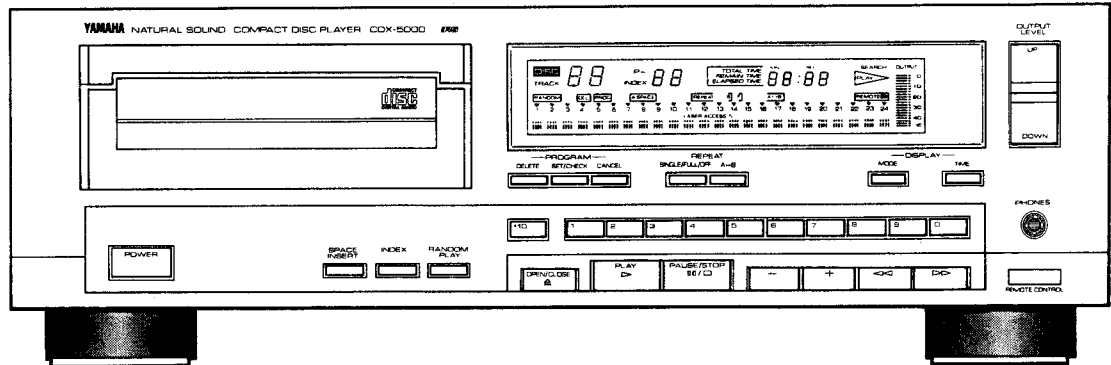
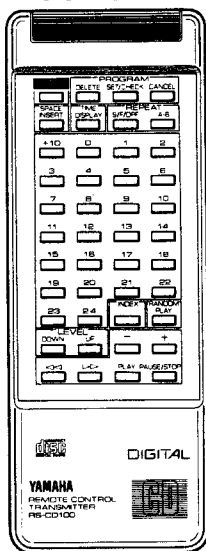


COMPACT DISC PLAYER CDX-5000

SERVICE MANUAL



• RS-CD100



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.

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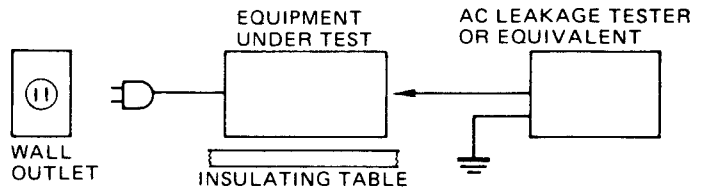
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■ TO SERVICE PERSONNEL

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.

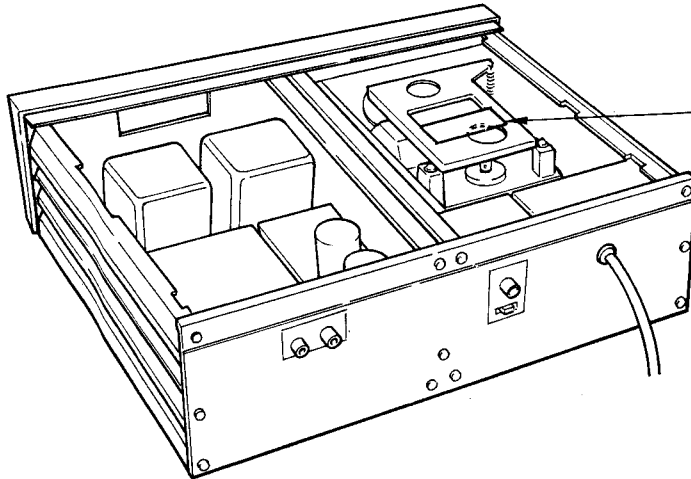


■ POLARIZATION (U, C models only)

This tuner 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.S.A. model

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

Canadian model



CAUTION—HAZARDOUS LASER AND ELECTROMAGNETIC RADIATION WHEN OPEN AND INTERLOCK DEFEATED
ATTENTION—RAYONNEMENT LASER ET ELECTROMAGNETIQUE DANGEREUX SI OUVERT AVEC L'ENCLICHEMENT DE SECURITE ANNULE (CB62478)

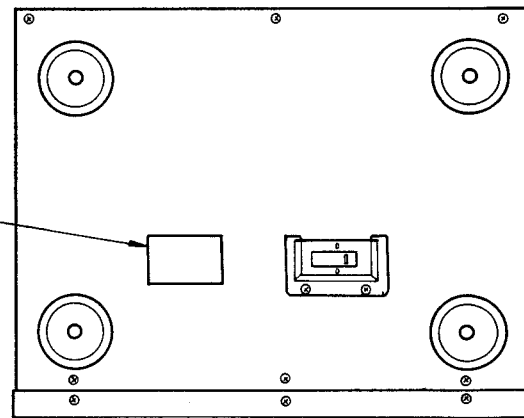
THIS PRODUCT COMPLIES WITH OHHS RULES 21 CFR SUBCHAPTER J APPLICABLE AT DATE OF MANUFACTURE.

MANUFACTURED BY
NIPPON GAKKI CO., LTD.
10-1 NAKAZAWA-CHO.
HAMAMATSU-SHI.
SHIZUOKA-KEN JAPAN

MANUFACTURED:

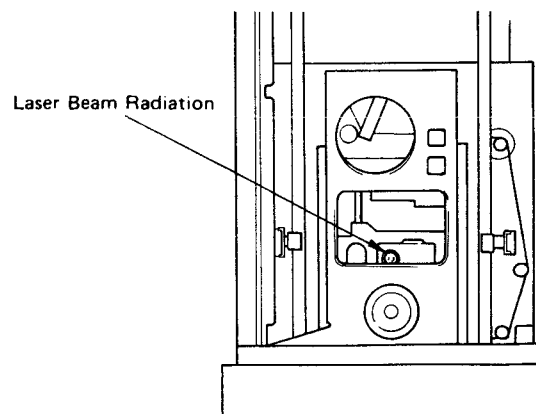


BOTTOM SIDE

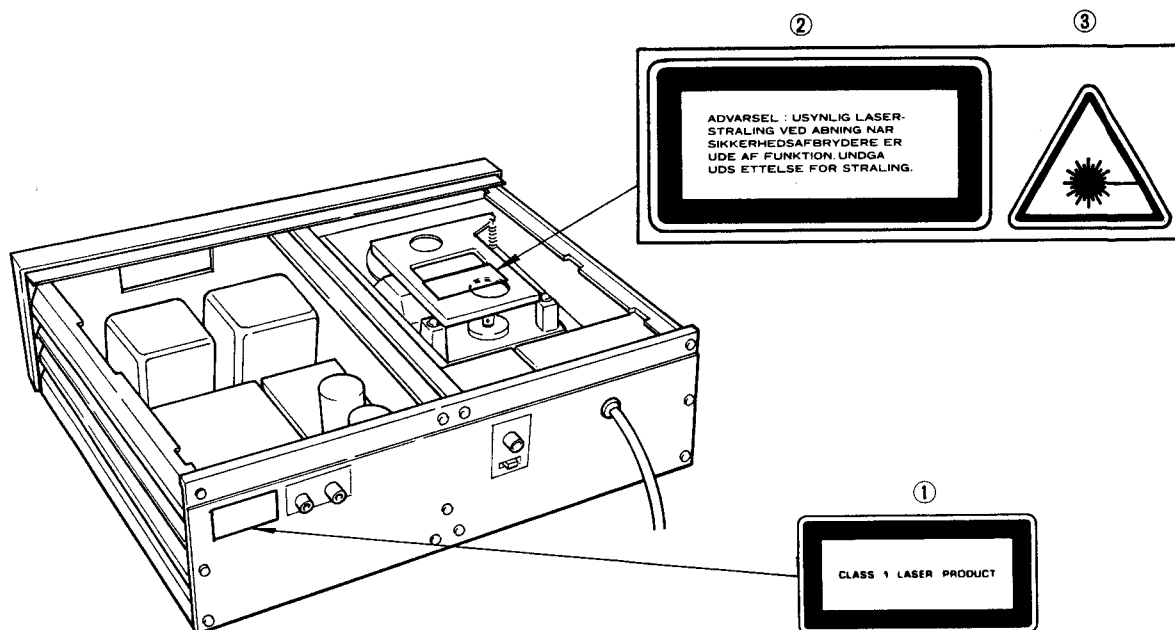


LASER BEAM RADIATION SPOT

Laser Diode Properties
Material: Ga-Al-As
Wavelength: 755 – 805 nm (25°C)
Laser Output: Continuous Wave max. 5 mW



European model

*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 AVGIFER 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 VAIRALLISTA LASERSÄTEILYÄ."

INTERLOCK OPERATION

The Digital Compact Disc Player reads the disc signals by laser beam detection. It must be avoided for the human body to be directly exposed to the laser beam. Human eyes are especially badly affected by the laser beam. This unit is therefore equipped with an interlock to prevent unnecessary laser output.

Laser output is controlled by the injection or cutoff of the constant voltage source to the laser diode at Pin 38 (LS) of IC119 (M50753), and also by Automatic Laser Power Control Circuit. When Pin 38 is in "H" (High) level, the laser emits the beam. When Pin 38 is in "L" (Low) level, the laser does not emit the beam.

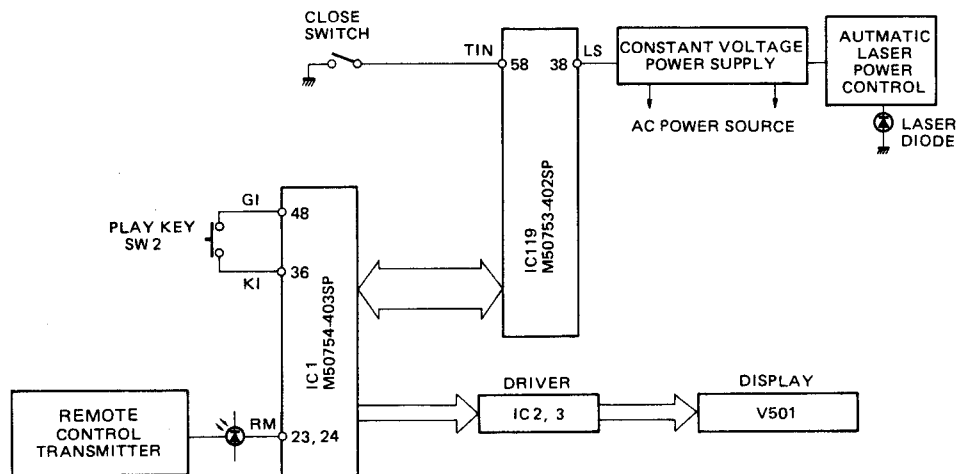
Pin 38 is set in "H" level when the unit is loaded with the disc and it reads the index signals or when the unit is set in the play mode after that. When the unit reads the index signals and the

following two conditions are met, the laser emits the beam.

- 1) When the Close Switch is ON. (The disc tray is closed.)
- 2) The pickup is located at the area of the minimum internal circumference.

After the above conditions are met and the index signals have been read, the laser emits the beam when the following two conditions are met.

- 1) when the PLAY key (SW502) or that of Remote Control Transmitter is pressed.
- 2) when the  display is ON.



SPECIFICATIONS

AUDIO SECTION

Frequency Response	DC - 20Hz $\pm$ 0.3dB
Harmonic Distortion + Noise	0.002% (1kHz)
S/N Ratio	115dB
Dynamic Range	100dB
Wow & Flutter	Unmeasurable
Output Voltage	2V $\pm$ 0.1V
Output Impedance	47 Ω
Headphone Output	3V/150 Ω

INTERNAL SYSTEMS

Optical Pick-up	3 beam laser
Error Correction System	CIRC
D/A Conversion	18 bit floating (L, R twin)
Filter	High bit digital filter and 5th order new active filter

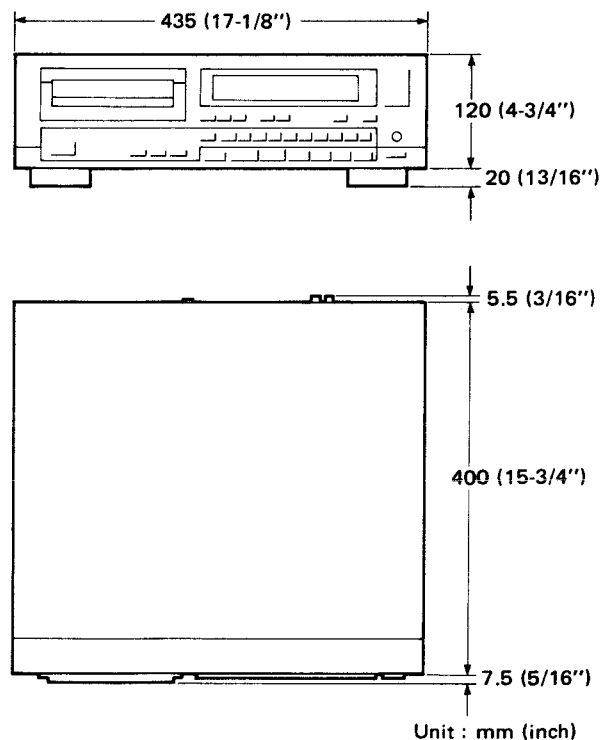
GENERAL

Power Requirements	
U.S.A. and Canadian models	120V AC, 60Hz
European model	220 - 240V AC, 50Hz
Australian and U.K. models	240V AC, 50Hz
General model	110 - 130/220 - 240V AC, 50/60Hz
Power Consumption	
30W	
Dimensions (W x H x D)	
435 x 140 x 413 mm (17-1/8" x 5-1/2" x 16-1/4")	
Weight	
21 kg (46 lbs 5 oz)	
Accessories	
Pin plug cord: X2	
Remote control transmitter (RS-CD100)	
Dry Cell: X2 (Size "AA", "R06")	

*Specification subject to change without notice.

(U) U.S.A. model (B) U.K. model
 (G) European model (A) Australian model
 (C) Canadian model (R) General model

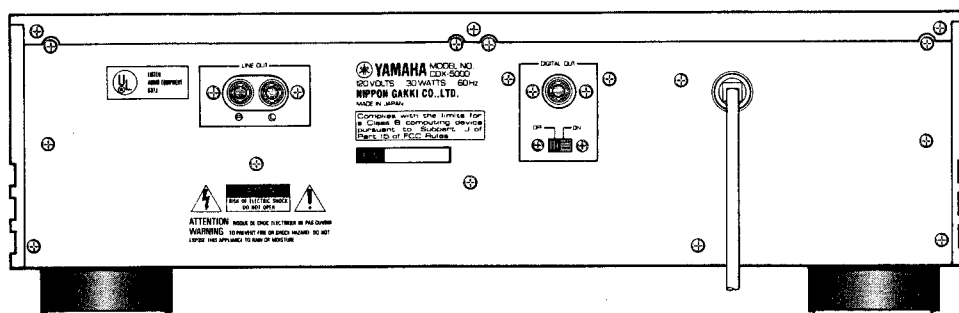
DIMENSIONS



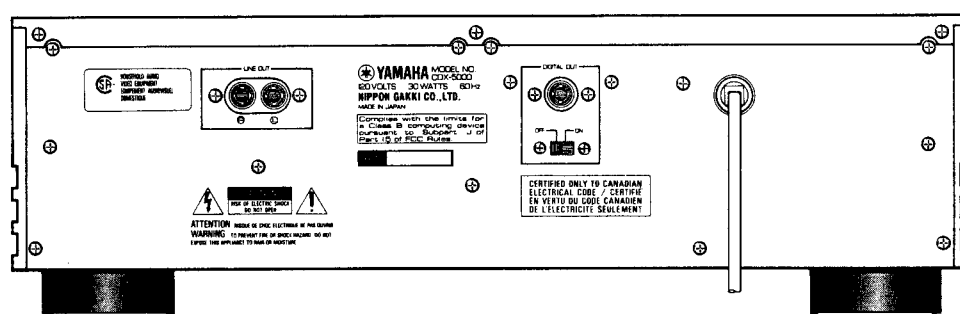
Unit : mm (inch)

REAR PANELS

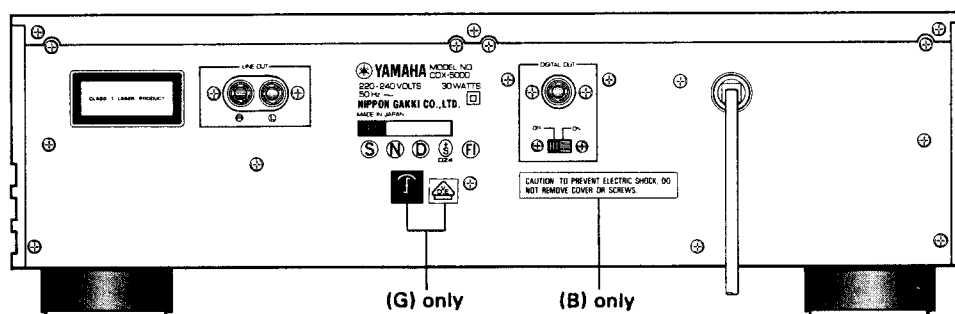
▼ U, model



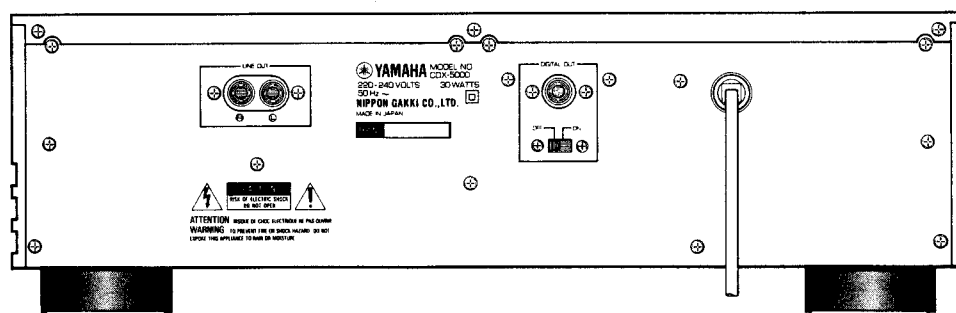
▼ C model



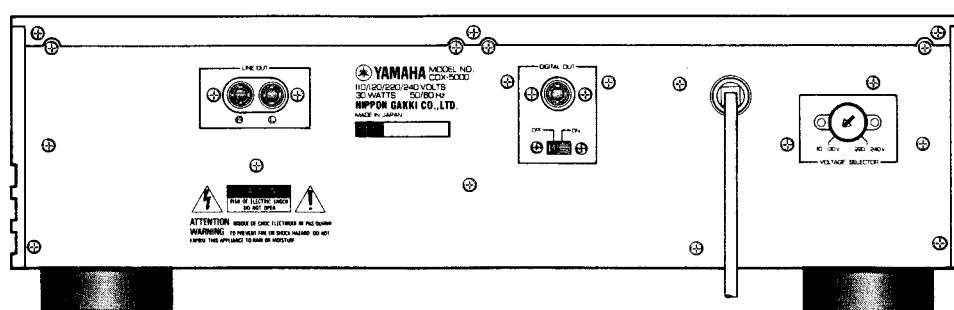
▼ G, B models

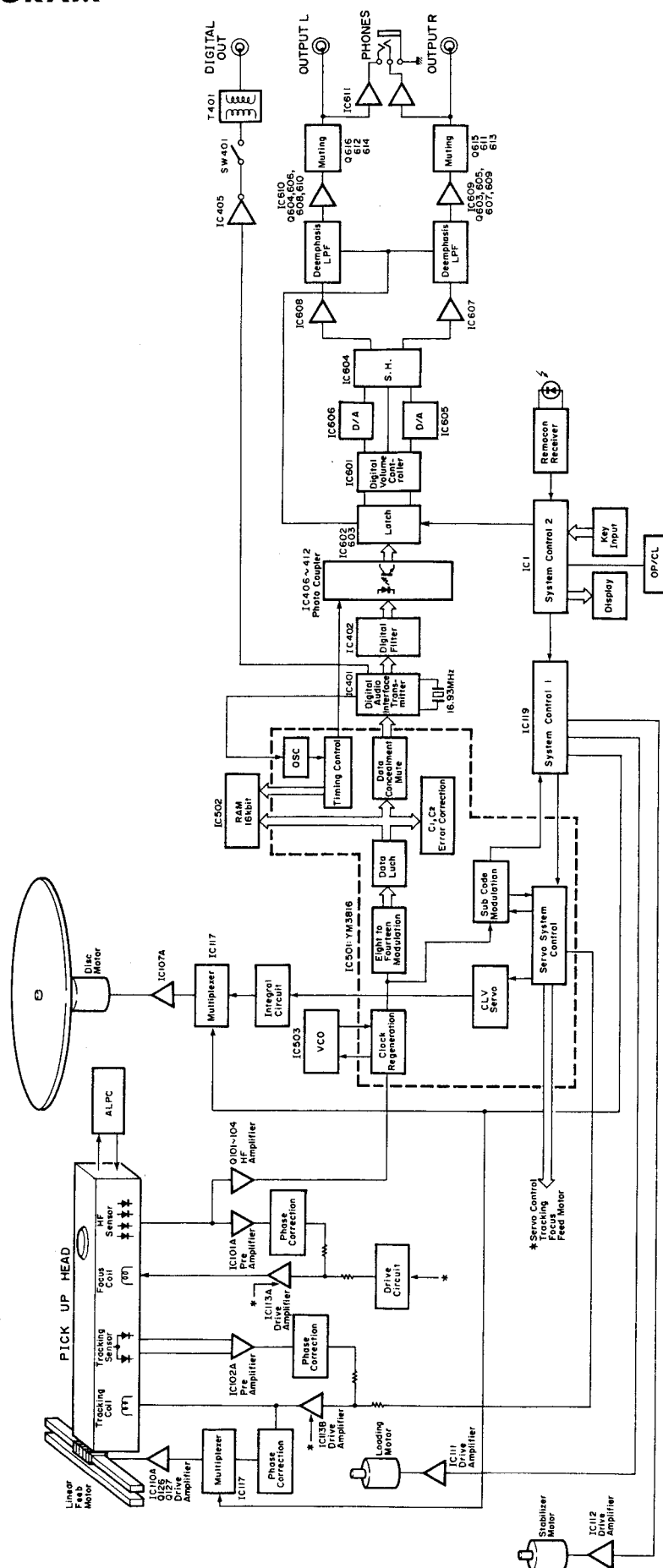


▼ A model

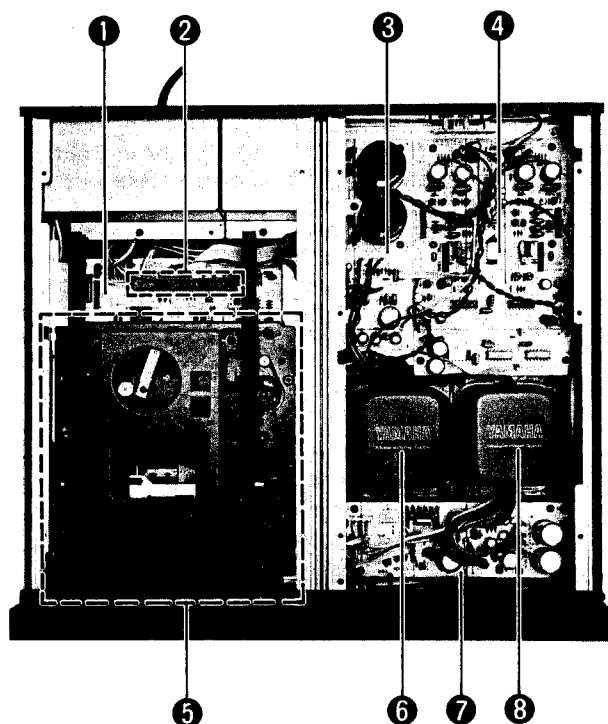


▼ R model





INTERNAL VIEW



- ① SERVO CIRCUIT BOARD
- ② SPC CIRCUIT BOARD
- ③ MAIN CIRCUIT BOARD (2)
- ④ MAIN CIRCUIT BOARD (1)
- ⑤ DISC MECHANISM UNIT (DM-1x)
- ⑥ POWER TRANSFORMER
U, C models: XC015001
R, A, G, B models: XC016001
- ⑦ DIGITAL CIRCUIT BOARD (2)
- ⑧ POWER TRANSFORMER
U, C models: XC019001
A, G, B models: XC020001
R model : XC018001

DISASSEMBLY PROCEDURES

(Remove parts in disassembly order as numbered.)

1. Removal of Top Cover Ass'y
Remove 7 screws (①) in Fig. 1, and then slide the Top Cover Ass'y to the back side.
2. Removal of Bottom Cover Ass'y
Remove 6 screws (②) in Fig. 1.

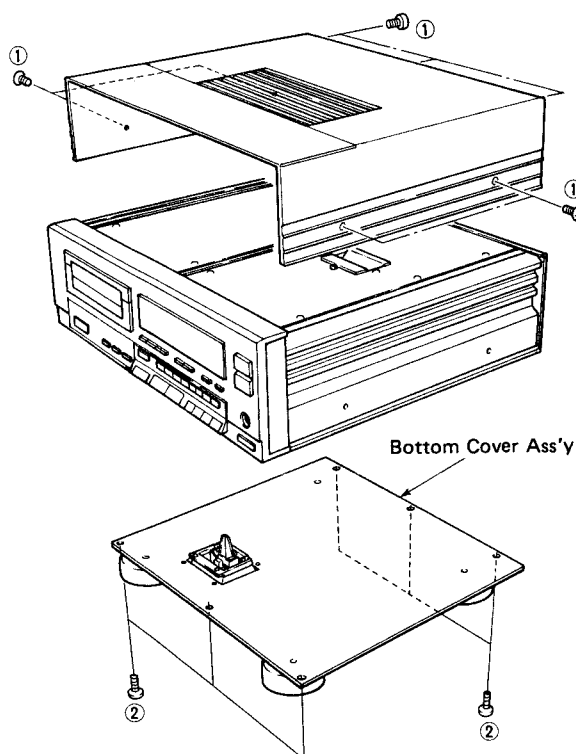


Fig. 1

3. Removal of Top Cover (L), (R) and Bottom Cover (L), (R)
 - a. Remove 6 screws (③) in Fig. 2, and then remove the Top Cover (L).
 - b. Remove 6 screws (④) in Fig. 2, and then remove the Top Cover (R).
 - c. Remove 6 screws (⑤) in Fig. 2, and then remove the Bottom Cover (L).
 - d. Remove 6 screws (⑥) in Fig. 2, and then remove the Bottom Cover (R).

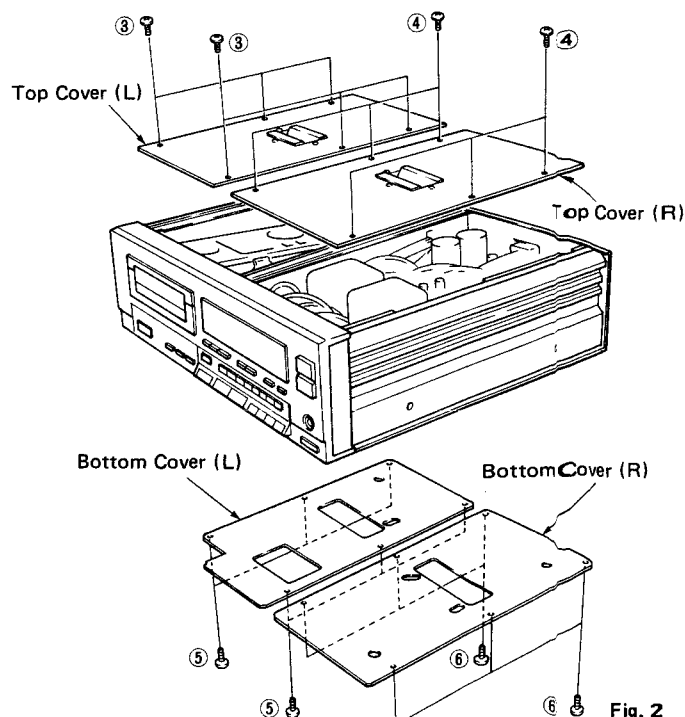


Fig. 2

4. Removal of DM-1x Unit

- Remove 3 screws (⑦) in Fig. 3, and then remove the Chield Case (P.C.B).
- Remove 3 screws (⑧) in Fig. 3, and then remove the Chield Case (I/O).
- Remove 3 connectors (#12, #13, #14) in Fig. 3.
- Remove 4 screws (⑨) in Fig. 3, and then pull out the DM-1x Unit gradually.

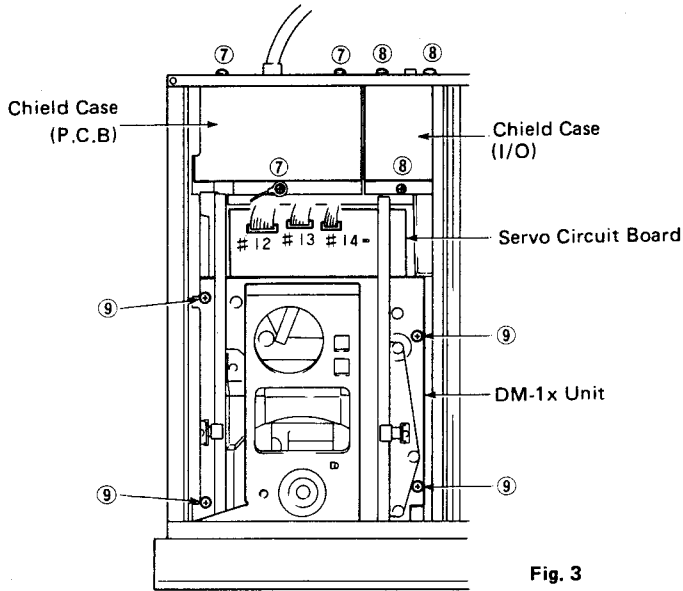
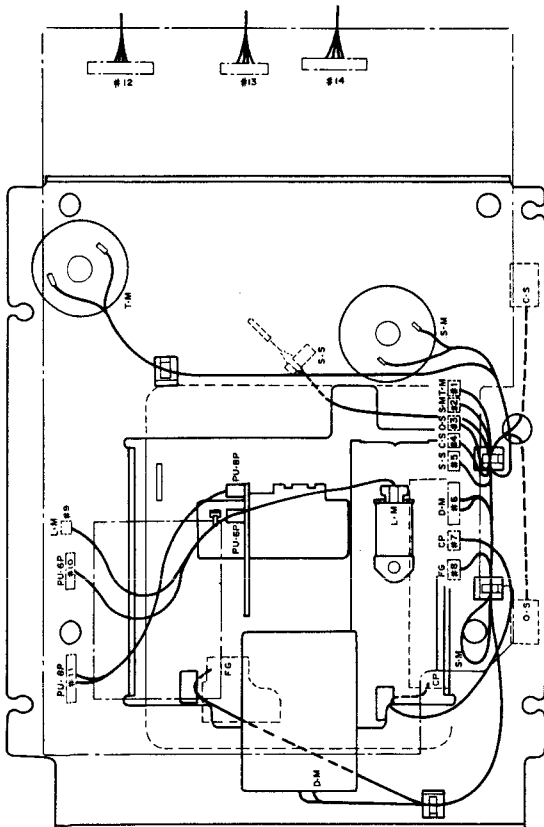


Fig. 3

● DM-1x Wire Connection



5. Removal of Tray Unit

- Rotate the Drive Gear (⑩) in Fig. 4, and the Stabilizer Ass'y is pushed up.
- Remove plastic rivet (⑪) in Fig. 4, and then remove the Stopper (SW).
- Turn the lever, SW (⑫) right in front counter-clockwise in Fig. 4, and then take out the Tray Unit.

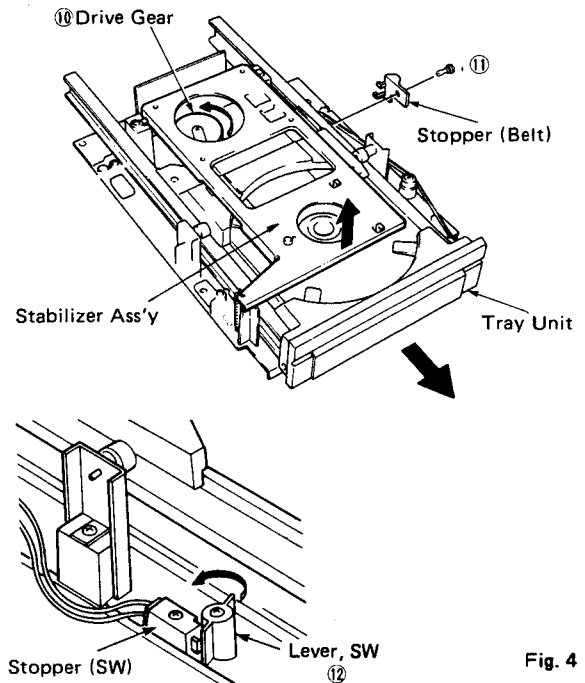
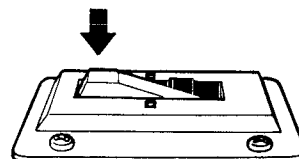


Fig. 4

■ PROTECTION KNOB FOR TRANSPORTATION

When transporting the unit, take out the disc and lock the pick-up head by pushing the knob in the arrow direction while lifting the rear panel side.

- * Unless the pick-up head has been locked in place, it may not operate properly even when it is released. It may also fail to operate properly even when the front panel side is lifted with the lock knob released. In such case, turn OFF the power once and then turn it ON again.



■ CHIP COMPONENTS DESCRIPTION

1. KIND OF CHIP DEVICE

We have five kinds of chip devices:

- Thick film chip resistor
- Multi-layer ceramic chip capacitor
- Mini-mould (Chip) transistor
- Mini-mould (Chip) diode
- Mini-mould (Chip) IC

2. IDENTIFICATION OF FOUR KINDS OF CHIP DEVICES

Since four kinds of chip devices have similar shape and size, it is quite difficult to identify them at a glance, but basically, following identification is available:

a. Resistor/Jumper resistor

All chip resistors have a 3 digit indication of the value of resistance.

For example, "472" stands for 4.7k ohms and "000" stands for the jumper resistor.

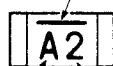
$$47 \times 10^2 = 4700\Omega \\ = 4.7k\Omega$$

b. Ceramic capacitor

Some chip capacitors have a 2 digit indication of the value of capacitance. For example, "A2" stands for 100pF. Some chip capacitors have no indication.

(Example)

Special mark



Alphabet Number

$$1.0 \times 10^2 = 100pF$$

• Contents of indication

Alphabet The numerical value of electrostatic capacity.

Number The value of the multiplier.

Special mark Temperature characteristic.

• Electrostatic capacity

(Alphabet)

Alphabet	A	B	C	D	E	F	G	H	J	K	L	M
Numerical value	1.0	1.1	1.2	1.3	1.5	1.6	1.8	2.0	2.2	2.4	2.7	3.0

Alphabet	N	P	O	R	S	T	U	V	W	X	Y	Z
Numerical value	3.3	3.6	3.9	4.3	4.7	5.1	5.6	6.2	6.8	7.5	8.2	9.1

Alphabet	a	b	d	e	f	m	n	t	v
Numerical value	2.5	3.5	4.0	4.5	5.0	6.6	7.6	8.0	9.0

(Number)

Number	0	1	2	3	4	5	6	7	8	9
figures value	10^0	10^1	10^2	10^3	10^4	10^5	10^6	10^7	10^8	10^9

c. Transistor

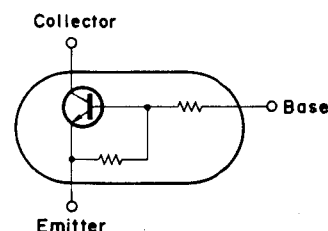
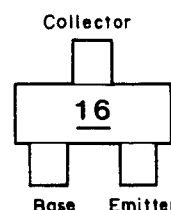
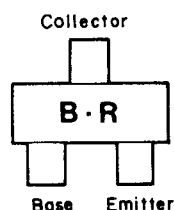
The transistors can be identified by their identification codes of 2 to 4 alphabet letters assigned to each of them. Given below is a cross reference table of identification codes and transistors.

Use it to identify each transistor from its code.

Indication	Parts No.	Description	HFE rank
FQ	1A103700	Transistor 2SA1037K	Q-rank
FR	"	"	R-rank
FS	"	"	S-rank
BQ	1C241200	" 2SC2412	Q-rank
BR	"	"	R-rank
BS	"	"	S-rank
DAQY	VB494100	" 2SD1664	R-rank
ID-R	ID132800	" 2SD1328	R-rank
ID-S	"	"	S-rank
ID-T	"	"	T-rank
13	VC123900	Digital Transistor DTA143EK	
16	VC124000	Digital Transistor DTA144EK	
26	VC124100	Digital Transistor DTC144EK	

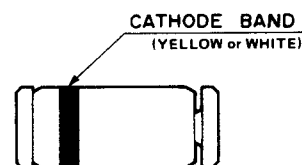
Ex. Transistor: 2SC2412(R)

Ex. Digital Transistor DTA144EK

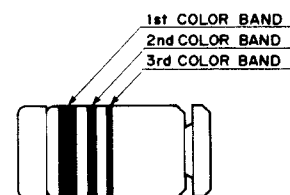


d. Diode and Zener Diode

Each diode has a yellow or white band (cathode band) on its cathode side as shown below.



The zener diode has three color bands as shown below.



The 1st and 2nd color bands indicate the model as a number is assigned to each color as listed in Table 1. Referring to Table 1, read the code number by converting the colors of bands into the corresponding numbers and then find the model code in Table 2. The number in the model code indicates the zener voltage. The 3rd color band on the zener diode indicates the subdivision of the zener voltage.

COLOR	1st color band 1st number in code	2nd color band 2nd number in code	3rd color band Zener voltage Subdivision
Black	0	0	—
Brown	1	1	—
Red	2	2	—
Orange	3	3	—
Yellow	4	4	A
Green	5	5	B
Blue	6	6	C
Purple	7	7	—
Gray	8	8	—
White	9	9	D

Table 1

RLZ Series Zener Code No. and Model Code Cross Reference Table

Zener Code No.	Model Code
07	RLZ3.6
08	RLZ3.9
09	RLZ4.3
10	RLZ4.7
11	RLZ5.1
12	RLZ5.6
13	RLZ6.2
14	RLZ6.8
15	RLZ7.5
16	RLZ8.2
17	RLZ9.1
18	RLZ10
19	RLZ11
20	RLZ12
21	RLZ13
22	RLZ15
23	RLZ16
24	RLZ18
25	RLZ20
26	RLZ22
27	RLZ24
28	RLZ27
29	RLZ30
30	RLZ33
31	RLZ36
32	RLZ39

Table 2

As explained above you can identify chip devices tentatively, but actual identification should be made by referring to the parts layout drawing in the service manual.

3. SPECIAL NOTICE FOR HANDLING CHIP DEVICES

Chip devices are not heatproof and shockproof. Use caution when handling them.

a. For shock

Chip devices are made of ceramic or plastic moulding, please do not subject them to direct shock.

- Set chip device flat onto printed circuit board.
- Do not apply unnecessary stress to the chip device. When soldering two terminals of chip device, soldering is done one by one. Sometimes, when one terminal is soldered, the other unsoldered terminal is slightly lift. In such case, do not try to push down the lifted terminal using the tip of the soldering iron. In such a case, you may crack the chip device or may break the terminals.

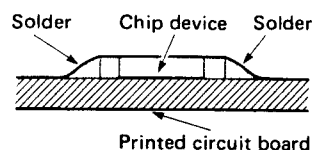
b. For heat

Do not apply high temperature to chip devices for long periods. Soldering should be done quickly.

c. Soldering

- Chip devices can not withstand rapid heating or cooling. Do not heat the chip itself, heat the terminals of chip devices.
- Solder quickly, excessive soldering time will cause damage to chip device.

- Try to reduce amount of solder when soldering. Amount of solder will effect the strength of the chip bending against the printed circuit board. Refer to amount of solder as shown below.



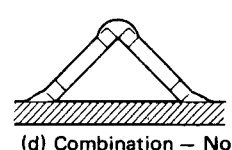
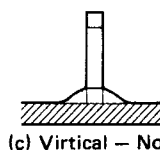
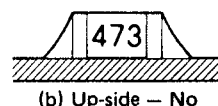
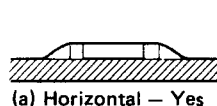
d. Soldering iron

When soldering chip devices, use the right soldering iron.

- Soldering iron
Power of soldering iron should be less than 30 watts.
Diameter of iron chip should be about 2 mm.
- Temperature of iron tip.
Temperature of soldering iron tip should be less than 536°F. (280°C.)

e. Mounting chip device onto printed circuit board

- Set chip devices as close as possible onto the surface of printed circuit board.
Do not apply unnecessary pressure to chip devices in order to make it close to the surface of printed circuit board.
Try to keep distance between chip device and surface of printed circuit board less than 0.5mm.
- Do not connect (solder) wire or terminal of other-parts to terminal of chip device.
- Do not mount chip devices incorrectly, such as (b), (c) and (d).

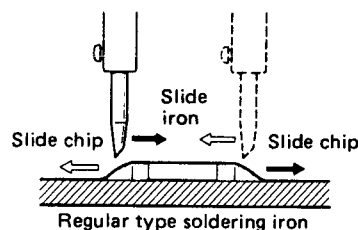


f. Removal of defective device for repair

When removing chip devices with a forked tip iron, heat the chip device with the fork tip and slide.

When you are going to remove chip devices using regular tip iron, heat two terminals of chip device repeatedly about 2 or 3 times and slide the chip device.

Slide chip device only in the direction specified as shown below.



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
- Laser power meter : x 1
(LEADER LPM-8000 P/No. TX915140 or equivalent)
- AC voltmeter (ACVM) : x 2
(One dual channel or two single channel meters)
- DC voltmeter (DCVM) : x 1
- Frequency counter (FC) : x 1

Jigs

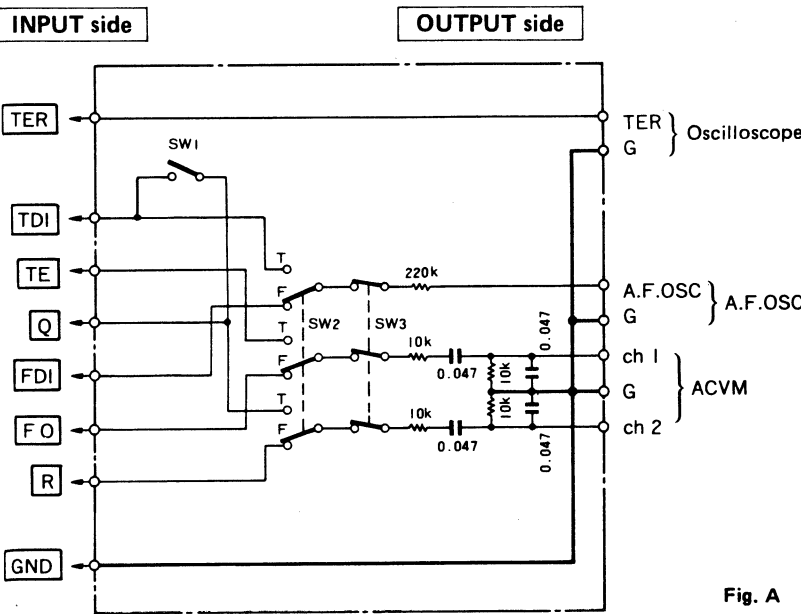
- Test disc : x 1
(YEDS-18 P/No. TX911730, or YEDS-7 P/No. TX911320)
- Filter (See Fig. A) : x 1
- Shorting cord : x 1 (Step 3)

Tools

- ⊕ Screwdriver : x 1
(For-Pre-Set Potentiometer adjustment)
- Core screwdriver : x 1 (Step 3)
- ⊖ Screwdriver : x 1 (Step 5)

Adjustment jig (with internal filter)

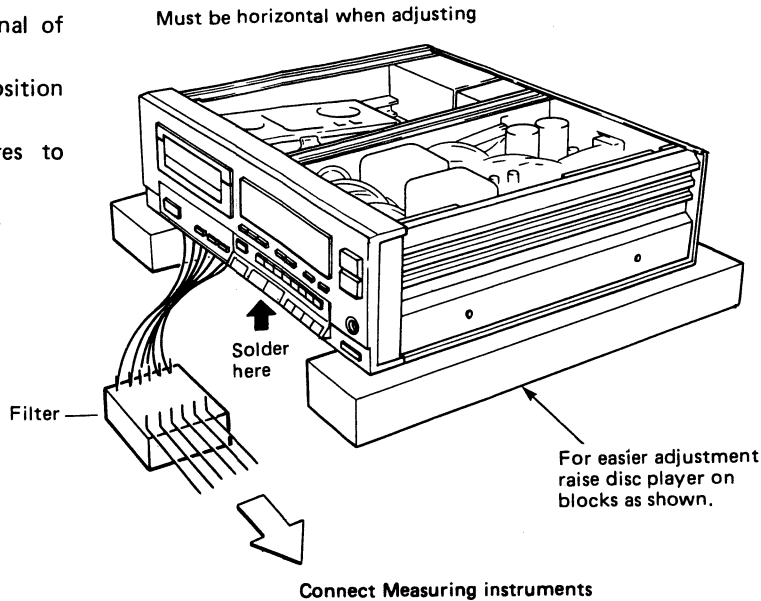
Connect the filter in Fig. A before measurement.



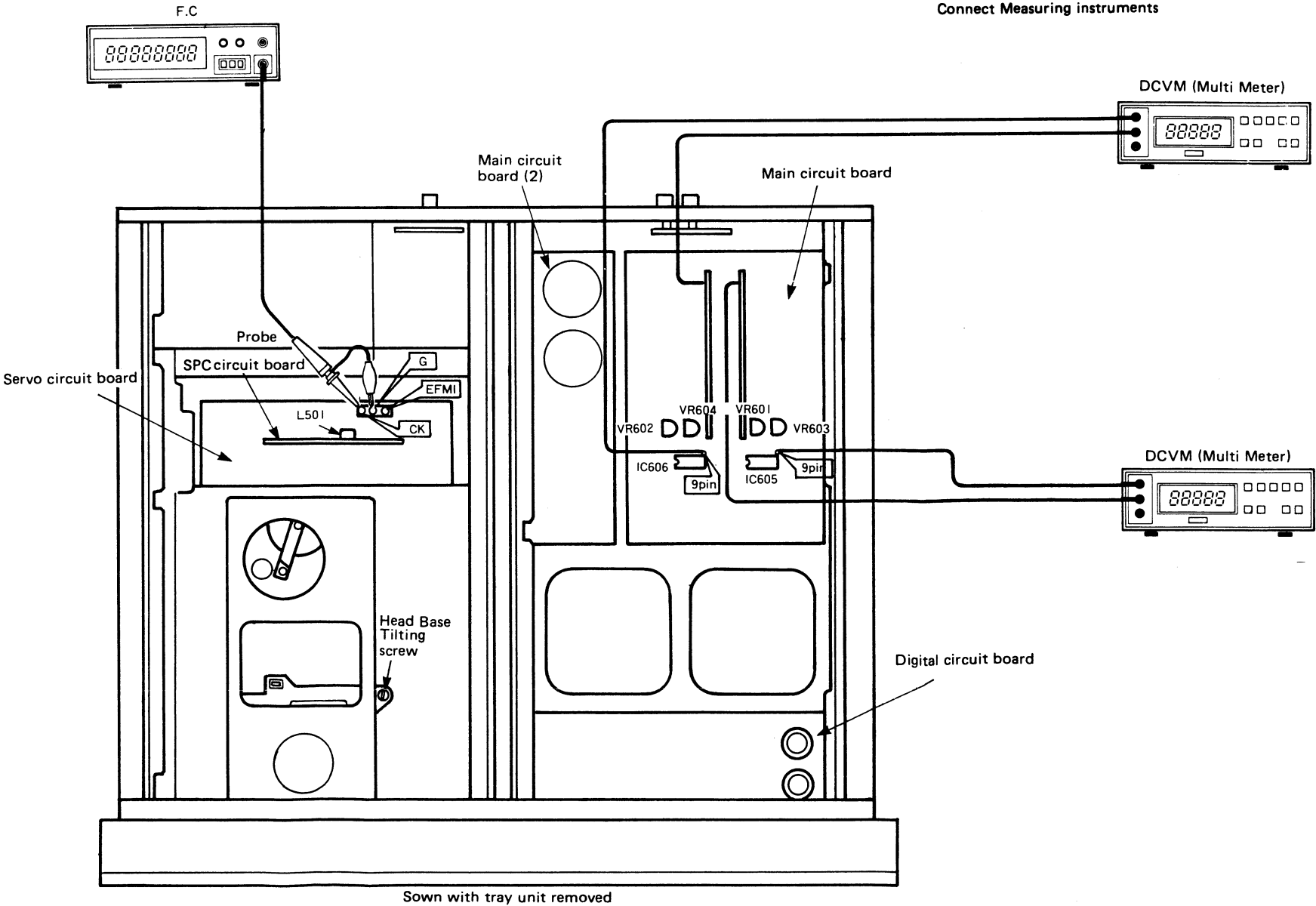
SW1: For diffraction grating and EF balance adjustments
SW2: FOCUS gain and TRACKING gain switching
SW3: Filter ON/OFF switch

Precautions or Special Notes

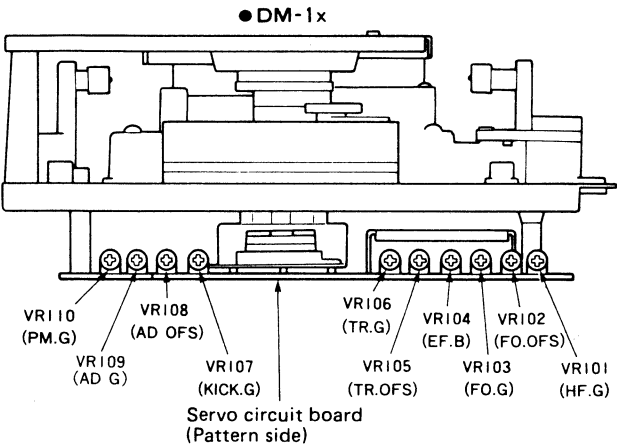
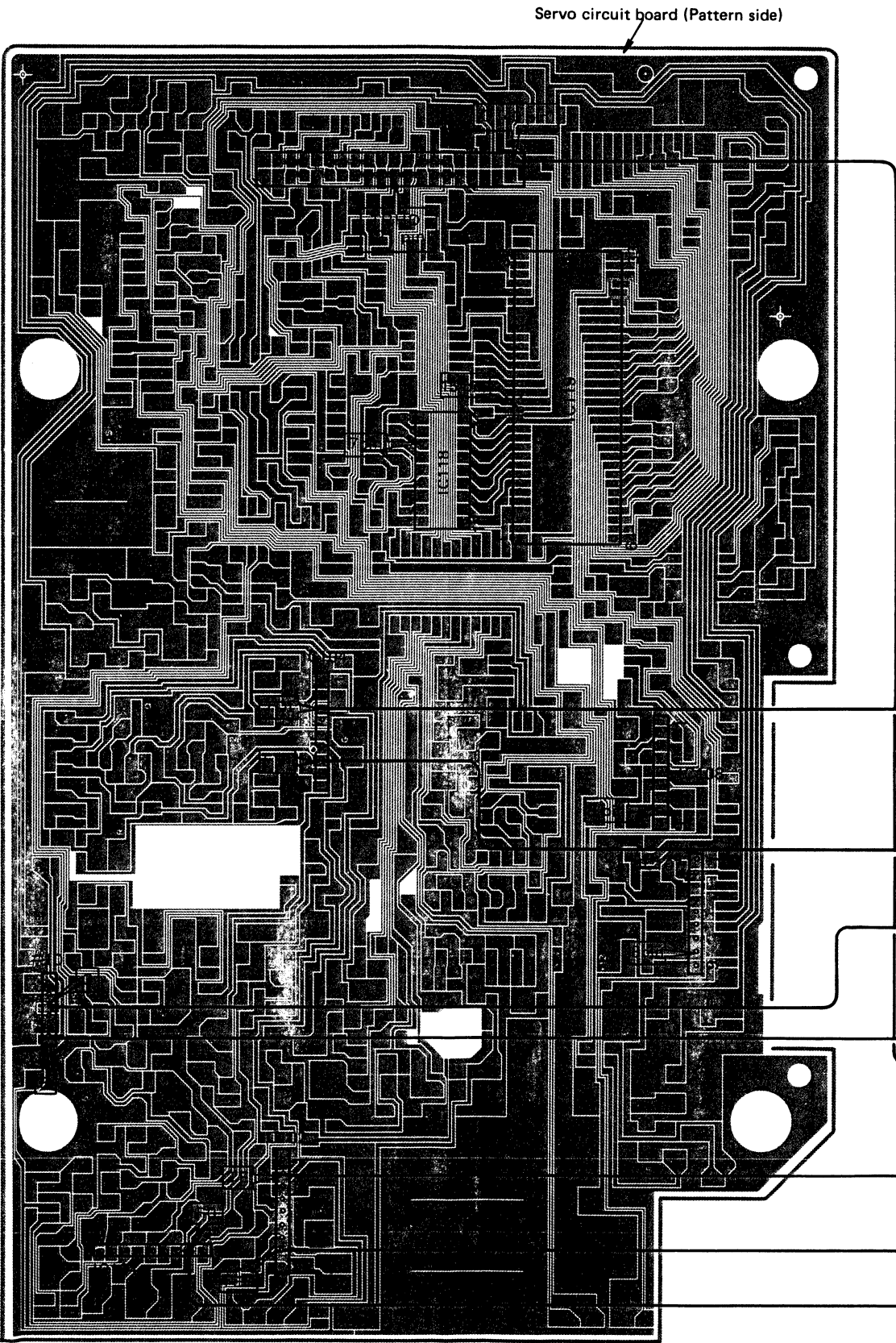
1. Measure the output level at the output terminal of the AF oscillator.
2. The unit should always be in a horizontal position while performing adjustments.
3. Solder the servo circuit board-to-filter wires to facilitate adjustments.



Test point (1)



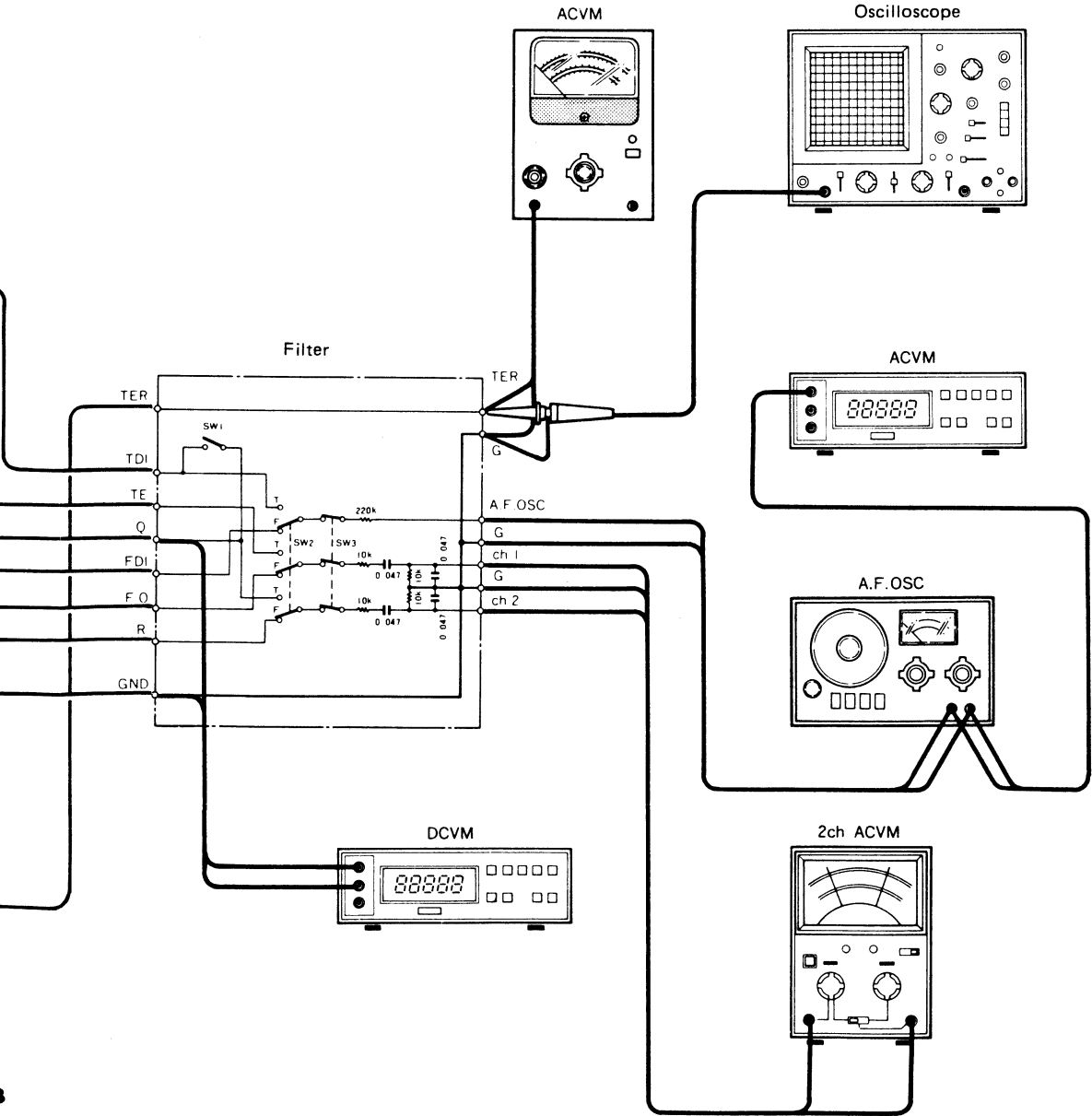
- Adjustment wiring diagram/test points (2)
(Before adjustment, solder input leads of filter to facilitate.)



★ BEFORE ADJUSTMENTS

① Setting to TEST mode

Before adjustments, set to the TEST mode by turning. On the power switch while pressing the CANCEL key.
* Each adjustment should be made in this state.



● Description of test mode keys

OPEN/CLOSE : Focus start
 PLAY : Play
 STOP : Stop, Focus OFF
 "—" : -10 Kick
 "+" : +10 Kick
 << : -1 Kick
 >> : +1 Kick

REPEAT : Feed forward
 A ↔ B : Feed return
 "2" : Tracking servo OFF
 (Fixed toward inner circumference at the feed center)
 "0" : DAC output for feed (00H)
 "1" : DAC output for feed (FFH)

② Adjustments

Carry out following adjustments in the order as numbered.

1. Confirmation of laser output
2. Confirmation of focus actuator operation
3. Adjustment of VCO
4. Adjustment of diffraction grating
5. Adjustment of jitter and focus offset
6. Adjustment of EF balance
7. Adjustment of HF level
8. Adjustment of focus gain
9. Adjustment of tracking gain
10. Adjustment of tracking offset
11. Confirmation of jitter
12. Adjustment of kick gain
13. Confirmation of search mode
14. Adjustment of AD offset
15. Adjustment of DAC offset (digital circuit board)
16. Adjustment of PM gain
17. Adjustment of AD gain
18. Confirmation of FG pulse
19. Adjustment of DAC offset (main circuit board)
20. Adjustment of DAC distortion
21. Adjustment of output offset

Confirmation of Laser Output (Step 1)

- ① Do not load the disc.
- ② Remove the tray unit.
- ③ Apply the laser power meter's sensor to the pick-up head as shown in Fig. B.
- ④ Set to the TEST mode.
- ⑤ Press OPEN/CLOSE key. (Focus search mode)
- ⑥ Measure the laser output during the 5 seconds of FOCUS search mode.
 Rating: Laser output = 0.1mW to 0.5mW

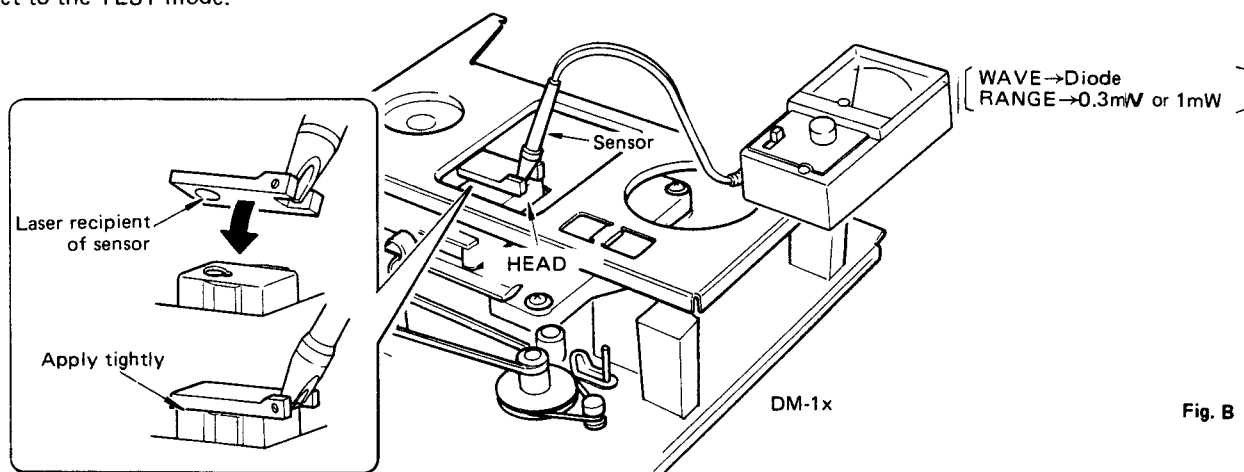


Fig. B

Precautions in handling pick-up head

- (1) No soldering necessary for unit.
- (2) Since laser light is near-infrared, visual confirmation is difficult. While light is emitted, for safety make sure your eyes are at least 30 cm away from the objective lens.
- (3) Do not disassemble it.
- (4) Do not drop or apply shock to it.
- (5) Do not leave it under high temperature or humidity.
- (6) Do not touch the objective lens. Should there be dirt on the lens, clean using a blower for cameras.

Confirmation of Focus Actuator Operation (Step 2)

Oscilloscope (1) setting

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

- ① Do not load the disc.
- ② Connect the oscilloscope (1) to **R** terminal.
- ③ Set to the TEST mode.
- ④ Press OPEN/CLOSE key. (Focus search mode)
- ⑤ During 5 seconds of FOCUS search mode, confirm that the waveform is as shown in Fig. C.
- ⑥ Confirm that the pick-up head's objective lens moves smoothly from the lowest point to the highest point.

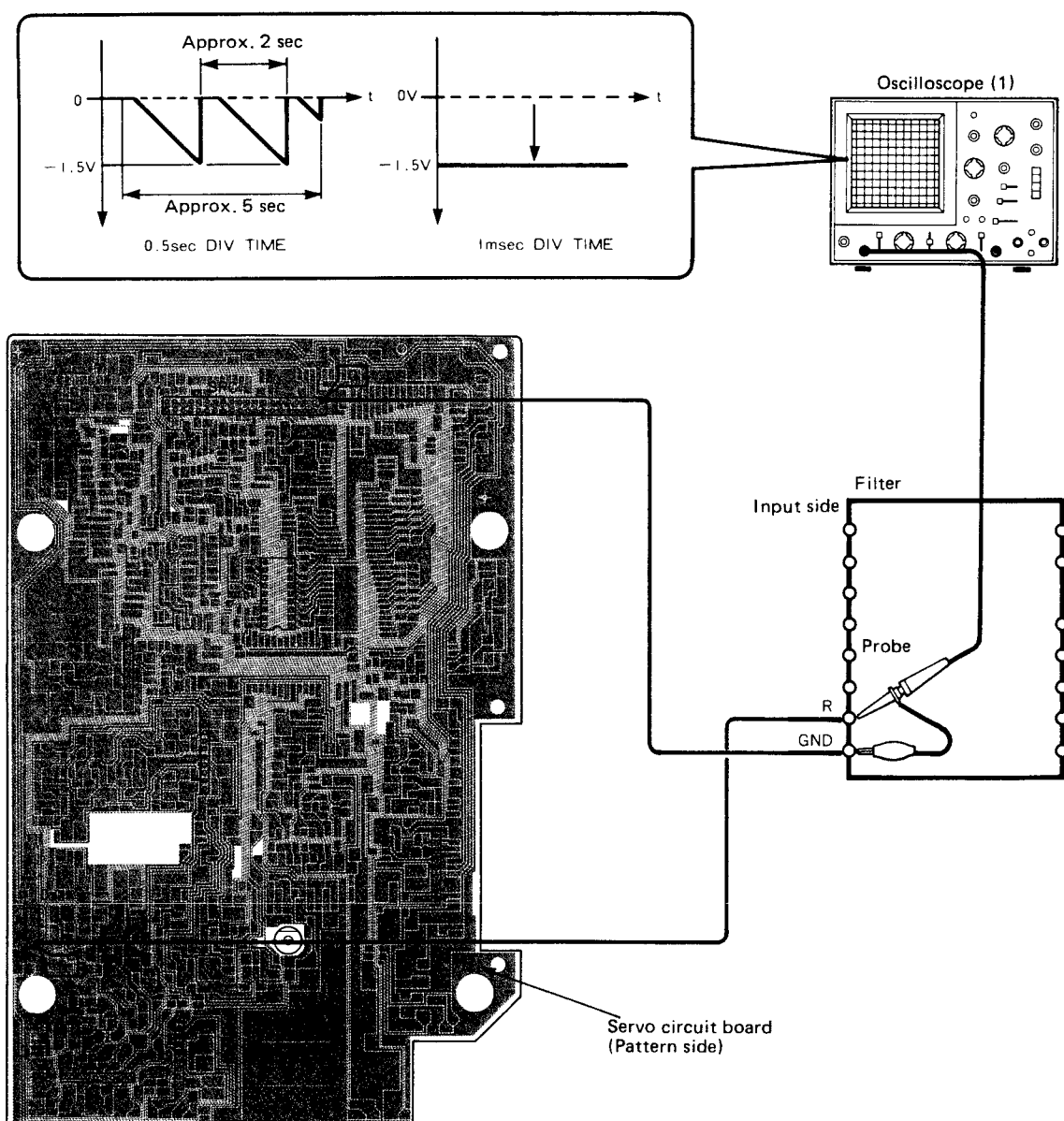


Fig. C

Adjustment of VCO (Step 3)

- ① Connect the shorting cord and frequency counter as shown in Fig. D. (Short-circuit between EFMI and GND.)

* Be sure to use the probe (10:1 for oscilloscope) for input to the frequency counter.

- ② Do not load the disc.
- ③ Set to the TEST mode.

- ④ Press the STOP key.

- ⑤ Wait for longer than a minute after the POWER switch is turned ON and while observing the frequency counter indication, adjust L501 core so that it satisfies the rating.

Rating: $F_{VCO} = 4.3218 \text{ MHz} \pm 10 \text{ kHz}$

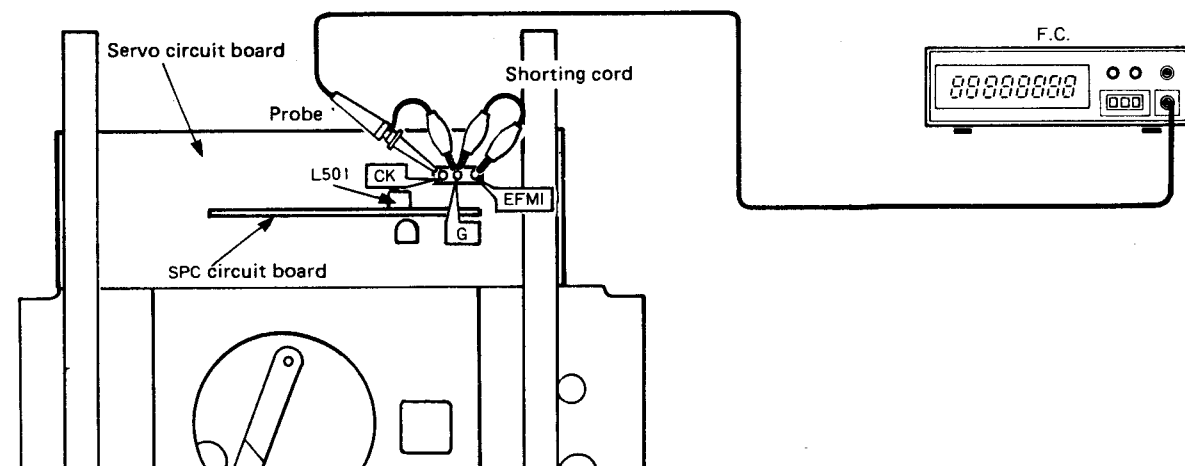


Fig. D

Adjustment of Diffraction Grating (Step 4)

* This adjustment requires use of 2 oscilloscopes.

Oscilloscope (1) setting conditions

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

Oscilloscope (2) setting conditions

- AC coupling
- 0.5V/div range (Vertical)
(50 mV/div when 10:1 probe is used)
- 0.2 ~ 0.5 $\mu\text{sec}/\text{div}$ time (Horizontal)

* Oscilloscope (2), should have frequency response of 50MHz or greater.

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

1) Connect the oscilloscope (1) to **TER** terminal.

2) Connect the oscilloscope (2) to **EFMI** terminal.

- ② Set to the TEST mode.

- ③ Load the disc.

- ④ Press the OPEN/CLOSE key.

- ⑤ Press the PLAY key.

- ⑥ Press the "2" key.

- ⑦ Set SW1 in the filter to ON.

(Short-circuit between **TDI** terminal and **Q** terminal. TRACKING SERVO → OFF)

- ⑧ Observe the waveform on the oscilloscope (1).

- ⑨ Adjust the diffraction grating screw so that the **TER** signal amplitude becomes maximum and satisfies the rating.

Rating: $E_{TER} = 200\text{mVp-p}$

* When the disc has stopped rotating, press PLAY key again and make adjustment.

* Adjust at the inner circumference of the disc.

- ⑩ Set SW1 in the filter to OFF.

(TRACKING SERVO → ON)

- ⑪ Confirm that the **EFMI** signal (eye-pattern) appears on the oscilloscope (2).

* Set to the point where **TER** signal amplitude is maximum and **EFMI** signal waveform can be observed finely and clearly.

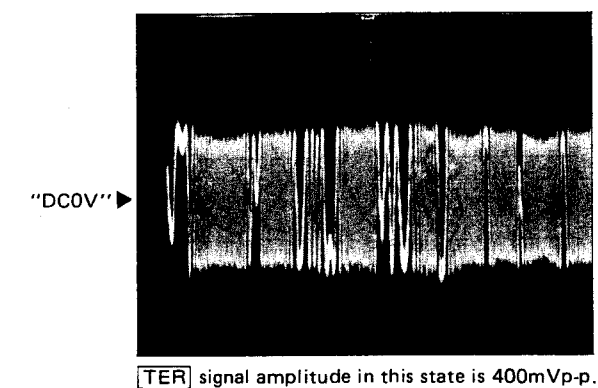
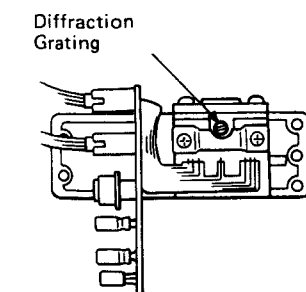
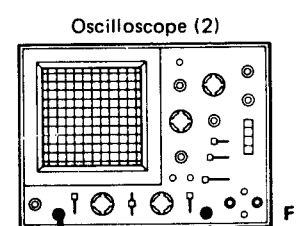
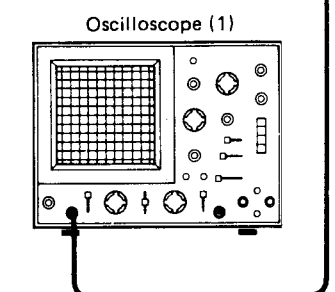
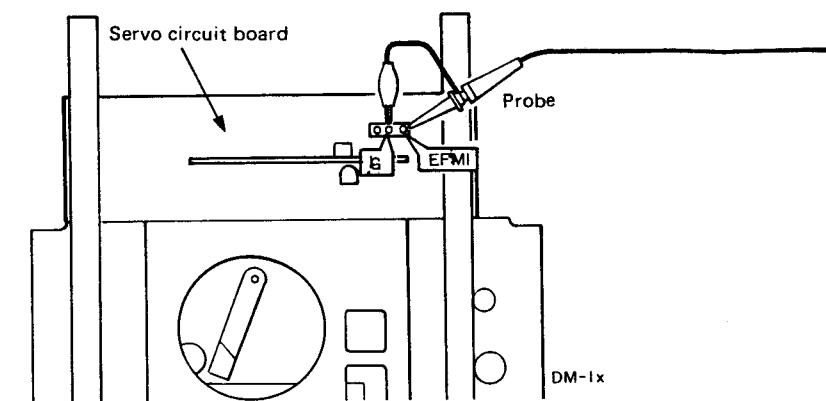
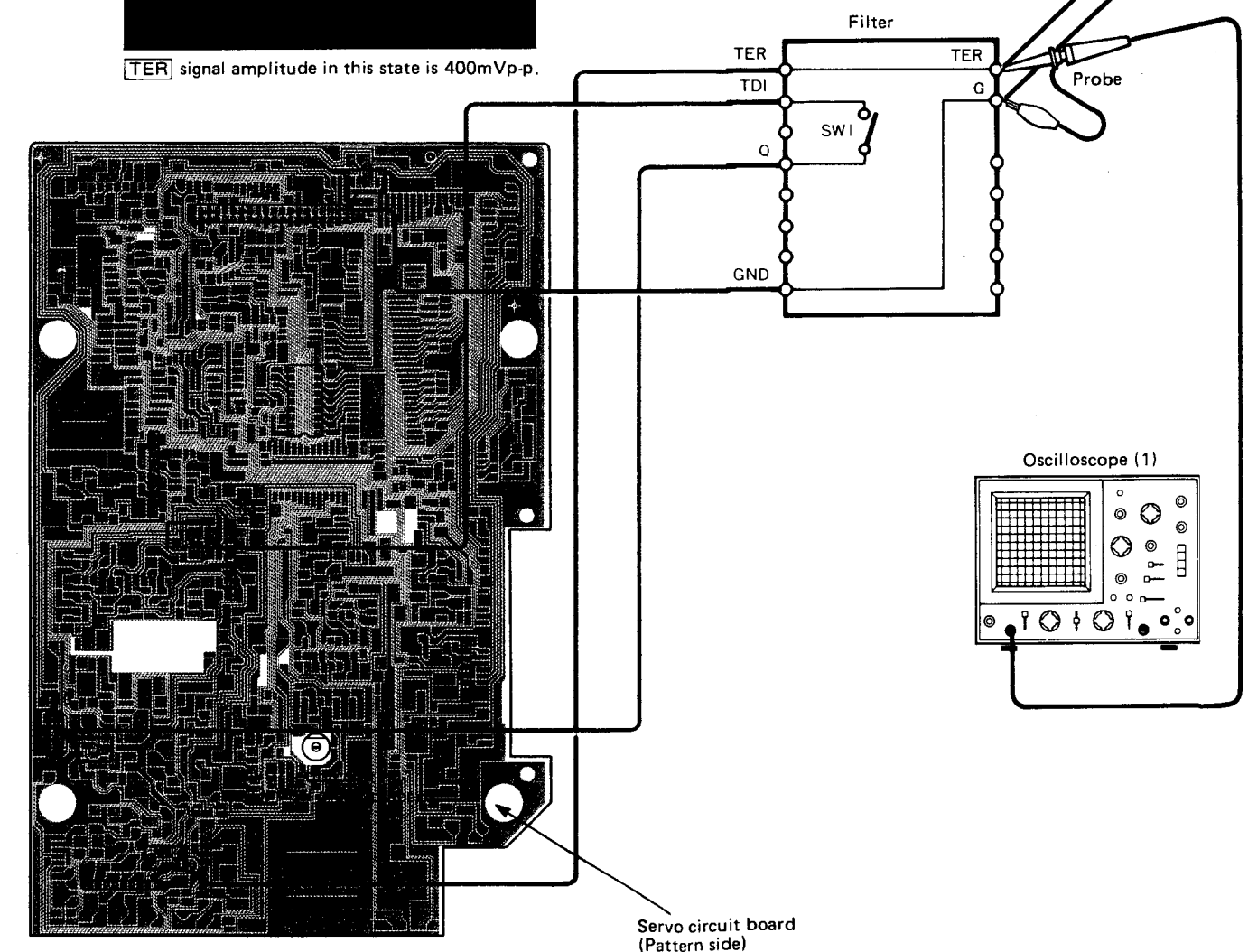
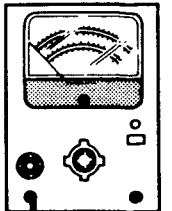
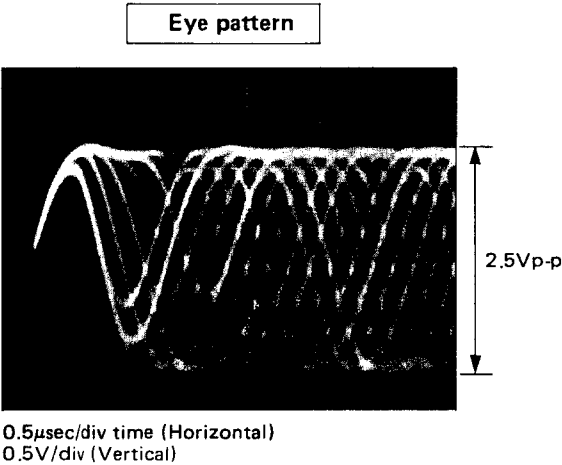
Oscilloscope (1)**Optical Pick Up Head (MLP-7)****ACVM**

Fig. E

Oscilloscope (2)

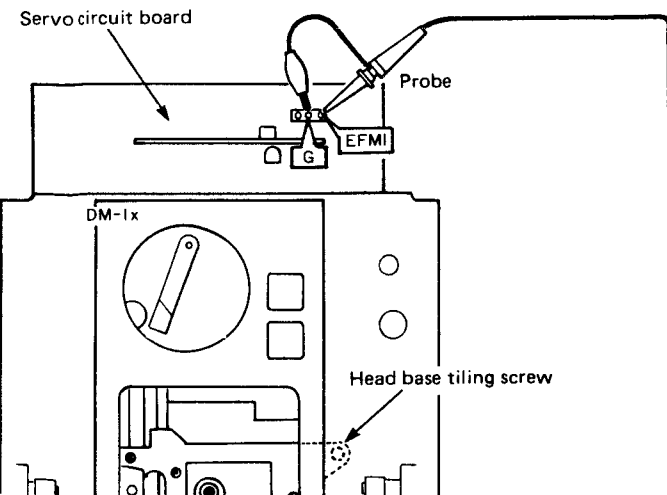


Adjustment of Jitter and Focus Offset (Step 5)

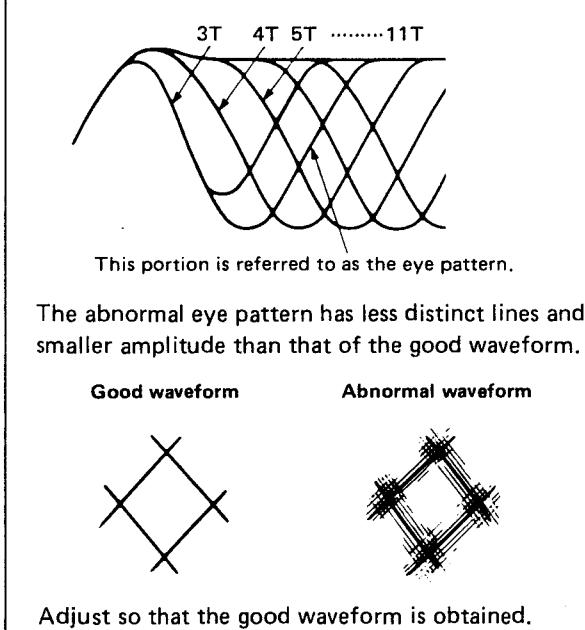
Oscilloscope (2) Settings

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

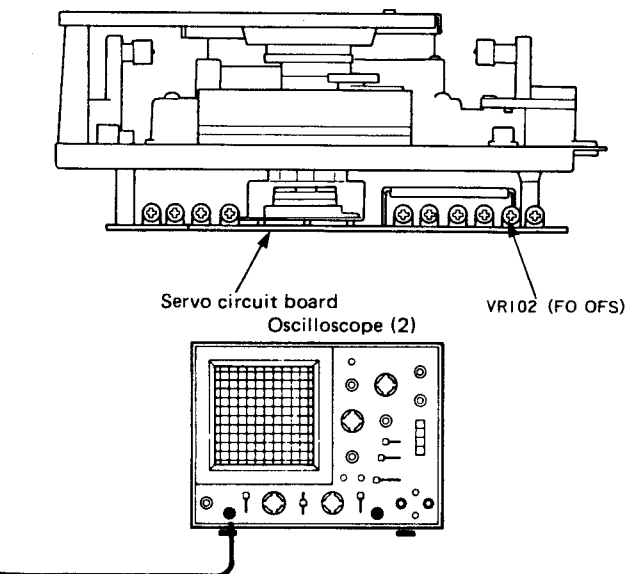
- 1 Remove the disc unit.
- 2 Connect the oscilloscope (2) to **[EFMI]** terminal.
- 3 Set to the TEST mode.
- 4 Load the specified disc YEDS-18.
- 5 Press the PLAY key.
- 6 Adjust the head base tilting screw so that the **[EFMI]** signal (eye-pattern) becomes distinct and clear.
* Adjust at the center of the disc.



Waveforms 3T - 11T.



- 7 Adjust VR102 (FO OFS) in the same manner as the above step.
* Adjust VR102 within the range of $\pm 45^\circ$.
- 8 After adjustment, check the FOCUS search for proper operation.

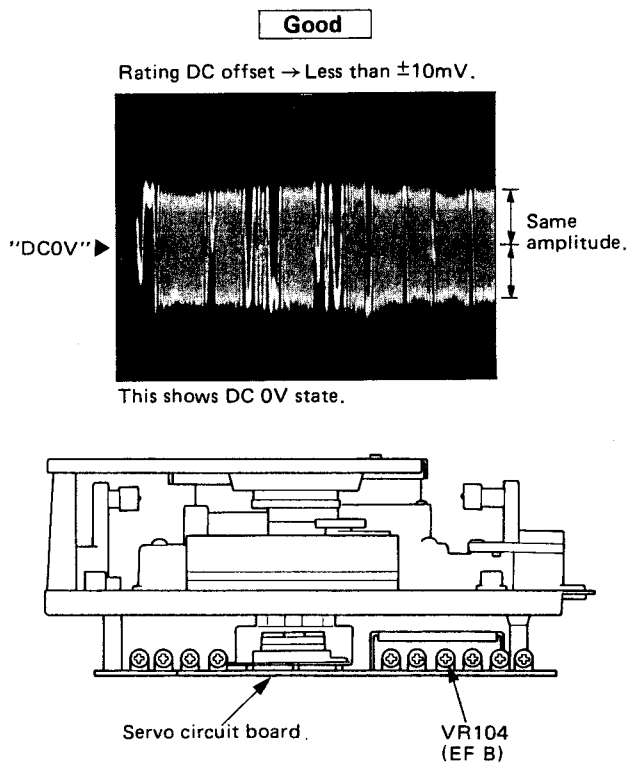


Adjustment of EF Balance (Step 6)

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 the filter and measuring instruments as in Step 4.
- 2 Set to the TEST mode.
- 3 Load the disc.
- 4 Press the OPEN/CLOSE key.
- 5 PRESS the PLAY key.
- 6 Press the "2" key.
- 7 Set SW1 in the filter to ON.
(Short-circuit **[TDI]** terminal and **[Q]** terminal.
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 DC 0V position.
* Adjust at the inner circumference of the disc.

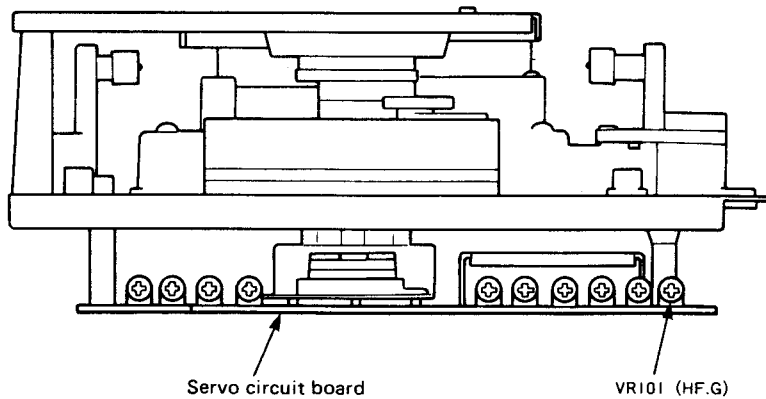


Adjustment of HF Level (Step 7)

Oscilloscope (2) setting

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

- 1 Connect the oscilloscope (2) to the **[EFMI]** terminal as in Step 5.
- 2 Set to the TEST mode.
- 3 Load the specified disc YEDS-18.
- 4 Press the PLAY key.
- 5 Adjust VR101 (HF G) so that the **[EFMI]** level becomes 2.5 Vp-p.
* Adjust at the center of the disc.



Adjustment of Focus Gain (Step 8)

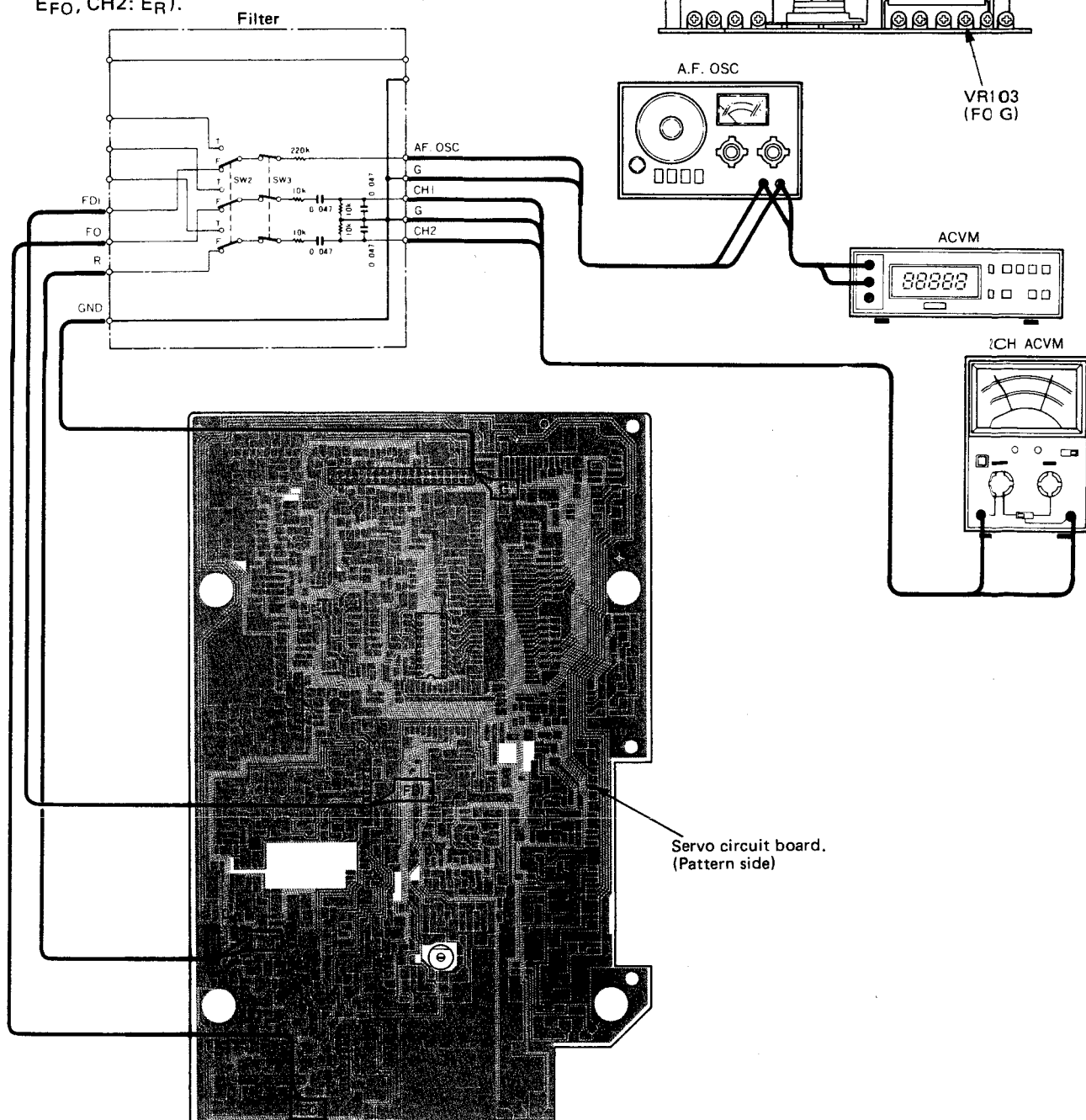
* This adjustment requires use of two single channel AC voltmeters or one dual channel AC voltmeter.

- 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 the **FDI** terminal via the resistor (220 k Ω).
- ② Set SW3 in the filter to OFF.
- ③ Set SW2 in the filter to F (FOCUS).
- ④ Set to the TEST mode.
- ⑤ Load the disc.
- ⑥ Press the PLAY key.
- ⑦ Set SW3 to ON.
- ⑧ Read the indications of the AC voltmeters (CH1: E_{FO} , CH2: E_R).

- ⑨ Adjust VR103 (FO G) so that AC voltmeter indications satisfy the rating.

Rating: $E_{FO} - E_R = 10\text{dB}$ $0\text{dBV} = 1\text{V}$

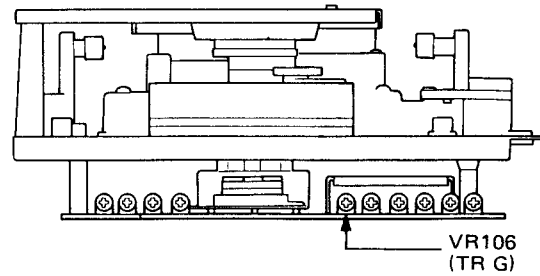
Reference E_{FO} -16 dBV (160mV)
 E_R -26 dBV (50mV)



Adjustment of Tracking Gain (Step 9)

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

- ① Connect the filter and measuring instruments as shown in Fig. H.
- Apply an 800 Hz, 100 mVrms signal from the AF oscillator to the **TDI** terminal via the resistor (220 k Ω).
- ② Set SW3 in the filter to OFF.
- ③ Set SW2 in the filter to T (TRACKING).
- ④ Set to the TEST mode.
- ⑤ Load the disc.
- ⑥ Press the PLAY key.
- ⑦ Set SW3 to ON.
- ⑧ Read the indications of the AC voltmeters (CH1: E_{TE} , CH2: E_Q).



- 9 Adjust VR106 (TR G) so that AC voltmeter indications satisfy the rating.

Rating: $E_{TE} - E_Q = 15\text{dB}$ $0\text{dBV} = 1\text{V}$

Reference E_Q	-30 dBV (30mV)
E_{TE}	-15 dBV (131mV)

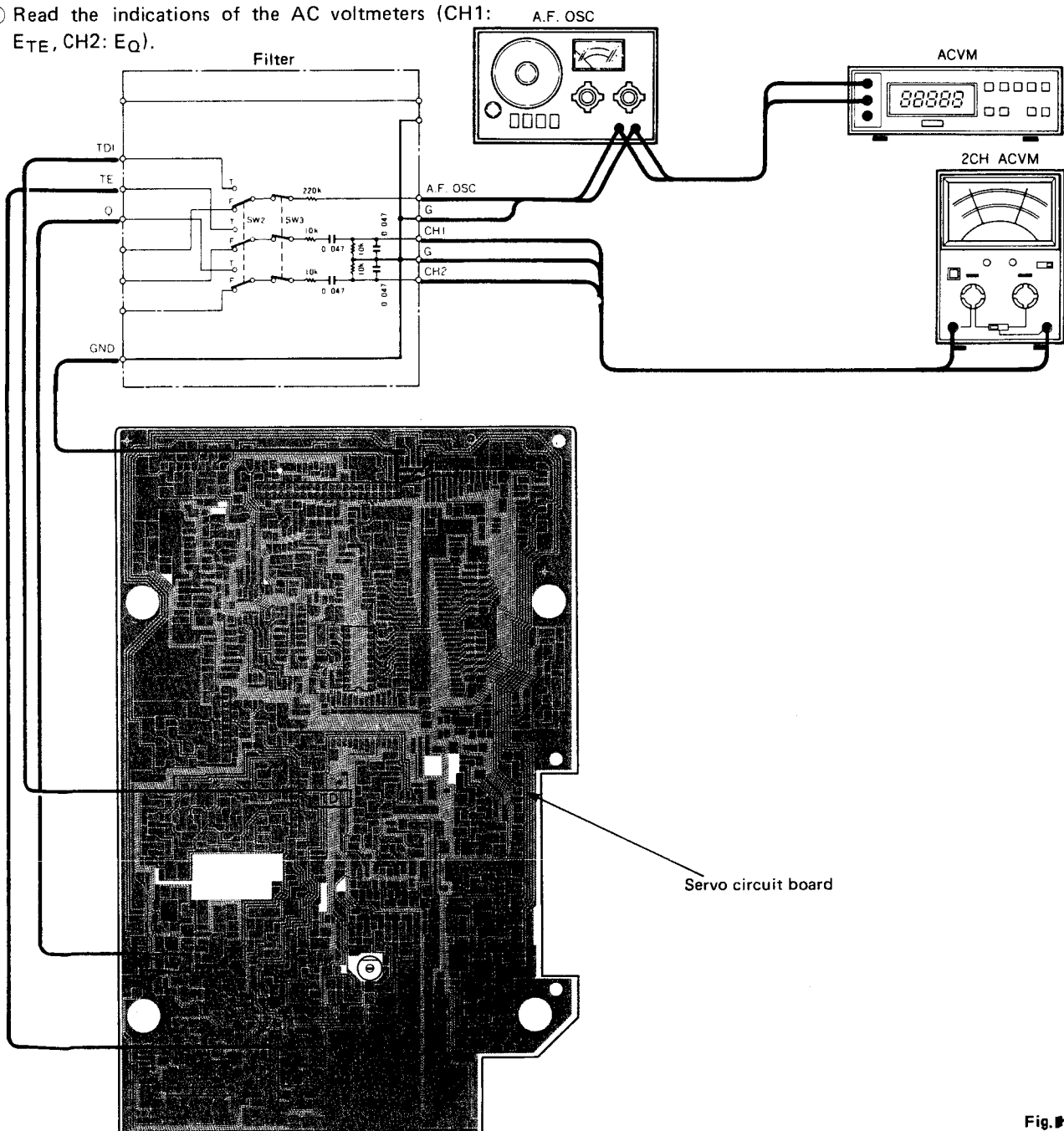


Fig. H

Adjustment of Tracking Offset (Step 10)

- ① Connect the DC voltmeter to the **Q** terminal.
- ② Set to the TEST mode.
- ③ Press the STOP key.
- ④ Adjust VR105 (TR OFS) so that the DC voltmeter indication satisfies the rating.
Rating: $E_Q = 0V \pm 25mV$

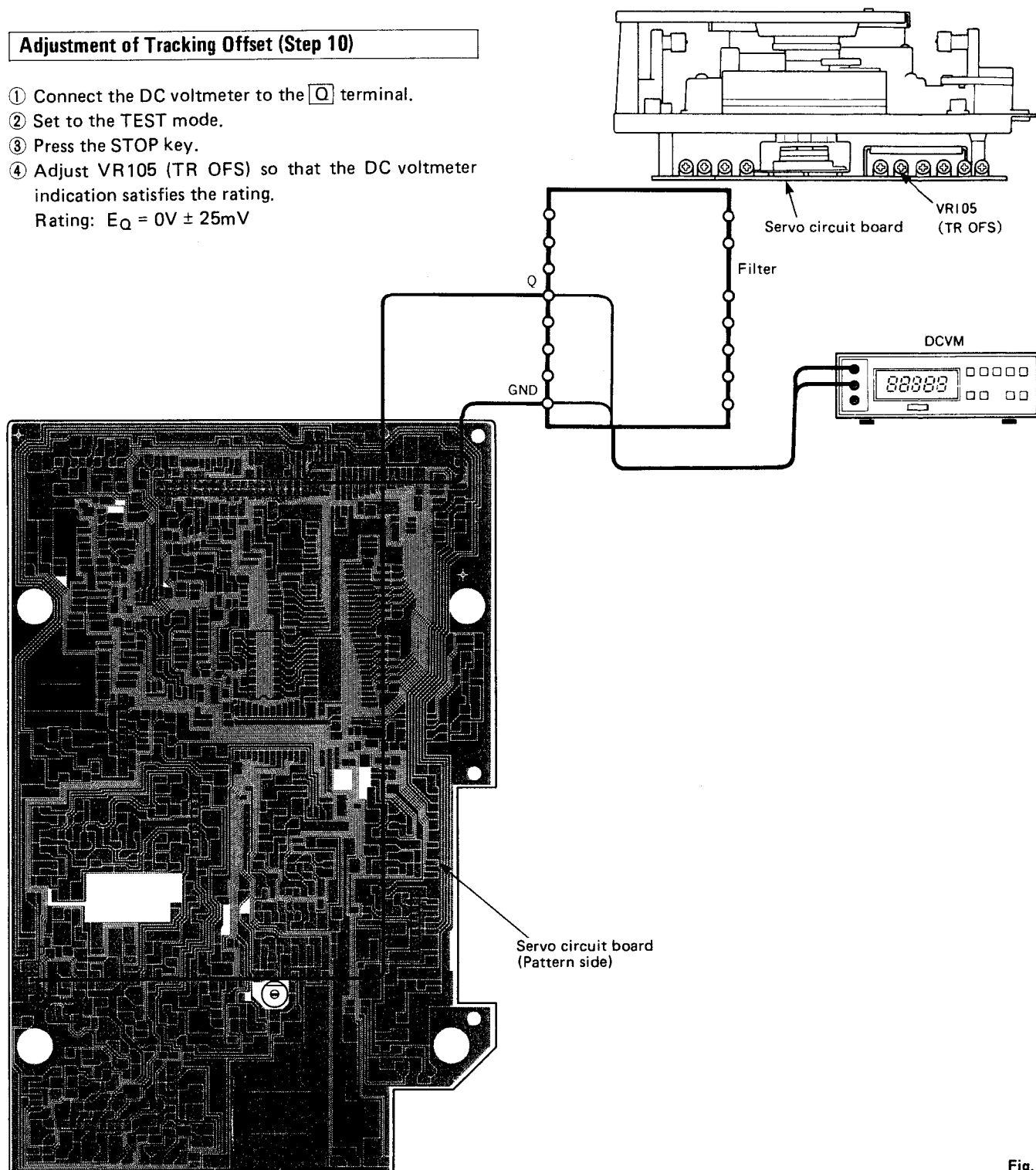


Fig. 1

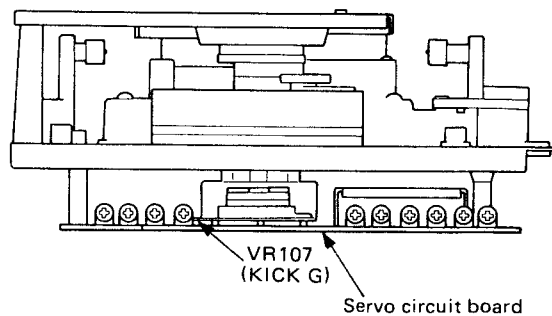
Confirmation of Jitter (Step 11)

- ① Confirm the jitter rating as in ⑥ of Step 4.
- ② When the tilting screw has been readjusted, go back to Step 4 and carry out adjustments all over from there.

Adjustment of Kick Gain (Step 12)

Oscilloscope (1) (2-ch oscilloscope) Settings

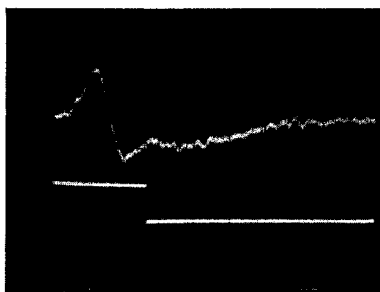
- DC coupling
- CH1 → **TER** terminal: 0.1 V/div (Vertical)
(10 mV/div when 10:1 probe is used)
- CH2 → **TRHD** terminal: 5 V/div (Vertical)
(0.5 V/div when 10:1 probe is used)
- TRIGGER MODE: 2 CH
- 0.2 msec/div time (Horizontal)



- ① Connect the filter and measuring instruments as shown in Fig. J.
- ② Set to the TEST mode.
- ③ Load the disc.
- ④ Press the PLAY key.
- ⑤ Press the FF mode key (**▶▶**) and check the wave-form.

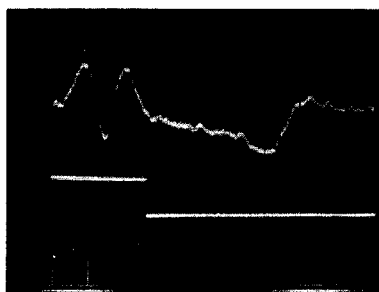
- ⑥ Adjust VR107 (KICK G) so that the **TER** signal cycle becomes 1.5 ± 0.5 while the **TRHD** signal level is high.
* Adjust at the inner circumference of the disc.
- ⑦ Confirm that in the Reverse mode, the **TER** signal cycle satisfies the rating given in ⑥ but in the reverse phase.

Incorrect



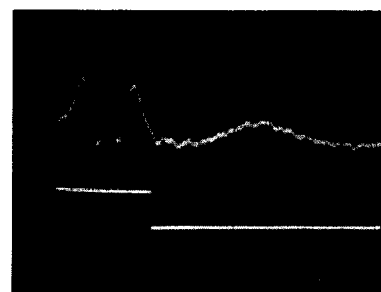
This shows about 0.9 cycle which is incorrect.

Good



This shows about 1.7 cycle which is within specification.

Incorrect



This shows about 2.5 cycle which is incorrect.

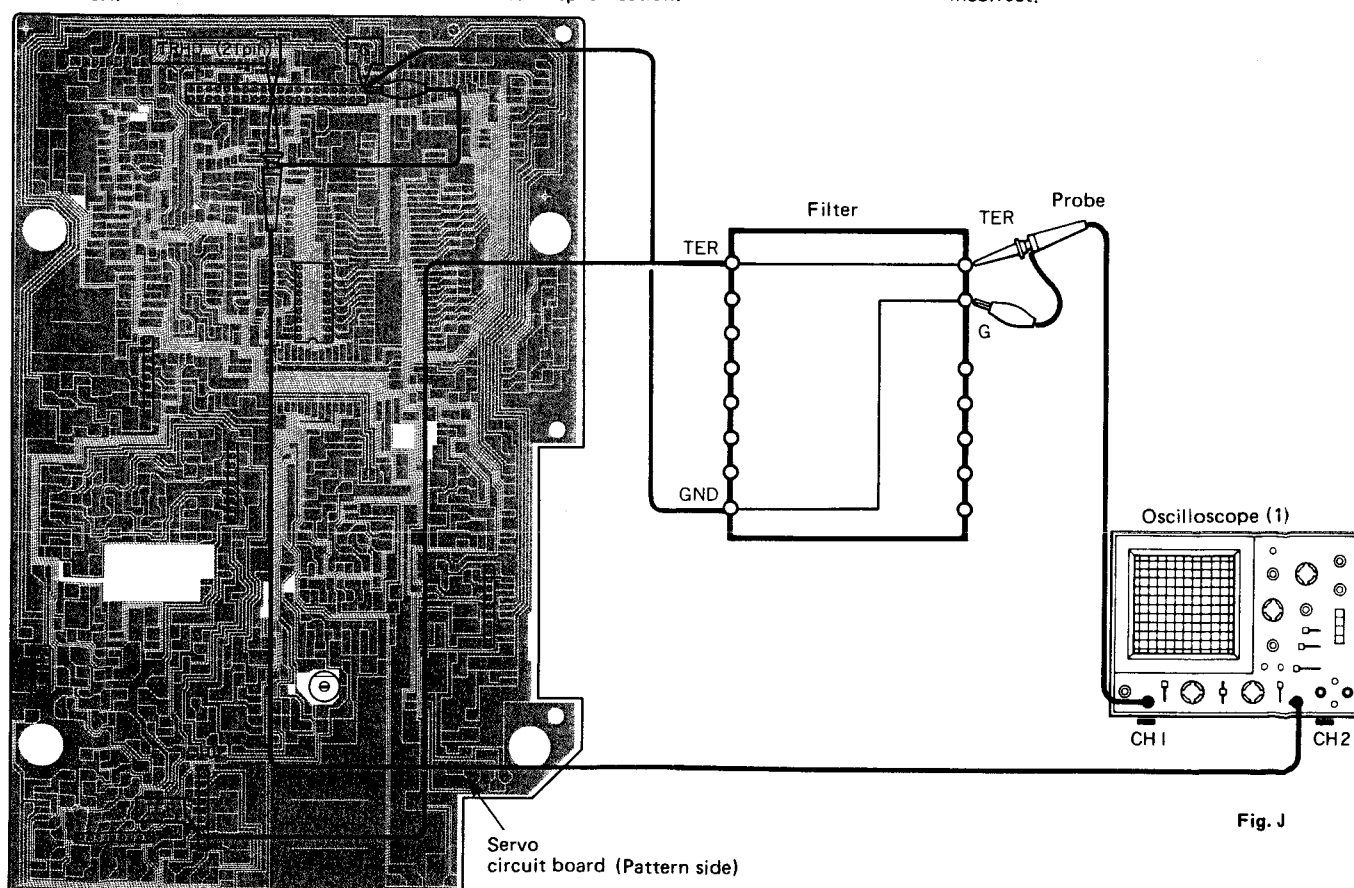


Fig. J

Confirmation of Search Mode (Step 13)

- ① Load the disc.
- ② Press the PLAY key.
- ③ Press the Fast Forward mode key (**▶▶**) and confirm that the displayed time advances smoothly.
- ④ The displayed time should advance accurately and smoothly in both Fast Forward (**▶▶**) and Reverse (**◀◀**) modes.

Adjustment of AD Offset (Step 14)

- ① Connect the DC voltmeter to the 8 pin of IC107.
- ② Set to the Test mode.
- ③ Press the "1" key.
- ④ Shift the Feed all the way to the outer circumference and fix it there.
- ⑤ Adjust VR108 (AD OFS) so that the specified rating is obtained.

Rating: $E = 0V \pm 100mV$

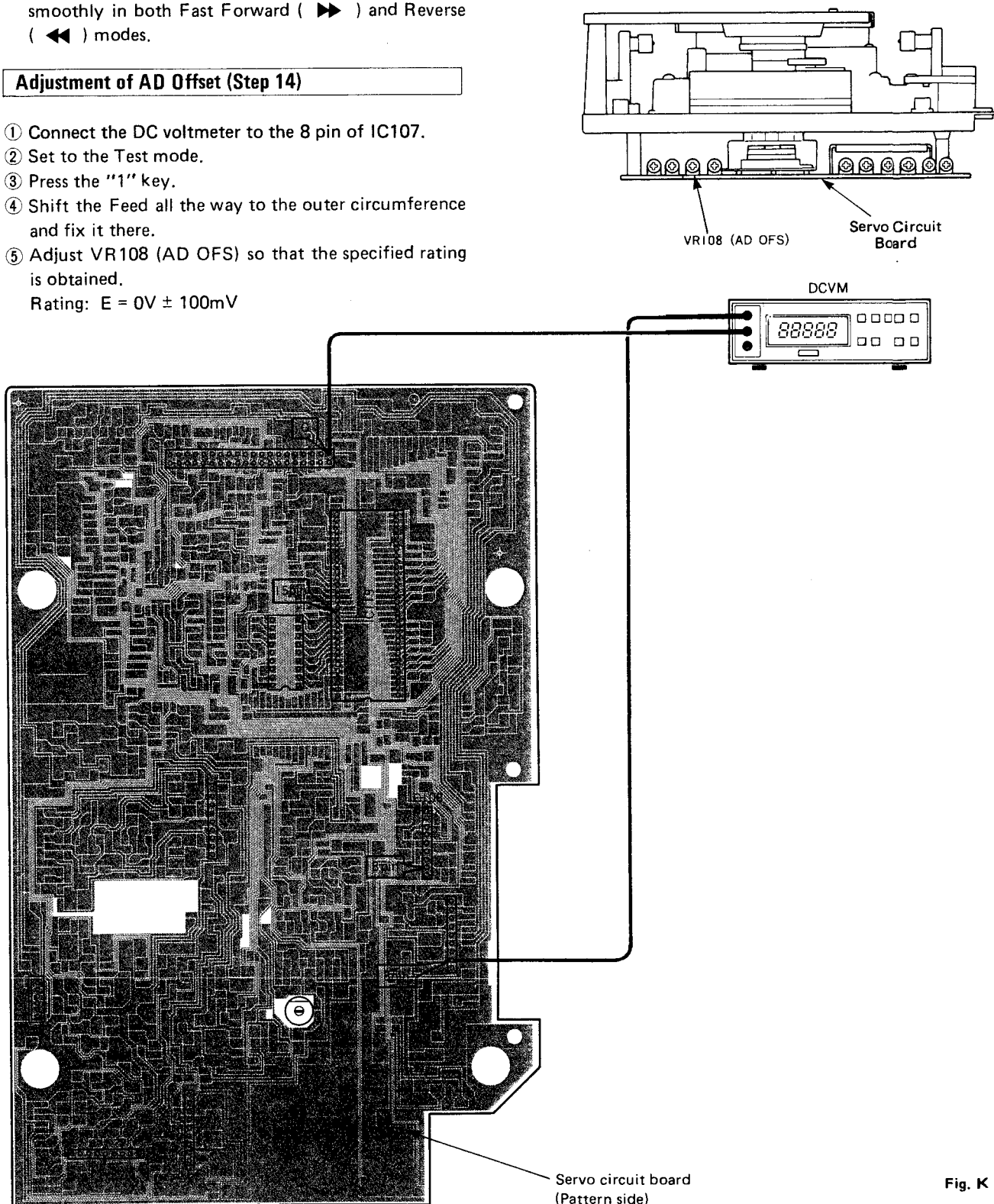


Fig. K

Adjustment of DAC Offset (Step 15)

- ① Do not load the disc.
- ② Connect the DC voltmeter to the 7 pin of IC118.
- ③ Set to the TEST mode.
- ④ Carry out ④ and ⑤ of Step 14.
- ⑤ Adjust VR111 (DAC OFS) so that the specified rating is obtained.
Rating: $E = 0V \pm 10mV$
- ⑥ Confirm AD offset as described in Step 14. If the disc display "SEC" indicates FE or more (hexadecimal), set it to FF by adjusting VR108.
If less than FF, move back to Step 14 and readjust.

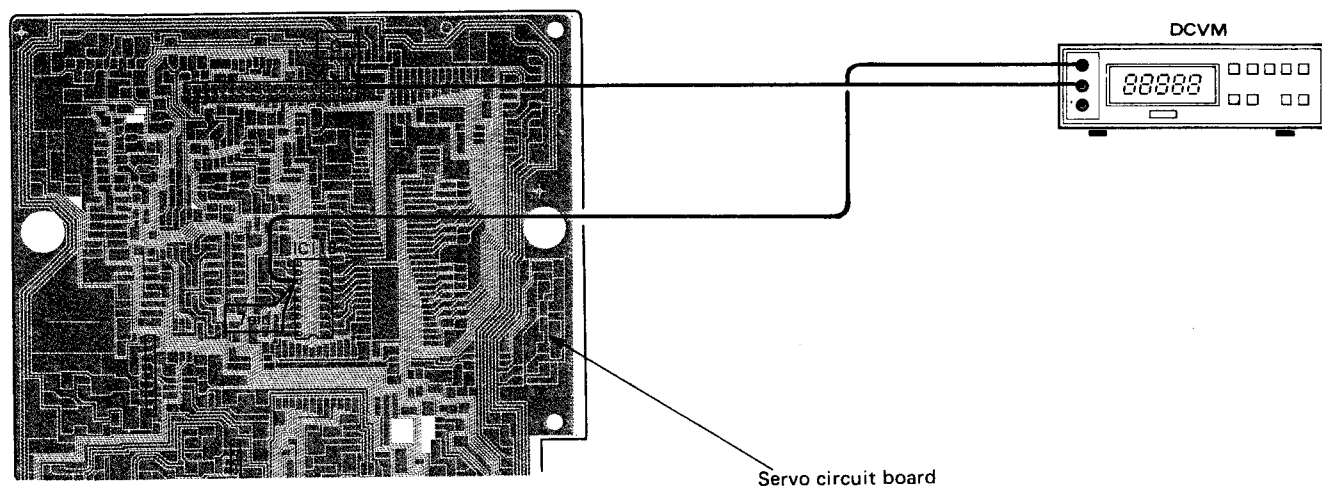
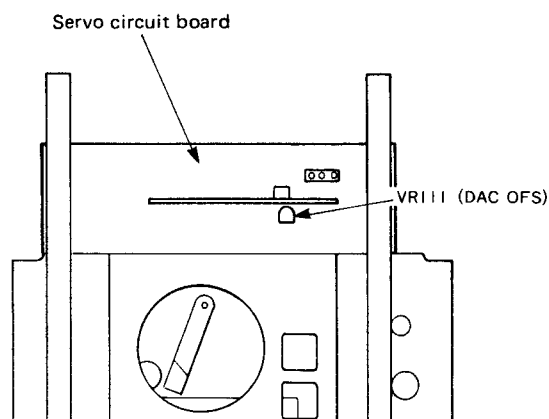


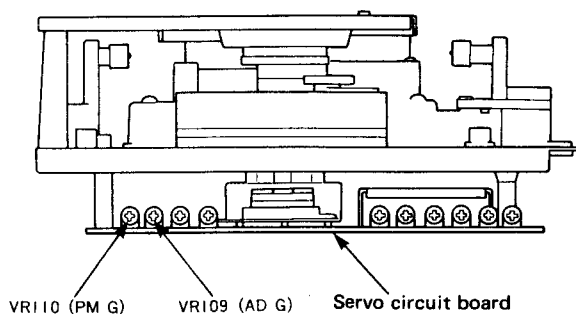
Fig. L

Adjustment of PM Gain (Step 16)

- ① Connect the DC voltmeter to the 8 pin of IC108 as shown in Fig. K.
- ② Set to the TEST mode.
- ③ Press the "0" key.
- ④ Shift the Feed all the way to the inner circumference and fix it there.
- ⑤ Adjust VR110 (PM G) so that the specified rating is obtained.
Rating: $E = 0 \pm 100mV$

Adjustment of AD Gain (Step 17)

- ① Set to the TEST mode.
- ② Carry out ④ and ⑤ of Step 16.
- ③ Adjust VR109 (AD G) to the position where the "SEC" of the display changes from 01 to 00.



Confirmation of FG pulse (Step 18)

- ① Connect the oscilloscope and frequency counter to 15 pin of IC119. (See Fig. K.)
- ② Set to the test mode.
- ③ Load the disc.
- ④ Press the PLAY key.
- ⑤ Check to ensure that the pulse (square wave) is generated. (varies depending on disc position)

Adjustment of DAC Offset (Step 19)

- ① Connect the DC voltmeters to the 9 pin of IC606 (L ch) and IC605 (R ch) respectively.
 - ② Set to the TEST mode.
 - ③ Load the disc.
 - ④ Adjust VR602 (L ch) and VR601 (R ch) so that the specified rating is obtained. This adjustment should be made in the STOP mode.
- Rating: $E = 0 \pm 1 \text{ mV}$

Adjustment of DAC Distortion (Step 20)

- ① Connect the distortion meter to the LINE OUT terminal.
- ② Set to the TEST mode.
- ③ Load the disc.
- ④ Press the PLAY key.
- ⑤ Maximum the OUTPUT LEVEL.
- ⑥ Adjust VR604 (L ch) and VR603 (R ch) so that the distortion of 1kHz, 0dB output becomes minimum (less than 0.003%).

Adjustment of Output Offset (Step 21)

- ① Connect the DC voltmeter to the LINE OUT terminal.
 - ② Set to the TEST mode.
 - ③ Load the disc.
 - ④ Press the STOP key.
 - ⑤ Maximize the OUTPUT LEVEL.
 - ⑥ Adjust VR606 (L ch) and VR605 (R ch) so that the specified rating is obtained.
- Rating: $E = 0 \pm 1 \text{ mV}$

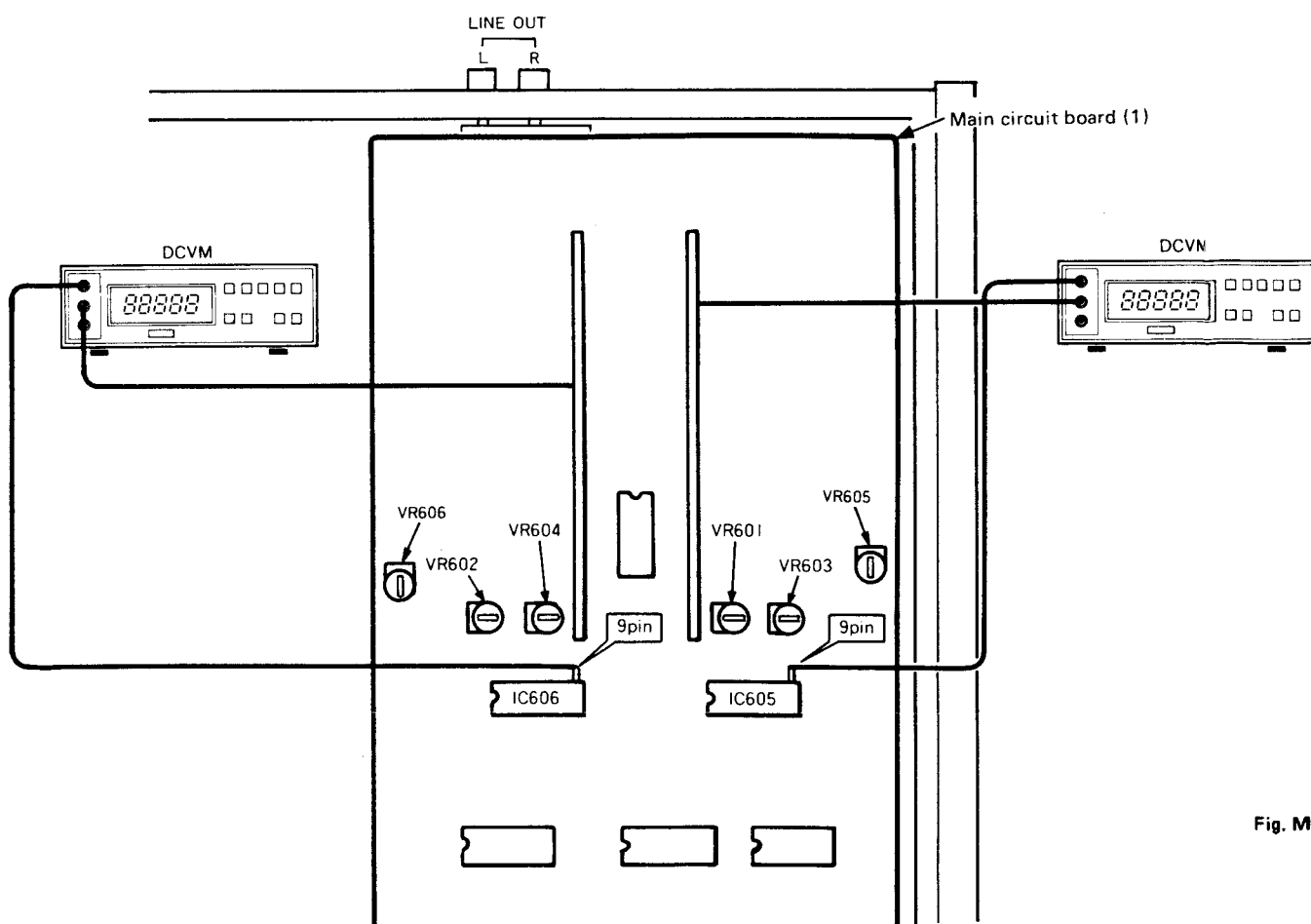
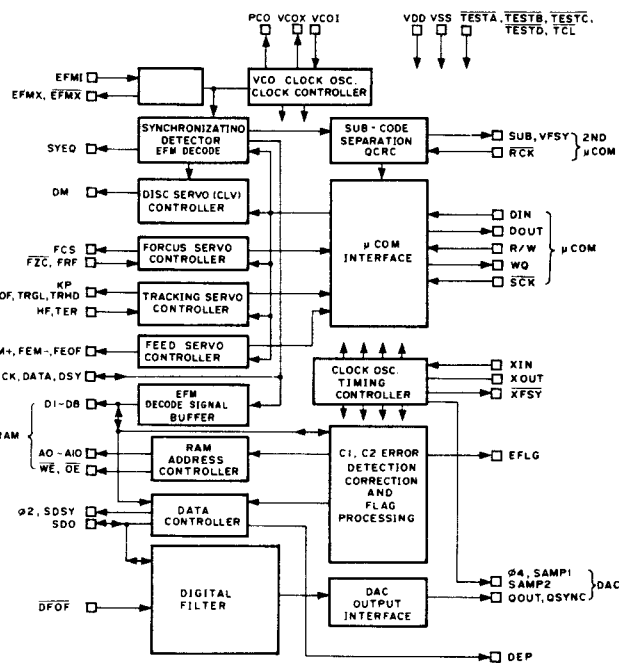
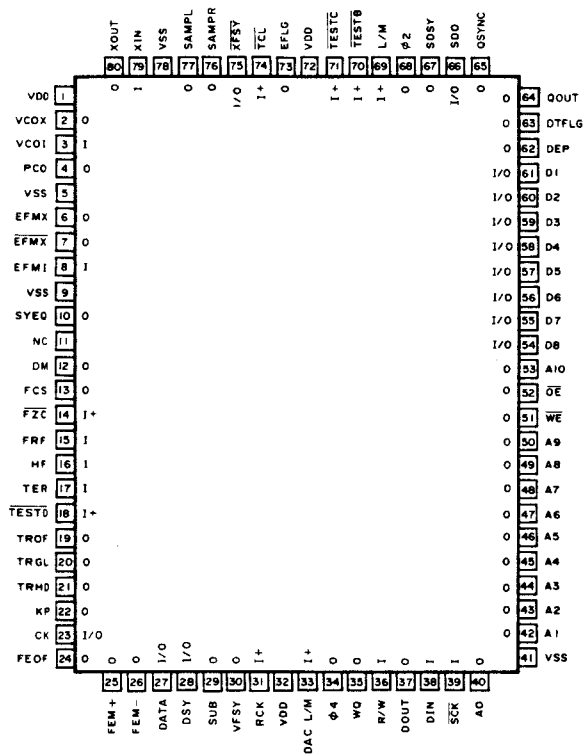


Fig. M

LSI DATA

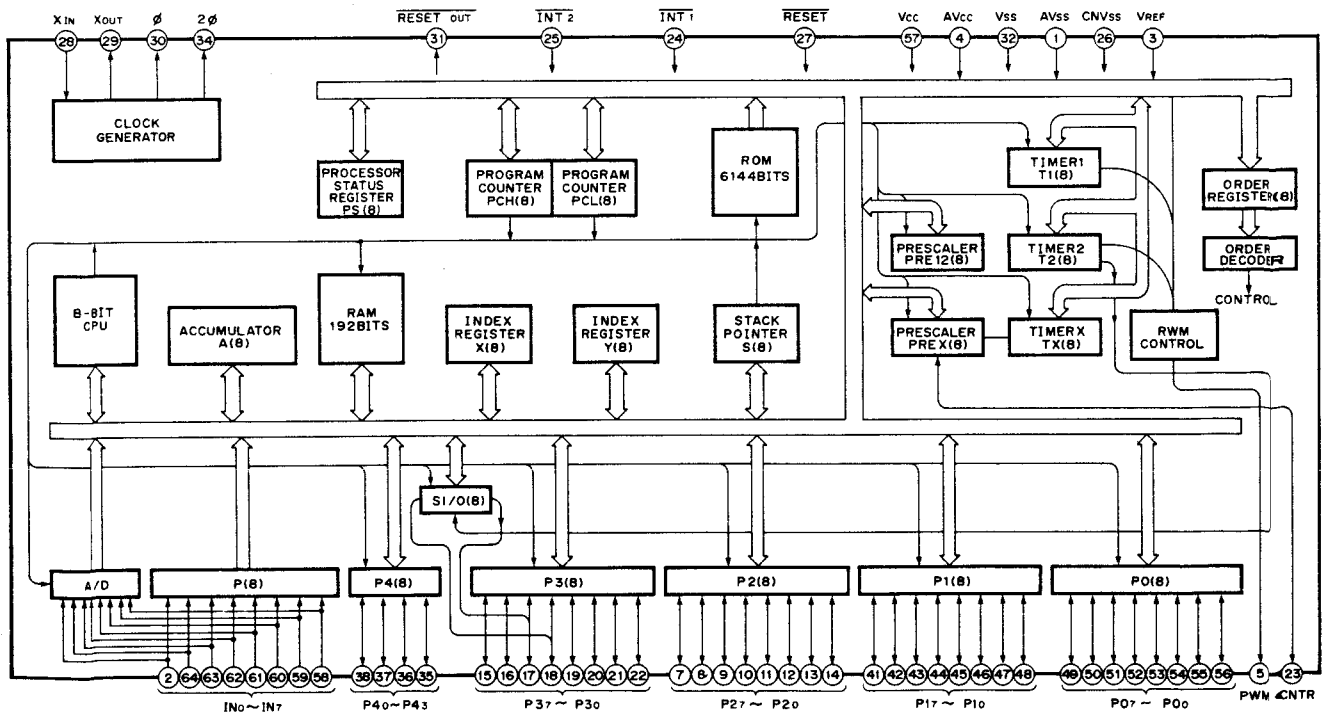
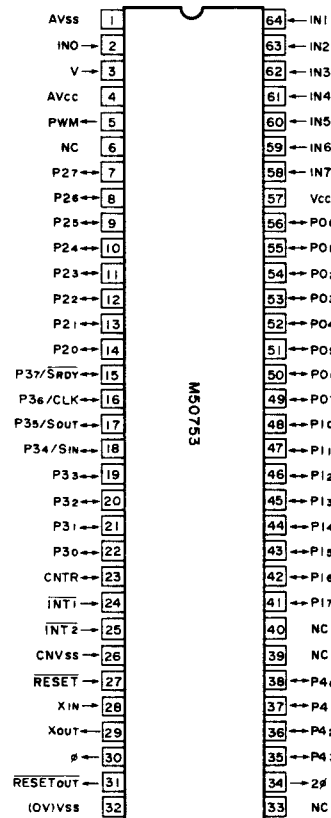
IC501: YM3816 Signal Processor & Controller for Compact Disc Player (SPC)

YM-3816 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.



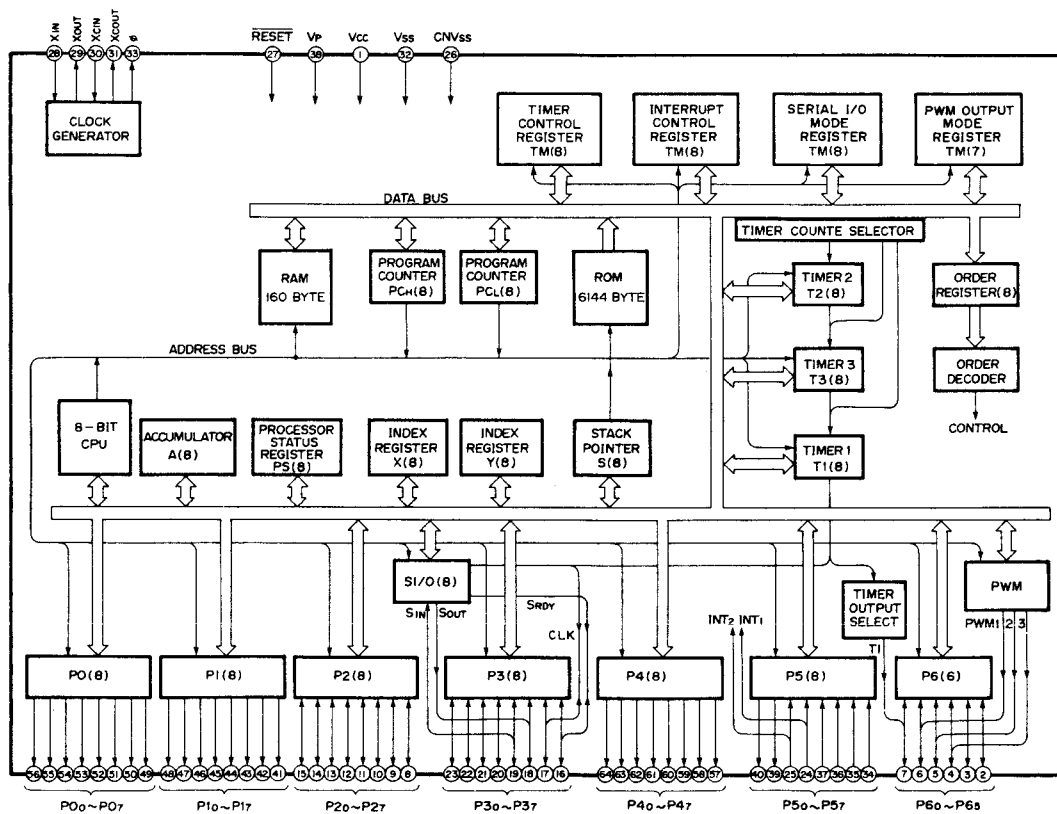
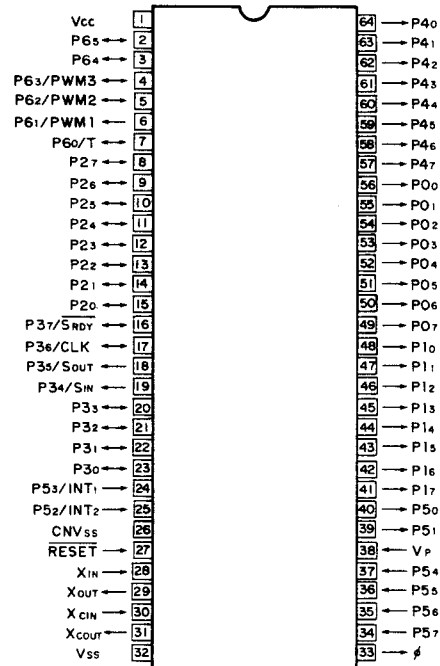
Pin No.	Pin Name	I/O	Function
1	VDD		Power Supply
2	VCOX	O	Clock Playback Circuit 4PCO
3	VCOI	I	
4	PCO	O	
5	VSS		GND
6	EFMX	O	EFM Signal External Circuit
7	EFMX	O	
8	EFMI	I	
9	VSS		GND
10	SYEQ	O	Synchronized Uniform Signal
11	N.C.		Not Use
12	DM	O	Disc Servo { LOW (0V): FORWARD OPEN (2.5V): STOP HIGH (5V): REVERSE
13	FCS	O	Focus Servo System Input
14	FZC	I	
15	FRF	I	
16	HF	I	Tracking Servo System Input
17	TER	I	
19	TRGF	O	
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	FE0F	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	Data Output to μ COM Data I/O Control Signal Clock for Data I/O Data I/O from μ COM
41	VSS		
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	SB first (H)/MSB first (L) Switch for SDO
71	TESTC	I	Test Terminal
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	

IC119:M50753-402SP (8 bit μ -COM)

Pin No.	Pin Name	I/O	Function
1	AV _{SS}	—	A/D GND
2	INO	I	A/D
3	V		A/D Vref 5V
4	AV _{CC}		A/D V _{CC} 5V
5	PWM	O	—
6	NC	—	—
7	P2 ₇	I/O	Linear Motor Drive
8	P2 ₆		
9	P2 ₅		
10	P2 ₄		
11	P2 ₃		
12	P2 ₂		
13	P2 ₁		
14	P2 ₀		
15	P3 ₇ /SRDY		DM FG Pulse
16	P3 ₆ /CLK		Serial I/O CLK
17	P3 ₅ /SOUT		Serial OUT (TO SPC)
18	P3 ₄ /SIN		Serial IN (from SPC)
19	P3 ₃		R/W
20	P3 ₂		WQ
21	P3 ₁		DM Servo select
22	P3 ₀		TR Servo select
23	CNTR		Track Counte
24	INT ₁	I	—
25	INT ₂		—
26	CNV _{SS}		—
27	RESET		RESET
28	XIN	O	Clock Input
29	XOUT		—
30	φ		—
31	RESETOUT	—	—
32	(OV)V _{SS}		GND
33	NC		—
34	2 φ	O	—
35	P4 ₃	I/O	TRACK Servo Gain Control
36	P4 ₂		LOADING OUT SW
37	P4 ₁		MUTING Output
38	P4 ₀		LASER Output
39	NC	—	—
40	NC	—	—
41	PI ₇	I/O	FLAPPER IN SW Input
42	PI ₆		FLAPPER OUT SW Input
43	PI ₅		DISPLAY DATA CLK Output
44	PI ₄		DISPLAY DATA START Signal output
45	PI ₃		
46	PI ₂		
47	PI ₁		
48	PI ₀		DM — Output
49	PO ₇		DM + Output
50	PO ₆		KP — Output
51	PO ₅		KP + Output
52	PO ₄		FLAPPER IN Output
53	PO ₃		FLAPPER OUT Output
54	PO ₂		LOADING IN Output
55	PO ₁		LOADING OUT Output
56	PO ₀		—
57	V _{CC}	—	—
58	IN ₇	I	LOADING IN SW Input
59	IN ₆		KEY Input
60	IN ₅		
61	IN ₄		
62	IN ₃		
63	IN ₂		
64	IN ₁		

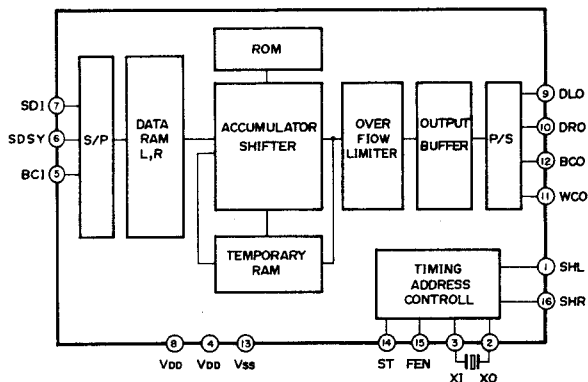
IC1: M50754-403SP (8 bit μ -COM)



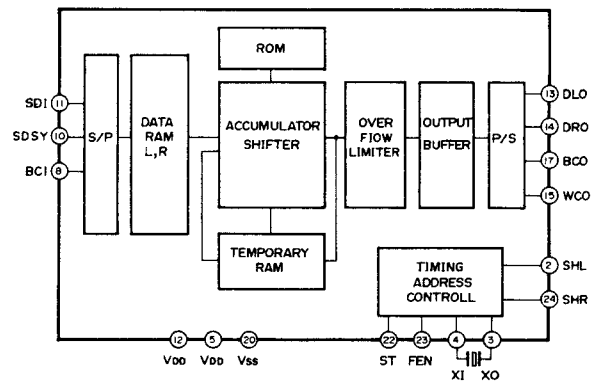
Pin No.	Pin Name	I/O	Function
1	V _{cc}		V _{cc}
2	P6 ₅	I/O	U T } DISPLAY SEGMENT
3	P6 ₄		
4	P6 ₃ /PWM3		
5	P6 ₂ /PWM2		VOLUME UP
6	P6 ₁ /PWM1	O	VOLUME DOWN
7	P6 ₀ /T	I/O	S V } DISPLAY SEGMENT
8	P2 ₇		
9	P2 ₆		
10	P2 ₅		} DISPLAY DATA INPUT
11	P2 ₄		
12	P2 ₃		
13	P2 ₂		DISPLAY DATA START Signal output
14	P2 ₁		DISPLAY DATA CLK Signal output
15	P2 ₀		DISPLAY SEGMENT (K,W)
16	P3 ₇ /SRDY		POWER OFF detect
17	P3 ₆ /CLK		} KEY CODE OUTPUT
18	P3 ₅ /SOUT	O	
19	P3 ₄ /SIN	O	
20	P3 ₃	I/O	} DISPLAY MODE BACKUP ON/OFF
21	P3 ₂		
22	P3 ₁		
23	P3 ₀	I	} REMOCON INPUT
24	P5 ₃ /INT ₁		
25	P5 ₃ /INT ₂		
26	CNV _{ss}		GND
27	RESET	I	RESET
28	XIN		CLOCK INPUT
29	XOUT	O	
30	XCIN	I	
31	XCOUT	O	
32	X _{ss}		GND
33	φ	O	
34	P5 ₇	I	K3 K2 K1 } KEY INPUT
35	P5 ₆		
36	P5 ₅		
37	P5 ₄		K0
38	V _p		FL DRIVE -30V : VP
39	P5 ₁	O	DISPLAY SEGMENT : R
40	P5 ₀		G8 G9 G7 G6 G5 } DIGIT SIGNAL
41	PI ₇		
42	PI ₆		
43	PI ₅		
44	PI ₄		
45	PI ₃		
46	PI ₂		
47	PI ₁		
48	PI ₀		
49	PO ₇		Q P } DISPLAY SEGMENT
50	PO ₆		
51	PO ₅		
52	PO ₄		O N M L J I H } DISPLAY SEGMENT
53	PO ₃		
54	PO ₂		
55	PO ₁		
56	PO ₀		
57	P4 ₇		
58	P4 ₆		
59	P4 ₅		
60	P4 ₄		
61	P4 ₃		
62	P4 ₂		
63	P4 ₁		
64	P4 ₀		

IC402: YM3404DF or YM3619DF (16 bit over sampling digital filter)

• YM3404DF



• YM3619DF



YM3619 Pin No.	YM3404 Pin No.	Pin-Name	I/O	Function
11	7	SDI	I	Encoded digital signal serial input
10	6	SDSY	I	Distinction between Lch and Rch, Data input timing
8	5	BCI	I	Bit clock input for input data
4	3	XI	I	Clock OSC. 196 fs = 17.2872MHz or 192 fs = 16.9344 MHz
3	2	XO	O	
22	14	ST	I	1DAC = "L" 2DAC = "H" Switch input
23	15	FEN	I	System clock switch input 196 fs = "L" 192 fs = "H"
13	9	DLO	O	1DAC: L, Rch Data input 2DAC: Lch Data input
14	10	DRO	O	Rch Data output
15	11	WCO	O	Word clock for output data (DLO, DRO)
17	12	BCO	O	Bit clock for output data and system clock output for SPC II 98 fs = 8.6436MHz or 96 fs = 8.4672MHz
2	1	SHL	O	1DAC: Lch deglitch signal output 2DAC: L, Rch deglitch signal output
24	16	SHR	O	1 DAC: Rch deglitch signal output
12	8	VDD ₁		Power supply +5V for digital signal
5	4	VDD ₂		Power supply for clock and deglitch signal
20	13	VSS		GND

IC BLOCK

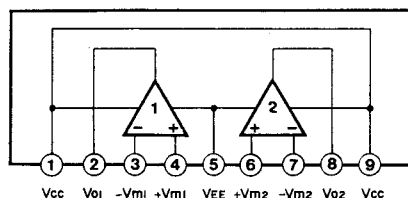
IC101, 103 ~ 110: AN6551, NJM4558S, TA7558S or BA715

IC102: NJM2043S

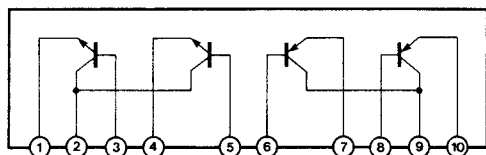
IC607 ~ 610: NJM5532S

IC611: NJM4556S

(Dual Ope-Amp)

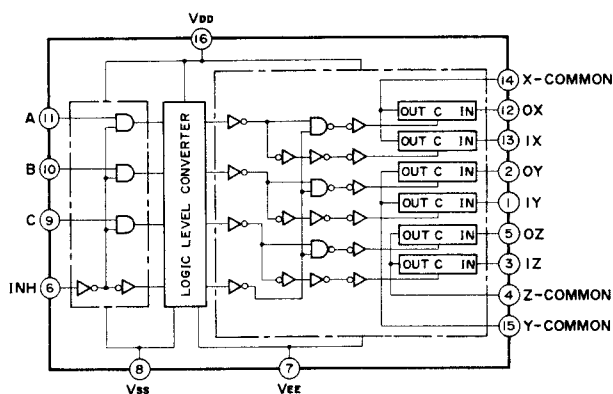


IC113: STA451C (Transistor Array)



IC117: TC4053BP, μ PD4053, HD14053 or MN4053BP

(Triple-2 channel Multiplexer/Demultiplexer)

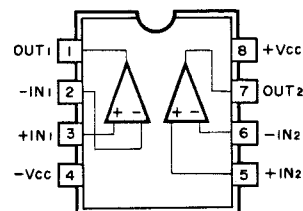


CONTROL INPUTS				"ON" CHANNEL
INHIBIT (Pin 6)	C (Pin 9)	B (Pin 10)	A (Pin 11)	0X (Pin 12), 0Y (Pin 2), 0Z (Pin 5) 1X (Pin 13), 1Y (Pin 1), 1Z (Pin 3)
L	L	L	L	0X, 0Y, 0Z
L	L	L	H	1X, 0Y, 0Z
L	L	H	L	0X, 1Y, 0Z
L	L	H	H	1X, 1Y, 0Z
L	H	L	L	0X, 0Y, 1Z
L	H	L	H	1X, 0Y, 1Z
L	H	H	L	0X, 1Y, 1Z
L	H	H	H	1X, 1Y, 1Z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

* Don't Care

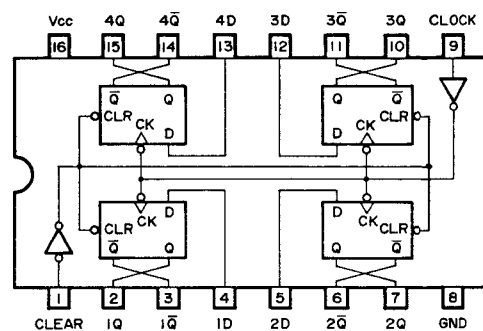
IC503: NJM2043M (T1) or AN6558S

(Dual Ope-Amp)



IC602: TC74HC175P or MC74HC175N

(Quad D-Type Flip-Flop with Clear)

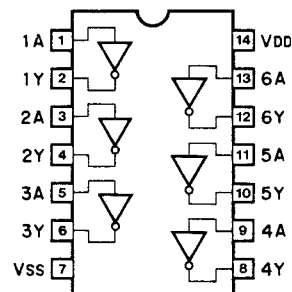


IC603: TC74HC04P or MC74HC04N

IC116: TC4069B

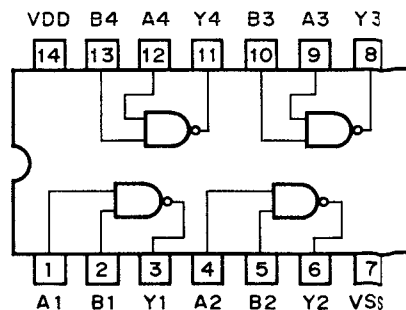
IC403, 404: TC74HC04P

(Hex Inverter)



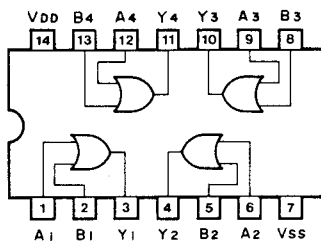
IC405: TC74HC00P

(Quad 2 Input NAND)

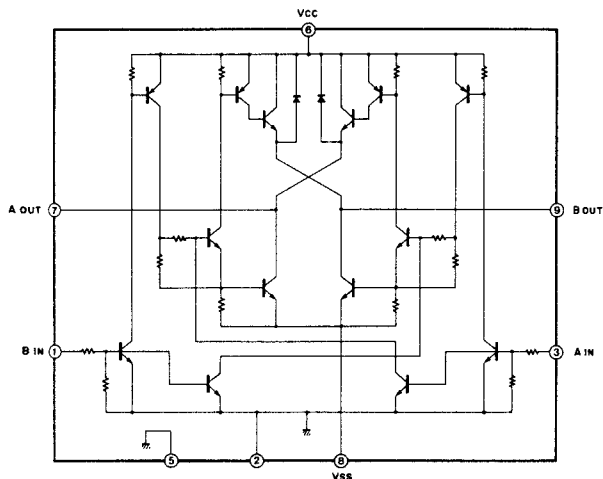


IC115: TC4071BP

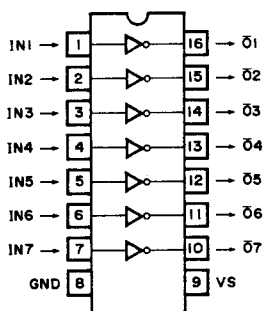
(Quadruple 2-Input OR Gate)



IC111, 112: BA6218 (Motor Driver)

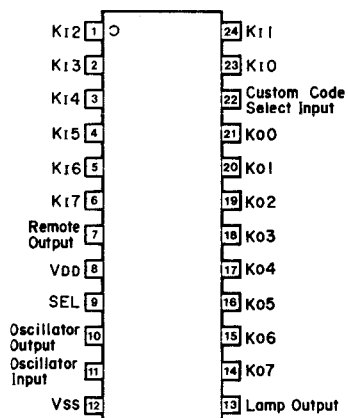


IC3: M54580P (LED Driver)



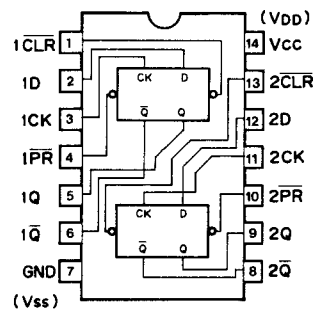
IC01: μ PD6102G

(64 Function Remote Control Transmitter)



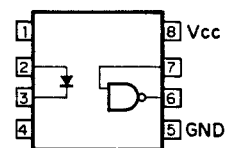
IC114: TC74HC74P

(Dual D Flip-Flop with Preset and Clear)

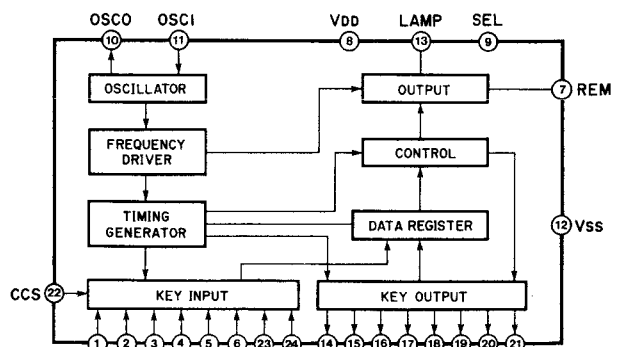
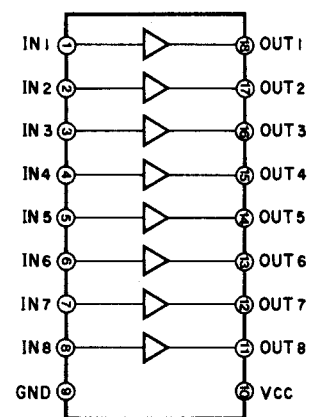


IC406 ~ 409: PC910J
IC410 ~ 412: TLP552

(Photo Coupler)

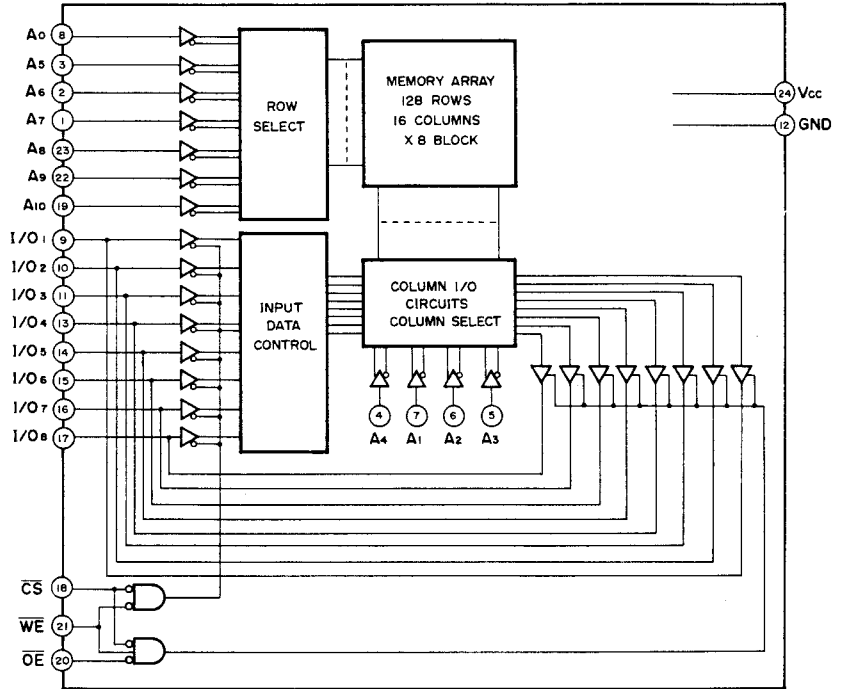
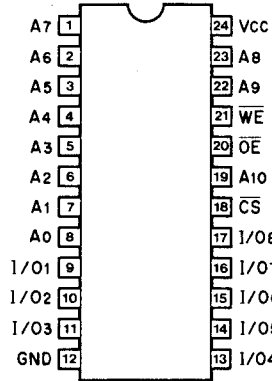


IC2: M54564P (LED Driver)

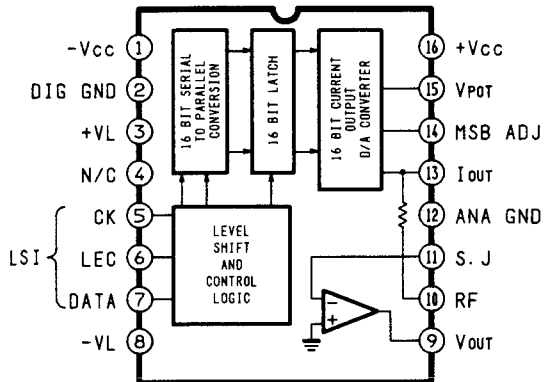


IC502: MSM5128-20GS, HM6116FP-4 or CXK5816M

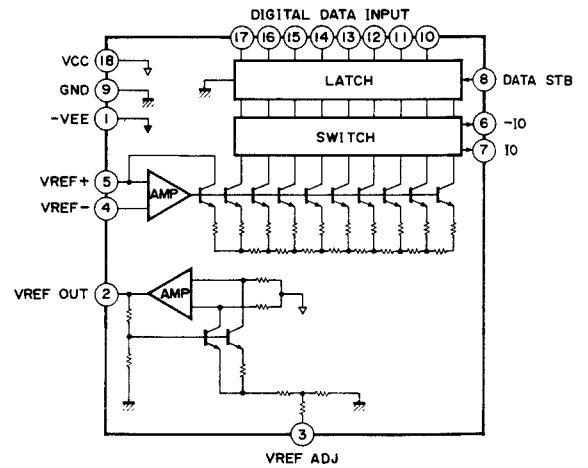
(RAM)



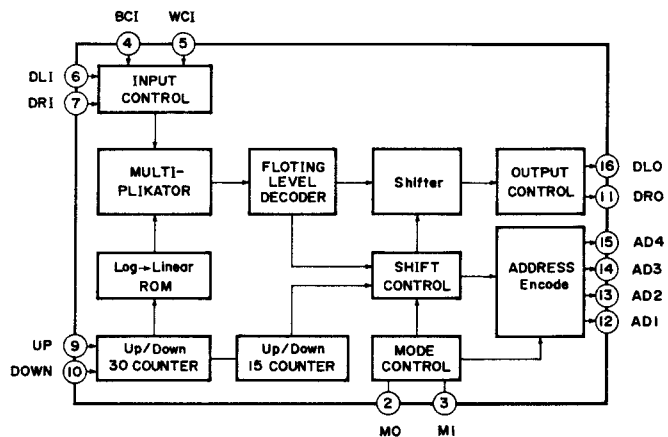
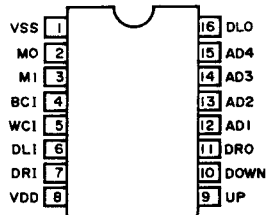
IC605, 606: PCM56P-K (D/A Converter)



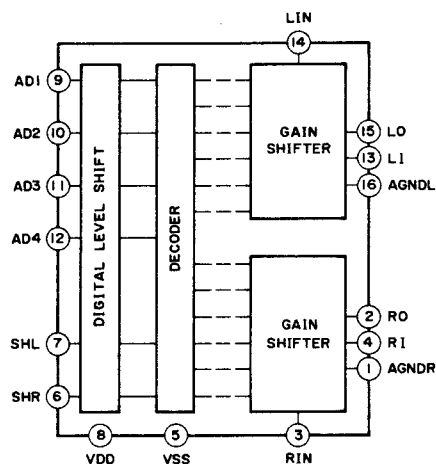
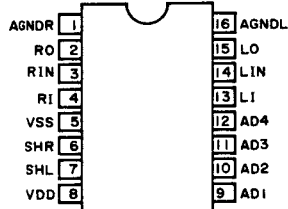
IC118: BA9201 (8 bit D/A Converter)



IC601: YM3615 (Digital Volume Controller)

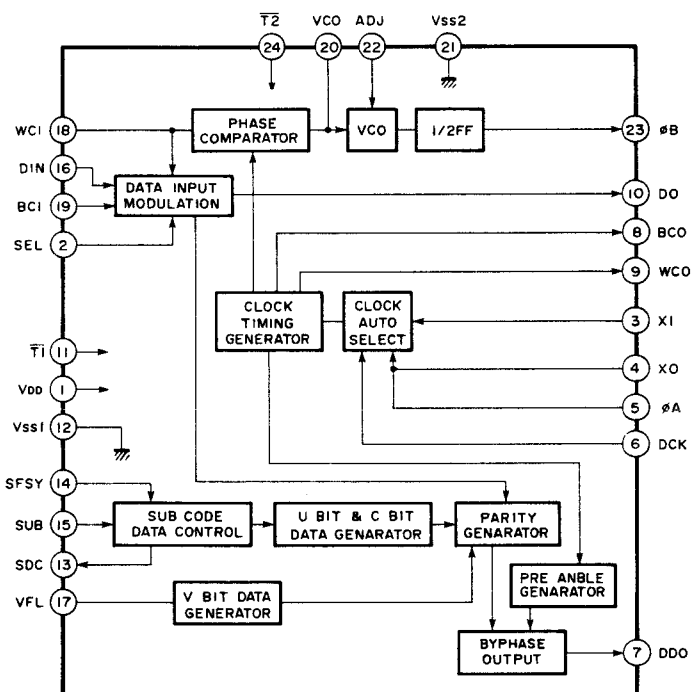
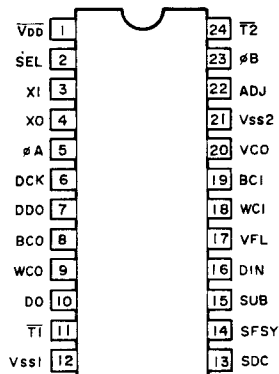


IC604: YM3023 (Gain Shifter)

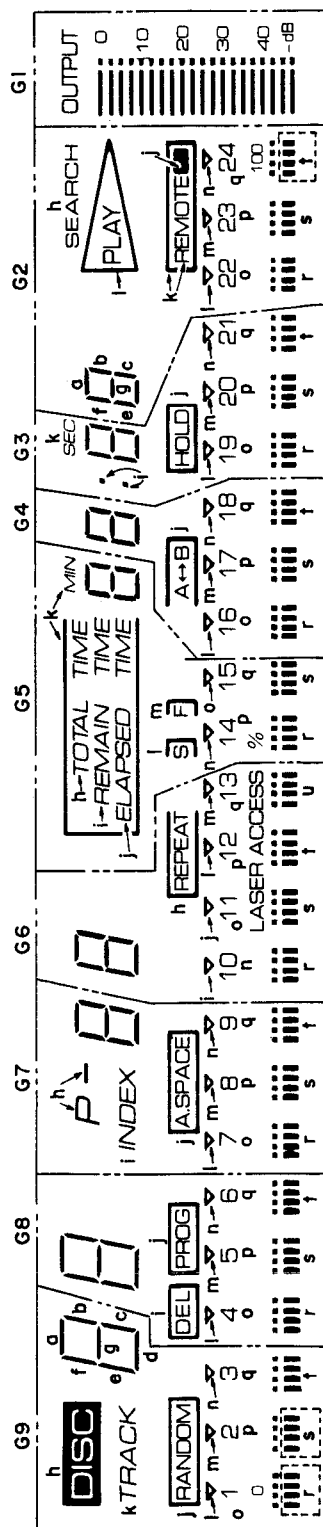
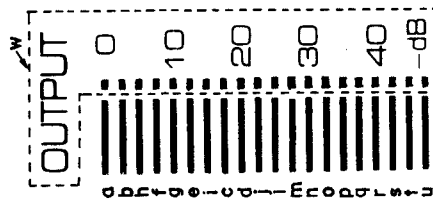
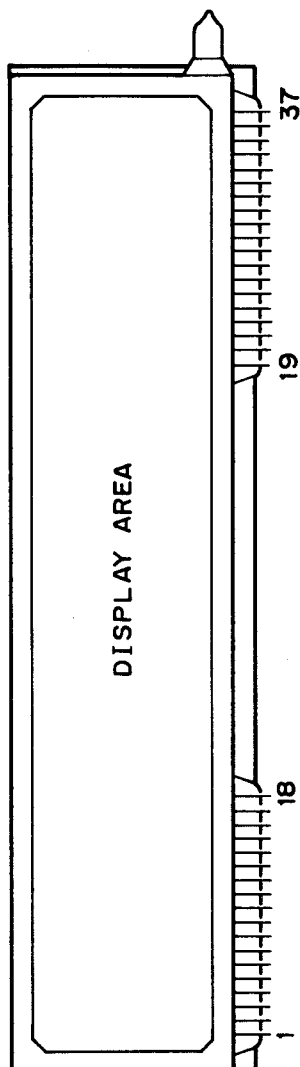


IC401: YM3613

(Digital Audio Interface Transmitter)



FL DATA



Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Assignment	F	F	Pk	Ph	Pl	Pm	Pn	Po	Pp	Pq	Pv	Pr	Ps	G9	G8	Pt	G7	G6	G5	G4
Pin No.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37			
Assignment	G3	Pu	G2	Pj	Gi	Pk	Pd	Pc	Pi	Pw	Pe	Pg	Pf	Pb	Pa	F	F			

■ WIRING



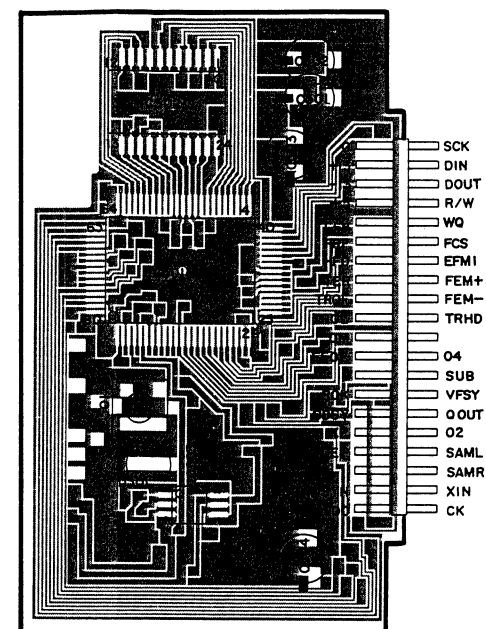
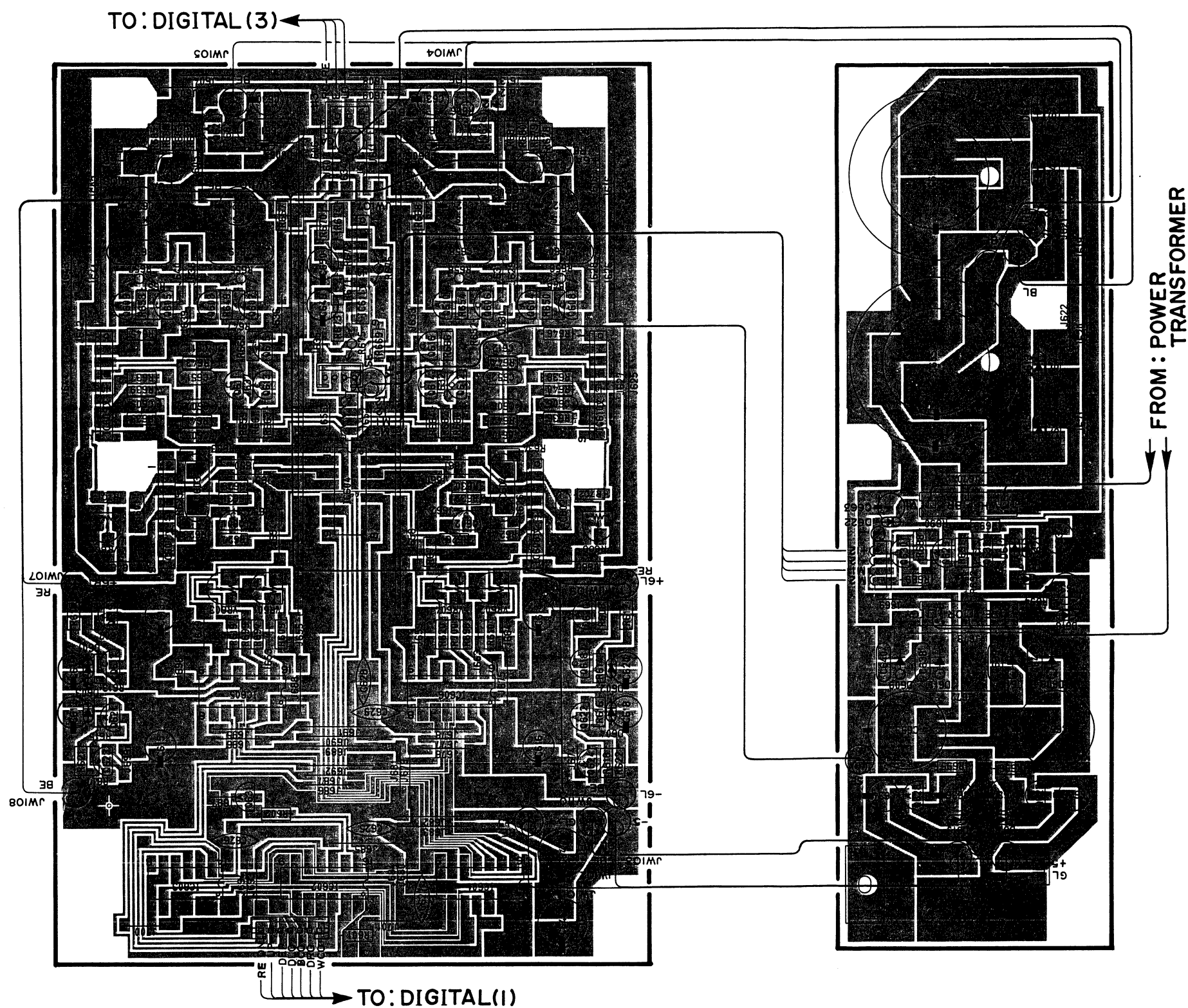
PRINTED CIRCUIT BOARD (Pattern side)

Note) 文字面 : Component side

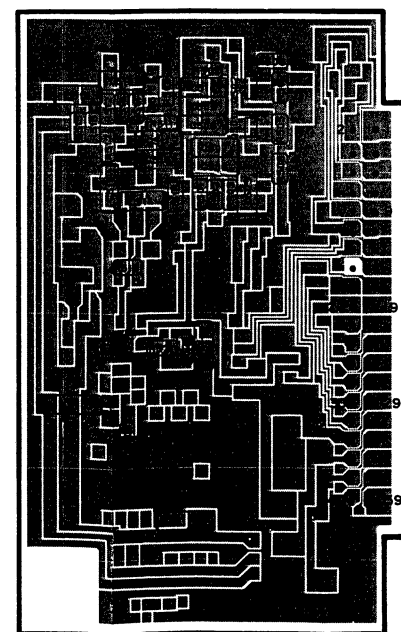
Main Circuit Board (1)

Main Circuit Board (2)

SPC Circuit Board ... Parts

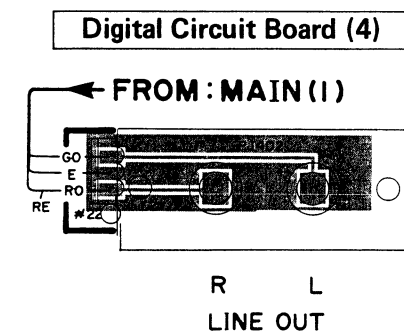
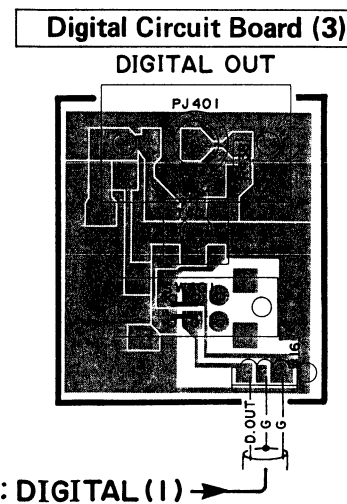
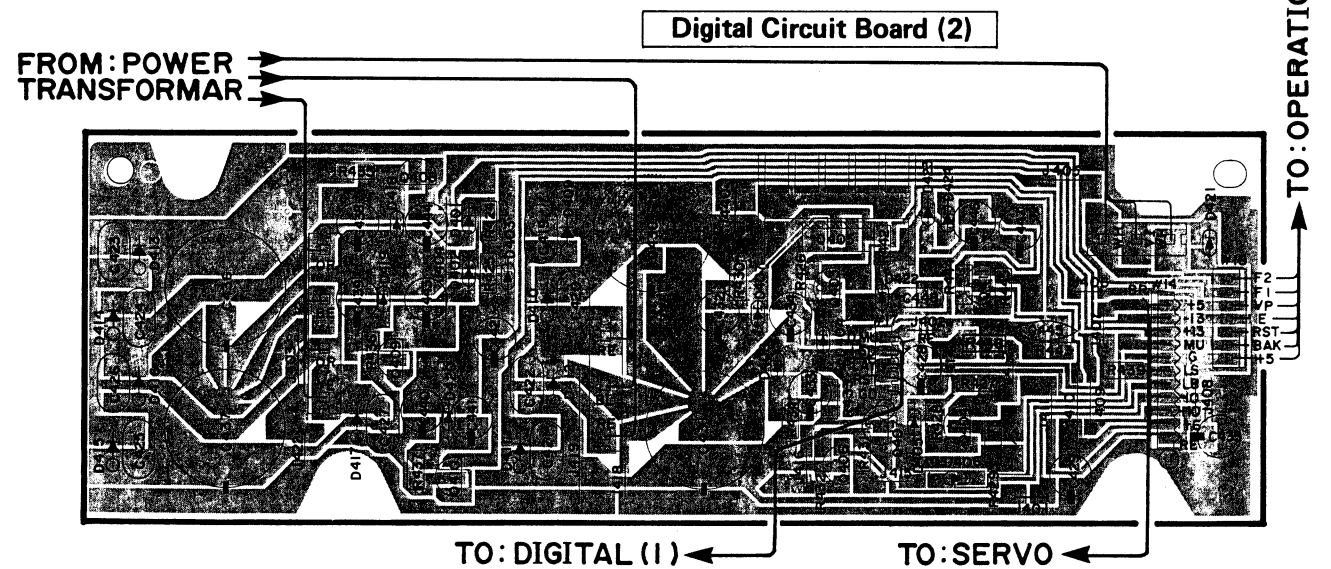
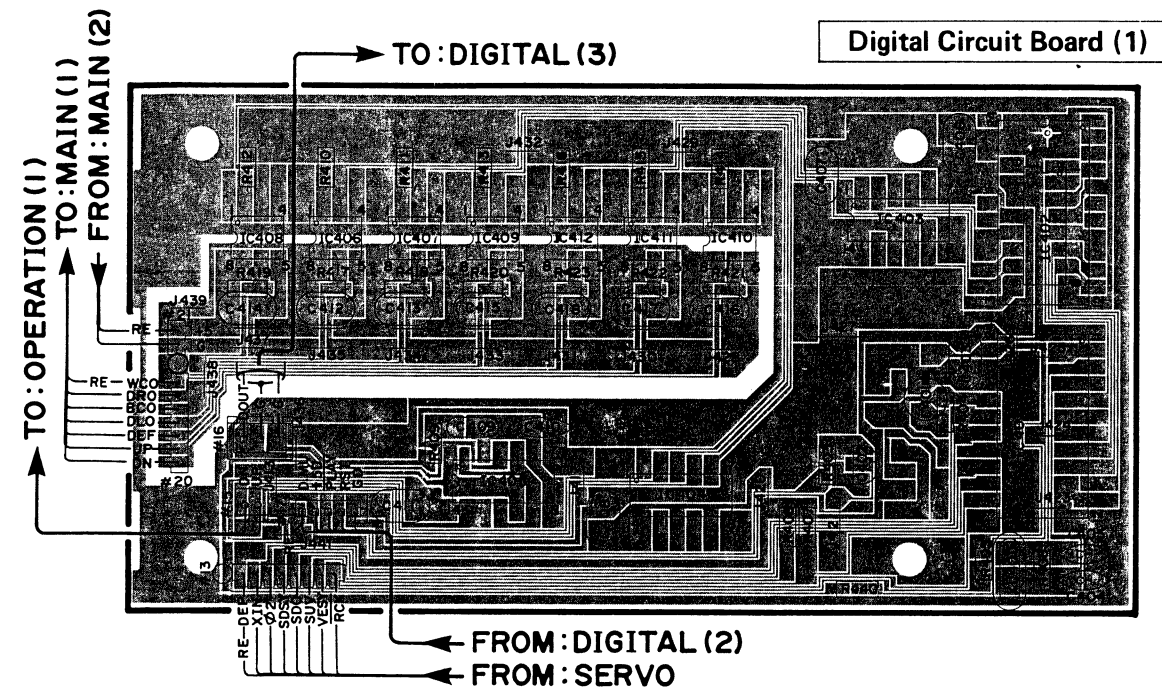
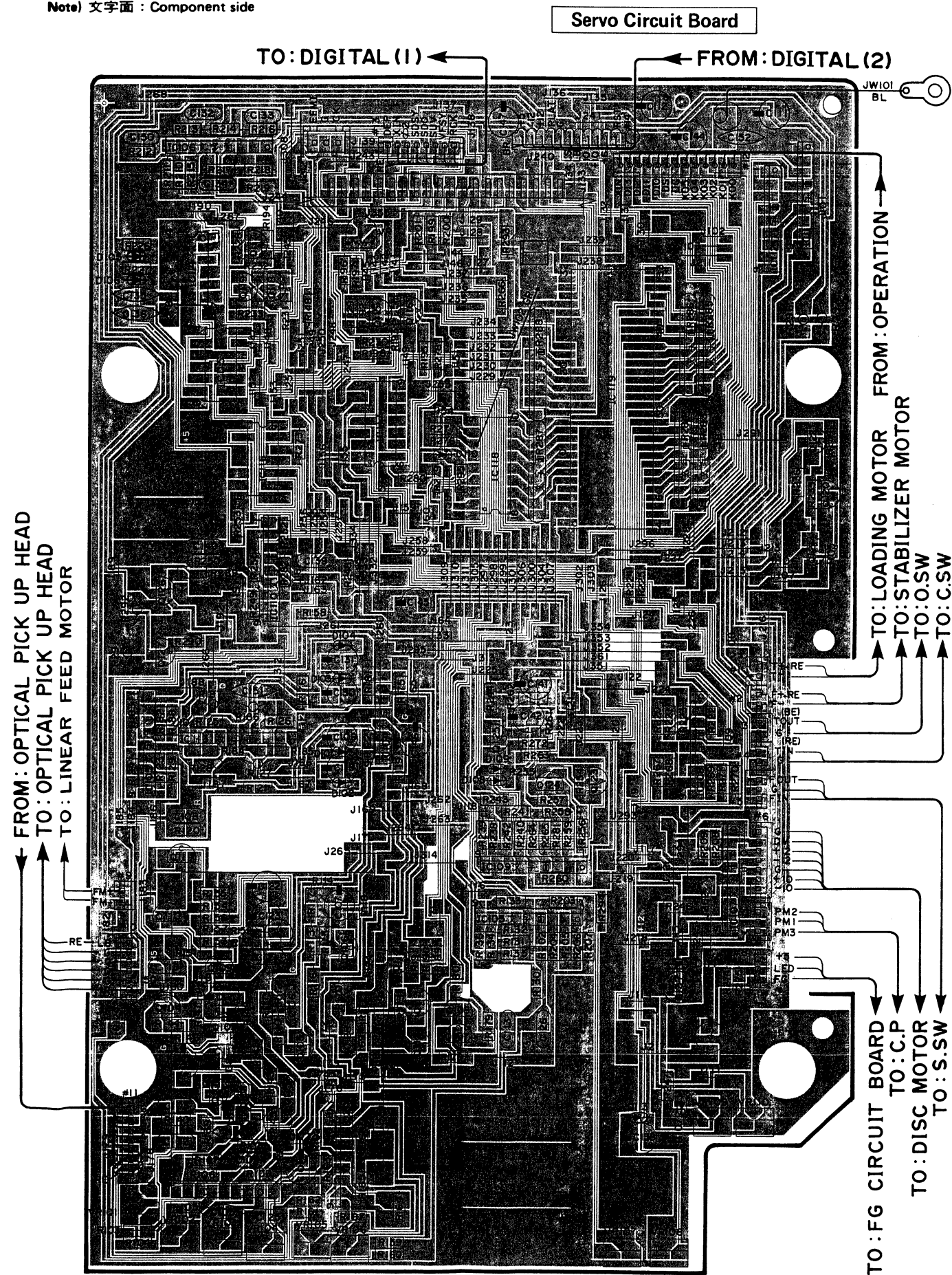


SPC Circuit Board ... Chip



PRINTED CIRCUIT BOARD(Pattern side)

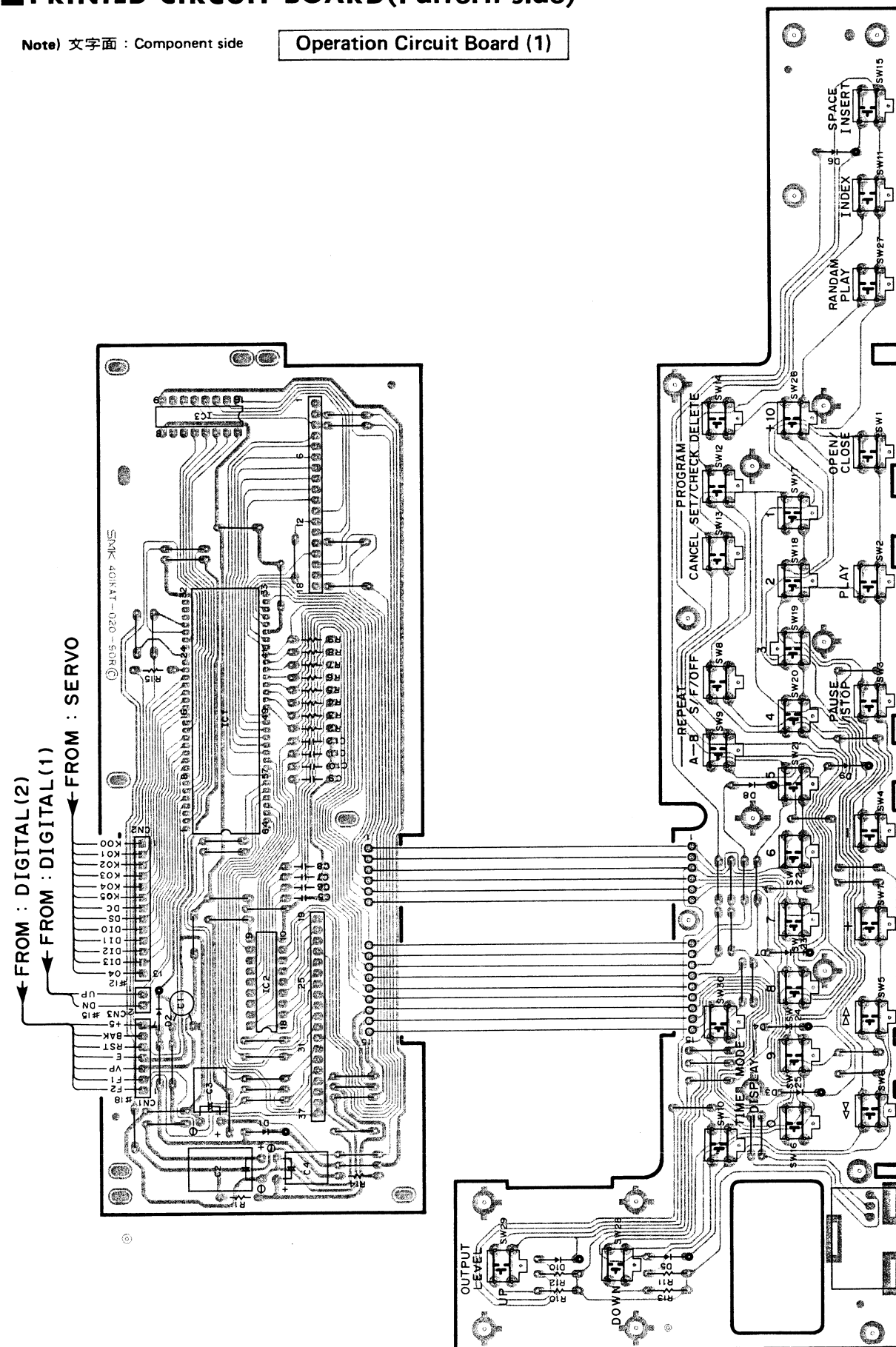
Note) 文字面 : Component side



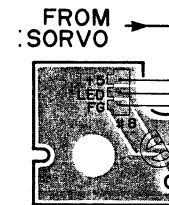
PRINTED CIRCUIT BOARD(Pattern side)

Note) 文字面 : Component side

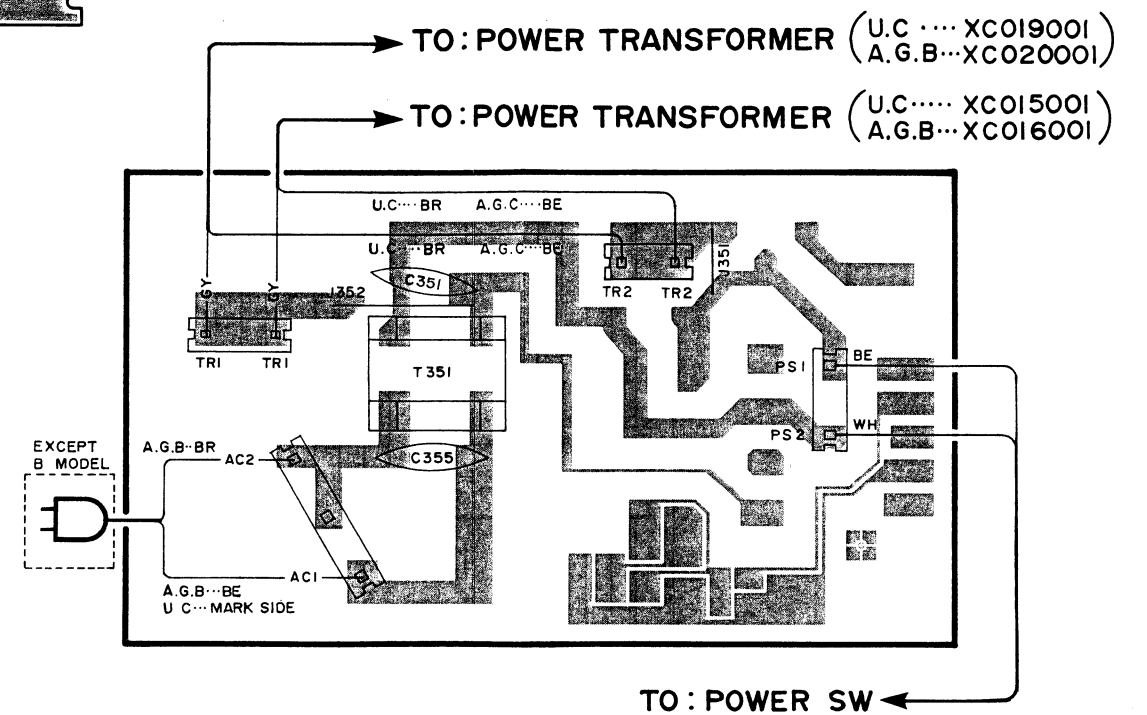
Operation Circuit Board (1)



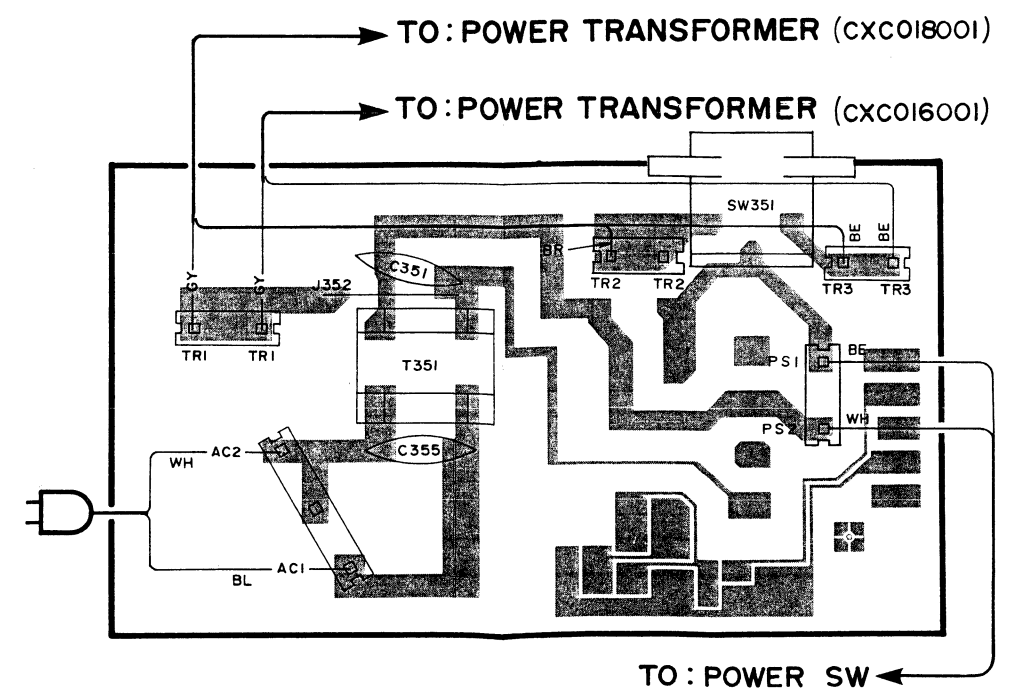
FG Circuit Board



Power Circuit Board



Power Circuit Board



- * All voltages are measured with a 10M Ω /DC electric volt meter.
- * Components having special characteristics are marked  and must be replaced with parts having specifications equal to those originally installed.
- * Schematic diagram is subject to change without notice.

SCHEMATIC DIAGRAM(2/4)

1

2

3

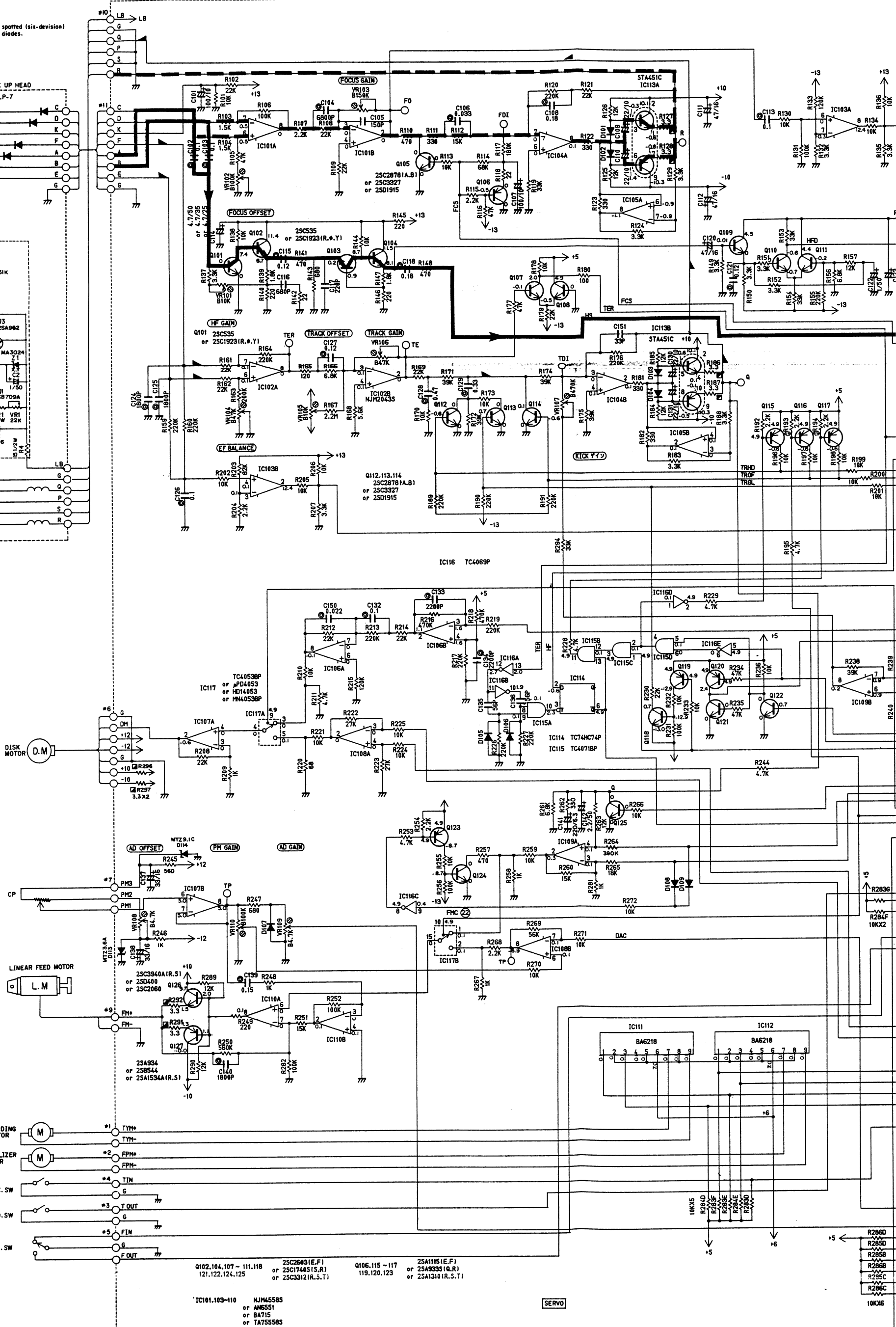
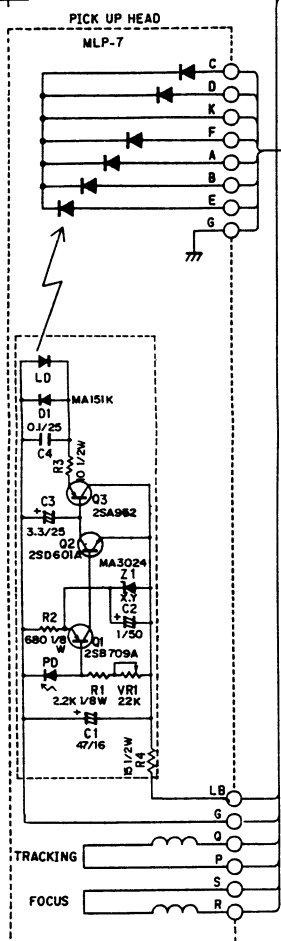
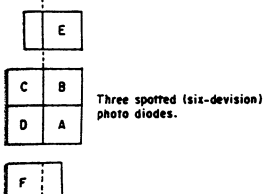
4

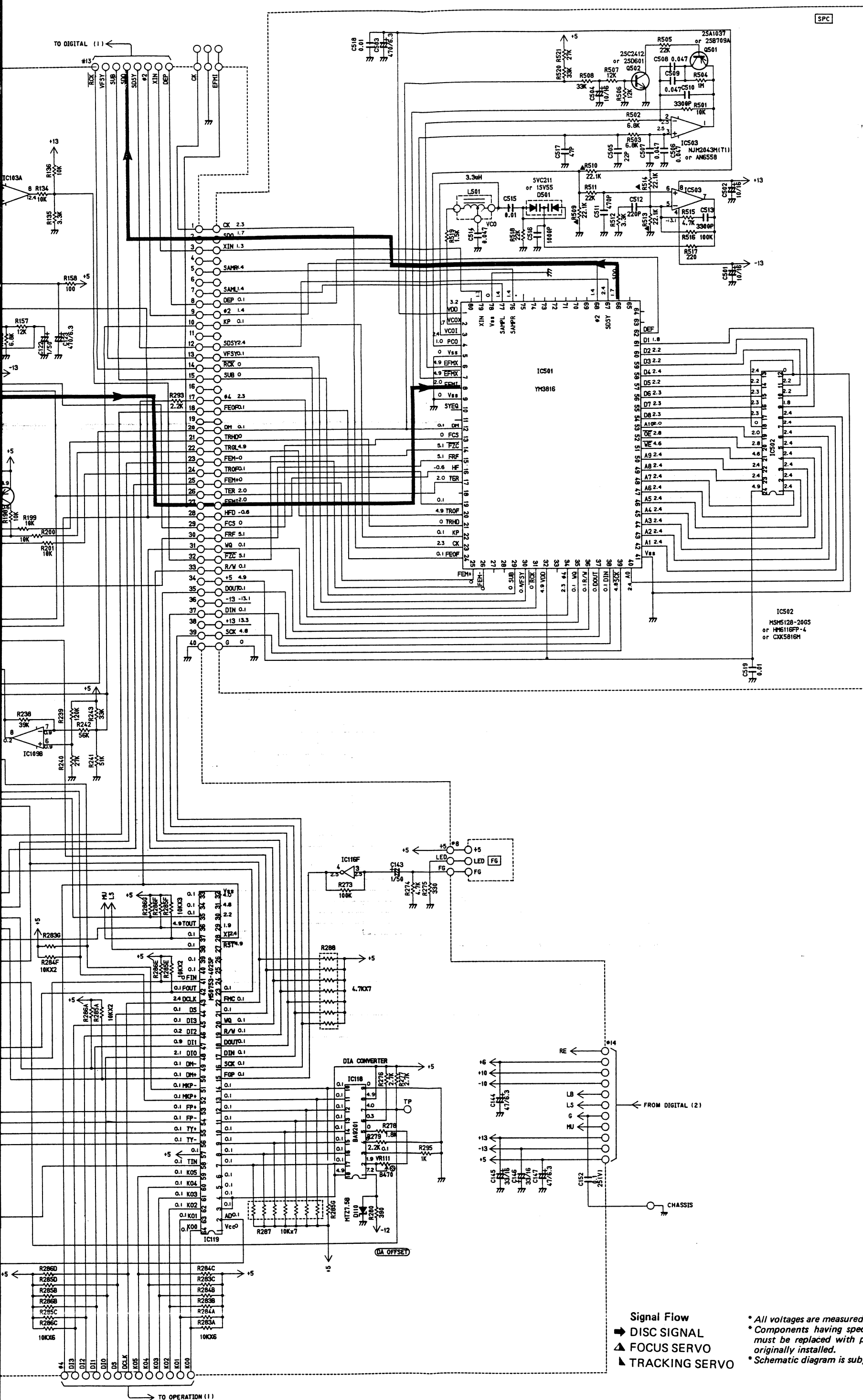
5

6

7

8





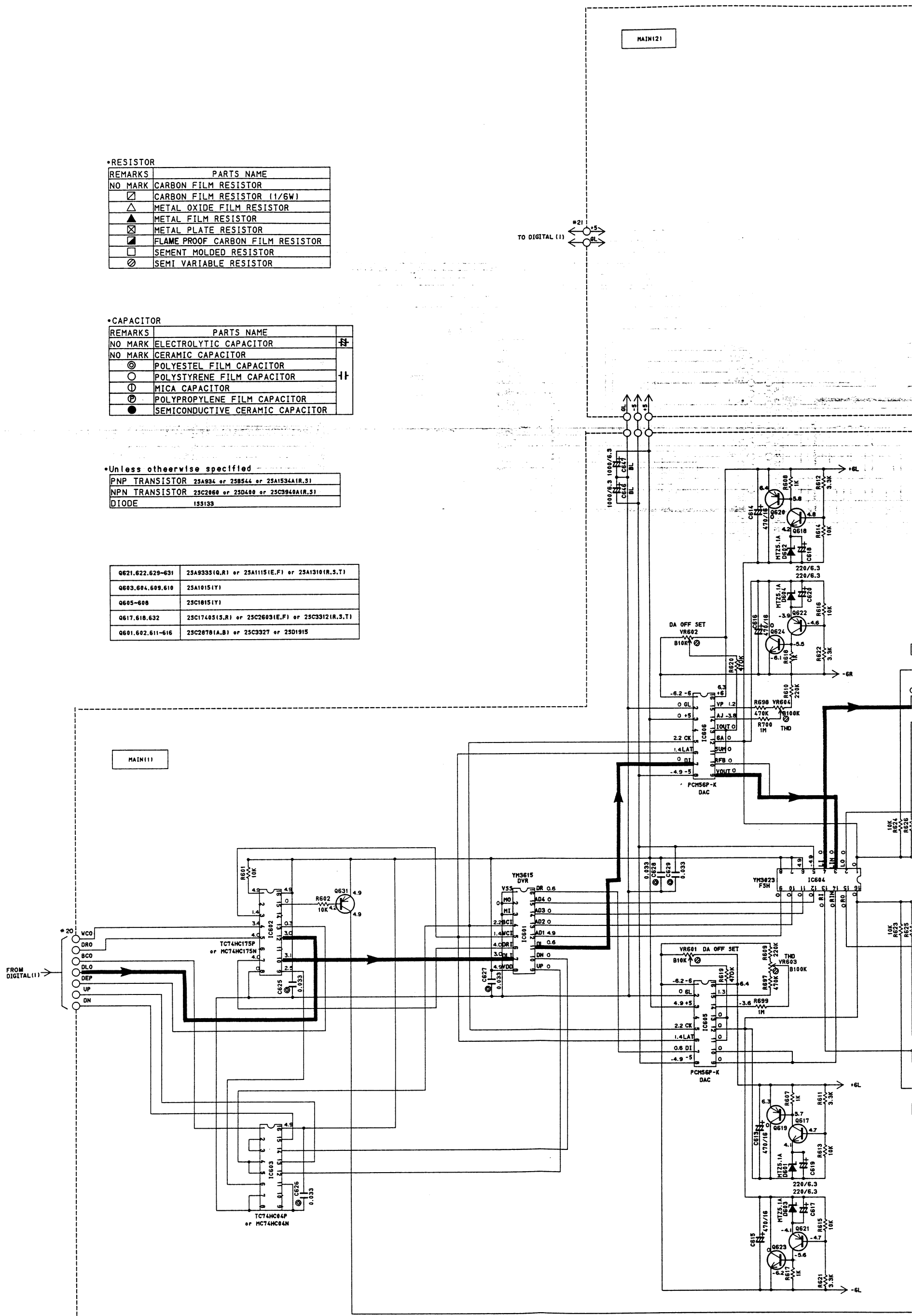
SCHEMATIC DIAGRAM(3/4)

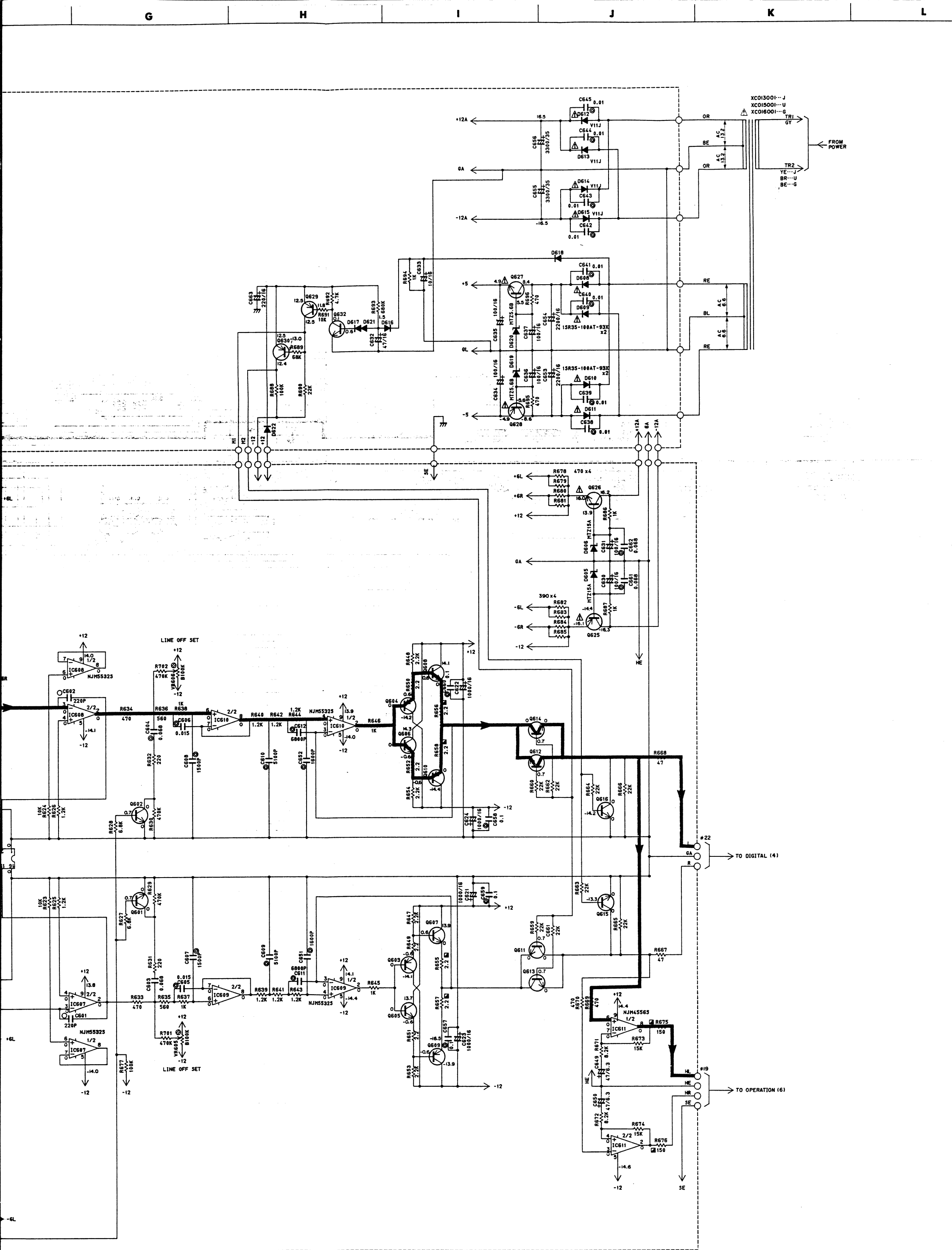
*RESISTOR	
REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR
□	CARBON FILM RESISTOR (1/6W)
△	METAL OXIDE FILM RESISTOR
▲	METAL FILM RESISTOR
⊠	METAL PLATE RESISTOR
▣	FLAME PROOF CARBON FILM RESISTOR
□	SEMENT MOLDED RESISTOR
⊙	SEMI VARIABLE RESISTOR

*CAPACITOR	
REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
NO MARK	CERAMIC CAPACITOR
⊙	POLYESTEL FILM CAPACITOR
○	POLYSTYRENE FILM CAPACITOR
①	MICA CAPACITOR
Ⓟ	POLYPROPYLENE FILM CAPACITOR
●	SEMICONDUCTIVE CERAMIC CAPACITOR

*Unless otheerwise specified	
PNP TRANSISTOR	2SA934 or 2SB544 or 2SA1534A1R.51
NPN TRANSISTOR	2SC2060 or 2SD480 or 2SC3940A1R.51
DIODE	1SS133

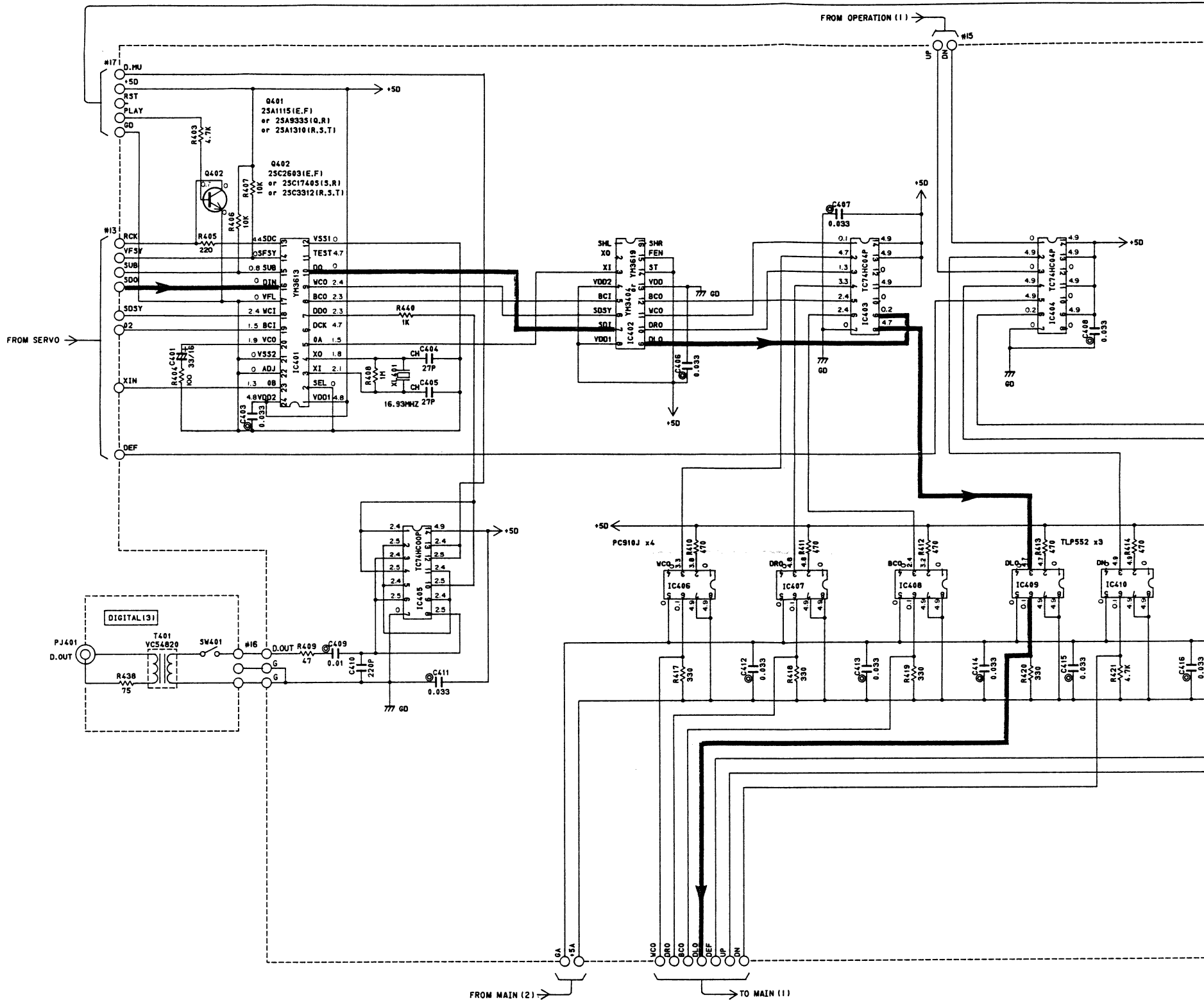
Q621,622,629-631	2SA933S(IQ,R) or 2SA1115(E,F) or 2SA1310(R,S,T)
Q603,604,609,610	2SA1015(Y)
Q605-608	2SC1815(Y)
Q617,618,632	2SC1740S(I,S,R) or 2SC2603(E,F) or 2SC3312(R,S,T)
Q601,602,611-616	2SC2878(A,B) or 2SC3327 or 2SD1915

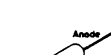
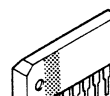
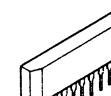
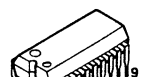
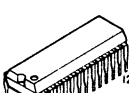
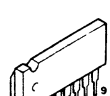
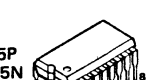
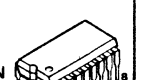
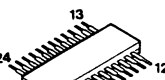
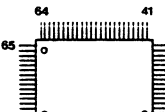


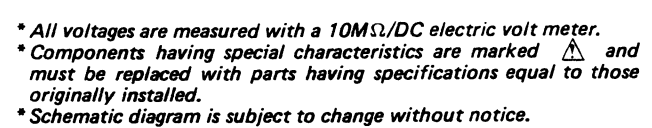


* All voltages are measured with a 10MΩ/DC electric volt meter.
 * Components having special characteristics are marked Δ and must be replaced with parts having specifications equal to those originally installed.
 * Schematic diagram is subject to change without notice.

SCHEMATIC DIAGRAM(4/4)

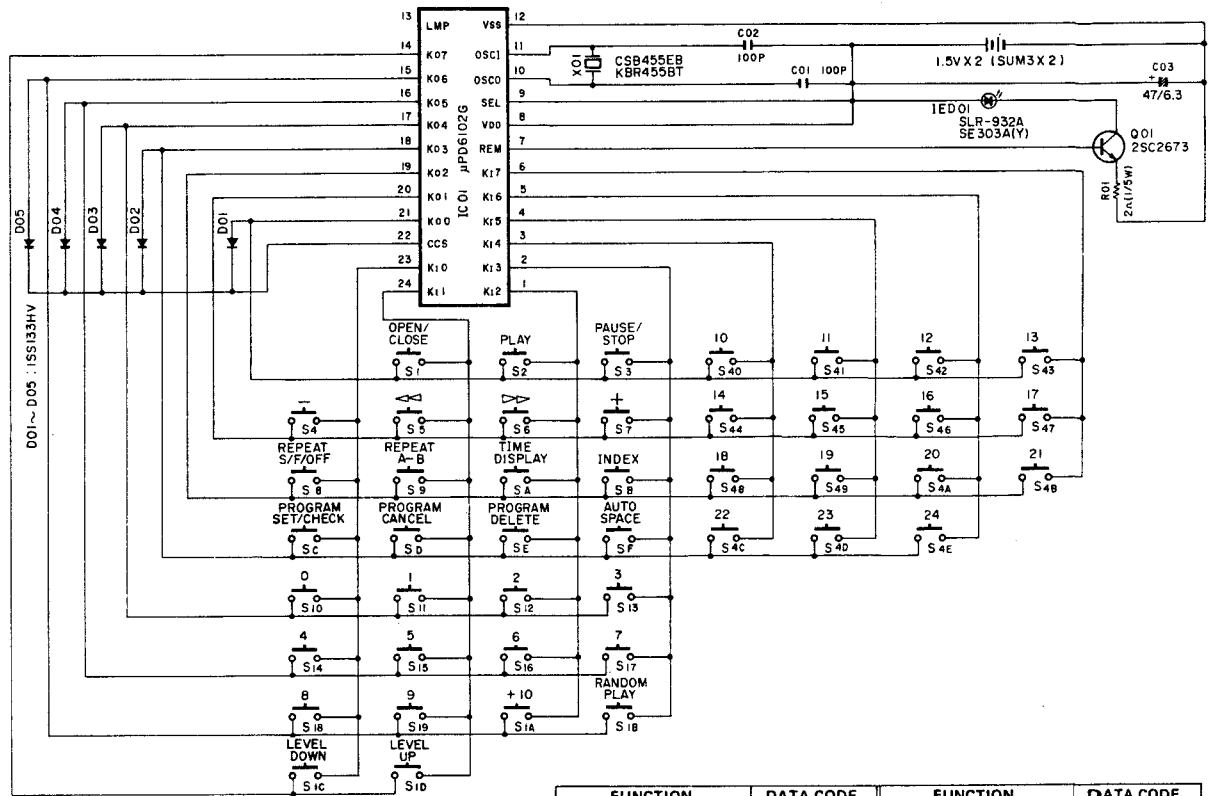


2SA1037 2SB709A 2SC2412 2SD601	2SC1983 2SD880 (O, Y) 2SD1505	1SS133 MTZ7.5B V11J 1SR35-100AT-93X MTZ5.6B MTZ15A MTZ5.1A MTZ30C MTZ4.3B MA2051-A	NJM4558S AN6551 BA715 TA75558S NJM2043S NJM5532S NJM4556S	STA451C	BA9201 M54564P	TC4069P TC4071BP TC74HC74P TC74HC04P MC74HC04N TC74HC00P	YM3613 YM3619	M50753-402SP M50754-403SP	
									
2SA1115 (E, F) 2SA933S (Q, R) 2SA1310 (R, S, T) 2SA934 2SB544 2SA1534A (R, S) 2SC2603 (E, F) 2SC1740S (S, R) 2SC3312 (R, S, T) 2SC2878 (A, B)	2SC3327 2SD1915 2SC2060 2SD400 2SC3940A (R, S) 2SC535 2SC1923 (R, O, Y) ASA1015 (Y) 2SC1815 (Y)	1SV55 SVC211	BA6218	PC910J TLP55Z	TC4053BP μPD4053 HD14053 MN4053BP PCM56P-K TC74HC175P MC74HC175N YM3023 YM3615	M54580P YM3404	NJM2043M (T)	HM6116FP-4	YM3616
									

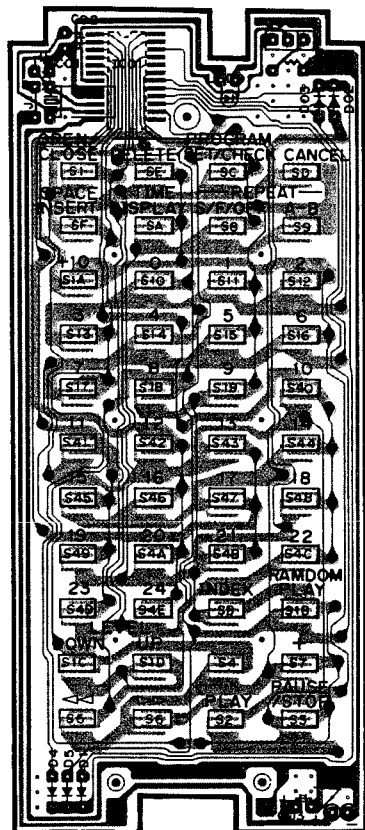


RS-CD100 REMOTE CONTROL TRANSMITTER

■ SCHEMATIC DIAGRAM



■ PRINTED CIRCUIT BOARD (Pattern side)



FUNCTION	DATA CODE	FUNCTION	DATA CODE
OPEN/CLOSE	01	7	17
PLAY	02	8	18
PAUSE/STOP	03	9	19
-	04	+10	1A
◀▶	05	RANDOM PLAY	1B
+	06	LEVEL DOWN	1C
REPET S/F/OFF	07	LEVEL UP	1D
REPET A ↔ B	08	10	40
TIME DISPLAY	09	11	41
INDEX	0A	12	42
PROGRAM SET/CHECK	0B	13	43
PROGRAM CANCEL	0C	14	44
PROGRAM DELETE	0D	15	45
SPACE INSERT	0E	16	46
0	0F	17	47
1	10	18	48
2	11	19	49
3	12	20	4A
4	13	21	4B
5	14	22	4C
6	15	23	4D
	16	24	4E

CASTAM CODE

79

PARTS LIST

ELECTRICAL PARTS

■WARNING

Components having special characteristics are marked Δ 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. 70.

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
※	NA 09 29 60	Main Circuit Board	メ イン シ ー ト				
	FC 44 41 00	Mylar Cap.	0.01 μ F 50V	マイ ラ ー コ ン	C638~645		
	FC 36 46 80	//	0.068 μ F 50V	//	C661,662		
	FF 09 22 20	Polystyrene Film Cap.	220pF	銅 ハ ク ス チ コ ン	C601,602		
	FC 36 51 00	Mylar Cap.	0.1 μ F 50V	マイ ラ ー コ ン	C657~660		
	FC 34 43 30	//	0.033 μ F 50V	//	C625~629		
※	VD 03 27 00	//	1500pF 50V	銅 リ ー ド マ イ ラ ー コ ン	C607,608		
	VB 05 70 00	//	1600pF 50V	//	C651,652		
※	VD 03 28 00	//	5100pF 50V	//	C609,610		
	VD 03 29 00	//	6800pF 50V	//	C611,612		
	VD 03 30 00	//	0.015 μ F 50V	//	C605,606		
	VD 03 31 00	//	0.068 μ F 50V	//	C603,604		
	UJ 13 71 00	Electrolytic Cap.	10 μ F 16V	ケ ミ コ ン	C633		
	Uj 93 82 20	//	220 μ F 16V	//	C663		
	UM 04 92 20	//	2200 μ F 16V	オー ディ オ ケ ミ コ ン	C653,654		
	UH 23 74 70	//	47 μ F 16V	ケ ミ コ ン	C632		
※	UM 09 93 30	//	3300 μ F 35V	//	C655,656		
	UJ 11 74 70	//	47 μ F 6.3V	オー ディ オ ケ ミ コ ン	C649,650		
	UM 02 82 20	//	220 μ F 6.3V	//	C617~620		
	UM 04 81 00	//	100 μ F 16V	//	C630,631,634~637		
	UM 04 84 70	//	470 μ F 16V	//	C613~616		
	UJ 13 91 00	//	1000 μ F 16V	//	C621~624		
	FZ 00 62 70	//	1000 μ F 6.3V	ブ ラ ッ ク ゲ ー ト コ ン	C646,647		
	HV 45 32 20	Flame Proof Carbon Resistor	2.2 Ω 1/4W	不 燃 化 カ ー ボ ン 抵 抗	R655~658		
	HV 45 51 50	//	150 Ω 1/4W	//	R675,676		
	VB 86 15 00	Pre-Set Potentiometer	B10k Ω	半 固 定 抵 抗	VR601,602		
	VB 86 19 00	//	B100k Ω	//	VR603~606		
	iA 09 33 00	Transistor	2SA933S(Q,R)	ト ラ ン ジ ス タ	Q621,622,629~631	Inter-changeable	
	iA 11 15 10	//	2SA1115(E,F)	//	//		
	iX 60 31 70	//	2SA1310(R,S,T)	//	//		
	iA 09 34 00	//	2SA934	//	Q619,620,625,628	Inter-changeable	
	iB 05 44 10	//	2SB544	//	//		
	iA 10 15 21	//	2SA1015(Y)	//	Q603,604,609,610		
	iC 17 40 70	//	2SC1740S(S,R)	//	Q617,618,632	Inter-changeable	
	iC 26 03 10	//	2SC2603(E,F)	//	//		
	iX 60 31 80	//	2SC3312(R,S,T)	//	//		
	iC 18 15 20	//	2SC1815(Y)	//	Q605~608		
	iC 20 60 00	//	2SC2060	//	Q623,624,626,627	Inter-changeable	
	iD 04 00 10	//	2SD400	//	//		
	iX 60 42 00	//	2SC2878(A,B)	//	Q601,602,611~616	Inter-changeable	
	iC 33 27 00	//	2SC3327	//	//		
	iF 00 96 20	Diode	V11J	ダ イ オ ー ド	D612~615		
	iF 00 34 50	//	ISS133	//	D616~618,621,622		
	iH 00 14 30	//	ISR35-100A	//	D608~611		
	iF 00 64 60	Zener Diode	MTZ5.6B	ツ ェ ナ ー ダ イ オ ー ド	D619,620		
	iF 00 63 10	//	MTZ15A	//	D605,606		
	iF 01 06 80	//	MTZ5.1A	//	D601~604		
※	XB 69 60 01	IC	YM3615 DVR	I C	IC601		

※New Parts (新規部品)

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
*XB	70 : 30 : 01	IC	YM3023	I C	IC604		
XA	42 : 60 : 01	//	NJM5532S	//	IC607~610		
iG	07 : 74 : 00	//	NJM4556S	//	IC611		
iR	00 : 04 : 00	//	TC74HC04P	//	IC603		
iR	01 : 75 : 00	//	TC74HC175P	//	IC602		
XB	63 : 80 : 01	//	PCM56P-K	//	IC605, 606		
LA	00 : 23 : 20	Lapping Terminal	P=7.5 3P i-Type	i型ラッピング端子板			
LB	91 : 80 : 30	Base Pin	3P i-Type	X H ベースピン			
VB	21 : 94 : 00	//	7P	P H ベースピン			
VB	21 : 89 : 00	//	2P	//			
BB	06 : 95 : 10	Ground Plate		ランド金具			
BB	07 : 04 : 20	Bus Bar		バスバー			
*NX	60 : 05 : 30	Operation Circuit Board		オペレーションシート			
KX	60 : 04 : 10	Switch		M T スイッチ	SW1~30		
HJ	35 : 81 : 00	Carbon Resistor	100kΩ 1/4W	カーボン抵抗	R10~13		
iF	00 : 34 : 20	Diode	IS1588	ダイオード	D3~10		
IX	60 : 89 : 60	Receiver	HC-102	受光器			
*NX	60 : 05 : 50	Jack Circuit Board		ジャックシート			
LX	60 : 03 : 20	Jack		ジャック			
*NX	60 : 05 : 40	Display Circuit Board		表示器シート			
HJ	35 : 64 : 70	Carbon Resistor	4.7kΩ 1/4W	カーボン抵抗	R1		
HJ	35 : 51 : 00	//	100Ω 1/4W	//	R14		
HJ	35 : 72 : 20	//	22kΩ 1/4W	//	R2~9		
HJ	35 : 71 : 00	//	10Ω 1/4W	//	R15		
iF	00 : 34 : 20	Diode	IS1588	ダイオード	D2		
iH	00 : 14 : 30	//	ISR35-100A	//	D1		
*XC	48 : 90 : 02	IC	M50754-404SP	I C	IC1		
iX	60 : 89 : 30	//	M54580P	//	IC2		
iX	60 : 89 : 40	//	M54564P	//	IC3		
FG	24 : 41 : 00	Ceramic Cap.	0.01μF 50V	セラコン	C1		
FG	21 : 22 : 20	//	220pF 50V	//	C5~12		
Ui	93 : 94 : 70	Electrolytic Cap.	4700μF 16V	ケミコン	C2		
UJ	11 : 74 : 70	//	47μF 6.3V	//	C3		
Ui	32 : 73 : 30	//	33μF 10V	//	C4		
iX	60 : 89 : 50	Display Unit	CP5296GR	蛍光表示管	FL1		

※New Parts (新規部品)

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	リンク
※	NA 09 29 40	Digital Circuit Board	デ ジ タ ル シ ー ト		CDX-10000		
	FG 21 12 70	Ceramic Cap.	27pF 50V セ ラ コ ン	C404, 405			
	FG 21 22 20	//	220pF 50V //	C410			
	FG 21 31 00	//	1000pF 50V //	C445			
	FC 44 41 00	Mylar Cap.	0.01μF 50V マ イ ラ ー コ ン	C419~427			
	FA 15 43 30	//	0.033μF 50V //	C403, 406~408, 411~418			
	UW 63 94 70	Electrolytic Cap.	4700μF 16V ケ ミ コ ン	C430, 431			
	FZ 00 65 00	//	3300μF 25V //	C436, 437			
	FA 15 41 00	Mylar Cap.	0.01μF 50V マ イ ラ ー コ ン	C409, 448			
	UJ 12 81 00	Electrolytic Cap.	100μF 10V ケ ミ コ ン	C429, 434			
	UJ 13 72 20	//	22μF 16V //	C446			
	UJ 13 73 30	//	33μF 16V //	C401, 428, 435			
	UJ 13 81 00	//	100μF 16V //	C438, 439, 443, 444			
	UJ 13 82 20	//	220μF 16V //	C432, 433, 447			
	UJ 16 73 30	//	33μF 50V //	C441			
	UJ 16 81 00	//	100μF 50V //	C442			
	UJ 46 83 30	//	330μF 50V //	C440			
	VC 54 82 00	Coil	TC-1027-04 コ イ ル	T401			
	iF 00 34 50	Diode	ISS133 ダ イ オ ード	D401, 402, 406, 423, 424			
	iH 00 14 30	//	ISR35-100A //	D409~417			
	iF 00 64 60	Zener Diode	MTZ5.6B ツェナーダイオード	D403, 407			
	iF 00 63 10	//	MTZ15A //	D418, 419			
	iF 00 64 70	//	MTZ7.5B //	D404, 408, 422			
	iF 00 91 70	//	MTZ30C //	D420			
	iF 01 06 30	//	MTZ4.3B //	D405			
	VC 68 63 00	//	MA2051-A //	D421			
	iA 09 34 00	Transistor	2SA934 ト ラ ン ジ ス タ	Q407, 409	Inter-changeable		
	iB 05 44 10	//	2SB544 //	//			
	VC 46 67 00	//	2SA1534A(R,S) //	//			
	VC 46 67 00	//	2SA1534A(R,S) //	Q410	Inter-changeable		
	iC 20 60 00	//	2SC2060 //	Q403, 408			
	iD 04 00 10	//	2SD400 //	//			
	iC 19 83 00	//	2SC1983 //	Q405	Inter-changeable		
	iD 08 80 00	//	2SD880(O,Y) //	//			
	iD 15 05 00	//	2SD1505 //	//			
	iA 11 15 10	//	2SA1115(E,F) //	Q404, 406, 411	Inter-changeable		
	iA 09 33 00	//	2SA933S(Q,R) //	//			
	iX 60 31 70	//	2SA1310(R,S,T) //	//			
	iC 26 03 10	//	2SC2603(E,F) //	Q402	Inter-changeable		
	iC 17 40 70	//	2SC1740S(S,R) //	//			
	iX 60 31 80	//	2SC3312(R,S,T) //	//			
	XB 70 20 01	IC	YM3613(DIT) I C	IC401	Inter-changeable		
	XB 70 10 01	//	YM3404DF //	IC402			
	XB 70 00 01	//	YM3619DF //	//			
	iR 00 04 00	//	TC74HC04P //	IC403, 404			
	iR 00 00 00	//	TC74HC00P //	IC405			
※	VD 02 57 00	Photo Coupler	PC910J フ ォ ト カ プ ラ ー	IC406~409			
	iK 00 04 70	//	TLP552 //	IC410~412			

※New Parts (新規部品)

[illegible]

※New Parts (新規部品)

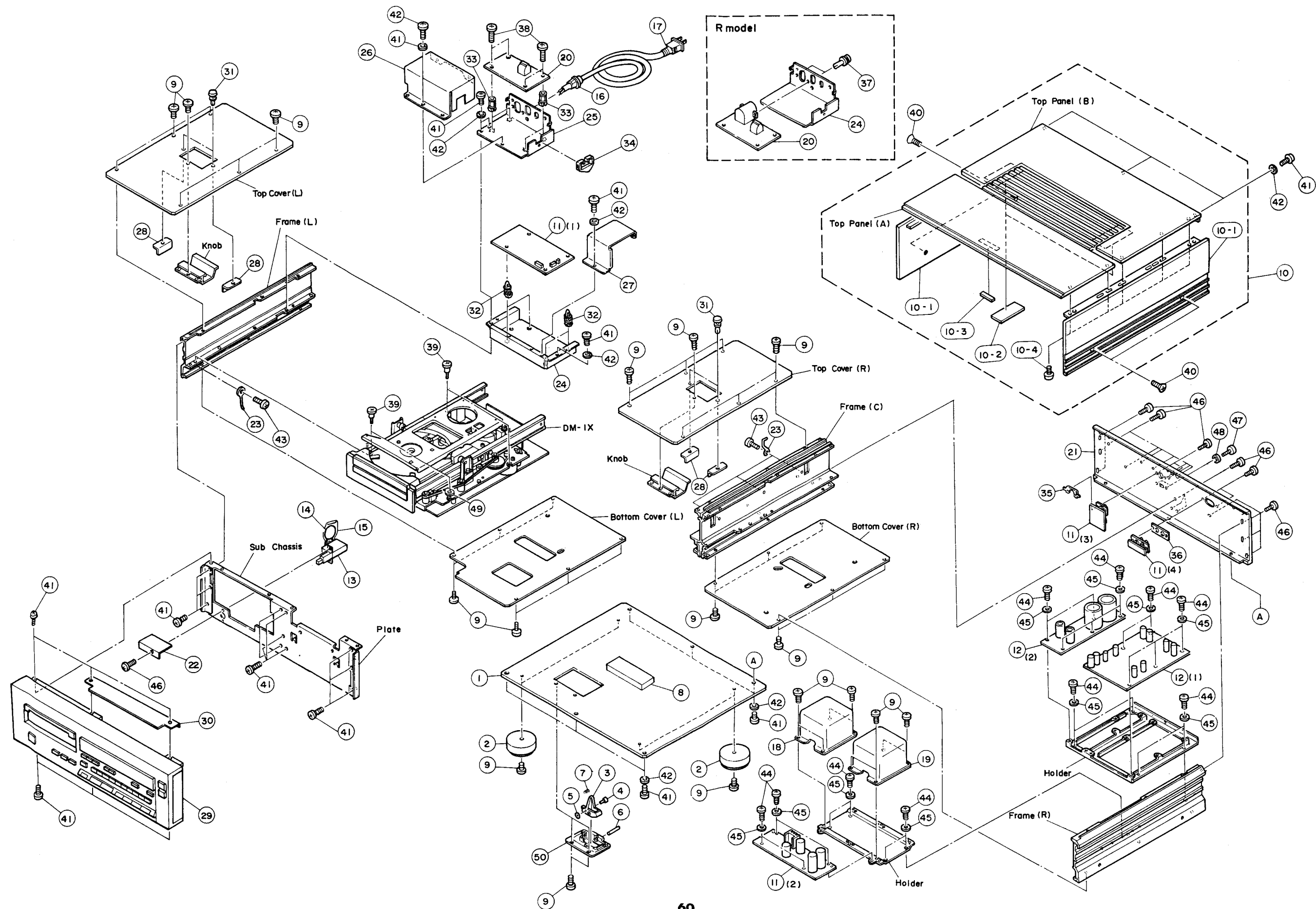
Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
※	NA 09 27 00	Servo Circuit Board	サーボシート		CDX-10000		
	FG 21 15 60	Ceramic Cap.	セラコン	C135, 136			
	FG 21 13 30	//	//	C151			
	FG 21 21 50	//	//	C105			
	FG 21 22 20	//	//	C117			
	FG 21 26 80	//	//	C116			
	FZ 00 41 30	Semiconductive Ceramic Cap.	半導体セラコン	C152			
	FA 15 31 80	Mylar Cap.	マイラーコン	C124, 125, 140			
	FA 15 32 20	//	//	C133, 134			
	FA 15 36 80	//	//	C104			
	FA 15 43 30	//	//	C106			
	FA 15 42 20	//	//	C150			
	FA 15 51 00	//	//	C102, 103, 113, 126, 132			
	FA 15 51 20	//	//	C115, 121, 127			
	FA 15 51 50	//	//	C139			
	FA 15 51 80	//	//	C108, 118			
	FA 15 53 30	//	//	C129			
	UA 55 54 70	//	//	C128			
	UJ 11 84 70	Electrolytic Cap.	ケミコン	C123			
	UJ 11 74 70	//	//	C144, 147			
	UJ 13 72 20	//	//	C109, 110, 130, 131			
	UJ 11 82 20	//	//	C141			
	UJ 13 73 30	//	//	C137, 138, 145, 146			
	UJ 13 74 70	//	//	C111, 112			
	UJ 16 61 00	//	//	C143			
	UJ 16 62 20	//	//	C142			
	UJ 12 81 00	//	オーディオケミコン	C101, 107			
	UM 21 61 00	//	//	C122			
	UM 18 74 70	//	//	C120			
	UM 19 64 70	//	//	C114			
	HZ 00 47 40	Resistor Array	抵抗アレイ	R288			
	HZ 00 45 40	//	//	R283~287			
	HV 45 33 30	Flame Proof Carbon Resistor	不燃化カーボン抵抗	R127, 128, 186, 187, 291, 292, 296, 297			
	VB 85 97 00	Pre-Set Potentiometer	半固定抵抗	VR108, 109			
	VB 85 98 00	//	//	VR101, 105			
	VB 86 01 00	//	//	VR104, 106			
	VB 86 02 00	//	//	VR102, 110			
	VC 68 59 00	//	//	VR103			
	VB 86 05 00	//	//	VR107			
	VB 86 10 00	//	//	VR111			
	iF 00 34 50	Diode	ダイオード	D101~109			
	iF 00 64 70	Zener Diode	ツェナーダイオード	D110			
	iF 00 88 00	//	//	D113			
	iF 01 08 70	//	//	D114			
	iA 11 15 10	Transistor	トランジスタ	Q106, 115~117, 119, 120, 123	Inter-changeable		
	iA 09 33 00	//	//	//			
	iX 60 31 70	//	//	//			
	iA 09 34 00	//	//	Q127	Inter-changeable		
	iB 05 44 10	//	//	//			

※New Parts (新規部品)

※New Parts (新規部品)

※New Parts (新規部品)

EXPLODED VIEW



MECHANISM PARTS

Note) ϕ : Diameter

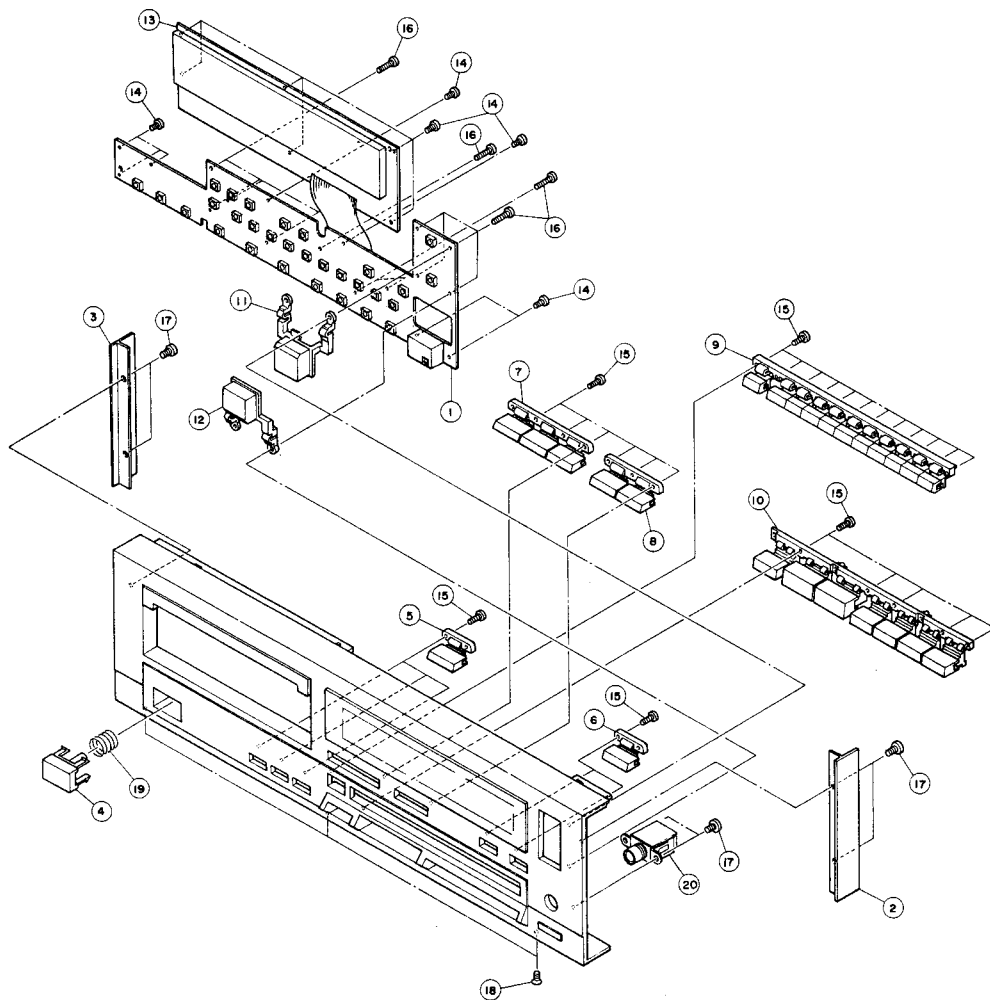
Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
* 1	AA 63 19 60	Bottom Cover	ボトムカバー				
* 2	VC 53 25 00	Isolator Ass'y	アイソレータ Ass'y				
* 3	CB 66 15 70	Knob	ノブ		CDX-10000		
* 4	CB 66 19 00	Pin	ピン		//		
* 5	CB 66 20 20	Stopper Ring	ストッパーリング		//		
* 6	AA 63 19 80	Pin $\phi 3 \times 32$	ピン		//		
* 7	AA 63 19 70	Spring	スプリング				
* 8	CB 66 15 80	Damper	ダンパー				
9	Ei 34 00 86	Binding Head Tapping Screw 4×8 FCRM3-BI	バインドタッピングネジ	PACK			
* 10	VC 52 55 00	Top Cover Ass'y	トップカバー Ass'y				
* 10-1	BA 09 62 20	Side Panel	サイドパネル				
* 10-2	CB 66 15 50	Damper	ダンパー				
* 10-3	CB 66 20 50	Spacer	スペーサ				
10-4	ED 33 00 56	Binding Head Screw 3×5 FCRM3-BI	バインド小ネジ	PACK			
* 11	NA 09 29 40	Digital Circuit Board	デジタルシート		CDX-10000		
* 12	NA 09 29 60	Main Circuit Board	メインシート		CDX-2200		
13	KA 80 32 90	Power Switch	パワースイッチ				△
14	Fi 50 41 00	Ceramic Cap. 0.01 μ F	セラコン				△
15	CB 64 46 70	Cover HY-0105	コンデンサカバー				
16	CB 62 01 90	Cord Stopper CM-22B	コードストッパー			R,A,G,B	
//	CB 62 02 00	// CM-22C	//			U,C	
17	MG 00 23 10	Power Cord 7.5A 250V 2m	電源コード	Inter-changeable		A	△
//	MG 00 09 20	// 7.5A 250V 2.5m	//			A	△
//	MG 00 14 90	// 7.5A 250V 2.5m	//			A	△
//	MG 00 22 20	// 10A 125V 1.98m	//			U,C	△
//	MG 00 23 20	// 2.5A 250V 2m	//	Inter-changeable		G	△
//	MG 00 16 20	// 2.5A 250V 2m	//			G	△
//	MG 00 09 60	// 2.5A 250V 2m	//			G	△
//	MG 00 16 30	// 6A 250V 2m	//			R	△
//	MG 00 18 60	// 2.5A 250V 2m	//			B	△
* 18	XC 01 50 01	Power Transformer	電源トランス			U,C	△
* //	XC 01 60 01	//	//			R,A,G,B	△
* 19	XC 01 80 01	//	//			R	△
* //	XC 01 90 01	//	//			U,C	△
* //	XC 02 00 01	//	//			A,G,B	△
* 20	NA 09 41 50	Power Circuit Board	電源シート			U,A,G,C,B	
* //	NA 09 41 60	//	//			R	
* 21	BA 09 65 90	Rear Panel	リアパネル			R	
* //	BA 09 66 00	//	//			U,C	
* //	BA 09 66 10	//	//			G,B	
* //	BA 09 66 20	//	//			A	
* 22	CB 66 20 60	Plate	プレート				
* 23	VD 39 92 00	Wire Stopper	側線止メ				
* 24	AA 63 21 00	Shield Case	シールドケース				
* 25	VD 03 99 00	Support	サポート				
* 26	VD 04 00 00	Shield Case	シールドケース				
* 27	VD 04 01 00	//	//				
* 28	CB 66 15 90	Plate	プレート				
* 29	VC 53 27 00	Panel Unit	パネルユニット				
* 30	CB 66 20 70	Plate	プレート				
31	CB 60 88 10	Plastic Rivet	プラスチックリベット				
32	CB 06 94 90	Support, PC	P C サポート				
* 33	CB 61 31 10	Holder, PCB	基板ホルダー				

*New Parts (新規部品)

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※ New Parts (新規部品)

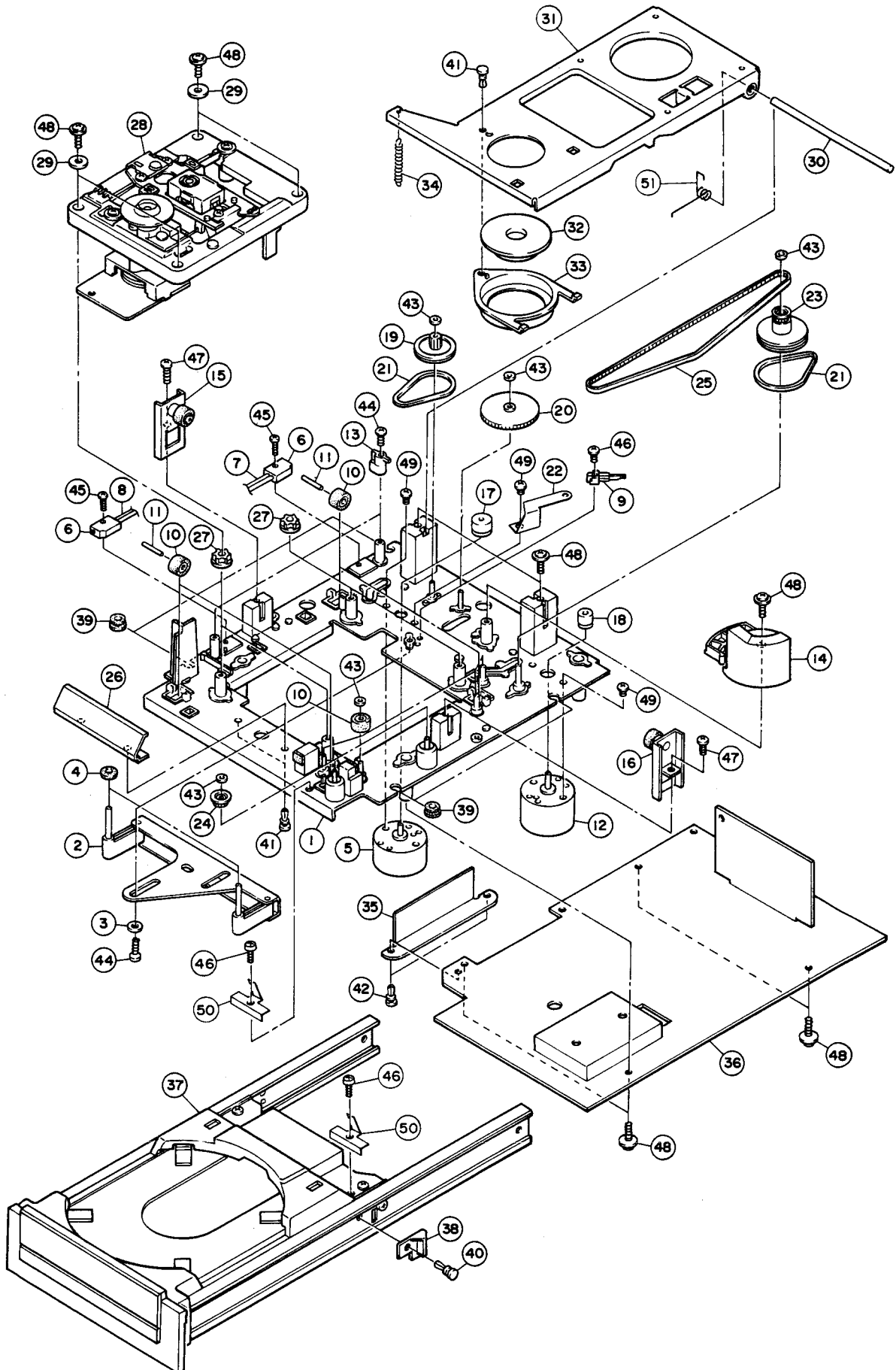
EXPLODED VIEW(Panel Unit)



Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
※	VC 53 27 00	Panel Unit	パネルユニット				
※	1 NX 60 05 30	Operation Circuit Board	オペレーションシート				
※	2 BX 60 01 70	Panel, (E)	パ ネ ル (E)				
※	3 BX 60 01 80	// , (F)	// (F)				
※	4 BX 60 01 90	Key Top Set A	キートップセット A	POWER			
※	5 BX 60 02 00	// B	// B	SPACE INSERT, INEX RANDOM PLAY			
※	6 BX 60 02 10	// C	// C	DISPLAY			
※	7 BX 60 02 20	// D	// D	PROGRAM			
※	8 BX 60 02 30	// E	// E	REPEAT			
※	9 BX 60 02 40	// F	// F	1~10, +10			
※	10 BX 60 02 50	// G	// G	OPERATION			
※	11 BX 60 02 60	// H	// H	UP			
※	12 BX 60 02 70	// I	// I	DOWN			
※	13 NX 60 05 40	Display Circuit Board	表 示 器 シ ー ト				
	14 Ei 02 00 66	Binding Head Tapping Screw	2×6 ZMC2-Y	バインドタッピングネジ	PACK		
	15 Ei 02 00 86	//	2×8 ZMC2-Y	//	PACK		
	16 Ei 02 01 26	//	2×12 ZMC2-Y	//	PACK		
	17 EJ 03 00 66	Pan Head Tapping Screw	3×6 ZMC2-Y	ナベタッピングネジ	PACK		
	18 EO 33 00 66	Flat Head Tapping Screw	3×6 FCRM3-BI	皿タッピングネジ	PACK		
※	19 AX 60 02 60	Spring	コイルスプリング				
※	20 NX 60 05 50	Jack Circuit Board	ジャックシート				

※New Parts (新規部品)

■EXPLODED VIEW(DM-1x)

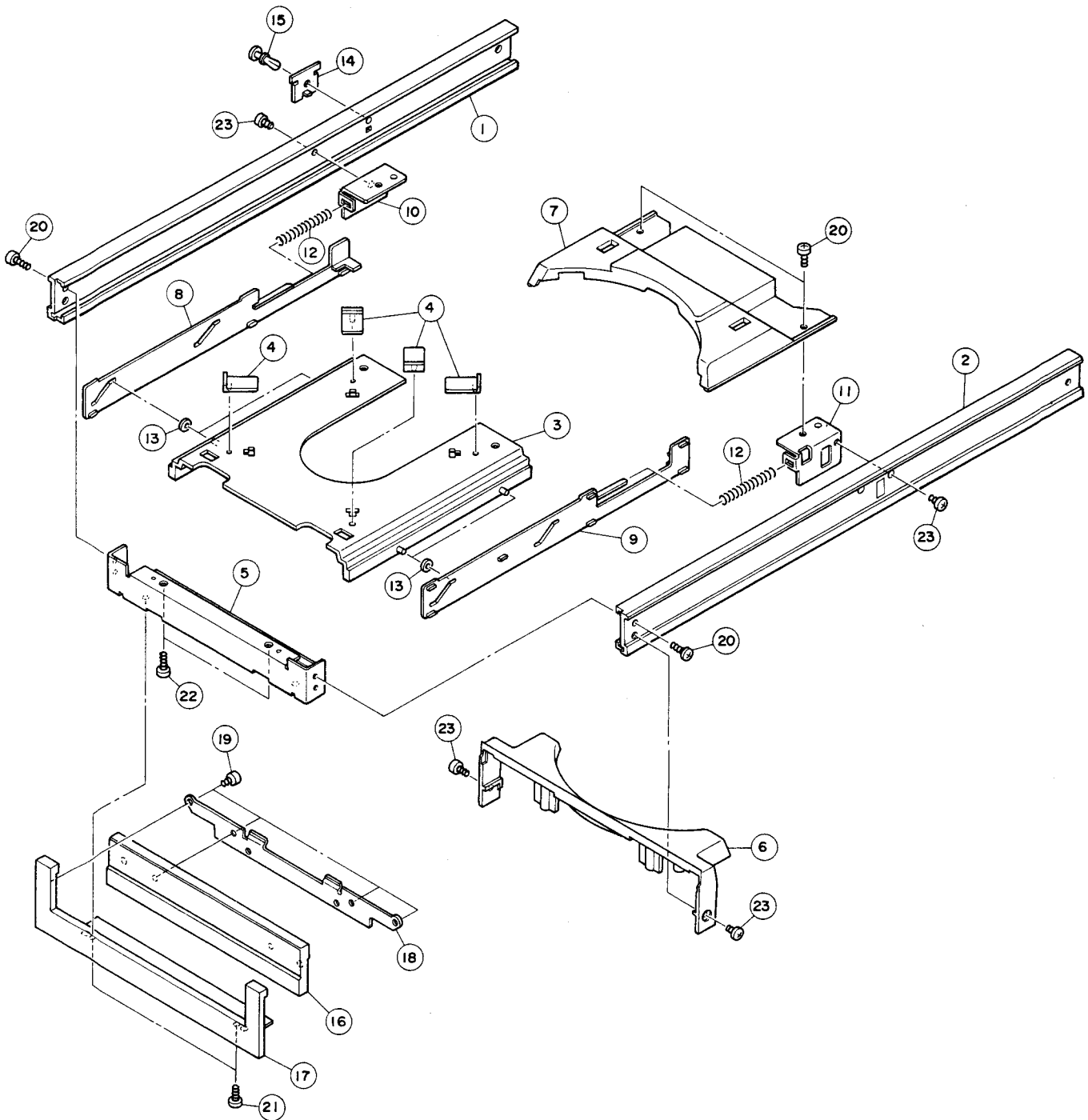


MECHANISM PARTS(DM-1x)

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
		Disc Mechanism Ass'y	DM-1x	D M - 1 x 総組立			
※ 1	NB 63 76 00	Tray Chassis Ass'y		トレイシャーシ Ass'y			
※ 2	NB 63 75 00	Connector Ass'y		コネクタ Ass'y			
3	CB 60 62 10	Washer		ワッシャー			
※ 4	CC 01 69 80	Damper		ダンパ			
※ 5	VC 40 61 00	Motor	BFT7B	モーター			
※ 6	VC 44 37 00	Switch	JPS1220-0101	マイクロスイッチ			
※ 7	VC 47 68 00	Up Harness, (Red)		UPハーネス (赤)			
※ 8	VC 47 69 00	// , (Blue)		// (青)			
9	KA 90 63 70	Switch	MSW-1485	エンドスイッチ			
※ 10	CB 65 67 40	Roller		ローラー			
※ 11	AA 63 14 60	Pin	φ2×14.5	ピン			
※ 12	VC 40 63 00	Motor	VF214B04	モーター			
※ 13	CB 65 67 00	Lever, SW		レバー (S W)			
※ 14	CB 65 61 60	Cam, Gear		カム (ギヤ)			
※ 15	NB 63 74 70	Roller Ass'y, L		ローラー Ass'y, L			
※ 16	NB 63 74 80	// , R		// , R			
※ 17	BA 09 55 10	Pulley		プーリ (モーター S)			
※ 18	BA 09 55 20	//		// (モーター T)			
19	CB 65 85 20	Idle Pulley		アイドルプーリ	DM-X5		
20	CB 65 55 80	Drive Gear, 2		ドライブギヤ, 2	//		
21	CB 64 95 50	Belt		ベルト			
※ 22	VD 22 31 00	Support		サポート (シャフト)			
※ 23	CB 65 62 00	Pulley Ass'y		プーリ Ass'y			
※ 24	CB 65 61 70	Pulley		プーリ (ギア)			
※ 25	CB 65 61 90	Belt		ベルト (ギア)			
※ 26	BA 09 57 70	Emblem		エンブレム			
※ 27	CB 65 70 60	Damper		ダンパ			
※ 28	NB 64 01 90	Disc Mechanism Unit		ディスクメカユニット			
※ 29	CB 66 09 80	Washer		ワッシャー			
※ 30	AA 63 11 50	Shaft	φ4×100	シャフト			
※ 31	NB 63 75 10	Stabilizer Ass'y		スタビライザ Ass'y			
※ 32	NB 63 74 90	Clumper Ass'y		クランブ Ass'y			
※ 33	CB 65 66 90	Holder		ホルダー (クランパ)			
※ 34	AA 63 22 30	Spring		スプリング (E X T)			
※ 35	CB 66 16 60	Sheet		シート (L)			
※ 36	NA 09 27 00	Servo Circuit Board		サーボシート			
※ 37	NB 64 02 00	Tray Unit	Gray	トレイユニット	CDX-10000		
※ //	NB 64 02 10	//	Black	//	CDX-5000		
※ 38	CB 65 67 70	Stopper		ストッパ (ベルト)			
※ 39	CB 65 70 70	Cushion		クッション (D M)			
40	CB 60 56 20	Plastic Rivet		プラスチックリベット			
41	CB 60 88 10	//		//			
42	CB 09 96 00	//		//			
※ 43	CB 66 20 20	Stopper Ring		ストッパリング			
44	Ei 32 60 86	Binding Head Tapping Screw	2.6×8 FCRM3-BI	バインドタッピングネジ	PACK		
45	Ei 02 01 06	//	2×10 ZMC2-Y	//	PACK		
46	Ei 32 60 66	//	2.6×6 ZMC2-BI	//	PACK		
47	Ei 33 01 06	//	3×10 ZMC2-BI	//	PACK		
48	EK 33 00 10	BW Head Tapping Screw	3×12 FCRM3-BI	BWヘッドタッピングネジ			
49	ED 32 60 46	Binding Head Screw	2.6×4 ZMC2-BI	バインド小ネジ	PACK		
※ 50	VD 43 02 00	Ground Plate		アースプレート			
※ 51	VD 63 09 00	Spring		スプリング (T O R)			
	CB 06 92 50	Binding Tie	BK-1	インシュロックタイ			

※New Parts (新規部品)

■EXPLODED VIEW(Tray Unit)

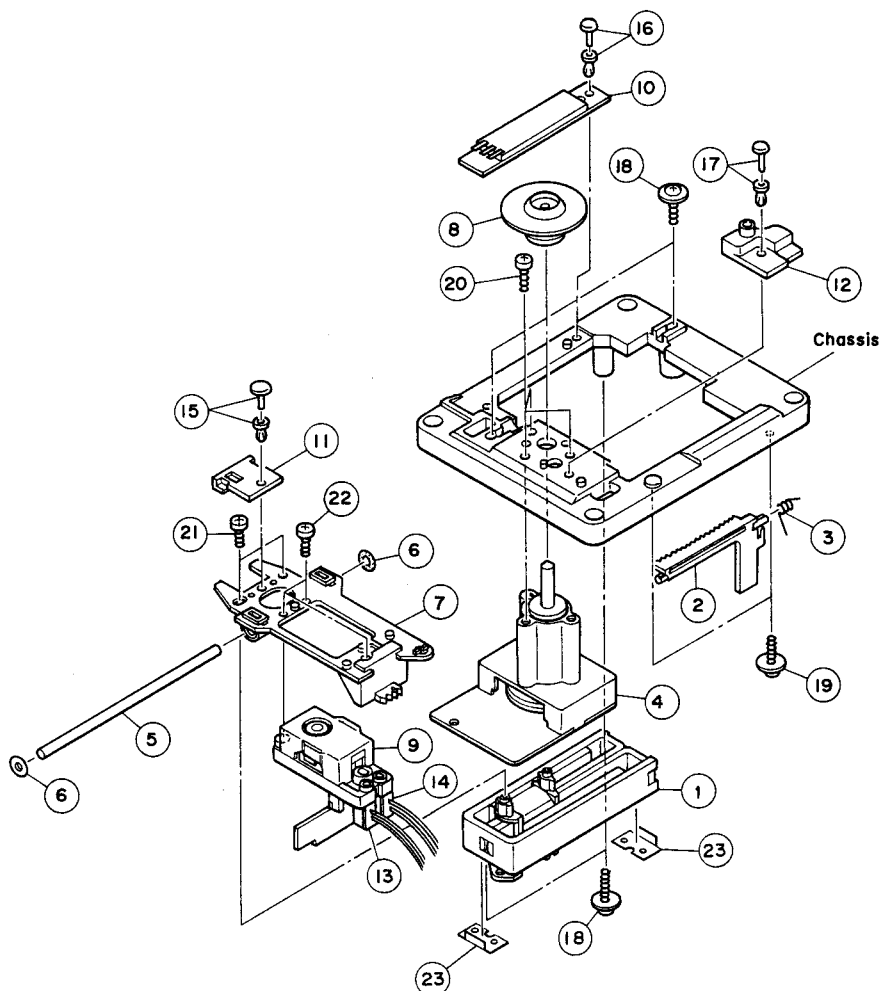


MECHANISM PARTS (Tray Unit)

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※New Parts (新規部品)

■EXPLODED VIEW(Disc Mechanism Unit)



Ref. No.	Part No.	Description	部品名	Remarks	Common Model	Markets	ランク
※	NB 64 01 90	Disc Mechanism Unit	ディスクメカユニット				
※ 1	VB 81 76 00	Liner Motor	TDS-LOC-02	リニアモーター			
※ 2	CB 65 56 00	Lever		レバー			
※ 3	AA 63 17 40	Spring		スプリング			
※ 4	VC 34 68 00	Motor	SD04AB	モーター			
※ 5	AA 63 11 50	Shaft	φ4×100	シャフト			
※ 6	EX 60 05 10	O Ring	φ3.8	Oリング			
※ 7	NB 63 72 80	PU Base Ass'y		P U ベース Ass'y			
※ 8	NB 63 89 80	Disc Table Ass'y		ディスクテーブル Ass'y			
※ 9	VD 19 03 00	Optical Pick Up Head	MLP-7 B2	光ピックアップヘッド			
※ 10	MZ 09 48 70	CP Element Ass'y		C P エレメント Ass'y			
※ 11	VC 47 45 00	CP Brush		C P ブラシ			
※ 12	NA 09 26 90	FG Circuit Board		F G シート			
※ 13	VD 28 94 00	Pi Harness	6P	P i ハーネス			
※ 14	VD 28 95 00	//	8P	//			
※ 15	CB 09 96 00	Plastic Rivet		プラスチックリベット			
※ 16	CB 60 88 10	//		//			
※ 17	CB 03 27 50	//		//			
※ 18	EK 33 00 10	BW Head Tapping Screw	3×12 FCM3-BI	B W ヘッドタッピングネジ			
※ 19	EK 33 00 30	//	3×10 FCM3-BI	//			
※ 20	Ei 33 01 06	Binding Head Tapping Screw	3×10 ZMC2-BI	バインドタッピングネジ	PACK		
※ 21	Ei 32 60 86	//	2.6×8 FCRM3-BI	//	PACK		
※ 22	ED 32 60 86	Binding Head Screw	2.6×8 ZMC2-BI	バインド小ネジ	PACK		
※ 23	VD 83 17 00	Washer		マグネットワッシャ			

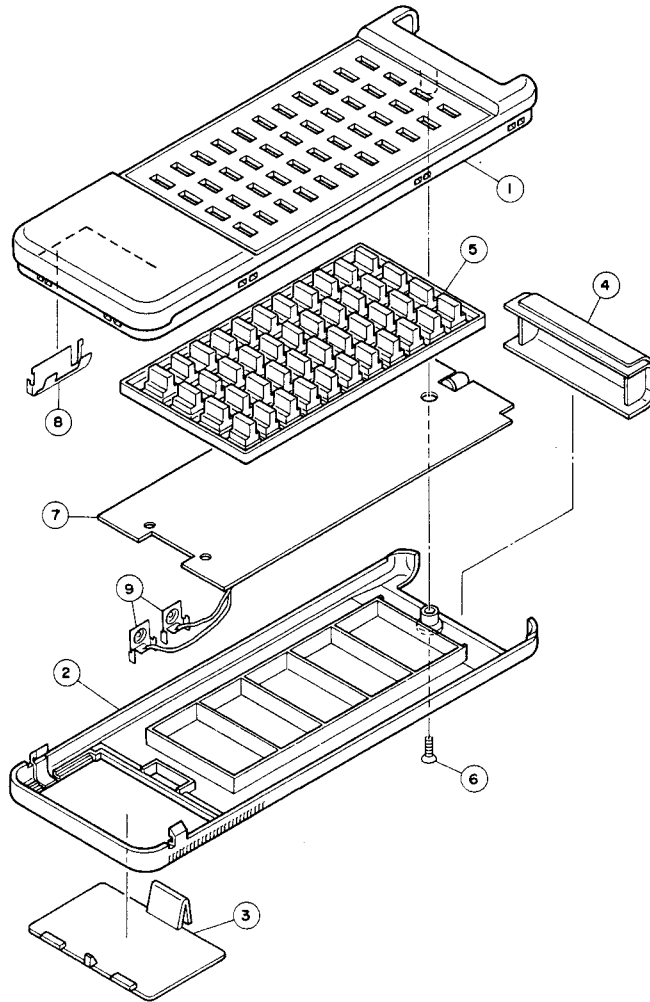
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EXPLODED VIEW(RS-CD100)

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Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
※	VC 14 82 00	Remote Control Transmitter	RS-CD100	リモートコントロールトランスミッター			
※	1 CX 60 06 10	Case (A) Ass'y		ケース (A) A s s'y			
	2 XX 67 77 20	Case (B)		ケ ー ス (B)			
	3 XX 67 77 30	Case (C)		ケ ー ス (C)			
	4 XX 67 16 40	Filter		フ ィ ル タ ー			
※	5 CX 60 06 20	Rubber, Contact		ゴ ム 接 点			
	6 XX 67 16 60	Flat Head Screw		皿 小 ネ ジ			
※	7 NX 60 04 10	P.C Board Ass'y		プリント基板 A s s'y			
	8 XX 67 16 80	Dry Cell Terminal A		電池 電 極 板 A			
※	NX 60 04 10	P.C Board Ass'y		プリント基板 A s s'y			
	IX 60 70 40	IC	μPD6102G	I C IC01			
	QX 60 00 40	Ceramic Resonator	KBR455BT	セラミック振動子	X01		
	FG 21 21 00	Ceramic Cap.	100pF 50V	セ ラ コ ン	C01,02		
	UJ 11 74 70	Electrolytic Cap.	47μF 6.3V	ケ ミ コ ン	C03		
	IX 60 36 00	IED	SLR-932A	I E D	IED01		
	IC 26 73 00	Transistor	2SC2673	ト ラ ン ジ ス タ	Q01		
	HX 60 14 00	Carbon Resistor	2Ω 1/4W	カ ー ボ ン 抵 抗	R01		
	IF 00 34 50	Diode	ISS133	ダ イ オ ード	D01~05		
9	XX 67 16 90	Dry Cell terminal B		電池 電 極 板 B			

※ New Parts (新規部品)

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	※	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	※
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			

