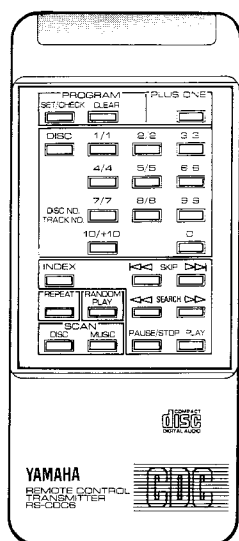


AUTOMATIC CD CHANGER

CDC-610/U/CDC-35

SERVICE MANUAL



IMPORTANT NOTICE

This manual has been provided for the use of authorized Yamaha Retailers and their service personnel. It has been assumed that basic service procedures inherent to the industry, and more specifically Yamaha Products, are already known and understood by the users, and have therefore not been restated.

WARNING: Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components and failure of the product to perform as specified. For these reasons, we advise all Yamaha product owners that all service required should be performed by an authorized Yamaha Retailer or the appointed service representative.

IMPORTANT: The presentation or sale of this manual to any individual or firm does not constitute authorization, certification or recognition of any applicable technical capabilities, or establish a principle-agent relationship of any form.

The data provided is believed to be accurate and applicable to the unit(s) indicated on the cover. The research, engineering, and service departments of Yamaha are continually striving to improve Yamaha products. Modifications are, therefore, inevitable and specifications are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

WARNING: Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss).

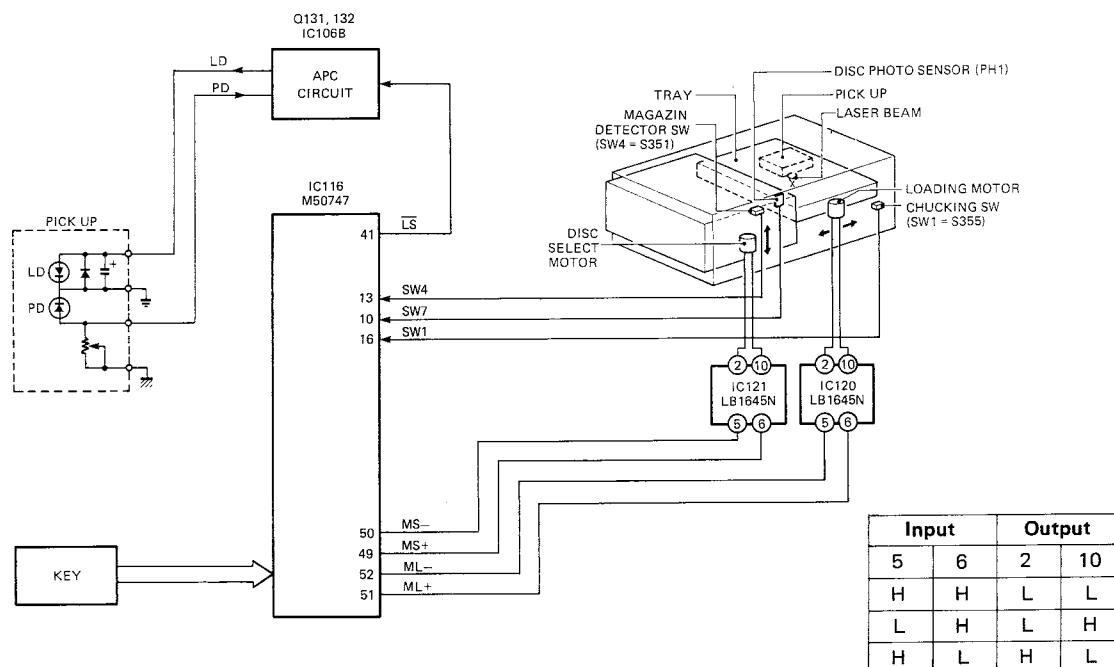
IMPORTANT: Turn the unit OFF during disassembly and parts replacement. Recheck all work before you apply power to the unit.

CONTENTS

TO SERVICE PERSONNEL	1/2
LASER BEAM SAFETY PRECAUTIONS	3
FRONT PANELS	4
REAR PANELS	5/6
SPECIFICATIONS	7
INTERNAL VIEW	7
BLOCK DIAGRAM	8
TRANSPORTATION SCREWS	9
DISASSEMBLY PROCEDURES	9 ~ 11
CD MAGAZINE	12

ADJUSTMENTS	13 ~ 23
OPERATION EXPLANATIONS FOR EACH MODE	24 ~ 29
DISPLAY DATA	30
IC DATA	31 ~ 37
WIRING	38
PRINTED CIRCUIT BOARD	39 ~ 43
SCHEMATIC DIAGRAM	44
PARTS LIST	45 ~ 57
RS-CDC6	58/59

■ LASER BEAM SAFETY PRECAUTIONS



● Conditions for laser beam output from the pick up

1. A magazine must be installed.
 2. The operation button must have been pressed, the tray must have been put out from the magazine, and chucking must have been completed.
- Both of the above conditions must be fulfilled.

Operation Explanation

The operation sequence from magazine installation to laser beam output is explained below.

- (1) When a magazine is installed with inserted power plug and the power switch, set to ON, S351, becomes ON, SW4 = "L" is obtained, and IC116 detects that a magazine has been installed.
- (2) When an operation button (PLAY/PAUSE, DISC SCAN, MUSIC SCAN, RANDOM PLAY) is pressed, this is detected by IC116, MS- = "L", MS+ = "H" is obtained, and ② = "L", ⑩ = "H" is reached for IC121. Then the disc selection motor runs and the mechanism assembly rises.
- (3) Passage of the gear slot is detected by PH1 with SW7 = "L" during rise of the mechanism assembly, and as the position of the first disc is reached when this has occurred twice, MS- = MS+ = "H" is obtained, ② = ⑩ = "L" is reached for IC121, and the disc selection motor and the mechanism assembly stop.
(If the disc selection key is pressed before step (2), the mechanism assembly moves to that position, and in the case of a single disc magazine, the mechanism assembly moves to the position of disc No. 8 of a ten disc magazine.)

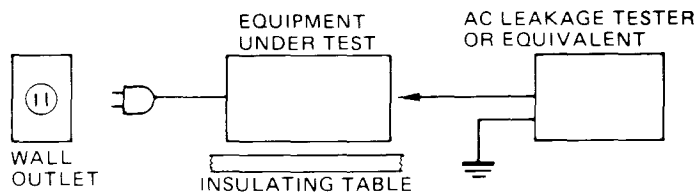
- (4) Next, ML+ = "H" and ML- = "L" is obtained for IC116. Then ② = "L" and ⑩ = "H" is put out by IC120, the loading motor runs, and the tray is pulled out from the magazine.
- (5) When the tray has been pulled out from a magazine completely and chucking has been completed, becomes ON. IC116 becomes SW1 = "L", and when this is detected, ML+ = ML- = "H" is reached, ② = ⑩ = "L" is reached for IC120 and the loading motor and the loading mechanism stop.
- (6) Next, $\overline{\text{LS}}$ = "L" is reached by IC116. Then the APC circuit operates, power is supplied to LD from Q132, and a laser beam is emitted.

Protection Operation

- (1) After completion of play and before the tray is stored in the magazine, $\overline{\text{LS}}$ = "H" is reached by IC116 and the LD laser output is stopped.
- (2) After item (6) of the above operation explanation, IC116 reaches $\overline{\text{LS}}$ = "H" after several seconds if it is detected that there is no disc on the tray.

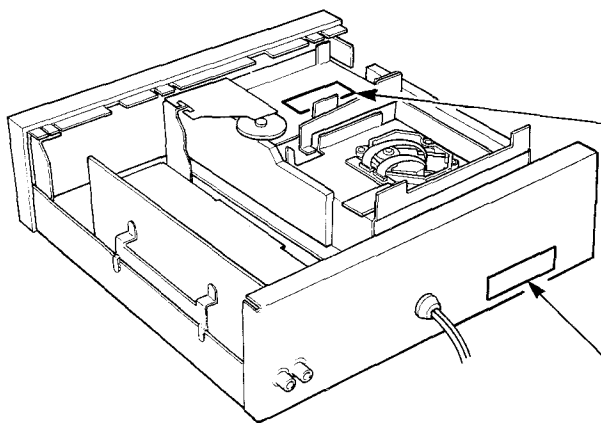
■ TO SERVICE PERSONNEL

1. Critical Components Information.
Components having special characteristics are marked and must be replaced with parts having specifications equal to those originally installed.
2. Leakage Current Measurement (For 120V Model Only).
When service has been completed, it is imperative that you verify that all exposed conductive surfaces are properly insulated from supply circuits.
 - Meter impedance should be equivalent to 1500 ohm shunted by 0.15 μ F
 - Leakage current must not exceed 0.5mA.
 - Be sure to test for leakage with the AC plug in both polarities.
 - **POLARIZATION (U, C models)**
This CD player product is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature.



CAUTION – USE OF CONTROLS, ADJUSTMENTS, OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN, MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

THE COMPACT DISC PLAYER SHOULD NOT BE ADJUSTED OR REPAIRED BY ANYONE EXCEPT PROPERLY QUALIFIED SERVICE PERSONNEL.



U model

DANGER—Invisible laser radiation when open and interlock failed or defeated.
AVOID DIRECT EXPOSURE TO BEAM. (CA08537-1)

C model

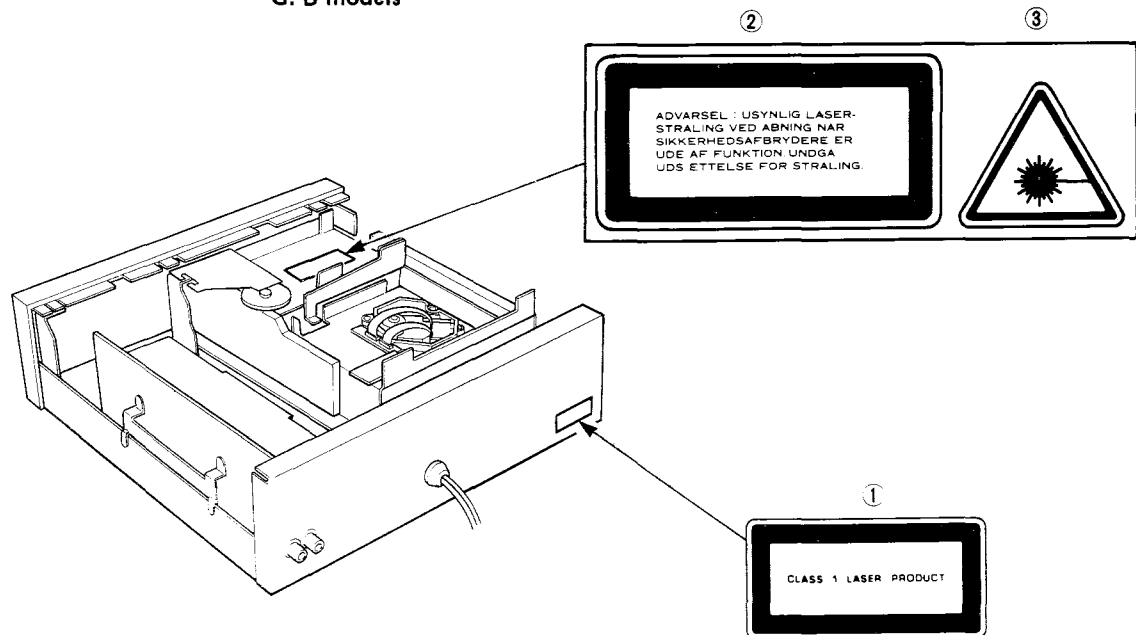
CAUTION HAZARDOUS LASER AND ELECTROMAGNETIC RADIATION WHEN OPEN AND INTERLOCK DEFEATED
ATTENTION RAYONNEMENT LASER ET ELECTROMAGNETIQUE DANGEREUX SI OUVERT AVEC L'ENGAGEMENT DE SECURITE ANNULE (B6-4-B)

U model

THIS PRODUCT COMPLIES WITH OHHS RULES 21 CFR SUBCHAPTER J APPLICABLE AT DATE OF MANUFACTURE.

MANUFACTURED BY
YAMAHA CORPORATION
10-1 NAKAZAWA-CHO.
HAMAMATSU-SHI.
SHIZUOKA-KEN, JAPAN

G. B models

*English*

- ① THIS LABEL IS ATTACHED AT THE PLACE ILLUSTRATED TO INFORM THAT THE APPARATUS CONTAINS A LASER COMPONENT.
- ② THIS LABEL IS ATTACHED IN THE POSITION SHOWN IN THE ILLUSTRATION TO WARN THAT ANY FURTHER PROCEDURE WILL BRING THE USER INTO EXPOSURE WITH THE LASER BEAM.
- ③ THE WARNING LABEL INFORMING OF RADIATION IS PLACED INSIDE THE UNIT AS SHOWN IN THE ILLUSTRATION, TO WARN AGAINST FURTHER MEASURES ON THE UNIT. THE EQUIPMENT CONTAINS A LASER COMPONENT RADIATING LASER RAYS EXCEEDING THE LIMIT OF LASER PRODUCTS OF CLASS 1.

CAUTION—USE OF CONTROLS, ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN, MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

Swedish

- ① PÅSKRIFTEN SITTE PÅ APPARATEM SOM VISAS SOM EN UPPMANING OM ATT APPARATEN OMFATTAR EN INBYGGD LASERKOMPONENT.
- ② TEXTSKYLTEN FÖR LASERN ÄR PLACERAD PÅ APPARATEN SOM EN UPPMANING OM ATT APPARATEN INNEHÅLLER EN LASERKOMPONENT.
- ③ VARNINGSSKYLTEN FÖR STRÅLNING HAR PLACERATS I APPARATEN, SOM BILDEN VISAR, SOM EN VARNING OM YTTERLIGARE INGREPP I APPARATEN. MATERIELEN INNEHÅLLER EN LASERKOMPONENT SOM AVGER LASERSTRÅLNING ÖVERSTIGANDE GRÄNSEN FÖR LASERKLASS 1.

VARNING—INGREPP I APPARATEN BÖR ENDAST FÖRETAS AV FACKMAN MED KUNSKAP OM ATT RISK FÖRELIGGER FÖR RADIOAKTIV STRÅLNING.

Danish

- ① DETTE MÆRKAT ER ANBRAGT SOM VIST I ILLUSTRATIONEN FOR AT ADVARE BRUGEREN OM AT APPARATET INDEHOLDER EN LASERKOMPONENT.
- ② DETTE MÆRKAT OM LASEREN ER ANBRAGT PÅ APPARATET SOM EN OPLYSNING OM AT APPARATET INDEHOLDER ET LASERKOMPONENT.
- ③ ADVARSELSKILTET OM STRÅLING ER PLACERET INDEN I APPARATET, SOM VIST I ILLUSTRATIONEN, SOM EN ADVARSEL OM YDERLIGERE INDGREB I APPARATET. APPARATET INDEHOLDER ET LASERKOMPONENT SOM AVGIVER LASESTRÅLING DER OVERSTIGER GÆNSEVERDIEN FOR LASERKLASSE 1.

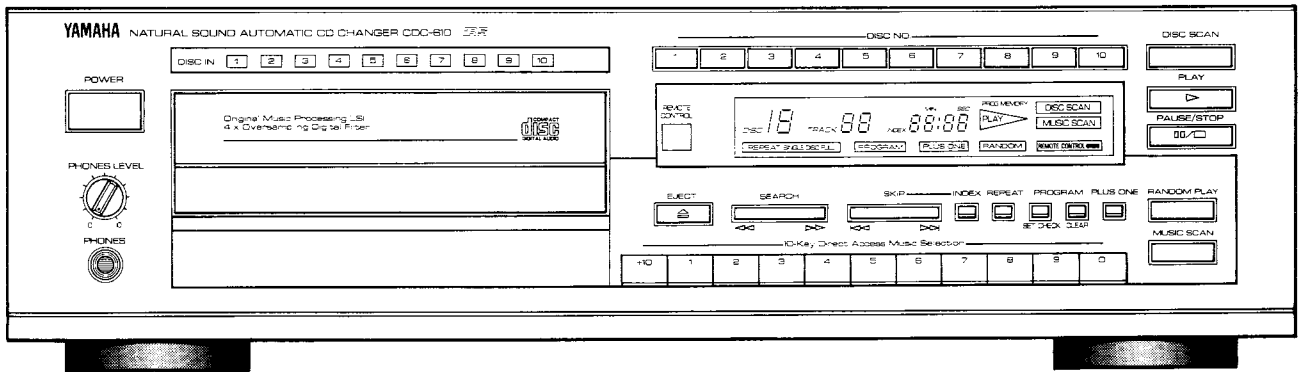
ADVARSEL! INDGREB BØR KUN FORETAGES AF EN FAGMAND DA DER ER RISIKO FOR RADIOAKTIV STRÅLING.

Finnish

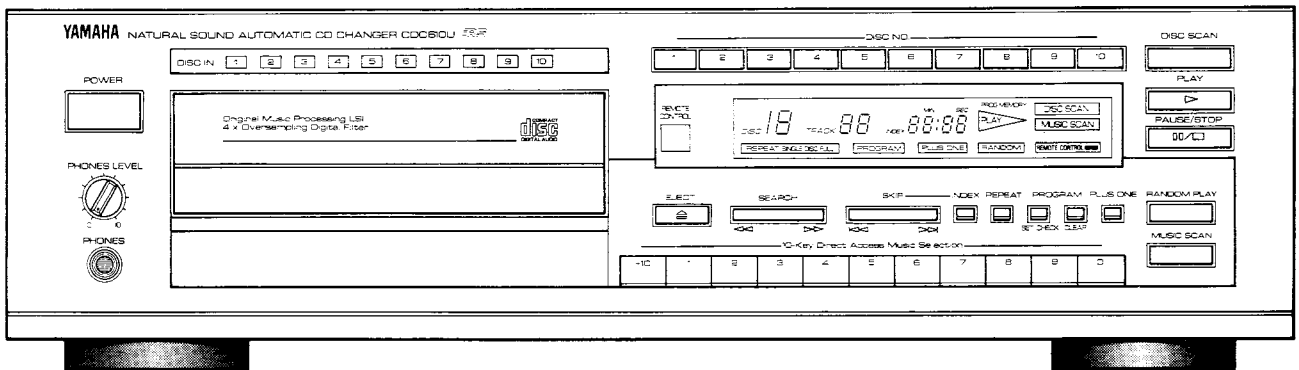
- ③ "VAROITUS! LAITE SISÄLTÄÄ LASERDIODIN, JOKA LÄHETTÄÄ (NÄKYMÄTÖNTÄ) SILMILLE VAARALLISTA LASERSÄTEILYÄ."

FRONT PANELS

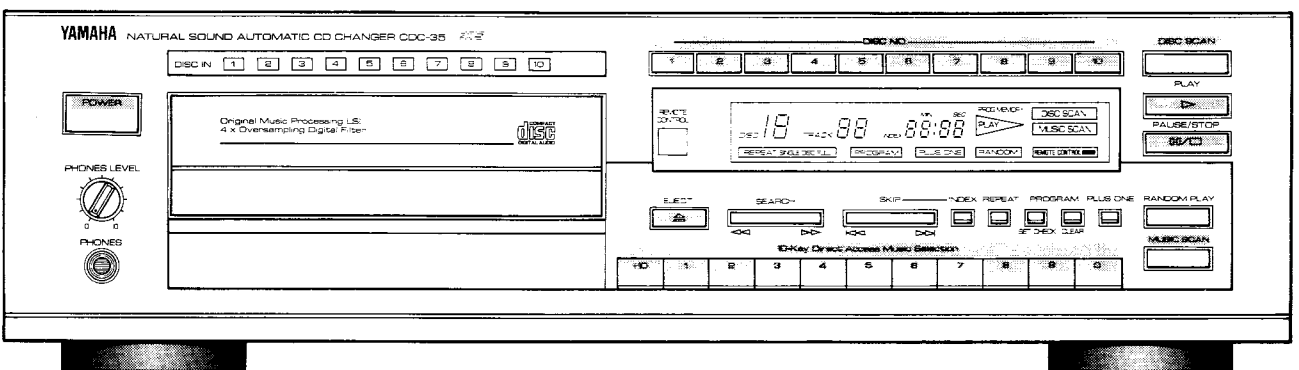
• CDC-610



• CDC-610U



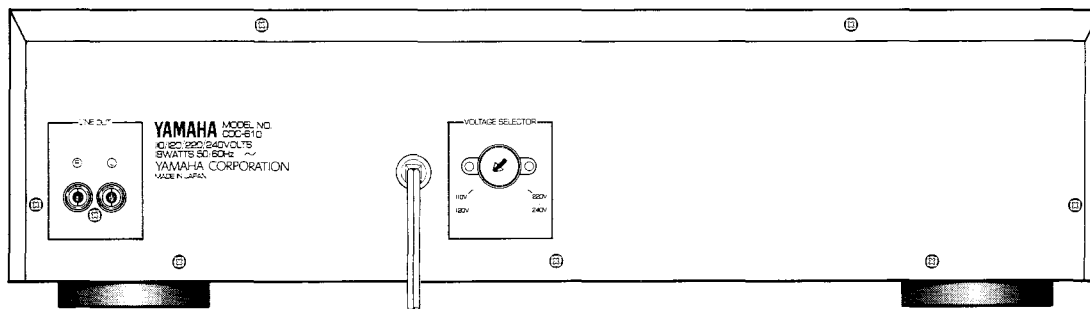
• CDC-35



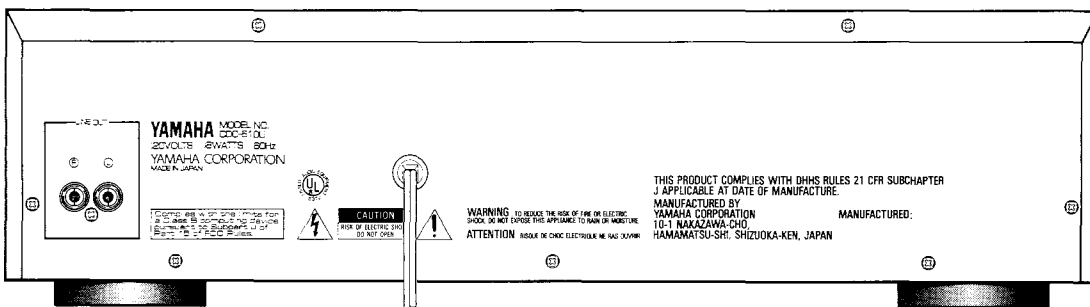
REAR PANELS

General model

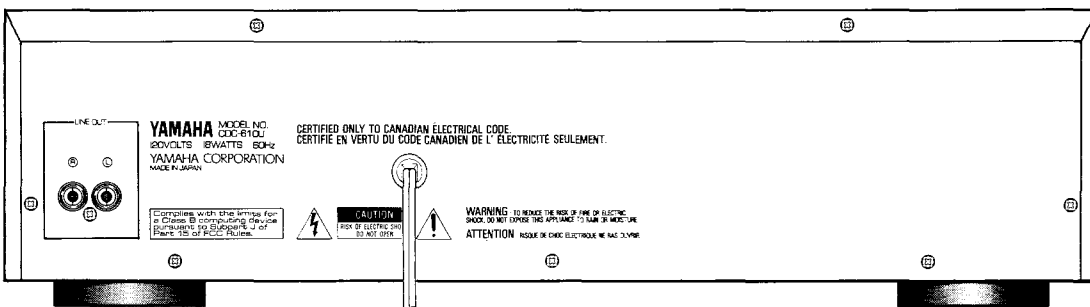
CDC-610/U



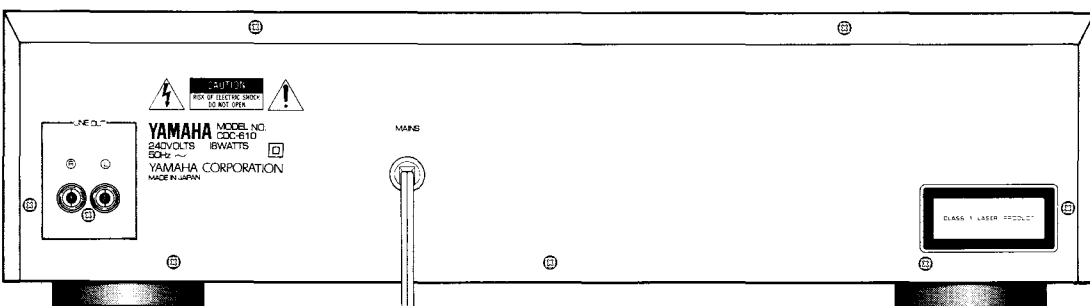
U.S.A. model



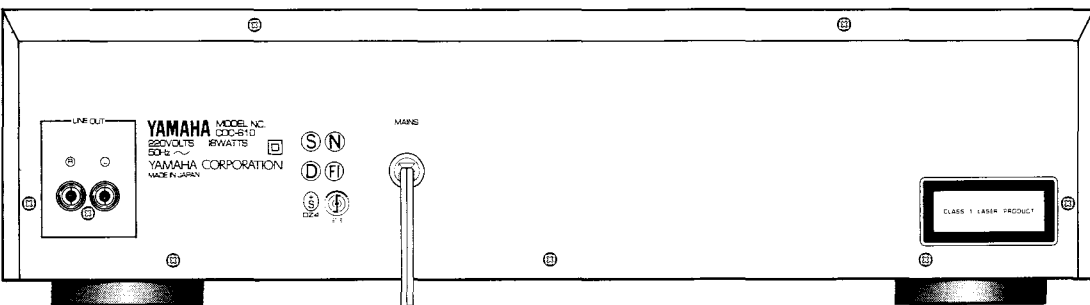
Canadian model



European model

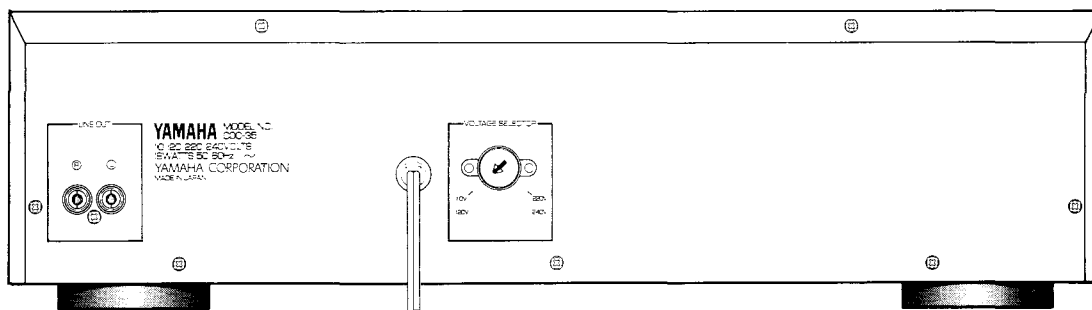


Australian & British models

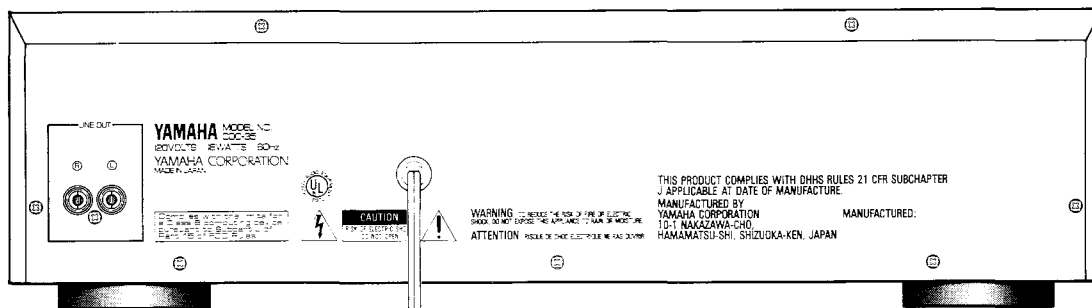


▼ General model

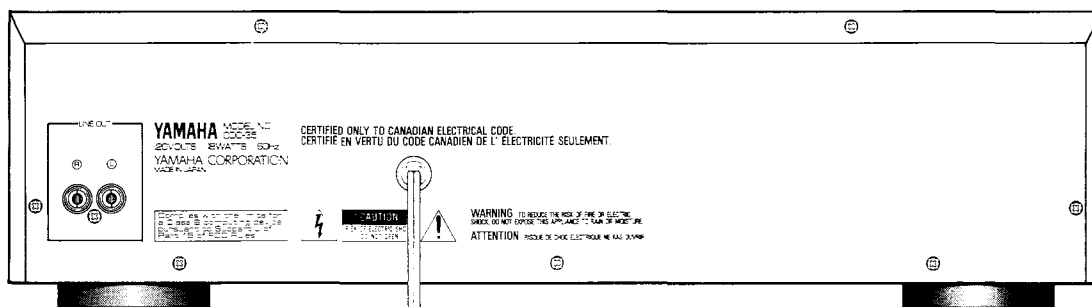
CDC-35



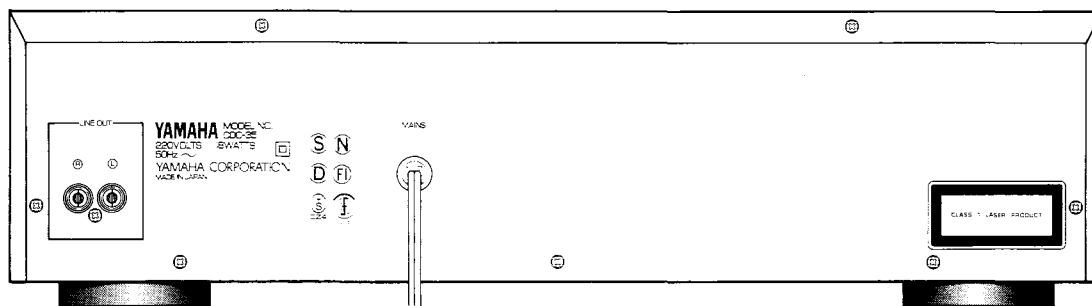
▼ U.S.A. model



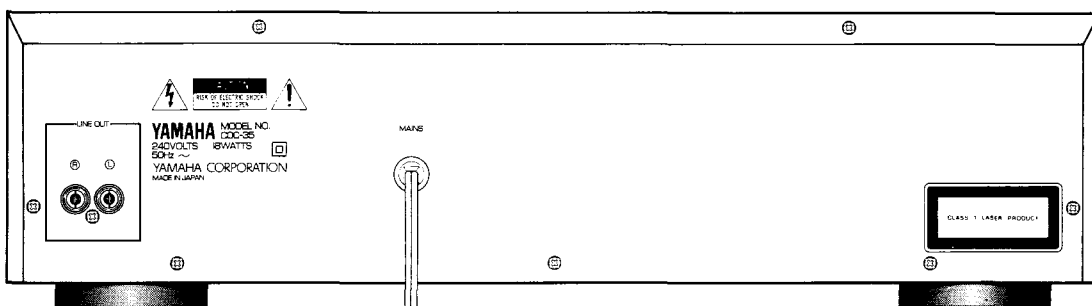
▼ Canadian model



▼ European model



▼ Australian & British models



SPECIFICATIONS

AUDIO SECTION

Frequency Response	5Hz ~ 20kHz $\pm$ 0.5dB
De-Emphasis Equalization	$\pm$ 0.5dB (EIAJ)
Harmonic Distortion + Noise	Less than 0.008%, 1kHz (EIAJ)
S/N Ratio	100dB (EIAJ)
Dynamic Range	More than 96dB (EIAJ)
Wow & Flutter	Unmeasurable
Channel Separation	More than 80dB, 1kHz (EIAJ)
Output Voltage	2V (EIAJ)
Output Impedance	2.2k Ω
Headphone Output	200mV/150 Ω (–20dB)

INTERNAL SYSTEMS

Optical Pick-up	3-beam laser
Error Correction System	CIRC, dual error correction system
D/A Conversion	16-bit linear
Filter	4 x Digital filter and 3rd order active filter

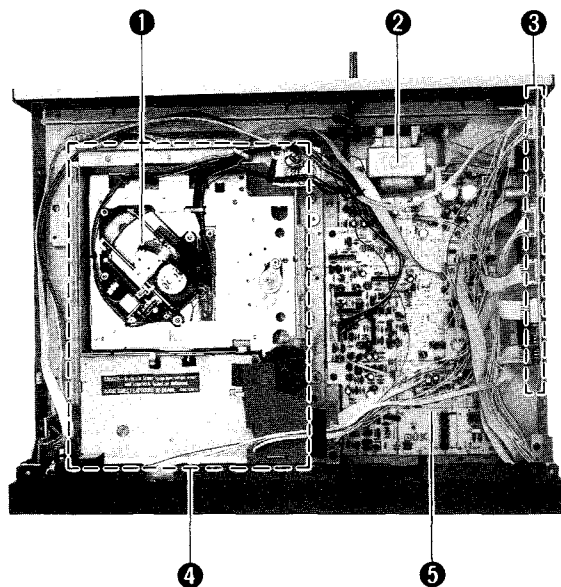
GENERAL

Power Requirements	
U, C models	120V AC, 60Hz
G, B models	220–240V AC, 50Hz
A model	240V AC, 50Hz
R model	110–120/220–240V AC, 50/60Hz
Power Consumption	18W
Dimensions (W x H x D)	435 x 126 x 356.5 (17-1/8" x 4-15/16" x 14-1/16")
Weight	7.1kg (15 lbs 10 oz.)
Accessories	Pin plug cord Remote control transmitter (RS-CDC6) Dry-cell: X2 (Size "AA", "R06") CD magazine

* Specification subject to change without notice.

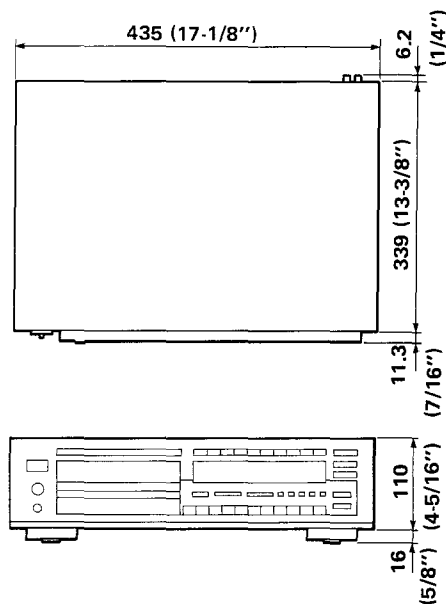
U		U. S. A. model
C		Canadian model
B		British model
A		Australian model
G		European model
R		General model

INTERNAL VIEW



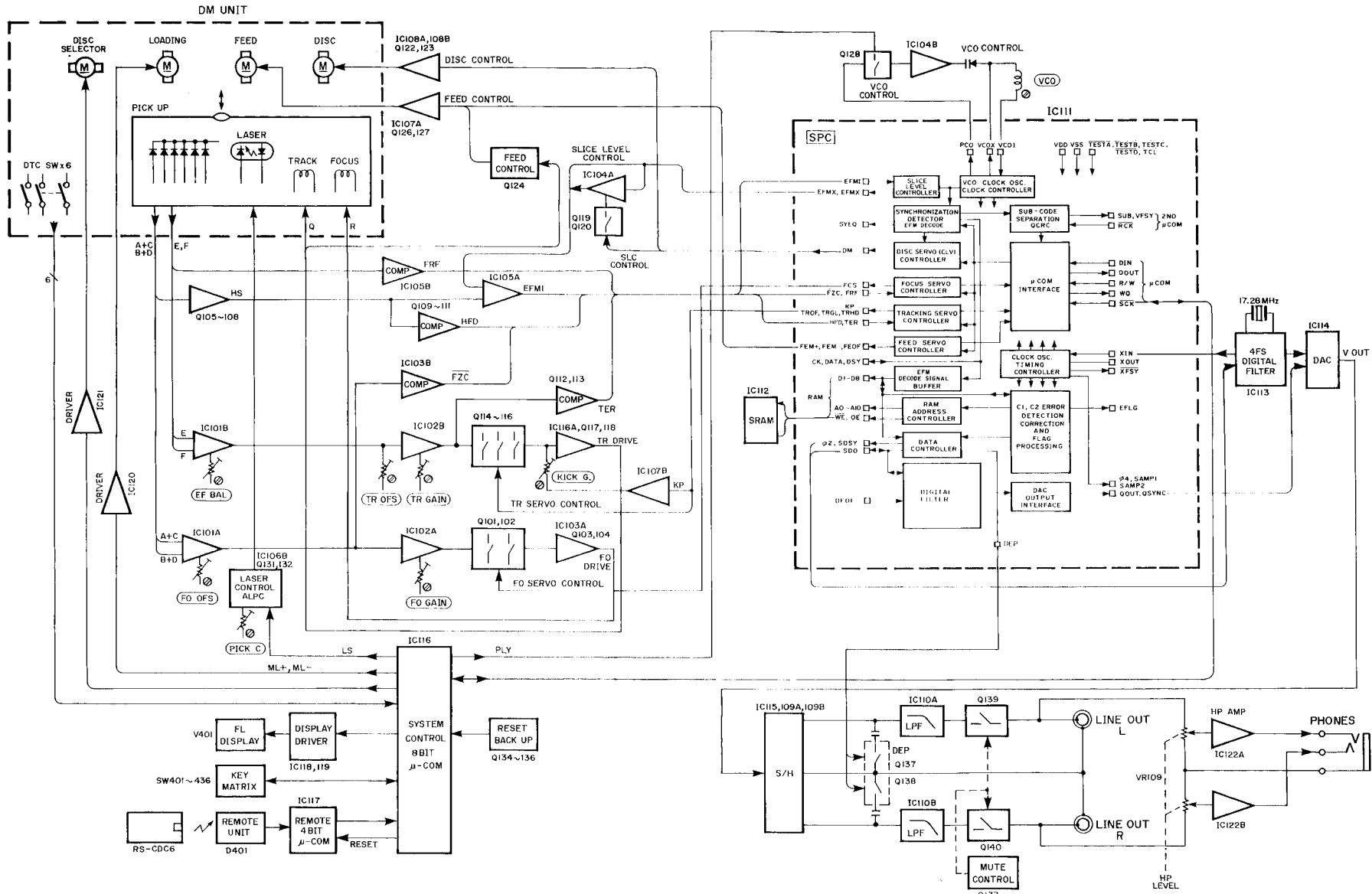
- ① PICK UP ASS'Y
- ② POWER SUPPLY UNIT
- ③ MAIN CIRCUIT BOARD (2): μ -COM section
- ④ DISC MECHANISM UNIT
- ⑤ MAIN CIRCUIT BOARD (1)

DIMENSION



Unit: mm (Inch)

BLOCK DIAGRAM



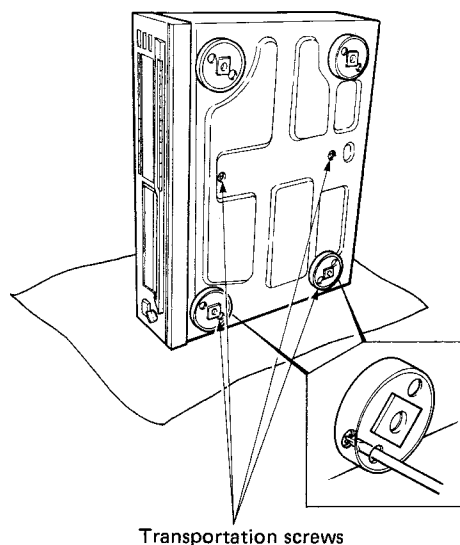
■ TRANSPORTATION SCREWS

In order to protect the internal laser pickup from the vibration and shocks which occur during transportation, it is held in place with transportation screws located on the bottom of the unit. Be sure to remove the 4 transportation screws before making any connection.

1. As shown in the figure, spread out a soft cloth or other protective material, and gently stand the unit on its side, taking care not scratch the finish.
2. Remove the 4 transportation screws with a phillips (+) screwdriver.

- To remove the screws, be sure to stand the unit on its side. Do not place it with the front facing up (rear panel terminals down).
- After removing the screws, retain them in a safe place.

When the unit is to be transported again, be sure to place the 4 screws to their original position.



■ DISASSEMBLY PROCEDURES

(Remove parts in disassembly order as numbered.)

1. Removal of Top Cover

Remove 6 screws (①) in Fig. 1.

2. Removal of Front Panel

Remove 6 screws (②) in Fig. 1.

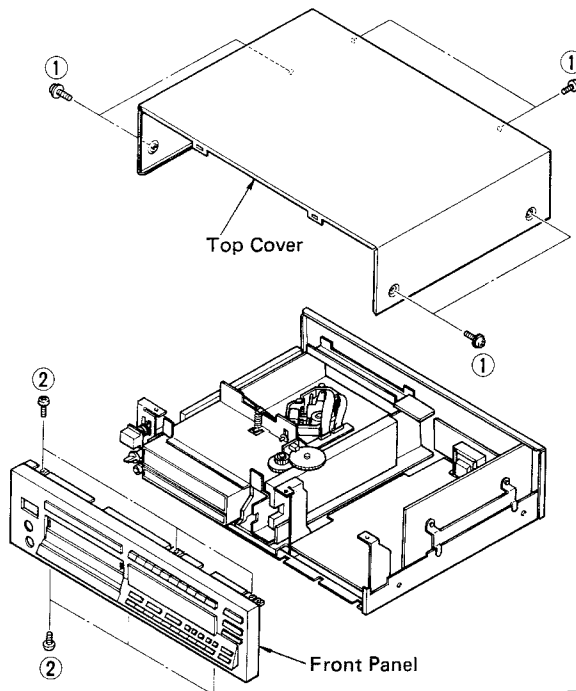


Fig. 1

3. Removal of Disc Mechanism Unit

Remove 4 screws (③) in Fig. 2.

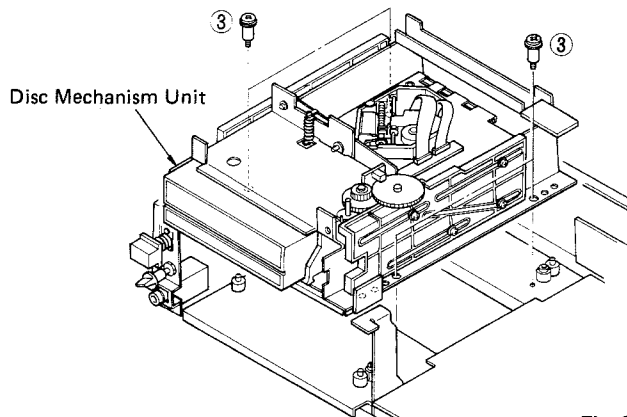


Fig. 2

The compact disc is a very delicate mechanism.
It is very important that the spindle motor (which rotates the disc), the sled motor, the worm gear, etc all operate smoothly and without eccentricity.

4. Removal of Pick Up Ass'y

Remove 4 screws (④) in Fig. 3.

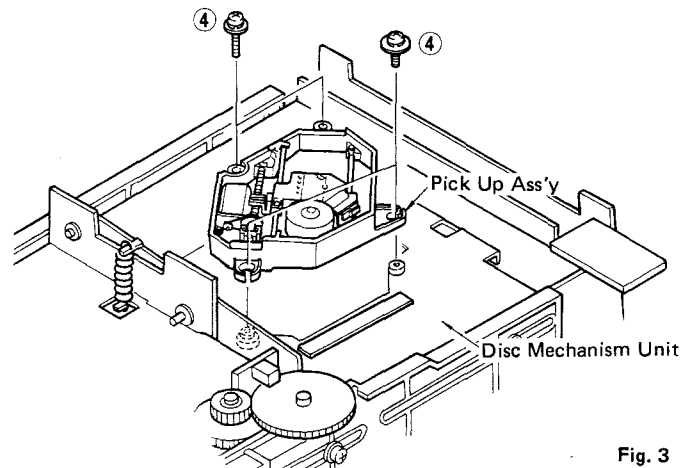


Fig. 3

5. Removal of Pick Up Head

Remove 4 screws (⑤) in Fig. 4.

6. Removal of Sled Motor and Belt

- Remove 2 bearings (⑥) which hold worm gear in Fig. 4.
- Remove screw (⑦) which hold sled motor bracket in Fig. 4.
- Remove 2 screws (⑧) which hold sled motor in Fig. 4.
- Remove the Sled Motor and Belt.

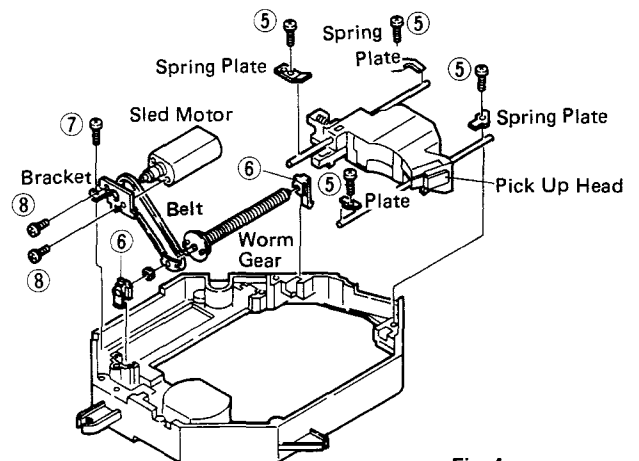


Fig. 4

7. Removal of Turntable and Spindle Motor

Pull off the turntable and remove 2 screws (⑨) in Fig. 5.

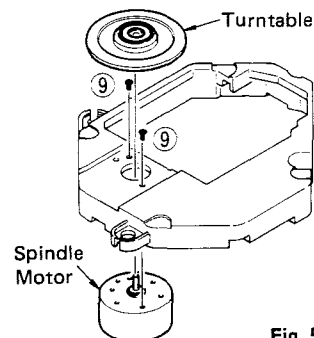
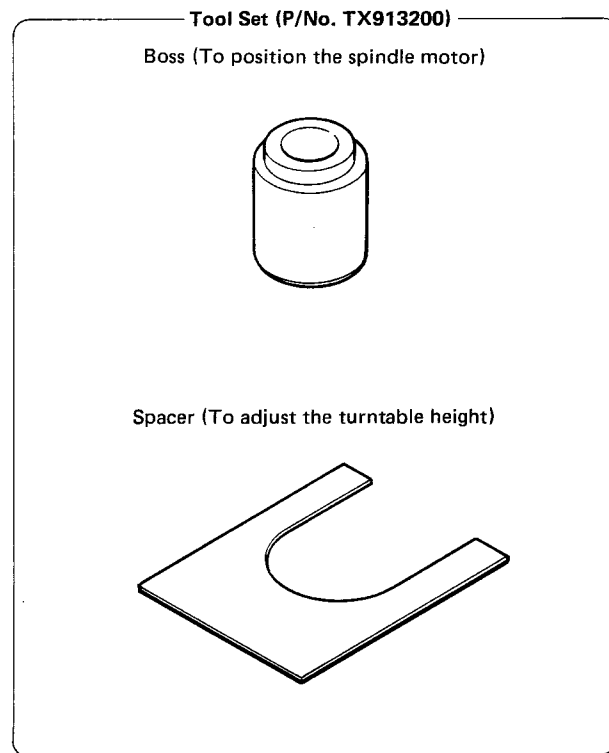


Fig. 5

- **Installing Spindle Motor and Turntable**

- * The Following tools are necessary for their installation.



- a. Put the boss into the hole in the chassis as shown in Fig. 6 and bring the spindle motor from underside of the chassis so that the spindle fits in the hole in the boss. After making sure that the spindle motor is positioned properly, tighten the screws.

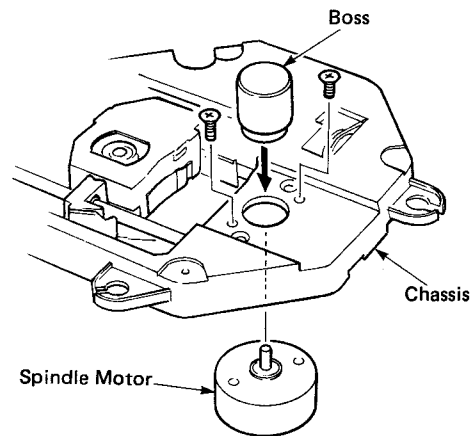


Fig. 6

- b. With the spacer placed on the pickup chassis as shown in Fig. 7, fit the turntable to the motor spindle and push it down.

NOTE: Use care not to bend the spacer which is as thin as 0.6t. Also, be sure not to touch the pickup head when installing the spindle motor and turntable.

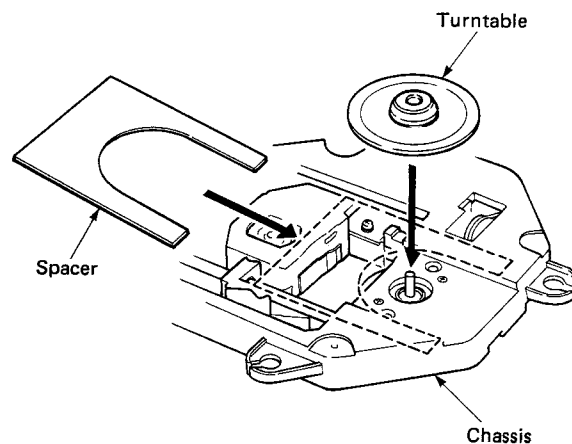
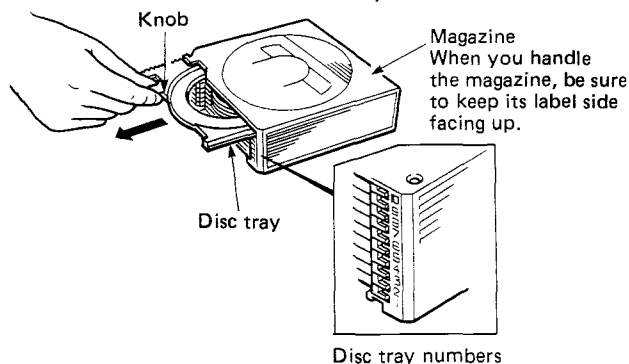


Fig. 7

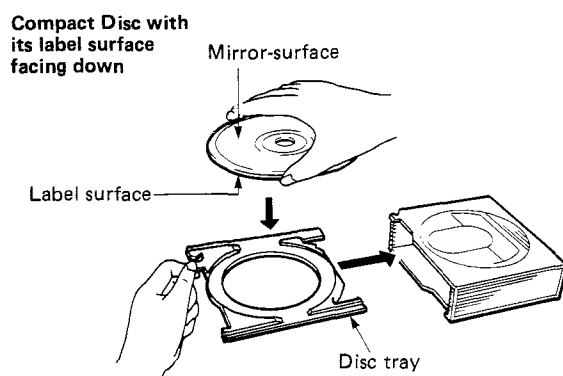
CD MAGAZINE

How to load discs into the magazine

1. The magazine disc trays are removable. Hold and pull on the right hand knobs to slide out the odd-numbered disc trays, and pull on the left hand knobs to slide out the even-numbered disc trays.



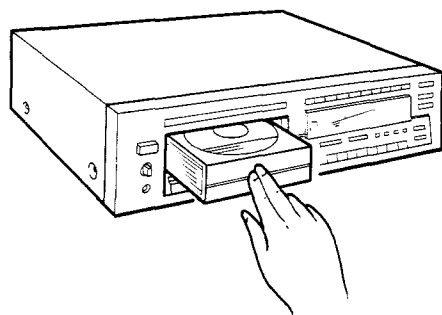
2. Draw the disc tray completely out of the magazine and place a Compact Disc on it with its label surface facing down.



3. Line the disc tray up with the grooves in the magazine, and holding it by the knob, push the disc tray all the way in, until the tray clicks.

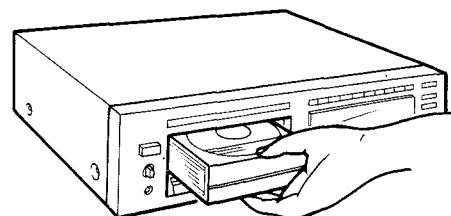
How to load the magazine

1. Insert the magazine loaded with discs into the magazine insertion slot, and then push on the center of the magazine until the magazine clicks into place.



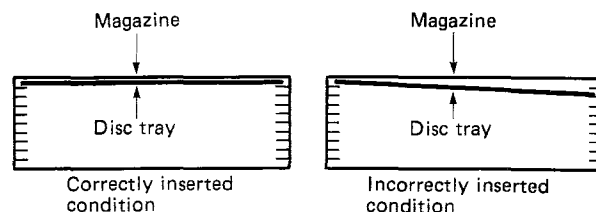
How to remove the magazine

1. Press the EJECT button when the power is turned on. The magazine is ejected and about 1/3 of the magazine will protrude from the player's front panel.
2. Remove the magazine with your hand.



Notes on the magazine

- Since the disc trays can be removed from the magazine, be sure to keep the magazine horizontal, so as not to drop the discs or the disc trays.
- When putting a disc tray into the magazine, insert it between the left and right internal grooves of the magazine, and then push it in all the way so that the disc tray is secured horizontally. If a disc tray is inserted on a slant, using the incorrect grooves, the disc tray cannot be pushed all the way in, and this could cause trouble. Make sure that the disc trays are correctly inserted into the magazine.



- Do not insert a disc into the magazine without first loading it onto a disc tray. Be sure that the discs are loaded on the disc trays and inserted into the magazine correctly.
- After playing, the discs can be stored loaded in the magazine. When storing, do not store the magazine in a place exposed to direct sunlight or subject to high temperature.
- Be careful not to drop the magazine or subject it to shock. Also do not apply intensive shock to the disc trays when they are removed from the magazine.
- Do not allow the magazine or disc tray to come into contact with benzine, thinner or any detergent solvent, for this may damage the surface finish.
- This unit is not designed for 8 cm sized Compact Discs. Do not load an 8 cm sized Compact Disc with its adapter.

■ ADJUSTMENTS

● Necessary items

Measuring instruments

- Oscilloscope : x 2
(At least one shall have a bandwidth of 50 MHz or more)
- Audio frequency oscillator (A.F. OSC) : x 1
- AC voltmeter (ACVM) : x 2
(One dual channel or two single channel meters)
- DC voltmeter (DCVM) : x 1
- Frequency counter (FC) : x 1

Jigs

- Test disc : x 1
(YEDS-18 P/N TX911730, YEDS-7 P/N TX911320 or Philips test sample disc)
- Filter (See Fig. A) : x 1
- Shorting cord : x 1

Tools

- Screwdriver : x 1
(For-Pre-Set Potentiometer adjustment)
- Core screwdriver : x 1

● Adjustment jig (with internal filter)

Connect the filter in Fig. A before measurement.

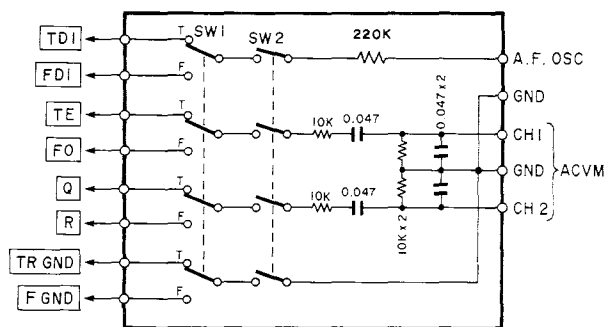


Fig. A

SW1 : FOCUS gain and TRACKING gain switching
SW2 : Filter ON/OFF switch

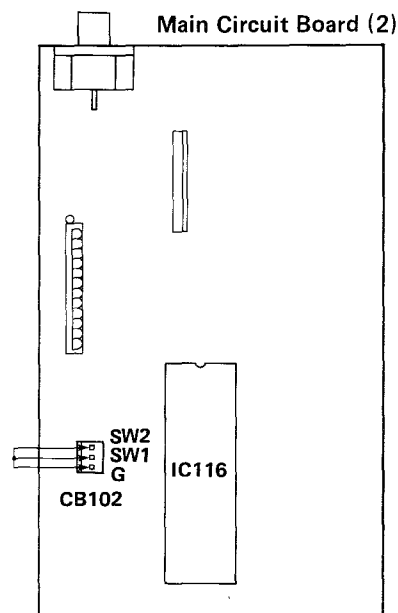
● Precautions or Special Notes

1. Measure the output level at the output terminal of the AF oscillator.
2. The unit should always be in a horizontal position while performing adjustments.

● Before Adjustments

Setting to TEST mode

Before adjustments, set to the TEST mode by turning ON the power switch while shorting circuit 3P connector (CB102).

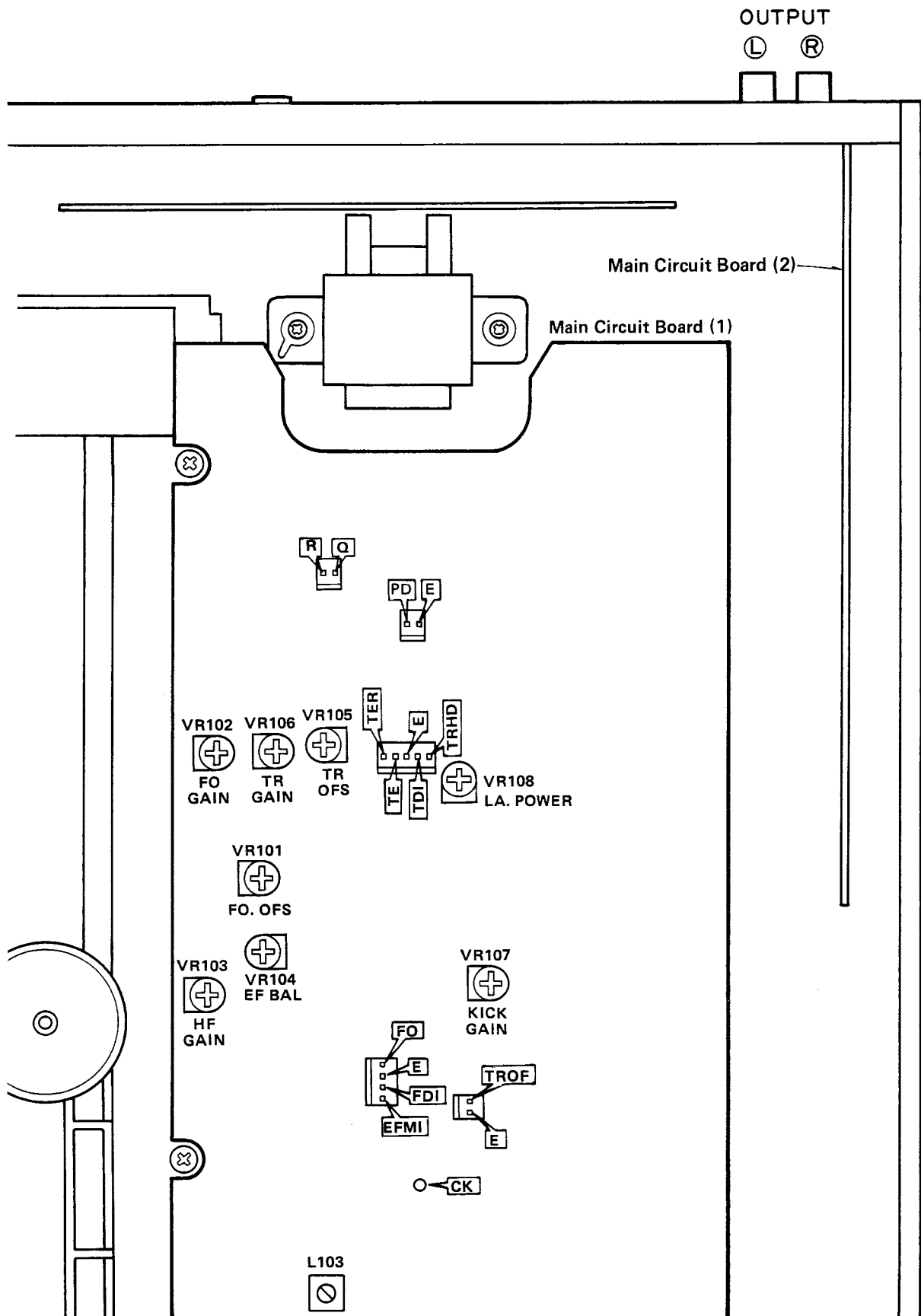


KEY	COMD
EJECT	FOCUS START
PLAY	PLAY
PAUSE/STOP	COMD STOP
—	FFB
◀◀	FB
▶▶	FF
+	FFF
REPEAT	PAUSE
+10	FEED RETURN
1 (TEN KEY)	FEED FORWARD

● Make adjustments in numerical order

- Step 1. Adjustment of VCO
- Step 2. Adjustment of Laser Power
- Step 3. Adjustment of EF Balance
- Step 4. Adjustment of Focus Offset
- Step 5. Adjustment of HF Gain
- Step 6. Adjustment of Focus Gain
- Step 7. Adjustment of Tracking Gain
- Step 8. Adjustment of Tracking Offset
- Step 9. Adjustment of Kick Gain

- Test Points



Adjustment of VCO (Step 1)

- ① Connect the shorting cord and measuring instruments, as shown in Fig. B.
- ② Do not load a disc.
- ③ Press POWER key. (POWER ON)
- ④ While observing the frequency counter indication (FVCO), adjust L103 so that it satisfies the rating.
Rating: $F_{VCO} = 4.3218 \text{ MHz} \pm 10 \text{ kHz}$

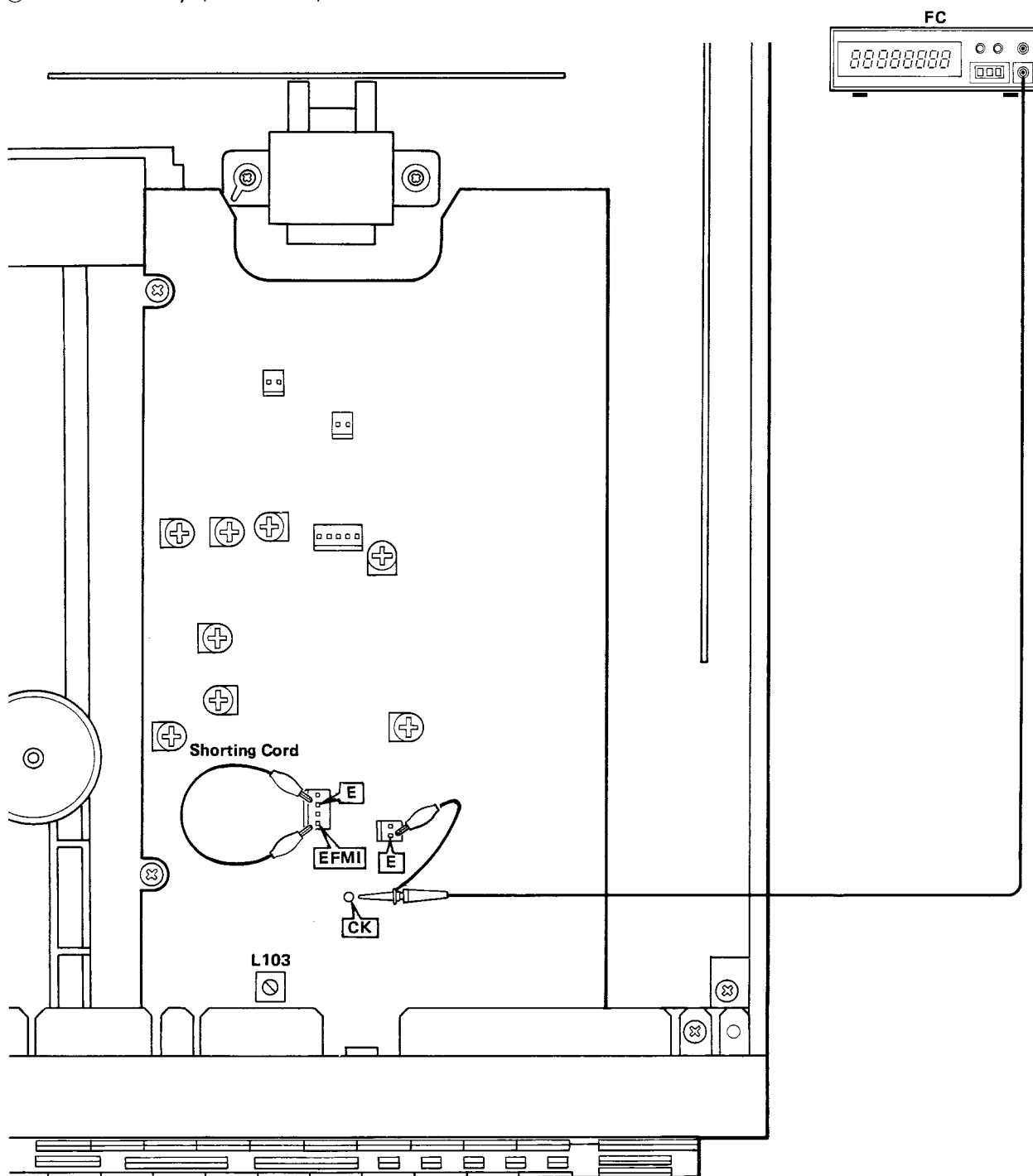


Fig. B

Adjustment of Laser Power (Step 2)

- 1 Connect a DC voltmeter to **PD** and **E** terminals.
- 2 Set to the TEST mode.
- 3 Press the EJECT key. (FOCUS START)
- 4 Adjust VR108 so that the specified rating is obtained.

Rating: $E = 135\text{mV DC} \pm 3\text{mV DC}$

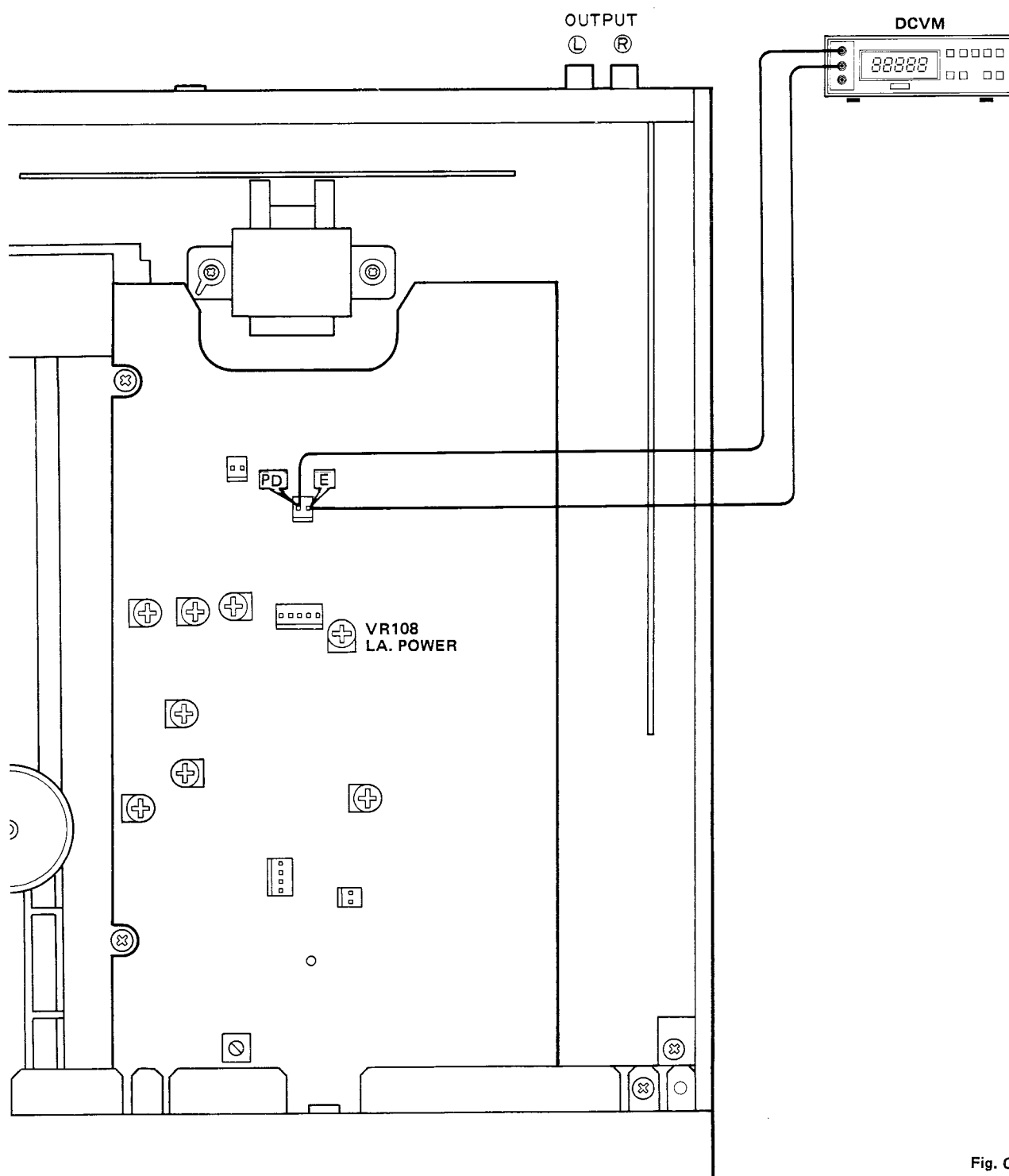


Fig. C

Adjustment of EF Balance (Step 3)

Oscilloscope (1) settings

- DC coupling
- 0.1 V/div range (Vertical)
(10mV/div when 10 : 1 probe is used)
- 20 msec/div time (Horizontal)

- ① Connect oscilloscope (1) to **TER** terminal as shown in Fig. D.
- ② Load the test disc.
- ③ The POWER switch is turned OFF.
- ④ Set to the TEST mode.
- ⑤ Press the EJECT key.
- ⑥ Press the PLAY key.
- ⑦ Short between the **TDI** and **Q** terminals.
(TRACKING SERVO → OFF)
- ⑧ Observe the waveform on the oscilloscope (1).
- ⑨ Adjust VR104 (EF B) so that the amplitude of the **TER** signal becomes equal above and below the DC 0V position.

* Adjust at the inner circumference of the disc.

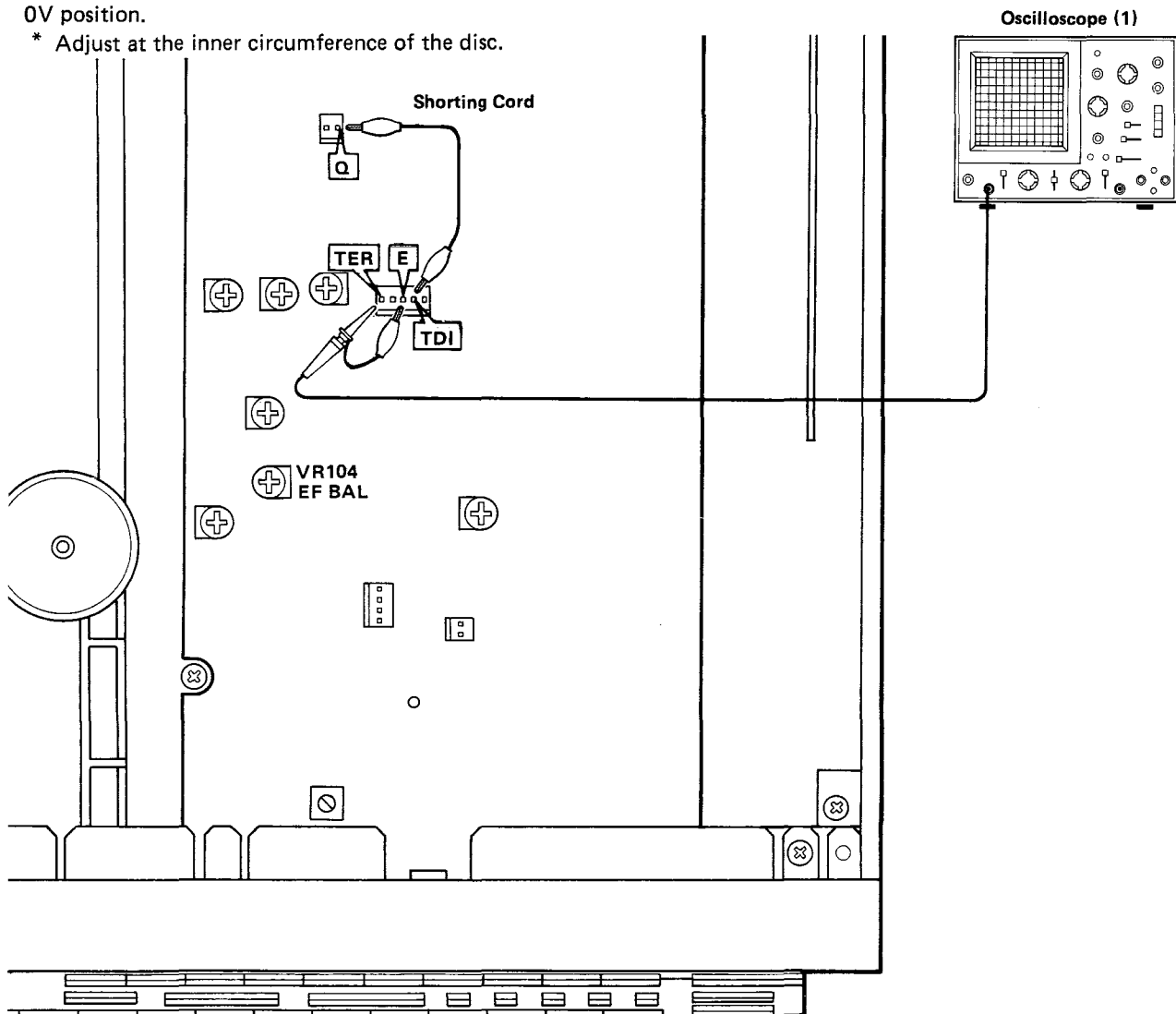
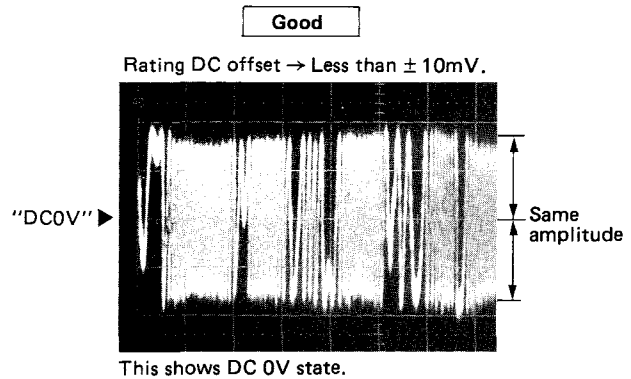


Fig. D

Adjustment of Focus Offset (Step 4)

Oscilloscope (2) Settings

- AC coupling
- 0.5 V/div range (Vertical)
(50 mV/div when 10 : 1 probe is used)
- 0.2 ~ 0.5 μ sec/div time (Horizontal)

- 1 Connect the oscilloscope (2) to **EFMI** terminal.
 - 2 Load the test disc.
 - 3 Press the PLAY key.
 - 4 Adjust VR101 so that the **EFMI** signal (eye-pattern) becomes distinct and clear.
- * Adjust at the center of the disc.

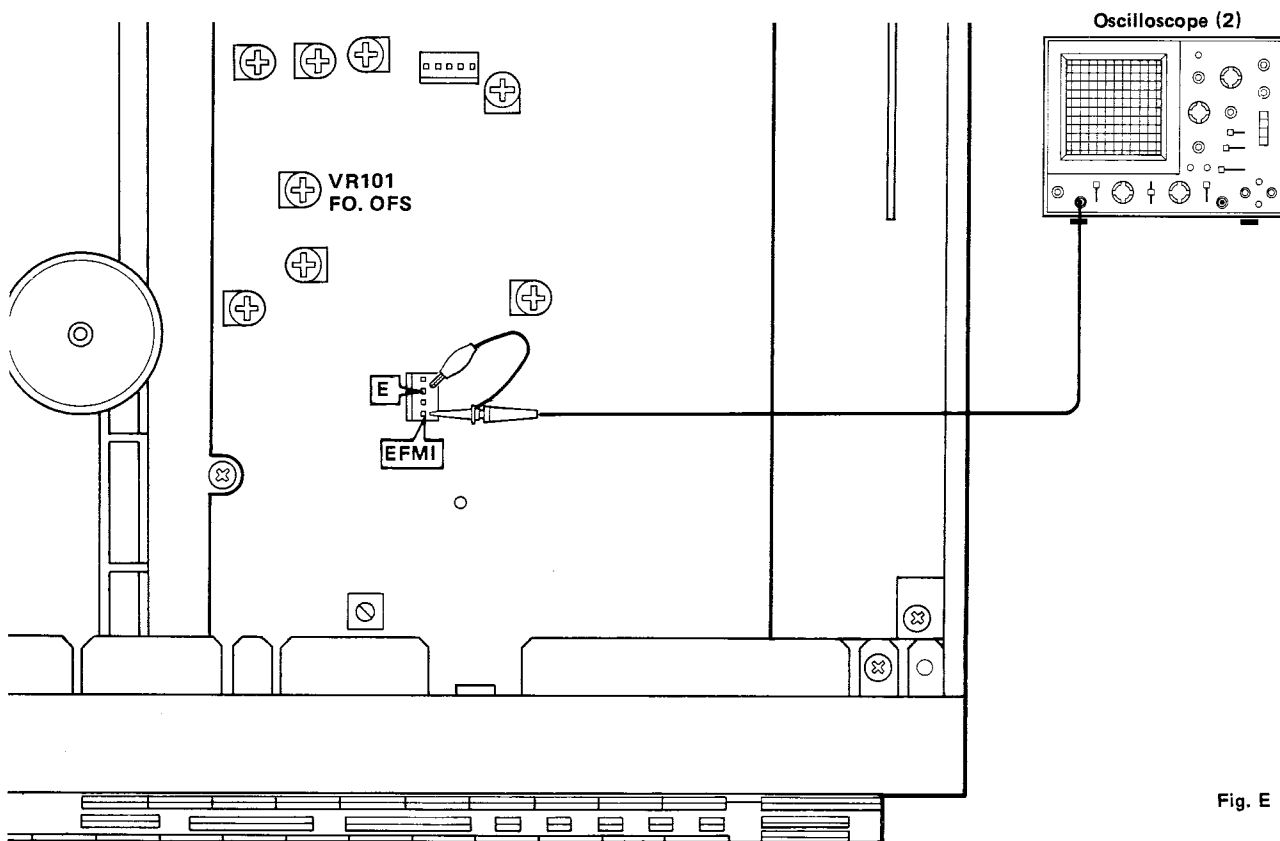
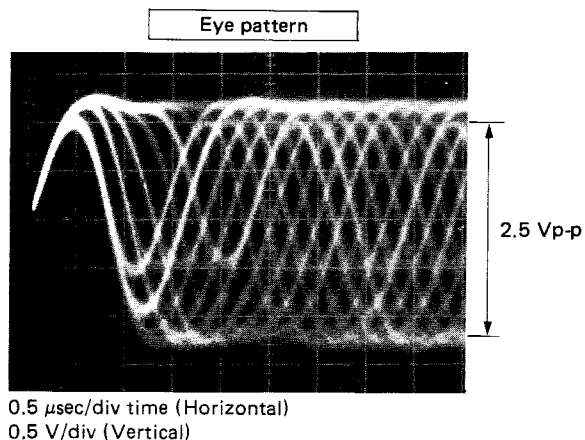
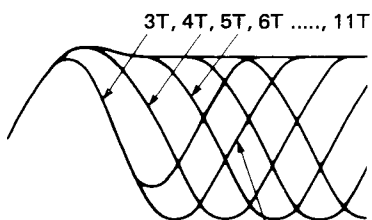


Fig. E

Waveforms 3T – 11T.



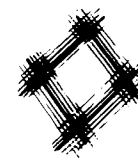
This portion is referred to as the eye pattern.

The abnormal eye pattern has less distinct lines and smaller amplitude than that of the good waveform.

Good waveform



Abnormal waveform



Adjust so that the good waveform is obtained.

Adjustment of HF Gain (Step 5)**Oscilloscope (2) setting**

- AC coupling
- 0.5 V/div range (Vertical)
(50 mV/div when 10 : 1 probe is used)
- 0.2 ~ 0.5 μ sec/div time (Horizontal)

- ① Connect the oscilloscope (2) to the **EFMI** terminal.
 - ② Load the test disc.
 - ③ Press the **PLAY** key.
 - ④ Adjust VR103 (HF G) so that the **EFMI** level becomes 2.5 Vp-p.
- * Adjust at the center of the disc.

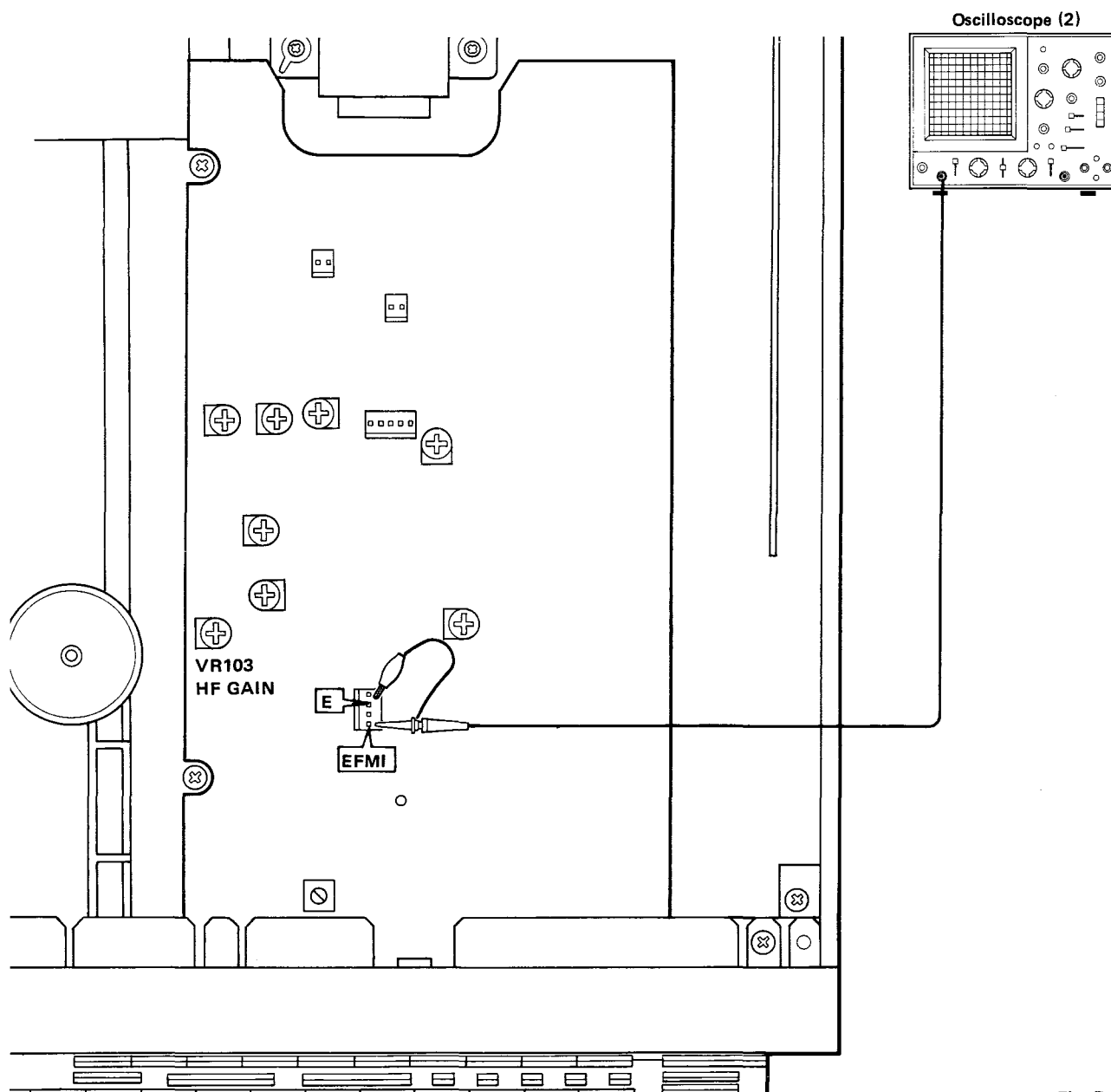


Fig. F

Adjustment of Focus Gain (Step 6)

* This adjustment requires two single channel AC voltmeters or one dual channel AC voltmeter.

- ① Connect the filter and measuring instruments, as shown in Fig. G.

[Apply an 800 Hz, 4.5 Vrms signal from the AF oscillator to **FDI** terminal via the resistor (220 kilohms) in the filter.]

- ② Set SW2 to OFF.
- ③ Set SW1 to F (FOCUS).
- ④ Press POWER Key. (POWER ON)
- ⑤ Load the test disc.
- ⑥ Press PLAY Key.
- ⑦ Set SW2 to ON.

- ⑧ Read the indications of the AC voltmeters (CH1: E_{FO} , CH2: E_R), adjust VR102 (FOCUS GAIN) so that they satisfy the rating.

Rating: $E_{FO} - E_R = -5\text{dB}$

Example [0dBV = 1V]

$E_{FO} = -26\text{dBV}$ (50mV)

$E_R = -21\text{dBV}$ (89mV)

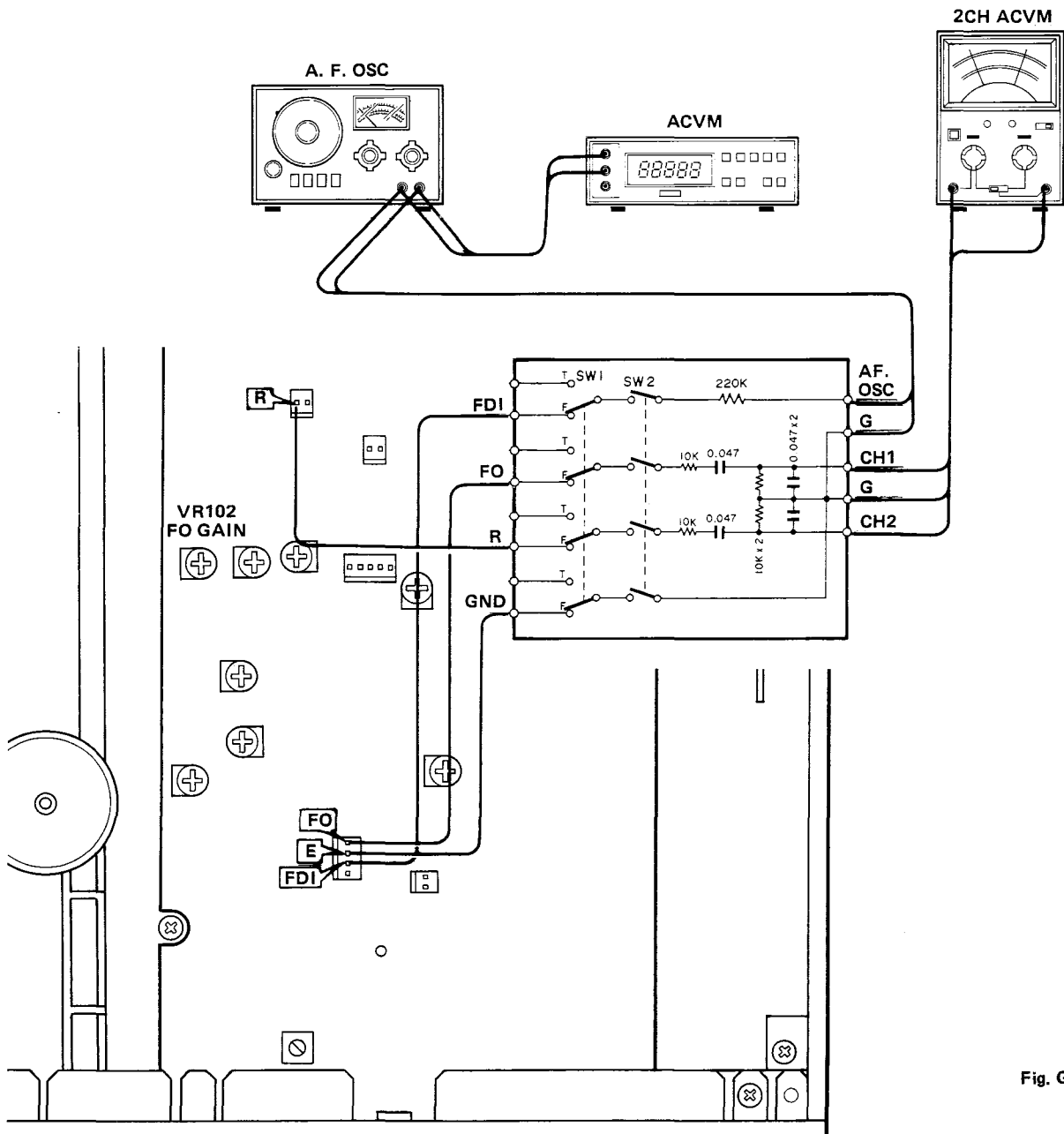


Fig. G

Adjustment of Tracking Gain (Step 7)

* This adjustment requires two single channel AC voltmeters or one dual channel AC voltmeter.

- ① Connect the filter and measuring instruments, as shown in Fig. H.

[Apply a 800 Hz, 100 mVrms signal from the AF oscillator to **TDI** terminal via the resistor (220 kilohms) in the filter.

- ② Set SW2 to OFF.
③ Set SW1 to T (TRACKING).
④ Press POWER key. (POWER ON)
⑤ Load the test disc.
⑥ Press PLAY key.
⑦ Set SW2 to ON.

- ⑧ While observing the indications of the AC voltmeters (CH1 : E_{TE} , CH2 : E_Q), adjust VR106 (TRACKING GAIN) so that they satisfy the rating.

Rating: $E_{TE} - E_Q = 16\text{dB}$

Example [0dBV = 1V]

$E_{TE} = -14\text{dBV}$ (200mV)

$E_Q = -30\text{dBV}$ (32mV)

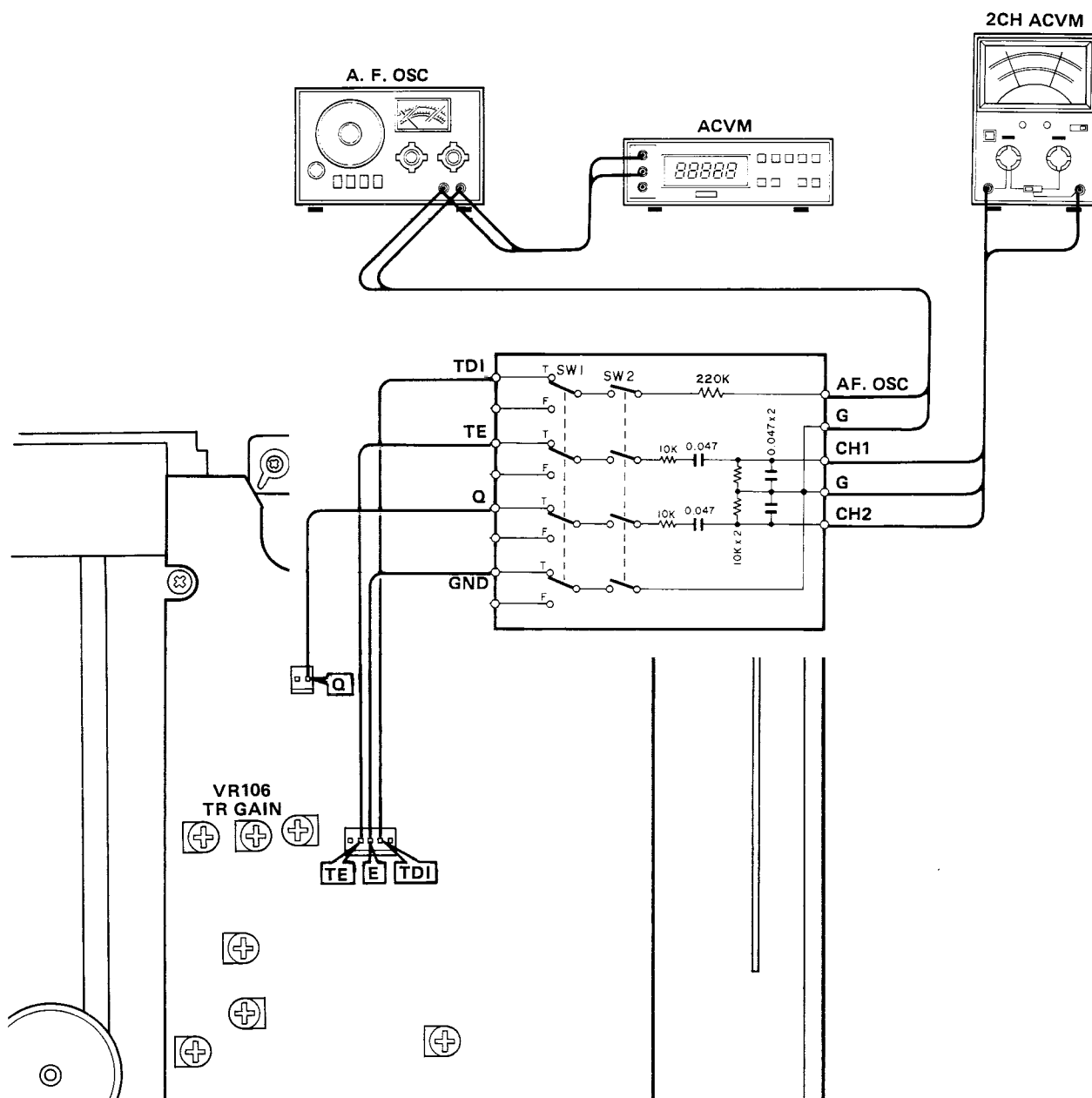


Fig. H

Adjustment of Tracking Offset (Step 8)

- ① Connect a DC voltmeter to **Q** and **E** terminals.
- ② Press POWER key. (POWER ON)
- ③ Press STOP key.
- ④ Short between the **TROF** and **E** terminals.
(TRACKING SERVO → ON)
- ⑤ While observing the indication (E_Q) of the DC voltmeter, adjust VR105 (TRACKING OFFSET) so that it satisfies the rating.

Rating: $E_Q = 0 \text{ V DC} \pm 25 \text{ mV DC}$

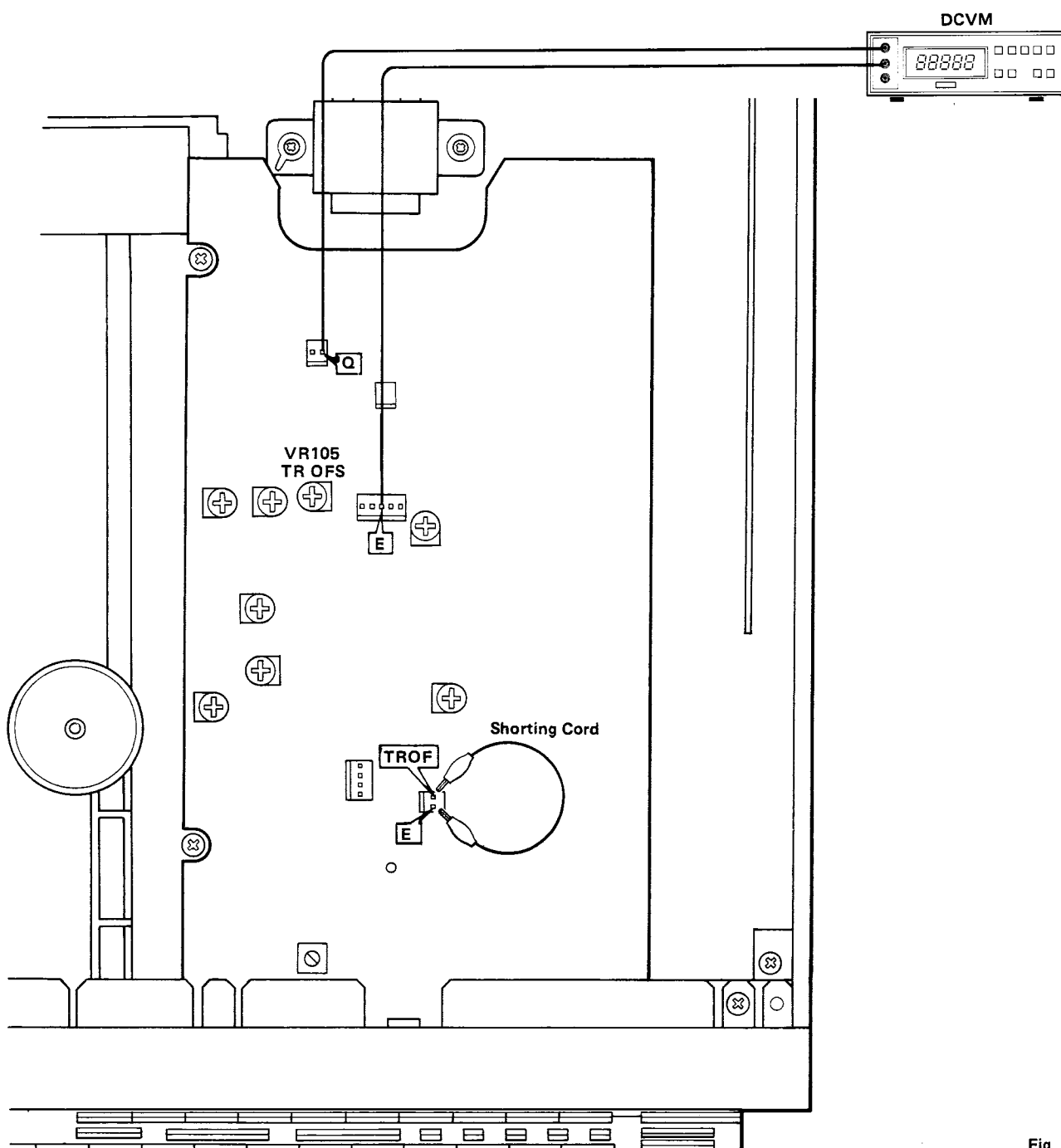


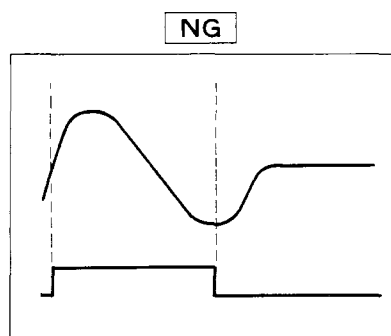
Fig. 1

Adjustment of Kick Gain (Step 9)

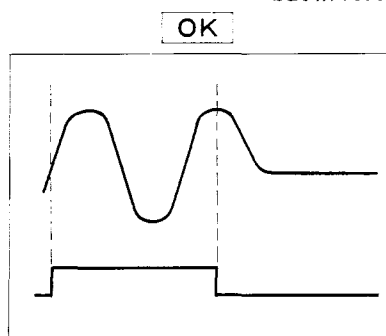
Oscilloscope (1) (2-ch oscilloscope) Settings

- DC coupling
- CH1 → **TER** terminal: 0.1V/div (Vertical)
(10 mV/div when 10 : 1 probe is used)
- CH2 → **TRHD** terminal: 5V/div (Vertical)
(0.5V/div when 10 : 1 probe is used)
- TRIGGER MODE: 2 CH
- 0.2msec/div time (Horizontal)

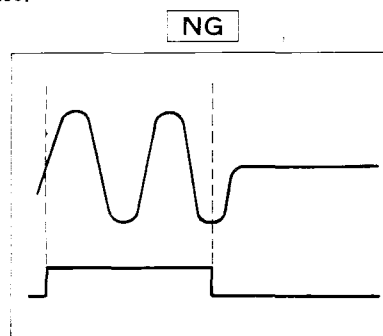
- 1 Connect the measuring instruments, as shown in Fig.J.
- 2 Press POWER key. (POWER ON)
- 3 Load the test disc.
- 4 The POWER switch is turned OFF.
- 5 Set to the TEST mode.
- 6 Press the EJECT key.
- 7 Press PLAY key.
- 8 Observe waveform while pressing Fast Forward mode key (▶▶).
- 9 Adjust VR107 (KICK GAIN) so that the **TER** signal cycle is 1.0 ± 0.5 when **TRHD** signal level is High.
* Adjust at the inner circumference of the disc.
- 10 Press Reverse mode key (◀◀) and confirm that **TER** signal cycle is within the above specification but in reverse phase.



This shows about 0.75 cycle which is incorrect

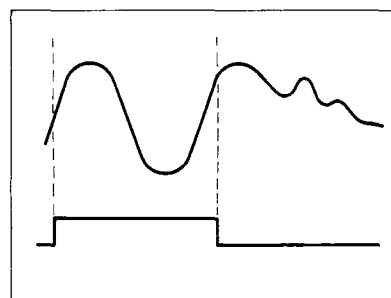


This shows about 1.25 cycle which is within specification.



This shows about 1.75 cycle which is incorrect

* The TER waveform after the TRHD rise should converge gently.



Not converging gently

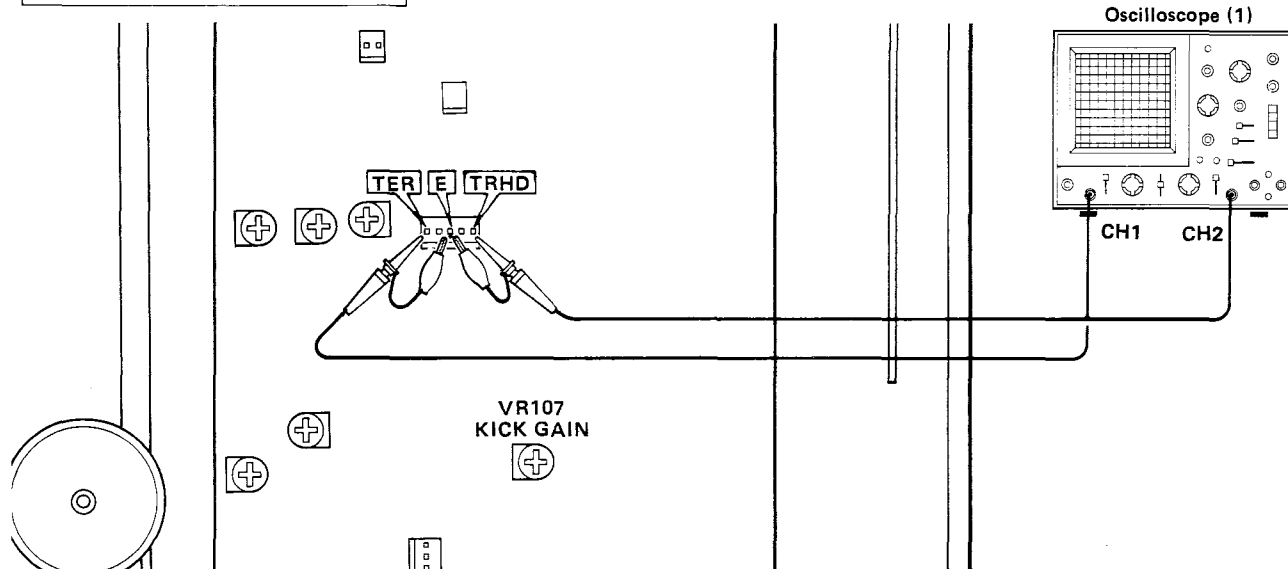
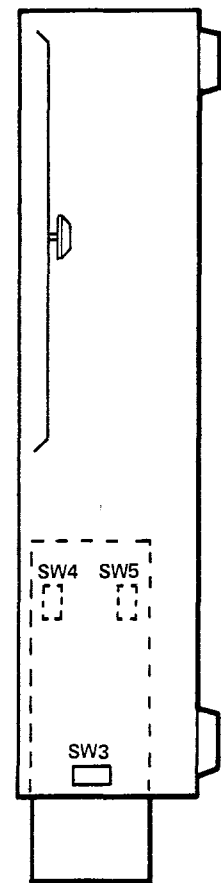
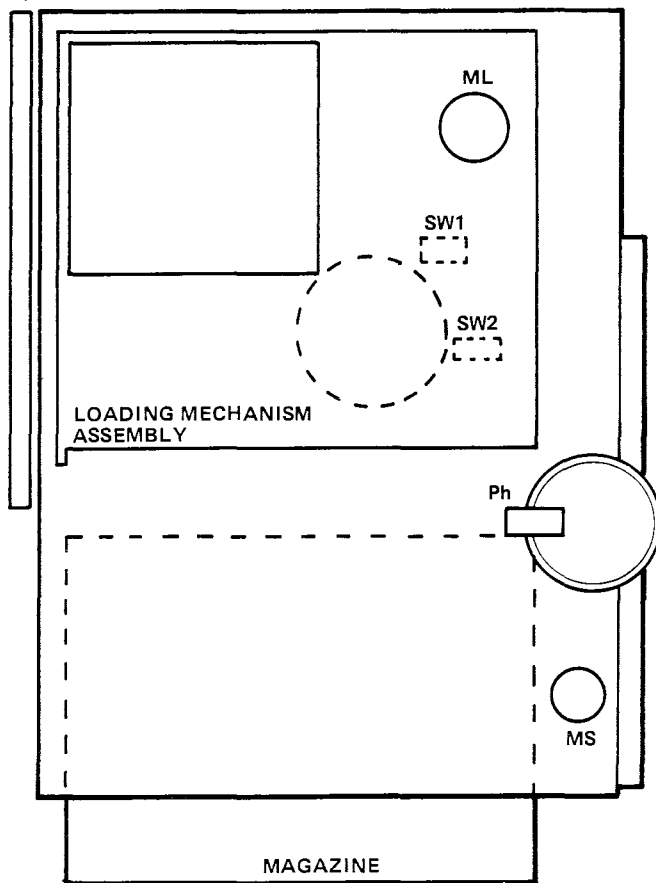


Fig. J

■ OPERATION EXPLANATIONS FOR EACH MODE



Loading part

- ML: Motor for tray pull-out, storage, and chucking
- SW1: Chucking completion detect switch (S355)
- SW2: Tray storage completion detect switch (S356)

Disc selection part

- MS: Motor for disc selection (loading mechanism assembly up/down) and magazine pull out
- Ph: Disc selection position detection photosensor
- SW3: Mechanism initialization position detect switch (S353)

Magazine part

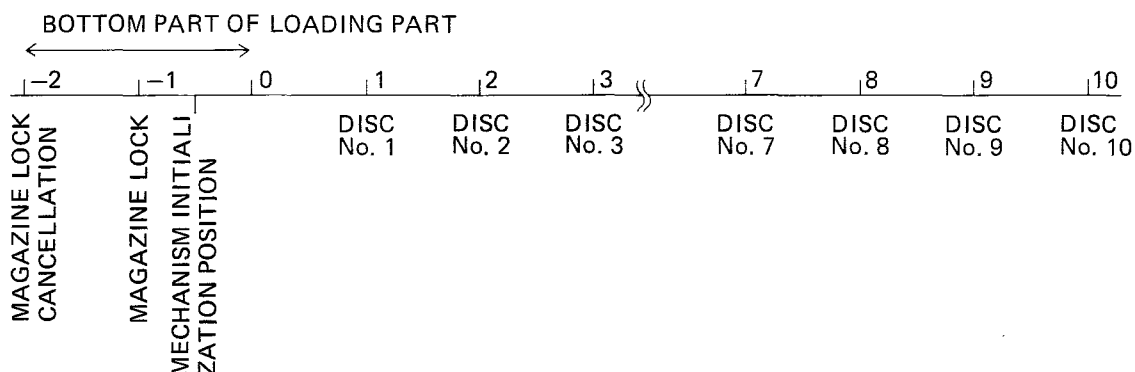
- SW4: Magazine 10/1 discrimination switch (S352)
- SW5: Magazine existence detect switch (S351)

The relation between photosensor, disc selection position, magazine lock, and lock cancellation is shown below.

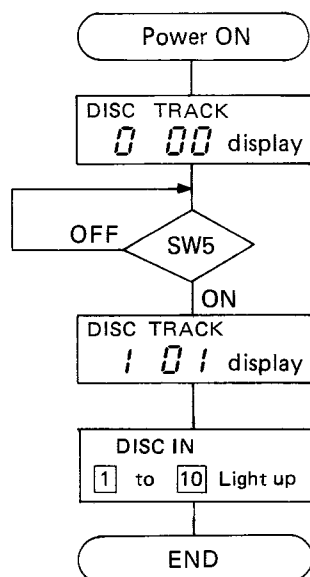
Bottom part of the loading part

The slot position in photo sensor and the position of each disc are decided mechanically, the mechanism initialization switch (SW3) becomes OFF, and the position of the second slot corresponds to the disc height of the magazine No. 1.

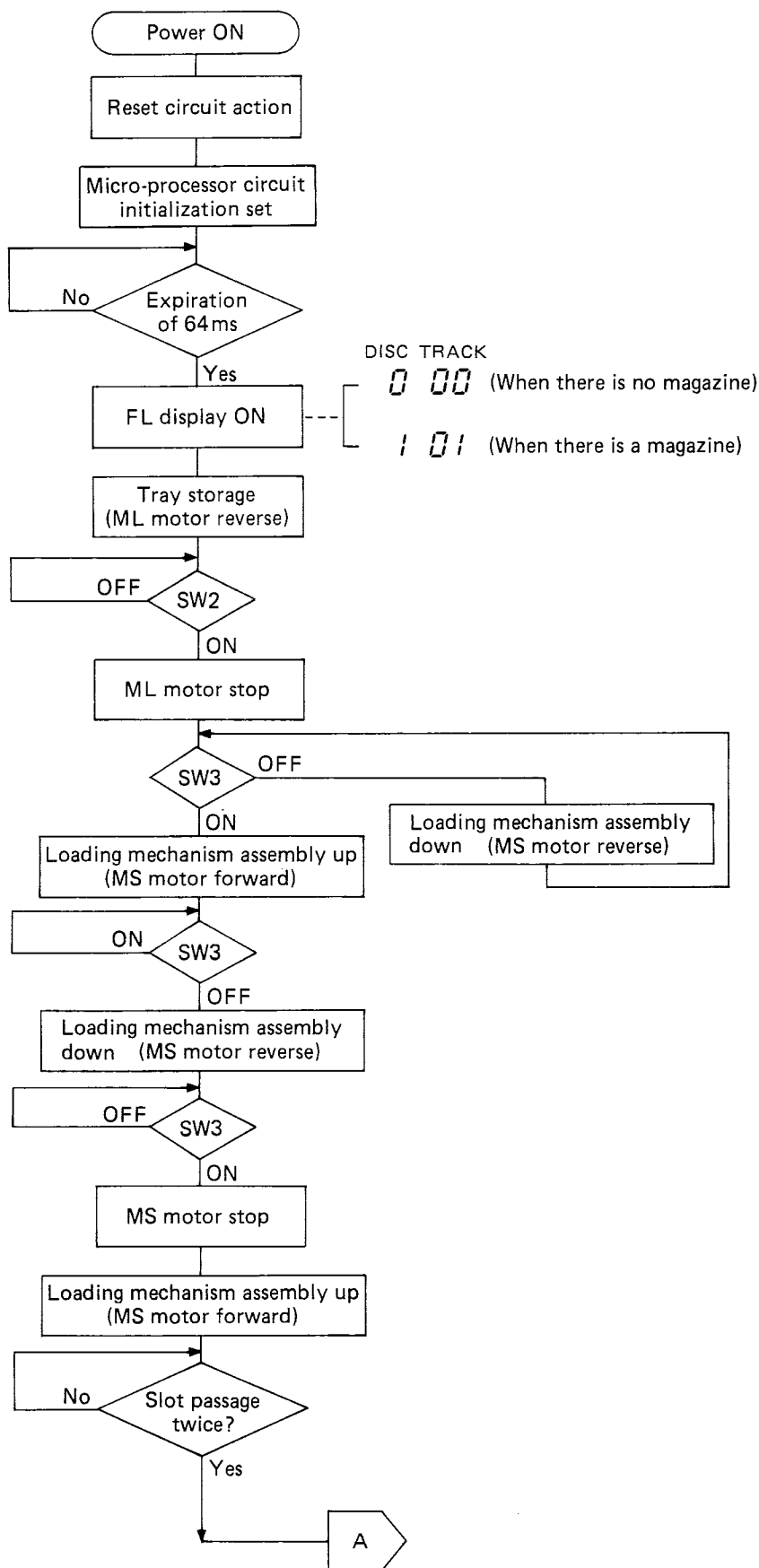
The height at the time of playing with one magazine corresponds to the height of the disc No. 8 of the 10 disc magazine.



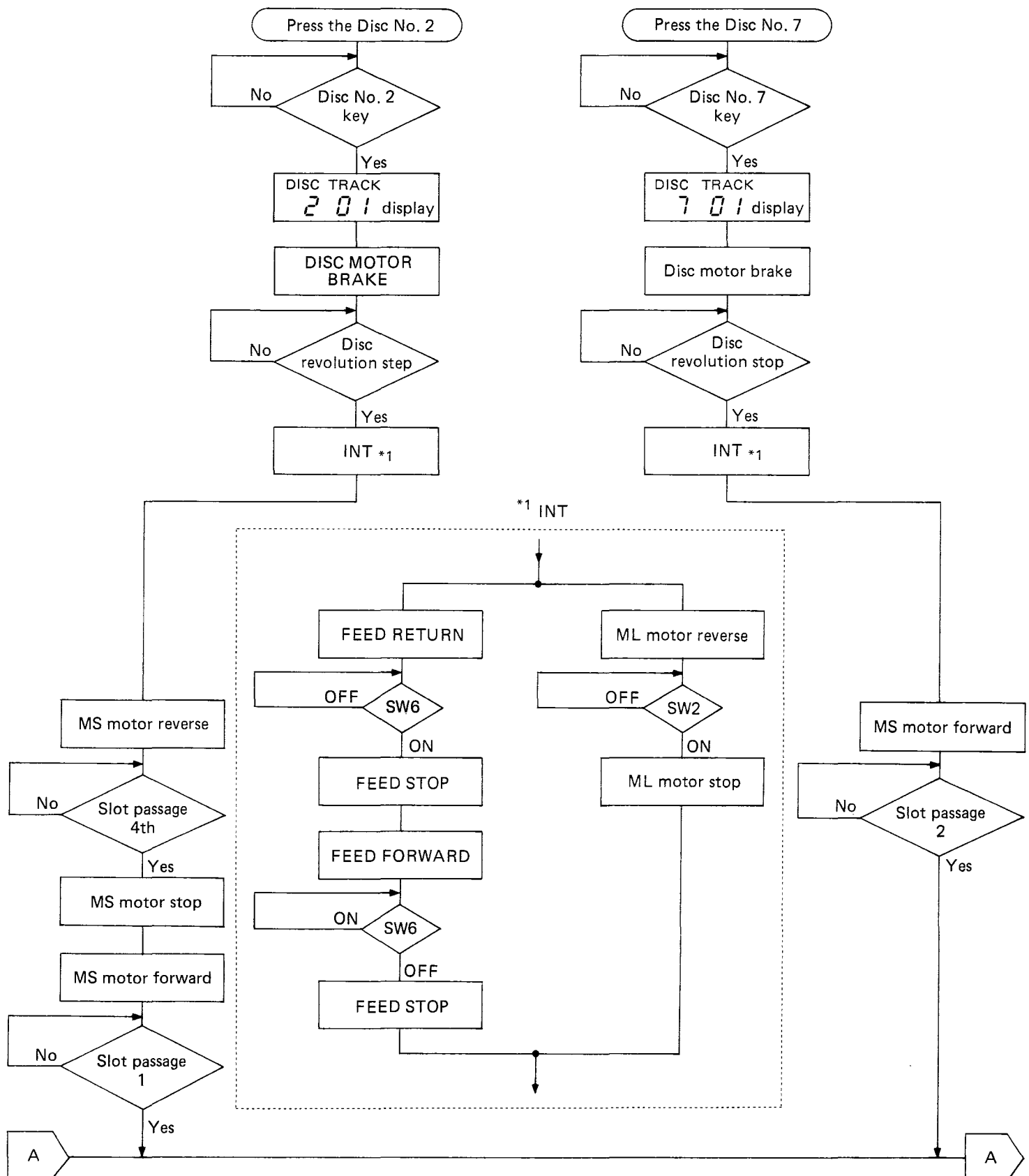
A) Magazine setting from no-magazine status



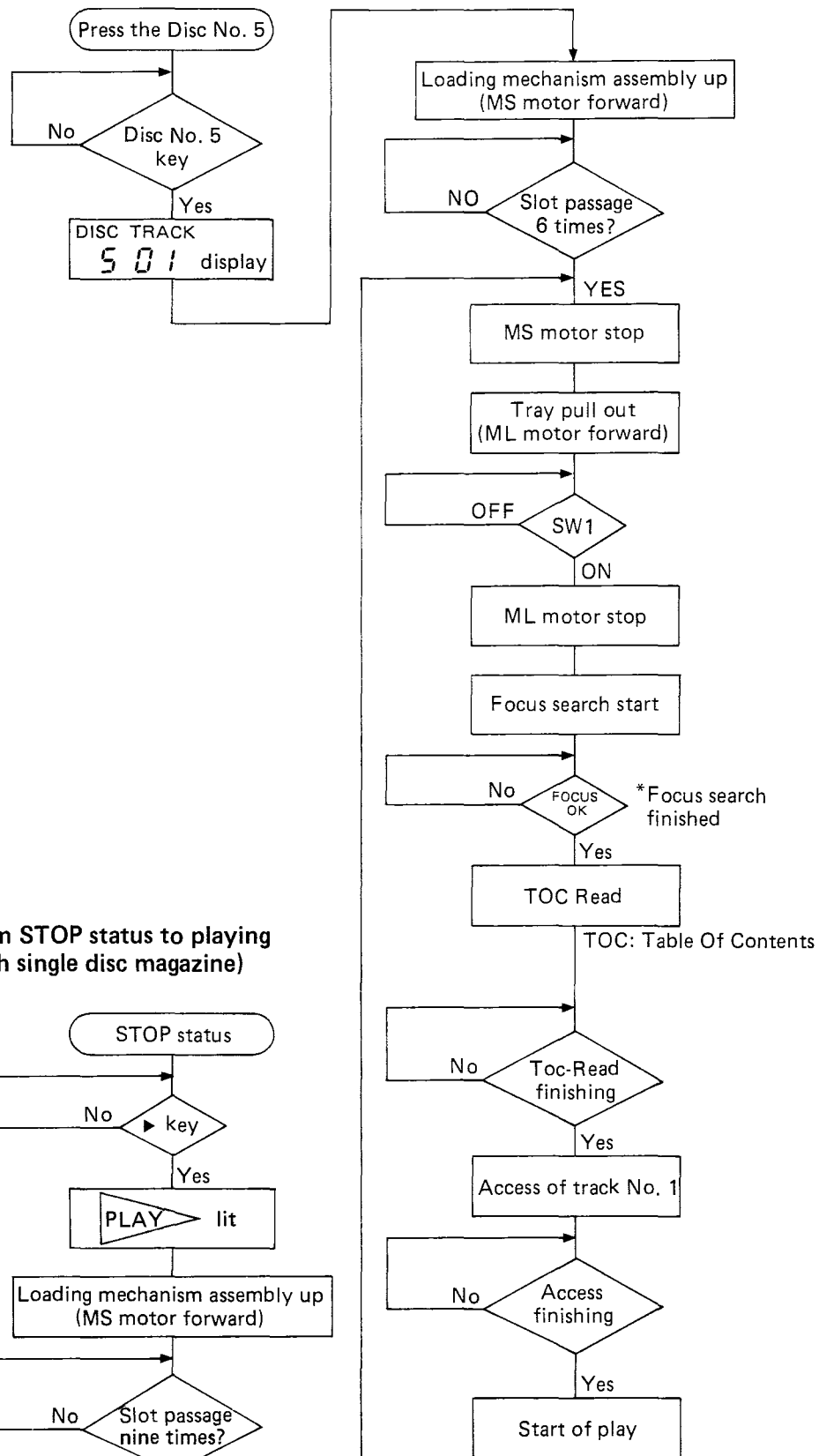
B) At the time of power ON



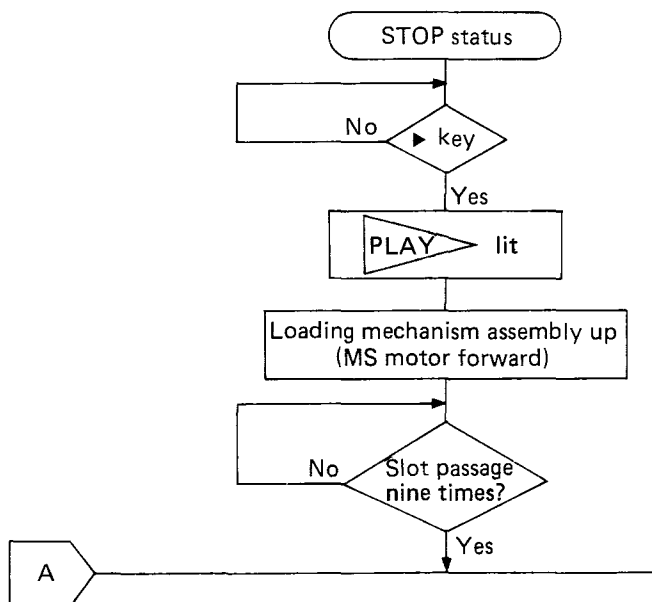
C) Disc change during playing (Now playing Disc 5)



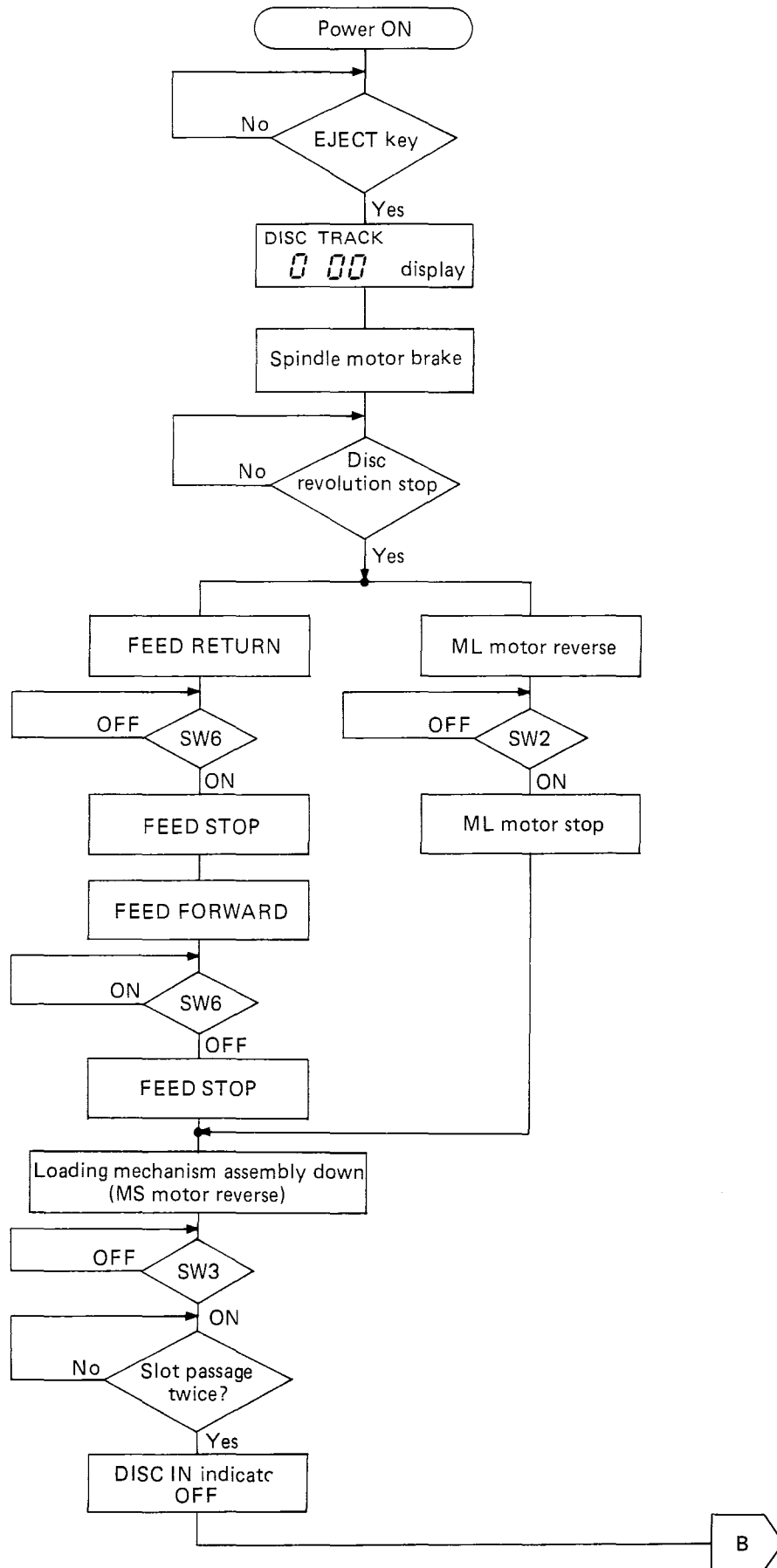
D) Playing of disc No. 5 from STOP status



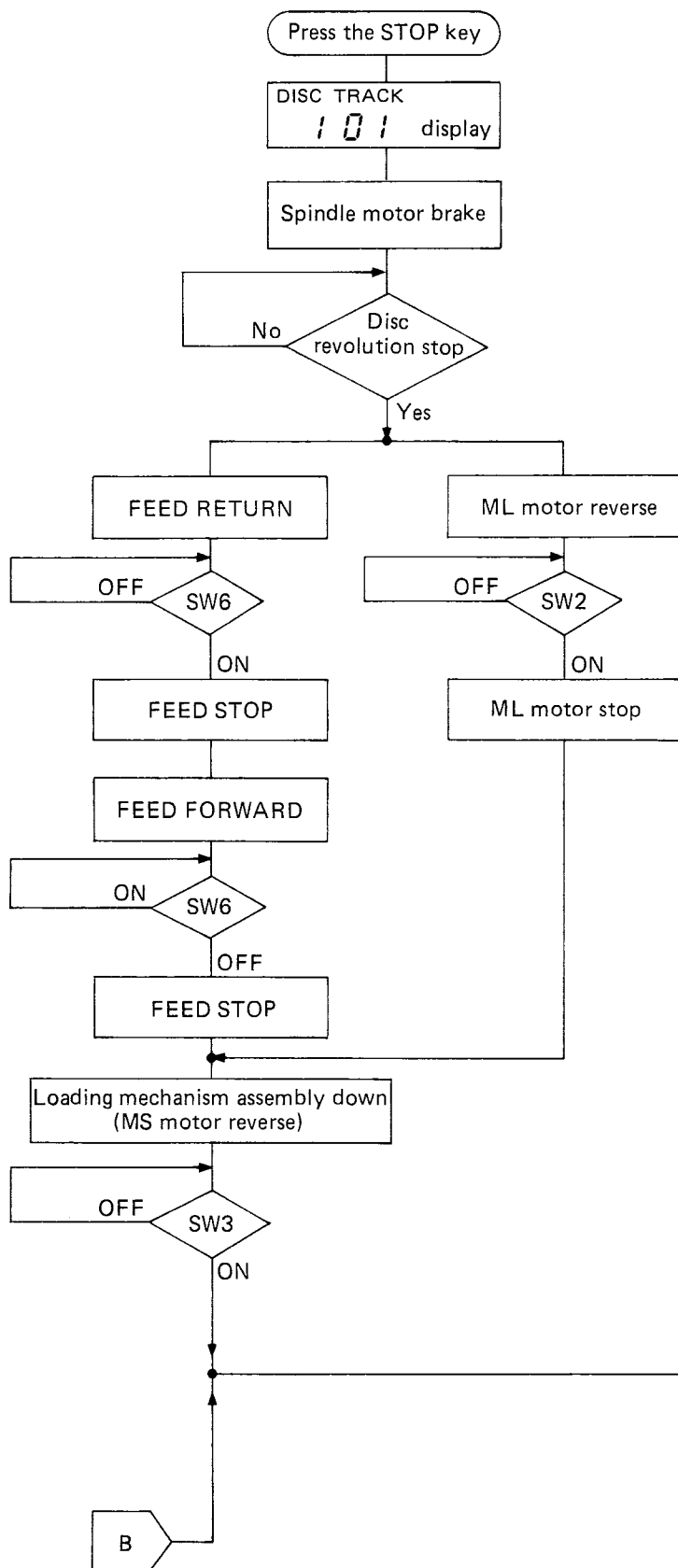
E) From STOP status to playing
(with single disc magazine)



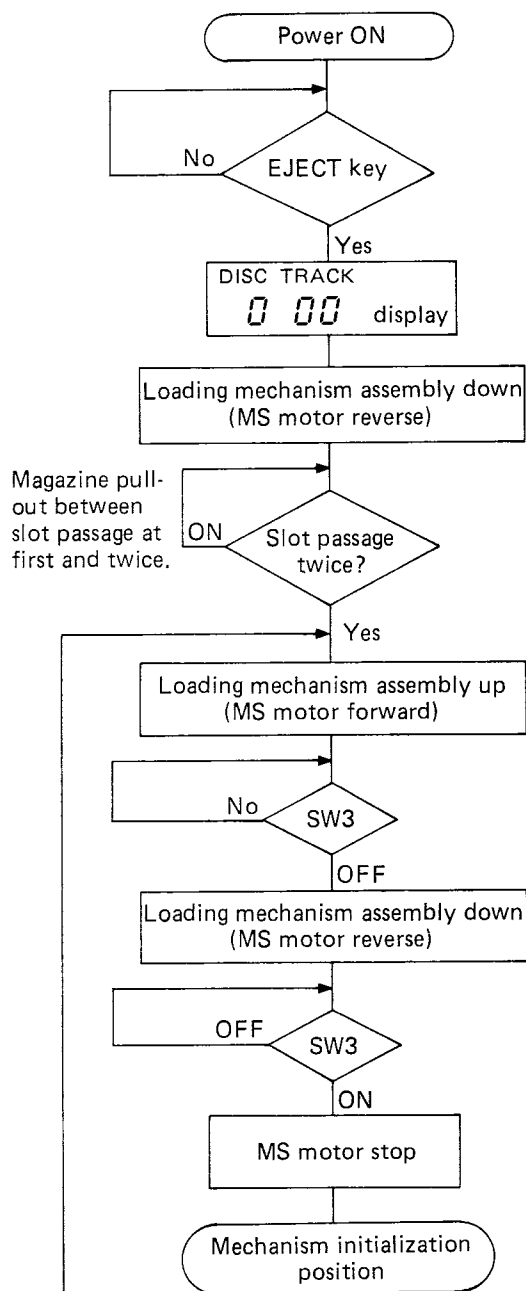
F) From playing to EJECT



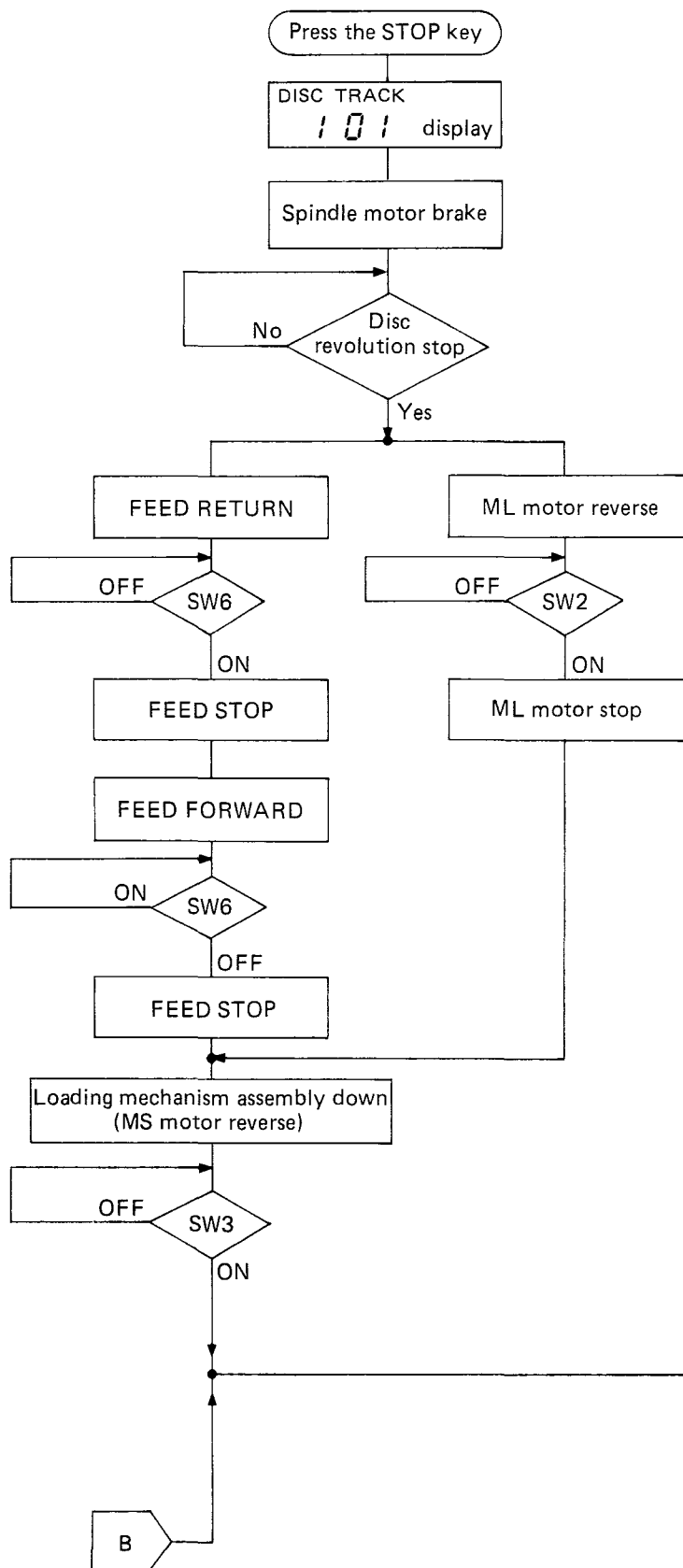
G) From playing to STOP



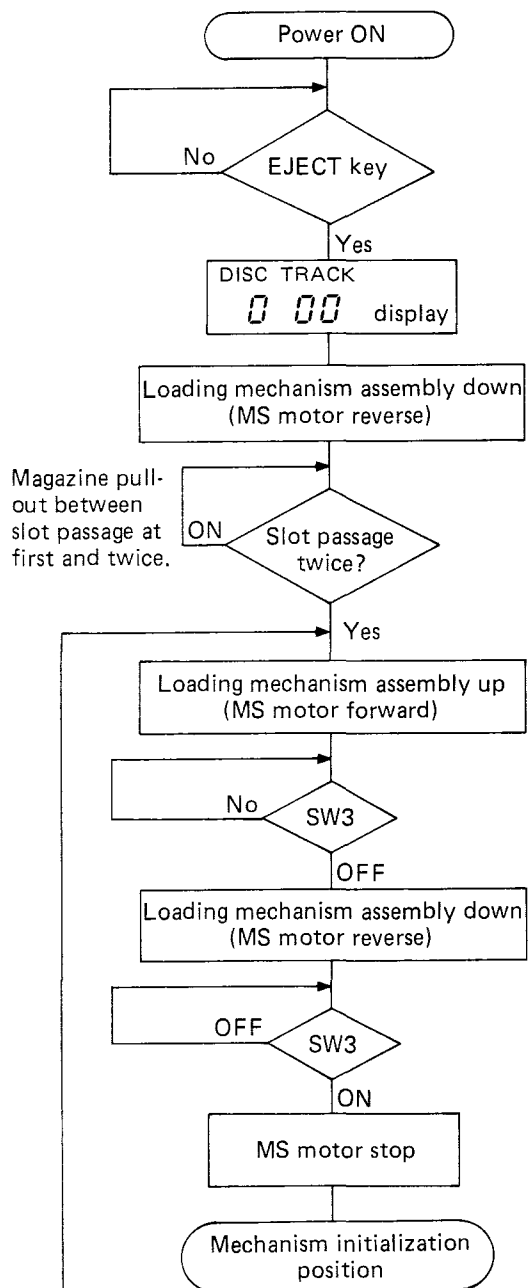
H) Magazine pull-out from STOP status
(mechanism initialization position)



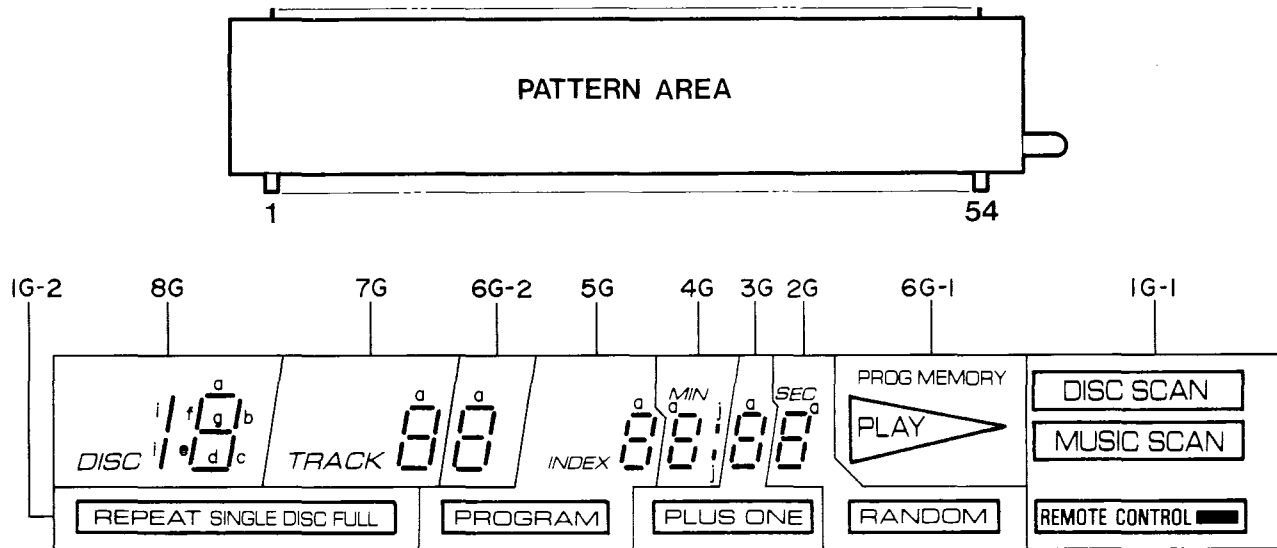
G) From playing to STOP



H) Magazine pull-out from STOP status
(mechanism initialization position)



■ DISPLAY DATA (V401:8-MT-35GK)



PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
CONNECTION	F	F	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	1	2	3	4	N	N	N	5	6	N	7	8	N	N	N	N	N	N	N	h	g

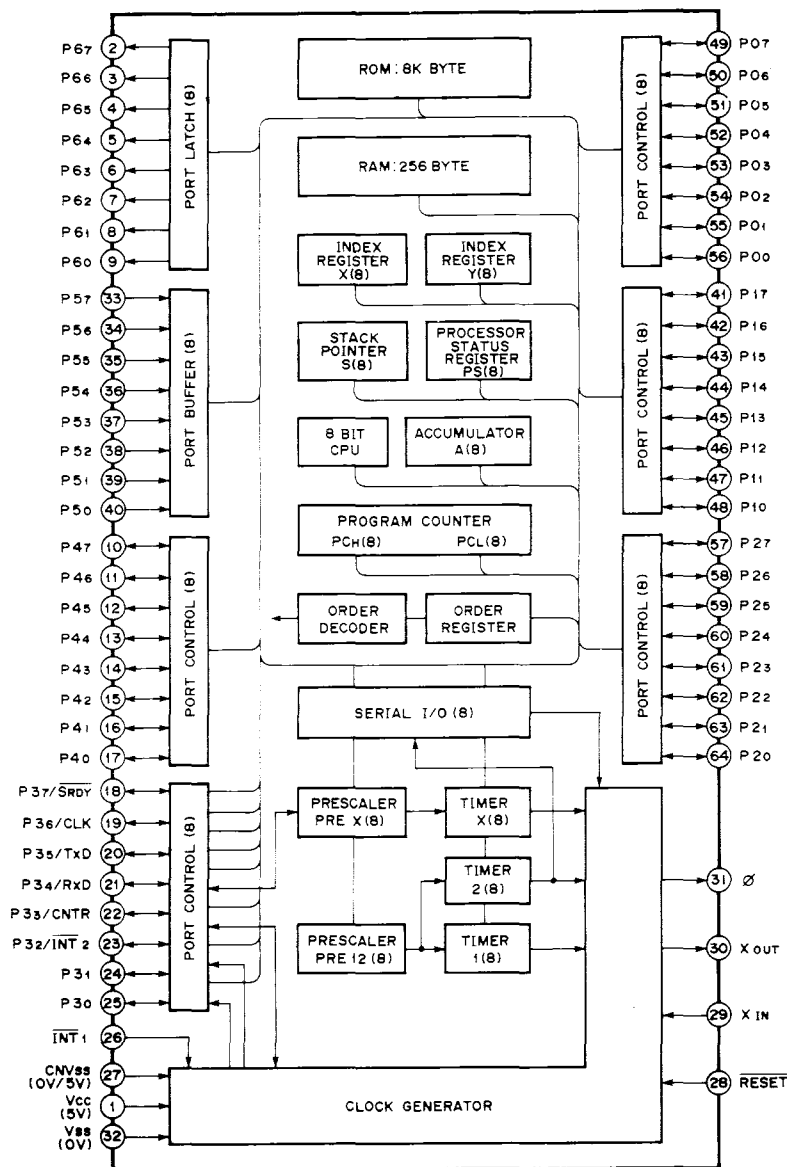
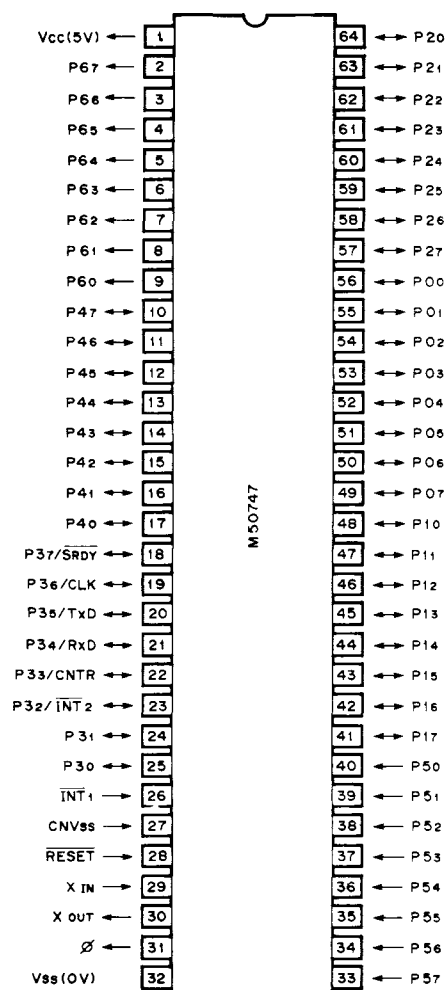
PIN NO.	41	42	43	44	45	46	47	48	49	50	51	52	53	54
CONNECTION	N	N	N	f	e	d	N	c	b	a	N	N	F	F

ANODE CONNECTION

	8G	7G	6G-2	6G-1	5G	4G	3G	2G	1G-2	1G-1
a	a	a	a	-	a	a	a	a	-	DISC SCAN
b	b	b	b	-	b	b	b	b	-	MUSIC SCAN
c	c	c	c	-	c	c	c	c	-	REMOTE CONTROL
d	d	d	d	-	d	d	d	d	-	
e	e	e	e	-	e	e	e	e	REPEAT	-
f	f	f	f	-	f	f	f	f	SINGLE	-
g	g	g	g	-	g	g	g	g	DISC	-
h	-	-	-	-	-	-	-	-	FULL	-
i	!	TRACK	-	PROG MEMORY	INDEX	MIN	PLUS ONE	SEC	-	-
j	DISC	-	-	PLAY	PROGRAM	:	-	RANDOM	-	-

IC DATA

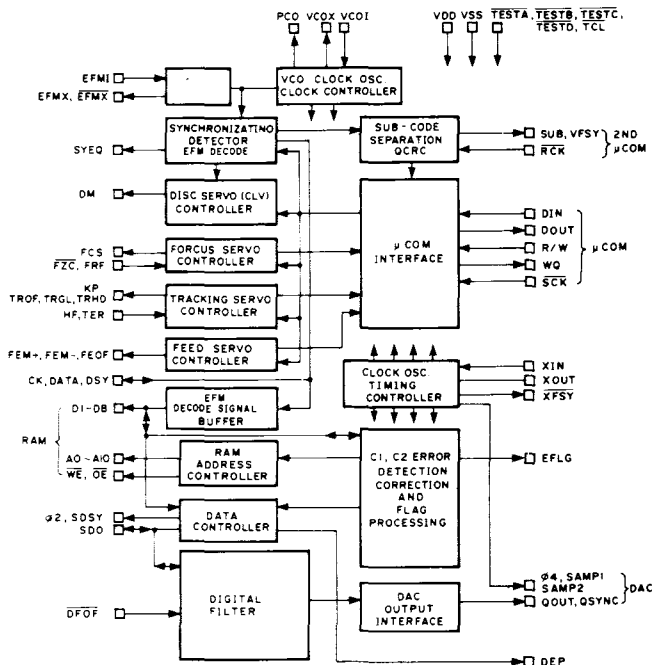
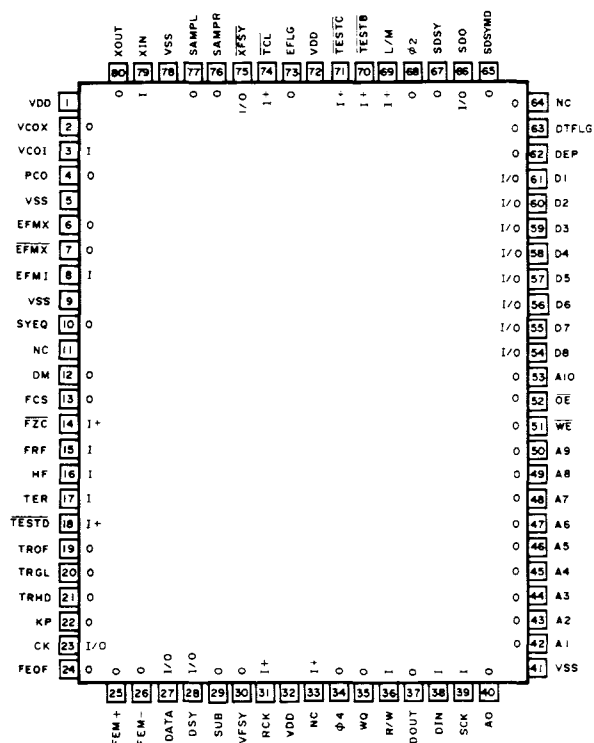
IC116: M50747 —136SP or M50747E —136SP
8 bit μ -COM



Pin No.	Pin Name	Description	I/O	Active	Function
1	Vcc	VDD			5V
2	P67 (O)	D7	O	H	Digit line
3	P66 (O)	D6	O	H	
4	P65 (O)	D5	O	H	
5	P64 (O)	D4	O	H	
6	P63 (O)	D3	O	H	
7	P62 (O)	D2	O	H	
8	P61 (O)	D1	O	H	
9	P60 (O)	D0	O	H	
10	P47	SW7	I	H	DISC MECHA. SW
11	P46	SW6	I	H	
12	P45	SW5	I	H	
13	P44	SW4	I	H	
14	P43	SW3	I	H	
15	P42	SW2	I	H	
16	P41	SW1	I	H	
17	P40	ACL	I	H	
18	P37/SRDY				SPC Interface
19	P36/CLK	SCK	I/O		
20	P35/TXD	SOUT	O		
21	P34/RXD	SIN	I		
22	P33/CNTR	R/W	O		Not Used
23	P32/INT2				
24	P30	WQ	I		SPC Interface
25	P31	SCK	O		
26	INT1	HOLD			
27	CNVSS				GND
28	RESET	RES	I		Reset
29	XIN	XI	I		8 MHz Clock
30	XOUT	XO	O		
31	ϕ	ϕ	O		Timing output
32	VSS	VSS			GND
33	P57 (I)	K7	I		Key input line
34	P56 (I)	K6	I		
35	P55 (I)	K5	I		
36	P54 (I)	K4	I		
37	P53 (I)	K3	I		
38	P52 (I)	K2	I		
39	P51 (I)	K1	I		
40	P50 (I)	K0	I		
41	P17	LS	O	H	Laser output
42	P16	PLAY	O		PLAY mode output
43	P15	R5	I		Remote control interface
44	P14	R4	I		
45	P13	R3	I		
46	P12	R2	I		
47	P11	R1	I		
48	P10	R0	I		
49	P07	MS+	O	H	Disc Select Motor Control
50	P06	MS-	O	H	
51	P05	ML+	O	H	Loading Motor Control
52	P04	ML-	O	H	
53	P03	HT	O	H	Feed Motor Control
54	P02	k	O	H	
55	P01	j	O	H	
56	P00	i	O	H	
57	P27	h	O	H	
58	P26	g	O	H	
59	P25	f	O	H	
60	P24	e	O	H	
61	P23	d	O	H	
62	P22	c	O	H	
63	P21	b	O	H	
64	P20	a	O	H	

IC111: YM3616 Signal Processor & Controller

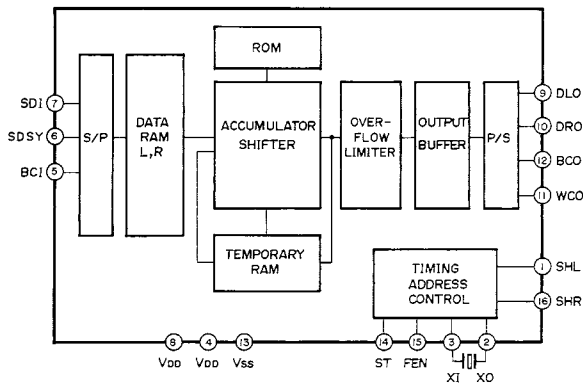
YM3616 is a CMOS LSI for signal processing and servo control of the compact disc player. It executes such signal processing as demodulation of the EFM signal from the optical pick-up, detection and correction of the erroneous signal and digital filtering which helps to improve the sound quality, as well as such intelligent servo controlling as focus, disc, tracking and feeding.



Pin No.	Pin Name	I/O	Function
1	VDD		Power Supply
2	VCOX	O	
3	VCOI	I	Clock Playback Circuit 4PCO
4	PCO	O	
5	VSS		GND
6	EFMX	O	
7	EFMX	O	EFM Signal External Circuit
8	EFMI	I	
9	VSS		GND
10	SYEQ	O	Synchronized Uniform Signal
11	N.C.		Not Use
12	DM	O	Disc Servo { LOW (0V): FORWARD OPEN (2.5V): STOP HIGH (5V): REVERSE
13	FCS	O	
14	FZC	I	Focus Servo System Input
15	FRF	I	
16	HF	I	
17	TER	I	
19	TROF	O	Tracking Servo System Input
20	TRGL	O	
21	TRHD	O	
22	KP	O	{ LOW (0V): REW OPEN (2.5V): STOP HIGH (5V): FF

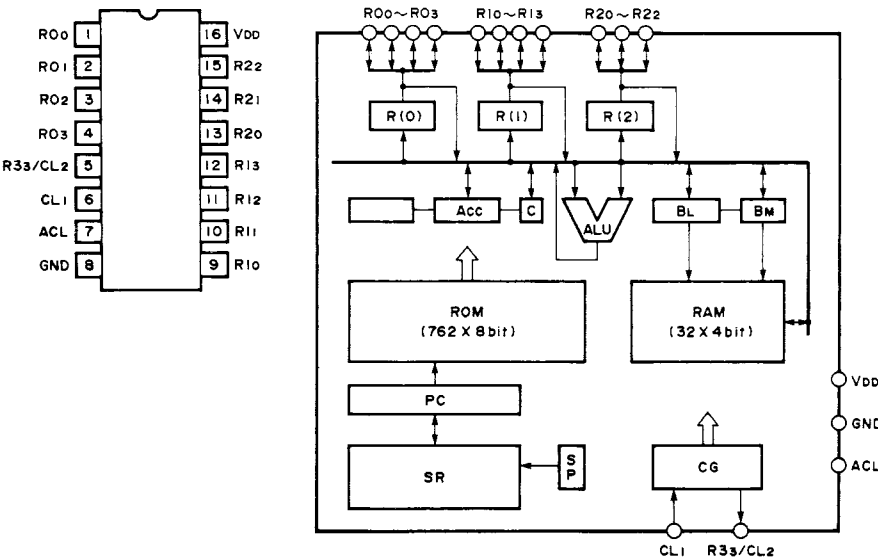
Pin No.	Pin Name	I/O	Function
23	CK		EFM Demodulated Signal Check Output (4.3218MHz, clock)
24	FEOF	O	Feed Servo System
25	FEM+	O	
26	FEM-	O	
23	CK	I/O	EFM Demodulated Signal Check Output (4.3218MHz clock)
27	DATA	I/O	
28	DSY	I/O	
29	SUB	O	Sub-code Output
30	VFSY	O	
31	RCK	I	
32	VDD		Power Supply
33	NC	I	Not Use
34	$\phi 4$		4.3218 MHz Clock
35	WQ	O	Q Code Output System
37	DOUT	O	
36	R/W	I	
39	SCK	I	
38	DIN	I	
41	VSS		Data Output to μ COM Data I/O Control Signal Clock for Data I/O Data I/O from μ COM } Q code Output } μ COM Command
40	A0	O	
42	A1	O	
43	A2	O	RAM Connections
44	A3	O	
45	A4	O	
46	A5	O	
47	A6	O	
48	A7	O	
49	A8	O	
50	A9	O	
51	WE	O	
52	OE	O	
53	A10	O	
54	D8	I O	
55	D7	I O	
56	D6	I O	
57	D5	I O	
58	D4	I O	
59	D3	I O	
60	D2	I O	
61	D1	I O	
62	DEP	O	Deemphasis Signal
63	DTFLG	O	Data Error Signal
66	SDO	O	Digital Data Output
67	SDSY	O	LSB first/MSB first
68	$\phi 2$	O	2.1659MHz Clock
69	L/M	I	
71	TESTC	I	
64	NC	O	Not Use
65	SDSYMD	O	BB Word Clock for DAC
76	SAMPR	O	Digrich Signal
77	SAMPL	O	
34	$\phi 4$	O	4.3218MHz Clock
18	TESTD	I	Test Terminal
70	TESTB	I	
74	TCL	I	
72	VDD		Power Supply
73	EFLG	O	C1, C2 Error Correction Check Signal
75	XFSY	I/O	Synchronized Clock Signal
78	VSS		GND
79	XIN	I	Clock Oscillation
80	XOUT	O	

IC113: YM3404
Digital Filter

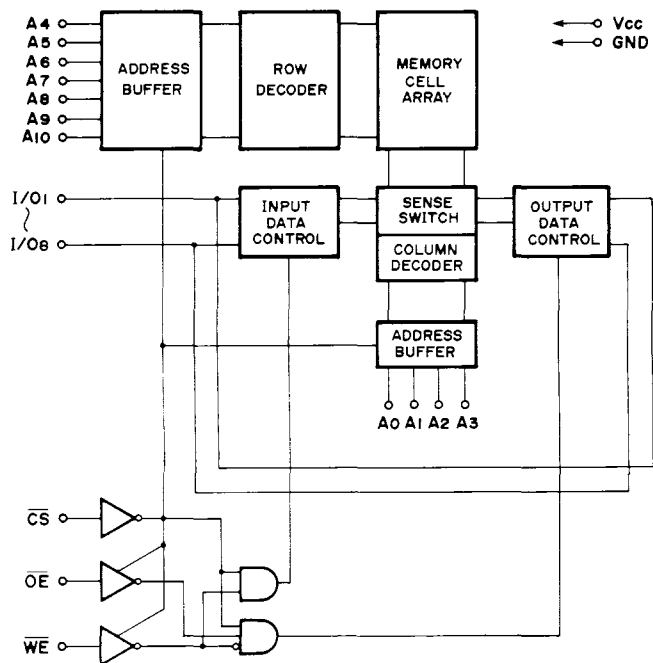
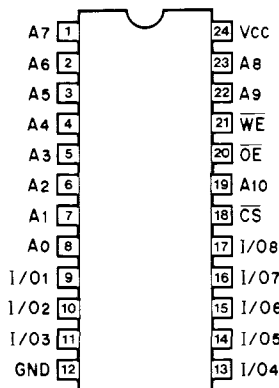


Pin No.	Pin Name	I/O	Function
7	SDI	I	Encoded digital signal serial input
6	SDSY	I	Distinction between Lch and Rch, Data input timing
5	BCI	I	Bit clock input for input data
3	XI	I	Clock OSC. 196 fs = 17.2872MHz or 192 fs = 16.9344 MHz
2	XO	O	
14	ST	I	1DAC = "L" 2DAC = "H" Switch input
15	FEN	I	System clock switch input 196 fs = "L" 192 fs = "H"
9	DLO	O	1DAC: L, Rch Data input 2DAC: Lch Data input
10	DRO	O	Rch Data output
11	WCO	O	Word clock for output data (DLO, DRO)
12	BCO	O	Bit clock for output data and system clock output for SPC II 98 fs = 8.6436MHz or 96 fs = 8.4672MHz
1	SHL	O	1DAC: Lch deglitch signal output
16	SHR	O	2DAC: L, Rch deglitch signal output
8	VDD ₁		Power supply +5V for digital signal
4	VDD ₂		Power supply for clock and deglitch signal
13	VSS		GND

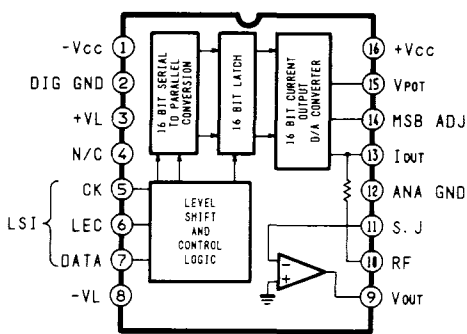
IC117: LU59522
4 bit μ -COM



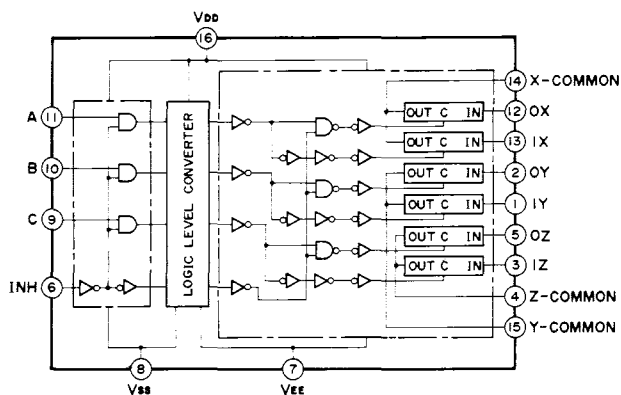
IC112: μ PD4016-CX, CXK5816SP, CXK5816PN, CXK5816PS
or LC3517B-15
2048-Word x 8 bit Static RAM



IC114: PCM56L
D/A Converter



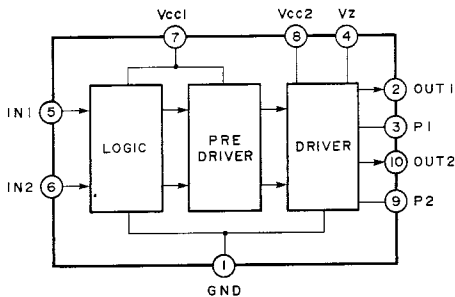
IC115: TC4053BP or μ PD4053BC
Triple-2 channel Multiplexer/Demultiplexer



CONTROL INPUTS				"ON" CHANNEL	
INHIBIT (Pin 6)	C (Pin 9)	B (Pin 10)	A (Pin 11)	OX (Pin 12), OY (Pin 2), OZ (Pin 5) 1X (Pin 13), 1Y (Pin 1), 1Z (Pin 3)	
L	L	L	L	0X, 0Y, 0Z	
L	L	L	H	1X, 0Y, 0Z	
L	L	H	L	0X, 1Y, 0Z	
L	L	H	H	1X, 1Y, 0Z	
L	H	L	L	0X, 0Y, 1Z	
L	H	L	H	1X, 0Y, 1Z	
L	H	H	L	0X, 1Y, 1Z	
L	H	H	H	1X, 1Y, 1Z	
H	*	*	*	NOTE	

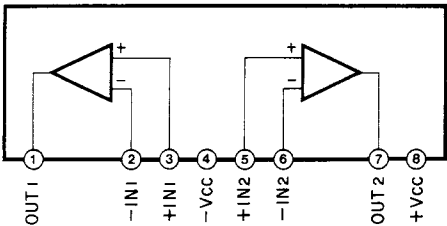
* Don't Care

IC120, 121: LB1645N
Motor Driver

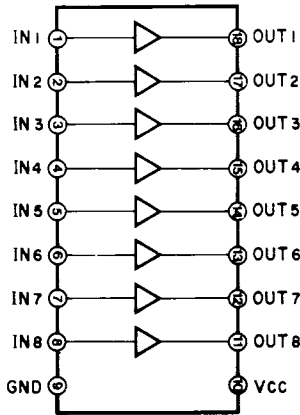


Input		Output		Function
IN1	IN2	OUT1	OUT2	
L	L	L	L	Brake
H	L	H	L	Forward
L	H	L	H	Reverse
H	H	L	L	Brake

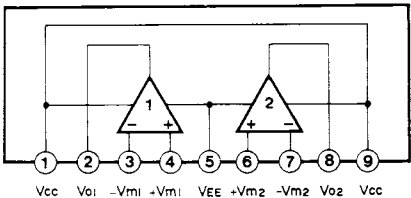
IC101: M5238L
IC122: M5218L
Dual Ope-amp.



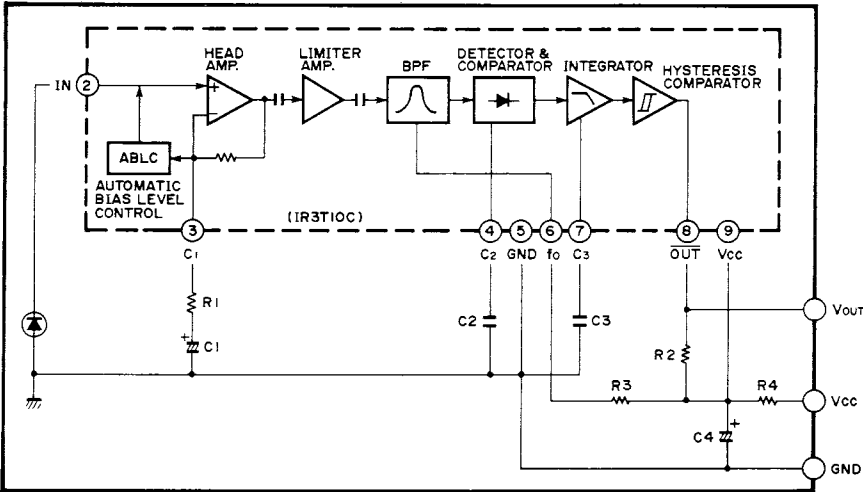
IC118, 119: M54564P
LED Driver

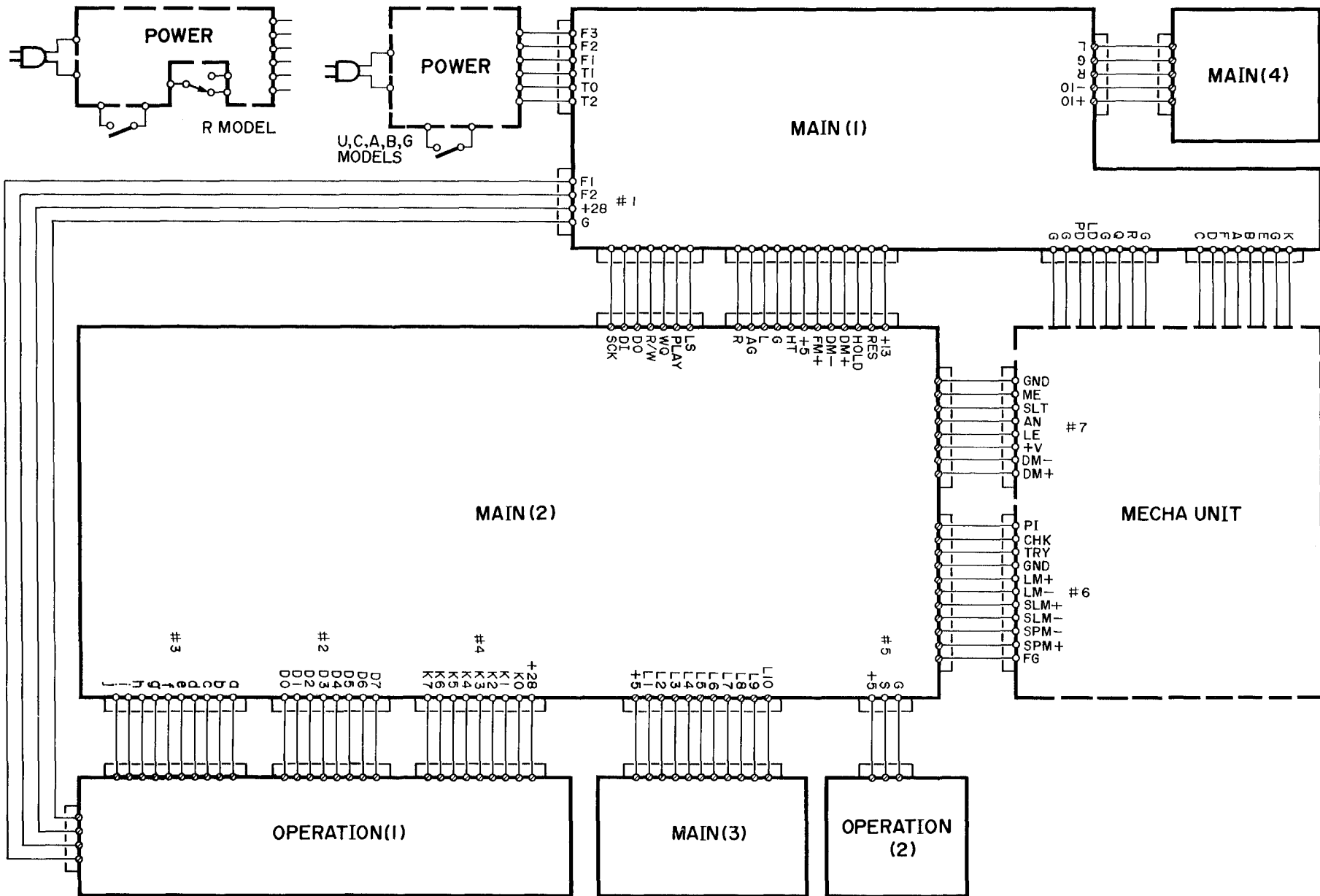


IC102, 104, 105: NJM2043S
IC103, 106 ~ 110: AN6551, NJM4558S,
TA75558S or BA715
Dual Ope-amp.



D401: GP1U501X
Remote Control Receiver Unit

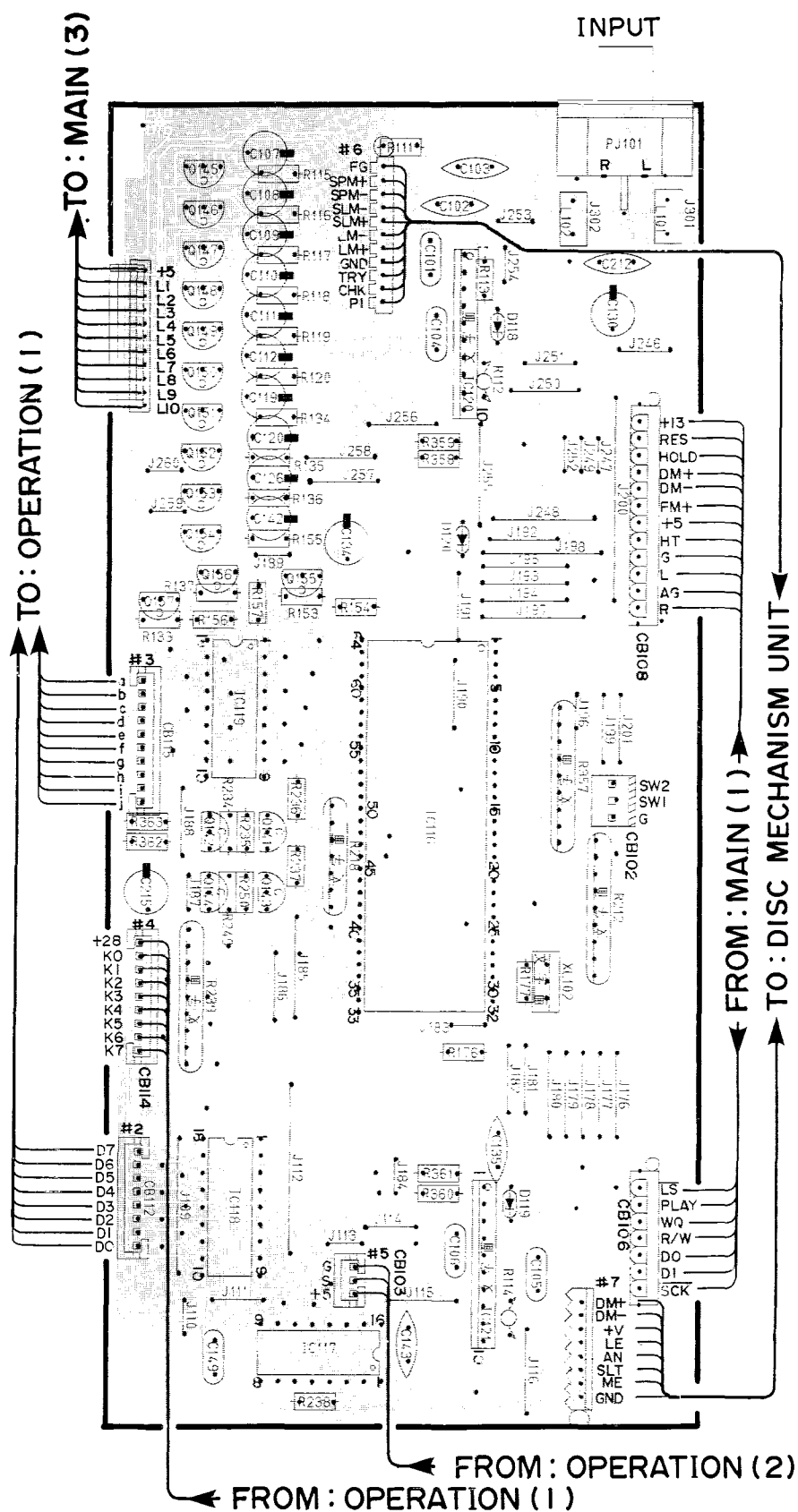




■ PRINTED CIRCUIT BOARD (Pattern side)

Note) 文字面 : Component side

Main Circuit Board (2)



Note) 文字面：Component side

Main Circuit Board (1)



1

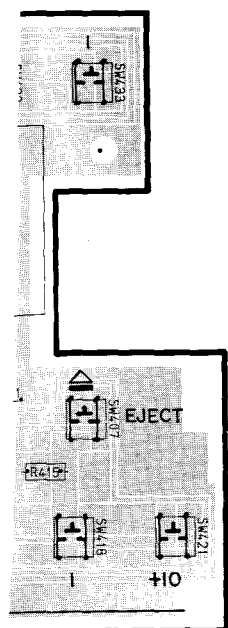
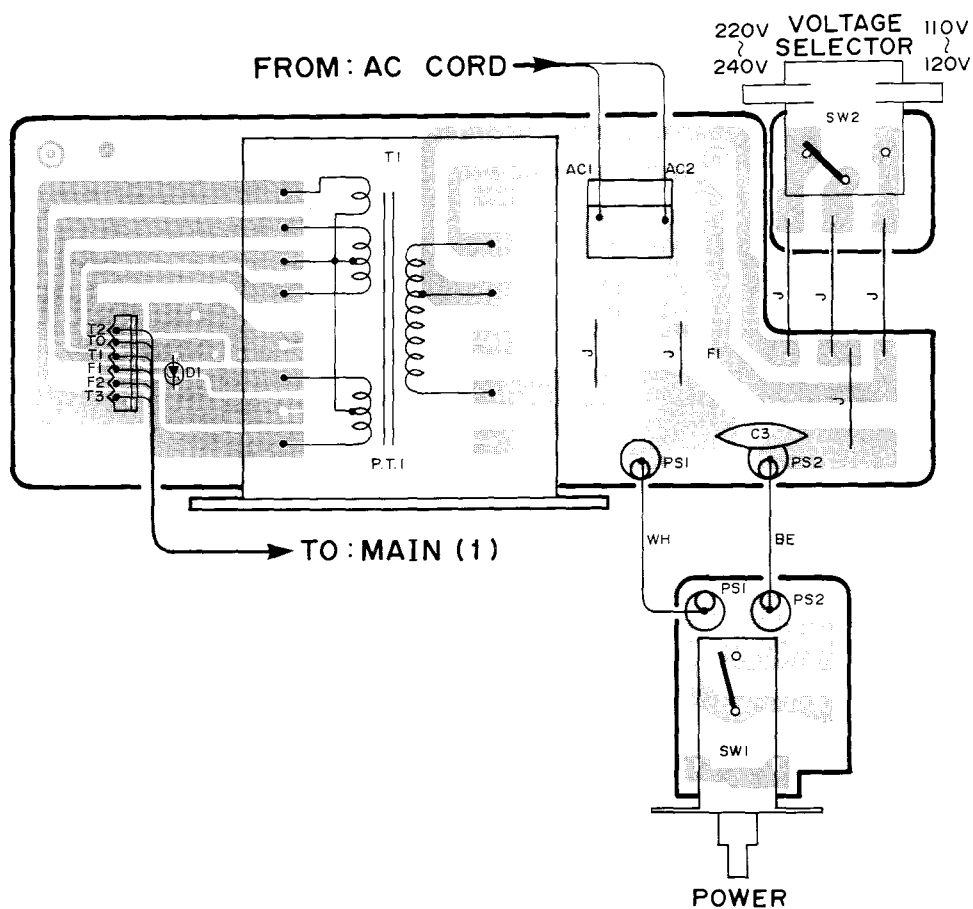
- U, C, A, B, G models



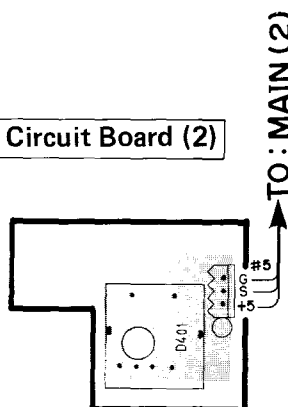
3



- **R model**



Operation Circuit Board (2)



PARTS LIST

ELECTRICAL PARTS

■WARNING

Components having special characteristics are marked $\triangle$ and must be replaced with parts having specifications equal to those originally installed.

●Carbon resistors (1/6W or 1/4W) are not included in the ELECTRICAL PARTS list. For the parts No. of the carbon resistor, refer to P. 60.

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
※	NA 09:92 10	Main Circuit Board	メ イ ン シ ー ト			U,C,R,A,B	
※	NA 09:92 20	"	"			G	
	FG 21 11 50	Ceramic Cap.	セ ラ コ ン	C150,220,221			
	FG 21 12 20	"	"	C160			
	FG 21 12 70	"	"	C146,174,175			
	FG 21 13 30	"	"	C172			
	FG 21 14 70	"	"	C152			
	FG 21 21 00	"	"	C128			
	FG 21 24 70	"	"	C124			
	FG 21 26 80	"	"	C125			
	FG 21 31 00	"	"	C102,103,173			
	FG 41 32 20	"	"	C223,224			
	FG 24 41 00	"	"	C121,135			
	FG 74 43 30	"	"	C143,155			
	FZ 00 41 30	Semiconductive Ceramic Cap.	半 導 体 セ ラ コ ン	C169,170,181,212~214			
	FA 15 31 00	Mylar Cap.	マ イ ラ ー コ ン	C116,117,207,208			
	FA 15 31 30	"	"	C193,194			
	FA 15 32 20	"	"	C164			
	FA 15 33 90	"	"	C165			
	FA 15 36 80	"	"	C127			
	FA 15 41 00	"	"	C104,106,149,168,200			
	FA 15 41 80	"	"	C167,192,195			
	FA 15 42 20	"	"	C153			
	FA 15 43 30	"	"	C136			
	FA 15 44 70	"	"	C161,163			
	FA 15 46 80	"	"	C158			
	FA 15 47 50	"	"	C183,185			
	FA 15 51 00	"	"	C101,105,114,115,123,131			
	FA 15 51 20	"	"	C129,138			
	FA 15 52 20	"	"	C133			
	FA 15 52 40	"	"	C166			
	FA 15 53 90	"	"	C139,140			
	UJ 11 84 70	Electrolytic Cap.	ケ ミ コ ン	C144,156			
	UJ 42 73 30	"	"	C180			
	UJ 12 81 00	"	"	C113,122,137,148			
	UJ 42 83 30	"	"	C201			
	UJ 13 71 00	"	"	C178,187,189,206,209,218,219			
	UJ 13 72 20	"	"	C107~112,119,120,126,142,151,222			
	UJ 13 73 30	"	"	C210			
	UJ 13 74 70	"	"	C132,202,203			
	UJ 13 81 00	"	"	C154,162,176,184,188,216,217			
	UJ 14 82 20	"	"	C177,190			
	UJ 13 82 20	"	"	C197,198			
	UJ 14 64 70	"	"	C147			
	UJ 14 71 00	"	"	C130			
	UJ 14 72 20	"	"	C191			
	UJ 15 73 30	"	"	C215			
	UJ 14 74 70	"	"	C179			
	UW 56 56 80	"	"	C118			
	UJ 16 61 00	"	"	C141,145,205			
	UH 16 54 70	"	"	C157,159			
	UH 16 62 20	"	"	C225			
	UJ 11 91 00	"	"	C134,171			

※New Parts (新規部品) NR

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
	UJ 24 93 30	Electrolytic Cap.	3300 μ F 25V	ケ ミ コ ン	C196, 199		
	UJ 15 84 70	//	470 μ F 35V	//	C204		
	UT 45 26 80	Polypropylene Film Cap.	680pF 100V	ポ リ プ ロ コ ン	C182, 186		
	VD 47 37 00	Coil	60 μ H	コ イ ル	L101, 102, 104~106		
	GE 90 20 00	OSC Coil	3.3 μ H	発 振 コ イ ル	L103		
	HV 45 34 70	Flame Proof Carbon Resistor	4.7 Ω 1/4W	不 燃 化 カ ー ボ ン 抵 抗	R310, 336		△
	HV 45 36 80	//	6.8 Ω 1/4W	//	R112, 114		
	HV 45 41 00	//	10 Ω 1/4W	//	R160		
	VF 45 91 00	Metal Film Resistor	2.2k Ω 1/4W	金 属 皮 膜 抵 抗	R298, 300		
	VF 45 92 00	//	22k Ω	//	R288, 291		
※	VC 02 81 00	Resistor Array	10k Ω × 8	抵 抗 ア レ イ	R239		
	VE 47 84 00	//	47k Ω × 6	//	R218		
	VF 06 66 00	//	47k Ω × 8	//	R212, 357		
	VB 86 14 00	Pre-Set Potentiometer	B4.7k Ω	半 固 定 抵 抗	VR103		
	VB 86 15 00	//	B10k Ω	//	VR105, 108		
	VB 86 18 00	//	B47k Ω	//	VR104		
	VB 86 19 00	//	B100k Ω	//	VR101, 106		
※	VC 61 27 00	//	B680k Ω	//	VR107		
	VC 61 26 00	//	B150k Ω	//	VR102		
※	VF 34 75 00	Potentiometer	50kA	ロータリーボリューム	VR109		
	iA 09 33 70	Transistor	2SA933S(Q,R)	ト ラ ン ジ ス タ	Q102, 120, 134, 158	Inter-changeable	
	iA 11 15 10	//	2SA1115(E,F)	//	//		
	iX 60 31 70	//	2SA1310(R,S,T)	//	//		
	iA 09 34 00	//	2SA934	//	Q104, 118, 123, 127, 129, 132	Inter-changeable	△
	iB 05 44 10	//	2SB544	//	//		△
	VC 46 67 00	//	2SA1534A(R,S)	//	//		△
	VC 46 67 00	//	2SA1534A(R,S)	//	Q142, 144		
	iC 05 35 40	//	2SC535(A,B,C)	//	Q105, 107	Inter-changeable	
	VB 17 04 00	//	2SC1923(R,O,Y)	//	//		
	VC 50 21 00	//	2SD1915	//	Q133		
	iC 17 40 70	//	2SC1740S(S,R)	//	Q101, 106, 108~113, 119, 121, 124, 125, 136, 136, 141, 143, 145~157	Inter-changeable	
	iC 26 03 10	//	2SC2603(E,F)	//	//		
	iX 60 31 80	//	2SC3312(R,S,T)	//	//		
	iA 10 15 21	//	2SA1015(Y)	//	Q131		
	iC 20 60 00	//	2SC2060	//	Q103, 117, 122, 128	Inter-changeable	△
	iD 04 00 00	//	2SD400	//	//		△
	VC 40 79 00	//	2SD1913(R,S)	//	Q126		
	iX 60 42 00	//	2SC2878(A,B)	//	Q114~116, 137~140	Inter-changeable	
	VC 50 21 00	//	2SD1915	//	//		
	iD 08 80 00	//	2SD880(O,Y)	//	Q130		△
	iD 15 05 00	//	2SD1505	//	//	Inter-changeable	△
	iF 00 34 50	Diode	ISS133	ダ イ オ ー ド	D112~115, 120, 134		△
	iH 00 14 30	//	ISR35-100A	//	D101~104, 109, 110, 131, 132		△
	iF 00 49 10	FM Varactor Diode	ISV55	F M バ ラ ク タ ダイ オ ー ド	D117	Inter-changeable	
	iF 00 49 20	//	SVC211	//	//		
	iF 00 62 90	Zener Diode	MTZ5.6B	ツ ェ ナ ー ダイ オ ー ド	D107		
	iF 00 88 00	//	MTZ3.6A	//	D111		
	iF 01 09 00	//	MTZ10C	//	D105, 106, 133		

※New Parts (新規部品) NR

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
※	NA 09 91 90	Operation Circuit Board	オペレーションシート				
	KA 90 63 80	Switch	ライトタッチスイッチ	SW401~436			
	iF 00 34 50	Diode	ダイオード	D402~408			
※	VF 92 65 00	Receiver Unit	受光ユニット	D401			
※	VF 34 76 00	Display Unit	蛍光表示管	V401			
※	VE 82 88 00	Sheet	シートダブルフェース				
※	NA 09 93 50	Power Supply Unit	電源ユニット			U,C	
※	NA 09 93 60	"	"			R	
※	NA 09 93 70	"	"			A,B,G	
	VC 40 97 00	Power Switch	電源スイッチ	SW1			△
	LA 00 58 10	Voltage Selector	電圧切換器	SW2		R	△
	Fi 50 41 00	Ceramic Cap.	セラコン	C3		U,C,R	△
※	VG 77 05 00	"	"	"		A,B,G	△
※	NX 60 27 10	Pitch Relay P.C. Board Ass'y	ピッチリレーシート Ass'y	I41-4-290T-49401			
※	LX 60 13 50	Socket	ソケット	4-267T-56178			
※	LX 60 13 60	"	"	4-267T-59100			
※	LX 60 13 70	"	"	4-267T-59200			
※	NX 60 27 30	Sensor P.C. Board Ass'y	センサーシート Ass'y	I41-4-290T-49500			
※	iX 61 23 90	Photo Interrupter	フォトインタラプター	4-202T-52400			
※	NX 60 27 40	Front Relay P.C. Board Ass'y	フロントリレーシート Ass'y	I41-4-290T-49600			
※	LX 60 13 80	Plug	プラグ	4-236T-27378			
※	NX 60 27 50	Rear Relay P.C. Board Ass'y	リアリレーシート Ass'y	I41-4-290T-49700			
※	LX 60 13 90	Plug	プラグ	4-236T-29381			

※New Parts (新規部品) NR

CDC-610/U/CDC-35

EXPLODED VIEW

1

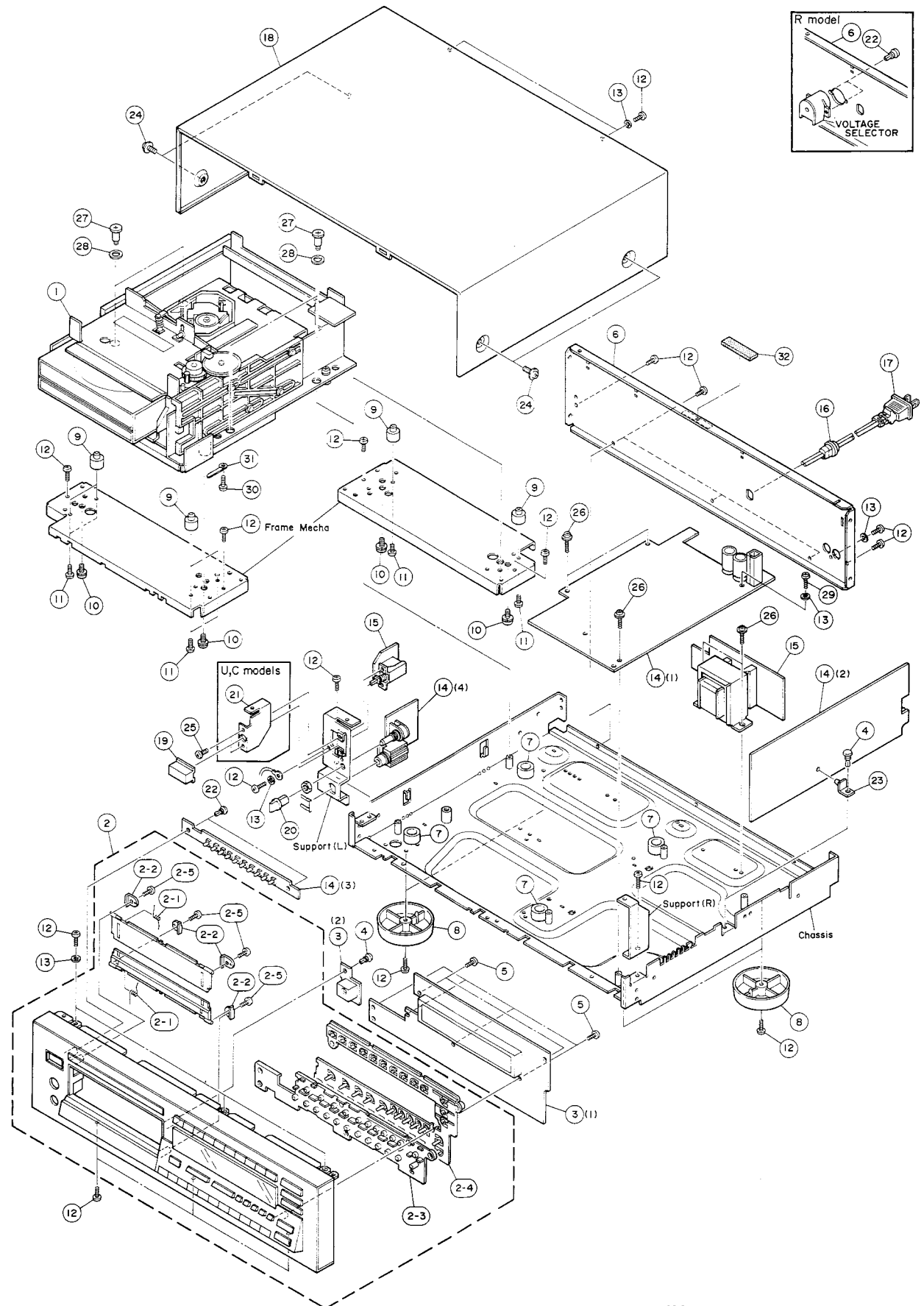
2

3

4

5

6



MECHANISM PARTS

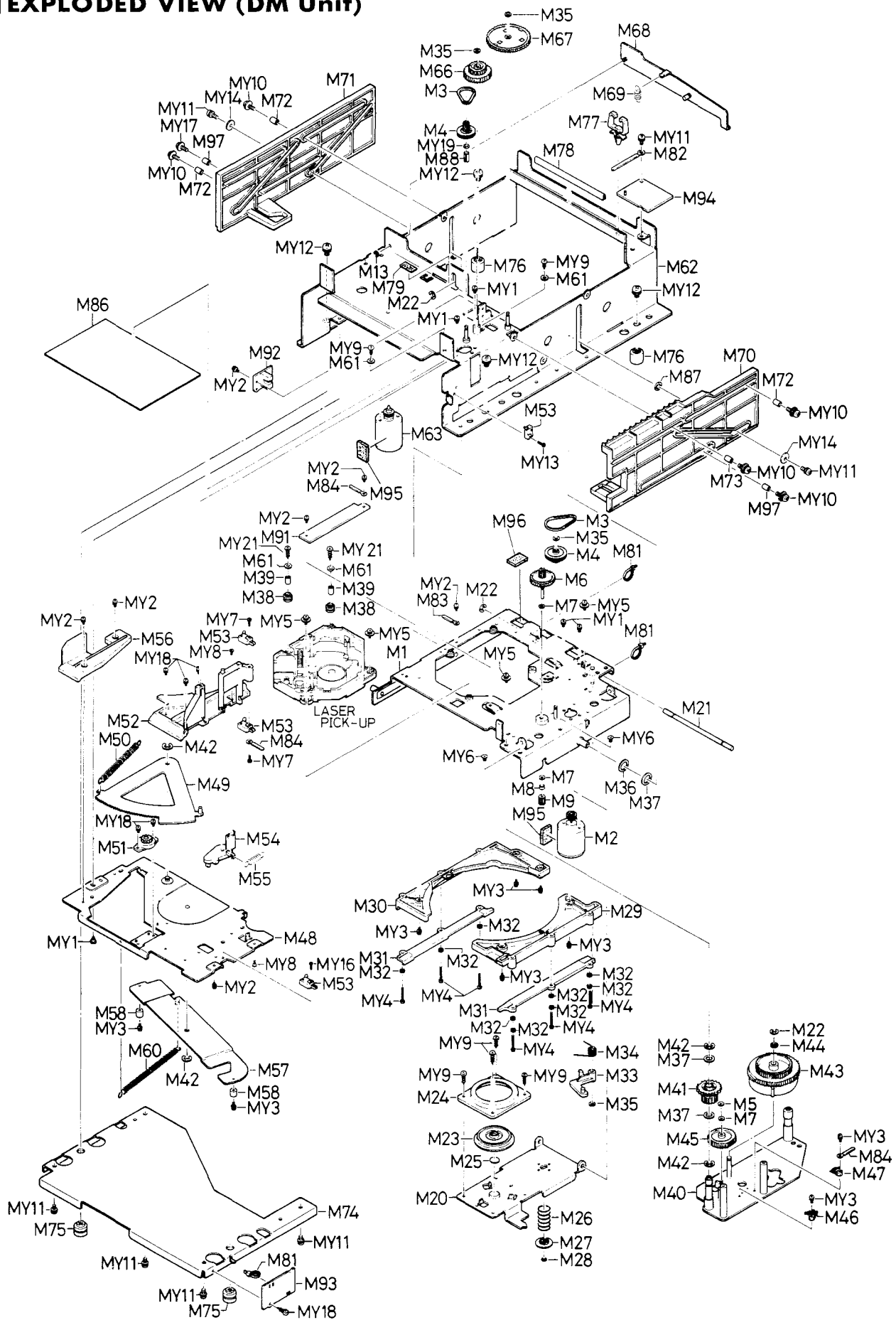
Note) φ : Diameter

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
※ 1	VF 18 53 00	Disc Mechanism Unit	ディスクメカユニット				
※ 2	VF 48 89 00	Front Panel Ass'y	フロントパネル Ass'y	CDC-610			
※ //	VF 48 90 00	//	//	CDC-610U			
※ //	VF 49 26 00	//	//	CDC-35			
※ 2-1	VE 96 95 00	Spring, Lid	スプリングリッド				
※ 2-2	VE 97 00 00	Support, Lid	サポートリッド				
※ 2-3	VE 97 45 00	Sub Chassis	サブシャーシ				
※ 2-4	VE 97 41 00	Actuator	アクチュエータ				
2-5	Ei 03 00 66	Binding Head Tapping Screw	3×6 ZMC2-Y バインドタッピングネジ	PACK			
※ 3	NA 09 91 90	Operation Circuit Board	オペレーションシート				
4	CB 60 56 20	Prastic Rivet	プラスチックリベット				
5	Ei 03 00 66	Binding Head Tapping Screw	3×6 ZMC2-Y バインドタッピングネジ	PACK			
※ 6	VE 97 05 00	Rear Panel	リアパネル	CDC-610		R	
※ //	VE 97 06 00	//	//	CDC-610U		U	
※ //	VF 00 56 00	//	//	CDC-610U		C	
※ //	VE 97 07 00	//	//	CDC-610		G	
※ //	VE 97 08 00	//	//	CDC-610		A,B	
※ //	VF 47 77 00	//	//	CDC-35		R	
※ //	VF 47 78 00	//	//	//		U	
※ //	VF 47 79 00	//	//	//		C	
※ //	VF 47 80 00	//	//	//		G	
※ //	VF 47 81 00	//	//	//		A,B	
※ 7	VE 97 40 00	Ring Rubber	リングラバー				
8	VE 55 69 00	Leg	脚		CD-M555		
※ 9	VF 18 57 00	Isolatter	アイソレータ				
※ 10	EL 00 02 90	Pan Head Sems Screw	5×8 ZMC2-Y セムスナベ小ネジ				
11	ED 03 00 86	Binding Head Screw	3×8 ZMC2-Y バインド小ネジ	PACK			
12	Ei 33 00 86	Binding Head Tapping Screw	3×8 FCRM3-BI バインドタッピングネジ	PACK			
13	EV 41 30 36	Toothed Lock Washer	φ3 FCRM3-BI 歯付座金	PACK			
※ 14	NA 09 92 10	Main Circuit Board	メインシート			U,C,R,A,B	
※ //	NA 09 92 20	//	//			G	
※ 15	NA 09 93 50	Power Supply Unit	電源ユニット			U,C	
※ //	NA 09 93 60	//	//			R	
※ //	NA 09 93 70	//	//			A,B,G	
16	CB 62 01 90	Cord Stopper	CM-22B コードストッパー			R,A,B,G	
//	CB 62 02 00	//	CM-22C //			U,C	
17	MG 00 22 20	Power Cord	10A 250V 1.98m 電源コード			U,C	
//	VE 22 29 00	//	//			R	
//	VE 04 29 00	//	//			A	
//	VE 04 31 00	//	//			B	
//	VE 04 34 00	//	//			G	
※ 18	VF 73 32 00	Top Cover	トップカバー				
19	CB 66 08 10	Button, Power	ボタン	CDC-610/U			
//	VE 46 81 00	//	//	CDC-35			
20	CB 61 37 20	Knob	ツマミ	PHONSE LEVEL			
※ 21	VF 88 38 00	Shield Plate	シールドプレート			U,C	
22	CB 60 92 60	Plastic Rivet	プラスチックリベット				
23	CB 09 12 90	Holder, PCB	基板ホルダー				
24	EK 36 50 40	BW Head Screw	4×8 FCM3-BI B W ヘッド小ネジ				
25	ED 33 00 66	Binding Head Screw	3×6 FCRM3-BI バインド小ネジ	PACK			
26	EK 33 60 20	BW Head Tapping Screw	3×6 FCM3-BI B W ヘッドタッピングネジ				
※ 27	VF 18 54 00	Special Screw	段付ネジ				
※ 28	VF 18 59 00	Washer	ワッシャー				

※New Parts (新規部品) NR

※New Parts (新規部品) NR

■ EXPLODED VIEW (DM Unit)



MECHANISM PARTS (DM Unit)

Note) φ : Diameter

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
※	VF 18 53 00	Disc Mechanism Unit	デ ィ ス ク メ カ				
※	M1 NX 60 26 60	Chassis Ass'y	シ ャ ー シ Ass'y	141-0-311T-56501			
※	M2 JX 60 02 30	Commutate Motor Ass'y	コ ミ ュ テ ー ト モ ー タ Ass'y	4-527T-34102			
※	M3 CX 60 46 50	Square Belt	ス ケ ア ベ ル ト	141-2-564T-45001			
※	M4 CX 60 46 60	Pulley	ブ ー リ	141-2-661T-52500			
※	M5 AX 60 35 10	Special Washer 1.7×4.5×0.15T	特 殊 ワ ッ シ ャ	412-014-3005			
※	M6 NX 60 26 70	Gear Ass'y, Metal	ギ ャ Ass'y	141-0-581T-54200			
※	M7 AX 60 35 20	Special Washer 2.1×4.5×0.25T	特 殊 ワ ッ シ ャ	412-012-7005			
※	M8 BX 60 10 40	Pipe, Pinion Spacer 3×4×3.5	パ イ プ	141-2-461T-45203			
※	M9 CX 60 46 70	Gear, Pinion	ギ ャ	141-2-581T-38602A			
※	M13 AX 60 38 60	Special Washer, E Ring 2mm	特殊ワッシャ (Eリング)	412-014-6402			
※	M20 CX 60 46 80	Lever, Chuck	レ バ ー	141-2-740T-62901			
※	M21 AX 60 35 30	Shaft, Lever	シ ャ フ ト	141-2-755T-03300			
※	M22 AX 60 38 70	Special Washer, E Ring 3mm	特殊ワッシャ (Eリング)	412-014-6501			
※	M23 CX 60 46 90	Pulley, Chuck	ブ ー リ	141-2-661T-53800			
※	M24 AX 60 35 40	Bracket, Pulley	ブ ラ ケ ッ ト	141-2-210T-85900			
※	M25 CX 60 47 00	Sheet, Pulley	シ ー ト	141-2-247T-86000			
※	M26 AX 60 36 10	Spring Coil, Lever	ス プ リ ン グ コ イ ル	141-2-856T-79400			
※	M27 CX 60 47 10	Pulley, Spring Coil	ブ ー リ	141-2-661T-36750E			
※	M28 AX 60 35 50	Special Washer, E Ring 1.2mm	スペシャルワッシャ	141-2-457T-23700			
※	M29 AX 60 35 60	Bracket, Tray Guide(R)	ブ ラ ケ ッ ト	141-2-210T-86100B			
※	M30 AX 60 35 70	// (L)	//	141-2-210T-86000C			
※	M31 AX 60 35 80	Bracket, Tray Guide	//	141-2-210T-86200D			
※	M32 CX 60 52 10	Washer SPR 2×4×6	ス プ リ ン グ ワ ッ シ ャ	411-086-1803			
※	M33 CX 60 47 20	Lever, Tray Lock	レ バ ー	141-2-740T-63000			
※	M34 AX 60 35 90	Spring Wire, Lever	ス プ リ ン グ ワ ッ シ ャ	141-2-860T-21400			
※	M35 CX 60 50 90	Washer 2.6×6×0.5T	特 殊 ワ ッ シ ャ	412-022-6500			
※	M36 CX 60 51 00	// 7.2×11×0.25T	//	141-2-453T-30900			
※	M37 CX 60 51 10	Special Washer	//	412-012-9009			
※	M38 CX 60 47 30	Rubber Cushion, Pick-Up	ラ バ ー ク ッ シ ョ ン	141-2-445T-34100			
※	M39 AX 60 38 80	Pipe 2.65×3.65×4.5	パ イ プ	141-2-461T-42801			
※	M40 AX 60 36 00	Sub Chassis Ass'y	サ ブ シ ャ ー シ Ass'y	141-0-312T-20001			
※	M41 CX 60 47 40	Gear, Tray Drawer	ギ ャ	141-2-581T-53600B			
※	M42 AX 60 38 90	Special Washer, E Ring 4mm	スペシャルワッシャ	141-2-457T-23200			
※	M43 CX 60 47 50	Gear, Cam	ギ ャ	141-2-581T-53700D			
※	M44 CX 60 51 20	Special Washer 4×8×0.25T	特 殊 ワ ッ シ ャ	412-012-9900			
※	M45 CX 60 47 60	Gear, Relay	ギ ャ	141-2-581T-54300A			
※	M46 KX 60 13 10	Switch, Tray Receive	ス イ ッ チ	4-248T-36300			
※	M47 KX 60 13 20	Switch, Chucking	//	4-248T-38000			
※	M48 AX 60 37 00	Sub Chassis Ass'y	サ ブ シ ャ ー シ Ass'y	141-0-312T-19900			
※	M49 AX 60 36 20	Lever Ass'y	レ バ ー Ass'y	141-0-740T-62700			
※	M50 AX 60 36 80	Spring Coil, Lever	ス プ リ ン グ コ イ ル	141-2-856T-79600A			
※	M51 CX 60 47 70	Gear, Dumper	ギ ャ	141-2-581T-47500			
※	M52 AX 60 36 90	Bracket	ブ ラ ケ ッ ト	141-2-210T-86400E			
※	M53 KX 60 13 30	Switch	ス イ ッ チ	4-238T-72100			
※	M54 AX 60 36 30	Lever, Cartridge Lock	レ バ ー	141-2-740T-63100C			
※	M55 AX 60 36 40	Spring Coil, Lock Lever	ス プ リ ン グ コ イ ル	141-2-856T-79500A			
※	M56 AX 60 36 50	Bracket	ブ ラ ケ ッ ト	141-2-210T-86300B			
※	M57 AX 60 36 60	Lever, Sub Chassis	レ バ ー	141-2-740T-63200A			
※	M58 BX 60 10 50	Shaft, Lever Operation	シ ャ フ ト	141-2-755T-03900			
※	M60 AX 60 36 70	Spring Coil, Lever	ス プ リ ン グ コ イ ル	141-2-856T-82900			
※	M61 CX 60 51 30	Washer V 2×6×0.4	ワ ッ シ ャ (V)	411-087-4704			
※	M62 NX 60 26 80	Chassis Ass'y, Main	シ ャ ー シ Ass'y	141-0-311T-56400			

※New Parts (新規部品) NR

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	リンク
※	M63	JX 60 02 40	Commutate Motor Ass'y	コミュテートモータ Ass'y	4-527T-34101		
※	M66	CX 60 47 80	Gear	ギ ヤ	141-2-581T-54400		
※	M67	CX 60 47 90	Gear, Slide Drive	//	141-2-581T-54500A		
※	M68	NX 60 26 90	Lever Ass'y	レ バ ー Ass'y	141-0-740T-62800		
※	M69	AX 60 37 10	Spring Coil	スプリングコイル	141-2-856T-79300		
※	M70	CX 60 48 00	Slide, Loading Drive(R)	ス ラ イ ド	141-2-732T-53800B		
※	M71	CX 60 48 10	// (L)	//	141-2-732T-53700A		
※	M72	BX 60 10 60	Boss, Guide	ボ ス	141-2-462T-93300A		
※	M73	BX 60 10 70	//	//	141-2-462T-93301B		
※	M74	AX 60 37 20	Bracket	ブ ラ ケ ッ ト	141-2-290T-30101A		
※	M75	AX 60 37 30	Shaft, For Shipping	シ ャ フ ト	141-2-755T-04701B		
※	M76	AX 60 37 40	//	//	141-2-755T-03201A		
※	M77	CX 60 48 20	Fixer, Lead Retainer	フ ィ ク サ ー	141-2-464T-24000		
※	M78	CX 60 48 30	Cushion 15×85mm	ク ッ シ ョ ン	141-2-447T-12701		
※	M79	CX 60 48 40	Sheet	シ ー ト	141-2-247T-82600		
※	M81	CX 60 48 50	Fixer, Lead Retainer	フ ィ ク サ ー	141-2-464T-40200		
※	M82	CX 60 48 60	Lug, Lead Retainer	ラ グ	141-2-472T-12600		
※	M83	CX 60 48 70	//	//	141-2-472T-01001		
※	M84	CX 60 48 80	//	//	141-2-472T-02201		
※	M86	CX 60 48 90	Sheet 120×75mm	シ ー ト	141-2-247T-88900		
※	M87	CX 60 51 40	Special Washer 7.2×11×0.13	特 殊 ワ ッ シ ャ	412-012-9306		
※	M88	BX 60 10 80	Pipe 3×4×2.5	パ イ プ	141-2-461T-25707		
※	M91	NX 60 27 10	Pitch Relay P.C. Board Ass'y	ピッチリレーシート Ass'y	141-4-290T-49401		
※	M92	NX 60 27 30	Sensor P.C. Board Ass'y	センサーシート Ass'y	141-4-290T-49500		
※	M93	NX 60 27 40	Front Relay P.C. Board Ass'y	フロントリレーシート Ass'y	141-4-290T-49600		
※	M94	NX 60 27 50	Rear Relay P.C. Board Ass'y	リアリレーシート Ass'y	141-4-290T-49700		
※	M95	CX 60 52 80	Cushion 10×15	ク ッ シ ョ ン	141-2-447T-03400		
※	M96	CX 60 52 90	// 15×25×3T	//	141-2-447T-46200		
※	M97	BX 60 11 10	Pipe D3×D4×6H	パ イ プ	141-2-461T-25708		
※	MY1	AX 60 39 00	SCR PAN + SW 2.6×4	バネ座付ナベ小ネジ	411-045-1004		
※	MY2	AX 60 39 10	// 2×4	//	411-044-7205		
※	MY3	AX 60 39 20	// 2×6	//	411-044-7700		
※	MY4	AX 60 39 30	SCR PAN 2×16	ナ ベ 小 ネ ジ	411-002-4703		
※	MY5	AX 60 39 40	SCR PAN + SW + W 2.6×6	バネ+平座付ナベ小ネジ	411-036-2805		
※	MY6	AX 60 39 50	SCR FLT 2.6×6	皿 小 ネ ジ	411-033-9906		
※	MY7	AX 60 39 60	SCR TPG PAN PCS 1.7×8	ナベタッピングネジ	411-030-2801		
※	MY8	AX 60 39 70	SCR FLT 2×4	皿 小 ネ ジ	411-033-2907		
※	MY9	AX 60 39 80	SCR S - TPG PAN 2×6	ナ ベ 小 ネ ジ	411-022-7807		
※	MY10	AX 60 39 90	SCR PAN + SW + W 3×10	バネ+平座付ナベ小ネジ	411-036-3208		
※	MY11	AX 60 40 00	SCR PAN + SW 3×6	バネ座付ナベ小ネジ	411-003-8908		
※	MY12	AX 60 40 10	// 5×6	//	411-046-4004		
※	MY13	AX 60 40 20	SCR PAN PCS 1.7×6	ナ ベ 小 ネ ジ	411-020-2101		
※	MY14	CX 60 51 50	Washer Z 3×10×1	ワ ッ シ ャ (Z)	411-092-2900		
※	MY16	AX 60 40 30	SCR PAN PCS 1.7×6.5	ナ ベ 小 ネ ジ	411-105-5201		
※	MY17	AX 60 40 40	SCR PAN + FLG 3×8	フレンジ付ナベ小ネジ	411-049-0003		
※	MY18	AX 60 40 50	SCR S - TPG PAN 2×4	ナ ベ 小 ネ ジ	411-022-7500		
※	MY19	CX 60 51 60	Special Washer 3.1×5.4×0.5	特 殊 ワ ッ シ ャ	412-012-7708		
※	MY21	AX 60 40 70	SCR PAN + SW 2×10	バネ座付ナベ小ネジ	411-044-6703		

※New Parts (新規部品) NR

CDC-610/U/CDC-35

EXPLODED VIEW (Pick up Ass'y)

1

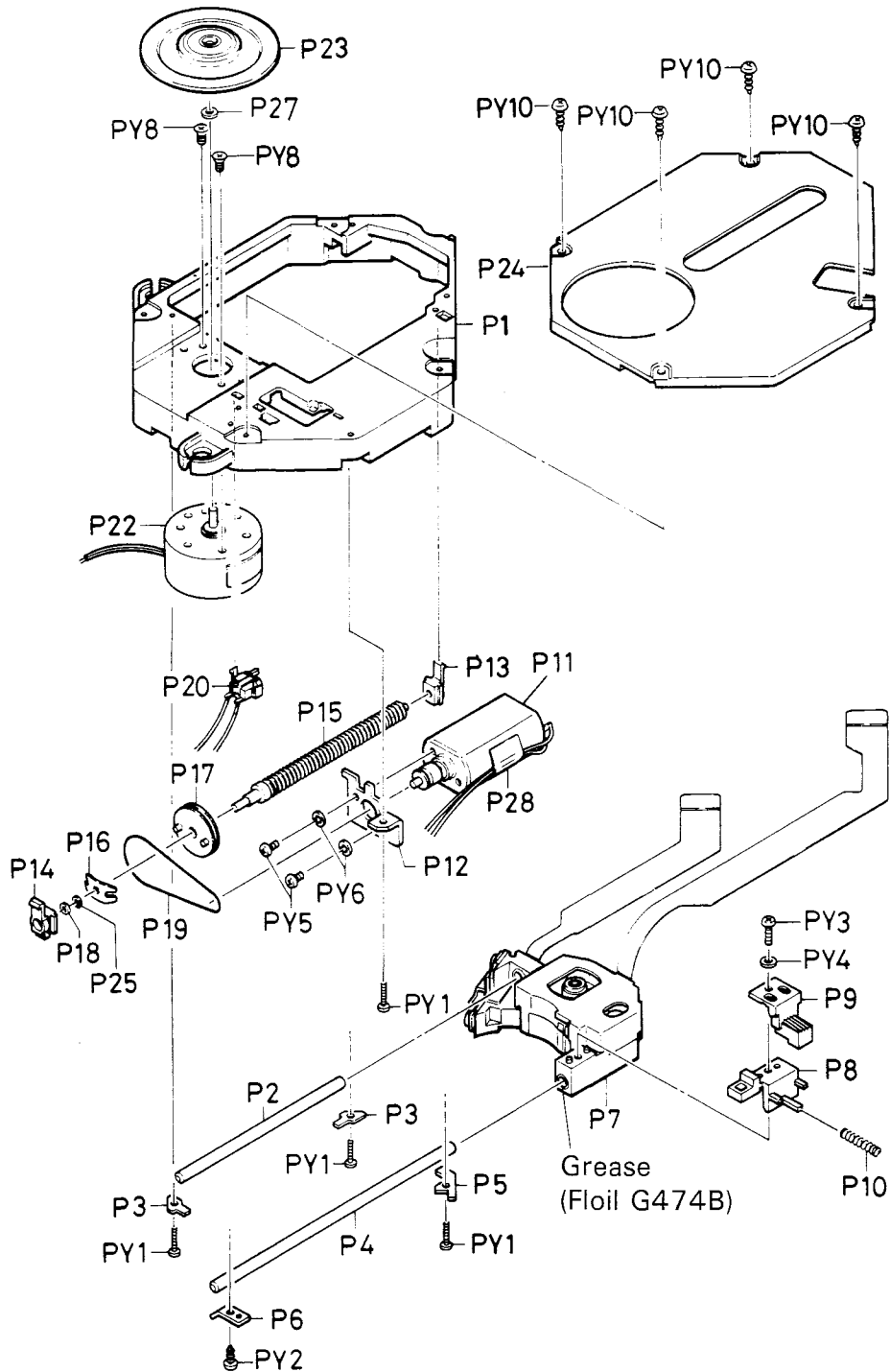
2

3

4

5

6

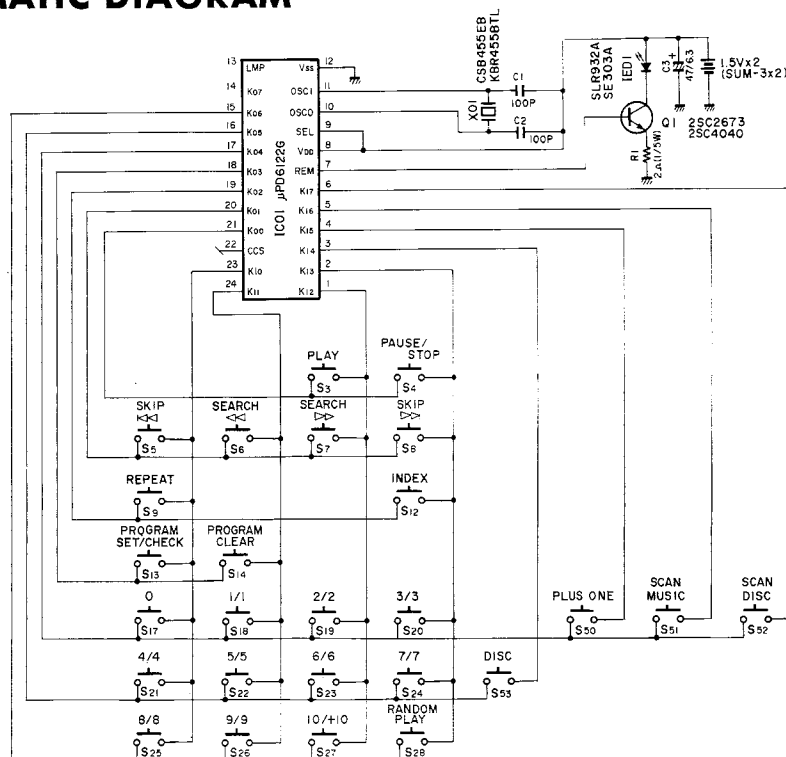


[illegible]

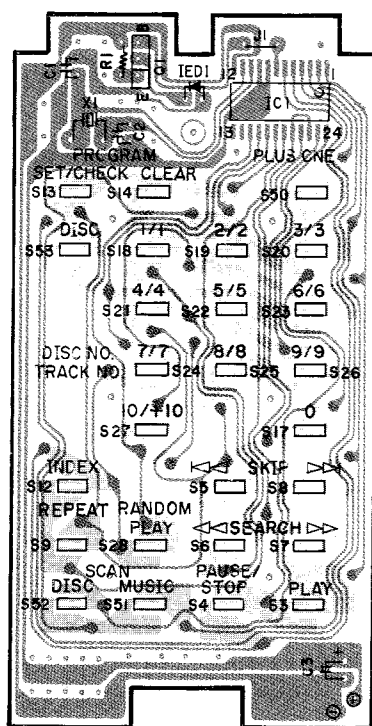
CDC-610/U/CDC-35

RS-CDC6 REMOTE CONTROL TRANSMITTER

■ SCHEMATIC DIAGRAM



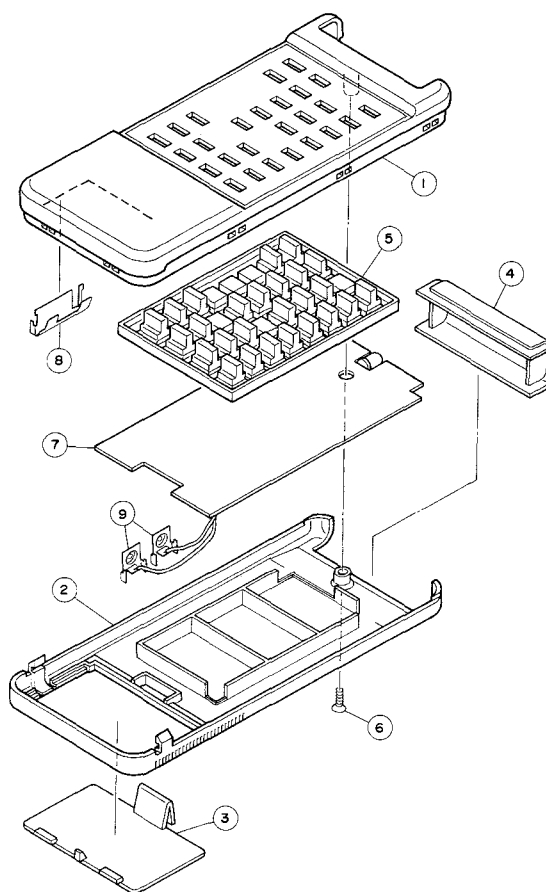
■ PRINTED CIRCUIT BOARD



● Remote Control Data

FUNCTION	CONTROL DATA								
		0	1	2	3	4	5	6	7
PLAY	02	0	1	0	0	0	0	0	0
PAUSE/STOP	03	1	1	0	0	0	0	0	0
SKIP	04	0	0	1	0	0	0	0	0
SEARCH	05	1	0	1	0	0	0	0	0
SEARCH	06	0	1	1	0	0	0	0	0
SKIP	07	1	1	1	0	0	0	0	0
REPEAT	08	0	0	0	1	0	0	0	0
INDEX	0B	1	1	0	1	0	0	0	0
SET/CHECK	0C	0	0	1	1	0	0	0	0
CLEAR	0D	1	0	1	1	0	0	0	0
0	10	0	0	0	0	1	0	0	0
1	11	1	0	0	0	1	0	0	0
2	12	0	1	0	0	1	0	0	0
3	13	1	1	0	0	1	0	0	0
4	14	0	0	1	0	1	0	0	0
5	15	1	0	1	0	1	0	0	0
6	16	0	1	1	0	1	0	0	0
7	17	1	1	1	0	1	0	0	0
8	18	0	0	0	1	1	0	0	0
9	19	1	0	0	1	1	0	0	0
10	1A	0	1	0	1	1	0	0	0
RANDOM	1B	1	1	0	1	1	0	0	0
PLUS ONE	51	1	0	0	0	1	0	1	0
MUSIC SCAN	52	0	1	0	0	1	0	1	0
DISC SCAN	53	1	1	0	0	1	0	1	0
DISC	54	0	0	1	0	1	0	1	0
CUSTOM CODE	79	1	0	0	1	1	1	1	0

EXPLODED VIEW (RS-CDC6)



CDC-610/U/CDC-35 (E)

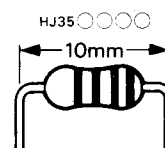
Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
※	VF 31 70 00	Remote Control Transmitter	RS-CDC6	リモートコントロールトランスミッター			
※	1 CX 60 49 80	Case (A) Ass'y		ケ ー ス (A) Ass'y			
	2 XX 67 16 20	Case (B)		ケ ー ス (B)			
	3 XX 67 16 30	// (C)		// (C)			
	4 XX 67 16 40	Filter		フ ィ ル タ ー			
※	5 CX 60 49 90	Rubber Contact		ゴ ム 接 点			
	6 XX 67 16 60	Flat Head Screw		皿 小 ネ ジ			
※	7 NX 60 27 70	P. C. Board Ass'y		プ リ ン ト 基 板 Ass'y			
	8 XX 67 16 80	Dry Cell Terminal (A)		電 池 電 極 板 (A)			
	9 XX 67 16 90	// (B)		// (B)			
※	NX 60 27 70	P. C. Board Ass'y		プ リ ン ト 基 板 Ass'y			
	iX 60 36 00	IED	SLR932A-I-A	I E D	IEDI		
	iC 26 73 00	Transistor	2SC2673	ト ラ ン ジ ス タ	Q1		
	UJ 11 74 70	Electrolytic Cap.	47 μ F 6.3V	ケ ミ コ ン	C3		
	FG 21 21 00	Ceramic Cap.	100pF 50V	セ ラ コ ン	C1,2		
	QX 60 00 40	Ceramic Resonator	KBR455BTL	セ ラ ミ ッ ク 振 動 子	X1		
	iX 61 21 10	IC	μ PD6122G-502	I C	IC1		
	HX 60 14 00	Carbon Resistor	2 Ω 1/4W	カ ー ボ ン 抵 抗	R1		

※New Parts (新規部品) NR

Parts List for Carbon Resistor

Value	1/4W Type Part No.	1/6W Type Part No.	Value	1/4W Type Part No.	1/6W Type Part No.
1.0 Ω	HJ353100	HF853100	12K Ω	HJ357120	HF857120
1.8 "	HJ353180	*	15 "	HJ357150	HF857150
2.2 "	HJ353220	HF853220	18 "	HJ357180	HF857180
3.3 "	HJ353330	HF853330	22 "	HJ357220	HF857220
4.7 "	HJ353470	HF853470	27 "	HJ357270	HF857270
5.6 "	HJ353560	HF853560	33 "	HJ357330	HF857330
10 "	HJ354100	HF854100	39 "	HJ357390	HF857390
15 "	HJ354150	HF854150	47 "	HJ357470	HF857470
22 "	HJ354220	HF854220	56 "	HJ357560	HF857560
27 "	HJ354270	HF854270	68 "	HJ357680	HF857680
33 "	HJ354330	HF854330	82 "	HJ357820	HF857820
39 "	HJ354390	HF854390	91 "	HJ357910	HF857910
47 "	HJ354470	HF854470	100 "	HJ358100	HF858100
56 "	HJ354560	HF854560	120 "	HJ358120	HF858120
68 "	HJ354680	HF854680	150 "	HJ358150	HF858150
82 "	HJ354820	HF854820	180 "	HJ358180	HF858180
100 "	HJ355100	HF855100	220 "	HJ358220	HF858220
110 "	HJ355110	HF855110	270 "	HJ358270	HF858270
120 "	HJ355120	HF855120	330 "	HJ358330	HF858330
150 "	HJ355150	HF855150	390 "	HJ358390	HF858390
160 "	HJ355160	*	470 "	HJ358470	HF858470
180 "	HJ355180	HF855180	560 "	HJ358560	HF858560
220 "	HJ355220	HF855220	680 "	HJ358680	HF858680
270 "	HJ355270	HF855270	820 "	HJ358820	HF858820
330 "	HJ355330	HF855330	1.0M Ω	HJ359100	HF859100
390 "	HJ355390	HF855390	1.2 "	HJ359120	*
470 "	HJ355470	HF855470	1.5 "	HJ359150	HF859150
510 "	*	HF855510	1.8 "	HJ359180	HF859180
560 "	HJ355560	HF855560	2.2 "	HJ359220	HF859220
680 "	HJ355680	HF855680	3.3 "	HJ359330	HF859330
820 "	HJ355820	HF855820	3.9 "	HJ359390	*
910 "	HJ355910	HF855910	4.7 "	HJ359470	HF859470
1.0K Ω	HJ356100	HF856100			
1.2 "	HJ356120	HF856120			
1.5 "	HJ356150	HF856150			
1.8 "	HJ356180	HF856180			
2.0 "	HJ356200	HF856200			
2.2 "	HJ356220	HF856220			
2.4 "	HJ356240	HF856240			
2.7 "	HJ356270	HF856270			
3.0 "	HJ356300	HF856300			
3.3 "	HJ356330	HF856330			
3.6 "	HJ356360	HF856360			
3.9 "	HJ356390	HF856390			
4.7 "	HJ356470	HF856470			
5.1 "	HJ356510	HF856510			
5.6 "	HJ356560	HF856560			
6.8 "	HJ356680	HF856680			
8.2 "	HJ356820	HF856820			
9.1 "	HJ356910	HF856910			
10 "	HJ357100	HF857100			

1/4W Type



1/6W Type

