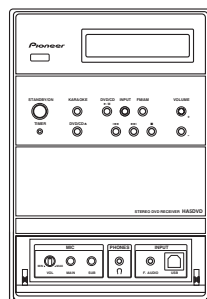


# Service Manual



XV-HA5

ORDER NO.  
**RRV3217**

DVD/CD RECEIVER

# XV-HA5

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

| Model  | Type | Power Requirement | Regional restriction codes (Region No.) | Remarks |
|--------|------|-------------------|-----------------------------------------|---------|
| XV-HA5 | WLXJ | AC220-240V        | 3                                       |         |
| XV-HA5 | LFXJ | AC110V            | 3                                       |         |
| XV-HA5 | NTXJ | AC220V            | 3                                       |         |



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

# SAFETY INFORMATION



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

## WARNING !

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

## LASER DIODE CHARACTERISTICS

FOR DVD : MAXIMUM OUTPUT POWER : 5 mW  
WAVELENGTH : 650 nm  
FOR CD : MAXIMUM OUTPUT POWER : 7 mW  
WAVELENGTH : 780 nm

## LABEL CHECK

WLXJ, NTXJ types VRW1699

LFXJ type VRW2159

CAUTION : VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.  
VORSICHT : SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN!  
ADVARSEL : SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING UND GÅ UDSÆTTELSE FOR STRÅLING.  
VARNING : SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. BETRÄKTA EJ STRÅLEN.  
VARO! : AVATTAESSA ALISTUTU NÄKYVÄ JA NÄKYMÄTTÖMÄLLE LASERSATEIL YLLE. ÄLÄ KATSO SÄTEESIEN.  
VRW1699

CAUTION : CLASS 3B VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN, AVOID EXPOSURE TO THE BEAM.  
注意：打開時會有 CLASS 3B 可見和不可見雷射輻射，請勿受雷射束輻射。  
VRW2159

CLASS 1  
LASER PRODUCT

(Printed on the Rear Panel HAL)

## Additional Laser Caution

1. Laser Interlock Mechanism
  - Loading switch (S101 on the LOAB Assy) is used for interlock mechanism of the laser.When this switch turned ON in SW2 (CLOSE) side (OPEN signal is 0V and CLOSE signal is 3.5V), a laser becomes the status which can completely oscillation.  
Furthermore, the laser completely oscillates in the disc judgment and disc playback.  
When player is power ON state and laser diode is not completely oscillating, 780nm laser diode is always oscillating by half power.
  - Laser diode is driving with Q307 (650nm LD) and Q308 (780nm LD) on the DVDM 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.The interlock mechanism mentioned above becomes invalid in this mode.
2. When the cover is open, close viewing through the objective lens with the naked eye will cause exposure to the laser beam.

\* : Refer to page 63.

## [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

## • Amplifier section

Front . . . . . 25 W per channel  
(1 kHz, 10 % T.H.D., 4  $\Omega$ )

## • Disc section

Digital audio characteristics . . . . . DVD fs: 96 kHz, 24-bit  
Type . . . . . DVD system, Video CD/Super VCD system and Compact Disc digital audio system

Frequency response . . . 4 Hz to 44 kHz (96kHz sampling) /  
4 Hz to 22 kHz (48kHz sampling)  
Wow and Flutter . . . . . Limit of measurement  
( $\pm 0.001$  % W.PEAK) or less (JEITA)

## • FM tuner section

Frequency range . . . . . 87.5 MHz to 108 MHz  
Antenna . . . . . 75  $\Omega$ , unbalanced

## • AM tuner section

Frequency range  
With 9kHz step . . . . . 531 kHz to 1,602 kHz  
With 10kHz step . . . . . 530 kHz to 1,700 kHz  
Antenna . . . . . Loop antenna

## • Miscellaneous

Power requirements:  
Singapore / Malaysia / Thailand models . . . . . AC 220-240 V, 50/60 Hz  
Taiwan model . . . . . AC 110 V, 60 Hz  
Power consumption:  
Singapore / Malaysia / Thailand models . . . . . 79 W  
Taiwan model . . . . . 71 W  
Power consumption in standby:  
Singapore / Malaysia / Thailand models . . . . . 0.37 W  
Taiwan model . . . . . 0.27 W  
Dimensions . . 170(W) x 252(H) x 321.4(D) mm  
Weight . . . . . 5.3 kg

## • Accessories (DVD/CD receiver)

Remote control . . . . . 1  
AA/R6 dry cell batteries . . . . . 2  
Video cable (yellow plugs) . . . . . 1  
AM loop antenna . . . . . 1  
FM antenna . . . . . 1  
Power cord . . . . . 1  
These operating instructions . . . . . 1

## Speaker system

Enclosure . . . . . Bass-reflex bookshelf type  
(magnetically shielded)  
System . . . . . 10 cm 2-way system  
Speakers:  
Woofer . . . . . 10 cm cone type  
Tweeter . . . . . 2.6 cm semi-dome type  
Nominal impedance . . . . . 4  $\Omega$   
Frequency range . . . . . 50 Hz to 60 kHz  
Maximum Input Power . . . . . 25 W  
Dimensions . . . 140(W) x 250(H) x 253(D) mm  
Weight . . . . . 2.5 kg

## • Accessories (speakers)

Non-skid pads . . . . . 8

## Note

- Specifications and design subject to possible modification without notice, due to improvements.

## 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 the Disc compatibility table below for more information.



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

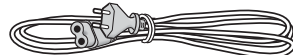
This player supports the IEC's Super VCD standard for superior picture quality, dual soundtracks, and widescreen support.



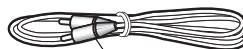
Super Video CD (Super VCD)

## • Accessories

- Power cord (WLXJ, NTXJ : ADG1154) (LFXJ : ADG7097)
- FM Antenna (ADH7030)
- AM Loop Antenna (ATB7013)
- Remote Control (XXD3100)

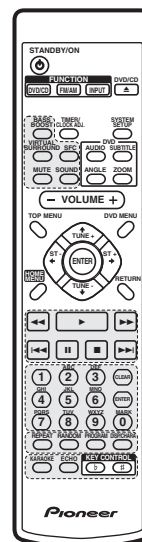


- Video Cable (L = 1.5m) (VDE1065)



Yellow

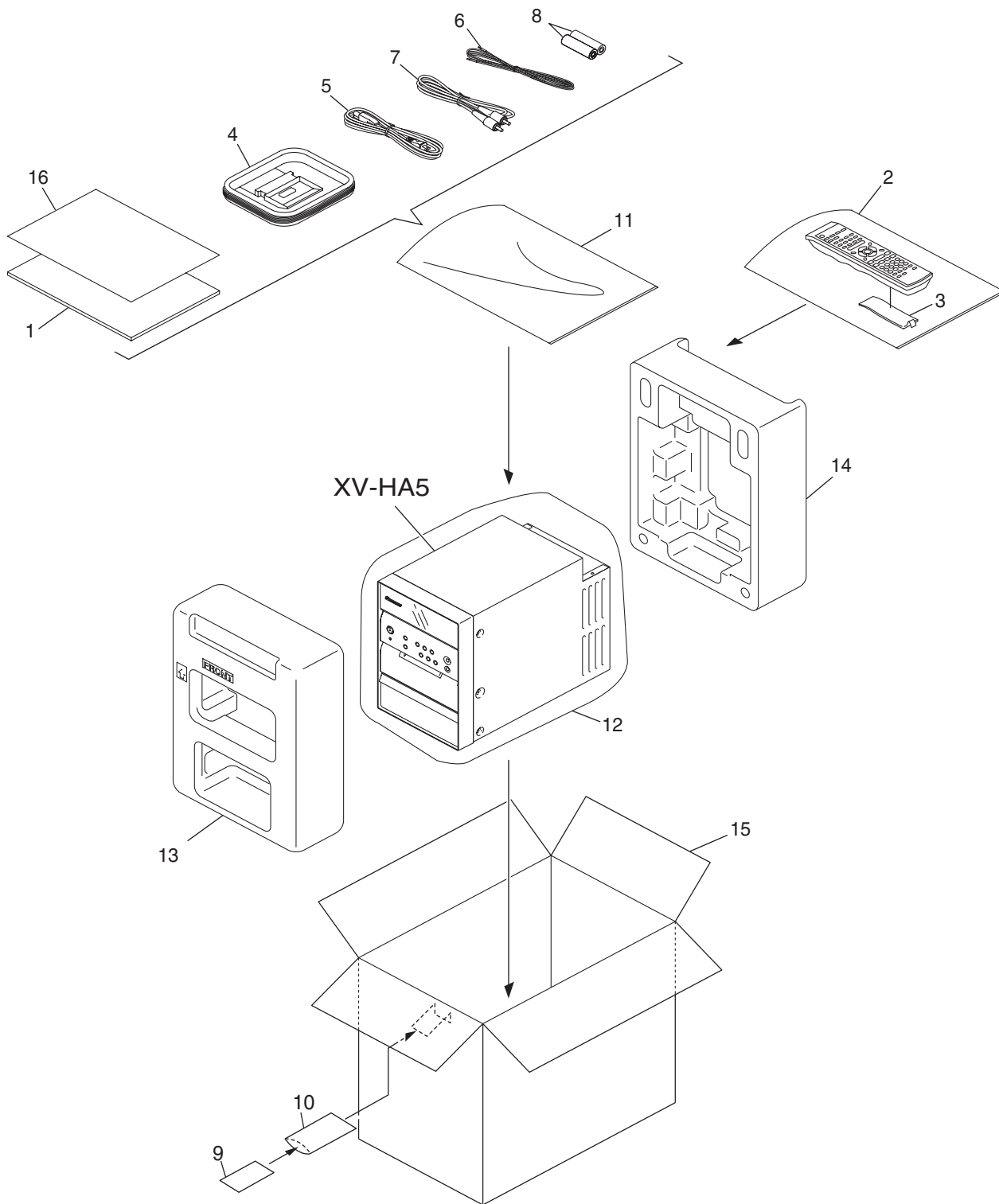
- Dry Cell Batteries



## 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



## (1) PACKING SECTION PARTS LIST

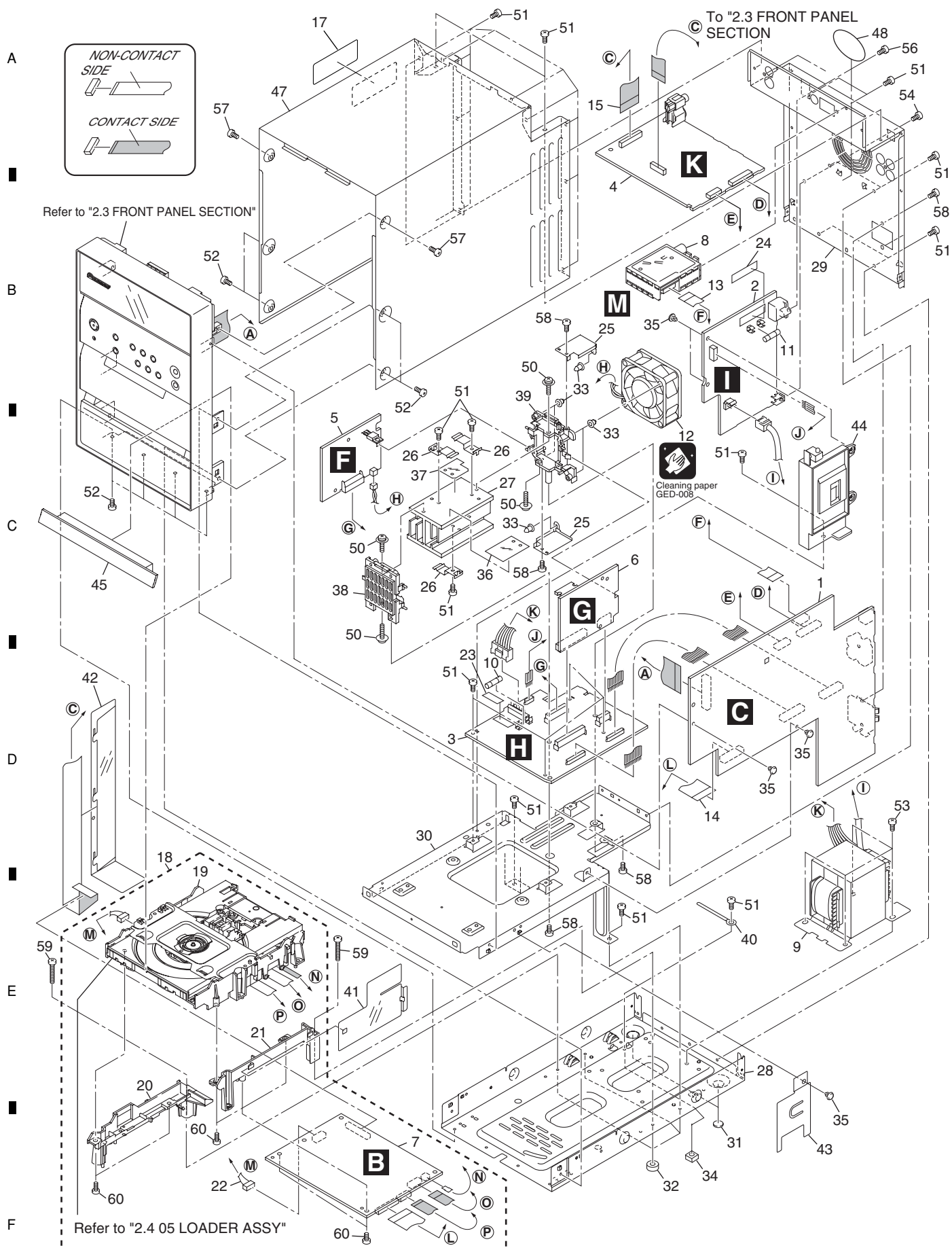
| Mark No. | Description                | Part No.              | Mark No. | Description    | Part No.              |
|----------|----------------------------|-----------------------|----------|----------------|-----------------------|
| 1        | Operating Instructions     | See Contrast table(2) | NSP 11   | Literature Bag | AHG1180               |
| 2        | Remote Control             | XXD3100               | 12       | Packing Sheet  | AHG7053               |
| 3        | Battery Cover              | AZN7933               | 13       | Front Pad      | XHA3154               |
| 4        | AM Loop Antenna            | ATB7013               | 14       | Rear Pad       | XHA3155               |
| 5        | Power Cord                 | See Contrast table(2) | 15       | Packing Case   | See Contrast table(2) |
| 6        | FM Antenna                 | ADH7030               | NSP 16   | Service Map    | See Contrast table(2) |
| 7        | Video Cable                | VDE1065               |          |                |                       |
| NSP 8    | Dry Cell Batteries(R6P,AA) | VEM1031               |          |                |                       |
| NSP 9    | Warranty Card              | See Contrast table(2) |          |                |                       |
| NSP 10   | Vinyl Bag                  | See Contrast table(2) |          |                |                       |

## (2) CONTRAST TABLE

XV-HA5/WLXJ, LFXJ and XV-HA5/NTXJ are constructed the same except for the following:

| Mark | No. | Description                                 | XV-HA5<br>/WLXJ | XV-HA5<br>/LFXJ | XV-HA5<br>/NTXJ |
|------|-----|---------------------------------------------|-----------------|-----------------|-----------------|
|      | 1   | Operating Instructions<br>(English/Chinese) | XRE3112         | XRE3112         | Not used        |
|      | 1   | Operating Instructions<br>(Thai)            | Not used        | Not used        | XRC3208         |
| NSP  | 5   | Power Cord                                  | ADG1154         | ADG7097         | ADG1154         |
|      | 9   | Warranty Card                               | Not used        | Not used        | XRY3004         |
| NSP  | 10  | Vinyl Bag                                   | Not used        | Not used        | AHG7031         |
|      | 15  | Packing Case                                | XHD3551         | XHD3551         | XHD3553         |
| NSP  | 16  | Service Map                                 | Not used        | Not used        | XRY3005         |

## 2.2 EXTERIOR SECTION



## (1) EXTERIOR SECTION PARTS LIST

| Mark No. | Description            | Part No.               | Mark No. | Description       | Part No.               |   |
|----------|------------------------|------------------------|----------|-------------------|------------------------|---|
|          |                        |                        | 31       | Leg               | AEB7090                |   |
| 1        | IF Assy                | See Contrast table (2) | NSP 32   | Spacer            | AEB7092                | A |
| 2        | PRIMARY Assy           | See Contrast table (2) | 33       | Insulation Rubber | AEB7256                |   |
| 3        | SECONDARY Assy         | XWZ4042                | 34       | S Cover           | AEB7262                |   |
| 4        | KARAOKE Assy           | XWZ4043                | 35       | Push Rivet        | AEC7205                |   |
| 5        | REGULATOR Assy         | XWZ4039                |          |                   |                        |   |
|          |                        |                        | 36       | Mica Sheet A      | AEE7049                |   |
| 6        | POWER Assy             | XWZ4040                | 37       | Mica Sheet B      | AEE7050                |   |
| 7        | DVDM Assy              | AWM7966                | 38       | Rear Mold         | AMR7437                |   |
| 8        | FM/AM TUNER Unit       | AXX7173                | 39       | Fan Mold          | AMR7470                |   |
| ⚠ 9      | Power Transformer      | XTS3098                | 40       | Cord Clamper      | RNH-184                |   |
| ⚠ 10     | FU2 Fuse (T5.0A/ 250V) | REK1029                |          |                   |                        |   |
|          |                        |                        | 41       | DVD Barrier       | XEC3060                | B |
| ⚠ 11     | FU1 Fuse               | See Contrast table (2) | 42       | FFC Barrier       | XEC3061                |   |
| 12       | DC Fan Motor           | AXM7025                | 43       | FFC Cover         | XEC3067                |   |
| 13       | 11P FFC/30V            | XDD3174                | 44       | PCB Support       | XMR3096                |   |
| 14       | 25P FFC/30V            | XDD3175                | 45       | Tray Cap          | XAK3491                |   |
| 15       | 27P FFC/30V            | XDD3176                |          |                   |                        |   |
|          |                        |                        | 46       | .....             |                        |   |
| 16       | .....                  |                        | 47       | Bonnet Case       | XZN3177                |   |
| 17       | CAUTION Label          | See Contrast table (2) | NSP 48   | SISIR Label       | See Contrast table (2) |   |
| NSP 18   | DVD ASSY               | XXA3036                | 49       | .....             |                        |   |
| NSP 19   | 05 Loader Assy         | VWT1219                | 50       | Screw 3*10        | ABA7117                | C |
| 20       | Adaptor 05L            | XNW3014                |          |                   |                        |   |
|          |                        |                        | 51       | Screw             | BBZ30P060FTC           |   |
| 21       | Adaptor 05R            | XNW3015                | 52       | Screw             | BBZ30P080FNI           |   |
| 22       | Connector Assy         | PG05KK-E07             | 53       | Screw             | BBZ40P060FTC           |   |
| NSP 23   | FUSE Card              | See Contrast table (2) | 54       | Screw             | BCZ30P060FTC           |   |
| NSP 24   | FUSE Card              | AAX7098                | 55       | .....             |                        |   |
| 25       | Insulation Plate       | AND7055                |          |                   |                        |   |
|          |                        |                        | 56       | Screw             | PPZ30P080FNI           |   |
| 26       | FET Bracket A          | ANG7432                | 57       | Screw             | VPZ30P080FNI           |   |
| 27       | Heat Sink              | ANH7169                | 58       | Screw             | VPZ30P080FTC           |   |
| NSP 28   | Chassis HAL            | XNA3025                | 59       | Screw             | XBA3015                | D |
| 29       | Rear Panel HAL         | See Contrast table (2) | 60       | Screw             | BPZ30P080FNI           |   |
| 30       | Mecha Frame            | XNG3136                |          |                   |                        |   |

## (2) CONTRAST TABLE

XV-HA5/WLXJ, LFXJ and XV-HA5/NTXJ are constructed the same except for the following:

| Mark | No. | Description    | XV-HA5<br>/WLXJ           | XV-HA5<br>/LFXJ          | XV-HA5<br>/NTXJ           |
|------|-----|----------------|---------------------------|--------------------------|---------------------------|
|      | 1   | IF Assy        | XWZ4033                   | XWZ4049                  | XWZ4050                   |
|      | 2   | PRIMARY Assy   | XWZ4041                   | XWZ4044                  | XWZ4041                   |
| ⚠    | 11  | FU1 Fuse       | REK1021<br>(T800mA/ 250V) | REK1024<br>(T1.6A/ 250V) | REK1021<br>(T800mA/ 250V) |
|      | 17  | CAUTION Label  | VRW1699                   | VRW2159                  | VRW1699                   |
| NSP  | 23  | FUSE Card      | AAX2367                   | AAX2377                  | AAX2367                   |
|      | 29  | Rear Panel HAL | XNC3342                   | XNC3388                  | XNC3389                   |
| NSP  | 48  | SISIR Label    | XAX3525                   | Not used                 | Not used                  |

1 2 3 4

# 2.3 FRONT PANEL SECTION

A

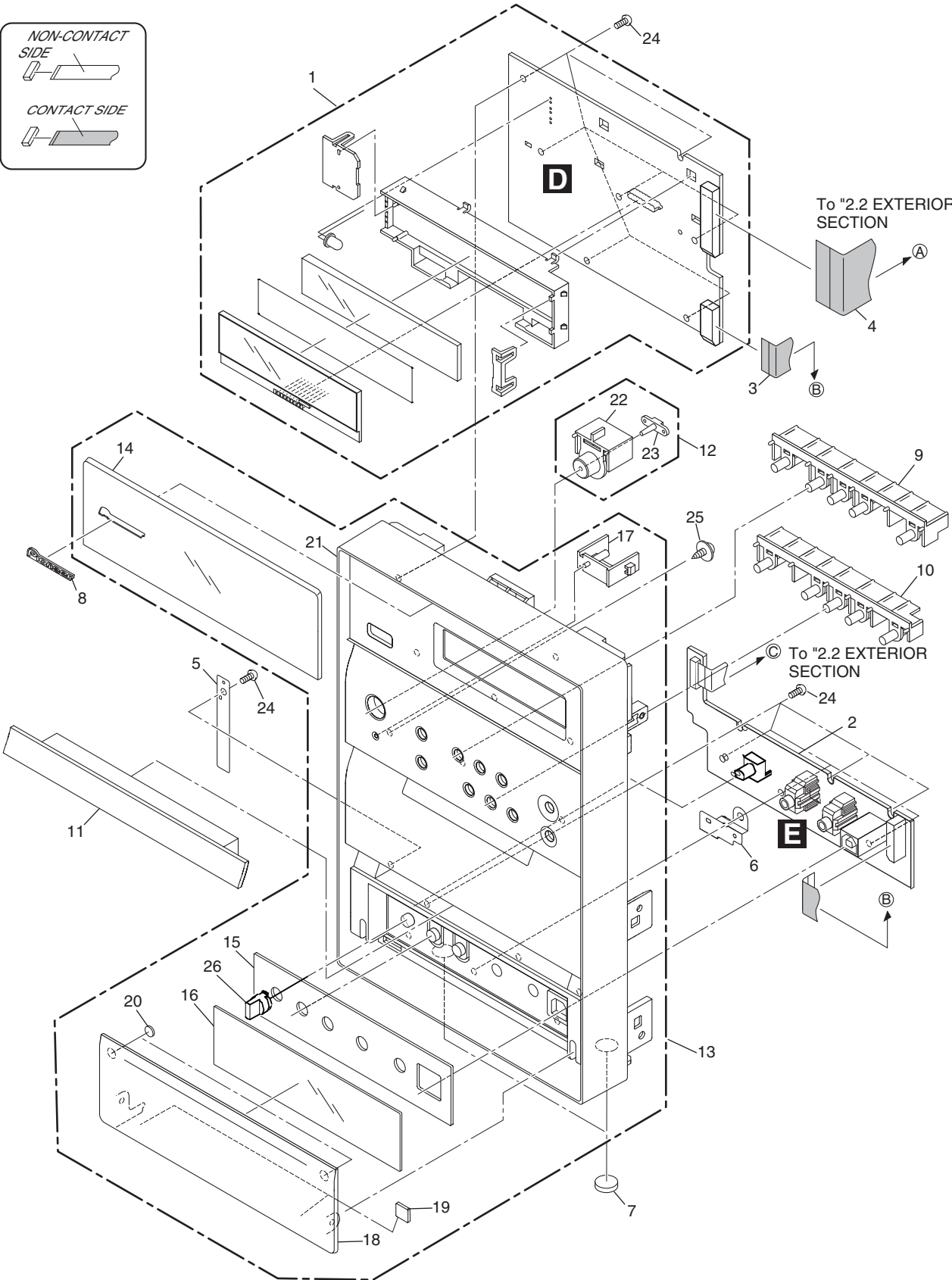
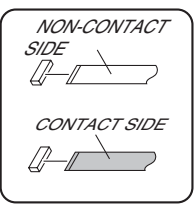
B

C

D

E

F



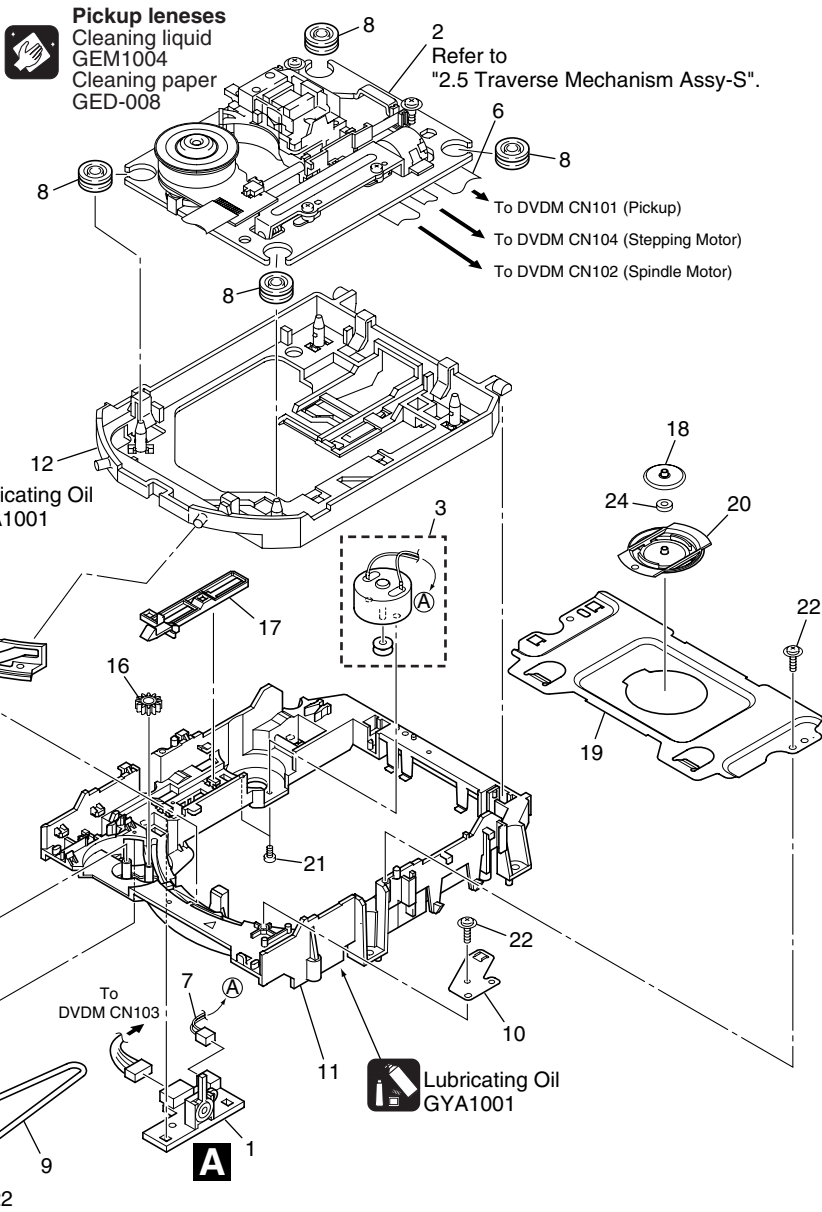
(1) FRONT PANEL SECTION PARTS LIST

| <u>Mark No.</u> | <u>Description</u>  | <u>Part No.</u> |
|-----------------|---------------------|-----------------|
| 1               | DISPLAY Assy        | XWZ4034         |
| 2               | HP2 Assy            | XWZ4035         |
| 3               | 13P FFC/30V         | XDD3171         |
| 4               | 29P FFC/30V         | XDD3173         |
| 5               | Door Spring         | XNG3138         |
| 6               | Gnd Plate B         | XNG3140         |
| 7               | Leg                 | AEB7090         |
| 8               | Pioneer Name Plate  | AAM7012         |
| 9               | Func Button A       | XAD3219         |
| 10              | Func Button B       | XAD3222         |
| 11              | Tray Cap            | XAK3491         |
| 12              | Standby Button Assy | XXG3212         |
| 13              | Front Panel Assy    | XXG3215         |
| 14              | Display Window      | XAK3489         |
| 15              | Sealing Panel       | XAK3495         |
| 16              | Door Cover          | XAK3517         |
| 17              | Timer Lens          | XAK3500         |
| 18              | Door                | XAN3055         |
| 19              | Sub Cushion         | XEB3048         |
| 20              | Door Cushion        | XEB3049         |
| 21              | Front Panel         | XMB3202         |
| NSP 22          | Standby Button      | XAD3221         |
| NSP 23          | Standby Lens        | XAK3490         |
| 24              | Screw               | VPZ30P080FTC    |
| 25              | DM Screw            | DBA1260         |
| 26              | MIC Knob            | XAA3031         |



2.4 05 LOADER ASSY

Note :  
Refer to "Application of Lubricant".

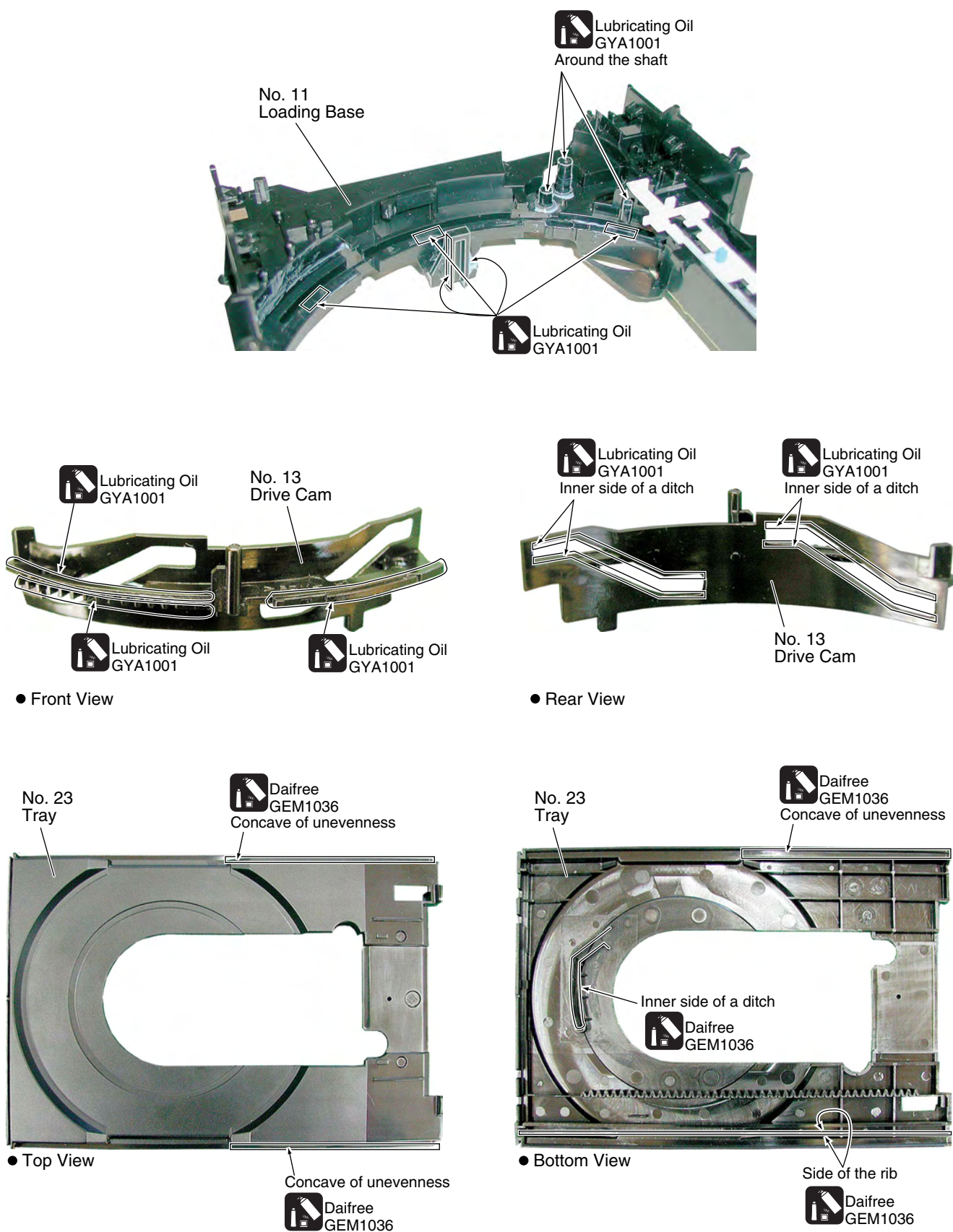


05 LOADER ASSY PARTS LIST

| Mark No. | Description               | Part No. | Mark No. | Description      | Part No.     |
|----------|---------------------------|----------|----------|------------------|--------------|
| NSP 1    | LOAB Assy                 | VWG2346  | 16       | Drive Gear       | VNL1923      |
| 2        | Traverse Mechanism Assy-S | DXX2568  | 17       | SW Lever         | VNL1925      |
| 3        | Loading Motor Assy        | VXX2912  | 18       | Clamper Plate 04 | VNE2342      |
| 4        | .....                     |          | 19       | Bridge 04        | VNE2343      |
| 5        | .....                     |          | 20       | Clamper 04       | VNL1969      |
| 6        | Flexible Cable (24P)      | VDA2008  | 21       | Screw            | JGZ17P028FTC |
| 7        | Connector Assy 2P         | VKP2253  | 22       | Screw            | VBA1094      |
| 8        | Floating Rubber           | VEB1351  | 23       | Tray             | VNL1920      |
| 9        | Belt                      | VEB1358  | 24       | Clamp Magnet     | VMG1029      |
| 10       | Stabilizer                | VNE2253  |          |                  |              |
| 11       | Loading Base              | VNL1917  |          |                  |              |
| 12       | Float Base 04             | VNL1968  |          |                  |              |
| 13       | Drive Cam                 | VNL1919  |          |                  |              |
| 14       | Gear Pulley               | VNL1921  |          |                  |              |
| 15       | Loading Gear              | VNL1922  |          |                  |              |



## Application of Lubricant



## 2.5 Traverse Mechanism Assy-S

### Note :



Refer to  
" ■ Application of Lubricant".

**Note :** When part #2 is replaced,  
part #13 also need to be  
replaced at the same time.

To DVDM CN102  
(Spindle Motor)

Silicone Adhesive  
GEM1037

To  
DVDM CN101  
(Pickup Assy)

To  
DVDM CN104  
(Stepping Motor)

**Note :** Spindle screw (DBA1252) of No.13 is the screw which applied special bond.  
Therefore the adhesion becomes ineffective when takes it off once. Spindle screw is the part which cannot recycle.  
When part #2 is replaced, part #13 also need to be replaced at the same time.

### Traverse Mechanism Assy-S PARTS LIST

| Mark No. | Description         | Part No. | Mark No. | Description                    | Part No. |
|----------|---------------------|----------|----------|--------------------------------|----------|
| 1        | 05SD Pickup Assy-S  | OXX8014  | NSP 8    | Mechanism Frame VK1            | DNK4160  |
| 2        | Spindle Motor N200  | DXM1197  | 9        | Precision Screw VK1            | DBA1209  |
| 3        | Guide Shaft VK1     | DLA1940  | 10       | Skew Screw VK1                 | DBA1211  |
| 4        | Sub Guide Shaft VK1 | DLA1941  | 11       | Skew Spring VK1                | DBH1516  |
| NSP 5    | Joint VK1B          | DNK4272  | NSP 12   | Stepping Screw                 | DBA1205  |
| 6        | Joint Spring VK1    | DBK1235  | 13       | Spindle Screw VK1(for Service) | DBA1252  |
| 7        | Stepping Motor VK1  | DXM1201  |          |                                |          |

■

5

■

6

■

7

■

8

■

A

■

B

■

C

■

D

■

E

■

F

■

5

■

6

■

7

■

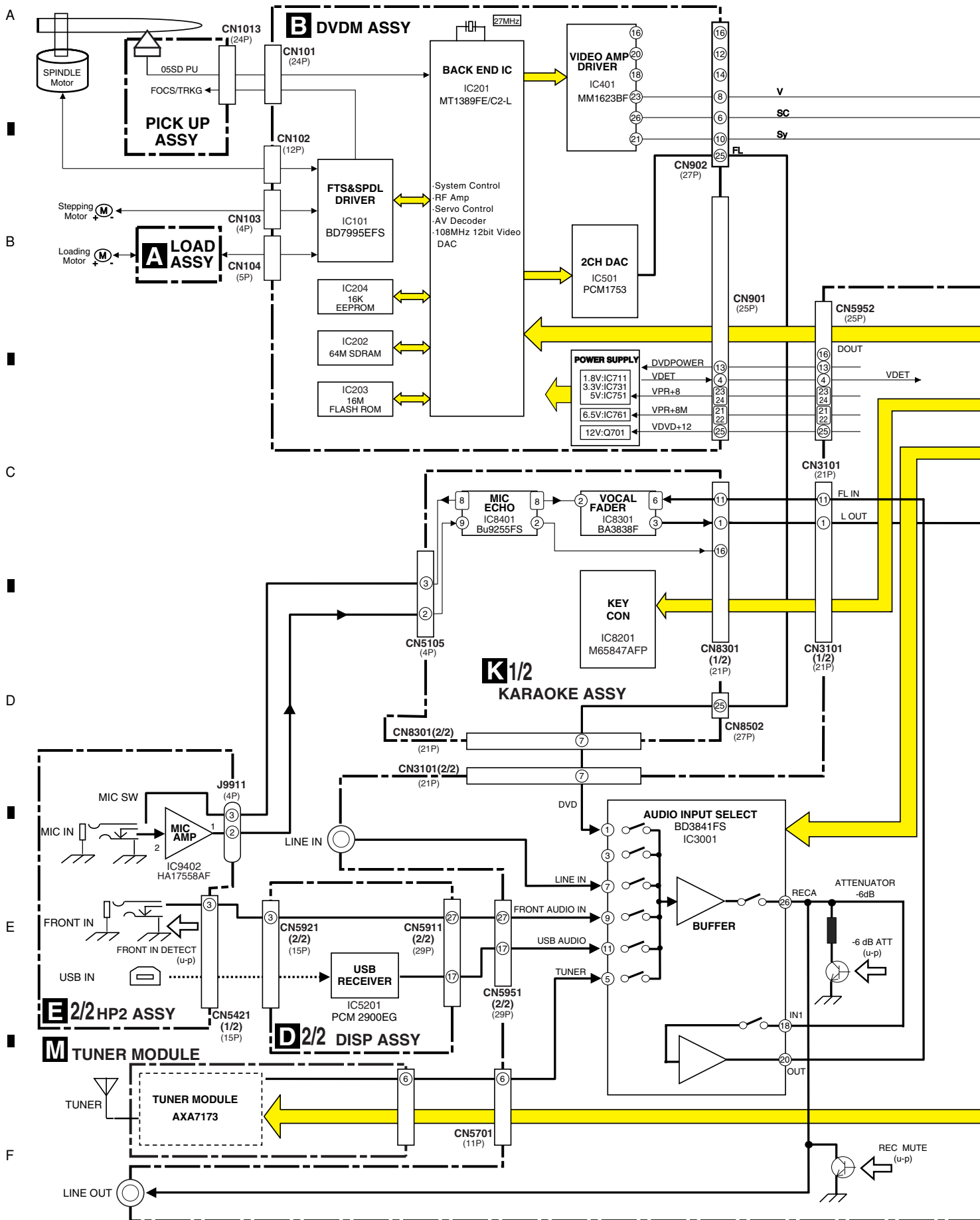
8

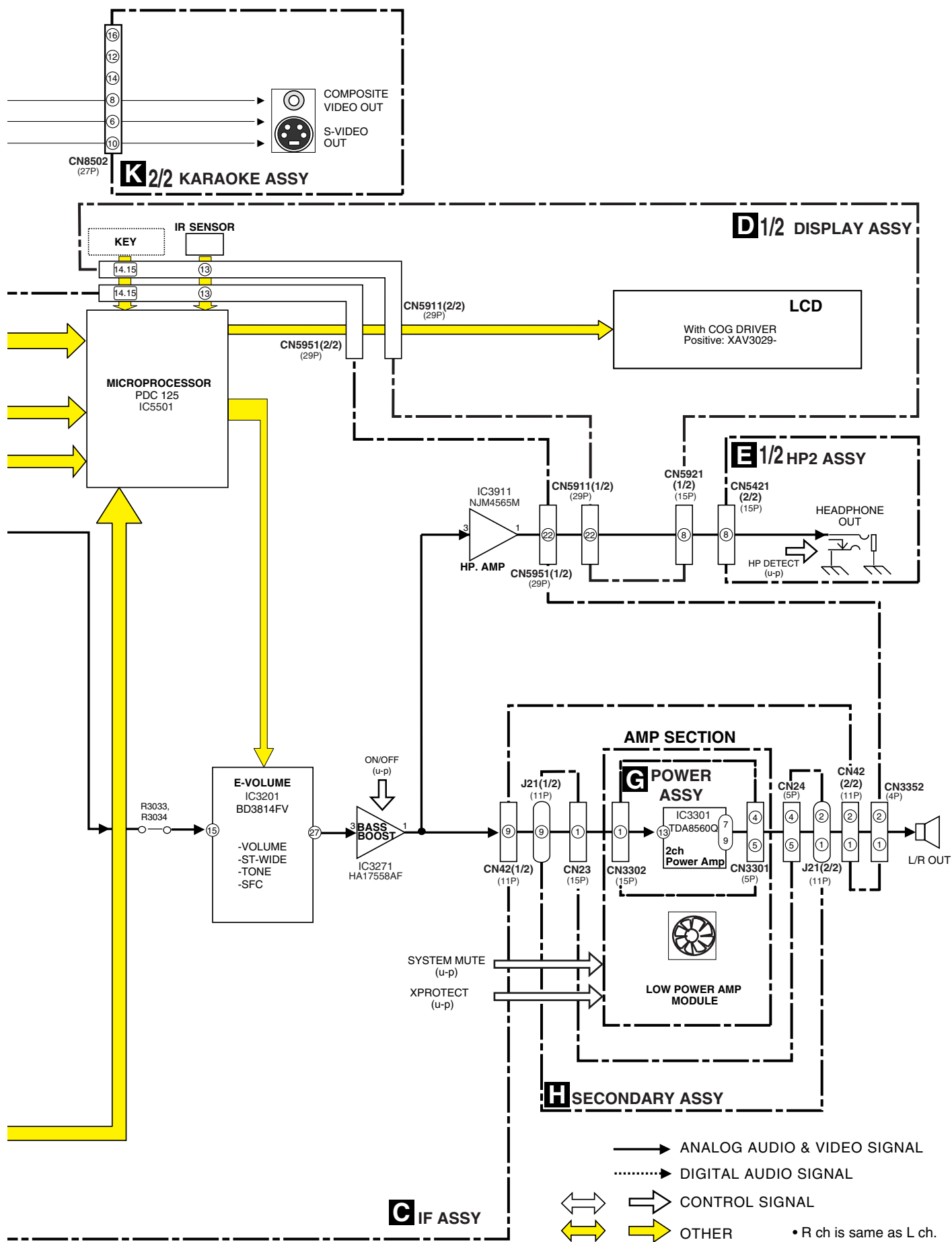
■

XV-HA5

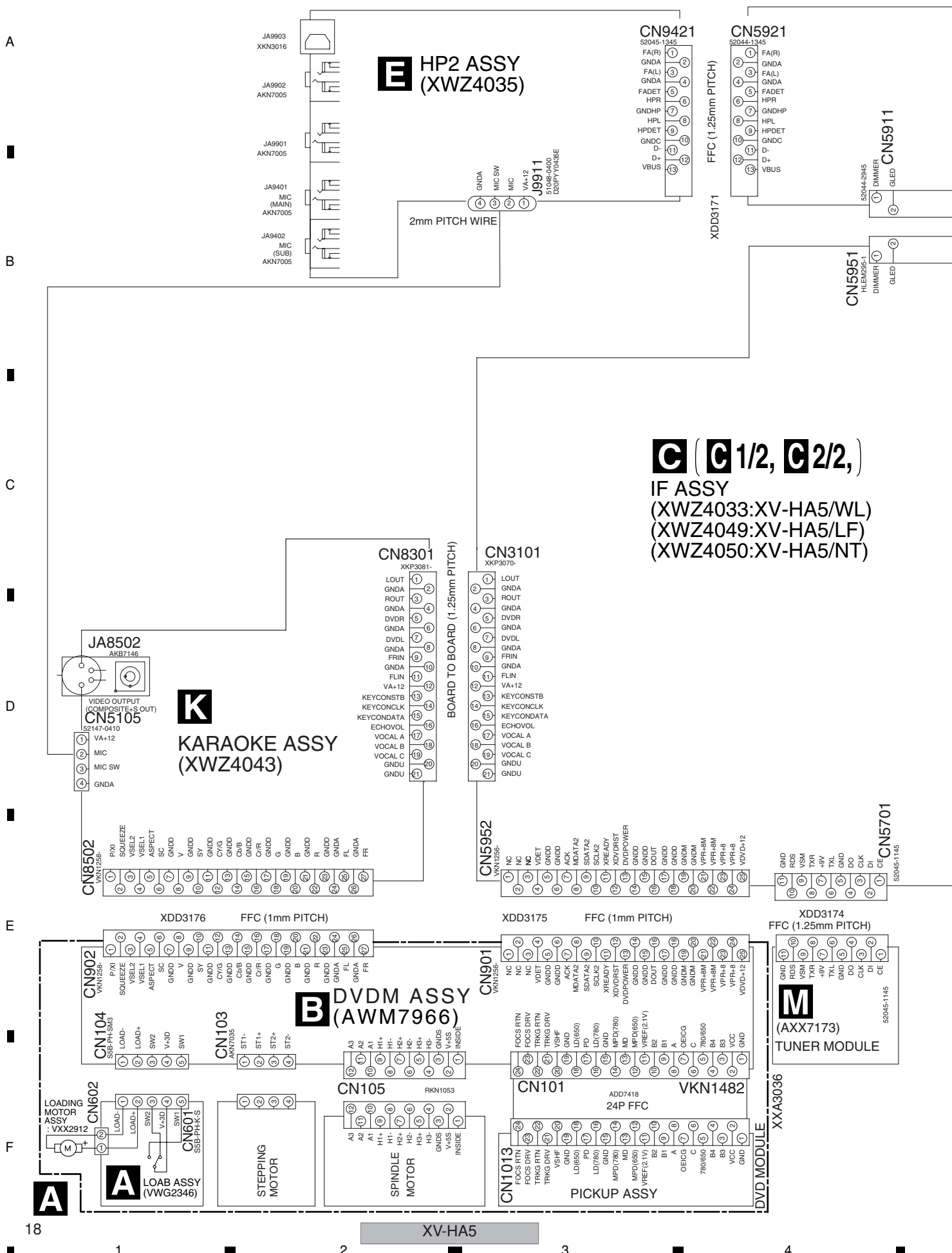
# 3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

## 3.1 BLOCK DIAGRAM





# 3.2 OVERALL WIRING CONNECTION DIAGRAM







3.3 DVDM ASSY (1/2)

A

B

C

D

E

F

PICKUP ASSY CN1013

SPINDLE MOTOR

STEPPING MOTOR

to LOAD ASSY CN1041

- (RF) : RF SIGNAL ROUTE
- (D) : AUDIO SIGNAL ROUTE(DIGITAL)
- (F) : FOCUS SERVO LOOP LINE
- (T) : TRACKING SERVO LOOP LINE
- (S) : STEPPING SERVO LOOP LINE
- (C/V) : VIDEO SIGNAL ROUTE
- (R/Cr) : VIDEO SIGNAL ROUTE(R/Cr)
- (G/Y) : VIDEO SIGNAL ROUTE(G/Y)
- (B/Cb) : VIDEO SIGNAL ROUTE(B/Cb)
- (S.Y) : S VIDEO SIGNAL ROUTE
- (S.C) : S VIDEO SIGNAL ROUTE

XV-HA5



## A



MT1389FE/C2-L

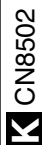
C

□

F

**F**

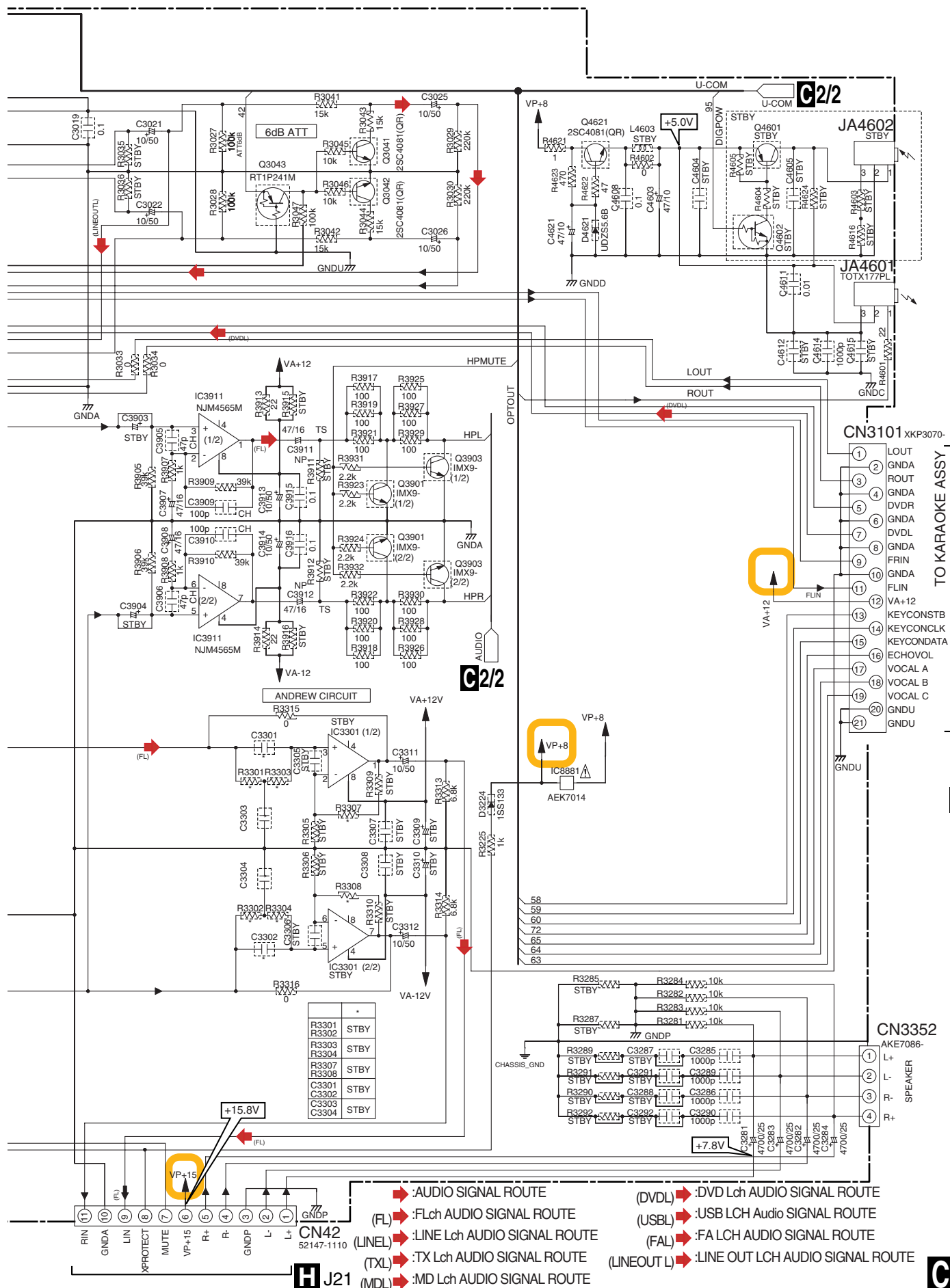




F

△





ALL CAPACITORS ARE IN  $\mu\text{F}$   
UNLESS OTHERWISE SPECIFIED

| NOTES                                                   |
|---------------------------------------------------------|
| <b>C</b> 2/2 IF ASSY (XWZ4033/WL,XWZ4049/LF,XWZ4050/NT) |

## NOTES

**C 2/2** IF ASSY (XWZ4033/WL,XWZ4049/LF,XWZ4050/NT)

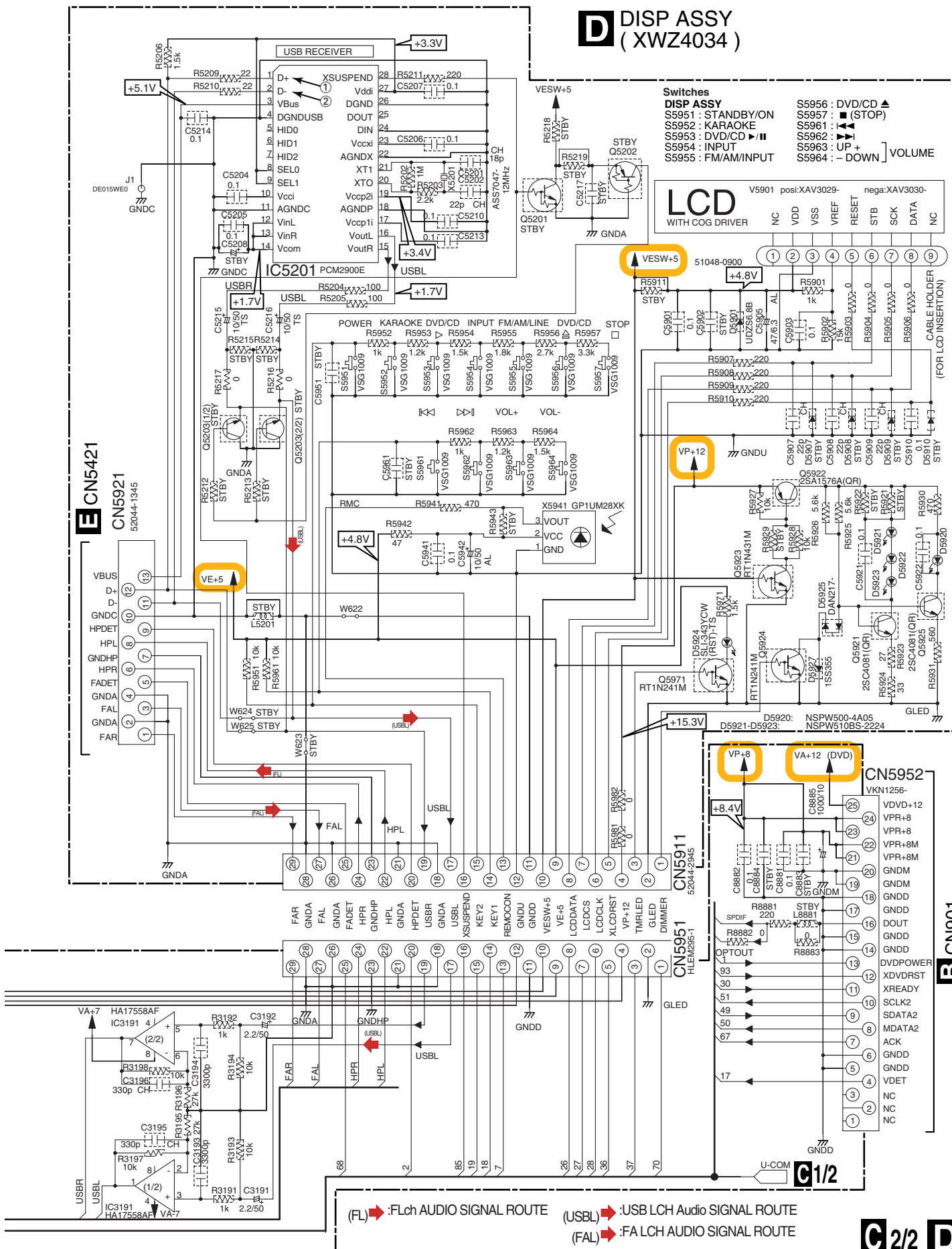
ALL RESISTORS ARE IN  $\Omega$   
~~XXX~~ RS1/16S\*\*\*J  
 ALL INDUCTORS ARE IN  $\mu H$



XV-HA5



# **D** DISP ASSY (XWZ4034)





### 3.7 HP 2 ASSY

#### HP2 ASSY (XWZ4035)

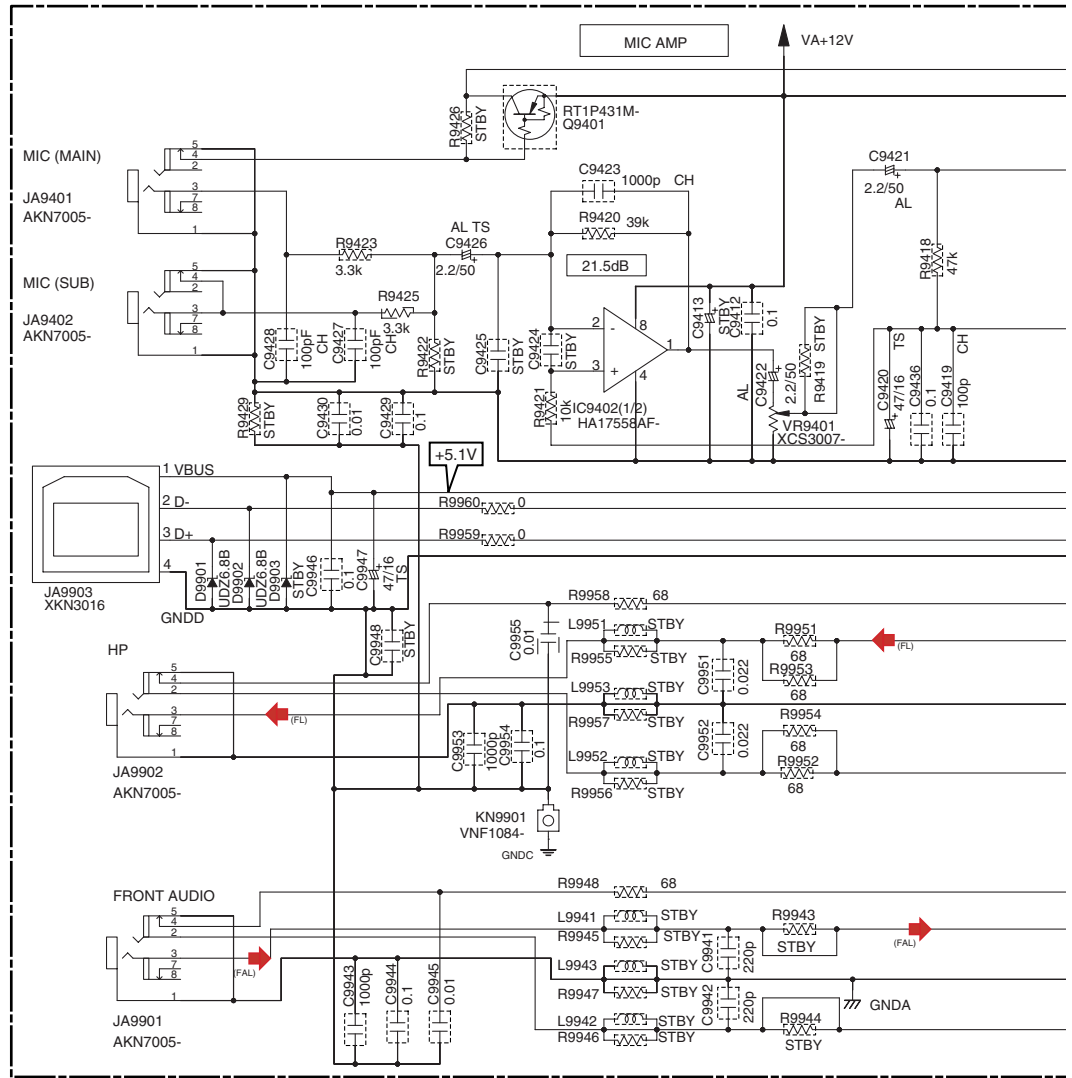
##### NOTES

ALL CAPACITORS ARE IN  $\mu$ F  
UNLESS OTHERWISE SPECIFIED

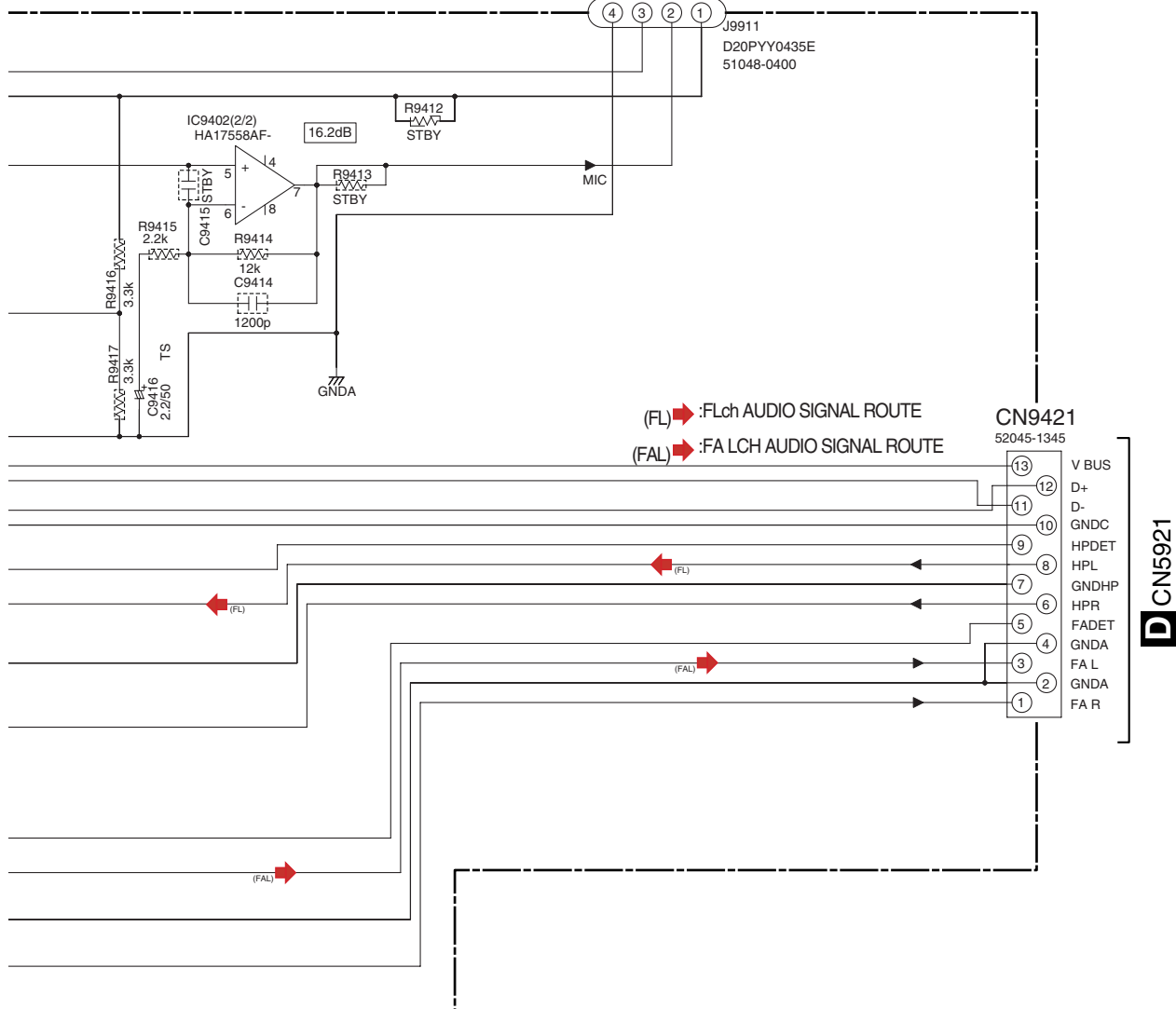
CH : CCSRCH (OTHER : CKSRYB)  
AL : CEAL (OTHER : CEAT)  
TS : CE\*-TS

ALL RESISTORS ARE IN  $\Omega$   
RS1/16S\*\*\*J

ALL DIODE  
1SS355  
1SS133

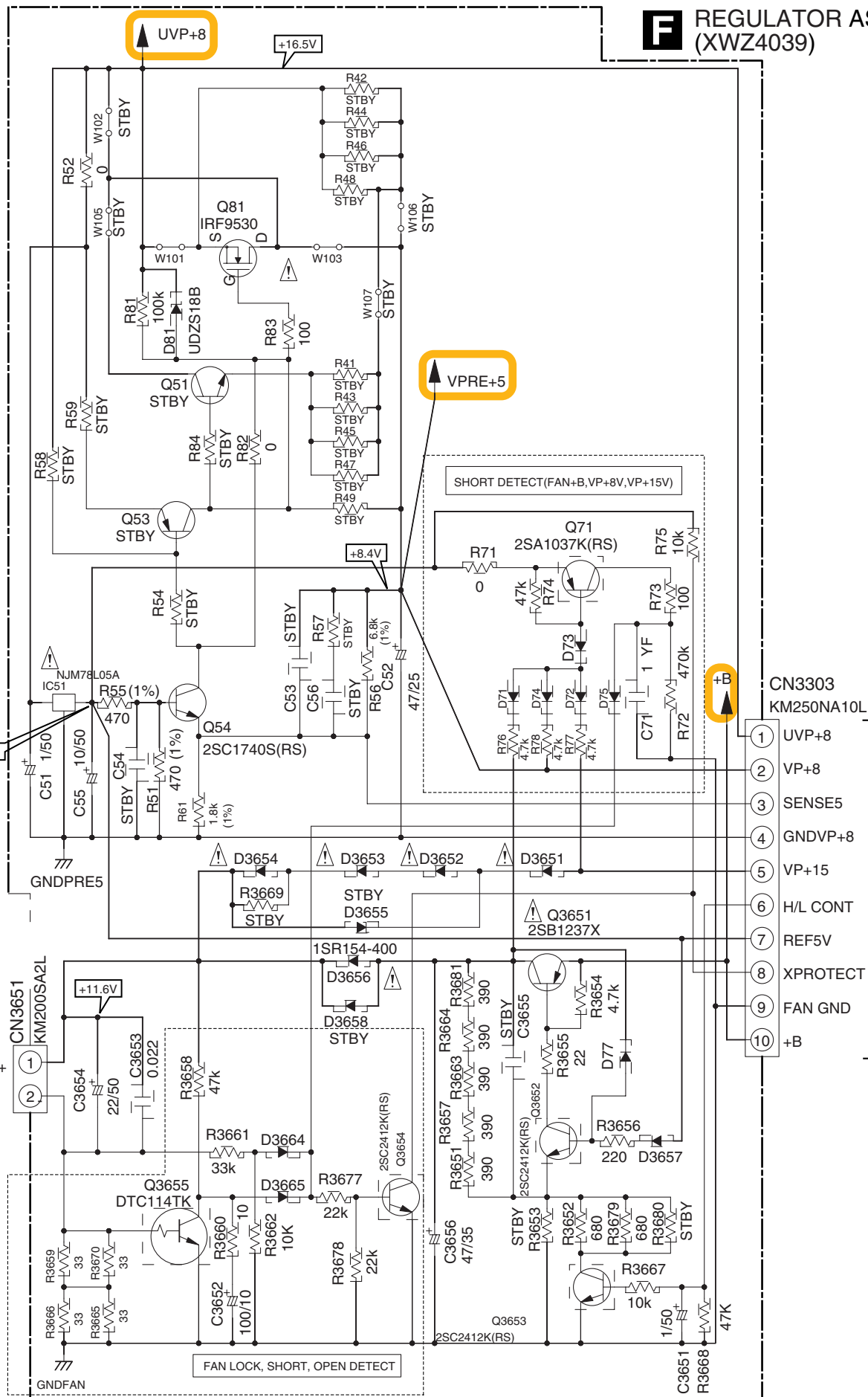


# **K** CN5105 KARAOKE ASSY



### 3.8 REGULATOR and POWER ASSYS

#### F REGULATOR ASSY (XWZ4039)

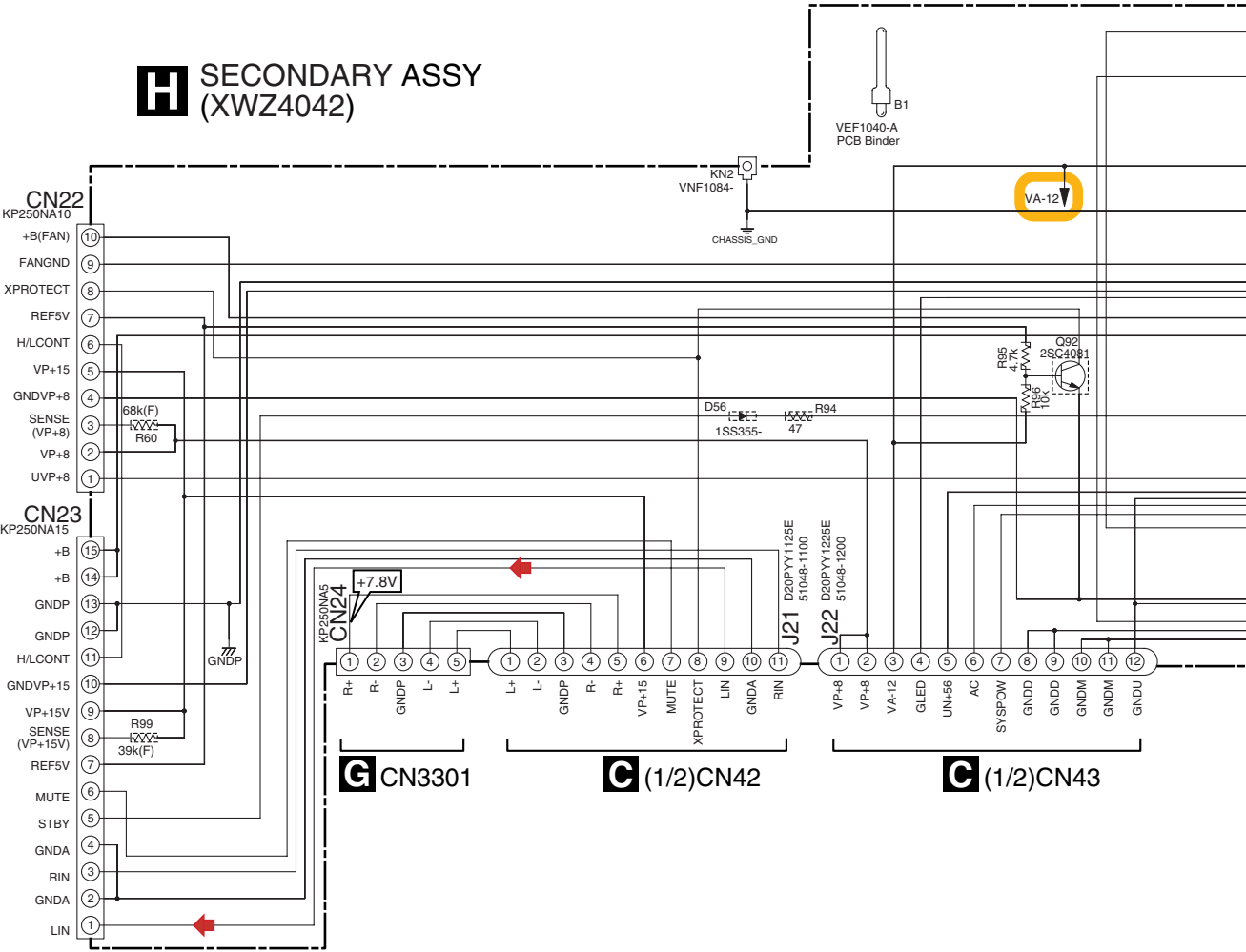


H CN22



3.9 SECONDARY and PRIMARY ASSYS

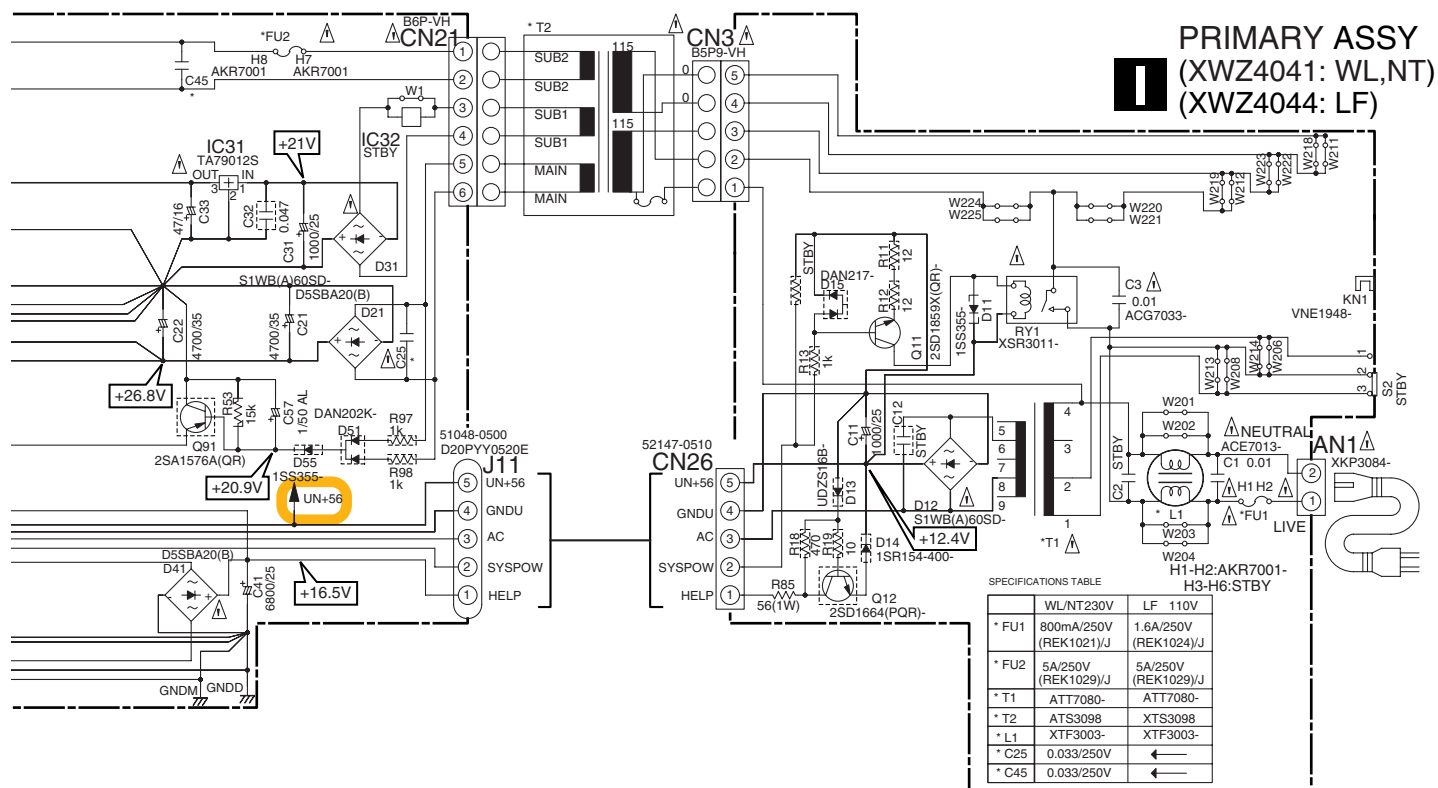
SECONDARY ASSY (XWZ4042)



NOTES

ALL CAPACITORS ARE IN  $\mu F$   
UNLESS OTHERWISE SPECIFIED  
CH : CCSRCH (OTHER : CKSRYB)  
AL : CEAL M : CQMA  
: CEAT  
ALL RESISTORS ARE IN  $\Omega$   
1/16W(CHIP)  
ALL INDUCTORS ARE IN  $\mu H$   
LCYA

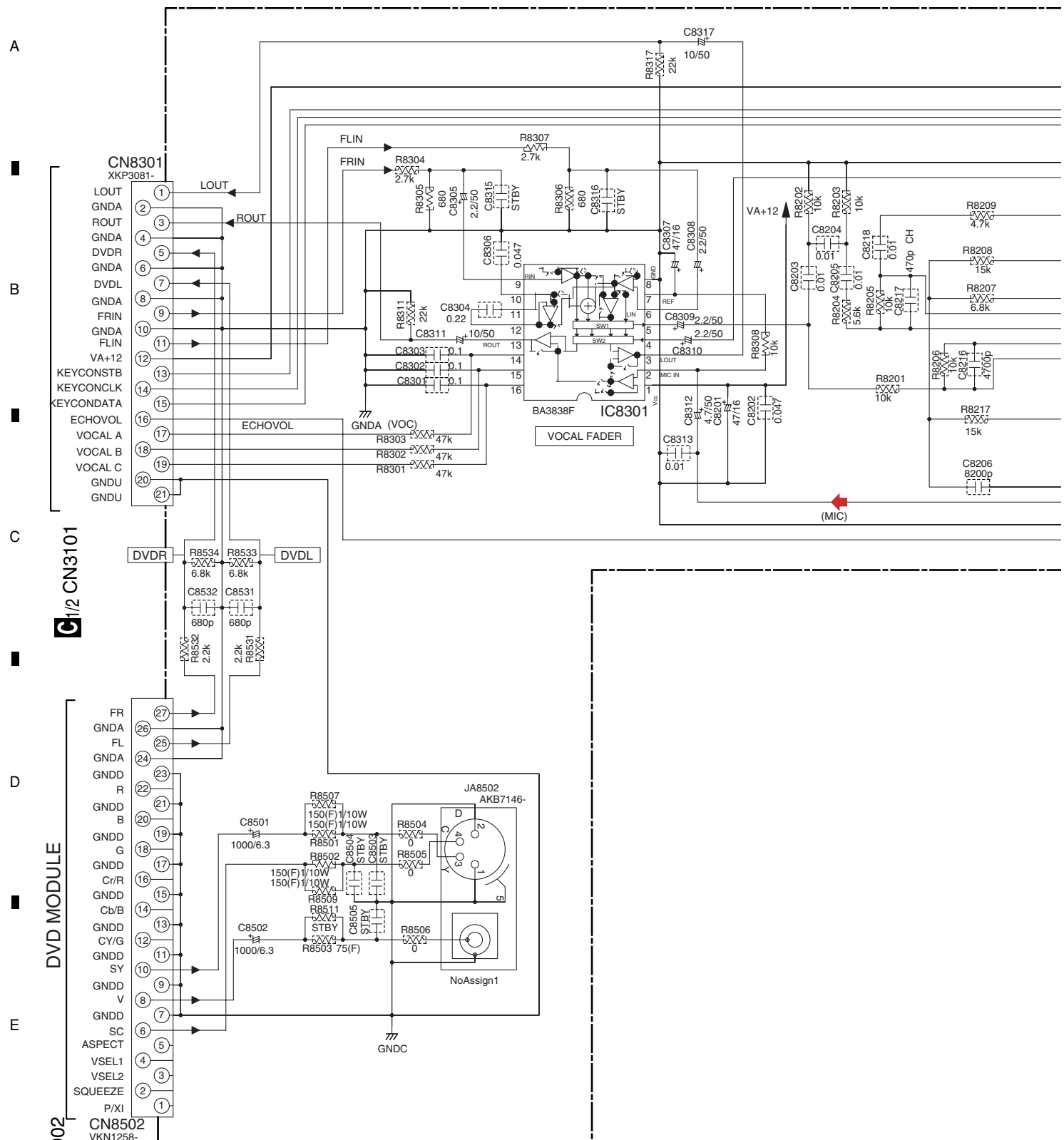




➡ :AUDIO SIGNAL ROUTE

(DVDL) ➡ :DVD Lch AUDIO SIGNAL ROUTE

# 3.10 KARAOKE ASSY



## NOTES

- ALL CAPACITORS ARE IN  $\mu$ F
- UNLESS OTHERWISE SPECIFIED
- CH : CCSRCH (OTHER : CKSRYB)
- AL : CEAL
- CEAT : CEAT
- ALL RESISTORS ARE IN  $\Omega$
- 1/16W(CHIP)
- ALL INDUCTORS ARE IN  $\mu$ H
- LCYA





## 3.11 WAVEFORMS

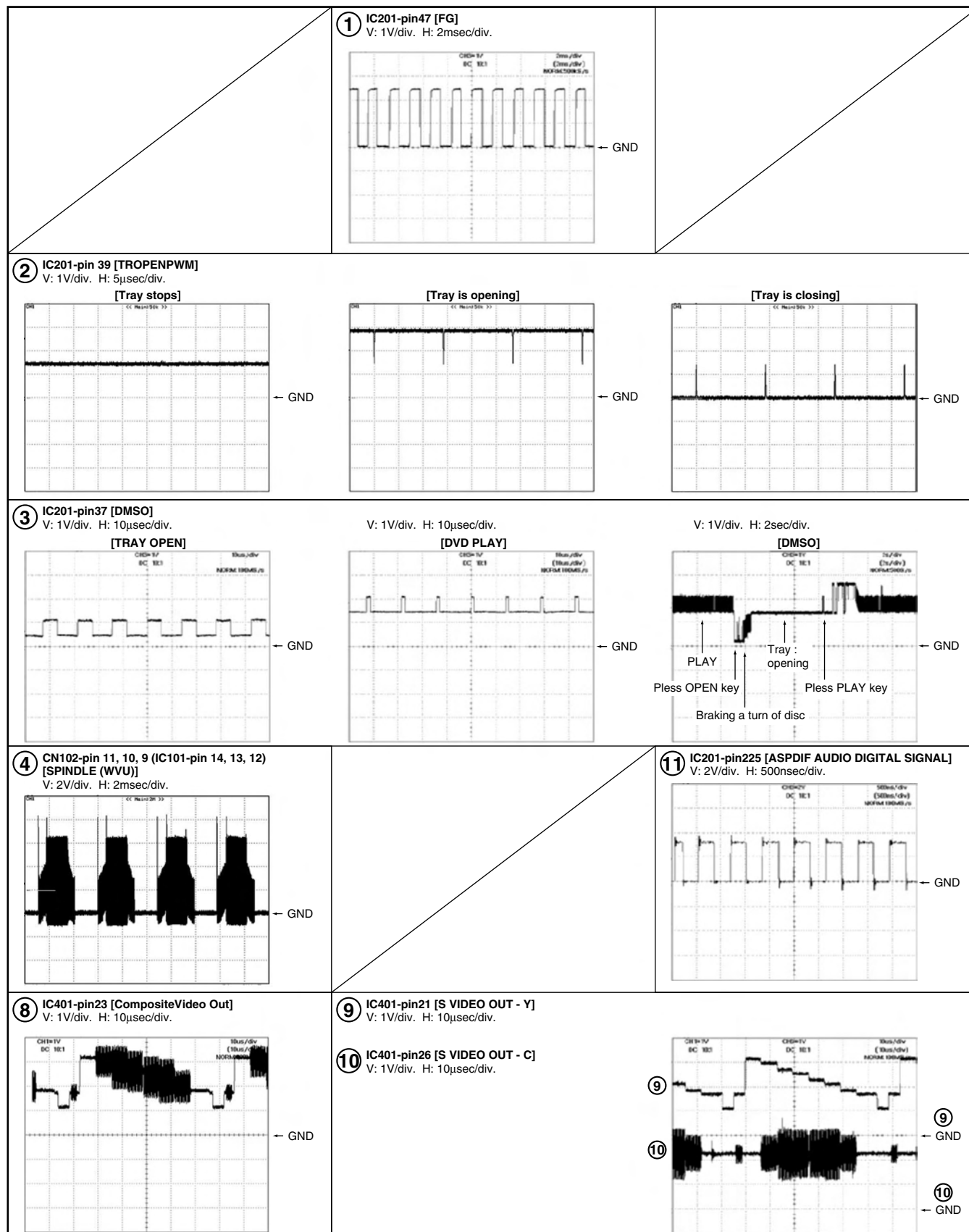
Note : The encircled numbers denote measuring point in the schematic diagram.

### B DVDM ASSY

Measurement condition ;

No. 1 to 10 : reference A1 (DVD), T2-chp 19, Color-bar

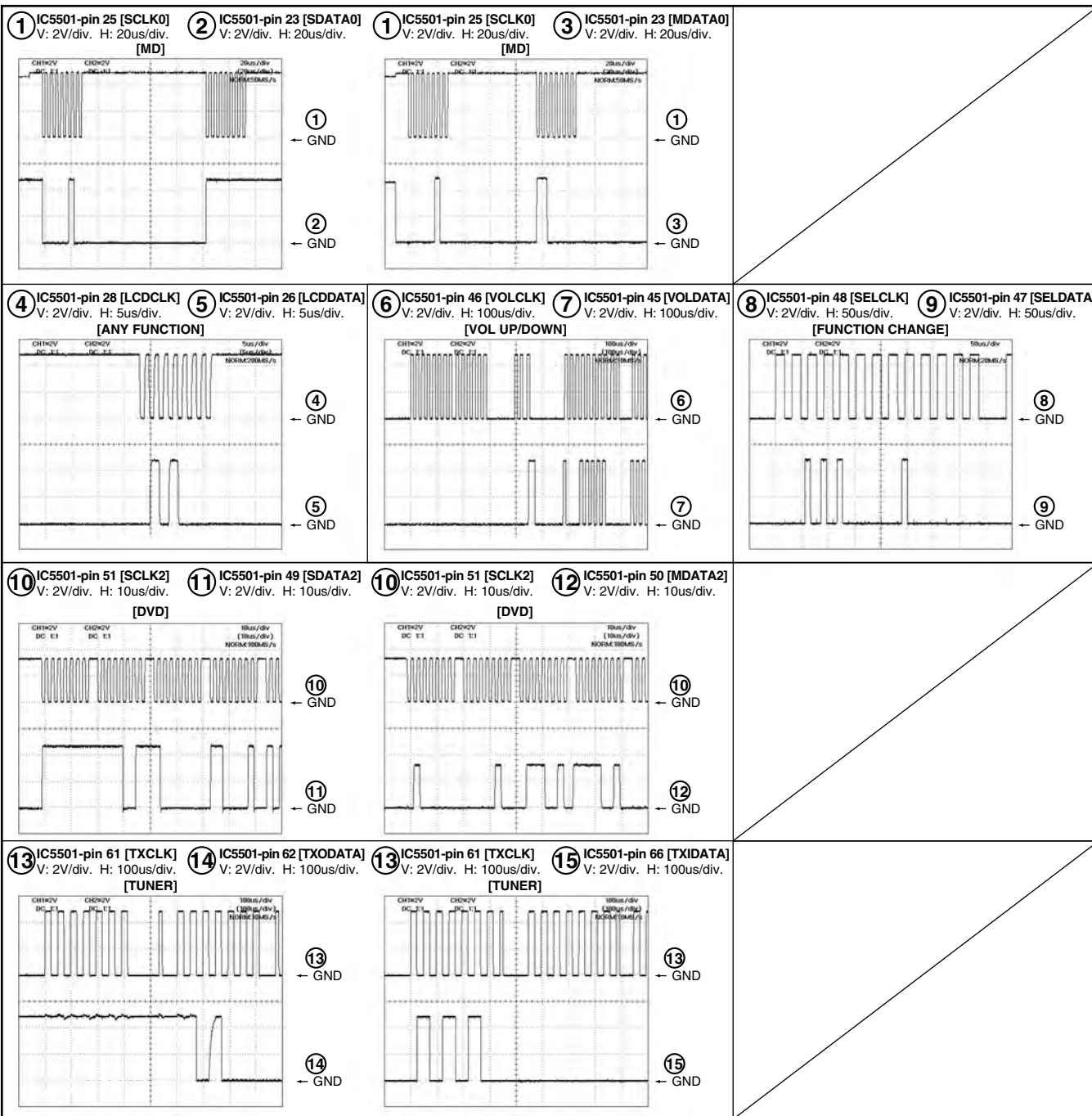
No. 11 to 14 : reference A1 (DVD), T1



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

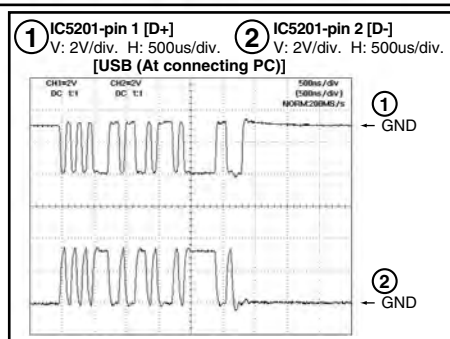
## C IF ASSY

SYSTEM Microcomputer(IC)<-->Each part communication waveform



## D DISP ASSY

USB Interface data waveform



■ 1 ■ 2 ■ 3 ■ 4 ■

A

■

B

■

C

■

D

■

E

■

F

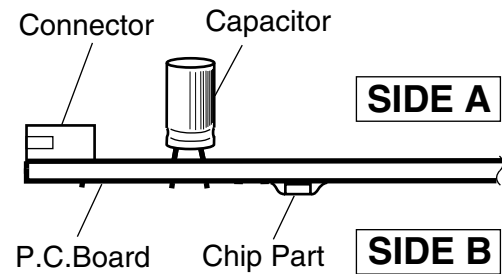
## 4. PCB CONNECTION DIAGRAM

### 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                |
|------------------------|------------------------------|--------------------------|
|                        |                              | Transistor               |
|                        |                              | Transistor with resistor |
|                        |                              | Field effect transistor  |
|                        |                              | Resistor array           |
|                        |                              | 3-terminal regulator     |

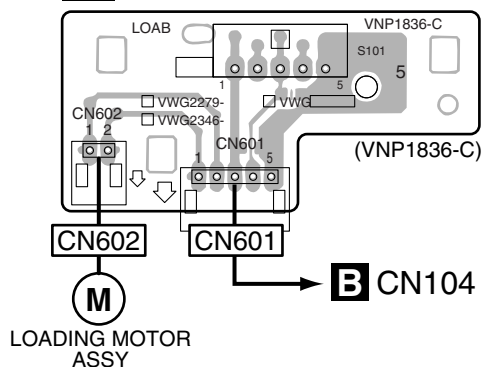
3. The parts mounted on this PCB include all necessary parts for several destinations.
- For further information for respective destinations, be sure to check with the schematic diagram.
4. View point of PCB diagrams.



### 4.1 LOAB ASSY

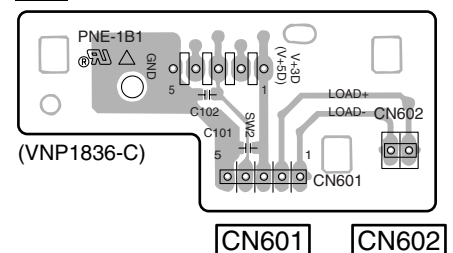
**SIDE A**

#### **A** LOAB ASSY



**SIDE B**

#### **A** LOAB ASSY



**A**

**A**

## 4.2 DVDM ASSY

**SIDE A**

**SIDE A**

**B** DVDM ASSY

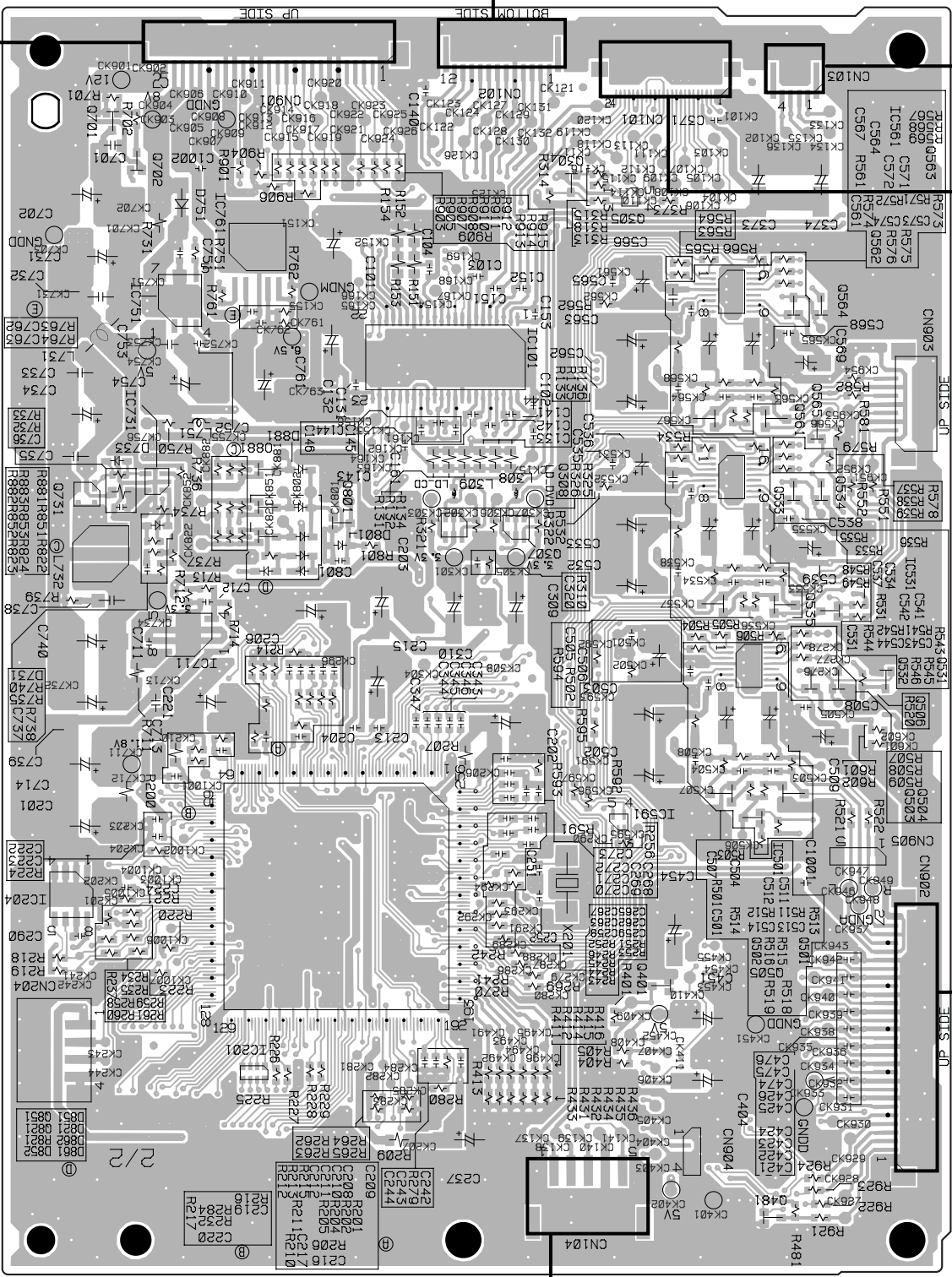
To SPINDLE MOTOR

To STEPPING MOTOR

To PICKUP ASSY

**K** CN8502

**A** CN601







**C** IF ASSY

**K** CN8301 **M** TUNER MODULE





ULE

**SIDE A**

A

B

C

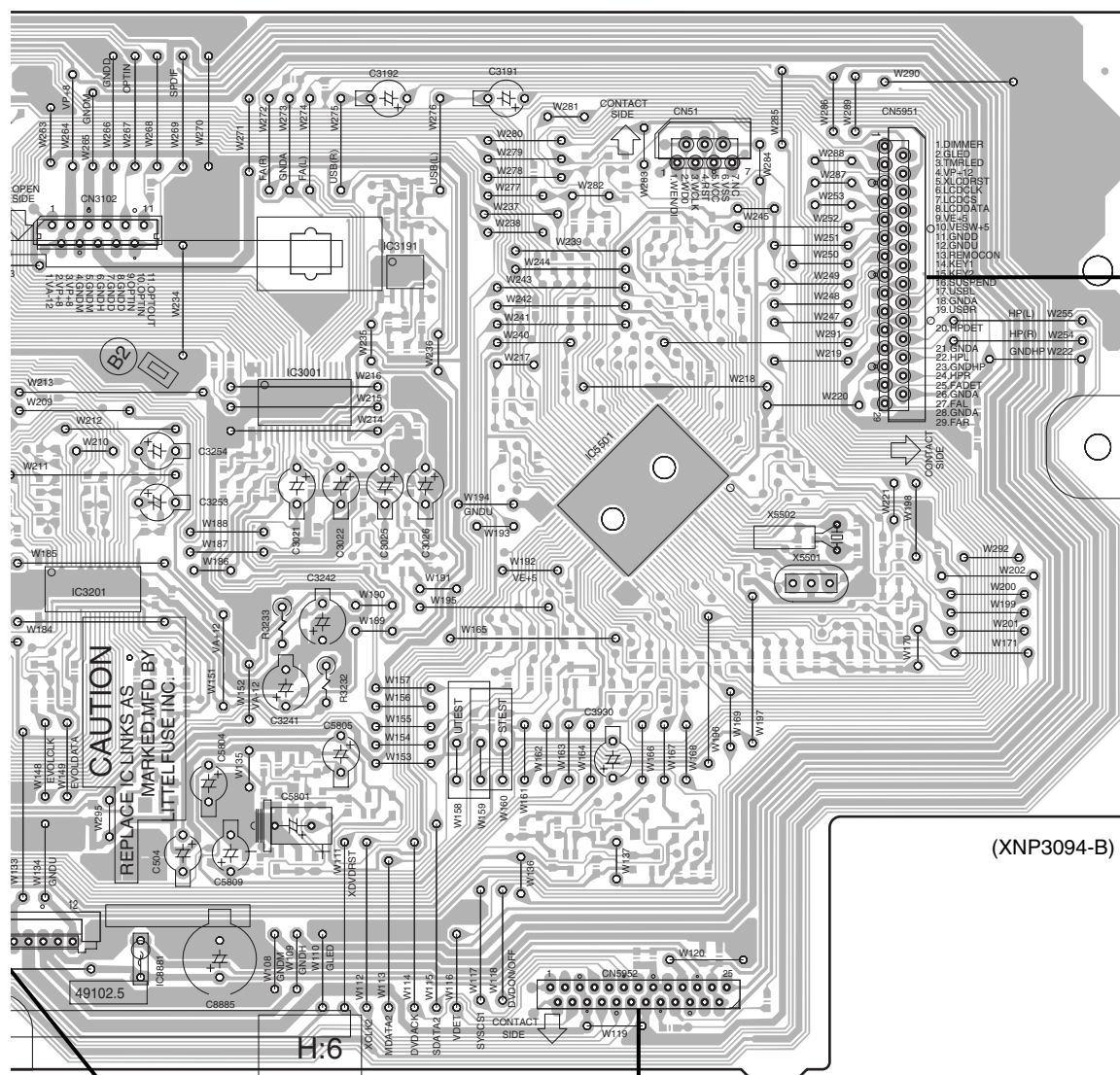
D

F

F

C

43



**SIDE B****C**IF ASSY

CN5951

(XNP3094-B)

## TEST STEPS

**CAUTION**

REPLACE IC LINKS AS  
MFD BY LITTELFUSE INC.

CN5952

CN43

**SIDE B**

A

B

C

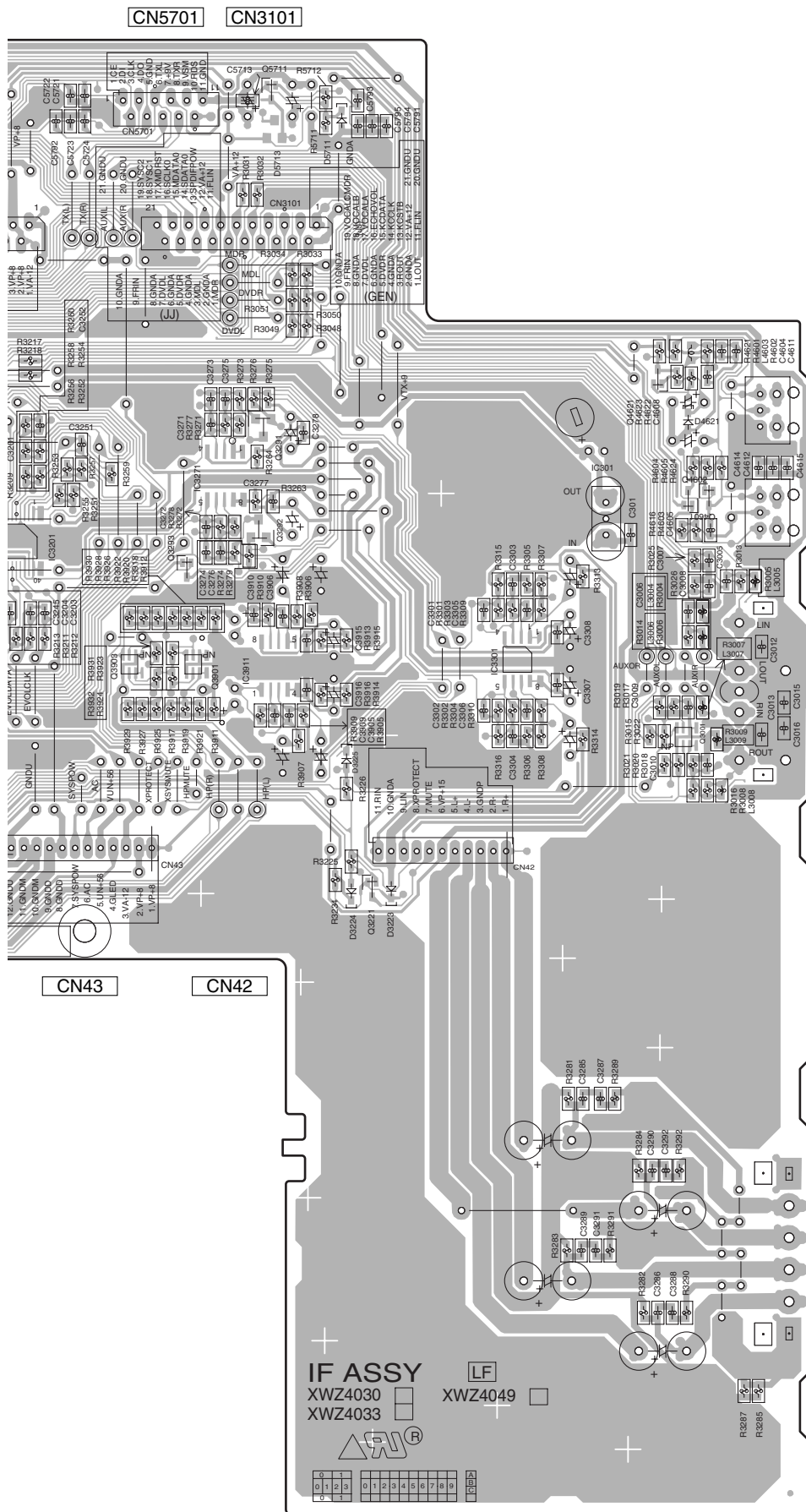
D

E

F

**C**

45



Q5711

Q5831

Q5832

IC3191

IC3001

IC5501

Q4621

Q3291

IC3271

Q3041

Q3042

IC3201

Q3292

2 Q3043

Q3293

IC3301

Q5802

Q3903  
Q3901

Q3301

IC501

Q3953

Q5801

Q3001

Q2051

Q5952

Q3003

IC511

Q5803

Q3221

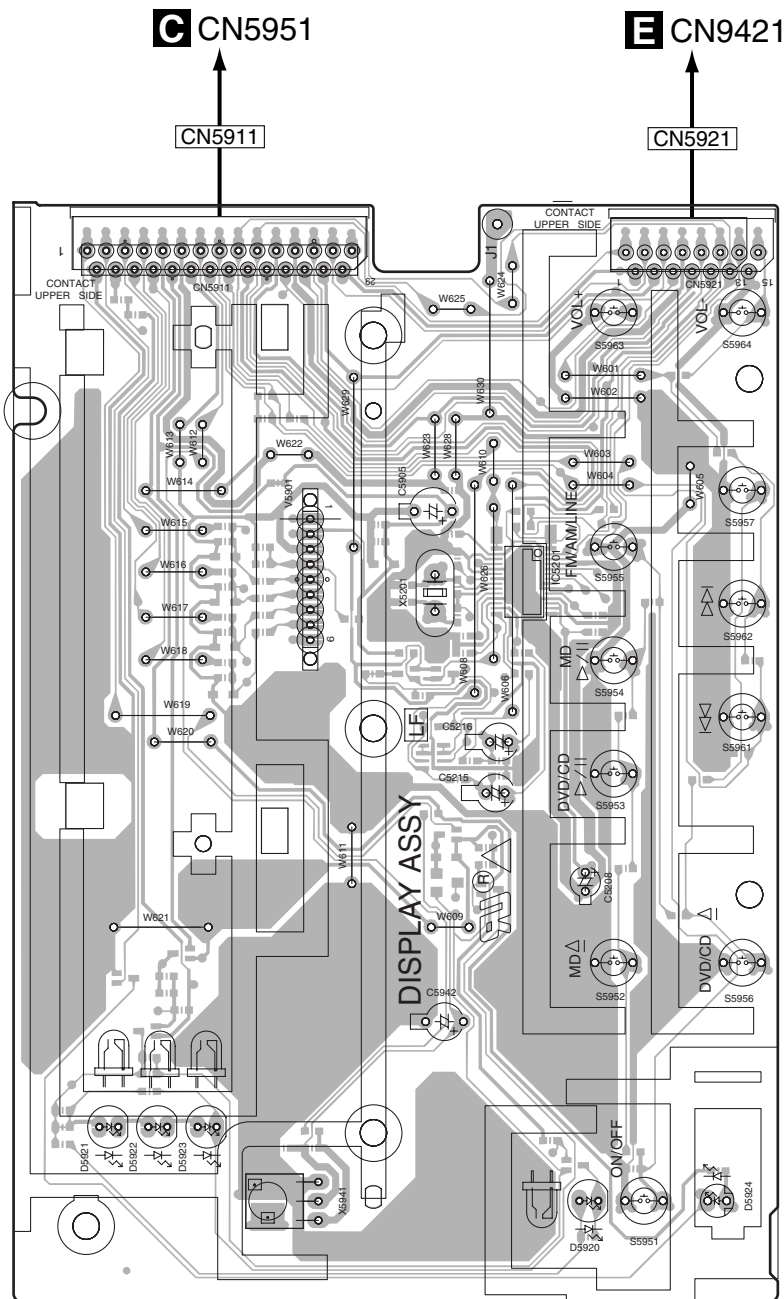
1 2 3 4

4.4 DISP ASSY

SIDE A

SIDE A

D DISP ASSY



(XNP3094-B)

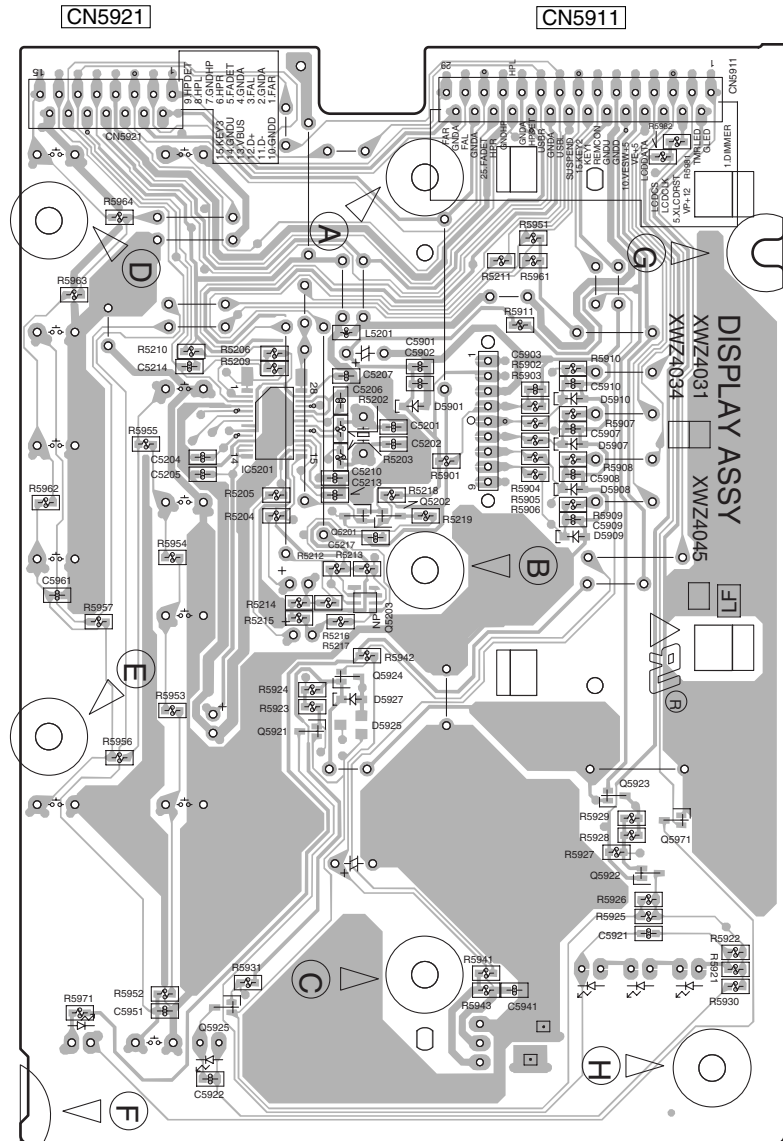
D

D

SIDE B

SIDE B

# DISP ASSY



(XNP3094-B)

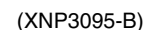
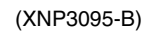
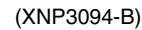
D

D

XV-HA5



△





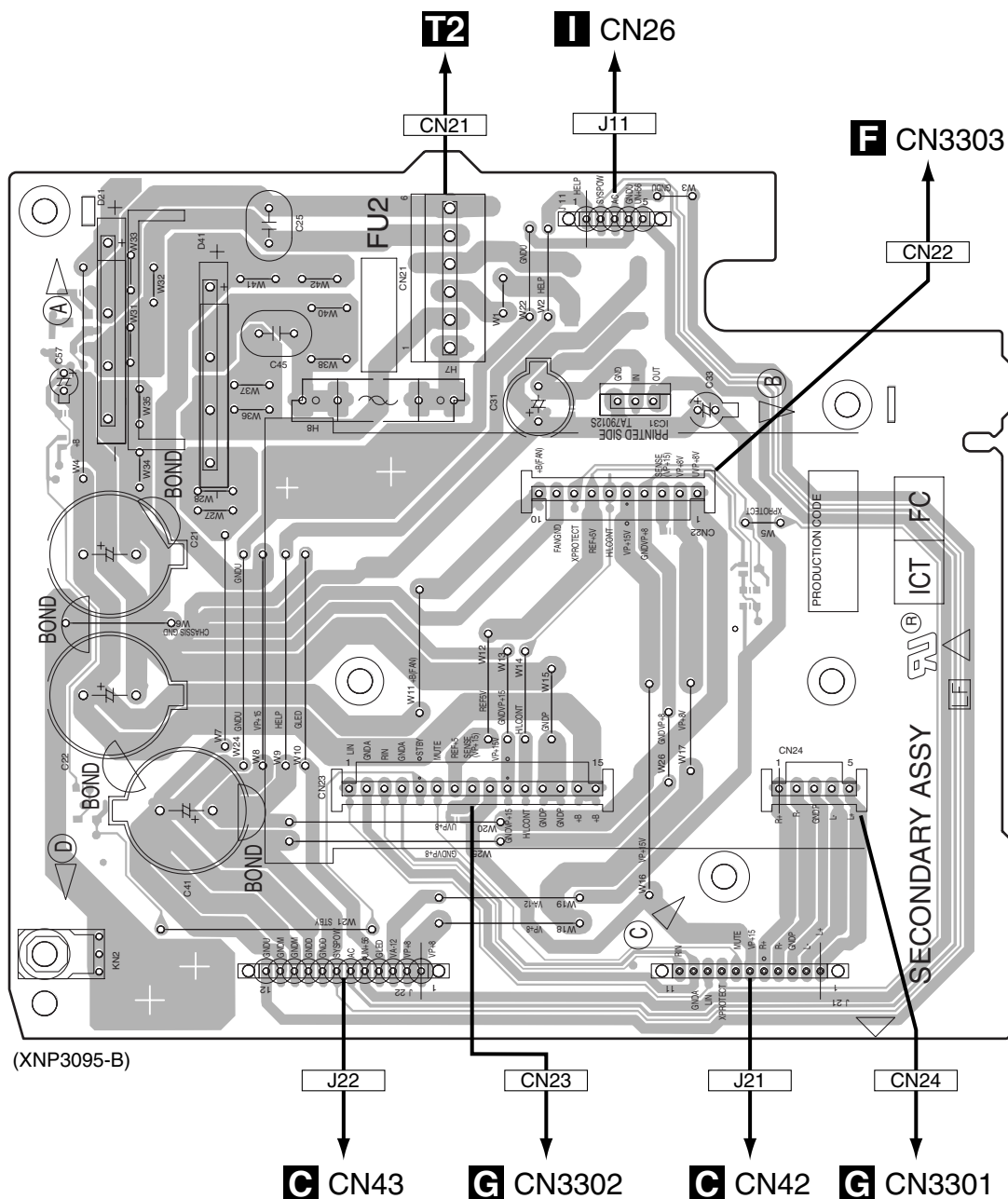


## 4.6 SECONDARY ASSY

**SIDE A**

**SIDE A**

### H SECONDARY ASSY



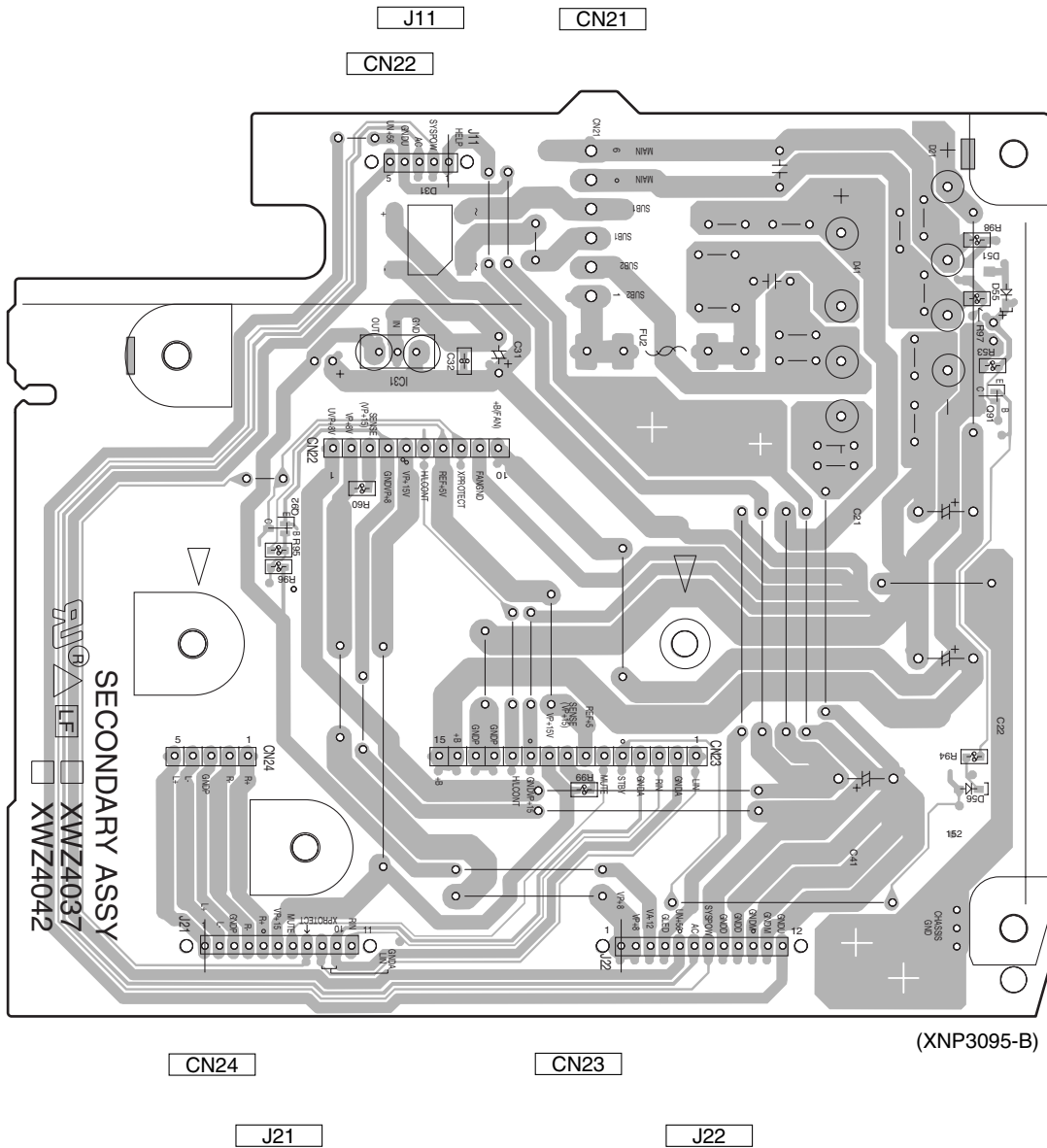
**H**

**H**

SIDE B

SIDE B

# SECONDARY ASSY

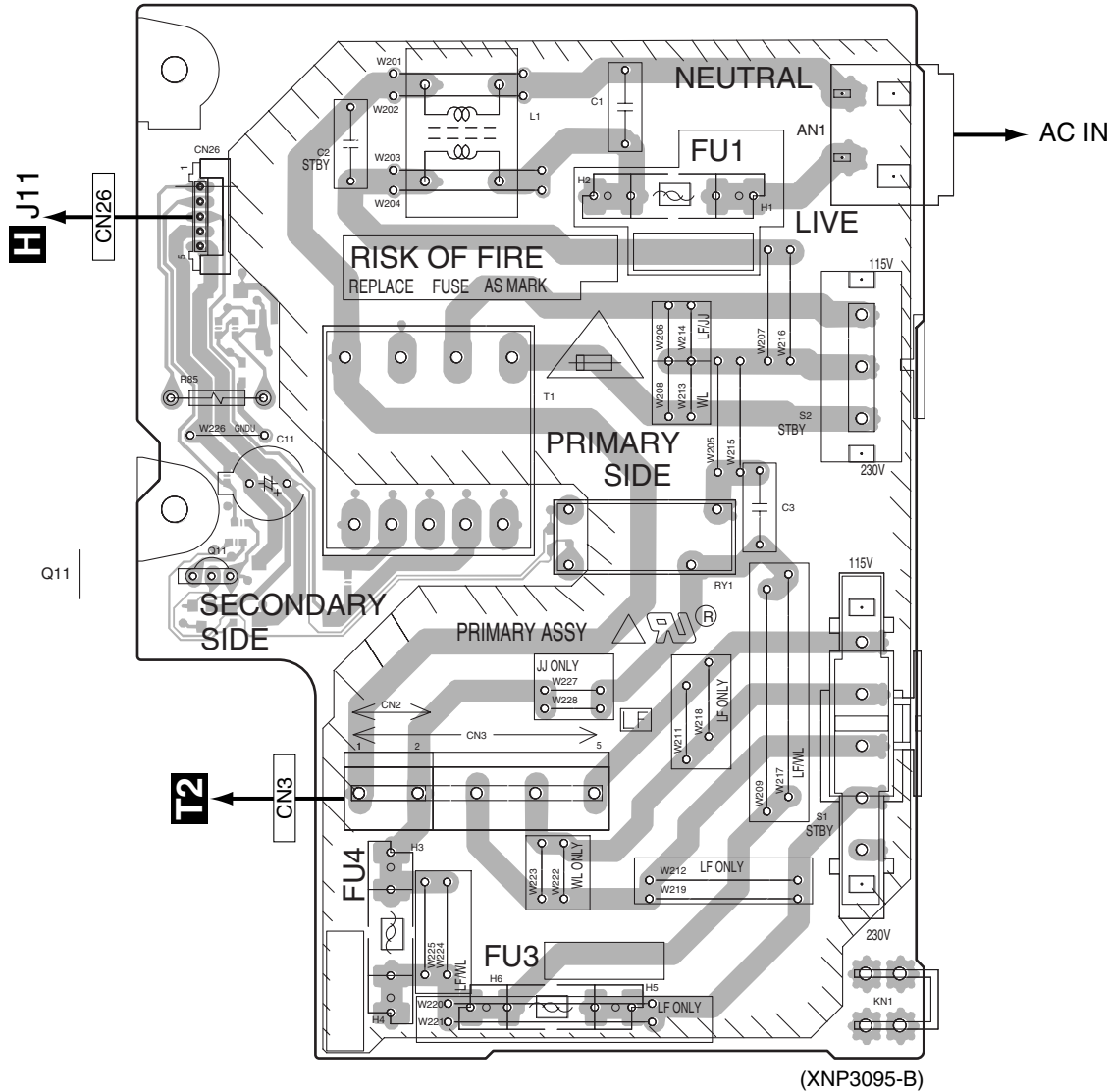


4.7 PRIMARY ASSY

SIDE A

SIDE A

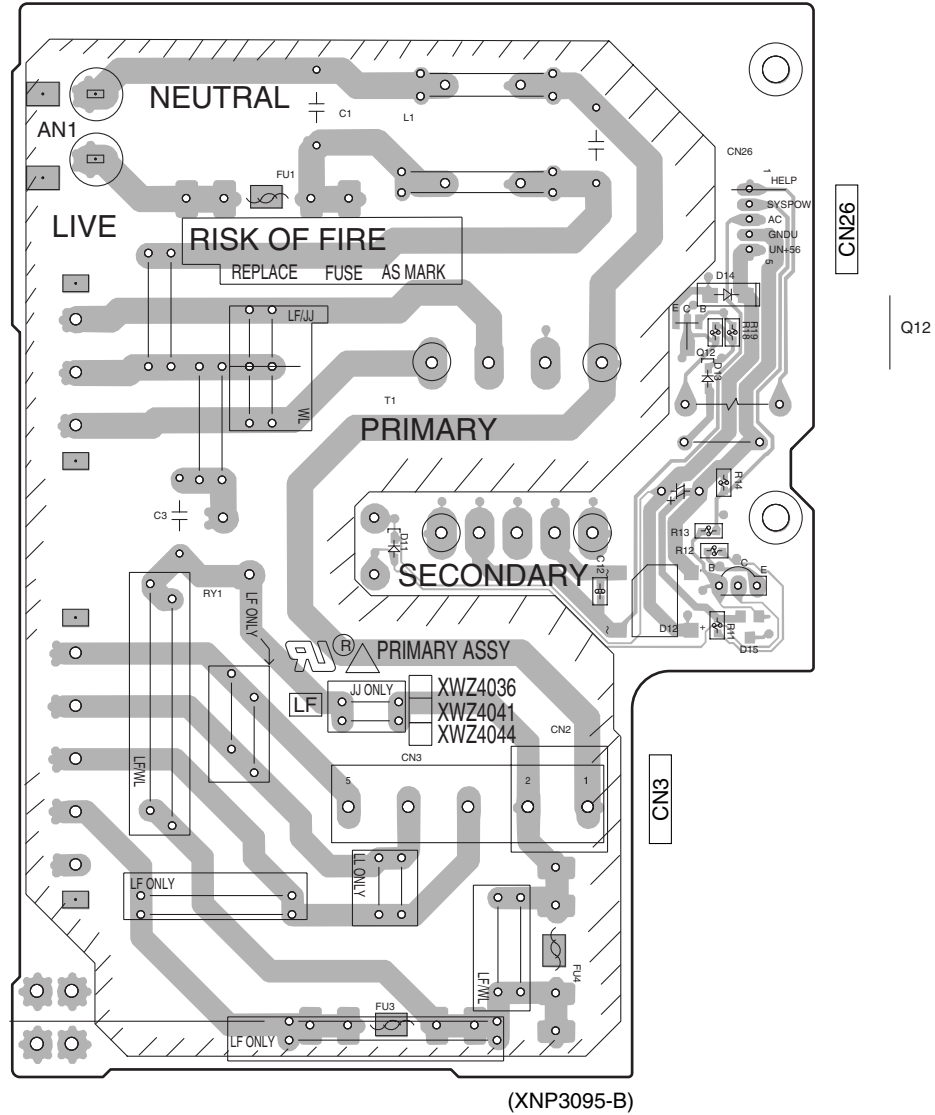
PRIMARY ASSY



SIDE B

SIDE B

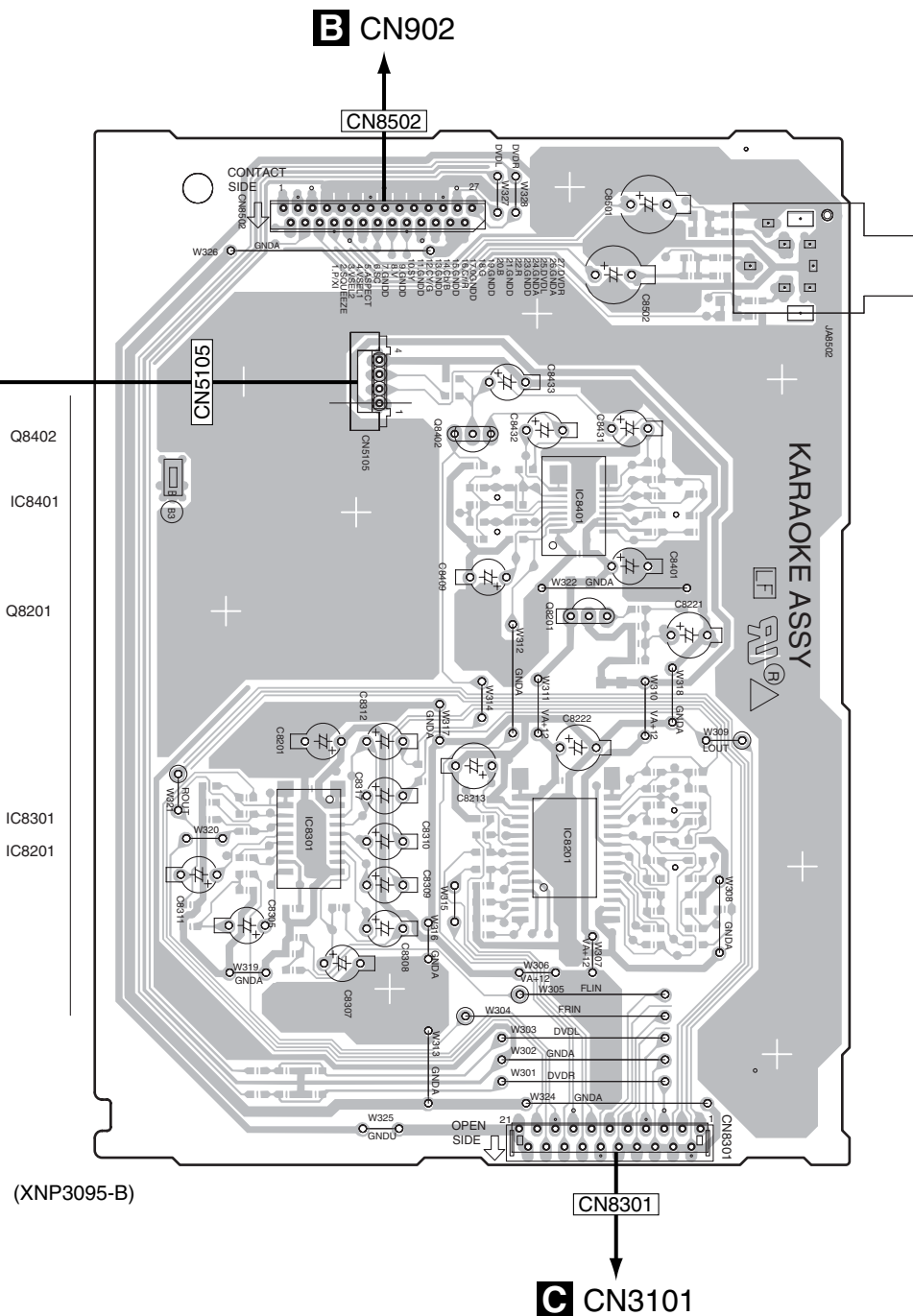
## PRIMARY ASSY



## SIDE A

**SIDE A**

**E** J9911

**C** CN3101

XV-HA5



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<sup>1</sup> → 561 ..... RD1/4PU561J  
47k Ω → 47 x 10<sup>3</sup> → 473 ..... RD1/4PU473J  
0.5 Ω → R50 ..... RN2H R50K  
1 Ω → 1R0 ..... RS1P 1R0K  
Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).  
5.62k Ω → 562 x 10<sup>1</sup> → 5621 ..... RN1/4PC5621F

LIST OF HOLE PCB ASSEMBLIES

| Mark | Symbol and Description | XV-HA5 /WLXJ | XV-HA5 /LFXJ | XV-HA5 /NTXJ |
|------|------------------------|--------------|--------------|--------------|
| NSP  | 1..LOAB ASSY           | VWG2346      | VWG2346      | VWG2346      |
|      | 1..DVD ASSY            | XXA3036      | XXA3036      | XXA3036      |
|      | 2..DVDM ASSY           | AWM7966      | AWM7966      | AWM7966      |
| NSP  | 1..AMP ASSY            | XWK3205      | XWK3206      | XWK3205      |
|      | 2..REGULATOR ASSY      | XWZ4039      | XWZ4039      | XWZ4039      |
|      | 2..POWER ASSY          | XWZ4040      | XWZ4040      | XWZ4040      |
|      | 2..PRIMARY ASSY        | XWZ4041      | XWZ4044      | XWZ4041      |
|      | 2..SECONDARY ASSY      | XWZ4042      | XWZ4042      | XWZ4042      |
|      | 2..KARAOKE ASSY        | XWZ4043      | XWZ4043      | XWZ4043      |
| NSP  | 1..MAIN ASSY           | XWM3309      | XWM3313      | XWM3315      |
|      | 2..IF ASSY             | XWZ4033      | XWZ4049      | XWZ4050      |
|      | 2..DISP ASSY           | XWZ4034      | XWZ4034      | XWZ4034      |
|      | 2..HP 2 ASSY           | XWZ4035      | XWZ4035      | XWZ4035      |
|      | 1..FM/AM TUNER UNIT    | AXX7173      | AXX7173      | AXX7173      |

CONTRAST OF PCB ASSEMBLIES

C IF ASSY

XWZ4049, XWZ4050 and XWZ4033 are constructed the same except for the following :

| Mark | Symbol and Description | XWZ4033  | XWZ4049     | XWZ4050     |
|------|------------------------|----------|-------------|-------------|
|      | R5515                  | Not used | RS1/16S153J | RS1/16S473J |

I PRIMARY ASSY

Although XWZ4041 and XWZ4044 are different in part number, they have the same service parts.

FM/AM TUNER UNIT

This assembly has no service parts.

PCB PARTS LIST FOR XV-HA5/WLXJ UNLESS OTHER WISE NOTED

| <u>Mark No.</u>      | <u>Description</u>                | <u>Part No.</u> | <u>Mark No.</u> | <u>Description</u>           | <u>Part No.</u> |
|----------------------|-----------------------------------|-----------------|-----------------|------------------------------|-----------------|
| <b>A</b>             | <b>LOAB ASSY</b>                  |                 | <b>B</b>        | <b>DVDM ASSY</b>             |                 |
|                      | <b><u>SWITCHES AND RELAYS</u></b> |                 |                 | <b><u>SEMICONDUCTORS</u></b> |                 |
|                      | S101                              | VSK1011         |                 | IC203                        | AYW7069         |
|                      |                                   |                 |                 | IC0                          | S29AL016D       |
|                      |                                   |                 |                 | ⚠ IC761                      | BA3948FP        |
| <b><u>OTHERS</u></b> | CN602                             | KR CONNECTOR    |                 | IC101                        | BD7995EFS       |
|                      | CN601                             | KR CONNECTOR    |                 |                              |                 |



| Mark No.                     | Description |
|------------------------------|-------------|
| IC202                        |             |
| IC501                        |             |
| ⚠ IC751 (5.0V)               |             |
| IC401                        |             |
| ⚠ IC711                      |             |
| IC201                        |             |
| ⚠ IC731                      |             |
| IC204                        |             |
| Q505, Q701, Q821, Q851, Q881 |             |
| Q304                         |             |
| Q481, Q503, Q504, Q506       |             |
| Q702, Q801                   |             |
| Q307, Q308                   |             |
| ⚠ Q732                       |             |
| Q305                         |             |
| Q501, Q502                   |             |
| D731, D733, D821, D851, D852 |             |
| D861, D862, D881             |             |
| D732                         |             |
| D801                         |             |

## COILS AND FILTERS

L732 POWER INDUCTOR  
L731 POWER INDUCTOR (22U)  
L901 CHIP BEADS  
L751 CHIP BEADS

## CAPACITORS

|                              |              |
|------------------------------|--------------|
| C252                         | CCSRCH100D50 |
| C737                         | CCSRCH121J50 |
| C265                         | CCSRCH220J50 |
| C227                         | CCSRCH221J50 |
| C254                         | CCSRCH391J50 |
| C712, C752                   | CCSRCH471J50 |
| C211, C212                   | CCSRCH560J50 |
| C251                         | CCSRCH8R0D50 |
| C256, C509, C511, C512       | CEVW100M16   |
| C101, C373, C401, C404, C734 | CEVW101M16   |
| C739, C761                   | CEVW101M16   |
| C201, C202, C237, C281       | CEVW221M4    |
| C203, C206, C215, C309, C310 | CEVW470M16   |
| C701                         | CKSQYB105K16 |
| C713, C753                   | CKSQYB225K10 |
| C161, C230, C267, C296       | CKSRYB102K50 |
| C151–C153, C226, C250        | CKSRYB103K50 |
| C131, C204, C205, C207, C209 | CKSRYB104K25 |
| C213, C214, C216, C217, C220 | CKSRYB104K25 |
| C222–C225, C228, C231–C236   | CKSRYB104K25 |
| C239–C241, C244–C246, C253   | CKSRYB104K25 |
| C257, C260, C266, C268       | CKSRYB104K25 |
| C271–C273, C283–C288, C290   | CKSRYB104K25 |
| C371, C372, C402, C405, C406 | CKSRYB104K25 |
| C411, C415, C416, C736, C801 | CKSRYB104K25 |
| C102–C104, C121, C140, C243  | CKSRYB105K10 |
| C282, C289, C343–C347        | CKSRYB105K10 |
| C412–C414, C711, C751, C762  | CKSRYB105K10 |
| C219                         | CKSRYB152K50 |
| C144–C146, C208, C210        | CKSRYB222K50 |
| C269                         | CKSRYB333K16 |
| C258, C259                   | CKSRYB473K50 |
| C255                         | CKSRYB474K10 |

| <u>Mark No.</u>              | <u>Description</u> | <u>Part No.</u> |
|------------------------------|--------------------|-----------------|
| C732, C733, C735, C738       | (10uF/16V)         | DCH1165         |
| <b><u>RESISTORS</u></b>      |                    |                 |
| R225                         |                    | RAB4C330J       |
| R1001-R1003, R200, R207-R209 |                    | RS1/10S0R0J     |
| R217, R281, R301-R303, R500  |                    | RS1/10S0R0J     |
| R530, R560, R590             |                    | RS1/10S0R0J     |
| R732                         |                    | RS1/10S100J     |
| R151, R153                   |                    | RS1/10S1R0J     |
| R152, R154                   |                    | RS1/10S1R8J     |
| R131-R136                    |                    | RS1/10S4R7J     |
| R411-R416                    |                    | RS1/16S1500F    |
| R738                         |                    | RS1/16S1502F    |
| R736                         |                    | RS1/16S1802F    |
| R279                         |                    | RS1/16S2201F    |
| R737                         |                    | RS1/16S2702F    |
| R762                         |                    | RS1/16S3902F    |
| Other Resistors              |                    | RS1/16S###J     |

## OTHERS

|       |                              |         |
|-------|------------------------------|---------|
| CN104 | PH CONNECTOR 5P              | AKM1291 |
| CN102 | 12P CONNECTOR                | AKN7031 |
| CN103 | 04P CONNECTOR                | RKN1045 |
| CN901 | 25P FFC CONNECTOR            | VKN1317 |
| CN902 | 27P FFC CONNECTOR            | VKN1319 |
| CN101 | 0.5-24P CONNECTOR            | VKN1482 |
| X201  | CRYSTAL RESONATOR<br>(27MHz) | VSS1172 |

**CIF ASSY**  
**SEMICONDUCTORS**

|                               |            |
|-------------------------------|------------|
| IC8881 (2.5A)                 | AEK7014    |
| IC3201                        | BD3814FV   |
| IC3001                        | BD3841FS   |
| IC3191,IC3271                 | HA17558AF  |
| IC3911                        | NJM4565M   |
| IC5501                        | PDC125A    |
| ⚠ IC511                       | BA178M05FP |
| ⚠ IC301                       | TA7812S    |
| Q3951,Q3953,Q5831             | 2SA1576A   |
| Q3041,Q3042,Q3952,Q4621,Q5711 | 2SC4081    |
| Q5801,Q5803                   | 2SC4081    |
| Q3291,Q3292                   | 2SD2114K   |
| Q3001,Q3901,Q3903             | IMX9       |
| Q5832                         | RT11N241M  |
| Q5802                         | RT11N431M  |
| Q3003,Q3043,Q3221,Q3293       | RT1P241M   |
| D3001,D3224,D3225,D5801,D511  | 1SS355     |
| D3953                         | DAN202K    |
| D5713                         | DAN217     |
| D5711                         | UDZS10(B)  |
| D3223                         | UDZS4R7(B) |
| D3951,D4621                   | UDZS5R6(B) |
| D3221,D3222                   | UDZS6R8(B) |

## COILS AND FILTERS

L5801 LCYA220J2520

## CAPACITORS

|                               |              |
|-------------------------------|--------------|
| C5801                         | ACH1246      |
| C5510                         | CCSRCH100D50 |
| C3039,C3040,C3203,C3204       | CCSRCH101J50 |
| C3909,C3910,C5721,C5723,C5808 | CCSRCH101J50 |
| C5509                         | CCSRCH120J50 |

**Mark No. Description****Part No.****Mark No. Description****Part No.**

A

C3195,C3196  
C3905,C3906,C5724  
C3911,C3912  
C3021,C3022,C3025,C3026  
C3253,C3254,C3311,C3312, C504

CCSRCH331J50  
CCSRCH470J50  
CEANP470M16  
CEAT100M50  
CEAT100M50

C3913,C3914,C3930,C5711,C5805  
C5804  
C8885  
C5809  
C3241,C3242

CEAT100M50  
CEAT101M6R3  
CEAT102M10  
CEAT1R0M50  
CEAT221M10

C3191,C3192  
C4603,C4621  
C302,C3257,C3258,C3907,C3908  
C3281-C3284  
C501

CEAT2R2M50  
CEAT470M10  
CEAT470M16  
CEAT472M25  
CKSQYB105K16

B

C3251,C3252,C3285,C3286  
C3289,C3290,C4614,C5502  
C3201,C3202,C4611,C5517-C5519  
C5522,C5803,C5807  
C301,C3017-C3019,C3243,C3244

CKSRYB102K50  
CKSRYB102K50  
CKSRYB103K50  
CKSRYB103K50  
CKSRYB104K50

C3273-C3278,C3915,C3916  
C3931,C3932,C4608,C5514,C5540  
C5555,C5589,C5713,C5802  
C8881,C8882  
C3005,C3006, C3007, C3008

CKSRYB104K50  
CKSRYB104K50  
CKSRYB104K50  
CKSRYB104K50  
CKSRYB221K50

C

C3193,C3194  
C3210,C3211  
C3206-C3209  
C3009,C3010

CKSRYB332K50  
CKSRYB472K50  
CKSRYB683K16  
CKSRYB821K50

**RESISTORS**

R3232,R3233  
Other Resistors

RD1/2VM151J  
RS1/16S###J

**OTHERS**

X5501 CERAMIC RESONATOR  
X5502 CRYSTAL RESONATOR  
(32kHz)  
CN5701 11P FFC CONNECTOR  
CN42 11PJUMPER CONNECTOR

ASS7034  
VSS1143  
52045-1145  
52147-1110

D

CN43 12PJUMPER CONNECTOR  
CN3352 SPEAKER TERMINAL 4-P  
CN5951 29P FFC CONNECTOR  
CN51 7P FFC CONNECTOR  
JA4601 OPTICAL OUTPUT JACK

52147-1210  
AKE7086  
HLEM29S-1  
HLEM7S-1  
TOTX177PL

1,2 PCB BINDER  
JA3001 4P PIN JACK  
CN5952 25P FFC CONNECTOR  
CN3101 21P PLUG

VEF1040  
VKB1047  
VKN1256  
XKP3070

E

**DISP ASSY  
SEMICONDUCTORS**

IC5201  
Q5922  
Q5921,Q5925  
Q5924,Q5971  
Q5923

PCM2900E  
2SA1576A  
2SC4081  
RT1N241M  
RT1N431M

D5927  
D5925  
D5920  
D5921-D5923  
D5924

1SS355  
DAN217  
NEPW500-4A05  
NSPW510BS-2224  
SLI-343YCW(RST)

F

D5901

UDZS6R8(B)

**SWITCHES AND RELAYS**

S5951-S5957,S5961-S5964

VSG1009

**CAPACITORS**

C5201  
C5202,C5907-C5909  
C5905  
C5215,C5216,C5942  
C5204-C5207,C5210,C5213,C5214

CCSRCH180J50  
CCSRCH220J50  
CEAL470M6R3  
CEAT100M50  
CKSRYB104K50

C5901,C5903,C5910,C5921,C5922  
C5941

CKSRYB104K50  
CKSRYB104K50

**RESISTORS**

Other Resistors

RS1/16S###J

**OTHERS**

X5201 CRYSTAL RESONATOR  
5901 9P CABLE HOLDER  
CN5921 13P FFC CONNECTOR  
CN5911 29P FFC CONNECTOR  
5941 REMOTE RECEIVER UNIT

ASS7047  
51048-0900  
52044-1345  
52044-2945  
GP1UM28XK0VF

V5901 LCD MODULE

XAV3029

**HP 2 ASSY  
SEMICONDUCTORS**

IC9402  
Q9401  
D9901,D9902

HA17558AF  
RT1P431M  
UDZS6R8(B)

**CAPACITORS**

C9420, C9947  
C9943,C9953  
C9430,C9945, C9955  
C9412,C9429, C9436, C9944, C9946  
C9954

CEAT470M16  
CKSRYB102K50  
CKSRYB103K50  
CKSRYB104K50  
CKSRYB104K50

C9941,C9942  
C9951,C9952  
C9419,C9427, C9428  
C9421,C9422, C9426  
C9423

CKSRYB221K50  
CKSRYB223K50  
CCSRCH101J50  
CEAL2R2M50  
CCSRCH102J50

**RESISTORS**

VR9401 (10kΩ)  
Other Resistors

XCS3007  
RS1/16S###J

**OTHERS**

CN9421 13P FFC CONNECTOR  
JA9401,JA9402 MINITURE JACK  
JA9901,JA9902 MINITURE JACK  
KN9901 WRAPPING TERMINAL  
JA9903 USB CONNECTOR

52045-1345  
AKN7005  
AKN7005  
VNF1084  
XKN3016

JA9911 4P WIRE  
9911 4P CABLE HOLDER

D20PYY0435E  
51048-0400

**REGULATOR ASSY  
SEMICONDUCTORS**

⚠ IC51  
Q71  
⚠ Q3651  
Q54  
Q3652-Q3654

NJM78L05A  
2SA1235A  
2SB1237X  
2SC1740S  
2SC2412K

⚠ Q3655  
⚠ Q81  
⚠ D3656  
⚠ D3651-D3654  
D3657,D3664,D3665,D71-D75

DTC114TK  
IRF9530  
1SR154-400  
1SS355  
1SS355

D77  
D81

1SS355  
UDZS18(B)



**Mark No.****Description****Part No.**

C8201, C8213, C8222, C8307  
 C8202, C8223, C8306  
 C8203- C8205, C8218, C8313, C8404  
 C8407, C8411  
 C8206

CEAT470M16  
 CKSRYB473K50  
 CKSRYB103K50  
 CKSRYB103K50  
 CKSRYB822K50

C8207- C8209  
 C8212, C8403  
 C8214, C8215, C8304  
 C8216, C8406  
 C8217

CKSRYB683K16  
 CCSRCH101J50  
 CKSRYB224K16  
 CKSRYB472K50  
 CCSRCH471J50

C8219  
 C8220  
 C8301- C8303, C8402  
 C8305, C8308- C8310, C8431, C8432  
 C8311, C8317

CKSRYB122K50  
 CKSRYB102K50  
 CKSRYB104K50  
 CEAT2R2M50  
 CEAT100M50

C8312  
 C8401  
 C8405  
 C8408  
 C8409

CEAT4R7M50  
 CEAT101M16  
 CKSRYB123K50  
 CKSRYB332K50  
 CEAL220M16

C8501, C8502  
 C8531, C8532  
 C8221  
 C8433  
 C8410

CEAT102M6R3  
 CKSRYB681K50  
 CEAL100M50  
 CEATR22M50  
 CKSRYB474K10

**RESISTORS**

R8501, R8502, R8507, R8509  
 R8503  
 Other Resistors

RS1/10S1500F  
 RS1/16S75R0F  
 RS1/16S###J

**OTHERS**

CN5105 4P JUMPER CONNECTOR  
 CN8301 21P SOCKET  
 CN8502 27P FFC CONNECTOR  
 PCB BINDER

52147-0410  
 XKP3081  
 VKN1258  
 VEF1040

JA8502 COMB. JACK(S+1P)

AKB7146

## 6. ADJUSTMENT

### 6.1 ADJUSTMENT ITEMS AND LOCATION

#### ■ Adjustment Items

[Mechanism Part]

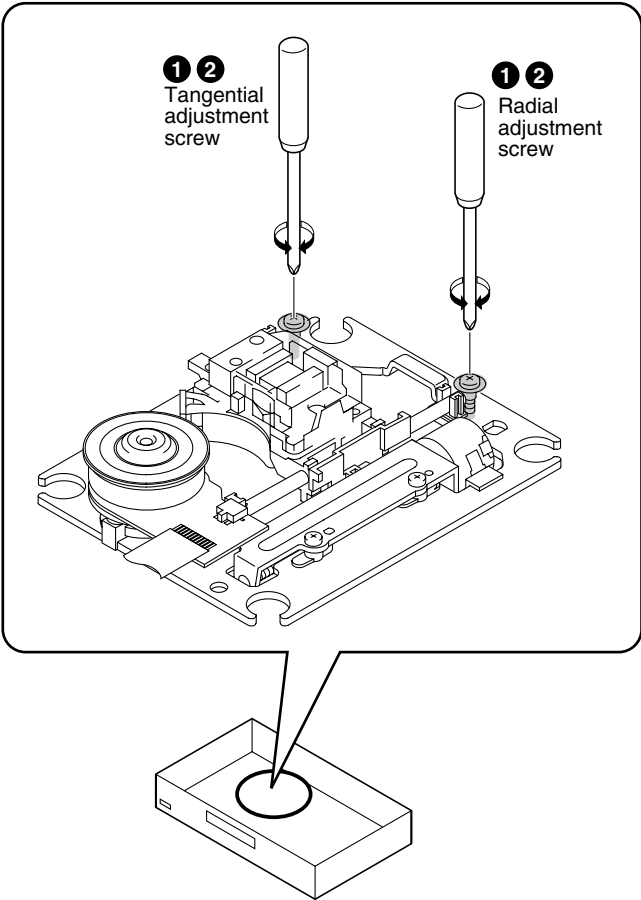
- ① Tangential and Radial Height Coarse Adjustment
- ② DVD Error Rate Adjustment

[Electrical Part]

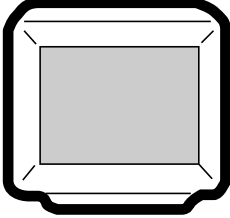
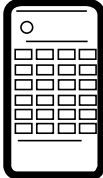
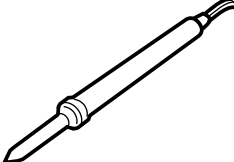
Electrical adjustments are not required.

#### ■ Adjustment Points (Mechanism Part)

**Cautions:** After adjustment, adjustment screw locks with the Screw tight.



### 6.2 JIGS AND MEASURING INSTRUMENTS

|                                                                                                              |                                                                                                                |                                                                                                        |                                                                                                                                  |
|--------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <br>⊕ Screwdriver (large) | <br>⊕ Screwdriver (medium)  | <br>TV monitor     | <br>Test mode remote control unit (GGF1381) |
| <br>⊕ Precise screwdriver | <br>DVD test disc (GGV1025) | <br>Soldering iron | Screw tight (GYL1001)                                                                                                            |

When

Adjustment Points

A

■ Exchange Parts of Mechanism

|                                        |                                                                                                              |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------|
| Exchange the 05SD Pickup Assy          | <div>Mechanical point</div> <div>①, ②</div> <div>* After adjustment, screw locks with the Screw tight.</div> |
|                                        | <div>Electric point</div> <div></div>                                                                        |
| Exchange the Traverse Mechanism Assy-S | <div>Mechanical point</div> <div></div>                                                                      |
|                                        | <div>Electric point</div> <div></div>                                                                        |
| Exchange the Spindle Motor             | <div>Mechanical point</div> <div>②</div> <div>* After adjustment, screw locks with the Screw tight.</div>    |
|                                        | <div>Electric point</div> <div></div>                                                                        |

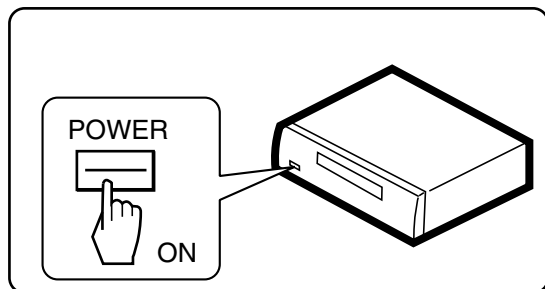
C

■ Exchange PCB Assy

|                                          |                                         |
|------------------------------------------|-----------------------------------------|
| Exchange PC Board<br>LOAB and DVDM ASSYS | <div>Mechanical point</div> <div></div> |
|                                          | <div>Electric point</div> <div></div>   |

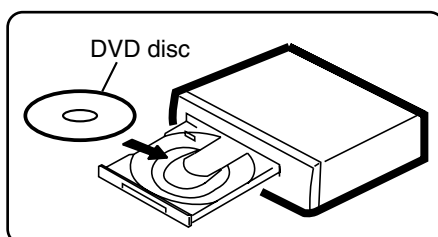
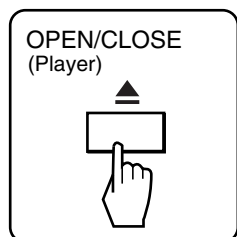
## 6.4 TEST MODE

### POWER ON

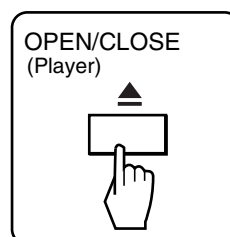


### DISC SET

#### <TRAY OPEN>



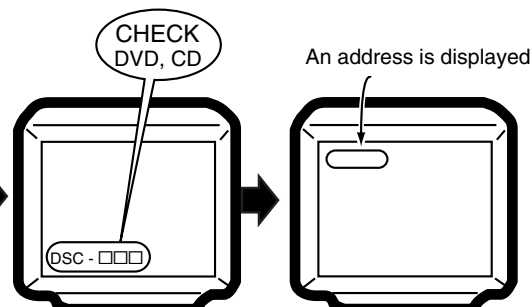
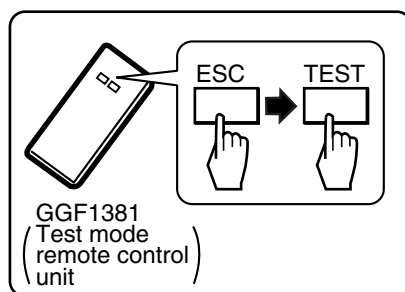
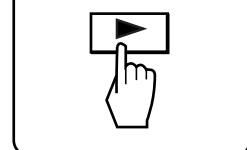
#### <TRAY CLOSE>



### TEST MODE: PLAY

#### <PLAY>

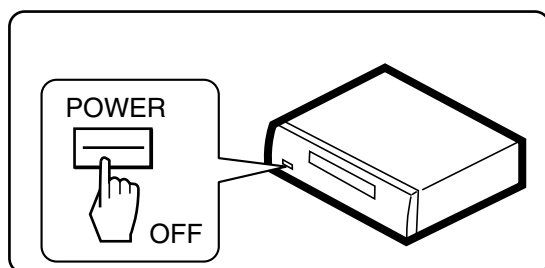
Press the play key (▶) of the normal remote control unit.



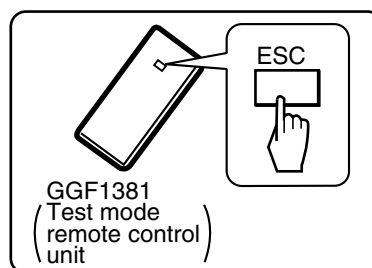
#### Notes:

- 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



OR





## 6.5 MECHANISM ADJUSTMENT



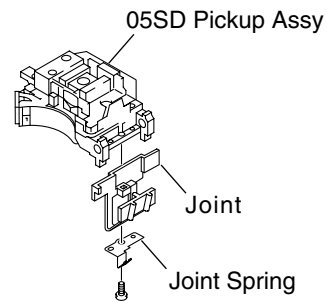
### 1 Tangential and Radial Height Coarse Adjustment

#### START

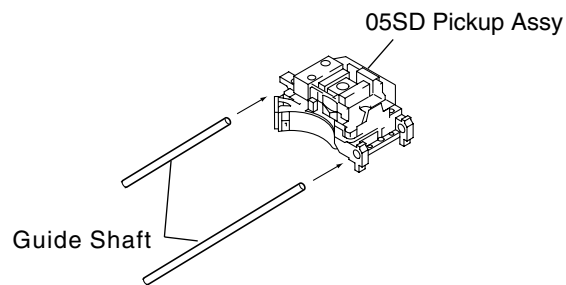
- Remove the 05SD Pickup Assy from the Traverse Mechanism Assy-S.
- Remove the joint and the joint spring of the 05SD Pickup Assy.

#### Note:

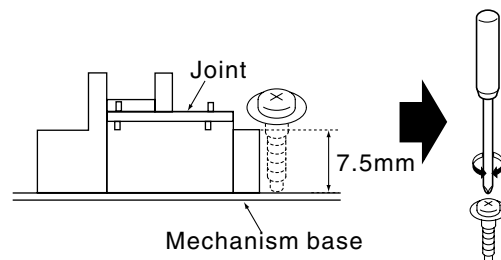
Before removing the flexible cable for the pickup, soldering of the pickup circuit is necessary.  
For details, see "7.1.11 DISASSEMBLY".



- Pass through the guide shaft to a new 05SD Pickup Assy.
- Attach it to the Traverse Mechanism Assy-S.



- Put the joint between the Tangential (or Radial) adjustment screw and the mechanism base and turn each screw to adjust the height.  
(Refer to "6.1 ADJUSTMENT ITEMS AND LOCATION".)



- Attach the Traverse Mechanism Assy-S to the 05 LOADER Assy.
- Turn it over and attach the joint and the joint spring.
- Arrange the flexible cables.  
(Refer to "7.1.11 DISASSEMBLY".)

## 2 DVD Error Rate Adjustment

Notes:

- Use disc: GGV1025

### START

- Play the DVD test disc at inner track
- Display ERROR RATE on the monitor



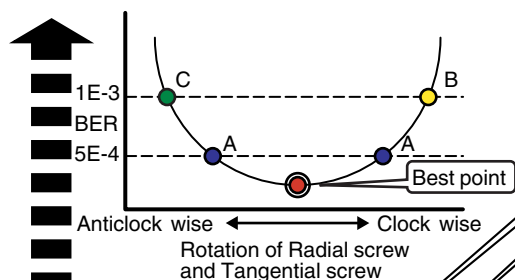
Traverse Mechanism Assy-S  
Adjust the radial adjustment screw so that ERROR RATE becomes around "5E-4". ● A

ERROR RATE : "5E-4"

- Play the DVD test disc at inner track (around #30000)

Traverse Mechanism Assy-S  
Fasten the radial adjustment screw so that ERROR RATE becomes around "1E-3". ● B

ERROR RATE : "1E-3"



- Unfasten the radial adjustment screw by 90 degrees step till ERROR RATE becomes around "1E-3" again. ● C
- Record the number of rotation (N1). (memorizing how much the screw was rotated.)
- Fasten the radial adjustment screw till the number of rotation becomes half of N1. ● Best Radial point



- Play the DVD test disc at outer track (around #200000)



Traverse Mechanism Assy-S  
Fasten the tangential adjustment screw so that ERROR RATE becomes around "1E-3". ● B

ERROR RATE : "1E-3"

- Unfasten the tangential screw by 90 degrees step till ERROR RATE becomes around "1E-3" again. ● C
- Record the number of rotation (N1).
- Fasten the tangential adjustment screw till the number of rotation becomes half of N1. ● Best tangential point

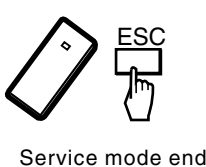
Turn the POWER OFF in case of NG once, and perform the adjustment once again.

If error rate is OK, locks a root of tangential and radial adjustment screws with the Screw tight. Screw tight: GYL1001

### CHECK

In this check, the error rate that is less than "5E-5" is better.

Disc playback normally.  
• The measurement of block error rate



# 7. GENERAL INFORMATION

## 7.1 DIAGNOSIS

### 7.1.1 TEST MODE

A

#### ■ Test Mode Functional Specification

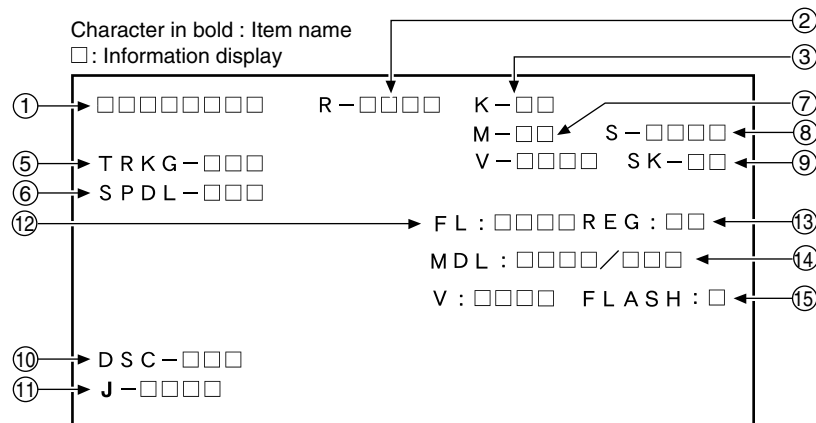
- ① **Test mode entry**  
In the power ON state, press the [ESC] (A8-5F) key and [TEST] (A8-5E) key in order of the Test mode remote control unit.
  - OSD displays test mode.
- ② **LD ON**  
Enter the test mode.  
DVD : Press the [TEST] (A8-5E) and [1] (A8-01) keys in order, and turn on the laser diode (650n).  
CD : Press the [TEST] (A8-5E) and [4] (A8-04) keys in order, and turn on the laser diode (780n).
- ③ **Release the Test mode**
  - Turn off the power.
  - Press the [ESC] (A8-5F) key of the remote control unit and reset it.

C

D

E

F



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 - \* \* \*]**

CLV : [CLV]  
Off : [OFF]

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]

⑪ **Jitter value [J - \* \* \* \*]**

Note: Don't use it.

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

Note: Don't use it.

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 [V: \* . \* \*]**  
**Flash ROM size [FLASH = \* \*]**

1234

7.1.3 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                                    | A3-BE                            |
| Scart terminal output : S-VIDEO                                      |                                         | SUBTITLE                                 | A3-36                            |
| Scart terminal output : RGB                                          |                                         | ANGLE                                    | A3-B5                            |
| Progressive OFF                                                      | Only for progressive models             | R_SKIP                                   | A3-9D                            |
| Progressive ON                                                       |                                         | F_SKIP                                   | A3-9C                            |
| FL indication of ID number                                           |                                         | STEREO (*1)                              | A8-4A                            |
| ZOOM ON (×4)                                                         |                                         | ZOOM                                     | A3-37                            |
| 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 confirmation 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)**

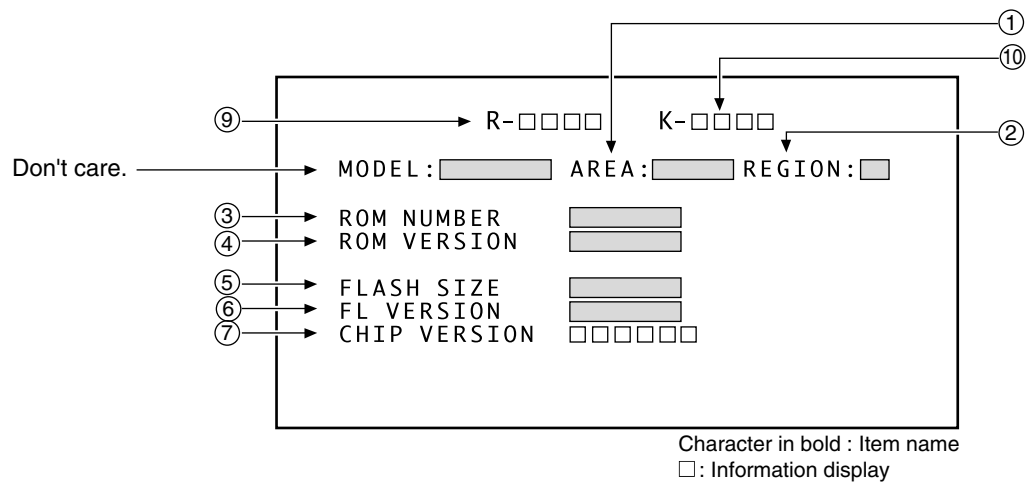
After you press the AUDIO key while holding the ESC key pressed and then input the region number, if the number is different from that set in the unit, an error message is displayed, and the tray opens.

## 7.1.4 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



#### ① Destination indication

Display it according to model information set from the FL controller.

#### ② Region No.

#### ③ Part number

#### ④ ROM version

#### ⑤ Flash size

#### ⑥ FL controller version

#### ⑦ CHIP VERSION

#### ⑨ Remote control code

#### ⑩ Key code of Main unit

• Display during Service Mode

A 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

△△e -□

- △△e -6 : OK  
△△e -5 : OK  
△△e -4 : Refer to Step 2  
△△e -3 : NG  
△△e -2 : NG

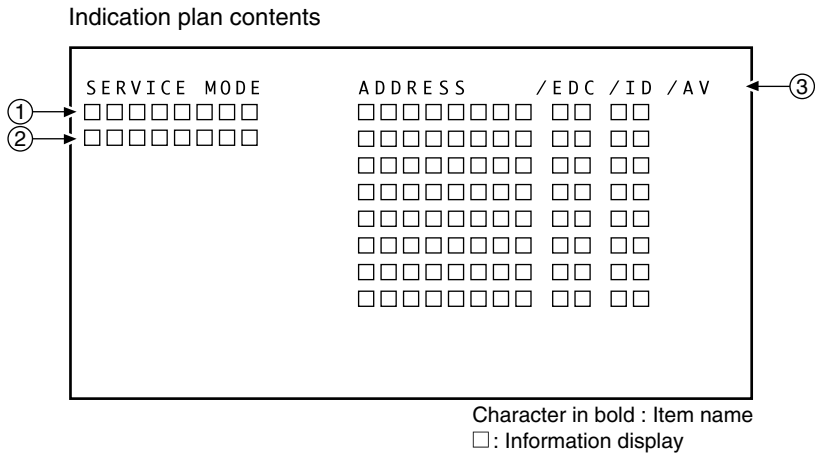
• Step 2

△△e -4

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

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

Note:  
\* Error of AV1 is not supported in this player.





### 1. Specific conditions for Service Test mode

- VDET is neglected.
- XPROTECT is neglected.
- Even if the unit is urgently shut down in failure in Normal mode, you can turn it on without waiting for one minute.

### 2. How to enter Service Test mode

- While connecting STEST port (IC5501 Pin43) to "+5V", connect AC power cord. (See Fig A.)

### 3. How to quit Service Test mode, and the conditions for quitting

- To quit Service Test mode, turn the power off or disconnect the AC power cord.
- When quitting Service Test mode, only data on protection in RAM are cleared.

### 4. Indications when Service Test mode starts

- Indications on the LCD display when Service Test mode starts differ depending on whether the unit was turned off normally or if the unit was urgently shut down because the abnormality of the power, as described below.

[After the power is turned off normally]

LCD display **W e l c o m e !**  
↓  
LCD display **D V S E R V I C E**

[After the power is shut down because of an failure in the AMP system]

LCD display **P R T C T E R R**  
↓  
LCD display **D V S E R V I C E**

[After the power is shut down because of a abnormality in the AMP system]

LCD display **P R T C T W N G**  
↓  
LCD display **D V S E R V I C E**

[After the power is shut down because of a failure in the DVD system]

LCD display **D V D P R T E C T**  
↓  
LCD display **V o l u m e 0**  
↓  
LCD display **D V S E R V I C E**

### 5. Operations during Service Test mode

- Basically, operations in Service Test mode are the same as in Normal mode. However, to clarify that it is in Service Test mode, during this mode, when functions are changed, the indications on the LCD display become as follows:

| [Functions] | [Indications on the LCD display]   |
|-------------|------------------------------------|
| DVD/CD      | <b>D V S E R V I C E</b>           |
| TUNER       | <b>T X S E R V I C E</b>           |
| LINE        | <b>L I N E S E R V I C E</b>       |
| USB         | <b>U S B S E R V I C E</b>         |
| FRONT AUDIO | <b>F . A U D I O S E R V I C E</b> |

### Service Test mode connecting point

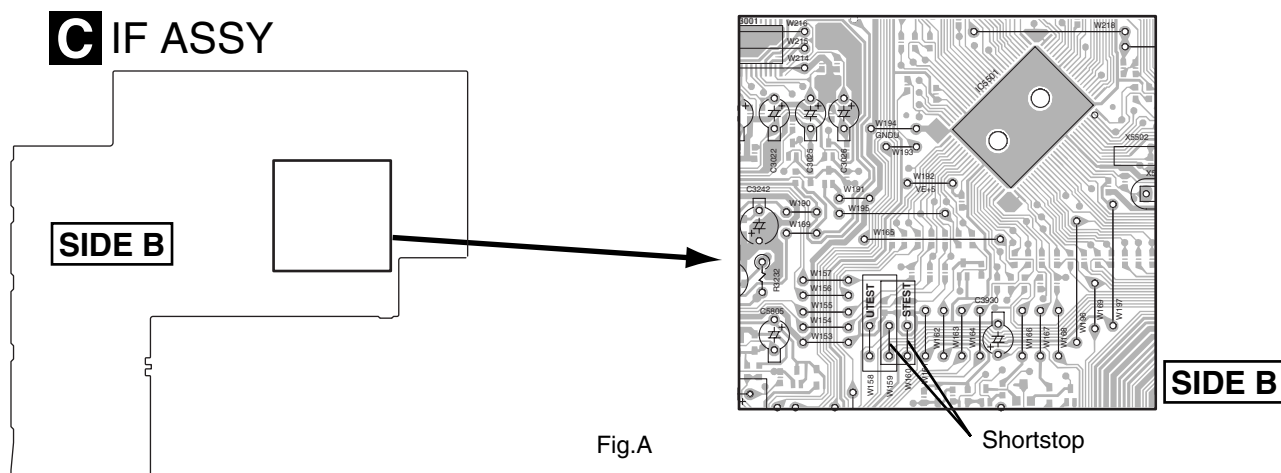


Fig.A

## 7.1.7 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), won't play or doesn't play

### How to diagnose

In the case mentioned above, degradation of the laser diodes (LDs) mounted on the 05SD Pickup Assy is suspected.  
Measure the voltage between the two ends of one of the resistors mentioned below.

#### • No playback of a DVD :

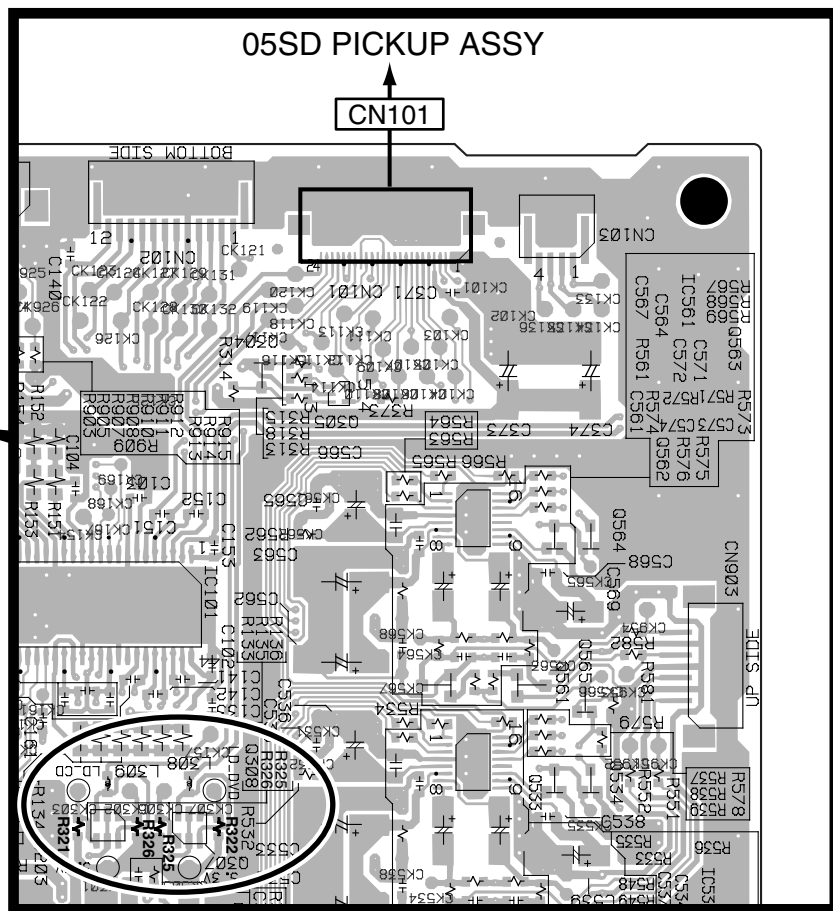
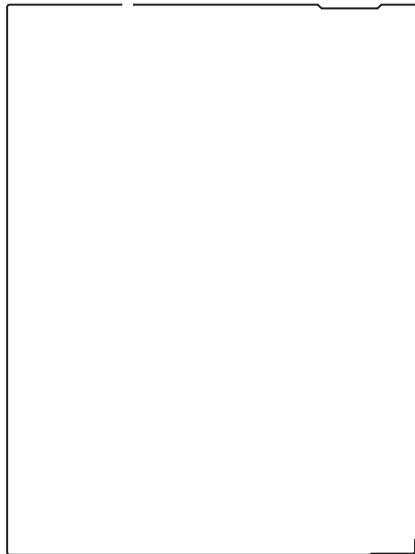
Measure the voltage between the both ends of R322 or R325 on the DVDM Assy. If the voltage is 0.4 V or higher, the 650-nm LD is degraded.

#### • No playback of a CD :

Measure the voltage between the both ends of R321 or R326 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 05SD Pickup Assy.

### B DVDM ASSY



Front side ←

SIDE A

## 7.1.8 DVD TROUBLE SHOOTING

| No. | Symptoms                                                                                                | Diagnosis Contents                                                                                                                                                                                                                                                                                                                                                                                 | Possible Defective Points                                                  |
|-----|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| 1   | The power is not turned on.                                                                             | Are wires of output connector (POWER SUPPLY Unit) and CN901 (DVDM Assy) disconnected or damaged ?                                                                                                                                                                                                                                                                                                  | Connector / cable                                                          |
|     |                                                                                                         | Check that the following voltage is output :<br>+ side of C739 : 3.3V                                                                                                                                                                                                                                                                                                                              | <b>DVDM Assy</b><br>3.3V Regulator IC (IC341)                              |
| 2   | An opening screen is not displayed on the monitor (The FL display lights. The mechanism does not work.) | Are the signals output from IC201-pin 98 (MDATA) and pin 99 (SCLK) on the DVDM Assy ? (in the range of 0-3V)                                                                                                                                                                                                                                                                                       | <b>DVDM Assy</b><br>DVD IC (IC201)                                         |
|     |                                                                                                         | Are the signals input into IC5501-pin 50 (MDATA) and pin 51 (SCLK) on the CONTROL Assy ? (in the range of 0-3V)                                                                                                                                                                                                                                                                                    | <b>CONTROL Assy</b><br>UCOM (IC5501)                                       |
|     |                                                                                                         | Check that the following voltage are output :<br>IC751-pin 1 on the DVDM Assy : 5V                                                                                                                                                                                                                                                                                                                 | <b>DVDM Assy</b><br>5V Regulator IC (IC751)                                |
|     |                                                                                                         | Is a resonator (X201: 27MHz) on the DVDM Assy oscillating ?                                                                                                                                                                                                                                                                                                                                        | <b>DVDM Assy</b><br>Crystal resonator (X201)<br>DVD IC (IC201)             |
|     |                                                                                                         | <ul style="list-style-type: none"> <li>Is a signal input into IC203-pin26 (PCE#) on the DVDM Assy ? (Is a signal "H" for 80 mS and then "L" after the power is turned on ?)<br/>→ Communication with flash ROM.</li> <li>Are the signals input into IC202-pin 16 (DWE#), pin 19 (DCS#) and pin 38 (SDCLK) on the DVDM Assy ? (Is a signal fluctuating ?)<br/>→ Communication with SDRAM</li> </ul> | <b>DVDM Assy</b><br>DVD IC (IC201)<br>Flash ROM (IC203)<br>SDRAM (IC202)   |
|     |                                                                                                         | Is a signal output from IC203-pin 28 (PRD#) on the DVDM Assy? (Is a signal fluctuating for several hundred mS after the power is turned on ?)                                                                                                                                                                                                                                                      | <b>DVDM Assy</b><br>Flash ROM (IC203)                                      |
|     |                                                                                                         | Is a signal input into IC5501-pin 67 (DVD ACK) on the CONTROL Assy ? (Is a signal fluctuating ?)<br>→ Communication with FL Control IC                                                                                                                                                                                                                                                             | <b>DVDM Assy</b><br>DVD IC (IC201)<br><b>CONTROL Assy</b><br>UCOM (IC5501) |
|     |                                                                                                         | Is a signal output from IC5501-pin 30 (XREADY) on the CONTROL Assy ? (Is a signal fluctuating in the range of 0-5V ?)                                                                                                                                                                                                                                                                              | <b>CONTROL Assy</b><br>UCOM (IC5501)                                       |
|     |                                                                                                         | Are the signals output from IC5501-pin 49 (SDATA) on the CONTROL Assy ? (in the range of 0-5V)                                                                                                                                                                                                                                                                                                     | <b>DVDM Assy</b><br>DVD IC (IC201)<br><b>CONTROL Assy</b><br>UCOM (IC5501) |
| 3   | An opening screen is not displayed on the monitor (The FL display lights. The mechanism works.)         | Are the signals of IC204-pin 5(SDA) and pin 6(SCL) on the DVDM Assy fluctuating for one or two seconds after the power is turned ?                                                                                                                                                                                                                                                                 | <b>DVDM Assy</b><br>EEPROM (IC204)                                         |
|     |                                                                                                         | Check the video signal path between DVD IC (DVDM Assy IC201) and video-out terminal (see the block diagram)                                                                                                                                                                                                                                                                                        | <b>DVDM Assy</b><br>Video circuit after DVD IC (IC201)                     |

| No. | Symptoms | Diagnosis Contents                                                          | Possible Defective Points                                                                                                                                                                                                                      |
|-----|----------|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A   | 4        | A tray cannot be opened.<br>(An opening screen is displayed on the monitor) | Does the voltage of CN104-pin 3 and pin 5 on the DVDM Assy change normally ?<br>Pin 3 (SW2(TRIN)): Tray is fully closed: "L"<br>Pin 5 (SW1(TROUT)): Tray is fully opened: "L"                                                                  |
|     |          |                                                                             | <b>LOAB Assy</b><br>Tray SW (S101)                                                                                                                                                                                                             |
|     |          |                                                                             | Is the signal input into IC101-pin 11 (TROPEN) on the DVDM Assy ?<br>At open: 3.3V, At close: 0V                                                                                                                                               |
|     |          |                                                                             | <b>DVDM Assy</b><br>DVD IC (IC201)                                                                                                                                                                                                             |
|     |          |                                                                             | Are the signals output from IC101-pin 1 and pin 2 (CN103-pin 1 and pin 2) on the DVDM Assy ?<br>Pin 2: Approx. 6V during opening tray approx. 0V during closing tray.<br>Pin 1: Approx. 0V during opening tray approx. 6V during closing tray. |
| B   | 5        | Playback impossible<br>(no focusing)                                        | <b>DVDM Assy</b><br>FTS Driver IC (IC101)                                                                                                                                                                                                      |
|     |          |                                                                             | Are wires of CN104 and CN103 on the DVDM Assy disconnected or damaged ?                                                                                                                                                                        |
|     |          |                                                                             | Connector / cable                                                                                                                                                                                                                              |
|     |          |                                                                             | Does the voltage of CN102-pin 1 on the DVDM Assy change to 0V by pressing the Inside switch.                                                                                                                                                   |
|     |          |                                                                             | Inside switch                                                                                                                                                                                                                                  |
| C   | 6        | Playback impossible<br>(Spindle does not turn)                              | Are the signals output from IC101-pin 3 (FOCS_DRV) and pin 4 (FOCS_RTN) on the DVDM Assy ?                                                                                                                                                     |
|     |          |                                                                             | <b>DVDM Assy</b><br>FTS Driver IC (IC101)                                                                                                                                                                                                      |
|     |          |                                                                             | 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 ?                                                                                                                                                  |
| D   | 7        | Playback impossible<br>(Playback stops)                                     | Mechanism section (motor)                                                                                                                                                                                                                      |
|     |          |                                                                             | Is flexible cable of CN101 on the DVDM Assy disconnected or damaged ?                                                                                                                                                                          |
|     |          |                                                                             | Flexible cable / connector                                                                                                                                                                                                                     |
|     |          |                                                                             | Is signal output from IC201-pin 42 (FOSO) on the DVDM Assy ?<br>(Device control of about 1.4 V is output usually. It is fluctuated by about $\pm 250$ mV with focus up / down.)                                                                |
|     |          |                                                                             | <b>DVDM Assy</b><br>DVD IC (IC201)                                                                                                                                                                                                             |
| E   | 8        | Picture disturbance during playback<br>(block noise, freeze, other)         | Are the signals output from IC101-pin 30 (W), pin 33 (V) and pin 35 (U) on the DVDM Assy ?<br>Is pin 26 (STBY) fixed LOW ? (pin 26 is High at playback: 3V)                                                                                    |
|     |          |                                                                             | <b>DVDM Assy</b><br>FTS Driver IC (IC101)                                                                                                                                                                                                      |
|     |          |                                                                             | Is there any part detached from the spindle motor ?<br>Or Is there any foreign object lodged in it ?                                                                                                                                           |
|     |          |                                                                             | Mechanism section (Spindle motor)                                                                                                                                                                                                              |
|     |          |                                                                             | Are wires of CN102 on the DVDM Assy disconnected or damaged ?                                                                                                                                                                                  |
| F   | 9        | No sound<br>(Picture is normal)                                             | Flexible cable / connector                                                                                                                                                                                                                     |
|     |          |                                                                             | Is signal output from IC201-pin 37 (DMSO) on the DVDM Assy ?                                                                                                                                                                                   |
|     |          |                                                                             | <b>DVDM Assy</b><br>DVD IC (IC201)                                                                                                                                                                                                             |
|     |          |                                                                             | Does 650-nm LD deteriorate ?<br>If the voltage at each both ends of R322 and R325 on the DVDM 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 R321 and R326 on the DVDM 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)                                                                                                                                                                               |
|     |          |                                                                             | Is there abnormality in FG waveform ? (IC201-pin 47)                                                                                                                                                                                           |
|     |          |                                                                             | <b>DVDM Assy</b><br>FG output : FTS Driver IC (IC101)                                                                                                                                                                                          |
|     |          |                                                                             | Are there scratches or dirt on the disc ?                                                                                                                                                                                                      |
|     |          |                                                                             | Disc                                                                                                                                                                                                                                           |
|     |          |                                                                             | Are there scratches or dirt on the disc ?<br>Is there a problem with the format of the disc ?                                                                                                                                                  |
|     |          |                                                                             | Disc                                                                                                                                                                                                                                           |
|     |          |                                                                             | Check the video signals.<br>Composite video signal (IC401-pin 25)<br>S video signal (IC401-pin 21, pin 26)<br>RGB video signal (IC401-pin 16, pin 18, pin 20)                                                                                  |
|     |          |                                                                             | <b>DVDM Assy</b><br>DVD IC (IC201)<br>Video IC (IC401, IC451)                                                                                                                                                                                  |

● Symptoms that may occur when any of the following ICs is in failure

| IC                                      | Symptoms                                                                                                                                                                  |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>EEP ROM</b><br>(DVDM Assy : IC204)   | User's data cannot be stored in memory.<br>The ID number is lost.                                                                                                         |
| <b>Flash ROM</b><br>(DVDM Assy : IC203) | The power cannot be turned on.<br>Downloading of the firmware cannot be performed.                                                                                        |
| <b>DVD IC</b><br>(DVDM Assy : IC201)    | 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. |
| <b>64M SDRAM</b><br>(DVDM Assy : IC202) | No power.<br>Block noise is generated during playback.                                                                                                                    |

## 7.1.9 ID NUMBER AND ID DATA SETTING

### Caution:

For the DVD players compatible with DVD-RW, for playback of a DVD-RW disc (CPRM), it is necessary that an individual ID number and ID data are set for each player. If the ID number and ID data be not properly set in the manner described below, future operations cannot be guaranteed. The ID number is written on the yellow label at the rear panel of the player.

**If there is no yellow label, before downloading FLASH ROM, take note of the ID number set following the procedures outlined in "ID Number Confirmation Mode" on the next page.**

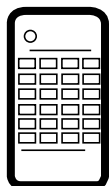
**Note:** Enter ID numbers while the unit is in Stop mode so that the values set will be immediately written to the flash ROM.

### Setting an ID number or ID data is required in the following case:

If "No ID Num!" or "NO ID DATA!" is displayed on the FL display immediately after the power to the player is turned on or during Stop mode.

- ⑤ After entering all 9 digits, if you press the SEARCH key, the unit unconditionally sets the input number as the ID number. Then the unit automatically enters Player's Data Input Mode. (The SEARCH key is not accepted after all 9 digits have been entered.)

### JIGS AND MEASURING INSTRUMENTS



Service Remote Control Unit  
[GGF1381]



DVD Data Disc  
[GGV1175]

### ID Number Input Mode

- ① To enter ID Number Input Mode, with no ID number set, such as in a case of immediately after upgrading the firmware, press the ESC key then the STEREO key.

**Note:** If a previous ID number and ID data, such as a factory-preset ID number and ID data, are maintained, the unit enters ID Number Confirmation Mode when the above keys are pressed. However, if only an ID number is maintained, the unit enters ID Data Input Mode.

- ② Enter a 9-digit ID number. The ID number is also displayed on the FL display.
- ③ By pressing the CLEAR key without having input a number, you can exit this mode. Each press of this key after a number has been input deletes one digit.

[Player's ID Number Setting]

ID Number ?

② -----

③ <CLEAR> Exit

Input ID Number !



- ④ After entering all 9 digits, if you press the PLAY key, the unit enters Compare mode. Enter the same ID number again. Only if your two input numbers match, the ID number is set. Compare mode helps eliminate mistyping of the ID number.

**Note:** If you press the PLAY button before inputting a 9-digit ID number, the unit returns to Step ② without doing anything else.



[Player's ID Number Setting]

ID Number ?

0 0 0 0 0 0 0 1

④ <PLAY> Compare Mode

⑤ <SEARCH> Enter

Input ID Number !



- ⑥ This display appears when the PLAY key is pressed in Step 4. Enter a 9-digit number to compare. The number is also displayed on the FL display.

- ⑦ By pressing the CLEAR key without having input a number, the unit returns to Step ② without doing anything else. Each press of this key after a number has been input deletes one digit.

[Player's ID Number Setting]

ID Number ?

0 0 0 0 0 0 0 1

Compare

⑥ \* \* \* \* \*

Input ID Number !



- ⑧ After entering all 9 digits, if you press the PLAY key, the unit compares the numbers input in Steps ② and ⑥, and only if the numbers match, that number is set as the ID. Then the unit automatically enters ID DATA Input Mode. If the numbers do not match, the disc tray is opened, and the unit exits ID Number Input Mode.

**Note:** If you press the PLAY button before inputting a 9-digit ID number, the unit returns to Step ⑥ without doing anything else.

[Player's ID Number Setting]

ID Number ?

0 0 0 0 0 0 0 1

Compare

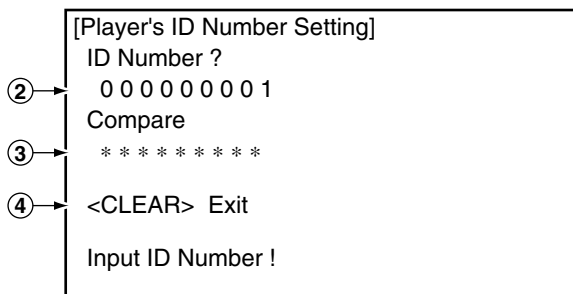
0 0 0 0 0 0 0 1

⑧ <PLAY> Enter

Input ID Number !

## ■ ID Number Confirmation Mode

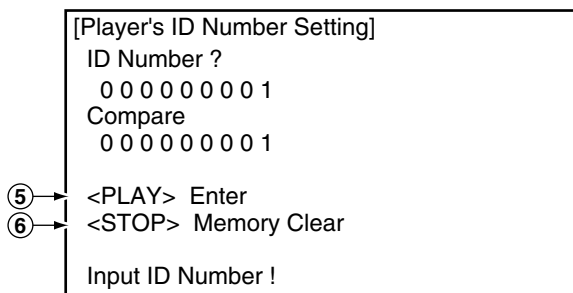
- ① To enter ID Number Confirmation Mode after the ID number and the ID data are set, press the ESC key then the STEREO key.
- ② The ID number already set is displayed.  
(It is also displayed on the FL display.)
- ③ Enter a 9-digit number for comparison. This is not required when you only wish to check the ID number visually.  
(The number is also displayed on the FL display.)
- ④ By pressing the CLEAR key without having input a number, you can exit this mode. Each press of this key after a number has been input deletes one digit.



- ⑤ After entering all 9 digits, if you press the PLAY key, the unit compares the number entered in Step ② with the ID number set, and only if the numbers match, the unit automatically exits ID Number Confirmation Mode. If an ID data has not been entered, the unit enters ID DATA Input Mode. If the numbers do not match, the disc tray is opened, and the unit exits ID Number Confirmation Mode.

**Note:** If you press the PLAY button before inputting a 9-digit ID number, the unit returns to Step ④ without doing anything else.

- ⑥ After entering all 9 digits, if you press the STOP key, the unit compares the number entered in Step ③ with the ID number set, and only if the numbers match, the unit automatically deletes the ID number and exits this mode. If the numbers do not match, the disc tray is opened, and the unit exits this mode. (The STOP key is not accepted after all 9 digits have been entered.)



### • Indication of an ID number already set

An ID number already set is displayed in the following cases:

- 1) When the ESC key then the CLEAR key are pressed, user settings are cleared, then the ID number set is displayed on the screen. In this case, the ID number is not displayed on the FL display.
  - 2) When the unit enters ID Number Confirmation Mode by your pressing the ESC key then the CLEAR key, the ID number set is displayed. In this case, the ID number is also displayed on the FL display.
- If you only need to confirm the ID number, you can exit this mode by pressing the CLEAR key or turning off the power.

### • Indication when no ID number is set

If no ID number is set, the message "No ID Num!" flashes on the screen and FL display for a few seconds after the power is turned on or during Stop mode.

## ID DATA Input Mode

A ① To enter ID DATA Input Mode, with the ID number set, press the ESC key then the STEREO key.

② When the STEREO key is pressed, the unit enters ID DATA Input Mode.

[Player's ID Number Setting]  
ID Number ?  
[ 0 0 0 0 0 0 0 1 ]  
Compare  
> \* \* \* \* \*  
② → <CLEAR> Exit  
<STEREO> ID Data Setting Mode  
Input ID Number !



B ③ If the DVD DATA DISC is loaded in this mode, the unit automatically starts reading the data.  
(If the DVD DATA DISC has already been loaded, the unit does not start reading the data. In this case, open then close the tray.)

C ④ To exit this mode, press the CLEAR key. While data are being read from the DVD DATA DISC, you cannot exit this mode.

[Player's Data Input Mode]  
④ → <CLEAR> Exit  
Insert The ID Data Disc !



⑤ When writing of the data read from the disc to flash ROM is completed, "Rom Write OK!" is displayed. After seeing this message, you can exit this mode by pressing the CLEAR key.

**Note:** Whether or not the data have been written to flash ROM can be confirmed by watching for the message "Rom Write OK!" being displayed after the disc is read.

[Player's Data Input Mode]

⑤ → Rom Write OK!  
<CLEAR> Exit



⑥ If the data cannot be read from the disc, "Disc Error!" is displayed on the screen, and the disc is ejected.

[Player's Data Input Mode]

⑥ → Disc Error!  
<CLEAR> Exit

### • Indication when the data have not been set

If no ID data are set after the ID number is changed, the message "NO ID DATA" displays on FL display after the power is turned on or during Stop mode.



## 7.1.10 SEQUENCE AFTER POWER ON/OFF

### ① Power ON

- There are two kinds of Power ON: "Normal Power ON" and "Display Only Power ON".
  - Normal Power ON
    - Power On operated when the Power button or the Play Pause button is pressed during standby or operated automatically by the timer, etc.
  - Display Only Power ON
    - Power On operated when the button of Remocon : TIMER/CLOCK ADJ. button is pressed during standby.
    - Power On operated only after various setting or checking of timer setting.
- \* Power On is disabled for about 3 seconds after Power OFF.

### ② Power ON timing chart (PDC125A Power ON sequence)

#### Normal Power ON

| STEP  | Internal function | Elapsed time<br>(Time elapsed<br>after start of<br>Power ON) | Contents of Control                                                                             | Major control terminal                                                                                                                                                                                                               |
|-------|-------------------|--------------------------------------------------------------|-------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| STEP0 | sy_ponlowp        | 0ms                                                          | Start of Power ON                                                                               | SYSPOW(41P) L→H                                                                                                                                                                                                                      |
| STEP1 | sy_pon1           | 60ms                                                         |                                                                                                 |                                                                                                                                                                                                                                      |
| STEP2 | sy_pon2           | 90ms                                                         | Start of power supply to LCD driver, etc.<br>Start of power supply to DVD in DVD function       | SYSPOW2(92P) L→H<br>DVD ON/OFF(1P) L→H                                                                                                                                                                                               |
| STEP3 | sy_pon3           | 240ms                                                        | Start of data transfer of FUNCTION IC<br>initialization<br>Start of data transfer of LCD driver | Start of SEL_DATA(47P) communication control<br>Start of SEL_CLK(48P) communication control<br>Start of LCDDAT(26P) communication control<br>Start of LCDCS(27P) communication control<br>Start of LCDCLK(28P) communication control |
|       |                   | 310ms                                                        | Start of communication control in TX function                                                   | Start of TXCE(57P) communication control<br>Start of TXCLK(61P) communication control<br>Start of TXIDATA(66P) communication control<br>Start of TXODATA(62P) communication control                                                  |
|       |                   | 450ms                                                        | Cancel of DVD Reset                                                                             | XDVRST(93P) L→H                                                                                                                                                                                                                      |
| STEP4 | sy_pon4           | 570ms                                                        | Start of BUS communication                                                                      | Start of SDATA(23P) communication control<br>Start of MDATA(24P) communication control<br>Start of SCLK(25P) communication control<br>Start of SYSCS1(30P) communication control                                                     |
|       |                   | 600ms                                                        | Start of LCD display                                                                            | XLDRST(36P) L→H                                                                                                                                                                                                                      |
| STEP5 | sy_pon5           | 1590ms                                                       |                                                                                                 |                                                                                                                                                                                                                                      |
| STEP6 | sy_pon6           | 1980ms                                                       | Start of data transfer of VOLUME IC<br>initialization                                           | Start of VOLCLK(46P) communication control<br>Start of VOLDATA/CE (45P) communication<br>control                                                                                                                                     |
| STEP7 | sy_pon7           | 2100ms                                                       |                                                                                                 |                                                                                                                                                                                                                                      |
| STEP8 | sy_pon8           | 2130ms                                                       | Cancel of Rejection of all buttons                                                              | XHPMUTE(31P) L→H                                                                                                                                                                                                                     |
|       |                   | 5080ms                                                       | Cancel of Mute                                                                                  | XSYSMUTE(38P) L→H<br>XHPMUTE2(33P) L→H                                                                                                                                                                                               |

### Display Only Power ON

| STEP  | Internal function | Elapsed time<br>(Time elapsed<br>after start of<br>Power ON) | Contents of Control                       | Major control terminal                                                                                                                |
|-------|-------------------|--------------------------------------------------------------|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| STEP0 | sy_ponlowp        | 0ms                                                          | Start of Power ON<br>• All Mute On        | SYSPOW(41P) L→H                                                                                                                       |
| STEP1 | sy_pon1           | 60ms                                                         |                                           |                                                                                                                                       |
| STEP2 | sy_pon2           | 120ms                                                        | Start of power supply to LCD driver, etc. | SYSPOW2(92P) L→H                                                                                                                      |
| STEP3 | sy_pon3           | 240ms                                                        | Start of data transfer of LCD driver      | Start of LCDDAT(26P) communication control<br>Start of LCDCS(27P) communication control<br>Start of LCDCLK(28P) communication control |
| STEP4 | sy_pon4           | 570ms                                                        |                                           |                                                                                                                                       |

### Possible Fail-safe at Power ON

<<Detection of abnormality in PROTECT terminal (22P)>>... For the detailed specification of PROTECT, see the section 7.1.9.

When this terminal detects a failed state, the machine will stand by automatically 2 seconds after the system Power ON.  
Then, the TIMER indicator will flash on and off.

<<Detection of abnormality in 3.3 DETECT terminal (17P)>>...For the detailed specification of PROTECT, see the section 7.1.9.

When this terminal detects a failed state, the machine will stand by automatically 2 seconds after the system Power ON.  
Then, the TIMER indicator will flash on and off.

<<Failure in BUS communication>>

- Defect in communication with DVD

After start of BUS communication, if proper communication is not conducted for 4.3 seconds in a row, the DVDRESET terminal (93P) will be set to the limited time "L".

- Defect in communication with MD

After start of BUS communication, if proper communication is not conducted for 2.5 seconds in a row, the MDRESET terminal (35P) will be set to the limited time "L".

### ③ Power OFF timing chart (PDC125A Power OFF sequence)

- There are two kinds of Power OFF corresponding to the state of Power ON : "Normal Power OFF" and "Display Only Power OFF".
- Normal Power OFF  
Power OFF operated by the POWER button or the sleep timer
- Display Only Power OFF  
Power OFF operated after various settings (or checking) in Display Only Power ON

#### Normal Power OFF

| STEP  | Internal function | Elapsed time<br>(Time elapsed<br>after start of<br>Power ON) | Contents of Control                                                                                                                                                                                                                                                                                                       | Major control terminal                                                         |
|-------|-------------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| STEP0 | sy_poff0          | 0ms                                                          | Start of Power OFF ("See you !" lights up.)                                                                                                                                                                                                                                                                               | XSYSMUTE (38P) H→L<br>DIMMER(70P) L→H                                          |
| STEP1 | sy_poff1          | 30ms                                                         | * The state is monitored at this STEP till the stop of DVD is enabled.<br>DVD: Max. 20 seconds<br>If the time exceeds the above value, the machine will forcefully proceed to the next STEP.<br>* After P_DVDPOW terminal becomes H→L, the detection of abnormality in the 3.3DETECT terminal(17P) will not be conducted. | XDVDRST(93P) H→L (only DVD function)<br>DVD ON/OFF(1P) H→L (only DVD function) |
| STEP2 | sy_poff2          | 150ms                                                        |                                                                                                                                                                                                                                                                                                                           |                                                                                |
| STEP3 | sy_poff3          | 480ms                                                        |                                                                                                                                                                                                                                                                                                                           |                                                                                |
| STEP4 | sy_poff4          | 1800ms                                                       | End of LCD display ("See you !" lights out.)                                                                                                                                                                                                                                                                              |                                                                                |
| STEP5 | sy_poff5          | 1890ms                                                       | Stop of power supply to the LCD driver, etc.<br>End of BUS communication<br>End of LCD driver control                                                                                                                                                                                                                     | SYSPOW2(92P) H→L                                                               |
| STEP6 | sy_poff6          | 2130ms                                                       | Final Power OFF control<br>Control of output terminal to the "L" output                                                                                                                                                                                                                                                   | SYSPOW (41P) H→L                                                               |
| STEP7 | sy_poff7          | 2190ms                                                       |                                                                                                                                                                                                                                                                                                                           |                                                                                |
|       |                   |                                                              | All the buttons are disabled for 3 seconds after completion of Power OFF.                                                                                                                                                                                                                                                 |                                                                                |

### Display Only Power OFF

| STEP  | Internal function | Elapsed time<br>(Time elapsed<br>after start of<br>Power ON) | Contents of Control                                                                                                                                                     | Major control terminal |
|-------|-------------------|--------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| STEP0 | sy_poff0          | 0ms                                                          | Start of Power OFF ("See you !" lights up.)<br>• All the buttons are disabled to prevent malfunction.                                                                   |                        |
| STEP1 | sy_poff1          | 4620ms                                                       |                                                                                                                                                                         |                        |
| STEP2 | sy_poff2          | 4710ms                                                       | End of LCD display ("See you !" lights out.)                                                                                                                            |                        |
| STEP3 | sy_poff3          | 4760ms                                                       | Stop of power supply to the LCD driver, etc.<br>* After SYSPOW2 terminal becomes H→L, the detection of abnormality in the PROTECT terminal (22P) will not be conducted. | SYSPOW2(92P) H → L     |
| STEP4 | sy_poff4          | 5000ms                                                       | Final Power OFF control<br>Control of output terminal to the "L" output                                                                                                 | SYSPOW(41P) H → L      |
|       |                   |                                                              | All the buttons are disabled for 3 seconds after completion of Power OFF.                                                                                               |                        |

### Possible Fail-safe at Power OFF

<<Detection of abnormality in PROTECT terminal (22P)>>...For the detailed specification of PROTECT, see the section 7.1.9.  
When this terminal detects a failed state, the machine will stand by automatically 2 seconds after the system Power ON.  
Then, the TIMER indicator will flash on and off.

<<Detection of abnormality in 3.3 DETECT terminal (17P)>>...For the detailed specification of PROTECT, see the section 7.1.9.  
When this terminal detects a failed state, the machine will stand by automatically 2 seconds after the system Power ON.  
Then, the TIMER indicator will flash on and off.

<<Failure in BUS communication>>

- Defect in communication with DVD

After start of BUS communication, if proper communication is not conducted for 4.3 seconds in a row, the DVDRESET terminal (93P) will be set to the limited time "L".

- Defect in communication with MD

After start of BUS communication, if proper communication is not conducted for 2.5 seconds in a row, the MDRESET terminal (35P) will be set to the limited time "L".

<<Abnormal termination of DVD>>

- Due to any other abnormal condition, If DVD cannot be put into a complete stop with Power OFF, after 20 seconds, the machine will be forcefully powered off and enter in the stand-by state.

<<Abnormal termination of MD>>

- Due to any other abnormal condition, If MD cannot be put into a complete stop with Power OFF, after 50 seconds, the machine will be forcefully powered off and enter in the stand-by state.

### Control specification of XPROTECT terminal (IC5501-22 pin)

#### 1. Start of detection

- The detection starts in 1.5 seconds after the system Power ON (SYSPOW "L→H").

#### 2. End of detection

- After the timing of the system Power OFF (SYSPOW2 "H→L"), the detection will not be conducted.
- \* After 240ms of the above timing, Power OFF is complete (SYSPOW "H→L").

#### 3. Detection time

- At Protect NG, it is determined with over 48 times of consecutive agreement of the 10ms timer (Over 500ms in the actual operation).
- In case of Protect OK, it is determined with one A/D conversion.

#### 4. Detection range

Normal: 0.71Vdd or more (3.55V or more in case of Vdd=5V)

Abnormal: 0.36Vdd or more and less than 0.71Vdd (1.8V or more and less than 3.55V in case of Vdd=5V)

Failure: less than 0.36Vdd (less than 1.8V in case of Vdd=5V)

#### 5. Operation at the detection of abnormality

Power is OFF within 30ms.

Abnormality is indicated by flashing the TIMER LED.

Power ON is enabled immediately after Power OFF.

#### 6. Operation at the detection of a failure

Power is OFF within 30ms.

A failure is indicated by flashing the TIMER LED.

Power ON is disabled for about 1 minute after Power OFF (The key operation is rejected.)

The key mask processing is not conducted during the service test mode even if a failure is detected.

### Control specification of 3.3DETECT terminal (VDET) (IC5501-17 pin)

#### 1. Start of detection

- The detection starts in 1.5 seconds after the system Power ON (SYSPOW "L→H").
- When the machine is shifted from a Function to the DVD Function, DVD Power for the tuning-on of the power to DVD is OFF.  
The detection starts in 500ms after (DVDON/OFF "L→H").

#### 2. End of detection

- After the timing of the DVD Power OFF (DVDON/OFF "H→L"), the detection will not be conducted.  
(During the system Power ON, the detection is not conducted at any Function other than DVD/CD.)

#### 3. Detection time

- At Protect NG, it is determined with over 50 times of consecutive agreement of the 10ms timer (Over 500ms in the actual operation).
- In case of Protect OK, it is determined with one A/D conversion.

#### 4. Detection range

Normal: 0.5Vdd or more and 0.85Vdd or less (2.5V or more and 4.25V or less in case of Vdd=5V)

Failure: Voltage of less than 0.5Vdd or greater than 0.85Vdd (voltage of less than 2.5V or greater than 4.25V in case of Vdd=5V)

#### 5. Operation at the detection of a failure

Power is OFF within 30ms.

A failure is indicated by flashing the TIMER LED.

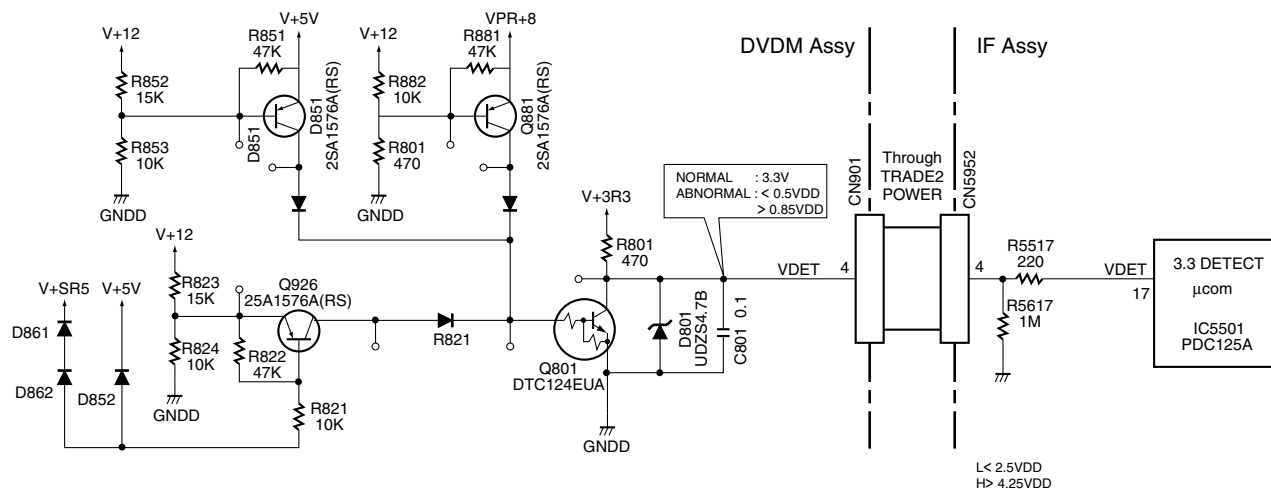
Power ON is disabled for about 1 minute after Power OFF (The key operation is rejected.)

The key mask processing is not conducted during the service test mode even if a failure is detected.

## ►► Explanation about the operation of VDET

VDET monitors the occurrence of abnormality in each power of DVDM with VDET signals.

VDET is at the Mid level (3.3V) under the normal condition. Under the following conditions, it is at the L or H level and the abnormality is notified to the microcomputer.



### Abnormality detection items of VDET

(1) In case that each power supply voltage in DVDM is in the abnormal state as shown in the following table;

| State    | Power supply | Voltage | Operation |      |      |      | VDET voltage |
|----------|--------------|---------|-----------|------|------|------|--------------|
|          |              |         | Q881      | Q851 | Q821 | Q801 |              |
| Normal   |              |         | off       | off  | off  | off  | Mid 3.3V     |
| Abnormal | V+12         | <8.8V   | on        | on   | off  | on   | L            |
|          |              | >15.5V  | off       | off  | on   | on   | L            |
|          | VPR+8        | <5.2V   | off       | off  | on   | on   | L            |
|          |              | >12.6V  | on        | off  | off  | on   | L            |
|          | V+6R5        | <3V     | off       | off  | on   | on   | L            |
|          | V+5          | <3.6V   | off       | off  | on   | on   | L            |
|          |              | >6.6V   | off       | on   | off  | on   | L            |
|          | V+3R3        | <2.5V   | off       | off  | off  | off  | L            |
|          |              | >4.25V  | off       | off  | off  | off  | H            |

ON/OFF of each transistor indicates the operating state in case of regarding the transistor as a switching element.

(2) For the control specification of the 3.3 DETECT(VDET) terminal in the system microcomputer (PDC125A), see the "7.1.9 System Computer PROTECT Specification".

## ■ Explanation about the operation of PROTECT (See the "►► PROTECT Operation Map", too.)

If XPROTECT (22pin of IC5501) has an abnormality as mentioned below and the prescribed abnormality or failure detection voltage, the microcomputer detects it, and immediately POWER is turned OFF and TIMER LED starts flashing.

POWER ON will be disabled for one minute after POWER OFF due to detection of failure.

However, this one-minute standby can be canceled by entering the Service Test Mode.

The circuit of this XPROTECT detects the following states:

- ① Detection of a short of PRE5.....If the voltage of PRE5 is reduced (below 3.2V), the XPROTECT port will be almost 0.
- ② Detection of a short of PRE12.....If the voltage of PRE12 is reduced (below 3.2V), the XPROTECT port will be almost 0.
- ③ FAN+B (This is effective for the detection of V+B and PRE12, too.) If the voltage of FAN+B is reduced (below 3.2V), the XPROTECT port will be almost 0.

④ Short of FAN.....If a failure occurs in FAN, causing a short-circuit inside, Q3654 will be turned ON and the XPROTECT will become almost 0.

⑤ FAN Open.....If there is a failure in FAN or FAN doesn't rotate due to some stress, Q3655 will be turned OFF and XPROTECT will become almost 0.

⑥ Detection of a failure in VA-12.....If -12V exceeds -8V, Q92 will be turned ON, and XPROTECT will be reduced almost to 0.

\* For the control specification of the XPROTECT terminal of the System microcomputer (PDC125A), see the "7.1.9 System Computer PROTECT Specification".

⑦ Detection of a failure in +9V for TUNER.....If VX+9V (about 9.0V) becomes 1V or less, a failure is detected.

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B

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C

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XV-HA5

## A





## F

## 7.1.13 DISASSEMBLY

**Note :** For performing the diagnosis shown below, the following jigs for service is required:

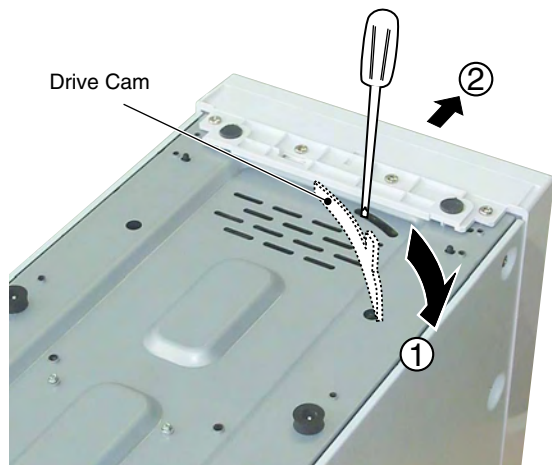
- Flexible cable for service (GGD1309)
- Cable for service (GGD1425)

### 1 Diagnosis of DVDM Assy

- ① Turn the Drive Cam in the DVD Assy clockwise viewed from the underside.

**Note :** To prevent damage to the Drive Cam, conduct the work with a cap of a ballpoint pen or a thin driver with vinyl tape around it.

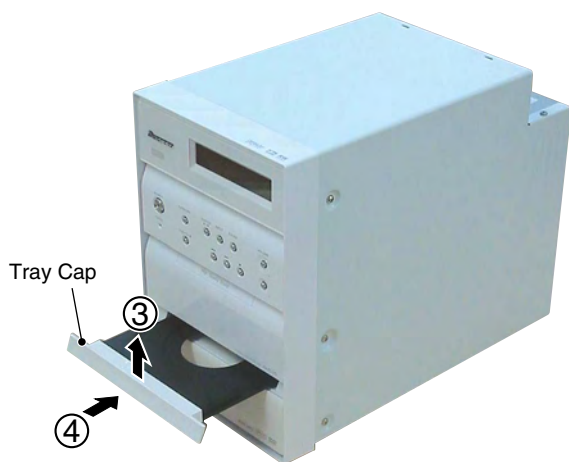
- ② The Tray will come out, and pull it out by hand.



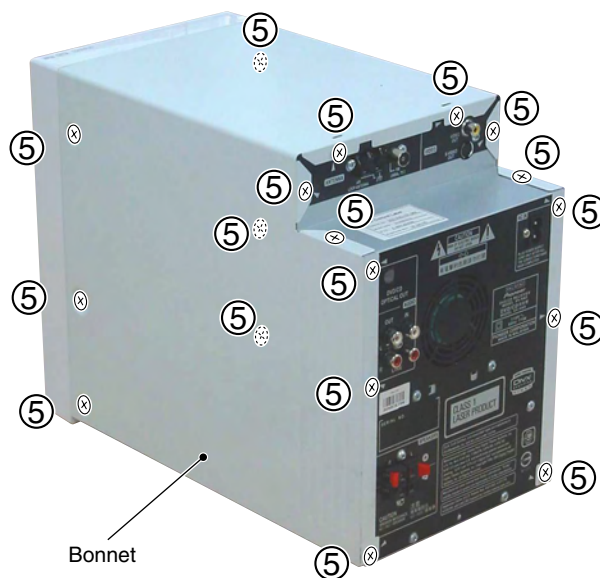
● Bottom View

- ③ Remove the Tray Cap.

- ④ Push the Tray back.



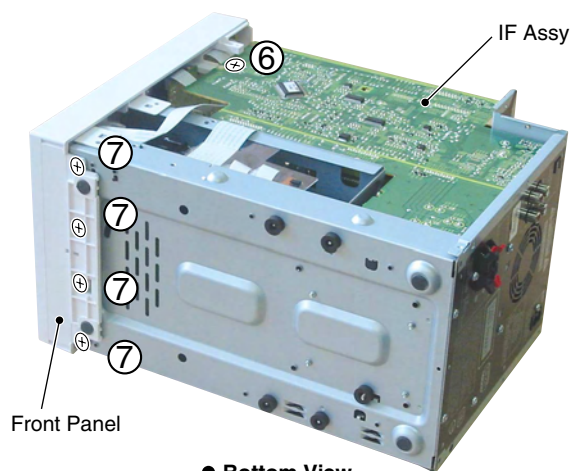
- ⑤ Remove 18 screws and detach the Bonnet.



Bonnet

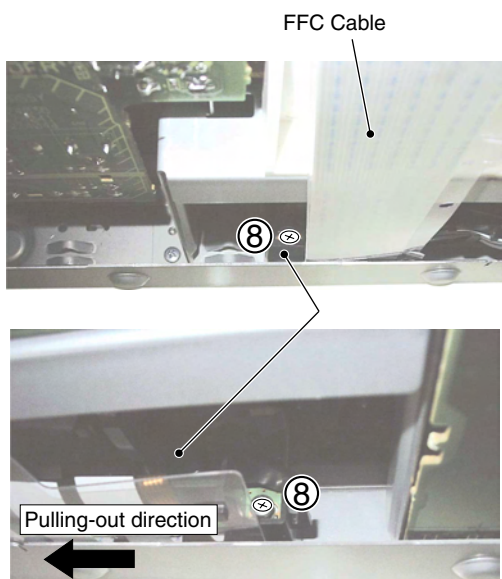
- ⑥ Remove the rivet with which IF Assy and Front Panel are fixed.

- ⑦ Remove 4 screws and open the Front Panel.

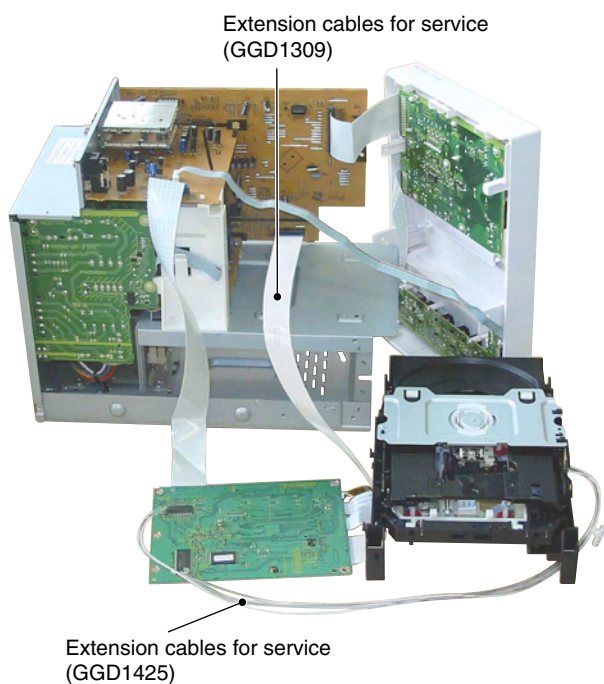


● Bottom View

- ⑧ Remove the FFC Cable of DVD Assy and 2 screws (at both sides) with which DVD Assy is fixed, and pull out the DVD Assy toward the Front.



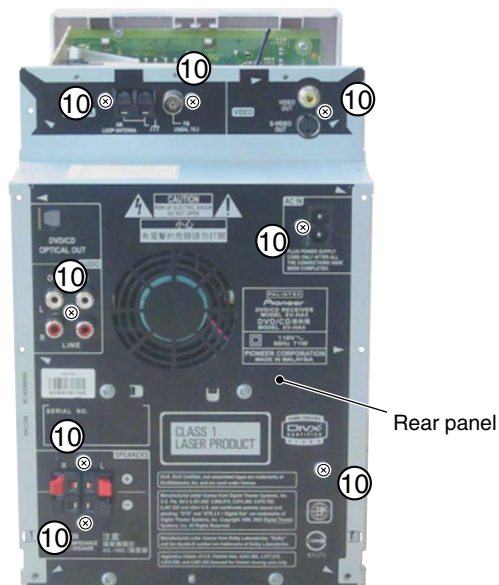
- ⑨ Connect the extension cables for service (GGD1309, GGD1425).



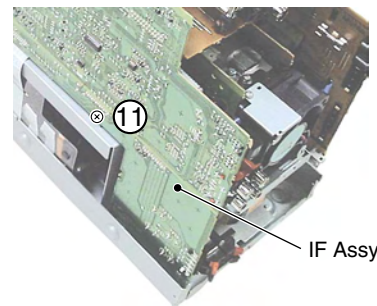
**Diagnosis**

**In case of conducting the diagnosis of the Assy with all the boards opened.**

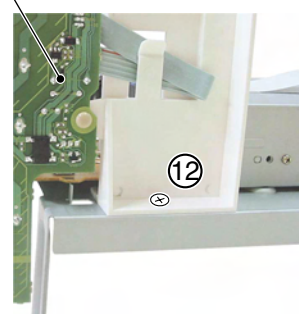
- ⑩ Remove 8 screws.  
 ⑪ Remove the rivet with which the IF Assy is fixed.  
 ⑫ Remove the screw with which the PRIMARY Assy is secured.



● Rear View



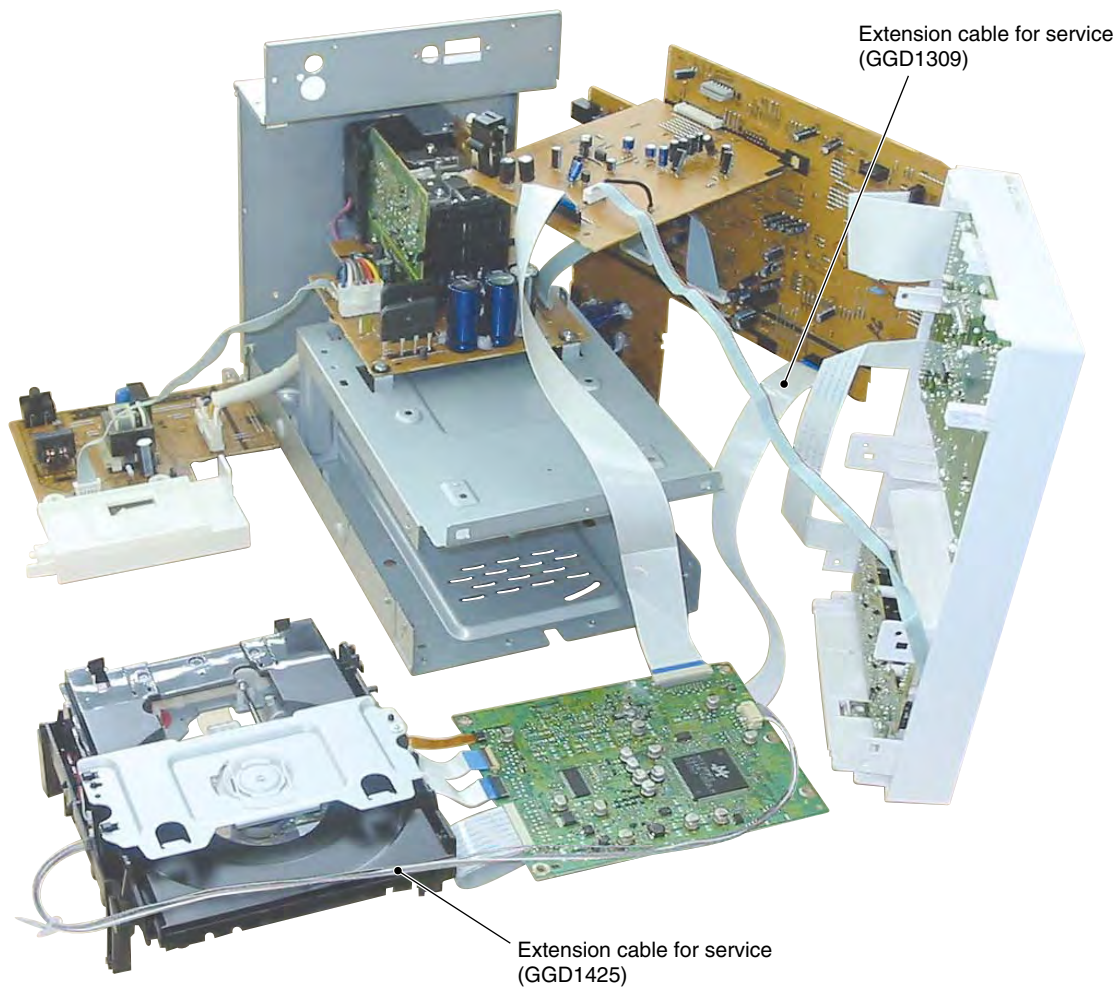
PRIMARY Assy



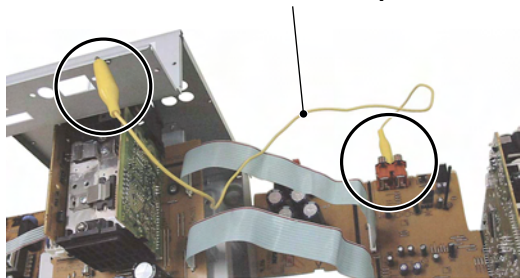


- 13 With all the boards opened, a diagnosis can be conducted.  
Connect the extension cable for service (GGD1309,GGD1425).

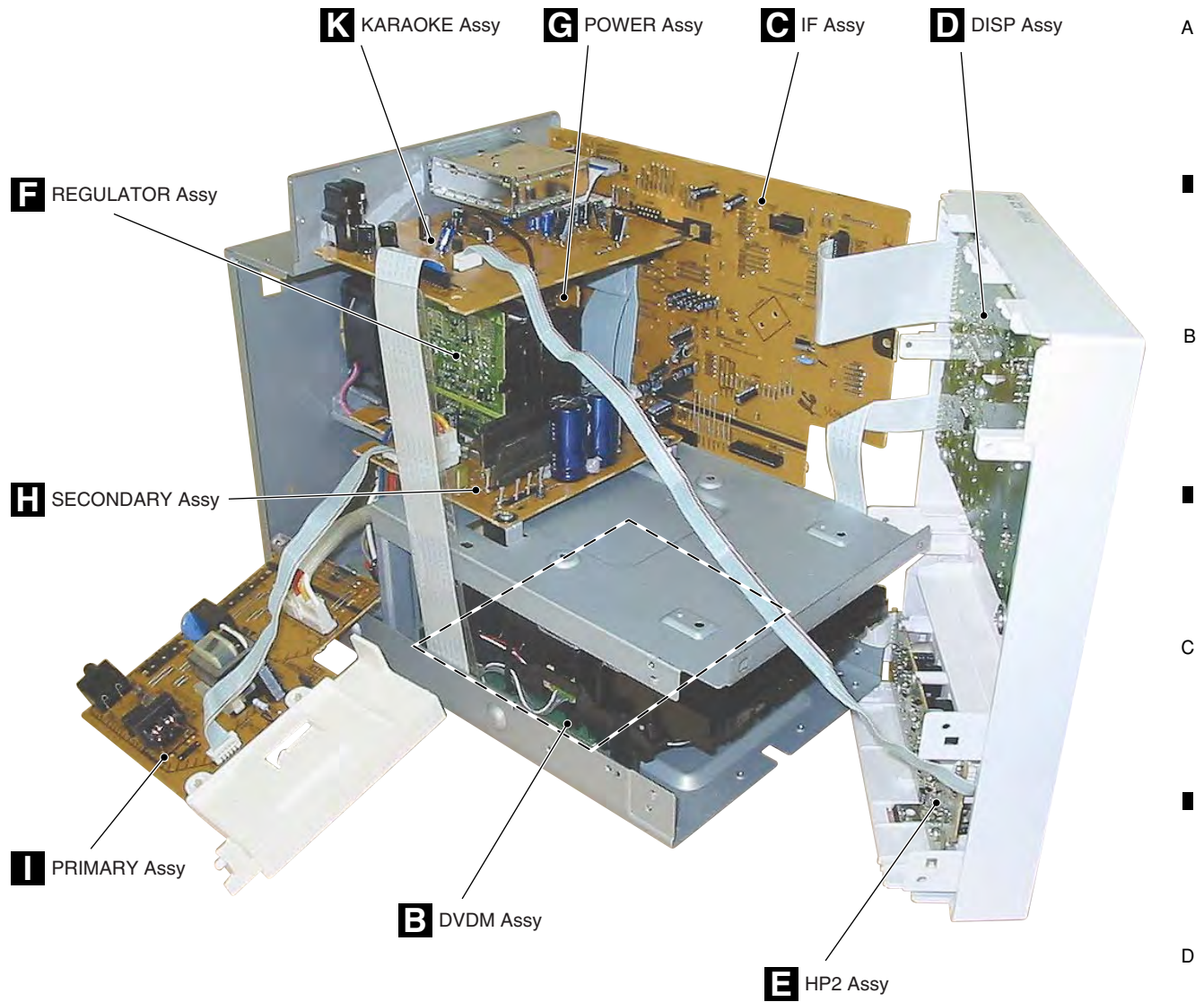
**Note : Be sure to connect the GND for audio output with the chassis.  
If it is not connected, the sound may not play.**



**Connect the GND for audio output with the chassis.**

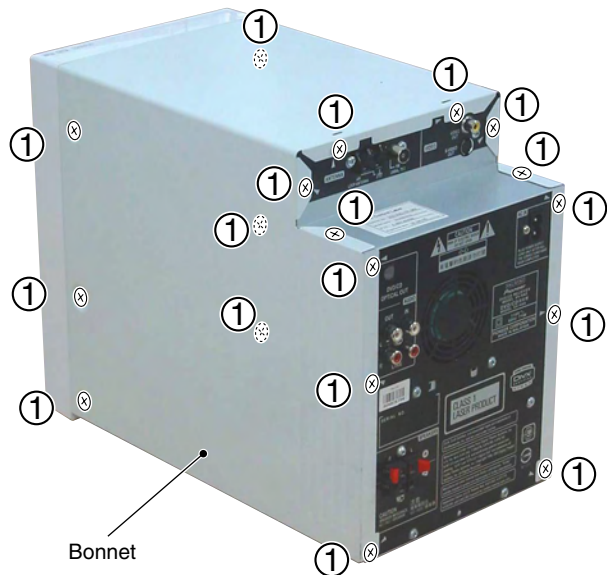


**Diagnosis**

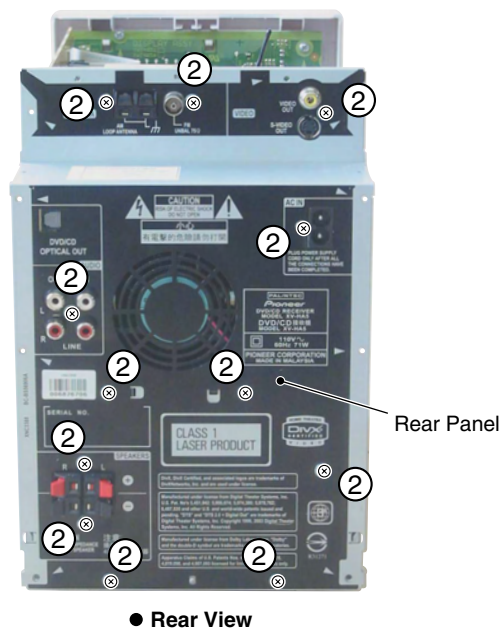


## How to detach the POWER Assy

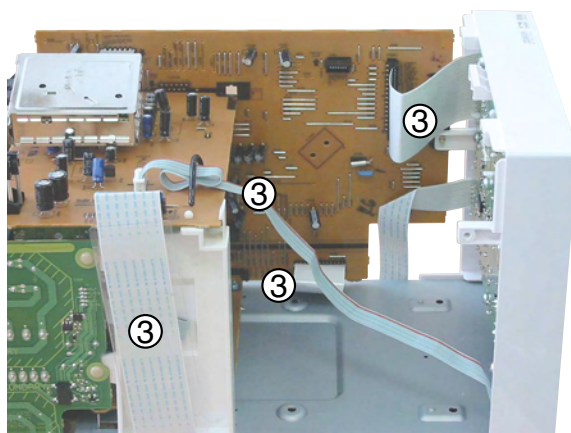
- A ① Remove 18 screws to detach the Bonnet.



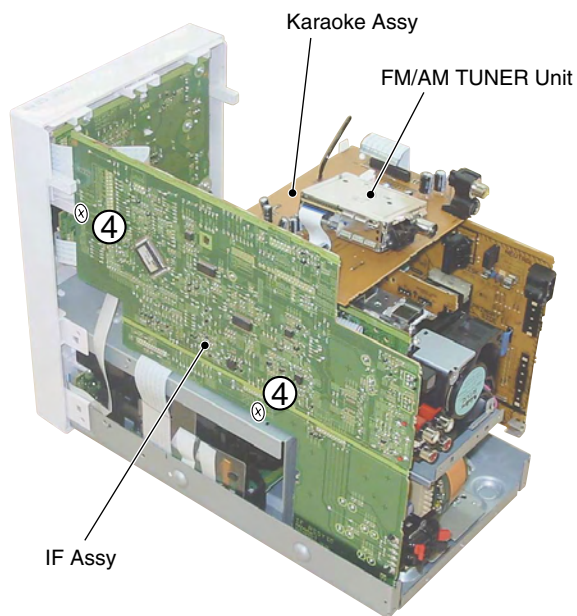
- D ② Remove 12 screws to detach the Rear Panel.



- ③ Remove 4 cables from the connectors.

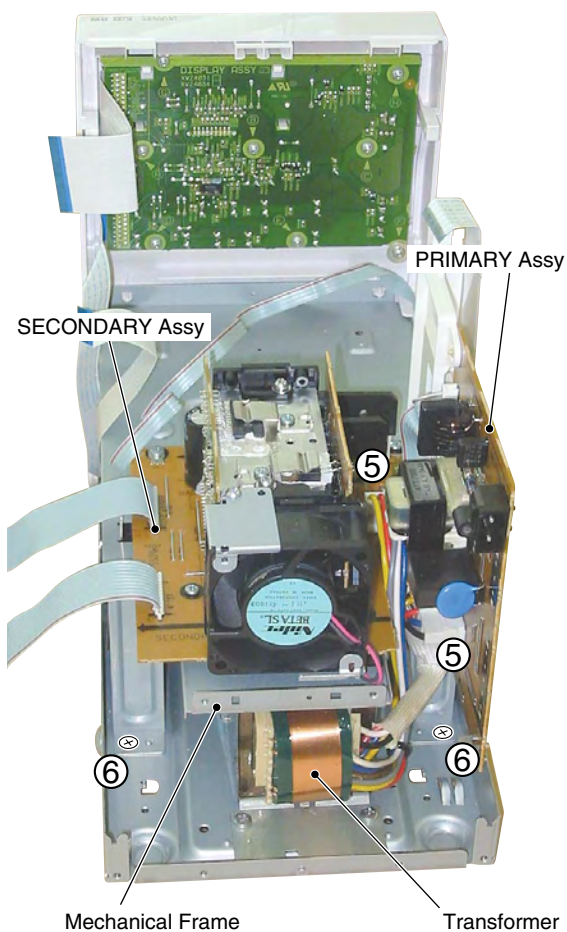


- ④ Remove 2 rivet with which IF Assy and Front Panel and IF Assy and Mechanical Frame are secured respectively, and detach the IF Assy together with FM/AM TUNER Unit and Karaoke Assy.

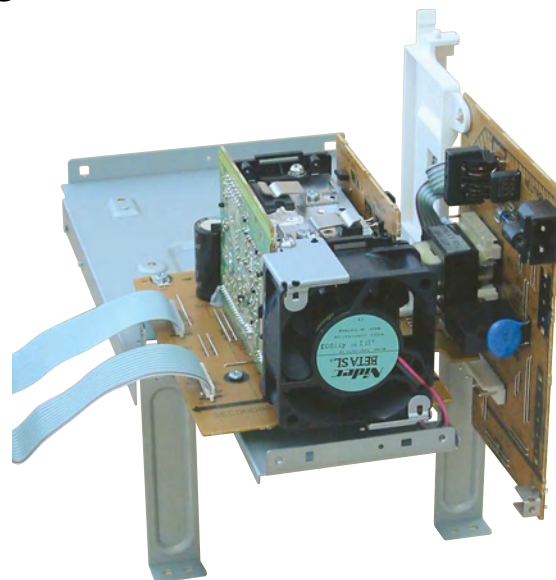




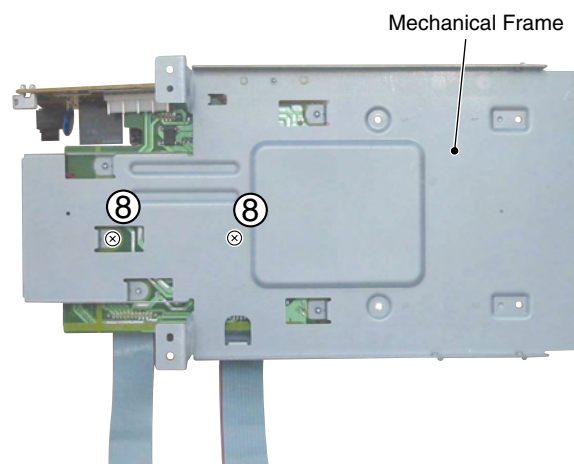
- ⑤ Remove 2 connectors that connect the Transformer and the PRIMARY Assy and the Transformer and the SECONDARY Assy, respectively.
- ⑥ Remove 2 screws with which the Mechanical Frame is fixed.



- ⑦ Remove the Mechanical Frame.



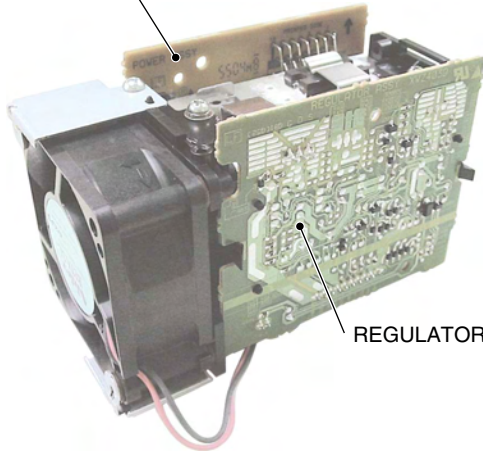
- ⑧ Remove 2 screws at the rear of the Mechanical Frame and remove the AMP Module.



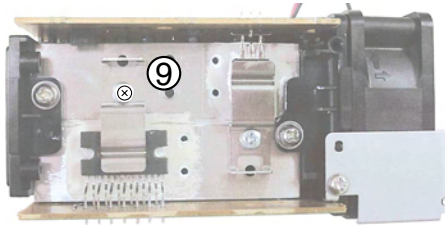
● Bottom View

- ⑨ Loosen 2 screws of the Heat Sink (each one at the top and the bottom).

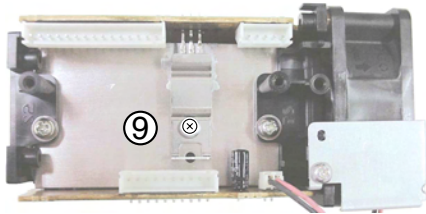
POWER Assy



REGULATOR Assy

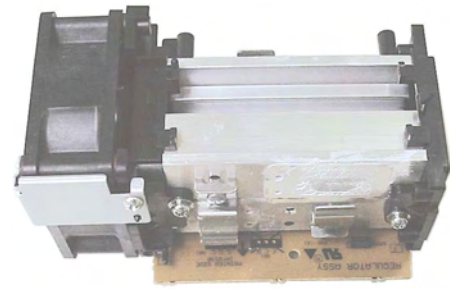


⑨



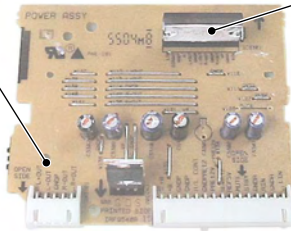
⑨

- ⑩ Detach the POWER Assy and change IC3301.



POWER Assy

IC3301



Replacement



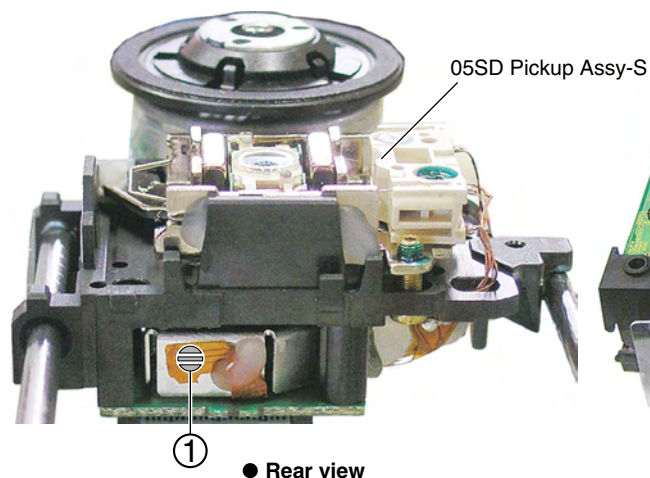


## Removing the Traverse Mechanism Assy-S and 05SD Pickup Assy-S

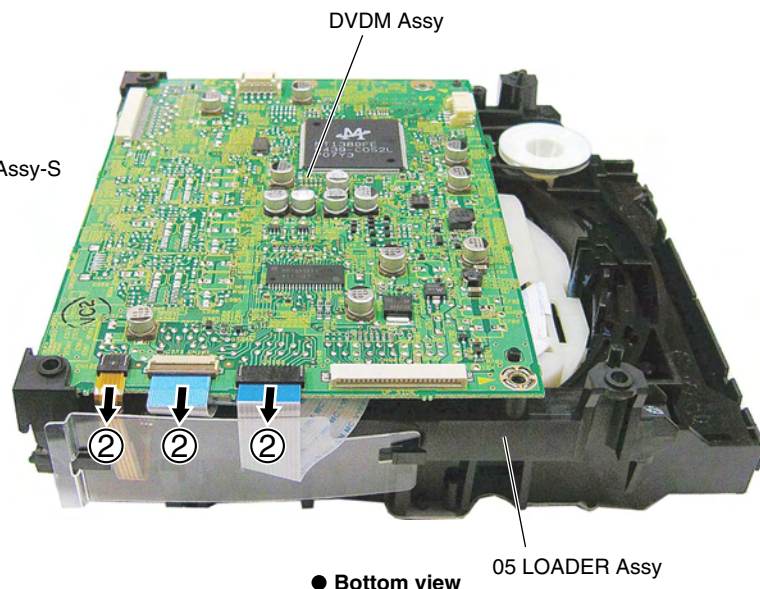
### 1 05 LOADER Assy

- ① Short-circuit point by soldering.

**Note:** After replacement, connect the flexible cable for pickup, then remove the soldered joint (open).

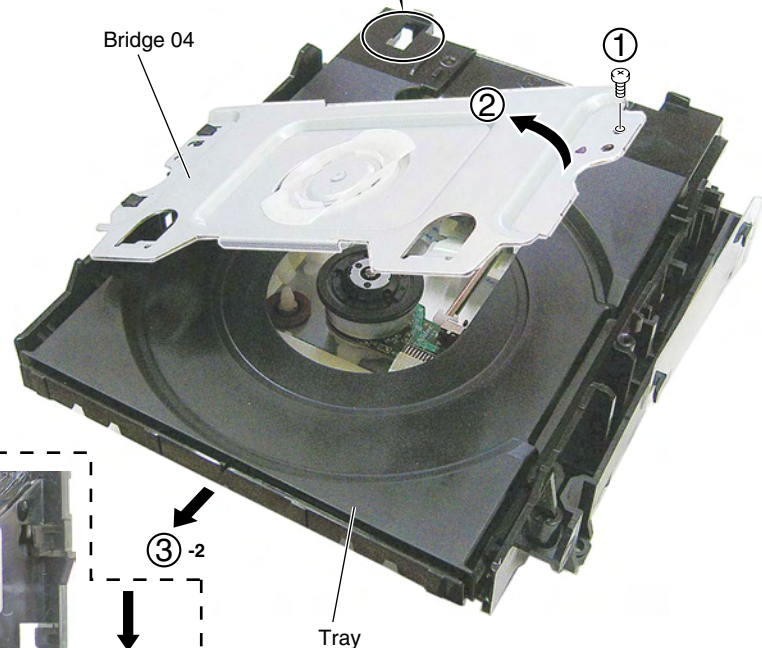
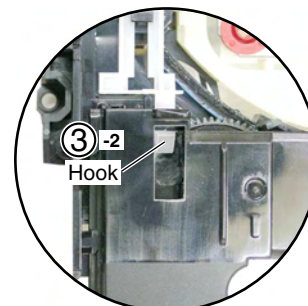


- ② Disconnect the three flexible cables.



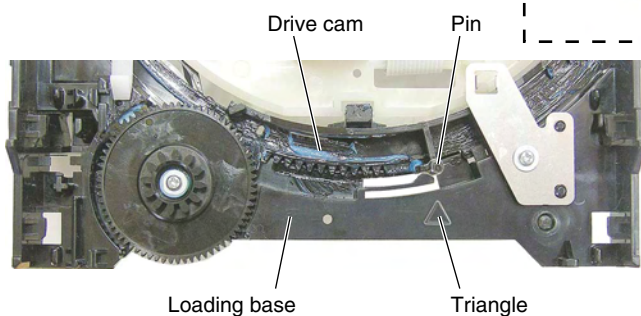
### 2 Bridge 04, Tray

- ① Remove the one screw.
- ② Remove the bridge 04.
- ③ Pull out the tray, then remove it by pressing the hook.



#### Note when reinserting the tray

When reinserting the tray, first align the triangle printed on the loading base and the pin of the drive cam, then insert the tray.

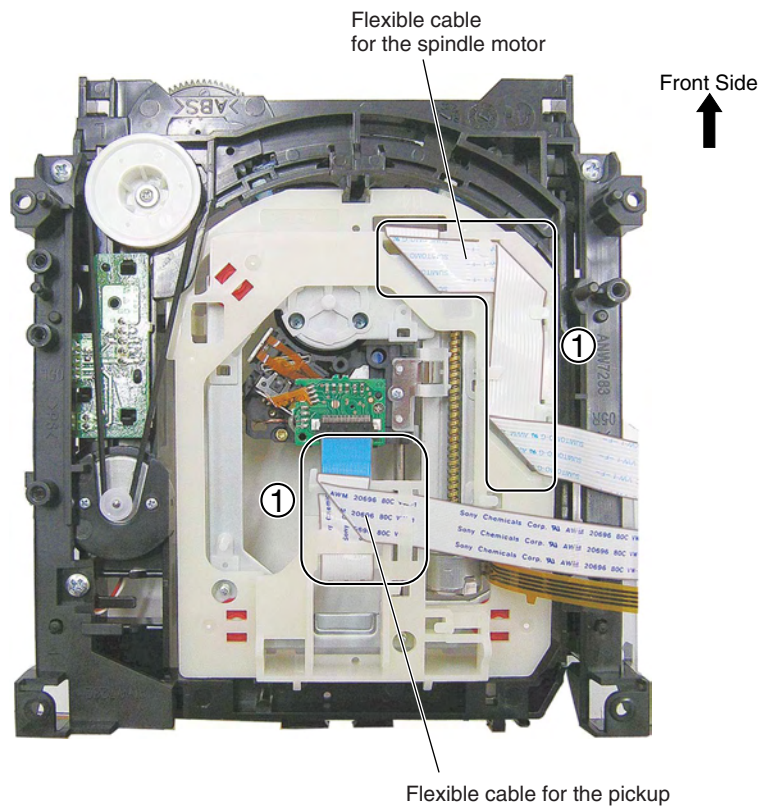


③ -2

Front side

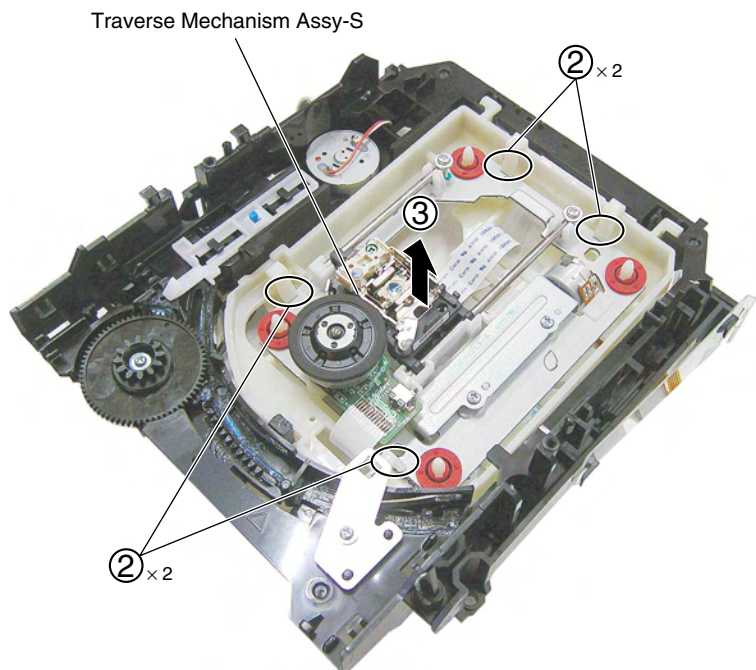
### 3 Traverse Mechanism Assy-S

- A ① Dislodge the two flexible cables from their factory placement.



● Bottom view

- D ② Unhook the four hooks.  
 ③ Remove the Traverse Mechanism Assy-S

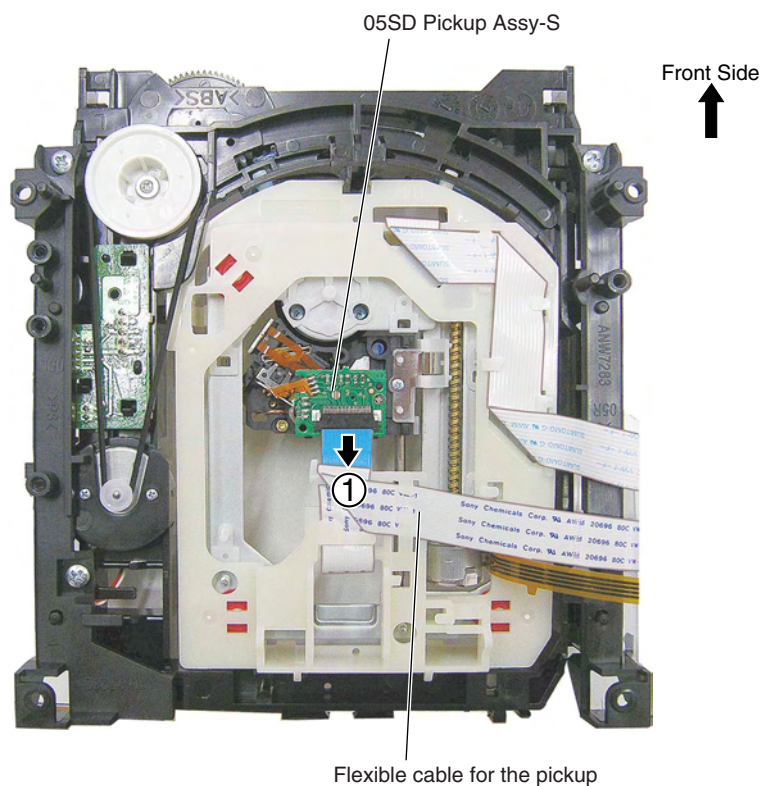




#### 4 05SD Pickup Assy-S

Note: The 05SD Pickup Assy can be removed without removing the TTraverse Mechanism Assy-S.(shown as Step 3.)

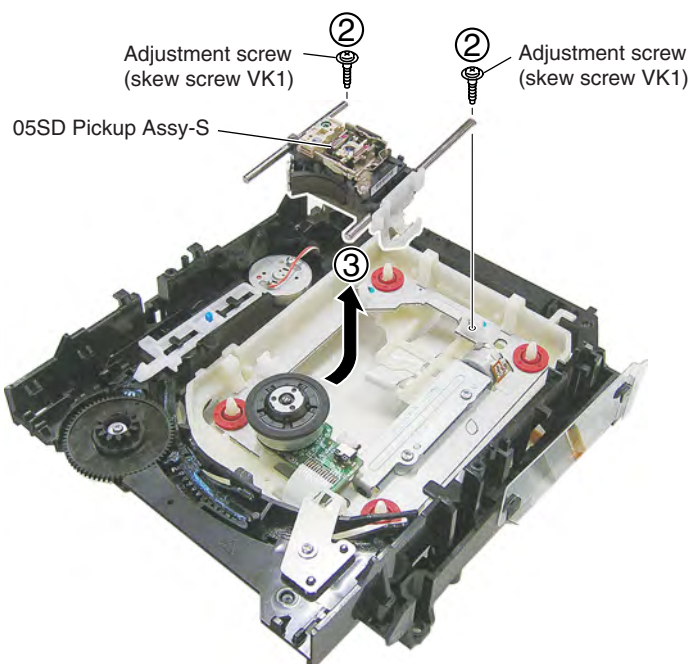
- ① Disconnect the flexible cable for the pickup.



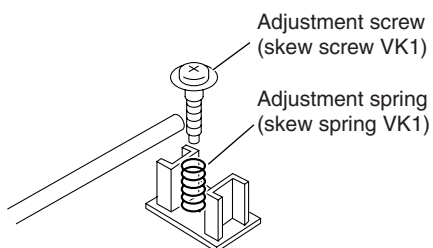
● Bottom view

- ② Remove the two adjustment screws.

- ③ Remove the 05SD Pickup Assy.

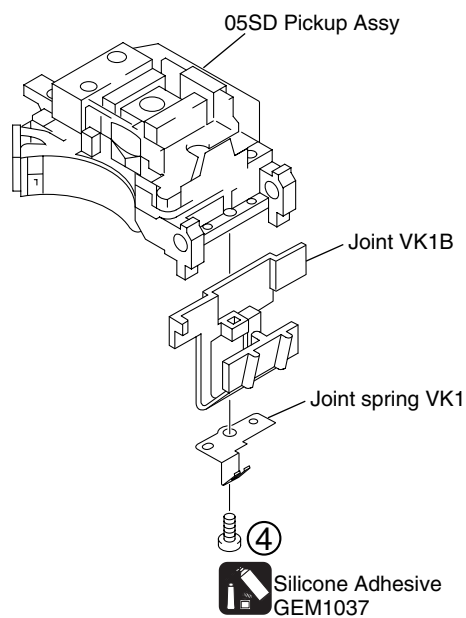


Note: Be careful not to lose the adjustment spring (skew spring VK1).



④ Remove the one screw.

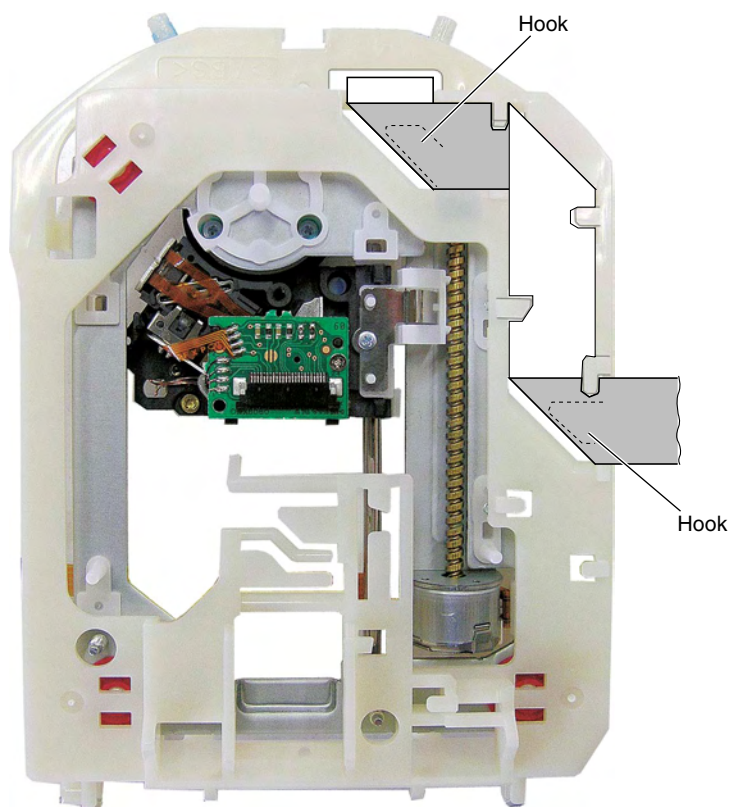
**Note:** The screw is secured with the silicone adhesive.  
Make sure to apply the silicone adhesive after reattaching the screw.



### Arrangement of the flexible cable for the spindle motor

■ : Conductive surface

Front Side  
↑



● Bottom view

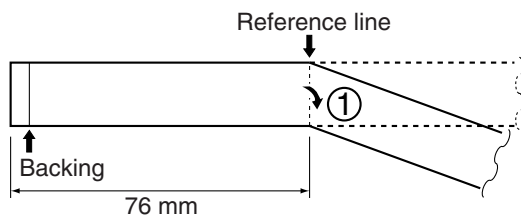
## Arrangement of the flexible cable for the pickup

 : Conductive surface

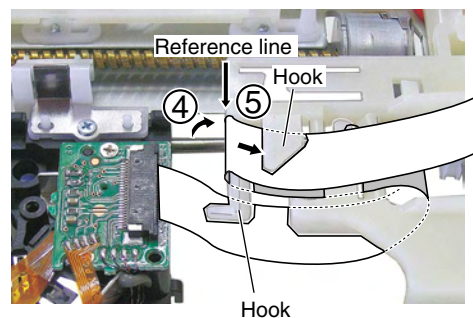
### Note:

Be sure to move the 05SD Pickup Assy to the innermost perimeter.

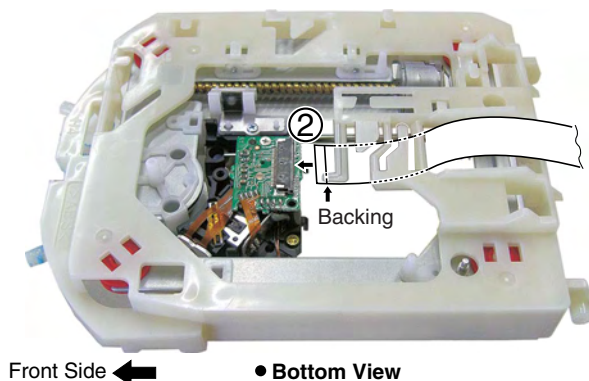
- ① Fold the flexible cable for the pickup with the backing outward in the illustration below.



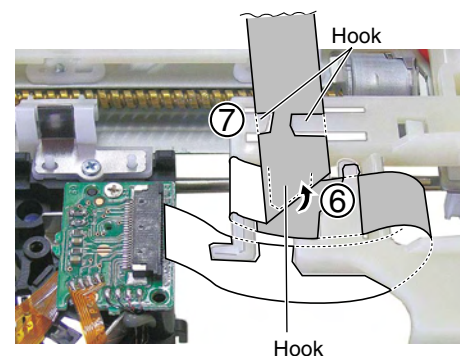
- ④ Hook the part folded in Step ① to the hook.  
⑤ Pass the flexible cable through the hook.



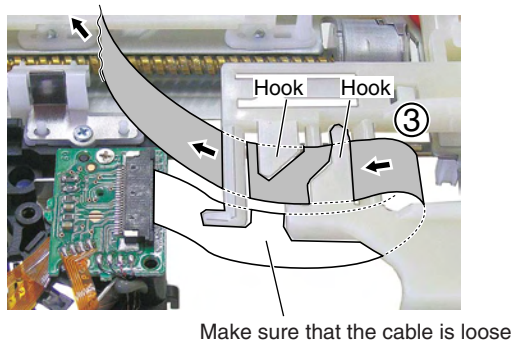
- ② Attach the flexible cable for the pickup to the connector.



- ⑥ Fold the flexible cable along the hook.  
⑦ Pass the flexible cable through the hook.



- ③ Pass the flexible cable through the hook.



## 7.2 PARTS

### 7.2.1 IC

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

• **List of IC** PDC125A, MM1623BF

#### ■ PDC125A (CONTROL ASSY : IC5501)

• System Control Microcomputer

##### ● Pin Function

| No. | Function Name of Chip    | I/O | HAL        | Actual Function                                                                                         |
|-----|--------------------------|-----|------------|---------------------------------------------------------------------------------------------------------|
| 1   | PA3/WR#                  | I/O | DVDON/OFF  | Control power supply for DVD module                                                                     |
| 2   | PA4/RD#                  | I/O | HPDET      | Detect to insert headphone                                                                              |
| 3   | PA5/RS                   | I/O | NC         |                                                                                                         |
| 4   | P70 / INT0 / T0LCP / AN8 | I/O | ACPULSE    | AC PULSE input (Interruption)                                                                           |
| 5   | P71 / INT1 / T0HCP / AN9 | I/O | NC         |                                                                                                         |
| 6   | P72 / INT2 / T0IN        | I/O | NC         |                                                                                                         |
| 7   | P73 / INT3 / T0IN        | I/O | REMOCON    | REMOCON signal input (Interruption)                                                                     |
| 8   | RES#                     | I   | XRESET     | μ-com reeset input                                                                                      |
| 9   | XT1 / AN10               | I   | XT1        | 32.768kHz sub clock connection (0.1W correspondence)                                                    |
| 10  | XT2 / AN11               | I/O | XT2        | 32.768kHz sub clock connection (0.1W correspondence)                                                    |
| 11  | VSS1                     | —   | VSS1       | VSS1                                                                                                    |
| 12  | CF1                      | I   | CF1        | 10MHz crystal oscillator                                                                                |
| 13  | CF2                      | O   | CF2        | 10MHz crystal oscillator                                                                                |
| 14  | VDD1                     | —   | VDD1       | VDD1                                                                                                    |
| 15  | P80 / AN0                | I/O | SIMUKE     | Destination distinction input                                                                           |
| 16  | P81 / AN1                | I/O | NC         |                                                                                                         |
| 17  | P82 / AN2                | I/O | VDET       | DVD3.3V detection input                                                                                 |
| 18  | P83 / AN3                | I/O | KEY1       | Key Input                                                                                               |
| 19  | P84 / AN4                | I/O | KEY2       | Key Input                                                                                               |
| 20  | P85 / AN5                | I/O | NC         |                                                                                                         |
| 21  | P86 / AN6                | I/O | NC         |                                                                                                         |
| 22  | P87 / AN7                | I/O | XPROTECT   | Protection and Fan Error detection input                                                                |
| 23  | P10/SO0                  | I/O | SDATA0     | System bus data output (AMP side output) for MD                                                         |
| 24  | P11 / SI0 / SB0          | I/O | MDATA0     | System bus data input (AMP side input) for MD                                                           |
| 25  | P12 / SCK0               | I/O | SCLK0      | System bus clock input for MD                                                                           |
| 26  | P13 / SO1                | I/O | LCDDAT     | Data for LCD driver                                                                                     |
| 27  | P14 / SI1 / SB1          | I/O | LCDCS      | Chip enable for LCD driver                                                                              |
| 28  | P15 / SCK1               | I/O | LCDCLK     | Clock for LCD driver                                                                                    |
| 29  | P16/T1PWML               | I/O | SYSCS2     | Chip select for system bus                                                                              |
| 30  | P17/T1PWMH/BUZ           | I/O | SYSCS1     | Chip select for system bus                                                                              |
| 31  | PE0                      | I/O | XHPMUTE    | HP MUTE ON/OFF                                                                                          |
| 32  | PE1                      | I/O | XRECMUTE   | REC OUTPUT MUTE ON/OFF                                                                                  |
| 33  | PE2                      | I/O | XHPMUTE2   | HP MUTE2 ON/OFF                                                                                         |
| 34  | PE3                      | I/O | BASS_BOOST | Control P. BASS                                                                                         |
| 35  | PE4                      | I/O | XMDRST     | MD microcomputer reset                                                                                  |
| 36  | PE5                      | I/O | XLCDRST    | Reset for LCD driver ÅstandbyÅj                                                                         |
| 37  | PE6                      | I/O | TIMERLED   | Control TIMER LED                                                                                       |
| 38  | PE7                      | I/O | XSYSMUTE   | Control mute of system                                                                                  |
| 39  | VSS4                     | —   | VSS4       | VSS4                                                                                                    |
| 40  | VDD4                     | —   | VDD4       | VDD4                                                                                                    |
| 41  | PF0                      | I/O | SYSPOW     | Control power supply of system                                                                          |
| 42  | PF1                      | I/O | ATT6dB     | Control ATT 6dB                                                                                         |
| 43  | PF2                      | I/O | STEST      | Set TESTMODE for Service                                                                                |
| 44  | PF3                      | I/O | UTEST      | Set UNITCHECK for checker                                                                               |
| 45  | PF4                      | I/O | VOLDATA/CE | Data/CE for E-vol IC(BD3814FV E-VOL)                                                                    |
| 46  | PF5                      | I/O | VOLCLK     | Clock for E-vol IC(BD3814FV E-VOL)                                                                      |
| 47  | PF6                      | I/O | SEL_DATA   | AUDIO INPUT SELECT DATA (BD3841FS) (When this port is not used, please connect ro GND) and set as Input |

# ● Pin Function

| No. | Function Name of Chip | I/O | HAL         | Actual Function                                                                                          |
|-----|-----------------------|-----|-------------|----------------------------------------------------------------------------------------------------------|
| 48  | PF7                   | I/O | SEL_CLK     | AUDIO INPUT SELECT CLOCK (BD3841FS) (When this port is not used, please connect to GND) and set as Input |
| 49  | SI2P0/SO2             | I/O | SDATA2      | System bus data output (AMP side output) for DVD                                                         |
| 50  | SI2P1/SI2/SB2         | I/O | MDATA2      | System bus data input (AMP side input) for DVD                                                           |
| 51  | SI2P2/SCK2            | I/O | SCLK2       | System bus clock input for MD                                                                            |
| 52  | SI2P3/SCK20           | I/O | NC          |                                                                                                          |
| 53  | PWM1                  | O   | NC          |                                                                                                          |
| 54  | PWM0                  | O   | NC          |                                                                                                          |
| 55  | VDD2                  | –   | VDD2        | VDD2                                                                                                     |
| 56  | VSS2                  | –   | VSS2        | VSS2                                                                                                     |
| 57  | P00                   | I/O | TXCE        | Chip enable for tuner LSI                                                                                |
| 58  | P01                   | I/O | KCONSTB     | Strobe for Key Control IC                                                                                |
| 59  | P02                   | I/O | KCONCLK     | Clock for Key Control IC                                                                                 |
| 60  | P03                   | I/O | KCONDATA    | Data for Key Control IC                                                                                  |
| 61  | P04                   | I/O | TXCLK       | Clock for tuner LSI                                                                                      |
| 62  | P05                   | I/O | TXODATA     | Data for tuner LSI                                                                                       |
| 63  | P06                   | I/O | VOCALC      | Control for VOCALC                                                                                       |
| 64  | P07                   | I/O | VOCALB      | Control for VOCALB                                                                                       |
| 65  | P20/INT4/T1IN         | I/O | VOCALA      | Control for VOCALA                                                                                       |
| 66  | P21/INT4/T1IN         | I/O | TXIDATA     | Input data from tuner LSI                                                                                |
| 67  | P22/INT4/T1IN         | I/O | DVDACK      | Acknowledgement from DVD MODULE(Interruption)                                                            |
| 68  | P23/INT4/T1IN         | I/O | FADET       | Detects the insertion of Front Audio In mini jack                                                        |
| 69  | P24/INT5/T1IN         | I/O | NC          |                                                                                                          |
| 70  | P25/INT5/T1IN         | I/O | DIMMER      | Dimmer control 2 stages switching                                                                        |
| 71  | P26/INT5/T1IN         | I/O | NC          |                                                                                                          |
| 72  | P27/INT5/T1IN         | I/O | EHCNT1      | Control for ECHO1                                                                                        |
| 73  | P30                   | I/O | EHCNT2      | Control for ECHO2                                                                                        |
| 74  | P31                   | I/O | NC          |                                                                                                          |
| 75  | P32                   | I/O | NC          |                                                                                                          |
| 76  | P33                   | I/O | NC          |                                                                                                          |
| 77  | P34                   | I/O | NC          |                                                                                                          |
| 78  | P35                   | I/O | NC          |                                                                                                          |
| 79  | P36                   | I/O | NC          |                                                                                                          |
| 80  | PB7/D7                | I/O | NC          |                                                                                                          |
| 81  | PB6/D6                | I/O | NC          |                                                                                                          |
| 82  | PB5/D5                | I/O | NC          |                                                                                                          |
| 83  | PB4/D4                | I/O | NC          |                                                                                                          |
| 84  | PB3/D3                | I/O | NC          |                                                                                                          |
| 85  | PB2/D2                | I/O | USBDET      | Detects the insertion of USB                                                                             |
| 86  | PB1/D1                | I/O | NC          |                                                                                                          |
| 87  | PB0/D0                | I/O | NC          |                                                                                                          |
| 88  | VSS3                  | –   | VSS3        | VSS3                                                                                                     |
| 89  | VDD3                  | –   | VDD3        | VDD3                                                                                                     |
| 90  | PC7/A7                | I/O | P_SPDIF_POW | SPDIF output on/off control                                                                              |
| 91  | PC6/A6                | I/O | NC          |                                                                                                          |
| 92  | PC5/A5                | I/O | SYSPOW2     | 0.1W correspondence of System Power Control                                                              |
| 93  | PC4/A4                | I/O | XDVRST      | RESET to DVD MODULE                                                                                      |
| 94  | PC3/A3                | I/O | NC          |                                                                                                          |
| 95  | PC2/A2                | I/O | DIG_POW     | External DIGITAL IN on/off control H: DIGITAL IN on (turns on only at the time of LINE2)                 |
| 96  | PC1/A1                | I/O | NC          |                                                                                                          |
| 97  | PC0/A0                | I/O | NC          |                                                                                                          |



A

● Pin Function

| No. | Function Name of Chip | I/O | HAL      | Actual Function   |
|-----|-----------------------|-----|----------|-------------------|
| 98  | PA0/CS2#              | I/O | FLASHE/D | for FLASH writing |
| 99  | PA1/CS1#              | I/O | FLASHDO  | for FLASH writing |
| 100 | PA2/CS0#              | I/O | FLASHCLK | for FLASH writing |

B

C

D

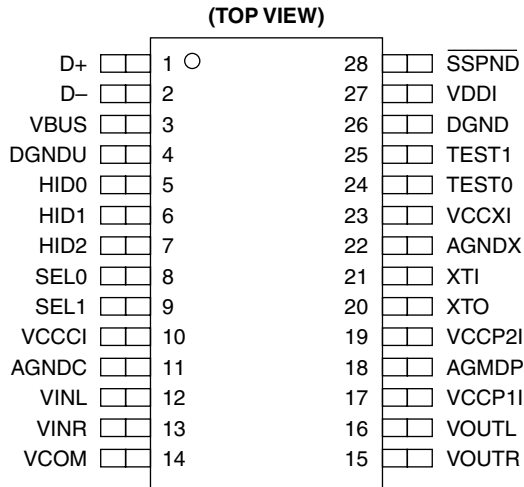
E

F

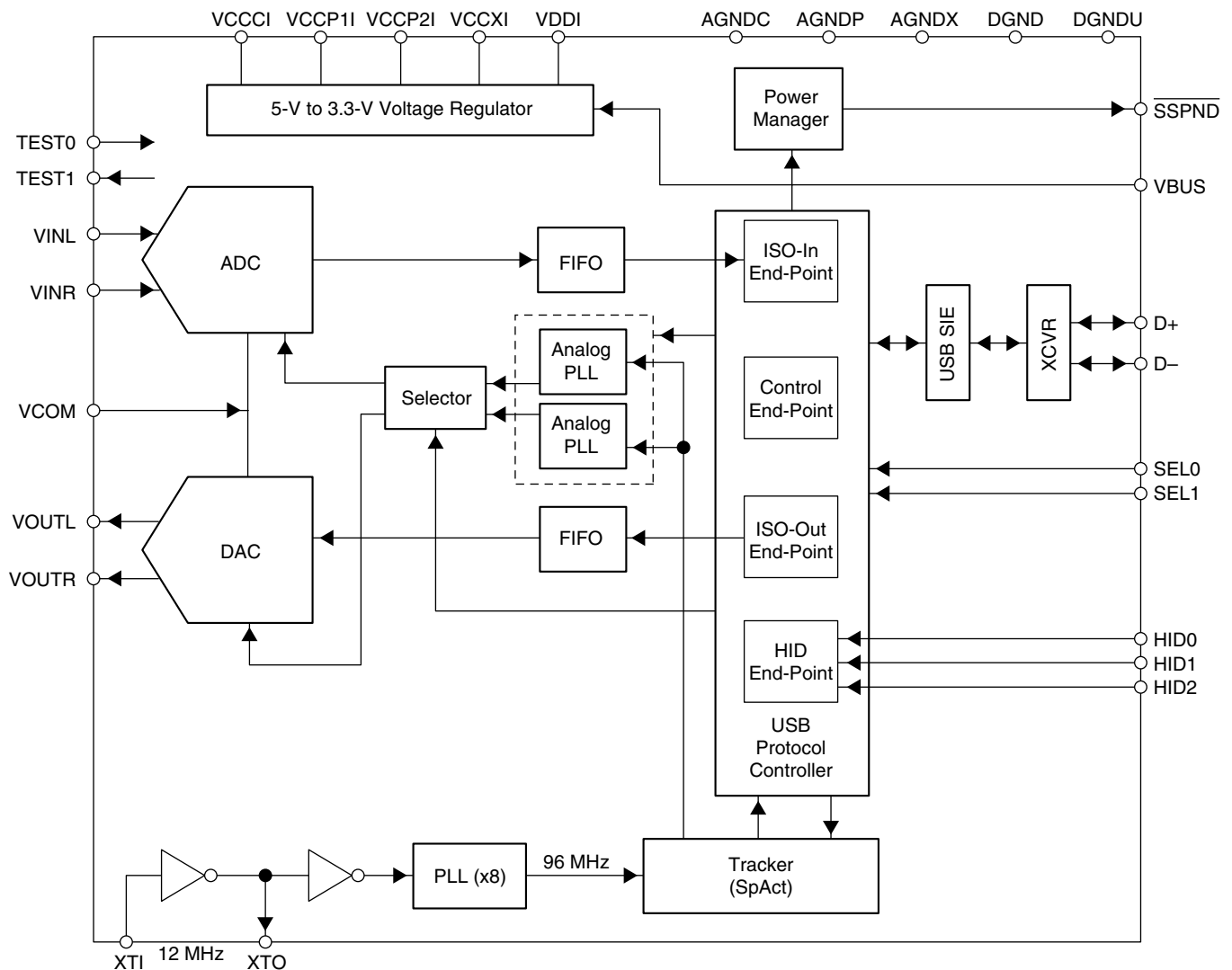
## ■ PCM2900 (DISPLAY ASSY : IC5201)

• USB Receiver

### ● Pin Arrangement



### ● Block Diagram



## ● Pin Function

A

| No. | Pin Name | I/O | Pin Function                                             |
|-----|----------|-----|----------------------------------------------------------|
| 1   | D+       | I/O | USB differential input/output plus (1)                   |
| 2   | D-       | I/O | USB differential input/output minus (1)                  |
| 3   | VBUS     | –   | Connect to USB power (VBUS)                              |
| 4   | DGNDU    | –   | Digital ground for USB transceiver                       |
| 5   | HID0     | I   | HID key state input (mute), active high (3)              |
| 6   | HID1     | I   | HID key state input (volume up), active high (3)         |
| 7   | HID2     | I   | HID key state input (volume down), active high (3)       |
| 8   | SEL0     | I   | Must be set to high (5)                                  |
| 9   | SEL1     | I   | Must be set to high (5)                                  |
| 10  | VCCCI    | –   | Internal analog power supply for codec (4)               |
| 11  | AGNDC    | –   | Analog ground for codec                                  |
| 12  | VINL     | I   | ADC analog input for L-channel                           |
| 13  | VINR     | I   | ADC analog input for R-channel                           |
| 14  | VCOM     | –   | Common for ADC/DAC (VCCCI/2) (4)                         |
| 15  | VOUTr    | O   | DAC analog output for R-channel                          |
| 16  | VOuTL    | O   | DAC analog output for L-channel                          |
| 17  | VCCP1I   | –   | Internal analog power supply for PLL (4)                 |
| 18  | AGNDP    | –   | Analog ground for PLL                                    |
| 19  | VCCP2I   | –   | Internal analog power supply for PLL (4)                 |
| 20  | XTO      | O   | Crystal oscillator output                                |
| 21  | XTI      | I   | Crystal oscillator input (2)                             |
| 22  | AGNDX    | –   | Analog ground for oscillator                             |
| 23  | VCCXI    | –   | Internal analog power supply for oscillator (4)          |
| 24  | TEST0    | I   | Test pin, must be connected to GND                       |
| 25  | TEST1    | O   | Test pin, must be left open                              |
| 26  | DGND     | –   | Digital ground                                           |
| 27  | VDDI     | –   | Internal digital power supply (4)                        |
| 28  | SSPND    | O   | Suspend flag, active low (Low:suspend, High:operational) |

(1) LV-TTL level

(2) 3.3-V CMOS level input

(3) 3.3-V CMOS level input with internal pulldown. This pin informs the PC of serviceable control signals such as mute, volume up, or volume down, which has no connection with the internal DAC or ADC directly.

(4) Connect a decouple capacitor to GND

(5) TTL Schmitt trigger, 5 V tolerant

D

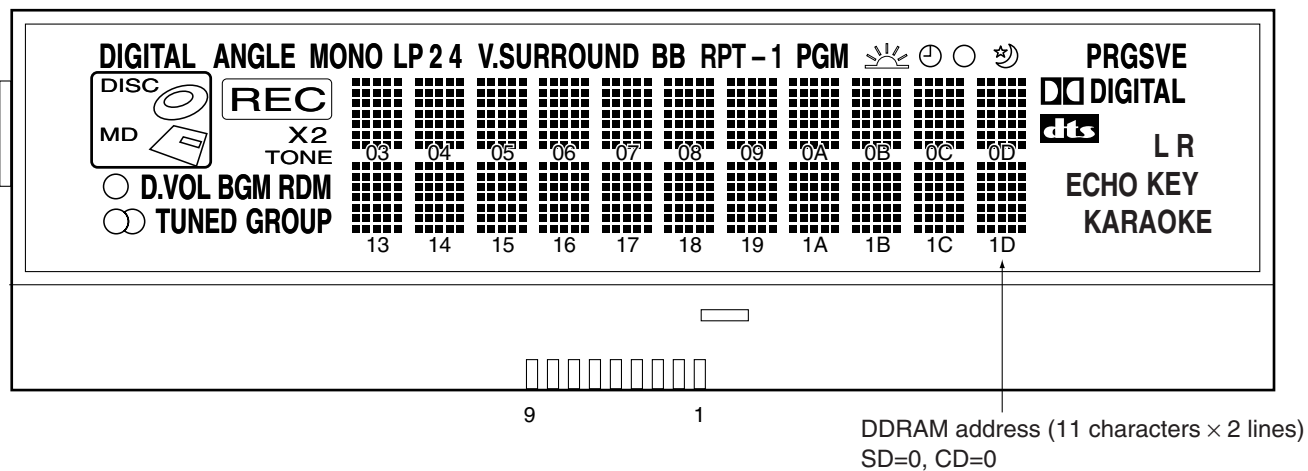
E

F

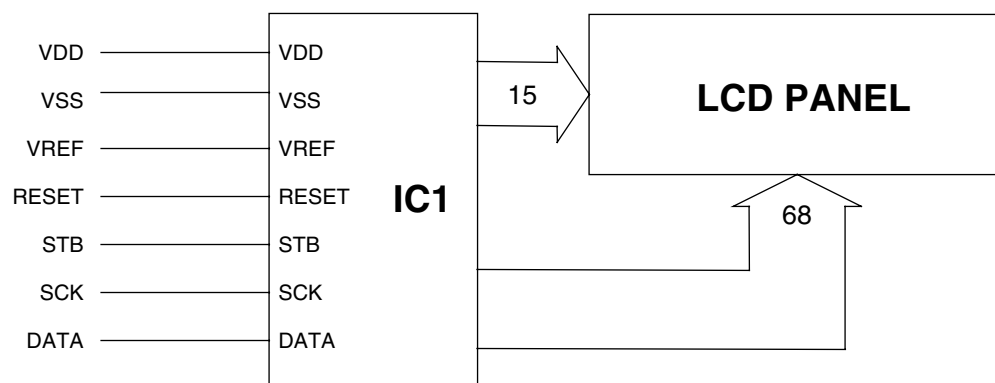
■ XAV3029 (DISP ASSY V5901)

- LCD Module

● Block Diagram



● Block Diagram

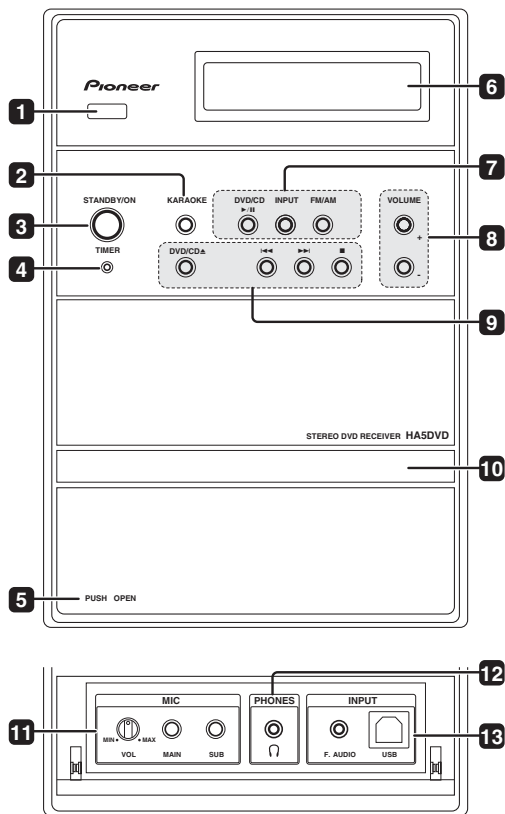


● Pin Function

| No. | Pin Name | Pin Function                                                                                                                                                          |
|-----|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | N.C.     | N.C.                                                                                                                                                                  |
| 2   | VDD      | Power supply for logic                                                                                                                                                |
| 3   | VSS      | Power supply (GND)                                                                                                                                                    |
| 4   | VREF     | A standard voltage of internal regular voltage power supply is input to this terminal. Input the voltage of the level according to a set voltage of LCD power supply. |
| 5   | RESET    | L : OFF the display.                                                                                                                                                  |
| 6   | STB      | Write enable input. STB is low during data writing.                                                                                                                   |
| 7   | SCK      | Start data write. Input data of internal shift register is latched at the positive edge of SCK.                                                                       |
| 8   | DATA     | Input serial data. Writing data sets the command of this LSI and the data for the display.                                                                            |
| 9   | N.C.     | N.C.                                                                                                                                                                  |

# 8. PANEL FACILITIES

## Front panel



**1 Remote sensor**

**2 KARAOKE**  
Selects audio channels for karaoke.

**3 STANDBY/ON**  
Switches the player on or into standby.

**4 TIMER indicator**  
Lights when the timer has been set.

**5 PUSH OPEN**  
Pressing down on this side of the door will open the control panel.

**6 SYSTEM DISPLAY**  
Switches between information and clock displays.

**7 Function select buttons**  
Selects the source you want to listen to (**INPUT** cycles through the auxiliary inputs).

**8 VOLUME +/-**  
Adjusts the volume level.

**9 DVD/CD playback controls**

**DVD/CD**   
Opens/closes the disc tray.

Jumps to the next chapter or track.

Jumps to the beginning of the current chapter or track, then to previous chapters/ tracks.

Stops playback.

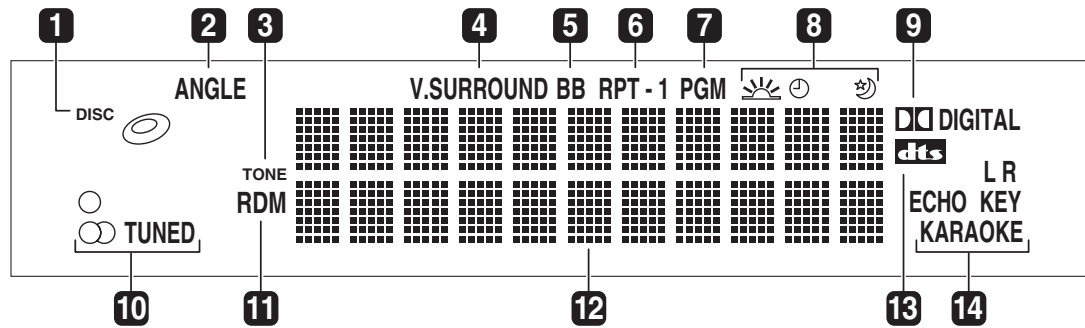
**10 Disc tray**

**11 MIC VOL and MIC input jacks**  
Controls the volume of the karaoke mics (**MAIN** and **SUB**).

**12 PHONES jack**  
Headphone jack.

**13 INPUT**  
Connect an auxiliary component using a USB cable or a stereo mini-jack cable.

## Display



### 1 DISC ( )

Lights when a disc is loaded in the disc tray.

### 2 ANGLE

Lights during multi-angle scenes on a DVD disc.

### 3 TONE

Lights when the bass or treble has been adjusted.

### 4 V.SURROUND

Lights when Virtual Surround is switched on.

### 5 BB

Lights when the bass boost is switched on.

### 6 RPT-1

RPT lights during repeat play (RPT-1 lights during repeat one-track play).

### 7 PGM

Lights during program play.

### 8 Timer indicators

- Lights when the wake-up timer is set.

- Lights when the wake-up timer is set and flashes when it activates.

- Lights when the sleep timer is active.

### 9 DIGITAL

Lights during playback of a Dolby Digital signal.

### 10 Tuner indicators

**TUNED** - Lights when a broadcast is being received.

- Lights when a stereo FM broadcast is being received in auto stereo mode.

- Lights when FM mono reception is selected.

### 11 RDM

Lights during random playback.

### 12 Character display

### 13 DTS

Lights during playback of a DTS source.

### 14 Karaoke indicators

**KARAOKE** (Vocal cancel) - Vocals in the backing track are partially eliminated using EQ.

**L** - Left channel only. Use for tracks that have a vocal recorded in the right channel.

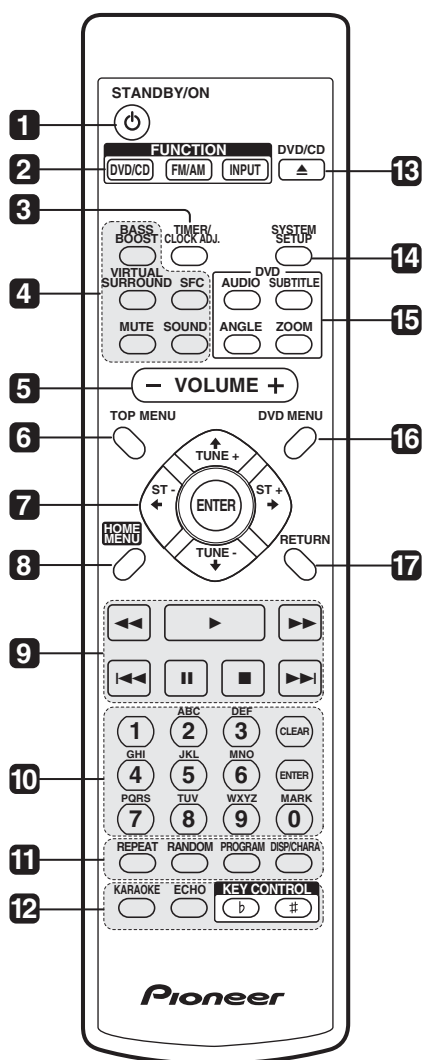
**R** - Right channel only. Use for tracks that have a vocal recorded in the left channel.

**L R** - Use to put a single-channel vocal track into the center of the mix.

**KEY** - Lights when the Karaoke pitch control is selected.

**ECHO** - Lights when the Karaoke **ECHO** effect is selected.

## Remote control



### 1 STANDBY/ON

Switches the player on or into standby.

### 2 **FUNCTION** buttons

Selects the source you want to listen to (**INPUT** cycles through the auxiliary inputs).

### 3 **TIMER/CLOCK ADJ.**

Use for setting the clock, as well as for setting and checking the timers.

### 4 **Sound control buttons**

#### **BASS BOOST**

Switches the bass boost on or off.

#### **VIRTUAL SURROUND**

Switches the Virtual Surround effect on or off.

#### **SFC**

Selects sound modes from the Sound Field Control.

#### **MUTE**

Mutes the volume.

#### **SOUND**

Accesses settings in the Sound menu, such as the tone controls.

### 5 **VOLUME**

Adjusts the volume level.

### 6 **TOP MENU**

Displays the top menu of a DVD disc.

### 7 **ENTER, TUNE & cursor control buttons**

Navigates on-screen displays and menus.

**ENTER** selects an option or executes a command.

### 8 **HOME MENU**

Press to display (or exit) the on-screen menu for Initial Settings, Play Mode functions, etc.

### 9 **Playback controls**

Starts/resumes playback.

/

Use for reverse / forward scanning.

Jumps to the next chapter or track.

Jumps to the beginning of the current chapter or track, then to previous chapters/tracks.

Pauses playback; press again to restart.

Stops playback.



## 10 Number/character buttons

The number buttons can be used for selecting tracks directly, or for selecting items from an on-screen menu.

### **CLEAR**

Clears an entry.

### **ENTER**

Selects menu options, etc. (works exactly the same as the **ENTER** button in 7 above).

## 11 REPEAT

Selects a repeat play mode.

### **RANDOM**

Selects a random play mode.

### **PROGRAM**

Use to program/play a program list.

### **DISP/CHARA**

Switches between information in the display and between uppercase and lowercase letters when naming radio station presets.

## 12 KARAOKE controls

### **KARAOKE**

Selects audio channels for karaoke.

### **ECHO**

Changes the echo level on the karaoke mics.

### **KEY CONTROL**

Lowers/raises the pitch of the backing track.

## 13 DVD/CD

Opens/closes the disc tray.

## 14 SYSTEM SETUP

Use to make various system settings.

## 15 DVD control buttons

### **AUDIO**

Selects the audio channel or language.

### **SUBTITLE**

Selects a subtitle display.

### **ANGLE**

Changes the camera angle during DVD multi-angle scene playback.

### **ZOOM**

Changes the zoom level.

## 16 DVD MENU

Displays the DVD menu (for Video CD/Super VCDs, DivX video and WMA/MP3/JPEG discs, the Disc Navigator screen appears).

## 17 RETURN

Press to return to a previous menu screen.

## ■ Jigs list

A

| Name                        | Jig No. | Remarks                     |
|-----------------------------|---------|-----------------------------|
| Service Remote Control Unit | GGF1381 | adjustment, diagnosis       |
| DVD Test Disc (DVD-Video)   | GGV1025 | Check of DVD-Video          |
| CD Test Disc                | STD-905 | Check of CD                 |
| Cable (5P)                  | GGD1425 | diagnosis of DVDM ASSY      |
| Flexible Cable (25P)        | GGD1309 | diagnosis of DVDM ASSY      |
| DVD Data Disc               | GGV1175 | diagnosis (ID data setting) |
|                             |         |                             |

B

## ■ Lubricants and Glues list

■

| Name              | Lubricants and Glues No. | Remarks                             |
|-------------------|--------------------------|-------------------------------------|
| Lubricating Oil   | GYA1001                  | refer to "2.4 05 LOADER ASSY"       |
| Daifree           | GEM1036                  | refer to "2.4 05 LOADER ASSY"       |
| Silicone Adhesive | GEM1037                  | refer to "2.5 TM ASSY VK1AVC"       |
| Screw tight       | GYL1001                  | refer to "6.5 MECHANISM ADJUSTMENT" |

C

## ■ CLEANING



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

D

| Position to be cleaned | Cleaning tools                                        |
|------------------------|-------------------------------------------------------|
| Pickup leneses         | Cleaning liquid : GEM1004<br>Cleaning paper : GED-008 |

| Position to be cleaned | Cleaning tools           |
|------------------------|--------------------------|
| Fans                   | Cleaning paper : GED-008 |

E

F