

Service Manual

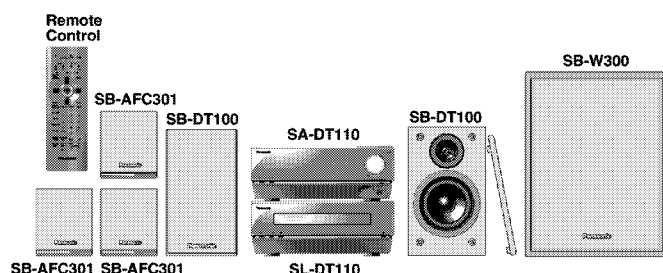
DVD/CD Player



SL-DT110EG

Colour

(S).....Silver Type



Because of unique interconnecting cables, when a component requires service, send or bring in the entire system.

System	SC-DT110
DVD/CD player	SL-DT110
AV control receiver	SA-DT110
Front speakers*	SB-DT100
Center speaker*	SB-AFC301
Surround speakers*	SB-AFC301
Sub woofer*	SB-W300

* : Made in Singapore.

Specifications

Discs played

DVD-RAM (DVD-VR compatible), DVD-Audio, DVD-Video, DVD-R (DVD-Video compatible)
CD (CD-DA), Video-CD, SVCD (Conforming to IE62107)
CD-R/RW (CD-DA, Video-CD, SVCD formatted discs)
MP3/WMA

- Maximum number of tracks and groups recognizable: 999 tracks and 99 groups
- Compatible compression rate:
 - MP3: between 32 kbps and 320 kbps
 - WMA: between 48 kbps and 192 kbps

JPEG

- Exif Ver 2.1 JPEG Baseline files
- Maximum number of pictures and groups recognizable: 3000 pictures and 300 groups
- Picture resolution: between 320x240 and 6144x4096 pixels (Sub sampling is 4:2:2 or 4:2:0)

HighMAT Level 2 (Audio and Image)

Audio

Number of channels: 5.1 (FL, FR, SL, SR, C, SW)

Video

Signal system: PAL, PAL60/NTSC
Output terminal: RCA terminal (composite video)
S terminal (Y, C)

Pickup

Beam source: Semiconductor laser
Wavelength: 658/790 nm

General

Dimensions (WxHxD):

190x73x335 mm

Mass:

1.8 kg

Notes: Specifications are subject to change without notice.
Mass and dimensions are approximate.

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WMA is a compression format developed by Microsoft Corporation. It achieves the same sound quality as MP3 with a file size that is smaller than that of MP3.

MPEG Layer-3 audio decoding technology licensed from Fraunhofer IIS and Thomson multimedia.

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Panasonic

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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.

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1 Note

Refer to the service manual for Model No. SA-DT110E, SA-DT110EB, SA-DT110EG (Order No. AD0306104C2) for information on Accessories and Packaging.

2 Handling Precautions for Traverse Deck

The laser diode in the optical pick-up may break down due to potential difference caused by static electricity of clothes or human body.

So be careful of electrostatic breakdown during repair of the optical pick-up.

2.1. Handling of optical pick-up

1. Do not subject the optical pick-up to static electricity as it is extremely sensitive to electrical shock.
2. To prevent the breakdown of the laser diode, an antistatic shorting pin or similar object is inserted into the flexible board (FFC board). Refer to Fig. 2-1.
When removing or connecting the shortpin, finish the job in as short time as possible.
3. Be careful not to apply excessive stress to the flexible board (FFC board).
4. A new optical pick-up has an antistatic flex. When the optical pick-up is replaced, connect the flexible cable (FFC) to the connector first, and then cut the antistatic flex. Refer to Fig. 2-1.
5. Do not turn the variable resistor (Laser power adjustment).

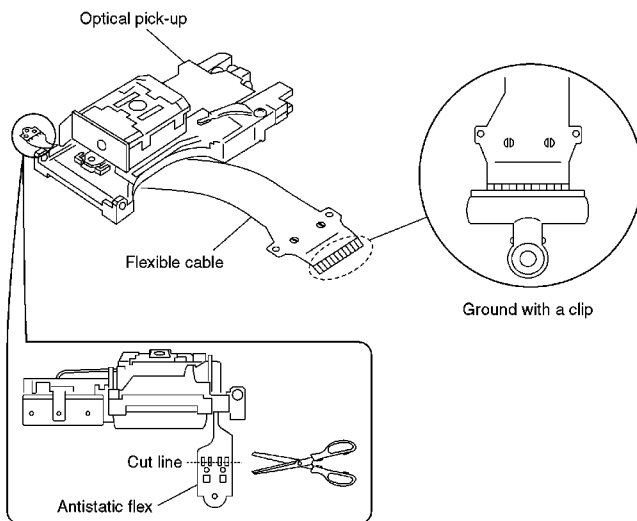


Fig. 2-1.

2.2. Grounding for electrostatic breakdown prevention

2.2.1. Human body grounding

Use the antistatic wrist strap to discharge the static electricity from your body. Refer to Fig. 2-2.

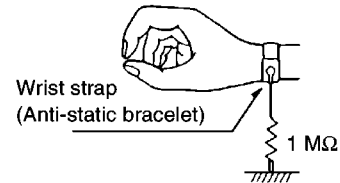


Fig. 2-2.

2.2.2. Work table grounding

Put a conductive material (sheet) or steel sheet on the area where the optical pick-up is placed and ground the sheet. Refer to Fig. 2-3.

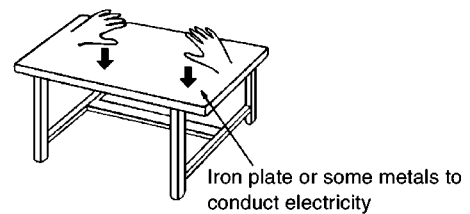


Fig. 2-3.

Caution:

The static electricity of your clothes will not be grounded through the wrist strap. So take care not to let your clothes touch the optical pick-up.

3 Precaution of Laser Diode

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.

CAUTION: This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pick-up lens.
Wave length: 658/790 nm
Maximum output radiation power from pick-up: 100 μ W/VDE

Laser radiation from the pick-up unit is safety level, but be sure the followings:

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

ACHTUNG: Dieses Produkt enthält eine Lasereinheit. Im eingeschalteten Zustand wird unsichtbare Laserstrahlung von der Lasereinheit adgestrahlt.

Wellenlänge: 658/790 nm

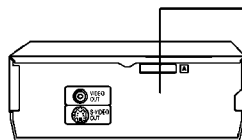
Maximale Strahlungsleistung der Lasereinheit: 100 μ W/VDE

Die strahlungen der Lasereinheit ist ungefährlich, wenn folgende Punkte beachtet werden:

1. Die Lasereinheit nicht zerlegen, da die Strahlung an der freigelegten Lasereinheit gefährlich ist.
2. Den werksseitig justierten Einstellregler der Lasereinheit nicht verstellen.
3. Nicht mit optischen Instrumenten in die Fokussierlinse blicken.
4. Nicht über längere Zeit in die Fokussierlinse 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 PISCÉAU.	
ADVARSEL - SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING. UNDGÅ UDSÆTTELSE FOR STRÅLING.	
VARO! - AVATTAESSA OLET ALTIINNA NÄKYVÄÄ JA NÄKYMÄTÖN LASERSÄTELYLLÄ. ÄLÄ KATSO SÄTESEEN.	
VARNING - SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. BETRÄKTA EJ STRÅLEN.	
ADVARSEL - SYNLIG OG OSYNLIG LASERSTRÅLING NÄR DEKSEL ÅPNEES. UNNGÅ EKSPONERING FOR STRÅLEN.	
VORSICHT - SICHTBARE UND UNSICHTBARE LASERSTRALUNG, WEENN 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 - ここを覗くと可視及び不可視レーザー光が出ます。 ビームを覗いたり、触れたら危ないです。	RQLS0275

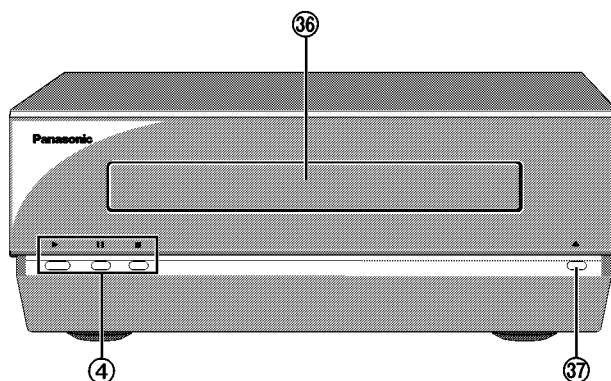
(Inside of product)



(Back of product)



4 Location of Controls



- ④ Basic operation buttons
- ③⑥ Disc tray
- ③⑦ Open/close button [▲]

5 Summary for HighMAT

5.1. What is HighMAT?

HighMAT is a new technology co-developed and supported by Microsoft® Corporation and Matsushita Electric Industrial Co. Ltd. (Panasonic) - HighMAT stands for High-Performance Media Access Technology. It is trademark of Microsoft® Corporation. HighMATlogo as shown below indicates the product is based on HighMAT standard.



Supported Level 1



Supported Level 2



Supported Level 3

HighMAT standardizes the format that user creates photo, audio and video data on the CD, improves the way of reading data on the CD, increases operability by consumer products (DVD player etc.) as well as the PC.

5.2. Why take advantage of HighMAT?

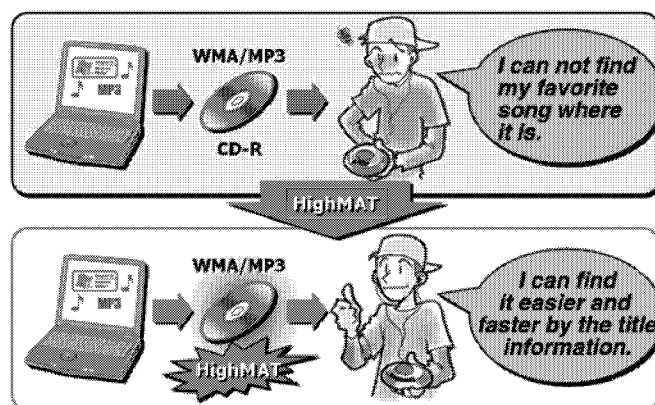
There are numerous, inconsistent ways that the consumer product such as DVD players read the data. For user, the playback experience can be confusing as shown below.

- There is no associated contents information unified playlists and metadata.
- The compressed media format is not compatible between playback devices.
- The large contents of CD-ROM may take several minutes to read and play back.
- Although the same disc plays back, the playback order is changed because the display and operations is not compatible between playback devices.

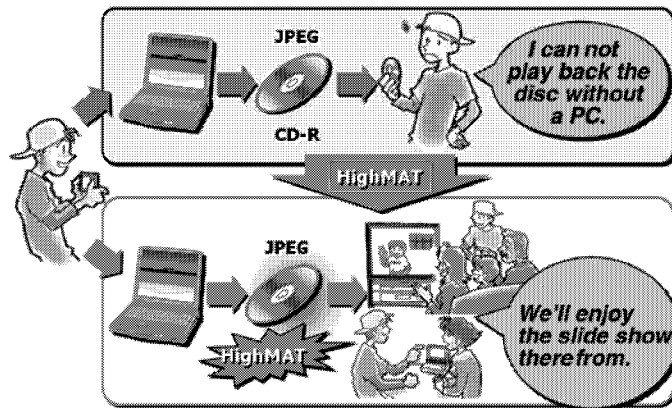
5.3. Advantage of HighMAT

HighMAT standard solves each of above problems and offers user a convenient.

- Implement a common user interface between the PC and consumer products.



- Provides user with a consistent to play back and easy navigation across a wide range of consumer products, including DVD and portable CD players, car stereos and mini compo.

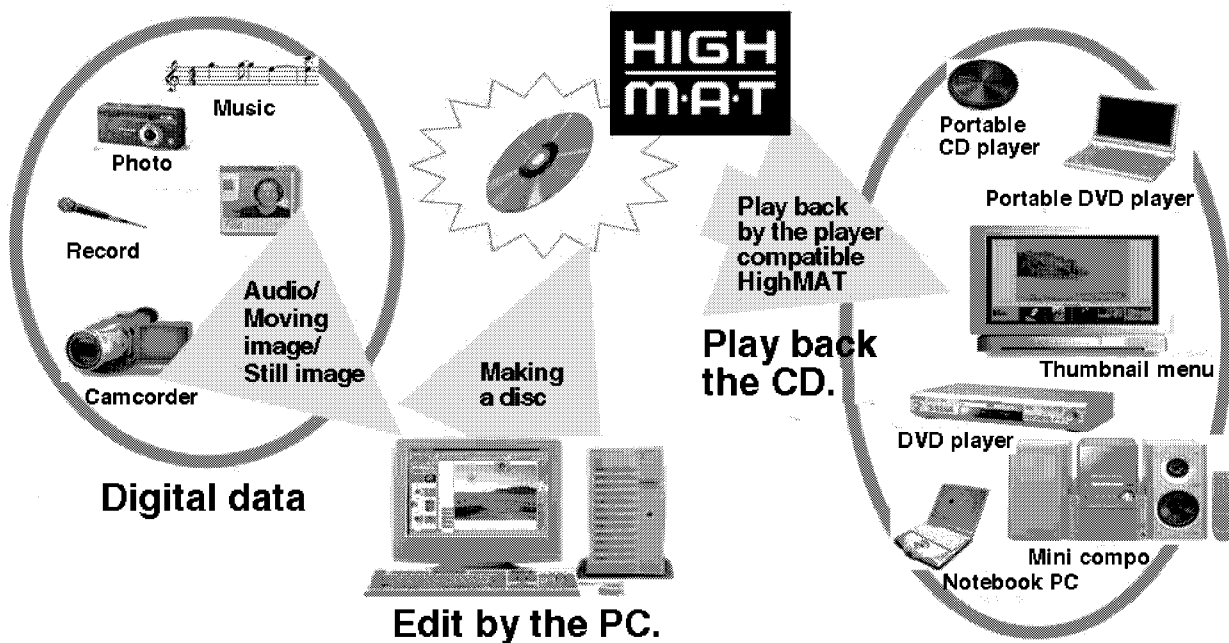


- The disc based on HighMAT can also play back by the traditional player that can play back CD-ROM.

5.4. Outline of HighMAT standard

Recorded media

- CD-R/CD-RW
- Supported ISO9660 Level 1 Joliet extension
- Supported multi-session



Supported data format

- Level 1 player: WMA, MP3
- Level 2 player: WMA, MP3, JPEG
- Level 3 player: WMA, MP3, JPEG, WMV, MPEG4(option)

Limited data format

- WMA, MP3: 64 - 160.999 kbps, 44.1 kHz, stereo, fixed bitrate/variable bitrate
- WMA: V2 or later, except for Lossless/Voice/Pro
- JPEG: Max. 6 M pixels, Max. file size 3 MB

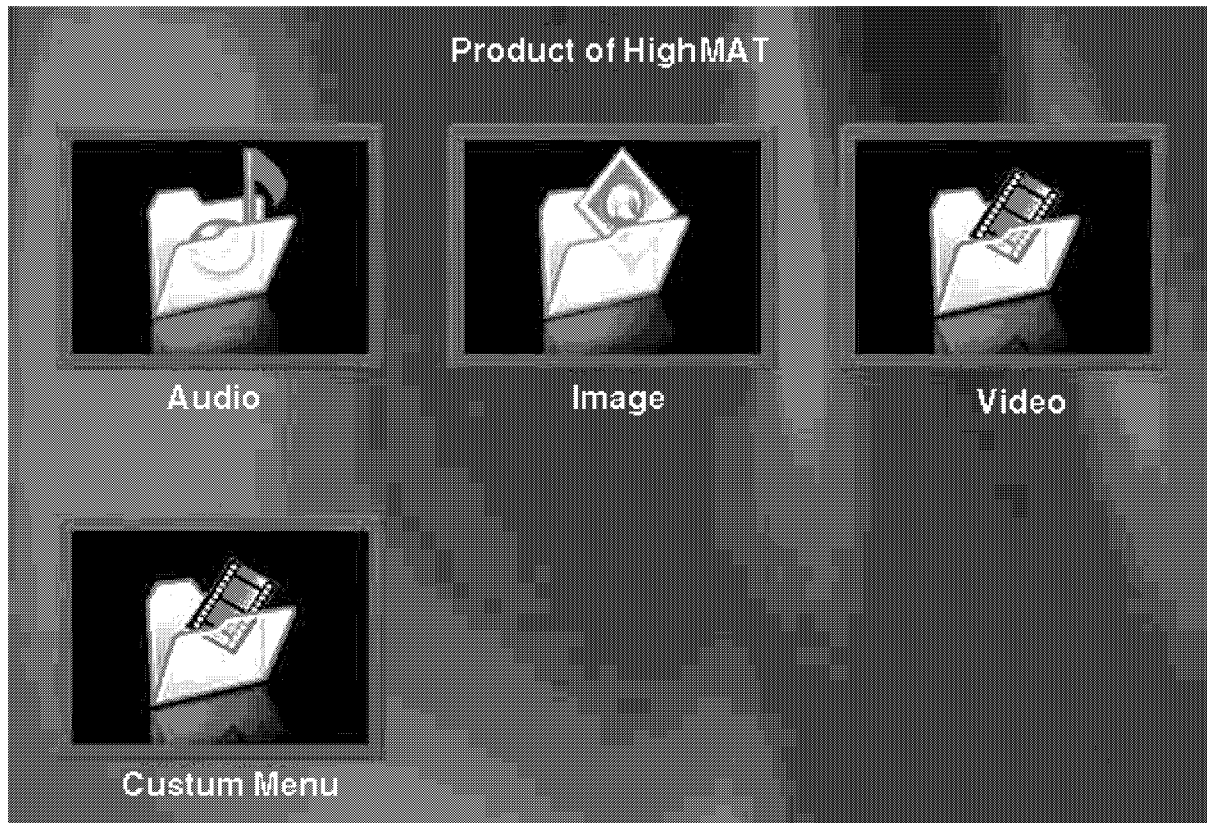
Limited for number of files etc.

- Total number of audio file: Max. 450
- Total number of still image: Max. 999
- Total number of moving image: Max. 200
- Total number of directory: Max. 400

- Long file name: Max.108 letter (unicode)
- Total number of playlist: Max. 200
- Maximum number of contents in playlist: 999

Construction of HighMAT disc

- Menu: Show the classification to navigate HighMAT contents. When it is selected, it goes to the next menu which shows play lists or another menu.
- Playlist: Ordered list including for more than a digital content
- Group: Classified contents in detail of a playlist
- Content: Data for audio, still image and moving image



Sample of menu display

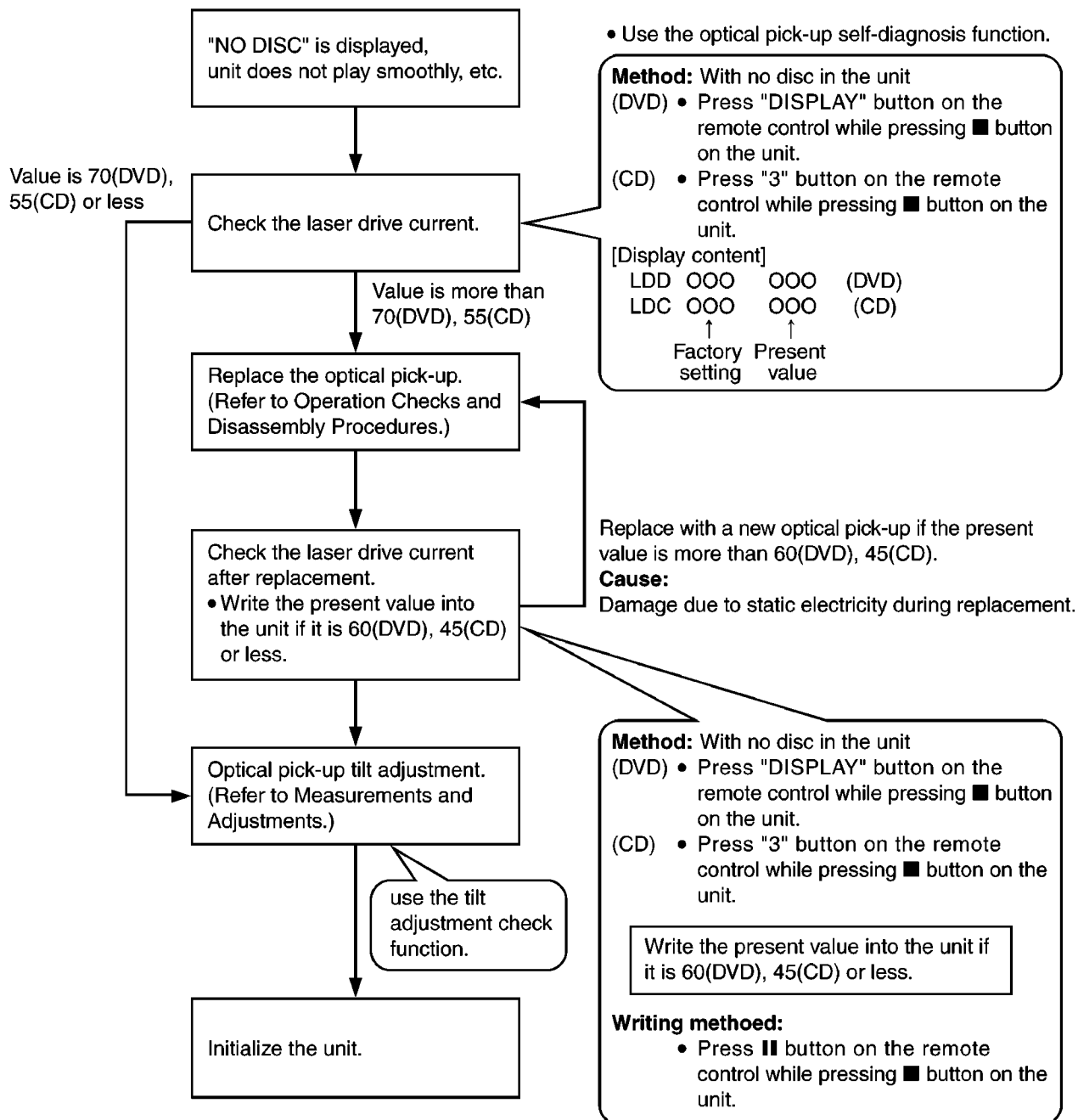
6 DVD Optical Pick-up Self-Diagnosis and Replacement Procedure

6.1. Self-diagnosis

The optical pick-up 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 pick-up when "NO DISC" is displayed. As a guideline, you should replace the optical pick-up when the value of the laser drive current is more than 70(DVD), 55(CD).

Note:

Press the Standby/on button to turn on the power, and check the value within 3 minutes before the unit warms up. (Otherwise, the unit will be incorrect.)



6.2. Caution to be used before replacing the optical pick-up and spindle motor assembly

Before replacing the optical pick-up and spindle motor assembly, check the total using hours for each of them. The checking method is as follows:

Item	Play mode and button combination	Display
Using hours of DVD and CD laser	In STOP mode (no disc), while pressing ■ button on the unit, press ▲ button on the remotecontrol.	T1. xxxx. yyyy. (. indicates a space.) xxxx(DVD), yyyy(CD): Time is shown in 4 digits of decimal notation in a unit of 10 hours.
Using hours of spindle motor	In STOP mode (no disc), while pressing ■ button on the unit, press ► button on the remotecontrol.	T2. xxxxx.... xxxx: Time is shown in 5 digits of decimal notation in a unit of 10 hours.
Resetting using hours of DVD and CD laser	When displaying the using hours of DVD and CD laser, while pressing ■ button on the unit, press ▼ button on the remote control.	T1. 0000. 0000
Resetting using hours of spindle motor	When displaying using hours of spindle motor, while pressing ■ button on the unit, press ◀ button on the remote control.	T2. 00000....

6.2.1. Caution to be taken when replacing the optical pick-up

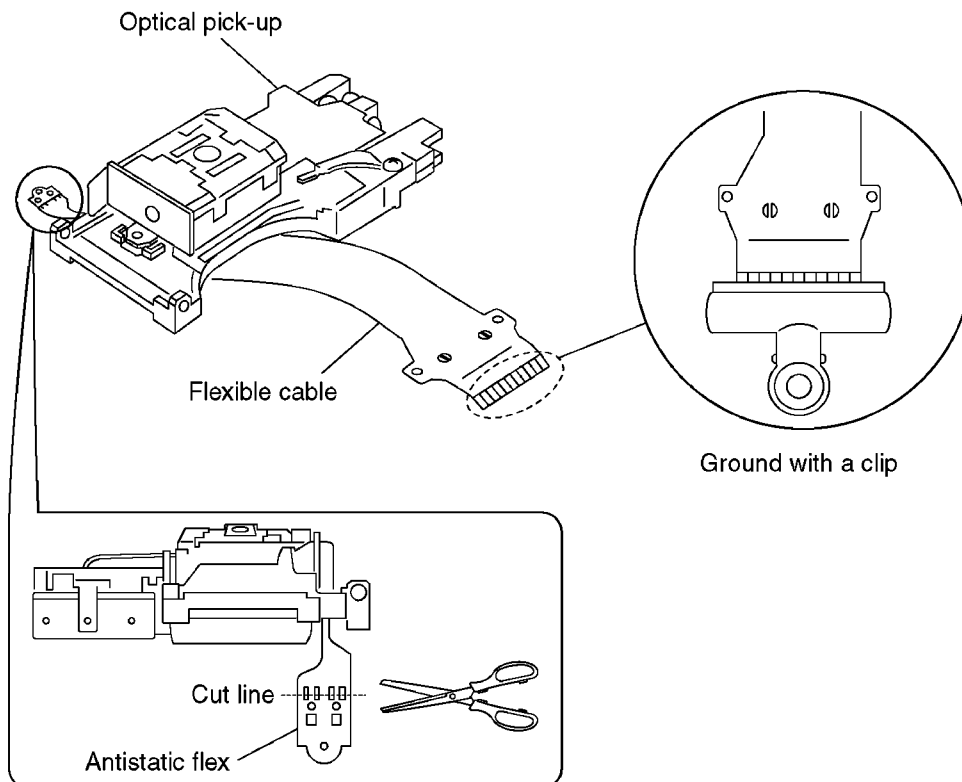
The optical pick-up may break down due to the static electricity of human body. Take proper protection measures against static electricity before repairing the parts around the optical pick-up. Refer to "Handling Precaution for TraverseDeck".

- Do not touch the area around the laser diode and actuator.
- Do not judge the laser diode with a tester.
- It is recommended to use an antistatic soldering iron for short-circuit or removing the laser diode.
(Recommended soldering iron) HAKKO ESD Product
- Solder the land of the flexible cable in the optical pick-up.

Note:

When using a soldering iron which is not antistatic, short-circuit the terminal of the flexible cable first. After that, short the land.

- An antistatic flex is connected with the new optical pick-up. Cut the antistatic flex after the optical pick-up is replaced.



7 Self-Diagnostic Function

Each results of self-diagnostic function and service mode is displayed on the FL display of AV control receiver (SA-DT110).

When using these function, confirm the unit to be connected by system cable.

7.1. Self-diagnostic function for loading mechanism

7.1.1. How to enter the mode and display

1. Turn on the power.
2. Press "SELECT" button on the AV control receiver (SA-DT110) to select DVD.
3. With no disc on the unit, hold down **■** button on the unit for at least 2 seconds, and then press **▶** (PLAY) button on the unit for at least 2 seconds.
4. A loading mechanism error code is displayed if any. (No error is detected, "T_ _ _ _ _" is displayed. _ indicates a space.) Refer to Table 7-1. If there are multiple error, they can be successively by pressing **■** button.

7.1.2. Canceling self-diagnostic function

- Press "Standby/on" button to turn off. And then press "Standby/on" button again to turn it on again.
- The contents of self-diagnostic function are stored in memory. To redisplay, perform the procedures "How to enter the mode and display".

7.1.3. Clearing self-diagnostic function

- After repairing, continue to press **■** button for at least 5 seconds. "CLEAR" is displayed on the FL display about 2 seconds. And "T_ _ _ _ _" is displayed.
(Clearing the contents of self-diagnostic function)
- Always be sure to clear memories after completing repair.

Table 7-1

Display code	Symptom	Cause
H15	When the disc tray opens, it closes by itself.	Disc tray open/close detect switch (S1001) fault. (Check and replace)
H16	When the disc tray closes, it opens by itself.	

7.2. Service mode table 1

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

Unit button	Remote control button	Application
■	0	Displaying the error code. (Refer to the item 7.3. "DVD/CD error code display".)
	6	Checking the region numbers, broadcast system and model code.
	7	Checking the program version.
	DISPLAY	Checking DVD laser drive current measurement.
	3	Checking CD laser drive current measurement.
	II	Writing the laser drive current value after replacing the optical pick-up. (Do not perform this mode except for replacing the optical pick-up.)
	≥ 10 , then ENTER (in displaying "INITIALIZE".)	Initialization (Restore factory preset settings) Perform this mode when replacing the microcomputer, its peripheral parts and P.C.B..
II	5	Jitter check, optical pick-up tilt adjustment. (for DVD)

7.3. DVD/CD error code display

Error Code	Error Content	Additional error explanation	Defect 1	Defect 2	Defect 3	Defect 4
U, H error						
U11	Focus error					
H01	Tray loading error					
H02	Spindle servo error	(Spindle servo, DSC SP motor, CLV servo error.)				
H03	Traverse motor 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	DSC stops in the occurrence of servo error. (startup, focus error, etc.)	Optical pick-up	ADSC	FEP	servo drive
F501	DSC not Ready error	DSC-system computer communication error (Communication failure caused by idling of DSC.)	ADSC	CPU		
F502	DSC Time out error	Similar disposal as F500.	Optical pick-up	ADSC	FEP	servo drive
F503	DSC communication Failure	Communication error (result error occurred although communication command was sent.)	ADSC	FEP	EEPROM	
F505	DSC Attention error	Similar disposal as F500.	Optical pick-up	ADSC	FEP	servo drive
F506	Invalid media	Disc is flipped over, TOC unreadable, incompatible disc.	DISC	FEP	ADSC	ODC
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.	ODC	FEP	ADSC	
F601	Indeterminate sector ID requested.	Operation stopped caused by the request to access abnormal ID data.	ODC	FEP	ADSC	
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				
F610	ODC abnormality	No permission for command execution	ODC			
F611	6626 QCODE don't read error.	Access failure to seek address in CD series	ODC			
F612	No CRC OK for a specific time	Access failure to ID data in DVD series	ODC			
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	EEPROM	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)		EEPROM	CPU	FEP	ADSC
Microcomputer 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 could not be sent to AV task.	Begin sending message to AV task.				
F893	FROM falsification		FROM	CPU		

Error Code	Error Content	Additional error explanation	Defect 1	Defect 2	Defect 3	Defect 4
F894	EEPROM abnormality		EEPROM	Serial communication on line		
F895	Language area abnormality	Firm version agreement check for factory preset setting failure prevention	FROM			
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				
F8A0	Message command is not appropriate.	Begin sending message to AV task.				

Note:

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

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

7.4. Last error code saved during NO PLAY

Error code	Error Content	System computer	Setting task	System computer internal error code
F0BF	6) Cannot playback because physical layer is not recognizable.	PCND_NOPLAY_PHYSICAL 0x50	DriveManager	0xD0BF
F0C0	8) DVD: Cannot playback because it is not DVD Video/Audio/VR.	PCND_NOPLAY_VIDEO 0x70	DiscManager	0xD0C0
F0C1	9) DVD: Prohibited by the restricted region code.	PCND_NOPLAY_RCD 0x80	DiscManager	0xD0C1
F0C2	A) DVD: PAL restricted playback.	PCND_NOPLAY_PAL 0x90	DiscManager	0xD0C2
F0C3	B) DVD: Parental lock setting prohibits the playback of the entire title.	PCND_NOPLAY_PTL 0xA0	DiscManager	0xD0C3
F0C4	C) VCD: Prohibited because it is in PHOTO CD format.	PCND_NOPLAY_PHOTO CD 0xB0	DiscManager	0xD0C4
F0C5	D) VCD/CD: Prohibited because it is CD-ROM without CD-DA.	PCND_NOPLAY_CDROM 0xC0	DiscManager	0xD0C5

7.5. Service mode table 2

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

Item	Unit mode and button combination	Function	Display	Cancellation method
Jitter check (DVD)	In PLAY mode, press ■ button on the unit and "5" button on the remote control.	Jitter check Jitter rate is measured and displayed. Measurement is repeatedly done in the cycle of one second. Read error counter starts from zero upon mode setting. When target block data failed to be readout, the counter advances by one increment. When the failure is caused by minor error, it may be corrected when retried to enable successful reading. In this case, the counter advances by one. When the error persists even after retry, the counter may jump by two or more.	J ¹ xxx ² . yyy ³ . zz ⁴ (. indicates a space.) ¹ : Jitter check display mode ² : Jitter rate ³ : Read error counter ⁴ : Focus drive value Jitter rate is shown in decimal notation to one place of decimal. Focus drive value is shown in hexadecimal notation.	Press ■ button.
Error code check	In STOP mode (no disc), press ■ button on the unit and "0" button on the remote control. *With displaying error code, system controller switches serial number of history and sends out the command accordingly by pressing ▲ and ▼ button.	Error code check The latest error code stored in EEPROM is displayed.	Error code (play_err) is expressed in the following convention. Error code=0xDAXX is expressed→DVD. nn. UXX. Error code=0xDBXX is expressed→DVD. nn. HXX. Errorcode=0xDXXX is expressed→DVD. nn. FXXX. Error code=0x0000 is expressed→ DVD. nn. F---. Error code except above→DVD. nn. XXXX. *nndenotes the serial number of history.	Cancelled automatically 5 seconds later.

Item	Unit mode and button combination	Function	Display	Cancellation method
Initial setting of laser drive current	In STOP mode (no disc), press ■ button on the unit and ■ button on the remote control.	Initial setting of laser drive current Initial current value for each of DVD and CD laser is separately saved in EEPROM.	LDO ^{*1} . 034 ^{*2} . 028 ^{*3} . ^{*1} : Laser current measurement mode ^{*2} : DVD laser current measurement ^{*3} : CD laser current measurement The value denotes the current in decimal notation. The above example shows the initial current is 34 mA and 28 mA for DVD and CD laser.	Cancelled automatically 5 seconds later.
DVD laser drive current measurement	In STOP mode (no disc), press ■ button on the unit and "DISPLAY" button on the remote control.	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 Standby/on key is switched off. (It is also turned off when the primary power is switched off.)	LDD ^{*1} . 034 ^{*2} . 032 ^{*3} . ^{*1} : DVD laser current measurement mode ^{*2} : Initial current stored in EEPROM ^{*3} : Measured current The value denotes the current in decimal notation. The above example shows the initial current is 34 mA and the measured value is 32 mA.	Cancelled automatically 5 seconds later.
ADSC internal RAM data check	In STOP mode (no disc), press ■ button on the unit and "1" or "2" button on the remote control.	ADSC internal RAM data check ADSC internal RAM data is read out and displayed. Change the address with "CANCEL" key operation to show the data for 16 addresses.	A ^{*1} . 0FA ^{*2} . 6901 ^{*3} . ^{*1} : ADSC internal RAM data check mode ^{*2} : Address ^{*3} : RAM data for specified address The value is shown in hexadecimal notation. The above example shows the data in ADSC address 0FAh is 6901h.	Press ■ button.
CD laser drive current measurement	In STOP mode (no disc), press ■ button on the unit and "3" button on the remote control.	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 Standby/on key is switched off. (It is also turned off when the primary power is switched off.)	LDC ^{*1} . 028 ^{*2} . 026 ^{*3} . ^{*1} : CD laser current measurement mode ^{*2} : Initial current stored in EEPROM ^{*3} : Measured current The value denotes the current in decimal notation. The above example shows the initial current is 28 mA and the measured value is 26 mA.	Cancelled automatically 5 seconds later.
Initialization	In STOP mode (no disc), press ■ button on the unit and "≥10" button on the remote control. Then hold down ■ button on the unit, press ENTER button on the remote control when displaying "INITIALIZE"	Initialization User setting are cancelled and unit is initialized to factory preset settings.	"INITIALIZE..." ↓ "DVD. RESET..." ↓ "TOC. READ..." (Completed initialization)	
Region display	In STOP mode (no disc), press ■ button on the unit and "6" button on the remote control.	Region display	. x ^{*1} . yy ^{*2} . zzz ^{*3} ... ^{*1} : Region No. ^{*2} : Video output format NN; NTSC PN; PAL(When playing NTSC disc: NTSC) P6; PAL(When playing NTSC disc: PAL60) ^{*3} : Model setting code	Cancelled automatically 5 seconds later.
Microcomputer and firmware version display	In STOP mode (no disc), press ■ button on the unit and "7" button on the remote control.	Microcomputer and firmware version display	ww ^{*1} xx ^{*2} . yyy ^{*3} zzz ^{*4} . ^{*1} : Mechanism control version ^{*2} : Operation control version ^{*3} : System controller firmware number ^{*4} : System controller version	Cancelled automatically 5 seconds later.
Region & firmware version display	In STOP mode (no disc), press ■ button on the unit and "8" button on the remote control.	Region & firmware version display	. x ^{*1} . yyy ^{*2} zzz ^{*3} . ^{*1} : Region No. ^{*2} : System controller firmware number ^{*3} : System controller version	Cancelled automatically 5 seconds later.
Timer 1 check	In STOP mode (no disc), press ■ button on the unit and ▲ button on the remote control.	Timer 1 check Laser operation timer. Operation time is measured separately for DVD and CD laser.	T1. 1234. 5678 Shown to the left is DVD laser time, and to the right is 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 ■ button on the unit and ▼ button on the remote control.	Timer 1 reset Laser operation timer. Operation time is reset all at once for DVD and CD laser.	T1. 0000. 0000	Cancelled automatically 5 seconds later.

Item	Unit mode and button combination	Function	Display	Cancellation method
Timer 2 check	In STOP mode (no disc), press ■ button on the unit and ► button on the remote control.	Timer 2 check Spindle motor operation timer.	T2. 12345.... Time is shown in 5 digits of decimal notation in a unit of 10 hours. "00000" will follow "99999".	Cancelled automatically 5 seconds later.
Timer 2 reset	While displaying Timer 2 data, press ■ button on the unit and ◀ button on the remote control.	Timer 2 reset Spindle motor operation timer.	T2. 00000....	Cancelled automatically 5 seconds later.
Communication error display	In STOP mode (no disc), press ■ button on the unit and "MENU" button on the remote control.	Communication error display Displaying the number of communication error times between DVD system control IC and panel control IC.	ERR. 02 ^{*1} . /30 ^{*2} ^{*1} : Number of error times ^{*2} : Number of communication times(Fixed)	Cancelled automatically 5 seconds later.

7.6. Sales demonstration lock function

This function prevents discs from being lost when the unit is used for sales demonstration, disable to eject the disc and some operations for disc. When the unit is operated in this mode, "LOCKED____" is displayed on the FL display and prohibited operation is disabled.

7.6.1. Setting

• Setting for eject operation

1. Press "SELECT" button on the AV control receiver to select DVD.
2. Hold down ■ button on the unit, and then press ► (PLAY) button on the remote control for at least 3 seconds.
"LOCKED____" is displayed on the FL display for 3 seconds, and then start to play the disc on the unit. (This indicates the unit enters into sales demonstration lock function.)

Note:

When "Open/close ▲" is pressed, "LOCKED____" is displayed and disabled to open/close the disc tray.

• Setting for selector and some operations for disc

1. Press "SELECT" button on the AV control receiver to select DVD.
2. Hold down ► button on the unit, and then press ► (PLAY) button on the remote control for at least 3 seconds.
"LOCKED____" is displayed on the FL display for 3 seconds, and then start to play the disc on the unit. (This indicates the unit enters into sales demonstration lock function.)

Note:

When buttons as shown below are pressed, "LOCKED____" is displayed and disabled to operate.

Unit	SELECTOR (on the AV control receiver), Open/close ▲, ■, II
Remote control	CH SELECT, TEST, VCR, TV, TUNER/BAND, DVD/CD, ■, II, ►►, ◀◀, ►►, ◀◀, P.MEMORY, DISPLAY, SET UP, FL DISPLAY, TIMER, GROUP, PLAY MODE, CANCEL

7.6.2. Cancellation

This function can be cancelled by the same procedures shown above.
("UNLOCKED____" is displayed for about 3 seconds and cancels the sales demonstration lock function.)

7.7. Handling after completing repairs

Perform the following procedures after completing repairs.

1. Close the disc tray to press "Open/close ▲" button.
2. Turn off the power to press "Standby/on" button.
3. Disconnect an AC mains lead from the outlet.

Note:

Do not disconnect an AC mains lead from the outlet with the disc tray is still opens, then close the disc tray manually.

8 Service Precautions

8.1 Recovery after the DVD player is repaired

- When a FROM or module P.C.B. is replaced, carry out the recovery processing to optimize the drive.
Playback the recovery disc to process the recovery automatically.
- Recovery disc (Product number: **RFKZD03R004**)
- Performing recovery
 1. Load the recovery disc (**RFKZD03R004**) on to the unit 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.

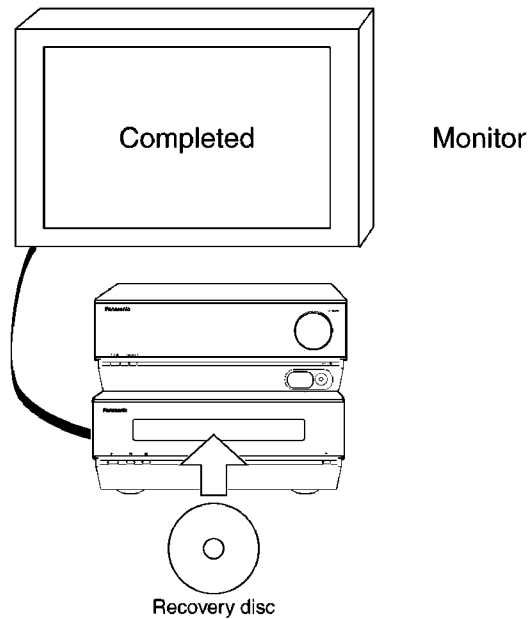
When the recovery measure are taken, the customer setting will return to the factory preset settings as same as the procedure described in item of "Initialization" in 7.5. is carried out. Write down the contents of the setting before recovery processing, and reset the unit.

8.2 Firmware version-up of the DVD player

- The firmware of the DVD player may be renewed to improve the quality including operability and playback ability to the substandard discs processing to optimize the drive.
The recovery disc has also firmware version-up.
- 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 unit and run it.
 2. Firmware version of the unit is automatically checked. Appropriate message appears whenever necessary.
 3. Using remote control 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 down 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.



8.3. Cumulative operation time display function

1. Operation/display

T 1 _ 0 1 2 3 _ 0 1 2 3

DVD/CD laser operation time
Unit: 10 hours in decimal notation

T 2 _ 0 1 2 3 4 _ _ _ _

Spindle motor operation time
Unit: 10 hours in decimal notation

Key operations are as follows.

Laser operation time..... In STOP mode (no disc), while pressing ■ button on the unit, press ▲ button on the remote control

Spindle motor operation time..... In STOP mode (no disc), while pressing ■ button on the unit, press ► button on the remote control.

To reset the timer, perform the following while displaying the time with above key operation.

Laser operation time..... While pressing ■ button on the unit, press ▼ button on the remote control.

Spindle motor operation time..... While pressing ■ button on the unit, press ◀ button on the remote control.

2. How to utilize

Reference information in fault diagnosis of laser or spindle motor system.

Review of faulty point in repeated repair.

9 Measurements and Adjustments

9.1. Service tool and equipment

Applications	Parts Name	Parts Number
Tilt adjustment	DVD test disc	DVDT-S15 or DVDT-S01
	Hexagonal wrench	Commercially available (2mm)
Inspection	Extension cable (22 pin)	JGS0116
	Extension cable (26 pin)	JGS0098
Others	Grease 1	RFKXGAK152
	Grease 2	RFKXPG641
	Oil 1	RFKXGA1280
Confirmation	CD test disc	PVCD-K06 or any other
	VCD test disc	commercially available disc.
	Recovery disc	RFKZD03R004

9.2. Important points in adjustments

9.2.1. Important points in optical adjustments

- Before starting optical adjustment, be sure to take an antistatic measures.
- Optical pick-up tilt adjustment is needed after replacement of the following components.

1. Optical pick-up
2. Spindle motor unit
3. Optical pick-up peripheral parts (such as rail)

Remarks:

Adjustment is generally unnecessary after replacing other parts of traverse unit. However, make an adjustment if there is noticeable degradation in picture quality. Optical adjustments cannot be made inside the optical pick-up. Adjustment is generally unnecessary after replacing the traverse unit.

9.3. Storing and handling test discs

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

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

9.4. Optical pick-up adjustment

9.4.1. Optical pick-up tilt adjustment

Measurement point	Adjustment point	Mode	Disc
	Tangential adjustment screw Tilt adjustment screw	T1 (inner periphery) play T43 (outer periphery) play	DVDT-S15 or DVDT-S01
Measurement equipment		Adjustment value	
None (Use the FL display indication on SA-DT110.)		Adjust the jitter value to the minimum level.	

9.4.1.1. Adjustment procedures

1. In PLAY mode, while pressing **II** button on the unit, press "5" button on the remote control.
2. Confirm that "J. xxx. yyy. zz" is shown on the FL display of the AV control receiver (SA-DT110).

For your reference:

"yyy" and "zz" shown to the right have nothing to do with jitter value. "yyy" is the error counter, while "zz" is the focus drive value.

Note:

Jitter value appears on the FL display of the AV control receiver (SA-DT110).

3. Play test disc T1 (inner periphery).
4. Adjust tangential adjustment screw so that the jitter value is minimized. Refer to Fig. 9-1.
5. Play test disc T43 (outer periphery).
6. Adjust tilt adjustment screw1 so that the jitter value is minimized. Refer to Fig. 9-1.
7. Play test disc T43 (outer periphery).
8. Adjust tilt adjustment screw2 so that the jitter value is minimized. Refer to Fig. 9-1.
9. Repeat adjusting tilt adjustment screw1 and 2 alternately until the jitter value is minimized.

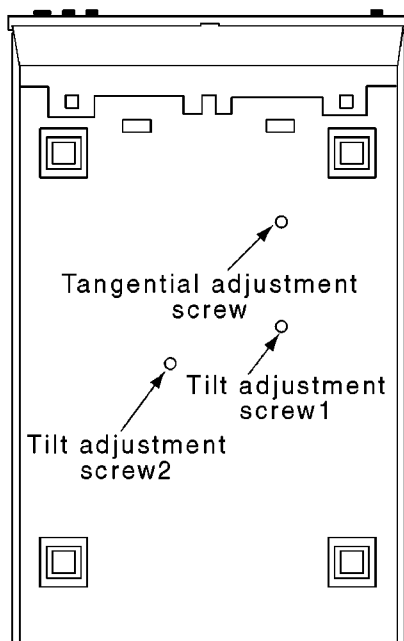
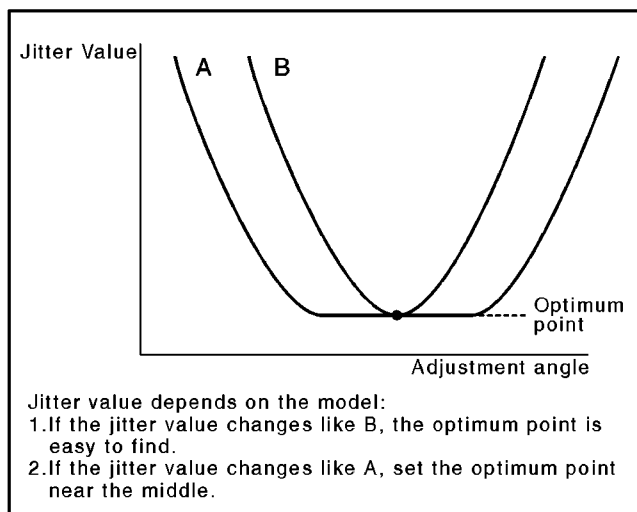


Fig. 9-1.

9.4.1.2. Important point

1. Make tangential adjustment first, and then make tilt adjustment.

2. Repeat adjusting two or three times to find the optimum point.
3. Finish the procedure with tilt adjustment.



9.4.1.3. 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 screws in position using screw lock.

9.4.1.4. Procedure for screw lock

1. After the adjustment is performed, remove the traverse unit from the unit.
2. Lay the traverse unit upside down, fix adjustment screw with screw lock. Refer to Fig. 9-2.
3. After fixing, assemble the traverse unit to the unit.

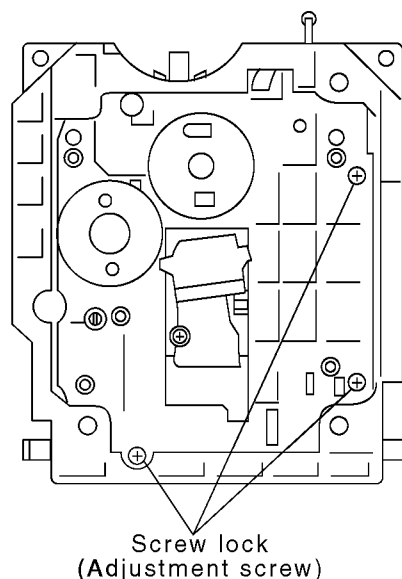
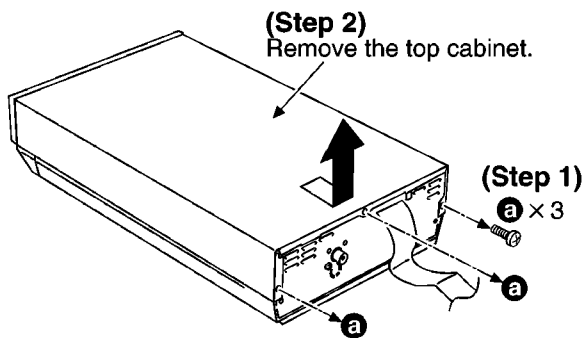


Fig. 9-2.

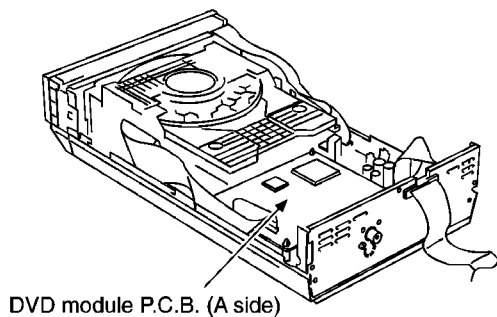
10 Operation Checks and Disassembly Procedures

- This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.
- For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.

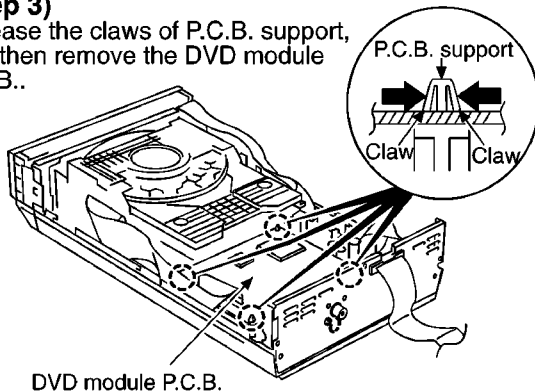
10.1. Checking for the DVD module P.C.B.



- Check the DVD module P.C.B. (A side) as shown below.

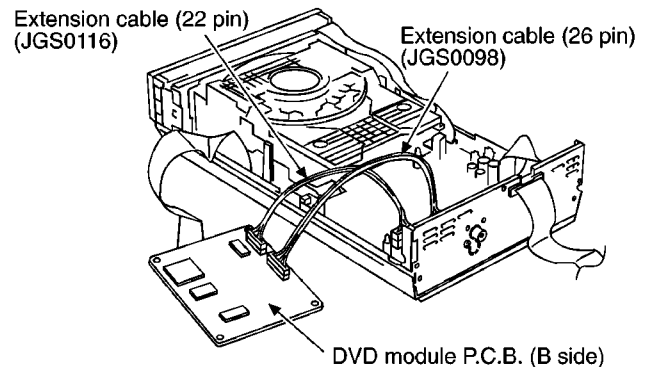


- (Step 3)**
Release the claws of P.C.B. support, and then remove the DVD module P.C.B..



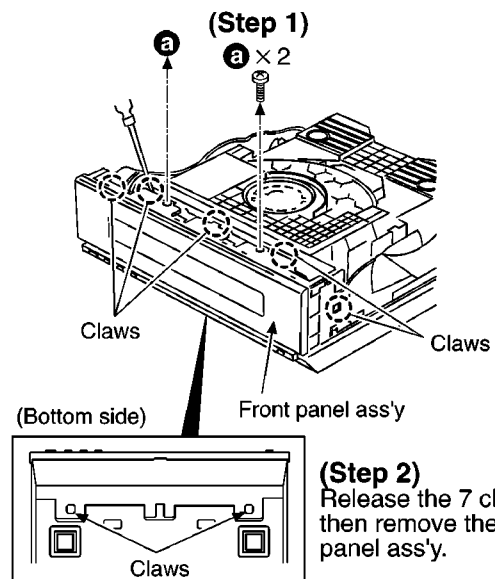
- Check the DVD module P.C.B. (B side) as shown below.

- (Step 4)**
Connect the connectors with extension cables (2 points).

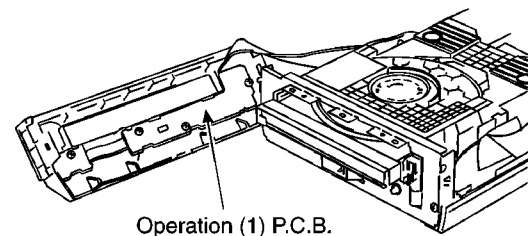


10.2. Checking for the operation (1) P.C.B.

- Follow the (Step 1) , (Step 2) of item 10.1.

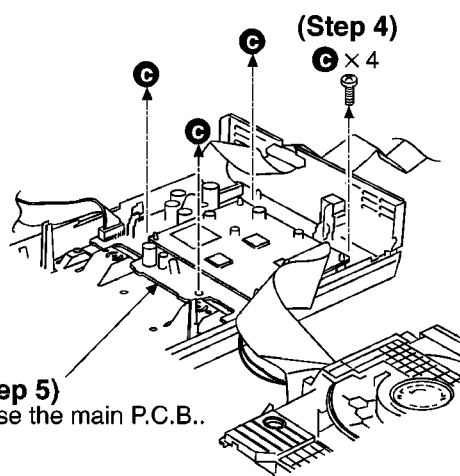
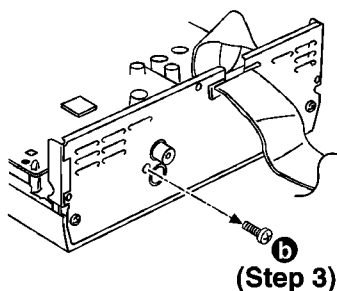
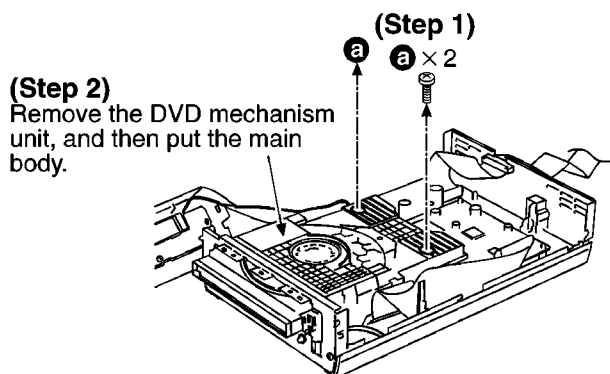


- Check the operation (1) P.C.B. as shown below.

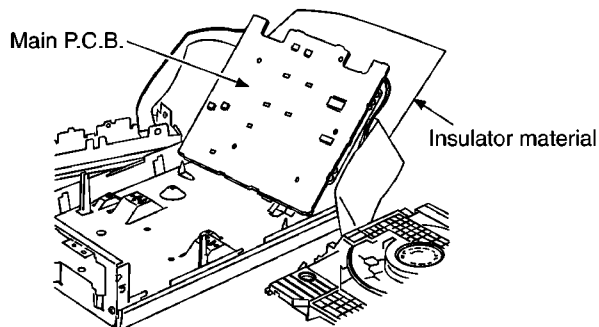


10.3. Checking for the main P.C.B.

- Follow the (Step 1) , (Step 2) of item 10.1.
- Follow the (Step 1) , (Step 2) of item 10.2.

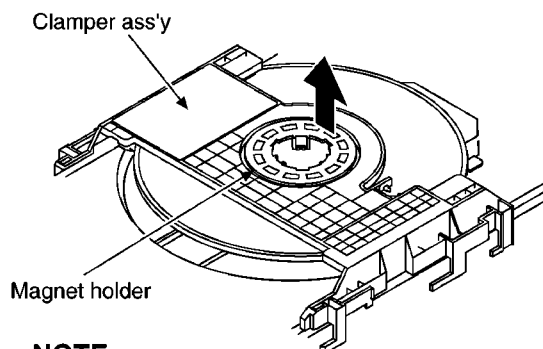
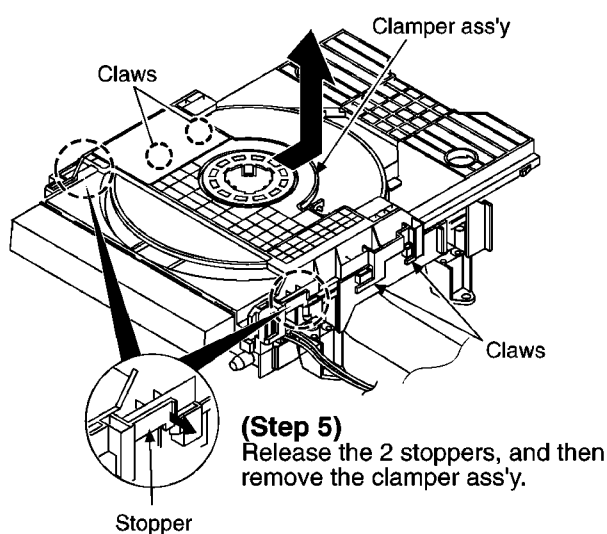
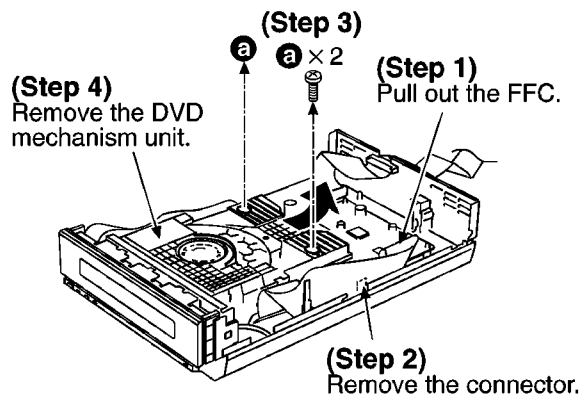


- Check the main P.C.B. as shown below.



10.4. Replacement for the traverse deck ass'y and optical pick-up

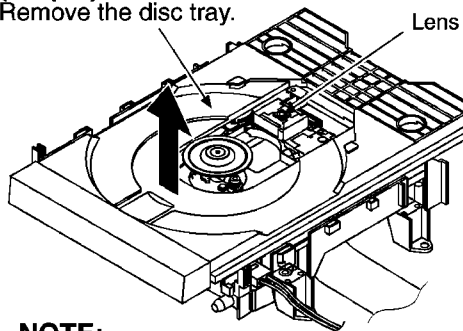
- Follow the (Step 1) , (Step 2) of item 10.1.



NOTE:

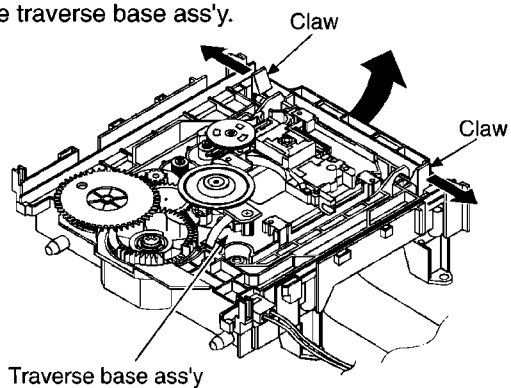
When the traverse base ass'y is up, remove the clamper ass'y after lift up the magnet holder.

(Step 6)
Remove the disc tray.

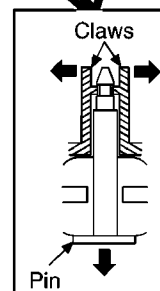
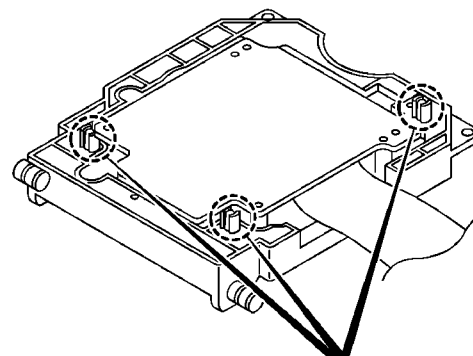
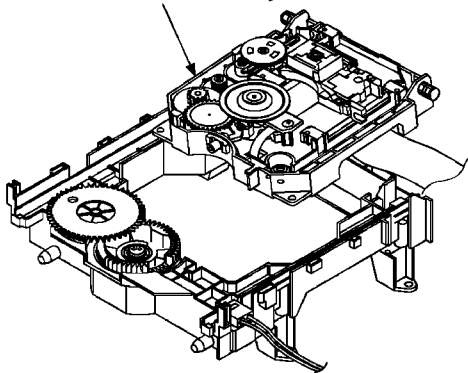


NOTE:
Do not touch the lens of the optical pick-up.

(Step 7)
Release the 2 claws, and then
draw the traverse base ass'y.

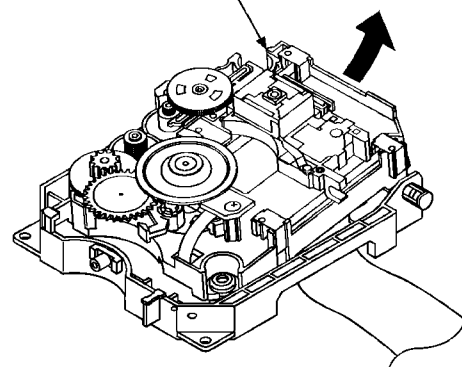


(Step 8)
Remove the traverse base ass'y.

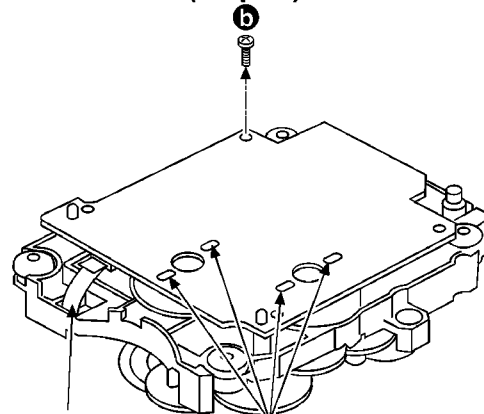


(Step 9)
Release the 2 claws, and
then pull out the pin.
(3 points)

(Step 10)
Remove the traverse deck ass'y.



(Step 11)

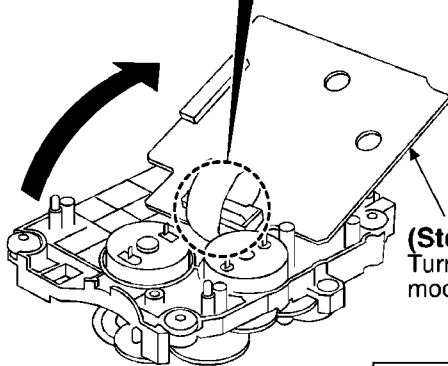
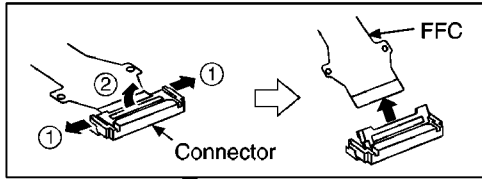


(Step 13)
Pull out the FFC.

(Step 12)
Unsolder the motor terminal
(4 points)

(Step 15)

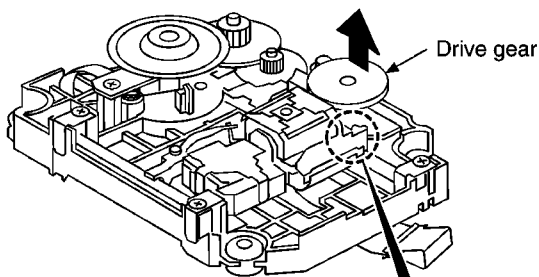
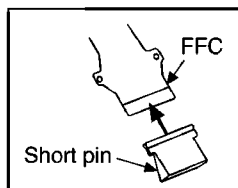
Remove the FFC from connector.

**(Step 14)**

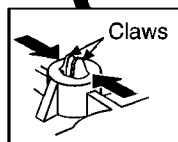
Turn over the DVD module (2) P.C.B..

NOTE:

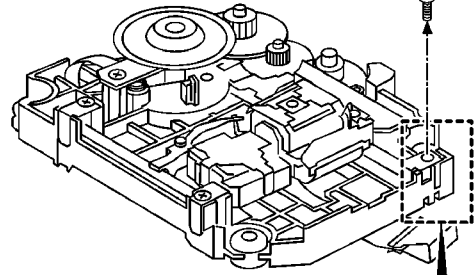
Insert a short pin into the FFC.

**(Step 16)**

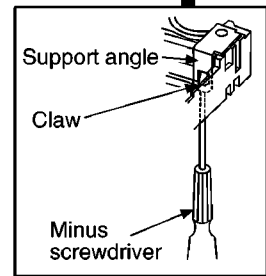
Release the 2 claws, and then remove drive gear.



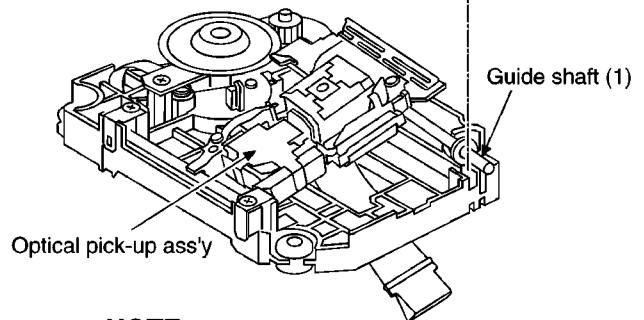
(Bottom side)

(Step 17)**(Step 18)**

Release the claw, and then remove the support angle.

**(Step 20)**

Lift up the optical pick-up ass'y, and then remove the guide shaft (1) from guide (A).

**(Step 19)**

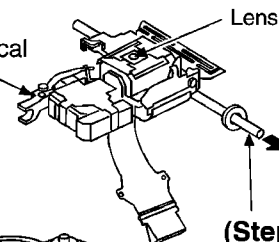
Remove the spring.

NOTE:

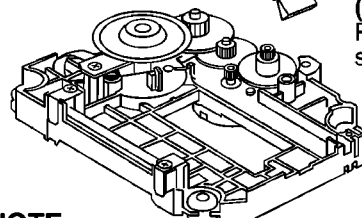
Take care not to lose the spring.

(Step 21)

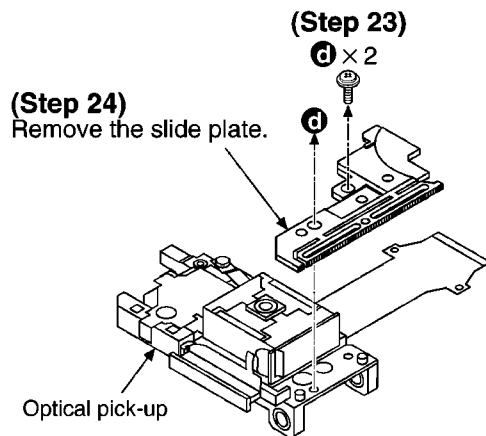
Remove the optical pick-up ass'y.

**(Step 22)**

Pull out the guide shaft (1).

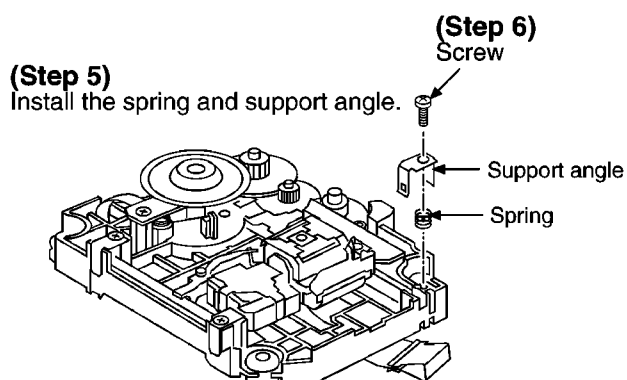
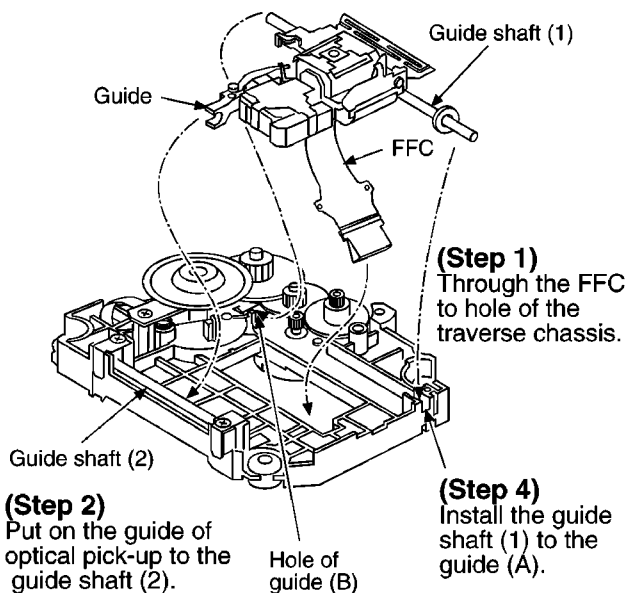
**NOTE:**

1. Use care to prevent damage the optical pick-up, due to the precision construction.
2. Do not touch the lens of the optical pick-up.



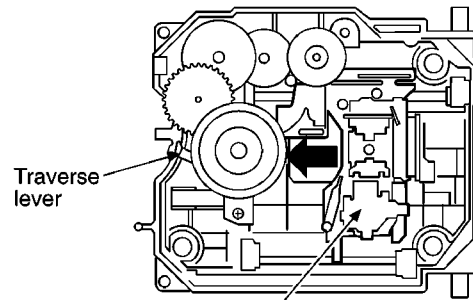
Installation of the optical pick-up ass'y

(Step 3)
 Install the tip of guide shaft (1) to the hole of guide (B).



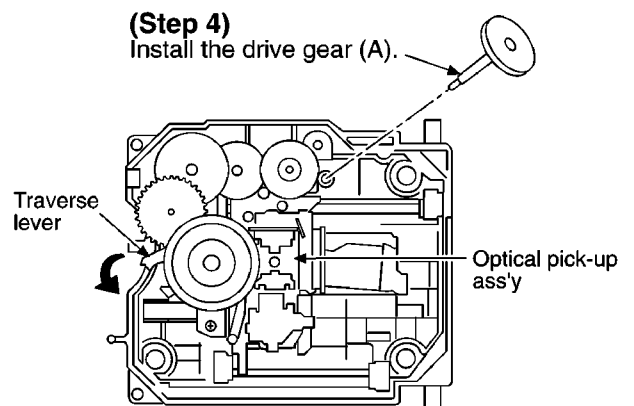
Installation of the traverse base ass'y

(Step 1)
 Confirm the traverse lever's position as shown below.



(Step 2)
 Slide the optical pick-up ass'y fully in the direction of arrow.

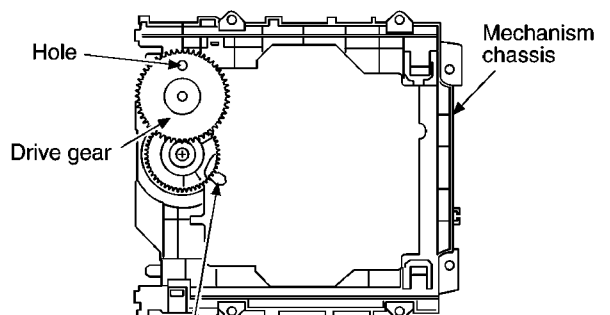
(Step 4)
 Install the drive gear (A).



(Step 3)
 Slide max the optical pick-up ass'y follow to the arrow. Then confirm the traverse lever would move to the direction of arrow.

[Preparation of traverse base ass'y is complete]

(Step 5)
 Align the hole of drive gear to the hole of mechanism chassis.

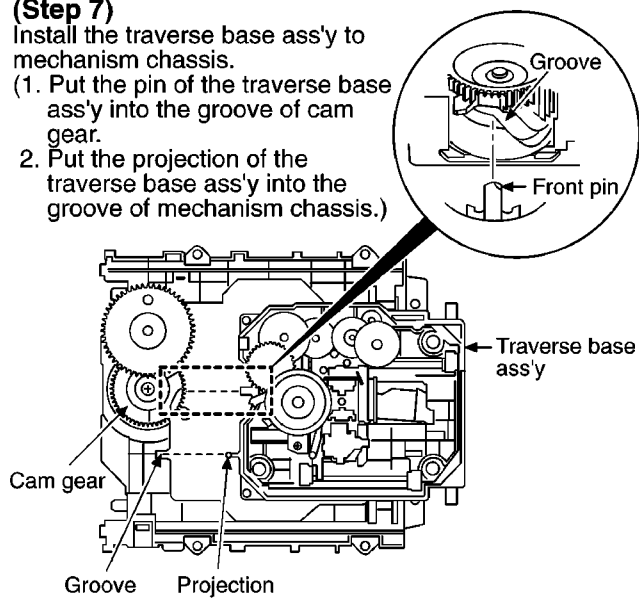


(Step 6)
 Set the projection of cam gear as shown above.

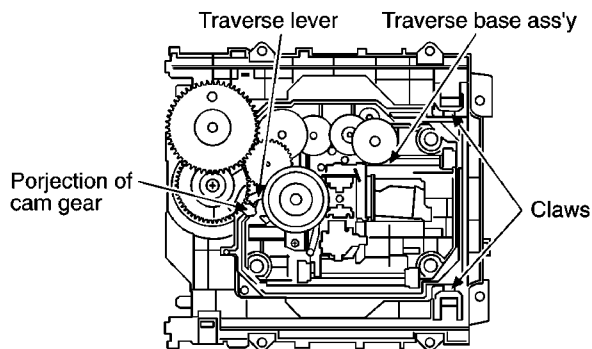
(Step 7)

Install the traverse base ass'y to mechanism chassis.

- (1. Put the pin of the traverse base ass'y into the groove of cam gear.
2. Put the projection of the traverse base ass'y into the groove of mechanism chassis.)

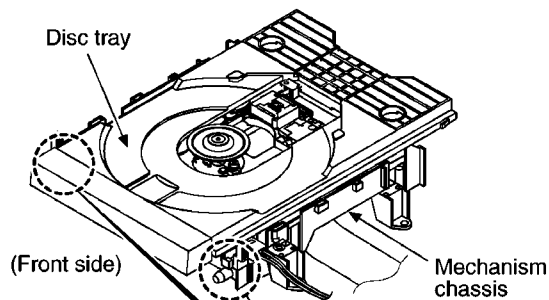
**(Step 8)**

With pressing the both side of claws in the direction of arrow, force the traverse base ass'y.

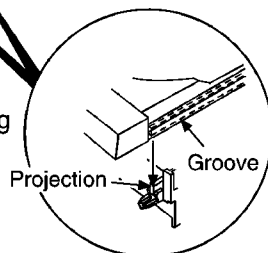
**(Step 9)**

Confirm the traverse lever and projection of cam gear as shown above.

Installation of the disc tray

**(Step 1)**

Install the disc tray after setting the projection of mechanism chassis to the front of groove in the disc tray.



11 To Supply Power Source

This unit is designed to operate on power supplied from system connected.

When a component requires service, use the system connections to supply power source.

For system connections, refer to Fig.11-1.

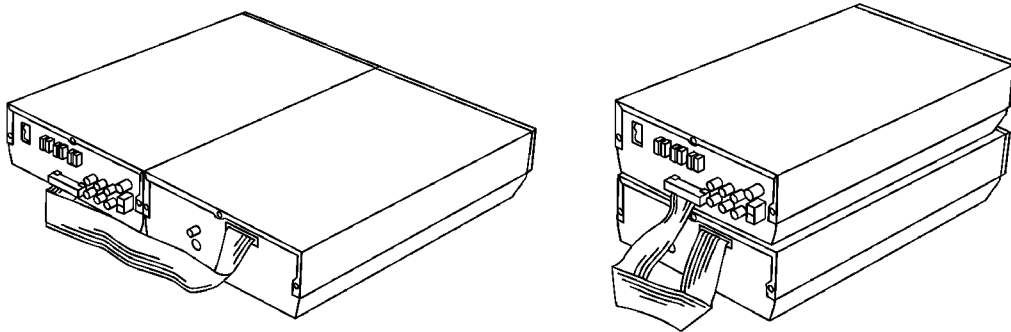


Fig.11-1.

12 Schematic Diagram Notes

- This schematic diagram may be modified at any time with the development of new technology.

Notes:

- S601:** Play switch (▶)
- S602:** Pause switch (||)
- S603:** Stop switch (■)
- S605:** Open/close switch (▲)
- S1001:** Tray open/close detect switch in OFF position
- S2501:** Reset detect switch in OFF position

- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

No mark : Stop
() : Play

- Important safety notice:

Components identified by △ mark have special characteristics important for safety.

Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.

When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

- The supply part number is described alone in the replacement parts.
- Voltage and signal line

- ▶— : Positive voltage line
- ▶--- : Negative voltage line
- ▶ : Audio signal line
- ▶ : Video signal line
- ⇒ : Audio/video signal line
- ◁ : Center sp. signal line

- ◁▶▶ : Surround sp. signal line
- ▶ : Sub woofer signal line

Caution!

IC and LSI are sensitive to static electricity.

Secondary trouble can be prevented by taking care during repair.

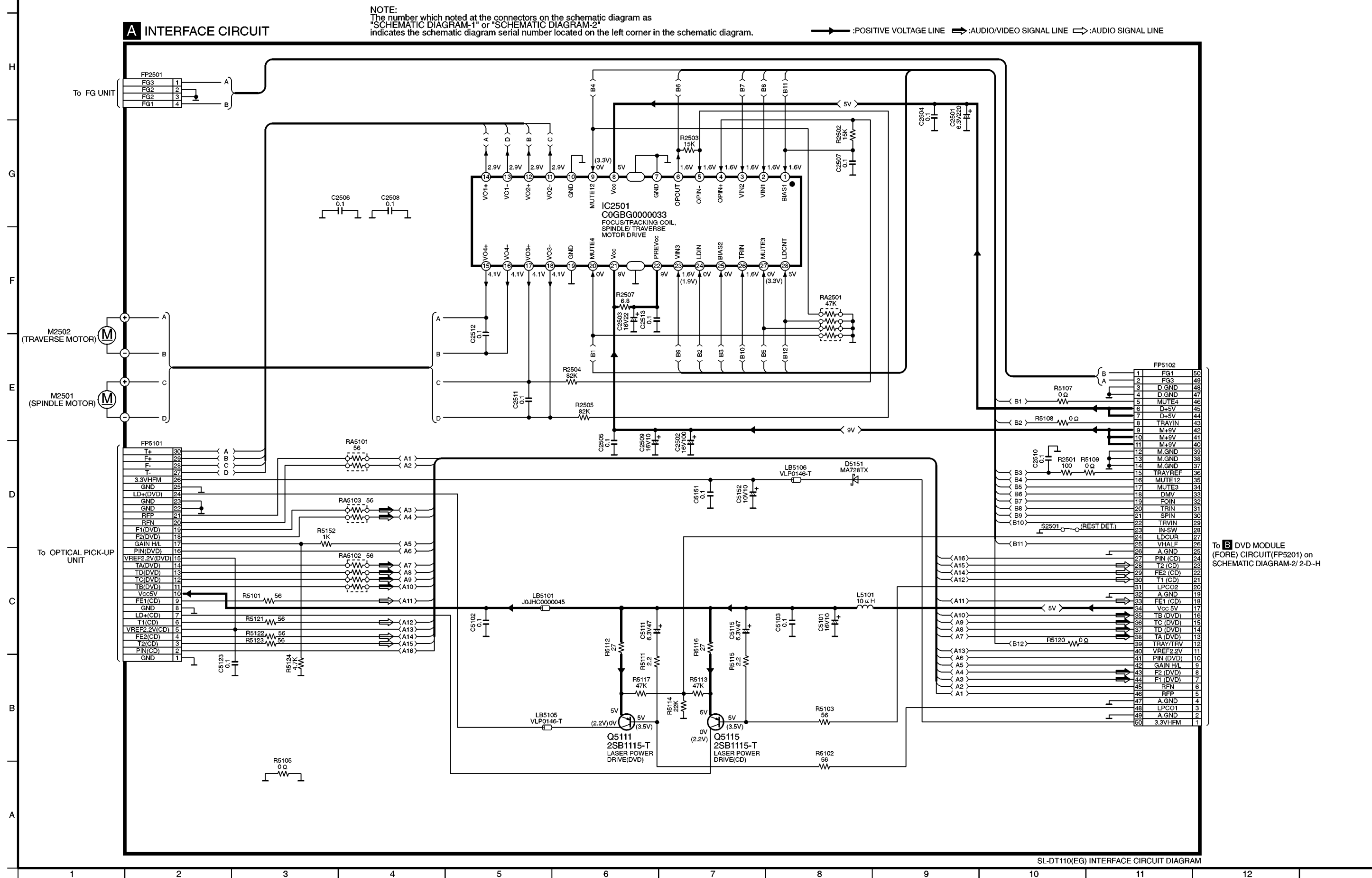
Cover the parts boxes made of plastics with aluminum foil.
Ground the soldering iron.

Put a conductive mat on the work table.

Do not touch the legs of IC or LSI with the fingers directly.

13 Schematic Diagram

SCHEMATIC DIAGRAM-1

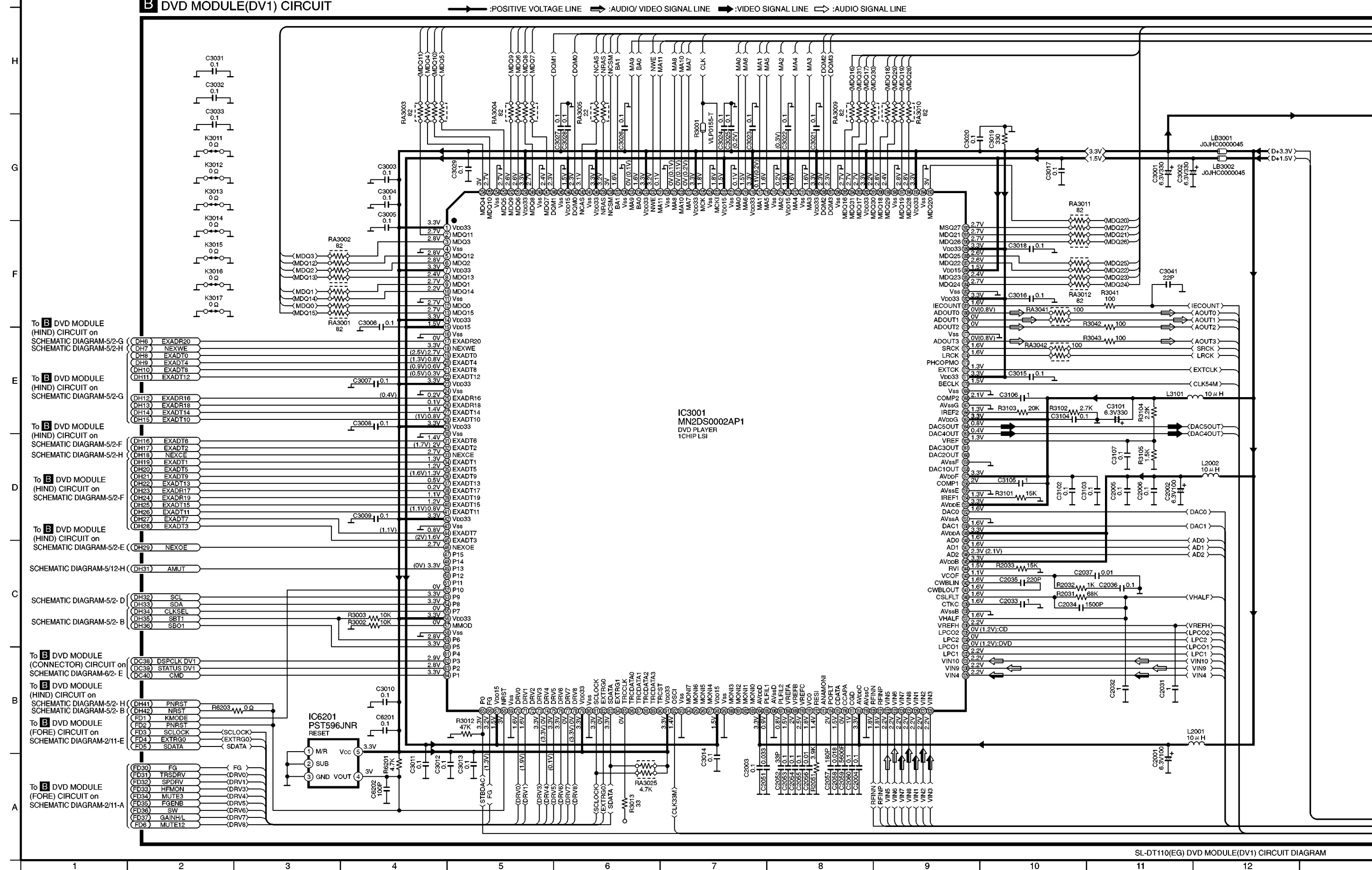


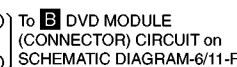
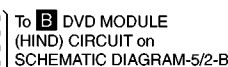
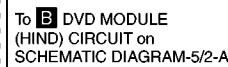
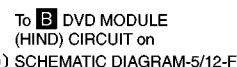
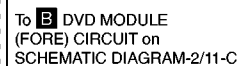
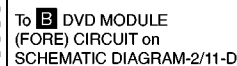
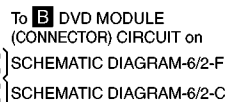
To **B** DVD MODULE
(FORE) CIRCUIT(FP5201) on
SCHEMATIC DIAGRAM-2/ 2-D-H



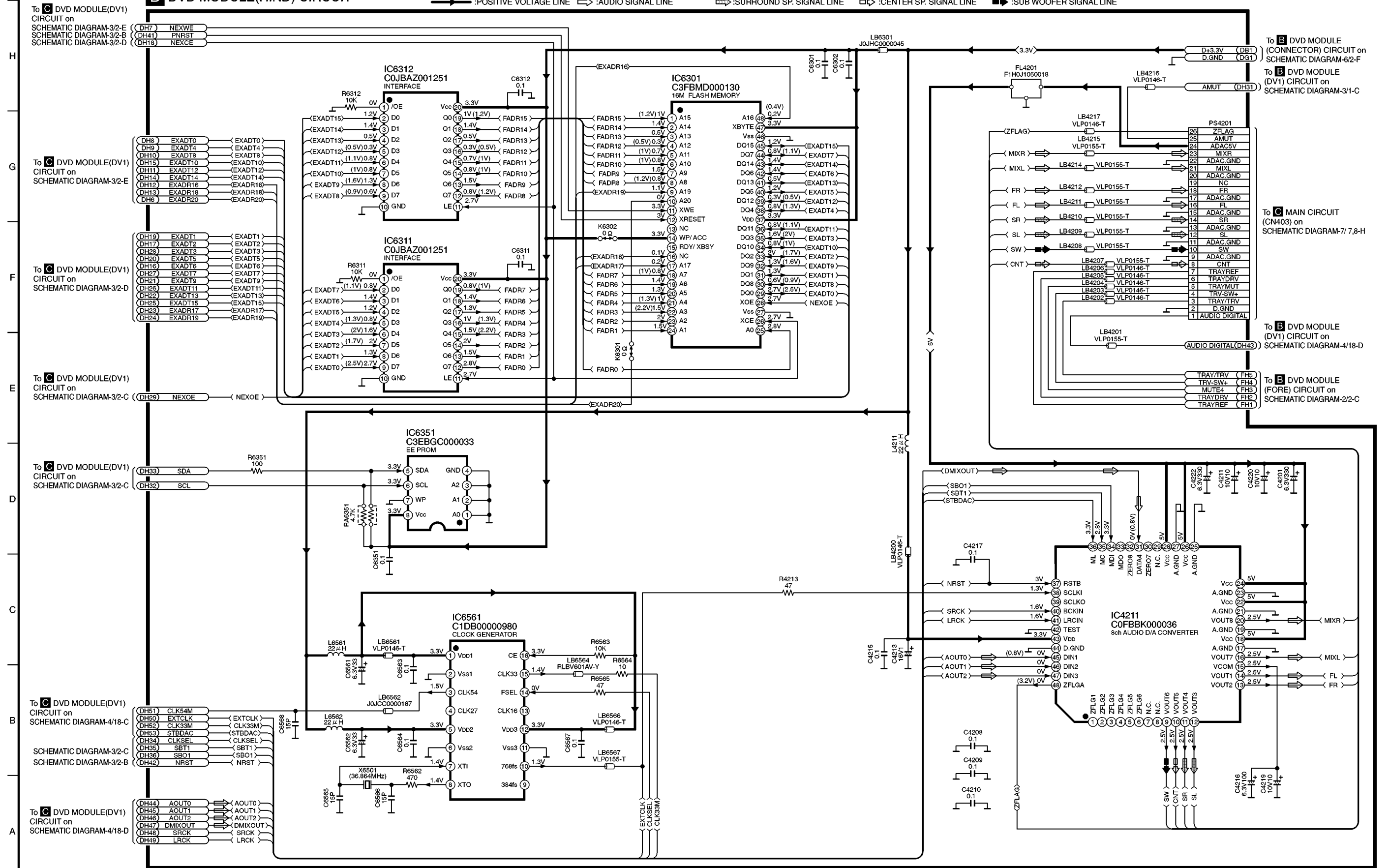
SCHEMATIC DIAGRAM-3

B DVD MODULE(DV1) CIRCUIT





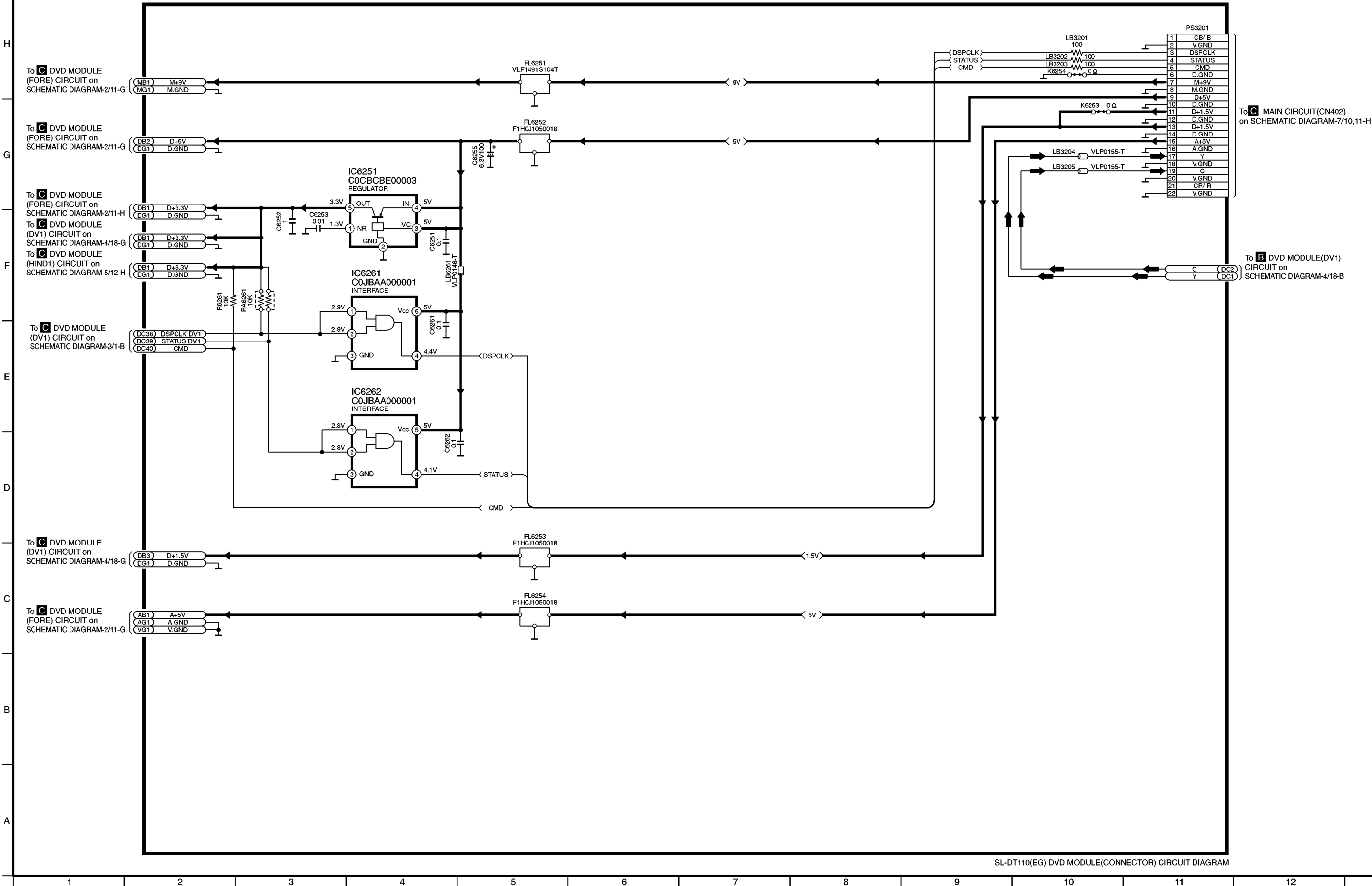
B DVD MODULE(HIND) CIRCUIT



SCHEMATIC DIAGRAM-6

B DVD MODULE(CONNECTOR) CIRCUIT

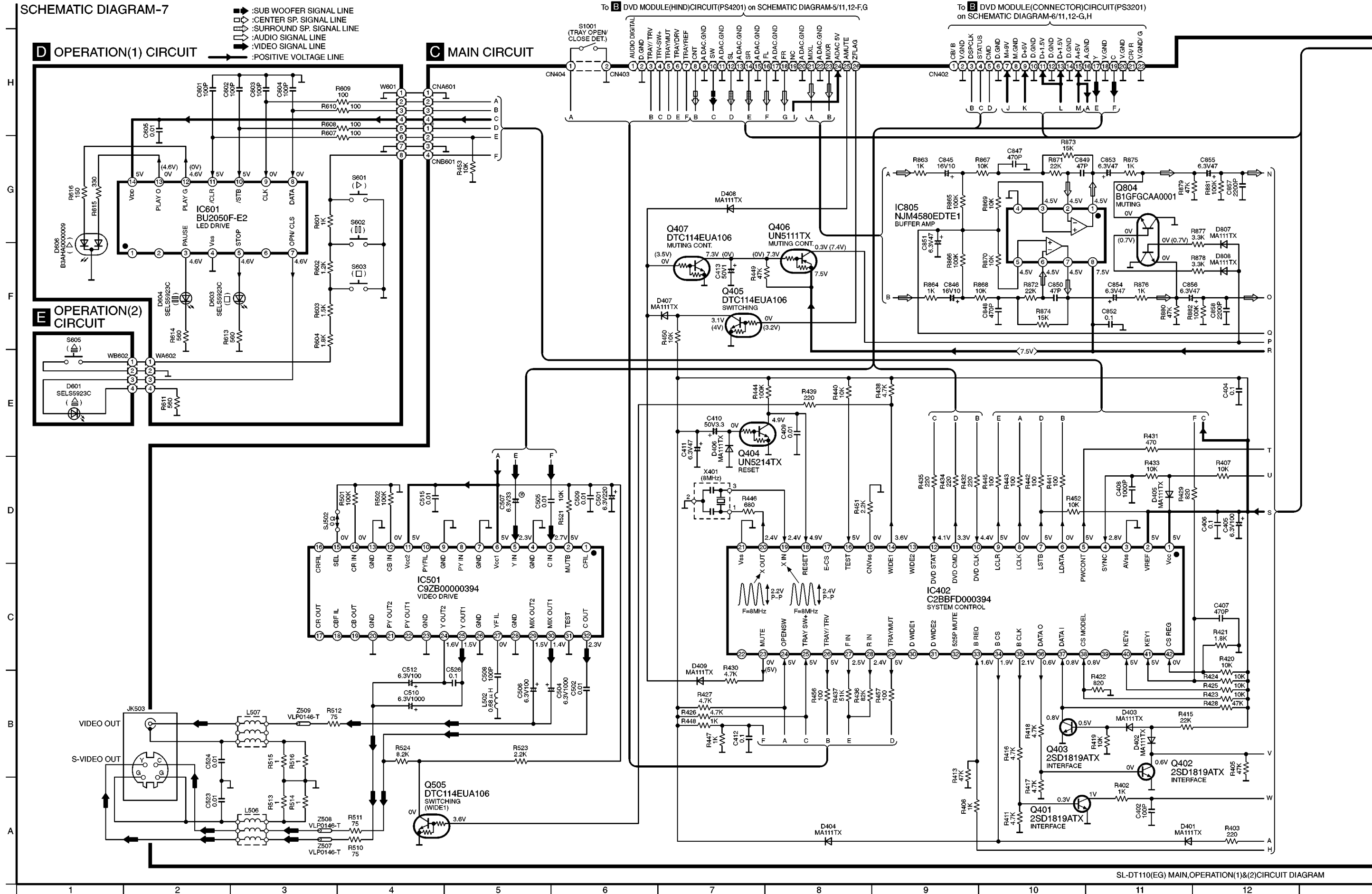
→ : POSITIVE VOLTAGE LINE
➡ : VIDEO SIGNAL LINE



To C MAIN CIRCUIT(CN402) on SCHEMATIC DIAGRAM-7/10,11-H

To B DVD MODULE(DV1) CIRCUIT on SCHEMATIC DIAGRAM-4/18-B

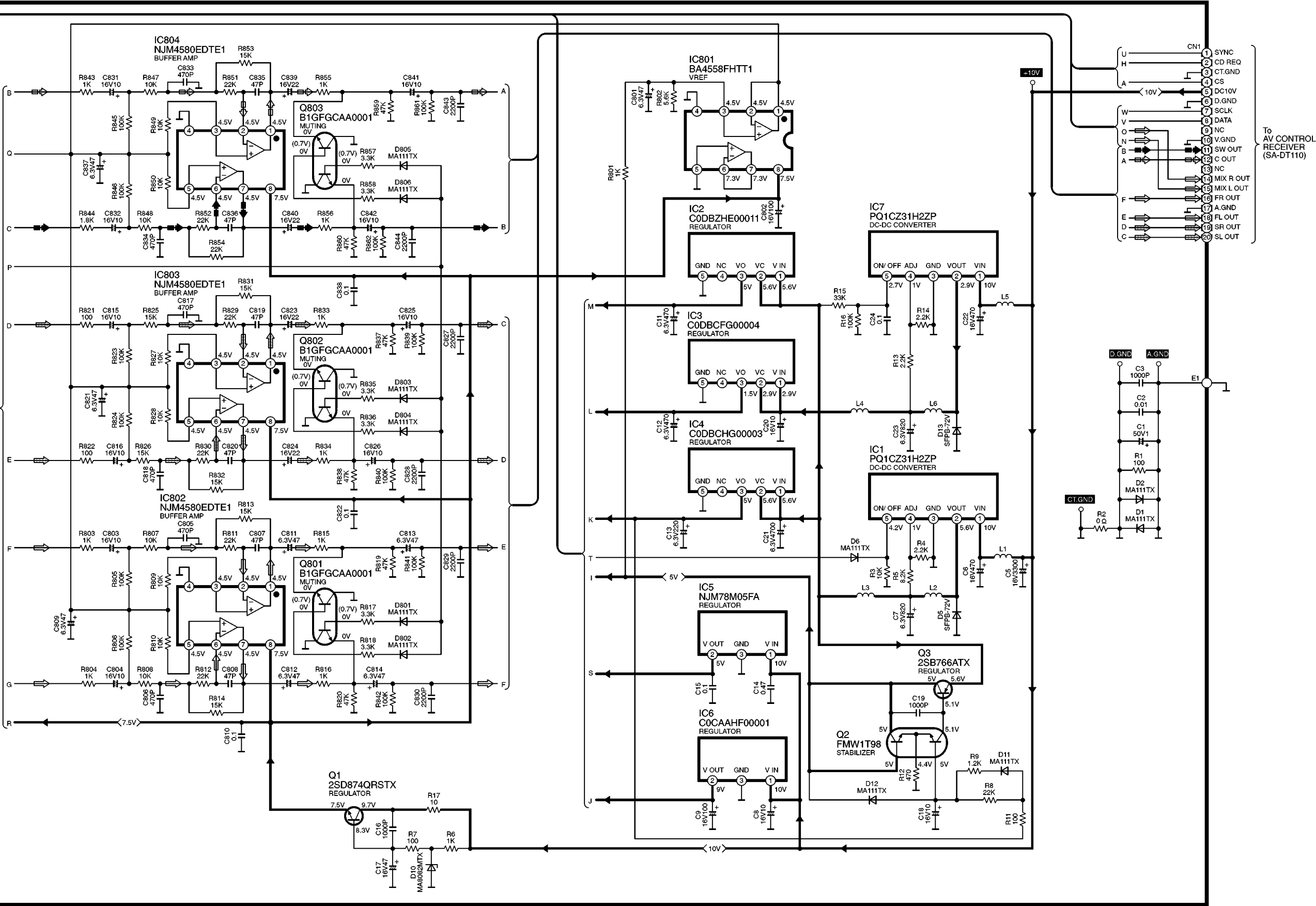
| SCHEMATIC DIAGRAM-7



SCHEMATIC DIAGRAM-8

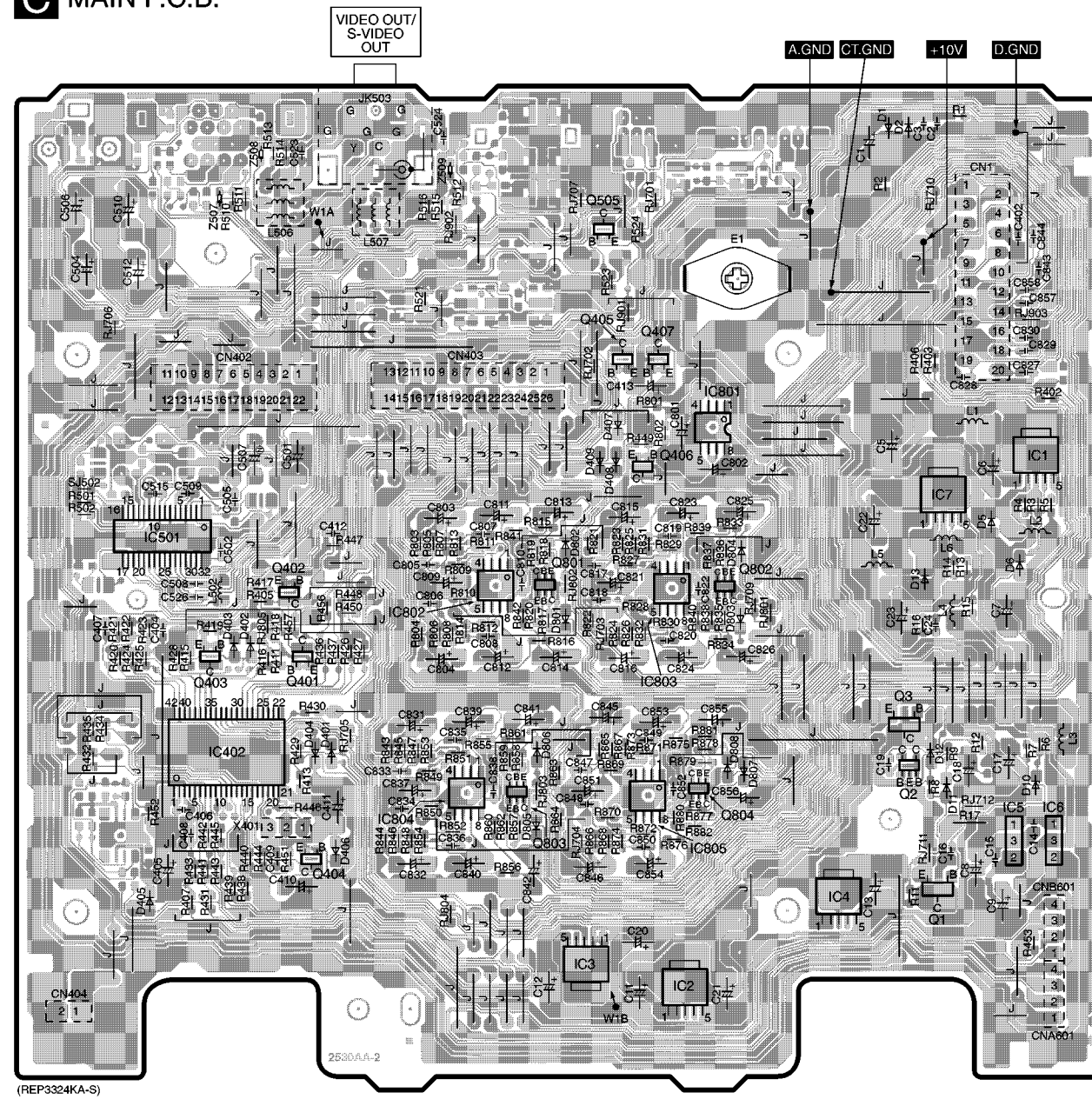
C MAIN CIRCUIT

→ : POSITIVE VOLTAGE LINE ⇨ : AUDIO SIGNAL LINE ⇨ : SURROUND SP. SIGNAL LINE ⇨ : CENTER SP. SIGNAL LINE ⇨ : SUB WOOFER SIGNAL LINE

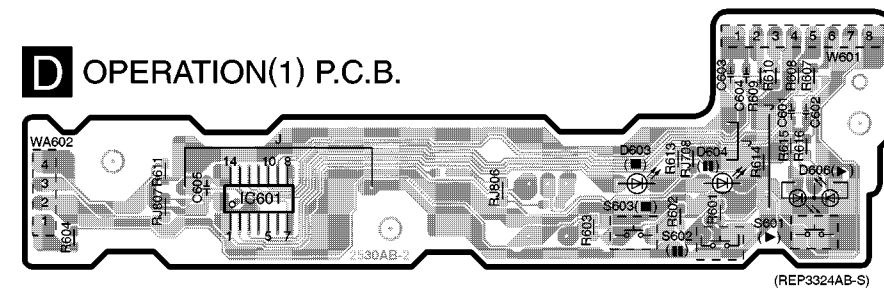


SL-DT110(EG) MAIN CIRCUIT DIAGRAM

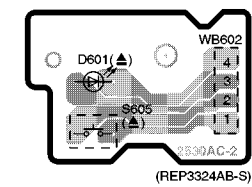
C MAIN P.C.B.



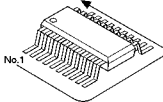
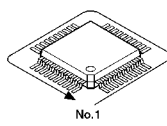
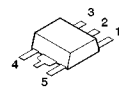
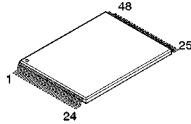
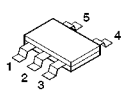
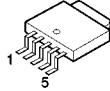
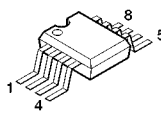
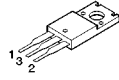
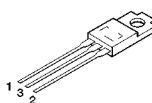
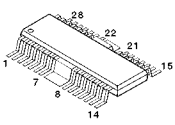
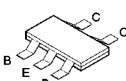
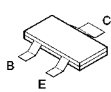
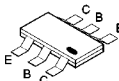
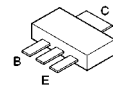
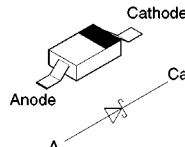
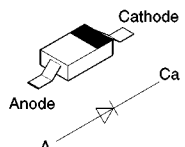
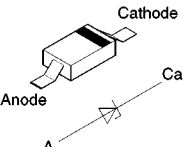
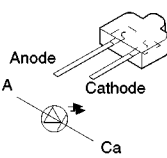
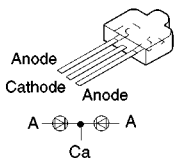
D OPERATION(1) P.C.B.



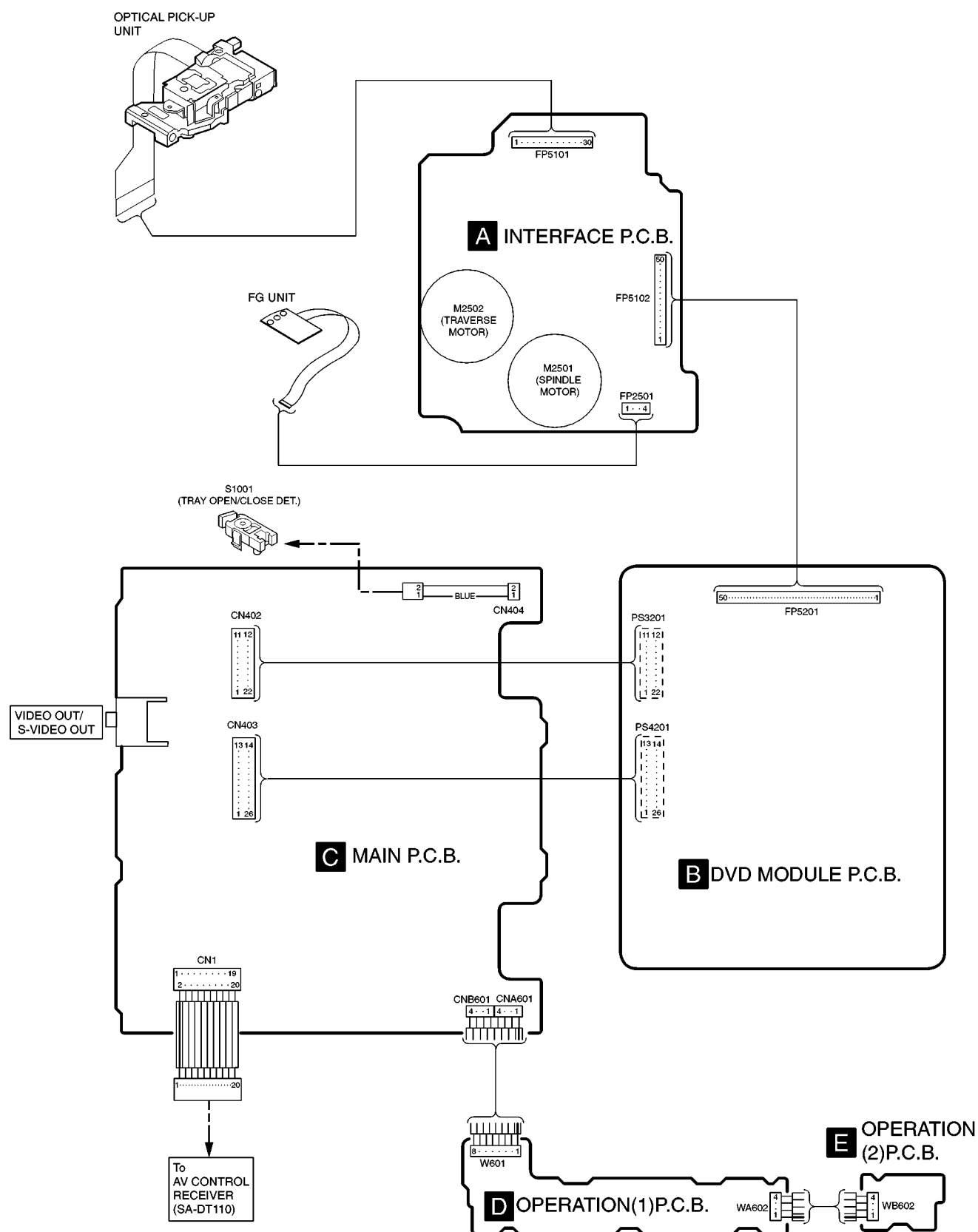
E OPERATION(2) P.C.B.



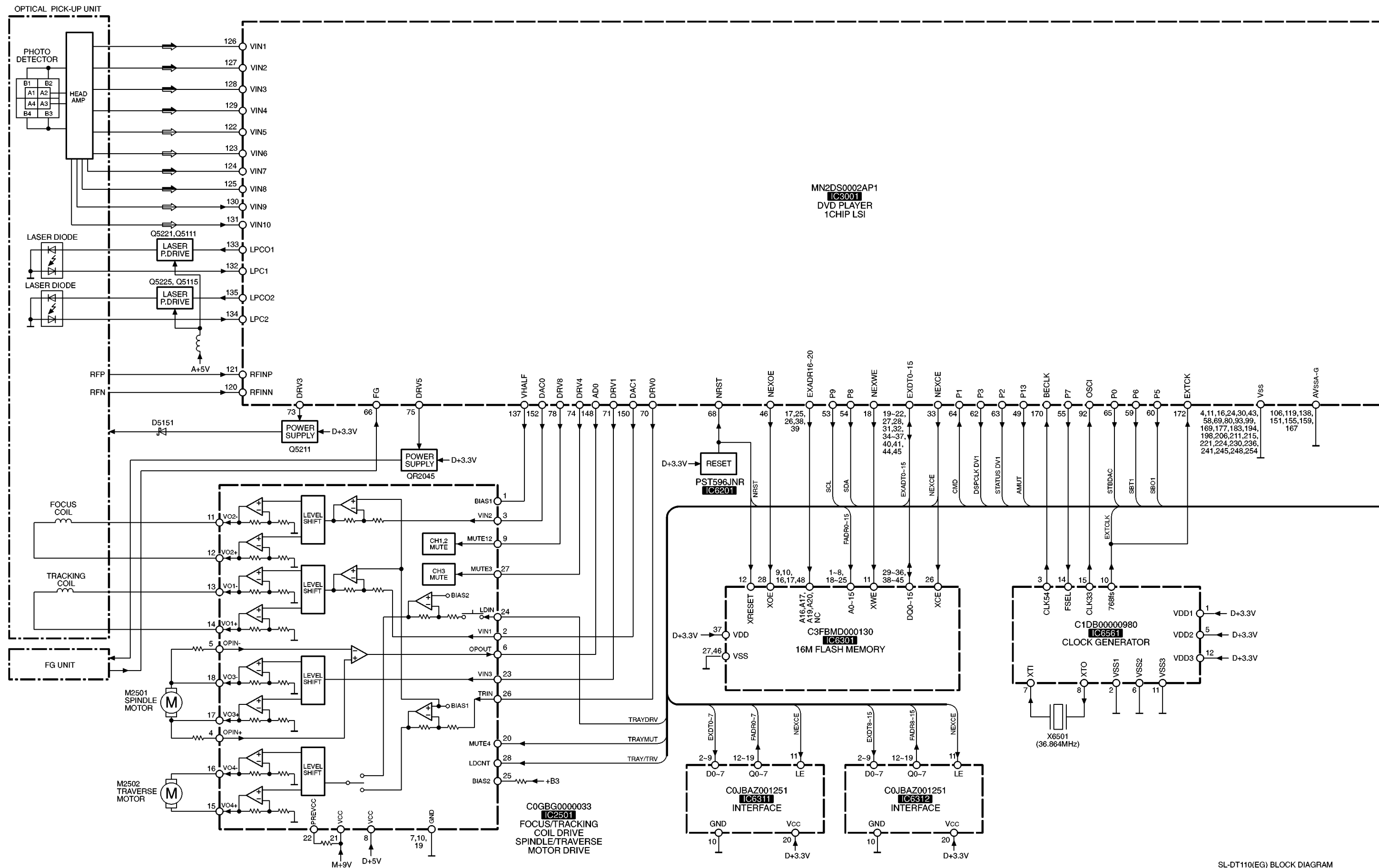
15 Type Illustration of ICs, Transistors and Diodes

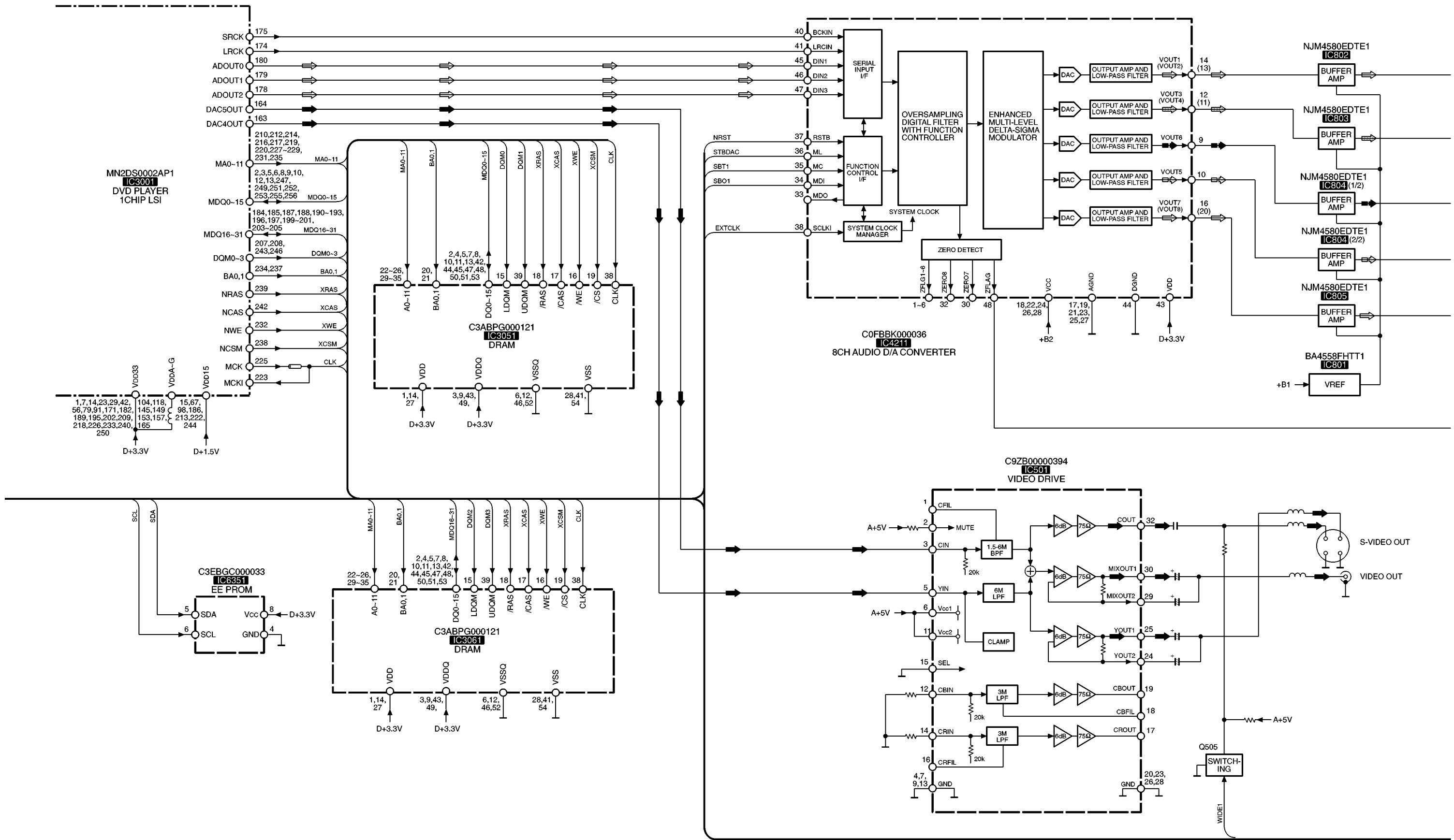
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BU2050F-E2	14PIN	C9ZB00000394	32PIN																								
C0JBAZ001251	20PIN	NJM4580EDTE1	8PIN																								
C3ABPG000121	54PIN	C1DB00000980	16PIN																								
C2BBFD000394	42PIN																										
C0FBBK000036	48PIN																										
MN2DS0002AP1	256PIN																										
C3FBMD000130 	PST596JNR C0JBAA000001 			PQ1CZ31H2ZP C0DBZHE00011 C0DBCHG00003 C0DBCFCG00004		BA4558FHTT1 C3EBGC000033 	NJM78M05FA 																				
C0CAAHF00001 	C0GBG0000033 	FMW1T98 			2SD1819ATX DTC114EUA106 UN2121-TX UN5111TX UN5214TX UN511MTX		B1GFGCAA0001 																				
2SB766ATX 2SD874QRSTX 2SB1115-T 	MA728TX 	MA111TX SFPB-72V 	MA8082MTX 	SELS5923C 		B3AHA0000009 																					

16 Wiring Connection Diagram

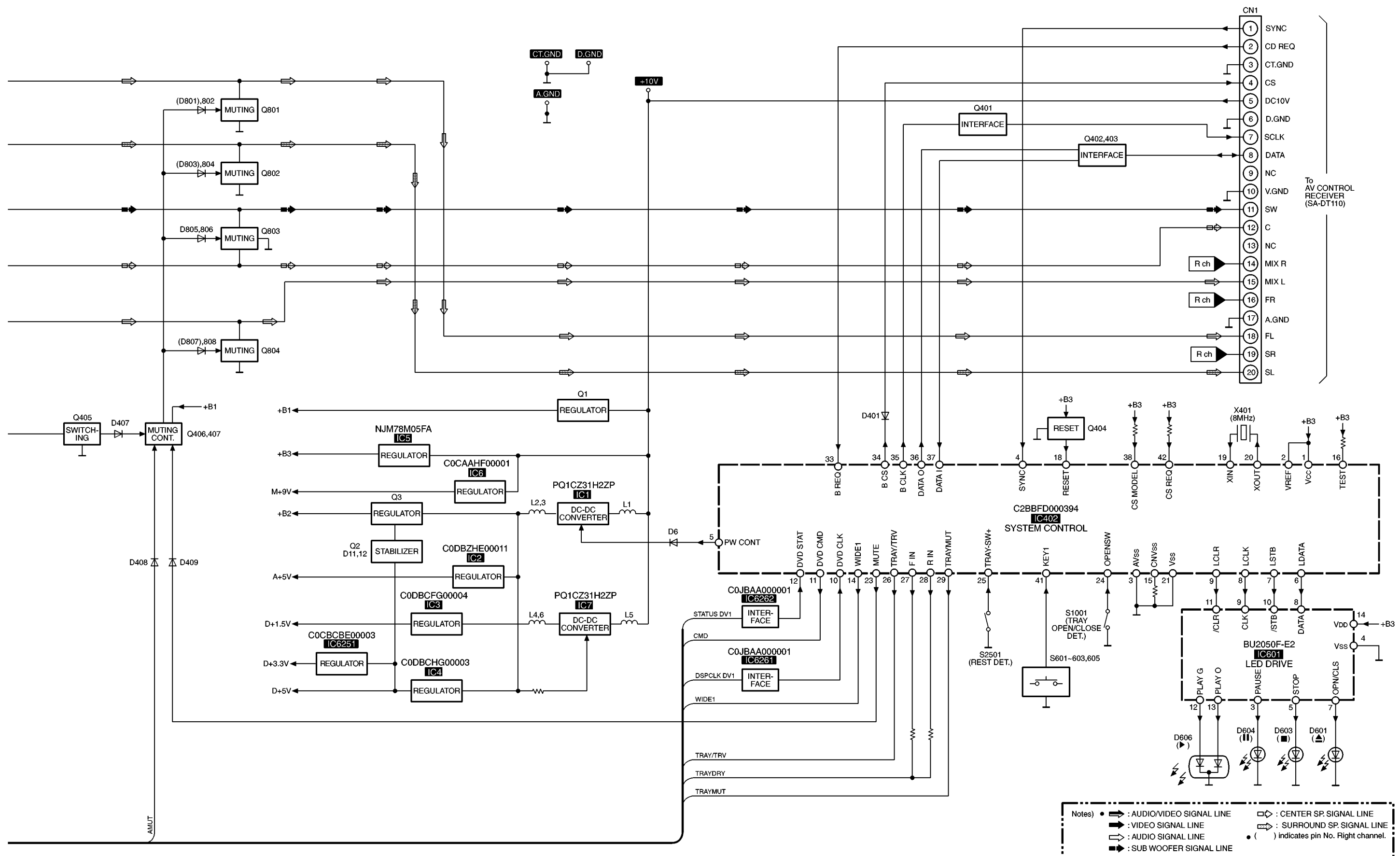


17 Block Diagram





SL-DT110(EG) BLOCK DIAGRAM



SL-DT110(EG) BLOCK DIAGRAM

18 Terminal Function of ICs

18.1. IC402 (C2BBFD000394): System Control

Pin No.	Signal Name	I/O	Description
1	V _{CC}	I	Power supply terminal
2	VREF	I	Reference voltage input
3	AV _{SS}	-	GND
4	SYNC	I	Power failure detect signal input
5	PWCONT	O	DVD module power supply control signal output
6	LDATA	O	Serial control signal output to IC601
7	LSTB	O	Serial control signal output to IC601
8	LCLK	O	Serial control signal output to IC601
9	LCLR	O	Serial control signal output to IC601
10	DVD CLK	I	Communication clock signal input from DVD system control
11	DVD CMD	O	Communication command signal output for DVD system control
12	DVD STAT	I	Communication status signal input from DVD system control
13	WIDE2	-	Not used, open
14	WIDE1	O	Wide screen circuit change control output
15	CNV _{SS}	-	GND
16	TEST	I	Test mode input
17	E-CS	-	Not used, open
18	RESET	I	System reset signal input
19	X IN	I	Oscillation connect terminal (F=8MHz)
20	X OUT	O	
21	V _{SS}	-	GND
22	NC	-	Not used, open
23	MUTE	O	Mute control output
24	OPENSW	I	Disc tray open/close switch signal input
25	TRAY SW+	I	Rest detect switch signal input
26	TRAY/TRV	O	Disc tray/traverse drive change signal output
27	F IN	O	Motor driver control output
28	R IN	O	Motor driver control output
29	TRAYMUT	O	Motor driver mute signal output
30	D WIDE1	-	Not used, open
31	D WIDE2	-	Not used, open
32	525P MUTE	-	Not used, open
33	B REQ	I	Serial communication request signal input from system control (SA-DT110)
34	B CS	O	Serial communication chip select signal output for system control (SA-DT110)
35	B CLK	O	Serial communication clock signal output for system control (SA-DT110)
36	DATA O	O	Serial communication data signal output for system control (SA-DT110)
37	DATA I	I	Serial communication data signal input from system control (SA-DT110)
38	CS MODEL	I	Model change signal input
39	NC	-	Not used, open
40	KEY2	I	Not used, connected to GND
41	KEY1	I	Operation key signal input
42	CSREG	I	Chip select signal input (Area select)

19 Abbreviations

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 SERVOAMP OUTPUT
B	ASYNC AUDIO WORD DISTINCTION SYNC
	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
	CAV CONSTANT ANGULAR VELOCITY
	CBDO CAP. BLACK DROP OUT
C	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 SYSTEMCLOCK 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 CHIPSELECT
	CSYN CIN COMPOSITE SYNC IN
	CSYN COUT 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 DROPOUT
	DOUT0-UP DATA OUTPUT
	DRF DATA SLICE RF (BIAS)
	DRPOUT DROP OUT SIGNAL
	DREQ DATA REQUEST
	DRESP DATA RESPONSE
	DSC DIGITAL SERVO CONTROLLER
	DSLIF DATA SLICE LOOP FILTER
	DVD DIGITAL VIDEO DISC
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 OVERSAMPLING) CLOCK
G	GND COMMON GROUNDING (EARTH)

INITIAL/LOGO	ABBREVIATIONS
H	HA0-UP HOST ADDRESS
	HD0-UP HOST DATA
	HINT HOST INTERRUPT
	HRXW HOST READ/WRITE
I	IECOUT IEC958 FORMAT DATA OUTPUT
	IPFLAG 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/OMASK
	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 PULSEWAVE MOTOR DRIVE A
	PWMOA, B PULSE WAVE MOTOR OUT A, B
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

INITIAL/LOGO	ABBREVIATIONS
S	SBCK SUB CODE CLOCK
	SBI0, 1 SERIAL DATA INPUT
	SB00 SERIAL DATA OUTPUT
	SBT0, 1 SERIAL CLOCK
	SCK SERIAL DATA CLOCK
	SCKR AUDIO SERIAL CLOCK RECEIVER
	SCL SERIAL CLOCK
	SCLK SERIAL CLOCK
	SDA SERIALDATA
	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 SERIALPORT 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 STREAMDATA POLARITY SELECT
	STVALID STREAM DATA VALIDITY
	SUBC SUB CODE SERIAL
	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 TRACKCROSS SIGNAL
	TRON TRACKING ON
	TRSON TRAVERSE SERVO ON
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 SOURCEPOWER SUPPLY VOLTAGE
	WAIT BUS CYCLE WAIT
W	WDCK WORD CLOCK
	WEH WRITE ENABLE HIGH
	WSR WORD SELECT RECEIVER

INITIAL/LOGO	ABBREVIATIONS
X	X X
	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 INTERRUPTREQUEST
	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 CHIPSELECT
	XVDS X V-DEC CONTROL BUS STROBE
	XVSYNCO X VERTICAL SYNC OUTPUT

20 Replacement Parts List

Notes:

- Important safety notice:

Components identified by Δ mark have special characteristics important for safety.

Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.

When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.

- The marking [RTL] indicates that retention time is limited for this item. After the discontinuation of this assembly in production, it will no longer be available.
- All parts are supplied by SPC.

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
1	RYF0625A-K	DVD LID	1	
2	REZ1571-J	FFC	1	
3	XTB3+8J	SCREW	2	
4	REX1116	WIRE ASS'Y (SYSTEM)	1	
5	RGK1502-K	BOTTOM COVER	1	
6	RGR0326B-N	REAR PANEL	1	
7	RKA0137-K	RUBBER	4	
8	RLBT4001-D	FERRITE CORE	1	
9	RMRI359-W	PCB HOLDER	4	
10	XTB3+8JFZ	SCREW	10	
11	XTBS3+8JFZ1	SCREW	6	
12	RGU2085-S	BUTTON, PLAY	1	
14	XTBS26+8J	SCREW	4	
15	RFKGLDT110BG	FRONT PANEL UNIT	1	
16	RKMO463-S	TOP COVER	1	
17	REZ1450	FLAT CABLE KIT	1	
18	REX1148	WIRE ASS'Y	1	
101	RXQ0742B	SPINDLE MOTOR ASS'Y	1	
102	RMRI323-K3	MIDDLE CHASSIS	1	
103	RMS0712-1	FIXED PIN	2	
104	RMG0558-K	PCB RUBBER	1	
105	RHD20060	SCREW	1	
106	RMG0545-A1	FLOATING RUBBER	4	
107	RDG0499	TRAVERSE GEAR A	1	
108	RMCO415	ADJUST SPRING HOLDER (A)	3	
109	RME0320	ADJUST SPRING	3	
110	RMM0251-1	DRIVE RACK	1	
111	RMS0710-1	GEAR	1	
112	RMS0711-1	GUIDE SHAFT	1	
113	RHD17045	RACK SCREW	2	
114	VHD1224	SCREW	4	
115	RDG0500	TRAVERSE GEAR B	1	
116	RDG0501	TRAVERSE GEAR C	1	
117	RME0319	TRV GEAR SPRING	1	
118	RGQ0280-K5	TRAY	1	
119	RXQ0727-5	MECHANISM CHASSIS UNIT	1	
119-1	XTW3+12S	SCREW	1	
120	JSM0048	MAGNET	1	
121	RMRI445-K	CLAMP PLATE	1	
122	RMRI447-X	MAGNET HOLDER	1	
123	XWG6FFY	WASHER	1	
124	RMRI446-X	CLAMPER	1	
125	RAF3023A-1	OPTICAL PICK-UP	1	Δ
126	RJB2308A-1	FFC	1	
127	RMG0561-T	CUSHION RUBBER	1	
128	RQLS0275-1	LASER CAUTION LABEL	1	Δ
129	RHD14095	SCREW	1	
C1	ECA1HAK010XI	50V 1U	1	
C2	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C3	ECJ1VB1H102K	50V 1000P	1	
C5	ECA1CAM332XE	16V 3300U	1	
C6	ECA1CAM471XB	16V 470U	1	
C7	EEUFC0J821B	6.3V 820U	1	
C8	ECA1CAK100XB	16V 10U	1	
C9	ECA1CAK101XB	16V 100U	1	
C11,12	ECA0JAM471XB	6.3V 470U	2	
C13	ECA0JAK221XH	6.3V 220U	1	
C14	ECUVNC474KBN	16V 0.47U	1	F1J1C474A091
C15	ECJ1VB1C104K	16V 0.1U	1	
C16	ECJ1VB1H102K	50V 1000P	1	
C17	ECA1CAK470XB	16V 47U	1	
C18	ECA1CAK100XB	16V 10U	1	
C19	ECJ1VB1H102K	50V 1000P	1	
C20	ECA1CAK100XB	16V 10U	1	
C21	ECA0JM472G	6.3V 4700U	1	
C22	ECA1CAM471XB	16V 470U	1	
C23	EEUFC0J821B	6.3V 820U	1	
C24	ECJ1VB1C104K	16V 0.1U	1	
C402	ECUV1H101JCV	50V 100P	1	F1H1H101A004
C404	ECJ1VB1C104K	16V 0.1U	1	
C405	EEAFC0J101B	6.3V 100U	1	
C406	ECJ1VB1C104K	16V 0.1U	1	
C407	ECUX1H471JCV	50V 470P	1	ECJ1XC1H471J
C408	ECJ1VB1H102K	50V 1000P	1	
C409	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C410	ECA1HAK3R3XB	50V 3.3U	1	
C411	ECA0JAK470XH	6.3V 47U	1	
C412	ECJ1VB1C104K	16V 0.1U	1	
C413	ECA1HAK010XI	50V 1U	1	
C501	ECA0JAK221XH	6.3V 220U	1	
C502	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C504	ECA0JAM102XB	6.3V 1000U	1	
C505	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C506	ECA0JAK101XB	6.3V 100U	1	
C507	ECEA0JKN330	6.3V 33U	1	
C508	ECUV1H101JCV	50V 100P	1	F1H1H101A004
C509	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C510	ECA0JAM102XB	6.3V 1000U	1	
C512	ECA0JAK101XB	6.3V 100U	1	
C515	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C523,24	ECUVNH103KBV	50V 0.01U	2	F1H1H103A748
C526	ECJ1VB1C104K	16V 0.1U	1	
C601-04	ECUV1H101JCV	50V 100P	4	F1H1H101A004
C605	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C801	ECA0JAK470XH	6.3V 47U	1	
C802	ECA1CAK101XB	16V 100U	1	
C803,04	ECA1CAK100XB	16V 10U	2	
C805,06	ECUX1H471JCV	50V 470P	2	ECJ1XC1H471J
C807,08	ECUV1H470JCV	50V 47P	2	F1H1H470A736
C809	ECA0JAK470XH	6.3V 47U	1	
C810	ECJ1VB1C104K	16V 0.1U	1	
C811-14	ECA0JAK470XH	6.3V 47U	4	
C815,16	ECA1CAK100XB	16V 10U	2	
C817,18	ECUX1H471JCV	50V 470P	2	ECJ1XC1H471J
C819,20	ECUV1H470JCV	50V 47P	2	F1H1H470A736
C821	ECA0JAK470XH	6.3V 47U	1	
C822	ECJ1VB1C104K	16V 0.1U	1	
C823,24	ECA1CAK220XB	16V 22U	2	
C825,26	ECA1CAK100XB	16V 10U	2	
C827-30	ECJ1VB1H222K	50V 2200P	4	
C831,32	ECA1CAK100XB	16V 10U	2	
C833,34	ECUX1H471JCV	50V 470P	2	ECJ1XC1H471J
C835,36	ECUV1H470JCV	50V 47P	2	F1H1H470A736
C837	ECA0JAK470XH	6.3V 47U	1	
C838	ECJ1VB1C104K	16V 0.1U	1	
C839,40	ECA1CAK220XB	16V 22U	2	
C841,42	ECA1CAK100XB	16V 10U	2	
C843,44	ECJ1VB1H222K	50V 2200P	2	
C845,46	ECA1CAK100XB	16V 10U	2	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C847,48	ECUX1H471JCV	50V 470P	2	ECJ1XC1H471J
C849,50	ECUV1H470JCV	50V 47P	2	FLH1H470A736
C851	ECA0JAK470XH	6.3V 47U	1	
C852	ECJ1VB1C104K	16V 0.1U	1	
C853-56	ECA0JAK470XH	6.3V 47U	4	
C857,58	ECJ1VB1H222K	50V 2200P	2	
C2001	F2G0J1010013	6.3V 100U	1	
C2002	EEFEC0J101P	6.3V 100U	1	
C2003-06	ECJ1ZF1C104Z	16V 0.1U	4	
C2011,12	ECJ1VB1C104K	16V 0.1U	2	
C2015	ECJ1VC1H102J	50V 1000P	1	
C2016	ECUV1H821JCV	50V 820P	1	ECJ1VC1H821J
C2021	ECJ1VB1H472K	50V 4700P	1	
C2023	ECJ1VC1H102J	50V 1000P	1	
C2031,32	ECJ1VF1A105Z	10V 1U	2	
C2033	FIH0J1050013	6.3V 1U	1	
C2034	ECJ1VB1H152K	50V 1500P	1	
C2035	ECJ1VC1H221J	50V 220P	1	
C2036	ECJ1VB1C104K	16V 0.1U	1	
C2037	ECJ1VB1C103K	16V 0.01U	1	
C2051	ECJ1VB1C333K	16V 0.033U	1	
C2052	ECJ1VC1H330J	50V 33P	1	
C2053-55	ECJ1ZF1C104Z	16V 0.1U	3	
C2056	ECJ1VB1C103K	16V 0.01U	1	
C2057	ECJ1VC1H181J	50V 180P	1	
C2058	ECJ1VB1C183K	16V 0.018U	1	
C2059	ECJ1VB1H562K	50V 5600P	1	
C2060	ECJ1VB1C104K	16V 0.1U	1	
C2501	EEVFC0J221P	6.3V 220U	1	
C2502	ECEV1CA101WP	16V 100U	1	
C2503	ECEV1CA220WR	16V 22U	1	
C2504-08	ECJ1VF1C104Z	16V 0.1U	5	
C2509	EEVFC1C100R	16V 10U	1	
C2510-13	ECJ1VF1C104Z	16V 0.1U	4	
C3001,02	F2G0J331A015	6.3V 330U	2	
C3003-18	ECJ1ZF1C104Z	16V 0.1U	16	
C3019	ERJ3GEYJ331V	1/16W 330	1	
C3020-29	ECJ1ZF1C104Z	16V 0.1U	10	
C3031-33	ECJ1ZF1C104Z	16V 0.1U	3	
C3041	ECJ1VC1H220J	50V 22P	1	
C3051-55	ECJ1ZF1C104Z	16V 0.1U	5	
C3061-65	ECJ1ZF1C104Z	16V 0.1U	5	
C3101	F2G0J331A015	6.3V 330U	1	
C3102-04	ECJ1ZF1C104Z	16V 0.1U	3	
C3105,06	FIH0J1050013	6.3V 1U	2	
C3107	ECJ1ZF1C104Z	16V 0.1U	1	
C4201	F2G0J331A015	6.3V 330U	1	
C4208-10	ECJ1ZF1C104Z	16V 0.1U	3	
C4211	F3F1A1060002	10V 10U	1	
C4213	ECST1CY105	16V 1U	1	
C4215	ECJ1ZF1C104Z	16V 0.1U	1	
C4216	F2G0J101A015	6.3V 100U	1	
C4217	ECJ1ZF1C104Z	16V 0.1U	1	
C4219,20	F3F1A1060002	10V 10U	2	
C4222	F2G0J331A015	6.3V 330U	1	
C5101	EEVHB1C100R	16V 10U	1	
C5102,03	ECJ1VF1C104Z	16V 0.1U	2	
C5111	EEVHB0J470R	6.3V 47U	1	
C5115	EEVHB0J470R	6.3V 47U	1	
C5123	ECJ1VF1C104Z	16V 0.1U	1	
C5151	ECJ1VF1C104Z	16V 0.1U	1	
C5152	F3K1A1060001	10V 10U	1	
C5201-03	ECJ1ZF1C104Z	16V 0.1U	3	
C5221	EEE0JA330WR	6.3V 33U	1	
C5222	ECJ1ZF1C104Z	16V 0.1U	1	
C5223	EEE1EA4R7SR	25V 4.7U	1	
C5225	ECJ1ZF1C104Z	16V 0.1U	1	
C5226	EEE1EA4R7SR	25V 4.7U	1	
C5231,32	ECJ1VB1C104K	16V 0.1U	2	
C6201	ECJ1ZF1C104Z	16V 0.1U	1	
C6202	ECJ1VC1H101J	50V 100P	1	
C6251	ECJ1VB1C104K	16V 0.1U	1	
C6252	FIH0J1050013	6.3V 1U	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C6253	ECJ1VB1C103K	16V 0.01U	1	
C6255	EEE0JA101SP	6.3V 100U	1	
C6261,62	ECJ1ZF1C104Z	16V 0.1U	2	
C6301,02	ECJ1ZF1C104Z	16V 0.1U	2	
C6311,12	ECJ1ZF1C104Z	16V 0.1U	2	
C6351	ECJ1ZF1C104Z	16V 0.1U	1	
C6561,62	EEE0JA330WR	6.3V 33U	2	
C6563,64	ECJ1ZF1C104Z	16V 0.1U	2	
C6565,66	ECJ1VC1H150J	50V 15P	2	
C6567	ECJ1ZF1C104Z	16V 0.1U	1	
C6568	ECJ1VC1H150J	50V 15P	1	
CN1	RJS2A5520-1	CONNECTOR (20P)	1	K1MP20A00005
CN402	K1KA22A00044	CONNECTOR (22P)	1	
CN403	K1KA26A00089	CONNECTOR (26P)	1	
CN404	REX1148	FLAT CABLE (2P)	1	
CNA601	RJS1A6604T1	CONNECTOR (4P)	1	K1MP04A00008
CNB601	RJS1A6604T1	CONNECTOR (4P)	1	K1MP04A00008
D1,D2	MA2J11100L	DIODE	2	
D5	SFPB-72V	DIODE	1	B0JCPC000004
D6	MA2J11100L	DIODE	1	
D10	MA8082M	DIODE	1	MAZ80820M
D11,12	MA2J11100L	DIODE	2	
D13	SFPB-72V	DIODE	1	B0JCPC000004
D401-09	MA2J11100L	DIODE	9	
D601	SELS5923C	LED	1	B3ADA0000083
D603,04	SELS5923C	LED	2	B3ADA0000083
D606	B3AHA0000009	LED	1	
D801-08	MA2J11100L	DIODE	8	
D2041	MA2J72800L	DIODE	1	
D5151	MA2J72800L	DIODE	1	
FL4201	FIH0J1050018	FILTER	1	
FL6251	FLJ1E1040022	FILTER	1	
FL6252-54	FIH0J1050018	FILTER	3	
FP2501	K1MN04B00036	CONNECTOR (4P)	1	
FP5101	K1MN30B00098	CONNECTOR (30P)	1	
FP5102	K1MN50B00010	CONNECTOR (50P)	1	
FP5201	K1MN50A00005	CONNECTOR (50P)	1	
IC1	C0DBAJG00002	IC	1	
IC2	C0DBZHE00011	IC	1	
IC3	C0DBCFG00004	IC	1	
IC4	C0DBCHG00003	IC	1	
IC5	NJM78M05FA	IC	1	C0CAADE000007
IC6	C0CAAHF00001	IC	1	
IC7	C0DBAJG00002	IC	1	
IC402	C2BBFD000394	IC	1	
IC501	C9ZB00000394	IC	1	
IC601	BU2050F-E2	IC	1	C1BB00000573
IC801	BA4558FHTT1	IC	1	C0ABBB000210
IC802-05	NJM4580EDTE1	IC	4	C0ABBB000125
IC2501	C0GBG0000033	IC	1	
IC3001	MN2DS0002AP1	IC	1	
IC3051	C3ABPG000102	IC	1	
IC3061	C3ABPG000102	IC	1	
IC4211	C0FBK0000036	IC	1	
IC6201	C0EBE0000070	IC	1	
IC6251	C0CBCBE00003	IC	1	
IC6261,62	C0JBAA000001	IC	2	
IC6301	RFKFMD70M161	IC	1	
IC6311,12	C0JBAZ001251	IC	2	
IC6351	C3EBGC000033	IC	1	
IC6561	C1DB00000980	IC	1	
JK503	K1U208B00003	JK, VIDEO/S-VIDEO OUT	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
K3011	ERJ6GEY0R00V	1/8W 0	1	
K3012-17	ERJ3GEY0R00Z	1/16W 0	6	
K3111	ERJ3GEY0R00Z	1/16W 0	1	
K3116	ERJ3GEY0R00Z	1/16W 0	1	
K6253	ERJ6GEY0R00V	1/8W 0	1	
K6254	ERJ3GEY0R00Z	1/16W 0	1	
K6301,02	ERJ3GEY0R00Z	1/16W 0	2	
L1	G0A200D00002	COIL	1	
L2	G0ZZ00001930	COIL	1	
L3-L5	G0A200D00002	COIL	3	
L6	G0ZZ00001930	COIL	1	
L502	ELJFCR68KF	COIL	1	
L506,07	G0BYYYY00016	COIL	2	
L2001,02	G1C100K00020	COIL	2	
L3101	G1C100K00020	COIL	1	
L4211	G1C220KA0038	COIL	1	
L5101	ELJEA100KF	COIL	1	
L5221	G1C100K00020	COIL	1	
L6561,62	G1C220KA0038	COIL	2	
LB3001,02	J0JHC0000045	COIL	2	
LB3201-03	ERJ3GEYJ101	1/16W 100	3	D0GB101JA002
LB3204,05	J0JCC0000119	COIL	2	
LB4200	J0JBC0000015	COIL	1	
LB4201	J0JCC0000119	COIL	1	
LB4202-06	J0JBC0000015	COIL	5	
LB4207-12	J0JCC0000119	COIL	6	
LB4214,15	J0JCC0000119	COIL	2	
LB4216,17	J0JBC0000015	COIL	2	
LB5101	J0JHC0000045	COIL	1	
LB5105,06	J0JBC0000015	COIL	2	
LB5201	J0JBC0000015	COIL	1	
LB5204,05	J0JCC0000119	COIL	2	
LB5206	J0JBC0000015	COIL	1	
LB5207	J0JCC0000119	COIL	1	
LB5208,09	J0JBC0000015	COIL	2	
LB5210-13	J0JCC0000119	COIL	4	
LB5214	J0JHC0000045	COIL	1	
LB5215	J0JCC0000119	COIL	1	
LB5217	J0JCC0000119	COIL	1	
LB5219	J0JCC0000119	COIL	1	
LB5220	J0JBC0000015	COIL	1	
LB5222	ERJ3GEY0R00Z	1/16W 0	1	
LB5228-30	J0JBC0000015	COIL	3	
LB5231	J0JHC0000045	COIL	1	
LB5232	J0JBC0000015	COIL	1	
LB5233	J0JHC0000045	COIL	1	
LB5234,35	J0JBC0000015	COIL	2	
LB6261	J0JBC0000015	COIL	1	
LB6301	J0JHC0000045	COIL	1	
LB6561	J0JBC0000015	COIL	1	
LB6562	J0JCC0000167	COIL	1	
LB6564	J0JCC0000077	COIL	1	
LB6566	J0JBC0000015	COIL	1	
LB6567	J0JCC0000119	COIL	1	
PCB1	REP3557D-N	DVD MODULE PCB ASS'Y	1	[RTL]
PCB2	REP3324KA-S	MAIN PCB ASS'Y	1	[RTL]
PCB3	REP3324AB-S	PANEL PCB ASS'Y	1	[RTL]
PCB11	REP3081A	FG PCB ASS'Y	1	[RTL]

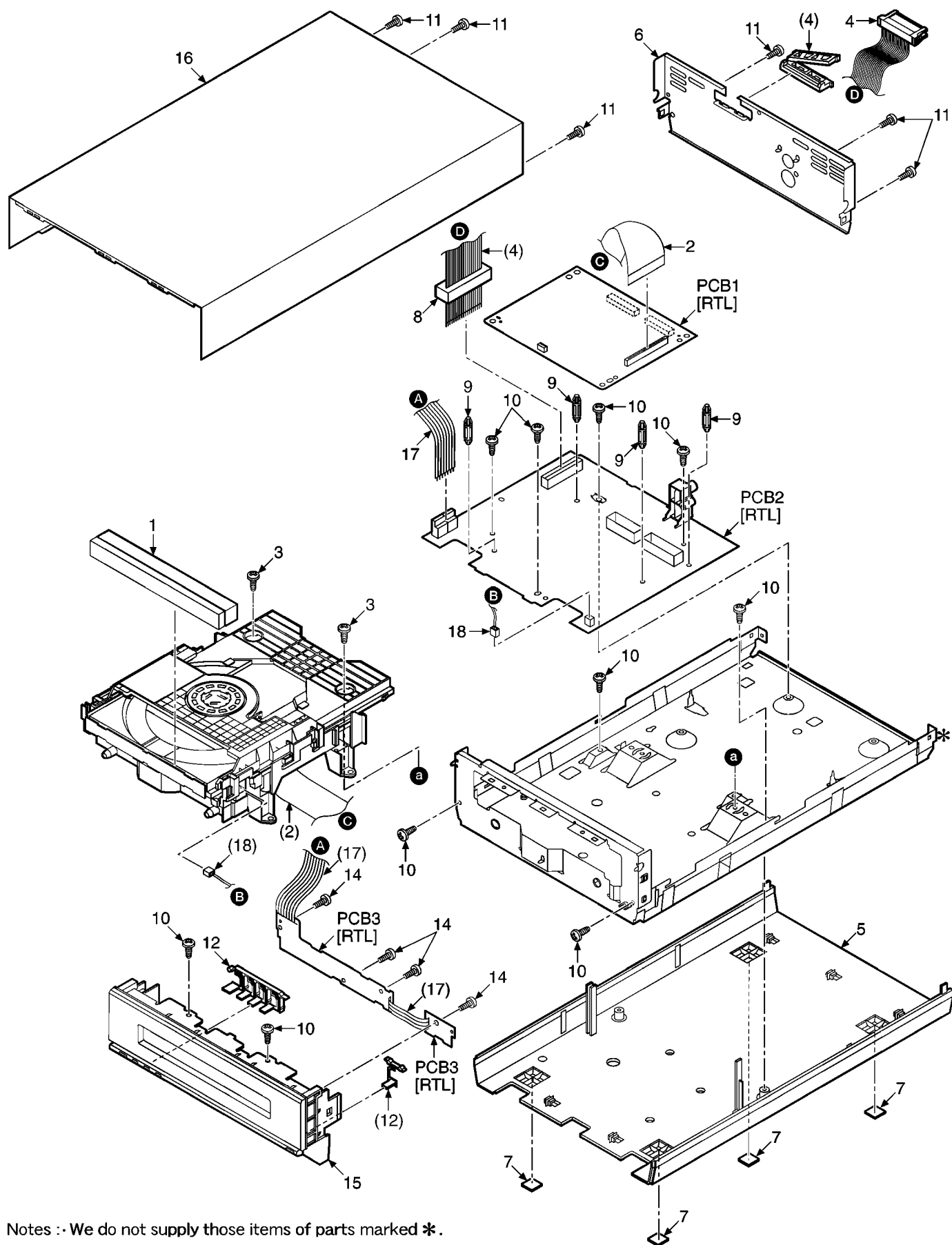
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
PCB12	REP3406A-1N	TRV PCB ASS'Y	1	[RTL]
PS3201	K1KB22A00025	CONNECTOR (22P)	1	
PS4201	K1KB26A00027	CONNECTOR (26P)	1	
PS6203	K1MN10A00030	CONNECTOR (10P)	1	
Q1	2SD874QRSTX	TRANSISTOR	1	2SD08740WL
Q2	FMW1T98	TRANSISTOR	1	
Q3	2SB766ARSTX	TRANSISTOR	1	2SB0766AHL
Q401-03	2SD1819A0L	TRANSISTOR	3	
Q404	UN5214TX	TRANSISTOR	1	UNR521400L
Q405	DTC114EUA106	TRANSISTOR	1	B1GBCFJJ0007
Q406	UNR511100L	TRANSISTOR	1	
Q407	DTC114EUA106	TRANSISTOR	1	B1GBCFJJ0007
Q505	DTC114EUA106	TRANSISTOR	1	B1GBCFJJ0007
Q801-04	B1GFGCAA0001	TRANSISTOR	4	
Q5111	2SB1115-T	TRANSISTOR	1	B1BDBF000004
Q5115	2SB1115-T	TRANSISTOR	1	B1BDBF000004
Q5211	UNR212100L	TRANSISTOR	1	
Q5221	2SD1819A0L	TRANSISTOR	1	
Q5225	2SD1819A0L	TRANSISTOR	1	
QR2045	UNR511M00L	TRANSISTOR	1	
R1	ERJ3GEYJ101	1/16W 100	1	D0GB101JA002
R2	ERJ3GEY0R00V	1/16W 0	1	
R3	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R4	ERJ3GEYJ222V	1/16W 2.2K	1	
R5	ERJ3GEYJ822V	1/16W 8.2K	1	D0GB822JA002
R6	ERJ3GEYJ102V	1/16W 1K	1	
R7	ERJ3GEYJ101	1/16W 100	1	D0GB101JA002
R8	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R9	ERJ3GEYJ122	1/16W 1.2K	1	
R11	ERJ3GEYJ101	1/16W 100	1	D0GB101JA002
R12	ERJ3GEYJ471V	1/16W 470	1	
R13,14	ERJ3GEYJ222V	1/16W 2.2K	2	
R15	ERJ3GEYJ333V	1/16W 33K	1	D0GB333JA002
R16	ERJ3GEYJ104	1/16W 100K	1	
R17	ERD2FCG100	1/4W 10	1	
R402	ERJ3GEYJ102V	1/16W 1K	1	
R403	ERJ3GEYJ221V	1/16W 220	1	
R405	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R406	ERJ3GEYJ102V	1/16W 1K	1	
R407	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R411	ERJ3GEYJ472V	1/16W 4.7K	1	
R413	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R415	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R416-18	ERJ3GEYJ472V	1/16W 4.7K	3	
R419,20	ERJ3GEYJ103V	1/16W 10K	2	D0GB103JA002
R421	ERJ3GEYJ182V	1/16W 1.8K	1	
R422	ERJ3GEYJ821V	1/16W 820	1	
R423-25	ERJ3GEYJ103V	1/16W 10K	3	D0GB103JA002
R426,27	ERJ3GEYJ472V	1/16W 4.7K	2	
R428	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R429	ERJ3GEYJ821V	1/16W 820	1	
R430	ERJ3GEYJ472V	1/16W 4.7K	1	
R431	ERJ3GEYJ471V	1/16W 470	1	
R432	ERJ3GEYJ221V	1/16W 220	1	
R433	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R434,35	ERJ3GEYJ221V	1/16W 220	2	
R436	ERJ3GEYJ823V	1/16W 82K	1	D0GB823JA002
R437	ERJ3GEYJ513V	1/16W 51K	1	
R438	ERJ3GEYJ472V	1/16W 4.7K	1	
R439	ERJ3GEYJ221V	1/16W 220	1	
R440	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R441-43	ERJ3GEYJ101	1/16W 100	3	D0GB101JA002
R444	ERJ3GEYJ104	1/16W 100K	1	
R445	ERJ3GEYJ101	1/16W 100	1	D0GB101JA002
R446	ERJ3GEYJ681V	1/16W 680	1	D0GB681JA002
R447,48	ERJ3GEYJ102V	1/16W 1K	2	
R449	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R450	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R451	ERJ3GEYJ222V	1/16W 2.2K	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R452,53	ERJ3GEYJ103V	1/16W 10K	2	D0GB103JA002
R456,57	ERJ3GEYJ101	1/16W 100	2	D0GB101JA002
R501,02	ERJ3GEYJ104	1/16W 100K	2	
R510-12	ERJ3EKF75R0	1/16W 75	3	
R513-16	ERJ3GEYJ1R0V	1/16W 1	4	
R521	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R523	ERJ3GEYJ222V	1/16W 2.2K	1	
R524	ERJ3GEYJ822V	1/16W 8.2K	1	D0GB822JA002
R601	ERJ3GEYJ102V	1/16W 1K	1	
R602	ERJ3GEYJ122	1/16W 1.2K	1	
R603	ERJ3GEYJ152V	1/16W 1.5K	1	
R604	ERJ3GEYJ182V	1/16W 1.8K	1	
R607-10	ERJ3GEYJ101	1/16W 100	4	D0GB101JA002
R611	MCR03PZHJ561	1/16W 560	1	
R613,14	MCR03PZHJ561	1/16W 560	2	
R615	ERJ3GEYJ331V	1/16W 330	1	
R616	ERJ3GEYJ151V	1/16W 150	1	
R801	ERJ3GEYJ102V	1/16W 1K	1	
R802	ERJ3GEYJ562V	1/16W 5.6K	1	D0GB562JA002
R803,04	ERJ3GEYJ102V	1/16W 1K	2	
R805,06	ERJ3GEYJ104	1/16W 100K	2	
R807-10	ERJ3GEYJ103V	1/16W 10K	4	D0GB103JA002
R811,12	ERJ3GEYJ223V	1/16W 22K	2	D0GB223JA002
R813,14	ERJ3GEYD153V	1/16W 15K	2	D0HB153ZA002
R815,16	ERJ3GEYJ102V	1/16W 1K	2	
R817,18	ERJ3GEYJ332V	1/16W 3.3K	2	D0GB332JA002
R819,20	ERJ3GEYJ473V	1/16W 47K	2	D0GB473JA002
R821,22	ERJ3GEYJ101	1/16W 100	2	D0GB101JA002
R823,24	ERJ3GEYJ104	1/16W 100K	2	
R825,26	ERJ3GEYD153V	1/16W 15K	2	D0HB153ZA002
R827,28	ERJ3GEYJ103V	1/16W 10K	2	D0GB103JA002
R829,30	ERJ3GEYJ223V	1/16W 22K	2	D0GB223JA002
R831,32	ERJ3GEYD153V	1/16W 15K	2	D0HB153ZA002
R833,34	ERJ3GEYJ102V	1/16W 1K	2	
R835,36	ERJ3GEYJ332V	1/16W 3.3K	2	D0GB332JA002
R837,38	ERJ3GEYJ473V	1/16W 47K	2	D0GB473JA002
R839-42	ERJ3GEYJ104	1/16W 100K	4	
R843	ERJ3GEYJ102V	1/16W 1K	1	
R844	ERJ3GEYJ182V	1/16W 1.8K	1	
R845,46	ERJ3GEYJ104	1/16W 100K	2	
R847-50	ERJ3GEYJ103V	1/16W 10K	4	D0GB103JA002
R851,52	ERJ3GEYJ223V	1/16W 22K	2	D0GB223JA002
R853	ERJ3GEYD153V	1/16W 15K	1	D0HB153ZA002
R854	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R855,56	ERJ3GEYJ102V	1/16W 1K	2	
R857,58	ERJ3GEYJ332V	1/16W 3.3K	2	D0GB332JA002
R859,60	ERJ3GEYJ473V	1/16W 47K	2	D0GB473JA002
R861,62	ERJ3GEYJ104	1/16W 100K	2	
R863,64	ERJ3GEYJ102V	1/16W 1K	2	
R865,66	ERJ3GEYJ104	1/16W 100K	2	
R867-70	ERJ3GEYJ103V	1/16W 10K	4	D0GB103JA002
R871,72	ERJ3GEYJ223V	1/16W 22K	2	D0GB223JA002
R873,74	ERJ3GEYD153V	1/16W 15K	2	D0HB153ZA002
R875,76	ERJ3GEYJ102V	1/16W 1K	2	
R877,78	ERJ3GEYJ332V	1/16W 3.3K	2	D0GB332JA002
R879,80	ERJ3GEYJ473V	1/16W 47K	2	D0GB473JA002
R881,82	ERJ3GEYJ104	1/16W 100K	2	
R2011	J0JBC0000015	COIL	1	
R2012	ERJ3GEYJ752V	1/16W 7.5K	1	
R2013	J0JBC0000015	COIL	1	
R2014	ERJ3GEYJ752V	1/16W 7.5K	1	
R2015	J0JBC0000015	COIL	1	
R2016	ERJ3GEYJ822V	1/16W 8.2K	1	D0GB822JA002
R2017	J0JBC0000015	COIL	1	
R2018	ERJ3GEYJ822V	1/16W 8.2K	1	D0GB822JA002
R2021	ERJ3GEYD153V	1/16W 15K	1	D0HB153ZA002
R2022	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R2023	ERJ3GEYD153V	1/16W 15K	1	D0HB153ZA002
R2031	ERJ3GEYJ683V	1/16W 68K	1	D0GB683JA002
R2032	ERJ3GEYJ102V	1/16W 1K	1	
R2033	ERJ3RBD153	1/16W 15K	1	
R2041	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R2045	ERJ3GEYJ823V	1/16W 82K	1	D0GB823JA002

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R2046	ERJ3GEYJ221V	1/16W 220	1	
R2051	ERJ3RBD392V	1/16W 3.9K	1	
R2501	ERJ3GEYJ101	1/16W 100	1	D0GB101JA002
R2502,03	ERJ3GEYD153V	1/16W 15K	2	D0HB153ZA002
R2504,05	ERJ3GEYJ823V	1/16W 82K	2	D0GB823JA002
R2507	ERJ6GEYJ6R8V	1/8W 6.8	1	
R3001	J0JCC0000119	COIL	1	
R3002,03	ERJ3GEYJ103V	1/16W 10K	2	D0GB103JA002
R3012	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R3013	ERJ3GEYJ330V	1/16W 33	1	D0GB330JA002
R3041-43	ERJ3GEYJ101	1/16W 100	3	D0GB101JA002
R3101	ERJ3RBD153	1/16W 15K	1	
R3102	ERJ3RBD272	CHIP	1	
R3103	ERJ3RBD203V	1/16W 20K	1	
R3104	ERJ3RBD222V	1/16W 2.2K	1	
R3105	ERJ3RBD152V	1/16W 1.5K	1	
R3111	ERJ3RBD620V	1/16W 62	1	
R3112	ERJ3RBD150V	1/16W 15	1	
R3116	ERJ3RBD620V	1/16W 62	1	
R3117	ERJ3RBD150V	1/16W 15	1	
R4213	ERJ3GEYJ470V	1/16W 47	1	
R5101-03	ERJ3GEYJ560V	1/16W 56	3	
R5105	ERJ12Y0R00U	1/12W 0	1	
R5107-09	ERJ3GEY0R00V	1/16W 0	3	
R5111	ERJ3GEYJ2R2V	1/16W 2.2	1	D0GB2R2JA002
R5112	ERJ12YJ270H	1/2W 27	1	
R5113	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R5114	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R5115	ERJ3GEYJ2R2V	1/16W 2.2	1	D0GB2R2JA002
R5116	ERJ12YJ270H	1/2W 27	1	
R5117	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R5120	ERJ3GEY0R00V	1/16W 0	1	
R5121-23	ERJ3GEYJ560V	1/16W 56	3	
R5124	ERJ3GEYJ472V	1/16W 4.7K	1	
R5152	ERJ3GEYJ102V	1/16W 1K	1	
R5201,02	ERJ3GEY0R00Z	1/16W 0	2	
R5221	ERJ3GEY0R00Z	1/16W 0	1	
R5222	ERJ3GEYJ102V	1/16W 1K	1	
R5223	ERJ3GEYJ331V	1/16W 330	1	
R5225	ERJ3GEY0R00Z	1/16W 0	1	
R5226	ERJ3GEYJ102V	1/16W 1K	1	
R5227	ERJ3GEYJ331V	1/16W 330	1	
R5231,32	J0JCC0000119	COIL	2	
R5233,34	ERJ3GEYJ222V	1/16W 2.2K	2	
R6201	ERJ3GEYJ472V	1/16W 4.7K	1	
R6203	ERJ3GEY0R00Z	1/16W 0	1	
R6261	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R6311,12	ERJ3GEYJ103V	1/16W 10K	2	D0GB103JA002
R6351	ERJ3GEYJ101	1/16W 100	1	D0GB101JA002
R6562	ERJ3GEYJ471V	1/16W 470	1	
R6563	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R6564	ERJ3GEYJ100	1/16W 10	1	
R6565	ERJ3GEYJ470V	1/16W 47	1	
RA2025	EXBV4V473JV	1/32W 47K	1	
RA2501	EXBV8V473JV	1/16W 47K	1	
RA3001-04	EXBV8V820J	1/16W 82	4	
RA3005	EXBV4V220JV	1/32W 22	1	
RA3009-12	EXBV8V820J	1/16W 82	4	
RA3025	EXBV4V472JV	1/32W 4.7K	1	
RA3041,42	EXBV4V101JV	1/32W 100	2	
RA5101	EXBV4V560J	1/32W 56	1	
RA5102	EXBV8V560JV	1/16W 56	1	
RA5103	EXBV4V560J	1/32W 56	1	
RA6201	EXBV4V472JV	1/32W 4.7K	1	
RA6261	EXBV4V103JV	1/32W 10K	1	
RA6351	EXBV4V472JV	1/32W 4.7K	1	
RJ701-12	ERJ3GEY0R00V	1/16W 0	12	
RJ801-07	ERJ6GEY0R00V	1/8W 0	7	
RJ901-03	ERJ8GEY0R00V	1/8W 0	3	D0YFR0000002

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
S601-03	EVQPJG05Q	SW,PLAY/PAUSE ETC.	3	
S605	EVQPJG05Q	SW,OPEN	1	
S1001	RSH1A049-U	SW,OP/CL DET.	1	K0F111E00093
S2501	RSH1A048-A	SW,REST DET.	1	
SJ502	ERJ3GEY0R00V	1/16W 0	1	
W601	REZ1450	WIRE ASS'Y	1	
X401	RSXY8M00D01T	OSCILLATOR	1	H2B800400005
X6501	H0J368600005	OSCILLATOR	1	
Z507-09	J0JBC0000015	COIL	3	

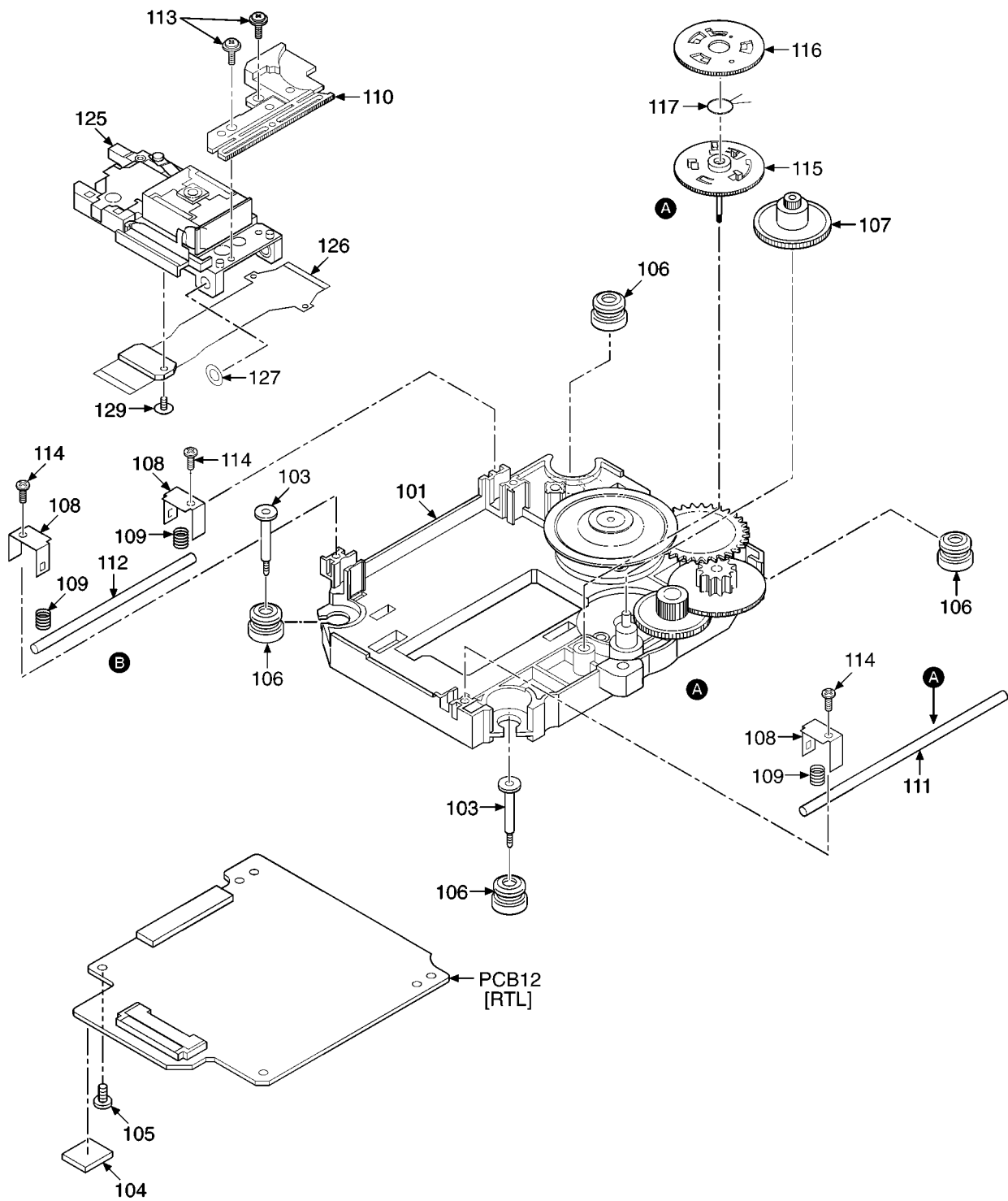
21 Cabinet Parts Location



Notes : - We do not supply those items of parts marked *.

- This "PCB3" is a combination PCB.

22 Traverse Unit Parts Location



23 Loading Unit Parts Location

