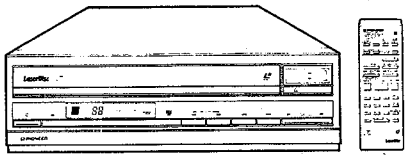
Service Manual



ORDER NO.
ARP 1373

COMPACT DISC/LASERVISION PLAYER

CLD-1010

NTSC

LaserVision

COMPACT disc DIGITAL AUDIO

MODEL CLD-1010 COMES IN TWO VERSIONS DISTINGUISHED AS FOLLOWS:

Type	Power requirement	Export destination
KUC	AC 120 V only	U.S.A., Canada
S/G	AC 110 V, 120 V, 220 V, 240 V (switchable)	U.S. Military

- **This service manual is applicable to the KUC and S/G types.**
- **As to the S/G type, please refer to page 109.**

CONTENTS

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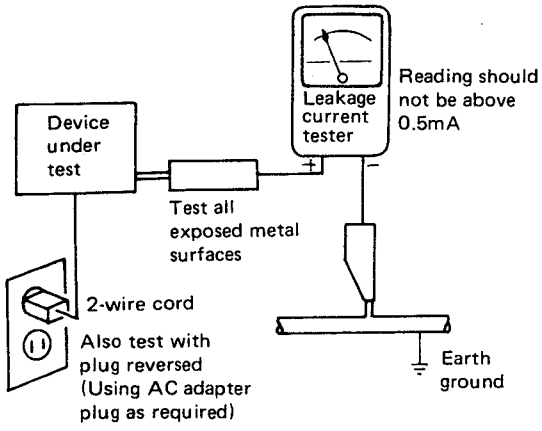
1. SAFETY INFORMATION

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

2. SPECIFICATIONS

1. General

System .....LaserVision Disc system and Compact Disc digital audio system
Laser .....Semiconductor laser wavelength 780 nm

Power requirements
U.S. and Canadian models.....AC 120 V, 50/60 Hz
U.S. Military model .....AC 110/120/220/240 V (Switchable), 50/60 Hz

Power consumption
U.S. and Canadian models .....48 W
U.S. Military model .....44 W
Weight .....11.5 kg (25 lb 6 oz)
Dimensions.....420(W) x 411(D) x 120(H) mm
16-9/16(W) x 16-3/16(D) x 4-11/16(H) in
Operating temperature .....+5 °C — +35 °C (41°F — 95°F)
Operating humidity .....5% — 90%
(There should be no condensation of moisture.)

2. Disc

LaserVision Discs

*Maximum playing times
12-inch standard play disc.....1 hour/both sides
12-inch extended play disc.....2 hours/both sides
8-inch standard play disc .....28 min/both sides
8-inch extended play disc .....40 min/both sides

Spindle motor speed
Standard play disc.....1,800 rpm
Extended play disc
.....1,800 rpm (inner circumference) to 600 rpm (outer circumference) (For a 12-inch disc)

Compact Discs

Disc .....Diameter: 120 mm, Thickness: 1.2 mm
Rotation direction (pickup side): Counterclockwise
Linear speed: 1.2 - 1.4 m/sec
*Maximum playing time.....60 min. or more (For stereo playback)

**Actual playback time differs for each disc.*

3. Video characteristics

Format .....NTSC specifications
Video output
Level...1 Vp-p nominal, sync. negative, terminated
Impedance.....75 Ω unbalanced
Terminal.....RCA jack
VHF output
Channel .....Channel 3 or 4 (switchable)
Impedance.....75 Ω unbalanced
Terminal .....F-type jack

4. Audio characteristics

Output level
CD/LV OUT terminals
During analog audio output .....200 mVrms (1kHz, 40%)
During digital audio output .....200 mVrms (1kHz, –20dB)
LV ANALOG OUT terminals.....200 mVrms (1kHz, 40%)
(For LV analog audio output, 1/L, 2/R and stereo selections are possible)
Terminal .....Both RCA jacks
Number of channels.....2

Digital Audio Characteristics

Frequency response	4 Hz - 20 kHz ($^{+0.5}_{-1.0}$ dB) (EIAJ)
S/N ratio	98 dB (EIAJ)
Dynamic range	95 dB (EIAJ)
Channel separation	92 dB (EIAJ)
Total harmonic distortion	0.005% (EIAJ)
Wow and flutter	Limit of measurement (±0.001% W.PEAK) or less (EIAJ)

● LV is based on EIAJ.

5. Other Terminals

Control input/output.....Both miniature jacks

6. Accessories

U.S. and Canadian models

Remote control unit (CU-CLD004).....1
Size "AAA" (IEC R03) dry cell battery.....2
RF antenna cable 1
Video connecting cord.....1
Audio connecting cord.....1
Antenna adaptor
(75 Ω/300 Ω → 75 Ω F-type plug) 1
Operating instructions.....1
Warranty card 1

U.S. Military model

Remote control unit (CU-CLD004).....1
Size "AAA" (IEC R03) dry cell battery.....2
RF antenna cable 1
Video connecting cord.....1
Audio connecting cord.....1
Antenna adaptor
(75 Ω/300 Ω → 75 Ω F-type plug) 1
F-type jack — IEC plug adaptor.....1
Operating instructions.....1
Warranty card 1

7. Functions

Function that can be operated with remote control unit (CU-CLD004)

Functions	LaserVision Disc		Compact Disc
	Standard Play Disc	Extended Play Disc	
PLAY	YES	YES	YES
EJECT	YES	YES	YES
TV/LVP SELECTION	YES	YES	YES
PAUSE	YES	YES	YES
AUTOMATIC PAUSE	YES	YES	YES
SCAN (Forward, Reverse)	YES	YES	YES
AUDIO CHANNEL SELECTION (Stereo, 1/L, 2/R)	YES	YES	—
AUTO DIGITAL/ANALOG SWITCH	YES(1)	YES(1)	—
CX SYSTEM ON/OFF	YES(2)	YES(2)	—
STILL/STEP (Forward, Reverse)	YES	NO	—
CHAPTER SKIP (Forward, Reverse)	YES(3)	YES(3)	—
MULTI-SPEED (Forward, Reverse: variable in 9 steps)	YES	NO	—
MULTI-SPEED DISPLAY	YES	NO	—
FRAME NUMBER DISPLAY	YES	NO	—
TIME NUMBER DISPLAY	NO	YES	—
CHAPTER NUMBER DISPLAY	YES(3)	YES(3)	—
FRAME NUMBER SEARCH	YES	NO	—
TIME NUMBER SEARCH	NO	YES	—
CHAPTER NUMBER SEARCH	YES(3)	YES(3)	—
CHAPTER REPEAT	YES(3)	YES(3)	—
A-B (INTERVAL) REPEAT	YES	YES	YES
MEMORY REPEAT	YES	YES	YES
SIDE REPEAT	YES	YES	YES
PROGRAM PLAYBACK	YES(3)	YES(3)	YES
PROGRAM DISPLAY	YES(3)	YES(3)	YES
PROGRAM REPEAT	YES(3)	YES(3)	YES
PROGRAM EDIT	YES(3)	YES(3)	YES
TRACK SEARCH (SKIP SELECTION)	—	—	YES
TIME SEARCH	—	—	YES
TRACK REPEAT	—	—	YES
TRACK NUMBER SEARCH (DIRECT SELECTION)	—	—	YES
TRACK.TIME DISPLAY	—	—	YES
REMAINING TIME DISPLAY	—	—	YES
TOTAL TRACKS.TOTAL TIME DISPLAY	—	—	YES

NOTE:

(1) Can only be used with discs with digital sound tracks.

(2) Valid for analog sound when playing a disc with the CX mark.

(3) Possible for playback of disc on which chapter numbers are recorded.

Other Functions

- Automatic start (Possible for both CD and LV.)
- Automatic picture stop (LV: Possible only for discs on which picture stop codes are recorded.)

NOTE:

Specifications and design subject to possible modifications without notice, due to improvement.

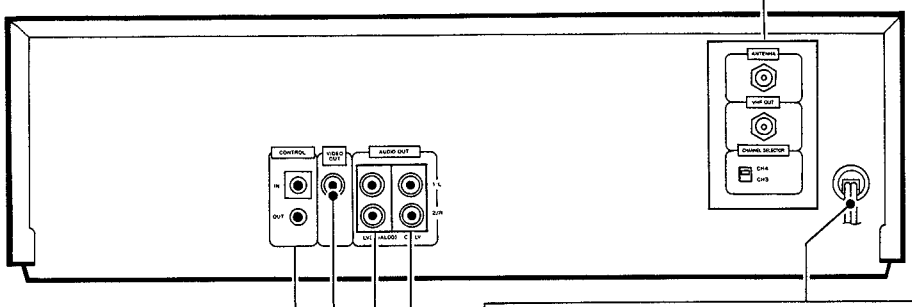
3. PANEL FACILITIES

[REAR PANEL]

ANTENNA terminal (75 Ω F-type jack)
Connect the coaxial cable (75 Ω) from the VHF TV antenna to this terminal.

VHF OUT terminal (75 Ω F-type jack)
Connect this terminal to your TV set's VHF antenna terminal.

VHF CHANNEL SELECTOR (CH3/CH4)
This switch is for switching the internal VHF converter.
Set to the channel which is not used for TV broadcasts in your area.



Power cord
Connect this to a power outlet.

CONTROL IN and OUT terminals (miniature phone jack)
These terminals are for communication of control codes, when the player is used together with other Pioneer products with the Pioneer SR mark.

VIDEO OUT terminal (RCA jack)
Connect this jack to a TV monitor or a TV set which is provided with a video input terminal.

LV (ANALOG) AUDIO OUT terminals (RCA jacks)
These terminals output the analog audio only of LaserVision Discs. Connect them to the AUX input terminals etc. of your stereo amplifier.
Do not connect these terminals to your amplifier PHONO input.
These terminals do not output the digital sound from Compact Discs or LaserVision with Digital Sound Discs.

CD/LV AUDIO OUT terminals (RCA jacks)
These terminals output Compact Disc audio, LaserVision Disc audio (analog) and the audio for LaserVision with Digital Sound Discs. Selection of either digital or analog sound can be made by operating a button on the front panel.
Connect these terminals to the CD or AUX input terminals etc. of your stereo amplifier.
Do not connect them to your amplifier PHONO input.

ABOUT THE AUDIO OUTPUT TERMINALS
This player is equipped with two sets of audio output terminals.
As shown in the table below, the CD/LV terminals are able to output all the audio signals that can be played back by the player.

Type of Disc	Playback Sound	Output Terminals
Compact Disc	Digital	CD/LV
LaserVision with Digital Sound Discs (Discs with the digital SOUND mark)	Digital	CD/LV ← Can be selected with the AUTO DIGITAL/ANALOG key on the remote control unit.
	Analog	CD/LV ← LV(Analog)
LaserVision Discs (Discs without the digital SOUND mark)	Analog	CD/LV LV(ANALOG)

For ordinary operation, connect the CD/LV terminals to your amplifier.
The LV (ANALOG) terminals are provided for developmental use. They do not need to be used for ordinary operation.

NOTE:
The sound output from the VHF output terminal is analog sound. When a TV set is connected to the VHF output terminal, it cannot be used to listen to Compact Disc sound, or to the digitally recorded sound on LaserVision with Digital Sound Discs.

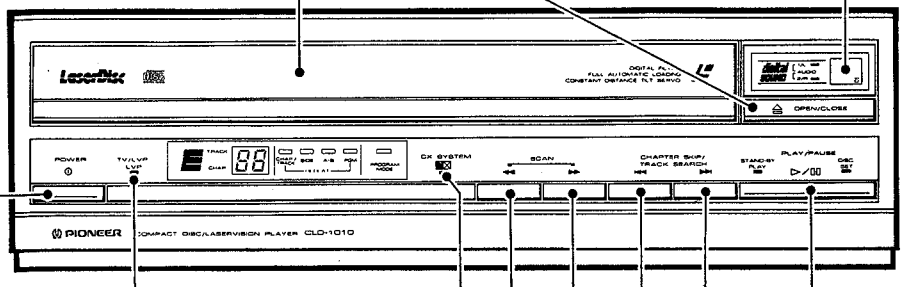
[PLAYER FRONT PANEL]

DOOR
When power is switched on, and OPEN/CLOSE button is pressed, the door opens downward, and at the same time, the disc table is expelled outward a specified distance.

POWER button and indicator

OPEN/CLOSE (⏏) button
This button is used to open and close the disc table. Setting a disc on the disc table then pressing this button retracts the disc table in to the player and begins play of the disc. Pressing this button during play stops play and extends the table from the player.

REMOTE SENSOR window



TV/LVP indicator
This indicates whether the pictures on the TV connected to the rear panel VHF OUT terminal, are being played back from the disc or received from the TV broadcasting station.
ON : LaserVision Disc or Compact Disc playback
OFF : VHF TV broadcast reception
After switching on power the indicator is ON, indicating selection of disc playback.

CX SYSTEM indicator
(For LaserVision Disc playback only)
Lights when the CX noise reduction system is operating.

CX is a trademark of CBS Inc.
This player meets the CX EXPANDING SPECIFICATION.

SCAN (◄◄ , ►►) buttons
After play has begun, the disc is fast forwarded as long as the ►► button is held down or fast backwarded as long as the ◄◄ button is held down. There are two speeds. The first two seconds while one of the scan buttons is held down the scanning is at low speed, then it is at high speed.

CHAPTER SKIP/TRACK SEARCH (⏮ , ⏭) buttons
- This is used to move to the head of the chapter for a LaserVision disc or the head of the track for a compact disc.
- Pressing the ⏮ button during entry of a program for programmed play cancels the last number input. Pressing this button again cancels the number entered before that. Each time this button is pressed, the last number still retained is cancelled (edit function). The ⏭ button has no effect during program input.

PLAY/PAUSE (▷/▯▯) button
- Setting a disc on the disc table then pressing this button retracts the disc table into the player and begins play of the disc.
- Pressing this button while the disc is stopped begins play of the disc.
- Pressing this button during play pauses the play. Pressing this button again restarts the play from the point at which it was paused.
- Press this button to begin chapter programming.

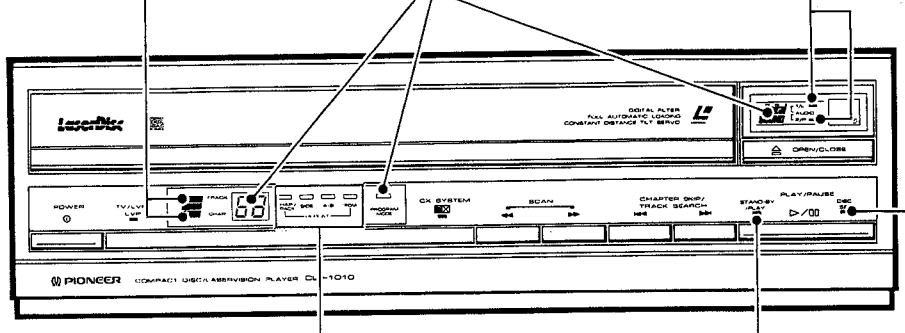
PROGRAM MODE indicator
Shows that the player is in program playback mode.

Numeric display
- When playing back a LaserVision Disc, displays the "chapter" number presently being played back.
- When playing back a Compact Disc, displays the "track" number presently being played back.

COMPACT DISC (CD) indicator
Lights during Compact Disc playback mode.
LASERVISION DISC (LV) indicator
Lights during LaserVision Disc playback mode.

DIGITAL SOUND indicator
Lights at the following times to indicate that audio signal output from the CD/LV audio terminal on the rear panel is digitally recorded sound:
- During Compact Disc playback.
- During playback of a LaserVision with Digital Sound Disc.

AUDIO indicators
(For LaserVision Disc playback only)
These indicate the audio channels being played back. When power is switched on, both 1/L and 2/R light up, indicating stereo mode.



CHAP./TRACK REPEAT indicator
- During playback of a LaserVision Disc, lights when chapter repeat playback is selected.
- During playback of a Compact Disc, lights when track repeat playback is selected.

SIDE REPEAT indicator
Lights when repeat play of one side of a disc is selected.

A-B REPEAT indicator
Lights when repeat play of an interval between two points A and B is selected.

PROGRAM REPEAT indicator
This indicator shows that the player is in program repeat play mode.

STAND-BY/PLAY indicator
This indicator lights up when the disc is being played and blinks during stand-by.
Lights up: during play mode (normal playback)
Blinks:
- From the time the PLAY key is pressed until the playback actually begins.
- After the playback is over until the disc stops.
- During the time that the table is extended from the player for removing or changing the disc. This indicator also blinks during operations such as search and skip.

DISC SET indicator
Lights up when there is a disc in the player.

[REMOTE CONTROL UNIT]

The accessory remote control unit can be used during playback of both LaserVision discs and Compact Discs.

- The functions shown in black are used for LaserVision Discs only.
- The functions shown in green are used for Compact Discs only.

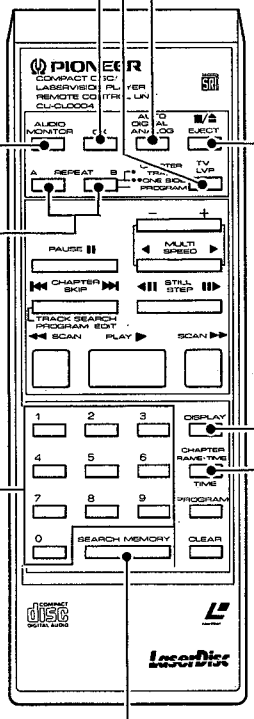
Keys appearing in other colors have the same functions for both kinds of disc.

TV/LVP key
When the VHF antenna is connected to the TV set via the player, this key switches between disc playback and VHF TV broadcast reception.

AUTO DIGITAL/ANALOG key
Pressing this key selects the audio output from the CD/LV audio output terminals on the back of the player during playback of a LaserVision disc with digital audio.
This key has no effect for playback of compact discs or LaserVision discs without digital audio.

CX key
This is the on/off key for the CX noise reduction system.

AUDIO MONITOR key
Switches the audio channel. When the player is first turned on, the audio is stereo and the 1/L and 2/R AUDIO indicators are both lit up. Each time this key is pressed, the audio channel moves one step through the sequence: 1/L → 2/R → Stereo → 1/L ...



EJECT (■/⏏) key
This key is used to stop playback and remove the disc.
The first time this key is pressed stops the rotation of the disc. The second time this key is pressed extends the disc table from the player. If there is no disc on the disc table, the disc table is extended out from the player the first time this key is pressed.

REPEAT (A, B) keys
These are used for repeat playback.

DIGIT (0 - 9) keys

DISPLAY key

- For a LaserVision disc, the display key is used for displaying or erasing the screen display of the chapter or frame being played or the time during playback of a LaserVision disc.
- When a compact disc is played, each time this key is pressed, the display on the screen will change to show the REMAIN time, the TOTAL time, the TIME, and back to the REMAIN time respectively.

SEARCH/MEMORY key
This is used for:

- Execution of search operation.
- For memory repeat operation.

(Memory key function)
This key is also used to input programs for programmed play.

CHAPTER/FRAME·TIME, TIME key
This key is used to call up the part of the disc that you wish to see or listen to (search).

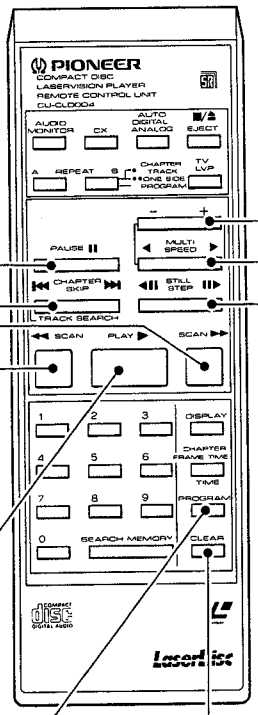
PAUSE (❚❚) key
When this is pressed, the playback is temporarily interrupted. To release the pause mode, press the PAUSE key again.

CHAPTER SKIP/TRACK SEARCH (⏮,⏭), PROGRAM EDIT (⏮) key
This key has the same functions as the CHAPTER SKIP/TRACK SEARCH button on the front of the player.

SCAN (◀◀ , ▶▶) key
This is used for fast forward and fast backward playback.

PLAY (▶) key
- Setting a disc on the disc table then pressing this key retracts the disc table into the player and begins play of the disc.
- Pressing this key when the disc is stopped starts playback.
- Pressing this key when player is paused restarts normal playback.
- Pressing this key after chapter programming starts play for that chapter program.

PROGRAM key
This key is used for programmed playback, which is playback in which the order of chapters for a LaserVision disc or the order of tracks for a compact disc is changed.



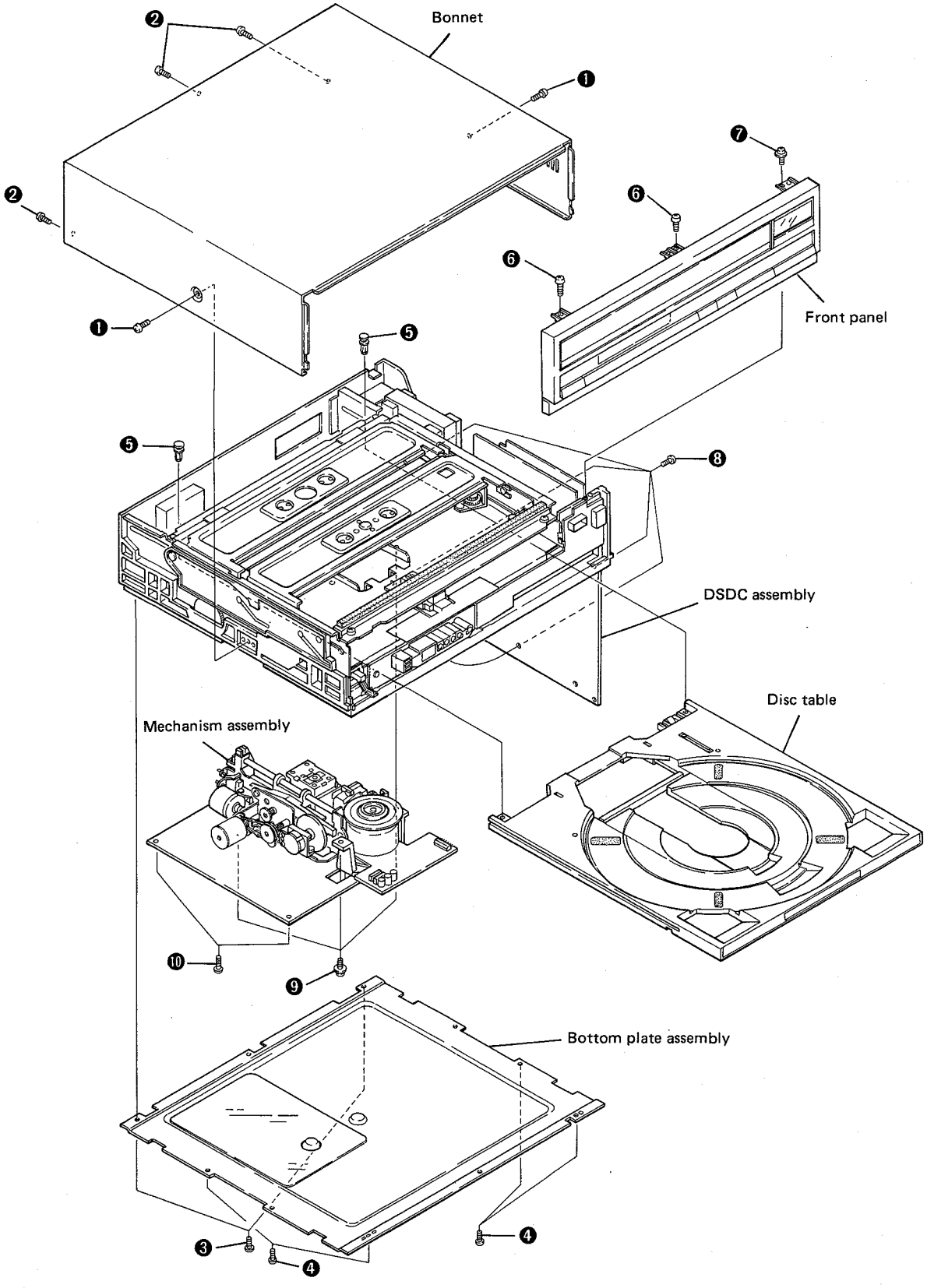
⊟, ⊞ key
This key is used for setting the speed for multi-speed playback.

MULTI-SPEED (◀ , ▶) key (LaserVision disc)
- Pressing the ▶ side of this key during playback of a standard disc plays back the disc in the forward direction at the preset speed. Pressing the ◀ side of this key during playback of a standard disc plays back the disc in the reverse direction at the preset speed (with no audio).
  The speed is set with the –, + key.
- This key has no effect for extended play discs and "CLV" is displayed on the screen.

STILL/STEP (◀❚❚, ❚❚▶) key (LaserVision disc)
- Pressing either end of this key causes still frame playback. Then, pressing the ❚❚▶ side of this key advances the playback one frame, while pressing the ◀❚❚ side of this key reverse the playback one frame.
- This key has no effect for extended play discs and "CLV" is displayed on the screen.

CLEAR key
The CLEAR key is used in the following cases:
- To stop repeat playback, to interrupt a search, or to correct input made with the DIGIT keys. (Pressing the CLEAR key and holding it down ends numeric input mode itself.)
- To erase the last step of the program. (Pressing the CLEAR key and holding it down ends program input mode itself.)
- To end program playback.

4. DISASSEMBLY



• Disassembly Procedure

[Bonnet]

1. Remove the two screws ❶ on the side.
2. Remove the three screws ❷ on the rear.

[Bottom Plate]

1. Remove the two screws ❸.
2. Remove the four screws ❹.

[Disc Table]

1. Remove the bonnet.
2. Switch on the power, press the OPEN/CLOSE key (▲), then with the disc table up, switch off the power.
3. Remove the two rivets ❺.
4. Switch the power back on. When the disc table is fully extended, pull it away gently.

[Front Panel]

1. Remove the bonnet.
2. Remove the two screws ❻ and a screw ❼.

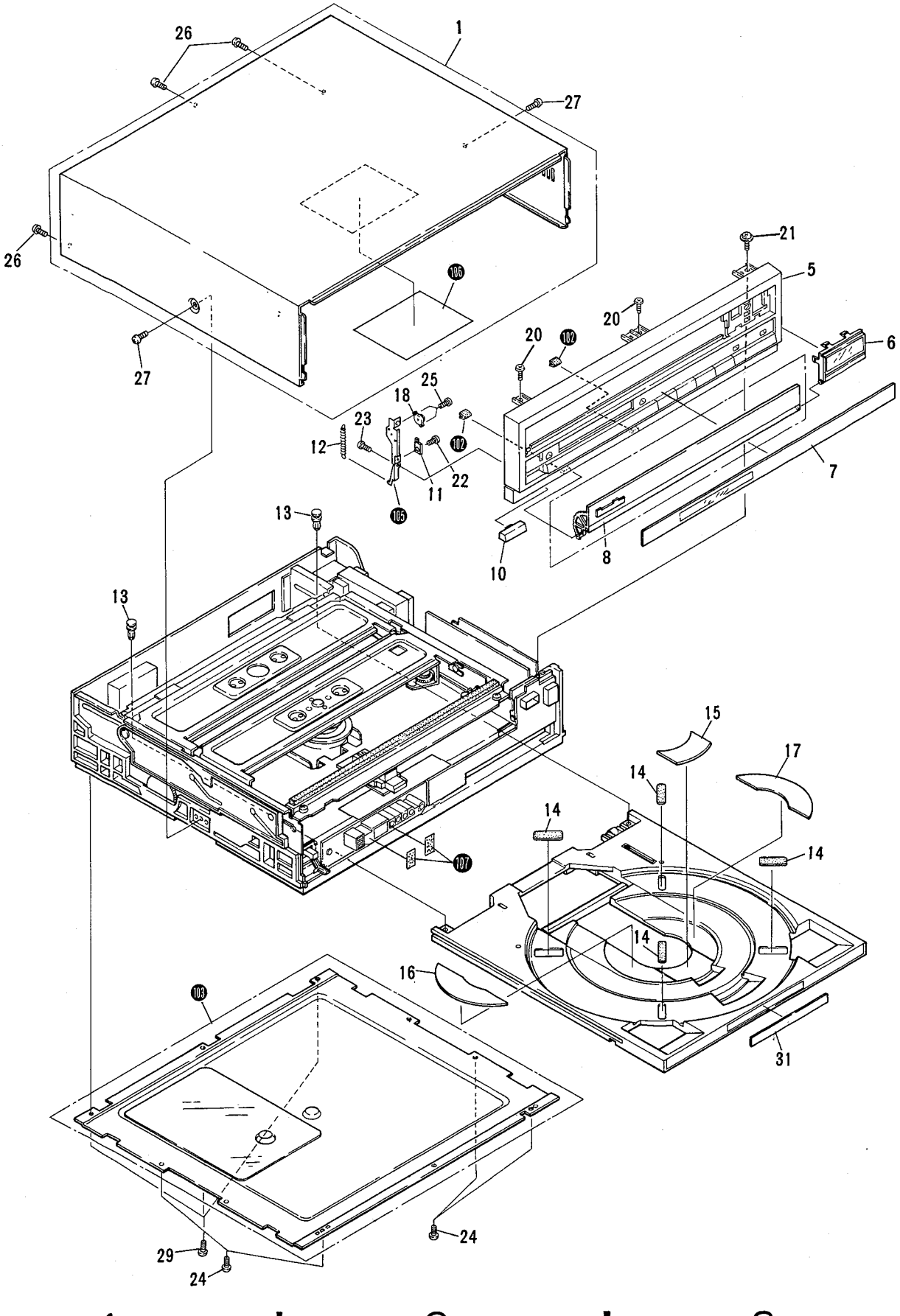
[Mechanical Assembly]

1. Remove the four screws ❽, then raise the DSDC assembly.
2. Remove the three screws ❾ and remove the two screws ❿.

Note: The details on how to replace the Pick-up assembly will be found on Page 68.

5. EXPLODED VIEWS AND PARTS LIST

5.1 EXTERIOR AND FRONT VIEW



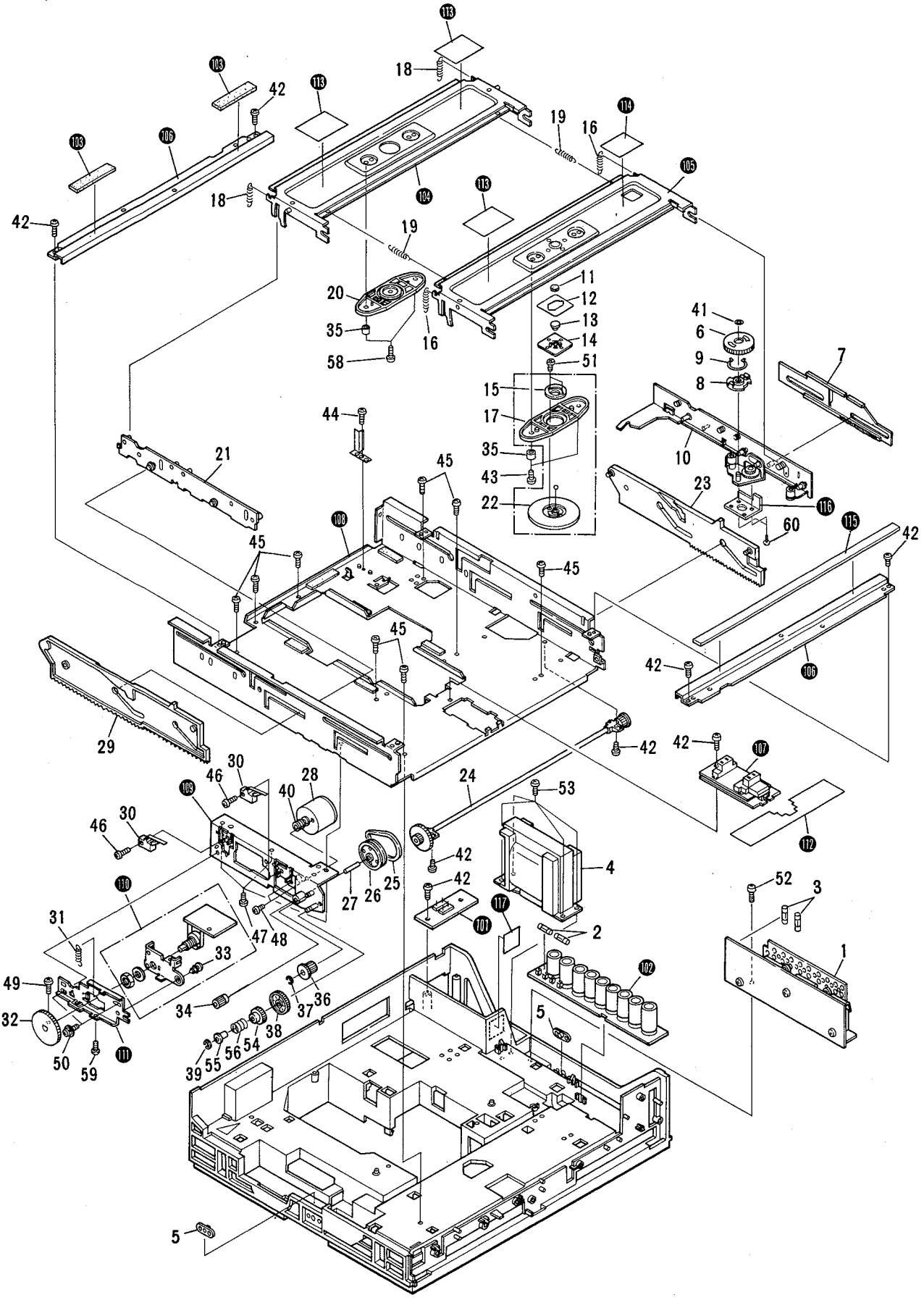
NOTES:

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★ GENERALLY MOVES FASTER THAN ★
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

● Parts List of Exterior and Front View

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1.	VXA1054	Bonnet assembly		21.	AMZ30P080FUC	Screw
	2.	. . .	. . .		22.	AMZ20P080FMC	Screw
	3.	. . .	. . .		23.	BPZ30P060FUC	Screw
	4.	. . .	. . .		24.	BPZ30P080FCU	Screw
	5.	VXX1041	Front panel assembly-S		25.	AMZ20P080FMC	Screw
	6.	VXX1028	Indicator panel assembly		26.	BBT30P060FZK	Screw
	7.	VNK1078	Display Panel		27.	BMZ40P100FZK	Screw
	8.	VXX1049	Front door assembly		28.	. . .	. . .
	9.	. . .	. . .		29.	BBZ30P060FCU	Screw
	10.	VNK1071	Power button		30.	. . .	. . .
	11.	VSK-012	Door switch		31.	VRW1015	Caddy label
	12.	VBH1010	Door spring				
	13.	VEC-261	Plastic rivet		101.		. . .
	14.	VEC-273	Disc Pad		102.		Cushion
	15.	VEB1021	Sheet (F)		103.		Bottom board assembly
					104.		. . .
	16.	VEB1022	Sheet (L)		105.		SW holder
	17.	VEB1023	Sheet (R)		106.		Black sheet
	18.	VXA1053	Dumper assembly		107.		Cushion
	19.	. . .	. . .				
	20.	ABZ30P060FUC	Screw				

5.2 TOP VIEW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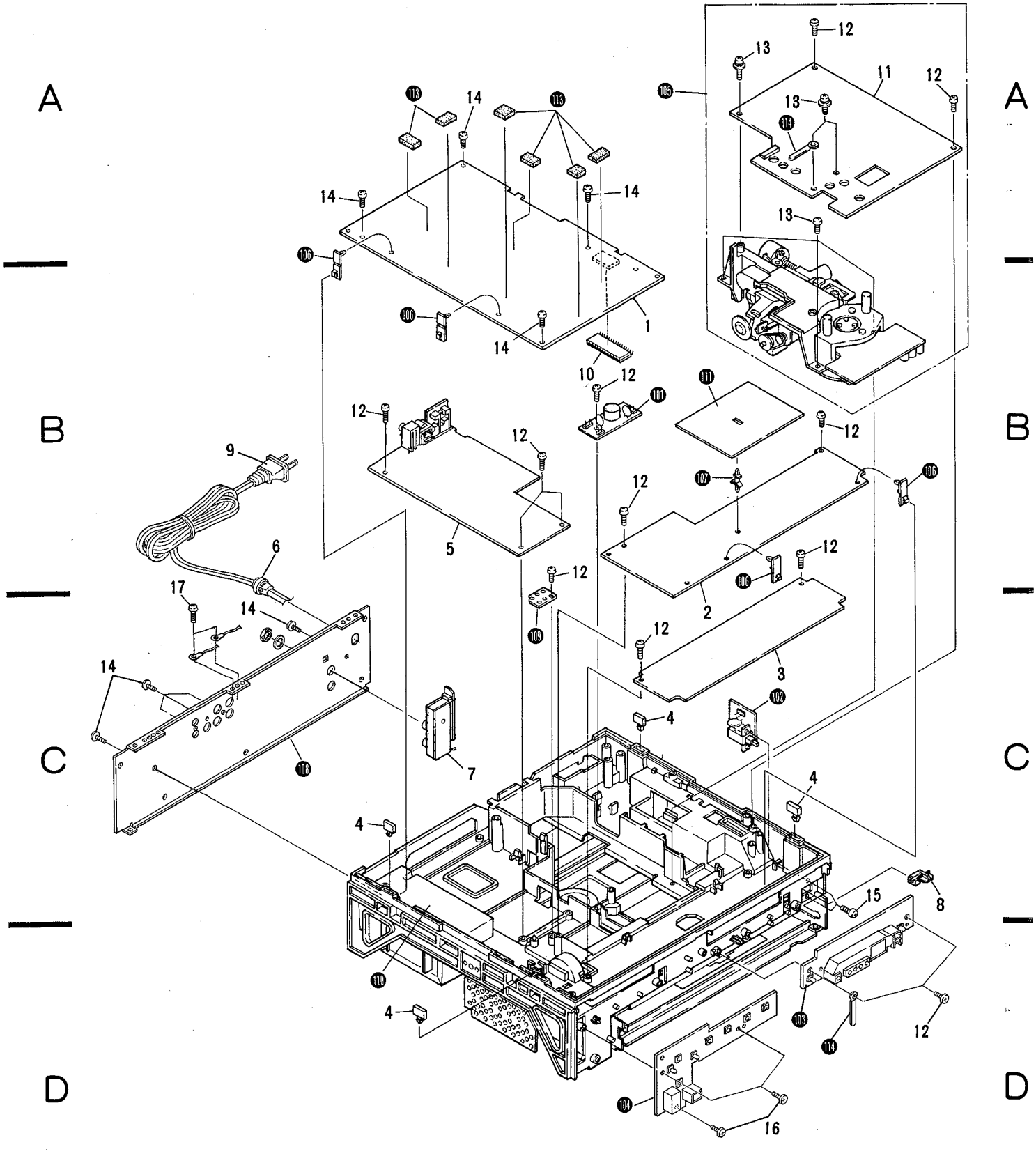
• Parts List of Top View

Mark	No.	Part No.	Description
	1.	VYR1019	REGB assembly
⚠ ★★	2.	VEK-018	Fuse (3A) (FU103, FU104)
⚠ ★★	3.	VEK-022	Fuse (2A) (FU1, FU2)
⚠ ★	4.	VTT-078	Power transformer (T1)
	5.	VBN-005	Welding nut
	6.	VNL1029	Gear (E)
	7.	VNL1024	Rack
	8.	VNL1030	Pinion (E)
	9.	VBH1007	Gear spring
	10.	VXA1063	Roller plate (R) assembly
	11.	VEB-129	Rubber sheet
	12.	VEC-262	Holder securing tape
	13.	VLL1018	Ball holder
	14.	VNE-689	Holder
	15.	VNL-500	Clamper head
	16.	VBH-162	LD clamper spring
	17.	VNL-612	Clamper base
	18.	VBH-179	CD clamper spring
	19.	VBH-177	Holder spring
	20.	VXA1067	CD disc clamper assembly
	21.	VXA1062	Roller plate (L) assembly
	22.	VNL-588	Disc clamper
	23.	VNL-583	Rack gear (R)
	24.	VXA1028	Synchronized gear assembly
	25.	VEB-125	Synchronized belt (L)
	26.	VXA-477	Pulley (L) assembly
	27.	VLL1020	Gear (A) shaft
★★	28.	VXM1006	Loading motor (M6)
	29.	VNL-582	Rack gear (L)
★★	30.	VSK-010	Slide switch (S6, S7) (CD, LD misclamp)
	31.	VBH-161	RE spring
	32.	VNL1036	Potention gear
	33.	VEC-143	Plastic rivet
	34.	VNL1020	Gear (A)
	35.	VLL-345	Spacer
	36.	VNL1047	Gear (C)
	37.	YE30FNC	E ring
	38.	VNL1045	W Gear (A)
	39.	YE20FUC	E ring
	40.	VNL1051	Motor pulley
	41.	WT36D070D025	Washer
	42.	BBZ30P080FCU	Screw
	43.	PMB30P060FCU	Screw
	44.	BMZ20P080FMC	Screw
	45.	BPZ30P080FCU	Screw
	46.	BM20P080FMC	Screw
	47.	BBZ30P060FCU	Screw
	48.	PMB26P040FMC	Screw
	49.	BPZ30P060FMC	Screw
	50.	PMB30P060FCU	Screw
	51.	PPZ20P050FMC	Screw
	52.	BPZ30P080FCU	Screw
	53.	BPZ30P100FCU	Screw
	54.	VNL1046	W Gear (B)
	55.	VLL1039	W Gear (A) shaft
	56.	VBH1017	W Gear spring
	57.	. . .	. . .
	58.	PMB30P055FZK	Screw
	59.	PMZ30P080FMC	Screw
	60.	BBZ20P040FMC	Screw
⚠	101.		CNNB assembly
	102.		CAPB assembly
	103.		Rubber cushion
	104.		Clamper holder assembly
	105.		Clamper holder
	106.		Bridge
	107.		SENS assembly
	108.		Sub chassis
	109.		M holder assembly
	110.		CALB assembly
	111.		RE holder
	112.		Black sheet
	113.		Dump cushion (K)
	114.		Dump cushion (L)
	115.		Cushion
	116.		Rack holder
	117.		Fuse caution label

5.3 BOTTOM VIEW

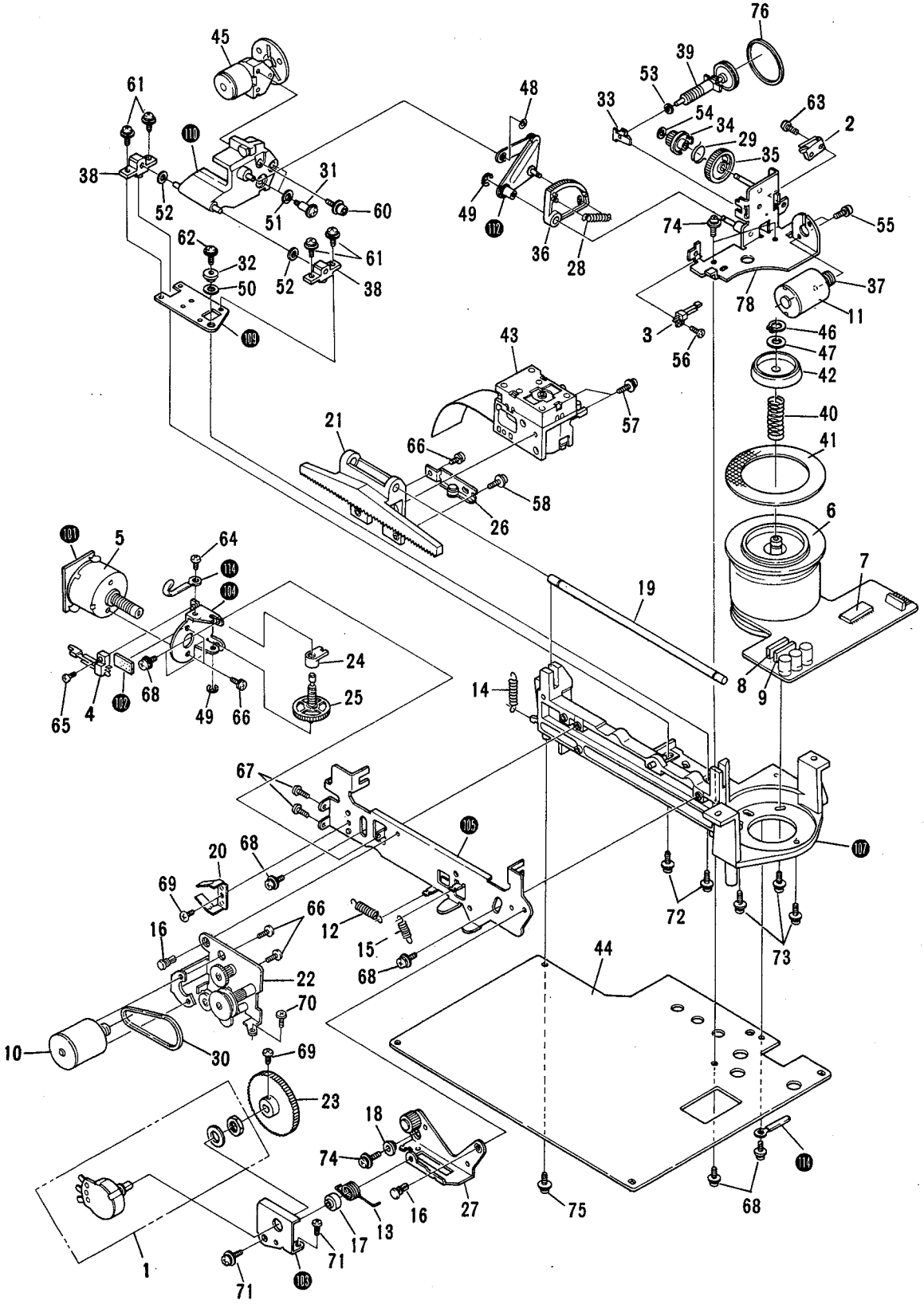


● Parts List of Bottom View

Mark	No.	Part No.	Description
	1.	VWG1010	DSDC assembly
	2.	VYV1013	STBC assembly
	3.	VYV1007	VDEM assembly
	4.	VEB1001	Rubber foot
	5.	VYV1015	ADEM assembly
⚠	6.	CM-22C	Cord stoper
	7.	VYV1016	MODB assembly
	8.	VNK1058	SW joint
⚠	9.	VDG-038	AC Power cord
★★	10.	VYW1029	EP ROM (IC111)
	11.	VYS1003	SRVB assembly
	12.	BPZ30P080FCU	Screw
	13.	PMB30P080FCU	Screw
	14.	BPZ30P080FZK	Screw
	15.	PMB30P080FCU	Screw
	16.	BPZ30P030FCU	Screw
	17.	BBZ30P060FCU	Screw

Mark	No.	Part No.	Description
⚠	101.		LSFB assembly
⚠	102.		PWSB assembly
	103.		DISP assembly
	104.		KEYB assembly
	105.		Mechanism assembly
	106.		P.C. B hinge
	107.		PC support
	108.		Rear panel
	109.		Earth plate
	110.		Base
	111.		Shield sheet
	112.		. . .
	113.		P.C.B cushion
	114.		Cord clamper

5.4 MECHANISM ASSEMBLY VIEW

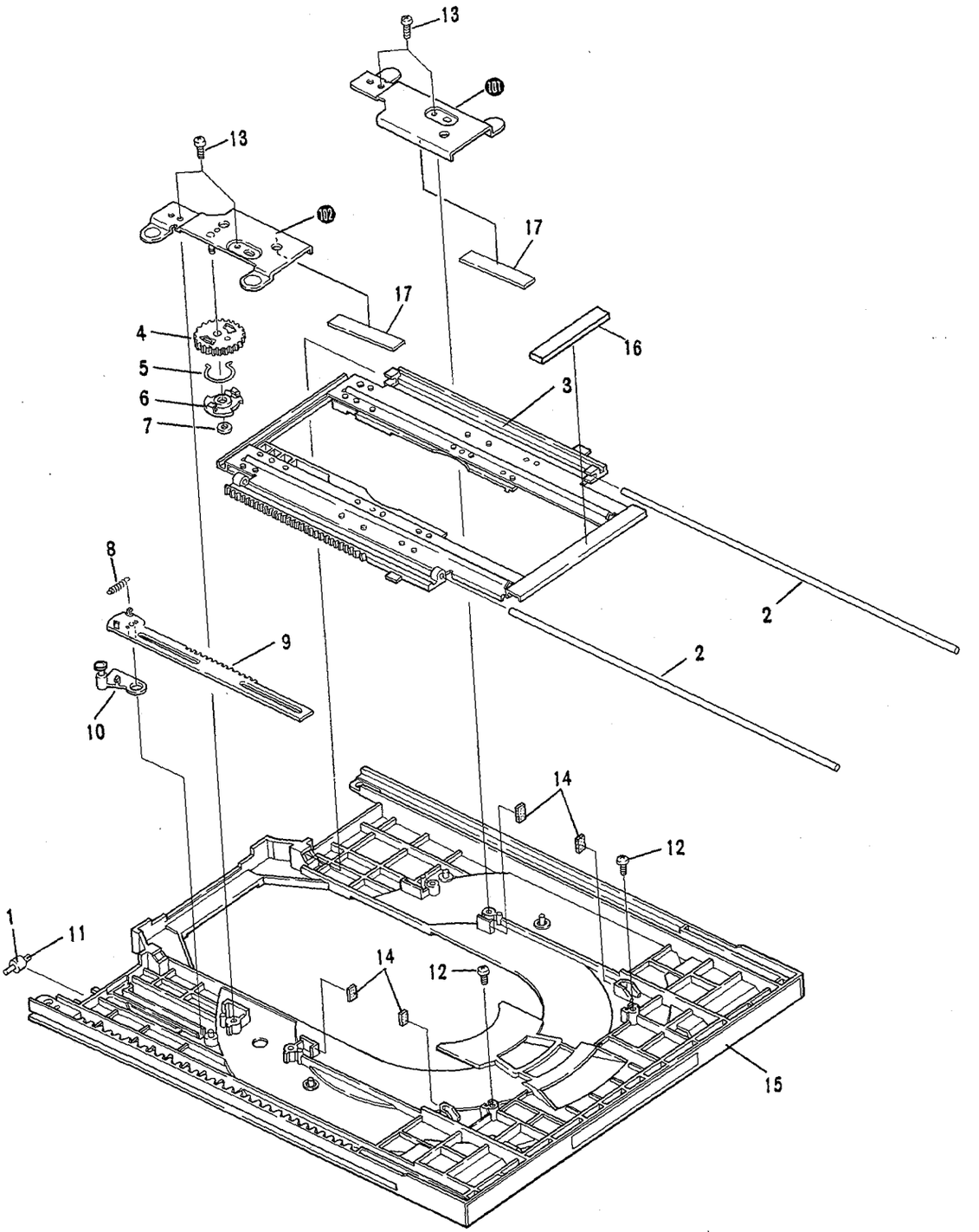


● Parts List of Mechanism View

Mark	No.	Part No.	Cescription
★	1.	VCS-017	Potentio meter (VR1)
★★	2.	VSK-010	Slide switch (CD MOTOR RELEASE) (S5)
★★	3.	VSK-014	Leaf switch (CD MOTOR SET) (S4)
★★	4.	VSK-015 (PSN-003)	Leaf switch (TILT LIMIT) (S3)
★★	5.	VXM-060	Tilt motor (M4)
★★	6.	VXM-063 (VXM-065)	Spindle motor (LD, M1)
★★	7.	PA2016	Control IC (IC1) (LD SPINDLE MOTOR)
★★	8.	STA302A	Transistor array (Q10) (LD SPINDLE MOTOR)
★★	9.	STA303A	Transistor array (Q11) (LD SPINDLE MOTOR)
★★	10.	VXM-054	LOAD motor (for SLDR) (M3)
★★	11.	VXM1007	Swing motor (M5)
	12.	VBH-138	Slider motor spring
	13.	VBH-140	Torsion spring
	14.	VBH-142	Tilt spring
	15.	VBH1011	Potentio meter spring
	16.	VEC-143	Plastic rivet
	17.	VLL-310	PM nut
	18.	VLL-311	Nut
	19.	VLL1032	Carriage shaft
	20.	VNE-701	Switch adjustment board
	21.	VNL-598	Slider
	22.	VXA1071	Gear box assembly
	23.	VNL1036	Potentio gear
	24.	VNV-036	Tilt nut
	25.	VXA-387	Tilt shaft assembly
	26.	VXA-394	Roller arm assembly
	27.	VXA-418	PM holder assembly
	28.	VBH-166	Gear spring
	29.	VBH-167	Pinion spring
	30.	VEB1024	Belt
	31.	VLL-183	Screw
	32.	VLL-371	Color
	33.	VNL-291	Shaft holder
	34.	VNL-615	Pinion (A)
	35.	VNL-616	Pinion (B)
	36.	VNL-617	Arm gear
	37.	VNL-635	Motor pulley
	38.	VNV-039	Holder
	39.	VXA-471	Worm gear assembly
	40.	VBH-141	Centering spring
	41.	VEB1008	Rubber spacer
	42.	VNV-037	Centering hab

Mark	No.	Part No.	Description
	43.	VWY1010	Pick-up assembly
	44.	VYS1003	SRVB assembly
	45.	VXX1047	Spindle motor assembly (CD, M2)
	46.	YC60RBT	Washer
	47.	WA62N120W020	Washer
	48.	WT21D050D050	Washer
	49.	YE20FUC	E ring
	50.	VEF-023	Spring (5ø)
	51.	VEF-027	Spring (4ø)
	52.	WA31D054D050	Washer
	53.	WA21D040D025	Washer
	54.	WT34D060D050	Washer
	55.	AMZ20P030FMC	Screw
	56.	PMZ20P040FMC	Screw
	57.	PMB26P060FMC	Screw
	58.	AMZ26P070FMC	Screw
	59.	. . .	. . .
	60.	VLL-378	Screw
	61.	AM30P050FCU	Screw
	62.	AMZ30P080FMC	Screw
	63.	BMZ20P080FCU	Screw
	64.	BBZ30P060FCU	Screw
	65.	PMZ20P050FMC	Screw
	66.	PMA26P040FCU	Screw
	67.	PMZ30P160FMC	Screw
	68.	PMB30P080FCU	Screw
	69.	BBZ30P060FMC	Screw
	70.	PMZ30P060FMC	Screw
	71.	PMB30P100FCU	Screw
	72.	VLL-377	Screw
	73.	VLL-378	Screw
	74.	PMB30P060FCU	Screw
	75.	BMZ30P060FMC	Screw
	76.	VEB-126	Synchronized belt S
	77.	. . .	. . .
	78.	VXA-415	Base assembly
	101.		TIMB assembly
	102.		Insulator bushing
	103.		PB support
	104.		Tilt holder
	105.		Tilt base
	106.		. . .
	107.		Mechanism chassis
	108.		. . .
	109.		Slide plate
	110.		Motor base
	111.		. . .
	112.		Arm assembly
	113.		. . .
	114.		Cord clamper

5.5 CARRY ASSEMBLY VIEW

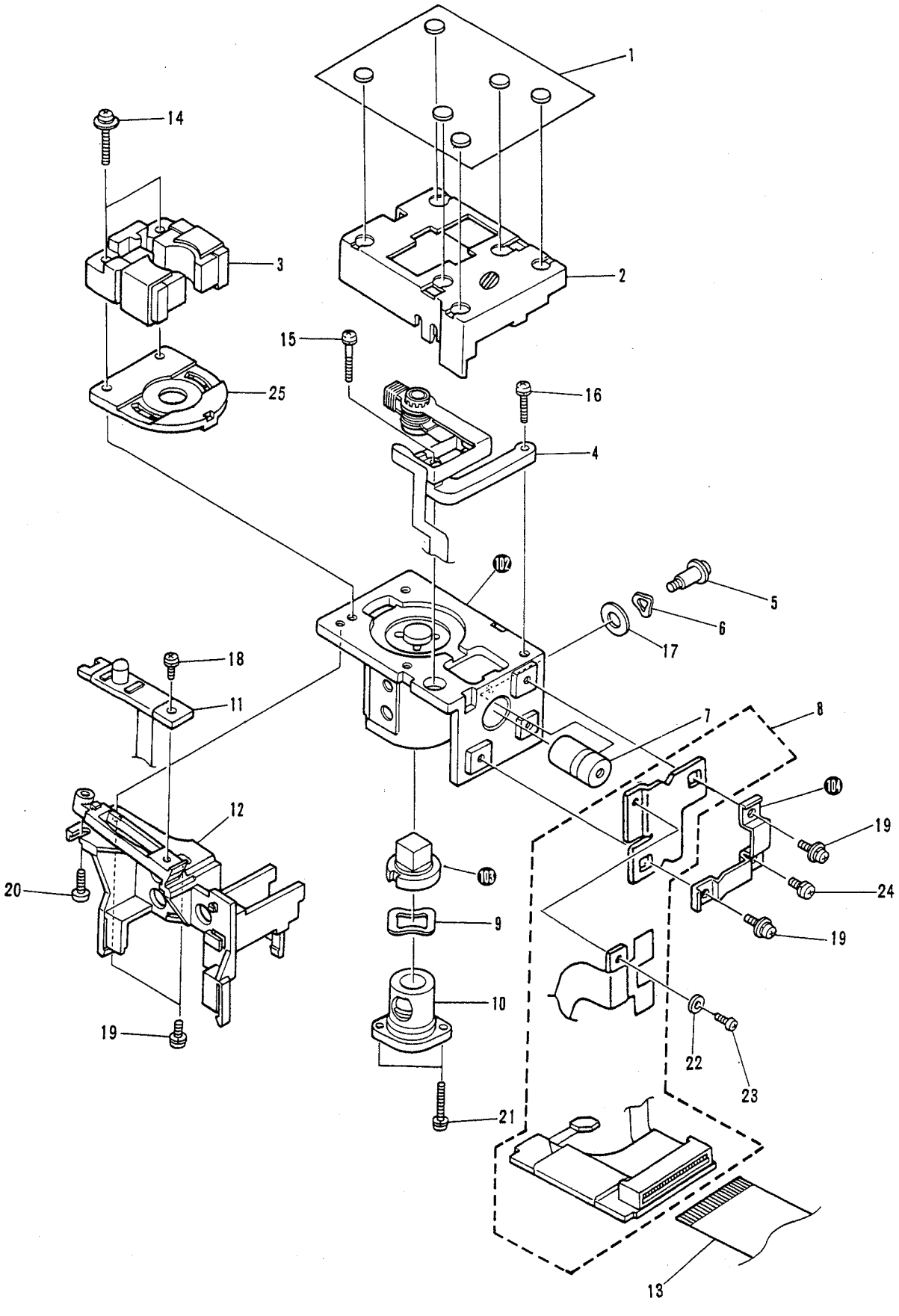


● Parts List of Carry Assembly

Mark	No.	Part No.	Description
	1.	VNL-597	Roller
	2.	VLL-356	Shaft
	3.	VXA-463	Sub-carry assembly
	4.	VNL-594	Gear (C)
	5.	VBH1016	Gear spring
	6.	VNL-595	Gear (D)
	7.	WT31D054D025	Polyslider washer
	8.	VBH1008	Lock plate spring
	9.	VNL1025	Slide plate
	10.	VXA1081	Lock plate assembly
	11.	VLL1025	Pin
	12.	ABZ30P080FCU	Screw
	13.	BBZ30P080FCU	Screw
	14.	VEC-272	Carry cushion
	15.	VXX1027	Carry assembly-S
	16.	VEC1054	*Black sheet (C)
	17.	VEC-286	Cushion F
	101.		Gear base (L)
	102.		Gear base (R) assembly

* *Note: Always install this sheet when replacing the Subcarrier assembly (in order to prevent erroneous disc detection).*

5.6 PICK-UP ASSEMBLY VIEW



• Parts List of Pick-up Assembly

Mark	No.	Part No.	Description
	1.	VED-034	Pad
	2.	VNH-057	Actuator cover
	3.	VGX-071	Magnetic circuit assembly
	4.	VGX-069	Objective lens assembly
	5.	VLL-292	Screw 5
	6.	PBE-020	Wave washer (4)
	7.	VGX-064	Multi lens assembly
	8.	VGX1002	PD-HEAD assembly
	9.	PBE-022	Wave washer (8)
	10.	VGX1001	LD assembly
	11.	VEX1001-A	Sensor assembly
	12.	VNH-056	Sensor stay
	13.	VDA-108	Fuji card
	14.	PBM20P120FMC	Screw
	15.	PMA20P140FMC	Screw
	16.	PMA20P080FMC	Screw
	17.	WA40100M050	Washer
	18.	PPZ20P050FMC	Screw
	19.	PMB20P050FMC	Screw
	20.	PBZ20P080FMC	Screw
	21.	PMA26P080FMC	Screw
	22.	WA20W050R050	Washer
	23.	PMA20P040FMC	Screw
	24.	PMA26P060FMC	Screw
	25.	VGX1005	Wavelength plate assembly
	102.		Optical body
	103.		Prism assembly
	104.		PD spring N

INSTALLING THE HEAD ASSEMBLY

In order to make sure that flexible parts are supported in such a way that they lie flat, use the following procedure to install the PD-head assembly.

1. Use glue and double-sided tape folded in the manner indicated by the arrow in Figure 1 to install the PD-head assembly.
2. With the flexible part bent as shown in Figure 1, install it on the Pick-up.
3. Solder the flexible circuit board that connects the TRKG and FOCS coils and the disc tilt detection board on the Head assembly as shown in Fig. 2.

Note:
The copper foil on the flexible circuit board can not withstand heat very well, so solder as quickly as possible. Touch the soldering iron to the Head assembly, not to the flexible circuit board.

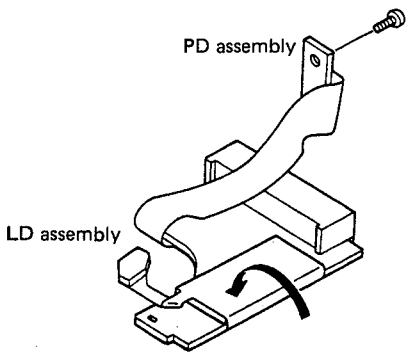


Fig. 1

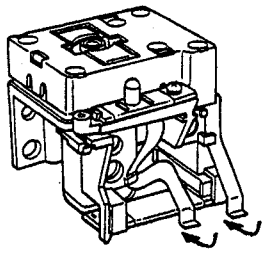
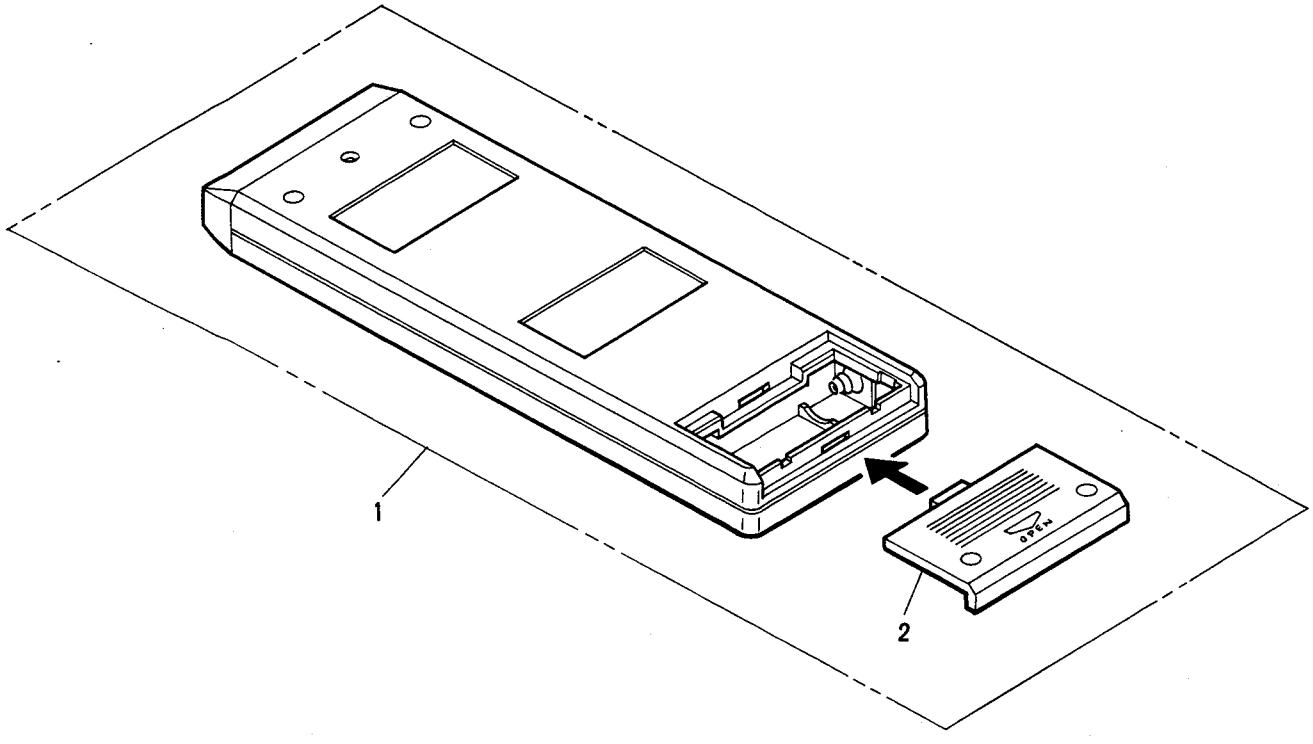


Fig. 2

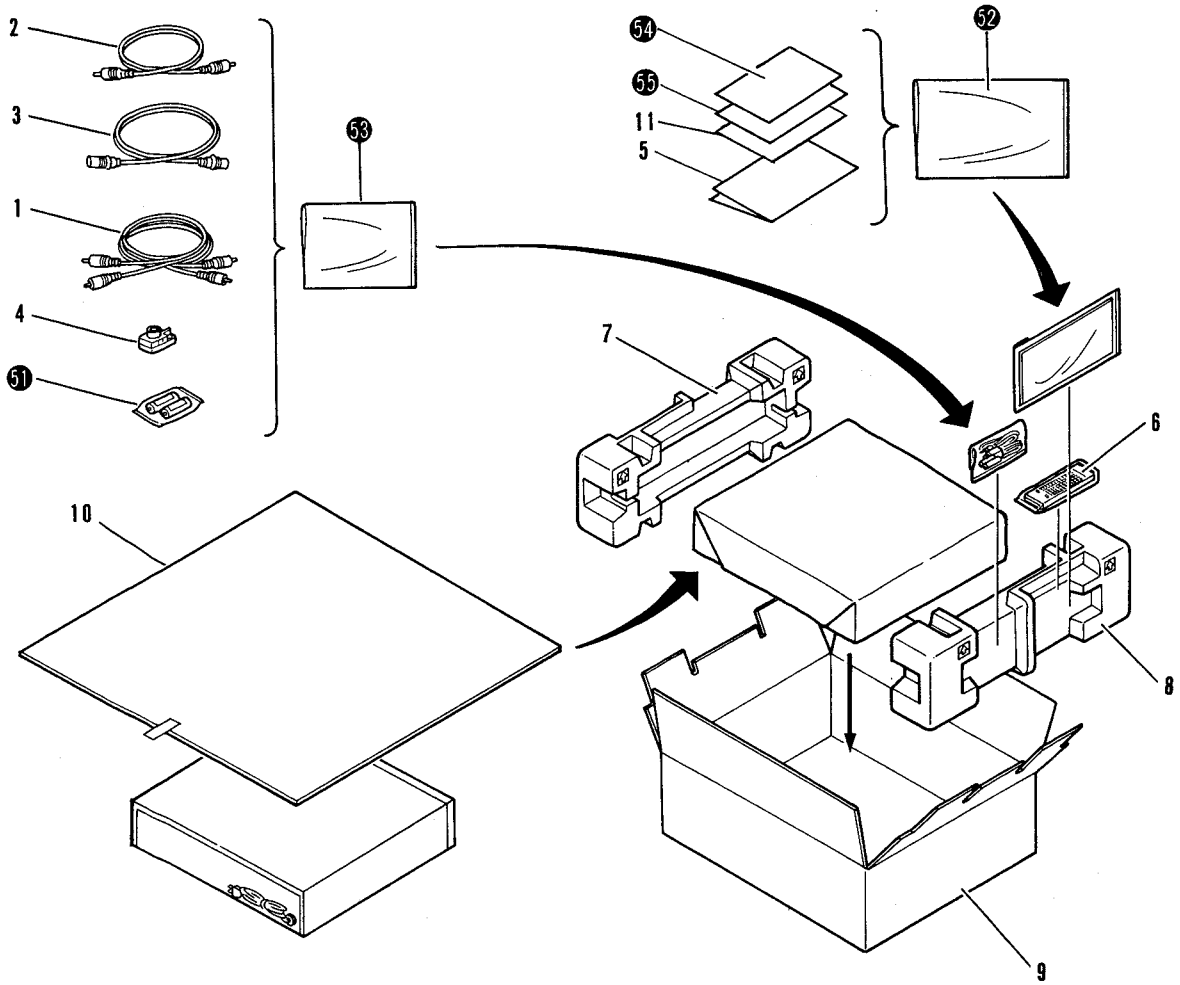
5.7 REMOTE CONTROL UNIT



● Parts List of Remote control unit

Mark	No.	Part No.	Description
	1.	VXX1040	Remote control unit
	2.	VNK-548	Cover

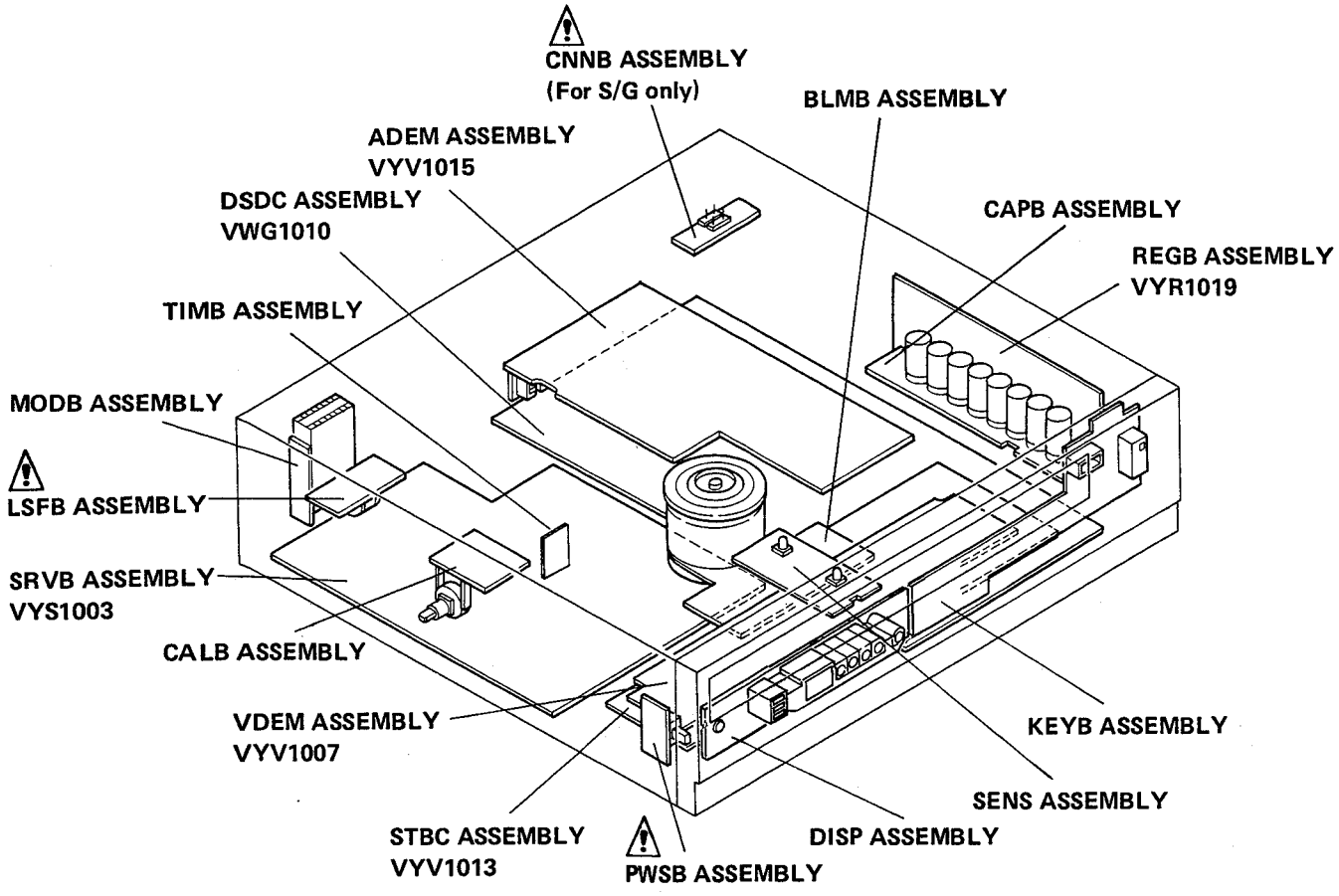
6. PACKING



• Parts List of Packing

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1.	VDE1002 (VDE-055) (VDE-1005)	Audio cable		51.		Battery UM-4
					52.		Polyethylene bag
					53.		Polyethylene bag
	2.	VDE-056 (VDE1004)	Video cable		54.		Caution card
					55.		Service net work
	3.	VDE1001 (VDE-054)	RF antenna cable				
	4.	VKX-020	Antenna adaptor				
	5.	VRB1003	Operating instructions				
	6.	VXX1040	Remote control unit				
	7.	VHA1004	Pad (L)				
	8.	VHA1007	Pad (R)				
	9.	VHG1011	Packing case				
	10.	VHL-037	Sheet				
	11.	VRG1001	Sub operating instructions				

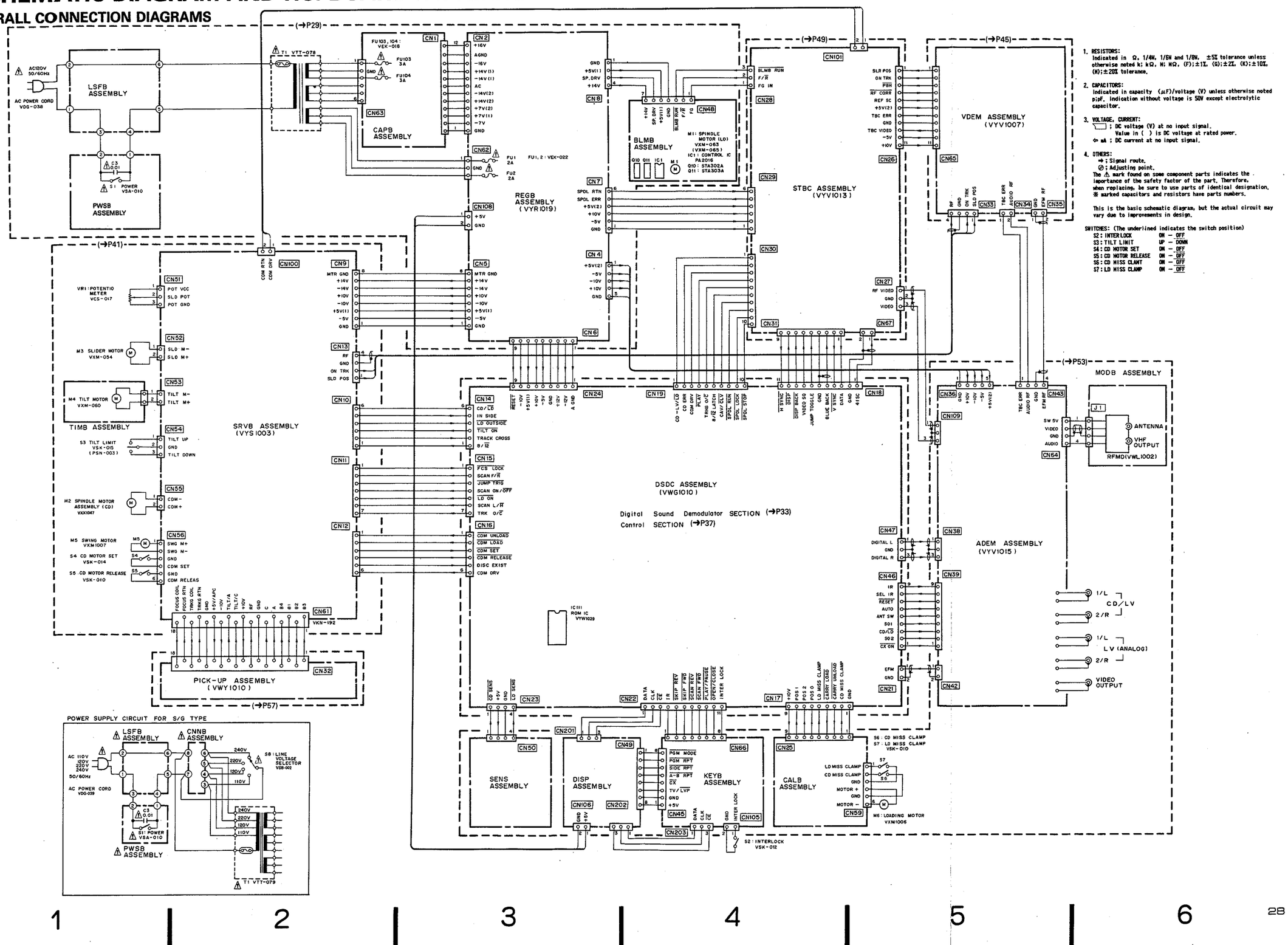
7. P.C. BOARDS LOCATION



VWG1010	DSDC	(Digital Sound Demodulator Board)
VYS1003	SRVB	(Servo Board)
VYV1013	STBC	(Spindle & Time Base Corrector)
VYV1007	VDEM	(Video Demodulator)
VYV1015	ADEM	(Audio Demodulator)
	CAPB	(Capacitor Board)
	SENS	(Sensor Board)
VYR1019	REGB	(Regulator Board)
	LSFB	(Line Surge Filter Board)
	PWSB	(Power Switch Board)
	DISP	(Display Board)
	MODB	(Modulator Board)
	CALB	(Carry Loading Board)
	BLMB	(Blushless Motor Board)
	KEYB	(Key Board)
	TIMB	(Tilt Motor Board)
	CNNB	(Connection Board)

8. SCHEMATIC DIAGRAM AND P.C. BOARD PATTERNS

8.1 OVERALL CONNECTION DIAGRAMS



1. RESISTORS:
   Indicated in Ω, 1/4W, 1/6W and 1/8W, ±5% tolerance unless otherwise noted k; kΩ, M; MΩ, (F):±1%, (G):±2%, (K):±10%, (M):±20% tolerance.
2. CAPACITORS:
   Indicated in capacity (μF)/voltage (V) unless otherwise noted pipF, indication without voltage is 50V except electrolytic capacitor.
3. VOLTAGE, CURRENT:
   [ ] ; DC voltage (V) at no input signal.
   Value in ( ) is DC voltage at rated power.
   ⇦ mA ; DC current at no input signal.
4. OTHERS:
   ⇒ ; Signal route,
   ⊘ ; Adjusting point.
   The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
   ※ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

SWITCHES: (The underlined indicates the switch position)

S2 : INTER LOCK	ON — OFF
S3 : TILT LIMIT	UP — DOWN
S4 : CD MOTOR SET	ON — OFF
S5 : CD MOTOR RELEASE	ON — OFF
S6 : CD MISS CLAMP	ON — OFF
S7 : LD MISS CLAMP	ON — OFF

8.2 REGB, LSFB, PWSB, CAPB, BLMB AND CNNB ASSEMBLY

1. RESISTORS:
   Indicated in Ω, 1/4W, 1/6W and 1/8W, ±5% tolerance unless otherwise noted k; kΩ, M; MΩ, (F):±1%, (G):±2%, (K):±10%, (M):±20% tolerance.

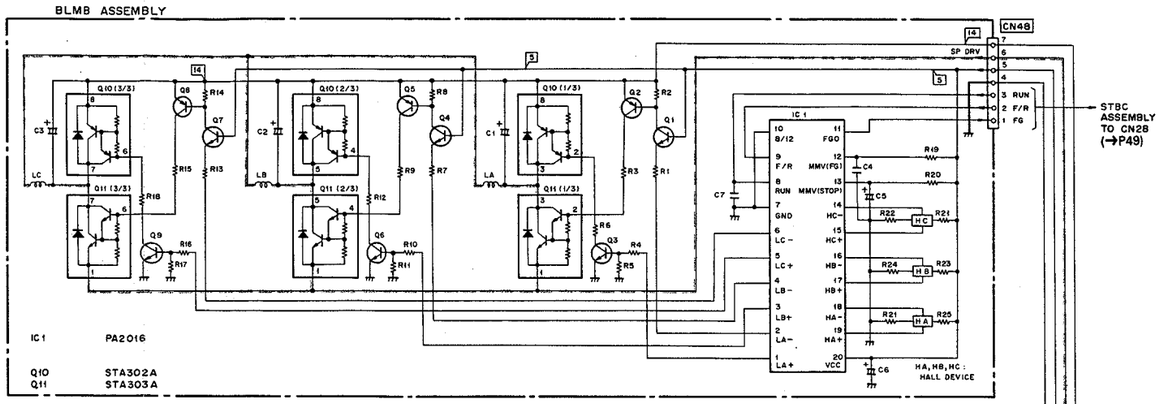
2. CAPACITORS:
   Indicated in capacity (μF)/voltage (V) unless otherwise noted p;pF. Indication without voltage is 50V except electrolytic capacitor.

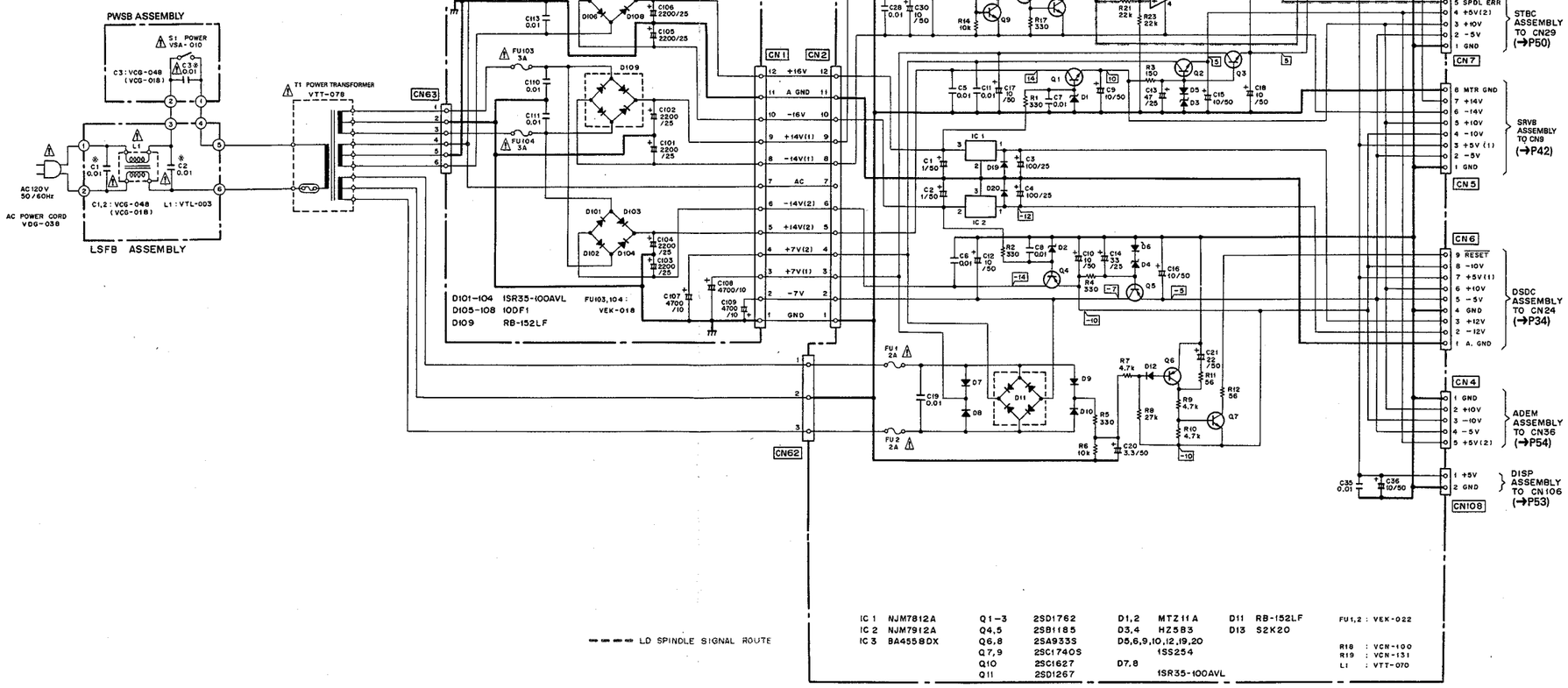
3. VOLTAGE, CURRENT:
   ▭ ; DC voltage (V) at no input signal.
   Value in ( ) is DC voltage at rated power.
   ⇦ mA ; DC current at no input signal.

4. OTHERS:
   ⇒ ; Signal route.
   ⊘ ; Adjusting point.
   The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation. ※ marked capacitors and resistors have parts numbers.

   This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

SWITCHES: (The underlined indicates the switch position)
PSWB ASSEMBLY
S1 : POWER ON — OFF





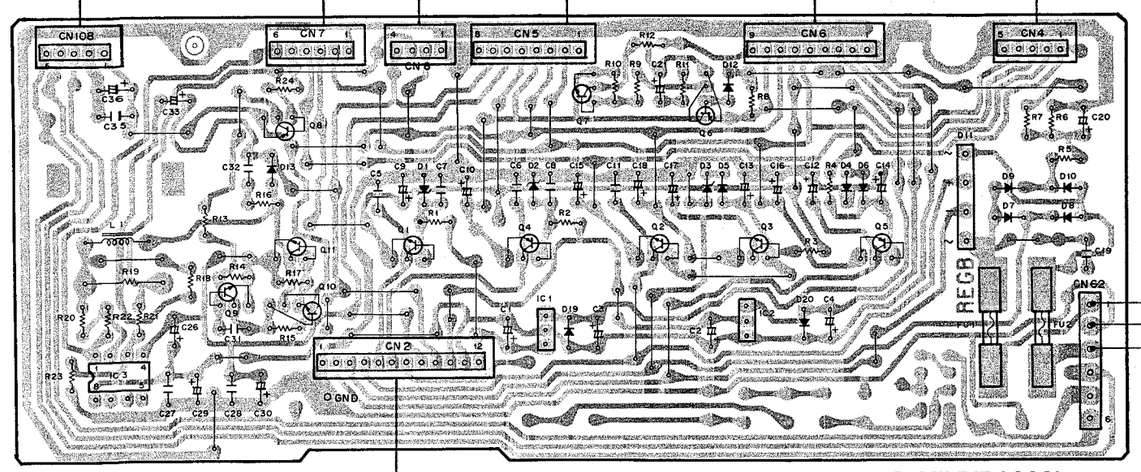
DISP ASSEM BLY
CN106

STBC ASSEMBLY
CN29

SRVB ASSEMBLY
CN9

DSDC ASSEMBLY
CN24

ADEM ASSEMBLY
CN36

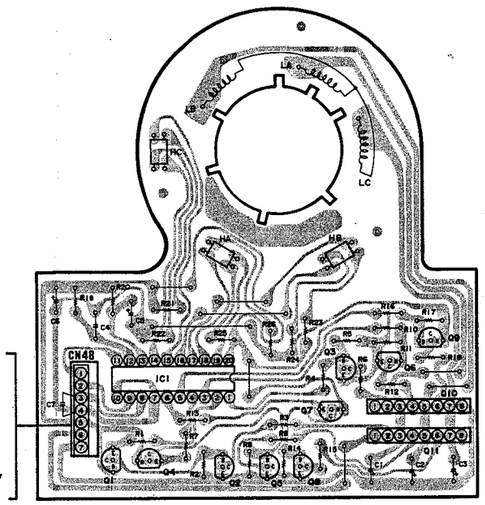


REGB ASSEMBLY(VYR1019)

STBC ASSEMBLY
CN28
3 1

CN48
1
7

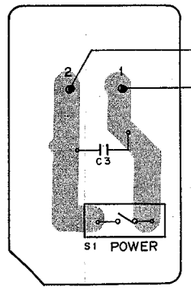
CN8
1
4



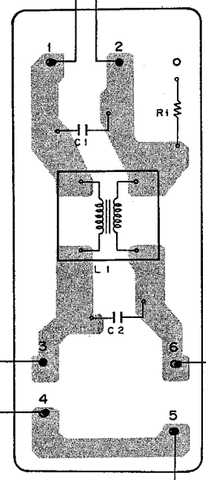
BLMB ASSEMBLY

⚠ AC120V
60Hz

⚠PSWB ASSEMBLY

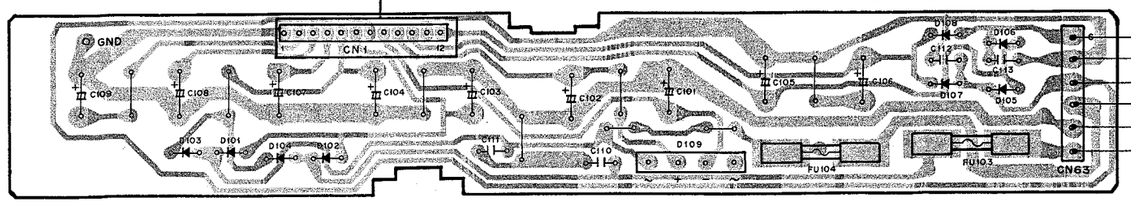


⚠ LSFB
ASSEMBLY

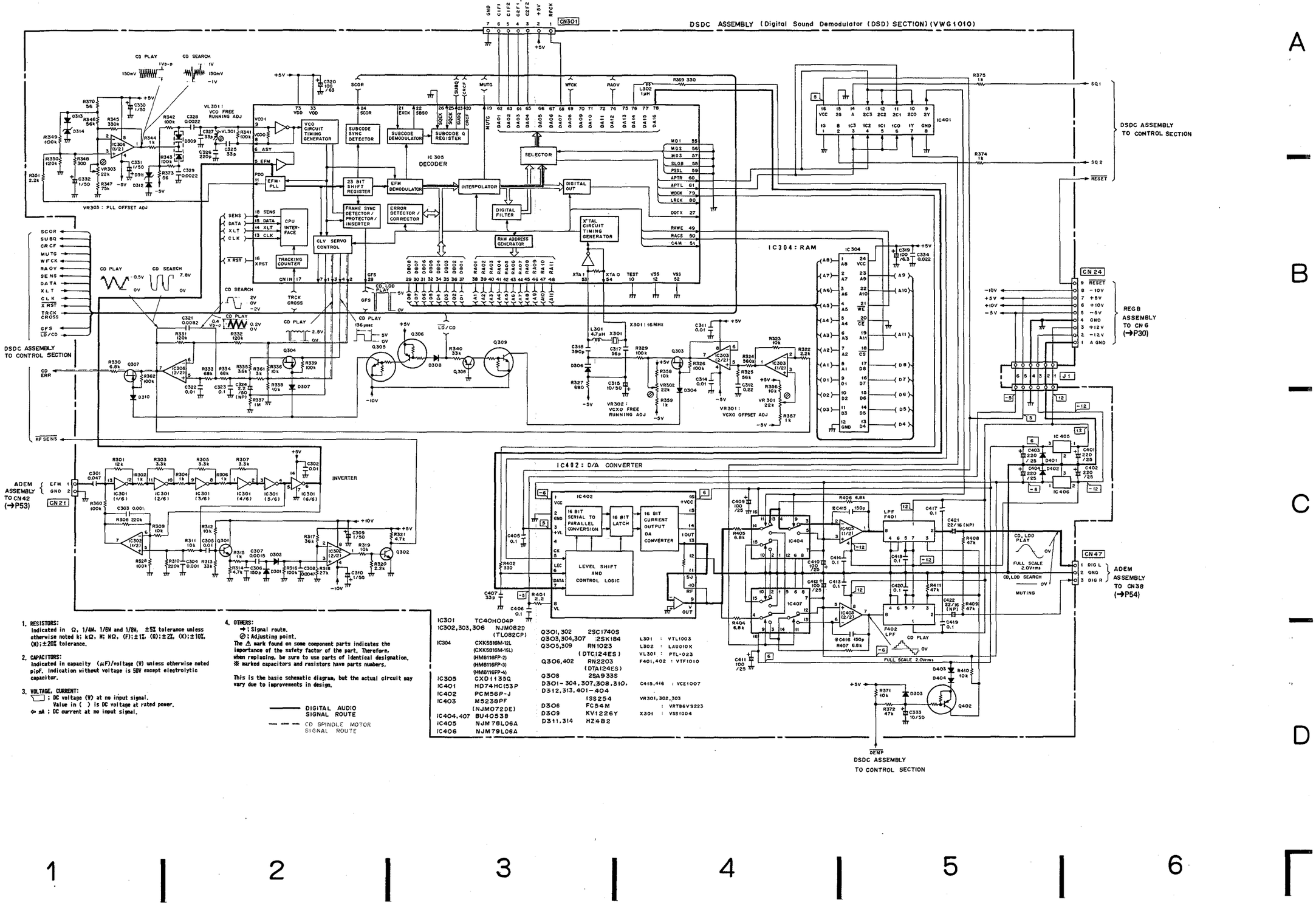


⚠ T1 : VTT-078

CAPB ASSEMBLY



8.3 DSDC ASSEMBLY (D.S.D SECTION)



1. RESISTORS:
   Indicated in Ω, 1/4W, 1/6W and 1/8W, ±5% tolerance unless otherwise noted k; kΩ, M; MΩ, (F):±1%, (G):±2%, (K):±10%, (M):±20% tolerance.
2. CAPACITORS:
   Indicated in capacity (μF)/voltage (V) unless otherwise noted pipF, indication without voltage is 50V except electrolytic capacitor.
3. VOLTAGE, CURRENT:
   ▭ ; DC voltage (V) at no input signal.
   Value in ( ) is DC voltage at rated power.
   ◇ mA ; DC current at no input signal.
4. OTHERS:
   ⇒ : Signal route.
   ⊘ : Adjusting point.
   The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
   ※ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

——— DIGITAL AUDIO SIGNAL ROUTE
– – – – CD SPINDLE MOTOR SIGNAL ROUTE

IC301	TC40H004P
IC302,303,306	NJM082D (TL082CP)
IC304	CXK5816M-12L (CXK5816M-15L) (HM6116FP-2) (HM6116FP-3) (HM6116FP-4)
IC305	CXD1135Q
IC401	HD74HC153P
IC402	PCM56P-J
IC403	M5238PF (NJM072DE)
IC404,407	BU40538
IC405	NJM78L06A
IC406	NJM79L06A
Q301,302	2SC1740S
Q303,304,307	2SK184
Q305,309	RN1023 (DTC124ES)
Q306,402	RN2203 (DTA124ES)
Q308	2SA933S
D301-304,307,308,310, D312,313,401-404	1SS254
D306	FC54M
D309	KV1226Y
D311,314	HZ482
L301	: VTL1003
L302	: LAU010K
VL301	: PTL-023
F401,402	: VTF1010
C415,416	: VCE1007
VR301,302,303	
X301	: VSS1004

1 2 3 4 5 6

A B C D

ADEM ASSEMBLY
CN42

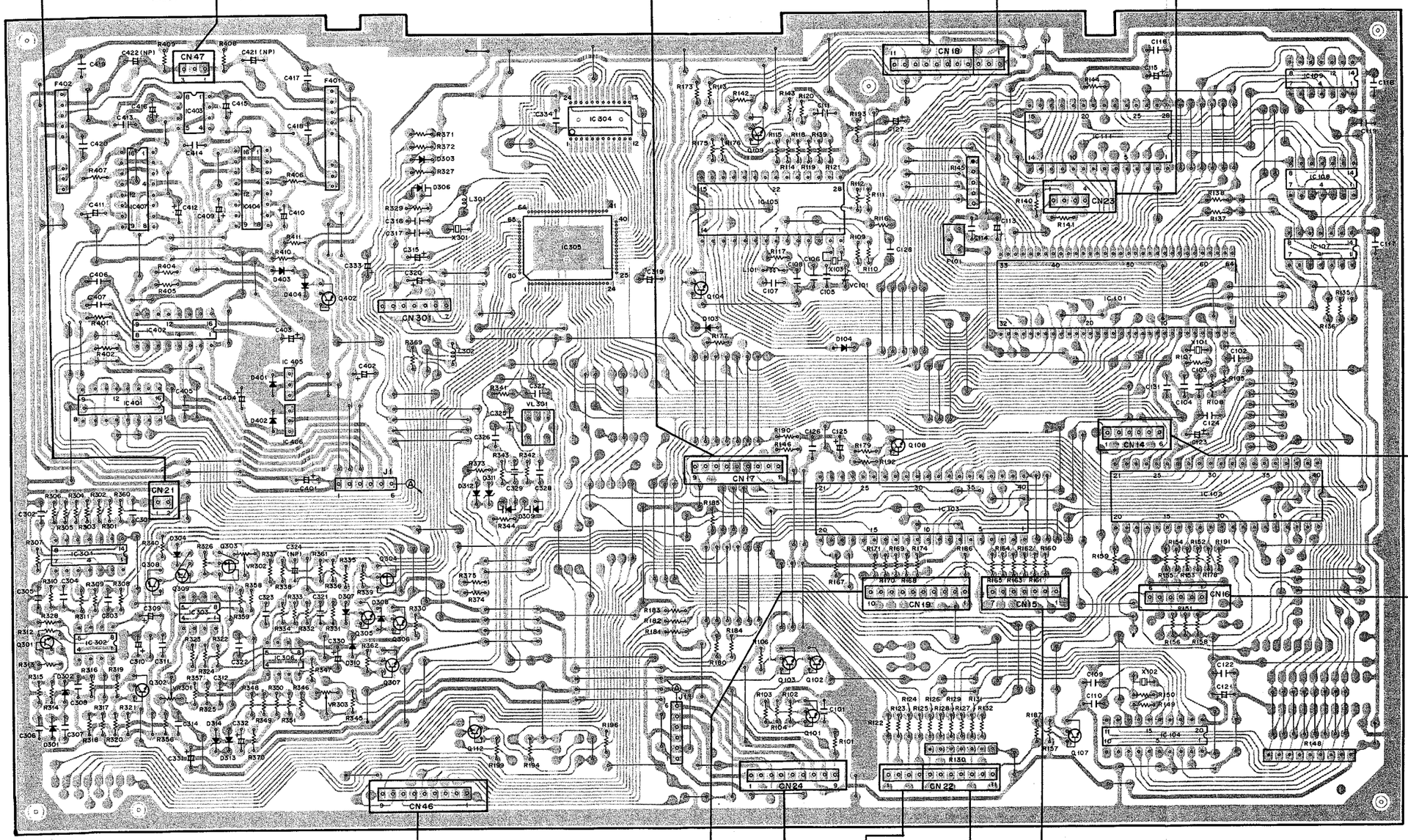
ADEM ASSEMBLY
CN38

CALB ASSEMBLY
CN25

STBC ASSEMBLY
CN31
CN67

SENS ASSEMBLY
CN50

DSDC ASSEMBLY(VWG1010)



SRVB ASSEMBLY
CN10

SRVB ASSEMBLY
CN12

CN39
ADEM ASSEMBLY

CN30
STBC ASSEMBLY

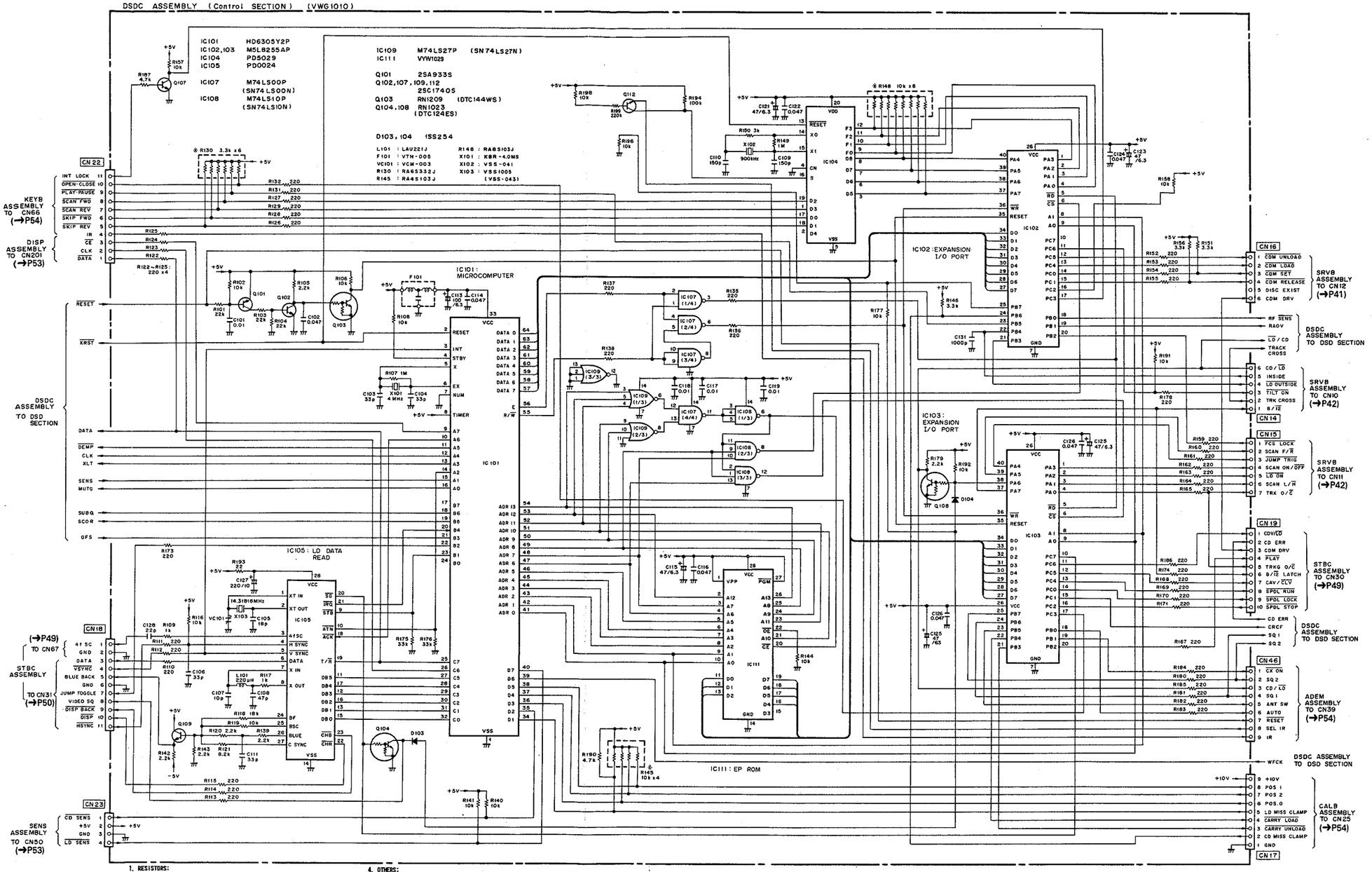
CN6
REGB ASSEMBLY

CN201
DISP ASSEMBLY

CN66
KEYB ASSEMBLY

CN11
SRVB ASSEMBLLY

8.4 DSDC ASSEMBLY (CONTROL SECTION)



1. RESISTORS:
Indicated in Ω, 1/4W, 1/8W and 1/8W, ±5% tolerance unless otherwise noted k; kΩ, M; MΩ, (F):±1%, (G):±2%, (X):±10%, (M):±20% tolerance.

2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted pipF. Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
⟨ ⟩ ; DC voltage (V) at no input signal.
Value in ( ) is DC voltage at rated power.
⇦ mA ; DC current at no input signal.

4. OTHERS:
⇒ ; Signal route.
Ø ; Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

DSDC ASSEMBLY(VWG1010)

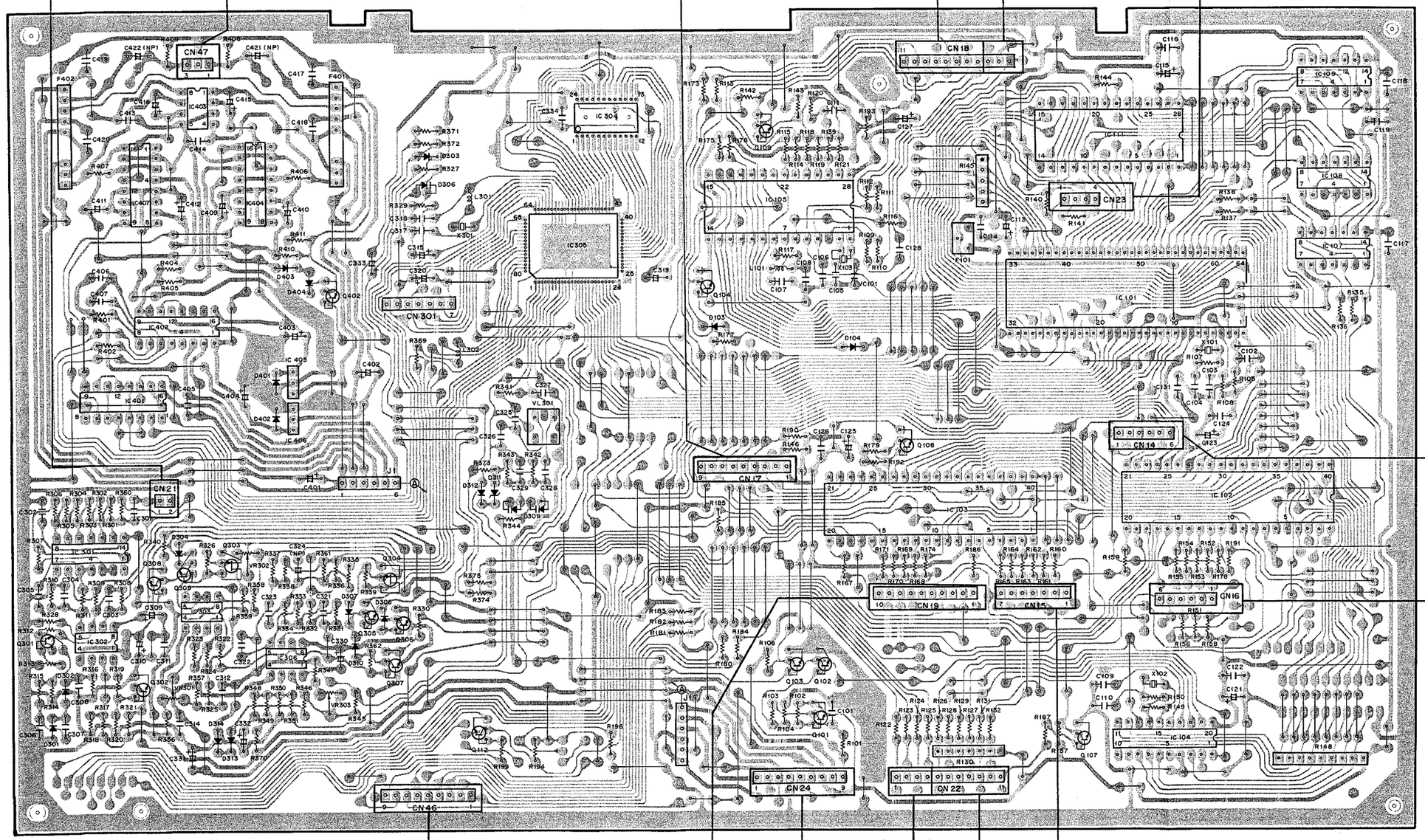
ADEM ASSEMBLY
CN42

ADEM ASSEMBLY
CN38

CALB ASSEMBLY
CN25

STBC ASSEMBLY
CN31
CN67

SENS ASSEMBLY
CN50



SRVB ASSEMBLY
CN10

SRVB ASSEMBLY
CN12

CN39
ADEM ASSEMBLY

CN30
STBC ASSEMBLY

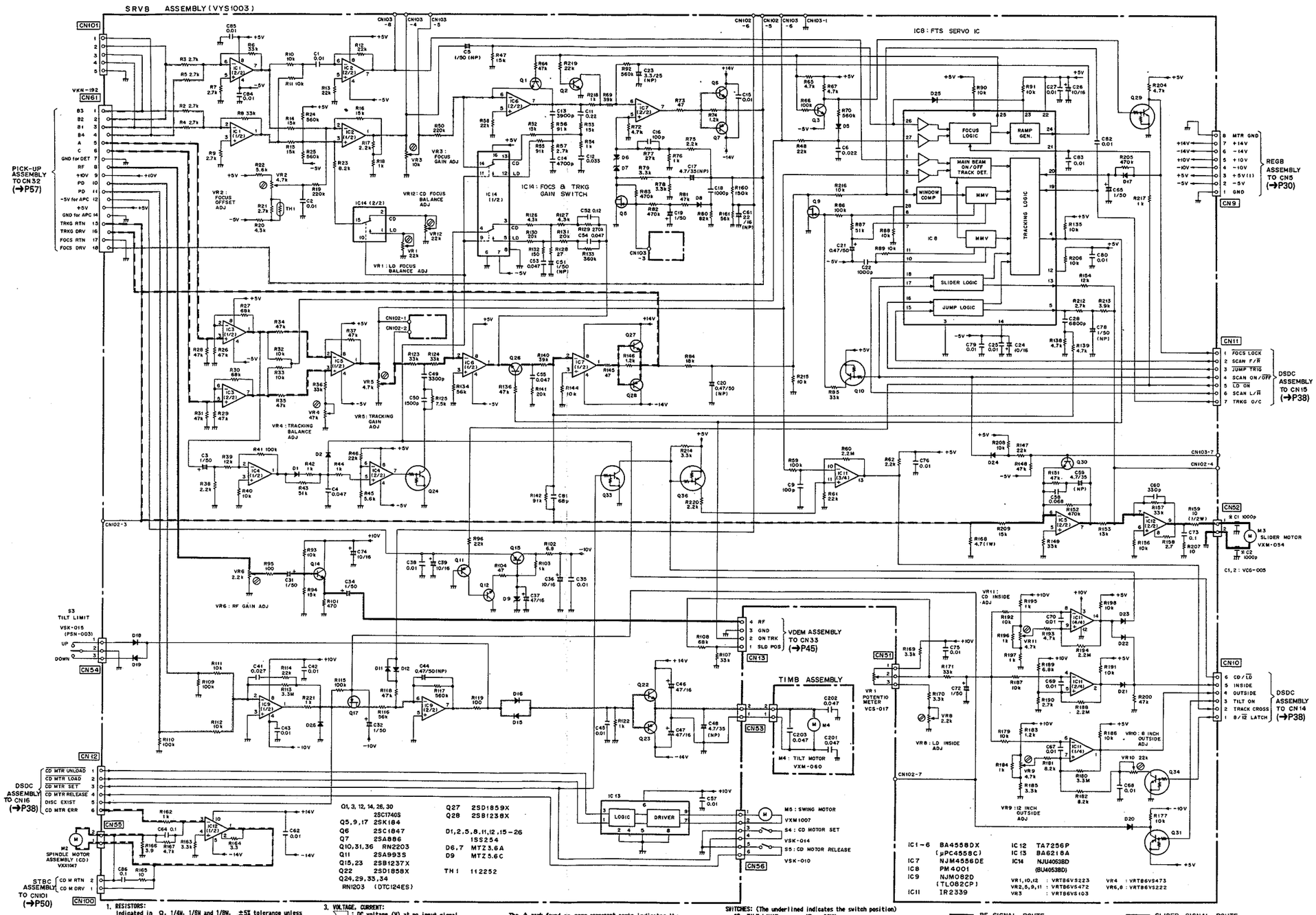
CN6
REGB ASSEMBLY

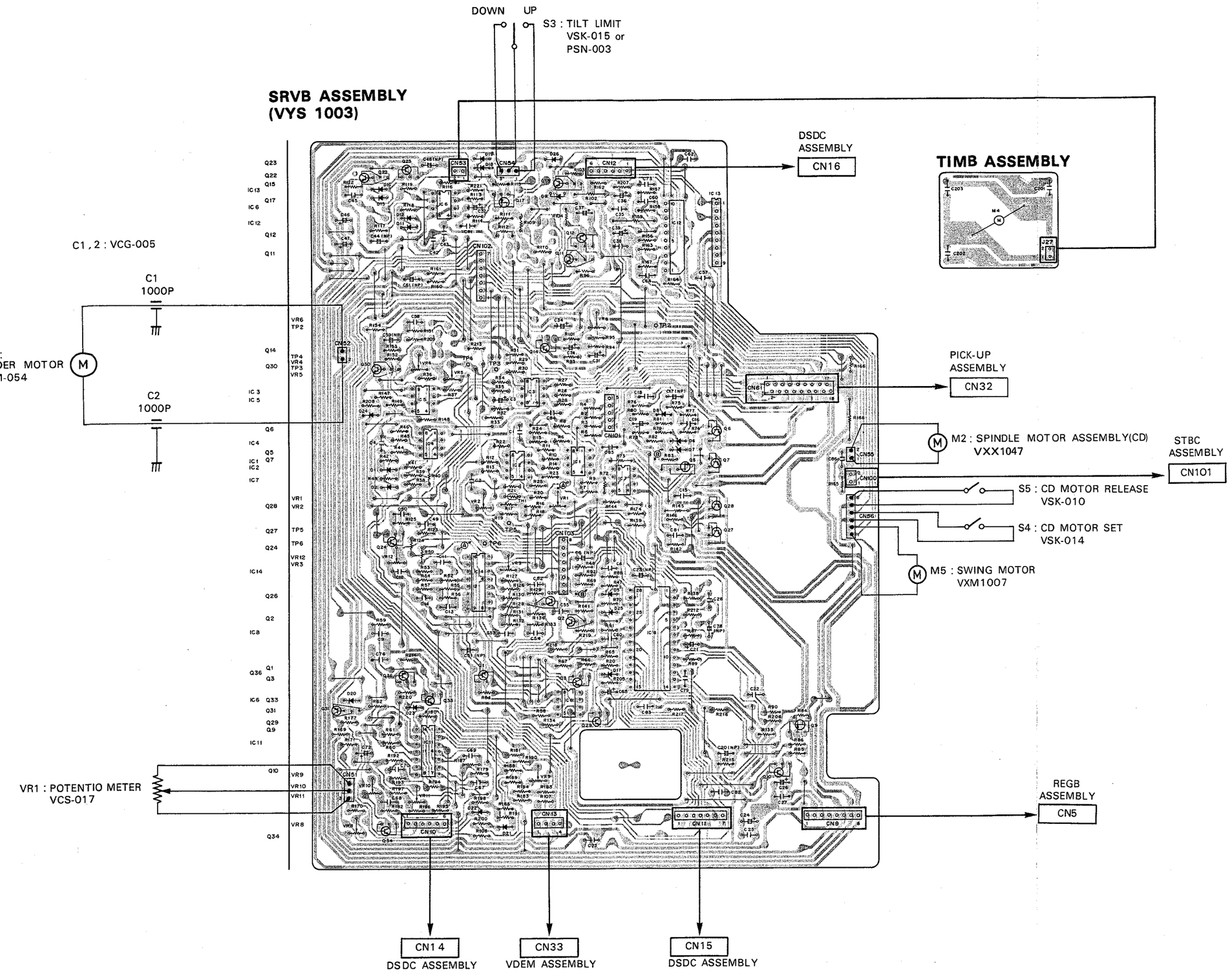
CN201
DISP ASSEMBLY

CN66
KEYB ASSEMBLY

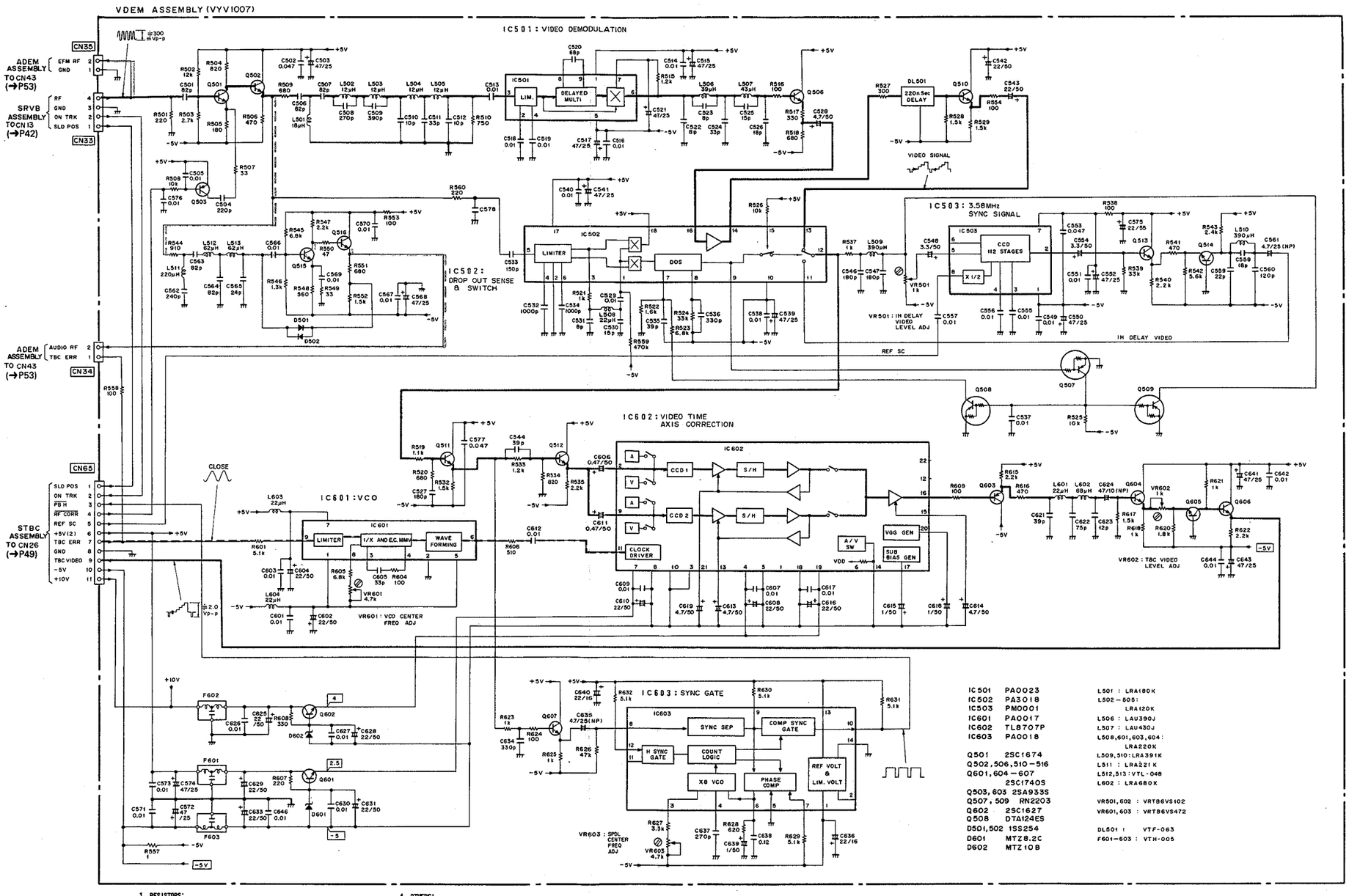
CN11
SRVB ASSEMBLLY

8.5 SRVB AND TIMB ASSEMBLY




DOWN
UP
S3 : TILT LIMIT
VSK-015 or
PSN-003
SRVB ASSEMBLY
(VYS 1003)
DSDC
ASSEMBLY
CN16
TIMB ASSEMBLY
C1 , 2 : VCG-005
C1
1000P
C2
1000P
M3 :
SLIDER MOTOR
VXM-054
PICK-UP
ASSEMBLY
CN32
M2 : SPINDLE MOTOR ASSEMBLY(CD)
VXX1047
STBC
ASSEMBLY
CN101
S5 : CD MOTOR RELEASE
VSK-010
S4 : CD MOTOR SET
VSK-014
M5 : SWING MOTOR
VXM1007
VR1 : POTENTIO METER
VCS-017
REGB
ASSEMBLY
CN5
CN14
DSDC ASSEMBLY
CN33
VDEM ASSEMBLY
CN15
DSDC ASSEMBLY

8.6 VDEM ASSEMBLY



IC501	PA0023
IC502	PA3018
IC503	PM0001
IC601	PA0017
IC602	TL8707P
IC603	PA0018
Q501	2SC1674
Q502,506,510~516	
Q601,604~607	2SC1740S
Q503,603	2SA933S
Q507,509	RN2203
Q602	2SC1627
Q508	DTA124ES
D501,502	1SS254
D601	MTZ8.2C
D602	MTZ10B

L501	LRA180K
L502~505	LRA120K
L506	LAU390J
L507	LAU430J
L508,601,603,604	LRA220K
L509,510	LRA391K
L511	LRA221K
L512,513	VTL-048
L602	LRA680K
VR501,602	VRT86VS102
VR601,603	VRT86VS472
DL501	VTF-063
F601~603	VTH-005

1. RESISTORS:
Indicated in Ω, 1/4W, 1/6W and 1/8W, ±5% tolerance unless otherwise noted k; kΩ, M; MΩ, (F);±1%, (G);±2%, (K);±10%, (M);±20% tolerance.

2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p;pF. Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
; DC voltage (V) at no input signal.
Value in ( ) is DC voltage at rated power.
⇔ mA ; DC current at no input signal.

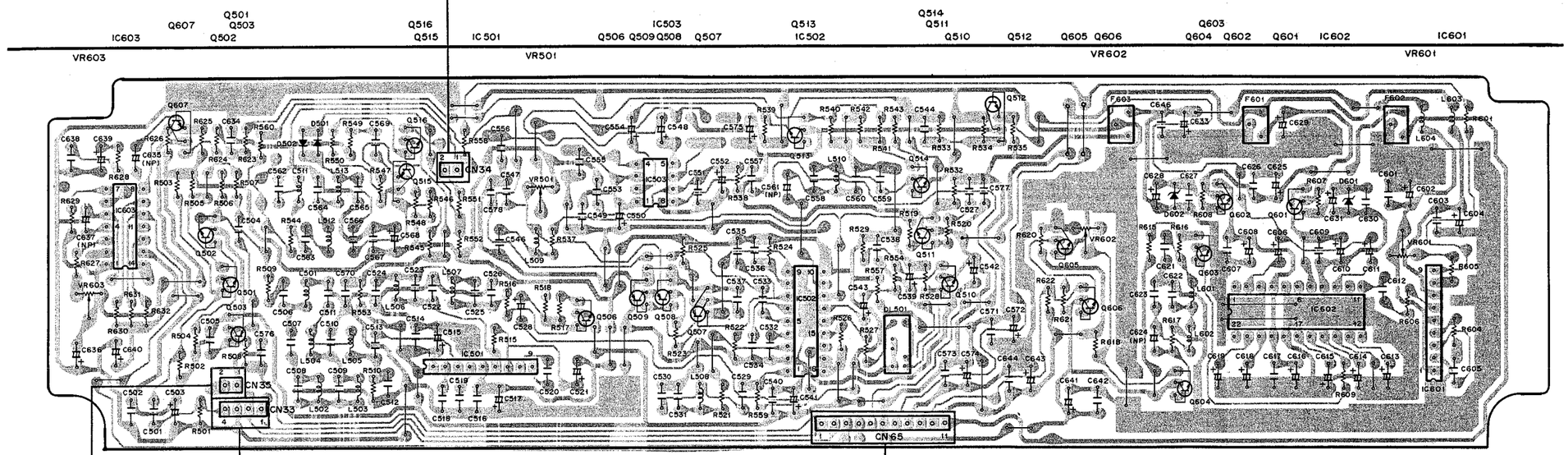
4. OTHERS:
⇒ ; Signal route,
⊘ ; Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

VIDEO SIGNAL ROUTE
CCD SERVO SIGNAL ROUTE
DIGITAL AUDIO SIGNAL ROUTE
ANALOG AUDIO SIGNAL ROUTE

ADEM ASSEMBLY
CN43

VDEM VDEM ASSEMBLY (VYV1007)



CN43
ADEM ASSEMBLY

CN13
SRVB ASSEMBLY

CN26
STBC ASSEMBLY

8.7 STBC ASSEMBLY

STBC ASSEMBLY (VYV1013)

IC301 : DISPLAY

IC4 : SYNC SEP

IC1 : CCD SRV

IC101 : SPDL SRV

IC1	PA5009	Q1,2	2SK184
IC2,3,102,201	BA4558DX (NJM4558D)	Q3,4,106,107, Q201–205,211	RN1203
IC4	PA0009	Q5,101,102,301,304	2SA933S
IC101	PM2001	Q6,103–105,207,210, Q302,303,305–307, Q401,402,404–408, Q410–414	(TC4053BP)
IC202	M5233P		
IC203	BU4053B (TC4053BP)		
IC204	TC40118P		
IC301	PA9003		2SC1740S
Q206	RN2203	VR1,3,4 : VRT86VS473	
Q403,409	2SC1583	VR2 : VRT86VS223	
D1–3,6–12,101–106, D201, 401–404	1SS254	VR5 : VRT86VS472	
D301	SVC321SP	VR301 : VRT86VS102	
TH201	112252	L1 : LRA270K	
		L2 : LRA121K	
		L301 : LRA68BK	
		F401 : VTF-062	

CN27 — ADEM ASSEMBLY TO CN109 (→P54)
1 RF VIDEO, 2 GND, 3 VIDEO

CN31 — DSDC ASSEMBLY TO CN18 (→P37)
1 DATA, 2 V SYNC, 3 BLUE BACK, 4 GND, 5 JUMP TOGGLE, 6 VIDEO SQ, 7 DISP BACK, 8 DISP, 9 H SYNC

CN26 — VDEM ASSEMBLY TO CN65 (→P45)
1 SLD POS, 2 ON TRK, 3 FBH, 4 RF CORR, 5 REF SC, 6 +5V(2), 7 TBC ERR, 8 GND, 9 TBC VIDEO, 10 −5V, 11 +10V

CN67 — DSDC ASSEMBLY TO CN18 (→P37)
1 4fSC, 2 GND

CN30 — DSDC ASSEMBLY TO CN19 (→P38)
1 CD-LV/CS, 2 CDM ERR, 3 CDM DRV, 4 PLAY, 5 TRK o/E, 6 B/E LATCH, 7 CAV / CLV, 8 SPDL RUN, 9 SPDL LOCK, 10 SPDL STOP

CN28
1 BLMB RUN, 2 F/R, 3 FG IN

CN29 — REGB ASSEMBLY TO CN7 (→P30)
1 GND, 2 −5V, 3 +10V, 4 +5V(2), 5 SPDL ERR, 6 SPDL RTN

CN101 — SRVB ASSEMBLY TO CN100 (→P41)
1 CD M DRV, 2 CD M RTN

1. RESISTORS:
Indicated in Ω, 1/4W, 1/6W and 1/8W, ±5% tolerance unless otherwise noted k; kΩ, M; MΩ, (F):±1%, (G):±2%, (K):±10%, (M):±20% tolerance.

2. CAPACITORS:
indicated in capacity (μF)/voltage (V) unless otherwise noted pipF, indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
; DC voltage (V) at no input signal, Value in ( ) is DC voltage at rated power.
⇐ mA ; DC current at no input signal.

4. OTHERS:
⇒ ; Signal route.
Ø ; Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.
This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

VIDEO SIGNAL ROUTE
CCD SERVO SIGNAL ROUTE
SPDL MOTOR DRIVE ROUTE

ADEM ASSEMBLY CN109

DSDC ASSEMBLY CN18

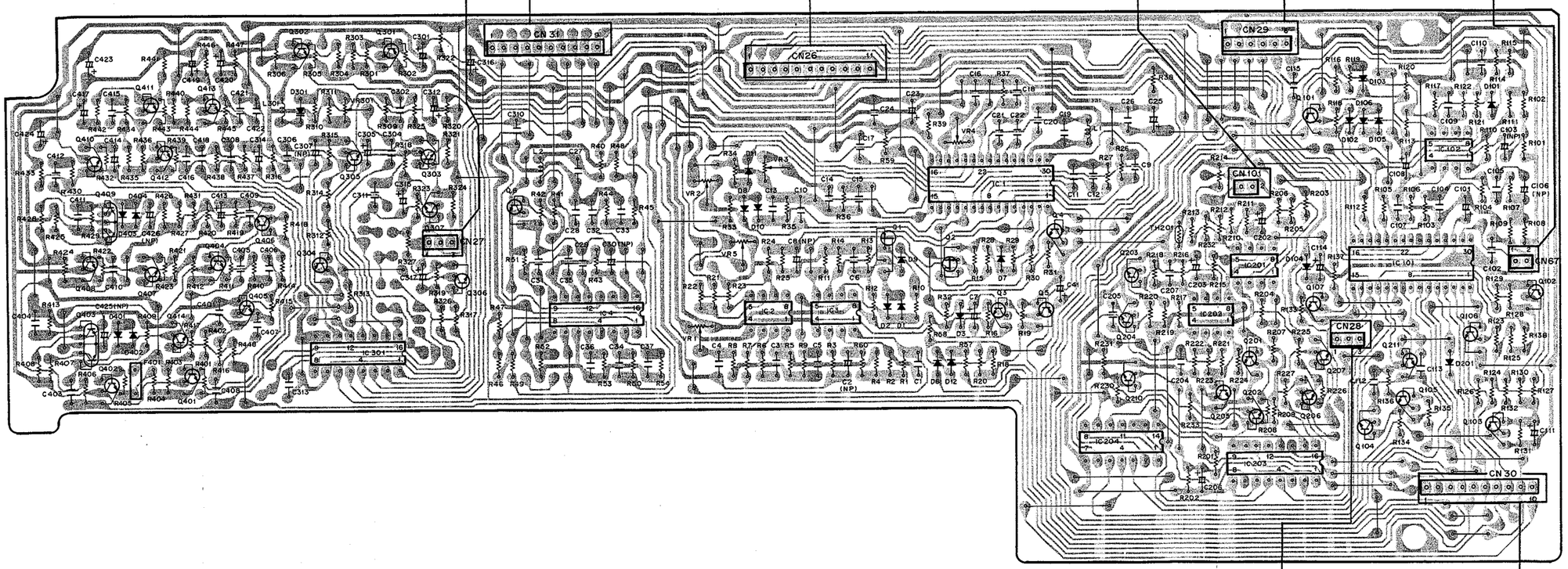
VDEM ASSEMBLY CN65

SRVB ASSEMBLY CN100

REGB ASSEMBLY CN7

DSDC ASSEMBLY CN18

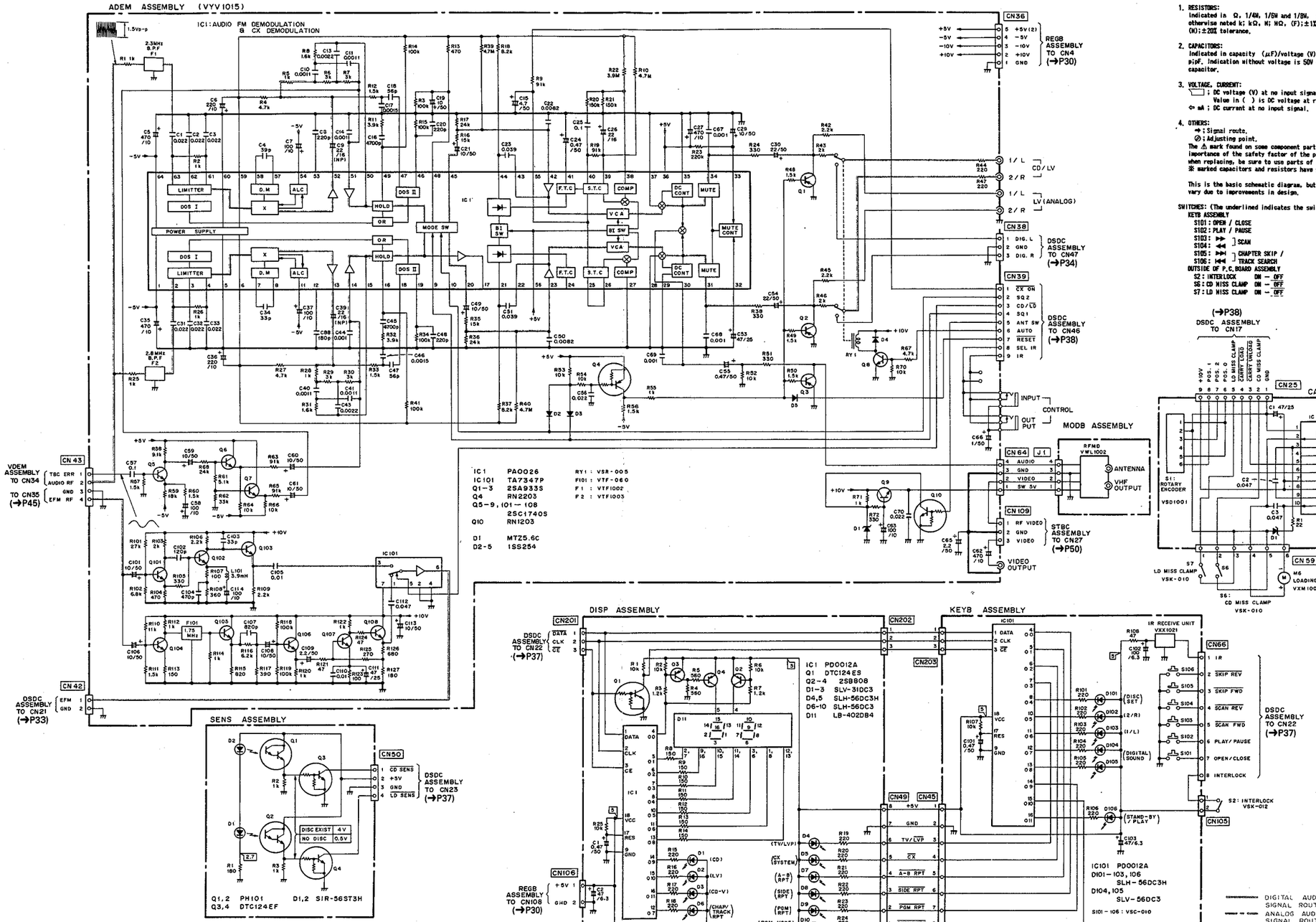
STBC ASSEMBLY (VYV1013)



CN48
BLMB ASSEMBLY

CN19
DSDC ASSEMBLY

8.8 ADEM, CALB, DISP, KEYB, SENS AND MODB ASSEMBLY



1. RESISTORS:
Indicated in Ω, 1/4W, 1/6W and 1/8W, ±5% tolerance unless otherwise noted k; kΩ, M; MΩ, (F):±1%, (G):±2%, (K):±10%, (M):±20% tolerance.

2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted pipF. Indication without voltage is 50V except electrolytic capacitor.

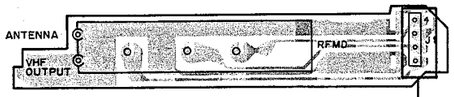
3. VOLTAGE, CURRENT:
⏢ : DC voltage (V) at no input signal.
Value in ( ) is DC voltage at rated power.
⇦ mA : DC current at no input signal.

4. OTHERS:
⇒ : Signal route.
⊘ : Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

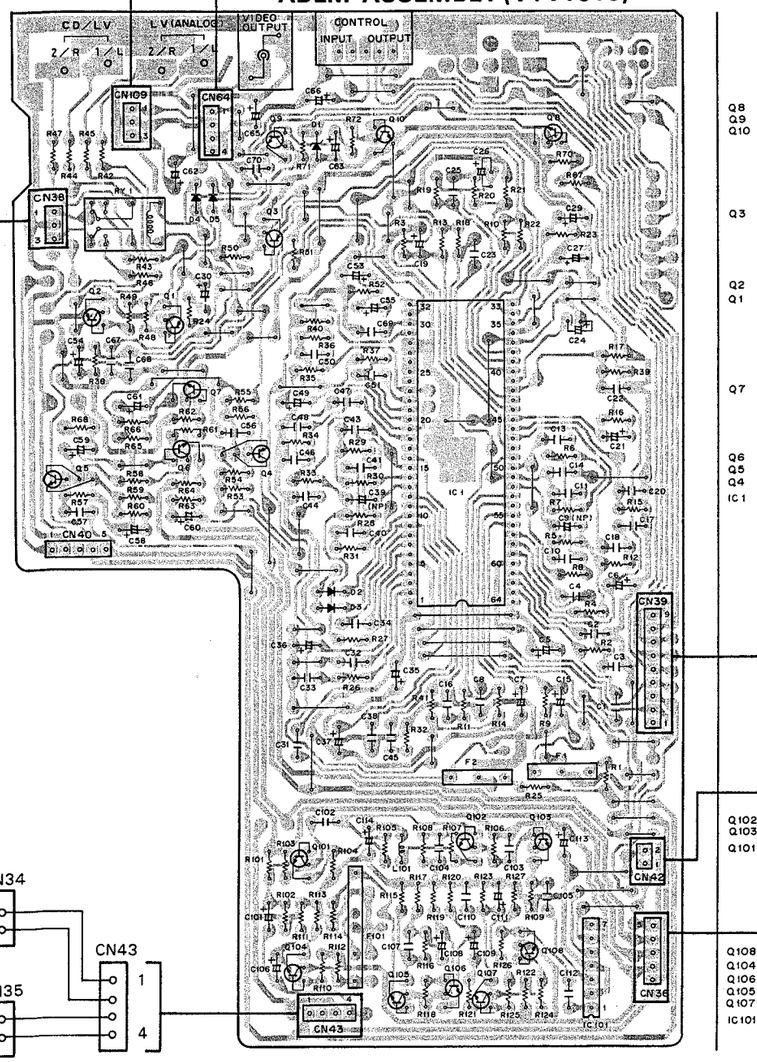
SWITCHES: (The underlined indicates the switch position)
KEYB ASSEMBLY
S101: OPEN / CLOSE
S102: PLAY / PAUSE
S103: ▶▶] SCAN
S104: ◀◀]
S105: ▶▶|] CHAPTER SKIP / TRACK SEARCH
S106: |◀◀]
OUTSIDE OF P.C.BOARD ASSEMBLY
S2: INTERLOCK ON — OFF
S6: CD MISS CLAMP ON — OFF
S7: LD MISS CLAMP ON — OFF

MODB ASSEMBLY



STBC ASSEMBLY
CN27

ADEM ASSEMBLY (VYV1015)



CN47
DSDC ASSEMBLY

DSDC ASSEMBLY
CN46

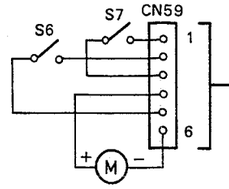
DSDC ASSEMBLY
CN21

REGB ASSEMBLY
CN4

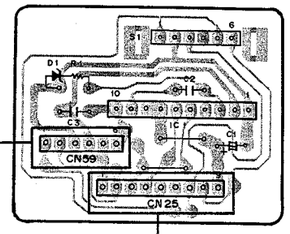
VDEM ASSEMBLY
CN34
CN35
CN43

CALB ASSEMBLY

S6 : CD MISS CLAMP
S7 : LD MISS CLAMP



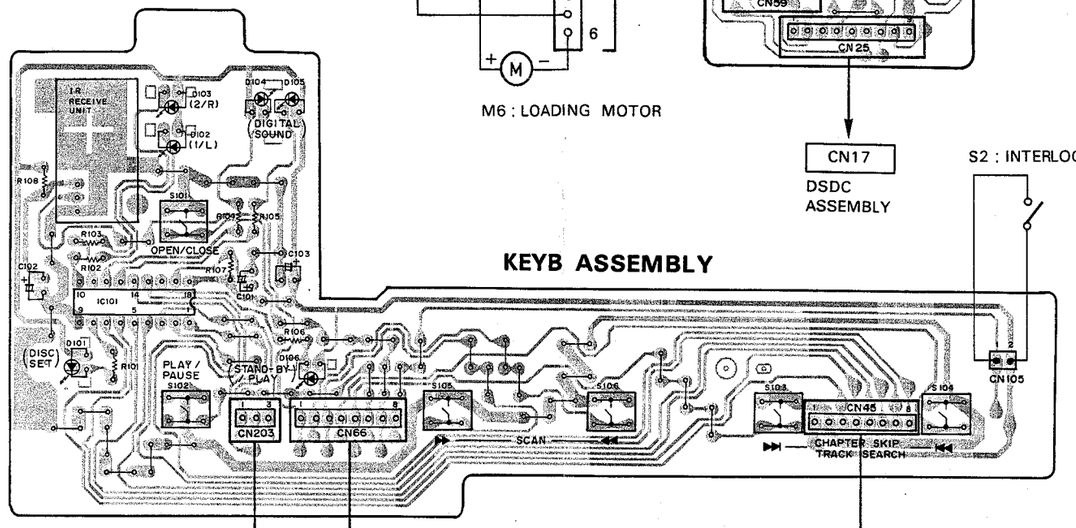
M6 : LOADING MOTOR



CN17
DSDC ASSEMBLY

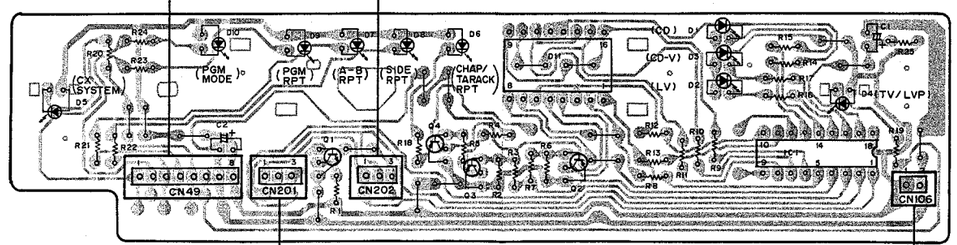
S2 : INTERLOCK

KEYB ASSEMBLY



CN22
DSDC ASSEMBLY

DISP ASSEMBLY

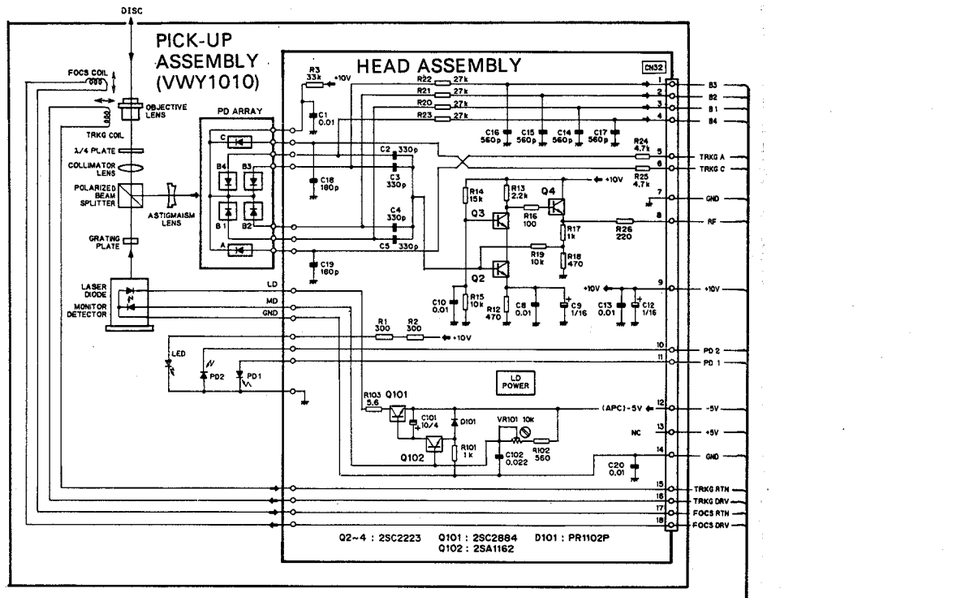


CN22
DSDC ASSEMBLY

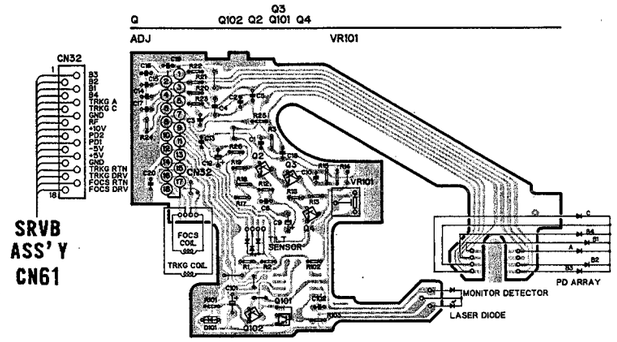
CN108
REGB ASSEMBLY

8.9 PICK-UP ASSEMBLY

PICK-UP ASSEMBLY (VWY1010)



HEAD ASSEMBLY



1. RESISTORS:
   Indicated in Ω, 1/4W, 1/6W and 1/8W, ±5% tolerance unless otherwise noted k; kΩ, M; MΩ, (F);±1%, (G);±2%, (K);±10%, (M);±20% tolerance.

2. CAPACITORS:
   Indicated in capacity (μF)/voltage (V) unless otherwise noted p;pF. Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
   ⏥ ; DC voltage (V) at no input signal.
   Value in ( ) is DC voltage at rated power.
   ⇦ mA ; DC current at no input signal.

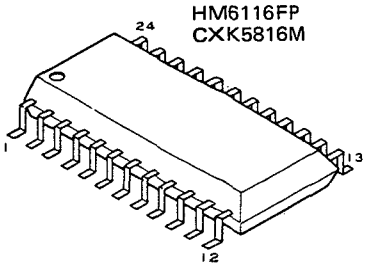
4. OTHERS:
   ➡ ; Signal route.
   ⊘ ; Adjusting point.
   The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
   ※ marked capacitors and resistors have parts numbers.

   This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

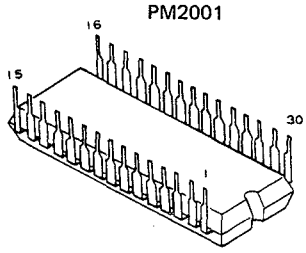
SRVB ASSEMBLY
TO CN61
(➡P41)

External Appearance of Transistors and ICs

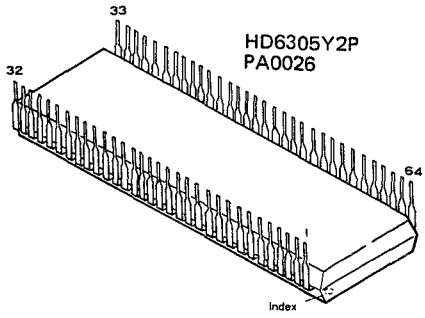
HM6116FP
CXK5816M



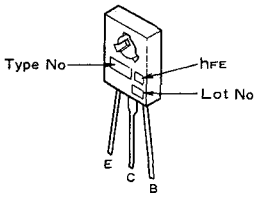
PA5009
PM2001



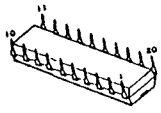
HD6305Y2P
PA0026



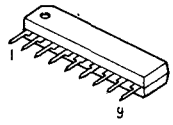
2SA886



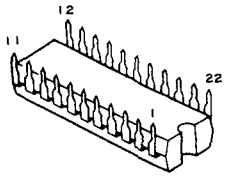
PD5029



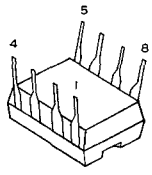
PA0023
PA0017



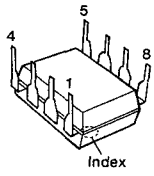
TL8707P



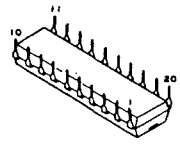
BA4558DX



NJM072DE
NJM4558D
PM0001
NJM4556DE
NJM082D

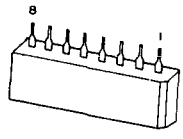


PA2016

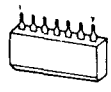


PH101

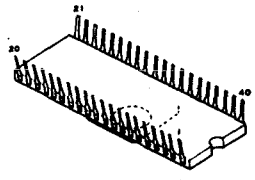
STA302A
STA303A



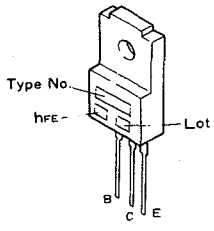
TA7347P



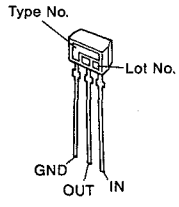
M5L8255AP



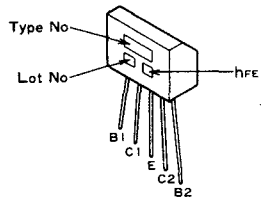
2SD1267



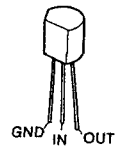
DTC144WS



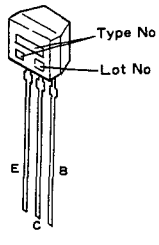
2SC1583



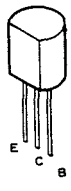
NJM79L06A



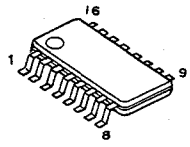
2SB808
DTA124ES
DTC124ES
DTC124EF



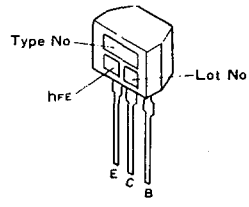
2SC1674



BU4053BD
BU4053B
NJU4053BD
NJU4053B

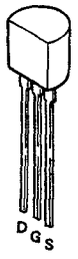


2SA933S
2SC1740S

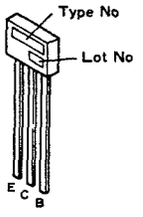


CLD-1010

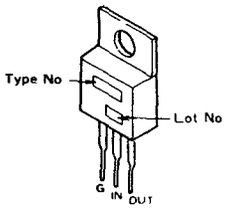
2SK184



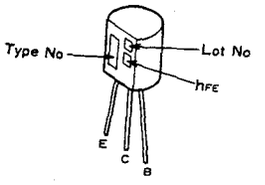
RN2203
RN1203
RN1209



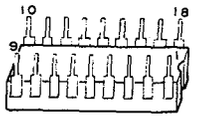
NJM7912A



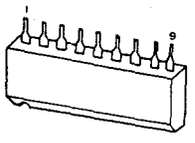
2SC1627



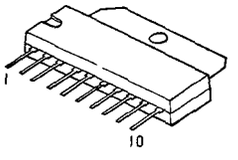
PA3018
PD0012A



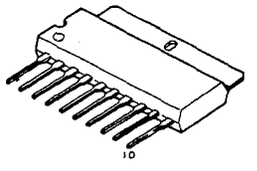
BA6218A



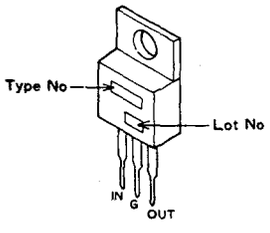
TA7256P



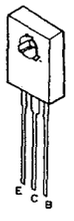
BA6209



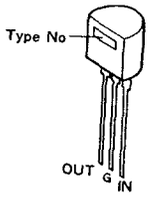
NJM7812A



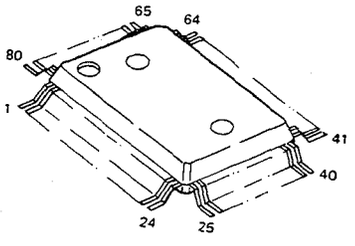
2SC1847



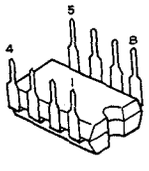
NJM78L06A



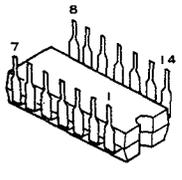
CXD1135Q



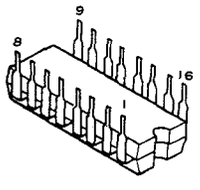
M5238PF
TL082CP
M5233P
μPC4558C
M5234P



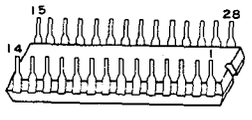
M74LS00P
SN74LS00N
TC4011BP
PA0018
IR2339
M74LS27P
SN74LS27N
M74LS10P
SN74LS10N



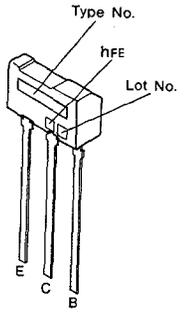
PCM56P-J
TC40H004P
TC4053BP
PA0009
PA9003
HD74HC153P



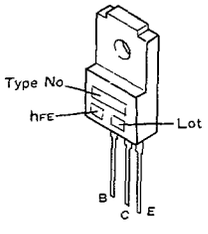
PD0024
PM4001



2SB1237X
2SB1238X
2SD1858X
2SD1859X



2SB1185
2SD1762



9. ELECTRICAL PARTS LIST

NOTES:

- *Parts without part number cannot be supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★ GENERALLY MOVES FASTER THAN ★
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	*56 × 10¹*	*561*	*RD1/4PS 5 6 1 J*
47kΩ	*47 × 10³*	*473*	*RD1/4PS 4 7 3 J*
0.5Ω	*0R5*		*RN2H 0 R 5 K*
1Ω	*010*		*RS1P 0 1 0 K*

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	*562 × 10¹*	*5621*	*RN1/4SR 5 6 2 1 F*

Miscellaneous Parts

P.C. BOARD ASSEMBLIES

Mark	Symbol & Description	Part No.
	DSDC assembly	VWG1010
	STBC assembly	VYV1013
	VDEM assembly	VYV1007
	DISP assembly	
	KEYB assembly	
	ADEM assembly	VYV1015
	MODB assembly	
	REGB assembly	VYR1019
	CAPB assembly	
	SENS assembly	
	CALB assembly	
	TIMB assembly	
	SRVB assembly	VYS1003
⚠	LSFB assembly	
⚠	PWSB assembly	

OTHERS

Mark	Symbol & Description	Part No.
	Pick-up assembly	VWY1010
⚠	AC Power cord	VDG-038
⚠ ★★	FU103, FU104 Fuse (3A)	VEK-018
⚠ ★★	FU1, FU2 Fuse (2A)	VEK-022
★★	S2 Slide switch (INTER LOCK)	VSK-012
⚠ ★	T1 Power transformer	VTT-078
	C1, C2 Thru type capacitor (1000p)	VCG-005
★	VR1 Potentio meter	VCS-017
★★	S5 Slide switch (CD MOTOR RELEASE)	VSK-010
★★	S4 Leaf switch (CD MOTOR SET)	VSK-014
★★	S3 Leaf switch (TILT LIMIT)	VSK-015 (PSN-003)
★★	IC111 EP-ROM	VYW1029
★★	M4 Tilt motor	VXM-060
★★	M1 Spindle motor (LD) (Incorporated in BLMB assembly)	VXM-063 (VXM-065)
★★	IC1 Control IC (LD SPINDLE MOTOR)	PA2016
★★	Q10 Transistor array (LD SPINDLE MOTOR)	STA302A
★★	Q11 Transistor array (LD SPINDLE MOTOR)	STA303A
★★	M3 Loading motor (for Slider)	VXM-054
★★	M5 Swing motor	VXM1007
★★	M2 Spindle motor assembly	VXX1047
★★	S6, S7 Slide switch (CD, LD MISS CLAMP)	VSK-010
★★	M6 Loading motor	VXM1006

DSDC Assembly (VWG1010)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	IC404, IC407	BU4053B
★★	IC305	CXD1135Q
★★	IC304	CXK5816M-12L (CXK5816M-15L) (HM6116FP-2) (HM6116FP-3) (HM6116FP-4)
★★	IC101	HD6305Y2P
★★	IC401	HD74HC153P
★★	IC102, IC103	M5L8255AP
★★	IC403	M5238PF (NJM072DE)
★★	IC107	M74LS00P (SN74LS00N)
★★	IC108	M74LS10P (SN74LS10N)
★★	IC109	M74LS27P (SN74LS27N)
★★	IC302, IC303, IC306	NJM082D (TL082CP)
★★	IC405	NJM78L06A
★★	IC406	NJM79L06A
★★	IC402	PCM56P-J

Mark	Symbol & Description	Part No.
★★	IC105	PD0024
★★	IC104	PD5029
★★	IC301	TC40H004P
★★	Q104, Q108, Q305, Q309	RN1203 (DTC124ES)
★★	Q103	RN1209 (DTC144WS)
★★	Q306, Q402	RN2203 (DTA124ES)
★★	Q101, Q308	2SA933S
★★	Q102, Q107, Q109, Q112, Q301, Q302	2SC1740S
★★	Q303, Q304, Q307	2SK184
★	D306	FC54M
★	D311, D314	HZ4B2
★	D309	KV1226Y
★	D103, D104, D301 – D304, D307, D308, D310, D312, D313, D401 – D404	1SS254

COILS AND FILTERS

Mark	Symbol & Description		Part No.
	L302	Coil (1μH)	LAU010K
	L101	Coil (220μH)	LAU221J
	VL301	VCO coil	PTL-023
	L301	Coil (4.7μH)	VTL1003
	F401, F402	Low pass filter	VTF1010
	F101	3 terminal filter	VTH-005

CAPACITORS

Mark	Symbol & Description	Part No.
	C107	CCCCH100D50
	C105	CCCCH180J50
	C103, C104, C106, C111, C407	CCCCH330J50
	C108	CCCCH470J50
	C317	CCCCH560J50
	C109, C110, C306	CCCSL151J50
	C128	CCCSL220J50
	C318	CCCSL391J50
	C326	CCCUJ221J50
	C325, C327	CCCUJ330J50
	C324	CEANP2R2M50
	C421, C422	CEANP220M16
	C309, C310, C330 – C332	CEAS010M50
	C315, C333	CEAS100M50
	C320	CEAS101M10
	C409 – C412	CEAS101M25
	C127	CEAS221M10
	C401 – C404	CEAS221M25
	C113, C319	CEJA101M6R3
	C115, C121, C123, C125	CEJA470M6R3
	C322	CFTXA103J50
	C323, C405, C406, C413, C414, C417 – C420	CFTXA104J50
	C312	CFTXA224J50
	C102, C114, C116, C122, C124, C126, C301	CGCYX473M25
	C131	CKCYB102K50
	C101, C302, C305, C311, C314	CKCYF103Z50
	C117 – C119	CKDYF103Z50
	C334	CKPUYF223Z25
	C303, C304	CQMA102J50
	C307	CQMA152J50
	C328, C329	CQMA222J50
	C308	CQMA472J50
	C321	CQMA822J50
	C415, C416 (150pF)	VCE1007
	VC101 Ceramic trimmer (45pF)	VCM-003

RESISTORS

Mark	Symbol & Description		Part No.
★	VR301 – VR303	Semi-fixed (22kΩ)	VRTB6VS223
	R145	Resistor array	RA4S103J
	R130	Resistor array	RA6S332J
	R148	Resistor array	RA8S103J
	R336, R338, R349, R350		RN1/6PQ□□□□F
		Other resistors	RD1/6PM□□□J

OTHERS

Mark	Symbol & Description		Part No.
★	X101	Ceramic resonator (4MHz)	KBR-4.0MS
★	X102	Ceramic resonator (400kHz)	VSS-041
★	X301	Crystal resonator (16MHz)	VSS1004
★	X103	Crystal resonator (14.31818MHz)	VSS1005 (VSS-043)
		IC socket (28 Pin)	VKH1001

STBC Assembly (VYV1013)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	IC2, IC3, IC102, IC201	BA4558DX (NJM4558D)
★★	IC203	BU4053B (TC4053BP)
★★	IC202	M5233P
★★	IC4	PA0009
★★	IC1	PA5009
★★	IC301	PA9003
★★	IC101	PM2001
★★	IC204	TC4011BP

Mark	Symbol & Description	Part No.
★★	Q3, Q4, Q106, Q107, Q201 – Q205, Q211	RN1203
★★	Q206	RN2203
★★	Q5, Q101, Q102, Q301, Q304	2SA933S
★★	Q403, Q409	2SC1583
★★	Q6, Q103 – Q105, Q207, Q210, Q302, Q303, Q305 – Q307, Q401, Q402, Q404 – Q408, Q410 – Q414	2SC1740S
★★	Q1, Q2	2SK184
★	D301	SVC321SP
★	D1 – D3, D6 – D12, D101 – D106, D201, D401 – D404	1SS254
★	TH201 Thermistor	112252

COILS AND FILTERS

Mark	Symbol & Description	Part No.
	L2 Coil (120μH)	LRA121K
	L1 Coil (27μH)	LRA270K
	L301 Coil (6.8μH)	LRA6R8K
	F401 Filter (3.58MHz)	VTF-062

CAPACITORS

Mark	Symbol & Descripiton	Part No.
	C406	CCCCH080D50
	C407	CCCCH150J50
	C19, C105	CCCCH680J50
	C17, C21, C35	CCCSL101J50
	C409	CCCSL151J50
	C401	CCCSL161J50
	C410	CCCSL181J50
	C110, C115	CCCSL221J50
	C28	CCCSL241J50
	C32, C33, C306, C415	CCCSL331J50
	C27	CCDCH470J50
	C403	CCDSL221J50
	C30, C307	CEANPR47M50
	C8, C425, C426	CEANP100M16
	C2	CEANP2R2M50
	C103	CEANP330M6R3
	C106	CEANP470M10
	C202, C203	CEASR47M50
	C111, C114	CEAS100M50
	C315, C413, C414, C417	CEAS101M10
	C23, C25, C41, C312, C424	CEAS221M10
	C7, C316	CEAS4R7M50
	C101, C108, C206, C301, C314, C317, C419, C420, C423	CEAS470M25
	C305	CEJA470M16
	C302, C310	CKCYB102K50
	C18, C34, C36	CKCYB681K50
	C4, C20, C24, C26, C102, C113, C207, C304, C311, C313, C404, C405, C411, C412, C416, C421, C422	CKCYF103Z50
	C22	CQMA102J50
	C6, C204	CQMA103J50
	C3, C308	CQMA104J50
	C9, C13, C15, C16	CQMA122J50
	C104, C107	CQMA123J50
	C29, C31	CQMA153J50
	C109	CQMA183J50
	C14	CQMA222J50
	C112	CQMA223J50
	C1	CQMA273J50
	C408	CQMA392J50
	C5	CQMA393J50
	C418	CQMA512J50
	C10, C12	CQMA682J50
	C37, C205	CQMA823J50
	C11	CQPA122J100

RESISTORS

Mark	Symbol & Description	Part No.
★	VR301 Semi-fixed (1kΩ)	VRTB6VS102
★	VR2 Semi-fixed (22kΩ)	VRTB6VS223
★	VR5 Semi-fixed (4.7kΩ)	VRTB6VS472
★	VR1, VR3, VR4 Semi-fixed (47kΩ)	VRTB6VS473
	R137, R212 – R214	RN1/6PQ□□□□F
	Other resistors	RD1/6PM□□□J

VDEM Assembly (VYV1007)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	IC601	PA0017
★★	IC603	PA0018
★★	IC501	PA0023
★★	IC502	PA3018
★★	IC503	PM0001
★★	IC602	TL8707P
★★	Q508	DTA124ES
★★	Q507, Q509	RN2203
★★	Q503, Q603	2SA933S
★★	Q602	2SC1627
★★	Q501	2SC1674
★★	Q502, Q506, Q510 – Q516, Q601, Q604 – Q607	2SC1740S
★	D602	MTZ10B
★	D601	MTZ8.2C
★	D501, D502	1SS254

COILS

Mark	Symbol & Description	Part No.
	L506 Inductor	LAU390J
	L507 Inductor	LAU430J
	L502 – L505 Inductor	LRA120K
	L501 Inductor	LRA180K
	L508, L601, L603, L604 Inductor	LRA220K
	L511 Inductor	LRA221K
	L509, L510 Inductor	LRA391K
	L602 Inducotr	LRA680K
	L512, L513 Coil (62μH)	VTL-048

CAPACITORS

Mark	Symbol & Description	Part No.
	C522, C523, C531	CCCCH080D50
	C510, C512	CCCCH100D50
	C623	CCCCH120J50
	C525, C530	CCCCH150J50
	C526, C558	CCCCH180J50
	C559	CCCCH220J50
	C565	CCCCH240J50
	C511, C524, C605	CCCCH330J50
	C535, C544, C621	CCCCH390J50
	C520	CCCCH680J50
	C622	CCCCH750J50
	C501, C506, C507, C563, C564	CCCCH820J50
	C560	CCCSL121J50
	C533	CCCSL151J50
	C527, C546, C547	CCCSL181J50
	C504	CCCSL221J50
	C562	CCCSL241J50
	C508	CCCSL271J50
	C536, C634	CCCSL331J50
	C509	CCCSL391J50
	C561, C635	CEANP4R7M25
	C624	CEANP470M10
	C606, C611	CEASR47M50
	C615, C618, C639	CEAS010M50
	C542, C543, C575, C602, C604, C608, C610, C616, C625, C628, C629, C631, C633	CEAS220M50
	C548, C554	CEAS3R3M50
	C528, C613, C614, C619	CEAS4R7M50
	C503, C515, C517, C521, C539, C541, C550, C552, C568, C572, C574, C641, C643	CEAS470M25
	C636, C640	CEJA220M16
	C502, C553, C577	CGCYX473M25
	C532, C534	CKCYB102K50
	C505, C513, C514, C516, C518, C519, C529, C537, C538, C540, C549, C551, C555 – C557, C566, C567, C569 – C571, C573, C576, C601, C603, C607, C609, C612, C617, C626, C627, C630, C642, C644, C646	CKCYF103Z50
	C638	CQMA124J50
	C637	CQPA271J100

RESISTORS

Mark	Symbol & Description	Part No.
★	VR501, VR602 Semi-fixed (1kΩ)	VRTB6VS102
★	VR601, VR603 Semi-fixed (4.7kΩ)	VRTB6VS472
	R557, R522	RD1/4VM□□□J
	R543	RN1/6PQ2401F
	Other resistors	RD1/6PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	DL501 220n sec Delay line	VTF-063
	F601 – F603 3 terminal filter	VTH-005

DISP Assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	IC1	PD0012A
★★	Q1	DTC124ES
★★	Q2 – Q4	2SB808
★	D11	LB-402DB4
★	D6 – D10 LED (ORANGE)	SLH-56DC3
★	D4, D5 LED	SLH-56DC3H
★	D1 – D3 LED	SLV-31DC3

CAPACITORS

Mark	Symbol & Description	Part No.
	C1	CEJAR47M50
	C2	CEJA470M6R3

RESISTORS

Mark	Symbol & Description	Part No.
	All resistors	RD1/6PM□□□J

KEYB Assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	IC101	PD0012A
★	D101 – D103, D106 LED	SLH-56DC3H
★	D104, D105 LED (ORANGE)	SLV-56DC3

SWITCHES

Mark	Symbol & Description	Part No.
★★	S101 – S106 Tact switch (OPEN/CLOSE, PLAY/PAUSE, SCAN FWD, SCAN REV, SKIP FWD, SKIP REV)	VSC-010

CAPACITORS

Mark	Symbol & Description	Part No.
	C101	CEJAR47M50
	C102	CEJA101M6R3
	C103	CEJA470M6R3

RESISTORS

Mark	Symbol & Description	Part No.
	All resistors	RD1/6PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	IR Sensor unit	VXX1021

ADEM Assembly (VYV1015)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	IC1	PA0026
★★	IC101	TA7347P
★★	Q10	RN1203
★★	Q4	RN2203
★★	Q1 – Q3	2SA933S
★★	Q5 – Q9, Q101 – Q108	2SC1740S
★	D1	MTZ5.6C
★	D2 – D5	1SS254

RELAY

Mark	Symbol & Description		Part No.
★★	RY1	Relay	VSR-005

COIL AND FILTERS

Mark	Symbol & Description		Part No.
	L101	Coil (3.9mH)	VTL-170
	F101	Low pass filter	VTF-060
	F1	B.P.F (2.3MHz)	VTF1002
	F2	B.P.F (2.8MHz)	VTF1003

CAPACITORS

Mark	Symbol & Description	Part No.
	C102	CCCCH121J50
	C38	CCCCH181J50
	C8, C20, C48	CCCCH221J50
	C34, C103	CCCCH330J50
	C4	CCCCH390J50
	C18, C47	CCCCH560J50
	C24	CEANLR47K50
	C26	CEANL220K16
	C9, C39	CEANP220M16
	C55	CEASR47M50
	C66	CEAS010M50
	C19, C21, C29, C49, C59 – C61, C101, C106, C108, C113	CEAS100M50
	C7, C37, C58, C63, C114	CEAS101M10
	C30, C54	CEAS220M50
	C65, C109	CEAS2R2M50
	C6, C36	CEAS221M10
	C15	CEAS4R7M50
	C53, C111	CEAS470M25
	C5, C27, C35, C62	CEAS471M10
	C112	CGCYX473M25
	C14, C44, C67 – C69	CKCYB102K50
	C16, C45	CKCYB472K50
	C105, C110	CKCYF103Z50
	C1 – C3, C31 – C33, C56, C70	CKCYF223Z50
	C25, C57	CQMA104J50
	C10, C11, C40, C41	CQMA112J50
	C17, C46	CQMA152J50
	C13, C43	CQMA222J50
	C23, C51	CQMA393J50
	C22, C50	CQMA822J50
	C104	CQSA471J50
	C107	CQSA821J50

RESISTORS

Mark	Symbol & Description	Part No.
	R116	RN1/6PQ6201F
	R22, R10, R39, R40	RD1/4VM□□□J
	Other resistors	RD1/6PM□□□J

OTHERS

Mark	Symbol & Descritpin		Part No.
	JA1	4P Pin jack	VKB-019
	JA3	2P Mini jack	VKN-183
	JA2	Video pin jack	VKB-014

MODB Assembly

OTHERS

Mark	Symbol & Description	Part No.
	RFMD	VWL1002

REGB Assembly (VYR1019)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	IC3	BA4558DX
★★	IC1	NJM7812A
★★	IC2	NJM7912A
★★	Q6, Q8	2SA933S
★★	Q4, Q5	2SB1185
★★	Q10	2SC1627
★★	Q7, Q9	2SC1740S
★★	Q11	2SD1267
★★	Q1 – Q3	2SD1762
★	D3, D4	HZ5B3
★	D1, D2	MTZ11A
★	D11	RB-152LF
★	D13	S2K20
★	D7, D8	1SR35-100AVL
★	D5, D6, D9, D10, D12, D19, D20	1SS254

COIL

Mark	Symbol & Description		Part No.
	L1	Coil	VTT-070

CAPACITORS

Mark	Symbol & Description	Part No.
	C32	CCCSL471J50
	C1, C2	CEAS010M50
	C9, C10, C12, C15 – C18, C29, C30, C33, C36	CEAS100M50
	C3, C4	CEAS101M25
	C21	CEAS220M50
	C20	CEAS3R3M50
	C14	CEAS330M25
	C13	CEAS470M25
	C26	CEAS470M50
	C31	CKCYB102K50
	C5 – C8, C11, C19, C27, C28, C35	CKCYF103Z50

RESISTORS

Mark	Symbol & Description		Part No.
	R18	(2.7Ω/1W)	VCN-100
	R19	(1.2Ω/3W)	VCN-131
	R20 – R23		RN1/6PQ2202F
		Other resistors	RD1/6PM□□□J

CAPB Assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★	D109	RB-152LF
★	D101 – D104	1SR35-100AVL
★	D105 – D108	10DF1

CAPACITORS

Mark	Symbol & Description	Part No.
	C101 – C106	CEAS222M25
	C107 – C109	CEAS472M10
	C110 – C113	CKCYF103Z50

SENS Assembly

SEMICONDUCTORS

Mark	Symbol & Description		Part No.
★★	Q3, Q4		DTC124EF
★★	Q1, Q2	Photo transistor	PH101
★	D1, D2	LED	SIR-56ST3H

RESISTORS

Mark	Symbol & Description		Part No.
		All resistors	RD1/6PM□□□J

OTHERS

Mark	Symbol & Description		Part No.
		Sensor holder	VNL-613

CALB Assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	IC1	BA6209
★	D1	MTZ 8.2A

CAPACITORS

Mark	Symbol & Description	Part No.
	C1	CEAS470M25
	C2, C3	CGDYX473M25

RESISTOR

Mark	Symbol & Description	Part No.
	R1	RD1/6PM220J

OTHERS

Mark	Symbol & Description		Part No.
★★	S1	Rotary encoder	VSD1001

TIMB Assembly

CAPACITORS

Mark	Symbol & Description	Part No.
	C201 – C203	CGCYX473M25

SRVB Assembly (VYS1003)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	IC1– IC6	BA4558DX (μPC4558C)
★★	IC13	BA6218A
★★	IC11	IR2339 (M5234P)
★★	IC9	NJM082D (TL082CP)
★★	IC7	NJM4556DE
★★	IC14	NJU4053BD (BU4053BD)
★★	IC8	PM4001
★★	IC12	TA7256P
★★	Q24, Q29, Q33, Q34	RN1203 (DTC124ES)
★★	Q10, Q31, Q36	RN2203 (DTA124ES)
★★	Q7	2SA886
★★	Q11	2SA933S
★★	Q15, Q23	2SB1237X
★★	Q28	2SB1238X
★★	Q1, Q3, Q12, Q14, Q26, Q30	2SC1740S
★★	Q6	2SC1847
★★	Q22	2SD1858X
★★	Q27	2SD1859X
★★	Q5, Q9, Q17	2SK184

Mark	Symbol & Description		Part No.
★	D6, D7		MTZ3.6A
★	D9		MTZ5.6C
★	D1, D2, D5, D8, D11, D12, D15 – D26		1SS254
★	TH1	Thermistor	112252

CAPACITORS

Mark	Symbol & Description	Part No.
	C81	CCPUSL680J50
	C20, C44	CEALNPR47M50
	C5, C51, C78	CEALNP010M50
	C61	CEALNP220M16
	C23, C56	CEALNP3R3M25
	C17, C48, C59	CEALNP4R7M35
	C21	CEALR47M50
	C3, C19, C31, C32, C34, C65, C72	CEAL010M50
	C24, C26, C36, C39, C74	CEAL100M16
	C37, C46, C47	CEAL470M16
	C64, C73, C86	CFTA104J50
	C52	CFTA124J50
	C11	CFTA224J50
	C4, C53, C55	CFTA473J50
	C58	CFTA683J50
	C1, C2, C15, C25, C27, C35, C38, C42, C43, C45, C57, C62, C67 – C70, C75, C76, C79, C80, C83 – C85	CKCYF103Z50
	C9, C16	CKPUYB101K50
	C60	CKPUYB331K50
	C18, C22	CQMA102J50
	C50	CQMA152J50
	C6	CQMA223J50
	C41	CQMA273J50
	C49	CQMA332J50
	C12	CQMA333J50
	C13	CQMA392J50
	C14, C54	CQMA472J50
	C28	CQMA682J50

RESISOTRS

Mark	Symbol & Description		Part No.
★	VR3	Semi-fixed (10kΩ)	VRTB6VS103
★	VR6, VR8	Semi-fixed (2.2kΩ)	VRTB6VS222
★	VR1, VR10, VR12	Semi-fixed (22kΩ)	VRTB6VS223
★	VR2, VR5, VR9, VR11	Semi-fixed (4.7kΩ)	VRTB6VS472
★	VR4	Semi-fixed (47kΩ)	VRTB6VS473
	R159		RD1/2PMF220J
	R73		RD1/4PMF470J
	R102		RD1/4PM6R8J
	R145	Fusible resistor	RFA1/4L470J
	R166		RN1/6PQ3R90F
	R168		RS1PF4R7J
		Other resistors	RD1/6PM□□□J

OTHERS

Mark	Symbol & Description		Part No.
	CN61	18P connector	VKN-192

LSFB Assembly

FILTER

Mark	Symbol & Description		Part No.
⚠	L1	Line filter	VTL-003

CAPACITORS

Mark	Symbol & Description	Part No.
⚠	C1, C2 Ceramic capacitor (0.01μF)	VCG-048 (VCG-018)

RESISTOR

Mark	Symbol & Description	Part No.
	R1	RD1/2VM225J

PWSB Assembly

SWITCH

Mark	Symbol & Description		Part No.
⚠ ★★	S1	Power switch	VSA-010

CAPACITOR

Mark	Symbol & Description	Part No.
⚠	C3 Ceramic capacitor (0.01μF)	VCG-048 (VCG-018)

10. HOW TO REPLACE THE PICK-UP ASSEMBLY?

- **Removing the Mechanical Assembly**

1. Remove the bottom plate (by removing the ten screws). (Figure 10-1)
2. Remove the four screws securing the DSDC assembly, then remove the two screws securing the STBC assembly, then open the board. (Fig. 10-2)
3. Remove the six connectors from the SRVB assembly and the BLMB assembly. (Fig. 10-3)
   SRVB assembly ... CN9, CN10, CN11, CN12, CN13
   BLMB assembly ... CN48
4. Remove the three (A) screws shown in Fig. 10-3 from the Mechanical assembly and remove the two (B) screws shown in Fig. 10-3 from the SRVB assembly.
5. Remove the Mechanical assembly together with the SRVB assembly.

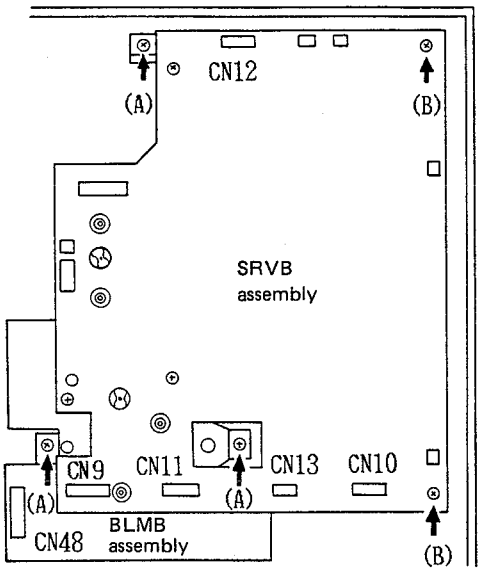


Fig. 10-3

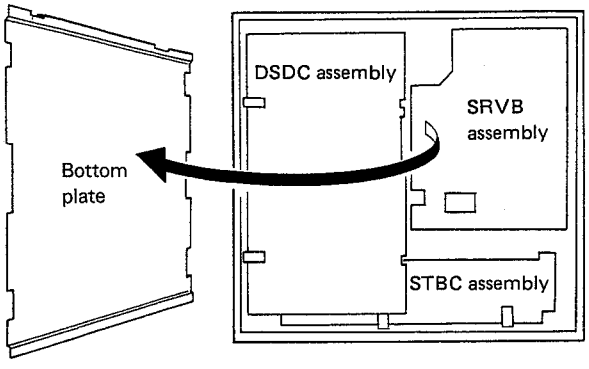


Fig. 10-1

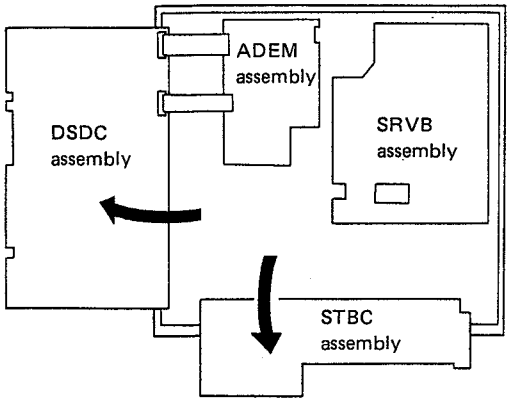


Fig. 10-2

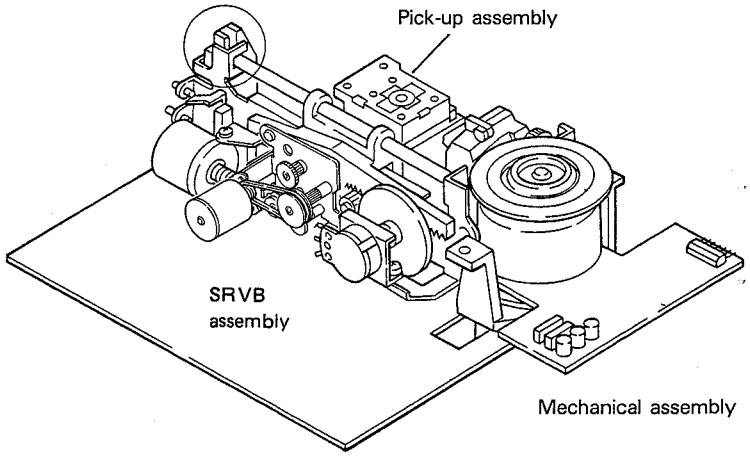


Fig. 10-4

- **Replacing the Pick-up assembly**

6. Move the Pick-up assembly by hand all the way to the edge.
7. Remove the flexible cable from connector CN61 on the SRVB assembly, then remove the two screws securing the Pick-up assembly.

Note: Be careful not to bend or fold the flexible cable. (Fig. 10-5)

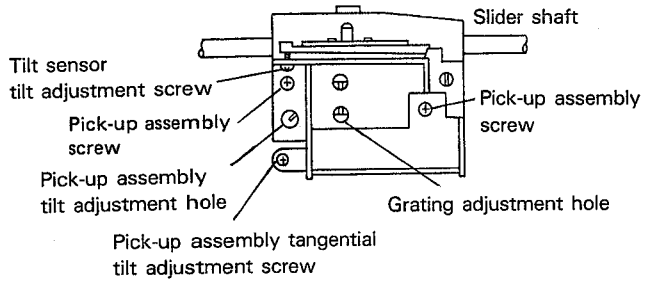


Fig. 10-5

8. Remove the Pick-up assembly from the Mechanical assembly.
   Note:
   Be careful not to apply electrical external force on the Pick-up assembly. Therefore do not, for example, touch the flexible cable with your hand or shine outside light on the Tilt sensor.
9. Adjust the Tilt sensor tilt adjustment screw on the new Pick-up assembly so that the Tilt sensor and the sensor stay are parallel. (Fig. 10-6)

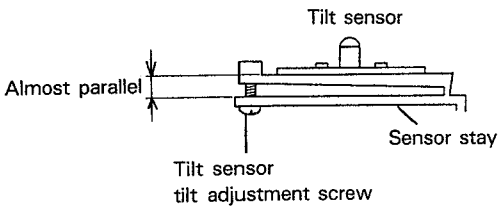


Fig. 10-6

10. Install the new Pick-up assembly on the Mechanical assembly, turn it all the way clockwise, then tighten the Pick-up assembly screw slightly. Skipping this step can make it quite difficult to adjust the tilt of the Pick-up assembly later.
11. Turn the worm gear of the tilt motor so that the tilt base is at the same height as the top of the chassis of the Mechanical assembly. (Fig. 10-7, 10-8)

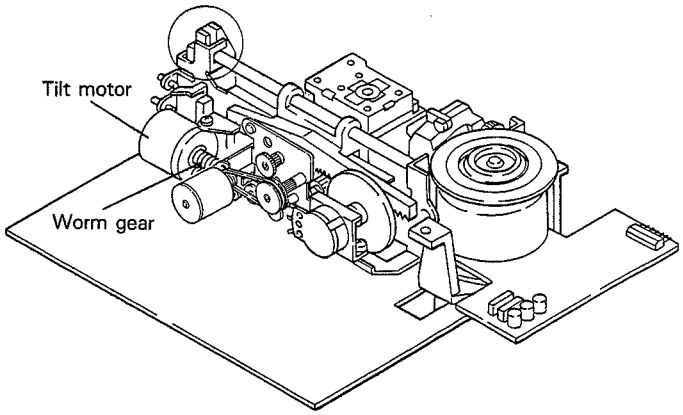


Fig. 10-7

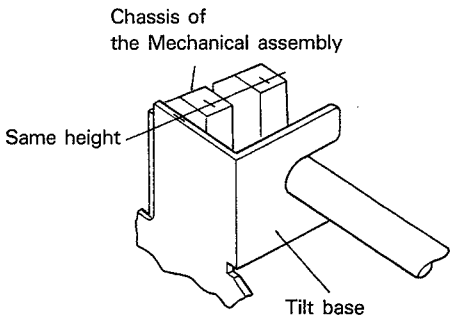


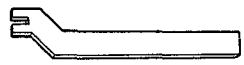
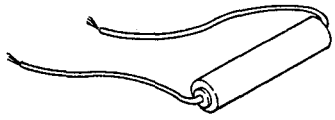
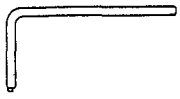
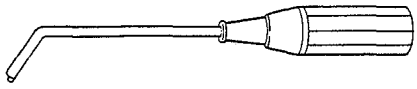
Fig. 10-8

12. Install the Mechanical assembly in the disc player, tighten the three (A) screws and two (B) screws shown in Figure 10-3, connect the ground, then connect the connectors.
13. Leave connector CN53 on the SRVB assembly unconnected.
    This completes the replacement of the Pick-up assembly. Carry out the following adjustments:

- o Rough grating adjustment
- o Pick-up assembly tilt adjustment (1)
- o Pick-up assembly tilt adjustment (2)
- o Tilt sensor tilt adjustment
- o LD spindle motor axis centering
- o Grating fine adjustment
- o CD spindle motor tilt adjustment
- o CD spindle motor axis centering
- o LD/CD disc clamp switching position adjustment
- o Rotary encoder adjustment
- o Synchronization belt adjustment
- o Roller plate (right) assembly adjustment
- o Subcarrier assembly, slide plate and gear (C) alignment
- o Carrier insertion

11. MECHANICAL ADJUSTMENT

- **Preparations for Adjustment**

List of the tools required for adjustments			
1	Dual trace oscilloscope	11	2.5-mm hexagonal L-wrench
2	AF oscillator	12	Pick-up assembly tilt adjuster (GGF-064) 
3	Voltmeter		
4	Frequency counter		
5	TV monitor		
6	Remote control unit	13	1.5V battery and leads 
7	LD test disc		
8	CD test disc (YEDS-7)		
9	Angled Screwdriver I (GGV-129) 		
10	Angled Screwdriver II (GGF-063) 		

- **Precautions for adjustments**

1. Always have the disc player resting flat before mounting a disc. To stop the rotation of the spindle motor, just press the EJECT key on the remote control unit once.

Note: Pressing the EJECT key on the front panel stops the rotation of the spindle motor and extends the disc table from the player.

2. Standing the disc player as shown in Fig. 11-1.
3. Use the 10:1 probe for the oscilloscope.

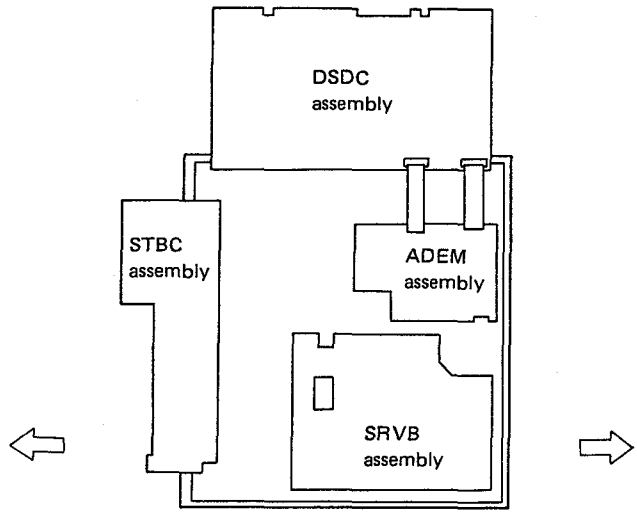
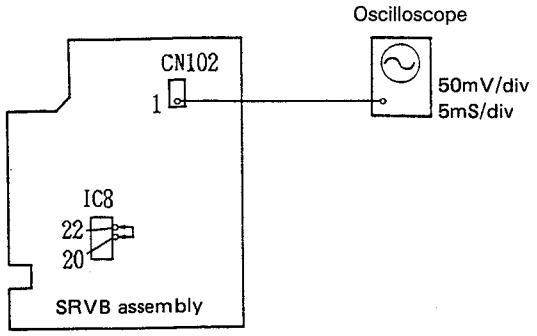


Fig. 11-1

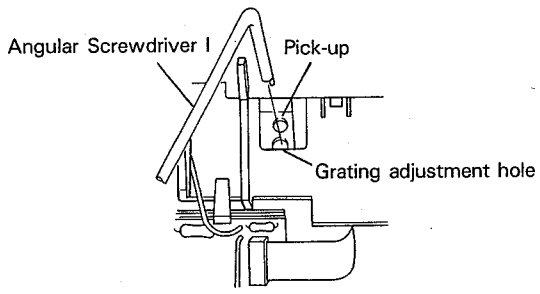
11.1 ROUGH GRATING ADJUSTMENT

- Objective: To adjust the grating, which is out of adjustment for a new Pick-up assembly
- Symptoms if the adjustment is inadequate: Discs can not be played back and the Pick-up skips over tracks.

• Measuring equipment and tools • Measurement point • Test disc and set • Adjustment point	• Oscilloscope • Angular Screwdriver I (GGV-129) • TV monitor • CN102-1 (tracking error) on the SRVB assembly • Play the LD disc near frame #50,000 (outer edge) • Tracking servo open • Grating



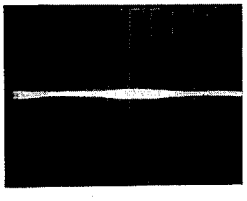
Connection diagram



Adjustment point

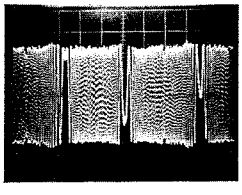
Adjustment procedure

1. Mount the LD disc, then press the play key.
2. When the spindle motor has reached full speed, connect Pins 20 and 22 of IC8 (PM4001) on the SRVB assembly (to open the tracking servo).
3. Press the remote control display switch key to display the frame number on the screen.
4. Press the fast feed key on the remote control to send the Pick-up assembly to around Frame #50,000 on the outer edge.
5. Connect the oscilloscope to CN102-1 (tracking error) of the SRVB assembly.
6. Insert Angular Screwdriver I into the grating adjustment hole. Turn the screwdriver slowly to the position at which the amplitude of the wave form is a minimum and the waves are smooth. (Photograph 1) Turn Angular Screwdriver I slowly clockwise in the direction of the front panel and stop at the first maximum for the wave form. (Photograph 2)
7. Remove the connection between Pins 20 and 22 of IC8 (PM4001) of the SRVB assembly to close the tracking servo, then check that the image on the TV screen is normal.



100mV/div
5mS/div

Photograph 1
On Track Position



100mV/div
5mS/div

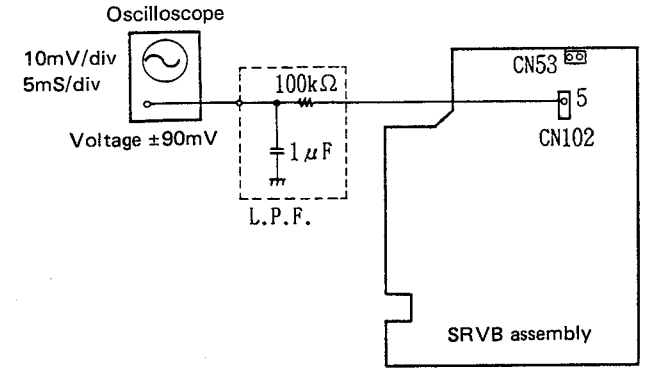
Photograph 2
Maximum Amplitude

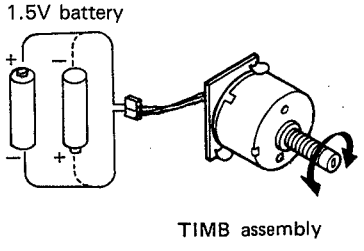
11.2 PICK-UP ASSEMBLY TILT ADJUSTMENT (1)

- Objective: To adjust the position of the slider shaft so that the Pick-up assembly moves parallel to the disc
- Symptoms if the adjustment is inadequate: Cross talk

• Measuring equipment and tools	• Oscilloscope • 1.5 V battery • Leads • L.P.F.
• Measurement point	• SRVB assembly CN102-5
• Test disc and set	• Still frame at frame #17,000 (middle) and still at Frame #100 (inner edge)
• Adjustment point	• SRVB assembly tilt motor

Pick-up assembly tilt





Connection diagram

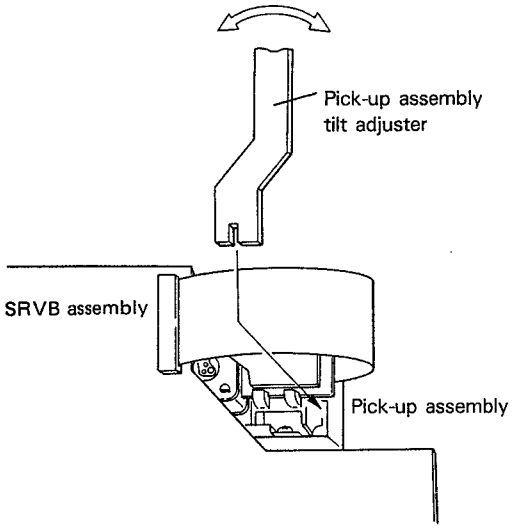
Adjustment Procedure

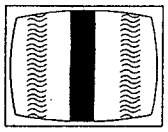
1. Connect the oscilloscope to SRVB assembly CN102-5 (focus coil) through the L.P.F. (100 kΩs: 1 μF). Set the range of the oscilloscope to 10 mV/division and 5 ms/division.
2. Play the LD test disc.
3. Find Frame #17,000. Use the horizontal adjustment on the oscilloscope to center the wave form from CN102-5 of the SRVB assembly.
4. Find Frame #100. Make sure that the voltage at SRVB assembly CN102-5 is between −90mV and +90mV.
5. If the voltage measured in (4) is not between −90mV and +90mV, disconnect the connector for the tilt motor from CN53 of the SRVB assembly, then connect the leads for the 1.5 V battery to the tilt motor. Turn the motor until the voltage measured with the oscilloscope is between −90mV and +90mV. To turn the motor the other way, reverse the leads from the 1.5V battery.

11.3 PICK-UP ASSEMBLY TILT ADJUSTMENT (2)

- Objective: To have the Pick-up assembly installed parallel to the disc
- Symptoms if the adjustment is inadequate: Cross talk

• Measuring equipment and tools	• TV monitor • Pick-up assembly tilt adjuster (GGF-064)
• Measurement point • Test disc and set	• LD test disc F series ... #42,314, #104 still N1 ... #46,135, #115 still
• Adjustment point	• Pick-up assembly angle





Adjustment Procedure

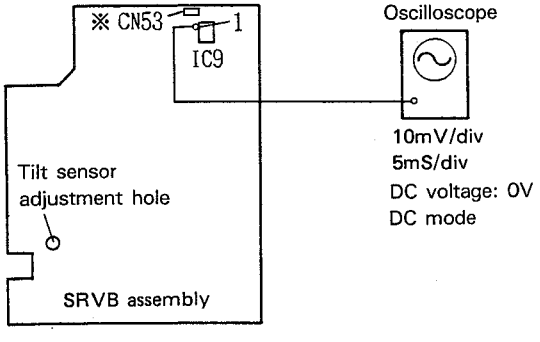
- Leave the CN53 connector disconnected.

1. Find Frame #42,314 (#46,135).
2. Use the Pick-up assembly adjuster (GGF-064) as shown in the diagram to adjust the Pick-up assembly angle to the position that minimizes the cross talk on the screen.
3. Find Frame #104 (#115) and check that the cross talk is not noticeable. If there is cross talk, repeat Steps 1 through 3.
4. Remove the mechanical assembly from the disc player, tighten down the two screws securing the Pick-up assembly, then reinstall the mechanical assembly in the disc player.

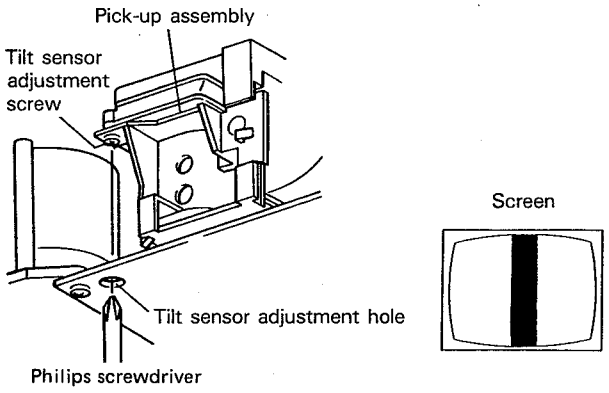
11.4 TILT SENSOR TILT ADJUSTMENT

- Objective: To adjust the tilt of the tilt sensor so that its electrical offset is 0V
- Symptoms if the adjustment is inadequate: Cross talk

• Measuring equipment and tools	• Oscilloscope • Philips screwdriver
• Measurement point	• Pin 1 of IC9 (TL082CP) on the SRVB assembly
• Test disc and set	• LD test disc F series ... #104 still N1 ... #115 still
• Adjustment point	• Tilt sensor adjustment screw



Connection diagram



Pick-up assembly adjustment point

Adjustment Procedure

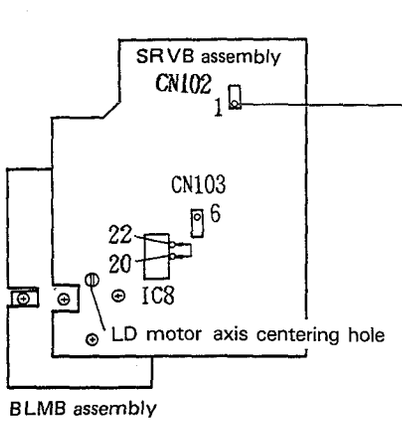
*Leave the CN53 connector disconnected (to disconnect the tilt servo).

1. Play back the LD test disc and check that the cross talk is minimal at Frame #18,914 (#22,525). If there is excessively cross talk, repeat the Pick-up assembly tilt adjustments (1) and (2).
2. Find Frame #104 (#115).
3. Connect the oscilloscope to Pin 1 of IC9 (TL082CP) on the SRVB assembly. Adjust the tilt sensor adjustment screw so that the DC voltage is 0 V.
4. Connect CN53 of the SRVB assembly.
5. Double check that there is no cross talk at Frames #104 (#115), #18,914 (#22,525), and #42,314 (#46,135). If there is cross talk, repeat the Pick-up assembly tilt adjustments (1) and (2).

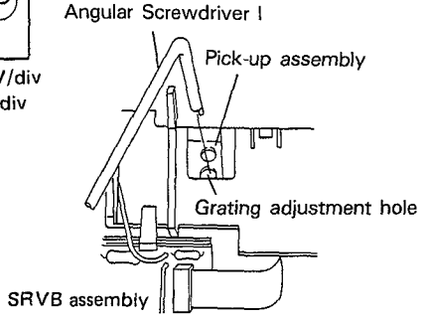
11.5 LD SPINDLE MOTOR AXIS CENTERING

- Objective: To align the position of the motor so that the Pick-up assembly moves on the horizontal line of the center of the LD spindle motor
- Symptom if the adjustment is inadequate: Track skipping, excessively long search times

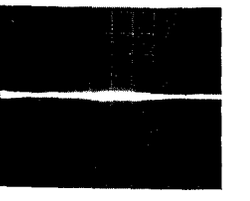
• Measuring equipment and tools	• Oscilloscope • Angular Screwdriver I (GGV-129)
• Measurement point	• SRVB assembly • CN102-1 (tracking error) • CN103-6 (tracking sum)
• Test disc and set	• Tracking servo open • Play at the inner and outer edges of the LD test disc
• Adjustment point	• Grating • LD spindle motor



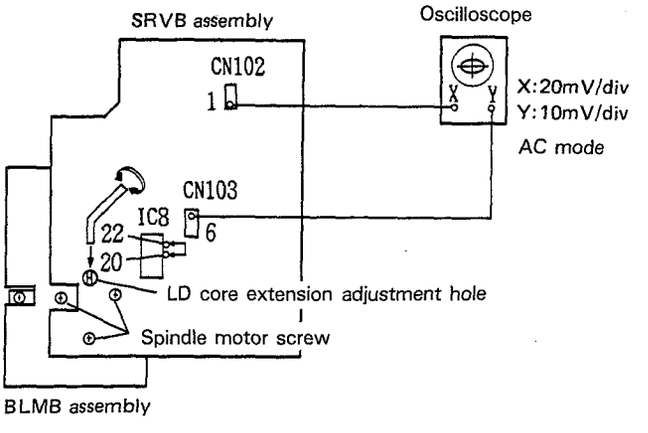
Connection diagram (1)



Adjustment points



Photograph 1
Tracking Error Wave Form
Open Loop On Track State



Connection diagram (2)

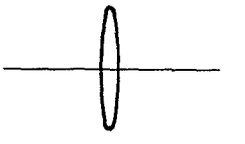


Fig. 1
Lissajous Wave Form On Track
Position Minimum X Direction

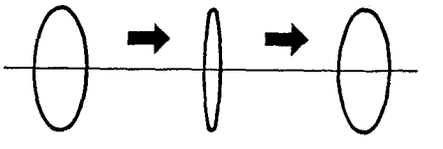


Fig. 2

Adjustment Procedure

1. Find Frame #50,000 (outer edge) of the test disc.
2. Connect Pins 20 and 22 of IC8 (PM4001) on the SRVB assembly to open the TRKG servo loop.
3. During the adjustment avoid moving the Pick-up assembly by pressing the play key.
4. Observe the signal at CN102-1 (TRKG error) of the SRVB assembly. Adjust the grating with angular Screwdriver I so that the amplitude of this wave is as small as possible and the wave is smooth. (Connection Diagram 1 and Photo 1)
5. Put the oscilloscope in X-Y mode, connect the TRKG error signal from CN102-1 of the SRVB assembly as the X input and the TRKG SUM signal from CN103-6 of the SRVB assembly as the Y input, then observe the Lissajous wave form. Set the oscilloscope to 20mV/div for the X axis, 10mV/div for the Y axis, AC mode.
6. Adjust the grating to minimize the amplitude in the X direction of the Lissajous wave form. (Fig. 1)
7. Press the fast feed (◀◀) key to move the Pick-up assembly around the inner edge of the disc between Frames #1 and #500. Verify that this gives the maximum amplitude in the Y direction for the Lissajous wave form.
8. When the Lissajous wave is a bulging ellipse between Frame #1 and Frame #500, slightly loosen the spindle motor screw shown in connection diagram (2), then adjust the core extension for the LD spindle motor.

8-1 Insert Angular Screwdriver I in the hole for adjusting the LD motor axis centering.

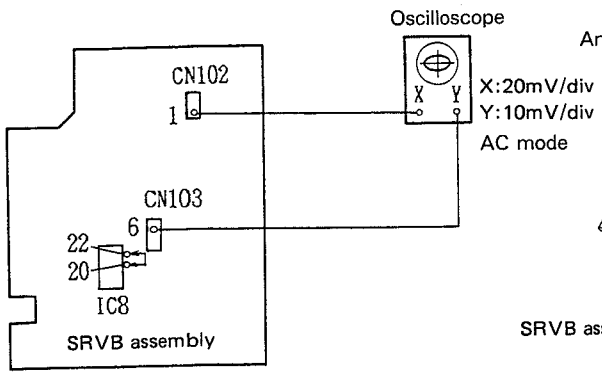
8-2 Check the Lissajous wave form. Turn Angular Screwdriver I slowly to minimize the X direction of the Lissajous wave form, then turn Angular Screwdriver I to obtain the same Lissajous wave form as before. (Fig. 2)

9. Move the Pick-up assembly to near Frame #50,000, then adjust the grating to minimize the Lissajous wave in the X direction.
10. Move the Pick-up assembly back to the inner edge of the test disc between Frame #1-#500 and check that the X direction of the Lissajous wave form is minimal. If not, repeat the adjustments in Steps 8-10 at either the outer edge or the inner edge of the test disc.
11. Tighten the three screws for the LD spindle motor.

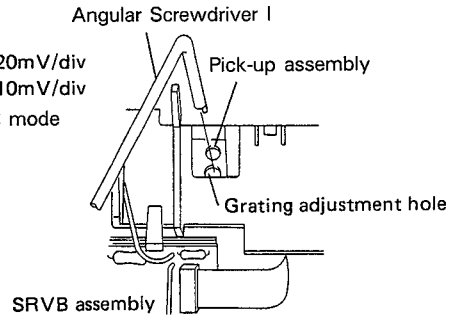
11.6 FINE GRATING ADJUSTMENT

- Objective: Finely adjust the grating so that the two TRKG servo beams shine on the best spot on the track on the disc
- Symptom if the adjustment is inadequate: Track skipping

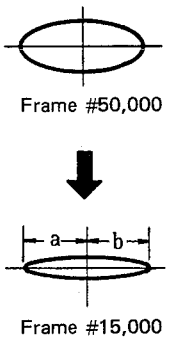
• Measuring equipment and tools • Measurement point • Test disc and set • Adjustment point	• Oscilloscope • Angular Screwdriver I (GGV-129) • SRVB assembly • CN102-1 (TRKG error) • CN103-6 (TRKG sum) • TRKG servo open • F series ..... #15,000 • NI ..... #16,000 • Grating



Connection diagram



Adjustment point



Lissajous wave form

Adjustment Procedure

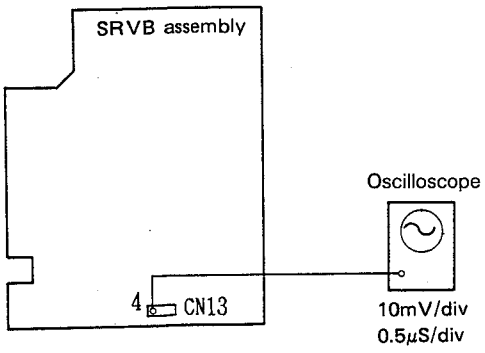
Note: Angular Screwdriver I can not be inserted into the adjustment hole with the Pick-up assembly at Frame #15,000 (#16,000), so adjust at Frame #50,000, then double check the results at Frame #15,000 (#16,000).

1. Press the fast feed (▶▶) key on the remote control to send the Pick-up assembly to around Frame #50,000 on the outer edge, then press the play key.
2. Connect Pins 20 and 22 of IC8 (PM4001) on the SRVB assembly to open the tracking servo loop.
3. Put the oscilloscope in X-Y mode, connect the tracking error signal from CN102-1 of the SRVB assembly as the X input and the tracking SUM signal from CN103-6 of the SRVB assembly as the Y input, then observe the Lissajous wave form. Set the oscilloscope to 20 mV/division for the X axis, 10 mV/division for the Y axis, AC mode.
4. Insert Angular Screwdriver I into the grating adjustment hole. Turn Angular Screwdriver I in the direction of the front panel to the position with the smallest amplitude of the Lissajous wave in the Y direction, then turn the screwdriver back slightly from that position. (Set the grating adjustment to just before the point at which the amplitude of the Lissajous wave in the Y direction is the smallest.)
5. Press the fast feed (◀◀) key to move the Pick-up assembly to Frame #15,000 (#16,000), then check that the Y-direction amplitude of the Lissajous wave is minimum at that point. (If a and b, as shown in the figure above, are not equal, equalize them by adjusting VR4 (the variable resistor for adjusting the tracking balance)). If the Y amplitude is not minimum, send the Pick-up assembly back to Frame #50,000 and finely adjust the grating again. Adjust the grating finely at Frame #50,000 as many times as necessary to obtain the same minimum amplitude in the Y direction for the Lissajous wave at Frame #50,000 and Frame #15,000 (#16,000).
6. Remove the jumper connecting Pins 20 and 22 of IC8 (PM4001) on the SRVB assembly. Double check that the image on the TV screen is normal.

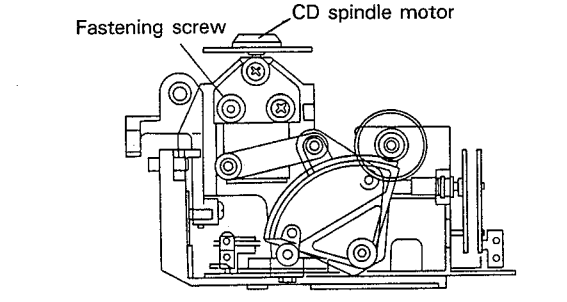
11.7 CD SPINDLE MOTOR TILT ADJUSTMENT→ CD Spindle Motor Axis Centering adjustment

- Objective: To adjust the tilt of the CD spindle motor to optimize the CD optic characteristics (e.g. the error rate)
- Symptom if the adjustment is inadequate: High error rate, track skipping

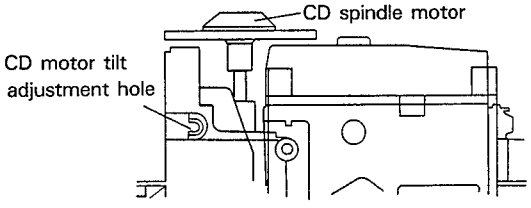
• Measuring equipment and tools	• YEDS-7 CD test disc • Angular Screwdriver II (GGV-063)
• Measurement point	• SRVB assembly CN13-4 (RF signal)
• Test disc and set	• Play CD disc track #23 (soundless portion)
• Adjustment point	• CD spindle motor



Connection diagram



CD motor Mechanical assembly front diagram



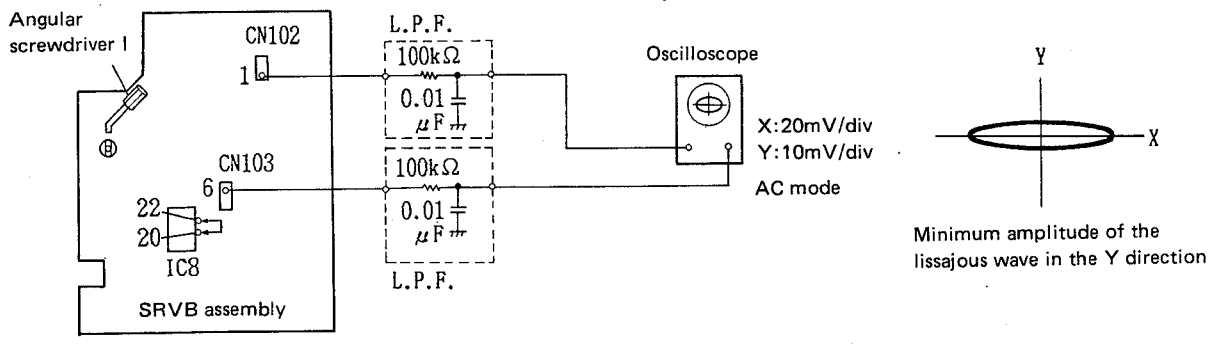
Adjustment procedure

1. With the disc player laying flat, mount a CD disc and raise the CD spindle motor.
2. Press the eject key on the front panel and remove the CD disc.
3. Push in the disc table.
   Loosen the fastening screw for the CD spindle motor slightly from the top of the player.
4. With the player laying flat, load the CD test disc (YEDS-7), then press the eject key on the Remote controller to stop the rotation of the spindle motor. With the player in this state, stand it up.
5. Play back the CD test disc and find Track #23.
6. Observe the RF signal at CN-13-4 of the SRVB assembly. Insert Angular Screwdriver II (GGF-063) into the hole for adjusting the CD motor tilt and adjust the tilt of the CD motor to maximize the amplitude of the RF signal.

11.8 CD SPINDLE MOTOR AXIS CENTERING ADJUSTMENT

- Objective: To adjust the position of the CD spindle motor.
- Symptom if the adjustment is inadequate: Track skipping

• Measuring equipment and tools • Measurement point • Test disc and set • Adjustment point	• Oscilloscope • YEDS-7 CD test disc • Angular Screwdriver I (GGV-129) • L.P.F. • SRVB assembly • CN102-1 (TRKG error) • CN103-6 (tracking sum) • TRKG servo open • Play the CD test disc • CD spindle motor



Connection diagram

Adjustment procedure

1. Put the oscilloscope in X-Y mode, connect the TRKG error signal from CN102-1 of the SRVB assembly as the X input and the TRKG sum signal from CN103-6 of the SRVB assembly as the Y input, then observe the Lissajous wave form. Set the oscilloscope to 20mV/div for the X axis, 10mV/div for the Y axis, AC mode.
2. Slightly loosen the two screws fastening the CD spindle motor pedestal.
3. Play back the CD test disc, moving the Pick-up assembly between Tracks #1-#5 at the inner edge. Connects Pins 20 and 22 of IC8 (PM4001) on the SRVB assembly to open the tracking servo loop.
4. Insert Angular Screwdriver I in the hole for adjusting the centering of the CD motor axis as shown in Figure above (left) Turn Angular Screwdriver I to the point that gives the maximum amplitude of the Lissajous wave in the Y direction.

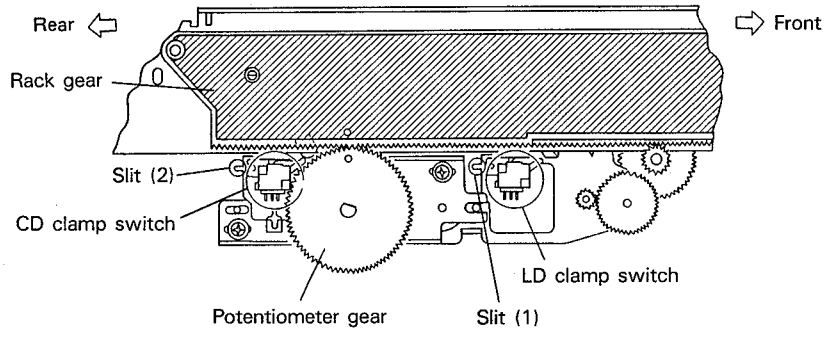
Note: If the Lissajous wave is not clear, connect L.P.F.'s between the X and Y terminals of the oscilloscope and the measuring points as shown in the figure above.

5. Close the tracking servo loop, find Track #23, then open the tracking servo loop again. Double check that there is no significant change in the Lissajous wave.
6. Close the tracking servo loop.
7. Press the Eject key on the remote control once and lay the player flat. Press the Eject key again and remove the disc.
8. Tighten the screws securing the CD spindle motor.

11.9 LD/CD DISC CLAMP SWITCHING POSITION ADJUSTMENT

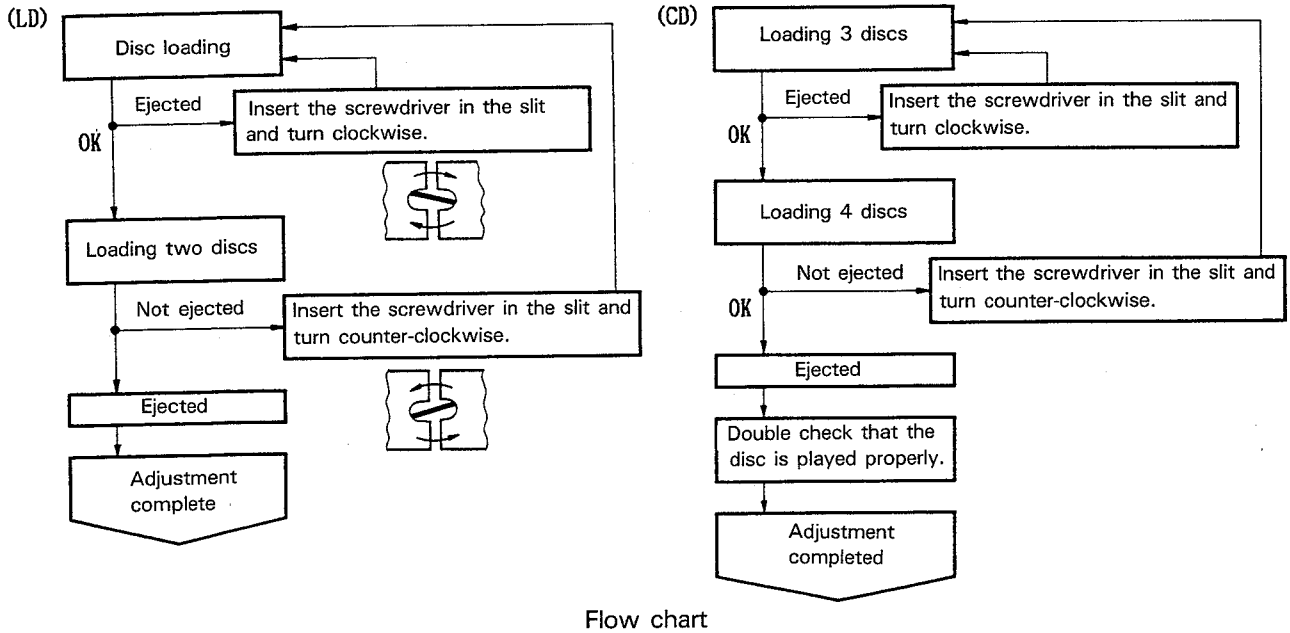
- Objective: To adjust the position for the LD/CD clamp switch
- Symptom if the adjustment is inadequate: Disc not set

• Measuring equipment and tools	• Screwdriver
• Measurement point	• LD (CD) disc clamp switch position adjustment slit
• Test disc and set	• Start the LD (CD) disc. Start a pile of two LD discs.
• Adjustment point	• LD (CD) disc clamp switch



Adjustment Procedure

Note: If the disc table is ejected without the disc clamp switch being pressed even if there is a disc clamped, then carry out the following procedure to adjust the position for LD/CD disc clamp switching.

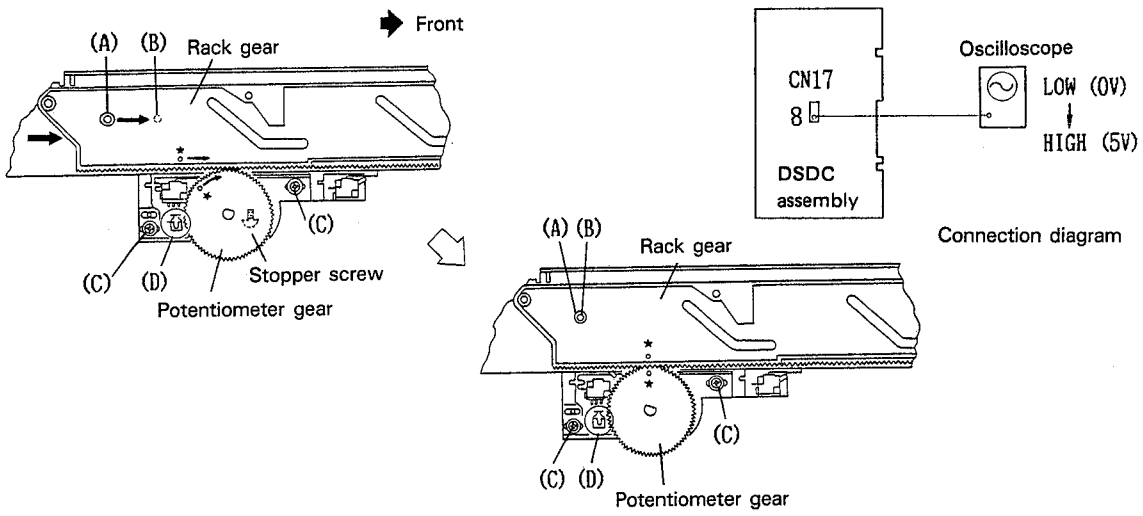


Flow chart

11.10 ROTARY ENCODER ADJUSTMENT

- Objective: To adjust the position of the rotary encoder
- Symptom if the adjustment is inadequate: Player can not distinguish LD discs from CD discs. Disc not set. Gear does not close completely for LD/CD swing.

• Measuring equipment and tools • Measurement point • Test disc and set • Adjustment point	• Oscilloscope • Screwdriver • DSDC assembly CN17-8 • Power switch on • Rotary encoder



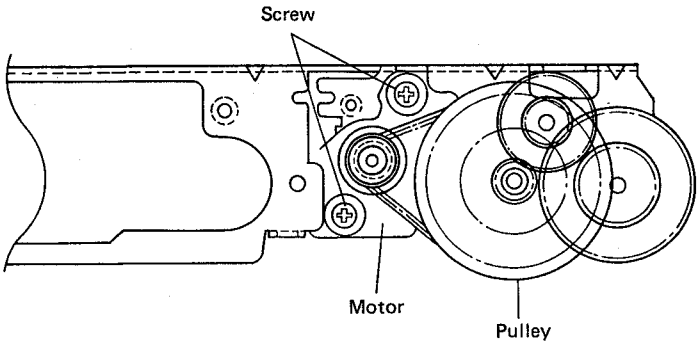
Adjustment Procedure

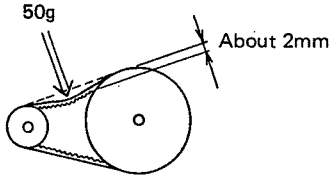
1. Switch on the disc player without mounting a disc.
2. Move the left and right rack gears slowly towards the Front panel simultaneously so that the clamper rises. Line up the Rack gear hole (A) with the subchassis hole (B).
3. Loosen the stopper screw shown in the figure so that the Potentiometer gear can move up and down. Then lightly lift up the Rack gear with your hand and adjust the meshing of the gears to line up the spot on the Rack gear marked with ★ with the hole in the potentiometer gear.
4. Loosen the two screws (C) and insert the screwdriver in the adjustment hole (D).
5. Finely adjust the position of the rotary encoder with the screwdriver so that the level at CN17-8 on the DSDC assembly goes from low (0V) to high (5V).
6. Tighten the two screws (C).
7. Mount a CD (LD) disc and cut the power off while the swing mechanism is switching the Spindle motor.
8. Double check that the hole (A) on the Rack gear and the hole (B) on the subchassis are lined up with each other. If they are not, repeat Steps 2 through 8.
9. Tighten the stopper screw, making sure that the Rack gear and the Potentiometer gear do not stop meshing and that there is a little play in the gear teeth, then apply screw locking solution.

11.11 SYNCHRONIZATION BELT ADJUSTMENT

- Objective: To adjust the slack in the synchronization belt.
- Symptom if the adjustment is inadequate: Slipping in the synchronization gears

- Measuring equipment and tools
- Measurement point
- Test disc and set
- Adjustment point





Adjustment Procedure

1. Apply approximately 50g of tension at the center of the pulley and move the motor so that the slack in the belt is about 2mm. Then tighten the screw temporarily.
2. Tighten the screw. Stop the pulley by hand when the motor is turning and be sure that the gears do not slip.

11.12 RIGHT ROLLER PLATE ASSEMBLY ADJUSTMENT

- Objective: To have the gear (E), pinion (E) and the Intermediate rack mesh
- Symptom if the adjustment is inadequate: Abnormality in the loading operation

- Measuring equipment and tools
- Measurement point
- Test disc and set
- Adjustment point

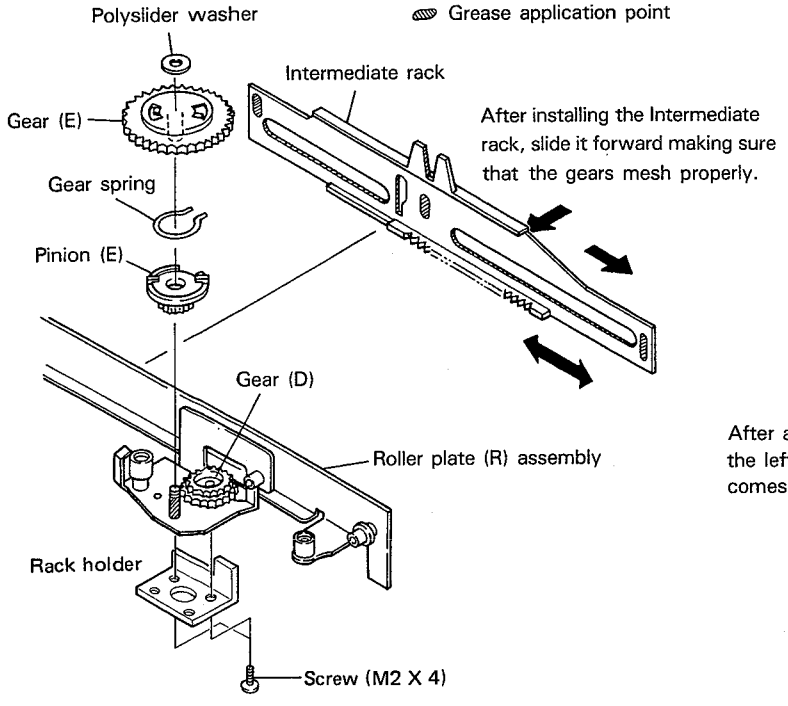


Fig. 1 Gear Assembly Gear Teeth Meshing

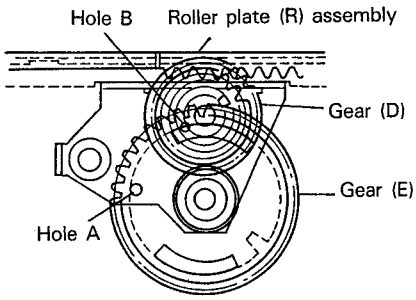


Fig. 2

After assembly, move the Intermediate rack all the way to the left and make sure that the position of the Gear hole (E) comes to the position shown below.

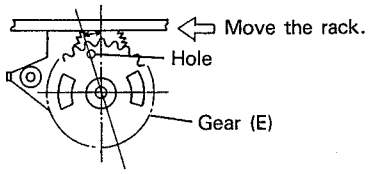


Fig. 3 Verifying the Gear Meshing

Adjustment Procedure

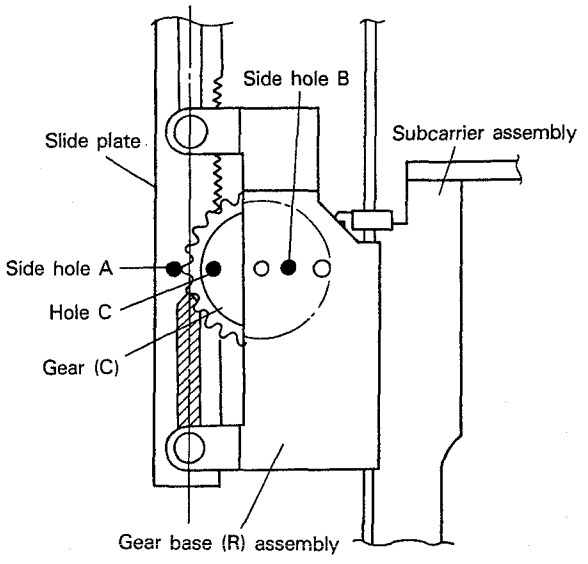
- Meshing the Roller plate (R) assembly, Gear (E), Pinion (E), and Intermediate rack

1. Line up the hole in the Gear (D) with Hole B and the hole in the Gear (E) with Hole A and install them on the Roller plate (R) assembly as shown in Fig. 2.
2. With the parts in the positions relative to each other shown in Figures 1 and 2, install the Intermediate rack on the Roller plate (R) assembly.
3. Move the Intermediate rack all the way from the position it has been fitted into and make sure that the hole in the Gear (E) is in the position shown in Fig. 3. When carrying out Operations 1-4 above, grease the locations shown in Fig. 1.
4. After installing the Intermediate rack, tighten the screws so that the Rack holder attaches the Roller plate (R) assembly (Fig. 1).

11.13 MESHING THE SUBCARRIER ASSEMBLY, SLIDE PLATE, GEAR (C) Mechanical Adjustments

- Objective: The way the Subcarrier assembly, Slide plate, and Gear (C) mesh
- Symptom if the adjustment is inadequate: Abnormal loading operations

- Measuring equipment and tools
- Measurement point
- Test disc and set
- Adjustment point



Assembly

1. Pull the Subcarrier assembly all the way towards you.
2. Push the Slide plate back to the point at which the Lock plate switches (turns in the carrier).
3. Install the Gear (C) so that Hole C on the Gear (C) is on the line connecting Side Hole A on the slide plate and Side Hole B on the Gear base (R) assembly, as shown in the figure.

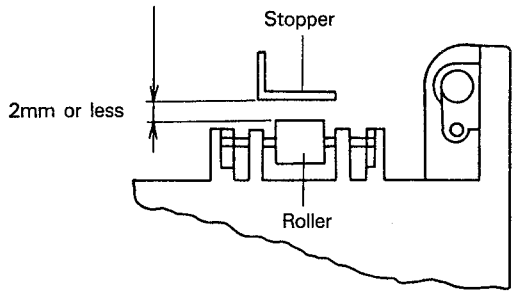
Verification

1. Turn the Lock plate to the outside, release the lock for the Slide plate, slide it forward, then move the Subcarriage assembly to the rear.
2. Move the Subcarriage all the way forward and make sure that the Lock plate for the Slide plate switches smoothly.
3. While performing these operations, make sure that the Carriage and Subcarriage assemblies are on the same center.

11.14 CARRIAGE INSERTION METHOD

- Symptom if the adjustment is inadequate: Abnormal loading operations

- Measuring equipment and tools
- Measurement point
- Test disc and set
- Adjustment point



Insertion Method

1. Pull the Clamper holder forward until it locks. (The Loading mechanism comes farther forward than the out position.)
2. Set the Carrier horizontal and insert it keeping the left and right guide grooves lined up with the Rollers on the sides of the Loading mechanism.
3. Install the two Plastic rivets.
4. Install the Front panel.

Verification

1. Switch on the power, have the Carrier unload, mount a CD or LD disc, then check that the player can play this disc properly.
2. Next, mount the other type of Disc (LD or CD), switch off the power while the CD motor is swinging, then check that the clearance between the right rear section of the Carrier and the Stopper is at least 2 mm, as shown in the figure above.

12. ELECTRICAL ADJUSTMENT

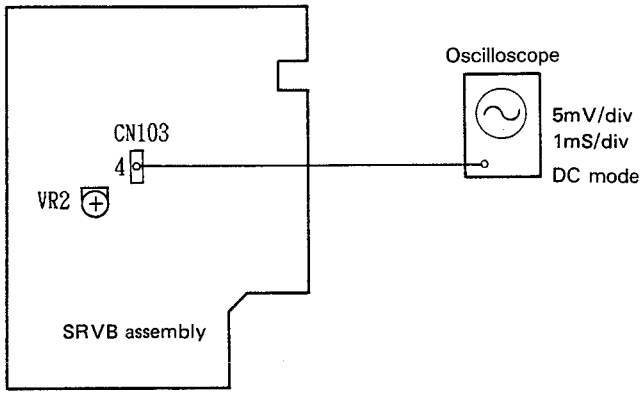
12.1 SRVB ASSEMBLY ADJUSTMENT

1. FOCS Offset Adjustment

SRVB Assembly Adjustment

- Objective: To set the electric offset for the FOCS servo to 0
- Symptom if the adjustment is inadequate: The FOCS is difficult to lock, causing the playability of the disc to deteriorate.

• Measuring equipment and tools	• Oscilloscope
• Measurement point	• SRVB assembly CN103-4 (FOCS error)
• Test disc and set	• Switch on the power without mounting the disc.
• Adjustment point	• SRVB assembly VR2



Connection Diagram

Adjustment Procedure

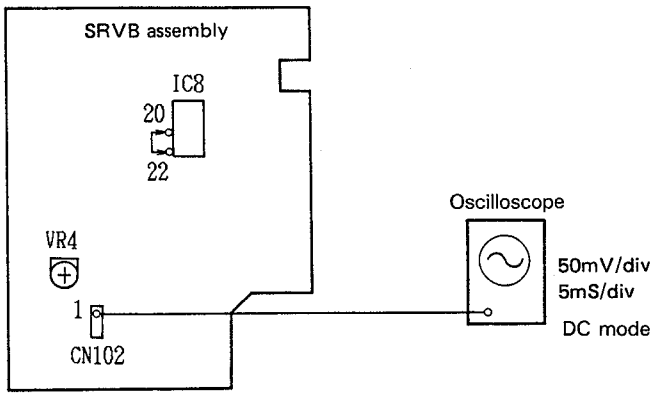
1. Switch on the power without mounting the disc.
2. Observe the DC voltage at CN103-4 (FOCS error) on the SRVB assembly and adjust VR2 so that this voltage is within 5mV of 0V.

2. TRKG Balance Adjustment

SRVB Assembly Adjustment

- Objective: To set the electric offset for the Tracking servo to 0
- Symptom if the adjustment is inadequate: Searches take longer (and jump operations become more difficult).

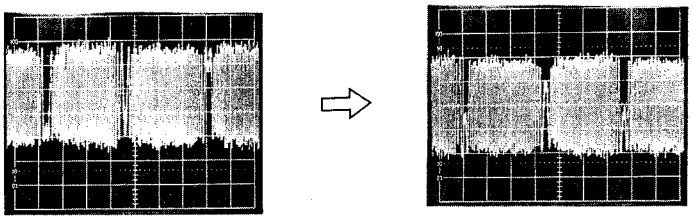
• Measuring equipment and tools	• Oscilloscope
• Measurement point	• SRVB assembly CN102-1 (TRKG error)
• Test disc and set	• LD test disc F series, N1 ... #20,000 still
• Adjustment point	• SRVB assembly VR4



Connection Diagram

Adjustment Procedure

1. Mount the LD test disc. The player automatically begins to play this disc.
2. Find Frame #20,000 with the remote controller.
3. Connect Pins 20 and 22 of IC8 (PM4001) on the SRVB assembly to open the TRKG servo loop.
4. Observe the TRKG error signal at CN102-1 of the SRVB assembly.
5. Adjust VR4 so that positive amplitude and the negative amplitude of the TRKG error signal are the same.

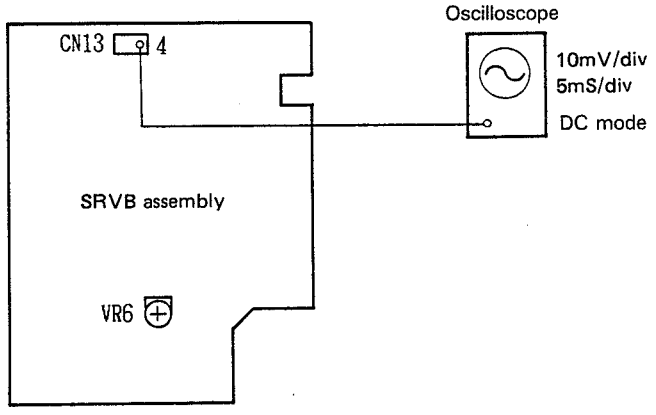


TRKG Error Wave Form

3. RF Level Adjustment

- Objective: To optimize the amplitude of the RF signals
- Symptom if the adjustment is inadequate: Too many drop outs

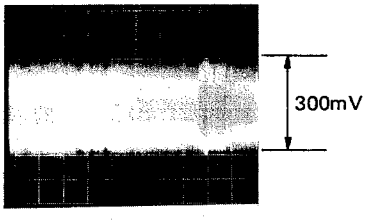
• Measuring equipment and tools	• Oscilloscope
• Measurement point	• SRVB assembly CN13-4 (RF signal)
• Test disc and set	• LD test disc F series ... #15,000 still N1 ... #16,000 still
• Adjustment point	• SRVB assembly VR6



Connection Diagram

Adjustment Procedure

1. Find Frame #15,000 (#16,000).
2. Connect CN13-4 on the SRVB assembly and the oscilloscope and observe the RF signals.
3. Adjust VR6 so that the amplitude of the RF signals at CN13-4 is 300mVp-p.



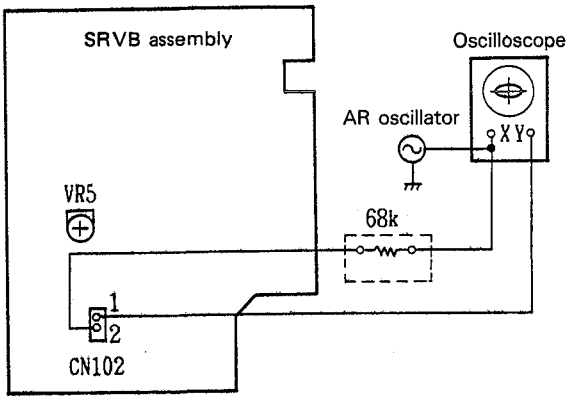
RF signal

4. TRKG Servo Loop Gain Adjustment

SRVB Assembly Adjustment

- Objective: To set the optimum loop gain for the TRKG servo
- Symptom if the adjustment is inadequate: Deterioration of the playability

• Measuring equipment and tools • Measurement point • Test disc and set • Adjustment point	• Oscilloscope • 68 kΩ resistor • SRVB assembly CN102-1 ... Y CN102-2 ... X • LD test disc F series ... #15,000 still N1 ... #16,000 still • SRVB assembly VR5



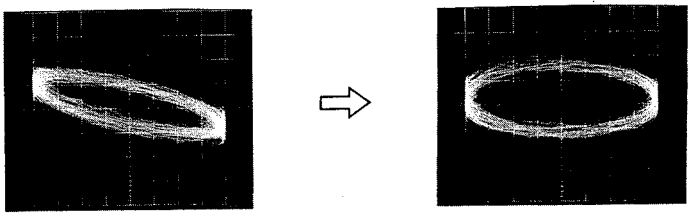
Connection diagram

Test disc	F1	F2	F3	F4	F5
Frequency (kHz)	3.0	3.7	3.3	3.3	3.3
Output (Vp-p)	4.0	4.0	4.0	4.0	4.0

*N1. . . . . 2.7kHz(4.0Vp-p)

Adjustment Procedure

1. Set the output and the frequency for the AF oscillator to the values shown in the table above.
2. Find Frame #15,000 (#16,000).
3. Connect the resistor, AF oscillator, and oscilloscope as shown in the diagram above.
4. Put the oscilloscope in X-Y mode, then observe the Lissajous wave.
5. Adjust VR5 so that the Lissajous wave is symmetrical about both the X and Y axes.



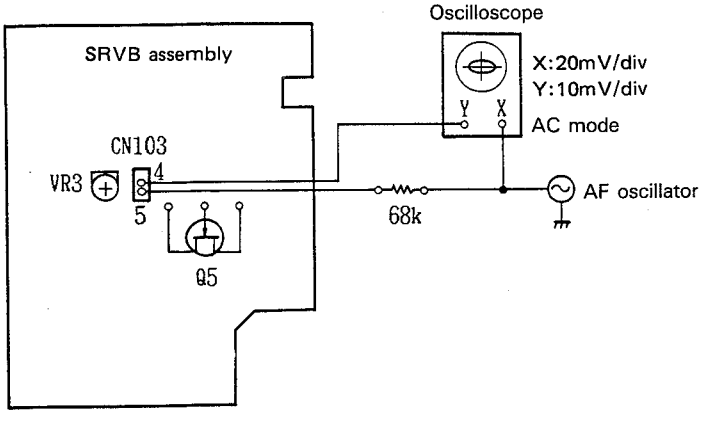
Making the Lissajous Wave Form Horizontal

5. FOCS Loop Gain Adjustment

SRVB Assembly Adjustment

- Objective: To set the optimum loop gain for the FOCS servo
- Symptom if the adjustment is inadequate: Deterioration of the playability

• Measuring equipment and tools	• Oscilloscope • 68 kΩ resistor • AF oscillator
• Measurement point	• SRVB assembly CN103-4 ... Y CN103-5 ... X
• Test disc and set	• Switch off the FOCS motor protection circuit. • LD test disc F series ... #15,000 still N1 ... #16,000 still
• Adjustment point	• SRVB assembly VR3



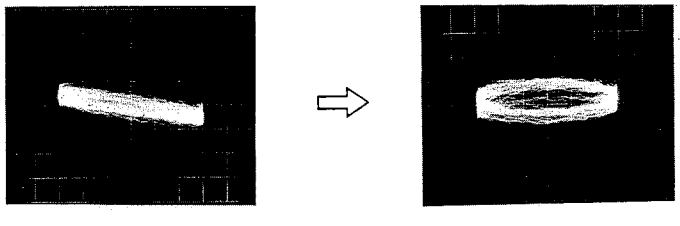
Connection diagram

Test disc	F1	F2	F3	F4	F5
Frequency (kHz)	2.1	1.7	1.7	2.0	1.7
Output (Vp-p)	1.2	1.2	1.2	1.2	1.2

*N1. . . . . 1.5kHz(1.2Vp-p)

Adjustment Procedure

1. Connect the drain and the source of Q5 (2SK184) on the SRVB assembly to disable the FOCS motor protection circuit.
2. Set the output and the frequency for the AF oscillator to the values shown in the table above.
3. Find Frame #15,000 (#16,000).
4. Connect the AF oscillator to CN103-5 and the oscilloscope to CN103-4, as shown in the diagram above.
5. Put the oscilloscope in X-Y mode, then observe the Lissajous wave.
6. Adjust VR3 so that the Lissajous wave is symmetrical about both the X and Y axes.
7. Remove the connection between the drain and the source of Q5.



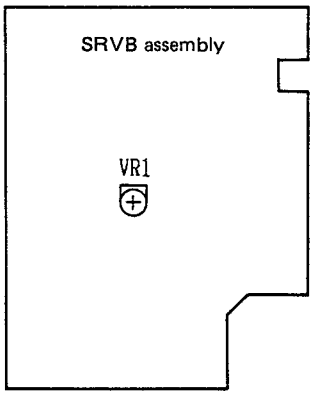
Making the Lissajous Wave Form Horizontal

6. FOCS Error Balance Adjustment

SRVB Assembly Adjustment

- Objective: To operate the FOCS servo at the optimum position
- Symptom if the adjustment is inadequate: Crosstalk

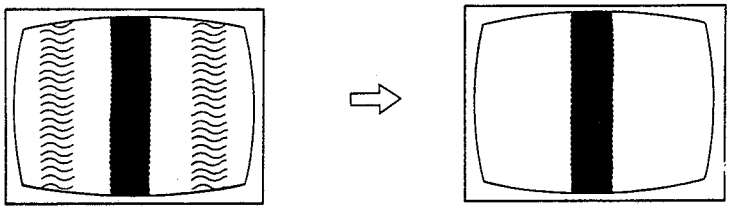
• Measuring equipment and tools • Measurement point • Test disc and set • Adjustment point	• TV monitor • Video output terminals on the player • LD test disc F series ... #104 still N1 ... #115 still • SRVB assembly VR1



Connection diagram

Adjustment Procedure

1. Find Frame #104 (#115).
2. Adjust VR1 to minimize the crosstalk generated on the left and right sides of the TV screen.



Screen with crosstalk — Minimum crosstalk

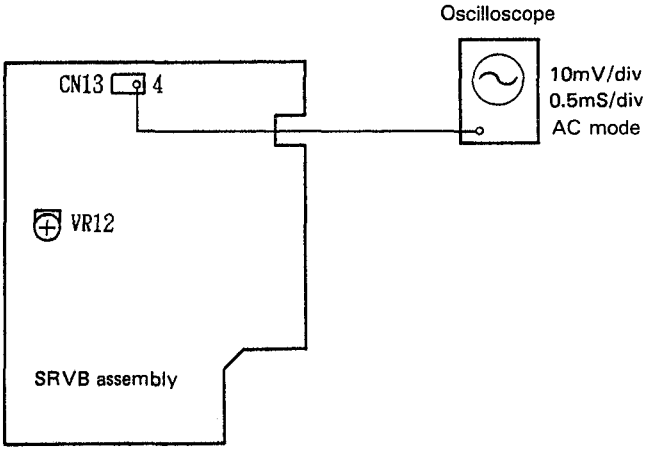
Screen

7. CD FOCS Balance Adjustment

SRVB Assembly Adjustment

- Objective: To operate the FOCS servo at the optimum position
- Symptom if the adjustment is inadequate: Higher error rate, breaks in the sound

• Measuring equipment and tools	• Oscilloscope • CD test disc (YEDS-7)
• Measurement point	• SRVB assembly CN13-4
• Test disc and set	• CD play
• Adjustment point	• SRVB assembly VR12



Connection diagram

Adjustment Procedure

1. Mount the CD test disc (YEDS-7) and play it.
2. Observe the RF signal at CN13-4 of the SRVB assembly.
3. Adjust VR12 to maximize the amplitude of the RF signal.

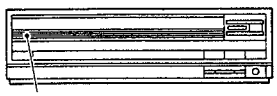
8. Inside/outside Position Detection Adjustment — SRVB Assembly Adjustment

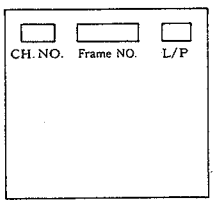
- Objective: To determine the position for starting LD/CD play and the Pick-up position for when the Tilt servo is off
- Symptom if the adjustment is inadequate: The disc is not played and the CD motor can not swing.

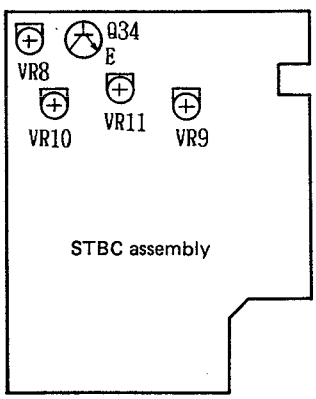
• Measuring equipment and tools	• TV monitor • CD test disc (YEDS-7)
• Measurement point	
• Test disc and set	• LD test disc F series ... #1,500, #46,000, #17,000 N1 ... #1,500, #49,600, #18,300 • CD test disc (YEDS-7) Track #1
• Adjustment point	• SRVB assembly VR8, VR9, VR10, VR11

• How to Enter Test Mode

1. Mount the test disc.
2. Press the Eject (■/▲) key on the Remote control once to stop the rotation of the Spindle motor.
3. Switch off the power for the player.
4. With the front door of the player open, switch on its power.
5. Press the play key. After the image appears, press the display switch key on the remote control and make sure that either "P" or "L" is displayed on the top right of the screen.


Front door





Adjustment Procedure

1. LD inside position adjustment
- Find Frame #1,500 (#1,500), then adjust VR8 so that the L/P display changes from L to P.
2. 12-inch LD outside position adjustment
- Find Frame #46,000 (#49,600), then adjust VR9 so that the L/P display changes from P to L.
3. 8-inch LD outside position adjustment
- Connect the emitter and the collector of Q34 (DTC124ES) of the SRVB assembly.
- Find Frame #17,000 (#18,300), then adjust VR10 so that the L/P display changes from P to L.
- Remove the connection between the emitter and the collector of Q34.

4. CD inside adjustment
- Mount the CD test disc (YEDS-7).
- Put the player in test mode again.
- Press the Play key. After the image appears, press the Display switch key on the Remote control.
- Press the Pause key on the Remote control, then find 1:00 on Track 1.
- Adjust VR11 so that the L/P display changes from L to P.

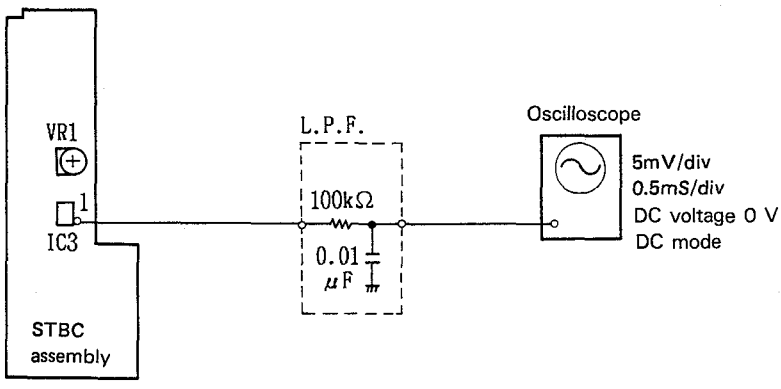
12.2 STBC ASSEMBLY ADJUSTMENT

1. TBC Offset Adjustment

STBC Assembly Adjustment

- Objective: To set the offset voltage at Pin 1 of IC3 (BA4558DX) of the STBC assembly to 0V
- Symptom if the adjustment is inadequate: After a search, the color lock is slow.

• Measuring equipment and tools	• Oscilloscope • L.P.F.
• Measurement point	• STBC assembly • IC3 (BA4558DX) Pin 1
• Test disc and set	• Stand by
• Adjustment point	• STBC assembly VR1



Connection diagram

Adjustment Procedure

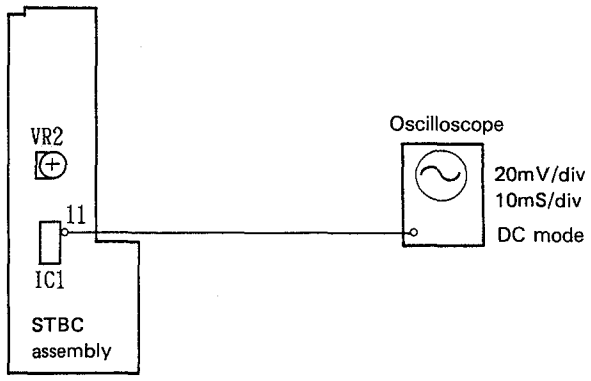
1. Press the Eject key on the Remote control once to stop the rotation of the Spindle motor.
2. With the player on stand by, connect the oscilloscope to Pin 1 of IC3 (BA4558DX) and measure the offset voltage.
3. Adjust VR1 so that the offset voltage at Pin 1 of IC3 (BA4558DX) is 0 V.

Note: If the DC voltage can not be checked because of noise, connect the Low-pass filter (L.P.F.) as shown in the diagram above.

2. Time Axis Error Detection Adjustment — STBC Assembly Adjustment

- Objective: To balance the positive amplitude and negative amplitude of the Time axis error signal
- Symptom if the adjustment is inadequate: The screen is warped and the color lock does not work.

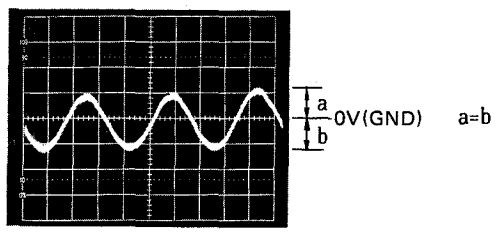
• Measuring equipment and tools	• Oscilloscope
• Measurement point	• STBC assembly • IC1 (PA5009) Pin 11
• Test disc and set	• LD disc play
• Adjustment point	• STBC assembly VR2



Connection diagram

Adjustment Procedure

1. Press the Play key.
2. Connect Pin 9 of IC601 (PA0017) of the VDEM assembly to ground to give the Time axis error compensation circuit a free run.
3. Connect the oscilloscope to Pin 11 of IC1 (PA5009) on the STBC assembly and observe the Time axis error signal.
4. Adjust VR2 so that the positive amplitude and the negative amplitude of the Time axis error signal (sine wave) are the same.



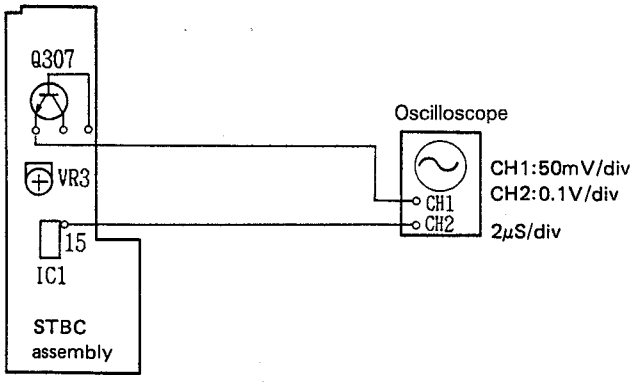
Time axis error

3. Sync Gate Timing Adjustment

STBC Assembly Adjustment

- Objective: To optimize the timing for the sync gate
- Symptom if the adjustment is inadequate: The colors are uneven, the color lock does not work, and the system starts from the middle without reading data.

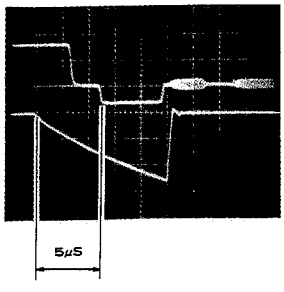
• Measuring equipment and tools	• Oscilloscope
• Measurement point	• STBC assembly • Q307 (emitter) • IC1 (PA5009) Pin 15
• Test disc and set	• LD disc play
• Adjustment point	• STBC assembly VR3



Connection diagram

Adjustment Procedure

1. Connect the emitter of Q307 on the STBC assembly to CH1 of the oscilloscope and Pin 15 of IC1 (PA5009) to CH2 of the oscilloscope and observe the Video signal and the Monostable multi-vibrator (MMV) output of the sync gate.
2. Adjust VR3 of the STBC assembly so that the falling edge of the MMV output is 5μsec. ahead of the H sync of the Video signal.



Top: Emitter of Q307
50mV/div

Bottom: Pin 15 of IC1
0.1V/div

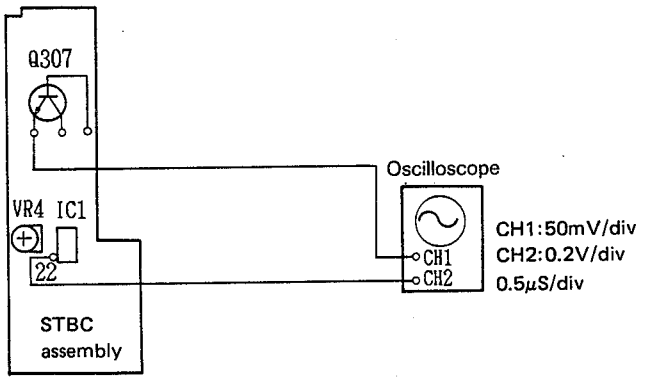
2μS/div

Wave forms

4. Burst Gate Timing Adjustment

- Objective: To optimize the timing for the burst gate
- Symptom if the adjustment is inadequate: The system starts from the middle. There is no color. The color is uneven. Fine stripes stand out.

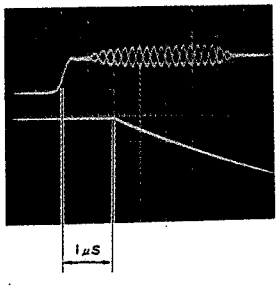
• Measuring equipment and tools	• Oscilloscope
• Measurement point	• STBC assembly • Q307 (emitter) • IC1 (PA5009) Pin 22
• Test disc and set	• LD disc play
• Adjustment point	• STBC assembly VR4



Connection diagram

Adjustment Procedure

1. Connect the emitter of Q307 on the STBC assembly to CH1 of the oscilloscope and Pin 22 of IC1 (PA5009) to CH2 of the oscilloscope and observe the Video signal and the Monostable multi-vibrator (MMV) output of the sync gate.
2. Adjust VR4 of the STBC assembly so that the falling edge of the MMV output is 1 μsec. later than the Burst signal of the Video signal.



Top: Emitter of Q307
50mV/div

Bottom: Pin22 of IC1
0.2V/div

0.5μS/div

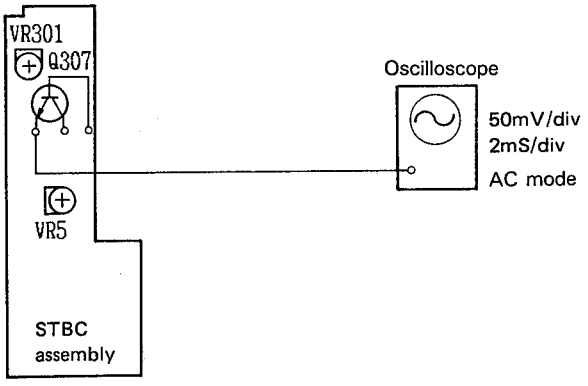
Wave forms

5. MIX Chroma Level Adjustment

STBC Assembly Adjustment

- Objective: To optimize the chroma level in the color phase compensation section
- Symptom if the adjustment is inadequate: There is much unevenness in the colors on the screen.

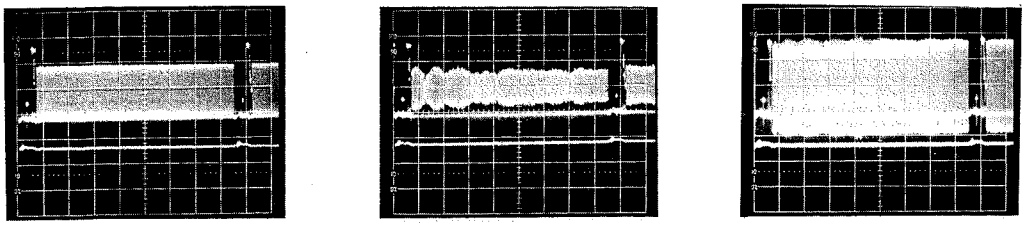
• Measuring equipment and tools • Measurement point • Test disc and set • Adjustment point	• Oscilloscope • LD test disc • STBC assembly • Q307 (emitter) LD test disc F series ... #26,101 (Chap #20) N1 ... #7,201 (Chap #15) still • STBC assembly VR301



Connection diagram

Adjustment Procedure

1. Find Chapter #20 (#15) on the LD test disc.
2. Turn VR5 on the STBC assembly all the way counter-clockwise.
3. Connect the emitter of Q307 of the STBC assembly to the oscilloscope and observe the Video signal.
4. Adjust VR301 so that the waves in the chroma signal are smooth.



Optimum point

VR301 turned to the left of the optimum point

VR301 turned to the right of the optimum point

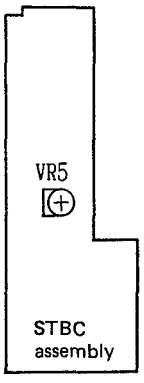
Wave forms

6. Color Phase Error Signal Level Adjustment

STBC Assembly Adjustment

- Objective: To optimize the level of the Error signal in the Color phase compensation section
- Symptom if the adjustment is inadequate: There is much unevenness in the colors on the screen.

• Measuring equipment and tools	• TV monitor • LD test disc
• Measurement point	• Adjust while watching the TV monitor screen.
• Test disc and set	• LD test disc F series ... #26,101 (Chap #20) N1 ... #7,201 (Chap #15) still
• Adjustment point	• STBC assembly VR5



Adjustment Procedure

1. Find Chapter #20 (#15). (It shows a magenta screen.)
2. Adjust VR5 to the point at which the magenta image is most even.

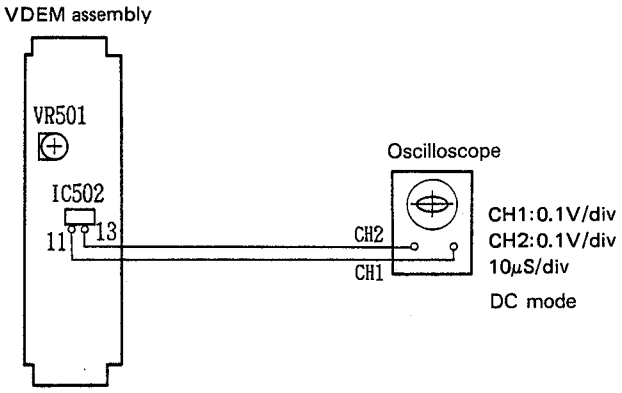
12.3 VDEM ASSEMBLY ADJUSTMENT

1.1 H Delay Video Level Adjustment

VDEM Assembly Adjustment

- Objective: To equalize the video levels for the 1H delay signal and the Main line video signal
- Symptom if the adjustment is inadequate: The 1H level is:
  - Too high ... White drop out is noticeable and the horizontal adjustment is out of alignment (causing horizontal lines on the screen)
  - Too low ... Black drop out is noticeable.

• Measuring equipment and tools	• Dual trace oscilloscope
• Measurement point • Test disc and set • Adjustment point	• VDEM assembly • IC502 (PA3018) Pin 13 • IC502 (PA3018) Pin 11 • LD test disc F series ... #19,801 (Chap #15) N1 ... #19,801 (Chap #29) still • VDEM assembly VR501

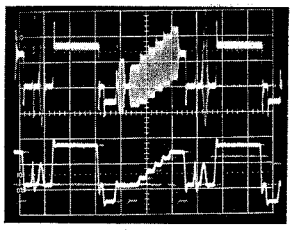


Connection diagram

Adjustment Procedure

1. Connect Pin 13 of IC502 (PA3018) of the VDEM assembly to CH1 of the dual trace oscilloscope and Pin 11 to CH2.
2. Find Chapter #15 (#29).
3. Adjust VR501 so that the 1H delay video level (CH2) is the same as the main line video level (CH1).

Note: The Video level is the level from the sync tip to the white peak.



Main video signal

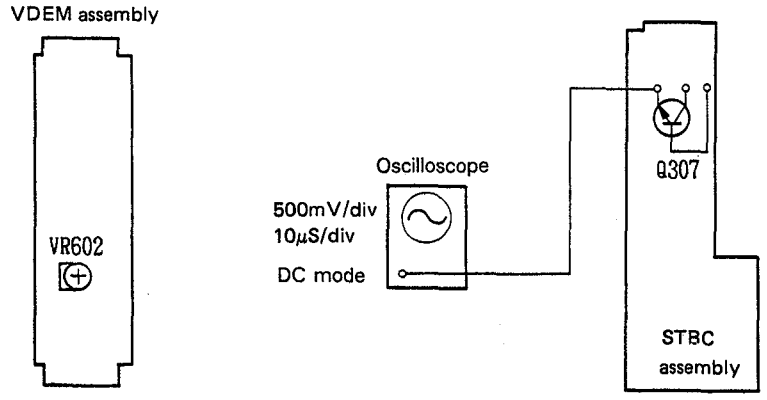
1H delay video signal

Wave forms

2. Output Video Level Adjustment — VDEM Assembly Adjustment

- Objective: To set the level of the Video signal to 2Vp-p
- Symptom if the adjustment is inadequate: The system starts up from the middle and cannot read the data. The screen is too bright or too dark.

• Measuring equipment and tools	• Oscilloscope
• Measurement point	• STBC assembly • Emitter of Q307
• Test disc and set	• LD test disc F series ... #19,801 (Chap #15) N1 ... #19,801 (Chap #29) still
• Adjustment point	• VDEM assembly VR602

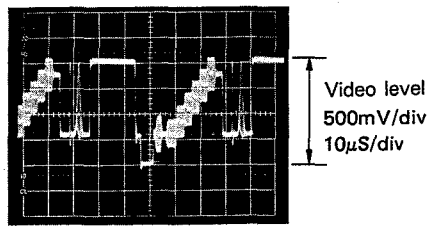


Connection diagram

Adjustment Procedure

1. Connect the emitter of Q307 of the STBC assembly to the Oscilloscope and measure the Video signal.
2. Find Chapter #15 (#29).
3. Adjust VR602 so that the Video level at the emitter of Q307 of the STBC assembly is 2Vp-p.

Note: The Video level is the voltage from the sync tip to the white peak.



Wave forms

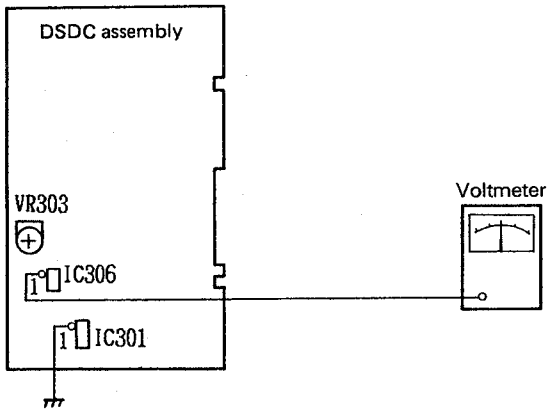
12.4 DSDC ASSEMBLY ADJUSTMENT

1. EFM Decoder PLL Offset Adjustment

DSDC Assembly Adjustment

- Objective: To optimize the offset for the PLL circuit used to extract the reference clock for the EFM decoder
- Symptom if the adjustment is inadequate: There is no digital sound or the sound is broken.

• Measuring equipment and tools	• Voltmeter
• Measurement point	• DSDC assembly • IC306 (TL082CP) (NJM082D) Pin 1
• Test disc and set	• Stand by • Ground Pin 1 of IC301 (TC40H004P) of the DSDC assembly
• Adjustment point	• DSDC assembly VR303



Connection diagram

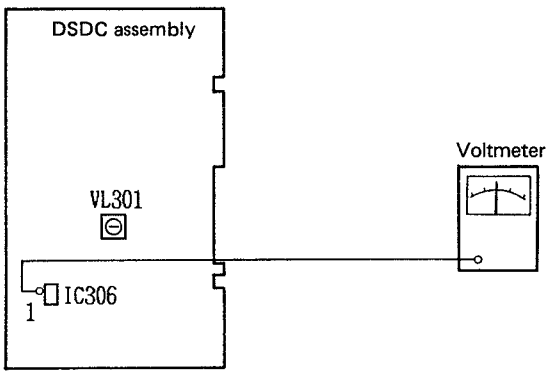
Adjustment Procedure

1. Press the Eject key on the Remote control once to stop the rotation of the Spindle motor.
2. Connect the voltmeter to Pin 1 of IC306 (TL082CP) of the DSDC assembly and measure the PLL offset voltage.
3. Ground Pin 1 of IC301 (TC40H004P) of the DSDC assembly.
4. Adjust VR303 of the DSDC assembly so that the voltage at Pin 1 of IC306 is 50 ±50mV.
5. Remove the line grounding Pin 1 of IC301.

2. VCO Free Run Frequency Adjustment

- Objective: To optimize the free run frequency for the reference clock for the EFM decoder
- Symptom if the adjustment is inadequate: There is n sound or the sound is broken.

• Measuring equipment and tools	• Voltmeter
• Measurement point	• DSDC assembly • IC306 (TL082CP) (NJM082D) Pin 1
• Test disc and set	• LDD test disc
• Adjustment point	• DSDC assembly VL301



Connection diagram

Adjustment Procedure

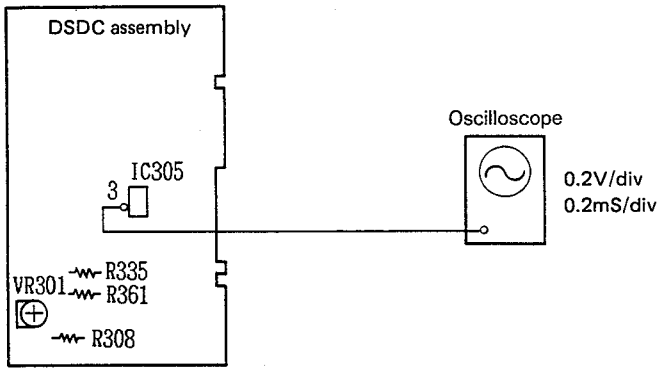
1. Mount the LDD test disc. Play it.
2. Connect the voltmeter to Pin 1 of IC306 (TL082CP) of the DSDC assembly and measure the voltage of the VCO control signal.
3. Adjust VL301 of the DSDC assembly so that the voltage of the VCO control signal at Pin 1 of IC306 is 150 ±100mV.

3. VCXO Offset Adjustment

DSDC Assembly Adjustment

- Objective: To minimize the offset for the Spindle phase error comparator circuit
- Symptom if the adjustment is inadequate: The digital audio output is broken during LDD play back (there is synchronized noise).

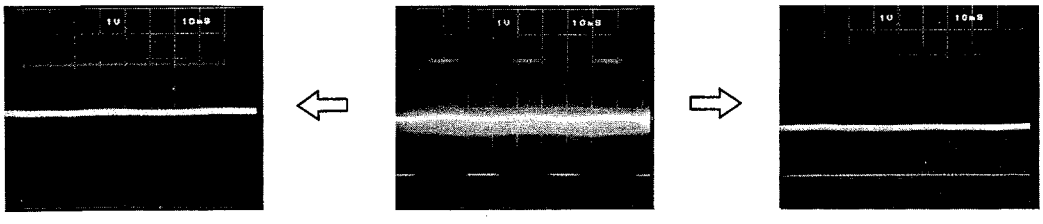
• Measuring equipment and tools	• Oscilloscope • LDD disc
• Measurement point	• DSDC assembly • IC305 (CXD1135Q) Pin 3 (leads of R336, R338, and R361)
• Test disc and set	• LDD disc play
• Adjustment point	• DSDC assembly VR301



Connection diagram

Adjustment Procedure

1. Connect the oscilloscope to Pin 3 of IC305 (CXD1135Q) and measure the Spindle phase error output voltage.
   (If it is difficult to measure at Pin 3 of IC305, measure at the leads of one of the resistors connected to Pin 3, R336, R338, or R361.)
2. Mount the LDD test disc. Play it.
3. Adjust VR301 to the point at which the positive and the negative pulses are the smallest.



VR301 turned to the left of the adjustment point

Adjustment point

VR301 turned to the right of the adjustment point

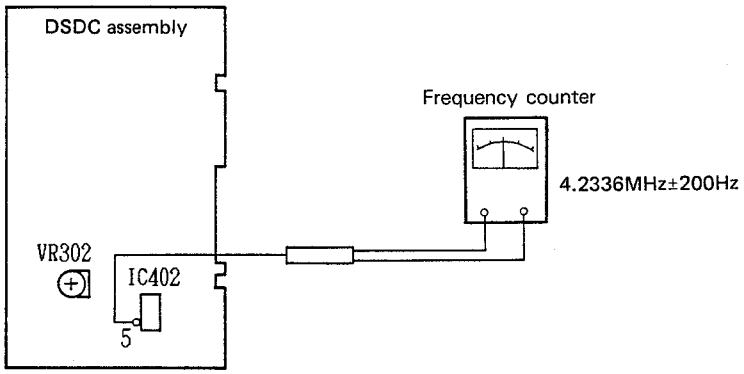
Wave form

4. VCXO Free Run Frequency Adjustment

DSDC Assembly Adjustment

- Objective: To set the correct frequency for the crystal used for the EFM decoder

● Measuring equipment and tools	• Frequency counter
● Measurement point	• DSDC assembly • IC402 (PCM56P-J) Pin 5
● Test disc and set	• CD test disc play
● Adjustment point	• DSDC assembly VR302



Connection diagram

Adjustment Procedure

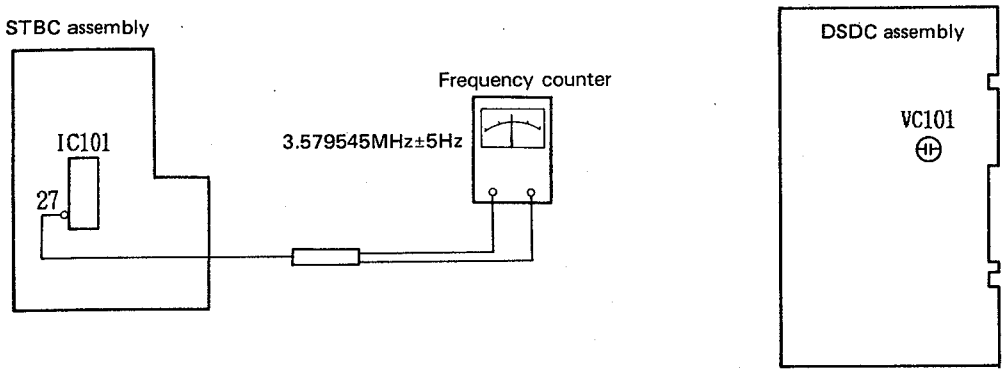
1. Mount the CD test disc.
2. After the disc starts turning, press the Eject key on the Remote control once to stop the rotation of the Spindle motor.
3. Connect the frequency counter to Pin 5 of IC402 (PCM56P-J).
4. Adjust VR302 of the DSDC assembly so that the frequency is 4.2336MHz ±200Hz.

5. REF and Subcarriage Frequencies Adjustment

DSDC Assembly Adjustment

- Objective: To set the reference and subcarriage frequencies to 3.579545 MHz ±5 Hz
- Symptom if the adjustment is inadequate: No color lock

• Measuring equipment and tools	• Frequency counter
• Measurement point	• STBC assembly • IC101 (PM2001) Pin 27
• Test disc and set	• Power on
• Adjustment point	• DSDC assembly VC101



Connection diagram

Adjustment Procedure

1. Switch on the power.
2. Connect the frequency counter to Pin 27 of IC101 (PM2001) on the STBC assembly.
3. Adjust VC101 so that the frequency is 3.579545MHz ±5Hz.

13. FOR S/G TYPE

CONTRAST OF MISCELLANEOUS PARTS CLD-1010/S/G

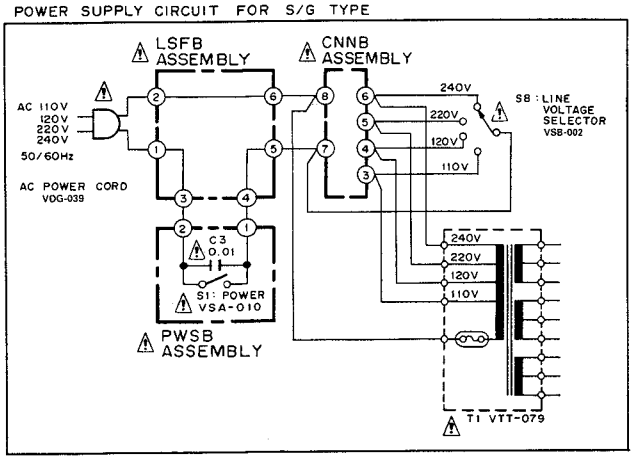
The CLD-1010/S/G type is the same as the CLD-1010/KUC type with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		CLD-1010/KUC	CLD-1010/S/G	
⚠	AC Power cord	VDG-038	VDG-039	
	Rubber foot	VEB1001	. . .	
	Cap	. . .	VEB-108	
	Packing case	VHG1011	VHG1012	
	Front panel assembly-S	VXX1041	VXX1044	
⚠ ★★	Line voltage selector (AC110V, 120V, 220V, 240V)	. . .	VSB-002	
	SW holder	. . .	VNE-675	
	F Type plug	. . .	VKX-017	
⚠ ★	Power transformer (T1) (AC120V)	VTT-078	. . .	
⚠ ★	Power transformer (T1) (AC110V, 120V, 220V, 240V)	. . .	VTT-079	
⚠	CNNB assembly	. . .	Non supply	

LSFB AND PWSB ASSEMBLY

Circuit Diagrams

POWER SUPPLY CIRCUIT FOR S/G TYPE



P.C. Boards