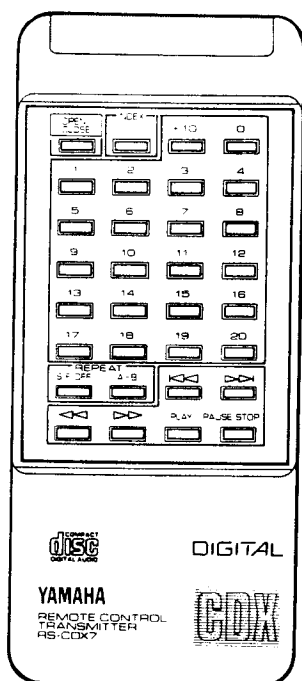


COMPACT DISC PLAYER CDX-710/U/CD-33

SERVICE MANUAL



IMPORTANT NOTICE

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

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

IMPORTANT: The presentation or sale of this manual to any individual or firm does not constitute authorization, certification, 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 changes in specification 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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100200

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YAMAHA

CDX-710/
U/CD-33

■ 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.

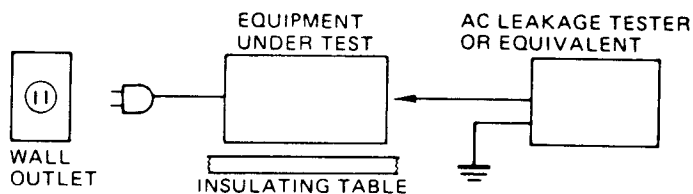
2. Leakage Current Measurement (For 120V Model Only).

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.

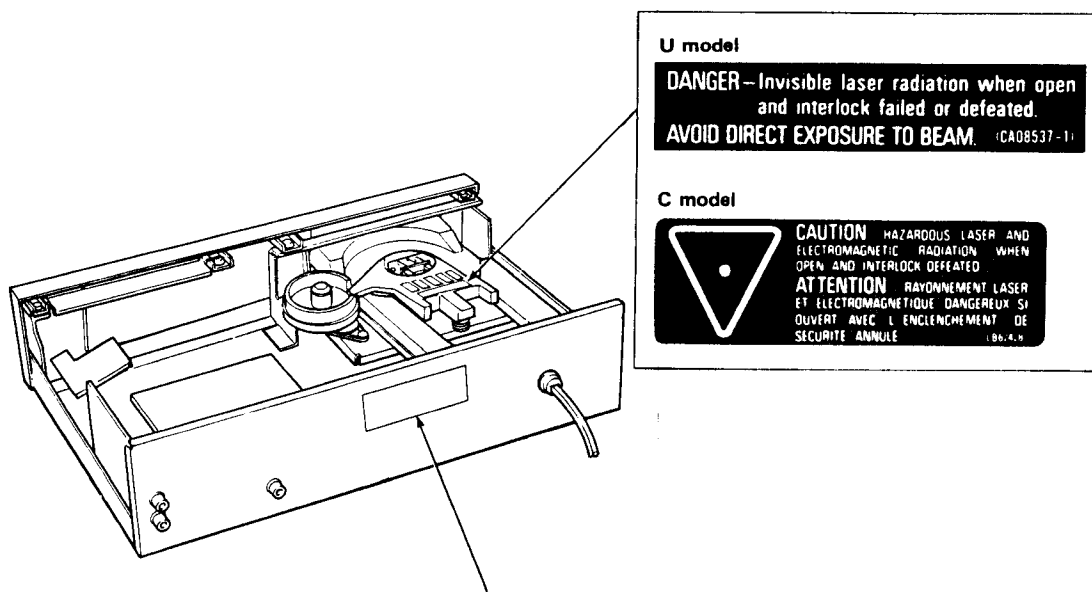
• POLARIZATION (U, C models)

This CD player product is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature.



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

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



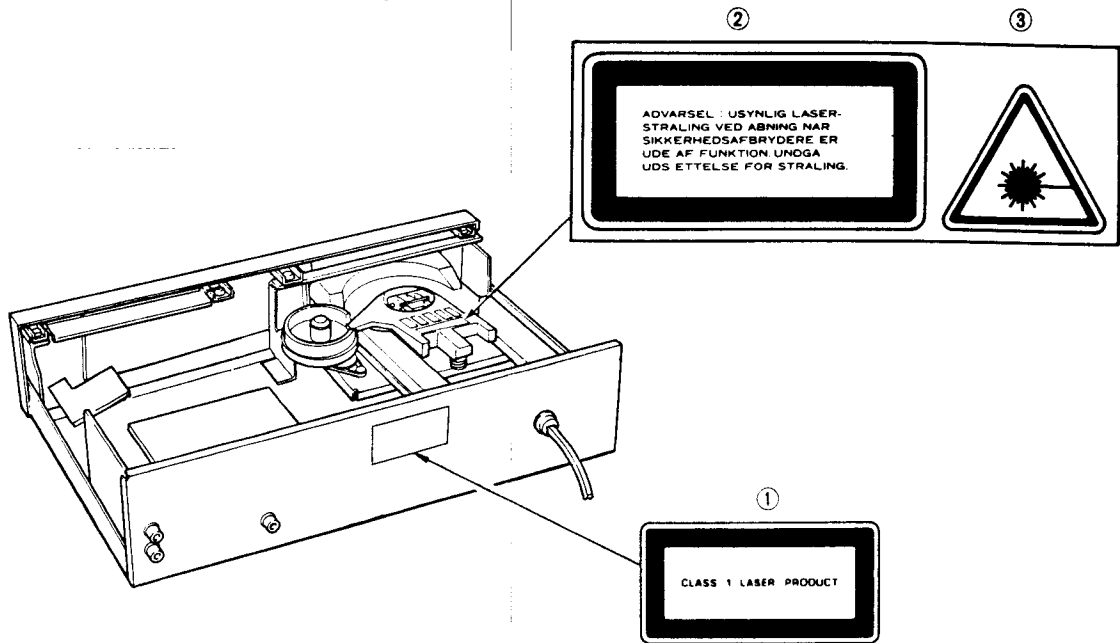
U model

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

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

MANUFACTURED:

G. B models



English

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

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

Swedish

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

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

Danish

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

■ 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.

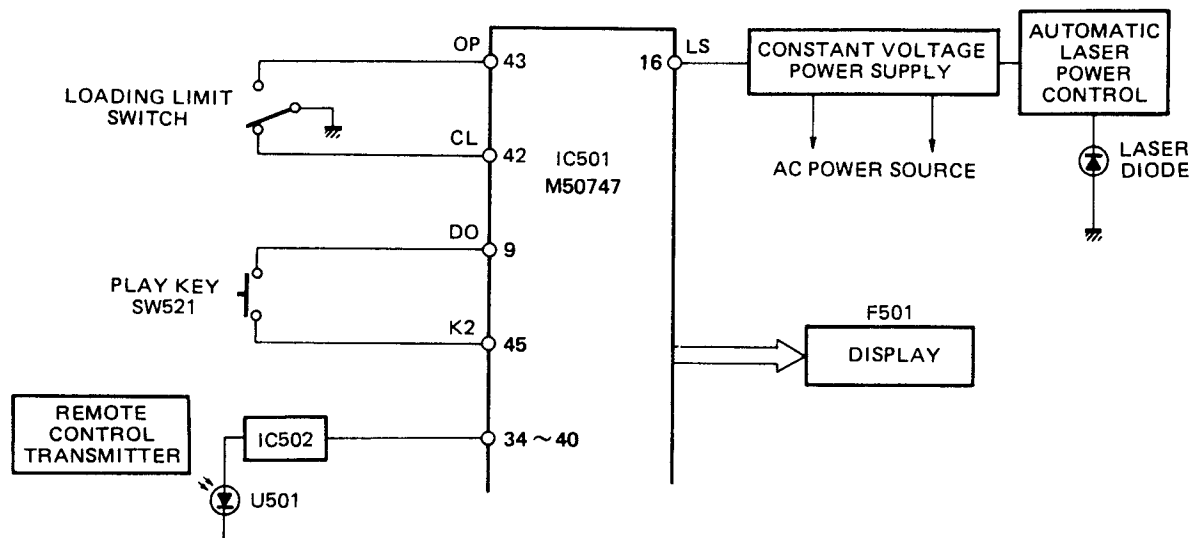
Laser output is controlled by the injection or cutoff of the constant voltage source to the laser diode at Pin 16 (LS) of IC501 (M50747), and also by Automatic Laser Power Control Circuit. When Pin 16 is in "H" (High) level, the laser emits the beam. When Pin 16 is in "L" (Low) level, the laser does not emit the beam.

Pin 16 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 Loading Limit Switch is set in "CL" side. (The disc tray is closed.)
- 2) The pickup is located at the area of minimum internal circumference.

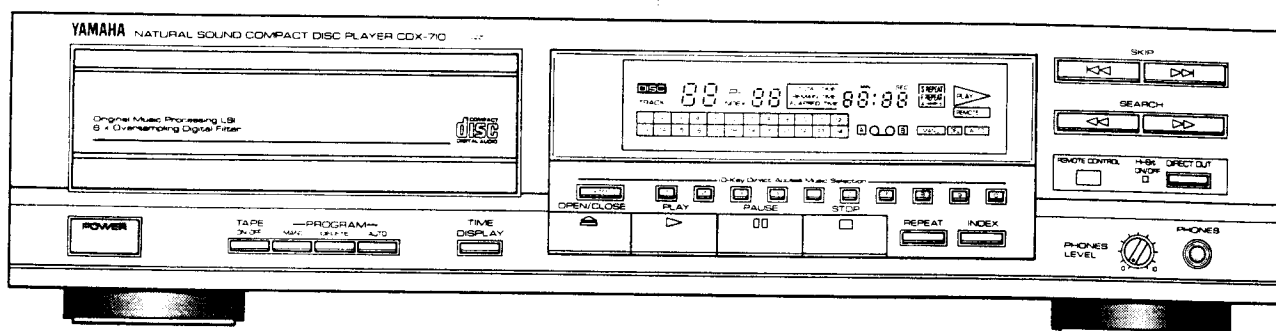
After the above conditions are met and the index signals have been read, the laser emits the beam when the following two conditions are met.

- 1) when the PLAY key (SW521) or that of Remote Control Transmitter is pressed.
- 2) when the  display is ON.

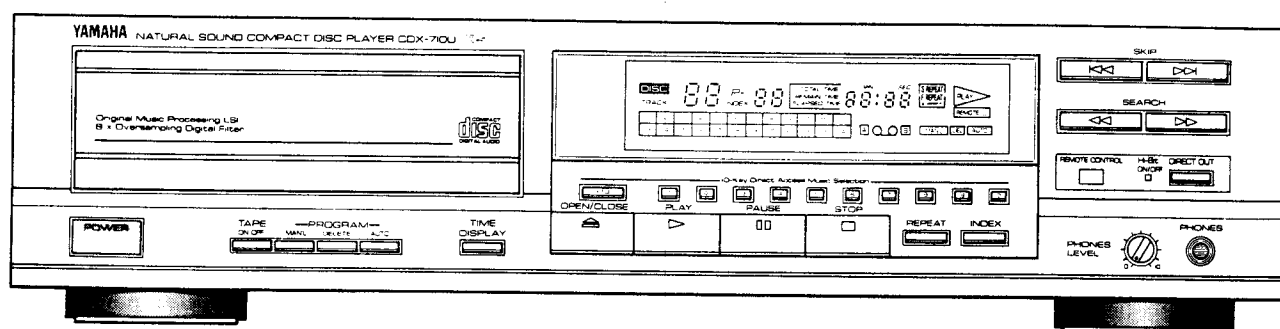


FRONT PANELS

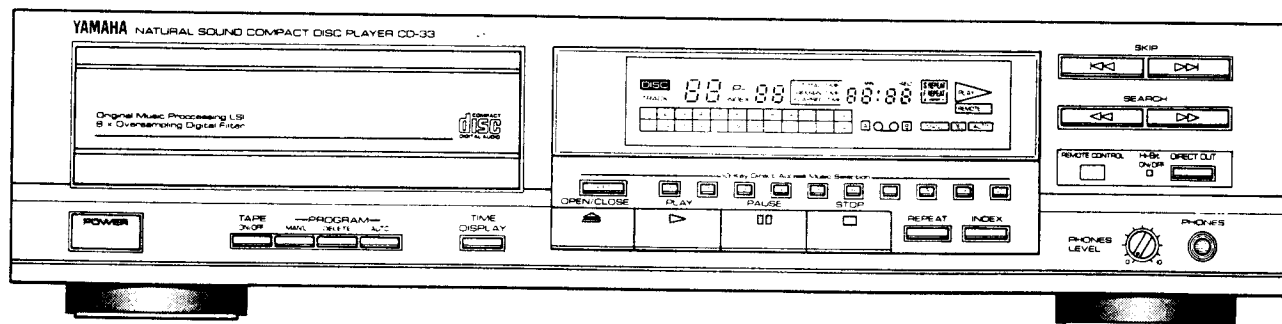
• CDX-710



• CDX-710U



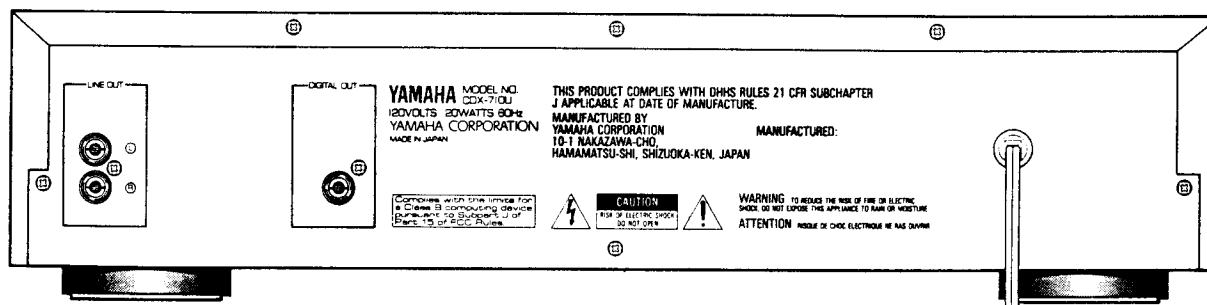
• CD-33



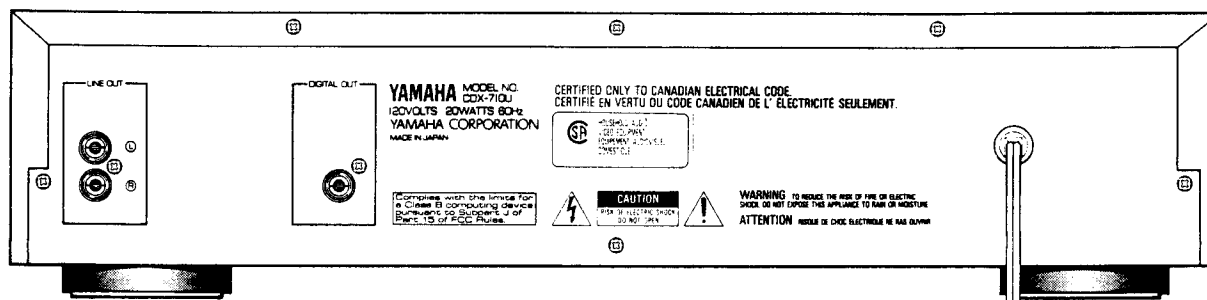
REAR PANELS

CDX-710/U

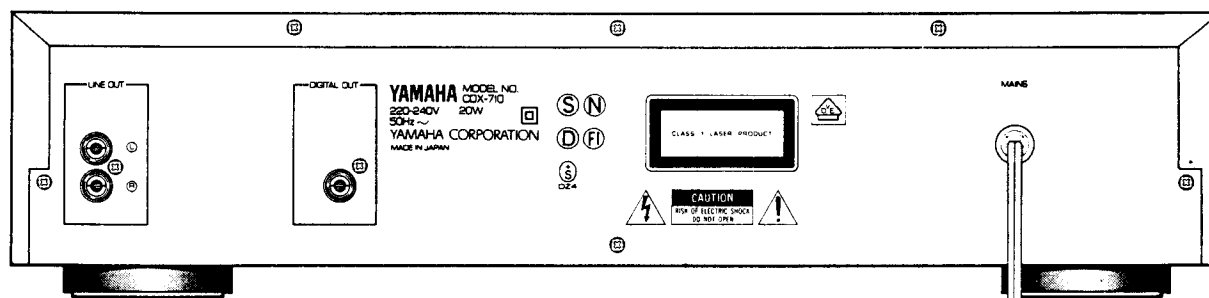
▼ U.S.A. model



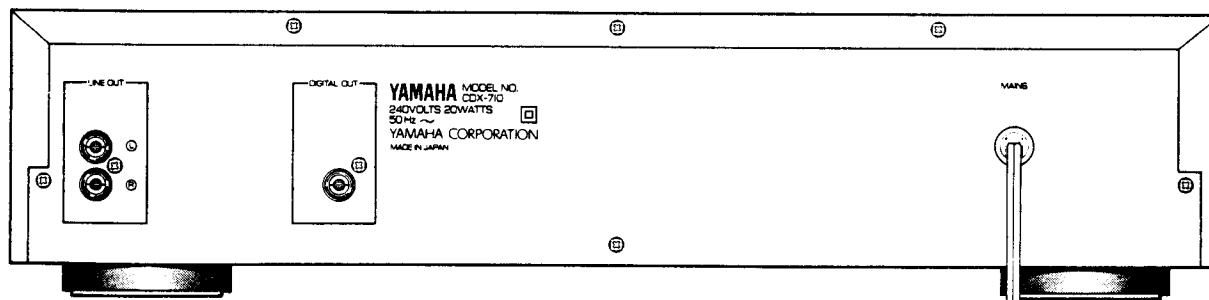
▼ Canadian model



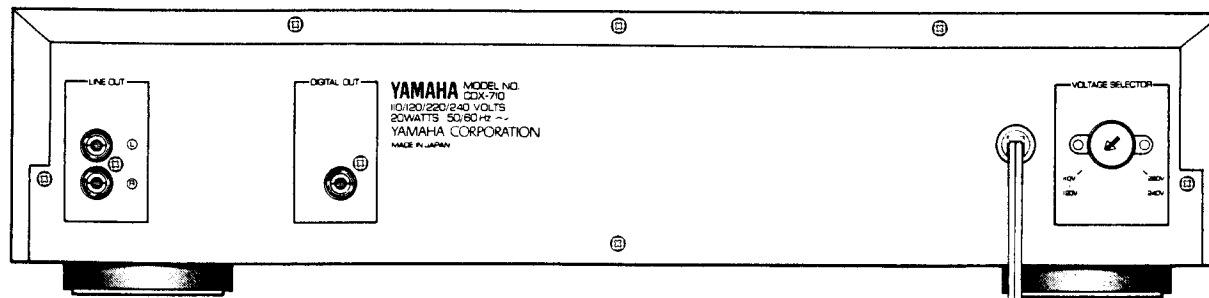
▼ European & British models



▼ Australian model



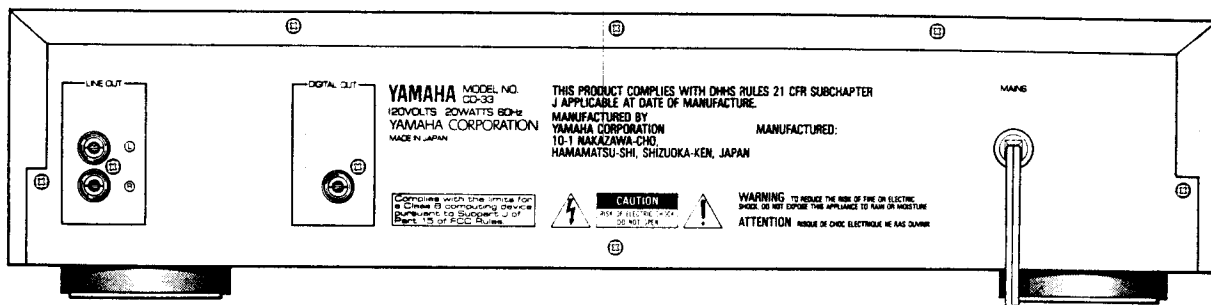
▼ General model



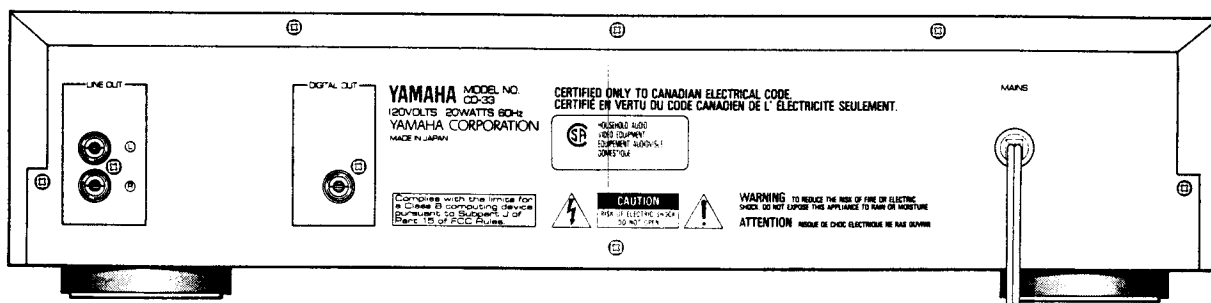
REAR PANELS

CD-33

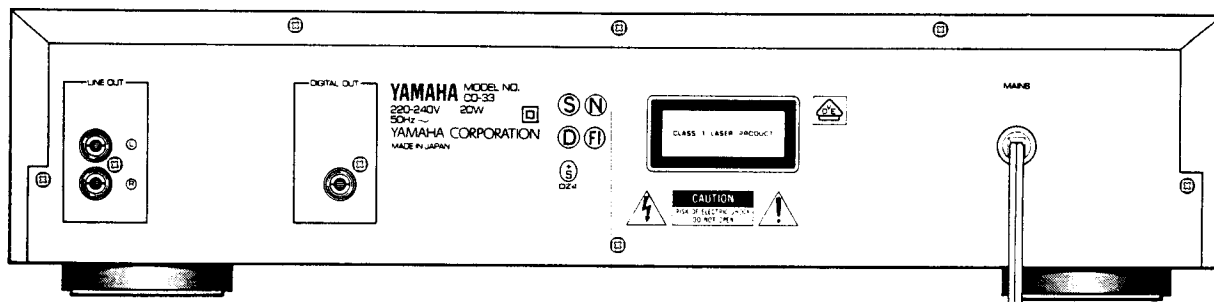
▼ U.S.A. model



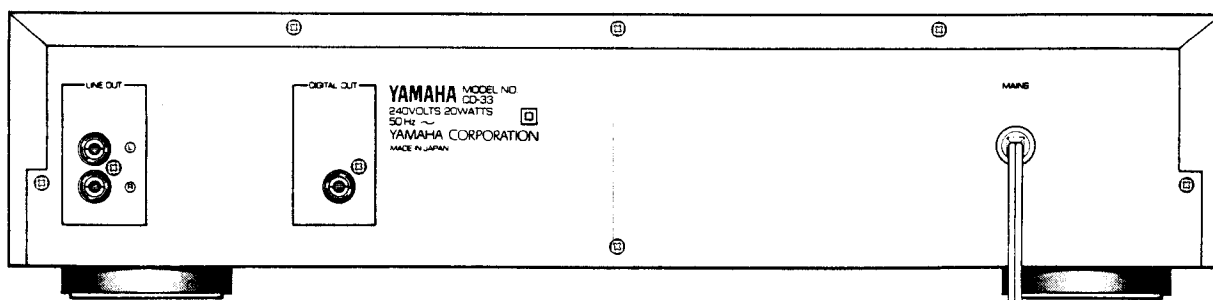
▼ Canadian model



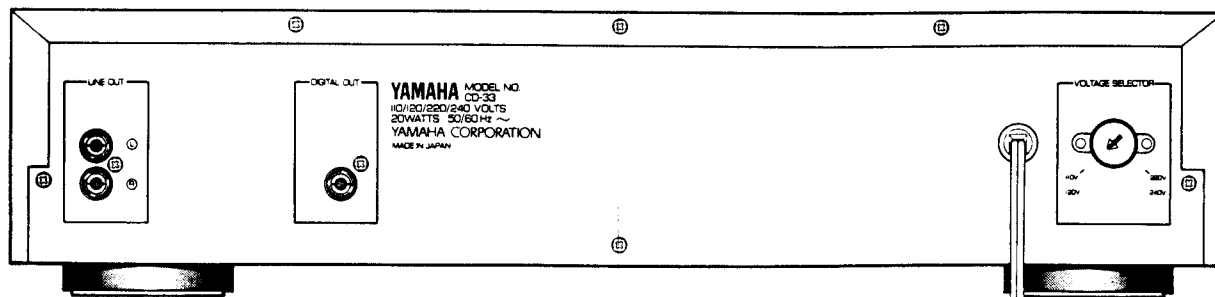
▼ European & British models



▼ Australian model



▼ General model



SPECIFICATIONS

AUDIO SECTION

Frequency Response	2Hz ~ 20kHz $\pm$ 0.3dB
De-Emphasis Equalization	$\pm$ 0.3dB (EIAJ)
Harmonic Distortion + Noise	Less than 0.005%, 1kHz (EIAJ)
S/N Ratio	106dB (EIAJ)
Dynamic Range	More than 100dB (EIAJ)
Wow & Flutter	Unmeasurable
Channel Separation	More than 100dB, 1kHz (EIAJ)
Output Voltage	2V (EIAJ)
Output Impedance	560 Ω
Headphone Output	450mV/150 Ω (-20dB)

INTERNAL SYSTEMS

Optical Pick-up	3-beam laser
Error Correction System	CIRC, dual error correction system
D/A Conversion	16 bit floating (L, R twin)
Filter	Digital filter and 3rd order new active filter

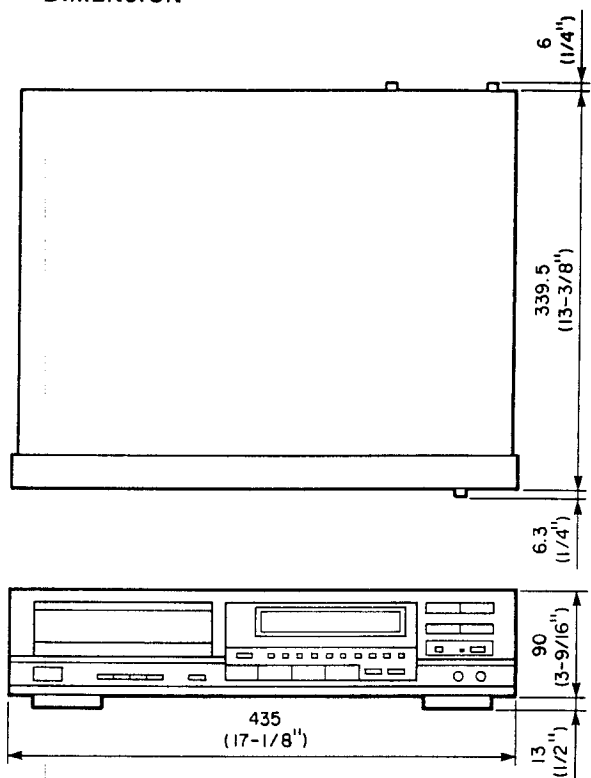
GENERAL

Power Requirements	
U, C models	120V AC, 60Hz
G, B models	220-240V AC, 50Hz
A model	240V AC, 50Hz
R model	110-120/220-240V AC, 50/60Hz
Power Consumption	20W
Dimensions (W x H x D)	435 x 103 x 351.8 mm (17-1/8" x 4-1/16" x 13-7/8")
Weight	5.5 kg (12 lbs 2 oz.)
Accessories	Pin plug cord Remote control transmitter (RS-CDX7) Dry-cell: X2 (Size "AA", "R06")

* Specification subject to change without notice.

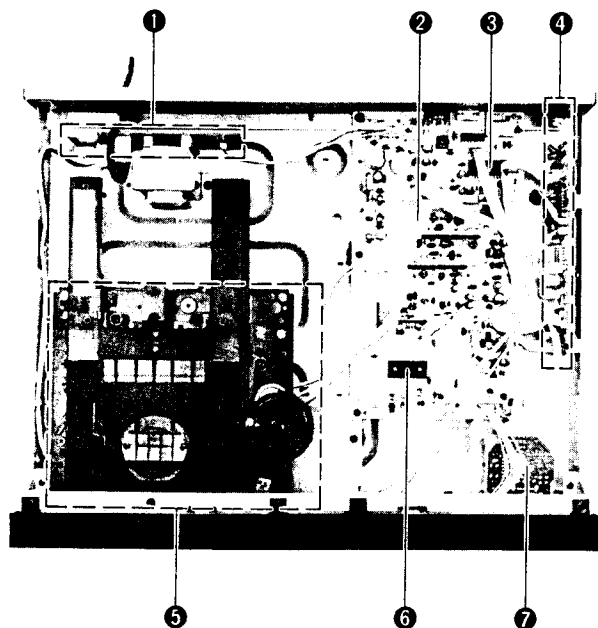
U		U. S. A. model
C		Canadian model
B		British model
A		Australian model
G		European model
R		General model

DIMENSION



Unit ; mm (inch)

INTERNAL VIEW



- ① POWER SUPPLY UNIT
- ② MAIN CIRCUIT BOARD
- ③ ICIII : YM3613B
(Digital Audio Interface Transmitter)
- ④ AUDIO CIRCUIT BOARD (1)
- ⑤ DISC MECHANISM UNIT (DM-555L)
- ⑥ IC110 : μ PD4016-CX
(2048-Word x 8 bit Static RAM)
- ⑦ AUDIO CIRCUIT BOARD (2)



■ DISASSEMBLY PROCEDURES

(Remove parts in disassembly order as numbered.)

1. Removal of Top Cover

- Remove 5 screws (①) in Fig. 1, and slide the Top Cover to the back side.

2. Removal of Front Panel

- Remove 6 screws (②) in Fig. 1, and pull the Front Panel forward.

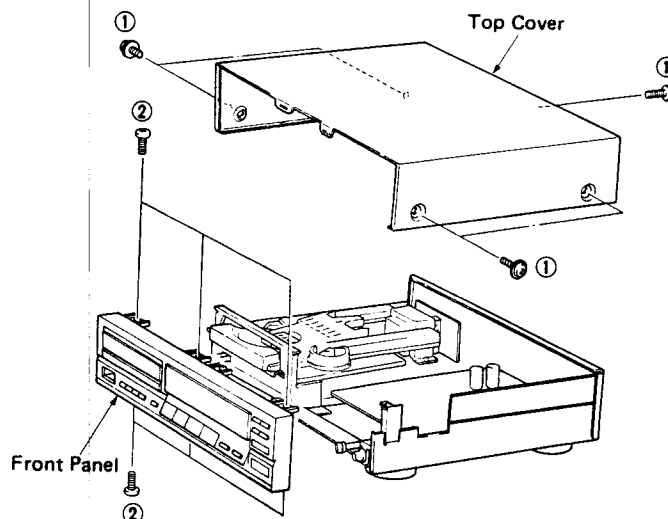


Fig. 1

3. Removal of Disc Tray Ass'y

- Pull out the Disc Tray Ass'y by turning the loading cam and remove it by pressing the hook.

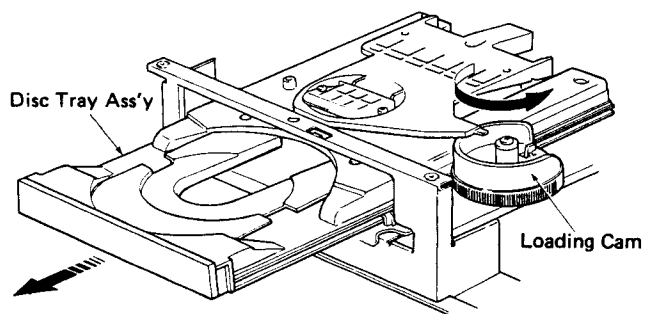


Fig. 2

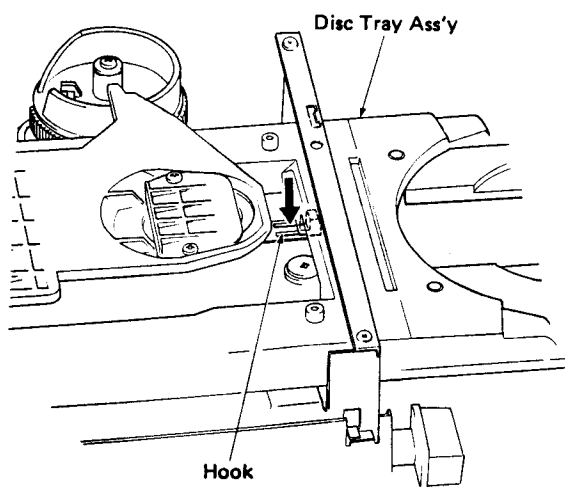


Fig. 3

4. Removal of Disc Mechanism Unit

- Remove 4 screws (③) in Fig. 4.

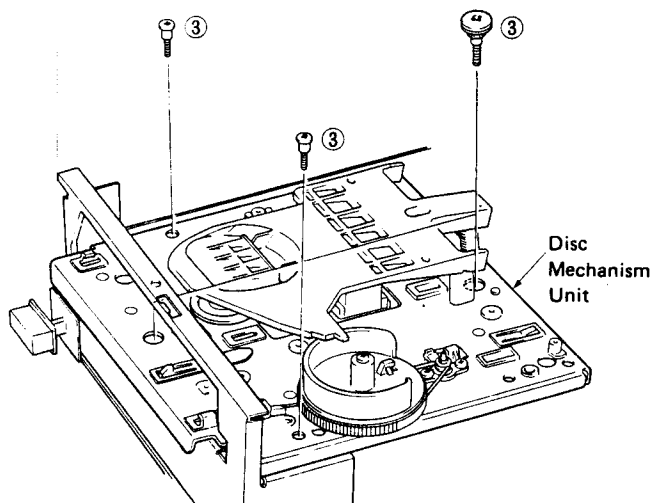


Fig. 4

5. Removal of Disc Motor

- a. Remove 2 screws (④) fixing Flapper in Fig. 5 and then remove the flapper.

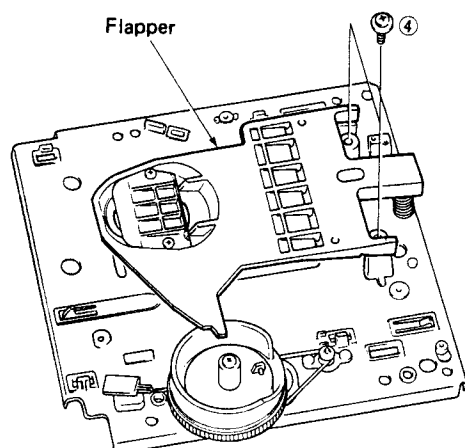


Fig. 5

- b. Pull off the disc table and remove 2 screws (⑤) in Fig. 6.

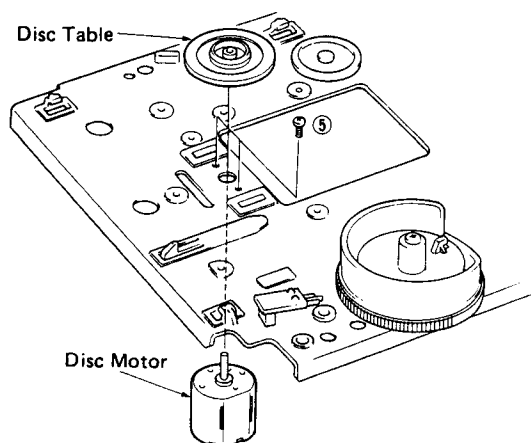
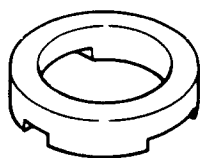


Fig. 6

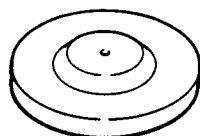
● Installation of disc table

※ The following tools are necessary for installation.

Height adjustment gauge (TX913130)



Disc table installer (TX913140)



- a. Install the height adjustment gauge as shown in Fig. 7.

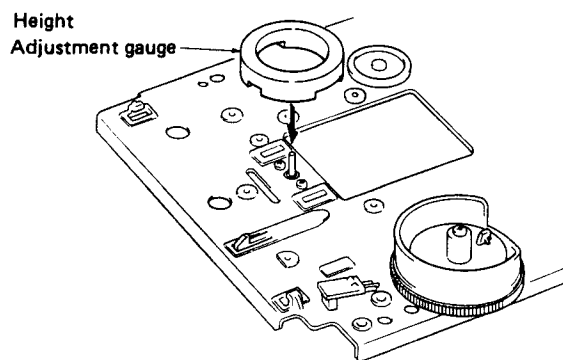


Fig. 7

- b. Carefully apply a small amount of anaerobic glue to motor shaft (Loc-Tite # 638).
c. Install turntable onto motor shaft with disc table installer as shown in Fig. 8.
d. Clean excess glue from top of turntable.
e. Allow 5 minutes for glue to cure before removing disc table installer and height gauge.

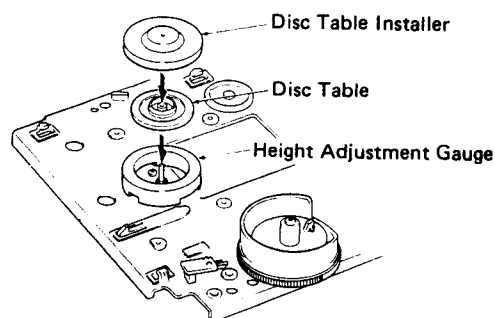


Fig. 8

- f. Check that the disc table height is as specified below.

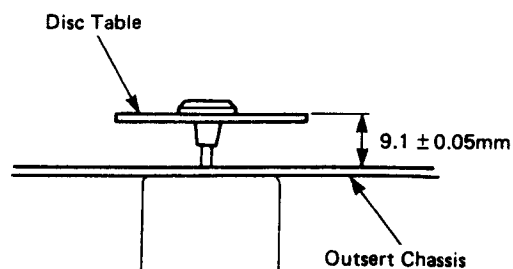


Fig. 9

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

Tools

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

• Adjustment jig (with internal filter)

Connect the filter in Fig. A before measurement.

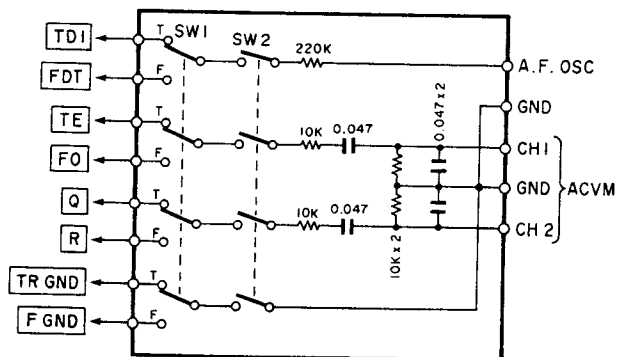


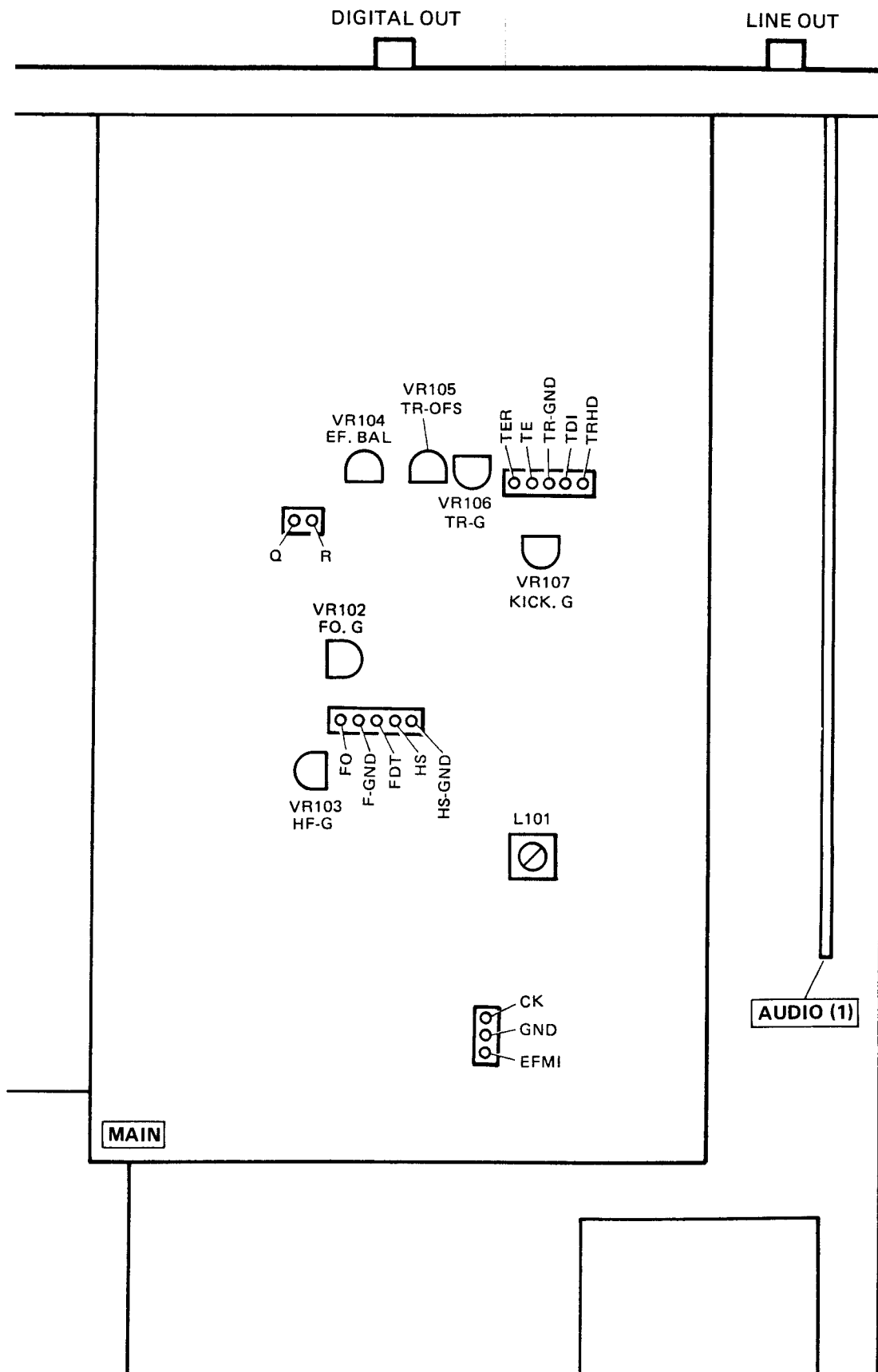
Fig. A

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

• Precautions or Special Notes

1. Measure the output level at the output terminal of the AF oscillator.
2. When disc tray has been removed from the mechanism, make sure the position of the loading cam and the leaf switch are correct.
3. The unit should always be in a horizontal position while performing adjustments.

• Test Points



★ Carry out following adjustments in order as numbered.

Step 1. Confirmation of Laser Output.

Step 2. Confirmation of Focus Actuator Operation.

Step 3. Adjustment of VCO.

Step 4. Adjustment of EF Balance

Step 5. Adjustment of HF Level

Step 6. Adjustment of Focus Gain

Step 7. Adjustment of Tracking Gain

Step 8. Adjustment of Tracking Offset

Step 9. Confirmation of Jitter

Step 10. Adjustment of Kick Gain

Step 11. Confirmation of Skip Search Operation

Confirmation of Laser Output (Step 1)

- ① Do not load the disc.
- ② Remove the disc tray.
- ③ Remove the flapper.
- ④ Apply the laser power meter's sensor to the pick-up head as shown in Fig. B.

⑤ Press POWER key. (POWER ON)

⑥ Measure the laser output during the 5 seconds of FOCUS search mode.

Rating: Laser output = 0.1mW to 0.5mW

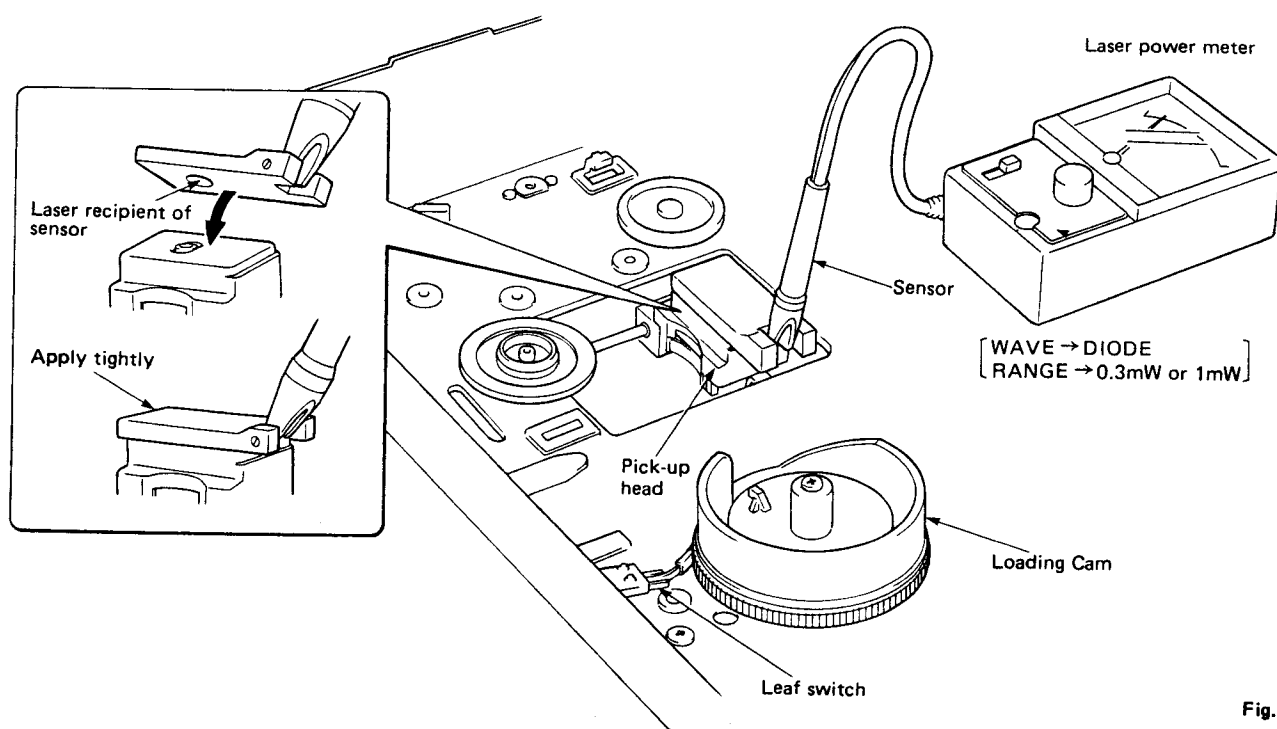


Fig. B

Precautions in handling pick-up head

- (1) No soldering necessary for the 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 (12 inches) 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)
(0.1/div when 10:1 probe is used)
- 0.5 sec/div or 1 msec/div time (Horizontal)

- ① Do not load a disc.
- ② Connect the oscilloscope (1) to **R** and **TR GND** terminals.
- ③ Press POWER key. (POWER ON)
- ④ After confirming that loading cam position is correct press OPEN/CLOSE key for CLOSE operation.
- ⑤ During 5 seconds of FOCUS search, confirm that the waveform is as shown in Fig. C.
- ⑥ Confirm that the pick-up head's objective lens moves smoothly between the lowest and highest points.

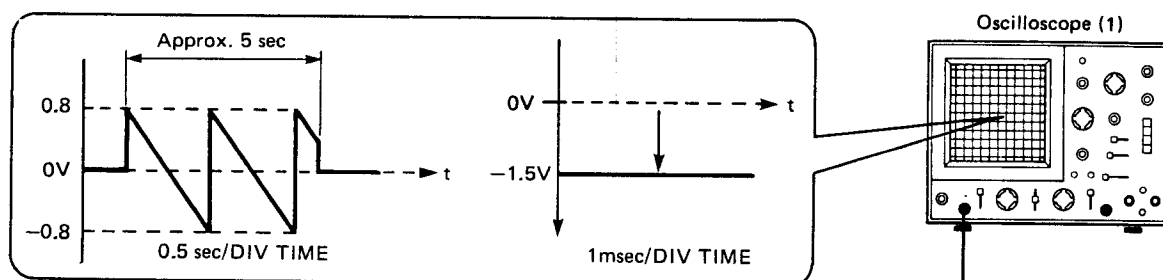
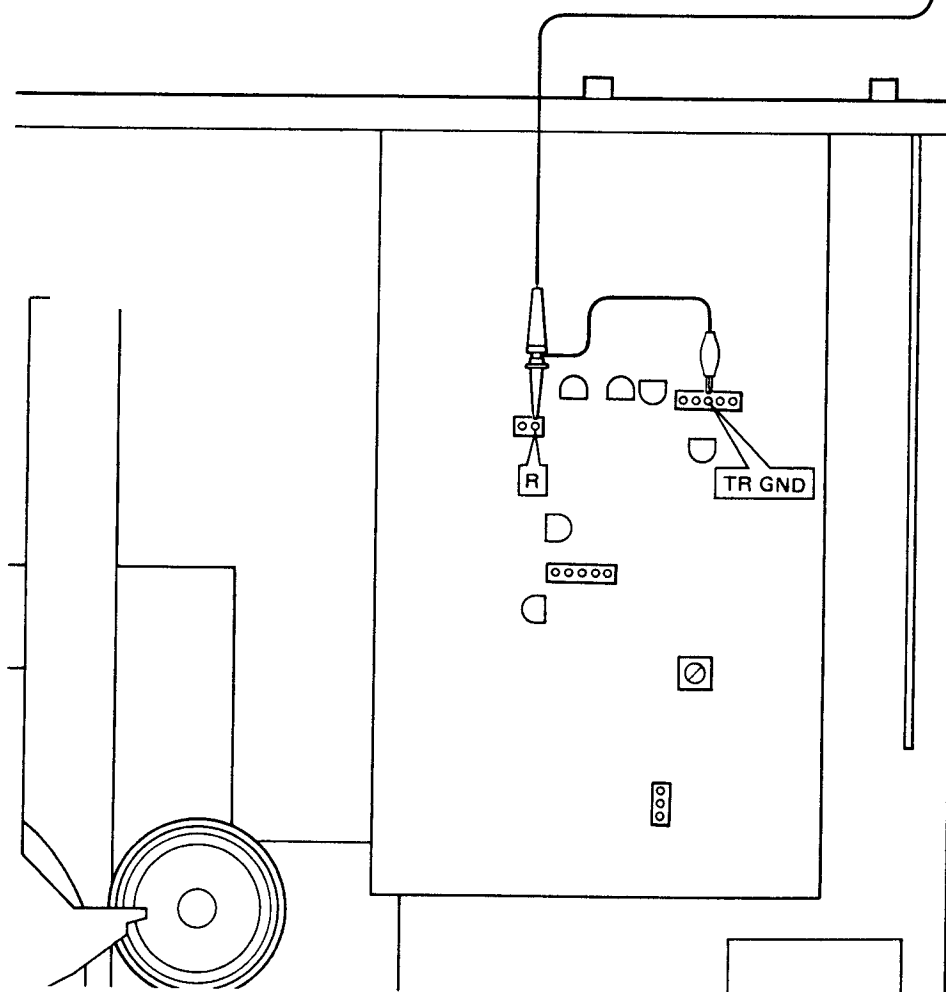


Fig. C



Adjustment of VCO (Step 3)

- ① Connect the shorting cord and measuring instruments, as shown in Fig. D.
- ② Do not load a disc.
- ③ Press POWER key. (POWER ON)
- ④ While observing the frequency counter indication (F_{VCO}), adjust L101 so that it satisfies the rating.
Rating: $F_{VCO} = 4.3218 \text{ MHz} \pm 10 \text{ kHz}$

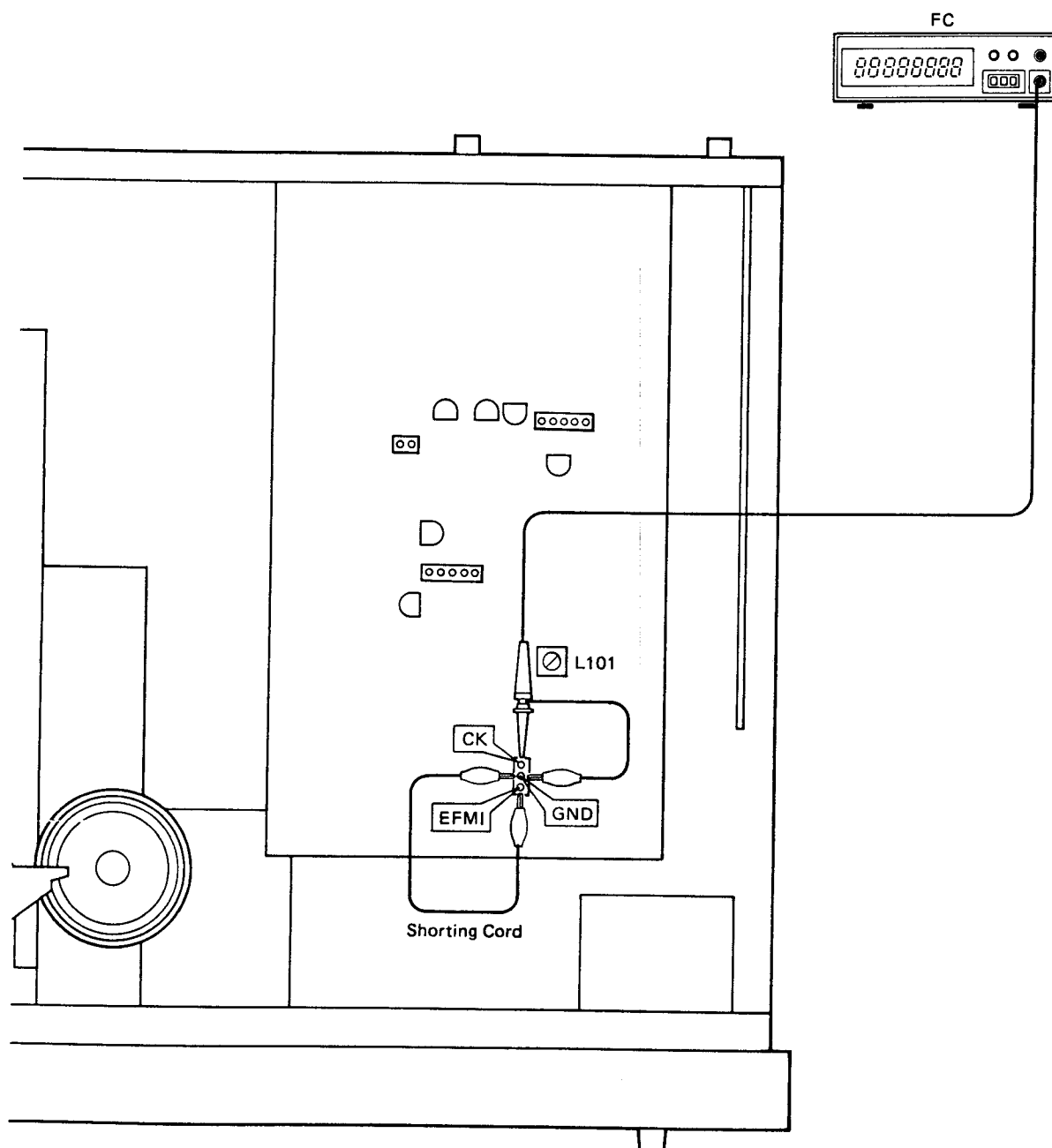


Fig. D

Adjustment of EF Balance (Step 4)

Oscilloscope (1) settings

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

- ① Connect oscilloscope (1) to **TER** terminal as shown in Fig. E.
 - ② Load the test disc.
 - ③ Press the PLAY key.
 - ④ Short between the **TDI** and **Q** terminals.
(TRACKING SERVO → OFF)
 - ⑤ Observe the waveform on the oscilloscope (1).
 - ⑥ Adjust VR104 (EF B) so that the amplitude of the **TER** signal becomes equal above and below the DC 0V positions.
- * Adjust at the inner circumference of the disc.

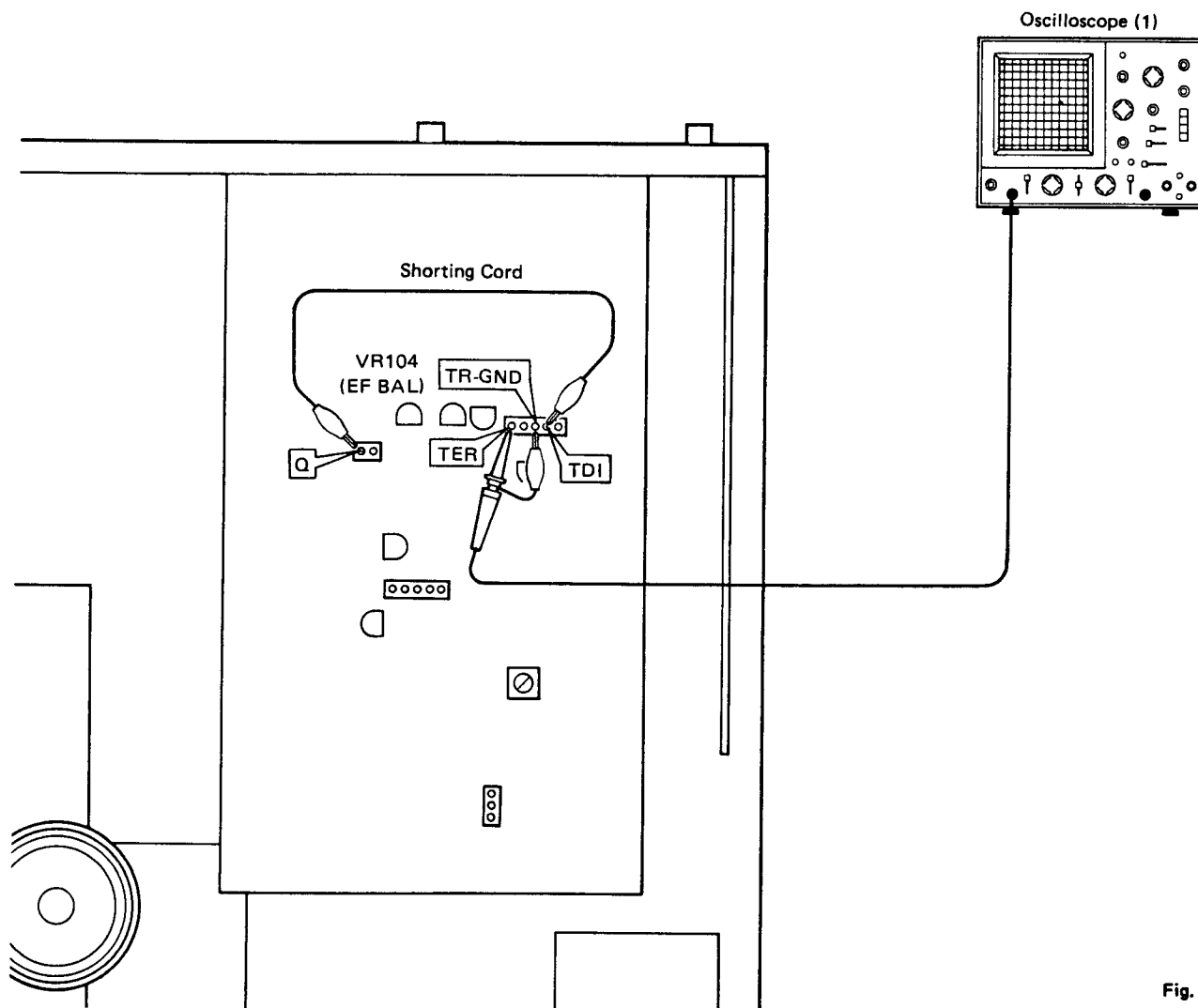
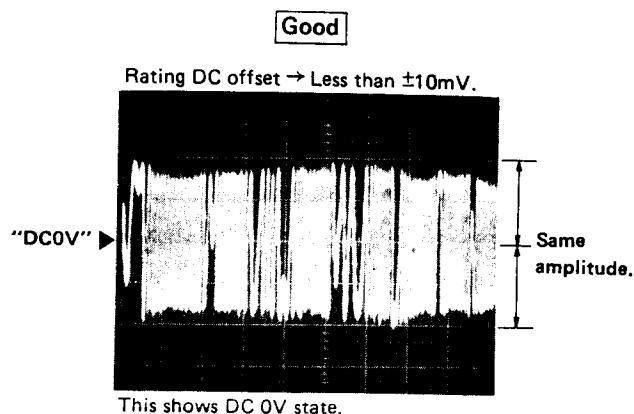


Fig. E

Adjustment of HF Level (Step 5)

Oscilloscope (2) setting

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

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

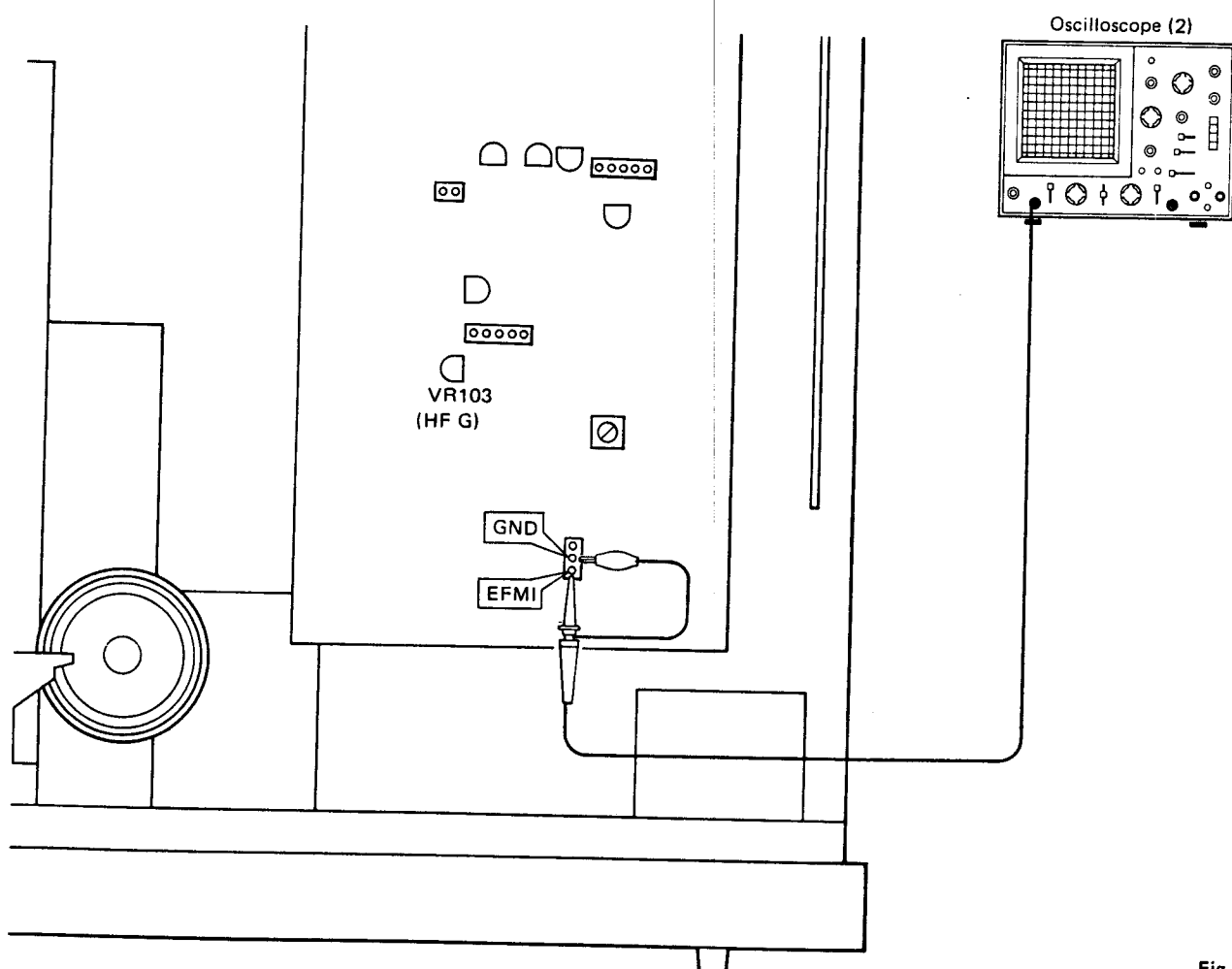


Fig. F

Adjustment of Focus Gain (Step 6)

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

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

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

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

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

Rating: $E_{FO} - E_R = 8\text{dB}$

Example [0dBV = 1V]

$E_{FO} = -16\text{dBV}$ (160mV)

$E_R = -24\text{dBV}$ (63mV)

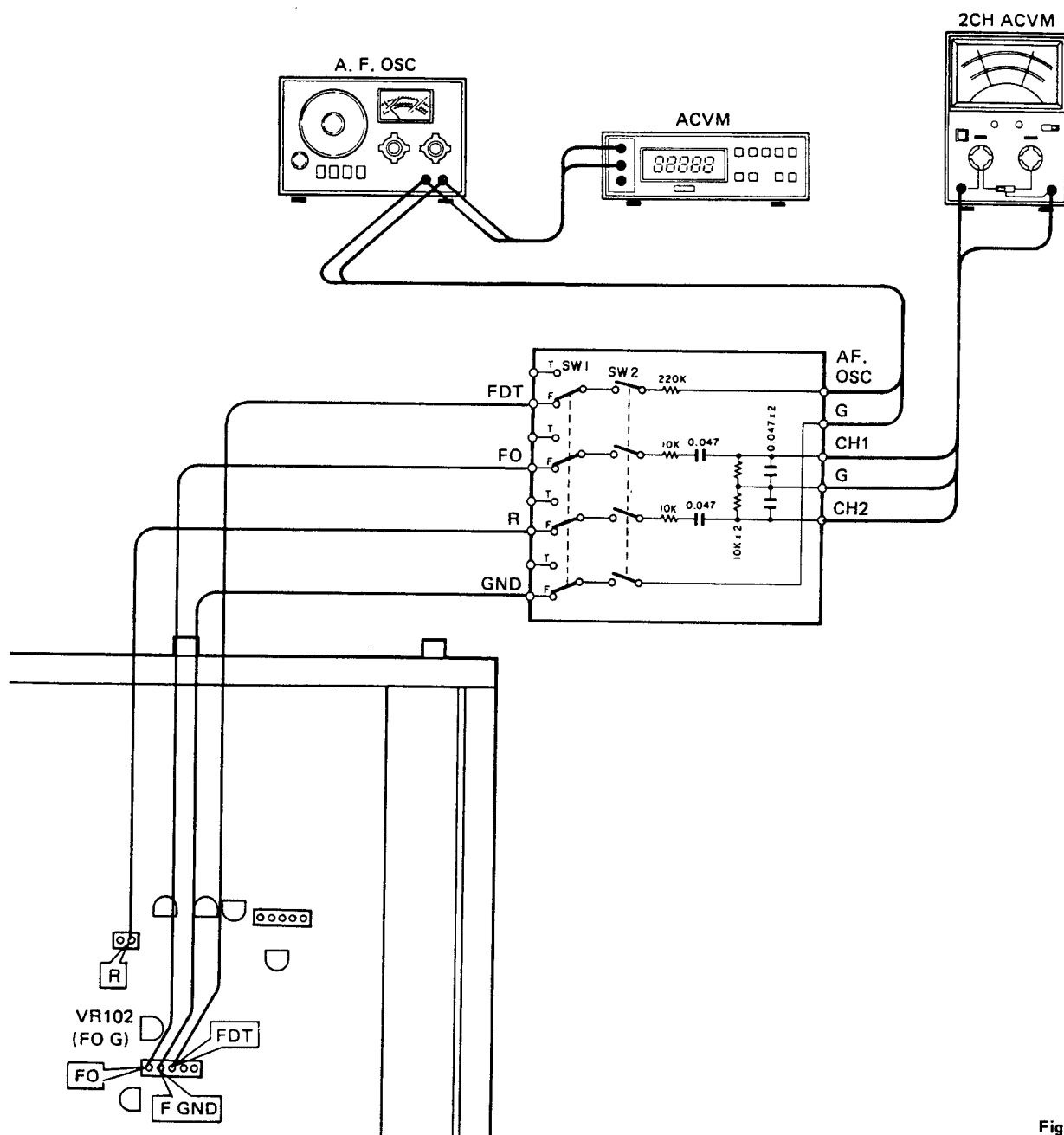


Fig. G

Adjustment of Tracking Gain (Step 7)

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

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

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

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

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

Rating: $E_{TE} - E_Q = 17\text{dB}$

Example [0dBV = 1V]

$E_{TE} = -13\text{dBV}$ (223mV)

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

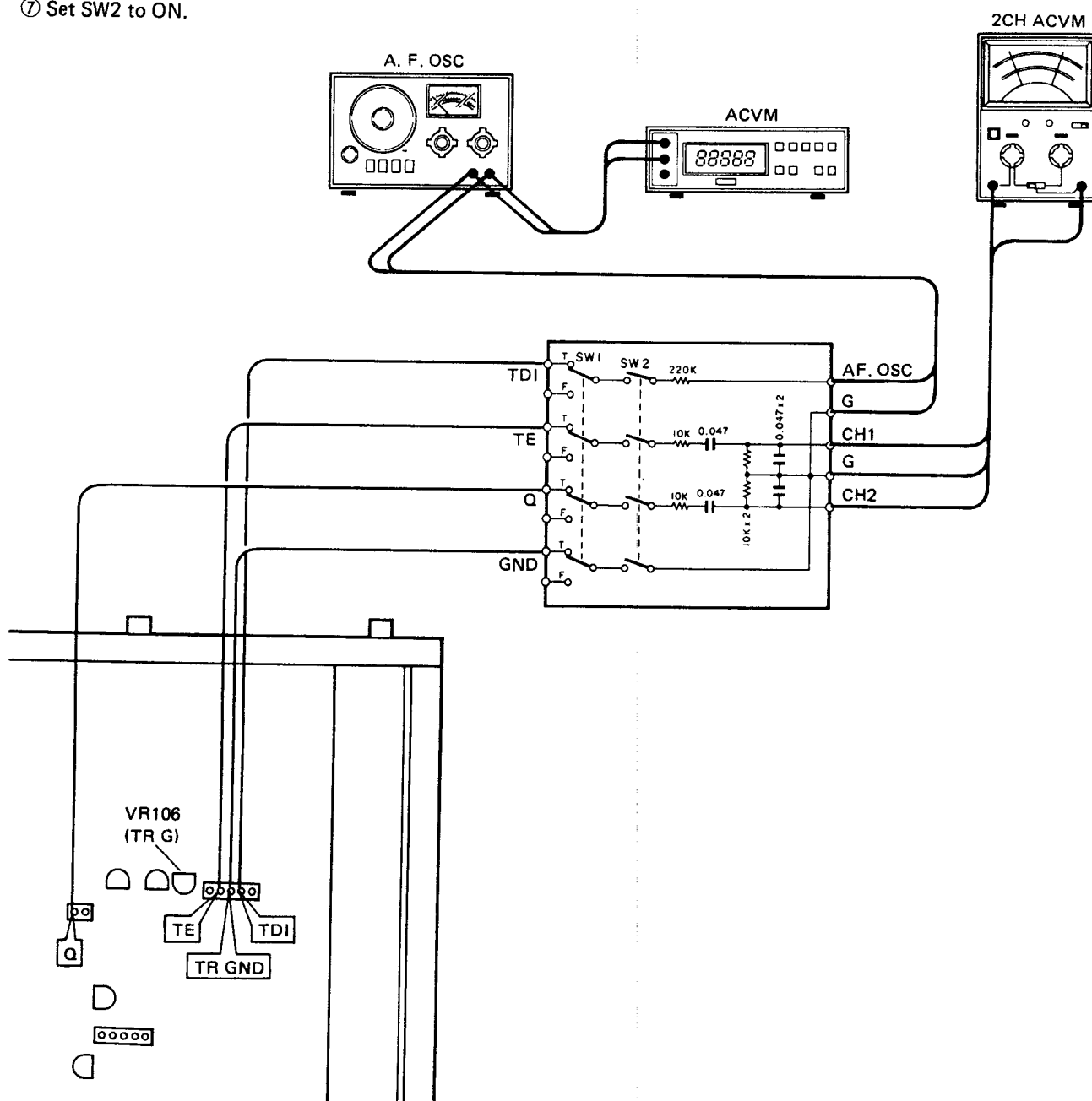


Fig. H

Adjustment of Tracking Offset (Step 8)

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

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

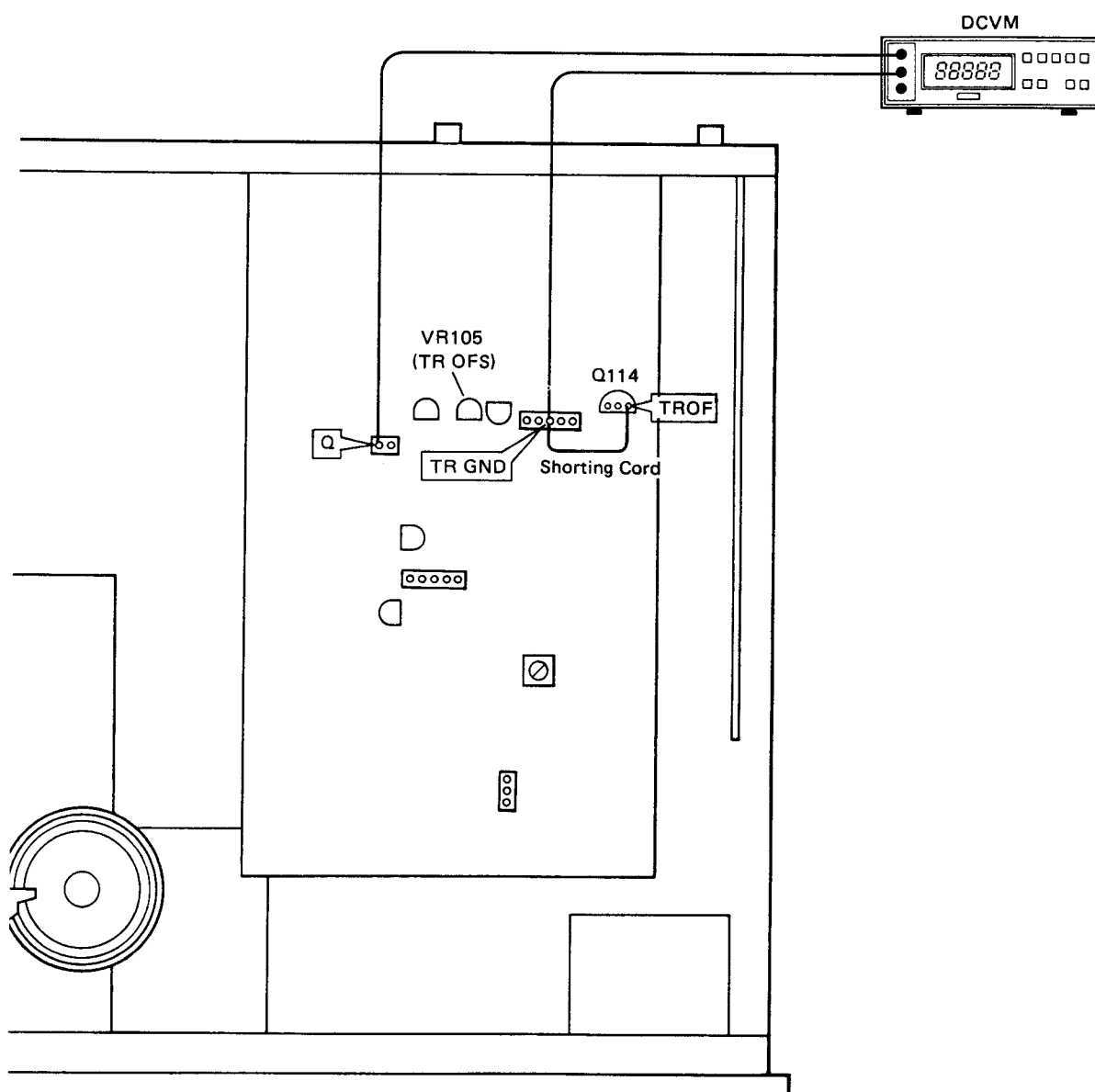


Fig. 1

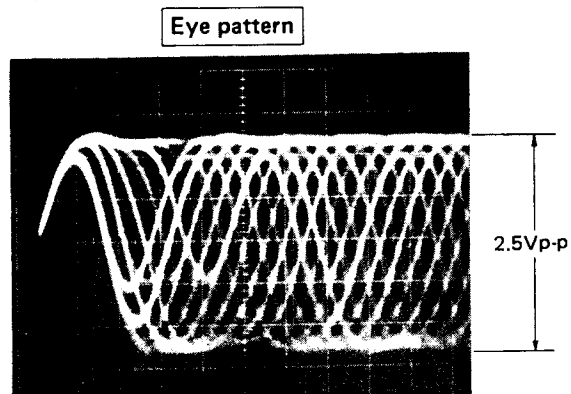
Confirmation of Jitter (Step 9)

Oscilloscope (2) Settings

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

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

* Confirm at the center of the disc.



0.5 μ sec/div time (Horizontal)
0.5V/div (Vertical)

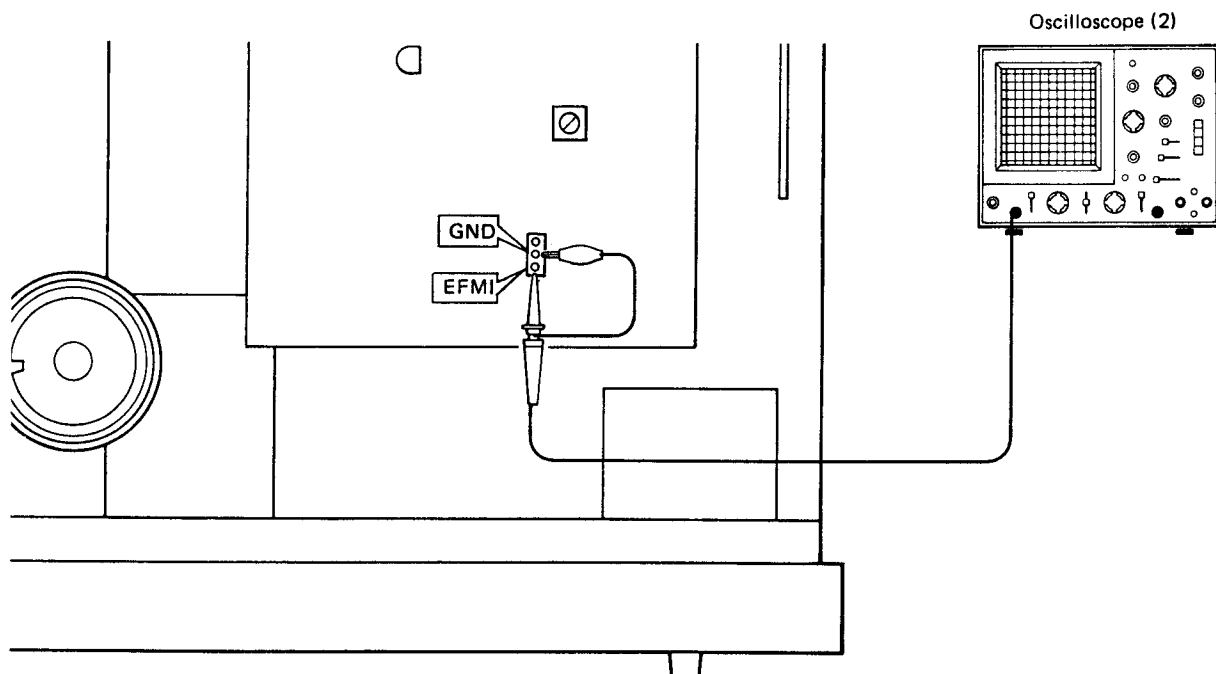
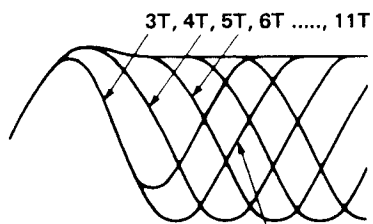


Fig. J

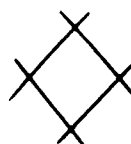
Waveforms 3T – 11T.



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

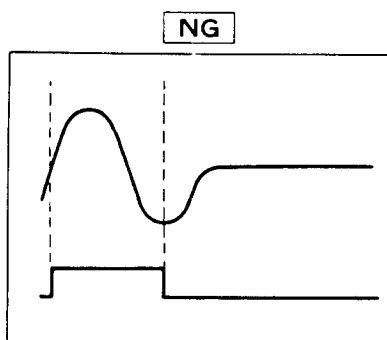


Adjustment of Kick Gain (Step 10)

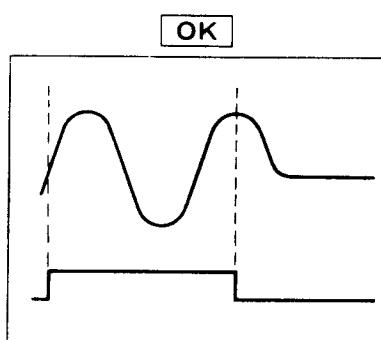
Oscilloscope (1) (2-ch oscilloscope) Settings

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

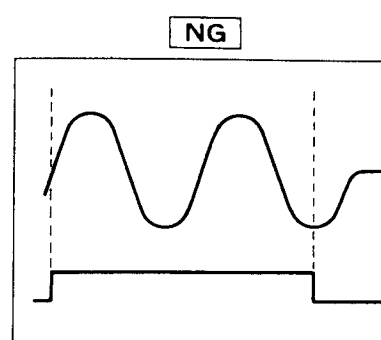
- ① Connect the measuring instruments, as shown in Fig. K.
- ② Press POWER key. (POWER ON)
- ③ Load the test disc.
- ④ Press PLAY key.
- ⑤ Observe waveform while pressing Fast Forward mode key (▶▶) for 3 seconds.
- ⑥ Adjust VR107 (KICK GAIN) so that the **TER** signal cycle is 1.0 when **TRHD** signal level is High.
* Adjust at the inner circumference of the disc.
- ⑦ Press Reverse mode key (◀◀) for 3 seconds and confirm that **TER** signal cycle is within the above specification but in reverse phase.



This shows about 0.75 cycle which is incorrect

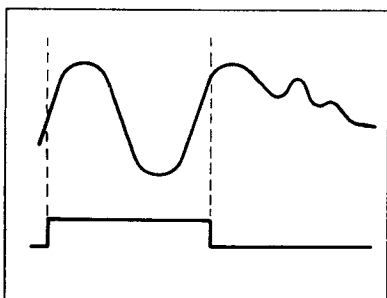


This shows about 1.25 cycle which is within specification.



This shows about 1.75 cycle which is incorrect

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



Not converging gently

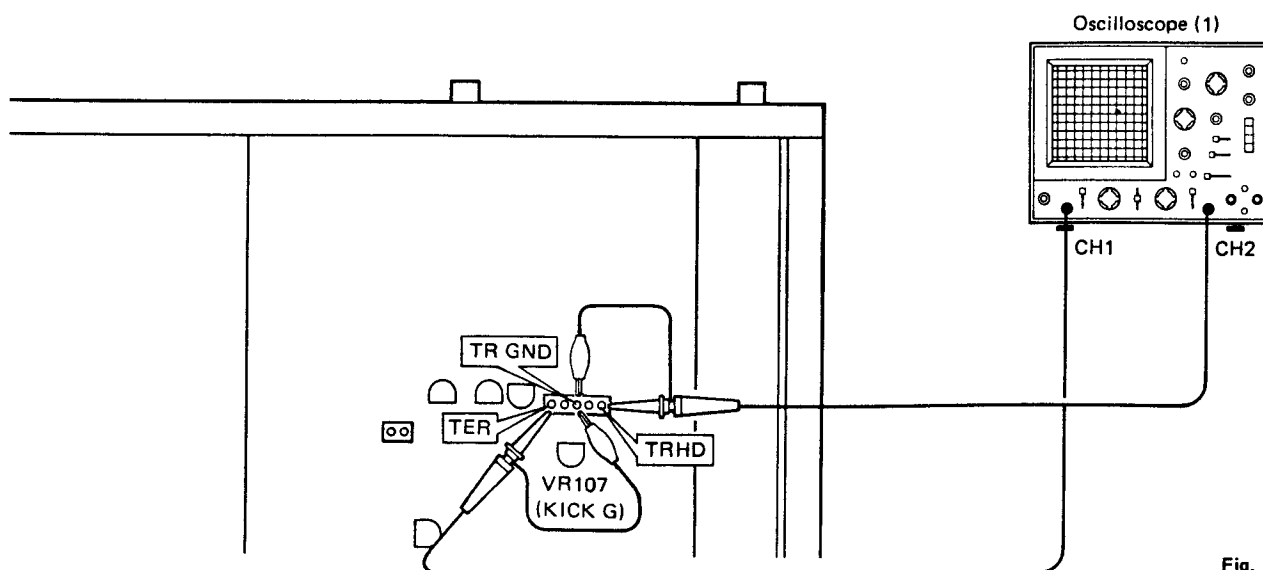


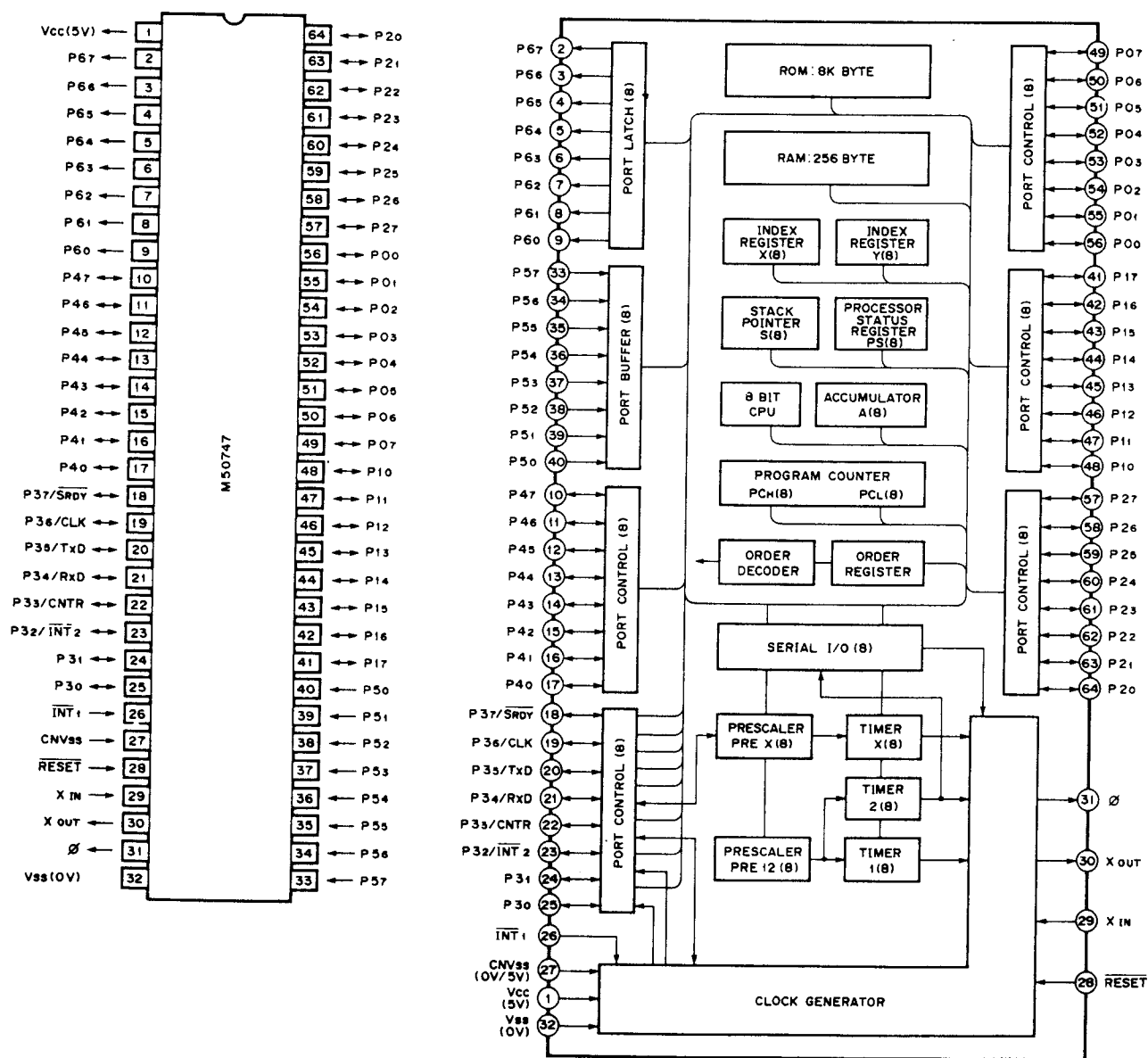
Fig. K

Confirmation of Skip Search Operation (Step 11)

- ① Load the disc.
- ② Press the PLAY key.
- ③ Press the skip key ($\gg$) or 10 key to start searching.
- ④ Confirm that the skip is searched properly.

IC DATA

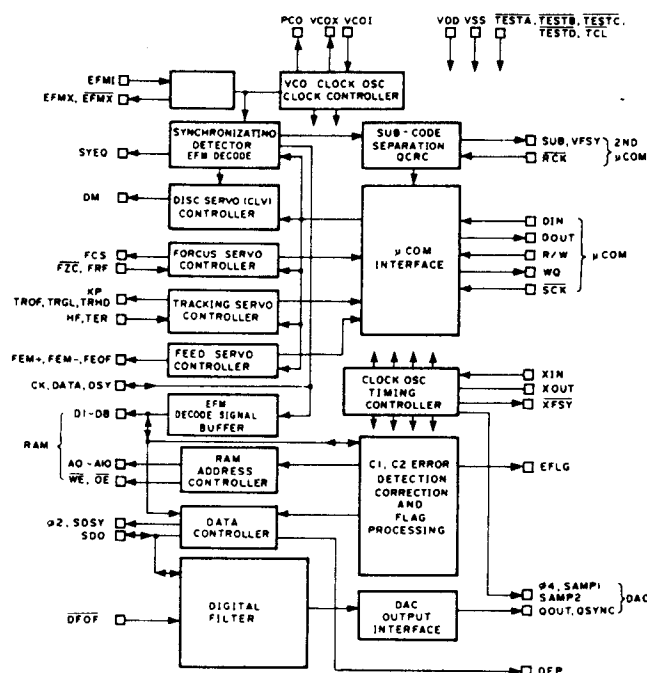
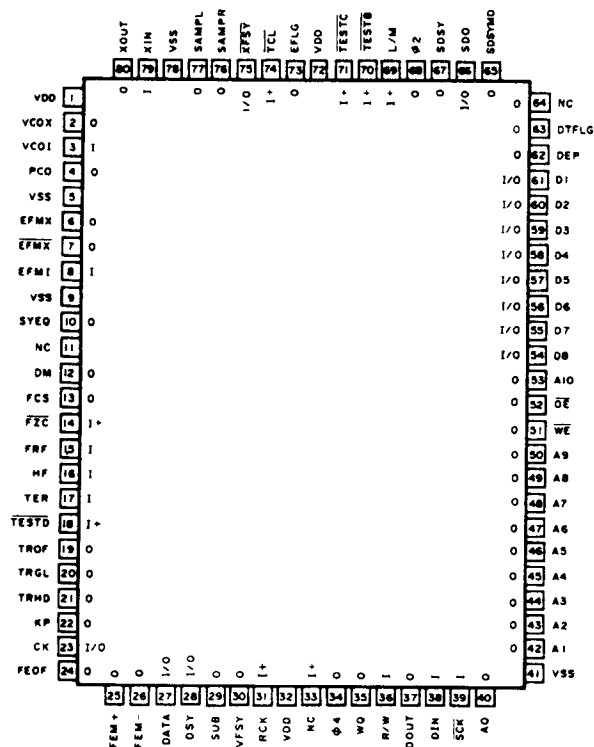
IC501 : M50747
8 bit μ -COM



Pin No.	Pin Name	Description	I/O	Active	Function
1	Vcc	VDD			5V
2	P67 (O)	D7	O	H	Digit line
3	P66 (O)	D6	O	H	
4	P65 (O)	D5	O	H	
5	P64 (O)	D4	O	H	
6	P63 (O)	D3	O	H	
7	P62 (O)	D2	O	H	
8	P61 (O)	D1	O	H	
9	P60 (O)	D0	O	H	
10	P47	UP			Not used
11	P46	DN			
12	P45	HB	O	H	Hi-Bit DIRECT OUT Control
13	P44	MODE	I	H/L	Mode switch
14	P43	OPEN	O	H	Open switch
15	P42	CLOSE	O	H	Close switch
16	P41	LS	O	H	Laser switch
17	P40	PLAY	O	H	PLAY mode output
18	P37/SRDY				Not used
19	P36/CLK	SCK	I/O		SPC Interface
20	P35/TXD	SO	O		
21	P34/RXD	SI	I		
22	P33/CNTR	R/W	O		
23	P32/INT2	AO			Not used
24	P30	WQ	I		SPC Interface
25	P31	SCK	O		
26	INT1	INT			
27	CNVSS	VSS			GND
28	RESET	RES	I		Reset
29	XIN	XI	I		8 MHz Clock
30	XOUT	XO	O		
31	ϕ	ϕ	O		Timing output
32	VSS	VSS			GND
33	P57 (I)	VSS			
34	P56 (I)	R6	I		Remote control interface
35	P55 (I)	R5	I		
36	P54 (I)	R4	I		
37	P53 (I)	R3	I		
38	P52 (I)	R2	I		
39	P51 (I)	R1	I		
40	P50 (I)	R0	I		
41	P17	BAK	I		Back-up DET
42	P16	CL SW	I	L	END switch (CLOSE/OPEN)
43	P15	OP SW	I	L	
44	P14	K3	I		Key input line
45	P13	K2	I		
46	P12	K1	I		
47	P11	K0	I		
48	P10	j	O	H	FLT segment
49	P07	i	O	H	
50	P06	2g	O	H	
51	P05	2i	O	H	
52	P04	2e	O	H	
53	P03	2d	O	H	
54	P02	2c	O	H	
55	P01	2b	O	H	
56	P00	2a	O	H	
57	P27	h	O	H	
58	P26	1g	O	H	
59	P25	1f	O	H	
60	P24	1e	O	H	
61	P23	1d	O	H	
62	P22	1c	O	H	
63	P21	1b	O	H	
64	P20	1a	O	H	

IC109 : YM3616
Signal Processor & Controller

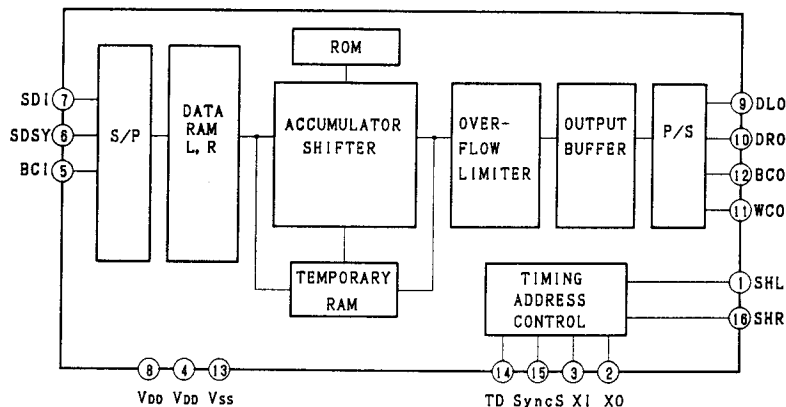
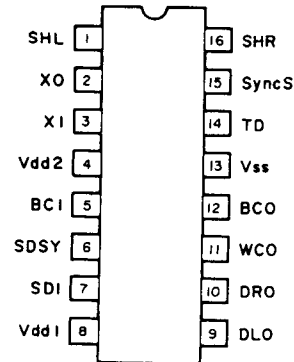
YM-3816 is a CMOS LSI for signal processing and servo control of the compact disc player. It executes such signal processing as demodulation of the EFM signal from the optical pick-up, detection and correction of the erroneous signal and digital filtering which helps to improve the sound quality, as 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	TROF	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	FEOF	O	Feed Servo System
25	FEM+	O	
26	FEM-	O	
23	CK	I/O	EFM Demodulated Signal Check Output (4.3218MHz clock)
27	DATA	I/O	Sub-code Output
28	DSY	I/O	
29	SUB	O	
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	RAM Connections
42	A1	O	
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	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	

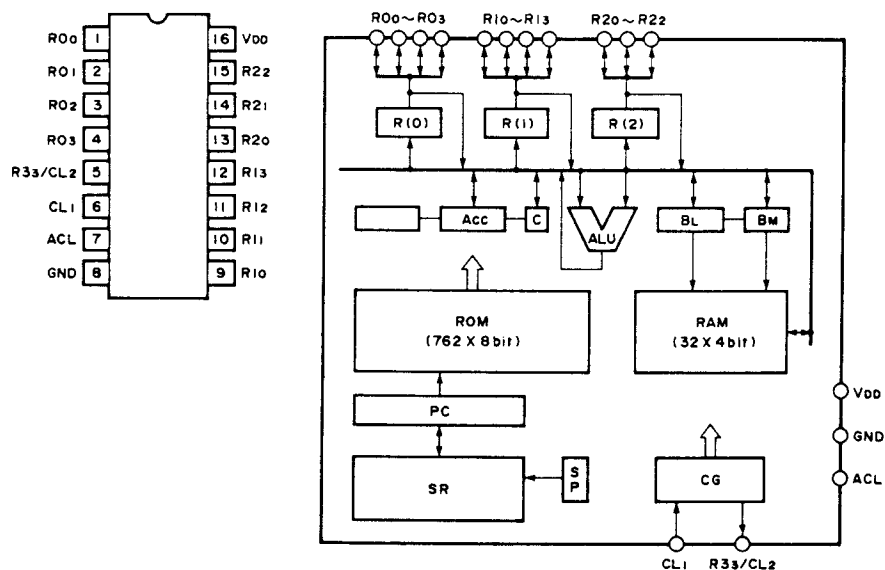
IC301: YM3414
Digital Filter



Pin Name	Pin No.	I/O	Description of function
SHL	1	O	At 1DAC (TD = 'L') : Deglitcher signal of Lch (when four-fold) At 2DAC (TD = 'H') : Deglitcher signal of L/Rch (when eight-fold)
X 0	2	O	Generates quarts oscillation between X1 and XO.
X 1	3	I	16.934MHz (Direct input into X1 from the external source is also possible.)
Vdd 2	4		+5V power source for quarts oscillation and deglitcher signal
BCI	5	I	Input terminal for bit clock of input data
SDSY	6	I	Clock to indicate L/Rch distinction of input data and input timing
SDI	7	I	Data input terminal
Vdd 1	8		+5V power source for digital signal system
DLO	9	O	At 1DAC (TD = 'L') : L and R ch data output terminal (when four-fold) At 2DAC (TD = 'H') : L ch data output terminal (when eight-fold)
DRO	10	O	R ch data output terminal
WCO	11	O	Word clock of output data DLO, DRO
BCO	12	O	Bit clock of output data
Vss	13		GND terminal
TD	14	I	1DAC/2DAC select terminal 1DAC (four-fold) = 'L' 2DAC (eight-fold) = 'H'
Sync S	15	I	Synchronous signal to absorb jitter in unsynchronous input (Syncs = 'H' : fully synchronous input = 'L' : SDSY prohibited)
SHR	16	O	R ch deglitcher signal at 1DAC

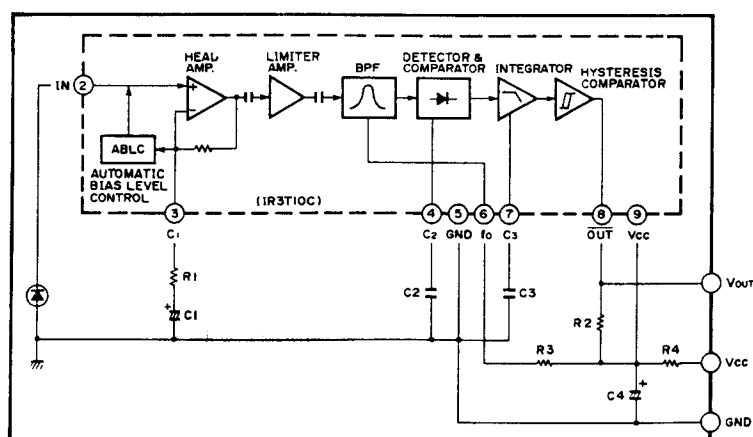
8
H
e
y
:
x

IC502: LU59521
4 bit μ -COM

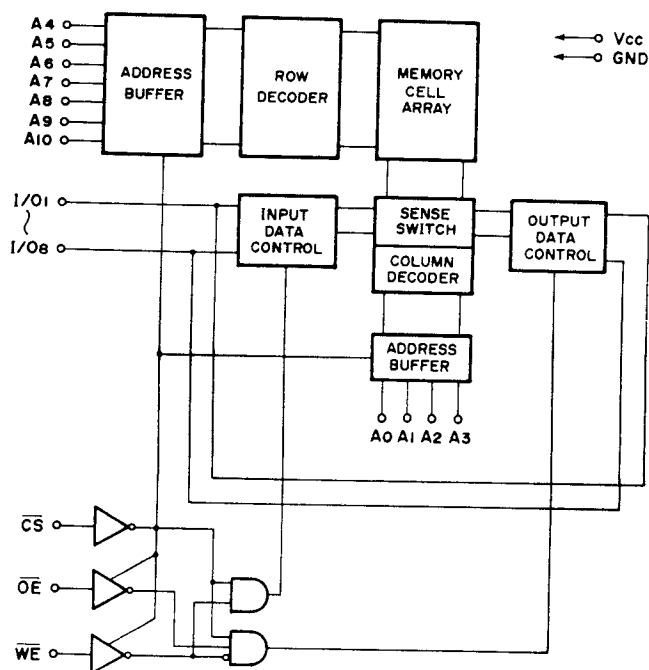
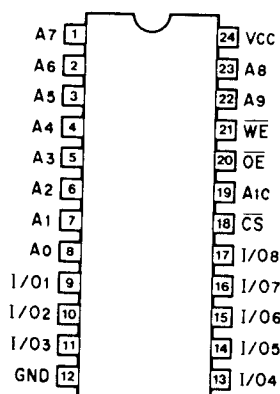


FUNCTION	CONTROL CODE								FUNCTION	CONTROL CODE							
	0	1	2	3	4	5	6	7		0	1	2	3	4	5	6	7
OPEN / CLOSE	01	1	0	0	0	0	0	0	10	0	0	0	0	0	1	0	0
PLAY	02	0	1	0	0	0	0	0	11	1	0	0	0	0	1	0	0
KK	04	0	0	1	0	0	0	0	12	0	1	0	0	0	1	0	0
◀◀	05	1	0	1	0	0	0	0	13	1	1	0	0	0	1	0	0
▶▶	06	0	1	1	0	0	0	0	14	0	0	1	0	0	1	0	0
◀▶	07	1	1	1	0	0	0	0	15	1	0	1	0	0	1	0	0
REPEAT S/F	08	0	0	0	1	0	0	0	16	0	1	1	0	0	1	0	0
TIME DISP	0A	0	1	0	1	0	0	0	17	1	1	1	0	0	1	0	0
INDEX	0B	1	1	0	1	0	0	0	18	0	0	0	1	0	1	0	0
PROGRAM MAN'L	0C	0	0	1	1	0	0	0	19	1	0	0	1	0	1	0	0
" DELETE	0E	0	1	1	1	0	0	0	20	2A	0	1	0	1	0	1	0
0	10	0	0	0	0	1	0	0	21	2B	1	1	0	1	0	1	0
1	11	1	0	0	0	1	0	0	22	2C	0	0	1	1	0	1	0
2	12	0	1	0	0	1	0	0	23	2D	1	0	1	1	0	1	0
3	13	1	1	0	0	1	0	0	24	2E	0	1	1	1	0	1	0
4	14	0	0	1	0	1	0	0	PAUSE	1E	0	1	1	1	1	0	0
5	15	1	0	1	0	1	0	0	STOP	1F	1	1	1	1	1	0	0
6	16	0	1	1	0	1	0	0	PROGRAM TAPE	0F	1	1	1	1	0	0	0
7	17	1	1	1	0	1	0	0	Hi - Bit	38	0	0	0	1	1	1	0
8	18	0	0	0	1	1	0	0									
9	19	1	0	0	1	1	0	0									
+10	1A	0	1	0	1	1	0	0									
PROGRAM AUTO	1B	1	1	0	1	1	0	0									

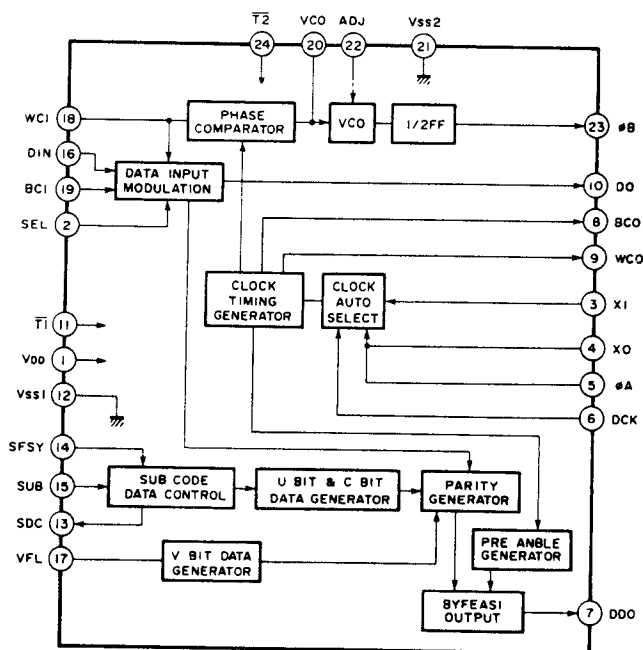
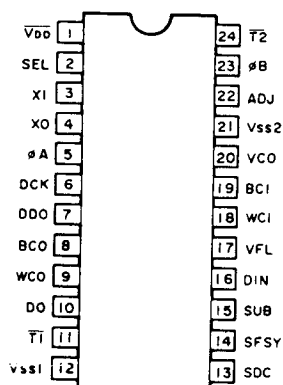
U501: GP1U521
Receiver Unit



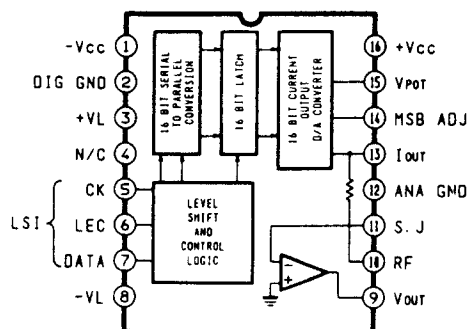
IC110: μ PD4016-CX, LC3517B-15, TMM2015BP,
TMM2016BP, CXK5816SP, CXK5816PS or
CXK5816PN
2048-Word x 8 bit Static RAM



IC111: YM3613B
Digital Audio Interface Transmitter (DIT)



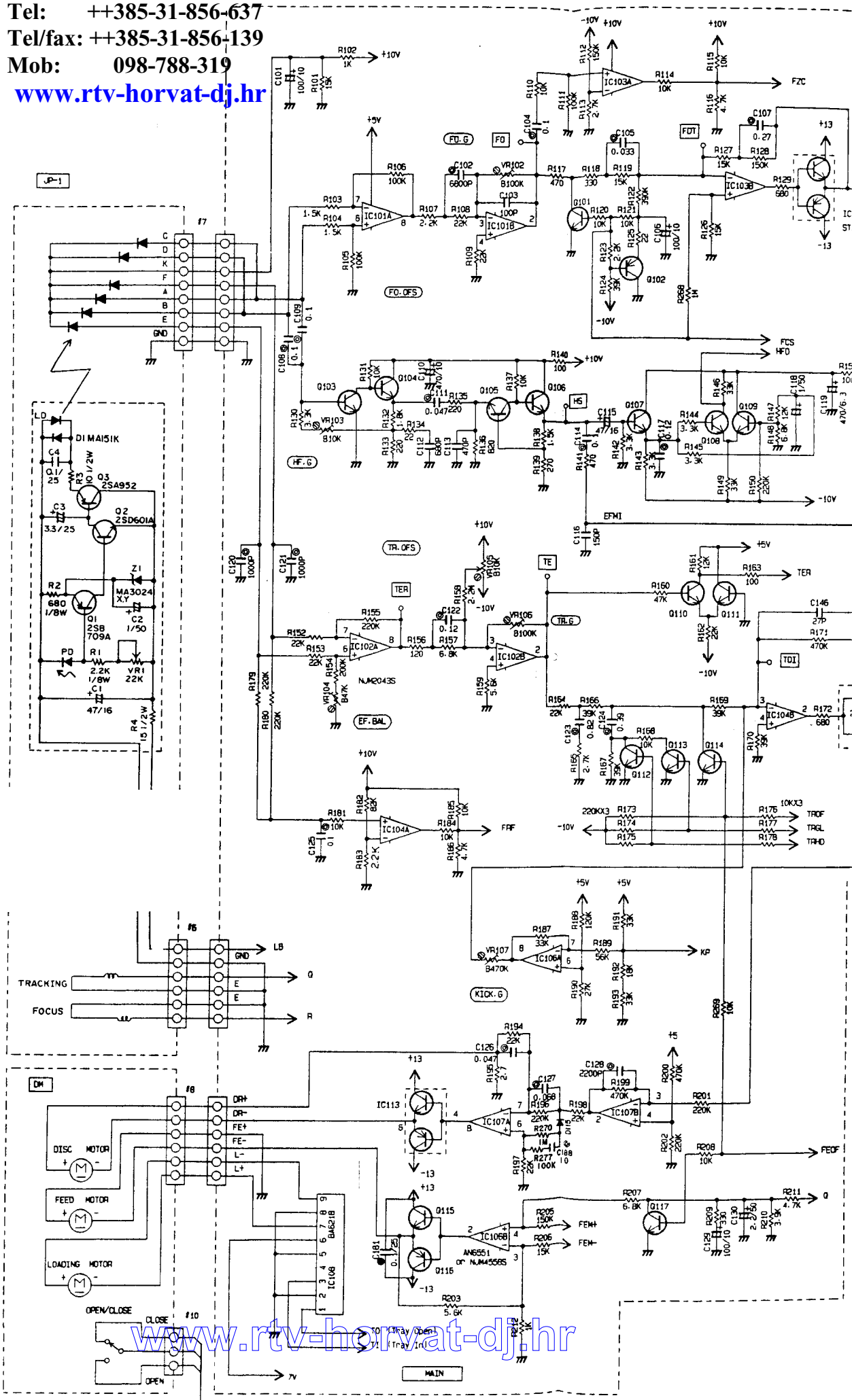
IC302, 303: PCM56L
D/A Converter

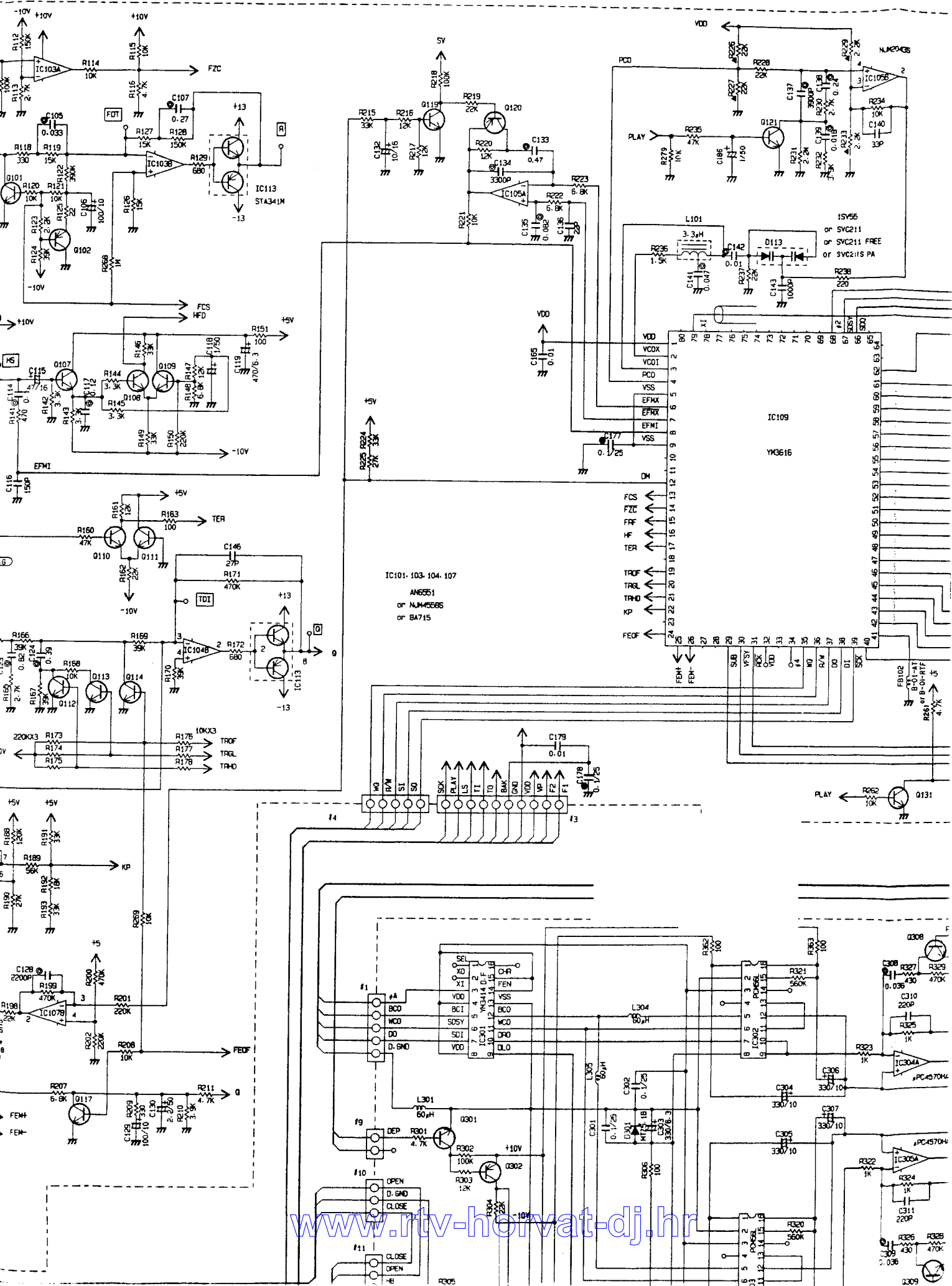


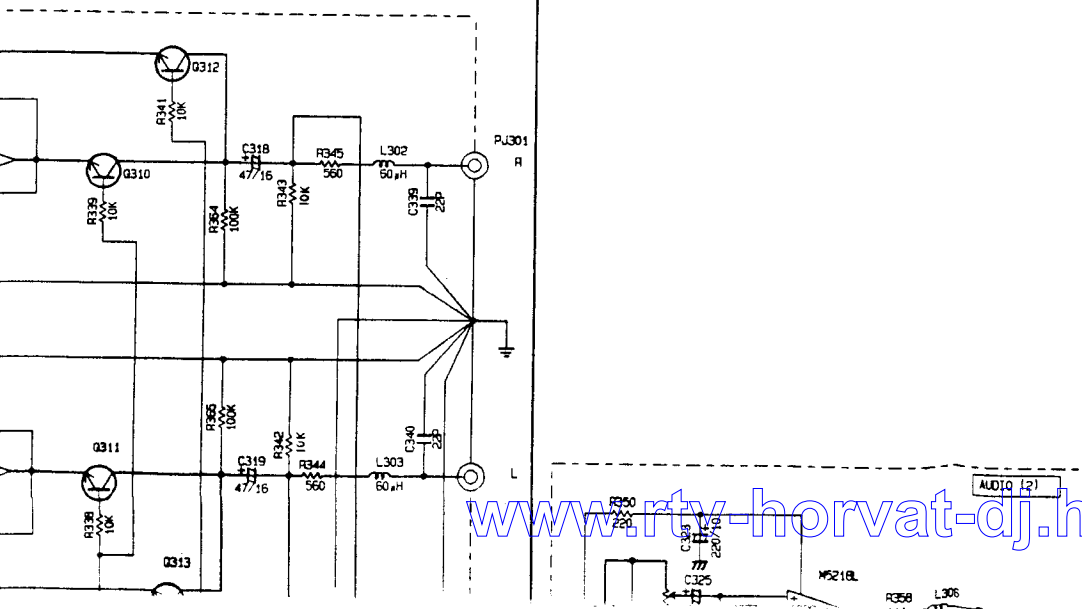
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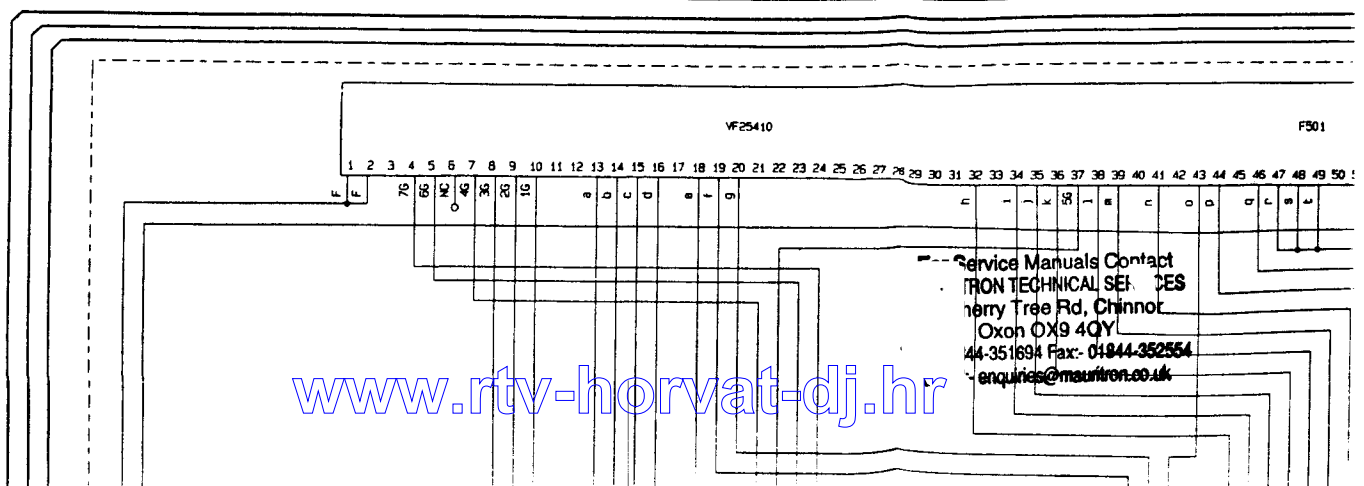
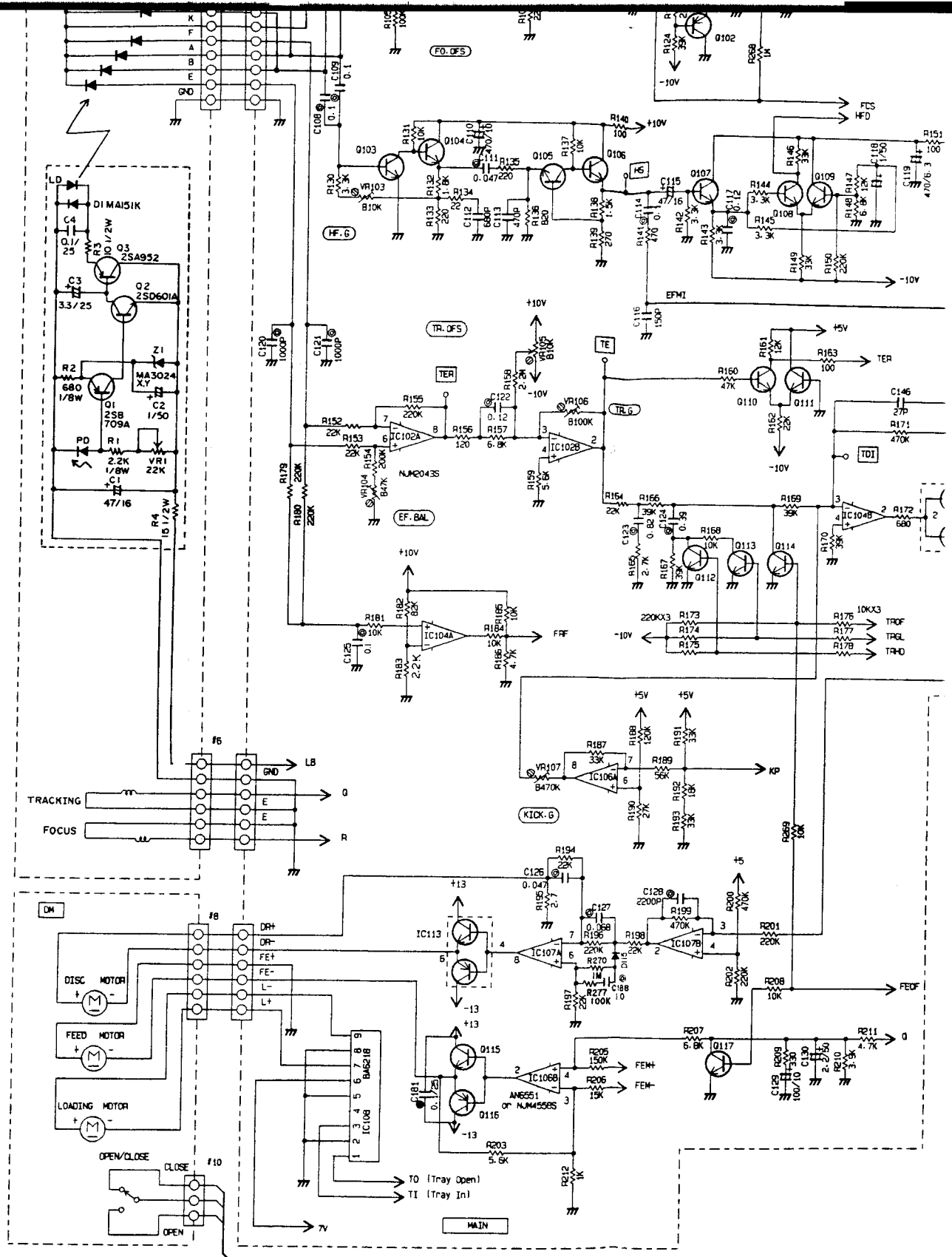
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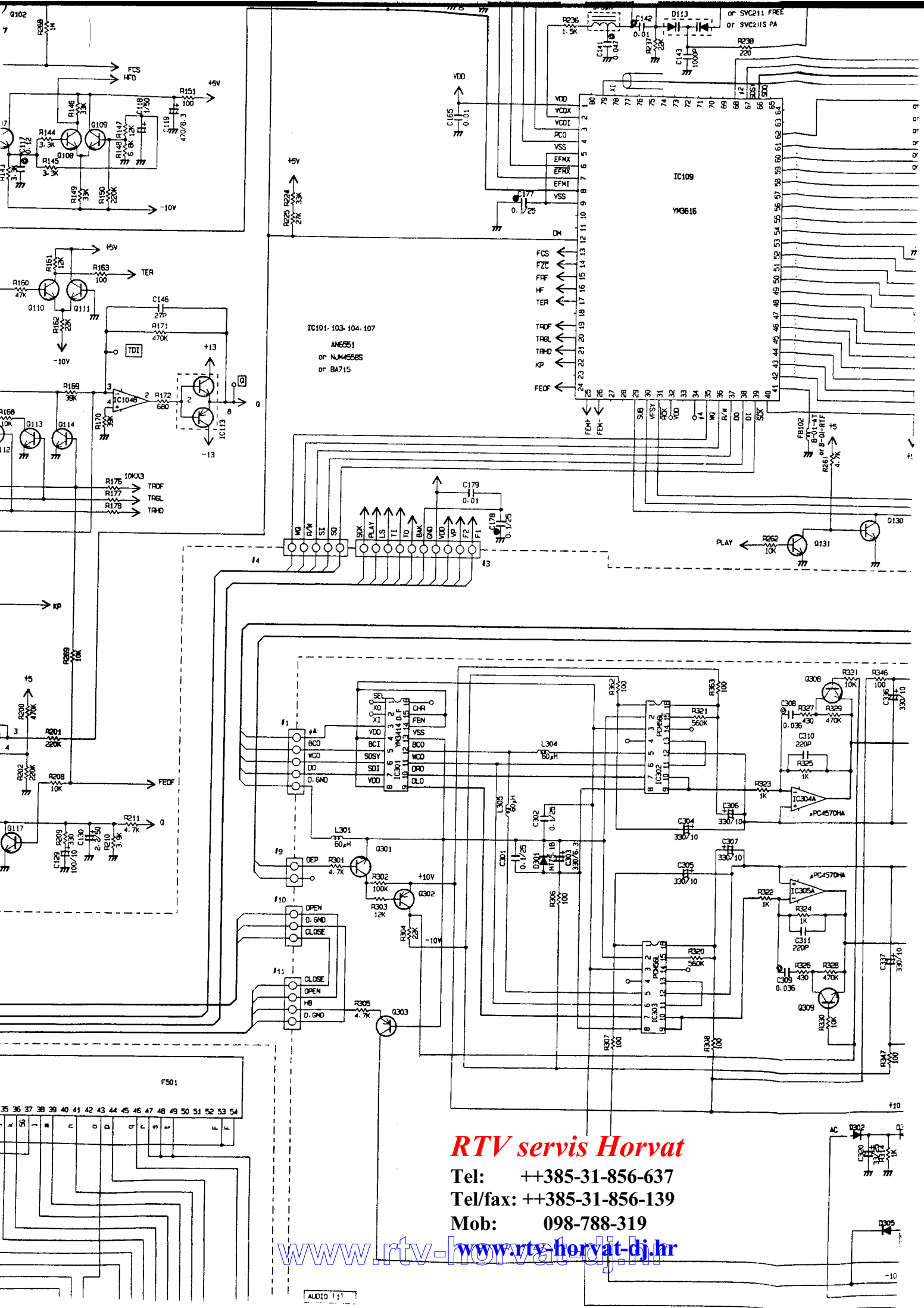
www.rtv-horvat-dj.hr











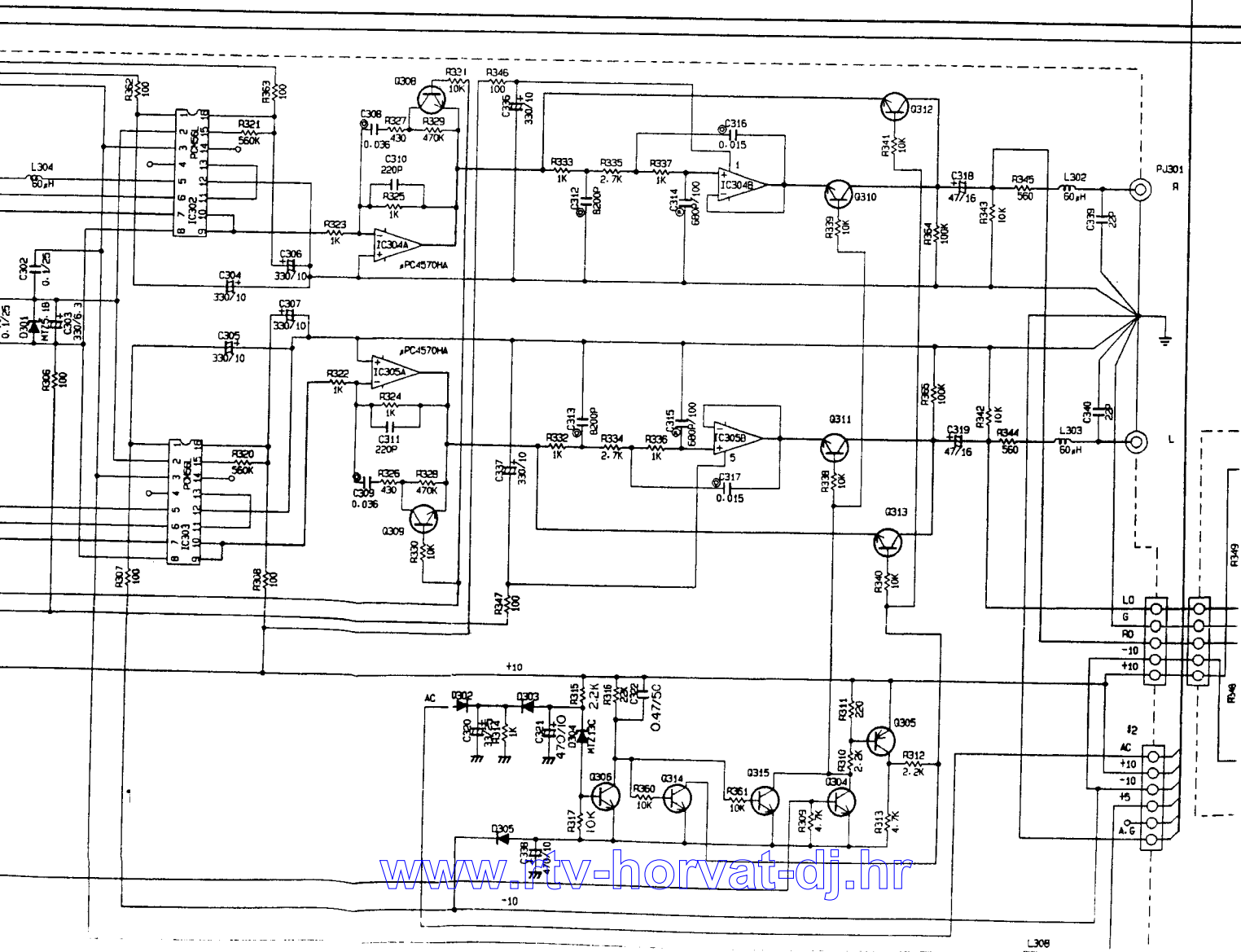
RTV servis Horvat

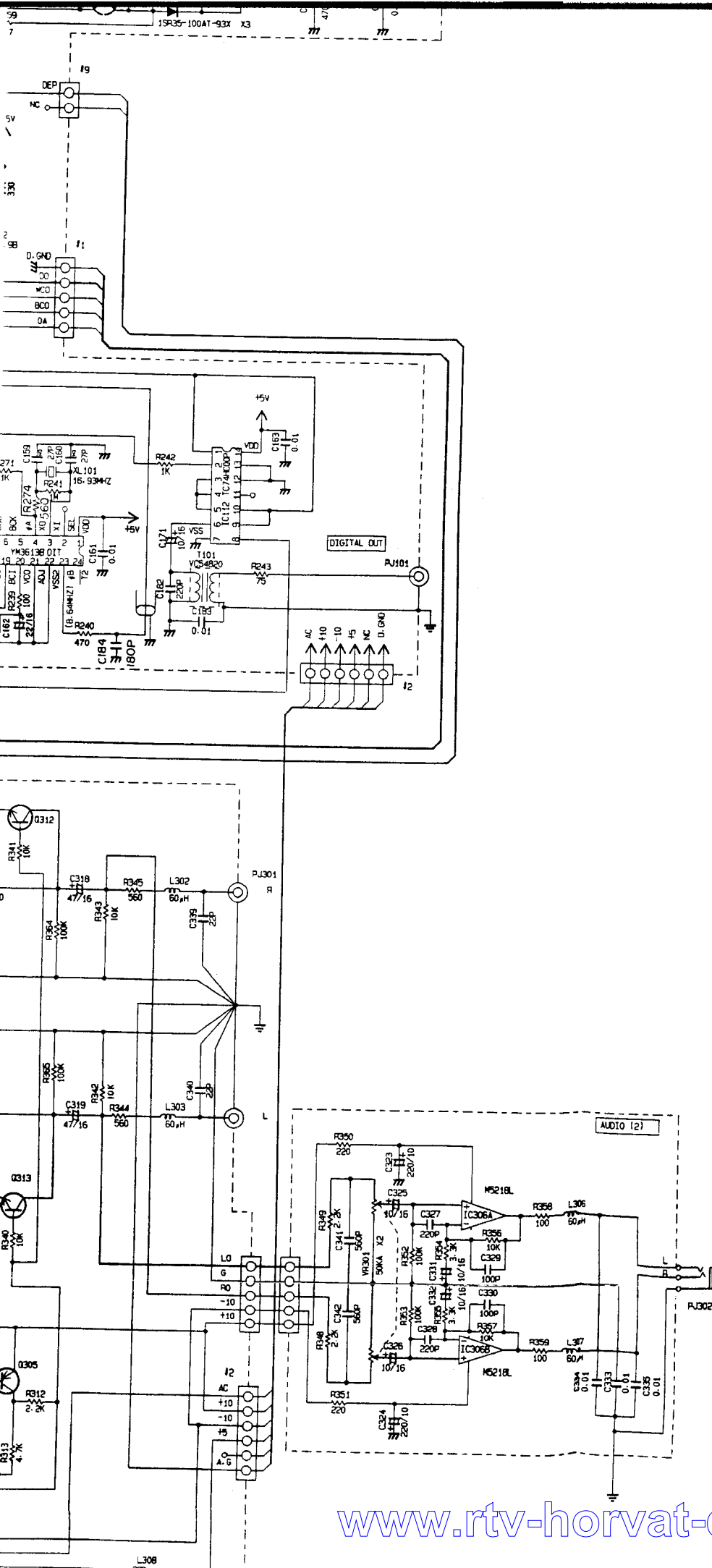
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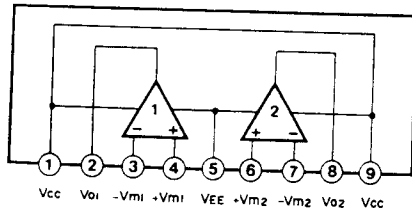
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www.rtv-horvat-dj.hr

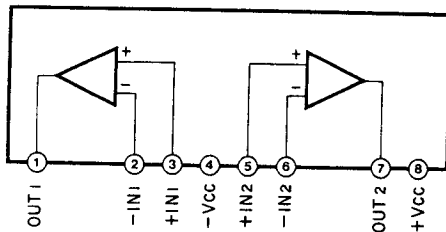




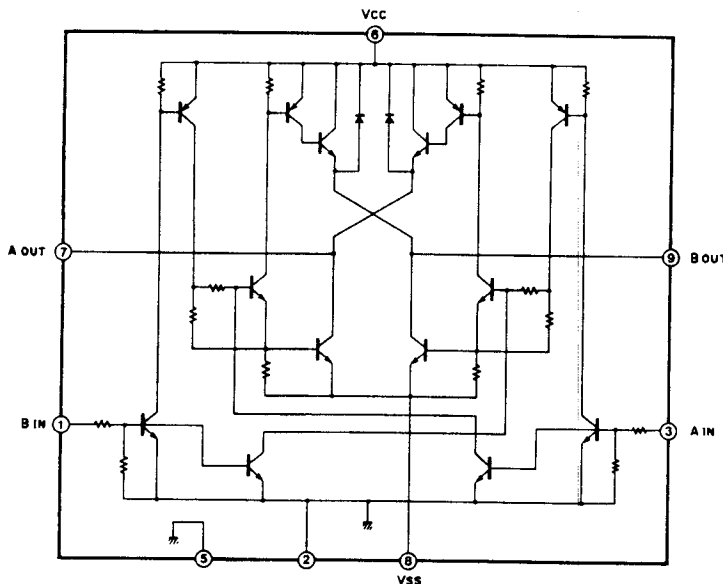
IC101, 103, 104, 107: AN6551, NJM4558S or BA715
 IC106: AN6551 or NJM4558S
 IC102, 105: NJM2043S
 IC304, 305: μ PC4570HA
 Dual Ope-amp



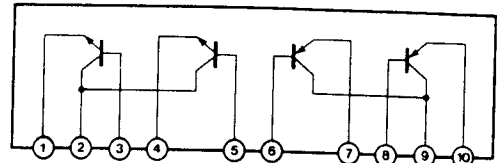
IC306: M5218L
 Dual Ope-amp



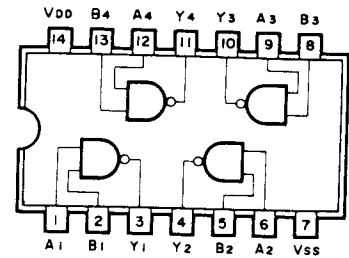
IC108: BA6218
 Motor Driver



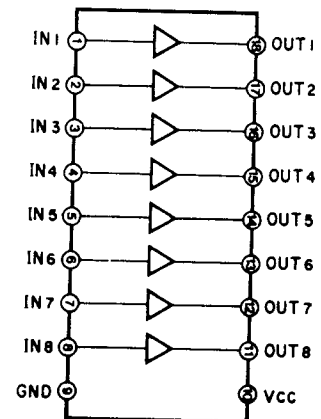
IC113: STA341M
 Transistor Array



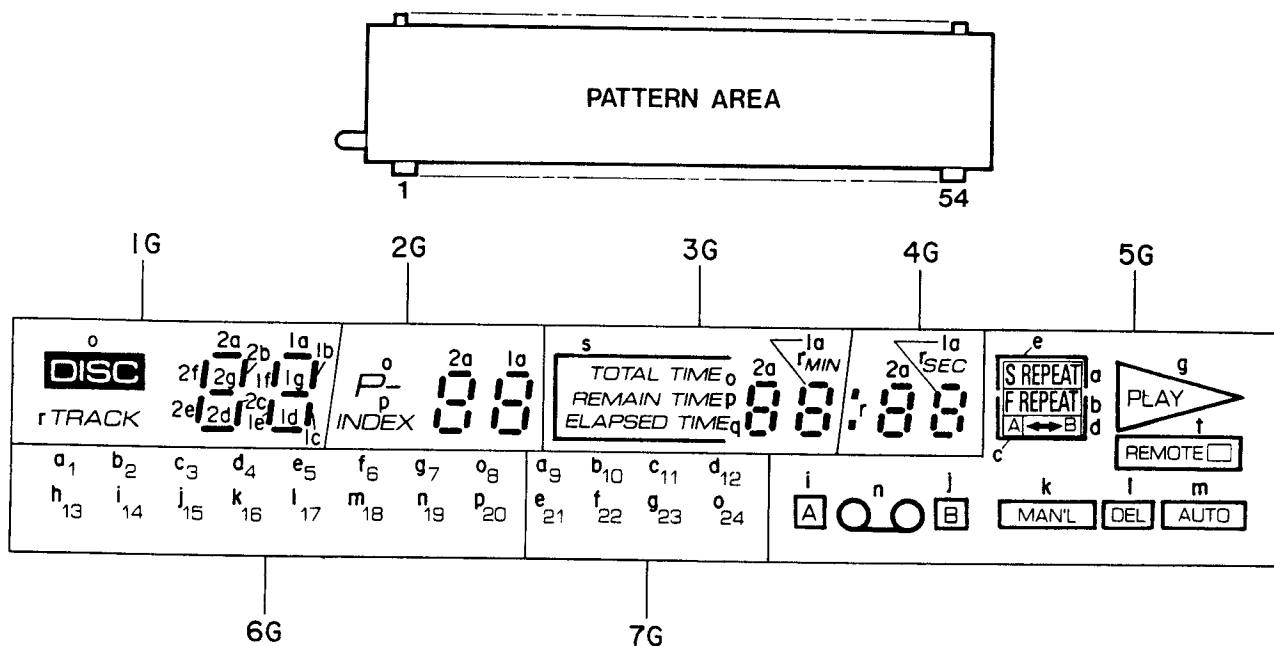
IC112: TC74HC00P
 Quad 2-Input NAND Gate



IC503 ~ 505: M54564P
 LED Driver



■ DISPLAY DATA (F501 : VF25140)



PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
CONNECTION	F	F	N P	7 G	6 G	N P	4 G	3 G	2 G	1 G	N P	N P	a	b	c	d	N P	e	f	g	N P	N P	N P	N P	N P	N P	N P	N P	N P	N P	N P	h	N P	i	j

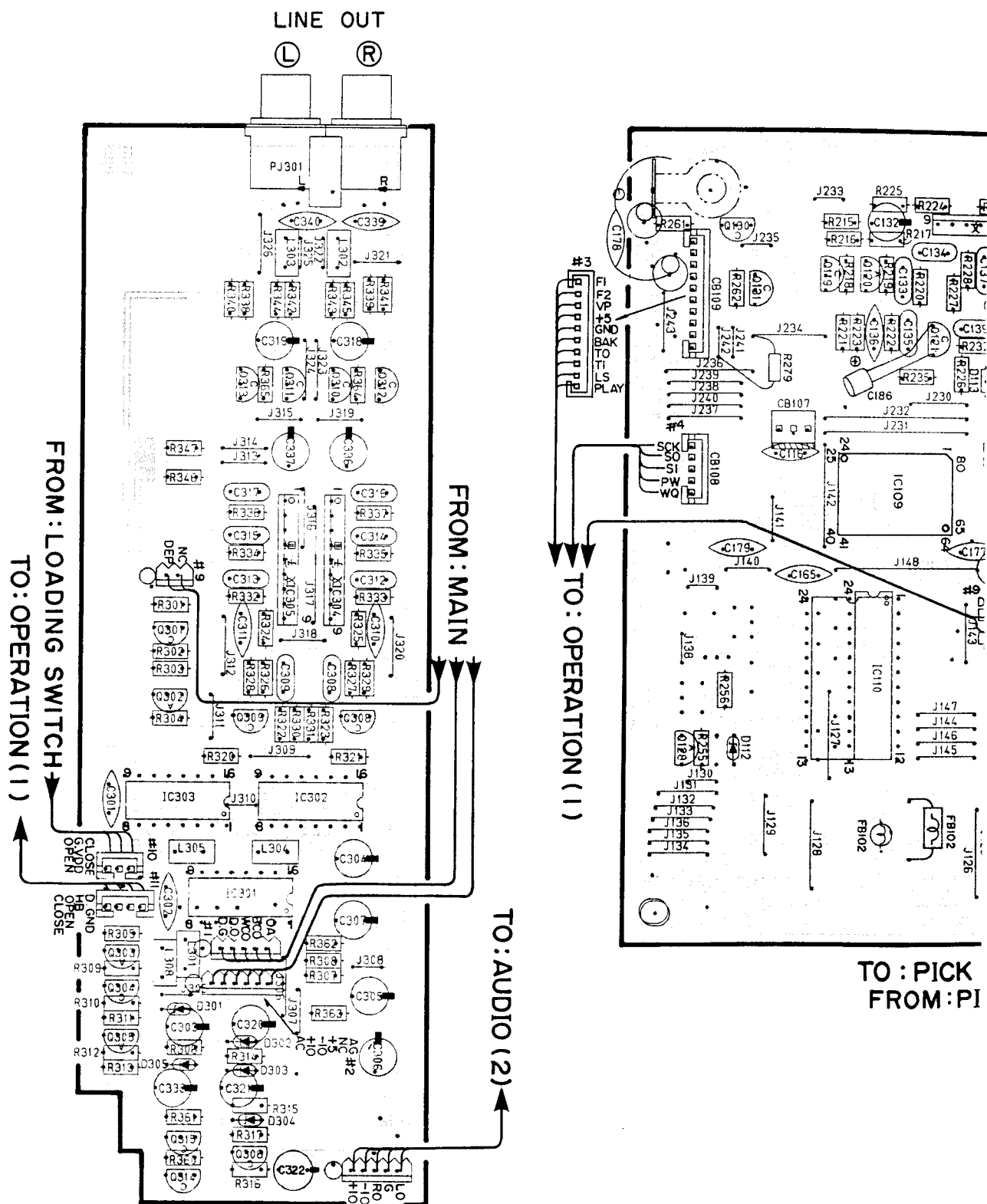
PIN NO.	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
CONNECTION	k	5 G	l	m	N P	n	N P	o	p	N P	q	r	s	t	N P	N P	N P	F	F

	7G	6G	5G	4G	3G	2G	1G
a	9	1	S REPEAT	1a	1a	1a	1a
b	10	2	F REPEAT	1b	1b	1b	1b
c	11	3	A	1c	1c	1c	1c
d	12	4	↔ B	1d	1d	1d	1d
e	21	5	[]	1e	1e	1e	1e
f	22	6	-	1f	1f	1f	1f
g	23	7	PLAY	1g	1g	1g	1g
h	-	13	[]	2a	2a	2a	2a
i	-	14	A	2b	2b	2b	2b
j	-	15	B	2c	2c	2c	2c
k	-	16	MAN'L	2d	2d	2d	2d
l	-	17	DEL	2e	2e	2e	2e
m	-	18	AUTO	2f	2f	2f	2f
n	-	19	Q O	2g	2g	2g	2g
o	24	8	-	-	TOTAL TIME	P -	DISC
p	-	20	-	-	REMAIN TIME	INDEX	-
q	-	-	-	-	ELAPSED TIME	-	-
r	-	-	-	-	:SEC	-	TRACK
s	-	-	-	-	[]	-	-
t	-	-	REMOTE	-	-	-	-

■ PRINTED CIRCUIT BOARD (Pattern side)

Note) 文字面 : Component side

Audio Circuit Board (1)

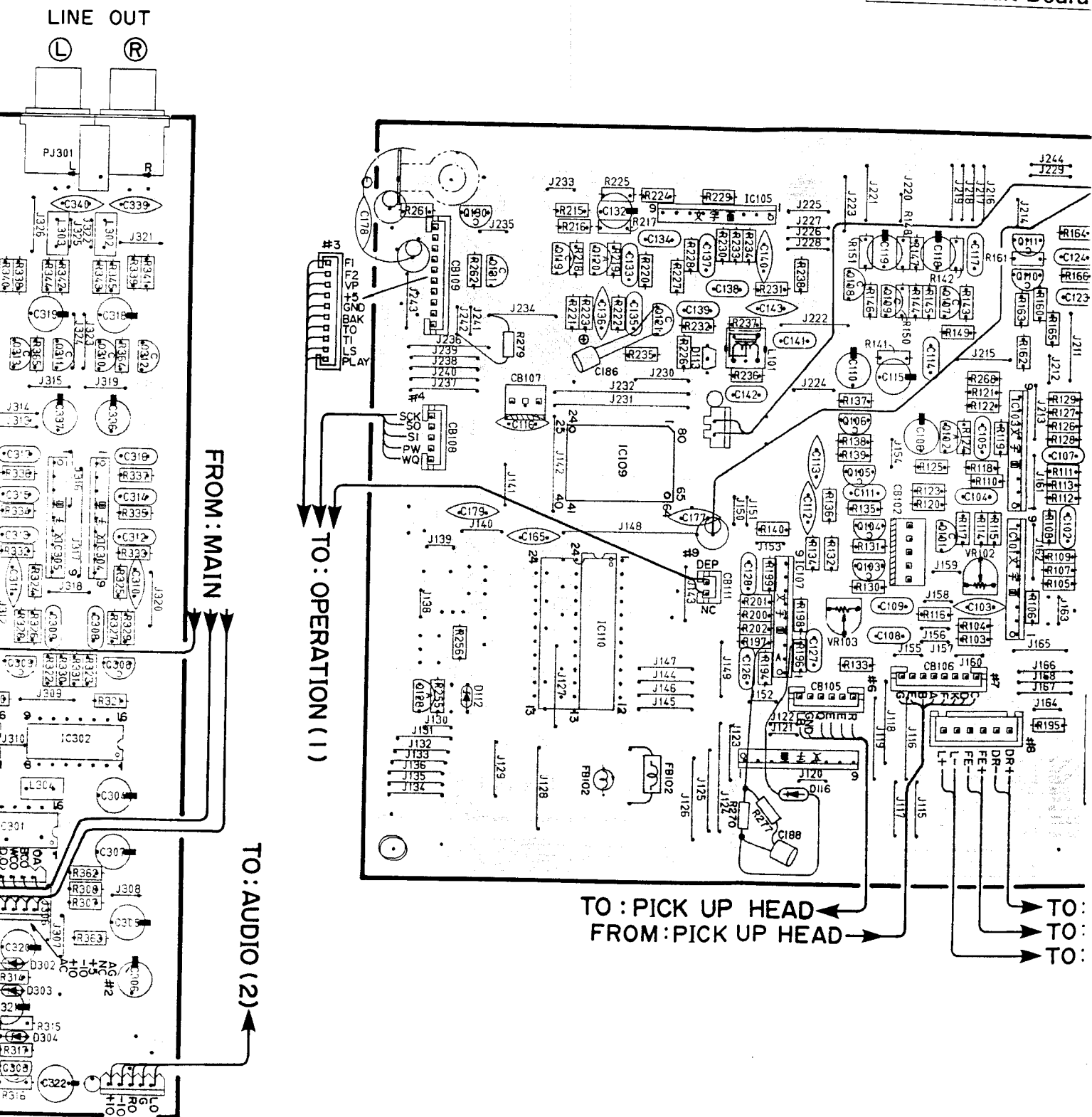


Circuit Board (Pattern side)

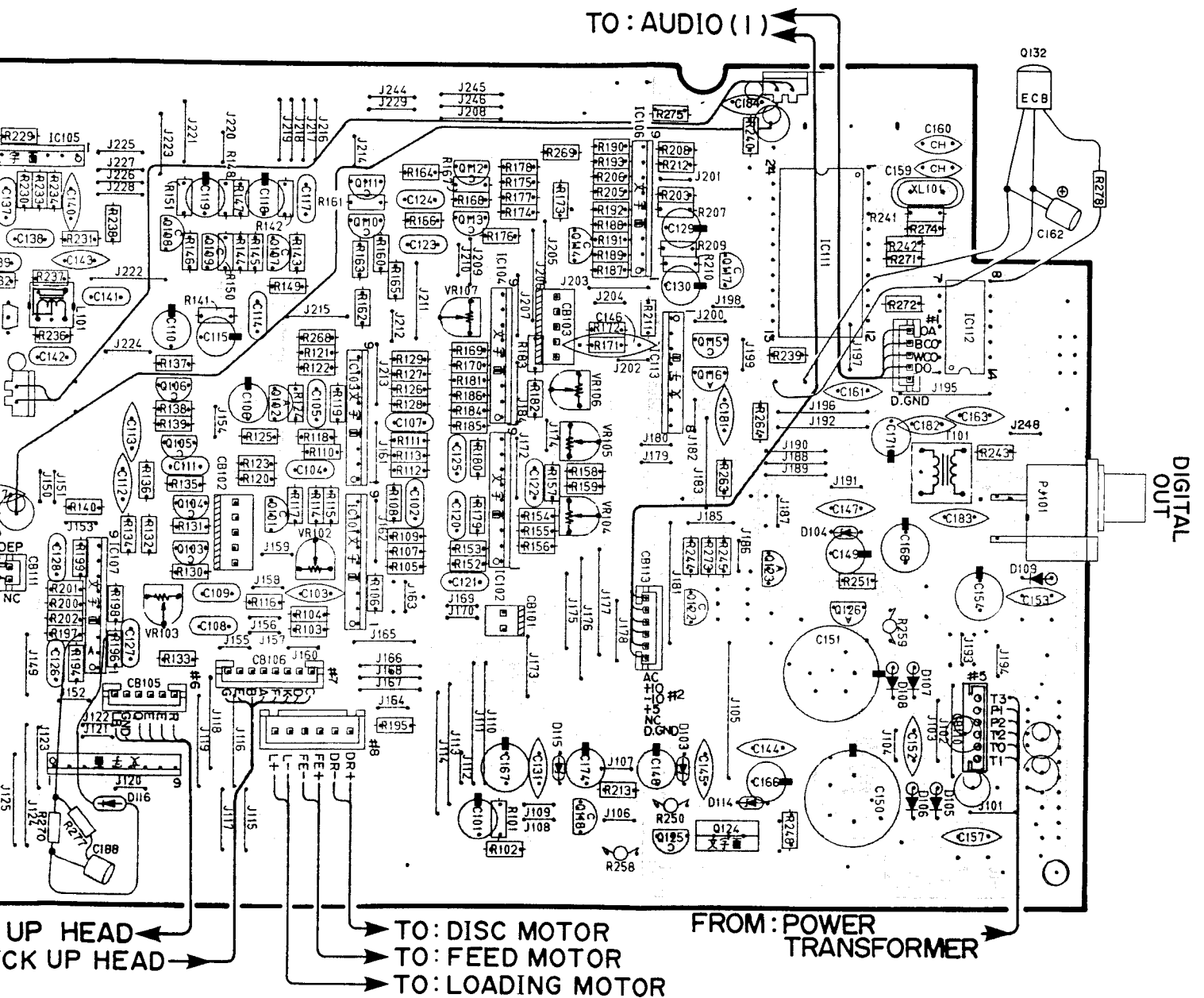
side

Circuit Board (1)

Main Circuit Board



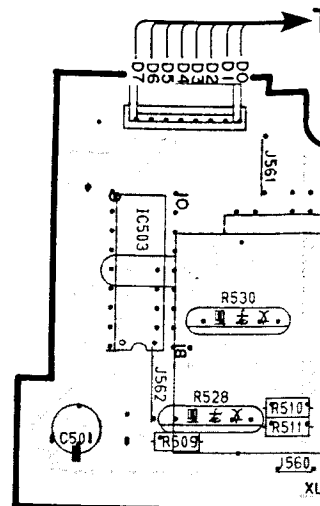
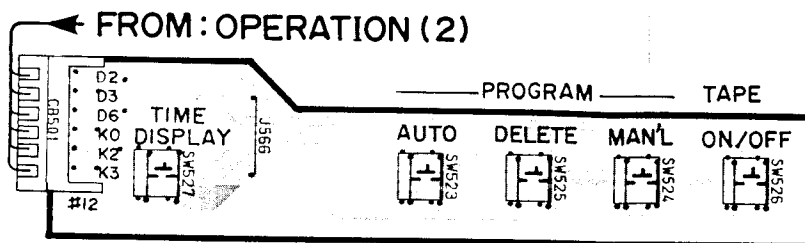
Main Circuit Board



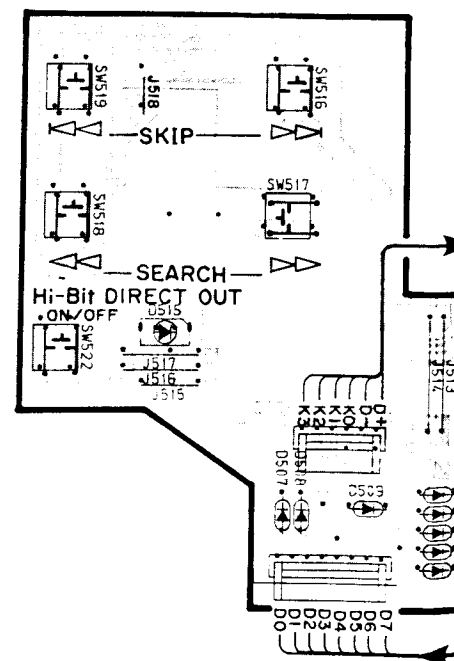
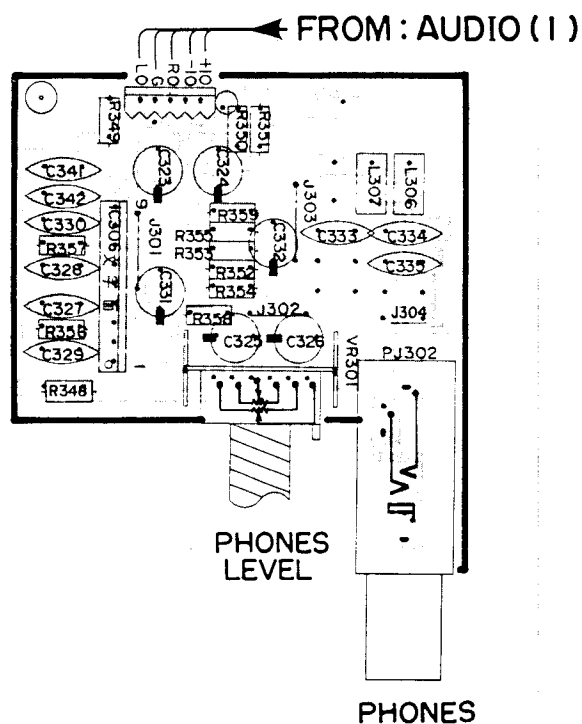
PRINTED CIRCUIT BOARD (Pattern side)

Note) 文字面 : Component side

Operation Circuit Board (3)



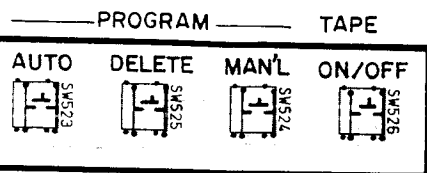
Audio Circuit Board (2)



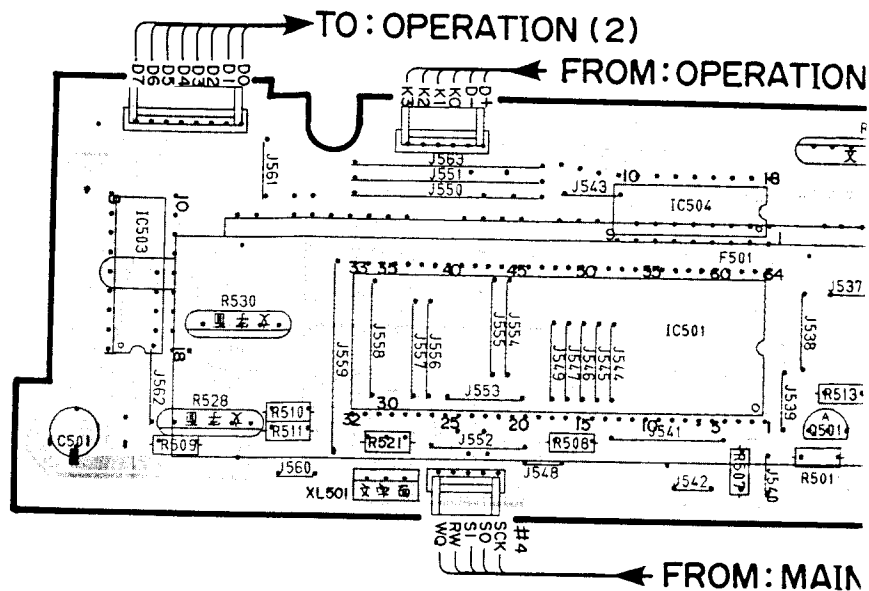
BOARD (Pattern side)

(3)

N (2)

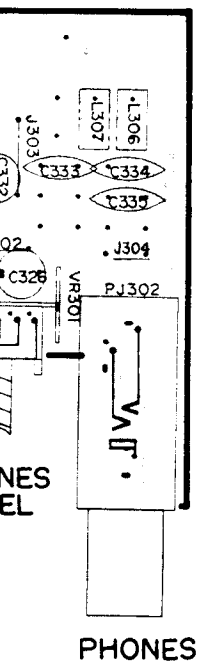


Operation C

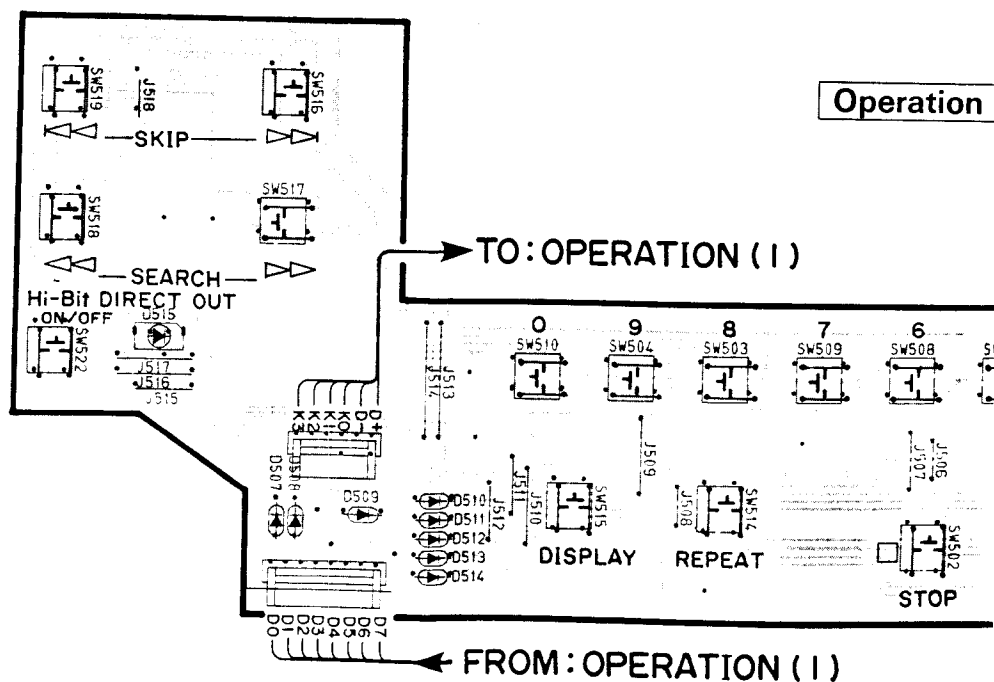


Board (2)

FROM: AUDIO (1)

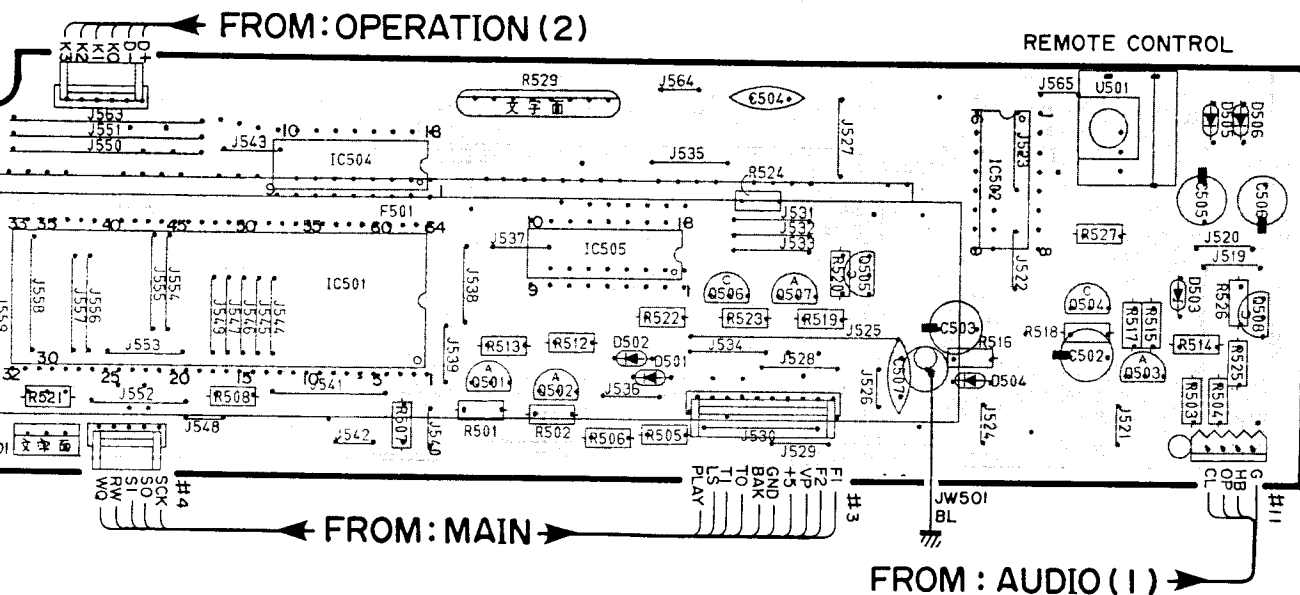


Operation



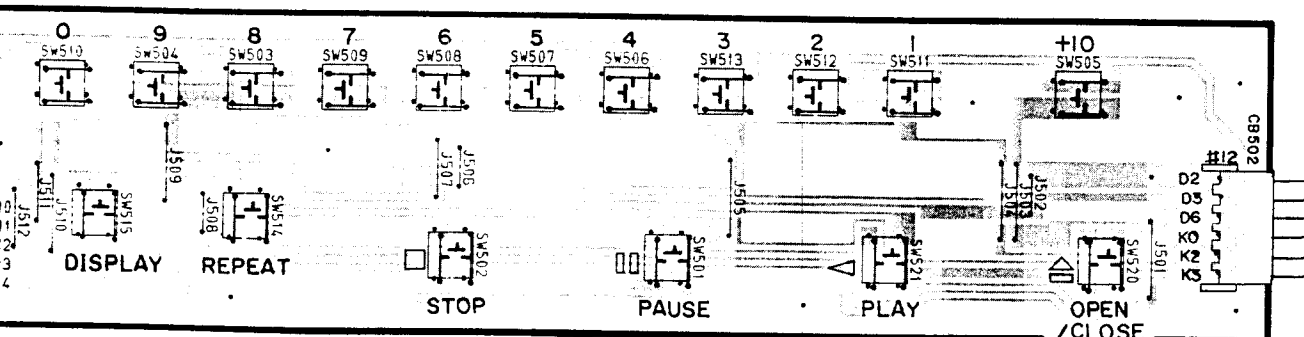
Operation Circuit Board (1)

TO: OPERATION (2)



Operation Circuit Board (2)

TO: OPERATION (1)

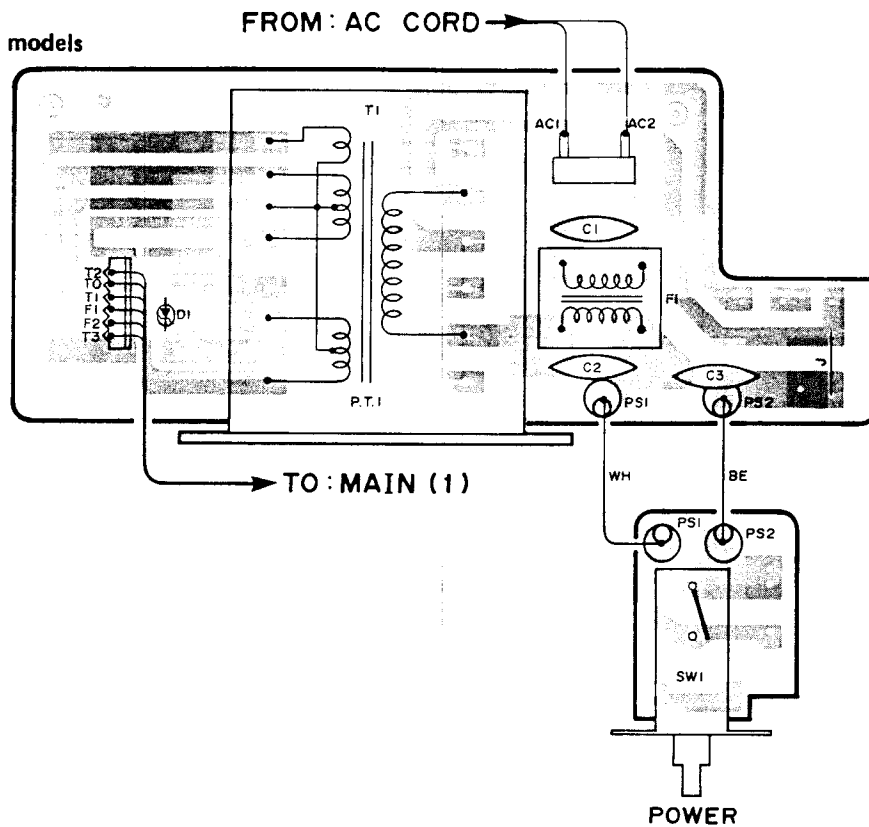


FROM: OPERATION (1)

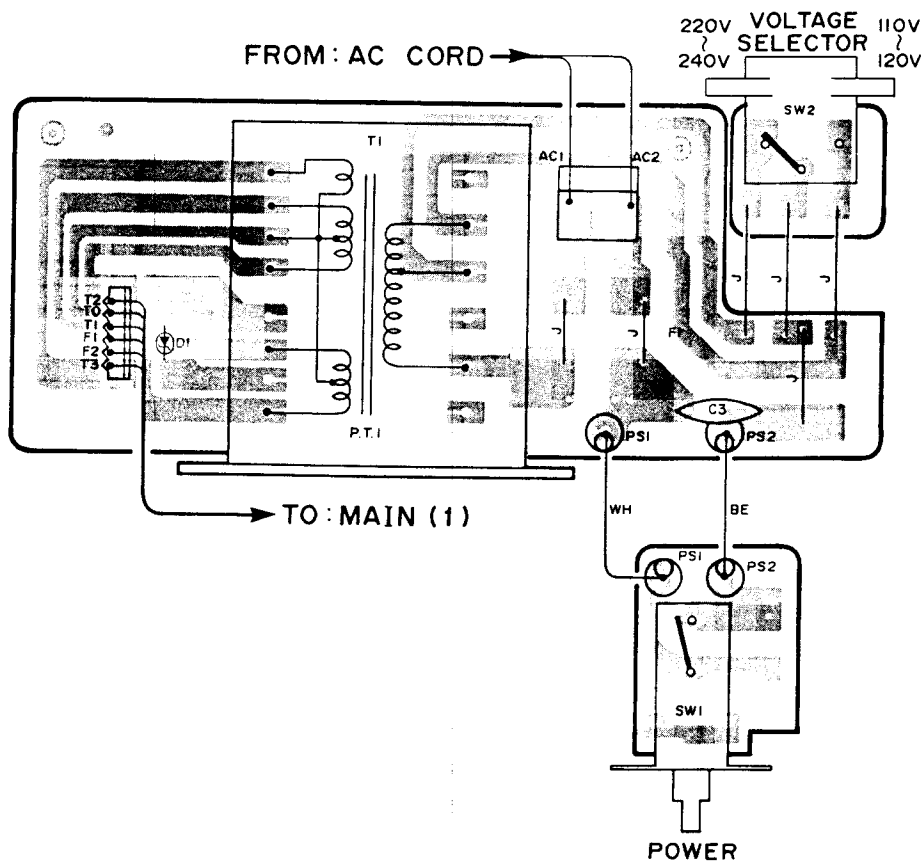
PRINTED CIRCUIT BOARD (Pattern side)

Power Supply Unit

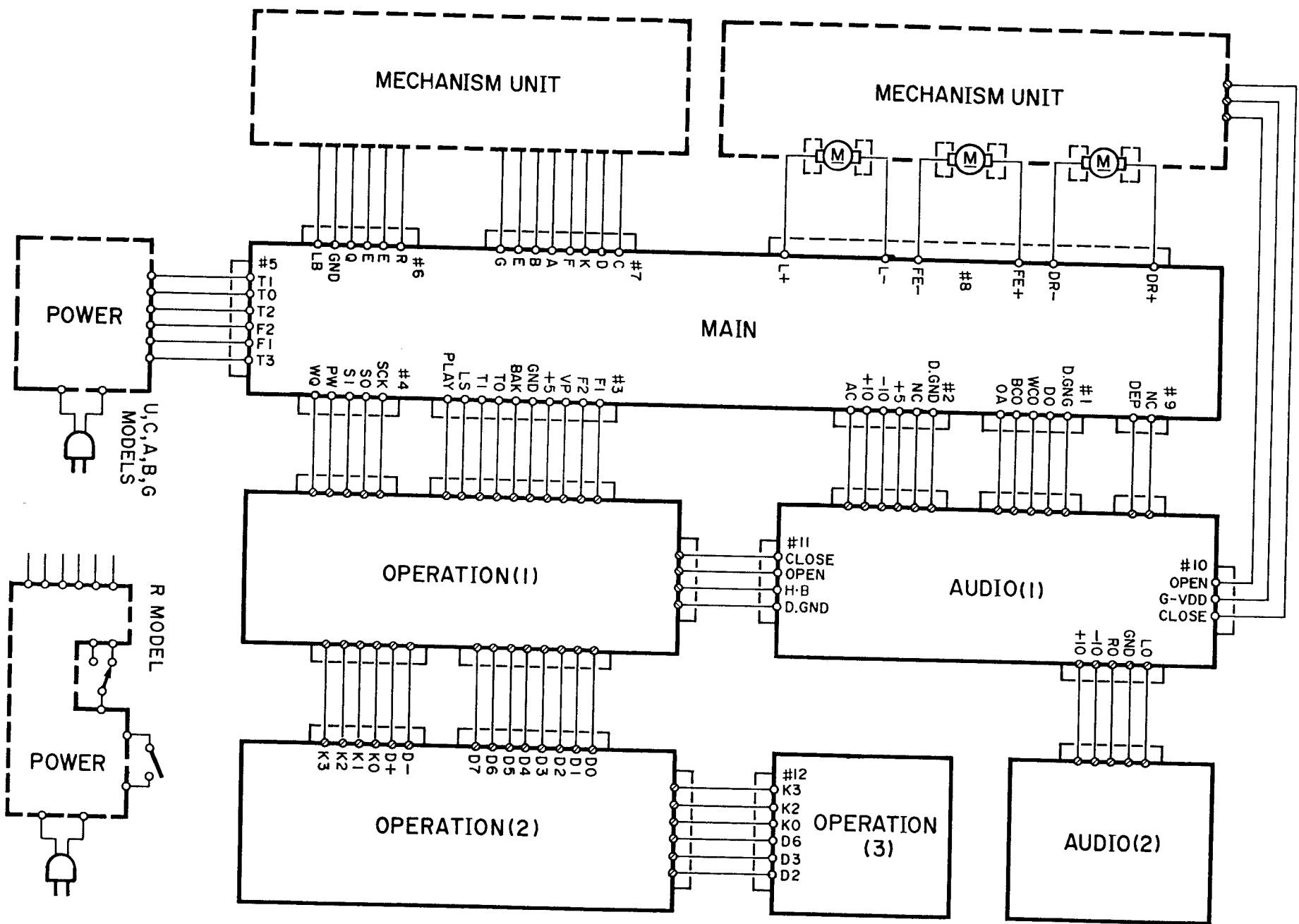
• U, C, A, B, G models



• R model

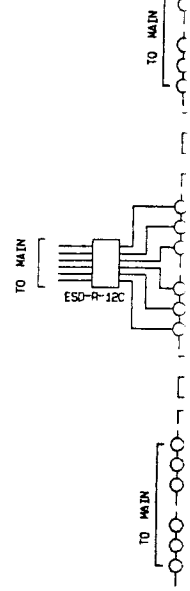
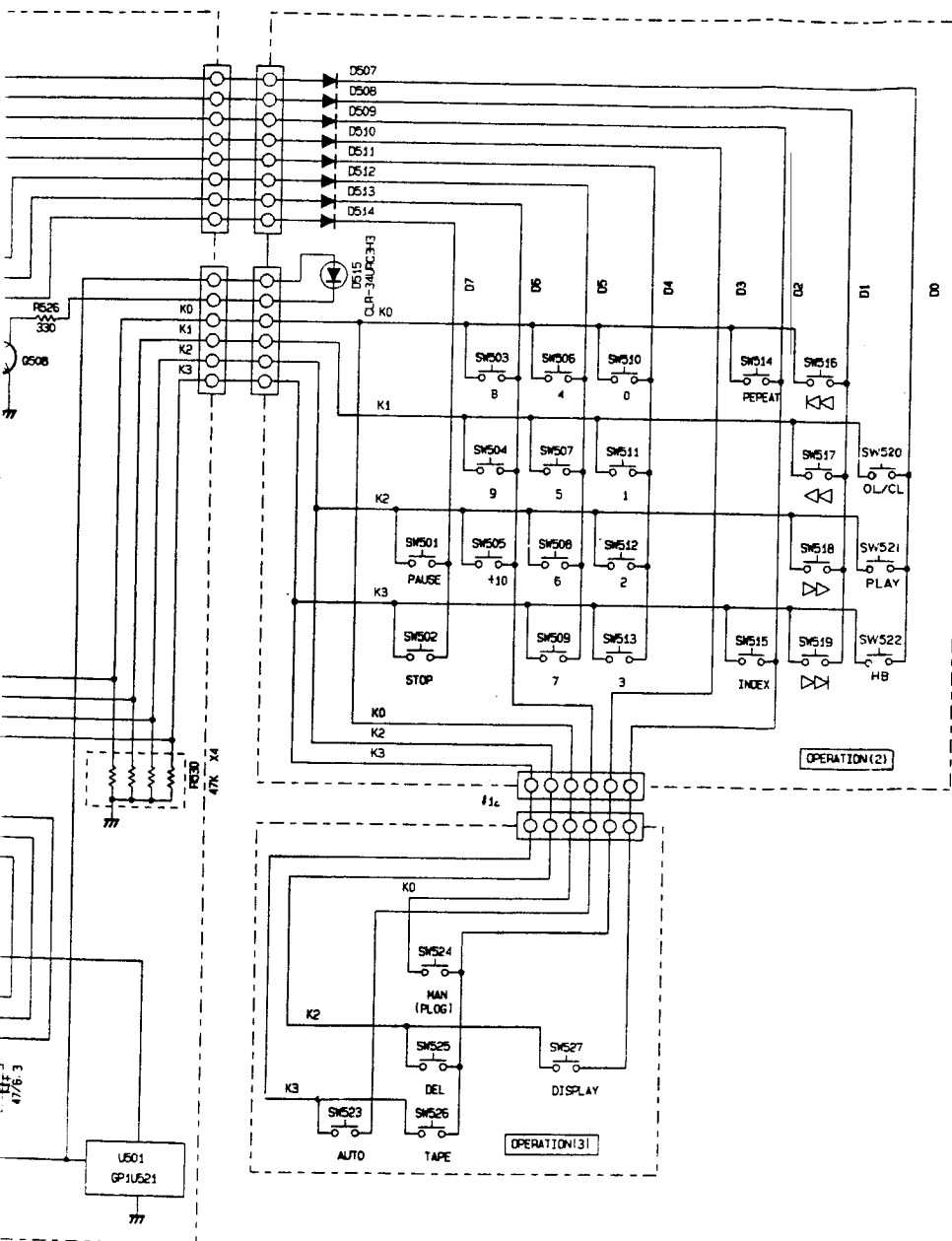
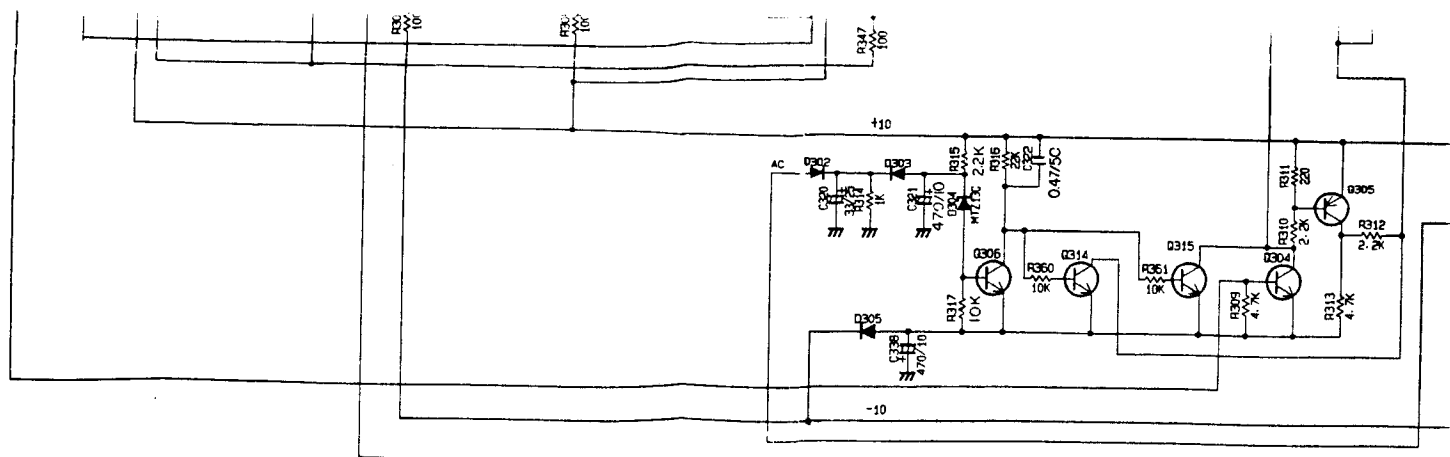


■ WIRING

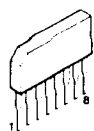




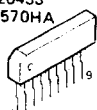
Q10 111



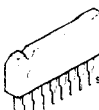
M5218L



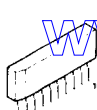
BA715
AN6551
NJM4558S
NJM2043S
μPC4570HA



BA6218



STA451M



TC74HC00P

YM3414
PCM56J

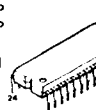
LU59521



M54564P

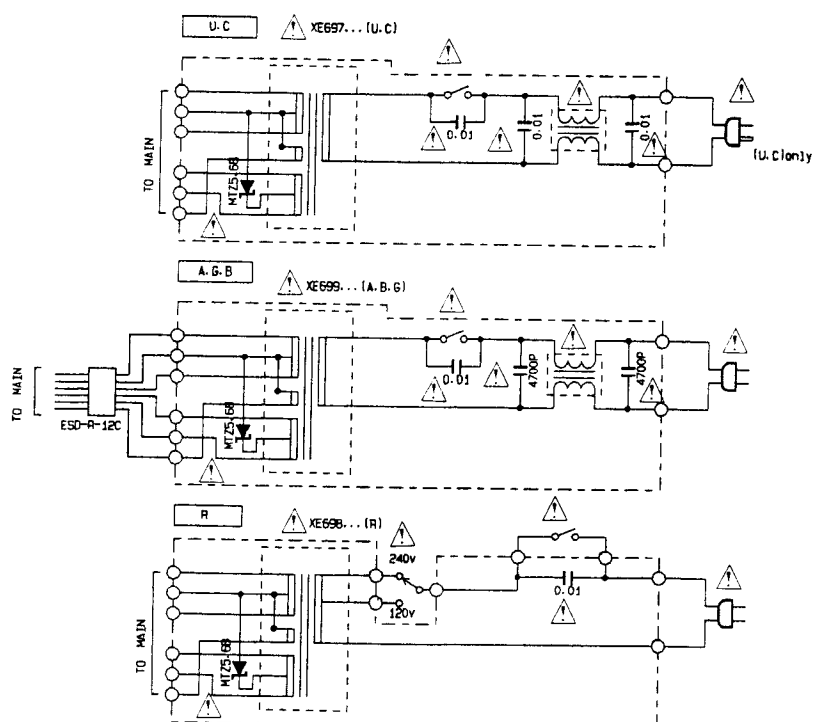
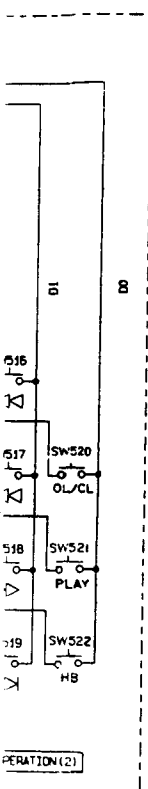
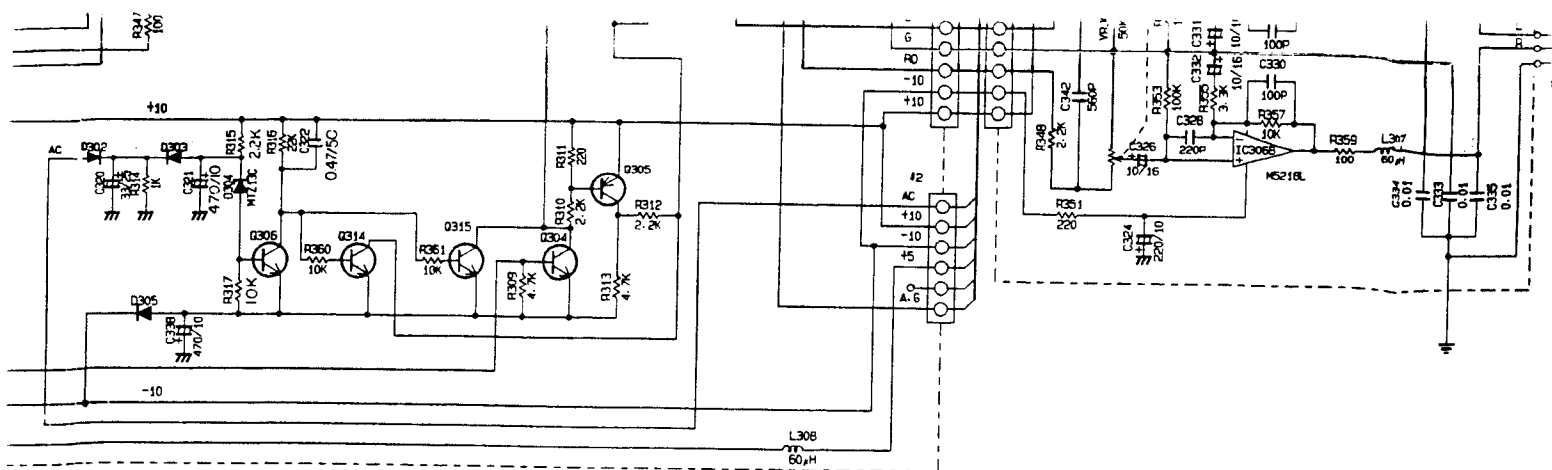


YM3613B
μPD4016-CX
LC3517B-15
TMM2015BP
TMM2016BP
CXK5816SP
CXK5816PN
CXK5816PS



M50747

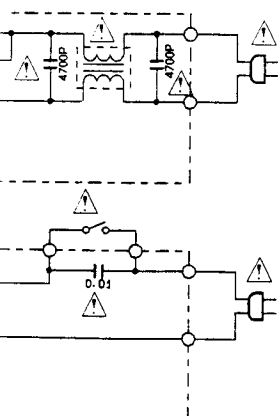




NO
(U).
(C).
(A).
(G).
(B).
(R).

LU59521	M54564P	YM3613B μPD4016-CX LC3517B-15 TMM2015BP TMM2016BP CXK5816SP CXK5816PN CXK5816PS	M50747	YM3816
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Unless otherwise specified

PNP TRANSISTOR	
NPN TRANSISTOR	
DIODE	1SS133

0504-505-508	2SC2603(E.F)
0501-503-507	2SA1115(E.F)
Q102-120 128	2SA933S(G.R) or 2SA1115(E.F) or 2SA1310(R.S.T)
Q116-123-126	2SA934 or 2SB544 or 2SB1240
Q112-114-506	2SC2878(A.B)
Q101-104-106-111 117-119-121-122 130-131-132	2SC1740S(S.R) or 2SC2603(E.F) or 2SC3312(R.S.T)
Q115-118-125	2SC2060 or 2SD400
Q124	2SC1983
Q103-105	2SC535(A.B.C)
Q302-303-305	2SA933S(G.R) or 2SA1115(E.F) or 2SA1310(R.S.T)
Q301-304-306 314-315	2SC1740S(S.R) or 2SC2603(E.F) or 2SC3312(R.S.T)
Q308-309	2SC2878(A.B) or 2SC3327 or 2SD1915
Q310-313	2SD1915(T)

OPERATION

	LAST NO.	UN LISTED NO.
C	5	
R	8	
D	4	
IC	5	

MAIN

	LAST NO.	UN LISTED NO.
C	188	156-158-154-185 172-173-175-176
IC	113	104
D	132	
R	279	204-214-246-247 249-252-257-265
D	115	101-102

RESISTOR

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (1/6W)
☑	CARBON FILM RESISTOR
△	METAL OXIDE FILM RESISTOR
▲	METAL FILM RESISTOR
⊗	METAL PLATE RESISTOR
☑	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
⊗	SEMI VARIABLE RESISTOR
■	CHIP RESISTOR

CAPACITOR

REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
NO MARK	CERAMIC CAPACITOR
⊙	POLYESTER FILM CAPACITOR
○	POLYSTYRENE FILM CAPACITOR
Ⓢ	MICA CAPACITOR
⊕	POLYPROPYLENE FILM CAPACITOR
●	SEMICONDUCTIVE CERAMIC CAPACITOR

S.A model
Canadian model
Australian model
European model
British model
General model

PARTS LIST

ELECTRICAL PARTS

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. 51.

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
* NA 09 85 20		Main Circuit Board	メ イン シ ー ト				
FG 21 12 20		Ceramic Cap.	セラコン	C136			
FG 21 12 70		//	//	C146			
FG 21 13 30		//	//	C140			
FG 21 21 00		//	//	C103			
FG 21 21 50		//	//	C116			
FG 21 21 80		//	//	C184			
FG 21 22 20		//	//	C182			
FG 21 24 70		//	//	C113			
FG 21 26 80		//	//	C112			
FG 21 31 00		//	//	C143			
FG 24 41 00		//	//	C131, 144, 145, 147, 152, 153, 157, 161, 163, 165, 179, 183			
FG 21 12 70		//	//	C159, 160			
FZ 00 41 30		Semi-Conductive Ceramic Cap.	半 導 体 セ ラ コ ン	C177, 178, 181			
FA 15 31 00		Mylar Cap.	マイラーコン	C120, 121			
FA 15 32 20		//	//	C128			
FA 15 33 30		//	//	C134			
FA 15 33 90		//	//	C137			
FA 15 36 80		//	//	C102			
FA 15 41 00		//	//	C142			
FA 15 41 80		//	//	C139			
FA 15 43 30		//	//	C105			
FA 15 44 70		//	//	C111, 126, 141			
FA 15 46 80		//	//	C127			
FA 15 48 20		//	//	C135			
FA 15 51 00		//	//	C104, 108, 109, 114, 125			
FA 15 51 20		//	//	C117, 122			
FA 15 52 40		//	//	C138			
FA 15 52 70		//	//	C107			
FA 15 53 90		//	//	C124			
FA 15 54 70		//	//	C133			
FA 15 58 20		//	//	C123			
FA 15 61 00		//	//	C188			
UJ 11 84 70		Electrolytic Cap.	ケ ミ コ ン	C119			
UJ 12 81 00		//	//	C101, 106, 129			
UJ 12 84 70		//	//	C110			
UJ 13 71 00		//	//	C132, 171			
UJ 13 72 20		//	//	C162			
UJ 13 73 30		//	//	C148, 149, 166, 174			
UJ 13 74 70		//	//	C115			
UJ 14 82 20		//	//	C167, 168			
UJ 16 61 00		//	//	C118, 186			
UJ 16 62 20		//	//	C130			
UJ 15 84 70		//	//	C154			
UJ 14 92 20		//	//	C150, 151			
VD 78 25 00		Ferrite Bead	フェライトビーズ	FB102			
GE 90 20 00		OSC Coil	発 振 コ イ ル	L101			
VC 54 82 00		Coil	パ ル ス ト ラ ン ス	T101			

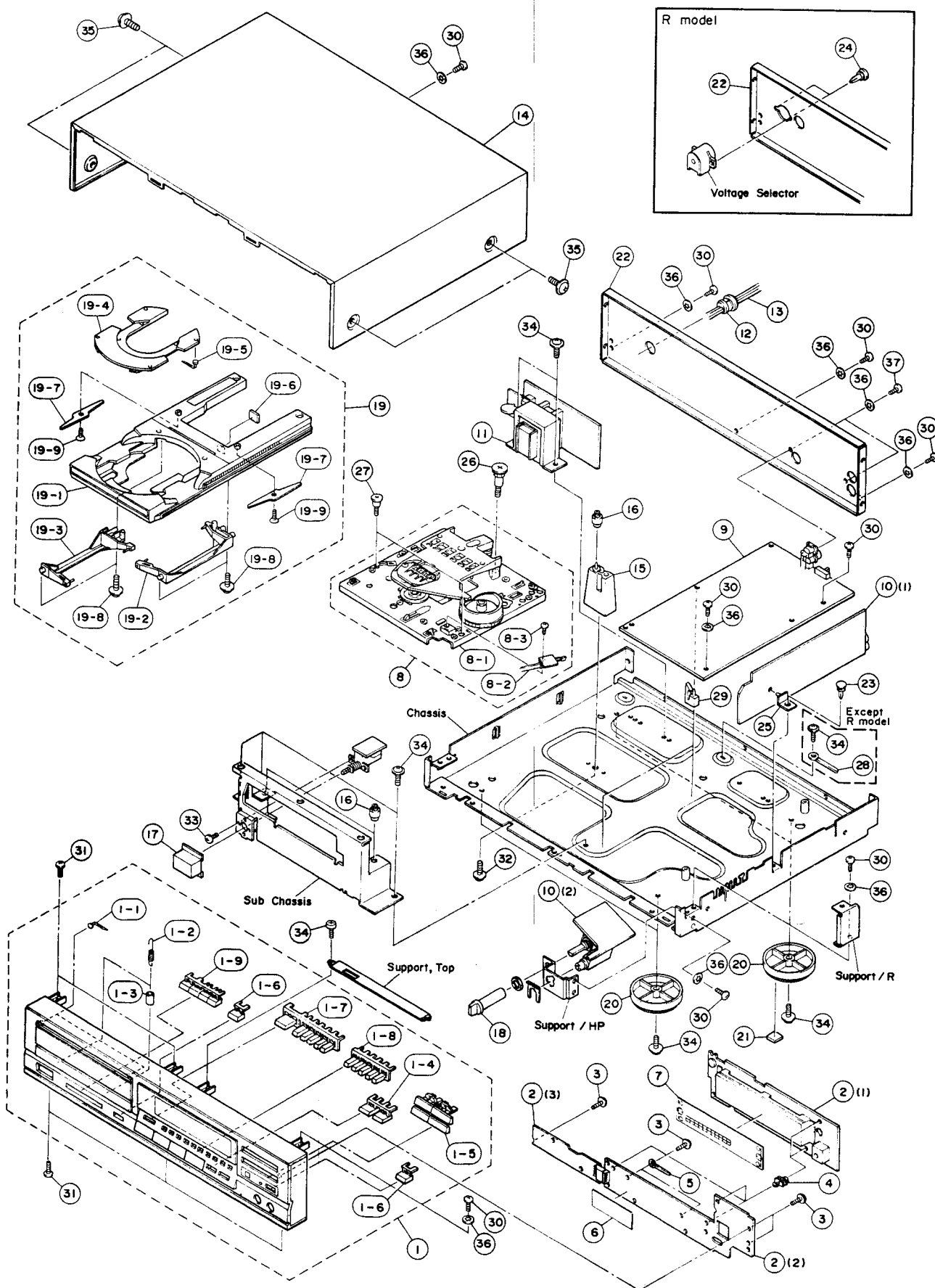
*New Parts (新規部品) NR

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
	VF 45 91 00	Metal Film Resistor	2.2kΩ 1/4W 金 属 被 膜 抵 抗	R229,233			
	VF 45 92 00	//	22kΩ 1/4W //	R226,227			
	HV 45 34 70	Flame Proof Carbon Resistor	4.7Ω 1/4W 不 燃 化 カ ー ボ ン 抵 抗	R258,259			
	HV 45 53 30	//	330Ω 1/4W //	R250			
	VB 86 15 00	Pre-Set Potentiometer	B10kΩ 半 固 定 抵 抗	VR103,105			
	VB 86 18 00	//	B47kΩ //	VR104			
	VB 86 19 00	//	B100kΩ //	VR102,106			
	VB 86 22 00	//	B470kΩ //	VR107			
	iA 09 33 70	Transistor	2SA933S(Q,R) ト ラ ン ジ ス タ	Q102,120,128	Inter-changeable		
	iA 11 15 10	//	2SA1115(E,F) //	//			
	iX 60 31 70	//	2SA1310(R,S,T) //	//			
	iA 09 34 00	//	2SA934 //	Q116,123,126	Inter-changeable		
	iB 05 44 10	//	2SB544 //	//			
	VC 79 22 00	//	2SB1240 //	//			
	iC 05 35 40	//	2SC535(A,B,C) //	Q103,105			
	iX 60 42 00	//	2SC2878(A,B) //	Q112~114			
	iC 17 40 70	//	2SC1740S(S,R) //	Q101,104,106~111,117, 119,121,122,130~132	Inter-changeable		
	iC 26 03 10	//	2SC2603(E,F) //	//			
	iX 60 31 80	//	2SC3312(R,S,T) //	//			
	iC 20 60 00	//	2SC2060 //	Q115,118,125	Inter-changeable		
	iD 04 00 00	//	2SD400 //	//			
	iC 19 83 00	//	2SC1983 //	Q124			
	iF 00 34 50	Diode	ISS133 ダ イ オ ー ド	D116			
	iF 00 84 80	//	1SR35-100A //	D105~109			
	iF 00 49 10	Varactor Diode	ISV55 F M バ ラ ク タ ー ダ イ オ ー ド	D113	Inter-changeable		
	iF 00 49 20	//	SVC211 //	//			
	iF 01 06 00	Zener Diode	MTZ3.9B ツ ェ ナ ー ダ イ オ ー ド	D112			
	iF 00 62 90	//	MTZ5.6B //	D114			
	iF 00 88 30	//	MTZ11B //	D103,104			
	iF 00 89 10	//	MTZ6.8B //	D115			
	iG 03 47 00	IC	AN6551 I C	IC101,103,104,106,107	Inter-changeable		
	iG 07 68 00	//	NJM4558S //	//			
	iG 08 02 00	//	NJM2043S //	IC102,105			
	iG 15 35 00	//	BA6218 //	IC108			
	iG 11 92 00	//	μPD4016-CX //	IC110			
	iR 00 00 00	//	TC74HCOOP //	IC112			
	VC 16 07 00	//	STA341M //	IC113			
	XB 69 80 01	//	YM3616 //	IC109			
	XC 85 30 01	//	YM3613B //	IC111			
	VC 39 88 00	Crystal Resonator	16.93MHz 水 晶 振 動 子	XL101			
	VG 02 01 00	Pin Jack	IP ビ ン ジ ャ ッ ク	PJ101			
	LB 20 13 90	Base Pin	TEB2P-SHF 2.5ピッチベースピン	CB101			
	LB 30 07 30	//	TEB3P-SHF //	CB107			
	LB 50 02 50	//	TEB5P-SHF //	CB102,103			
	LB 91 80 60	Base Pin	6P i-Type X H ベ ー ス ピ ン	CB104			

※

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
※	NA 09 85 40	Audio Circuit Board	オーディオシート	Black			
※	NA 09 91 40	"	"	Silver			
	FG 21 12 20	Ceramic Cap.	22pF 50V セ ラ コ ン	C339,340			
	FG 21 22 20	"	220pF 50V "	C310,311,327,328			
	FG 21 21 00	"	100pF 50V "	C329,330			
	FG 11 25 60	"	560pF 50V "	C341,342			
	FZ 00 41 30	Semi-Conductive Ceramic Cap.	0.1μF 25V 半 導 体 セ ラ コ ン	C301,302			
	FG 24 41 00	Ceramic Cap.	0.01μF 50V セ ラ コ ン	C333~335			
	FA 15 41 50	Mylar Cap.	0.015μF 50V マ イ ラ ー コ ン	C316,317			
	FA 15 38 20	"	8200pF 50V "	C312,313			
	FA 15 43 60	"	0.036μF 50V "	C308,309			
	UJ 13 71 00	Electrolytic Cap.	10μF 16V ケ ミ コ ン	C325,326,331,332			
	UJ 14 73 30	"	33μF 25V "	C320			
	UJ 13 74 70	"	47μF 16V "	C318,319			
	UJ 41 83 30	"	330μF 6.3V "	C303			
	UJ 42 83 30	"	330μF 10V "	C304~307,336,337			
	UJ 12 82 20	"	220μF 10V "	C323,324			
	UJ 12 84 70	"	470μF 10V "	C321,338			
	UJ 16 54 70	"	0.47μF 50V "	C322			
	UT 45 26 80	Polypropylene Film Cap.	680pF 100V ポ リ プ ロ コ ン	C314,315			
	VD 47 37 00	SB Coil	60μH S B コ イ ル	L301,302~308			
	VC 50 93 00	Rotary Volume	50kA×2 ロー タ リ ー ボ リ ュ ム	VR301			
	iA 09 33 70	Transistor	2SA933S(Q,R) ト ラ ン ジ ス タ	Q302,303,305	Inter-changeable		
	iA 11 15 10	"	2SA1115(E,F) "	"			
	iX 60 31 70	"	2SA1310(R,S,T) "	"	Inter-changeable		
	iC 17 40 70	"	2SC1740S(S,R) "	Q301,304,306,314,315			
	iC 26 03 10	"	2SC2603(E,F) "	"	Inter-changeable		
	iX 60 31 80	"	2SC3312(R,S,T) "	"			
	iX 60 42 00	"	2SC2878(A,B) "	Q308,309	Inter-changeable		
	iC 33 27 00	"	2SC3327 "	"			
	VC 50 21 00	"	2SD1915 "	"			
	VF 83 51 00	"	2SD1915(T) "	Q310~313			
	iF 00 34 50	Diode	ISS133 ダ イ オ ード	D302,303,305			
	iF 00 89 00	Zener Diode	MTZ13C ツ ェ ナ ー ダ イ オ ード	D304			
	iF 01 06 90	"	MTZ5.1B "	D301			
	XB 24 70 01	IC	μPC4570HA I C	IC304,305			
	iG 05 82 10	"	M5218L "	IC306			
	XD 71 20 01	"	YM3414 "	IC301			
	XD 89 80 01	"	PCM56L "	IC302,303			
※	VF 57 39 00	Pin Jack	2P ビ ン ジャ ッ ク	PJ301			
	LB 30 24 20	Phone Jack	Gray ホ ー ン ジャ ッ ク	PJ302 Silver			
	LB 30 24 30	"	Black "	" Black			
	VD 00 46 00	Base Pin	3P i-Type P H ベ ー ス ピ ン	CB302			
	VD 00 47 00	"	4P i-Type "	CB303			

EXPLODED VIEW



MECHANISM PARTS

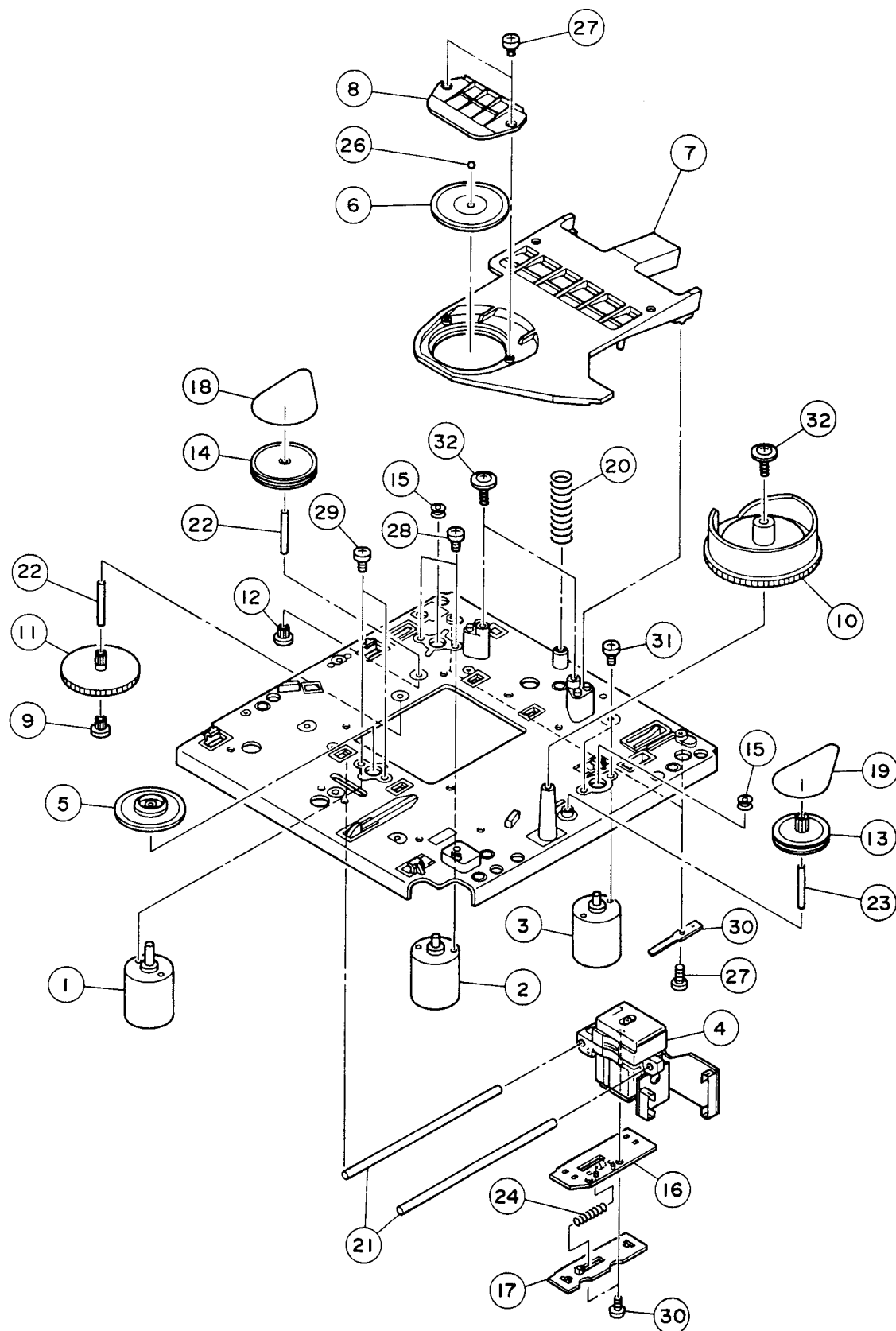
Note) φ : Diameter

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
※ 1	VF 64 61 00	Front Panel Ass'y	フロントパネル Ass'y	Black		R,A,B,G	
※ //	VF 64 63 00	//	//	//		U,C	
※ //	VF 64 64 00	//	//	Silver		R,A,B,G	
※ //	VF 64 65 00	//	//	//		U,C	
※ //	VF 64 66 00	//	//	CD-33			
1-1	VE 04 16 00	Pad, Disc	パッド / ディスク				
1-2	VB 95 80 00	Spring, TE	スプリング, T E		CLV-I		
1-3	VC 72 50 00	Tube, I3	チューブ / I 3		//		
※ 1-4	VF 48 48 00	Button	ボ タ ン	Black, CD-33			
※ //	VF 48 49 00	//	//	Silver			
※ 1-5	VE 51 50 00	//	2/1/29	Black SEARCH			
※ //	VE 51 51 00	//	//	Silver SEARCH			
※ //	VE 61 40 00	//	//	CD-33 SEARCH			
1-6	VD 37 07 00	//	1P	Black, CD-33	TV-M88		
//	VE 51 46 00	//	//	Silver	//		
※ 1-7	VE 17 15 00	//	10Key A	Black			
※ //	VE 51 43 00	//	//	Silver			
※ //	VF 48 52 00	//	//	CD-33			
※ 1-8	VE 17 16 00	//	10Key B	Black			
//	VE 51 44 00	//	//	Silver			
//	VF 48 53 00	//	//	CD-33			
※ 1-9	VD 35 89 00	//	4P	Black, CD-33	TV-M88		
※ //	VF 48 50 00	//	//	Silver	//		
※ 2	NA 09 85 30	Operation Circuit Board	オペレーションシート				
※ 3	EX 60 08 40	BW Head Tapping Screw	2X6(φ5.5)FCRM3-BI	B Wヘッドタッピングネジ			
4	CB 09 74 10	Holder	基 板 ホ ル ダ ー				
5	CB 09 58 80	Wire Stopper	束 線 止 め				
6	VF 10 34 00	Sheet	シ ー ト				
※ 7	VF 48 76 00	Filter, Sheet	S-18	シートフィルター			
※ 8	VF 57 31 00	Disc Mechanism Ass'y	DM-555A Ass'y	ディスクメカ Ass'y			
8-1	VE 82 55 00	Disc Mechanism Unit	DM-555L	D M ユ ニ ッ ト			
※ 8-2	KA 90 63 70	End Switch	エンドスイッチ				
8-3	EI 32 61 06	Binding Head Tapping Screw	2.6×10 ZMC2-BI	バインドタッピングネジ	PACK		
※ 9	NA 09 85 20	Main Circuit Board	メ イン シ ー ト				
※ 10	NA 09 85 40	Audio Circuit Board	オーディオシート	Black, CD-33			
※ //	NA 09 91 40	//	//	Silver			
※ 11	NA 09 91 50	Power Unit	電 源 ユ ニ ッ ト			U,C	
※ //	NA 09 91 60	//	//			R	
※ //	NA 09 91 70	//	//			A,B,G	
12	CB 62 02 00	Cord Stopper	CM-22C	コードストッパー		U,C	
//	CB 62 01 90	//	CM-22B	//		R,A,B,G	
13	MG 00 22 20	Power Cord Ass'y		電 源 コ ー ド Ass'y		U,C	
//	VE 22 29 00	//		//		R	
//	VE 04 29 00	//		//		A	
//	VE 04 31 00	//		//		B	
//	VE 04 34 00	//		//		G	
※ 14	VE 96 96 00	Top Cover	ト ッ プ カ バ ー	Black, CD-33			
※ //	VF 46 43 00	//	//	Silver			
※ 15	VF 48 64 00	Support, E	Rear	サ ポ ー ト E			
16	VE 30 92 00	Damper	ダ ン パ ー		CDX-910		
17	VE 18 99 00	Button, P	ボ タ ン P	Black	KA-M555		
※ //	VF 48 75 00	//	//	Silver			
※ //	VE 46 81 00	//	//	CD-33	T-33		

※New Parts (新規部品) NR

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	リンク
18	CB 65 91 00	Knob, VR	ノ ブ / V R	Black, CD-33	CDX-500		
※	VC 51 70 00	〃	〃	Silver	〃		
19	VE 26 97 00	Try Ass'y	ト レ イ Ass'y	Black, CD-33	CDX-910		
※	VE 30 62 00	〃	〃	Silver	〃		
19-1	VE 04 12 00	Try, Disc	ト レ イ / ディスク	Black, CD-33			
※	VE 30 63 00	〃	〃	Silver			
19-2	VE 26 98 00	Lifter Ass'y (L)	リ フ タ ー Ass'y (L)	Black, CD-33			
※	VE 65 86 00	〃	〃	Silver			
19-3	VE 26 99 00	Lifter Ass'y (R)	リ フ タ ー Ass'y (R)	Black, CD-33			
※	VE 65 88 00	〃	〃	Silver			
19-4	VE 30 60 00	Plate	ブ レ ー ト	Black, CD-33	CDX-910		
※	VE 30 61 00	〃	〃	Silver	〃		
19-5	VE 04 16 00	Pad, Disc	パッド / ディスク				
19-6	CB 62 79 60	Cushion Rubber	ク ッ シ ョ ン ゴ ム				
19-7	VE 04 18 00	Spring	ス プ リ ン グ				
19-8	EX 60 02 40	BW Head Tapping Screw	3×8 FCM3-BI BWヘッドタッピングネジ				
19-9	EO 33 00 86	Flat Head Tapping Screw	3×8 FCRM3-BI 皿タッピングネジ	PACK			
※	20 VE 22 78 00	Leg	レ ッ グ				
※	21 VE 21 57 00	Leg Cushion	レ ッ グ ク ッ シ ョ ン		KA-M555		
※	22 VF 46 44 00	Rear Panel	リ ア パ ネ ル	CDX-710		U	
※	VF 56 94 00	〃	〃	〃		C	
※	VF 46 45 00	〃	〃	〃		R	
※	VF 46 46 00	〃	〃	〃		A, B	
※	VF 46 47 00	〃	〃	〃		G	
※	VF 48 40 00	〃	〃	CD-33		U	
※	VF 48 41 00	〃	〃	〃		C	
※	VF 48 42 00	〃	〃	〃		R	
※	VF 48 43 00	〃	〃	〃		A	
※	VF 48 44 00	〃	〃	〃		B, G	
23	CB 60 56 20	Plastic Rivet	プ ラ ス チ ッ ク リ ベ ッ ト				
24	CB 60 92 60	〃	〃				
25	CB 09 12 90	Holder	基 板 ホ ル ダ ー				
26	NB 63 83 90	Special Screw Ass'y	段 付 ネ ジ Ass'y				
※	27 VF 87 53 00	Special Screw	段 付 ネ ジ				
28	VD 39 92 00	Wire Stopper	S-70B 束 線 止 め			U, C, A, B, G	
※	29 VF 87 54 00	PCB Holder	P C B ホ ル ダ ー				
30	EI 33 00 66	Binding Head Tapping Screw	3×6 FCRM3-BI バインドタッピングネジ	PACK			
31	EI 33 00 86	〃	3×8 FCRM3-BI 〃	PACK			
32	EK 33 60 10	BW Head Tapping Screw	3X8(φ8)FCM3-BI BWヘッドタッピングネジ				
33	ED 33 00 86	Binding Head Screw	3×8 FCRM3-BI バイ ン ド 小 ネ ジ	PACK			
34	EK 33 60 20	BW Head Tapping Screw	3X6(φ8)FCRM3-BI BWヘッドタッピングネジ				
35	EK 36 50 40	BW Head Screw	4X8(φ10)FCM3-BI B W ヘ ッ ド 小 ネ ジ	Black			
※	EK 13 00 20	〃	4X8(φ10)FNM3-3G 〃	Silver			
36	EV 41 30 36	Toothed Lock Washer	φ3 FCRM3-BI 歯 付 座 金	PACK			
37	Ei 33 01 06	Binding Head Tapping Screw	3×10 FCRM3-BI バインドタッピングネジ	PACK			
	CB 06 92 51	Binding Tie	BK-I インシュロックタイ	PACK			
		Accessories	付 属 品				
※	VD 77 99 00	Pin Cord	ピ ン コ ー ド				
※	VF 62 31 00	Remote Control Transmitter	RS-CDX7 リモートコントロールトランスミッター	Black, CD-33			
※	VF 62 30 00	〃	〃	Silver			
		Dry Cell	AA, R6 単 3 乾 電 池				

※New Parts (新規部品) NR

EXPLODED VIEW (DM-555L)

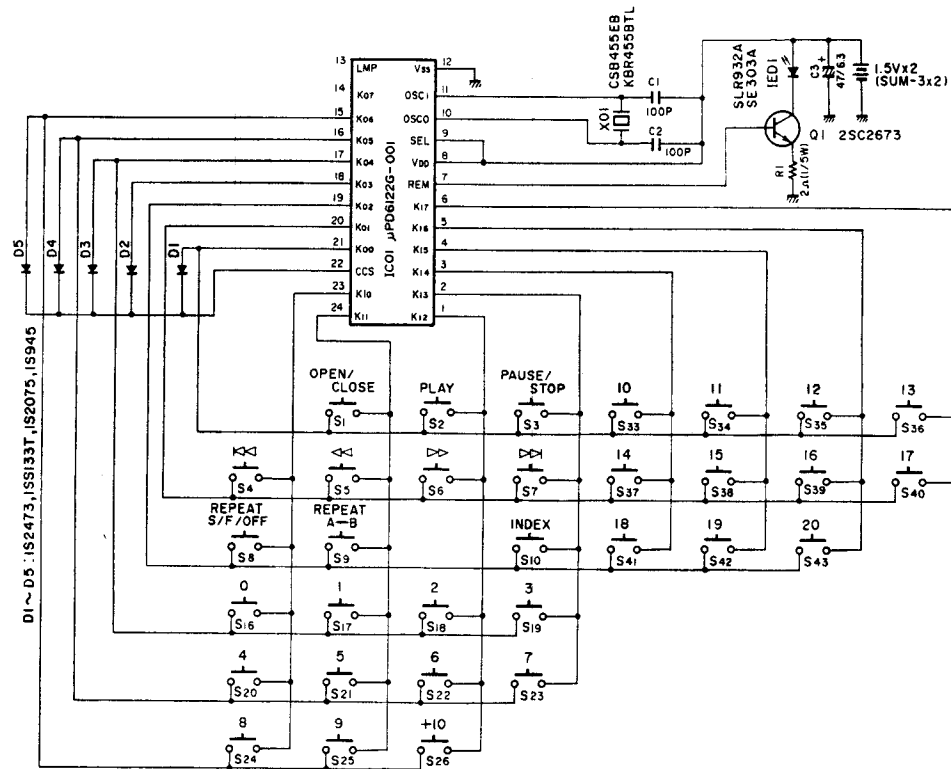
Note) ϕ : Diameter

※New Parts (新規部品) NR

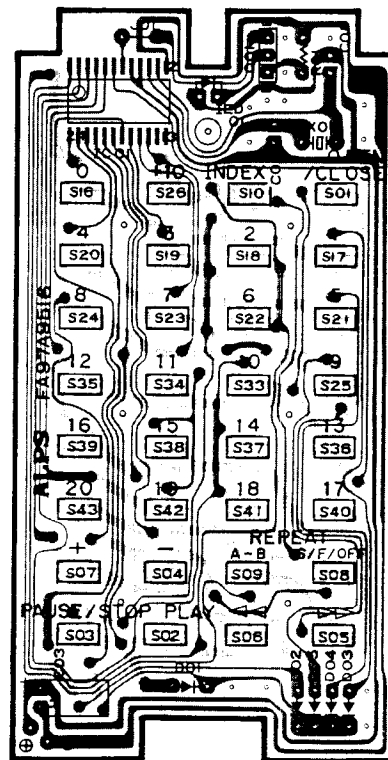
RS-CDX7

REMOTE CONTROL TRANSMITTER

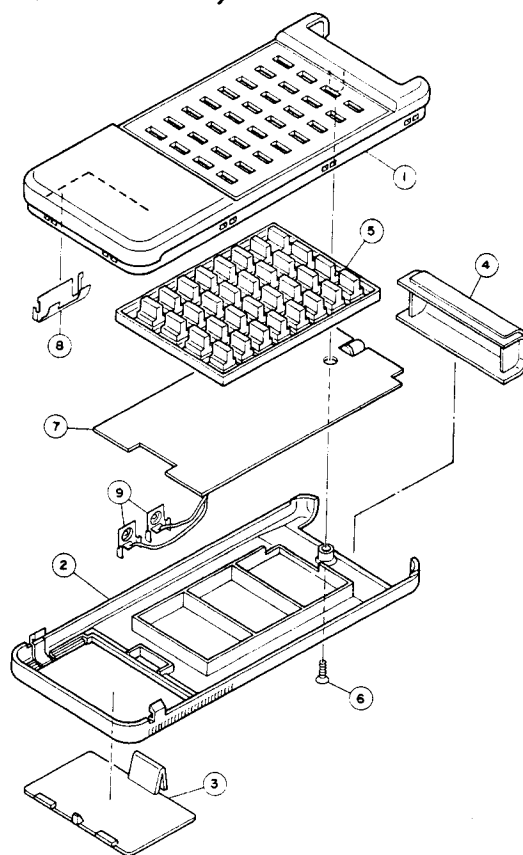
■ SCHEMATIC DIAGRAM



■ PRINTED CIRCUIT BOARD (Pattern side)



EXPLODED VIEW (RS-CDX7)

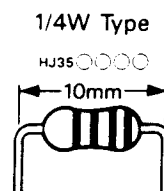


Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
※	VF 62 31 00	Remote Control Transmitter	RS-CDX7	リモートコントロールトランスミッター	Black		
※	VF 62 30 00	"	"	"	Silver		
※	1 CX 60 50 10	Case(A) Ass'y		ケ ー ス (A) Ass'y	Black		
※	" CX 60 50 00	"		"	Silver		
	2 XX 67 16 20	Case(B)		ケ ー ス (B)	Black		
	" XX 67 17 10	"		"	Silver		
	3 XX 67 16 30	Case(C)		ケ ー ス (C)	Black		
	" XX 67 17 20	"		"	Silver		
	4 XX 67 16 40	Filter		フ ィ ル タ ー			
	5 CX 60 03 90	Rubber Contact		ゴ ム 接 点	Black		
	" CX 60 04 00	"		"	Silver		
	6 XX 67 16 60	Flat Head Screw		皿 小 ネ ジ	Black		
	" XX 67 17 50	"		"	Silver		
	7 NX 60 03 70	P.C.Board Ass'y		プ リ ン ト 基 板 Ass'y			
	8 XX 67 16 80	Dry Cell Terminal(A)		電 池 電 極 板 (A)			
	9 XX 67 16 90	" (B)		" (B)			
	NX 60 03 70	P.C.Board Ass'y		プ リ ン ト 基 板 Ass'y			
	iX 61 16 30	IC	μPD6122G-001	I C IC01			
	QX 60 00 40	Ceramic Resonator	KBR-455BTL	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		
	iC 26 73 00	Transistor	2SC2673	ト ラ ン ジ ス タ	Q01		
	iX 60 36 00	IED	SLR-932A	I E D IED01			
	iF 00 06 70	Diode	1S2473	ダ イ オ ード	D01~05		
	HX 60 14 00	Carbon Resistor	2Ω 1/4W	カ ー ボ ン 抵 抗	R01		

※New Parts (新規部品) NR

Parts List for Carbon Resistor

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



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