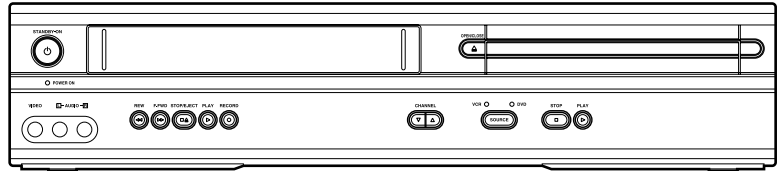


Service
Service
Service



Service Manual



Contents

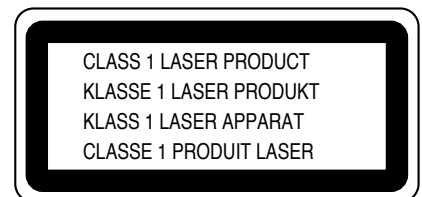
Chapter

- Sec. 1: Adjustment Procedures
 - Schematic Diagrams and CBA's
 - Exploded Views
 - Mechanical and Electrical Parts Lists

Survey of versions:

/75 PAL

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MAIN SECTION

DVD PLAYER & VIDEO CASSETTE RECORDER

Sec. 1: Main Section

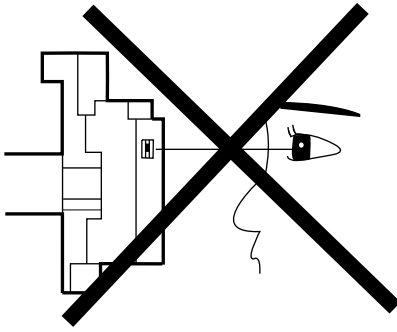
- Adjustment Procedures
- Schematic Diagrams and CBA's
- Exploded Views
- Mechanical and Electrical Parts List

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LASER BEAM SAFETY PRECAUTIONS

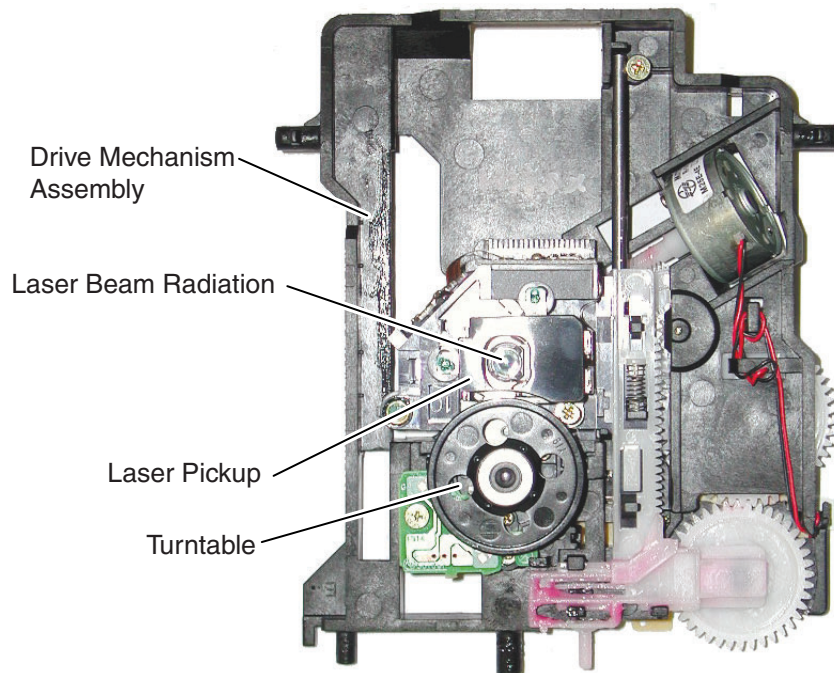
This DVD player uses a pickup that emits a laser beam.



Do not look directly at the laser beam coming from the pickup or allow it to strike against your skin.

The laser beam is emitted from the location shown in the figure. When checking the laser diode, be sure to keep your eyes at least 30 cm away from the pickup lens when the diode is turned on. Do not look directly at the laser beam.

CAUTION: Use of controls and adjustments, or doing procedures other than those specified herein, may result in hazardous radiation exposure.



CAUTION - CLASS 1M LASER RADIATION WHEN OPEN. DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS

Location: Top of DVD mechanism.

IMPORTANT SAFETY PRECAUTIONS

Product Safety Notice

Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by a \triangle on schematics and in parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire, and/or other hazards. The Product's Safety is under review continuously and new instructions are issued whenever appropriate. Prior to shipment from the factory, our products are carefully inspected to confirm with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

Precautions during Servicing

- A.** Parts identified by the \triangle symbol are critical for safety. Replace only with part number specified.
- B.** In addition to safety, other parts and assemblies are specified for conformance with regulations applying to spurious radiation. These must also be replaced only with specified replacements.
Examples: RF converters, RF cables, noise blocking capacitors, and noise blocking filters, etc.
- C.** Use specified internal wiring. Note especially:
 - 1) Wires covered with PVC tubing
 - 2) Double insulated wires
 - 3) High voltage leads
- D.** Use specified insulating materials for hazardous live parts. Note especially:
 - 1) Insulation tape
 - 2) PVC tubing
 - 3) Spacers
 - 4) Insulators for transistors
- E.** When replacing AC primary side components (transformers, power cord, etc.), wrap ends of wires securely about the terminals before soldering.
- F.** Observe that the wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).
- G.** Check that replaced wires do not contact sharp edges or pointed parts.
- H.** When a power cord has been replaced, check that 5 - 6 kg of force in any direction will not loosen it.
- I.** Also check areas surrounding repaired locations.
- J.** Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.
- K.** Crimp type wire connector
The power transformer uses crimp type connectors which connect the power cord and the primary side of the transformer. When replacing the transformer, follow these steps carefully and precisely to prevent shock hazards.
Replacement procedure
 - 1) Remove the old connector by cutting the wires at a point close to the connector.
Important: Do not re-use a connector. (Discard it.)
 - 2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.
 - 3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.
 - 4) Use a crimping tool to crimp the metal sleeve at its center. Be sure to crimp fully to the complete closure of the tool.
- L.** When connecting or disconnecting the internal connectors, first, disconnect the AC plug from the AC outlet.

Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts, and wires have been returned to their original positions. Afterwards, do the following tests and confirm the specified values to verify compliance with safety standards.

1. Clearance Distance

When replacing primary circuit components, confirm specified clearance distance (d) and (d') between soldered terminals, and between terminals and surrounding metallic parts. (See Fig. 1)

Table 1 : Ratings for selected area

AC Line Voltage	Clearance Distance (d), (d')
220 to 240 V	$\geq 3 \text{ mm}(d)$ $\geq 6 \text{ mm}(d')$

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

2. Leakage Current Test

Confirm the specified (or lower) leakage current between B (earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.) is lower than or equal to the specified value in the table below.

Measuring Method (Power ON) :

Insert load Z between B (earth ground, power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across the terminals of load Z. See Fig. 2 and the following table.

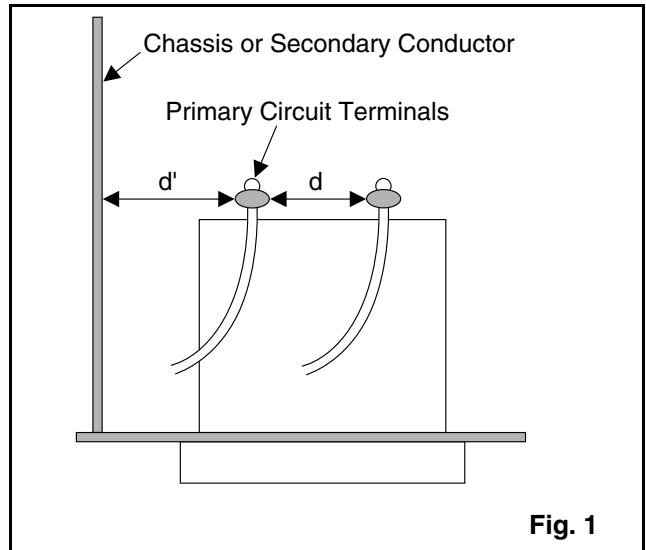


Fig. 1

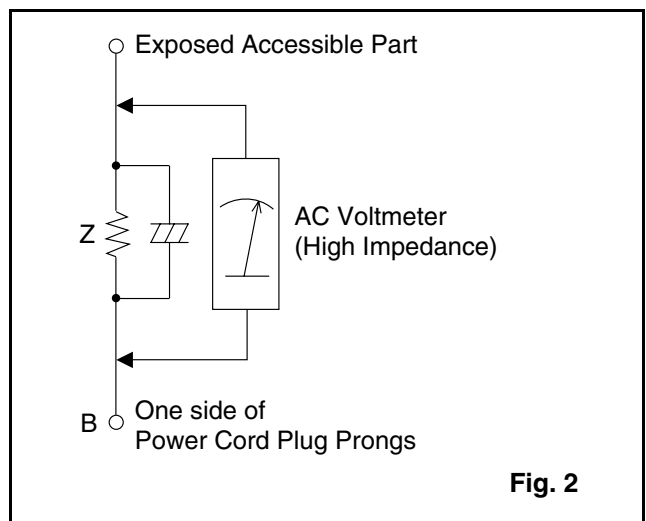


Fig. 2

Table 2: Leakage current ratings for selected areas

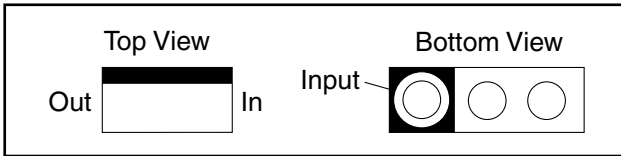
AC Line Voltage	Load Z	Leakage Current (i)	One side of power cord plug prongs (B) to:
220 to 240 V	2kΩ RES. Connected in parallel	$i \leq 0.7 \text{ mA AC Peak}$ $i \leq 2 \text{ mA DC}$	RF or Antenna terminals
	50kΩ RES. Connected in parallel	$i \leq 0.7 \text{ mA AC Peak}$ $i \leq 2 \text{ mA DC}$	A/V Input, Output

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

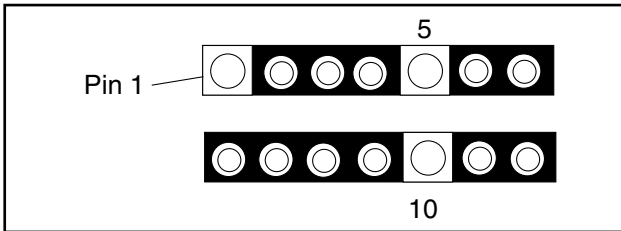
STANDARD NOTES FOR SERVICING

Circuit Board Indications

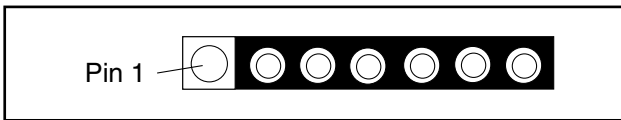
1. The output pin of the 3 pin Regulator ICs is indicated as shown.



2. For other ICs, pin 1 and every fifth pin are indicated as shown.

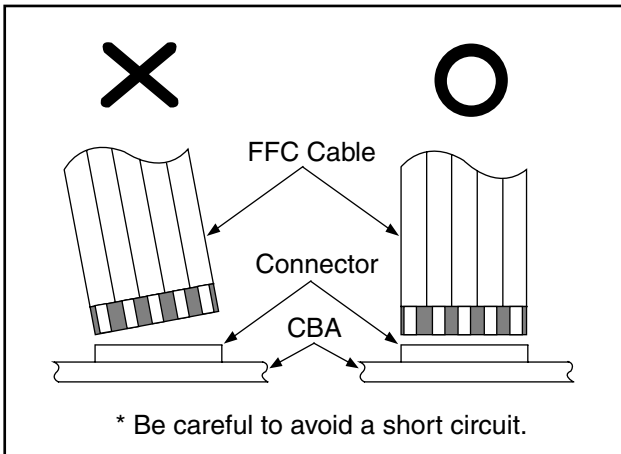


3. The 1st pin of every male connector is indicated as shown.



Instructions for Connectors

1. When you connect or disconnect the FFC (Flexible Foil Connector) cable, be sure to first disconnect the AC cord.
2. FFC (Flexible Foil Connector) cable should be inserted parallel into the connector, not at an angle.



Pb (Lead) Free Solder

When soldering, be sure to use the Pb free solder.

Information about lead-free soldering

Philips CE is producing lead-free sets from 1.1.2005 onwards.

IDENTIFICATION

Regardless of special logo (not always indicated)



One must treat all sets from **1 Jan 2005** onwards, according to the next rule: Serial Number gives a 9-digit. Digit 2&3 shows the WEEK, and digit 4 shows the YEAR.

So from **015** onwards—from 1 Jan 2005 onwards

Important note: In fact also products of year 2004 must be treated in this way as long as you avoid mixing solder-alloys (leaded/ lead-free). So best to always use SAC305 and the higher temperatures belong to this.

Due to lead-free technology some rules have to be respected by the workshop during a repair:

- Use only lead-free solder alloy Philips SAC305 with order code 0622 149 00106. If lead-free solder-paste is required, please contact the manufacturer of your solder-equipment. In general use of solder-paste within workshops should be avoided because paste is not easy to store and to handle.
- Use only adequate solder tools applicable for lead-free solder alloy. The solder tool must be able
 - To reach at least a solder-temperature of 400°C,
 - To stabilize the adjusted temperature at the solder-tip
 - To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature around **360°C - 380°C** is reached and stabilized at the solder joint. Heating-time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400°C otherwise wear-out of tips will rise drastically and flux-fluid will be destroyed. To avoid wear-out of tips switch off un-used equipment, or reduce heat.
- Mix of lead-free solder alloy / parts with leaded solder alloy / parts is possible but PHILIPS recommends strongly to avoid mixed solder alloy types (leaded and lead-free).
If one cannot avoid or does not know whether product is lead-free, clean carefully the solder-joint from old solder alloy and re-solder with new solder alloy (SAC305).
- Use only original spare-parts listed in the Service-Manuals. Not listed standard-material (commodities) has to be purchased at external companies.

- **Special information for BGA-ICs:**
 - always use the 12nc-recognizable soldering temperature profile of the specific BGA (for de-soldering always use the lead-free temperature profile, in case of doubt)
 - lead free BGA-ICs will be delivered in so-called 'dry-packaging' (sealed pack including a silica gel pack) to protect the IC against moisture. After opening, dependent of MSL-level seen on indicator-label in the bag, the BGA-IC possibly still has to be baked dry. (MSL=Moisture Sensitivity Level). This will be communicated via AYS-website. Do not re-use BGAs at all.
- For sets produced before 1.1.2005 (except products of 2004), containing leaded solder-alloy and components, all needed spare-parts will be available till the end of the service-period. For repair of such sets nothing changes.
- On our website www.atyourservice.ce.Philips.com you find more information to:
 - BGA-de-/soldering (+ baking instructions)
 - Heating-profiles of BGAs and other ICs used in Philips-sets

You will find this and more technical information within the "magazine", chapter "workshop news".

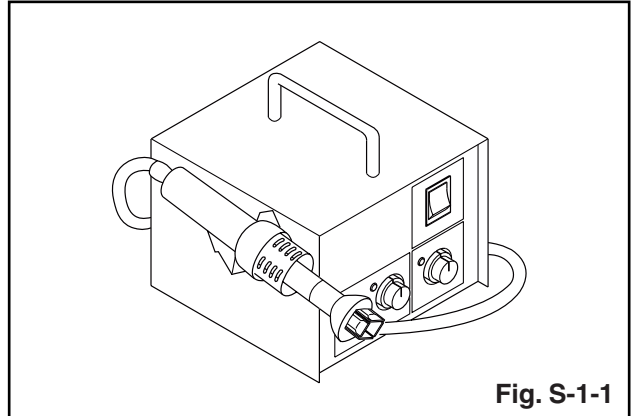
For additional questions please contact your local repair-helpdesk.

How to Remove / Install Flat Pack-IC

1. Removal

With Hot-Air Flat Pack-IC Desoldering Machine:

1. Prepare the hot-air flat pack-IC desoldering machine, then apply hot air to the Flat Pack-IC (about 5 to 6 seconds). (Fig. S-1-1)

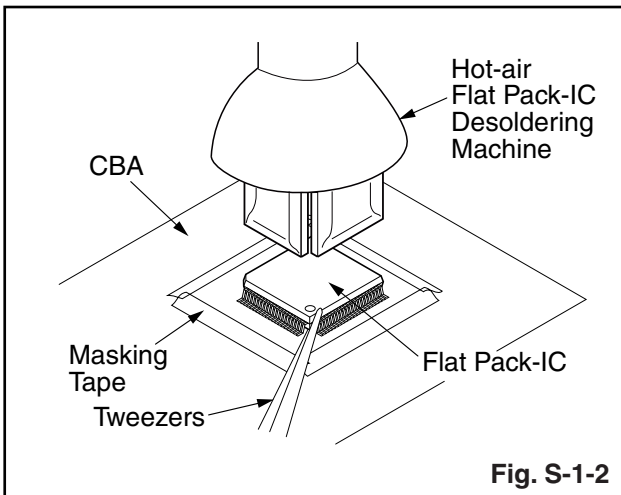


2. Remove the flat pack-IC with tweezers while applying the hot air.
3. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
4. Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

CAUTION:

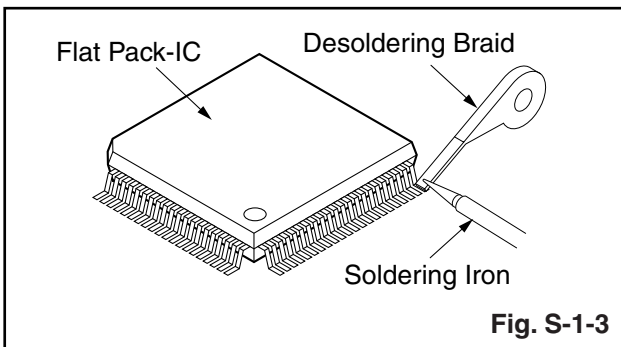
1. The Flat Pack-IC shape may differ by models. Use an appropriate hot-air flat pack-IC desoldering machine, whose shape matches that of the Flat Pack-IC.
2. Do not supply hot air to the chip parts around the flat pack-IC for over 6 seconds because damage to the chip parts may occur. Put masking tape around the flat pack-IC to protect other parts from damage. (Fig. S-1-2)

3. The flat pack-IC on the CBA is affixed with glue, so be careful not to break or damage the foil of each pin or the solder lands under the IC when removing it.

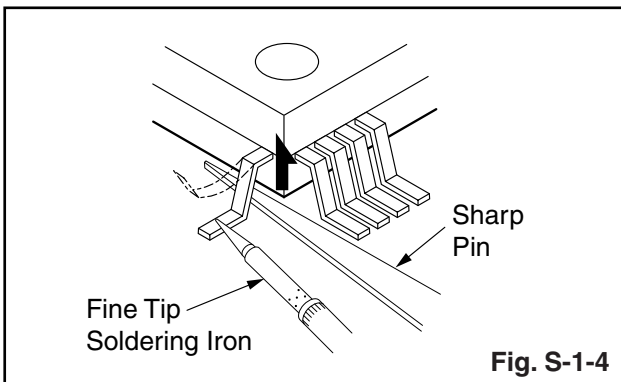


With Soldering Iron:

1. Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)



2. Lift each lead of the flat pack-IC upward one by one, using a sharp pin or wire to which solder will not adhere (iron wire). When heating the pins, use a fine tip soldering iron or a hot air desoldering machine. (Fig. S-1-4)

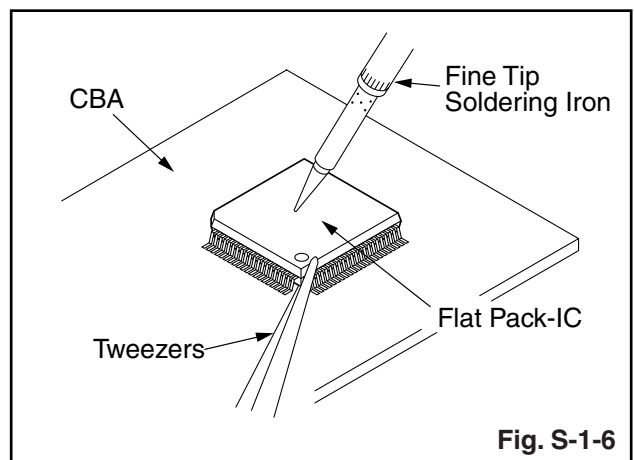
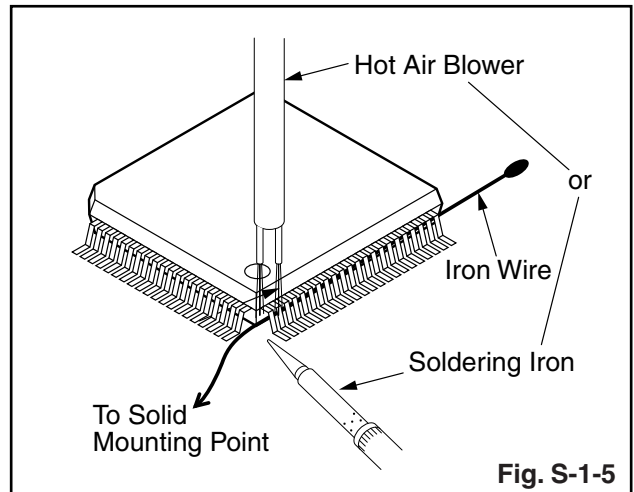


3. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
4. Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

With Iron Wire:

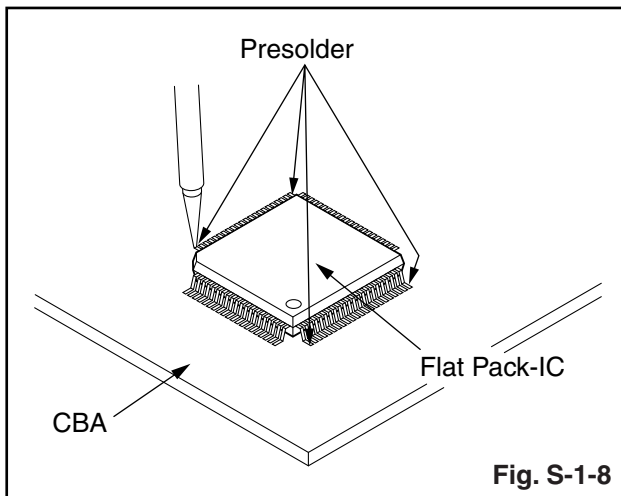
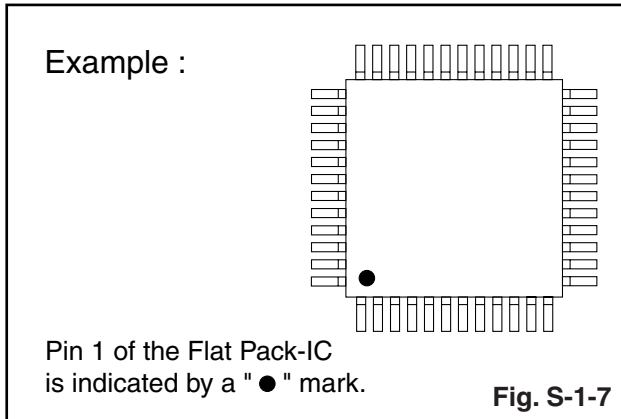
1. Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)
2. Affix the wire to a workbench or solid mounting point, as shown in Fig. S-1-5.
3. While heating the pins using a fine tip soldering iron or hot air blower, pull up the wire as the solder melts so as to lift the IC leads from the CBA contact pads as shown in Fig. S-1-5.
4. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
5. Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

Note: When using a soldering iron, care must be taken to ensure that the flat pack-IC is not being held by glue. When the flat pack-IC is removed from the CBA, handle it gently because it may be damaged if force is applied.



2. Installation

1. Using desoldering braid, remove the solder from the foil of each pin of the flat pack-IC on the CBA so you can install a replacement flat pack-IC more easily.
2. The "●" mark on the flat pack-IC indicates pin 1. (See Fig. S-1-7.) Be sure this mark matches the 1 on the PCB when positioning for installation. Then presolder the four corners of the flat pack-IC. (See Fig. S-1-8.)
3. Solder all pins of the flat pack-IC. Be sure that none of the pins have solder bridges.



Instructions for Handling Semi-conductors

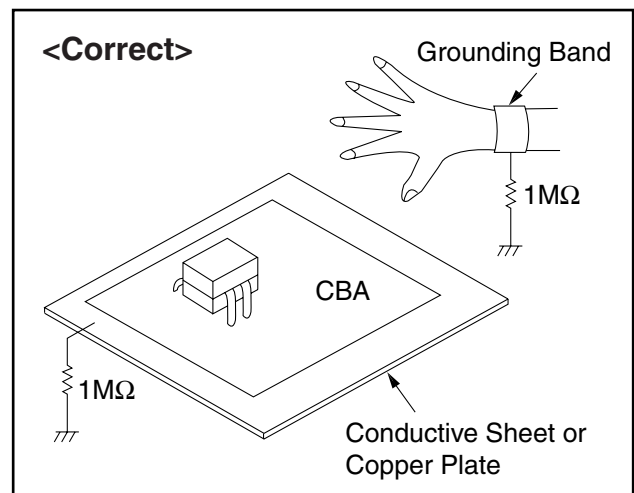
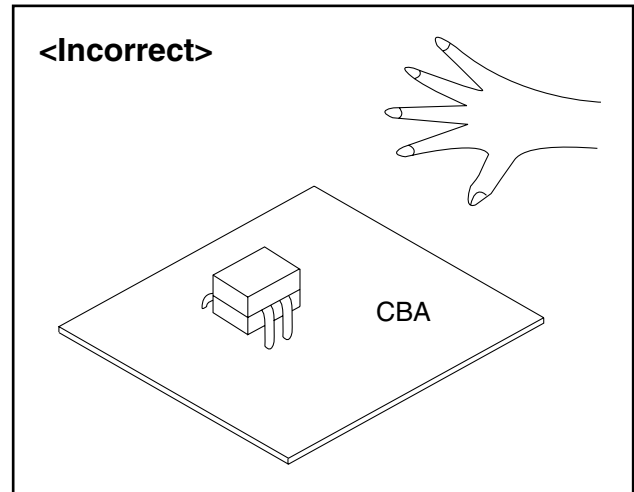
Electrostatic breakdown of the semi-conductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

1. Ground for Human Body

Be sure to wear a grounding band (1 M Ω) that is properly grounded to remove any static electricity that may be charged on the body.

2. Ground for Workbench

Be sure to place a conductive sheet or copper plate with proper grounding (1 M Ω) on the workbench or other surface, where the semi-conductors are to be placed. Because the static electricity charge on clothing will not escape through the body grounding band, be careful to avoid contacting semi-conductors with your clothing.



FUNCTION INDICATOR SYMBOLS

Note:

If a mechanical malfunction occurs, the power is turned off. When the power comes on again after that by pressing [STANDBY-ON] button, an error message is displayed on the TV screen for 5 seconds.

MODE	INDICATOR ACTIVE
When reel or capstan mechanism is not functioning correctly	“▲ R” is displayed on a TV screen. (Refer to Fig. 1.)
When tape loading mechanism is not functioning correctly	“▲ T” is displayed on a TV screen. (Refer to Fig. 2.)
When cassette loading mechanism is not functioning correctly	“▲ C” is displayed on a TV screen. (Refer to Fig. 3.)
When the drum is not working properly	“▲ D” is displayed on a TV screen. (Refer to Fig. 4.)
P-ON Power safety detection	“▲ P” is displayed on a TV screen. (Refer to Fig. 5.)

TV screen

When reel or capstan mechanism is not functioning correctly

When the drum is not working properly



Fig. 1



Fig. 4

When tape loading mechanism is not functioning correctly

P-ON Power safety detection



Fig. 2



Fig. 5

When cassette loading mechanism is not functioning correctly

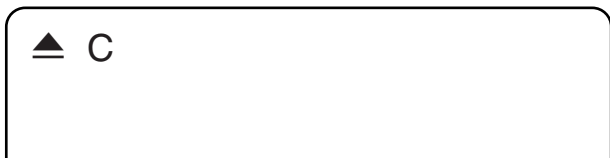


Fig. 3

PREPARATION FOR SERVICING

How to Enter the Service Mode

About Optical Sensors

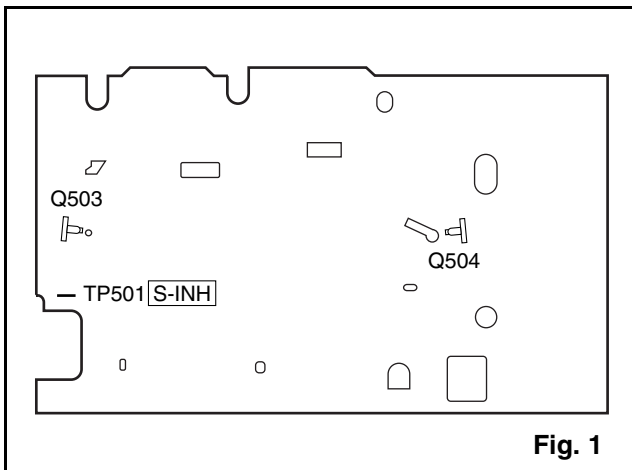
Caution:

An optical sensor system is used for the Tape Start and End Sensors on this equipment. Carefully read and follow the instructions below. Otherwise the unit may operate erratically.

What to do for preparation

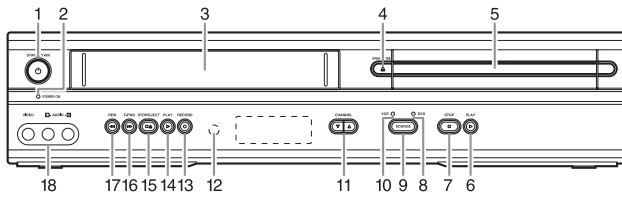
Insert a tape into the Deck Mechanism Assembly and press the PLAY button. The tape will be loaded into the Deck Mechanism Assembly. Make sure the power is on, connect TP501 (S-INH) to GND. This will stop the function of Tape Start Sensor, Tape End Sensor and Reel Sensors. (If these TPs are connected before plugging in the unit, the function of the sensors will stay valid.) See Fig. 1.

Note: Because the Tape End Sensors are inactive, do not run a tape all the way to the start or the end of the tape to avoid tape damage.



OPERATING CONTROLS AND FUNCTIONS

Front Panel



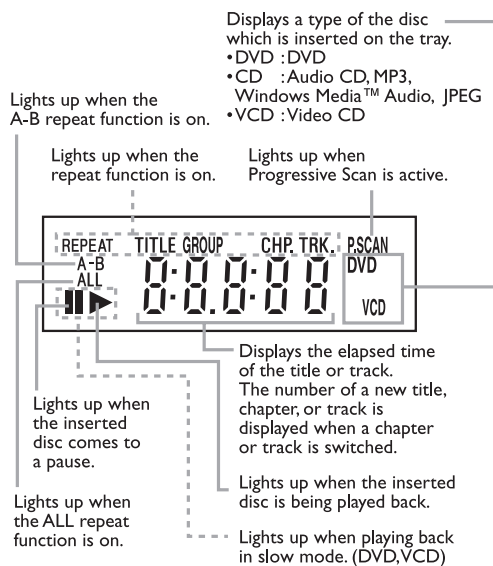
1. **STANDBY-ON** (DVD,VCR)
To switch the unit ON or OFF.
2. **POWER ON light** (DVD,VCR)
Light appears when the unit turns on.
3. **Cassette Compartment** (VCR)
Insert a tape here.
4. **OPEN/CLOSE** (DVD)
To open/close the disc tray.
5. **Disc Tray** (DVD)
Insert a disc here.
6. **PLAY** (DVD)
To start, pause or resume disc playback.
7. **STOP** (DVD)
To stop playback.
8. **DVD light** (DVD)
Light appears when the unit is in DVD mode.
9. **SOURCE** (DVD,VCR)
To select between DVD and VCR mode.
10. **VCR light** (VCR)
Light appears when the unit is in VCR mode.
11. **CHANNEL** (VCR)
To select a programme number on the TV.
12. **IR (Infrared) Remote Sensor** (DVD,VCR)
To receive signals from remote control.

13. **RECORD** (VCR)
Press once to start recording, repeatedly to start an One-Touch Recording.
14. **PLAY** (VCR)
To play a tape.
15. **STOP/EJECT** (VCR)
When playback is stopped, press to eject the tape.
16. **F.FWD**
When tape playback is stopped, press to fast forward the tape at high speed.
During playback, press to fast forward the tape while the picture stays on the screen.
17. **REW**
When tape playback is stopped, press to rewind the tape at high speed.
During playback, press to rewind the tape while the picture stays on the screen.
18. **AUDIO/VIDEO IN jacks**
To connect to AUDIO and VIDEO OUT of an audio source.

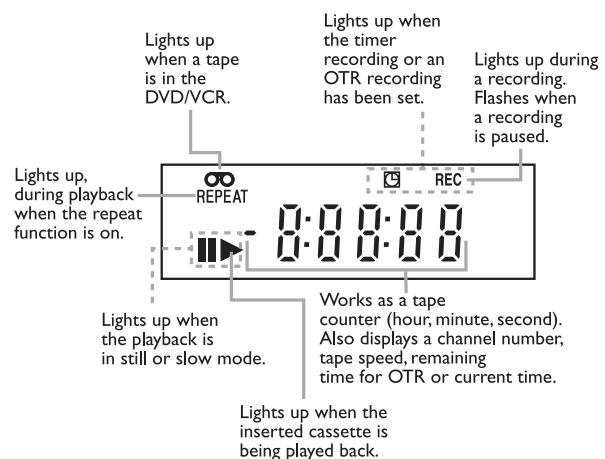
Display Message

	Appears after the disc tray closes if the tray is empty, if there is an error reading the disc, or if an unacceptable disc is installed.
	Tray is opening or is open.
	Tray is closing. This also may appear as the unit tries to load a disc.
	Loading the disc.
	Lights up when the playback control is activated.

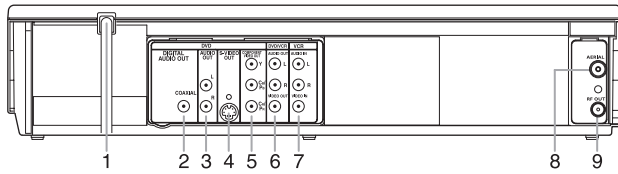
DVD



VCR



Rear Panel



1. AC Power Cord

Connect to a standard AC outlet to supply power to the unit.

2. DVD COAXIAL DIGITAL AUDIO OUT jack (black)

Connect a coaxial digital audio cable (not supplied) here and to a Stereo's Coaxial Digital Audio in jack. This supplies audio for the DVD player only.

3. DVD AUDIO OUT jacks Left (white), Right (red)

Connect the supplied audio cables here and to the Audio in jacks of a TV or Stereo.

These jacks supply audio for the DVD Player only.

Use these if you want a secondary connection between the DVD Player and another TV, etc.

4. DVD S-VIDEO OUT jack

Connect an S-Video cable (not supplied) here and to a TV's S-VIDEO in jack.

This supplies the picture for the DVD player only.

5. DVD COMPONENT VIDEO OUT jacks (Y Cb/Pb Cr/Pr) (green, blue, red)

Connect component video cables (not supplied) here and to the Component Video in jacks of a TV. This supplies the picture for the DVD player only.

6. DVD/VCR AUDIO OUT and VIDEO OUT jacks (red, white, yellow)

Connect the supplied audio and video cables here and to a TV's Audio and Video in jacks.

This supplies sound and picture for both the VCR and the DVD player.

7. VCR AUDIO IN and VIDEO IN jacks

Connect audio and video cables from a camcorder, VCR, etc., here.

This will be useful if you want to copy a video tape or watch material that is playing on other equipment.

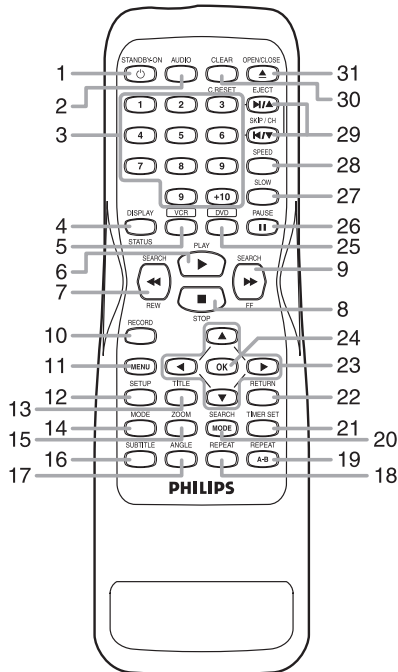
8. AERIAL jack

Connect to an antenna or cable.

9. RF OUT jack

Use supplied RF Coaxial cable to connect to the ANTENNA IN on your TV, cable box or Direct Broadcast System.

Remote Control



1. STANDBY-ON

To switch DVD/VCR ON or OFF.

2. AUDIO

To choose audio languages or sound modes (DVD).

To choose sound modes (VCR).

3. 0-9 numerical key pads/+10

To select numbered items in a menu.

Use +10 button to enter number 10 and above (DVD).

To select TV channels in VCR mode.

4. DISPLAY/STATUS

To access or remove the display screen during DVD or Audio CD playback (DVD).

To access or remove VCR's on-screen status display (VCR).

5. VCR

Press to put the DVD/VCR in VCR mode and before using the remote control for VCR features.

6. PLAY

To start a DVD disc playback (DVD).

To start a tape playback (VCR).

7. SEARCH/REW

To view DVD picture in fast reverse motion (DVD).

When tape playback is stopped, press to rewind the tape at high speed (VCR).

During playback, press to rewind the tape while the picture stays on the screen (VCR).

8. STOP

To stop a DVD disc playback (DVD).

To stop playback, recording (VCR).

9. SEARCH/FF

To view DVD picture in fast forward motion (DVD).

When tape playback is stopped, press to fast forward the tape at high speed (VCR).

During playback, press to fast forward the tape while the picture stays on the screen (VCR).

10. RECORD

To record the TV channel selected at this moment or press repeatedly to start a One-Touch Recording (VCR).

11. MENU

To display the menu of the DVD disc or to access VCR menu.

12. SETUP

Press to access or remove the player's setup menu (DVD).

13. TITLE

To display title menu of a disc (DVD).

14. MODE

To set up programmed or random playback (DVD).

15. ZOOM

To enlarge DVD video image (DVD).

16. SUBTITLE

Subtitle language DVD selector (DVD).

17. ANGLE

To select DVD camera angle (DVD).

18. REPEAT

To repeat chapter, track, title, group, disc (DVD).

19. REPEAT A-B

To repeat a specific segment (DVD).

20. SEARCH MODE

To access or remove search display (DVD).

Press to call up the index or time search menu (VCR).

21. TIMER SET

To put the DVD/VCR into standby mode for a timer recording.

22. RETURN

To RETURN previous or remove setup menu (DVD).

23. ▲/▼/◀/▶ (up/down/left/right)

To select an item in the menu.

24. OK

To acknowledge menu selection (DVD).

25. DVD

Press to put the DVD/VCR in DVD mode and before using the remote control for DVD features.

26. PAUSE II

To pause playback temporarily / frame-by-frame playback (DVD).

To pause playback and during recording temporarily (VCR).

27. SLOW

To view tape playback in slow motion (VCR).

28. SPEED

To change the recording speed (SP or LP) (VCR).

29. SKIP/CH

To skip chapter/tracks (DVD).

To change TV channels (VCR).

To adjust the tracking manually during playback (VCR).

To cancel the point for repeat A-B (DVD).

30. CLEAR/C-RESET

To reset the setting (DVD).

To reset the counter (VCR).

31. OPEN/CLOSE EJECT

To insert discs into or remove them from the tray (DVD).

To remove the tape from the VCR (VCR).

SIGNAL NAME ABBREVIATIONS

Signal Name	Function
-FL	FIP Drive Power Supply
A-COM	Audio Head Common
AUDIO-IN	Audio Signal Input
AUDIO(L)-IN	Audio(L) Signal Input
AUDIO(L)-IN-F	Audio(L) Signal Input (Front)
AUDIO(R)-IN	Audio(R) Signal Input
AUDIO(R)-IN-F	Audio(R) Signal Input (Front)
AUDIO-IN-F	Audio Signal Input (Front)
A-MODE	Hi-Fi Tape Detection Signal
AUDIO(L)-MUTE	Audio Mute(L) Output
AUDIO(R)-MUTE	Audio Mute(R) Output
AUDIO-MUTE-H	Audio Mute Control Signal (Mute = "H")
AUDIO(L)-OUT	Audio(L) Signal Output
AUDIO(R)-OUT	Audio(R) Signal Output
AUDIO-PB/REC	Normal Audio Play Back/Record Signal
AE-H	Audio Erase Head
AFC	Automatic Frequency Control Signal
AL+12V	Always +12V with AC Plug Connected
AL+2.8V	Always +2.8V with AC Plug Connected
AL+4.0V	Always +4.0V with AC Plug Connected
AL+44V	Always +44V with AC Plug Connected
AL+5V	Always +5V with AC Plug Connected
AL-30V	Always -30V with AC Plug Connected
AMPC	CTL AMP Connected Terminal
AMPVcc	AMPVcc
AMPVREF in	V-Ref for CTL AMP
AMPVREF OUT	V-Ref for CTL AMP
AMPVss	AMPVss
ASPECT	DVD Aspect Signal
AUDIO+5V	+5V at Audio Signal
AVcc	A/D Converter Power Input/ Standard Voltage Input
C-CONT	Capstan Motor Control Signal
C-F/R	Capstan Motor FWD/REV Control Signal (FWD="L"/REV="H")

Signal Name	Function
C-FG	Capstan Motor Rotation Detection Pulse
C-ROTA	Color Phase Rotary Changeover Signal
C-SYNC	Composite Synchronized Pulse
CLKSEL	Clock Select (GND)
CTL(+)	Playback/Record Control Signal (+)
CTL(-)	Playback/Record Control Signal (-)
CTLAMP out	To Monitor for CTL AMP Output
D-CONT	Drum Motor Control Signal
D-PFG	Drum Motor Phase/Frequency Generator
D-REC-H	Delayed Record Signal
D-V-SYNC	Dummy V-sync Output
DISPLAY-CLK	VFD Driver IC Control Clock
DISPLAY-DATA	VFD Driver IC Control Data
DISPLAY-STB	VFD Driver IC Chip Select Signal
DRV-CLK	VFD Driver IC Control Clock
DRV-DATA	VFD Driver IC Control Data
DRV-STB	VFD Driver IC Chip Select Signal
DVD-AUDIO(L)	DVD Audio(L) Signal
DVD-AUDIO(R)	DVD Audio(R) Signal
DVD-A(R)-MUTE	DVD Audio(R) Mute Control Signal
DVD-A-MUTE	DVD Audio Mute Control Signal
DVD-AUDIO(L)-OUT	DVD Audio(L) Signal Output
DVD-AUDIO(R)-OUT	DVD Audio(R) Signal Output
DVD-LED	"DVD" LED Signal Output
DVD-OPEN/CLOSE	DVD Open/Close at High
DVD-P-ON+12V	+12V at DVD Power-On Signal
DVD-P-ON+3.3V	+3.3V at DVD Power-On Signal
DVD-P-ON+5V	+5V at DVD Power-On Signal
DVD-PLAY	DVD Play at High
DVD-POWER	DVD Power Control Signal
DVD-POWER-MONITOR	DVD Power Monitor Signal (P-off="L", P-on="H")
DVD-STOP	DVD Stop at High
DVD-VIDEO	DVD Video Control Signal
END-S	Tape End Position Detect Signal
EV+1.2V	+1.2V Power Supply

Signal Name	Function
EV+11V	+11V Power Supply
EV+3.3V	+3.3V Power Supply
F1	Filament Power Supply 1
F2	Filament Power Supply 2
FE-H	Full Erase Head
FP-CLK	Clock Input
FP-DIN	Serial Data Input
FP-DOUT	Serial Data Output
FP-STB	Serial Interface Strobe
FSC-IN [4.43MHz]	4.43MHz Clock Input
H-A-COMP	Head Amp Comparator Signal
H-A-SW	Video Head Amp Switching Pulse
Hi-Fi-AUDIO(L)	Hi-Fi Audio(L) Head
Hi-Fi-AUDIO(R)	Hi-Fi Audio(R) Head
Hi-Fi-COM	Hi-Fi Audio Head Common
Hi-Fi-H-SW	HiFi Audio Head Switching Pulse
HLF	LPF Connected Terminal (Slicer)
I/P-SW	Interlace/Progressive Switching Signal
IIC-BUS-SCL	IIC BUS Control Clock
IIC-BUS-SDA	IIC BUS Control Data
INPUT-SELECT	Input Selector Control Signal
KEY-1	Key Scan Input Signal 1
KEY-2	Key Scan Input Signal 2
LD-SW	Deck Mode Position Detector Signal
LM-FWD/REV	Loading Motor Control Signal
MOD-A	Modulator Audio Output Signal
MOD-V	Modulator Video Output Signal
N-A-PB	Normal Audio Playback
N-A-REC	Normal Audio Recording
OSC	Oscillator Input
OSCIin	Clock Input for letter size
OSCOout	Clock Output for letter size
OSD-V-IN	OSD Video Signal Input
OSD-V-OUT	OSD Video Signal Output
OSDVcc	OSDVcc
OUTPUT-SELECT	Output Select
P-DOWN-H	Power Voltage Down Detector Signal
P-ON+15V	+15V at Power-On Signal
P-ON+3.3V	+3.3V at Power-On Signal
P-ON+44V	+44V at Power-On Signal
P-ON+5V	+5V at Power-On Signal
P-ON+9V	+5V at Power-On Signal

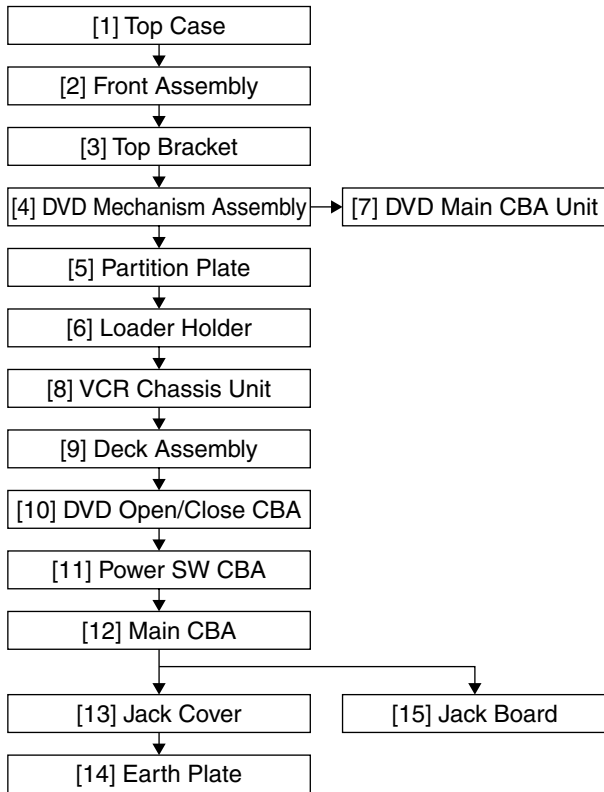
Signal Name	Function
P-ON-H	Power On Signal at High
P61/LP	P61/LP
P80/C	P80/C Terminal
PG-DELAY	Video Head Switching Pulse Signal Adjusted Voltage
POW-SAF	P-ON Power Detection Input Signal
POWER-LED	"POWER" LED Signal Output
PWRCON-IN	Power Down
REC-LED	"REC" LED Signal Output
REC-SAF-SW	Recording Safety SW Detect (With Record tab="L"/ With out Record tab="H")
REMOCON	Remote Control Sensor
REMOTE-DVD	DVD Remote Control Sensor
REMOTE-VIDEO	Remote Control Sensor
RESET	System Reset Signal (Reset="L")
RF-SW	Video Head Switching Pulse
SIF	Source Input Format
SPDIF	Digital Audio Interface Format Signal
ST-S	Tape Start Position Detector Signal
T-REEL	Take Up Reel Rotation Signal
TIMER+5V	+5V at Timer
TIMER-LED	"TIMER" LED Signal Output
TU-AUDIO	Tuner Audio Input Signal
TU-AUDIO(L)	Tuner Audio(L) Input Signal
TU-AUDIO(R)	Tuner Audio(R) Input Signal
TU-VIDEO	Tuner Video Input Signal
TUNER(TUN)-SW1	Tuner System Control Signal Output
TUNER(TUN)-SW2	Tuner System Control Signal Output
VIDEO(L)	Video L Head
VIDEO(R)	Video R Head
VIDEO-COM	Video Head Common
V-ENV	Video Envelope Comparator Signal
VIDEO-IN	Video Signal Input
VIDEO-IN(L)	Video(L-ch) Signal Input
VIDEO-IN(R)	Video(R-ch) Signal Input
V-OUT	Video Signal Output
Vcc	Vcc
VCR-LED	"VCR" LED Signal Output
VDD	Power Supply
VEE	Pull Down Level
VIDEO-C	Component Video (Chrominance) Signal
VIDEO-Cb/Pb	Component Video (Cb/Pb) Signal
VIDEO-Cr/Pr	Component Video (Cr/Pr) Signal

Signal Name	Function
VIDEO-Y(I)	Component Video (Luminance) Signal (Interlace)
VIDEO-Y(I/P)	Component Video (Luminance) Signal (Interlace/Progressive)
VSS	GND
XCin	Sub Clock
XCOUT	Sub Clock
Xin	Main Clock Input
Xout	Main Clock Input

CABINET DISASSEMBLY INSTRUCTIONS

1. Disassembly Flowchart

This flowchart indicates the disassembly steps to gain access to item(s) to be serviced. When reassembling, follow the steps in reverse order. Bend, route, and dress the cables as they were originally.



2. Disassembly Method

ID/ LOC. No.	PART	REMOVAL		
		Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	Note
[1]	Top Case	D1	7(S-1)	-
[2]	Front Assembly	D2	*3(L-1), *3(L-2)	1 1-1 1-2
[3]	Top Bracket	D2	3(S-2)	-
[4]	DVD Mechanism Assembly	D3	4(S-3), *CN401, *CN601	-
[5]	Partition Plate	D3	2(S-4)	-
[6]	Loader Holder	D3	2(S-5)	-

ID/ LOC. No.	PART	REMOVAL		
		Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	Note
[7]	DVD Main CBA Unit	D4	2(S-6), *CN201, *CN301	2 2-1 2-2 3
[8]	VCR Chassis Unit	D5	5(S-7), 3(S-8), 2(S-9)	-
[9]	Deck Assembly	D6	Desolder, (S-10), (S-11)	4,5
[10]	DVD Open/ Close CBA	D6	Desolder	-
[11]	Power SW CBA	D6	Desolder	-
[12]	Main CBA	D6	-----	-
[13]	Jack Cover	D6	(S-12)	-
[14]	Earth Plate	D6	-----	-
[15]	Jack Board	D6	(S-13)	-

↓ (1) ↓ (2) ↓ (3) ↓ (4) ↓ (5)

Note:

- (1): Identification (location) No. of parts in the figures
- (2): Name of the part
- (3): Figure Number for reference
- (4): Identification of parts to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.
P=Spring, L=Locking Tab, S=Screw, CN=Connector
*=Unhook, Unlock, Release, Unplug, or Desolder
e.g. 2(S-2) = two Screws (S-2),
2(L-2) = two Locking Tabs (L-2)
- (5): Refer to "Reference Notes."

Reference Notes

CAUTION 1: Locking Tabs (L-1) and (L-2) are fragile. Be careful not to break them.

1-1. Release three Locking Tabs (L-1).

1-2. Release three Locking Tabs (L-2), then remove the Front Assembly.

CAUTION 2: Electrostatic breakdown of the laser diode in the optical system block may occur as a potential difference caused by electrostatic charge accumulated on cloth, human body etc, during unpacking or repair work.

To avoid damage of pickup follow next procedures.

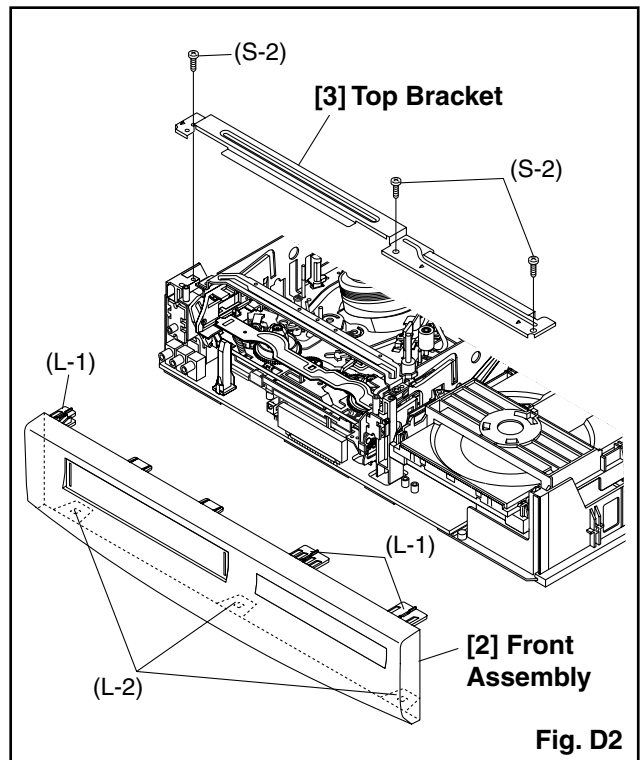
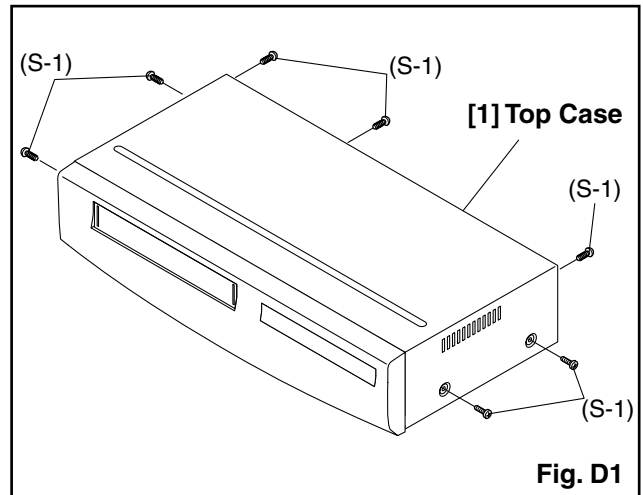
2-1. Disconnect Connector (CN301). Remove two Screws (S-6) and lift the DVD Main CBA Unit. (Fig. D4)

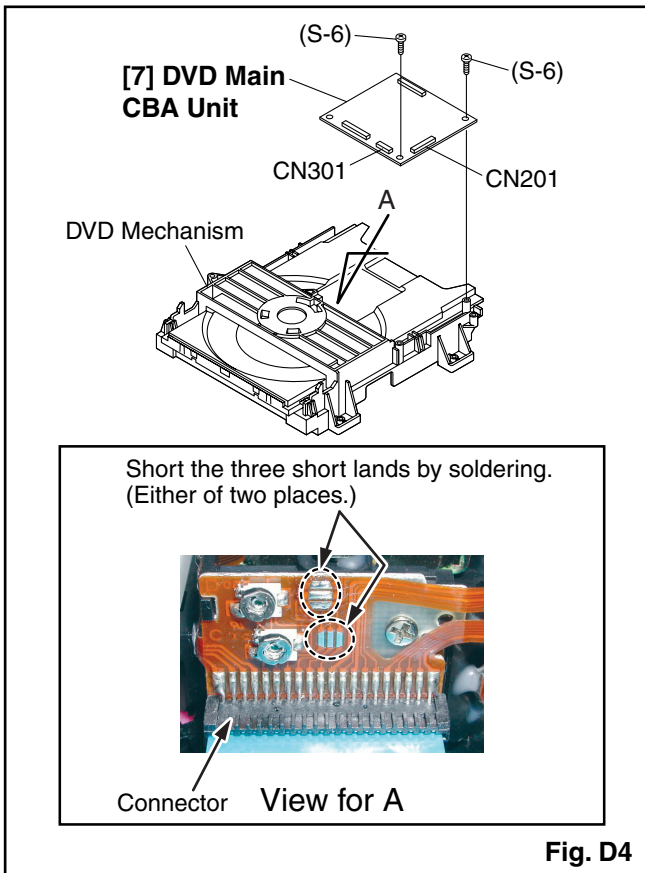
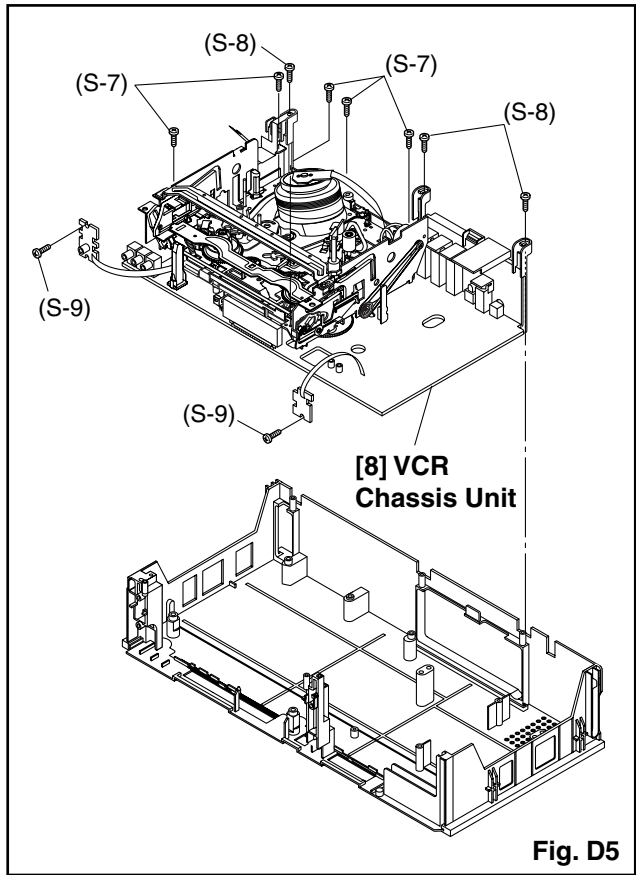
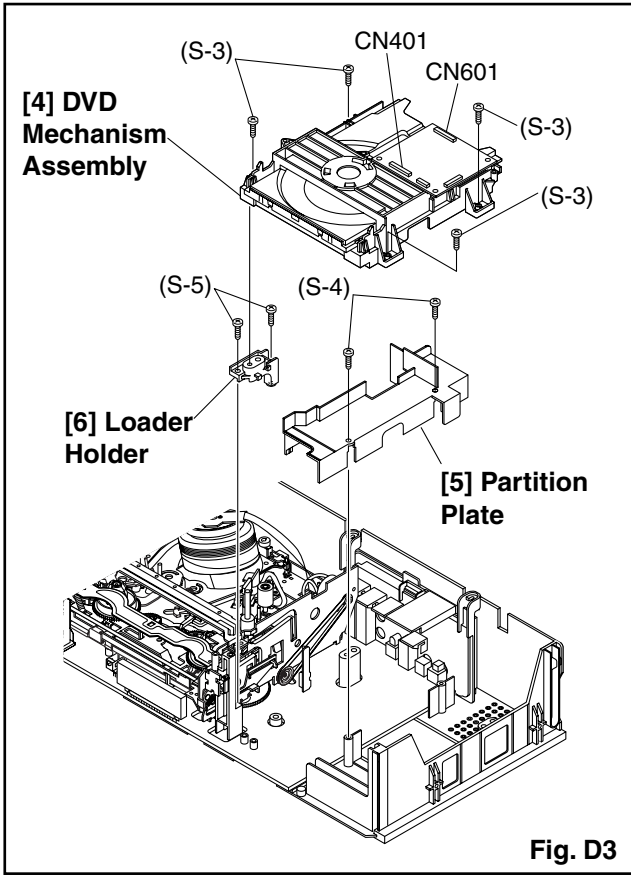
2-2. Short the three short lands of FPC cable with solder before removing the FFC cable (CN201) from it. If you disconnect the FFC cable (CN201), the laser diode of pickup will be destroyed. (Fig. D4)

CAUTION 3: When reassembling, confirm the FFC cable (CN201) is connected completely. Then remove the solder from the three short lands of FPC cable. (Fig. D4)

4. When reassembling, solder wire jumpers as shown in Fig. D6.

5. Before installing the Deck Assembly, be sure to place the pin of LD-SW on Main CBA as shown in Fig. D6. Then, install the Deck Assembly while aligning the hole of Cam Gear with the pin of LD-SW, the shaft of Cam Gear with the hole of LD-SW as shown in Fig. D6.





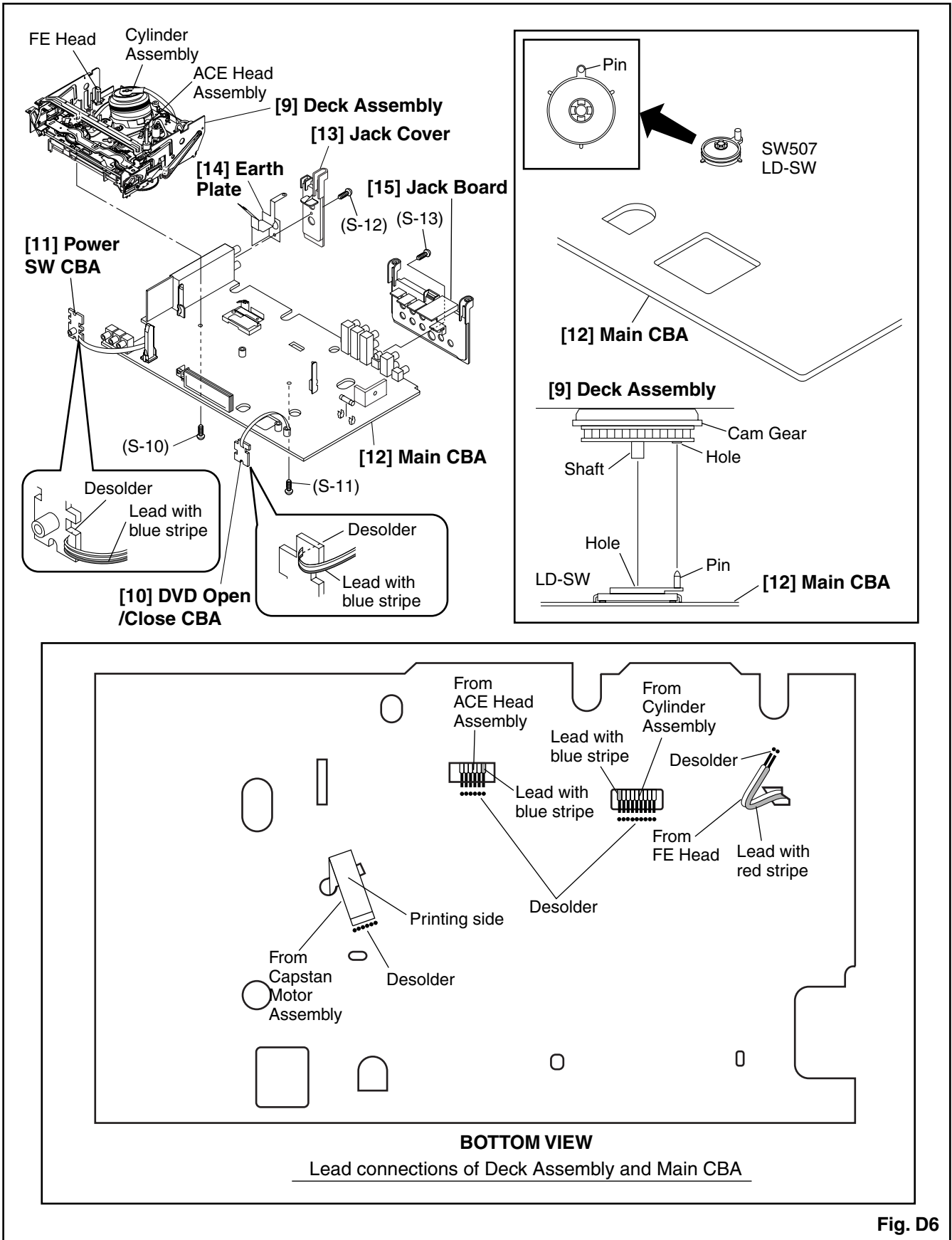
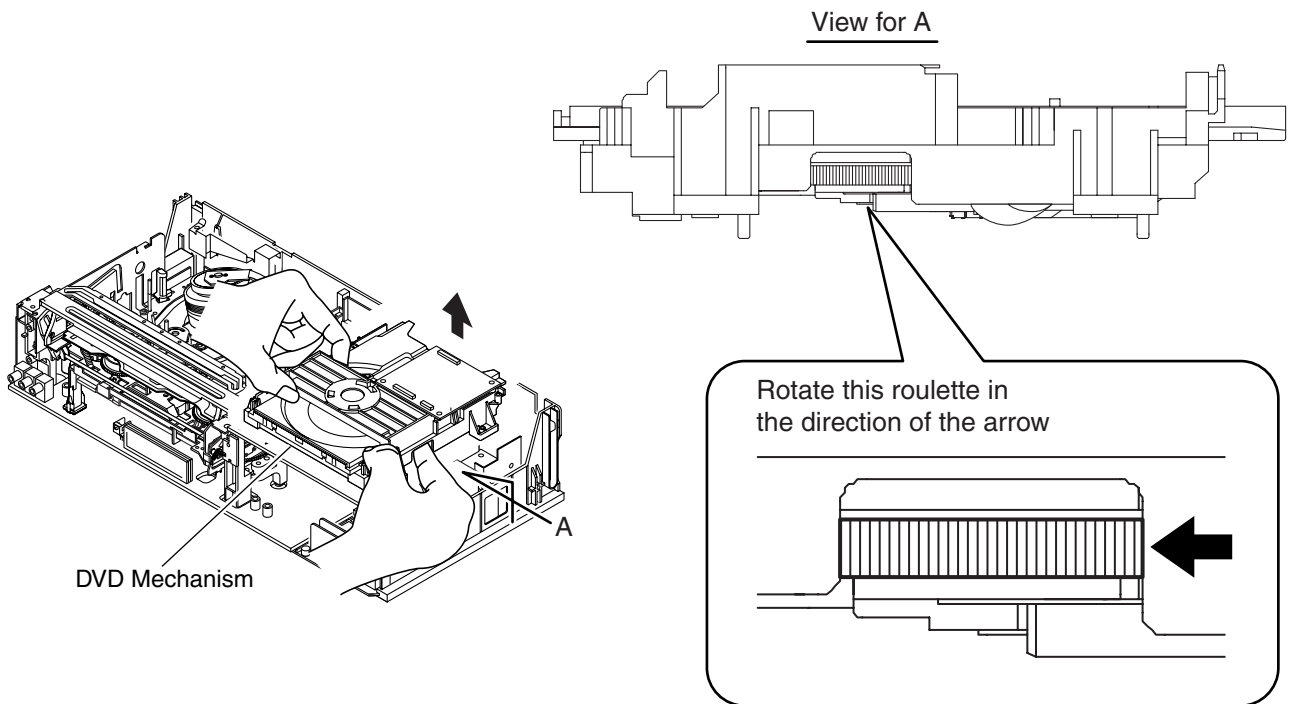


Fig. D6

HOW TO EJECT MANUALLY

1. Remove the Top Case, Front Assembly and Top Bracket.
2. Remove four Screws (S-3) in Fig. D3. Do not disconnect connectors.
3. While lifting up the DVD Mechanism, rotate the roulette in the direction of the arrow as shown below.
4. Pull the tray slowly manually.



ELECTRICAL ADJUSTMENT INSTRUCTIONS

General Note: "CBA" is an abbreviation for "Circuit Board Assembly."

NOTE:

1. Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to do these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipment is available.
2. To perform these alignment / confirmation procedures, make sure that the tracking control is set in the center position: Press either "CHANNEL ▼" or "CHANNEL ▲" button on the front panel first, then the "PLAY" button on the front panel.

Test Equipment Required

1. Oscilloscope: Dual-trace with 10:1 probe,
V-Range: 0.001~50V/Div.,
F-Range: DC~AC-20MHz
2. Alignment Tape (9965 000 14514)

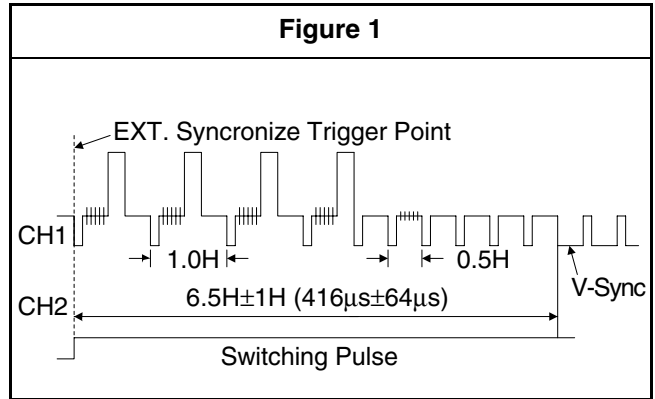
Head Switching Position Adjustment

Purpose:

To determine the Head Switching position during playback.

Symptom of Misadjustment:

May cause Head Switching noise or vertical jitter in the picture.

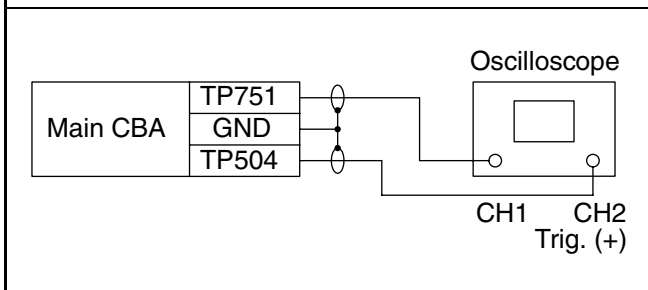


Reference Notes:

Playback the Alignment tape and adjust VR501 so that the V-sync front edge of the CH1 video output waveform is at the 6.5H±1H (416µs±64µs) delayed position from the rising edge of the CH2 head switching pulse waveform.

Test point	Adj. Point	Mode	Input
TP751(V-OUT) TP504(RF-SW) GND	VR501 (Switching Point) (MAIN CBA)	PLAY (SP)	----
Tape	Measurement Equipment	Spec.	
9965 000 14514	Oscilloscope	6.5H±1H (416µs±64µs)	

Connections of Measurement Equipment



HOW TO INITIALIZE THE DVD PLAYER & VCR

To put the program back at the factory-default, initialize the DVD player & VCR as the following procedure.

< DVD Section >

1. Press [DVD], [1], [2], [3], [4], and [DISPLAY/STATUS] buttons on the remote control unit in that order.

Fig. a appears on the screen.

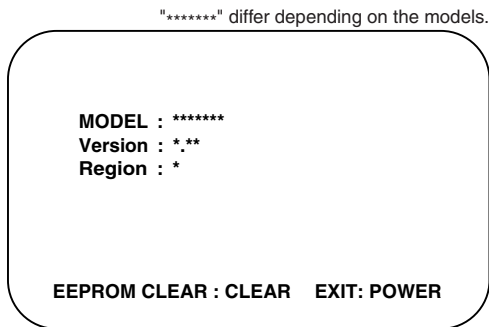


Fig. a

2. Press [CLEAR/C-RESET] button on the remote control unit.

Fig. b appears on the screen.

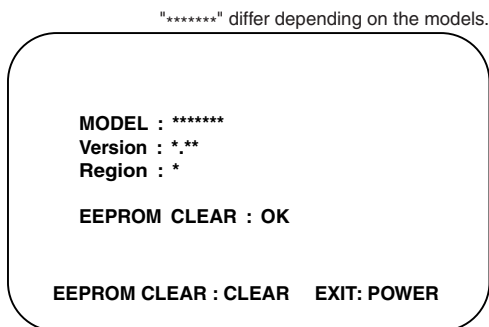


Fig. b

When "OK" appears on the screen, the factory default will be set.

3. To exit this mode, press [STANDBY-ON] button.

FIRMWARE RENEWAL MODE

1. Turn the power on and remove the disc on the tray.
2. To put the DVD player into version up mode, press [DVD], [9], [8], [7], [6], and [SEARCH MODE] buttons on the remote control unit in that order. The tray will open automatically. Fig. a appears on the screen and Fig. b appears on the VFD.

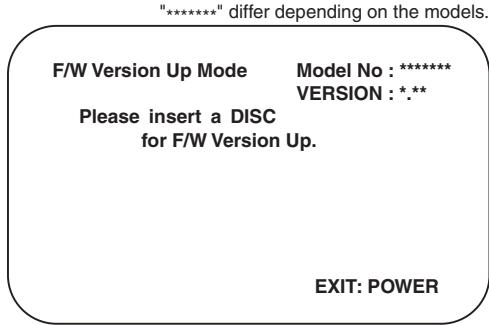


Fig. a Version Up Mode Screen

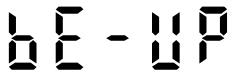


Fig. b VFD in Version Up Mode

The DVD player can also enter the version up mode with the tray open. In this case, Fig. a will be shown on the screen while the tray is open.

3. Load the disc for version up.
4. The DVD player enters the F/W version up mode automatically. Fig. c appears on the screen and Fig. d appears on the VFD. If you enter the F/W for different models, "Disc Error" will appear on the screen, then the tray will open automatically.

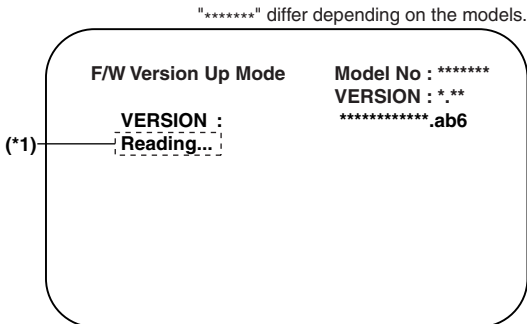


Fig. c Programming Mode Screen



Fig. d VFD in Programming Mode (Example)

The appearance shown in (*1) of Fig. c is described as follows:

No.	Appearance	State
1	Reading...	Sending files into the memory
2	Erasing...	Erasing previous version data
3	Programming...	Writing new version data

5. After programming is finished, the tray opens automatically. Fig. e appears on the screen and the checksum in (*2) of Fig. e appears on the VFD (Fig. f).

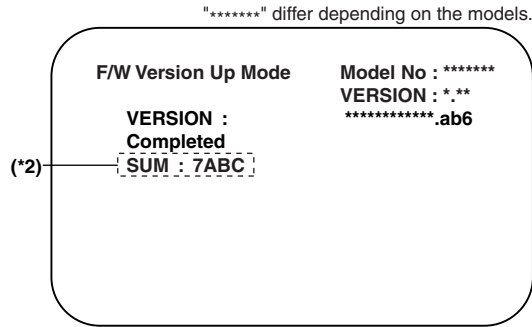


Fig. e Completed Program Mode Screen



Fig. f VFD upon Finishing the Programming Mode (Example)

At this time, no button is available.

6. Remove the disc on the tray.
7. Unplug the AC cord from the AC outlet. Then plug it again.
8. Turn the power on by pressing the [STANDBY-ON] button and the tray will close.
9. Press [DVD], [1], [2], [3], [4], and [DISPLAY/STATUS] buttons on the remote control unit in that order. Fig. g appears on the screen.

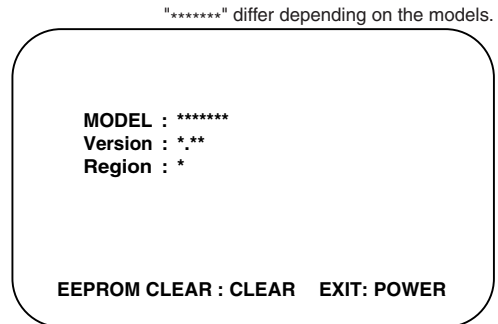


Fig. g

10. Press [CLEAR/C-RESET] button on the remote control unit.

Fig. h appears on the screen.

"*****" differ depending on the models.

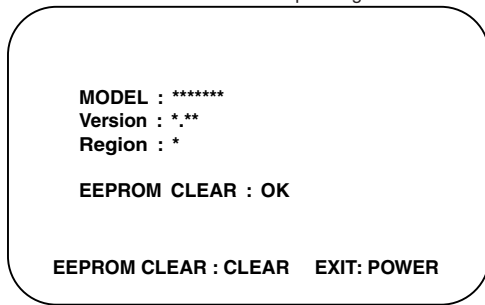


Fig. h

When "OK" appears on the screen, the factory default will be set. Then the firmware renewal mode is complete.

11. To exit this mode, press [STANDBY-ON] button.

BLOCK DIAGRAMS <VCR SECTION>

Servo / System Control Block Diagram

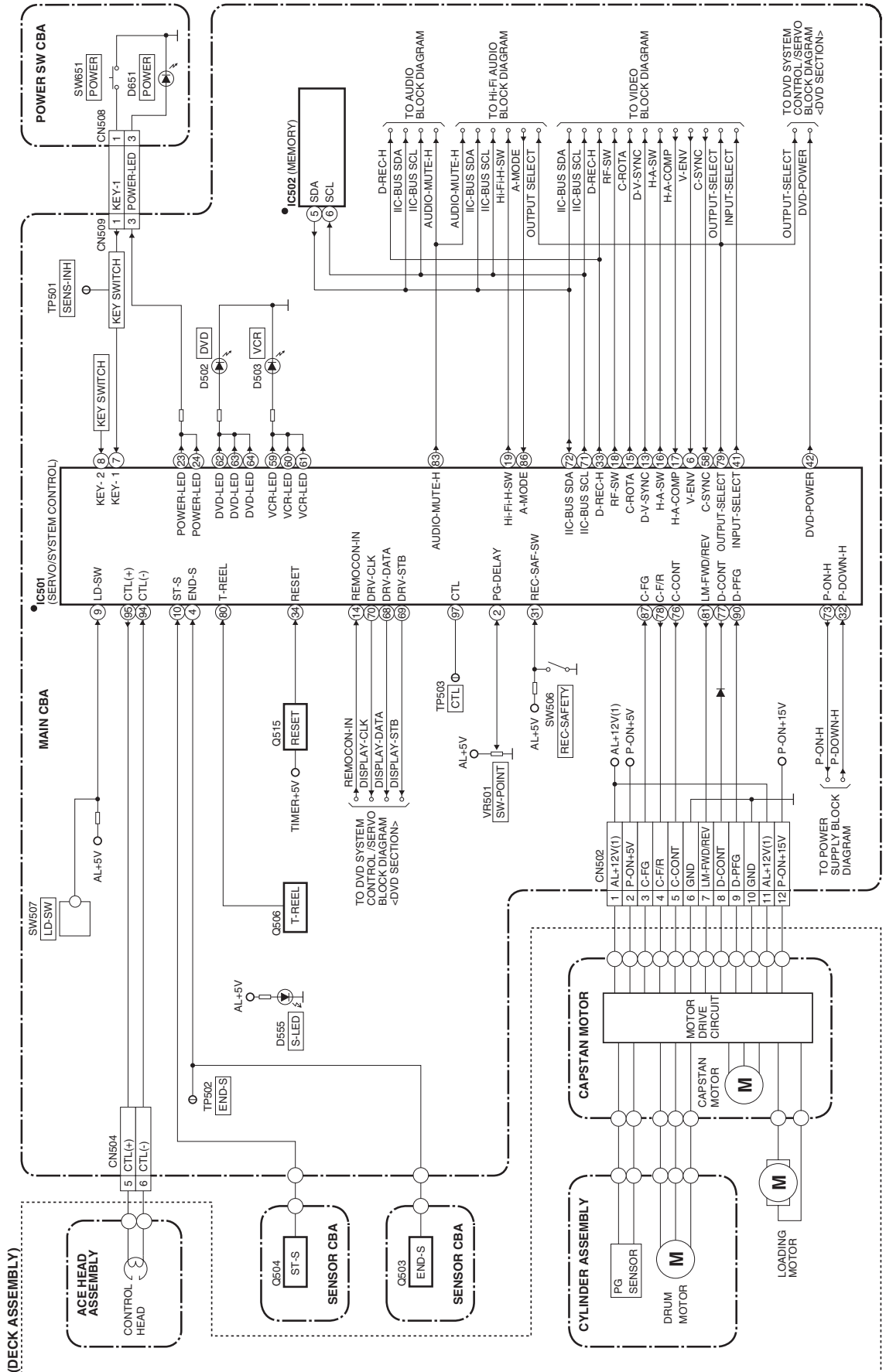
● = SMD

NOTE FOR WIRE CONNECTORS:

1. PREFIX SYMBOL "CN" MEANS CONNECTOR. (CAN DISCONNECT AND RECONNECT)
2. PREFIX SYMBOL "CL" MEANS WIRE-SOLDER HOLES OF THE PCB. (WIRE IS SOLDERED DIRECTLY.)

TEST POINT INFORMATION

- ① INDICATES A TEST POINT WITH A JUMPER WIRE ACROSS A HOLE IN THE PCB.
- ② USED TO INDICATE A TEST POINT WITH A COMPONENT LEAD ON FOIL SIDE.
- ③ USED TO INDICATE A TEST POINT WITH NO TEST PIN.
- ④ USED TO INDICATE A TEST POINT WITH A TEST PIN.



Video Block Diagram

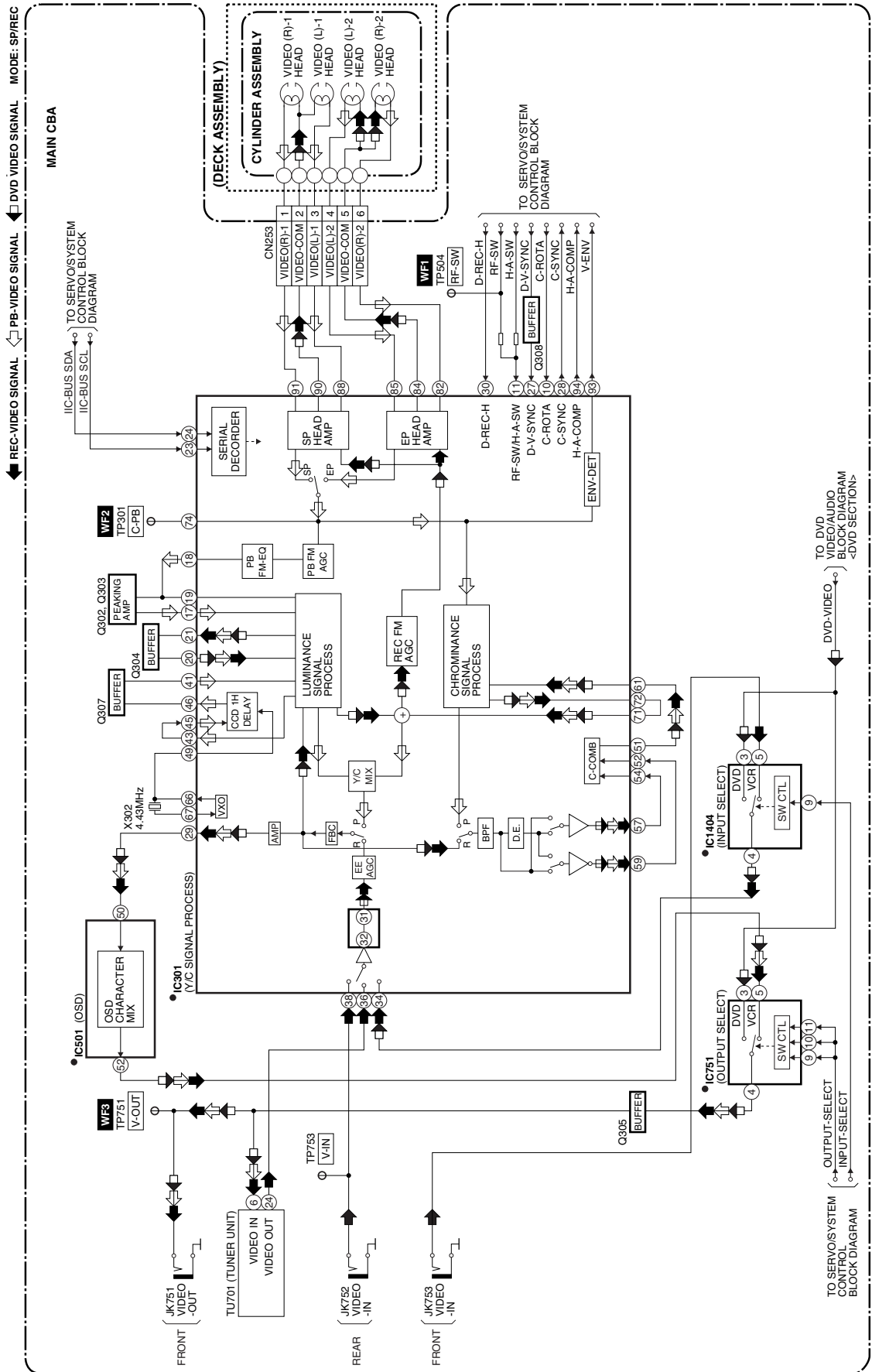
*● = SMD

NOTE FOR WIRE CONNECTORS:

1. PREFIX SYMBOL "CN" MEANS CONNECTOR. (CAN DISCONNECT AND RECONNECT).
2. PREFIX SYMBOL "CL" MEANS WIRE-SOLDER HOLES OF THE PCB. (WIRE IS SOLDERED DIRECTLY).

TEST POINT INFORMATION

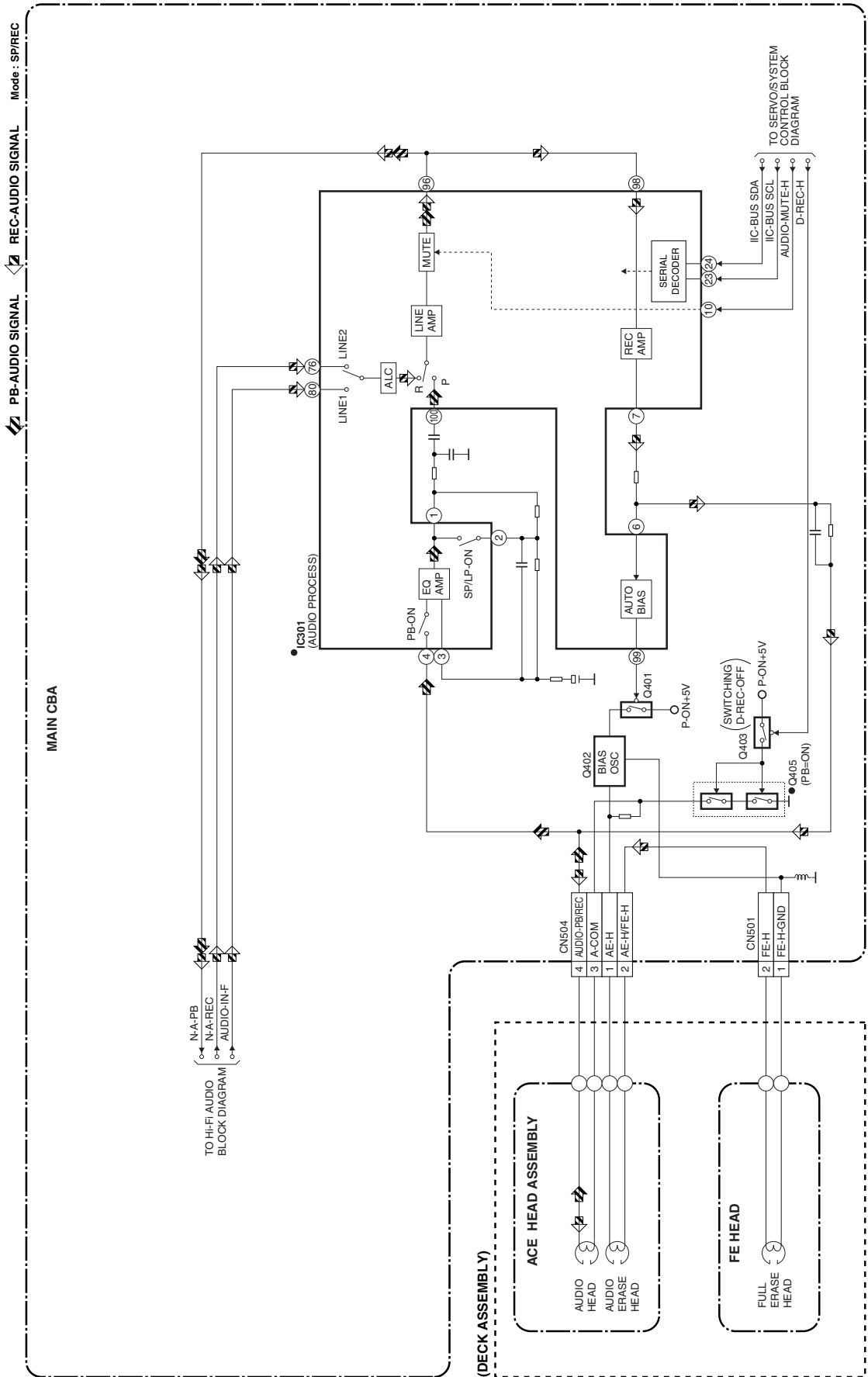
- :INDICATES A TEST POINT WITH A JUMPER WIRE ACROSS A HOLE IN THE PCB.
- ◻ :USED TO INDICATE A TEST POINT WITH A COMPONENT LEAD ON FOIL SIDE.
- ⊙ :USED TO INDICATE A TEST POINT WITH NO TEST PIN.
- :USED TO INDICATE A TEST POINT WITH A TEST PIN.



Audio Block Diagram

* = SMD

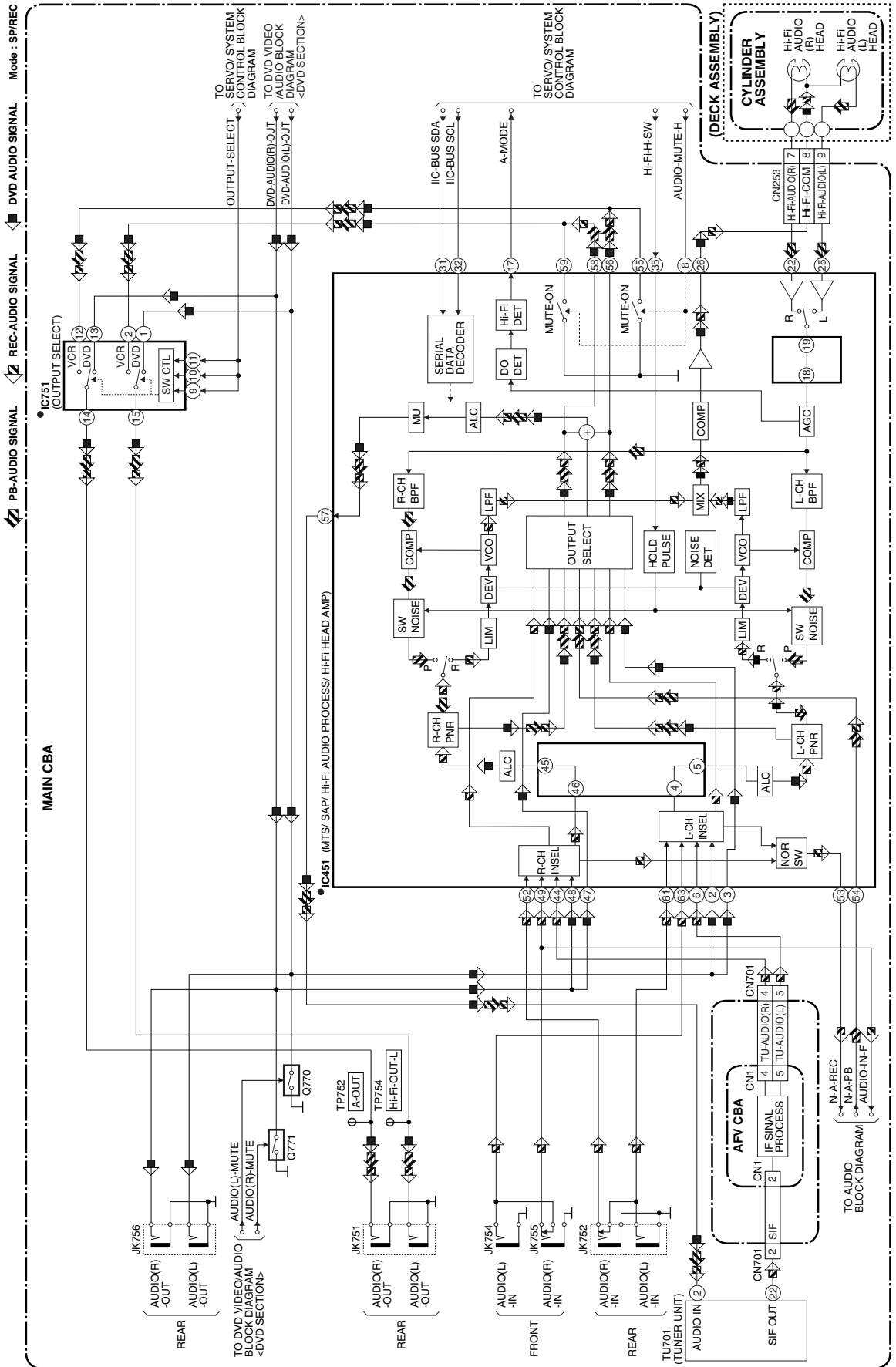
NOTE FOR WIRE CONNECTORS:
 1. PREFIX SYMBOL 'CN' MEANS CONNECTOR.
 (CAN DISCONNECT AND RECONNECT.)
 2. PREFIX SYMBOL 'CL' MEANS WIRE-SOLDER
 HOLES OF THE PCB.
 (WIRE IS SOLDERED DIRECTLY.)



Hi-Fi Audio Block Diagram

* = SMD

NOTE FOR WIRE CONNECTORS:
 1. PREFIX SYMBOL 'CN' MEANS CONNECTOR.
 (GAIN/DISCONNECT AND RECONNECT)
 2. PREFIX SYMBOL 'CL' MEANS WIRE-SOLDER
 HOLES OF THE PCB.
 (WIRE IS SOLDERED DIRECTLY.)



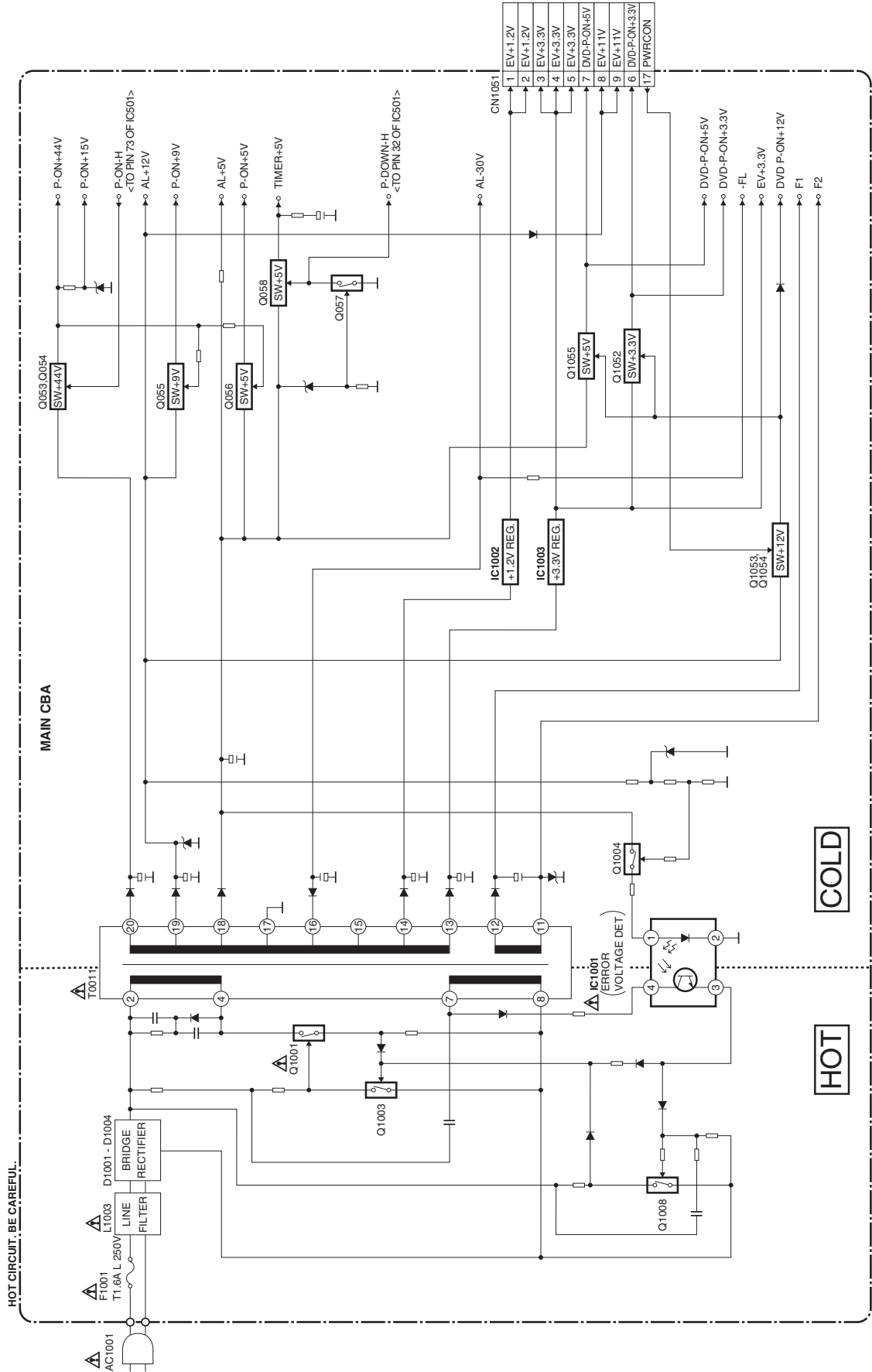
Power Supply Block Diagram

CAUTION !
For continued protection against fire hazard, replace only with the same type fuse.

NOTE:
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

CAUTION !
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit. If Main Fuse (F1001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

NOTE FOR WIRE CONNECTORS:
1. PREFIX SYMBOL "CN" MEANS CONNECTOR. (CAN DISCONNECT AND RECONNECT).
2. PREFIX SYMBOL "CL" MEANS WIRE-SOLDER HOLES OF THE PCB. (WIRE IS SOLDERED DIRECTLY.)



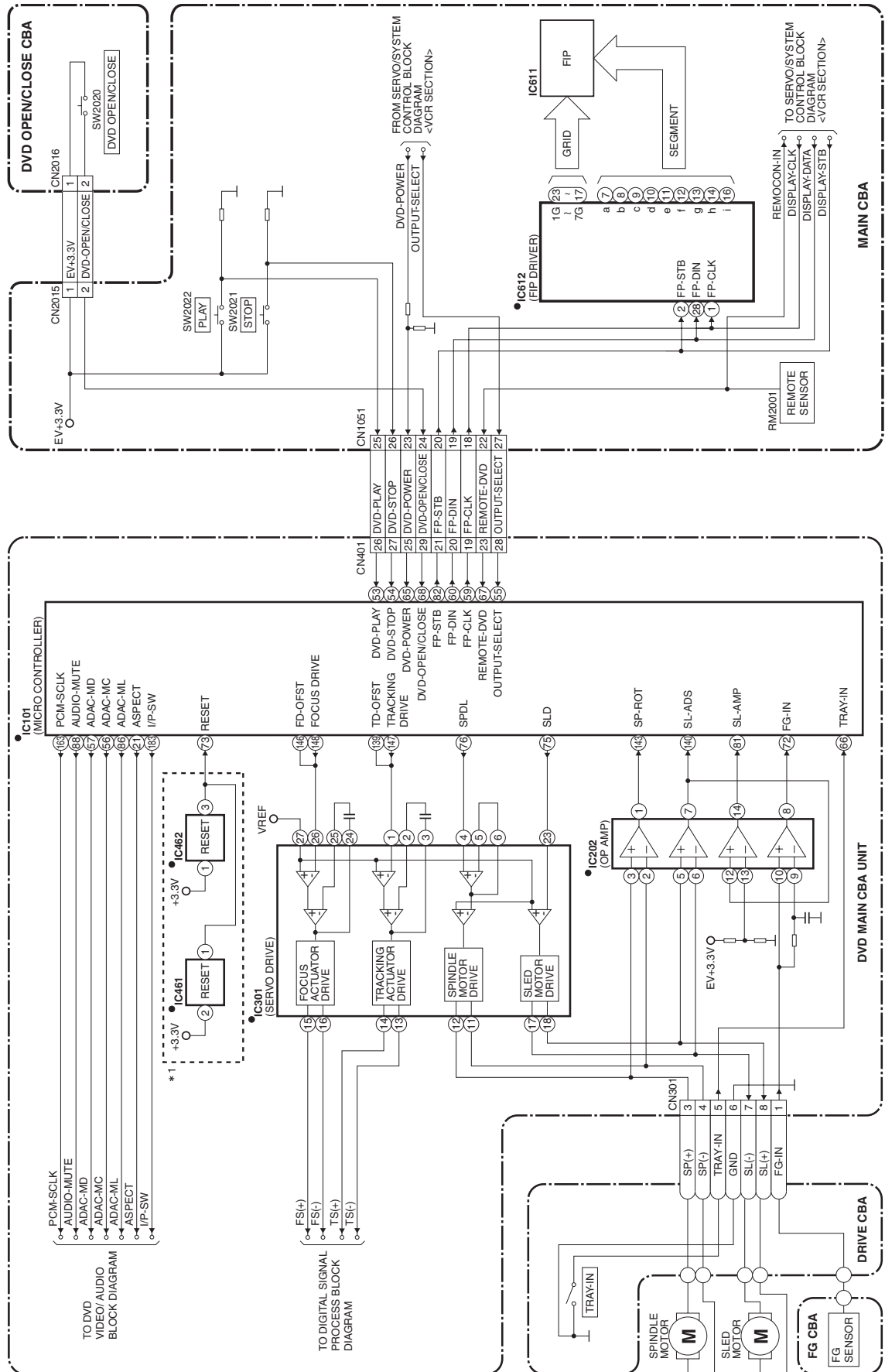
BLOCK DIAGRAMS <DVD SECTION>

DVD System Control / Servo Block Diagram

NOTE FOR WIRE CONNECTORS:
 1. PREFIX SYMBOL "CN" MEANS CONNECTOR.
 (CAN DISCONNECT AND RECONNECT).
 2. PREFIX SYMBOL "CL" MEANS WIRE-SOLDER
 HOLES OF THE PCB.
 (WIRE IS SOLDERED DIRECTLY.)

*• = SMD

*1 NOTE:
 Either IC461 or IC462 is used for DVD MAIN CBA UNIT.

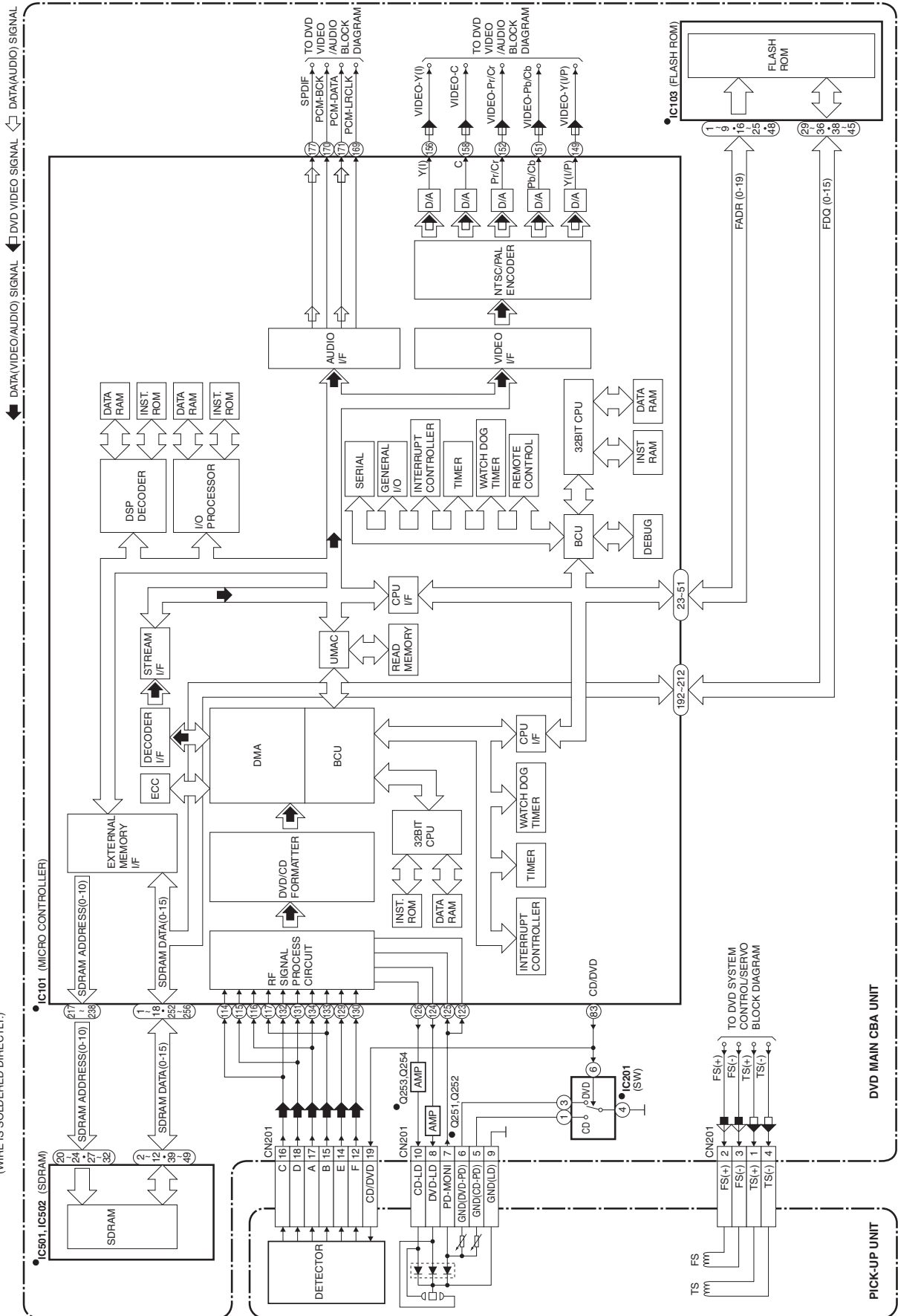


Digital Signal Process Block Diagram

• = SMD

NOTE FOR WIRE CONNECTORS:

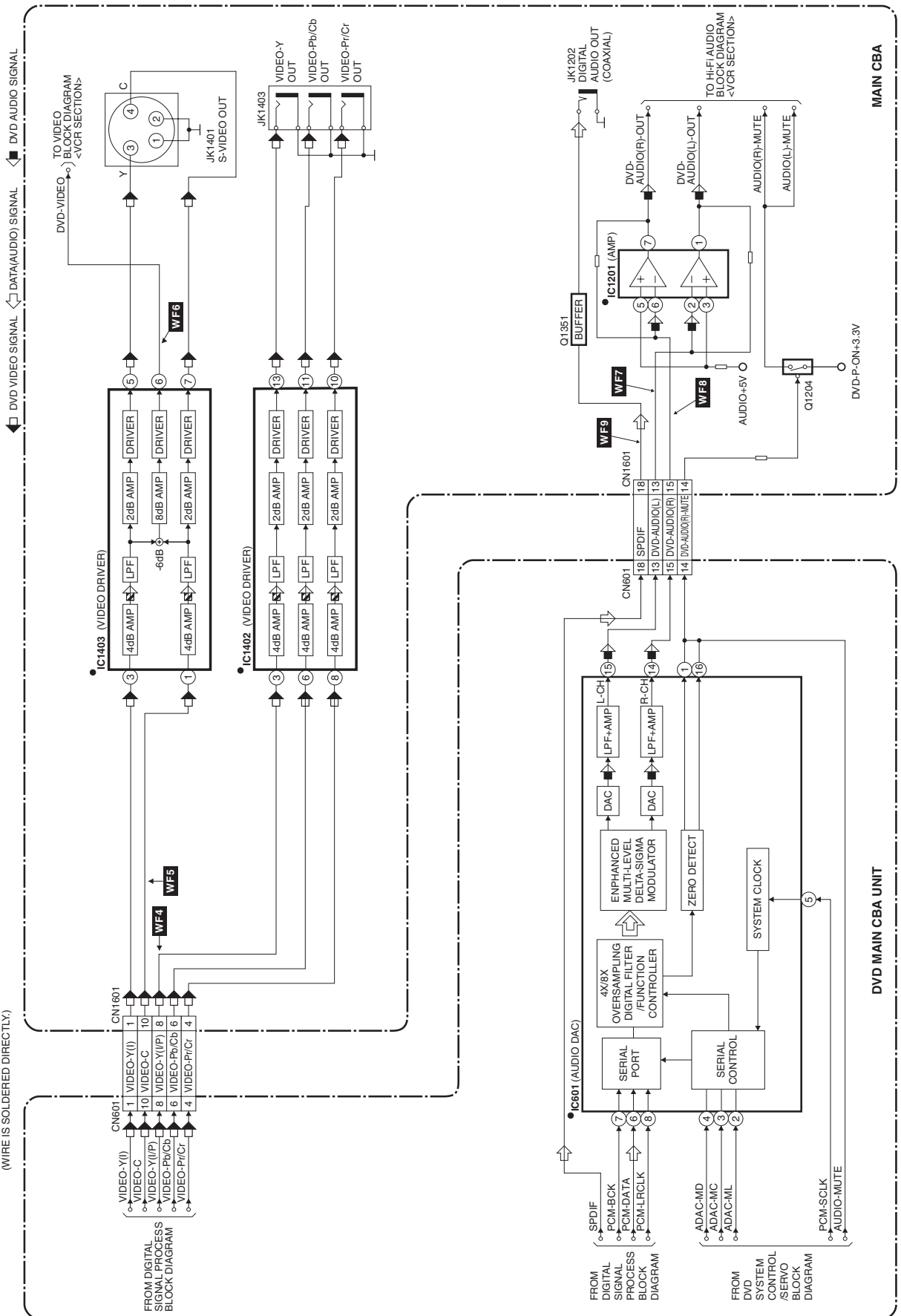
1. PREFIX SYMBOL "CN" MEANS CONNECTOR. (CAN DISCONNECT AND RECONNECT)
2. PREFIX SYMBOL "CL" MEANS WIRE-SOLDER HOLES OF THE PCB. (WIRE IS SOLDERED DIRECTLY.)



DVD Video / Audio Block Diagram

NOTE FOR WIRE CONNECTORS:
 1. PREFIX SYMBOL "CN" MEANS CONNECTOR.
 (CAN DISCONNECT AND RECONNECT).
 2. PREFIX SYMBOL "C." MEANS WIRE-SOLDER
 HOLES OF THE PCB.
 (WIRE IS SOLDERED DIRECTLY).

● = SMD



SCHEMATIC DIAGRAMS / CBA'S AND TEST POINTS

Standard Notes

WARNING

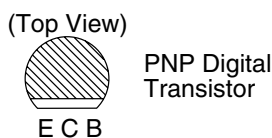
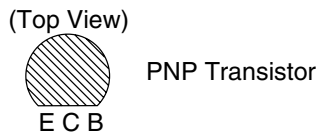
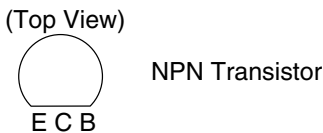
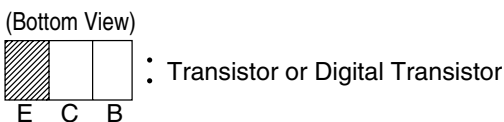
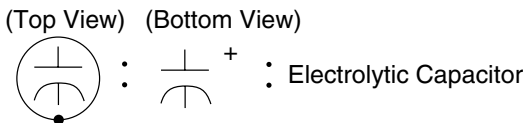
Many electrical and mechanical parts in this chassis have special characteristics. These characteristics often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the mark "⚠" in the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

Capacitor Temperature Markings

Mark	Capacity change rate	Standard temperature	Temperature range
(B)	±10%	20°C	-25~+85°C
(F)	±30 - 80%	20°C	-25~+85°C
(SR)	±15%	20°C	-25~+85°C
(Y)	±22.5%	20°C	-25~+85°C

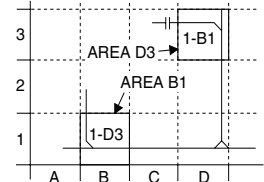
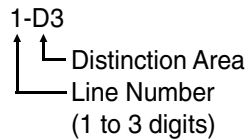
Capacitors and transistors are represented by the following symbols.

< PCB Symbols >



Notes:

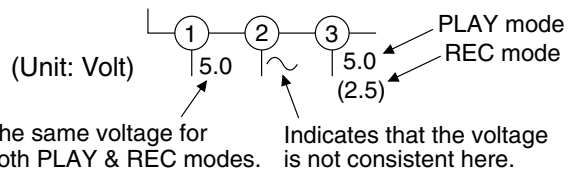
- Do not use the part number shown on these drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since these drawings were prepared.
- To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.
- How to read converged lines.



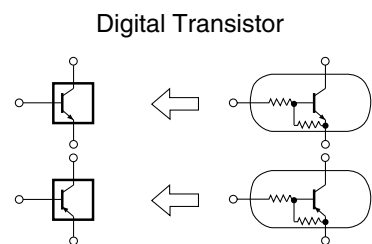
Examples:

- "1-D3" means that line number "1" goes to the line number "1" of the area "D3".
- "1-B1" means that line number "1" goes to the line number "1" of the area "B1".

- All resistance values are indicated in ohms ($K=10^3$, $M=10^6$).
- Resistor wattages are 1/4W or 1/6W unless otherwise specified.
- All capacitance values are indicated in μF ($P=10^{-6} \mu F$).
- All voltages are DC voltages unless otherwise specified.
- Voltage indications for PLAY and REC modes on the schematics are as shown below.



< Schematic Diagram Symbols >



Main 1/8 Schematic Diagram Parts Location Guide < VCR Section >

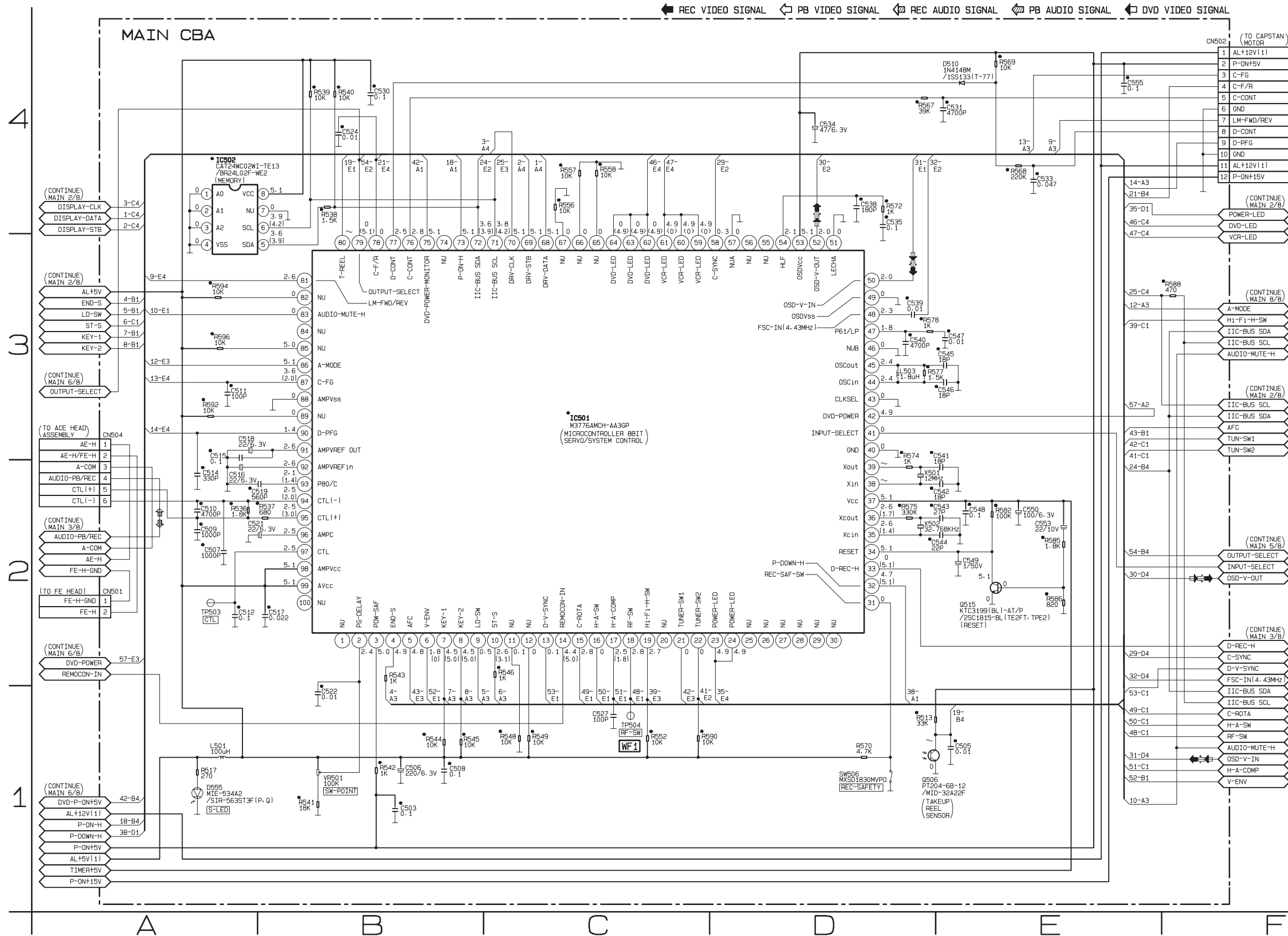
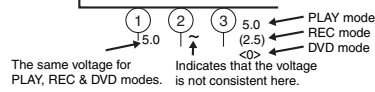
Ref No.	Position	Ref No.	Position
CAPACITORS		COILS	
C503	B-1	L503	D-3
C505	E-1	TRANSISTORS	
C506	B-1	Q506	D-1
C507	A-2	Q515	E-2
C508	B-1	RESISTORS	
C509	A-2	R513	D-1
C510	A-2	R517	A-1
C511	A-3	R536	A-2
C512	A-2	R537	B-2
C514	A-2	R538	B-4
C515	A-3	R539	B-4
C516	A-2	R540	B-4
C517	B-2	R541	B-1
C518	A-3	R542	B-1
C519	B-2	R543	B-2
C521	B-2	R544	B-1
C522	B-1	R545	B-1
C524	B-4	R546	C-2
C527	C-1	R548	C-1
C530	B-4	R549	C-1
C531	E-4	R552	C-1
C533	E-4	R556	C-4
C534	D-4	R557	C-4
C535	D-4	R558	C-4
C538	D-4	R567	D-4
C539	D-3	R568	E-4
C540	D-3	R569	E-4
C541	E-2	R570	D-1
C542	E-2	R572	D-4
C543	E-2	R574	D-2
C544	E-2	R575	D-2
C545	E-3	R577	D-3
C546	E-3	R578	D-3
C547	E-3	R582	E-2
C548	E-2	R585	E-2
C549	E-2	R586	E-2
C550	E-2	R588	F-3
C553	E-2	R590	C-1
C555	E-4	R592	A-3
CONNECTORS		R594	A-3
CN501	A-2	R596	A-3
CN502	F-4	SWITCH	
CN504	A-3	SW506	D-1
DIODES		VARIABLE RESISTOR	
D510	E-4	VR501	B-1
D555	A-1	CRYSTAL OSCILLATORS	
ICS		X501	D-2
IC501	C-3	X502	D-2
IC502	A-4	TEST POINTS	
COILS		TP503	A-2
L501	A-1	TP504	C-1

Main 1/8 Schematic Diagram < VCR Section >

IC501 KEY VOLTAGE CHART

Pin No. Voltage	KEY 1 (7 PIN)	KEY 2 (8 PIN)
0.00 - 0.51V	REC/OTR	-----
0.51 - 0.92V	-----	STOP/EJECT
0.92 - 1.27V	OUTPUT-SELECT	PLAY
1.27 - 1.61V	-----	REW
1.61 - 1.98V	-----	FF
1.98 - 2.39V	CH-UP	SENS-INH
2.39 - 2.90V	CH-DOWN	-----
2.90 - 3.60V	-----	-----
3.60 - 4.30V	DIRECT DUBBING	-----
4.30 - 5.00V	KEY OFF	KEY OFF

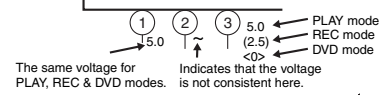
Voltage indications for PLAY, REC and DVD modes on the Schematic Diagrams are as shown below:



Main 2/8, Sensor & Power SW Schematic Diagram < VCR Section >

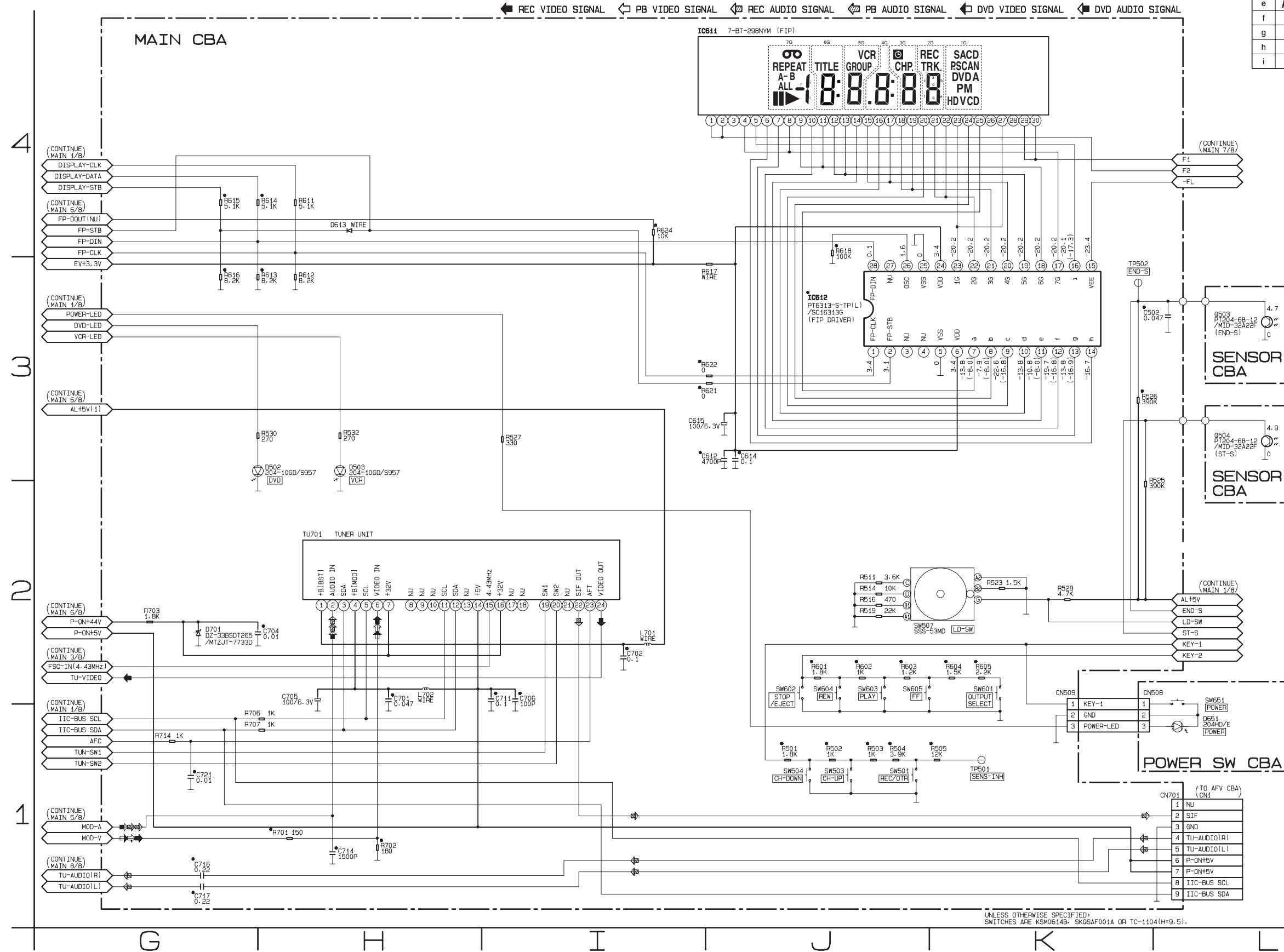
*• = SMD

Voltage indications for PLAY, REC and DVD modes on the Schematic Diagrams are as shown below:



IC611 MATRIX CHART

	7G	6G	5G	4G	3G	2G	1G
a	REPEAT	a	a	a	a	a	SACD PSCAN DVD
b	A-	c	c	c	c	c	DVD A
c	B	d	d	d	d	d	P
d	ALL	e	e	e	e	e	M
e	▶	f	f	f	f	f	HD
f	■	g	g	g	g	g	V
g	■	h	h	h	h	h	CD
h	■	i	i	i	i	i	CD
i	■	i	i	i	i	i	CD



UNLESS OTHERWISE SPECIFIED: SWITCHES ARE KSM0614B, SK05AF001A OR TC-1104(H=9.5).

Main 2/8 Schematic Diagram Parts Location Guide < VCR Section >

Ref No.	Position	Ref No.	Position
CAPACITORS		RESISTORS	
C502	L-3	R527	I-3
C612	J-3	R528	K-2
C614	J-3	R530	H-3
C615	J-3	R532	H-3
C701	H-2	R601	J-2
C702	I-2	R602	J-2
C704	H-2	R603	J-2
C705	H-2	R604	K-2
C706	I-2	R605	K-2
C711	I-2	R611	H-4
C714	H-1	R612	H-3
C716	G-1	R613	H-3
C717	G-1	R614	H-4
C721	G-1	R615	G-4
CONNECTORS		R616	G-3
CN509	K-2	R617	J-3
CN701	L-1	R618	J-4
DIODES		R621	J-3
D502	H-3	R622	J-3
D503	H-3	R624	I-4
D613	H-4	R701	H-1
D701	G-2	R702	H-1
ICS		R703	G-2
IC611	J-4	R706	H-1
IC612	J-3	R707	H-1
COILS		R714	G-1
L701	I-2	SWITCHES	
L702	H-2	SW501	J-1
RESISTORS		SW503	J-1
R501	J-1	SW504	J-1
R502	J-1	SW507	J-2
R503	J-1	SW601	K-2
R504	J-1	SW602	J-2
R505	K-1	SW603	J-2
R511	J-2	SW604	J-2
R514	J-2	SW605	J-2
R516	J-2	MISCELLANEOUS	
R519	J-2	TU701	H-2
R523	K-2	TEST POINTS	
R525	K-2	TP501	K-1
R526	K-3	TP502	K-3

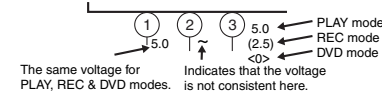
Main 3/8 Schematic Diagram Parts Location Guide < VCR Section >

Ref No.	Position	Ref No.	Position	Ref No.	Position	Ref No.	Position
CAPACITORS		CAPACITORS		COILS		RESISTORS	
C253	N-3	C345	P-4	L304	P-1	R323	Q-1
C255	N-3	C346	P-4	L306	Q-4	R325	Q-4
C256	N-2	C348	O-4	L308	N-1	R327	Q-2
C301	O-1	C349	O-4	L401	N-1	R328	Q-3
C302	O2	C351	O-4	TRANSISTORS		R329	O-2
C303	O-2	C352	O-4	Q301	Q-4	R330	P-1
C304	O-1	C356	O-1	Q302	O-1	R332	O-4
C305	P-1	C361	Q-2	Q303	O-1	R334	P-4
C306	O-1	C362	Q-1	Q304	P-1	R335	O-4
C307	O-1	C401	N-2	Q307	Q-3	R336	O-4
C308	O-1	C402	M-2	Q308	Q-1	R340	Q-1
C309	Q-4	C403	N-2	Q401	N-2	R401	N-2
C310	P-1	C404	N-2	Q402	N-1	R402	N-2
C311	P-1	C405	N-2	Q403	N-1	R403	N-2
C312	P-1	C406	N-2	Q405	M-1	R404	N-2
C313	P-1	C407	N-2	RESISTORS		R405	N-2
C314	P-1	C409	N-2	R253	N-2	R406	N-2
C315	Q-1	C410	M-1	R256	N-2	R408	N-2
C318	Q-2	C411	N-1	R257	N-2	R409	N-2
C319	Q-2	C412	N-1	R302	O-1	R410	M-1
C320	Q-2	C413	O-2	R303	O-2	R414	N-2
C321	Q-2	C414	O-1	R304	O-2	R415	N-2
C323	Q-2	C416	N-4	R305	O-1	R416	N-2
C324	Q-2	C420	N-4	R306	O-1	R417	N-1
C326	Q-2	C421	N-4	R307	O-1	R418	N-1
C328	Q-3	C422	N-4	R308	O-1	R419	O-2
C330	Q-3	C423	N-4	R309	O-1	R420	O-2
C331	Q-3	C424	N-4	R310	O-1	R421	N-4
C332	Q-3	C703	Q-4	R311	O-1	R422	N-4
C333	Q-3	CONNECTOR		R312	O-1	R423	N-4
C334	Q-3	CN253	M-4	R313	P-2	R424	N-4
C335	Q-3	DIODE		R314	P-2	R425	N-4
C336	Q-4	D301	P-1	R315	P-1	CRYSTAL OSCILLATOR	
C337	P-4	IC		R316	P-1	X302	O-4
C338	Q-4	IC301	N-2	R317	P-1	TEST POINTS	
C339	P-4	COILS		R318	P-1	TP301	O-4
C340	P-4	L251	M-3	R319	P-1	TP305	O-2
C341	P-4	L301	Q-4	R320	P-1		
C342	P-4	L302	O-1	R321	P-2		
C344	P-4	L303	O-1	R322	Q-4		

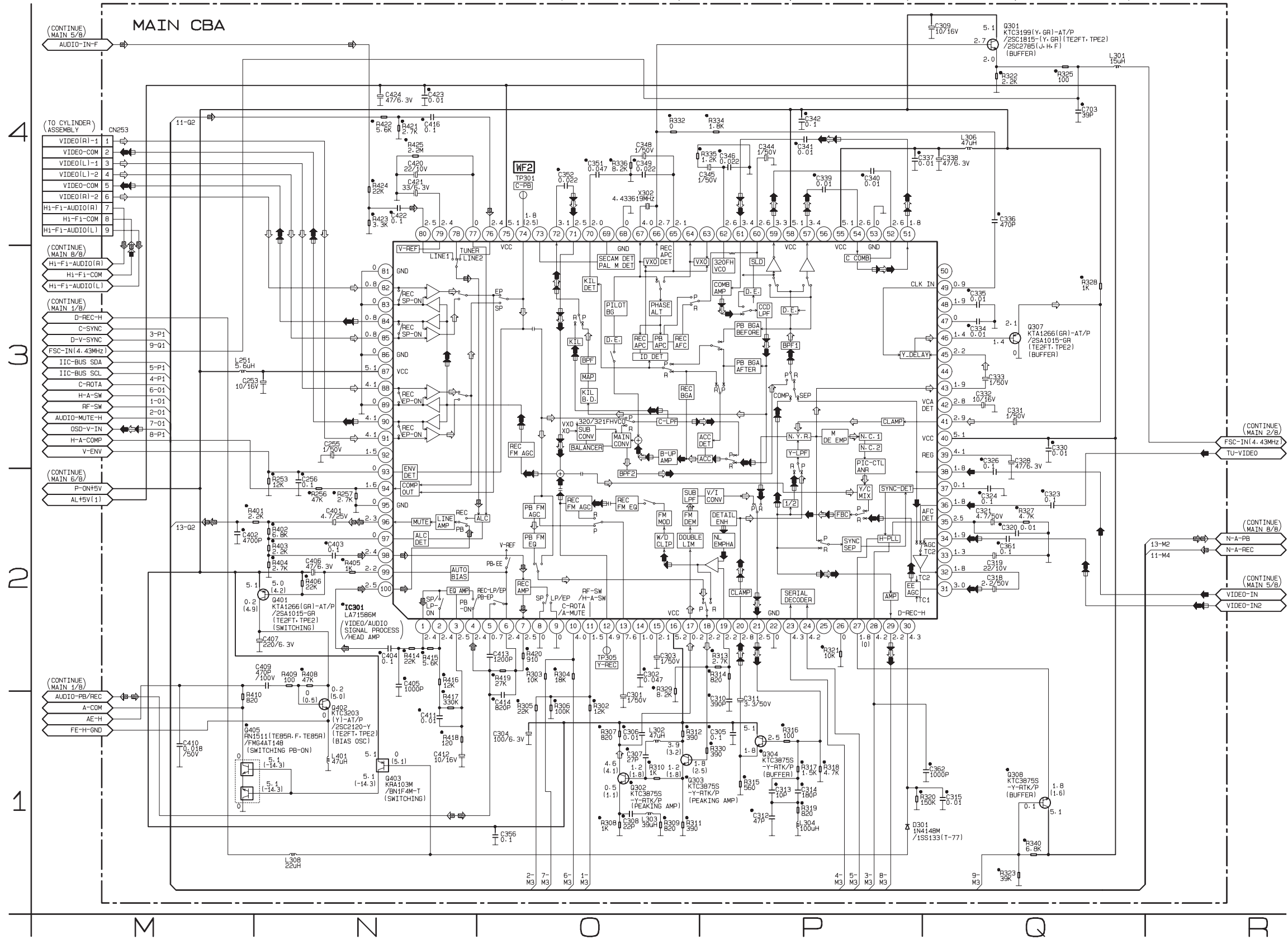
Main 3/8 Schematic Diagram < VCR Section >

● = SMD

Voltage indications for PLAY, REC and DVD modes
on the Schematic Diagrams are as shown below:



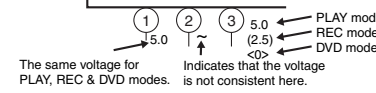
REC VIDEO SIGNAL ← PB VIDEO SIGNAL ← REC AUDIO SIGNAL ← PB AUDIO SIGNAL ← DVD AUDIO SIGNAL ← DVD VIDEO SIGNAL



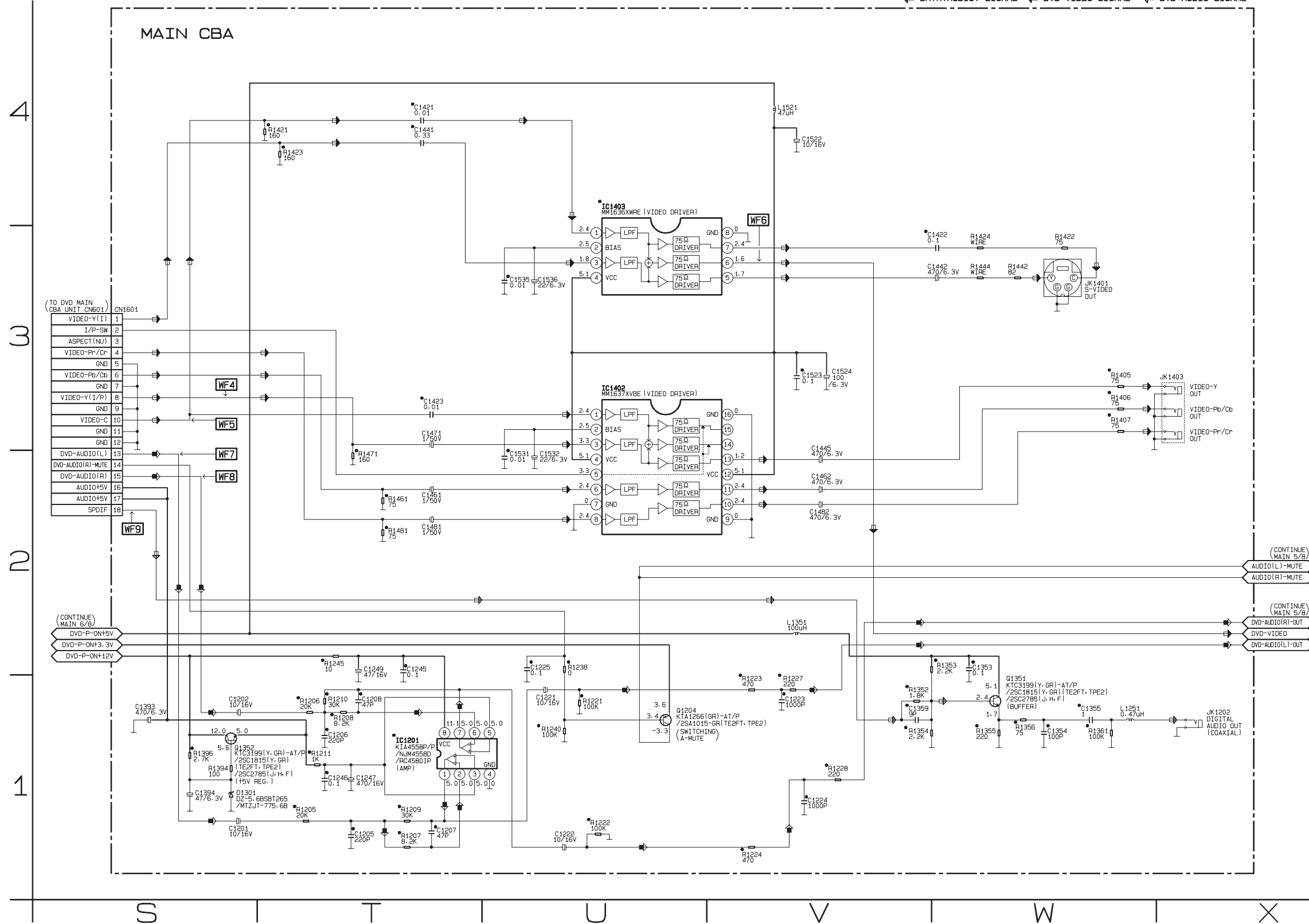
Main 4/8 Schematic Diagram < VCR Section >

* = SMD

Voltage indications for PLAY, REC and DVD modes on the Schematic Diagrams are as shown below:



DATA(AUDIO) SIGNAL DVD VIDEO SIGNAL DVD AUDIO SIGNAL



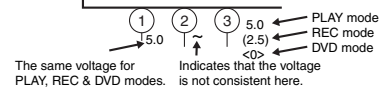
MAIN4/8 Schematic Diagram Parts Location Guide

Ref No.	Position	Ref No.	Position
CAPACITORS			
C1201	S-1	L1351	V-2
C1202	S-1	L1521	V-4
C1205	T-1	TRANSISTORS	
C1206	T-1	Q1204	U-1
C1207	T-1	Q1351	W-1
C1208	T-1	Q1352	S-1
C1221	U-1	RESISTORS	
C1222	U-1	R1205	T-1
C1223	V-1	R1206	T-1
C1224	V-1	R1207	T-1
C1225	U-2	R1208	T-1
C1245	T-2	R1209	T-1
C1246	T-1	R1210	T-1
C1247	T-1	R1211	T-1
C1249	T-2	R1221	U-1
C1353	W-2	R1222	U-1
C1354	W-1	R1223	V-1
C1355	W-1	R1224	V-1
C1359	V-1	R1227	V-1
C1393	S-1	R1228	V-1
C1394	S-1	R1238	U-2
C1421	T-4	R1240	U-1
C1422	W-3	R1245	T-2
C1423	T-3	R1352	V-1
C1441	T-4	R1353	W-2
C1442	W-3	R1354	V-1
C1445	V-2	R1355	W-1
C1461	T-2	R1356	W-1
C1462	V-2	R1361	W-1
C1471	T-3	R1394	S-1
C1481	T-2	R1396	S-1
C1482	V-2	R1405	W-3
C1522	V-4	R1406	W-3
C1523	V-3	R1407	W-3
C1524	V-3	R1421	T-4
C1531	U-2	R1422	W-3
C1532	U-2	R1423	T-4
C1535	U-3	R1424	W-3
C1536	U-3	R1442	W-3
CONNECTOR			
CN1601	S-3	R1461	T-2
DIODE			
D1301	S-1	R1481	T-2
ICS			
MISCELLANEOUS			
IC1201	T-1	JK1202	X-1
IC1402	U-3	JK1401	W-3
IC1403	U-4	JK1403	X-3
COILS			
L1251	W-1		

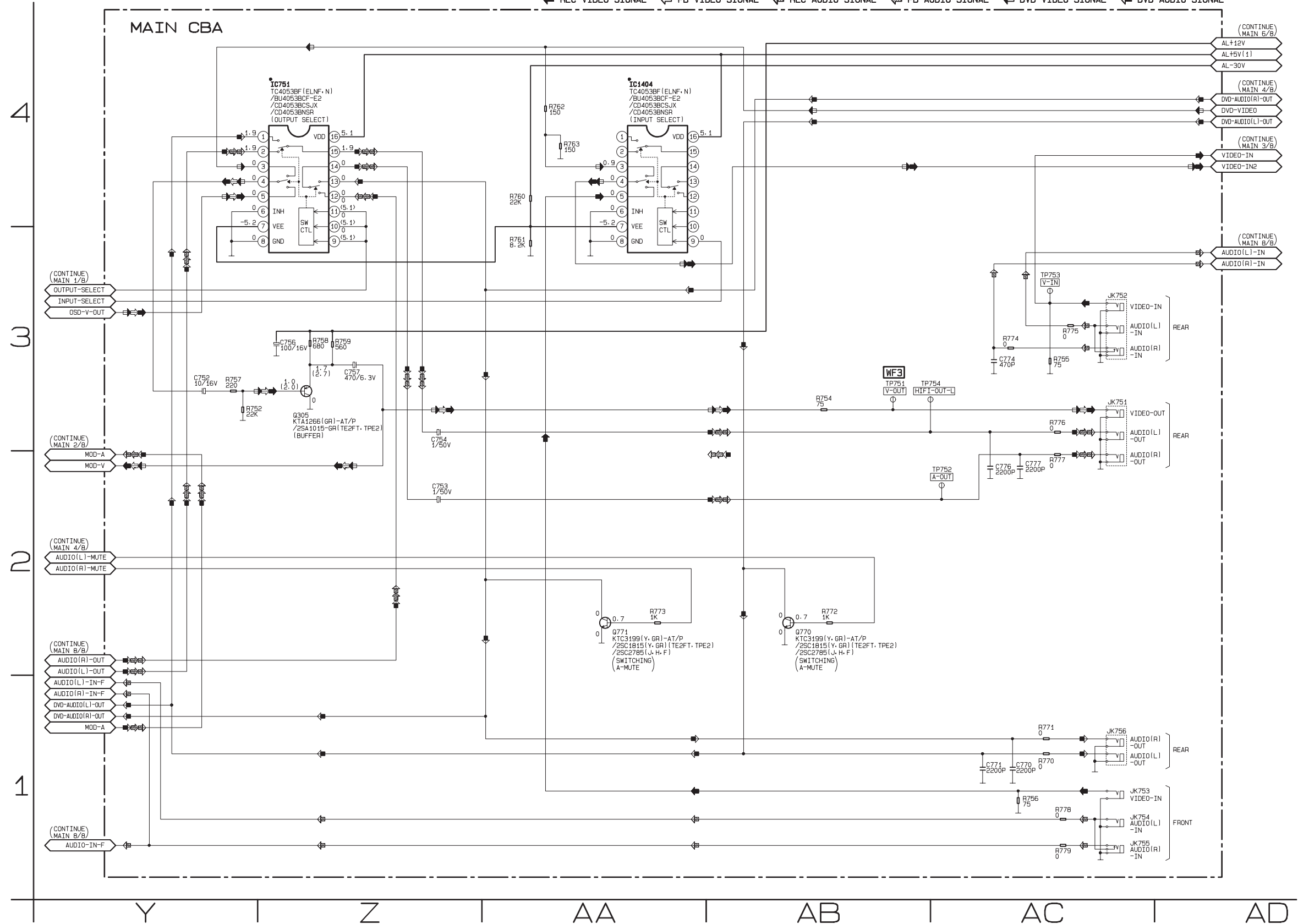
Main 5/8 Schematic Diagram < VCR Section >

"•" = SMD

Voltage indications for PLAY, REC and DVD modes on the Schematic Diagrams are as shown below:



REC VIDEO SIGNAL PB VIDEO SIGNAL REC AUDIO SIGNAL PB AUDIO SIGNAL DVD VIDEO SIGNAL DVD AUDIO SIGNAL



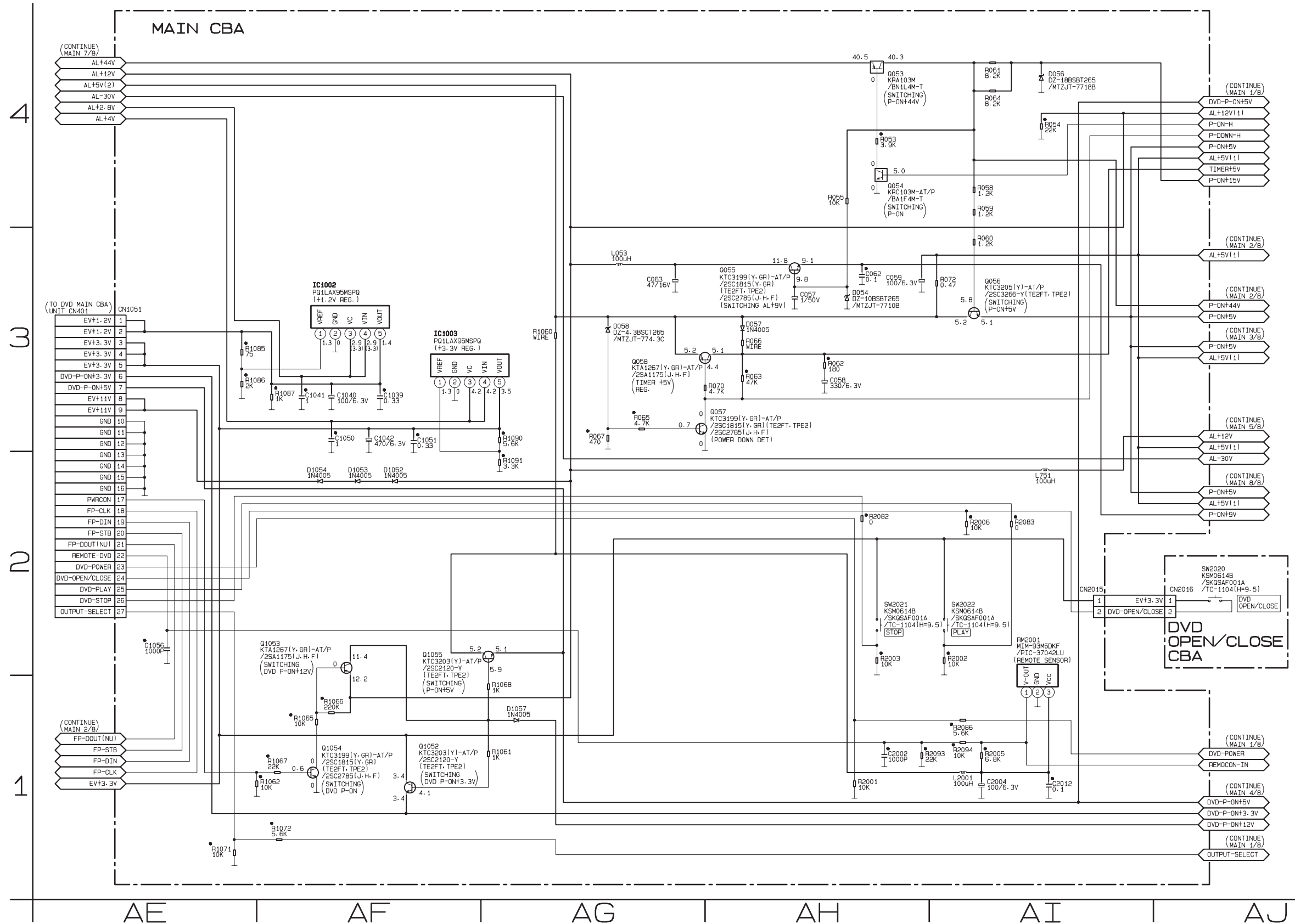
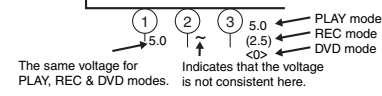
MAIN 5/8 Schematic Diagram Parts Location Guide

Ref No.	Position
CAPACITORS	
C752	Y-3
C753	Z-2
C754	Z-3
C756	Z-3
C757	Z-3
C770	AC-1
C771	AC-1
C774	AC-3
C776	AC-2
C777	AC-2
ICS	
IC751	Z-4
IC1404	AA-4
TRANSISTORS	
Q305	Z-3
Q770	AB-2
Q771	AA-2
RESISTORS	
R752	Y-3
R754	AB-3
R755	AC-3
R756	AC-1
R757	Y-3
R758	Z-3
R759	Z-3
R760	AA-4
R761	AA-4
R762	AA-4
R763	AA-4
R770	AC-1
R771	AC-1
R772	AB-2
R773	AA-2
R774	AC-3
R775	AC-3
R776	AC-3
R777	AC-2
R778	AC-1
R779	AC-1
MISCELLANEOUS	
JK751	AC-3
JK752	AC-3
JK753	AC-1
JK754	AC-1
JK755	AC-1
JK756	AC-1
TEST POINTS	
TP751	AB-3
TP752	AC-2
TP753	AC-3
TP754	AB-3

Main 6/8 & DVD Open/Close Schematic Diagram < VCR Section >

* = SMD

Voltage indications for PLAY, REC and DVD modes on the Schematic Diagrams are as shown below:



Main 6/8 Schematic Diagram Parts Location Guide < VCR Section >

Ref No.	Position	Ref No.	Position
CAPACITORS		RESISTORS	
C057	AH-3	R053	AH-4
C058	AH-3	R054	AI-4
C059	AH-3	R055	AH-4
C062	AH-3	R058	AI-4
C063	AG-3	R059	AI-4
C1039	AF-3	R060	AI-3
C1040	AF-3	R061	AI-4
C1041	AF-3	R062	AH-3
C1042	AF-3	R063	AH-3
C1050	AF-3	R064	AI-4
C1051	AF-3	R065	AG-3
C1056	AE-2	R066	AH-3
C2002	AH-1	R067	AG-3
C2004	AI-1	R070	AH-3
C2012	AI-1	R072	AI-3
CONNECTORS		R1060	AG-3
CN2015	AI-2	R1061	AG-1
CN1051	AE-3	R1062	AF-1
DIODES		R1065	AF-1
D054	AH-3	R1066	AF-1
D056	AI-4	R1067	AF-1
D057	AH-3	R1068	AG-1
D058	AG-3	R1071	AE-1
D1052	AF-2	R1072	AF-1
D1053	AF-2	R1085	AE-3
D1054	AF-2	R1086	AE-3
D1057	AG-1	R1087	AF-3
ICS		R1090	AG-3
IC1002	AF-3	R1091	AG-2
IC1003	AF-3	R2001	AH-1
COILS		R2002	AI-2
L053	AG-3	R2003	AH-2
L751	AI-2	R2005	AI-1
L2001	AI-1	R2006	AI-2
TRANSISTORS		R2082	AH-2
Q053	AH-4	R2083	AI-2
Q054	AH-4	R2086	AI-1
Q055	AH-3	R2093	AH-1
Q056	AI-3	R2094	AI-1
Q057	AH-3	SWITCHES	
Q058	AG-3	SW2021	AH-2
Q1052	AF-1	SW2022	AI-2
Q1053	AF-2	MISCELLANEOUS	
Q1054	AF-1	RM2001	AI-2
Q1055	AG-2		

Main 7/8 Schematic Diagram Parts Location Guide < VCR Section >

Ref No.	Position	Ref No.	Position
CAPACITORS		COILS	
C013	AN-4	L1001	AK-4
C014	AN-4	L1002	AK-3
C015	AN-4	L1003	AL-4
C017	AN-3	L1004	AM-3
C018	AN-3	L1005	AK-3
C019	AN-3	L1009	AN-2
C020	AN-3	L1012	AN-2
C021	AN-3	TRANSISTORS	
C1001	AK-4	Q1001	AM-3
C1004	AL-3	Q1003	AL-3
C1005	AM-3	Q1004	AN-1
C1006	AK-3	Q1008	AL-2
C1007	AN-2	RESISTORS	
C1013	AL-2	R057	AN-4
C1018	AN-2	R068	AN-4
C1021	AN-1	R069	AN-4
C1025	AN-1	R073	AN-4
C1029	AL-2	R074	AO-4
C1032	AL-2	R075	AN-3
C1033	AL-1	R076	AN-3
C1035	AN-2	R1001	AK-3
C1107	AN-2	R1002	AL-2
C2014	AM-3	R1003	AL-2
C2015	AN-2	R1004	AM-3
DIODES		R1005	AL-3
D013	AN-4	R1006	AL-3
D014	AN-4	R1007	AL-3
D016	AN-3	R1008	AL-3
D017	AN-4	R1010	AM-3
D018	AN-3	R1011	AM-3
D1001	AL-4	R1020	AN-1
D1002	AL-3	R1021	AN-1
D1003	AL-4	R1022	AN-1
D1004	AL-3	R1023	AN-1
D1006	AM-3	R1025	AN-1
D1008	AN-2	R1029	AL-3
D1011	AM-3	R1032	AL-2
D1012	AM-3	R1035	AM-2
D1016	AN-2	R1036	AL-2
D1017	AN-1	R1037	AL-2
D1018	AL-2	R1038	AL-1
D1019	AN-1	R1039	AL-1
D1022	AL-2	R1040	AO-2
D1024	AM-2	R1043	AL-4
D1025	AM-1	R1056	AN-3
D1026	AM-2	R1057	AO-3
D1030	AN-2	R1059	AO-3
IC		MISCELLANEOUS	
IC1001	AM-1	AC1001	AK-4
COILS		F1001	AK-4
L010	AN-4	SA1001	AK-4
L013	AN-3	T0011	AM-4

Main 7/8 Schematic Diagram < VCR Section >

CAUTION !

For continued protection against fire hazard, replace only with the same type fuse.

NOTE:

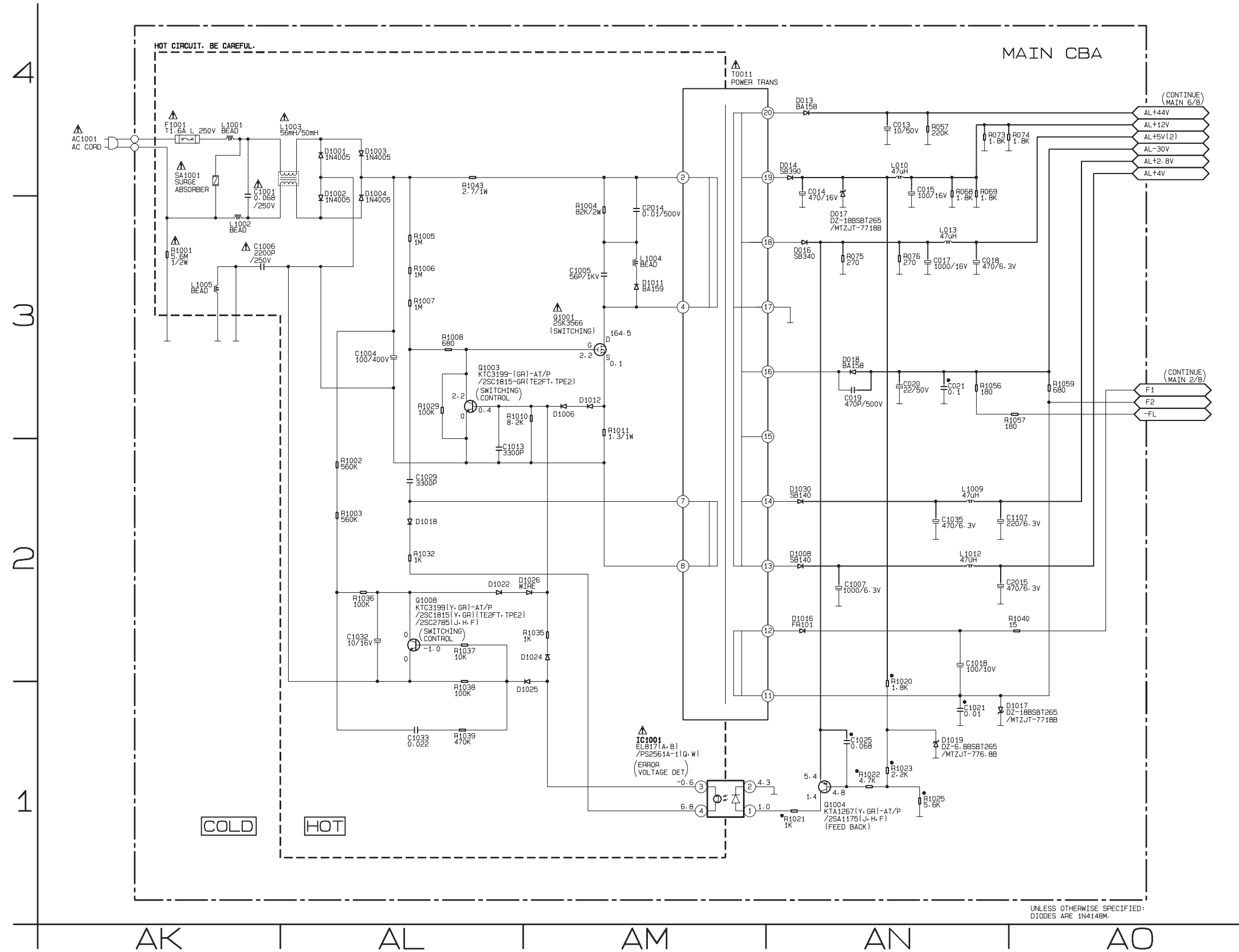
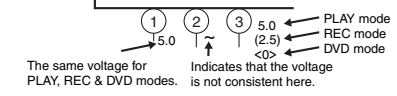
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

CAUTION !

Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit. If Main Fuse (F1001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

• = SMD

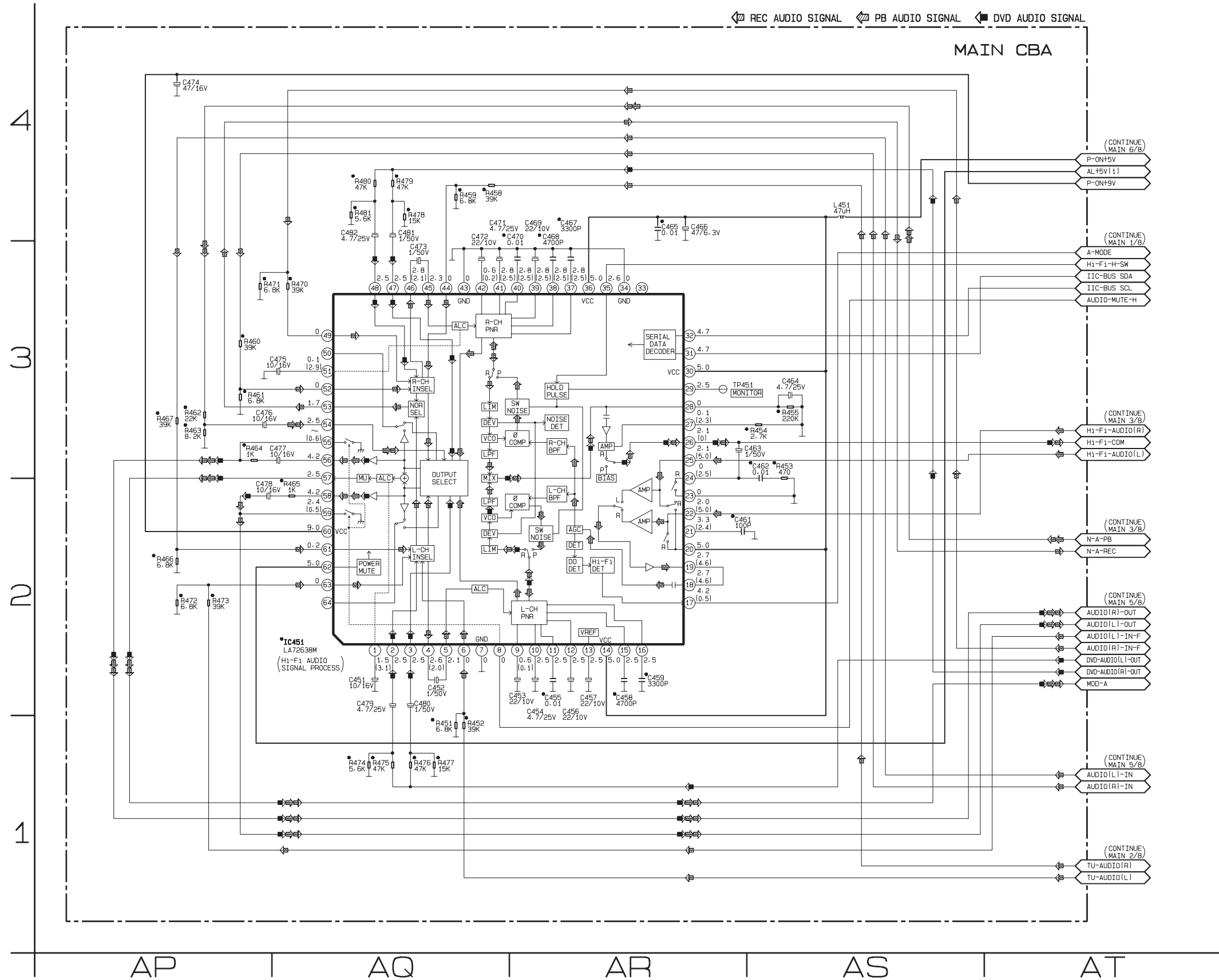
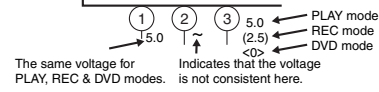
Voltage indications for PLAY, REC and DVD modes on the Schematic Diagrams are as shown below:



Main 8/8 Schematic Diagram < VCR Section >

*• = SMD

Voltage indications for PLAY, REC and DVD modes on the Schematic Diagrams are as shown below:



MAIN 8/8 Schematic Diagram Parts Location Guide

Ref No.	Position	Ref No.	Position
CAPACITORS		COIL	
C451	AQ-2	L451	AS-4
C452	AQ-2	RESISTORS	
C453	AR-2	R451	AQ-1
C454	AR-2	R452	AQ-1
C455	AR-2	R453	AS-3
C456	AR-2	R454	AS-3
C457	AR-2	R455	AS-3
C458	AR-2	R458	AQ-4
C459	AR-2	R459	AQ-4
C460	AR-2	R460	AP-3
C461	AR-2	R461	AP-3
C462	AS-3	R462	AP-3
C463	AR-3	R462	AP-3
C464	AS-3	R463	AP-3
C465	AR-4	R464	AP-3
C466	AR-4	R465	AQ-2
C467	AR-3	R466	AP-2
C468	AR-3	R467	AP-3
C469	AR-3	R470	AQ-3
C470	AR-3	R471	AP-3
C471	AQ-3	R472	AP-2
C472	AQ-3	R473	AP-2
C473	AQ-3	R474	AQ-1
C474	AP-4	R475	AQ-1
C475	AQ-3	R476	AQ-1
C476	AP-3	R477	AQ-1
C477	AQ-3	R478	AQ-4
C478	AP-2	R479	AQ-4
C479	AQ-2	R480	AQ-4
C480	AQ-2	R481	AQ-4
C481	AQ-4	TEST POINT	
C482	AQ-4	TP451	AR-3
IC			
IC451	AQ-2		

Main CBA Top View

CAUTION !

For continued protection against fire hazard, replace only with the same type fuse.

CAUTION !

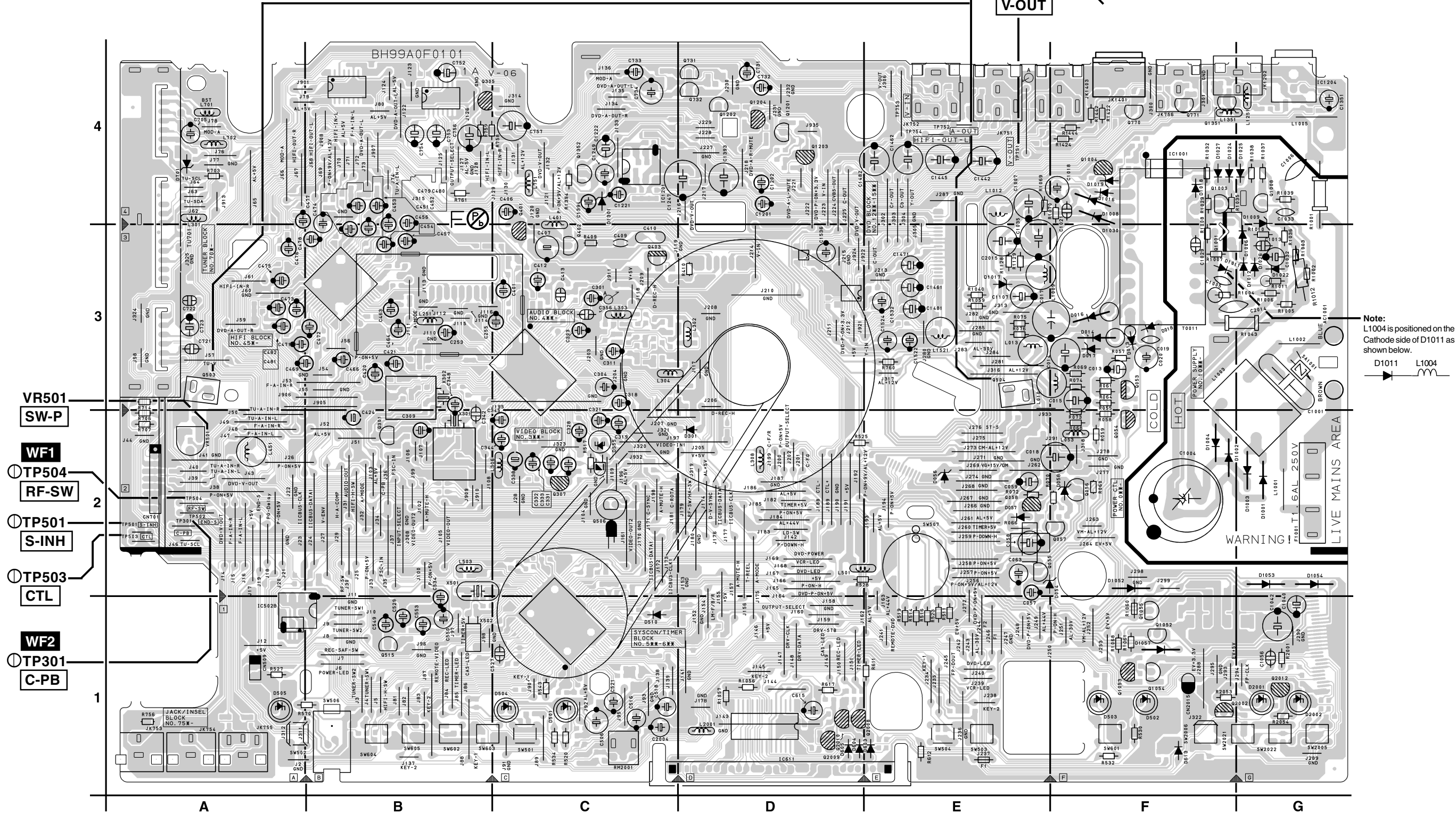
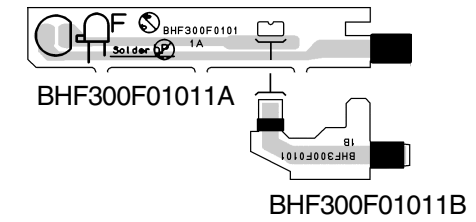
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit. If Main Fuse (F1001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

NOTE:

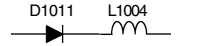
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

Because a hot chassis ground is present in the power supply circuit, an isolation transformer must be used. Also, in order to have the ability to increase the input circuit, a variable isolation transformer is required.

Sensor CBA Top View



Note:
L1004 is positioned on the Cathode side of D1011 as shown below.



Main CBA Bottom View < VCR Section >

CAUTION !

For continued protection against fire hazard, replace only with the same type fuse.

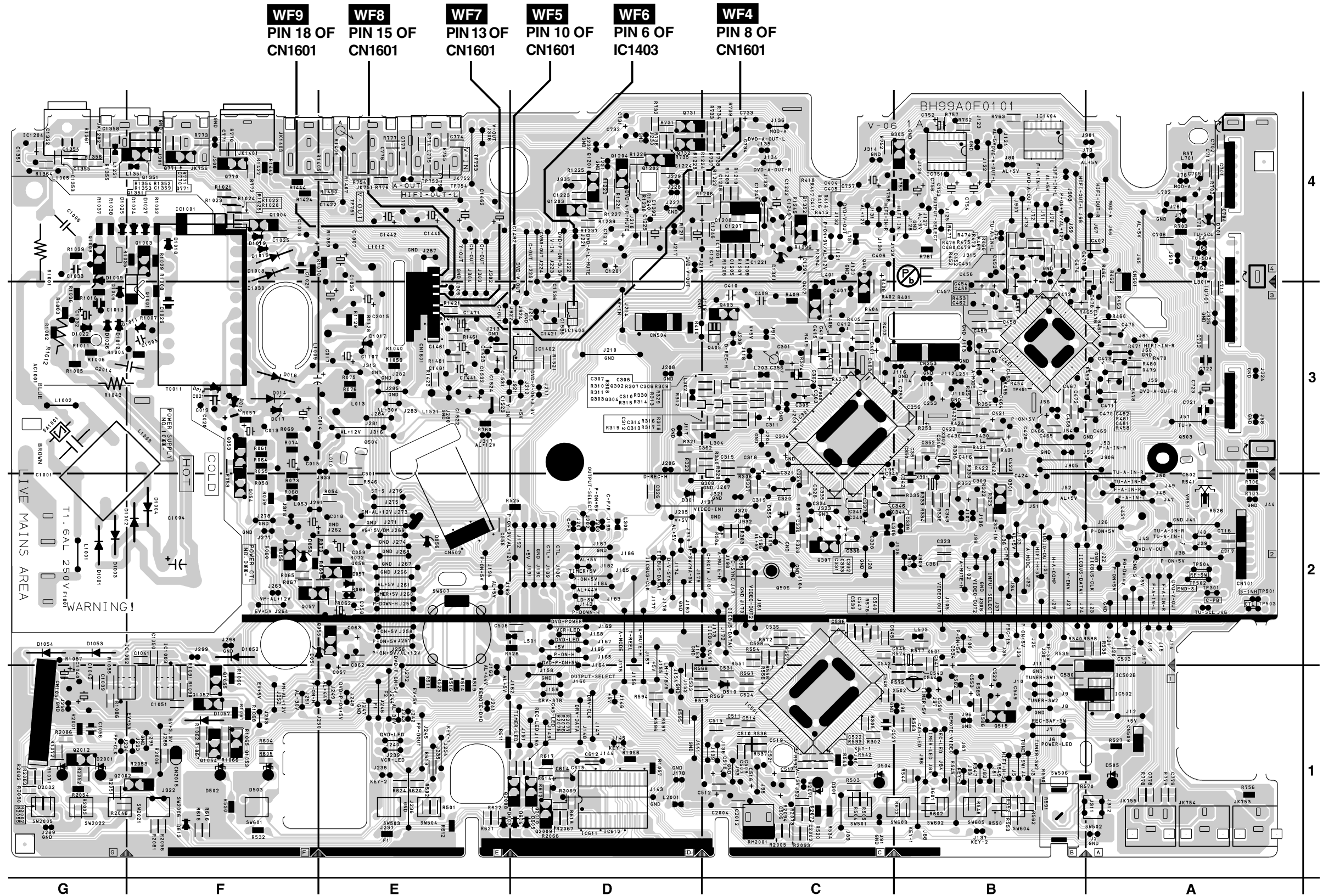
NOTE:

The voltage for parts in hot circuit is measured using hot GND as a common terminal.

CAUTION !

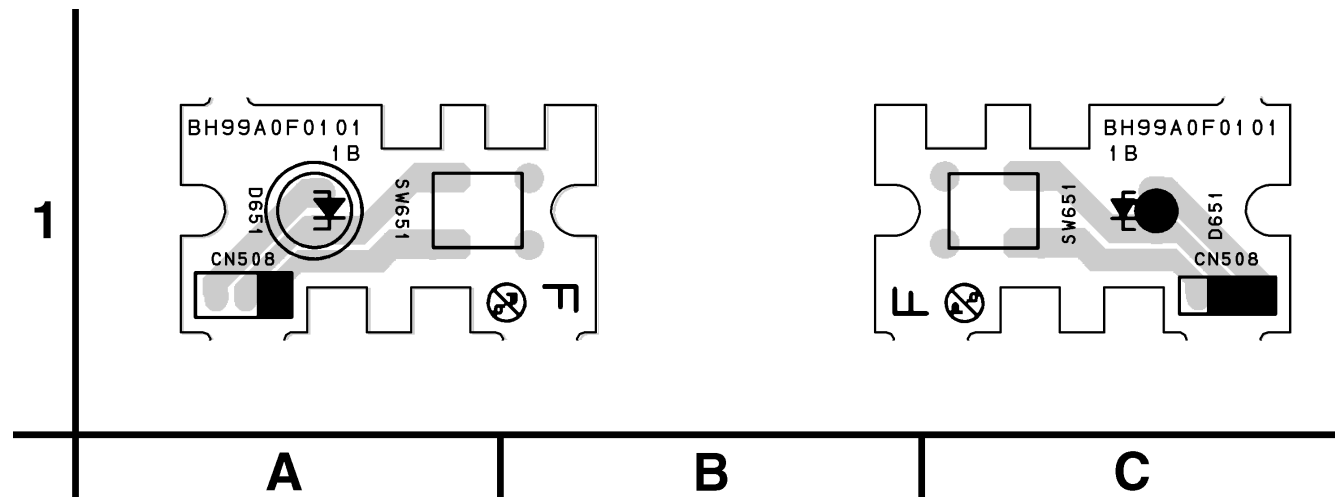
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit. If Main Fuse (F1001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

Because a hot chassis ground is present in the power supply circuit, an isolation transformer must be used. Also, in order to have the ability to increase the input slowly, when troubleshooting this type power supply circuit, a variable isolation transformer is required.



Power SW CBA Top View

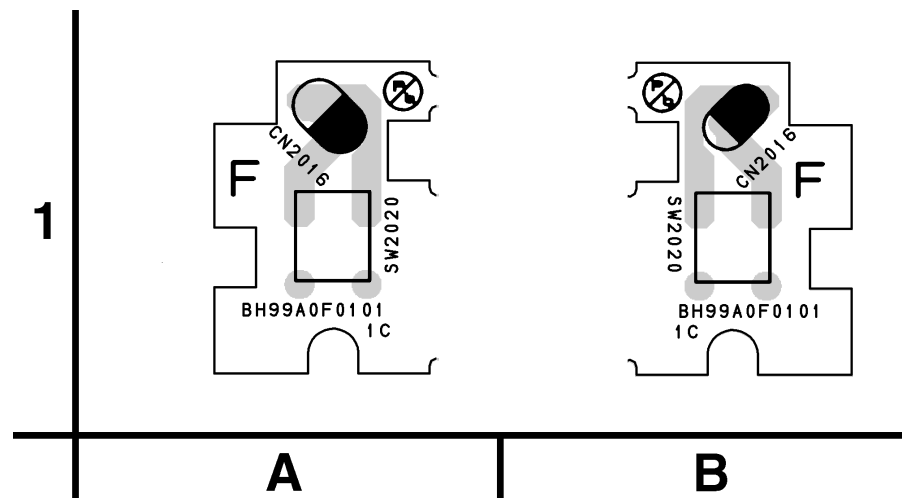
Power SW CBA Bottom View



BH99A0F01011B

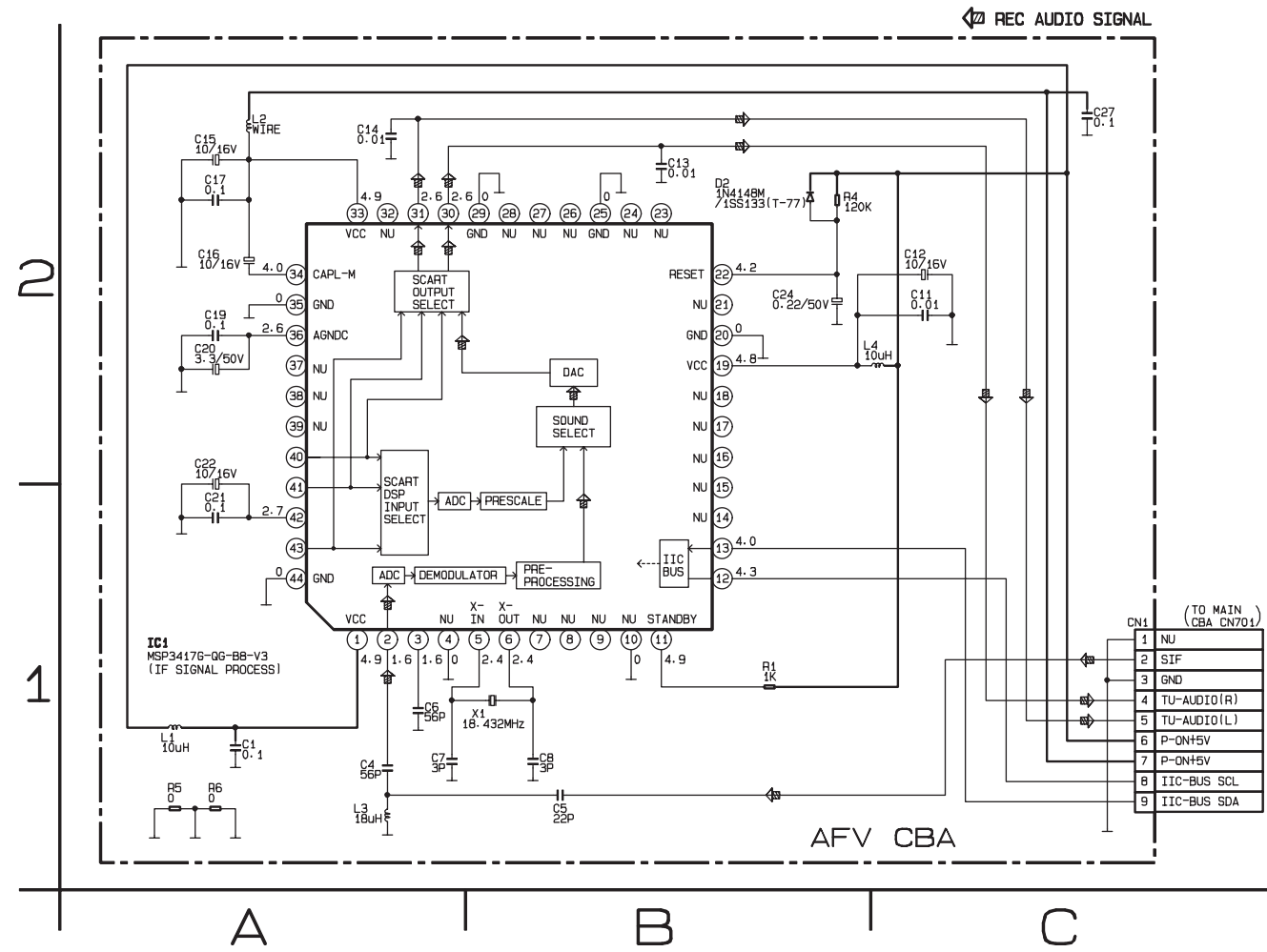
DVD Open/Close
CBA Top View

DVD Open /Close
CBA Bottom View



BH99A0F01011C

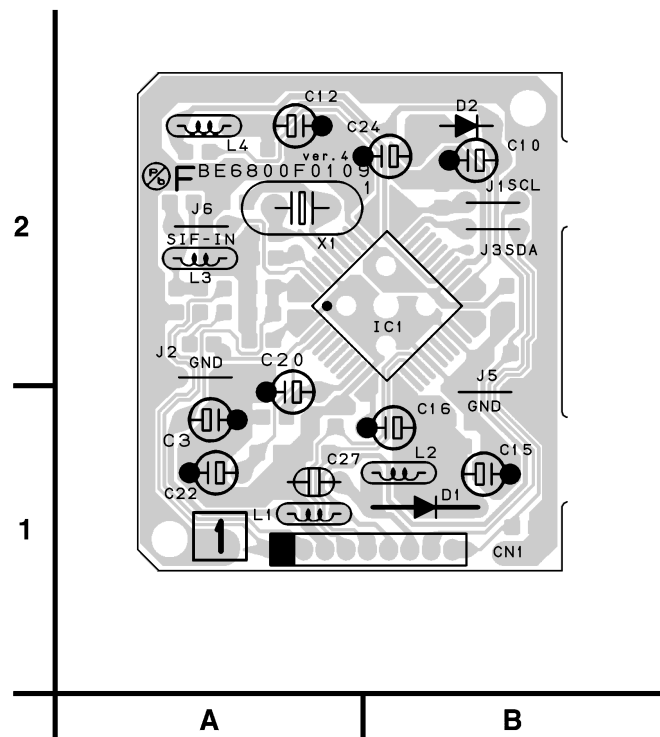
AFV Schematic Diagram



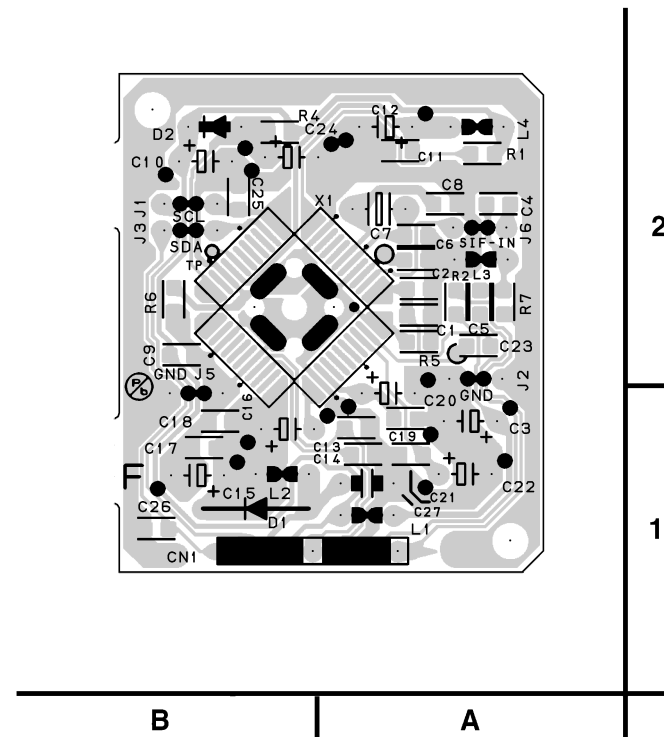
AFV Schematic Diagram Parts Location Guide

Ref No.	Position	Ref No.	Position
CAPACITORS		CONNECTOR	
C1	A-1	CN1	C-1
C4	A-1	DIODE	
C5	B-1	D2	B-2
C6	A-1	IC	
C7	A-1	IC1	A-1
C8	B-1	COILS	
C11	C-2	L1	A-1
C12	C-2	L2	A-2
C13	B-2	L3	A-1
C14	A-2	L4	C-2
C15	A-2	RESISTORS	
C16	A-2	R1	B-1
C17	A-2	R4	B-2
C19	A-2	R5	A-1
C20	A-2	R6	A-1
C21	A-1	CRYSTAL OSCILLATOR	
C22	A-2	X1	B-1
C24	B-2		
C27	C-2		

AFV CBA Top View



AFV CBA Bottom View



AFV CBA Parts Location Guide

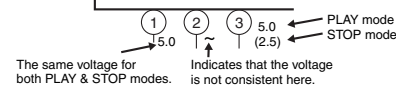
Ref No.	Position	Ref No.	Position
CAPACITORS		CONNECTOR	
C1	A-2	CN1	B-1
C4	A-2	DIODE	
C5	A-2	D2	B-2
C6	A-2	IC	
C7	A-2	IC1	B-2
C8	A-2	COILS	
C11	A-2	L1	A-1
C12	A-2	L2	B-2
C13	A-1	L3	A-2
C14	A-1	L4	A-2
C15	B-1	RESISTORS	
C16	B-1	R1	A-2
C17	B-1	R4	B-2
C19	A-1	R5	A-1
C20	A-1	R6	B-2
C21	A-1	CRYSTAL OSCILLATOR	
C22	A-1	X1	A-2
C24	B-2		
C27	A-1		

BE6800F01091

DVD Main 1/3 Schematic Diagram < DVD Section >

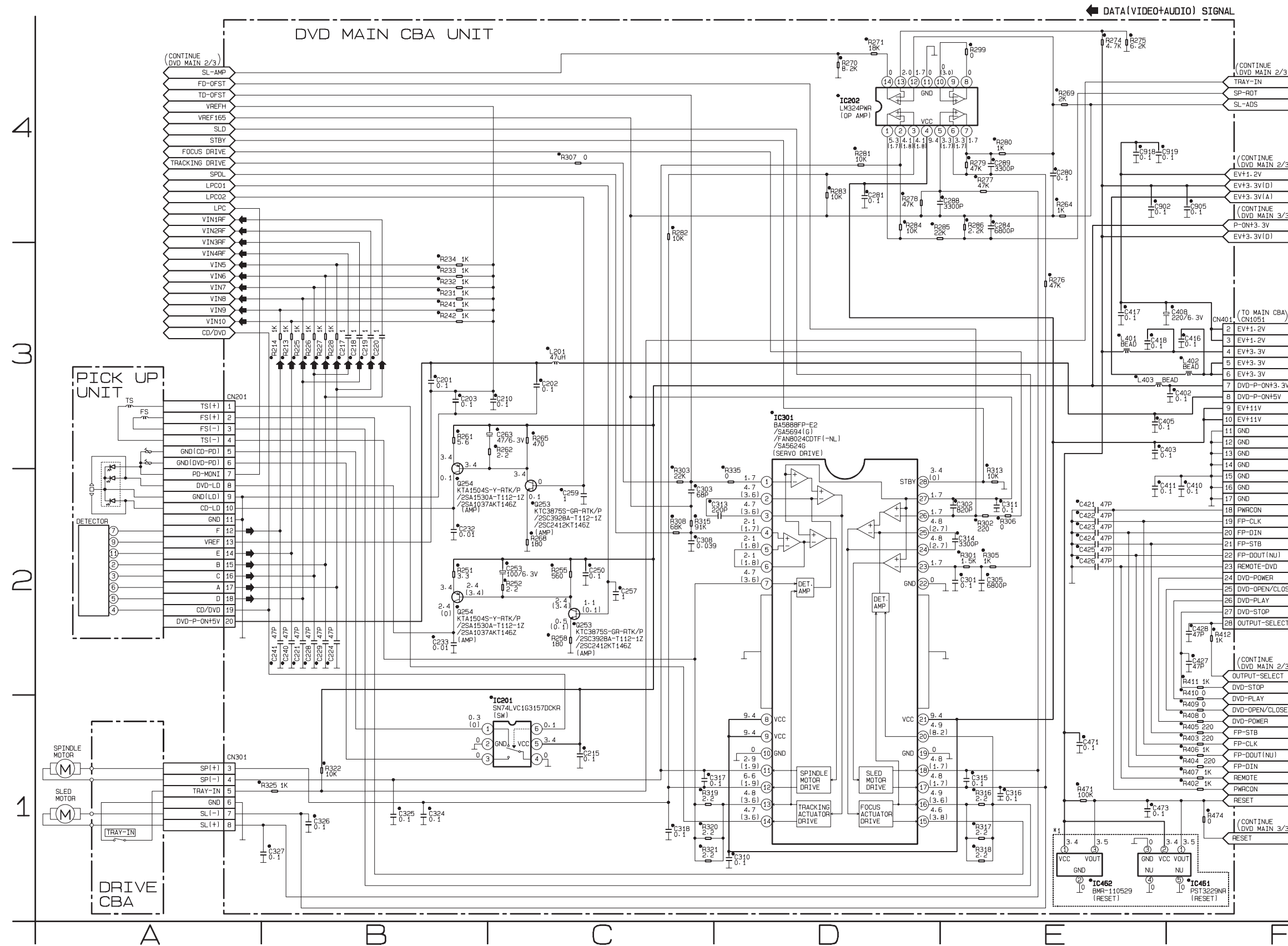
● = SMD

Voltage indications for PLAY and STOP modes on the Schematic Diagrams are as shown below:



*1 NOTE:

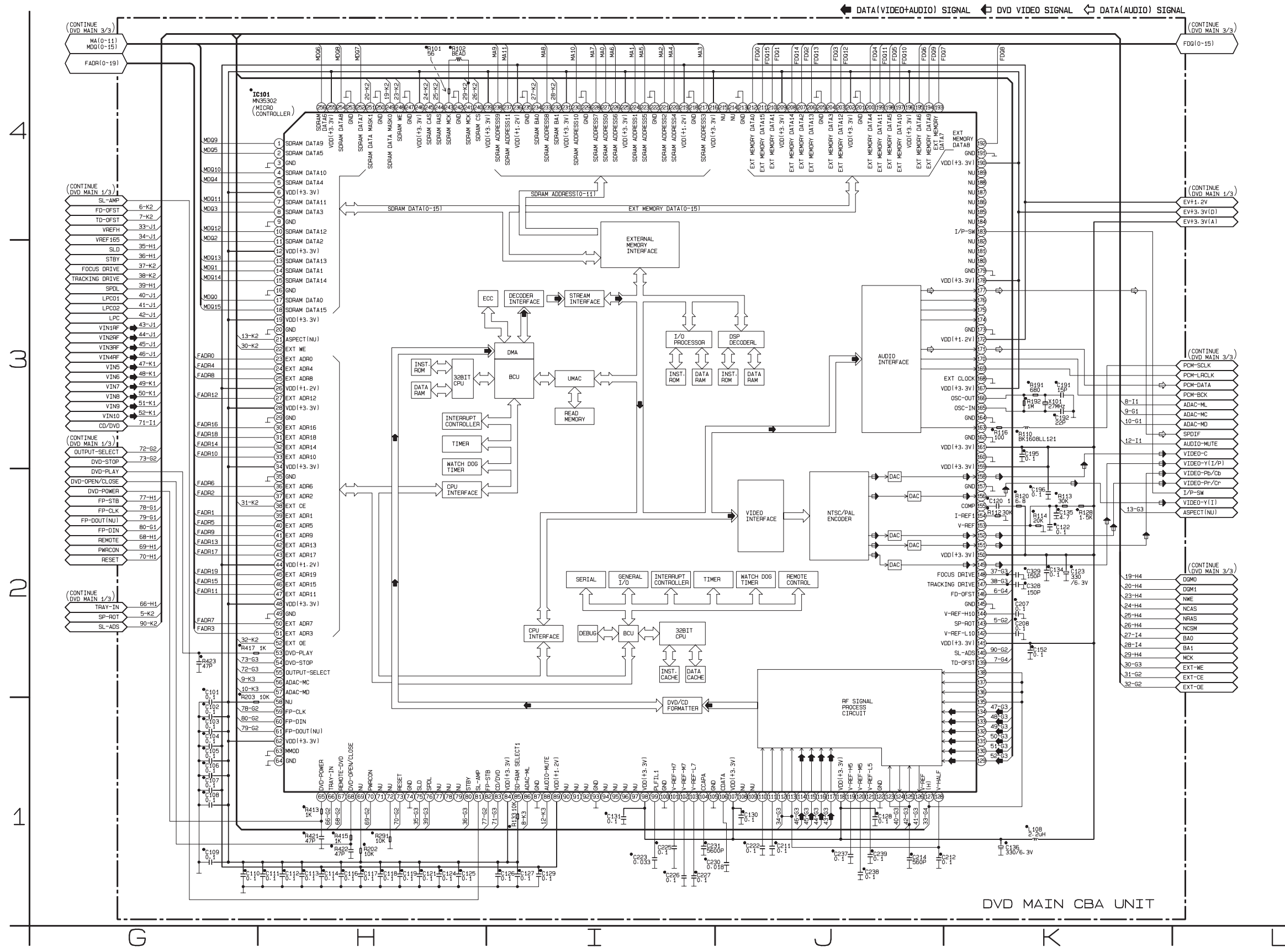
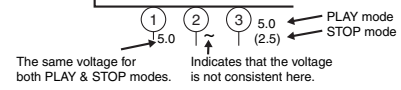
Either IC461 or IC462 is used for DVD MAIN CBA UNIT.



DVD Main 2/3 Schematic Diagram < DVD Section >

● = SMD

Voltage indications for PLAY and STOP modes on the Schematic Diagrams are as shown below:



DVD MAIN CBA UNIT

IC101 Voltage Chart

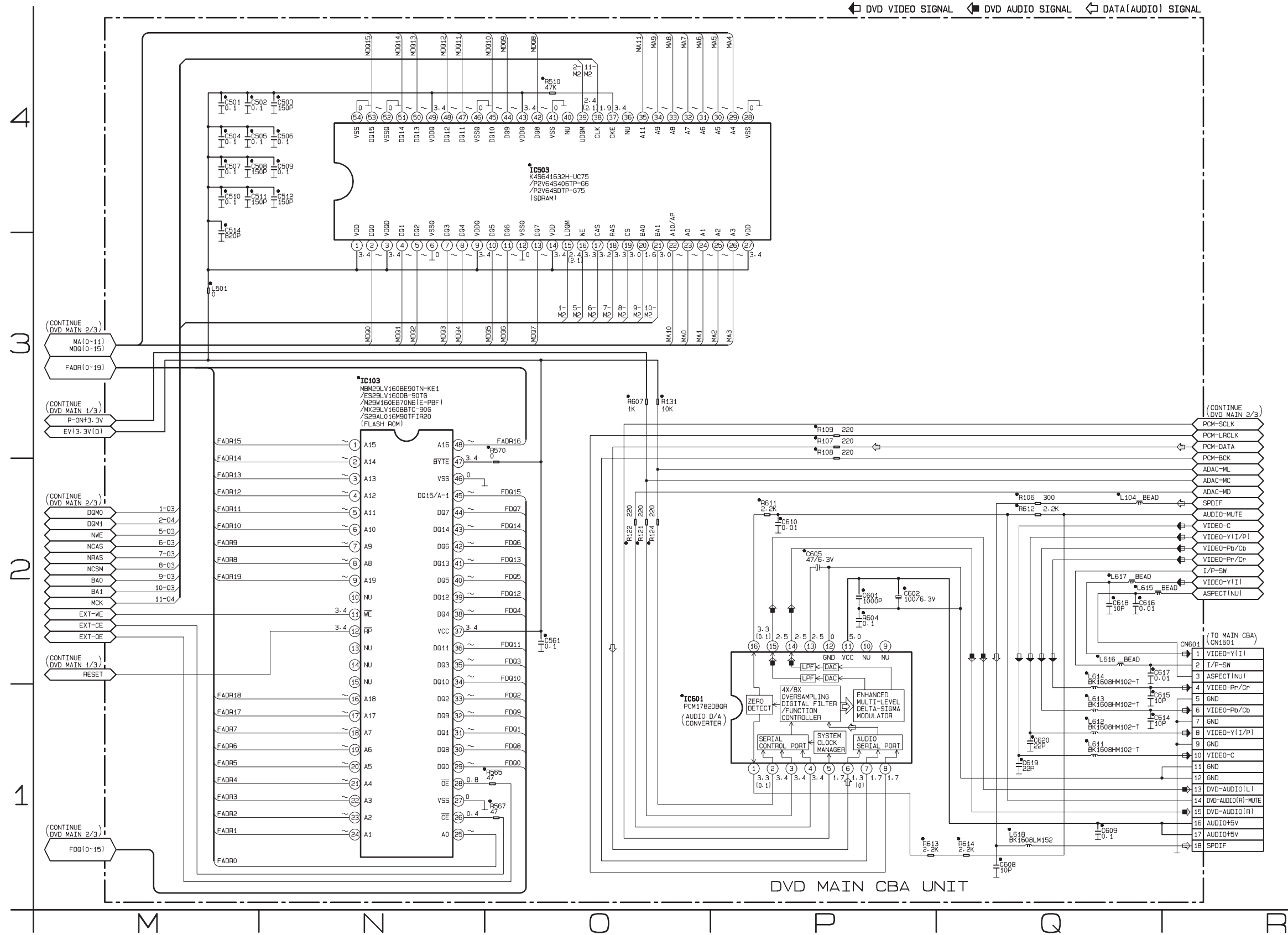
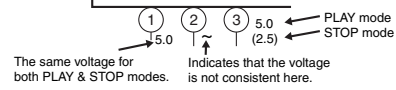
~ : Voltage is not consistent ---- : Not used Unit : Volts

PIN.NO	PLAY	STOP	PIN.NO	PLAY	STOP	PIN.NO	PLAY	STOP	PIN.NO	PLAY	STOP	PIN.NO	PLAY	STOP	PIN.NO	PLAY	STOP	PIN.NO	PLAY	STOP	PIN.NO	PLAY	STOP
1	~	~	33	~	~	65	0	0	97	----	----	129	2.3	2.3	161	3.4	3.4	193	~	~	225	3.4	3.4
2	~	~	34	3.4	3.4	66	3.4	3.5	98	3.4	3.4	130	2.3	2.3	162	0	0	194	~	~	226	~	~
3	0	0	35	0	0	67	3.2	3.2	99	0.9	0.8	131	2.3	2.3	163	1.8	1.8	195	~	~	227	~	~
4	~	~	36	~	~	68	0	0	100	0	0	132	2.4	2.3	164	0	0	196	3.4	3.4	228	~	~
5	~	~	37	~	~	69	3.4	3.4	101	2.4	2.4	133	2.4	2.4	165	1.7	1.8	197	~	~	229	0	0
6	3.4	3.4	38	0.4	0.3	70	3.4	3.4	102	2.2	2.2	134	2.4	2.4	166	1.7	1.7	198	~	~	230	~	~
7	~	~	39	~	~	71	----	----	103	1.9	1.9	135	2.3	2.3	167	3.4	3.4	199	~	~	231	3.4	3.4
8	~	~	40	~	~	72	1.4	2.7	104	0.4	0.3	136	2.3	2.3	168	0	0	200	~	~	232	1.3	1.6
9	0	0	41	~	~	73	3.4	3.4	105	0	0	137	2.3	2.3	169	1.8	1.8	201	0	0	233	~	~
10	~	~	42	~	~	74	0	0	106	1.7	1.7	138	2.3	2.3	170	1.7	1.7	202	3.4	3.4	234	1.9	2.3
11	~	~	43	~	~	75	1.7	1.8	107	3.4	3.4	139	1.7	1.7	171	1.3	0.1	203	~	~	235	0	0
12	3.4	3.4	44	1.3	1.3	76	2.3	1.8	108	----	----	140	1.7	1.7	172	1.3	1.3	204	~	~	236	1.3	1.3
13	~	~	45	~	~	77	----	----	109	----	----	141	3.4	3.4	173	0	0	205	0	0	237	----	----
14	~	~	46	~	~	78	----	----	110	1.9	1.9	142	1.3	1.3	174	----	----	206	~	~	238	~	~
15	~	~	47	~	~	79	----	----	111	1.9	1.9	143	2.1	1.7	175	----	----	207	~	~	239	3.4	3.4
16	0	0	48	3.4	3.4	80	3.4	0.1	112	1.7	1.7	144	2.2	2.2	176	----	----	208	~	~	240	3.4	3.3
17	~	~	49	0	0	81	0.1	0.1	113	1.7	1.7	145	0	0	177	1.8	1.7	209	3.4	3.4	241	1.9	1.9
18	~	~	50	~	~	82	2.8	2.8	114	1.7	1.7	146	1.7	1.7	178	3.4	3.5	210	~	~	242	0	0
19	3.4	3.4	51	~	~	83	0.1	0.1	115	1.7	1.7	147	1.8	1.7	179	0	0	211	~	~	243	1.9	1.9
20	0	0	52	0.8	0.8	84	3.4	3.4	116	1.7	1.7	148	1.7	1.7	180	----	----	212	~	~	244	3.4	3.3
21	----	----	53	0	0	85	0.1	0.1	117	1.7	1.7	149	0.6	0.5	181	----	----	213	0	0	245	3.4	3.4
22	3.5	3.5	54	0	0	86	3.6	3.4	118	3.4	3.4	150	3.4	3.4	182	----	----	214	----	----	246	3.4	3.4
23	~	~	55	1.4	1.4	87	0	0	119	2.0	2.0	151	0.5	0.6	183	3.5	3.5	215	----	----	247	0	0
24	~	~	56	3.4	3.4	88	3.5	0.1	120	1.7	1.7	152	0.5	0.4	184	----	----	216	3.4	3.4	248	3.3	3.4
25	~	~	57	3.5	3.5	89	1.3	1.3	121	1.5	1.5	153	1.4	1.3	185	----	----	217	~	~	249	3.2	3
26	1.3	1.3	58	3.4	3.4	90	----	----	122	0	0	154	1.4	1.3	186	----	----	218	0	0	250	0	0
27	~	~	59	3.4	3.4	91	----	----	123	0.3	0.1	155	2.4	2.4	187	----	----	219	1.3	1.3	251	3.2	3.0
28	3.4	3.4	60	3.4	3.4	92	----	----	124	1.2	0.1	156	3.4	3.4	188	----	----	220	~	~	252	~	~
29	0	0	61	3.5	3.5	93	0	0	125	0.3	0.1	157	0	0	189	----	----	221	~	~	253	0	0
30	~	~	62	3.4	3.4	94	----	----	126	0.1	0.1	158	0.9	0.9	190	3.4	3.5	222	0	0	254	~	~
31	~	~	63	0	0	95	----	----	127	2.3	2.3	159	3.4	3.4	191	0	0	223	~	~	255	3.4	3.4
32	~	~	64	0	0	96	----	----	128	1.7	1.7	160	0	0	192	~	~	224	~	~	256	~	~

DVD Main 3/3 Schematic Diagram < DVD Section >

● = SMD

Voltage indications for PLAY and STOP modes on the Schematic Diagrams are as shown below:



WAVEFORMS

NOTE:

Input

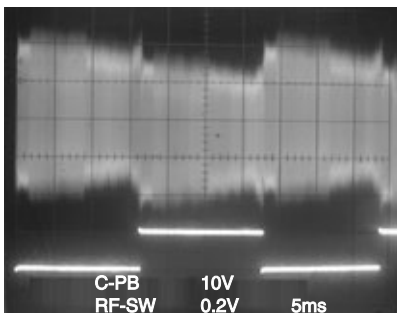
VCR: COLOR BAR SIGNAL (WITH 1KHz AUDIO SIGNAL)
(WF1~WF3)

DVD: POWER ON (STOP) MODE
(WF4~WF6)

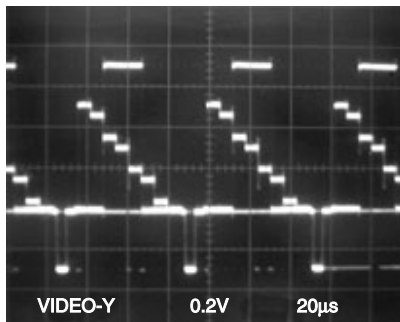
CD: 1kHz PLAY
(WF7~WF9)

WF2 UPPER TP301

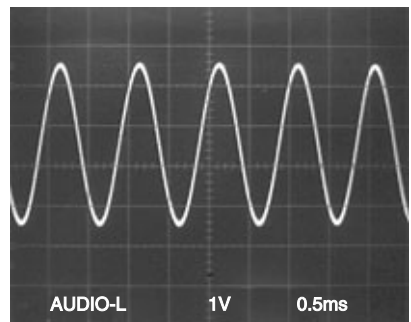
WF1 LOWER TP504



WF4 Pin 8 of CN1601

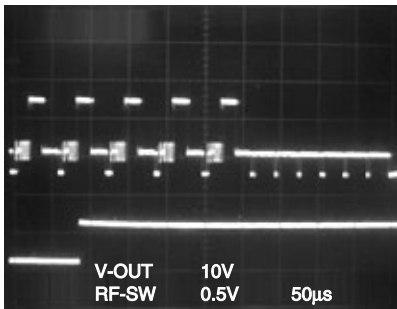


WF7 Pin 13 of CN1601

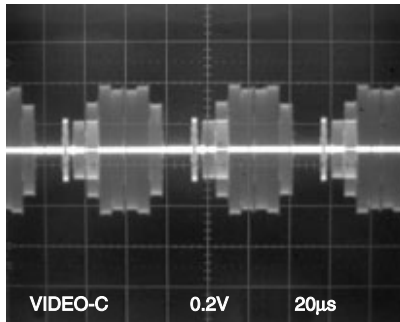


WF3 UPPER TP751

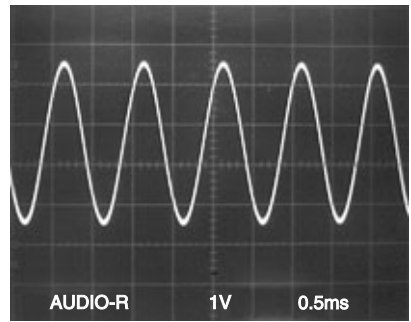
WF1 LOWER TP504



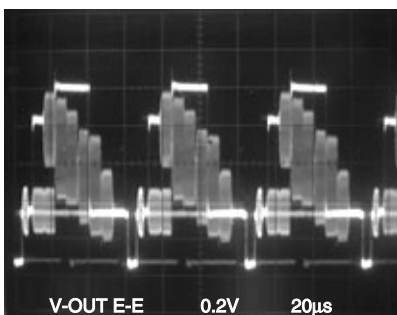
WF5 Pin 10 of CN1601



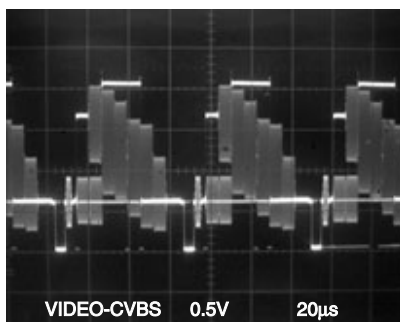
WF8 Pin 15 of CN1601



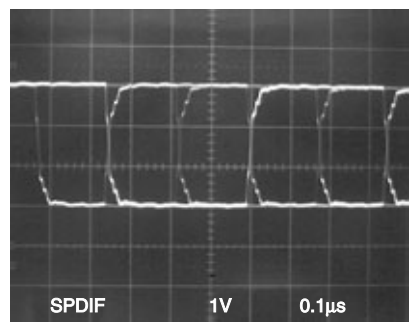
WF3 TP751



WF6 Pin 6 of IC1403

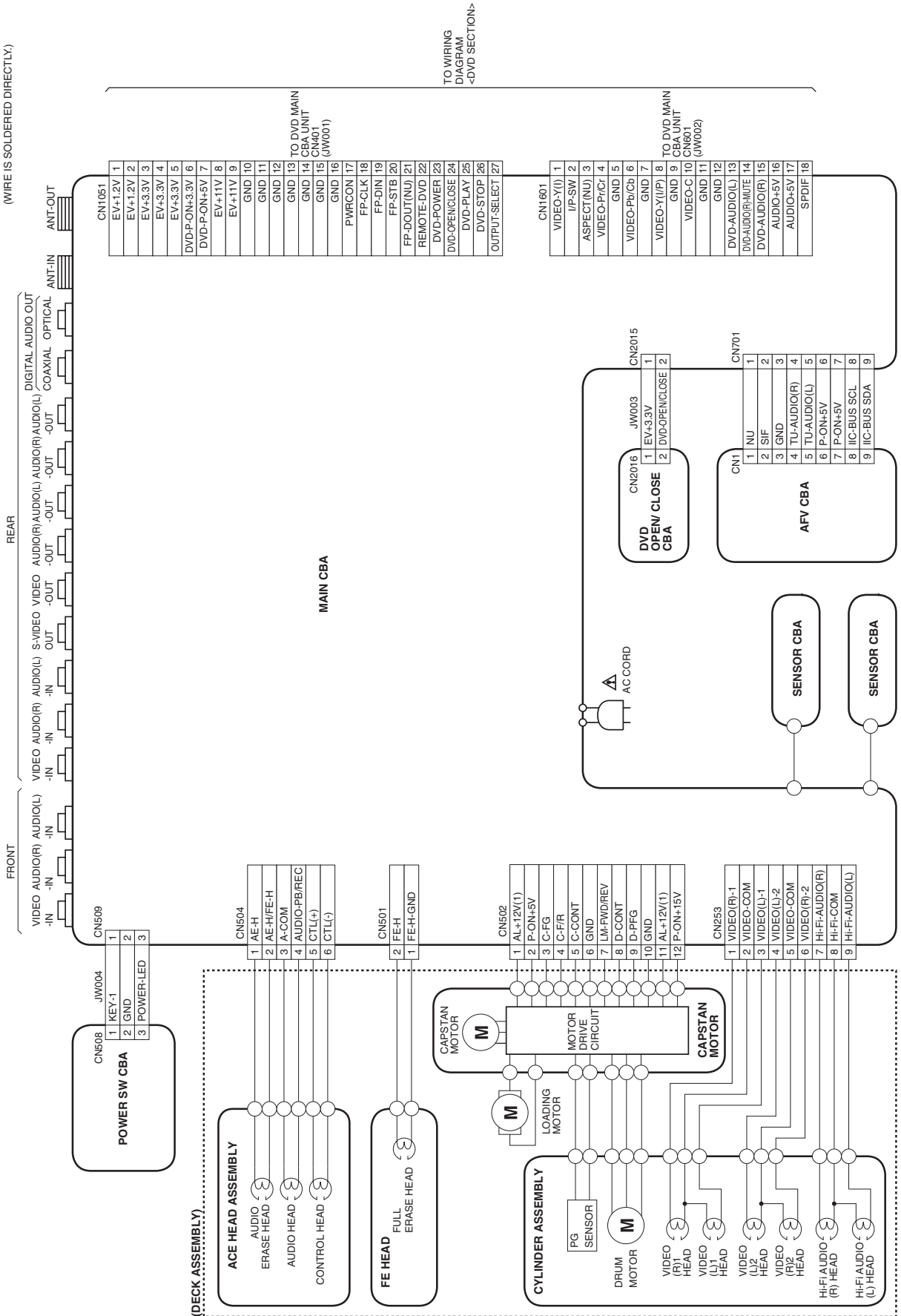


WF9 Pin 18 of CN1601



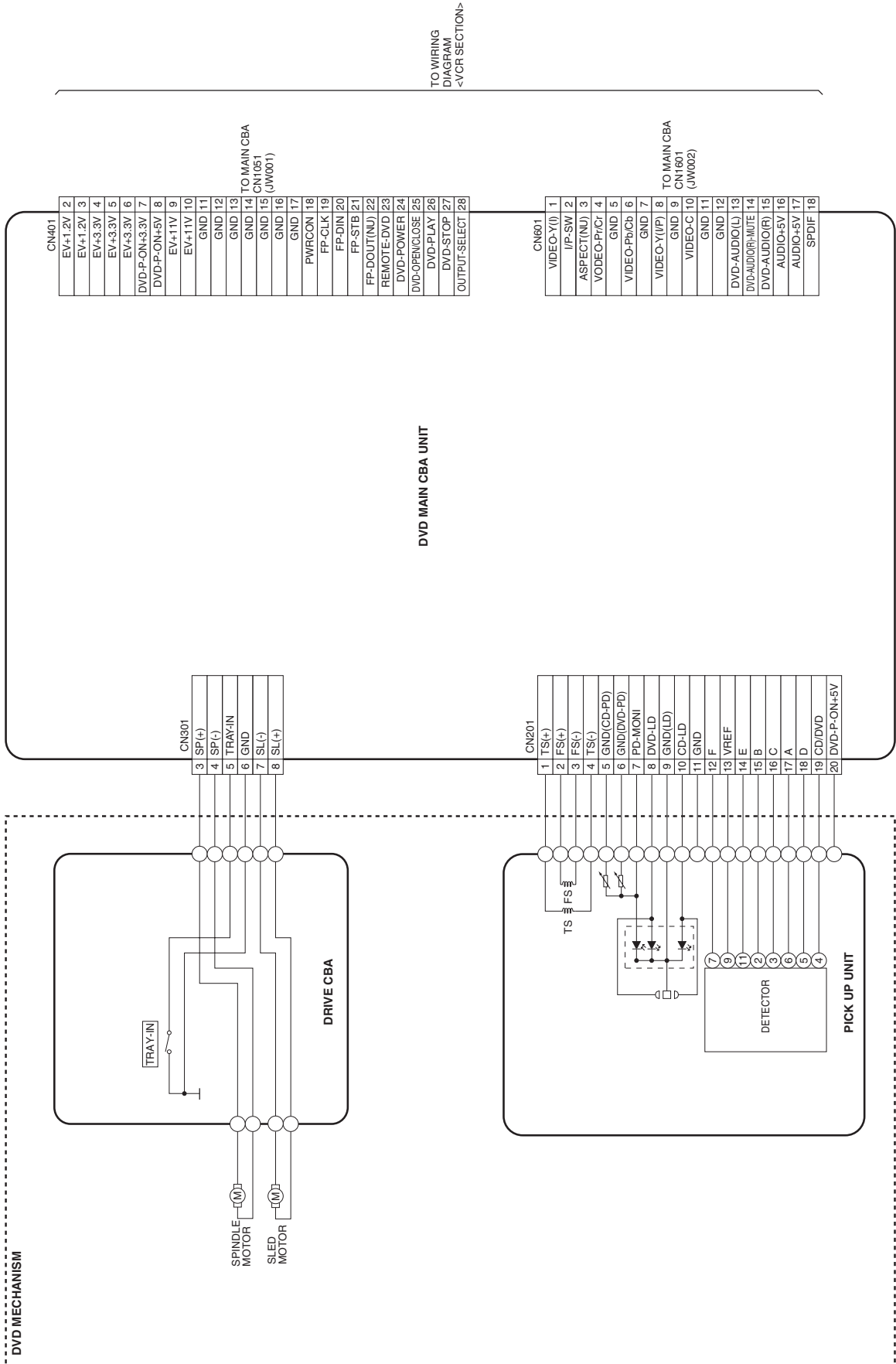
WIRING DIAGRAM < VCR SECTION >

NOTE FOR WIRE CONNECTORS:
 1. PREFIX SYMBOL "CN" MEANS CONNECTOR.
 (CAN DISCONNECT AND RECONNECT)
 2. PREFIX SYMBOL "CL" MEANS WIRE-SOLDER
 HOLES OF THE PCB.
 (WIRE IS SOLDERED DIRECTLY.)



WIRING DIAGRAM < DVD SECTION >

NOTE FOR WIRE CONNECTORS:
 1. PREFIX SYMBOL 'CN' MEANS CONNECTOR.
 (CAN DISCONNECT AND RECONNECT)
 2. PREFIX SYMBOL 'CL' MEANS WIRE-SOLDER
 HOLES OF THE PCB.
 (WIRE IS SOLDERED DIRECTLY.)



SYSTEM CONTROL TIMING CHARTS

< VCR Section >

Mode SW : LD-SW

LD-SW Position detection A/D Input voltage Limit (Calculated voltage)	Symbol
3.76V~4.50V (4.12V)	EJ
4.51V~5.00V (5.00V)	CL
0.00V~0.25V (0.00V)	SB
1.06V~1.50V (1.21V)	TL
0.66V~1.05V (0.91V)	FB
1.99V~2.60V (2.17V)	SF
1.51V~1.98V (1.80V)	SM
3.20V~3.75V (3.40V)	AU
0.26V~0.65V (0.44V)	AL
4.51V~5.00V (5.00V)	SS
2.61V~3.19V (2.97V)	RS

↑ Note:

Note:

EJ → RS: Loading FWD (LM-FWD/REV "H")

RS → EJ: Loading REV (LM-FWD/REV "L")

Stop (A) = Loading

Stop (B) = Unloading

Note:

Symbol	Loading Status
EJ	Eject
CL	Eject ~ REW Reel
SB	REW Reel ~ Stop(B)
TL	Stop(B) ~ Brake Cancel
FB	Brake Cancel ~ FF / REW
SF	FF / REW ~ Stop(M), (FF / REW)
SM	Stop(M), (FF / REW) ~ Stop(A)
AU	Stop(A) ~ Play / REC
AL	Play / REC ~ Still / Slow
SS	Still / Slow ~ RS (REW Search)
RS	RS (REW Search)

Still/Slow Control Frame Advance Timing Chart

1) SP Mode

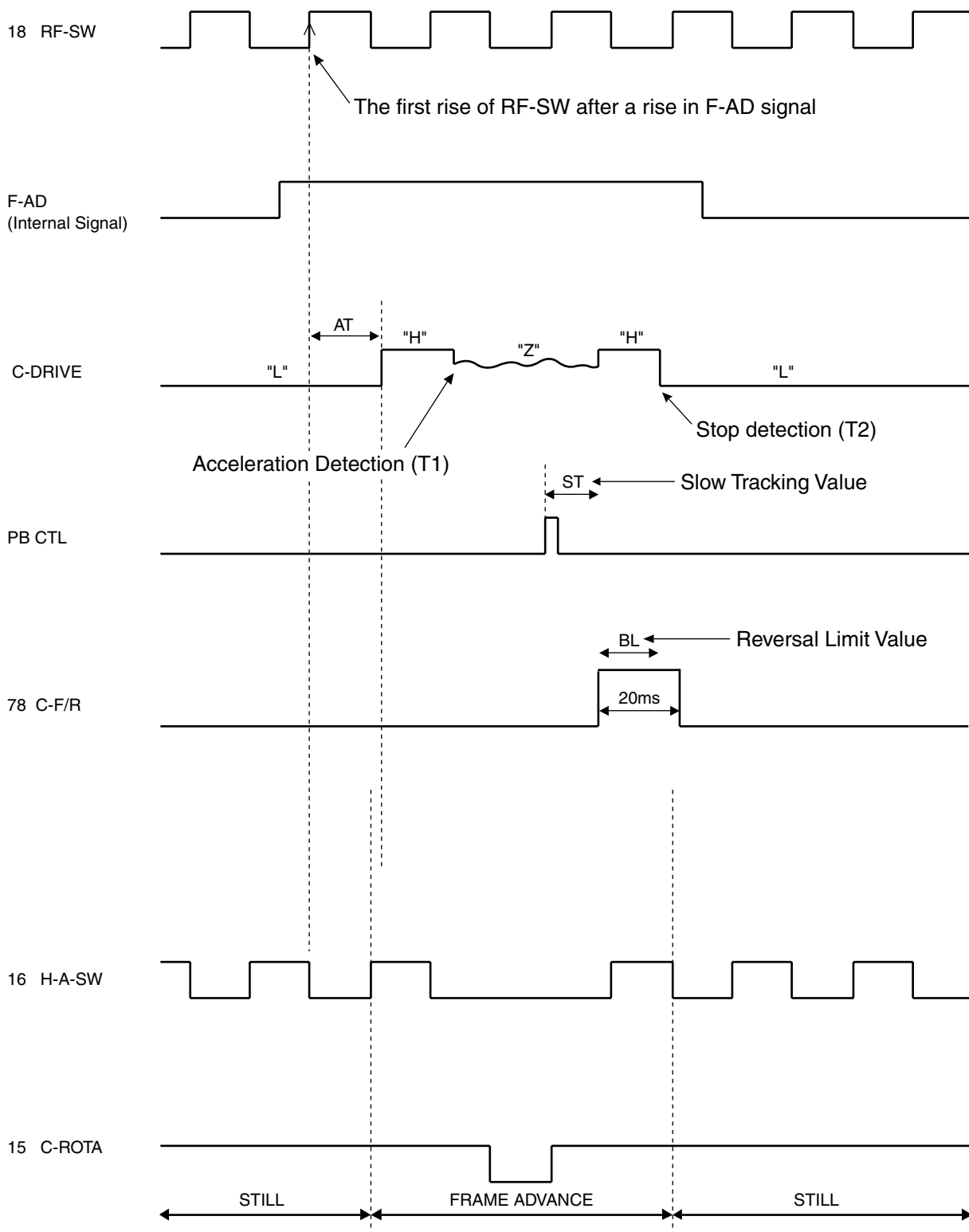


Fig. 1

2) LP/SLP Mode

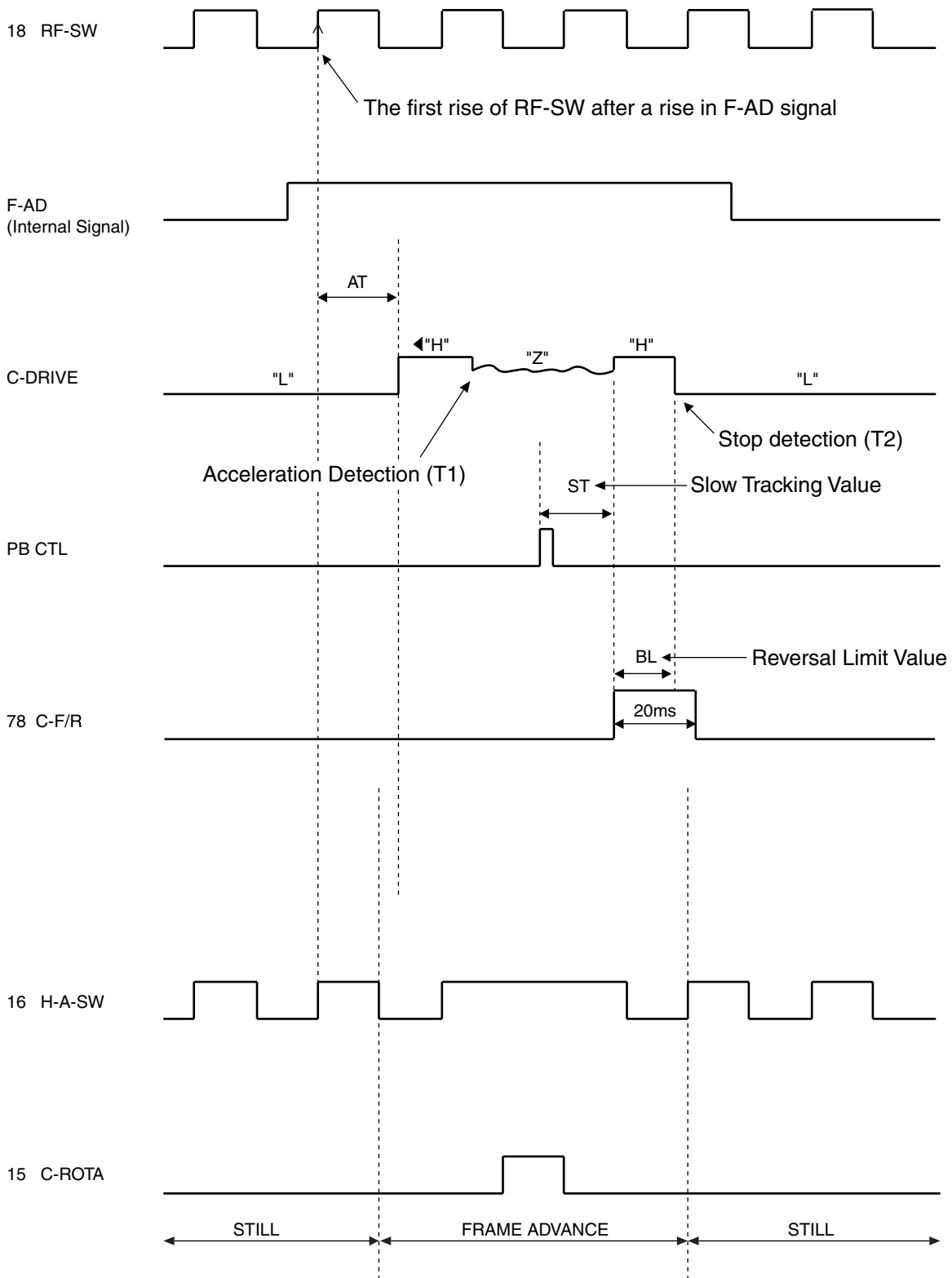


Fig. 2

1. EJECT (POWER OFF) -> CASSETTE IN (POWER ON) -> STOP(B) -> STOP(A) -> PLAY -> RS -> FS -> PLAY -> STILL -> PLAY -> STOP(A)

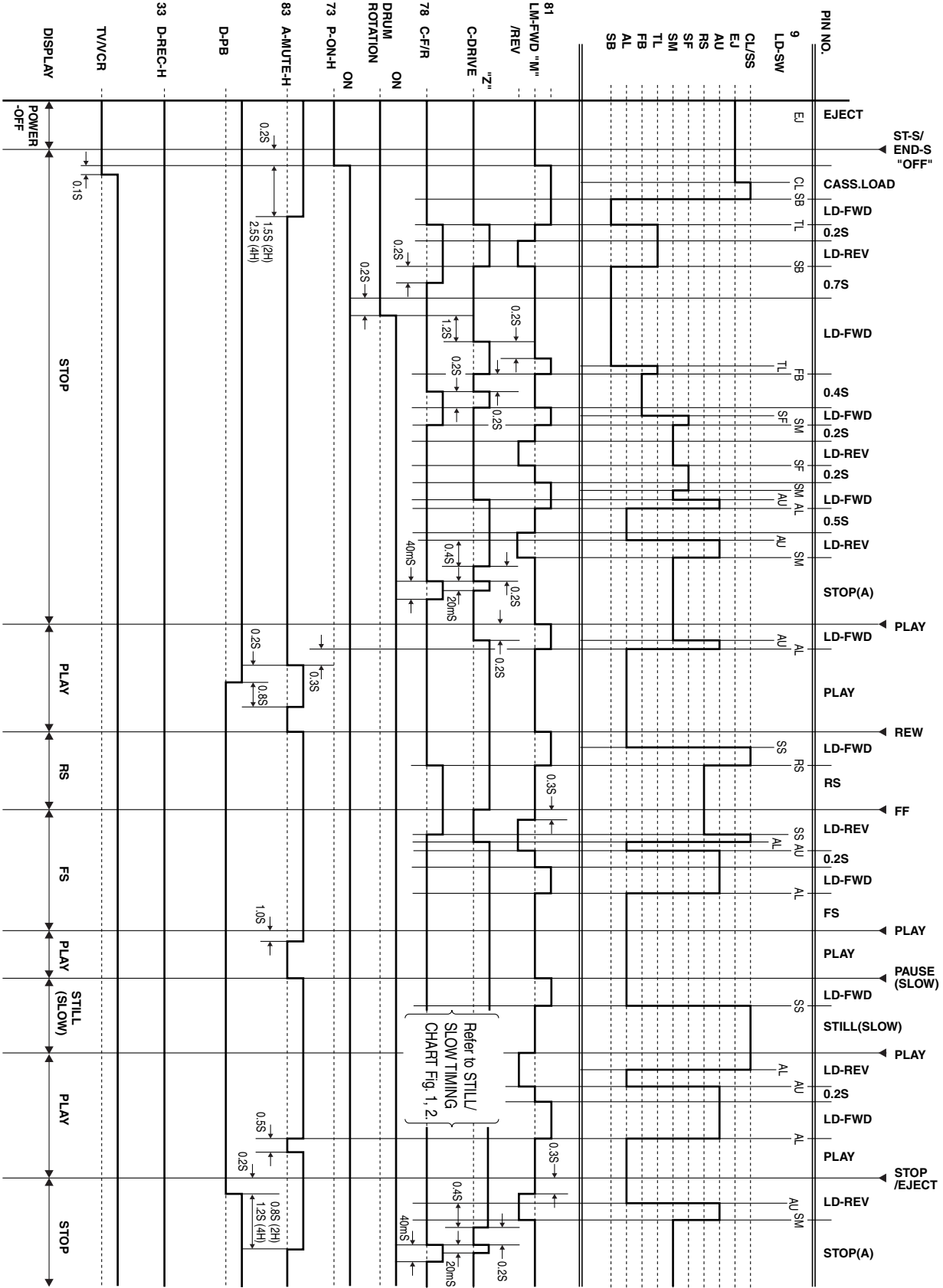


Fig. 3

2. STOP(A) -> FF -> STOP(A) -> REW -> STOP(A) -> REC -> PAUSE -> PAUSE or REC -> STOP(A) -> EJECT

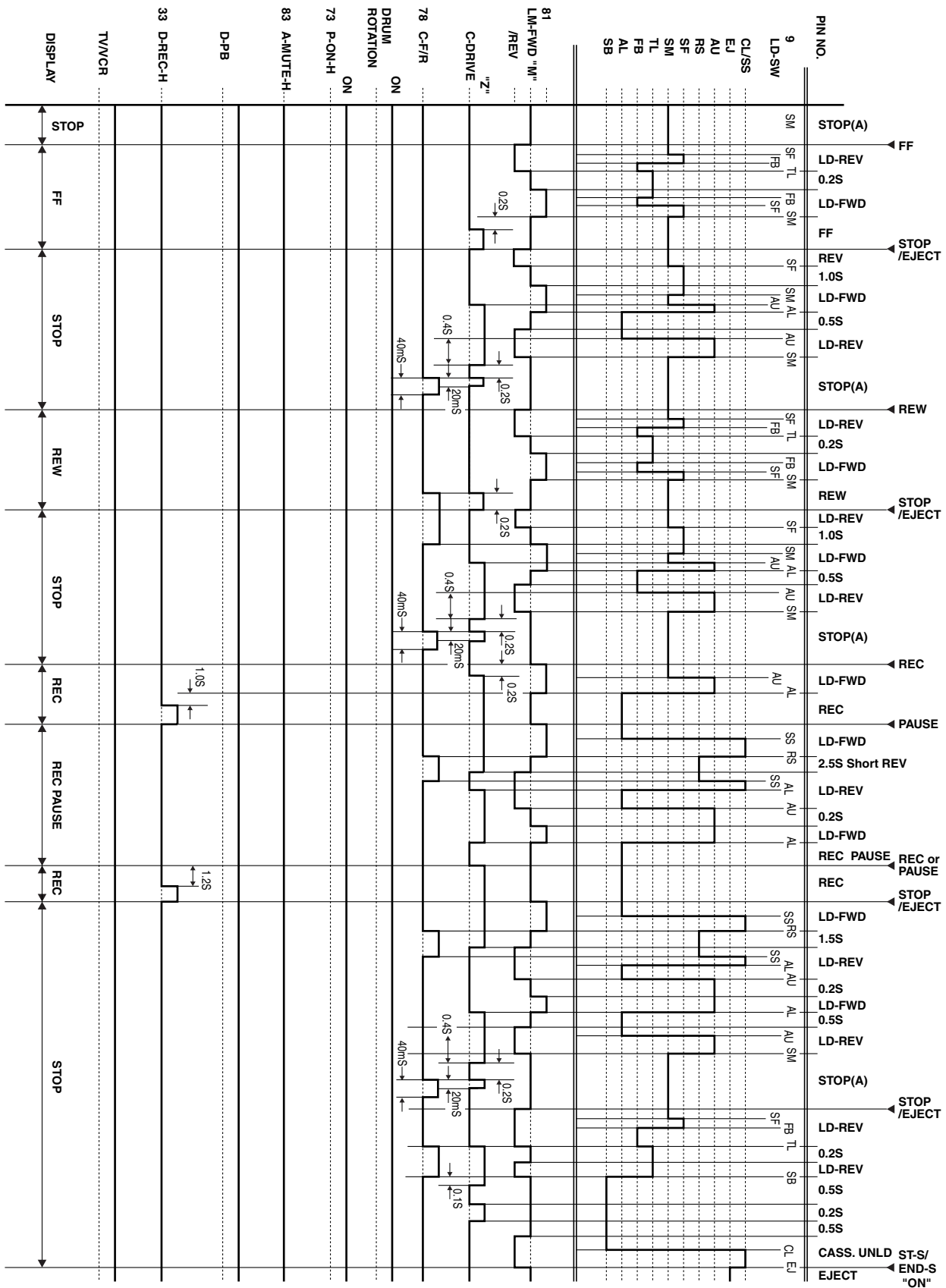
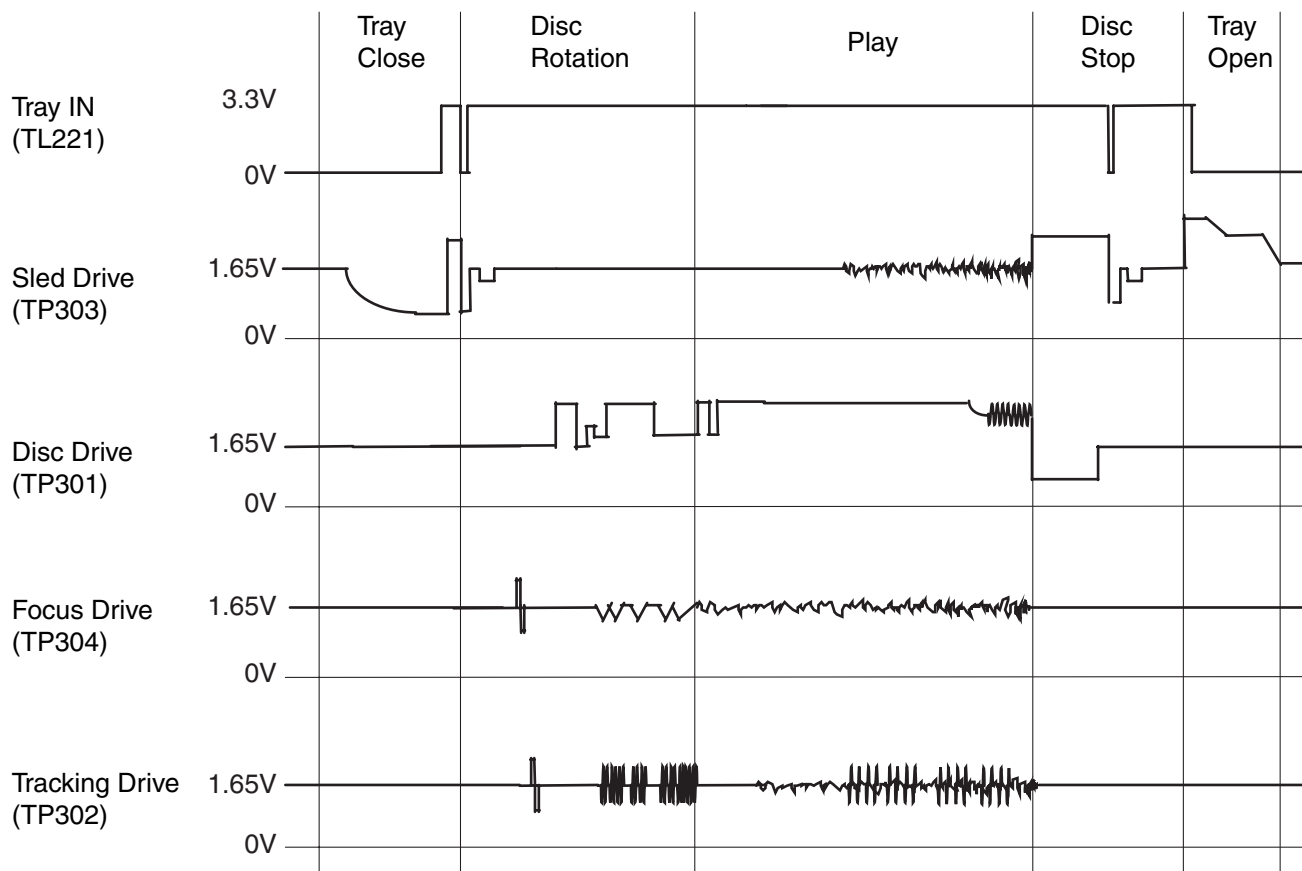


Fig. 4

< DVD Section >

Tray Close ~ Play / Play ~ Tray Open



IC PIN FUNCTION DESCRIPTIONS

< VCR Section >

IC501(SERVO / SYSTEM CONTROL IC)

“H” ≥ 4.5V, “L” ≤ 1.0V

Pin No.	IN/OUT	Signal Name	Function	Active Level
1	-	NU	Not Used	-
2	IN	PG-DELAY	Video Head Switching Pulse Signal Adjusted Voltage	A/D
3	IN	POW-SAF	P-ON Power Detection Input Signal	A/D
4	IN	END-S	Tape End Position Detect Signal	A/D
5	IN	AFC	Automatic Frequency Control Signal	A/D
6	IN	V-ENV	Video Envelope Comparator Signal	A/D
7	IN	KEY-1	Key Scan Input Signal 1	A/D
8	IN	KEY-2	Key Scan Input Signal 2	A/D
9	IN	LD-SW	Deck Mode Position Detector Signal	A/D
10	IN	ST-S	Tape Start Position Detector Signal	A/D
11	-	NU	Not Used	-
12	-	NU	Not Used	-
13	OUT	D-V-SYNC	Dummy V-sync Output	H/Hi-z
14	IN	REMOCON-IN	Remote Control Sensor	L
15	OUT	C-ROTA	Color Phase Rotary Changeover Signal	H/L
16	OUT	H-A-SW	Video Head Amp Switching Pulse	H/L
17	IN	H-A-COMP	Head Amp Comparator Signal	H/L
18	OUT	RF-SW	Video Head Switching Pulse	H/L
19	OUT	Hi-Fi-H-SW	HiFi Audio Head Switching Pulse	H/L
20	-	NU	Not Used	-
21	OUT	TUNER-SW1	Tuner System Control Signal Output	H
22	OUT	TUNER-SW2	Tuner System Control Signal Output	H

Pin No.	IN/OUT	Signal Name	Function	Active Level
23	OUT	POWER-LED	“POWER” LED Signal Output	H/L
24	OUT	POWER-LED	“POWER” LED Signal Output	H/L
25	-	NU	Not Used	-
26	-	NU	Not Used	-
27	-	NU	Not Used	-
28	-	NU	Not Used	-
29	-	NU	Not Used	-
30	-	NU	Not Used	-
31	IN	REC-SAF-SW	Recording Safety SW Detect (With Record tab="L"/ With out Record tab="H")	H/L
32	IN	P-DOWN -H	Power Voltage Down Detector Signal	H
33	OUT	D-REC-H	Delayed Record Signal	H
34	IN	RESET	System Reset Signal (Reset="L")	L
35	IN	Xcin	Sub Clock	-
36	OUT	Xcout	Sub Clock	-
37	-	Vcc	Vcc	-
38	IN	Xin	Main Clock Input	-
39	OUT	Xout	Main Clock Input	-
40	-	GND	Vss(GND)	-
41	OUT	INPUT-SELECT	Input Selector Control Signal	H/L
42	OUT	DVD-POWER	DVD Power Control Signal	H
43	IN	CLKSEL	Clock Select (GND)	L
44	IN	OSCIin	Clock Input for letter size	-
45	OUT	OSCOout	Clock Output for letter size	-
46	-	NUB	Not Used	-
47	IN	P61/LP	P61/LP	-
48	IN	FSC-IN [4.43MHz]	4.43MHz Clock Input	-
49	-	OSDVss	OSDVss	-
50	IN	OSD-V-IN	OSD Video Signal Input	-
51	-	NU	Not Used	-
52	OUT	OSD-V-OUT	OSD Video Signal Output	-
53	-	OSDVcc	OSDVcc	-

Pin No.	IN/OUT	Signal Name	Function	Active Level
54	-	HLF	LPF Connected Terminal (Slicer)	-
55	-	NU	Not Used	-
56	-	NU	Not Used	-
57	-	NUA	Not Used	-
58	IN	C-SYNC	Composite Synchronized Pulse	PULSE
59	OUT	VCR-LED	"VCR" LED Signal Output	H/L
60	OUT	VCR-LED	"VCR" LED Signal Output	H/L
61	OUT	VCR-LED	"VCR" LED Signal Output	H/L
62	OUT	DVD-LED	"DVD" LED Signal Output	H/L
63	OUT	DVD-LED	"DVD" LED Signal Output	H/L
64	OUT	DVD-LED	"DVD" LED Signal Output	H/L
65	-	NU	Not Used	-
66	-	NU	Not Used	-
67	-	NU	Not Used	-
68	OUT	DRV-DATA	VFD Driver IC Control Data	H/L
69	OUT	DRV-STB	VFD Driver IC Chip Select Signal	H/L
70	OUT	DRV-CLK	VFD Driver IC Control Clock	H/L
71	OUT	IIC-BUS-SCL	IIC BUS Control Clock	H/L
72	IN/OUT	IIC-BUS-SDA	IIC BUS Control Data	H/L
73	OUT	P-ON-H	Power On Signal at High	H
74	-	NU	Not Used	-
75	IN	DVD-POWER-MONITOR	DVD Power Monitor Signal (P-off="L", P-on="H")	H/L
76	OUT	C-CONT	Capstan Motor Control Signal	PWM
77	OUT	D-CONT	Drum Motor Control Signal	PWM
78	OUT	C-F/R	Capstan Motor FWD/REV Control Signal (FWD="L"/REV="H")	H/L
79	OUT	OUTPUT-SELECT	Output Select	H/L
80	IN	T-REEL	Take Up Reel Rotation Signal	PULSE
81	OUT	LM-FWD/REV	Loading Motor Control Signal	H/L/Hi-z
82	-	NU	Not Used	-

Pin No.	IN/OUT	Signal Name	Function	Active Level
83	OUT	AUDIO-MUTE-H	Audio Mute Control Signal (Mute = "H")	H
84	-	NU	Not Used	-
85	-	NU	Not Used	-
86	IN	A-MODE	Hi-Fi Tape Detection Signal	L
87	IN	C-FG	Capstan Motor Rotation Detection Pulse	PULSE
88	-	AMPVss	AMPVss	-
89	-	NU	Not Used	-
90	IN	D-PFG	Drum Motor Phase/Frequency Generator	PULSE
91	-	AMPVREF OUT	V-Ref for CTL AMP	-
92	-	AMPVREF in	V-Ref for CTL AMP	-
93	-	P80/C	P80/C Terminal	-
94	IN/OUT	CTL(-)	Playback/Record Control Signal (-)	H/L
95	IN/OUT	CTL(+)	Playback/Record Control Signal (+)	H/L
96	-	AMPC	CTL AMP Connected Terminal	-
97	-	CTL	To Monitor for CTL AMP Output	PULSE
98	-	AMPVcc	AMPVcc	-
99	-	AVcc	A/D Converter Power Input/Standard Voltage Input	-
100	-	NU	Not Used	-

Notes:

Abbreviation for Active Level:

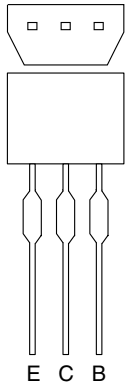
PWM -----Pulse Wide Modulation

A/D-----Analog - Digital Converter

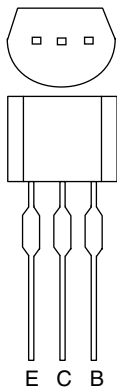
IC612 (FIP DRIVER)

Pin No.	IN/ OUT	Signal Name	Name Function
1	IN	FP-CLK	Clock Input
2	IN	FP-STB	Serial Interface Strobe
3	-	NU	Not Used
4	-	NU	Not Used
5	-	VSS	GND
6	-	VDD	Power Supply
7	OUT	a	Segment Output
8		b	
9		c	
10		d	
11		e	
12		f	
13		g	
14		h	
15	-	VEE	Pull Down Level
16	OUT	i	Segment Output
17	OUT	7G	Grid Output
18		6G	
19		5G	
20		4G	
21		3G	
22		2G	
23		1G	
24	-	VDD	Power Supply
25	-	VSS	GND
26	IN	OSC	Oscillator Input
27	-	NU	Not Used
28	IN	FP-DIN	Serial Data Input

LEAD IDENTIFICATIONS



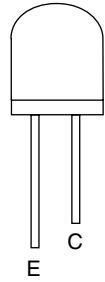
2SA1175(F,H,J)
2SC2785(F,H,J)
BA1F4M-T
BN1F4M-T
KRA103M
KRC103M
KRC103M-AT/P
KTA1266(GR)
KTA1267(GR,Y)
KTC3199(BL,GR,Y)
KTA1267-GR-AT/P
KTA1267Y-AT/P
KTC3199-(BL,GR,Y)-AT/P
KTA-1266-GR-AT/P



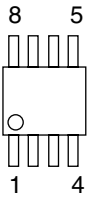
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2SA1015-GR(TE2 F T)
2SC1815-BL(TPE2)
2SC1815-GR(TPE2)
2SC1815-BL(TE2 F T)
2SC1815-GR(TE2 F T)
2SC1815-Y(TE2 F T)
2SC1815-Y(TPE2)
2SC2120-Y(TPE2)
2SC2120-Y(TE2 F T)

2SC3266-Y(TPE2 F)
2SC3266-Y(TPE2)
KTC3203(Y)
KTC3203-Y-AT/P
KTC3205(Y)
KTC3205-Y-AT/P

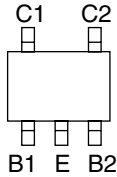
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PT204-6B-12



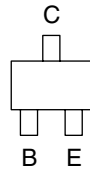
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NJM4558D
RC4580IP



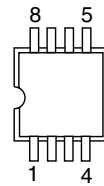
FMG4A T148
RN1511(TE85R)
RN1511(TE85R.F)



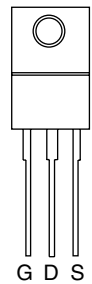
KTC3875S-Y-RTK/P



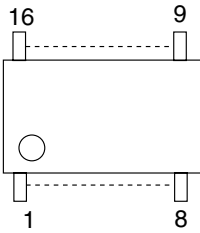
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CAT24WC02WI-TE13



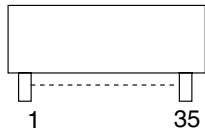
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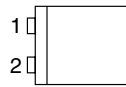
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7-BT-298NYM

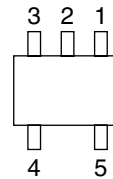


EL817A
EL817B
PS2561A-1(Q,W)



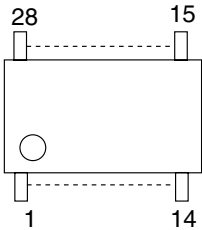
1: Anode
2: Cathode
3: Emitter
4: Collector

PQ1LAX95MSPQ

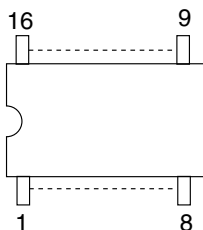


1: VREF
2: GND
3: VC
4: VIN
5: VOUT

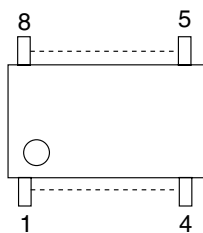
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SC16313G



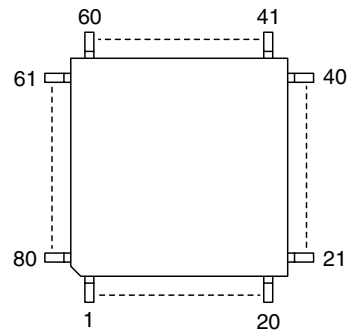
CD4053BCSJX
TC4053BF(EL N F)
TC4053BF(N)



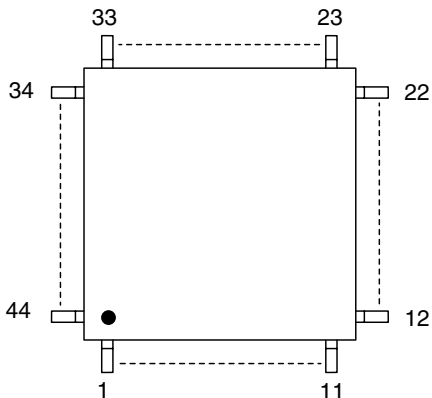
MM1636XWRE



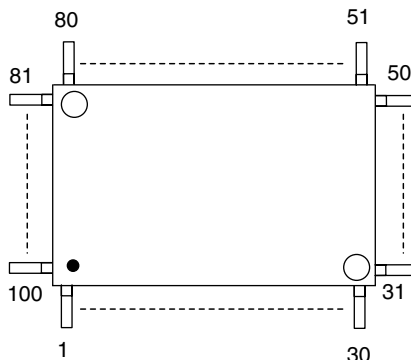
LA72638M



MSP3417G-QG-B8-V3



LA71586M
M3776AMCH-AA3GP



Note:

A: Anode
K: Cathode
E: Emitter
C: Collector
B: Base
R: Reference
S: Source
G: Gate
D: Drain

ELECTRICAL PARTS LIST**MISCELLANEOUS**

9965 000 29469 DVD MAIN CBA UNIT
 9965 000 29470 MCV CBA
 9965 000 29471 AFV CBA
 9965 000 24118 SENSOR CBA

MCV CBA UNIT

MCV CBA UNIT consists of MAIN CBA, AFV, POWER SWITCH CBA, DVD
 OPEN/CLOSE CBA and SENSOR CBA

MAIN CBA**MISCELLANEOUS**

AC1001! 9965 000 25350 AC CORD PS8B1SP9G0A-067
 AC1001! * 9965 000 29500 Δ AC CORD S0A0280-006
 F1001! 4822 070 31602 Δ 21801.6(1.6A)
 F1001! * 4822 070 31602 Δ 21801.6(1.6A)
 JK1202 9965 000 15322 RCA JACK(BLACK) MSP-281V2-B
 JK1401 9965 000 15323 S TYPE JACK MDC-050V-2.4
 JK1403 9965 000 24161 RCA JACK MSP-283V-B-752 NI LF
 JK751 4822 265 11657 MSP-283V-B-324
 JK752 4822 265 11656 MSP-293V3-324
 JK753 4822 265 11659 RCA JACK(YELLOW) MSP-281V4-B
 JK754 4822 265 11661 RCA JACK(WHITE) MSP-281V1-B
 JK755 9965 000 00423 MSP-281V3-A RCA JACK(RED)
 JK756 9965 000 29501 RCA JACK MSP-382V-12 NILF
 JW001 9965 000 29502 FFC CABLE 27P FFC/P1.00/260
 JW002 9965 000 29503 FFC CABLE 18P FFC/P1.00/260
 RM2001 9965 000 10857 REMOTE RECEIVER
 RM2001 * 9965 000 10857 REMOTE RECEIVER
 SA1001! 9965 000 20946 Δ SURGE ABSORBER PVR-10D471KB
 SA1001! * 4822 252 11373 Δ JVR-10N471K
 SW501 4822 276 13954 KSM0614B
 SW501 * 4822 276 14127 SKQSAF001A
 SW501 * 9965 000 19590 TACT SWITCH TC-1104(H=9.5)
 SW503 4822 276 13954 KSM0614B
 SW503 * 4822 276 14127 SKQSAF001A
 SW503 * 9965 000 19590 TACT SWITCH TC-1104(H=9.5)
 SW504 4822 276 13954 KSM0614B
 SW504 * 4822 276 14127 SKQSAF001A
 SW504 * 9965 000 19590 TACT SWITCH TC-1104(H=9.5)
 SW506 9965 000 16625 LEAF SWITCH MXS01830MVPO
 SW507 9965 000 23359 ROTARY MODE SWITCH SSS-53MD
 SW601 4822 276 13954 KSM0614B
 SW601 * 4822 276 14127 SKQSAF001A
 SW601 * 9965 000 19590 TACT SWITCH TC-1104(H=9.5)
 SW602 4822 276 13954 KSM0614B
 SW602 * 4822 276 14127 SKQSAF001A
 SW602 * 9965 000 19590 TACT SWITCH TC-1104(H=9.5)
 SW603 4822 276 13954 KSM0614B
 SW603 * 4822 276 14127 SKQSAF001A
 SW603 * 9965 000 19590 TACT SWITCH TC-1104(H=9.5)
 SW604 4822 276 13954 KSM0614B

SW604 * 4822 276 14127 SKQSAF001A
 SW604 * 9965 000 19590 TACT SWITCH TC-1104(H=9.5)
 SW605 4822 276 13954 KSM0614B
 SW605 * 4822 276 14127 SKQSAF001A
 SW605 * 9965 000 19590 TACT SWITCH TC-1104(H=9.5)
 SW2021 4822 276 13954 KSM0614B
 SW2021 * 4822 276 14127 SKQSAF001A
 SW2021 * 9965 000 19590 TACT SWITCH TC-1104(H=9.5)
 SW2022 4822 276 13954 KSM0614B
 SW2022 * 4822 276 14127 SKQSAF001A
 SW2022 * 9965 000 19590 TACT SWITCH TC-1104(H=9.5)
 T0011! 9965 000 29504 Δ PULSE TRANS BCK-28-0608
 TU701 9965 000 23361 TUNER UNIT TMDG2-661A
 VR501 9965 000 05260 CARBON P.O.T. 100K OHM B
 X302 9965 000 29505 XTAL 4.433619MHZ
 X302 * 9965 000 29506 XTAL 1K*044334EE
 X302 * 9965 000 29507 QUARTZ CRYSTAL 4.433619MHZ
 X302 * 9965 000 05629 X'TAL 4.433619MHZ
 X302 * 4822 242 10695 4 433 619 MHZ
 X501 9965 000 12194 X'TAL 12.000MHZ
 X501 * 9965 000 29508 QUARTS CRYSTAL 12.000000MHZ
 X502 9965 000 12288 X'TAL 32.768KHZ(20PPM)
 X502 * 9965 000 19592 X'TAL 32.768KHZ(20PPM)

CAPACITORS

C409 9965 000 06523 CERAMIC CAP. B K 470PF/100V
 C1001! 9965 000 06521 Δ METALLIZED FILM CAP. 0.068UF/250V
 C1001! * 9965 000 23998 Δ MET FILM 0.068UF/250V K
 C1001! * 9965 000 09743 METALLIZED FILM CAP. 0.068UF/250
 C1004 4822 124 12446 1000UF 20% 400V
 C1005 4822 126 14141 56PF 1KV
 C1005 * 9965 000 06567 CERAMIC CAP. SL J 56PF/1KV
 C1006! 9965 000 23354 Δ SAFTY CAP. 2200PF/250V
 C2014 4822 126 14142 0.01UF 500V

RESISTORS

R1001! 9965 000 08653 Δ CARBON RES. 1/2W K 5.6M OHM
 R1001! * 9965 000 20944 Δ GL GLAZE RES. 1/2W J 5.6MOHM
 R1001! * 9965 000 24001 Δ POWER ANTI-S1/2W J 5.6M OHM
 R1004 4822 053 11823 82K 5% 2W
 R1004 * 4822 053 11823 82K 5% 2W
 R1004 * 9965 000 24002 METAL OXIDE 2W J 82K OHM
 R1011 9965 000 24003 METAL OXIDE 1W J 1.3 OHM
 R1011 * 9965 000 23996 METAL OXIDE 1W J 1.3 OHM
 R1011 * 9965 000 23996 METAL OXIDE 1W J 1.3 OHM
 R1043 9965 000 09861 METAL OXIDE FILM RES. 1W J 150K
 R1043 * 4822 117 12744 2.7R 5% 1W
 R1043 * 9965 000 24004 METAL OXIDE 1W J 2.7 OHM

COILS

L010 9965 000 29480 CHOKE COIL 47UH
 L010 * 9965 000 29481 RADIAL TYPE CHOKE COIL CW68-470K

ELECTRICAL PARTS LIST

COILS

L010 *	9965 000 05627	CHOKE COIL 47UH-K
L010 *	9965 000 05702	CHOKE COIL 47UH-K
L010 *	9965 000 23990	CHOKE COIL 47UH-K
L010 *	9965 000 27579	FIXED INDUCTORS LGB0810T-470K
L013	9965 000 29480	CHOKE COIL 47UH
L013 *	9965 000 29481	RADIAL TYPE CHOKE COIL CW68-470K
L013 *	9965 000 05627	CHOKE COIL 47UH-K
L013 *	9965 000 05702	CHOKE COIL 47UH-K
L013 *	9965 000 23990	CHOKE COIL 47UH-K
L013 *	9965 000 27579	FIXED INDUCTORS LGB0810T-470K
L053	4822 157 10649	100UH
L251	9965 000 08652	INDUCTOR 5.6UH-K-26T
L301	4822 157 11511	15UH-K-26T
L302	4822 157 11509	47UH-K-26T
L303	4822 157 10325	39UH-K
L304	4822 157 10649	100UH
L306	9965 000 05705	INDUCTOR 47UH-K-5FT
L308	4822 157 10347	220UF
L401	9965 000 05705	INDUCTOR 47UH-K-5FT
L451	9965 000 29480	CHOKE COIL 47UH
L451 *	9965 000 29481	RADIAL TYPE CHOKE COIL CW68-470K
L451 *	9965 000 05627	CHOKE COIL 47UH-K
L451 *	9965 000 05702	CHOKE COIL 47UH-K
L451 *	9965 000 23990	CHOKE COIL 47UH-K
L451 *	9965 000 27579	FIXED INDUCTORS LGB0810T-470K
L501	4822 157 10649	100UH
L503	9965 000 08629	INDUCTOR 1.8UH-K-26T
L751	4822 157 10649	100UH
L1001	9965 000 29482	BEAD CORE ASSEMBLY H9900ED
L1002	9965 000 29482	BEAD CORE ASSEMBLY H9900ED
L1003!	9965 000 13005	△ LINE FILTER 50MH LF-4D-E503 OR
L1003! *	9965 000 13005	△ LINE FILTER 50MH LF-4D-E503 OR
L1004	4822 526 10685	BEAD CORE B16 RH 3.5X10X1.3
L1005	9965 000 29482	BEAD CORE ASSEMBLY H9900ED
L1009	9965 000 29480	CHOKE COIL 47UH
L1009 *	9965 000 29481	RADIAL TYPE CHOKE COIL CW68-470K
L1009 *	9965 000 05627	CHOKE COIL 47UH-K
L1009 *	9965 000 05702	CHOKE COIL 47UH-K
L1009 *	9965 000 23990	CHOKE COIL 47UH-K
L1009 *	9965 000 27579	FIXED INDUCTORS LGB0810T-470K
L1012	9965 000 29480	CHOKE COIL 47UH
L1012 *	9965 000 29481	RADIAL TYPE CHOKE COIL CW68-470K
L1012 *	9965 000 05627	CHOKE COIL 47UH-K
L1012 *	9965 000 05702	CHOKE COIL 47UH-K
L1012 *	9965 000 23990	CHOKE COIL 47UH-K
L1012 *	9965 000 27579	FIXED INDUCTORS LGB0810T-470K
L1251	9965 000 15331	INDUCTOR 0.47UH-K-26T
L1351	4822 157 10649	100UH
L1521	9965 000 29480	CHOKE COIL 47UH
L1521 *	9965 000 29481	RADIAL TYPE CHOKE COIL CW68-470K
L1521 *	9965 000 05627	CHOKE COIL 47UH-K
L1521 *	9965 000 05702	CHOKE COIL 47UH-K

L1521 *	9965 000 23990	CHOKE COIL 47UH-K
L1521 *	9965 000 27579	FIXED INDUCTORS LGB0810T-470K
L2001	4822 157 10649	100UH

DIODES

D013	4822 130 11654	BA158
D013 *	4822 130 11654	BA158
D014	9965 000 19668	SCHOTTKY BARRIER DIODE SB390
D016	4822 130 32715	SB340
D017	9965 000 23356	ZENER DIODE DZ-18BSBT265
D017 *	9965 000 13882	ZENER DIODE MTZJT-7718B OR
D018	4822 130 11654	BA158
D018 *	4822 130 11654	BA158
D054	9965 000 09283	ZENER DIODE DZ-10BSBT265
D054 *	4822 130 80998	MTZJ10C
D056	9965 000 23356	ZENER DIODE DZ-18BSBT265
D056 *	9965 000 13882	ZENER DIODE MTZJT-7718B OR
D057	4822 130 31933	1N5061
D057 *	9965 000 23978	1N4005
D058	9965 000 28852	ZENER DIODE DZ-4.3BSCT265
D058 *	9965 000 29475	ZENER DIODE MTZJT-774.3C
D301	4822 130 30621	1N4148
D301 *	4822 130 32778	1SS133
D502	9965 000 08623	LED(GREEN) 204-10GD/S957
D503	9965 000 08623	LED(GREEN) 204-10GD/S957
D510	4822 130 30621	1N4148
D510 *	4822 130 32778	1SS133
D555	9965 000 19572	LED MIE-534A2
D555 *	9965 000 05250	LED SIR-563ST3F P
D555 *	9965 000 05648	LED SIR-563ST3F Q
D701	9965 000 09183	ZENER DIODE DZ-33BSDT265
D701 *	4822 130 81729	MTZJ33D
D1001	4822 130 31933	1N5061
D1001 *	9965 000 23978	1N4005
D1002	4822 130 31933	1N5061
D1002 *	9965 000 23978	1N4005
D1003	4822 130 31933	1N5061
D1003 *	9965 000 23978	1N4005
D1004	4822 130 31933	1N5061
D1004 *	9965 000 23978	1N4005
D1006	4822 130 30621	1N4148
D1006 *	4822 130 32778	1SS133
D1008	5322 130 81917	SB140
D1008 *	5322 130 81917	SB140
D1011	5322 130 34979	BYV96E
D1011 *	9965 000 23999	BA159
D1012	4822 130 30621	1N4148
D1012 *	4822 130 32778	1SS133
D1016	9965 000 14882	RECTIFIER DIODE FR101
D1017	9965 000 23356	ZENER DIODE DZ-18BSBT265
D1017 *	9965 000 13882	ZENER DIODE MTZJT-7718B OR
D1018	4822 130 30621	1N4148

ELECTRICAL PARTS LIST

DIODES

D1018 *	4822 130 32778	1SS133	Q057 *	9965 000 10994	2SC3199-GR/KTC3199-GR
D1019	9965 000 14881	ZENER DIODE DZ-6.8BSBT265	Q057 *	9965 000 09882	TRANSISTOR BN1L4M-T
D1019 *	9965 000 23556	ZENER DIODE MTZJT-776.8B	Q058	9965 000 29490	TRANSISTOR KTA1267Y-AT/P
D1022	4822 130 30621	1N4148	Q058 *	9965 000 29491	TRANSISTOR KTA1267-GR-AT/P
D1022 *	4822 130 32778	1SS133	Q058 *	4822 130 11646	2SA1175J
D1024	4822 130 30621	1N4148	Q058 *	9965 000 19587	TRANSISTOR 2SA1175(H)
D1024 *	4822 130 32778	1SS133	Q058 *	9965 000 05644	TRANSISTOR 2SA1175(F)
D1025	4822 130 30621	1N4148	Q058 *	4822 130 63144	2SA1267(YG)
D1025 *	4822 130 32778	1SS133	Q058 *	4822 130 10462	KTA1267-GR
D1026	4822 157 10332		Q301	9965 000 29484	TRANSISTOR KTC3199-Y-AT/P
D1030	5322 130 81917	SB140	Q301 *	9965 000 29485	TRANSISTOR KTC3199-GR-AT/P
D1030 *	5322 130 81917	SB140	Q301 *	4822 130 41306	2SC1815GR
D1052	4822 130 31933	1N5061	Q301 *	9965 000 29486	TRANSISTOR 2SC1815-Y(TE2 F T)
D1052 *	9965 000 23978	1N4005	Q301 *	9965 000 29487	TRANSISTOR 2SC1815-GR(TE2 F T)
D1053	4822 130 31933	1N5061	Q301 *	4822 130 11647	2SC2785J
D1053 *	9965 000 23978	1N4005	Q301 *	9965 000 19583	TRANSISTOR 2SC2785(H)
D1054	4822 130 31933	1N5061	Q301 *	9965 000 05643	TRANSISTOR 2SC2785(F)
D1054 *	9965 000 23978	1N4005	Q301 *	4822 130 10103	KTC3199Y
D1057	4822 130 31933	1N5061	Q301 *	9965 000 10994	2SC3199-GR/KTC3199-GR
D1057 *	9965 000 23978	1N4005	Q301 *	9965 000 09882	TRANSISTOR BN1L4M-T
D1301	9965 000 08622	ZENER DIODE DZ-5.6BSBT265	Q302	9965 000 29492	CHIP TRANSISTOR KTC3875S-Y-RTK/P
D1301 *	4822 130 33948	MTZJ5.6B	Q303	9965 000 29492	CHIP TRANSISTOR KTC3875S-Y-RTK/P
			Q304	9965 000 29492	CHIP TRANSISTOR KTC3875S-Y-RTK/P

TRANSISTORS

Q053	4822 130 10145	KRA103M	Q305	9965 000 29493	TRANSISTOR KTA-1266-GR-AT/P
Q053 *	9965 000 05388	TRANSISTOR BN1F4M-T	Q305 *	9965 000 29494	TRANSISTOR 2SA1015-GR(TE2 F T)
Q054	9965 000 23377	RES. BUILT-IN TRANSISTOR KRC103M	Q305 *	4822 130 11101	2SA1015GR
Q054 *	9965 000 05389	TRANSISTOR BA1F4M-T	Q305 *	4822 130 42959	2SA1015Y
Q055	9965 000 29484	TRANSISTOR KTC3199-Y-AT/P	Q307	9965 000 29493	TRANSISTOR KTA-1266-GR-AT/P
Q055 *	9965 000 29485	TRANSISTOR KTC3199-GR-AT/P	Q307 *	9965 000 29494	TRANSISTOR 2SA1015-GR(TE2 F T)
Q055 *	4822 130 41306	2SC1815GR	Q307 *	4822 130 11101	2SA1015GR
Q055 *	9965 000 29486	TRANSISTOR 2SC1815-Y(TE2 F T)	Q307 *	4822 130 42959	2SA1015Y
Q055 *	9965 000 29487	TRANSISTOR 2SC1815-GR(TE2 F T)	Q308	9965 000 29492	CHIP TRANSISTOR KTC3875S-Y-RTK/P
Q055 *	4822 130 11647	2SC2785J	Q401	9965 000 29493	TRANSISTOR KTA-1266-GR-AT/P
Q055 *	9965 000 19583	TRANSISTOR 2SC2785(H)	Q401 *	9965 000 29494	TRANSISTOR 2SA1015-GR(TE2 F T)
Q055 *	9965 000 05643	TRANSISTOR 2SC2785(F)	Q401 *	4822 130 11101	2SA1015GR
Q055 *	4822 130 10103	KTC3199Y	Q401 *	4822 130 42959	2SA1015Y
Q055 *	9965 000 10994	2SC3199-GR/KTC3199-GR	Q402	9965 000 29495	TRANSISTOR KTC3203-Y-AT/P
Q055 *	9965 000 09882	TRANSISTOR BN1L4M-T	Q402 *	9965 000 29496	TRANSISTOR 2SC2120-Y(TE2 F T)
Q056	9965 000 29488	TRANSISTOR KTC3205-Y-AT/P	Q402 *	9965 000 21660	TOSHIBA 2SC2120-Y
Q056 *	9965 000 29489	TRANSISTOR 2SC3266-Y(TPE2 F)	Q402 *	9965 000 21660	TOSHIBA 2SC2120-Y
Q056 *	9965 000 11122	KTC3205Y	Q403	4822 130 10145	KRA103M
Q056 *	9965 000 11122	KTC3205Y	Q403 *	9965 000 05388	TRANSISTOR BN1F4M-T
Q057	9965 000 29484	TRANSISTOR KTC3199-Y-AT/P	Q405	9965 000 29497	CHIP TRANSISTOR RN1511(TE85R.F)
Q057 *	9965 000 29485	TRANSISTOR KTC3199-GR-AT/P	Q405 *	9965 000 16623	CHIP TRANSISTOR FMG4A T148
Q057 *	4822 130 41306	2SC1815GR	Q405 *	9965 000 12361	CHIP TRANSISTOR RN1511(TE85R)
Q057 *	9965 000 29486	TRANSISTOR 2SC1815-Y(TE2 F T)	Q506	9965 000 08630	PHOTO TRANSISTOR PT204-6B-12
Q057 *	9965 000 29487	TRANSISTOR 2SC1815-GR(TE2 F T)	Q506 *	9965 000 20922	PHOTO TRANSISTOR MID-32A22F
Q057 *	4822 130 11647	2SC2785J	Q515	9965 000 29498	TRANSISTOR KTC3199-BL-AT/P
Q057 *	9965 000 19583	TRANSISTOR 2SC2785(H)	Q515 *	9965 000 29499	TRANSISTOR 2SC1815-BL(TE2 F T)
Q057 *	9965 000 05643	TRANSISTOR 2SC2785(F)	Q515 *	4822 130 10923	KTC3199(BL)
Q057 *	4822 130 10103	KTC3199Y	Q515 *	4822 130 41319	2SC1815BL
			Q770	9965 000 29484	TRANSISTOR KTC3199-Y-AT/P

ELECTRICAL PARTS LIST

TRANSISTORS

Q770 *	9965 000 29485	TRANSISTOR KTC3199-GR-AT/P	Q1053 *	4822 130 63144	2SA1267(YG)
Q770 *	4822 130 41306	2SC1815GR	Q1053 *	4822 130 10462	KTA1267-GR
Q770 *	9965 000 29486	TRANSISTOR 2SC1815-Y(T E2 F T)	Q1054	9965 000 29484	TRANSISTOR KTC3199-Y-AT/P
Q770 *	9965 000 29487	TRANSISTOR 2SC1815-GR(T E2 F T)	Q1054 *	9965 000 29485	TRANSISTOR KTC3199-GR-AT/P
Q770 *	4822 130 11647	2SC2785J	Q1054 *	4822 130 41306	2SC1815GR
Q770 *	9965 000 19583	TRANSISTOR 2SC2785(H)	Q1054 *	9965 000 29486	TRANSISTOR 2SC1815-Y(T E2 F T)
Q770 *	9965 000 05643	TRANSISTOR 2SC2785(F)	Q1054 *	9965 000 29487	TRANSISTOR 2SC1815-GR(T E2 F T)
Q770 *	4822 130 10103	KTC3199Y	Q1054 *	4822 130 11647	2SC2785J
Q770 *	9965 000 10994	2SC3199-GR/KTC3199-GR	Q1054 *	9965 000 19583	TRANSISTOR 2SC2785(H)
Q770 *	9965 000 09882	TRANSISTOR BN1L4M-T	Q1054 *	9965 000 05643	TRANSISTOR 2SC2785(F)
Q771	9965 000 29484	TRANSISTOR KTC3199-Y-AT/P	Q1054 *	4822 130 10103	KTC3199Y
Q771 *	9965 000 29485	TRANSISTOR KTC3199-GR-AT/P	Q1054 *	9965 000 10994	2SC3199-GR/KTC3199-GR
Q771 *	4822 130 41306	2SC1815GR	Q1054 *	9965 000 09882	TRANSISTOR BN1L4M-T
Q771 *	9965 000 29486	TRANSISTOR 2SC1815-Y(T E2 F T)	Q1055	9965 000 29495	TRANSISTOR KTC3203-Y-AT/P
Q771 *	9965 000 29487	TRANSISTOR 2SC1815-GR(T E2 F T)	Q1055 *	9965 000 29496	TRANSISTOR 2SC2120-Y(T E2 F T)
Q771 *	4822 130 11647	2SC2785J	Q1055 *	9965 000 21660	TOSHIBA 2SC2120-Y
Q771 *	9965 000 19583	TRANSISTOR 2SC2785(H)	Q1055 *	9965 000 21660	TOSHIBA 2SC2120-Y
Q771 *	9965 000 05643	TRANSISTOR 2SC2785(F)	Q1204	9965 000 29493	TRANSISTOR KTA-1266-GR-AT/P
Q771 *	4822 130 10103	KTC3199Y	Q1204 *	9965 000 29494	TRANSISTOR 2SA1015-GR(T E2 F T)
Q771 *	9965 000 10994	2SC3199-GR/KTC3199-GR	Q1204 *	4822 130 11101	2SA1015GR
Q771 *	9965 000 09882	TRANSISTOR BN1L4M-T	Q1204 *	4822 130 42959	2SA1015Y
Q1001!	9965 000 17186	△ FET 2SK3566	Q1351	9965 000 29484	TRANSISTOR KTC3199-Y-AT/P
Q1003	9965 000 29485	TRANSISTOR KTC3199-GR-AT/P	Q1351 *	9965 000 29485	TRANSISTOR KTC3199-GR-AT/P
Q1003 *	9965 000 29487	TRANSISTOR 2SC1815-GR(T E2 F T)	Q1351 *	4822 130 41306	2SC1815GR
Q1003 *	9965 000 10994	2SC3199-GR/KTC3199-GR	Q1351 *	9965 000 29486	TRANSISTOR 2SC1815-Y(T E2 F T)
Q1003 *	4822 130 41306	2SC1815GR	Q1351 *	9965 000 29487	TRANSISTOR 2SC1815-GR(T E2 F T)
Q1004	9965 000 29490	TRANSISTOR KTA1267Y-AT/P	Q1351 *	4822 130 11647	2SC2785J
Q1004 *	9965 000 29491	TRANSISTOR KTA1267-GR-AT/P	Q1351 *	9965 000 19583	TRANSISTOR 2SC2785(H)
Q1004 *	4822 130 11646	2SA1175J	Q1351 *	9965 000 05643	TRANSISTOR 2SC2785(F)
Q1004 *	9965 000 19587	TRANSISTOR 2SA1175(H)	Q1351 *	4822 130 10103	KTC3199Y
Q1004 *	9965 000 05644	TRANSISTOR 2SA1175(F)	Q1351 *	9965 000 10994	2SC3199-GR/KTC3199-GR
Q1004 *	4822 130 63144	2SA1267(YG)	Q1351 *	9965 000 09882	TRANSISTOR BN1L4M-T
Q1008	9965 000 29484	TRANSISTOR KTC3199-Y-AT/P	Q1352	9965 000 29484	TRANSISTOR KTC3199-Y-AT/P
Q1008 *	9965 000 29485	TRANSISTOR KTC3199-GR-AT/P	Q1352 *	9965 000 29485	TRANSISTOR KTC3199-GR-AT/P
Q1008 *	4822 130 41306	2SC1815GR	Q1352 *	4822 130 41306	2SC1815GR
Q1008 *	9965 000 29486	TRANSISTOR 2SC1815-Y(T E2 F T)	Q1352 *	9965 000 29486	TRANSISTOR 2SC1815-Y(T E2 F T)
Q1008 *	9965 000 29487	TRANSISTOR 2SC1815-GR(T E2 F T)	Q1352 *	9965 000 29487	TRANSISTOR 2SC1815-GR(T E2 F T)
Q1008 *	4822 130 11647	2SC2785J	Q1352 *	4822 130 11647	2SC2785J
Q1008 *	9965 000 19583	TRANSISTOR 2SC2785(H)	Q1352 *	9965 000 19583	TRANSISTOR 2SC2785(H)
Q1008 *	9965 000 05643	TRANSISTOR 2SC2785(F)	Q1352 *	9965 000 05643	TRANSISTOR 2SC2785(F)
Q1008 *	4822 130 10103	KTC3199Y	Q1352 *	4822 130 10103	KTC3199Y
Q1008 *	9965 000 10994	2SC3199-GR/KTC3199-GR	Q1352 *	9965 000 10994	2SC3199-GR/KTC3199-GR
Q1008 *	9965 000 09882	TRANSISTOR BN1L4M-T	Q1352 *	9965 000 09882	TRANSISTOR BN1L4M-T
Q1052	9965 000 29495	TRANSISTOR KTC3203-Y-AT/P	INTEGRATED CIRCUITS		
Q1052 *	9965 000 29496	TRANSISTOR 2SC2120-Y(T E2 F T)	IC301	9965 000 08650	IC-Y/C/A LA71586M
Q1052 *	9965 000 21660	TOSHIBA 2SC2120-Y	IC451	4822 209 17559	LA72638M
Q1052 *	9965 000 21660	TOSHIBA 2SC2120-Y	IC501	9965 000 29476	SYSCON IC M3776AMCH-AA3GP
Q1053	9965 000 29490	TRANSISTOR KTA1267Y-AT/P	IC502	9965 000 29477	IC CAT24WC02WI-TE13
Q1053 *	9965 000 29491	TRANSISTOR KTA1267-GR-AT/P	IC502 *	9965 000 23983	IC BR24L02F-WE2
Q1053 *	4822 130 11646	2SA1175J	IC611	9965 000 27572	V.F.D. 7-BT-298NYM
Q1053 *	9965 000 19587	TRANSISTOR 2SA1175(H)	IC612	9965 000 27576	VFD DR/CONT IC PT6313-S-TP(L)
Q1053 *	9965 000 05644	TRANSISTOR 2SA1175(F)			

ELECTRICAL PARTS LIST**INTEGRATED CIRCUITS**

IC612 *	9965 000 27577	VFD DRIVER IC SC16313G
IC751	9965 000 29478	IC SWITCH TC4053BF(EL N F)
IC751 *	9965 000 13852	IC:SWITCH TC4053BF(N) OR
IC751 *	9965 000 02111	BU4053BCF
IC751 *	9965 000 23979	MULTIPLEXERS CD4053BCSJX
IC751 *	9965 000 23979	MULTIPLEXERS CD4053BCSJX
IC1001!	9965 000 19672	△ PHOTOCOUPLER EL817A
IC1001! *	9965 000 19657	△ PHOTOCOUPLER EL817B
IC1001! *	9965 000 24000	△ PHOTOCOUPLER PS2561A-1(Q)
IC1001! *	9965 000 25506	△ PHOTOCOUPLER PS2561A-1(W)
IC1002	9965 000 27573	VOLTAGE REG PQ1LAX95MSPQ
IC1003	9965 000 27573	VOLTAGE REG PQ1LAX95MSPQ
IC1201	9965 000 29479	IC OP AMP KIA4558P/P
IC1201 *	4822 209 83631	NJM4558DD
IC1201 *	9965 000 25723	IC:OP AMP RC4580IP
IC1402	9965 000 23981	DRIVER FOR DVD MM1637XVBE
IC1403	9965 000 23989	DRIVER FOR DVD MM1636XWRE
IC1404	9965 000 29478	IC SWITCH TC4053BF(EL N F)
IC1404 *	9965 000 13852	IC:SWITCH TC4053BF(N) OR
IC1404 *	9965 000 02111	BU4053BCF
IC1404 *	9965 000 23979	MULTIPLEXERS CD4053BCSJX
IC1404 *	9965 000 23979	MULTIPLEXERS CD4053BCSJX

AFV CBA

D2	4822 130 30621	1N4148
D2 *	4822 130 32778	1SS133
IC1	9965 000 14760	AUD UP MSP3417G-QG-B8-V3
L1	4822 157 10889	10UH
L3	4822 157 11318	18UH 10%
L4	4822 157 10889	10UH
X1	9965 000 12200	X'TAL 18.432MHZ

Note: * Alternative parts
Only the parts mentioned in this list are normal service spare parts.

POWER SWITCH CBA

D651	9965 000 08621	LED(RED) 204HD/E
SW651	4822 276 13954	KSM0614B
SW651 *	4822 276 14127	SKQSAF001A
SW651 *	9965 000 19590	TACT SWITCH TC-1104(H=9.5)

DVD OPEN/CLOSE CBA

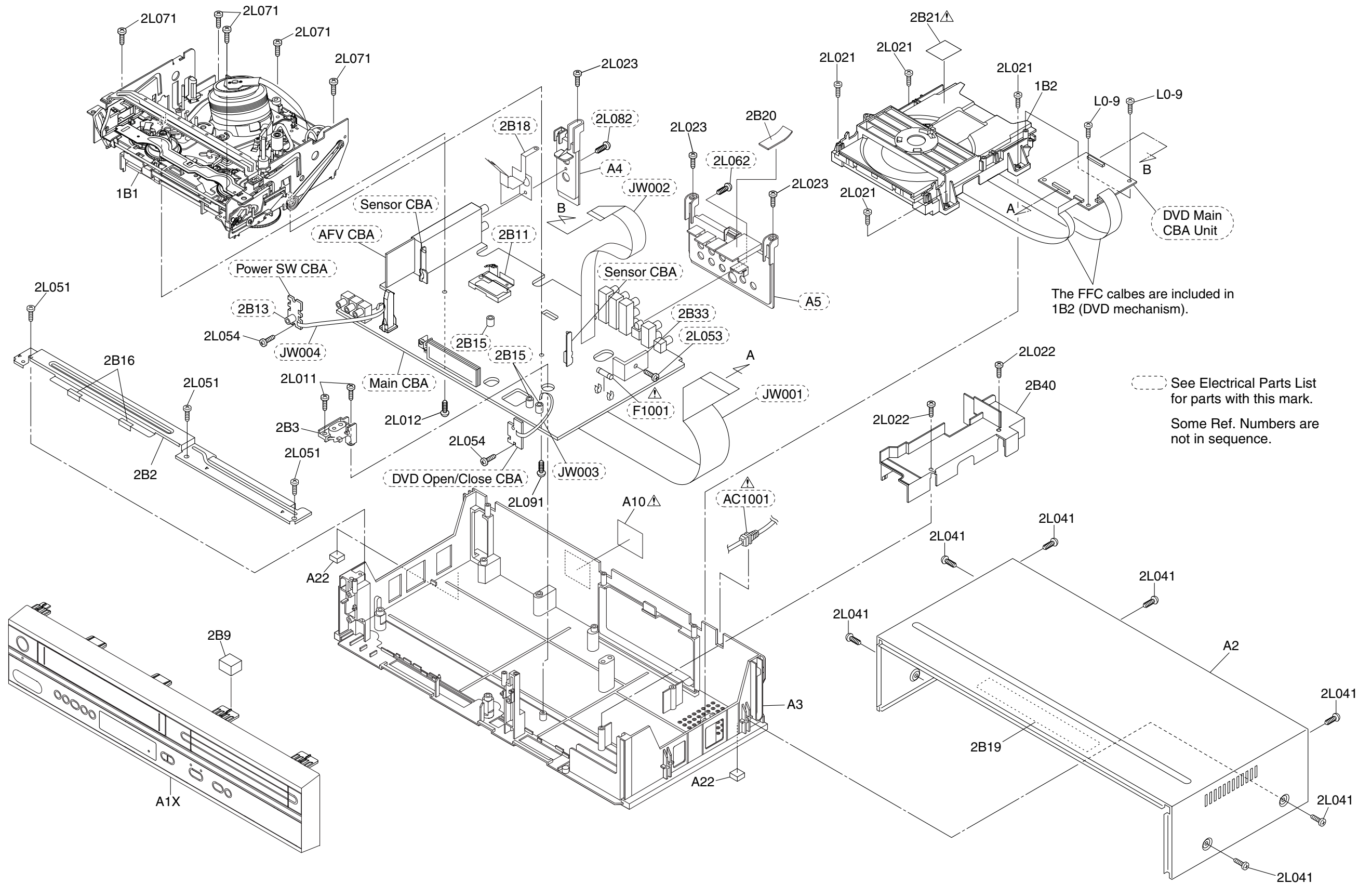
SW2020	4822 276 13954	KSM0614B
SW2020 *	4822 276 14127	SKQSAF001A
SW2020 *	9965 000 19590	TACT SWITCH TC-1104(H=9.5)

SENSOR CBA

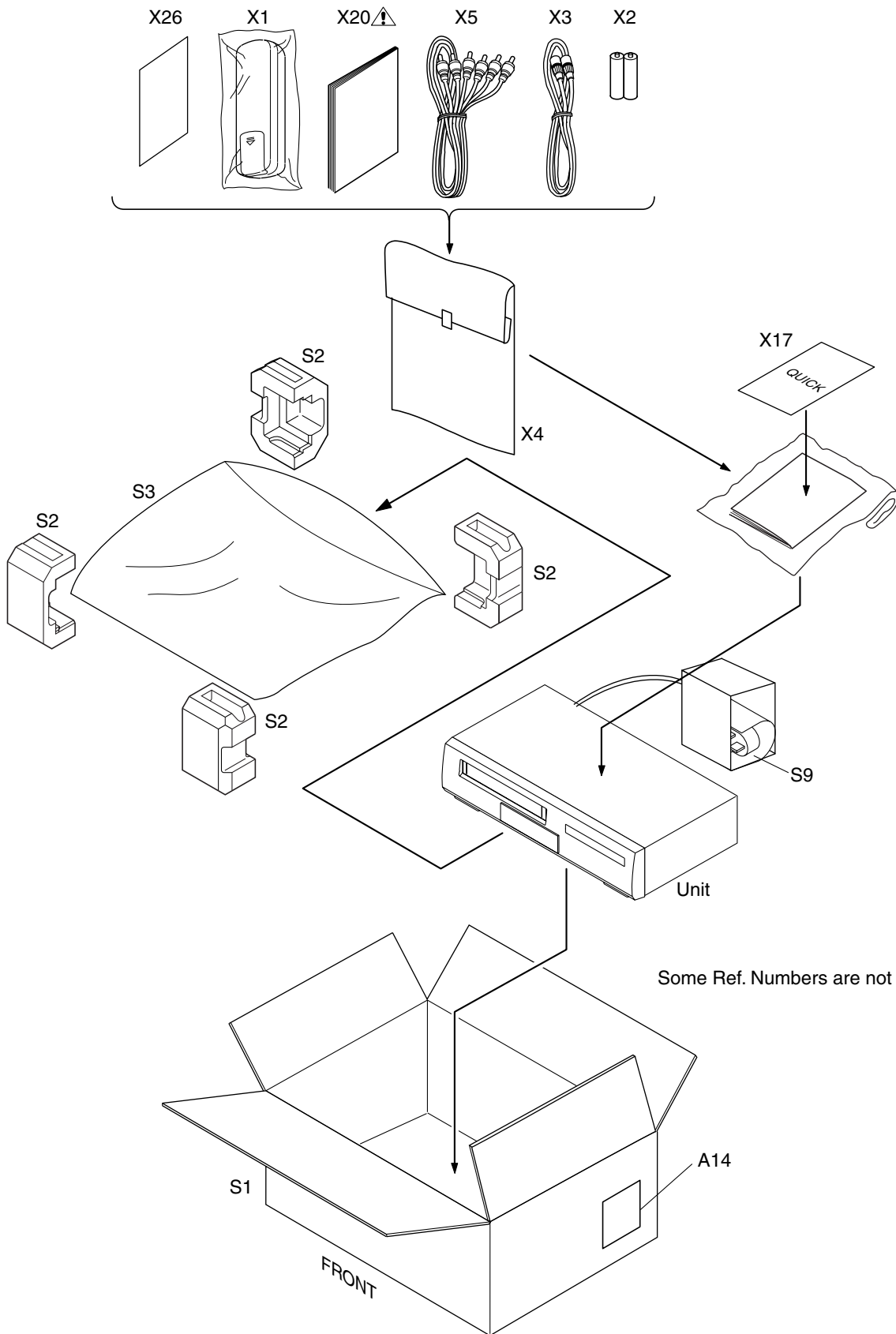
Q503	9965 000 08630	PHOTO TRANSISTOR PT204-6B-12
Q503	9965 000 20922	PHOTO TRANSISTOR MID-32A22F
Q504	9965 000 08630	PHOTO TRANSISTOR PT204-6B-12
Q504	9965 000 20922	PHOTO TRANSISTOR MID-32A22F

EXPLODED VIEWS

Cabinet



Packing



Some Ref. Numbers are not in sequence.

MECHANICAL & ACCESSORY PARTS LIST

ELECTRICAL PARTS

9965 000 29469	DVD MAIN CBA UNIT
9965 000 29470	MCV CBA(MAIN P_SW O_C SEN CBA)
9965 000 29471	AFV CBA
9965 000 24118	SENSOR CBA

MECHANICAL PARTS

1B1	9965 000 29468	DECK ASSEMBLY CZD014/VM2560
1B2	9965 000 27556	DVD MECHA E6160(FG LESS)
A1X	9965 000 29466	FRONT ASSEMBLY H9923AD
A2	9965 000 29467	TOP CASE(D5 PAL FTZ) H9700ED
A22	9965 000 17140	CHASSIS FOOT H79P9JD
X1	9965 000 29559	REMOTE CONTROL
X3	4822 322 10137	RF CABLE LP-PAL-960601
X3 *	4822 320 50377	CONNECT. CABLE PAL
X5	9965 000 24112	AV CORD TSCKA-Y/RW100
X5 *	9965 000 27558	AV CORD RCA(M*2)TO RCA(M*2)

Note: * Alternative parts

Only the parts mentioned in this list are normal service spare parts.