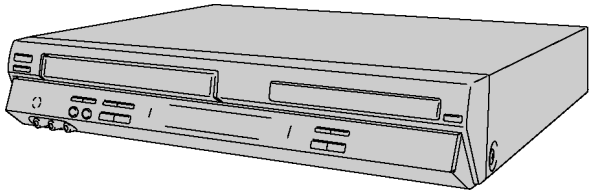
ORDER NO. MAV0604001CE

Service Manual

DVD Player/ Video Cassette Recorder

Panasonic VHS Hi-Fi

PAL NTSC



NV-VP60GL
NV-VP60GC
NV-VP60GCS

R4-MECHANISM

Panasonic®

SPECIFICATIONS

ITEM	SPECIFICATION		ITEM	SPECIFICATION
POWER	SOURCE: 220-240V AC 50/60 Hz		AUDIO	HEAD: 1 Stationary head (Normal-mono only) 2 channels (Hi-Fi Sound-Stereo)
	CONSUMPTION: 22 watts			INPUT: AUDIO IN (AV1: REAR) Connector (Phono type) -6dBV (500 mV), More than 47 kΩ AUDIO IN (AV2: FRONT) Connector (Phono type) -6dBV (500 mV), More than 47 kΩ
RECORDING SYSTEM	2 rotary heads, helical scanning system			OUTPUT: VHS/DVD, AUDIO OUT Connector (Phono type) -6 dBV (500mV), Less than 1kΩ DVD AUDIO OUT Connector (Phono type) 2Vrms, (1kHz, 0dB, 10kΩ)
	PAL/NTSC		AUDIO CHARACTERI -STICS	S/N ratio: Normal More than SP; 43 dB HiFi 65 dB DVD 115 dB FREQUENCY RESPONSE: Normal 80 Hz-8 kHz Hi-Fi 20 Hz-20 kHz DVD (linear audio) 4 Hz-22 kHz (48 kHz sampling) 4 Hz-44 kHz (96 kHz sampling) CD audio 4 Hz-20 kHz
PLAYABLE DISCTYPE (8cm or 12cm)	DVD-Video, DVD-RAM (DVD-VR compatible), DVD-R (DVD-Video comparible), CD audio (CD-DA), Video CD, SVCD (Conforming to IEC62107), CD-R/RW (CD-DA, Video CD, SVCD, MP3, WMA, JPEG, High MAT formatted discs), MP3/WMA, JPEG, High MAT		DYNAMIC RANGE	Hi-Fi: More than 90 dB DVD (linear audio): More than 99 dB CD audio: More than 97 dB
DVD SIGNAL SYSTEM	PAL 625/50, NTSC 525/60		TAPE SPEED	SP: 23.39 mm/s (PAL), 33.3 mm/s (NTSC) LP: 11.695 mm/s (PAL) EP: 7.796 mm/s (PAL), 11.1 mm/s (NTSC) Record/Playback Time (PAL): SP:4 hours with 240 min. type tape LP: 8 hours with 240 min. type tape EP:12 hours with 240min type tape FF/REW Time: 60sec. with 180 min. type tape JET REW Time: 43 sec. with 180 min. type tape
PICK UP	Wave length: 662nm/785nm Laser Power: CLASS 2/CLASS 1		REGION NUMBER	Region No. 4 (NV-VP60GL) Region No. 2 (NV-VP60GC) Region No. 3 (NV-VP60GCS)
TV TUNER SYSTEM	NV-VP60GL	VHF: CH0-CH12 UHF: CH28-CH69 CATV: CHS1-CHS41	OPERATING TEMPERATURE	5˚C - 35˚C
	NV-VP60GC/GCS	VHF: CHE2-CHE12 UHF: CHE21-CHE69 CATV: CHS1-CHS41	OPERATING HUMIDITY	35% - 80%
RF OUT SYSTEM	NV-VP60GL	PLL (CH28-CH69/OFF) 75 Ω closed	DIMENSIONS	430 (W)×89(H)×259(D) mm
	NV-VP60GC/GCS	PLL (CHE21-CHE69/OFF) 75 Ω closed	WEIGHT	4.0 kg
VIDEO	HEADS: 4 rotary heads 1 pair for recording and playback (L-R heads) 1 pair for trick play (L'-R' heads)		STANDARD ACCESSORIES	1 pc. DIN-RF Cable 1 pc. AC Mains Lead (NV-VP60GL/GCS) 2 pc. AC Mains Lead (NV-VP60GC) 1 pc. Infra-red Remote Controller 1 pc. AV cable
	INPUT: VIDEO IN (AV1: REAR) Connector (Phono type) 1.0 Vp-p, 75 Ω terminated VIDEO IN (AV2: FRONT) Connector (Phono type) 1.0 Vp-p, 75 Ω terminated			
	OUTPUT: VHS/DVD VIDEO OUT Connector (Phono type) 1.0 Vp-p, 75 Ω terminated DVD VIDEO OUT Connector (Phono type) 1.0 Vp-p, 75 Ω terminated DVD S-VIDEO OUT (S4P) Y; 1.0 Vp-p, 75 Ω terminated C; 0.3 Vp-p (PAL), 75 Ω terminated C; 0.286 Vp-p (NTSC), 75 Ω terminated DVD COMPONENT VIDEO OUT Connector (Phono type) Y; 1.0 Vp-p, 75 Ω terminated PB/CB; 0.7 Vp-p, 75 Ω terminated PR/CR; 0.7 Vp-p, 75 Ω terminated			

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

CONTENTS

1 INTRODUCTION

1.1. INTRODUCTION

This service manual contains technical information which will allow service personnel to understand and service this model.

If the circuit is changed or modified, this information will be followed by supplementary service manual to be filed with original service manual.

Note:

1. Adjustment procedures, Disassembly Procedures and Assembly Procedures for Mechanism Chassis are separate volume from this service manual.

   Please refer to the service manual for R4-Mechanism Chassis. (Order No. VRD0202010C8)

2. The Model No. is indicated on the Schematic Diagram and Circuit Board Diagrams as follows.

Model No.	Indication Mark
NV-VP60GL	(GL)
NV-VP60GC	(GC)
NV-VP60GCS	(GCS)

1.2. ABOUT LEAD FREE SOLDER (PbF)

Distinction of PbF PCB:

PCBs (manufactured) using lead free solder will have a PbF stamp on the PCB.

Caution:

- Pb free solder has a higher melting point than standard solder, Typically the melting point is 50-70°F (30-40°C) higher. Please use a high temperature soldering iron. In case of soldering iron with temperature control, please set it to 700±20°F (370±10°C)
- Pb free solder will tend to splash when heated too high (about 1100°F/600°C).

When soldering or unsoldering, please completely remove all of the solder on the pins or solder area, and be sure to heat the soldering points with the Pb free solder until it melts enough.

2 SAFETY PRECAUTIONS

2.1. GENERAL GUIDELINES

1. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
2. After servicing, confirm that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
3. After servicing, do the following leakage current checks to prevent the customer from being exposed to shock hazards.

2.1.1. LEAKAGE CURRENT COLD CHECK

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between 1MΩ and 5.2MΩ.

   When the exposed metal does not have a return path to the chassis, the reading must be ∞.

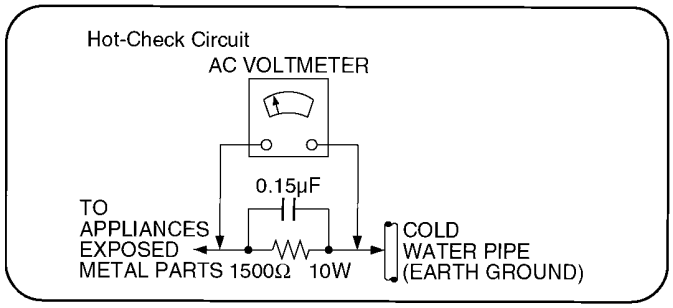


Figure 1

2.1.2. LEAKAGE CURRENT HOT CHECK (See Figure 1 .)

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a 1.5kΩ, 10 watts resistor, in parallel with a 0.15µF capacitors, between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in Figure 1.
3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 volts RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to do the hot checks, leakage current must not exceed 1/2 milliamp. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, therefore the equipment should be repaired and rechecked before it is returned to the customer.

3 PREVENTION OF ELECTRO STATIC DISCHARGE (ESD) TO ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electro static discharge (ESD).

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as alminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static (ESD protected)" can generate electrical charge sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, alminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

   Caution

   Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD) sufficient to damage an ES device).

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety.
These parts are marked by ⚠ in the schematic diagrams, Exploded Views and replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

4 PRECAUTION OF LASER DIODE

CAUTION:

This product utilizes a laser diode. When the unit is turned "on", invisible laser radiation is emitted from the pickup lens.
Wave length:658 nm/790 nm
Maximum output radiation power from pickup: 100 µ W/VDE
Laser radiation from the pickup lens is at safety level,but be sure of the followings:

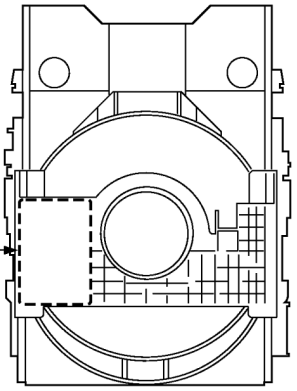
1. Do not disassemble the optical pickup unit, since radiation from exposed laser diode is dangerous.
2. Do not adjust the variable resistor on the pickup unit. It was already adjusted.
3. Do not look at the focus lens using optical instruments.
4. Recommend not to look at pickup lens for a long time.

ACHTUNG:

Dieses Produkt enthält eine Laserdiode.
Im eingeschalteten Zustand wird unsichtbare Leserstrahlung von der Laserinheit adgestrahit.
Wellenlänge: 658 nm/790 nm
Maximale Strahlungsleistung der Lasereinheit: 100 µ W/VDE
Die Strahlungan der Lasereinheit ungefährlich, wenn folgende Punkte beachtet werden:

1. Die Lasereinheit nicht zerlegen, da die Strahlung an der freigelegten Laserdiode gefährlich ist.
2. Den werkseitig justierten Einstellregler der Lasereinhit nicht verstellen.
3. Nicht mit optischen Instrumenten in die Fokussierlines blicken.
4. Nicht über längere Zeit in die Fokussierlines blicken.

CAUTION	–	LASER RADIATION WHEN OPEN. DO NOT STARE INTO BEAM. FDA 21 CFR / Class II
CAUTION	–	VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM. IEC60825-1 / Class 3b
ATTENTION	–	RAYONNEMENT LASER VISIBLE ET INVISIBLE EN CAS D'OUVERTURE. EXPOSITION DANGEREUSE AU FAISCEAU.
ADVARSEL	–	SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VARO!	–	AVATTAESSA OLET ALTTIINA NÄKYVÄÄ JA NÄKYMÄTÖN LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
VARNING	–	SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. BETRAKTA EJ STRÅLEN.
ADVARSEL	–	SYNLIG OG USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES. UNNGÅ EKSPONERING FOR STRÅLEN.
VORSICHT	–	SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.
注意	–	打开时有可见及不可见激光辐射，避免激光束照射。
注意	–	ここを開くと可視及び不可視レーザー光が出ます。ビームを見たり、触れたりしないでください。 RQLCA0141



CAUTION!
THIS PRODUCT UTILIZES A LASER.
USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

5 PREVENTION OF STATIC ELECTRICITY DISCHARGE

The laser diode in the traverse unit (optical pickup) may break down due to static electricity of clothes or human body. Use due caution to electrostatic break down when servicing and handling the laser diode.

5.1. Grounding for electrostatic breakdown prevention

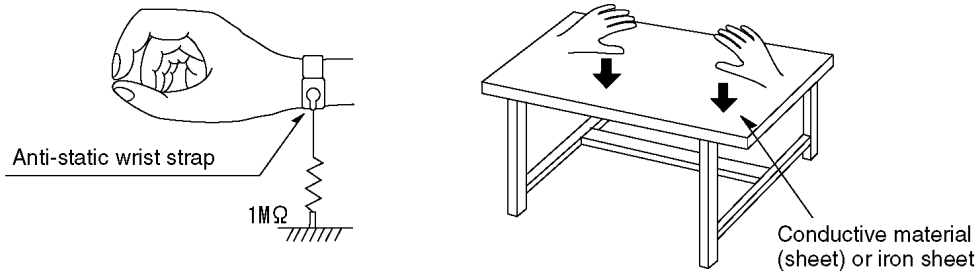
Some devices such as the DVD player use the optical pickup (laser diode) and the optical pickup will be damaged by static electricity in the working environment. Proceed servicing works under the working environment where grounding works is completed.

5.1.1. Worktable grounding

1. Put a conductive material (sheet) or iron sheet on the area where the optical pickup is placed, and ground the sheet.

5.1.2. Human body grounding

1. Use the anti-static wrist strap to discharge the static electricity form your body.



5.1.3. Handling of optical pickup

1. In order to keep the optical pickup in good quality, during transporting and before installing, both ends of the laser diode are to be shortcircuited. After replacing the part with a new one, remove the short circuit according to the correct procedure. (Refer to this Service manual)
2. Failure to do so will damage the laser diode due to the external current surge from the power supply in the tester.

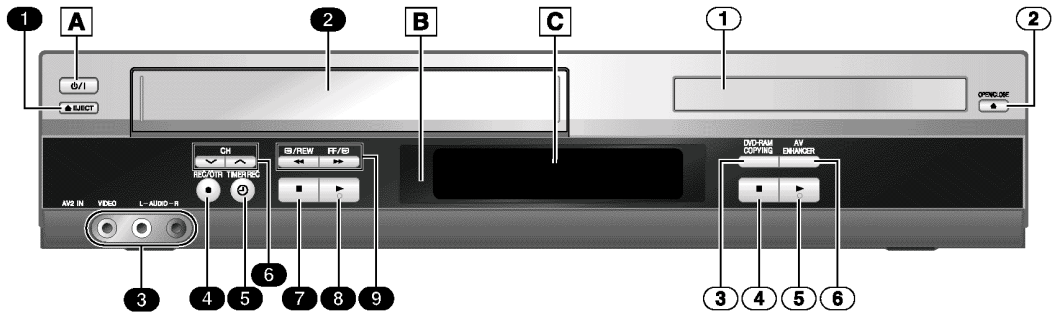
5.2. Handling Precautions for Traverse Unit (Optical Pickup)

1. Do not give a considerable shock to the traverse unit (optical pickup) as it has an extremely high-precise structure.
2. When replacing the optical pickup, install the flexible cable and cut its short land with a nipper. Refer to the optical pickup replacement procedure in this Service Manual. Before replacing the traverse unit, remove the short pin for preventing static electricity and install a new unit. Connect the connector as soon as possible.
3. The flexible cable may be cut off if an excessive force is applied to it. Use caution when handling the cable.
4. The half-fixed resistor for laser power adjustment shall not be adjusted. Do not turn the resistor.

6 GENERAL DESCRIPTION

6.1. OPERATING INSTRUCTIONS

Main Unit



■Common section

A **Power button (⏻/I)**
- Press **[⏻/I]** to switch this unit from on to standby mode or vice versa. In standby mode, the unit is still connected to the main AC power.

B **Infra-red Remote Control Receiver Window**

C **Display**

■VHS section

1 **Tape Eject button (⏏EJECT)**

2 **Cassette Compartment**

3 **AV2 IN (AUDIO/VIDEO) Sockets**

4 **Recording/One-Touch Recording button (●REC/OTR)**

5 **Timer Recording button (🕘TIMER REC)**

6 **Channel Down/Up buttons (∨∧CH)**

7 **■ Stop button**

8 **► Play button**

9 **Rewind/Fast-Forward buttons (◄◄ ►►⏪/REW FF/⏩)**

■DVD section

1 **Disc Tray**

2 **Disc Tray Open/Close button (⏏OPEN/CLOSE)**

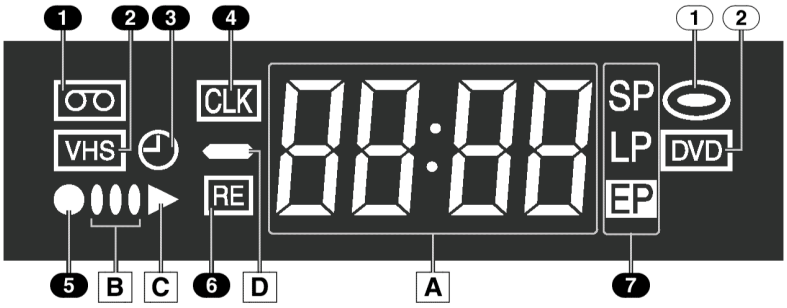
3 **DVD-RAM Copying button (DVD-RAM COPYING)**

4 **■ Stop button**

5 **► Play button**

6 **AV Enhancer button (AV ENHANCER)**

The Unit's Display



■Common section

A **Counter Display**
- Current time/VHS recording and play counter/Disc play counter/Miscellaneous messages, etc.

B **Running Indicator**
- Lights up when the VHS or DVD section is active.
- Flashes when the cassette is paused or the disc is stopped.
- One bar lights up when the disc is paused.
- The bars flash one at a time when the cassette or disc is playing.

C **Play Indicator**
- Lights up when playing a cassette or disc.

D **Minus Indicator**
- Lights up when the VHS tape counter passes the zero mark on the counter display or when the remaining time display is selected on some discs (– 0:00).

■VHS section

1 **Operation Status of VHS Section**
- Lights up when a cassette is inserted.
- Flashes when recording or timer recording is attempted with no cassette inserted.

2 **VHS Selector Indicator**
- Lights up when the VHS section is active.

3 **Timer Programme Recording Indicator**

4 **Clock Indicator**
- Lights up during the clock display.

5 **Recording Indicator**
- Lights up during recording, copying or timer recording.

6 **Remaining Time Indicator**

7 **Recording Mode Indicator**

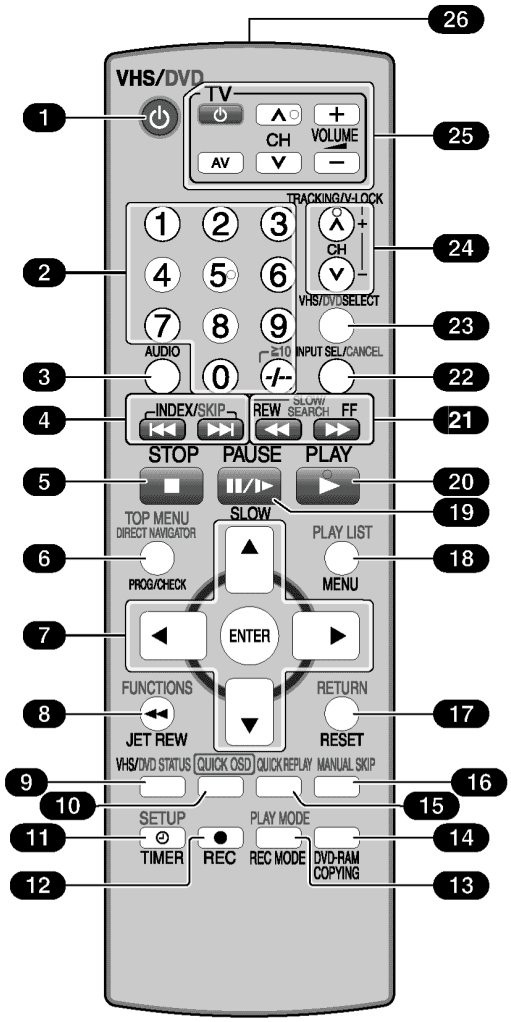
■DVD section

1 **Operation Status of DVD Section**
- Lights up when a disc is inserted.

2 **DVD Selector Indicator**
- Lights up when the DVD section is active.

Note:
- " 📼 " or " 💿 " indicator lights up all the time if a cassette or CD is inserted.

Remote Control

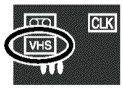


■[VHS/DVD SELECT] button

Press this button to select either VHS or DVD. The selector indicator on the unit's display lights up to show the selected section. (➜ 7)

[VHS SELECT]

- Switch the player mode to VHS.



[DVD SELECT]

- Switch the player mode to DVD.

1. **VHS/DVD Power button (⏻VHS/DVD)**
2. **Numeric buttons (0–9, – /– –, ≧10)**
3. **Audio button (AUDIO)**
4. **Index Search, Skip buttons (|◀◀ ▶▶| INDEX/SKIP)**
5. **Stop button (■STOP)**
6. **Timer Programme and Check, Top Menu/Direct Navigator button (PROG/CHECK, TOP MENU/ DIRECT NAVIGATOR)**
7. **Cursor, Enter buttons (▲▼◀ ▶, ENTER)**
8. **Jet Rewind, Functions/On-Screen Menu button (◀◀JET REW, FUNCTIONS)**
9. **VHS/DVD Status button (VHS/DVD STATUS)**
10. **Quick OSD button (QUICK OSD)**
11. **Timer Recording, DVD Setup menu button (◴ TIMER, SETUP)**
12. **Recording button (●REC)**
13. **Recording Mode, Play Mode button (REC MODE, PLAY MODE)**
14. **DVD-RAM Copying button (DVD-RAM COPYING)**
15. **Quick Replay button (QUICK REPLAY)**
16. **Manual Skip button (MANUAL SKIP)**
17. **Reset, Return button (RESET, RETURN)**
18. **Menu, Play List button (MENU/PLAY LIST)**
19. **Pause/Slow button (❚❚/▸PAUSE, SLOW)**
20. **Play button (▶PLAY)**
21. **Rewind/Fast-Forward, Slow/Search buttons (◀◀ ▶▶REW/FF, SLOW/SEARCH)**
22. **Input Select/Cancel button (INPUT SEL/CANCEL)**
23. **VHS/DVD Select button (VHS/DVD SELECT)**
24. **Tracking/V-Lock and Channel Up/Down buttons (+–TRACKING/V-LOCK, ∧∨CH)**
25. **TV Operation buttons**
    TV Power button (⏻)
    TV Input Mode Selector (AV)
    TV Channel Up/Down buttons (∧∨CH)
    TV Volume Up/Down buttons (– ◢ +VOLUME)
26. **Infra-red Transmitter**

6.2. SERVICE CAUTION-1

When the Microprocessor IC6001 and/or Back-up battery B7751 are replaced, read the following procedure carefully and proceed it.

[REASONS]

There is a RAM in the IC6001, which is backing up:

1. Programme Navigation Data [See NOTE1]
2. TV Tuning Data
3. PG Shifter Adjustment Data
4. Option Setting Data

When IC6001 are replaced, all above listed data become not available.

These data is backed up by using the power source of:

*AC Connected: AC Power source

*AC Disconnected: Back-up Battery (B7751) & Back-up Capacitor (C7752)

[NOTE1]

As for your reference, without inserting a tape into a VCR, you can confirm that the NAVI data that is backed up by IC6001 as shown in the following steps.

1. Press the Menu button and select the option, then set the "NAVI" to ON mode.
2. Turn on the Service Mode and press the "NAVI" button on the Remote Controller in more than 5 seconds. The "NAVI" data list is displayed on the Monitor. (Press the "MENU" button on the Remote Controller for cancellation.)

Although stored NAVI data can be confirmed on the monitor, there is no way to transfer the NAVI data to IC6001 which is newly mounted.

6.2.1. REPLACING PROCEDURE [IC6001]

[1.PREPARATION]

Before replacing IC6001:

1. Be noted that stored TV broadcast channels might be erased.

   (Because the user may have stored TV broadcast manually rather than using "Auto Tuning".)

NOTE:

During servicing, do not make a short circuit between IC6001-pin 37 (5V) with other line/Components otherwise IC6001 may be broken.

CAUTION:

*When replacing the B7751, be sure to read/follow the "HOW TO REPLACE THE LITHIUM BATTERY" section.

[2.REPLACING PROCEDURE IN STEPS]

STEP1.PREPARATION

1. Disconnect the AC plug before removing the C.B.A. with Mechanism unit by referring to the Disassembly procedure.

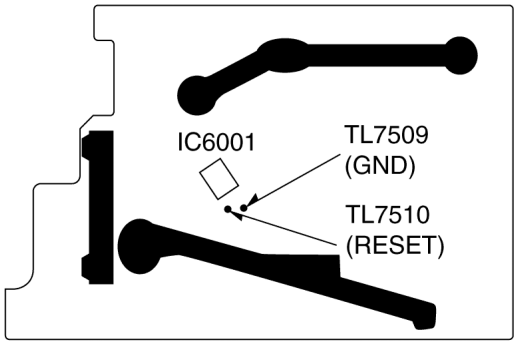
STEP2.REPLACE THE IC6001

1. Replace the IC6001. (Do not make a short circuit between IC6001-pin37 and other pins/Components.)

STEP3.RESET THE IC6001 AT ONCE

1. Connect the AC plug.
2. Connect a jumper wire between TL7510 (RESET) and TL7509 (GND) for a second to reset the Microprocessor IC6001.

MAIN C.B.A.(BOTTOM SIDE VIEW)



Note:

Since the resistance at pin 2 of IC6001 decides the model distinction, there is no need to set up the Model code, which is necessary in the previous models.

STEP4.LINE-IN SETTING & ACTIVATE PLUG-IN A.T.P.

1. Press the Channel up and down keys simultaneously for more than 3 seconds until the channel on the unit's display changes to 1, under the condition of the no tape is in the unit.
2. Confirm that "A1" and "A2" can be displayed on the FIP by pressing the CH UP and CH DOWN buttons.
3. Disconnect the AC plug for few seconds and connect it again, and press POWER button for turning the power to on from off to carry out the "Plug in Auto Tuner Preset".
4. Since other than the channels that can be stored by "Auto Tuning" operation are not available yet, preset manually by consulting the note of its available TV channels of which you took before.

STEP5.TAPE INTERCHANGEABILITY ADJUSTMENT

Refer to the Electrical Adjustment Procedures.

6.3. CAUTION FOR AC MAINS LEAD (NV-VP60GC)

For your safety please read the following text carefully
This appliance is supplied with a moulded three pin mains plug for your safety and convenience.
A 5 amp fuse is fitted in this plug.
Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5 amps and that it is approved by ASTA or BSI to BS 1362.
Check for the ASTA mark or the BSI mark on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.
If you lose the fuse cover the plug must not be used until a replacement cover is obtained.
A replacement fuse cover can be purchased from your local Panasonic Dealer.

IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.
THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13 AMP SOCKET.

If a new plug is to be fitted please observe the wiring code as shown below.
If in any doubt please consult a qualified electrician.

IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

Blue: Neutral
Brown: Live

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured BLUE must be connected to the terminal in the plug which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

Under no circumstance should either of these wires be connected to the earth terminal of the three pin plug, marked with the letter E or the Earth Symbol ⏚.

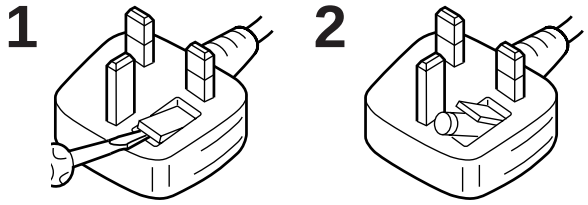
How to replace the Fuse

- There are two types of the AC Mains Lead assembly: **A** and **B** as shown below.

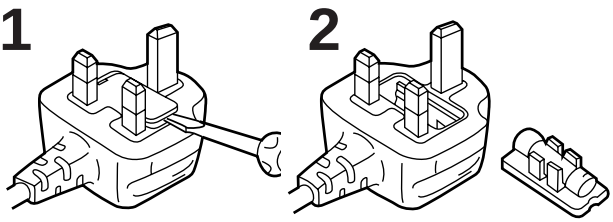
1 Open the fuse compartment with a screwdriver.

2 Replace the fuse and fuse cover.

TYPE A



TYPE B



6.4. HOW TO REPLACE THE LITHIUM BATTERY

6.4.1. GENERAL DESCRIPTION

There is a RAM in the IC6001, which is backing up the following data by using the power source of B7751 (Back-up Battery) and C7752 (Back-up Capacitor: Back-up time is approximately 30 minutes).

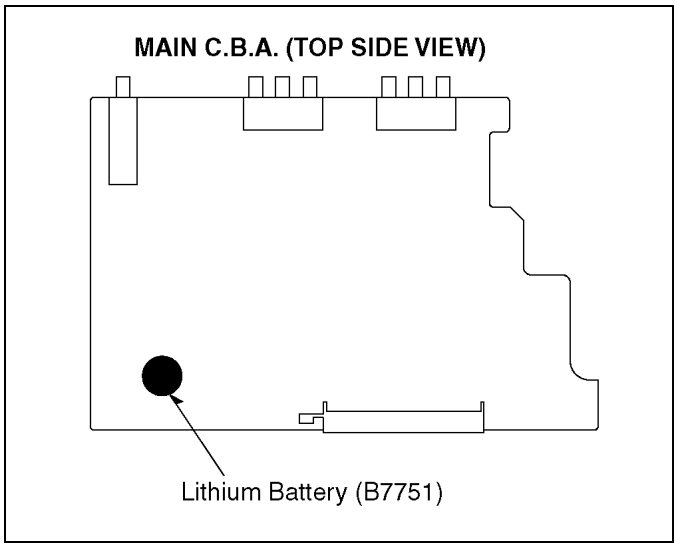
1. Programme Navigation Data
2. TV Tuning Data
3. PG Shifter Adjustment Data
4. Option Setting Data

6.4.2. REPLACEMENT PROCEDURE

NOTE:

This work should be finished within 30 minutes so that the RAM data would not be lost as running out of current from the Back-up Capacitor C7752.

1. Remove the Top Panel and Mechanism unit with Main C.B.A by referring to the Disassembling Procedure.
2. Unsolder the Lithium Battery: B7751 and then replace it with a new one (See Fig. B1).



NOTE:

The lithium battery is a critical component.

It must never be subjected to excessive heat or discharge.

It must therefore only be fitted in equipment designed specifically for its use.

Replacement batteries must be of the same type and manufacture.

They must be fitted in the same manner and location as the original battery, with the correct polarity contacts observed.

Do not attempt to re-charge the battery or re-use it for any other purpose.

It should be disposed of in waste products destined for burial rather than incineration.

CAUTION
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the equipment manufacturer.
Discard used batteries according to manufacturer's instructions.

PRECAUTION
Le fait de remplacer incorrectement la pile peut présenter des risques d'explosion.
Remplacer la pile uniquement par une pile identique ou de type équivalent recommandée par le fabricant. Se débarrasser des piles usagées conformément aux instructions du fabricant.

VORSICHT
Bei einer falsch eingesetzten Batterie besteht Explosionsgefahr. Nur mit einer vom Hersteller empfohlenen Batterie vom gleichen Typ ersetzen.
Verbrauchte Batterien beim Fachhändler oder einer Sammelstelle für Sonderstoffe abliefern.

VARNING
Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens instruktion.

ADVARSEL!
Lithiumbatteri-Eksplosionsfare ved fejlagtig håndtering.
Udskiftning má kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

VAROITUS
Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin.
Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

6.5. SERVICE CAUTION-2

6.5.1. CAUTION FOR AUTO TUNING

PROCEDURE

Auto Tuning will start by the following procedure.

1. Connect the DIN-RF Cable.
2. Connect the AC Mains Lead.
3. Turn on the VCR.

   Auto Tuning will start.

   Auto Tuning search for TV stations from VHS minimum to UHF maximum and memorizes every tuned program position. Other program positions are skipped.

   Auto Tuning takes five or more minutes to complete its search.

   Do not touch the VCR during Auto Tuning.

   Auto Tuning will stop halfway, if the VCR is operated or the aerial lead and/or the mains lead are disconnected.

   In case the VCR stopped during Auto Tuning, the VCR has to be reset and restarted. See the following item 2.

NOTE:

1. If the VCR is turned on with the antenna not connected, all channels are skipped. Therefore, firmly connect the antenna and then turn the VCR off and on again to execute Auto tuning.
2. **When Auto Tuning is canceled halfway, Auto Tuning is not execute even if the VCR is turned off and then turned on again,**

   In this case, Auto Tuning has to be restarted by the following procedures.

   a. **Press EJECT and remove the Videocassette.**
   b. **Keep UP and DOWN on the VCR pressed simultaneously for 3 seconds or more during the VCR on.**

      The channel displayed on the VCR display disappears for moment then changes to 1.
   c. **Disconnect the AC mains lead and the reconnect it.**
   d. **Turn on the unit. Auto Tuning commences.**
3. If you turn the VCR off during Auto Tuning, Auto Tuning will stop halfway.

   The VCR should be reset and restarted by the item 2 in order to execute Auto Tuning.
4. If the VCR starts playback during Auto Tuning, Auto Tuning will stop halfway.

   The VCR should be reset and restarted by the item 2 in order to execute Auto Tuning.
5. To cancel Auto Tuning Mid-operation, press POWER During Auto Tuning (The VCR is turned off).
6. When the VCR is moved to the other area or country, TV broadcasts should be stored again.

6.5.2. REMOVAL OF CASSETTE TAPE

When the cassette tape could not be uninstalled from an electrical malfunction, There are 2 ways to remove a cassette tape.

1. Removal by compulsory unloading.
   a. Press FF and EJECT button simultaneously for more than 3 seconds and set the Service Mode to 7.
   b. Press STOP button in order to unload the mechanism. (Pay attention to tape slack)

      Service Mode Indication:

      7 06:00 (STOP) → 7 0L:00 (EJECT)
2. Removal by manual operation by rotating the Loading Motor with the batteries.
   a. Disconnect the AC plug, and remove the Top Panel and the Front Panel by referring to the Disassembly Procedures.
   b. Connect five batteries (1.5V spec.) to the Loading Motor in series for supplying 7.5V to rotate the Loading Motor as shown in Fig. S1.

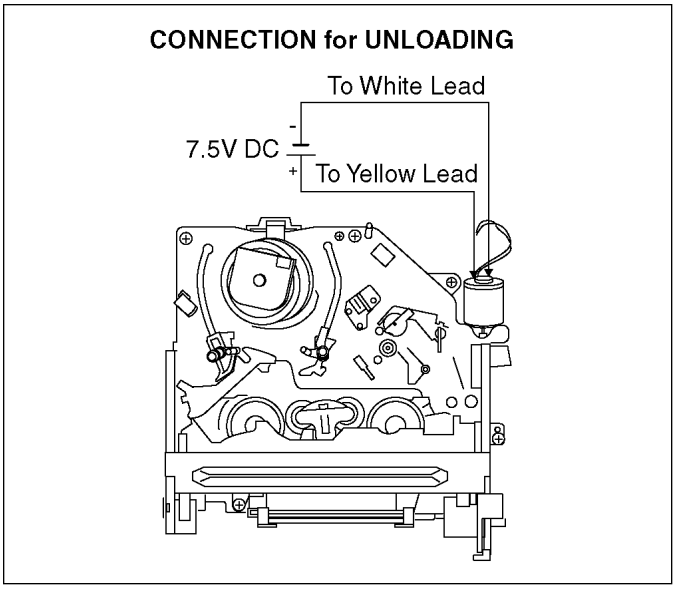


Fig. S1

c. Stop unloading just before unloading would be completed as shown in Fig. S2.

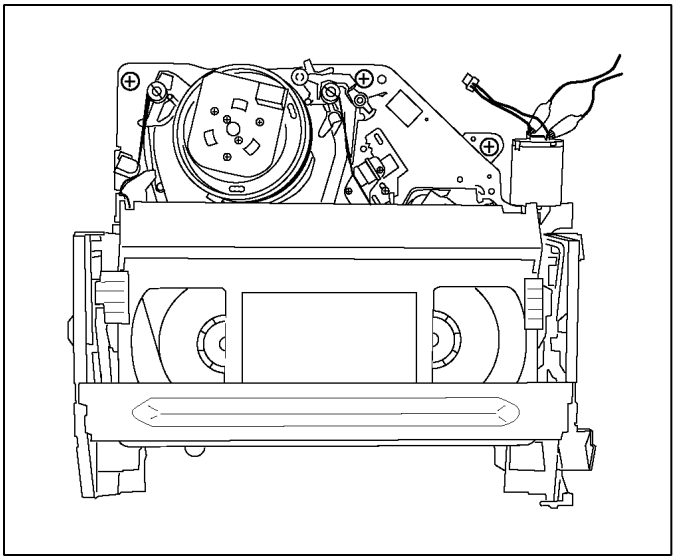


Fig. S2

d. Then the tape becomes slack as shown in Fig. S3.

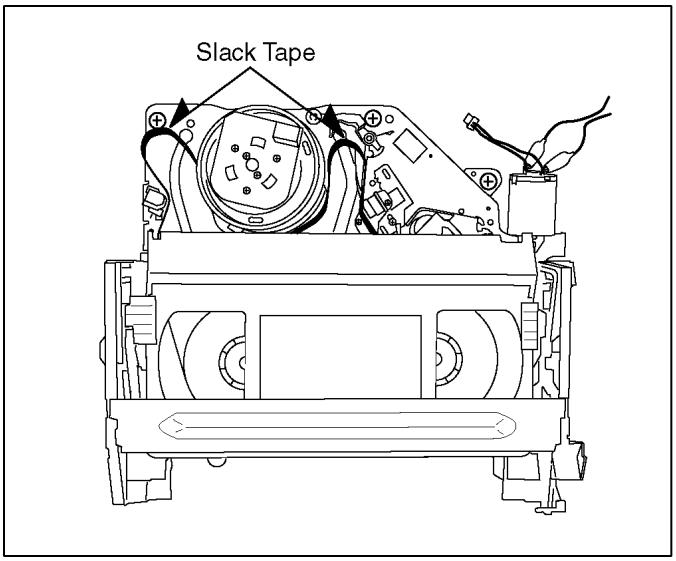


Fig. S3

e. Rotate the S-Reel by a small minus screwdriver (Fig. S4) to remove the slack tape as shown in Fig. S5.

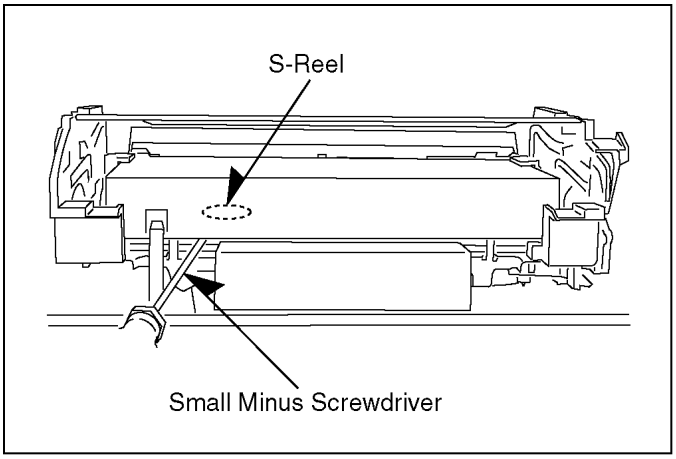


Fig. S4

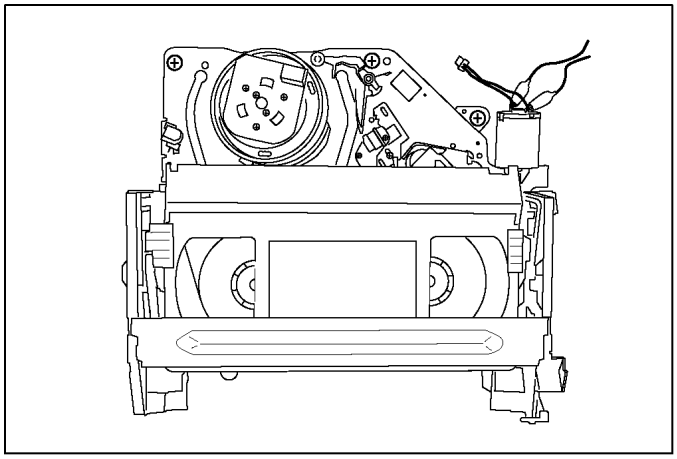


Fig. S5

f. Then unload again to remove the cassette tape as shown in Fig. S6.

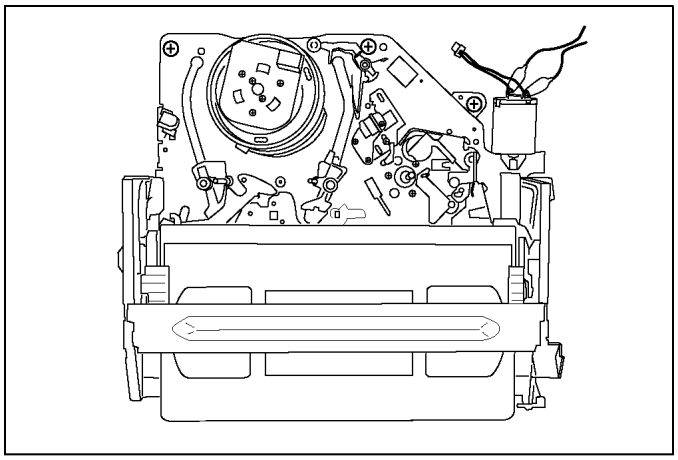


Fig. S6

3. Removal by manual operations after uninstalling the mechanism,refer to the DISASSEMBLY METHOD of item 3.1.

a. Disconnect the AC plug, and remove the Top Panel, Front Panel and the Mechanism by referring to the Disassembly Procedures.

b. Remove the Screw (S1) and remove the Loading Motor both as shown in Fig. S7.

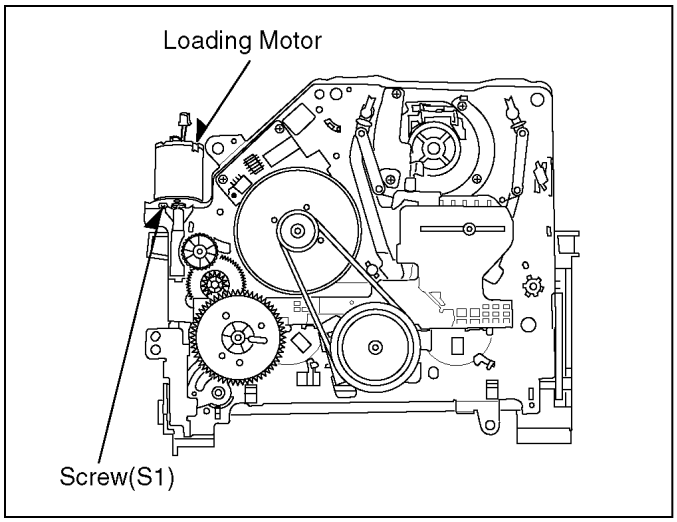


Fig. S7

c. Rotate the Main Cam Gear counter-clockwise (Fig. S8) until just before the unloading would be completed as shown in Fig. S2.

d. Rotate the Capstan Motor clockwise (Fig. S8) to remove the slack tape as shown in Fig. S5.

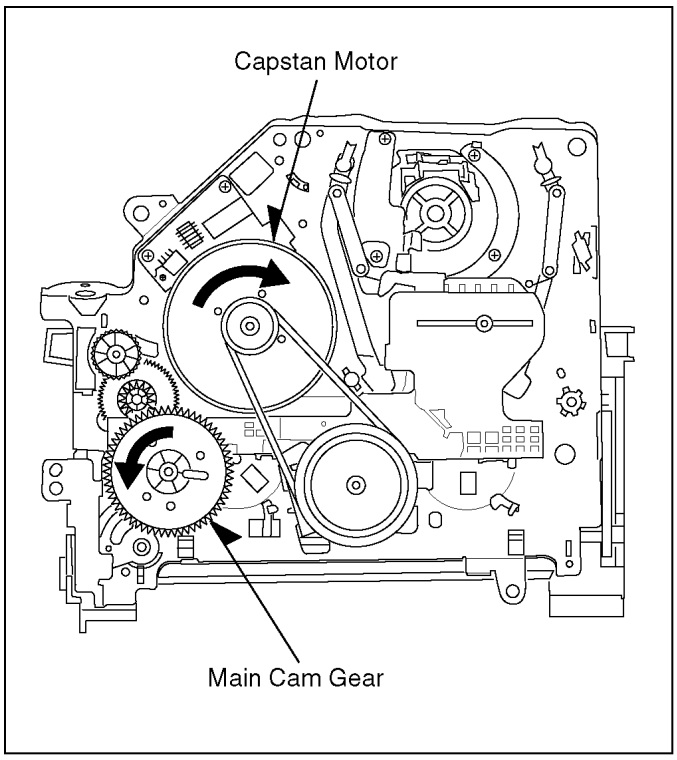


Fig. S8

e. Rotate the Main Cam Gear counter-clockwise again (Fig. S8) to remove the cassette-tape as shown in Fig. S6.

f. Set the Position Switch to EJECT POSITION certainly as shown in Fig. S9.

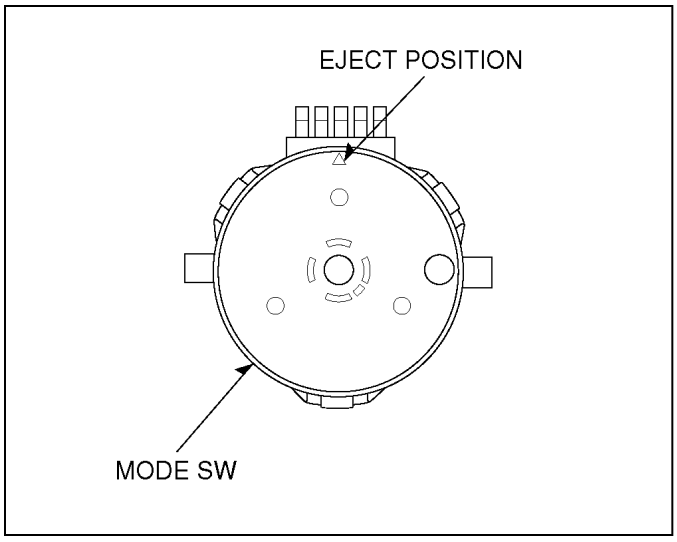


Fig. S9

g. Install the Loading Motor and tighten screw (S1) as shown in Fig. S7.

6.5.3. CYLINDER UNIT REPLACEMENT

NOTE:

Since securing of RT gap is impossible to be done outside the factory, do not replace only replace the Upper Cylinder unit of R4 Mechanism, please replace the whole Cylinder Unit with a new one. Perform the Compatibility adjustment after replacing the DD Cylinder Unit.

1. Remove the Mechanism Unit from Main C.B.A./Chassis by referring to "Disassembly Procedure".
2. Unlock 2 locking tabs on a side to release the Cylinder Flexible Card as shown in Fig. S10.

   CAUTION:

   Handle the Cylinder Flexible Card with care. When it damaged, you should replace it with a new Cylinder Unit.
3. Remove a black Screw (S2) and 2 silver Screws (S3) to remove the Cylinder Unit shown in Fig. S10.

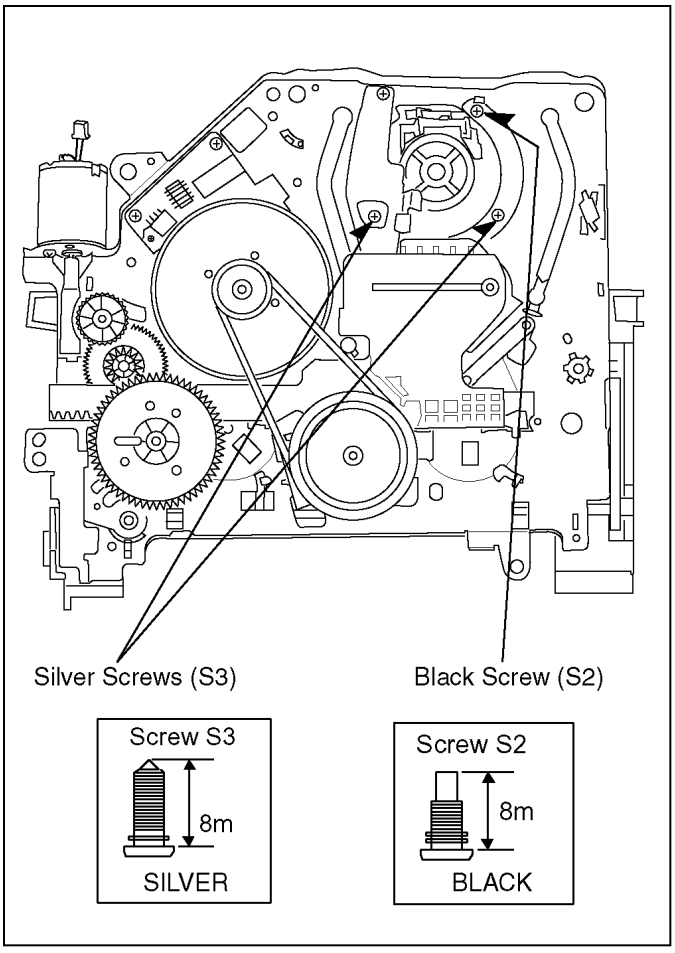


Fig. S10

NOTE:

When reassembling, perform the steps in the reverse order, and perform the TAPE INTERCHANGEABILITY ADJUSTMENT certainly after CYLINDER UNIT REPLACEMENT.

6.5.4. ATTENTION FOR REPLACING THE CYLINDER UNIT

CAUTION:

Handle the Cylinder Flexble Card with care. When it damaged, you should replace it with a new Cylinder Unit.

1. Put the gloves on your hands.
2. Turn the Cylinder Unit over.
3. Insert the FPC HOLDER to the Cylinder Unit.

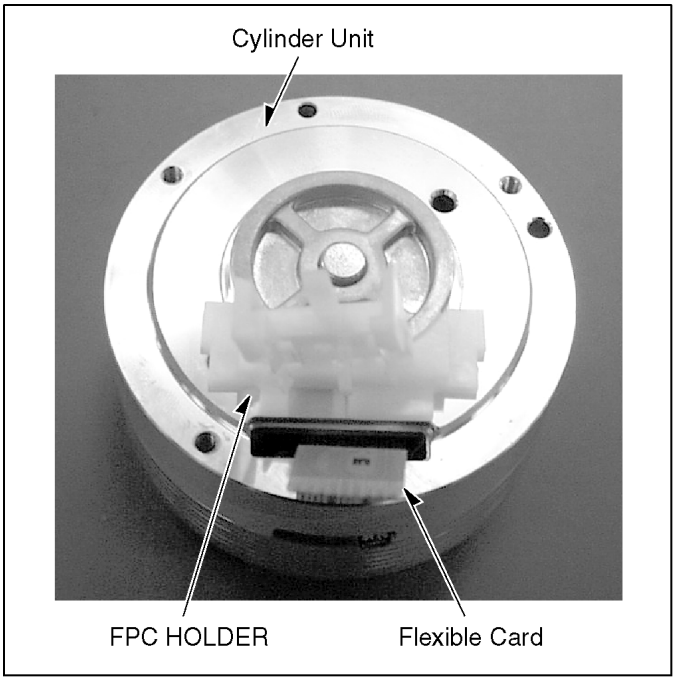


Fig. S11

4. Hook the Flexible Card to the FPC HOLDER.

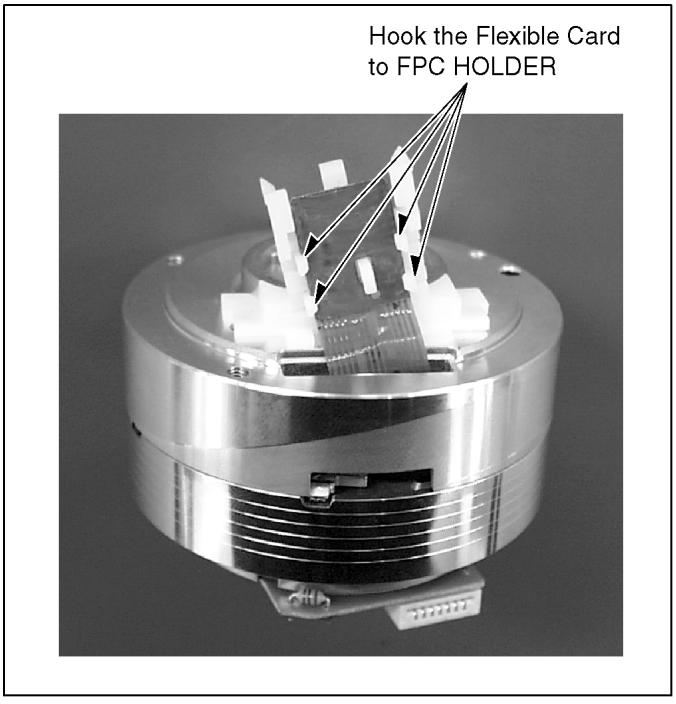


Fig. S12

NOTE:

1. When removing the FPC HOLDER, push stopper portion of the FPC HOLDER with a small minus screw driver and so on. And then pay attention for not to scratch the Cylinder and not to break the Head Chip.
2. FPC HOLDER is not reuseable.

   If removed, install a new one.

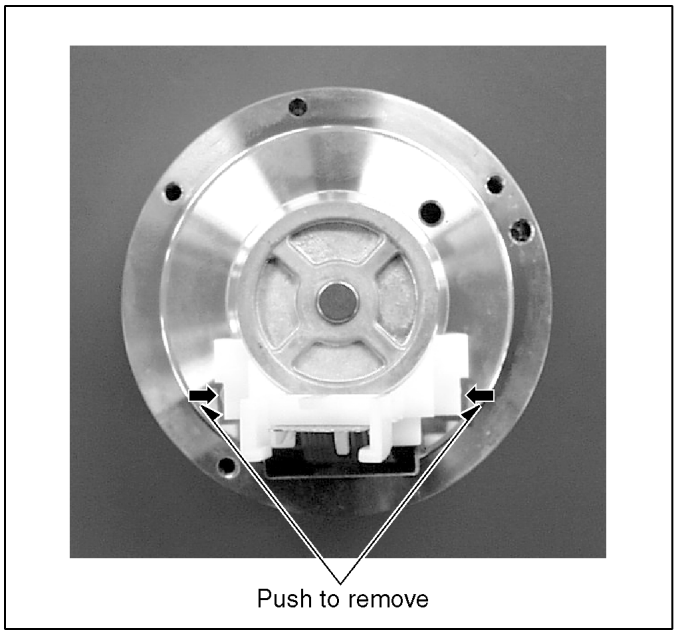


Fig. S13

6.5.5. FLAT CARD CABLE INSTALLATION

When installing the Flat Card Cable on the connector, install the Flat Card Cable with the cable contacts facing the connector contacts.

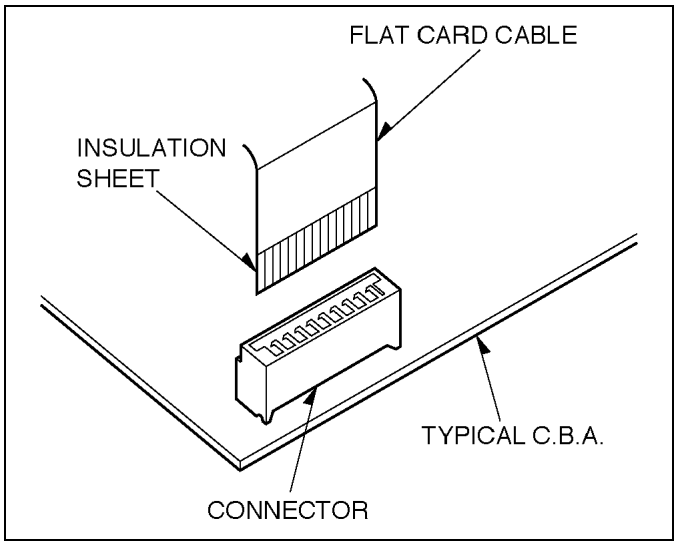


Fig. S14

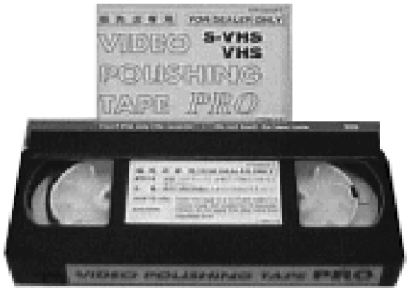
6.6. SELF-DIAGNOSIS & SERVICE INFORMATION DISPLAY

Refer to the Service Manual for R4 Mechanism Chassis.
(Order No.: VRD0202010C8).

6.7. INTRODUCTION OF VIDEO HEAD CLEANING CASSETTE (POLISHING TYPE)

1. We are pleased to introduce Panasonic Video Head Cleaning Cassette, **VFK0923FT** [for service purposes] and **VFK0923FSE** [for end users] for all VHS/S-VHS VCP and VCR.
2. These cleaning cassettes are exclusively to remove hard and sticky clogging on video heads.
3. These improve the efficiency of video head cleaning service and shortening cleaning time for end users.

VFK0923FT (For Service usage)	
Type of Cassette	Full VHS Cassette
Cleaning Time	10 Seconds/Time
Tape Length	20 m
Usability in a Path	180 Times



VFK0823FSE (For end users)	
Type of Cassette	Full VHS Cassette
Cleaning Time	10 Seconds/Time
Tape Length	3.34 m
Usability in a Path	30 Times

Note:

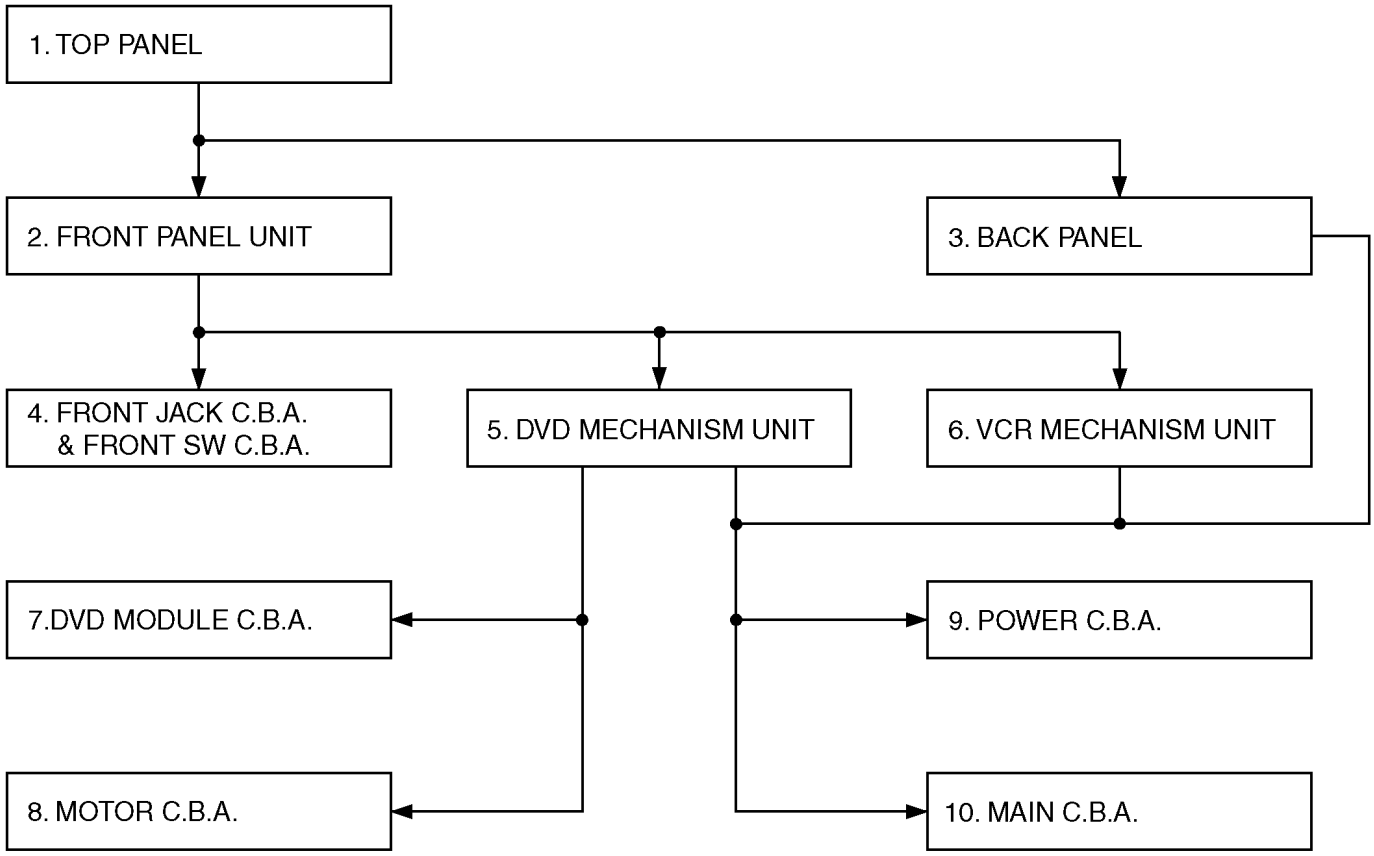
The tape material itself is the same in both types.

7 DISASSEMBLING THE CASING PARTS AND CIRCUIT BOARDS

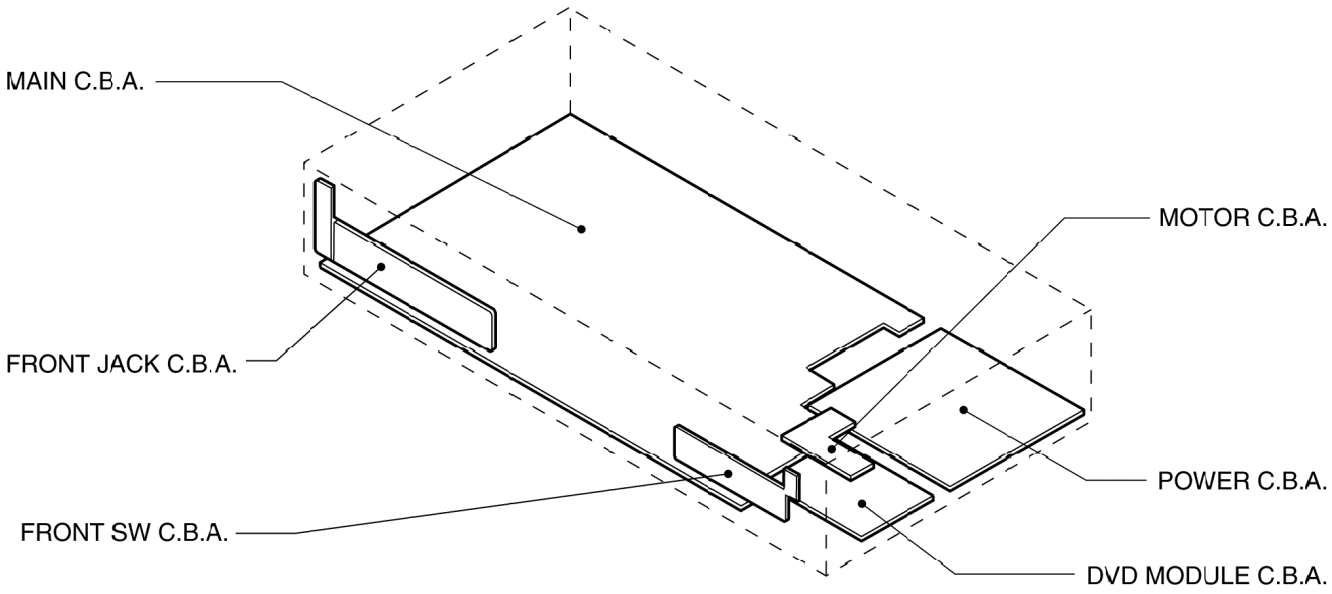
7.1. DISASSEMBLY FLOW CHART

This flow chart indicates disassembly steps of the casing parts and the circuit boards in order to find the necessary items for servicing.

When reassembling, perform the steps in the reverse order.



7.2. CIRCUIT BOARD LAYOUT



7.3. DETAIL OF THE DISASSEMBLY

1. REMOVAL OF THE PANEL

Remove	2 Screws (A)
Remove	2 Screws (B)

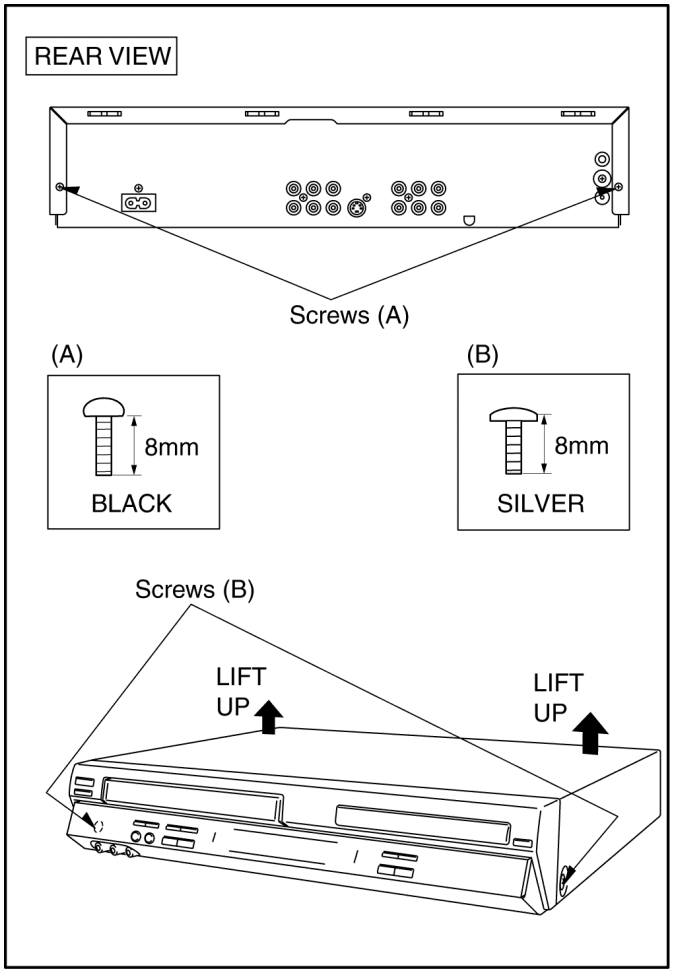


Fig. D1

2. REMOVAL OF THE FRONT PANEL UNIT

Unlock	9 Tabs (C)

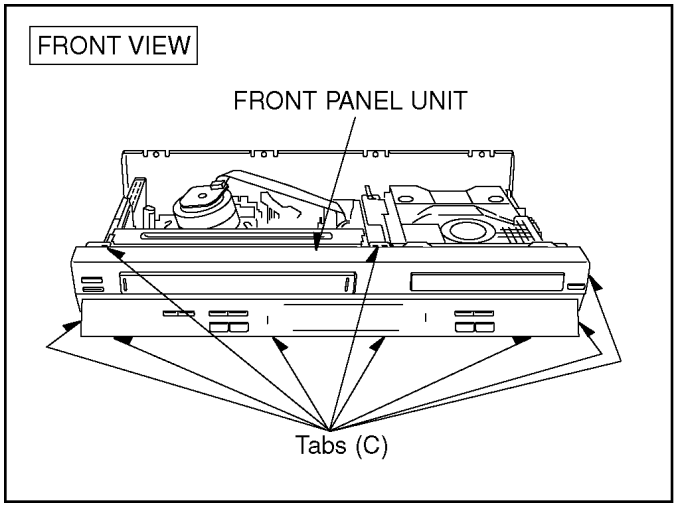


Fig. D2

3. REMOVAL OF THE BACK PANEL

Remove	4 Screws (D)
Remove	Screw (E)
Release	2 Bosses (F)

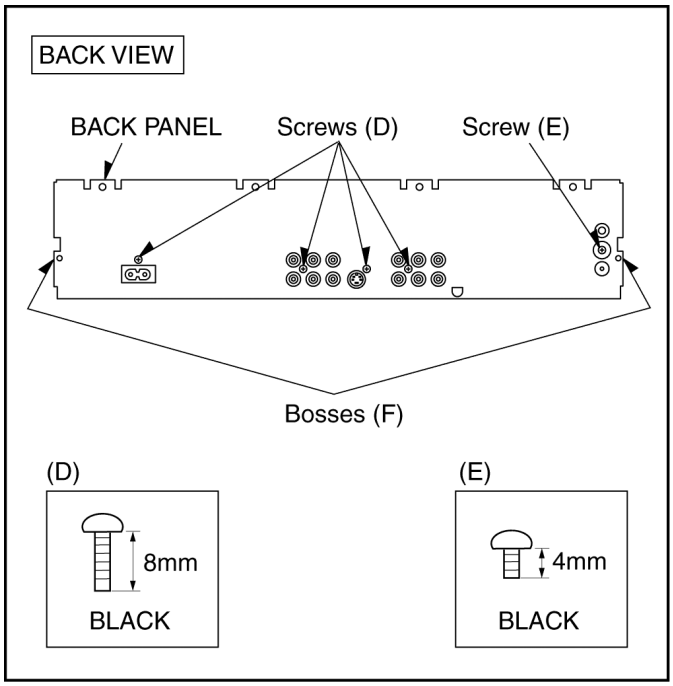


Fig. D3

4. REMOVAL OF THE FRONT JACK C.B.A. AND FRONT SW C.B.A.

REMOVAL OF THE FRONT JACK C.B.A.	
Remove	4 Screws (G)
Unlock	3 Tabs (H)
REMOVAL OF THE FRONT SW C.B.A.	
Remove	3 Screws (I)
Unlock	2 Tabs (J)

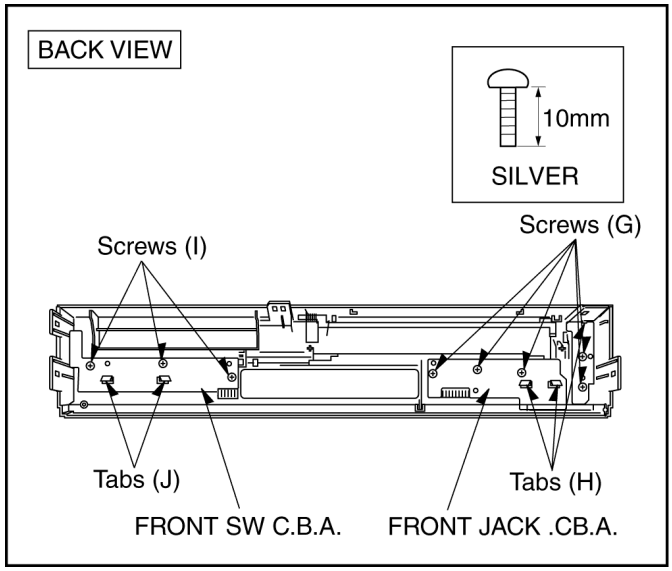


Fig. D4

5. REMOVAL OF THE DVD MECHANISM UNIT

Remove	4 Screws (K)

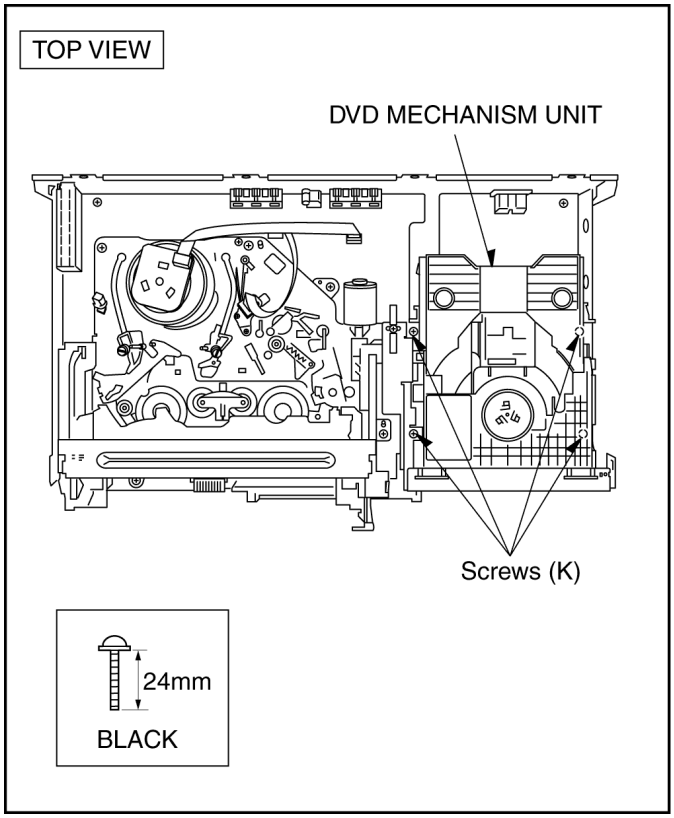


Fig. D5

6. REMOVAL OF THE VCR MECHANISM UNIT

Remove	Screw (L)
Remove	3 Screws (M)
Remove	Screw (N)
Remove	Screw (O)

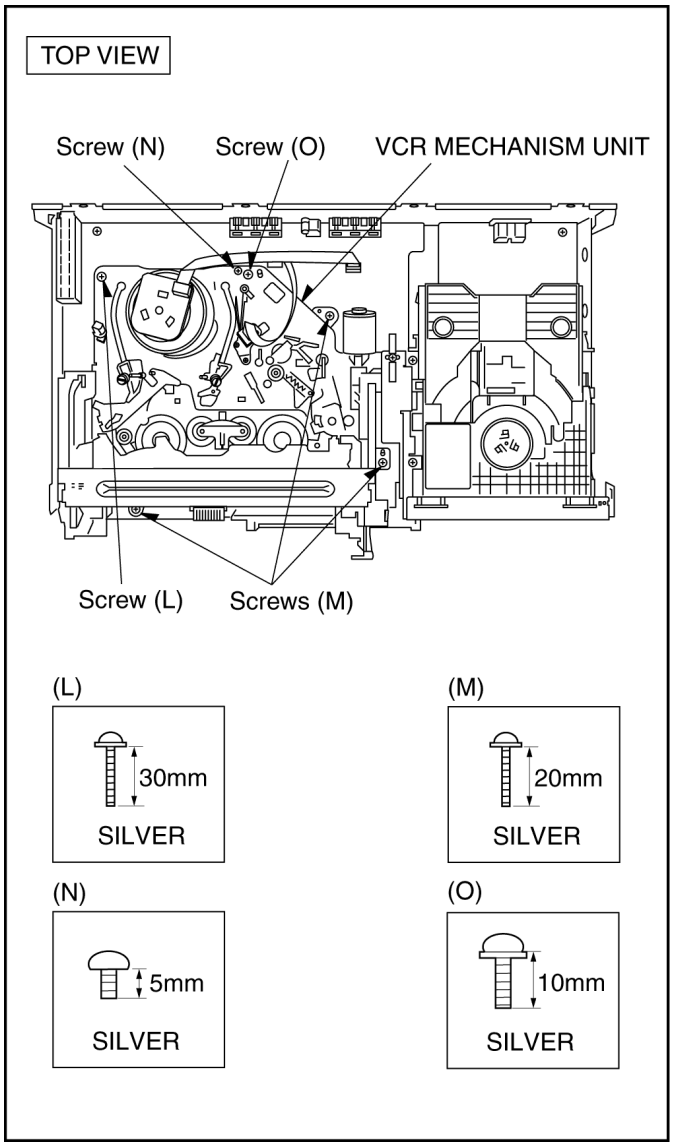


Fig. D6

7. REMOVAL OF THE DVD MODULE C.B.A.

Remove	Screw (P)
Unlock	Tab (Q)
Unlock	Locking Portion (R)

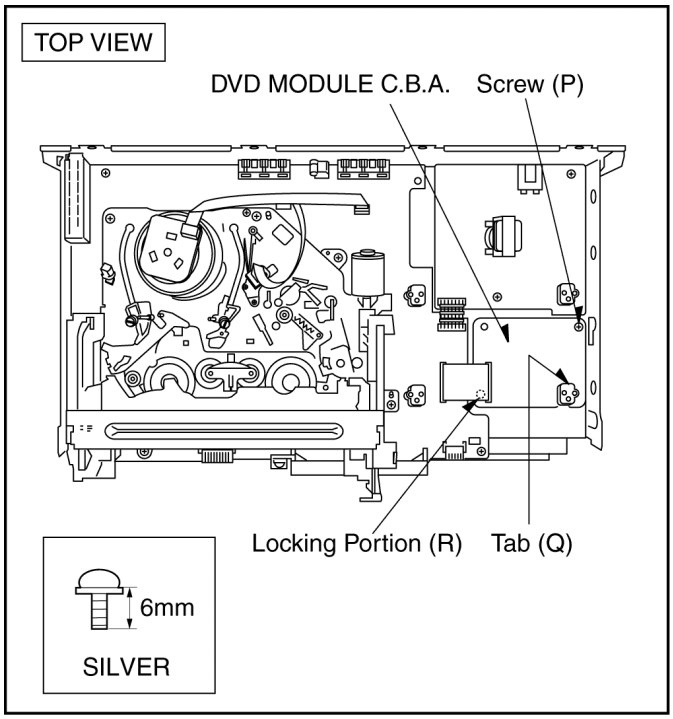


Fig. D7

8. REMOVAL OF THE MOTOR C.B.A.

Unsolder	4 Solder Points (S)

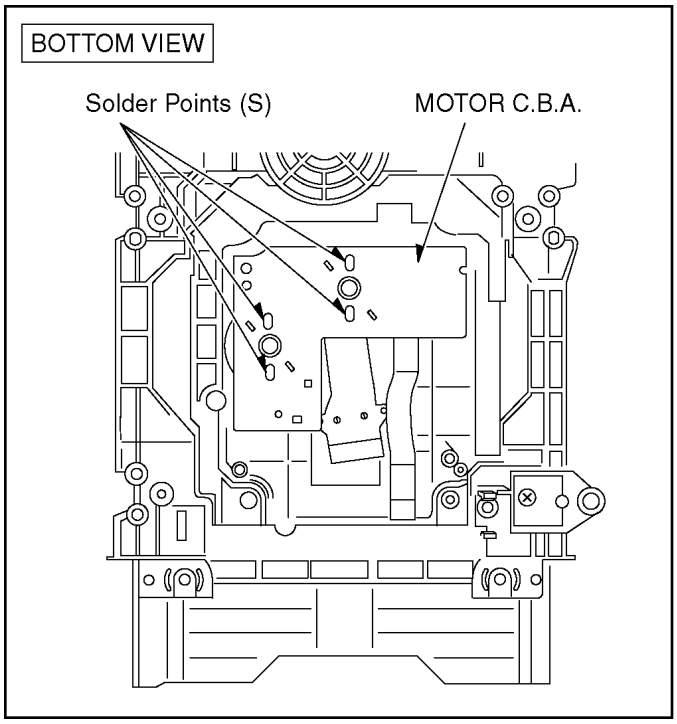


Fig. D8

9. REMOVAL OF THE POWER C.B.A.

Remove	2 Screws (T)
Unlock	2 Tabs (U)

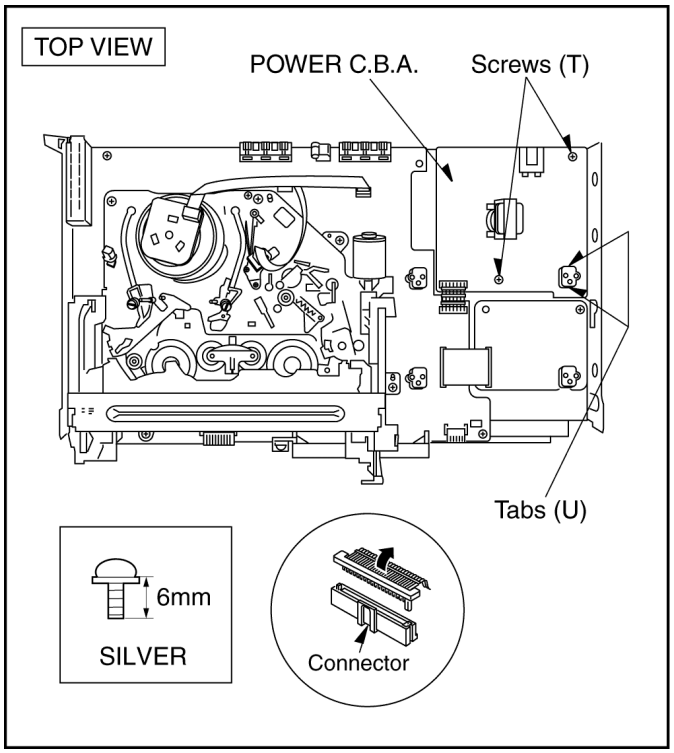


Fig. D9

10. REMOVAL OF THE MAIN C.B.A.

Remove	3 Screws (V)

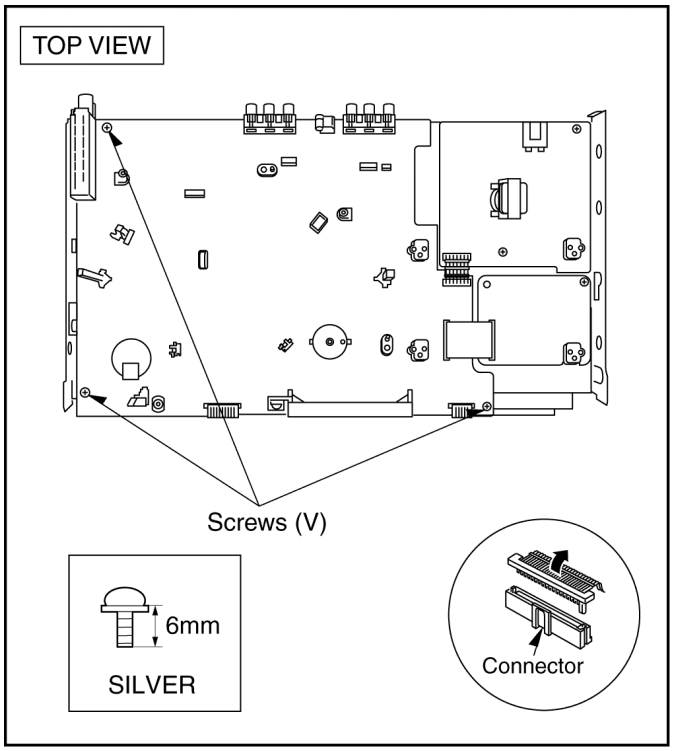
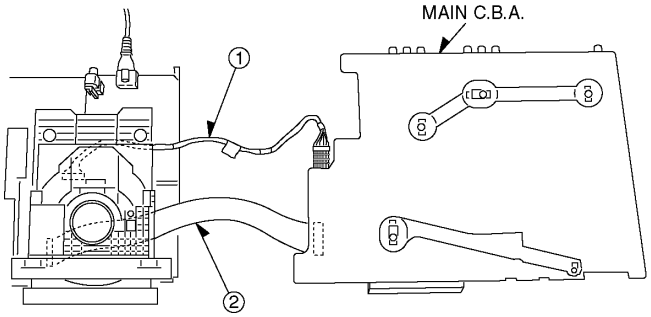


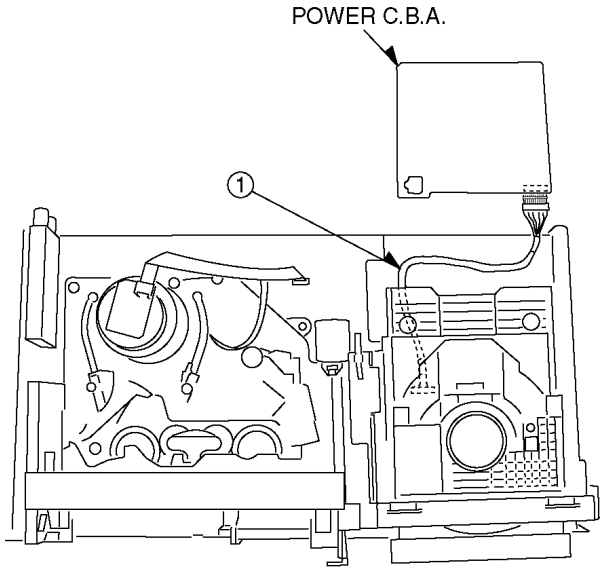
Fig. D10

7.4. SERVICE POSITION

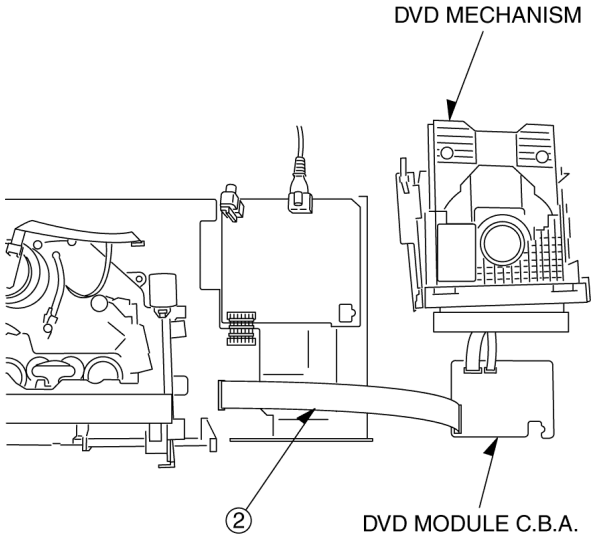
7.4.1. SERVICE POSITION OF MAIN C.B.A.



7.4.2. SERVICE POSITION OF POWER C.B.A.



7.4.3. SERVICE POSITION OF DVD MODULE C.B.A. & DVD MECHANISM



7.4.4. EXTENSION CABLE LIST

	Connection		Pin	Extension Cable	Type	New
①	POWER-MAIN	P1103-P31001	13	VFK1729	Wire Cable	×
②	DVD MODULE-MAIN	P8003-P34301	30	RFKZ0318	FFC	○

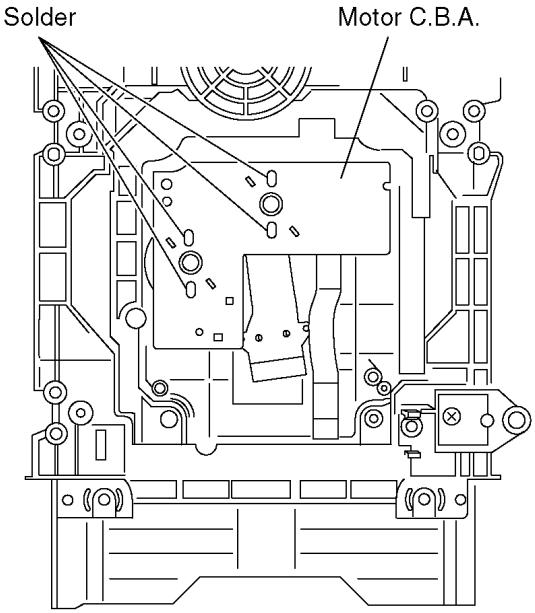
8 ASSEMBLING AND DISASSEMBLING THE MECHANISM UNIT

8.1. Disassembly Procedure

Disassembling the exterior part (See section 7.)
↓
8.2. Motor C.B.A.
↓
8.3. Clamp plate unit
↓
8.4. Tray
↓
8.5. Traverse block
↓
8.6. Traverse gear B
↓
8.7. Optical pickup unit
↓
8.8. Middle chassis
↓
8.9. Traverse gear A/FG unit
↓
8.10. Spindle motor unit

8.2. Motor C.B.A.

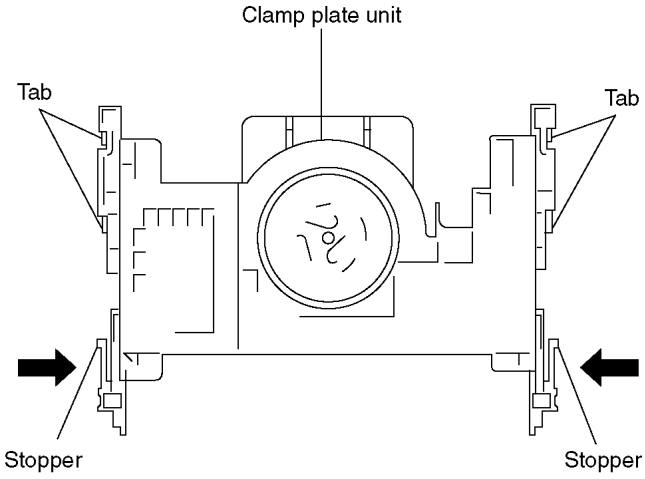
1. Remove the solders.

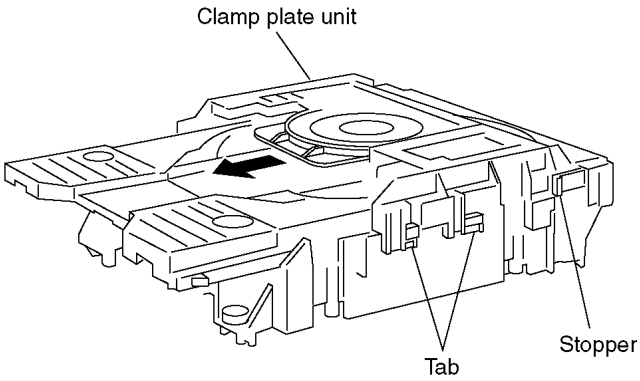


< Mechanism unit bottom >

8.3. Clamp Plate Unit

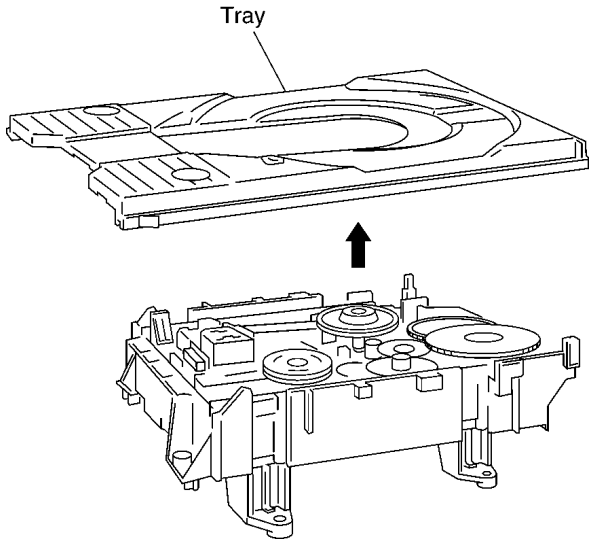
1. Spread the stopper by hand to slide the tabs and remove the clamp plate unit.





8.4. Tray

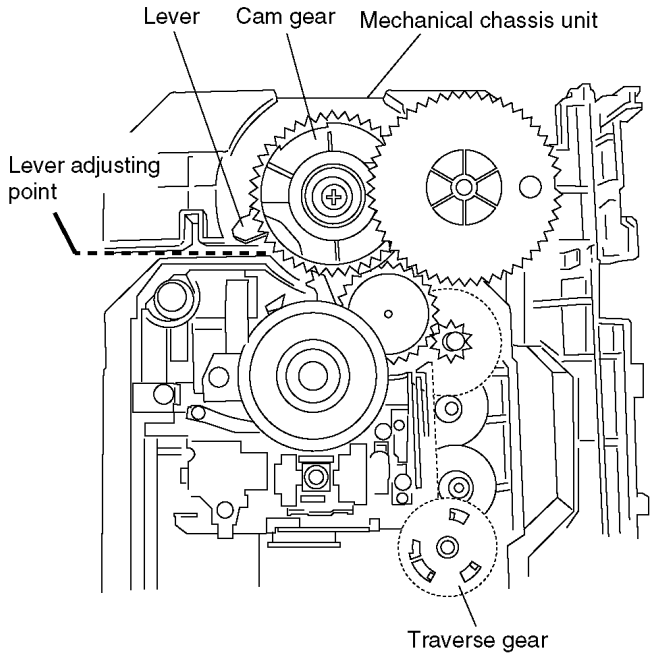
1. Lift the tray.



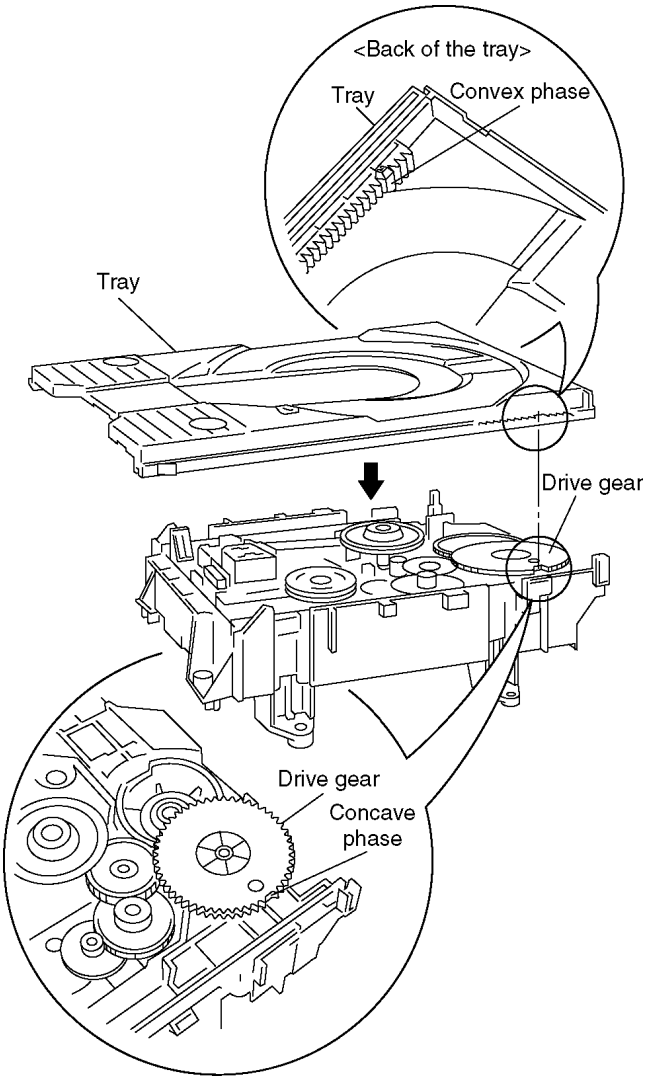
<Precautions in reassembling the tray>

IReassemble the tray so that it is in the backmost position.

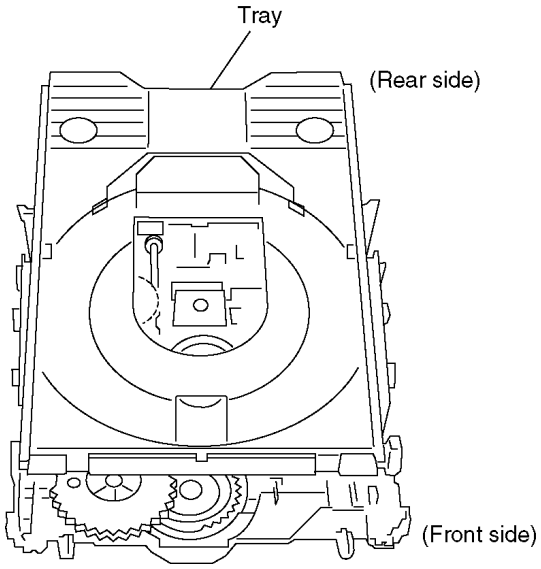
1. Turn traverse gear until cam gear leaver comes to the lever adjusting position at the end of mechanical chassis unit.



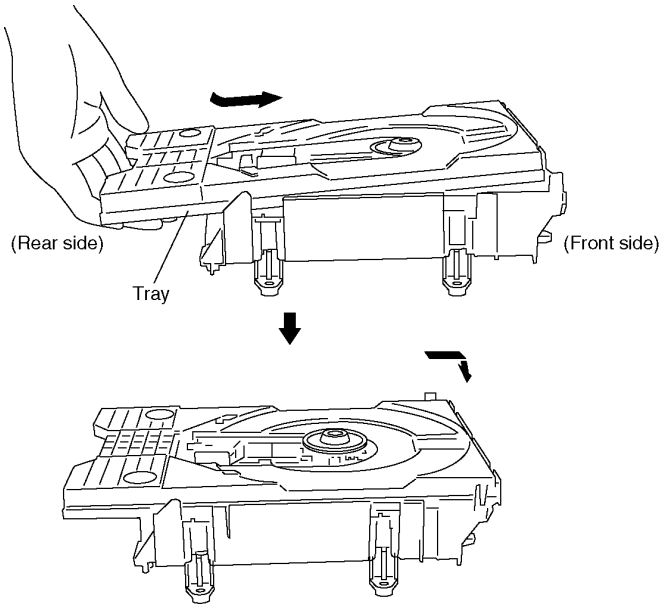
2. Check the position of convex phase on back of the tray, and that of concave phase on drive gear.



a. Place the tray on the unit from rearward.

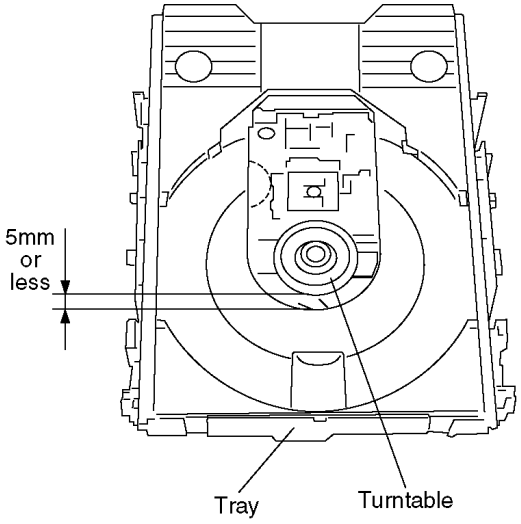


b. Inch the tray frontward until convex phase and concave phase mate.



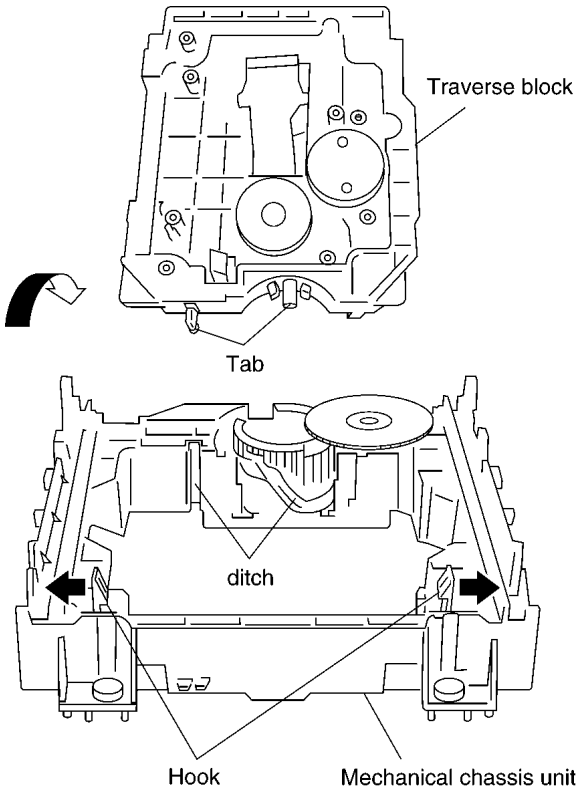
Caution:

Make sure to match convex phase and concave phase properly, so that the gap between turntable and tray becomes 5mm or less.



8.5. Traverse Block

1. Lift the traverse block while spreading the hook of the mechanical chassis unit.
2. Disengage the tabs from the holes of the mechanical chassis unit.



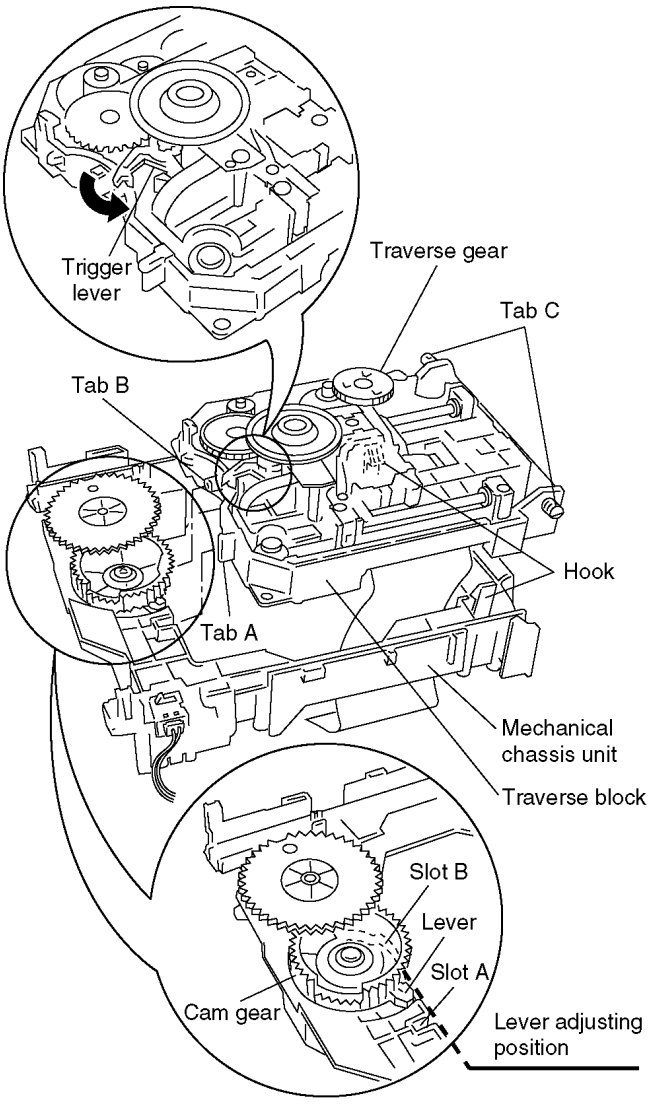
8.6. Traverse Gear

<Precautions in reassembling the traverse block>

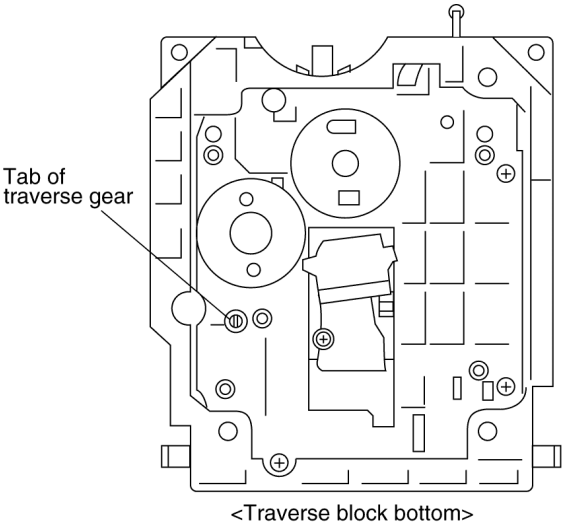
lTake the following precautions when reassembling the traverse block.

1. Turn traverse gear on the traverse block to let trigger lever turn rightward. (Front view)
2. Bring cam gear lever to the lever adjusting position at the end of mechanical chassis unit.
3. Put tabs A and B into slots A and B respectively.

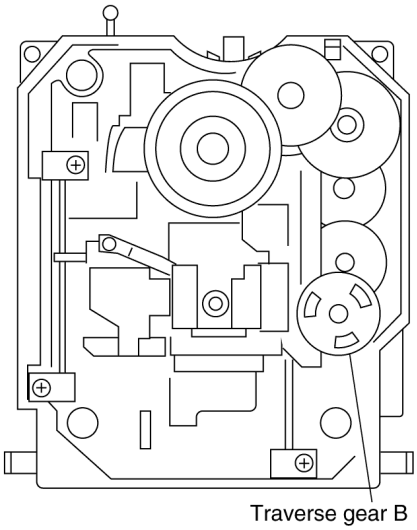
   Place tabs C into hooks to mount the traverse block on mechanical chassis unit. (Slot A... Mechanical chassis unit, Slot B... Cam gear)



1. Disengage the tabs from the traverse gear.
2. Remove the traverse gear B.

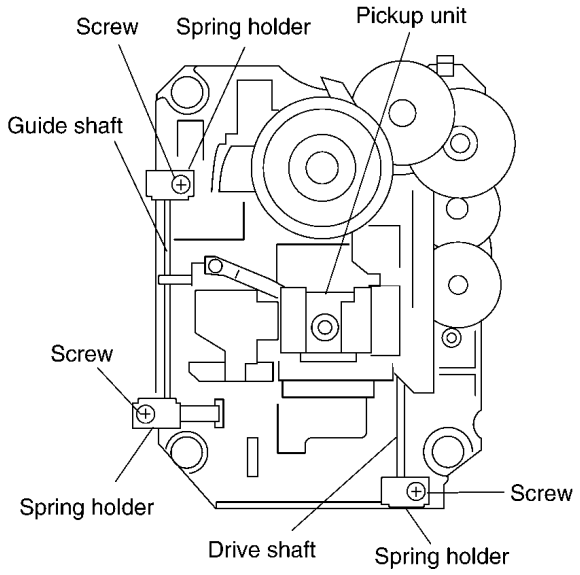


<Traverse block bottom>



8.7. Optical Pickup Unit

1. Unscrew the screws.
2. Remove the spring holders and the springs.
3. Pull out the drive shaft and guide shaft.



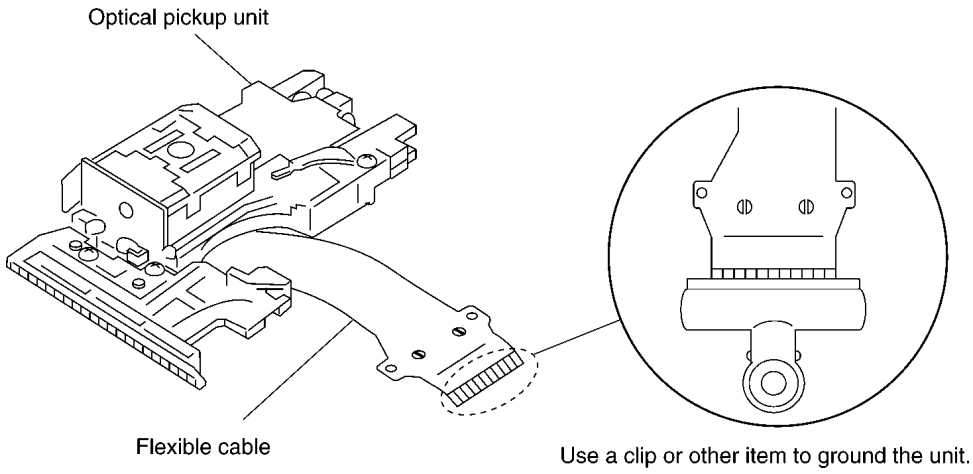
8.7.1. Precautions in optical pickup replacement

The optical pickup can be damaged by static electricity from your body. Be sure to take static electricity countermeasures when working around the optical pickup. (Refer to the related page in this Manual about the countermeasures.)

1. Do not touch laser diode, actuator and their peripheries.
2. Do not use tester to check laser diode. (Laser diode can be damaged easily.)
3. The use of soldering iron with anti-static feature is recommended when providing short-circuit to laser diode or when removing it.
4. Solder the land on flexible cable of optical pickup unit.

Caution

- When using the soldering iron without anti-static feature, short-circuit the flexible cable terminal with a clip before short-circuiting the land.
- After intended repair is finished, remove the solder for short-circuit of laser diode in a correct way by following the procedures described in this Manual.



8.7.2. Disassembling the Optical Pickup Unit

1. Remove the 2 screws A and remove the TRV feed rack.
2. Remove the screw B and remove the FFC fixed plate and the Terminal FPC.
3. Remove the optical pickup.

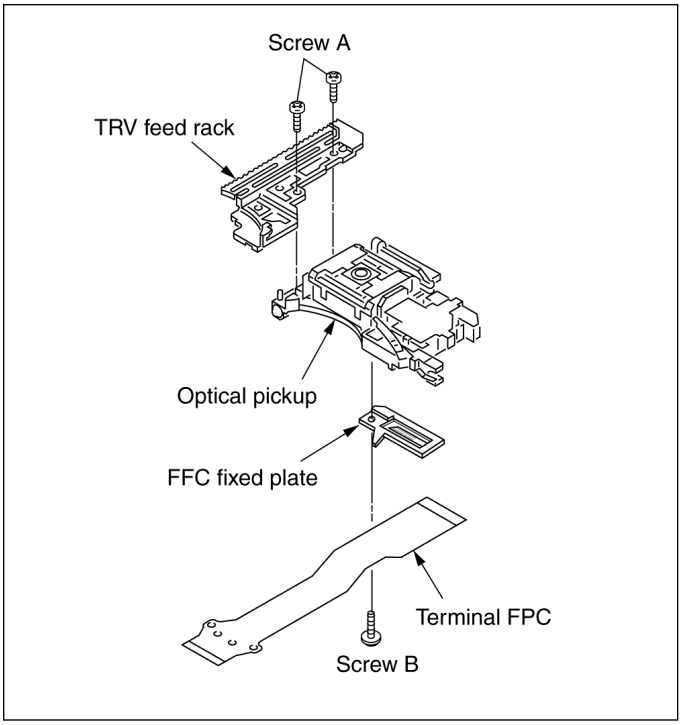


Fig. 1

8.7.3. Cautions to Be Taken When Replacing the Optical Pickup

・An antistatic flexible sheet (FPC) is connected with the new optical pickup.
Replace the optical pickup according to the following procedure.

1. Install the Terminal FPC, TRV feed rack on the optical pickup. (See Fig. 1)
2. Install the Terminal FPC in the connector on the Motor C.B.A..

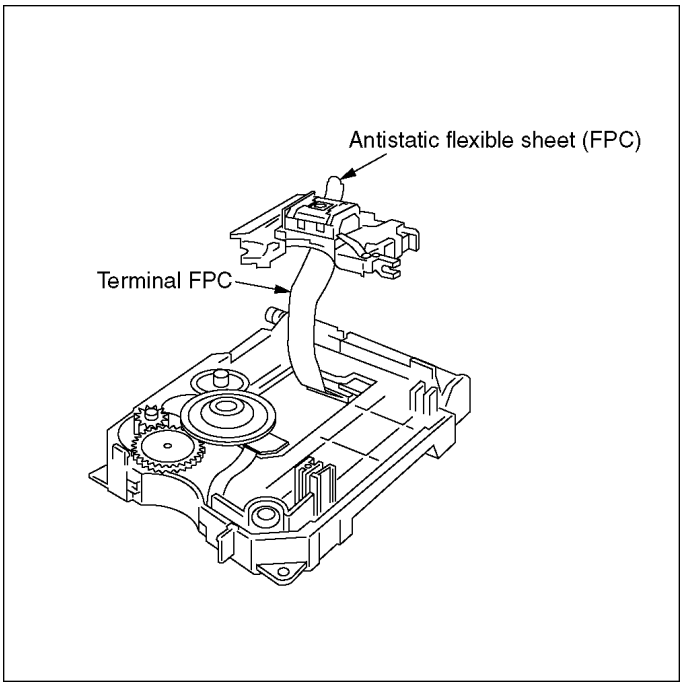


Fig. 2

3. Install the optical pickup unit, spring, drive shaft, guide shaft, rubber cushion, and spring holder on the traverse block.

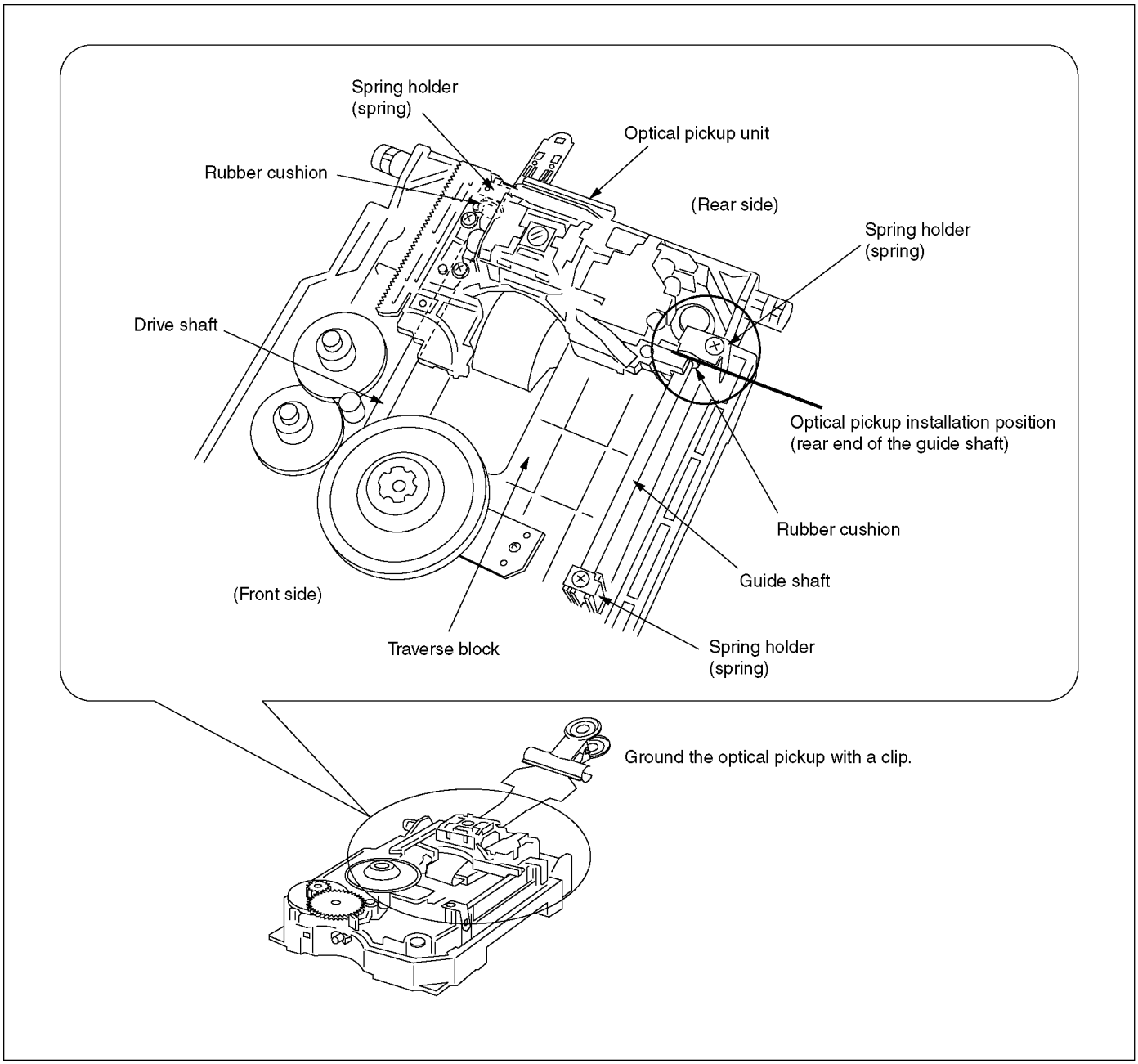


Fig. 3

Cautions to be taken when assembling the unit: Install the pickup unit so that it is located at the rear end of the guide shaft.)

4. Cut the antistatic flexible sheet for the optical pickup unit.

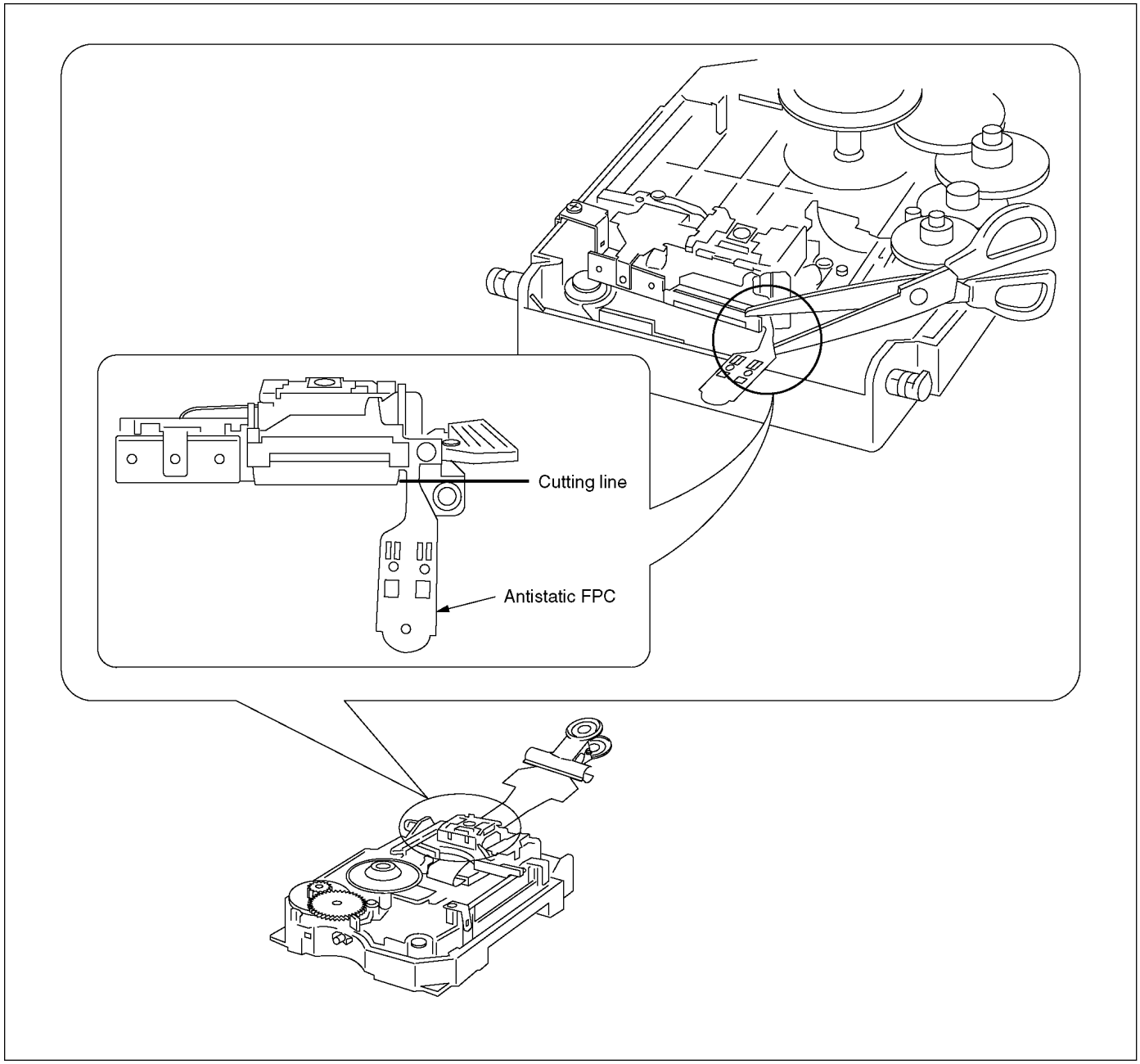
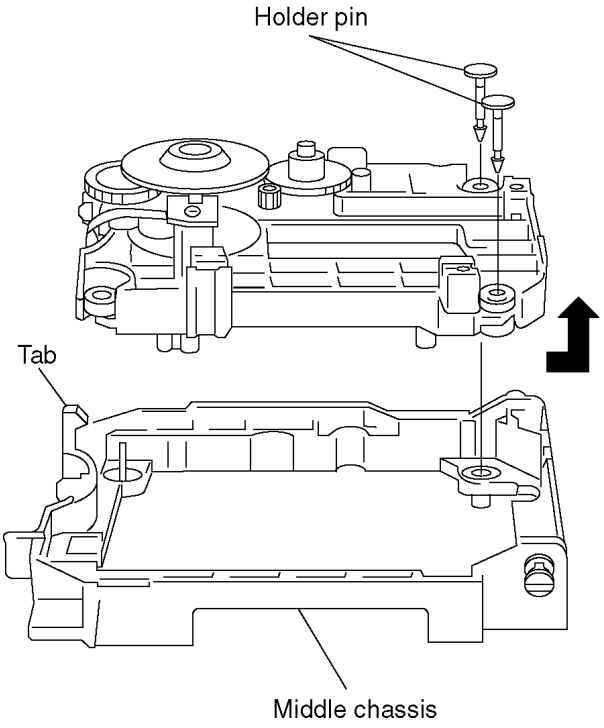


Fig. 4

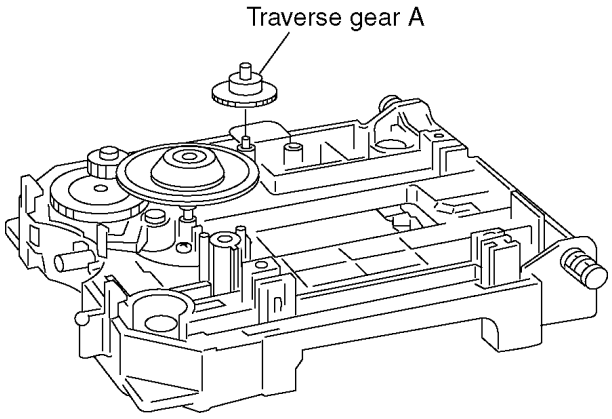
8.8. Disassembling the Middle Chassis

1. Remove the holder pins.
2. Remove the tab.
3. It lifts while pulling it in the direction of the arrow.



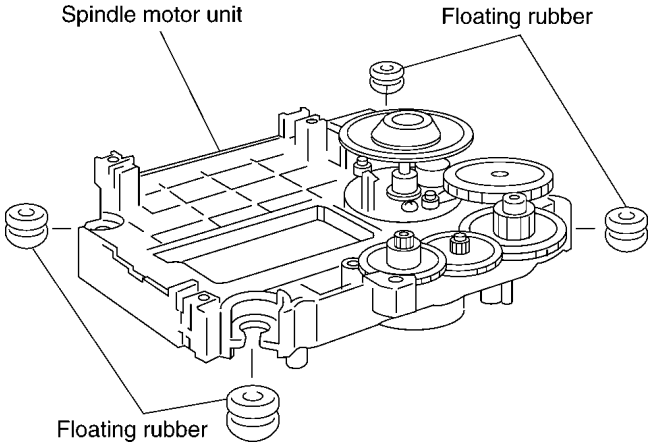
8.9. Disassembling the Traverse Gear A

1. Remove the traverse gear A.



8.10. Disassembling the Spindle Motor Unit

1. Remove the floating rubbers.



8.11. VCR Mechanism Adjustment Procedures

Refer to the Service Manual for R4-Mechanism Chassis. (Order No. VRD0202010C8)

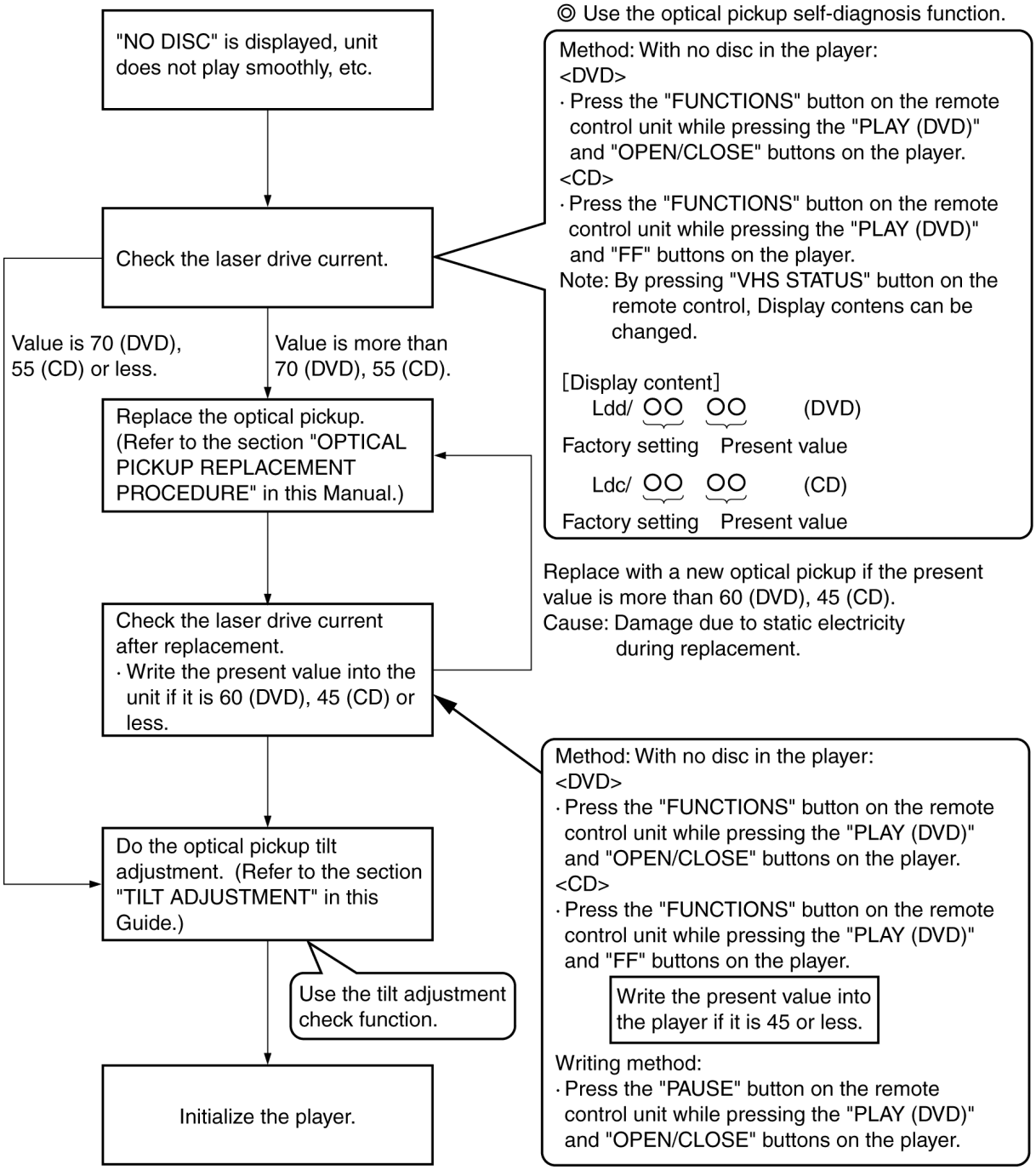
9 SELF-DIAGNOSIS FUNCTION AND SERVICE MODES

9.1. Optical Pickup Breakdown Diagnosis

The optical pickup self-diagnosis function and tilt adjustment check function have been included in this unit. When repairing, use the following procedure for effective Self-diagnosis and tilt adjustment.Be sure to use the self-diagnosis function before replacing the optical pickup when "NO DISC" is displayed. As a guideline, you should replace the optical pickup when the value of the laser drive current is more than 70 (DVD), 55(CD).

Note:

Press the power button to turn on the power, and check the value within three minutes before the unit warms up. (Otherwise, the result will be incorrect.)



9.2. Service Mode Table 1

The service modes can be activated by pressing various button combination on the player and remote control unit.

Player buttons	Remote control unit buttons	Application	Note
PLAY (DVD) + OPEN/CLOSE	0	Displaying the UHF display F_ _ _	Refer to section 9.3. Self-Diagnosis Function (UHF Display).
	5	Jitter check, tilt adjustment *Display shows Jxxx/__yy Note: By pressing “VHS STATUS“ button on the remote control, Display contens can be changed. "yy" shown to the right have nothing to do with the jitter value. "yy" is the focus drive value. Refer to section 11.4. for Optical Pickup Tilt Adjustment Procedure.	Refer to section 11.4. Optical Pickup Tilt Adjustment
	6	Checking the region numbers and broadcast system	
	7	Checking the program version	Check the IC8651 FLASH ROM program.
	9	Lighting Confirmation Function of Display Tube	
	DISPLAY	Checking the laser drive current	Refer to Optical Pickup Replacement Procedure.
	PAUSE	Writing the laser drive current value after replacing the optical pickup (do not use for anything other than optical pickup replacement)	
PLAY (DVD)+ REW + OPEN/CLOSE	----------	Initializing the DVD player (restoring factory preset settings)	Refer to section 9.5. Initializing the DVD player.

9.3. DVD Self Diagnostic Function-Error Code

Error Code	Error Content	Additional error explanation	Defect 1	Defect 2	Defect 3	Defect 4
	U, H error					
U11	Focus error					
U15	Non finalized DVD-R disc playback error					
H01	Tray loading error					
H02	Spindle servo error	(Spindle servo, DV3.2 (IC8001) SP motor, CLV servo error)				
H03	Traverse servo error					
H04	Tracking servo error					
H05	Seek error					
H06	Power error	Cannot switch off the power because of the panel and system computer communication error				
H07	Spindle motor drive error		Spindle motor ass'y			
	DSC related					
F500	DSC error	DV3.2 (IC8001) stops in the occurence of servo error (starup, focus error, etc)	Optical pickup	DV3.2 (IC8001)	servo drive	
F501	DSC not Ready	DSC-system computer communication error (Communication failure caused by idling of DSC)	DV3.2 (IC8001)			
F502	DSC Time out error	Similar disposal as F500	Optical pickup	DV3.2 (IC8001)	servo drive	
F503	DSC communication Failure	Communication error (result error occured although communication command was sent)	DV3.2 (IC8001)			
F505	DSC Attention error	Similar disposal as F500	Optical pickup	DV3.2 (IC8001)	servo drive	
F506	Invalid media	Disc is flipped over, TOC unreadable, incompatible disc	DISC	DV3.2 (IC8001)		
	ODC related					
F600	Access failure to management information caused by demodulation error	Operation stopped because navigation data is not accessible caused by the demodulation defect	DV3.2 (IC8001)			
F601	Indeterminate sector ID requested	Operation stopped caused by the request to access abnormal ID data	DV3.2 (IC8001)			
F602	Access failure to LEAD-IN caused by demodulation error	LEAD IN data unreadable				
F603	Access failure to KEYDET caused by demodulation error	Access failure to CSS data of disc				

Error Code	Error Content	Additional error explanation	Defect 1	Defect 2	Defect 3	Defect 4
F610	ODC abnormality	No permission for command execution	DV3.2 (IC8001)			
F611	6626 QCODE don't read Error	Access failure to seek address in CD series	DV3.2 (IC8001)			
F612	No CRC OK for a specific time	Access failure to ID data in DVD series	DV3.2 (IC8001)			
F630	No reply to KEY DET enquiry	(for internal use only)				
F631	CPPM KEY DET is not available till the FILE terminal	(CPPM file system is unreadable caused by scratches)	DISC	CPPM (*1)		
F632	CPPM KEY DET is not available	Been revoked or falsified	DISC	CPPM (*1)		
	Disc code					
F103	Illegal highlight Position	Big possibility of disc specification violation during highlight display	DISC			
	HIC Error					
F4FF	Force initialize failure (time out)		DV3.2 (IC8001)			
	Micro computer error					
F700	MBX overflow	When replying message to disc manager				
F701	Message command does not end	Next message is sent before replying to disc manager				
F702	Message command changes	Message is changed before it is sent as a reply to disc manager				
F880	Task number is not appropriate	Message coming from a non-existing task				
F890	Sending message when message is being sent to AV task	Sending message to AV task				
F891	Message couldn't be sent to AV task	Begin sending message to AV task				
F893	FROM falsification		FROM (IC8651)	DV3.2 (IC8001)		
F894	EEPROM abnormality		Serial communicat ion on Ione			
F895	Language area abnormality	Firm version agreement check for factory preset setting failure prevention	FROM (IC8651)			
F896	No existence model	Firm version agreement check for factory preset setting failure prevention				
F897	Initialize is not completed	Initialize completion check for factory preset setting failure prevention				
F898	Disagreement of hardware and software	Unsuitable combination of AV DECORDER, SDRAM and FLASH ROM (firmware)				
F8A0	Message command is not appropriate	Begin sending message to AV task				

Note:

An error code will be canceled if a power supply is turned OFF.

*1: CPPM is the copy guard function beforehand written in the disk for protection of copyrights.

9.4. Last Error Code saved during NO PLAY

Error code	Error Content
F0BF	6) Cannot playback because physical layer is not recoginizable
F0C0	8) DVD: Cannot playback because it is not DVD Video/Adio/VR
F0C1	9) DVD: Prohibited by the restricted region code
F0C2	A) DVD: PAL restricted playback
F0C3	B) DVD: Parental lock setting prohibits the playback of the entire title
F0C4	C) VCD: Prohibited because it is in PHOTO CD fromat
F0C5	VCD/CD: Prohibited because it is CDROM without CD-DA

9.5. Service mode table 2

Pressing various button combinations on the player and remote control unit can activate the service modes.

Item	Player mode and button combination	Function	Display	Cancellation method
Jitter check	In PLAY mode, press PLAY (DVD) and OPEN buttons on the player, and "5" button on the remote control unit.	Jitter check Jitter rate is measured and displayed. Measurement is repeatedly done in the cycle of one second.	Jxxx/ yy Focus drive value Jitter rate Jitter check mode Jitter rate is shown in decimal notation to one place of decimal. Focus drive value is shown in hexadecimal notation. Note: By pressing "VHS STATUS" button on the remote control, Display contens can be changed.	Press STOP or OPEN button.
Initial setting of laser drive current	In STOP (no disc) mode, press PLAY (DVD) and OPEN buttons on the player, and PAUSE button on the remote control unit.	Initial setting of laser drive currentInitial current value for each of DVD laser and CD laser is separately saved in EEPROM.	Ld0/ 34 28 CD laser current measurement DVD laser current measurement Laser current measurement mode The value denotes the current in decimal notation. The above example shows the initial current is 34mA and 28mA for DVD laser and CD laser respectively when the laser is witched on. Note: By pressing "VHS STATUS" button on the remote control, Display contens can be changed.	Cancelled automatically 5 seconds later.
DVD laser drive current measurement	In STOP (no disc) mode, press PLAY (DVD) and OPEN buttons on the player, and FUNCTIONS button on the remote control unit.	DVD laser drive current measurement ·DVD laser drive current is measured and the result is displayed together with the initial value stored in EEPROM. After the measurement, DVD laser emission is kept on. It is turned off when POWER key is switched off. (It is also turned off when POWER button on the player is switched off.)	Ldd/ 34 32 Measured current Initial current stored in EEPROM DVD laser current measurement mode The value denotes the current in decimal notation. The above example shows the initial current is 34mA and the measured value is 32mA. Note: By pressing "VHS STATUS" button on the remote control, Display contens can be changed.	Cancelled automatically 5 seconds later.
CD laser drive current measurement	In STOP (no disc) mode, press PLAY (DVD) and FF buttons on the player, and FUNCTIONS button on the remote control unit.	CD laser drive current measurement CD laser drive current is measured and the result is displayed together with the initial value stored in EEPROM. After the measurement, CD laser emission is kept on. It is turned off when POWER key is switched off. (It is also turned off when POWER button on the player is switched off.)	Ldc/ 28 26 Measured current Initial current stored in EEPROM CD laser current measurement mode The value denotes the current in decimal notation. The above example shows the initial current is 28mA and the measured value is 26mA. Note: By pressing "VHS STATUS" button on the remote control, Display contens can be changed.	Cancelled automatically 5 seconds later.
Version display	In STOP (no disc) mode, press PLAY (DVD) and OPEN buttons on the player, and "7" button on the remote control unit.	Version display	ssss xxxyzzz (only display on OSD) System controller release number System controller model number System controller generation Information between Operational control and DVD	Cancelled automatically 5 seconds later.
Lighting of display tube	In STOP (no disc) mode, press PLAY (DVD) and OPEN buttons on the player, and "9" button on the remote control unit.	Lighitng of display tube	———	Power Off
Initialization	In STOP (no disc) mode, press PLAY (DVD), REW and OPEN buttons on the player for 3 seconds or longer.	Initialization User settings are cancelled and player is initialized to factory setting.	“INI”	

Item	Player mode and button combination	Function	Display	Cancellation method
Timer 1 check	In STOP (no disc) mode, press PLAY (DVD) and FF buttons on the player, and "5" button on the remote control unit.	Timer 1 check Laser operation timer is measured separately for DVD laser and CD laser.	t1 →1234 Shown to the left is DVD laser time, and to the right CD laser time. Time is shown in 4 digits of decimal notation in a unit of 10 hours. "0000" will follow "9999".	Cancelled automatically 5 seconds later.
Timer 1 reset	While displaying Timer 1 data, press STOP (DVD) and FF buttons on the player, and "5" button on the remote control unit. (During displaying "Timer 1 check")	Timer 1 reset Laser operation timer of both DVD laser and CD laser is reset all at once.	0000	Cancelled automatically 5 seconds later.
Timer 2 check	In STOP (no disc) mode, press PLAY (DVD) and FF buttons on the player, and "6" button on the remote control unit.	Timer 2 check Spindle motor operation timer	t2 →1234 Time is shown in 4 digits of decimal notation in a unit of 10 hours. "0000" will follow "9999".	Cancelled automatically 5 seconds later.
Timer 2 reset	While displaying Timer 2 data, press STOP (DVD) and FF buttons on the player and "6" button on the remote control unit. (During displaying "Timer 2 check")	Timer 2 reset Spindle motor operation timer reset.	0000	Cancelled automatically 5 seconds later.

9.6. VCR Self-Diagnosis Result Display

Refer to the Service Manual for R4-Mechanism CHassis. (Order No.: VRD0202010C8)

9.7. Handling After Completing Repairs

Use the following procedure after completing repairs.

9.7.1. Method

Confirm that the power is turned on:

1. Press the "OPEN/CLOSE" button to open/close the tray.

2. Press the "POWER" button to turn on/off the power.

3. Disconnect the power plug from the outlet.

9.7.2. Precautions

When disconnecting the power plug while the tray is still open, close the tray manually.

10 SERVICE PRECAUTIONS

10.1. Recovery after the DVD player is repaired

- When FROM and/or DVD module P.C.B. has been replaced, carry out the recovering process to optimize the drive.

  Playback the recovery disk to process the recovery automatically.
- Recovery disc [Product number: RFKZD03R005] (RFKZD03R004 can not be used.)
- Performing recovery
  1. Load the recovery disc RFKZD03R005 on to the player and run it.
  2. Recovery is performed automatically. When it is finished, a message appears on the screen.
  3. Remove the recovery disc.
  4. Turn off the power.

Note:

This unit requires no initialization process carried out after the traditional DVD players were repaired.

When the recovery measures are taken, the customer setting will return to the factory setting as same as the procedure described in item of "Initialization" in 9.5. is carried out. Write down the contents of the setting before recovery processing, and reset the player.

10.2. Firmware version-up of the DVD player

- In order to optimize the drive operation, the firmware of the DVD player may be renewed to improve the quality including operationability and playerbility by updating the firmware onto the substandard disc.
- After version-up, recovery processing is executed automatically.
- Part number of the recovery disc for version-up will be noticed when it is supplied.
- Updating firmware
  1. Load the recovery disc that is supplied to the player and run it.
  2. Firmware version of the player is automatically checked. Appropriate message appears whenever necessary.
  3. Using remote controller´s cursor key, select whether version updating is to be done or not. (Selection of Yes/No)
  4. a. If Yes is selected, version updating is performed.
     b. If No is selected, only recovery is performed.
  5. a. When updating is finished, remove the disc according to the message appearing on the screen.
     b. Remove the disc according to the message appearing on the screen.
  6. Turn off the power.

Note:

If the AC power supply is shut out during version-up due to a power failure, the version-up is improperly carried out.

In such a case, replace the FROM and carry out the version-up again.

11 ADJUSTMENT PROCEDURES

11.1. Service Tools and Equipment

Application	Name	Number
Tilt adjustment	DVD test disc	DVDR-S15 or DVDT-S01
	Hex wrench	Available on sales route.
Inspection	Extension cable (MAIN C.B.A. to Power C.B.A.)	VFK1729
	Extension cable (DVD Module C.B.A. to Main C.B.A.)	RFKZ0318
Others	Grease 1	RFKXGAK152
	Grease 2	RFKXPG641
	Oil (1)	RFKXGA1280
Confirmation	CD test disc	PVCD-K06 or any other commercially available disc
	VCD test disc	PVCD-K06 or any other commercially available disc
	Recovery disc	RFKZD03R005

11.2. Important points in adjustment

11.2.1. Important points in optical adjustment

・Before starting optical adjustment, be sure to take anti-static measures.

・Optical pickup tilt adjustment is needed after replacement of the following components.

1. Optical pickup unit
2. Spindle motor unit
3. Optical pickup peripheral parts (such as rail)

Notes

Adjustment is generally unnecessary after replacing other parts of the traverse unit. However, do adjustment if there is a noticeable degradation in picture quality. Optical adjustments cannot be made inside the optical pickup. Adjustment is generally unnecessary after replacing the traverse unit.

11.2.2. Important points in electrical adjustment

・Follow the adjustment procedures described in this Manual.

11.3. Storing and Handling Test Discs

・Surface precision is vital for DVD test discs. Be sure to store and handle them carefully.

1. Do not place discs directly onto the workbench, etc., after use.
2. Handle discs carefully in order to maintain their flatness. Place them into their case after use and store them vertically. Store discs in a cool place where they are not exposed to direct sunlight or air from air conditioners.
3. Accurate adjustment will not be possible if the disc is warped when placed on a surface made of glass, etc. If this happens, use a new test disc to make optical adjustments.
4. If adjustment is done using a warped disc, the adjustment will be incorrect and some discs will not be playable.

11.4. DVD Optical adjustment

11.4.1. Optical pickup tilt adjustment

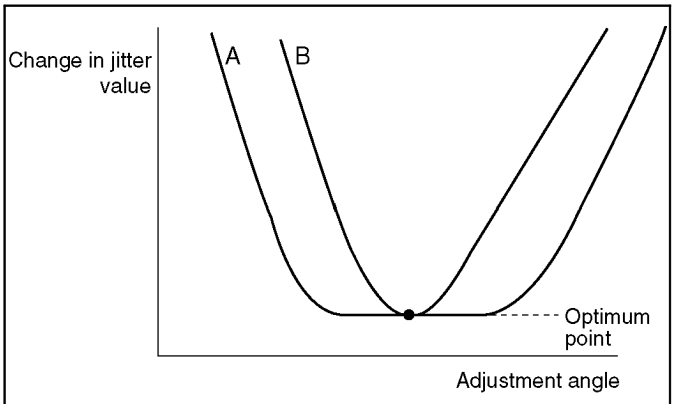
Measurement point	Adjustment point	Mode	Disc
	Tangential adjustment screw Tilt adjustment screw	T01 (inner periphery) play T43 (outer periphery) play	DVDR-S15 or DVDT-S01
Measuring equipment		Adjustment value	
None (Main unit display for servicing is used.)		Adjust to the minimum jitter value.	

11.4.1.1. Adjustment procedure

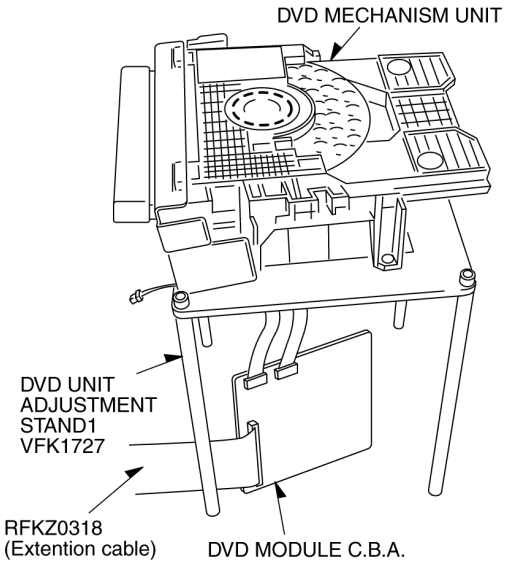
1. Place the Unit in SERVICE POSITION
2. While pressing PLAY (DVD) and OPEN/CLOSE buttons on the main unit, press "5" on the remote control unit simultaneously.
3. Confirm that "Jxxx" is shown on the front display.
4. Play test disc T01 (inner periphery).
5. Adjust tangential adjustment screw so that the jitter value is minimized.
6. Play test disc T43 (outer periphery).
7. Adjust tilt adjustment screw 1 so that the jitter value is minimized.
8. Play test disc T43 (outer periphery).
9. Adjust tilt adjustment screw 2 so that the jitter value is minimized.
10. Repeat adjusting tilt adjustment screws 1 and 2 alternately until the jitter value is minimized.

11.4.1.2. Important points

1. Do tangetial adjustment first, then tilt adjustment.
2. Repeat adjusting two or three times to find the optimum point.
3. Finish the procedure with tilt adjustment.

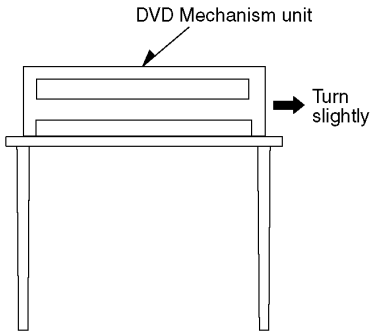


Jitter value depends on the model:
1. If the jitter value changes like B, the optimum point is easy to find.
2. If the jitter value changes like A, set the optimum point near the middle.

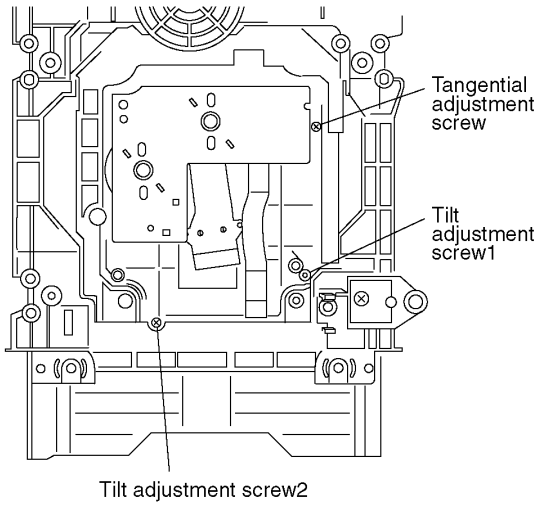


Note:

When adjust Tilt adjustment screw 2, turn the DVD unit slightly so that the Tilt adjustment screw 2 could be adjusted.



<DVD Mechanism unit bottom>

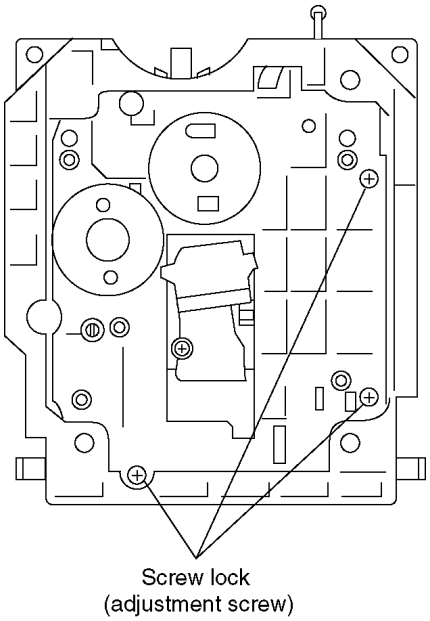


11.4.1.3. Check after adjustment

Play test disc or any other disc to make sure there is no picture degradation in the inner, middle and outer peripheries, and no audio skipping. After adjustment is finished, lock each adjustment screw in position using screw lock.

11.4.1.4. Procedure for screw lock

1. After adjustment, remove top cover, tray, clamper base and traverse unit in this sequence.
2. Lay the traverse unit upside down, and fix adjustment screw with screw lock.
3. After fixing, reassemble traverse unit, clamper base, tray and top cover.



11.5. VCR ELECTRICAL ADJUSTMENT PROCEDURES

This section provides complete adjustment procedures required for electric circuits of VCR.

11.5.1. TEST EQUIPMENT

The following items will be required when performing electrical adjustment.

1. VHS Alignment Tape. (VFJ8125H3F)
2. Monitor

11.5.2. SERVO SECTION

PG SHIFTER ADJUSTMENT

	PROCEDURE	F.I.P. DISPLAY
1.	**Turn on the Service Mode** 1.Press the FF key and the EJECT key simultaneously for more than 3 seconds.	
2.	**Activate the Service Mode 2** While keep pressing FF key, press the EJECT key in twice.	
3.	**Activate the Entering Mode.** Press the EJECT key for more than 3 seconds.	
4.	**Set the Mode 2.** Press the CH UP key once.	
5.	**Insert the alignment cassette tape (VFJ8125H3F)** The PG Shifter Adjustment starts automatically.	
6.	When the sequence of the automatic adjustment has been terminated, the following action has been made. * SUCCEED: The cassette tape is ejected. * ERROR: The "F20", "F21", "F22" or "F23" is displayed. Refer to next PG Shifter Adjustment Self-Diagnosis Indication Table regarding the details of the indications.	
7.	**Exit from Service Mode.** Press FF and EJECT keys simultaneously in 6 times. Then the FIP becomes normal indication.	

PG SHIFTER AUTOMATIC ADJUSTMENT SELF-DIAGNOSIS INDICATION

F20	NG1 in the PG Shifter Automatic Adjustment (The cylinder rotation is unstable during the automatic adjustment.)
F21	NG2 in the PG Shifter Automatic Adjustment (The vertical sync signal is lacked while over 5 seconds on the alignment tape.)
F22	NG3 in the PG Shifter Automatic Adjustment (The installing position of Heads to the cylinder is our of specification.
F23	NG4 in the PG Shifter Automatic Adjustment (The servo is not locked to the cylinder for more than 10 sec.)

NOTE:

After replacing the DD Cylinder, the Tape Interchangeability adjustment (X-Value Adjustment, P2 and P3 Posts Adjustment) should be performed after the PG Shifter Automatic Adjustment.

12 ABBREVIATIONS

[DVD SECTION]

INITIAL/LOGO		ABBREVIATIONS
A	A0~UP	ADDRESS
	ACLK	AUDIO CLOCK
	AD0~UP	ADDRESS BUS
	ADATA	AUDIO PES PACKET DATA
	ALE	ADDRESS LATCH ENABLE
	AMUTE	AUDIO MUTE
	AREQ	AUDIO PES PACKET REQUEST
	ARF	AUDIO RF
	ASI	SERVO AMP INVERTED INPUT
	ASO	SERVO AMP OUTPUT
	ASYNC	AUDIO WORD DISTINCTION SYNC
B	BCK	BIT CLOCK (PCM)
	BCKIN	BIT CLOCK INPUT
	BDO	BLACK DROP OUT
	BLKCK	SUB CODE BLOCK CLOCK
	BOTTOM	CAP. FOR BOTTOM HOLD
	BYP	BYPATH
	BYTCK	BYTE CLOCK
C	CAV	CONSTANT ANGULAR VELOCITY
	CBDO	CAP. BLACK DROP OUT
	CD	COMPACT DISC
	CDSCK	CD SERIAL DATA CLOCK
	CDSRDATA	CD SERIAL DATA
	CDRF	CD RF (EFM) SIGNAL
	CDV	COMPACT DISC-VIDEO
	CHNDATA	CHANNEL DATA
	CKSL	SYSTEM CLOCK SELECT
	CLV	CONSTANT LINEAR VELOCITY
	COFTR	CAP. OFF TRACK
	CPA	CPU ADDRESS
	CPCS	CPU CHIP SELECT
	CPDT	CPU DATA
	CPUADR	CPU ADDRESS LATCH
	CPUADT	CPU ADDRESS DATA BUS
	CPUIRQ	CPU INTERRUPT REQUEST
	CPRD	CPU READ ENABLE
	CPWR	CPU WRITE ENABLE
	CS	CHIP SELECT
	CSYNCIN	COMPOSITE SYNC IN
	CSYNCOUT	COMPOSITE SYNC OUT
D	DACCK	D/A CONVERTER CLOCK
	DEEMP	DEEMPHASIS BIT ON/OFF
	DEMPH	DEEMPHASIS SWITCHING
	DIG0~UP	FL DIGIT OUTPUT
	DIN	DATA INPUT
	DMSRCK	DM SERIAL DATA READ CLOCK
	DMUTE	DIGITAL MUTE CONTROL
	DO	DROP OUT
	DOUT0~UP	DATA OUTPUT
	DRF	DATA SLICE RF (BIAS)
	DRPOUT	DROP OUT SIGNAL
	DREQ	DATA REQUEST
	DRESP	DATA RESPONSE
	DSC	DIGITAL SERVO CONTROLLER
	DSLF	DATA SLICE LOOP FILTER
	DVD	DIGITAL VIDEO DISC

INITIAL/LOGO		ABBREVIATIONS
E	EC	ERROR TORQUE CONTROL
	ECR	ERROR TORQUE CONTROL REFERENCE
	ENCSEL	ENCODER SELECT
	ETMCLK	EXTERNAL M CLOCK (81MHz/40.5MHz)
	ETSCLK	EXTERNAL S CLOCK (54MHz)
F	FBAL	FOCUS BALANCE
	FCLK	FRAME CLOCK
	FE	FOCUS ERROR
	FFI	FOCUS ERROR AMP INVERTED INPUT
	FEO	FOCUS ERROR AMP OUTPUT
	FG	FREQUENCY GENERATOR
	FSC	FREQUENCY SUB CARRIER
	FSCK	FS (384 OVER SAMPLING) CLOCK
G	GND	COMMON GROUNDING (EARTH)
H	HA0~UP	HOST ADDRESS
	HD0~UP	HOST DATA
	HINT	HOST INTERRUPT
	HRXW	HOST READ/WRITE
I	IECOUT	IEC958 FORMAT DATA OUTPUT
	IPFRAG	INTERPOLATION FLAG
	IREF	I (CURRENT) REFERENCE
	ISEL	INTERFACE MODE SELECT
L	LDON	LASER DIODE CONTROL
	LPC	LASER POWER CONTROL
	LRCK	L CH/R CH DISTINCTION CLOCK
M	MA0~UP	MEMORY ADDRESS
	MCK	MEMORY CLOCK
	MCKI	MEMORY CLOCK INPUT
	MCLK	MEMORY SERIAL COMMAND CLOCK
	MDATA	MEMORY SERIAL COMMAND DATA
	MDQ0~UP	MEMORY DATA INPUT/OUTPUT
	MDQM	MEMORY DATA I/O MASK
	MLD	MEMORY SERIAL COMMAND LOAD
	MPEG	MOVING PICTURE EXPERTS GROUP
O	ODC	OPTICAL DISC CONTROLLER
	OFTR	OFF TRACKING
	OSCI	OSCILLATOR INPUT
	OSCO	OSCILLATOR OUTPUT
	OSD	ON SCREEN DISPLAY
P	P1~UP	PORT
	PCD	CD TRACKING PHASE DIFFERENCE
	PCK	PLL CLOCK
	PDVD	DVD TRACKING PHASE DIFFERENCE
	PEAK	CAP. FOR PEAK HOLD
	PLLCLK	CHANNEL PLL CLOCK
	PLLOK	PLL LOCK
	PWMCTL	PWM OUTPUT CONTROL
	PWMDA	PULSE WAVE MOTOR DRIVE A
	PWMOA, B	PULSE WAVE MOTOR OUT A, B

INITIAL/LOGO		ABBREVIATIONS
R	RE	READ ENABLE
	RFENV	RF ENVELOPE
	RFO	RF PHASE DIFFERENCE OUTPUT
	RS	(CD-ROM) REGISTER SELECT
	RSEL	RF POLARITY SELECT
	RST	RESET
	RSV	RESERVE
S	SBI0, 1	SERIAL DATA INPUT
	SBO0	SERIAL DATA OUTPUT
	SBT0, 1	SERIAL CLOCK
	SCK	SERIAL DATA CLOCK
	SCKR	AUDIO SERIAL CLOCK RECEIVER
	SCL	SERIAL CLOCK
	SCLK	SERIAL CLOCK
	SDA	SERIAL DATA
	SEG0~UP	FL SEGMENT OUTPUT
	SELCLK	SELECT CLOCK
	SEN	SERIAL PORT ENABLE
	SIN1, 2	SERIAL DATA IN
	SOUT1, 2	SERIAL DATA OUT
	SPDI	SERIAL PORT DATA INPUT
	SPDO	SERIAL PORT DATA OUTPUT
	SPEN	SERIAL PORT R/W ENABLE
	SPRCLK	SERIAL PORT READ CLOCK
	SPWCLK	SERIAL PORT WRITE CLOCK
	SQCK	SUB CODE Q CLOCK
	SQCX	SUB CODE Q DATA READ CLOCK
	SRDATA	SERIAL DATA
	SRMADR	SRAM ADDRESS BUS
	SRMDT0~7	SRAM DATA BUS 0~7
	SS	START/STOP
	STAT	STATUS
	STCLK	STREAM DATA CLOCK
	STD0~UP	STREAM DATA
	STENABLE	STREAM DATA INPUT ENABLE
	STSEL	STREAM DATA POLARITY SELECT
	STVALID	STREAM DATA VALIDITY
	SUBC	SUB CODE SERIAL
	SBCK	SUB CODE CLOCK
	SUBQ	SUB CODE Q DATA
	SYSCLK	SYSTEM CLOCK
T	TE	TRACKING ERROR
	TIBAL	BALANCE CONTROL
	TID	BALANCE OUTPUT 1
	TIN	BALANCE INPUT
	TIP	BALANCE INPUT
	TIS	BALANCE OUTPUT 2
	TPSN	OP AMP INPUT
	TPSO	OP AMP OUTPUT
	TPSP	OP AMP INVERTED INPUT
	TRCRS	TRACK CROSS SIGNAL
	TRON	TRACKING ON
	TRSON	TRAVERSE SERVO ON

INITIAL/LOGO		ABBREVIATIONS
V	VBLANK	V BLANKING
	VCC	COLLECTOR POWER SUPPLY VOLTAGE
	VCDCONT	VIDEO CD CONTROL (TRACKING BALANCE)
	VDD	DRAIN POWER SUPPLY VOLTAGE
	VFB	VIDEO FEED BACK
	VREF	VOLTAGE REFERENCE
	VSS	SOURCE POWER SUPPLY VOLTAGE
W	WAIT	BUS CYCLE WAIT
	WDCK	WORD CLOCK
	WEH	WRITE ENABLE HIGH
	WSR	WORD SELECT RECEIVER
X	X	X´ TAL
	XALE	X ADDRESS LATCH ENABLE
	XAREQ	X AUDIO DATA REQUEST
	XCDROM	X CD ROM CHIP SELECT
	XCS	X CHIP SELECT
	XCSYNC	X COMPOSITE SYNC
	XDS	X DATA STROBE
	XHSYNCO	X HORIZONTAL SYNC OUTPUT
	XHINT	XH INTERRUPT REQUEST
	XI	X´ TAL OSCILLATOR INPUT
	XINT	X INTERRUPT
	XMW	X MEMORY WRITE ENABLE
	XO	X´ TAL OSCILLATOR OUTPUT
	XRE	X READ ENABLE
	XSRMCE	X SRAM CHIP ENABLE
	XSRMOE	X SRAM OUTPUT ENABLE
	XSRMWE	X SRAM WRITE ENABLE
	XVCS	X V-DEC CHIP SELECT
	XVDS	X V-DEC CONTROL BUS STROBE
	XVSYNCO	X VERTICAL SYNC OUTPUT

[VCR SECTION]

443NT [L]	4.43 NTSC Ⓛ	BIL	BILINGUAL
A. COMP	AUDIO COMPONENT SIGNAL	BIL [L]	BILINGUAL Ⓛ
A. COMPO	AUDIO COMPONENT SIGNAL	BIL. [H]	BILINGUAL Ⓗ
A. D.P [L]	AUDIO DUBBING PAUSE Ⓛ	BIL/M1 [L]	BILINGUAL Ⓛ
A. D/L [L]	AUDIO DUBBING PAUSE Ⓛ	BS CLOCK	BS CLOCK
A. DEF [S]	AUDIO DEFEAT	BS DATA	BS DATA
A. DEF [S] [L]	AUDIO DEFEAT	BS LCH IN	BS L CHANNEL INPUT
A. DUB P [L]	AUDIO DUBBING PAUSE Ⓛ	BS MIX [H]	BS MIX Ⓗ
A. DUB [H]	AUDIO DUBBING Ⓗ	BS MON [H]	BS MONITOR Ⓗ
A. ERASE	AUDIO ERASE	BS MONI [H]	BS MONITOR Ⓗ
A. H. SW	AUDIO HEAD SWITCHING PULSE	BS RCH IN	BS R CHANNEL INPUT
A. HEAD [R]	AUDIO HEAD (REC)	BS VIDEO	BS VIDEO SIGNAL
A. HEAD [W]	AUDIO HEAD (PLAY)	BS VIDEO/BS1	BS VIDEO SIGNAL
A. IN [L]	AUDIO INPUT (L)	BS [H]	BS Ⓗ
A. IN [R]	AUDIO INPUT (R)	BS. LEVEL	BS LEVEL
A. MUT [H]	AUDIO MUTE Ⓗ	BS. M [H]	BS MONITOR Ⓗ
A. MUTE [H]	AUDIO MUTE Ⓗ	BS/VTR [H]	BS/VTR Ⓗ
A. OUT [L]	AUDIO OUTPUT (L)	BUS CLK	BUS CLOCK
A. OUT [R]	AUDIO OUTPUT (R)	BUS LSN	BUS LISTEN
A. RF OUT	AUDIO RF SIGNAL OUTPUT	BUS TLK	BUS TALK
A/VS/S. DATA	AV SW/SERIAL DATA	BUZZER	BUZZER
AC ONLINE	AC ONLINE	CAP EC	CAPSTAN TORQUE CONTROL
AC. O/EE. H	AC ONLINE/EE Ⓗ	CAP M GND	CAPSTAN MOTOR GND
AFC S C	AFC S CURVE	CAP. ET	CAPSTAN TORQUE CONTROL
AFC [S]	AFC S CURVE	CAP. FG1	CAPSTAN FG1 PULSE
AFC. DEF	AFC DEFEAT	CAP. FG2	CAPSTAN FG2 PULSE
ARFC OUT	AUDIO RF SIGNAL OUTPUT	CAS. SW	CASSETTE SW
ART. V	ARTIFICIAL VERTICAL SYNC SIGNAL	CCN	PLAYBACK CONTROL SIGNAL (–)
ART. V. MM	ARTIFICIAL VERTICAL SYNC SIGNAL MONO MULTI	CCP	PLAYBACK CONTROL SIGNAL (+)
		CHM	CONTROL SIGNAL (+)
ART. V/H/N	ARTIFICIAL VERTICAL SYNC SIGNAL Ⓗ/NORMAL	CHP	CONTROL SIGNAL (–)
		CINEM [L]	CINEMA Ⓛ
AT. V/H/N	ARTIFICIAL VERTICAL SYNC SIGNAL	CINEMA [L]	CINEMA Ⓛ
ATSW/TEST/NOR/SE	TEST/NORMAL/SERVICE	CINEMA/MIX	CINEMA/MIX
AUDIO IN [L]	AUDIO INPUT (L)	CKL	RATCH LOCK
AUDIO IN [R]	AUDIO INPUT (R)	CKS	SHIFT LOCK
AUDIO OUT [L]	AUDIO OUTPUT (L)	CL	CLOCK
AUDIO OUT [R]	AUDIO OUTPUT (R)	CLK	CLOCK
AUDIO SELECT [H]	AUDIO SELECT Ⓗ	CLK (C.G)	CLOCK
AUDIO. L	AUDIO (L)	CLOCK. IN	CLOCK INPUT
AUDIO. R	AUDIO (R)	CLP	CLAMP
AV CNT	AV CONTROL	COL/B/W/NOR	COLOUR/BLACK & WHITE/NORMAL
AV CTL	AV CONTROL	COLOR [H]	COLOUR Ⓗ
AV CTL/S. CLK	AV CONTROL/SERIAL CLOCK	CONV	CONVERTOR
AV. C.M.	AV CONTROL MODE	CS	CHIP SELECT
AVCNT/METER. R	AV CONTROL/LEVEL METER (R)	CTL GND	CONTROL GND
AVSW/METER. L	AV SW/LEVEL METER (L)	CTL HEAD [+]	CONTROL HEAD (+)
B MODE. H	B MODE Ⓗ	CTL HEAD [–]	CONTROL HEAD (–)
B.G.P	BURST GATE PULSE	CTL [+]	CONTROL HEAD (+)
BACKUP 5V	BACK UP 5V	CTL [–]	CONTROL HEAD (–)
BAND. U.E.	BAND U	CUE BIAS	CUE BIAS
BANDVL. D	BAND VL	CURRENT LIM	CURRENT LIMMITER
BI/MI [L]	BILINGUAL/MIX Ⓛ	CYL ET	CYLINDER TORQUE CONTROL

CYL GND	CYLINDER GND
D.F.M. REC [H]	DELAIED FM RECORDING Ⓗ
D. FM REC [L]	DELAIED FM RECORDING Ⓛ
D. GND	DIGITAL GND
D. REC [H]	DELAYED RECORDING Ⓗ
D4/S. LED	D4/STILL LED
D4/STILLED	D4/STILL LED
DAC [CLK]	TUNER DAC (CLOCK)
DAC/FSCS	TUNER DAC/FS CHIP SELECT
DAREC [H]	DELAYED AUDIO RECORDING Ⓗ
DATA	DATA
DECODER [L]	DECODER (L)
DECODER [R]	DECODER (R)
DEW	DEW
DEW SNS	DEW SENSOR
DFMRE [H]	DELAYED FM AUDIO RECORDING Ⓗ
E. REC 5V	EXCEPT RECORDING 5V
EC	ERROR TORQUE CONTROL
ECR	ERROR TORQUE CONTROL REFERENCE VOLTAGE
EDT TRIG [L]	EDIT TRIGGER Ⓛ
EDIT [H]	EDIT Ⓗ
EE [H]	EE Ⓗ
EE [H]/INS [M]	EE Ⓗ/INSERT Ⓜ
EE. VV. TR	EE/VV/TRICK PLAY
EJECT. PO	EJECT POSITION
EJECT/VDET	EJECT/REVERSE SLOW LOCK
ENV. SEL	ENVELOPE SELECT
ENVE. OUT	ENVELOPE OUTPUT
ENVE. SEL	ENVELOPE SELECT
ENV SELECT	ENVELOPE SELECT
EP [H]	LP Ⓗ
EP/LP [H]	LP Ⓗ
EP/LP/SP	LP/SP
EP/SS [H]	LP/SLOW/STILL/STOP Ⓗ
EPROMCS	EPROM CHIP SELECT
EX. REC 5V	EXCEPT RECORDING 5V
FF/REW [L]	FIRST FORWARD/REWIND Ⓛ
FG1 IN	FG1 PULSE INPUT
FG2 IN	FG2 PULSE INPUT
FILTER ADJUSTMENT	FILTER ADJUSTMENT
FLY ERASE [H]	FLYING ERASE HEAD ON Ⓗ
FLY ON [H]	FLYING ERASE HEAD ON Ⓗ
FLY. E [H]	FLYING ERASE HEAD ON Ⓗ
FM MUT [H]	FM AUDIO MUTE Ⓗ
FM MUTE [H]	FM AUDIO MUTE Ⓗ
FM OUT [L]	FM OUTPUT (L)
FM OUT [R]	FM OUTPUT (R)
FM PACK OUT [L]	FM PACK OUTPUT (L)
FM PACK OUT [R]	FM PACK OUTPUT (R)
FM/BS SEL [L]	FM/BS SELECT (L)
FM/BS SEL [R]	FM/BS SELECT (R)
FS. CLK	FS CLOCK
FUL. E [H]	FULL ERASE HEAD ON Ⓗ
FULL. E [H]	FULL ERASE HEAD ON Ⓗ
FULL. E. 12V	FULL ERASE 12V
GND [A]	GND (ANALOG)
GND [TU]	GND (TUNER)
GND/N. SW. 12V	GND/NON SW 12V
H. SYNC	HORIZONTAL SYNC
H. AMP. SW	HEAD AMP SW PULSE
H. P <R>	HEAD PHONE (R)
H. P <L>	HEAD PHONE (L)
H. P GND	HEAD PHONE GND
H. P OUT [L]	HEAD PHONE OUTPUT (L)
H. P OUT [R]	HEAD PHONE OUTPUT (R)
H. SW	HEAD SW PULSE
HEAD PHONE [L]	HEAD PHONE (L)
HEAD PHONE [R]	HEAD PHONE (R)
HEAD SW	HEAD SW
HEATER [+]	HEATER (+)
HEATER [–]	HEATER (–)
HSS	HORIZONTAL SYNC SIGNAL
HTR [+]	HEATER (+)
HTR [–]	HEATER (–)
I RFE	REFERENCE CURRENT
ICL	CONTROL AGC CIRCUIT
IF	INTERMEDIATE FREQUENCY
IN SELA1	INPUT SELECT A1 POSITION
IN SELA2	INPUT SELECT A2 POSITION
IN SELA3	INPUT SELECT A3 POSITION
INS L/R [L]	INSERT Lch/Rch Ⓛ
INS. [H]	INSERT Ⓗ
INSEL A1	INPUT SELECT A1 POSITION
INSEL A2	INPUT SELECT A2 POSITION
INSERT	INSERT
INSERT [H]	INSERT Ⓗ
IO CS	INPUT/OUTPUT CHIP SELECT
JOG1	JOG1
JOG S3 LED/FOWRD	JOG LED/FORWARD LED
JOG/F. LED	JOG LED/FORWARD LED
JSB [H]	JSB Ⓗ
JST. CLCK	JUST CLOCK
JST. CLK	JUST CLOCK
JST. CLOCK	JUST CLOCK
L. OUT	Lch OUTPUT
L. CH [H]	Lch Ⓗ
L. CH [L]	Lch Ⓛ
LED (MAIN)	LED (MAIN)
LED (STEREO)	LED (STEREO)
LED (SUB)	LED (SUB)
LED CKL	LED SERIAL CLOCK
LED CKS	LED SERIAL CLOCK
LED DATA	LED SERIAL DATA
LINE IN 1 [L]	LINE INPUT 1 (L)
LINE IN 1 [R]	LINE INPUT 1 (R)
LINE IN 2 [L]	LINE INPUT 2 (L)
LINE IN 2 [R]	LINE INPUT 2 (R)
LINE IN V	LINE INPUT VIDEO
LINE IN [L]	LINE INPUT (L)

LINE IN [R]	LINE INPUT (R)
LINE OUT [L]	LINE OUTPUT (L)
LINE OUT [R]	LINE OUTPUT (R)
LP [H]	LP Ⓗ
LPTRI [L]	LP TRICK PLAY Ⓛ
Lch/A. DUB	Lch/AUDIO DUBBING
M GND	MOTOR GND
M REG	MOTOR REGULATOR
MAIN OUT	MAIN OUTPUT
MAIN [L]	MAIN Ⓛ
MAIN/MONO	MAIN/MONAURAL
MAX IN	MAXIMAM INPUT
MES [H]	MESECAM Ⓗ
MESE [H]	MESECAM Ⓗ
MESE [L]	MESECAM Ⓛ
METER 5V	LEVEL METER 5V
METER [L]	LEVEL METER (L)
METER [R]	LEVEL METER (R)
METER. L/AVS	LEVEL METER (L)
METER. R/AVC	LEVEL METER (R)
MI/BI [L]	MIX Ⓗ/BILIGUAL
MIC GND	MIC GND
MIC IN	MIC INPUT
MIC IN [L]	MIC INPUT (L)
MIC IN [R]	MIC INPUT (R)
MIC [H]	MIC Ⓗ
MIX [H]	MIX Ⓗ
MIX [H]/CINEMA [L]	MIX Ⓗ/CINEMA SOUND Ⓛ
MIX/CINE	MIX Ⓗ/CINEMA SOUND Ⓛ
MIX/CINEMA [L]	MIX Ⓗ/CINEMA SOUND Ⓛ
MN. H/M. L	MONAURAL Ⓗ/MAIN Ⓛ
MN. H/MAI. L	MONAURAL Ⓗ/MAIN Ⓛ
MN2/MES. L	MONAURAL 2/MESECAM Ⓛ
MODE SEL	AUDIO MODE SELECT
MODE SW	AUDIO MODE SW
MODE. S. IN	AUDIO MODE SELECT INPUT
MODE. S. OUT	AUDIO MODE SELECT OUTPUT
MONO [H]	MONAURAL Ⓗ
MONO [H]/MAIN [L]	MONAURAL Ⓗ/MAIN Ⓛ
MONO2 [L]	MONAURAL 2
MONO2/MESE [FM(L)]	MONAURAL 2/MESECAM (FM Ⓛ)
MOTOR GND	MOTOR GND
MUTE	MUTE
N. A. REC [L]	NORMAL AUDIO RECORDING
N. SW 12V	NON SW 12V
N. SW. 5. DET	NON SW 5V DETECT
NICAM	NICAM
NICAM [L]	NICAM Ⓛ
NOL [H]	PAL Ⓗ/4.43 NTSC Ⓜ/3.58 NTSC Ⓛ
NOR/SOFT [H]	NORMAL/SOFT TAPE PLAY Ⓗ
NORMAL [H]	NORMAL Ⓗ
NR BIAS	NR BIAS
NTSC [L]	NTSC Ⓛ
OCH	CONTROL AGC CIRCUIT
OUT	OUTPUT

P-OFF [H]	POWER OFF Ⓗ
P-OFF [L]	POWER OFF Ⓛ
P. FAIL	POWER FAILURE DETECT
P. OFF [H]	POWER OFF Ⓗ
P. OFF [L]	POWER OFF Ⓛ
PAL [H]	PAL Ⓗ
PAL [L]/NTSC [H]	PAL Ⓛ/NTSC Ⓗ
PB ADJ OUT	PLAYBACK ADJUST OUTPUT
PB OUT	PLAYBACK OUTPUT
PB. H	PLAYBACK Ⓗ
PFG	PG/FG
PHOTSN +B	PHOTO SENSOR +B
PICT. CNT	PICTURE CONTROL
PLAY LED/RVS LED	PLAY LED/REVERSE LED
PLAY. PO	PLAY POSITION
PLAY/R. LED	PLAY LED/REVERSE LED
PLY/DEW	PLAY/DEW Ⓗ
POWER OFF [L]	POWER OFF Ⓛ
PREROLL [H]	PREROLL Ⓗ
PWRFAIL	POWER FAILURE DETECT
R. CH [H]	Rch Ⓗ
R. CH [L]	Rch Ⓛ
R. ST	RESET
R/S/F	REVERSE Ⓗ/STOP Ⓜ/FORWARD Ⓛ
RCH [H]	Rch Ⓗ
REC 12V	RECORDING 12V
REC CHROMA	RECORDING CHROMINANCE SIGNAL
REC H	RECORDING Ⓗ
REC IN	RECORDING INPUT
REC OUT [L]	RECORDING OUTPUT Ⓛ
REC START	RECORDING START
REC VR [C]	RECORDING VOLUME (COMMON)
REC VR [L]	RECORDING VOLUME (L)
REC VR [R]	RECORDING VOLUME (R)
REC Y	RECORDING LUMINANCE SIGNAL
REC [H]	RECORDING Ⓗ
REC. C	RECORDING CHROMINANCE SIGNAL
REC. Y	RECORDING LUMINANCE SIGNAL
REC/EE CTL	RECORDING/EE CONTROL
REEL-T	REEL PULSE (TAKE-UP)
REEL-S	REEL PULSE (SUPPLY)
REGULATOR FILTER	REGULATOR FILTER
RESET	RESET
REV M F/R	REVIEW MOTOR FORWARD/REVERSE
REV M V1	REVIEW MOTOR V1
REV M V2	REVIEW MOTOR V2
REV MOTOR F/R	REVIEW MOTOR FORWARD/REVERSE
REV MOTOR V1	REVIEW MOTOR V1
REV MOTOR V2	REVIEW MOTOR V2
REV MOTOR [+]	REVIEW MOTOR (+)
REV MOTOR [–]	REVIEW MOTOR (+)
REV. M. GND	REVIEW MOTOR GND
RF. CHROMA	RF CHROMINANCE SIGNAL

RF OUT	RF OUTPUT
RF Y	RF LUMINANCE SIGNAL
RF. Y. IN	RF LUMINANCE SIGNAL INPUT
RF. Y. OUT	RF LUMINANCE SIGNAL OUTPUT
ROTAR. SW	ROTARY SW
ROTARY	ROTARY SW
RST	RESET
RST [L]	RESET Ⓛ
Rch/INST	Rch/INSERT
S IN	SERIAL DATA INPUT
S OUT	SERIAL DATA OUTPUT
S-PHOTO	SUPPLY PHOTO TRANSISTOR
S-RL. PLS	SUPPLY REEL PULSE
S. CLK	SERIAL CLOCK
S. CLK/AV	SERIAL CLOCK/AV
S. DATA	SERIAL DATA
S. DATA/A	SERIAL DATA
S. PHOTO	SUPPLY PHOTO TRANSISTOR
S. TAB [L]	SAFETY TAB SW ON Ⓛ
S/P/N	SECAM/PAL/NTSC
SC IN	SERIAL CLOCK INPUT
SC OUT	SERIAL CLOCK OUTPUT
SCK SELECT	SERIAL CLOCK SELECT
SEL OUT [L]	SELECT OUTPUT (L)
SEL OUT [R]	SELECT OUTPUT (R)
SHUTTLE 1	SHUTTLE 1
SIF	SOUND INTERMEDIATE FREQUENCY
SLMUT [H]	INPUT SELECT MUTE Ⓗ
SLNID [+]	SOLENOID (+)
SLNID [–]	SOLENOID (–)
SLW TR. MM	SLOW TRACKING MONO MULTI
SLW TR. REF	SLOW TRACKING REFERENCE VOLTAGE
SNS. GND	SENSOR GND
SOFT [H]	SOFT TAPE PLAY Ⓗ
SOFT [H]/NORMAL	SOFT TAPE PLAY Ⓗ/NORMAL Ⓗ
SOLENOID ON [L]	SOLENOID ON Ⓛ
SP [H]	SP Ⓗ
SP/L/SLP	SP/LP
SSS [L]	SLOW/STILL/STOP
STEREO LED	STEREO LED
STEREO [H]	STEREO Ⓗ
STEREO [L]	STEREO Ⓛ
STOP. PO	STOP POSITION
STOP/5V	STOP POSITION/5V
STOP1/TAPE SEL	STOP1 POSITION/TAPE SELECT
STOP1/PAL:ST	STOP1 POSITION/PAL
STOP2. PO	STOP 2 POSITION
STOP2/S-TAB	STOP 2 POSITION/SAFETY TAB SW
STREO [H]	STEREO Ⓗ
SUB BIAS	SUB BIAS
SUB. SW	SUB SW
SVHS CAS [L]	S-VHS CASSETTE Ⓛ
SW. 5. DET	SW 5V DETECT
SYNC [L]	SYNC Ⓛ
SYSCON 5V	SYSTEM CONTROL 5V
SYSTEM	SYSTEM SW
T-PHOTO	TAKE-UP PHOTO TRANSISTOR
T-RL. PLS	TAKE-UP REEL PULSE
T. BUSCLK	TIMER BUS CLOCK
T. BUSLSN	TIMER BUS LISTEN
T. BUSTLK	TIMER BUS TALK
T. END [L]	TAPE END Ⓛ
T. PHOTO	TAKE-UP PHOTO TRANSISTOR
TAPE END [L]	TAPE END Ⓛ
TAPE END [L]/CAM	TAPE END Ⓛ/CAMERA PAUSE
TEST	TEST MODE
TPZ	TRAPEZOIDAL WAVE CIRCUIT
TRIC [L]	TRIC PLAY Ⓛ
TRICK [L]	TRIC PLAY Ⓛ
TRK. ENV	AUTO TRACKING ENVELOPE DETECT
TU. AUDIO	TUNER AUDIO
TU. GND	TUNER GND
TU. V. IN	TUNER VIDEO SIGNAL INPUT
TU. VIDEO	TUNER VIDEO
TUN NOR IN	TUNER NORMAL INPUT
TUN R	TUNER AUDIO (R)
TUN. AUDIO IN	TUNER AUDIO INPUT
TUNER 12V	TUNER 12V
TUNER L	TUNER AUDIO (L)
TUNER V IN	TUNER VIDEO SIGNAL INPUT
TUNER [L]	TUNER AUDIO (L)
TUNER [N]	TUNER AUDIO (NORMAL)
TUNER [R]	TUNER AUDIO (R)
TUNER. 12	TUNER 12V
TUOFF [H]	TUNER OFF Ⓗ
TV. AUDIO	TV AUDIO
TV/VTR	TV/VTR
TXTON [L]	TEXT ON Ⓛ
U. REG45V	UNREGULATOR 45V
UNREG	UNREGULATOR
UNREG19V	UNREGULATOR 19V
V. REF	REFERENCE VOLTAGE
V. EE [H]	VIDEO EE Ⓗ
V. EE [L]	VIDEO EE Ⓛ
VCO REF	REFERENCE OSCILLATER
VD. IN	VIDEO SIGNAL INPUT
VD. OUT	VIDEO SIGNAL OUTPUT
VIDEO EE [L]	VIDEO EE Ⓛ
VIDEO IN	VIDEO SIGNAL INPUT
VIDEO OUT	VIDEO SIGNAL OUTPUT
VM	MOTOR VOLTAGE
VM DOWN [L]	MOTOR VOLTAGE DOWN Ⓛ
VSS	VERTICAL SYNC SIGNAL
VTR [H]	VTR Ⓗ
VTR. 12V	VTR 12V
X IN	OSCILLATOR INPUT
X OUT	OSCILLATOR OUTPUT

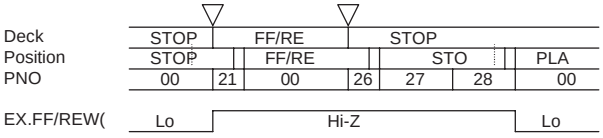
13 INPUT/ OUTPUT CHART

13.1. INPUT/ OUTPUT CHART FOR IC6001

No.	Terminal Name	I/O	Description	P. OFF	P. failure	Reset/ Releas
1	NC	-	Unused terminal.	In	In	In
2	CODE1	I	Model setting terminal.	In	In	In
3	KEY1	I	AD Input terminal 1.	In	In	In
4	KEY2	I	AD Input terminal 2.	In	In	In
5	KEY3	I	AD Input terminal 3.	In	In	In
6	KEY4	I	AD Input terminal 4.	In	In	In
7	S-PHOT	I	Tape end detection Input terminal Input voltage:(1) >2.6V, Black tape (2) >2.4V, White tape	In	In	In
8	T-PHOT	I	Tape beginning detection Output terminal Input voltage: (1) >2.6V, Black tape (2) <2.4V, white tape	In	In	In
9	TRACKING ENVE	I	Normal head Video Envelope Detecting Input Terminal Cylinder FG = 1 or 4 Base From Input time until PGMM time taken as reference time. Timing calculation is performed as follow. Normal head | Ref time + 90 degree time *90 degree time is defined as :NTSC : 8400us,PAL: 10000 us	In	In	In
10	PIC2	O	Unused terminal.	Low	Low	Low
11	CURRENT LIMIT	O	Capstan current limit control terminal (Output inpedance: Min:1K, TYP:2.5K, Max: 4.0K)	In DA=0V	Low	In DA=0V
12	EEPROM CS	O	Navigator back-up EE PROM Chip Select terminal Active Low Output	Low	Low	Low
13	ART V/H/N	O	Dummy V Output terminal However,during Recording Program Navigator writing, Hi-Z = Fixed.	Low	Low	Low
14	REMOCON	I	Remote control input terminal	In	In	In
15	OPECON CS	O	CS(Chip Select) signal for TIMER micon Active = " H " Non-active = "L"	(Normal Opera-tion)	Low	Low
16	CLOCK SLAVE (H)	O	1) In test mode: Timer Clock Adj [transmit mode] : H --> L Timer Clock Adj [receive mode] : L --> H 2) Other than test mode : always L	Low	Low	Low
17	DVD OUT (H)	O	Common Output = For DVD, Output = High Common Output = For VCR, Output = Low As for DVD/VTR during P.Off, Output = Low	Normal Opera-tion	Low	Low
18	VIDEO H.SW	O	Video Head Switch Signal (During L'/R = "H", during R'/L = "L") Cylinder FG= 1 or 4, Ref time taken as Input time until PGMM time. Timing calculation is performed based on the following. Normal Head | Ref time 10 u Head | Ref time + 120 degree time 1H (=64us) *120 degree time is defined as NTSC:11122us,PAL 13333us	Low	Low	Low
19	AUDIO H.SW	O	Audio head switch signal	Low	Low	Low
20	D.REC (H)	O	Video Record Current timing terminal	Low	Low	Low
21	TEST2 (L)	I	Test mode 2 setting terminal during test 2, Input = Low during normal, Input = High	In	In	In
22	PROGRESSIVE_ TV(L)	I	Port for scanning line control: Scanning line 628 = High Scanning line 624 = Low	In	In	In
23	ABS NORM (L) /A.ADJ	I	Serve as Forced Normal Selection Signal & Auto Adjustment Trigger Input Terminal to switch to forced normal audio, Input = Low (ADUBPS, during HiFi Audio Envelope decline Other than that, Input = High	In	In	In
24	AVR (L)	O	Simplified AI Playback Output terminal Initial condition: Input setting 1st Step : "L" setting	Hi-Z	Hi-Z	Hi-Z
25	PAL 9H (H)	O	Video circuit control signal output terminal. PAL 9H : High output	Low	Low	Low

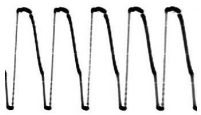
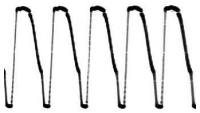
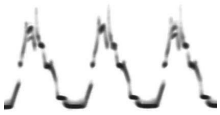
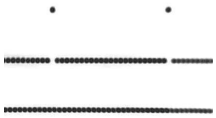
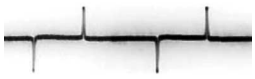
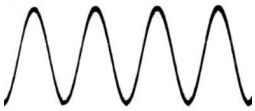
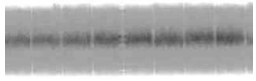
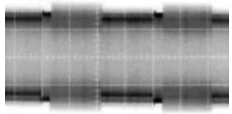
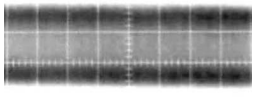
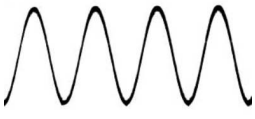
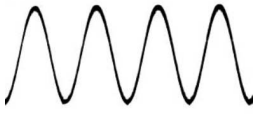
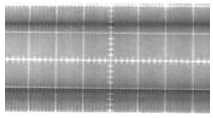
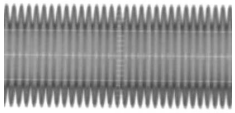
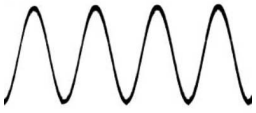
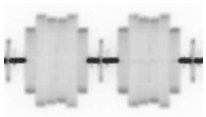
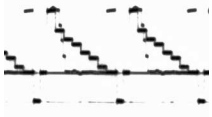
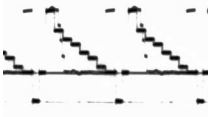
<table>
<tr><td>26</td><td>BIAS (H)</td><td>O</td><td>Linear Audio record timing terminal
When recording linear audio, take (H) as output
Output mode: REC,(ADUB,AV-INSERT)
When start recording, set BIAS(H), R.REC(H) output range 140~160msec recording time
When finish recording, BIAS(L) = Output, D.REC(L) Time = 0 ~ 20 msec</td><td>Low</td><td>Low</td><td>Low</td></tr>
<tr><td>27</td><td>S.TAB (L)</td><td>I</td><td>SAFETY TAB DETECTION INPUT
WITH Safety Tab: Input = Low
Without Safety Tab: Input = High</td><td>In</td><td>In</td><td>In</td></tr>
<tr><td>28</td><td>FM MUTE (H)</td><td>O</td><td>Audio Mute Output terminal
During P.Off,Head cleaning,Timer Standby,and VPS/PDC Standby,
(After canceling these modes,take (L) as the output after delayed time= 600msec.
During VV,when tape speed is not 1 time speed, Output = High.
(Take (L) as the output, after switching over to 1 time speed,and after delayed time = 600msec.
Take (H) as the output During switching over of EE/VV, Output = High after interposing the changing point.
(Take (L) as the output, after switching over of EE/VV, and delayed time= 600ms.
When J.CLK/A.DEF/NOR terminal is A.DEF, Output = High.</td><td>High</td><td>Hi-z</td><td>High</td></tr>
<tr><td>29</td><td>SW1</td><td>O</td><td>AUDIO SYSTEM (TUNER PRESET) select terminal.
AUDIO SYSTEM = BG, I: High is Output
AUDIO SYSTEM = DK, M: Low is Output</td><td>Hi-Z</td><td>Hi-Z</td><td>Hi-Z</td></tr>
<tr><td>30</td><td>POS.SW4</td><td>I</td><td rowspan="4">Mecha position Input
Refer to the mecha timing chart for Input result data control.
<table><tr><th>POS.SW1</th><th>POS.SW2</th><th>POS.SW3</th><th>POS.SW4</th><th>Position</th></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td></td></tr><tr><td>0</td><td>0</td><td>0</td><td>1</td><td></td></tr><tr><td>0</td><td>0</td><td>1</td><td>0</td><td>DOWN</td></tr><tr><td>0</td><td>0</td><td>1</td><td>1</td><td>R-REW</td></tr><tr><td>0</td><td>1</td><td>0</td><td>0</td><td>LOAD</td></tr><tr><td>0</td><td>1</td><td>0</td><td>1</td><td>REV</td></tr><tr><td>0</td><td>1</td><td>1</td><td>0</td><td>PLAY</td></tr><tr><td>0</td><td>1</td><td>1</td><td>1</td><td>POFF</td></tr><tr><td>1</td><td>0</td><td>0</td><td>0</td><td>STOP_R</td></tr><tr><td>1</td><td>0</td><td>0</td><td>1</td><td>STOP_F</td></tr><tr><td>1</td><td>0</td><td>1</td><td>0</td><td></td></tr><tr><td>1</td><td>0</td><td>1</td><td>1</td><td></td></tr><tr><td>1</td><td>1</td><td>0</td><td>0</td><td>FF / REW</td></tr><tr><td>1</td><td>1</td><td>0</td><td>1</td><td></td></tr><tr><td>1</td><td>1</td><td>1</td><td>0</td><td>EJECT</td></tr><tr><td>1</td><td>1</td><td>1</td><td>1</td><td></td></tr></table></td><td>In</td><td>In</td><td>In</td></tr>
<tr><td>31</td><td>POS.SW3</td><td>I</td><td>In</td><td>In</td><td>In</td></tr>
<tr><td>32</td><td>POS.SW2</td><td>I</td><td>In</td><td>In</td><td>In</td></tr>
<tr><td>33</td><td>POS.SW1</td><td>I</td><td>In</td><td>In</td><td>In</td></tr>
<tr><td>34</td><td>RESET (L)</td><td>I</td><td>Reset terminal</td><td>In</td><td>In</td><td>In</td></tr>
<tr><td>35</td><td>32KHz IN</td><td>I</td><td>Sub clock 32.768KHz osc.input</td><td>In</td><td>In</td><td>In</td></tr>
<tr><td>36</td><td>32KHz OUT</td><td>O</td><td>Sub clock 32.768KHz osc.output</td><td>Out</td><td>Out</td><td>Out</td></tr>
<tr><td>37</td><td>5V (D)</td><td>-</td><td>Digital port Power Vcc (5V)</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>38</td><td>12MHz IN</td><td>I</td><td>Main clock 12/16MHz osc.input.</td><td>In</td><td>In</td><td>In</td></tr>
<tr><td>39</td><td>12MHz OUT</td><td>O</td><td>Main clock 12/16MHz osc.output.</td><td>Out</td><td>Out</td><td>Out</td></tr>
<tr><td>40</td><td>GND (OSC)</td><td>-</td><td>OSC circuit Digital GND.</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>41</td><td>NC</td><td></td><td>Unused terminal. Fixed Output = Low</td><td>Low</td><td>Low</td><td>Low</td></tr>
<tr><td>42</td><td>NC</td><td></td><td>Unused terminal.Fixed Output = Low.</td><td>Low</td><td>Low</td><td>Low</td></tr>
<tr><td>43</td><td>32K.START (L)</td><td>I</td><td>Clock source selection terminal during reset start.
Connect Vcc(5V), when 12/16 MHz High speed mode
Connect to Vss(0V), when 32KHz low speed mode</td><td>In</td><td>In</td><td>In</td></tr>
<tr><td>44</td><td>LC.OSC IN</td><td>I</td><td>LC osc. Input terminal</td><td>In</td><td>In</td><td>In</td></tr>
<tr><td>45</td><td>LC.OSC OUT</td><td>O</td><td>LC osc. Output terminal</td><td>Out</td><td>Out</td><td>Out</td></tr>
<tr><td>46</td><td>GND</td><td>-</td><td>Terminal B for testing. (connected to GND)</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>47</td><td>4FC LPF</td><td>I</td><td>Internal OSC Connection terminal for sync generator circuit.</td><td>In</td><td>Low</td><td>In</td></tr>
<tr><td>48</td><td>FSC IN</td><td>I</td><td>Sub carrier (fsc) input terminal for sync generator circuit.</td><td>In</td><td>Low</td><td>In</td></tr>
<tr><td>49</td><td>GND (OSD)</td><td>-</td><td>GND terminal for OSD circuit</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>50</td><td>CV IN</td><td>I</td><td>Composite Video signal input terminal</td><td>In</td><td>In</td><td>In</td></tr>
<tr><td>51</td><td>KILLER (H)</td><td>I</td><td>KILLER/COLOR Detection Input Terminal.
KILLER : High COLOR : Low</td><td>In</td><td>In</td><td>In</td></tr>
<tr><td>52</td><td>CV OUT</td><td>O</td><td>Composite Video Signal Output Terminal.(Do not use as common port)</td><td>Out</td><td>Out</td><td>Out</td></tr>
</table>

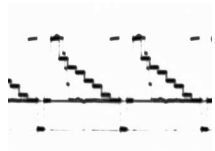
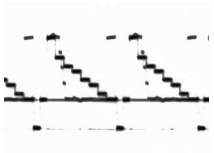
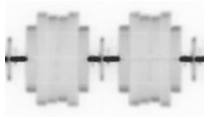
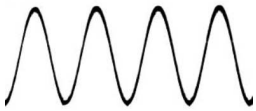
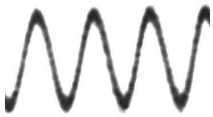
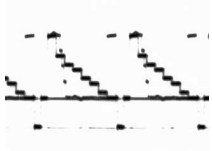
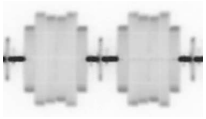
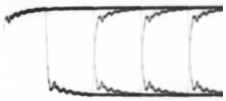
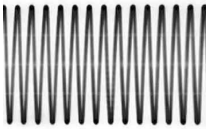
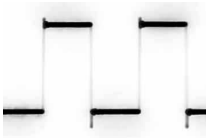
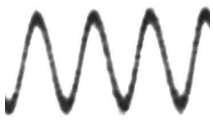
53	5V (OSD)	-	OSD circuit Power supply Terminal	-	-	-
54	HLF	I	Slicer LPF Connection Terminal	In	In	In
55	V HOLD	I	Capacitor Connection terminal of Slicer Ref Voltage Generator Circuit	In	In	In
56	CV IN (EDS)	I	Slicer Composite Video Signal Input Terminal.	In	In	In
57	GND	-	Testing terminal A. (Connected to GND)	-	-	-
58	NC		Unused terminal	Low	Low	Low
59	SECAM MIX	O	SECAM CHROMA signal input terminal for SECAM SIGNAL SUPER IMPOSE.	Low	Low	Low
60	NC	O	Unused terminal	Low	Low	Low
61	SW2	O	AUDIO SYSTEM (TUNER PRESET) select terminal. AUDIO SYSTEM = BG, DK: High is Output. AUDIO SYSTEM = I, M: Low is Output.	Low	Low	Low
62	A.SEARCH (L)	I/O	AGC gain selection signal for tuner CH selection. During digital AFC is working at TUNER PRESET mode: Low (AGC is high speed) Other than above: Hi-Z (AGC is normal speed)	Low	Low	Low
63	VBI2	O	Unused terminal	Hi-Z	Low	Hi-Z
64	VBI1	O	Unused terminal	Hi-Z	Low	Hi-Z
65	EEPROM OUT	O	Used during Navi back-up mode EEPROM control terminal: data output	Low	Low	Low
66	EEPROM IN	I	Used during Navi back-up mode EEPROM control terminal: data input	In	In	In
67	EEPROM CLK	O	Used during Navi back-up mode EEPROM control terminal: clock output	Low	Low	Low
68	IC DATA OUT	O	Peripheral IC control Timer-Bus signal: data output	(Normal Opera-tion)	Low	Hi-Z
69	IC DATA IN	I	Peripheral IC control Timer-Bus signal: data input	(Normal Opera-tion)	In	In
70	IC DATA CLK	O	Peripheral IC control Timer-Bus signal: clock output	(Normal Opera-tion)	Low	Hi-Z
71	IIC CLK	O	AV1 Chip/FM Audio IC serial communication terminal(IIC).	(Normal Opera-tion)	Low	Hi-Z
72	IIC DATA	I/O	AV1 Chip/FM Audio IC serial communication terminal(IIC).	(Normal Opera-tion)	Low	Hi-Z
73	125Hz/ROM CORE	O	Since there are 2 function controls,port function is divided into 2 as shown below. (1) Normal mode/Service mode : Fixed Output(NC) = L (2) Test mode: Judge ROM core confirmation. Decide port function. When ROM core confirm mode: ROM.CORE terminal When other than ROM core confirm mode: Main clock Adjustment Internal Osc. Output terminal (3) Test 2 mode:Main clock Adjustment Internal Osc. Output terminal Control method of each port function is shown as below. [ROM .CORE terminal]When ROM collection setting bit = ON, Output = High When ROM collection setting bit = OFF, Output = Low [Main clock Adjuatment Internal Osc. Output terminal] Output : 125Hz	(Normal Opera-tion)	Low	Low
74	CAP R/F	O	Capstan driver rotating direction control RVS = "High", FWD = "Low"	Low	Low	Low
75	POWER ON (H)	O	VTR power control terminal. When VTR = Power Off, and, DVD = Power Off, Ouput = Low When VTR peripheral circuit = Power Off/ Timer Standby, Output = Low Even when apparently Power is Off, if Mecha or Peripheral circuit operation is required, output = High If required: Head cleaning, timer confirmation (VPS/PDC standby, ACS) When J.CLK Syscon serial is ON(during J.CLK mode), even if power is off = High	Low	Low	High

76	CAP ET	O	Capstan motor control voltage supply terminal When higher than Drive Reference Voltage: Accelerated When lower than Drive Reference Voltage : Current off	High PWM= 0V	Low	High PWM= 0V
77	CYL ET	O	Cylinder Motor Control Voltage Supply terminal When higher than Driver Reference Voltage: current off When lower than Driver Reference Voltage: accelerated However, during Cylinder Off, Max value of decelerated Voltage is as follow. Normal Control : 3.150V Cylinder Off: 5.000V	Low PWM= 5.000V	Low	Low PWM= 5.000V
78	P.FAIL (L)	I	Power Failure Detection Input terminal Input = "L", Power Failure Mode	In	In	In
79	S-REEL PULSE	I	Pulse Input terminal from reel sensor	In	In	In
80	T-REEL PULSE	I	Pulse Input terminal from reel sensor	In	In	In
81	VSS		GND	Low	Low	Low
82	EX.FF/REW (L)	I/O	Control Signal Filter Selection Terminal during FF/REW Control spec shall comply with Mecha FFREW(Hi-Z) output timing. Set Input when deck enters FF/RRW mode. During Stop, due to FF/REW stopping process, switch over to STOP3 first, then STOP is canceled.  However, when starting FF/REW, Filter C addition will be required until it become high speed. Then monitor the CTL Amp Gain(COH bit 0-2) setting value. When 5(=60dB) or 7(=70dB), compulsorily, output = Low.	Low	Low	Low
83	UNLOADING (H)	O	Loading Motor Control terminal shall comply with R4 mecha control spec.	Low	Low	Low
84	LOADING (H)	O	Loading Motor Control terminal shall comply with R4 mecha control spec.	Low	Low	Low
85	SQPB (H)	I	The distinction results wheter S-VHS or VHS of the playback tape is input in VV mode. *Low is input: VHS tape playback. *High is input: S-VHS tape playback. Note: When the MESECAM (H) terminal receives "High", above result is invalidated and the tape is judged to VHS tape playback.	In	In	In
86	FG.AMP.OUT	O	Capstan FG Amp Signal Output terminal.	Out	Out	Out
87	FG.AMP.IN	I	Capstan FG signal Input Terminal.	In	In	In
88	GND(A)	-	Analog GND.	-	-	-
89	MESECAM (H)	I	Distinction terminal for the VDIEO SYSTEM. 1.In the VV mode. *High is input: Playback of a MESECAM recorded tape. *Low is input: Playback of other than MESECAM recorded tape. 2.In the EE mode. *High is input: Receiving a SECAM broadcast, or SECAM signal is input.	In	In	In
90	CYL PFG	I	Cylinder P.FG signal Input Terminal.	In	In	In
91	OREF	O	Analog Amp 1/2 Vdd Ref Power Output Terminal	Out	Out	Out
92	IREF	I	Analog Amp 1/2 Vdd Ref Power Input Terminal	In	In	In
93	VSS		Unused terminal. Connected to GND.	-	-	-
94	CTL HEAD (-)	I/O	Control head (-)side Input/Output Terminal.	In/Out	In/Out	In/Out
95	CTL HEAD (+)	I/O	Control head (+)side Input/Output Terminal.	In/Out	In/Out	In/Out
96	CTL AMP REF	I	Control Amp Ref Capacitor Connection Terminal	In	In	In
97	PB CTL OUT	O	Control Amp Output terminal.	Out	Out	Out
98	5V (A)	-	Analog Amp Power Supply Terminal	-	-	-
99	5V (AD)	-	AD/8 bit DA Ref Power Supply Terminal.	-	-	-
100	T.S. CURVE	I	Input terminal for "S-Curve" of Tuner AFC at channel selecting.	In	In	In

14 WAVEFORM TABLE & VOLTAGE CHART

14.1. WAVEFORM TABLE

 T1150-2 STOP 3.8Vp-p (2msec.div.)	 T1150-9 STOP 100Vp-p (5usec.div.)	 T1150-10 STOP 40Vp-p (5usec.div.)	 T1150-11 STOP 15Vp-p (5usec.div.)	 T1150-15 STOP 10Vp-p (5usec.div.)
 T1150-16 STOP 15Vp-p (5usec.div.)	 IC2501-22,23,25 PLAY 7.0Vp-p (2msec.div.)	 IC6001-13 STILL 5.0Vp-p (5msec.div.)	 IC6001-18 REC 5.0Vp-p (10msec.div.)	 IC6001-50 REC/PLAY 2.0Vp-p (20usec.div.)
 IC6001-52 REC/PLAY 2.0Vp-p (20usec.div.)	 IC6001-68,69 REC 5.0Vp-p (5msec.div.)	 IC6001-70 REC 5.0Vp-p (5msec.div.)	 IC6001-71 REC 5.0Vp-p (5usec.div.)	 IC6001-72 REC 5.0Vp-p (5msec.div.)
 IC6001-79,80 FF/REW 5.0Vp-p (1msec.div.)	 IC6001-90 REC 5.0Vp-p (10msec.div.)	 IC6001-94,95 REC 6.8Vp-p (10msec.div.)	 IC6001-97 PLAY 0.8Vp-p (10msec.div.)	 IC3001-6 REC/PLAY 0.4Vp-p (0.5msec.div.)
 IC3001-17,21 REC 1.0Vp-p (20µsec.div.)	 IC3001-26 REC 0.5Vp-p (20µsec.div.)	 IC3001-29 REC/PLAY 2.2Vp-p (20µsec.div.)	 IC3001-45,46 PLAY 0.42Vp-p (20µsec.div.)	 IC3001-49 PLAY 0.58Vp-p (20µsec.div.)
 IC3001-73 REC/PLAY 5.0Vp-p (5msec.div.)	 IC3001-74 REC/PLAY 5.0Vp-p (5msec.div.)	 IC3001-80 REC/PLAY 0.5Vp-p (10msec.div.)	 IC3001-85 PLAY 180mVp-p (20µsec.div.)	 IC3001-86 REC 1.4Vp-p (5msec.div.)
 IC3001-87 PLAY 150mVp-p (20µsec.div.)	 IC3001-96 PLAY 0.1Vp-p (5msec.div.)	 IC3001-98 REC 1.6Vp-p (0.5msec.div.)	 IC4501-2,4,9,14 REC 0.4Vp-p (0.5msec.div.)	 IC4501-21 REC 1.4Vp-p (20usec.div.)
 IC4501-22,24 PLAY 1.4Vp-p (20usec.div.)	 IC4501-53,57 REC/PLAY 1.8Vp-p (0.5msec.div.)	 IC33501-2 PLAY (DVD) 0.68Vp-p (20µsec.div.)	 IC33501-6 PLAY (DVD) 1.0Vp-p (20µsec.div.)	 IC33501-12 PLAY (DVD) 1.0Vp-p (20µsec.div.)

 IC33501-14 PLAY (DVD) 0.48Vp-p (20µsec.div.)	 IC33501-16 PLAY (DVD) 0.48Vp-p (20µsec.div.)	 IC33501-18 PLAY (DVD) 1.0Vp-p (20µsec.div.)	 IC33501-21 PLAY (DVD) 1.0Vp-p (20µsec.div.)	 IC33501-24 PLAY (DVD) 2.0Vp-p (20µsec.div.)
 IC33501-27 PLAY (DVD) 2.0Vp-p (20µsec.div.)	 IC33501-30 PLAY (DVD) 2.0Vp-p (20µsec.div.)	 IC33501-32 PLAY (DVD) 1.4Vp-p (20µsec.div.)	 IC34301-1,7 PLAY (DVD) 1.0Vp-p (0.5msec.div.)	 IC34301-3,5 PLAY (DVD) 0.3Vp-p (0.5msec.div.)
 IC8001-75 PLAY (DVD) 3.0Vp-p (0.1msec.div.)	 IC8001-74 PLAY (DVD) 3.0Vp-p (2msec.div.)	 IC8001-73 PLAY (DVD) 3.0Vp-p (2msec.div.)	 IC8001-149,156 PLAY (DVD) 0.92Vp-p (20µsec.div.)	 IC8001-148 PLAY (DVD) 0.5Vp-p (20µsec.div.)
 IC8001-147 PLAY (DVD) 0.5Vp-p (20µsec.div.)	 IC8001-157 PLAY (DVD) 0.6Vp-p (20µsec.div.)	 IC8001-169 PLAY (DVD) 6Vp-p (10µsec.div.)	 IC8420-5 PLAY (DVD) 0.7Vp-p (50nsec.div.)	 IC8420-7 PLAY (DVD) 4.2Vp-p (0.2µsec.div.)
 IC8420-8 PLAY (DVD) 3.5Vp-p (5µsec.div.)	 IC8420-14,15 PLAY (DVD) 0.3Vp-p (0.5msec.div.)			

14.2. VOLTAGE CHART

SYSTEM CONTROL & SERVO ICs DC VOLTAGE CHART (SP MODE)

Ref. No.	IC1511					IC1512															
MODE	1	2	3	4		1	2	3	4												
STOP	1.3	2.4	5.0	0		0	1.3	5.0	0												
PLAY	1.3	2.4	3.5	0		0	1.3	5.0	0												
REC	1.3	2.4	3.5	0		0	1.3	4.9	0												
F.F	1.3	2.4	2.4	0		0	1.3	2.5	0												
REW	1.3	2.4	2.3	0		0	1.3	2.4	0												
Ref. No.	IC2501																				
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
STOP	12.2	0.3	0	0.3	0	0	16.2	0	2.9	1.7	1.6	0.7	1.5	2.4	2.5	2.5	2.5	1.3	5.0	3.5	
PLAY	12.2	0.3	0	0.3	0	0	16.3	0	2.8	1.7	1.7	0.7	1.4	2.4	2.5	2.5	2.5	1.3	5.0	3.6	
REC	12.2	0.3	0	0.3	0	0	16.3	0	2.9	1.6	1.7	0.7	1.5	2.4	2.5	2.5	2.5	1.3	5.0	3.5	
F.F	12.2	0.3	0	0.3	0	0	16.2	0	2.9	1.7	1.7	0.7	1.5	2.4	2.5	2.5	2.5	1.3	5.0	3.5	
REW	12.2	0.3	0	0.3	0	0	16.2	0	2.8	1.7	1.7	0.7	1.5	2.4	2.5	2.5	2.5	1.3	5.0	3..9	
Ref. No.	IC2501																				
MODE	21	22	23	24	25																
STOP	12.2	3.5	3.5	0	3.5																
PLAY	12.2	3.6	3.6	0	3.6																
REC	12.2	3.6	3.5	0	3.6																
F.F	12.2	3.5	3.5	0	3.5																
REW	12.2	3.6	3.8	0	3.6																
Ref. No.	IC6001																				
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
STOP	0	0	4.9	4.9	5.0	5.0	4.9	4.9	3.3	4.9	0	0	0	5.1	3.0	0	0	2.5	0	0	
PLAY	0	0	4.9	4.9	5.0	5.0	4.9	4.9	4.0	4.9	4.9	0	0	5.1	3.0	0	0	2.5	2.5	0	
REC	0	0	4.9	4.9	5.0	5.0	4.9	4.9	3.3	4.9	4.9	0	0	5.1	3.0	0	0	2.5	0	4.9	
F.F	0	0	4.9	4.9	5.0	5.0	4.9	4.9	3.3	4.9	4.9	4.9	0	5.1	3.0	0	0	2.5	0	0	
REW	0	0	4.9	4.9	5.0	5.0	4.9	4.9	3.3	4.9	4.9	4.9	0	5.1	3.0	0	0	2.5	0	0	
Ref. No.	IC6001																				
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
STOP	4.9	0	4.4	2.0	0	0	0	0.1	4.9	0	4.9	4.9	4.9	4.9	-	-	4.9	-	-	0	
PLAY	4.9	0	4.4	2.0	0	0	0	0.1	4.9	0	4.9	4.9	0	5.0	-	-	5.0	-	-	0	
REC	4.9	0	4.4	2.0	0	4.9	0	0.1	4.9	0	4.9	4.9	0	4.9	-	-	4.9	-	-	0	
F.F	4.9	0	4.4	2.0	0	0	0	0.1	4.9	4.9	4.9	0	0	4.9	-	-	4.9	-	-	0	
REW	4.9	0	4.4	2.0	0	0	0	0.1	4.9	4.9	4.9	0	0	4.9	-	-	4.9	-	-	0	
Ref. No.	IC6001																				
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
STOP	0	0	0	4.6	4.6	0	1.7	2.2	0	1.7	0	1.7	5.1	2.1	3.3	2.0	0	0	0	0	
PLAY	0	0	0	4.6	4.6	0	1.7	2.2	0	1.7	4.9	1.7	5.2	2.1	1.6	2.0	0	0	0	0	
REC	0	0	0	4.6	4.6	0	1.7	2.2	0	1.7	0	1.7	5.1	2.1	2.8	2.0	0	0	0	0	
F.F	0	0	0	4.6	4.6	0	1.7	2.2	0	1.7	0	1.7	5.2	2.1	3.2	2.0	0	0	0	0	
REW	0	0	0	4.6	4.6	0	1.7	2.2	0	1.7	0	1.7	5.2	2.1	3.4	2.0	0	0	0	0	
Ref. No.	IC6001																				
MODE	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	
STOP	4.9	0.7	0	0	0	0	0	4.6	3.3	4.6	4.0	3.9	0	0	4.9	0	2.4	5.1	5.0	0.2	
PLAY	4.9	0.7	0	0	0	0	0	4.6	3.2	4.6	4.0	3.9	0	0	4.9	2.5	2.4	5.2	0.1	4.2	
REC	4.9	0.7	0	0	0	0	0	4.6	3.2	4.6	4.0	3.9	0	0	4.9	2.5	2.4	5.1	3.8	5.0	
F.F	4.9	0.7	0	0	0	0	0	4.6	3.3	4.6	4.0	3.9	0	0	4.9	2.8	2.4	5.1	2.4	2.4	
REW	4.9	0.7	0	0	0	0	0	4.6	3.3	4.6	4.0	3.9	0	0	4.9	4.9	2.4	5.1	2.4	2.4	
Ref. No.	IC6001																				
MODE	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	
STOP	0	0	0	0	0	2.6	2.6	0	0	1.3	2.6	2.6	0	2.5	2.5	2.5	2.5	5.1	5.1	2.5	
PLAY	0	0	0	0	0	2.6	2.6	0	0	1.3	2.6	2.6	0	2.5	2.5	2.6	2.6	5.1	5.2	2.5	
REC	0	0	0	0	0	2.6	2.6	0	0	1.3	2.6	2.6	0	2.3	2.7	2.5	2.5	5.1	5.1	2.5	
F.F	0	0	0	0	0	2.6	2.6	0	0	1.3	2.6	2.6	0	2.5	2.5	2.6	2.5	5.1	5.1	2.5	
REW	0	0	0	0	0	2.6	2.6	0	0	1.3	2.6	2.6	0	2.5	2.5	2.6	2.7	5.2	5.2	2.5	
Ref. No.	IC6201						IC6301					IC7552									
MODE	1	2	3	4	5		1	2	3	4		1	2	3							
STOP	5.1	5.1	0	-	-		5.0	0	4.7	6.0		5.1	0	5.1							
PLAY	5.2	5.1	0	-	-		5.0	0	4.7	6.0		5.1	0	5.1							
REC	5.1	5.1	0	-	-		5.0	0	4.7	6.0		5.1	0	5.1							
F.F	5.2	5.2	0	-	-		5.0	0	4.7	6.0		5.1	0	5.1							
REW	5.1	5.2	0	-	-		5.0	0	4.7	6.0		5.1	0	5.1							

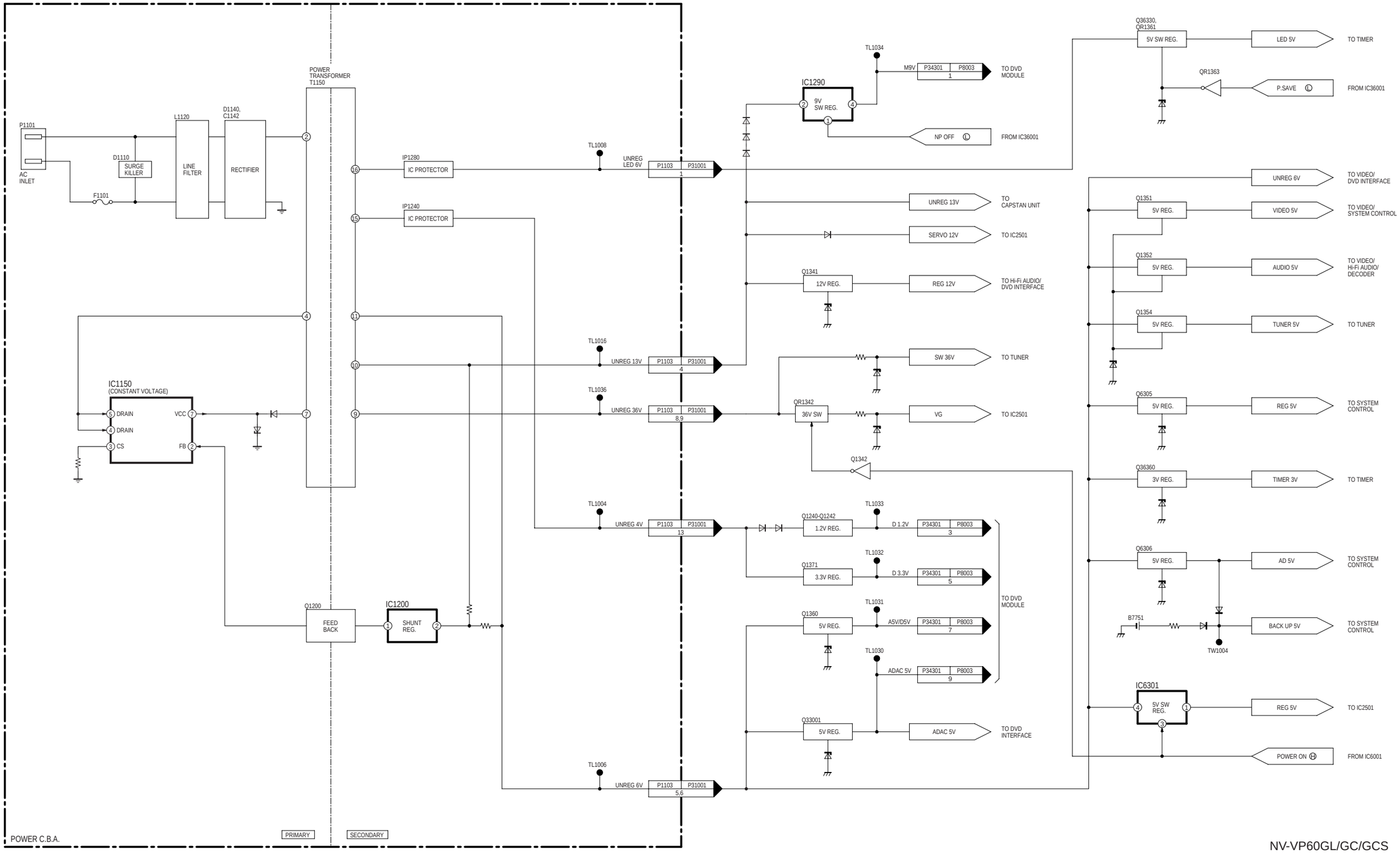
SYSTEM CONTROL & SERVO TRs DC VOLTAGE CHART (SP MODE)

Ref. No.	Q1501				Q1502				Q7701											
MODE	+	–			+	–			E	C	B									
STOP	4.9	0			5.1	0			2.3	0	1.7									
PLAY	4.9	0			5.1	0			2.3	0	1.7									
REC	4.9	0			5.1	0			2.3	0	1.7									
F.F	4.9	0			5.1	0			2.3	0	1.7									
REW	4.9	0			5.1	0			2.3	0	1.7									

NOTE:Circuit voltage and waveform described herein shall be regarded as reference information when probing defect point,because it may differ from an actual measuring value due to difference of Measuring instrument and its measuring condition and product itself.

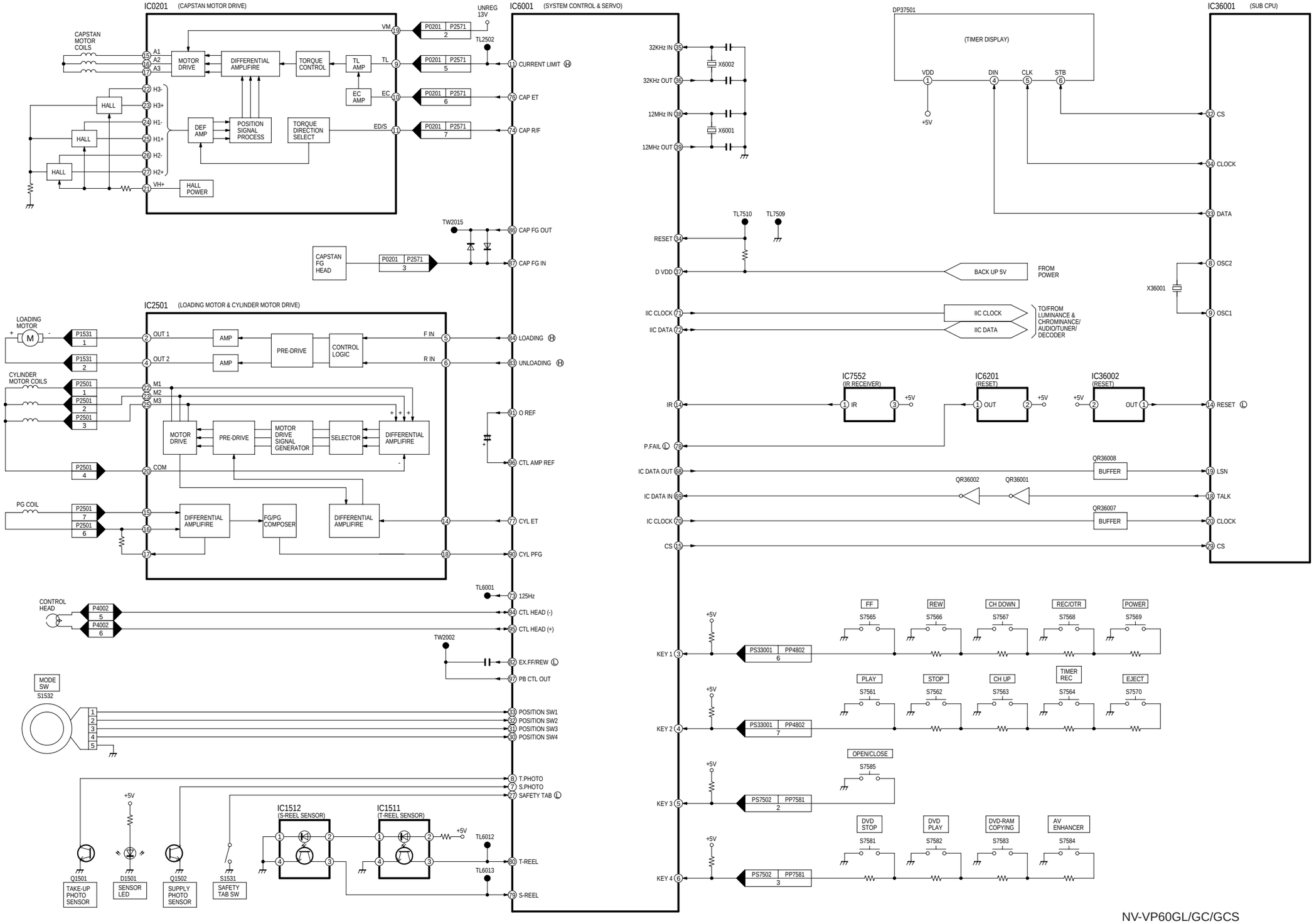
15 BLOCK DIAGRAMS

15.1. POWER BLOCK DIAGRAM



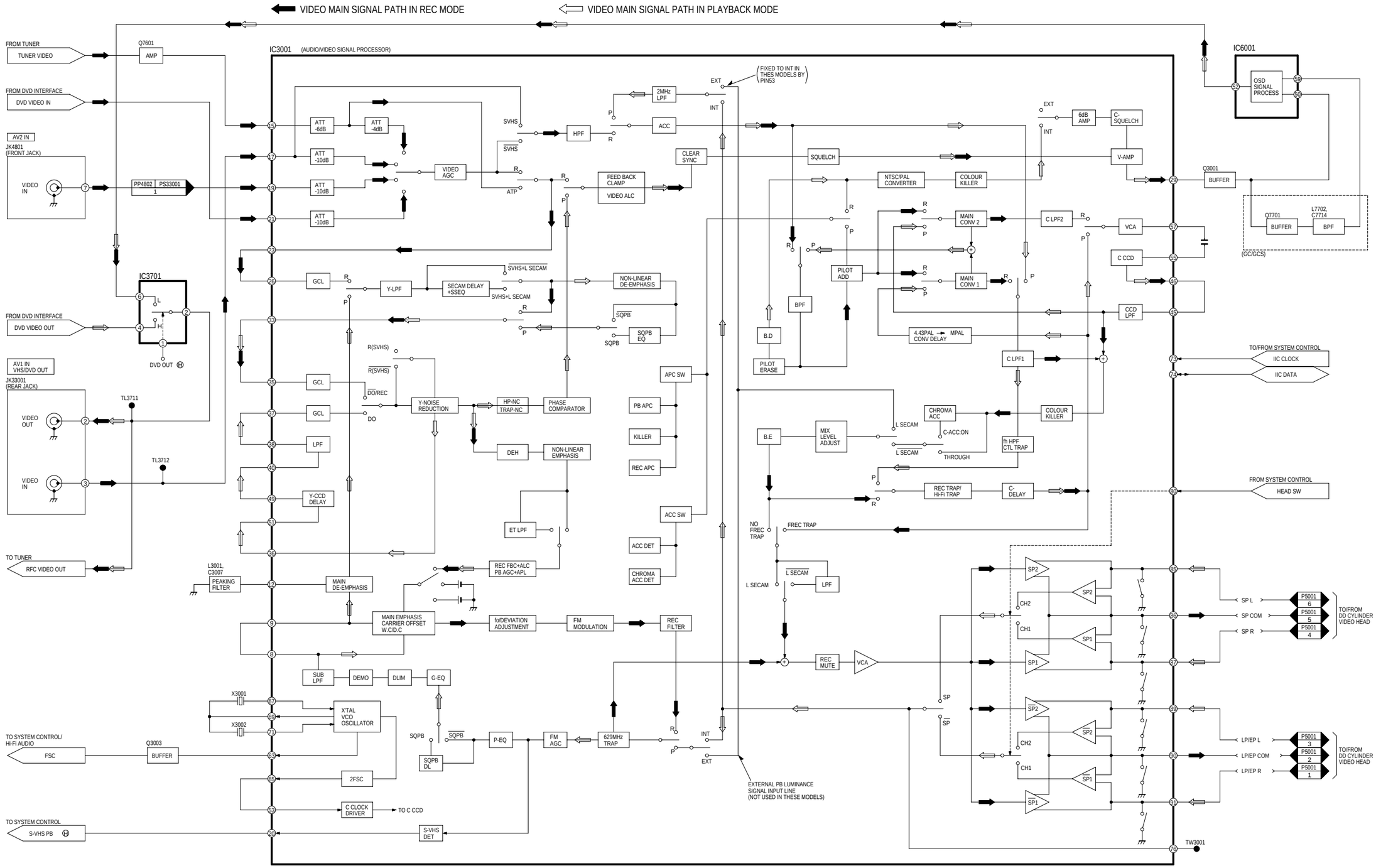
NV-VP60GL/GC/GCS
POWER BLOCK DIAGRAM

15.2. SYSTEM CONTROL & SERVO BLOCK DIAGRAM



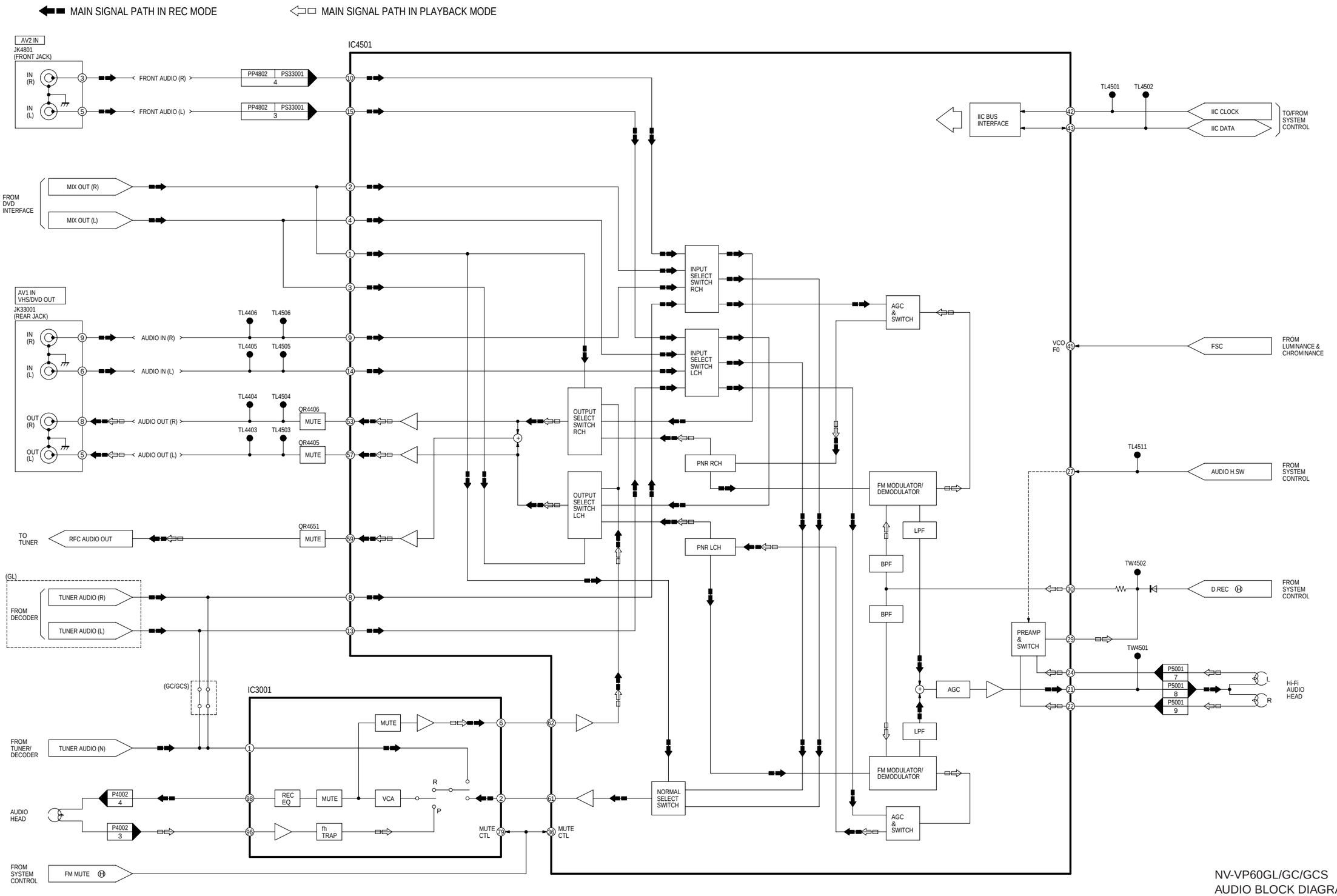
NV-VP60GL/GC/GCS
SYSTEM CONTROL & SERVO BLOCK DIAGRAM

15.3. LUMINANCE & CHROMINANCE BLOCK DIAGRAM



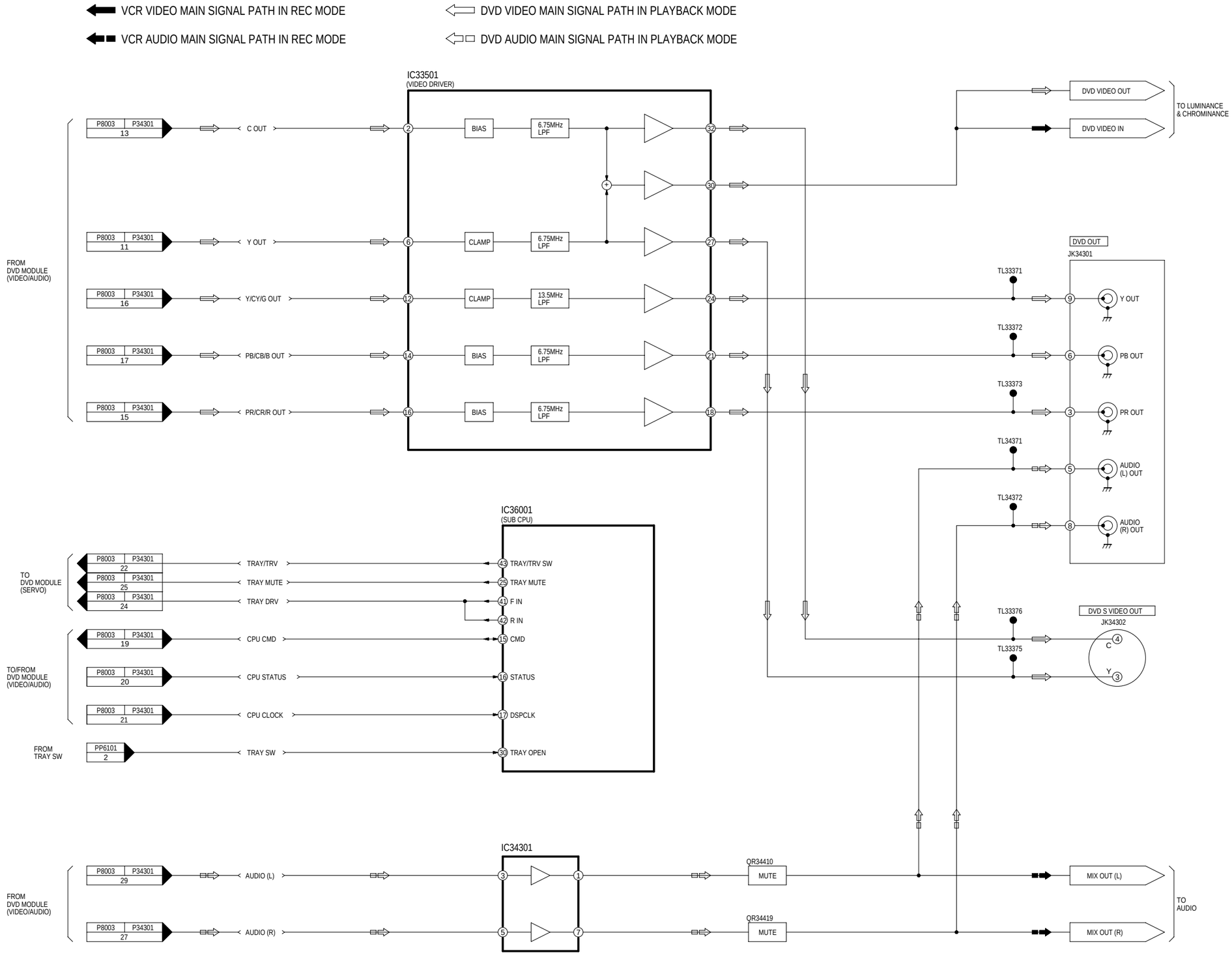
NV-VP60GL/GC/GCS
LUMINANCE & CHROMINANCE BLOCK DIAGRAM

15.4. AUDIO BLOCK DIAGRAM



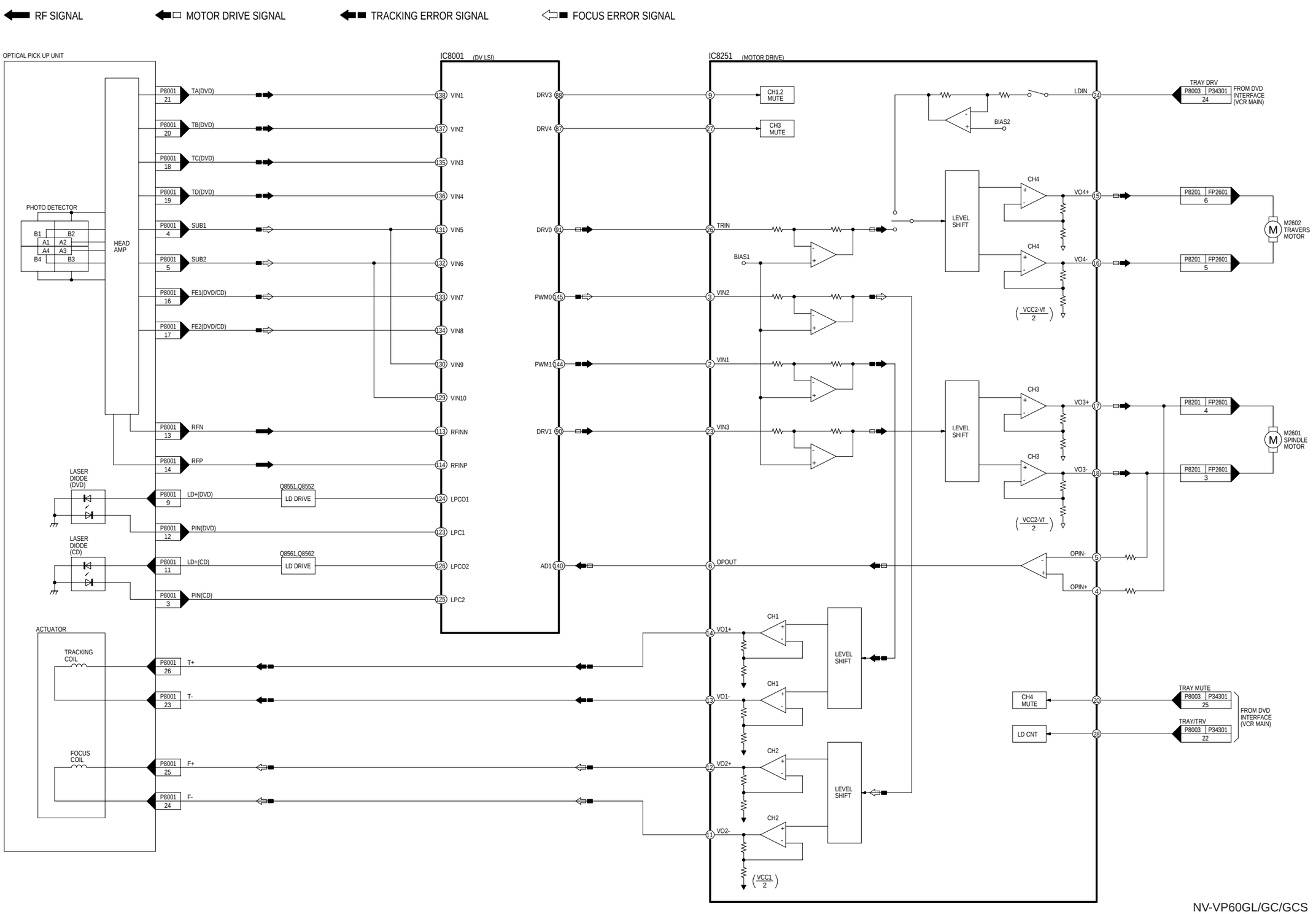
NV-VP60GL/GC/GCS
AUDIO BLOCK DIAGRAM

15.5. DVD INTERFACE BLOCK DIAGRAM



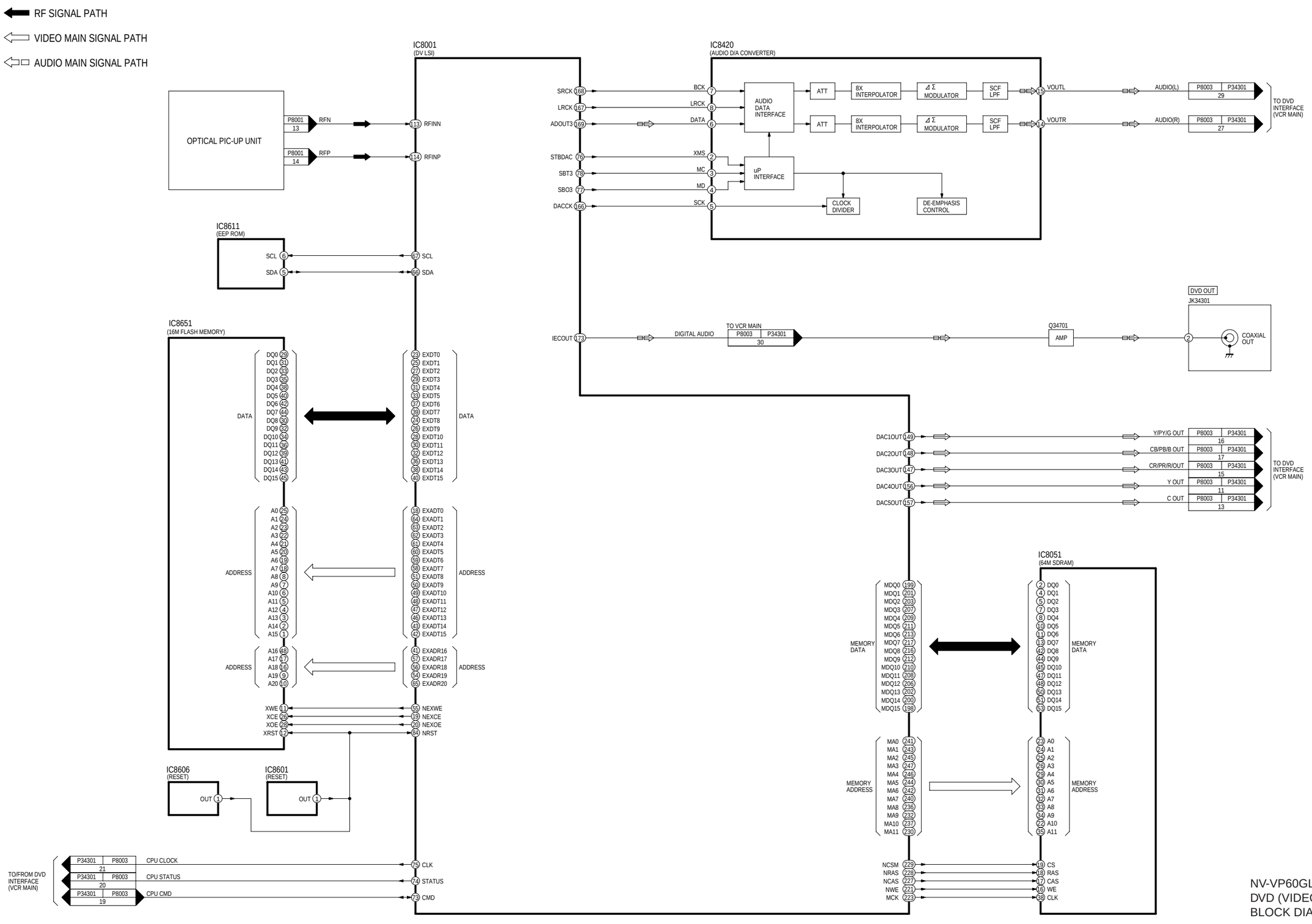
NV-VP60GL/GC/GCS
DVD INTERFACE BLOCK DIAGRAM

15.6. DVD (SERVO) BLOCK DIAGRAM



NV-VP60GL/GC/GCS
DVD (SERVO) BLOCK DIAGRAM

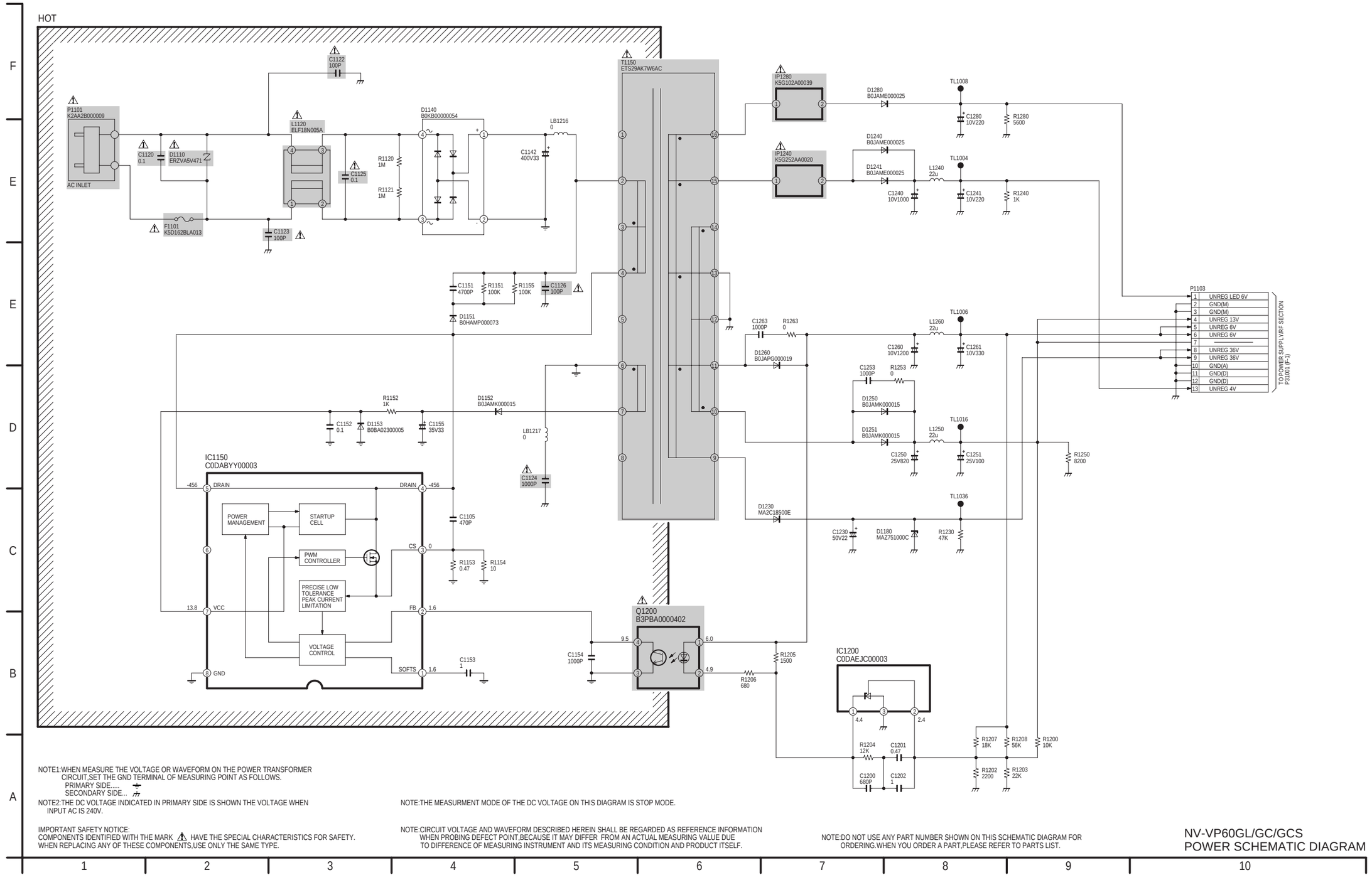
15.7. DVD (VIDEO/AUDIO) BLOCK DIAGRAM



NV-VP60GL/GC/GCS
DVD (VIDEO/AUDIO)
BLOCK DIAGRAM

16 SCHEMATIC DIAGRAMS

16.1. POWER SCHEMATIC DIAGRAM



NOTE1:WHEN MEASURE THE VOLTAGE OR WAVEFORM ON THE POWER TRANSFORMER CIRCUIT,SET THE GND TERMINAL OF MEASURING POINT AS FOLLOWS.
PRIMARY SIDE..... ⏚
SECONDARY SIDE... ⏚

NOTE2:THE DC VOLTAGE INDICATED IN PRIMARY SIDE IS SHOWN THE VOLTAGE WHEN INPUT AC IS 240V.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,USE ONLY THE SAME TYPE.

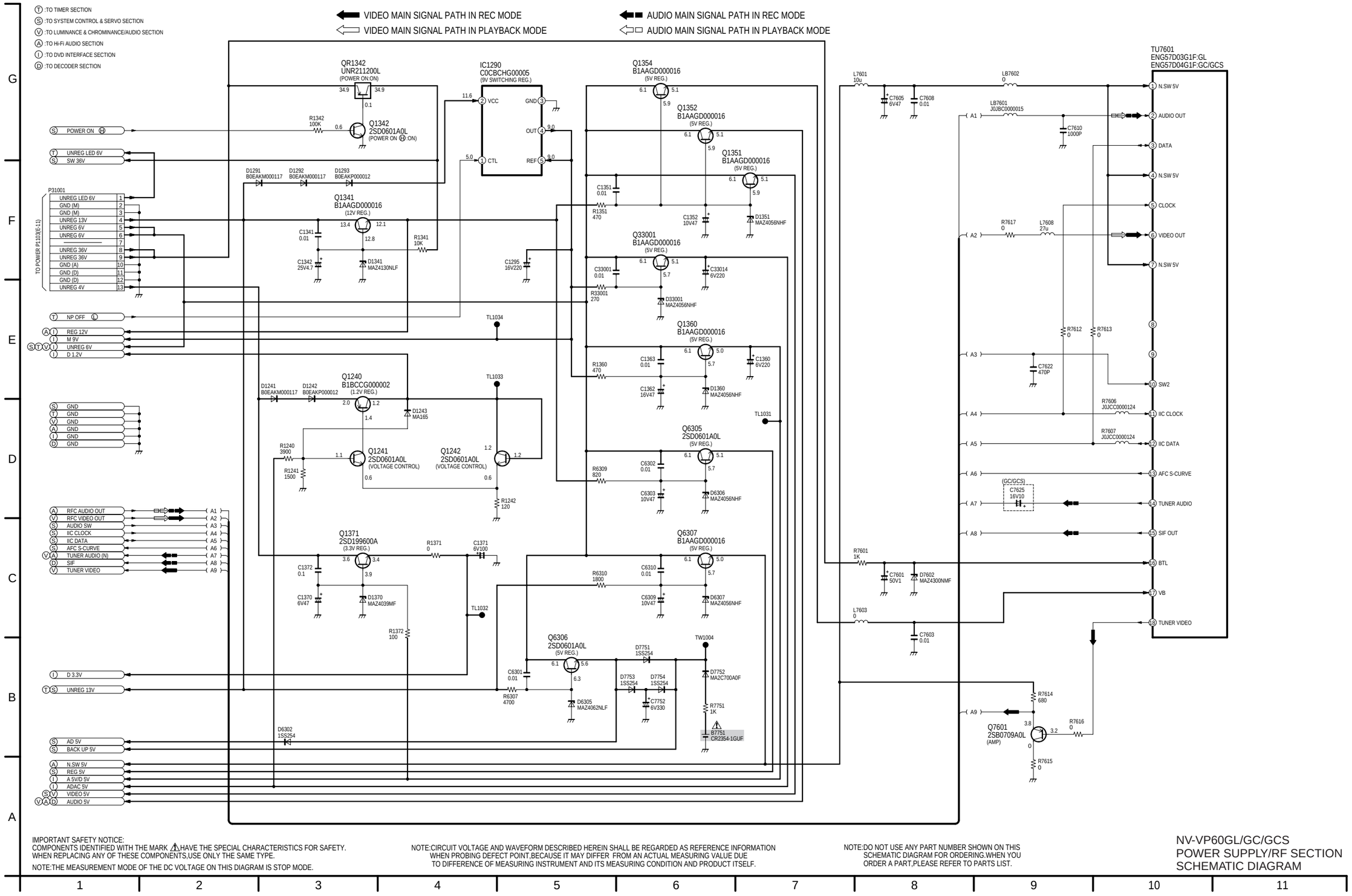
NOTE:THE MEASURMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NOTE:CIRCUIT VOLTAGE AND WAVEFORM DESCRIBED HEREIN SHALL BE REGARDED AS REFERENCE INFORMATION WHEN PROBING DEFECT POINT,BECAUSE IT MAY DIFFER FROM AN ACTUAL MEASURING VALUE DUE TO DIFFERENCE OF MEASURING INSTRUMENT AND ITS MEASURING CONDITION AND PRODUCT ITSELF.

NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

NV-VP60GL/GC/GCS
POWER SCHEMATIC DIAGRAM

16.2. POWER SUPPLY/RF SECTION IN MAIN SCHEMATIC DIAGRAM



IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,USE ONLY THE SAME TYPE.

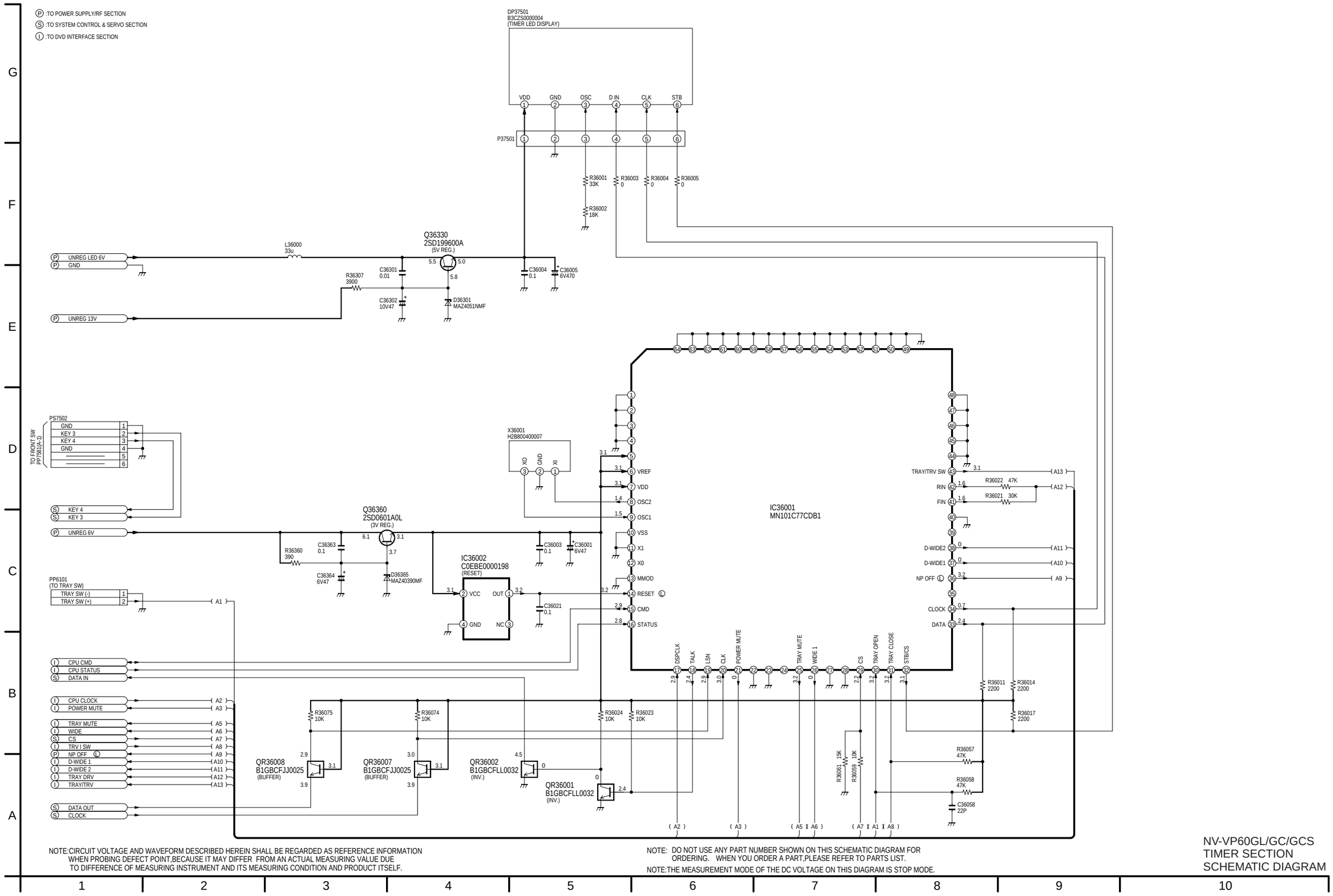
NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NOTE:CIRCUIT VOLTAGE AND WAVEFORM DESCRIBED HEREIN SHALL BE REGARDED AS REFERENCE INFORMATION WHEN PROBING DEFECT POINT,BECAUSE IT MAY DIFFER FROM AN ACTUAL MEASURING VALUE DUE TO DIFFERENCE OF MEASURING INSTRUMENT AND ITS MEASURING CONDITION AND PRODUCT ITSELF.

NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

NV-VP60GL/GC/GCS
POWER SUPPLY/RF SECTION
SCHEMATIC DIAGRAM

16.3. TIMER SECTION IN MAIN SCHEMATIC DIAGRAM



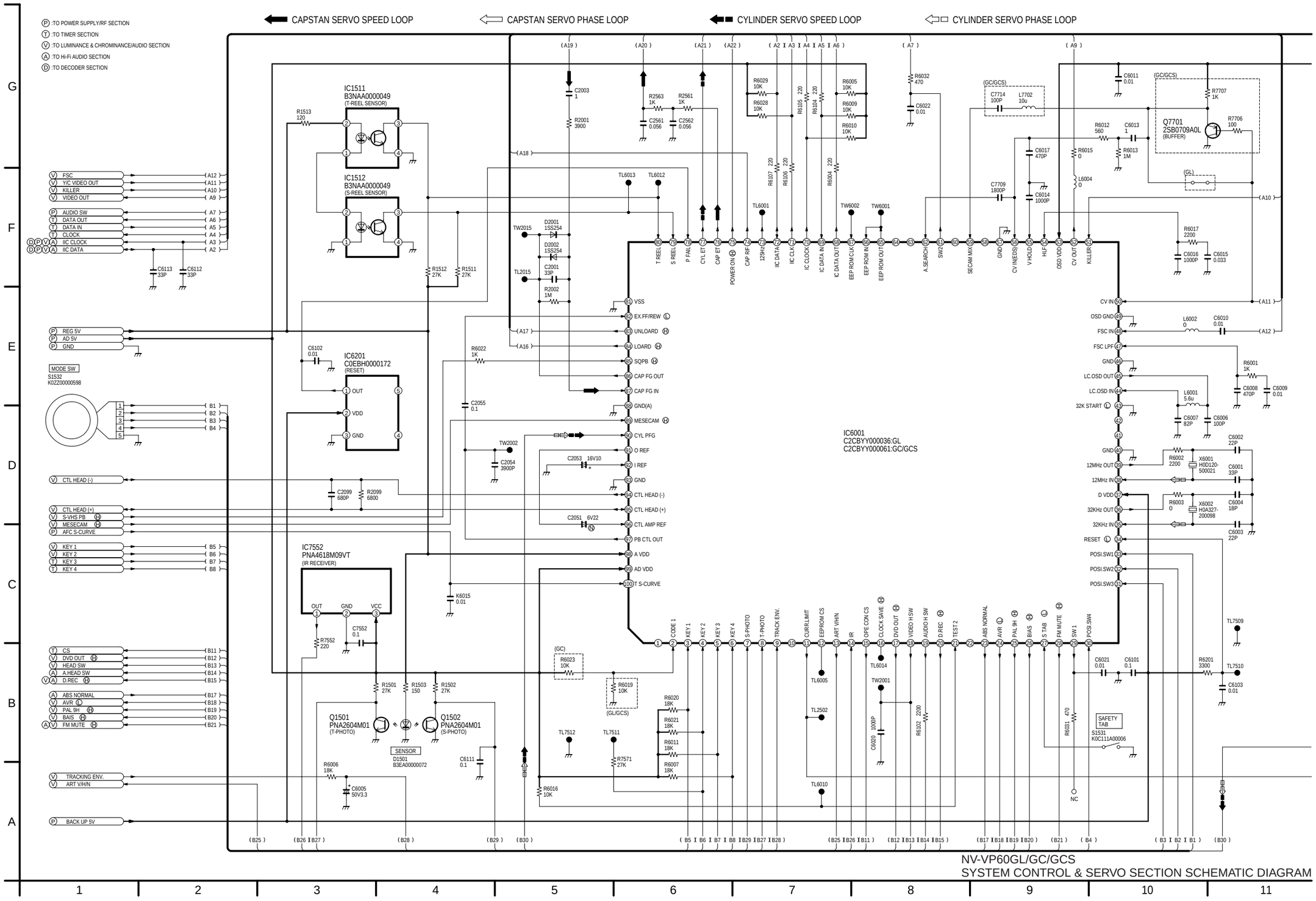
NOTE:CIRCUIT VOLTAGE AND WAVEFORM DESCRIBED HEREIN SHALL BE REGARDED AS REFERENCE INFORMATION WHEN PROBING DEFECT POINT,BECAUSE IT MAY DIFFER FROM AN ACTUAL MEASURING VALUE DUE TO DIFFERENCE OF MEASURING INSTRUMENT AND ITS MEASURING CONDITION AND PRODUCT ITSELF.

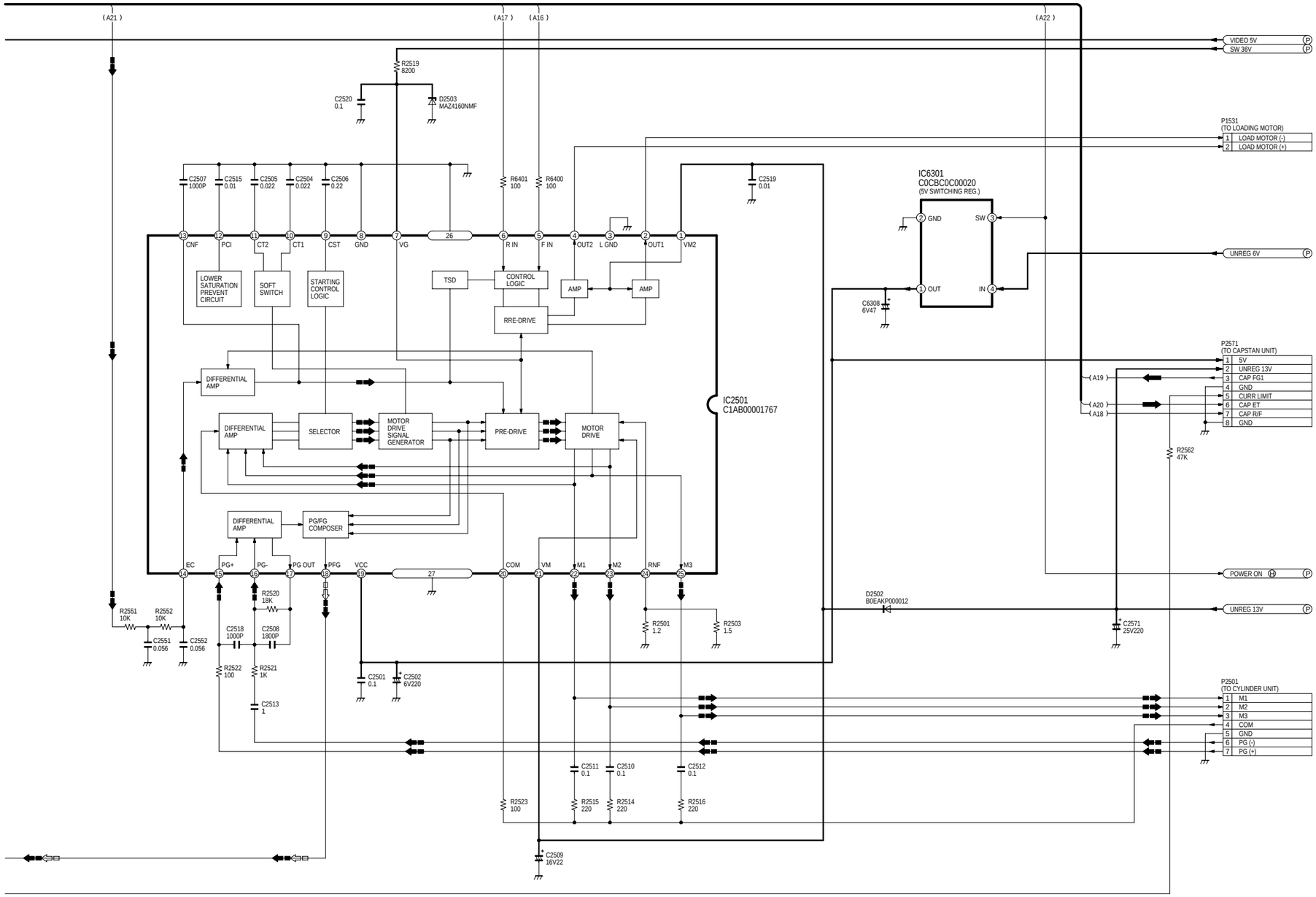
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NV-VP60GL/GC/GCS
TIMER SECTION
SCHEMATIC DIAGRAM

16.4. SYSTEM CONTROL & SERVO SECTION IN MAIN SCHEMATIC DIAGRAM





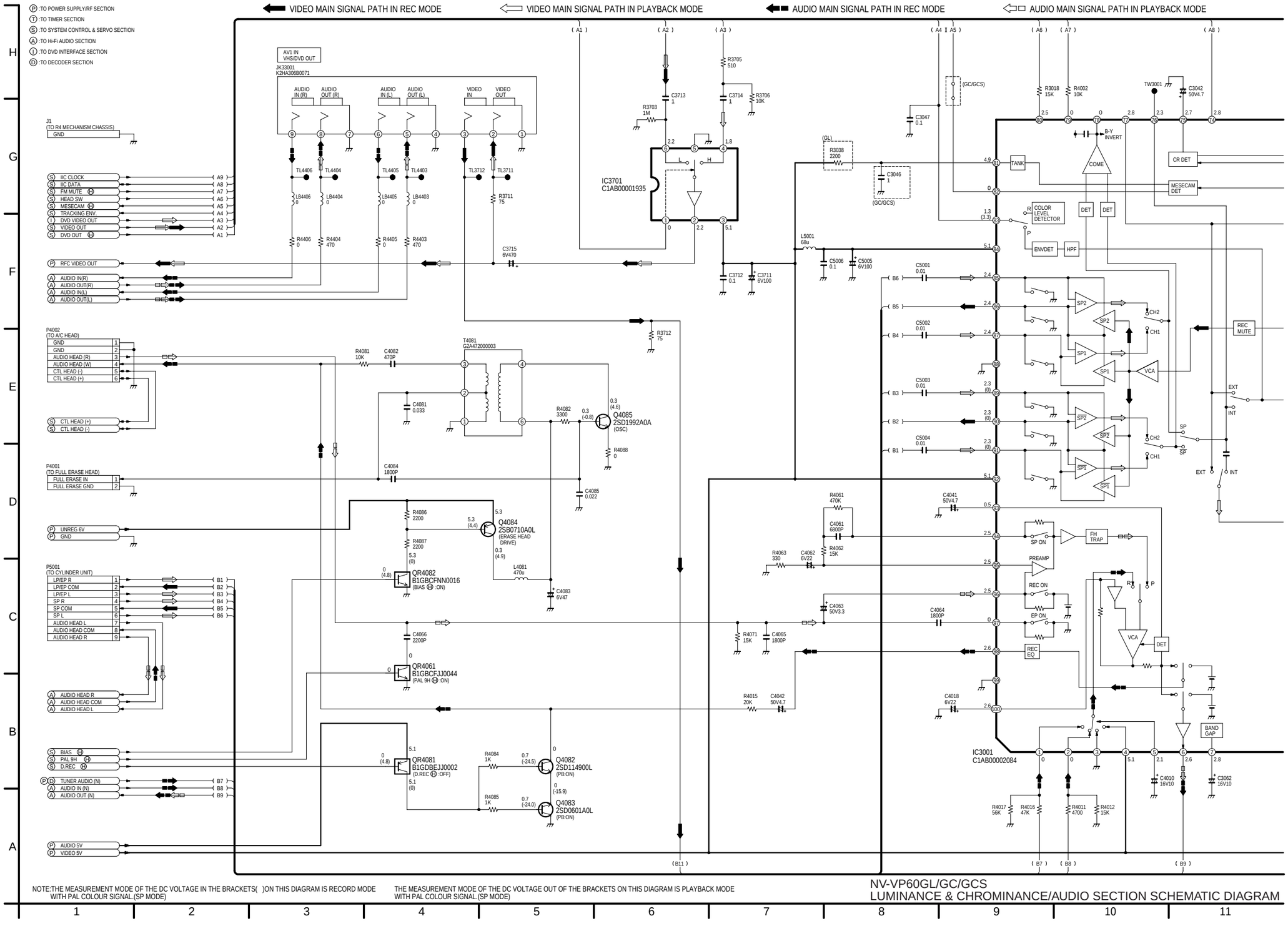
NV-VP60GL/GC/GCS
SYSTEM CONTROL & SERVO SECTION SCHEMATIC DIAGRAM

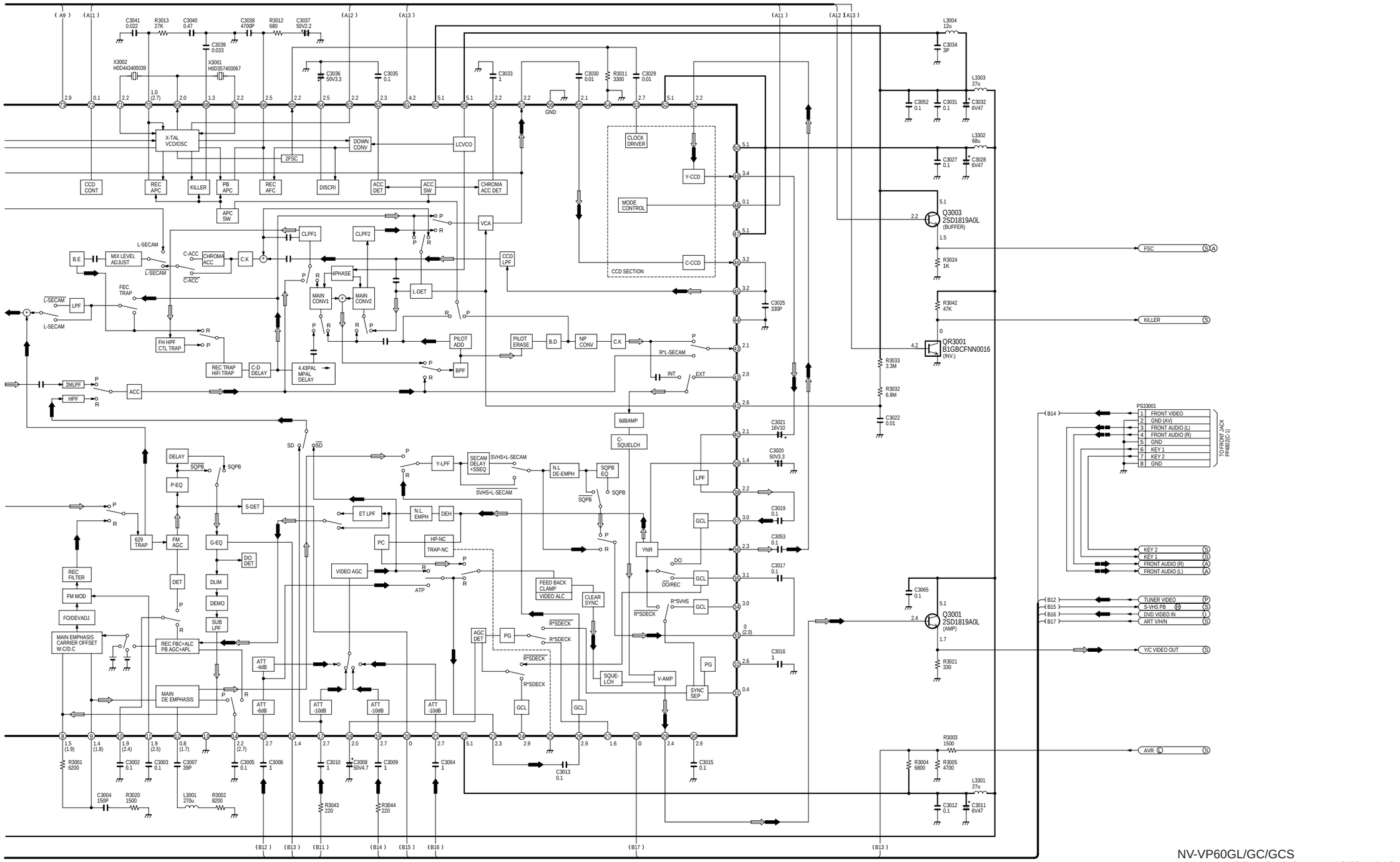
NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

NV-VP60GL/GC/GCS
SYSTEM CONTROL & SERVO SECTION SCHEMATIC DIAGRAM

12 13 14 15 16 17 18 19 20 21 22

16.5. LUMINANCE & CHROMINANCE/AUDIO SECTION IN MAIN SCHEMATIC DIAGRAM





NV-VP60GN/EE
LUMINANCE & CHROMINANCE/AUDIO SECTION SCHEMATIC DIAGRAM

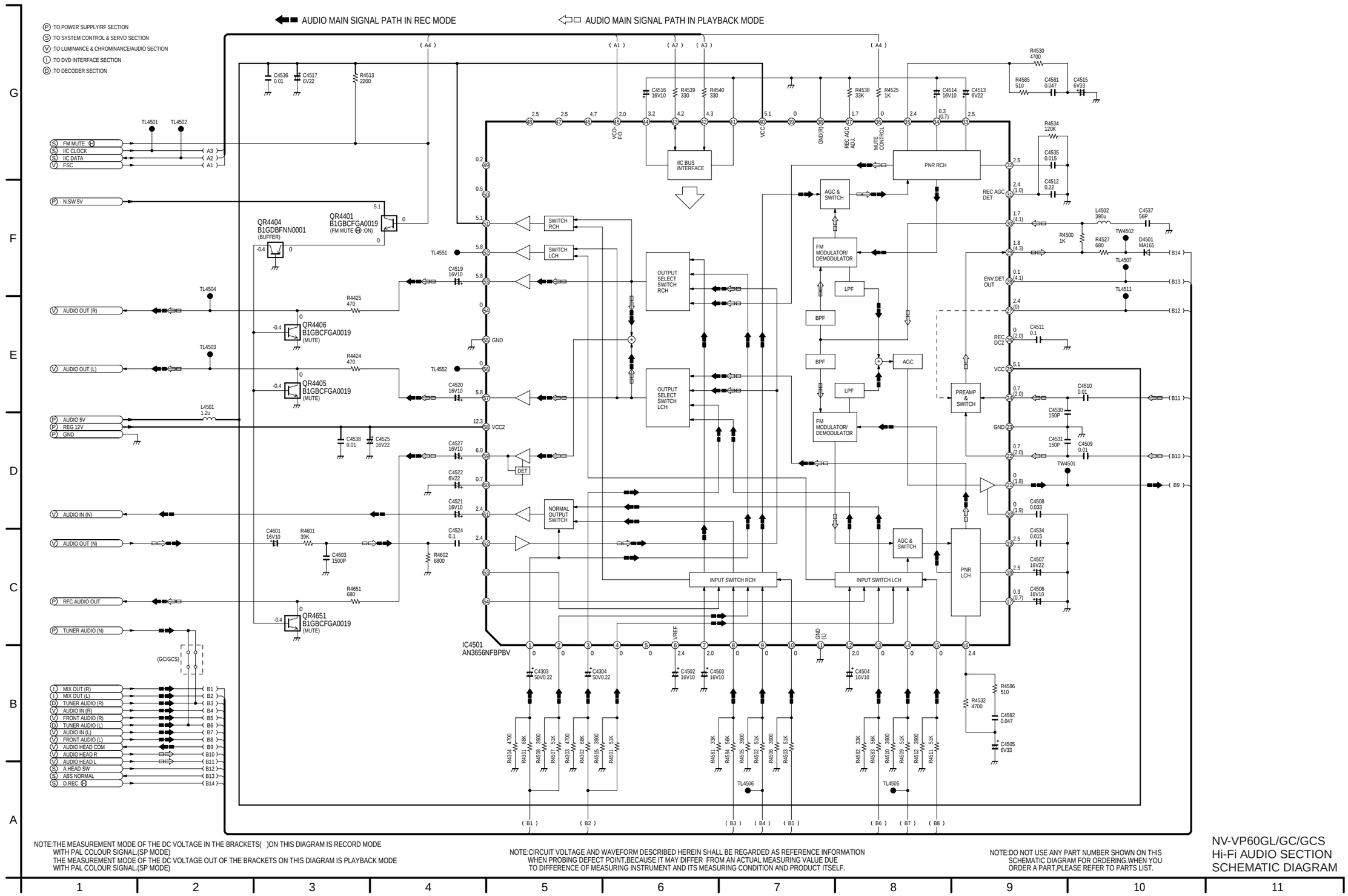
NOTE:CIRCUIT VOLTAGE AND WAVEFORM DESCRIBED HEREIN SHALL BE REGARDED AS REFERENCE INFORMATION WHEN PROBING DEFECT POINT,BECAUSE IT MAY DIFFER FROM AN ACTUAL MEASURING VALUE DUE TO DIFFERENCE OF MEASURING INSTRUMENT AND ITS MEASURING CONDITION AND PRODUCT ITSELF.

NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

NV-VP60GL/GC/GCS
LUMINANCE & CHROMINANCE/AUDIO SECTION SCHEMATIC DIAGRAM

12 13 14 15 16 17 18 19 20 21 22 23

16.6. Hi-Fi AUDIO SECTION IN MAIN SCHEMATIC DIAGRAM



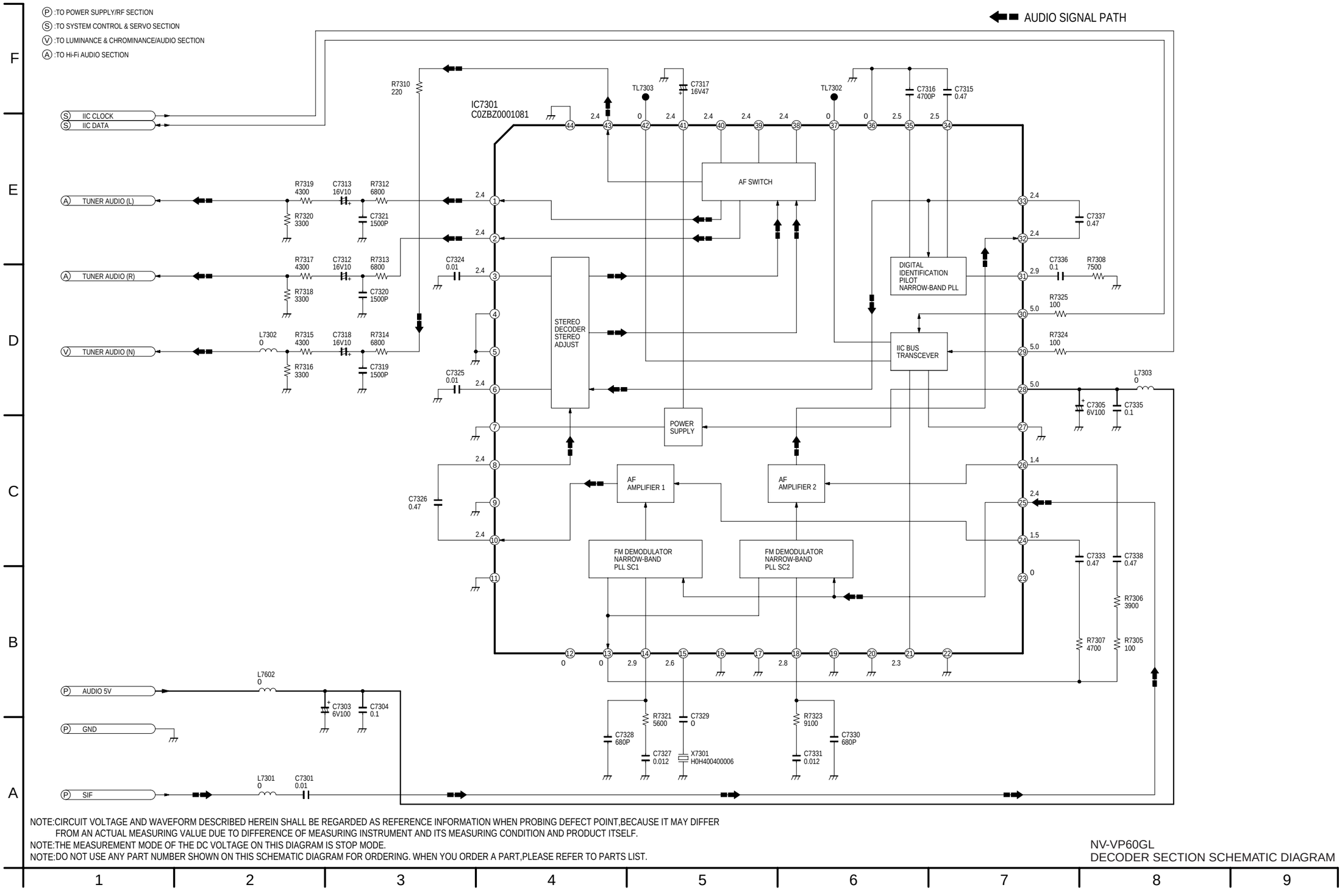
NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS( )ON THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR SIGNAL.(SP MODE)
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.(SP MODE)

NOTE:CIRCUIT VOLTAGE AND WAVEFORM DESCRIBED HEREIN SHALL BE REGARDED AS REFERENCE INFORMATION WHEN PROBING DEFECT POINT,BECAUSE IT MAY DIFFER FROM AN ACTUAL MEASURING VALUE DUE TO DIFFERENCE OF MEASURING INSTRUMENT AND ITS MEASURING CONDITION AND PRODUCT ITSELF.

NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

NV-VP60GL/GC/GCS
Hi-Fi AUDIO SECTION
SCHEMATIC DIAGRAM

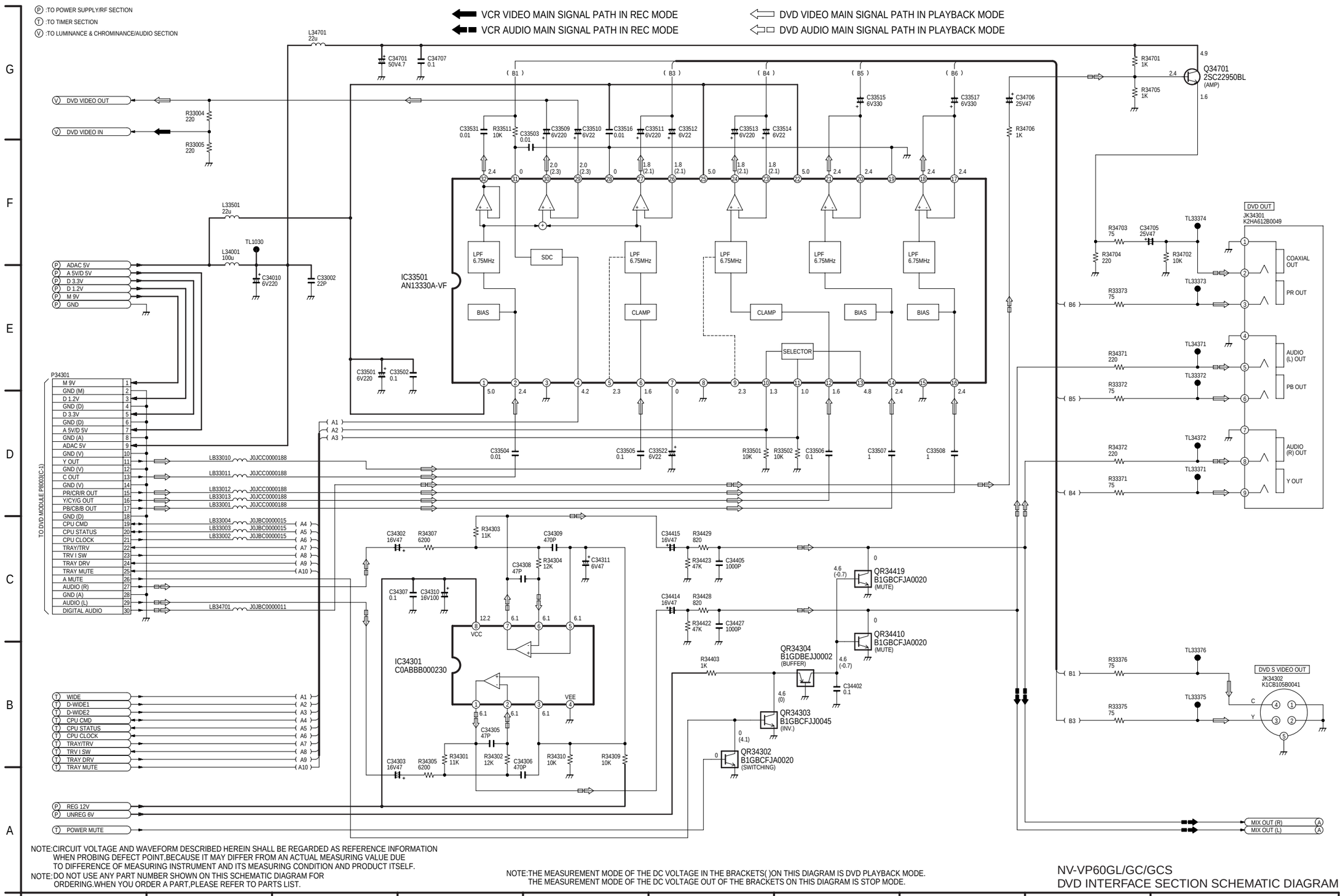
16.7. DECORDER SECTION IN MAIN SCHEMATIC DIAGRAM (NV-VP60GL)



NOTE:CIRCUIT VOLTAGE AND WAVEFORM DESCRIBED HEREIN SHALL BE REGARDED AS REFERENCE INFORMATION WHEN PROBING DEFECT POINT,BECAUSE IT MAY DIFFER FROM AN ACTUAL MEASURING VALUE DUE TO DIFFERENCE OF MEASURING INSTRUMENT AND ITS MEASURING CONDITION AND PRODUCT ITSELF.
NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.
NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

NV-VP60GL
DECODER SECTION SCHEMATIC DIAGRAM

16.8. DVD INTERFACE SECTION IN MAIN SCHEMATIC DIAGRAM



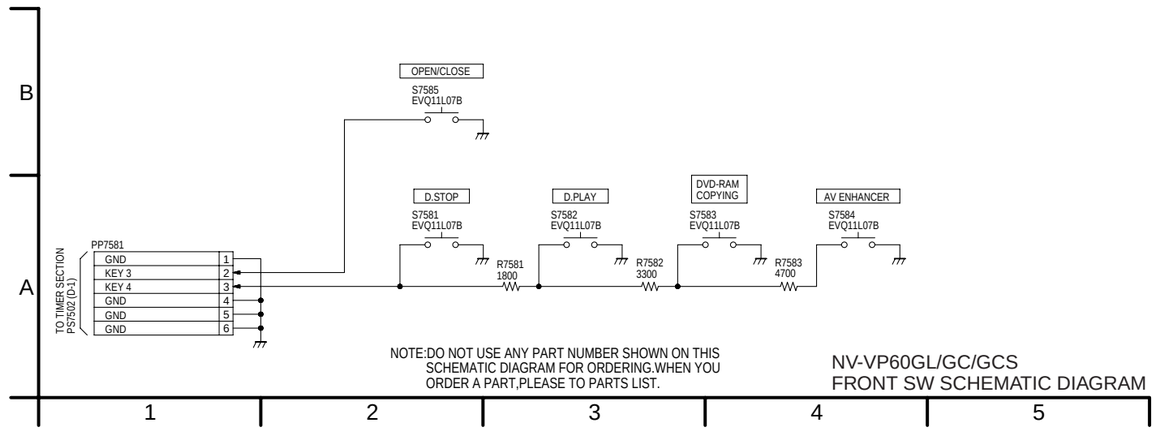
NOTE:CIRCUIT VOLTAGE AND WAVEFORM DESCRIBED HEREIN SHALL BE REGARDED AS REFERENCE INFORMATION WHEN PROBING DEFECT POINT,BECAUSE IT MAY DIFFER FROM AN ACTUAL MEASURING VALUE DUE TO DIFFERENCE OF MEASURING INSTRUMENT AND ITS MEASURING CONDITION AND PRODUCT ITSELF.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

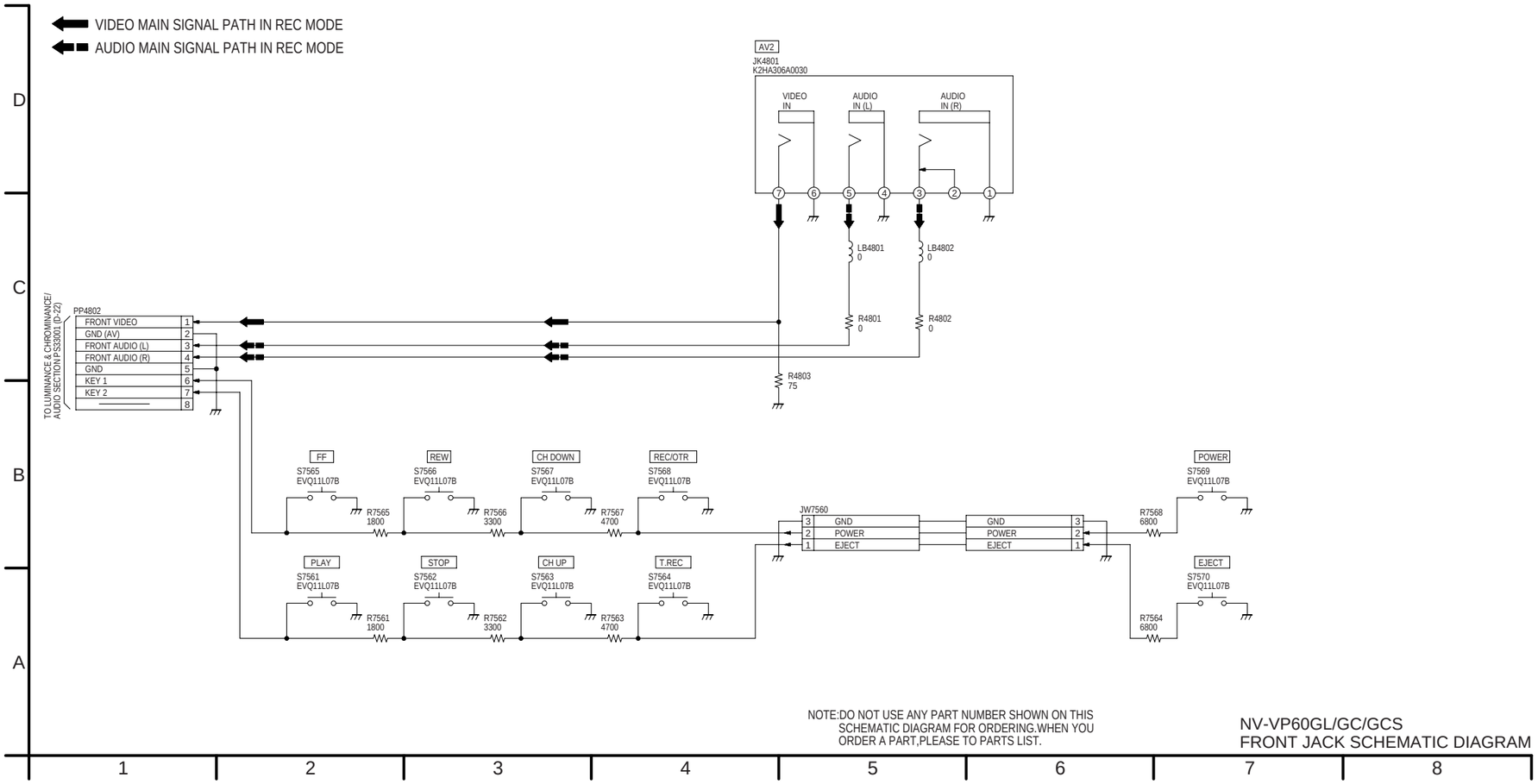
NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS( )ON THIS DIAGRAM IS DVD PLAYBACK MODE.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS STOP MODE.

NV-VP60GL/GC/GCS
DVD INTERFACE SECTION SCHEMATIC DIAGRAM

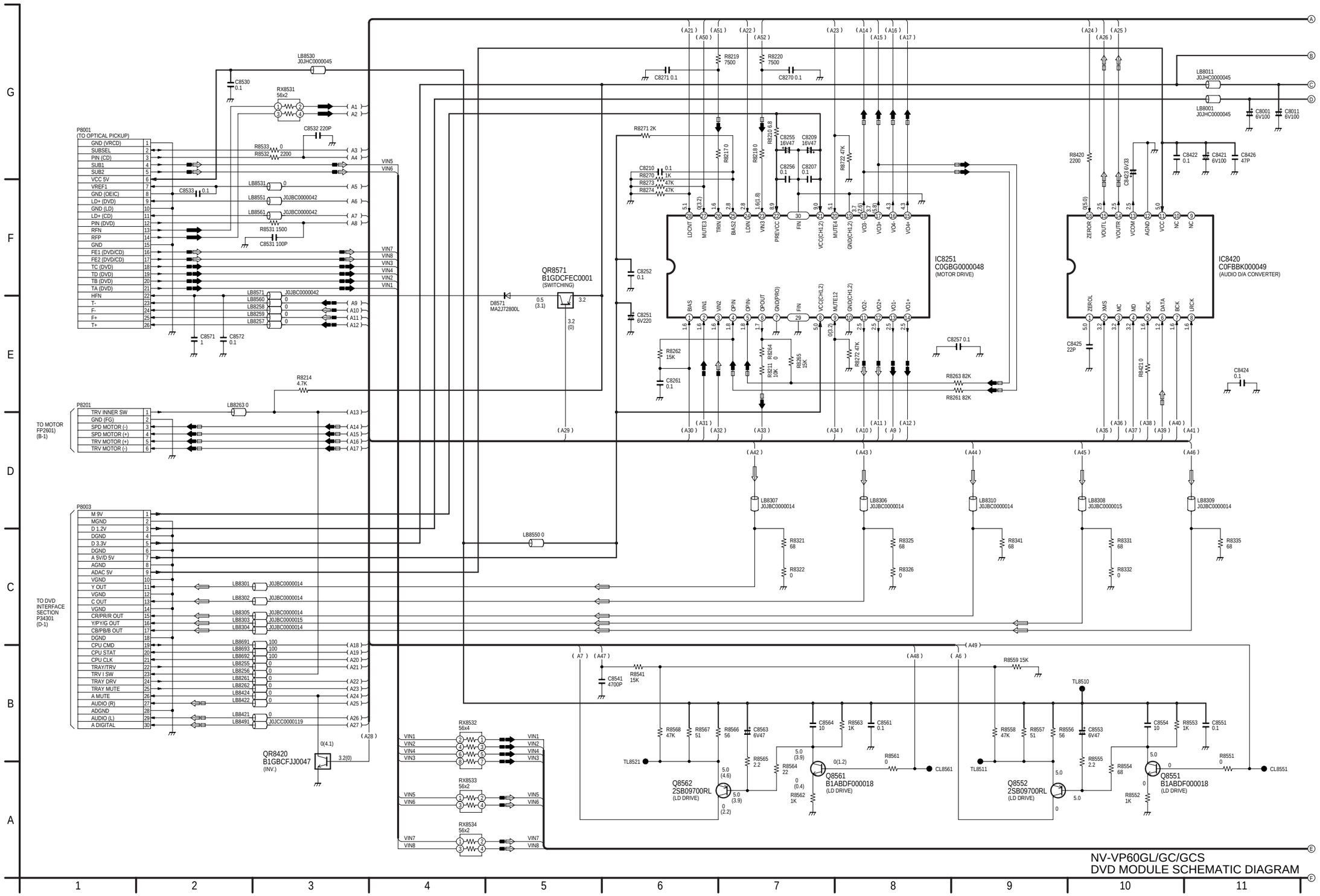
16.9. FRONT SW SCHEMATIC DIAGRAM

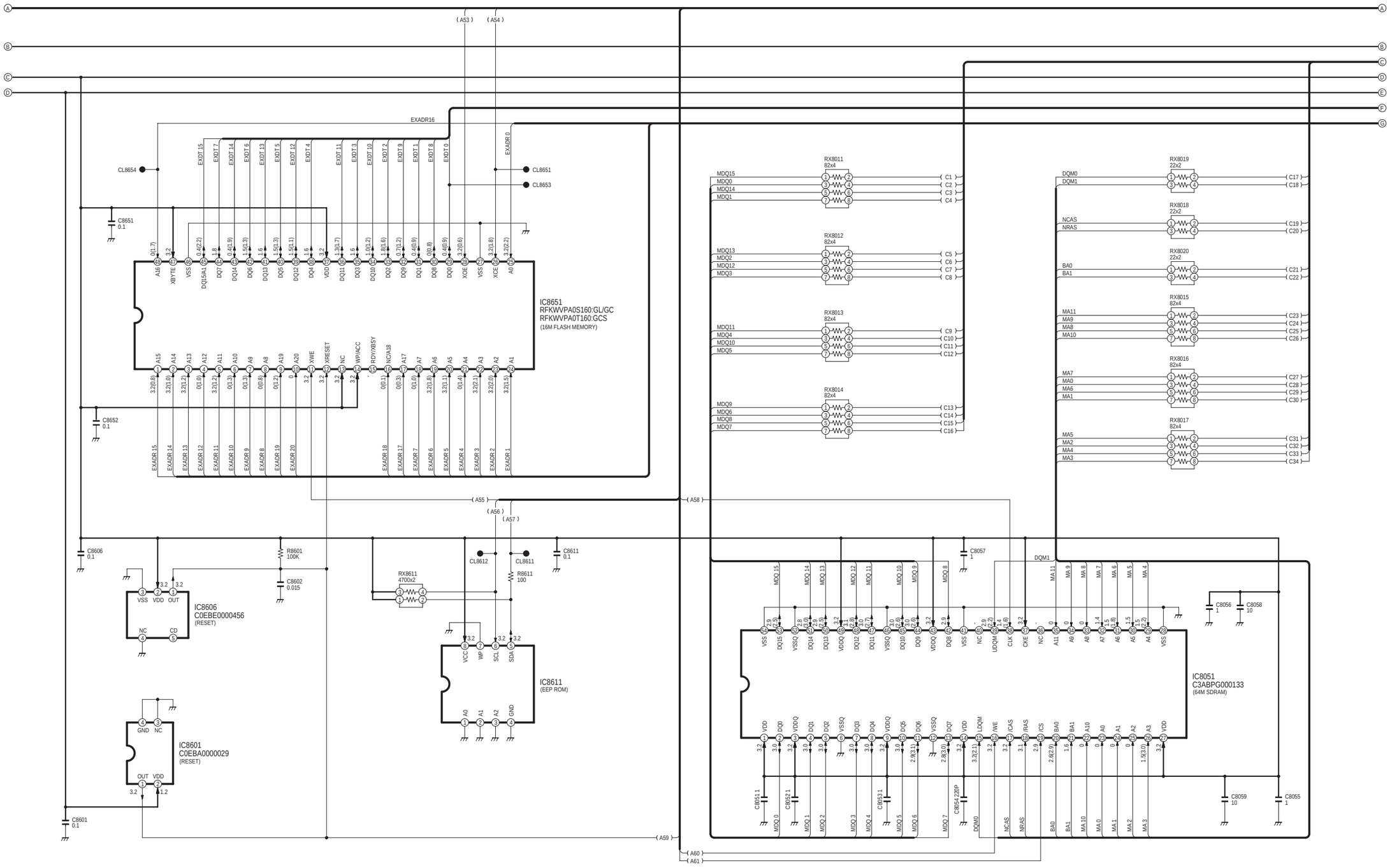


16.10. FRONT JACK SCHEMATIC DIAGRAM



16.11. DVD MODULE SCHEMATIC DIAGRAM



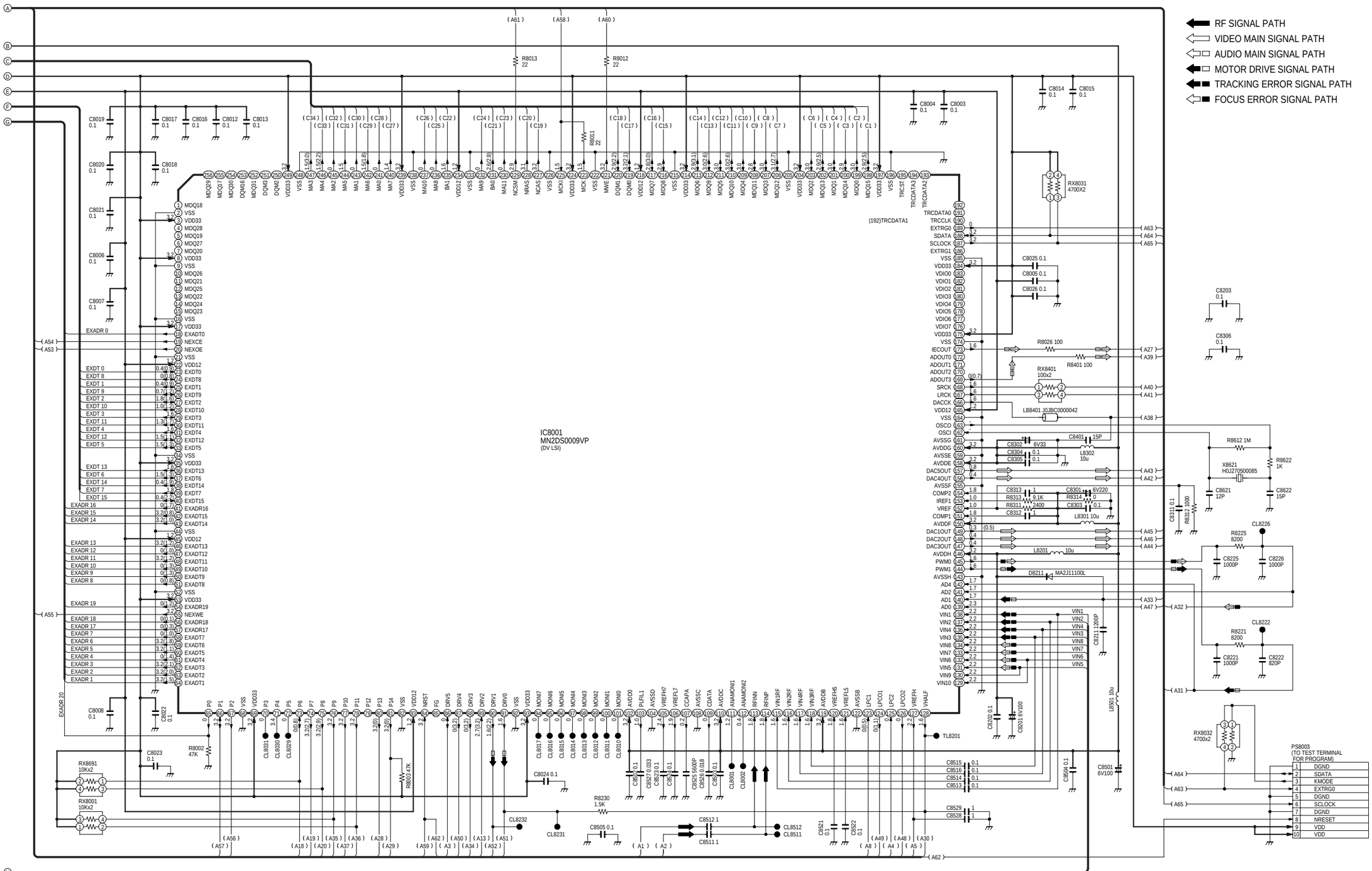


NV-VP60GL/GC/GCS
DVD MODULE SCHEMATIC DIAGRAM

NOTE:CIRCUIT VOLTAGE AND WAVEFORM DESCRIBED HEREIN SHALL BE REGARDED AS REFERENCE INFORMATION WHEN PROBING DEFECT POINT,BECAUSE IT MAY DIFFER FROM AN ACTUAL MEASURING VALUE DUE TO DIFFERENCE OF MEASURING INSTRUMENT AND ITS MEASURING CONDITION AND PRODUCT ITSELF.

NV-VP60GL/GC/GCS
DVD MODULE SCHEMATIC DIAGRAM

12 13 14 15 16 17 18 19 20 21 22



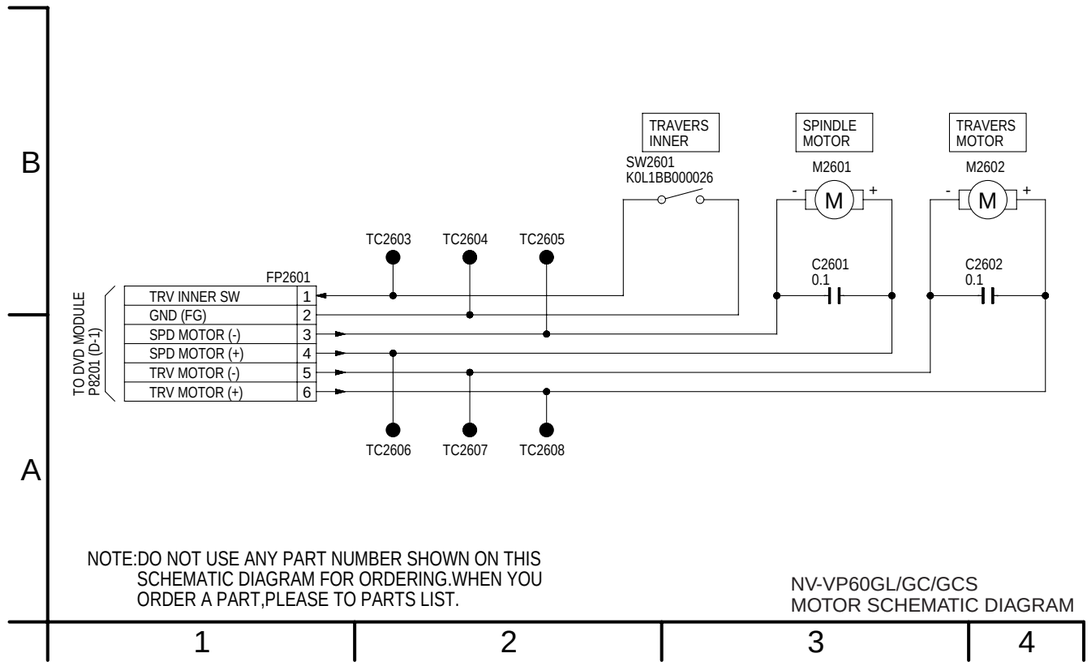
NV-VP60GL/GC/GCS
DVD MODULE SCHEMATIC DIAGRAM

NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS( )ON THIS DIAGRAM IS DVD PLAYBACK MODE.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS STOP MODE.

NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM
FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

NV-VP60GL/GC/GCS
DVD MODULE SCHEMATIC DIAGRAM

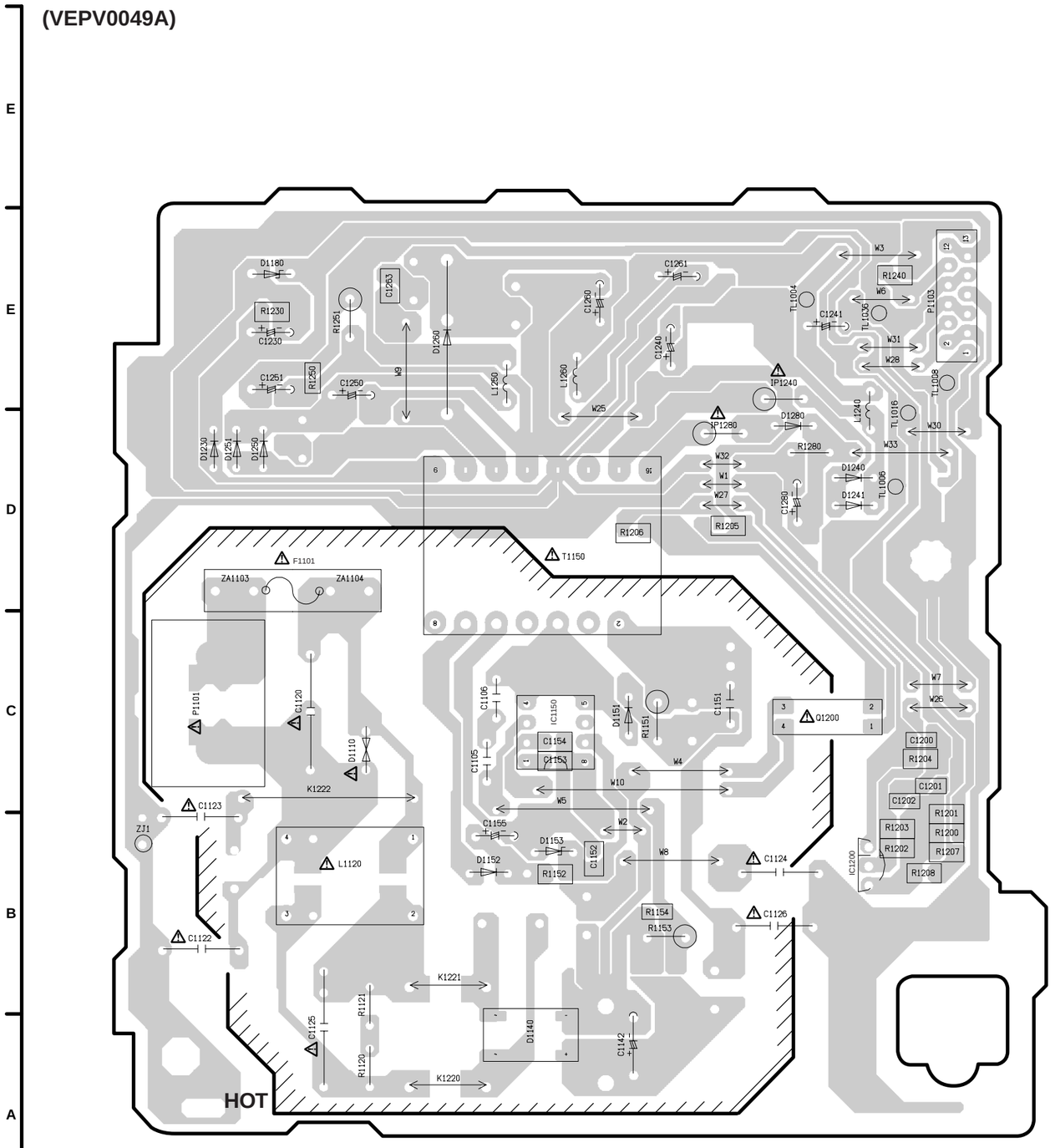
16.12. MOTOR SCHEMATIC DIAGRAM



17 CIRCUIT BOARD ASSEMBLIES

17.1. POWER C.B.A.

(VEPV0049A)



IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

CAUTION

THE STRIPED FRAME INDICATES THE PRIMARY CIRCUIT TO DISTINGUISH THE PRIMARY FROM THE SECONDARY CIRCUIT.
PAY ATTENTION NOT TO RECEIVE AN ELECTRIC SHOCK DURING REPAIR AND SERVICE OF THE PRODUCTS.

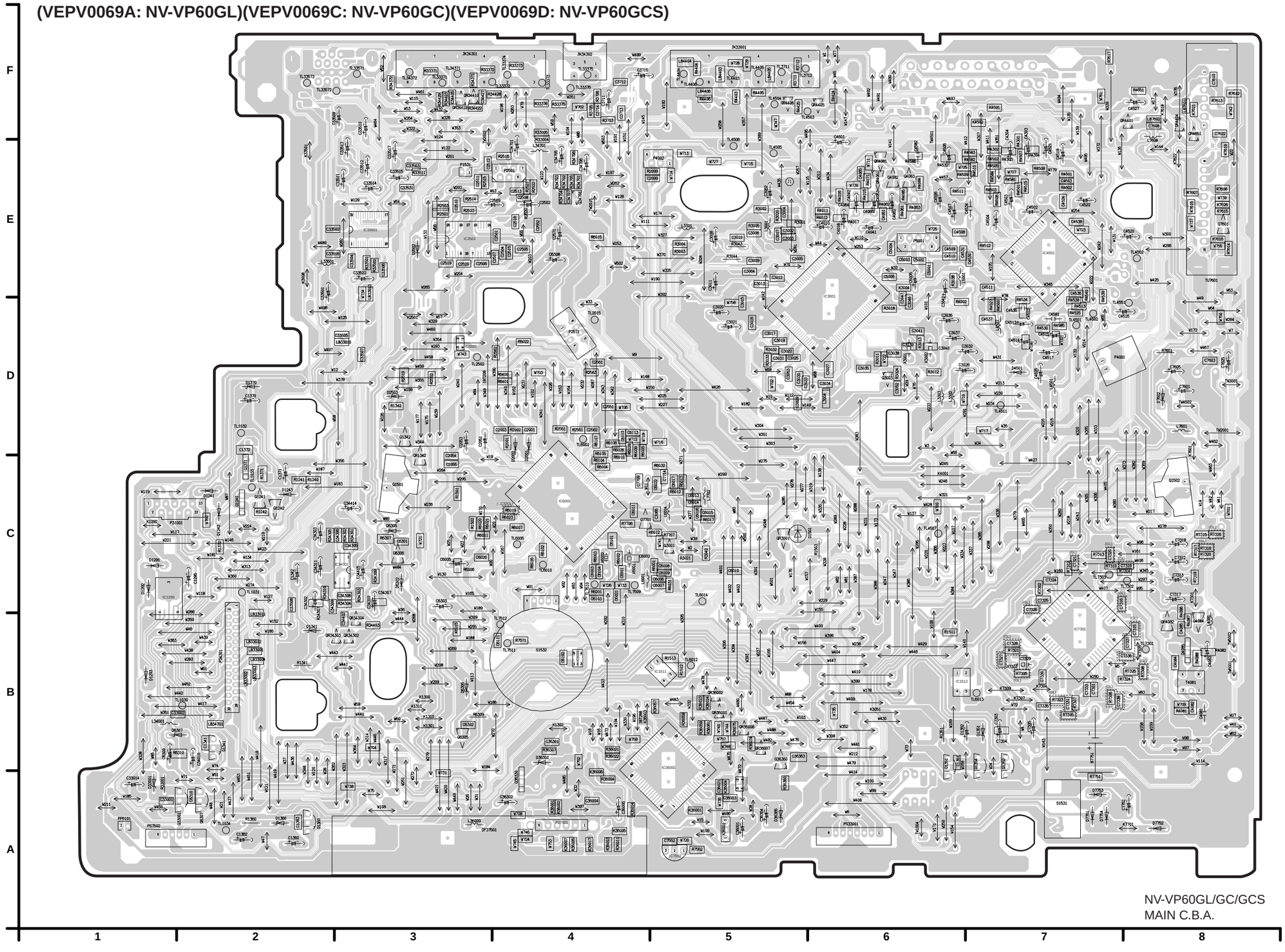
POWER C.B.A.			
Transistor		**Test Point**	
Q1200	C-5	TL1004	E-4
		TL1006	D-5
Integrated Circuit		TL1008	E-5
IC1150	C-3	TL1016	E-5
IC1200	B-5	TL1036	E-5
		Connector	
		P1101	C-1
		P1103	E-5

ADDRESS INFORMATION

NV-VP60GL/GC/GCS
POWER C.B.A.

17.2. MAIN C.B.A.

(VEPV0069A: NV-VP60GL)(VEPV0069C: NV-VP60GC)(VEPV0069D: NV-VP60GCS)



NV-VP60GL/GC/GCS
MAIN C.B.A.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

MAIN C.B.A.

Transistor		**Test Point**	
Q1240	C-2	TL1030	B-2
Q1241	C-2	TL1031	C-2
Q1242	C-2	TL1032	D-2
Q1341	B-2	TL1033	C-2
Q1342	D-3	TL1034	A-2
Q1351	B-6	TL2015	D-4
Q1352	B-7	TL2502	D-3
Q1354	B-7	TL3711	F-5
Q1360	A-2	TL3712	F-5
Q1371	C-2	TL4403	F-5
Q1501	C-3	TL4404	F-5
Q1502	C-8	TL4405	F-5
Q3001	D-6	TL4406	F-5
Q3003	D-6	TL4501	D-8
Q4082	E-6	TL4502	D-7
Q4083	E-6	TL4503	F-6
Q4084	B-8	TL4504	F-5
Q4085	B-8	TL4505	E-5
Q6305	B-3	TL4506	E-5
Q6306	C-3	TL4507	C-6
Q6307	A-2	TL4511	D-7
Q7601	E-8	TL4551	D-8
Q7701	C-4	TL4552	F-8
Q33001	A-2	TL6001	D-4
Q34701	E-4	TL6005	C-4
Q36012	A-4	TL6010	C-4
Q36014	A-4	TL6012	B-5
Q36016	A-4	TL6013	B-7
Q36330	A-4	TL6014	C-5
Q36360	B-5	TL7301	B-8
Transistor & Resistor		TL7302	C-8
QR1342	C-3	TL7303	C-7
QR3001	C-5	TL7509	C-4
QR4061	E-6	TL7510	C-4
QR4081	E-6	TL7511	B-4
QR4082	E-6	TL7512	B-4
QR4401	F-8	TL33371	F-3
QR4404	F-8	TL33372	F-4
QR4405	F-6	TL33373	F-4
QR4406	F-5	TL33374	F-4
QR4651	F-8	TL33375	F-4
QR34302	B-3	TL33376	F-4
QR34303	B-3	TL33571	F-3
QR34304	B-3	TL33572	F-2
QR34410	F-3	TL33573	F-2
QR34419	F-3	TL34371	F-3
QR36001	B-5	TL34372	F-3
QR36002	B-5	TW1004	A-6
QR36007	B-5	TW2001	D-8
QR36008	B-5	TW2002	E-3
Integrated Circuit		TW2015	E-4
IC1290	C-1	TW3001	D-8
IC1511	B-5	TW4501	E-6
IC1512	B-6	TW4502	D-8
IC2501	E-3	TW6001	B-8
IC3001	D-6	TW6002	B-8
IC3701	F-4	**Connector**	
IC4501	E-7	P1531	E-3
IC6001	C-4	P2501	E-4
IC6201	B-4	P2571	D-4
IC6301	D-3	P4001	D-7
IC7301	B-7	P4002	E-5
IC7552	A-5	P5001	E-6
IC33501	E-3	P31001	C-1
IC34301	C-3	P34301	B-2
IC36001	B-5	P37501	A-4
IC36002	A-5	PP6101	A-1
		PS33001	A-6
		PS7502	A-1
		T4081	B-8
		TU7601	E-8

ADDRESS INFORMATION

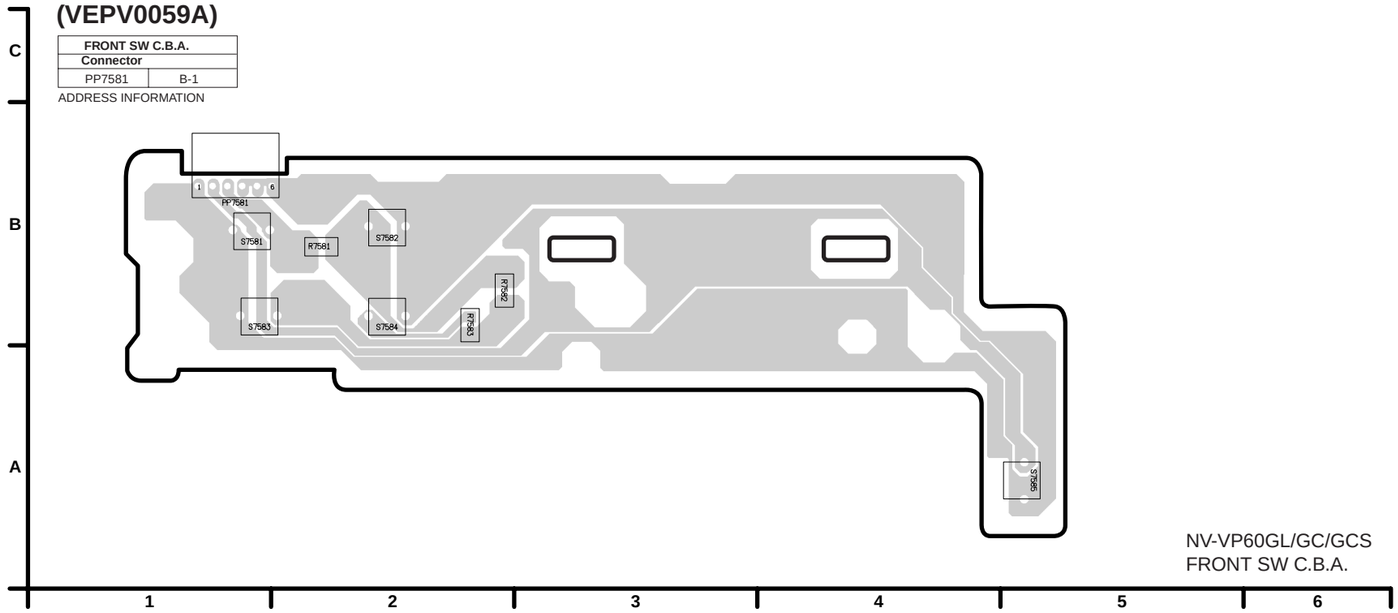
NV-VP60GL/GC/GCS
MAIN C.B.A.

17.3. FRONT SW C.B.A.

(VEPV0059A)

FRONT SW C.B.A.	
Connector	
PP7581	B-1

ADDRESS INFORMATION

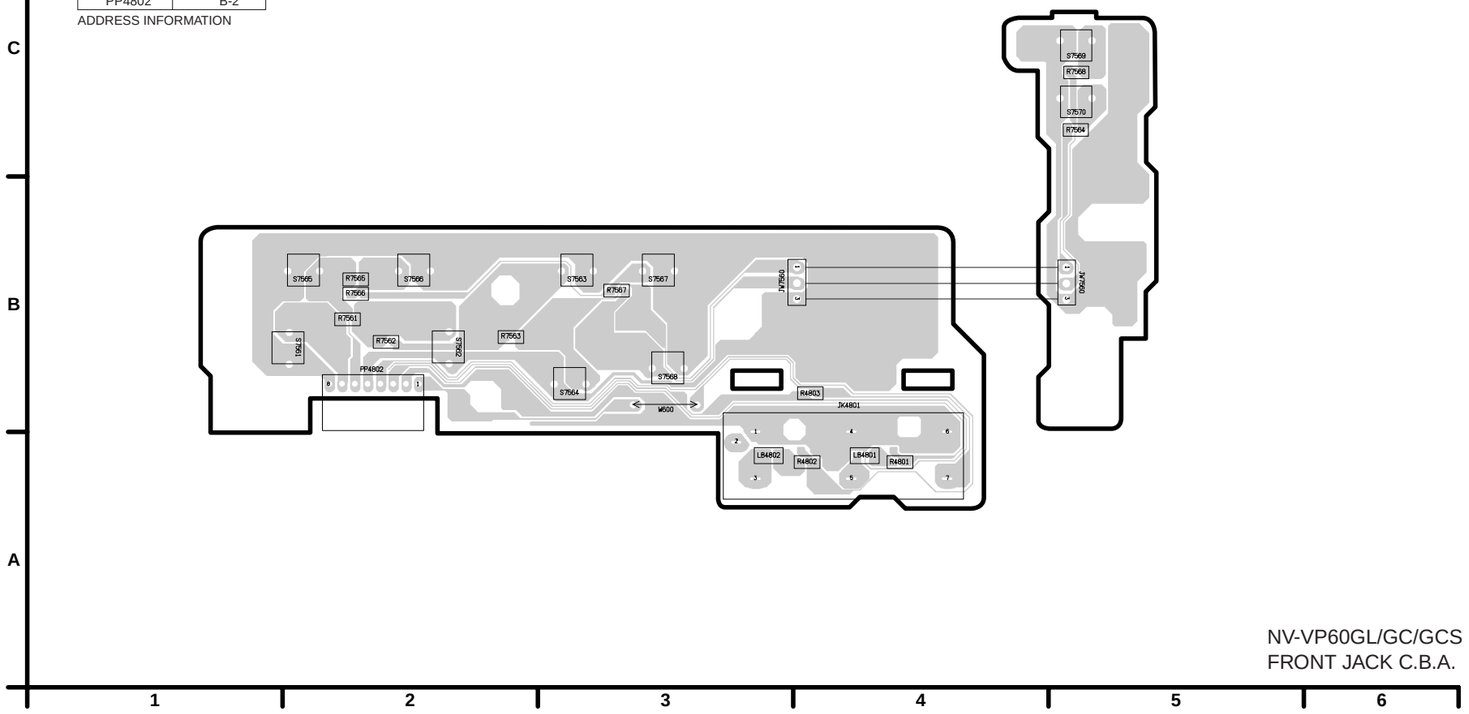


17.4. FRONT JACK C.B.A.

(VEPV0050A)

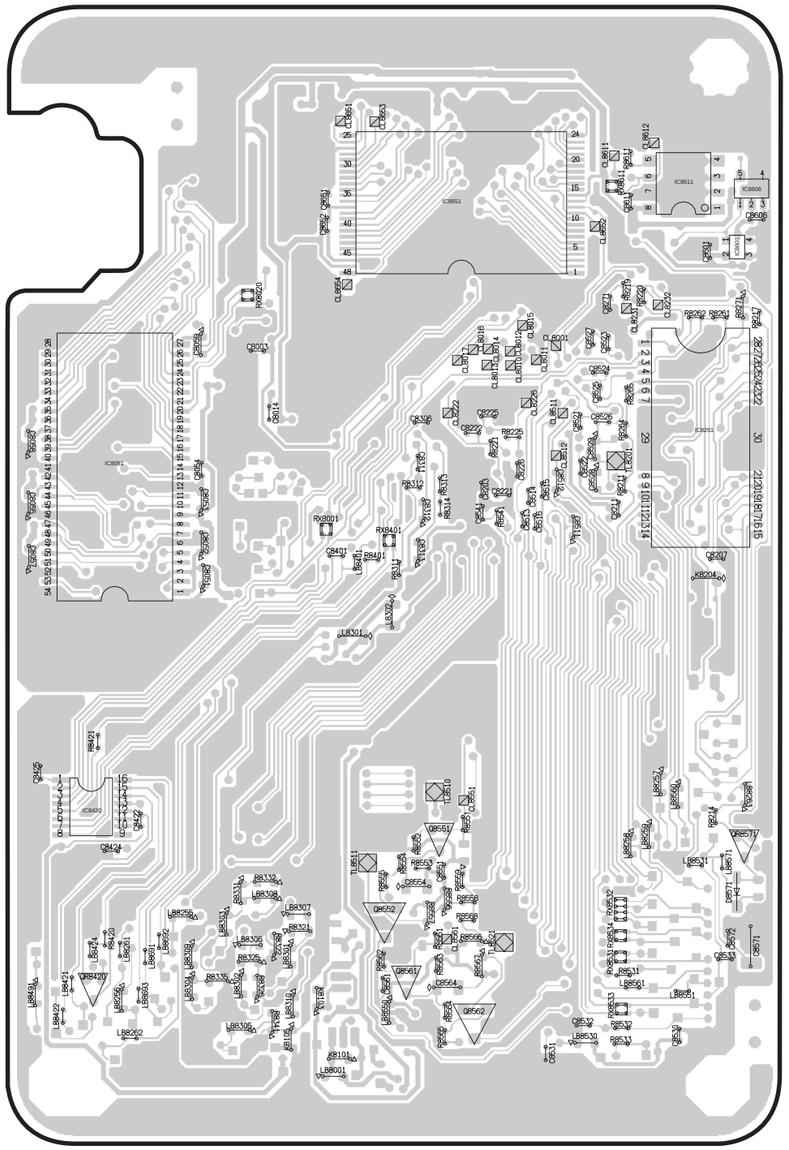
FRONT JACK C.B.A.	
Connector	
PP4802	B-2

ADDRESS INFORMATION

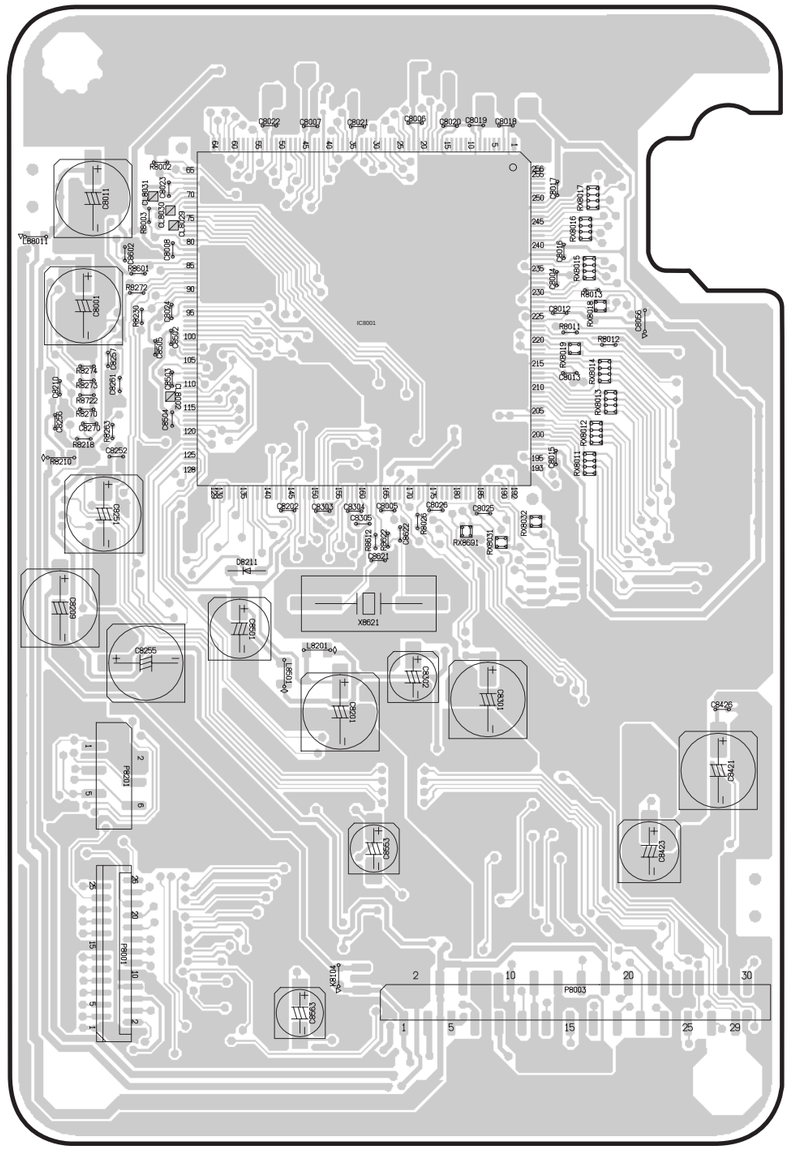


17.5. DVD MODULE C.B.A.

(REPV0084B: NV-VP60GL/GC)(REPV0084C: NV-VP60GCS)



(FOIL SIDE)



(COMPONENT SIDE)

NV-VP60GL/GC/GCS
DVD MODULE C.B.A.

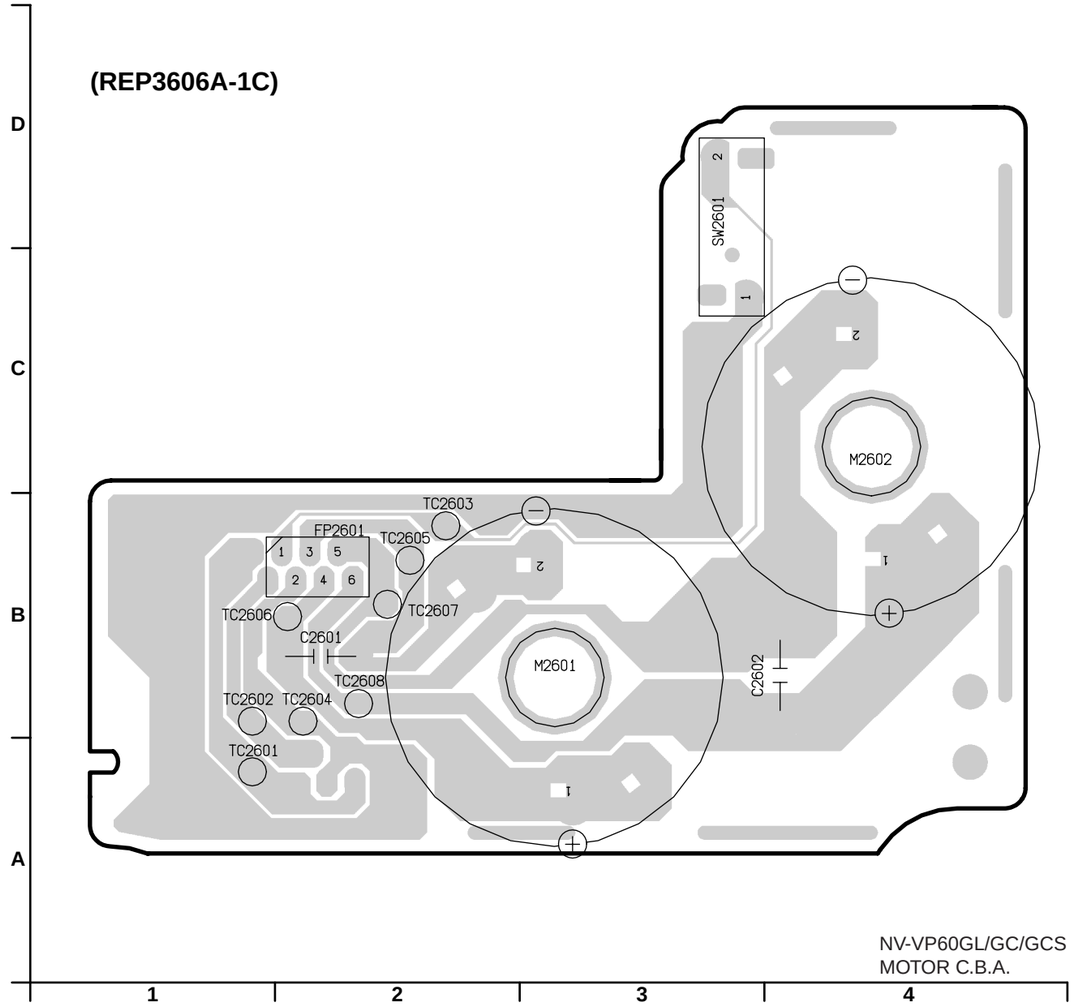
17.6. MOTOR C.B.A.

DVD MODULE C.B.A.					
Transistor			**Test Point**		
Q8551	B-3	F	CL8511	D-3	F
Q8552	B-3	F	CL8512	D-3	F
Q8561	B-3	F	CL8551	B-3	F
Q8562	A-3	F	CL8554	D-2	F
			CL8561	B-3	F
Transistor & Resistor			CL8611	E-4	F
QR8420	B-2	F	CL8612	E-4	F
QR8571	B-4	F	CL8651	E-3	F
			CL8652	E-4	F
Integrated Circuit			CL8653	E-3	F
IC8001	D-6	C	CL8654	D-2	F
IC8051	D-2	F	TL8201	D-4	F
IC8251	D-4	F	TL8510	B-3	F
IC8420	B-2	F	TL8511	B-3	F
IC8601	D-4	F	TL8521	B-3	F
IC8606	E-4	F	**Connector**		
IC8611	E-4	F	P8001	B-5	C
IC8651	E-3	F	P8003	B-7	C
Test Point			P8201	B-5	C
CL8001	D-3	F			
CL8002	D-5	C			
CL8010	D-3	F			
CL8011	D-3	F			
CL8012	D-3	F			
CL8013	D-3	F			
CL8014	D-3	F			
CL8015	D-3	F			
CL8016	D-3	F			
CL8017	D-3	F			
CL8029	E-6	C			
CL8030	E-5	C			
CL8031	E-5	C			
CL8222	D-3	F			
CL8226	D-3	F			
CL8231	D-4	F			
CL8232	D-4	F			

ADDRESS INFORMATION

NV-VP60GL/GC/GCS
DVD MODULE C.B.A.

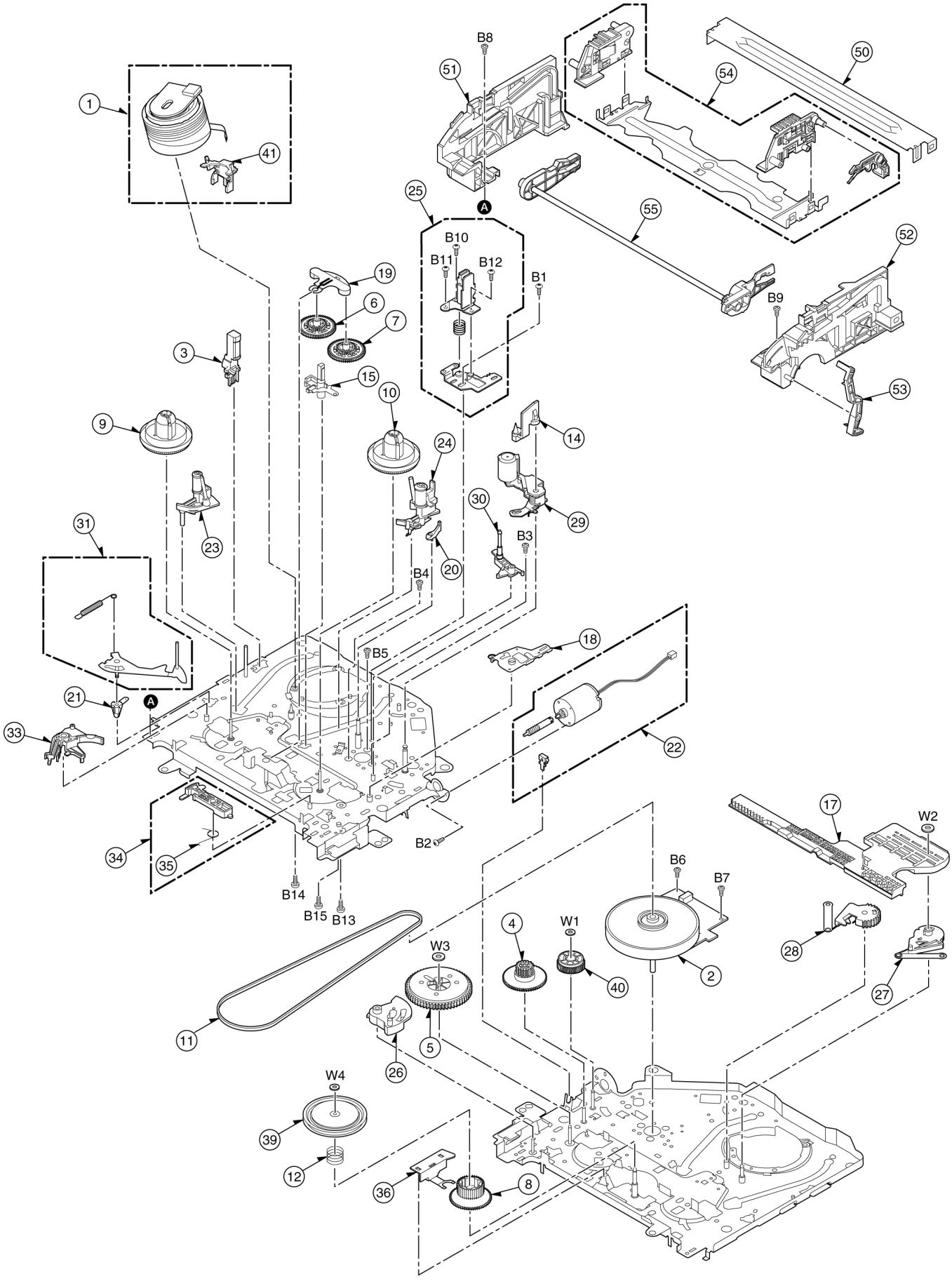
(REP3606A-1C)



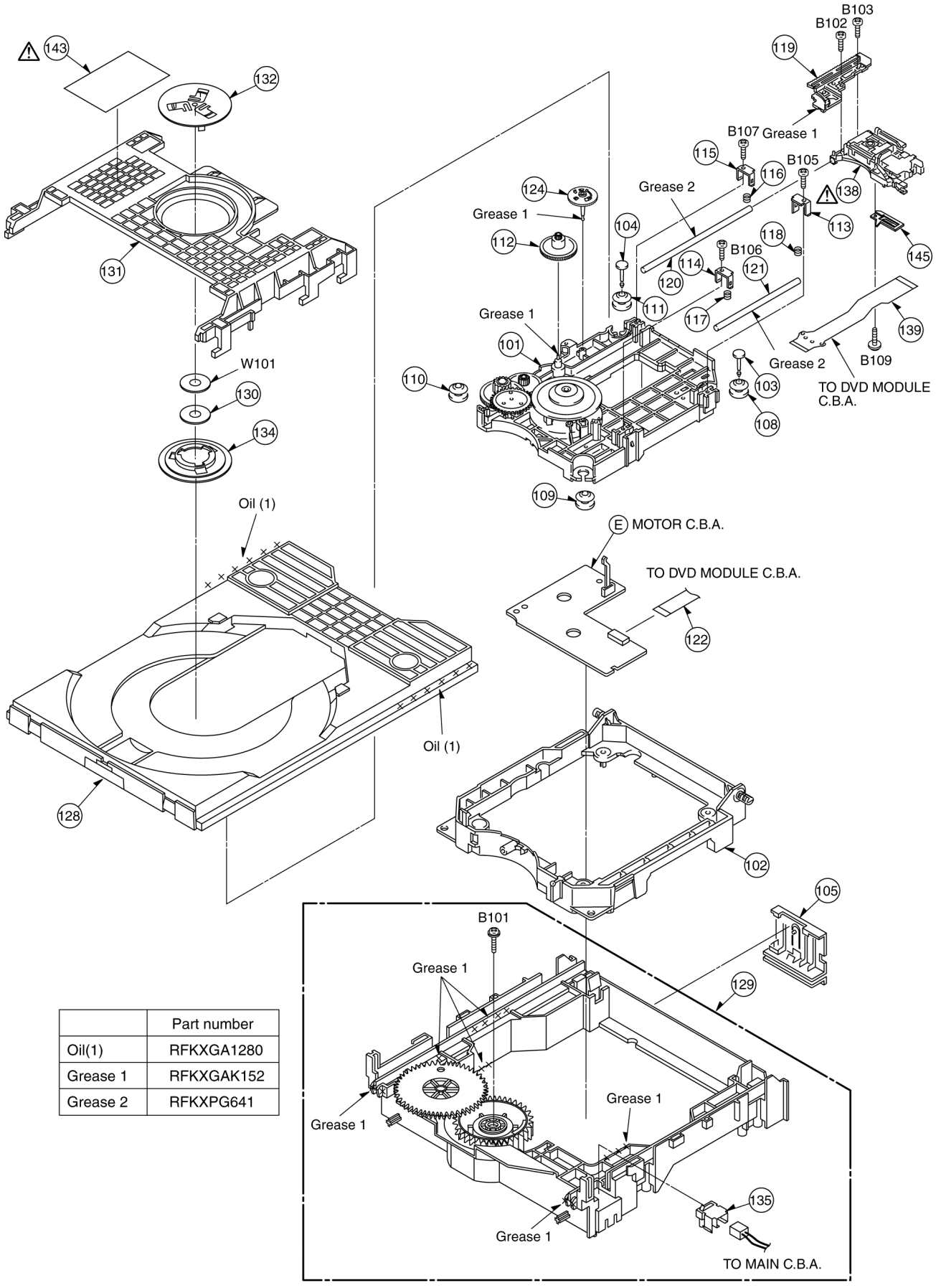
NV-VP60GL/GC/GCS
MOTOR C.B.A.

18 EXPLODED VIEWS

18.1. VCR MECHANISM CHASSIS PARTS SECTION

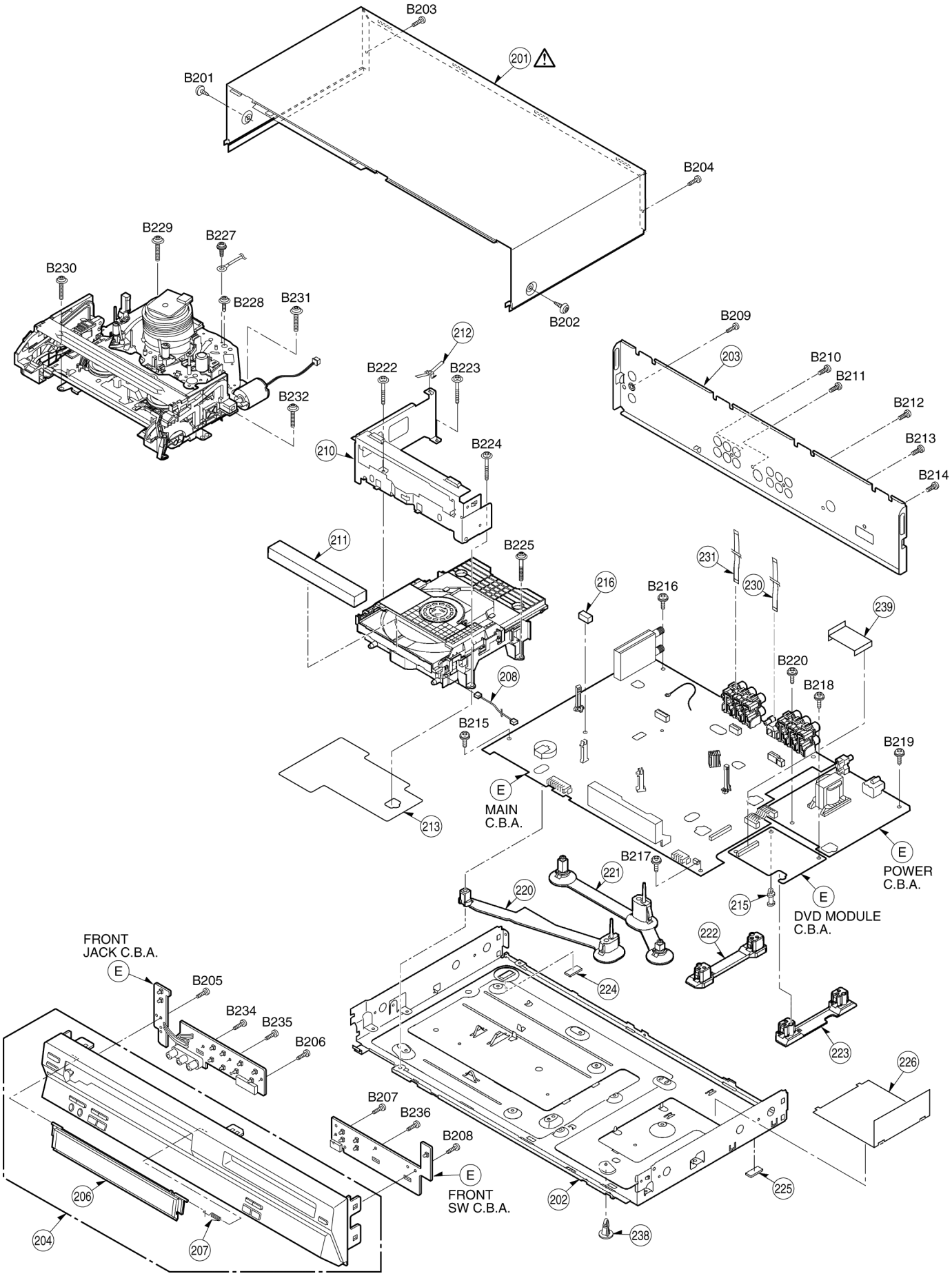


18.2. DVD MECHANISM CHASSIS PARTS SECTION

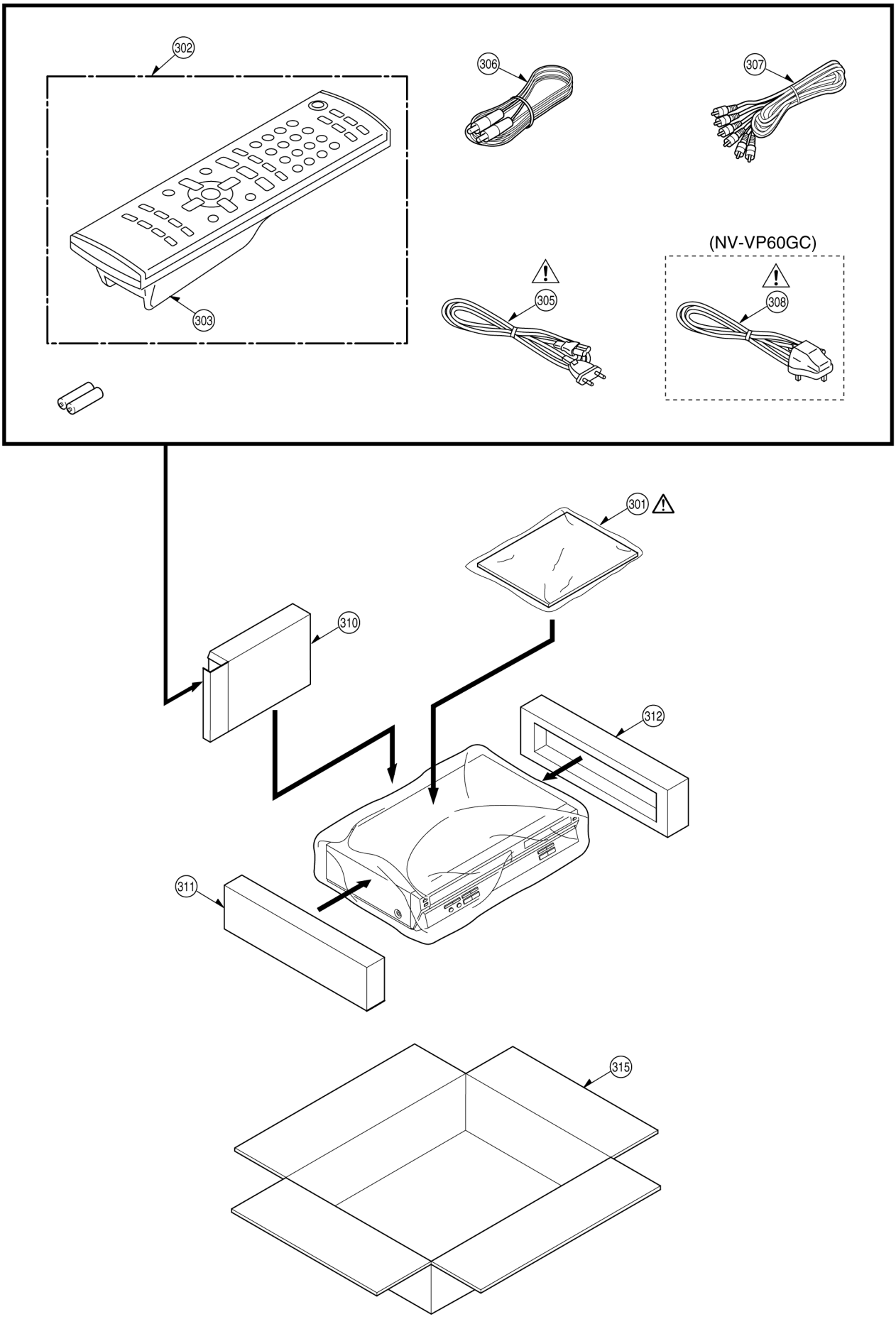


	Part number
Oil(1)	RFKXGA1280
Grease 1	RFKXGAK152
Grease 2	RFKXPG641

18.3. CASING PARTS SECTION



18.4. PACKING PARTS SECTION



19 REPLACEMENT PARTS LIST

19.1. VCR MECHANISM CHASSIS PARTS SECTION PARTS LIST

Note:

*All parts except parts mentioned [PAVC-CSG] in the Remarks column are supplied by PAVCSG.

Parts mentioned [PAVC-CSG] are supplied by PAVC-CSG.

Note: 1. *Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark △ have the special characteristics for safety. When replacing any of these components, use only the same type.

Ref. No.	Part No.	Part Name & Description	Remarks
1	VEG1697-DKIT	CYLINDER UNIT	
2	VEM0800T	CAPSTAN MOTOR	
3	L1AZ00000004	FE HEAD	
4	VDG1686	INTERMEDIATE GEAR	
5	VDG1511	MAIN CAM GEAR	
6	VDG1512	IDLER GEAR	
7	VDG1512	IDLER GEAR	
8	VDG1514	CHANGE GEAR	
9	VDR0372A	REEL TABLE	
10	VDR0372A	REEL TABLE	
11	VDV0391	CAPSTAN BELT	
12	VMB3550A	CHANGING GEAR SPRING	
14	VMD5466	OPENER PIECE	
15	VMD4253	LED PRISM	
17	VML3624	MAIN LEVER	
18	VML3626	PINCH CHARGE ARM	
19	VML3632	IDLER ARM	
20	VMX3092	P4 CAP	
21	VDB1431	TENSION ARM BOSH	
22	VEM0797A	LOADING MOTOR UNIT	
23	VXA7105	SUPPLY SHAFT HOLDER	
24	VXA7106	TAKE UP SHAFT HOLDER	
25	L1AE00000044	AC HEAD	
26	VDG1684	SECTOR GEAR	
27	VXL3107	SUPPLY LOADING ARM	
28	VXL3108	TAKE UP LOADING ARM	
29	VXL3109	PINCH ARM	
30	VXL3110	P5 ARM	
31	VXL3111	TENSION ARM	
33	VXL3252	SUPPLY BRAKE ARM	
34	VXL3113	TAKE UP BRAKE ARM	
35	VMB3548	TAKE UP BRAKE SPRING	
36	VXL3124	CHANGING LEVER	
39	VXP2133	CENTER CLUTH	
40	VXP2168	TORQUE CLUTCH	
41	VMD4983	FLAT CABLE HOLDER	
50	VMA0L25	TOP PLATE	
51	VMD4255	SIDE PLATE (L)	
52	VMD4254	SIDE PLATE (R)	
53	VML3706	OPENER LEVER	
54	VXA8265	CASSETTE HOLDER	
55	VXL3160	WIPER ARM	
B1	VHD1044	SCREW	
B2	XYN3+C4FJ	SCREW	
B3	XTN26+7JFJ	SCREW	
B4	XTN26+7JFJ	SCREW	
B5	XTN26+7JFJ	SCREW	
B6	XTV26+5FFJ	SCREW	
B7	XTV26+5FFJ	SCREW	
B8	XTV26+8FFJ	SCREW	
B9	XTV26+8FFJ	SCREW	
B10	VHD1066	SCREW	
B11	VHD1066	SCREW	
B12	VHD1185	SCREW	
B13	VHD1117	SCREW	
B14	VHD1117	SCREW	
B15	VHD1117	SCREW	
W1	VMX2208	WASHER	
W2	VMX3114	WASHER	
W3	VMX2699	WASHER	
W4	VMX3196	WASHER	

19.2. DVD MECHANISM PARTS SECTION PARTS LIST

Note:

*All parts except parts mentioned [PAVC-CSG] in the Remarks column are supplied by PAVCSG.

Parts mentioned [PAVC-CSG] are supplied by PAVC-CSG.

Note: 1. *Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark △ have the special characteristics for safety. When replacing any of these components, use only the same type.

Ref. No.	Part No.	Part Name & Description	Remarks
101	RXQ1465	SPINDLE MOTOR ASSY	
102	RMR1654-K	MIDDLE CHASSIS	
103	RMS0712-1	FIXED PIN	
104	RMS0712-1	FIXED PIN	
105	RMN0771	FFC HOLDER	
108	RMG0689-A	FLOATING RUBBER	
109	RMG0689-A	FLOATING RUBBER	
110	RMG0689-A	FLOATING RUBBER	
111	RMG0689-A	FLOATING RUBBER	
112	RDGC0499-J	TRV GEAR(A)	
113	RMC0415-1	ADJUST SP. HOLDER(A)	
114	RMC0415-1	ADJUST SP. HOLDER(A)	
115	RMC0415-1	ADJUST SP. HOLDER(A)	
116	RMEC0320	ADJUST SPRING	
117	RMEC0320	ADJUST SPRING	
118	RMEC0320	ADJUST SPRING	
119	RMM0260	TRV DRIVE RACK	
120	RMSC0710	GUIDE SHAFT (1)	
121	RMSC0711	GUIDE SHAFT (2)	
122	REZ1706-1	6P FFC	
124	RDG0500	TRV GEAR(B)	
128	RGQ0280-K4	TRAY	
129	RXQ0748	MECHA CHASSIS UNIT	
130	JSMC0048	MAGNET	
131	RMR1445-K	CLAMP PLATE	
132	RMR1447-X	MAGNET HOLDER	
134	RMR1446-X	CLAMP	
135	K0F111E00093	OPEN SW	
138	RAF3114A-CG	OPU	⚠
139	REZ1616-3	INTERFACE FFC 26P	
143	RQLCA0141	LASER CAUTION LABEL	⚠
145	RMQ1280	FFC FIX PLATE	
B101	XTW3+12SFJ	SCREW	
B102	RHD17045-1	SCREW	
B103	RHD17045-1	SCREW	
B105	VHD1224-1	SCREW	
B106	VHD1224-1	SCREW	
B107	VHD1224-1	SCREW	
B109	RHD14112-J	SCREW	
W101	XWG6FFJ	WASHER	

19.3. CASING PARTS SECTION PARTS LIST

Note:

*All parts except parts mentioned [PAVC-CSG] in the Remarks column are supplied by PAVCSG.

Parts mentioned [PAVC-CSG] are supplied by PAVC-CSG.

Note: 1. *Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark ⚠ have the special characteristics for safety. When replacing any of these components, use only the same type.

Ref. No.	Part No.	Part Name & Description	Remarks
201	VGM2051	TOP PANEL	⚠
202	RMKV0039	CHASSIS FRAME	
203	RMPV0001A	BACK PANEL	
204	RYPV0145	FRONT PANEL U	
206	RKFV0050A	BLINDER PANEL	
207	VMB2521	BLINDER SPRING	
208	REXDV0001	WIRE CABLE (2P)	
210	RMPV0017	FRONT ANGLE	
211	RGKV0114A	TRAY ORNAMENT	
212	VMC1887	EARTH SPRING	
213	RMZV0005	BARRIER (DVD)	
215	RMN0091	SPACER	
216	VMX3277	SPACER	
220	VMX3115	MECHA SPACER (F)	
221	VMX3229	MECHA SPACER (R)	
222	RMXV0026	DVD SPACER (L)	
223	RMXV0027	DVD SPACER (R)	
224	VKA0364	FOOT	
225	VKA0364	FOOT	
226	RMZV0025	BARRIER (FRAME)	
230	RWJV0040	FLAT CARD CABLE (7P)	P2501 - CYLINDER
231	RWJV0039	FLAT CARD CABLE (6P)	P4002 - AC HEAD
238	VMX3402	SPACER	
239	RWJV0045	30P FFC	
B201	VHD1094	SCREW TOP	
B202	VHD1094	SCREW TOP	
B203	VHD0690	SCREW (REAR P)	
B204	VHD0690	SCREW (REAR P)	
B205	RHD26045	SCREW	
B206	RHD26045	SCREW	
B207	RHD26045	SCREW	
B208	RHD26045	SCREW	
B209	XSN3+4FJK	SCREW	
B210	VHD0690	SCREW (REAR P)	
B211	VHD0690	SCREW (REAR P)	
B212	VHD0690	SCREW (REAR P)	
B213	VHD0690	SCREW (REAR P)	
B214	VHD0690	SCREW (REAR P)	
B215	RHD30090	SCREW (PCB)	
B216	RHD30090	SCREW (PCB)	
B217	RHD30090	SCREW (PCB)	
B218	RHD30090	SCREW (PCB)	
B219	RHD30090	SCREW (PCB)	
B220	RHD30111	SCREW	
B222	VHD1770	SCREW (DL1)	
B223	VHD1770	SCREW (DL1)	
B224	VHD1770	SCREW (DL1)	
B225	VHD1770	SCREW (DL1)	
B227	XTV26+5FFJ	SCREW	
B228	XTW3+10PN	SCREW (MECHA)	
B229	VHD1452	SCREW(L)	
B230	VHD1453	SCREW(S)	
B231	VHD1453	SCREW(S)	
B232	VHD1453	SCREW(S)	
B234	RHD26045	SCREW	
B235	RHD26045	SCREW	
B236	RHD26045	SCREW	

19.4. PACKING PARTS SECTION PARTS LIST

Note:

*All parts except parts mentioned [PAVC-CSG] in the Remarks column are supplied by PAVCSG

Parts mentioned [PAVC-CSG] are supplied by PAVC-CSG.

Note: 1. *Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark ⚠ have the special characteristics for safety. When replacing any of these components, use only the same type.

Ref. No.	Part No.	Part Name & Description	Remarks
301	RQTV0115	O/I BOOK (ENG/ARAB)	⚠ NV-VP60GC/GCS
301	RQTV0114	O/I BOOK (ENG)	⚠ NV-VP60GL
302	N2QAYB000006	REMOTE CONTROL	
303	ETR51-52011	BATTERY COVER	
305	K2CQ2CA00006	AC CORD	⚠ NV-VP60GC/GCS
305	K2CJ2DA00008	AC CORD	⚠ NV-VP60GL
306	VJA1124	RF CABLE	
307	K2KA6BA00003	PHONE CABLE	
308	K2CT3CA00004	AC CORD	⚠ NV-VP60GC
310	RPKV0001	ACCESSORY BOX	
311	VPN6084	CUSIHON [L]	
312	VPN6085	CUSHION (R)	
315	RPGV0297	PACKING CASE	NV-VP60GC
315	RPGV0312	PACKING CASE	NV-VP60GCS
315	RPGV0296	PACKING CASE	NV-VP60GL
		SERVICE FIXTURES & TOOLS	
	VFJ8125H3F	VHS ALIGNMENT TAPE (PAL)	[PAVC-CSG]
	VKF0335	RETANING RING REMOVER (3mm/4mm)	[PAVC-CSG]
	VFK0329	POST ADJUSTMENT SCREWDRIVER	[PAVC-CSG]
	VFK0326	HEX WRENCH SET	[PAVC-CSG]
	VFK0132	BACK TENSION METER	[PAVC-CSG]
	VFK27	HEAD CLEANING STICK	[PAVC-CSG]
	VFK1024	MOLYTONE GREASE	[PAVC-CSG]
	VFK0330	FINE ADJUSTMENT GEAR DRIVER	[PAVC-CSG]
	VFK1301	SILICONE GREASE	[PAVC-CSG]
	VFK1298A	FLOIL GREASE	[PAVC-CSG]
	VFK1729	EXTENSION CABLE (13P)	[PAVC-CSG]
	RFKZ0318	FLAT CABLE (30P)	[PAVC-CSG]

19.5. ELECTRICAL PARTS LIST

Note1:

All parts except parts mentioned [PAVC-CSG] in the Remarks column are supplied by PAVCSG.

Parts mentioned [PAVC-CSG] are supplied by PAVC-CSG.

Note2:

"*1","*2","*3" in the Remarks column shows the models as follow.

"*1" : NV-VP60GC-S

"*2" : NV-VP60GCS-S

"*3" : NV-VP60GL-S

Note: 1. Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE: Components identified with the mark △ have the special characteristics for safety. When replacing any of these components, use only the same type.
3. Unless otherwise specified,
All resistors are in OHMS, K=1,000 OHMS. All capacitors are in MICROFARADS (uf), P=uuF.
4. The P.C. Board units marked width "■" show below the main assembled parts.
5. The marking (RTL) indicaters the retention time is limited for this item.
After the discontinuation of this assembly in production, it will no longer be available.

Ref. No.	Part No.	Part Name & Description	Remarks
	VEPV0069C	MAIN C.B.A.	(RTL) *1
	VEPV0069D	MAIN C.B.A.	(RTL) *2
	VEPV0069A	MAIN C.B.A.	(RTL) *3
	VEPV0049A	POWER C.B.A	(RTL)
	VEPV0050A	FRONT JACK C.B.A	(RTL)
	VEPV0059A	FRONT SW C.B.A	(RTL)
	REPV0084B	DVD MODULE C.B.A	(RTL) *1 *3
	REPV0084C	DVD MODULE C.B.A	(RTL) *2
	REP3606A-1C	MOTOR C.B.A.	(RTL)
	VEPV0069C	MAIN C.B.A.	(RTL) *1
	VEPV0069D	MAIN C.B.A.	(RTL) *2
	VEPV0069A	MAIN C.B.A.	(RTL) *3
B7751	CR2354-1GUF	BATTERY	
C1295	ECA1CHJ221B	E-CAP	
C1341	F1H1H103A220	CHIP CAPASITOR	
C1342	ECEA1EKA4R7B	ELECTROLYTIC CAPACITOR	
C1351	F1H1H103A220	CHIP CAPASITOR	
C1352	ECA1AAK470XB	ELECTROLYTIC CAPACITOR	
C1360	ECA0JM221B	E-CAP	
C1362	ECEA1CKA470B	ELECTROLYTIC CAPACITOR	
C1363	F1H1H103A219	CHIP CAPACITOR	
C1370	F2A0J470A013	E-CAP	
C1371	F2A0J101A013	E-CAP	
C1372	ECJ2VB1E104K	CHIP CAPACITOR	
C2001	ECJ1VC1H330J	CHIP CAPACITOR	
C2003	ECJ1VF1A105Z	CHIP CAPACITOR	
C2051	ECEA0JKN220B	E-CAP	
C2053	F2A1C1000018	E-CAP	
C2054	F1H1H392A013	CHIP CAPACITOR	
C2055	F1H1C104A008	CHIP CAPASITOR	
C2099	ECJ1VC1H681J	CHIP CAPACITOR	

Ref. No.	Part No.	Part Name & Description	Remarks
C2501	F1H1C104A008	CHIP CAPASITOR	
C2502	ECEA0JKA221B	ELECTROLYTIC CAPACITOR	
C2504	F1H1E223A002	CHIP CAPACITOR	
C2505	F1H1E223A002	CHIP CAPACITOR	
C2506	ECJ1VB1A224K	CHIP CAPACITOR	
C2507	F1H1H102A219	CHIP CAPASITOR	
C2508	ECJ1VB1H182K	CHIP CAPACITOR	
C2509	ECEA1CKA220B	ELECTROLYTIC CAPACITOR	
C2510	F1H1C104A041	CHIP CAPACITOR	
C2511	F1H1C104A041	CHIP CAPACITOR	
C2512	F1H1C104A041	CHIP CAPACITOR	
C2513	ECJ1VF1A105Z	CHIP CAPACITOR	
C2515	F1H1H103A220	CHIP CAPASITOR	
C2518	F1H1H102A219	CHIP CAPASITOR	
C2519	F1H1H103A220	CHIP CAPASITOR	
C2520	F1H1C104A041	CHIP CAPACITOR	
C2551	ECJ1VB1C563K	CHIP CAPACITOR	
C2552	ECJ1VB1C563K	CHIP CAPACITOR	
C2561	ECJ1VB1C563K	CHIP CAPACITOR	
C2562	ECJ1VB1C563K	CHIP CAPACITOR	
C2571	ECA1CM221B	ELECTROLYTIC CAPACITOR	
C3002	F1H1C104A041	CHIP CAPACITOR	
C3003	F1H1C104A041	CHIP CAPACITOR	
C3004	ECJ1VC1H151J	CHIP CAPACITOR	
C3005	F1H1C104A041	CHIP CAPACITOR	
C3006	F1H0J1050010	CHIP CAPACITOR	
C3007	ECJ1VC1H390J	CHIP CAP	
C3008	F2A1H4R7A014	E-CAP	
C3009	F1H0J1050010	CHIP CAPACITOR	
C3010	F1H0J1050010	CHIP CAPACITOR	
C3011	F2A0J470A013	E-CAP	
C3012	F1H1C104A041	CHIP CAPACITOR	
C3013	F1H1C104A041	CHIP CAPACITOR	
C3015	F1H1C104A041	CHIP CAPACITOR	
C3016	F1H0J1050010	CHIP CAPACITOR	
C3017	F1H1C104A041	CHIP CAPACITOR	
C3019	F1H1C104A041	CHIP CAPACITOR	
C3020	F2A1H3R3A013	E-CAP	
C3021	F2A1C1000018	E-CAP	
C3022	F1H1H103A219	CHIP CAPACITOR	
C3025	ECJ1VC1H331J	CHIP CAPACITOR	
C3027	ECJ2VB1C104K	CHIP CAPACITOR	
C3028	F2A0J470A013	E-CAP	
C3029	F1H1H103A220	CHIP CAPASITOR	
C3030	F1H1H103A220	CHIP CAPASITOR	
C3031	F1H1C104A041	CHIP CAPACITOR	
C3032	F2A0J470A013	E-CAP	
C3033	F1H0J1050010	CHIP CAPACITOR	
C3034	ECJ1VC1H030C	CHIP CAPACITOR	
C3035	F1H1C104A041	CHIP CAPACITOR	
C3036	F2A1H3R3A013	E-CAP	
C3037	F2A1H2R2A013	E-CAP	
C3038	ECJ1VB1H472K	CHIP CAPACITOR	
C3039	F1H1C333A071	CHIP CAPACITOR	
C3040	ECJ1VB1A474K	CHIP CAPACITOR	
C3041	F1H1E223A002	CHIP CAPACITOR	
C3042	F2A1H4R7A014	E-CAP	
C3046	F1H0J1050010	CHIP CAPACITOR	*1,*2
C3047	F1H1C104A008	CHIP CAPASITOR	
C3052	F1H1C104A041	CHIP CAPACITOR	
C3053	F1H1C104A041	CHIP CAPACITOR	
C3062	F2A1C1000018	E-CAP	
C3064	F1H0J1050010	CHIP CAPACITOR	
C3065	F1H1C104A041	CHIP CAPACITOR	
C33001	F1H1H103A220	CHIP CAPASITOR	
C33002	F1H1H220A230	CHIP CAPACITOR	
C33014	ECA0JM221B	E-CAP	
C33501	ECA0JM221B	E-CAP	
C33502	F1H1H103A220	CHIP CAPASITOR	
C33503	F1H1H103A220	CHIP CAPASITOR	
C33504	F1H1H103A219	CHIP CAPACITOR	
C33505	F1H1C104A041	CHIP CAPACITOR	
C33506	F1H1C104A041	CHIP CAPACITOR	

Ref. No.	Part No.	Part Name & Description	Remarks
C33507	F1H0J1050010	CHIP CAPACITOR	
C33508	F1H0J1050010	CHIP CAPACITOR	
C33509	ECA0JM221B	E-CAP	
C33510	ECEA0JKA220B	ELECTROLYTIC CAPACITOR	
C33511	ECA0JM221B	E-CAP	
C33512	ECEA0JKA220B	ELECTROLYTIC CAPACITOR	
C33513	ECA0JM221B	E-CAP	
C33514	ECEA0JKA220B	ELECTROLYTIC CAPACITOR	
C33515	ECA0JM331B	E-CAP	
C33516	F1H1C104A041	CHIP CAPACITOR	
C33517	ECA0JM331B	E-CAP	
C33522	ECEA0JKA220B	ELECTROLYTIC CAPACITOR	
C33531	F1H1H103A219	CHIP CAPACITOR	
C34010	ECA0JM221B	E-CAP	
C34302	ECEA1CKA470B	ELECTROLYTIC CAPACITOR	
C34303	ECEA1CKA470B	ELECTROLYTIC CAPACITOR	
C34305	F1H1H470A230	CHIP CAPACITOR	
C34306	ECJ1VC1H471J	CHIP CAPACITOR	
C34307	F1H1C104A041	CHIP CAPACITOR	
C34308	F1H1H470A230	CHIP CAPACITOR	
C34309	ECJ1VC1H471J	CHIP CAPACITOR	
C34310	ECEA1CKA101B	ELECTROLYTIC CAPACITOR	
C34311	F2A0J470A013	E-CAP	
C34402	F1H1C104A008	CHIP CAPASITOR	
C34405	F1H1H102A219	CHIP CAPASITOR	
C34414	ECEA1CKA470B	ELECTROLYTIC CAPACITOR	
C34415	ECEA1CKA470B	ELECTROLYTIC CAPACITOR	
C34427	F1H1H102A219	CHIP CAPASITOR	
C34701	F2A1H4R7A014	E-CAP	
C34705	ECA1EAK470XB	ELECTROLYTIC CAPACITOR	
C34706	ECA1EAK470XB	ELECTROLYTIC CAPACITOR	
C34707	F1H1C104A041	CHIP CAPACITOR	
C36001	F2A0J470A013	E-CAP	
C36003	F1H1C104A008	CHIP CAPASITOR	
C36004	ECJ1VF1H104Z	CHIP CAPACITOR	
C36005	ECA0JM471B	E-CAP	
C36021	F1H1C104A008	CHIP CAPASITOR	
C36301	F1H1H103A220	CHIP CAPASITOR	
C36302	ECA1AAK470XB	ELECTROLYTIC CAPACITOR	
C36363	F1H1C104A041	CHIP CAPACITOR	
C36364	F2A0J470A013	E-CAP	
C3711	F2A0J101A013	E-CAP	
C3712	F1H1C104A041	CHIP CAPACITOR	
C3713	F1H0J1050010	CHIP CAPACITOR	
C3714	F1H0J1050010	CHIP CAPACITOR	
C3715	ECA0JM471B	E-CAP	
C4010	F2A1C1000018	E-CAP	
C4018	ECEA0JKA220B	ELECTROLYTIC CAPACITOR	
C4041	F2A1H4R7A014	E-CAP	
C4042	F2A1H4R7A014	E-CAP	
C4061	ECJ1VB1H682K	CHIP CAPACITOR	
C4062	ECEA0JKA220B	ELECTROLYTIC CAPACITOR	
C4063	F2A1H3R3A013	E-CAP	
C4064	ECJ1VB1H182K	CHIP CAPACITOR	
C4065	ECJ1VB1H182K	CHIP CAPACITOR	
C4066	F1H1H222A013	CHIP CAPACITOR	
C4081	ECQB1H333JF3	POLYESTER CAPACITOR	
C4082	F1H1H471A219	CHIP CAPACITOR	
C4083	F2A0J470A013	E-CAP	
C4084	ECJ1VB1H182K	CHIP CAPACITOR	
C4085	F1H1C223A001	CHIP CAPACITOR	
C4303	ECEA1HKAR22B	ELECTROLYTIC CAPACITOR	
C4304	ECEA1HKAR22B	ELECTROLYTIC CAPACITOR	
C4502	F2A1C1000018	E-CAP	
C4503	F2A1C1000018	E-CAP	
C4504	F2A1C1000018	E-CAP	
C4505	ECEA0JKA330B	E-CAP	
C4506	F2A1C1000018	E-CAP	
C4507	ECEA0JKA220B	ELECTROLYTIC CAPACITOR	
C4508	F1H1C333A071	CHIP CAPACITOR	
C4509	F1H1H103A220	CHIP CAPASITOR	
C4510	F1H1H103A220	CHIP CAPASITOR	
C4511	F1H1C104A041	CHIP CAPACITOR	

Ref. No.	Part No.	Part Name & Description	Remarks
C4512	ECJ1VB1A224K	CHIP CAPACITOR	
C4513	ECEA0JKA220B	ELECTROLYTIC CAPACITOR	
C4514	F2A1C1000018	E-CAP	
C4515	ECEA0JKA330B	E-CAP	
C4516	F2A1C1000018	E-CAP	
C4517	ECEA0JKA220B	ELECTROLYTIC CAPACITOR	
C4519	F2A1C1000018	E-CAP	
C4520	F2A1C1000018	E-CAP	
C4521	F2A1C1000018	E-CAP	
C4522	ECEA0JKA220B	ELECTROLYTIC CAPACITOR	
C4524	F1H1C104A041	CHIP CAPACITOR	
C4525	ECEA1CKA220B	ELECTROLYTIC CAPACITOR	
C4527	F2A1C1000018	E-CAP	
C4530	ECJ1VC1H151J	CHIP CAPACITOR	
C4531	ECJ1VC1H151J	CHIP CAPACITOR	
C4534	ECQB1H153JF3	POLYPROPYLEN CAPACITOR	
C4535	ECQB1H153JF3	POLYPROPYLEN CAPACITOR	
C4536	F1H1H103A220	CHIP CAPASITOR	
C4537	ECJ2VC1H560G	CHIP CAPACITOR	
C4538	F1H1H103A220	CHIP CAPASITOR	
C4581	ECQB1H473JF3	AXIAL CAPACITOR	
C4582	ECQB1H473JF3	AXIAL CAPACITOR	
C4601	F2A1C1000018	E-CAP	
C4603	F1H1H152A219	CHIP CAPACITOR	
C5001	F1H1H103A219	CHIP CAPACITOR	
C5002	F1H1H103A219	CHIP CAPACITOR	
C5003	F1H1H103A219	CHIP CAPACITOR	
C5004	F1H1H103A219	CHIP CAPACITOR	
C5005	F2A0J101A013	E-CAP	
C5006	F1H1C104A041	CHIP CAPACITOR	
C6001	ECJ1VC1H330J	CHIP CAPACITOR	
C6002	ECJ1VC1H220J	CHIP CAPACITOR	
C6003	ECJ1VC1H220J	CHIP CAPACITOR	
C6004	ECJ1VC1H180J	CHIP CAPACITOR	
C6005	F2A1H3R3A013	E-CAP	
C6006	F1H1H101A230	CHIP CAPACITOR	
C6007	ECJ1VC1H820J	CHIP CAP	
C6008	ECJ1VC1H471J	CHIP CAPACITOR	
C6009	F1H1H103A220	CHIP CAPASITOR	
C6010	F1H1H103A220	CHIP CAPASITOR	
C6011	F1H1H103A220	CHIP CAPASITOR	
C6013	ECJ1VF1A105Z	CHIP CAPACITOR	
C6014	F1H1H102A219	CHIP CAPASITOR	
C6015	F1H1C333A071	CHIP CAPACITOR	
C6016	F1H1H102A219	CHIP CAPASITOR	
C6017	ECJ1VC1H471J	CHIP CAPACITOR	
C6020	F1H1H102A219	CHIP CAPASITOR	
C6021	F1H1H103A220	CHIP CAPASITOR	
C6022	F1J1H1030006	CHIP CAPASITOR	
C6101	F1J1H104A578	CHIP CAPACITOR	
C6102	F1H1H103A220	CHIP CAPASITOR	
C6103	F1H1H103A220	CHIP CAPASITOR	
C6111	F1H1C104A008	CHIP CAPASITOR	
C6112	ECJ1VC1H330J	CHIP CAPACITOR	
C6113	ECJ1VC1H330J	CHIP CAPACITOR	
C6301	F1H1H103A220	CHIP CAPASITOR	
C6302	F1H1H103A220	CHIP CAPASITOR	
C6303	ECA1AAK470XB	ELECTROLYTIC CAPACITOR	
C6308	F2A0J470A013	E-CAP	
C6309	ECEA1AKA470B	ELECTROLYTIC CAPACITOR	
C6310	F1H1H103A220	CHIP CAPASITOR	
C7301	F1H1H103A730	CHIP CAPACITOR	*3
C7303	F2A0J101A013	E-CAP	*3
C7304	F1H1C104A008	CHIP CAPASITOR	*3
C7305	F2A0J101A013	E-CAP	*3
C7312	F2A1C1000018	E-CAP	*3
C7313	F2A1C1000018	E-CAP	*3
C7315	F1H1A4740009	CHIP CAPACITOR	*3
C7316	ECJ1VB1H472K	CHIP CAPACITOR	*3
C7317	ECEA1CKA470B	ELECTROLYTIC CAPACITOR	*3
C7318	F2A1C1000018	E-CAP	*3
C7319	ECJ1VB1H152K	CHIP CAPACITOR	*3
C7320	ECJ1VB1H152K	CHIP CAPACITOR	*3

Ref. No.	Part No.	Part Name & Description	Remarks
C7321	ECJ1VB1H152K	CHIP CAPACITOR	*3
C7324	F1H1H103A219	CHIP CAPACITOR	*3
C7325	F1H1H103A219	CHIP CAPACITOR	*3
C7326	F1H1A4740009	CHIP CAPACITOR	*3
C7327	ECJ1VB1E123K	CHIP CAPACITOR	*3
C7328	ECJ1VC1H681J	CHIP CAPACITOR	*3
C7329	ERJ3GEY0R00V	CHIP JUMPER	*3
C7330	ECJ1VC1H681J	CHIP CAPACITOR	*3
C7331	ECJ1VB1E123K	CHIP CAPACITOR	*3
C7333	F1H1A4740009	CHIP CAPACITOR	*3
C7335	F1H1C104A008	CHIP CAPASITOR	*3
C7336	F1H1C104A041	CHIP CAPACITOR	*3
C7337	F1H1A4740009	CHIP CAPACITOR	*3
C7338	F1H1A4740009	CHIP CAPACITOR	*3
C7552	F1H1C104A008	CHIP CAPASITOR	
C7601	ECEA1HKA010B	ELECTROLYTIC CAPACITOR	
C7603	F1H1H103A220	CHIP CAPASITOR	
C7605	F2A0J470A013	E-CAP	
C7608	F1H1H103A220	CHIP CAPASITOR	
C7610	F1H1H102A219	CHIP CAPASITOR	
C7622	F1H1H471A219	CHIP CAPACITOR	
C7625	F2A1C1000018	E-CAP	*1,*2
C7709	ECJ1VB1H182K	CHIP CAPACITOR	
C7714	F1H1H101A230	CHIP CAPACITOR	*1,*2
C7752	ECEA0JKA331Q	ELECTROLYTIC CAPACITOR	
D1241	B0EAKP000012	DIODE	
D1242	B0EAKM000117	RECTIFIER	
D1243	MA2C165001VT	DIODE	
D1291	B0EAKM000117	RECTIFIER	
D1292	B0EAKM000117	RECTIFIER	
D1293	B0EAKP000012	DIODE	
D1341	MAZ4130NLF	DIODE	
D1351	MAZ4056NHF	DIODE	
D1360	MAZ4056NHF	DIODE	
D1370	MAZ40390MF	DIODE	
D1501	B3EA00000072	PHOTO DIODE	
D2001	MA2C165001VT	DIODE	
D2002	MA2C165001VT	DIODE	
D2502	B0EAKM000117	RECTIFIER	
D2503	MAZ4160NMF	DIODE	
D33001	MAZ4056NHF	DIODE	
D36301	MAZ4051NMF	DIODE	
D36365	MAZ40390MF	DIODE	
D4501	MA2C165001VT	DIODE	
D6302	MA2C165001VT	DIODE	
D6305	MAZ4062NHF	ZENER	
D6306	MAZ4056NHF	DIODE	
D6307	MAZ4056NHF	DIODE	
D7602	MAZ4300NMF	DIODE	
D7751	MA2C165001VT	DIODE	
D7752	MA2C700A0F	DIODE	
D7753	MA2C165001VT	DIODE	
D7754	MA2C165001VT	DIODE	
DP37501	B3CZS0000004	LED DISPLAY	
IC1290	C0CBCHG00005	IC	
IC1511	B3NAA0000049	REEL SENSOR	
IC1512	B3NAA0000049	REEL SENSOR	
IC2501	C1AB00001767	CYL DRIVE IC	
IC3001	C1AB00002084	AV IC	
IC33501	AN13330A-VF	75 OHM DRIVER IC	
IC34301	C0ABBB000230	IC	
IC36001	MN101C77CDB1	MICRO PROCESSOR	
IC36002	C0EBE0000198	RESET IC	
IC3701	C1AB00001935	VIDEO IC	
IC4501	AN3656NFBPBV	HI FI IC	
IC6001	C2CBYY000060	FL MICRO P	*1,*2
IC6001	C2CBYY000036	FL MICRO P	*3
IC6201	C0EBH0000172	RESET IC	
IC6301	C0CBCDC00020	POWER SUPPLY IC	
IC7301	C0ZBZ0001081	IC	*3

Ref. No.	Part No.	Part Name & Description	Remarks
IC7552	PNA4618M09VT	IR RECEIVER	
J1	VEE0X50	EARTH WIRE	
JK33001	K2HA306B0071	I/O JACK	
JK34301	K2HA608B0011	RCA JACK	
JK34302	K1CB105B0041	S-JACK	
K3004	ERJ3GEY0R00V	CHIP JUMPER	
K36001	ERJ3GEY0R00V	CHIP JUMPER	
K36004	ERJ3GEY0R00V	CHIP JUMPER	
K36005	ERJ3GEY0R00V	CHIP JUMPER	
K36006	ERJ3GEY0R00V	CHIP JUMPER	
K36007	ERJ3GEY0R00V	CHIP JUMPER	
K4591	ERJ3GEY0R00V	CHIP JUMPER	*1,*2
K4592	ERJ3GEY0R00V	CHIP JUMPER	*1,*2
K6012	ERJ3GEY0R00V	CHIP JUMPER	*3
K6015	F1H1H103A220	CHIP CAPASITOR	
K7302	ERJ3GEY0R00V	CHIP JUMPER	*3
K7306	ERJ3GEY0R00V	CHIP JUMPER	*3
K7616	ERJ3GEY0R00V	CHIP JUMPER	
K7619	ERJ3GEY0R00V	CHIP JUMPER	
K7621	ERJ3GEY0R00V	CHIP JUMPER	
K7626	ERJ3GEY0R00V	CHIP JUMPER	
L3001	G0C271JA0019	CHOKE COIL	
L3004	G1C120JA0036	CHIP COIL	
L3301	G0C270JA0019	COIL	
L3302	G0C680JA0019	COIL	
L3303	G0C270JA0019	COIL	
L33501	G0C220JA0019	COIL	
L34001	G0C101JA0019	RF CHOKE COIL	
L34701	G0C220JA0019	COIL	
L36000	G0C330JA0052	COIL	
L4081	G0C471KA0065	COIL	
L4501	G0C1R2J00004	COIL	
L4502	G0C391JA0019	COIL	
L5001	G0C680JA0019	COIL	
L6001	G0C5R6JA0019	COIL	
L7601	G0C100JA0052	INDUCTOR	
L7608	G0C270JA0052	COIL	
L7702	G0C100JA0019	COIL	
LB33001	J0JCC0000188	CHIP COIL	
LB33002	J0JBC0000015	CHIP INDUCTOR	
LB33003	J0JBC0000015	CHIP INDUCTOR	
LB33004	J0JBC0000015	CHIP INDUCTOR	
LB33010	J0JCC0000188	CHIP COIL	
LB33011	J0JCC0000188	CHIP COIL	
LB33012	J0JCC0000188	CHIP COIL	
LB33013	J0JCC0000188	CHIP COIL	
LB34701	J0JBC0000011	CHIP COIL	
LB4403	ERJ6GEY0R00V	CHIP JUMPER	
LB4404	ERJ6GEY0R00V	CHIP JUMPER	
LB4405	ERJ6GEY0R00V	CHIP JUMPER	
LB4406	ERJ6GEY0R00V	CHIP JUMPER	
LB7601	J0JBC0000015	CHIP INDUCTOR	
LB7602	ERJ3GEY0R00V	CHIP JUMPER	
P1531	K1KA02A00375	LOADING MOTOR WIRE CONNECTOR	
P2501	K1MN07A00017	7 PIN CONNECTOR	
P2571	K1KA08A00290	CONNECTOR	
P31001	K1KB13AA0032	CONNECTOR	
P34301	K1MN30AA0004	CONNECTOR	
P37501	K1YF06000002	6P WIRE HOLDER	
P4001	K1MZ02A00003	CONNECTOR	
P4002	K1MN06A00030	6 PIN CONNECTOR	
P5001	K1MN09A00029	9 PIN CONNECTOR	
PP6101	K1KA02AA0193	2P CONNECTOR	
PS33001	K1KB08A00046	BOAD IN CONNECTOR	
PS7502	K1KB06A00051	ANT TERMINAL	

Ref. No.	Part No.	Part Name & Description	Remarks
Q1240	B1BCCG000002	TRANSISTOR	
Q1241	2SD0601A0L	CHIP TRANSISTOR	
Q1242	2SD0601A0L	CHIP TRANSISTOR	
Q1341	B1AAGD000017	TRANSISTOR	
Q1342	2SD0601A0L	CHIP TRANSISTOR	
Q1351	B1AAGD000017	TRANSISTOR	
Q1352	B1AAGD000017	TRANSISTOR	
Q1354	B1AAGD000017	TRANSISTOR	
Q1360	B1AAGD000017	TRANSISTOR	
Q1371	2SD199600A	TRANSISTOR	
Q1501	PNA2604M01VT	PHOTO TRANSISTOR	
Q1502	PNA2604M01VT	PHOTO TRANSISTOR	
Q3001	2SD1819A0L	CHIP TRANSISTOR	
Q3003	2SD1819A0L	CHIP TRANSISTOR	
Q33001	B1AAGD000017	TRANSISTOR	
Q34701	2SC22950BL	TRANSISTOR	
Q36330	2SD199600A	TRANSISTOR	
Q36360	2SD0601A0L	CHIP TRANSISTOR	
Q4082	2SD114900L	CHIP TRANSISTOR	
Q4083	2SD0601A0L	CHIP TRANSISTOR	
Q4084	2SB0710A0L	CHIP TRANSISTOR SI 220MH 0.4W	
Q4085	2SD1992A0A	TRANSISTOR	
Q6305	2SD0601A0L	CHIP TRANSISTOR	
Q6306	2SD0601A0L	CHIP TRANSISTOR	
Q6307	B1AAGD000017	TRANSISTOR	
Q7601	2SB0709A0L	TRANSISTOR	
Q7701	2SB0709A0L	TRANSISTOR	*1,*2
QR1342	B1GDCFLL0027	DIGITAL TRANSISTOR	
QR3001	B1GBCFNN0016	DIGITAL TRANSISTOR	
QR34302	B1GBCFJA0020	DIGITAL TRANSISTOR	
QR34303	B1GBCFJJ0045	DIGITAL TRANSISTOR	
QR34304	B1GDBEJJ0002	DIGITAL TRANSISTOR	
QR34410	B1GBCFJA0020	DIGITAL TRANSISTOR	
QR34419	B1GBCFJA0020	DIGITAL TRANSISTOR	
QR36001	B1GBCFLL0032	DIGITAL TRANSISTOR	
QR36002	B1GBCFLL0032	DIGITAL TRANSISTOR	
QR36007	B1GBCFJJ0025	DIGITAL TRANSISTOR	
QR36008	B1GBCFJJ0025	DIGITAL TRANSISTOR	
QR4061	B1GBCFJJ0044	DIGITAL TRANSISTOR	
QR4081	B1GDBEJJ0002	DIGITAL TRANSISTOR	
QR4082	B1GBCFNN0016	DIGITAL TRANSISTOR	
QR4401	B1GBCFGA0019	DIGITAL TRANSISTOR	
QR4404	B1GDBFNN0001	DIGITAL TRANSISTOR	
QR4405	B1GBCFGA0019	DIGITAL TRANSISTOR	
QR4406	B1GBCFGA0019	DIGITAL TRANSISTOR	
QR4651	B1GBCFGA0019	DIGITAL TRANSISTOR	
R1240	ERJ6GEYJ392V	CHIP RESISTOR	
R1241	D0GB152JA007	CHIP RESISTOR	
R1242	ERJ6GEYJ121V	CHIP RESISTOR	
R1341	D0AE103JA048	CARBON RESISTOR	
R1342	D0GB104JA007	CHIP RESISTOR	
R1351	D0AE471JA048	CARBON RESISTOR	
R1360	D0AE471JA048	CARBON RESISTOR	
R1371	ERJ3GEY0R00V	CHIP JUMPER	
R1372	D0GB101JA007	CHIP RESISTOR	
R1501	D0GB273JA007	CHIP RESISTOR	
R1502	D0GB273JA007	CHIP RESISTOR	
R1503	D0AE151JA048	CARBON RESISTOR	
R1511	D0GB273JA007	CHIP RESISTOR	
R1512	D0GB273JA007	CHIP RESISTOR	
R1513	ERJ6GEYJ121V	CHIP RESISTOR	
R2001	D0GB392JA007	CHIP RESISTOR	
R2002	D0GB105JA007	CHIP RESISTOR	
R2099	ERJ3GEYJ682V	CHIP RESISTOR	
R2501	ERJ6GEYJ1R2V	CHIP RESISTOR	
R2503	ERJ6GEYJ1R5V	CHIP RESISTOR	
R2514	D0GB221JA007	CHIP RESISTOR	
R2515	D0GB221JA007	CHIP RESISTOR	
R2516	D0GB221JA007	CHIP RESISTOR	
R2519	ERJ6GEYJ822V	CHIP RESISTOR	

Ref. No.	Part No.	Part Name & Description	Remarks
R2520	D0GB183JA007	CHIP RESISTOR	
R2521	D0GB102JA007	SMT CHIP RESISTOR	
R2522	D0GB101JA007	CHIP RESISTOR	
R2523	D0GB101JA007	CHIP RESISTOR	
R2551	D0GB103JA007	SMT CHIP RESISTOR	
R2552	D0GB103JA007	SMT CHIP RESISTOR	
R2561	D0GB102JA007	SMT CHIP RESISTOR	
R2562	D0GB473JA041	CHIP RESISTOR	
R2563	D0GB102JA007	SMT CHIP RESISTOR	
R3001	ERJ3GEYJ622V	CHIP RESISTOR	
R3002	D0GB822JA007	THICK FILM CHIP RESISTOR	
R3003	D0GB152JA007	CHIP RESISTOR	
R3004	ERJ3GEYJ682V	CHIP RESISTOR	
R3005	D0GB472JA007	SMT CHIP RESISTOR	
R3011	D0GB332JA007	CHIP RESISTOR	
R3012	ERJ3GEYJ681V	CHIP RESISTOR	
R3013	D0GB273JA007	CHIP RESISTOR	
R3018	D0GB153JA007	CHIP RESISTOR	
R3020	D0GB152JA007	CHIP RESISTOR	
R3021	D0GB331JA007	CHIP RESISTOR	
R3024	D0GB102JA007	SMT CHIP RESISTOR	
R3032	ERJ3GEYJ685V	CHIP RESISTOR	
R3033	D0GB335JA040	CHIP RESISTOR	
R3038	D0GB222JA041	CHIP RESISTOR	*3
R3042	D0GB473JA041	CHIP RESISTOR	
R3043	D0AE221JA048	CARBON RESISTOR	
R3044	D0AE221JA048	CARBON RESISTOR	
R33001	D0AE271JA048	CARBON RESISTOR	
R33004	D0GB221JA007	CHIP RESISTOR	
R33005	D0GB221JA007	CHIP RESISTOR	
R33371	ERJ3GEYJ750V	CHIP RESISTOR	
R33372	ERJ3GEYJ750V	CHIP RESISTOR	
R33373	ERJ3GEYJ750V	CHIP RESISTOR	
R33375	ERJ3GEYJ750V	CHIP RESISTOR	
R33376	ERJ3GEYJ750V	CHIP RESISTOR	
R33501	ERJ3GEYJ103V	CHIP RESISTOR	
R33502	ERJ3GEYJ103V	CHIP RESISTOR	
R33511	D0GB103JA007	SMT CHIP RESISTOR	
R34301	ERJ3GEYJ113V	CHIP RESISTOR	
R34302	D0GB123JA007	CHIP RESISTOR	
R34303	ERJ3GEYJ113V	CHIP RESISTOR	
R34304	D0GB123JA007	CHIP RESISTOR	
R34305	ERJ3GEYJ622V	CHIP RESISTOR	
R34307	ERJ3GEYJ622V	CHIP RESISTOR	
R34309	D0GB103JA007	SMT CHIP RESISTOR	
R34310	D0GB103JA007	SMT CHIP RESISTOR	
R34371	D0HB221ZA002	CHIP RESISTOR	
R34372	D0HB221ZA002	CHIP RESISTOR	
R34403	D0GB102JA007	SMT CHIP RESISTOR	
R34422	D0GB473JA041	CHIP RESISTOR	
R34423	D0GB473JA041	CHIP RESISTOR	
R34428	D0HB821ZA002	CHIP RESISTOR	
R34429	D0HB821ZA002	CHIP RESISTOR	
R34701	D0GB102JA007	SMT CHIP RESISTOR	
R34702	D0GB103JA007	SMT CHIP RESISTOR	
R34703	ERJ3GEYJ750V	CHIP RESISTOR	
R34704	D0GB221JA007	CHIP RESISTOR	
R34705	D0GB102JA007	SMT CHIP RESISTOR	
R34706	D0GB102JA007	SMT CHIP RESISTOR	
R36001	D0GB333JA007	CHIP RESISTOR	
R36002	D0GB183JA007	CHIP RESISTOR	
R36003	ERJ3GEY0R00V	CHIP JUMPER	
R36004	ERJ3GEY0R00V	CHIP JUMPER	
R36005	ERJ3GEY0R00V	CHIP JUMPER	
R36011	D0GB222JA007	SMT CHIP RESISTOR	
R36014	D0GB222JA007	SMT CHIP RESISTOR	
R36017	D0GB222JA007	SMT CHIP RESISTOR	
R36021	D0GB303JA007	CHIP RESISTOR	
R36022	D0GB473JA041	CHIP RESISTOR	
R36023	D0GB103JA007	SMT CHIP RESISTOR	
R36024	D0GB103JA007	SMT CHIP RESISTOR	
R36057	D0GB473JA041	CHIP RESISTOR	
R36058	D0GB473JA041	CHIP RESISTOR	

Ref. No.	Part No.	Part Name & Description	Remarks
R36059	D0GB103JA007	SMT CHIP RESISTOR	
R36061	D0GB153JA007	CHIP RESISTOR	
R36074	D0GB103JA007	SMT CHIP RESISTOR	
R36075	D0GB103JA007	SMT CHIP RESISTOR	
R36307	ERJ3GEYJ272V	CHIP RESISTOR	
R36360	D0GB391JA041	CHIP RESISTOR	
R3703	D0GB105JA007	CHIP RESISTOR	
R3705	ERJ3GEYJ511V	CHIP RESISTOR	
R3706	ERJ3GEYJ103V	CHIP RESISTOR	
R3711	ERJ3GEYJ620V	CHIP RESISTOR	
R3712	ERJ3GEYJ750V	CHIP RESISTOR	
R4002	D0GB103JA007	SMT CHIP RESISTOR	
R4011	D0GB472JA007	SMT CHIP RESISTOR	
R4012	D0GB153JA007	CHIP RESISTOR	
R4015	D0GB203JA007	CHIP RESISTOR	
R4016	D0GB473JA041	CHIP RESISTOR	
R4017	D0GB563JA007	CHIP RESISTOR	
R4061	D0GB474JA041	CHIP RESISTOR	
R4062	D0GB153JA007	CHIP RESISTOR	
R4063	D0GB331JA007	CHIP RESISTOR	
R4071	D0GB153JA007	CHIP RESISTOR	
R4081	D0GB103JA007	SMT CHIP RESISTOR	
R4082	D0GB332JA007	CHIP RESISTOR	
R4084	D0GB102JA007	SMT CHIP RESISTOR	
R4085	D0GB102JA007	SMT CHIP RESISTOR	
R4086	D0GB222JA007	SMT CHIP RESISTOR	
R4087	D0GB222JA007	SMT CHIP RESISTOR	
R4088	ERJ6GEY0R00V	CHIP JUMPER	
R4301	D0GB683JA007	CHIP RESISTOR	
R4302	D0GB683JA007	CHIP RESISTOR	
R4303	D0GB472JA007	SMT CHIP RESISTOR	
R4304	D0GB472JA007	SMT CHIP RESISTOR	
R4403	D0GB471JA007	SMT CHIP RESISTOR	
R4404	D0GB471JA007	SMT CHIP RESISTOR	
R4405	ERJ3GEY0R00V	CHIP JUMPER	
R4406	ERJ3GEY0R00V	CHIP JUMPER	
R4424	D0GB471JA007	SMT CHIP RESISTOR	
R4425	D0GB471JA007	SMT CHIP RESISTOR	
R4500	D0GB102JA007	SMT CHIP RESISTOR	
R4501	ERJ3GEYJ513V	CHIP RESISTOR	
R4502	ERJ3GEYJ513V	CHIP RESISTOR	
R4503	ERJ3GEYJ513V	CHIP RESISTOR	
R4505	D0GB392JA007	CHIP RESISTOR	
R4506	D0GB392JA007	CHIP RESISTOR	
R4507	ERJ3GEYJ513V	CHIP RESISTOR	
R4508	D0GB392JA007	CHIP RESISTOR	
R4509	ERJ3GEYJ513V	CHIP RESISTOR	
R4510	D0GB392JA007	CHIP RESISTOR	
R4511	ERJ3GEYJ513V	CHIP RESISTOR	
R4512	D0GB392JA007	CHIP RESISTOR	
R4513	D0GB222JA007	SMT CHIP RESISTOR	
R4515	D0GB392JA007	CHIP RESISTOR	
R4525	D0GB102JA007	SMT CHIP RESISTOR	
R4527	ERJ3GEYJ681V	CHIP RESISTOR	
R4530	D0GB472JA007	SMT CHIP RESISTOR	
R4532	D0GB472JA007	SMT CHIP RESISTOR	
R4534	D0GB124JA007	CHIP RESISTOR	
R4538	D0GB333JA007	CHIP RESISTOR	
R4539	D0GB331JA007	CHIP RESISTOR	
R4540	D0GB331JA007	CHIP RESISTOR	
R4581	D0GB333JA007	CHIP RESISTOR	
R4582	D0GB333JA007	CHIP RESISTOR	
R4583	D0GB563JA007	CHIP RESISTOR	
R4584	D0GB563JA007	CHIP RESISTOR	
R4585	ERJ3GEYJ511V	CHIP RESISTOR	
R4586	ERJ3GEYJ511V	CHIP RESISTOR	
R4601	D0GB393JA007	CHIP RESISTOR	
R4602	ERJ3GEYJ682V	CHIP RESISTOR	
R4651	ERJ3GEYJ681V	CHIP RESISTOR	
R6001	D0GB102JA007	SMT CHIP RESISTOR	
R6002	D0GB222JA007	SMT CHIP RESISTOR	
R6003	ERJ3GEY0R00V	CHIP JUMPER	
R6004	D0GB221JA007	CHIP RESISTOR	

Ref. No.	Part No.	Part Name & Description	Remarks
R6005	D0GB103JA007	SMT CHIP RESISTOR	
R6006	D0GB183JA007	CHIP RESISTOR	
R6007	D0GB183JA007	CHIP RESISTOR	
R6009	D0GB103JA007	SMT CHIP RESISTOR	
R6010	D0GB103JA007	SMT CHIP RESISTOR	
R6011	D0GB183JA007	CHIP RESISTOR	
R6012	D0GB561JA007	CHIP RESISTOR	
R6013	D0GB105JA007	CHIP RESISTOR	
R6015	ERJ3GEY0R00V	CHIP JUMPER	
R6016	ERJ3GEYG103V	CHIP RESISTOR	
R6017	D0GB222JA007	SMT CHIP RESISTOR	
R6019	D0GB103JA007	SMT CHIP RESISTOR	*2
R6019	ERJ3GEYJ103V	CHIP RESISTOR	*3
R6020	D0GB183JA007	CHIP RESISTOR	
R6021	D0GB183JA007	CHIP RESISTOR	
R6022	D0GB102JA007	SMT CHIP RESISTOR	
R6023	ERJ3GEYJ103V	CHIP RESISTOR	*1
R6028	D0GB103JA007	SMT CHIP RESISTOR	
R6029	D0GB103JA007	SMT CHIP RESISTOR	
R6031	D0GB471JA007	SMT CHIP RESISTOR	
R6032	D0GB471JA007	SMT CHIP RESISTOR	
R6102	D0GB222JA007	SMT CHIP RESISTOR	
R6104	D0GB221JA007	CHIP RESISTOR	
R6105	D0GB221JA007	CHIP RESISTOR	
R6106	D0GB221JA007	CHIP RESISTOR	
R6107	D0GB221JA007	CHIP RESISTOR	
R6201	D0GB332JA007	CHIP RESISTOR	
R6307	ERJ6GEYJ472V	CHIP RESISTOR	
R6309	ERDS2TJ821T	CARBON RESISTOR	
R6310	D0GB182JA007	CHIP RESISTOR	
R6400	D0GB101JA007	CHIP RESISTOR	
R6401	D0GB101JA007	CHIP RESISTOR	
R7305	D0GB101JA007	CHIP RESISTOR	*3
R7306	D0GB392JA007	CHIP RESISTOR	*3
R7307	D0GB472JA007	SMT CHIP RESISTOR	*3
R7308	D0GB752JA007	CHIP RESISTOR	*3
R7310	D0GB221JA041	CHIP RESISTOR	*3
R7312	ERJ3GEYG682V	CHIP RESISTOR	*3
R7313	ERJ3GEYG682V	CHIP RESISTOR	*3
R7314	ERJ3GEYG682V	CHIP RESISTOR	*3
R7315	ERJ3GEYG432V	CHIP RESISTOR	*3
R7316	ERJ3GEYG332V	CHIP RESISTOR	*3
R7317	ERJ3GEYG432V	CHIP RESISTOR	*3
R7318	ERJ3GEYG332V	CHIP RESISTOR	*3
R7319	ERJ3GEYG432V	CHIP RESISTOR	*3
R7320	ERJ3GEYG332V	CHIP RESISTOR	*3
R7321	D0GB562JA007	CHIP RESISTOR	*3
R7323	ERJ3GEYJ912V	CHIP RESISTOR	*3
R7324	D0GB101JA007	CHIP RESISTOR	*3
R7325	D0GB101JA007	CHIP RESISTOR	*3
R7552	D0GB221JA007	CHIP RESISTOR	
R7571	D0GB273JA007	CHIP RESISTOR	
R7601	ERDS2TJ102T	CARBON RESISTOR	
R7606	J0JCC0000124	CHIP COIL	
R7607	J0JCC0000124	CHIP COIL	
R7612	ERJ3GEY0R00V	CHIP JUMPER	
R7613	ERJ3GEY0R00V	CHIP JUMPER	
R7614	ERJ3GEYJ681V	CHIP RESISTOR	
R7615	ERJ3GEY0R00V	CHIP JUMPER	
R7616	ERJ3GEY0R00V	CHIP JUMPER	
R7617	ERJ3GEY0R00V	CHIP JUMPER	
R7706	D0GB101JA007	CHIP RESISTOR	*1,*2
R7707	D0GB102JA007	SMT CHIP RESISTOR	*1,*2
R7751	D0GB102JA007	SMT CHIP RESISTOR	
S1531	K0C111A00006	TAB SWITCH	
S1532	K0ZZ00000598	MODE SWITCH	
T4081	G2A472C00003	VARIABLE COILS	
TU7601	ENG57D04G1F	TUNER PACK	*1,*2
TU7601	ENG57D03G1F	TUNER PACK	*3

Ref. No.	Part No.	Part Name & Description	Remarks
W700	ERJ3GEY0R00V	CHIP JUMPER	
W701	ERJ3GEY0R00V	CHIP JUMPER	
W702	ERJ3GEY0R00V	CHIP JUMPER	
W703	ERJ3GEY0R00V	CHIP JUMPER	
W704	ERJ3GEY0R00V	CHIP JUMPER	
W705	ERJ3GEY0R00V	CHIP JUMPER	
W706	ERJ3GEY0R00V	CHIP JUMPER	
W707	ERJ3GEY0R00V	CHIP JUMPER	
W708	ERJ3GEY0R00V	CHIP JUMPER	
W709	ERJ3GEY0R00V	CHIP JUMPER	
W710	ERJ3GEY0R00V	CHIP JUMPER	
W711	ERJ3GEY0R00V	CHIP JUMPER	
W712	ERJ3GEY0R00V	CHIP JUMPER	
W713	ERJ3GEY0R00V	CHIP JUMPER	
W714	ERJ3GEY0R00V	CHIP JUMPER	
W715	ERJ3GEY0R00V	CHIP JUMPER	
W716	ERJ3GEY0R00V	CHIP JUMPER	
W717	ERJ3GEY0R00V	CHIP JUMPER	
W718	ERJ3GEY0R00V	CHIP JUMPER	
W719	ERJ3GEY0R00V	CHIP JUMPER	
W720	ERJ3GEY0R00V	CHIP JUMPER	
W721	ERJ3GEY0R00V	CHIP JUMPER	
W722	ERJ3GEY0R00V	CHIP JUMPER	
W723	ERJ3GEY0R00V	CHIP JUMPER	
W724	ERJ3GEY0R00V	CHIP JUMPER	
W725	ERJ3GEY0R00V	CHIP JUMPER	
W726	ERJ3GEY0R00V	CHIP JUMPER	
W727	ERJ3GEY0R00V	CHIP JUMPER	
W728	ERJ3GEY0R00V	CHIP JUMPER	
W729	ERJ3GEY0R00V	CHIP JUMPER	
W730	ERJ3GEY0R00V	CHIP JUMPER	
W731	ERJ3GEY0R00V	CHIP JUMPER	
W732	ERJ3GEY0R00V	CHIP JUMPER	
W733	ERJ3GEY0R00V	CHIP JUMPER	
W734	ERJ3GEY0R00V	CHIP JUMPER	
W735	ERJ3GEY0R00V	CHIP JUMPER	
W736	ERJ3GEY0R00V	CHIP JUMPER	
W737	ERJ3GEY0R00V	CHIP JUMPER	
W738	ERJ3GEY0R00V	CHIP JUMPER	
W739	ERJ3GEY0R00V	CHIP JUMPER	
W740	ERJ3GEY0R00V	CHIP JUMPER	
W741	ERJ3GEY0R00V	CHIP JUMPER	
W742	ERJ3GEY0R00V	CHIP JUMPER	
W743	ERJ3GEY0R00V	CHIP JUMPER	
W744	ERJ3GEY0R00V	CHIP JUMPER	
W745	ERJ3GEY0R00V	CHIP JUMPER	
W746	ERJ3GEY0R00V	CHIP JUMPER	
W747	ERJ3GEY0R00V	CHIP JUMPER	
W748	ERJ3GEY0R00V	CHIP JUMPER	
W750	ERJ3GEY0R00V	CHIP JUMPER	
W752	ERJ3GEY0R00V	CHIP JUMPER	
W753	ERJ3GEY0R00V	CHIP JUMPER	
W755	ERJ3GEY0R00V	CHIP JUMPER	
W757	ERJ3GEY0R00V	CHIP JUMPER	
W758	ERJ3GEY0R00V	CHIP JUMPER	
W759	ERJ3GEY0R00V	CHIP JUMPER	
W760	ERJ3GEY0R00V	CHIP JUMPER	
W761	ERJ3GEY0R00V	CHIP JUMPER	
W762	ERJ3GEY0R00V	CHIP JUMPER	
X3001	H0D357400067	CRYSTAL OSCILLATOR	
X3002	H0D443400040	CRYSTAL OSCILLATOR	
X36001	H2B800400007	CRYSTAL OSCILLATOR	
X6001	H0D120500021	CRYSTAL OSCILLATOR	
X6002	H0A327200098	CRYSTAL OSCILLATOR	
X7301	H0H400400006	CRYSTAL OSCILLATOR	*3
	MISCELLANEOUS		
	VMD4258	PHOTO TRANSISTOR HOLDER	
	VMD4258	PHOTO TRANSISTOR HOLDER	
	VEPV0049A	POWER C.B.A	(RTL)

Ref. No.	Part No.	Part Name & Description	Remarks
C1105	F1B3A471A009	CERAMIC CAPACITOR	
C1106	F1B3A471A009	CERAMIC CAPACITOR	
C1120	ECQU2A104MLC	FILM CAPACITOR	⚠
C1122	F1BAF101A013	CERAMIC CAPACITOR	⚠
C1123	F1BAF101A013	CERAMIC CAPACITOR	⚠
C1124	F1BAF1020020	CERAMIC CAPACITOR	⚠
C1125	ECQU2A104MLC	FILM CAPACITOR	⚠
C1126	F1BAF101A013	CERAMIC CAPACITOR	⚠
C1142	F2B2G3300002	E-CAP	
C1151	ECQP6472JUB	FILM CAPACITOR	
C1152	F1H1H104A783	CHIP CAPACITOR	
C1153	F1H1A105A036	CHIP CAPACITOR	
C1154	ECJ1VC1H102J	CHIP CAPACITOR	
C1155	F2A1V3300027	E-CAP	
C1200	ECJ1VC1H681J	CHIP CAPACITOR	
C1201	F1H1A4740009	CHIP CAPACITOR	
C1202	F1H1C105A097	CERAMIC CONDENSER	
C1230	F2A1H2200032	E-CAP	
C1240	F2A1A1020056	E-CAP	
C1241	F2A1A2210063	E-CAP	
C1250	F2A1E8210009	E-CAP	
C1251	F2A1E1010067	E-CAP	
C1260	F2A1A1220007	E-CAP	
C1261	ECA1AHJ331B	E-CAP	
C1263	F1J2A102A023	CONDENSER	
C1280	F2A1A2210063	E-CAP	
D1110	ERZVA5V471	ZNR	⚠
D1140	B0KB00000054	FULL BRIDGE DIODE	
D1151	B0HAMP000073	POWER DIODE	
D1152	B0JAMK000015	DIODE	
D1153	B0BA02300005	DIODE	
D1180	MAZ751000C	DIODE	
D1230	MA2C18500E	DIODE	
D1240	B0JAME000025	HIGH SPEED DIODE	
D1241	B0JAME000025	HIGH SPEED DIODE	
D1250	B0JAMK000015	DIODE	
D1251	B0JAMK000015	DIODE	
D1260	B0JAPG000019	SHOTKEY DIODE	
D1280	B0JAME000025	HIGH SPEED DIODE	
F1101	K5D162BLA013	FUSE	⚠
IC1150	C0DABYY00003	SWITCHING IC	
IC1200	C0DAEMB00003	IC	
IP1240	K5G252A00020	FUSE PROTECTOR	⚠
IP1280	K5G102A00039	FUSE PROTECTOR	⚠
L1120	ELF18N005A	LINE FILTER	⚠
L1240	G0A220GA0026	COIL	
L1250	G0A220GA0026	COIL	
L1260	G0A220GA0026	COIL	
P1101	K2AA2B000015	AC INLET	⚠
P1103	K1KA13A00074	CONNECTOR	
Q1200	B3PBA0000402	PHOTO COUPLER	⚠
R1120	ERDS2FJ105T	CARBON RESISTOR	
R1121	ERDS2FJ105T	CARBON RESISTOR	
R1151	ERG2SJ104E	RESISTOR	
R1152	ERJ6GEYJ102V	CHIP RESISTOR	
R1153	ERX1SZGR47E	RESISTOR	
R1154	ERJ6ENF10R0V	CHIP RESISTOR	
R1200	ERJ6GEYG123V	CHIP RESISTOR	
R1201	ERJ6GEYG184V	CHIP RESISTOR	
R1202	ERJ6GEYG222V	CHIP RESISTOR	
R1203	ERJ6GEYG153V	CHIP RESISTOR	
R1204	ERJ6GEYJ123V	CHIP RESISTOR	
R1205	ERJ6GEYJ152V	CHIP RESISTOR	
R1206	ERJ6GEYJ681V	CHIP RESISTOR	

Ref. No.	Part No.	Part Name & Description	Remarks
R1207	ERJ6GEYG123V	CHIP RESISTOR	
R1208	ERJ6GEYG154V	CHIP RESISTOR	
R1230	D0GB473JA041	CHIP RESISTOR	
R1240	D0GB102JA007	SMT CHIP RESISTOR	
R1250	D0GB822JA007	THICK FILM CHIP RESISTOR	
R1251	ERDS1FVJ681T	1/2W RESISTOR	
R1280	ERDS2TJ621T	CARBON FILM RESISTOR	
R7581	D0GB182JA007	CHIP RESISTOR	
R7582	D0GB332JA007	CHIP RESISTOR	
R7583	D0GB472JA007	SMT CHIP RESISTOR	
S7581	EVQ11L07B	TACK SWITCH	
S7582	EVQ11L07B	TACK SWITCH	
S7583	EVQ11L07B	TACK SWITCH	
S7584	EVQ11L07B	TACK SWITCH	
S7585	EVQ11L07B	TACK SWITCH	
T1150	ETS29AK7W6AC	TRANSFORMER	⚠
ZA1103	EYF52BCY	FUSE CLIP	
ZA1104	EYF52BCY	FUSE CLIP	
	VEPV0050A	FRONT JACK C.B.A	(RTL)
JK4801	K2HA306A0030	I/O JACK	
JW7560	RWJV0030	WIRE	
LB4801	ERJ6GEY0R00V	CHIP JUMPER	
LB4802	ERJ6GEY0R00V	CHIP JUMPER	
PP4802	K1KA08C00002	8P CONNECTOR	
R4801	ERJ3GEY0R00V	CHIP JUMPER	
R4802	ERJ3GEY0R00V	CHIP JUMPER	
R4803	ERJ3GEYJ750V	CHIP RESISTOR	
R7561	D0GB182JA007	CHIP RESISTOR	
R7562	D0GB332JA007	CHIP RESISTOR	
R7563	D0GB472JA007	SMT CHIP RESISTOR	
R7564	ERJ3GEYJ682V	CHIP RESISTOR	
R7565	D0GB182JA007	CHIP RESISTOR	
R7566	D0GB332JA007	CHIP RESISTOR	
R7567	D0GB472JA007	SMT CHIP RESISTOR	
R7568	ERJ3GEYJ682V	CHIP RESISTOR	
S7561	EVQ11L07B	TACK SWITCH	
S7562	EVQ11L07B	TACK SWITCH	
S7563	EVQ11L07B	TACK SWITCH	
S7564	EVQ11L07B	TACK SWITCH	
S7565	EVQ11L07B	TACK SWITCH	
S7566	EVQ11L07B	TACK SWITCH	
S7567	EVQ11L07B	TACK SWITCH	
S7568	EVQ11L07B	TACK SWITCH	
S7569	EVQ11L07B	TACK SWITCH	
S7570	EVQ11L07B	TACK SWITCH	
	VEPV0059A	FRONT SW C.B.A	(RTL)
PP7581	K1KA06C00009	CONNECTOR	
	REPV0084B	DVD MODULE C.B.A	(RTL) *1 *3
	REPV0084C	DVD MODULE C.B.A	(RTL) *2
C8001	F2G0J101A066	E-CAP	
C8003	ECJ0EF1C104Z	CHIP CAPACITOR	
C8004	ECJ0EF1C104Z	CHIP CAPACITOR	
C8005	ECJ0EF1C104Z	CHIP CAPACITOR	
C8006	ECJ0EF1C104Z	CHIP CAPACITOR	

Ref. No.	Part No.	Part Name & Description	Remarks
C8007	ECJ0EF1C104Z	CHIP CAPACITOR	
C8008	ECJ0EF1C104Z	CHIP CAPACITOR	
C8011	F2G0J101A066	E-CAP	
C8012	ECJ0EF1C104Z	CHIP CAPACITOR	
C8013	ECJ0EF1C104Z	CHIP CAPACITOR	
C8014	ECJ0EF1C104Z	CHIP CAPACITOR	
C8015	ECJ0EF1C104Z	CHIP CAPACITOR	
C8016	ECJ0EF1C104Z	CHIP CAPACITOR	
C8017	ECJ0EF1C104Z	CHIP CAPACITOR	
C8018	ECJ0EF1C104Z	CHIP CAPACITOR	
C8019	ECJ0EF1C104Z	CHIP CAPACITOR	
C8020	ECJ0EF1C104Z	CHIP CAPACITOR	
C8021	ECJ0EF1C104Z	CHIP CAPACITOR	
C8022	ECJ0EF1C104Z	CHIP CAPACITOR	
C8023	ECJ0EF1C104Z	CHIP CAPACITOR	
C8024	ECJ0EF1C104Z	CHIP CAPACITOR	
C8025	ECJ0EF1C104Z	CHIP CAPACITOR	
C8026	ECJ0EF1C104Z	CHIP CAPACITOR	
C8051	ECJ1VB0J105K	CHIP CAPACITOR	
C8052	ECJ1VB0J105K	CHIP CAPACITOR	
C8053	ECJ1VB0J105K	CHIP CAPACITOR	
C8054	ECJ0EC1H221J	CHIP CAPACITOR	
C8055	ECJ1VB0J105K	CHIP CAPACITOR	
C8056	ECJ1VB0J105K	CHIP CAPACITOR	
C8057	ECJ1VB0J105K	CHIP CAPACITOR	
C8058	F1H0J106A009	CHIP CAPACITOR	
C8059	F1H0J106A009	CHIP CAPACITOR	
C8201	F2G0J101A066	E-CAP	
C8202	F1G1A1040006	CHIP ERAMIC CAPACITOR	
C8203	F1G1A1040006	CHIP ERAMIC CAPACITOR	
C8207	ECJ0EF1C104Z	CHIP CAPACITOR	
C8209	F2G1C470A076	E-CAP	
C8210	F1G1A1040006	CHIP ERAMIC CAPACITOR	
C8211	ECJ0EB1E122K	Capacitor Part	
C8221	ECJ0EB1E102K	CHIP CAPACITOR	
C8222	ECJ0EB1E821K	CHIP CAPACITOR	
C8225	ECJ0EB1E102K	CHIP CAPACITOR	
C8226	ECJ0EB1E102K	CHIP CAPACITOR	
C8251	F2G0J221A065	E-CAP	
C8252	ECJ0EF1C104Z	CHIP CAPACITOR	
C8255	F2G1C470A076	E-CAP	
C8256	ECJ0EF1C104Z	CHIP CAPACITOR	
C8257	F1G1A1040006	CHIP ERAMIC CAPACITOR	
C8261	ECJ0EF1C104Z	CHIP CAPACITOR	
C8270	F1G1A1040006	CHIP ERAMIC CAPACITOR	
C8271	F1G1A1040006	CHIP ERAMIC CAPACITOR	
C8301	F2G0J221A031	E-CAP	
C8302	F2G0J330A031	E-CAP	
C8303	F1G1A1040006	CHIP ERAMIC CAPACITOR	
C8304	F1G1A1040006	CHIP ERAMIC CAPACITOR	
C8305	F1G1A1040006	CHIP ERAMIC CAPACITOR	
C8306	F1G1A1040006	CHIP ERAMIC CAPACITOR	
C8311	F1G1A1040006	CHIP ERAMIC CAPACITOR	
C8312	ECJ1VB0J105K	CHIP CAPACITOR	
C8313	ECJ1VB0J105K	CHIP CAPACITOR	
C8401	ECJ0EC1H150J	CHIP CAPACITOR	
C8421	F2G0J101A083	ELECTROLYTIC CAPACITOR	
C8422	ECJ0EF1C104Z	CHIP CAPACITOR	
C8423	F2G0J330A083	E CAP	
C8424	ECJ0EF1C104Z	CHIP CAPACITOR	
C8425	ECJ0EC1H220J	CHIP CAPACITOR	
C8426	ECJ0EC1H470J	CHIP CAPACITOR	
C8501	F2G0J101A031	E-CAP	
C8502	ECJ0EF1C104Z	CHIP CAPACITOR	
C8503	ECJ0EF1C104Z	CHIP CAPACITOR	
C8504	ECJ0EF1C104Z	CHIP CAPACITOR	
C8505	ECJ0EF1C104Z	CHIP CAPACITOR	
C8511	ECJ1VB0J105K	CHIP CAPACITOR	
C8512	ECJ1VB0J105K	CHIP CAPACITOR	
C8513	F1G1A1040006	CHIP ERAMIC CAPACITOR	
C8514	F1G1A1040006	CHIP ERAMIC CAPACITOR	
C8515	F1G1A1040006	CHIP ERAMIC CAPACITOR	
C8516	F1G1A1040006	CHIP ERAMIC CAPACITOR	

Ref. No.	Part No.	Part Name & Description	Remarks
C8521	F1G1A1040006	CHIP ERAMIC CAPACITOR	
C8522	F1G1A1040006	CHIP ERAMIC CAPACITOR	
C8523	ECJ0EF1C104Z	CHIP CAPACITOR	
C8524	ECJ0EF1C104Z	CHIP CAPACITOR	
C8525	ECJ0EB1C562K	CHIP CAPACITOR	
C8526	ECJ0EB1C183K	CHIP CAPACITOR	
C8527	ECJ0EB1A333K	CHIP CAPACITOR	
C8528	ECJ1VB0J105K	CHIP CAPACITOR	
C8529	ECJ1VB0J105K	CHIP CAPACITOR	
C8530	ECJ0EF1C104Z	CHIP CAPACITOR	
C8531	ECJ0EC1H101J	CHIP CAPACITOR	
C8532	ECJ0EC1H221J	CHIP CAPACITOR	
C8533	ECJ0EF1C104Z	CHIP CAPACITOR	
C8541	ECJ0EB1E472K	CHIP CAPACITOR	
C8551	ECJ0EF1C104Z	CHIP CAPACITOR	
C8553	F2G0J470A031	E-CAP	
C8554	ECJ2FF1A106Z	CERAMIC CAPACITOR	
C8561	ECJ0EF1C104Z	CHIP CAPACITOR	
C8563	F2G0J470A031	E-CAP	
C8564	ECJ2FF1A106Z	CERAMIC CAPACITOR	
C8571	F1K1A1060017	MULTILAYER CHIP CAP	
C8572	ECJ0EF1C104Z	CHIP CAPACITOR	
C8601	ECJ0EF1C104Z	CHIP CAPACITOR	
C8602	ECJ0EB1C153K	SMT CHIP CAPACITOR	
C8606	ECJ0EF1C104Z	CHIP CAPACITOR	
C8611	ECJ0EF1C104Z	CHIP CAPACITOR	
C8621	ECJ0EC1H100D	CHIP CAPACITOR	
C8622	ECJ0EC1H120J	CHIP CAPACITOR	
C8651	ECJ0EF1C104Z	CHIP CAPACITOR	
C8652	ECJ0EF1C104Z	CHIP CAPACITOR	
D8211	MA2J11100L	DIODE	
D8571	MA2J72800L	CHIP DIODE	
IC8001	MN2DS0009VP	DV3.2 LSI VIDEO ONLY VERSION	
IC8051	C3ABPG000133	64 SDRAM	
IC8251	C0GBG0000048	DRIVER IC	
IC8420	C0FBBK000049	2 CHANNEL DAC IC	
IC8601	C0EBA0000029	RESET IC	
IC8606	C0EBE0000456	IC	
IC8611	REPV0084B	DVD MODULE C.B.A	*1 *3
IC8611	REPV0084C	DVD MODULE C.B.A	*2
IC8651	RFKWVPA0S160	16M FLASH ROM IC	[PAVC-CSG]*1 *3
IC8651	RFKWVPA0T160	16M FLASH ROM IC	[PAVC-CSG]*2
K8101	ERJ3GEY0R00V	CHIP JUMPER	
K8103	ERJ3GEY0R00V	CHIP JUMPER	
K8104	ERJ3GEY0R00V	CHIP JUMPER	
K8105	ERJ3GEY0R00V	CHIP JUMPER	
K8204	ERJ6GEY0R00V	CHIP JUMPER	
L8201	G1C100K00019	CHIP COIL	
L8301	G1C100K00019	CHIP COIL	
L8302	G1C100K00019	CHIP COIL	
L8501	G1C100K00019	CHIP COIL	
LB8001	J0JHC0000045	CHIP INDUCTOR	
LB8011	J0JHC0000045	CHIP INDUCTOR	
LB8255	ERJ3GEY0R00V	CHIP JUMPER	
LB8256	ERJ3GEY0R00V	CHIP JUMPER	
LB8257	ERJ3GEY0R00V	CHIP JUMPER	
LB8258	ERJ3GEY0R00V	CHIP JUMPER	
LB8259	ERJ3GEY0R00V	CHIP JUMPER	
LB8261	ERJ2GE0R00X	CHIP JUMPER	
LB8262	ERJ2GE0R00X	CHIP JUMPER	
LB8263	ERJ3GEY0R00V	CHIP JUMPER	
LB8301	J0JBC0000014	CHIP COIL	
LB8302	J0JBC0000014	CHIP COIL	
LB8303	J0JBC0000015	CHIP INDUCTOR	
LB8304	J0JBC0000014	CHIP COIL	
LB8305	J0JBC0000014	CHIP COIL	

Ref. No.	Part No.	Part Name & Description	Remarks
LB8306	J0JBC0000014	CHIP COIL	
LB8307	J0JBC0000014	CHIP COIL	
LB8308	J0JBC0000015	CHIP INDUCTOR	
LB8309	J0JBC0000014	CHIP COIL	
LB8310	J0JBC0000014	CHIP COIL	
LB8401	J0JBC0000042	CHIP BEAD	
LB8421	ERJ2GE0R00X	CHIP JUMPER	
LB8422	ERJ2GE0R00X	CHIP JUMPER	
LB8424	ERJ2GE0R00X	CHIP JUMPER	
LB8491	J0JCC0000119	FERRITE BEAD	
LB8530	J0JHC0000045	CHIP INDUCTOR	
LB8531	ERJ2GE0R00X	CHIP JUMPER	
LB8550	ERJ3GEY0R00V	CHIP JUMPER	
LB8551	J0JBC0000042	CHIP BEAD	
LB8560	ERJ3GEY0R00V	CHIP JUMPER	
LB8561	J0JBC0000042	CHIP BEAD	
LB8571	J0JBC0000042	CHIP BEAD	
LB8691	ERJ2GEJ101X	CHIP RESISTOR	
LB8692	ERJ2GEJ101X	CHIP RESISTOR	
LB8693	ERJ2GEJ101X	CHIP RESISTOR	
P8001	K1MN26AA0041	CONNECTOR	
P8003	K1MN30AA0046	CONNECTOR	
P8201	K1MN06AA0046	CONNECTOR	
Q8551	B1ABDF000018	CHIP TRANSISTOR	
Q8552	2SB09700RL	CHIP TRANSISTOR	
Q8561	B1ABDF000018	CHIP TRANSISTOR	
Q8562	2SB09700RL	CHIP TRANSISTOR	
QR8420	B1GBCFJJ0047	DIGE TRANSISTOR	
QR8571	B1GDCFEC0001	DIGE TRANSISTOR	
R8002	ERJ2GEJ473X	CHIP RESISTOR	
R8003	ERJ2GEJ473X	CHIP RESISTOR	
R8011	ERJ2GEJ220X	CHIP RESISTOR	
R8012	ERJ2GEJ220X	CHIP RESISTOR	
R8013	ERJ2GEJ220X	CHIP RESISTOR	
R8026	ERJ2GEJ101X	CHIP RESISTOR	
R8210	ERJ6GEYJ6R8V	CHIP RESISTOR	
R8211	ERJ2GEJ103X	CHIP RESISTOR	
R8214	ERJ2GEJ472X	CHIP RESISTOR	
R8217	ERJ2GE0R00X	CHIP JUMPER	
R8218	ERJ2GE0R00X	CHIP JUMPER	
R8219	ERJ2GEJ752X	CHIP RESISTOR	
R8220	ERJ2GEJ752X	CHIP RESISTOR	
R8221	ERJ2GEJ822X	CHIP RESISTOR	
R8225	ERJ2GEJ822X	CHIP RESISTOR	
R8230	ERJ2GEJ152X	CHIP RESISTOR	
R8261	ERJ2GEJ823X	CHIP RESISTOR	
R8262	ERJ2GEJ153X	CHIP RESISTOR	
R8263	ERJ2GEJ823X	CHIP RESISTOR	
R8264	ERJ2GE0R00X	CHIP JUMPER	
R8265	ERJ2GEJ153X	CHIP RESISTOR	
R8270	ERJ2GEJ102X	CHIP RESISTOR	
R8271	ERJ3GEYJ202V	CHIP RESISTOR	
R8272	ERJ2GEJ473X	CHIP RESISTOR	
R8273	ERJ2GEJ473X	CHIP RESISTOR	
R8274	ERJ2GEJ473X	CHIP RESISTOR	
R8311	ERJ2RHD242X	CHIP RESISTOR	
R8312	ERJ2RHD102X	CHIP RESISTOR	
R8313	ERJ2RHD912X	Resistor Part	
R8314	ERJ2GE0R00X	CHIP JUMPER	
R8321	ERJ3RED680V	CHIP RESISTOR	
R8322	ERJ3GEY0R00V	CHIP JUMPER	
R8325	ERJ3RED680V	CHIP RESISTOR	
R8326	ERJ3GEY0R00V	CHIP JUMPER	
R8331	ERJ3RED680V	CHIP RESISTOR	
R8332	ERJ3GEY0R00V	CHIP JUMPER	
R8335	ERJ3RED680V	CHIP RESISTOR	
R8341	ERJ3RED680V	CHIP RESISTOR	
R8401	ERJ2GEJ101X	CHIP RESISTOR	
R8420	ERJ2GEJ222X	CHIP RESISTOR	

Ref. No.	Part No.	Part Name & Description	Remarks
R8421	ERJ2GE0R00X	CHIP JUMPER	
R8531	ERJ2GEJ152X	CHIP RESISTOR	
R8532	ERJ2GEJ222X	CHIP RESISTOR	
R8533	ERJ2GE0R00X	CHIP JUMPER	
R8541	ERJ2GEJ153X	CHIP RESISTOR	
R8551	ERJ2GE0R00X	CHIP JUMPER	
R8552	ERJ2GEJ102X	CHIP RESISTOR	
R8553	ERJ2GEJ102X	CHIP RESISTOR	
R8554	ERJ2GEJ680X	CHIP RESISTOR	
R8555	ERJ2GEJ2R2X	CHIP RESISTOR	
R8556	ERJ3GEYJ560V	CHIP RESISTOR	
R8557	ERJ3GEYJ510V	CHIP RESISTOR	
R8558	ERJ2GEJ473X	CHIP RESISTOR	
R8559	ERJ2GEJ153X	CHIP RESISTOR	
R8561	ERJ2GE0R00X	CHIP JUMPER	
R8562	ERJ2GEJ102X	CHIP RESISTOR	
R8563	ERJ2GEJ102X	CHIP RESISTOR	
R8564	ERJ2GEJ220X	CHIP RESISTOR	
R8565	ERJ2GEJ2R2X	CHIP RESISTOR	
R8566	ERJ3GEYJ560V	CHIP RESISTOR	
R8567	ERJ3GEYJ510V	CHIP RESISTOR	
R8568	ERJ2GEJ473X	CHIP RESISTOR	
R8601	ERJ2GEJ104X	CHIP RESISTOR	
R8611	ERJ2GEJ101X	CHIP RESISTOR	
R8612	ERJ2GEJ105X	CHIP RESISTOR	
R8622	ERJ2RHD471X	CHIP RESISTOR	
R8722	ERJ2GEJ473X	CHIP RESISTOR	
RX8001	D1H410320002	PARALLEL CHIP RESISTOR	
RX8011	D1H88204A024	PARALLEL CHIP RESISTOR	
RX8012	D1H88204A024	PARALLEL CHIP RESISTOR	
RX8013	D1H88204A024	PARALLEL CHIP RESISTOR	
RX8014	D1H88204A024	PARALLEL CHIP RESISTOR	
RX8015	D1H88204A024	PARALLEL CHIP RESISTOR	
RX8016	D1H88204A024	PARALLEL CHIP RESISTOR	
RX8017	D1H88204A024	PARALLEL CHIP RESISTOR	
RX8018	D1H422020001	PARALLEL CHIP RESISTOR	
RX8019	D1H422020001	PARALLEL CHIP RESISTOR	
RX8020	D1H422020001	PARALLEL CHIP RESISTOR	
RX8031	D1H447220001	PARALLEL CHIP RESISTOR	
RX8032	D1H447220001	PARALLEL CHIP RESISTOR	
RX8401	D1H410120001	CHIP RESISTOR	
RX8531	D1H456020001	PARALLEL CHIP RESISTOR	
RX8532	D1H85604A024	PARALLEL CHIP RESISTOR	
RX8533	D1H456020001	PARALLEL CHIP RESISTOR	
RX8534	D1H456020001	PARALLEL CHIP RESISTOR	
RX8611	D1H447220001	PARALLEL CHIP RESISTOR	
RX8691	D1H410320002	PARALLEL CHIP RESISTOR	
X8621	H0J270500085	CRYSTAL	
	REP3606A-C	MOTOR C.B.A.	(RTL)
C2601	F1E1H104A001	CAPACITOR	
C2602	F1E1H104A001	CAPACITOR	
SW2601	K0L1BB000026	TRV INNER SWITCH	