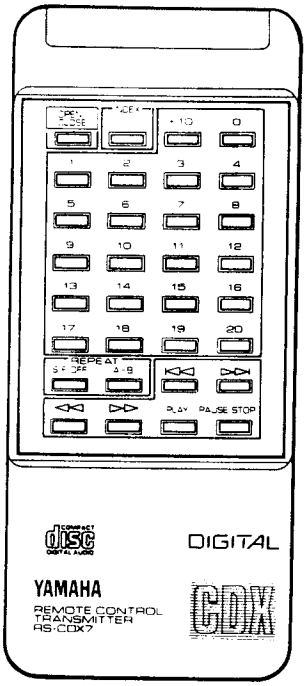
COMPACT DISC PLAYER

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.

■ CONTENTS

100200

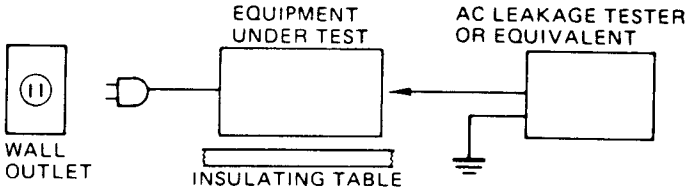
YAMAHA

■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.

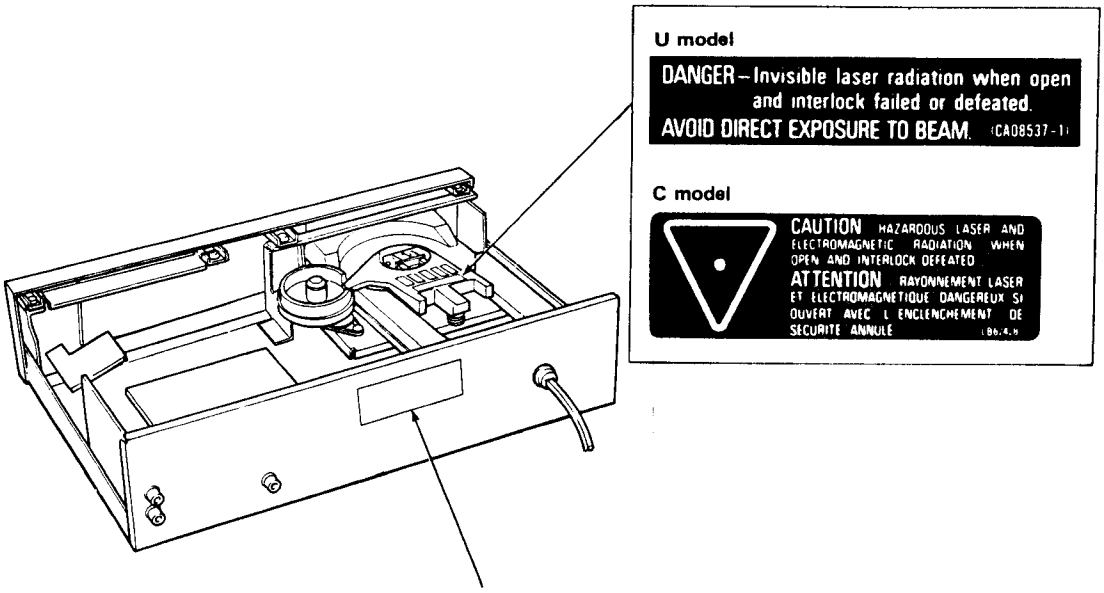
2. Leakage Current Measurement (For 120V Model Only).
   When service has been completed, it is imperative that you verify that all exposed conductive surfaces are properly insulated from supply circuits.

- Meter impedance should be equivalent to 1500 ohm shunted by 0.15μF
- 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.



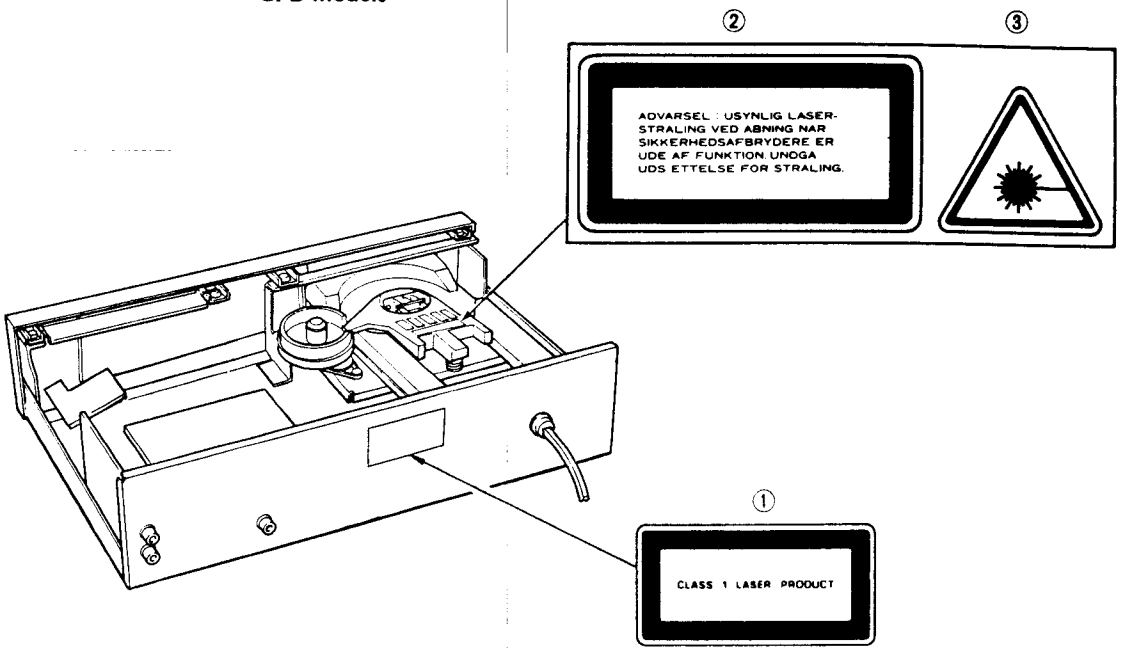
U model

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 SITTER 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 LASER-STRÅLNING ÖVERSTIGANDE GRÄNSEN FÖR LASERKLASS 1.

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

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 INDGREB I APPARATET. APPARATET INDEHOLDER ET LASERKOMPONENT SOM AVGIVER LASESTRÄLING DER OVERSTIGER GÆNSEVERDIEN FOR LASERKLASSE 1.

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

Finnish

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

■ INTERLOCK OPERATION

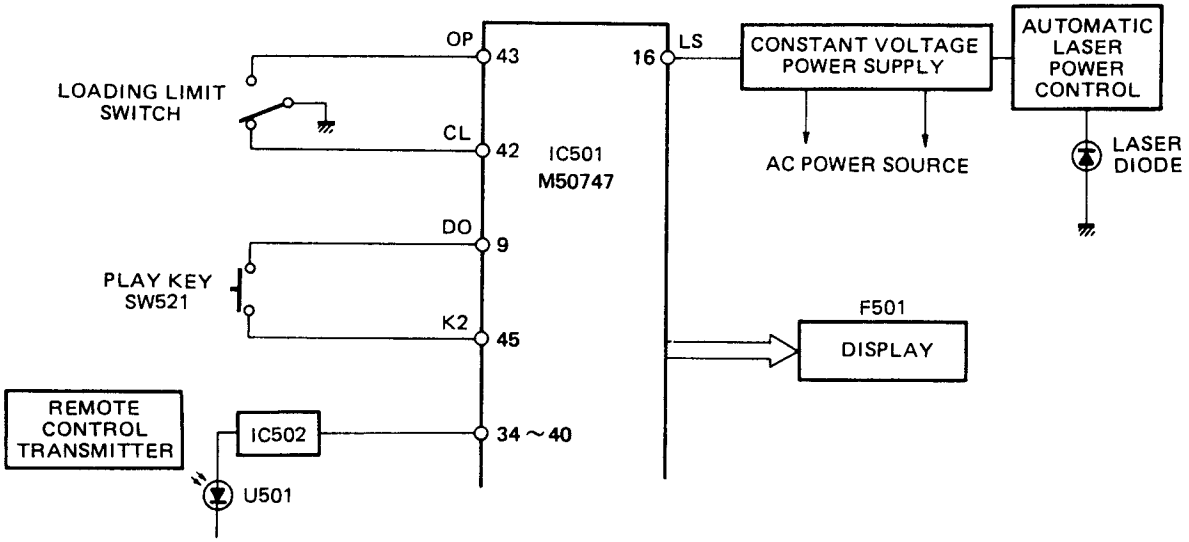
The Digital Compact Disc Player reads the disc signals by laser beam detection. It must be avoided for the human body to be directly exposed to the laser beam. Human eyes are especially badly affected by the laser beam. This unit is therefore equipped with an interlock to prevent unnecessary laser output.

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.

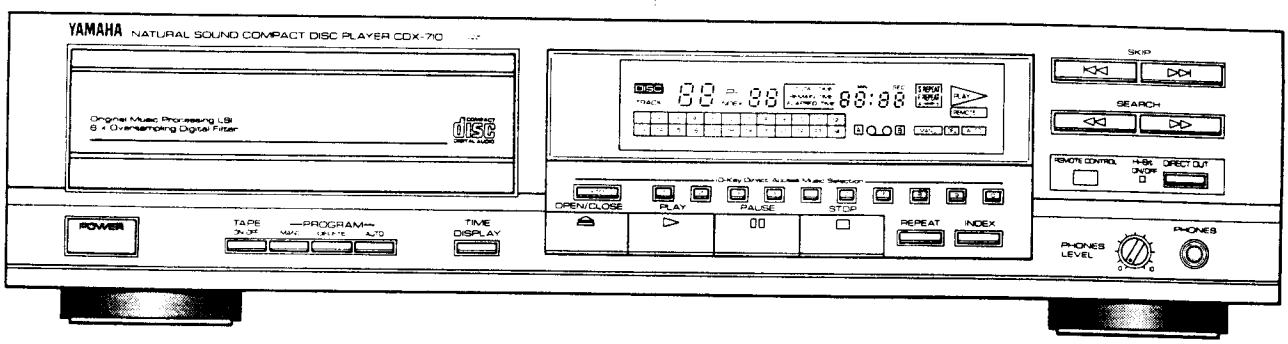
After the above conditions are met and the index signals have been read, the laser emits the beam when the following two conditions are met.

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

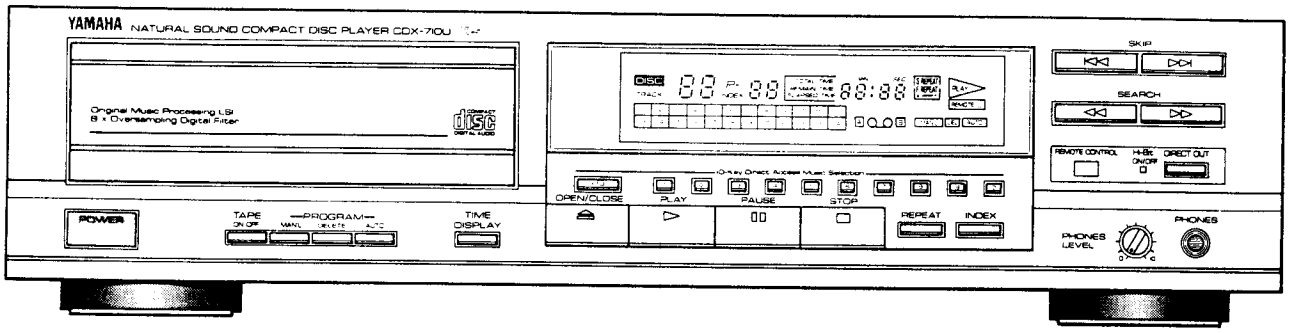


■ FRONT PANELS

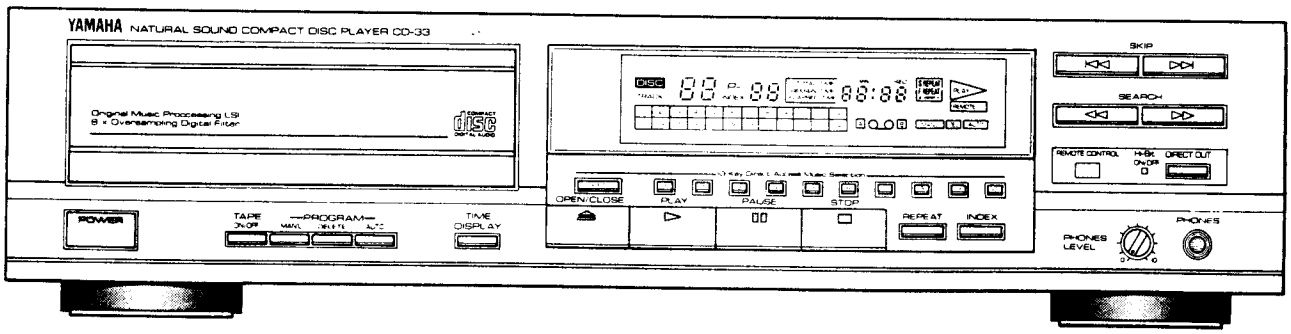
- CDX-710



- CDX-710U



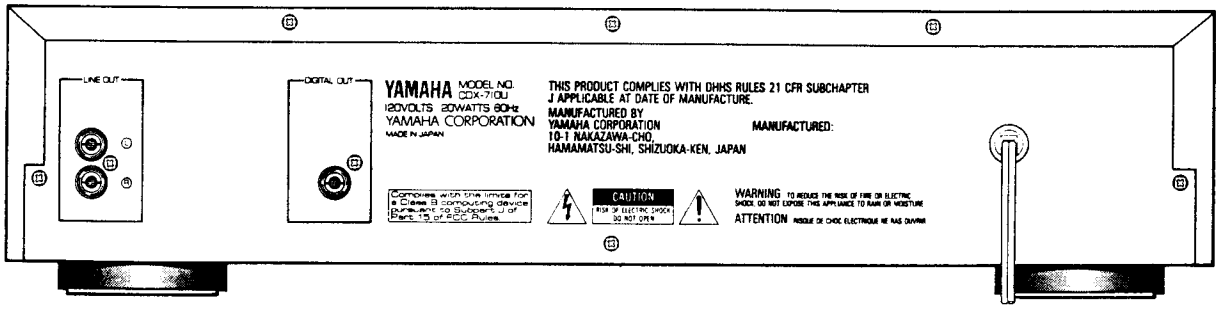
- CD-33



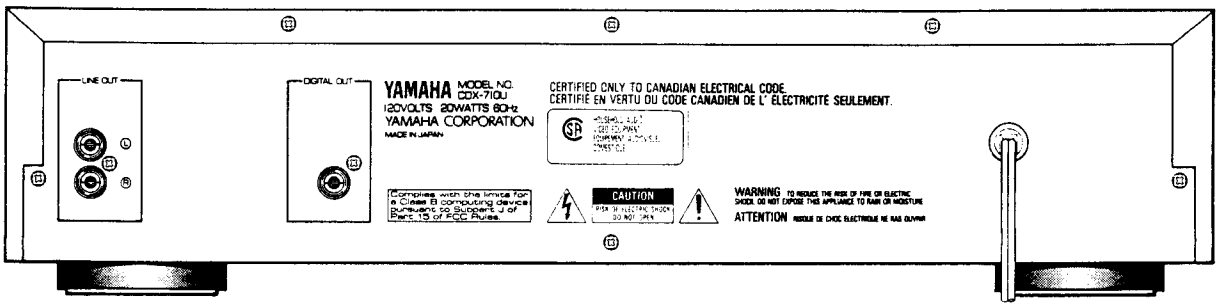
■ REAR PANELS

CDX-710/U

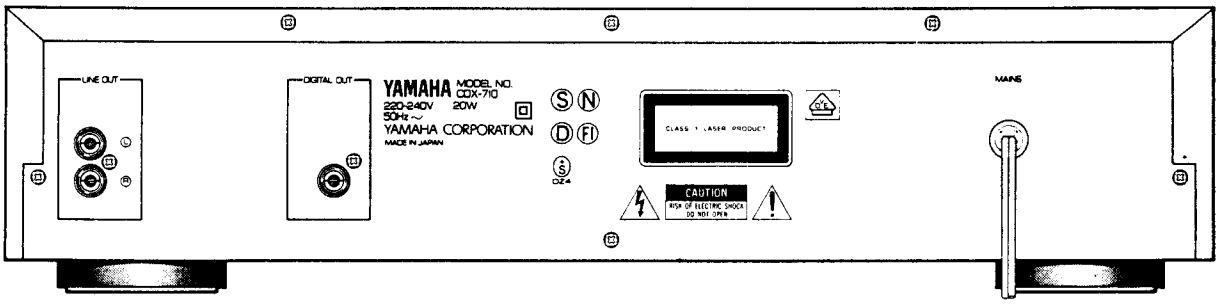
▼ U.S.A. model



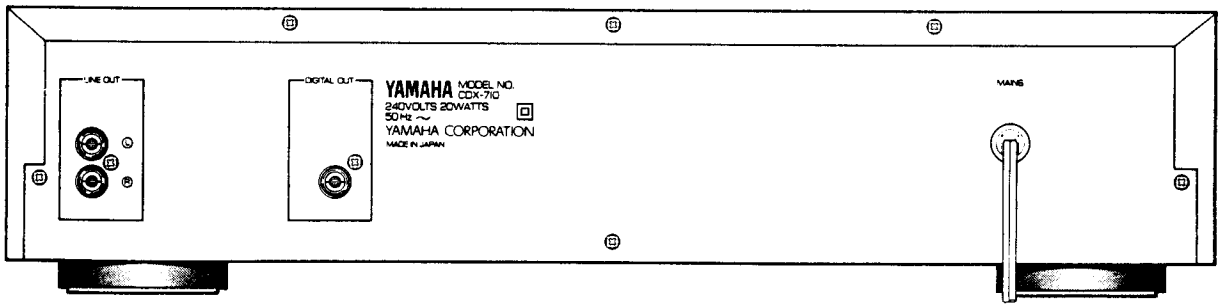
▼ Canadian model



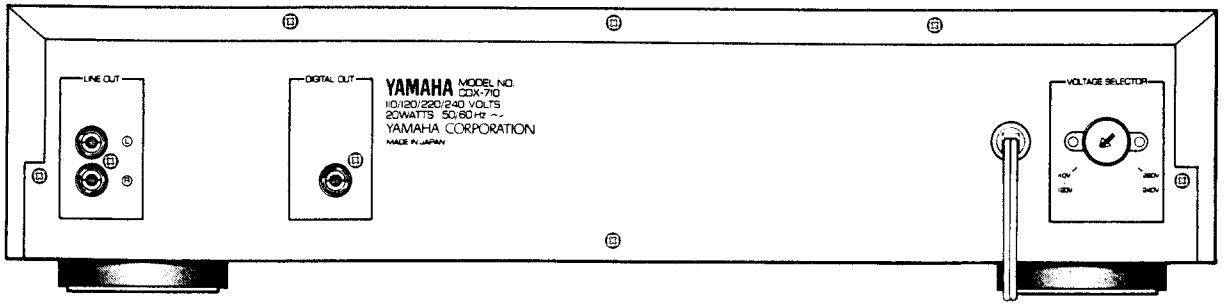
▼ European & British models



▼ Australian model



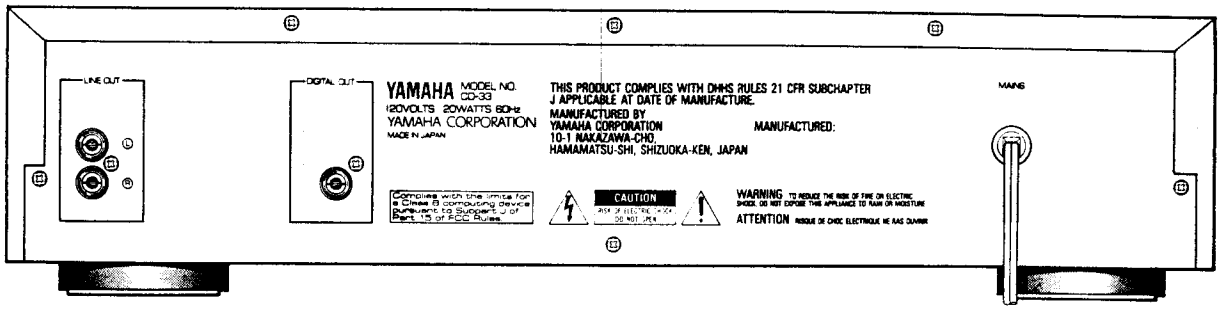
▼ General model



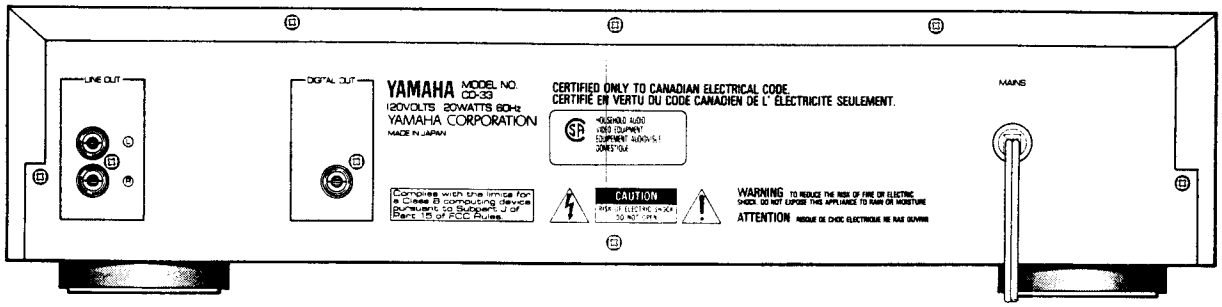
■ REAR PANELS

CD-33

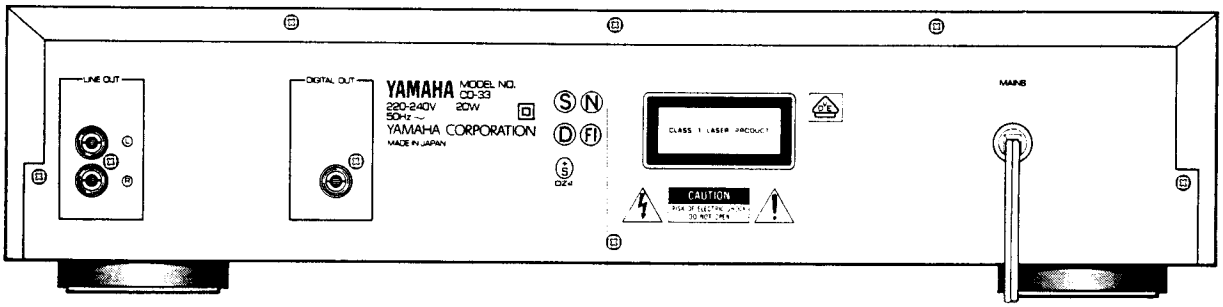
▼ U.S.A. model



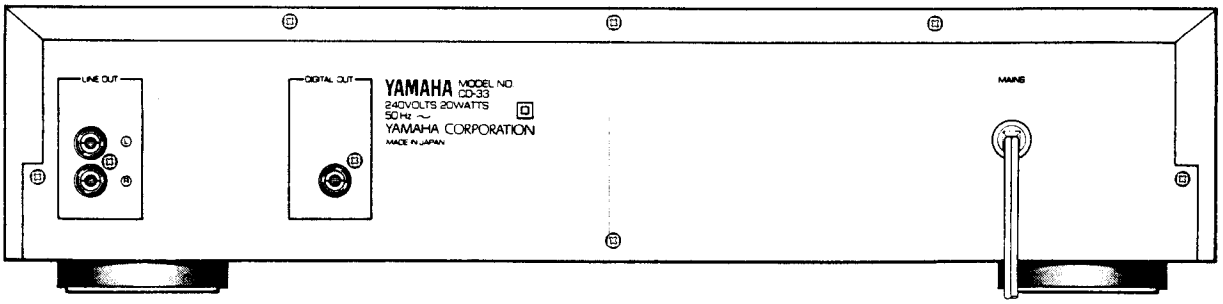
▼ Canadian model



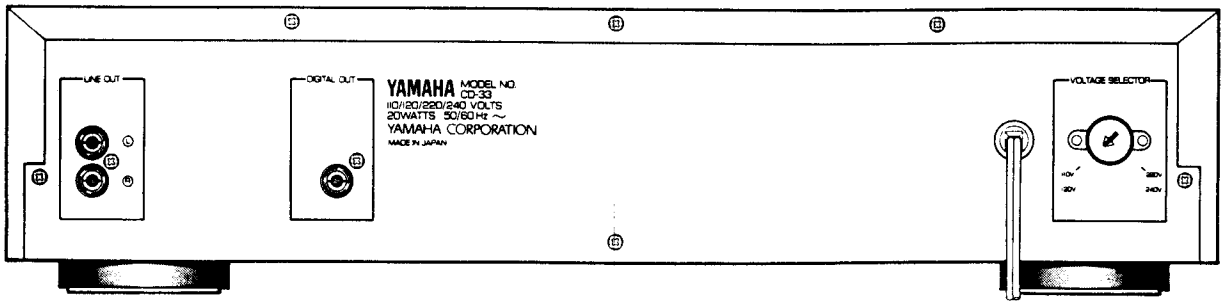
▼ European & British models



▼ Australian model



▼ General model



SPECIFICATIONS

AUDIO SECTION

Frequency Response	2Hz ~ 20kHz ± 0.3dB
De-Emphasis Equaliation	± 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	560Ω
Headphone Output	450mV/150Ω (–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

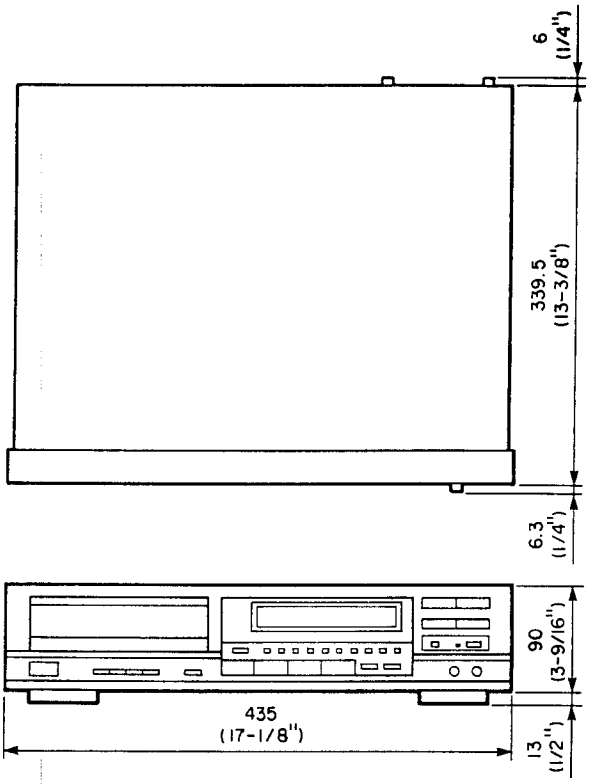
GENERAL

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.*

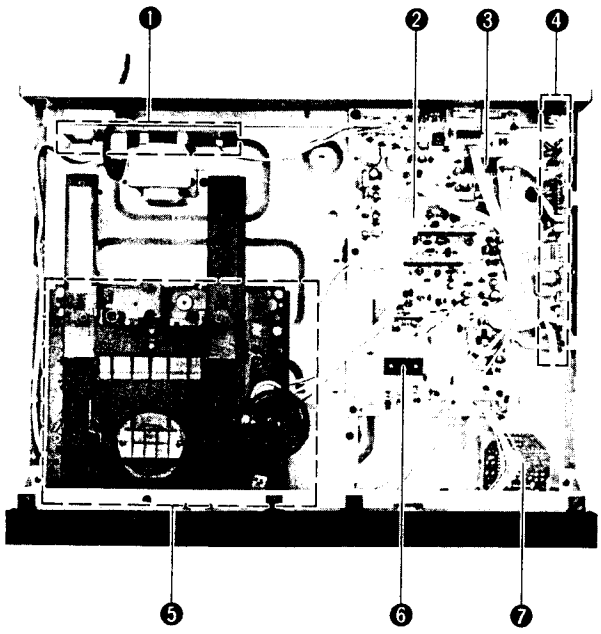
U ..... U. S. A. model
C ..... Canadian model
B ..... British model
A ..... Australian model
G ..... European model
R ..... General model

DIMENSION

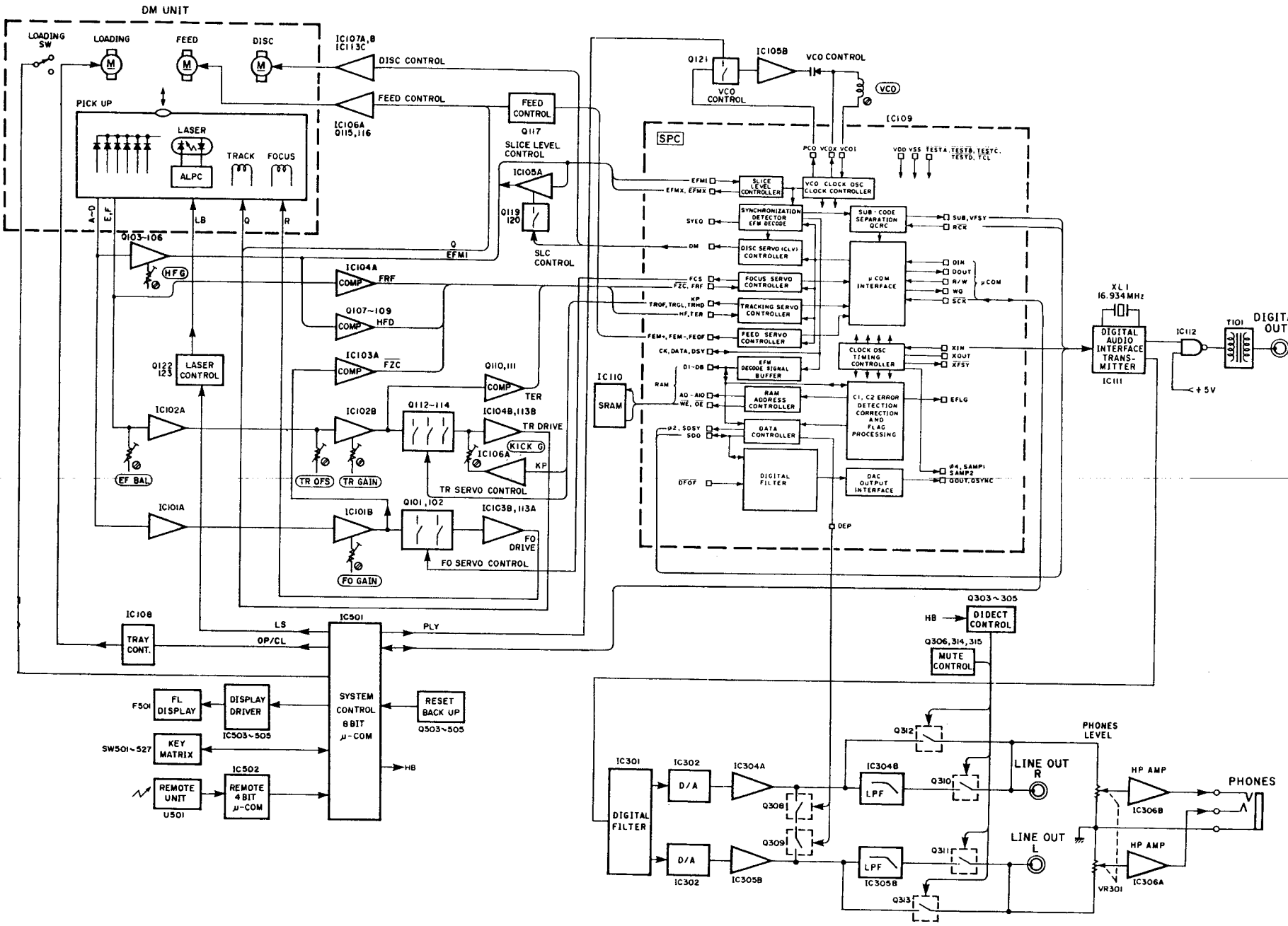


Unit ; mm (inch)

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 : μPD4016-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

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

2. Removal of Front Panel

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

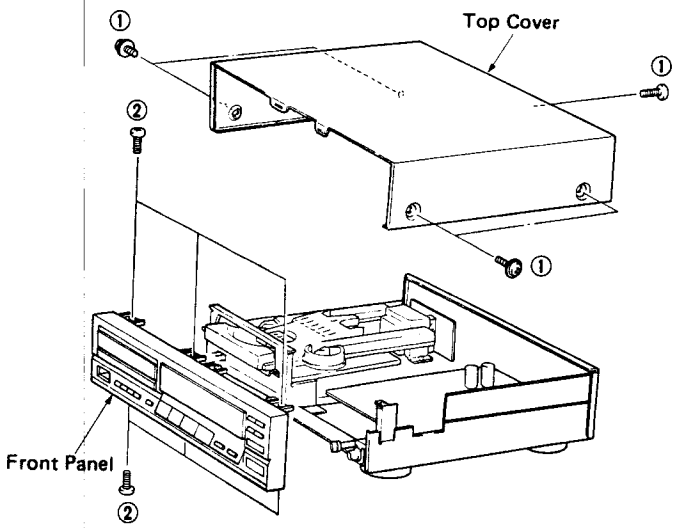


Fig. 1

3. Removal of Disc Tray Ass'y

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

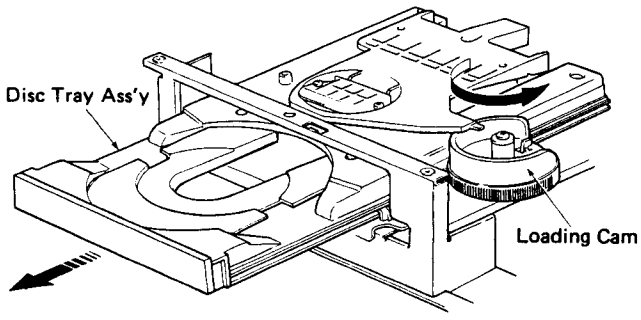


Fig. 2

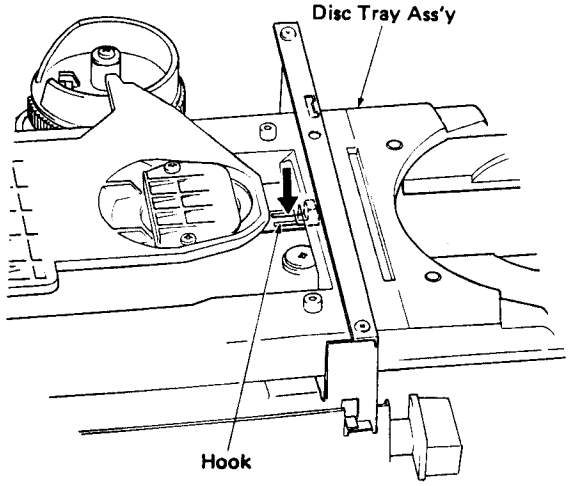


Fig. 3

4. Removal of Disc Mechanism Unit

a. Remove 4 screws (③) in Fig. 4.

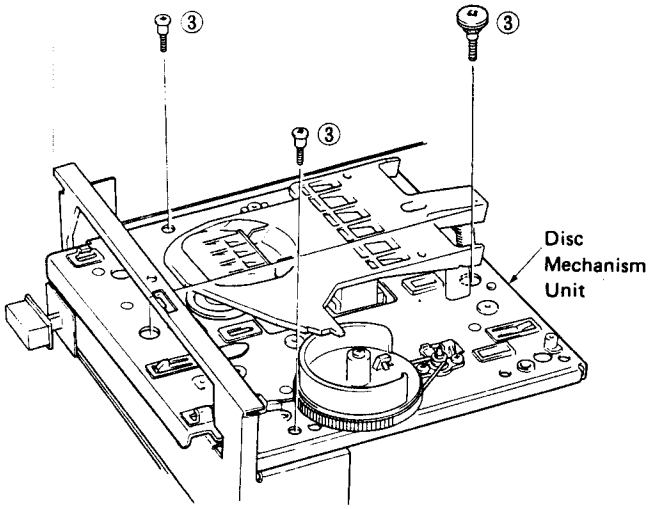


Fig. 4

5. **Removal of Disc Motor**

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

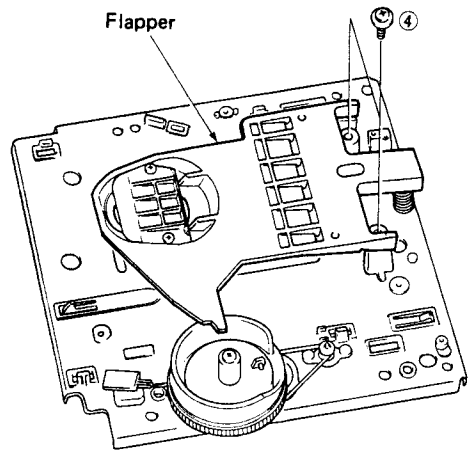


Fig. 5

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

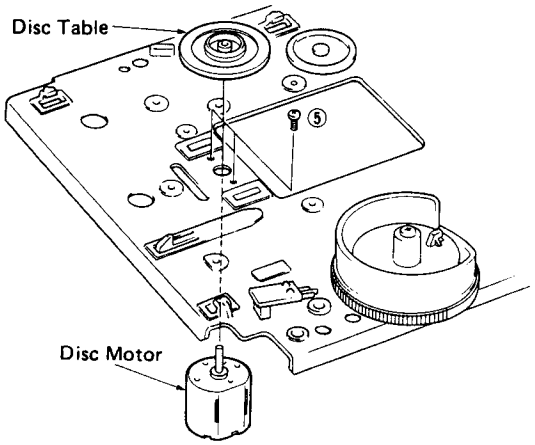
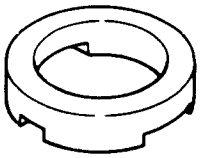


Fig. 6

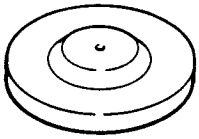
- **Installation of disc table**

※ 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.

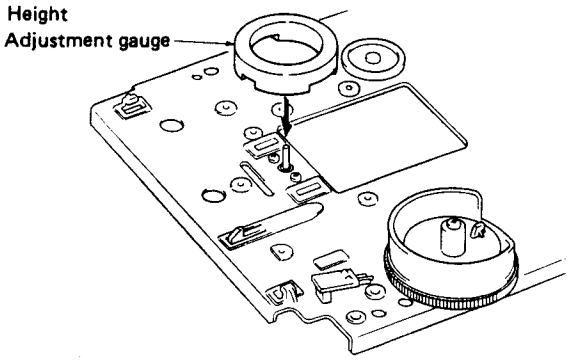


Fig. 7

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 minites for glue to cure before removing disc table installer and height gauge.

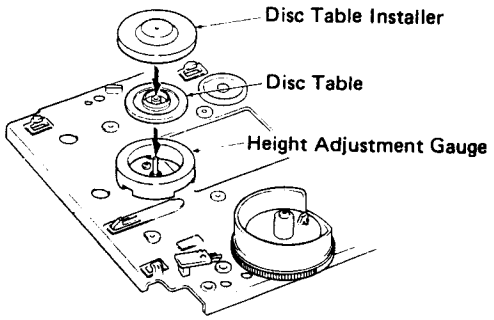


Fig. 8

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

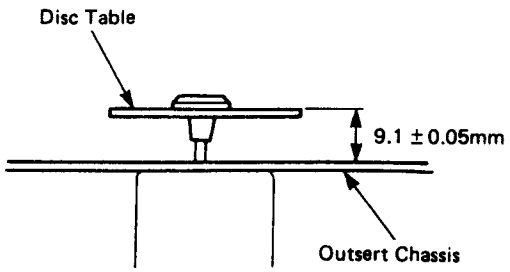


Fig. 9

■ 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.

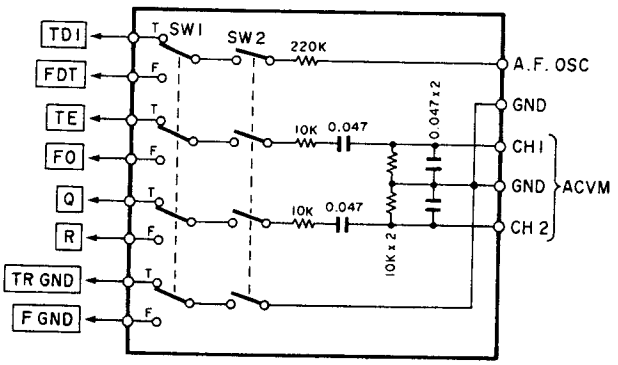


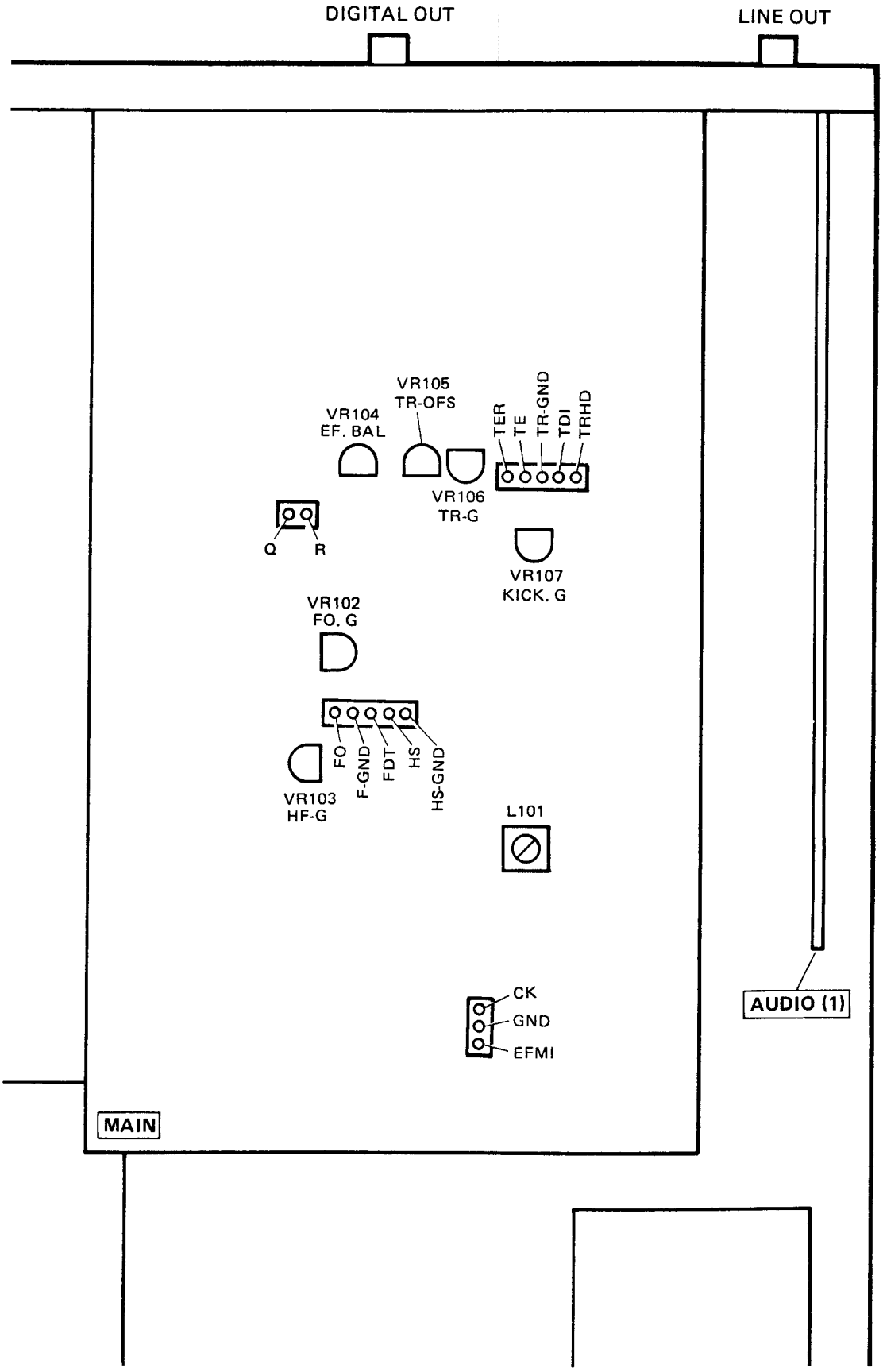
Fig. A

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

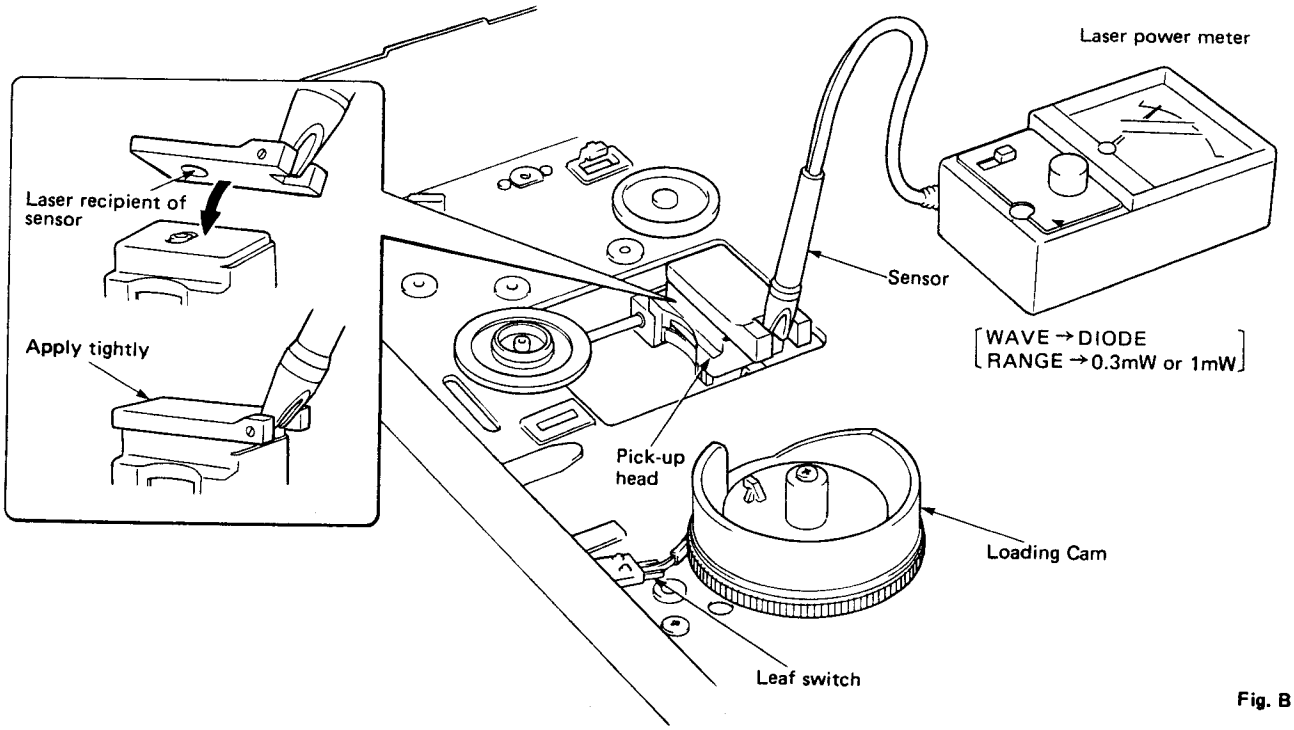


Fig. B

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 (Verticla)
  (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.

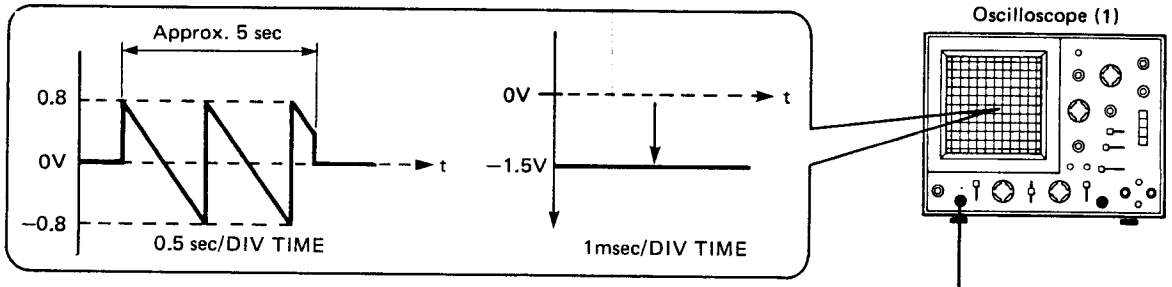
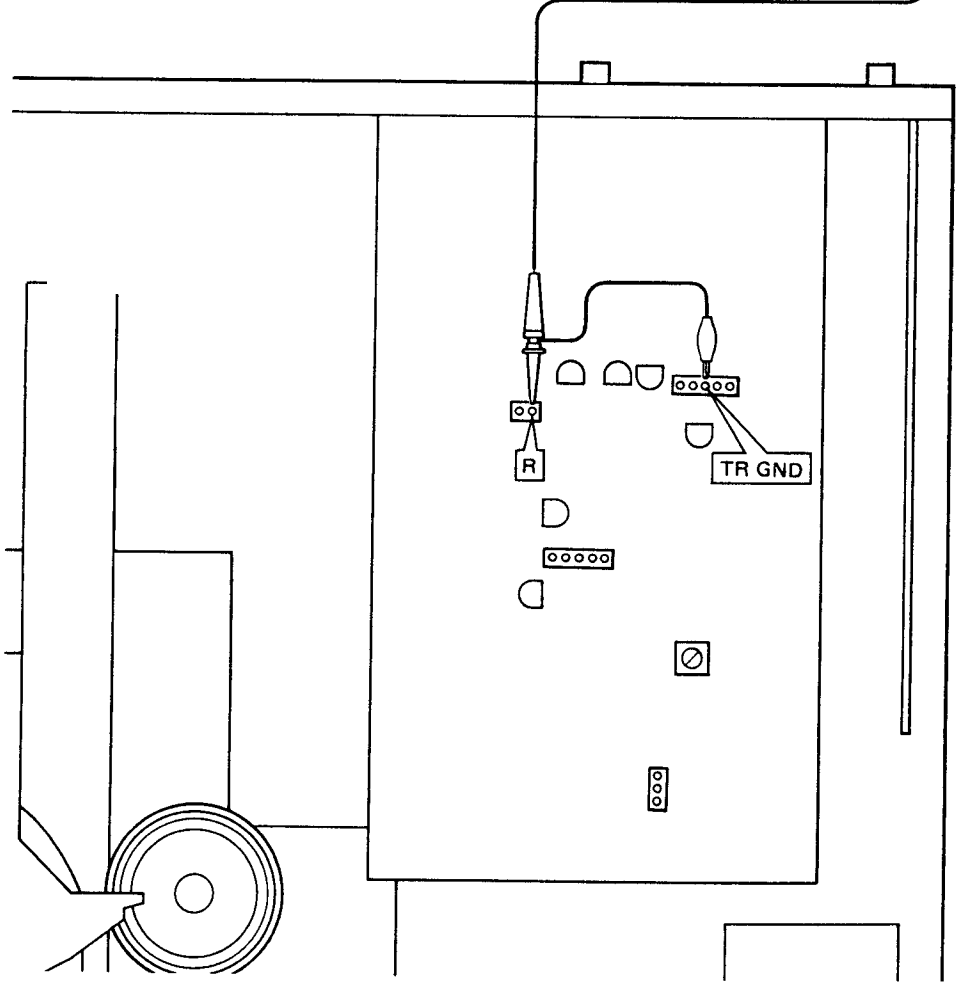


Fig. C



Adjustment of VCO (Step 3)

① Connect the shorting cord and measuring instruments, as shwon in Fig. D.
② Do not load a disc.
③ Press POWER key. (POWER ON)
④ While observing the frequency counter indication (FVCO), adjust L101 so that it satisfies the rating.

Rating: F_{VCO} = 4.3218 MHz ± 10 kHz

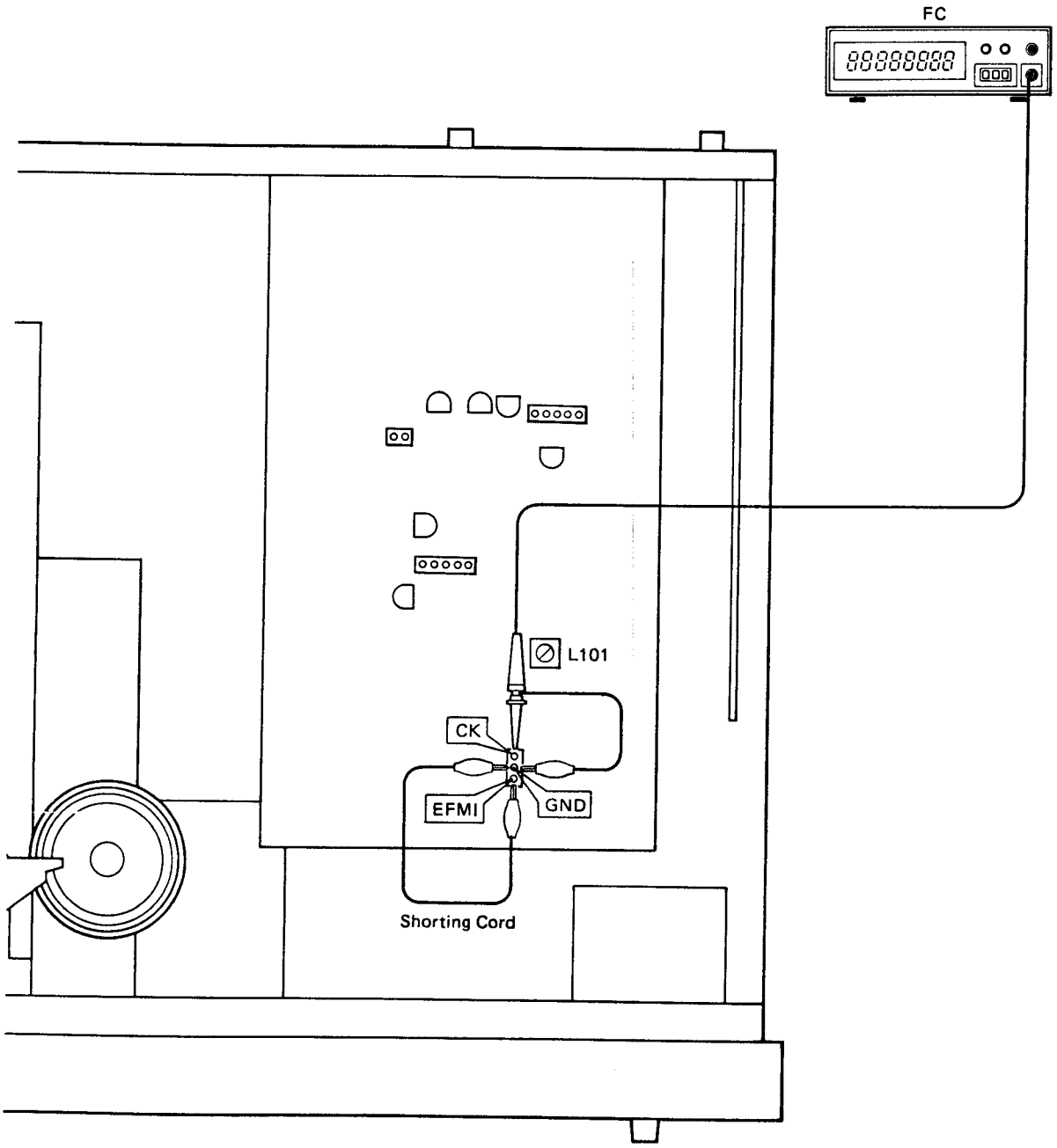


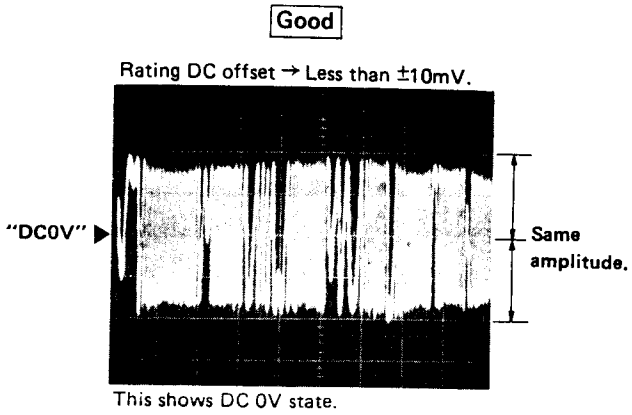
Fig. D

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.



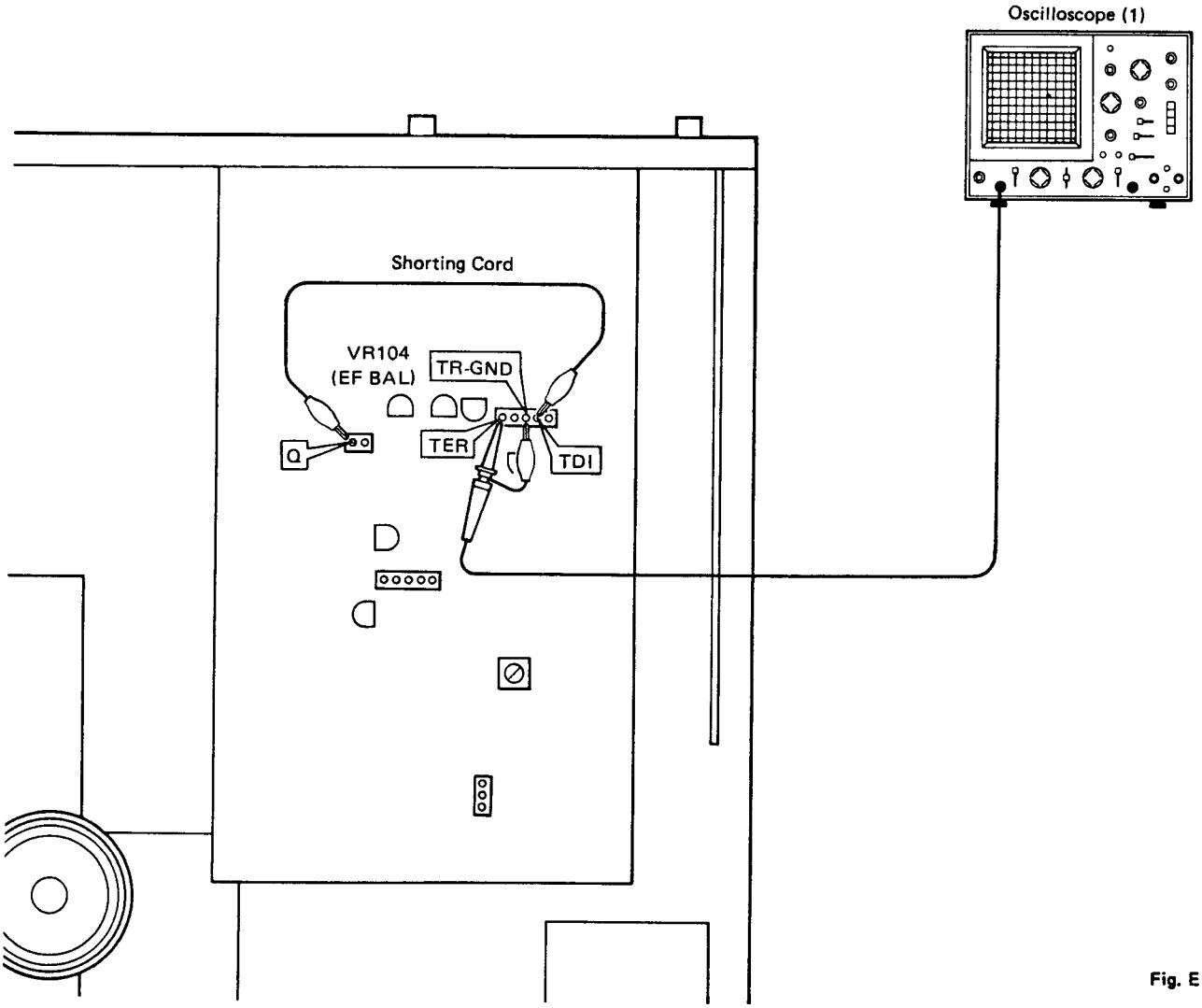


Fig. E

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 μsec/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.

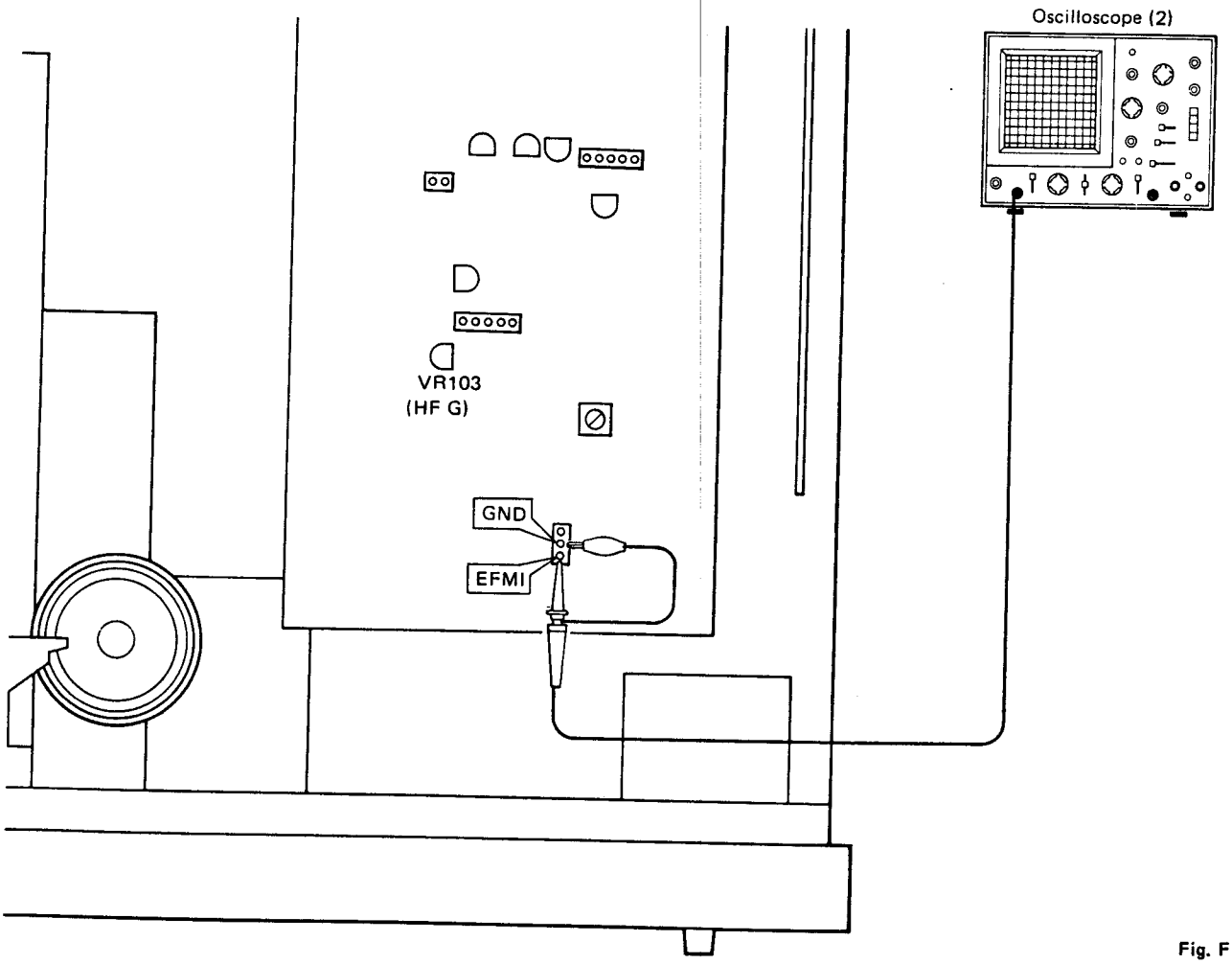


Fig. F

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 kiloohms) 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: $E_{FO} - E_R = 8dB$

Example	[0dBV = 1V]
E_{FO}	= −16dBV (160mV)
E_R	= −24dBV (63mV)

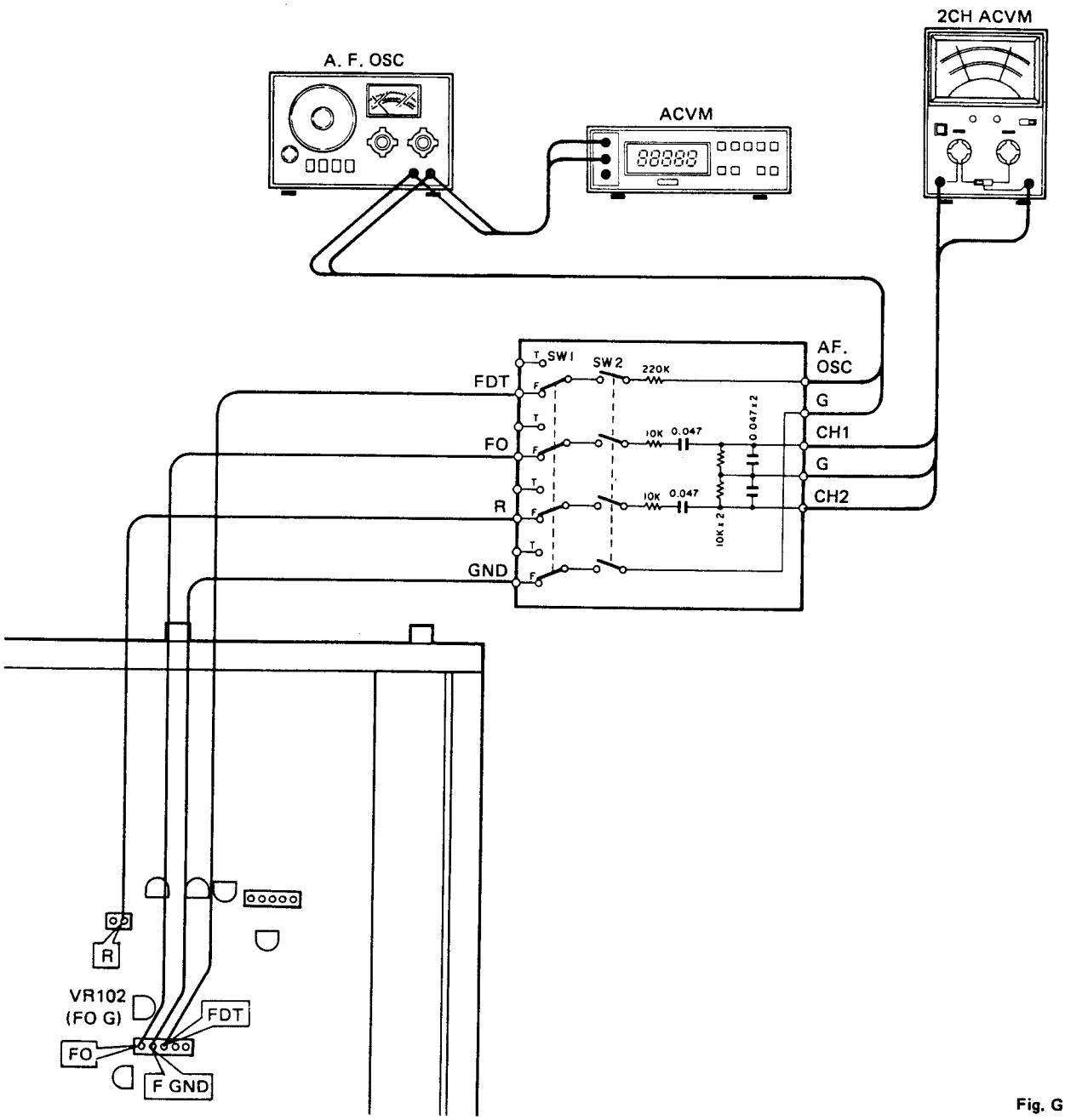


Fig. G

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 kiloohms) 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: $E_{TE} - E_Q = 17dB$

Example	[0dBV = 1V]
E_{TE}	= −13dBV (223mV)
E_Q	= −30dBV (32mV)

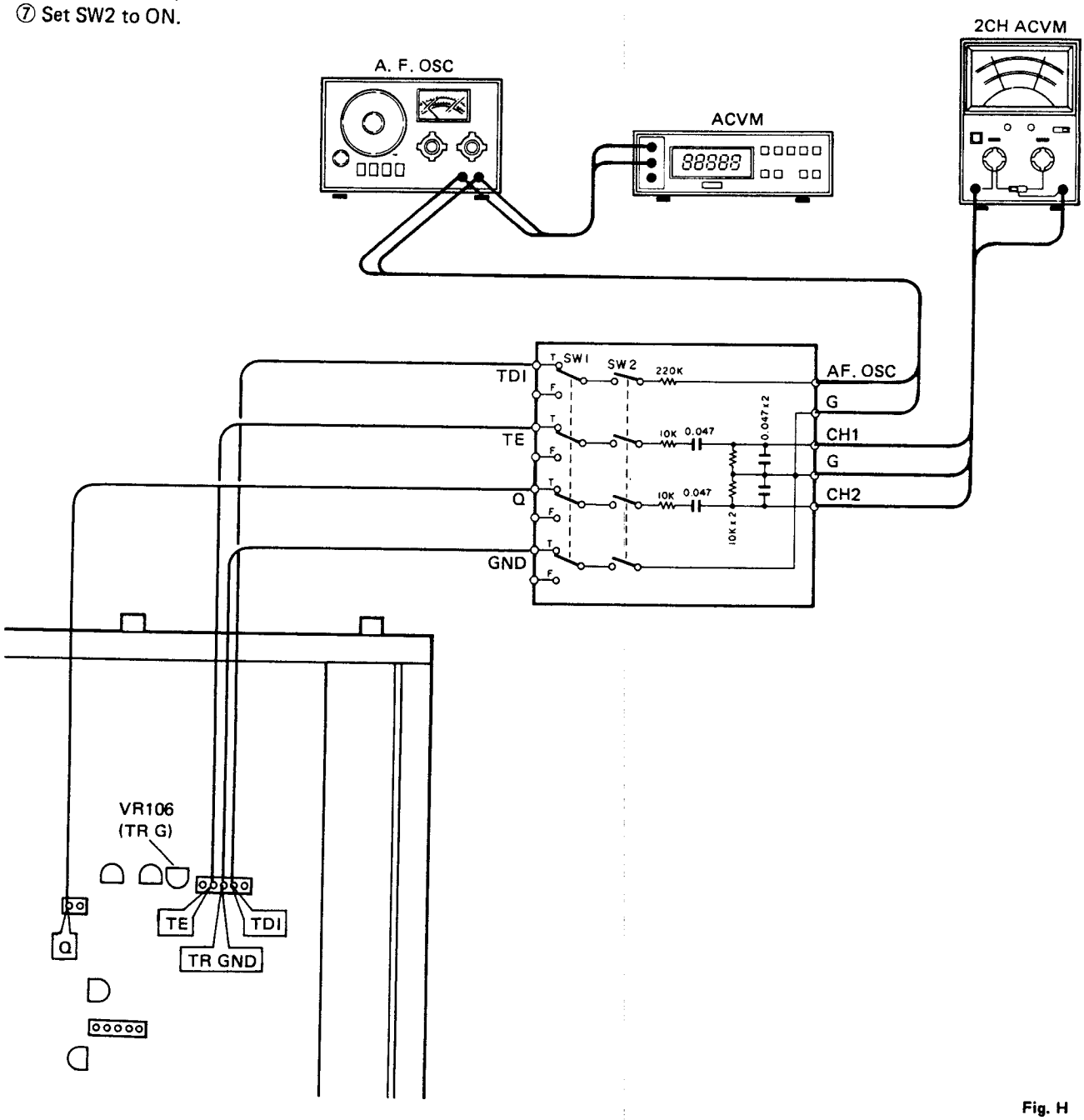


Fig. H

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 V DC ± 25mV DC

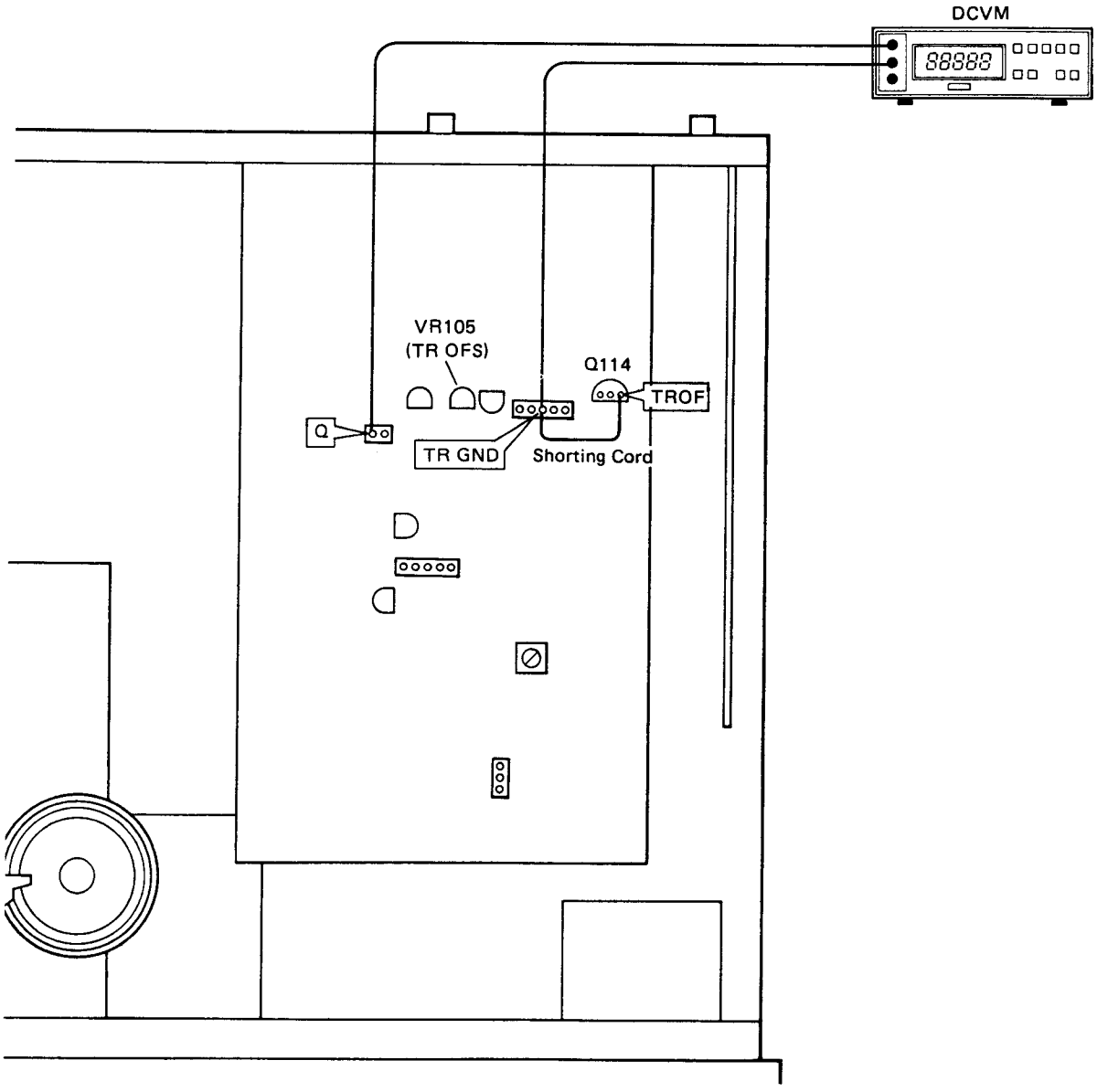


Fig. I

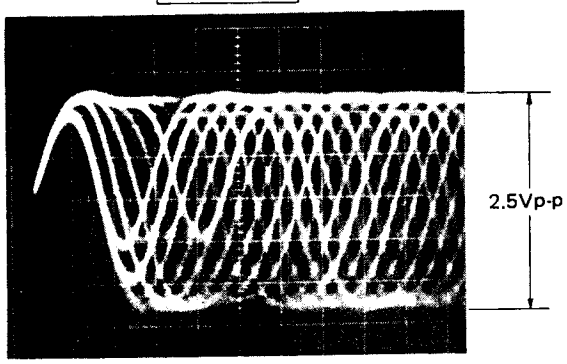
Confirmation of Jitter (Step 9)

Oscilloscope (2) Settings

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

Eye pattern



0.5 μsec/div time (Horizontal)
0.5V/div (Vertical)

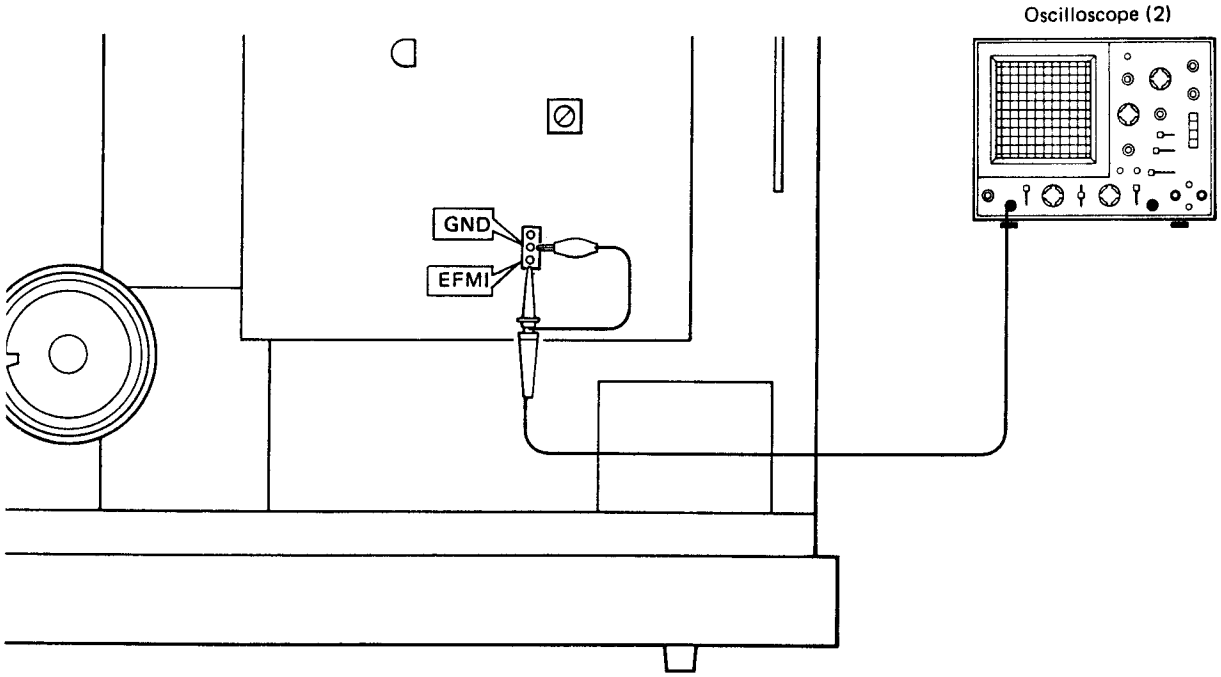
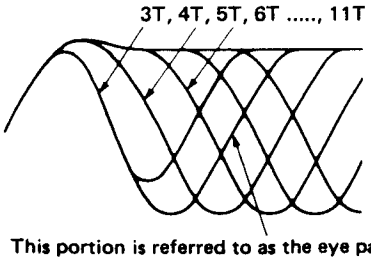


Fig. J

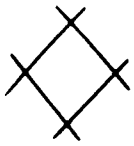
Waveforms 3T – 11T.



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

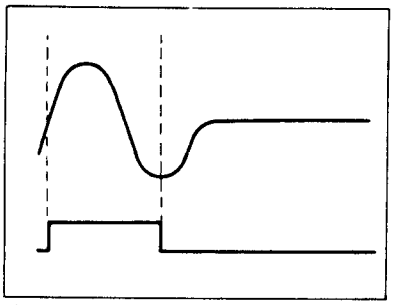
Adjustment of Kick Gain (Step 10)

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)

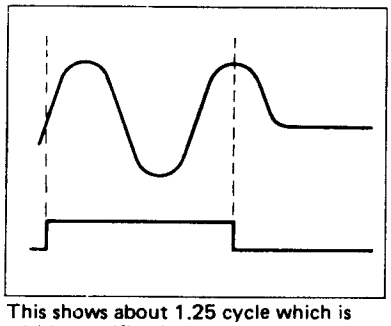
① Connect the measuring instruments, as shown in Fig. K.
② Press POWER key. (POWER ON)
③ Load the test disc.
④ Press PLAY key.
⑤ Observe waveform while pressing Fast Forward mode key (▶▶) for 3 seconds.
⑥ Adjust VR107 (KICK GAIN) so that the TER signal cycle is 1.0 when TRHD signal level is High.
* Adjust 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.

NG



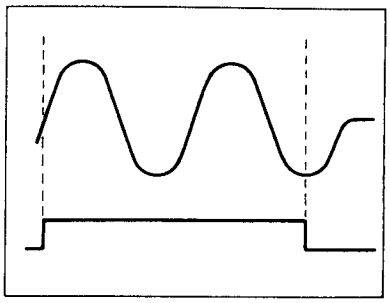
This shows about 0.75 cycle which is incorrect

OK



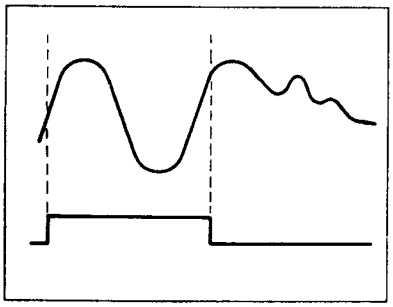
This shows about 1.25 cycle which is within specification.

NG



This shows about 1.75 cycle which is incorrect

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



NG

Not converging gently

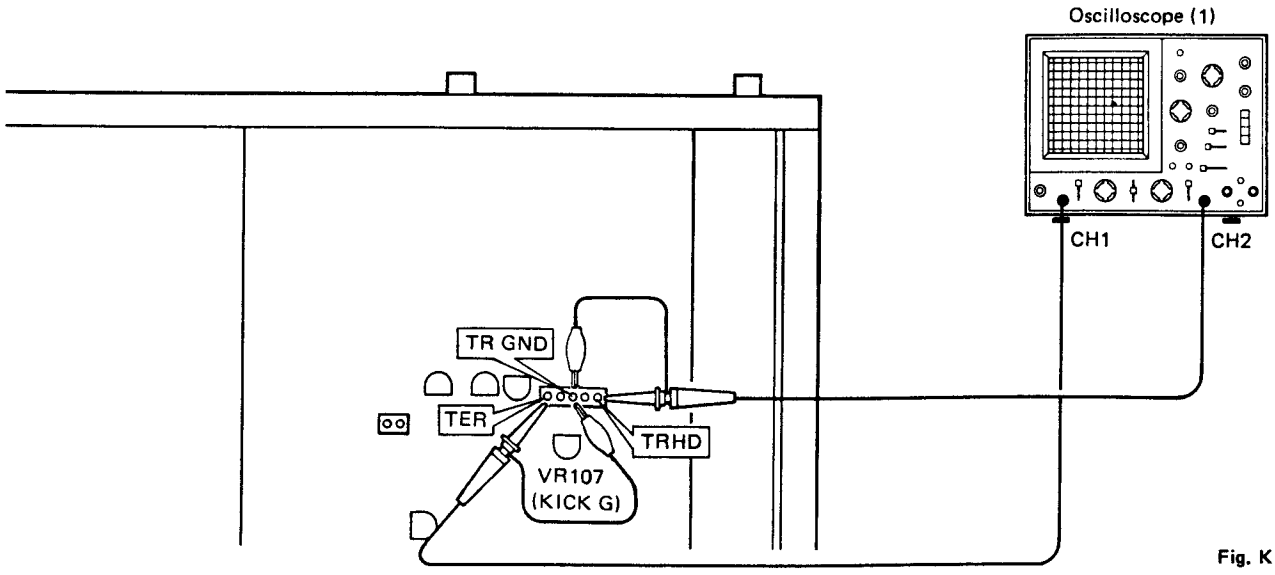


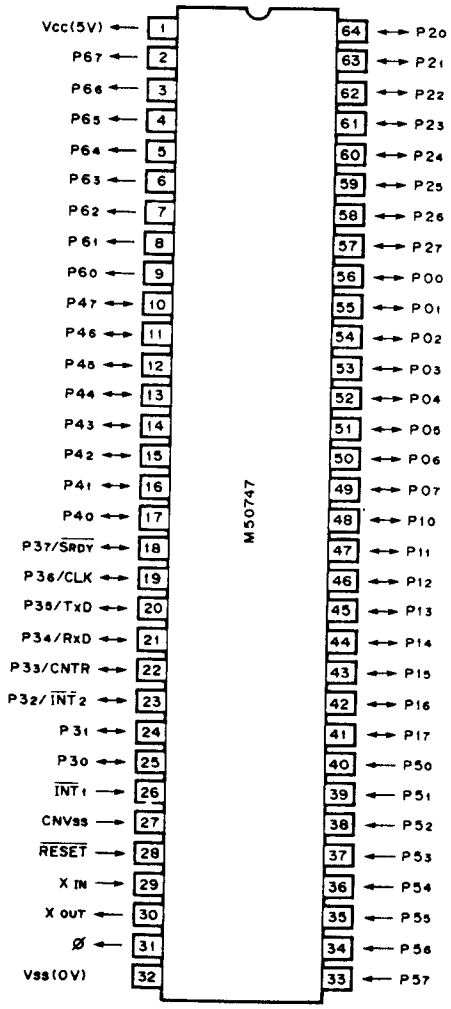
Fig. K

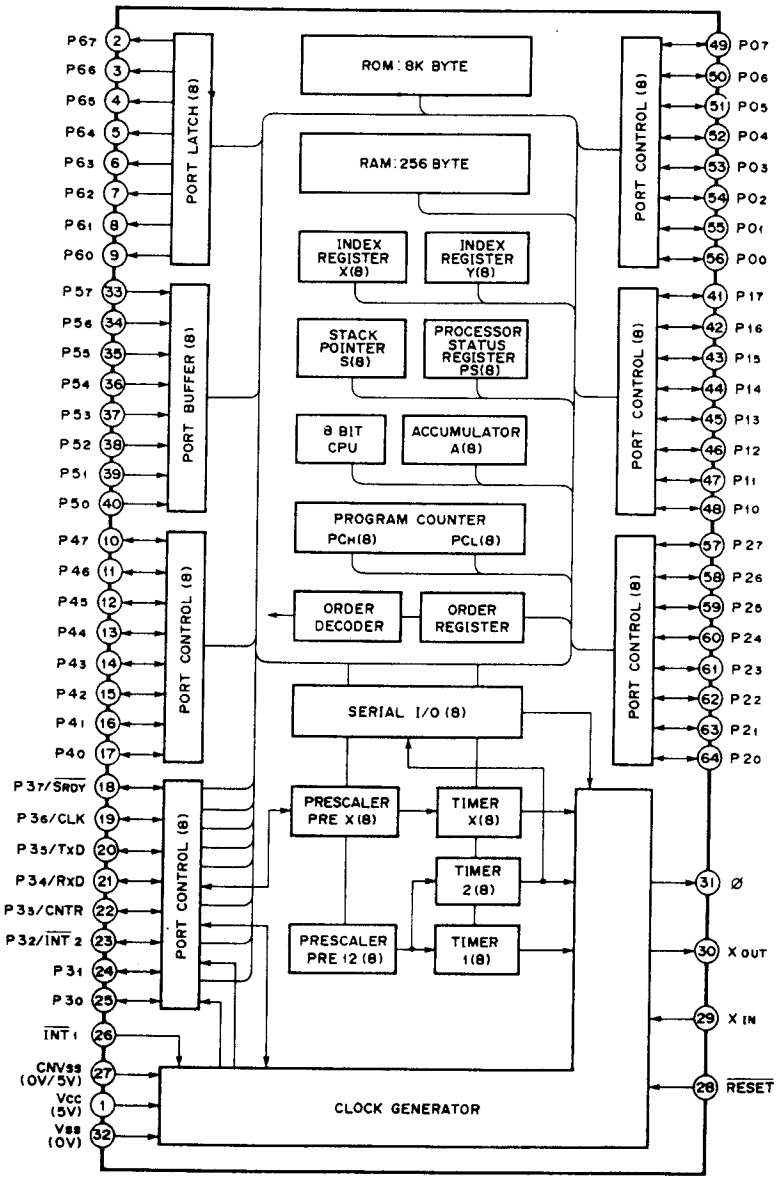
Confirmation of Skip Search Operation (Step 11)

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

■ IC DATA

IC501 : M50747
8 bit μ-COM

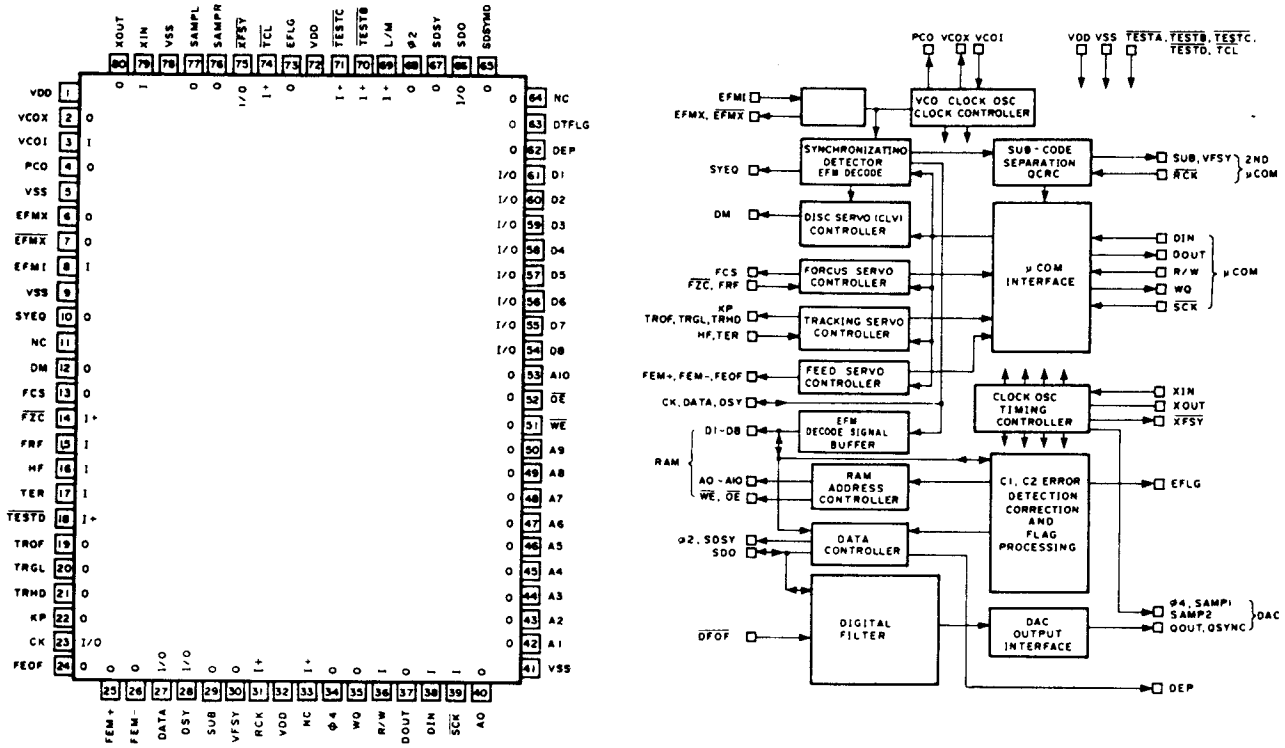




Pin No.	Pin Name	Description	I/O	Active	Function
1	Vcc	VDD			5V
2	P67 (O)	D7	O	H	Digit line
3	P66 (O)	D6	O	H	
4	P65 (O)	D5	O	H	
5	P64 (O)	D4	O	H	
6	P63 (O)	D3	O	H	
7	P62 (O)	D2	O	H	
8	P61 (O)	D1	O	H	
9	P60 (O)	D0	O	H	
10	P47	UP			Not used
11	P46	DN			
12	P45	HB	O	H	Hi-Bit DIRECT OUT Control
13	P44	MODE	I	H/L	Mode switch
14	P43	OPEN	O	H	Open switch
15	P42	CLOSE	O	H	Close switch
16	P41	$\overline{LS}$	O	H	Laser switch
17	P40	$\overline{PLAY}$	O	H	PLAY mode output
18	P37/SRDY				Not used
19	P36/CLK	$\overline{SCK}$	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	$\overline{SCK}$	O		
26	INT1	$\overline{INT}$			
27	CNVSS	VSS			GND
28	RESET	$\overline{RES}$	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

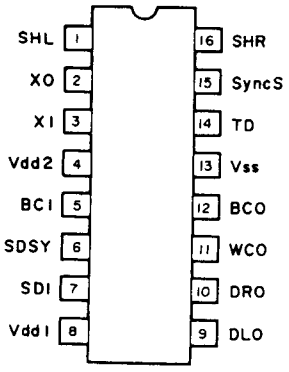
YM-3816 is a CMOS LSI for signal processing and servo control of the compact disc player.
It executes such signal processing as demodulation of the EFM signal from the optical pick-up, detection and correction of the erroneous signal and digital filtering which helps to improve the sound quality, as well as such intelligent servo controlling as focus, disc, tracking and feeding.

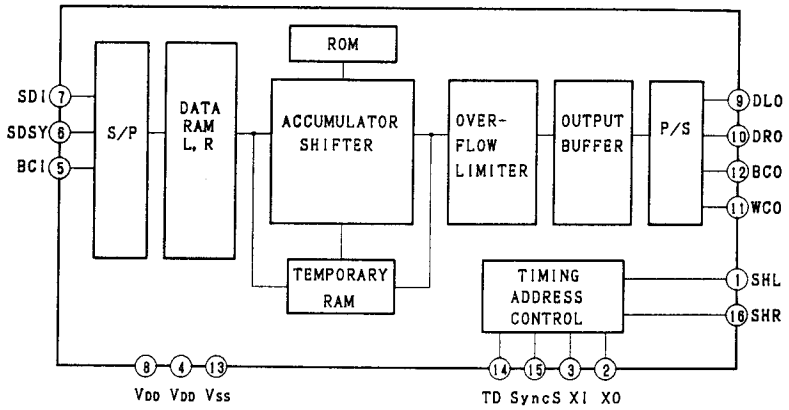


Pin No.	Pin Name	I/O	Function
1	VDD		Power Supply
2	VCOX	O	Clock Playback Circuit 4PCO
3	VCOI	I	
4	PCO	O	
5	VSS		GND
6	EFMX	O	EFM Signal External Circuit
7	$\overline{EFMX}$	O	
8	EFMI	I	
9	VSS		GND
10	SYEQ	O	Synchronized Uniform Signal
11	N.C.		Not Use
12	DM	O	Disc Servo { LOW (0V): FORWARD OPEN (2.5V): STOP HIGH (5V): REVERSE
13	FCS	O	Focus Servo System Input
14	$\overline{FZC}$	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	
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	ϕ4		4.3218 MHz Clock
35	WQ	O	Q Code Output System: Data Output to μCOM; Data I/O Control Signal; Clock for Data I/O; Data I/O from μCOM } Q code Output μCOM Command
37	DOUT	O	
36	R/W	I	
39	$\overline{SCK}$	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	$\overline{WE}$	O	
52	$\overline{OE}$	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; Digital Data Output; LSB first/MSB first; 2.1659MHz Clock; SB first (H)/MSB first (L) Switch for SDO; Test Terminal } Data Control Circuit Board Serial Signal Output
66	SDO	O	
67	SDSY	O	
68	ϕ2	O	
69	L/M	I	
71	$\overline{TESTC}$	I	
64	NC	O	Not Use; BB Word Clock for DAC; Digrich Signal; 4.3218MHz Clock } DAC Interface
65	SDSYMD	O	
76	SAMPR	O	
77	SAMPL	O	
34	ϕ4	O	
18	$\overline{TESTD}$	I	Test Terminal
70	$\overline{TESTB}$	I	
74	$\overline{TCL}$	I	
72	VDD		Power Supply
73	EFLG	O	C1, C2 Error Correction Check Signal
75	$\overline{XFSY}$	I/O	Synchronized Clock Signal
78	VSS		GND
79	XIN	I	Clock Oscillation
80	XOUT	O	

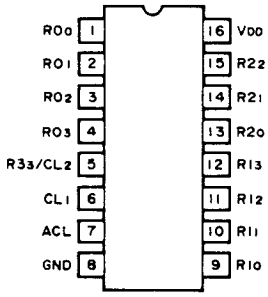
IC301: YM3414
Digital Filter

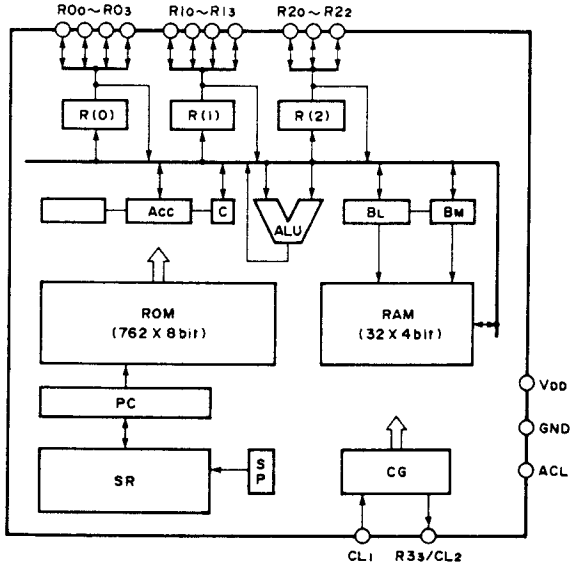




Pin Name	Pin No.	I/O	Description of function
SHL	1	O	At 1DAC (TD = 'L') : Deglitcher signal of Lch (when four-fold) At 2DAC (TD = 'H') : Deglitcher signal of L/Rch (when eight-fold)
X 0 X 1	2 3	O I	Generates quarts oscillation between XI and XO. 16.934MHz (Direct input into XI from the external source 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 synchrnous input = 'L' : SDSY prohibited)
SHR	16	O	R ch deglitcher signal at 1DAC

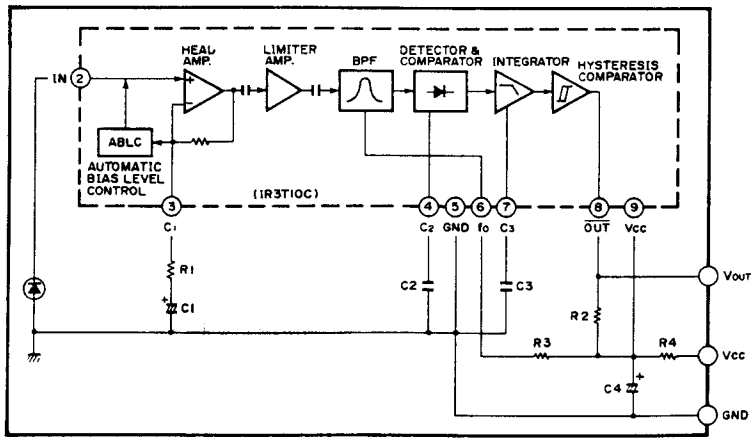
IC502: LU59521
4 bit μ-COM



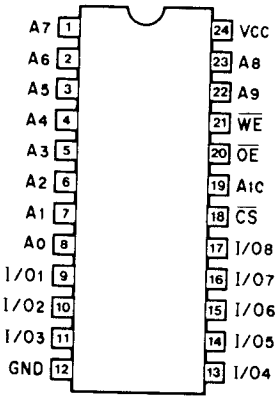


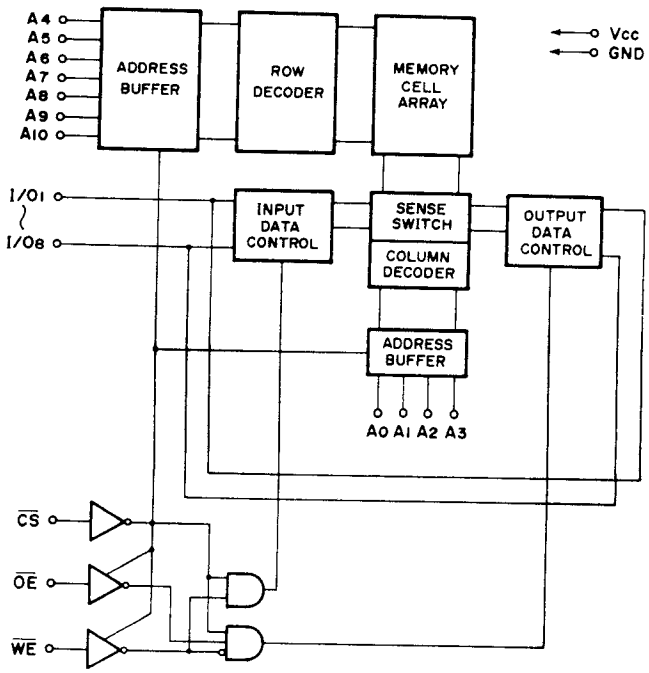
FUNCTION	CONTROL CODE								FUNCTION	CONTROL CODE							
		0	1	2	3	4	5	6	7		0	1	2	3	4	5	6	7
OPEN / CLOSE	01	1	0	0	0	0	0	0	0	10	20	0	0	0	0	0	1	0	0
PLAY	02	0	1	0	0	0	0	0	0	11	21	1	0	0	0	0	1	0	0
⏮	04	0	0	1	0	0	0	0	0	12	22	0	1	0	0	0	1	0	0
⏪	05	1	0	1	0	0	0	0	0	13	23	1	1	0	0	0	1	0	0
⏩	06	0	1	1	0	0	0	0	0	14	24	0	0	1	0	0	1	0	0
⏭	07	1	1	1	0	0	0	0	0	15	25	1	0	1	0	0	1	0	0
REPEAT S/F	08	0	0	0	1	0	0	0	0	16	26	0	1	1	0	0	1	0	0
TIME DISP	0A	0	1	0	1	0	0	0	0	17	27	1	1	1	0	0	1	0	0
INDEX	0B	1	1	0	1	0	0	0	0	18	28	0	0	0	1	0	1	0	0
PROGRAM MAN'L	0C	0	0	1	1	0	0	0	0	19	29	1	0	0	1	0	1	0	0
" DELETE	0E	0	1	1	1	0	0	0	0	20	2A	0	1	0	1	0	1	0	0
0	10	0	0	0	0	1	0	0	0	21	2B	1	1	0	1	0	1	0	0
1	11	1	0	0	0	1	0	0	0	22	2C	0	0	1	1	0	1	0	0
2	12	0	1	0	0	1	0	0	0	23	2D	1	0	1	1	0	1	0	0
3	13	1	1	0	0	1	0	0	0	24	2E	0	1	1	1	0	1	0	0
4	14	0	0	1	0	1	0	0	0	PAUSE	1E	0	1	1	1	1	0	0	0
5	15	1	0	1	0	1	0	0	0	STOP	1F	1	1	1	1	1	0	0	0
6	16	0	1	1	0	1	0	0	0	PROGRAM TAPE	0F	1	1	1	1	0	0	0	0
7	17	1	1	1	0	1	0	0	0	Hi - Bit	38	0	0	0	1	1	1	0	0
8	18	0	0	0	1	1	0	0	0										
9	19	1	0	0	1	1	0	0	0										
+10	1A	0	1	0	1	1	0	0	0										
PROGRAM AUTO	1B	1	1	0	1	1	0	0	0										

U501: GP1U521
Receiver Unit

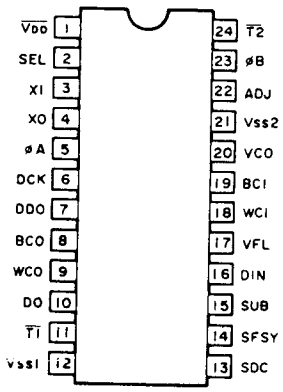


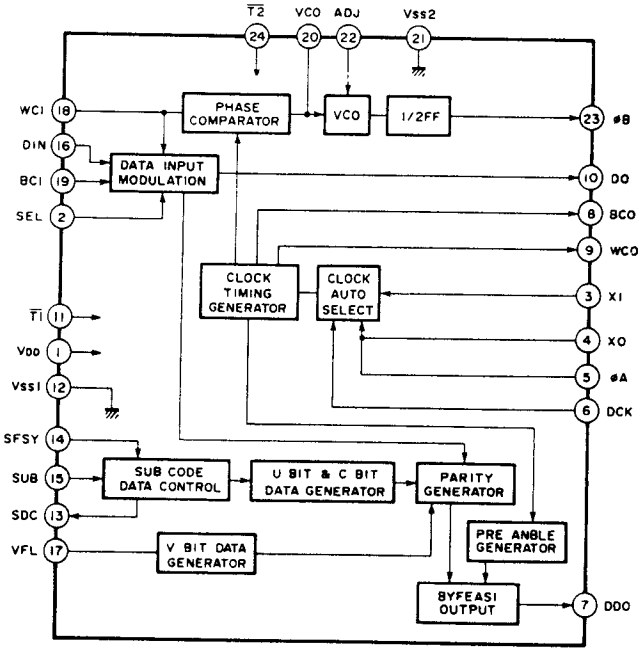
IC110: μPD4016-CX, LC3517B-15, TMM2015BP, TMM2016BP, CXK5816SP, CXK5816PS or CXK5816PN
2048-Word x 8 bit Static RAM



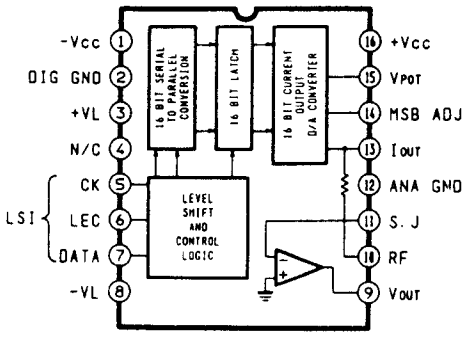


IC111: YM3613B
Digital Audio Interface Transmitter (DIT)

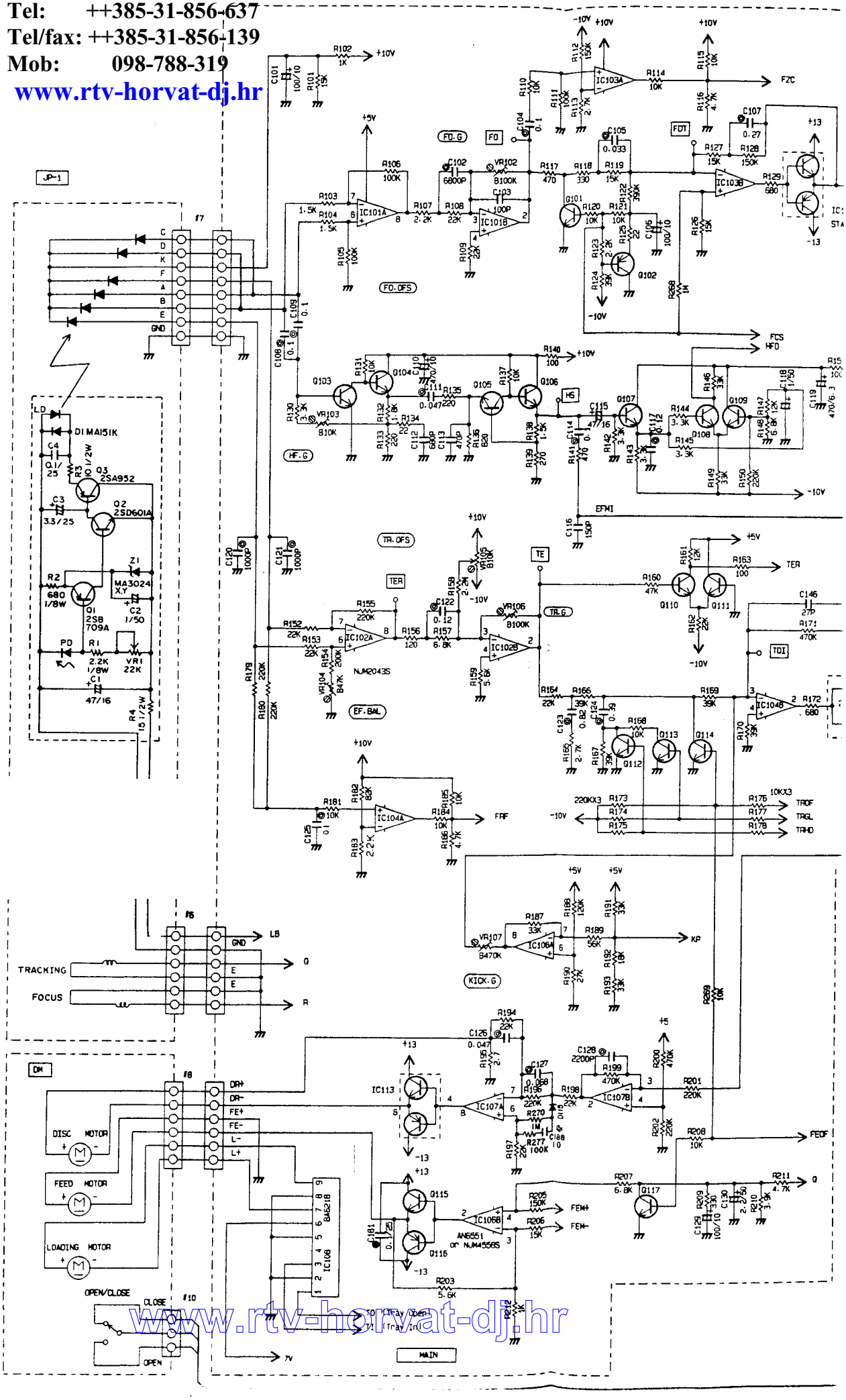


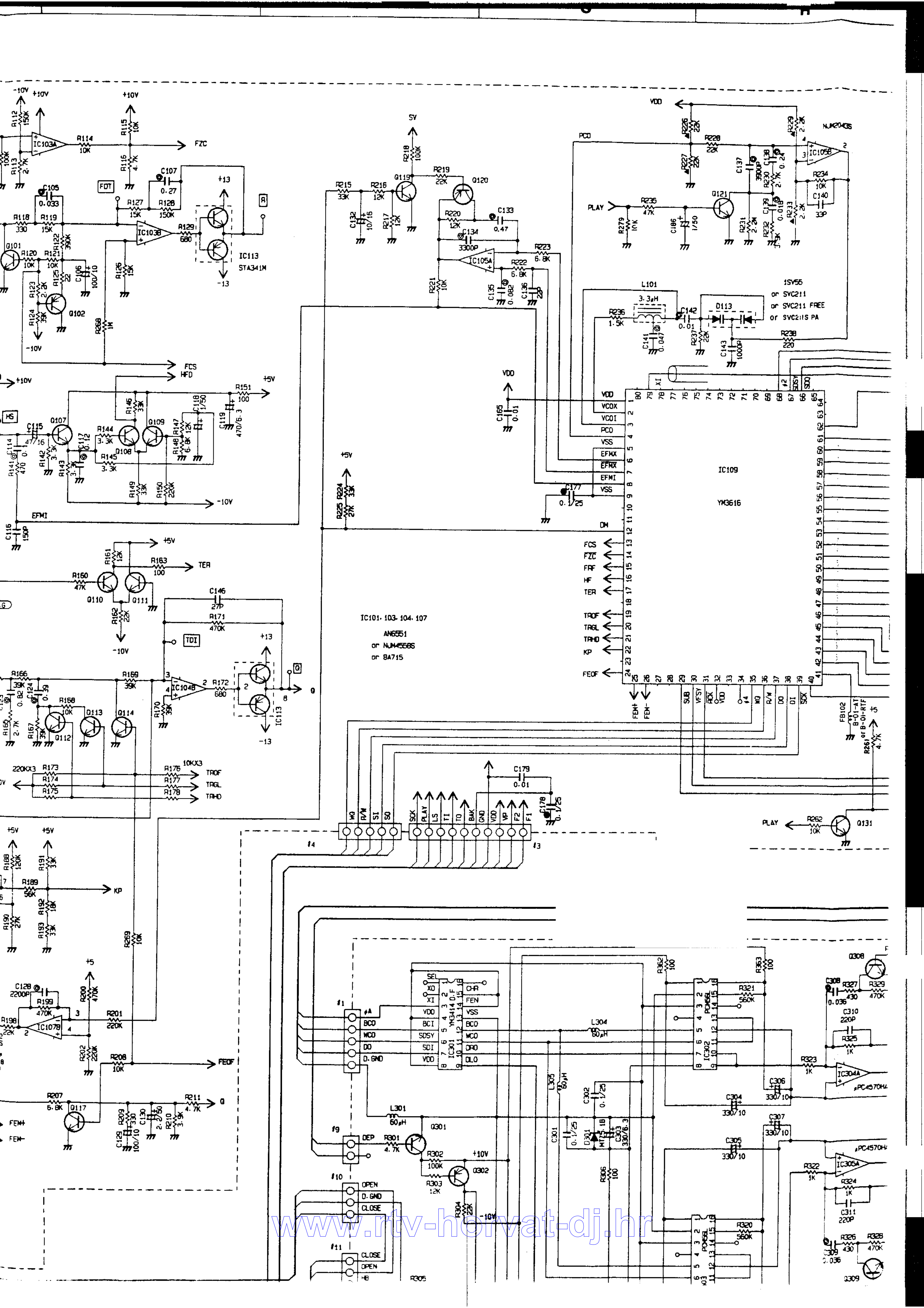


IC302, 303: PCM56L
D/A Converter

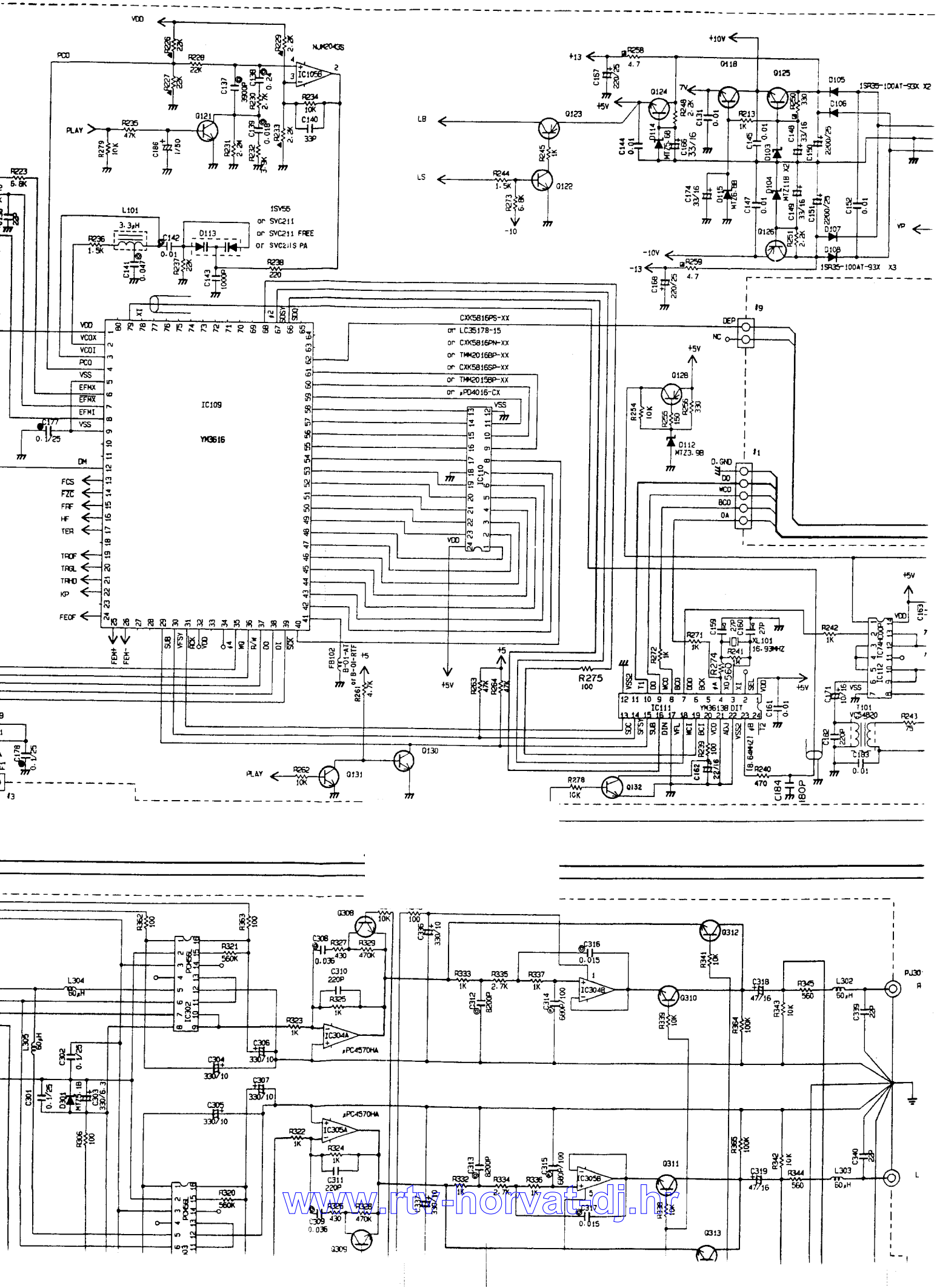


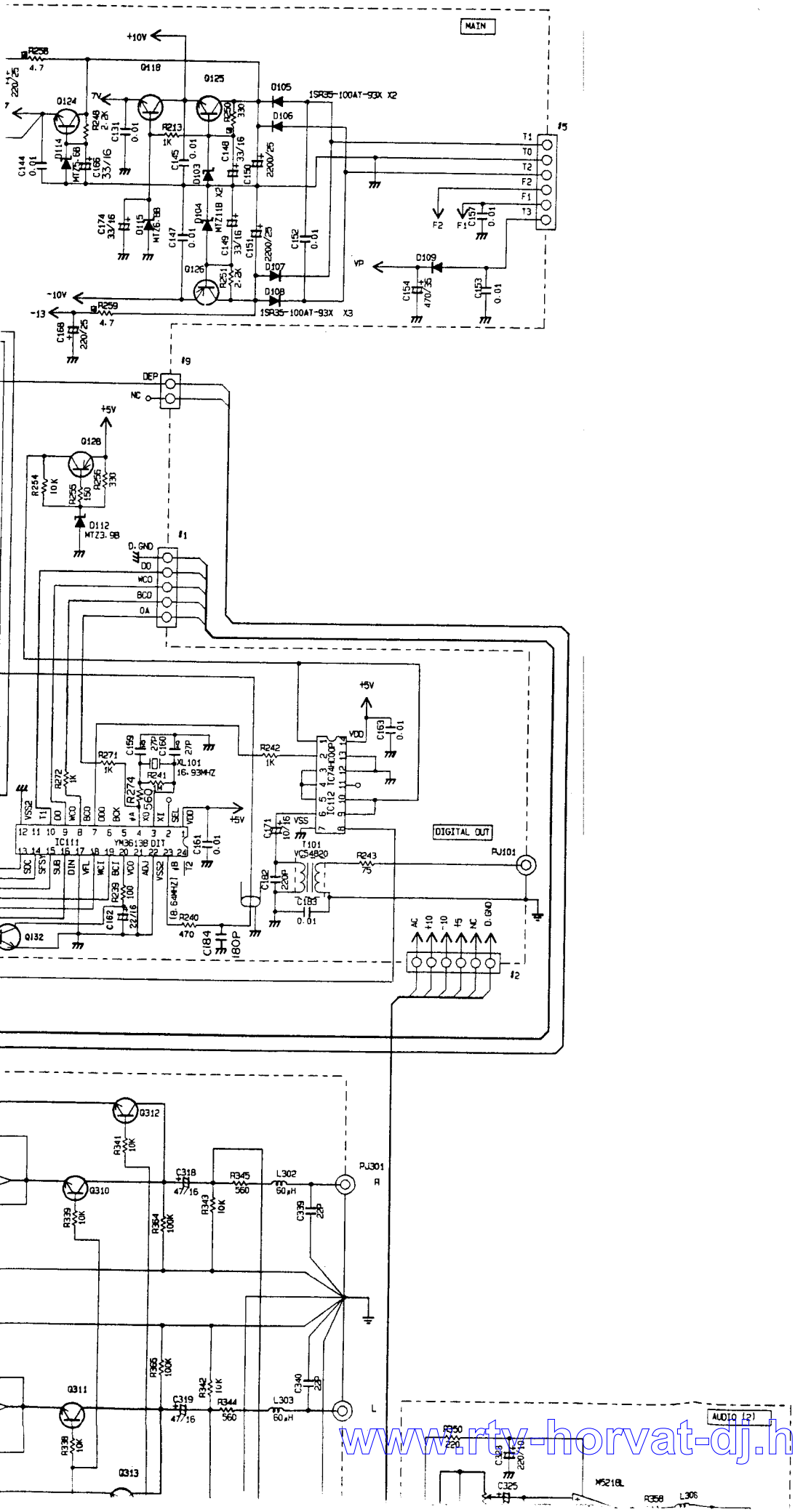
TIC DIAGRAM

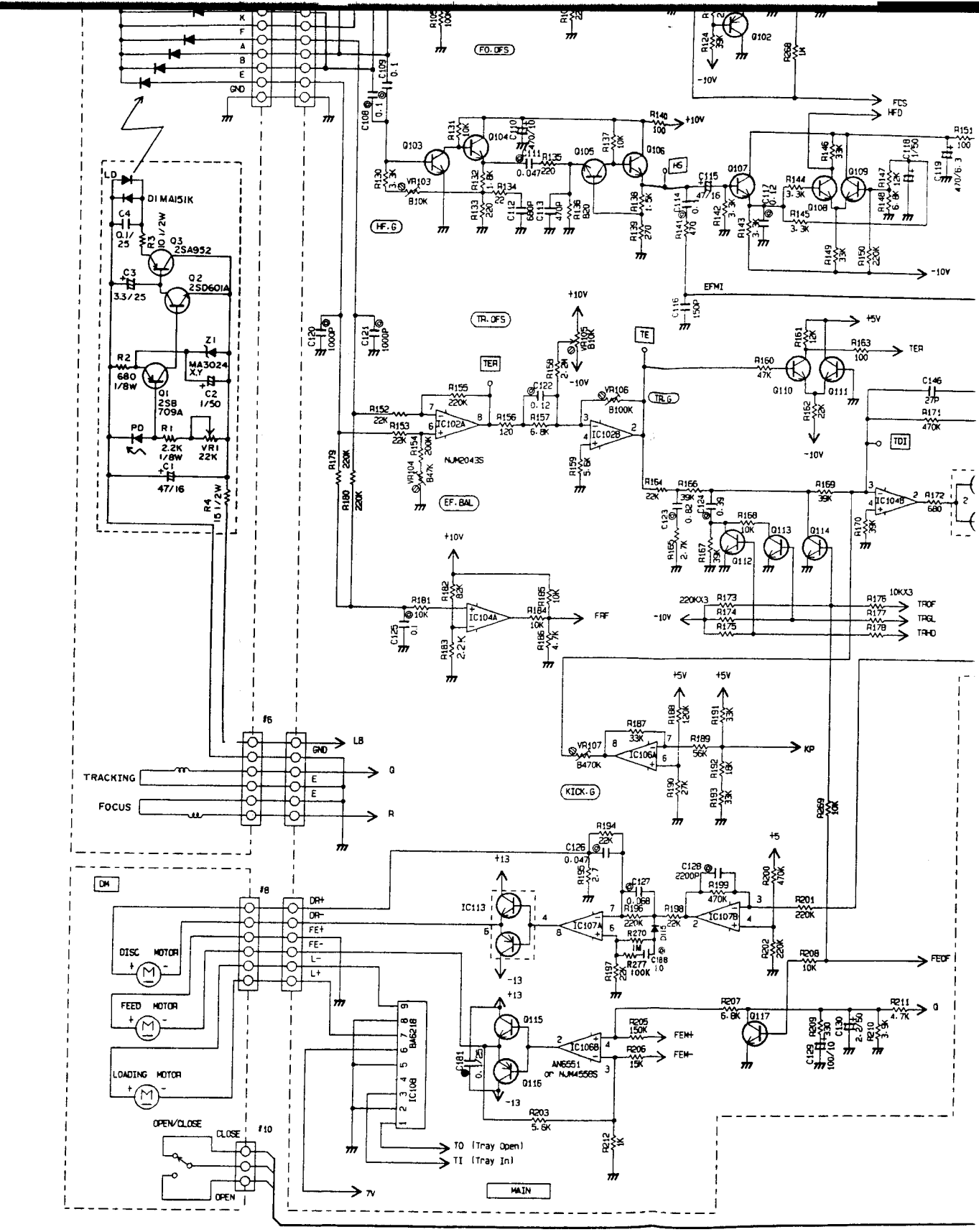


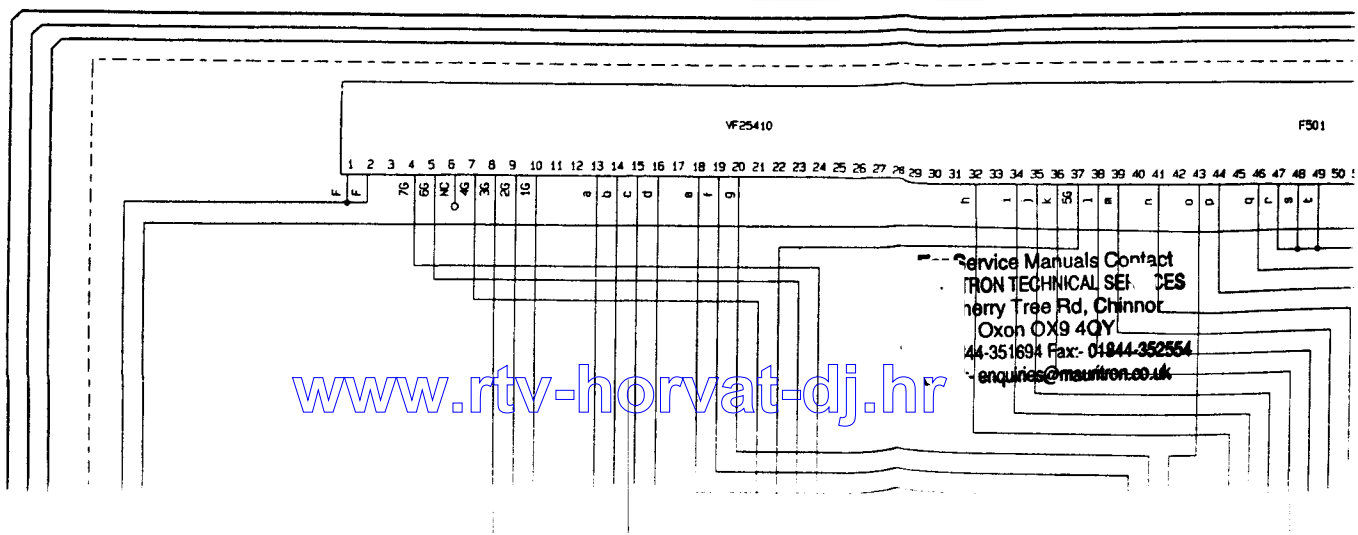


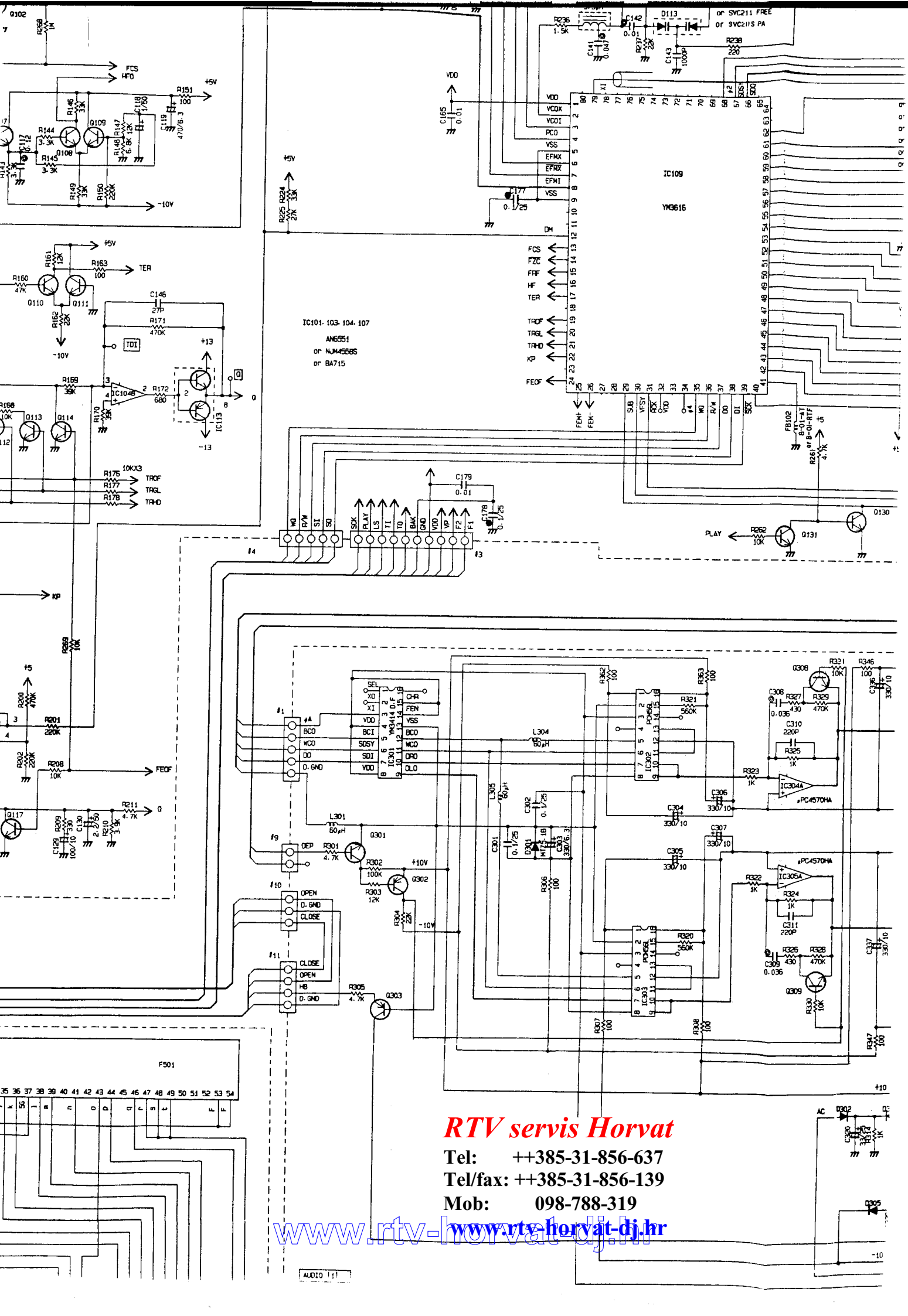
IC109
YM3616
IC101·103·104·107
AN6551
or NJM4558S
or BA715
IC113
STA341M
IC105A
IC103A
IC103B
IC104B
IC107B
NJM2043S
IC105B
IC301
YM3414
IC302
PCM56L
IC304A
IC305A
µPC4570HA
1SV55
or SVC211
or SVC211 FREE
or SVC211S PA
FZC
FCS
HFD
TER
TROF
TRGL
TRHD
KP
FEOF
EFMI
PLAY
VDD
www.rtv-horvat-dj.hr

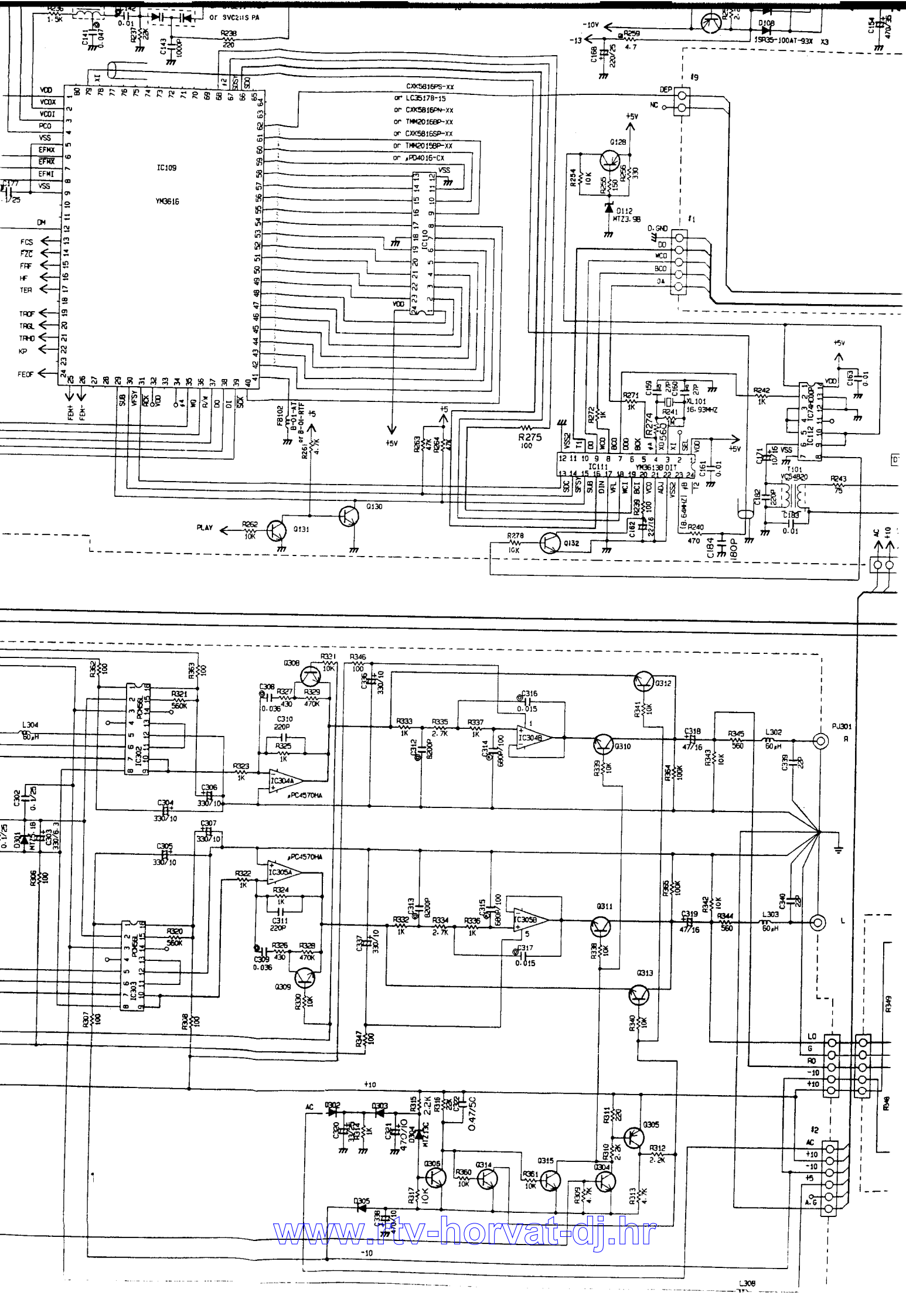

VDD
PCO
PLAY
LB
LS
+10V
+13
-10V
-13
+5V
+5
-10
IC109
YM3616
CXK5816PS-XX
or LC35178-15
or CXK5816PN-XX
or TMM2016BP-XX
or CXK5816SP-XX
or TMM2015BP-XX
or μPD4016-CX
IC110
IC111
YM3613B DIT
XL101
16.93MHZ
18.64MHZ
D.GND
DO
WCO
BCO
DA
DEP
NC
FCS
FZC
FAF
HF
TER
TROF
TRGL
TRHD
KP
FEOF
FEM+
FEM-
SUB
VFSY
SDSY
SDO
SDX
SCK
DM
1SV55
or SVC211
or SVC211 FREE
or SVC211S PA
NJM2043S
IC1056
IC304A
IC305A
IC305B
μPC4570HA
Q118
Q125
Q123
Q124
Q121
Q122
Q126
Q128
Q130
Q131
Q132
Q308
Q309
Q310
Q311
Q312
Q313
D105
D106
D107
D108
1SR35-100AT-93X X2
1SR35-100AT-93X X3
D112
MTZ3.9B
D113
L101
3.3μH
L304
L305
L302
L303
PJ301
PJ302
R275
100
XO-5501
VC54820
IC1C12 TC74HC00P
www.rtv-horvat.dj.hr

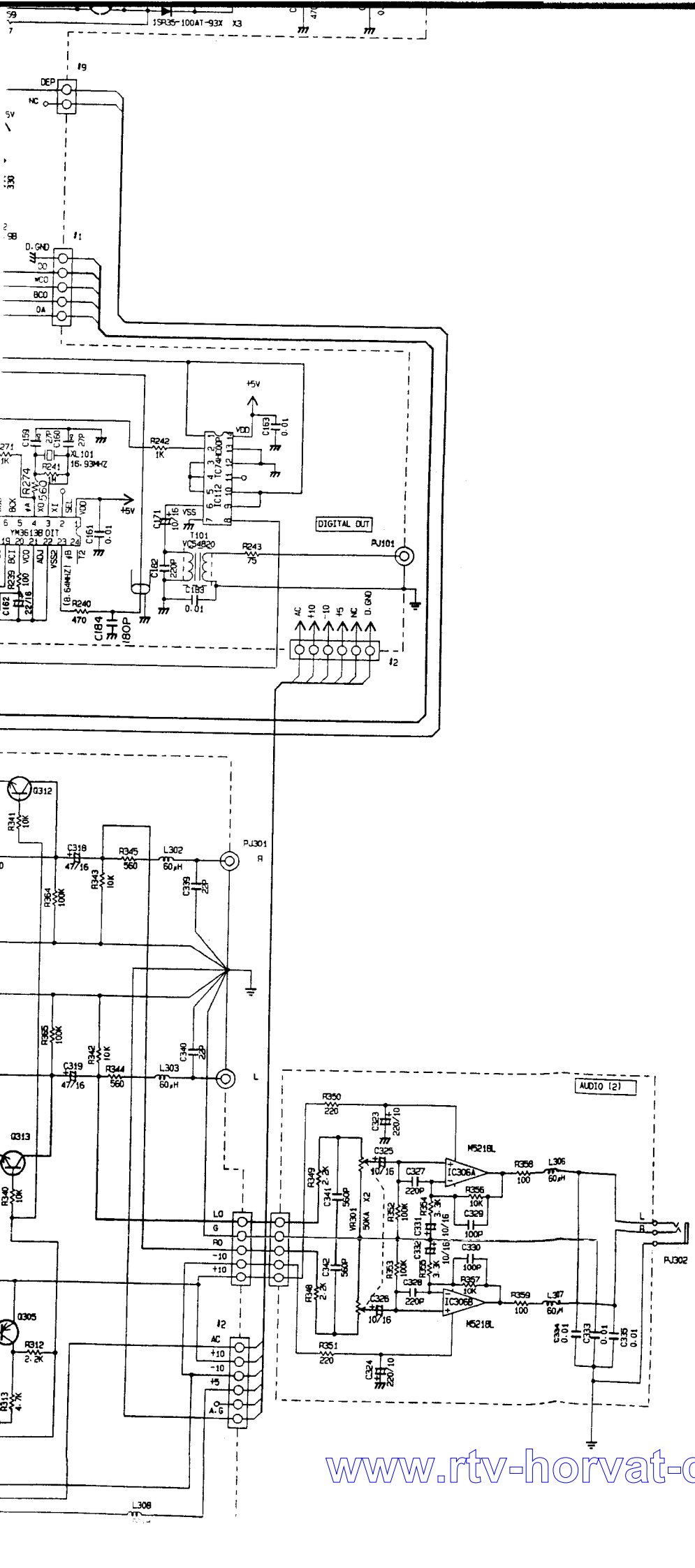




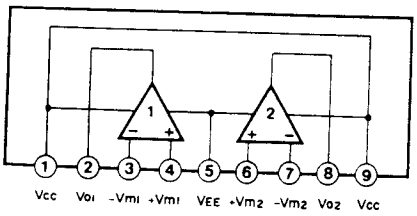




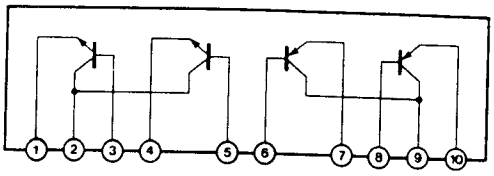

IC109
YM3616
CXK5816PS-xx
or LC35178-15
or CXK5816PN-xx
or TMM2016BP-xx
or CXK5816SP-xx
or TMM2016BP-XX
or μPD4016-CX
IC110
IC111
YM3638 DIT
IC112 TC74HC00P
Q128
Q130
Q131
Q132
D112 MTZ3.98
D108 1SR35-100AT-93X X3
XL101 16.934MHz
T101 YC54820
18.644MHz
IC302 PCM61
IC303 PCM61
IC304A μPC4570HA
IC305A μPC4570HA
IC305B
IC306B
Q301 MTZ5.1B
Q302
Q303
Q304
Q305
Q306
Q309
Q310
Q311
Q312
Q313
Q314
Q315
L304 60μH
L302 60μH
L303 60μH
PJ301
PLAY
AC
+5V
-10V
+10
-10
D.GND
www.tv-horvat-dj.hr



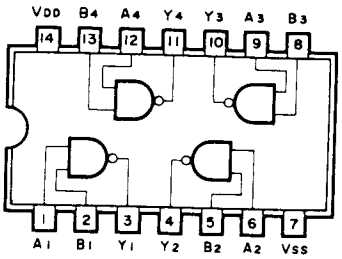
IC101, 103, 104, 107: AN6551, NJM4558S or BA715
IC106: AN6551 or NJM4558S
IC102, 105: NJM2043S
IC304, 305: μPC4570HA
Dual Ope-amp



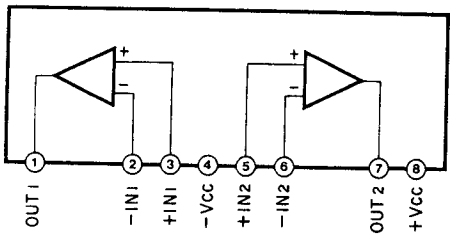
IC113: STA341M
Transistor Array



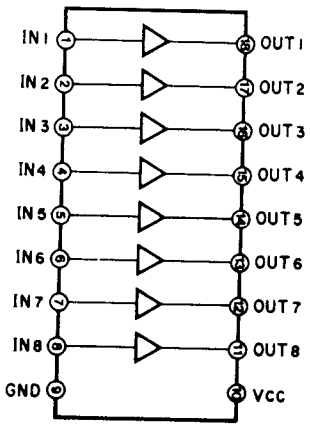
IC112: TC74HC00P
Quad 2-Input NAND Gate



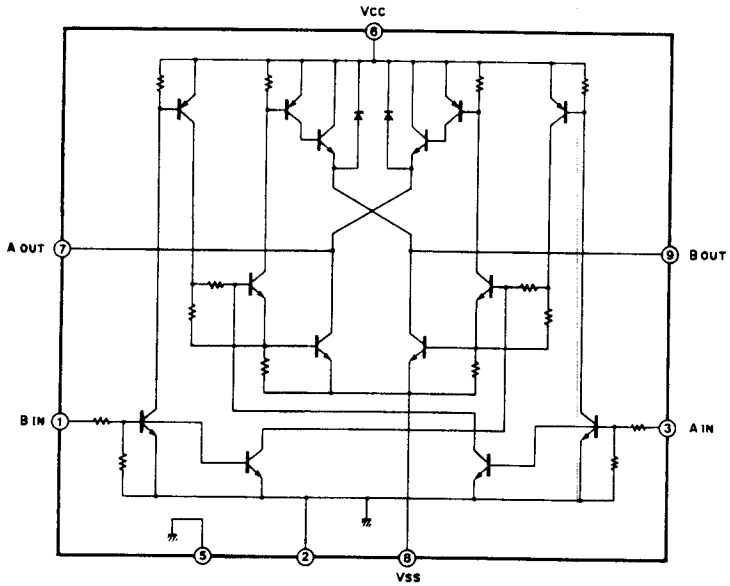
IC306: M5218L
Dual Ope-amp



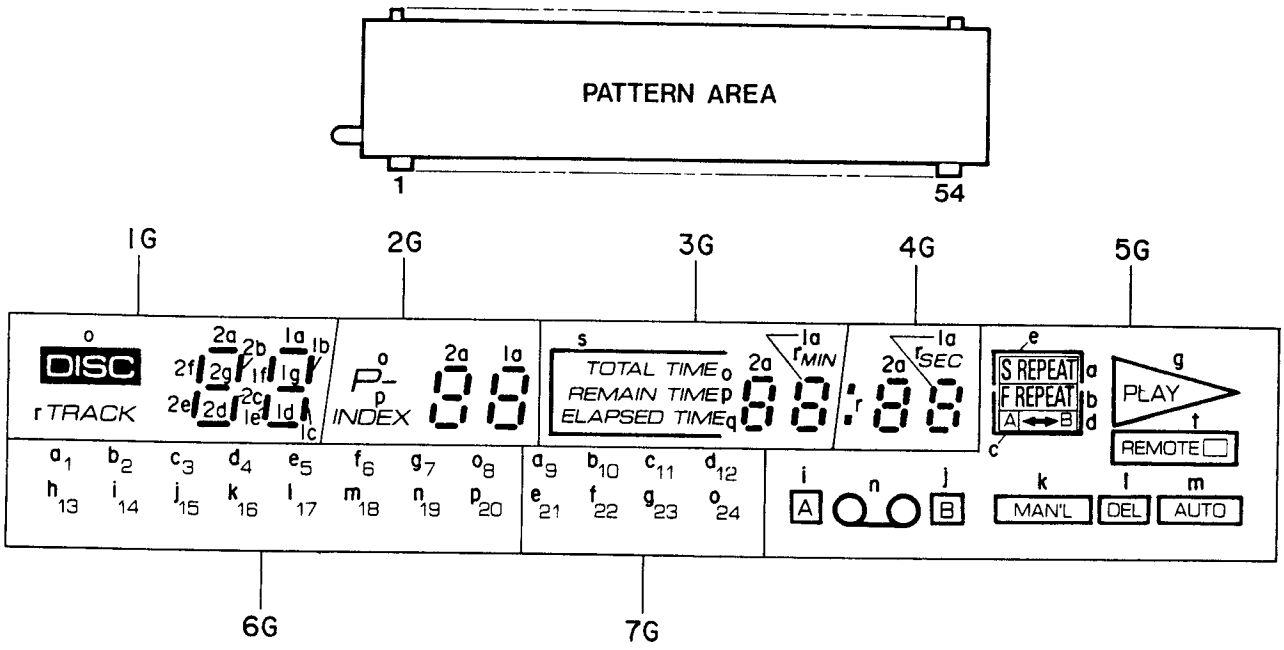
IC503 ~ 505: M54564P
LED Driver



IC108: BA6218
Motor 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	NP	7G	6G	NP	4G	3G	2G	1G	NP	NP	a	b	c	d	NP	e	f	g	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	h	NP	i	j

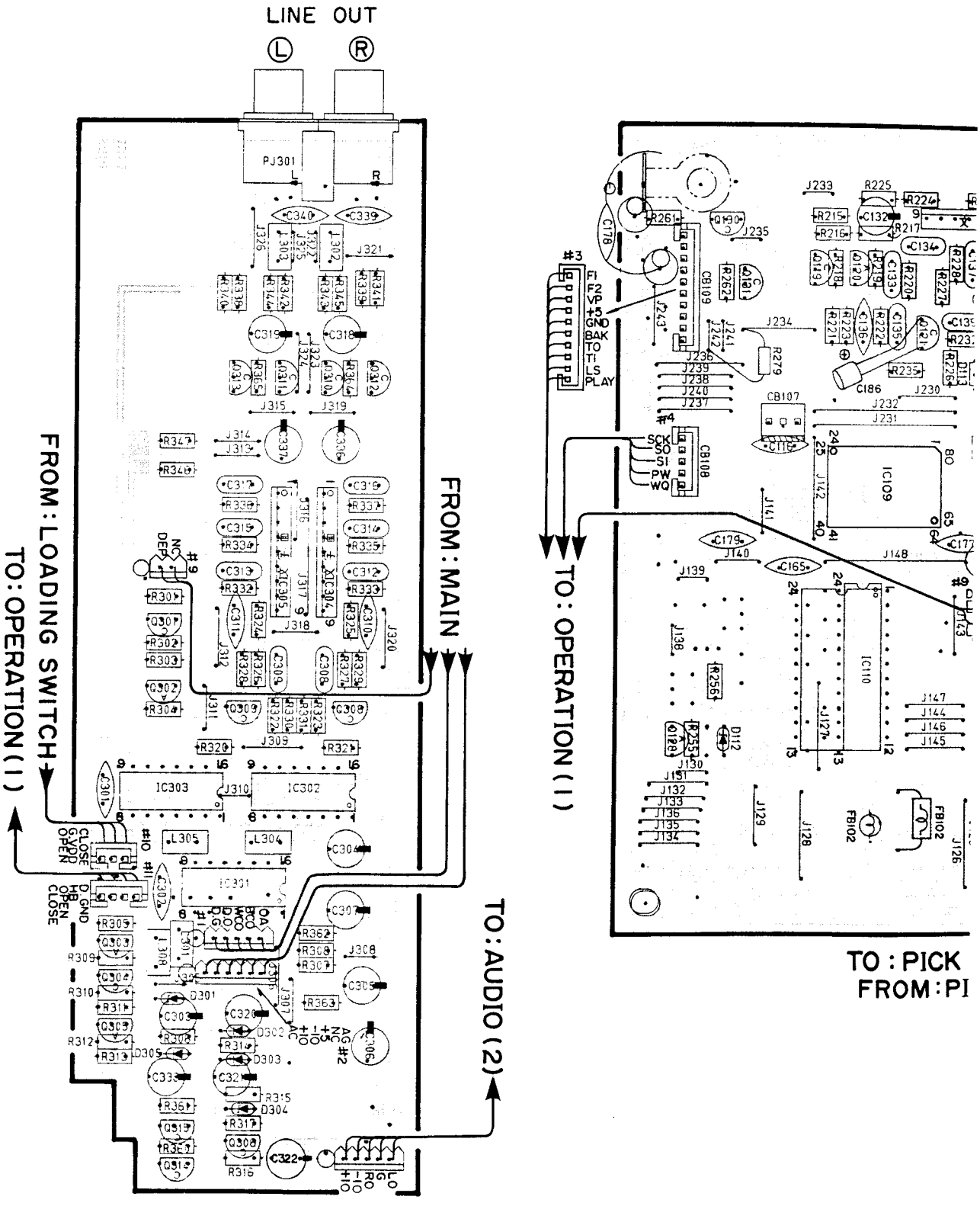
PIN NO.	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
CONNECTION	k	5G	l	m	NP	n	NP	o	p	NP	q	r	s	t	NP	NP	NP	F	F

	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	○ ○	2g	2g	2g	2g
o	24	8	–	–	TOTAL TIME	P –	DISC
p	–	20	–	–	REMAIN TIME	INDEX	–
q	–	–	–	–	ELAPSED TIME	–	–
r	–	–	–	:SEC	MIN	–	TRACK
s	–	–	–	–	▭	–	–
t	–	–	REMOTE	–	–	–	–

■ PRINTED CIRCUIT BOARD (Pattern side)

Note) 文字面 : Component side

Audio Circuit Board (1)

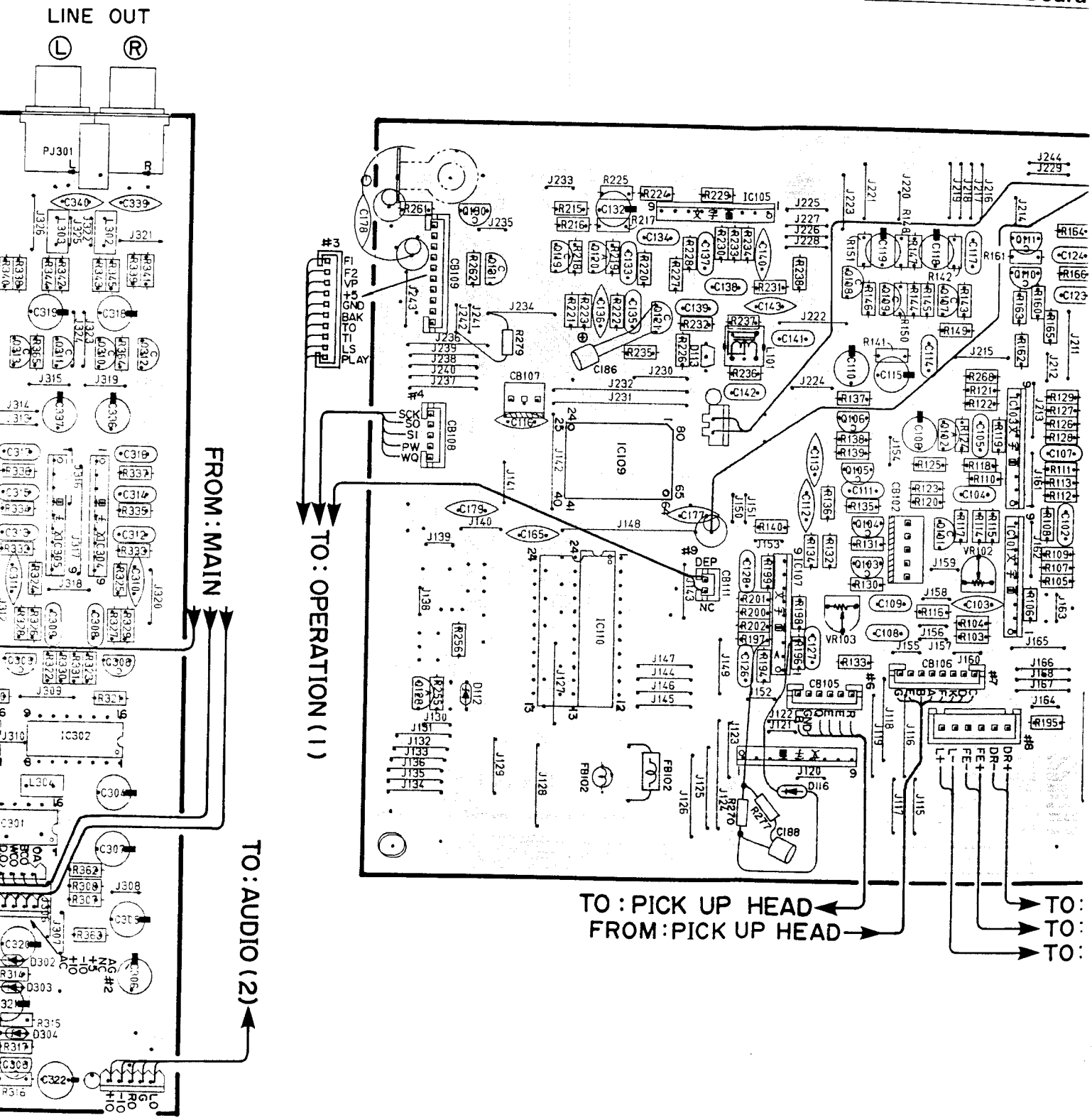


RCUIT BOARD (Pattern side)

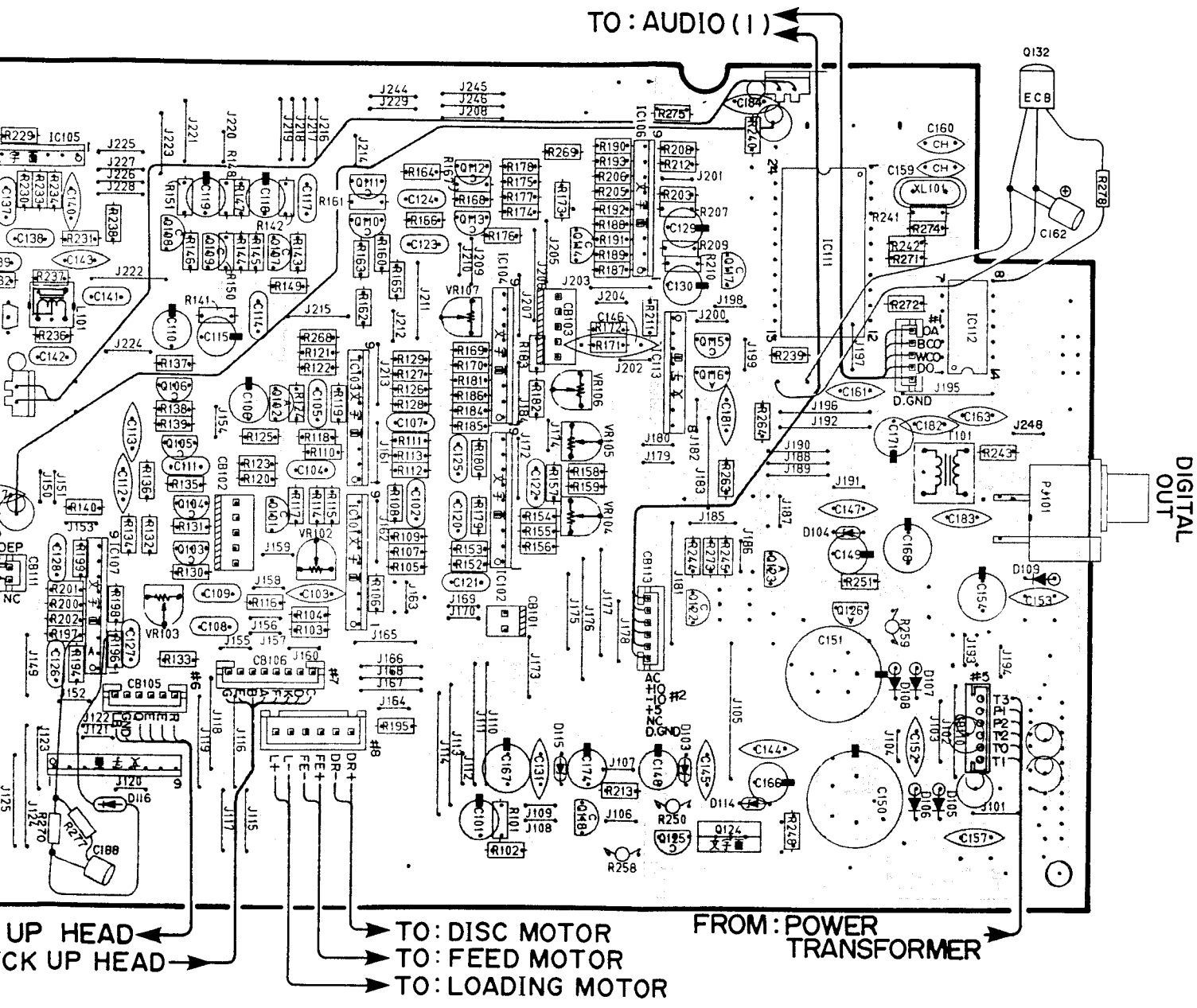
side

Circuit Board (1)

Main Circuit Board



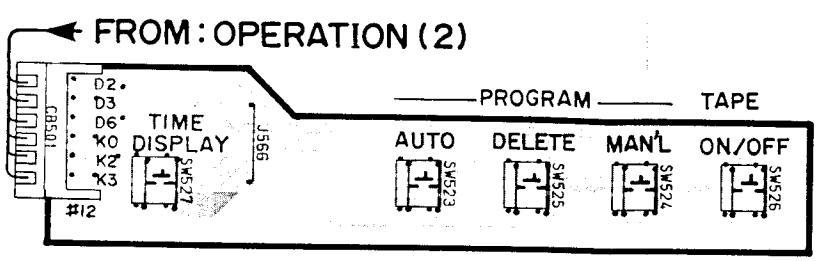
Main Circuit Board

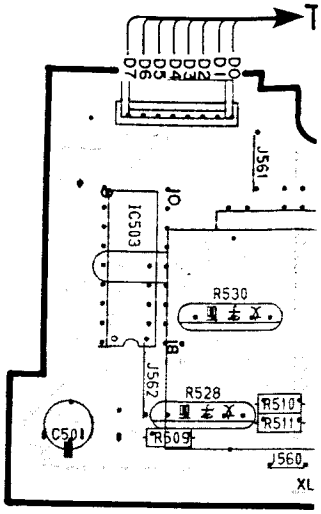


■ PRINTED CIRCUIT BOARD (Pattern side)

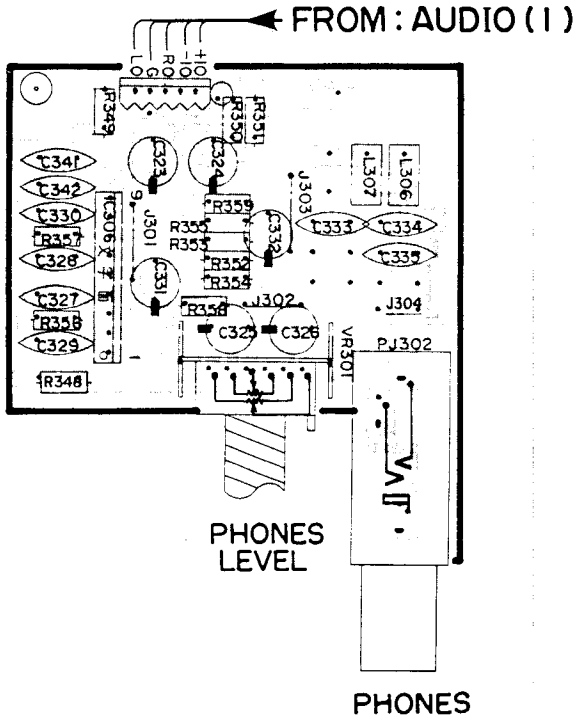
Note) 文字面 : Component side

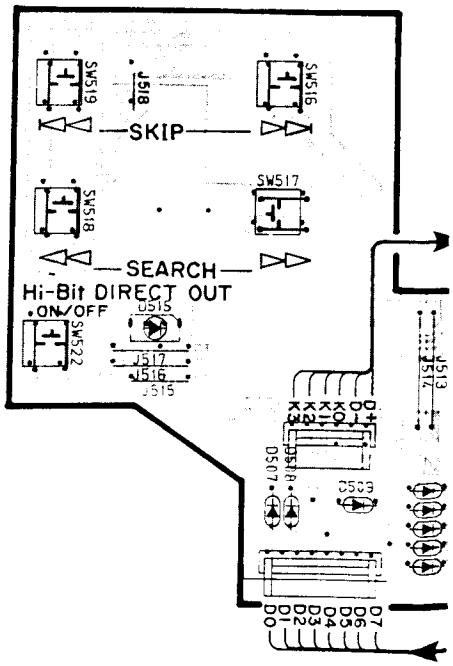
Operation Circuit Board (3)





Audio Circuit Board (2)

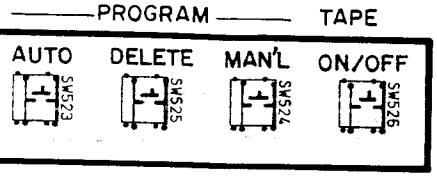




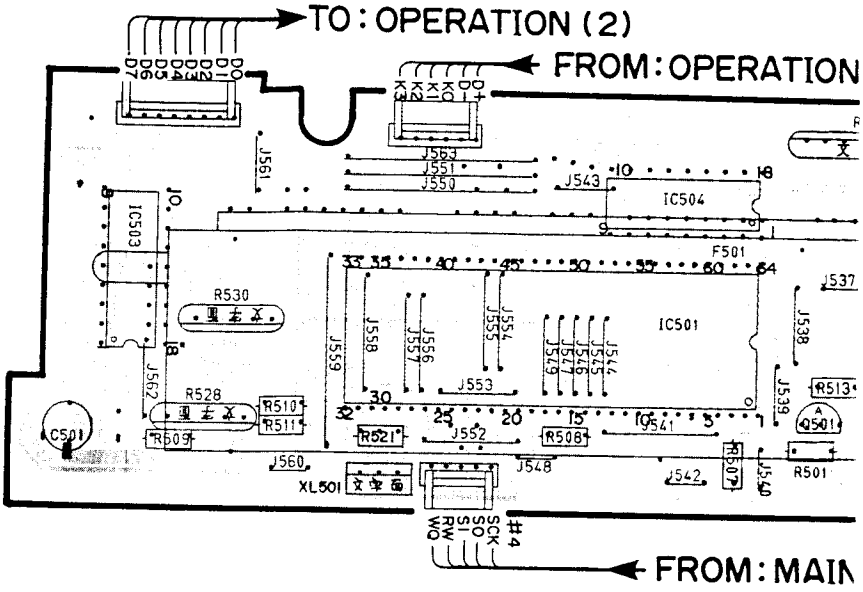
BOARD (Pattern side)

(3)

N (2)

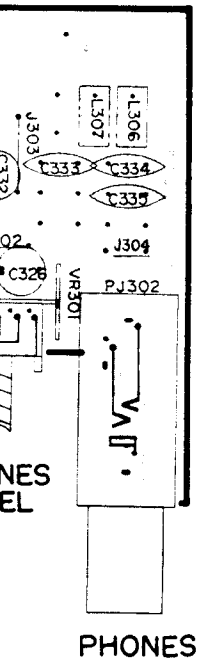


Operation C

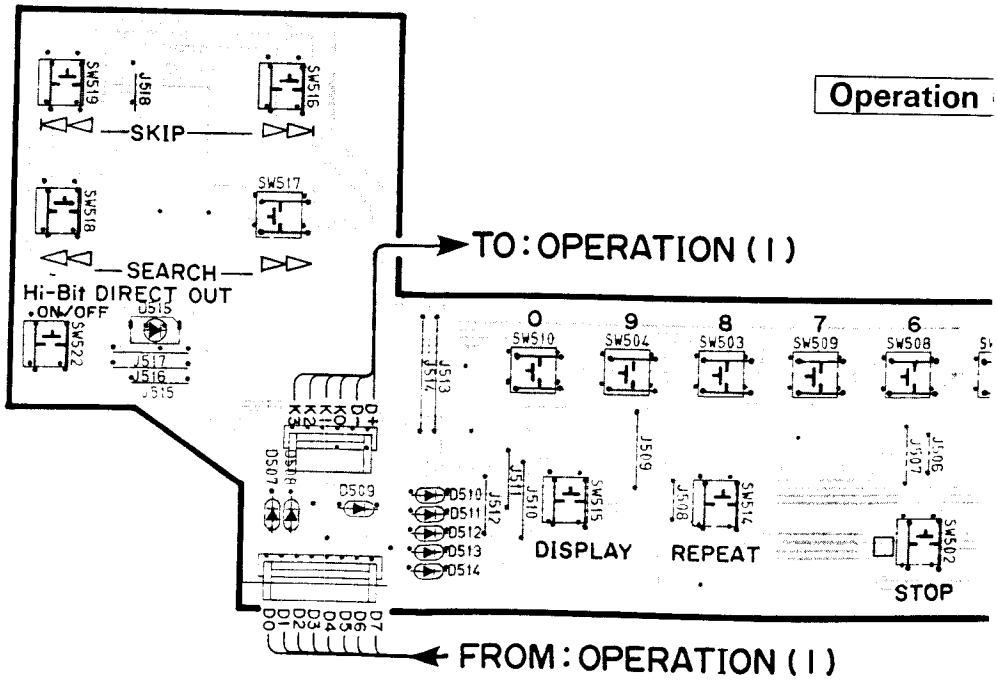


Board (2)

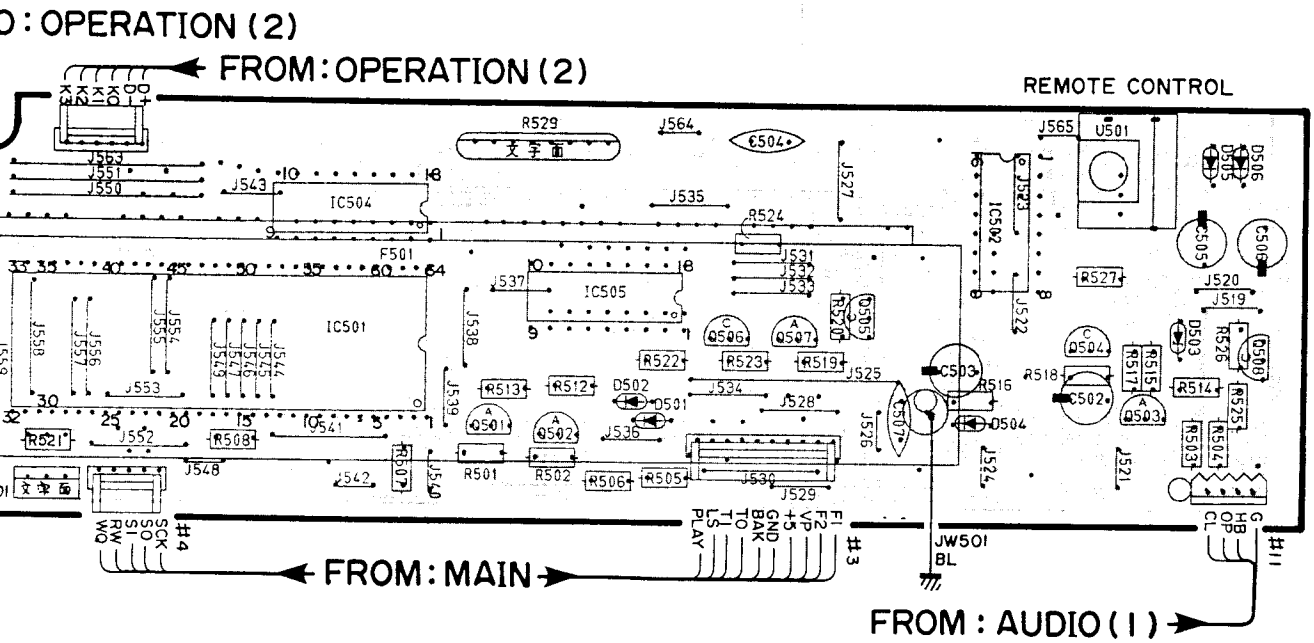
+ FROM : AUDIO (I)



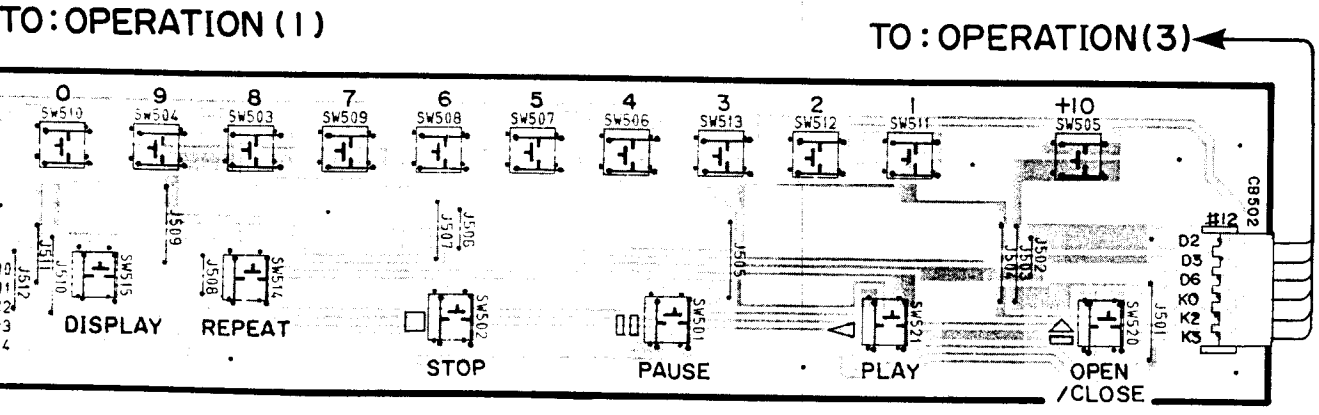
Operation



Operation Circuit Board (1)



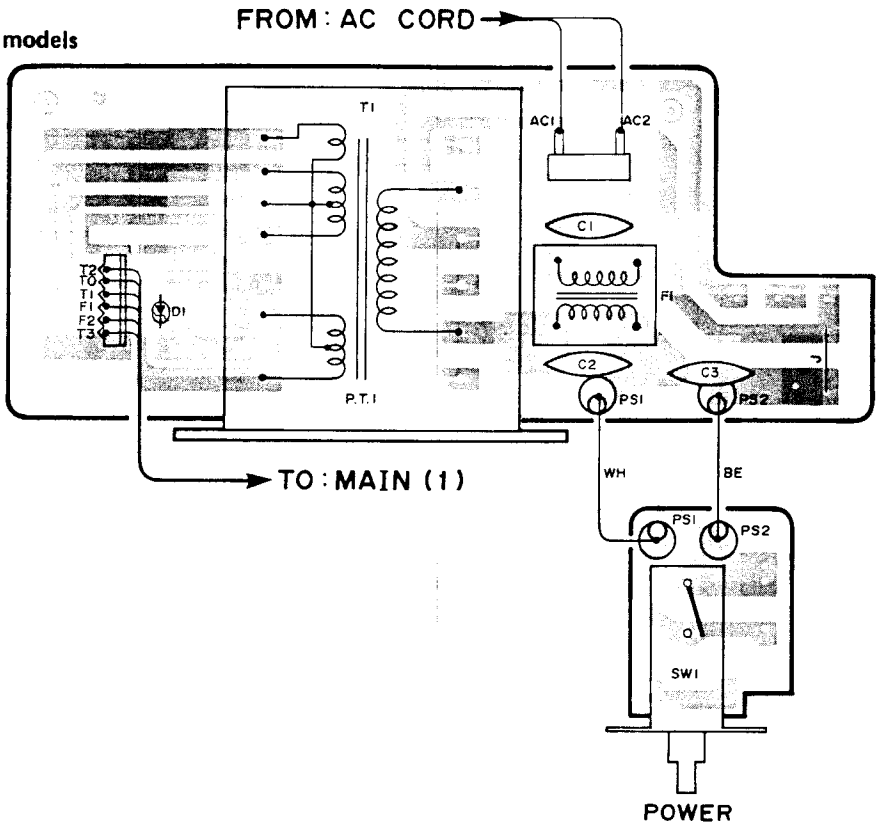
Operation Circuit Board (2)



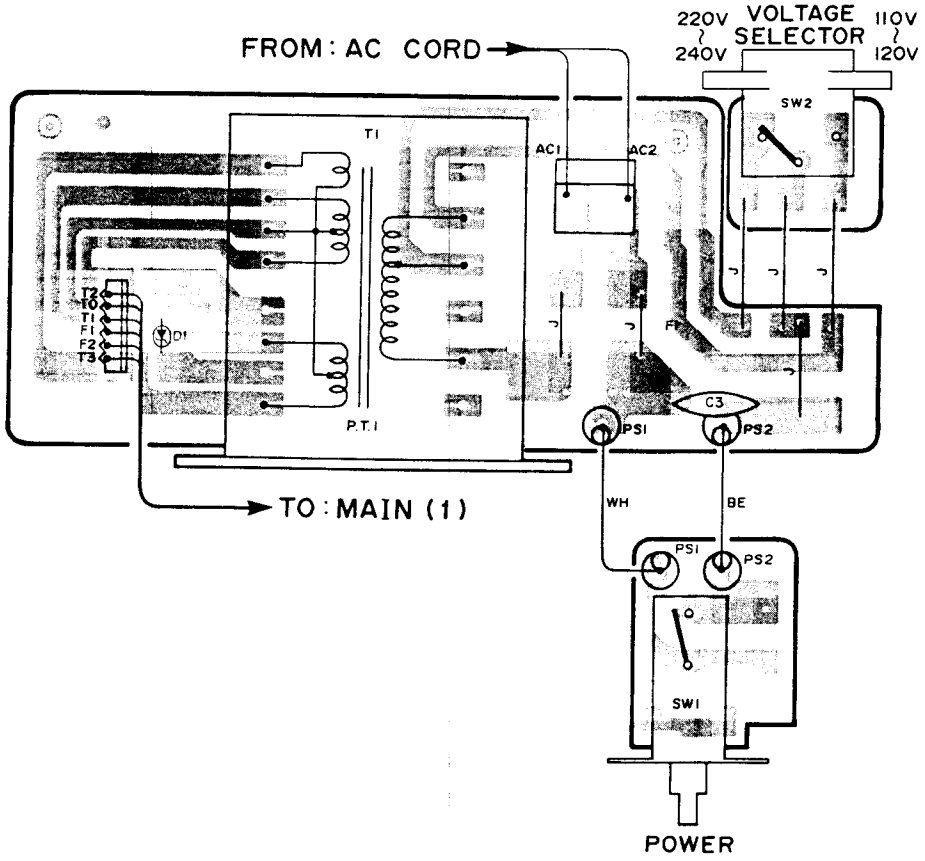
■ PRINTED CIRCUIT BOARD (Pattern side)

Power Supply Unit

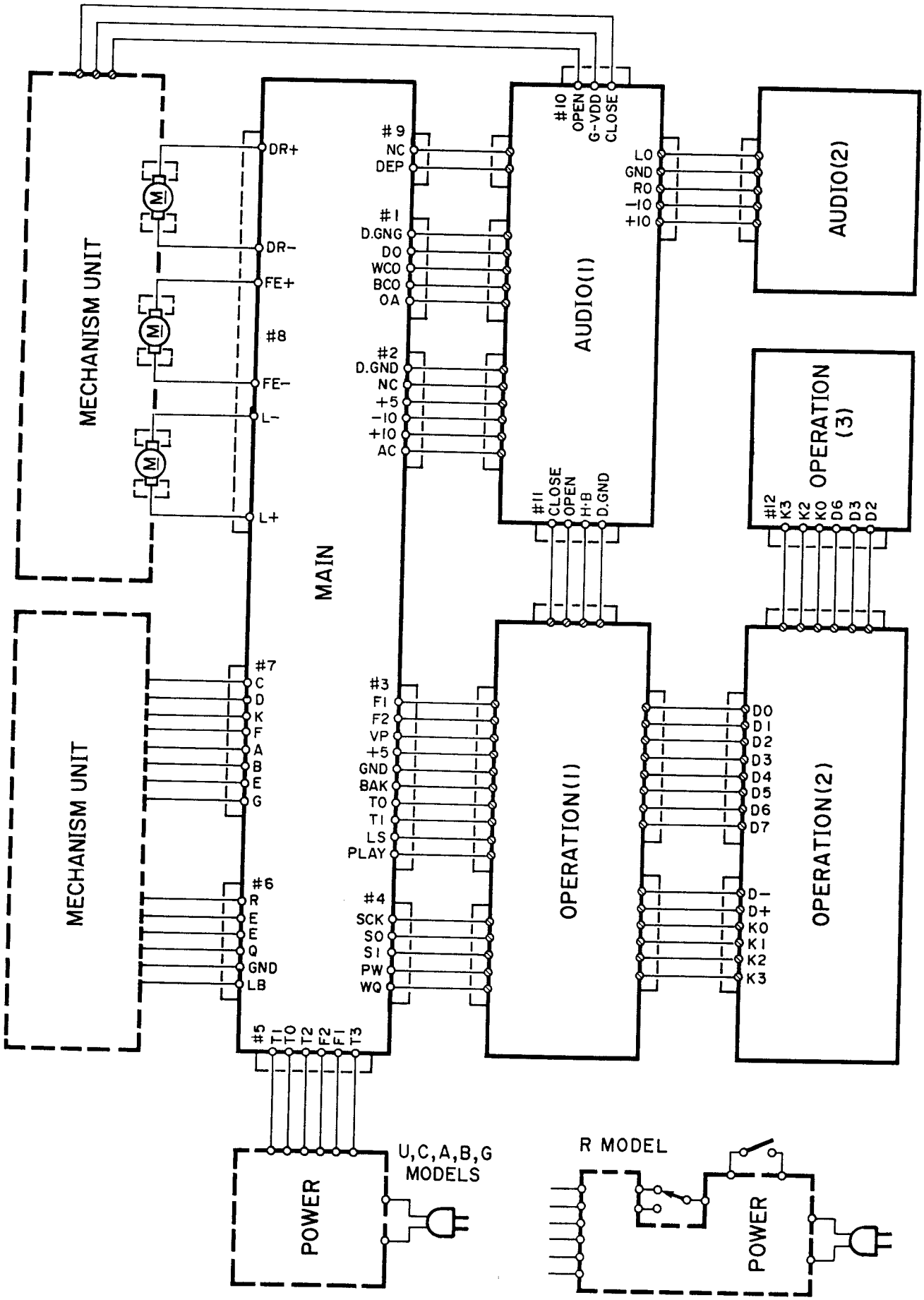
●U, C, A, B, G models

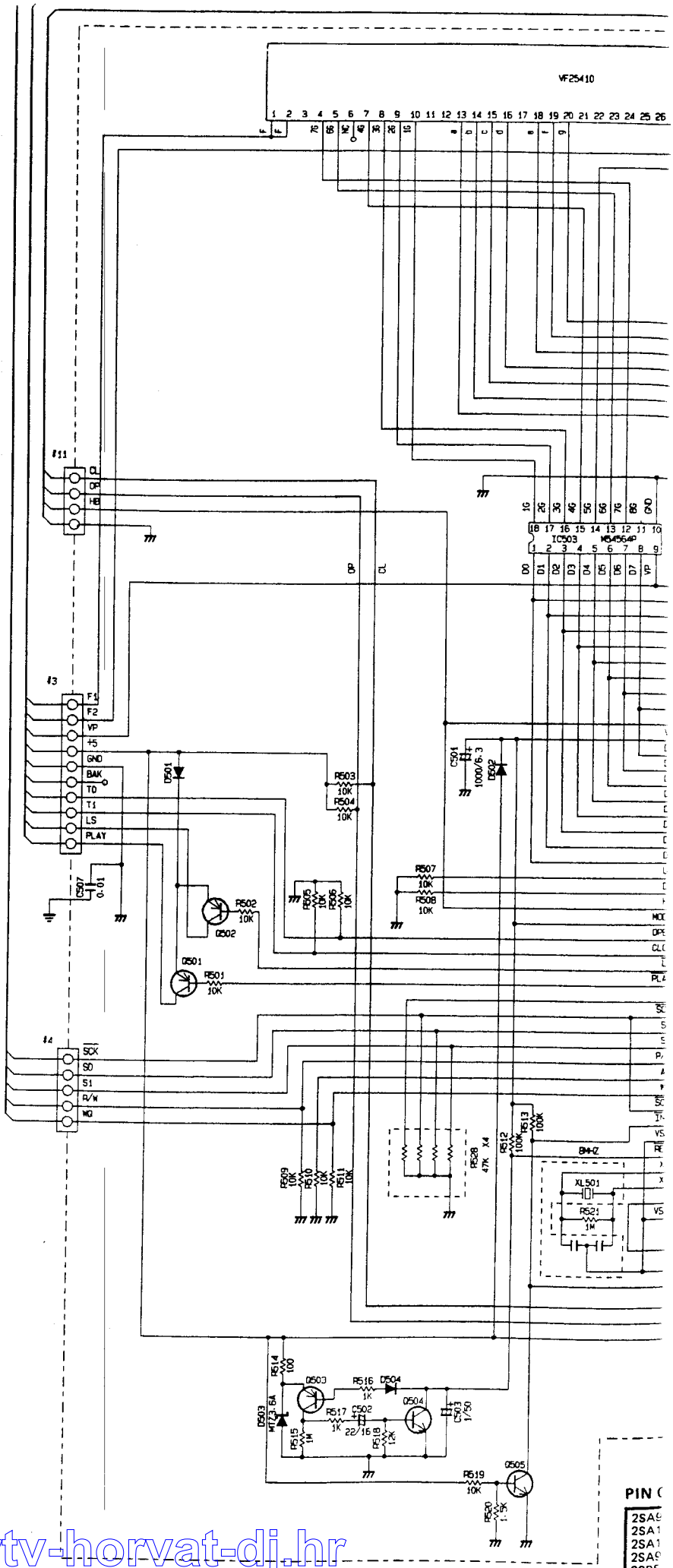


●R model



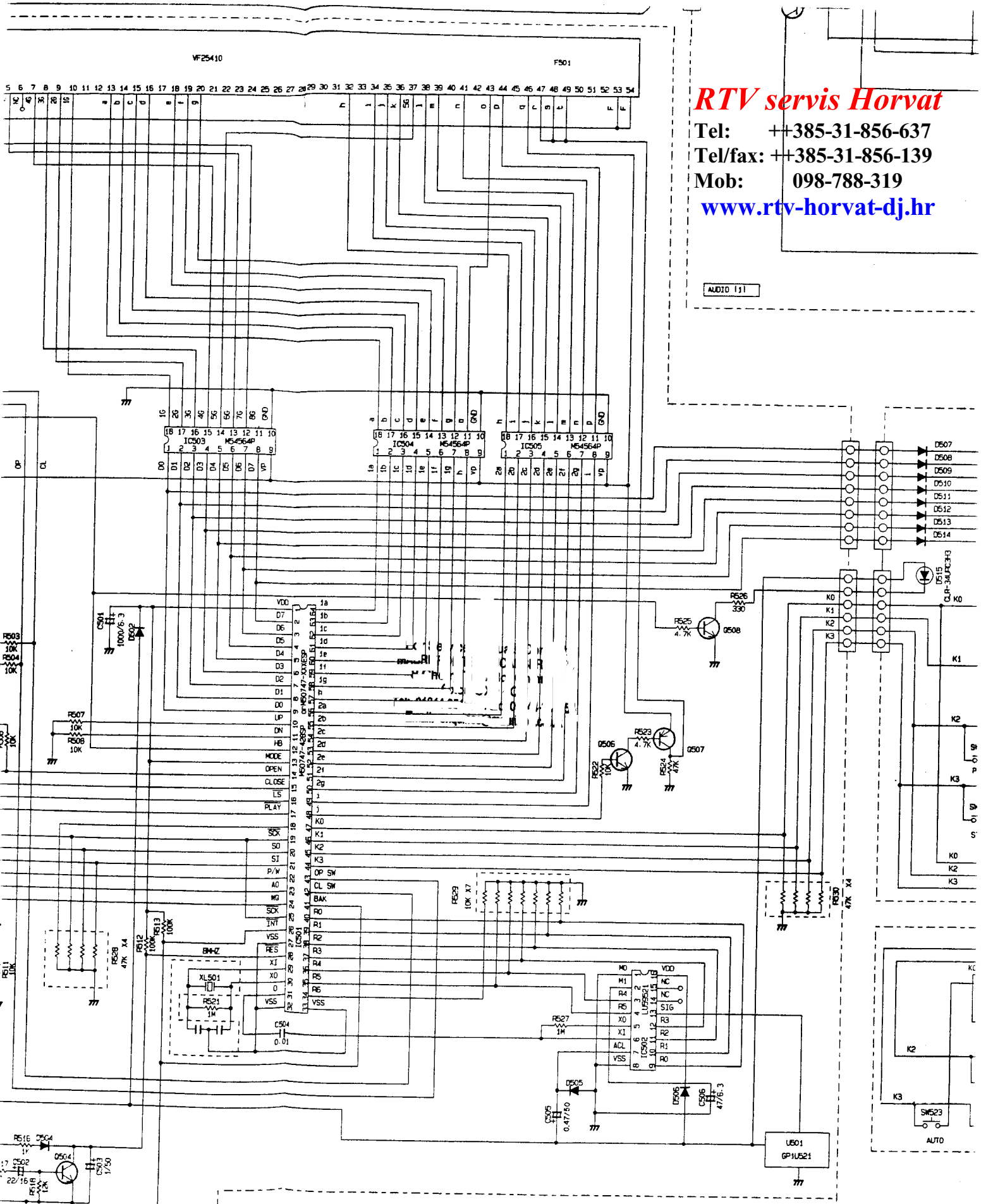
■ WIRING





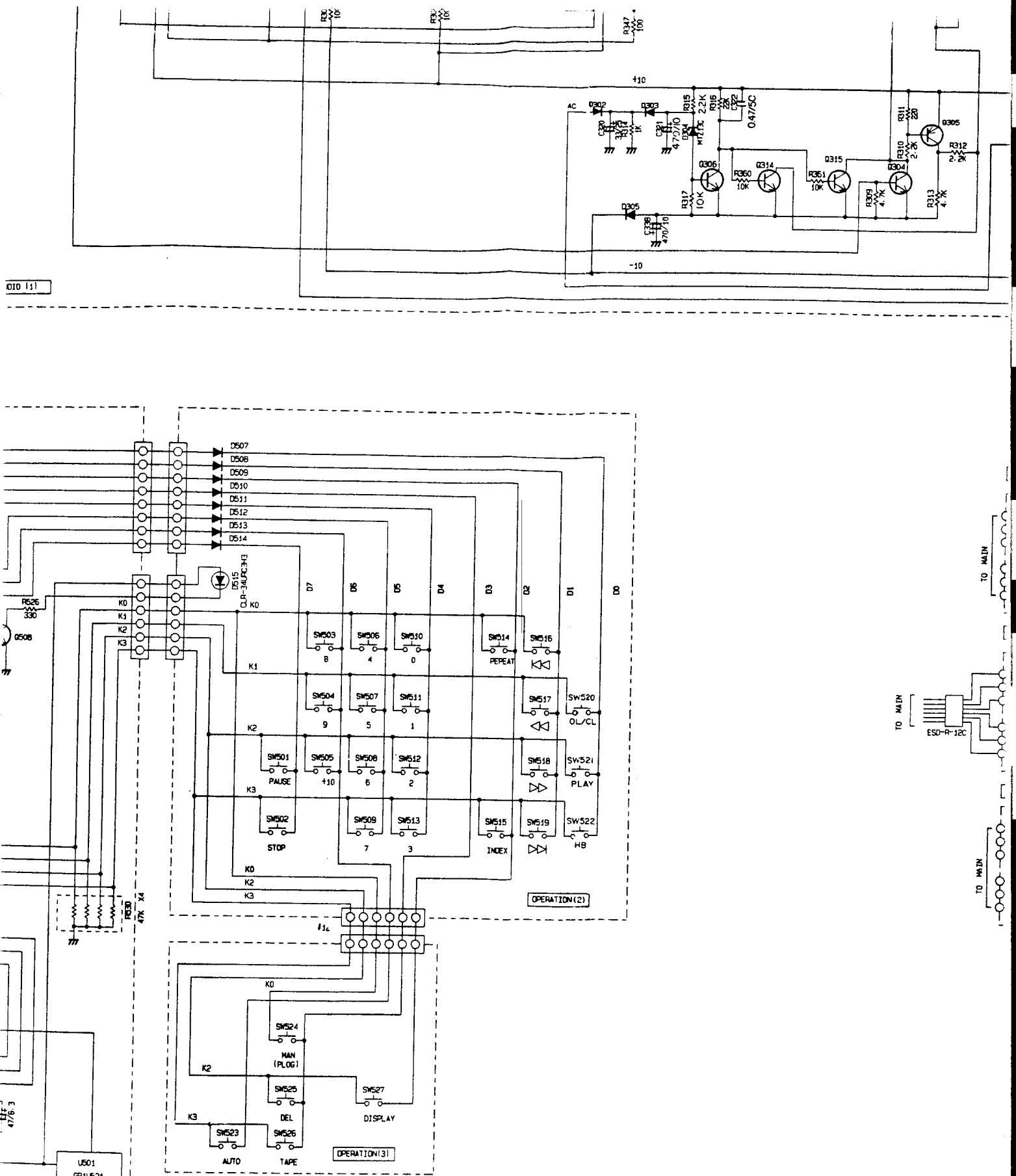
PIN C

2SA9
2SA1
2SA1
2SA9
2SB5
2SB1
2SC1
2SC2
2SC3
2SC5

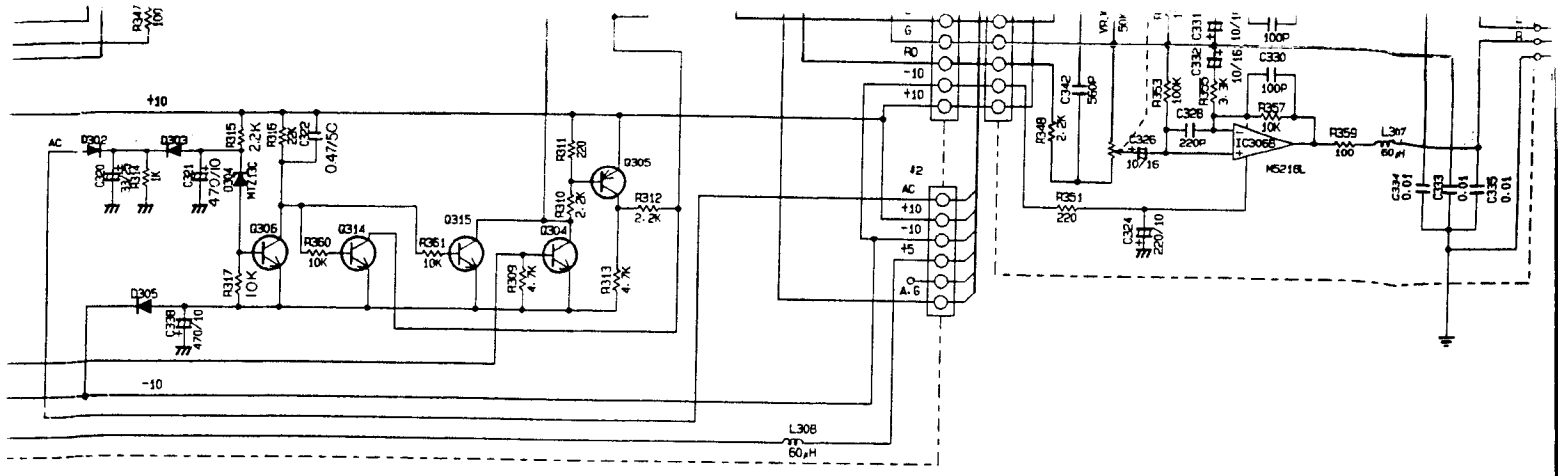


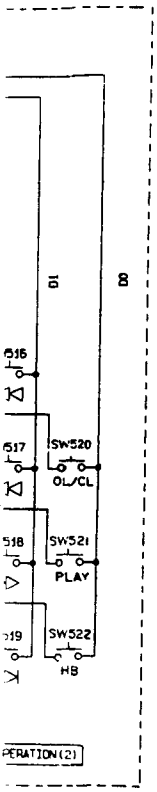
PIN CONNECTION DIAGRAM OF TRANSISTORS, DIODES AND ICS.

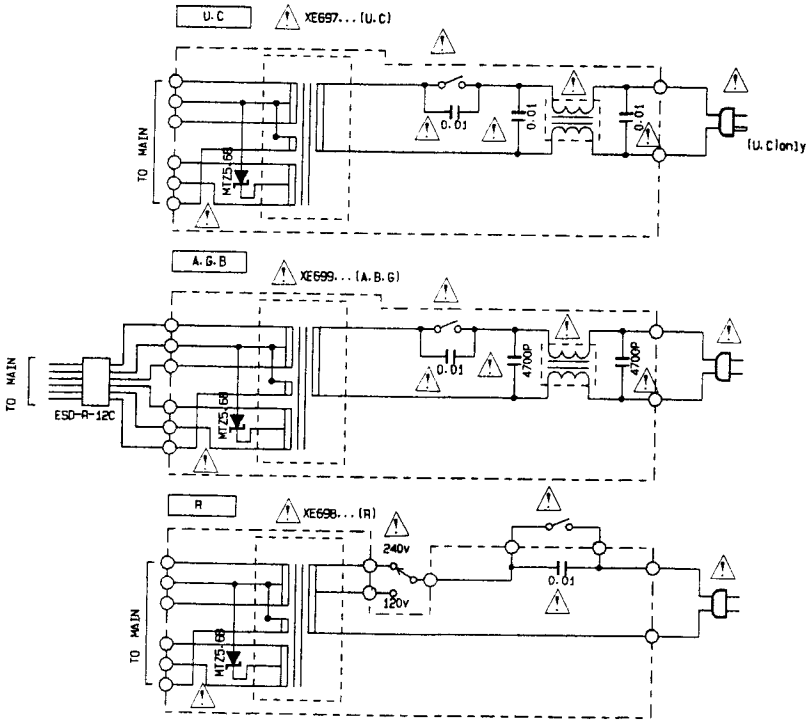
2SA933S (Q, R) 2SA1115 (E, F) 2SA1310 (R, S, T) 2SA934 2SB544 2SB1274 2SC1740S (S, R) 2SC2603 (E, F) 2SC3312 (R, S, T) 2SC535 (A, B, C)	2SC2060 2SD400 2SC2878 (A, B) 2SC3327 2SD1915 2SC1983 2SD1915 (T)	ISR35-100AT-93X ISS133 MTZ11B MTZ6.8B MTZ5.6B MTZ3.9B MTZ3.6A MTZ13C MTZ5.1B	ISV55 SVC211	M5218L	BA715 AN6551 NJM4558S NJM2043S μPC4570HA	BA6218



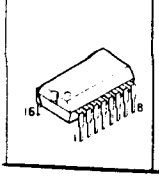
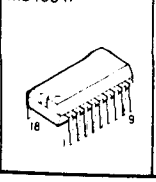
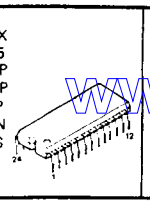
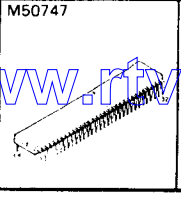
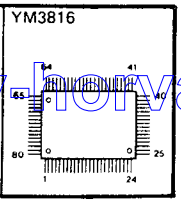
M5218L	BA715 AN6551 NJM4558S NJM2043S μPC4570HA	BA6218	STA451M	TC74HC00P	YM3414 PCM56J	LU59521	M54564P	YM3613B μPD4016-CX LC3517B-15 TMM2015BP TMM2016BP CXK5816SP CXK5816PN CXK5816PS	M50747

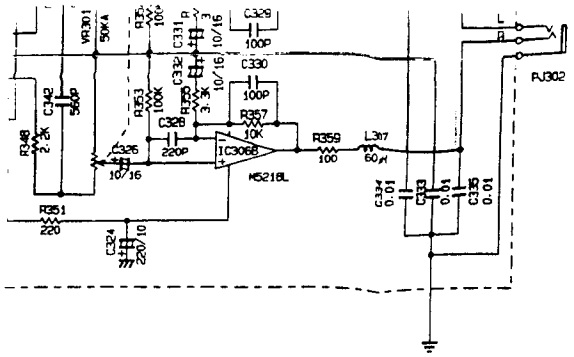


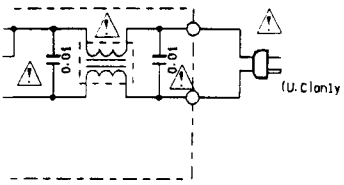


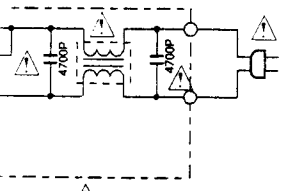


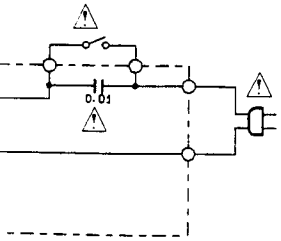
NO
(U)·
(C)·
(A)·
(G)·
(B)·
(R)·

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









OPERAT

	LA
C	
R	
D	
IC	

NOTICE
(U)····· U.S.A model
(C)····· Canadian model
(A)····· Australian model
(G)····· European model
(B)····· British model
(R)····· General model

RESISTOR

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (1/6W)
▨	CARBON FILM RESISTOR
△	METAL OXIDE FILM RESISTOR
▲	METEL FILM RESISTOR
⊠	METEL PLATE RESISTOR
◪	FIRE PROOF CARBON FILM RESISTOR
□	SEMENT MOLDED RESISTOR
⊘	SEMI VARIABLE RESISTOR
■	CHIP RESISTOR

CAPACITOR

REMARKS	PART
NO MARK	ELECTROLYTIC
NO MARK	CERAMIC CAPA
ⓔ	POLYESTEL FIL
○	POLYSTYRENE
ⓘ	MICA CAPACIT
ⓟ	POLYPROPYLENE
●	SEMICONDUCTI

** All voltages are me*
** Components havir must be replaced originally installed.*
** Schematic diagram*

Unless otherwise specified

PNP TRANSISTOR	
NPN TRANSISTOR	
DIODE	1SS133

Q504.505.508	2SC2603(E.F)
Q501~503.507	2SA1115(E.F)
Q102.120 128	2SA933S(Q.R) or 2SA1115(E.F) or 2SA1310(R.S.T)
Q116.123.126	2SA934 or 2SB544 or2SB1240
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(Q.R) or2SA1115(E.F) or2SA1310(R.S.T)
Q301.304.306 314.315	2SC1740S(S.R) or2SC2603(E.F) or2SC3312(R.S.T)
Q308.309	2SC2878(A.B) or2SC3327 or2SD1915
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	156.158.164.185 172.173.175.176
IC	113	104
Q	132	
R	279	204.214.246.247 249.252.257.265
D	115	101.102

S.A model
nadian model
stralian model
ropean model
tish model
eral model

RESISTOR

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (1/6W)
▨	CARBON FILM RESISTOR
△	METAL OXIDE FILM RESISTOR
▲	METEL FILM RESISTOR
⊠	METEL PLATE RESISTOR
◪	FIRE PROOF CARBON FILM RESISTOR
□	SEMENT MOLDED RESISTOR
⊘	SEMI VARIABLE RESISTOR
■	CHIP RESISTOR

CAPACITOR

REMARKS	PARTS NAME	
NO MARK	ELECTROLYTIC CAPACITOR	⧺
NO MARK	CERAMIC CAPACITOR	
◎	POLYESTEL FILM CAPACITOR	
○	POLYSTYRENE FILM CAPACITOR	⫪
Ⓘ	MICA CAPACITOR	
Ⓟ	POLYPROPYLENE FILM CAPACITOR	
●	SEMICONDUCTIVE CERAMIC CAPACITOR	

* *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.*

PARTS LIST

■ ELECTRICAL PARTS

Components having special characteristics are marked ⚠ 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.	22pF 50V	セラコン	C136			
	FG 21 12 70	〃	27pF 50V	〃	C146			
	FG 21 13 30	〃	33pF 50V	〃	C140			
	FG 21 21 00	〃	100pF 50V	〃	C103			
	FG 21 21 50	〃	150pF 50V	〃	C116			
	FG 21 21 80	〃	180pF 50V	〃	C184			
	FG 21 22 20	〃	220pF 50V	〃	C182			
	FG 21 24 70	〃	470pF 50V	〃	C113			
	FG 21 26 80	〃	680pF 50V	〃	C112			
	FG 21 31 00	〃	1000pF 50V	〃	C143			
	FG 24 41 00	〃	0.01μF 50V	〃	C131,144,145,147,152,153,157,161,163,165,179,183			
	FG 21 12 70	〃	27pF 50V(CH)	〃	C159,160			
	FZ 00 41 30	Semi-Conductive Ceramic Cap.	0.1μF 25V	半導体セラコン	C177,178,181			
	FA 15 31 00	Mylar Cap.	1000pF 50V	マイラーコン	C120,121			
	FA 15 32 20	〃	2200pF 50V	〃	C128			
	FA 15 33 30	〃	3300pF 50V	〃	C134			
	FA 15 33 90	〃	3900pF 50V	〃	C137			
	FA 15 36 80	〃	6800pF 50V	〃	C102			
	FA 15 41 00	〃	0.01μF 50V	〃	C142			
	FA 15 41 80	〃	0.018μF 50V	〃	C139			
	FA 15 43 30	〃	0.033μF 50V	〃	C105			
	FA 15 44 70	〃	0.047μF 50V	〃	C111,126,141			
	FA 15 46 80	〃	0.068μF 50V	〃	C127			
	FA 15 48 20	〃	0.082μF 50V	〃	C135			
	FA 15 51 00	〃	0.1μF 50V	〃	C104,108,109,114,125			
	FA 15 51 20	〃	0.12μF 50V	〃	C117,122			
	FA 15 52 40	〃	0.24μF 50V	〃	C138			
	FA 15 52 70	〃	0.27μF 50V	〃	C107			
	FA 15 53 90	〃	0.39μF 50V	〃	C124			
	FA 15 54 70	〃	0.47μF 50V	〃	C133			
	FA 15 58 20	〃	0.82μF 50V	〃	C123			
	FA 15 61 00	〃	1μF 50V	〃	C188			
	UJ 11 84 70	Electrolytic Cap.	470μF 6.3V	ケミコン	C119			
	UJ 12 81 00	〃	100μF 10V	〃	C101,106,129			
	UJ 12 84 70	〃	470μF 10V	〃	C110			
	UJ 13 71 00	〃	10μF 16V	〃	C132,171			
	UJ 13 72 20	〃	22μF 16V	〃	C162			
	UJ 13 73 30	〃	33μF 16V	〃	C148,149,166,174			
	UJ 13 74 70	〃	47μF 16V	〃	C115			
	UJ 14 82 20	〃	220μF 25V	〃	C167,168			
	UJ 16 61 00	〃	1μF 50V	〃	C118,186			
	UJ 16 62 20	〃	2.2μF 50V	〃	C130			
	UJ 15 84 70	〃	470μF 35V	〃	C154			
	UJ 14 92 20	〃	2200μF 25V	〃	C150,151			
	VD 78 25 00	Ferrite Bead	B-01-AT	フェライトビーズ	FB102			
	GE 90 20 00	OSC Coil	3.3μH	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			
	iA 11 15 10	//	2SA1115(E,F)	//	// Inter-changeable			
	iX 60 31 70	//	2SA1310(R,S,T)	//	//			
	iA 09 34 00	//	2SA934	//	Q116,123,126			
	iB 05 44 10	//	2SB544	//	// Inter-changeable			
	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			
	iC 26 03 10	//	2SC2603(E,F)	//	// Inter-changeable			
	iX 60 31 80	//	2SC3312(R,S,T)	//	//			
	iC 20 60 00	//	2SC2060	//	Q115,118,125			
	iD 04 00 00	//	2SD400	//	// Inter-changeable			
	iC 19 83 00	//	2SC1983	//	Q124			
	iF 00 34 50	Diode	1SS133	ダイオード	D116			
	iF 00 84 80	//	1SR35-100A	//	D105～109			
	iF 00 49 10	Varactor Diode	1SV55	FMバラクターダイオード	D113			
	iF 00 49 20	//	SVC211	//	// Inter-changeable			
	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	IC	IC101,103,104,106,107			
	iG 07 68 00	//	NJM4558S	//	// Inter-changeable			
	iG 08 02 00	//	NJM2043S	//	IC102,105			
	iG 15 35 00	//	BA6218	//	IC108			
	iG 11 92 00	//	μPD4016-CX	//	IC110			
	iR 00 00 00	//	TC74HC00P	//	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	1P	ピンジャック	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	XHベースピン	CB104			

※New Parts（新規部品）NR

	Ref. No.	Part No.	Description		部品名	Remarks	Common Model	Markets	ランク	
		VD 00 45 00	Base Pin	2P i-Type	PHベースピン	CB111				
		VD 00 48 00	〃	5P i-Type	〃	CB108,112				
		VD 00 49 00	〃	6P i-Type	〃	CB105,113				
		VD 00 51 00	〃	8P i-Type	〃	CB106				
		VD 00 53 00	〃	10P i-Type	〃	CB109				
※		LB 94 50 60	Short Plug	6P i-Type	ショートプラグ	CB110				
		VA 11 91 00	Heat Sinck	PH-0125-S	ヒートシンク					
※		VF 21 90 00	〃		〃					
		BB 06 62 90	Washer		アースワッシャー					
※		***NA 09 91 50***	***Power Supply Unit***		電源ユニット			U,C		
※		***NA 09 91 60***	〃		〃			R		
※		***NA 09 91 70***	〃		〃			A,B,G		
		VC 40 97 00	Power Switch		電源スイッチ	SW1				⚠
		LA 00 58 10	Voltage Selector		電圧切換器	SW2		R		⚠
		Fi 50 41 00	Ceramic Cap.	0.01μF	セラコン	C3				⚠
		Fi 50 41 00	〃	0.01μF	〃	C1,2		U,C		⚠
		VE 17 92 00	〃	0.001μF	〃	〃		**A,B,G**		⚠
		iF 00 64 70	Zener Diode	MTZ7.5B	ツェナーダイオード	D1				⚠
※		VE 80 07 00	Line Filter	ELF18D290V	ラインフィルター	F1		U,C,A,B,G		⚠

※New Parts（新規部品）NR

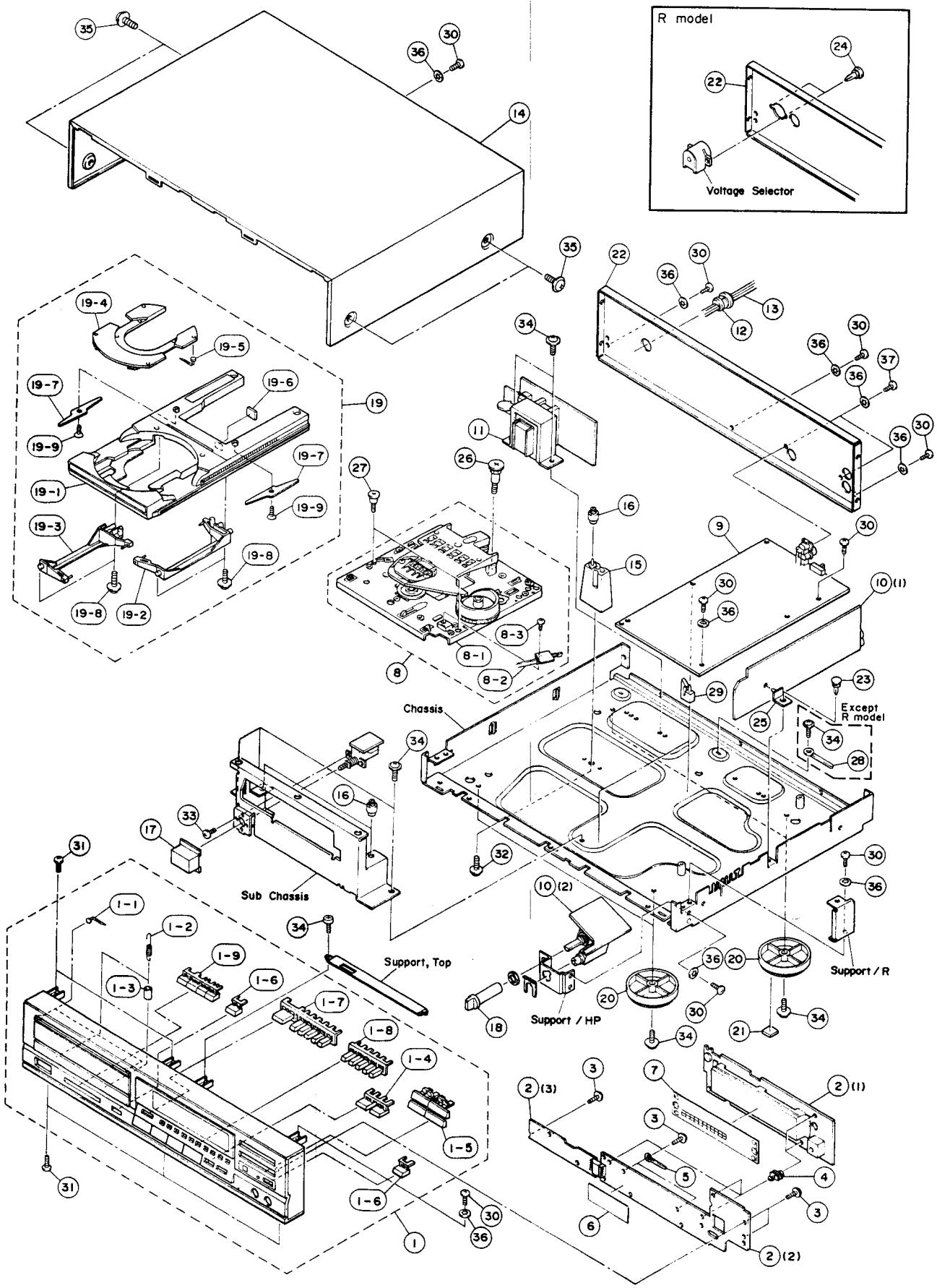
	Ref. No.	Part No.	Description		部品名	Remarks	Common Model	Markets	ランク
※		***NA 09 85 40***	***Audio Circuit Board***		オーディオシート	Black			
※		***NA 09 91 40***	〃		〃	Silver			
		FG 21 12 20	Ceramic Cap.	22pF 50V	セラコン	C339,340			
		FG 21 22 20	〃	220pF 50V	〃	C310,311,327.328			
		FG 21 21 00	〃	100pF 50V	〃	C329,330			
		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	SBコイル	L301,302～308			
		VC 50 93 00	Rotary Volume	50kA×2	ロータリーボリューム	VR301			
		iA 09 33 70	Transistor	2SA933S(Q,R)	トランジスタ	Q302,303,305			
		iA 11 15 10	〃	2SA1115(E,F)	〃	〃	Inter-changeable		
		iX 60 31 70	〃	2SA1310(R,S,T)	〃	〃			
		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			
		iC 33 27 00	〃	2SC3327	〃	〃	Inter-changeable		
		VC 50 21 00	〃	2SD1915	〃	〃			
		VF 83 51 00	〃	2SD1915(T)	〃	Q310～313			
		iF 00 34 50	Diode	1SS133	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	IC	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	ピンジャック	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	PHベースピン	CB302			
		VD 00 47 00	〃	4P i-Type	〃	CB303			

※New Parts（新規部品）NR

	Ref. No.	Part No.	Description		部品名	Remarks	Common Model	Markets	ランク
※		***NA 09 85 30***	***Operation Circuit Board***		オペレーションシート				
		FG 24 41 00	Ceramic Cap.	0.01μF 50V	セラコン	C504,507			
		UJ 11 91 00	Electrolytic Cap.	1000μF 6.3V	ケミコン	C501			
		UM 39 72 20	〃	22μF 16V	〃	C502			
		UJ 11 74 70	〃	47μF 6.3V	〃	C506			
		UJ 16 61 00	〃	1μF 50V	〃	C503			
		UJ 16 54 70	〃	0.47μF 50V	〃	C505			
		VE 47 83 00	Resistor Array	47kΩ×4	抵抗アレイ	R528,530			
		HZ 00 45 40	〃	10kΩ×7	〃	R529			
		iA 11 15 10	Transistor	2SA1115(E,F)	トランジスタ	Q501～503,507			
		iC 26 03 10	〃	2SC2603(E,F)	〃	Q504,505,508			
		iX 60 42 00	〃	2SC2878(A,B)	〃	Q506			
		iF 00 34 50	Diode	1SS133	ダイオード	D501,502,504～514			
		iF 00 88 00	Zener Diode	MTZ3.6A	ツェナーダイオード	D503			
		iF 00 87 30	LED(Red)	SLR-34URC3H3	LED	D515			
		XC 25 00 01	IC	M54564P	IC	IC503～505			
		XD 49 00 01	〃	LU59521	〃	IC502			
		XD 55 50 01	〃	M50747-428SP	〃	IC501			
※		VF 25 14 00	Display Unit		蛍光表示管	F501			
		VE 22 24 00	Ceramic Resonator	8MHz	セラミック発振子	XL501			
		KA 90 63 80	Switch	EVQ-QRB-04M	ライトタイトスイッチ	SW501～527			
		VE 63 29 00	Receiver Unit	GP1U521	受光ユニット	U501			
※		VF 52 25 00	Connector, JQ	6P	JQコネクター	CB501			
		LB 91 90 60	Base Pin	6P L-Type	XHベースピン	CB502			
		VE 31 18 00	Support, FL		サポートFL				

※New Parts (新規部品) NR

EXPLODED VIEW



■ MECHANISM PARTS

Note) φ : Diameter

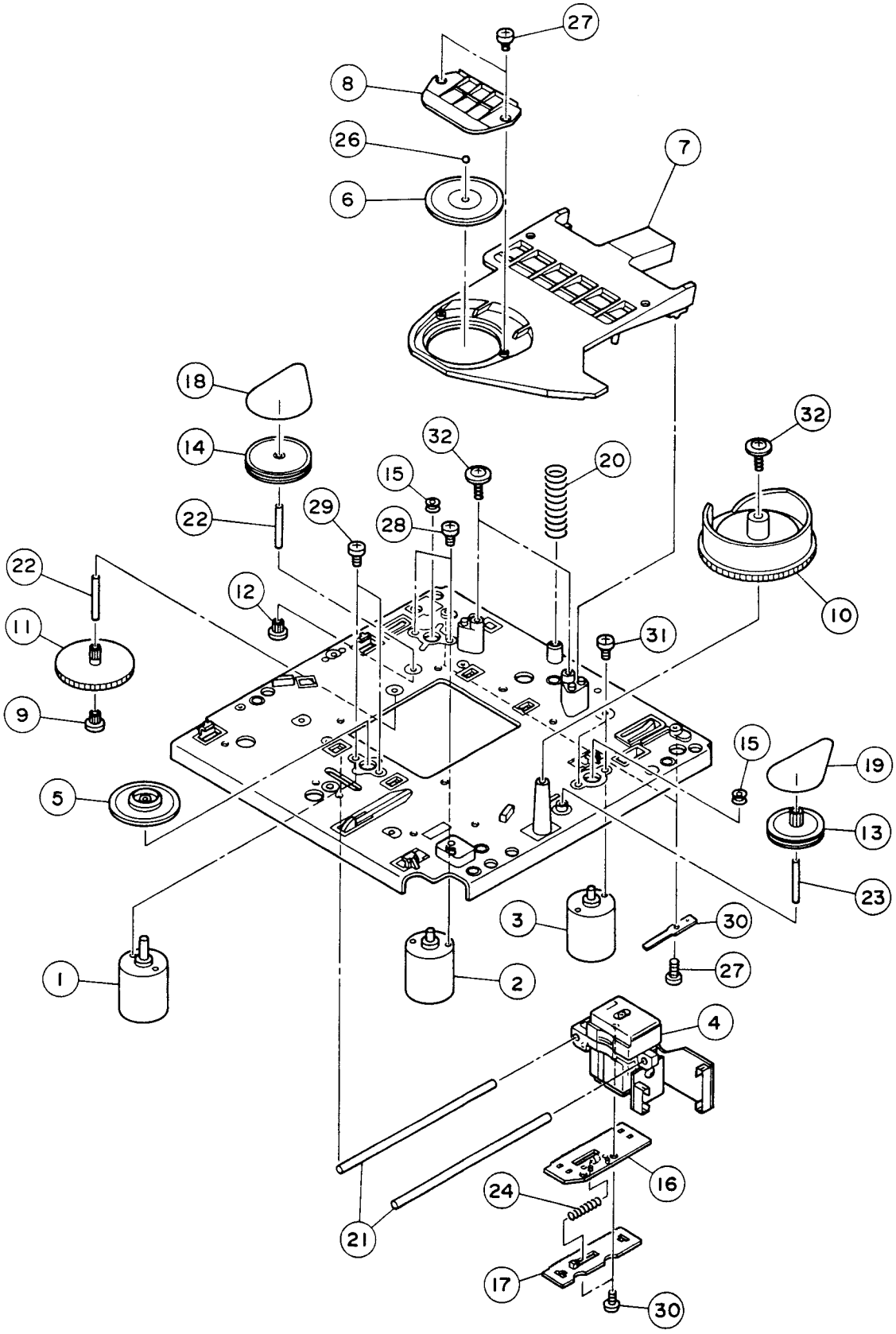
	Ref. No.	Part No.	Description		部品名	Remarks	Common Model	Markets	ランク
※	1	VF 64 61 00	Front Panel Ass'y		フロントパネル Ass'y	Black		R,A,B,G	
※	//	VF 64 63 00	//		//	//		U,C	
※	//	VF 64 64 00	//		//	Silver		R,A,B,G	
※	//	VF 64 65 00	//		//	//		U,C	
※	//	VF 64 66 00	//		//	CD-33			
	1-1	VE 04 16 00	Pad, Disc		パッド／ディスク				
	1-2	VB 95 80 00	Spring, TE		スプリング, TE		CLV-1		
	1-3	VC 72 50 00	Tube, 13		チューブ／13		//		
※	1-4	VF 48 48 00	Button	2P	ボタン	Black, CD-33			
※	//	VF 48 49 00	//	//	//	Silver			
※	1-5	VE 51 50 00	//	2/7/29	//	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	BW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	Fillter, 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	DM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	ランク
18	CB 65 91 00	Knob, VR		ノブ／VR	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		プレート	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		PCB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	BW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-1	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)



■ MECHANISM PARTS (DM-555L)

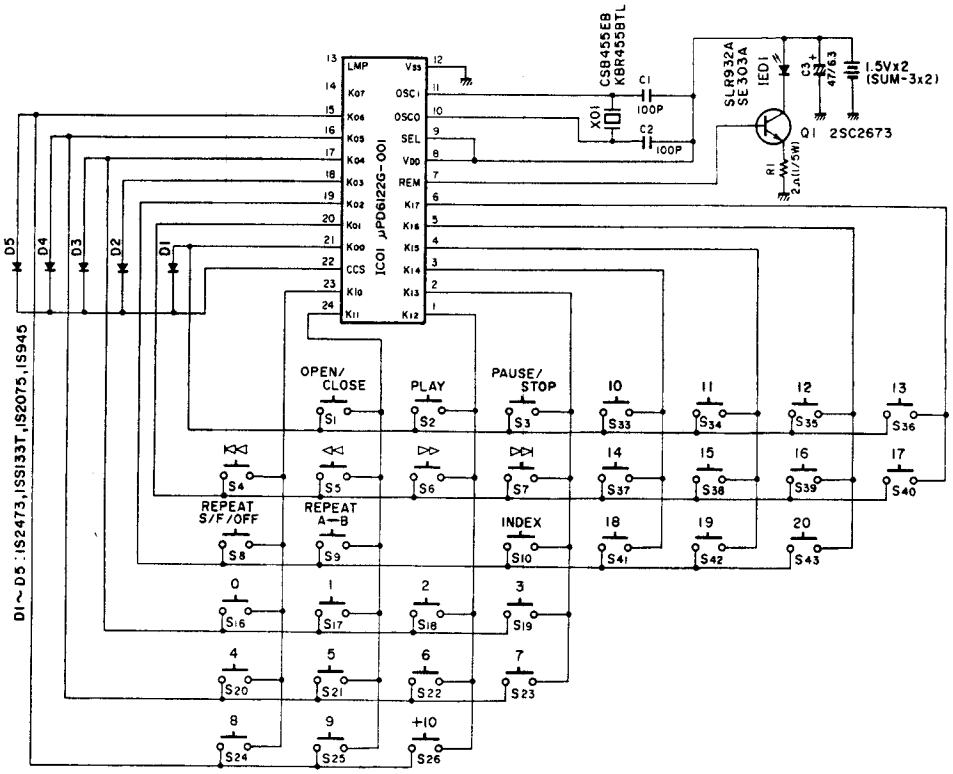
Note) φ : Diameter

Ref. No.	Part No.	Description		部品名	Remarks	Common Model	Markets	ランク
	VE 82 55 00	***Disc Mechanism Unit***	DM-555L	DMユニット		CD-M555		
1	VE 35 62 00	Motor		モーター	DISC	DM-710		
2	VE 35 61 00	〃		〃	FEED	〃		
3	VE 35 63 00	〃		〃	LOADING	〃		
4	VE 80 39 00	Optical Pick Up Head	JP1	光ピックアップヘッド				
5	NB 62 99 70	Turntable Unit		ターンテーブルユニット2				
6	CB 64 24 00	Stabilizer		スタビライザー2				
7	CB 65 55 20	Flapper		フラッパー2				
8	CB 65 55 40	Thrust Bearing		スラストベアリング2				
9	CB 65 55 50	Pinion Gear		ピニオンギア2				
10	VE 88 79 00	Loading Cam		ローディングカム3				
11	VE 02 29 00	Gear, Drive		ギヤー／ドライブ		DM-710		
12	VE 02 28 00	Gear, Pulley		ギヤー／プーリー		〃		
13	VE 98 00 00	Idle Pulley		アイドルプーリー				
14	VE 02 30 00	Pulley, Feed		プーリー／フィード		DM-710		
15	CB 65 85 10	P. Pulley		Pプーリー				
16	VE 02 25 00	Rack, Gear A		ラック／ギヤーA		DM-710		
17	VE 02 26 00	〃, Gear B		〃 B		〃		
18	VE 02 34 00	Belt, Feed		ベルト／フィード		〃		
19	VE 80 18 00	Belt, Loading		ベルト／ローディング				
20	VE 64 78 00	Spring		スプリング／フラッパ				
21	VE 02 31 00	Shaft, PU710		シャフト／PU710		DM-710		
22	VE 02 33 00	Shaft, Drive Gear		シャフト／ドライブギヤー		〃		
23	AA 61 93 30	Shaft (S)		シャフト(S)				
24	VE 17 93 00	Spring		スプリング／ラック710		DM-710		
25	VD 73 24 00	〃		スプリング／BE				
26	VD 93 87 00	Roller, SP	φ2.5	ローラーSP				
27	Ei 32 60 56	Binding Head Tapping Screw	2.6×5 FCRM3-BI	バインドタッピングネジ	PACK			
28	ED 32 00 56	Binding Head Screw	2×5 ZMC2-BI	バインド小ネジ	PACK			
29	ED 32 00 46	〃	2×4 ZMC2-BI	〃	PACK			
30	ED 32 60 66	〃	2.6×6 FCRM3-BI	〃	PACK			
31	ED 33 00 66	〃	3×6 FCRM3-BI	〃	PACK			
32	EK 33 00 10	BW Head Tapping Screw	3×12 FCRM3-BI	BWヘッドタッピングネジ				

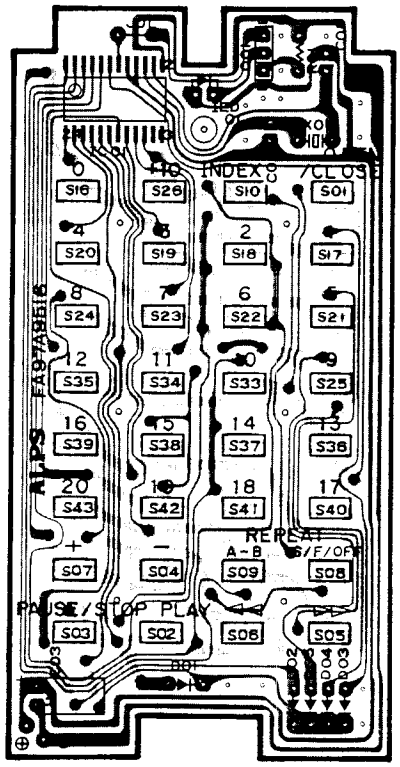
※New Parts (新規部品) NR

RS-CDX7
REMOTE CONTROL TRANSMITTER

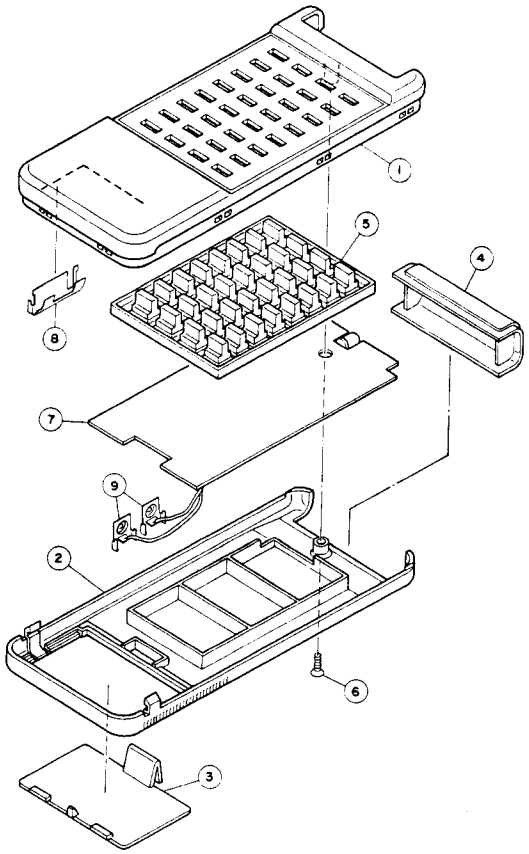
■ SCHEMATIC DIAGRAM



■ 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	IC	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	IED	IED01			
		iF 00 06 70	Diode	IS2473	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.
1.0 Ω	HJ353100	HF853100
1.8 〃	HJ353180	※
2.2 〃	HJ353220	HF853220
3.3 〃	HJ353330	HF853330
4.7 〃	HJ353470	HF853470
5.6 〃	HJ353560	HF853560
10 〃	HJ354100	HF854100
15 〃	HJ354150	HF854150
22 〃	HJ354220	HF854220
27 〃	HJ354270	HF854270
33 〃	HJ354330	HF854330
39 〃	HJ354390	HF854390
47 〃	HJ354470	HF854470
56 〃	HJ354560	HF854560
68 〃	HJ354680	HF854680
82 〃	HJ354820	HF854820
100 〃	HJ355100	HF855100
110 〃	HJ355110	HF855110
120 〃	HJ355120	HF855120
150 〃	HJ355150	HF855150
160 〃	HJ355160	※
180 〃	HJ355180	HF855180
220 〃	HJ355220	HF855220
270 〃	HJ355270	HF855270
330 〃	HJ355330	HF855330
390 〃	HJ355390	HF855390
470 〃	HJ355470	HF855470
510 〃	※	HF855510
560 〃	HJ355560	HF855560
680 〃	HJ355680	HF855680
820 〃	HJ355820	HF855820
910 〃	HJ355910	HF855910
1.0KΩ	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
12KΩ	HJ357120	HF857120
15 〃	HJ357150	HF857150
18 〃	HJ357180	HF857180
22 〃	HJ357220	HF857220
27 〃	HJ357270	HF857270
33 〃	HJ357330	HF857330
39 〃	HJ357390	HF857390
47 〃	HJ357470	HF857470
56 〃	HJ357560	HF857560
68 〃	HJ357680	HF857680
82 〃	HJ357820	HF857820
91 〃	HJ357910	HF857910
100 〃	HJ358100	HF858100
120 〃	HJ358120	HF858120
150 〃	HJ358150	HF858150
180 〃	HJ358180	HF858180
220 〃	HJ358220	HF858220
270 〃	HJ358270	HF858270
330 〃	HJ358330	HF858330
390 〃	HJ358390	HF858390
470 〃	HJ358470	HF858470
560 〃	HJ358560	HF858560
680 〃	HJ358680	HF858680
820 〃	HJ358820	HF858820
1.0MΩ	HJ359100	HF859100
1.2 〃	HJ359120	※
1.5 〃	HJ359150	HF859150
1.8 〃	HJ359180	HF859180
2.2 〃	HJ359220	HF859220
3.3 〃	HJ359330	HF859330
3.9 〃	HJ359390	※
4.7 〃	HJ359470	HF859470