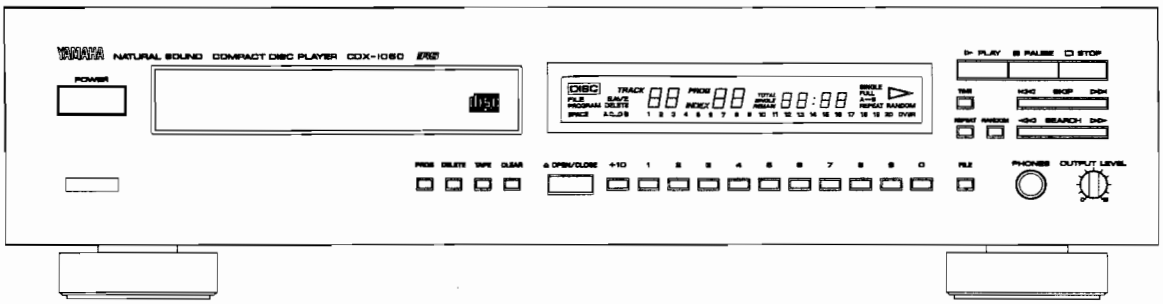
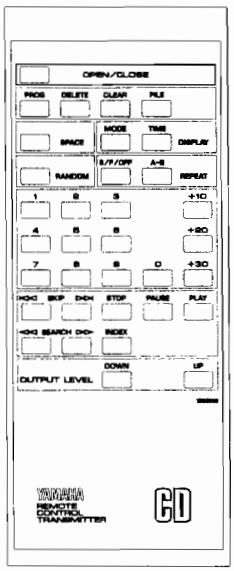
V11683

COMPACT DISC PLAYER

CDX-1050

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 inherant to the industry, and more specifically YAMAHA Products, are already known and understood by the users, and have therefore not been restated.

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

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

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

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

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

■ CONTENTS

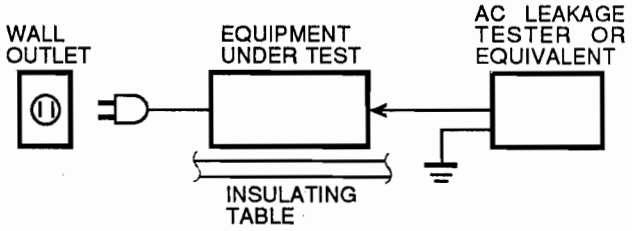
100368

YAMAHA
YAMAHA CORPORATION
P.O.Box 1, Hamamatsu, Japan
3.1K-823 Printed in Japan '91.1

■ 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 Models Only).
   When service has been completed, it is imperative to 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 OR 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.

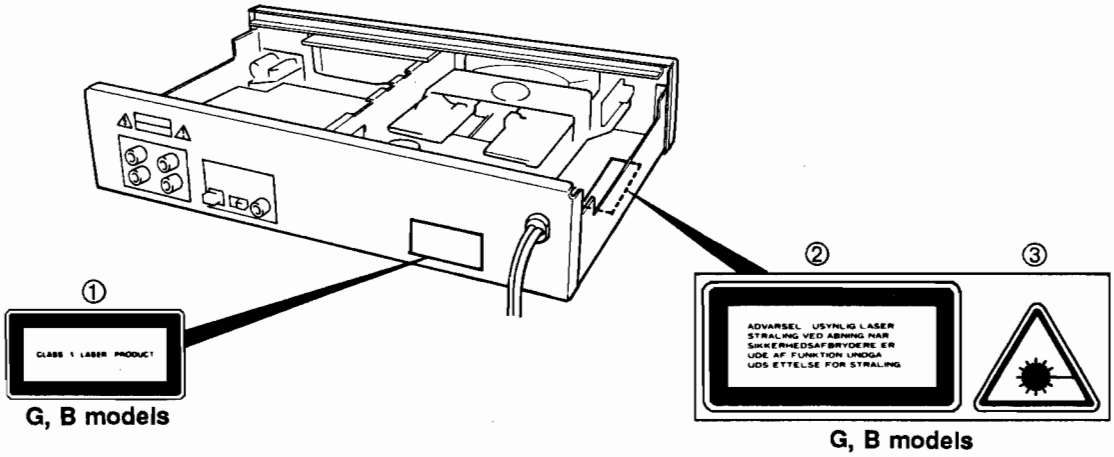
WARNING: CHEMICAL CONTENT NOTICE!

The solder used in the production of this product contains LEAD. In addition, other electrical/electronic and/or plastic (where applicable) components may also contain traces of chemicals found by the California Health and Welfare Agency (and possibly other entities) to cause cancer and/or birth defects or other reproductive harm.

DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHATSOEVER!

Avoid prolonged, unprotected contact between solder and your skin! When soldering, do not inhale solder fumes or expose eyes to solder/flux vapor!

If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.



G, B models

G, B models

English

① THIS LABEL (SEE POSITION SHOWN IN THE ILLUSTRATION) INFORMS THE USER THAT THE APPARATUS CONTAINS A LASER COMPONENT.

② THIS LABEL (SEE POSITION SHOWN IN THE ILLUSTRATION) WARNS THAT ANY FURTHER PROCEDURE WILL BRING THE USER INTO EXPROSURE WITH THE LASER BEAM.

③ THE RADIATION WARNING LABEL 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 CLASS 1 LASER PRODUCTS.

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 LASERSTRÅLNING 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.

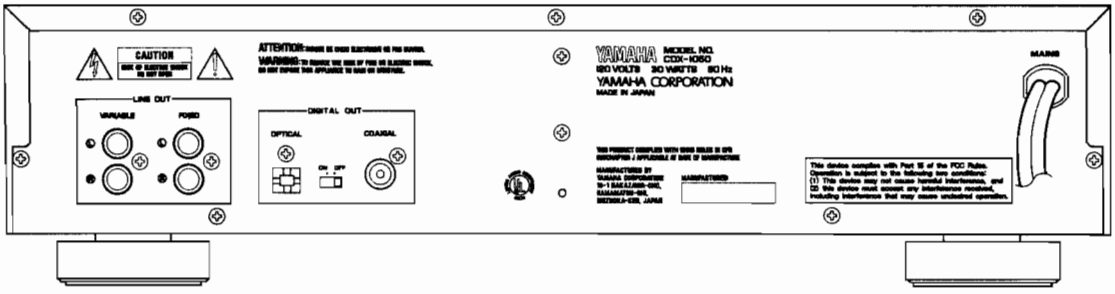
ADVARSEL! INDGREB BØR KUN FORETAGES AF EN FAGMAND DA DER ER RISIKO FOR RADIOAKTIV STRÅLING.

Finnish

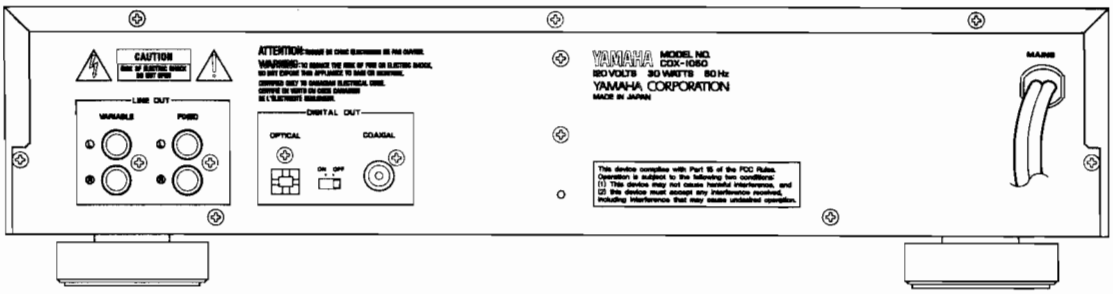
③ "VAROITUS! LAITE SISÄLTÄÄ LASERDIODIN, JOKA LÄHETTÄÄ (NÄKYMÄTÖNTÄ) SILMILLE VAARALLISTA LASERSÄTEILYÄ:"

■ REAR PANELS

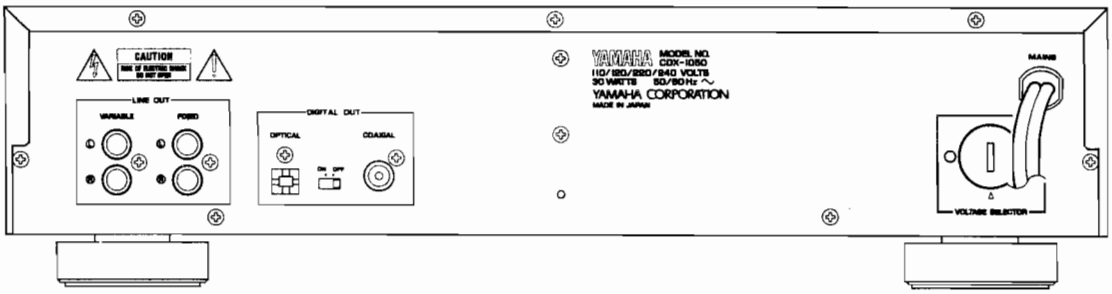
▼ U model



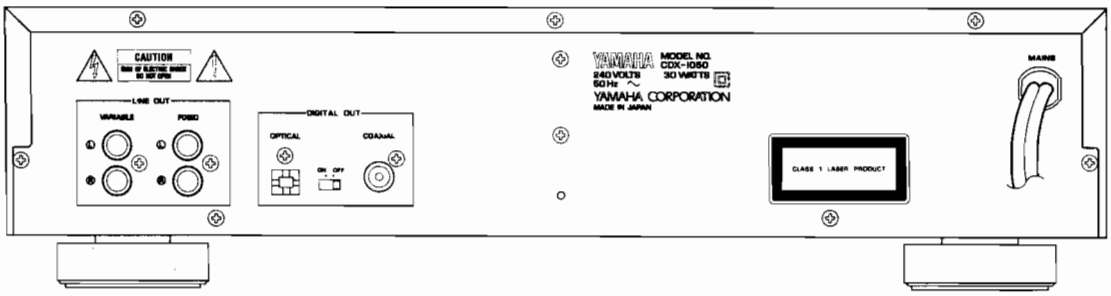
▼ C model



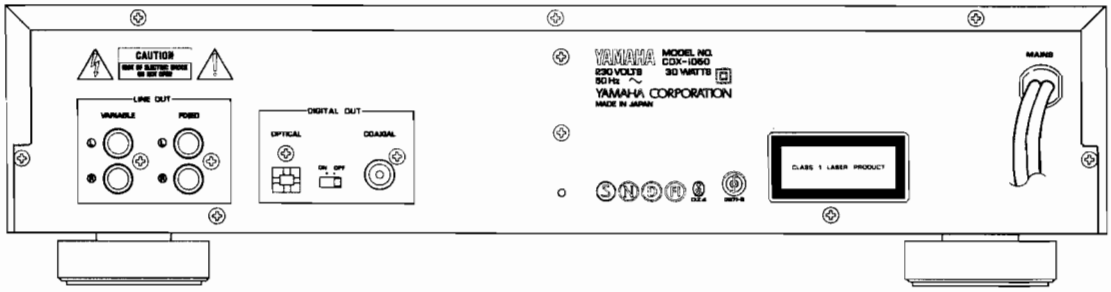
▼ R model



▼ A, B models



▼ G model



■ INTERLOCK OPERATION

The Digital Compact Disc Player reads the disc signals by laser beam detection. The human body must not be directly exposed to the laser beam. Human eyes are especially damaged 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 24 (LS) of IC10 (HD63B01), and also by Automatic Laser Power Control Circuit. When Pin 24 is in "H" (High) level, the laser emits the beam. When Pin 24 is in "L" (Low) level, the laser does not emit the beam.
Pin 24 is set in "H" level when the unit is loaded with a disc and reads the index signals or when the unit is set in the play mode. When the unit reads the index signals and the following two conditions are met, the laser emits the beam.

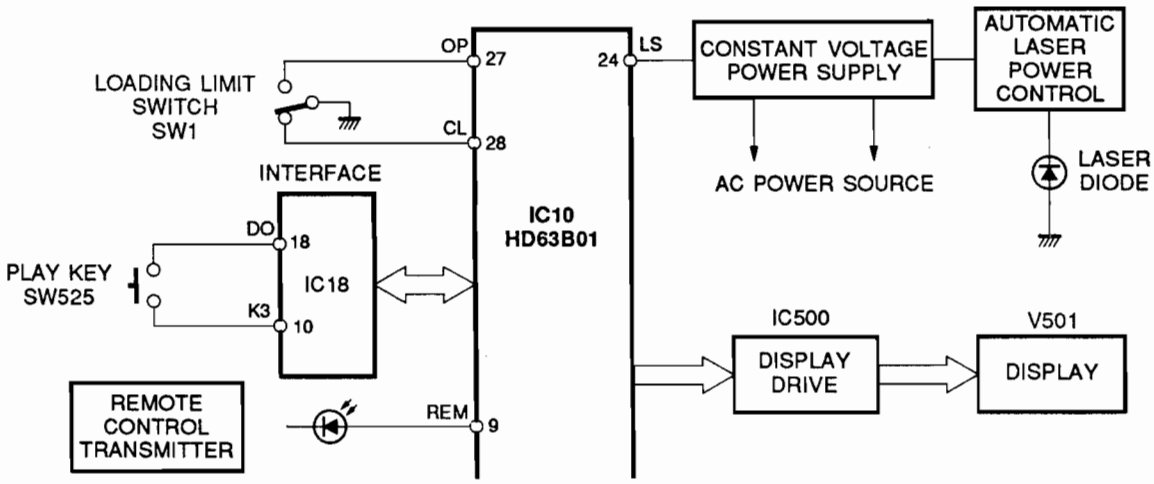
1) When the Loading Limit Switch is set to "CL". (The disc tray is closed.)

2) When the pickup is located at the area of minimum disc 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 (SW525) on the unit or on the Remote Control Transmitter is pressed.

2) When TIMER PLAY is ON, and the timer activates the CD Player.



■ SPECIFICATIONS

■ AUDIO SECTION

Frequency Response	2Hz~20kHz ±0.3dB
De-Emphasis Equalization	±0.5dB (EIAJ)
Harmonic Distortion+Noise	Less than 0.0018%, 1kHz (EIAJ)
S/N Ratio	118dB (EIAJ)
Dynamic Range	More than 100dB (EIAJ)
Wow & Flutter	Unmeasurable
Channel Separation	More than 100dB, 1kHz (EIAJ)
Output Voltage	2V (EIAJ)
Output Impedance	630Ω
Headphone Output (-20dB)	640mV/150Ω (VR MAX)

■ INTERNAL SYSTEM

Optical Pick-up	3-beam laser
Error Correction System	CIRC
D/A Conversion	1-bit system

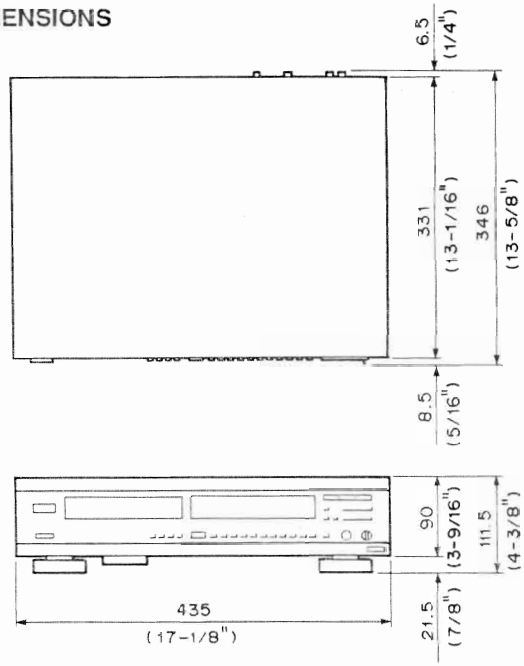
■ GENERAL

Power Requirements	
U, C models	120V AC 60Hz
A, B models	240V AC 50Hz
G model	230V AC 50Hz
R model	110/120/220/240V AC 50/60Hz
Power Consumption	30W
Dimensions (W x H x D)	435 x 111.5 x 346mm (17-1/8" x 4-3/8" x 13-5/8")
Weight	10.0kg (22 lbs 1 oz)
Accessories	Pin plug code
	Remote control transmitter
	Dry-cell: x2 (Sise "AAA", R03)

**Specifications are subject to change without notice.*

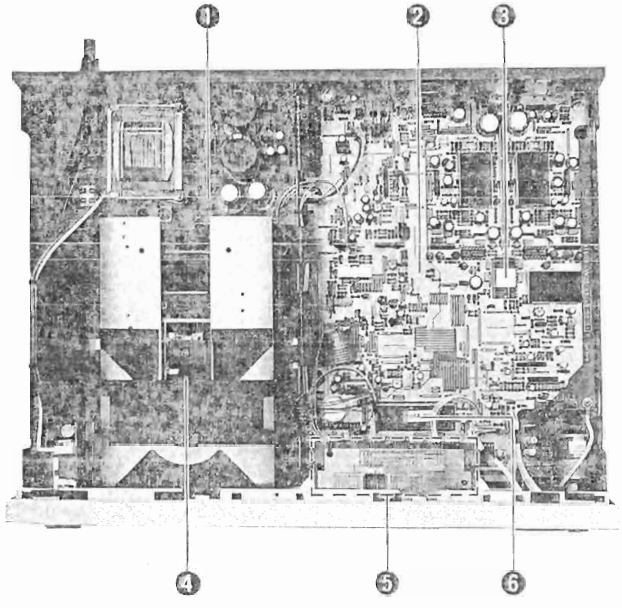
U ..... U. S. A. model
C ..... Canadian model
B ..... British model
A ..... Australian model
G ..... European model
R ..... General model

● DIMENSIONS



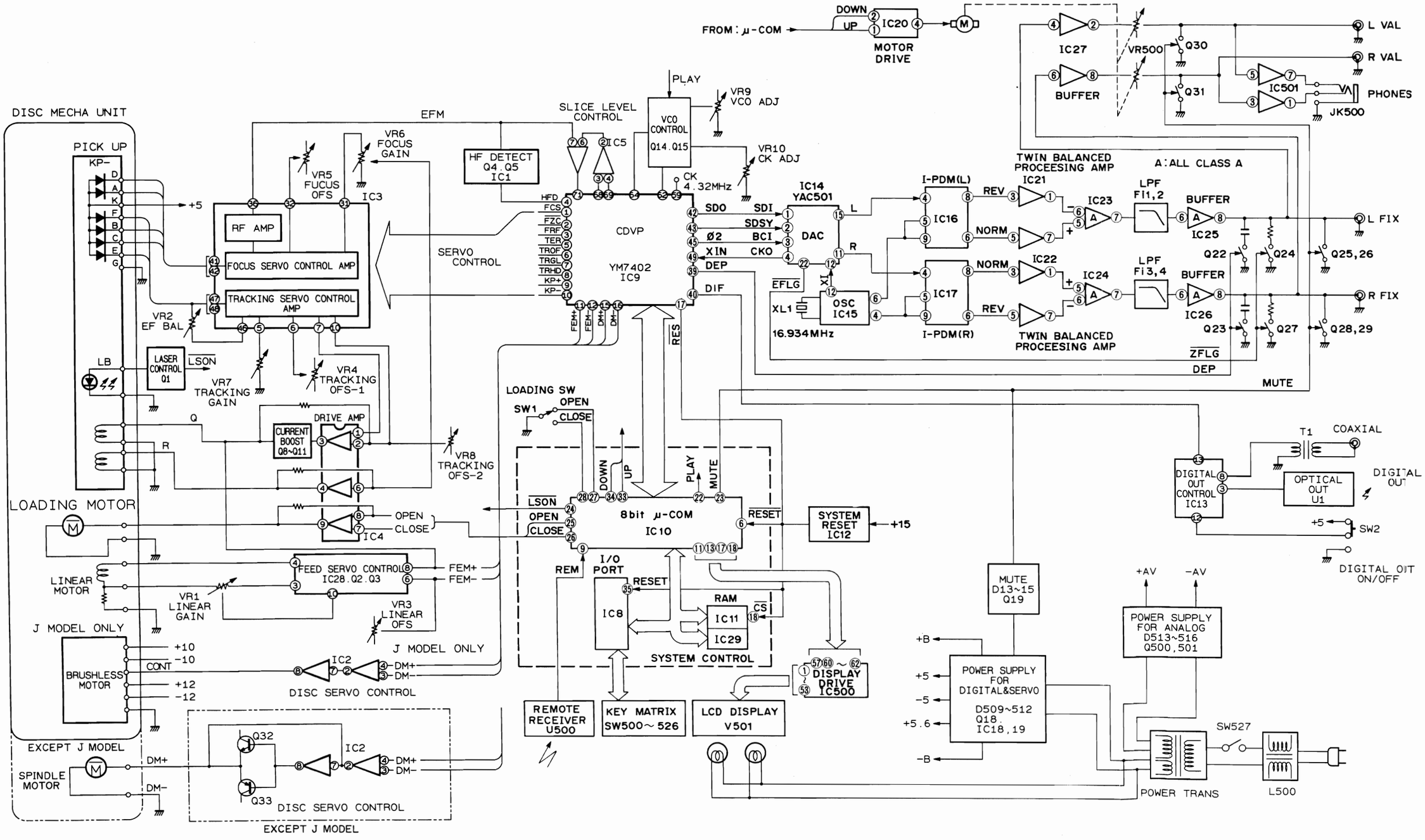
Unit : mm (inch)

■ INTERNAL VIEW



1. OPERATION CIRCUIT BOARD (2)
2. MAIN CIRCUIT BOARD
3. IC14 : YAC501 (DAC)
4. DISC MECHANISM UNIT
5. OPERATION CIRCUIT BOARD (3)
6. 8 bit μ-COM (IC10)

■ BLOCK DIAGRAM



■ DISASSEMBLY PROCEDURES

(Remove parts in disassembly order as numbered.)

1. Removal of Top Cover

a. Remove 4 screws (①) and 3 screws (②) in Fig. 1.
b. Lift the Top Cover to the back side and move it rearward slantingly.

2. Removal of Inner Top

a. Remove 2 screws (③) and then remove the Ground Plate in Fig. 1.
b. Remove 5 screws (④) in Fig. 1.

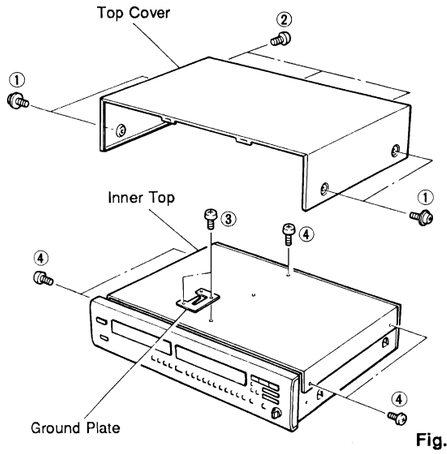


Fig. 1

3. Removal of Front panel

a. Turn ON the power and open the tray.
b. Turn OFF the power, remove 2 screws (⑤) and remove the lid/tray in Fig. 2.
c. Close the tray by pushing it lightly.
d. Remove 7 screws (⑥) and a screw (⑦)* in Fig. 2.
   * Disconnect the connector whose wire is connected.
e. Release 2 levers (one on each side) and pull out the Front Panel in Fig. 2.

4. Removal of Disc Mechanism Unit

a. Remove 3 screws (⑧) and a screw (⑨) in Fig. 2.
   * Disconnect the connector whose wire is connected.

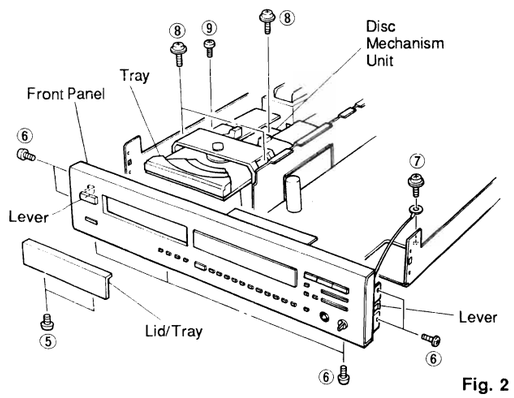


Fig. 2

5. Removal of Pick-up Head

a. With the disc mechanism unit little a litted and the head lowered, pull out the tray.
b. Remove a screw (⑩) and then remove the spring tray/BE in Fig. 3.
c. Remove a plastic rivet (⑪) and then remove the flexible P. C. B from the mechanical base in Fig. 4.
d. Disconnect the connector (#3) of the disc motor from the mechanical base in Fig. 4.
e. Remove 2 screws (⑫) and then remove the spindle mechanism assembly (with a hanger) in Fig. 3.

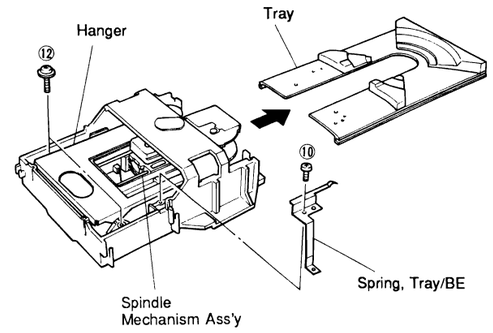


Fig. 3

● **Rear View of Disc Mechanism Unit**

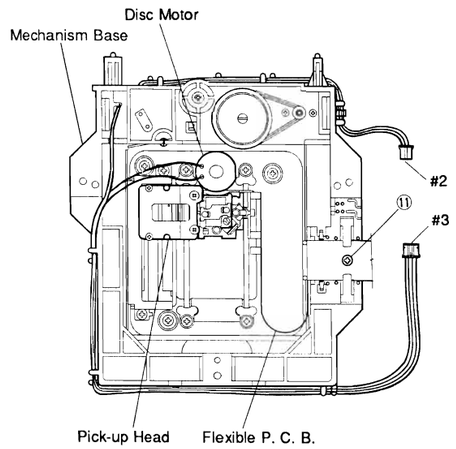


Fig. 4

f. Remove 3 stepped screws (⑬) and then remove the hanger in Fig. 5.
g. Disconnect the connector of the rear actuator.
h. Remove 4 screws (⑭) and then remove the holder/shaft in Fig. 5.
i. Remove 2 screws (⑮) and then remove the pick-up head (with a shaft) in Fig. 5.
   * The shaft has a cushion ring. Be careful not to lose it. (Refer to the exploded view of the disc mechanism unit.)

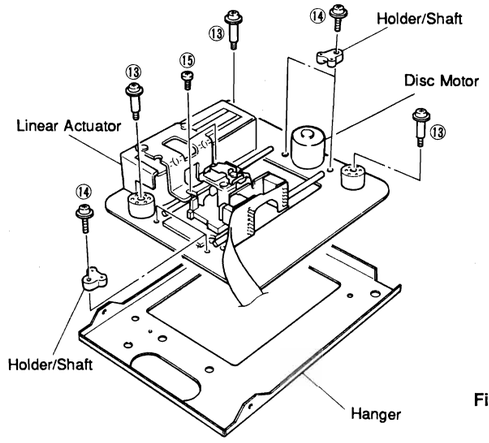
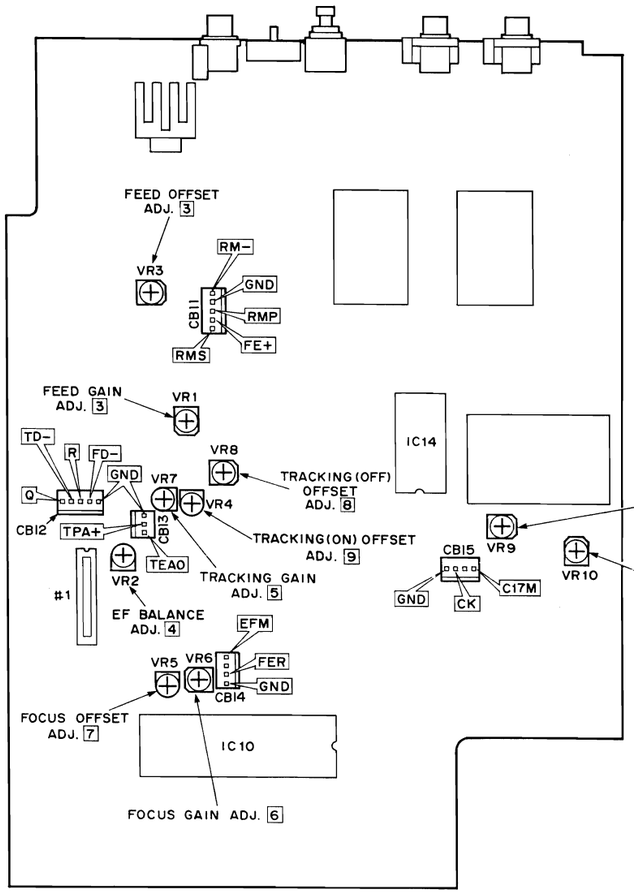


Fig. 5

■ ADJUSTMENTS

● **TEST POINTS**



● Necessary items

Measuring instruments

Oscilloscope (Band width of 50MHz or more)	: x 1
AC voltmeter	: x 1
DC voltmeter	: x 1
Frequency counter	: x 1
Low frequency oscillator or function generator (which generates square wave)	: x 1

Jigs

Test disc YEDS-18 (P/No. TX911730) or TCD-782 (A-BEX)	: x 1
Scratch disc TCD-721R (P/No. TX911960)	: x 1
4P Connector kit (P/No. MX600340)	: x 2
5P Connector kit (P/No. MX600350)	: x 2

Tools

Screwdriver (For Pre-set Potentiometer adjustment)	: x 1

● Carry out following adjustments in order as numbered

1. VCO adjustment (VC17M ADJ.)
2. VCO free-run adjustment (VCK ADJ.)
3. Linear motor adjustment (Feed offset ADJ. & Feed gain ADJ.)
4. EF Balance adjustment
5. Tracking gain adjustment
6. Focus gain adjustment
7. Focus offset adjustment
8. Tracking OFF offset adjustment
9. Tracking ON offset adjustment
10. Feed gain confirmation
11. Jitter confirmation

● Before Adjustment

Starting TEST Mode

While pressing both "4" and "7" keys, turn ON the power switch. Take fingers off both keys, and all the display segments light for about 2 seconds and the operation mode is set to the TEST mode.
(See page 15 for TEST mode explanation)

● Command keys for adjustment in TEST mode

"1" : For return to PRODUCT mode

"2" : VCO/Linear motor gain offset / tracking focus offset adjustment key.
The tray opens and LB turns ON.
Note) No operation is available without a tray.

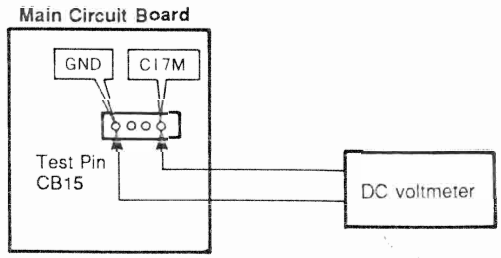
"3" : For adjusting EF balance
The tray is closed, focus locked and the disc rotation is started. (Tracking Servo OFF)

"4" : For adjusting tracking focus gain.
Disc is played.

"5" : For adjusting tracking focus offset
The tray opens and LB turns ON.
But Tracking Servo should be OFF.
[Pin 6 (TROF) of IC9 ..... "H"]

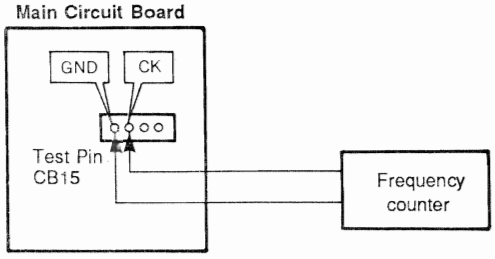
"6" : For adjusting tracking offset
The tray opens and LB turns ON.
But Tracking Servo should be ON.
[Pin 6 (TROF) of IC9 ..... "L"]

1 VCO adjustment



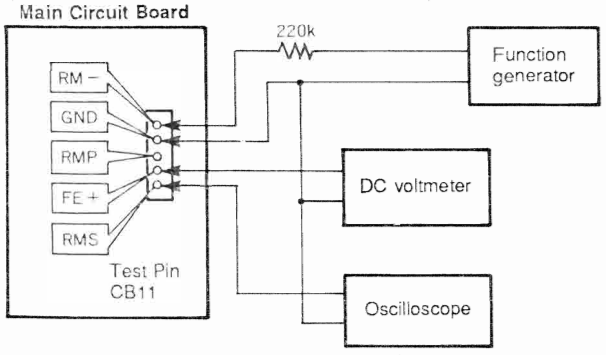
① Do not load the disc.
② Set to the TEST mode.
③ Press the "2" key.
④ Measure the voltage at C17M terminal and adjust VR10 so that the specified voltage is obtained.
* This adjustment should be done at least 1 minute after turning ON the power.
VC17M = 2.5V±50mV (DC)

2 VCO free-run adjustment

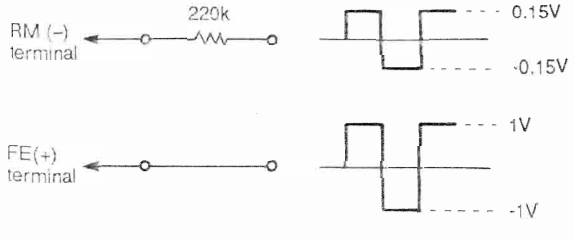


① Do not load the disc.
② Set to the TEST mode.
③ Press the "2" key .
④ Connect a frequency counter to the CK terminal.
* Be sure to use a probe (10:1 type for oscilloscope) for frequency counter input.
⑤ Adjust VR9 so that the specified frequency is obtained.
FCK = 4.3218MHz±0.02MHz

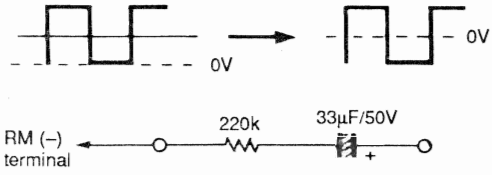
3 Linear motor adjustment



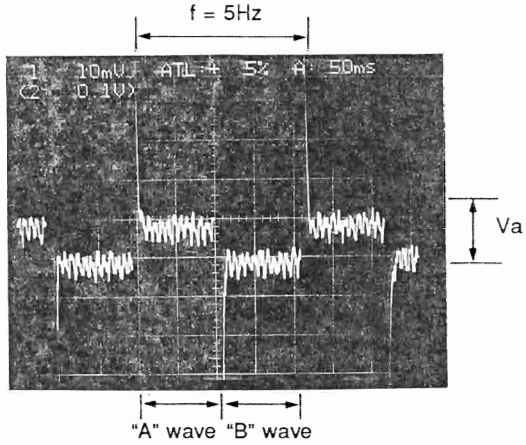
① Disconnect the connector #1.
(Flexible of pick-up head)
② Do not load the disc.
③ Set to the TEST mode.
④ Press the "2" key .
⑤ Short-circuit the RMP terminal and GND.
⑥ Measure the voltage at the FE (+) terminal and adjust VR3 so that the specified voltage is obtained. (Feed offset adjustment)
VFE = 0V±100mV (DC)
⑦ Apply a 5Hz, ±0.15V square wave to the RM (–) terminal through a 220kΩ resistance so that ±1V voltage is obtained at the FE (+) terminal.



* If the square wave appears only on the positive (+) side on the low frequency oscillator, apply square wave through a 33µF/50V capacitor (UJ167330).



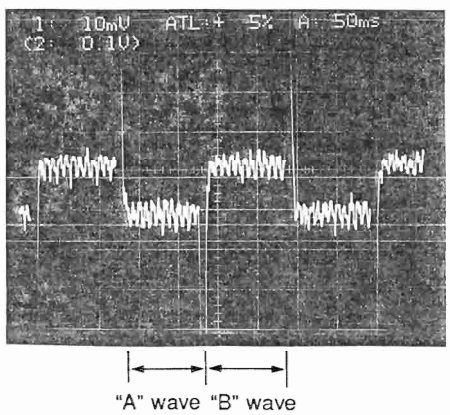
⑧ Turn OFF the power and install the connector #1.
(Flexible of pick-up head)
⑨ Turn ON the power and set to the TEST mode.
⑩ Press the "2" key .
⑪ Adjust VR1 so that derivative waveforms as shown below are obtained at the RMS terminal. (Feed gain adjustment)



Va = 20mV±2.5mV (AC)

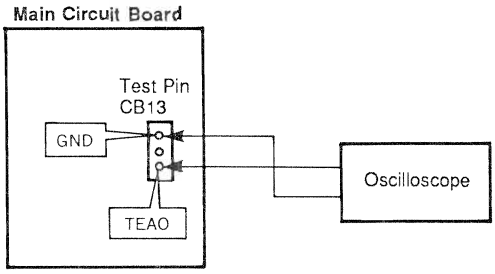
Note: The "B" wave voltage should not exceed the "A" wave voltage as shown below Fig. NG.

NG



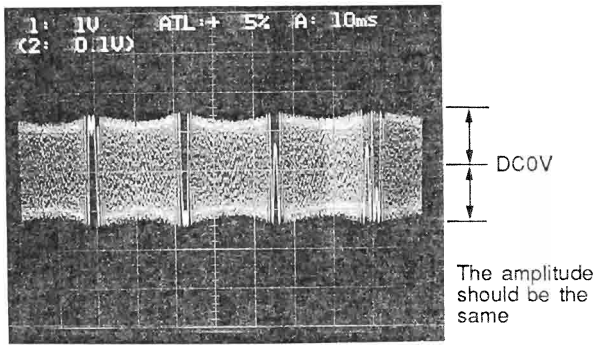
⑫ Disconnect the RM (–) terminal for square wave input.
⑬ Disconnect the short cord between the RMP terminal and GND.
⑭ Measure the voltage at the FE (+) terminal and adjust VR3 so that the specified voltage is obtained. (Feed offset adjustment)
VFE = 0V±50mV (DC)

4 EF balance adjustment

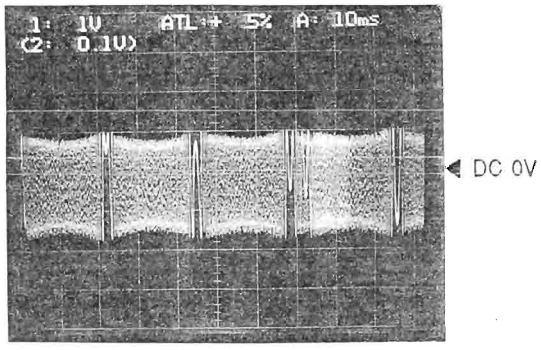


① Load a test disc.
② Set to the TEST mode.
③ Press the "3" key .
④ Adjust VR2 so that the amplitude becomes equal on both sides (upper and lower) of DC 0V in the waveform at the TEA0 terminal.
Rating : DC offset → 0V±50mV

OK

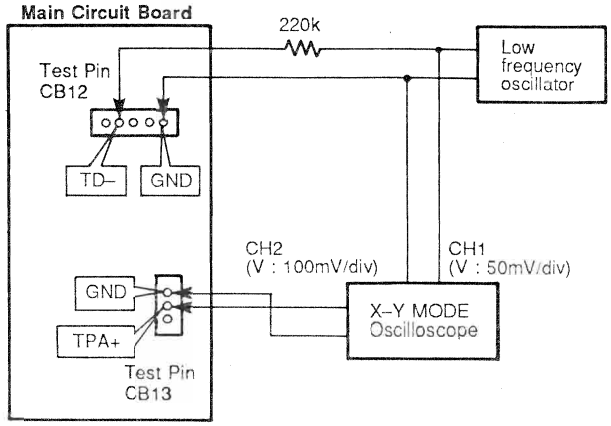


NG



5 Tracking gain adjustment

① Connect an oscilloscope and a low frequency oscillator to the TD(–) terminal and TPA(+) terminal as shown below.



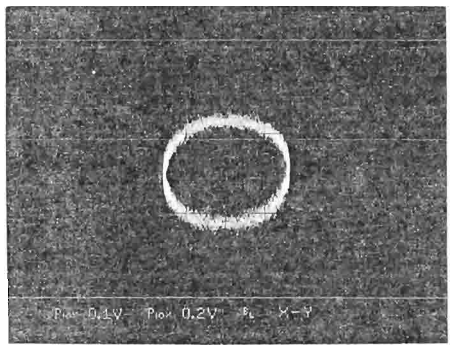
② Load the test disc.
③ Set to the TEST mode.
④ Press the "4" key .
⑤ Apply a 100mVrms sine wave from the low frequency oscillator to the TD(–) terminal through a 220kΩ resistance as follows : *

* Maked

Test disc	Frequency
YEDS-18	740Hz, 100mVrms
TCD-782 (A-BEX)	870Hz, 100mVrms

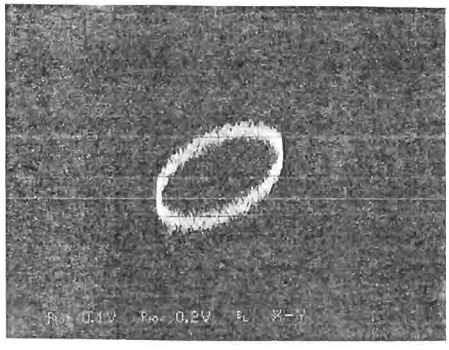
⑥ Adjust VR7 so that the phase difference between the TD(–) terminal and TPA(+) terminal is 90°.

OK



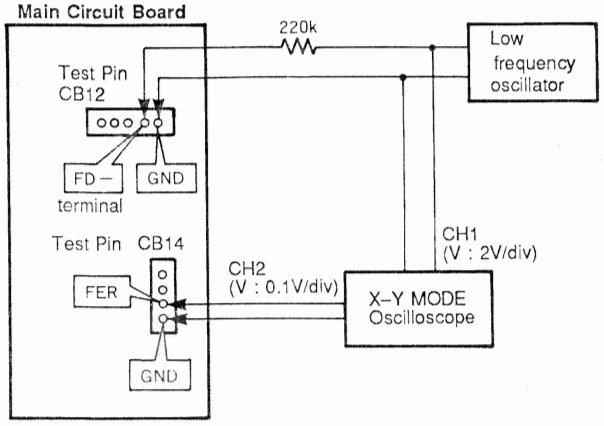
90°

NG



6 Focus gain adjustment

① Connect an oscilloscope and a low frequency oscillator to the FD(–) terminal and FER terminal as shown below.



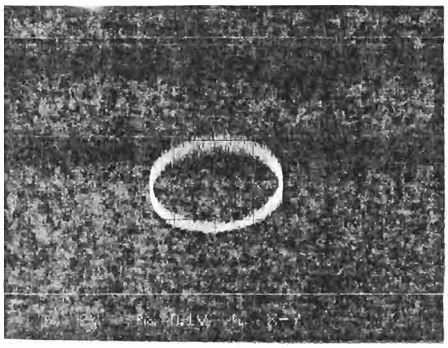
② Load the test disc.
③ Set to the TEST mode.
④ Press the "4" key .
⑤ Apply a 2.3Vrms sine wave from the low frequency oscillator to the FD(–) terminal through a 220kΩ resistance as follows : *

* Maked

Test disc	Frequency
YEDS-18	635Hz, 2.3Vrms
TCD-782 (A-BEX)	610Hz, 2.3mVrms

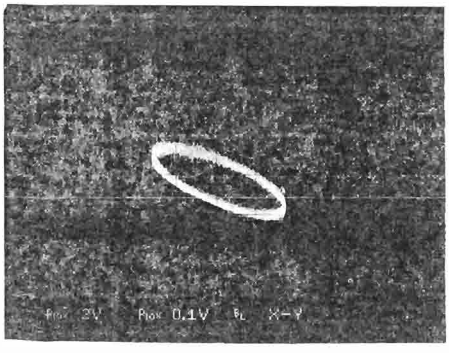
⑥ Adjust VR6 so that the phase difference between the FD(–) terminal and FER terminal is 90°.

OK

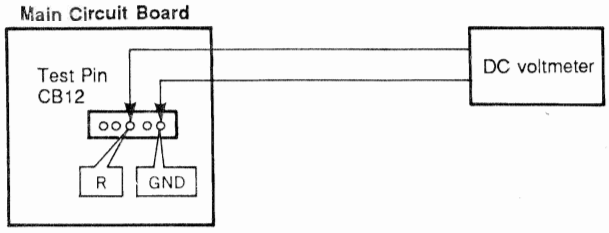


90°

NG

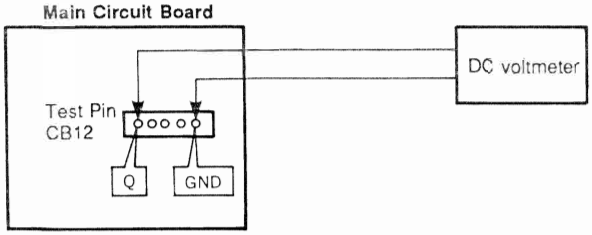


7 Focus offset adjustment



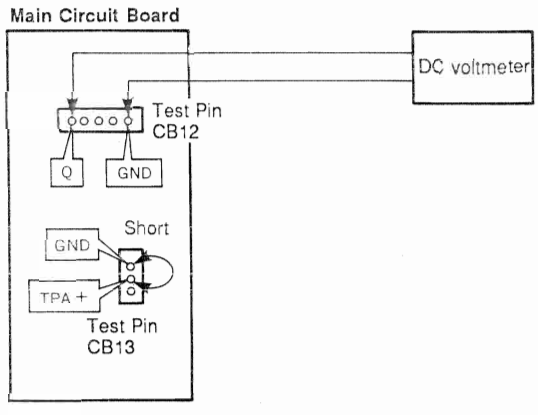
① Do not load the disc.
② Set to the TEST mode.
③ Press the "5" key .
④ Measure the voltage at the R terminal and adjust VR5 so that the specified voltage is obtained.
VR = 0V±100mV (DC)

8 Tracking OFF offset adjustment



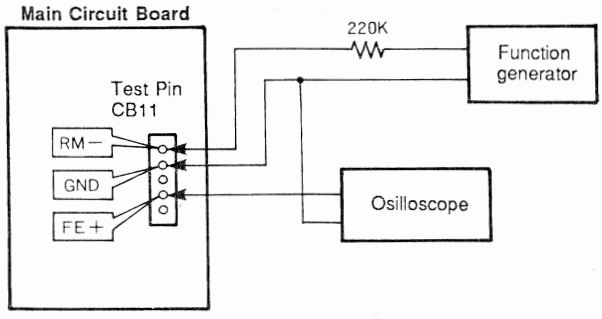
① Do not load the disc.
② Set to the TEST mode.
③ Press the "5" key .
④ Measure the voltage at the Q terminal and adjust VR8 so that the specified voltage is obtained.
VQ OFF = 0V±20mV (DC)

9 Tracking ON offset adjustment

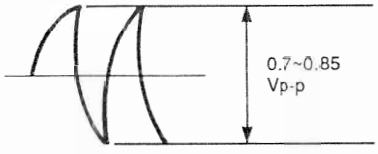


① Do not load the disc.
② Set to the TEST mode.
③ Short-circuit the TPA (+) terminal and GND.
④ Press the "6" key .
⑤ Measure the voltage at the Q terminal and adjust VR4 so that the specified voltage is obtained.
VQ ON = 0V±20mV
⑥ Disconnect the short cord between the TPA (+) terminal and GND.

10 Focus gain confirmation

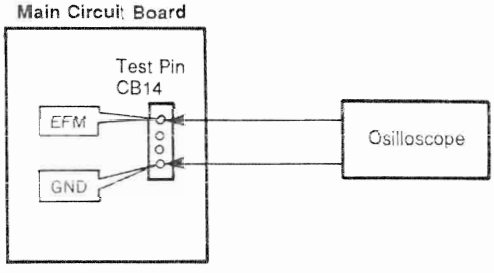


① Do not load the disc.
② Set to the TEST mode.
③ Press the "2" key .
④ Apply a 5Hz, ±0.14V square wave to the RM (−) terminal via a 220kΩ resistance.
⑤ Check that the square wave at the FE (+) terminal is within specification.
* If it is not within specification, perform the Step 3 again and repeat the adjustment as described from the Step 8 on.



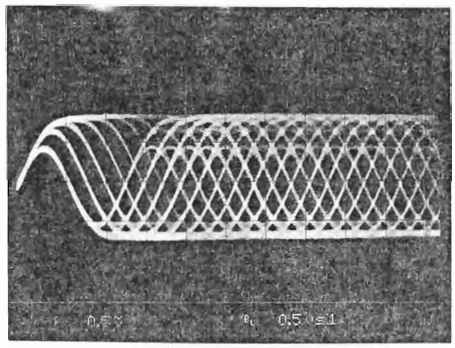
⑥ Disconnect the measuring instrument connected to the RM (−) and FE (+) terminals.
⑦ Load the scratched disc (TCD-721R).
⑧ Press the "4" key .
⑨ Check that the 1.6mm scratch on the disc is traced without noise.

11 Jitter confirmation



① Load the test disc.
② Play the track 1 (0:00~0:30). (PLAY mode)
③ Check to make sure that a clear EFM signal (eye pattern) is output at the EFM terminal.

Eye pattern

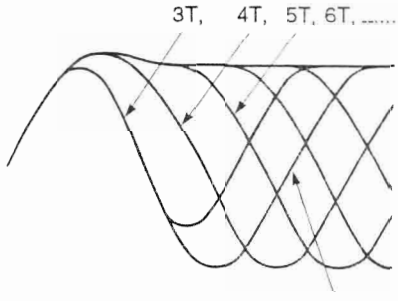


Oscilloscope setting conditions

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

● EYE PATTERN

Waveforms 3T—11T.

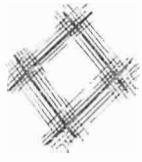


This portation is referred to as the eye pattern.

An abnormal eye pattern has *less distinct* lines and smaller amplitude than that of a good waveform.

Good waveform

Abnormal waveform



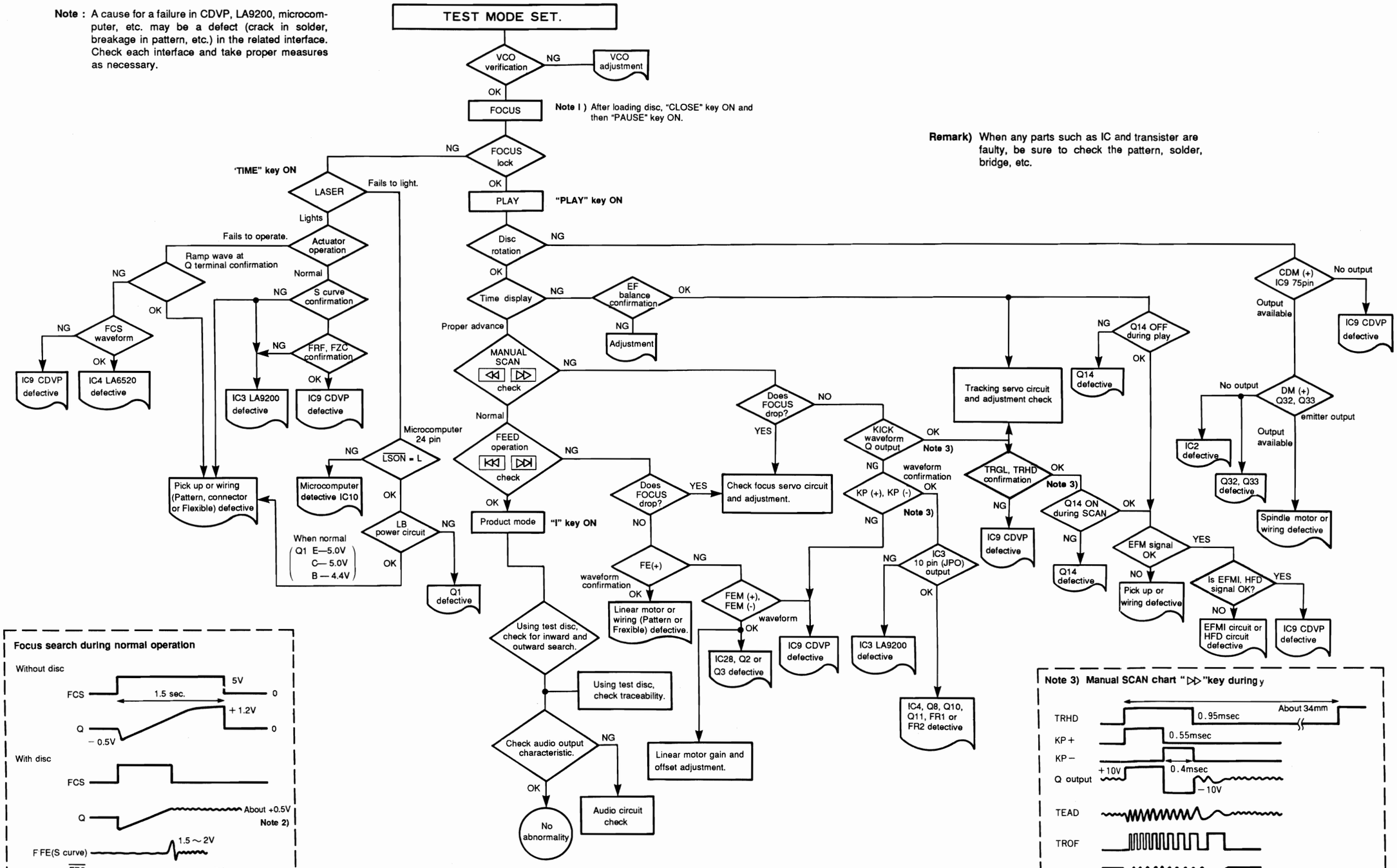
TEST MODE

- **Starting TEST mode**
  While pressing both "4" and "7" keys, turn ON the POWER switch.
  Take fingers off both keys, and all the display segments light for about 2 seconds and the operation mode is set to the TEST mode.

- **Contents of TEST mode key**

KEY	CONTENTS
FILE	VCO circuit gain control (Microcomputer 22pin "PLAY" terminal) H
PLOG	VCO circuit gain control (Microcomputer 22pin "PLAY" terminal) L
DELETE	Audio output MUTE control (Microcomputer 23pin "$\overline{\text{MUTE}}$" terminal) H
CLEAR	Audio output MUTE control (Microcomputer 23pin "$\overline{\text{MUTE}}$" terminal) L **Note:** Inoperable when digital output is ON.
OPEN/CLOSE	Open/Close.
+10	Disc brake.
1	Return to product mode.
2	For adjusting VCO, linear motor gain offset and tracking focus offset. The tray opens and LB turns ON. **Note:** Inoperable without a tray.
3	For adjusting EF balance. The tray is closed and locked from focus search, and then the disc rotation is started. TR—OFF
4	For adjusting tracking focus gain. Playing is started.
5	For adjusting tracking focus offset. The tray opens and LB turns ON. But TR should be OFF. (TR—OFF ..... H)
6	For adjusting tracking offset. The tray opens and LB turns ON. But TR should be ON. (TR—OFF ..... L)
7	Linear motor offset confirmation key TR—OFF(H) FEOF(L)
8	Linear motor offset confirmation key TR—OFF(L) FEOF(L)
9	For checking spindle motor. Reverse revolution
10	For checking spindle motor. Normal revolution
DOWN	Motor volume DOWN
UP	Motor volume UP
REPEAT	TR—OFF "TR—OFF ..... H"
RANDOM	TR—ON "TR—OFF ..... L"
◀◀	Manual search ◀◀
▶▶	Manual search ▶▶
TIME	LB—ON (H)
⏮	Forced feed Inward
⏭	Forced feed Outward
PLAY	For setting to PLAY mode.
PAUSE	Focus search.
STOP	For setting to STOP mode.

Note : A cause for a failure in CDVP, LA9200, microcomputer, etc. may be a defect (crack in solder, breakage in pattern, etc.) in the related interface. Check each interface and take proper measures as necessary.



Remark) When any parts such as IC and transister are faulty, be sure to check the pattern, solder, bridge, etc.

Focus search during normal operation

Note 1) When executing focus search by using the "PAUSE" key, do it only once with the key ON.

Note 2) There is a variation of -0.3 to +0.8 range depending on the amount of the disc surface deflection.

Note 3) Manual SCAN chart "▷▷"key during play

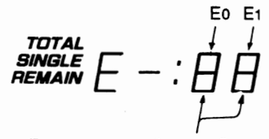
■ ERROR MESSAGE

1. How to get error code displayed

To get a code for any malfunction displayed, press the STOP key of the remote controller while pressing the STOP key on the main unit in the STOP or OPEN mode.

2. How to read error message

When occurrence of an error is detected during operation, a code indicating what has occurred is displayed in the time display segment as shown below.



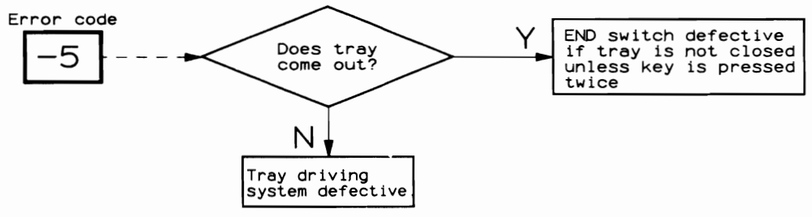
Error message (in two figures)

E0 (STATE)	E1 (Phenomenon)	Meaning	Remarks
X	0	No data reading was executed after search.	
X	1	Data reading failed in the mid of each state.	For 5 seconds
7	3	No data reading was executed though the disc was turned with focus applied at start.	PLL lock failure
—	5	Tray open NG.	
9	5	Tray close NG.	
X	8	Focus dropped in the mid of each state and could not be restored even when retried.	Retry 5 times

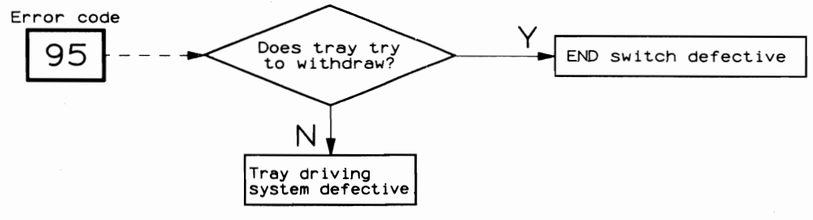
∗ **Note** : X represents each state : PLAY when X=0, MANUAL SEARCH when X=3 and PAUSE when X=4.

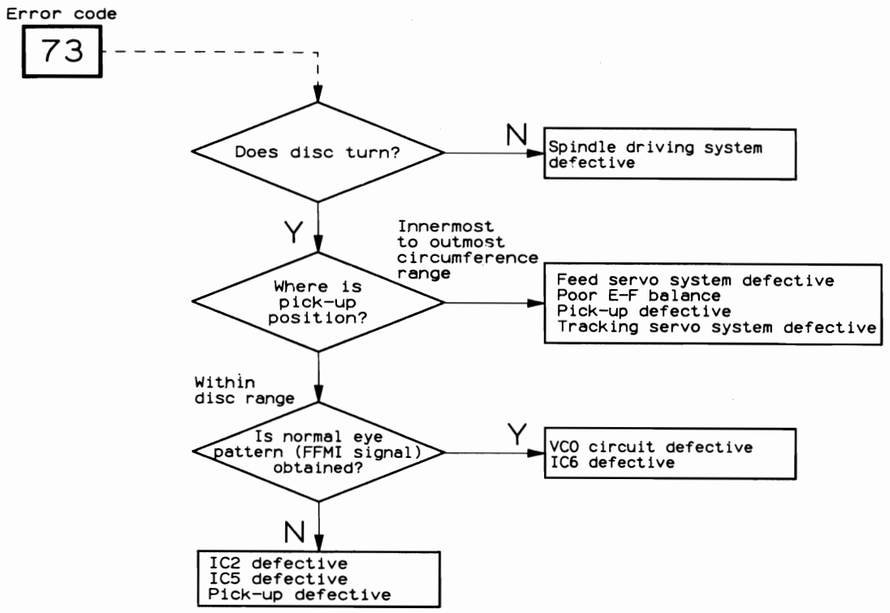
3. How to locate cause of the error from the error message

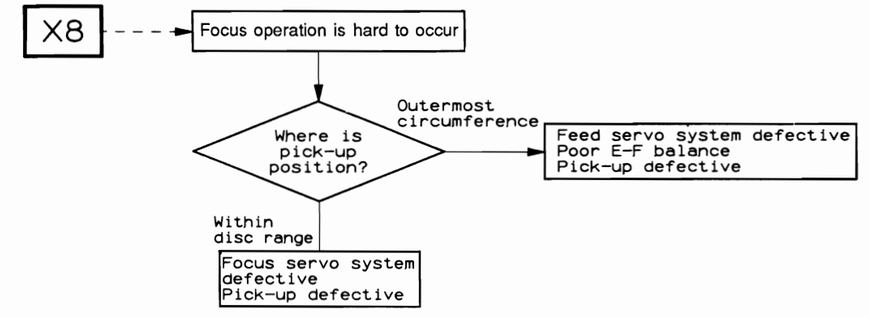
● Tray does not come out even when the power is turned ON and the OPEN/CLOSE key is pressed.

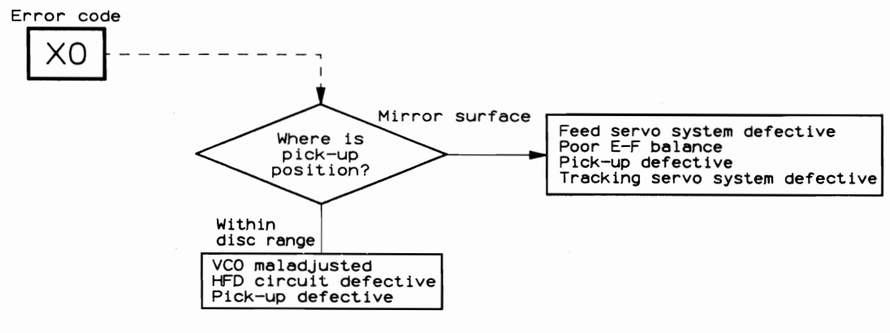


● Tray does not close or even when closed, it opens again after some time.

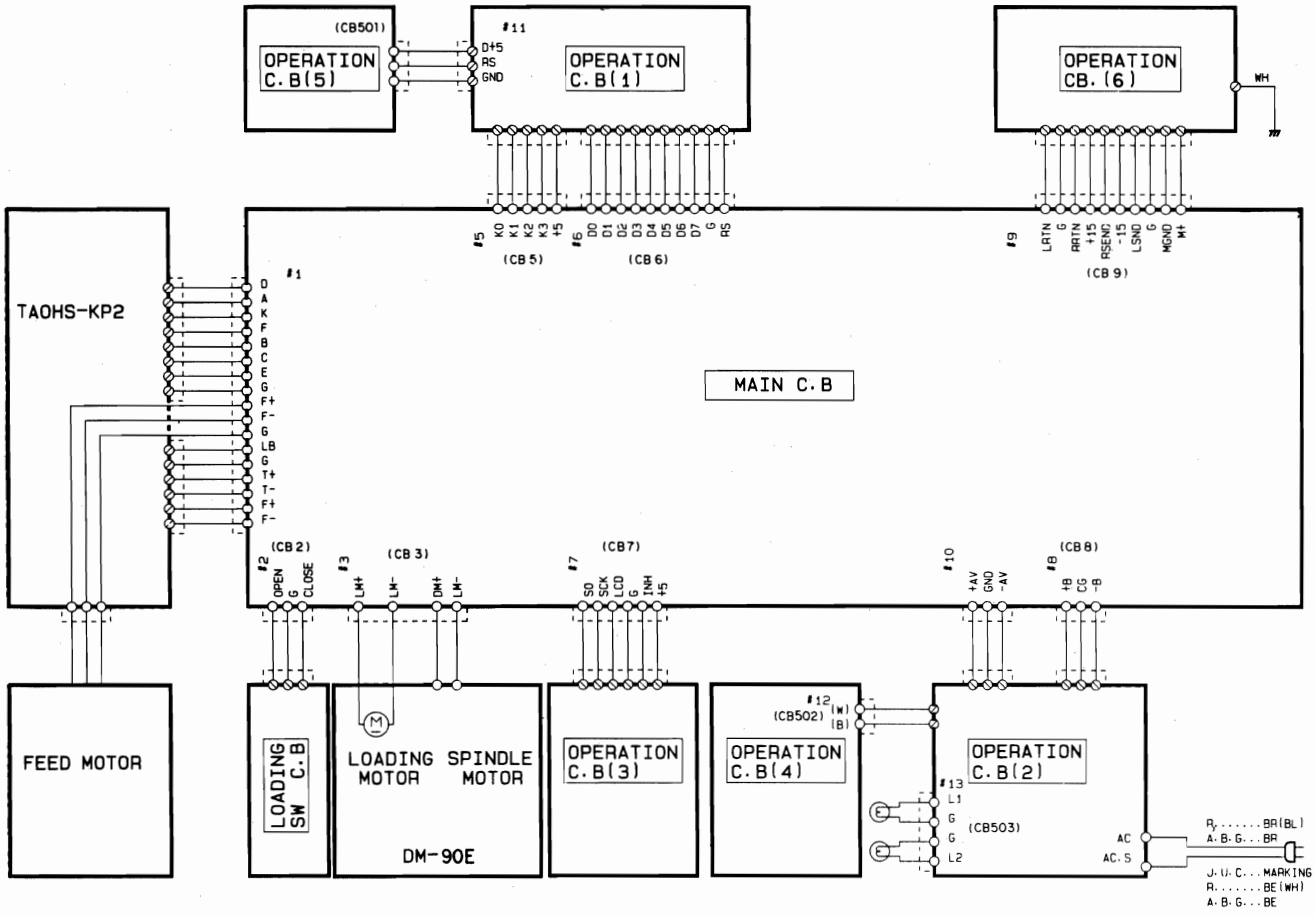








■ INTERCONNECT WIRING DIAGRAM

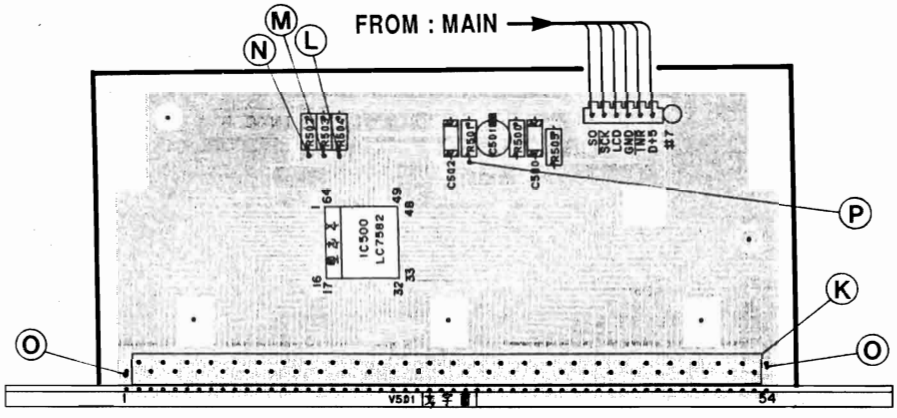


■ PRINTED CIRCUIT BOARD (Foil side)

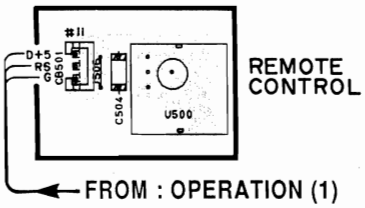
Note) 文字面 : Component side

Ⓚ to Ⓟ : WAVEFORM OF TEST POINT (See page 32)

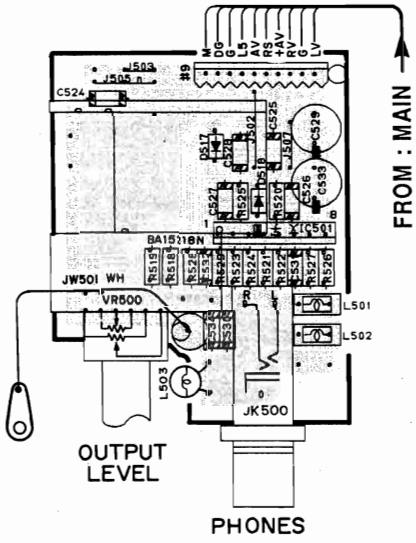
OPERATION C. B (3)



OPERATION C. B (5)



OPERATION C. B (6)



■ PRINTED CIRCUIT BOARD (Foil side)

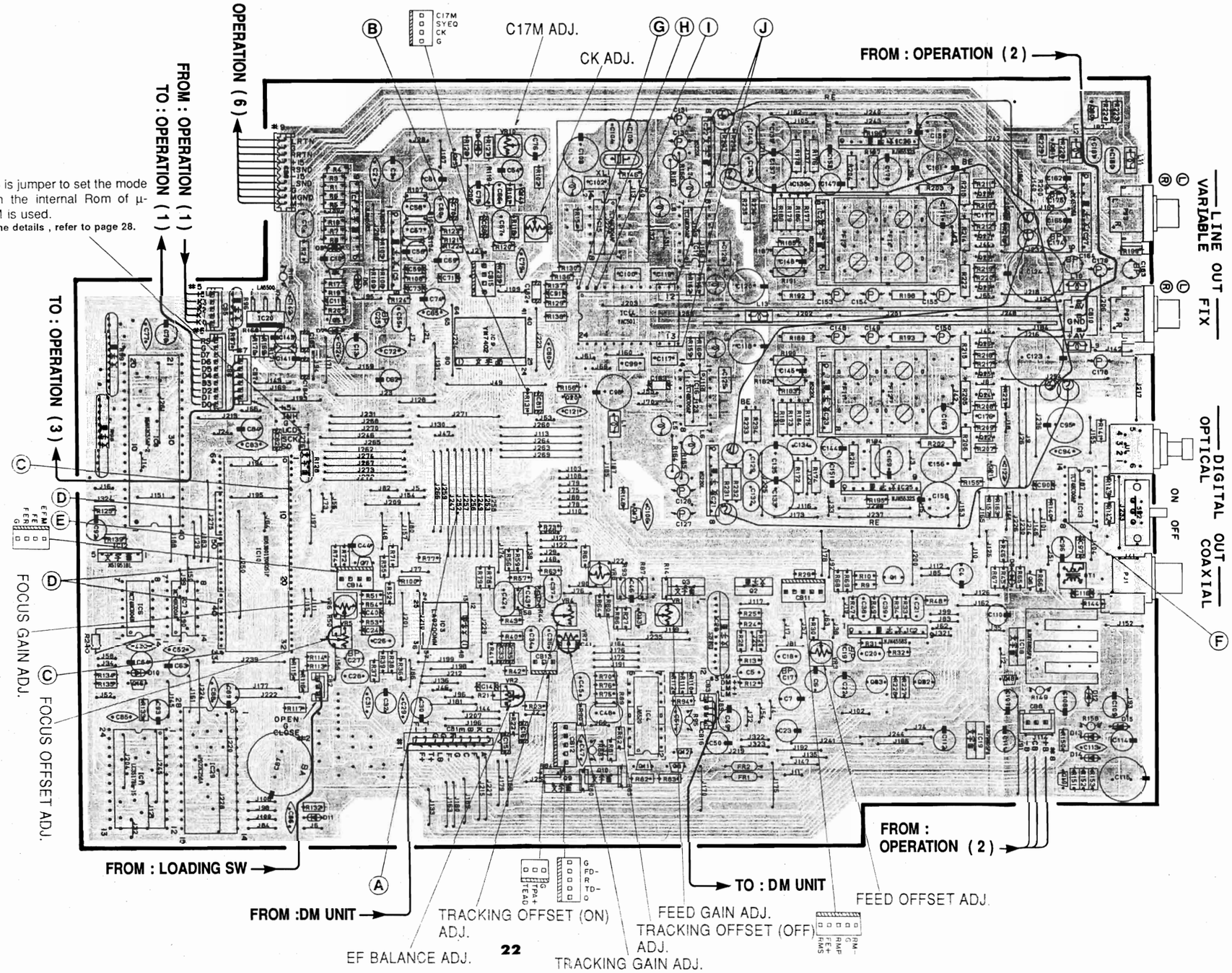
Note) 文字面 : Component side

● **Semiconductor Location**

Ref. No.	Location
D 3	C2
D 6	D2
D 7	C3
D 8	G4
D 9	D2
D 10	C4
D 11	C5
D 12	G4
D 13	G5
D 14	G5
D 15	G4
IC 1	D2
IC 2	F4
IC 3	D4
IC 4	E4
IC 5	D2
IC 6	C4
IC 7	C4
IC 8	C3
IC 9	D3
IC 10	C4
IC 11	C5
IC 12	C4
IC 13	G3
IC 14	E3
IC 15	E2
IC 16	E3
IC 17	E2
IC 18	G4
IC 19	G5
IC 20	C3
IC 21	E3
IC 22	E2
IC 23	F3
IC 24	F2
IC 25	F3
IC 26	F2
IC 27	G2
IC 28	E4
IC 29	C5
Q 1	F4
Q 2	F4
Q 3	E4
Q 4	D2
Q 5	D3
Q 6	G4
Q 7	D4
Q 8	E5
Q 9	E5
Q 10	E5
Q 11	E5
Q 12	E5
Q 13	E4
Q 14	D2
Q 15	D2
Q 16	C4
Q 17	E3
Q 18	G4
Q 19	G5
Q 20	E3
Q 21	G3
Q 22	G3
Q 23	G2
Q 24	G3
Q 25	G3
Q 26	G3
Q 27	G2
Q 28	G2
Q 29	G2
Q 30	G2
Q 31	G2
Q 32	F4
Q 33	F4

Ⓐ to Ⓙ : WAVEFORM OF TEST POINT (See page 32)

MAIN C. B

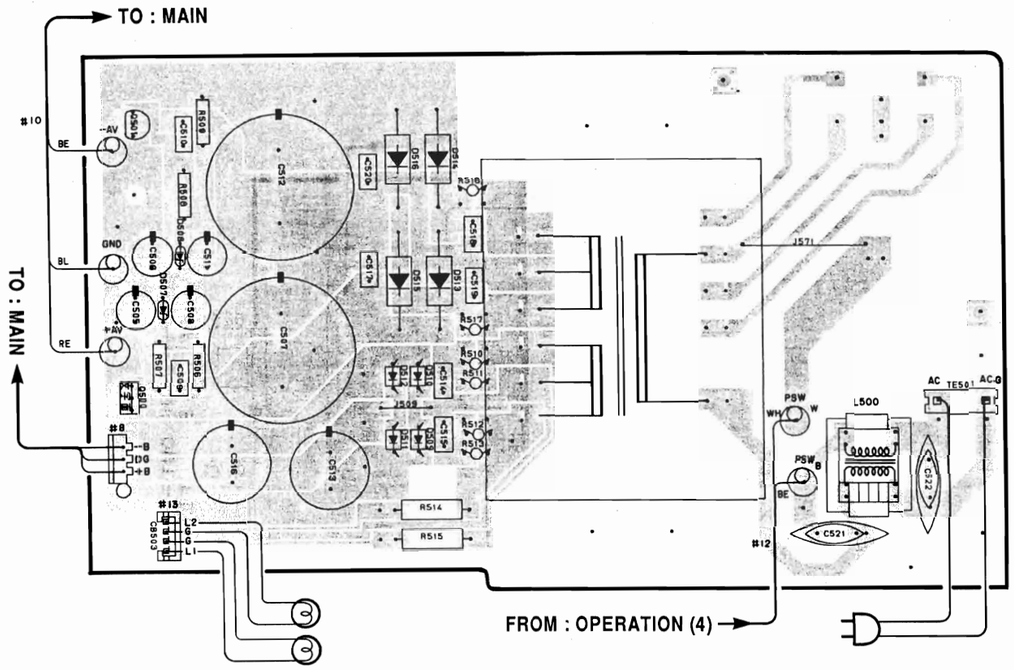


■ PRINTED CIRCUIT BOARD (Foil side)

Note) 文字面 : Component side

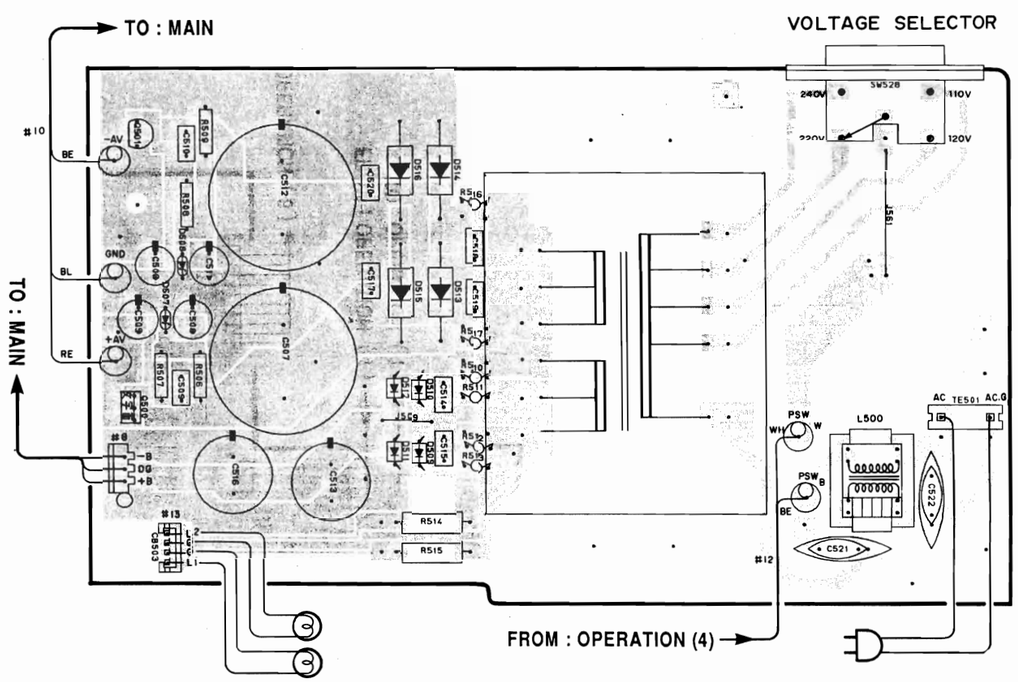
● U, C, A, B, G models

OPERATION C. B (2)

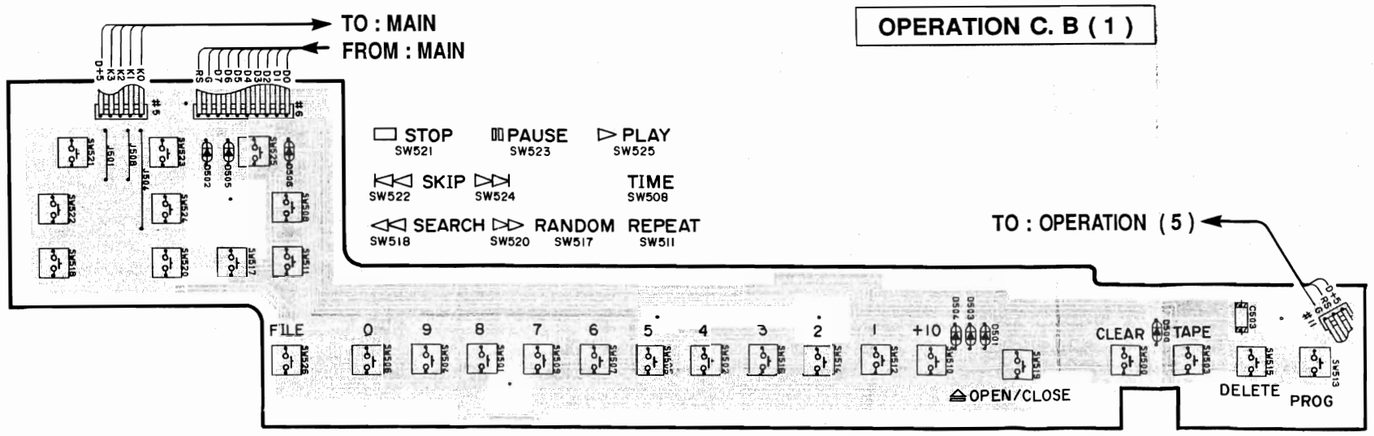


● R model

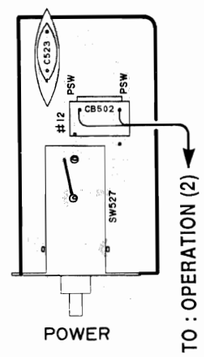
OPERATION C. B (2)



OPERATION C. B (1)



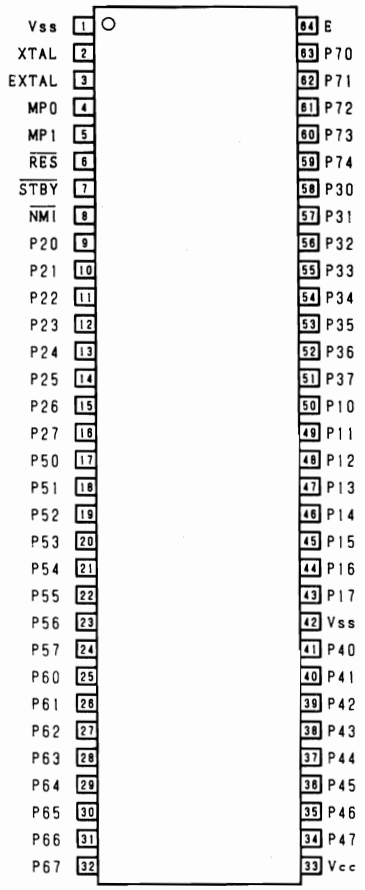
OPERATION C. B (4)

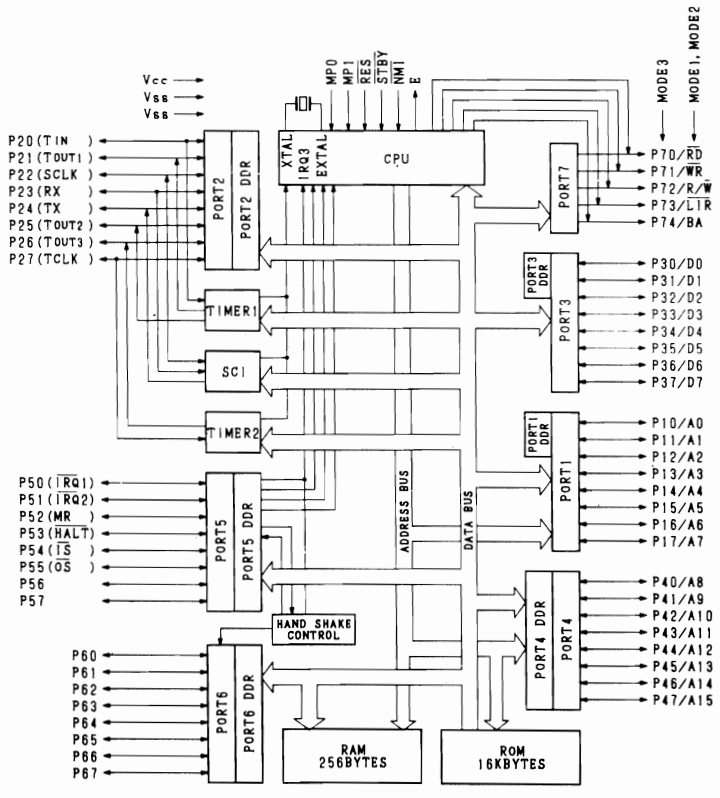


■ IC DATA

IC10 : HD63B01YORQ51P or HD63B01YORL73P
8bit μ-COM

CAUTION : μ-COM varies depending on product serial numbers.
HD63B01YORW51P uses an internal ROM while HD63B01YORL73P uses an external ROM.
When replacement is necessary, refer to page 28.





(Continned on page 27)

Pin No.	Pin Name	Function
1	Vss	GND
3	EXTAL	External clock input
4	MP0	MP0 "L", MP1 "H" For setting built-in ROM used mode
5	MP1	
6	$\overline{\text{RESET}}$	Operation starts at ⎍↗ and stops at ↘⎍.
9	REM	Input from remote control beam reception unit
10	R/W	From μ-COM to YM7402 at "H" From YM7402 to μ-COM at "L"
11	$\overline{\text{SCK}}$	Serial clock output to YM7402 & LC7582
12	SI	Serial data input from YM7402
13	SO	Serial data output to YM7402 & LC7582
14	WQ	Request signal from YM7402
15	$\overline{\text{CDVP}}$	YM7402 chip enable at "L"
16	TER	Tracking error input
17	$\overline{\text{INH}}$	LCD goes off at "L".
18	LCD	LC7582 chip enable at "H"
21	BUSY	Signal input to indicate that instruction from YM7402 is being executed.
22	PLAY	VCO gain L at "H" (during play)
		VCO gain H at "L" (other than during play)
23	$\overline{\text{MUTE}}$	Sound output at "H" (during play, fast forward, fast reverse)
		Sound output mute at "L" (other than above)
24	$\overline{\text{LSON}}$	Laser diode lights at "L"
25	OPEN	Tray open operation at OP "H", CL "L"
26	CLOSE	Tray close operation at OP "L", CL "H"
		Braking at OP "L", CL "L"
27	$\overline{\text{OPSW}}$	Switch input to detect open tray
28	$\overline{\text{CLSW}}$	Switch input to detect closed tray
29	VLDW	Pulse output for digital volume (for lower volume)
30	MVLUP	Motor Volume UP
31	MVLDW	Motor Volume DOWN
32	VLUP	Pulse output for digital volume (for higher volume)
33	VDD	+5V
34	A15	Address output to 82C55 and LC3517BL-15
35	A14	
36	A13	
37	A12	
38	A11	
39	A10	
40	A9	
41	A8	
42	Vss	GND
43	A7	
44	A6	
45	A5	
46	A4	
47	A3	
48	A2	
49	A1	
50	A0	
51	D7	Data output to 82C55 and LC3517BL-15
52	D6	
53	D5	
54	D4	
55	D3	
56	D2	
57	D1	
58	D0	
62	$\overline{\text{WR}}$	Write control signal to 82C55 and LC3517BL-15
63	$\overline{\text{RD}}$	Read input to 82C55 and LC3517BL-15

Precautions on μ-COM

μ-COM varies depending on product serial numbers.

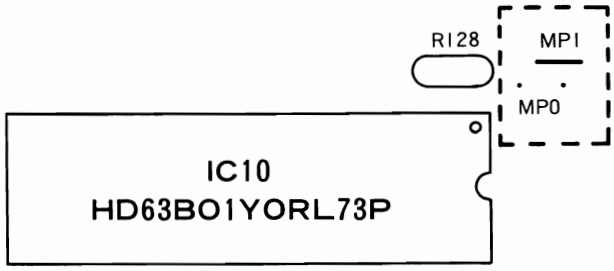
Serial No.	μ-COM (IC10) and ROM (IC29)
#1001~#1500	HD63BOIYDRL73P and PD27C256A
#1501 and up	HD63BOIYORQ51P only (ROM is not used)

For replacement of μ-COM, HD63BOIYORQ51P (P/No. XI478A00) is supplied.
As an external ROM is not used, remove the existing external ROM and use a jumper wire as described below.

Replacement of μ-COM

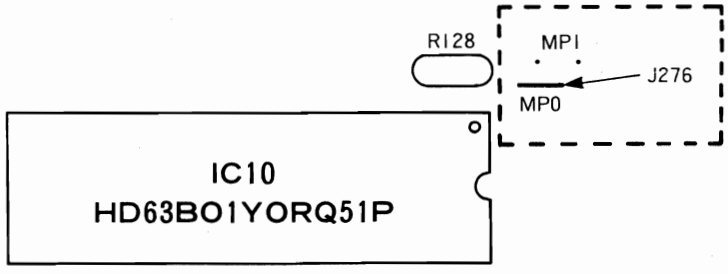
1) Remove the external ROM (IC29) and μ-COM (IC10).
2) Install HD63BO1YORQ51P (P/No. XI478A00) type of μ-COM.
3) Change the jumper wire to change the mode of the microcomputer (from the external ROM to internal ROM)
4) Turn ON the power and check that Pin 4 (MPO) of IC10 is "L" and Pin 5 (MP1) is "H".

Mode 1 : External ROM
(MP0 = "H" , MP1 = "L")

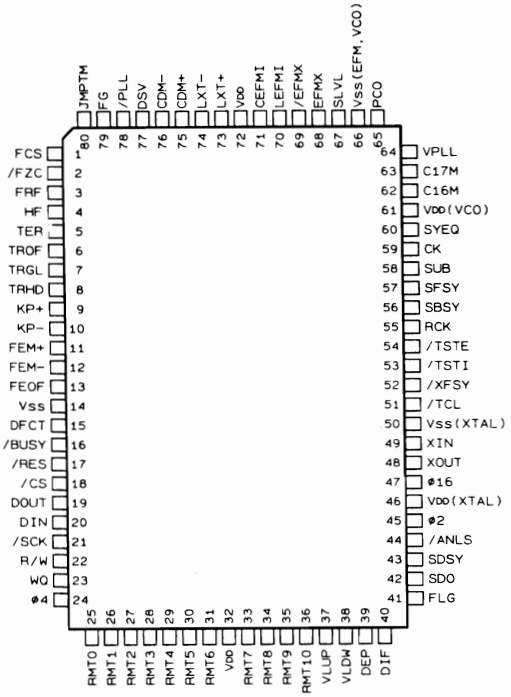


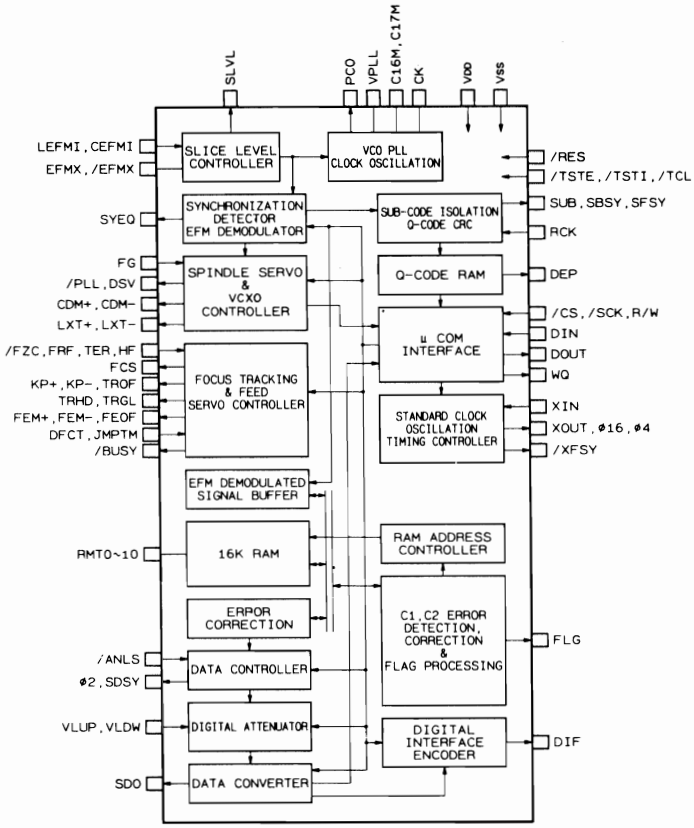
Changed into :

Mode 2 : Internal ROM
(MP0 = "L" , MP1 = "H")



IC9 : YM7402
Signal Processor & Controller for Compact Disc Player





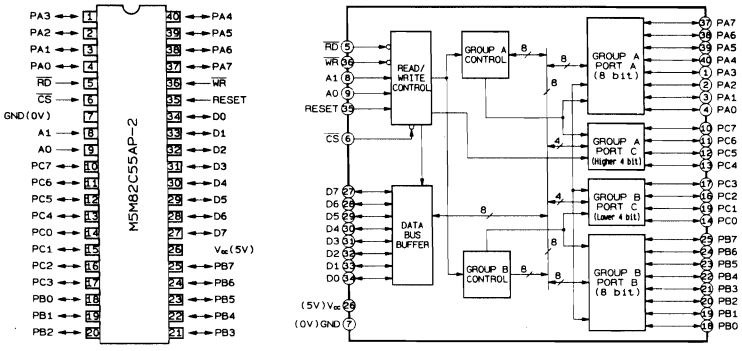
Pin No.	Pin Name	I / O	Function
1	FCS	O	Focus search signal output
2	$\overline{FZC}$	I	Focus zero cross signal input
3	FRF	I	Focus reflection signal input
4	HF	I	HF signal input
5	TER	I	Tracking error signal input
6	TROF	O	Tracking servo OFF signal output
7	TRGL	O	TRGL signal output
8	TRHD	O	Tracking hold signal output
9	KP+	O	Outward kick pulse output
10	KP-	O	Inward kick pulse output
11	FEM+	O	Outward feed pulse output
12	FEM-	O	Inward feed pulse output
13	FEOF	O	Feed servo OFF signal output
14	Vss		GND
15	DFCT	I	For setting track count synchronous mode
16	$\overline{BUSY}$	O	Sequence control output (H : End of track count)
17	$\overline{RES}$	I	System reset input
18	$\overline{CS}$	I	Chip select input from μ-COM
19	D OUT	O	Serial data output to μ-COM
20	D IN	I	Serial data input from μ-COM
21	$\overline{SCK}$	I	Clock input for input/output of serial data with μ-COM
22	R/W	I	Control signal input for data input/output with μ-COM
23	WQ	O	Request signal output for data output to μ-COM
24	Ø4	O	System clock output (4.2336MHz)

Focus servo (pins 1–3)
Tracking serve (pins 4–10)
Feed servo (pins 11–13)

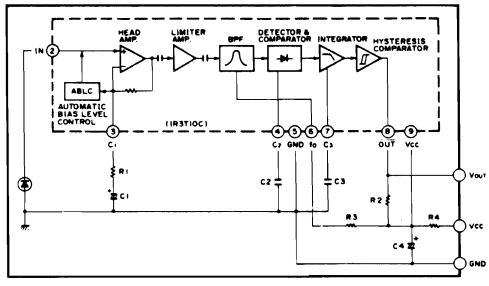
Pin No.	Pin Name	I / O	Function
25	RMT0		For testing intermal RAM
26	RMT1		
27	RMT2		
28	RMT3		
29	RMT4		
30	RMT5		
31	RMT6		
32	VDD		+5V
33	RMT7		For testing internal RAM
34	RMT8		
35	RMT9		
36	RMT10		
37	VL UP	I	Volume up input (Digital attenuator)
38	VL DW	I	Volume down input (Digital attenuator)
39	DEP	O	Deemphasis control signal output (Audio data output)
40	DIF	O	Data output for digital interface (Audio data output)
41	FLG	O	Flag output to correct error in SDO output data (Audio data output)
42	SDO	O	Serial data output (Audio data output)
43	SDSY	O	Synchronous signal output (44.lkHz) of SDO output data (Audio data output)
44	$\overline{\text{ANLS}}$	I	Analog sound serial data input (Audio data output)
45	Ø2	O	System lock output (2.1168MHz) (Audio data output)
46	VDD		XTAL system +5V
47	Ø16	O	System clock output
48	X OUT	O	For connecting quartz oscillator (16.9344MHz)
49	X IN	I	
50	Vss		XTAL system GND
51	$\overline{\text{TCL}}$	I	Test signal input
52	$\overline{\text{XFSY}}$	O	Frame synchronous signal output (7.35kHz)
53	$\overline{\text{TSTI}}$		Test mode input (For testing)
54	$\overline{\text{TSTE}}$		Test mode control signal input (For testing)
55	RCK	I	Clock input for reading sub-code (Sub-code output)
56	SBSY	O	Sub-code block synchronization output (Sub-code output)
57	SFSY	O	Sub-code frame signal output (Sub-code output)
58	SUB	O	Sub-code serial output (P~W) (Sub-code output)
59	CK	O	VCO system clock output (4.3218MHz)
60	SYEQ	O	Synchronous coincidence monitor (H : EFM pattern and internal counter are synchronized.)
61	VDD		VCO system +5V
62	C16M	I/O	For VCO control
63	C17M	I/O	For VCO adjusted voltage
64	VPLL		For VCO power supply
65	PCO	O	Clock reproduction system phase error output
66	Vss		EFM, VCO system GND
67	SLVL	O	Slice level output
68	EFMX	O	Signal output after limiting amplitude of EFM signal input (normal phase)
69	$\overline{\text{EFMX}}$	O	Signal output after limiting amplitude of FFM signal output. (reverse phase)
70	LEFMI	I	LD mode EFM signal input
71	CEFMI	I	CD mode EFM signal input
72	VDD		+5V
73	LXT+	O	VCXO frequency up signal output (only in LD mode)
74	LXT-	O	VCXO frequency down signal output (only in LD mode)
75	CDM+	O	Disc motor acceleration signal output (only in CD mode)
76	CDM-	O	Disc motor deceleration signal output (only in CD mode)
77	DSV	O	For system expansion
78	$\overline{\text{PLL}}$	O	PLL operation monitor (L : Spindle control is PLL operated.)
79	FG	I	FG signal input
80	JMPTM	I	Trigger input to start sequence control

■ IC BLOCK

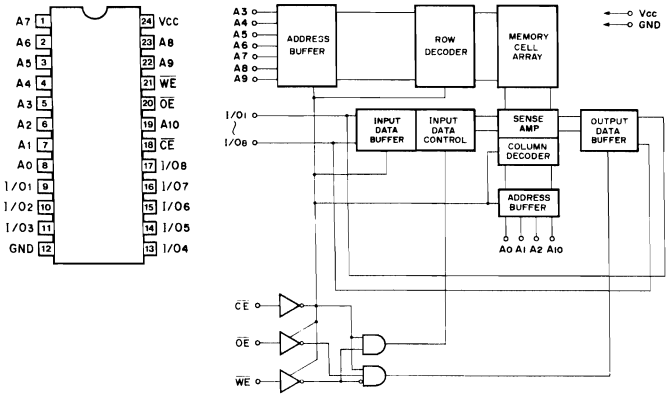
IC8 : M5M82C55AP-2, μPD71055C or MSM82C55A-2RS
Programmble Peripheral Interface



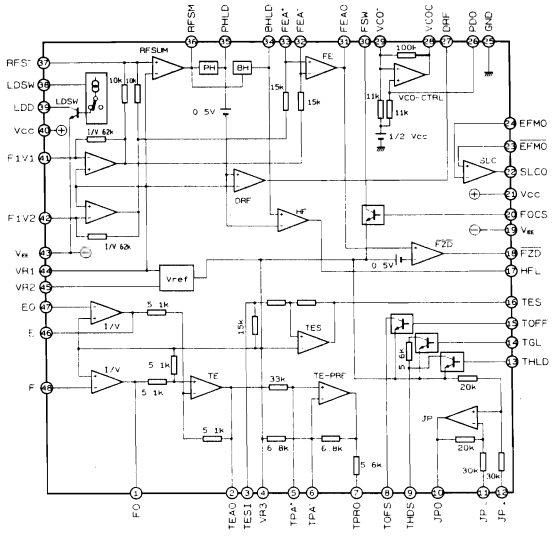
U500 : GP1U501X
Remote Control Receiver Unit



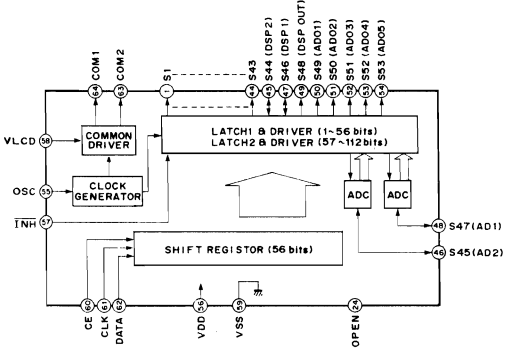
IC11 : LC3517BL-15
2048-Word x 8bit Static RAM



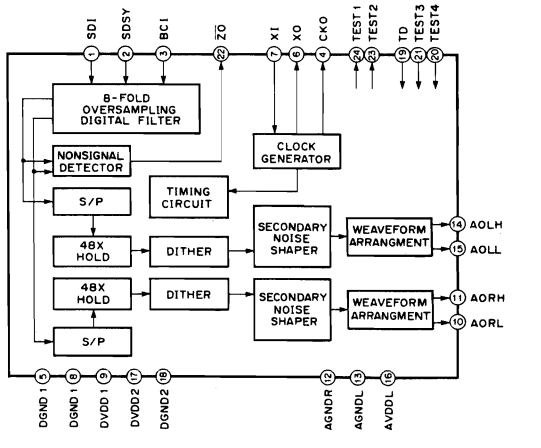
IC3 : LA9200NM
RF Amp & Servo Controller



IC500 : LC7582
LCD Driver

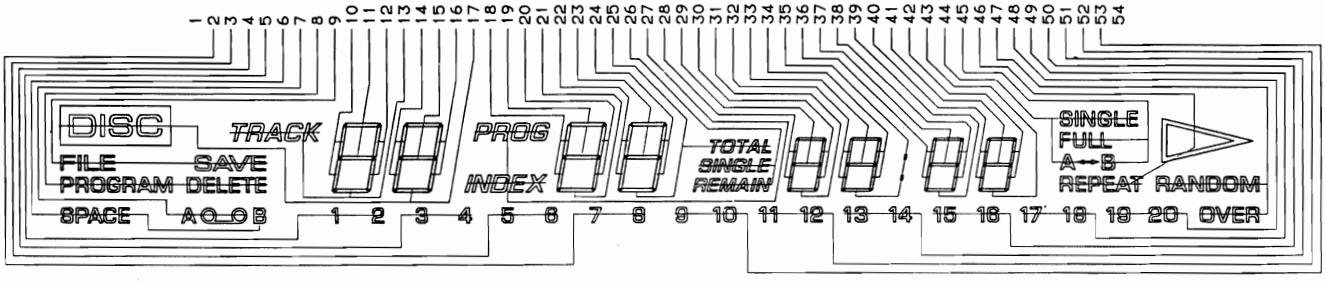


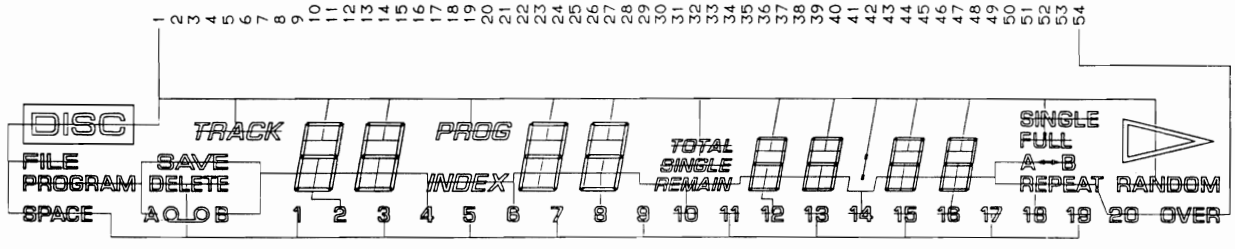
IC14 : YAC501
18bit D/A Converter with Digital Filter



■ DISPLAY DATA

V501 : LCD8107B1JP





No.	COM1	COM2	No.	COM1	COM2	No.	COM1	COM2	No.	COM1	COM2
1	COM	—	**15**	2a	2g	**29**	5a	5g	**43**	—	8d
2	7	8	**16**	2a	2c	**30**	5b	5c	**44**	SINGLE 2)	A—
3	5	6	**17**	DISC	2d	**31**	—	5d	**45**	FULL	B
4	3	4	**18**	3f	3e	**32**	6f	6e	**46**	▷	REPEAT
5	1	2	**19**	3a	3g	**33**	6a	6g	**47**	RANDOM	OVER
6	SPACE	B	**20**	3b	3c	**34**	6b	6c	**48**	19	20
7	○○	A	**21**	—	3d	**35**	COL	6d	**49**	17	18
8	DELETE	PROG	**22**	4f	4e	**36**	7f	7e	**50**	15	16
9	FILE	SAVE	**23**	4a	4g	**37**	7a	7g	**51**	13	14
10	1f	1e	**24**	4b	4c	**38**	7b	7c	**52**	11	12
11	1a	1g	**25**	TOTAL	4d	**39**	—	7d	**53**	9	10
12	1b	1c	**26**	SIGNAL 1)	REMAIN	**40**	8f	8e	**54**	—	COM
13	TRACK	1d	**27**	PROG	INDEX	**41**	8a	8g			
14	2f	2e	**28**	5f	5e	**42**	8b	8c			

PARTS LIST

■ ELECTRICAL PARTS

■ **WARNING**

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 resistors, refer to P. 47.

Ref. NO.	PART NO.	Description		部品名	Remarks	Markets	ランク
※	VK254800	MAIN CIRCUIT BOARD		メインシート		J	
※	VK254900	MAIN CIRCUIT BOARD		メインシート		UC	
※	VK255000	MAIN CIRCUIT BOARD		メインシート		R	
※	VK255100	MAIN CIRCUIT BOARD		メインシート		ABG	
	UA252470	MYLAR FILM CAP	470pF 50V	マイラーコン	C36		
	FA153100	MYLAR FILM CAP	1000pF 50V	マイラーコン	C26,38,39,180,181		
	FA153220	MYLAR FILM CAP	2200pF 50V	マイラーコン	C5,18		
	FA153360	MYLAR FILM CAP	3600pF 50V	マイラーコン	C20	J	
	FA153560	MYLAR FILM CAP	5600pF 50V	マイラーコン	C20	UCRABG	
	FA153470	MYLAR FILM CAP	4700pF 50V	マイラーコン	C55,60		
	FA154100	MYLAR FILM CAP	0.01uF 50V	マイラーコン	C34		
	FA154180	MYLAR FILM CAP	0.018uF 50V	マイラーコン	C66		
	FA154430	MYLAR FILM CAP	0.043uF 50V	マイラーコン	C45		
	FA154470	MYLAR FILM CAP	0.047uF 50V	マイラーコン	C57,58		
	FA154680	MYLAR FILM CAP	0.068uF 50V	マイラーコン	C21	J	
	FA155120	MYLAR FILM CAP	0.12uF 50V	マイラーコン	C21	UCRABG	
	FA154750	MYLAR FILM CAP	0.075uF 50V	マイラーコン	C37		
	FA155100	MYLAR FILM CAP	0.1uF 50V	マイラーコン	C1		
	FA155220	MYLAR FILM CAP	0.22uF 50V	マイラーコン	C48		
	FA155240	MYLAR FILM CAP	0.24uF 50V	マイラーコン	C67		
	FA155390	MYLAR FILM CAP	0.39uF 50V	マイラーコン	C42		
※	VK512500	MYLAR FILM CAP	100pF 50V	マイラーコン	C129,132,136,140		
※	VK512600	MYLAR FILM CAP	2200pF 50V	マイラーコン	C134,138		
	UT452100	POLYPROPYLENE FILM CAP	100pF 100V	ＰＰコン	C28		
※	VJ966500	POLYPROPYLENE FILM CAP	1000pF 400V	ＰＰコン	C178,179		
※	VJ966600	POLYPROPYLENE FILM CAP	1500pF 250V	ＰＰコン	C148,153		
※	VJ966800	POLYPROPYLENE FILM CAP	4700pF 250V	ＰＰコン	C149,150,154,155		
※	VJ966900	POLYPROPYLENE FILM CAP	0.01uF 250V	ＰＰコン	C127,128,130,131		
	VF466600	CERAMIC CAP	10pF 50V	円筒セラコン	C14,33		
	VG276200	CERAMIC CAP	15pF 50V	円筒セラコン	C59		
	VG276600	CERAMIC CAP	22pF 50V	円筒セラコン	C70,73		
	VG277000	CERAMIC CAP	33pF 50V	円筒セラコン	C71		
	VG277500	CERAMIC CAP	56pF 50V	円筒セラコン	C91		
	VG277700	CERAMIC CAP	68pF 50V	円筒セラコン	C35		
	VF466800	CERAMIC CAP	100pF 50V	円筒セラコン	C24,40		
	VG278400	CERAMIC CAP	220pF 50V	円筒セラコン	C81		
	VG278600	CERAMIC CAP	330pF 50V	円筒セラコン	C15,16,97,116		
	VG278800	CERAMIC CAP	560pF 50V	円筒セラコン	C68		
	VG278900	CERAMIC CAP	680pF 50V	円筒セラコン	C41		
	VG279400	CERAMIC CAP	2200pF 16V	円筒セラコン	C70		
	VF467300	CERAMIC CAP	0.01uF 16V	円筒セラコン	C11,82		
	VJ599100	CERAMIC CAP	0.1uF 50V	円筒セラコン	C182～185		
	UJ818100	ELECTROLYTIC CAP	100uF 6.3V	ケミコン	C3,13,30,32,54,56, 93 61～64,74～76,78,84,89		
	UJ719100	ELECTROLYTIC CAP	1000uF 6.3V	ケミコン	C95		
	UJ728100	ELECTROLYTIC CAP	100uF 10V	ケミコン	C110,112		
	UJ837330	ELECTROLYTIC CAP	33uF 16V	ケミコン	C96		
	UJ737470	ELECTROLYTIC CAP	47uF 16V	ケミコン	C4,46,141,143		
	UJ738100	ELECTROLYTIC CAP	100uF 16V	ケミコン	C6,7,22,23,49,50,109, 111		

※New Parts (新規部品)

ランク : Japan only

Ref. NO.	PART NO.	Description			部品名	Remarks	Markets	ランク
	UJ738100	ELECTROLYTIC CAP	100uF	16V	ケミコン	C8,9	J	
	UJ847100	ELECTROLYTIC CAP	10uF	25V	ケミコン	C10,44,107,108		
	UJ847220	ELECTROLYTIC CAP	22uF	25V	ケミコン	C114,162,165		
	UJ866470	ELECTROLYTIC CAP	4.7uF	50V	ケミコン	C69		
	UJ767100	ELECTROLYTIC CAP	10uF	50V	ケミコン	C92		
	UH129220	ELECTROLYTIC CAP	2200uF	10V	ケミコン	C115		
※	VH619300	ELECTROLYTIC CAP	470uF	6.3V	ケミコン	C98,103		
	VI988100	ELECTROLYTIC CAP	470uF	16V	ケミコン	C118,120,156,158,159,161		
※	VH620600	ELECTROLYTIC CAP	22uF	25V	ケミコン	C144,147,151,152		
	VE393100	ELECTROLYTIC CAP	220uF	10V	ケミコン	C145,146,169,170		
※	VK512700	ELECTROLYTIC CAP	330uF	16V	ケミコン	C133,135,137,139		
	V1536600	ELECTROLYTIC CAP	47uF	50V	ケミコン	C167,171		
※	VK527600	ELECTROLYTIC CAP	3300uF	16V	ケミコン	C123,124		
	UK137220	ELECTROLYTIC CAP	22uF	16V	BPケミコン	C163,164,174,175		
	UK147100	ELECTROLYTIC CAP	10uF	25V	BPケミコン	C19	J	
	UK146470	ELECTROLYTIC CAP	4.7uF	25V	BPケミコン	C19	UCRABG	
	UK147100	ELECTROLYTIC CAP	10uF	25V	BPケミコン	C17,25		
	UK166330	ELECTROLYTIC CAP	3.3uF	50V	BPケミコン	C27		
	UK166470	ELECTROLYTIC CAP	4.7uF	50V	BPケミコン	C43		
※	FU451390	MICA CAP	39pF	500V	マイカコン	C104,105		
	VD930900	SEMI-CONDUCTIVE CERAMIC CAP	0.1uF	25V	半導体セラコン	C2,12,29,31,47,51～53,65,72,77,79,80,83,85,86,88,94,106,113,121,122,142		
	VI271200	ELECTROLYTIC CAP	47000uF	5.5V	バックアップケミコン	C87		
	VI862200	METALIZED POLYESTER FILM CAP	0.1uF	100V	メタライズドポリコン	C99,100,102,117,119,125,126		
※	VJ966400	METALIZED POLYESTER FILM CAP	0.1uF	100V	メタライズドポリコン	C176,177		
	VD473700	COIL	60uH	SBT-0460T	コイル	L1,9～13		
	VB056900	COIL	220uH	ELF0505RA	コイル	L2～8		
	VI530800	PULSE TRANSFORMER	3PTD-001		パルストランス	T1		
	HV453220	FLAME PROOF CARBON RESISTOR	2.2Ω	1/4W	不燃化カーボン抵抗	R180		
	HV453220	FLAME PROOF CARBON RESISTOR	2.2Ω	1/4W	不燃化カーボン抵抗	R16,35	J	
	HV454100	FLAME PROOF CARBON RESISTOR	10Ω	1/4W	不燃化カーボン抵抗	R88,95		
	HV455180	FLAME PROOF CARBON RESISTOR	180Ω	1/4W	不燃化カーボン抵抗	R158		⚠
	HV456100	FLAME PROOF CARBON RESISTOR	1KΩ	1/4W	不燃化カーボン抵抗	R149		⚠
	VI868300	FUSABLE RESISTOR	0.68Ω	1/6W	ヒューズ抵抗	FR1,2		
	VI272400	RESISTOR ARRAY	1Kx6		抵抗アレイ	R98,99		
	VH721400	RESISTOR ARRAY	10Kx3		抵抗アレイ	R128		
	VH721500	RESISTOR ARRAY	100Kx4		抵抗アレイ	R96		
	IG076800	IC	NJM4558S		IC	IC1,2		
	IG080200	IC	NJM2043S		IC	IC5		
	IG092000	IC	M5220L		IC	IC21～24		
	XA426001	IC	NJM5532S		IC	IC25,26		
	XB247001	IC	uPC4570HA		IC	IC27		
	XG381A00	IC	LA6520		IC	IC4		
※	XH907A00	IC	LA6500		IC	IC20		
	XB253001	IC	M51951BL		IC	IC12		
	XF740A00	IC	NJM78M05FA		IC	IC18		

※New Parts (新規部品)

ランク : Japan only

Ref. NO.	PART NO.	Description		部品名	Remarks	Markets	ランク	
	XE436A00	IC	NJM79M05FA	IC	IC19			⚠
	XG839A00	IC	LA9200NM	IC	IC3			
	XH518A00	IC	MC74HCU04N	IC	IC6			
	IR000070	IC	MC74HC00AN	IC	IC7			
	IR000000	IC	TC74HC00AP	IC	IC13,16,17			
	IG142200	IC	TC74HCU04AP	IC	IC15			
	XG384A00	IC	M5M82C55AP-2	IC	IC8			
※	XI478A00	IC	HD63B01Y0RQ51P	IC	IC10			
	XE859A00	IC	LC3517BL-15	IC	IC11			
※	XI788A00	IC	uPD27C256A	IC	IC29			
	VH721700	IC	S2FR04	HIC	IC28			
	XG491A00	IC	YM7402	IC	IC9			
※	XI075A00	IC	YAC501	IC	IC14			
	KA401430	SLIDE SWITCH	SSSU12	スライドSW	SW2			
※	VK525G00	PIN JACK	1P	ピンジャック	PJ1			
	VF645900	PIN JACK	2P	ピンジャック	PJ2,3			
	LB918030	BASE PIN	XH 3P TE	ベースツキポスト	CB8			
※	VK184300	BASE PIN	DR 10P TE	ベースピン	CB9			
	VD004500	BASE PIN	PH 2P TE	ベースピン	CB16	J		
	VD004600	BASE PIN	PH 3P TE	ベースピン	CB2			
	VD004700	BASE PIN	PH 4P TE	ベースピン	CB3	UCRABG		
	VD004800	BASE PIN	PH 5P TE	ベースピン	CB5			
	VD004900	BASE PIN	PH 6P TE	ベースピン	CB7			
	VD005000	BASE PIN	PH 7P TE	ベースピン	CB4	J		
	VD005300	BASE PIN	PH 10P TE	ベースピン	CB6			
	LB300730	BASE PIN	NH 3P TE	ベースポスト	CB13			
	LB400570	BASE PIN	NH 4P TE	ベースポスト	CB14,15			
	LB500250	BASE PIN	NH 5P TE	ベースポスト	CB11,12			
	VI009100	FPC CONNECTOR	5597 17P TE	FPC コネクター	CB1			
	LB932030	BASE PIN	VH 3P TE	ベースポスト	CB10			
	VI623G00	LIGHT EMITTING MODULE	TOTX176	光送信モジュール	U1			
※	VJ967000	FILTER,LOW PASS	PFB-2 4502-090A	LCフィルター	Fi1,3			
※	VJ967100	FILTER,LOW PASS	PFB-2 4502-090B	LCフィルター	Fi2,4			
	VJ719800	CRYSTAL RESONATOR	16.9344MHz	水晶振動子	XL1			
	VB8G1800	PRE-SET POTENTIOMETER	B47K	半固定VR	VR4,5			
	VB8G1900	PRE-SET POTENTIOMETER	B100K	半固定VR	VR2,7			
	VJ692400	PRE-SET POTENTIOMETER	B100	半固定VR	VR1			
※	VJ693100	PRE-SET POTENTIOMETER	B1.5K	半固定VR	VR10			
	VJ693600	PRE-SET POTENTIOMETER	B10K	半固定VR	VR3,6,9			
※	VJ693700	PRE-SET POTENTIOMETER	B15K	半固定VR	VR8			
	IA093370	TRANSISTOR	2SA933S Q,R	トランジスタ	Q5,7,11,17,19,20,21			
	IA093410	TRANSISTOR	2SA934 P,Q,R	トランジスタ	Q1			
	IA093410	TRANSISTOR	2SA934 P,Q,R	トランジスタ	Q33	UCRABG		
	VC619100	TRANSISTOR	2SA1323 B,C	トランジスタ	Q6			
	VI530900	TRANSISTOR	2SB1185 E,F	トランジスタ	Q3,9			
	IC174070	TRANSISTOR	2SC1740S R,S	トランジスタ	Q4,8,13～15,18			⚠
	VC529400	TRANSISTOR	2SC3315 C,D	トランジスタ	Q16			
	IC206010	TRANSISTOR	2SC2060 P,Q,R	トランジスタ	Q32	UCRABG		
	IC287820	TRANSISTOR	2SC2878 A,B	トランジスタ	Q12,22,23～31			
	VE029200	TRANSISTOR	2SD1985 P,Q	トランジスタ	Q2,10			

※New Parts (新規部品)

ランク : Japan only

Ref. NO.	PART NO.	Description		部品名	Remarks	Markets	ランク
	IF004600	DIODE	1SS133	ダイオード	D3,6,7,9～11,13,14		
	VH770800	DIODE	1SR139-100 T-32	ダイオード	D1,2,4,5	J	
	VG437900	ZENER DIODE	MTZJ6.2A	ツェナーダイオード	D12		
	VG438900	ZENER DIODE	MTZJ8.2B	ツェナーダイオード	D15		
	VG439000	ZENER DIODE	MTZJ8.2C	ツェナーダイオード	D8		
	CB069250	BINDING TIE	BK-1	束線止め			
	VJ564300	RADIATOR	OSH-2025-SP	ラジエータ			
	VI835500	HEAT SINK	PH-0124S-B	放熱板			
	BB070420	BUS BAR	L=100	バスバー			
	VI448100	SHIELD CASE		シールドケース			
	VK567000	DAMPER	LPF	ダンパー			
	VI745400	PLATE,HEAT SINK		放熱プレート			
	ED330066	BIND HEAD SCREW	3x6 FCRM3-BL	バインド小ネジ	PACK		
	VK254000	OPERATION CIRCUIT BOARD		オペレーションシート		J	
	VK254100	OPERATION CIRCUIT BOARD		オペレーションシート		UC	
	VK254200	OPERATION CIRCUIT BOARD		オペレーションシート		R	
	VK254300	OPERATION CIRCUIT BOARD		オペレーションシート		ABG	
	VF466600	CERAMIC CAP	10pF 50V	円筒セラコン	C531,532		
	VG278800	CERAMIC CAP	560pF 50V	円筒セラコン	C526,527		
	VG278900	CERAMIC CAP	680pF 50V	円筒セラコン	C502		
	VF467000	CERAMIC CAP	1000pF 50V	円筒セラコン	C500		
	VF467300	CERAMIC CAP	0.01uF 16V	円筒セラコン	C503,504,524		
	VJ599100	CERAMIC CAP	0.1uF 50V	円筒セラコン	C525,528,530,534		
	UJ818100	ELECTROLYTIC CAP	100uF 6.3V	ケミコン	C501		
	UJ838330	ELECTROLYTIC CAP	330uF 16V	ケミコン	C529,533		
	VH622400	ELECTROLYTIC CAP	47uF 50V	ケミコン	C505,506,508,511		
	VI578400	ELECTROLYTIC CAP	6800uF 16V	ケミコン	C513,516		
	VK512900	ELECTROLYTIC CAP	4700uF 50V	ケミコン	C507,512		
	F1324100	CERAMIC CAP	0.01uF 250V	スパークキラーコン	C521～523	J	
	F1384100	CERAMIC CAP	0.01uF 400V	規格認定コン	C521～523	UC	
	VE179200	CERAMIC CAP	0.01uF 400V	規格認定コン	C521～523	RABG	
	VI503200	METALIZED POLYESTER FILM CAP	0.01uF 100V	メタライズドポリコン	C514,515,518,519		
	VI862200	METALIZED POLYESTER FILM CAP	0.1uF 100V	メタライズドポリコン	C509,510,517,520		
	VD473700	COIL	60uH SBT-0460T	コイル	L501～503		
	VE800700	LINE FILTER	1.8mH ELF18D290V	ラインフィルタ	L500		⚠
	VI491100	FERRITE CORE	BP53RB19012080M	フェライトコア	L505		
	HV453100	FLAME PROOF CARBON RESISTOR	1Ω 1/4W	不燃化カーボン抵抗	R516,517	UCRABG	⚠
	HV453220	FLAME PROOF CARBON RESISTOR	2.2Ω 1/4W	不燃化カーボン抵抗	R510～513	UCRABG	⚠
	HL324390	METAL OXIDE RESISTOR	39Ω 2W	酸化金属被膜抵抗	R514,515		
	XG938A00	IC	BA15218N	ＩＣ	IC501		
	XB417A00	IC	LC7582	ＩＣ	IC500		
	VJ745800	LCD	LCD8149BJP	ＬＣＤ表示器	V501		
	VF926500	LIGHT DETECTING MODULE	GP1U501X	リモコン受光ユニット	U500		

※New Parts（新規部品）

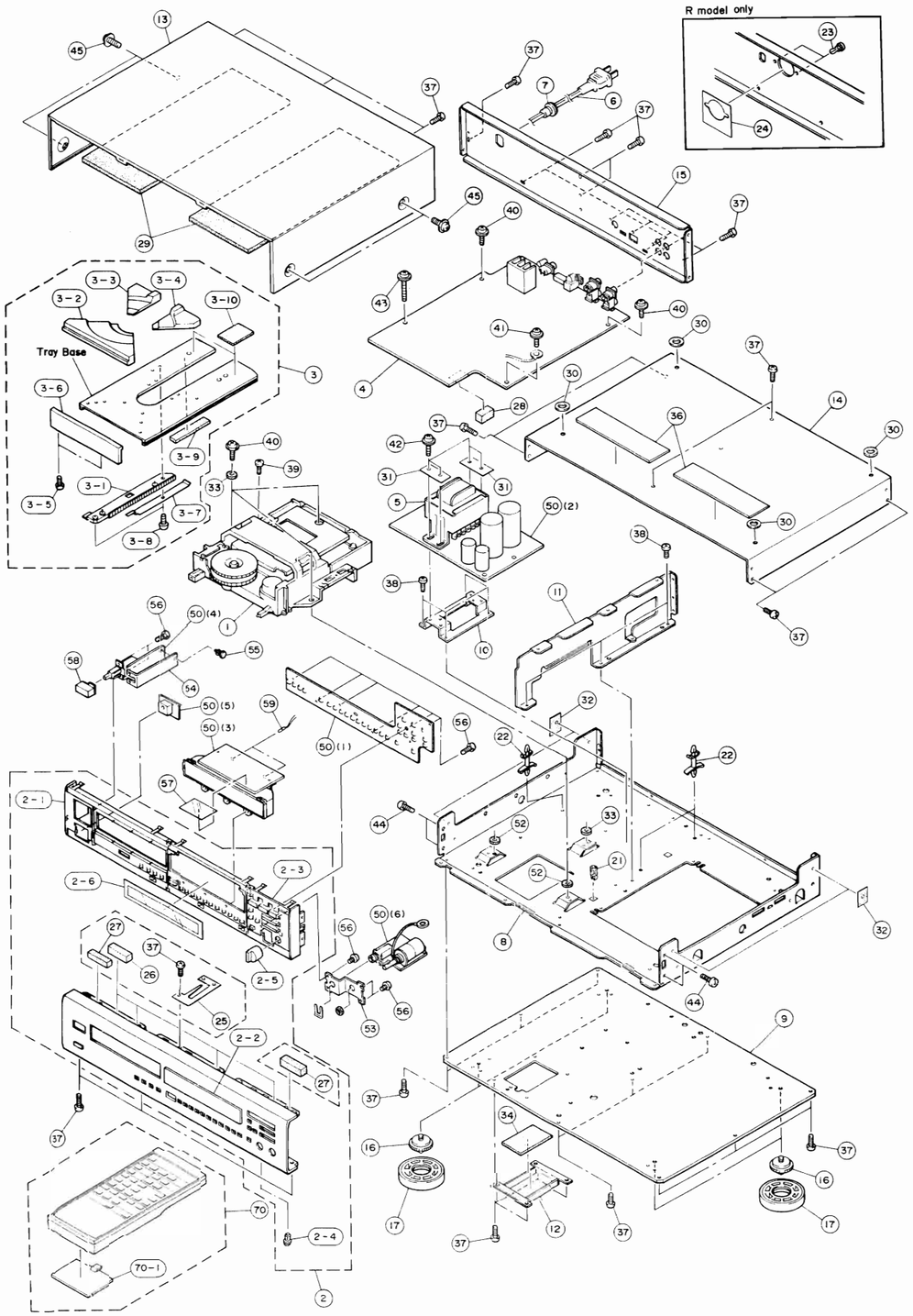
ランク：Japan only

Ref. NO.	PART NO.	Description		部品名	Remarks	Markets	ランク
	VI319200	PUSH SWITCH		プッシュＳＷ	SW527		⚠
	VG388100	VOLTAGE SELECTOR	HXW0244	電圧切替器	SW528	R	⚠
	VG392900	TACT SWITCH	SKHVAA	タクトＳＷ	SW500～526		
	LA002140	LAPPING TERMINAL	2P I-102NA	ラッピング端子	TE501		
	VH521300	PHONES JACK		ヘッドホンジャック	JK500		
	VD004600	BASE PIN	PH 3P TE	ベースピン	CB501		
	VD004700	BASE PIN	PH 4P TE	ベースピン	CB503		
	VG879900	BASE PIN	2P P=7.92 TE	ベースピン	CB502		
	VJ542400	POTENTIOMETER WITH MOTOR	A10Kx2	モーターＶＲ	VR500		
	IA093410	TRANSISTOR	2SA934 P,Q,R	トランジスタ	Q501		⚠
	VK475100	TRANSISTOR	2SD2005 Q,R	トランジスタ	Q500		⚠
	IF004600	DIODE	1SS133	ダイオード	D500～506		
	VH770800	DIODE	1SR139-100 T-32	ダイオード	D517,518		
	VH801G00	DIODE	1SR139-100 T-62	ダイオード	D509～512		⚠
	VJ967200	DIODE	GP30GL	ダイオード	D513～516		⚠
	VG441000	ZENER DIODE	MTZJ16A	ツェナーダイオード	D507,508		
	VH879100	REFLECTOR	LCD	リフレクター			
	VH879200	SHEET,DIFFUSION		シート			
	CB605G20	PLASTIC RIVET	NO.1057	プラリベット			
	VF444500	LAMP CAP	AG-4015	ランプキャップ			
	CBG44670	CAP,CAPACITOR	HY-0105	コンデンサーカバー		RABG	

※New Parts（新規部品）

ランク：Japan only

■ EXPLODED VIEW



■ MECHANICAL PARTS Note) Ø : Diameter

Ref. NO.	PART NO.	Description		部品名	Remarks	Markets	ランク	
☆	1	VK225700	DISC MECHANISM UNIT '90		DM-90E		UCRABG	
☆	1	VK225800	DISC MECHANISM UNIT '90		DM-90X		J	
☆	2	VL081700	PANEL ASS'y		パネルASSY	BL		
☆	2	VL081800	PANEL ASS'y		パネルASSY	T		
	2-1	VH879000	SUB PANEL		サブパネル	BL		
	2-1	VH878800	SUB PANEL		サブパネル	T		
☆	2-2	VJ704100	WINDOW		ウインドウ			
☆	2-3	VJ685000	SUB PANEL		サブパネル 950	BL		
☆	2-3	VJ685100	SUB PANEL		サブパネル 950	T		
	2-4	CB603240	PLASTIC RIVET	NO.590	プラリベット			
	2-5	VH790300	KNOB		ノブ	BL OUTPUT LEVEL		
	2-5	VH790400	KNOB		ノブ	T OUTPUT LEVEL		
☆	2-6	VK480400	SHEET,WINDOW		シート/ウィンドウ			
☆	3	VK228400	TRAY ASS'y		トレイASSY	BL		
☆	3	VK228500	TRAY ASS'y		トレイASSY	T		
	3-1	VH651300	RACK		ラック	BL		
	3-2	VI807600	DISC MAT ASS'y	(FT)	ディスクマットASSY	BL		
	3-2	VI809200	DISC MAT ASS'y	(FT)	ディスクマットASSY	T		
	3-3	VI807700	DISC MAT ASS'y	(RR)	ディスクマットASSY	BL		
	3-3	VI809300	DISC MAT ASS'y	(RR)	ディスクマットASSY	T		
	3-4	VI807800	DISC MAT ASS'y	(RL)	ディスクマットASSY	BL		
	3-4	VI809400	DISC MAT ASS'y	(RL)	ディスクマットASSY	T		
	3-5	EI326066	BIND HEAD B-TITE SCREW	2.6xG ZMC2-BL	バインドBタイトネジ	PACK		
☆	3-6	VJ919700	LID		リッド	BL		
☆	3-6	VJ919800	LID		リッド	T		
	3-7	VJ920100	GROUND PLATE		アースプレート			
	3-8	EI126086	BIND HEAD B-TITE SCREW	2.6x8 FNM3-3G	バインドBタイトネジ	PACK		
☆	3-9	VK565200	CUSHION,GROUND PLATE		クッション			
☆	3-10	VK565600	DAMPER,TRAY		ダンパー			
☆	3-11	VK568100	RING RUBBER	T=0.3	リングゴム			
☆	4	VK254800	MAIN CIRCUIT BOARD		メインシート		J	
☆	4	VK254900	MAIN CIRCUIT BOARD		メインシート		UC	
☆	4	VK255000	MAIN CIRCUIT BOARD		メインシート		R	
☆	4	VK255100	MAIN CIRCUIT BOARD		メインシート		ABG	
	5	XG463A00	POWER TRANSFORMER		電源トランス		J	⚠
	5	XG464A00	POWER TRANSFORMER		電源トランス		UC	⚠
	5	XG465A00	POWER TRANSFORMER		電源トランス		R	⚠
	5	XG466A00	POWER TRANSFORMER		電源トランス		AB	⚠
	5	XG467A00	POWER TRANSFORMER		電源トランス		G	⚠
	6	VH201200	POWER CORD	7A 125V 2.0M	電源コード		J	⚠
	6	MG002220	POWER CORD	10A	電源コード		UC	⚠
	6	MG001630	POWER CORD	6A 2.0M	電源コード		R	⚠
	6	MG002310	POWER CORD	7.5A	電源コード		A	⚠
	6	MG002330	POWER CORD	6A	電源コード		B	⚠
	6	MG002320	POWER CORD	2.5A	電源コード		G	⚠
	7	CB620190	CORD STOPPER	CM-22B	コードストッパー		RABG	
	7	CB620200	CORD STOPPER	CM-22C	コードストッパー		UC	
☆	8	VK085400	CHASSIS		シャーシ		J	
☆	8	VK085500	CHASSIS		シャーシ		UCRABG	
☆	9	VK086200	BOTTOM COVER	L	ボトムカバー L			

※New Parts (新規部品)

ランク : Japan only

Ref. NO.	PART NO.	Description		部品名	Remarks	Markets	ランク
※	10	VJ795400	FRAME,TRANSFORMER	フレーム／トランス			
	11	VH881700	CENTER FRAME	センターフレーム		UCRABG	
※	11	VK086800	CENTER FRAME	センターフレーム		J	
	12	VH879500	MOTOR COVER	モーターカバー			
	13	VI984300	TOP COVER	トップカバー	BL	UCRABG	
	13	VI984400	TOP COVER	トップカバー	T	UCRABG	
※	13	VJ704300	TOP COVER	トップカバー	BL	J	
※	13	VJ704400	TOP COVER	トップカバー	T	J	
	14	VH881800	INNER TOP	インナートップ			
※	15	VJ688200	REAR PANEL	リヤパネル		J	
※	15	VJ688300	REAR PANEL	リヤパネル		U	
※	15	VJ688400	REAR PANEL	リヤパネル		C	
※	15	VJ688500	REAR PANEL	リヤパネル		R	
※	15	VJ688600	REAR PANEL	リヤパネル		AB	
※	15	VJ688700	REAR PANEL	リヤパネル		G	
	16	VG143400	LEG	レッグ			
	17	VG264300	LEG BASE ASS'y	レッグベースＡＳＳＹ			
※	18	VK266800	SIDE WOOD	サイドウッド		J	
※	19	VK268700	SPACER	スペーサ／ウッド		J	
※	20	VK526700	SPACER	スペーサ／サイド		J	
	21	VI048500	PC SUPPORT	ＰＣサポート			
※	22	VK087200	PC SUPPORT	ＰＣサポート			
	23	CB609260	PLASTIC RIVET	NO.6206	プラリベット		R
※	24	VK477700	SHEET,ISOLATION		シート／絶縁		R
※	25	VJ685300	GROUND PLATE		アースプレート		
	26	VJ013200	CUSHION,TOP		クッション／トップ		UCRABG
	27	VI432900	CUSHION,TOP		クッション／トップ		
	28	VI299500	SHEET,DAMPER		シート／ダンパー		
	29	VI433000	DAMPER,TOP		ダンパー／トップ		UCRABG
※	30	VK526800	SPACER,TOP		スペーサ／トップ		J
※	31	VK565700	SPACER,TRANSFORMER		スペーサ		
※	32	VK565800	SPACER,INNER TOP		スペーサ		
※	33	VK568000	RING RUBBER	T=0.5	リングゴム		
※	34	VK565600	DAMPER,TRAY		ダンパー／トレイ		
※	35	VK565900	DAMPER,TOP 1		ダンパー／トップ１		J
※	36	VK566100	DAMPER		ダンパー／インナートップ		J
	37	EN340020	BIND HEAD BONDING TAP. SCREW	3x8 FCRM3-BL	ボンディングタップネジ		
	38	ED330056	BIND HEAD SCREW	3x5 FCRM3-BL	バインド小ネジ	PACK	
	39	ED130056	BIND HEAD SCREW	3x5 FCRM3-3G	バインド小ネジ	PACK	
	40	EK330030	BW HEAD TAPPING SCREW	3x10-8 FCRM3-BL	ＢＷヘッドタッピングネジ		
	41	EX600250	CUP B-TITE SCREW	3x10 AUﾒｯｷ FCRM3	カップＢタイトネジ		
※	42	EX601840	BW HEAD TAPPING SCREW	4x10-8 CUﾒｯｷFCRM3	ＢＷヘッドタッピングネジ		
	43	EK935010	BW HEAD P-TITE SCREW	3x20x8 FCRM3-BL	ＢＷヘッドタッピングネジ		
	44	EX600310	BIND HEAD P-TITE SCREW	3x8 FCRM3-BL	バインドＰタイトネジ		
	45	EK365090	BW HEAD S-TITE SCREW	4x8-10 FCRM3-BL	ＢＷヘッドＳタイトネジ		UCRABG
	45	EX601150	BW HEAD S-TITE SCREW	4x8x10 FNM3-BL	ＢＷヘッドＳタイトネジ		UCRABG
※	46	EX601850	S-TITE SCREW	4x8 FCRM3-BL	化粧ネジＳタイト	BL	J
※	46	EX601860	S-TITE SCREW	4x8 FNM3-BL	化粧ネジＳタイト	T	J
	47	EI030106	BIND HEAD TAPPING SCREW	3x10 ZMC2-Y	バインドタッピングネジ	PACK	
※	48	ES440276	FLAT HEAD S-TITE SCREW	4x27 FCRM3-BR	鉄十字Ｓタイトネジ	PACK	J

※New Parts（新規部品）

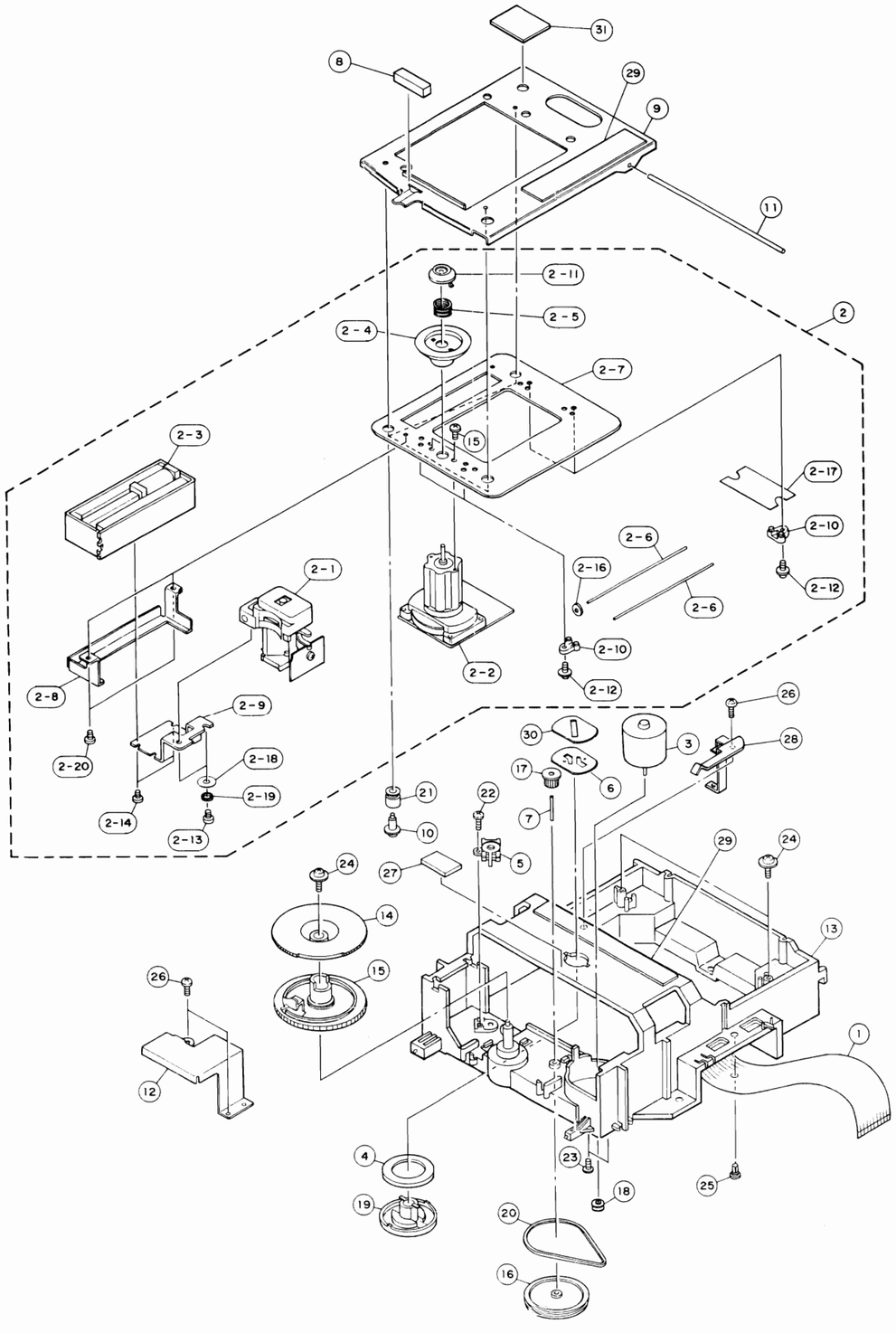
ランク：Japan only

Ref. NO.	PART NO.	Description		部品名	Remarks	Markets	ランク
	49	EV303056	SPRING WASHER	M5 ZMC2-BL	バネ座金	PACK	J	
※	50	VK254000	OPERATION CIRCUIT BOARD		オペレーションシート		J	
※	50	VK254100	OPERATION CIRCUIT BOARD		オペレーションシート		UC	
※	50	VK254200	OPERATION CIRCUIT BOARD		オペレーションシート		R	
※	50	VK254300	OPERATION CIRCUIT BOARD		オペレーションシート		ABG	
※	51	EV304076	SPRING WASHER	φ7xφ13x1tFCRM3BR	バネ座金			
	52	VE242200	WASHER		ワッシャー			
※	53	VJ685200	HOLDER,HEAD PHONES		ホルダー／ＨＰ			
※	54	VK084800	SHIELD PLATE		シールドプレート			
	55	CB602970	PLASTIC RIVET	NO.920	プラリベット			
	56	EX000400	BIND HEAD P-TITE SCREW	3x6 FCRM3-BL	バインドＰタイトネジ			
	57	VI770300	SHIELD SHEET		シールドシート			
	58	VH841900	BUTTON		ボタン	BL POWER		
	58	VH842000	BUTTON		ボタン	T POWER		
	59	VI284600	LAMP	150mA 8V	ランプ			
		CB069250	BINDING TIE	BK-1	束線止め			
			ACCESSORIES		付属品			
	70	VH933000	REMOTE CONTROL TRANSMITTER		リモコントランスミッター			
	70-1	CX607200	LID		電池蓋		KPM1-562-1	
		VD295300	PIN PLUG CORD	2P	ピンピンコード		J	
		VG718700	PIN PLUG CORD	2P 1m	ピンピンコード		UCRARG	
			DRY CELL	SUM-4,R03,AAA	マンガン電池			

※New Parts（新規部品）

ランク：Japan only

■ EXPLODED VIEW (Disc Mechanism)



■ MECHANICAL PARTS (Disc Mechanism) Note) Ø : Diameter

Ref. NO.	PART NO.	Description		部品名	Remarks	Markets	ランク
	VK225800	DISC MECHANISM UNIT	DM-90X	ディスクメカユニット		J	
	VK225700	DISC MECHANISM UNIT	DM-90E	ディスクメカユニット		UCRABG	
1	XG926A00	FLEXIBLE P.C.B.		ＰＵフレキ基板			
2	VI490000	SPINDLE MECHANISM ASS'Y	'90X	スピンドルメカＡＳＳＹ		J	
2	VI489900	SPINDLE MECHANISM ASS'Y	90E	スピンドルメカＡＳＳＹ		UCRABG	
2- 1	VI517200	OPTICAL PICK UP	TAOHS-KP2	光ピックアップ			
2- 2	VI070800	MOTOR/DISC '89E		モーター		UCRABG	
2- 2	VI070900	MOTOR/DISC '89X		モーター		J	
2- 3	VI071000	LINEAR ACTUATOR	DC12V SLA2001	リニアアクチュエータ			
2- 4	VI030600	DISC TABLE		ディスクテーブル		J	
2- 4	VI070600	DISC TABLE ASS'Y		ディスクテーブル		UCRABG	
2- 5	VI030800	SPRING/DISC		スプリング			
2- 6	VH649400	SHAFT/FEED		シャフト			
2- 7	VH649800	CHASSIS/DRIVE		シャーシ			
2- 8	VH697500	HOLDER/LINEAR		ホルダー			
2- 9	VH650300	PLATE,CONNECTING		コネクティングプレート			
2-10	VH650200	HOLDER/SHAFT		ホルダー			
2-11	VI030700	SENSOR CAP/'89		センサーキャップ ８９		J	
2-12	EK330030	BW HEAD TAPPING SCREW	3x10 FCM3-BL	ＢＷヘッドタッピングネジ			
2-13	ED026086	BINDING HEAD SCREW	2.6x8 ZMC2-Y	バインド小ネジ			
2-14	EI020046	BINDING HEAD TAPPING SCREW	2x4	バインドタッピングネジ			
2-15	ED320046	BINDING HEAD SCREW	2x4 FCRM3-BL	バインド小ネジ	PACK		
2-16	VI460400	CUSHION RING		クッションリング			
2-17	VI460500	CUSHION PILLOW		クッションピロー			
2-18	EV200266	PLAIN WASHER	M2.6 ZMC2-Y	平座金	PACK		
2-19	EV300266	SPRING WASHER	M2.6 ZMC2-Y	バネ座金	PACK		
2-20	ED326056	BINDING HEAD S-TITE SCREW	2.6x5 FCRM3-BL	バインドＳタイトネジ	PACK		
3	VE415100	MOTOR/F.L.S		モーター			
4	VI493400	MAGNET	FB3XDH	マグネット			
5	VI797900	LOADING SWITCH CIRCUIT BOARD		ローディングＳＷシート			
6	VH924700	FLANGE/CLAMPER		フランジ			
7	AA619330	SHAFT S	φ2x23L	シャフト Ｓ			
8	VJ649700	CUSION/HANGER		クッション／ハンガー			
9	VH649700	HANGER		ハンガー			
10	VH649500	SPECIAL SCREW		段付きネジ			
11	VH924800	SHAFT/HINGE		シャフト			
12	VI776700	GEAR COVER		ギヤ カバー			
13	VK225600	MECHANISM BASE 2		メカベース２			
14	VH650600	GEAR/LOADING		ギヤ			
15	VH650700	CAM/LIFTING		カム			
16	VH651000	PULLEY/DRIVE		プーリー			
17	VH650800	GEAR/SMALL		ギヤ			
18	CB658510	PULLEY		Ｐプーリー			
19	VH651200	CLAMPER		クランパー			
20	VI031000	BELT/LOADING		ベルト			
21	VH650400	DAMPER		ダンパー			
22	EI326066	BINDING HEAD P-TITE SCREW	2.6x6 ZMC2-BL	バインドタッピングネジ	PACK		
23	ED020046	BINDING HEAD SCREW	2x4	バインド小ネジ	PACK		
24	EX601090	BW HEAD TAPPING SCREW	3x12-10 FCRM3-BL	ＢＷヘッドタッピングネジ			
25	CB068880	PLASTIC RIVET		プラリベット			

※New Parts (新規部品)

ランク : Japan only

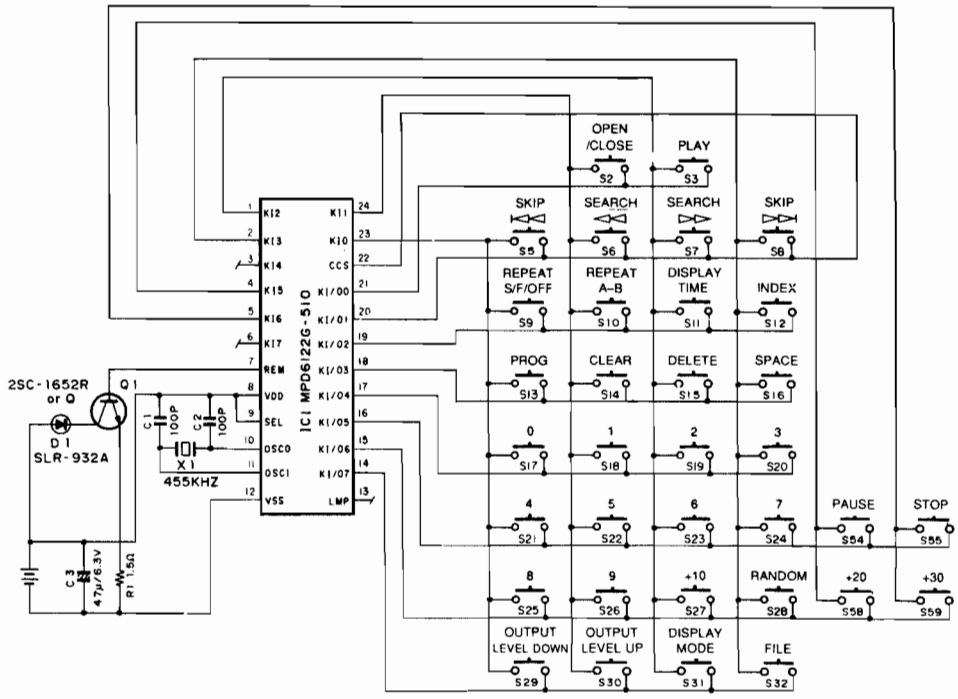
Ref. NO.	PART NO.	Description		部品名	Remarks	Markets	ﾗﾝｸ
26	EX000400	BINDING HEAD P-TITE SCREW	3x6 ZMC2-BL	バインドPタイトネジ			
27	VJ021200	SPACER		スペーサー			
※ 28	VJ920000	SPRING,TRAY/BE		スプリング トレイ／BE			
※ 29	VK565300	DAMPER,MECHANISM BASE		ダンパー／メカベース			
※ 30	VK565300	DAMPER,FRANGE		ダンパー／フランジ			
※ 31	VK678600	SHEET,SLIDE		シート／スライド			

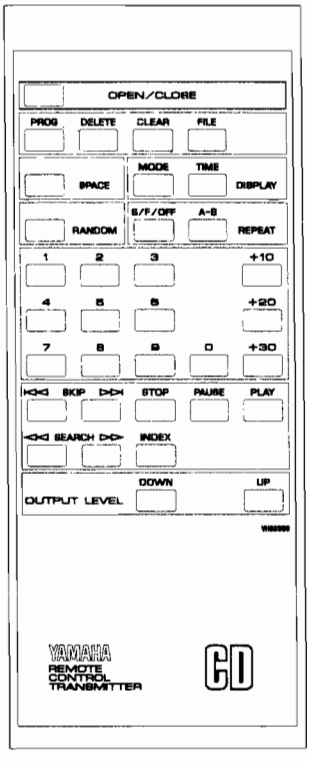
※New Parts（新規部品）

ランク：Japan only

REMOTE CONTROL TRANSMITTER

■ SCHEMATIC DIAGRAM





CUSTOM CODE C0 C1 C2 C3 C4 C5 C6 C7

CODE' 1 0 0 1 1 1 1 0

CODE' 0 1 1 0 0 0 0 1

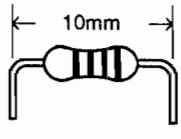
KEY No.	DATA CODE D0	D1	D2	D3	D4	D5	D6	D7	FUNCTION
2	1	0	0	0	0	0	0	0	OPEN/CLOSE
3	0	1	0	0	0	0	0	0	PLAY
5	0	0	1	0	0	0	0	0	SKIP ⊢◁◁
6	1	0	1	0	0	0	0	0	SEARCH ◁◁
7	0	1	1	0	0	0	0	0	SEARCH ▷▷
8	1	1	1	0	0	0	0	0	SKIP ▷▷⊣
9	0	0	0	1	0	0	0	0	REPEAT S/F/OFF
10	1	0	0	1	0	0	0	0	REPEAT A-B
11	0	1	0	1	0	0	0	0	DISPLAY TIME
12	1	1	0	1	0	0	0	0	INDEX
13	0	0	1	1	0	0	0	0	PROG
14	1	0	1	1	0	0	0	0	CLEAR
15	0	1	1	1	0	0	0	0	DELETE
16	1	1	1	1	0	0	0	0	SPACE
17	0	0	0	0	1	0	0	0	0
18	1	0	0	0	1	0	0	0	1
19	0	1	0	0	1	0	0	0	2
20	1	1	0	0	1	0	0	0	3
21	0	0	1	0	1	0	0	0	4
22	1	0	1	0	1	0	0	0	5
23	0	1	1	0	1	0	0	0	6
24	1	1	1	0	1	0	0	0	7
25	0	0	0	1	1	0	0	0	8
26	1	0	0	1	1	0	0	0	9
27	0	1	0	1	1	0	0	0	+10
28	1	1	0	1	1	0	0	0	RANDOM
29	0	0	1	1	1	0	0	0	OUTPUT LEVEL DOWN
30	1	0	1	1	1	0	0	0	OUTPUT LEVEL UP
31	0	1	1	1	1	0	0	0	DISPLAY MODE
32	1	1	1	1	1	0	0	0	FILE
54	1	0	1	0	0	1	0	1	PAUSE
55	0	1	1	0	0	1	0	1	STOP
58	1	0	0	1	0	1	0	1	+20
59	0	1	0	1	0	1	0	1	+30

Parts List for Carbon Resistors

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	HJ35 3100	HF85 3100	12 KΩ	HJ35 7120	HF85 7120
1.8 Ω	HJ35 3180	*	15 KΩ	HJ35 7150	HF85 7150
2.2 Ω	HJ35 3220	HF85 3220	18 KΩ	HJ35 7180	HF85 7180
3.3 Ω	HJ35 3330	HF85 3330	22 KΩ	HJ35 7220	HF85 7220
4.7 Ω	HJ35 3470	HF85 3470	27 KΩ	HJ35 7270	HF85 7270
5.6 Ω	HJ35 3560	HF85 3560	33 KΩ	HJ35 7330	HF85 7330
10 Ω	HJ35 4100	HF85 4100	39 KΩ	HJ35 7390	HF85 7390
15 Ω	HJ35 4150	HF85 4150	47 KΩ	HJ35 7470	HF85 7470
22 Ω	HJ35 4220	HF85 4220	56 KΩ	HJ35 7560	HF85 7560
27 Ω	HJ35 4270	HF85 4270	68 KΩ	HJ35 7680	HF85 7680
33 Ω	HJ35 4330	HF85 4330	82 KΩ	HJ35 7820	HF85 7820
39 Ω	HJ35 4390	HF85 4390	91 KΩ	HJ35 7910	HF85 7910
47 Ω	HJ35 4470	HF85 4470	100 KΩ	HJ35 8100	HF85 8100
56 Ω	HJ35 4560	HF85 4560	120 KΩ	HJ35 8120	HF85 8120
68 Ω	HJ35 4680	HF85 4680	150 KΩ	HJ35 8150	HF85 8150
82 Ω	HJ35 4820	HF85 4820	180 KΩ	HJ35 8180	HF85 8180
100 Ω	HJ35 5100	HF85 5100	220 KΩ	HJ35 8220	HF85 8220
110 Ω	HJ35 5110	HF85 5110	270 KΩ	HJ35 8270	HF85 8270
120 Ω	HJ35 5120	HF85 5120	330 KΩ	HJ35 8330	HF85 8330
150 Ω	HJ35 5150	HF85 5150	390 KΩ	HJ35 8390	HF85 8390
160 Ω	HJ35 5160	*	470 KΩ	HJ35 8470	HF85 8470
180 Ω	HJ35 5180	HF85 5180	560 KΩ	HJ35 8560	HF85 8560
220 Ω	HJ35 5220	HF85 5220	680 KΩ	HJ35 8680	HF85 8680
270 Ω	HJ35 5270	HF85 5270	820 KΩ	HJ35 8820	HF85 8820
330 Ω	HJ35 5330	HF85 5330	1.0 MΩ	HJ35 9100	HF85 9100
390 Ω	HJ35 5390	HF85 5390	1.2 MΩ	HJ35 9120	*
470 Ω	HJ35 5470	HF85 5470	1.5 MΩ	HJ35 9150	HF85 9150
510 Ω	*	HF85 5510	1.8 MΩ	HJ35 9180	HF85 9180
560 Ω	HJ35 5560	HF85 5560	2.2 MΩ	HJ35 9220	HF85 9220
680 Ω	HJ35 5680	HF85 5680	3.3 MΩ	HJ35 9330	HF85 9330
820 Ω	HJ35 5820	HF85 5820	3.9 MΩ	HJ35 9390	*
910 Ω	HJ35 5910	HF85 5910	4.7 MΩ	HJ35 9470	HF85 9470
1.0 KΩ	HJ35 6100	HF85 6100			
1.2 KΩ	HJ35 6120	HF85 6120			
1.5 KΩ	HJ35 6150	HF85 6150			
1.8 KΩ	HJ35 6180	HF85 6180			
2.0 KΩ	HJ35 6200	HF85 6200			
2.2 KΩ	HJ35 6220	HF85 6220			
2.4 KΩ	HJ35 6240	HF85 6240			
2.7 KΩ	HJ35 6270	HF85 6270			
3.0 KΩ	HJ35 6300	HF85 6300			
3.3 KΩ	HJ35 6330	HF85 6330			
3.6 KΩ	HJ35 6360	HF85 6360			
3.9 KΩ	HJ35 6390	HF85 6390			
4.7 KΩ	HJ35 6470	HF85 6470			
5.1 KΩ	HJ35 6510	HF85 6510			
5.6 KΩ	HJ35 6560	HF85 6560			
6.8 KΩ	HJ35 6680	HF85 6680			
8.2 KΩ	HJ35 6820	HF85 6820			
9.1 KΩ	HJ35 6910	HF85 6910			
10 KΩ	HJ35 7100	HF85 7100			

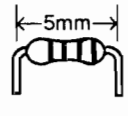
1/4W Type

HJ35○○○○



1/6W Type

HF85○○○○



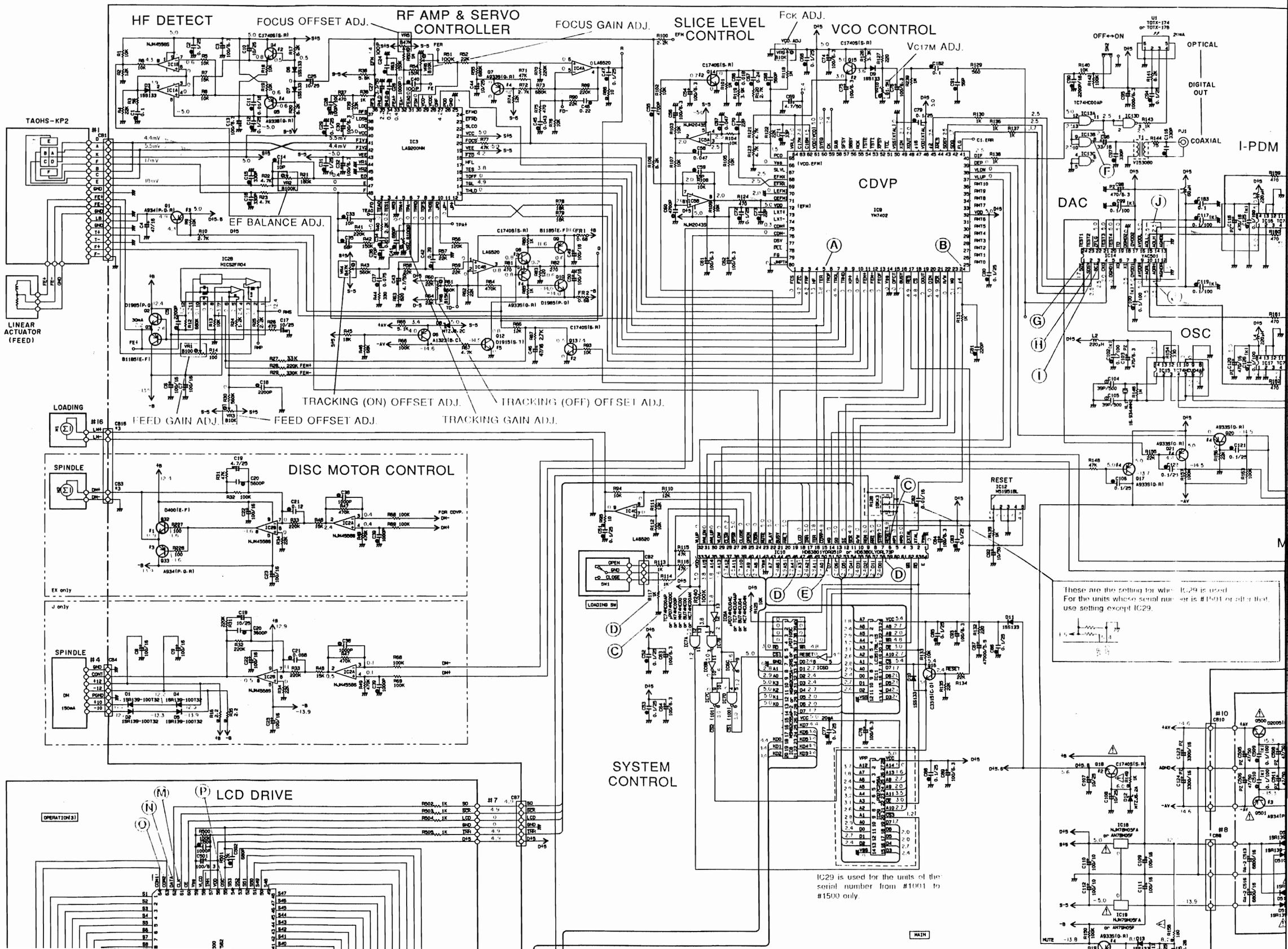
CDX-1050

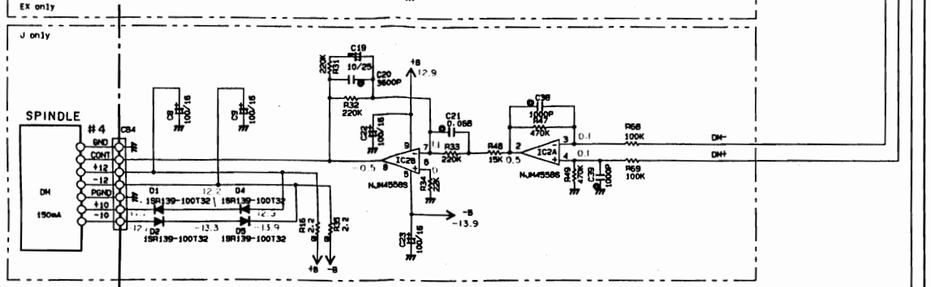
YAMAHA

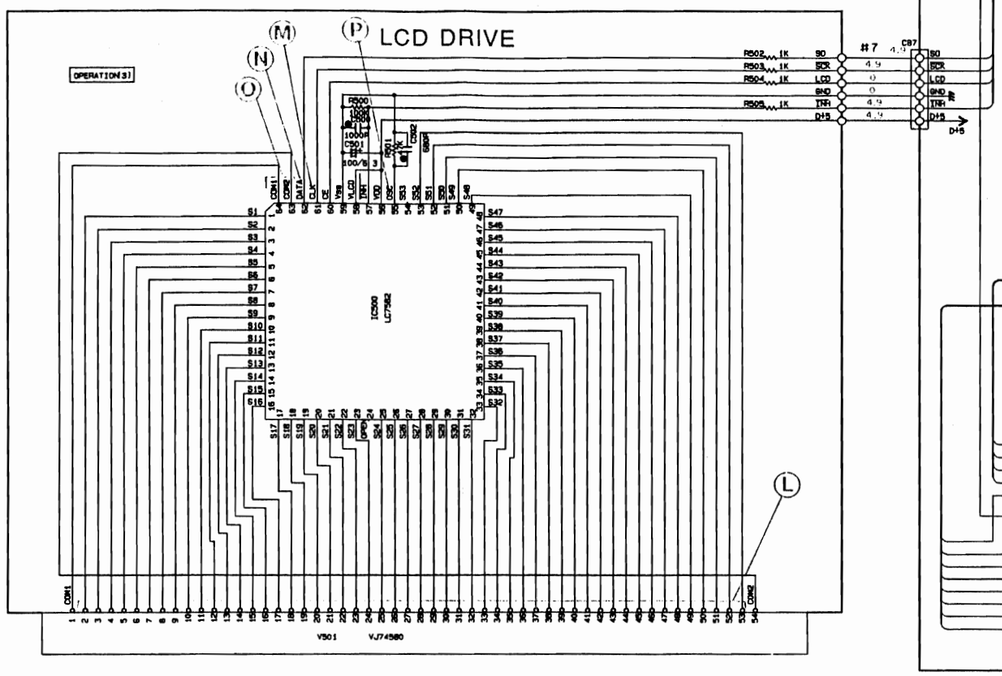
CDX-1050

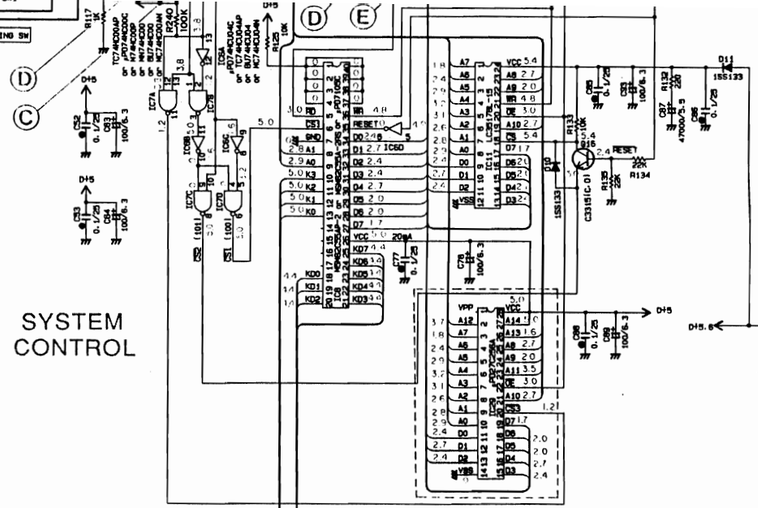
■ SCHEMATIC DIAGRAM

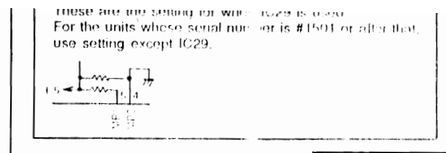
*** Each voltage used here is the voltage obtained in the normal PLAY mode.**

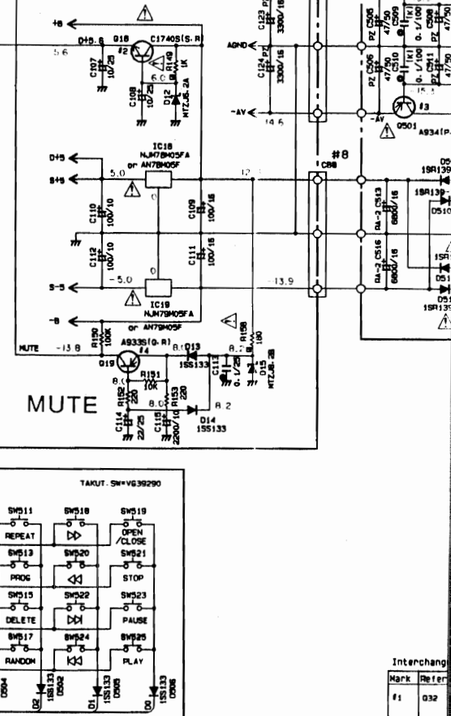


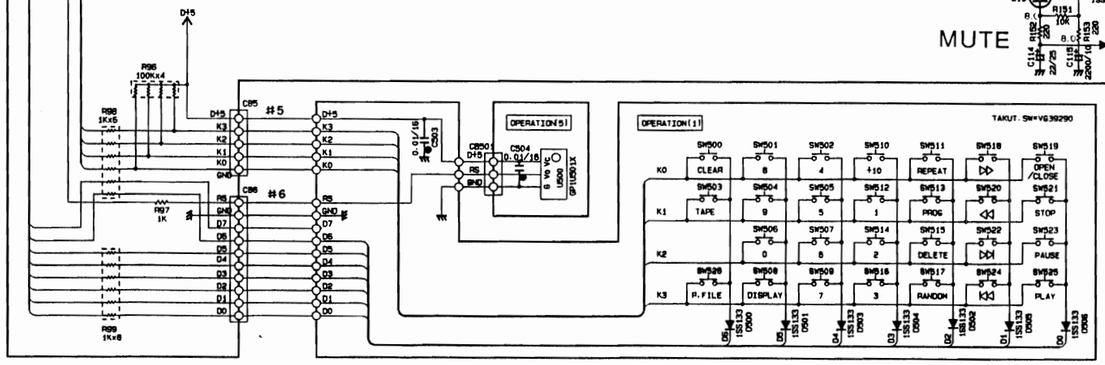












NOTICE
(J)····· Japanese model
(U)····· U.S.A model
(C)····· Canadian model
(A)····· Australian model
(G)····· European model
(B)····· British model
(R)····· General model
(P)····· RP model

RESISTOR

REMARKS	PARTS NAME	
NO MARK	CARBON FILM RESISTOR	(1/6W)
☒	CARBON FILM RESISTOR	(1/4W)
△	METAL OXIDE FILM RESISTOR	
▲	METAL FILM RESISTOR	
⊠	METAL PLATE RESISTOR	
◪	FIRE PROOF CARBON FILM RESISTOR	
□	CEMENT MOLDED RESISTOR	
⊘	SEMI VARIABLE RESISTOR	
■	CHIP RESISTOR	

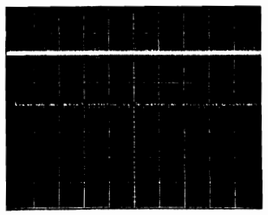
CAPACITOR

REMARKS	PARTS NAME	
NO MARK	ELECTROLYTIC CAPACITOR	⊟
⊗	TANTALUM CAPACITOR	
NO MARK	CERAMIC CAPACITOR	⊟
◉	AXIAL READ CERAMIC CAPACITOR	
⊛	POLYESTIEL FILM CAPACITOR	
○	POLYSTYRENE FILM CAPACITOR	
◑	MICA CAPACITOR	
⊕	POLYPROPYLENE FILM CAPACITOR	
●	SEMICONDUCTIVE CERAMIC CAPACITOR	

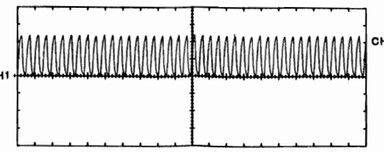
MAIN	LAST NO.
C	185
R	239
Q	33
D	15
IC	29

OPERATION	LAST NO.
C	534
R	529
Q	501
D	516
IC	501

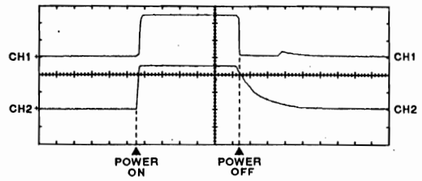
Point Ⓐ (TER)
(Pin 5 of IC9)
V : 2V/div H : 0.1msec/div
DC range 1 : 1 probe



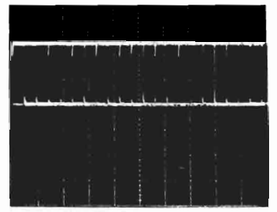
Point Ⓑ (Ø4)
(Pin 24 of IC9)
V : 2V/div H : 500nsec/div
DC range 1 : 1 probe



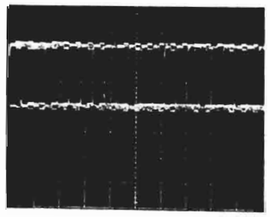
Point Ⓒ (RESET, VDD)
(CH1 : Pin 6 of IC10, CH2 : Pin 33 of IC10)
V : 2V/div H : 200msec/div
DC range 1 : 1 probe



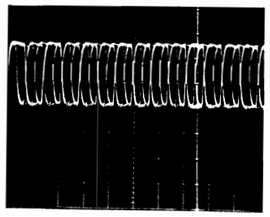
Point Ⓓ (A0 to A15, D0 to D6)
(Pin 34 to 41, Pin 43 to 50 and Pin 52 to 58 of IC10)
V : 2V/div H : 2µsec/div
DC range 1 : 1 probe



Point Ⓔ (D7)
(Pin 51 of IC10)
V : 2V/div H : 2µsec/div
DC range 1 : 1 probe

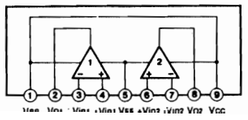


Point Ⓕ (DIGITAL OUT)
(Pin 8 of IC13)
V : 2V/div H : 0.5µsec/div
DC range 1 : 1 probe

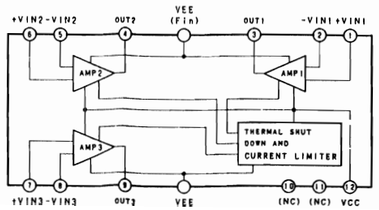


Point Ⓖ
(Pin 1 of
V : 2V/d
DC rang

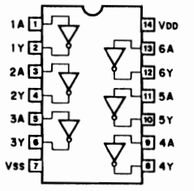
IC1, 2 : NJM4558S
IC5 : NJM2043S
IC25, 26 : NJM5532S
IC27 : µPC4570HA
Dual Ope-amp



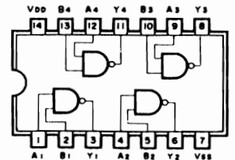
IC4 : LA6520
3-Channel Power Operational Amp



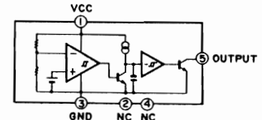
IC6 : µPD74HCU04C, TC74HCU04P, MC74HCU04N or BU74HCU04
IC15 : TC74HCU04AP
Hex Inverters



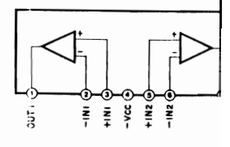
IC7 : TC74HC00P, MC74HC00AN, µPD74HC00C, M74HC00P, MN74HC00 or BU74HC00
IC13, 16, 17 : TC74HC00AP
Quad 2-Input NAND Gate



IC12 : M51951BL
System Reset

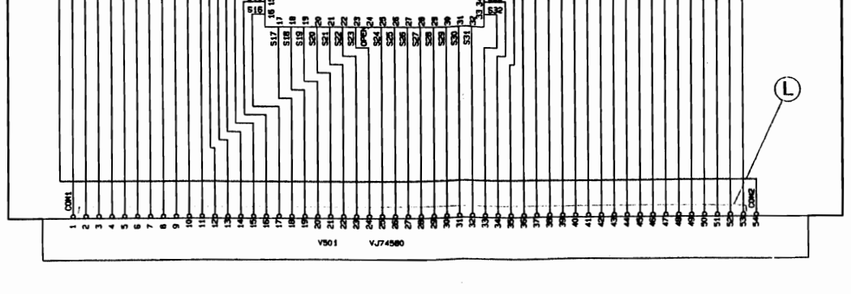


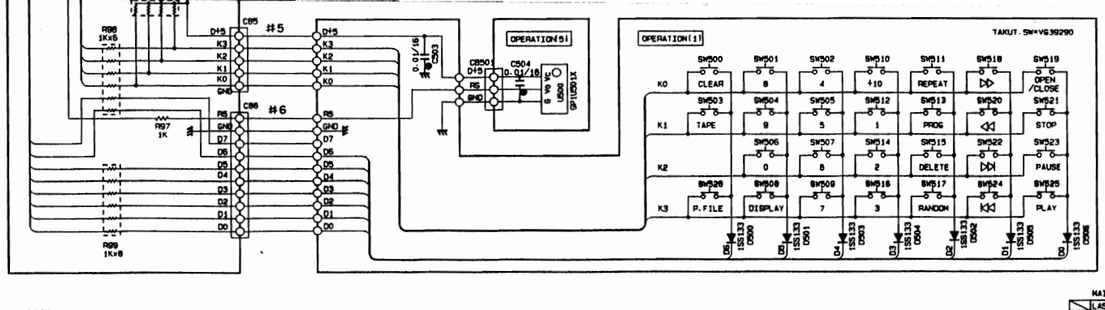
IC21~24 : M5220L
IC501 : BA15218N or N
Dual Ope-amp



Interchang

Mark	Refer
f1	032
f2	04-8
f3	01-3
f4	05-7
f5	012-2





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RESISTOR

REMARKS	PARTS NAME	
NO MARK	CARBON FILM RESISTOR	(1/6W)
☑	CARBON FILM RESISTOR	(1/4W)
△	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	⫼
⊗	TANTALUM CAPACITOR	
NO MARK	CERAMIC CAPACITOR	⫻
◉	AXIAL READ CERAMIC CAPACITOR	
◉	POLYESTEL FILM CAPACITOR	
○	POLYSTYRENE FILM CAPACITOR	
Ⓘ	MICA CAPACITOR	
◉	POLYPROPYLENE FILM CAPACITOR	
●	SEMICONDUCTIVE CERAMIC CAPACITOR	

MAIN

	LAST NO.
C	185
R	239
Q	33
D	15
IC	29

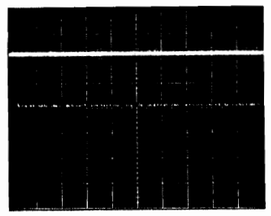
OPERATION

	LAST NO.
C	534
R	529
Q	501
D	518
IC	501

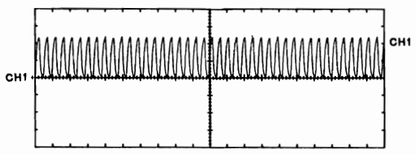
Interchang

Mark	Refer
⚠1	032
⚠2	04-R
⚠3	01-3
⚠4	05-7
⚠5	012-

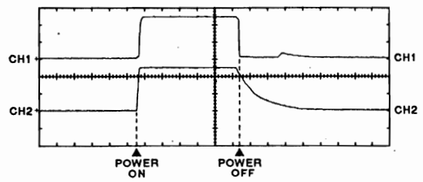
Point Ⓐ (TER)
(Pin 5 of IC9)
V : 2V/div H : 0.1msec/div
DC range 1 : 1 probe



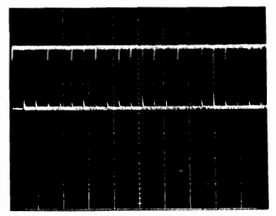
Point Ⓑ (Ø4)
(Pin 24 of IC9)
V : 2V/div H : 500nsec/div
DC range 1 : 1 probe



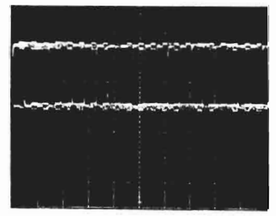
Point Ⓒ ($\overline{\text{RESET}}$, VDD)
(CH1 : Pin 6 of IC10, CH2 : Pin 33 of IC10)
V : 2V/div H : 200msec/div
DC range 1 : 1 probe



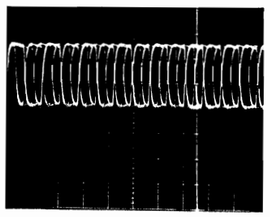
Point Ⓓ (A0 to A15, D0 to D6)
(Pin 34 to 41, Pin 43 to 50 and Pin 52 to 58 of IC10)
V : 2V/div H : 2µsec/div
DC range 1 : 1 probe



Point Ⓔ (D7)
(Pin 51 of IC10)
V : 2V/div H : 2µsec/div
DC range 1 : 1 probe

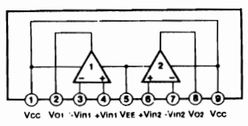


Point Ⓕ (DIGITAL OUT)
(Pin 8 of IC13)
V : 2V/div H : 0.5µsec/div
DC range 1 : 1 probe

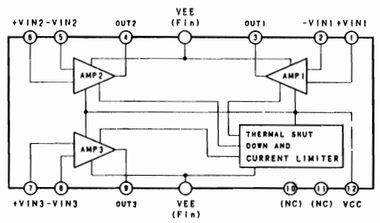


Point Ⓖ
(Pin 1 of
V : 2V/d
DC rang

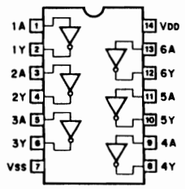
IC1, 2 : NJM4558S
IC5 : NJM2043S
IC25, 26 : NJM5532S
IC27 : µPC4570HA
Dual Ope-amp



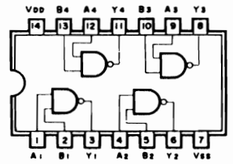
IC4 : LA6520
3-Channel Power Operational Amp



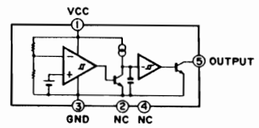
IC6 : µPD74HCU04C, TC74HCU04P, MC74HCU04N or BU74HCU04
IC15 : TC74HCU04AP
Hex Inverters



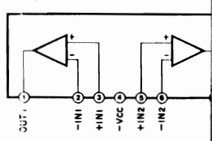
IC7 : TC74HC00P, MC74HC00AN, µPD74HC00C, M74HC00P, MN74HC00 or BU74HC00
IC13, 16, 17 : TC74HC00AP
Quad 2-Input NAND Gate

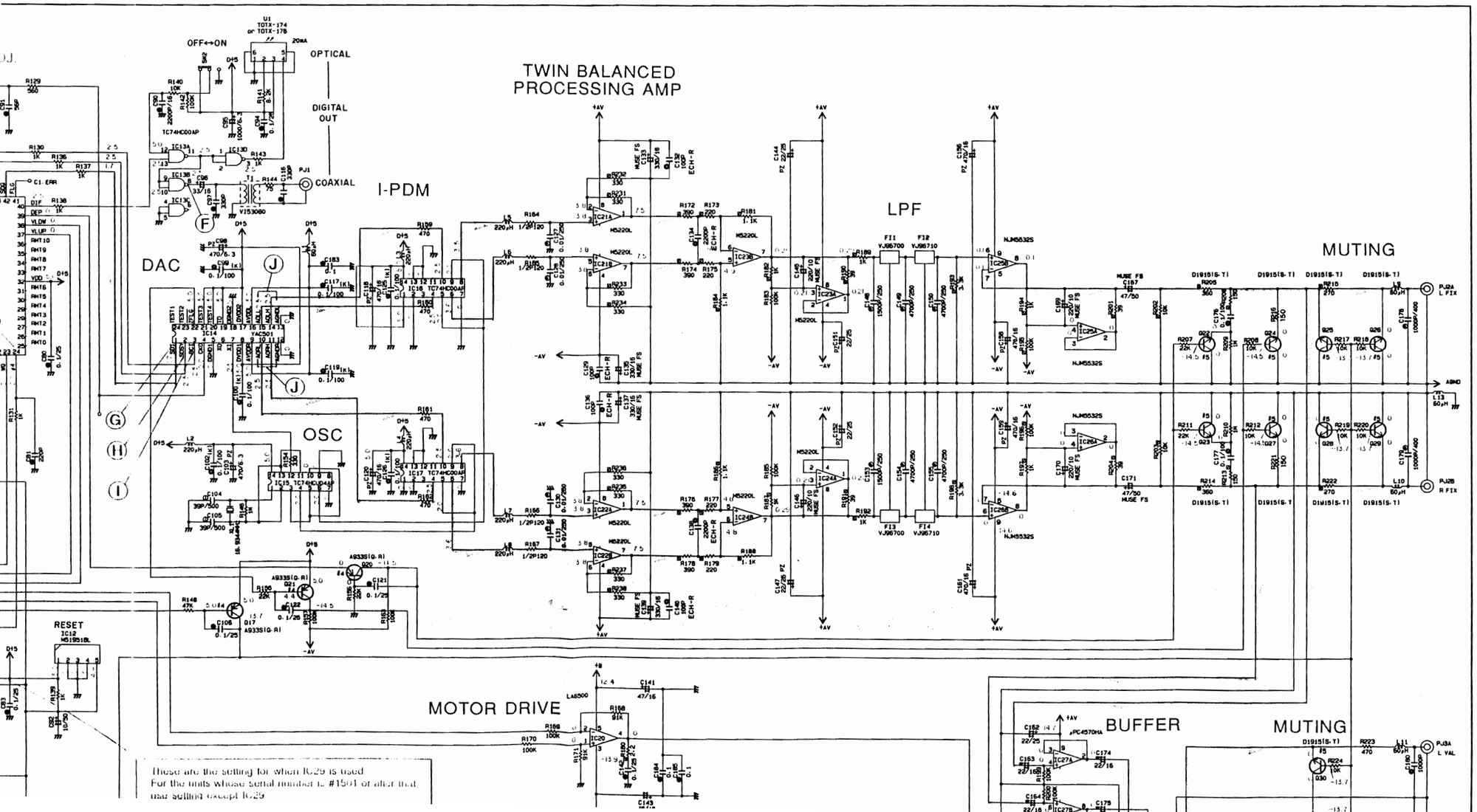


IC12 : M51951BL
System Reset



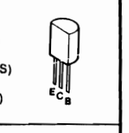
IC21~24 : M5220L
IC501 : BA15218N or
Dual Ope-amp



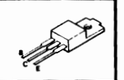


PIN CONNECTION DIAGRAM OF TRANSISTORS, DIODES AND ICS.

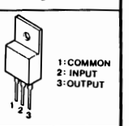
2SA933S(Q,R)
2SA115(E,F)
2SA1309A(Q,R,S)
2SA934(P,Q,S)
2SB544
2SA1323(B,C)
2SC1740S(S,R)
2SC2603(E,F)
2SC3311A(Q,R,S)
2SC3315(C,D)
2SC2060(P,Q,R)
2SD400(E,F)
2SD1915(S,T)
2SD2005(Q,R)
2SC2878(A,B)



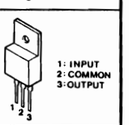
2SB1185(E,F)
2SD1985(P,Q)



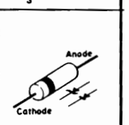
NJM79M05FA
AN79M05F



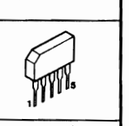
AN78M05F
NJM78M05FA



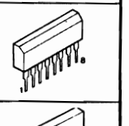
1SS133
ISR139-100T32
MTZJ8.2B
MTZJ16A
ISR139-100T62
GP30GL
MTZJ6.2A
MTZJ8.2C



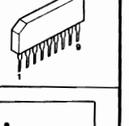
M51951BL



BA15218N
M5218AL
M5220L



NJM4558S
NJM2043S
NJM5532S
µPC4570HA



S2FR04

LA6500

2

OSC

RESET
IC12
M51951BL

MOTOR DRIVE
LA6500

BUFFER

MUTING

These are the setting for which IC29 is used
For the units whose serial number is #1501 or after that, use setting except IC29

POWER SUPPLY

OPERATION 2)

MUTE

PHONES

HEADPHONE AMP

OUTPUT LEVEL

(J, U, C, A, G, B)

(R)

TAKUT-SW-VG39290

SW501 SW502 SW510 SW511 SW518 SW519
8 4 +10 REPEAT ▷▷ OPEN/CLOSE
SW504 SW505 SW512 SW513 SW520 SW521
9 5 1 PROG ◁◁ STOP
SW506 SW507 SW514 SW515 SW522 SW523
0 6 2 DELETE ▷▷| PAUSE
SW508 SW509 SW516 SW517 SW524 SW525
DISPLAY 7 3 RANDOM |◁◁ PLAY

D501 D502 D503 D504 D505 D506

MAIN	LAST NO.
C	185
R	239
Q	33
D	18
IC	29

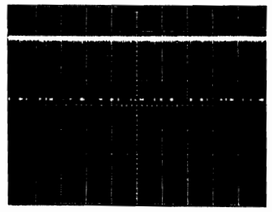
OPERATION	LAST NO.
C	534
R	529
Q	501
D	516
IC	501

Interchangeable Parts at Manufacture-Stage

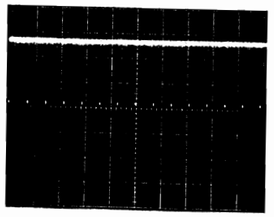
Mark	Reference Parts Number	Parts Name
#1	Q32	2SD400(E-F) 2SC2060(P-Q-R)
#2	Q4-8-13-14-15-18	2SC1740S(S-R) 2SC2603(E-F) 2SC3311A(Q-R-S)
#3	Q1-33-501	2SA934(P-Q-R) 2SB544
#4	Q5-7-11-17-19-20-21	2SA933S(Q-R) 2SA1115(E-F) 2SA1309A(Q-R-S)
#5	D12-22-31	2SD1915(S-T) 2SC2878(A-B)

	J	U-C	R	A-B-G
#1 C521-522-523	0.01/250	0.01	0.01/400	0.01/400
#2 R516-517	SHORT	1	1	1
#3 CB3-16	VD0045012P1	VD0047014P1	VD0047014P1	VD0047014P1
#4 R510-513	SHORT	2.2	2.2	2.2

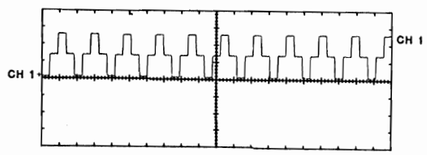
Point Ⓜ (CLK)
(Pin 61 of IC500)
V : 2V/div H : 10msec/div
DC range 1 : 1 probe



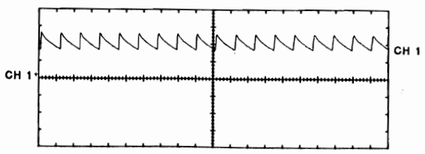
Point Ⓝ (DATA)
(Pin 62 of IC500)
V : 2V/div H : 20msec/div
DC range 1 : 1 probe



Point Ⓞ (COM1, COM2)
(Pin 63 and 64 of IC500)
V : 2V/div H : 5msec/div
DC range 1 : 1 probe



Point Ⓟ (OSC)
(Pin 55 of IC500)
V : 2V/div H : 20µsec/div
DC range 1 : 1 probe



Point Ⓙ

Point Ⓚ (S1 to S52)

Point Ⓛ (CE)

1: INPUT
2: COMMON
3: OUTPUT

1SS133
ISR139-100T32
MTZJ8.2B
MTZJ16A
ISR139-100T62
GP30GL
MTZJ6.2A
MTZJ8.2C

Anode
Cathode

M51951BL

BA15218N
M5218AL
M5220L

NJM4558S
NJM2043S
NJM5532S
µPC4570HA

S2FR04

LA6500

LA6520

µPD74HCU04C
BU74HCU04
µPD74HC00C
M74HC00P
MN74HC00
BU74HC00
TC74HCU04AP
MC74HCU04N
TC74HC00AP
MC74HC00AN

LC3517BL-15
YAC501

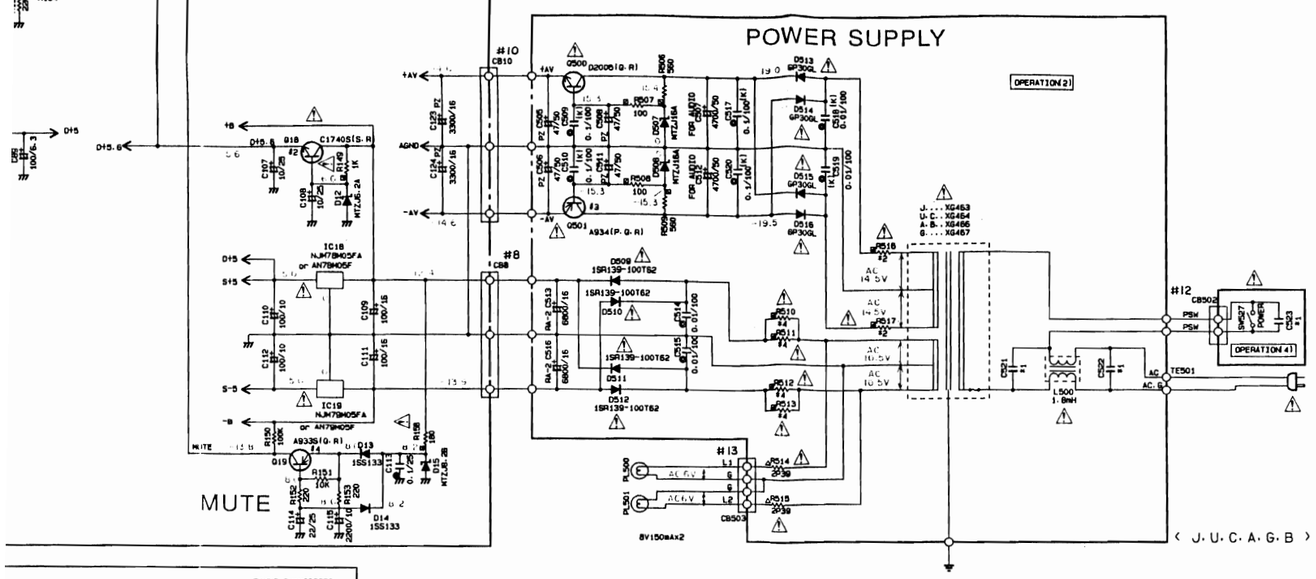
MSM82C55AP-2
MSM82C55A-2RS
µPD71055C

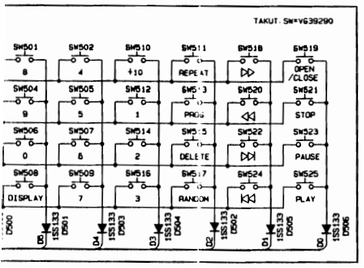
HD63B01

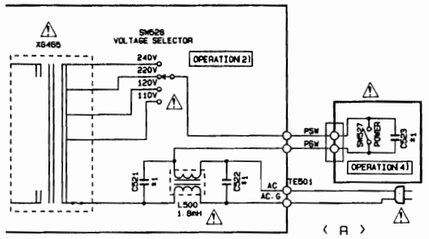
LA9200NM

LC7582

YM7402







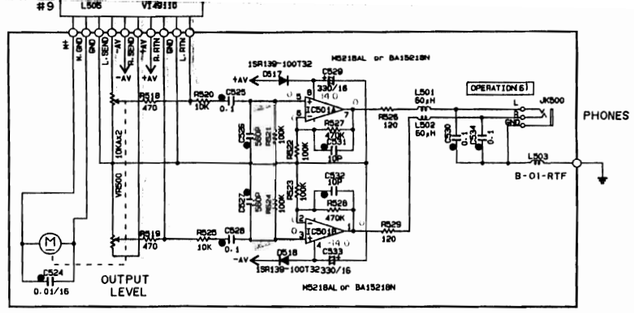
MAIN	
	LAST NO.
C	185
R	239
Q	33
D	15
IC	29

OPERATION	
	LAST NO.
C	534
R	529
Q	501
D	518
IC	501

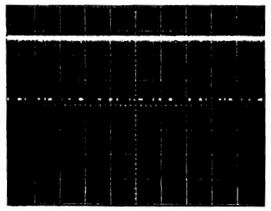
Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
#1	Q32	2SD401(E-F)
		2SC2060(P,Q-R)
#2	Q4-8-13-14-15-18	2SC1740S(S-R)
		2SC2603(E-F)
		2SC3311A(Q-R-S)
#3	Q1-33-501	2SA934(P-Q-R)
		2SB544
#4	Q5-7-11-17-19-20-21	2SA933S(Q-R)
		2SA1115(E-F)
		2SA1309A(Q-R-S)
#5	Q12-22-31	2SD1915(S-T)
		2SC2878(A-B)

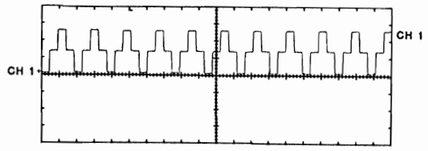
	J	U-C	R	A-B-S
#1 C521-522-523	0.01/250	0.01	0.01/400	0.01/400
#2 R516-517	SHORT	1	1	1
#3 CB3-16	VD0045012P1	VD0047014P1	VD0047014P1	VD0047014P1
#4 R510-513	SHORT	2.2	2.2	2.2



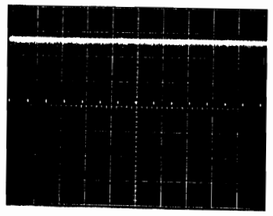
Point Ⓜ (CLK)
(Pin 61 of IC500)
V : 2V/div H : 10msec/div
DC range 1 : 1 probe



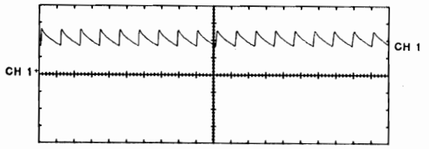
Point Ⓞ (COM1, COM2)
(Pin 63 and 64 of IC500)
V : 2V/div H : 5msec/div
DC range 1 : 1 probe



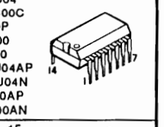
Point Ⓝ (DATA)
(Pin 62 of IC500)
V : 2V/div H : 20msec/div
DC range 1 : 1 probe



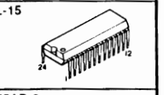
Point Ⓟ (OSC)
(Pin 55 of IC500)
V : 2V/div H : 20µsec/div
DC range 1 : 1 probe



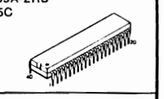
µPD74HCU04C
BU74HCU04
µPD74HC00C
M74HC00P
MN74HC00
BU74HC00
TC74HCU04AP
MC74HCU04N
TC74HC00AP
MC74HC00AN



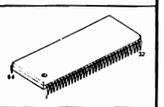
LC3517BL-15
YAC501



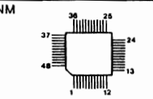
MSM82C55AP-2
MSM82C55A-2RS
µPD71055C



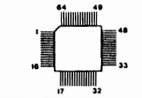
HD63B01



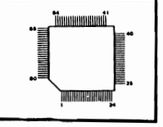
LA9200NM



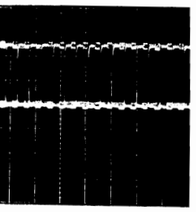
LC7582



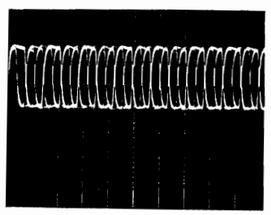
YM7402



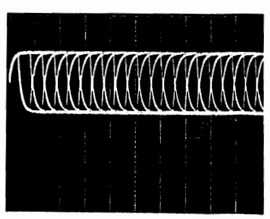
Point Ⓔ (D7)
(Pin 1 of IC10)
V : 2V/div H : 2µsec/div
DC range 1 : 1 probe



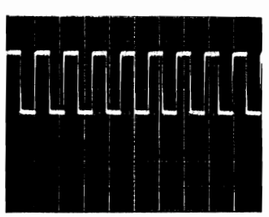
Point Ⓕ (DIGITAL OUT)
(Pin 8 of IC13)
V : 2V/div H : 0.5µsec/div
DC range 1 : 1 probe



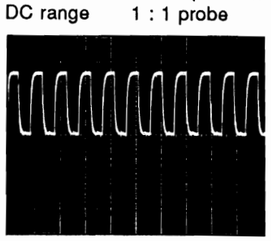
Point Ⓖ (SDI)
(Pin 1 of IC14)
V : 2V/div H : 1µsec/div
DC range 1 : 1 probe



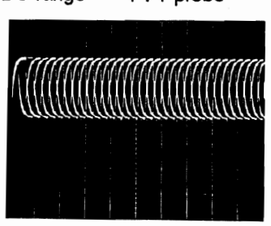
Point Ⓗ (SDSY)
(Pin 2 of IC14)
V : 2V/div H : 20µsec/div
DC range 1 : 1 probe



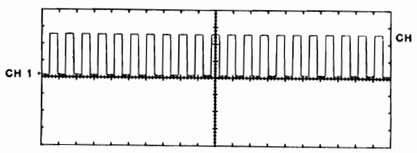
Point Ⓘ (BCI)
(Pin 3 of IC14)
V : 2V/div H : 0.5µsec/div
DC range 1 : 1 probe



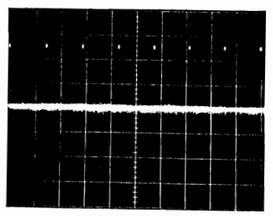
Point Ⓙ
(Pin 10, 11, 14 and 15 of IC14)
V : 2V/div H : 0.2µsec/div
DC range 1 : 1 probe



Point Ⓚ (S1 to S52)
(Pin 1 to 23, Pin 25 to 53 of IC500)
V : 2V/div H : 10msec/div
DC range 1 : 1 probe



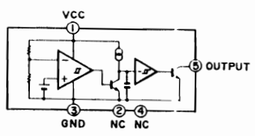
Point Ⓛ (CE)
(Pin 60 of IC500)
V : 2V/div H : 10msec/div
DC range 1 : 1 probe

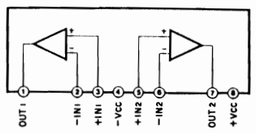


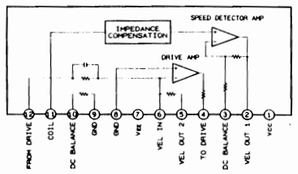
IC12 : M51951BL
System Reset

IC21~24 : M5220L
IC501 : BA15218N or M5218AL
Dual Ope-amp

IC28 : S2FR04
Hybrid IC







** All voltage are measured with a 10MΩ/V 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.*