

Service Manual

DVD/Video CD/CD changer

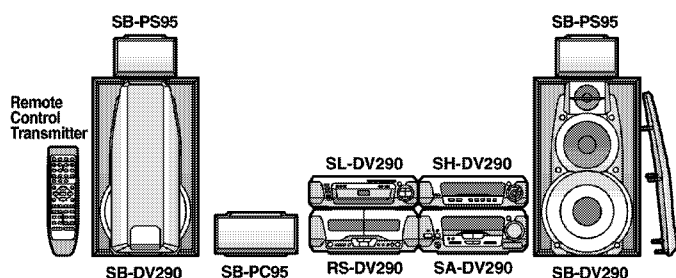


SL-DV290EG

Colour

(s).....Silver Type

System:SC-DV290



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

Note: Refer to the service manual for Model No.SA-DV290E/EB/EG (ORDER NO.AD0303067C2) for information on "ACCESSORIES" and "PACKAGING".

Specification

■ Discs played (8 cm or 12 cm)

DVD-Video/DVD-Audio
DVD-RAM/R (DVD-Video format discs)
Video CD, CD (CD-DA)
MP3/WMA/JPEG format discs)

■ Audio

No. of channels 5.1 channel (FL, FR, SL, SR, C, SW)

■ Video

Signal system PAL 625/50, PAL 525/60, NTSC

Output level

Composite video 1 Vp-p (75Ω)
S-video Y 1 Vp-p (75Ω)
S-video C 0.300 Vp-p (75Ω) PAL
0.286 Vp-p (75Ω) NTSC

■ Pickup

Beam source Semiconductor laser

Wavelength 658/790 nm

■ General

Dimensions (W×H×D) 293×89×288 mm

Mass 2.5 kg

Power Supply: DC10V

Power Consumption: 12W

Nots 1.Design and specifications are subject to change without notice.

2.Dimensions and weight are approximate.

3.Total harmonic distortion is measured by the digital spectrum analyzer.

■ System/SC-DV290

Sound processor: SH-DV290, **DVD/ Video CD/ CD changer: SL-DV290**, Tuner/ Amplifier: SA-DV290 , Cassette Deck: RS-DV290, Speakers: Front* (SB-DV290),Center* (SB-PC95),Surround* (SB-PS95) (*Made in MAES.)

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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Technics

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1 Before Repair

This equipment (SL-DV290), which is the component of this system, is supplied with power from the tuner/amplifier (SA-DV290) through the sound processor (SH-DV290). When repairing this equipment or checking operation of the system, be sure to connect the tuner/amplifier and sound processor with it.

This equipment, even in the state of it as a single equipment, permits power supply and operation check. When operating it as a single equipment without the tuner/amplifier and sound processor, refer to the paragraph of "Measurements and Adjustments."

2 Precaution of Laser Diode

CAUTION:

This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pickup lens.

Wave length: 658/790 nm

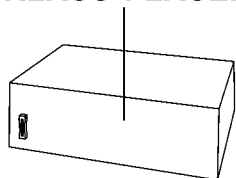
Maximum output radiation power from pickup: 100 μ W/VDE

Laser radiation from the pickup lens is safety level, but be sure 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.



LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT



DVD/Video CD/CD Changer
(Back of product)

ACHTUNG:

Dieses Produkt enthält eine Laserdiode.

Im eingeschalteten Zustand wird unsichtbare Laserstrahlung von der Lasereinheit abgestrahlt.

Wellenlänge: 658/790 nm

Maximale Strahlungsleistung der Lasereinheit: 100 μ W/VDE

Die Strahlungen 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 Lasereinheit nicht verstellen.
3. Nicht mit optischen Instrumenten in die Fokussierlines blicken.
4. Nicht über längere Zeit in die Fokussierlines blicken.

DANGER	- VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM. (FDA 21 CFR)
CAUTION	- VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM. (IEC 60825-1)
ATTENTION	- RAYONNEMENT LASER VISIBLE ET INVISIBLE EN CAS D'OUVERTURE. EXPOSITION DANGEREUSE AU FAISCEAU.
ADVARSEL	- SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING. UNNGÅ UDSETELSE FOR STRÅLING.
VARO!	- AVATTAESSA OLET ALTUUTNA NÄKYYVÄÄ JA NÄKYMÄTÖN LASERSÄTELYLLÄ. ÄLÄ KATSO SÄTESEEN.
VARNING	- SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. BETRÄKTA EJ STRÅLEN.
ADVARSEL	- SYNLIG OG USYNLIG LASERSTRÅLING NÄR DEKSEL ÅPNES. UNNGÅ EKSPONERING FOR STRÅLEN.
VORSICHT	- SICHTBARE UND UNSICHTBARE LASERSTRÄHLUNG, 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のレーザー光が出ます。 ビームを直接見たり、照らしたりしないでください。 RQLS0233

(Inside of product)

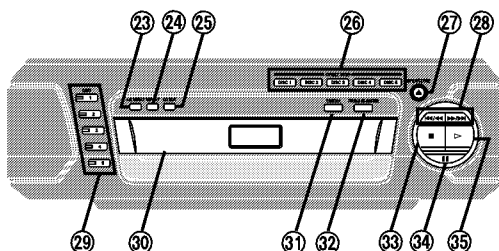
LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT

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.

3 Operating Instructions



23 A-B repeat button (A-B REPEAT)

24 Repeat play button (REPEAT)

25 CD edit button (CD EDIT)

26 Disc direct open buttons (DIRECT OPEN, DISC 1-DISC 5)

27 Disc tray open/close button (▲, OPEN/CLOSE)

28 Skip/search buttons (◀◀/▶▶, ◀▶/▶▶)

29 Disc select buttons and indicators (DISC, 1-5)

Green: Indicates that the tray is ready to play its disc or to be opened.

30 Disc tray

31 Cinema mode button and indicator (CINEMA)

32 Double re-master button and indicator (DOUBLE RE-MASTER)

33 Stop button (■)

34 Pause button (||)

35 Play button and indicator (▶)

The colour of the indicator depends on the operation taking place.

If stopped: orange

If playing: green

If paused: flashes green

When the resume function is on: flashes orange

4 Handling Precautions for Traverse Deck

The laser diode in the traverse deck (optical pickup) 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 traverse deck (optical pickup).

4.1. Handling of traverse deck (optical pickup)

1. Do not give 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. See the optical pickup replacement procedure in this Technical Guide. Before replacing the traverse unit, remove the short pin for preventing static electricity and install a new unit. Connect the connector as short time 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 cannot be adjusted. Do not turn the resistor.

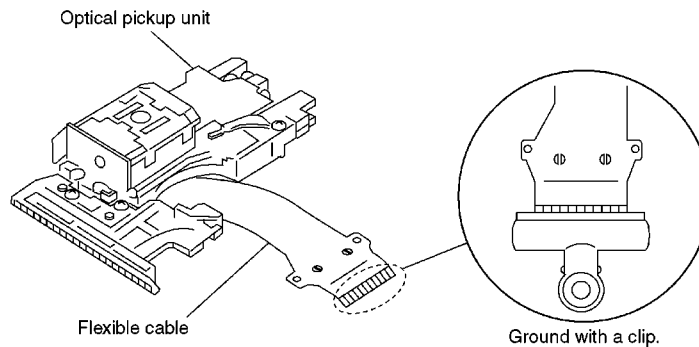


Fig. 1

4.2. Replacement procedure for the optical pickup

1. Connect the Flexible cable to the connector on the terminal P.C.B..
2. Cut the optical unit FPC at the point shown below. (As shown in Fig. 2.)

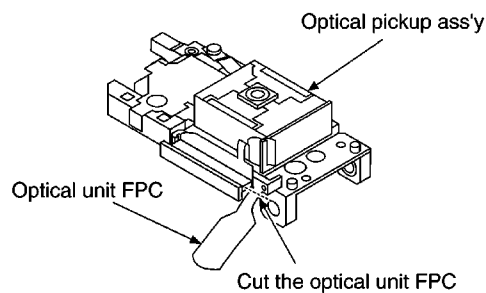


Fig. 2

4.3. Grounding for electrostatic breakdown prevention

1. Human body grounding

Use the anti-static wrist strap to discharge the static electricity from your body. (As shown in Fig. 3.)

2. Work table grounding

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

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 traverse deck (optical pickup).

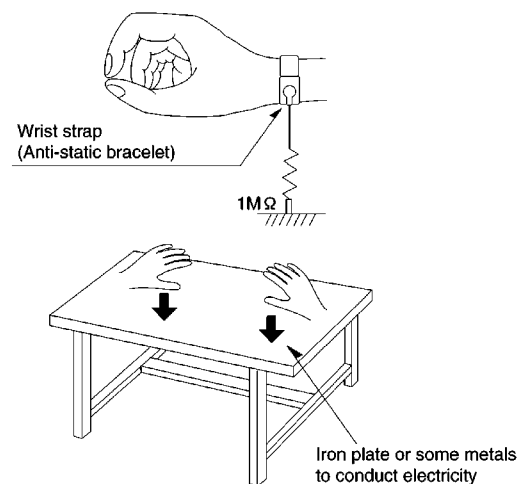


Fig. 3

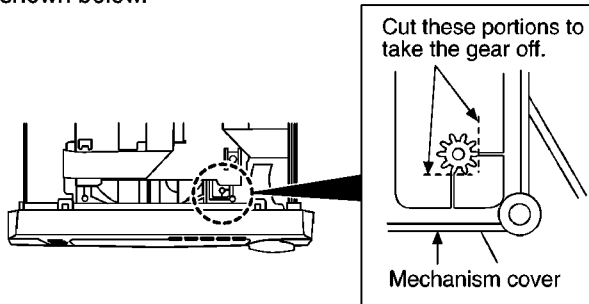
5 Operation Checks and Component Replacement Procedures

- 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.

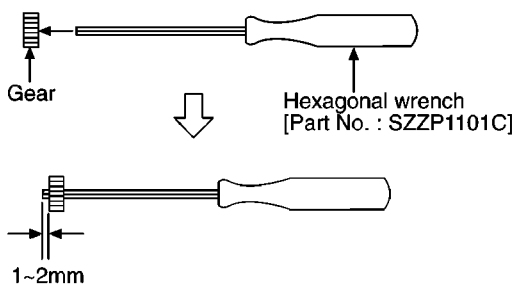
Gear for servicing (as jig) information

1. This unit has a gear which used for checking items (Open/close of disc tray, up/down operation of traverse unit by manually) when servicing. (For gear information, that is described on the items for disassembly procedures.)
2. For preparation of gear (for servicing), perform the procedures as follows.
3. In case of re-servicing the same set, the "gear for servicing" may be took off because it had been used. So, the "gear for servicing" must be stored.

1. Remove the gear provided with mechanism cover as shown below.



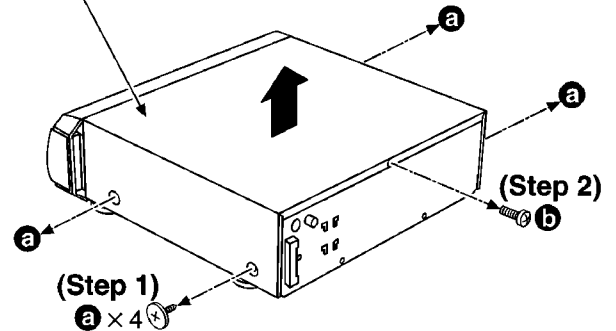
2. Insert the hexagonal wrench (2mm) into the gear, and then project the tip of wrench for 1~2mm length.



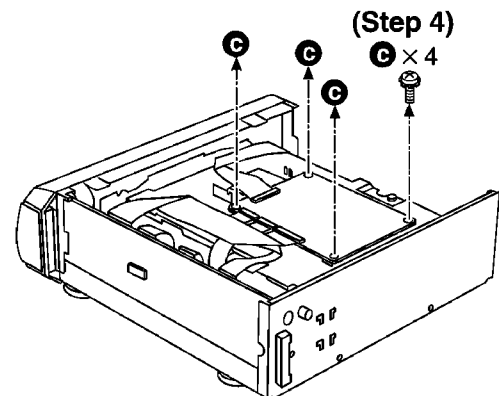
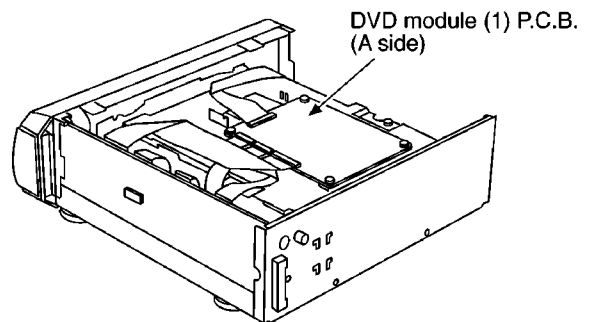
(Preparation of gear as jig is completed.)

5.1. Checking for the DVD module (1) P.C.B.

(Step 3)
Remove the top cabinet.

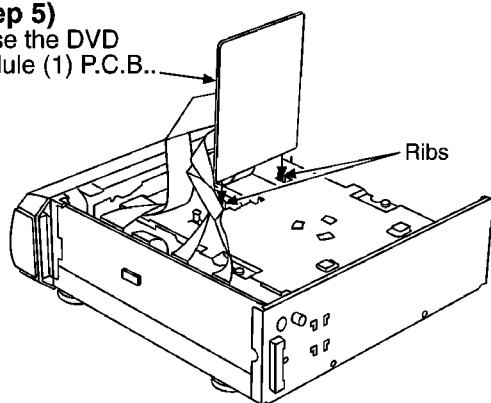


- Check the DVD module (1) P.C.B. (A side) as shown below.



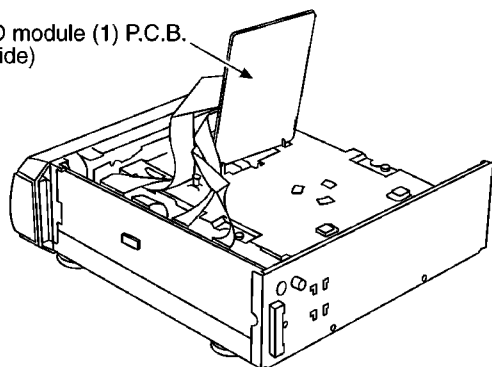
(Step 5)

Raise the DVD module (1) P.C.B...



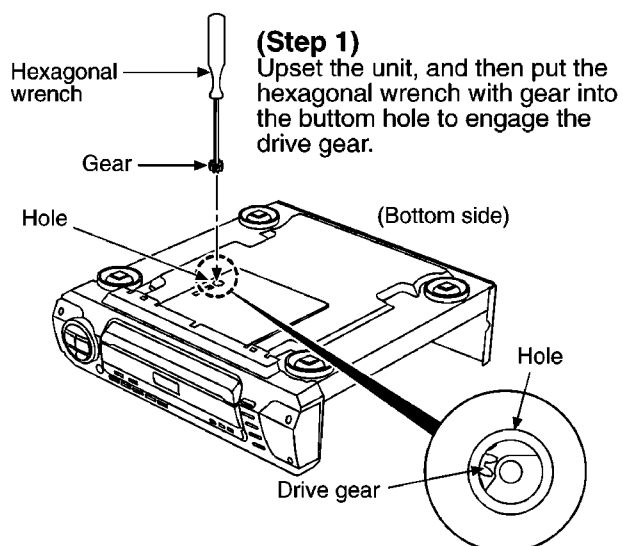
- Check the DVD module (1) P.C.B. (B side) as shown below.

DVD module (1) P.C.B.
(B side)



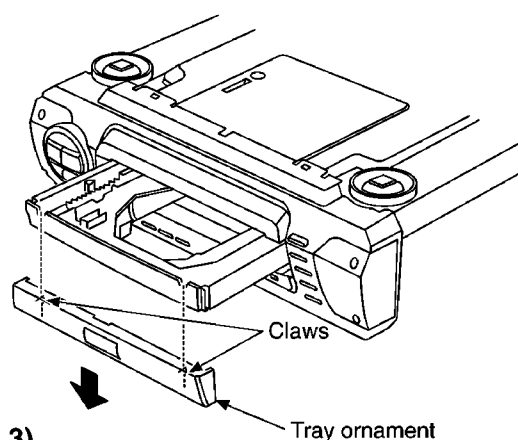
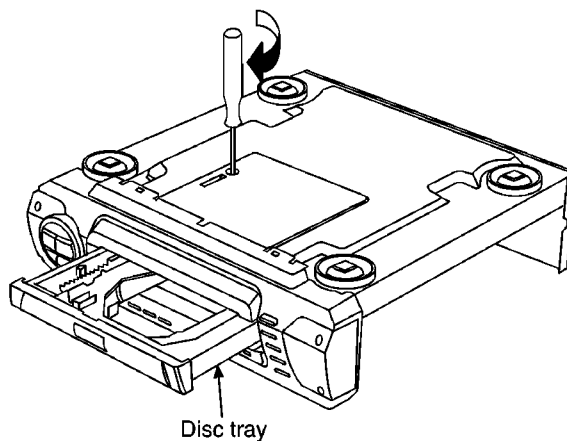
5.2. Checking for the operation P.C.B.

- Follow the (Step 1) - (Step 3) of item 5.1.

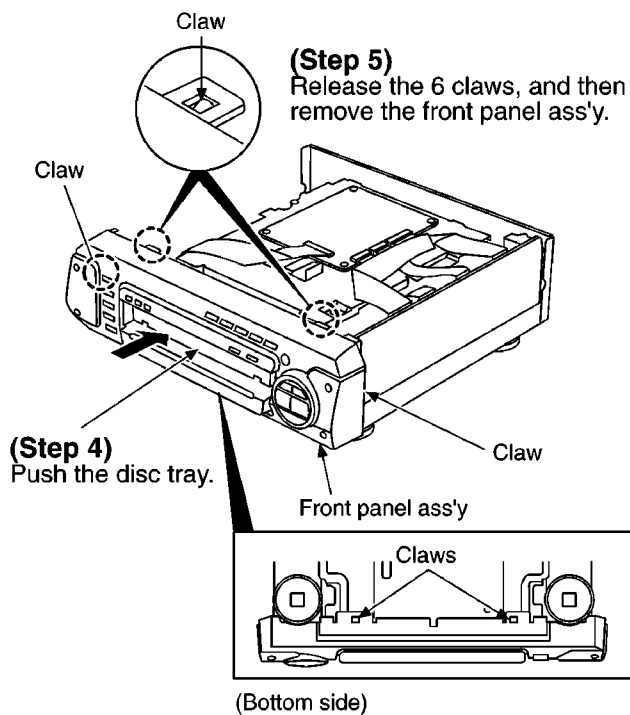
**(Step 1)**

Upset the unit, and then put the hexagonal wrench with gear into the bottom hole to engage the drive gear.

(Step 2)
Rotate the hexagonal wrench with gear in direction of arrow, and then open the disc tray.

**(Step 3)**

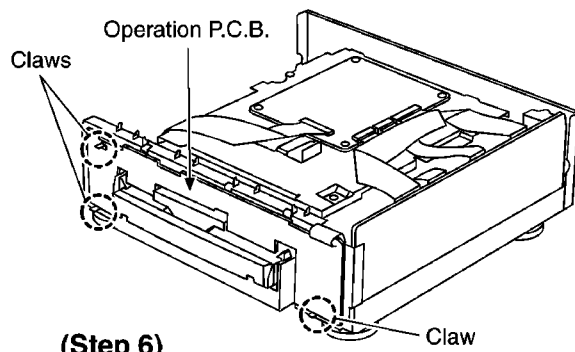
Release the 2 claws, and then remove the tray ornament.

**(Step 4)**

Push the disc tray.

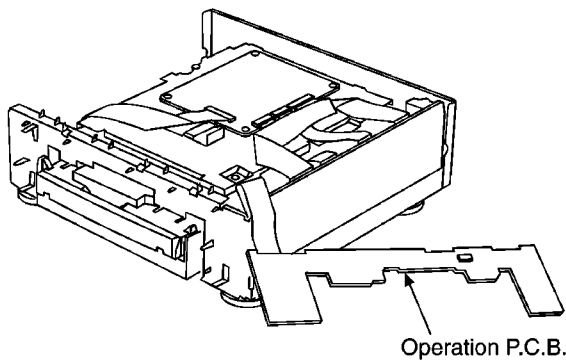
(Step 5)

Release the 6 claws, and then remove the front panel ass'y.



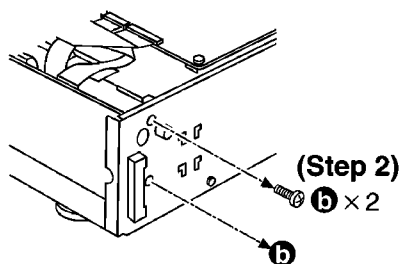
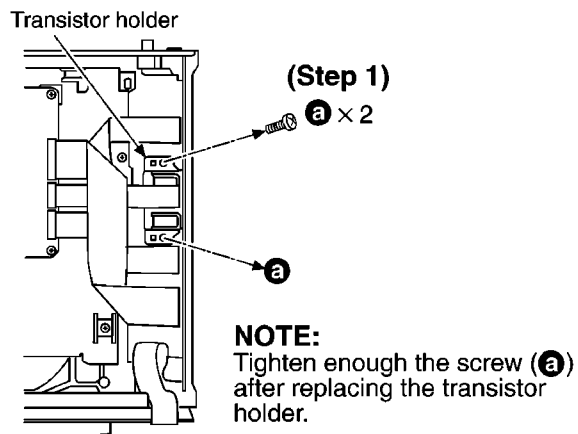
(Step 6)
Release the 3 claws, and then
remove the operation P.C.B..

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



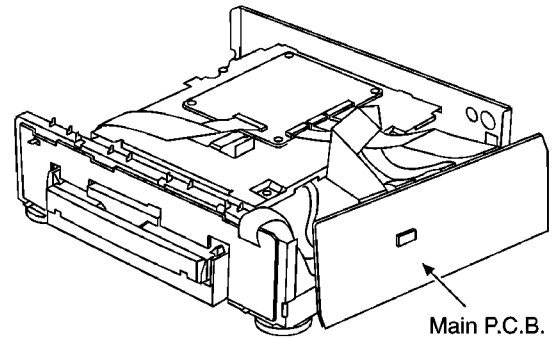
5.3. Checking for the main P.C.B.

- Follow the (Step 1) - (Step 3) of item 5.1.
- Follow the (Step 1) - (Step 5) of item 5.2.



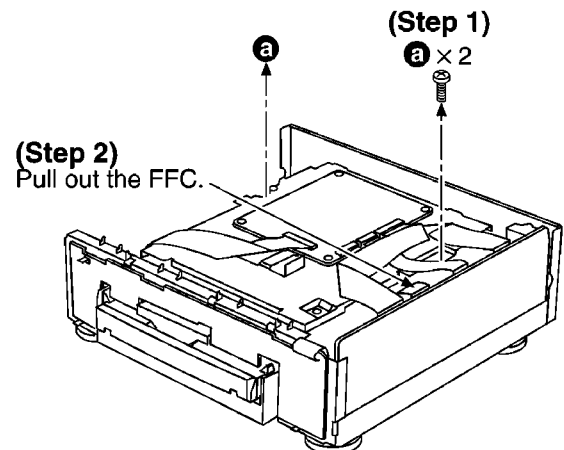
- Check the main P.C.B. as shown below.

(Step 3)
Remove the main P.C.B., and then
place it on the side of unit.

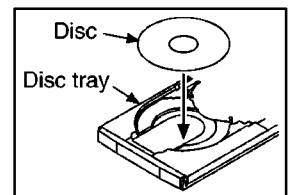


5.4. Checking for the DVD module (2) P.C.B.

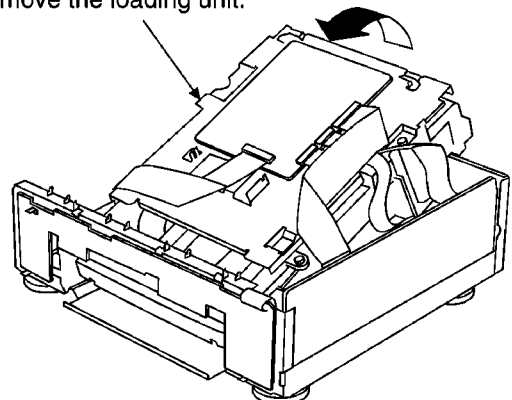
- Follow the (Step 1) - (Step 3) of item 5.1.
- Follow the (Step 1) - (Step 5) of item 5.2.



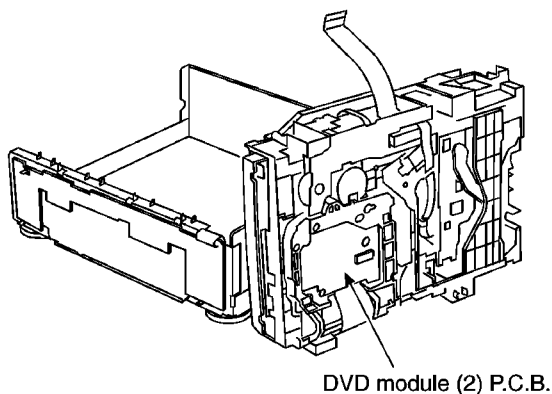
NOTE:
Put in the disc to disc tray.



(Step 3)
Remove the loading unit.

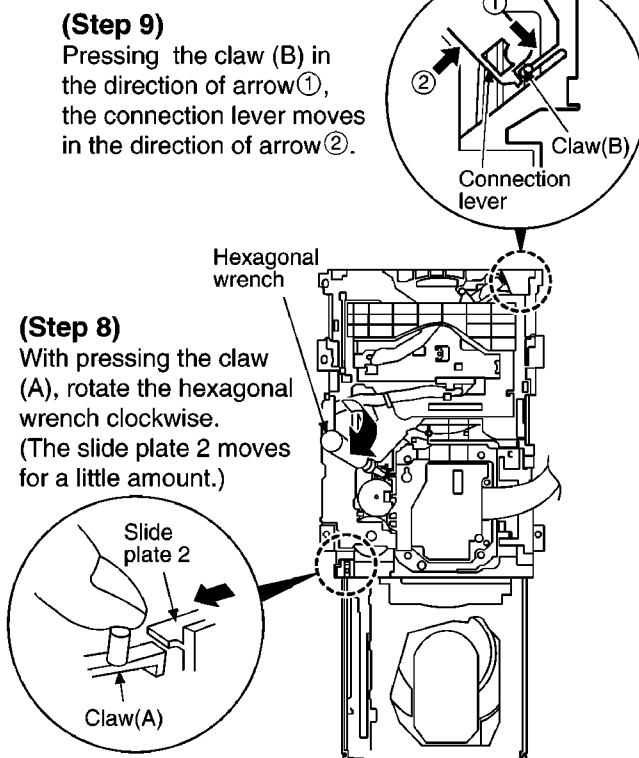
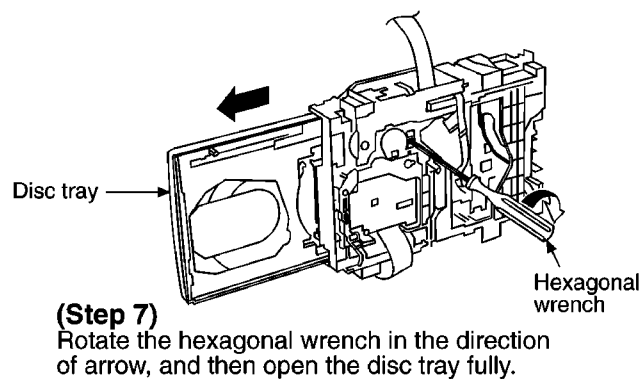
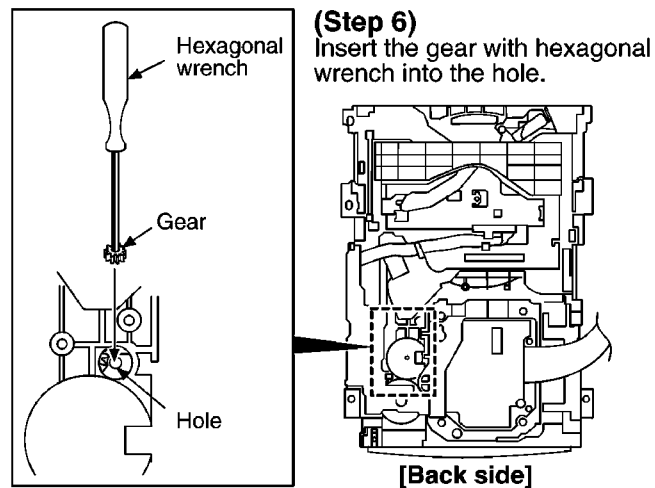
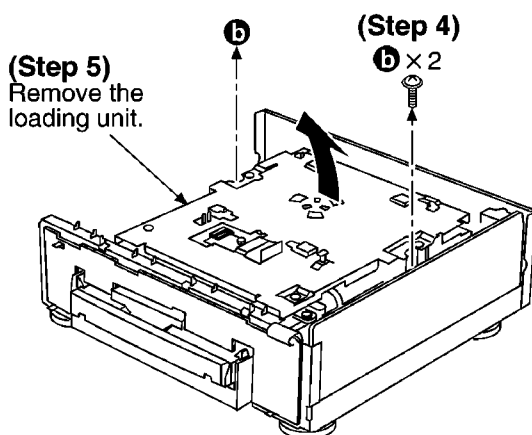
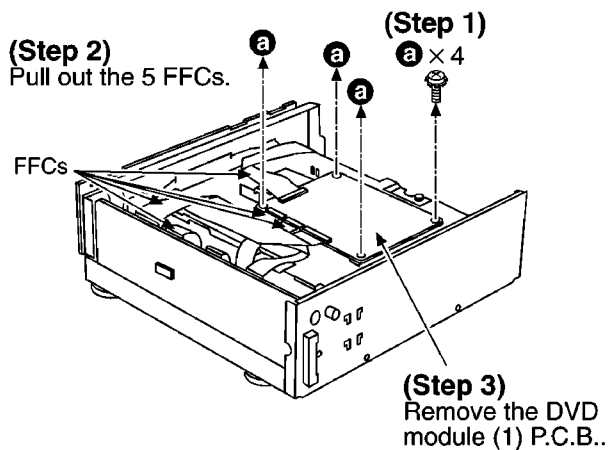


- Check the DVD module (2) P.C.B. as shown below.

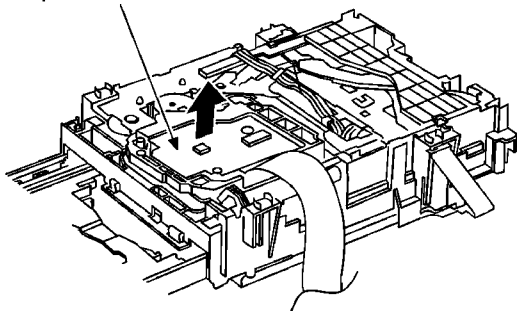


5.5. Replacement for the traverse unit

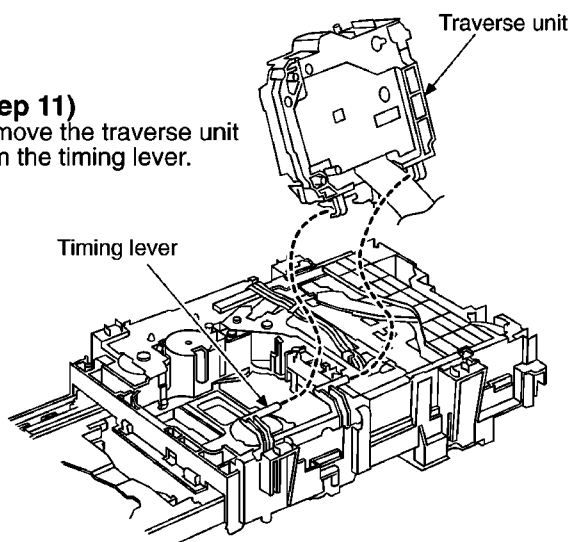
- Follow the (Step 1) - (Step 3) of item 5.1.
- Follow the (Step 1) - (Step 5) of item 5.2.



(Step 10)
Lift up the traverse unit.

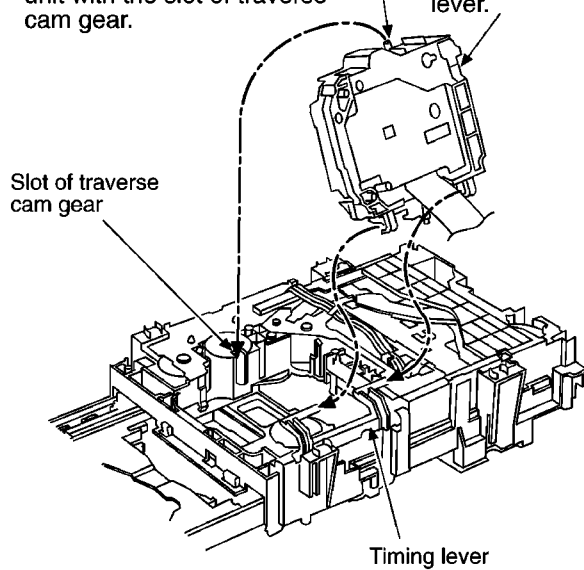


(Step 11)
Remove the traverse unit from the timing lever.

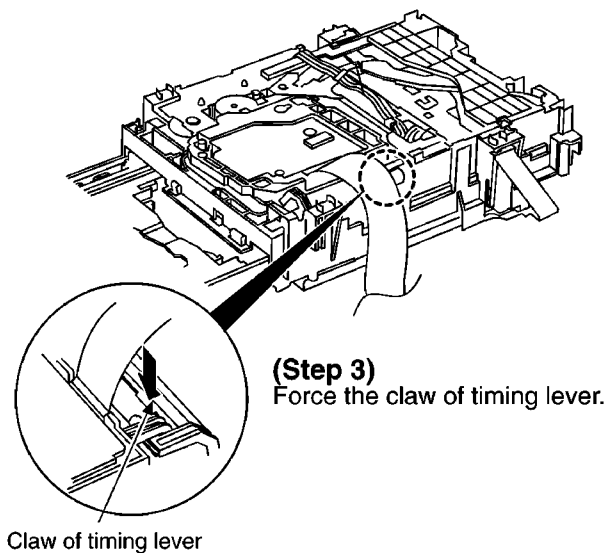


Installation for traverse unit

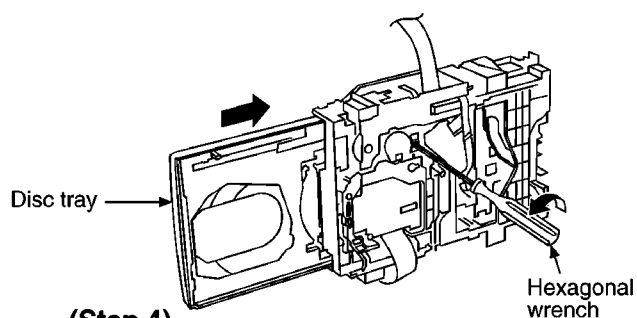
(Step 2)
Align the boss of traverse unit with the slot of traverse cam gear.



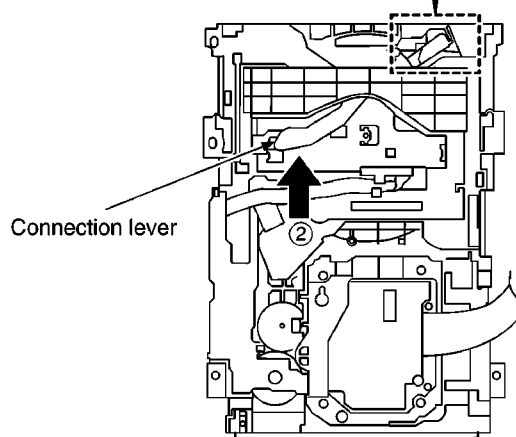
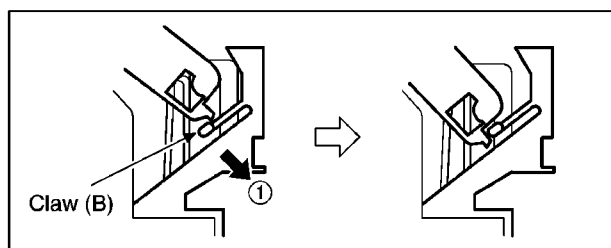
(Step 1)
Install the traverse unit to the timing lever.



(Step 3)
Force the claw of timing lever.



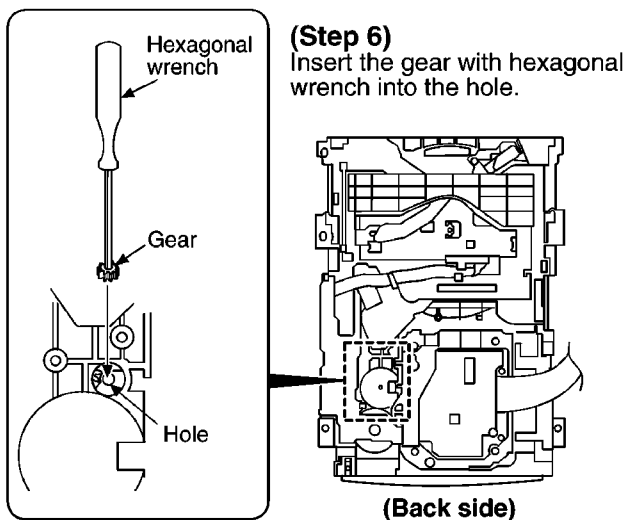
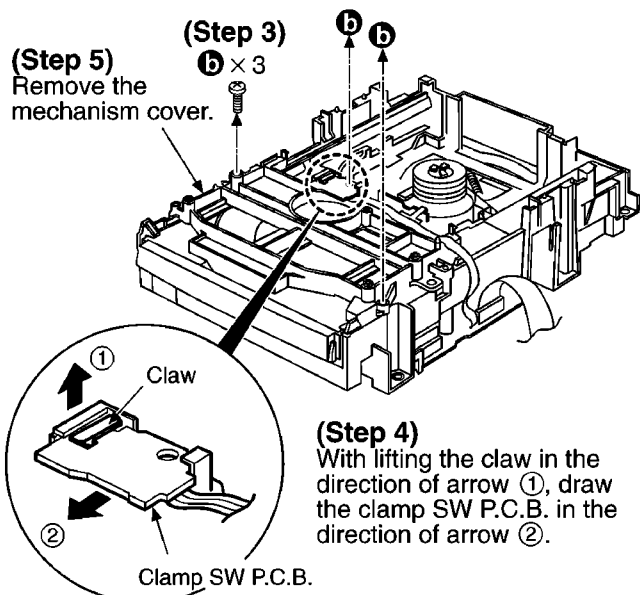
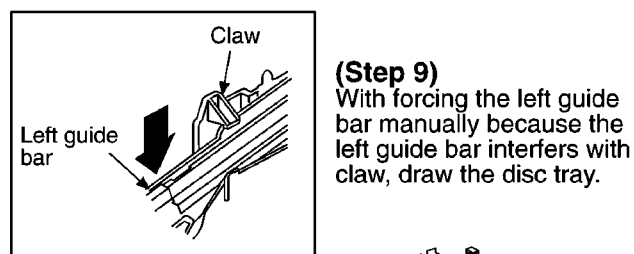
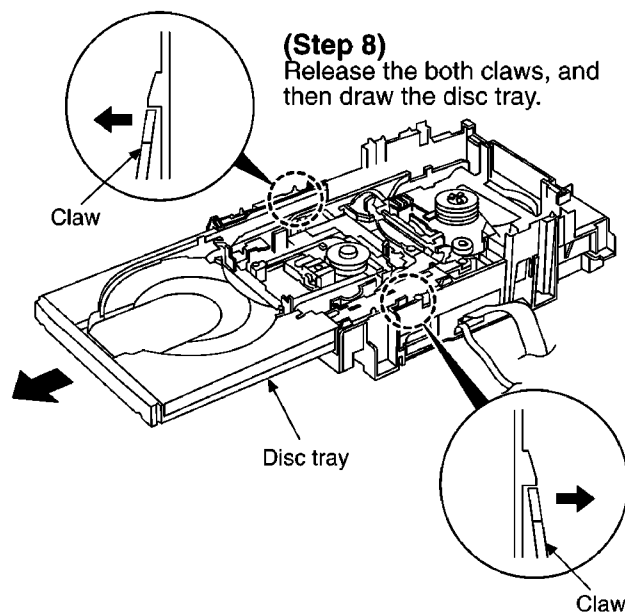
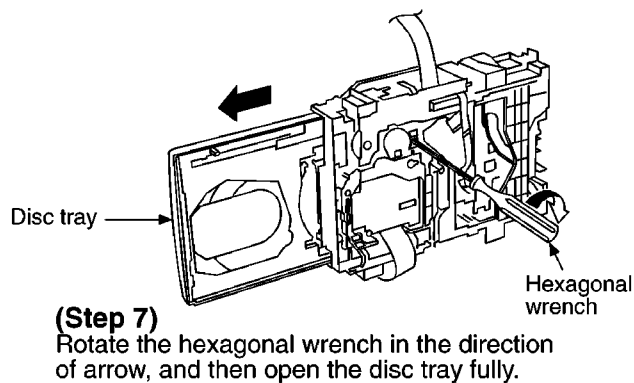
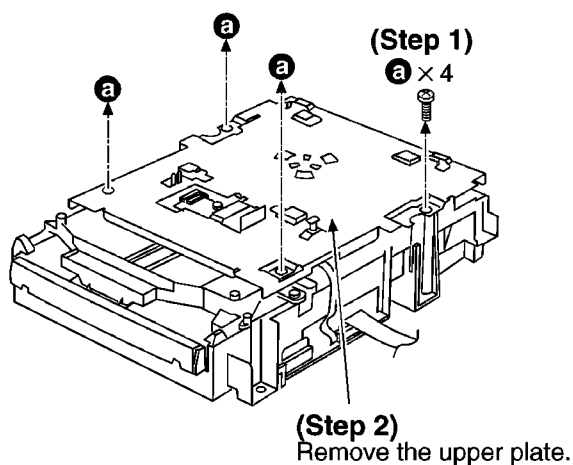
(Step 4)
Rotate the hexagonal wrench in the direction of arrow, and then close the disc tray fully.



(Step 5)
With pressing the claw (B) in the direction of arrow ①, force the connection lever in the direction of arrow ②.

5.6. Replacement for the disc tray

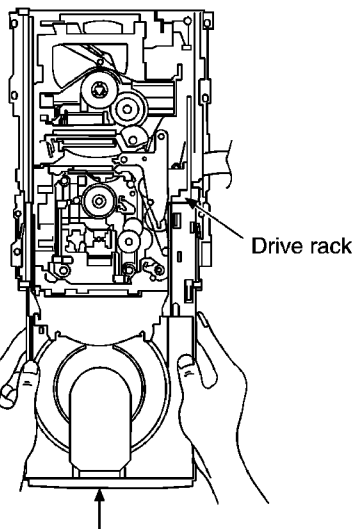
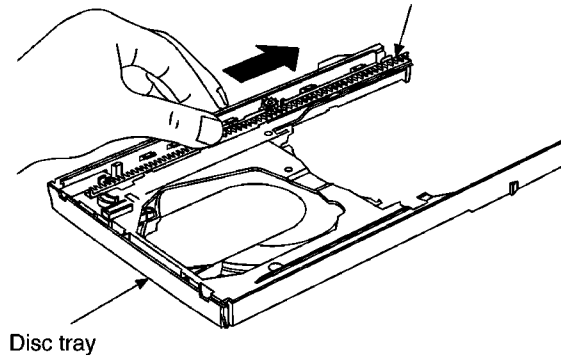
- Follow the (Step 1) - (Step 3) of item 5.1.
- Follow the (Step 1) - (Step 5) of item 5.5.



Installation of the disc tray after replacement

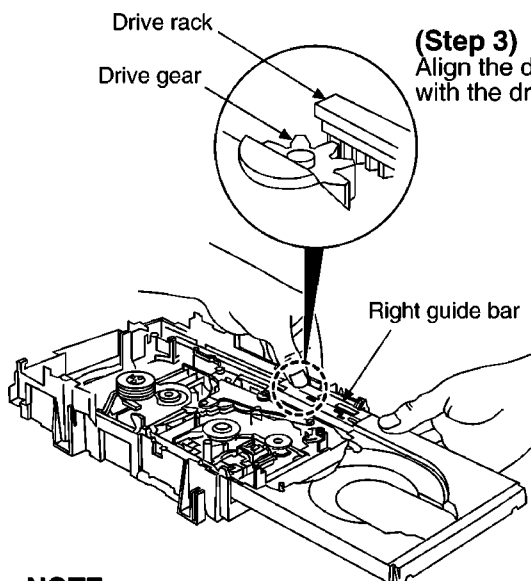
(Step 1)

Slide the drive rack fully in the direction of arrow.



(Step 2)

Holding the drive rack not to move, install the disc tray.



(Step 3)

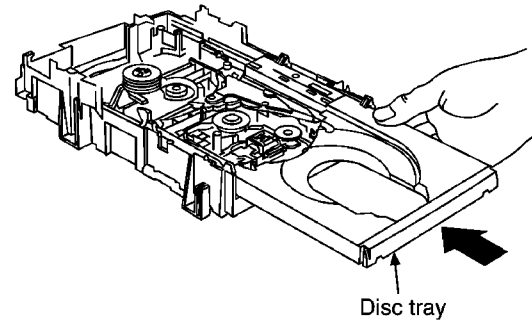
Align the drive rack with the drive gear.

NOTE:

Force the right guide bar of disc tray manually not to move upwards.

(Step 4)

Holding the disc tray manually, push the disc tray in the direction of arrow.

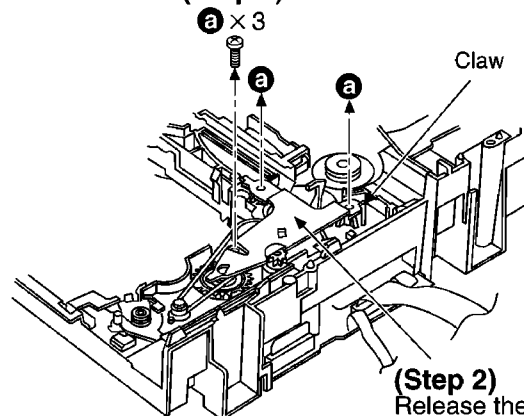


5.7. Disassembly and reassembly for mechanism base drive unit

Disassembly for mechanism base drive unit

- Follow the (Step 1) - (Step 3) of item 5.1.
- Follow the (Step 1) - (Step 11) of item 5.5.
- Follow the (Step 1) - (Step 9) of item 5.6.

(Step 1)

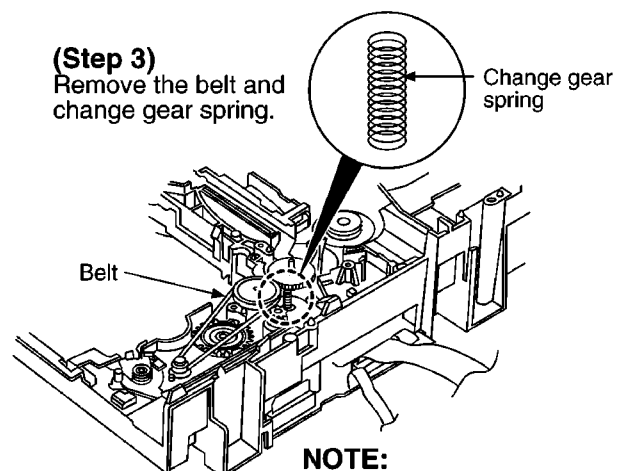


(Step 2)

Release the claw, and then remove the gear holder.

(Step 3)

Remove the belt and change gear spring.

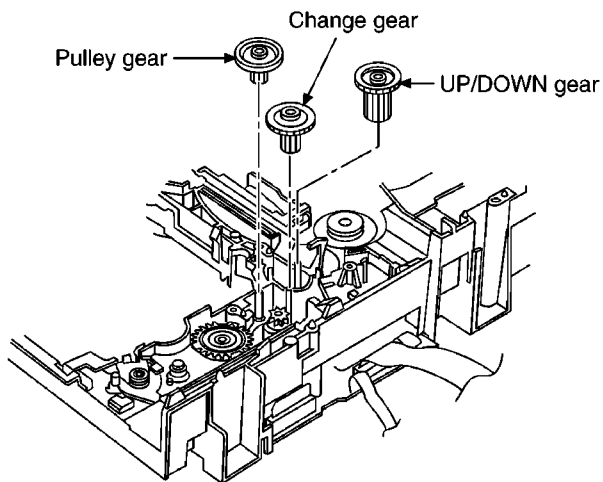


NOTE:

Take care not to lose the change gear spring.

(Step 4)

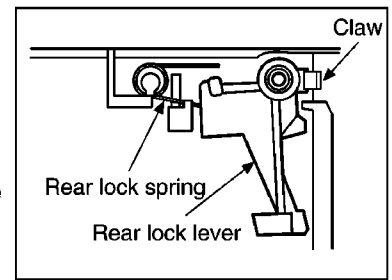
Remove the pulley gear, change gear and UP/DOWN gear.

**(Step 8)**

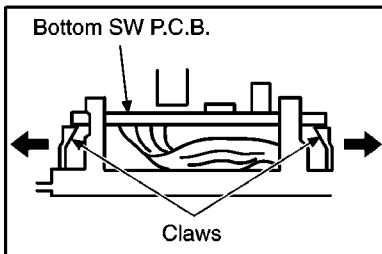
Release the claw, and then remove the rear lock lever.

NOTE:

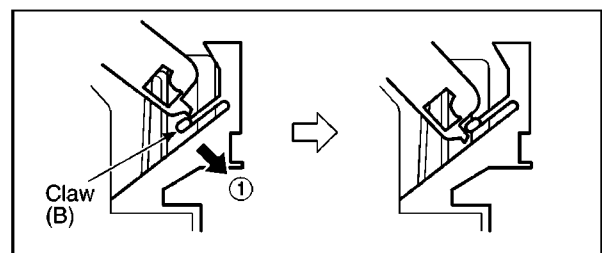
Take care not to take the rear lock spring off.

**(Step 5)**

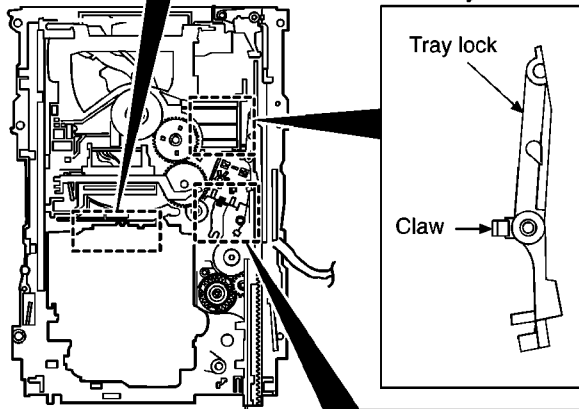
Release the 2 claws, and then remove the bottom SW P.C.B..

**(Step 9)**

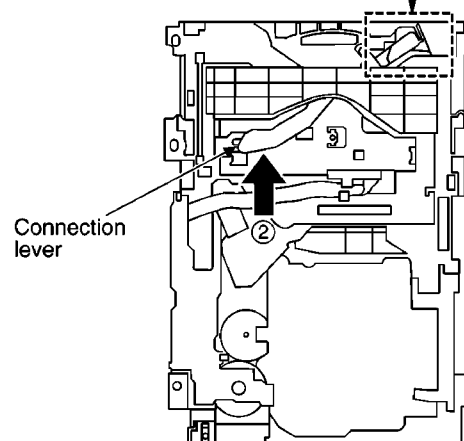
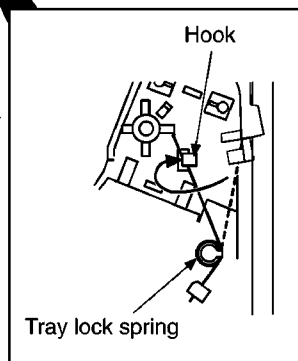
Pressing the claw (B) in the direction of arrow ①, force the connection lever in the direction of arrow ②.

**(Step 7)**

Release the claw, and then remove the tray lock.

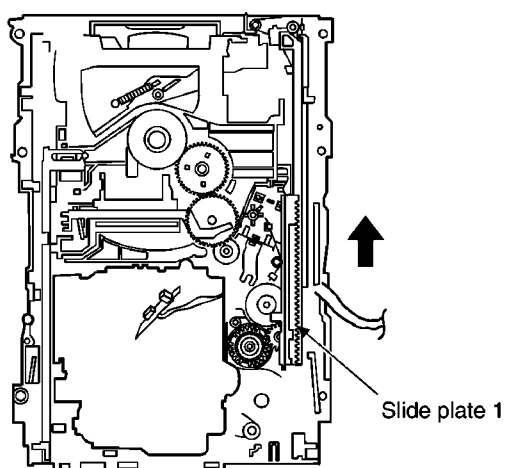
**(Step 6)**

Install the tray lock spring to the hook temporarily.

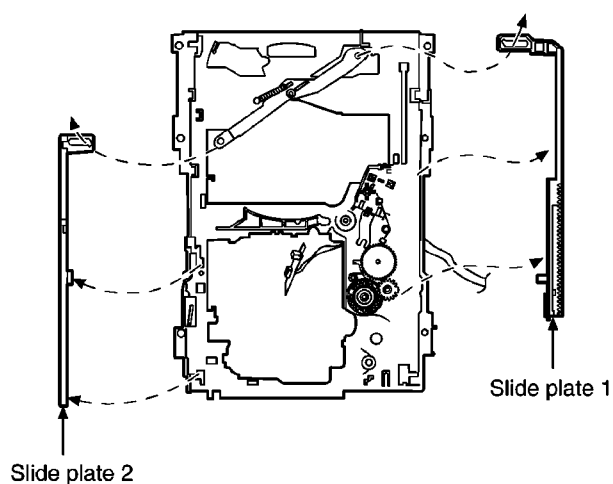


(Step 10)
Move the slide plate 1 to the end of stock side.

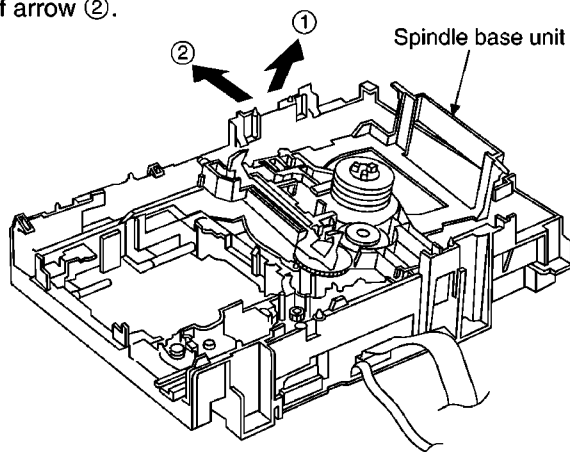
(Stock side)



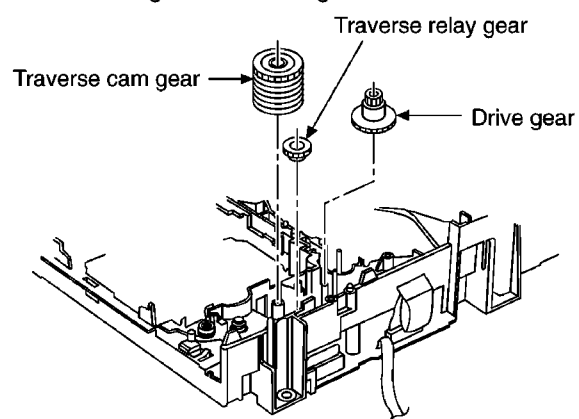
(Step 12)
Remove the slide plate 1 and slide plate 2.



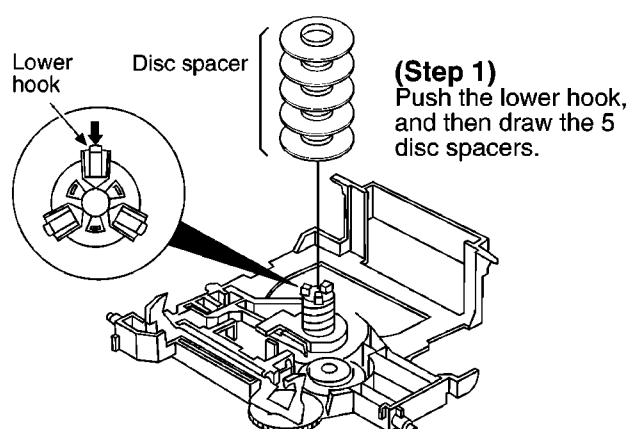
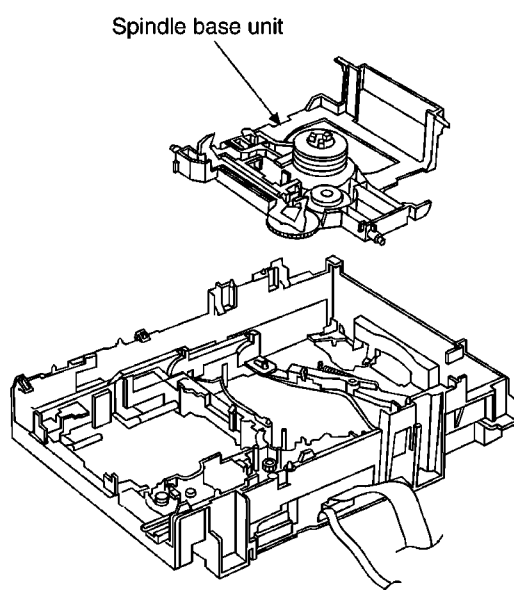
(Step 11)
Lift up the left end of spindle base unit in the direction of arrow ①, and then remove the unit in the direction of arrow ②.



(Step 13)
Remove the traverse relay gear, traverse cam gear and drive gear.

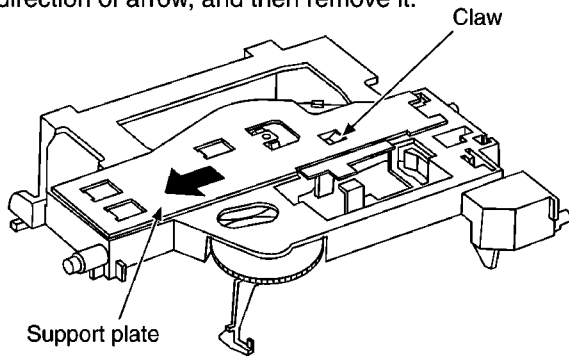


Diassembly/reassembly for the spindle base unit

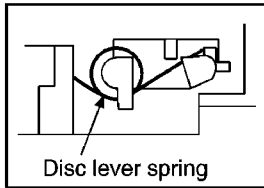


(Step 2)

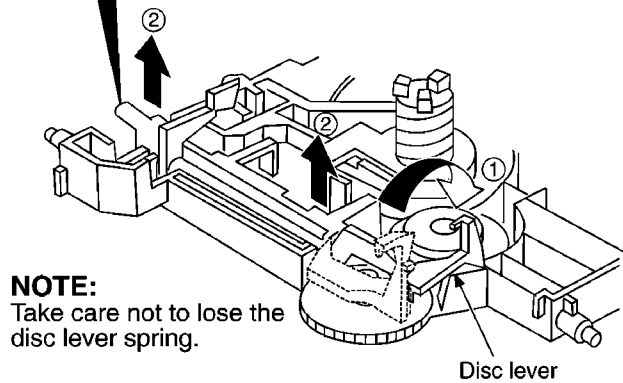
Pushing the claw, slide the support plate in the direction of arrow, and then remove it.



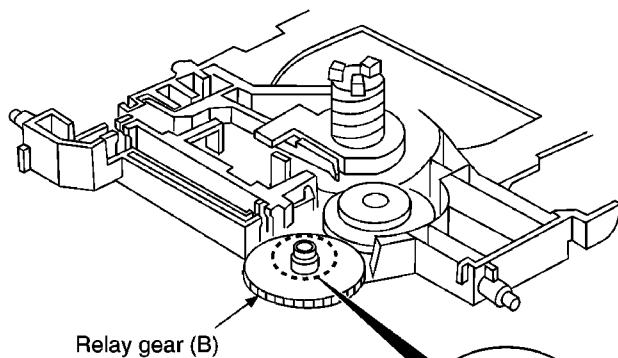
(Installation for disc lever spring)

**(Step 3)**

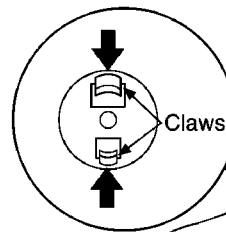
Rotate the disc lever in the direction of arrow ①, draw the disc lever.

**NOTE:**

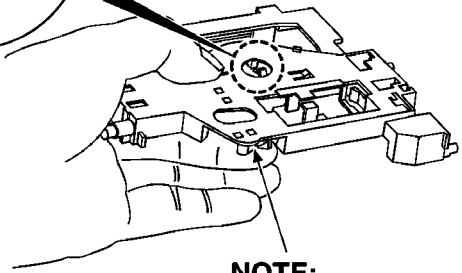
Take care not to lose the disc lever spring.

**(Step 4)**

Release the 2 claws, and then draw the relay gear (B).

**(Step 5)**

Release the 2 claws.

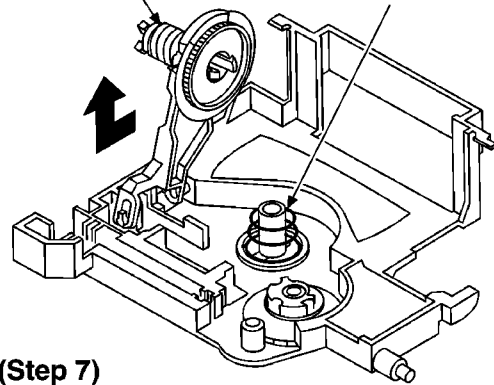
**NOTE:**

Hold the loading stopper ass'y manually because it is flipped by spring.

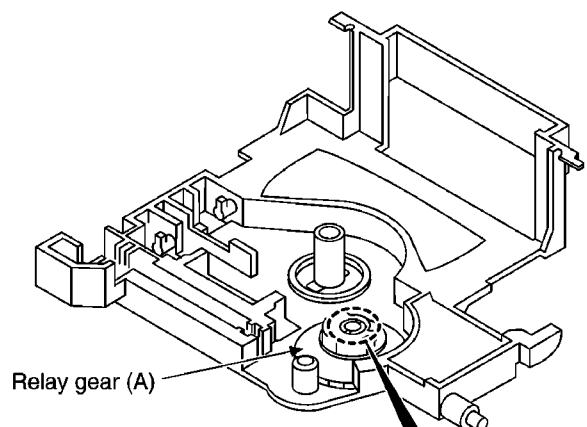
Loading stopper ass'y

(Step 6)

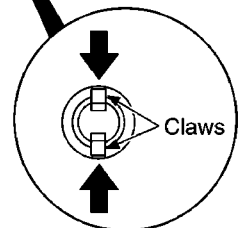
Remove the cushion spring.

**(Step 7)**

Remove the loading stopper ass'y in the direction of arrow.

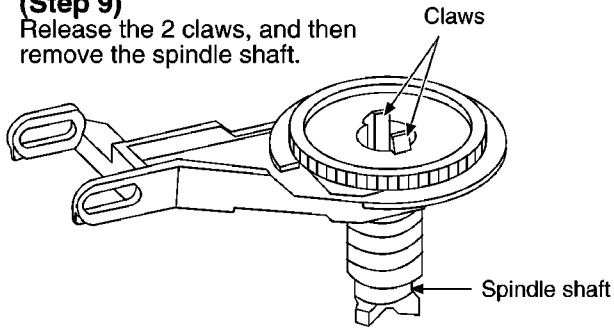
**(Step 8)**

Release the 2 claws, and then remove the relay gear (A).

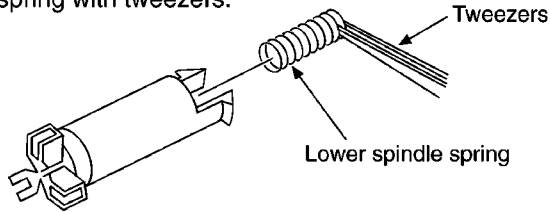


(Step 9)

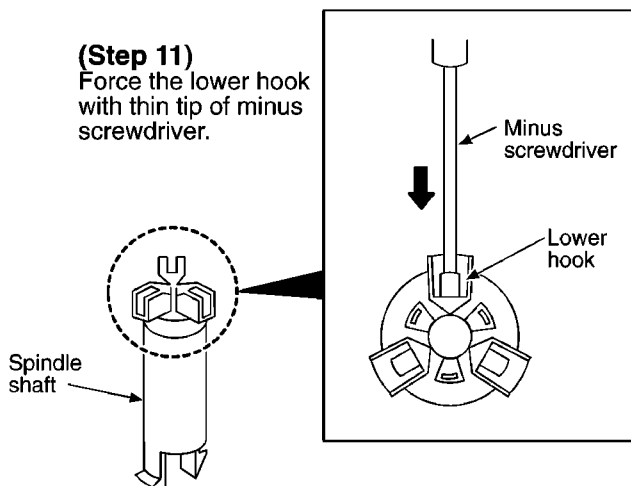
Release the 2 claws, and then remove the spindle shaft.

**(Step 10)**

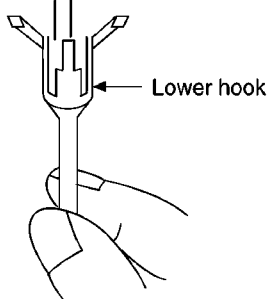
Remove the lower spindle spring with tweezers.

**(Step 11)**

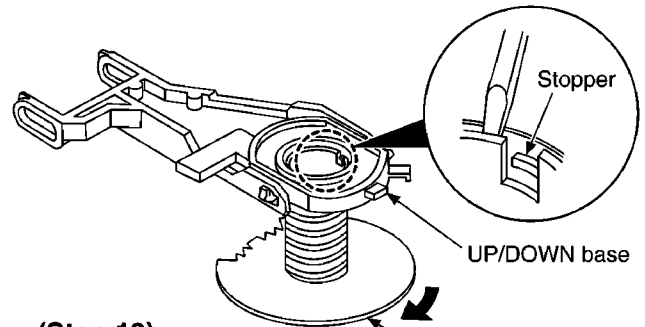
Force the lower hook with thin tip of minus screwdriver.

**(Step 12)**

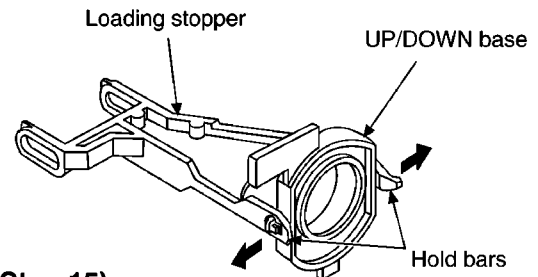
Squeeze the shaft of lower hook, and then draw it.

**(Step 14)**

Insert the thin tip of minus screwdriver between the lower spindle and UP/DOWN base, and then slacken the lower spindle to release the stopper. Then, rotate the lower spindle and remove it.

**(Step 13)**

Rotate the lower spindle in the direction of arrow until the lower spindle interferes with stopper.

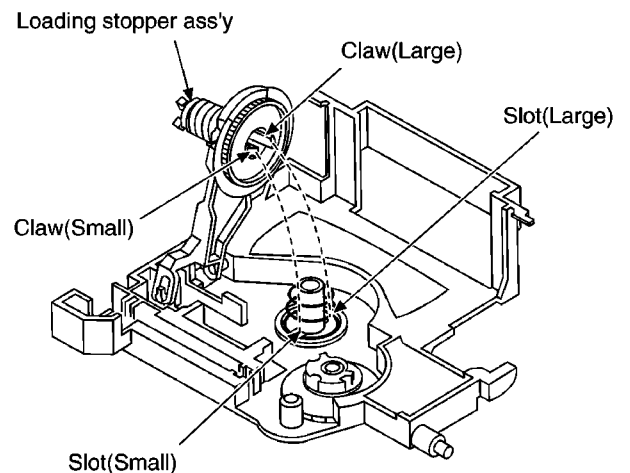
**(Step 15)**

Rotate the UP/DOWN base at a 90 degree angle. Then, spread the hold bars of loading stopper and remove the UP/DOWN base.

Installation for loading stopper ass'y

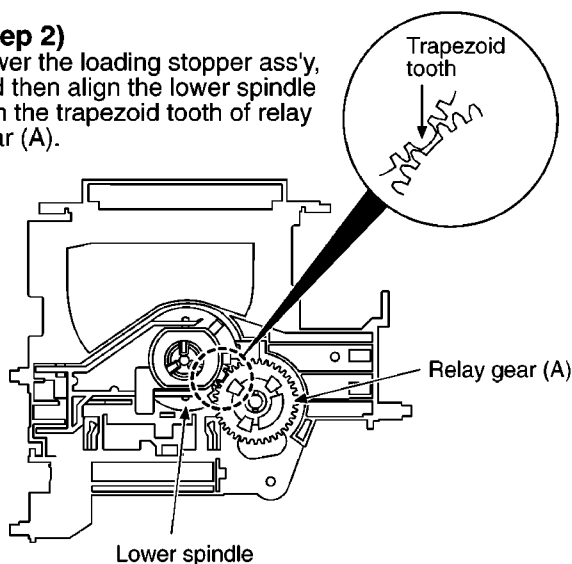
(Step 1)

Align the claw of loading stopper ass'y with the slot of spindle base. (Caution should be exercised when alignment of claw due to the size of claws.)

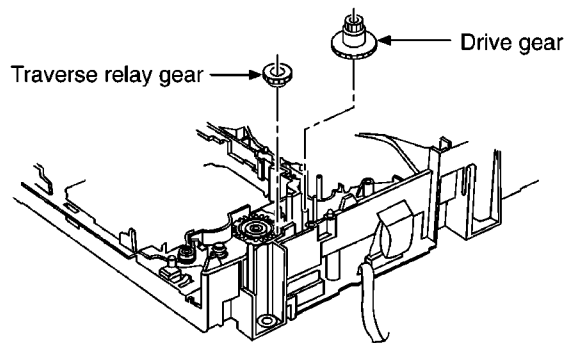


(Step 2)

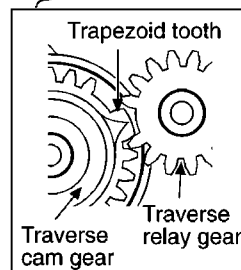
Lower the loading stopper ass'y, and then align the lower spindle with the trapezoid tooth of relay gear (A).

**(Step 3)**

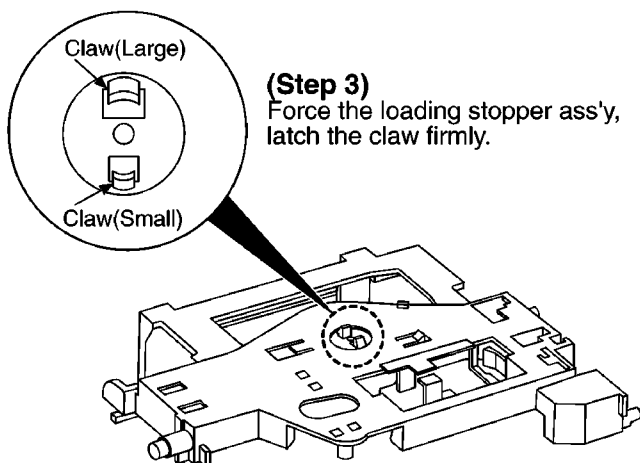
Install the drive gear and traverse relay gear.



※ When installing the traverse relay gear, align the trapezoid tooth of gear with tooth of traverse cam gear.

**(Step 3)**

Force the loading stopper ass'y, latch the claw firmly.

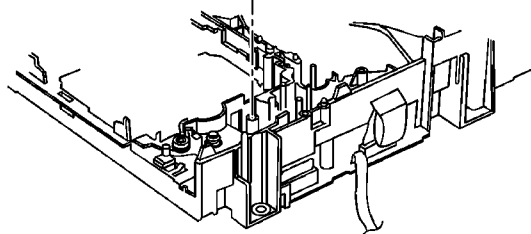


Reassembling for mechanism base drive unit

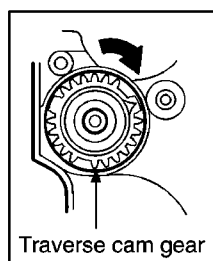
Traverse cam gear

(Step 1)

Install the traverse cam gear.

**(Step 2)**

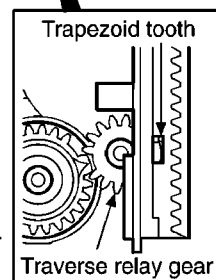
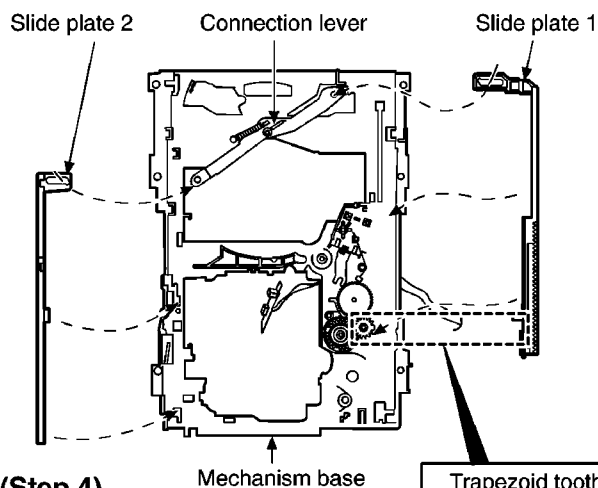
Rotate the traverse cam gear to the direction of arrow.

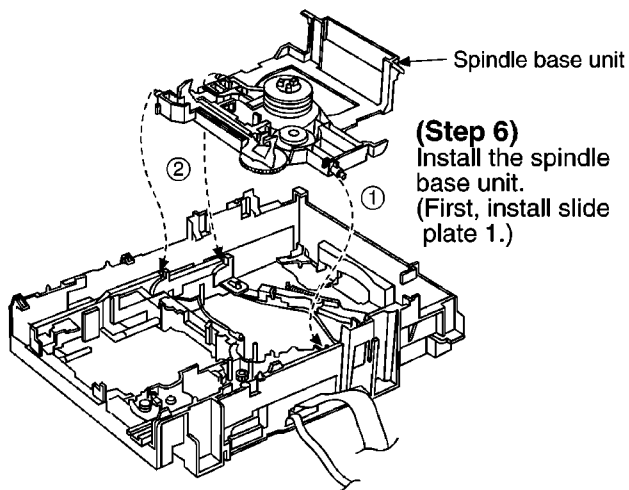
**(Step 4)**

Install the slide plate 2 to the mechanism base, and then match to the connection lever.

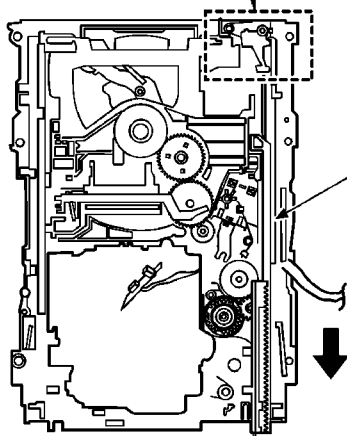
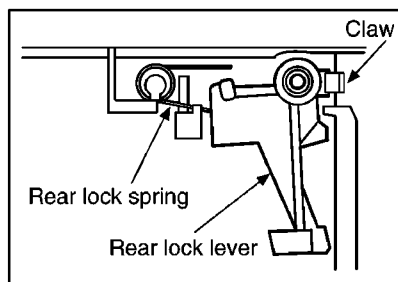
(Step 5)

Install the slide plate 1 to the mechanism base, and then match to the connection lever and align the trapezoid tooth of traverse relay gear with the slide plate 1.

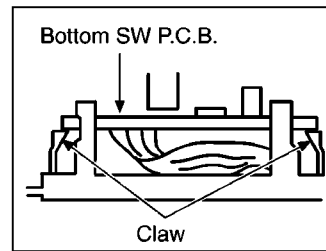




(Step 8)
Install the rear lock lever.
(The claw should be latched.)

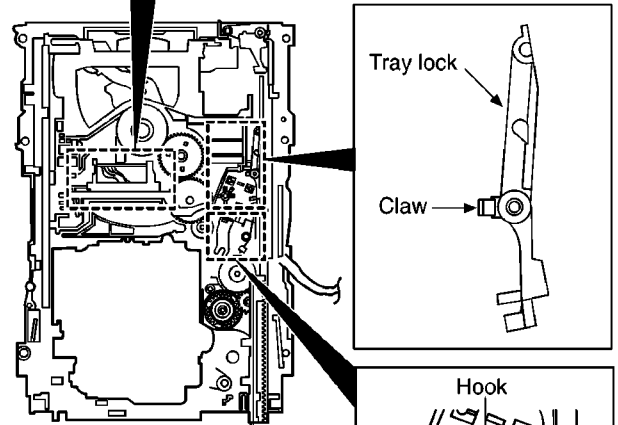


(Step 7)
Move the slide plate 1 to forward fully.

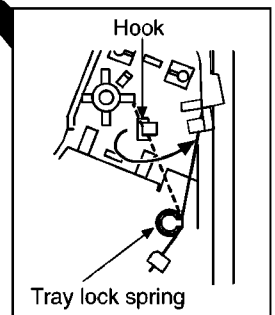


(Step 9)
Install the bottom SW P.C.B..
(The claw should be latched.)

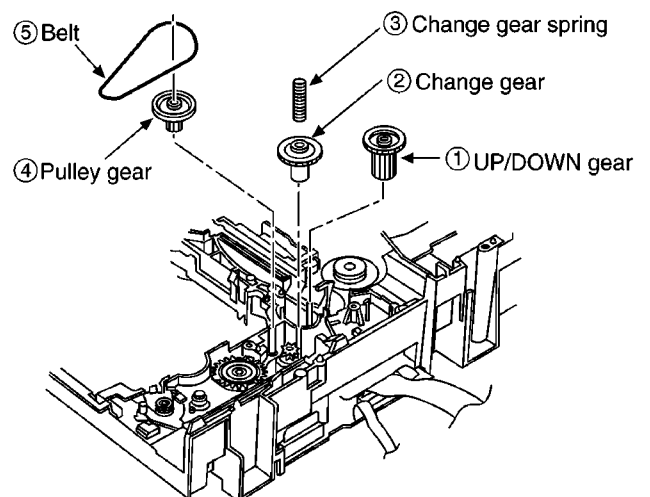
(Step 10)
Install the tray lock.
(The claw should be latched.)



(Step 11)
Remove the tray lock spring from hook, and then latch to the tray lock.

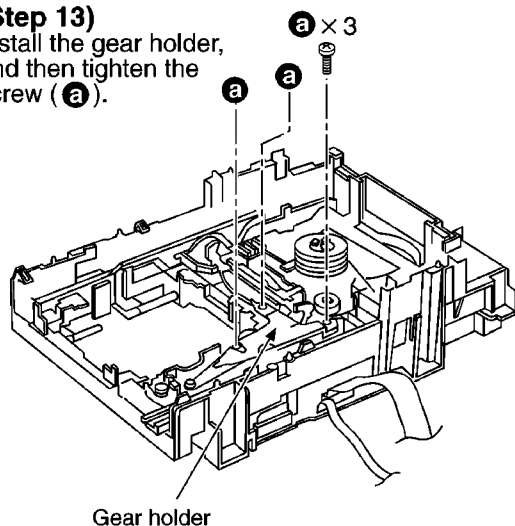


(Step 12)
Install the UP/DOWN gear, change gear, change gear spring, pulley gear and belt in the order of ① - ⑤.



(Step 13)

Install the gear holder, and then tighten the screw (a).

**(Step 14)**

Install the tray base, traverse ass'y, mechanism cover and upper plate.
(Refer to the items 5.5. and 5.6. of Main Component Replacement Procedures.)

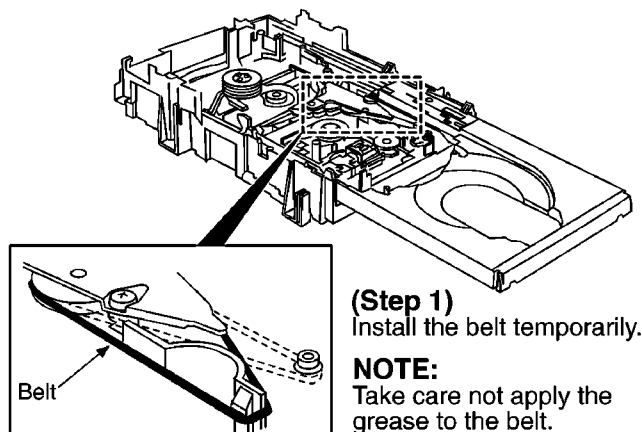
[Operation check after servicing]

Check the proper operation of following items with gear and hexagonal screwdriver.

- 1) Open/close of disc tray.
- 2) Moving the disc tray to the stock side.
- 3) UP/DOWN operation of spindle base unit.
- 4) UP/DOWN operation of traverse ass'y.

5.8. Replacement for the motor ass'y

- Follow the (Step 1) - (Step 3) of item 5.1.
- Follow the (Step 1) - (Step 5) of item 5.5.
- Follow the (Step 1) - (Step 7) of item 5.6.

**(Step 1)**

Install the belt temporarily.

NOTE:

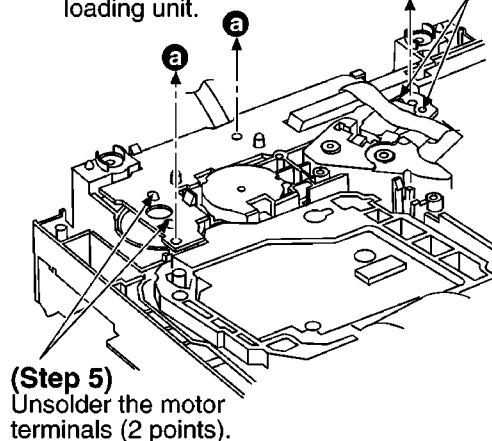
Take care not apply the grease to the belt.

(Step 4)

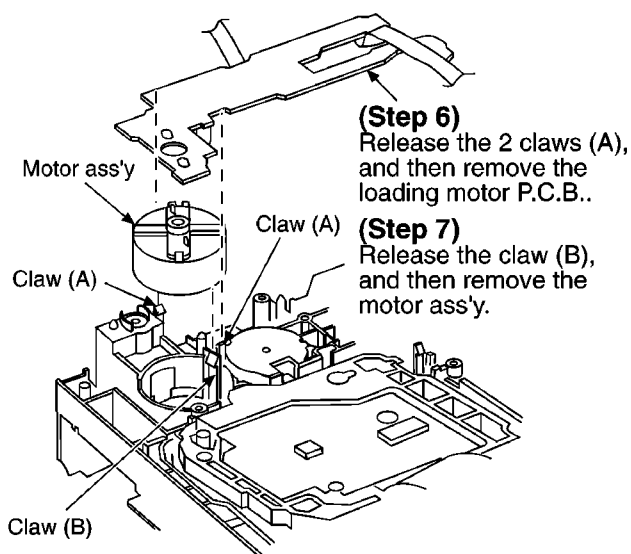
Unsolder the plunger terminals (2 points).

(Step 2)
Upset the CD loading unit.

(Step 3)
a × 3

**(Step 5)**

Unsolder the motor terminals (2 points).

**(Step 6)**

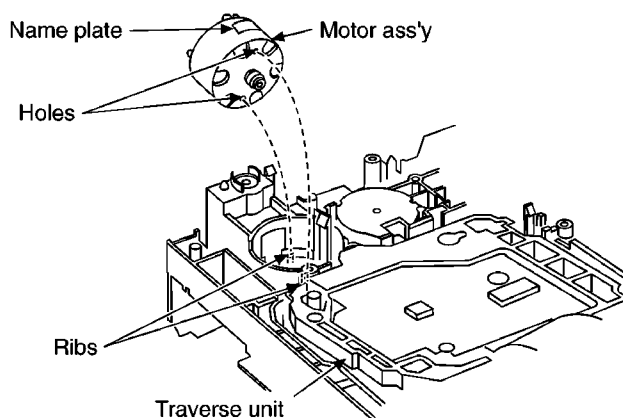
Release the 2 claws (A), and then remove the loading motor P.C.B..

(Step 7)

Release the claw (B), and then remove the motor ass'y.

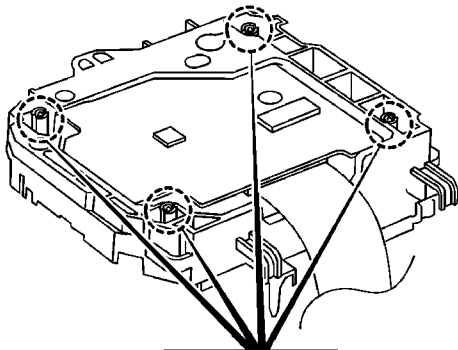
Notice for motor ass'y installation

1. Locate the name plate of motor to the traverse ass'y.
2. Align the hole of motor with the ribs.



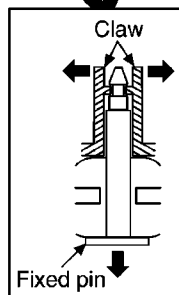
5.9. Replacement for the optical pick-up

- Follow the (Step 1) - (Step 3) of item 5.1.
- Follow the (Step 1) - (Step 5) of item 5.2.
- Follow the (Step 1) - (Step 11) of item 5.5.



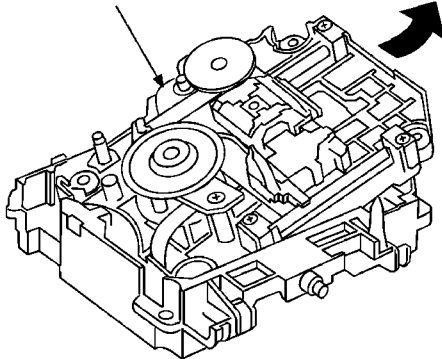
(Step 1)

Release the 2 claws, and the pull out the fixed pin.

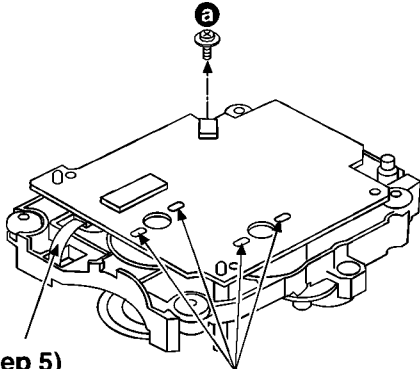


(Step 2)

Remove the traverse deck unit.



(Step 3)



(Step 5)

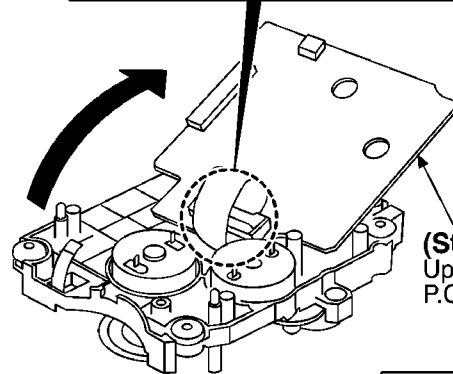
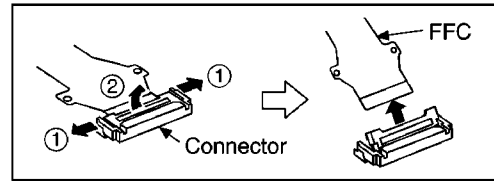
Remove the FFC.

(Step 4)

Unsolder the motor terminals.

(Step 7)

Pull out the FFC from connector.

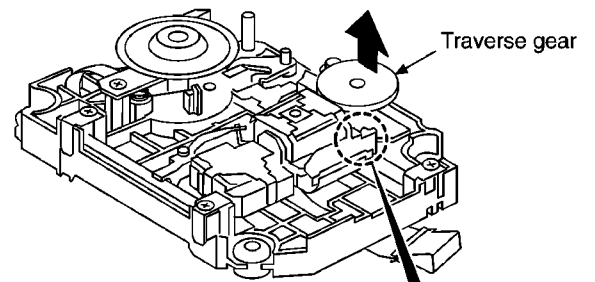
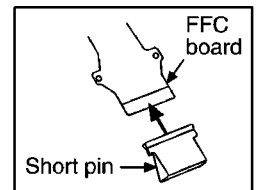


(Step 6)

Upset the terminal P.C.B..

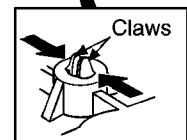
Caution:

Insert short pin into the traverse unit FFC board.
(Refer to "Handling Precautions for Traverse Deck".)



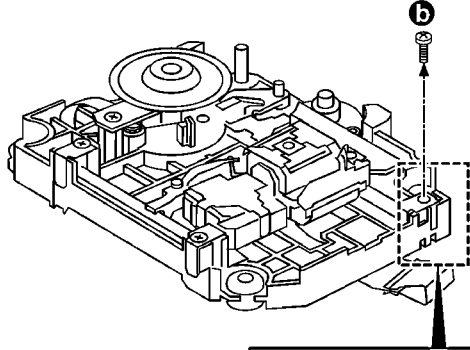
(Step 8)

Release the claws, and then pull out the traverse gear.



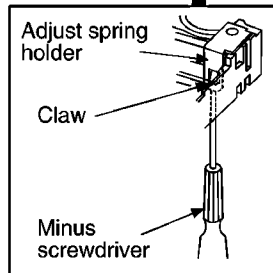
(Bottom side)

(Step 9)



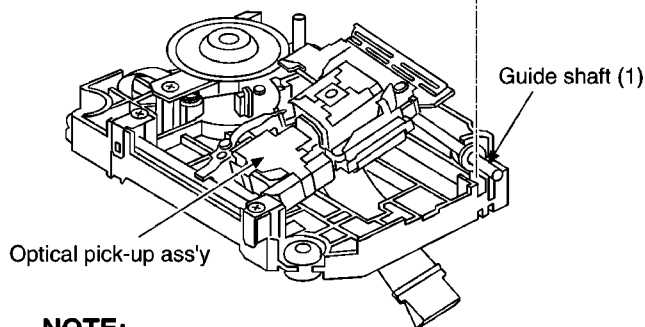
(Step 10)

Release the claw, and then remove the adjust spring holder.



(Step 12)

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

**NOTE:**

Take care not to lose the adjust spring.

(Step 11)

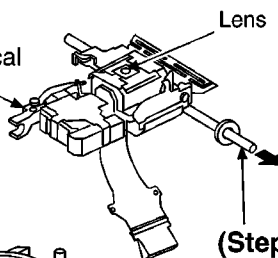
Remove the adjust spring.



Guide shaft (1)

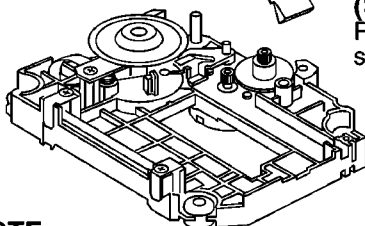
(Step 13)

Remove the optical pick-up ass'y.



(Step 14)

Pull out the guide shaft (1).

**NOTE:**

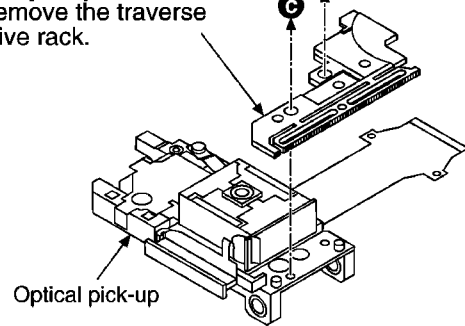
1. Use care to prevent damage the optical pick-up, due to the precision construction.
2. Do not touch the lens of the optical pick-up.

(Step 15)

C × 2

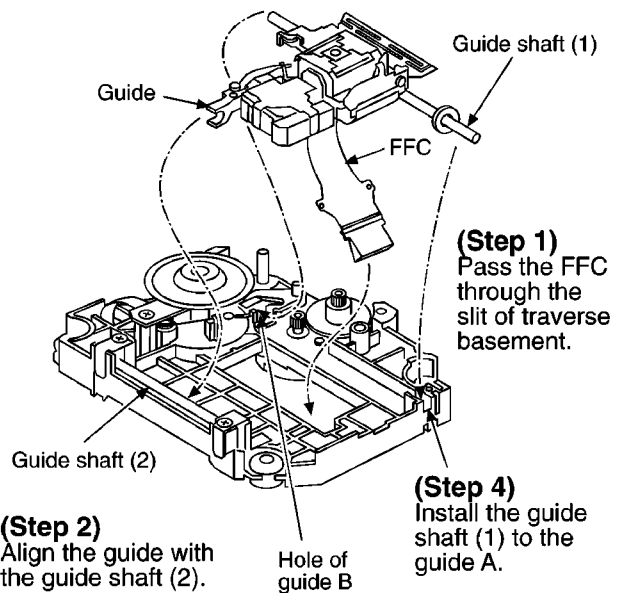
(Step 16)

Remove the traverse drive rack.

**Installing the optical pick-up**

(Step 3)

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



(Step 1)

Pass the FFC through the slit of traverse basement.

(Step 4)

Install the guide shaft (1) to the guide A.

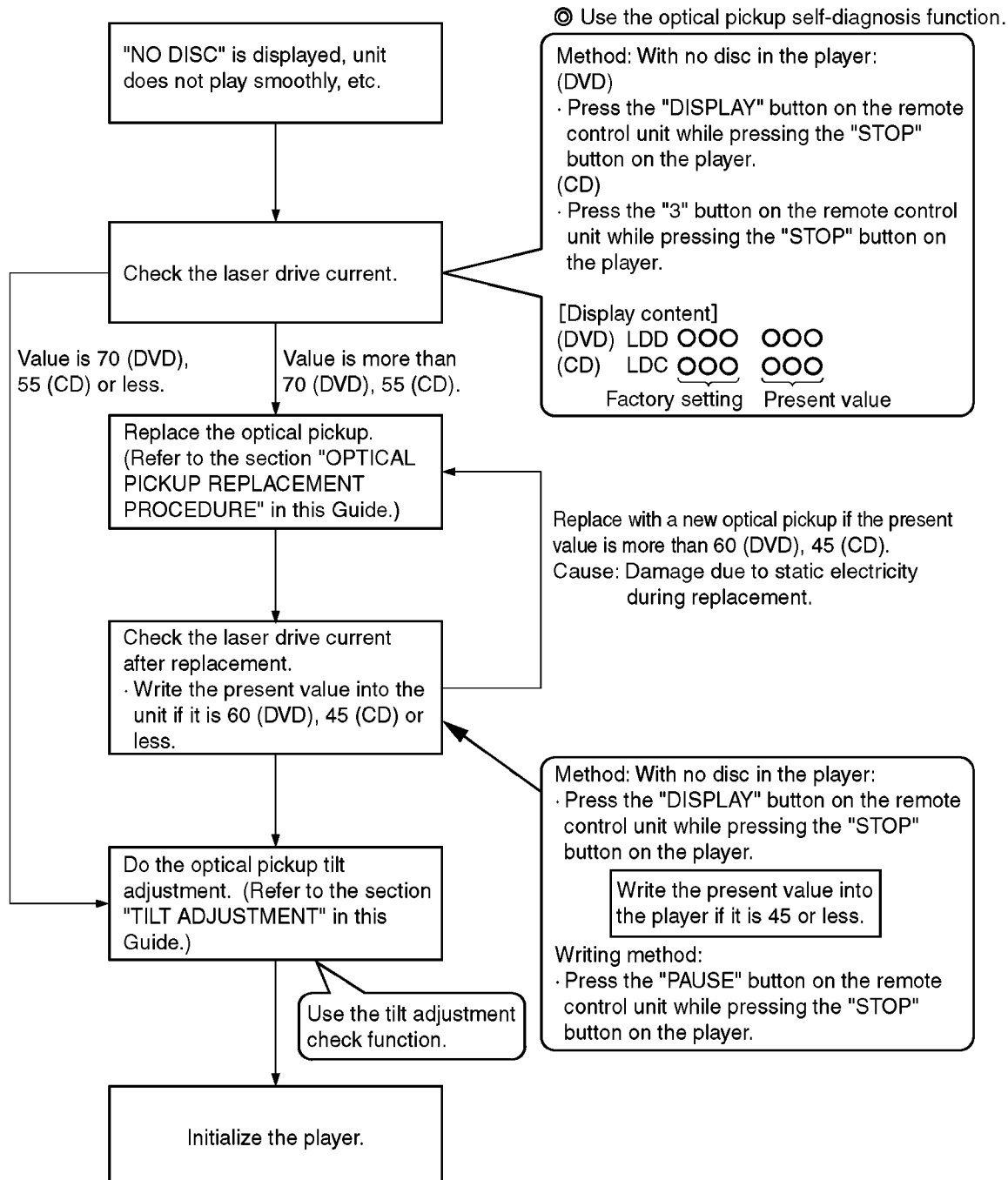
6 Optical Pickup Self-Diagnosis and Replacement Procedure

6.1. Self-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 55.

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.)



6.2. Cautions to Be Used Before Replacing the Optical Pickup Unit and Spindle Motor Assembly

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

	Operating state & Key operation	Display
Using hours of DVD and CD lasers	Press "STOP" button on the player, and " ▲ " on the remote control .	T1_xxxx_yyyy: total hours are displayed by 4-digit figures (unit: 10 hours).
Using hours of SP motor	Press "STOP" button on the player, and " ► " on the remote control.	T2_xxxx: total hours are displayed by 4-digit figures (unit: 10 hours).
Resetting using hours of DVD and CD lasers (Simultaneous resetting)	Press "STOP" button on the player, and " ▼ " on the remote control.	T1_0000_0000
Resetting using hours of the SP motor	Press "STOP" button on the player, and " ◀ " on the remote control .	T2_0000

Cautions to be taken when replacing the optical pickup

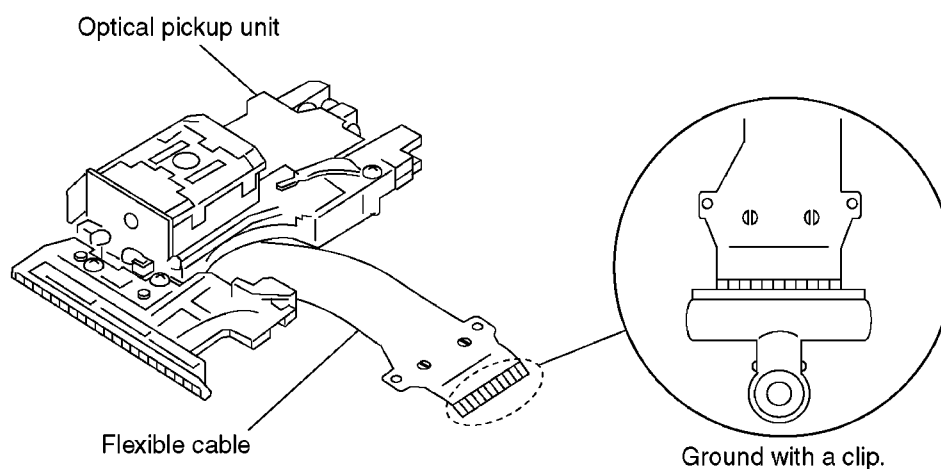
The optical pickup may break down due to the static electricity of human body. Take proper protection measures against static electricity before repairing the parts around the optical pickup.

1. Do not touch the areas around the laser diode and actuator.
2. Do not judge the laser diode with a tester. (The tester will be damaged easily.)
3. It is recommended to use a destaticized soldering iron for short-circuiting or removing the laser diode. (Recommended soldering iron) HAKKO ESD Product

4. Solder the land of the flexible cable in the optical pickup.

Note:

- When using a soldering iron which is not destaticized, short-circuit the terminal face of the flexible case with a clip. After that, short-circuit the land.
- After the repairing work is completed, remove the solder according to the correct procedure shown in this Technical Guide.



7 Self-Diagnosis Function and Service Modes

Each results of self-diagnostic function and service mode is displayed on the LCD of Tuner / Amplifier (SA-DV290). 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 Tuner / Amplifier (SA-DV290) to select DVD.
3. With no disc on the unit, hold down REPEAT button for at least 2 seconds, and then press ■ (STOP) button 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 ►► / ►► (F-SKIP) 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.

7.1.3. Clearing self-diagnostic function

- After repairing, continue to press ■ (STOP) button for at least 5 seconds in the situation of having displayed the error code. (Clearing the contents of self-diagnostic function)
- Always be sure to clear memories after completing repair.

Table 7-1

Display code	Cause
H15	Disc tray open detect switch (S3) fault. (Check and replace)
F16	Clamp switch (S4) fault. (Check and replace)
F17	Bottom switch (S5) fault. (Check and replace)
F27	Tray position detect switch (S1, S2) fault. (Check and replace)
F28	Disc load error.
F29	Disc unload error.

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".)
	5	Jitter check, optical pick-up tilt adjustment.
	6	Checking the region numbers and broadcast system.
	7	Checking the program version.
	DISPLAY	Checking DVD laser drive current measurement.
	3	Checking CD laser drive current measurement.
	■	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	Initialization (Restore factory preset settings) Perform this mode when replacing the microcomputer, its peripheral parts and P.C.B..

7.3. DVD Self Diagnostic Function-Error Code

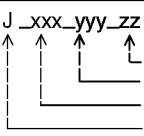
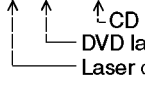
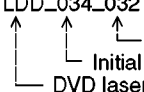
Error Code	Error Content	Additional error explanation	Defect 1	Defect 2	Defect 3	Defect 4
	U, H error					
U11	Focus error					
H01	Tray loading error					
H02	Spindle servo error	(Spindle servo, DSC SP motor, CLV servo error)				
H03	Traverse servo error					
H04	Tracking servo error					
H05	Seek error					
H06	Power error	Cannot switch off the power because of the panel and system computer communication error				
	DSC related					
F500	DSC error	DSC stops in the occurrence of servo error (starup, focus error, etc)	OPU	ADSC	FEP	servo drive
F501	DSC not Ready	DSC-system computer communication error (Communication failure caused by idling of DSC)	ADSC	CPU		
F502	DSC Time out error	Similar disposal as F500	OPU	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	OPU	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		
F632	CPPM KEY DET is not available	Been revoked or falsified	DISC	EEPROM	CPPM	
	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
	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	CPU		
F894	EEPROM abnormality		EEPROM	Serial communication on lone		
F8A0	Message command is not appropriate	Begin sending message to AV task				

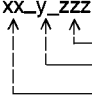
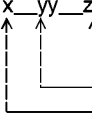
7.4. Last Error Code saved during NO PLAY

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	0xDOBF
F0C0	8) DVD: Cannot playback because it is not DVD Video/Adio/VR	PCND_NOPLAY VIDEO 0x70	DiscManager	0xDOC0
F0C1	9) DVD: Prohibited by the restricted region code	PCND_NOPLAY RCD 0x80	DiscManager	0xDOC1
F0C2	A) DVD: PAL restricted playback	PCND_NOPLAY PAL 0x90	DiscManager	0xDOC2
F0C3	B) DVD: Parental lock setting prohibits the playback of the entire title	PCND_NOPLAY PTL 0xA0	DiscManager	0xDOC3
F0C4	C) VCD: Prohibited because it is in PHOTO CD fromat	PCND_NOPLAY PHOTO CD 0xB0	DiscManager	0xDOC4
F0C5	VCD/CD: Prohibited because it is CDROM without CD-DA	PCND_NOPLAY CDROM 0xC0	DiscManager	0xDOC5

7.5. Service mode table 2

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

Item	Play mode and button combination	Function	Display	Cancellation method
Jitter check	In PLAY mode, press "STOP" button 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. Read error counter starts from zero upon mode setting. When target block data failed to be read out, 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.	 Jitter rate is shown in decimal notation to one place of decimal. Focus drive value is shown in hexadecimal notation.	Press STOP button.
Error code check	Press "STOP" button on the player, and "0" button on the remote control unit.	Error code check The latest error code stored in EEPROM is displayed.	Error code (play_err) is expressed in the following convention. Error code = 0 x DAXX is expressed: → DVD UXX Error code = 0 x DBXX is expressed: → DVD HXX Error code = 0 x DXXX is expressed: → DVD FXXX Error code = 0 x 0000 is expressed: → DVD FXXX	Cancelled automatically 5 seconds later.
Initial setting of laser drive current	In STOP mode, press "STOP" button on the player, and "PAUSE" button on the remote control unit.	Initial setting of laser drive current. Initial current value for each of DVD laser and CD laser is separately saved in EEPROM.		Cancelled automatically 5 seconds later.
DVD laser drive current measurement	In STOP mode, press "STOP" button on the player, and "DISPLAY" 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 the primary power is switched off.)	 The value denotes the current in decimal notation. The above example shows the initial current is 34mA and the measured value is 32mA.	Cancelled automatically 5 seconds later.
ADSC internal RAM data check	Press "STOP" button on the player, and "1" button on the remote control unit.	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 14 addresses.	 The value is shown in hexadecimal notation. The above example shows the data in ADSC address DFAh is 6901h.	Press STOP button.
CD laser drive current measurement	In STOP mode, press "STOP" button on the player, and "3" 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 the primary power is switched off.)	 The value denotes the current in decimal notation. The above example shows the initial current is 28mA and the measured value is 26mA.	Cancelled automatically 5 seconds later.

Item	Play mode and button combination	Function	Display	Cancellation method
Version display	In STOP mode, press "STOP" button on the player, and "7" button on the remote control unit.	Version display	xx_y_zzz  System controller release number System controller model number System controller generation	Cancelled automatically 5 seconds later.
Dealer's lock	In STOP mode, press "STOP" on the player, and "PLAY" button on the remote control unit for 3 second.	Dealer's lock The lock is switched ON or OFF. When dealer's lock is ON, it prohibits the tray opening. When the lock is switched, its ON/OFF status is stored in EEPROM.	· "LOCKED" sign appears when dealer's lock is switched on, or when secondary power key or tray opening key is pressed while the lock is on. · "UNLOCKED" sign appears when dealer's lock is switched off.	Repeat the same operation.
Initialization	In STOP mode, press "STOP" button on the player and "≥10" button on the remote control unit.	Initialization User settings are cancelled and player is initialized to factory setting.	"INITIALIZED"	
Region display	In STOP mode, press "STOP" button on the player, and "6" button on the remote control unit.	Region display	x_yy_zzz  N: NTSC / 6: PAL60 N: noPAL / P: PAL Region No.	Cancelled automatically 5 seconds later.
Timer 1 check	In STOP mode, press "STOP" button on the player, and "▲" button on the remote control unit.	Timer 1 check Operation time of laser operation timer is measured separately for DVD laser and CD laser.	T1_1234_5678 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" button on the player, and "▼" button on the remote control unit.	Timer 1 reset Operation time of laser operation timer of both DVD laser and CD laser is reset all at once.	T1_0000_0000	Cancelled automatically 5 seconds later.
Timer 2 check	In STOP mode, press "STOP" button on the player, and "▶" 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" button on the player, and "◀" button on the remote control unit.	Timer 2 reset Spindle motor operation timer	T2_0000	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 demonstrations by disabling the disc eject function. "LOCKED" is displayed on the unit, and ordinary operation is disabled.

7.6.1. Setting

The sales demonstration lock is set by simultaneously pressing "STOP" button on the player and "PLAY" button on the remote control unit.

7.6.2. Cancellation

The lock can be cancelled by the same procedure as used in setting. ("UNLOCKED" is displayed on cancellation. Disconnecting the power cable from power outlet does not cancel the lock.)

7.7. Handling After Completing Repairs

Use the following procedure after completing repairs.

7.7.1. Method

Confirm that the power is turned on:

1. Press the "OPEN/CLOSE" button to close the tray.
2. Press the "POWER" button to turn off the power.

3. Disconnect the power plug from the outlet.

7.7.2. Precautions

Do not disconnect the power plug from the outlet with the tray still open, then close the 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: **RFKZD5TR006** or **RFKZD03R004**)
- Performing recovery
 1. Load the recovery disc (**RFKZD5TR006** or **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.

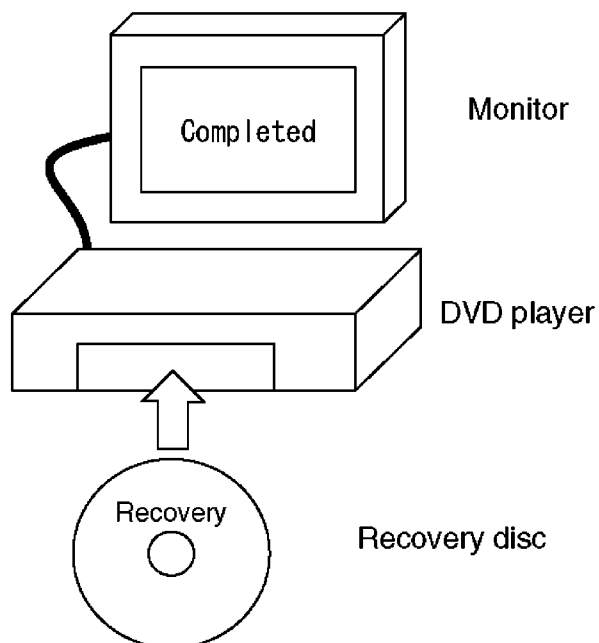
When the recovery measure are taken, the customer setting will return to the factory preset settings as same as the procedure described in item of "Initialization" in 7.6. is carried out. Write down the contents of the setting before recovery processing, and reset the unit.

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. Overview of each function

8.3.1. Cumulative operation time display

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	Spindle motor operation time Unit: 10 hours in decimal notation

Key operations are as follows.

Laser operation time In STOP mode, main unit [STOP]+ remote controller [▲]

Spindle motor operation time In STOP mode, main unit [STOP]+ remote controller [►]

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

Laser operation time In STOP mode, main unit [STOP]+ remote controller [▼]

Spindle motor operation time In STOP mode, main unit [STOP]+ remote controller [◀]

2. How to utilize

Reference information in fault diagnosis of laser or spindle motor system

Review of faulty point in repeated repair

9 Adjustment Procedures

9.1. Service Tools and Equipment

Application	Name	Number
Tilt adjustment	DVD test disc	DVDT-S15 or DVDT-S01
	Hex wrench	Commercially available hex wrench
Others	Screw lock	RZZ0L01
	Grease	RFKXGAK152
	Oil	RFKXGA1280, JZS0648
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	RFKZD5TR006 or RFKZD03R004

9.2. Important points in adjustment

9.2.1. 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, make 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.

9.2.2. Important points in electrical adjustment

- Follow the adjustment procedures described in this Manual.

9.3. 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.

9.4. Optical adjustment

9.4.1. 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.		

9.4.1.1. Adjustment procedure

1. While pressing "STOP" button on the main unit, press "5" on the remote control unit.
2. Confirm that "J_xxx_yyy_zz" is shown on the front display.

For your information:

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

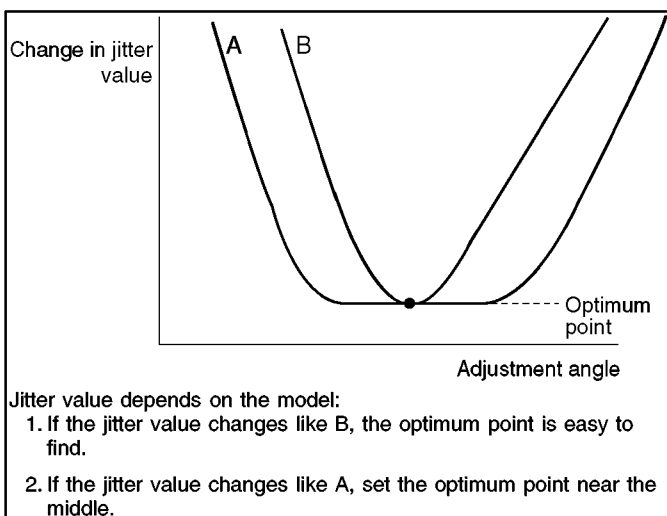
Note:

Jitter value appears on the front display.

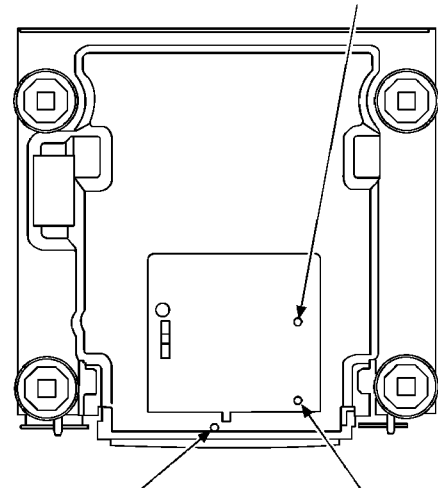
3. Play test disc T01 (inner periphery).
4. Adjust tangential adjustment screw so that the jitter value is minimized.
5. Play test disc T43 (outer periphery).
6. Adjust tilt adjustment screw 1 so that the jitter value is minimized.
7. Play test disc T43 (outer periphery).
8. Adjust tilt adjustment screw 2 so that the jitter value is minimized.
9. Repeat adjusting tilt adjustment screws 1 and 2 alternately until the jitter value is minimized.

9.4.1.2. Important points

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.



Tangential adjustment screw



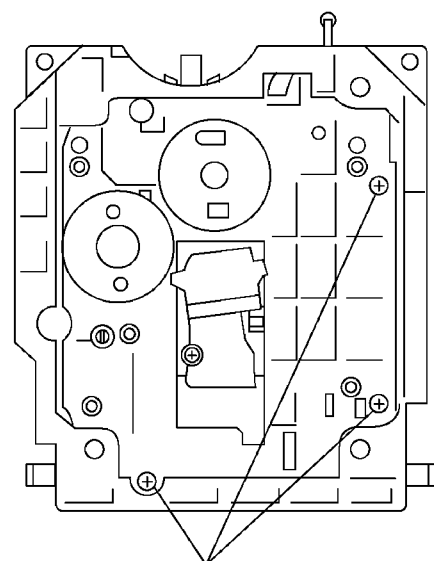
Tilt adjustment screw 2 Tilt adjustment screw 1

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 screw in position using screw lock.

9.4.1.4. 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.



Screw lock
(adjustment screw)

10 To Supply Power Source

Cautions:

- It is very dangerous to look at or touch the laser beam.
(Laser radiation is invisible.)
With the unit turned "on", laser radiation is emitted from the pickup lens.
- Avoid exposure to the laser beam, especially when performing adjustments.

This unit SL-DV290 is designed to operate on power supplied from the system connected. (For system connection, refer to Fig. 4.)

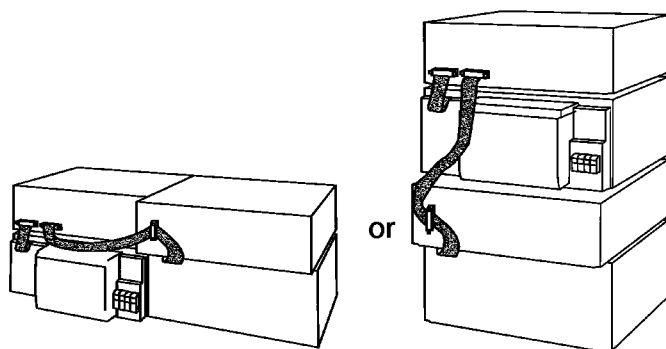


Fig. 4

When the unit SL-DV290 has to test and service alone, use the following method to supply power source.

1. Connect a DC power supply to JK1-5pin and JK1-6pin and .

Then adjust the outputs to 10V for 5pin (refer to Fig. 5 and Fig. 6)

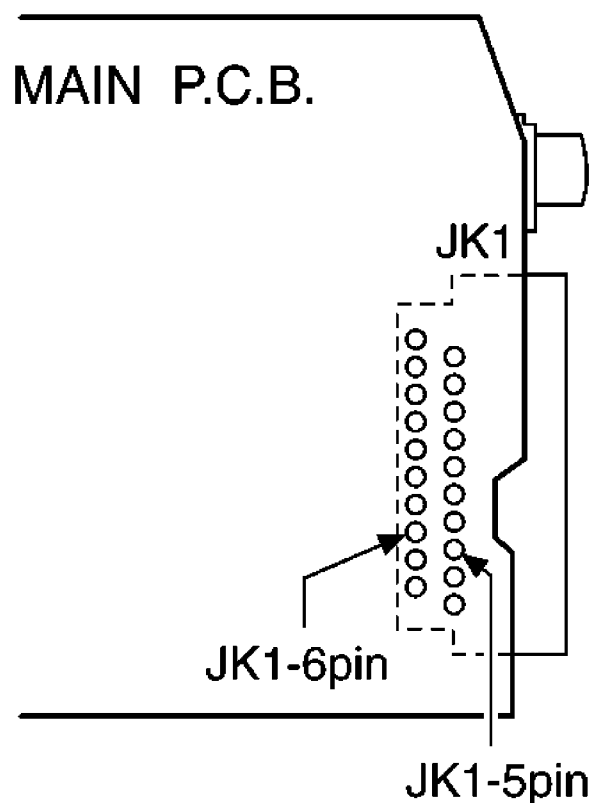


Fig. 5

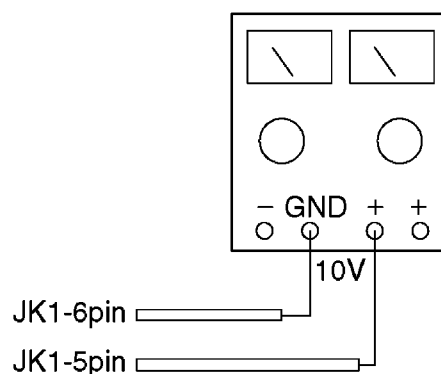


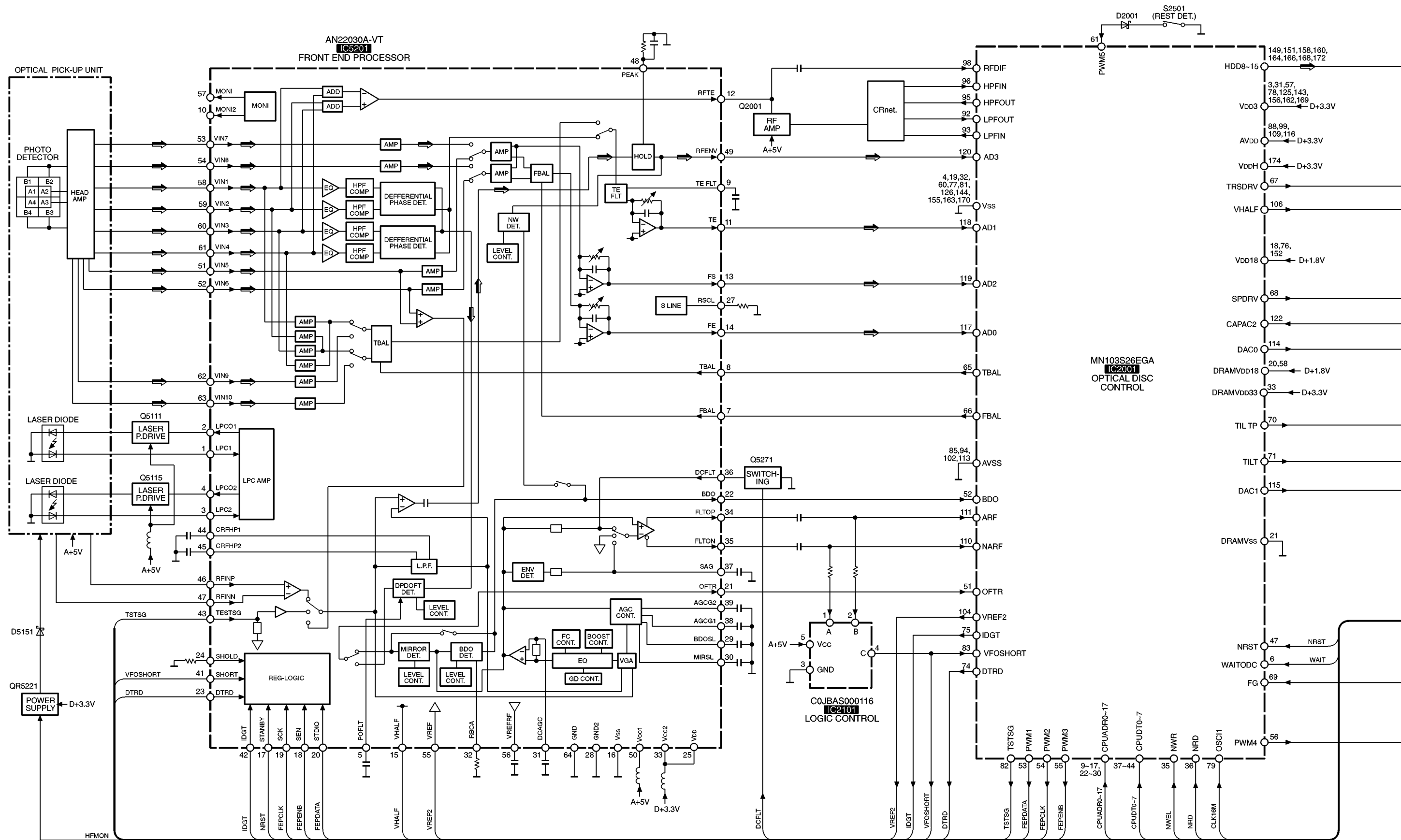
Fig. 6

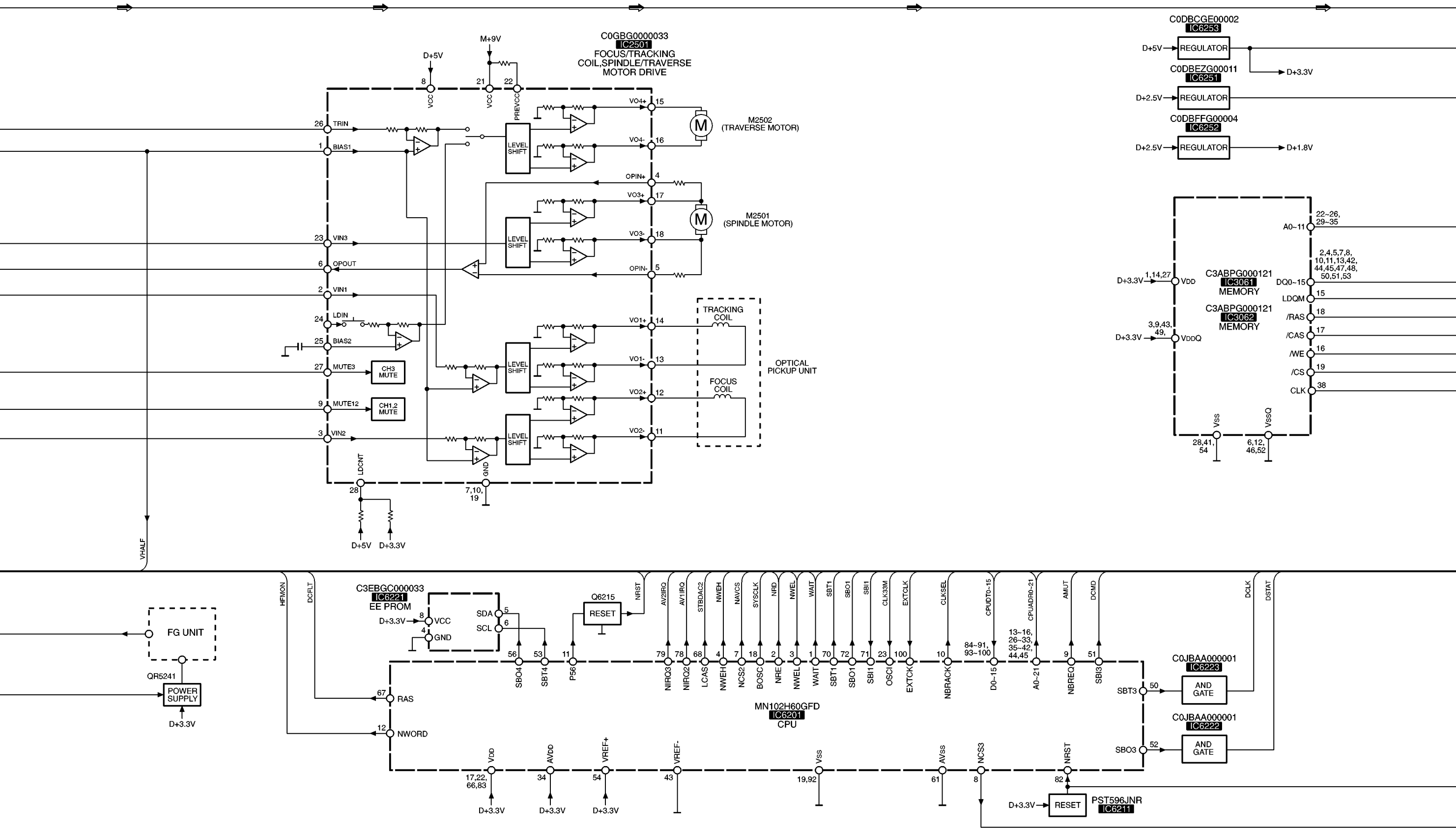
Note:

Use only this method when checking the voltage etc..

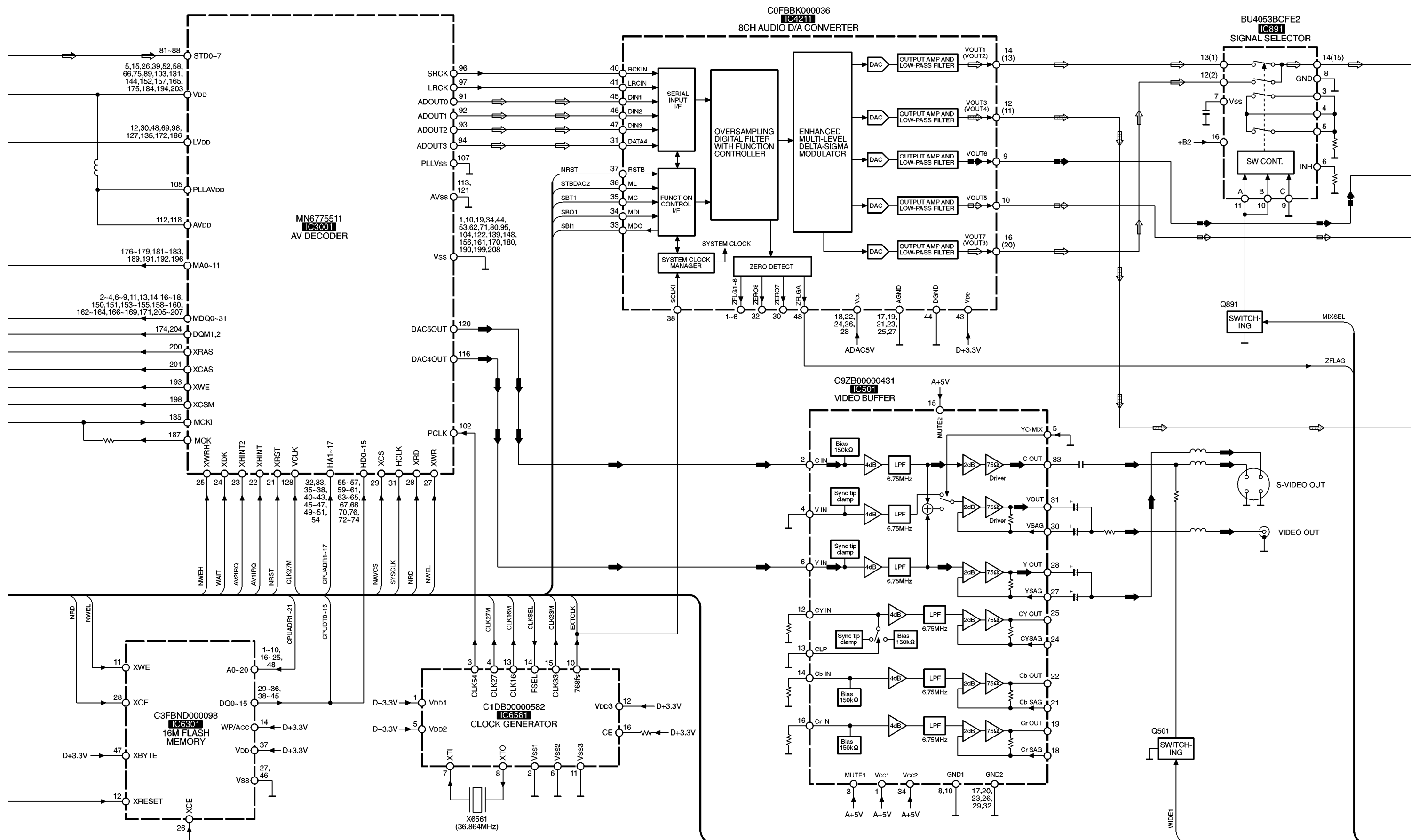
In case of checking operations, use the system connections to supply power source.

11 Block Diagram

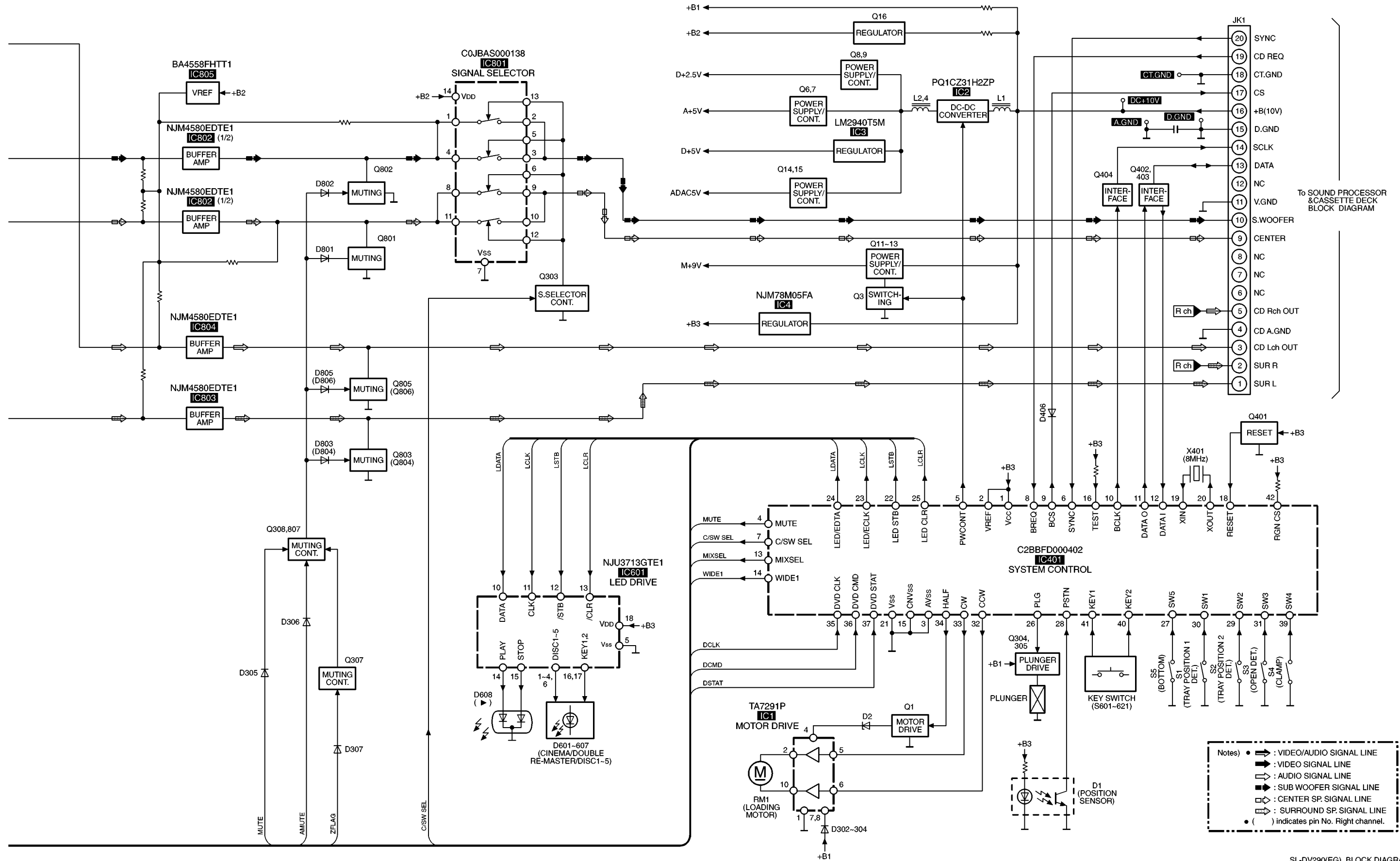




SL-DV290(EG) BLOCK DIAGRAM



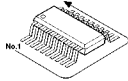
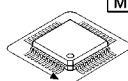
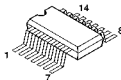
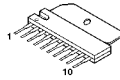
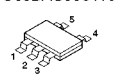
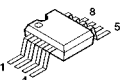
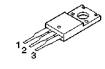
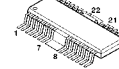
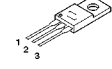
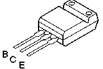
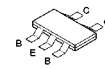
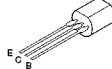
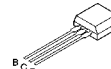
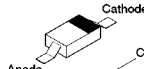
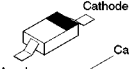
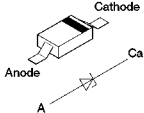
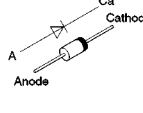
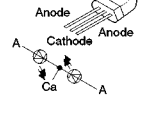
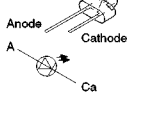
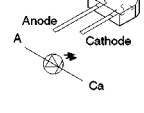
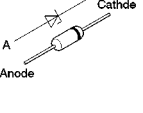
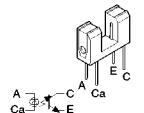
SL-DV290(EG) BLOCK DIAGRAM



SL-DV290(EG) BLOCK DIAGRAM

12 Schematic Diagram Notes

12.1. Type Illustration of IC's, Transistors and Diodes

	C1DB00000582 16PIN C9ZB00000431 34PIN C2BBFD000402 42PIN BU4053BCFE2 16PIN NJM4580EDTE1 8PIN C3ABPG000121 54PIN NJU3713GTE1 18PIN				C0FBBK000036 48PIN MN103S26EGA 176PIN MN102H60GFD 100PIN AN22030A-VT 64PIN MN6775511 208PIN
C0JBAS000138	C3FBND000098	TA7291P	PST596JNR C0JBAA000001 C0JBAS000116	PQ1CZ31H2ZP C0DBEZG00011 C0DBFFG00004 C0DBCGE00002	BA4558FH1T1 C3EBGC000033
					
NJM78M05FA	C0GBG0000033	LM2940T5M	2SB1417PQTA	2SB1218TX UN2121-TX 2SD1328TX UN5111TX 2SD1819ATX UN5212TX DTC114EUA106 UN5214TX UN511MTX UN521NTX UN5211TX	
					
FMW1T98	2SB1115-T 2SB766ATX 2SD874QRSTX	2SB621ARSTA	RVTDTTC143EST	MA728TX MA735TX	MA111TX SFPB-72V
					
MA8082MTX MA8091MTX	RL1N4003N02	SML79455C	LNJ301MPUJAD	SELS5923C	MTZJ4R7BTA
					
GP1S94					

12.2. Schematic Diagram Notes

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

Notes:

- S1 : Tray position 1 detect switch.
- S2 : Tray position 2 detect switch.
- S3 : Tray open detect switch.
- S4 : Clamp detect switch.
- S5 : Bottom detect switch.
- S601 : Disc select (DISC5) switch.
- S602 : Disc select (DISC4) switch.
- S603 : Disc select (DISC3) switch.
- S604 : Disc select (DISC2) switch.
- S605 : Disc select (DISC1) switch.
- S606 : Disc direct open (DIRECT OPEN, DISC1) switch.
- S607 : Disc direct open (DIRECT OPEN, DISC2) switch.
- S608 : Disc direct open (DIRECT OPEN, DISC3) switch.
- S609 : Disc direct open (DIRECT OPEN, DISC4) switch.
- S610 : Disc direct open (DIRECT OPEN, DISC5) switch.
- S611 : Disc tray open/close (▲ , OPEN/CLOSE) switch.
- S612 : A-B repeat (A-B REPEAT) switch.
- S613 : Repeat (REPEAT) switch.
- S614 : CD edit (CD EDIT) switch.
- S615 : Cinema mode (CINEMA MODE) switch.
- S616 : Double re-master (DOUBLE RE-MASTER) switch.
- S617 : Pause (■■) switch.
- S618 : Stop (■) switch.
- S619 : Play (▷) switch.
- S620 : R. skip/search (◀◀ / ◀◀) switch.
- S621 : F. skip/search (▶▶ / ▶▶) switch.
- 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: CD STOP

(): CD play [1kHz, L+R, 0dB]

Important safety notice:

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

Furthermore, special parts which have purpose 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.

Caution!

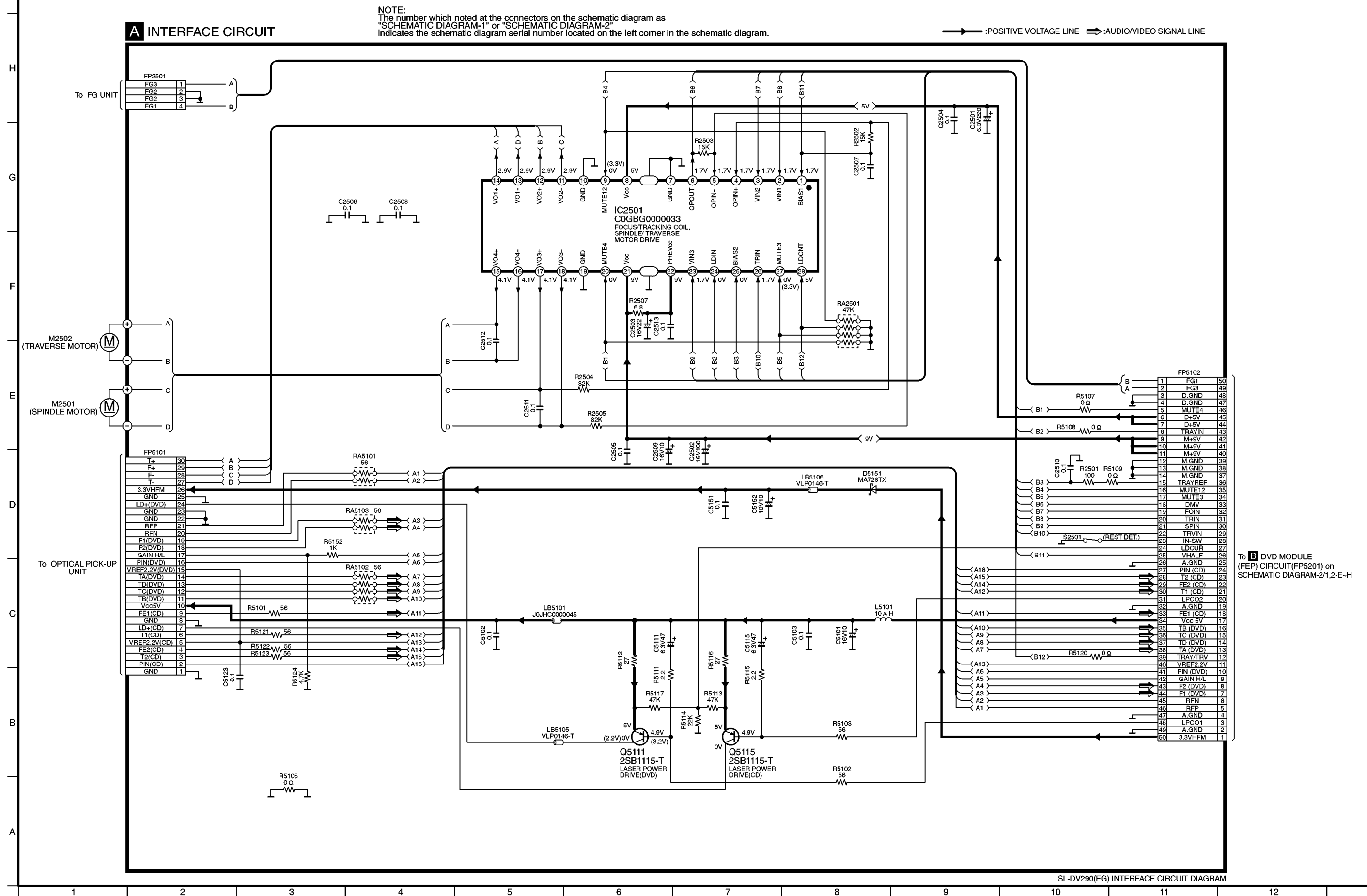
- IC and LSI are sensitive to static electricity.
- Secondary trouble can be prevented by taking care during repair.
- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the legs of IC or LSI with the fingers directly.

Voltage and signal lines

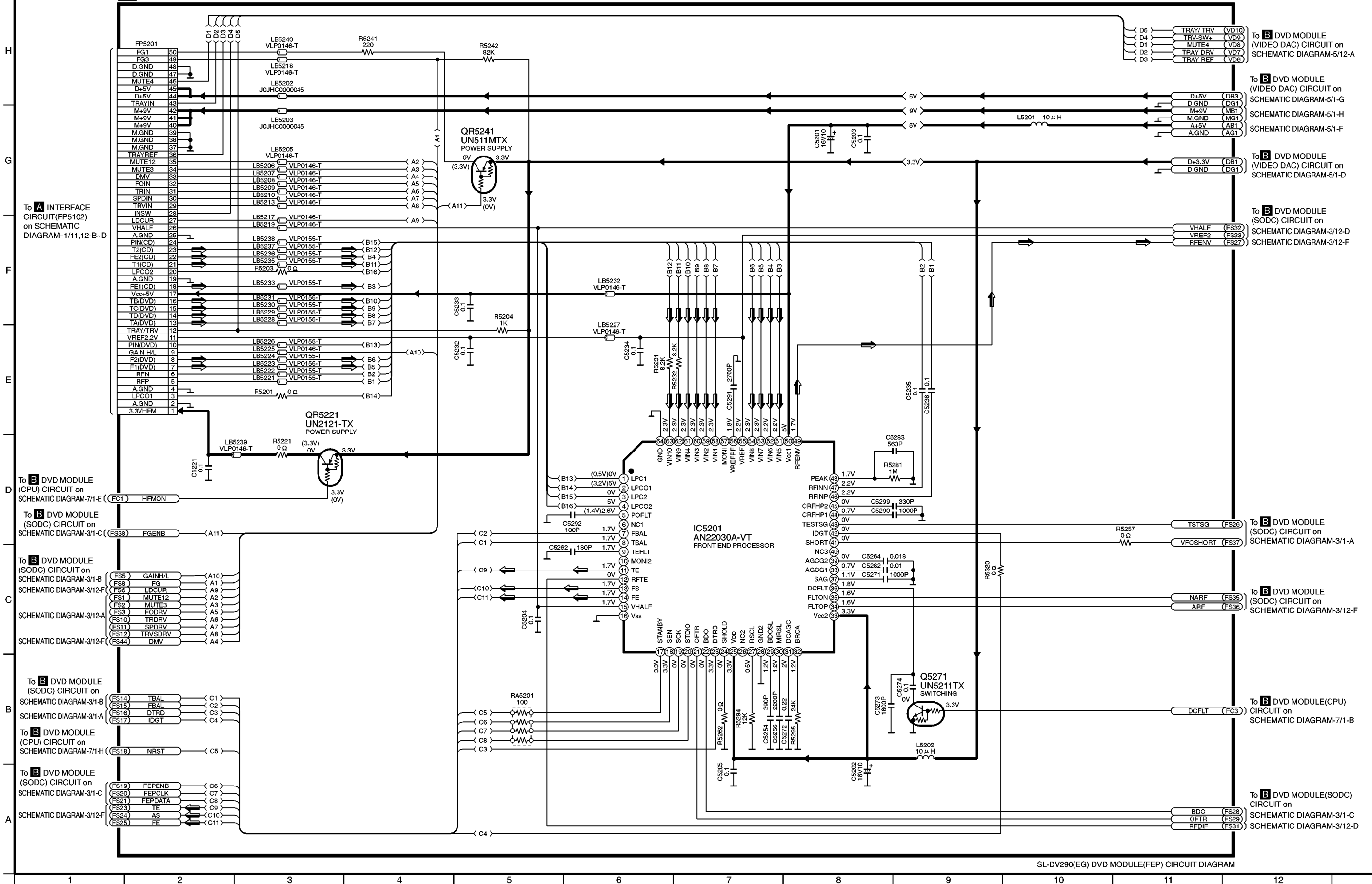
-  : Positive voltage line
-  : AUDIO signal line
-  : AUDIO/VIDEO signal line
-  : VIDEO signal line
-  : Surround SP. signal line
-  : Center SP. signal line
-  : Sub woofer signal line

13 Schematic Diagram

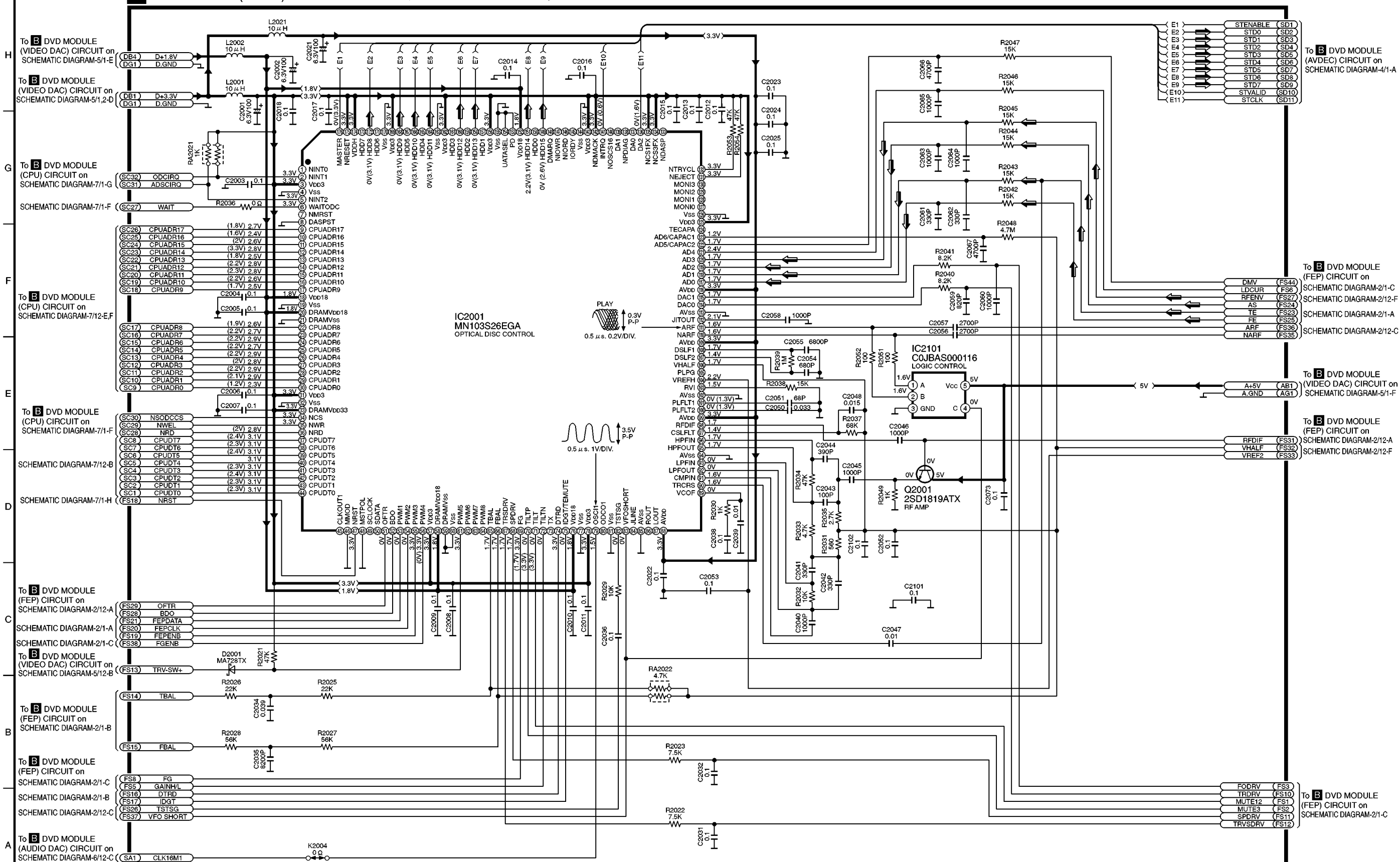
SCHEMATIC DIAGRAM-1



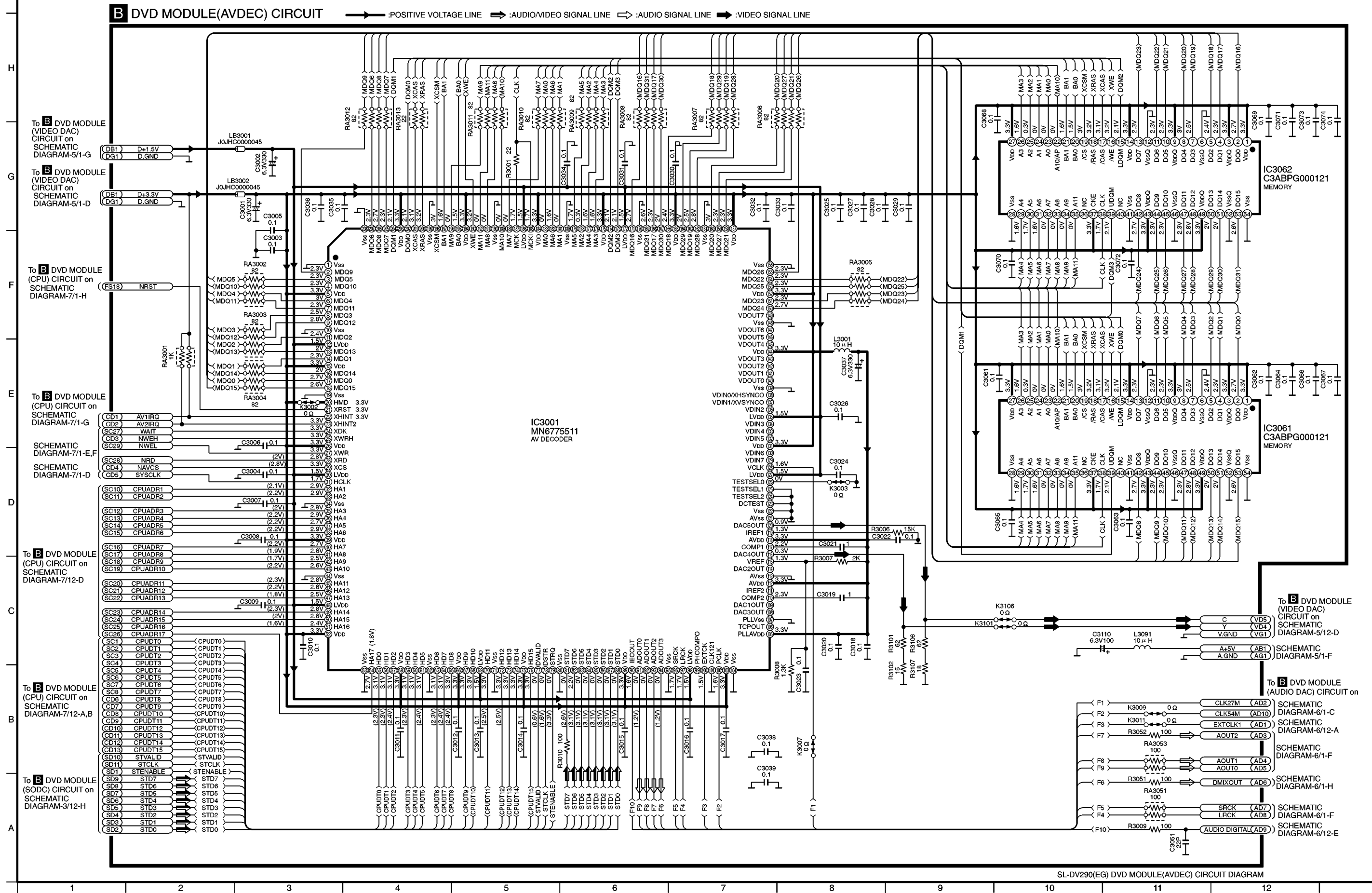
B DVD MODULE(FEP) CIRCUIT



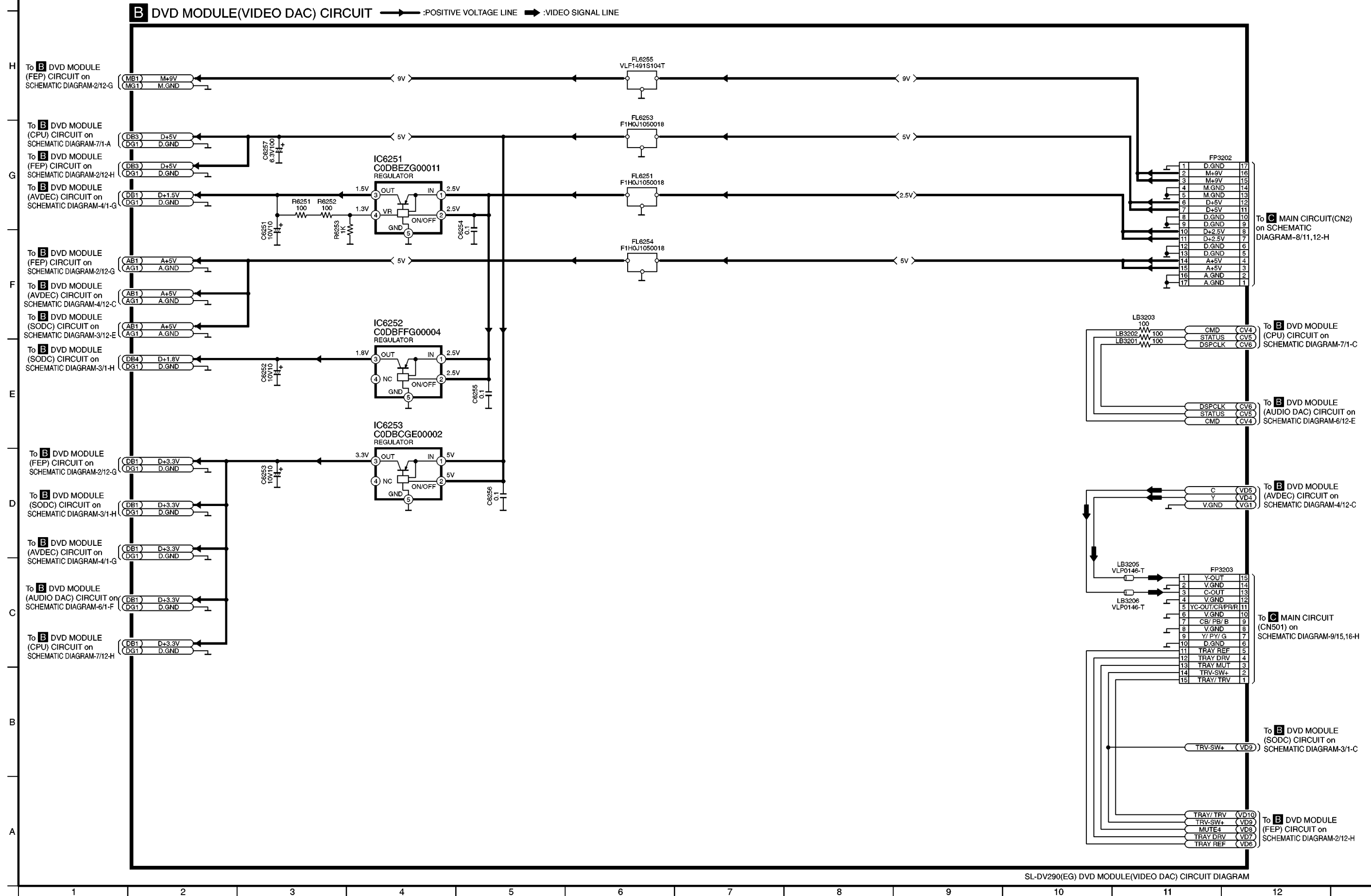
B DVD MODULE(SODC) CIRCUIT



SCHEMATIC DIAGRAM-4



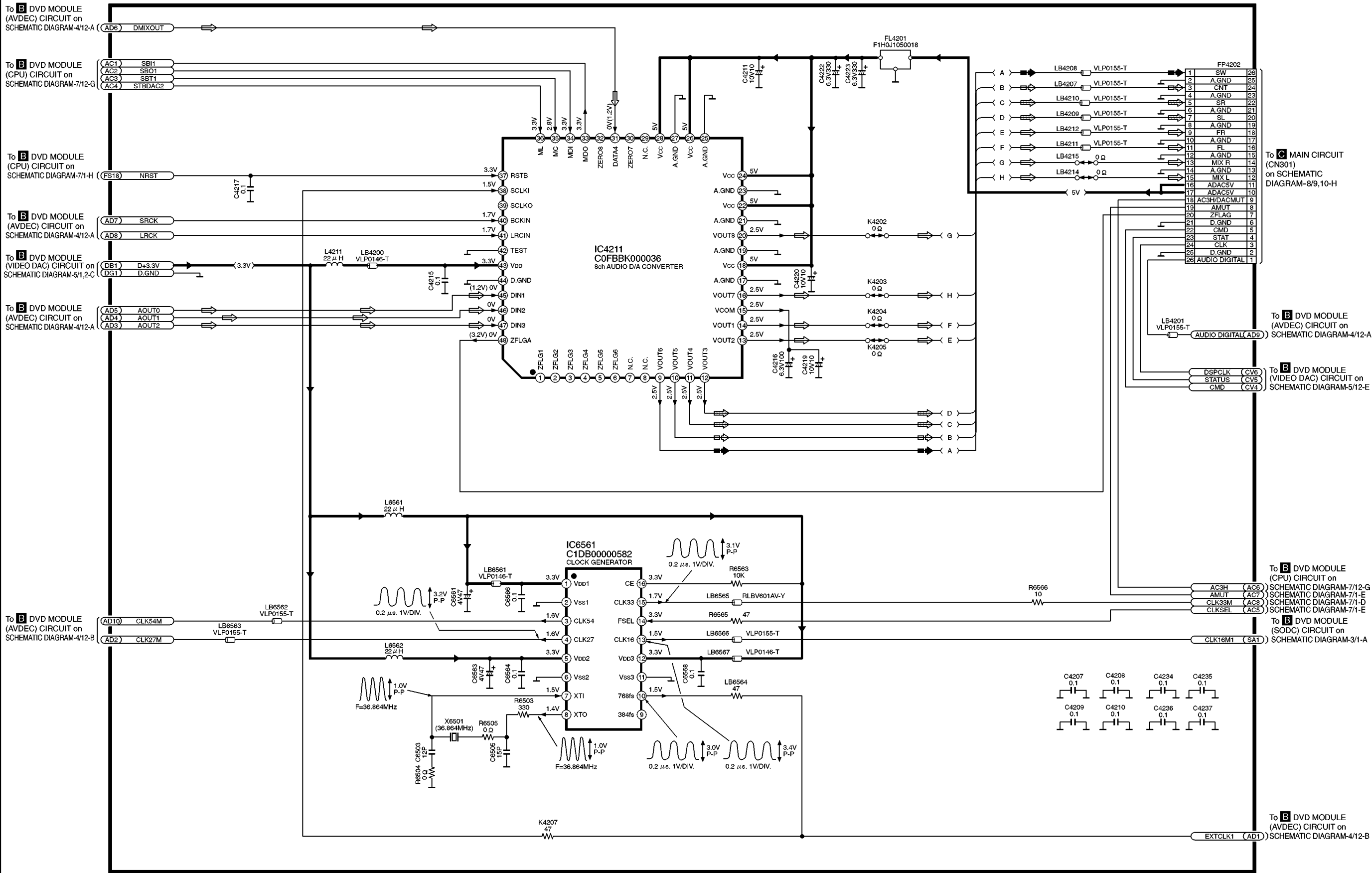
SCHEMATIC DIAGRAM-5



SCHEMATIC DIAGRAM-6

B DVD MODULE(AUDIO DAC) CIRCUIT

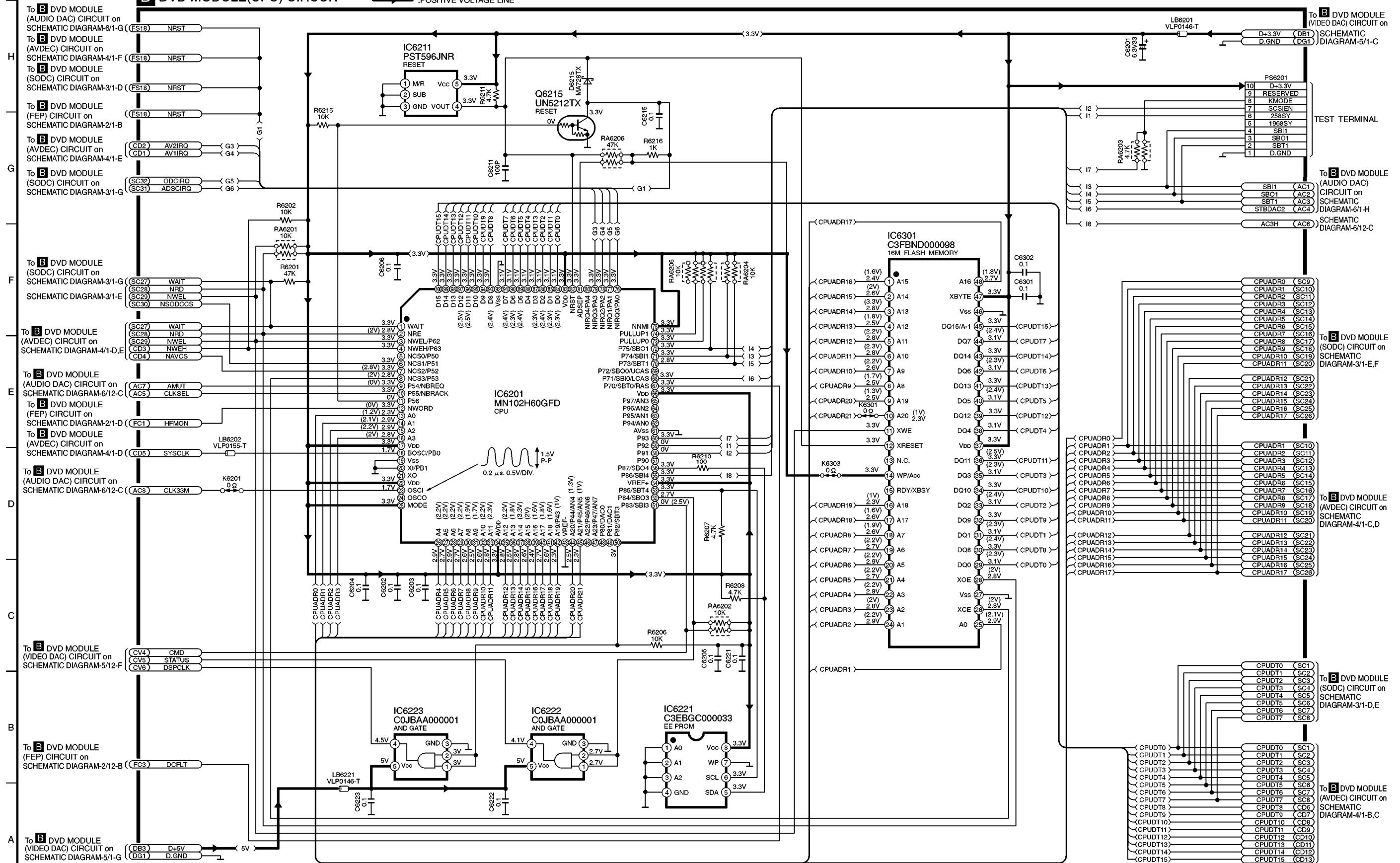
→:POSITIVE VOLTAGE LINE ⇨:AUDIO SIGNAL LINE ⇨:SURROUND SP. SIGNAL LINE □⇨:CENTER SP. SIGNAL LINE ■⇨:SUB WOOFER SIGNAL LINE



SL-DV290(EG) DVD MODULE(AUDIO DAC) CIRCUIT DIAGRAM

B DVD MODULE(CPU) CIRCUIT

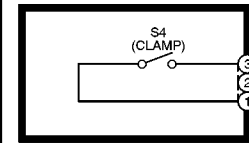
→ : POSITIVE VOLTAGE LINE



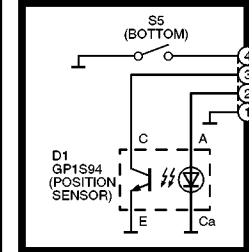
SCHEMATIC DIAGRAM-8

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

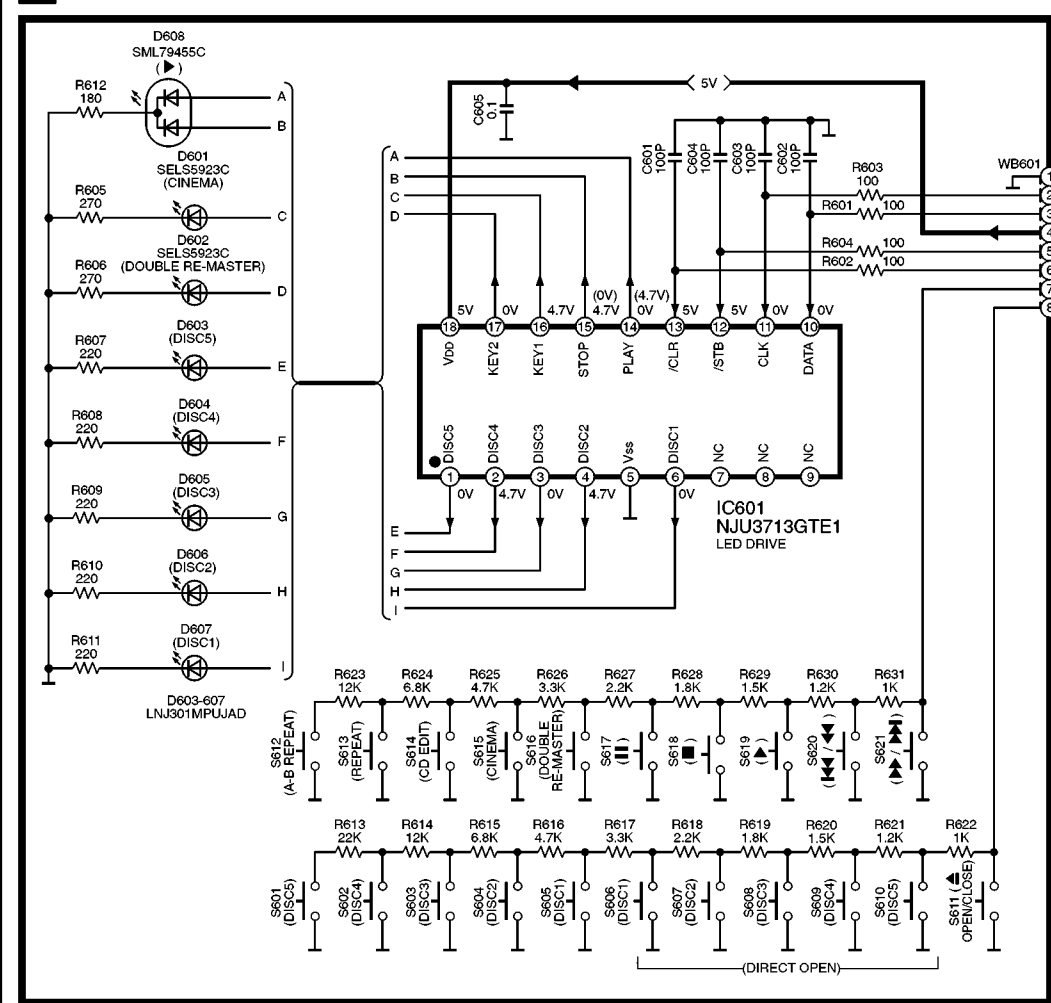
F CLAMP SW CIRCUIT



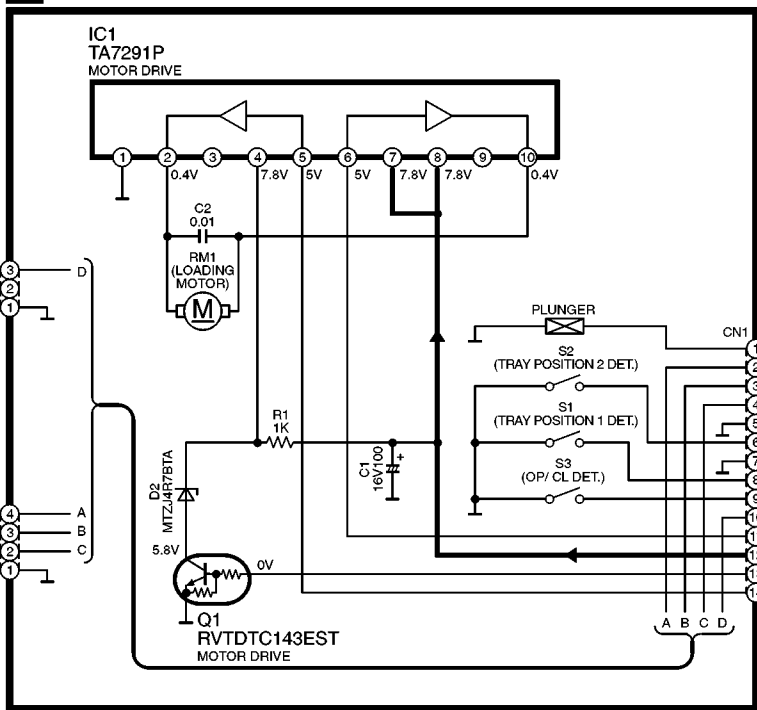
G BOTTOM SW CIRCUIT



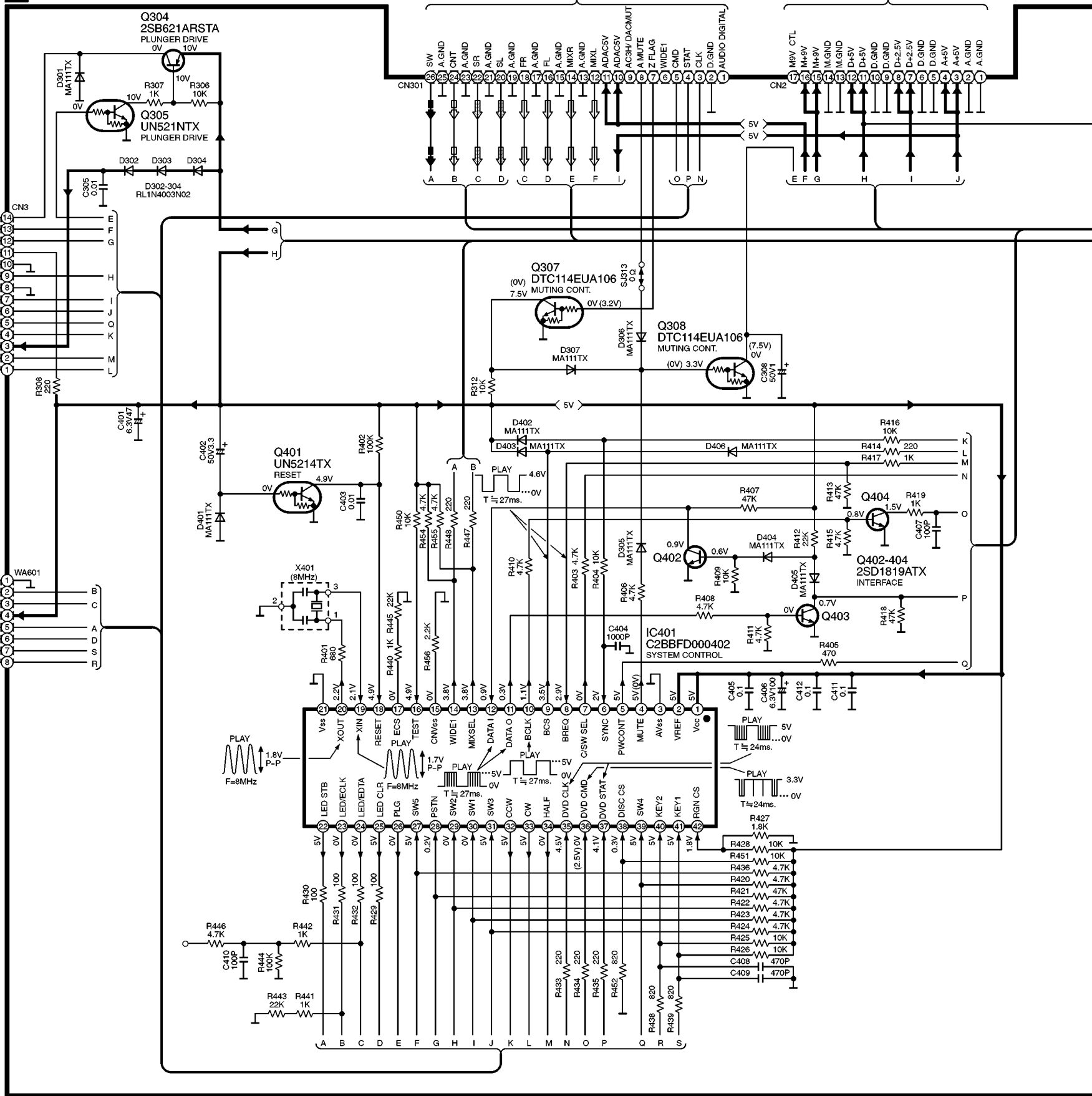
D OPERATION CIRCUIT



E LOADING MOTOR CIRCUIT

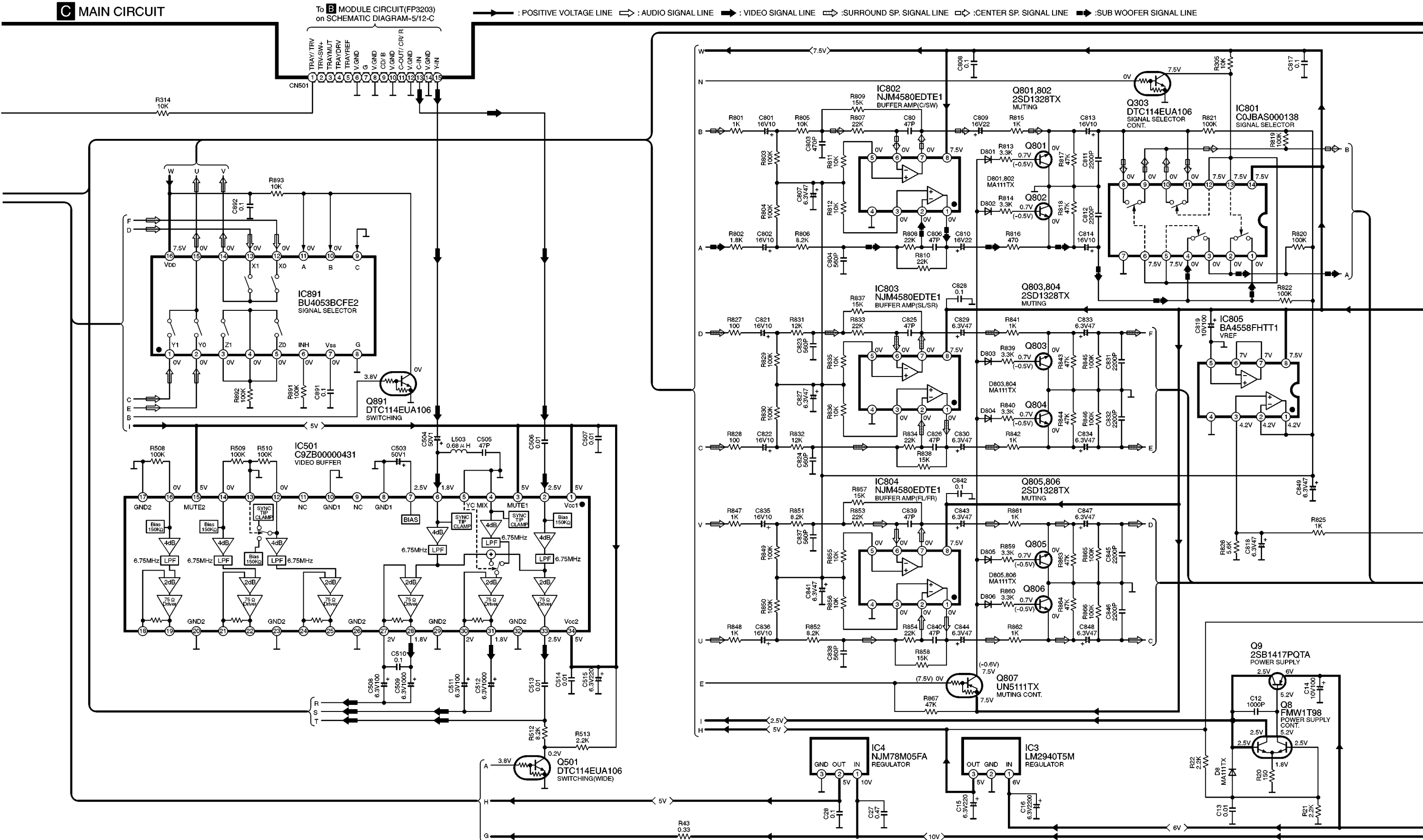


C MAIN CIRCUIT



SCHEMATIC DIAGRAM-9

C MAIN CIRCUIT

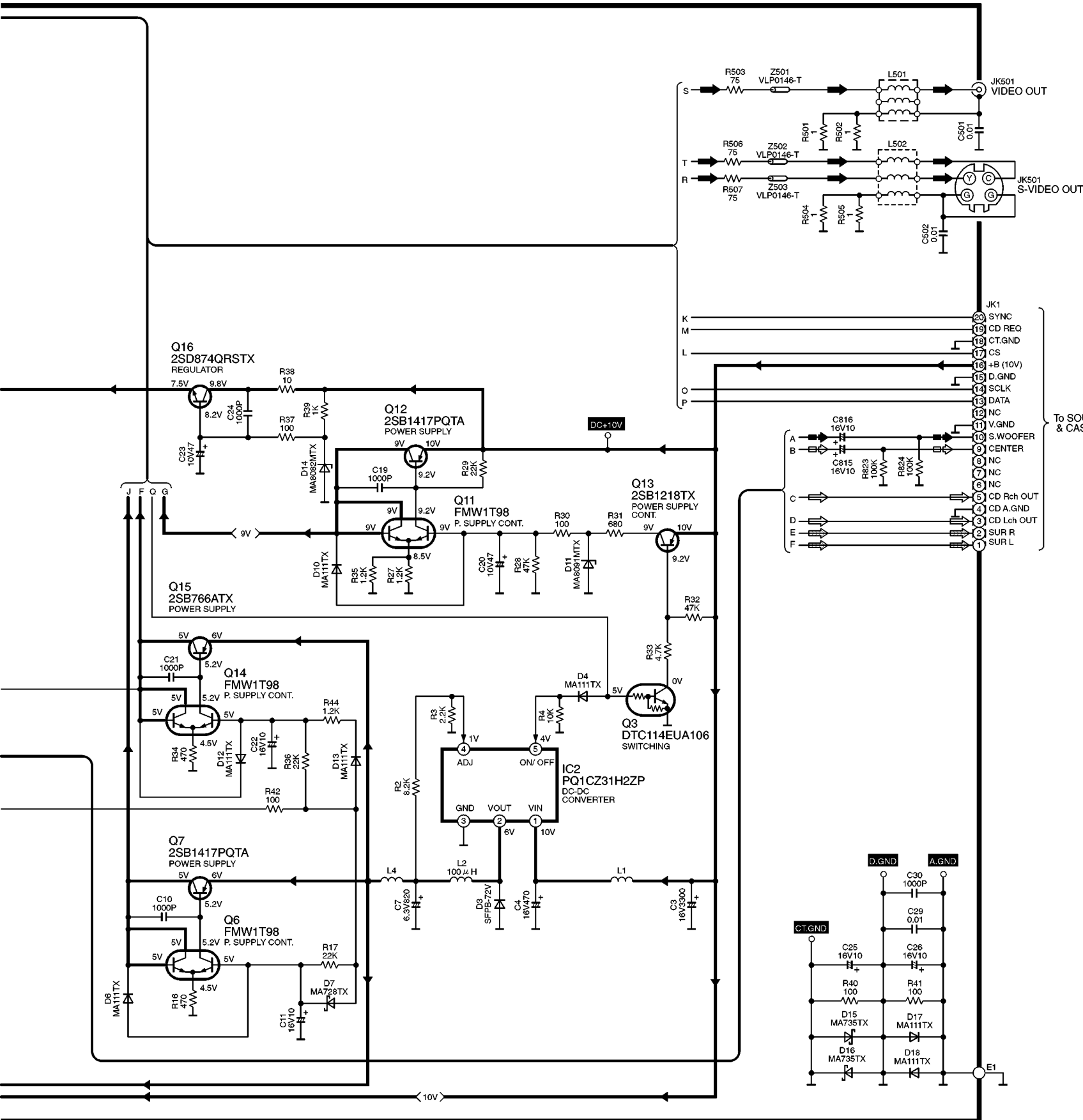


SL-DV290(EG) MAIN CIRCUIT DIAGRAM

SCHEMATIC DIAGRAM-10

C MAIN CIRCUIT

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



SL-DV290(EG) MAIN CIRCUIT DIAGRAM

14 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	SERVOAMPOUTPUT
B	ASYN	AUDIOWORD 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
C	BYTCK	BYTE CLOCK
	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	SYSTEMCLOCKSELECT
	CLV	CONSTANTLINEAR 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
	CSYNIN	COMPOSITESYNIN
	CSYNOUT	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	DATAOUTPUT
	DRF	DATASLICE 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

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
G	FSCK	FS (384 OVER SAMPLING)CLOCK
	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/OMASK
	MLD	MEMORYSERIALCOMMAND LOAD
O	MPEG	MOVING PICTURE EXPERTS GROUP
	ODC	OPTICAL DISC CONTROLLER
	OFTR	OFF TRACKING
	OSCI	OSCILLATOR INPUT
	OSCO	OSCILLATOR OUTPUT
P	OSD	ON SCREEN DISPLAY
	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
	PLLOCK	PLL LOCK
	PWMCTL	PWM OUTPUT CONTROL
	PWMDA	PULSEWAVEMOTOR DRIVEA
	PWMOA, B	PULSE WAVE MOTOR OUT A, B

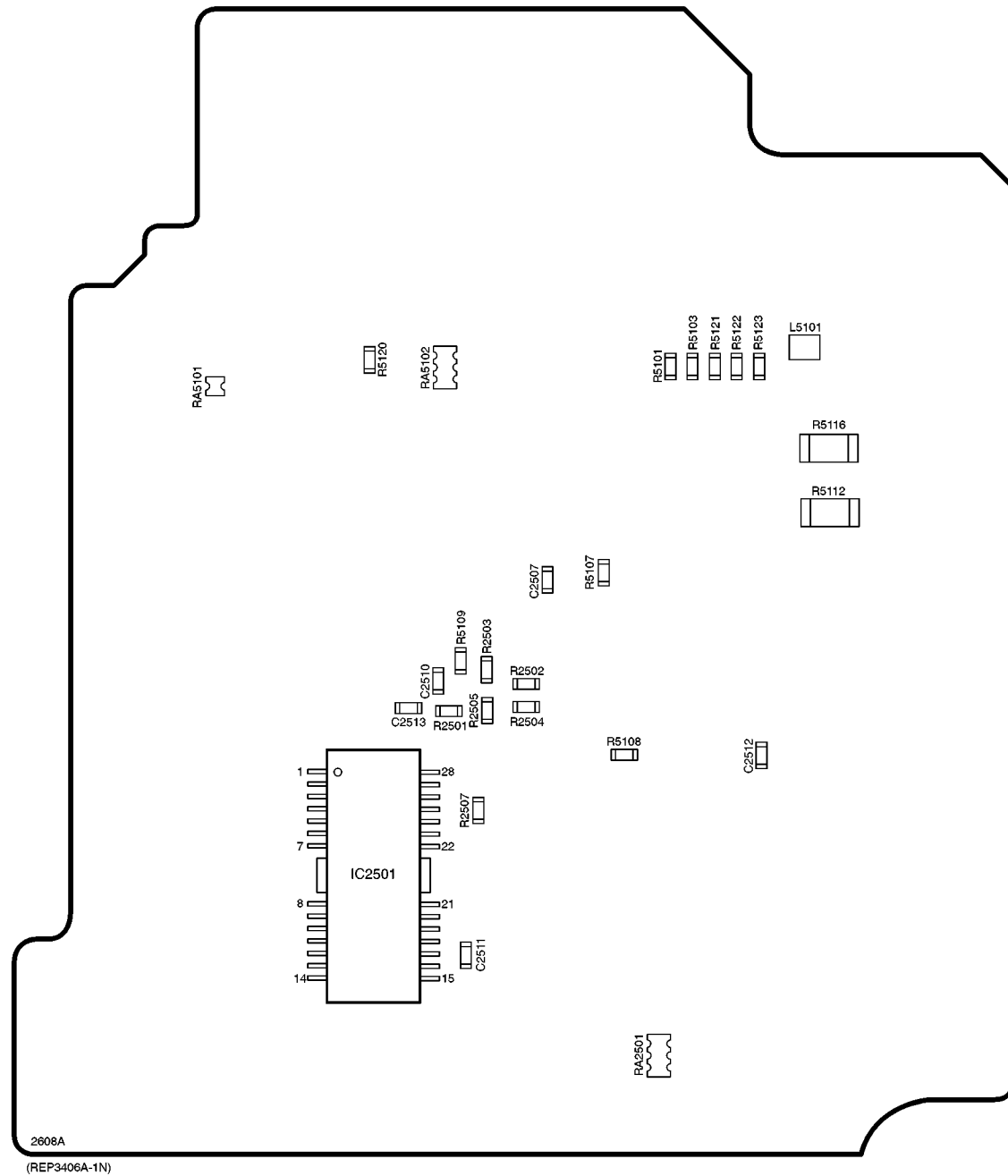
INITIAL/LOGO		ABBREVIATIONS
R	RE	READ ENABLE
	RFENV	RF ENVELOPE
	RFO	RF PHASE DIFFERENCE OUTPUT
	RS	(CD-ROM) REGISTER SELECT
	RSEL	RF POLARITY SELECT
	RST	RESET
S	RSV	RESERVE
	SBI0, 1	SERIAL DATA INPUT
	SBO0	SERIAL DATA OUTPUT
	SBT0, 1	SERIAL CLOCK
	SCK	SERIAL DATA CLOCK
	SCKR	AUDIO SERIAL CLOCK RECEIVER
	SCL	SERIAL CLOCK
	SCLK	SERIAL CLOCK
	SDA	SERIAL DATA
	SEG0~UP	FL SEGMENTOUTPUT
	SELCLK	SELECTCLOCK
	SEN	SERIALPORT 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	SUBCODEQ 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	STREAMDATA INPUT ENABLE
	STSEL	STREAM DATA POLARITY SELECT
	STVALID	STREAMDATAVALIDITY
	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	TRACKCROSSIGNAL
	TRON	TRACKINGON
	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
W	VSS	SOURCEPOWERSUPPLYVOLTAGE
	WAIT	BUS CYCLE WAIT
	WDCK	WORD CLOCK
	WEH	WRITE ENABLE HIGH
X	WSR	WORD SELECT RECEIVER
	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	XHINTERRUPTREQUEST
	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	XV-DEC CHIPSELECT
	XVDS	XV-DEC CONTROL BUS STROBE
	XVSYNCO	X VERTICAL SYNC OUTPUT

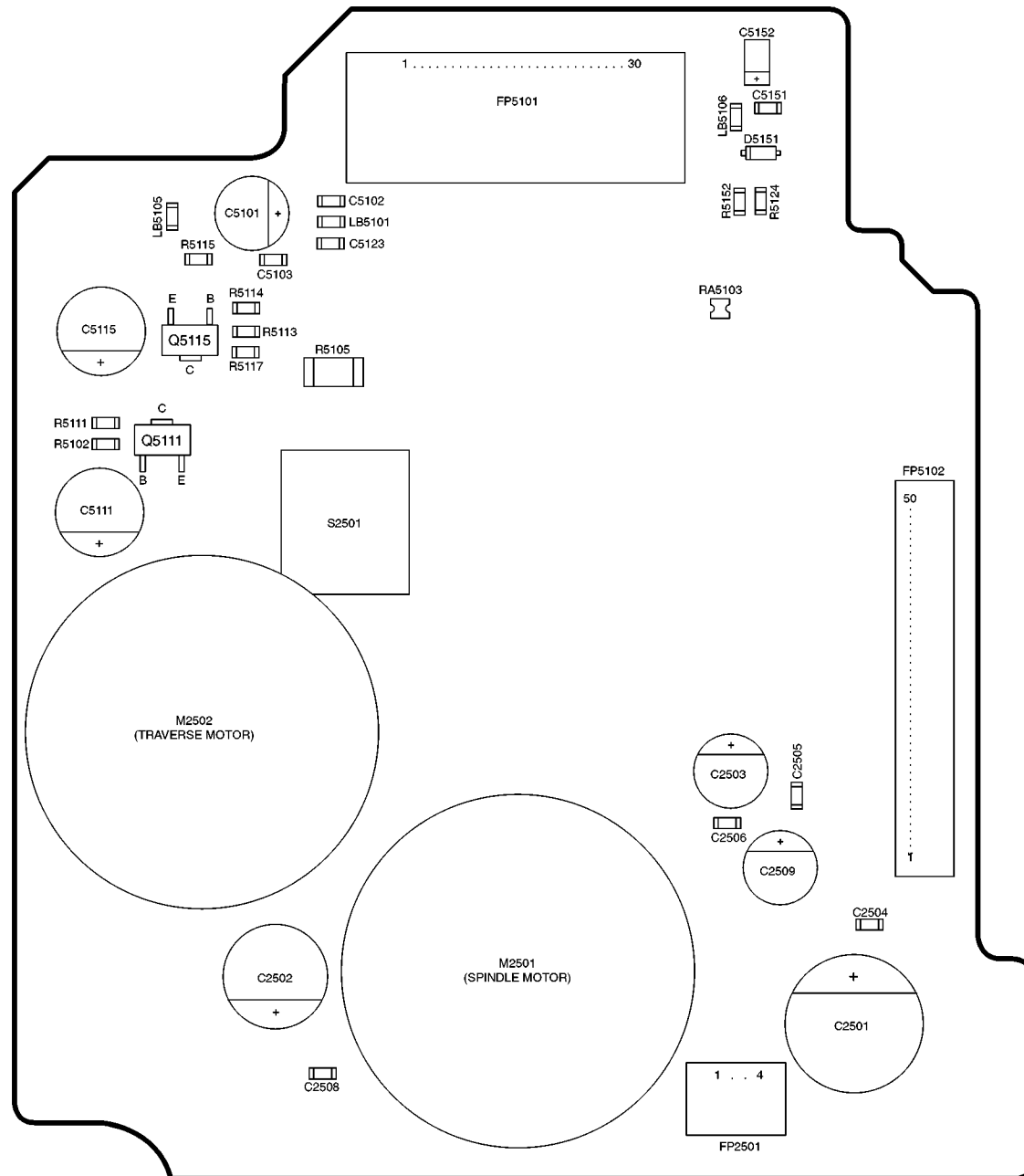
15 Printed Circuit Board Diagram

Note: This printed circuit board diagram may be modified at any time with the development of new technology.

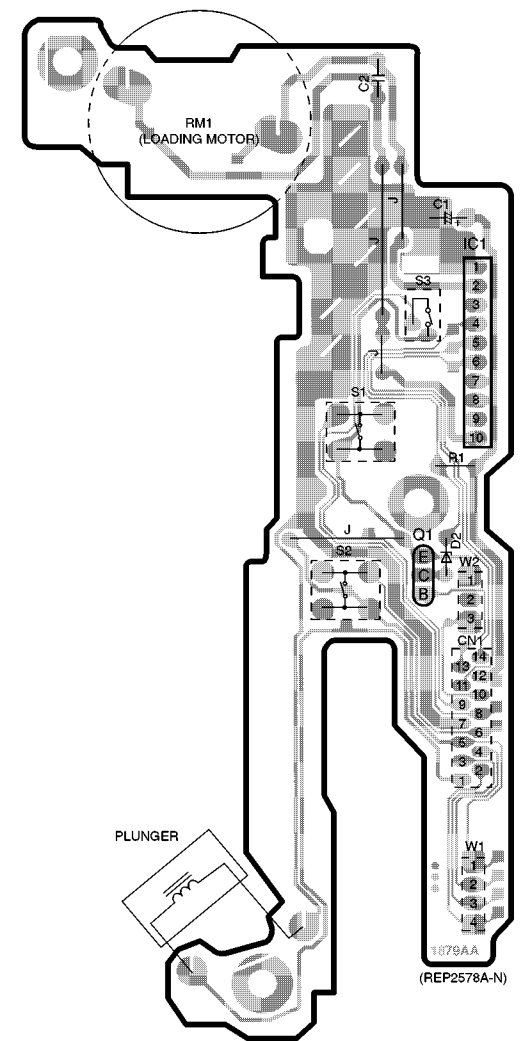
A INTERFACE P.C.B. (SIDE : A)



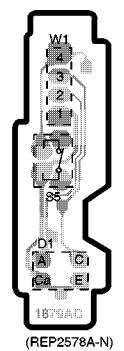
A INTERFACE P.C.B. (SIDE : B)



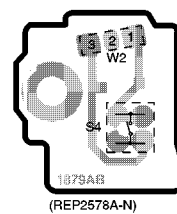
E LOADING MOTOR P.C.B.



G BOTTOM SW P.C.B.

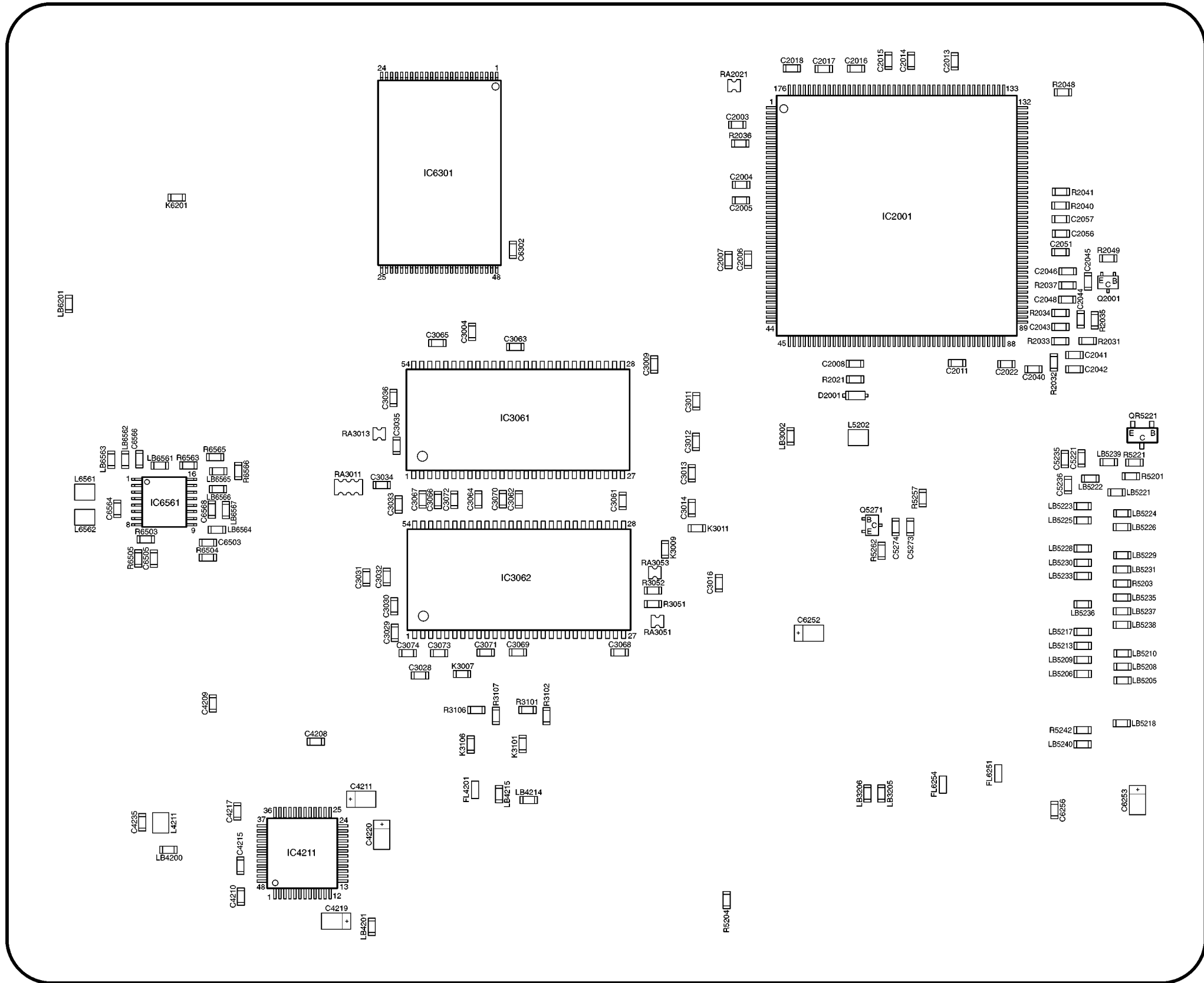


F CLAMP SW P.C.B.

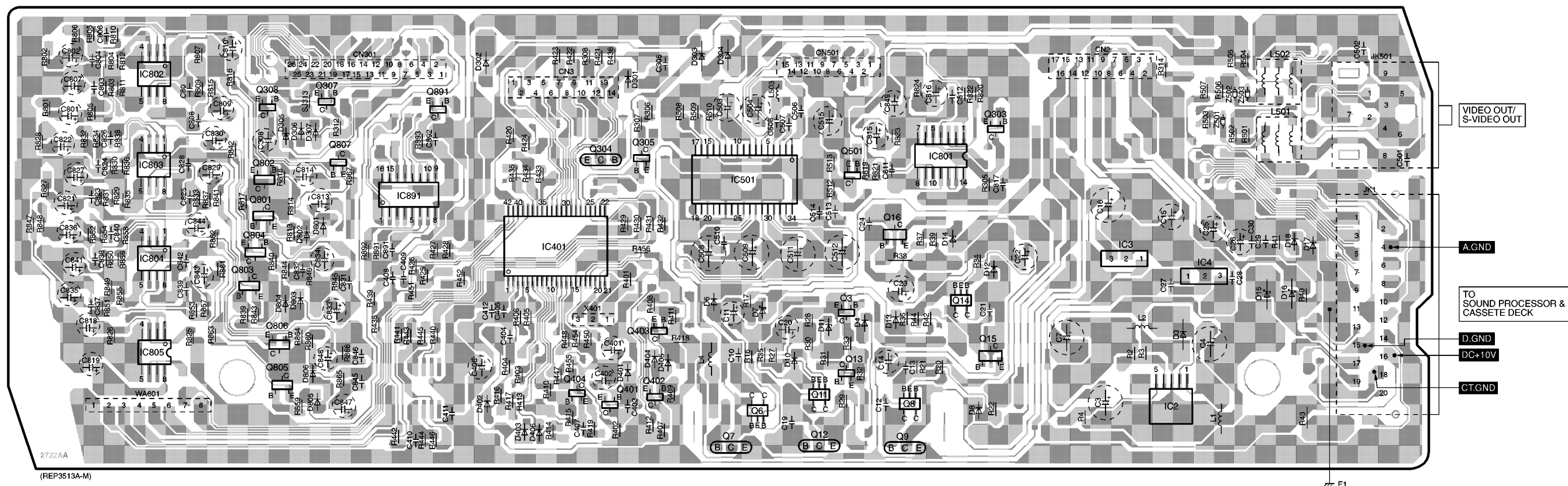


SL-DV290(EG) INTERFACE, LOADING MOTOR, CLAMP SW, BOTTOM SW P.C.B.

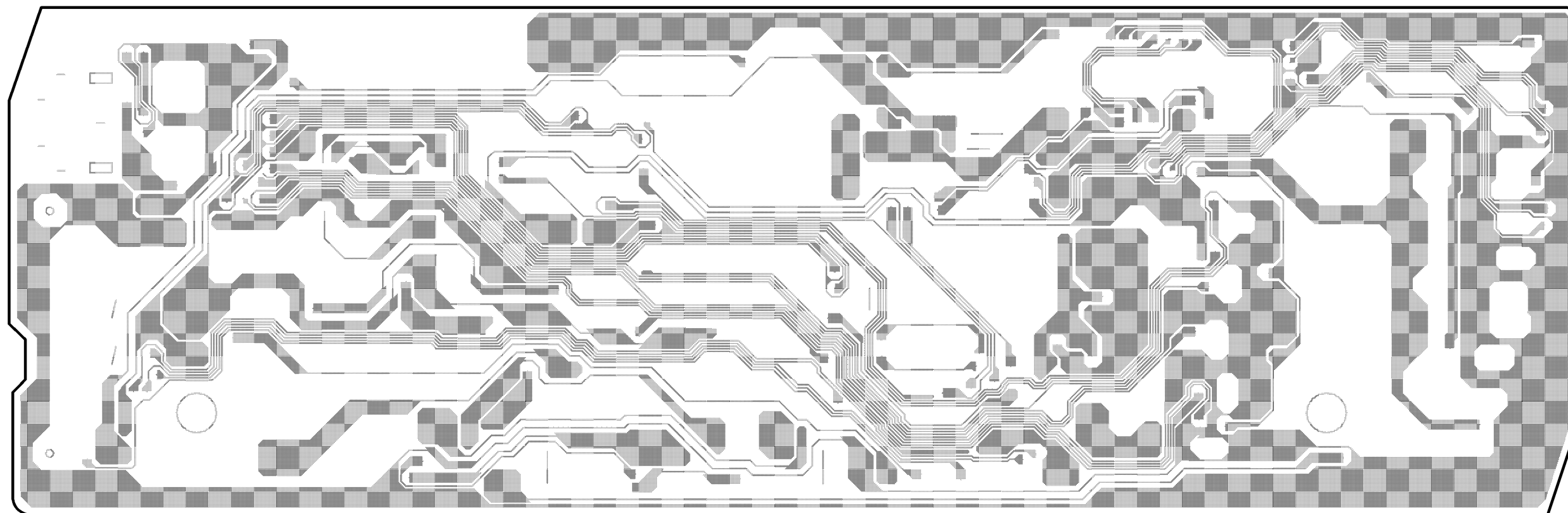
B DVD MODULE P.C.B. (SIDE : B)



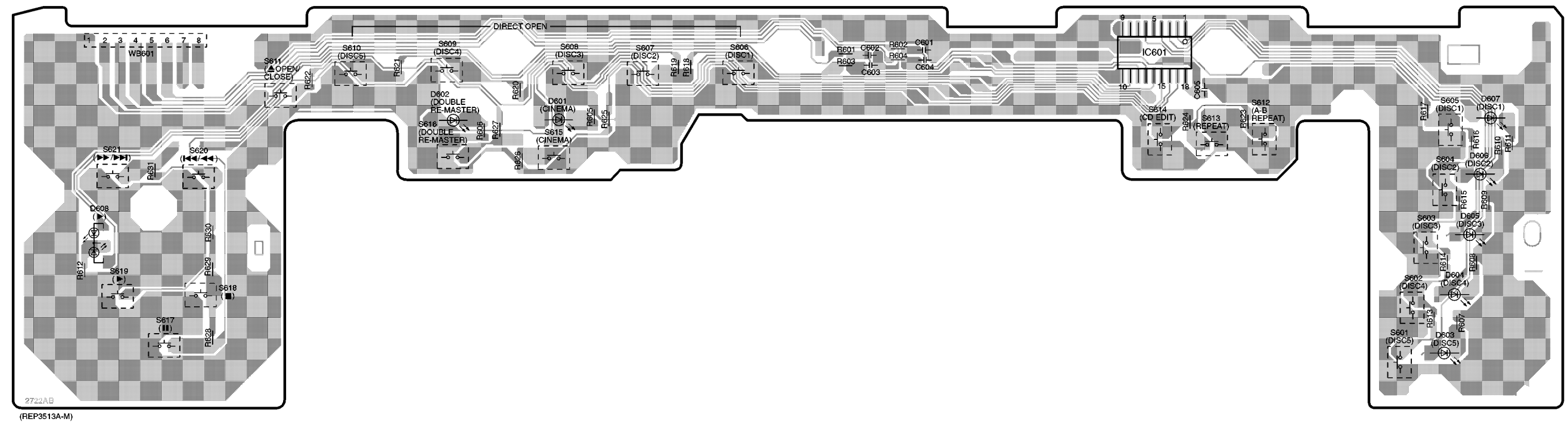
C MAIN P.C.B. (SIDE : A)



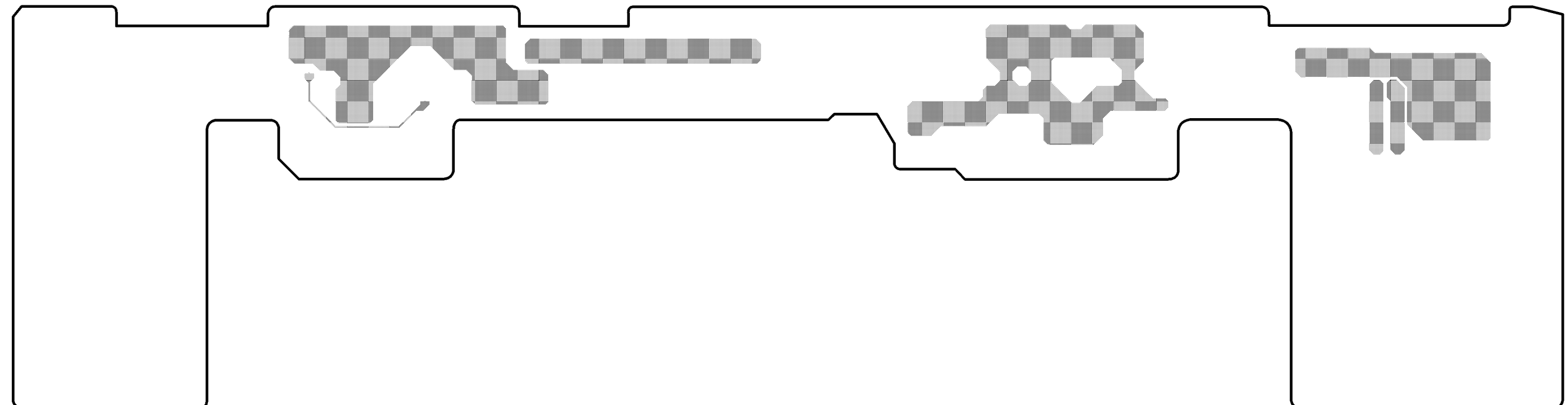
C MAIN P.C.B. (SIDE :B)



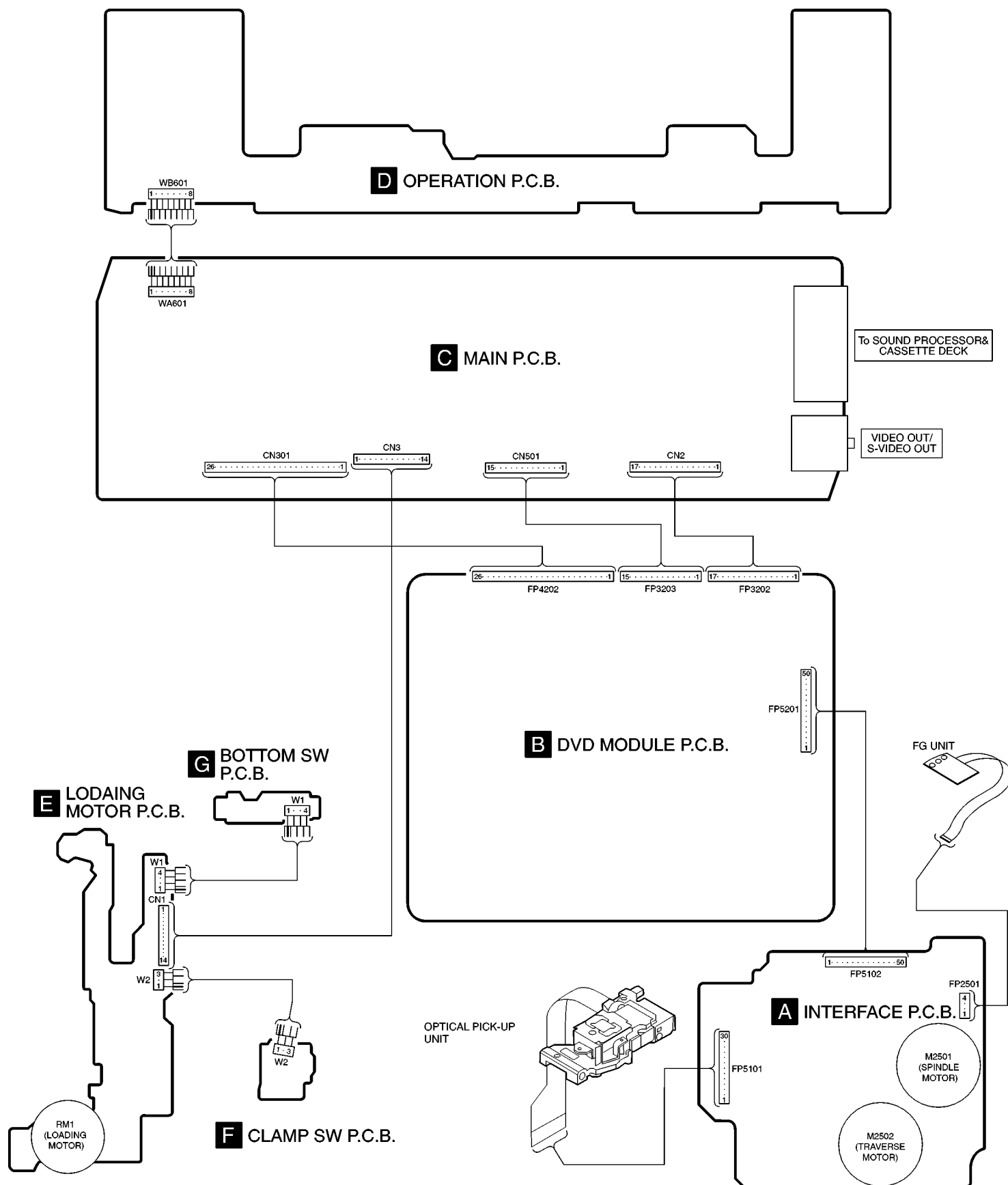
D OPERATION P.C.B. (SIDE : A)



D OPERATION P.C.B. (SIDE : B)



16 Wiring Connection Diagram



17 Terminal Function of IC's

17.1. IC401 (C2BBFD000402): SYSTEM CONTROL

Pin No.	Mark	I/O Division	Function
1	VCC	I	Connected to power supply
2	VREF		
3	AVSS	—	Connected to GND
4	MUTE	O	Mute control output terminal
5	PWCON T	O	DVD module power supply control output terminal
6	SYNC	I	Power failure detect signal input terminal
7	C/SW SEL	O	Center/sub woofer speaker select signal output terminal
8	B_REQ	I	Serial communication request signal input terminal
9	B_CS	O	Serial communication chip select signal output terminal
10	B_CLK	O	Serial communication clock signal output terminal
11	DATA O	O	Serial communication data signal output terminal
12	DATA I	I	Serial communication data signal input terminal
13	MIXSEL	O	Select control output terminal for wide picture
14	WIDE1		
15	CNV _{SS}	—	Connected to GND
16	TEST	I	Test mode input terminal
17	E-CS	—	Connected to GND
18	RESET	I	Reset signal input terminal
19	XIN	I	Crystal oscillator input terminal (f=8MHz)
20	XOUT	O	Crystal oscillator output terminal (f=8MHz)
21	V _{SS}	—	Connected to GND
22	LED-STB	O	Serial signal output to LED drive
23	LED/E-CLK	O	Serial signal output terminal to LED drive or EEPROM
24	LED/E-DATA	O	Serial signal output terminal to LED drive or EEPROM
25	LED-CLR	O	Latch clear signal output terminal to LED drive
26	PLG	O	Plunger control signal output terminal
27	SW5	I	Bottom switch detect signal input terminal
28	PSTN	I	Position sensor detect signal input terminal
29	SW2	I	Disc tray position 2 detect signal input terminal
30	SW1	I	Disc tray position 1 detect signal input terminal
31	SW3	I	Disc tray open detect signal input terminal
32	CCW	O	Motor drive control signal output terminal (forward direction)
33	CW	O	Motor drive control signal output terminal (reverse direction)
34	HALF	O	Motor drive control signal output terminal (speed)
35	DVD-CLK	I	Serial communication signal input terminal for DVD main micro-computer
36	DVD-CMD	O	Serial communication signal output terminal for DVD main micro-computer
37	DVD-STAT	I	Serial communication signal input for DVD main micro-computer
38	DISC CS	—	Connected to GND through resistor
39	SW4	I	Clamp switch detect signal input terminal

Pin No.	Mark	I/O Division	Function
40	KEY2	I	Operation key signal input terminal
41	KEY1		
42	RGN CS	I	Area select signal input terminal

18 Replacement Parts List

Notes:

*Important safety notice:

Components identified by $\triangle$ 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.

*Warning: This product uses a laser diode. Refer to caution statements.

*ACHTUNG:Die lasereinheit nicht zerlegen. Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

*Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads(pF)F=Farads (F)

*Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM), 1M=1,000K (OHM)

*The markings (RTL) indicate that the retention time is limited for these items. After the discontinuation of these assemblies in production, it will no longer be available.

*All parts are supplied by SPC.

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
1	REZ1225-1J	FFC(14P)	1	
2	REZ1390-J	FFC(15P)	1	
3	REZ1391-J	FFC(17P)	1	
4	REZ1392-J	FFC(26P)	1	
5	RMX0210	SPACER	1	
6	RYF0592-1S	TRAY ORNAMENT	1	
7	RKA0105-K	RUBBER	4	
8	RKA0106-N	FOOT RING	4	
9	RYP1174-S1	FRONT PANEL ASS'Y	1	
9-1	RGB0025-A	TECHNICS BADGE	1	
10	XTB3+5JFZ	SCREW	2	
11	XTBS3+8JFZ1	SCREW	5	
12	XTW3+8T	SCREW	2	
13	RHD30007-1S	SCREW	4	
14	RKM0399-S1	TOP CABINET	1	
15	REZ1377-J	FFC(50P)	1	
16	RHD30090	SCREW	4	
17	REZ1314	FLAT CABLE	1	
18	RGR0315A-H1	REAR PANEL	1	
19	RQLS0233	LASER CAUTION LABEL	1	
301	RML0517	TIMING LEVER	1	
302	RML0516	LEVER	1	
303	RMB0551	UPPER SPINDLE SPRING	1	
304	RMQ0744	LOWER HOOK	1	
305	RDV0056	BELT	1	
306	RML0525	FRONT LOCK LEVER	1	
307	RML0526	DISC LEVER	1	
308	RDG0424	DRIVE GEAR	1	
309	RDG0425	CHANGE GEAR	1	
310	RDG0427	TRAVERSE CAM GEAR	1	
311	RDG0428	TRAVERSE RELAY GEAR	1	
312	RDG0426	UP/DOWN GEAR	1	
313	RDG0429	PULLEY GEAR	1	
314	RMB0549-1	CHANGE GEAR SPRING	1	
315	RMQ0748	GEAR HOLDER	1	
316	RMB0553	SPRING	1	
317	RML0530	LEVER	1	
318	RML0518	CONNECTION LEVER	1	
319	RMM0201	SLIDE PLATE(1)	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
320	RME0258	REAR LOCK SPRING	1	
321	RML0521	REAR LOCK LEVER	1	
322	RME0257	TRAY LOCK SPRING	1	
323	RML0520	TRAY LOCK	1	
324	RMM0202	SLIDE PLATE(2)	1	
325	XTB3+10J	SCREW	9	
326	RMR0624-W5	CLAMPER	1	
327	RMRI367-K	FIXED PLATE	1	
328	RMB0561	ASSIST LEVER SPRING	1	
329	RMR1121-K	MECHANISM COVER	1	
330	RMQ0742	SPINDLE BASE	1	
331	RXQ0561	DISC TRAY	1	
332	RME0261	FRONT LOCK SPRING	1	
333	RMX0140	DISC SPACER	5	
334	RHM0001	MAGNET	1	
335	RMQ0749	UPPER SPINDLE	1	
336	RMX0141	SPACER	1	
337	XTW3+10T	SCREW	4	
339	RXQ0595	MOTOR ASS'Y	1	
341	RSJ0003	SOLENOID	1	
342	RHM2122D	MOVING CORE	1	
344	RML0519	CD LEVER	1	
346	RML0522	LOADING STOPPER	1	
347	RMQ0745	LOWER SPINDLE	1	
348	RMQ0746	UP/DOWN BASE	1	
349	RMB0550	LOWER SPINDLE SPRING	1	
350	RMQ0747	UPPER HOOK	1	
351	RME0263	CLICK SPRING	1	
352	RMQ0743	SPINDLE SHAFT	1	
353	RMB0552	CUSHION SPRING	1	
354	RDG0430	RELAY GEAR(A)	1	
355	RDG0431	RELAY GEAR(B)	1	
356	RME0262	DISC LEVER SPRING	1	
376	RMC0387	SUPPORT SPRING	1	
377	RMA1003	BACK YOKE	1	
378	XTV2+6G	SCREW	1	
401	RDG0499	TRAVERSE GEAR(A)	1	
402	RHD17045	SCREW	2	
404	RMC0415	ADJUST SPRING HOLDER	3	
407	RME0320	ADJUST SPRING	3	
408	RMM0234-1	TRAVERSE DRIVE RACK	1	
409	RMS0710-1	GUIDE SHAFT(1)	1	
410	RMS0711-1	GUIDE SHAFT(2)	1	
411	RDG0500	TRAVERSE GEAR(B)	1	
412	RDG0501	TRAVERSE GEAR(C)	1	
413	RME0319	TRAVERSE GEAR SPRING	1	
414	RAF3023A-1	OPTICAL PICK-UP	1	$\triangle$
415	RJB2308A-1	INTERFACE FPC	1	
417	RHD14095	SCREW	1	
418	VHD1224	SCREW	4	
419	RMX0192	INNER STOPPER	1	
420	RMG0561-T	CUSHION RUBBER	1	
422	RMG0545-A1	FLOATING RUBBER	4	
423	RXQ1028	SPINDLE MOTOR ASS'Y	1	
424	RMRI366-K1	TRAVERSE CHASSIS	1	
425	RMS0712-1	FIXED PIN	4	
428	RHD20060	SCREW	1	
429	RMG0558-K	RUBBER	4	
C1	ECEA1CKS101	16V 100U	1	
C2	ECBA1E103ZF5	25V 0.01U	1	
C3	ECA1CM332	16V 3300U	1	
C4	ECA1CM471	16V 470U	1	
C7	EEUFC0J821B	6.3V 820U	1	
C10	ECJ1VB1H102K	50V 1000P	1	
C11	ECEA1CKS100	16V 10U	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C12	ECJ1VB1H102K	50V 1000P	1	
C13	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C14	ECEALAKS101	10V 100U	1	
C15	ECEALAKS221	10V 220U	1	
C16	ECA0JM222	6.3V 2200U	1	
C19	ECJ1VB1H102K	50V 1000P	1	
C20	ECEALAKS470	10V 47U	1	
C21	ECJ1VB1H102K	50V 1000P	1	
C22	ECEALCKS100	16V 10U	1	
C23	ECEALAKS470	10V 47U	1	
C24	ECJ1VB1H102K	50V 1000P	1	
C25,26	ECEALCKS100	16V 10U	2	
C27	ECUVNC474KEN	16V 0.47U	1	F1J1C474A091
C28	ECJ1VF1C104Z	16V 0.1U	1	
C29	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C30	ECJ1VB1H102K	50V 1000P	1	
C80	ECUV1H470JCV	50V 47P	1	ECJ1VC1H470J
C305	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C308	ECEALHKS010	50V 1U	1	
C401	RCE0JKA470IG	6.3V 47U	1	F2A0J4700007
C402	ECEALHKS3R3	50V 3.3U	1	
C403	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C404	ECJ1VB1H102K	50V 1000P	1	
C405	ECJ1VF1C104Z	16V 0.1U	1	
C406	EEAFCOJ101B	6.3V 100U	1	
C407	ECUV1H101JCV	50V 100P	1	ECJ1VC1H101J
C408,09	F1H1H471A736	50V 470P	2	
C410	ECUV1H101JCV	50V 100P	1	ECJ1VC1H101J
C411,12	ECJ1VF1C104Z	16V 0.1U	2	
C501,02	ECUVNH103KBV	50V 0.01U	2	F1H1H103A748
C503,04	ECA1HAK010XI	50V 1U	2	
C505	ECUV1H470JCV	50V 47P	1	ECJ1VC1H470J
C506,07	ECUVNH103KBV	50V 0.01U	2	F1H1H103A748
C508	ECA0JAK101XB	6.3V 100U	1	
C509	ECA0JAM102XB	6.3V 1000U	1	
C510	ECJ1VF1C104Z	16V 0.1U	1	
C511	ECA0JAK101XB	6.3V 100U	1	
C512	ECA0JAM102XB	6.3V 1000U	1	
C513,14	ECUVNH103KBV	50V 0.01U	2	F1H1H103A748
C515	ECA0JAK221XH	6.3V 220U	1	
C601-04	ECUV1H101JCV	50V 100P	4	ECJ1VC1H101J
C605	ECJ1VF1C104Z	16V 0.1U	1	
C801,02	ECEALCKS100	16V 10U	2	
C803,04	F1H1H471A736	50V 470P	2	
C806	ECUV1H470JCV	50V 47P	1	ECJ1VC1H470J
C807	RCE0JKA470IG	6.3V 47U	1	F2A0J4700007
C808	ECJ1VF1C104Z	16V 0.1U	1	
C809,10	ECEALCKS220	16V 22U	2	
C811,12	ECJ1VB1H222K	50V 2200P	2	
C813-16	ECEALCKS100	16V 10U	4	
C817	ECJ1VF1C104Z	16V 0.1U	1	
C818	RCE0JKA470IG	6.3V 47U	1	F2A0J4700007
C819	ECEALAKS101	10V 100U	1	
C821,22	ECEALCKS100	16V 10U	2	
C823,24	ECJ1VB1H561K	50V 560P	2	
C825,26	ECUV1H470JCV	50V 47P	2	ECJ1VC1H470J
C827	RCE0JKA470IG	6.3V 47U	1	F2A0J4700007
C828	ECJ1VF1C104Z	16V 0.1U	1	
C829,30	RCE0JKA470IG	6.3V 47U	2	F2A0J4700007
C831,32	ECJ1VB1H222K	50V 2200P	2	
C833,34	RCE0JKA470IG	6.3V 47U	2	F2A0J4700007
C835,36	ECEALCKS100	16V 10U	2	
C837,38	ECJ1VB1H561K	50V 560P	2	
C839,40	ECUV1H470JCV	50V 47P	2	ECJ1VC1H470J
C841	RCE0JKA470IG	6.3V 47U	1	F2A0J4700007
C842	ECJ1VF1C104Z	16V 0.1U	1	
C843,44	RCE0JKA470IG	6.3V 47U	2	F2A0J4700007
C845,46	ECJ1VB1H222K	50V 2200P	2	
C847-49	RCE0JKA470IG	6.3V 47U	3	F2A0J4700007
C891,92	ECJ1VF1C104Z	16V 0.1U	2	
C2001,02	EEE0JA101SP	6.3V 100U	2	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C2003-18	ECJ1ZF1C104Z	16V 0.1U	16	
C2021	EEE0JA101SP	6.3V 100U	1	
C2022-25	ECJ1ZF1C104Z	16V 0.1U	4	
C2031,32	ECJ1VB1C104K	16V 0.1U	2	
C2034	ECJ1VB1C393K	16V 0.039U	1	
C2035	ECJ1VB1H822K	50V 8200P	1	
C2036	ECJ1VB1C104K	16V 0.1U	1	
C2038	ECJ1VB1C104K	16V 0.1U	1	
C2039	ECJ1VB1H103K	50V 0.01U	1	
C2040	ECJ1VC1H102J	50V 1000P	1	
C2041,42	ECJ1VC1H331J	50V 330P	2	
C2043	ECJ1VC1H101J	50V 100P	1	
C2044	ECJ1VC1H391J	50V 390P	1	
C2045,46	ECJ1VC1H102J	50V 1000P	2	
C2047	ECJ1VB1H103K	50V 0.01U	1	
C2048	ECUV1C153KBV	16V 0.015U	1	ECJ1VB1C153K
C2050	ECJ1VB1C333K	16V 0.033U	1	
C2051	ECUV1H680JCV	50V 68P	1	ECJ1VC1H680J
C2052,53	ECJ1ZF1C104Z	16V 0.1U	2	
C2054	ECUX1H681JCV	50V 680P	1	
C2055	ECJ1VB1H682K	50V 6800P	1	
C2056,57	ECJ1VB1H272K	50V 2700P	2	
C2058	ECJ1VC1H102J	50V 1000P	1	
C2059	ECUV1H821JCV	50V 820P	1	ECJ1VC1H821J
C2060	ECJ1VC1H102J	50V 1000P	1	
C2061,62	ECJ1VC1H331J	50V 330P	2	
C2063-65	ECJ1VC1H102J	50V 1000P	3	
C2066,67	ECJ1VB1H472K	50V 4700P	2	
C2073	ECJ1ZF1C104Z	16V 0.1U	1	
C2101,02	ECJ1ZF1C104Z	16V 0.1U	2	
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	F1H0J1050013	6.3V 1U	1	
C3020	ECJ1ZF1C104Z	16V 0.1U	1	
C3021	F1H0J1050013	6.3V 1U	1	
C3022-36	ECJ1ZF1C104Z	16V 0.1U	15	
C3037	F2G0J331A015	6.3V 330U	1	
C3038,39	ECJ1ZF1C104Z	16V 0.1U	2	
C3051	ECJ1VC1H220J	50V 22P	1	
C3061-74	ECJ1ZF1C104Z	16V 0.1U	14	
C3110	EEE0JA101SP	6.3V 100U	1	
C4207-10	ECJ1ZF1C104Z	16V 0.1U	4	
C4211	F3F1A1060002	10V 10U	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	
C4222,23	F2G0J331A015	6.3V 330U	2	
C4234-37	ECJ1ZF1C104Z	16V 0.1U	4	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
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	
C5201,02	EEB1CA100SR	16V 10U	2	
C5203-05	ECJ1ZF1C104Z	16V 0.1U	3	
C5221	ECJ1ZF1C104Z	16V 0.1U	1	
C5232-34	ECJ1ZF1C104Z	16V 0.1U	3	
C5235,36	ECJ1VB1C104K	16V 0.1U	2	
C5254	ECUV1H391KBV	50V 390P	1	ECJ1VB1H391K
C5256	ECJ1VB1H222K	50V 2200P	1	
C5262	ECJ1VC1H181J	50V 180P	1	
C5264	ECJ1VB1C183K	16V 0.018U	1	
C5271	ECJ1VB1H102K	50V 1000P	1	
C5272	ECJ1VB1A224K	10V 0.22U	1	
C5273	ECJ1VB1H182K	50V 1800P	1	
C5274	ECJ1VB1C104K	16V 0.1U	1	
C5282	ECJ1VB1H103K	50V 0.01U	1	
C5283	ECJ1VC1H561J	50V 560P	1	
C5290	ECJ1VB1H102K	50V 1000P	1	
C5291	ECJ1VB1H272K	50V 2700P	1	
C5292	ECJ1VC1H101J	50V 100P	1	
C5299	ECJ1VC1H331J	50V 330P	1	
C6201	EEB0JA330WR	6.3V 33U	1	
C6202-06	ECJ1ZF1C104Z	16V 0.1U	5	
C6211	ECJ1VC1H101J	50V 100P	1	
C6215	ECJ1VB1C104K	16V 0.1U	1	
C6221-23	ECJ1ZF1C104Z	16V 0.1U	3	
C6251-53	F3F1A1060002	10V 10U	3	
C6254,55	ECJ1ZF1C104Z	16V 0.1U	2	
C6256	ECJ1VB1C104K	16V 0.1U	1	
C6257	EEB0JA101SP	6.3V 100U	1	
C6301,02	ECJ1ZF1C104Z	16V 0.1U	2	
C6503	ECJ1VC1H120J	50V 12P	1	
C6505	ECJ1VC1H150J	50V 15P	1	
C6561	EEB0GA470SR	4V 47U	1	
C6563	EEB0GA470SR	4V 47U	1	
C6564	ECJ1ZF1C104Z	16V 0.1U	1	
C6566	ECJ1ZF1C104Z	16V 0.1U	1	
C6568	ECJ1ZF1C104Z	16V 0.1U	1	
CN1	RJS1A9414	CONNECTOR (14P)	1	K1MN14A00049
CN2	K1MN17B00037	CONNECTOR (17P)	1	
CN3	RJS1A6714-Q	CONNECTOR (14P)	1	K1MN14B00054
CN301	K1MN26B00045	CONNECTOR (26P)	1	
CN501	K1MN15B00057	CONNECTOR (15P)	1	
D1	GP1S94	PHOTO COUPLER	1	B3NAA0000029
D2	MTZJ4R7B	DIODE	1	
D3	SFPB-72V	DIODE	1	B0JCPC000004
D4	MA2J11100L	DIODE	1	
D6	MA2J11100L	DIODE	1	
D7	MA2J72800L	DIODE	1	
D8	MA2J11100L	DIODE	1	
D10	MA2J11100L	DIODE	1	
D11	MA8091MTX	DIODE	1	MAZ80910ML
D12,13	MA2J11100L	DIODE	2	
D14	MA8082M	DIODE	1	MAZ80820M
D15,16	MA735TX	DIODE	2	MA2Q73500L
D17,18	MA2J11100L	DIODE	2	
D301	MA2J11100L	DIODE	1	
D302-04	B0AAMM000009	DIODE	3	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
D305-07	MA2J11100L	DIODE	3	
D401-06	MA2J11100L	DIODE	6	
D601,02	SELS5923C	LED	2	B3ADA0000083
D603-07	LNJ301MPUJAD	LED	5	
D608	B3AHA0000012	LED	1	
D801-06	MA2J11100L	DIODE	6	
D2001	MA2J72800L	DIODE	1	
D5151	MA2J72800L	DIODE	1	
D6215	MA2J72800L	DIODE	1	
E1	RSC0540-1	GROUND PLATE	1	
FL4201	F1H0J1050018	CHIP FILTER	1	
FL6251	F1H0J1050018	CHIP FILTER	1	
FL6253,54	F1H0J1050018	CHIP FILTER	2	
FL6255	VLF1491S104T	CHIP FILTER	1	F1J1E1040022
FP2501	K1MN04B00036	CONNECTOR (4P)	1	
FP3202	K1MN17B00041	CONNECTOR (17P)	1	
FP3203	RJS2A7515T	CONNECTOR (15P)	1	K1MN15B00037
FP4202	RJS2A7526T	CONNECTOR (26P)	1	K1MN26B00037
FP5101	K1MN30B00098	CONNECTOR (30P)	1	
FP5102	K1MN50B00010	CONNECTOR (50P)	1	
FP5201	K1MN50B00010	CONNECTOR (50P)	1	
IC1	C0GAM0000005	DRIVE IC	1	
IC2	C0DBAJG000002	IC	1	
IC3	LM2940T5	IC	1	C0CAADG000022
IC4	NJM78M05FA	IC	1	C0CAADE00007
IC401	C2BBFD000402	IC	1	
IC501	C9ZB00000431	IC	1	
IC601	NJU3713GTE1	IC	1	C0ZBZ0000040
IC801	C0JBAS000138	IC	1	
IC802-04	NJM4580EDTE1	IC	3	C0ABBB000125
IC805	BA4558FHTT1	IC	1	C0ABBB000210
IC891	C0JBAR0000292	IC	1	
IC2001	MN103S26EGA	IC	1	
IC2101	C0JBAS000116	IC	1	
IC2501	C0GBG0000033	IC	1	
IC3001	MN6775511	IC	1	
IC3061,62	C3ABPG000102	IC	2	
IC4211	C0FBBK000036	IC	1	
IC5201	AN22030A-VT	IC	1	
IC6201	MN102H60GFD	IC	1	
IC6211	PST596JNR	IC	1	C0EBE0000070
IC6221	C3EBGC000033	IC	1	
IC6222,23	C0JBAA000001	IC	2	
IC6251	C0DBEZG00011	IC	1	
IC6252	C0DBFFG00004	IC	1	
IC6253	C0DBCGB00002	IC	1	
IC6301	RFKFMA66M320	IC	1	
IC6561	C1DB00000582	IC	1	
JK1	RJT065K20	SYSTEM CONNECTOR (20P)	1	K1FA220B0006
JK501	K1U208B00003	JK, VIDEO OUT	1	
K2004	ERJ3GEY0R00Z	1/16W 0	1	
K3002,03	ERJ3GEY0R00Z	1/16W 0	2	
K3007	ERJ3GEY0R00Z	1/16W 0	1	
K3009	ERJ3GEY0R00Z	1/16W 0	1	
K3011	ERJ3GEY0R00Z	1/16W 0	1	
K3101	ERJ3GEY0R00Z	1/16W 0	1	
K3106	ERJ3GEY0R00Z	1/16W 0	1	
K4202-05	ERJ3GEY0R00Z	1/16W 0	4	
K4207	ERJ3GEYJ470V	1/16W 47	1	
K6201	ERJ3GEY0R00Z	1/16W 0	1	
K6301	ERJ3GEY0R00Z	1/16W 0	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
K6303	ERJ3GEY0R00Z	1/16W 0	1	
L1	G0A200D00002	COIL	1	△
L2	G0ZZ00001930	COIL	1	
L4	G0A200D00002	COIL	1	△ ;
L501,02	G0BYYYY00016	COIL	2	
L503	ELJFCR68KF	COIL	1	
L2001,02	G1C100K00020	COIL	2	
L2021	G1C100K00020	COIL	1	
L3001	G1C100K00020	COIL	1	
L3091	G1C100K00020	COIL	1	
L4211	G1C220KA0038	COIL	1	
L5101	ELJEA100KF	COIL	1	
L5201,02	G1C100K00020	COIL	2	
L6561,62	G1C220KA0038	COIL	2	
LB3001,02	J0JHC0000045	COIL	2	
LB3201-03	ERJ3GEYJ101	1/16W 100	3	D0GB101JA002
LB3205,06	J0JBC0000015	COIL	2	
LB4200	J0JBC0000015	COIL	1	
LB4201	VLP0155-T	COIL	1	J0JCC0000119
LB4207-12	VLP0155-T	COIL	6	J0JCC0000119
LB4214,15	ERJ3GEY0R00Z	1/16W 0	2	
LB5101	J0JHC0000045	COIL	1	
LB5105,06	J0JBC0000015	COIL	2	
LB5202,03	J0JHC0000045	COIL	2	
LB5205-10	J0JBC0000015	COIL	6	
LB5213	J0JBC0000015	COIL	1	
LB5217-19	J0JBC0000015	COIL	3	
LB5221-24	VLP0155-T	COIL	4	J0JCC0000119
LB5225	J0JBC0000015	COIL	1	
LB5226	VLP0155-T	COIL	1	J0JCC0000119
LB5227	J0JBC0000015	COIL	1	
LB5228-31	VLP0155-T	COIL	4	J0JCC0000119
LB5232	J0JBC0000015	COIL	1	
LB5233	VLP0155-T	COIL	1	J0JCC0000119
LB5235-38	VLP0155-T	COIL	4	J0JCC0000119
LB5239,40	J0JBC0000015	COIL	2	
LB6201	J0JBC0000015	COIL	1	
LB6202	VLP0155-T	COIL	1	J0JCC0000119
LB6221	J0JBC0000015	COIL	1	
LB6561	J0JBC0000015	COIL	1	
LB6562,63	VLP0155-T	COIL	2	J0JCC0000119
LB6564	ERJ3GEYJ470V	1/16W 47	1	
LB6565	J0JCC0000077	COIL	1	
LB6566	VLP0155-T	COIL	1	J0JCC0000119
LB6567	J0JBC0000015	COIL	1	
PCB1	REP3384G-N	DVD MODULE P.C.B.	1	[RTL]
PCB2	REP3513A-M	MAIN P.C.B.	1	[RTL]
PCB3	REP2578A-N	LOADING MOTOR P.C.B.	1	[RTL]
PCB4	REP3406A-1N	TERMINAL P.C.B.	1	[RTL]
PCB5	REP3081A-1	PG P.C.B.	1	[RTL]
PS6201	VJS4047C010	CONNECTOR (10P)	1	K1MN10A00030
Q1	B1GACFGG0004	TRANSISTOR	1	
Q3	DTC114EUA106	TRANSISTOR	1	B1GBCFJJ0007

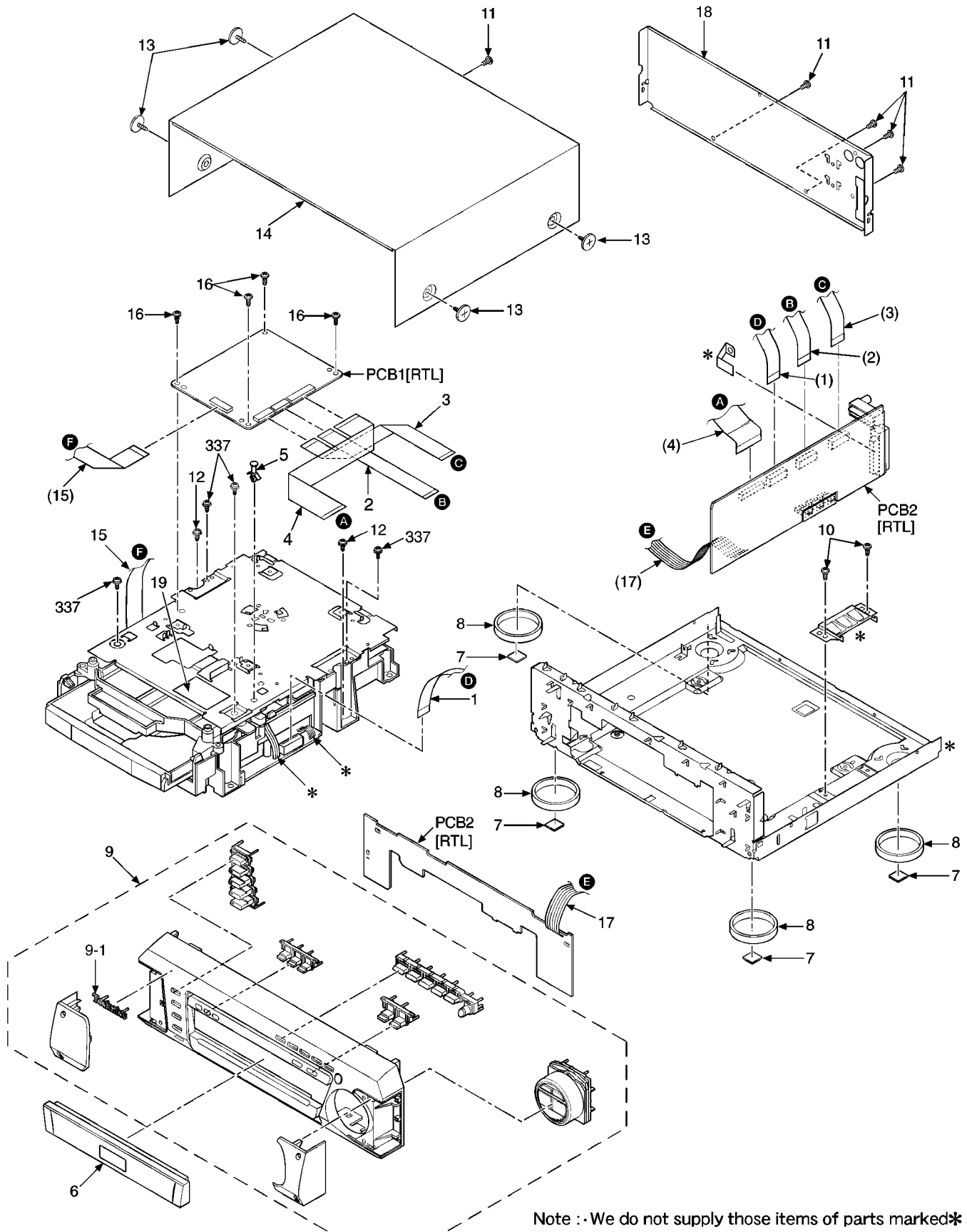
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
Q6	FMW1T98	TRANSISTOR	1	
Q7	2SB1417PQTA	TRANSISTOR	1	2SB14170JA
Q8	FMW1T98	TRANSISTOR	1	
Q9	2SB1417PQTA	TRANSISTOR	1	2SB14170JA
Q11	FMW1T98	TRANSISTOR	1	
Q12	2SB1417PQTA	TRANSISTOR	1	2SB14170JA
Q13	2SB1218A	TRANSISTOR	1	
Q14	FMW1T98	TRANSISTOR	1	
Q15	2SB766ATX	TRANSISTOR	1	2SB0766A0L
Q16	2SD874QRSTX	TRANSISTOR	1	2SD08740WL
Q303	DTC114EUA106	TRANSISTOR	1	B1GBCFJJ0007
Q304	2SB0621AHA	TRANSISTOR	1	
Q305	UN521NTX	TRANSISTOR	1	UNR521N00L
Q307,08	DTC114EUA106	TRANSISTOR	2	B1GBCFJJ0007
Q401	UN5214TX	TRANSISTOR	1	UNR521400L
Q402-04	2SD1819A0L	TRANSISTOR	3	
Q501	DTC114EUA106	TRANSISTOR	1	B1GBCFJJ0007
Q801-06	2SD132800L	TRANSISTOR	6	
Q807	UN5111TX	TRANSISTOR	1	UNR511100L
Q891	DTC114EUA106	TRANSISTOR	1	B1GBCFJJ0007
Q2001	2SD1819A0L	TRANSISTOR	1	
Q5111	2SB1115-T	TRANSISTOR	1	B1BDBF000004
Q5115	2SB1115-T	TRANSISTOR	1	B1BDBF000004
Q5271	UN5211TX	TRANSISTOR	1	UNR521100L
Q6215	UN5212TX	TRANSISTOR	1	UNR521200L
QR5221	UN2121	TRANSISTOR	1	
QR5241	UN511MTX	TRANSISTOR	1	UNR511M00L
R1	ERDS2FJ102	1/4W 1K	1	
R2	ERJ3GEYJ822V	1/16W 8.2K	1	D0GB822JA002
R3	ERJ3GEYJ222V	1/16W 2.2K	1	
R4	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R16	ERJ3GEYJ471V	1/16W 470	1	
R17	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R20	ERJ3GEYJ151V	1/16W 150	1	
R21,22	ERJ3GEYJ222V	1/16W 2.2K	2	
R27	ERJ6GEYJ122V	1/10W 1.2K	1	D0GD122JA003
R28	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R29	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R30	ERJ3GEYJ101	1/16W 100	1	D0GB101JA002
R31	ERJ6GEYJ681V	1/10W 680	1	
R32	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R33	ERJ3GEYJ472V	1/16W 4.7K	1	
R34	ERJ3GEYJ471V	1/16W 470	1	
R35	ERJ6GEYJ122V	1/10W 1.2K	1	D0GD122JA003
R36	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R37	ERJ3GEYJ101	1/16W 100	1	D0GB101JA002
R38	ERD2FCG100	1/4W 10	1	
R39	ERJ3GEYJ102V	1/16W 1K	1	
R40-42	ERJ3GEYJ101	1/16W 100	3	D0GB101JA002
R43	ERQ16NKR33E	1/6W 0.33	1	
R44	ERJ3GEYJ122	1/16W 1.2K	1	ERJ3GEYJ122V
R305,06	ERJ3GEYJ103V	1/16W 10K	2	D0GB103JA002
R307	ERJ3GEYJ102V	1/16W 1K	1	
R308	ERJ3GEYJ221V	1/16W 220	1	
R312	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R314	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R401	ERJ3GEYJ681V	1/16W 680	1	D0GB681JA002
R402	ERJ3GEYJ104	1/16W 100K	1	
R403	ERJ3GEYJ472V	1/16W 4.7K	1	
R404	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R405	ERJ3GEYJ471V	1/16W 470	1	
R406	ERJ3GEYJ472V	1/16W 4.7K	1	
R407	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R408	ERJ3GEYJ472V	1/16W 4.7K	1	
R409	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R410,11	ERJ3GEYJ472V	1/16W 4.7K	2	
R412	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R413	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R414	ERJ3GEYJ221V	1/16W 220	1	
R415	ERJ3GEYJ472V	1/16W 4.7K	1	
R416	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R417	ERJ3GEYJ102V	1/16W 1K	1	
R418	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R419	ERJ3GEYJ102V	1/16W 1K	1	
R420	ERJ3GEYJ472V	1/16W 4.7K	1	
R421	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R422-24	ERJ3GEYJ472V	1/16W 4.7K	3	
R425,26	ERJ3GEYJ103V	1/16W 10K	2	D0GB103JA002
R427	ERJ3GEYJ182V	1/16W 1.8K	1	
R428	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R429-32	ERJ3GEYJ101	1/16W 100	4	D0GB101JA002
R433-35	ERJ3GEYJ221V	1/16W 220	3	
R436	ERJ3GEYJ472V	1/16W 4.7K	1	
R438,39	ERJ3GEYJ821V	1/16W 820	2	
R440-42	ERJ3GEYJ102V	1/16W 1K	3	
R443	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R444	ERJ3GEYJ104	1/16W 100K	1	
R445	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R446	ERJ3GEYJ472V	1/16W 4.7K	1	
R447,48	ERJ3GEYJ221V	1/16W 220	2	
R450,51	ERJ3GEYJ103V	1/16W 10K	2	D0GB103JA002
R452	ERJ3GEYJ821V	1/16W 820	1	
R454,55	ERJ3GEYJ472V	1/16W 4.7K	2	
R456	ERJ3GEYJ222V	1/16W 2.2K	1	
R501,02	ERJ3GEYJ1R0V	1/16W 1	2	
R503	ERJ3EKF75R0	1/16W 75	1	
R504,05	ERJ3GEYJ1R0V	1/16W 1	2	
R506,07	ERJ3EKF75R0	1/16W 75	2	
R508-10	ERJ3GEYJ104	1/16W 100K	3	
R512	ERJ3GEYJ822V	1/16W 8.2K	1	D0GB822JA002
R513	ERJ3GEYJ222V	1/16W 2.2K	1	
R601-04	ERJ3GEYJ101	1/16W 100	4	D0GB101JA002
R605,06	ERJ3GEYJ271V	1/16W 270	2	
R607-11	ERJ3GEYJ221V	1/16W 220	5	
R612	ERJ3GEYJ181V	1/16W 180	1	
R613	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R614	ERJ3GEYJ123V	1/16W 12K	1	
R615	ERJ3GEYJ682V	1/16W 6.8K	1	D0GB682JA002
R616	ERJ3GEYJ472V	1/16W 4.7K	1	
R617	ERJ3GEYJ332V	1/16W 3.3K	1	D0GB332JA002
R618	ERJ3GEYJ222V	1/16W 2.2K	1	
R619	ERJ3GEYJ182V	1/16W 1.8K	1	
R620	ERJ3GEYJ152V	1/16W 1.5K	1	
R621	ERJ3GEYJ122	1/16W 1.2K	1	ERJ3GEYJ122V
R622	ERJ3GEYJ102V	1/16W 1K	1	
R623	ERJ3GEYJ123V	1/16W 12K	1	
R624	ERJ3GEYJ682V	1/16W 6.8K	1	D0GB682JA002
R625	ERJ3GEYJ472V	1/16W 4.7K	1	
R626	ERJ3GEYJ332V	1/16W 3.3K	1	D0GB332JA002
R627	ERJ3GEYJ222V	1/16W 2.2K	1	
R628	ERJ3GEYJ182V	1/16W 1.8K	1	
R629	ERJ3GEYJ152V	1/16W 1.5K	1	
R630	ERJ3GEYJ122	1/16W 1.2K	1	ERJ3GEYJ122V
R631	ERJ3GEYJ102V	1/16W 1K	1	
R801	ERJ3GEYJ102V	1/16W 1K	1	
R802	ERJ3GEYJ182V	1/16W 1.8K	1	
R803,04	ERJ3GEYJ104	1/16W 100K	2	
R805,06	ERJ3GEYJ103V	1/16W 10K	2	D0GB103JA002
R807,08	ERJ3GEYJ223V	1/16W 22K	2	D0GB223JA002
R809	ERJ3GEYD153V	1/16W 15K	1	D0HB153ZA002
R810	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R811,12	ERJ3GEYJ103V	1/16W 10K	2	D0GB103JA002
R813,14	ERJ3GEYJ332V	1/16W 3.3K	2	D0GB332JA002
R815	ERJ3GEYJ102V	1/16W 1K	1	
R816	ERJ3GEYJ471V	1/16W 470	1	
R817,18	ERJ3GEYJ473V	1/16W 47K	2	D0GB473JA002
R819-24	ERJ3GEYJ104	1/16W 100K	6	
R825	ERJ3GEYJ102V	1/16W 1K	1	
R826	ERJ3GEYJ562V	1/16W 5.6K	1	D0GB562JA002
R827,28	ERJ3GEYJ101	1/16W 100	2	D0GB101JA002
R829,30	ERJ3GEYJ104	1/16W 100K	2	
R831,32	ERJ3GEYD123V	1/16W 12K	2	D0HB123ZA002
R833,34	ERJ3GEYJ223V	1/16W 22K	2	D0GB223JA002
R835,36	ERJ3GEYJ103V	1/16W 10K	2	D0GB103JA002

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R837,38	ERJ3GEYD153V	1/16W 15K	2	D0HB153ZA002
R839,40	ERJ3GEYJ332V	1/16W 3.3K	2	D0GB332JA002
R841,42	ERJ3GEYJ102V	1/16W 1K	2	
R843,44	ERJ3GEYJ473V	1/16W 47K	2	D0GB473JA002
R845,46	ERJ3GEYJ104	1/16W 100K	2	
R847,48	ERJ3GEYJ102V	1/16W 1K	2	
R849,50	ERJ3GEYJ104	1/16W 100K	2	
R851,52	ERJ3GEYJ822V	1/16W 8.2K	2	D0GB822JA002
R853,54	ERJ3GEYJ223V	1/16W 22K	2	D0GB223JA002
R855,56	ERJ3GEYJ103V	1/16W 10K	2	D0GB103JA002
R857,58	ERJ3GEYD153V	1/16W 15K	2	D0HB153ZA002
R859,60	ERJ3GEYJ332V	1/16W 3.3K	2	D0GB332JA002
R861,62	ERJ3GEYJ102V	1/16W 1K	2	
R863,64	ERJ3GEYJ473V	1/16W 47K	2	D0GB473JA002
R865,66	ERJ3GEYJ104	1/16W 100K	2	
R867	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R891,92	ERJ3GEYJ104	1/16W 100K	2	
R893	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R2021	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R2022,23	ERJ3GEYJ752V	1/16W 7.5K	2	
R2025,26	ERJ3GEYJ223V	1/16W 22K	2	D0GB223JA002
R2027,28	ERJ3GEYJ563V	1/16W 56K	2	
R2029	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R2030	ERJ3GEYJ102V	1/16W 1K	1	
R2031	MCR03PZHJ561	1/16W 560	1	
R2032	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R2033	ERJ3GEYJ472V	1/16W 4.7K	1	
R2034	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R2035	ERJ3GEYJ272V	1/16W 2.7K	1	
R2036	ERJ3GEY0R00Z	1/16W 0	1	
R2037	ERJ3GEYJ683V	1/16W 68K	1	D0GB683JA002
R2038	ERJ3GEYD153V	1/16W 15K	1	D0HB153ZA002
R2039	ERJ3GEYJ105V	1/16W 1M	1	
R2040,41	ERJ3GEYJ822V	1/16W 8.2K	2	D0GB822JA002
R2042-47	ERJ3GEYD153V	1/16W 15K	6	D0HB153ZA002
R2048	ERJ3GEYJ475V	1/16W 4.7M	1	
R2049	ERJ3GEYJ102V	1/16W 1K	1	
R2051,52	ERJ3GEYJ101	1/16W 100	2	D0GB101JA002
R2053,54	ERJ3GEYJ473V	1/16W 47K	2	D0GB473JA002
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	ERJ3GEYJ220V	1/16W 22	1	
R3006	ERJ3RBD153	1/16W 15K	1	
R3007	ERJ3RBD202	1/16W 2K	1	
R3008	ERJ3RBD132V	1/16W 1.3K	1	
R3009,10	ERJ3GEYJ101	1/16W 100	2	D0GB101JA002
R3051,52	ERJ3GEYJ101	1/16W 100	2	D0GB101JA002
R3101	ERJ3RED620V	1/16W 62	1	
R3102	ERJ3RED150V	1/16W 15	1	
R3106	ERJ3RED620V	1/16W 62	1	
R3107	ERJ3RED180	1/16W 18	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

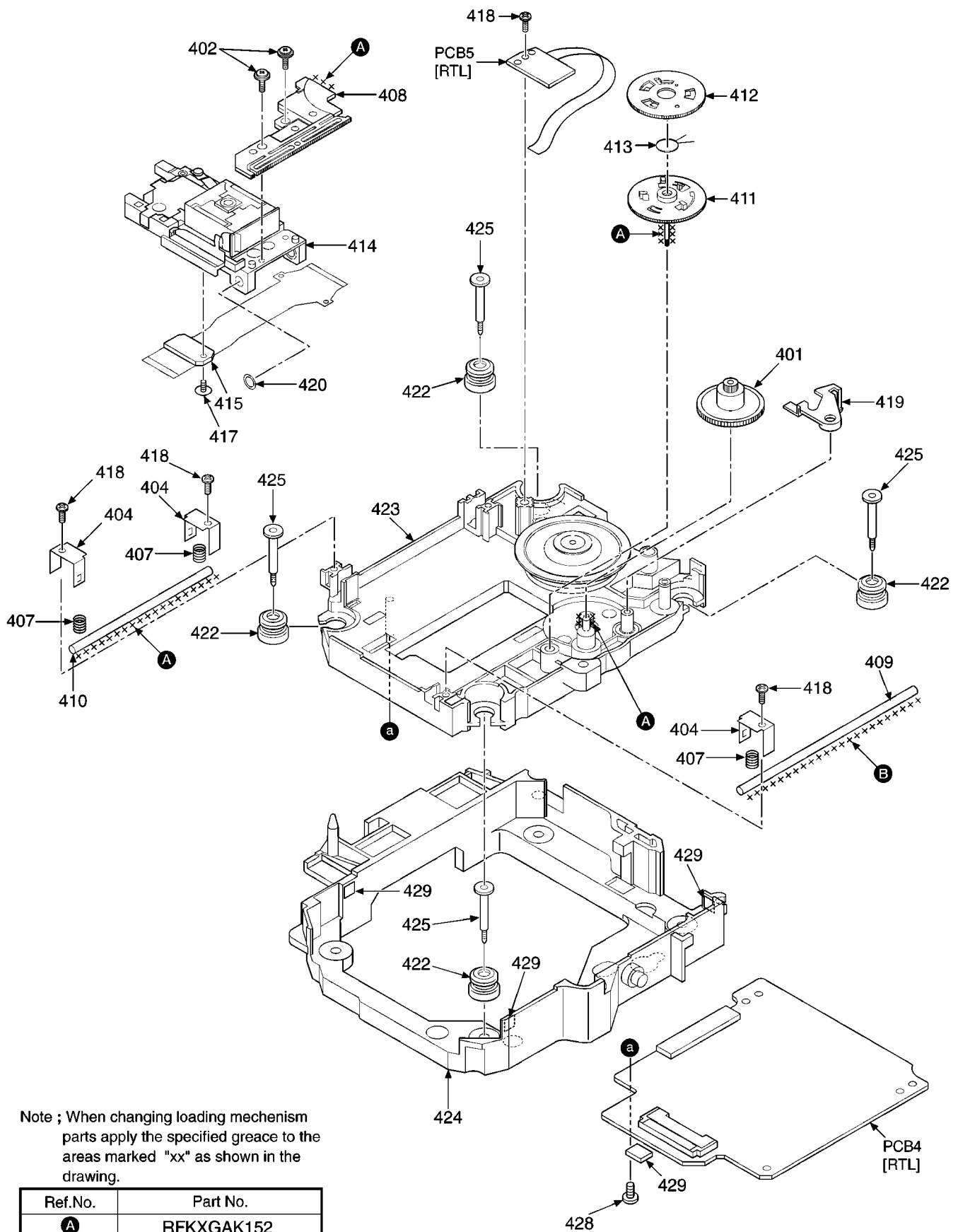
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R5120	ERJ3GEY0R00V	1/16W 0	1	
R5121-23	ERJ3GEYJ560V	1/16W 56	3	
R5124	ERJ3GEYJ472V	1/16W 4.7K	1	
R5152	ERJ3GEYJ102V	1/16W 1K	1	
R5201	ERJ3GEY0R00Z	1/16W 0	1	
R5203	ERJ3GEY0R00Z	1/16W 0	1	
R5204	ERJ3GEYJ102V	1/16W 1K	1	
R5221	ERJ3GEY0R00Z	1/16W 0	1	
R5231,32	ERJ3GEYJ822V	1/16W 8.2K	2	D0GB822JA002
R5241	ERJ3GEYJ221V	1/16W 220	1	
R5242	ERJ3GEYJ823V	1/16W 82K	1	D0GB823JA002
R5257	ERJ3GEY0R00Z	1/16W 0	1	
R5262	ERJ3GEY0R00Z	1/16W 0	1	
R5281	ERJ3GEYJ105V	1/16W 1M	1	
R5294	ERJ3GEYJ123V	1/16W 12K	1	
R5295	ERJ3GEYJ243V	1/16W 24K	1	D0GB243JA002
R5320	ERJ3GEY0R00Z	1/16W 0	1	
R6201	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R6202	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R6206	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R6207,08	ERJ3GEYJ472V	1/16W 4.7K	2	
R6210	ERJ3GEYJ101	1/16W 100	1	D0GB101JA002
R6211	ERJ3GEYJ472V	1/16W 4.7K	1	
R6215	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R6216	ERJ3GEYJ102V	1/16W 1K	1	
R6251,52	ERJ3RBD101	1/16W 100	2	ERJ3RBD101V
R6253	ERJ3RBD102V	1/16W 1K	1	
R6503	ERJ3RBD331	1/16W 330	1	
R6504,05	ERJ3GEY0R00Z	1/16W 0	2	
R6563	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R6565	ERJ3GEYJ470V	1/16W 47	1	
R6566	ERJ3GEYJ100	1/16W 10	1	
RA2021	EXBV4V102JV	1/32W 1K	1	
RA2022	EXBV4V472JV	1/32W 4.7K	1	
RA2501	EXBV8V473JV	1/16W 47K	1	
RA3001	EXBV4V102JV	1/32W 1K	1	
RA3002-12	EXBV8V820J	1/16W 82	11	EXBV8V820JV
RA3013	EXBV4V220JV	1/32W 22	1	
RA3051	EXBV4V101JV	1/32W 100	1	
RA3053	EXBV4V101JV	1/32W 100	1	
RA5101	EXBV4V560J	1/32W 56	1	
RA5102	EXBV8V560JV	1/16W 56	1	
RA5103	EXBV4V560J	1/32W 56	1	
RA5201	EXBV8V101JV	1/16W 100	1	
RA6201,02	EXBV4V103JV	1/32W 10K	2	
RA6203	EXBV4V472JV	1/32W 4.7K	1	
RA6204	EXBV4V103JV	1/32W 10K	1	
RA6205	EXBV8V103J	1/16W 10K	1	D0GZ103J0001
RA6206	EXBV4V473JV	1/32W 47K	1	
S1,S2	RSH1A032-U	SW,TRAY POSITION DET.	2	K0F111B00057
S3	RSH1A005	SW,OPEN/CLOSE DET.	1	K0J1BB000010
S4	RSH1A91ZA-A	SW,CLAMP	1	K0L1BA000007
S5	RSP1A017-A	SW,BOTTOM	1	K0L1BB000005
S601-21	EVQ11G05R	SW,PUSH	21	
S2501	RSH1A048-A	SW,TRV	1	
SJ313	ERJ3GEY0R00V	1/16W 0	1	
X401	RSXY8M00D01T	OSCILLATOR	1	H2B800400005
X6501	H0J368600005	OSCILLATOR	1	
Z501-03	J0JBC0000015	COIL	3	

19 Cabinet parts Location



Note :- We do not supply those items of parts marked* .
 · This "PCB2" is a combination PCB.

20 Loading Mechanism Parts Location



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

21 Traverse Mechanism Parts Location

Note; When changing loading mechanism parts apply the specified grease to the areas marked "xx" as shown in the drawing.

Ref.No.	Part No.
A	RFKXEM30L

