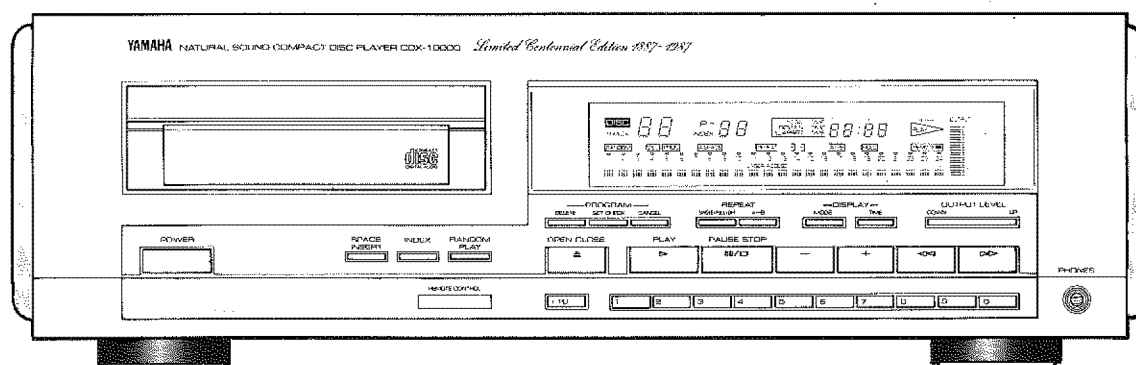


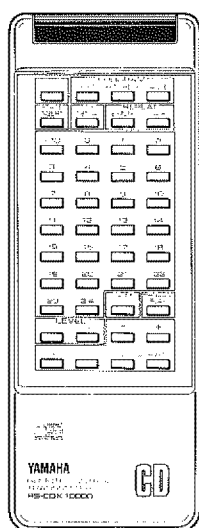
COMPACT DISC PLAYER CDX-10000

SERVICE MANUAL

CDX-10000



• RS-CDX10000



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: 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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■ TO SERVICE PERSONNEL

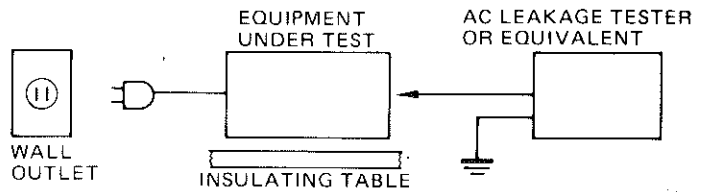
1. Critical Components Information.

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 $0.15\mu\text{F}$
- Leakage current must not exceed 0.5mA.
- Be sure to test for leakage with the AC plug in both polarities.

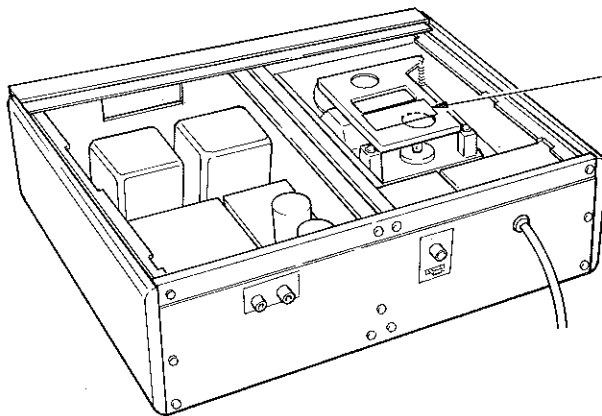


■ POLARIZATION (U model only)

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)

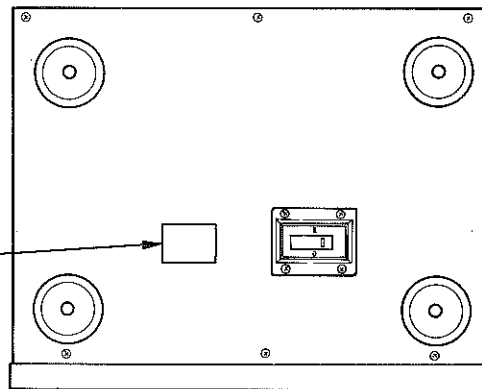
THIS PRODUCT COMPLIES WITH OHHS RULES 21 CFR SUBCHAPTER J APPLICABLE AT DATE OF MANUFACTURE.

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

MANUFACTURED:



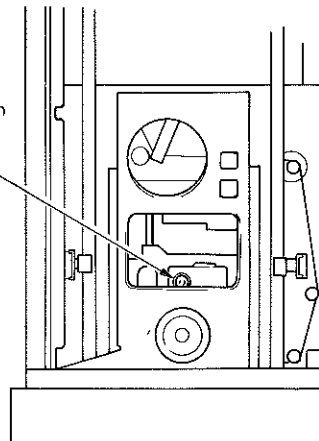
BOTTOM SIDE



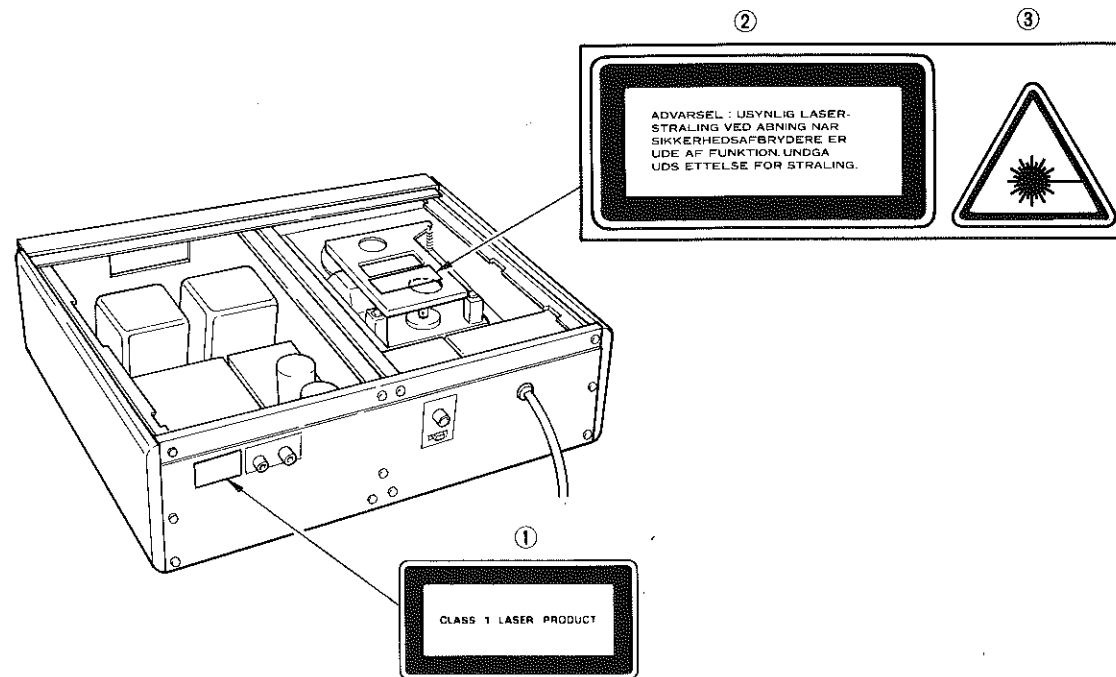
LASER BEAM RADIATION SPOT

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

Laser Beam Radiation



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 APPARATEN SOM VISAS SOM EN UPPMANING OM ATT APPARATEN OMFATTAR EN INBYGGD LASERKOMPONENT.
 - ② TEXTSKYLLEN FÖR LASERN ÄR PLACERAD PÅ APPARATEN SOM EN UPPMANING OM ATT APPARATEN INNEHÅLLER EN LASERKOMPONENT.
 - ③ VARNINGSSKYLLEN 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 ÅSTRÅLNING.

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 INDENI APPARATET, SOM VIST I ILLUSTRATIONEN, SOM EN ADVARSEL OM YDERLIGERE INDGEB I APPARATET. APPARATET INDEHOLDER ET LASERKOMPONENT SOM AVGIVER LASESTRÅLING DER OVERSTIGER GÆNSEVÆRDIEN FOR LASERKLASSE 1.
- ADVARSEL! INDGEB BØR KUN FORETAGES AF EN FAGMAND DA DER ER RISIKO FOR RADIOAKTIV STRÅLING.

Finnish

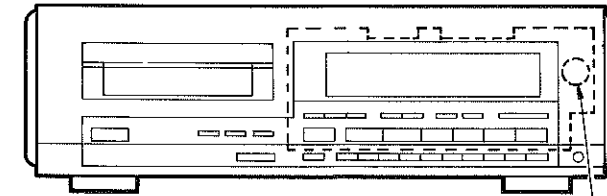
- ③ "VAROITUS! LAITE SISÄLTÄÄ LASERDIODIN, JOKA LÄHETTÄÄ (NÄKYMÄTÖNTÄ) SILMILLE VAARALLISTA LASERSÄTEILYÄ."

LITHIUM BATTERY

This product uses a lithium battery for memory back-up.

WARNING: Lithium batteries are dangerous because they can be exploded by improper handling. Observe the following precautions when handling or replacing lithium batteries.

- Leave lithium battery replacement to qualified service personnel.
- Always replace with batteries of the same type.
- When installing on the PC board, solder using the connection terminals provided on the battery cells. Never solder directly to the cells. Perform the soldering as quickly as possible.
- Never reverse the battery polarities when installing.
- Do not short the batteries.
- Do not attempt to recharge these batteries.
- Do not disassemble the batteries.
- Never heat batteries or throw them into fire.

**English**

WARNING!
Lithium batteries. Explosion danger.
Change of batteries must only be done by qualified personnel and as described in the service manual.

Swedish

LITIUMBATTERI.
Bör endast bytas av servicepersonal.
Explosionsfara vid felaktig hantering.

Danish

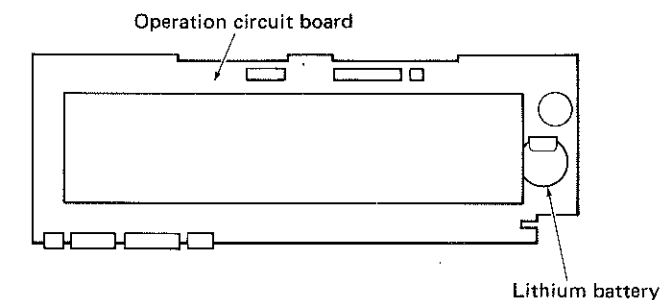
ADVARSEL!
Lithiumbatterier. Eksplosionsfare.
Udskiftning må kun foretages af en sagkyndig og som beskrevet i servicemanualen.

Finnish

VAROITUS!
Lithiumparisto. Räjähdyshaara.
Pariston saa vaihtaa ainoastaan alan ammattimies.

LITHIUM BATTERY REPLACEMENT

1. Remove the top cover ass'y and bottom cover ass'y according to the disassembly procedure (page 6)
2. Remove 6 screws fixing the panel unit.
3. Remove 6 hooks fixing the operation circuit board.
4. Unsolder the lithium battery from the pattern side of the operation circuit board and replace it.



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.

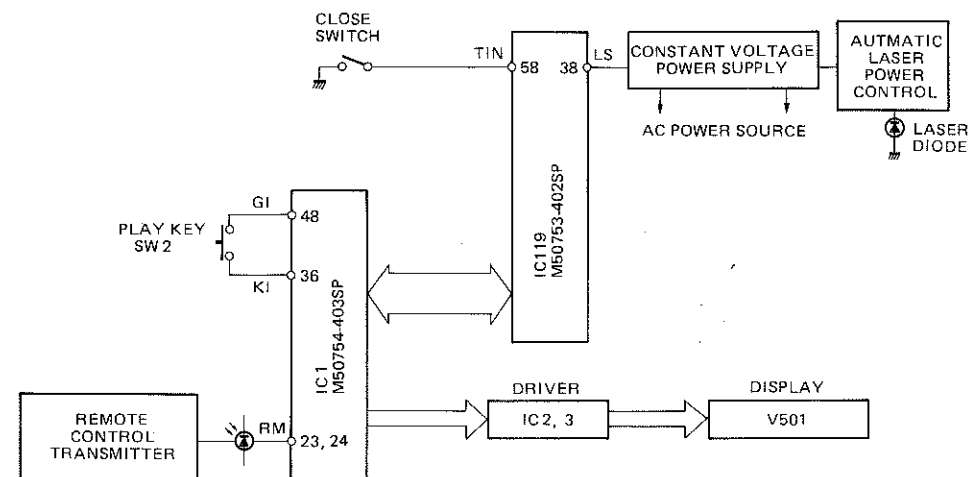
Pin 38 is set in "H" level when the unit is loaded with the disc and it reads the index signals or when the unit is set in the play mode after that. When the unit reads the index signals and the

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

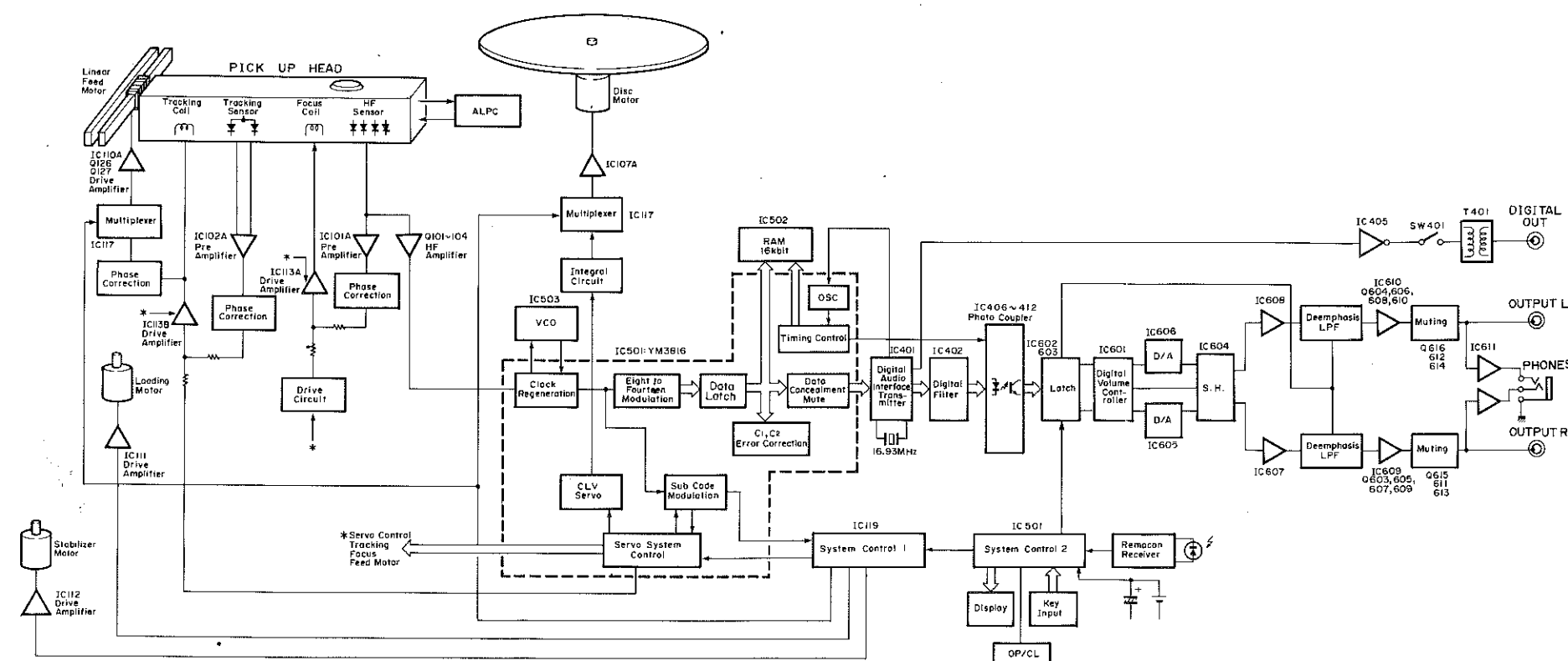
- 1) When the Close Switch is ON. (The disc tray is closed.)
- 2) The pickup is located at the area of the minimum internal circumference.

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 **PLAY** display is ON.

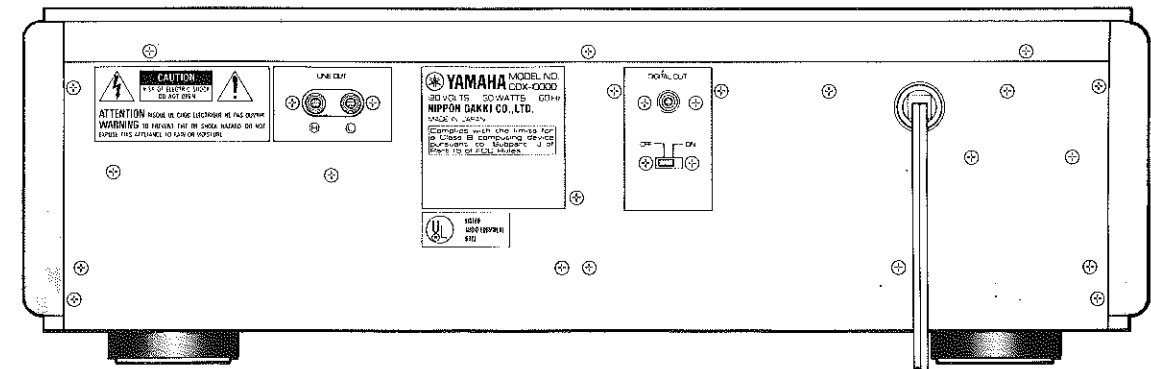


BLOCK DIAGRAM

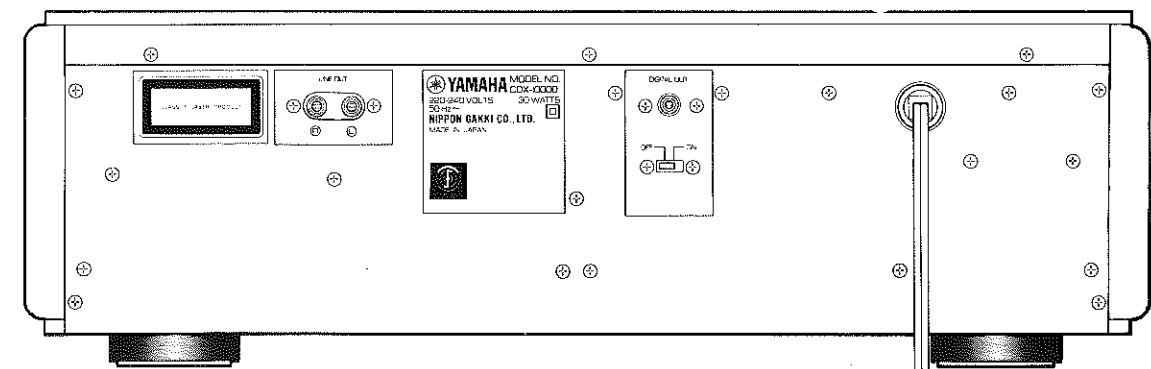


REAR PANELS

U model



G model



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

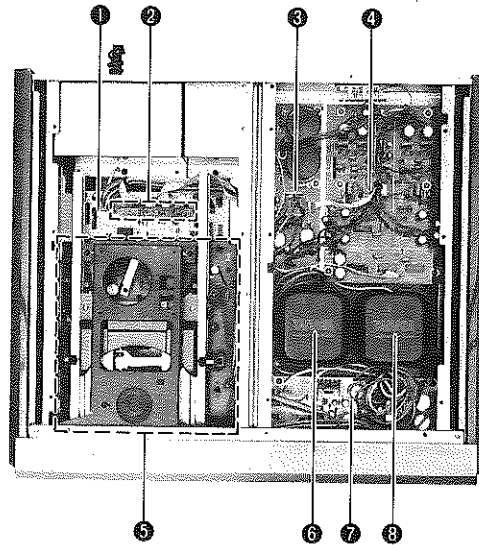
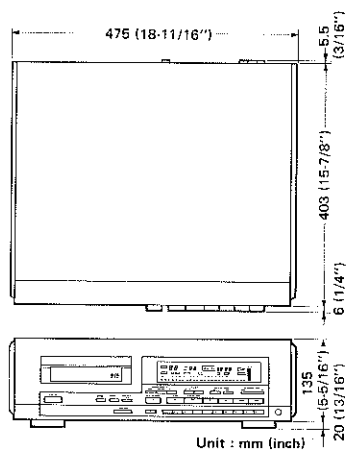
GENERAL

Power Requirements	120V AC, 60Hz
U.S.A. model	220 - 240V AC, 50Hz
Power Consumption	30W
Dimensions (W x H x D)	475 x 155 x 414.5 mm (18-11/16" x 6-1/8" x 16-5/16")
Weight	25.5 kg (56 lbs 3 oz)
Accessories	Pin plug cord: X2 Remote control transmitter (RS-CD10000) Dry Cell: X2 (Size "AA", "R06")

*Specification subject to change without notice.
(U) U.S.A. model
(G) European model

INTERNAL VIEW

• DIMENSIONS



- 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 model : XC015001
G model : XC016001
- ⑦ DIGITAL CIRCUIT BOARD (2)
- ⑧ POWER TRANSFORMER
U model : XC019001
G model : XC020001

CDX-10000

DISASSEMBLY PROCEDURES (Remove parts in disassembly order as numbered.)

1. Removal of Top Cover Ass'y

Remove 3 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.

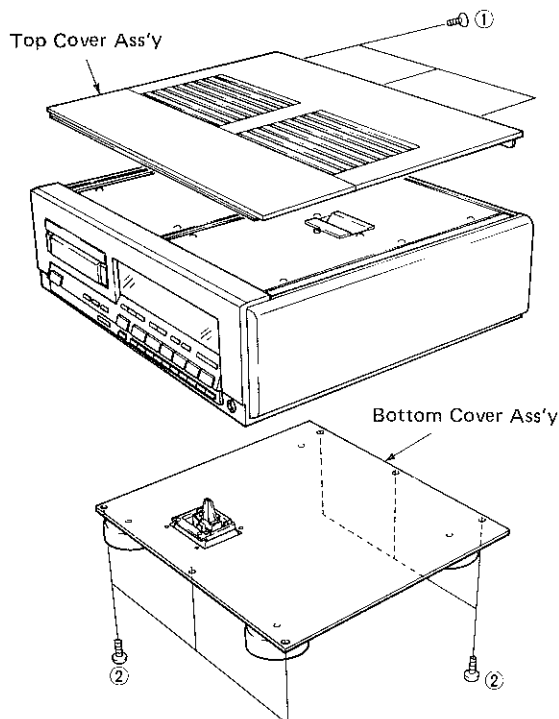


Fig. 1

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).

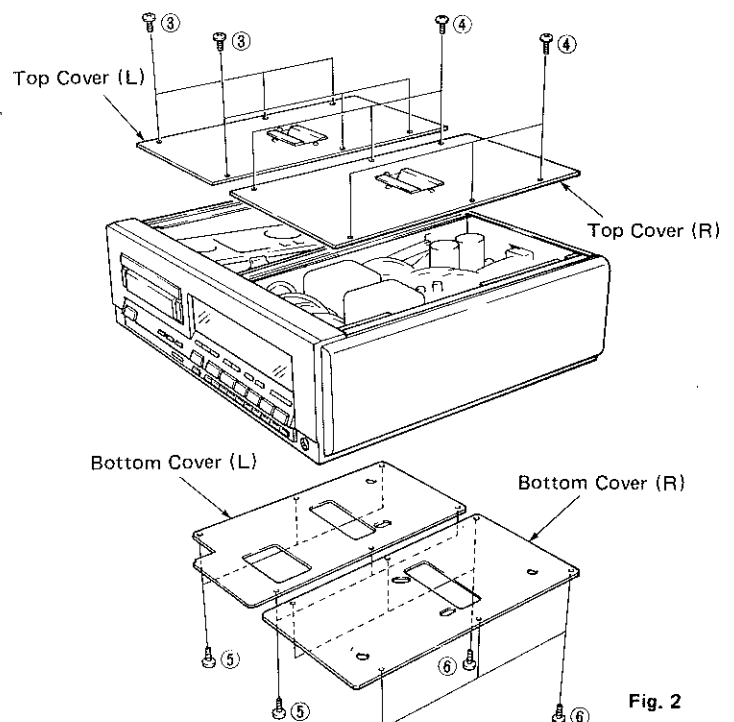


Fig. 2

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.

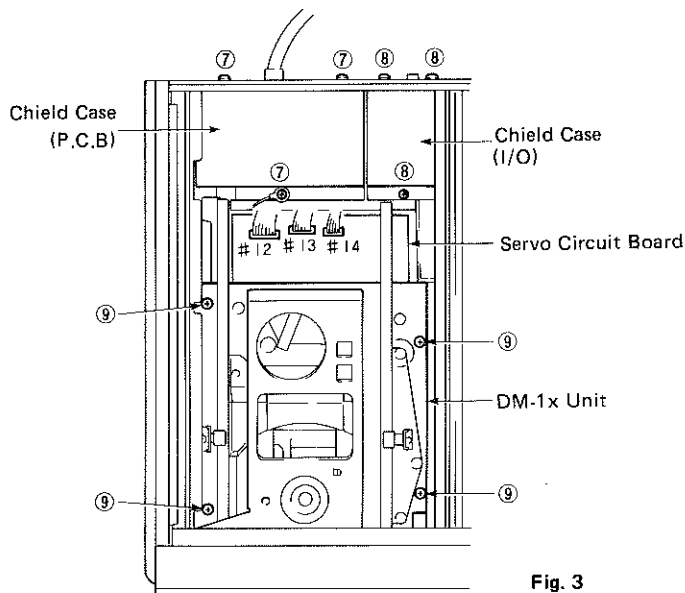


Fig. 3

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.

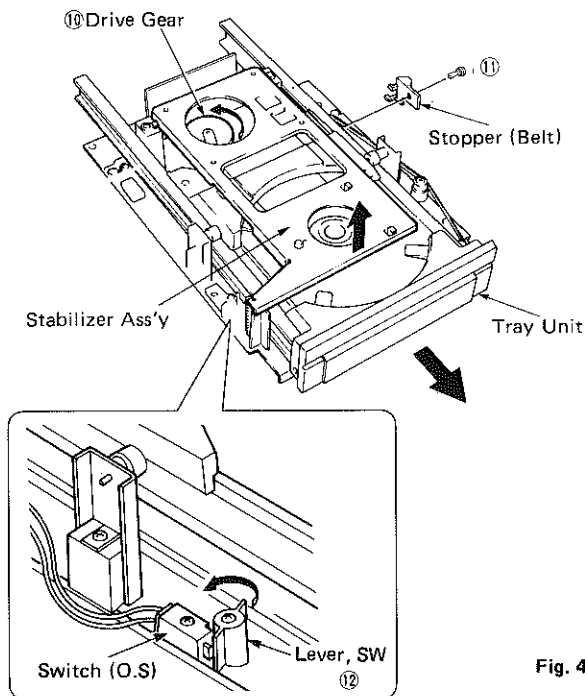
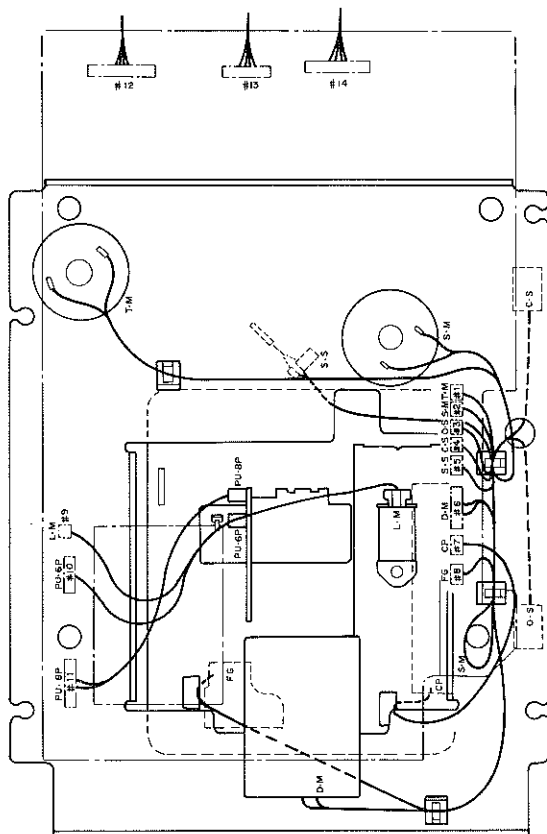


Fig. 4

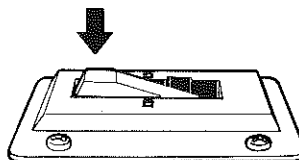
DM-1x Wire Connection



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.

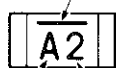
For example, "472" stands for 4.7k ohms and "000" stands for the jumper resistor.

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

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



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

• 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	Q	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	y
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

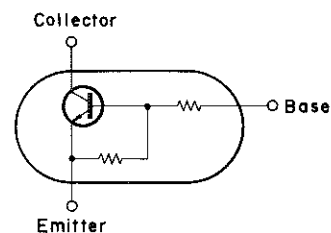
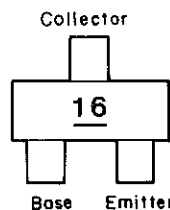
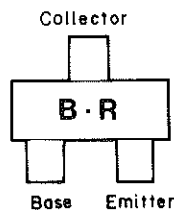
The transistors can be identified by their identification codes of 2 to 4 alphabet letters assigned to each of them. Given below is a cross reference table of identification codes and transistors.

Use it to identify each transistor from its code.

Indication	Parts No.	Description	HFE rank
FQ	IA103700	Transistor 2SA1037K	Q-rank
FR	"	"	R-rank
FS	"	"	S-rank
BQ	IC241200	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	

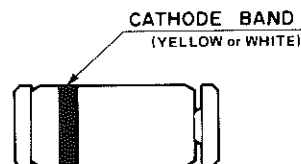
Ex. Transistor: 2SC2412(R)

Ex. Digital Transistor DTA144EK

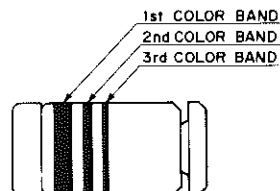


d. Diode and Zener Diode

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.

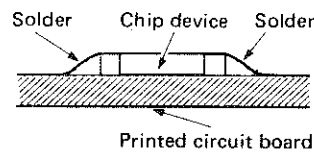
b. For heat

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.



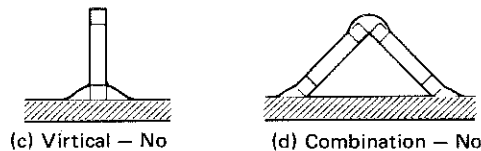
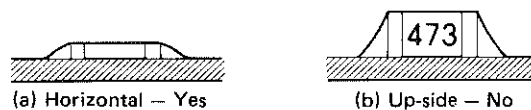
d. Soldering iron

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

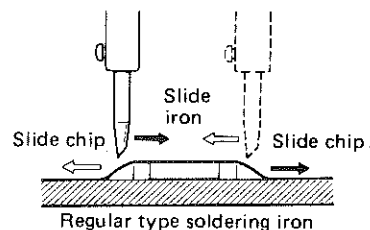
- Set chip devices as close as possible onto the surface of printed circuit board.
Do not apply unnecessary pressure to chip devices in order to make it close to the surface of printed circuit board.
Try to keep distance between chip device and surface of printed circuit board less than 0.5mm.
- Do not 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

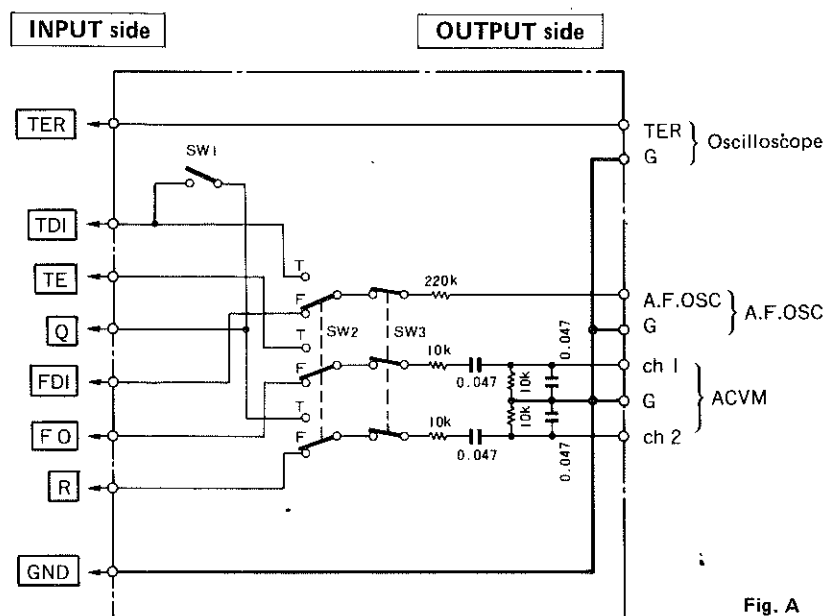
- Test disc : x 1
 (YEDS-18 P/No. TX911730,
 or YEDS-7 P/No. TX911320)
 Filter (See Fig. A) : x 1
 Shorting cord : x 1 (Step 5)

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)

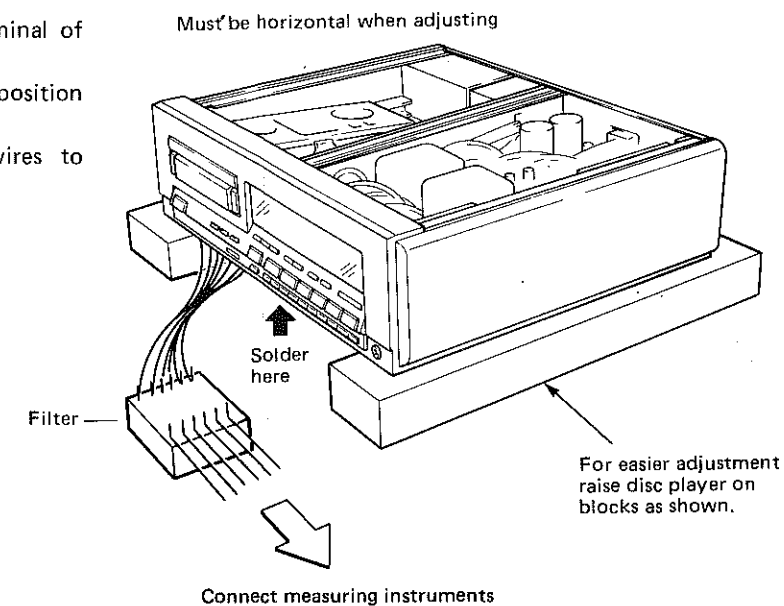
Connect the filter in Fig. A before measurement.



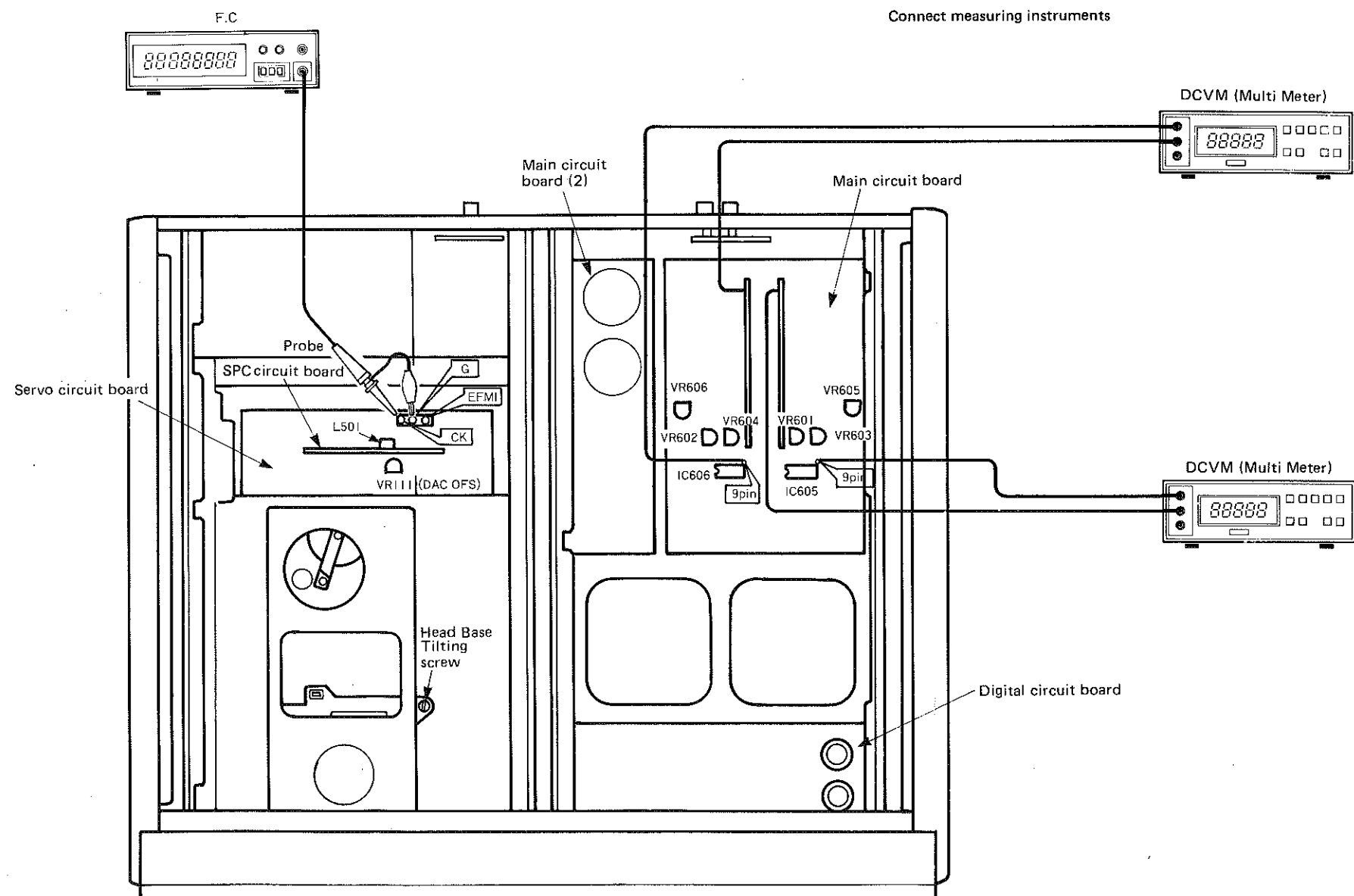
SW1: For diffraction grating and EF balance adjustments
 SW2: FOCUS gain and TRACKING gain switching
 SW3: Filter ON/OFF switch

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.



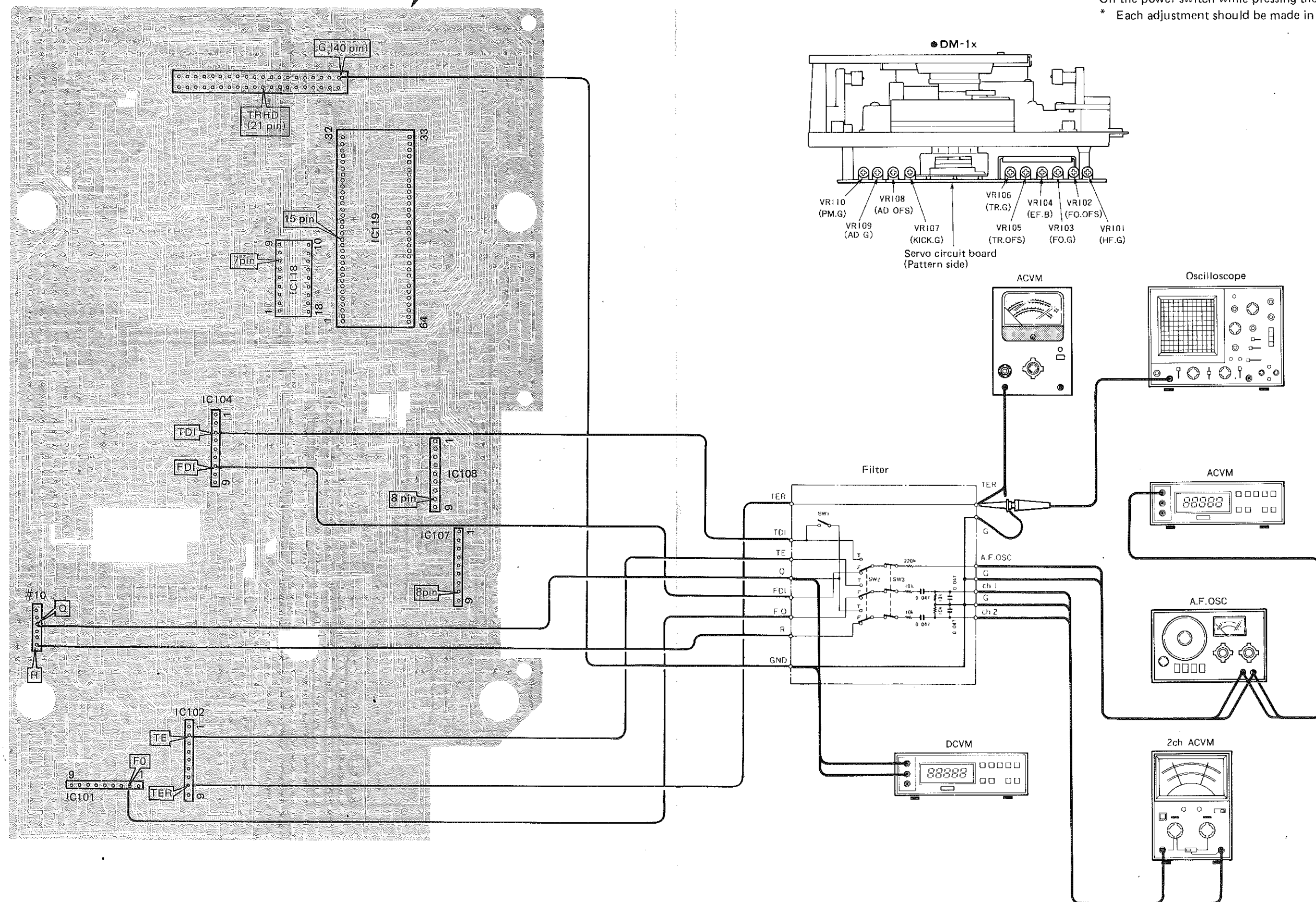
Test point (1)



Sown with tray unit removed

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

Servo circuit board
(Pattern side)



★ 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.

• Discription of test mode keys

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

REPEAT : Feed foward
 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 kick gain
11. Adjustment of tracking offset
12. Confirmation of jitter
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

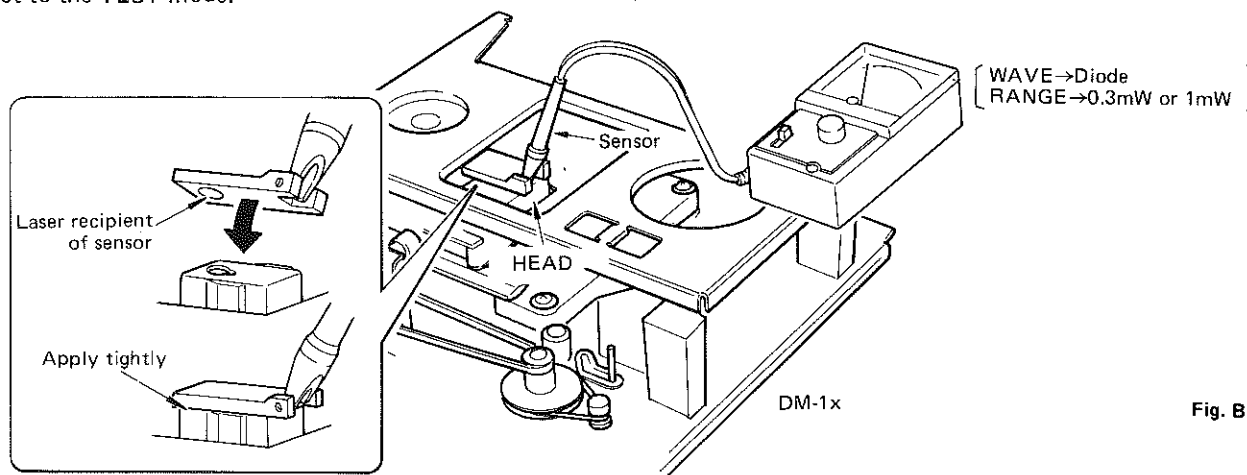


Fig. B

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.

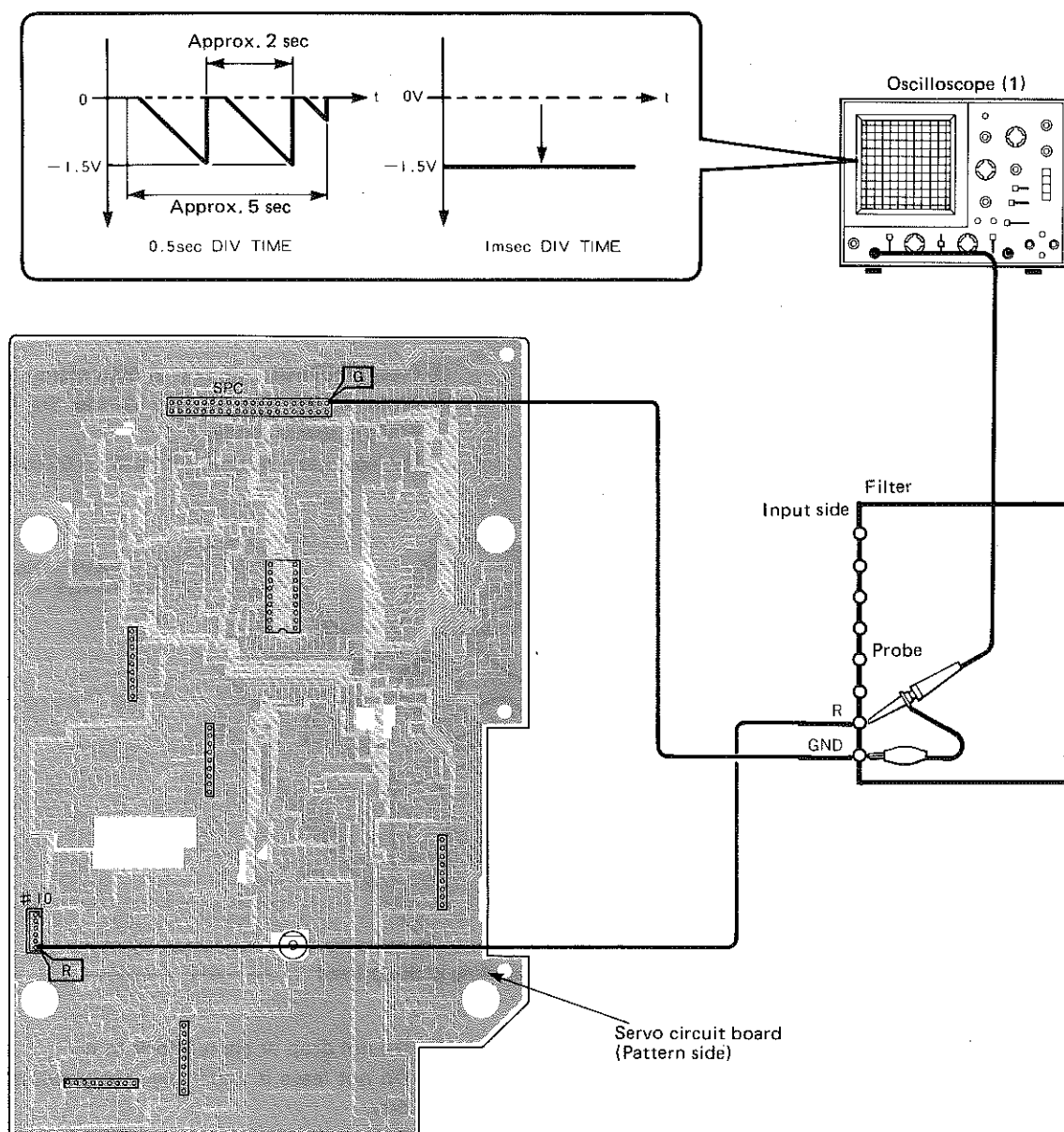


Fig. C

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

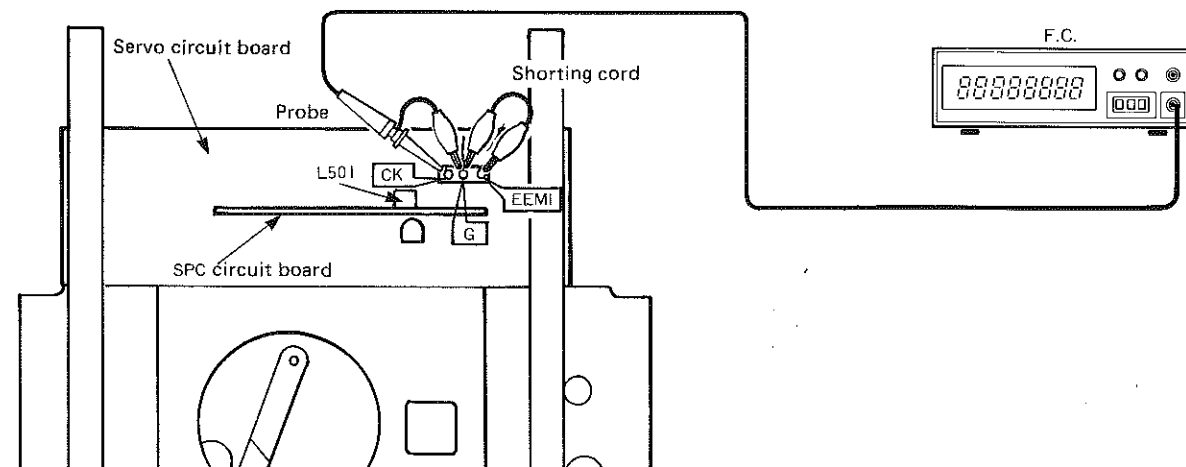


Fig. D

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)

- 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 Wait for 2 seconds before pressing 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).

Oscilloscope (2) setting conditions

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

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

- 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.

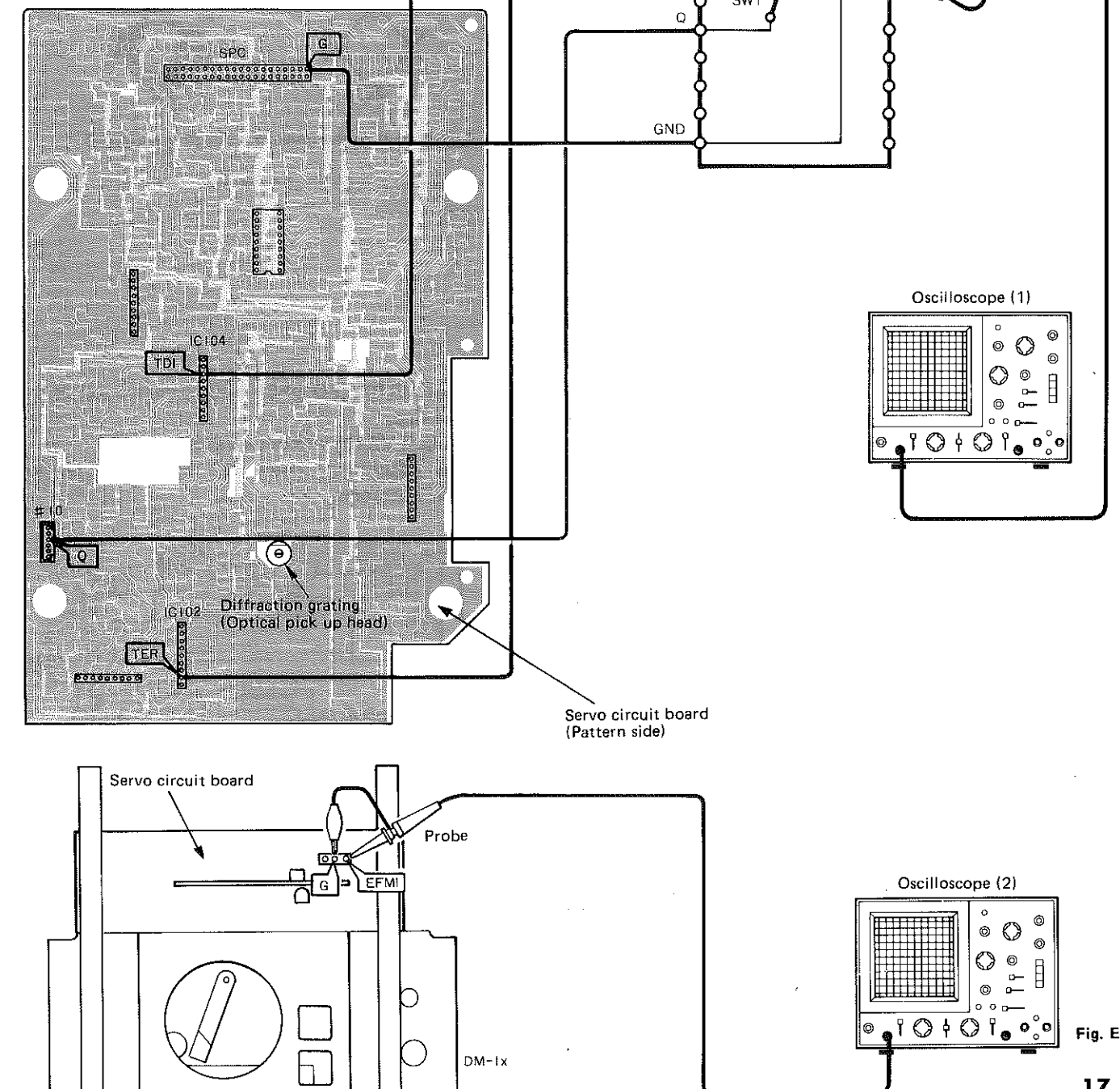
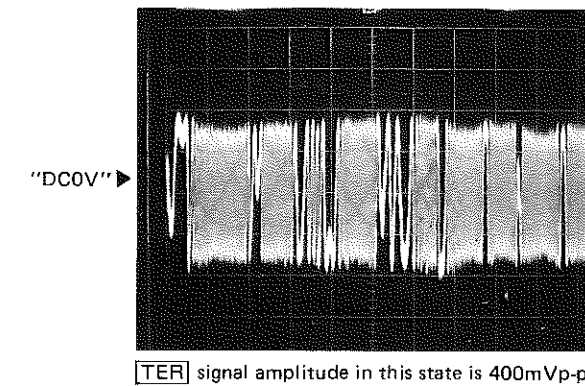
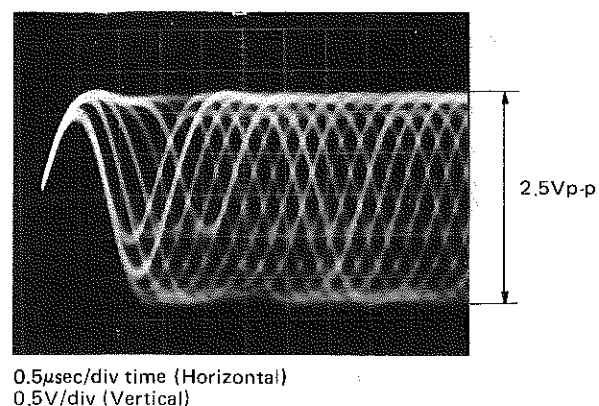
Oscilloscope (1)

Fig. E

Oscilloscope (2)

Eye pattern

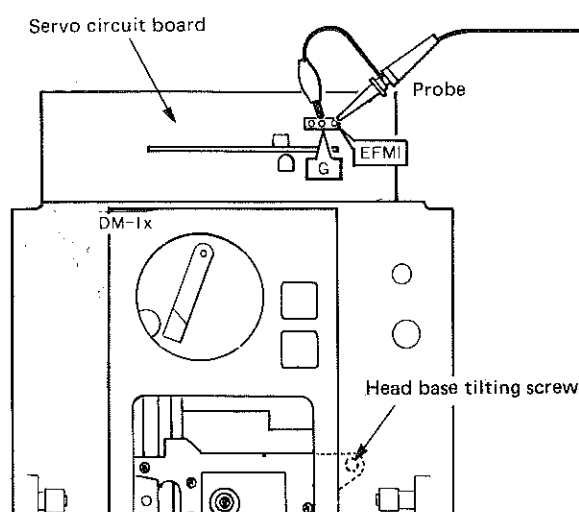


Adjustment of Jitter and Focus Offset (Step 5)

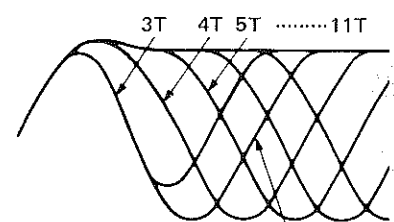
Oscilloscope (2) Settings

- 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)

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



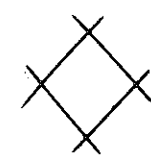
Waveforms 3T - 11T.



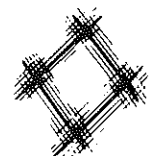
This portion is referred to as the eye pattern.

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.

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

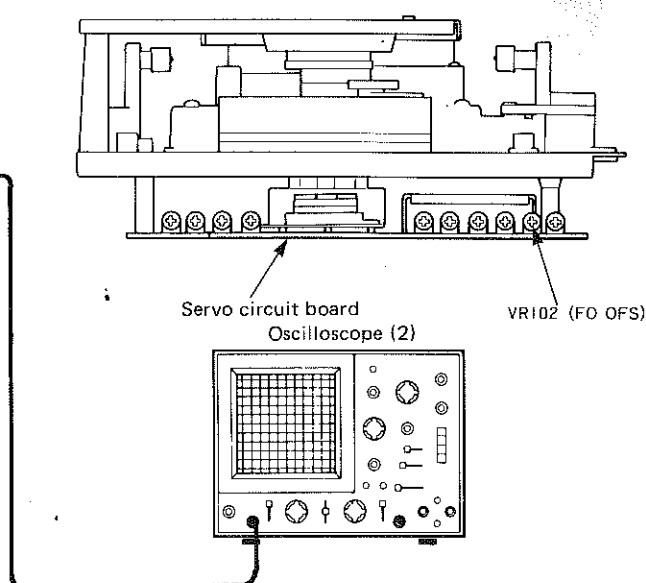


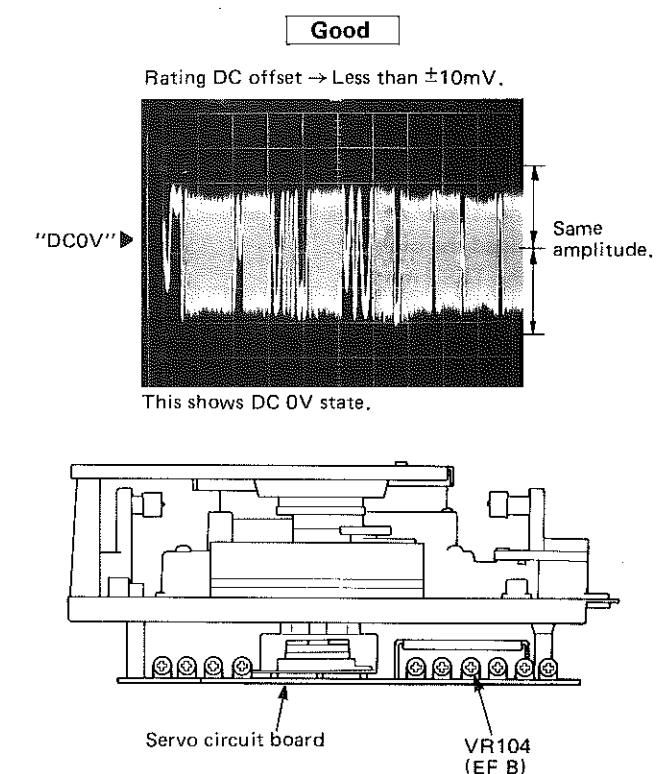
Fig. F

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)

- Connect the filter and measuring instruments as in Step 4.
- Set to the TEST mode.
- Load the disc.
- Press the OPEN/CLOSE key.
- PRESS the PLAY key.
- Press the "2" key.
- Set SW1 in the filter to ON.
(Short-circuit **TDI** terminal and **Q** terminal.
TRACKING SERVO → OFF)
- Observe the waveform on the oscilloscope (1).
- Adjust VR104 (EF B) so that the amplitude of the **TER** signal becomes equal above and below DC 0V position.

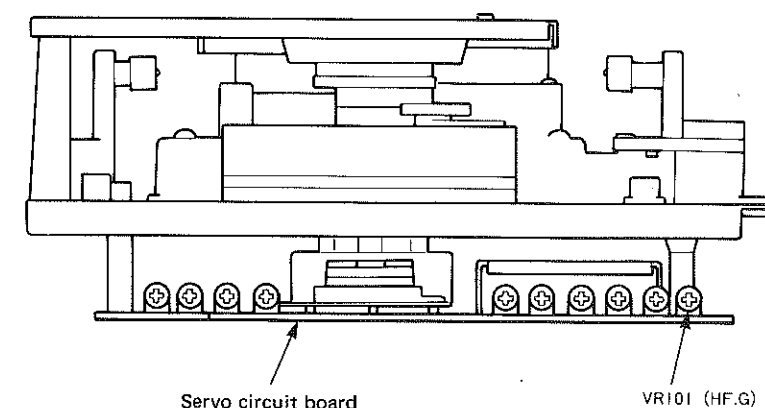


Adjustment of HF Level (Step 7)

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)

- Connect the oscilloscope (2) to the **EFMI** terminal as in Step 5.
- Set to the TEST mode.
- Load the specified disc YEDS-18.
- Press the OPEN/CLOSE key.
- Press the PLAY key.
- 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 OPEN/CLOSE key.
- ⑦ Press the PLAY key.
- ⑧ Set SW3 to ON.

- ⑨ Read the indications of the AC voltmeters (CH1: E_{FO} , CH2: E_R).

- ⑩ 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 $E_{FO} -16\text{ dBV (160mV)}$
 $E_R -26\text{ dBV (50mV)}$

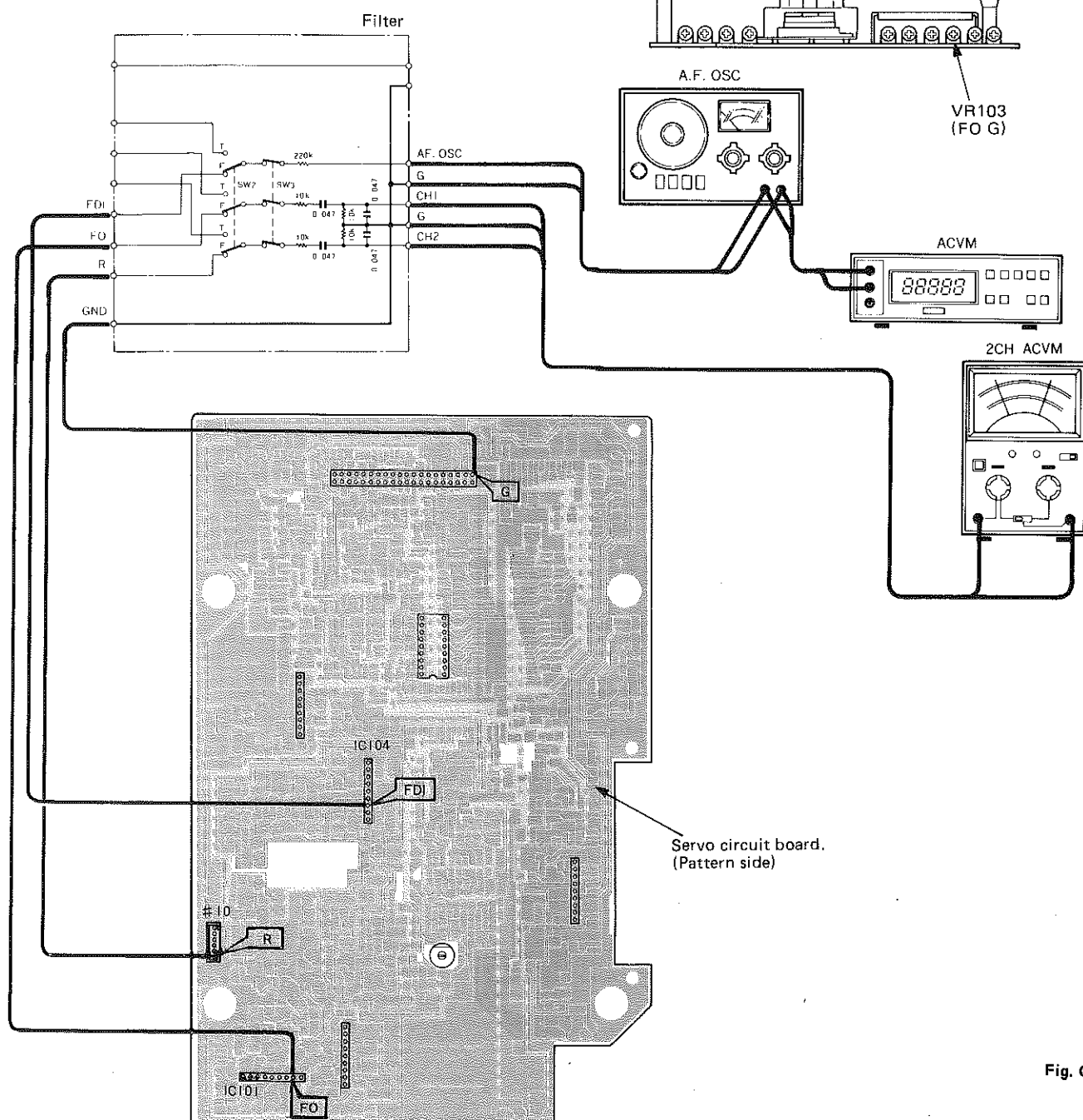
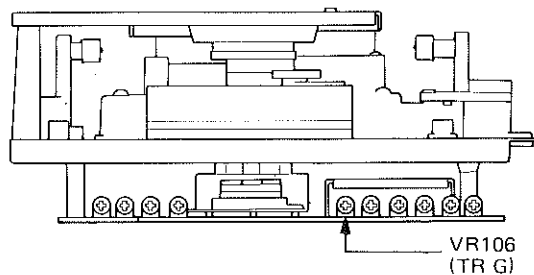


Fig. G

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 OPEN/CLOSE key.
- ⑦ Press the PLAY key.
- ⑧ Set SW3 to ON.
- ⑨ Read the indications of the AC voltmeters (CH1: E_{TE} , CH2: E_Q).



- ⑩ 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)

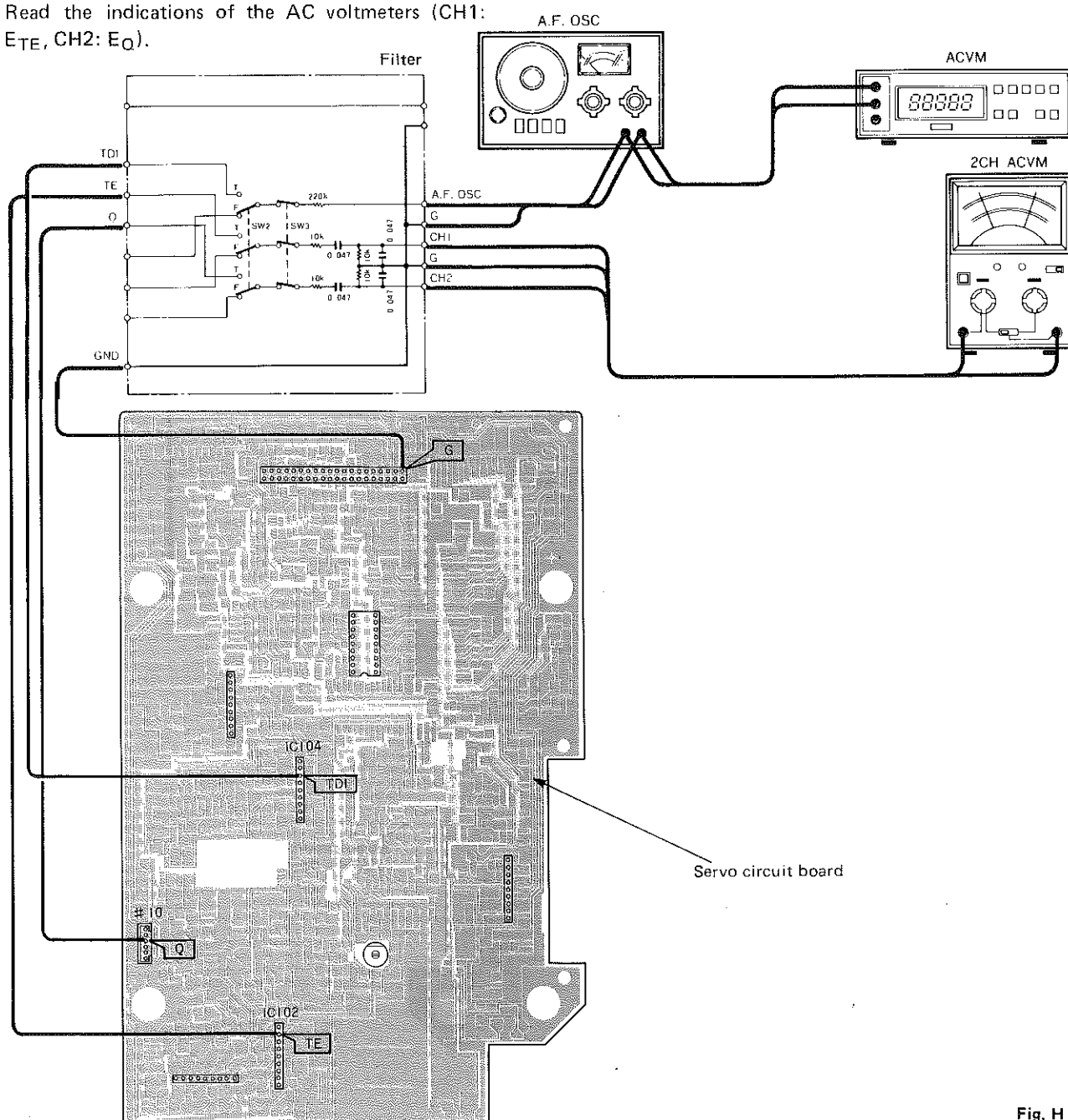


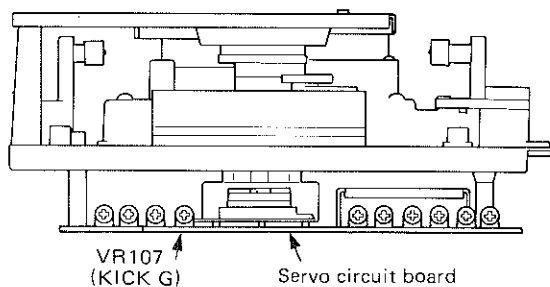
Fig. H

Adjustment of Kick Gain (Step 10)

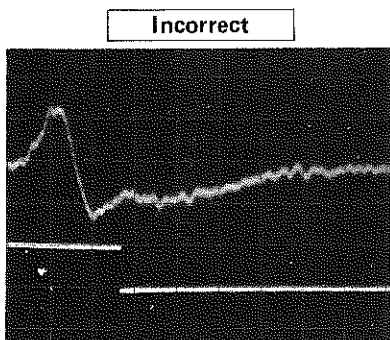
Oscilloscope (1) (2-ch oscilloscope) Settings

- 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)

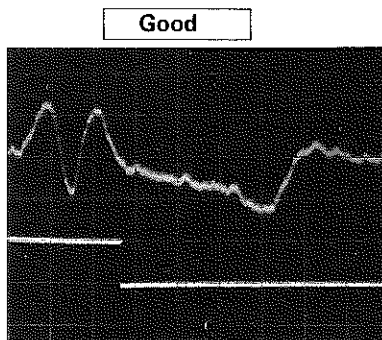
- ① Connect the filter and measuring instruments as shown in Fig. 1.
- ② Set to the TEST mode.
- ③ Load the disc.
- ④ Press the OPEN//CLOSE key.
- ⑤ Press the PLAY key.



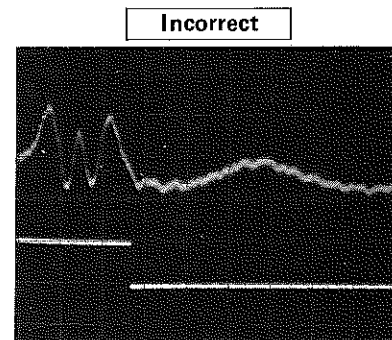
- ⑥ Press the FF mode key (▶▶) and check the waveform.
- ⑦ Adjust VR107 (KICK G) so that the **TER** signal cycle becomes 1.5 ± 0.5 while the **TRHD** signal level is high.
* Adjust at the inner circumference of the disc.
- ⑧ Confirm that in the Reverse mode, the **TER** signal cycle satisfies the rating given in ⑦ but in the reverse phase.



This shows about 0.9 cycle which is incorrect.



This shows about 1.7 cycle which is within specification.



This shows about 2.5 cycle which is incorrect.

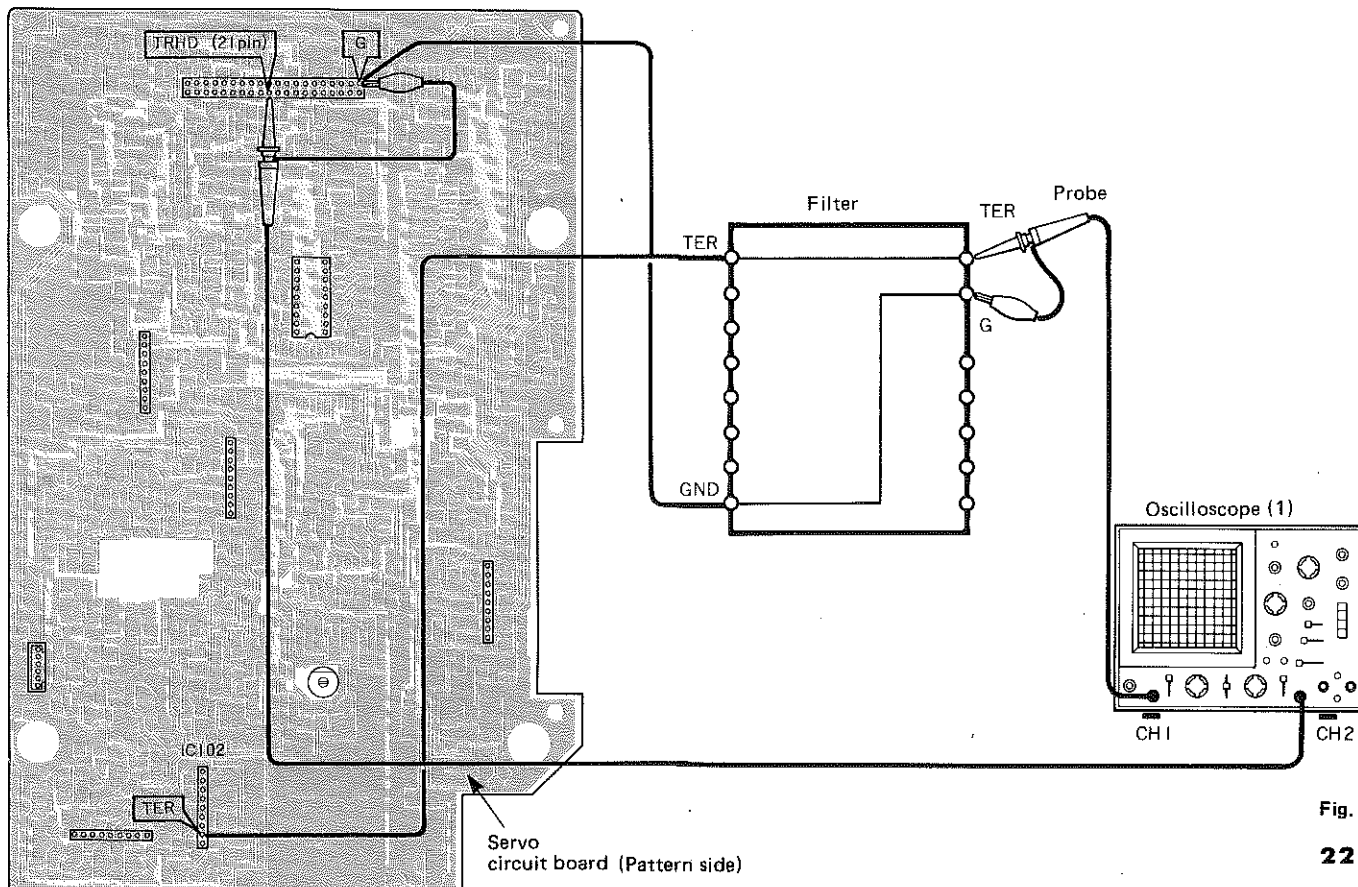


Fig. 1

Adjustment of Tracking Offset (Step 11)

- 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: $E_Q = 0V \pm 25mV$

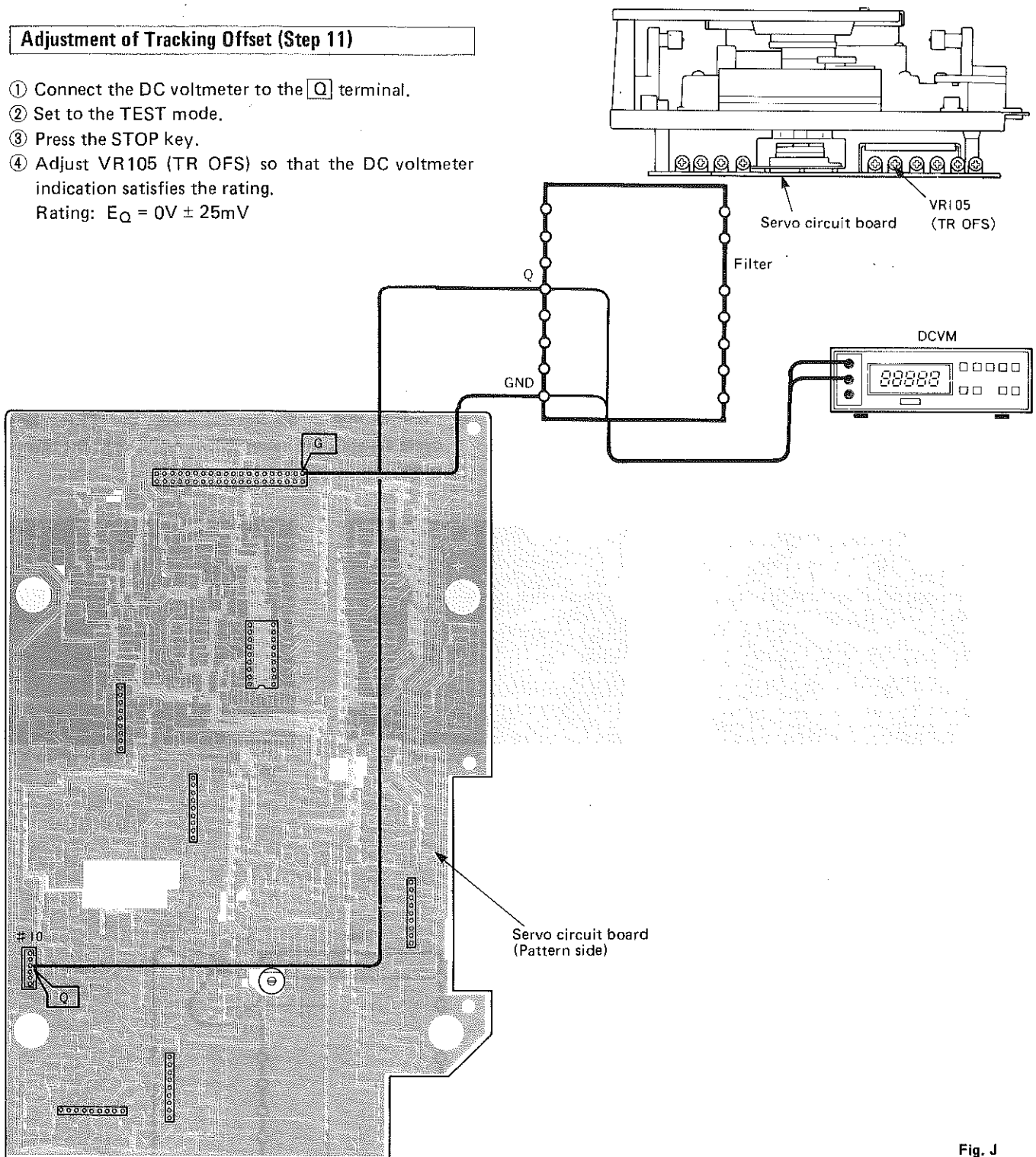


Fig. J

Confirmation of Jitter (Step 12)

- ① Confirm the jitter rating as in ⑥ of Step. 5.
- ② When the tilting screw has been readjusted, go back to Step 5 and carry out adjustments all over from there.

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 Force the Feed to move all the way to the outer circumference and fix it there.
- ⑤ Adjust VR108 (AD OFS) so that the specified rating is obtained.

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

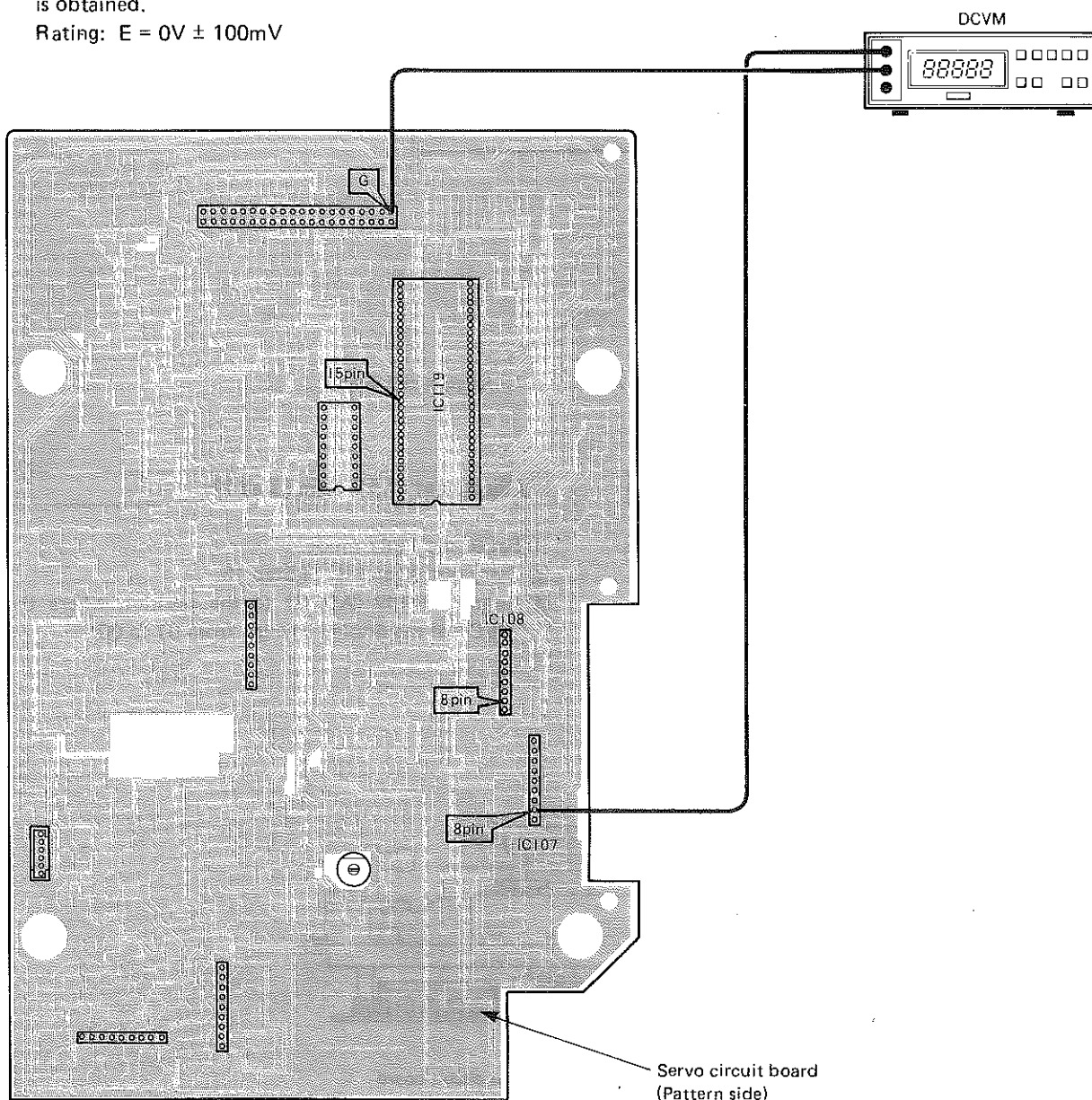
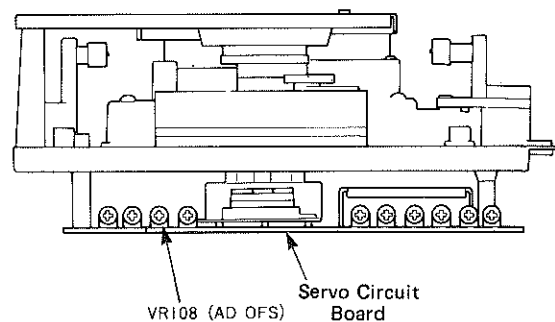


Fig. K

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 ③ and ④ 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 play "SEC" indicates FE or more (hexadecimal), set it to FF by adjusting VR108.
If less than FF, move back to Step 14 and readjust.

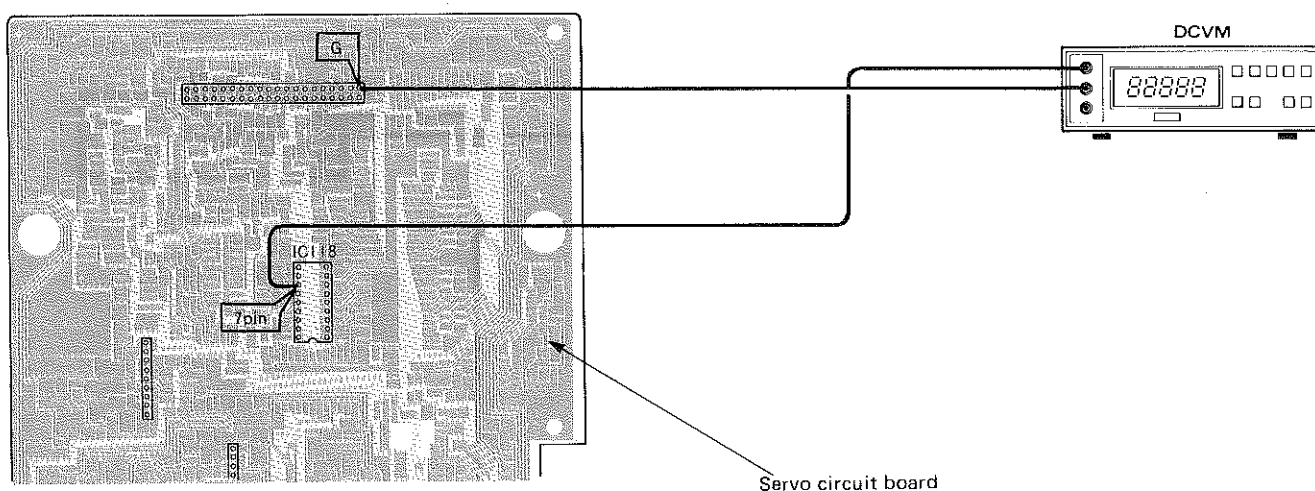
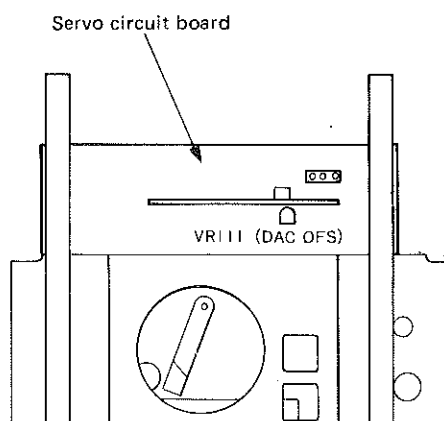


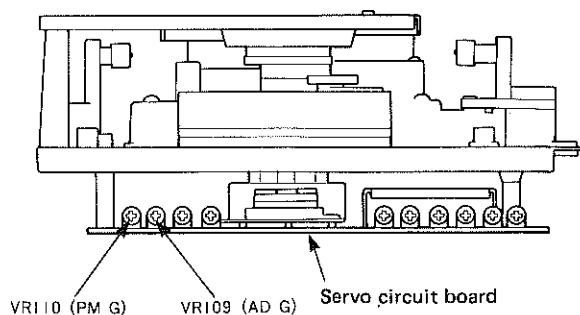
Fig. L

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 Force the Feed to move 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 ③ and ④ 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 OPEN/CLOSE key.
- ⑤ Press the PLAY key.
- ⑥ 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 Press the STOP key.
- 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 OPEN/CLOSE key.
- ⑤ Press the PLAY key.
- ⑥ Maximum the OUTPUT LEVEL.
- ⑦ 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 Press the STOP key.
- ④ Maximize the OUTPUT LEVEL.
- ⑤ Adjust VR606 (L ch) and VR605 (R ch) so that the specified rating is obtained.

Rating: $E = 0 \pm 1 \text{ mV}$

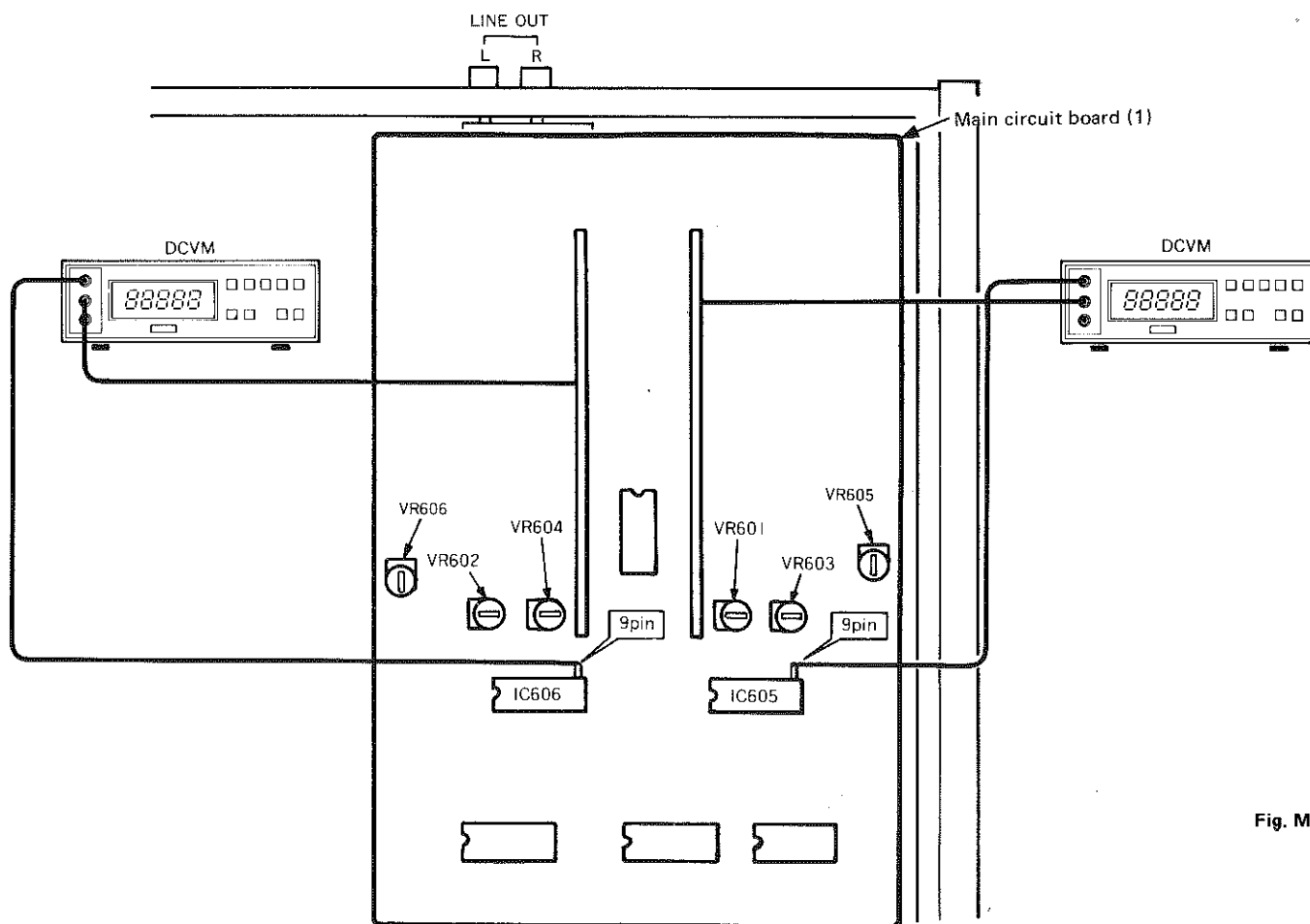


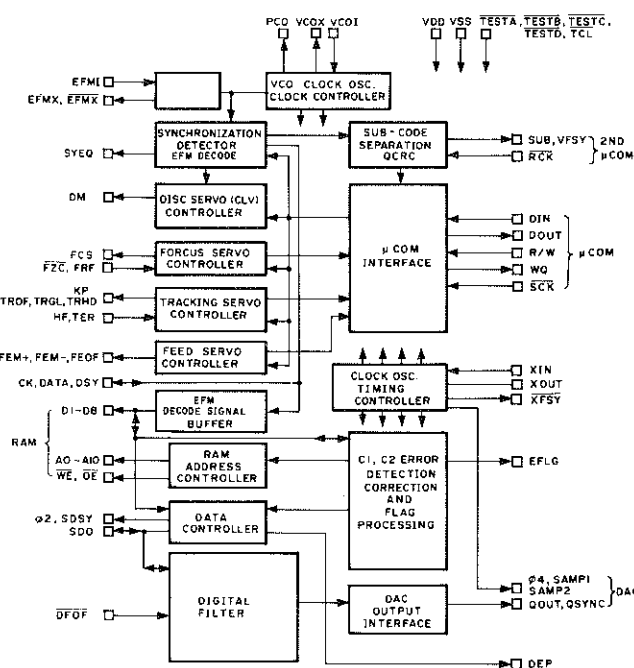
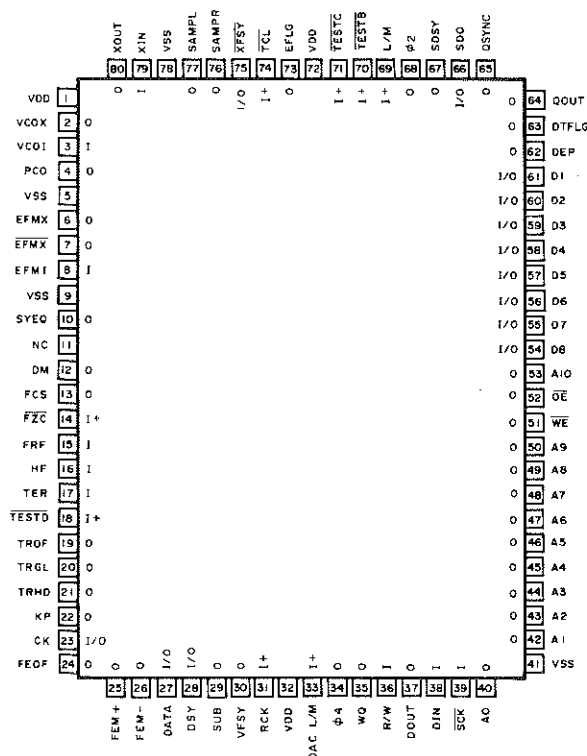
Fig. M

LSI DATA

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

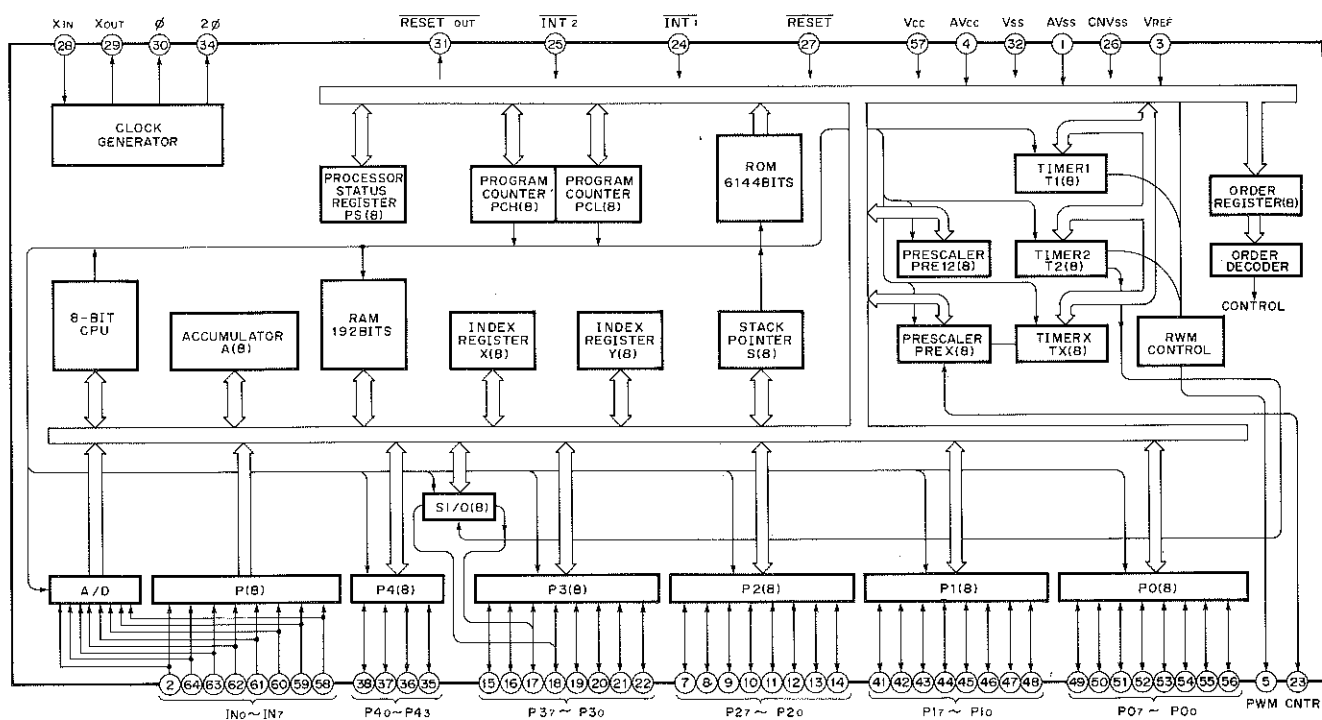
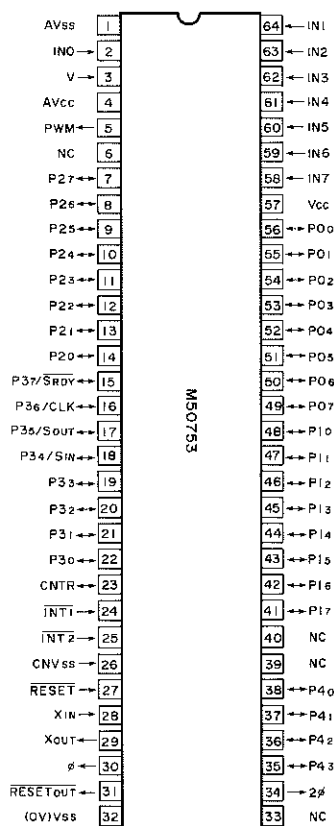
YM-3816 is a CMOS LSI for signal processing and servo control of the compact disc player.

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.

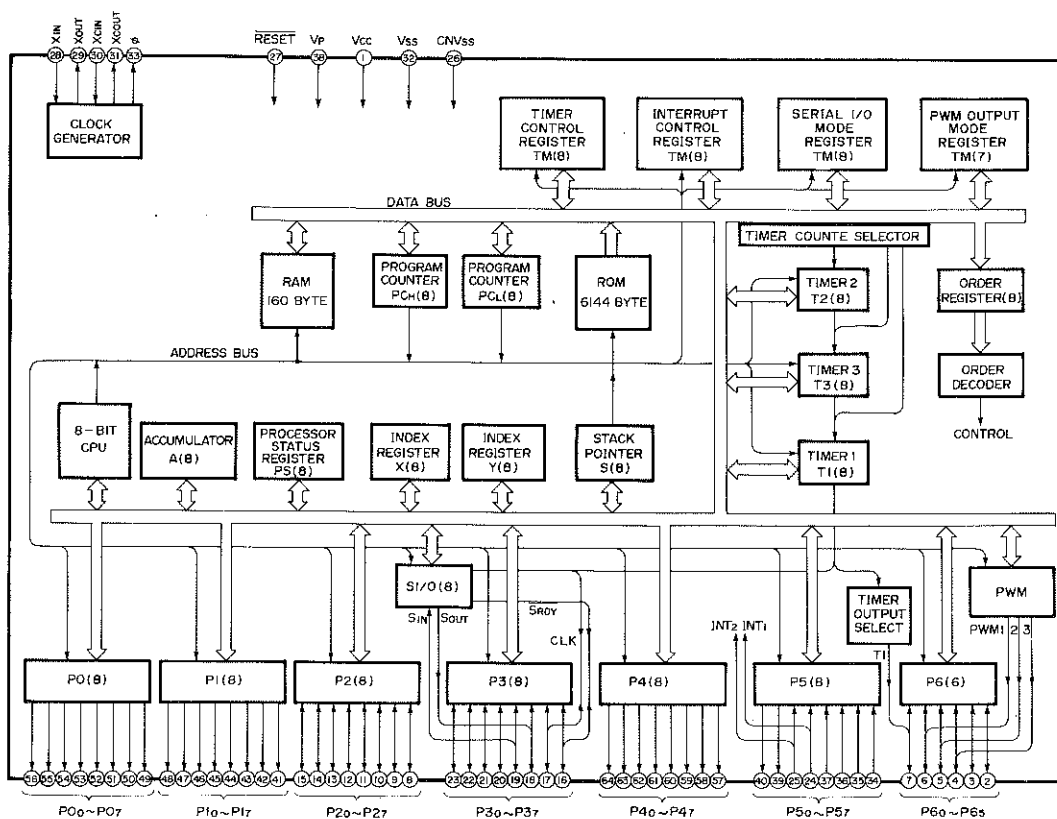
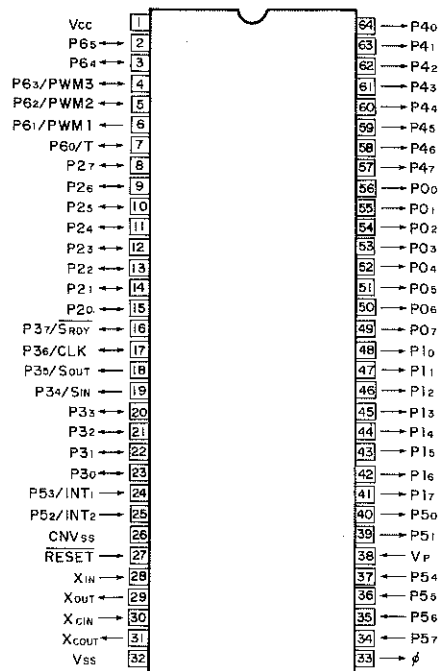


Pin No.	Pin Name	I/O	Function
1	VDD		Power Supply
2	VCOX	O	Clock Playback Circuit 4PCO
3	VCOI	I	
4	PCO	O	GND
5	VSS		
6	EFMX	O	EFM Signal External Circuit
7	EFMX	O	
8	EFMI	I	GND
9	VSS		
10	SYEQ	O	Synchronized Uniform Signal
11	N.C.		Not Use
12	DM	O	Disc Servo { LOW (0V): FORWARD OPEN (2.5V): STOP HIGH (5V): REVERSE
13	FCS	O	Focus Servo System Input
14	FZC	I	
15	FRF	I	Tracking Servo System Input
16	HF	I	
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	
41	VSS		GND
40	A0	O	
42	A1	O	RAM Connections
43	A2	O	
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	Deglitch 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)

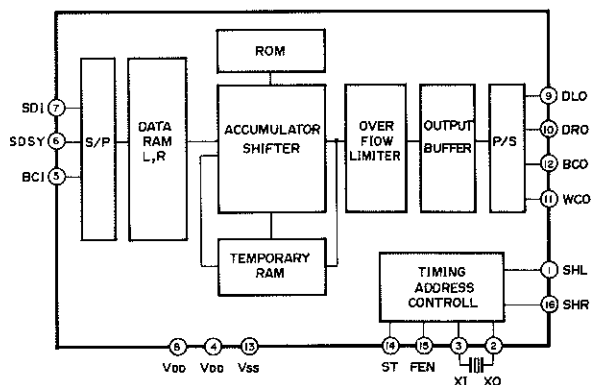
Pin No.	Pin Name	I/O	Function
1	AV _{SS}	—	A/D GND
2	INO	I	A/D
3	V	—	A/D V _{ref} 5V
4	AV _{CC}	—	A/D V _{CC} 5V
5	PWM	O	—
6	NC	—	—
7	P2 ₇	I/O	Linear Motor Drive
8	P2 ₆		
9	P2 ₅		
10	P2 ₄		
11	P2 ₃		
12	P2 ₂		
13	P2 ₁		
14	P2 ₀		
15	P3 ₇ /SRDY		DM FG Pulse
16	P3 ₆ /CLK		Serial I/O CLK
17	P3 ₅ /SOUT	I/O	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 Count
24	INT ₁		—
25	INT ₂		—
26	CNV _{SS}	I	—
27	RESET	O	RESET
28	XIN		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	PI ₇	I/O	FLAPPER IN SW Input
41	PI ₆		FLAPPER OUT SW Input
42	PI ₅		DISPLAY DATA CLK Output
43	PI ₄		DISPLAY DATA START Signal output
44	PI ₃		
45	PI ₂		
46	PI ₁		
47	PI ₀		DM — Output
48	PO ₇		DM + Output
49	PO ₆		KP — Output
50	PO ₅	I/O	KP + Output
51	PO ₄		FLAPPER IN Output
52	PO ₃		FLAPPER OUT Output
53	PO ₂		LOADING IN Output
54	PO ₁		LOADING OUT Output
55	PO ₀		—
56	V _{CC}	—	—
57	IN ₇	I	LOADING IN SW Input
58	IN ₆		KEY Input
59	IN ₅		
60	IN ₄		
61	IN ₃		
62	IN ₂		
63	IN ₁		
64	IN ₀		

IC1: M50754-403SP (8 bit μ -COM)

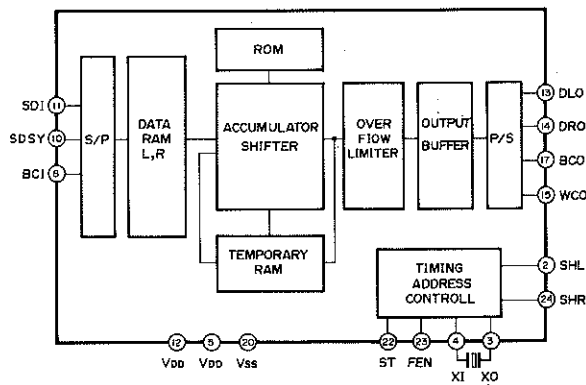
Pin No.	Pin Name	I/O	Function
1	V _{CC}		V _{CC}
2	P6 ₅	I/O	U T } DISPLAY SEGMENT
3	P6 ₄		
4	P6 ₃ /PWM3		
5	P6 ₂ /PWM2		VOLUME UP
6	P6 ₁ /PWM1	O	VOLUME DOWN
7	P6 ₀ /T	I/O	S V } DISPLAY SEGMENT
8	P2 ₇		
9	P2 ₆		} DISPLAY DATA INPUT
10	P2 ₅		
11	P2 ₄		
12	P2 ₃		DISPLAY DATA START Signal output
13	P2 ₂		DISPLAY DATA CLK Signal output
14	P2 ₁		DISPLAY SEGMENT (K,W)
15	P2 ₀		POWER OFF detect
16	P3 ₇ /SRDY		} KEY CODE OUTPUT
17	P3 ₆ /CLK		
18	P3 ₅ /SOUT	O	
19	P3 ₄ /SIN	O	} REMOCON INPUT
20	P3 ₃	I/O	
21	P3 ₂		
22	P3 ₁		DISPLAY MODE BACKUP ON/OFF
23	P3 ₀		
24	P5 ₃ /INT ₁	I	
25	P5 ₃ /INT ₂		
26	CNV _{SS}		GND
27	RESET	I	RESET
28	XIN		CLOCK INPUT
29	XOUT	O	
30	XCIN	I	
31	XCOU	O	
32	X _{SS}		GND
33	φ	O	
34	P5 ₇	I	K3 K2 K1 K0 } KEY INPUT
35	P5 ₆		
36	P5 ₅		
37	P5 ₄		
38	V _p		FL DRIVE -30V : V _p
39	P5 ₁	O	DISPLAY SEGMENT : R
40	P5 ₀		G8 G9 G7 G6 G5 G4 G3 G2 G1 } 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		Q P } DISPLAY SEGMENT
49	PO ₇		
50	PO ₆		O N M L J I H G F E D C B A } DISPLAY SEGMENT
51	PO ₅		
52	PO ₄		
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
14	10	DRO	O	2DAC: Lch Data input
15	11	WCO	O	Rch Data output
17	12	BCO	O	Word clock for output data (DLO, DRO)
				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

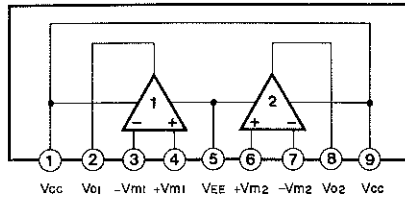
IC101, 103 ~ 110: AN6551, NJM4558S, TA75558S or BA715

IC102: NJM2043S

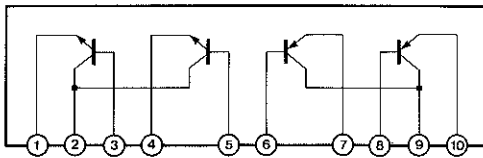
IC607 ~ 610: NJM5532S

IC611: NJM4556S

(Dual Ope-Amp)

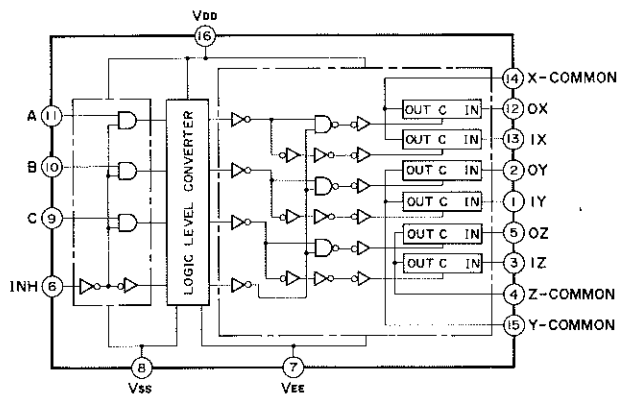


IC113: STA451C (Transistor Array)



IC117: TC4053BP, μ PD4053, HD14053 or MN4053BP

(Triple-2 channel Multiplexer/Demultiplexer)

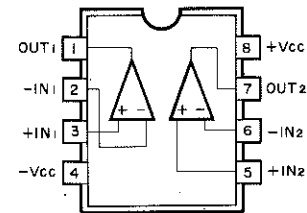


CONTROL INPUTS				"ON" CHANNEL	
INHIBIT (Pin 6)	C (Pin 9)	B (Pin 10)	A (Pin 11)	OX (Pin 12), OY (Pin 2), OZ (Pin 5) 1X (Pin 13), 1Y (Pin 1), 1Z (Pin 3)	
L	L	L	L	0X, 0Y, 0Z	
L	L	L	H	1X, 0Y, 0Z	
L	L	H	L	0X, 1Y, 0Z	
L	L	H	H	1X, 1Y, 0Z	
L	H	L	L	0X, 0Y, 1Z	
L	H	L	H	1X, 0Y, 1Z	
L	H	H	L	0X, 1Y, 1Z	
L	H	H	H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

* Don't Care

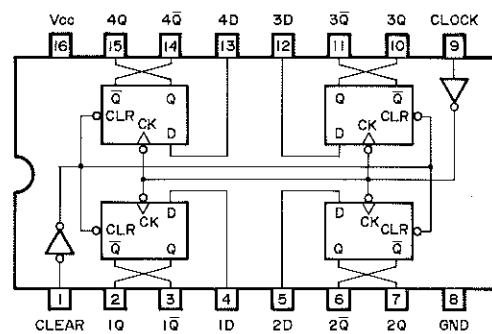
IC503: NJM2043M (T1) or AN6558S

(Dual Ope-Amp)



IC602: TC74HC175P or MC74HC175N

(Quad D-Type Flip-Flop with Clear)

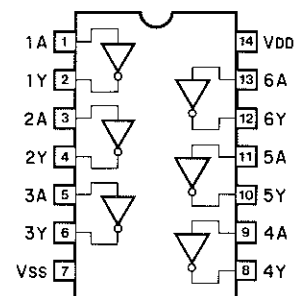


IC603: TC74HC04P or MC74HC04N

IC116: TC4069B

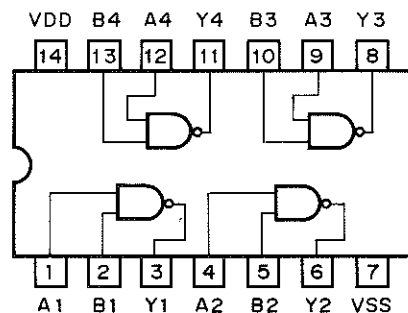
IC403 ~ 405: TC74HC04P

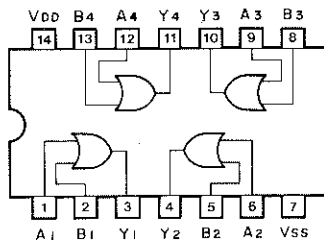
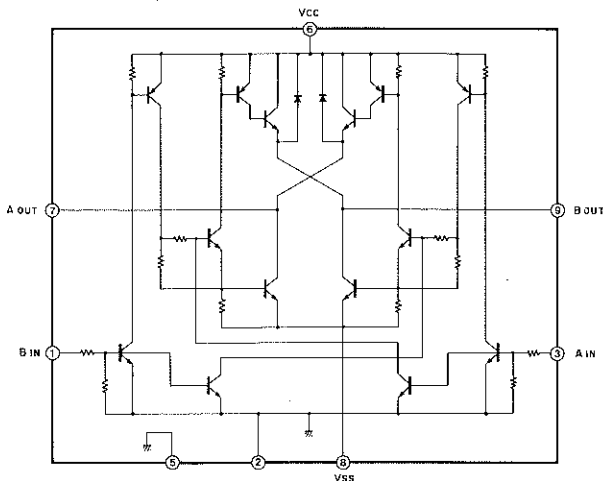
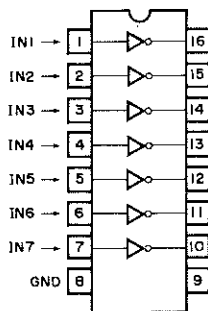
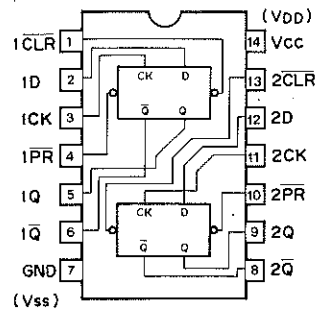
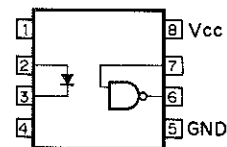
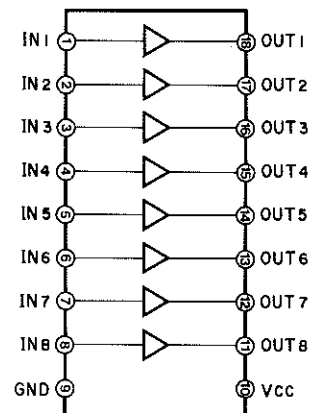
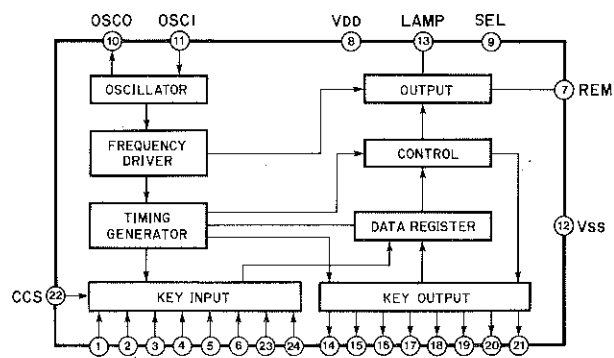
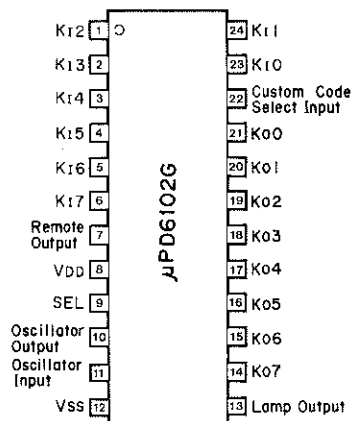
(Hex Inverter)



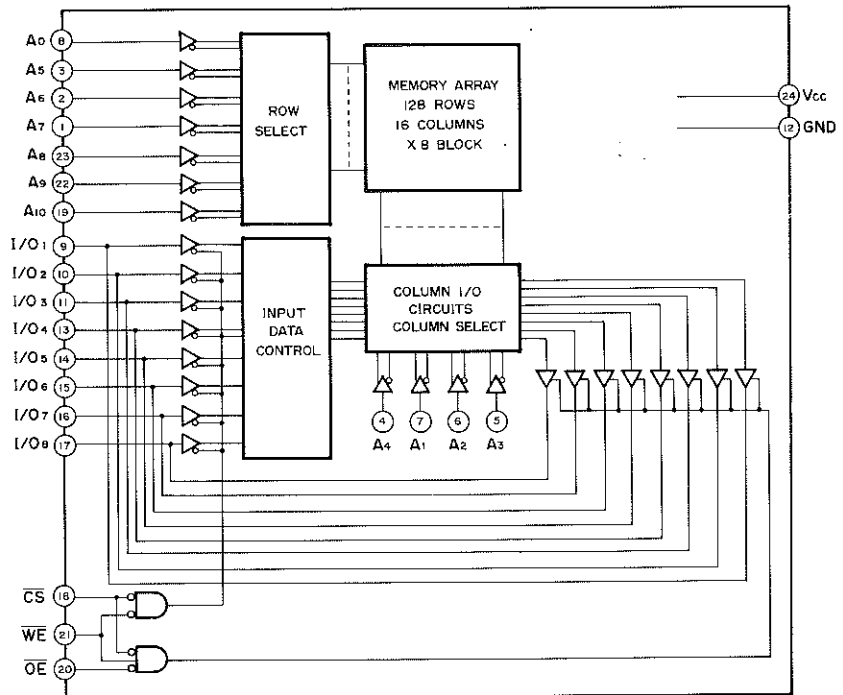
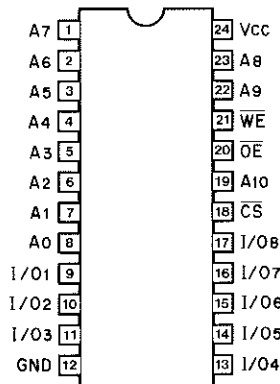
IC405: TC74HC00P

(Quad 2 Input NAND)

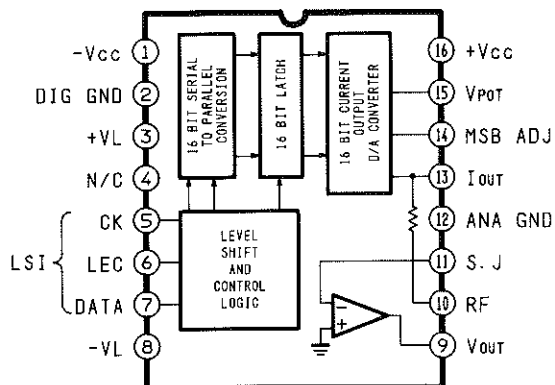


IC115: TC4071BP**(Quadruple 2-Input OR Gate)****IC111, 112: BA6218 (Motor Driver)****IC3: M54580P (LED Driver)****IC114: TC74HC74P****(Dual D Flip-Flop with Preset and Clear)****IC406 ~ 409: PC910J****IC410 ~ 412: TLP552****(Photo Coupler)****IC2: M54564P (LED Driver)****IC01: μ PD6102G****(64 Function Remote Control Transmitter)**

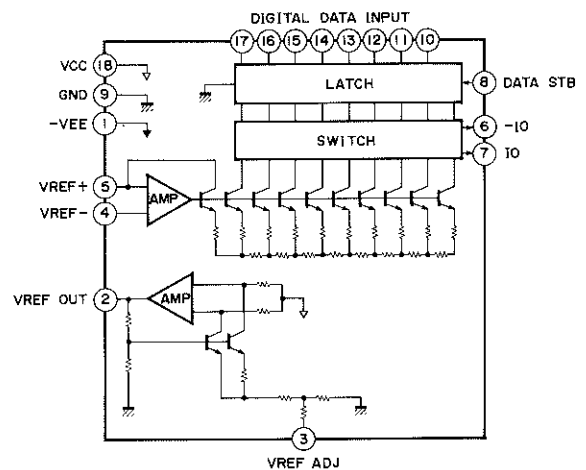
IC502: MSM5128-20GS, HM6116FP-4 or CXK5816M
(RAM)



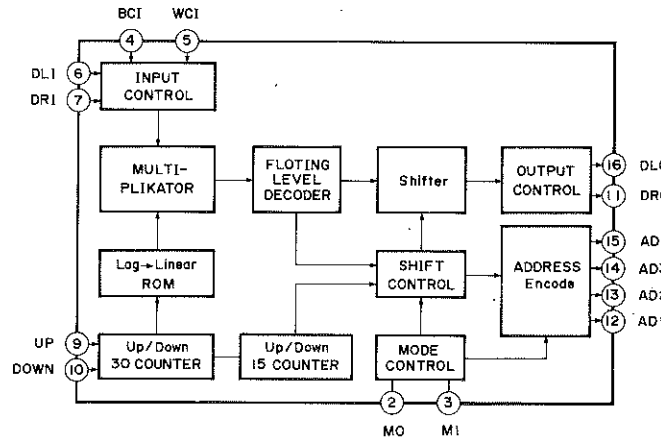
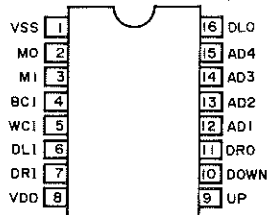
IC605, 606: PCM56P-K (D/A Converter)



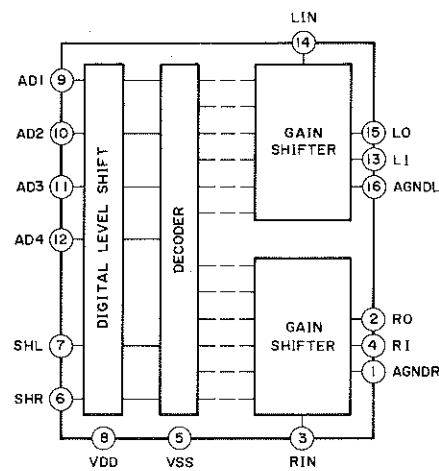
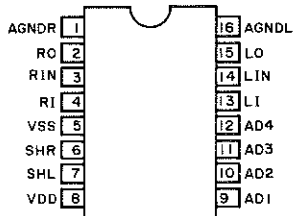
IC118: BA9201 (8 bit D/A Converter)



IC601: YM3615 (Digital Volume Controller)

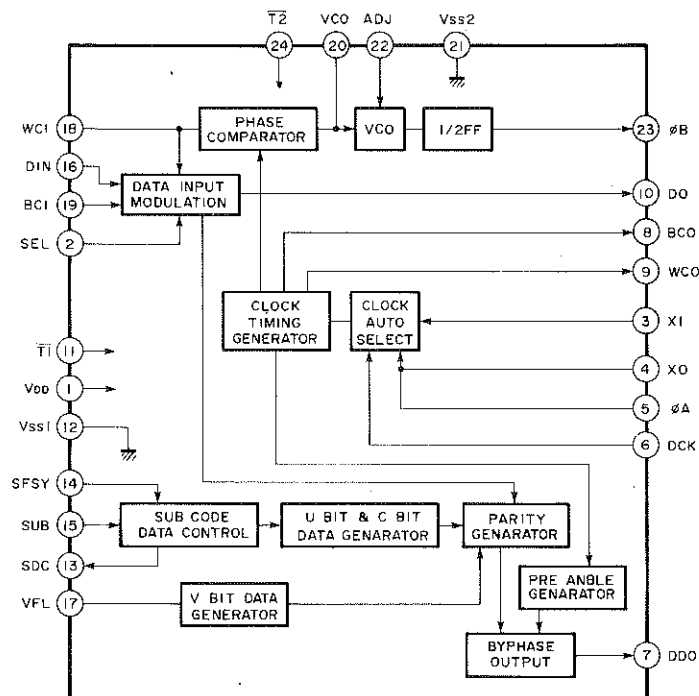
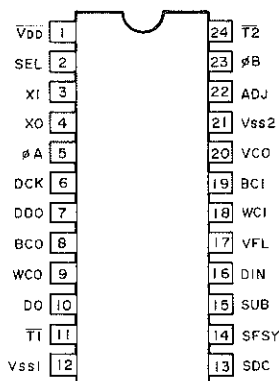


IC604: YM3023 (Gain Shifter)

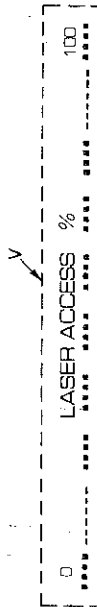
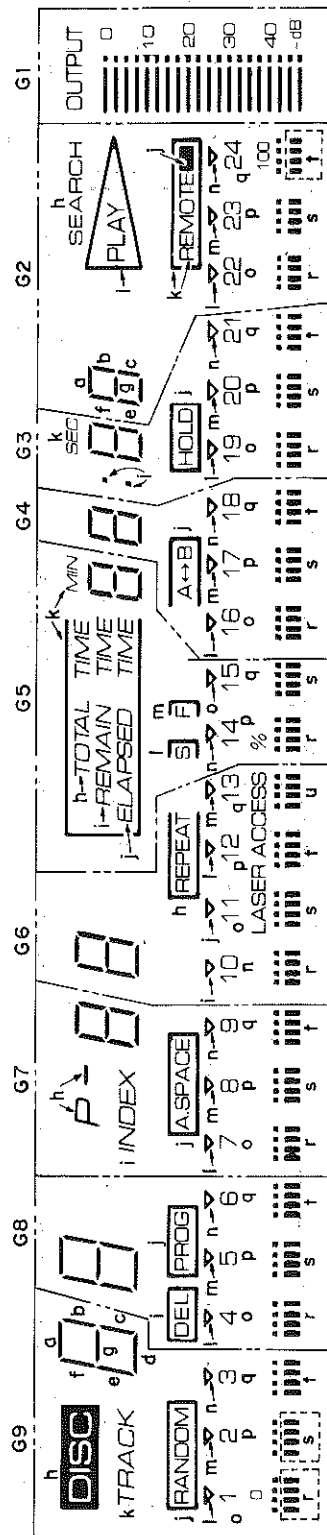
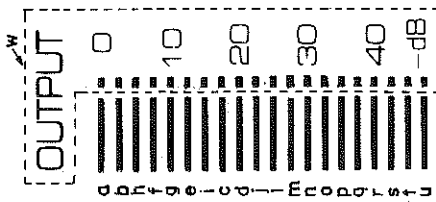
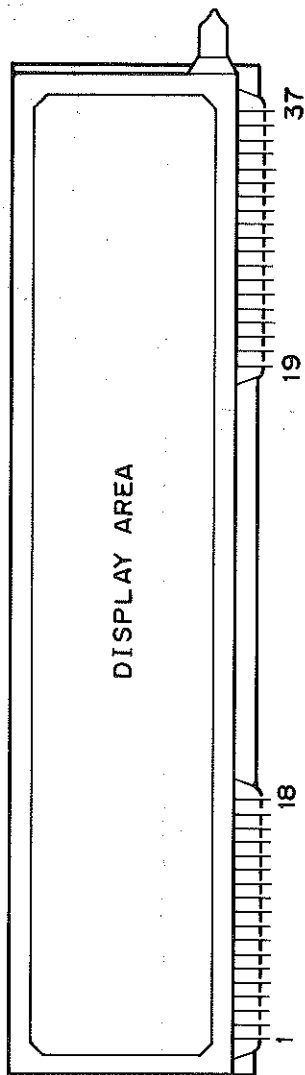


IC401: YM3613

(Digital Audio Interface Transmitter)

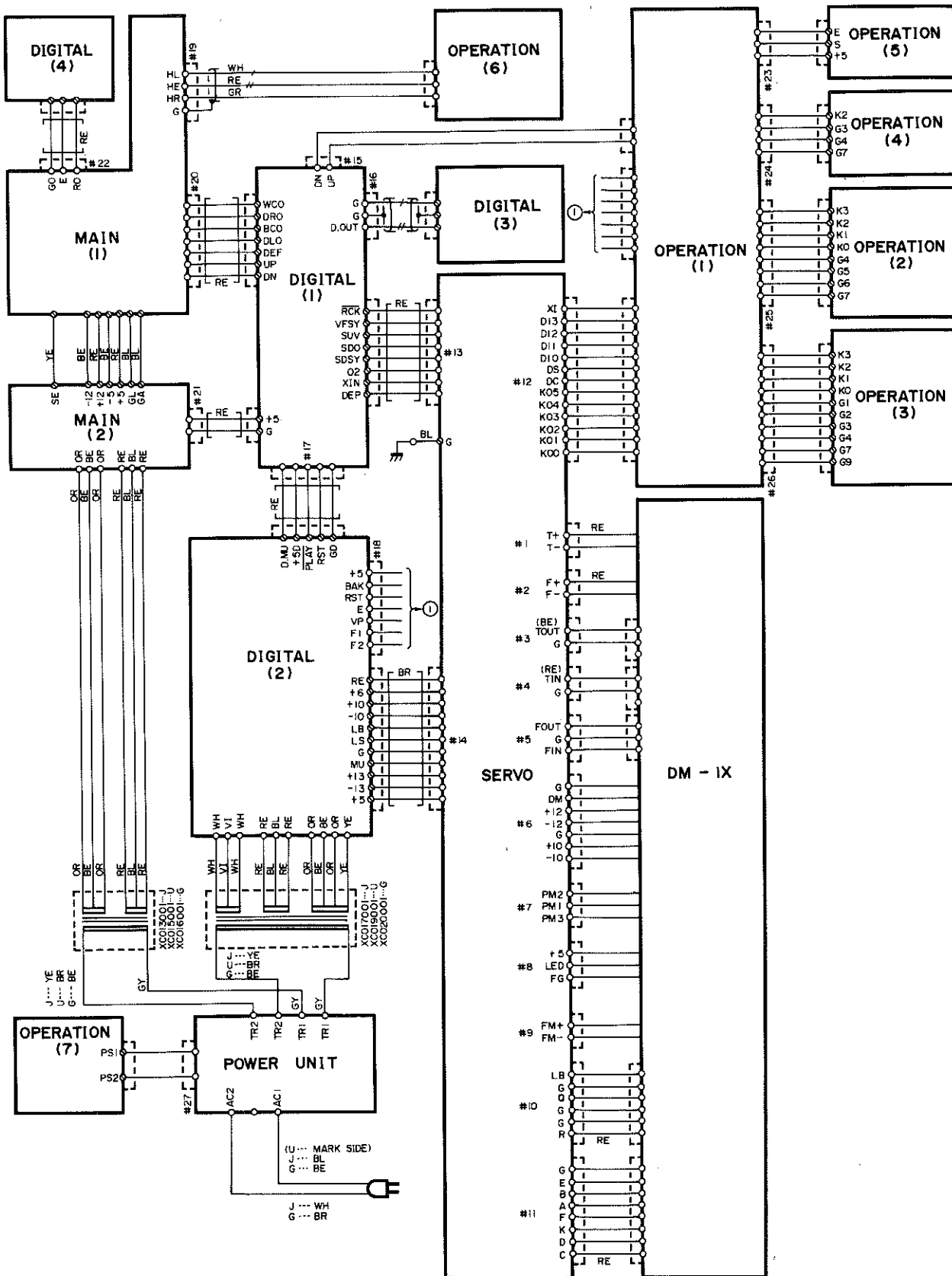


FL DATA



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



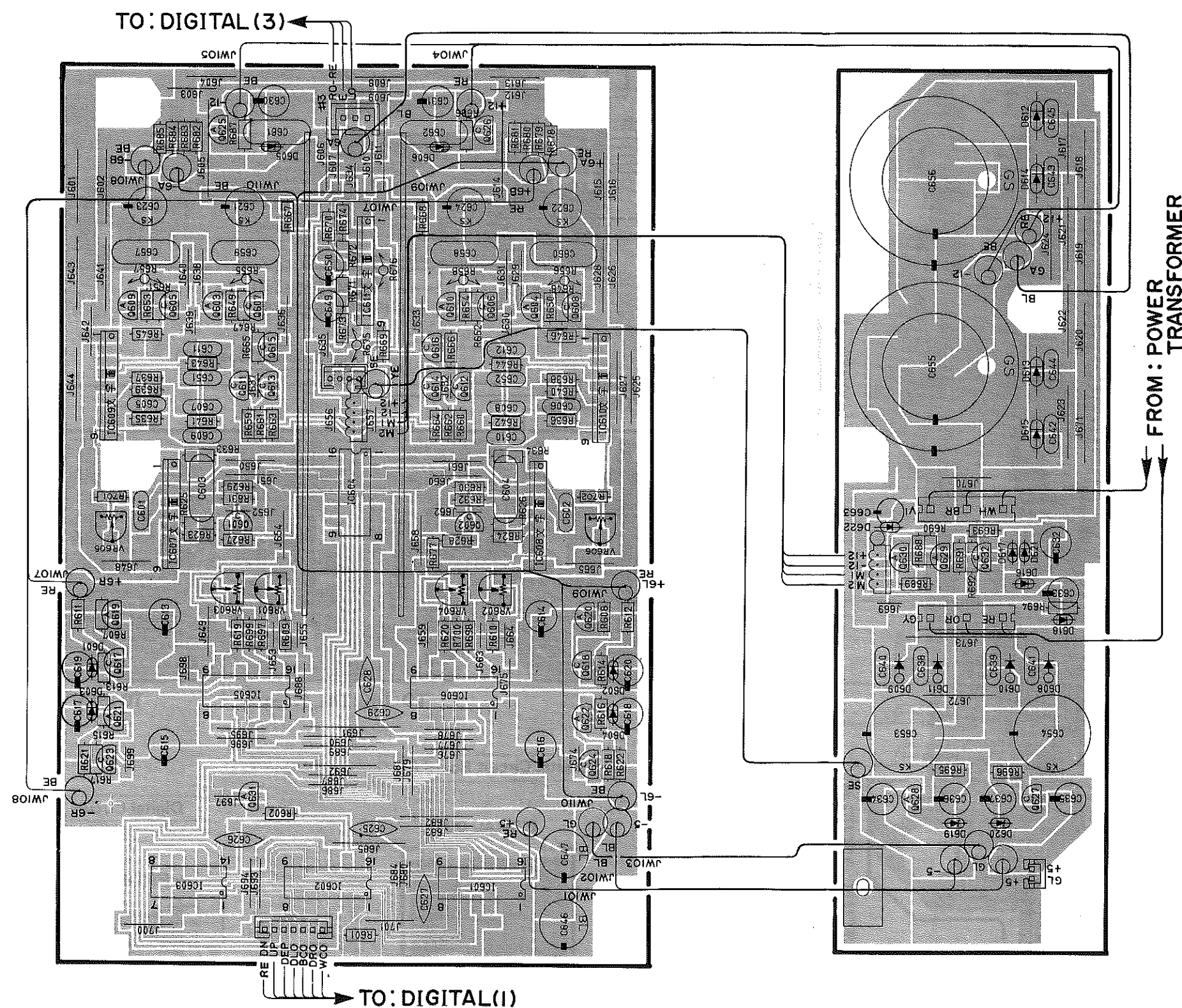
■ **PRINTED CIRCUIT BOARD (Pattern side)**

Note) 文字面 : Component side

Main Circuit Board (1)

Main Circuit Board (2)

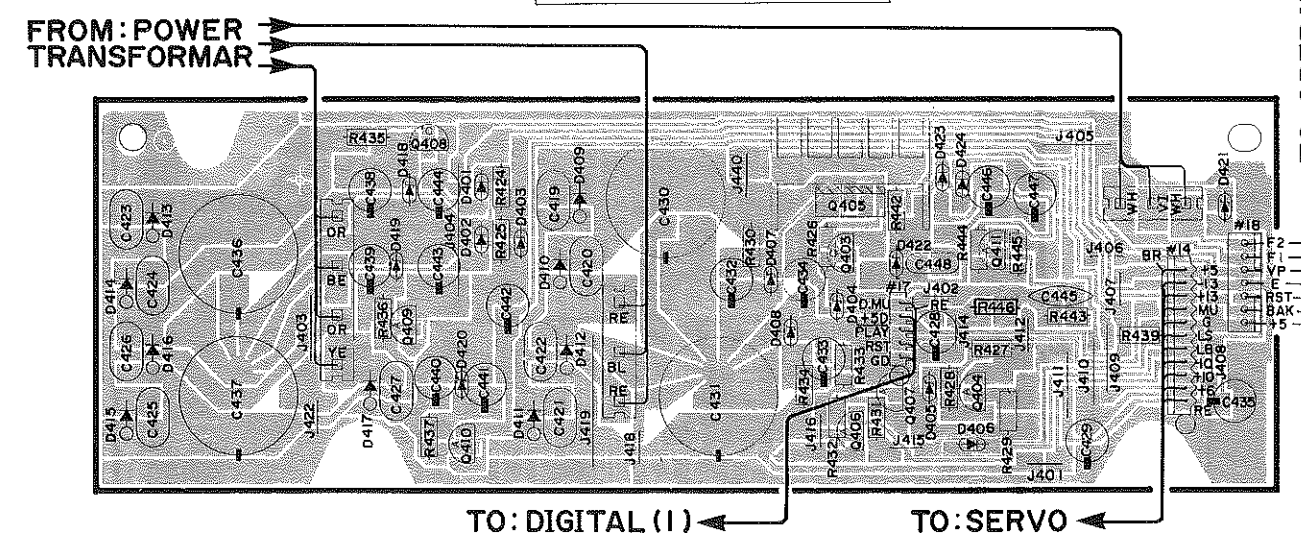
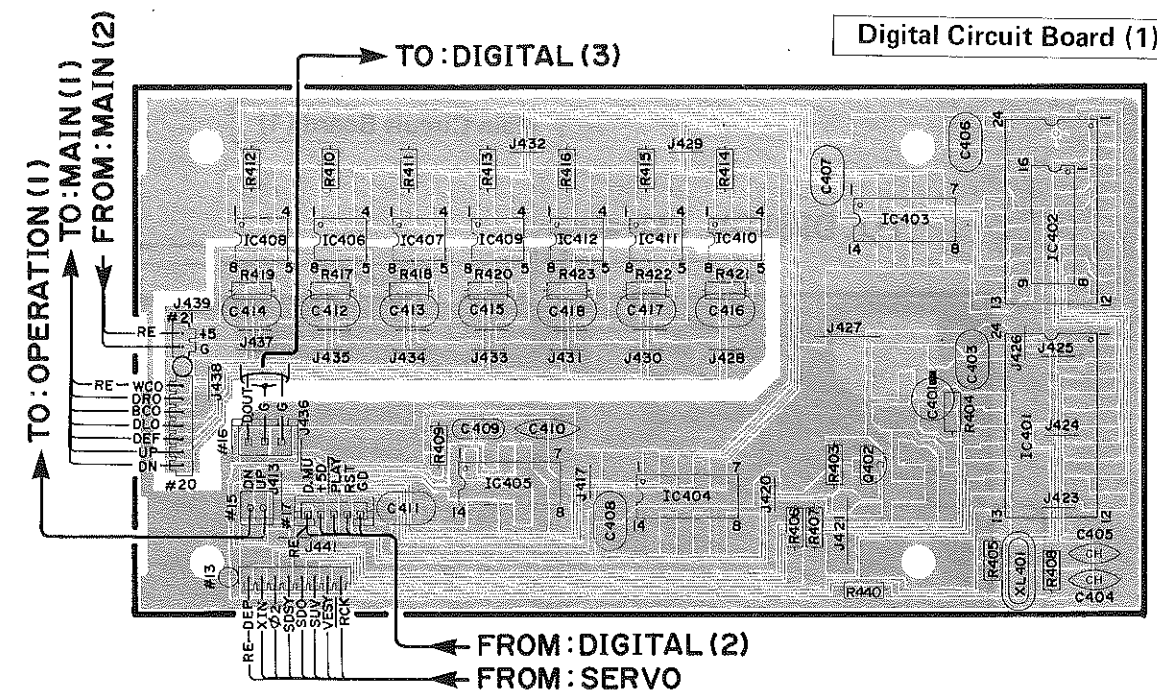
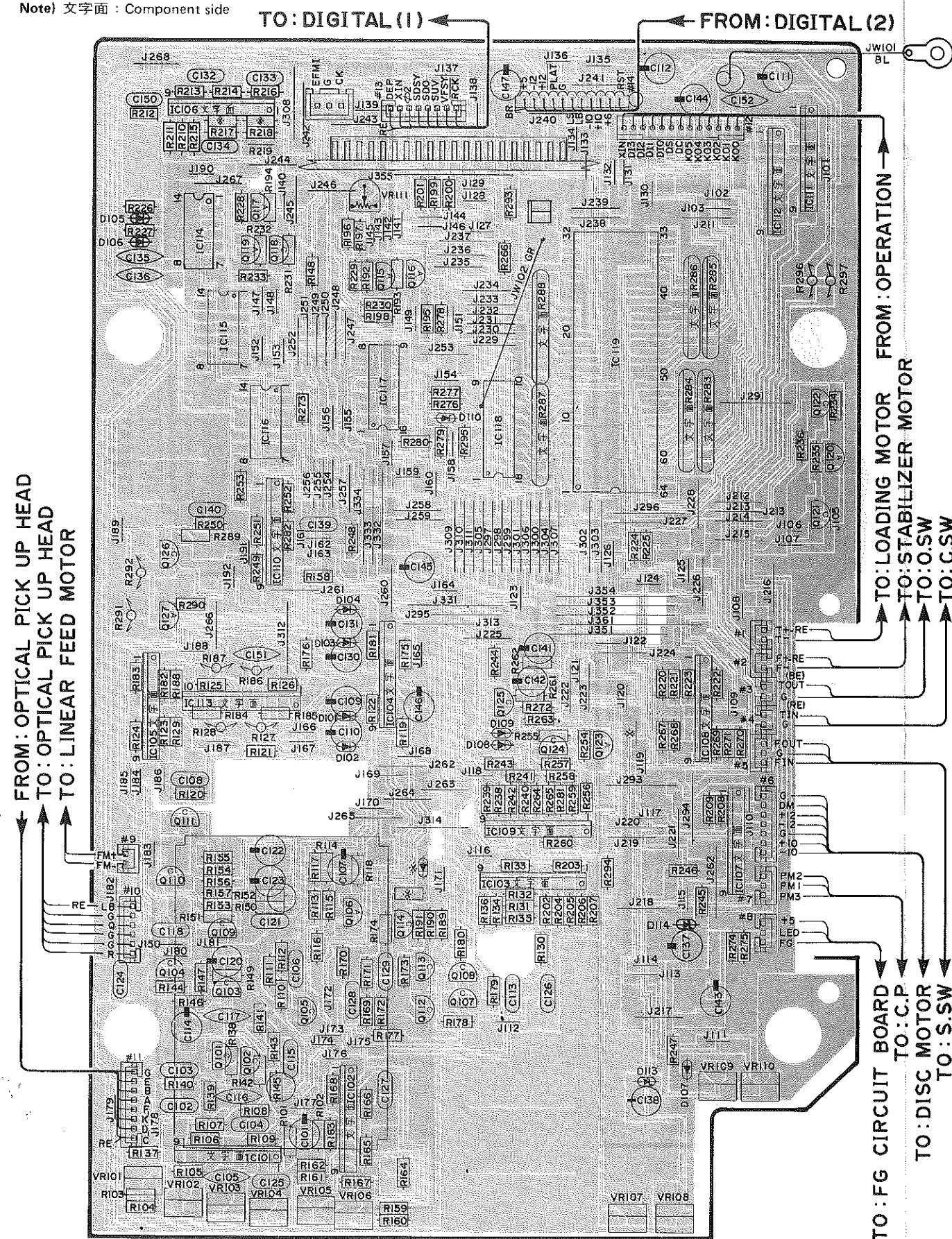
SPC Circuit Board Parts



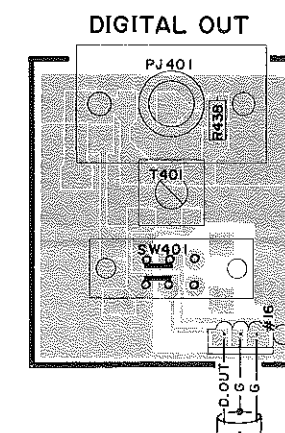
■ PRINTED CIRCUIT BOARD (Pattern side)

Servo Circuit Board

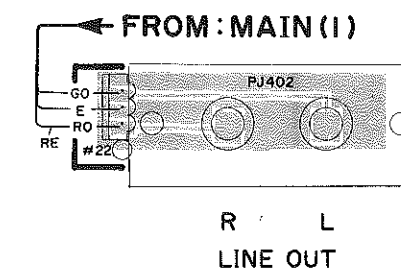
Note) 文字面 : Component side



Digital Circuit Board (3)



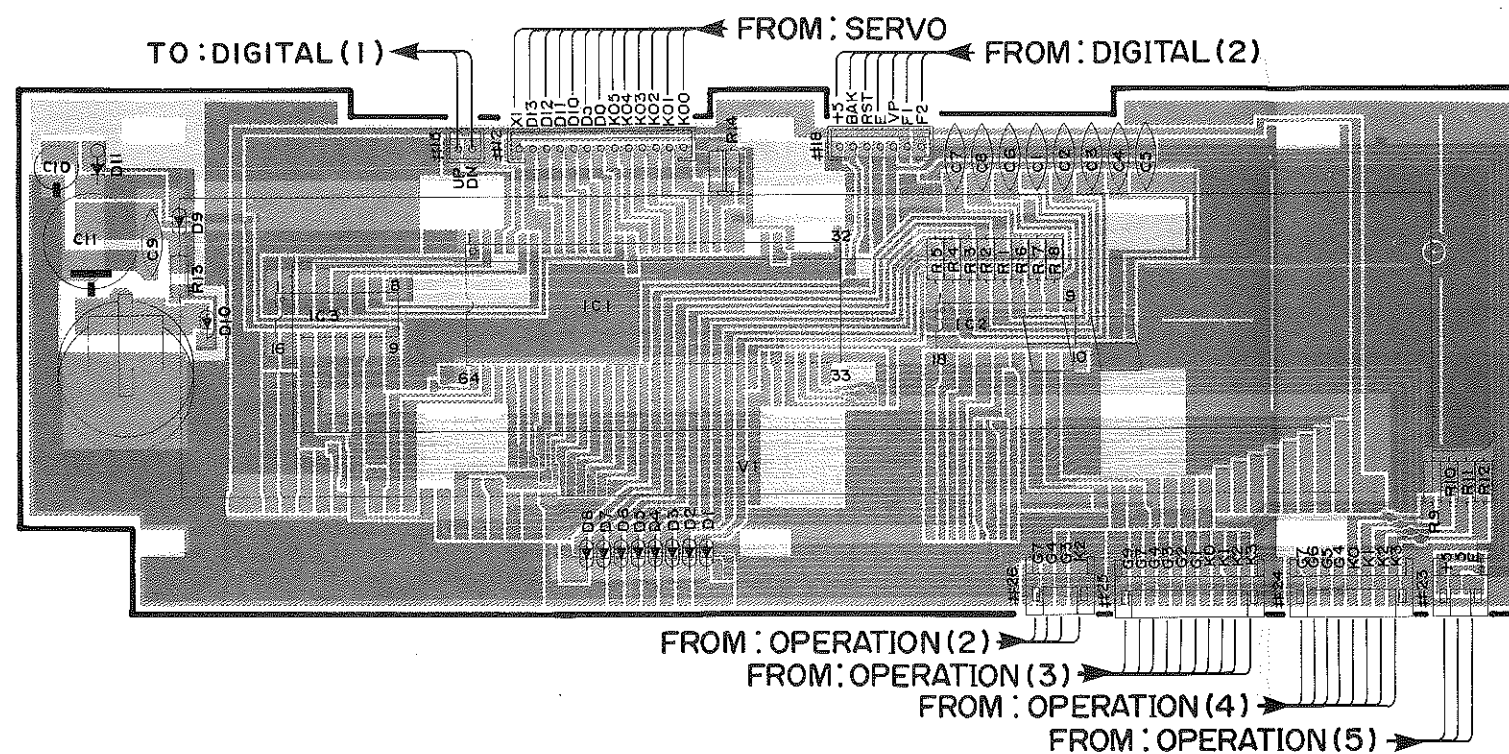
Digital Circuit Board (4)



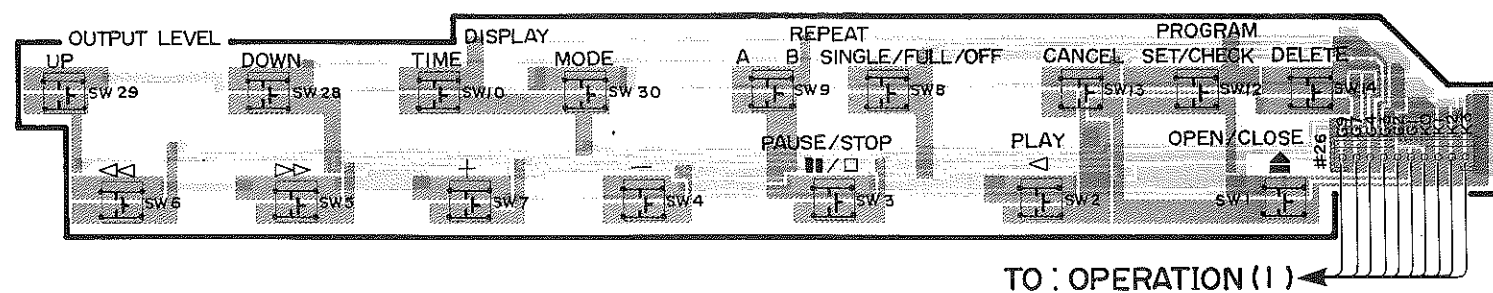
PRINTED CIRCUIT BOARD(Pattern side)

Note) 文字面 : Component side

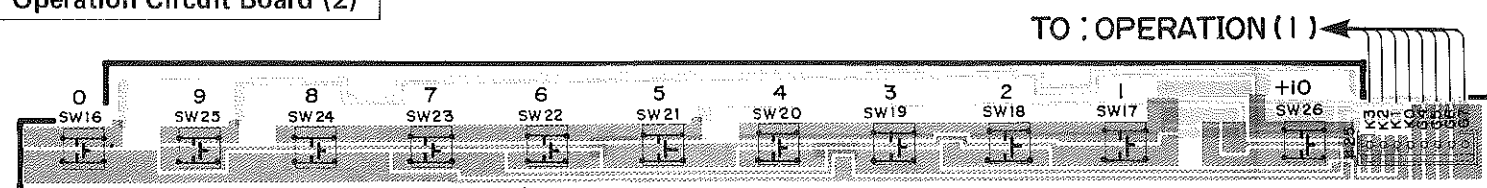
Operation Circuit Board (1)



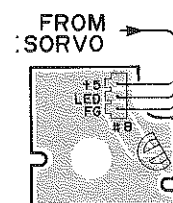
Operation Circuit Board (3)



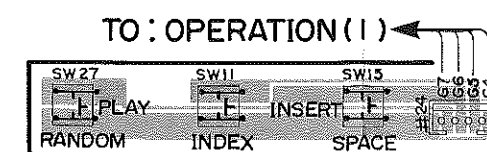
Operation Circuit Board (2)



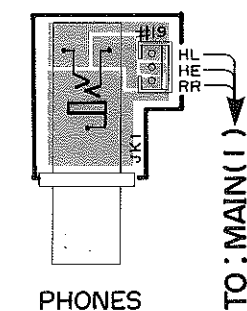
FG Circuit Board



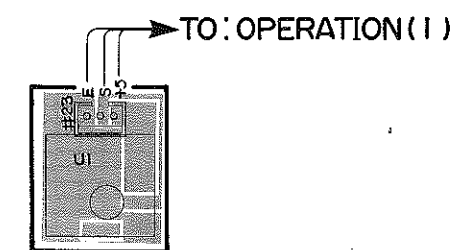
Operation Circuit Board (4)



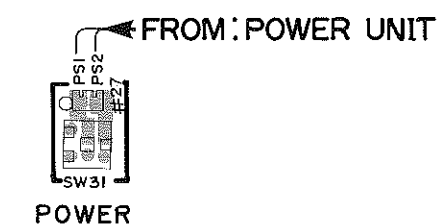
Operation Circuit Board (6)



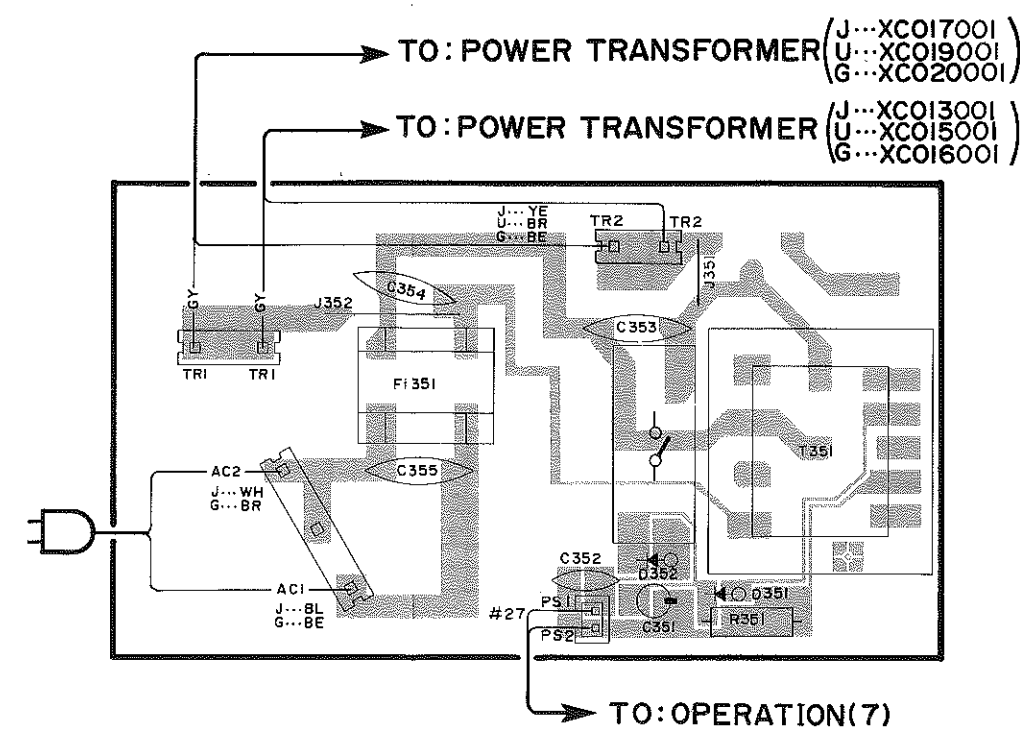
Operation Circuit Board (5)



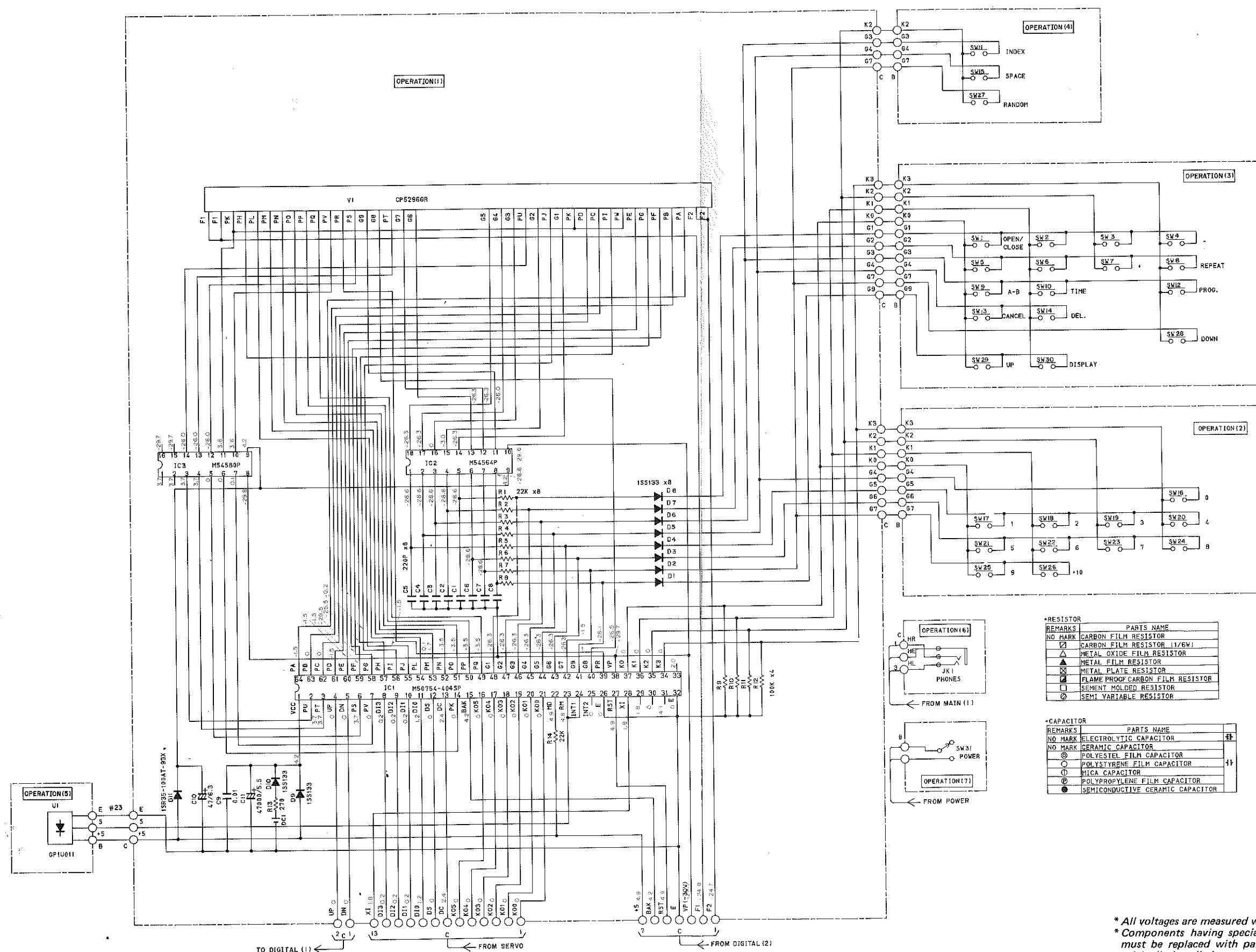
Operation Circuit Board (7)



Power Circuit Board



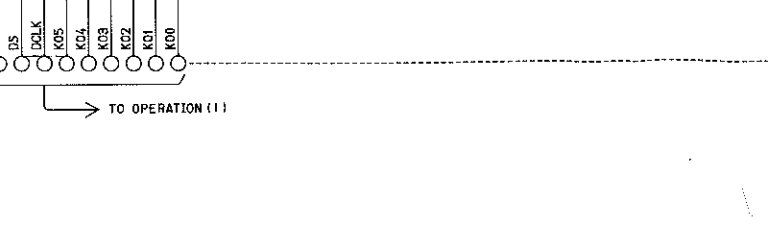
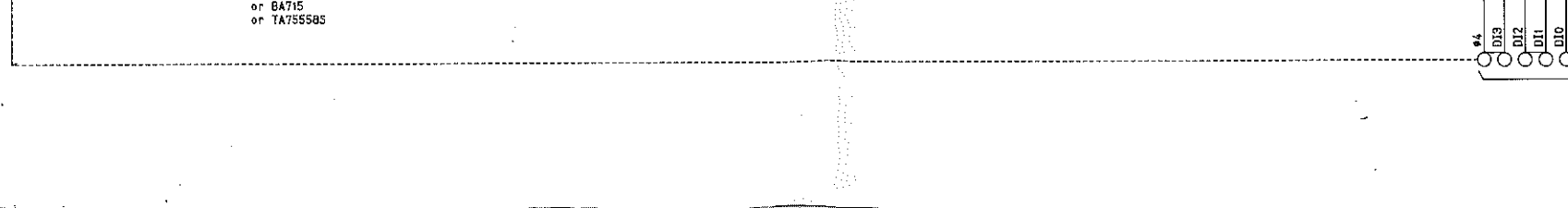
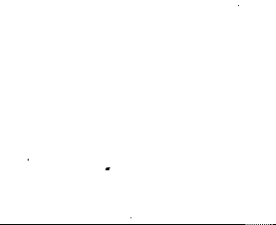
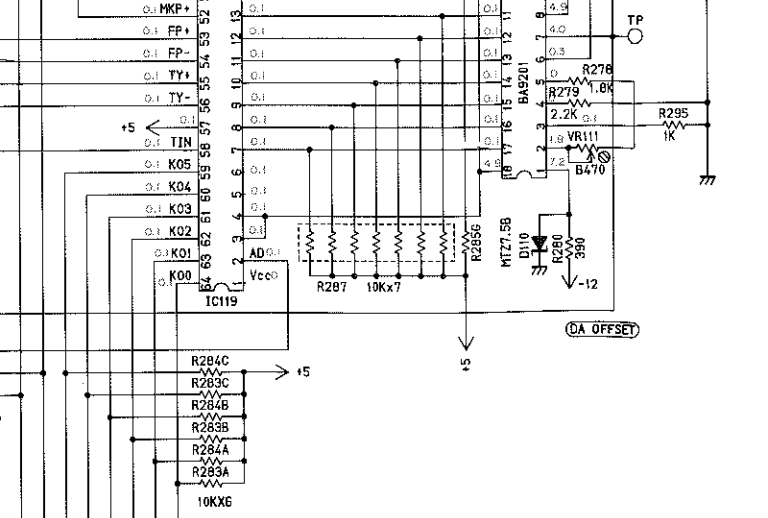
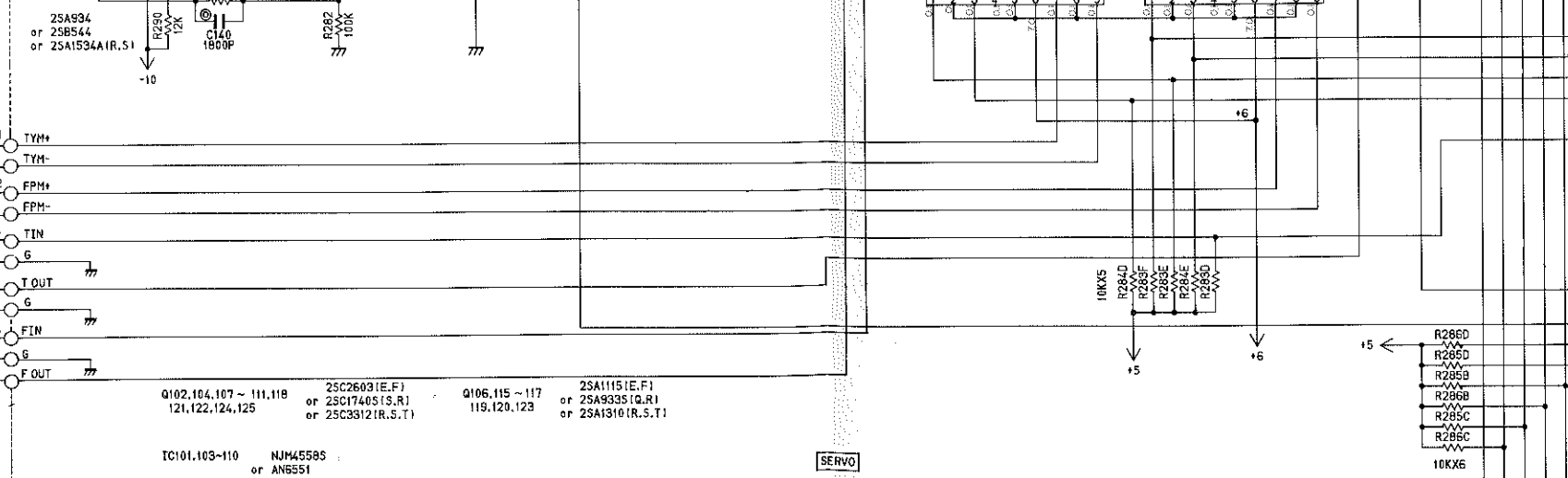
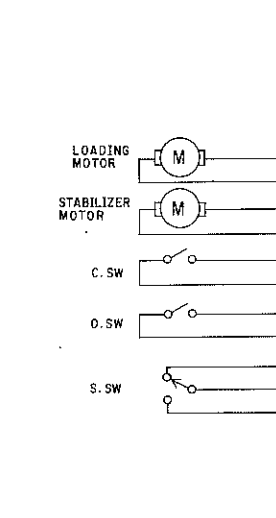
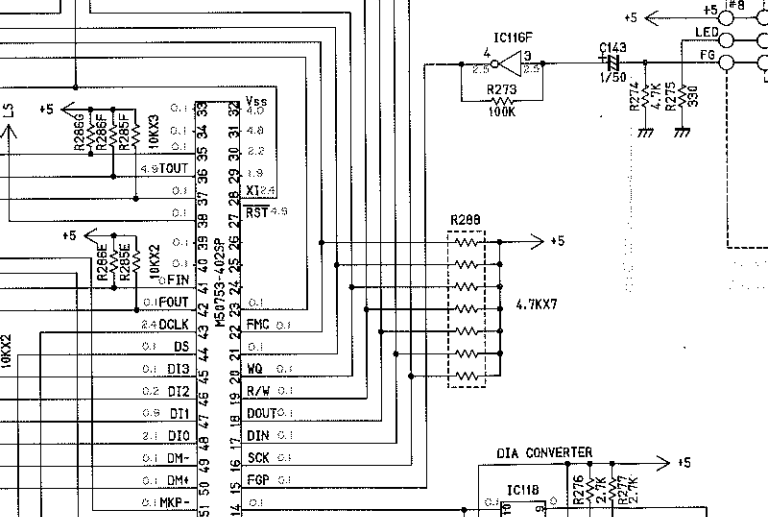
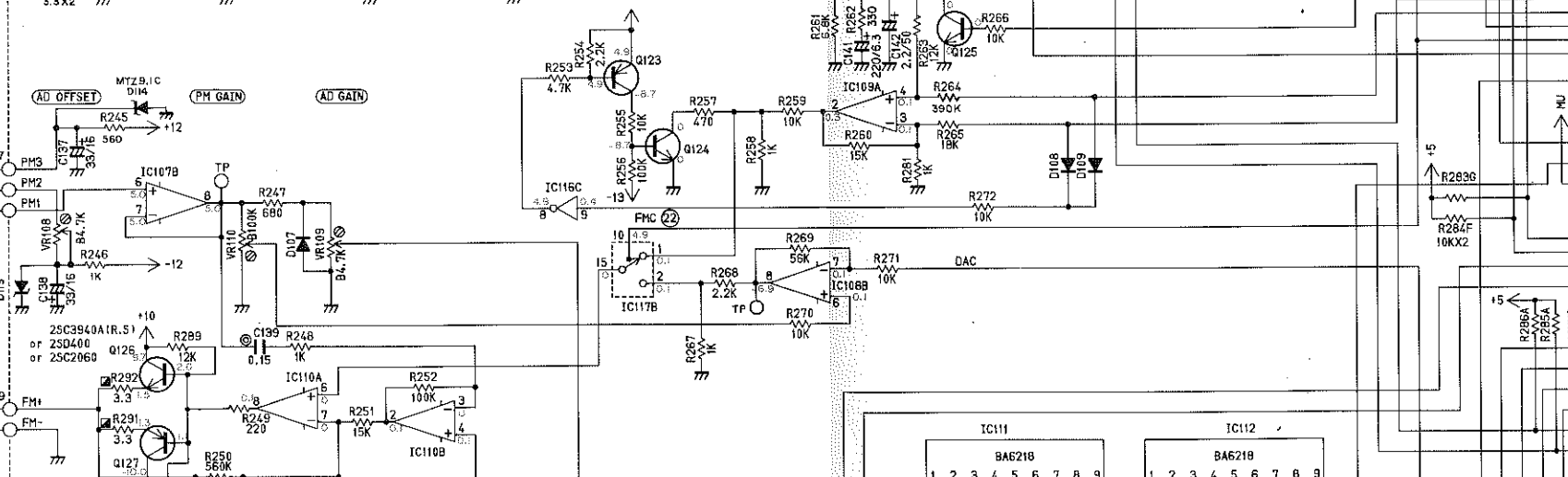
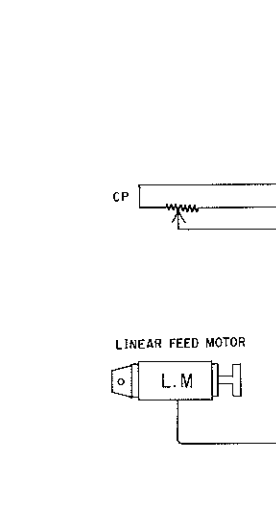
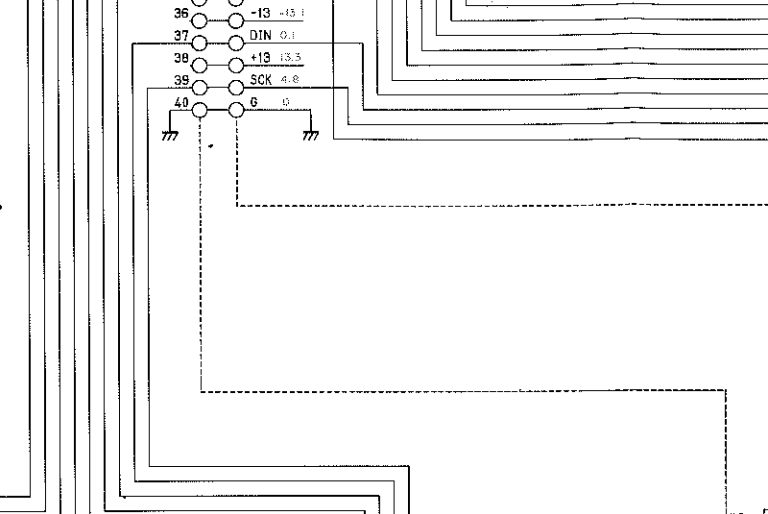
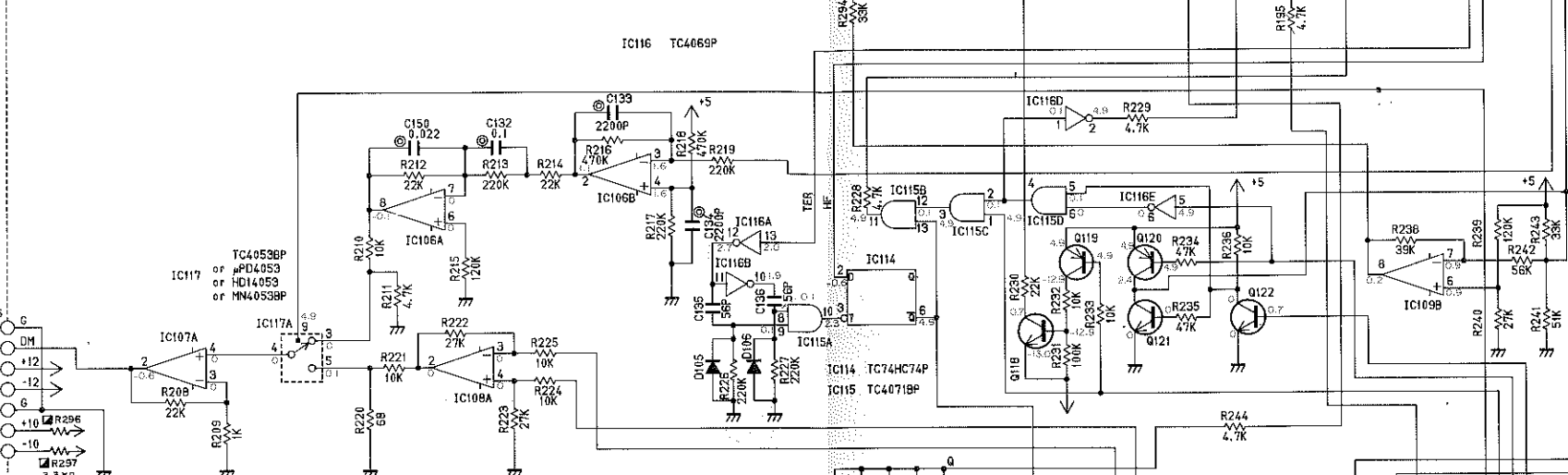
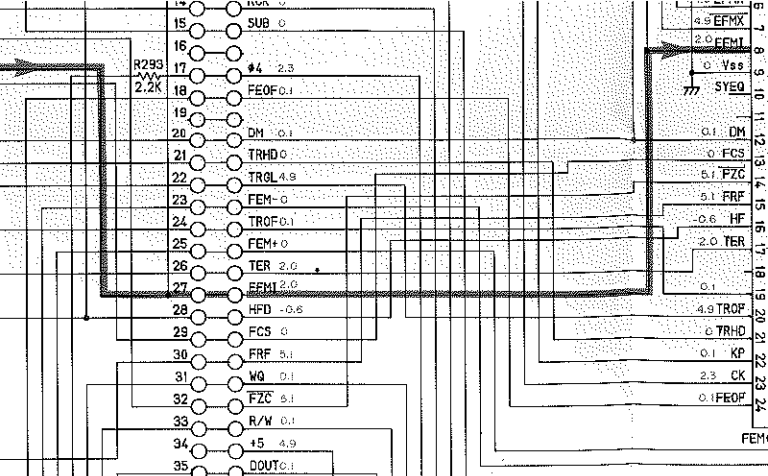
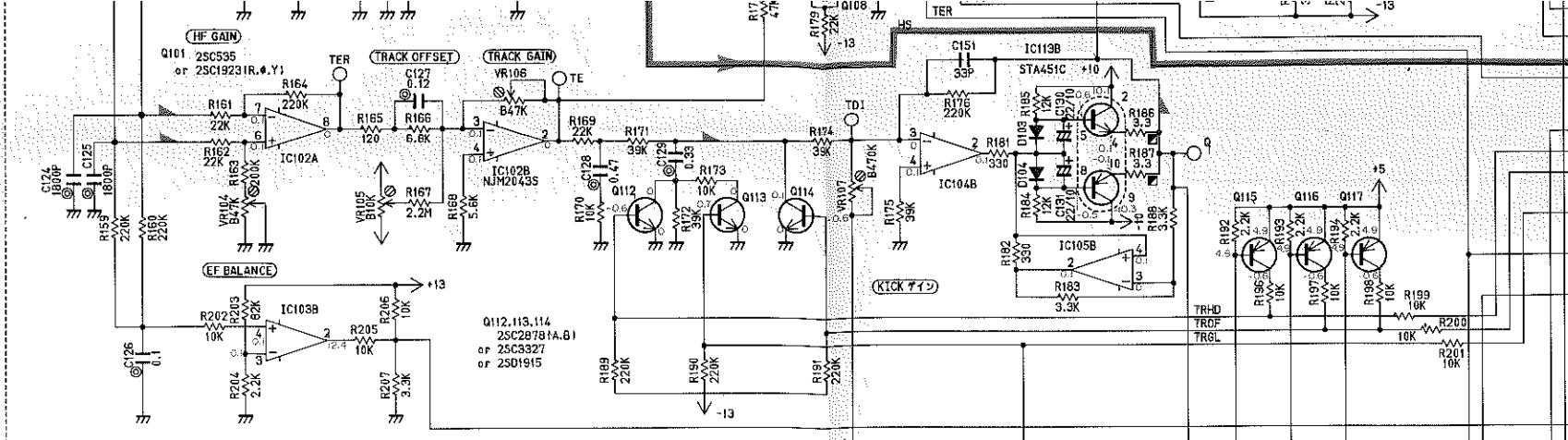
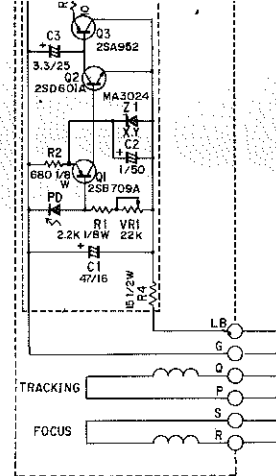
SCHEMATIC DIAGRAM (1/4)

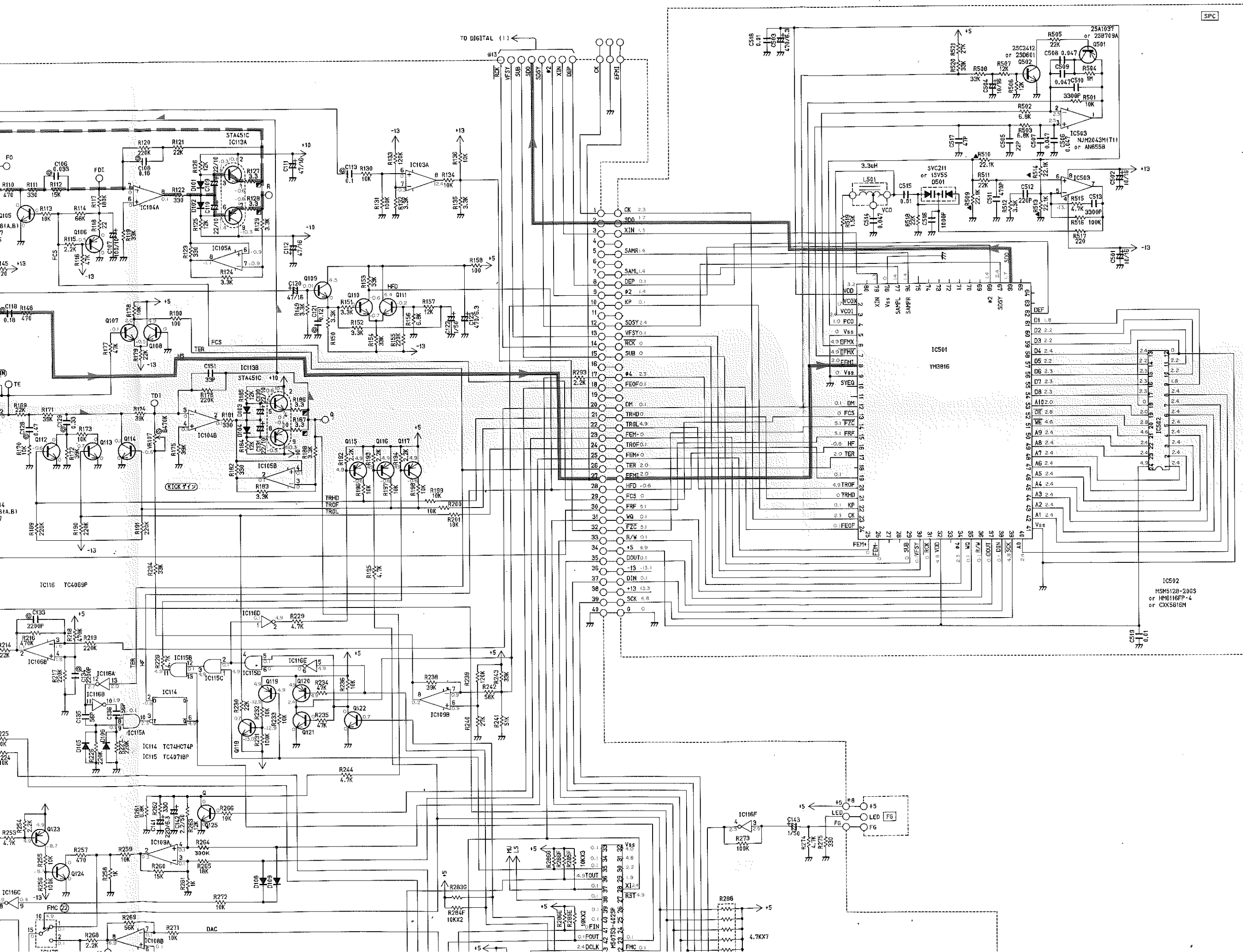


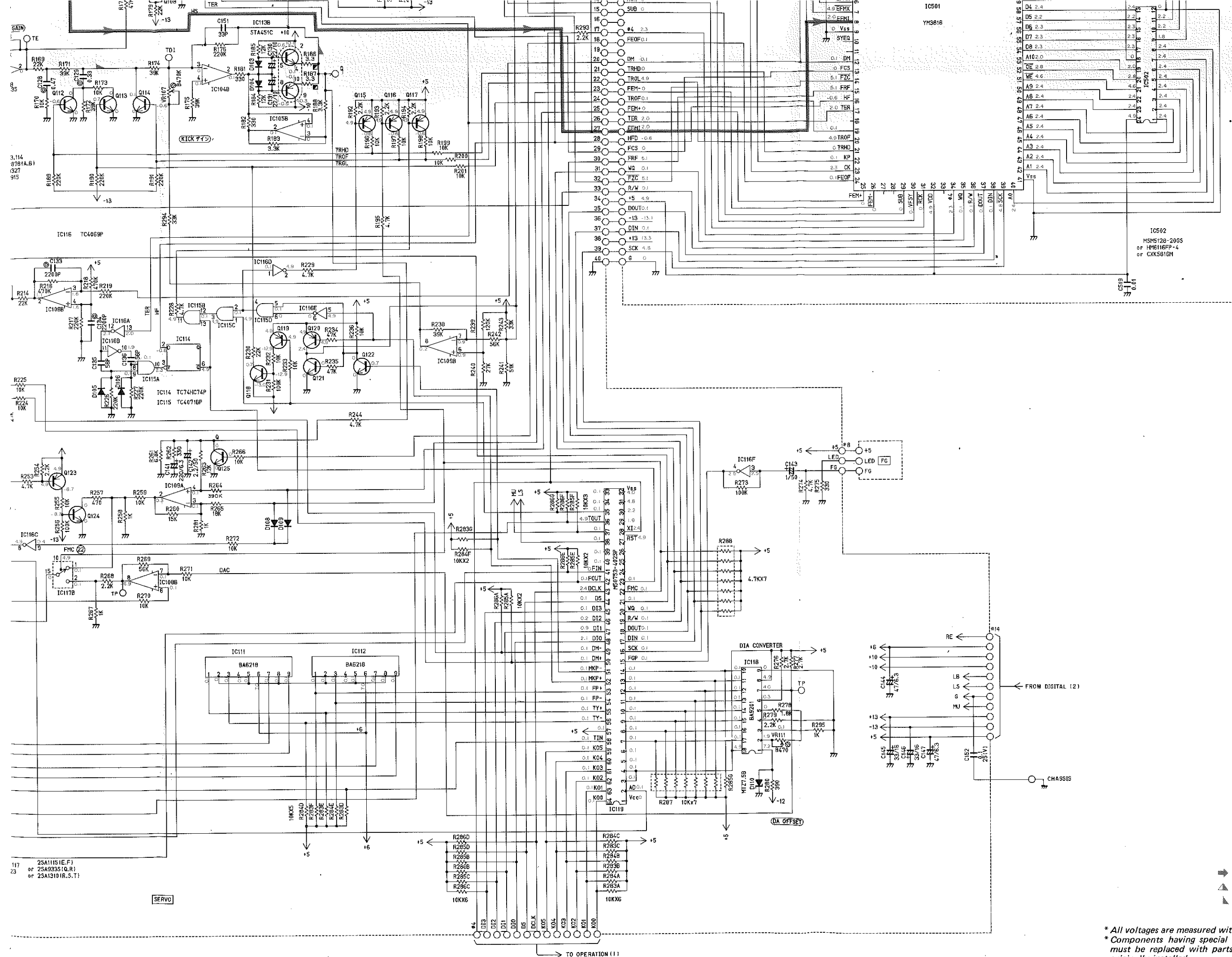
* All voltages are measured with a 10MS/Dc electric volt meter.
 * Components having special characteristics are marked Δ and must be replaced with parts having specifications equal to those originally installed.
 * Schematic diagram is subject to change without notice.

1







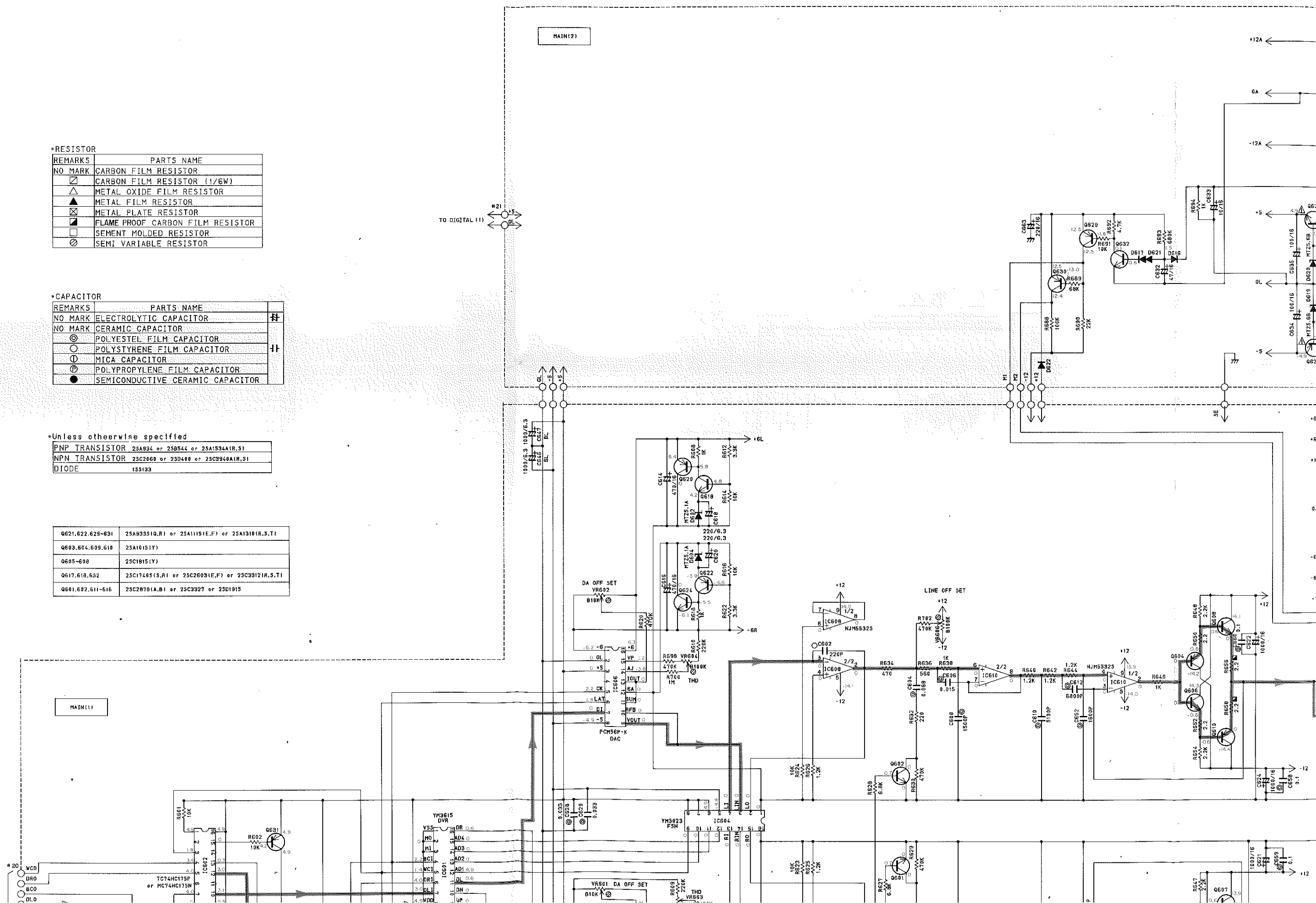


Signal Flow
 ➡ DISC SIGNAL
 ▲ FOCUS SERVO
 ▴ TRACKING SERVO

* All voltages are measured with a 10MΩ/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.

6

Q621.622.629-631	25A933(I,R) or 25A1115(I,F) or 25A1310(I,R,S,T)
Q603.604.609.610	25A1015(I,Y)
Q605-608	25C1815(I,Y)
Q617.618.632	25C1745(I,S,R) or 25C2603(I,E,F) or 25C3312(I,R,S,T)
Q601.602.611-616	25C2875(A,B) or 25C3327 or 25D1915

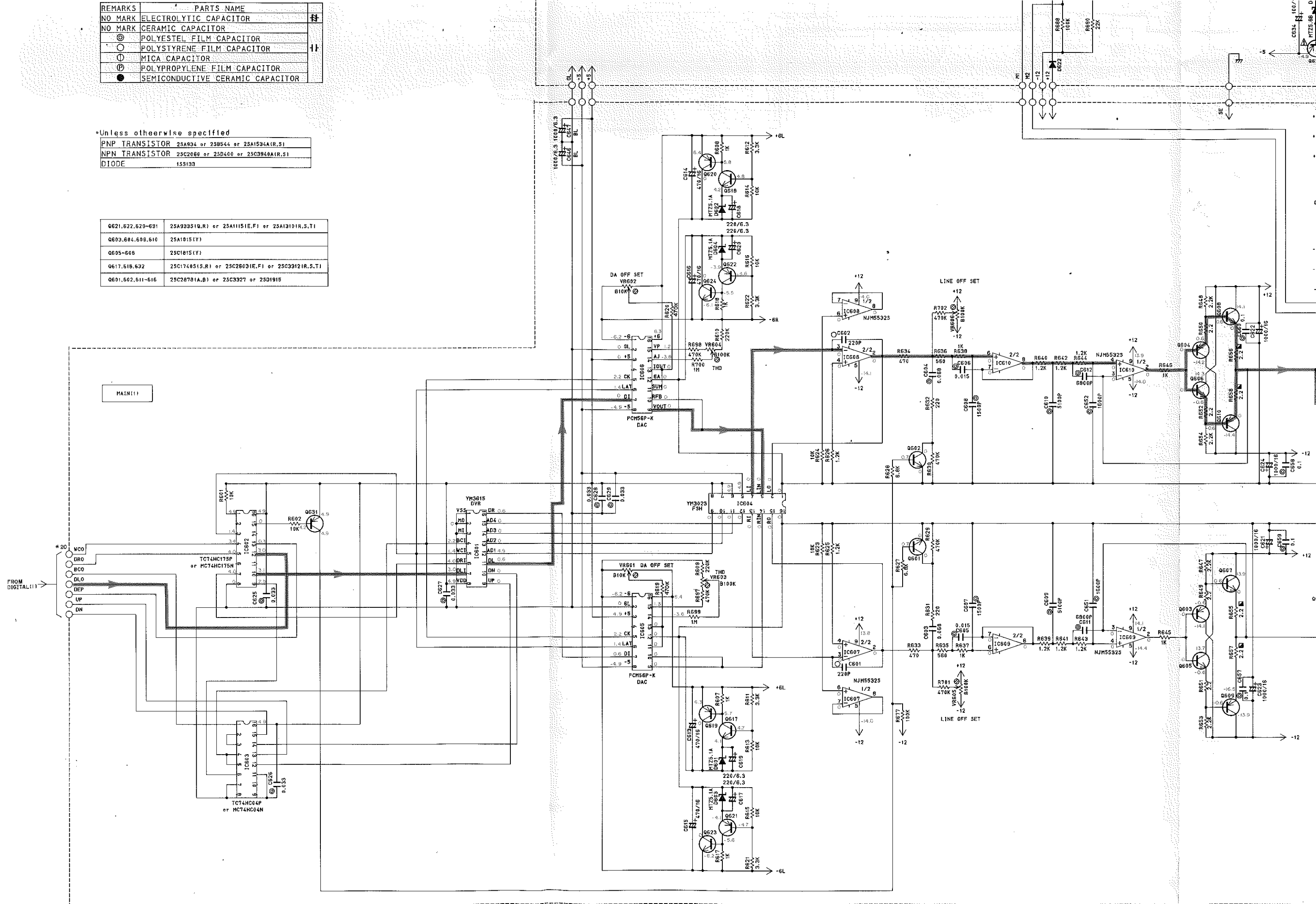


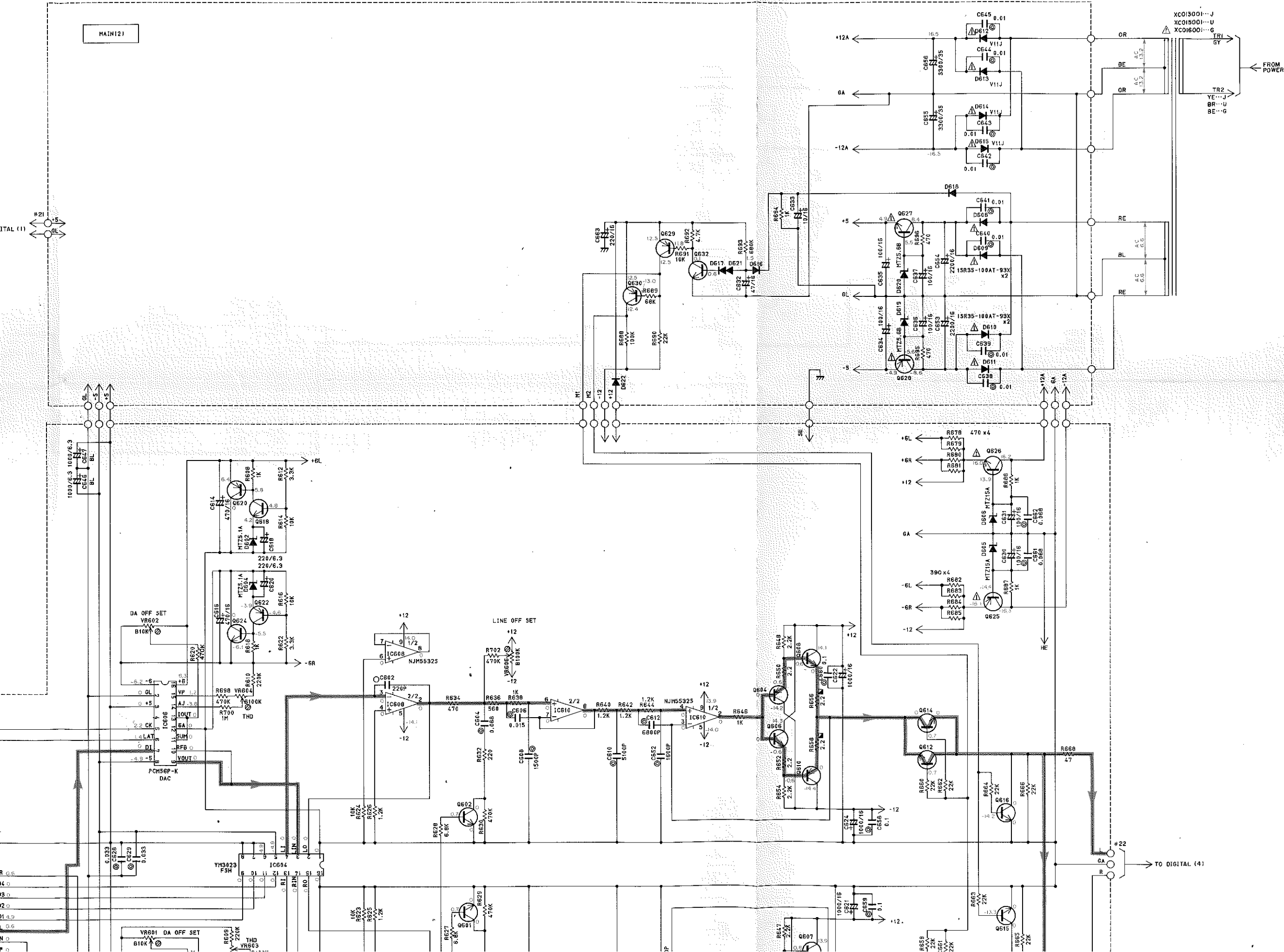
REMARKS	PARTS NAME	
NO MARK	ELECTROLYTIC CAPACITOR	11
NO MARK	CERAMIC CAPACITOR	11
⊙	POLYESTER FILM CAPACITOR	
○	POLYSTYRENE FILM CAPACITOR	
⊖	MICA CAPACITOR	
Ⓟ	POLYPROPYLENE FILM CAPACITOR	
●	SEMICONDUCTIVE CERAMIC CAPACITOR	

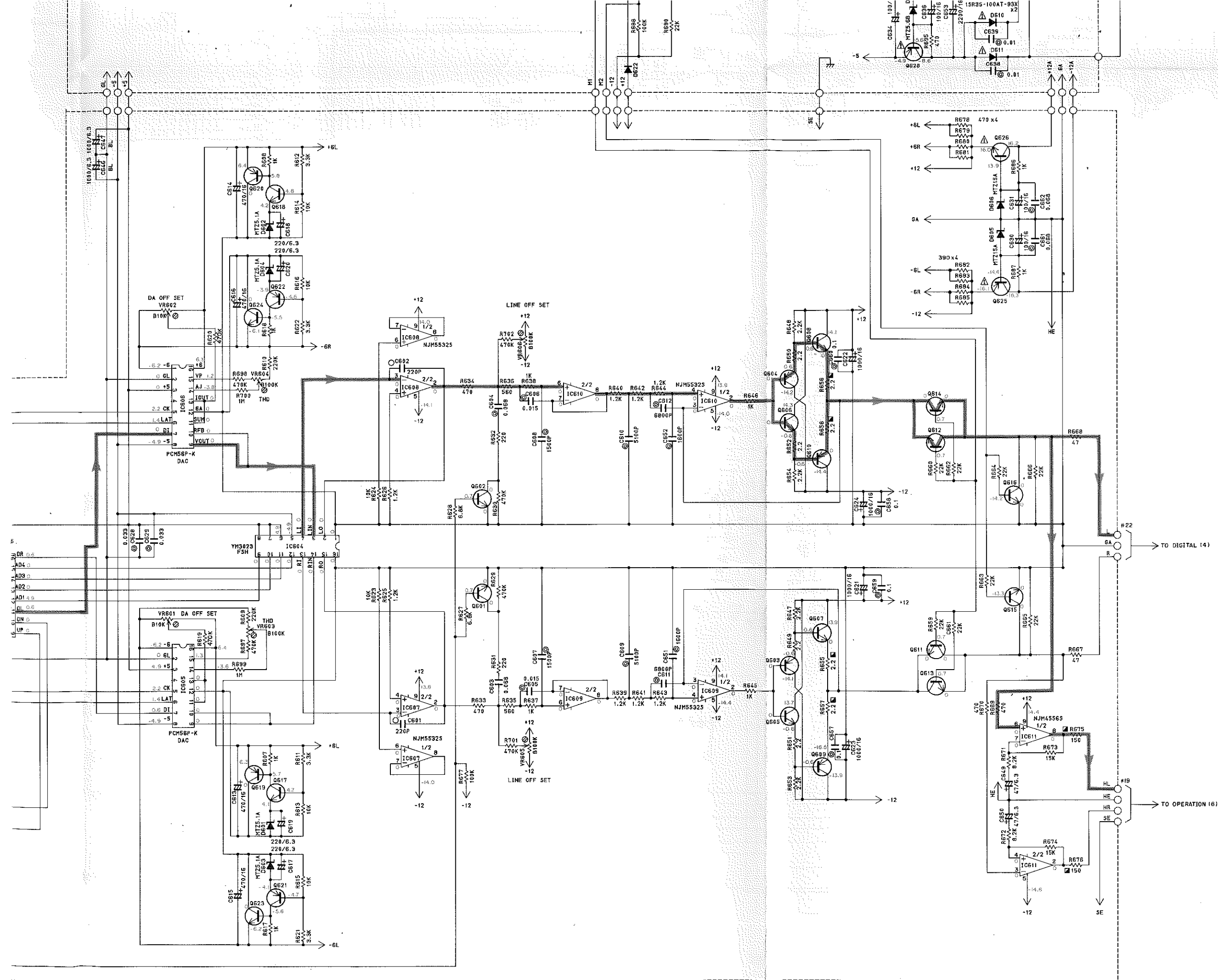
*Unless otherwise specified

PNP TRANSISTOR	2SA934 or 2SB544 or 2SA1534A(R,S)
NPN TRANSISTOR	2SC2060 or 2SD400 or 2SC3940A(R,S)
DIODE	1SS133

Q621,622,629-631	2SA933S1Q(R) or 2SA1115IE(F) or 2SA1310IR,S,T
Q603,604,609,610	2SA1015(Y)
Q605-608	2SC1815(Y)
Q617,618,632	2SC1740S(S,R) or 2SC2603IE(F) or 2SC3312IR,S,T
Q601,602,611-616	2SC2878(A,B) or 2SC3327 or 2SD1915

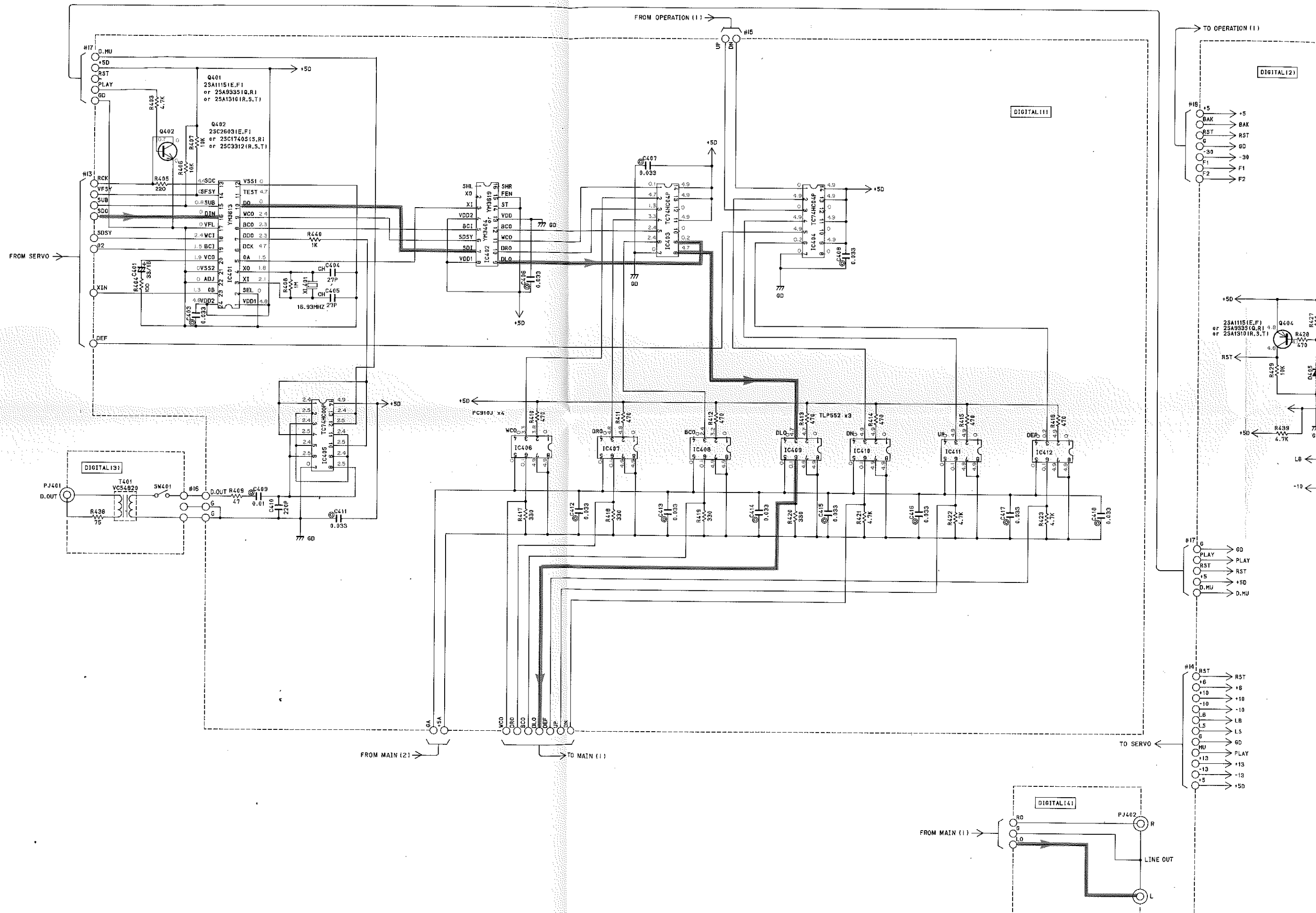


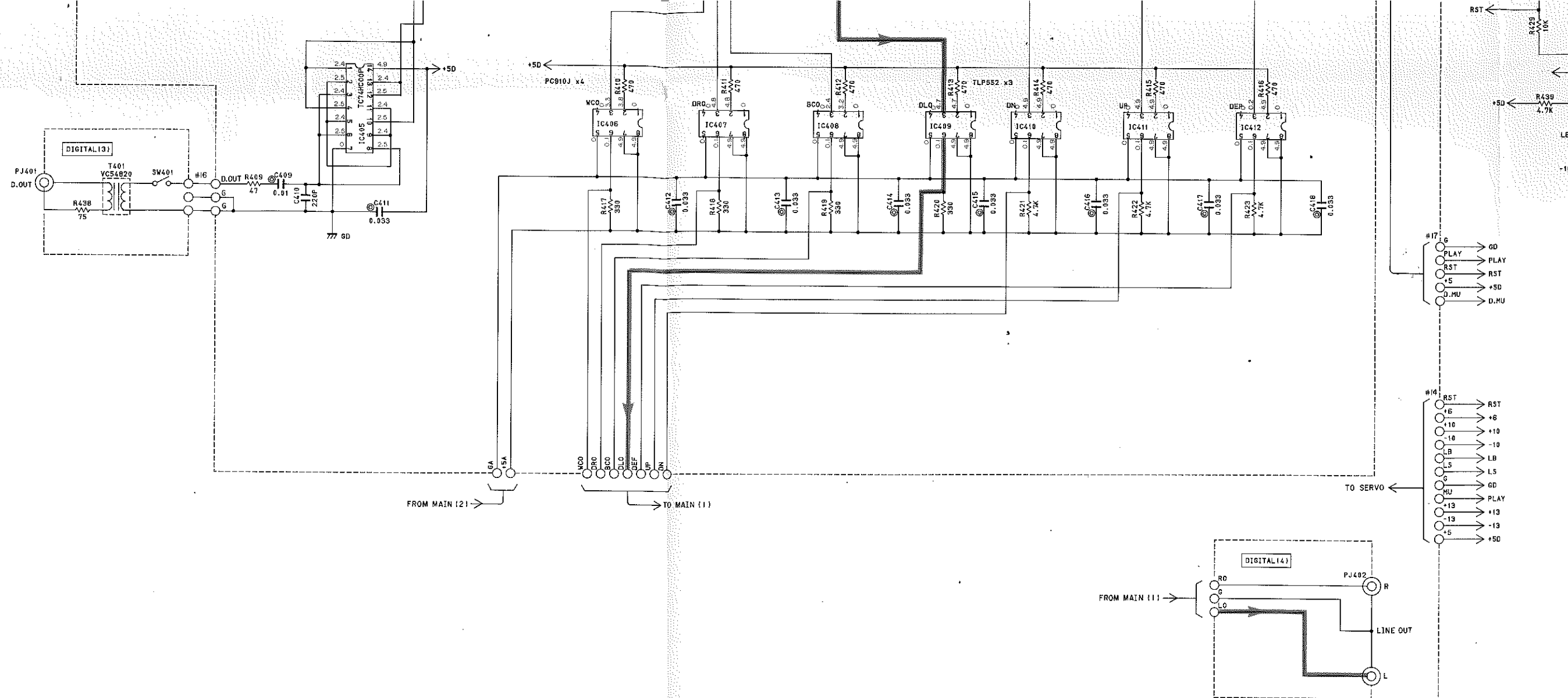




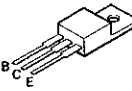
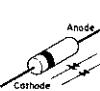
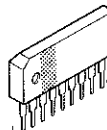
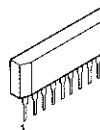
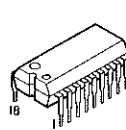
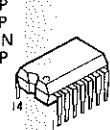
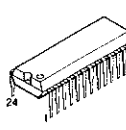
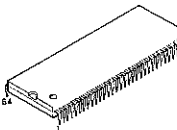
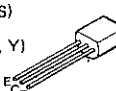
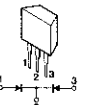
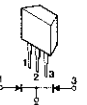
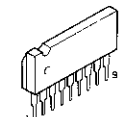
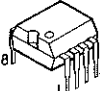
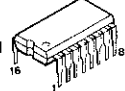
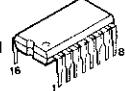
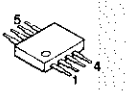
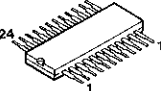
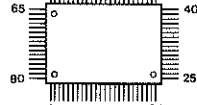
* All voltages are measured with a 10MΩ/DC electric volt meter.
 * Components having special characteristics are marked Δ and must be replaced with parts having specifications equal to those originally installed.
 * Schematic diagram is subject to change without notice.

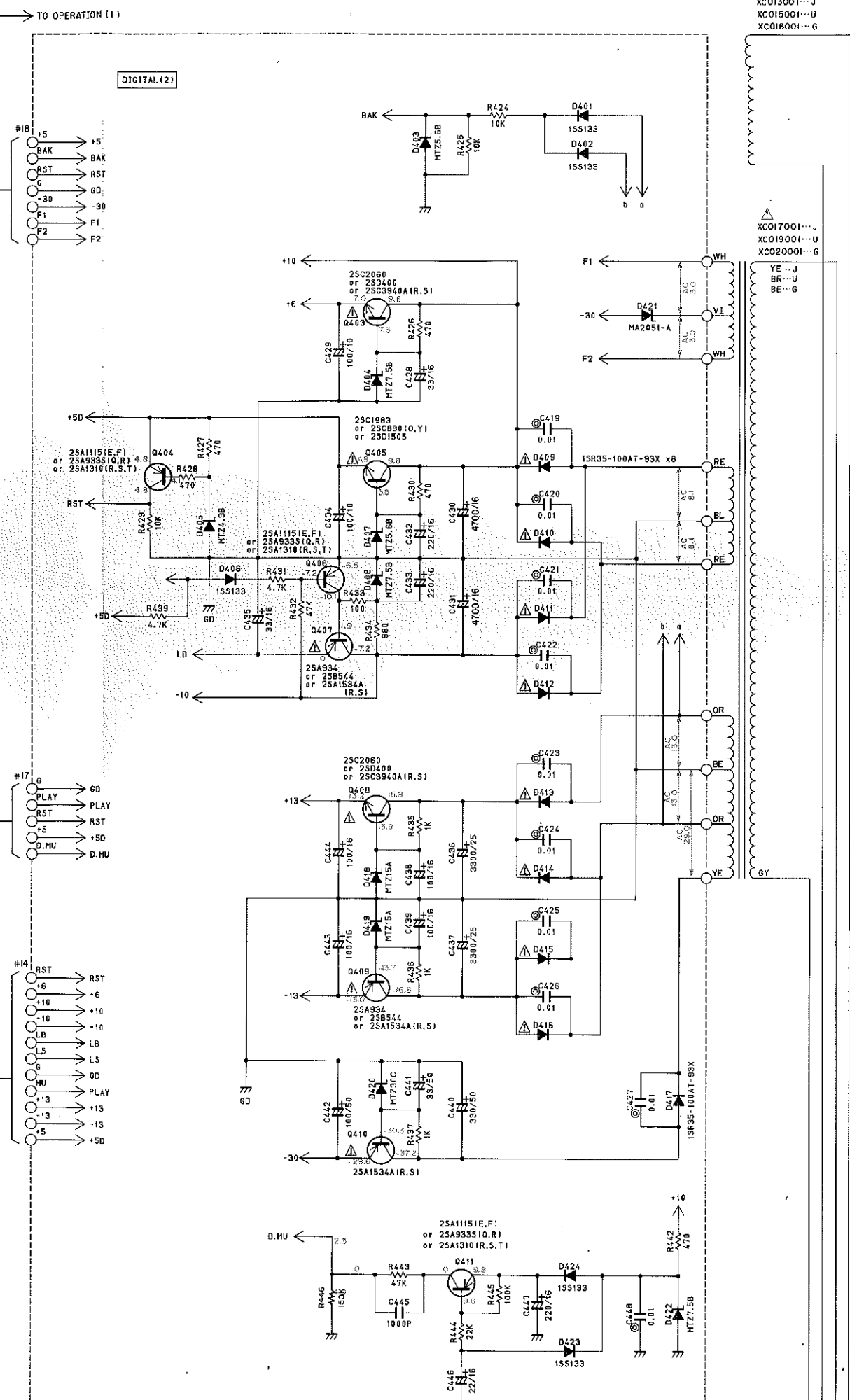
SCHEMATIC DIAGRAM (4/4)

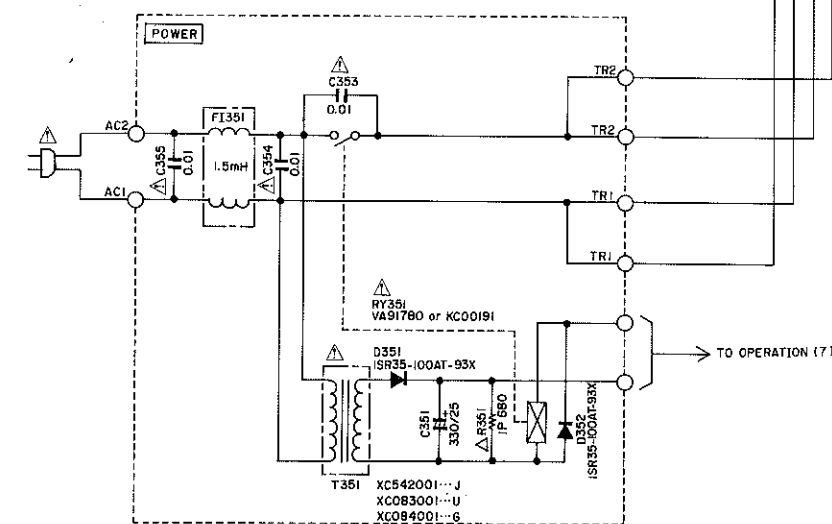
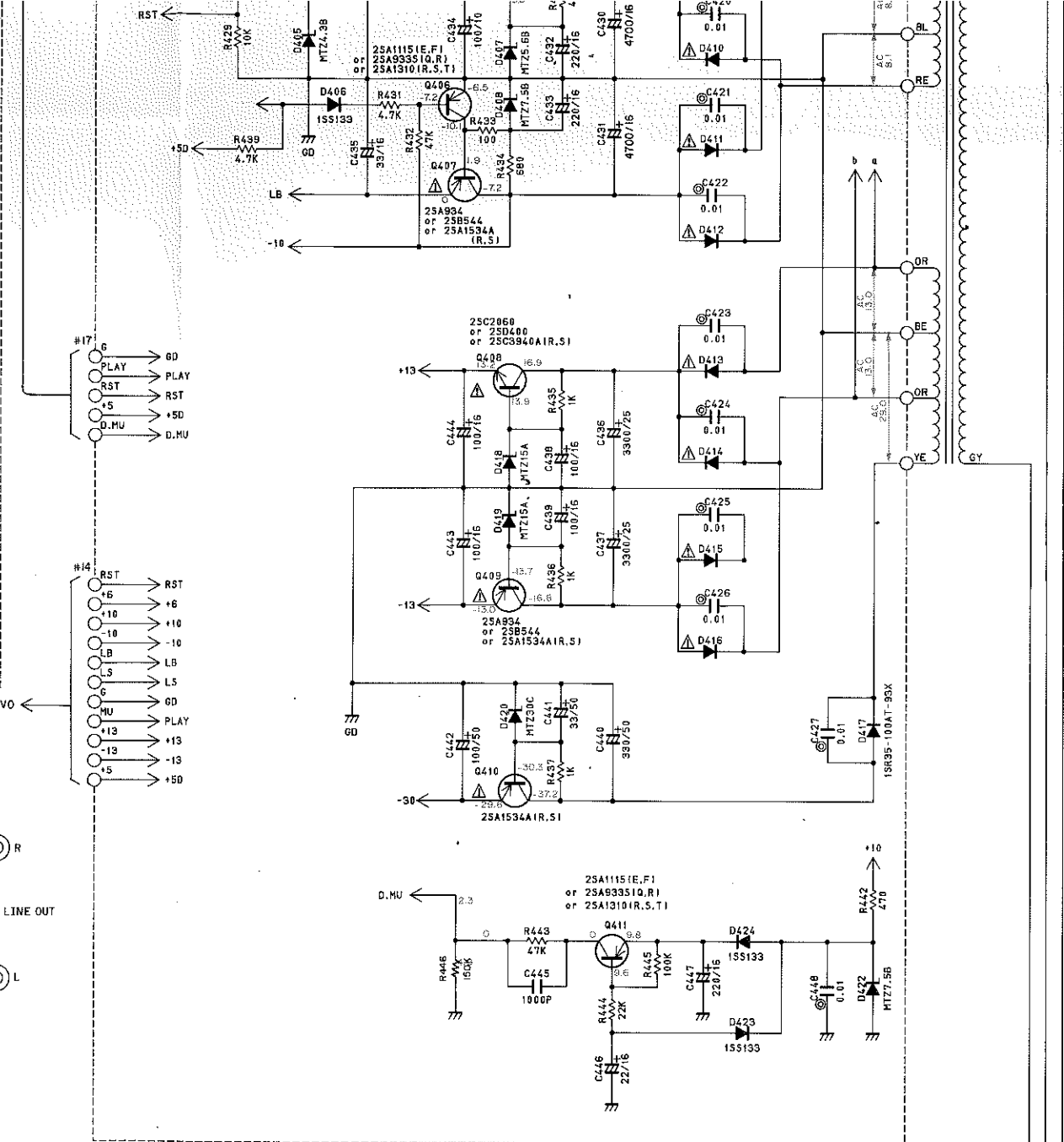
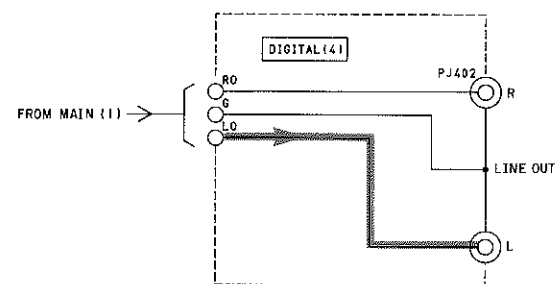
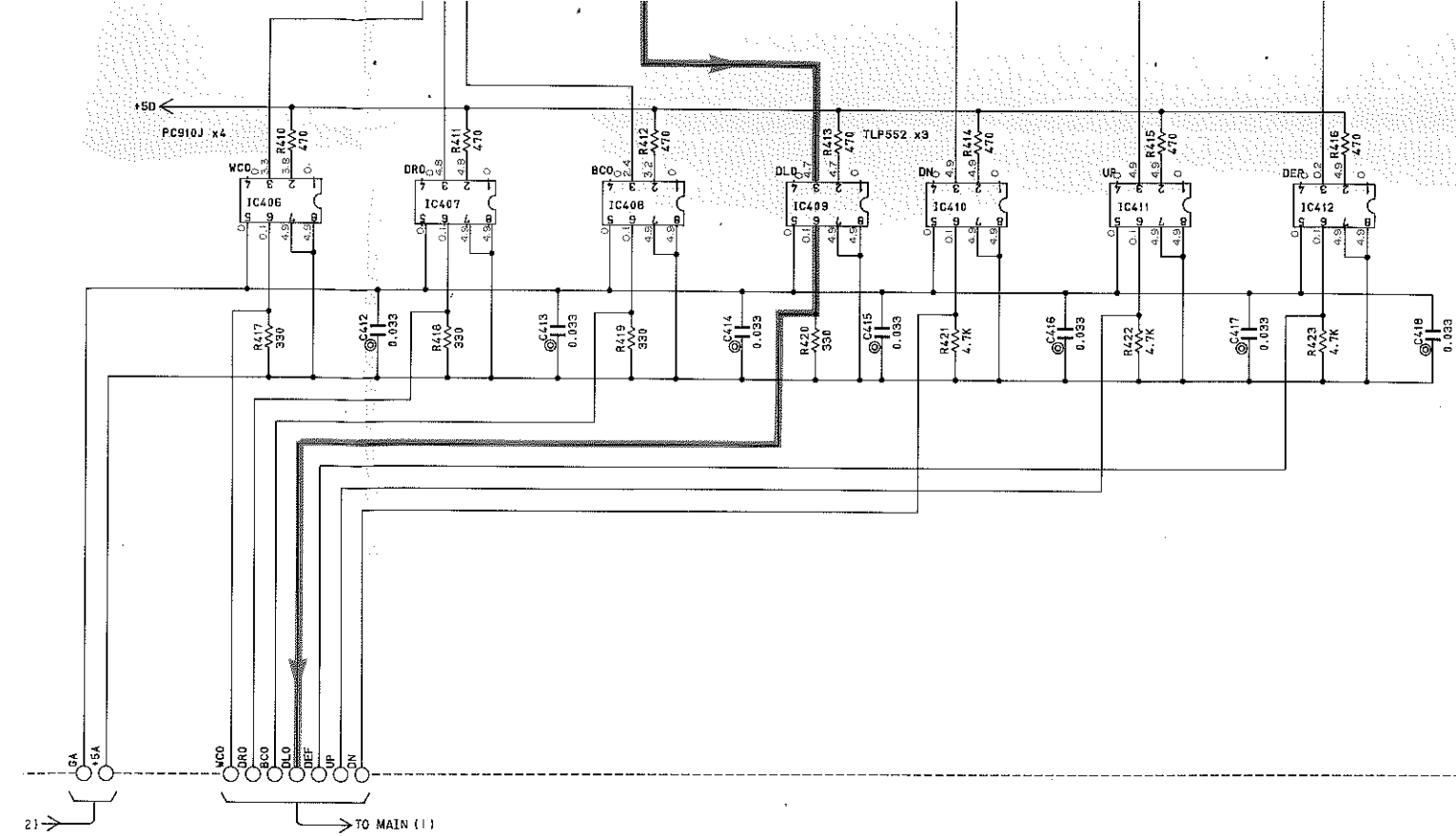




PIN CONNECTION DIAGRAM OF TRANSISTORS, DIODES AND ICs.

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 





BA9201 M54564P	TC4069P TC4071BP TC74HC74P TC74HC04P MC74HC04N TC74HC00P	YM3613 YM3619	M50753-402SP M50754-403SP
C4053BP PD4053 D14053 AN4053BP CM56P-K TC74HC175P MC74HC175N M3023 M3615	M54580P YM3404	NJM2043M (T)	HM6116FP-4
			YM3616

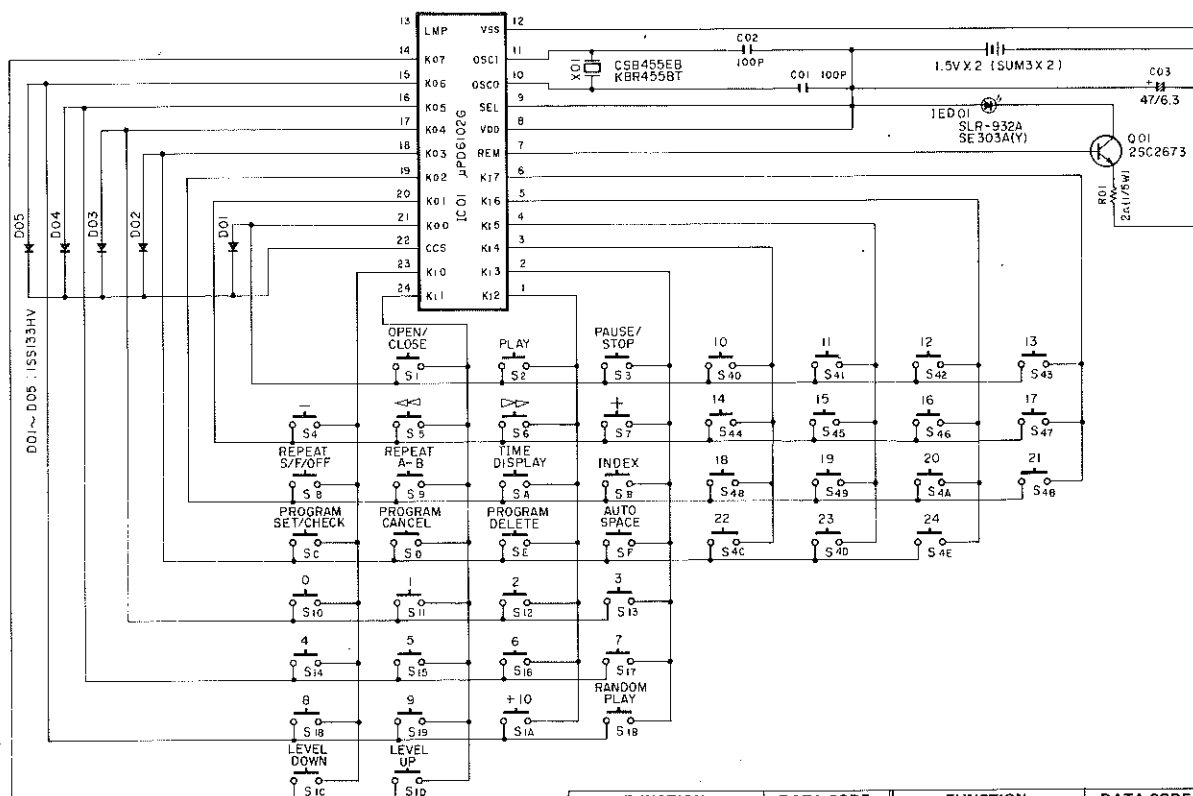
* All voltages are measured with a 10MΩ/DC electric volt meter.
 * Components having special characteristics are marked and must be replaced with parts having specifications equal to those originally installed.
 * Schematic diagram is subject to change without notice.

RS-CDX10000

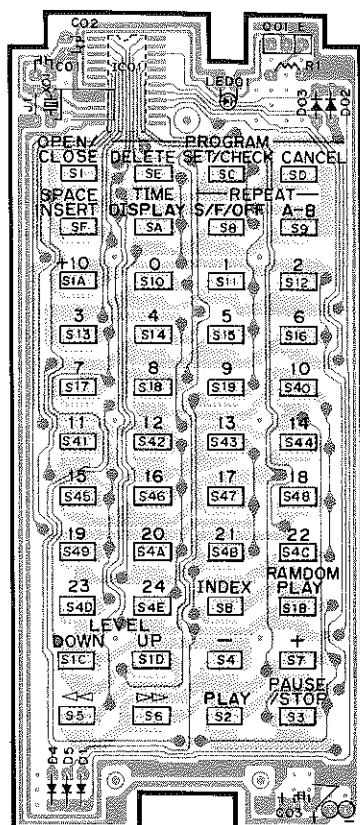
REMOTE CONTROL TRANSMITTER

CDX-10000

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
+	07	LEVEL UP	1D
REPET S/F/OFF	08	10	40
REPET A ↔ B	09	11	41
TIME DISPLAY	0A	12	42
INDEX	0B	13	43
PROGRAM SET/CHECK	0C	14	44
PROGRAM CANCEL	0D	15	45
PROGRAM DELETE	0E	16	46
SPACE INSERT	0F	17	47
0	10	18	48
1	11	19	49
2	12	20	4A
3	13	21	4B
4	14	22	4C
5	15	23	4D
6	16	24	4E

CASAM CODE

79

CDX-10000

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. 69.

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
※	NA 09 42 40	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		
※	VD 03 24 00	//	3300 μ F 35V	//	C655,656		
	UM 16 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	Inter-changeable	
	IC 17 40 70	//	2SC1740S(S,R)	//	Q617,618,632		
	IC 26 03 10	//	2SC2603(E,F)	//	//		
	IX 60 31 80	//	2SC3312(R,S,T)	//	//	Inter-changeable	
	IC 18 15 20	//	2SC1815(Y)	//	Q605~608		
	IC 20 60 00	//	2SC2060	//	Q623,624,626,627		
	ID 04 00 10	//	2SD400	//	//	Inter-changeable	
	IX 60 42 00	//	2SC2878(A,B)	//	Q601,602,611~616		
	IC 33 27 00	//	2SC3327	//	//	Inter-changeable	
	IF 00 96 20	Diode	V11J	ダ イ オ ー ド	D612~615	32	
	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	I C	IC601		

※New Parts (新規部品)

※New Parts (新規部品)

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
※	NA 09 29 40	Digital Circuit Board	デ ジ タ ル シ ー ト				
	FG 21 12 70	Ceramic Cap.	セ ラ コ ン	C404, 405			
	FG 21 22 20	//	//	C410			
	FG 21 31 00	//	//	C445			
	FC 44 41 00	Mylar Cap.	マ イ ラ ー コ ン	C419~427			
	FA 15 43 30	//	//	C403,406~408,411~418			
	UW 63 94 70	Electrolytic Cap.	ケ ミ コ ン	C430,431			
	FZ 00 65 00	//	//	C436,437			
	FA 15 41 00	Mylar Cap.	マ イ ラ ー コ ン	C409,448			
	UJ 12 81 00	Electrolytic Cap.	ケ ミ コ ン	C429,434			
	UJ 13 72 20	//	//	C446			
	UJ 13 73 30	//	//	C401,428,435			
	UJ 13 81 00	//	//	C438,439,443,444			
	UJ 13 82 20	//	//	C432,433,447			
	UJ 16 73 30	//	//	C441			
	UJ 16 81 00	//	//	C442			
	UJ 46 83 30	//	//	C440			
	VC 54 82 00	Coil	コ イ ル	T401			
	iF 00 34 50	Diode	ダ イ オ ー ド	D401,402,406,423,424			
	iH 00 14 30	//	//	D409~417			
	iF 00 64 60	Zener Diode	ツェナーダイオード	D403,407			
	iF 00 63 10	//	//	D418,419			
	iF 00 64 70	//	//	D404,408,422			
	iF 00 91 70	//	//	D420			
	iF 01 06 30	//	//	D405			
	VC 68 63 00	//	//	D421			
	iA 09 34 00	Transistor	ト ラ ン ジ ス タ	Q407,409			
	iB 05 44 10	//	//	//	Inter-changeable		
	VC 46 67 00	//	//	//			
	VC 46 67 00	//	//	Q410			
	iC 20 60 00	//	//	Q403,408	Inter-changeable		
	iD 04 00 10	//	//	//			
	iC 19 83 00	//	//	Q405	Inter-changeable		
	iD 08 80 00	//	//	//			
	iD 15 05 00	//	//	//			
	iA 11 15 10	//	//	Q404,406,411	Inter-changeable		
	iA 09 33 00	//	//	//			
	iX 60 31 70	//	//	//			
	iC 26 03 10	//	//	Q402	Inter-changeable		
	iC 17 40 70	//	//	//			
	iX 60 31 80	//	//	//			
	XB 70 20 01	IC	I C	IC401			
	XB 70 10 01	//	//	IC402	Inter-changeable		
	XB 70 00 01	//	//	//			
	iR 00 04 00	//	//	IC403,404			
	iR 00 00 00	//	//	IC405			
※	VD 02 57 00	Photo Coupler	フ ォ ト カ プ ラ ー	IC406~409			
	iK 00 04 70	//	//	IC410~412			

※New Parts (新規部品)

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
	VC 39 88 00	Quartz Crystal Unit	16.93MHz	水 晶 振 動 子	XL401		
	KA 40 09 40	Slide Switch	SSB-002	スライドスイッチ	SW401		
	VC 52 37 00	Pin Jack	2P	ピ ン ジ ャ ッ ク	PJ402		
	VD 02 85 00	//	1P	//	PJ401		
※	VD 00 48 00	Base Pin	5P i-Type	P H ベ ー ス ピ ン			
	LA 00 23 20	Lapping Terminal	P=7.5 3P i-Type	i 型ラッピング端子板			
	LA 00 21 20	//	P=5 3P i-Type	//			
	LA 00 23 30	//	P=7.5 4P i-Type	//			
	LB 91 80 30	Base Pin	3P i-Type	X H ベ ー ス ピ ン			
	BA 09 29 70	Heat Sink		放 熱 板			
	VD 17 17 00	Washer		ワ ッ シ ャ ー			
	ED 33 00 86	Binding Head Screw	3×8 FCRM3-BI	バインドタッピングネジ	PACK		
※	NA 09 47 70	Power Circuit Board		電 源 シ ー ト		J	
※	NA 09 47 80	//		//		U	
※	NA 09 47 90	//		//		G	
	FI 51 41 00	Ceramic Cap.	0.01μF	セ ラ コ ン	C353~355		
	FG 24 41 00	//	0.01μF 50V	//	C352		
	FJ 14 83 30	Electrolytic Cap.	330μF 25V	ケ ミ コ ン	C351		
	VA 77 84 00	Line Filter	1.5mH	ラ イン フィ ル タ	Fi351		
※	XC 54 20 01	Power Transformer		電 源 ト ラ ン ス	T351	J	△
	XC 08 30 01	//		//	//	U	△
	XC 08 40 01	//		//	//	G	△
	HL 71 56 80	Metal Oxide Film Resistor	680Ω 1W	酸 金 抵 抗	R351		
	iH 00 14 30	Diode	ISR35-100A	ダ イ オ ー ド	D351,352		
	KC 00 19 10	Relay	DH12D1-0M	リ レ ー	RY351		
	LA 00 20 00	Lapping Terminal	P=7.5 2P i-Type	i 型ラッピング端子板			
	LA 00 21 40	//	P=10 2P i-Type	//			
	LA 00 21 50	//	P=10 3P i-Type	//			
	VB 21 89 00	Base Pin	2P i-Type	P H ベ ー ス ピ ン			

※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	SPC Circuit Board	サ ー ボ シ ー ト				
	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			
	iB 05 44 10	//	//	//	Inter-changeable		

※New Parts (新規部品)

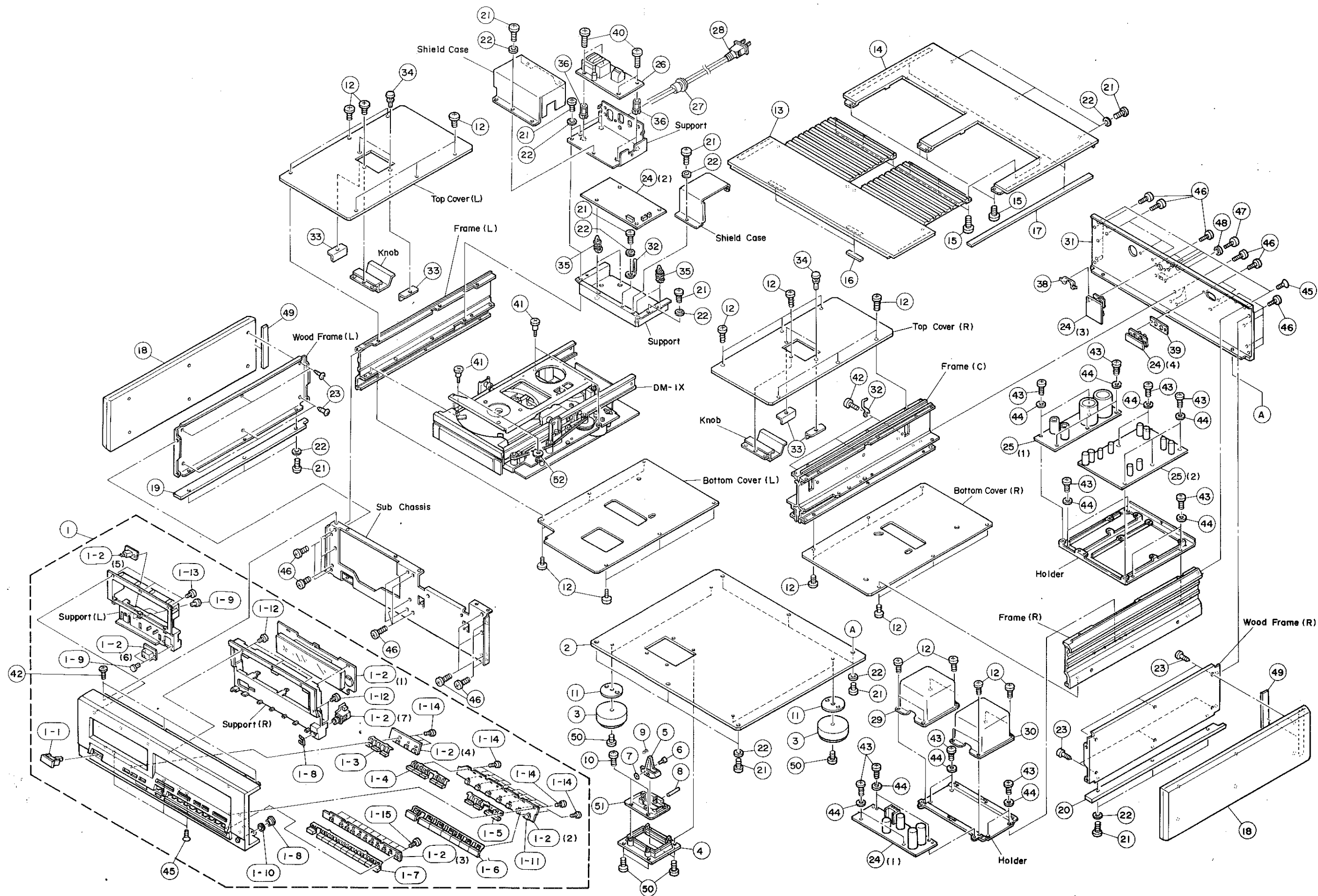
Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
	IC 26 03 10	Transistor	2SC2603(E,F)	トランジスタ	Q102, 104, 107, 111, 118, 121, 122, 124, 125		
	IC 17 40 70	//	2SC1740SRS	//	Inter-changeable		
	IX 60 31 80	//	2SC3312(R,S,T)	//			
	IX 60 42 00	//	2SC2878(A,B)	//	Q105, 112, 114		
	IC 33 27 00	//	2SC3327	//	Inter-changeable		
	IC 20 60 00	//	2SC2060	//	Q126		
	ID 04 00 10	//	2SD400	//	Inter-changeable		
	IC 05 35 00	//	2SC535	//	Q101, 103		
	IC 19 23 00	//	2SC1923(R,O,Y)	//	Inter-changeable		
	IG 07 68 00	IC	NJM4558S	I C	IC101, 103~110		
	IG 03 47 00	//	AN6551	//	Inter-changeable		
	IG 13 22 00	//	BA715	//			
	IG 08 02 00	//	NJM2043S	//	IC102		
	IG 11 94 00	//	STA451C	//	IC113		
	IG 05 51 00	//	TC4053BP	//	IC117		
	IG 10 59 00	//	μPD4053BC	//	Inter-changeable		
	IG 00 17 20	//	TC4069UBP	//	IC116		
	IR 00 74 00	//	TC74HC74	//	IC114		
	IG 00 14 40	//	TC4071BP	//	IC115		
	XC 02 90 01	//	M50753-402SP	//	IC119		
	XB 98 00 01	//	BA9201	//	IC118		
	IG 15 35 00	//	BA6218	//	IC111, 112		
	NA 09 25 70	SPC Circuit Board		S P C シート	CDX-2200		
	LB 30 07 30	Base Pin	3P i-Type	N H ベースピン			
	VB 21 89 00	//	2P i-Type	P H ベースピン			
	VB 21 90 00	//	3P i-Type	//			
	VB 21 94 00	//	7P i-Type	//			
	VB 21 95 00	//	8P i-Type	//			
	AA 63 15 80	Shield Case		シールドケース			
	LB 20 13 80	Base Pin	2P i-Type	N H ベースピン			

※New Parts (新規部品)

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
	NA 09 25 70	SPC Circuit Board		S P C シート	CDX-2200		
	UD 11 33 30	Chip Ceramic Cap.	3300pF 50V	チップセラコン	C510, 513		
	UD 11 41 00	//	0.01μF 50V	//	C515, 518, 519		
	UD 11 44 70	//	0.047μF 50V	//	C506~509, 514		
	VB 37 18 00	//	22pF 50V	//	C505		
	VB 37 26 00	//	47pF 50V	//	C517		
	VB 37 38 00	//	220pF 50V	//	C512		
	VB 37 42 00	//	470pF 50V	//	C511		
	VB 37 46 00	//	1000pF 50V	//	C516		
	UJ 11 84 70	Electrolytic Cap.	470μF 6.3V	ケミコン	C503		
	UJ 13 71 00	//	10μF 16V	//	C501, 502, 504		
	GE 90 20 00	OSC Coil	3.3μH	発振コイル	L501		
	VB 36 97 00	Chip Jamper		チップジャンパー	J501		
	VB 35 88 00	Chip Resistor	220Ω 1/8W	チップ抵抗	R517		
	VB 36 08 00	//	1.5kΩ 1/8W	//	R519		
	VB 36 12 00	//	2.2kΩ 1/8W	//	R511		
	VB 36 16 00	//	3.3kΩ 1/8W	//	R512		
	VB 36 21 00	//	4.7kΩ 1/8W	//	R515		
	VB 36 25 00	//	6.8kΩ 1/8W	//	R502, 503		
	VB 36 29 00	//	10kΩ 1/8W	//	R501		
	VB 36 31 00	//	12kΩ 1/8W	//	R506, 507		
	VB 36 37 00	//	22kΩ 1/8W	//	R505, 518		
	VB 36 39 00	//	27kΩ 1/8W	//	R521		
	VC 31 66 00	Chip Metal Film Resistor	22.1kΩ 1/8W	チップ金属皮膜抵抗	R509, 510, 513, 514		
	VB 36 41 00	Chip Resistor	33kΩ 1/8W	チップ抵抗	R508, 520		
	VB 36 53 00	//	100kΩ 1/8W	//	R516		
	VB 40 27 00	//	1MΩ 1/8W	//	R504		
	IA 10 37 00	Chip Transistor	2SA1037	チップトランジスタ	Q501		
	IB 07 09 10	//	2SB709A	//	Inter-changeable		
	IC 24 12 00	//	2SC2412VB	//	Q502		
	ID 06 01 00	//	2SD601	//	Inter-changeable		
	IF 00 49 10	Varactor Diode	ISV55	F Mバラクタダイオード	D501		
	IF 00 49 20	//	SVC211	//	Inter-changeable		
	IG 15 75 00	IC	HM6116FP-4	I C	IC502		
	IG 15 71 10	//	NJM2043M(T1)	//	IC503		
	XB 69 80 01	//	YM3816(SPCII)	//	IC501		
	VB 97 27 00	Connector	40pin	コネクタ			

※New Parts (新規部品)

EXPLODED VIEW



MECHANISM PARTS

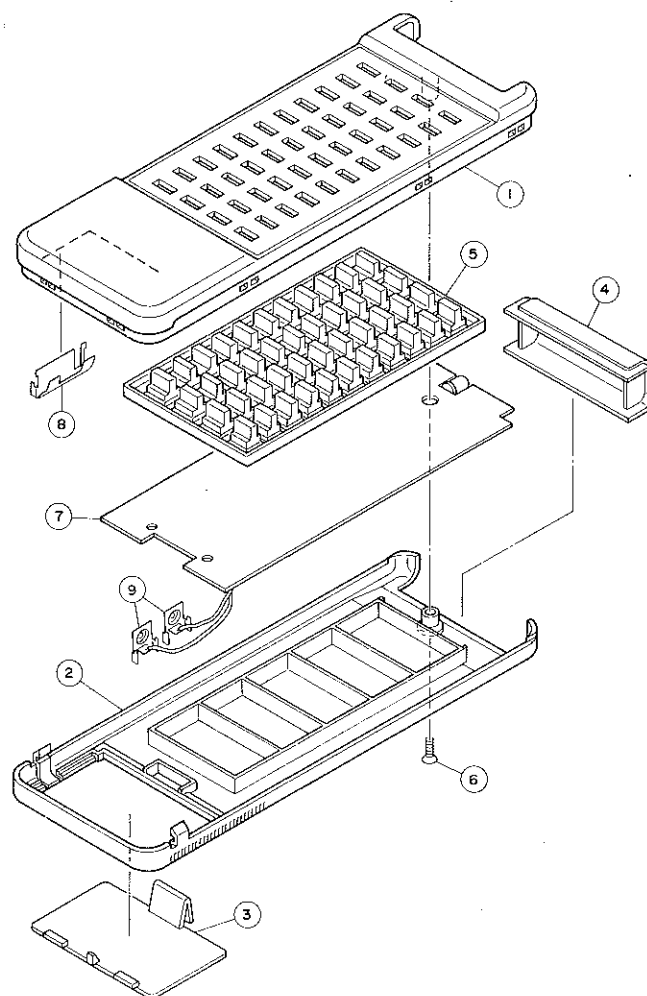
Note) ϕ : Diameter

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
※ 1	VD 09:86:00	Panel Unit	パネルユニット				
※ 1-1	VD 09:06:00	Button Unit	ボタンユニット	POWER			
※ 1-2	NA 09:42:30	Operation Circuit Board	オペレーションシート				
※ 1-3	VD 09:07:00	Button Unit	ボタンユニット	SPACE, INDEX, RANDOM			
※ 1-4	VD 09:08:00	//	//	PROGRAM, REPEAT, DISPLAY			
※ 1-5	VD 09:09:00	//	//	OUTPUT LEVEL			
※ 1-6	VD 09:10:00	//	//	OPERATION			
※ 1-7	VD 09:11:00	//	//	10Key			
※ 1-8	VD 07:02:00	Ring	リング				
※ 1-9	CB 06:88:80	Plastic Rivet	プラスチックリベット				
※ 1-10	VD 17:19:00	Sheet	シート				
※ 1-11	VD 27:65:00	Cap	キャップ				
※ 1-12	Ei 02:00:46	Binding Head Tapping Screw	2×4 ZMC2-Y バインドタッピングネジ	PACK			
※ 1-13	Ei 02:00:66	//	2×6 ZMC2-Y //	PACK			
※ 1-14	Ei 02:00:86	//	2×8 ZMC2-Y //	PACK			
※ 1-15	Ei 02:01:06	//	2×10 ZMC2-Y //	PACK			
※ 2	VD 03:92:00	Bottom Cover	ボトムカバー				
※ 3	VC 53:25:00	Isolator Ass'y	アイソレータ Ass'y		CDX-2200		
※ 4	VD 10:68:00	Escution	エスカッション				
※ 5	CB 66:15:70	Knob	ノブ		CDX-5000		
※ 6	CB 66:19:00	Pin	ピン		//		
※ 7	CB 66:20:20	Stopper Ring	ストッパーリング		//		
※ 8	AA 63:19:80	Pin	$\phi 3 \times 32$ ピン		//		
※ 9	AA 63:19:70	Spring	スプリング		//		
※ 10	Ei 33:01:06	Binding Head Tapping Screw	3×10 ZMC2-BI バインドタッピングネジ	PACK			
※ 11	VD 17:18:00	Spacer	スペーサ				
※ 12	Ei 34:00:86	Binding Head Tapping Screw	4×8 FCRM3-BI バインドタッピングネジ	PACK			
※ 13	VC 98:91:00	Top Panel, A	トップパネル, A				
※ 14	VC 98:93:00	//, B	//, B				
※ 15	ED 33:00:66	Binding Head Screw	3×6 FCRM3-BI バインド小ネジ	PACK			
※ 16	VD 35:43:00	Spacer, (T)	スペーサ (T)				
※ 17	VD 33:29:00	Spacer	スペーサ				
※ 18	VD 04:02:00	Side Wood	サイドウッド				
※ 19	VD 03:97:00	Bottom Plate, L	ボトムプレート (L)				
※ 20	VD 03:98:00	//, R	// (R)				
※ 21	Ei 13:01:26	Binding Head Tapping Screw	3×12 FNM3-3g バインドタッピングネジ	PACK			
※ 22	EV 41:10:36	Toothed Lock Washer	$\phi 3$ FNM3-3g 歯付座金	PACK			
※ 23	EQ 03:51:36	Wood Screw	3.5×13 ZMC2-Y 十字穴付木ネジ				
※ 24	NA 09:29:40	Digital Circuit Board	デジタルシート		CDX-5000		
※ 25	NA 09:42:40	Main Circuit Board	メインシート				
※ 26	NA 09:41:70	Power Circuit Board	電源シート			J	
※ //	NA 09:41:80	//	//			U	
※ //	NA 09:41:90	//	//			G	
※ 27	CB 62:01:90	Cord Stopper	CM-22B コードストッパー			G	
※ //	CB 62:02:00	//	CM-22C //			U	
※ 28	MG 00:21:70	Power Cord	15A 125V 2m 電源コード			J	△
※ //	MG 00:16:20	//	2.5A 250V 2m //	} Inter-changeable		G	△
※ //	MG 00:23:20	//	2.5A 250V 2m //			G	△
※ //	MG 00:22:20	//	10A 125V 1.98m //			U	△
※ 29	XC 01:30:01	Power Transformer	電源トランス			J	△
※ //	XC 01:50:01	//	//		CDX-5000	U	△
※ //	XC 01:60:01	//	//		//	G	△
※ 30	XC 01:70:01	//	//			J	△

※New Parts (新規部品)

※New Parts (新規部品)

1 ■ EXPLODED VIEW (RS-CDX10000)

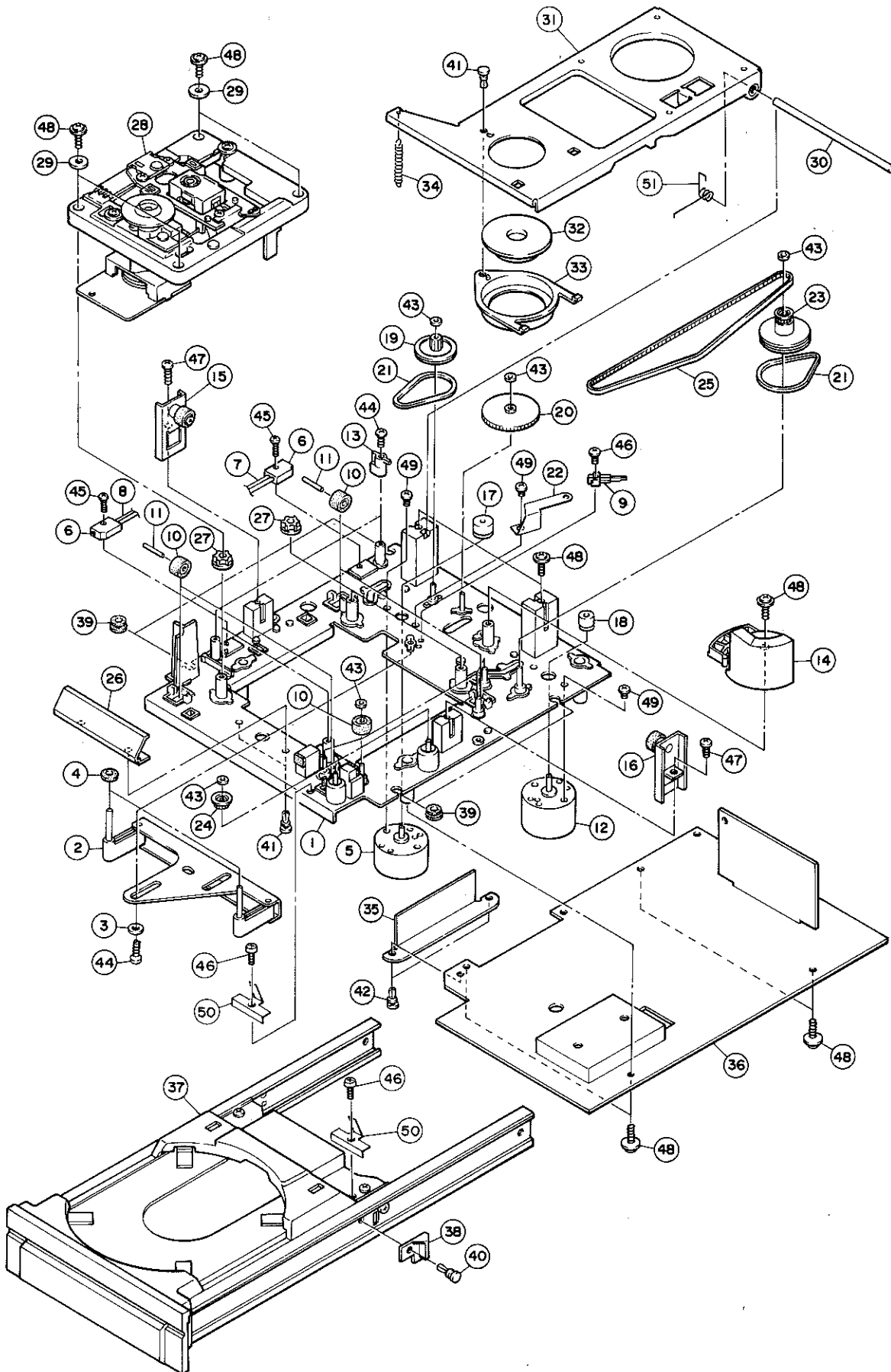


CDX-10000

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
※	VD : 09 : 91 : 00	Remote Control Transmitter	RS-CDX10000	リモートコントロールトランスミッター			
※ 1	CX : 60 : 09 : 60	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)

EXPLODED VIEW (DM-1x Unit)

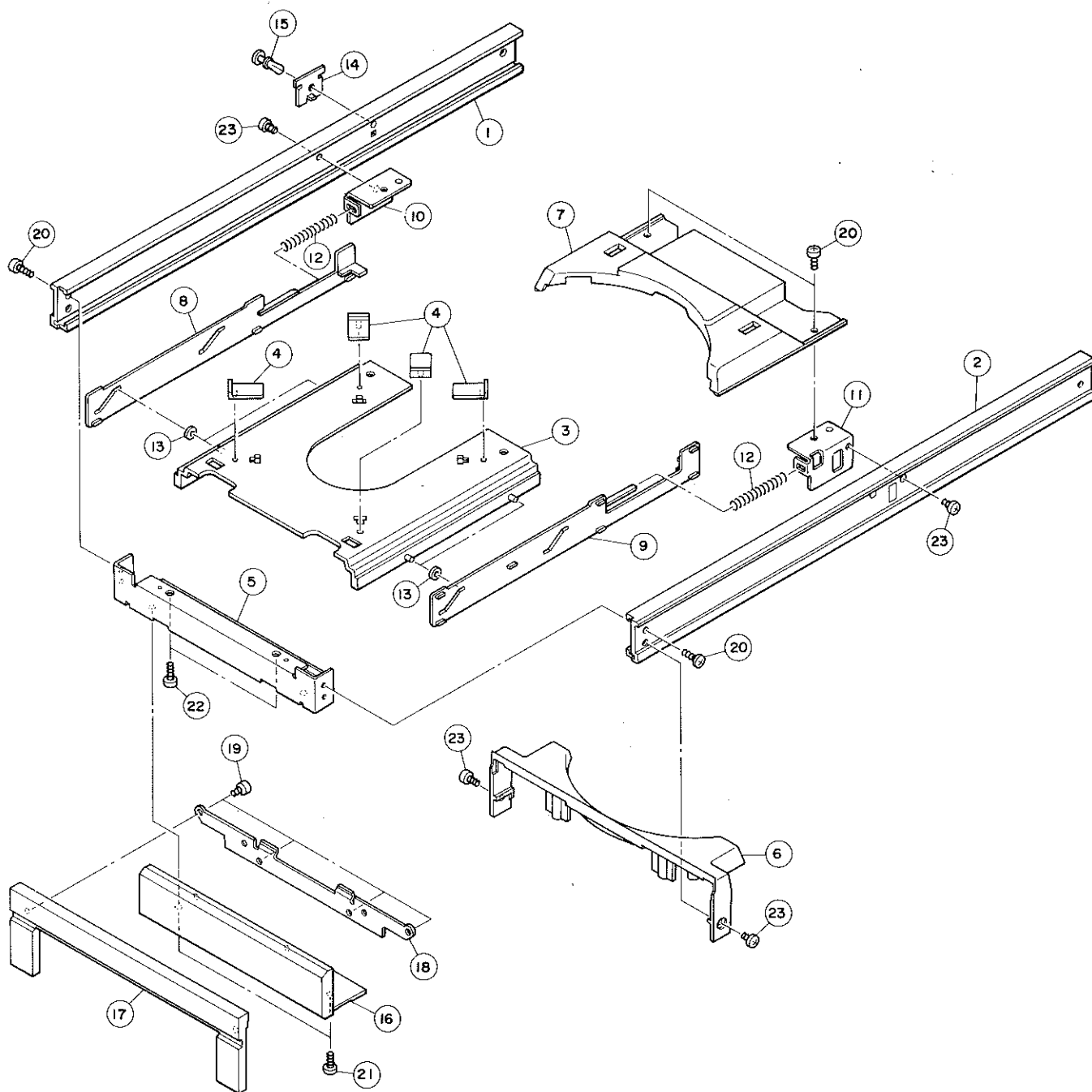


MECHANISM PARTS (DM-1x Unit)

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		ダンパー			
※ 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 Harnes, (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(SW)			
※ 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		ダンパー			
※ 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(クランバ)			
※ 34	AA 63 22 30	Spring		スプリング(EXT)			
※ 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(DM)			
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		ストッパーリング			
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(TOR)			
	CB 06 92 50	Binding Tie	BK-1	インシュロックタイ			

※New Parts (新規部品)

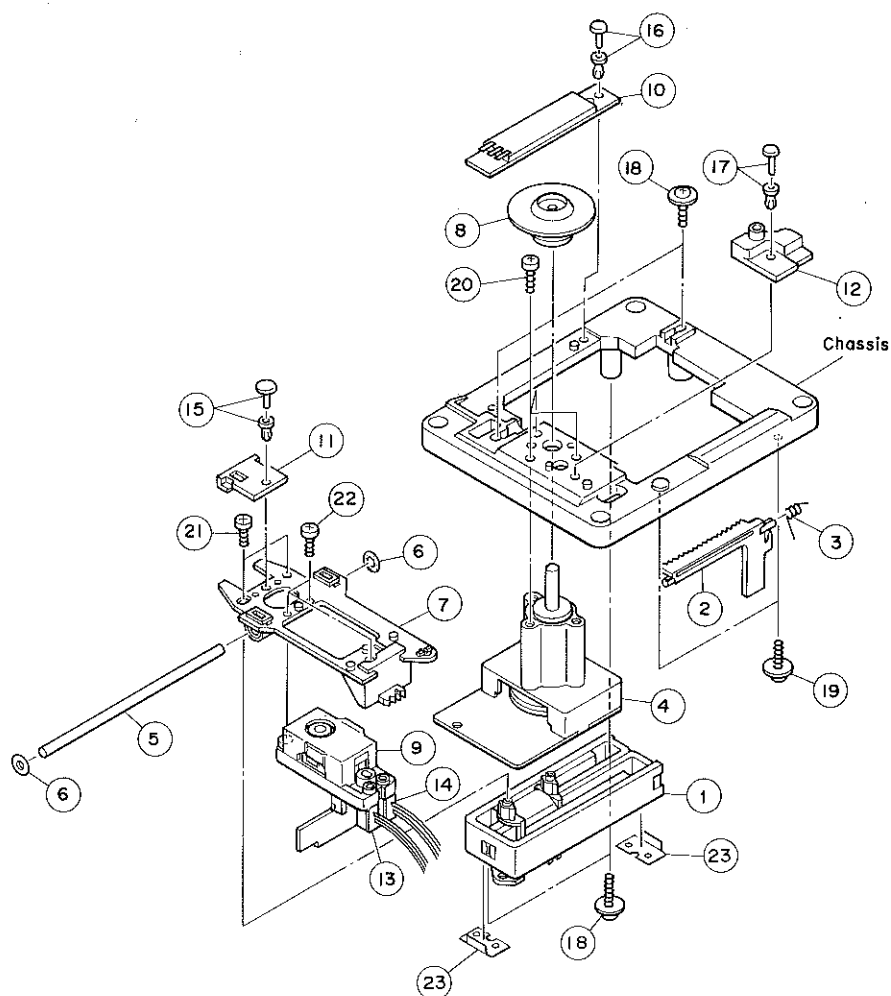
■ EXPLODED VIEW (Tray Unit)



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MECHANISM PARTS(Disc Mechanism Unit)



Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	リンク
※	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			
※	2 CB 65 56 00	Lever		レバ			
※	3 AA 63 17 40	Spring		スプリング			
※	4 VC 34 68 00	Motor	SD04AB	モータ			
※	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-7B2	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 Harnes	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	BW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			

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			

