ORDER NO. AD9712171C3

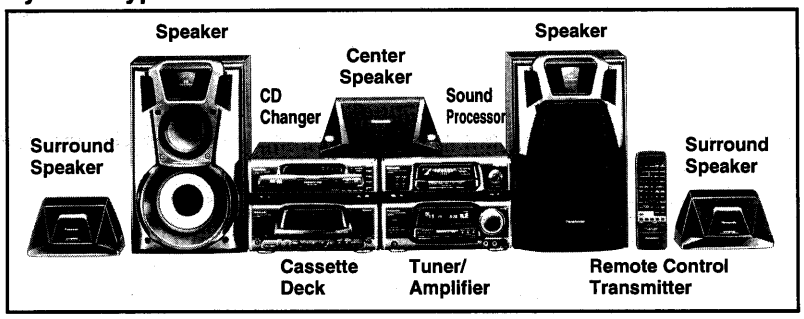
Service Manual

CD Changer

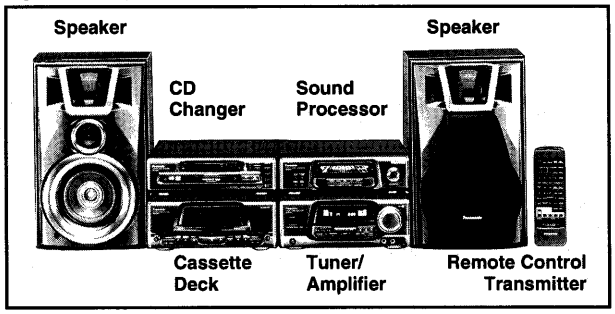
Compact Disc Player

SL-EH600

System Type A



System Type B



COMPACT disc DIGITAL VIDEO

COMPACT disc DIGITAL AUDIO

MASH *1 multi-stage noise shaping

Colour
(K) ..... Black Type
(H) ..... Gray Type

Area
(GK)..... China.

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

System	System Type A			System Type B
	SC-VC968	**SC-VC868**	**SC-VC848**	**SC-VC838**
Colour	(K)	(K)	(H)	(H)
Sound Processor	SH-EH600	SH-EH500	SH-EH500	SH-EH400
Tuner / Amplifier	SA-EH600	SA-EH500	SA-EH501	SA-EH400
CD Changer	**SL-EH600**	**SL-EH600**	**SL-EH600**	**SL-EH600**
Cassette Deck	RS-EH600	RS-EH600	RS-EH600	RS-EH600
Front Speakers*2	SB-VC968	SB-VC868	SB-VC848	SB-VC868
Center Speaker*2	SB-PC600X	SB-PC600X	SB-PC600X	–
Surround Speakers*2	SB-PS600X	SB-PS600X	SB-PS600X	–

∗ 1 : MASH is a trademark of NTT
∗ 2 : Made in Singapore

RAE0152Z MECHANISM SERIES

Specifications

Audio Section

No. of channels :	2 (left and right, stereo)
Wow and flutter :	Below measurable limit
Digital filter :	8 fs
DA converter :	1 bit DAC MASH

Video CD Section

Physical format :	Based on CD-ROM format
Video data :	Based on MPEG 1
Audio data :	Based on MPEG 1 Layer 2
Video output :	
Video format ;	NTSC/PAL
Output voltage ;	1 Vp-p, 75 Ω

Pickup Section

Wavelength :	780 nm

General

Dimensions :	287(W) × 89(H) × 335(D) mm
Weight :	2.4 kg

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

⚠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.

Panasonic®

■ Contents

Note :

For information on " Accessories", "Installation", "Connections", "Operations" and "Packaging", refer to the service manual as indicated below:

System	SC-VC968	SC-VC868	SC-VC848	SC-VC838
Model No.	SA-EH600	SA-EH500	SA-EH501	SA-EH400
Order No.	AD9712166C3	AD9712178C3	AD9712182C3	AD9712179C3

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.

■ 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).

• Handling of traverse deck (optical pickup)

1. Do not subject the traverse deck (optical pickup) to static electricity as it is extremely sensitive to electrical shock.
2. To protect the laser diode against electrostatic breakdown, short the flexible board (FFC board) with a clip or similar object.
3. Take care not to apply excessive stress to the flexible board (FFC board).
4. Do not turn the variable resistor (laser power adjustment). It has already been adjusted.

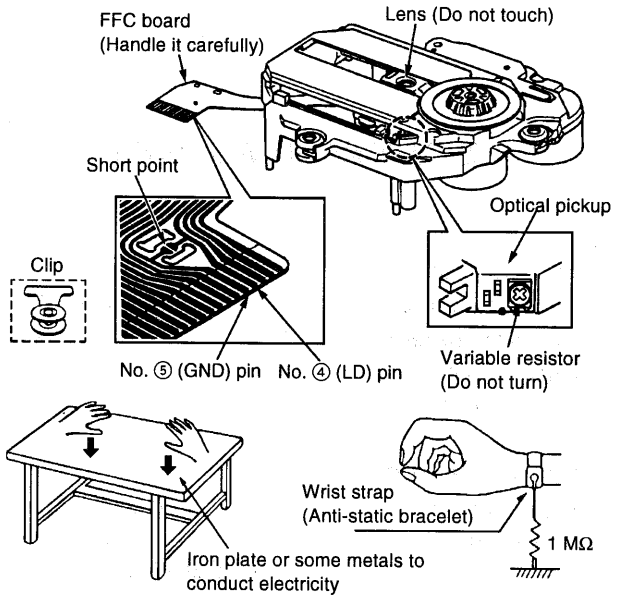
• Grounding for electrostatic breakdown prevention

1. Human body grounding
   Use the anti-static wrist strap to discharge the static electricity from your body.
2. Work table grounding
   Put a conducive material (sheet) or steel sheet on the area where the traverse deck (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).

Caution when Replacing the Traverse Deck:

The traverse deck has a short point shorted with solder to protect the laser diode against electrostatic breakdown. Be sure to remove the solder from the short point before making connections.

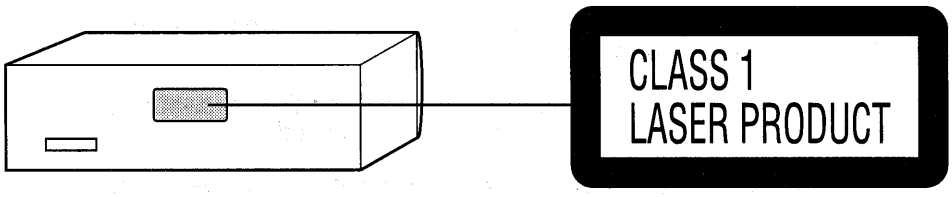


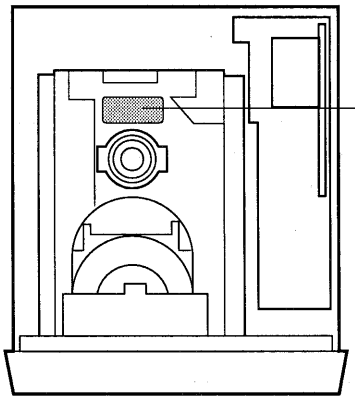
■ Precaution of Laser Diode

CAUTION: This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pick up lens.
Wave length: 780 nm
Maximum output radiation power from pick up: 100 μW/VDE

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

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





DANGER	INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCK DEFEATED. AVOID DIRECT EXPOSURE TO BEAM.
ADVARSEL	USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VARO!	AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTÖNTÄ LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
VARNING	OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STARÅLEN.
ADVARSEL	USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES OG SIKKERHEDSLÅS BRYTES. UNNGÅ EKSPONERING FOR STRÅLEN.
VORSICHT	UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET UND SICHERHEITSVERRIEGELUNG ÜBERBRÜCKT. NICHT DEM STRAHL AUSSETZEN.

(Inside of product)

(Indersiden at apparatet)

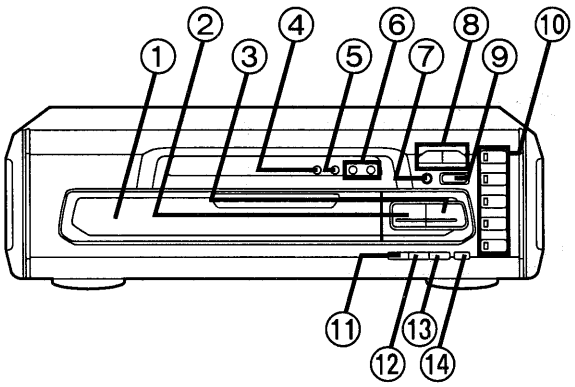
(Tuotteen sisällä)

(Apparatens insida)

(Produktets innside)

(Im Inneren des Gerätes)

■ Location of Controls



① **Disc tray**
② **Stop button (■)**
③ **Play/select button and indicator (▷, SELECT)**
④ **Menu on/off button (MENU)**
⑤ **Return button (↶)**
⑥ **–, + buttons (–, +)**
⑦ **Pause button (II)**
⑧ **Skip/search, previous/next buttons (|◄◄/◄◄ , ►►/►►|)**
⑨ **Disc tray open/close button (▲ , OPEN/CLOSE)**
⑩ **Disc select buttons and indicators (DISC, 1–5)**
⑪ **Random play button (RANDOM)**
⑫ **Repeat button (REPEAT)**
⑬ **CD edit button (AI EDIT)**
⑭ **Disc check button (▲ NEXT OPEN)**

■ How to Set the "Shipping Mode"

When the alignment of the unit is finished, please make sure to set it to the "Shipping Mode" as following procedures;

1. Take all CDs out from the unit.
2. With pressing the STOP key for more than 6 seconds.
   The traverse unit is lifted up to the top place, and all the disc trays are fixed automatically.
3. Turn the unit off.

NOTE:
The next time the unit is turned on, the "Shipping Mode" is automatically cancelled.

■ Operation Checks and Main Component Replacement Procedures

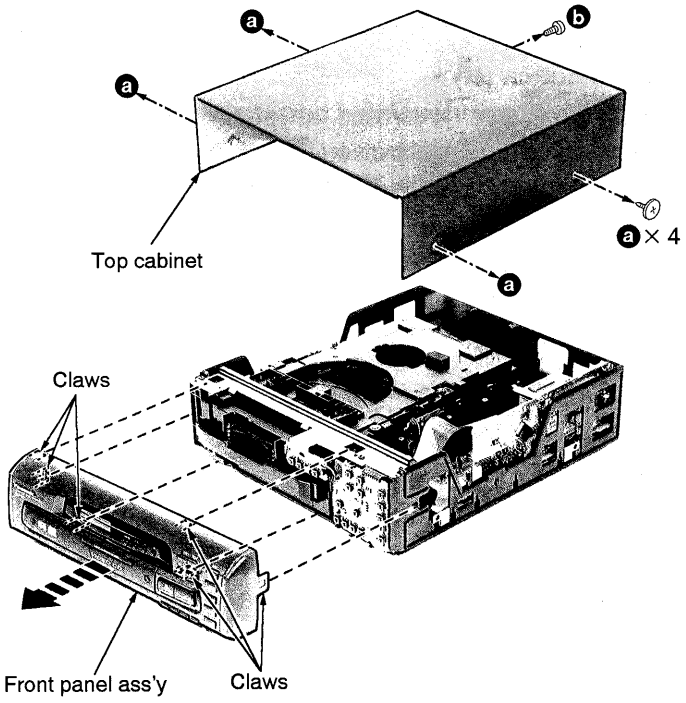
NOTE

1. **This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.**
2. **For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.**
3. **Select items from the following index when checks or replacement are required.**
4. **Refer the parts No. on the page of "Main Component Replacement Procedures", if necessary.**

• Contents

■ CD Changer Disassembly / Reassembly

1. Removal for the CD changer unit



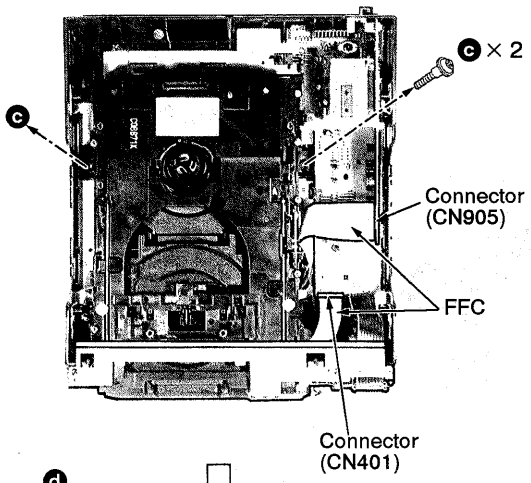
Step 1 Remove the 5 screws.

↓

Step 2 Remove the top cabinet.

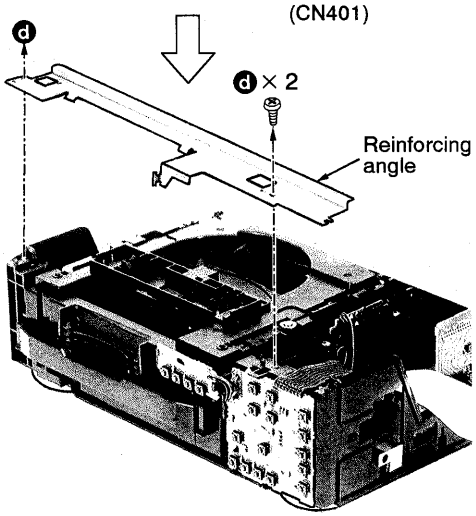
↓

Step 3 Release the 6 claws, and then remove the front panel ass'y.



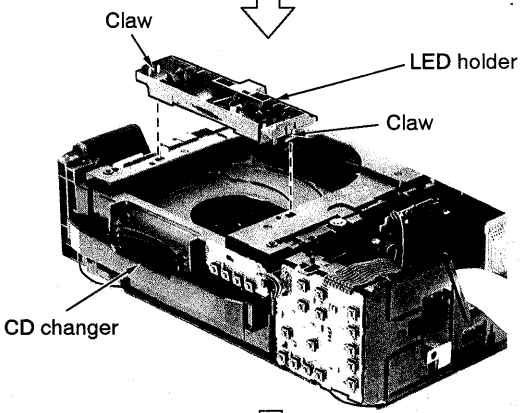
Step 4 Pull out the FFC (2 points).

Step 5 Remove the 2 screws.

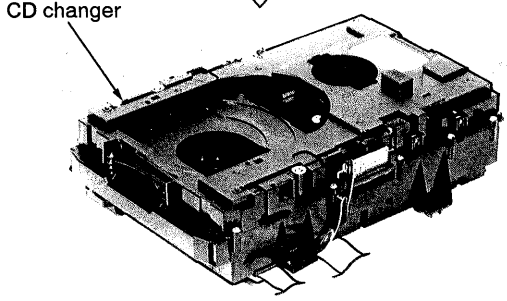


Step 6 Remove the 2 screws.

Step 7 Remove the reinforcing angle.



Step 8 Release the 2 claws, and then remove the LED holder.

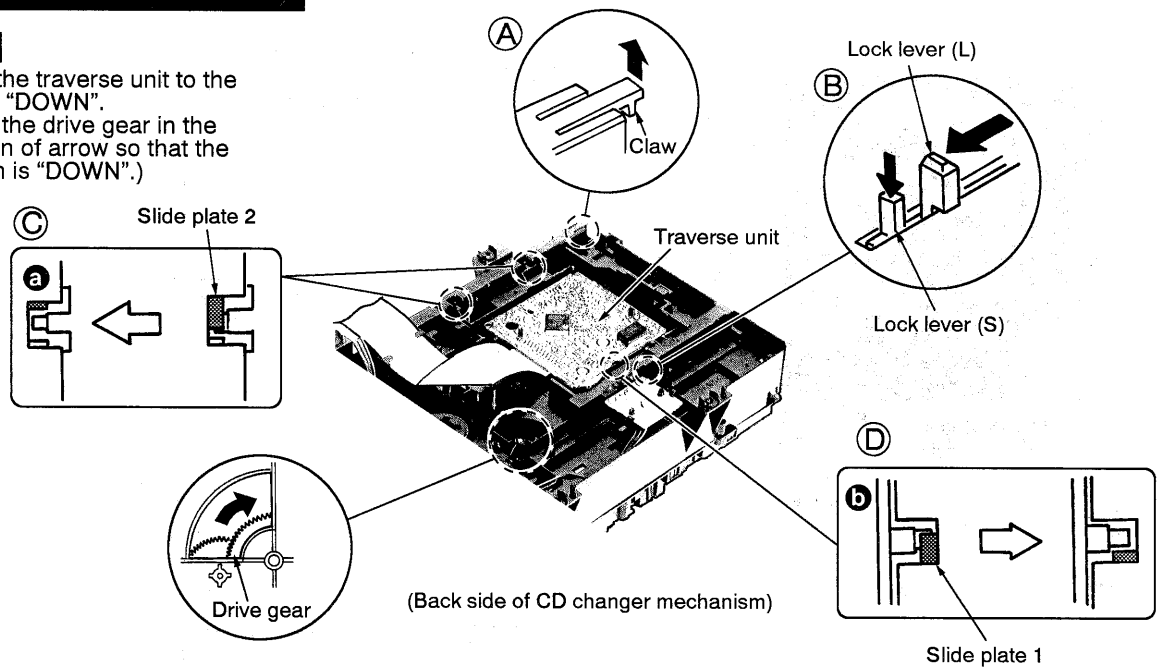


The CD changer unit will be removed.

2. Removal for the traverse unit

NOTE

Locate the traverse unit to the position "DOWN".
(Rotate the drive gear in the direction of arrow so that the position is "DOWN".)



Procedures

Step 1 Push the lock lever (S) with lifting the claw, and then push the lock lever (L) in the direction of arrow (➡).

Refer to the figures Ⓐ and Ⓑ.

Step 2 The slide plate 1 and 2 of traverse retain boss a and b are open.

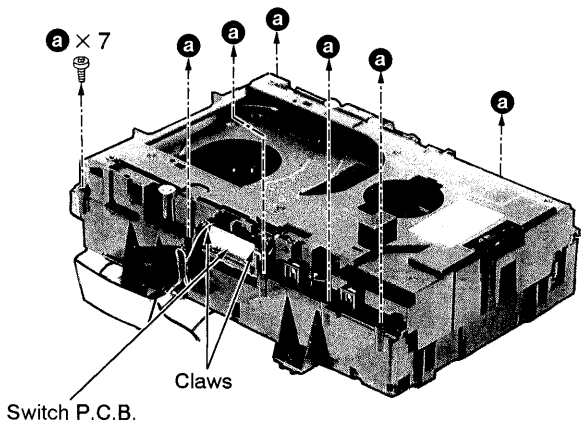
Refer to the figures Ⓒ and Ⓓ.

Step 3 Push the traverse unit in the direction of arrow (➡).

(The FFC is connected.)

Step 4 The traverse unit will be removed.

3. Disassembly for the CD changer unit

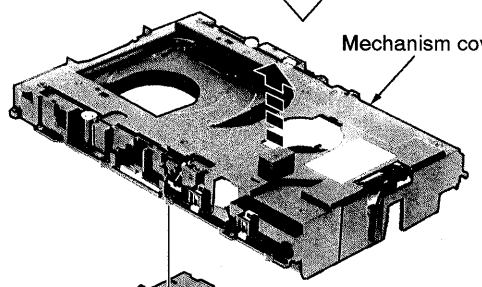


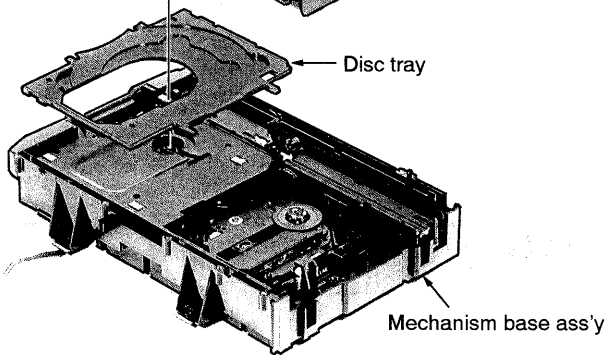
NOTE

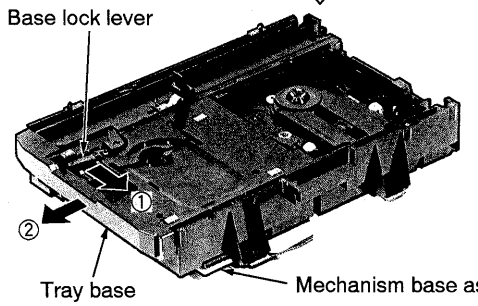
Locate the traverse unit to the position "DOWN".

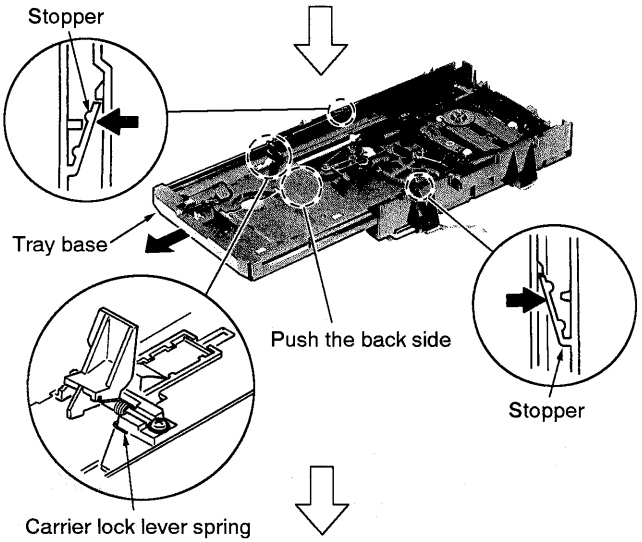
Step 1 Release the 2 claws, and then remove the switch P.C.B..

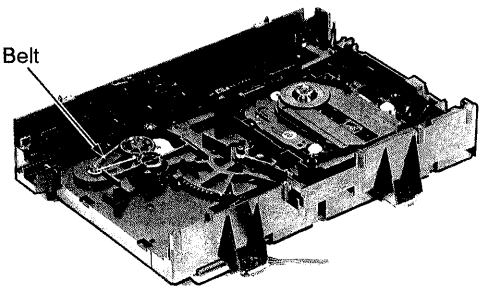
Step 2 Remove the 6 screws.











Step 3 Remove the mechanism cover ass'y.

ⓘ 4 disc trays contacted to the mechanism cover ass'y will be removed.
1 disc tray is removed to the mechanism base ass'y.

Step 4 Remove the disc tray sided mechanism base ass'y.

Step 5 Unlock the base lock lever.

Step 6 Draw the tray base until it will be stopped.

Step 7 Release the stopper manually.

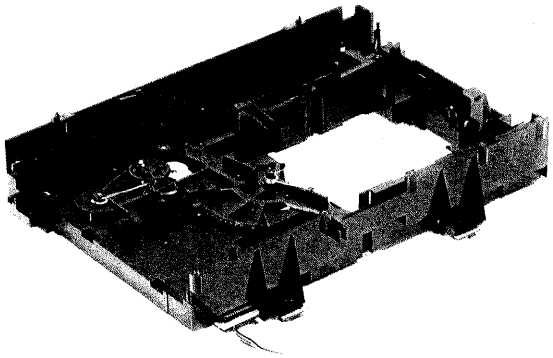
Step 8 Draw the tray base.

ⓘ In case that the tray base can not be open due to hooking, draw the tray base with finger pressing the back side indicated by ◌ of base. (Take care handling of stopper.)

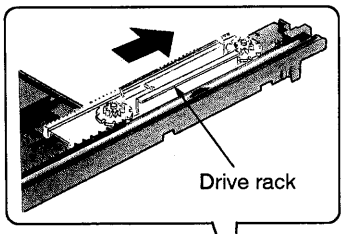
ⓘ Take care not avoid the carrier lock lever spring.

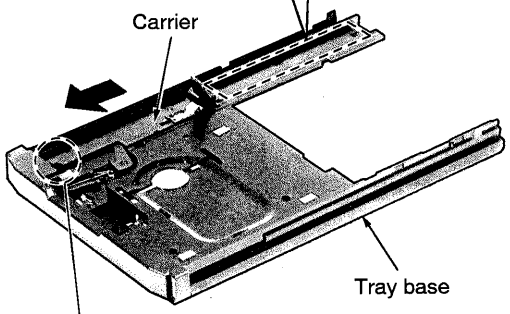
The belt and each part can be replaced after above procedures are performed.

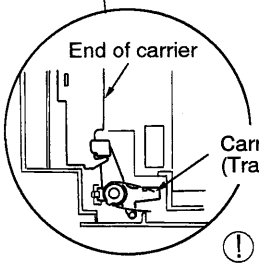
4. Reassembly for the CD changer unit



〔Back side〕



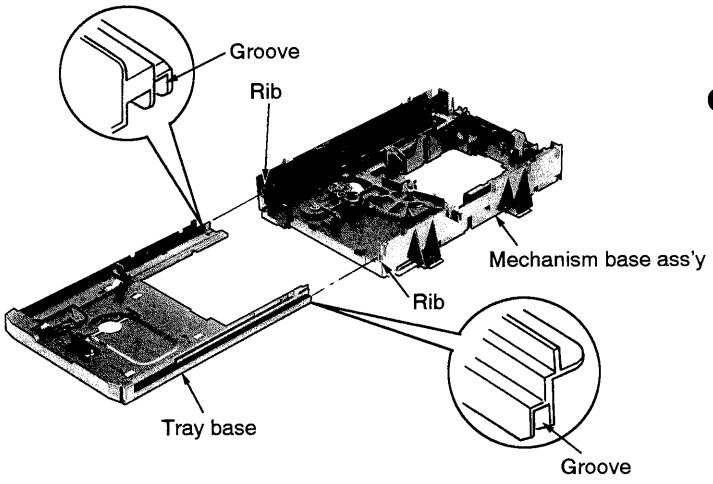




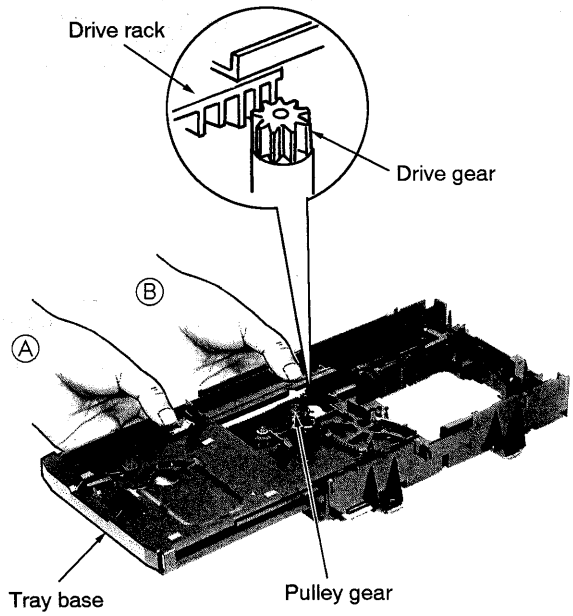
! Lock the lever.

Step 1 Pull the drive rack in the direction of arrow (➡) fully.

Step 2 Slide the carrier in the direction of arrow (➡).



Step 3 Insert the tray base to the mechanism base ass'y with keeping the procedures Step 1 and Step 2 .

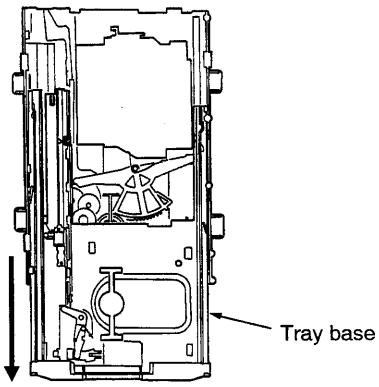


Step 4 ◉ Insert the drive rack until the driver rack interferes with the drive gear.

Position Ⓐ

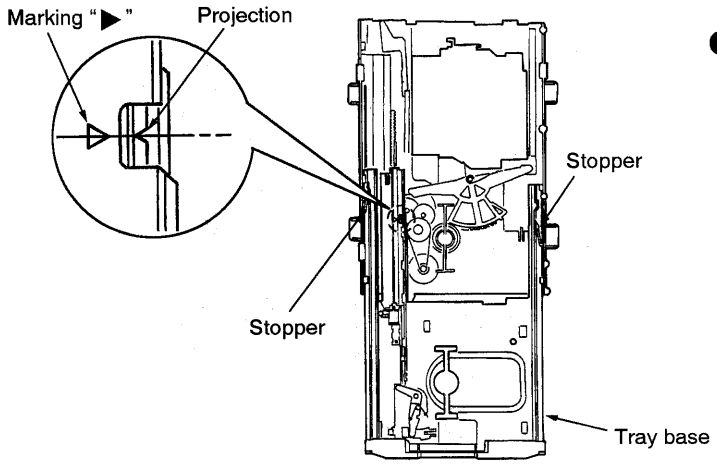
Step 5 ◉ Rotate the pulley gear clockwise gently by hand (5 or 6 times).

ⓘ When the gear begins to rotate, rotate the pulley gear with finger pressure (position Ⓑ) because the drive rack gear will fall free.



Step 6 Allow the tray base be open manually.

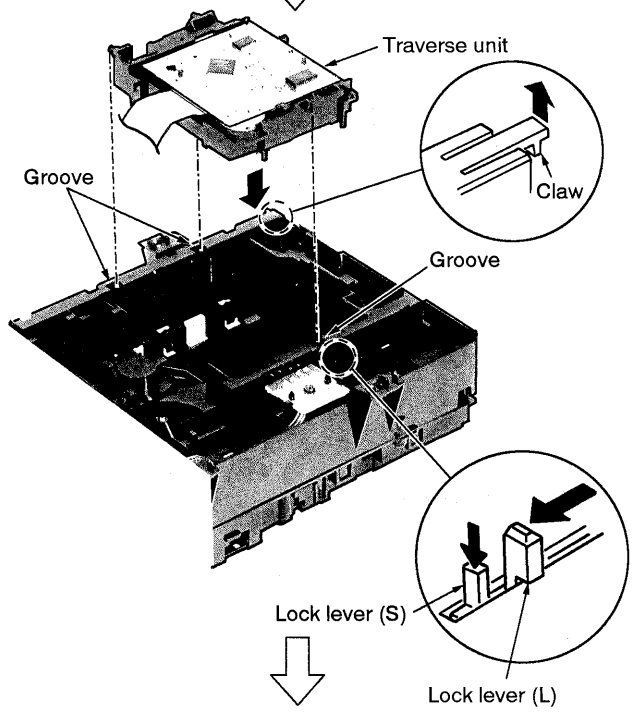
※ Draw the inserted tray base forward.



Step 7 Locate the projection at the marking "▶" as shown left.

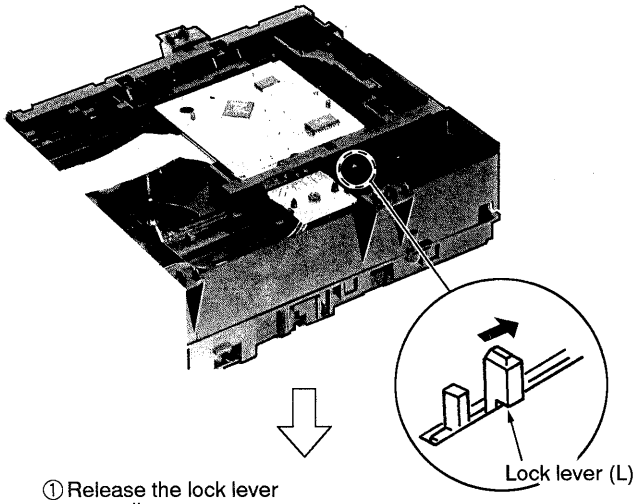
ⓘ In case that the stated above is not operated draw the tray base again.
(Refer to item ⓘ on page 11)

(Retry the item marked with ◉)



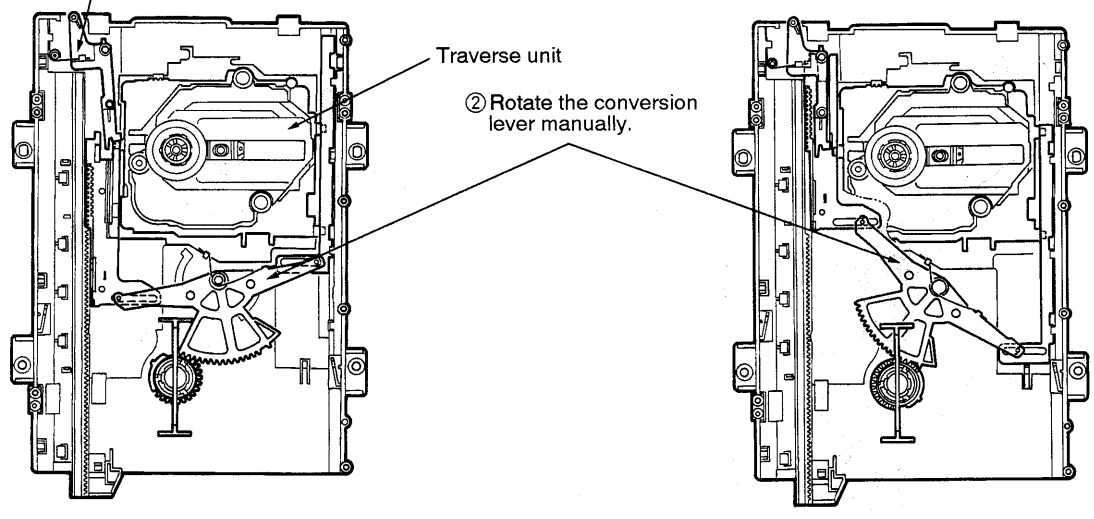
Step 8 While lifting the claw upward, press the lock lever (L) with forcing the lock lever (S).

Step 9 Align the boss of traverse unit with the groove of mechanism base ass'y.

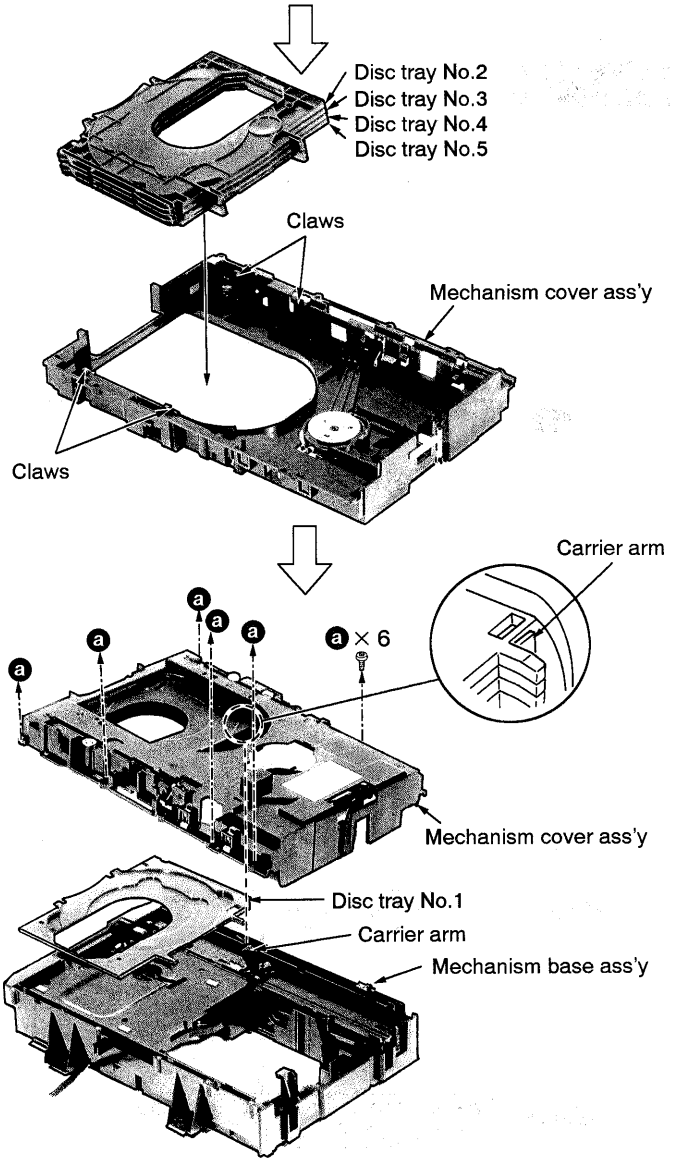


Step 10 Pull the lock lever (L) in the direction of arrow (➡).

After assembly, confirm the traverse unit operation.



〈"DOWN"stated〉 〈"UP"stated〉



Step 11 Install the 4 disc trays to the mechanism cover ass'y. (Allow them to lock with claws.)

ⓘ Install the disc trays in specific order. (Disc tray No. is indicated on the tray.)

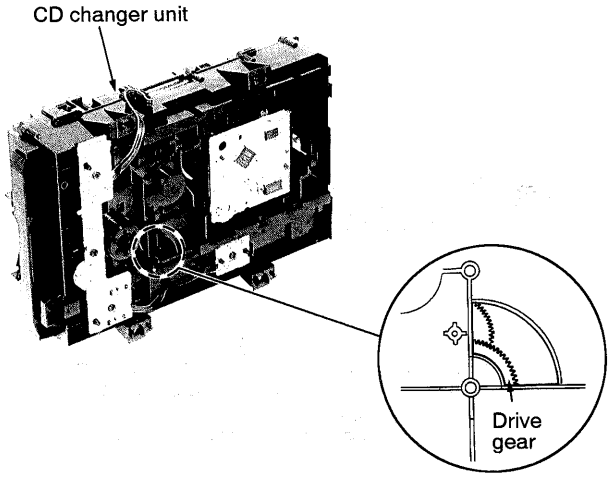
Step 12 Place the disc tray No.1 on the mechanism base ass'y.

Step 13 Install the mechanism cover ass'y.

ⓘ The carrier arm is positioned as shown left.

5. Inspection for CD changer unit

• Begin the inspections in condition that the traverse is kept from disc tray. (5 disc trays in the store compartment.)



※ Manual operations

① Rotate the drive gear counterclockwise manually.

The traverse runs over the disc tray, and rises at maximum level.

② Rotate the drive gear clockwise manually.

The disc tray moves and is stored in upper compartment.

The tray base is open.

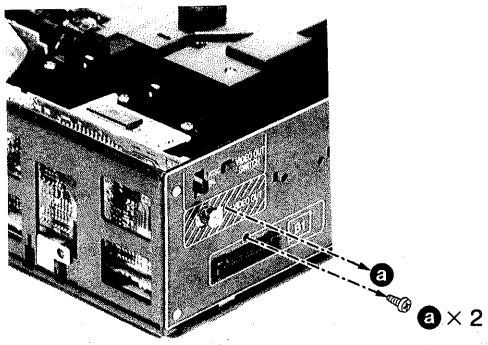
③ Again rotate the drive gear counterclockwise manually.

The tray base is closed, and then it returns to start position.

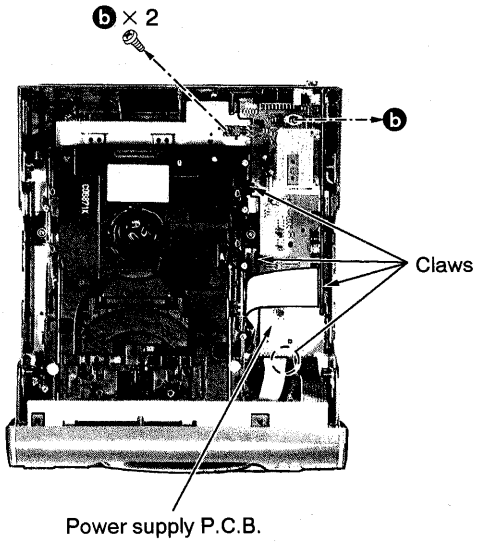
■ Checking Procedures for each P.C.B.

1. Checking for the main P.C.B., power supply P.C.B. and video P.C.B.

Perform the items Step 1 and Step 2 for CD changer removal (Refer to page 4.)

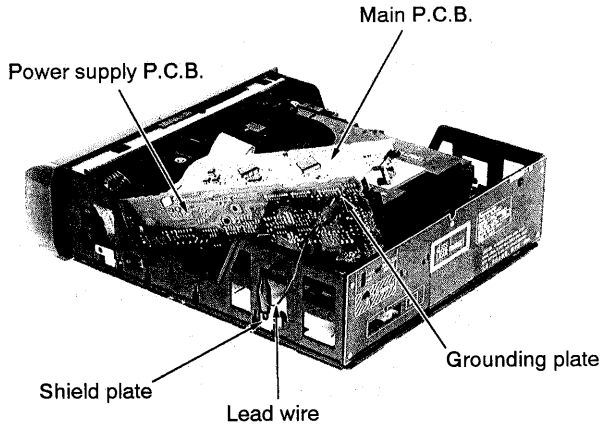


Step 1 Remove the 2 screws.



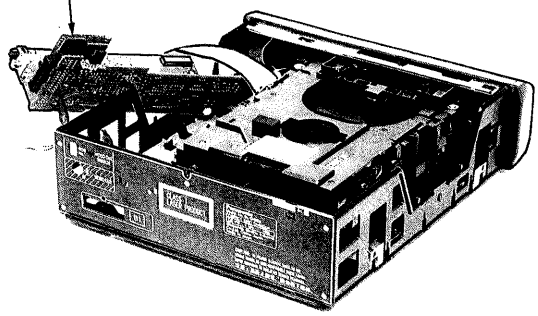
Step 2 Remove the 2 screws.

Step 3 Release the 4 claws, and then stand the power supply P.C.B..



Step 4 Connect the lead wire between the grounding plate and shield plate.

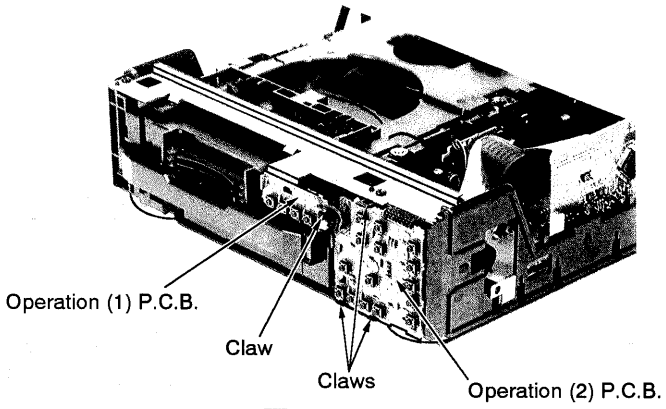
Check the main P.C.B. and power supply P.C.B. as shown left.



Check the video P.C.B. as shown left.

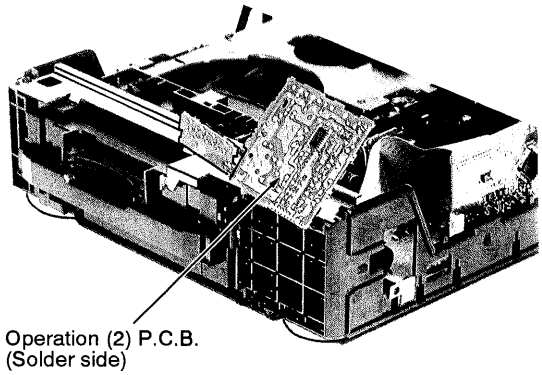
2. Checking for the operation (2) P.C.B.

Perform the items Step 1 ~ Step 3 for CD changer removal (Refer to page 4.)



Step 1 Release the 1 claw, and then remove the operation (1) P.C.B..

Step 2 Release the 3 claws, and then upset the operation (2) P.C.B..

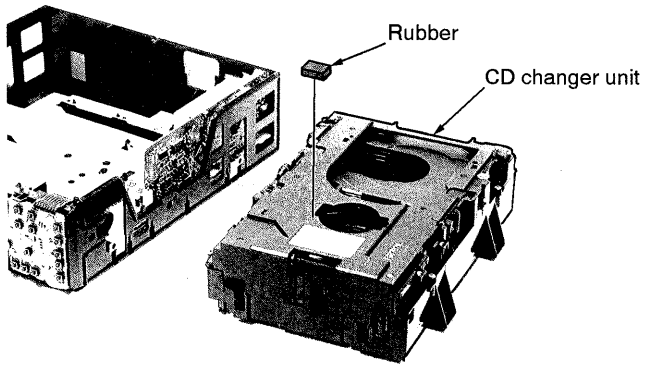


Check the operation (2) P.C.B. (solder side) as shown left.

3. Checking for the servo P.C.B.

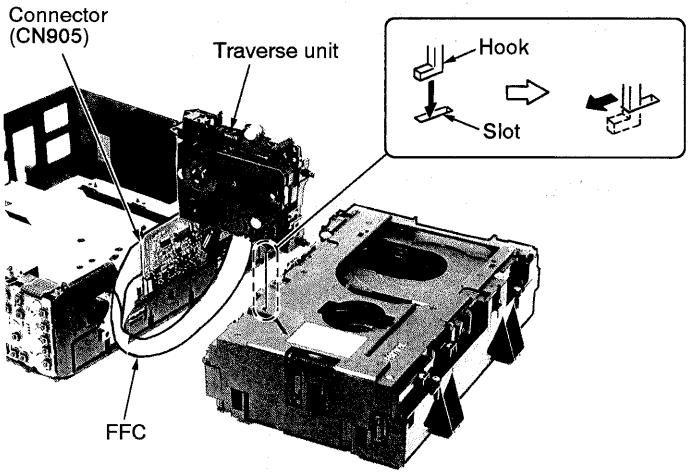
Perform the items Step 1 ~ Step 8 for CD changer removal (Refer to pages 4 and 5.)

Perform the items Step 1 ~ Step 4 for traverse unit removal (Refer to page 6.)



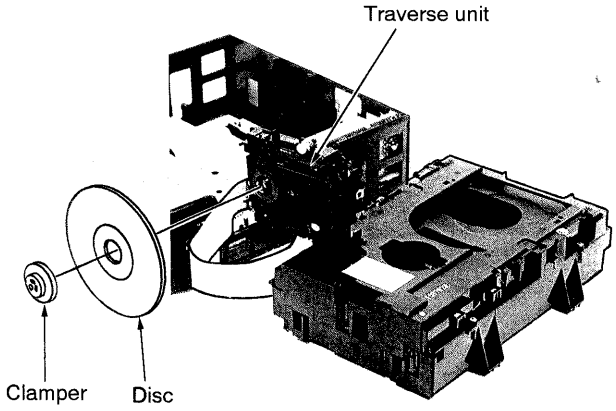
Step 1 Locate the CD changer unit to the right side of unit.

Step 2 Remove the rubber.



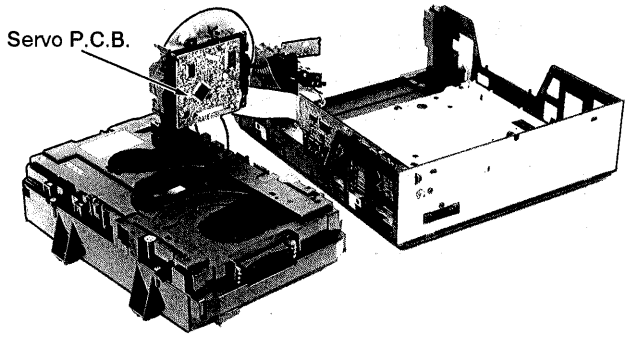
Step 3 Connect the FFC to the connector (CN905).

Step 4 Align the hook of traverse unit with the slot, and then stand it.



Step 5 Attach the disc and clamper with magnet to the traverse unit.

ⓘ Prepare the clamper used ordinaly.



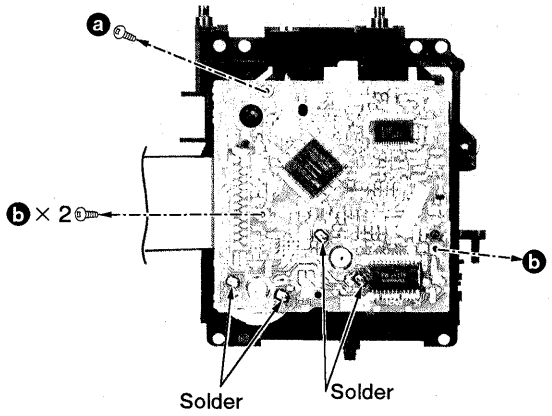
Check the servo P.C.B. (solder side) as shown left.

■ Main Component Replacement Procedures

1. Replacement for the traverse deck ass'y

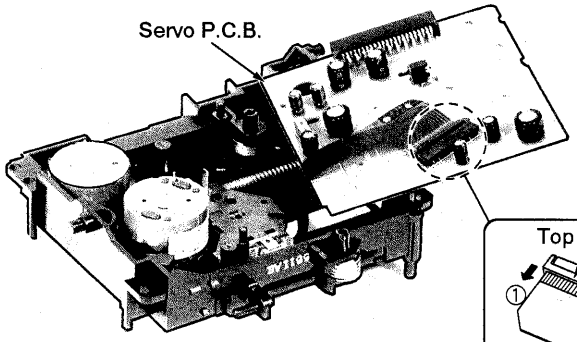
Perform the items Step 1 ~ Step 8 for CD changer removal (Refer to pages 4 and 5.)

Perform the items Step 1 ~ Step 4 for traverse unit removal (Refer to page 6.)



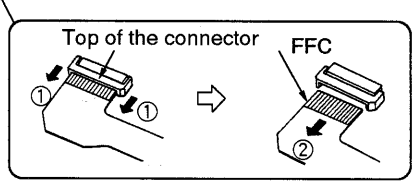
Step 1 Remove the 3 screws.

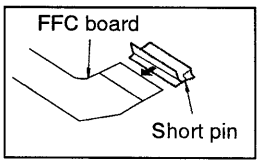
Step 2 Unsolder the motor terminals.

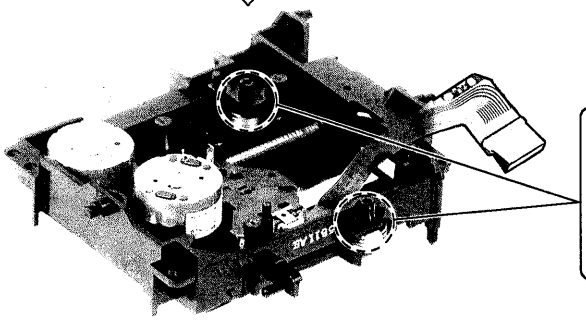


Step 3 Remove the FFC from the connector, and then remove the servo P.C.B..

Caution:
Insert a short pin into the traverse unit FFC board.
(Refer to "Hnading Precautions for Traverse Deck" on page 2.)

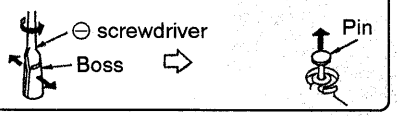


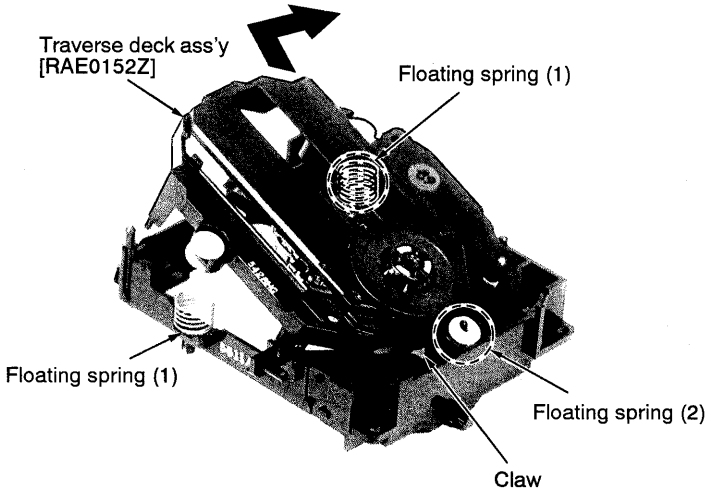




Step 4 Remove the pins.

1. Spread the boss with ⊖ screwdriver.
2. Pull out the pin in the direction of arrow.

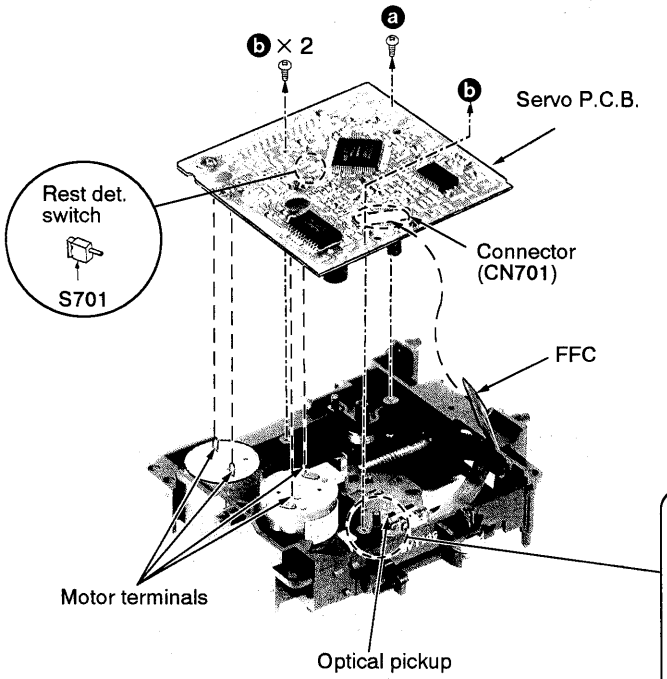




Step 5 Release the claws, and then remove the traverse deck ass'y.

ⓘ Be careful not to lose the 3 springs because those will also be removed on removal of the traverse deck ass'y.

Installation of the servo P.C.B.



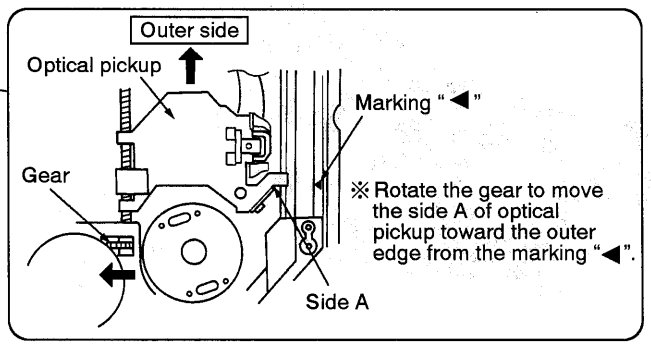
Step 1 Before installing the servo P.C.B., move the optical pickup toward the outer edge from mark "▼".

ⓘ In case that the optical pickup is not moved toward the outer edge from the marking, the rest detect switch (S701) mounted on the servo P.C.B. may be damaged.

Step 2 Connect the FFC to the connector.

Step 3 Install the servo P.C.B., and then tighten screws.

ⓘ After tightening screws, solder each motor terminal.



■ 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-EH600 is designed to operate on power supplied from the system connected. (For system connection, refer to Fig.1)

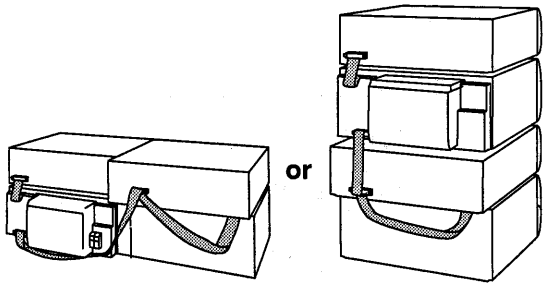


Fig. 1

When you have to test and service the unit SL-EH600 alone, use the following method to supply power source and operate the unit:

Apply +10 V DC power to the section between L1 (DC10V) and E1(GND). **(Shown in Fig.2)**

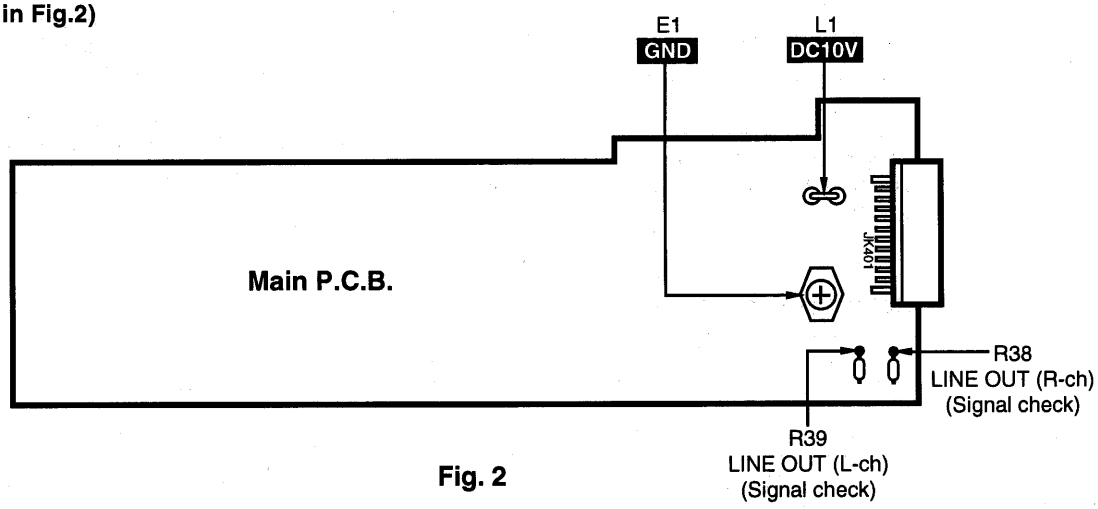


Fig. 2

■ To Check Signals

Connect the oscilloscope or the speaker with built-in amplifier to the section between LINE OUT (L-ch) of the resistor **R39** and the GND as well as the section between LINE OUT (R-ch) of the resistor **R38** and the GND and check if the signals are outputting from this unit. **(Shown in Fig. 2)**

■ Error Code Display and Servo Adjustment Function

This unit has an error code display function, so that if the unit operates incorrectly, the fault is displayed using an error code on the FL display of the Tuner/Amplifier (SA-EH600, SA-EH501, SA-EH500 or SA-EH400). It also has a servo adjustment function for displaying the status of servo system functions (Focus, Tracking, CLV Servo) on the FL display of the Tuner/Amplifier.
The system control IC and FL display are part of the Tuner/Amplifier so make sure the system has been connected properly before using three functions. (This unit can be operated independently, although the error code display and servo adjustment functions cannot be used.)
Use these two functions for guidance during fault diagnosis and repair.

Note:
Check beforehand for scratching or soiling of the test disc (SZZP1054C), and soiling or other problems with the pickup lens.

• Error code display procedure

Automatic adjustment results

Turn the power ON.

↓

Load the test disc (SZZP1054C).

↓

Hold down the REPEAT button for at least 2 seconds, and then press the STOP button for at least 2 seconds while continuing to hold down the REPEAT button.

↓

A servo section error code is displayed. (See **Table 2**.)
Use this error code display as a guideline for finding the malfunction point in the servo circuitry. If the error code **"E-00"** is displayed, the unit is "OK (No problem)."

Checking the mechanism switches

Press the F. SKIP button.

↓

A mechanism OK/NG error code is displayed. (See **Table 1**.)
This error code can be used diagnose whether or not the mechanism is OK. If there are multiple errors, these can be displayed successively by pressing the F. SKIP button.

↓

Remove the disc and turn the power OFF. (The error code display mode is canceled.)

• Servo adjustment procedure

Turn the power ON.

↓

Load the test disc (SZZP1054C).

↓

Hold down the REPEAT button for at least 2 seconds, and then press the PAUSE button for at least 2 seconds while continuing to hold down the REPEAT button.

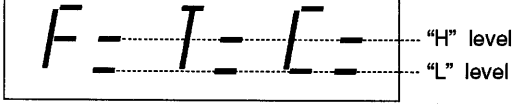
↓

Press the ▶ (PLAY) button, and play for 10 seconds.

↓

Servo adjustment results are displayed.

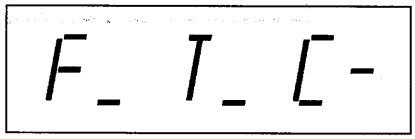
Focus Tracking CLV servo



↓

Remove the disc and turn the power OFF.

(Example)



	"L" level	"H" level
Focus system	normal	defective
Tracking system	normal	defective
CLV servo system	defective	normal

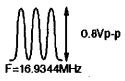
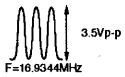
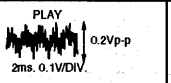
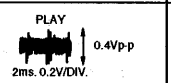
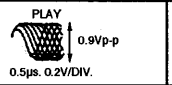
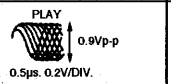
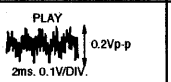
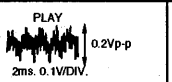
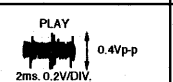
• Table 1

FL display	Symptom	Cause
H-15	When CD tray opens, it closes by itself.	Disc tray "Open" detection switch (S4) fault.
H-16	When CD tray close, it opens by itself.	
F-15	Does not play, even when CD play button is pressed.	Pickup rest position detection switch (S701) fault.
F-16	Traverse pushes up disc tray.	Up position detection switch (S3) fault.
F-26	Does not move even when "▶" (PLAY) button is pressed.	System control or servo processor IC (IC901, IC702) fault.
F-27	Tray keeps moving for a while, or selected tray does not open.	Disc number detection switch (S5) fault.
F-28		Stocker position detection, or play position detection switch (S1, S2) fault
F-75	NO DISC is displayed and unit does not play, even when a CD is loaded.	CD circuit power supply problem.

• Error code based troubleshooting

※ The unit is satisfactory if the error code is **"E-00"** of **"E-02"**.

※ Before testing, check that the test disc is free of scratches and optical pickup is clean.

FL error code display	Symptom	Probable cause	Signal to check		Normal voltage and waveform values	
			Signal name	Location	PLAY	STOP
E-01	Focus and tracking offset adjustments not completed in the specified time period.	1. Clocks X1 and X2, power supply VDD and reset/RST, all on IC702. 2. MDATA, MCLK, MLD, and SENSE signals to/from mechanism controller.	MDATA	IC702 ⑧ pin		4.4 V
			MCLK	IC702 ⑦ pin		4.3 V
			MLD	IC702 ⑨ pin		4.4 V
			SENSE	IC702 ⑩ pin	—	—
			/RST	IC702 ⑱ pin	4.9 V	4.9 V
			X1	IC702 ⑱ pin		
			X2	IC702 ⑲ pin		
E-03 E-05 E-07 E-09 E-0B E-0D E-0F	Disc play unstable.	1. Scratches or contaminants on disc surface. 2. Focus and Tracking servo circuits (check waveforms, voltages, and part values.) 3. Spindle driver circuit. 4. Optical pickup.	F E	IC702 ㉜ pin		2.5 V
			T E	IC702 ㉝ pin		2.5 V
			FOD	IC702 ㉘ pin	2.5 V	2.5 V
			TRD	IC702 ㉗ pin	2.5 V	2.5 V
			KICK	IC702 ㉖ pin	2.5 V	2.5 V
			/FLOCK	IC702 ⑪ pin	—	—
			/RF DET	IC702 ㊳ pin	0 V	5.0 V
			R F	TJ701		1.7 V
			STAT	IC702 ⑰ pin	0.7 V	0 V
E-04 E-06 E-0C E-0E	Best "Eye" (PD Balance) adjustment not completed in the specified time period.	1. Scratches or contaminants on disc surface. 2. Focus and Tracking servo circuit (check waveforms, voltages, and part values.) 3. Optical pickup.	FBAL	IC702 ㉚ pin	2.5V	2.5 V
			R F	IC701		1.7 V
			F E	IC702 ㉜ pin		2.5 V
			/TLOCK	IC702 ⑫ pin	—	—
			OFT	IC702 ㊱ pin	0 V	0 V
E-08 E-0A	Focus or Tracking gain adjustment not completed in the specified time period.	1. Scratches or contaminants on disc surface. 2. Focus and Tracking servo circuit (check waveforms, voltages, and part values.) 3. Optical pickup.	F E	IC702 ㉜ pin		2.5 V
			T E	IC702 ㉝ pin		2.5 V
			/TLOCK	IC702 ⑫ pin	—	—
			O F T	IC702 ㊱ pin	0 V	0 V

■Schematic Diagram

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

Notes:

- **S1** : Stocker position detect switch in " OFF " position
- **S2** : Play position detect switch in " OFF " position
- **S3** : Up position detect switch in " OFF " position
- **S4** : Tray open detect switch in " OFF " position
- **S5** : Disc number detect switch in " OFF " position
- **S601** : Disc check switch (⏏ NEXT OPEN)
- **S602** : Disc select switch (DISC 5)
- **S603** : Disc select switch (DISC 4)
- **S604** : Disc select switch (DISC 3)
- **S605** : Disc select switch (DISC 2)
- **S606** : Disc select switch (DISC 1)
- **S607** : Repeat switch (REPEAT)
- **S608** : AI edit switch (AI EDIT)
- **S609** : Random play switch (RANDOM)
- **S610** : R. Skip/Search switch (⏮/◀◀ , PREV)
- **S611** : Stop switch (■)
- **S612** : Play switch (▶, SELECT)
- **S613** : F. Skip/Search switch (▶▶/ ⏭ , NEXT)
- **S614** : Pause switch (❚❚)
- **S615** : Disc tray open/close switch (⏏ OPEN/CLOSE)
- **S616** : Menu on/off switch (MENU)
- **S617** : Return switch (↩)
- **S618** : – switch (–)
- **S619** : + switch (+)
- **S701** : Rest switch in " OFF " position
- **S901** : Video out 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, 0 dB]

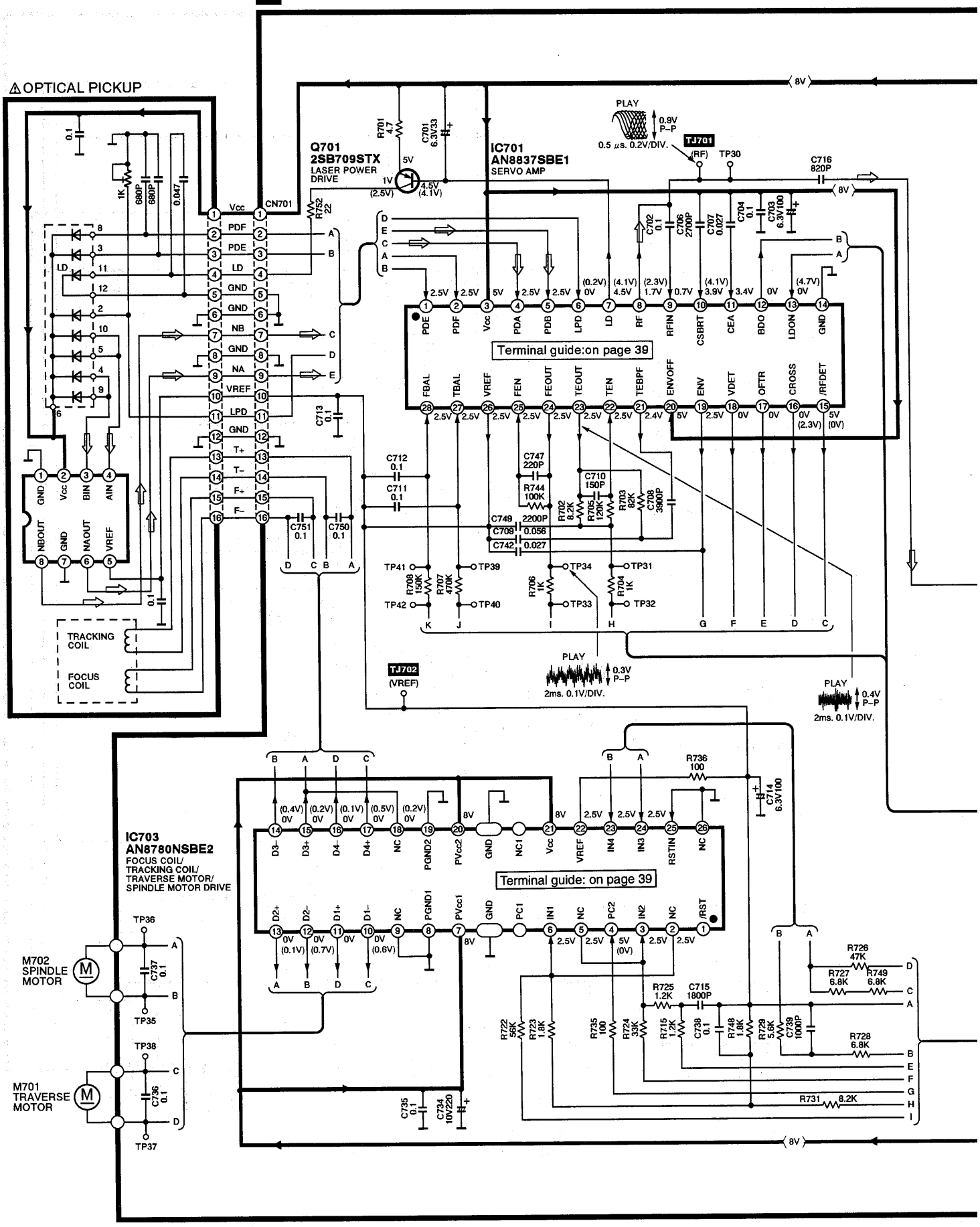
● Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

● **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 line**

: Positive voltage line
: CD-DA/CD-G/VIDEO CD (AUDIO & VIDEO) signal line
: CD-G/CD-G (AUDIO)/VIDEO CD(AUDIO) signal Line
: VIDEO CD (VIDEO) signal Line
: CD-DA/CD-G/VIDEO CD (AUDIO) signal Line
: CD-G (VIDEO) signal Line

A CD SERVO CIRCUIT (P.C.Board:on page 30)

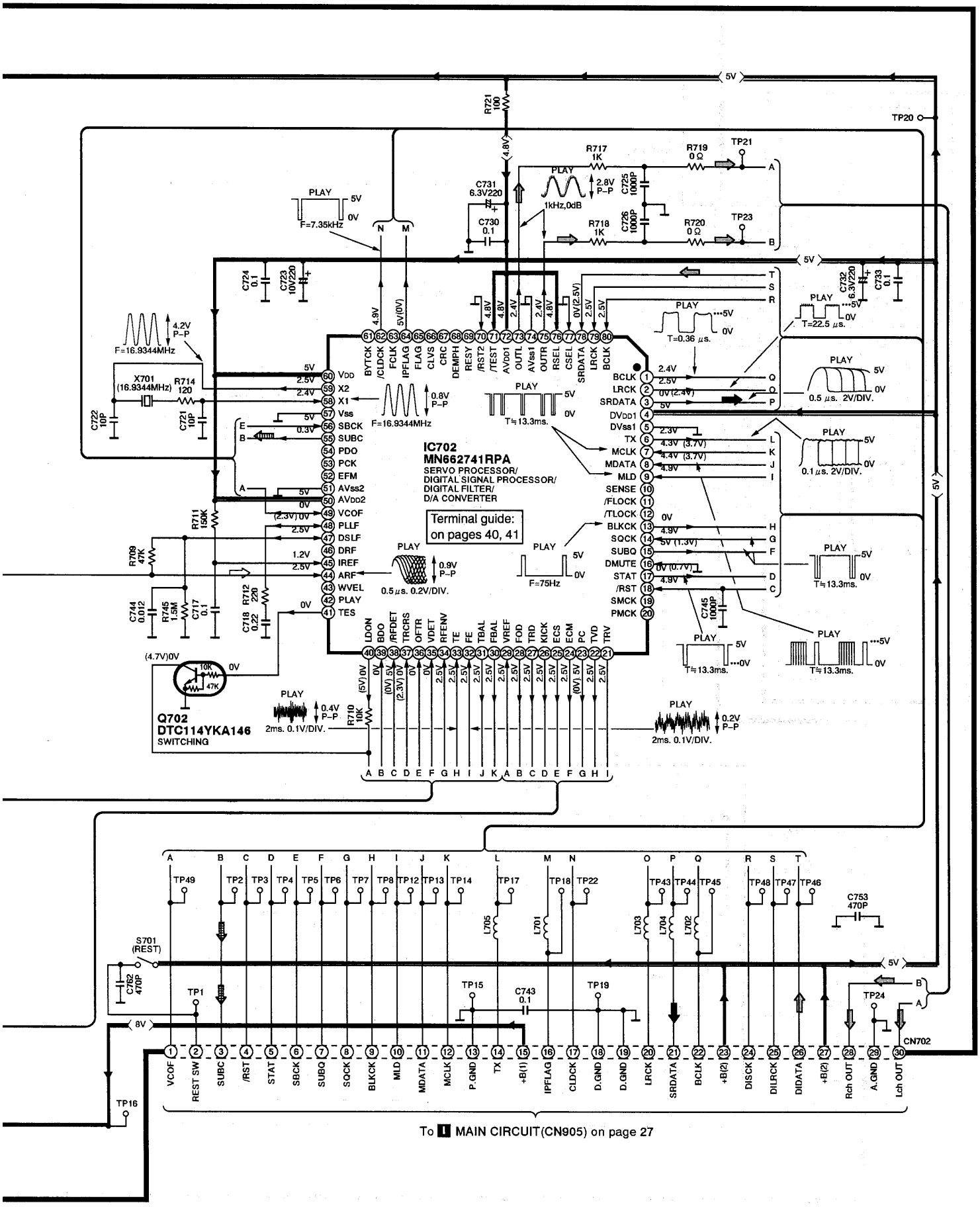


: Positive voltage line

: CD-G/CD-G (AUDIO)/VIDEO CD(AUDIO) signal Line

: CD-DA/CD-G/VIDEO CD (AUDIO & VIDEO) signal line

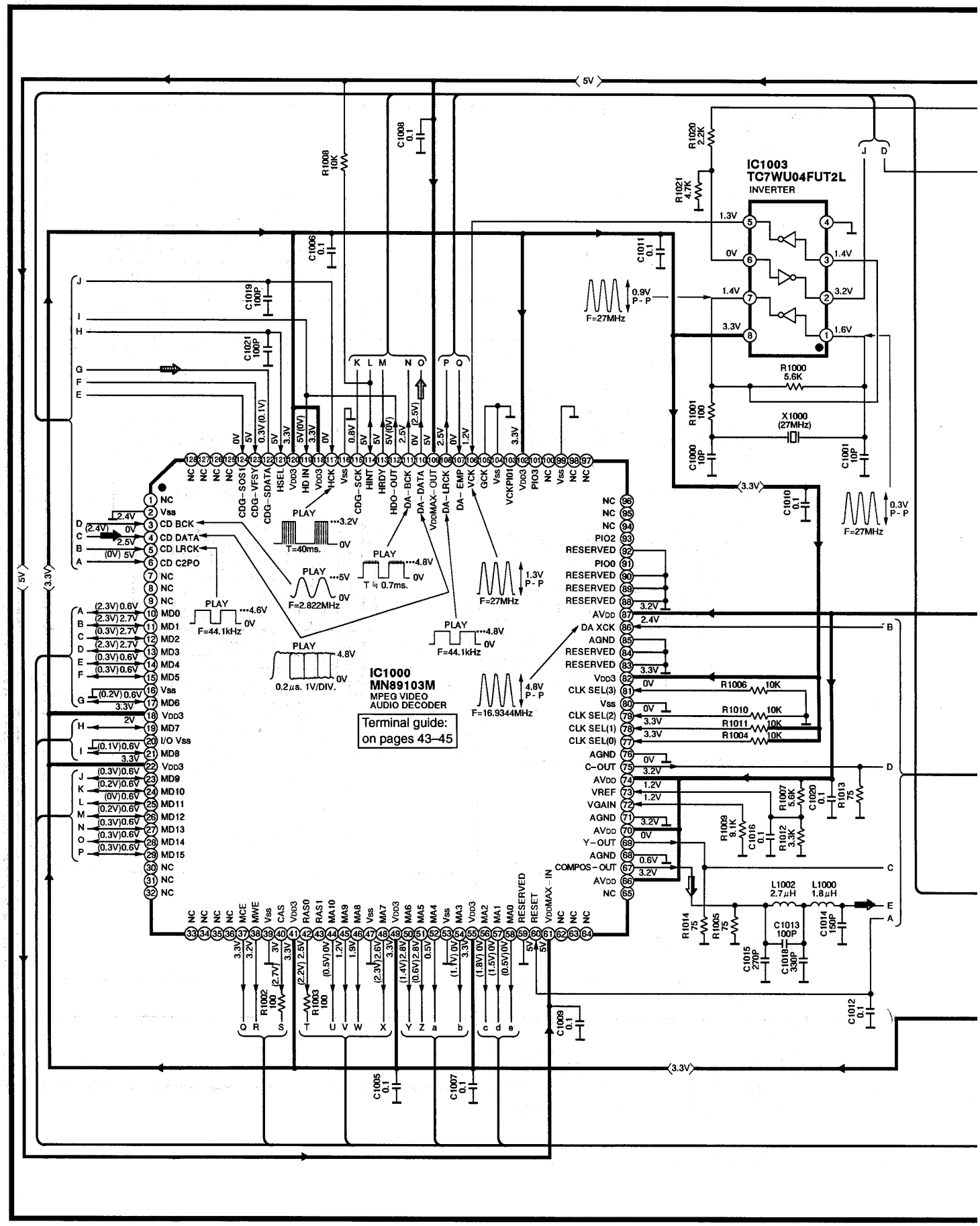
: VIDEO CD (VIDEO) signal Line

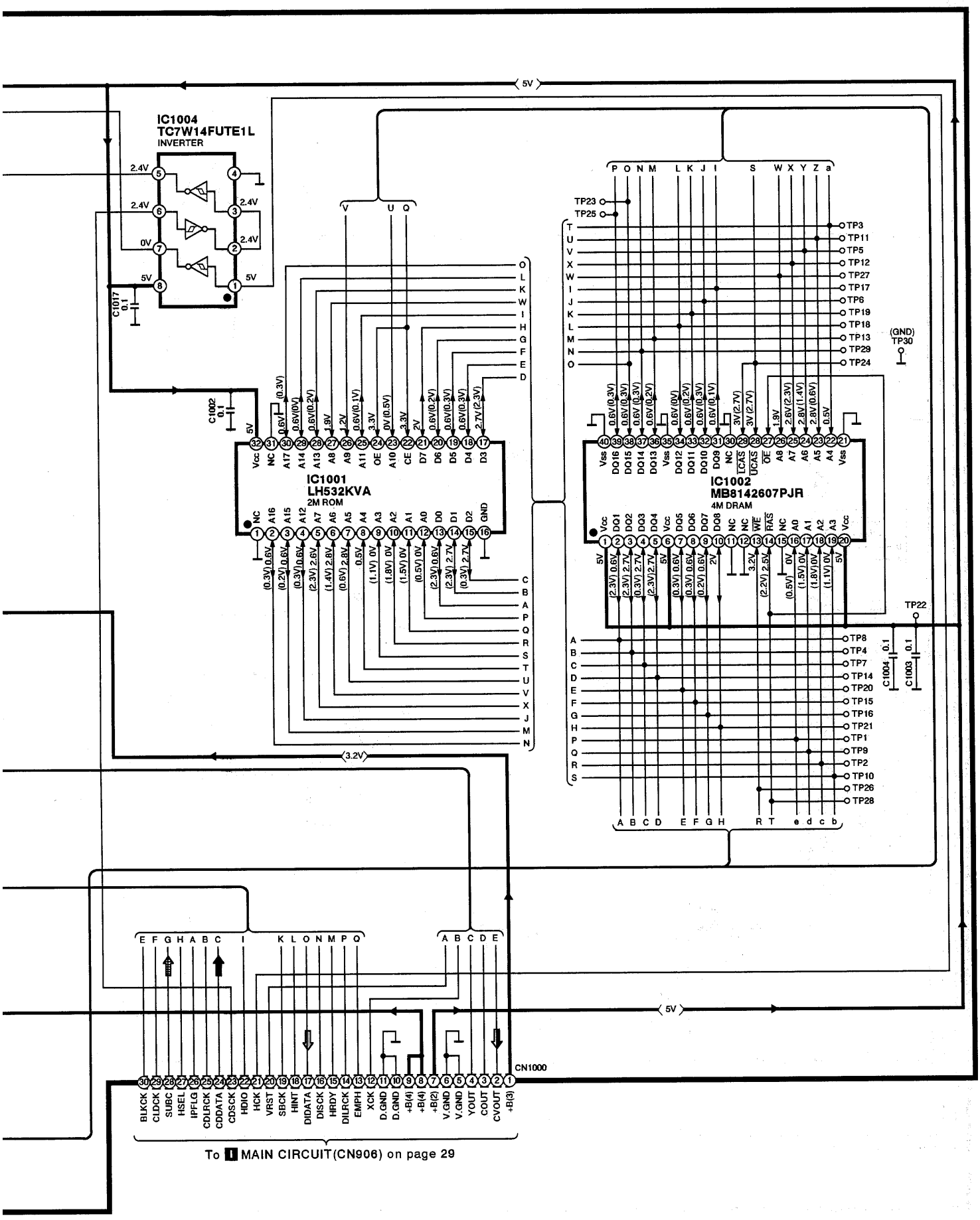


: CD-DA/CD-G/VIDEO CD (AUDIO) signal Line

: CD-G (VIDEO) signal Line

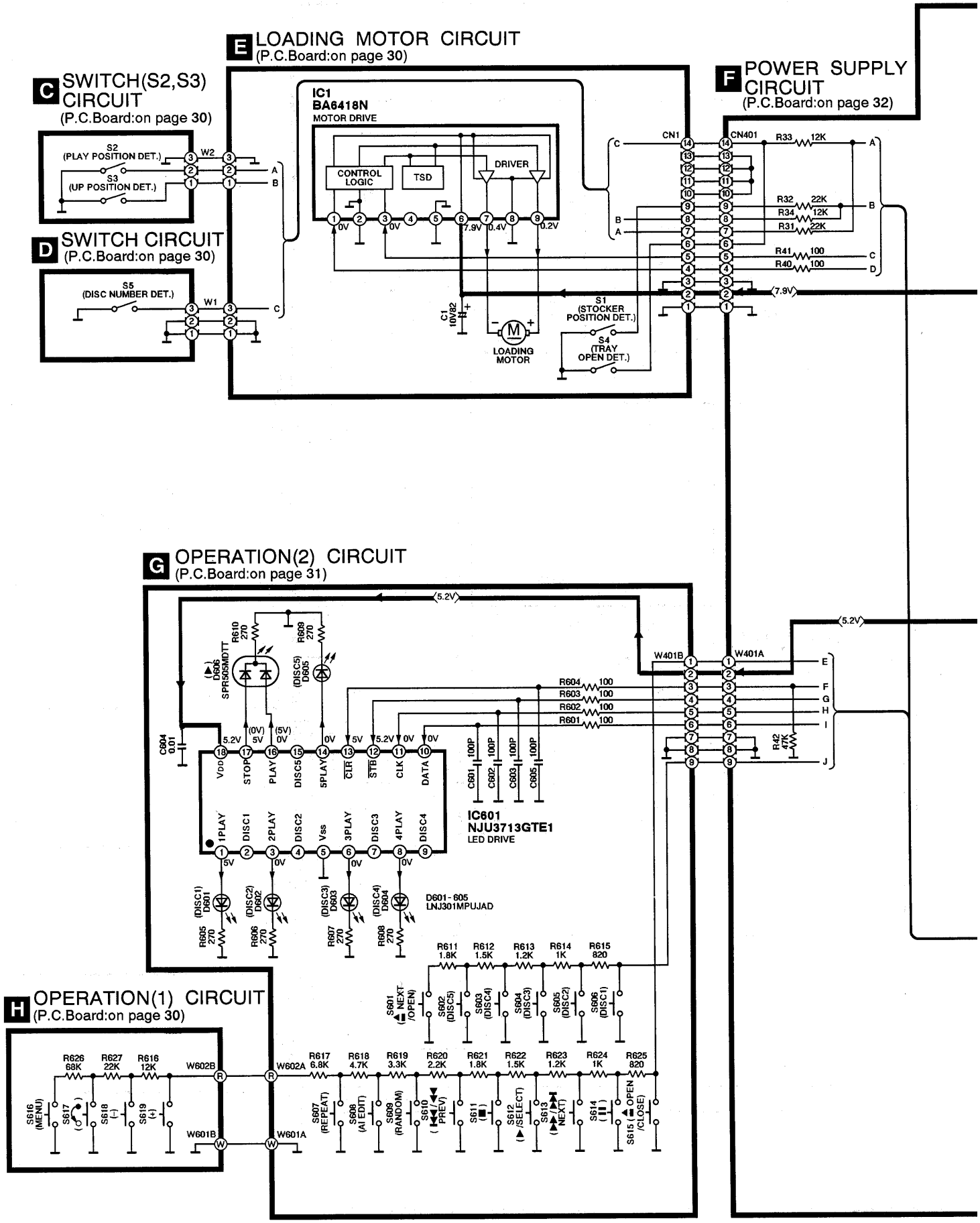
B VIDEO CIRCUIT (P.C.Board:on page 31)





To 1 MAIN CIRCUIT(CN906) on page 29

: Positive voltage line
: VIDEO CD (VIDEO) signal Line
: CD-G (VIDEO) signal Line
: CD-G/CD-G (AUDIO)/VIDEO CD(AUDIO) signal Line
: CD-DA/CD-G/VIDEO CD (AUDIO) signal Line

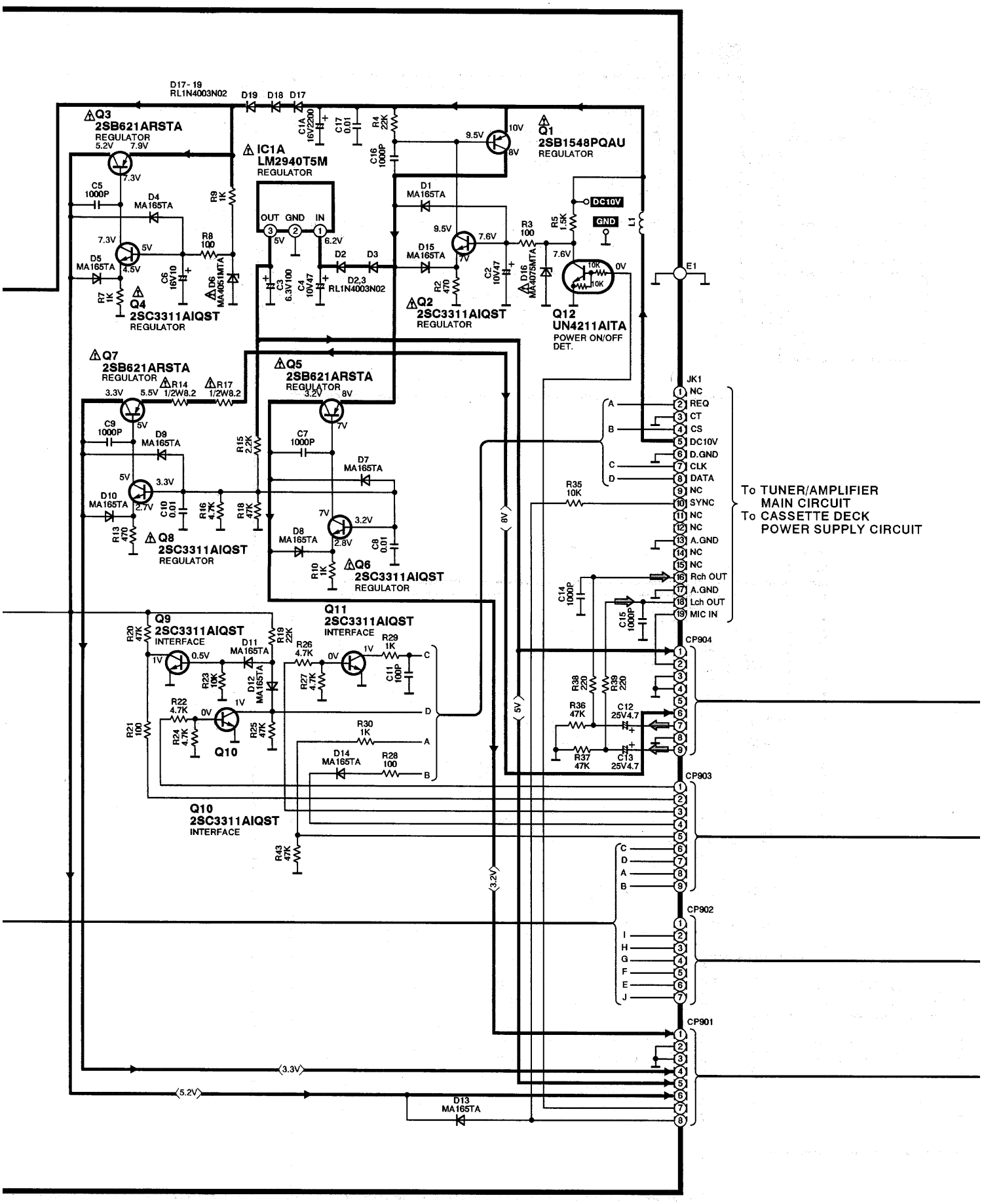


: Positive voltage line

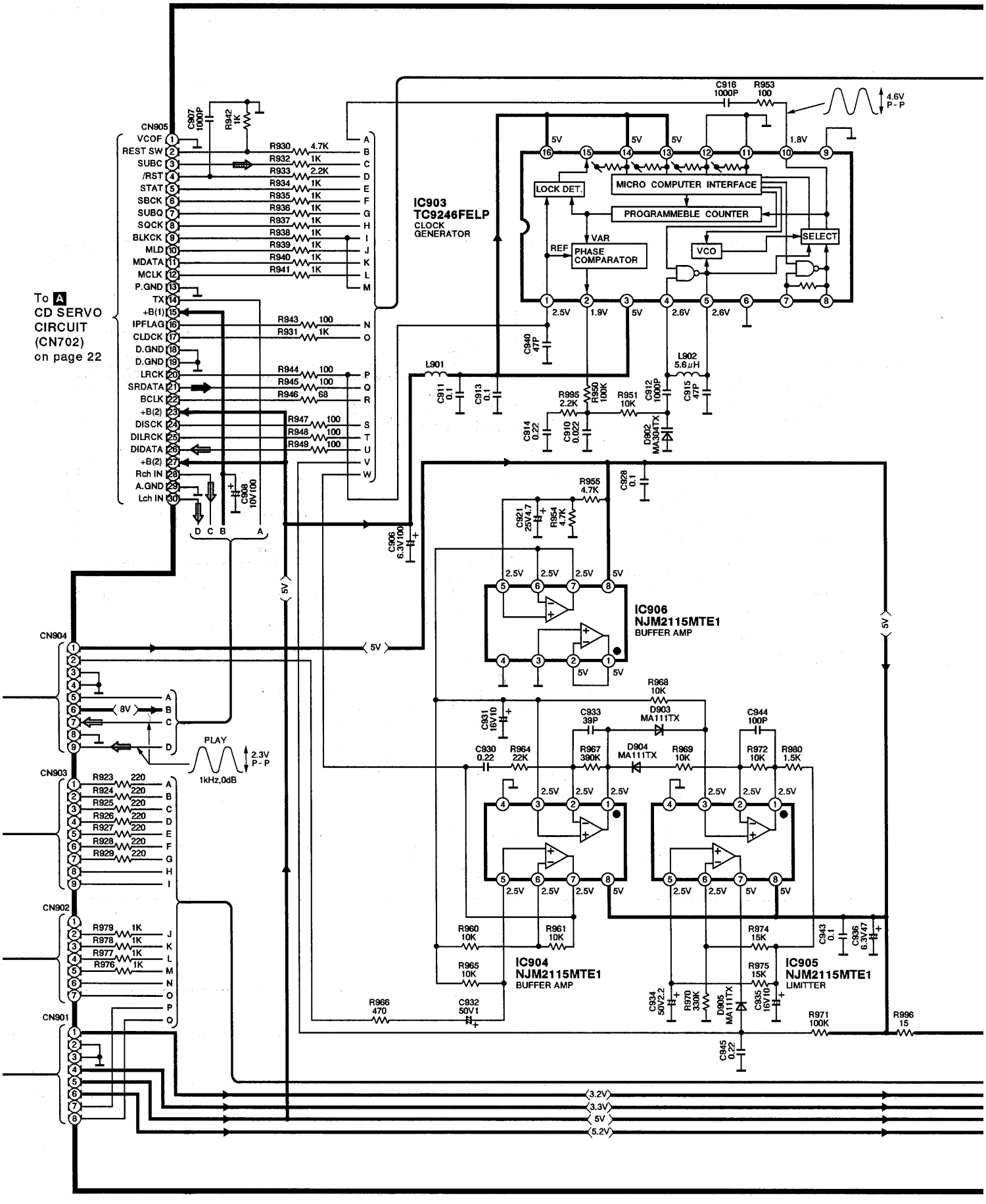
: CD-DA/CD-G/VIDEO CD (AUDIO) signal Line

: CD-G/CD-G (AUDIO)/VIDEO CD(AUDIO) signal Line

: CD-G (VIDEO) signal Line



I MAIN CIRCUIT (P.C.Board:on page 32)



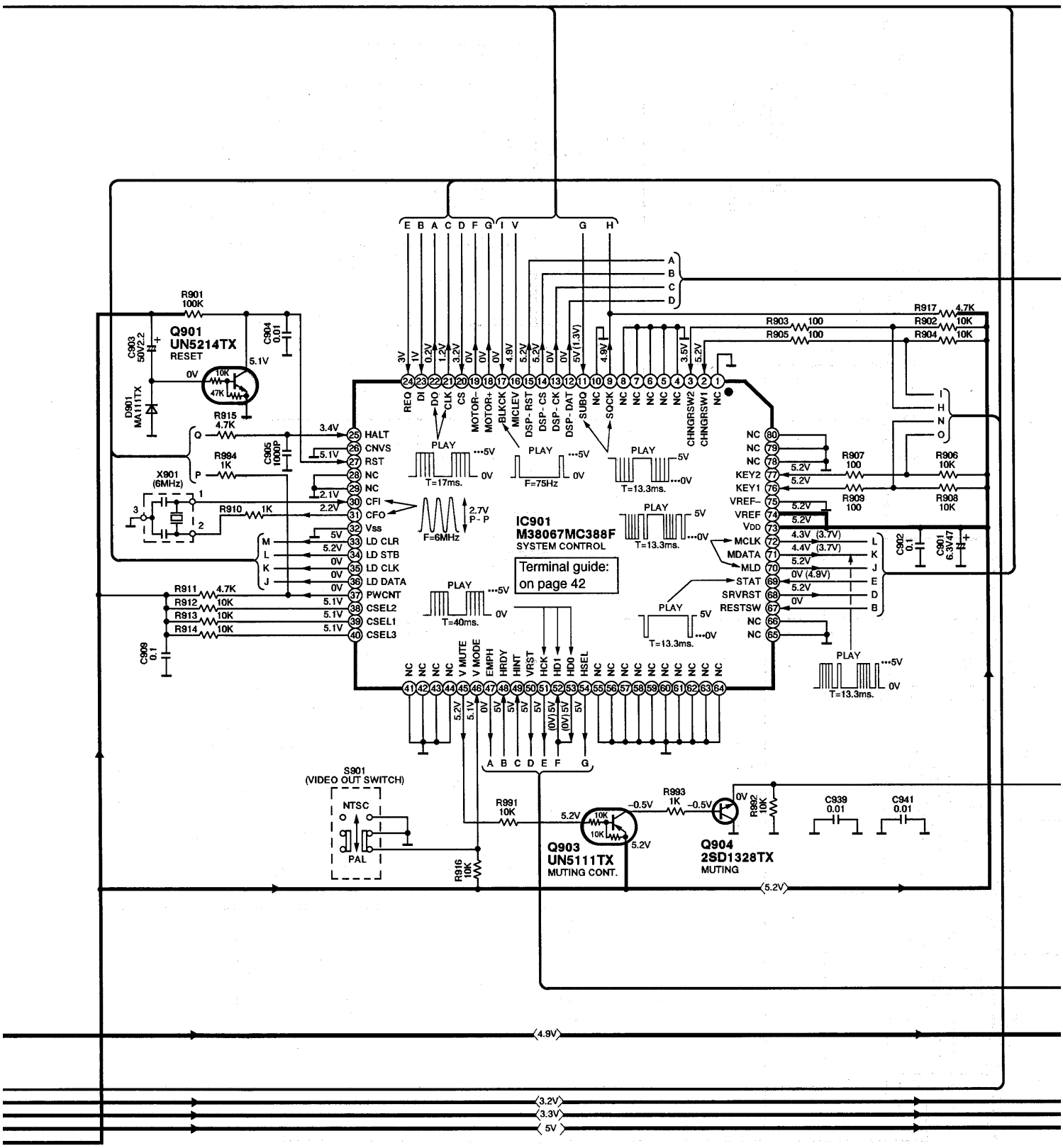
: Positive voltage line

: VIDEO CD (VIDEO) signal Line

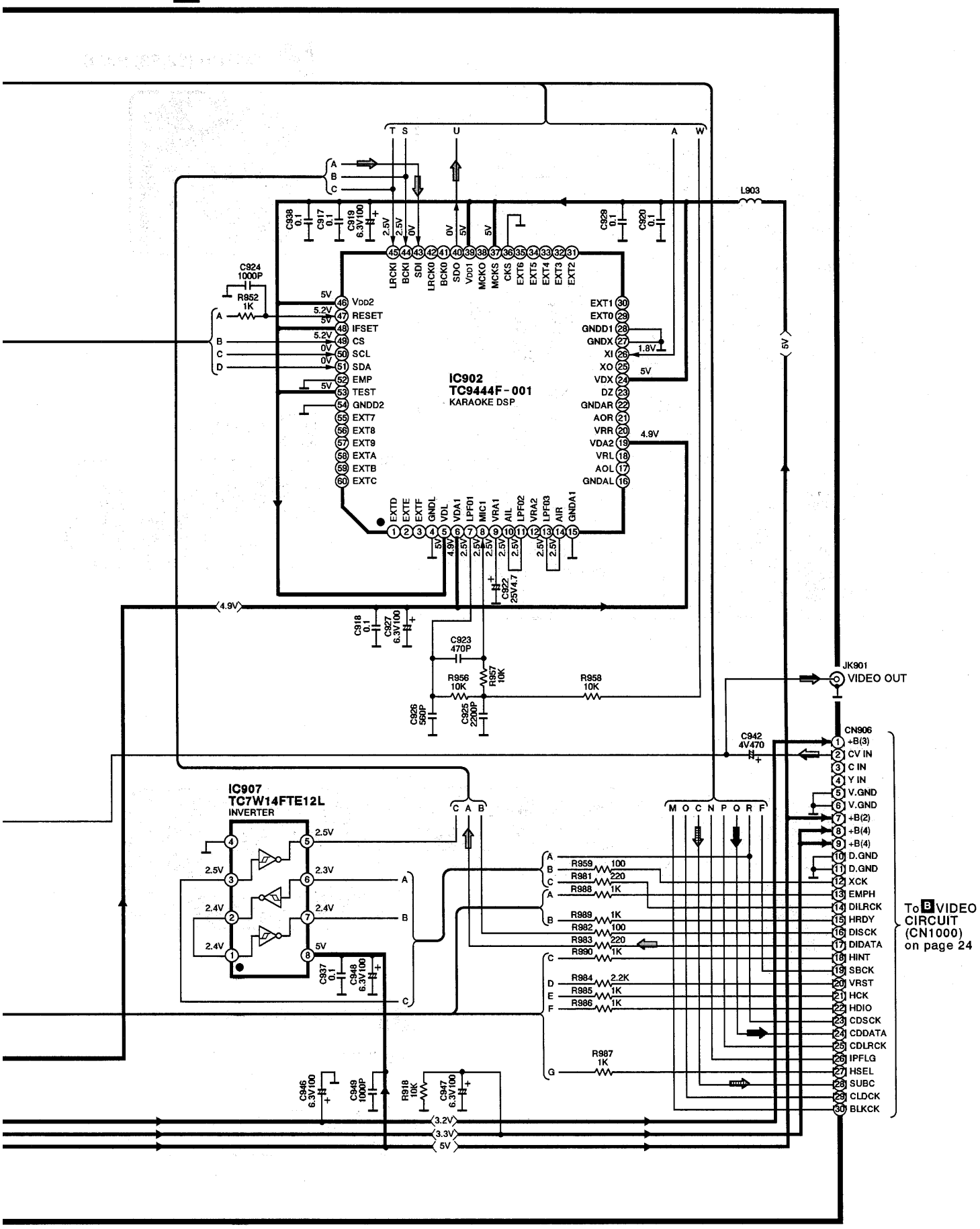
: CD-G (VIDEO) signal Line

: CD-G/CD-G (AUDIO)/VIDEO CD(AUDIO) signal Line

: CD-DA/CD-G/VIDEO CD (AUDIO) signal Line



I MAIN CIRCUIT (P.C.Board:on page 32)

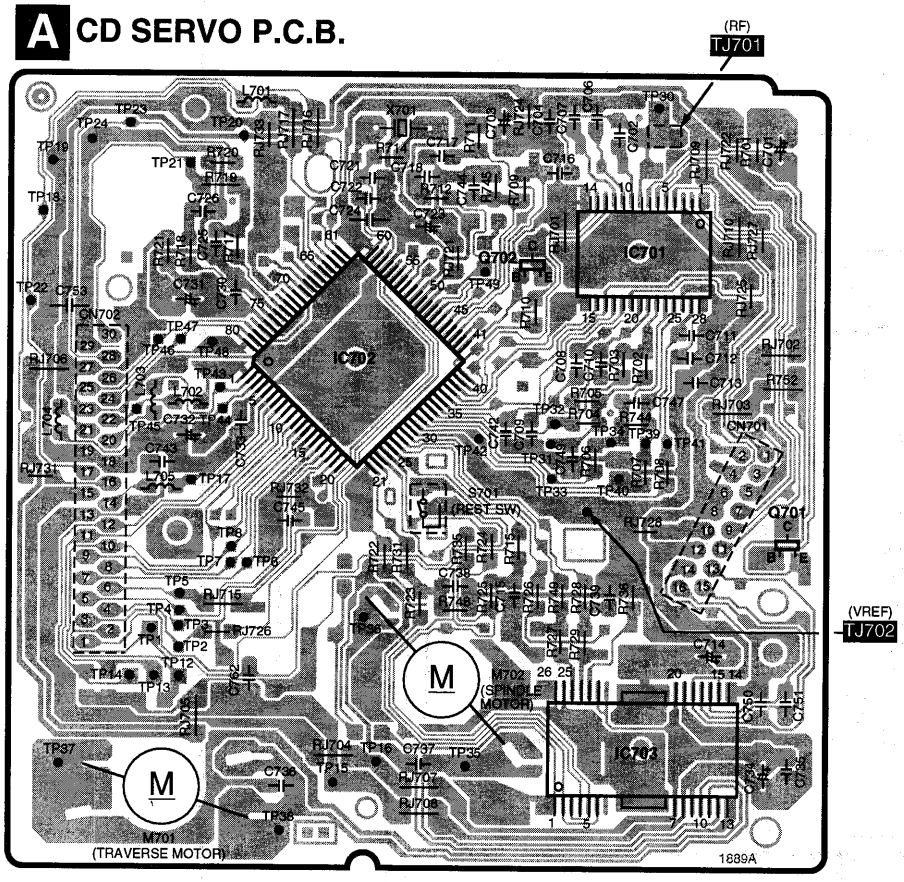


■ Printed Circuit Board Diagram

Note:

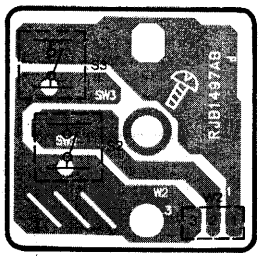
- This printed circuit board diagram may be modified at any time with the development of new technology.

A CD SERVO P.C.B.

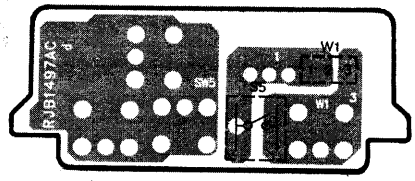


(REP2577A-N)

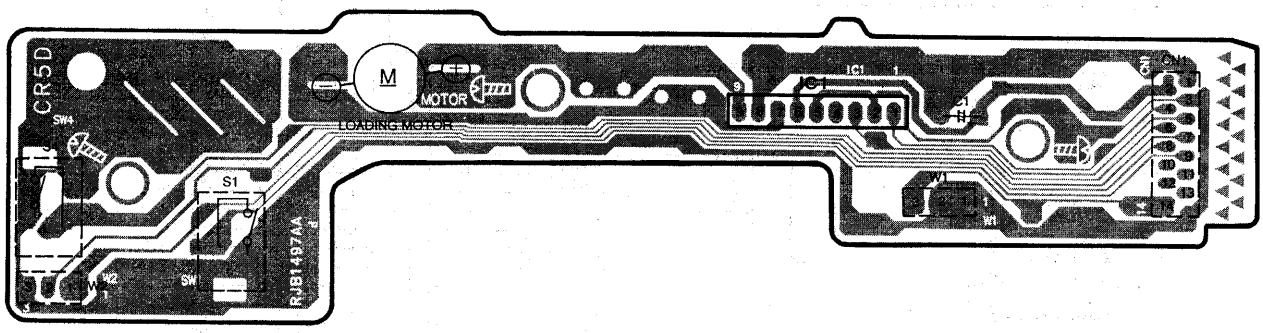
C SWITCH (S2,S3) P.C.B.



D SWITCH P.C.B.

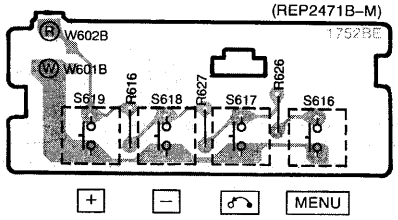


E LOADING MOTOR P.C.B.

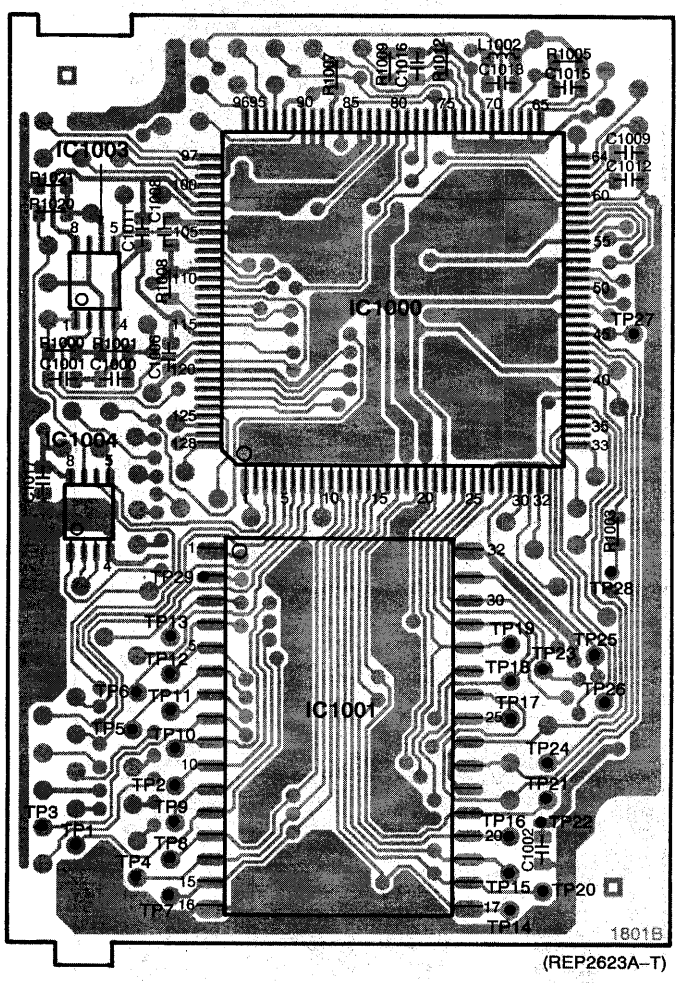


H OPERATION (1) P.C.B.

(REP2471B-M)

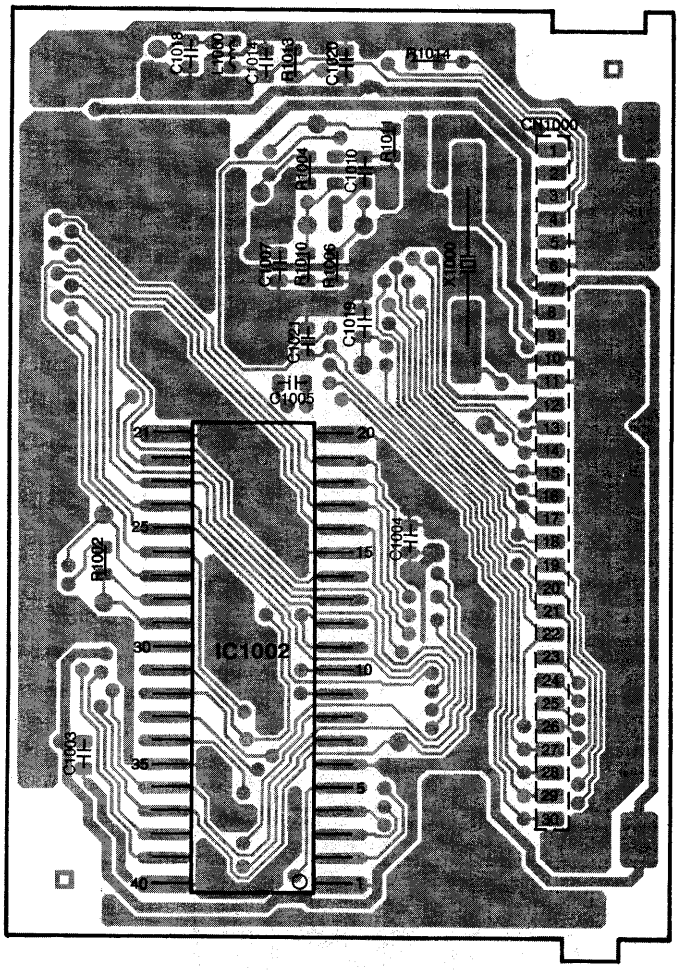


B VIDEO P.C.B. (SIDE A)

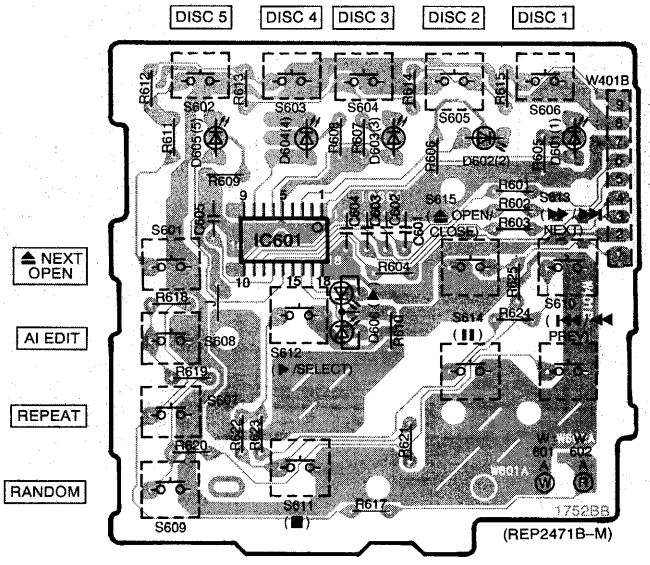


(REP2623A–T)

B VIDEO P.C.B. (SIDE B)



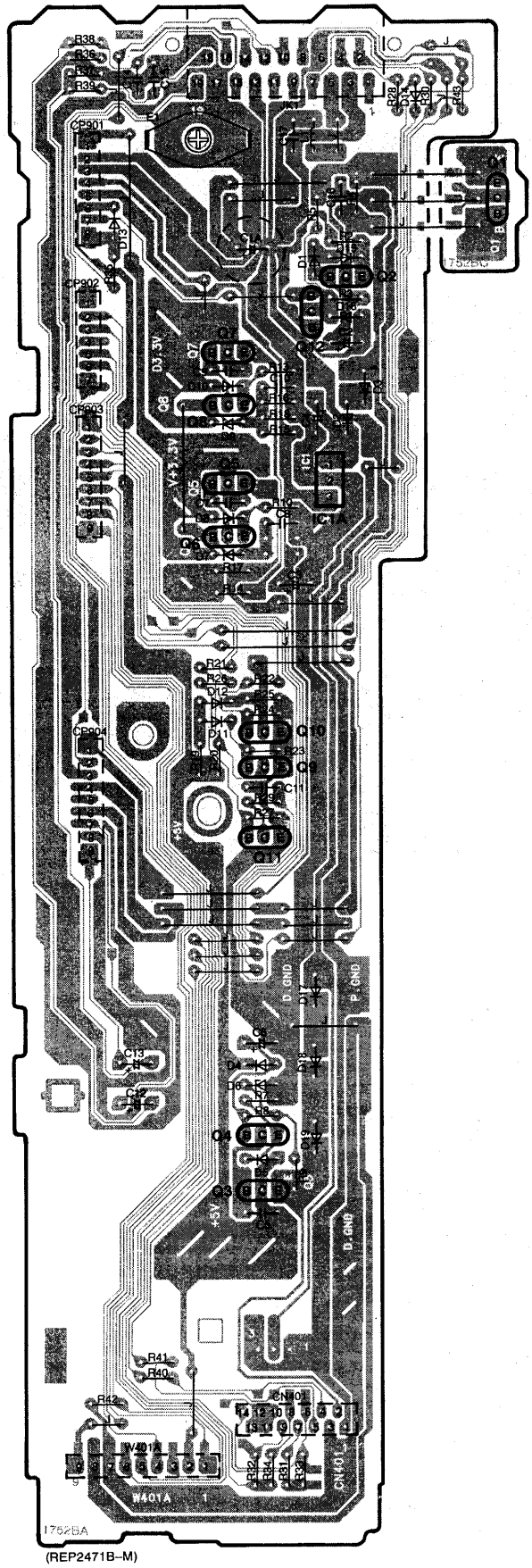
G OPERATION (2) P.C.B.



(REP2471B–M)

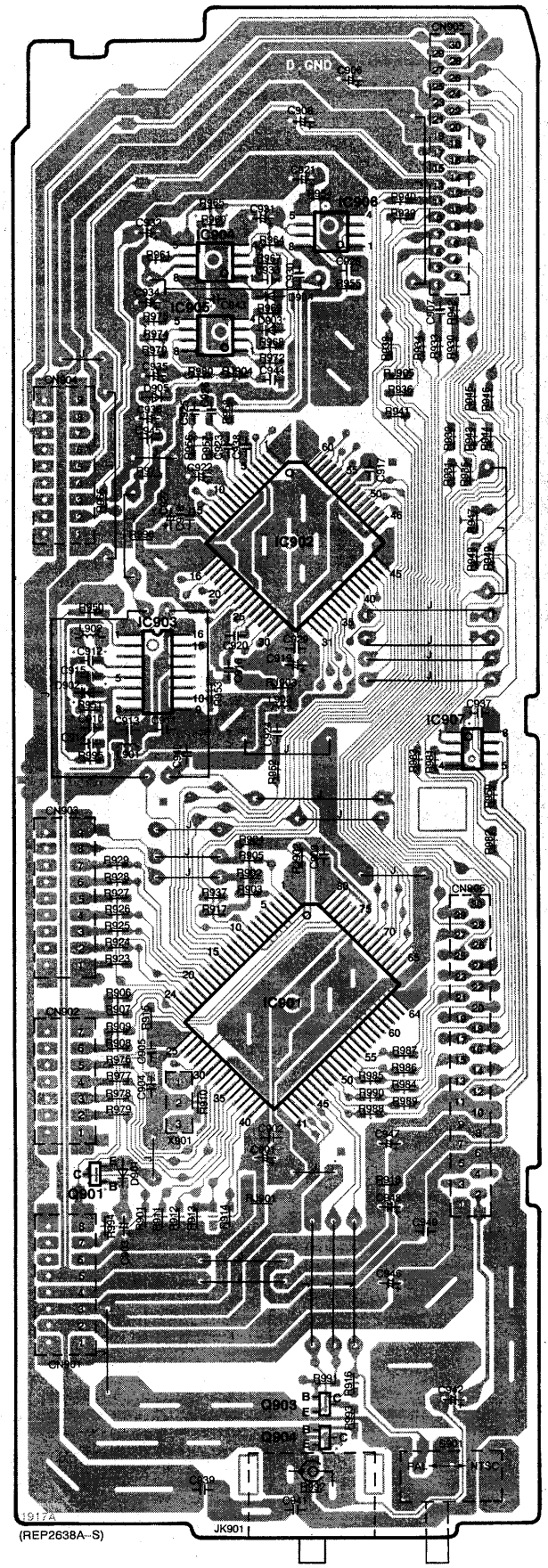
F POWER SUPPLY P.C.B.

To TUNER/AMPLIFIER MAIN P.C.B.
To CASSETTE DECK POWER SUPPLY P.C.B.



(REP2471B–M)

I MAIN P.C.B.

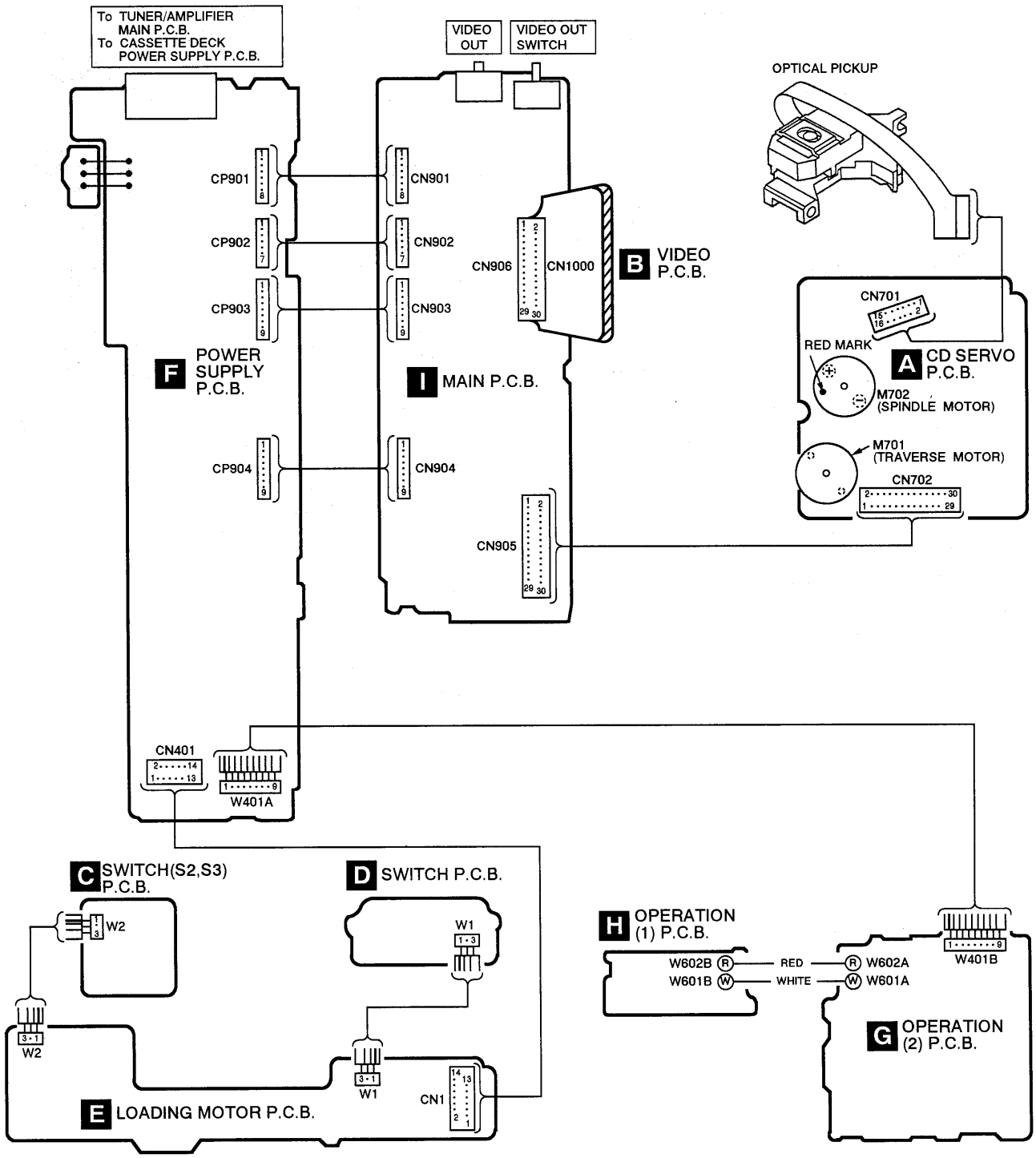


(REP2638A–S)

VIDEO OUT

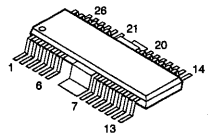
VIDEO OUT SWITCH

■ Wiring Connection Diagram

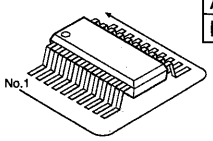


■ Type Illustration of IC's, Transistors and Diodes

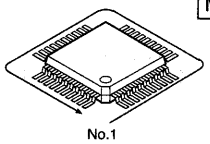
AN8780NSBE2



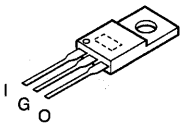
NJM2115MTE1	8PIN
NJU3713GTE1	18PIN
AN8837SBE1	28PIN
LH532KVA	32PIN



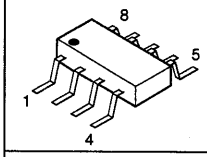
TC9444F-001	60PIN
MN66271RPA	80PIN
MN89103M	128PIN



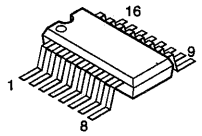
LM2940T5M



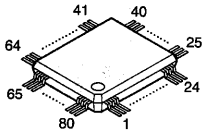
TC7WU04FUTE12L
TC7W14FTE12L
TC7W14FUTE1



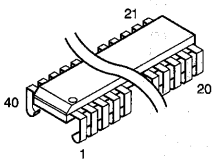
TC9246FELP



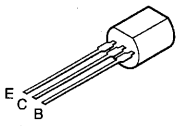
M38067MC388F



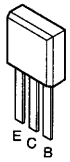
MB8142607PJR



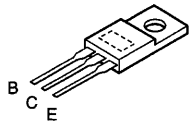
2SB621ARSTA

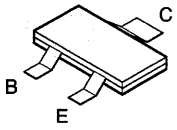


2SC3311AIQST
UN4211AITA



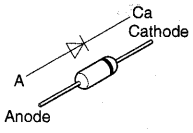
2SB1548PQAU



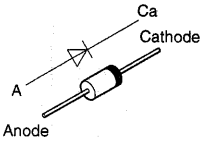


2SB709STX
2SD1328TX
UN5111TX
UN5214TX
DTC114YKA146

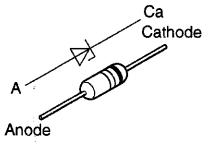
MA165TA



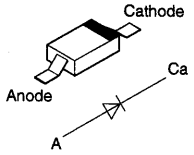
RL1N4003N02



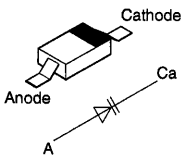
MA4051MTA
MA4075MTA



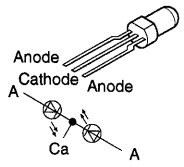
MA111TX



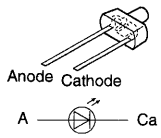
MA304TX



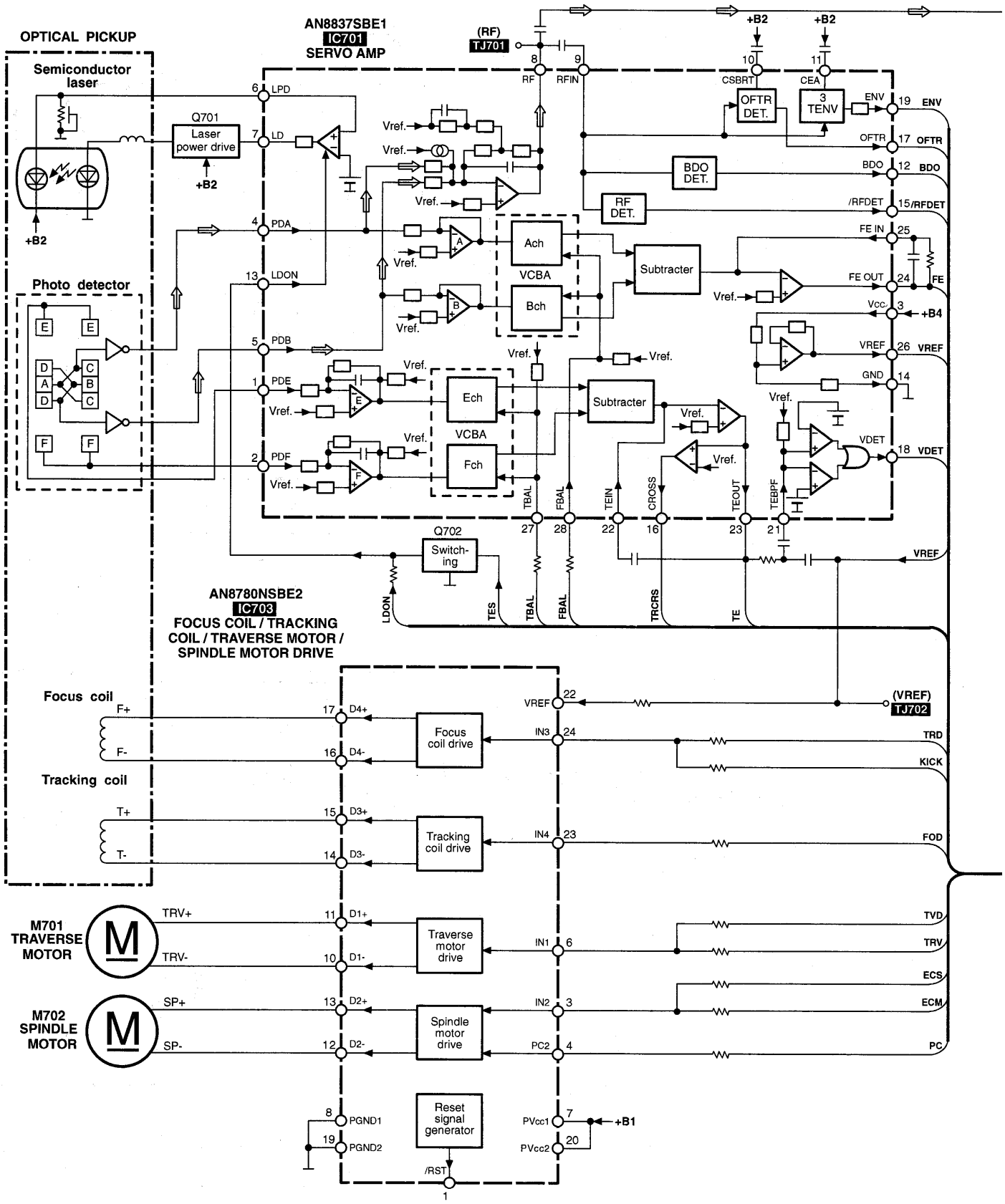
SPR505MDTT

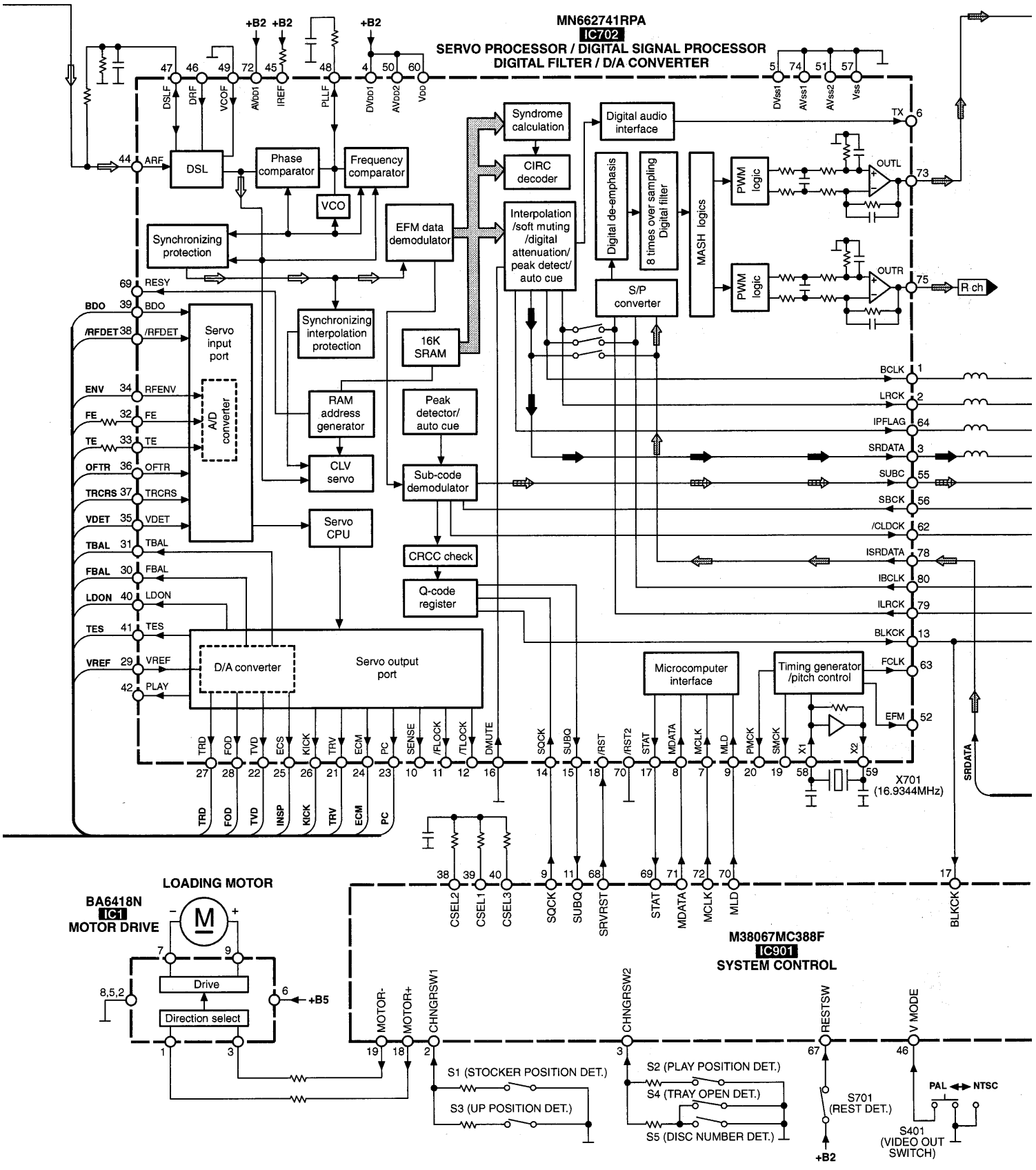


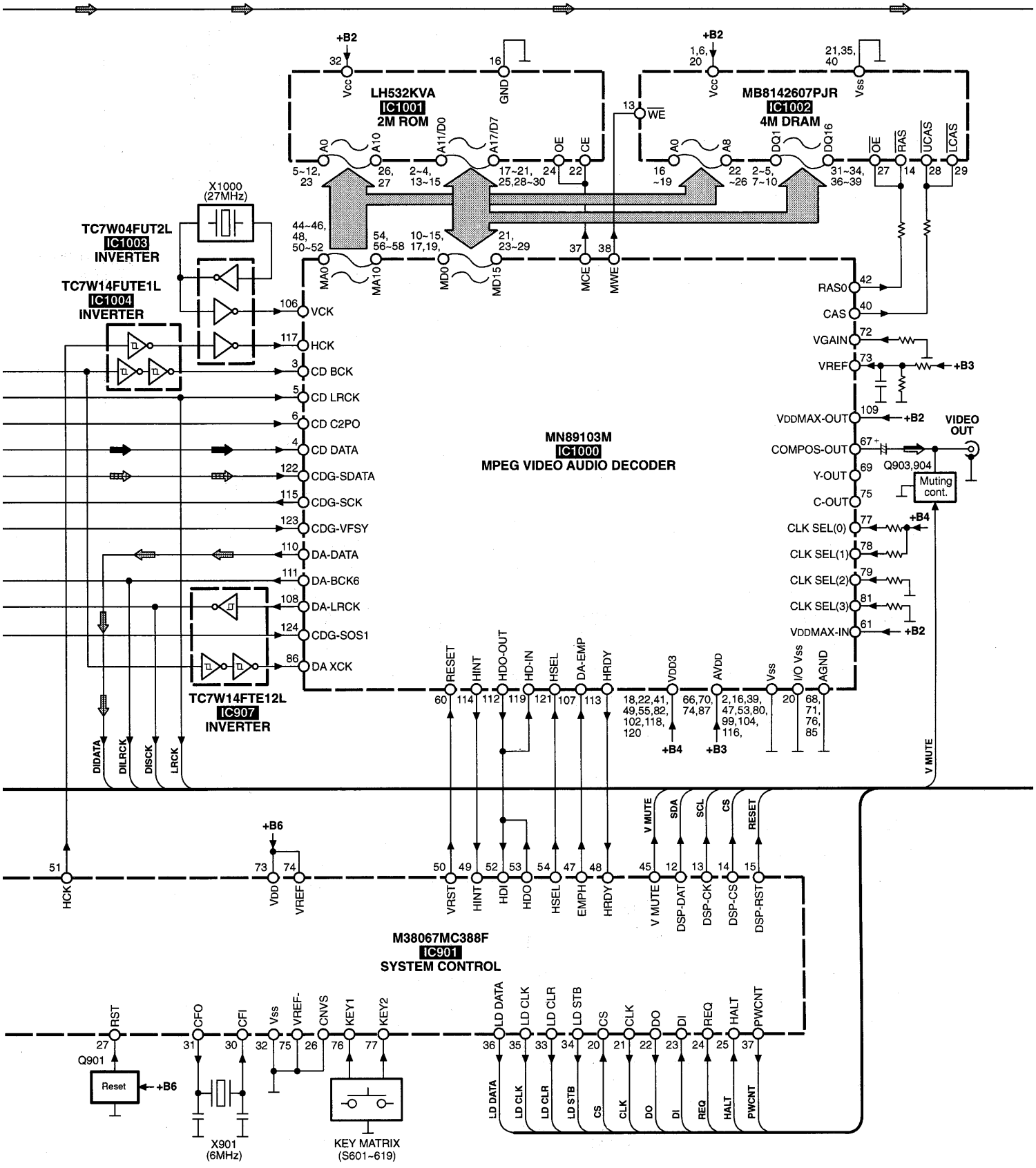
LNJ301MPUJAD

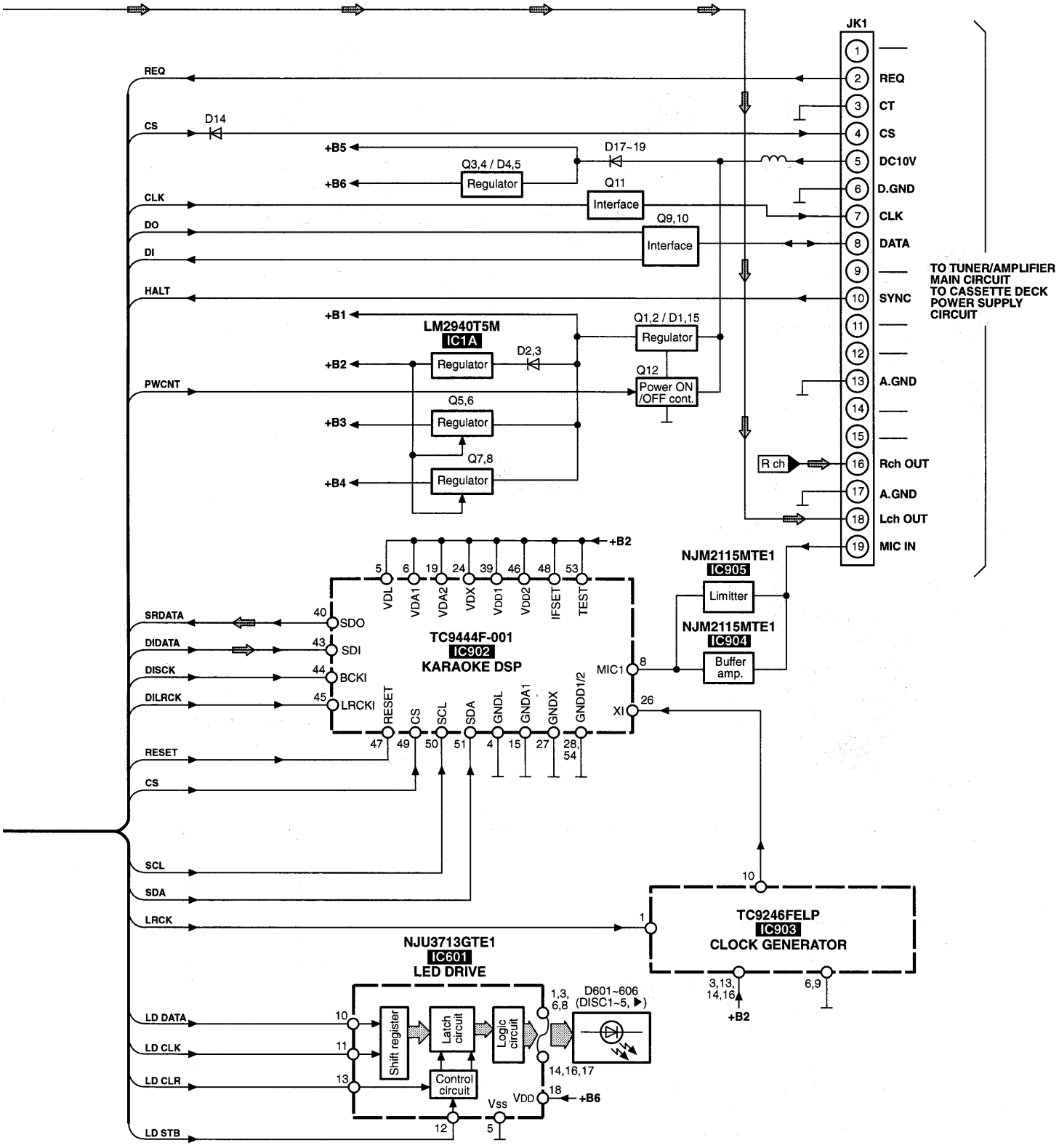


■ Block Diagram




MN662741RPA
IC702
SERVO PROCESSOR / DIGITAL SIGNAL PROCESSOR
DIGITAL FILTER / D/A CONVERTER
+B2 +B2
+B2
DSLF
DRF
VCOF
AVDD1
IREF
PLLF
DVDD1
AVDD2
VDD
DVss1
AVss1
AVss2
Vss
ARF
DSL
Phase comparator
Frequency comparator
VCO
Synchronizing protection
EFM data demodulator
Syndrome calculation
CIRC decoder
Interpolation /soft muting /digital attenuation/ peak detect/ auto cue
Digital audio interface
Digital de-emphasis
8 times over sampling Digital filter
MASH logics
PWM logic
PWM logic
S/P converter
TX
OUTL
OUTR
R ch
RESY
BDO
/RFDET
Servo input port
A/D converter
ENV
FE
TE
OFTR
TRCRS
VDET
TBAL
FBAL
LDON
TES
VREF
PLAY
Synchronizing interpolation protection
16K SRAM
RAM address generator
CLV servo
Servo CPU
Peak detector/ auto cue
Sub-code demodulator
CRCC check
Q-code register
D/A converter
Servo output port
BCLK
LRCK
IPFLAG
SRDATA
SUBC
SBCK
/CLDCK
ISRDATA
IBCLK
ILRCK
BLKCK
FCLK
EFM
Microcomputer interface
Timing generator /pitch control
X701
(16.9344MHz)
TRD
FOD
TVD
ECS
KICK
TRV
ECM
PC
SENSE
/FLOCK
/TLOCK
DMUTE
SQCK
SUBQ
/RST
/RST2
STAT
MDATA
MCLK
MLD
PMCK
SMCK
X1
X2
LOADING MOTOR
BA6418N
IC1
MOTOR DRIVE
Drive
Direction select
+B5
CSEL2
CSEL1
CSEL3
SRVRST
M38067MC388F
IC901
SYSTEM CONTROL
MOTOR-
MOTOR+
CHNGRSW1
CHNGRSW2
RESTSW
V MODE
S1 (STOCKER POSITION DET.)
S3 (UP POSITION DET.)
S2 (PLAY POSITION DET.)
S4 (TRAY OPEN DET.)
S5 (DISC NUMBER DET.)
S701
(REST DET.)
S401
(VIDEO OUT SWITCH)
PAL
NTSC


LH532KVA
IC1001
2M ROM
MB8142607PJR
IC1002
4M DRAM
MN89103M
IC1000
MPEG VIDEO AUDIO DECODER
M38067MC388F
IC901
SYSTEM CONTROL
TC7W04FUT2L
IC1003
INVERTER
TC7W14FUTE1L
IC1004
INVERTER
TC7W14FTE12L
IC907
INVERTER
X1000
(27MHz)
X901
(6MHz)
KEY MATRIX
(S601~619)
Reset
Muting
cont.
VIDEO
OUT
+B2
+B3
+B4
+B6
V MUTE



Note

⇨: CD-DA/CD-G/Video CD(audio&video) signal
➡: CD-G/Video CD(audio) signal
⇨: CD-G(video) signal
⇨: CD-DA/CD-G/Video CD(audio) signal
⇒: CD-G/Video CD(video) signal

■ Terminal Function of IC's

• IC701 (AN8837SBE1): SERVO AMP

No.	Mark	I/O Division	Function
1	PDE	I	Tracking signal input terminal 1 (E ch)
2	PDF	I	Tracking signal input terminal 2 (F ch)
3	VCC	I	Power supply terminal
4	PDA	I	Focus signal input terminal 1 (A ch)
5	PDB	I	Focus signal input terminal 2 (B ch)
6	LPD	I	Laser PD signal
7	LD	O	Laser power auto control output
8	RF	O	RF amp terminal
9	RF IN	I	AGC input terminal
10	CSBRT	I	OFTR capacitor connection terminal
11	CEA	I	HPF-AMP capacitor connection terminal
12	BDO	O	Dropout detection control
13	LDON	I	LD APC ON/OFF ("H": ON, "L": OFF)
14	GND	—	GND terminal

No.	Mark	I/O Division	Function
15	/RFDET	O	RF det. signal output terminal ("L": det.)
16	CROSS	O	Tracking error zero cross output
17	OFTR	O	Off track detection ("H": det.)
18	VDET	O	Oscillation det. signal ("H": det.)
19	ENV	O	Envelope signal output terminal
20	ENVOFF	I	Not used, connected to power supply
21	TEBPF	O	Oscillation detect input terminal
22	TEN	I	Tracking error signal
23	TEOUT	O	Tracking error signal
24	FEOUT	O	Focus error signal
25	FEN	I	Focusing error signal
26	VREF	O	Reference voltage output terminal
27	TBAL	I	Tracking balance adj. input
28	FBAL	I	Focus balance adj. input

• IC703 (AN8780NSBE2): FOCUS COIL / TRACKING COIL / TRAVERSE MOTOR / SPINDLE MOTOR DRIVE

No.	Mark	I/O Division	Function
1	/RST	—	Not used, open
2	NC	—	———
3	IN2	I	Motor driver (2) input
4	PC2	I	Turntable motor drive signal ("L": ON)
5	NC	—	Not used, open
6	IN1	I	Motor driver (1) input
7	$PV_{CC}1$	I	Driver power supply terminal (1)
8	PGND1	—	Driver GND terminal (1)
9	NC	—	Not used, connected to GND
10	D1–	O	Motor driver (1) output terminal (–)
11	D1+	O	Motor driver (1) output terminal (+)
12	D2–	O	Motor driver (2) output terminal (–)
13	D2+	O	Motor driver (2) output terminal (+)

No.	Mark	I/O Division	Function
14	D3–	O	Motor driver (3) output terminal (–)
15	D3+	O	Motor driver (3) output terminal (+)
16	D4–	O	Motor driver (4) output terminal (–)
17	D4+	O	Motor driver (4) output terminal (+)
18	NC	—	Not used, open
19	PGND2P	—	Driver GND terminal (2)
20	$PV_{CC}2$	I	Driver power supply (2)
21	VCC	I	Power supply terminal
22	VREF	I	Reference voltage input terminal
23	IN4	I	Motor driver (4) input
24	IN3	I	Motor driver (3) input
25	RSTIN	I	Reset terminal (Not used, connected to GND)
26	NC	—	Not used, connected to GND

● IC702 (MN662741RPA): SERVO PROCESSOR/ DIGITAL SIGNAL PROCESSOR/ DIGITAL FILTER/ D/A CONVERTER

No.	Mark	I/O Division	Function
1	BCLK	O	Serial bit clock output
2	LRCK	O	L/R discriminating signal output
3	SRDATA	O	Serial data
4	DVDD1	I	Power supply (digital circuit) terminal
5	DVSS1	—	GND (digital circuit) terminal
6	TX	O	Digital audio interface signal
7	MCLK	I	Command clock signal
8	MDATA	I	Command data signal
9	MLD	I	Command load signal ("L" : LOAD)
10	SENSE	O	Sense signal (OFT, FESL, NACEND, NAJEND, POSAD, SFG) (Not used, open.)
11	/FLOCK	O	Optical servo condition (focus) ("L" : lead-in) (Not used, open.)
12	/TLOCK	O	Optical servo condition (tracking) ("L" : lead-in) (Not used, open.)
13	BLKCK	O	Sub-code block clock (f=75 Hz)
14	SQCK	I	Sub-code Q register clock
15	SUBQ	O	Sub-code Q data
16	DMUTE	—	Muting input ("H" : MUTE) (Not used, connected to GND)
17	STAT	O	Status signal (CRC, CUE, CLVS, TTSTOP, FCLV, SQCK)
18	/RST	I	Reset signal ("L" : reset)
19	SMCK	—	System clock (f=4.2336 MHz) (Not used, open)
20	PMCK	—	Frequency division clock signal ($f=\frac{1}{192}\times$ Crystal OSC(16.9344MHz) = 88.2 kHz) (Not used, open)
21	TRV	O	Traverse servo control
22	TVD	O	Traverse drive signal

No.	Mark	I/O Division	Function
23	PC	O	Turntable motor drive signal ("L" : ON)
24	ECM	O	Turntable motor drive signal (Forced mode)
25	ECS	O	Turntable motor drive signal (Servo error signal)
26	KICK	O	Kick pulse output
27	TRD	O	Tracking drive signal output
28	FOD	O	Focus drive signal output
29	VREF	I	D/A drive output (TVD, ECS, TRD, FOD, FBAL, TBAL) normal voltage input terminal
30	FBAL	O	Focus balance adj. output
31	TBAL	O	Tracking balance adj. output
32	FE	I	Focus error signal (analog input)
33	TE	I	Tracking error signal (analog input)
34	RFENV	I	RF envelope signal
35	VDET	I	Oscillation det. signal ("H" : det.)
36	OFTR	I	Off track signal ("H" : Off track)
37	TRCRS	I	Track cross signal input
38	/RFDET	I	RF detection signal ("L" : detection)
39	BDO	I	Dropout detection signal ("H" : dropout)
40	LDON	O	Laser power control ("H" : ON)
41	TES	O	Tracking error shunt output ("H" : dropout)
42	PLAY	O	Play signal ("H" : play) (Not used, open)
43	WVEL	O	Double velocity status signal ("H": double) (Not used, open)
44	ARF	I	RF signal input

No.	Mark	I/O Division	Function
45	IREF	I	Reference current input
46	DRF	I	DSL bias terminal (Not used, open)
47	DSLF	I/O	DSL loop filter terminal
48	PLLF	I/O	PLL loop filter terminal
49	VCOF	I/O	VCO loop filter terminal (Not used, connected to GND)
50	AVDD2	I	Power supply (analog circuit) terminal 2
51	AVSS2	—	GND (analog circuit) terminal
52	EFM	O	EFM signal (Not used, open)
53	PCK	O	PLL extract clock (f=4.3218MHz) (Not used, open)
54	PDO	O	Phase comparated signal of EFM and PCK (Not used, open)
55	SUBC	O	Sub-code serial output clock
56	SBCK	I	Sub-code serial input data
57	VSS	—	GND terminal
58	X1	I	Crystal oscillator terminal (f=16.9344MHz)
59	X2	O	
60	VDD	I	Reset signal ("L": reset)
61	BYTCK	O	Byte clock signal (Not used, open)
62	/CLDCK	O	Sub-code frame clock signal (f CLDCK=7.35KHz: Normal)
63	FCLK	O	Crystal frame clock (Not used, open)
64	IPFLAG	O	Interpolation flag terminal

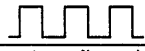
No.	Mark	I/O Division	Function
65	FLAG	O	Flag terminal (Not used, open)
66	CLVS	O	Turntable servo phase synchro signal ("H": CLV, "L": Rough servo) (Not used, open)
67	CRC	O	Sub-code CRC check terminal ("H": ON, "L": NG) (Not used, open)
68	DEMPH	O	De-emphasis ON signal ("H": ON) (Not used, open)
69	RESY	O	Re-synchronizing signal of frame sync. (Not used, open)
70	/RST2	I	Reset terminal after "MASH" circuit (Not used, connected to GND)
71	/TEST	I	Test terminal (Normal: "H") (Not used, connected to power supply.)
72	AVDD1	I	Power supply (analog circuit) terminal (1)
73	OUTL	O	Lch audio signal
74	AVSS1	—	GND (analog circuit) terminal (1)
75	OUTR	O	Rch audio signal
76	RSEL	I	Polarity direction control terminal of RF signal (Not used, connected to power supply)
77	CSEL	I	Frequency control terminal of crystal oscillator (Not used, connected to GND)
78	SR DATA	I	Serial data input
79	LRCK	I	Lch/ Rch clock signal input
80	BCLK	I	Audio bit clock input

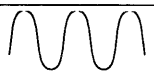
• IC901 (M38067MC388F) : System Control

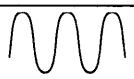
Pin No.	Terminal Name	I/O	Function
1	NC	—	Connected to GND
2	CHNGRSW1	I	CD changer mechanism switch signal input 1
3	CHNGRSW2	I	CD changer mechanism switch signal input 2
4~8	NC	—	Connected to GND
9	SQCK	O	Serial clock output
10	NC	—	Connected to GND
11	SUBQ	I	Serial data input
12	DSP-DAT	O	Data output for karaoke DSP
13	DSP-CK	O	Clock output for karaoke DSP
14	DSP-CS	O	Chip select signal output for karaoke DSP
15	DSP-RST	O	Reset signal output for karaoke DSP
16	MICLEV	I	Microphone level detect signal input
17	BLKCK	I	Block clock input
18	MOTOR+	O	CD mechanism motor control signal output
19	MOTOR–	O	CD mechanism motor control signal output
20	CS	I	Serial communication control signal input
21	CLK	O	Clock output for tuner/amplifier
22	DO	O	Serial communication data output
23	DI	I	Serial communication data input
24	REQ	I	Serial communication request signal input
25	HALT	I	Power failure detect signal input
26	CNVS	—	Connected to GND
27	RST	I	Reset signal input
28, 29	NC	—	Connected to GND
30	CFI	I	Crystal oscillator input (6 MHz)
31	CFO	O	Crystal oscillator output (6 MHz)
32	VSS	—	GND
33	LD CLR	O	LED drive signal output
34	LD STB	O	LED drive signal output

Pin No.	Terminal Name	I/O	Function
35	LD CLK	O	LED drive signal output
36	LD DATA	O	LED drive signal output
37	PWCNT	O	Power control signal output
38	CSEL2	—	Function select terminal
39	CSEL1	—	Function select terminal
40	SEL3	—	Function select terminal
41~44	NC	—	Connected to GND
45	V MUTE	O	Video muting signal output
46	V MODE	I	NTSC/PAL select signal input
47	EMPH	O	Emphasis control signal output
48	HRDY	I	Ready signal input
49	HINT	I	soft interrupt signal input
50	VRST	O	Reset signal output for IC1000
51	HCK	O	Clock output for IC1000
52	HDI	I	Data input from IC1000
53	HDO	O	Data output for IC1000
54	HSEL	O	Select signal output for IC1000
55~66	NC	—	Connected to GND
67	RESTSW	I	Rest switch signal input
68	SRVRST	O	Reset signal output for CD servo IC
69	STAT	I	Status signal input
70	MLD	O	Command load signal output
71	MDATA	O	Command data output
72	MCLK	O	Command clock output
73	VDD	—	Power supply input
74	VREF	I	Reference voltage input (+)
75	VREF–	I	Reference voltage input (–)
76, 77	KEY1, 2	I	Operation switch signal input
78~80	NC	—	Connected to GND

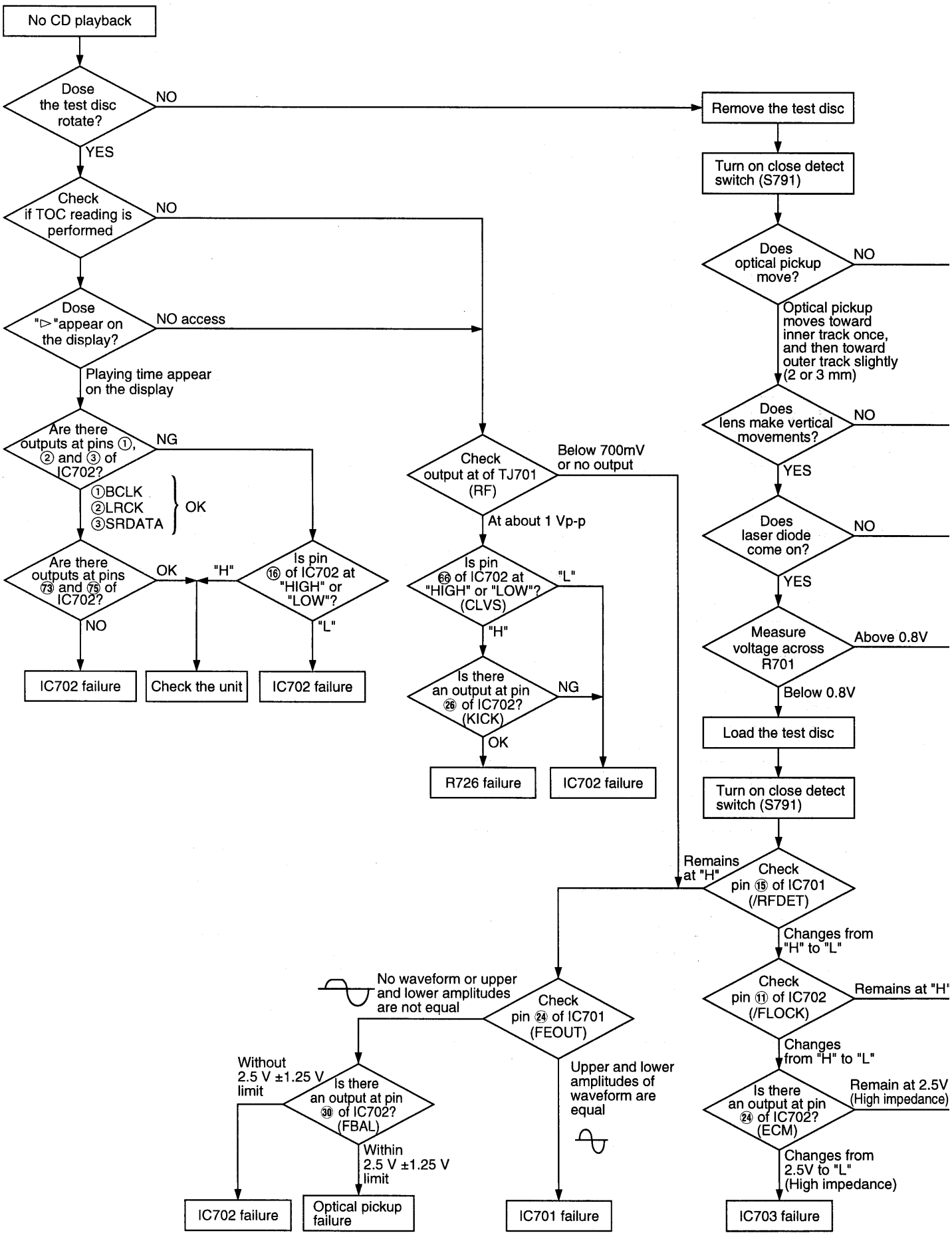
• IC1000(MN89103M) MPEG VIDEO AUDIO DECODER

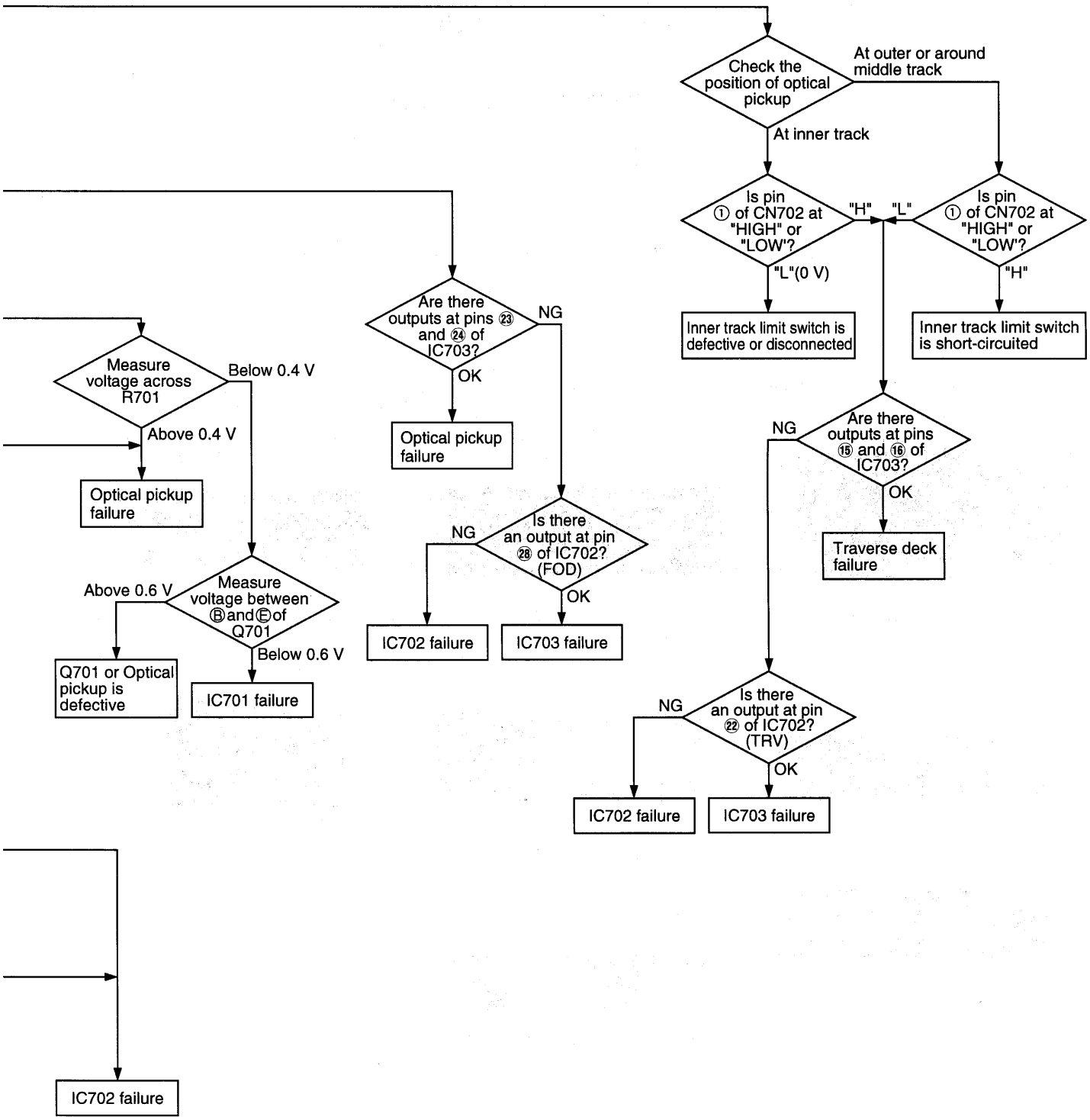
Pin No.	Mark	I/O Division	Function description	Remarks
1	NC	—	——	Not used, open
2	Vss	—	GND terminal	0V
3	CD-BCK	I	CD bit clock input	 F=2.822MHz(T=0.354µs)
4	CD-DATA	I	CD Serial data input	F=2.822MHz(T=0.354µs)
5	CD-LRCK	I	CD LR clock input	 F=87kHz(T=11.5µs)
6	CD-C2PO	I	Data Error Flag signal input	Accepts a flag signal when serial data error is uncorrectable
7 ∫ 9	NC	—	——	Not used, open
10 ∫ 15	MD0 ∫ MD5	I/O	DRAM/ROM data I/O lines	Used to exchange data with DRAM (IC1002) and ROM (IC1001). Data used to control MPEG (IC1000) is transferred from ROM, while video data with CD-ROM format comes from DRAM.
16	Vss	—	GND terminal	0V
17	MD6	I/O	DRAM/ROM data I/O lines	Used exchange data with DRAM (IC 1002) and ROM(IC1001).
18	VDD3	I	Power supply terminal	+3.3V
19	MD7	I/O	DRAM /ROM data I/O lines	Used exchange data with DRAM (IC 1002) and ROM (IC1001).
20	Vss	—	GND terminal	0V
21	MD8	I/O	DRAM/ROM data I/O lines	Used exchange data with DRAM (IC1002) and ROM (IC1001).
22	VDD	I	Power supply terminal	+3.3V
23 ∫ 29	MD9 ∫ MD15	I/O	DRAM data/ROM address I/O lines	Used to exchange data with DRAM (IC1002) and ROM(IC1001).
30 ∫ 36	NC	—	——	Not used, open
37	MCE	O	ROM chip enable signal output	Low selects ROM (IC1001)
38	MWE	O	DRAM write enable signal output	Low write to IC1002,High reads from IC1002.
39	Vss	—	GND terminal	0V
40	CAS	O	DRAM LCAS/ROM address output	Lower address/data command output for DRAM (IC1002).
41	VDD3	I	Power supply terminal	+3.3V
42	RASO	O	DRAM RAS0 output	Higher address output for DRAM (IC1002)
43	RASI	—	——	Not used, open.
44 ∫ 46	MA10 ∫ MA8	O	DRAM/ROM address output	Address output for DRAM (IC1002)
47	Vss	—	GND terminal	0V
48	MA7	O	DRAM/ROM address output	Address output for DRAM(IC1002)
49	VDD3	I	Power supply terminal	+3.3V
50 ∫ 52	MA6 ∫ MA4	O	DRAM/ROM address output	Address output for DRAM (IC1002)
53	Vss	—	GND terminal	0V
54	MA3	O	DRAM/ROM address output	Address output for DRAM(IC1002)

Pin No.	Mark	I/O Division	Function description	Remarks
55	VDD3	I	Power supply terminal	+3.3V
56 ∫ 58	MA2 ∫ MA0	O	DRAM/ROM address output	Address output for DRAM(IC1002).
59	RESERVED	—	GND terminal	0V
60	RESET	I	Reset signal input	Active low reset signal from the system controller (IC901).
61	VDD MAX-IN	I	Power supply terminal	+B(1)
62 ∫ 65	NC	—	———	Not used,open
66	AVDD	I	Power supply terminal	+B(2)
67	COMPOS-OUT	O	Composite video signal output	Video output signal to video output jack (JK901).
68	AGND	—	GND terminal	0V
69	Y-OUT	O	Y signal output	Not used,open
70	AVDD	I	Power supply terminal	+B(2)
71	AGND	—	GND terminal	0V
72	VGAIN	I	Video gain signal input	9.1kΩ resister connected betweenterminal and ground.
73	VREF	I	Internal reference voltage	0.1μF capacitor connected between terminal and ground.
74	AVDD	I	Power supply terminal	+B(2)
75	C-OUT	O	C signal output	Not used,open
76	AGND	—	GND terminal	0V
77 78	CLKSEL(0) CLKSEL(1)	I	Clock selector signal input	10kW resistor connected betweenterminal and +3.3V line.
79	CLKSEL(2)	I	Clock selector signal input	10kΩ resistor connected betweenterminal and ground.
80	Vss	—	GND terminal	0V
81	CLKSEL(3)	I	Clock selector signal input	10kΩ resistor connected betweenterminal and ground.
82	VDD3	I	Power supply terminal	+3.3V
83 84	RESERVED	—	GND terminal	0V
85	AGND	—	GND terminal	0V
86	DA XCK	I	Audio read clock input	 F=16.9344MHz(T=0.059ms)
87	AVDD	I	Power supply terminal	+B(2)
88 ∫ 90	RESERVED	—	GND terminal	0V
91	PIO 0	—		Not used, open
92	RESERVED	—	GND terminal	0V
93	PIO 2	—	———	Not used, open
94 ∫ 98	NC	—	———	Not used, open

Pin No.	Mark	I/O Division	Function description	Remarks
99	Vss	—	GND terminal	0V
100	NC	—	———	Not used, open
101	PIO3			
102	VDD3	I	Power supply terminal	+3.3V
103	VCKPIO3	—	———	Not used,open
104	VSS	—	GND terminal	0V
105	GCK			
106	VCK	I	Video read clock input	 F=27MHz(T=0.037ms)
107	DA-EMP	O	DAC emphasis output	High frequency emphasis signal output.
108	DA-LRCK	O	Audio LR clock output	 F=87kHz(T=11.5ms)
109	VDD-MAX OUT	I	Power supply terminal	+B(1)
110	DA-DATA	O	Audio serial data output	F=2MHz(T=0.5ms)
111	DA-BCK	O	Audio bit clock output	 F=2MHz(T=0.5ms)
112	HD0-OUT	O	Address /data output	Address/data signal to IC901.
113	HRDY	—	Ready signal output	Not used, open
114	HINT	I/O	Soft interrrupt signal	Soft interrupt signal from/to IC901.
115	CDG-SCK	O	Serial clock signal	Serial clock signal to IC702
116	Vss	—	GND terminal	0V
117	HCK	I	Serial clock signal input	Receive a clock signal from IC1003.
118	VDD3	I	Power supply terminal	+3.3V
119	HD IN	I	Address/data input	Address/data signal from IC901.
120	VDD3	I	Power supply terminal	+3.3V
121	HSEL	I	Serial data signal input	Receive a data signal from IC901.
122	CDG-SDATA	I	Serial data signal input	Serial data signal from IC702.
123	CDG-VFSY	I	Sub-code frame clock signal	Receive a sub-code frame signal from IC702.
124	CDG-SOS1	I	Sub-code block clocl signal	Receive a sub-code block signal from IC702.
125 ∫ 128	NC	—	———	Not used,open

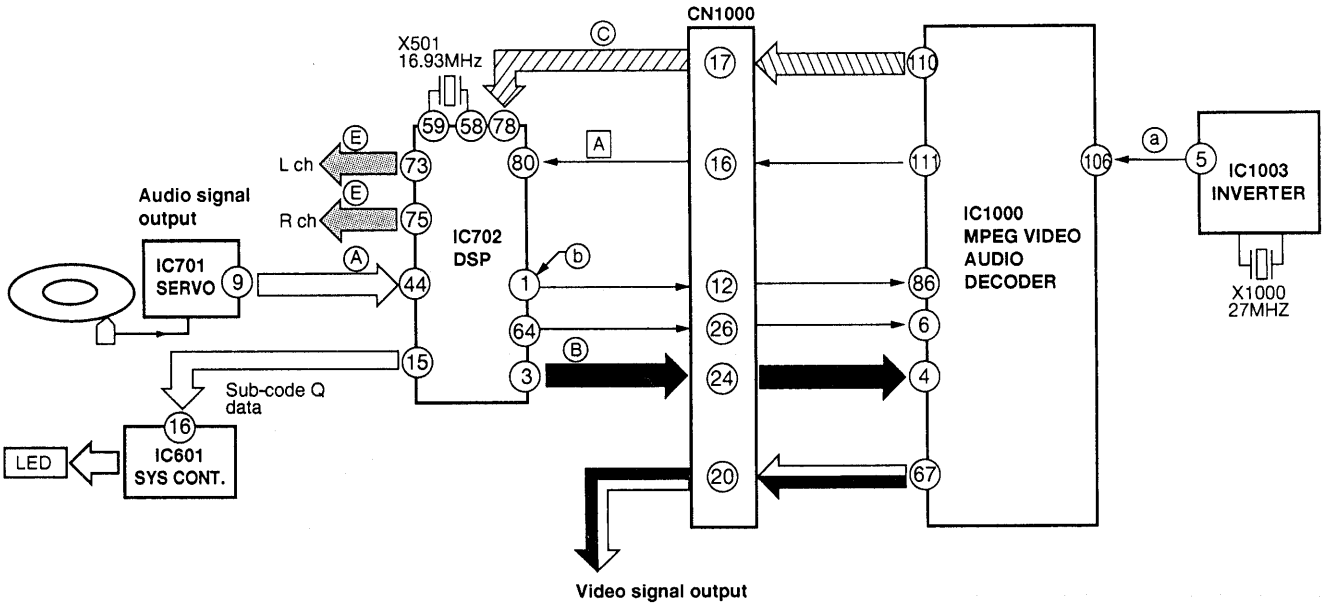
■ Troubleshooting Guide for CD Servo circuit




Check the position of optical pickup
At outer or around middle track
At inner track
Is pin ① of CN702 at "HIGH" or "LOW"?
"H"
"L"
Is pin ① of CN702 at "HIGH" or "LOW"?
"L"(0 V)
"H"
Inner track limit switch is defective or disconnected
Inner track limit switch is short-circuited
Are there outputs at pins ㉓ and ㉔ of IC703?
NG
OK
Optical pickup failure
Measure voltage across R701
Below 0.4 V
Above 0.4 V
Optical pickup failure
Is there an output at pin ㉘ of IC702? (FOD)
NG
OK
IC702 failure
IC703 failure
Measure voltage between Ⓑ and Ⓔ of Q701
Above 0.6 V
Below 0.6 V
Q701 or Optical pickup is defective
IC701 failure
Are there outputs at pins ⑮ and ⑯ of IC703?
NG
OK
Traverse deck failure
Is there an output at pin ㉒ of IC702? (TRV)
NG
OK
IC702 failure
IC703 failure
IC702 failure

■ Trouble Shooting Guide (video circuit)

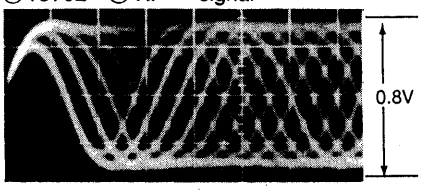
● Circuit diagram



DATA SIGNAL LINE WAVEFORMS

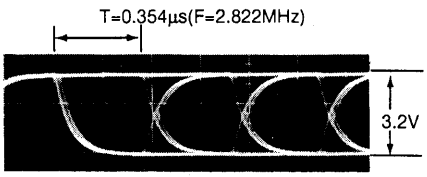
Note: Use the PVCD_K06 video CD test disc (menu playback feature is available on version 2.0).For color bar display, play back the 1st track when the menu playback feature is used,or the 3rd track when the feature is not used.

Ⓐ IC702 ㊹ RF signal



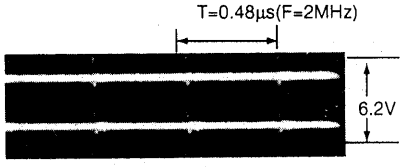
PLAY X :0.5µs
Y: 0.023V×10

Ⓑ IC1000 ④ CD serial data input



PLAY X :0.2µs
Y: 0.2V×10

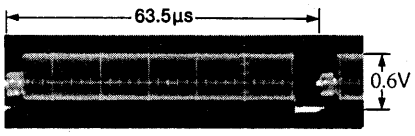
Ⓒ IC1000 ⑩ Audio serial data output



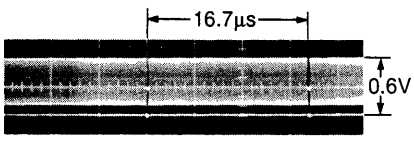
PLAY X :0.2µs
Y: 0.2V×10

Ⓓ IC1000 ⑥⑦ Video signal output
(blue back screen)

• H signal (PLAY,X: 10µs, Y :0.1V×10)

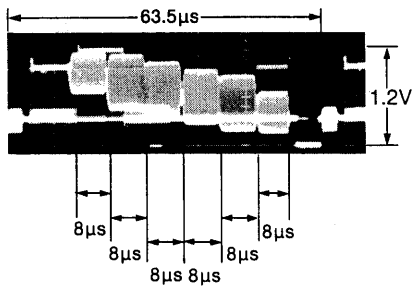


• V signal (PLAY,X: 5µs, Y :0.1V×10)

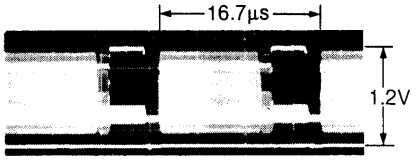


(color bar screen)

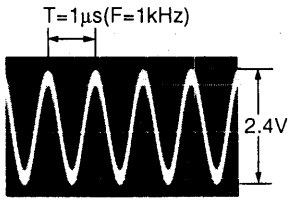
• H signal (PLAY,X: 10µs, Y :0.1V×10)



• V signal (PLAY,X: 10µs, Y :0.1V×10)



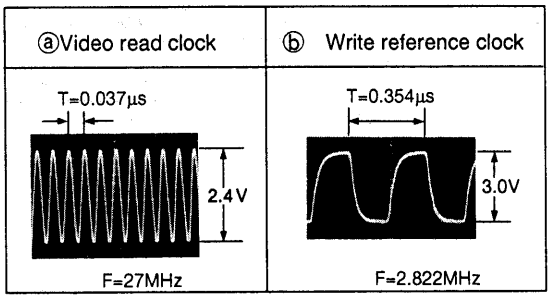
Ⓔ IC702 ㉓、㉕ Audio signal output



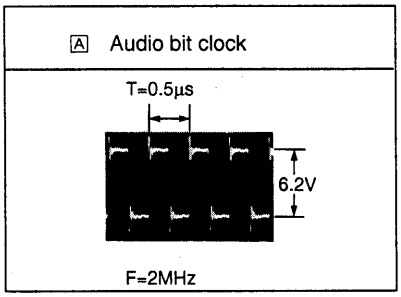
•Test disc played at 1kHz, 0dB
(1st track.SZZP1056C)

PLAY X :1µs
Y: 0.1V×10

MASTER CLOCK SYSTEM WAVEFORM



AUDIO DATA CLOCK SYSTEM WAVEFORM



● Diagnostic Procedures by Symptom

Synptom		Likely Location Fault
CD-DA	**Video-CD**	
TOC NG	TOC NG (both audio and video are NG.) Blue black display.	→ For TOC NG, fault in the CD-DA circuit. IC701, IC702,IC703, or traverse system.
Turntable fails to rotate.	Fails to rotate.	→ Traverse system, focus servo system (IC701, IC703), supply line, clock line system control .
Turntable rotates.	Rotates.	→ Traverse system, tracking servo system/ CLV servo system/ traverse servo system (IC701, IC702, IC703).
Audio normal	Audio normal, Video NG.	IC1000
Audio normal	No sound, Video NG.	IC1000
TOC OK, counter OK, but no sound.	TOC OK, counter OK, but no sound and video NG.	CD disc other than DV "Karaoke" soft, video CD and CD-DA.

Troubleshooting Procedure1	CD-DA	No sound

CD-DA: Compact disc digital audio(conventional CD only with audio tracks)

Troubleshooting flowchart

Likely location of fault

Load a CD-DA disc.

Press the select (▶) button to start playback.

Press the STOP (■) button to stop playback.

TOC display normal?(Are track No. and time displays normal?)

NO → Traverse deck. IC701, IC702 (Refer to "Troubleshooting guide" on pages 24,25.)

YES

Press the SELECT (▶) button to start playback.

Does sound dropout occur?

NO → Normal (go to procedure 2-1)

YES

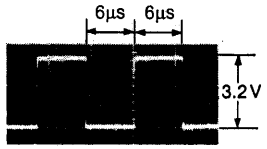
Check pin ⑭ of IC 702 or pin ⑥ of CN1000.

(Check)

Constant low (0V)
Level ——— 0V

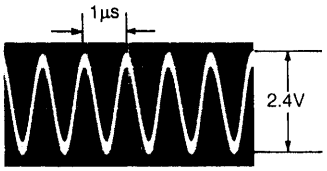
(Check)

The following waveform is observed either intermittently constantly during playback.



→ Faults is in the traverse deck or main board (servo block).

Are the following waveforms present at pins ⑬ and ⑮ of IC702 when the 1kHz, 0dB portion of the 1st track on test disc SZZP1056C played back?



NO → IC702

YES → IC801,Q801,Q802, headphones jack,etc.

Troubleshooting Procedure 2-1	Video CD	No picture or No sound

Troubleshooting flowchart

Likely location of fault

Load a video CD disc.

Press the SELECT (▶) button to start playback.

Connected to TV

Not connected to TV

Does the menu appear on screen?

NO

YES

Press the STOP (■) button to stop playback

TOC display normaly? (Are track No. and time displays normal?)

NO → Traverse deck, IC701, IC702

YES

Press the menu (+, –) to select the menu. Press the SELECT (▶II) to start playback.

Image noise or unstable picture.

NO → Normal

YES

Is the sound unstable?

NO

YES

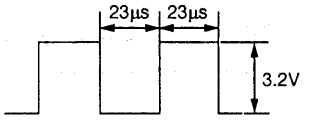
Check the waveforms at pin ⑭ of IC702 or pin ⑥ of CN1000.

(Check)

Constant low (0V)
Level ——— 0V

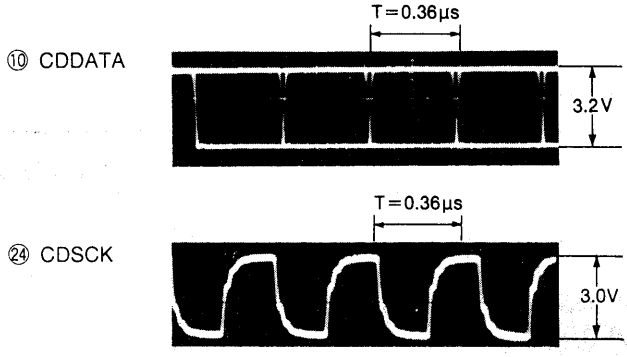
(Check)

The following waveform is observed either intermittently or constantly during playback.



→ Fault is in the traverse deck or main board (servo block).

Are the following waveforms present at pins ⑩,㉔ of CN1001?



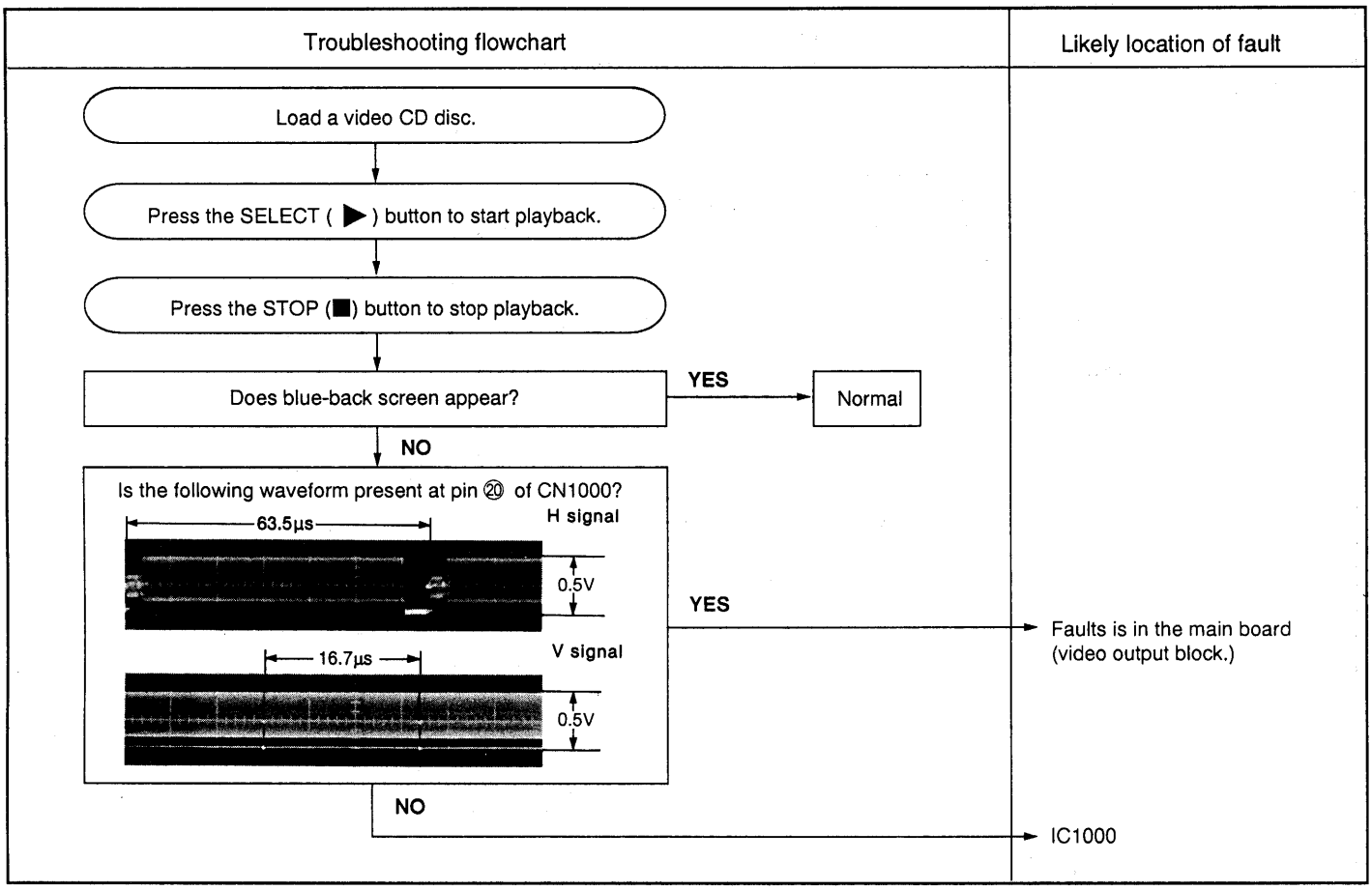
NO → IC1000

YES

Video line → Procedure 2-3

Audio line → Procedure 2-4

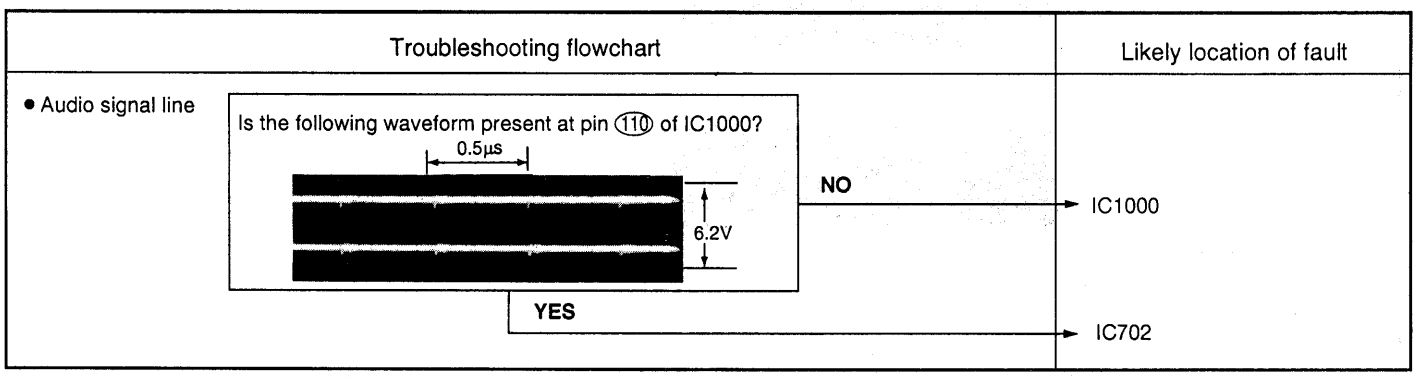
Troubleshooting Procedure 2-2	Video CD blue back	No blue back



Troubleshooting Procedure 2-3	Video portion of video CD	No picture

Likely location of fault: IC1000

Troubleshooting Procedure 2-4	Audio portion of video CD	No sound



■ Replacement Parts List

Notes: *Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.
*All parts are supplied by MESA.

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
1	RKM0222-2K2	CABINET	1	(K)
1	RKM0222-H	CABINET	1	(H)
2	RHD30007-K1	SCREW	4	
3	XTBS3+8JFZ1	SCREW	1	
4	REZ0555	FLAT CABLE	1	
5	RWJ1809125KK	FLAT CABLE(W401/9P)	1	
6	REZ1078	FFC(CN905/30P)	1	
8	RHD30065	SCREW	2	
9	RMG0439-K	RUBBER	1	
10	RMN0203	P.C.B. HOLDER	1	
11	XTB3+8JFZ	SCREW	4	
12	RYP0731B-1K	FRONT PANEL ASS'Y	1	(K)
12	RYP0731B-H	FRONT PANEL ASS'Y	1	(H)
12-1	RGK0890B-1K	DISC COVER	1	(K)
12-1	RGK0890B-H	DISC COVER	1	(H)
12-2	RGU1508-K	BUTTON, VCD	1	
12-3	RKQ0197-X	CAP 1	1	
12-4	RKQ0204-X	CAP 2	1	
12-5	RKW0503-Q	ORNAMENT PANEL	1	
12-6	RMB0472	SPRING	1	
12-7	RMG0305-K	RUBBER	2	
13	XTBS3+8JFZ1	SCREW	2	
14	RKA0089-K	RUBBER	1	
15	RMR1093-W	P.C.B. HOLDER	1	
301	RDG0309	GEAR	1	
302	RDG0310	GEAR	1	
303	RDG0311	GEAR	1	
304	RDG0313	GEAR	1	
305	RDV0036	BELT	1	
306	REM0058	MOTOR ASS'Y	1	
307	RGQ0170-K3	DISC TRAY(1)	1	
308	RGQ0171-K	DISC TRAY(2)	1	
309	RGQ0172-K	DISC TRAY(3)	1	
310	RGQ0173-K	DISC TRAY(4)	1	
311	RGQ0174-K	DISC TRAY(5)	1	
312	RME0170	SPRING	1	
313	RME0179	SPRING	1	
314	RME0180	SPRING	1	
315	RFKNACH430GC	MECHANISM BASE ASS'Y	1	
315-1	RMF0221	FELT	1	
315-2	RMG0402-K	WASHER	4	
316	RML0379	LEVER	1	
317	RML0380	LEVER	1	
318	RML0383	LEVER	1	
319	RML0385	LEVER	1	
320	RMM0139	SLIDE PLATE(1)	1	
321	RMM0141	SLIDE PLATE(2)	1	
322	RGQ0175-K	TRAY ORNAMENT	1	
323	RHD20010	SCREW	1	
324	RMA0868	ANGLE	1	
325	RME0171	SPRING	1	
326	RME0172	SPRING	1	
327	RML0377	LEVER	1	
328	RML0378	LEVER	1	
329	RMR0884-K	TRAY BASE	1	
330	RHD20009-1	SCREW	1	
331	RMC0274	SPRING	1	
332	RME0173	SPRING	1	
333	RML0376-1	ARM	1	
334	RMM0137	CARRIER	1	
335	RDG0312	GEAR	2	
336	RMM0134	DRIVE RACK	1	
337	RMM0135	CUSHION RACK	1	
338	XTN2+6F	SCREW	1	
339	XTS3+8J	SCREW	2	
340	XWE4E10	WASHER	2	
341	RME0178	SPRING	2	
342	RME0181	SPRING	1	
343	RME0182	SPRING	1	
344	RFKNLCA10EAK	MECHANISM COVER ASS'Y	1	
344-1	RMF0221	FELT	9	
345	RML0381	HOLD NAIL(1)	1	
346	RML0382	HOLD NAIL(2)	1	
347	RML0384	LEVER	2	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
348	RHM245ZA	MAGNET	1	
349	RME0174	SPRING	1	
350	RFKNACH430GE	CLAMP BASE ASS'Y	1	
351	RML0388-1	LEVER	1	
352	RMR0624-W2	CLAMPER	1	
353	RMR0899-K	FIXED PLATE	1	
354	XTB3+10J	SCREW	11	
355	RMR0975-W	CAP	1	
356	REEX0025	FPC	1	
365	XTWS3+8T	SCREW	2	
357	RME0142	SPRING	1	
358	RMK0293	TRAVERSE CHASSIS	1	
359	RMS0627	PIN	2	
360	XTN2+6G	SCREW	1	
361	XTV2+6G	SCREW	2	
362	REZ0792	FLAT CABLE(3P)(W2)	1	
363	REZ0793	FLAT CABLE(3P)(W1)	1	
364	RMG0430-Q	RUBBER TUBE	4	
366	RAE0152Z	TRAVERSE DECK UNIT	1	
366-1	SHGD113-1	RUBBER	3	
366-2	SNSD38	SCREW	2	
367	RME0109	SPRING	2	
368	REE0832	FPC	1	
C1	ECA1AKF820E	10V 82U		
C1A	ECA1CM222B	16V 2200U	1	
C2	RCE1AKA470BG	10V 47U	1	
C3	ECEA0JKA101B	6.3V 100U	1	
C4	RCE1AKA470BG	10V 47U	1	
C5	ECBT1H102KB5	50V 1000P	1	
C6	RCE1CKA100BG	16V 10U	1	
C7	ECBT1H102KB5	50V 1000P	1	
C8	ECBT1C103MS5	16V 0.01U	1	
C9	ECBT1H102KB5	50V 1000P	1	
C10	ECBT1C103MS5	16V 0.01U	1	
C11	ECBT1H101KB5	50V 100P	1	
C12,13	ECEA1EKA4R7B	25V 4.7U	2	
C14-16	ECBT1H102KB5	50V 1000P	3	
C17	ECBT1E103ZF5	25V 0.01U	1	
C601-03	ECBT1H101KB5	50V 100P	3	
C604	ECBT1E103ZF5	25V 0.01U	1	
C605	ECBT1H101KB5	50V 100P	1	
C701	ECEA0JKA330I	6.3V 33U	1	
C702	ECUZNE104MBN	25V 0.1U	1	
C703	ECEA0JKA101I	6.3V 100U	1	
C704	ECUZNE104MBN	25V 0.1U	1	
C706	ECUE1H272KBN	50V 2700P	1	
C707	ECUV1E273KBN	25V 0.027U	1	
C708	ECUE1H392KBN	50V 3900P	1	
C709	ECUE1E563KBN	25V 0.056U	1	
C710	ECUE1H151KCN	50V 150P	1	
C711,12	ECUWNE104ZFN	25V 0.1U	2	
C713	ECUZNE104MBN	25V 0.1U	1	
C714	ECEA0JKA101I	6.3V 100U	1	
C715	ECUE1H182KBN	50V 1800P	1	
C716	ECUE1H821KBN	50V 820P	1	
C717	ECUWNE104ZFN	25V 0.1U	1	
C718	ECUVNC224KBN	16V 0.22U	1	
C721,22	ECUE1H100DCN	50V 10U	2	
C723	ECEA1AKA221I	10V 220U	1	
C724	ECUZNE104MBN	25V 0.1U	1	
C725,26	ECUE1H102KBN	50V 1000P	2	
C730	ECUWNE104ZFN	25V 0.1U	1	
C731,32	ECEA0JKA221I	6.3V 220U	2	
C733	ECUZNE104MBN	25V 0.1U	1	
C734	ECEA1AKA221I	10V 220U	1	
C735-37	ECUWNE104ZFN	25V 0.1U	3	
C738	ECUZNE104MBN	25V 0.1U	1	
C739	ECUE1H102KBN	50V 1000P	1	
C742	ECUV1E273KBN	25V 0.027U	1	
C743	ECUWNE104ZFN	25V 0.1U	1	
C744	ECUE1E123KBN	25V 0.012U	1	
C745	ECUE1H102KBN	50V 1000P	1	
C747	ECUE1H221KBN	50V 220P	1	
C749	ECUE1H222KBN	50 2200P	1	

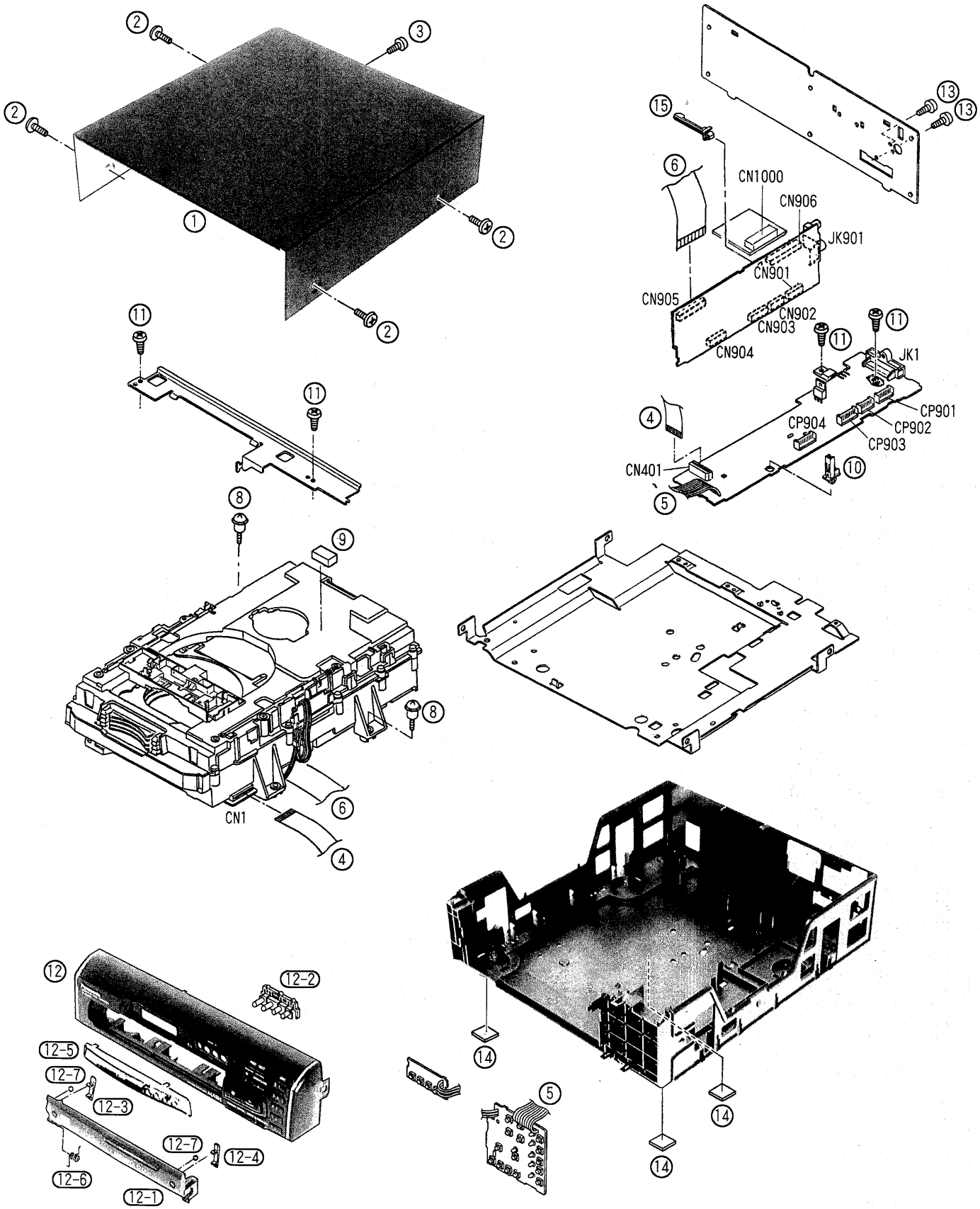
Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
C750,51	ECUZNE104MBN	25V 0.1U	2	
C753	ECUV1H471KBM	50V 470P	1	
C762	ECUE1H471KBN	50V 470P	1	
C901	RCE0JKA470IG	6.3V 47U	1	
C902	ECUV1E104ZFN	25V 0.1U	1	
C903	ECEA1HKA2R2I	50V 2.2U	1	
C904	ECUV1E103ZFN	25V 0.01U	1	
C905	ECUV1H102KBN	50V 1000P	1	
C906	ECEA0JKA101I	6.3V 100U	1	
C907	ECUV1H102KBN	50V 1000P	1	
C908	ECEA1AKA101I	10V 100U	1	
C909	ECUV1E104ZFN	25V 0.1U	1	
C910	ECUV1C223KBN	16V 0.022U	1	
C911	ECUV1E104ZFN	25V 0.1U	1	
C912	ECUV1H102KBN	50V 1000P	1	
C913	ECUV1E104ZFN	25V 0.1U	1	
C914	ECUV1C224KBN	16V 0.22U	1	
C915	ECUV1H470JCN	50V 47P	1	
C916	ECUV1H102KBN	50V 1000P	1	
C917,18	ECUV1E104ZFN	25V 0.1U	2	
C919	ECA0JKF101I	6.3V 100U	1	
C920	ECUV1E104ZFN	25V 0.1U	1	
C921,22	ECEA1EKA4R7I	25V 4.7U	2	
C923	ECUV1H471KBN	50V 470P	1	
C924	ECUV1H102KBN	50V 1000P	1	
C925	ECUV1H222KBN	50V 2200P	1	
C926	ECUV1H561KBN	50V 560P	1	
C927	ECA0JKF101I	6.3V 100U	1	
C928,29	ECUV1E104ZFN	25V 0.1U	2	
C930	ECUV1C224KBN	16V 0.22U	1	
C931	ECEA1CKA100I	16V 10U	1	
C932	ECEA1HKA010I	50V 1U	1	
C933	ECUV1H390JCN	50V 39P	1	
C934	ECEA1HKA2R2I	50V 2.2U	1	
C935	ECEA1CKA100I	16V 10U	1	
C936	RCE0JKA470IG	6.3V 47U	1	
C937,38	ECUV1E104ZFN	25V 0.1U	2	
C939	ECUV1E103ZFN	25V 0.01U	1	
C940	ECUV1H470JCN	50V 47P	1	
C941	ECUV1E103ZFN	25V 0.01U	1	
C942	ECEA0GKA471I	4V 470U	1	
C943	ECUV1E104ZFN	25V 0.1U	1	
C944	ECUV1H101KCN	50V 100P	1	
C945	ECUV1C224KBN	16V 0.22U	1	
C946-48	ECA0JKF101I	6.3V 100U	3	
C949	ECUV1H102KBN	50V 1000P	1	
C1000,01	ECUV1H100DCV	50V 10P	2	
C1002-12	ECUZNC104ZFV	16V 0.1U	11	
C1013	ECUV1H101KCV	50V 100P	1	
C1014	ECUV1H151KBV	50V 150P	1	
C1015	ECUV1H271KBV	50V 270P	1	
C1016,17	ECUZNC104ZFV	16V 0.1U	2	
C1018	ECUV1H331KBV	50V 330P	1	
C1019	ECUV1H101KCV	50V 100P	1	
C1020	ECUZNC104ZFV	16V 0.1U	1	
C1021	ECUV1H101KCV	50V 100P	1	
CN1	RJS1A6714-Q	CONNECTOR(14P)	1	
CN401	RJS1A6814	CONNECTOR(14P)	1	
CN701	RJU035T016-1	CONNECTOR(16P)	1	
CN702	RJS2A4230	CONNECTOR(30P)	1	
CN901	RJU057W008	CONNECTOR(8P)	1	
CN902	RJU057W007	CONNECTOR(7P)	1	
CN903,04	RJU057W009	CONNECTOR(9P)	2	
CN905	RJS2A4230	CONNECTOR(30P)	1	
CN906	RJU107K30M	CONNECTOR(30P)	1	
CN1000	RJT107K30T	CONNECTOR(30P)	1	
CP901	RJT057W008-1	CONNECTOR(8P)	1	
CP902	RJT057W007-1	CONNECTOR(7P)	1	
CP903,04	RJT057W009-1	CONNECTOR(9P)	2	
D1	MA165TA	DIODE	1	
D2,D3	RL1N4003N02	DIODE	2	
D4,D5	MA165TA	DIODE	2	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
⚠ D6	MA4051MTA	DIODE	1	
D7-15	MA165TA	DIODE	9	
⚠ D16	MA4075MTA	DIODE	1	
D17-19	RL1N4003N02	DIODE	3	
D601-05	LNJ301MPUJAD	LED	5	
D606	SPR505MDTT	LED	1	
D901	MA111TX	DIODE	1	
D902	MA304TX	DIODE	1	
D903-05	MA111TX	DIODE	3	
E1	SNE1004-2	EARTH TERMINAL	1	
IC1	BA6418N	IC	1	
⚠ IC1A	LM2940T5M	IC	1	
IC601	NJU3713GTE1	IC	1	
IC701	AN8837SBE1	I.C	1	
IC702	MN662741RPA	I.C	1	
IC703	AN8780NSBE2	I.C	1	
IC901	M38067MC388F	IC	1	
IC902	TC9444F-001	IC	1	
IC903	TC9246FELP	IC	1	
IC904-06	NJM2115MTE1	IC	3	
IC907	TC7W14FTE12L	IC	1	
IC1000	MN89103M	IC	1	
IC1001	LH532KVA	IC	1	
IC1002	MB8142607PJR	IC	1	
IC1003	TC7WU04FUT2L	IC	1	
IC1004	TC7W14FUTE1L	IC	1	
JK1	RJT065K19	SYSTEM CONNECTOR(19P)	1	
JK901	SJFD7-6	JACK,VIDEO OUT	1	
L1	BL02RN2R65T2	COIL	1	
L701-05	RLBN102V-Y	COIL	5	
L901	RLBN102V-Y	COIL	1	
L902	RLQM5R6KT2-W	COIL	1	
L903	RLBN102V-Y	COIL	1	
L1000	RLQP1R8KT2-Y	COIL	1	
L1002	RLQP2R7KT2-Y	COIL	1	
⚠ Q1	2SB1548PQAU	TRANSISTOR	1	
⚠ Q2	2SC3311AIQST	TRANSISTOR	1	
⚠ Q3	2SB621ARSTA	TRANSISTOR	1	
⚠ Q4	2SC3311AIQST	TRANSISTOR	1	
⚠ Q5	2SB621ARSTA	TRANSISTOR	1	
⚠ Q6	2SC3311AIQST	TRANSISTOR	1	
⚠ Q7	2SB621ARSTA	TRANSISTOR	1	
⚠ Q8	2SC3311AIQST	TRANSISTOR	1	
Q9-11	2SC3311AIQST	TRANSISTOR	3	
Q12	UN4211TA	TRANSISTOR	1	
Q701	2SB709STX	TRANSISTOR	1	
Q702	DTC114YKA146	TRANSISTOR	1	
Q901	UN5214TX	TRANSISTOR	1	
Q903	UN5111TX	TRANSISTOR	1	
Q904	2SD1328TX	TRANSISTOR	1	
R2	ERDS2TJ471T	1/4W 470	1	
R3	ERDS2FJ101	1/4W 100	1	
R4	ERDS2TJ223T	1/4W 22K	1	
R5	ERDS2TJ152T	1/4W 1.5K	1	
R7	ERDS2FJ102	1/4W 1K	1	
R8	ERDS2FJ101	1/4W 100	1	
R9,10	ERDS2FJ102	1/4W 1K	2	
R13	ERDS2TJ471T	1/4W 470	1	
⚠ R14	ERDS1FJ8R2	1/2W 8.2	1	
R15	ERDS2FJ222	1/4W 2.2K	1	
R16	ERDS2FJ472	1/4W 4.7K	1	
⚠ R17	ERDS1FJ8R2	1/2W 8.2	1	
R18	ERDS2TJ473T	1/4W 47K	1	
R19	ERDS2TJ223T	1/4W 22K	1	
R20	ERDS2TJ473T	1/4W 47K	1	
R21	ERDS2FJ101	1/4W 100	1	
R22	ERDS2FJ472	1/4W 4.7K	1	
R23	ERDS2FJ103	1/4W 10K	1	
R24	ERDS2FJ472	1/4W 4.7K	1	

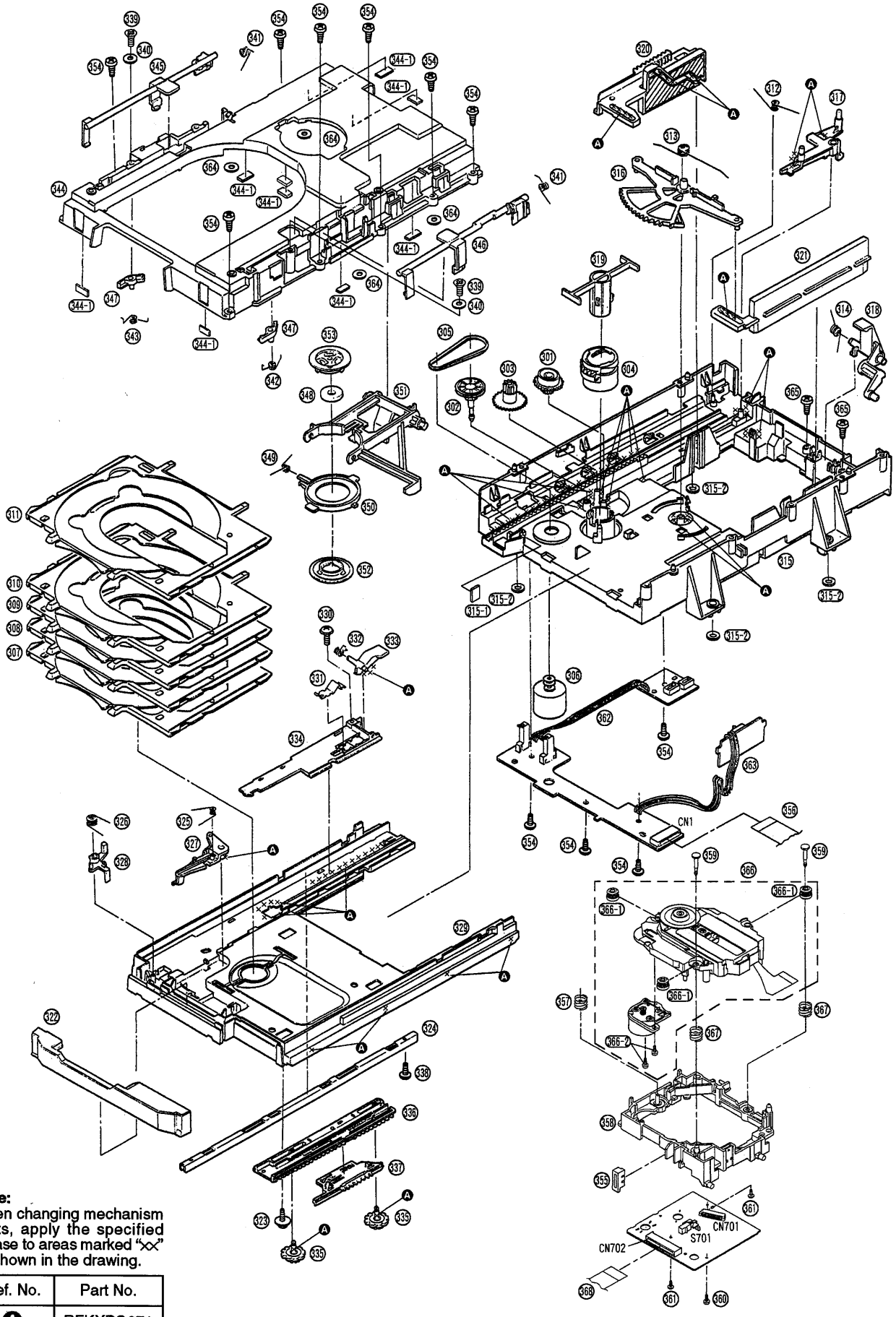
Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R25	ERDS2TJ473T	1/4W 47K	1	
R26,27	ERDS2FJ472	1/4W 4.7K	2	
R28	ERDS2FJ101	1/4W 100	1	
R29,30	ERDS2FJ102	1/4W 1K	2	
R31,32	ERDS2TJ223T	1/4W 22K	2	
R33,34	ERDS2TJ123T	1/4W 12K	2	
R35	ERDS2FJ103	1/4W 10K	1	
R36,37	ERDS2TJ473T	1/4W 47K	2	
R38,39	ERDS2TJ221T	1/4W 220	2	
R40,41	ERDS2FJ101	1/4W 100	2	
R42,43	ERDS2TJ473T	1/4W 47K	2	
R601-04	ERDS2FJ101	1/4W 100	4	
R605-10	ERDS2TJ271T	1/4W 270	6	
R611	ERDS2TJ182T	1/4W 1.8K	1	
R612	ERDS2TJ152T	1/4W 1.5K	1	
R613	ERDS2TJ122T	1/4W 1.2K	1	
R614	ERDS2FJ102	1/4W 1K	1	
R615	ERDS2TJ821T	1/4W 820	1	
R616	ERDS2TJ123T	1/4W 12K	1	
R617	ERDS2FJ682	1/4W 6.8K	1	
R618	ERDS2FJ472	1/4W 4.7K	1	
R619	ERDS2TJ332T	1/4W 3.3K	1	
R620	ERDS2FJ222	1/4W 2.2K	1	
R621	ERDS2TJ182T	1/4W 1.8K	1	
R622	ERDS2TJ152T	1/4W 1.5K	1	
R623	ERDS2TJ122T	1/4W 1.2K	1	
R624	ERDS2FJ102	1/4W 1K	1	
R625	ERDS2TJ821T	1/4W 820	1	
R626	ERDS2TJ683T	1/4W 68K	1	
R627	ERDS2TJ223T	1/4W 22K	1	
R701	ERJ6GEYJ4R7Z	1/10W 4.7	1	
R702	ERJ6GEYJ822V	1/10W 8.2K	1	
R703	ERJ6GEYJ823Z	1/10W 82K	1	
R704	ERJ6GEYJ102A	1/10W 1K	1	
R705	ERJ6GEYJ124V	1/10W 120K	1	
R706	ERJ6GEYJ102A	1/10W 1K	1	
R707	ERJ6GEYJ474Z	1/10W 470K	1	
R708	ERJ6GEYJ154V	1/10W 150K	1	
R709	ERJ6GEYJ473Z	1/10W 47K	1	
R710	ERJ6GEYJ103V	1/10W 10K	1	
R711	ERJ6GEYJ154V	1/10W 150K	1	
R712	ERJ6GEYJ221Z	1/10W 220	1	
R714	ERJ6GEYJ121Z	1/10W 120	1	
R715	ERJ6GEYJ122Z	1/10W 1.2K	1	
R717,18	ERJ6GEYJ102A	1/10W 1K	2	
R719	ERJ8GEY0R00A	1/8W 0	1	
R720	ERJ6GEY0R00A	1/10W 0	1	
R721	ERJ6GEYJ101Z	1/10W 100	1	
R722	ERJ6GEYJ563V	1/10W 56K	1	
R723	ERJ6GEYJ182V	1/10W 1.8K	1	
R724	ERJ6GEYJ333Z	1/10W 33K	1	
R725	ERJ6GEYJ122Z	1/10W 1.2K	1	
R726	ERJ6GEYJ473Z	1/10W 47K	1	
R727,28	ERJ6GEYJ682Z	1/10W 6.8K	2	
R729	ERJ6GEYJ562V	1/10W 5.6K	1	
R731	ERJ6GEYJ822V	1/10W 8.2K	1	
R735,36	ERJ6GEYJ101Z	1/10W 100	2	
R744	ERJ6GEYJ104V	1/10W 100K	1	
R745	ERJ6GEYJ155Z	1/10W 1.5M	1	
R748	ERJ6GEYJ182V	1/10W 1.8K	1	
R749	ERJ6GEYJ682Z	1/10W 6.8K	1	
R752	ERJ8GEYJ220V	1/8W 22	1	
R901	ERJ6GEYJ104V	1/10W 100K	1	
R902	ERJ6GEYJ103V	1/10W 10K	1	
R903	ERJ6GEYJ101Z	1/10W 100	1	
R904	ERJ6GEYJ103V	1/10W 10K	1	
R905	ERJ6GEYJ101Z	1/10W 100	1	
R906	ERJ6GEYJ103V	1/10W 10K	1	
R907	ERJ6GEYJ101Z	1/10W 100	1	
R908	ERJ6GEYJ103V	1/10W 10K	1	
R909	ERJ6GEYJ101Z	1/10W 100	1	
R910	ERJ6GEYJ102Z	1/10W 1K	1	
R911	ERJ6GEYJ472V	1/10W 4.7K	1	
R912-14	ERJ6GEYJ103V	1/10W 10K	3	
R915	ERJ6GEYJ472V	1/10W 4.7K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R916	ERJ6GEYJ103V	1/10W 10K	1	
R917	ERJ6GEYJ472V	1/10W 4.7K	1	
R918	ERJ6GEYJ103V	1/10W 10K	1	
R923-29	ERJ6GEYJ221V	1/10W 220	7	
R930	ERJ6GEYJ472V	1/10W 4.7K	1	
R931,32	ERJ6GEYJ102Z	1/10W 1K	2	
R933	ERJ6GEYJ222V	1/10W 2.2K	1	
R934-42	ERJ6GEYJ102Z	1/10W 1K	9	
R943-45	ERJ6GEYJ101Z	1/10W 100	3	
R946	ERJ6GEYJ680V	1/10W 68	1	
R947-49	ERJ6GEYJ101Z	1/10W 100	3	
R950	ERJ6GEYJ104V	1/10W 100K	1	
R951	ERJ6GEYJ103V	1/10W 10K	1	
R952	ERJ6GEYJ102Z	1/10W 1K	1	
R953	ERJ6GEYJ101Z	1/10W 100	1	
R954,55	ERJ6GEYJ472V	1/10W 4.7K	2	
R956-58	ERJ6GEYJ103V	1/10W 10K	3	
R959	ERJ6GEYJ101Z	1/10W 100	1	
R960,61	ERJ6GEYJ103V	1/10W 10K	2	
R964	ERJ6GEYJ223V	1/10W 22K	1	
R965	ERJ6GEYJ103V	1/10W 10K	1	
R966	ERJ6GEYJ471V	1/10W 470	1	
R967	ERJ6GEYJ394V	1/10W 390K	1	
R968,69	ERJ6GEYJ103V	1/10W 10K	2	
R970	ERJ6GEYJ334V	1/10W 330K	1	
R971	ERJ6GEYJ104V	1/10W 100K	1	
R972	ERJ6GEYJ103V	1/10W 10K	1	
R974,75	ERJ6GEYJ153V	1/10W 15K	2	
R976-79	ERJ6GEYJ102Z	1/10W 1K	4	
R980	ERJ6GEYJ152V	1/10W 1.5K	1	
R981	ERJ6GEYJ221V	1/10W 220	1	
R982	ERJ6GEYJ101Z	1/10W 100	1	
R983	ERJ6GEYJ221V	1/10W 220	1	
R984	ERJ6GEYJ222V	1/10W 2.2K	1	
R985-90	ERJ6GEYJ102Z	1/10W 1K	6	
R991,92	ERJ6GEYJ103V	1/10W 10K	2	
R993,94	ERJ6GEYJ102Z	1/10W 1K	2	
R995	ERJ6GEYJ222V	1/10W 2.2K	1	
R996	ERJ8GEYJ150V	1/8W 15	1	
R1000	ERJ3GEYJ562V	1/16W 5.6K	1	
R1001-03	ERJ3GEYJ101V	1/16W 100	3	
R1004	ERJ3GEYJ103Z	1/16W 10K	1	
R1005	ERJ3GEYD750V	1/16W 75	1	
R1006	ERJ3GEYJ103Z	1/16W 10K	1	
R1007	ERJ3GEYD562V	1/16W 5.6K	1	
R1008	ERJ3GEYJ103Z	1/16W 10K	1	
R1009	ERJ3GEYD912V	1/16W 9.1K	1	
R1010,11	ERJ3GEYJ103Z	1/16W 10K	2	
R1012	ERJ3GEYD332V	1/16W 3.3K	1	
R1013,14	ERJ3GEYD750V	1/16W 75	2	
R1020	ERJ3GEYJ222V	1/16W 2.2K	1	
R1021	ERJ3GEYJ472V	1/16W 4.7K	1	
RJ701	ERJ6GEY0R00A	CHIP JUMPER	1	
RJ702-10	ERJ8GEY0R00A	CHIP JUMPER	9	
RJ715-17	ERJ8GEY0R00A	CHIP JUMPER	3	
RJ721,22	ERJ6GEY0R00A	CHIP JUMPER	2	
RJ724-28	ERJ6GEY0R00A	CHIP JUMPER	5	
RJ731-33	ERJ6GEY0R00A	CHIP JUMPER	3	
RJ901	ERJ8GEY0R00V	CHIP JUMPER	1	
RJ902-05	ERJ6GEY0R00Z	CHIP JUMPER	4	
S1,S2	RSH1A005	SW	2	
S3-S5	RSH1A032-U	SW	3	
S601-19	EVQPTD05Q	SW	19	
S701	RSH1A043-U	SW	1	
S901	SSS153	SW	1	
TJ701	EYF8CU	TEST JUMPER	1	
X701	RSXB16M9J02T	OSCILLATOR	1	
X901	EF0EC6004T4	OSCILLATOR	1	
X1000	RSXC27M0S01T	OSCILLATOR	1	

■ Cabinet Parts Location



■ Lading Unit Parts Location



Note:
When changing mechanism parts, apply the specified grease to areas marked "Ⓐ" as shown in the drawing.

Ref. No.	Part No.
Ⓐ	RFKXPG671

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