
8 **Display**

9 **►**

10 **RW Compatible**

# 8.2 DISPLAY

## Display




**1 II and ►**
Indicates whether a disc is playing or paused.

**2 CHP**
Indicates that the character display is showing a DVD chapter number.

**3 TITLE**
Indicates that the character display is showing a DVD title number.

**5**
Lights during multi-angle scenes on a DVD disc.

**6 PRGSVE**
Lights when the player is set to output progressive scan video.

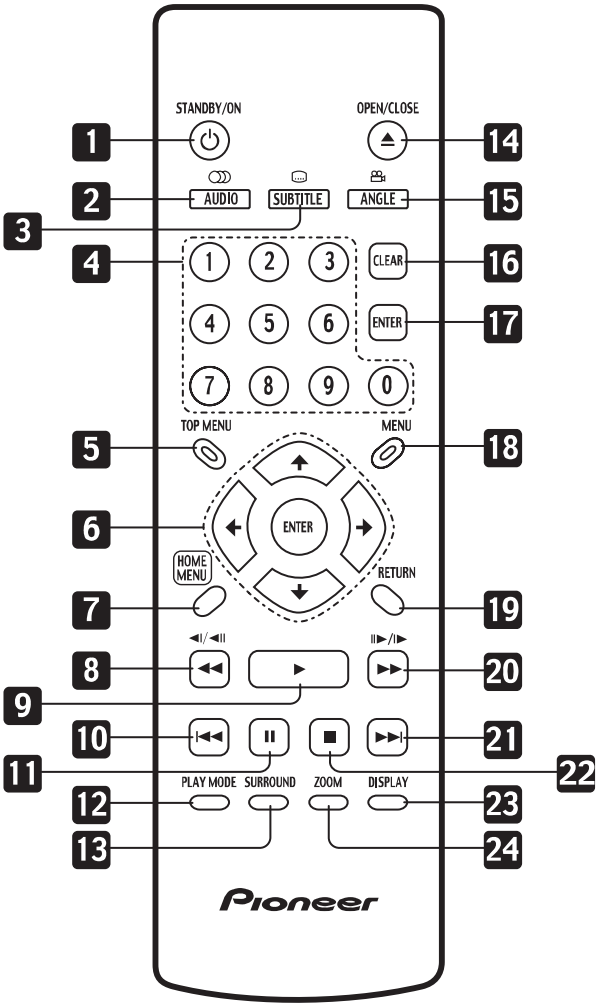
**7**
Lights in any of the repeat play modes.

**8 REMAIN**
Indicates that the character display is showing the disc or title/chapter/track remain time.

**9 Character display**

# 8.3 REMOTE CONTROL

## Remote control




### 1 ⏻ STANDBY/ON

Press to switch the player on or into standby.

### 2 AUDIO

Press to select the audio channel or language.

### 3 SUBTITLE

Press to select a subtitle display.

### 4 Number buttons

### 5 TOP MENU

Press to display the top menu of a DVD disc.

### 6 ENTER & cursor buttons

Use to navigate on-screen displays and menus. Press **ENTER** to select an option or execute a command.

### 7 HOME MENU

Press to display (or exit) the on-screen display.

### 8 ◄◄ and ◄I/◄II

Use for reverse slow motion playback, frame reverse and reverse scanning.

### 9 ►

Press to start or resume playback.

### 10 I◄◄

chapter or track, then to previous chapters/ tracks.

### 11 II

Press to pause playback; press again to restart.

### 12 PLAY MODE

Press to display the Play Mode menu. (You can also get to the Play Mode menu by pressing **HOME MENU** and selecting Play Mode).

Press to jump to the beginning of the current

## Remote control 2

### 13 SURROUND
Press to activate/switch off DD V/SRS TruSurround.

### 14 ⏏ OPEN/CLOSE
Press to open or close the disc tray.

### 15 ANGLE
Press to change the camera angle during DVD multi-angle scene playback.

### 16 CLEAR
Press to clear a numeric entry.

### 17 ENTER
Use to select menu options, etc.

### 18 MENU
Press to display a DVD disc menu, or the Disc Navigator if a VR format DVD-RW, CD, Video CD , MP3, WMA or JPEG disc is loaded.

### 19 RETURN
Press to return to a previous menu screen.

### 20 ►► and I►/II►
Use for forward slow motion playback, frame advance and forward scanning.

### 21 ►►I
Press to jump to the next chapter or track.

### 22 ■
Press to stop the disc (you can resume playback by pressing ►(play)).

### 23 DISPLAY
Press to display information about the disc playing.

### 24 ZOOM
Press to change the zoom level.

## ■ Jigs list

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

## ■ Lubricants and Glues list 

| Name | Lubricants and Glues No. | Remark |
|---|---|---|
| Dyefree | GEM1036 (ME-913A) | Refer to "2.3 05 DVD MECHA SECTION" |
| Grease | GYA1001 (PN-397) | Refer to "2.3 05 DVD MECHA SECTION" |
| Grease | GEM1018 (G-478B) | Refer to "2.3 05 DVD MECHA SECTION" |

## ■ Cleaning 

• Before shipping out the product, be sure to clean the following positions by using the prescribed cleaning tools:

| Position to be cleaned | Cleaning tools | Remark |
|---|---|---|
| Pickup leneses | Cleaning liquid : GEM1004 | Refer to "2.3 05 DVD MECHA SECTION" , "7.2 DISASSEMBLY SECTION". |
| | Cleaning paper : GED-008 | |