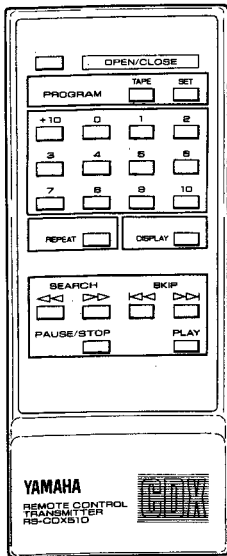
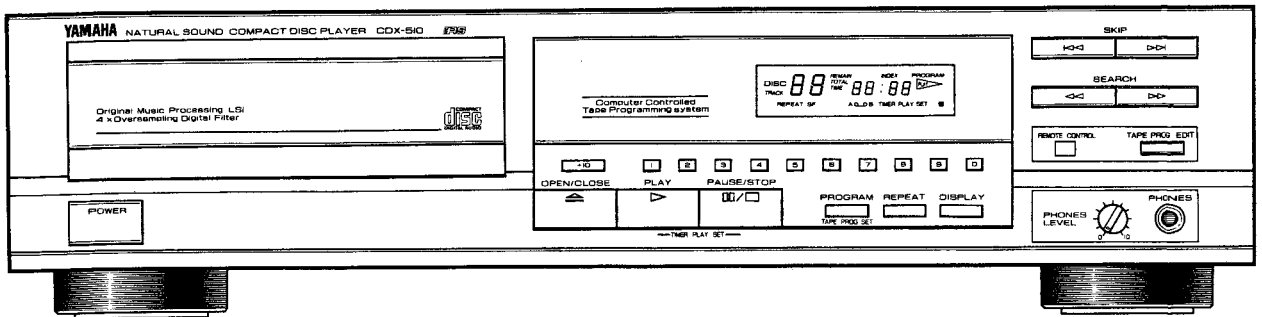


COMPACT DISC PLAYER CDX-510/U

SERVICE MANUAL



IMPORTANT NOTICE

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

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

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

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

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

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

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TO SERVICE PERSONNEL

1. Critical Components Information.

Components having special characteristics are marked and must be replaced with parts having specifications equal to those originally installed.

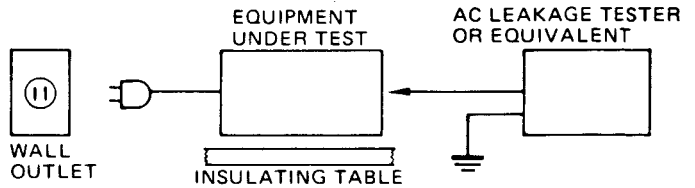
2. Leakage Current Measurement (For 120V Model Only).

When service has been completed, it is imperative that you verify that all exposed conductive surfaces are properly insulated from supply circuits.

- Meter impedance should be equivalent to 1500 ohm shunted by 0.15 μ F
- Leakage current must not exceed 0.5mA.
- Be sure to test for leakage with the AC plug in both polarities.

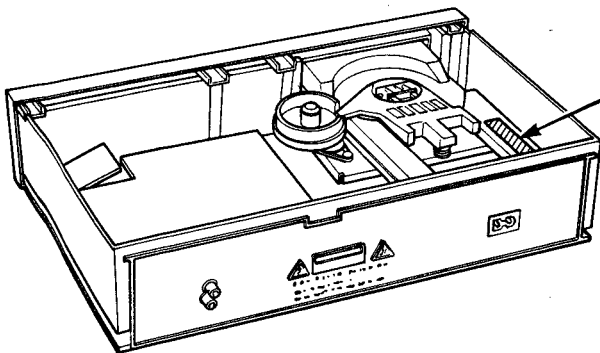
• POLARIZATION (U. C models)

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



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

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



U model

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

C model

CAUTION HAZARDOUS LASER AND ELECTROMAGNETIC RADIATION WHEN OPEN AND INTERLOCK DEFEATED
ATTENTION RAYONNEMENT LASER ET ELECTROMAGNETIQUE DANGEREUX SI OUVERT AVEC L'ENCLICHEMENT DE SECURITE ANNULE 90.428

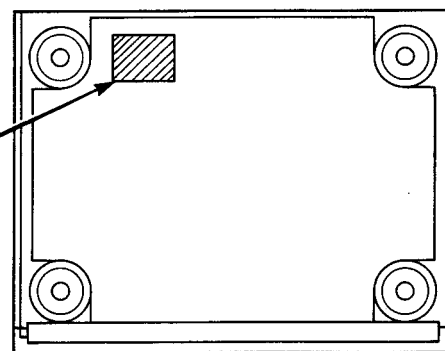
BOTTOM SIDE

U model

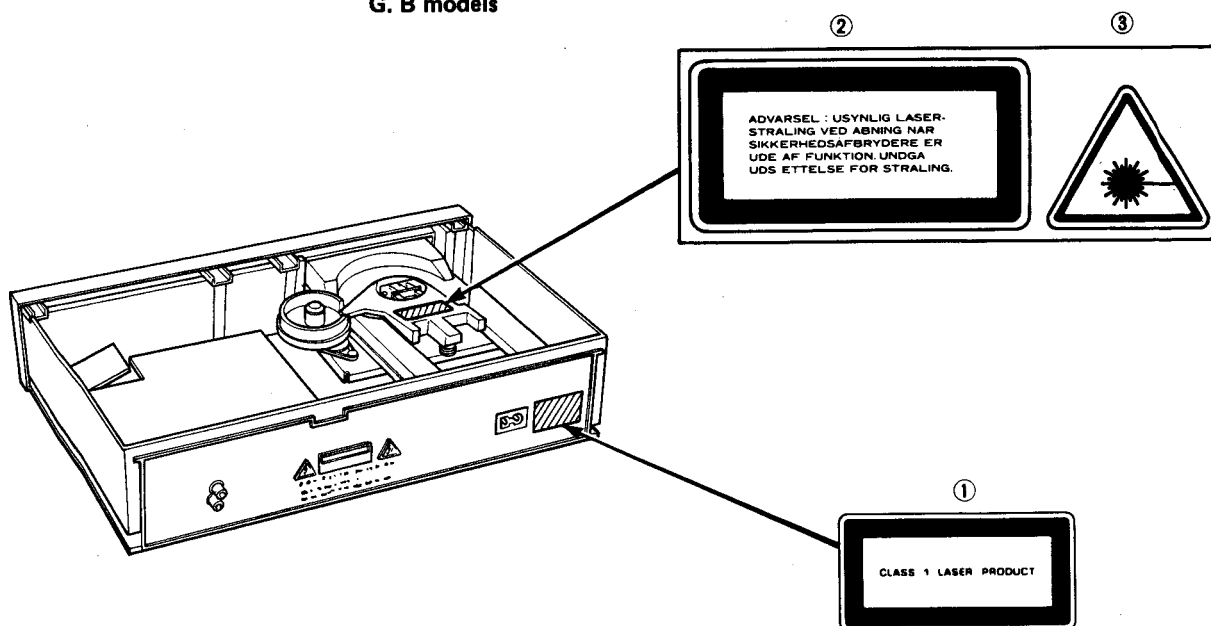
THIS PRODUCT COMPLIES WITH OHHS RULES 21 CFR SUBCHAPTER J APPLICABLE AT DATE OF MANUFACTURE.

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

MANUFACTURED:



G. B models

*English*

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

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

Swedish

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

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

Danish

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

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

Finnish

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

INTERLOCK OPERATION


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

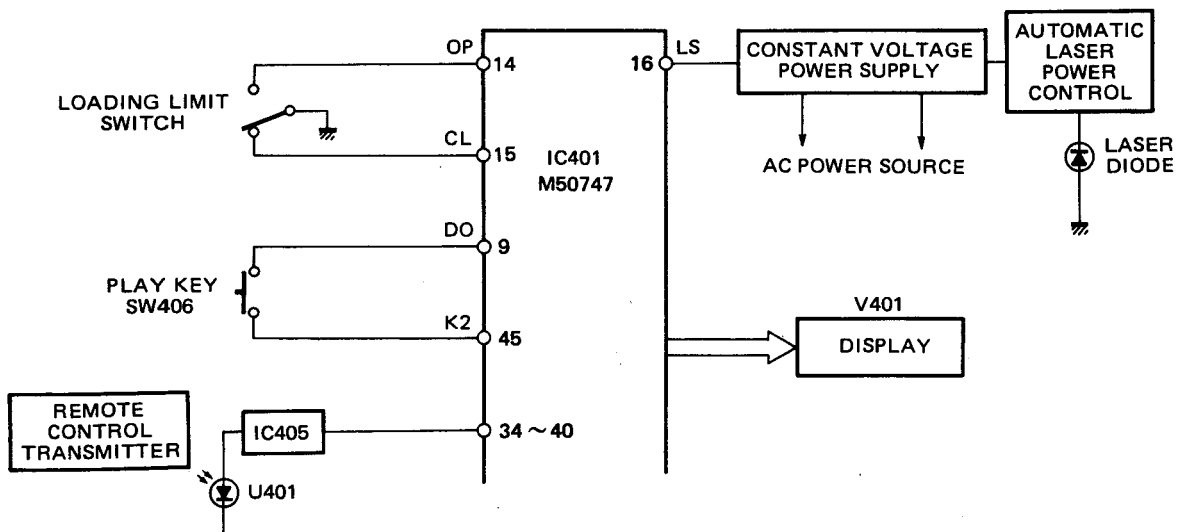
Laser output is controlled by the injection or cutoff of the constant voltage source to the laser diode at Pin 16 (LS) of IC401 (M50747), and also by Automatic Laser Power Control Circuit. When Pin 16 is in "H" (High) level, the laser emits the beam. When Pin 16 is in "L" (Low) level, the laser does not emit the beam.

Pin 16 is set in "H" level when the unit is loaded with the disc and it reads the index signals or when the unit is set in the play mode after that. When the unit reads the index signals and the following two conditions are met, the laser emits the beam.

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

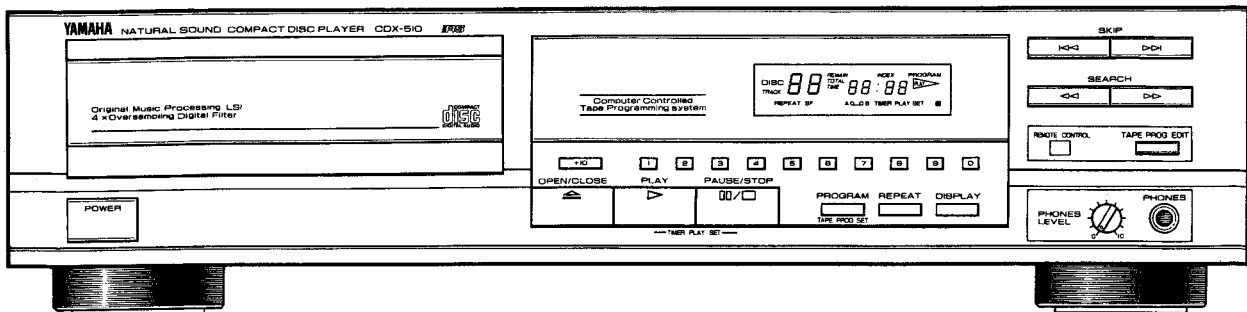
After the above conditions are met and the index signals have been read, the laser emits the beam when the following two conditions are met.

- 1) when the PLAY key (SW406) or that of Remote Control Transmitter is pressed.
- 2) when the  display is ON.

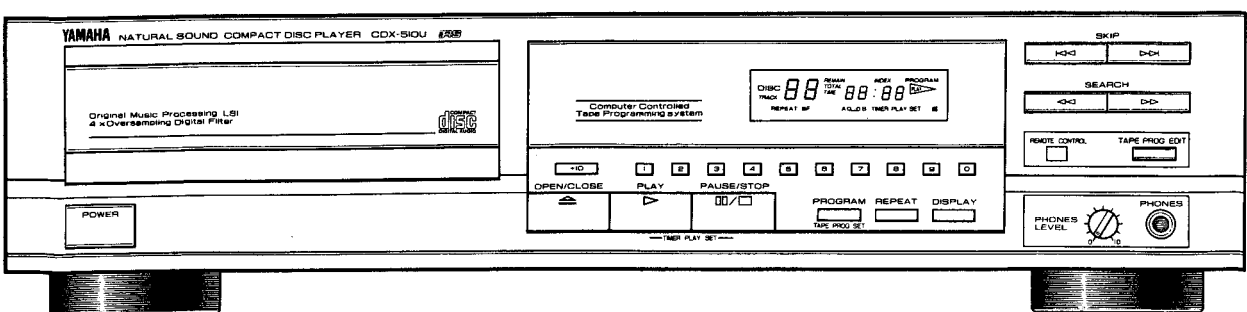


FRONT PANELS

• CDX-510

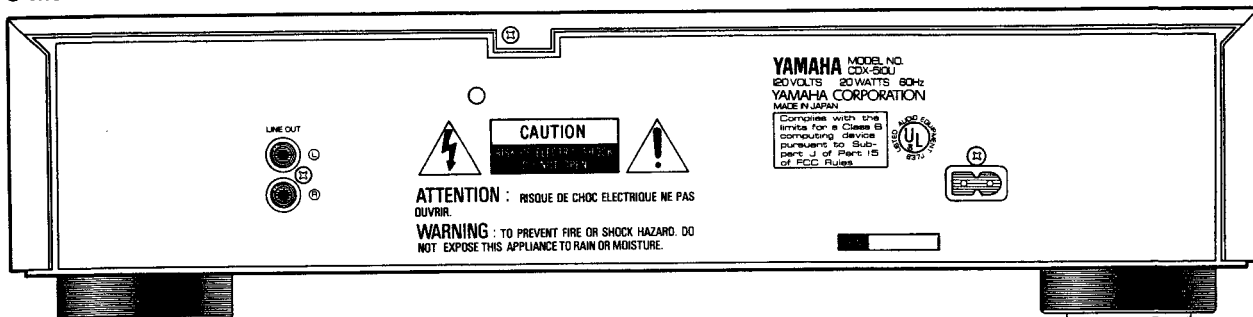


• CDX-510U

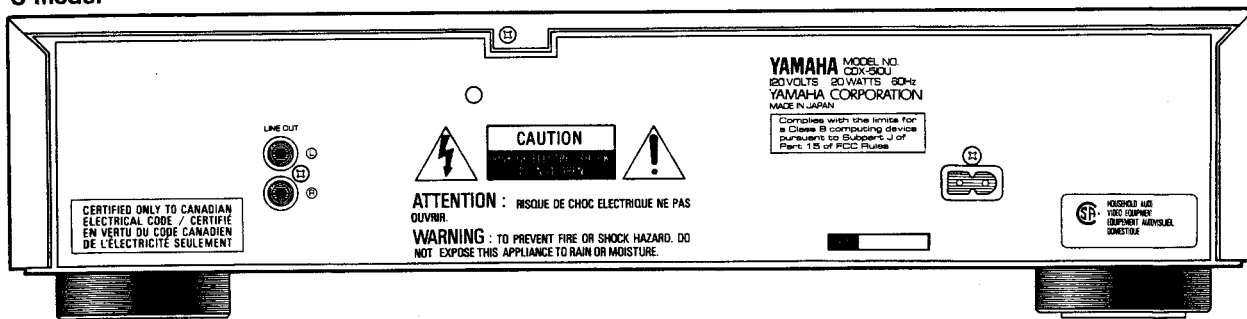


REAR PANELS

U model



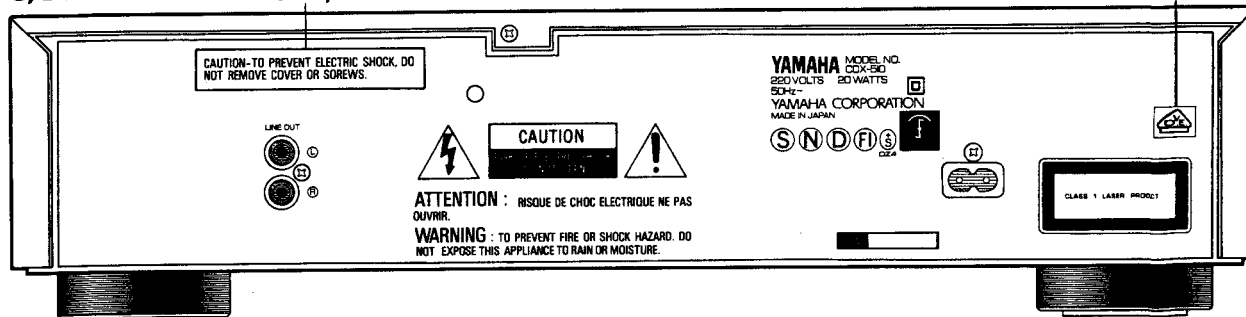
C model



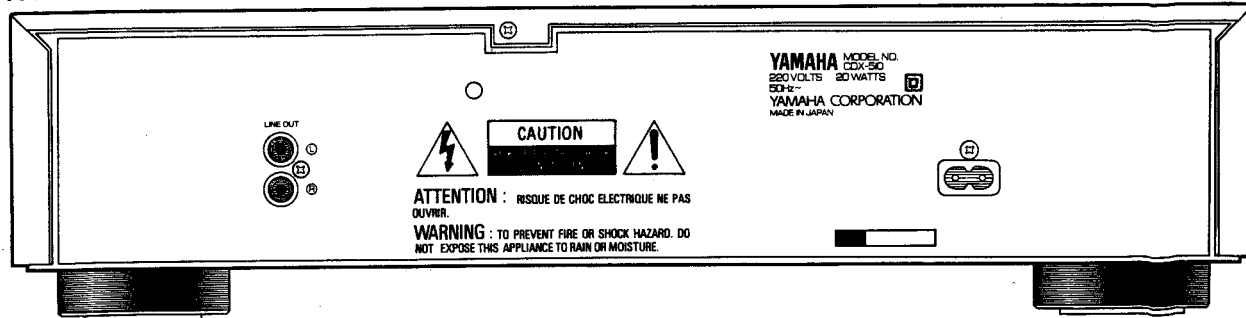
G, B models

B only

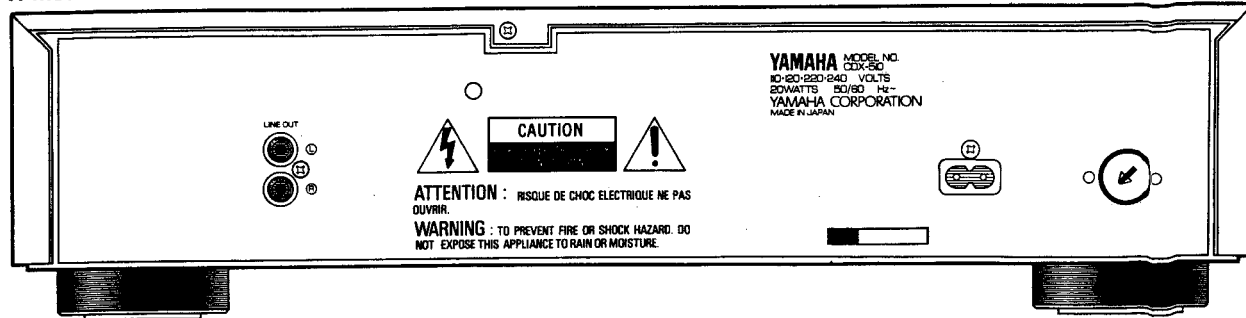
G only



A model



R model



CDX-510/U

■ SPECIFICATIONS

■ AUDIO SECTION

| | |
|-----------------------------|-------------------------------|
| Frequency Response | 5Hz ~ 20kHz ± 0.5dB |
| De-Emphasis Equalization | ± 0.5dB (EIAJ) |
| Harmonic Distortion + Noise | Less than 0.008%, 1kHz (EIAJ) |
| S/N Ratio | 100dB (EIAJ) |
| Dynamic Range | More than 100dB (EIAJ) |
| Wow & Flutter | Unmeasurable |
| Channel Separation | More than 80dB, 1kHz (EIAJ) |
| Output Voltage | 2V (EIAJ) |
| Output Impedance | 2.2kΩ |
| Headphone Output | 770mV/150Ω |

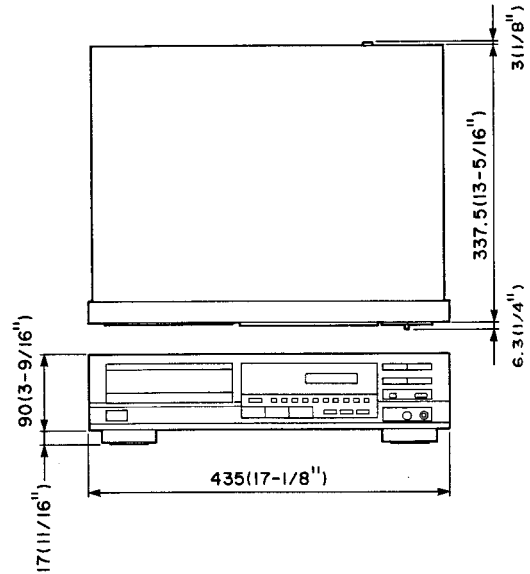
■ INTERNAL SYSTEMS

| | |
|-------------------------|--|
| Optical Pick-up | 3-beam laser |
| Error Correction System | CIRC, dual error correction system |
| D/A Conversion | 16-bit linear |
| Filter | Digital filter and 3rd order active filter |

■ GENERAL

| | |
|------------------------|--|
| Power Requirements | |
| U, C models | 120V AC, 60Hz |
| G, B models | 220-240V AC, 50Hz |
| A model | 240V AC, 50Hz |
| R model | 110-120/220-240V AC, 50/60Hz |
| Power Consumption | 20W |
| Dimensions (W x H x D) | 435 x 107 x 346.8 (17-1/8" x 4-3/16" x 13-5/8") |
| Weight | 4.8kg (10 lbs 9 oz.) |
| Accessories | Pin plug cord Remote control transmitter (RS-CDX510) Dry-cell: X2 (Size "AA", "R06") |

● DIMENSION

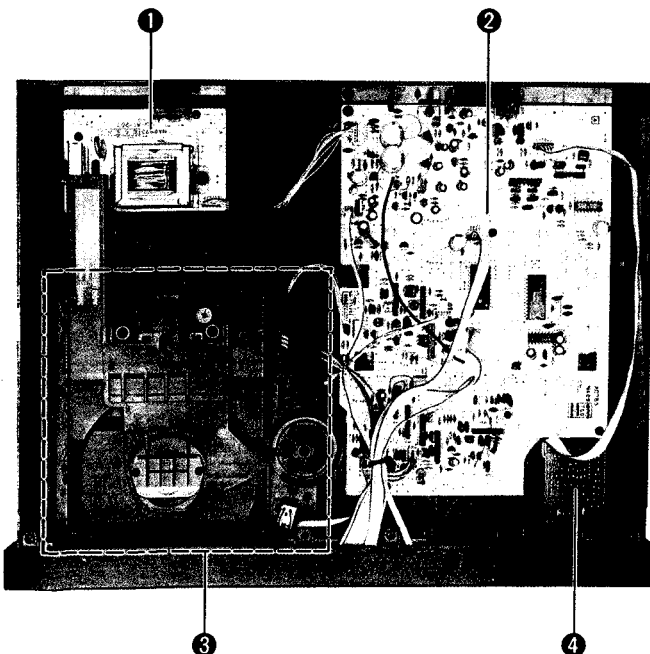


Unit : mm (inch)

*Specification subject to change without notice.

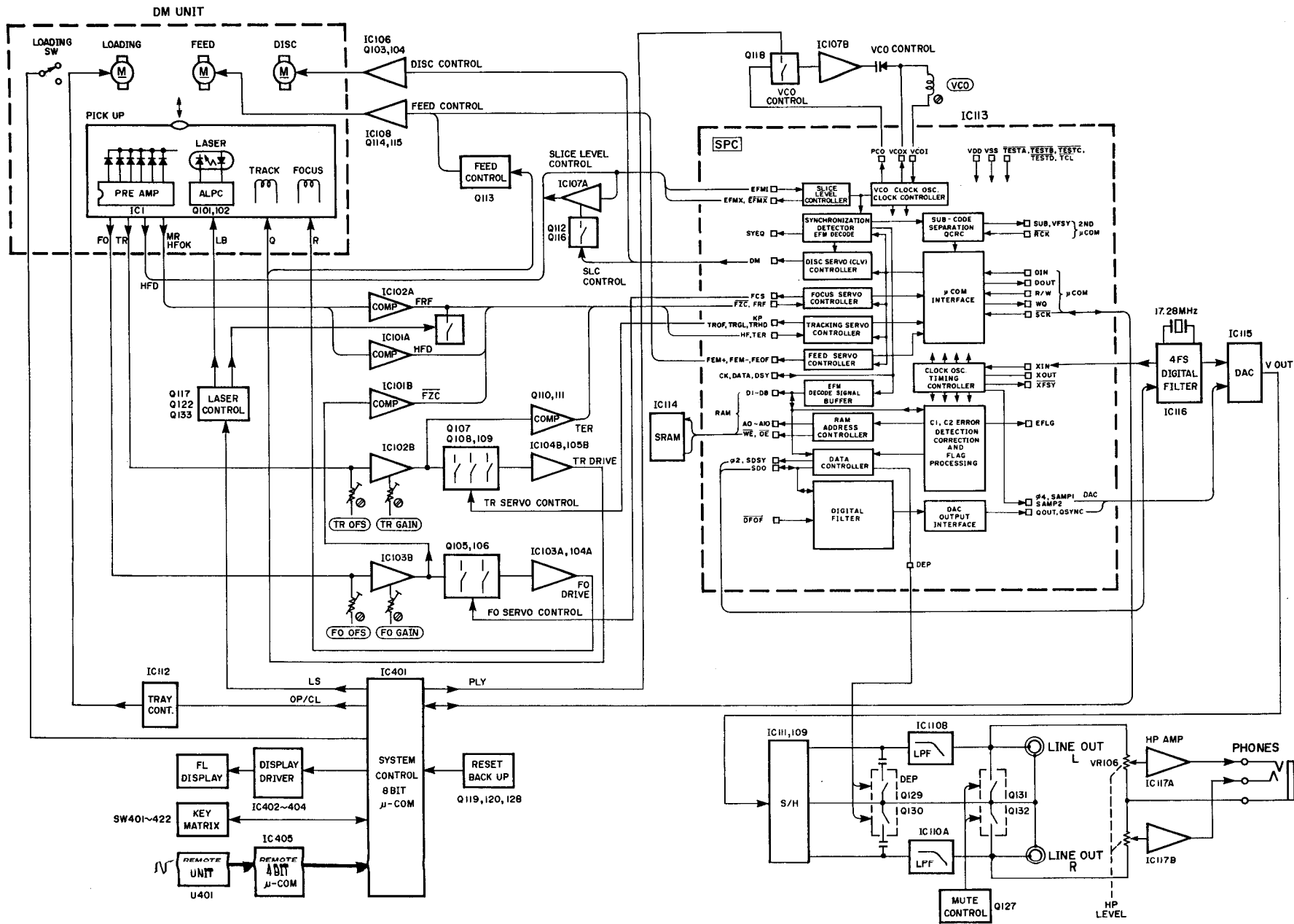
- U U. S. A. model
- C Canadian model
- B British model
- A Australian model
- G European model
- R General model

■ INTERNAL VIEW



- ① POWER SUPPLY UNIT
- ② MAIN CIRCUIT BOARD (2)
- ③ DISC MECHANISM UNIT
- ④ OPERATION CIRCUIT BOARD (2)

BLOCK DIAGRAM



CDX-510/U

DISASSEMBLY PROCEDURES

(Remove parts in disassembly order as numbered.)

1. Removal of Top Cover

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

2. Removal of Front Panel

- a. Remove 9 screws (②) in Fig. 1, and pull the Front Panel forward.

3. Removal of Bottom Cover

- a. Remove 6 screws (③) in Fig. 1.

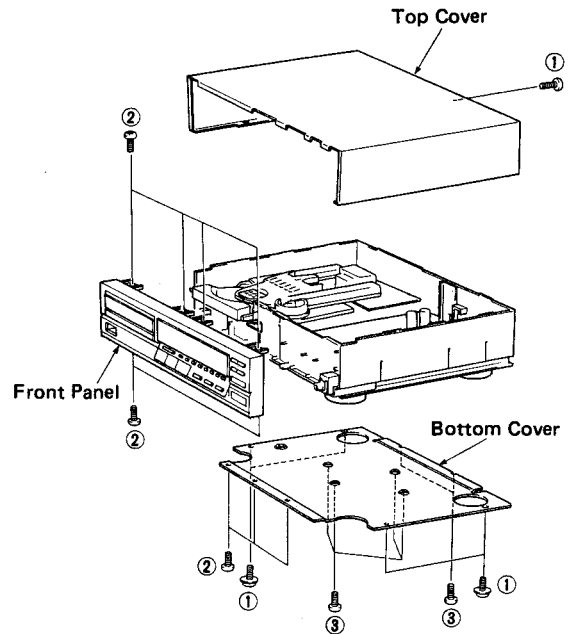


Fig. 1

4. Removal of Disc Tray Ass'y

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

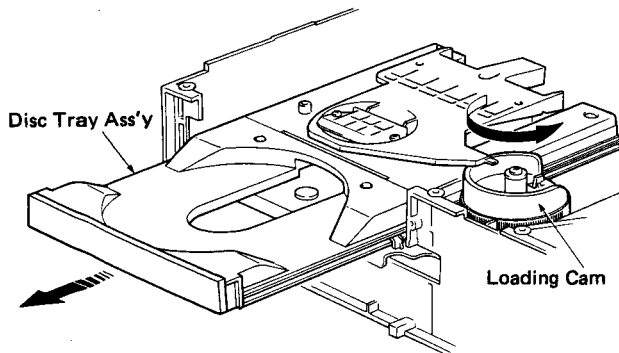


Fig. 2

5. Removal of Disc Mechanism Unit

- a. Remove 4 screws (④) in Fig. 4.

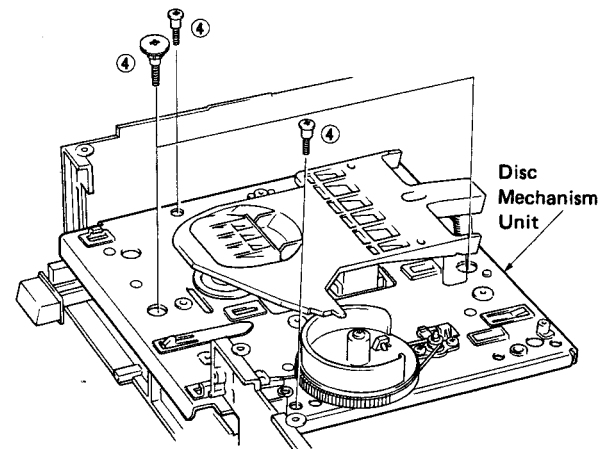


Fig. 4

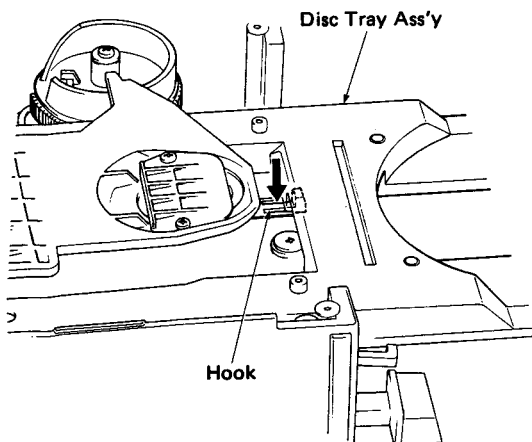


Fig. 3

6. Removal of Disc Motor

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

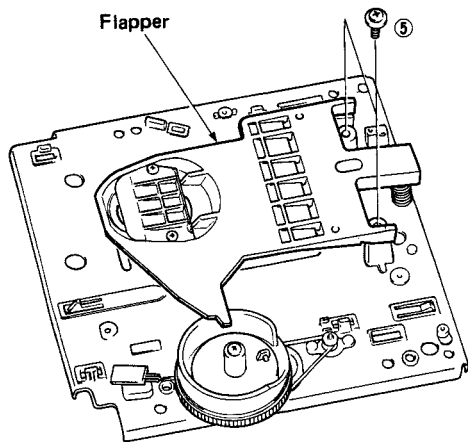


Fig. 5

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

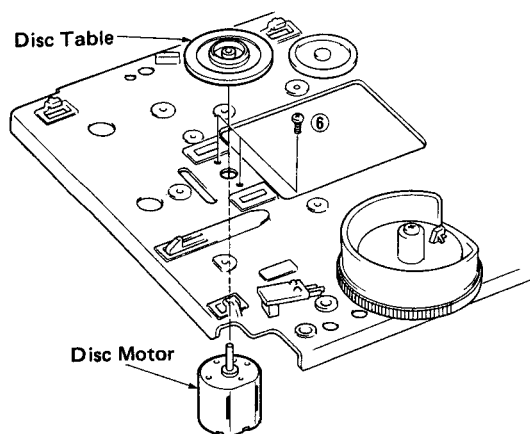
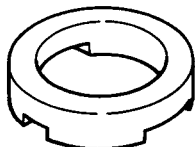


Fig. 6

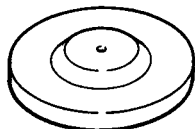
● **Installation of disc table**

※ The following tools are necessary for installation.

Height adjustment gauge (TX913130)



Disc table installer (TX913140)



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

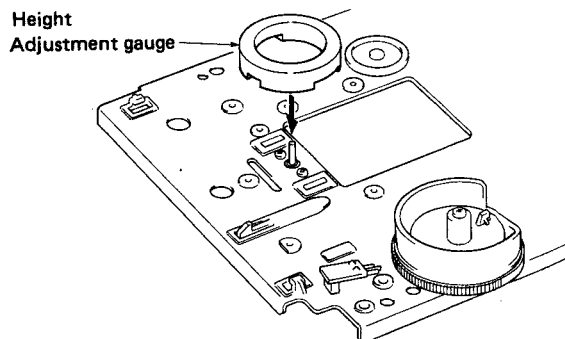


Fig. 7

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

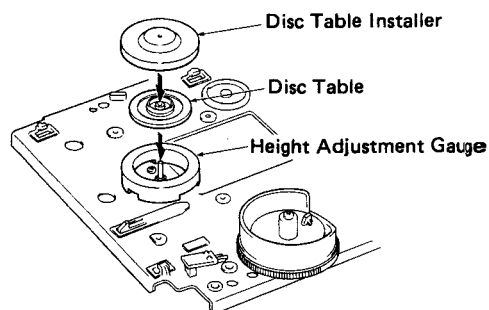


Fig. 8

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

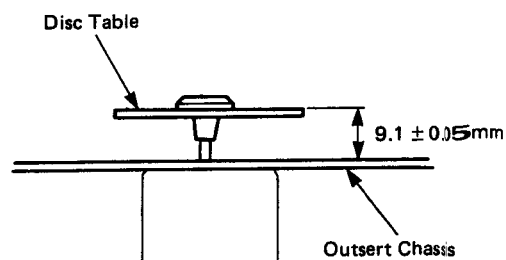


Fig. 9

CDX-510/U

■ ADJUSTMENTS

● Necessary items

Measuring instruments

- Oscilloscope : x 2
(At least one shall have a bandwidth of 50 MHz or more)
- Audio frequency oscillator (A.F. OSC) : x 1
- Laser power meter : x 1
(LEADER LPM-8000 (P/N TX915140) or equivalent)
- AC voltmeter (ACVM) : x 2
(One dual channel or two single channel meters)
- DC voltmeter (DCVM) : x 1
- Frequency counter (FC) : x 1

Jigs

- Test disc : x 1
(YEDS-18 P/N TX911730 or
YEDS-7 P/N TX911320)
- Filter (See Fig. A) : x 1
- Shorting cord : x 1

Tools

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

● Precautions or Special Notes

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

● Adjustment jig (with internal filter)

Connect the filter in Fig. A before measurement.

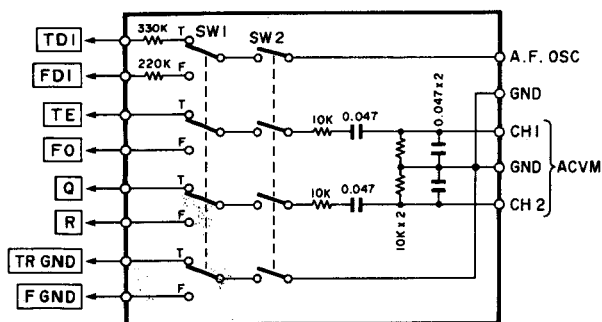
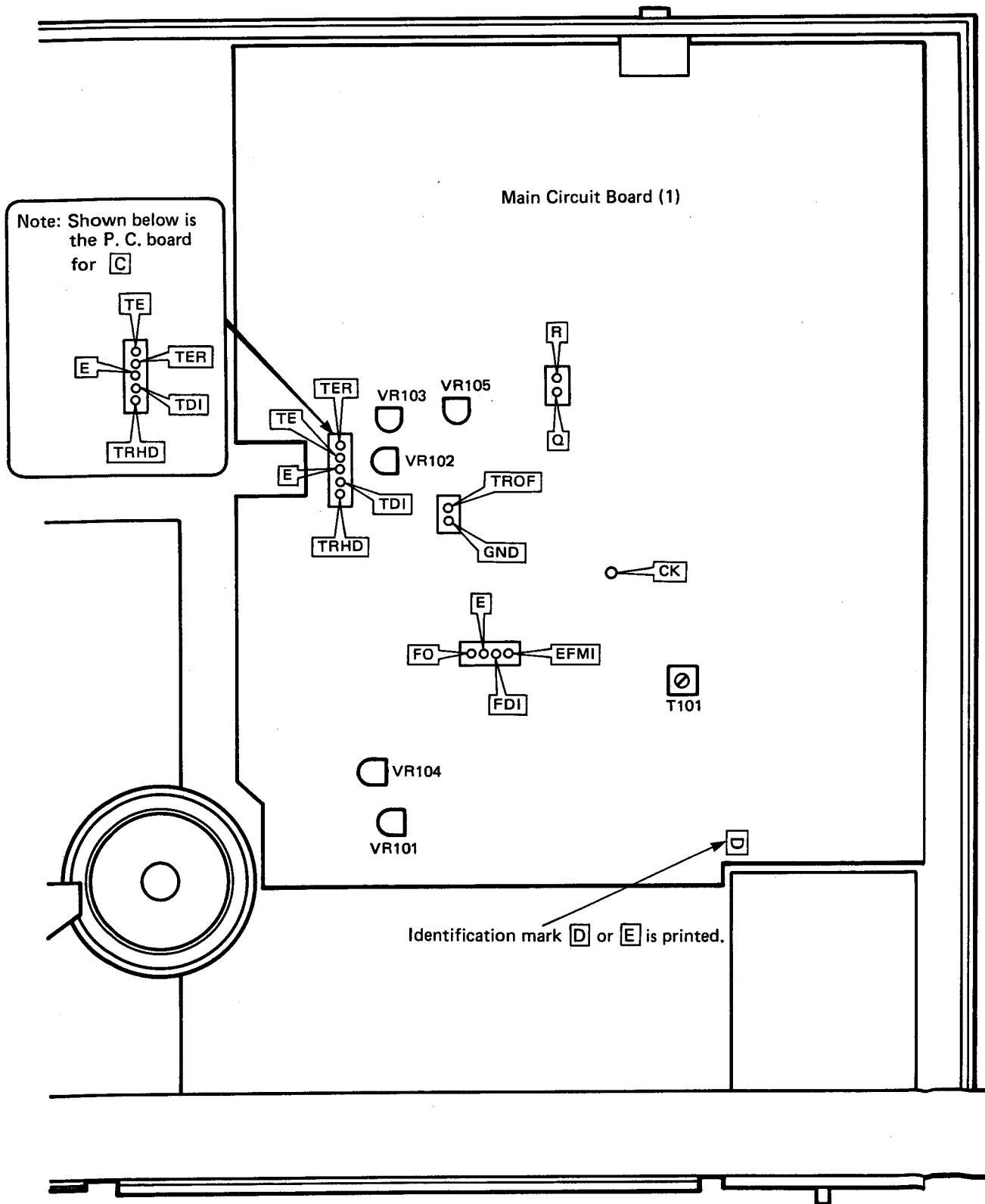


Fig. A

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

• Test Points



0/016V70

★ Carry out following adjustments in order as numbered.

Step 1. Confirmation of Laser Output.

Step 2. Confirmation of Focus Actuator Operation.

Step 3. Adjustment of VCO.

Step 4. Adjustment of Tracking Gain

Step 5. Adjustment of Focus Gain

Step 6. Adjustment of Tracking Offset

Step 7. Adjustment of Focus Offset

Step 8. Adjustment of Kick Gain

Step 9. Confirmation of Jitter

Step 10. Confirmation of Skip Search Operation

Confirmation of Laser Output (Step 1)

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

- ⑤ Press POWER key. (POWER ON)
 - ⑥ Measure the laser output during the 5 seconds of FOCUS search mode.
- Rating: Laser output = 0.1mW to 0.5mW

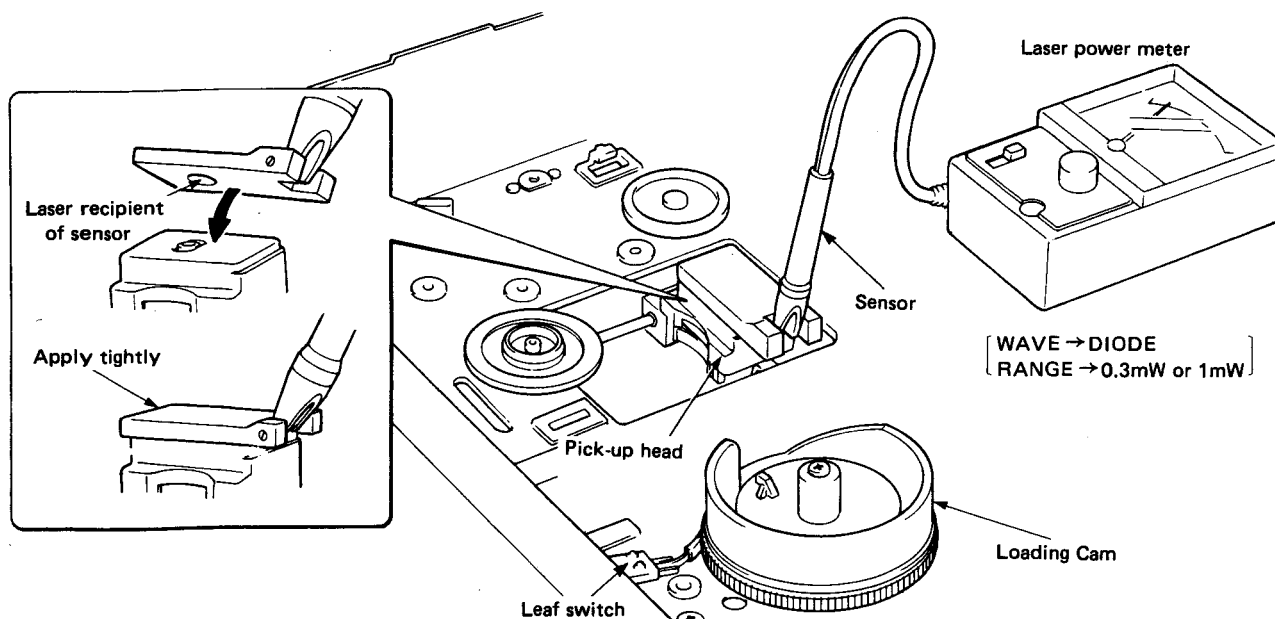


Fig. B

Precautions in handling pick-up head

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

Confirmation of Focus Actuator Operation (Step 2)

Oscilloscope (1) setting

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

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

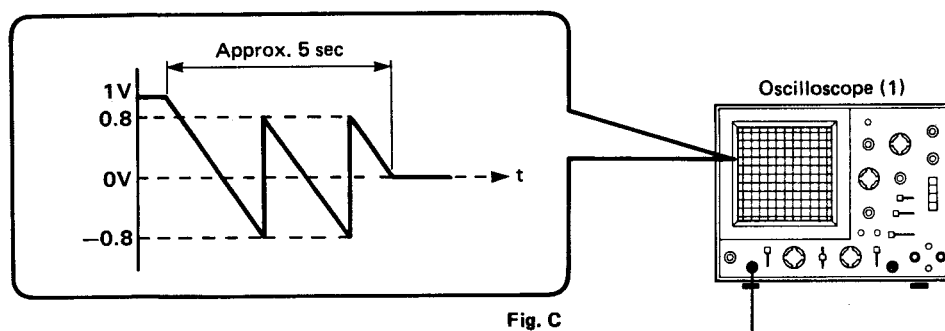


Fig. C

CDX-510/U

Adjustment of VCO (Step 3)

- ① Connect the shorting cord and measuring instruments, as shown in Fig. D.
- ② Do not load a disc.
- ③ Press POWER key. (POWER ON)
- ④ While observing the frequency counter indication (FVCO), adjust T101 so that it satisfies the rating.
Rating: $F_{VCO} = 4.3218 \text{ MHz} \pm 10 \text{ kHz}$

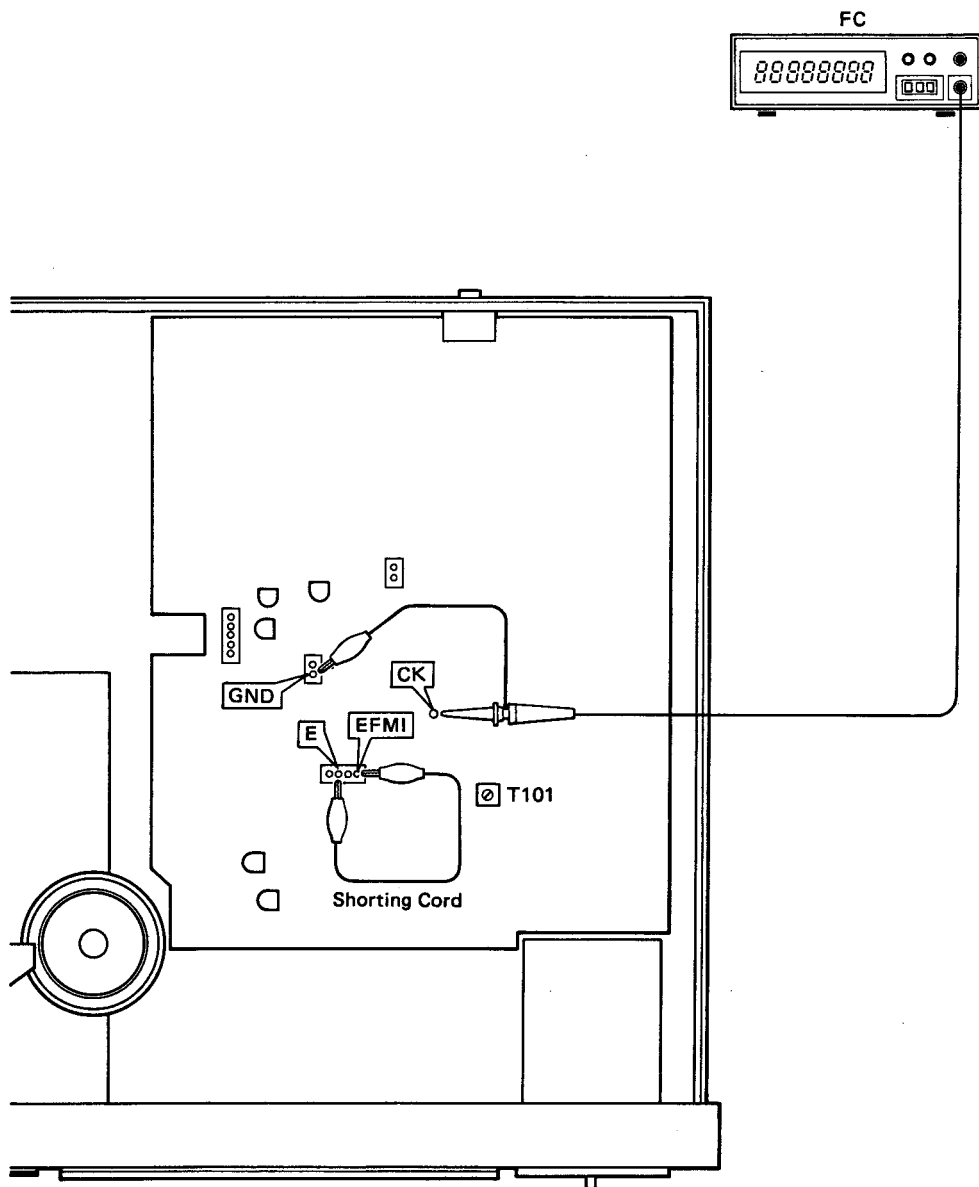


Fig. D

Adjutment of Tracking Gain (Step 4)

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

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

Apply a 800 Hz, 100 mVrms signal from the AF oscillator to TDI terminal via the resistor (330 kilohms) in the filter.

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

- ⑦ Set SW2 to ON.

- ⑧ While observing the indications of the AC voltmeters (CH1: E_{TE} , CH2: E_Q), adjust VR103 (TRACKING GAIN) so that they satisfy the rating.

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

Example [0dBV = 1V]
 $E_Q = -30\text{dBV}$ (30mV)
 $E_{TE} = -13\text{V}$ (223mV)

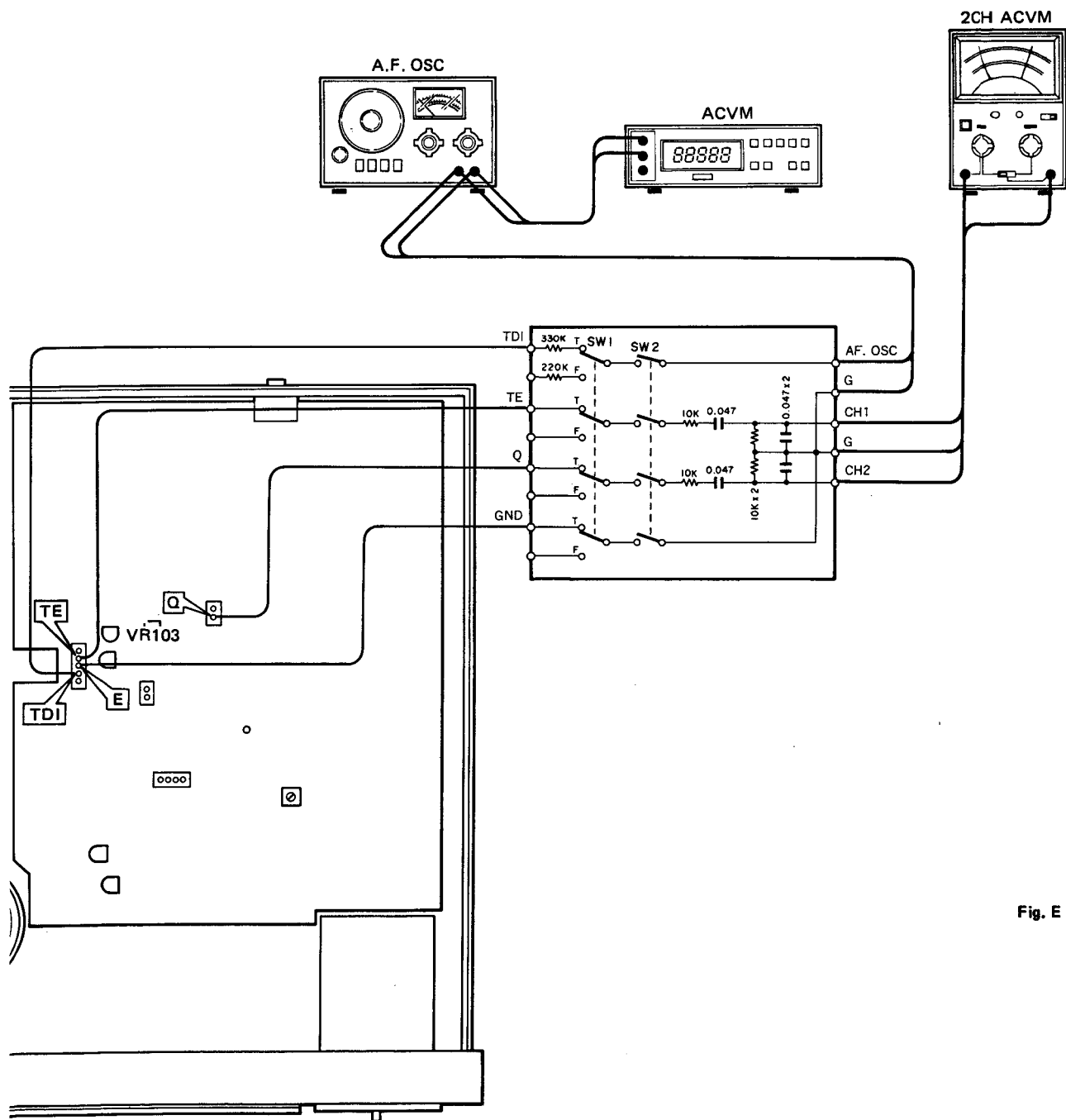


Fig. E

Adjustment of Focus Gain (Step 5)

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

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

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

- ② Set SW2 to OFF.
- ③ Set SW1 to F (FOCUS).
- ④ Press POWER key. (POWER ON)
- ⑤ Load Philips test disc.

- ⑥ Press PLAY Key.
- ⑦ Set SW2 to ON.
- ⑧ Read the indications of the AC voltmeters (CH1: E_{FO} , CH2: E_R), adjust VR104 (FOCUS GAIN) so that they satisfy the rating.

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

| | |
|-------------------|-------------|
| Example | [0dBV = 1V] |
| $E_{FO} = -16dBV$ | (160mV) |
| $E_R = -25dBV$ | (63mV) |

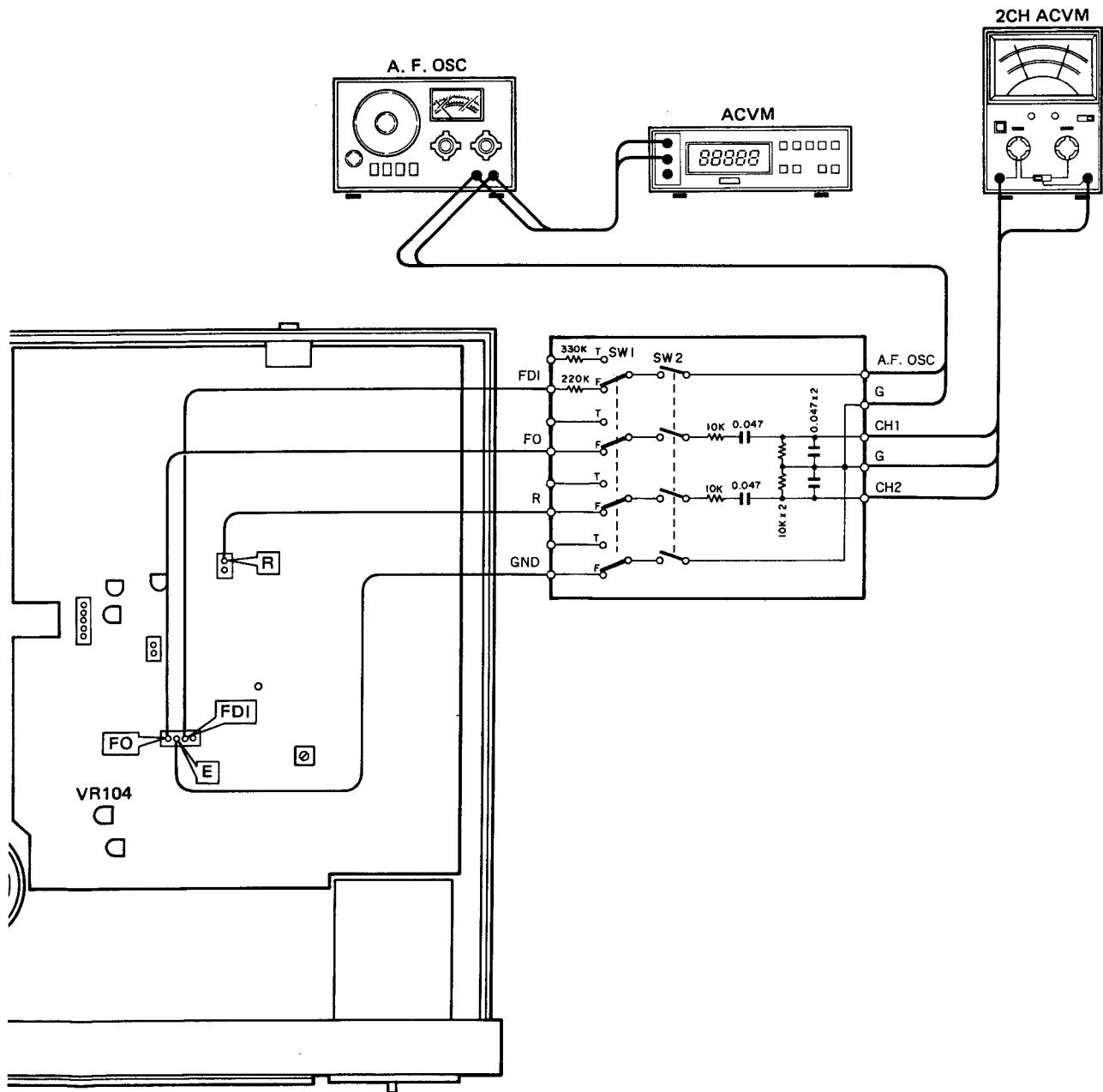


Fig. F

Adjustment of Tracking Offset (Step 6)

- ① Connect a DC voltmeter to **Q** and **E** terminals.
- ② Press POWER key. (POWER ON)
- ③ Press STOP key.
- ④ Short between the **TROF** and **GND** terminals. (Tracking Servo ON).
- ⑤ While observing the indication (E_Q) of the DC voltmeter, adjust VR102 (TRACKING OFFSET) so that it satisfies the rating.

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

Adjustment of Focus Offset (Step 7)

- ① Connect a DC voltmeter to **R** and **GND** terminals.
- ② Press POWER key. (POWER ON)
- ③ Press STOP key.
- ④ While observing the indication (E_R) of the DC voltmeter, adjust VR101 (FOCUS OFFSET) so that it satisfies the rating.

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

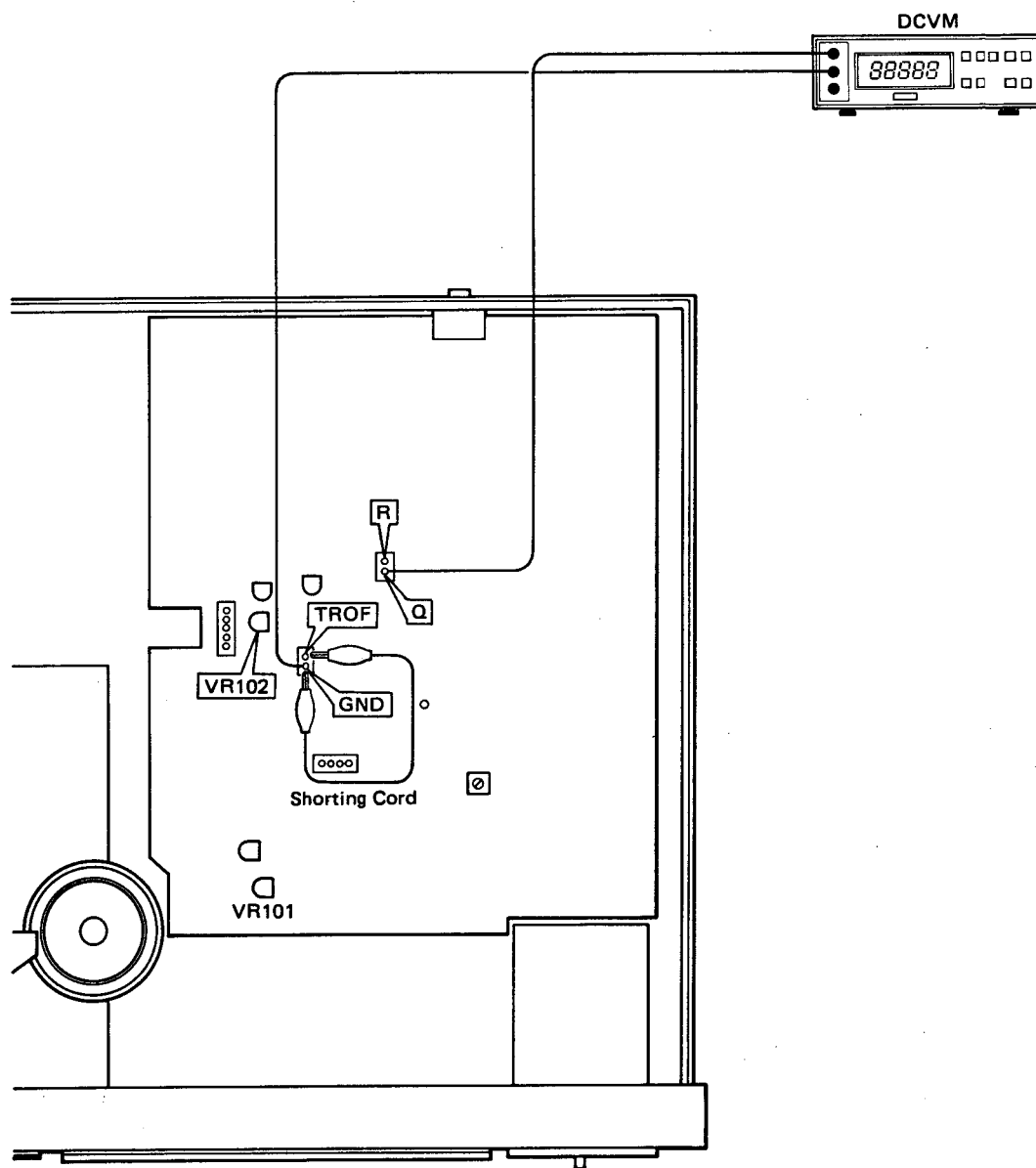


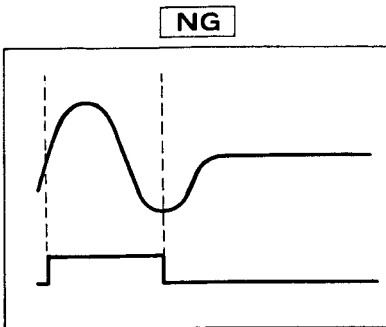
Fig. G

Adjustment of Kick Gain (Step 8)

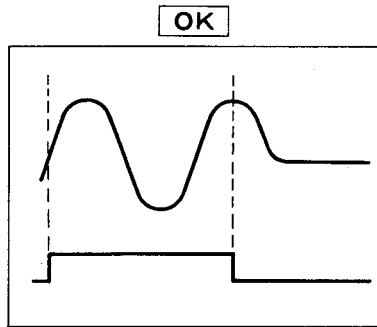
Oscilloscope (1) (2-ch oscilloscope) Settings

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

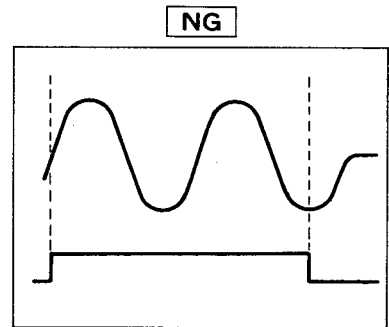
- ① Connect the measuring instruments, as shown in Fig. H.
- ② Press POWER key. (POWER ON)
- ③ Load Philips test disc.
- ④ Press PLAY key.
- ⑤ Observe waveform while pressing Fast Forward mode key (▶) for 3 seconds.
- ⑥ Adjust VR105 (KICK GAIN) so that the **TER** signal cycle is 1.0 when **TRHD** signal level is High.
* Adjust at the inner circumference of the disc.
- ⑦ Press Reverse mode key (◀) for 3 seconds and confirm that **TER** signal cycle is within the above specification but in reverse phase.



This shows about 0.75 cycle which is incorrect

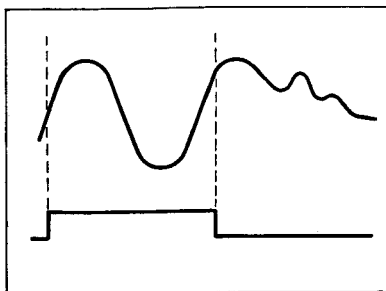


This shows about 1.25 cycle which is within specification.



This shows about 1.75 cycle which is incorrect

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



NG

Not converging gently

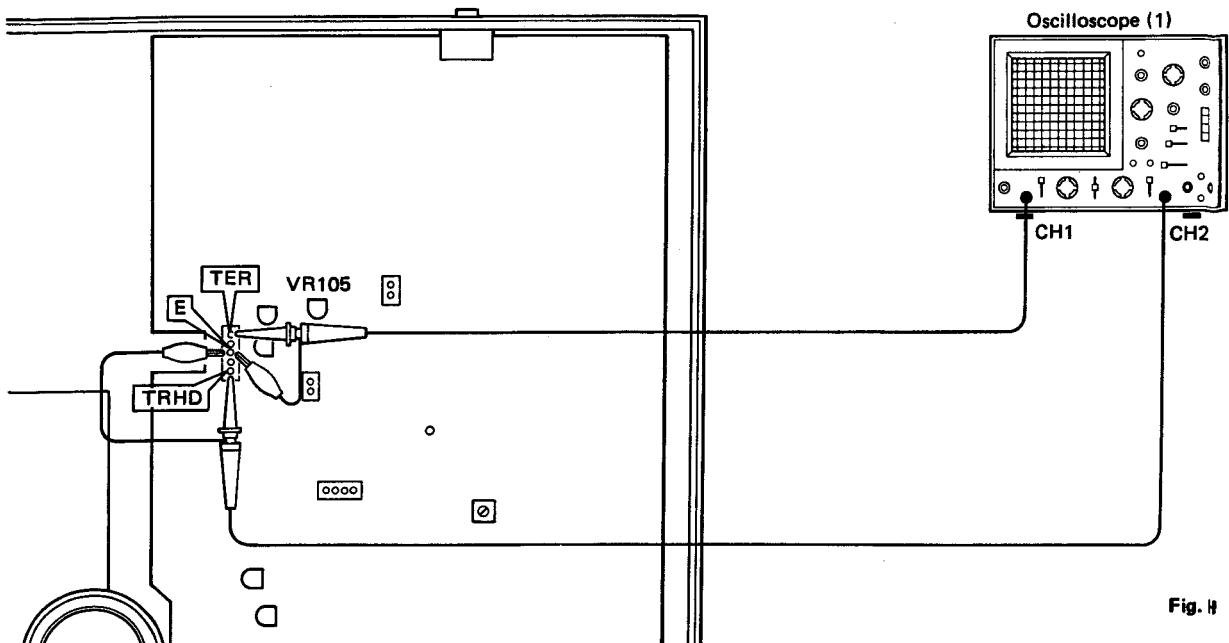


Fig. H

A Confirmation of Jitter (Step 9)

Oscilloscope (2) Settings

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

- ① Connect oscilloscope (2) to **EFMI** terminal, as shown in Fig. F.
 - ② Press POWER key. (POWER ON)
 - ③ Load the specified disc (YEDS-18 or Philips test disc).
 - ④ Press PLAY key.
 - ⑤ Confirm that the **EFMI** signal (eye-pattern) waveform is distinct and clear.
- * Confirm at the center of the disc.

Oscilloscope (2)

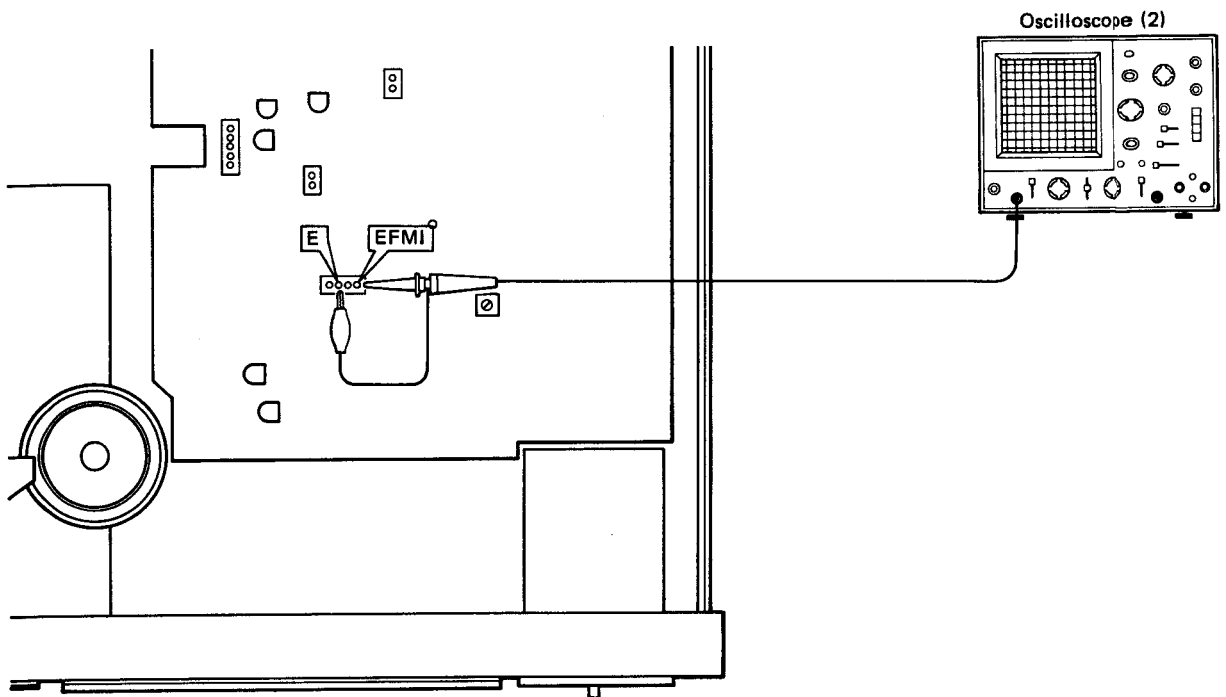
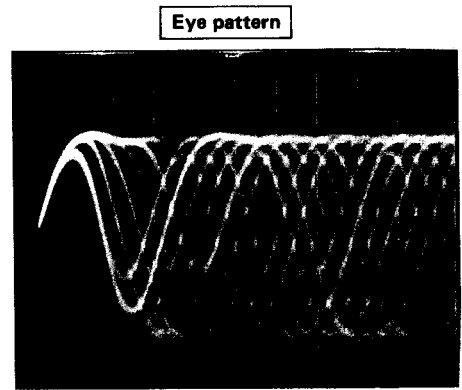
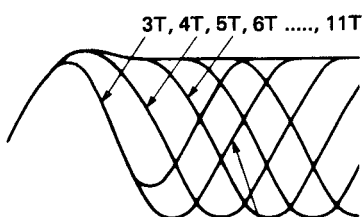


Fig. I

Waveforms 3T – 11T.

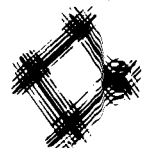


The abnormal eye pattern has less distinct lines and smaller amplitude than that of the good waveform.

Good waveform



Abnormal waveform



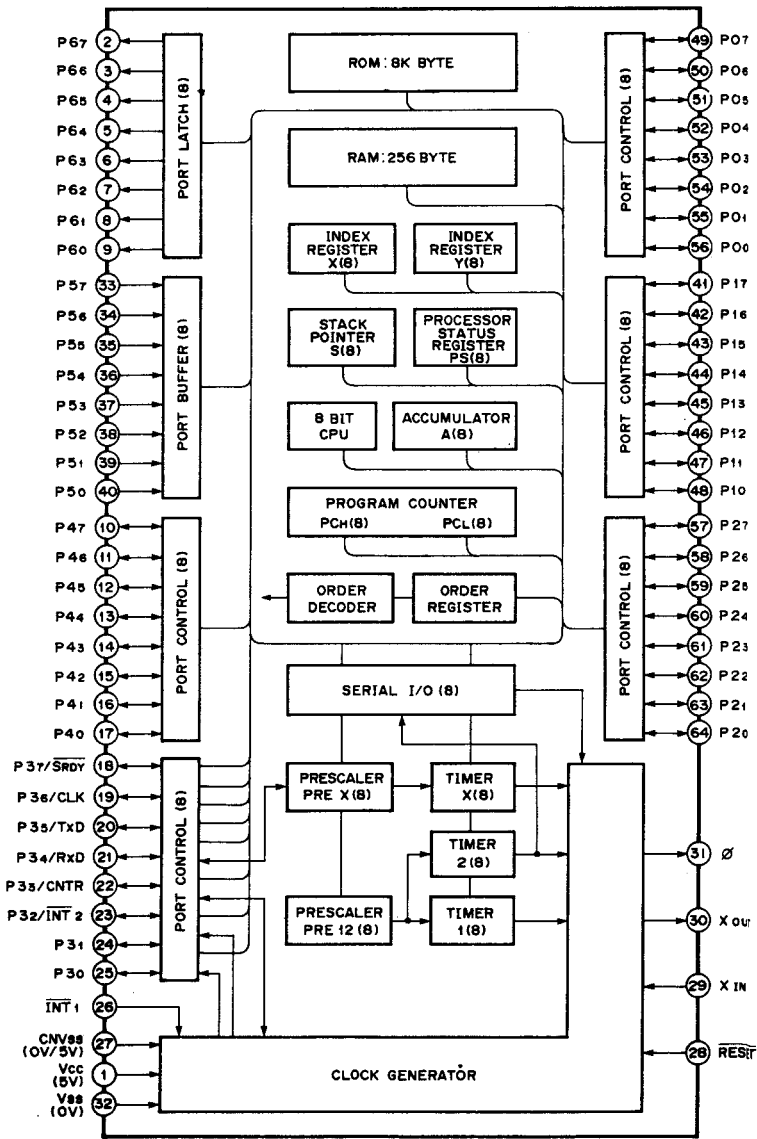
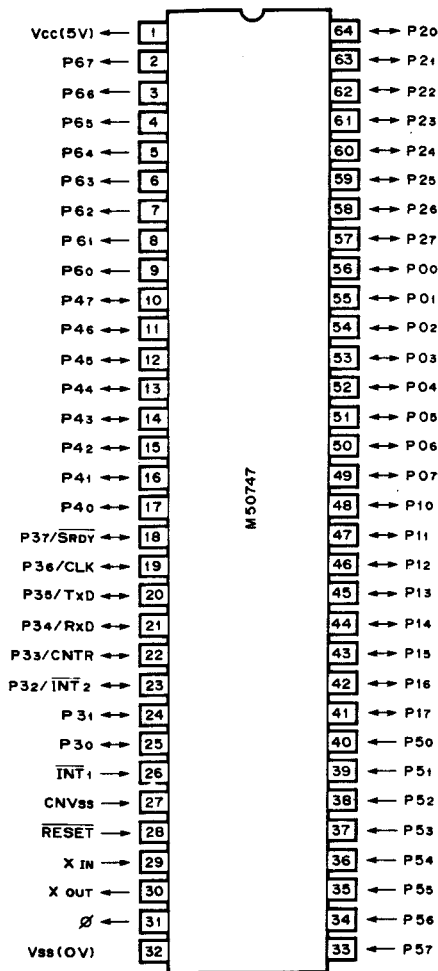
C/ALC/VCD

Confirmation of Skip Search Operation (Step 10)

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

IC DATA

IC401 : M50747
8 bit μ -COM

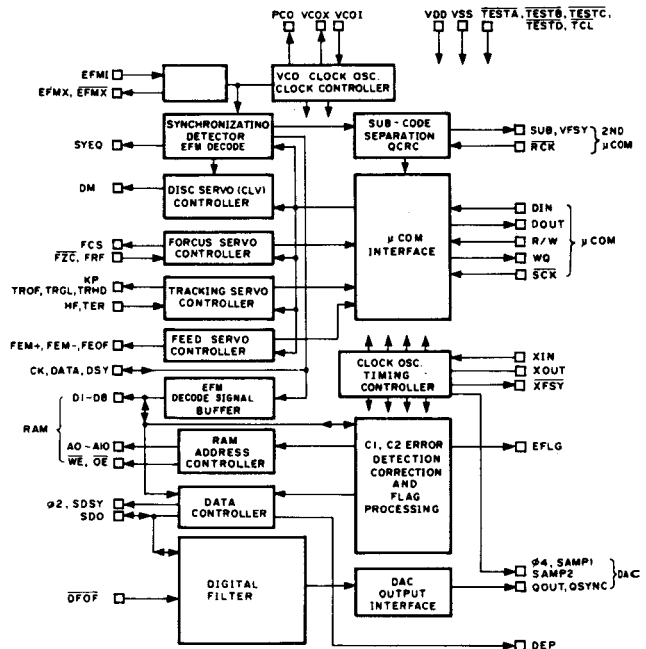
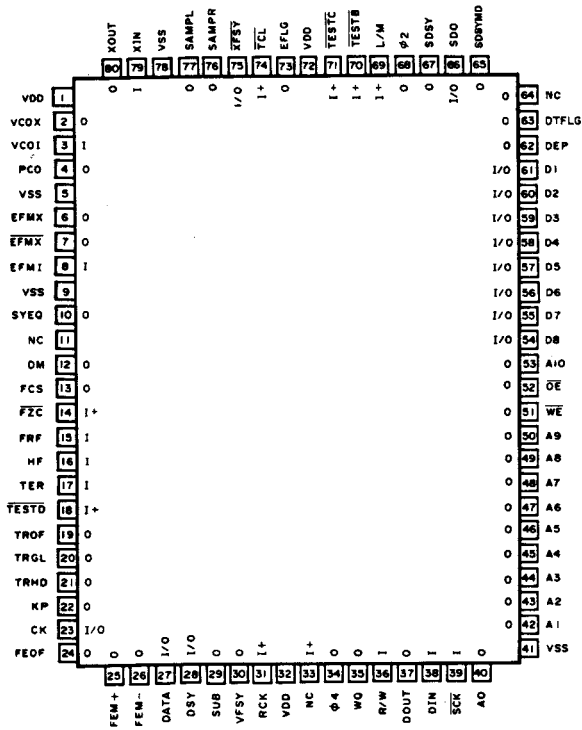


| Pin No. | Pin Name | Description | I/O | Active | Function |
|---------|----------|-------------|-----|--------|----------------------------|
| 1 | Vcc | | | | 5V |
| 2 | P67 (O) | | | | N. C. |
| 3 | P66 (O) | Sg | O | H | FLT segment n |
| 4 | P65 (O) | Sf | O | H | " m |
| 5 | P64 (O) | Se | O | H | " l |
| 6 | P63 (O) | Sd | O | H | " k |
| 7 | P62 (O) | Sc | O | H | " j |
| 8 | P61 (O) | Sb | O | H | " i |
| 9 | P60 (O) | Sa | O | H | " h |
| 10 | P47 | D2 | O | H | Digit line D2 |
| 11 | P46 | D1 | O | H | " D1 |
| 12 | P45 | D0 | O | H | " D0 |
| 13 | P44 | BAK | O | H | Back-up DET |
| 14 | P43 | OPEN | O | H | Open switch |
| 15 | P42 | CLOSE | O | H | Close switch |
| 16 | P41 | LASER | O | H | Laser switch |
| 17 | P40 | PLAY | O | H | PLAY mode output |
| 18 | P37/SRDY | | | | N. C. |
| 19 | P36/CLK | | I/O | | |
| 20 | P35/TXD | SOUT | O | | } SPC Interface |
| 21 | P34/RXD | SIN | I | | |
| 22 | P33/CNTR | R_W | O | | |
| 23 | P32/INT2 | MODE | I | H/L | |
| 24 | P30 | WQ | I | | } SPC Interface |
| 25 | P31 | CLK | O | | |
| 26 | INT1 | | | | N. C. |
| 27 | CNVSS | | | | GND |
| 28 | RESET | | I | | Reset |
| 29 | XIN | | I | | } 8 MHz Clock |
| 30 | XOUT | | O | | |
| 31 | ϕ | | O | | Timing output |
| 32 | VSS | | | | GND |
| 33 | P57 (I) | CD_STOP | I | L | } System input |
| 34 | P56 (I) | CD_PLAY | I | L | |
| 35 | P55 (I) | QUICKRV | I | H | |
| 36 | P54 (I) | RM4 | I | | } Remote control interface |
| 37 | P53 (I) | RM3 | I | | |
| 38 | P52 (I) | RM2 | I | | |
| 39 | P51 (I) | RM1 | I | | |
| 40 | P50 (I) | RM0 | I | | |
| 41 | P17 | K7 | I | | } Key input line |
| 42 | P16 | K6 | I | | |
| 43 | P15 | K5 | I | | |
| 44 | P14 | K4 | I | | |
| 45 | P13 | K3 | I | | |
| 46 | P12 | K2 | I | | |
| 47 | P11 | K1 | I | | |
| 48 | P10 | K0 | I | | |
| 49 | P07 | CLOSESW | O | L | END switch (close) |
| 50 | P06 | OPENSW | O | L | END switch (open) |
| 51 | P05 | Su | O | H | FLT segment u |
| 52 | P04 | St | O | H | " t |
| 53 | P03 | Ss | O | H | " s |
| 54 | P02 | Sr | O | H | " r |
| 55 | P01 | Sg | O | H | " g |
| 56 | P00 | Sp | O | H | " p |
| 57 | P27 | So | O | H | " o |
| 58 | P26 | Sn | O | H | " n |
| 59 | P25 | Sm | O | H | " m |
| 60 | P24 | Sl | O | H | " l |
| 61 | P23 | Sk | O | H | " k |
| 62 | P22 | Sj | O | H | " j |
| 63 | P21 | Si | O | H | " i |
| 64 | P20 | Sh | O | H | " h |

CDX-510/U

IC113 : YM3616 Signal Processor & Controller

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



| Pin No. | Pin Name | I/O | Function |
|---------|----------|-----|--|
| 1 | VDD | | Power Supply |
| 2 | VCOX | O | Clock Playback Circuit 4PCO |
| 3 | VCOI | I | |
| 4 | PCO | O | |
| 5 | VSS | | GND |
| 6 | EFMX | O | EFM Signal External Circuit |
| 7 | EFMX | O | |
| 8 | EFMI | I | |
| 9 | VSS | | GND |
| 10 | SYEQ | O | Synchronized Uniform Signal |
| 11 | N.C. | | Not Use |
| 12 | DM | O | Disc Servo { LOW (0V): FORWARD OPEN (2.5V): STOP HIGH (5V): REVERSE |
| 13 | FCS | O | Focus Servo System Input |
| 14 | FZC | I | |
| 15 | FRF | I | |
| 16 | HF | I | Tracking Servo System Input |
| 17 | TER | I | |
| 19 | TRGF | O | |
| 20 | TRGL | O | |
| 21 | TRHD | O | |
| 22 | KP | O | |

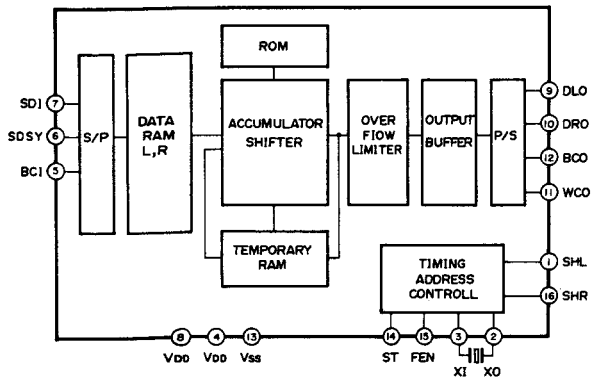
| Pin No. | Pin Name | I/O | Function | |
|---------|----------|-----|--|-------------------------|
| 23 | CK | | EFM Demodulated Signal Check Output (4.3218MHz, clock) | |
| 24 | FEOF | O | Feed Servo System | |
| 25 | FEM+ | O | | |
| 26 | FEM- | O | | |
| 23 | CK | I/O | EFM Demodulated Signal Check Output (4.3218MHz clock) | |
| 27 | DATA | I/O | | |
| 28 | DSY | I/O | | |
| 29 | SUB | O | Sub-code Output | |
| 30 | VFSY | O | | |
| 31 | RCK | I | | |
| 32 | VDD | | Power Supply | |
| 33 | NC | I | Not Use | |
| 34 | φ4 | | 4.3218 MHz Clock | |
| 35 | WQ | O | Q Code Output System | |
| 37 | DOUT | O | | Data Output to μCOM |
| 36 | R/W | I | | Data I/O Control Signal |
| 39 | SCK | I | | Clock for Data I/O |
| 38 | DIN | I | | Data I/O from μCOM |
| 41 | VSS | | GND | |
| 40 | A0 | O | RAM Connections | |
| 42 | A1 | O | | |
| 43 | A2 | O | | |
| 44 | A3 | O | | |
| 45 | A4 | O | | |
| 46 | A5 | O | | |
| 47 | A6 | O | | |
| 48 | A7 | O | | |
| 49 | A8 | O | | |
| 50 | A9 | O | | |
| 51 | WE | O | | |
| 52 | OE | O | | |
| 53 | A10 | O | | |
| 54 | D8 | I O | | |
| 55 | D7 | I O | | |
| 56 | D6 | I O | | |
| 57 | D5 | I O | | |
| 58 | D4 | I O | | |
| 59 | D3 | I O | | |
| 60 | D2 | I O | | |
| 61 | D1 | I O | | |
| 62 | DEP | O | Deemphasis Signal | |
| 63 | DTFLG | O | Data Error Signal | |
| 66 | SDO | O | Digital Data Output | |
| 67 | SDSY | O | LSB first/MSB first | |
| 68 | φ2 | O | 2.1659MHz Clock | |
| 69 | L/M | I | SB first (H)/MSB first (L) Switch for SDO | |
| 71 | TESTC | I | Test Terminal | |
| 64 | NC | O | Not Use | |
| 65 | SDSYMD | O | BB Word Clock for DAC | |
| 76 | SAMPR | O | Digrich Signal | |
| 77 | SAMPL | O | | |
| 34 | φ4 | O | 4.3218MHz Clock | |
| 18 | TESTD | I | Test Terminal | |
| 70 | TESTB | I | | |
| 74 | TCL | I | | |
| 72 | VDD | | Power Supply | |
| 73 | EFLG | O | C1, C2 Error Correction Check Signal | |
| 75 | XFSY | I/O | Synchronized Clock Signal | |
| 78 | VSS | | GND | |
| 79 | XIN | I | Clock Oscillation | |
| 80 | XOUT | O | | |

0/AIC-V00

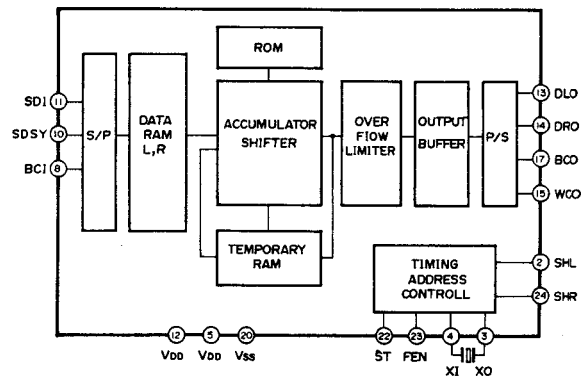
CDX-510/U

IC116 : YM3619 or YM3404
Digital Filter

• YM3404DF



• YM3619DF



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

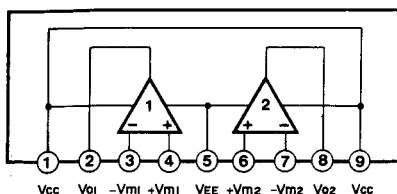
IC102, 103, 105, 106, 108, 110 : AN6551, NJM4558S, TA75558S or BA715

IC101, 107 : NJM2043S

IC109 : NJM2068S or μ PC4570HA

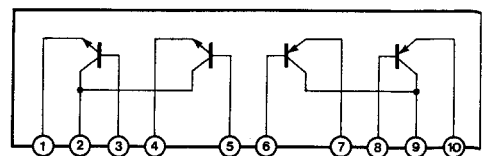
IC117 : NJM4556S

Dual Op-amp.

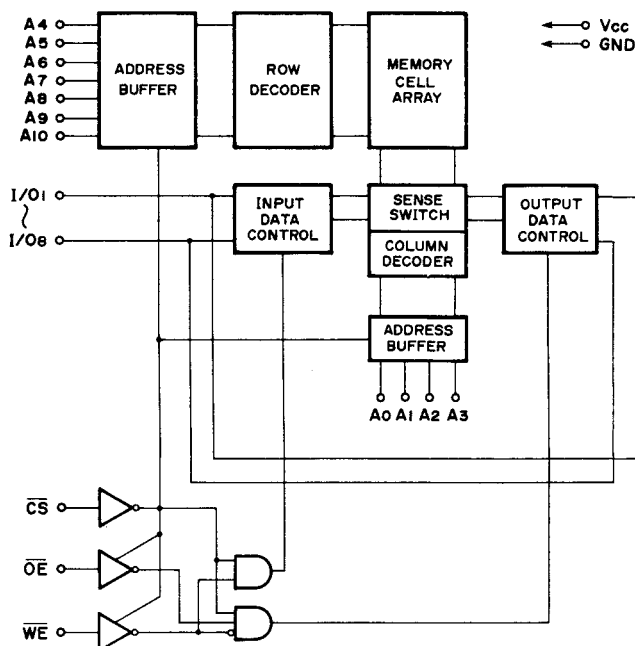
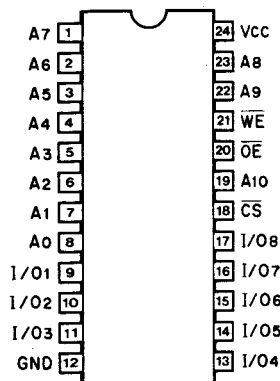


IC104 : STA341M

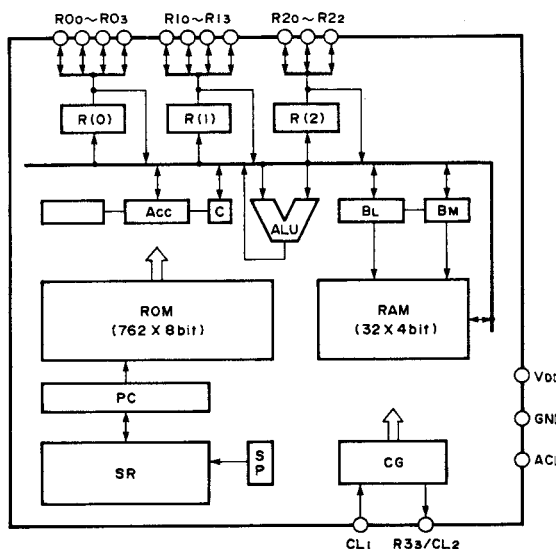
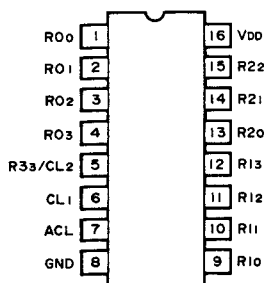
Transistor Array



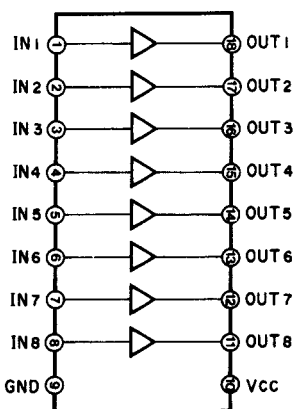
IC114: CXK5816PS, TMM2016BP, TMM2015BP, CXK5816SP, CKX5816PN, LC3517A-15 or μ PD4016-CX
2048-Word x 8 bit Static RAM



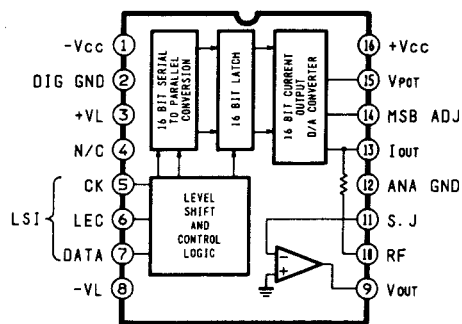
IC405: LU59521
4 bit μ -COM



IC402 ~ 404: M54564P
LED Driver

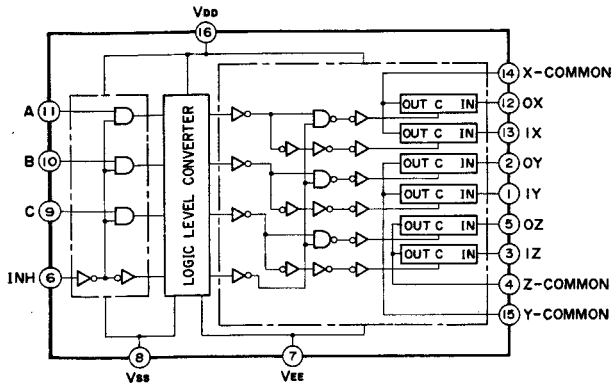


IC115: PCM56L
D/A Converter



CDX-510/U

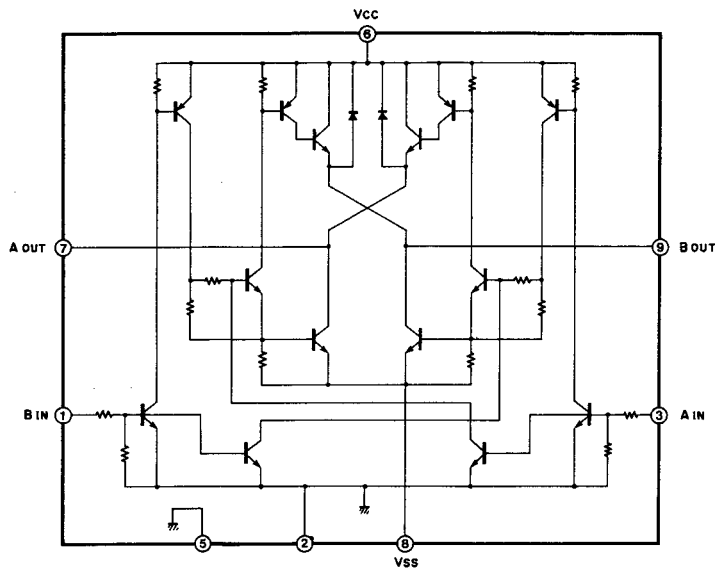
IC111 : TC4053BP or μ PD4053BC
Triple-2 channel Multiplexer/Demultiplexer



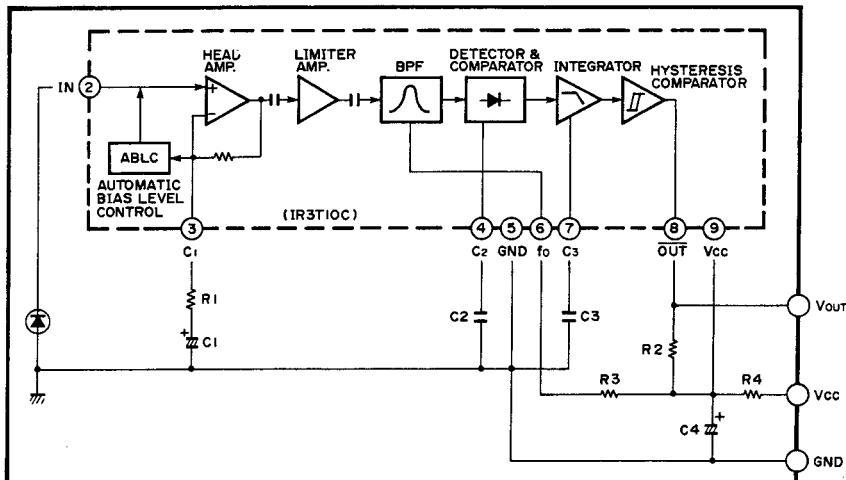
| CONTROL INPUTS | | | | "ON" CHANNEL | |
|-----------------|-----------|------------|------------|-------------------------------------|-------------------------------------|
| INHIBIT (Pin 6) | C (Pin 9) | B (Pin 10) | A (Pin 11) | Ox (Pin 12), Oy (Pin 2), Oz (Pin 5) | Ix (Pin 13), Iy (Pin 1), Iz (Pin 3) |
| L | L | L | L | Ox, Oy, Oz | |
| L | L | L | H | Ix, Oy, Oz | |
| L | L | H | L | Ox, Iy, Oz | |
| L | L | H | H | Ix, Iy, Oz | |
| L | H | L | L | Ox, Oy, Iz | |
| L | H | L | H | Ix, Oy, Iz | |
| L | H | H | L | Ox, Iy, Iz | |
| L | H | H | H | Ix, Iy, Iz | |
| H | * | * | * | NOTE | |

* Don't Care

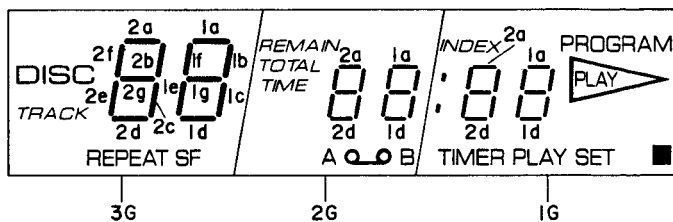
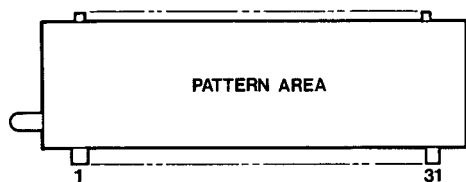
IC112 : BA6218
Motor Driver



U401 : GP1U501
Receiver Unit



■ DISPLAY DATA (V401:FV230)



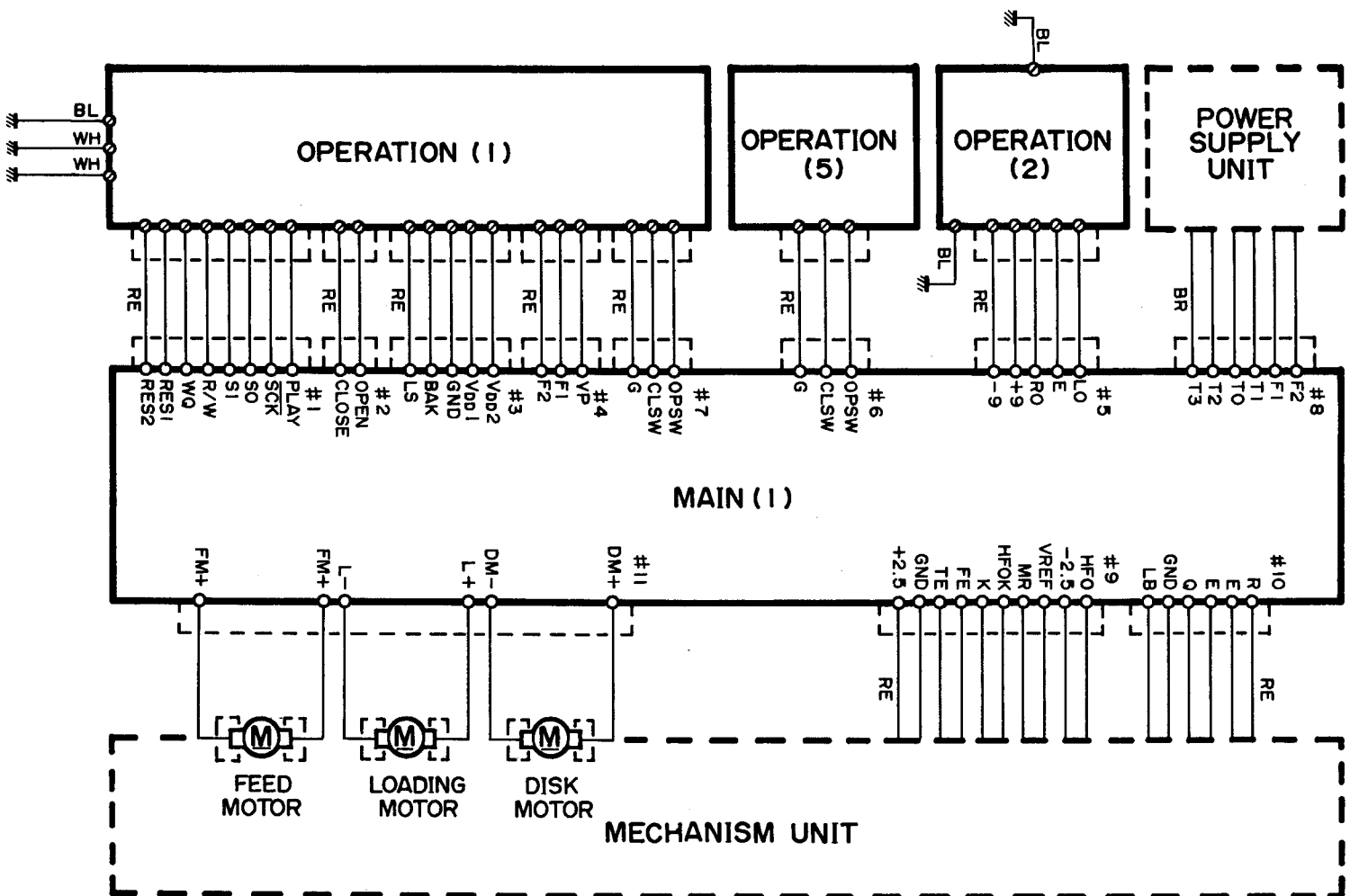
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------|---|---|--------|---|---|---|---|--------|---|----|----|----|----|----|----|--------|----|----|----|----|----|----|----|--------|----|----|----|----|--------|----|----|
| PIN NO. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
| CONNECTION | F | F | N P | o | p | q | h | 3 G | i | m | n | j | l | k | r | 2 G | v | s | t | u | d | e | c | 1 G | g | f | b | a | N P | F | F |

● ANODE CONNECTION

| | 3 G | 2 G | 1 G |
|---|---------|--------|----------------|
| a | 1a | 1a | 1a |
| b | 1b | 1b | 1b |
| c | 1c | 1c | 1c |
| d | 1d | 1d | 1d |
| e | 1e | 1e | 1e |
| f | 1f | 1f | 1f |
| g | 1g | 1g | 1g |
| h | 2a | 2a | 2a |
| i | 2b | 2b | 2b |
| j | 2c | 2c | 2c |
| k | 2d | 2d | 2d |
| l | 2e | 2e | 2e |
| m | 2f | 2f | 2f |
| n | 2g | 2g | 2g |
| o | CHAPTER | REMAIN | PROGRAM |
| p | DISC | TOTAL | INDEX |
| q | TRACK | TIME | col. |
| r | ANT | B | ■ |
| s | F | A↔B | ▶ PLAY |
| t | S | A | RANDOM |
| u | REPEAT | ○ ○ | TIMER PLAY SET |
| v | V | — | — |

CDX-510/U

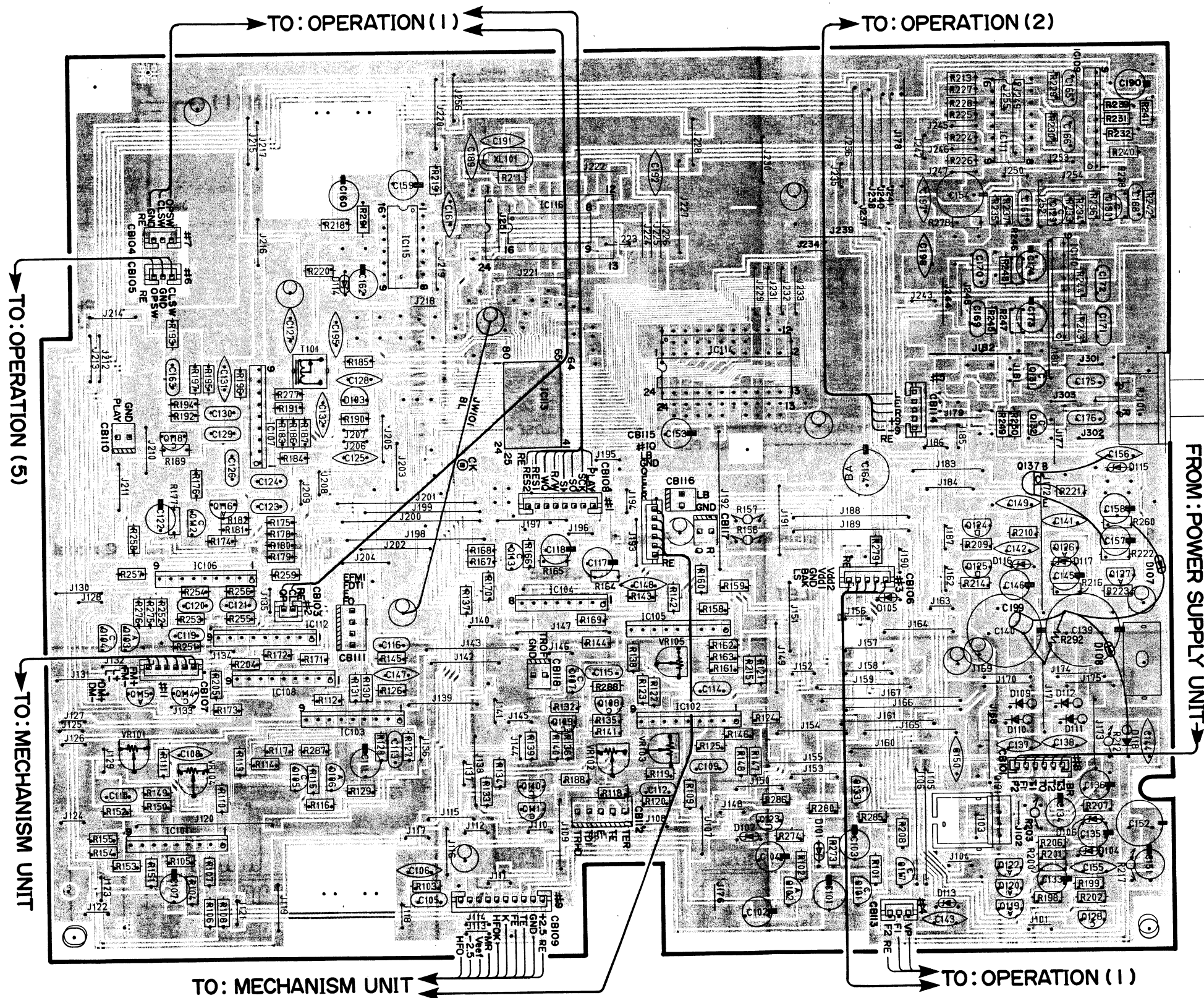
■ WIRING



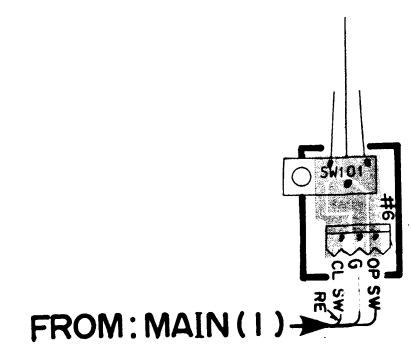
PRINTED CIRCUIT BOARD(Pattern side)

Note) 文字面 : Component side

Main Circuit Board (1)



Operation Circuit Board (5)

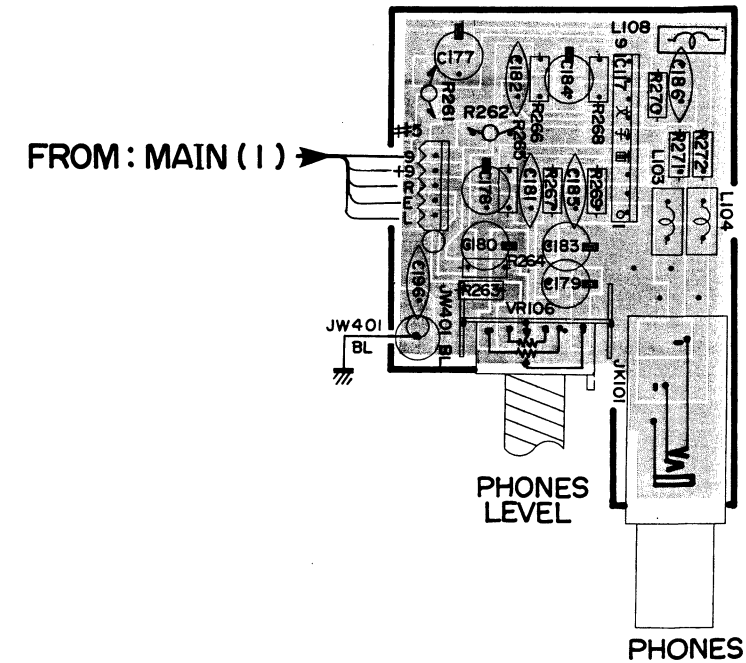
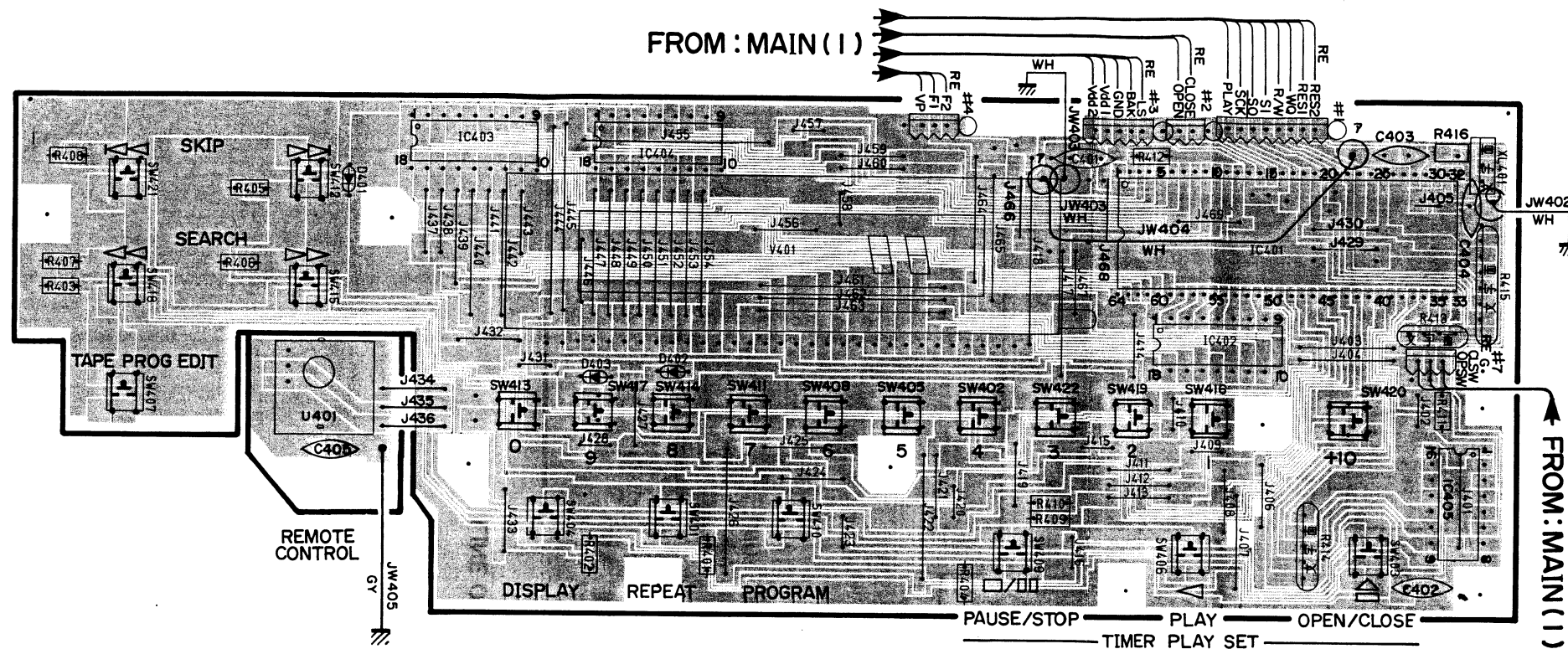


PRINTED CIRCUIT BOARD(Pattern side)

Note) 文字面 : Component side

Operation Circuit Board (1)

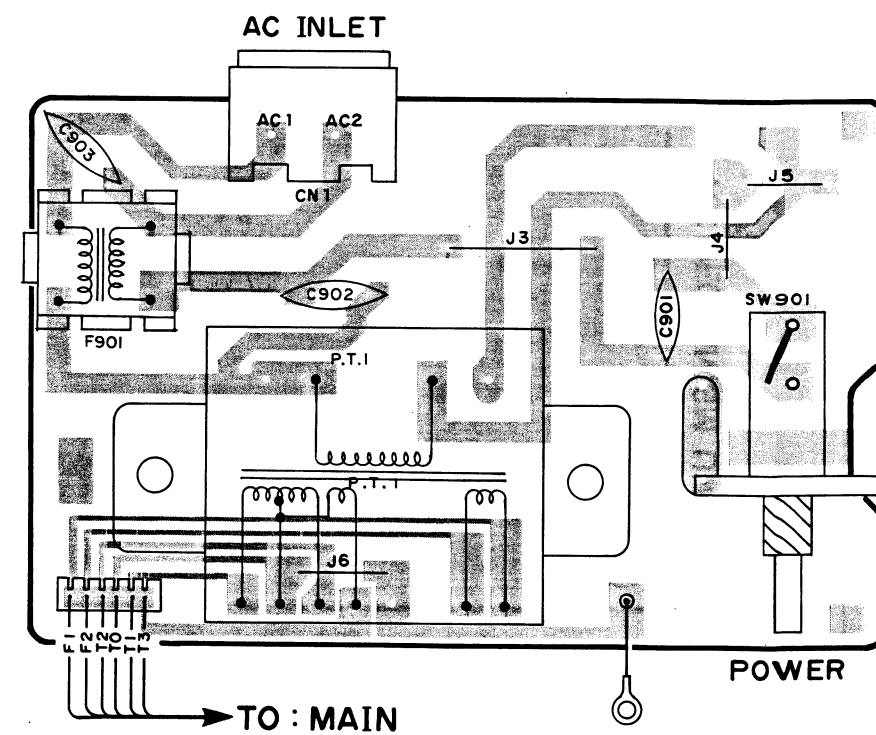
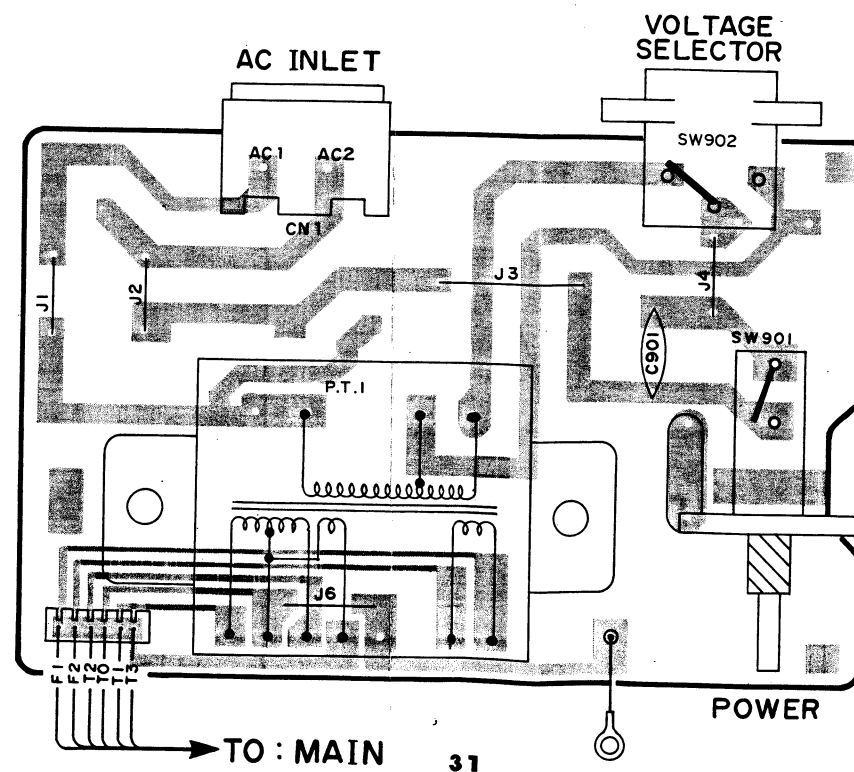
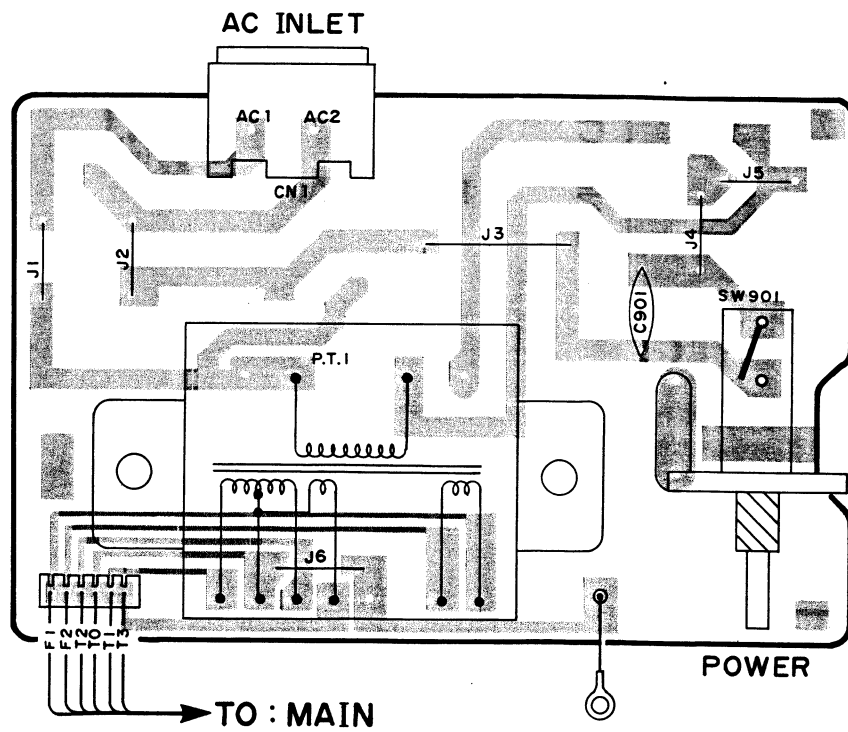
Operation Circuit Board (2)



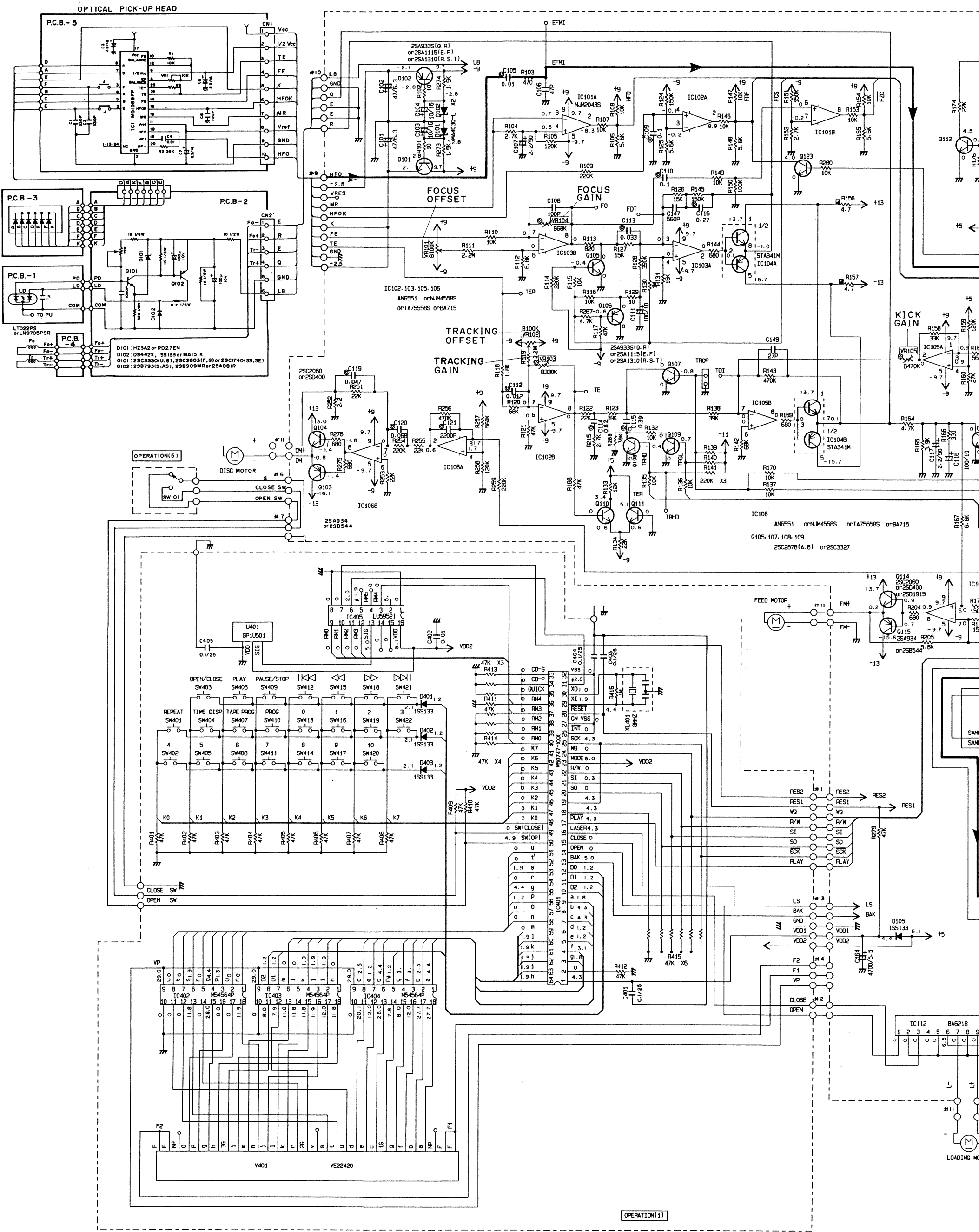
Power Circuit Board U, C, A, B models

Power Circuit Board R model

Power Circuit Board G model



SCHEMATIC DIAGRAM



PIN CONNECTION DIAGRAM OF TRANSISTORS, DIODES AND ICs.

| | | | | | | | | | | |
|--|---|---|-------------------------|--|---------------|----------------|---|----------------|--|---------------|
| <p>2SA933S (Q, R) 2SA1115 (E, F) 2SA1310 (R, S, T) 2SA934 2SB544 2SC1740S (S, R) 2SC2603 (E, F) 2SC3312 (R, S, T) 2SC2060 2SD400</p> | <p>2SC2878 (A, B) 2SC3327 2SD1915</p> | <p>1SS133 1SR35-100AT-93X MTZ5.6B MTZ10A MTZ6.8B MTZ6.2B MTZ3.9B MA4030-L</p> | <p>1SV55 SVC211</p> | <p>AN6551 NJM4558S TA75558S BA715 NJM2043S NJM2068S μPC4570HA NJM4556S</p> | <p>BA6218</p> | <p>STA341M</p> | <p>TC4053BP μPD4053BC PCM56L YM3404 LU59521</p> | <p>M54564P</p> | <p>CXK5816PS TMM2016BP TMM2015BP CXK5816SP CXK5816PN LC3517A-15 LPD4016CX YM3619</p> | <p>M50747</p> |
|--|---|---|-------------------------|--|---------------|----------------|---|----------------|--|---------------|

PARTS LIST

CDX-510/U

■WARNING

Components having special characteristics are marked Δ and must be replaced with parts having specifications equal to those originally installed.

●Carbon resistors (1/6W or 1/4W) are not included in the ELECTRICAL PARTS list. For the parts No. of the carbon resistor, refer to p. 44.

■ELECTRICAL PARTS

| Ref. No. | Part No. | Description | 部 品 名 | Remarks | Common Model | Markets | ランク |
|----------|-------------|-----------------------------|-------------|--|--------------|-------------|-----|
| ※ | NA 09:69:90 | Main Circuit Board | メ イ ン シ ー ト | | | J | |
| ※ | NA 09:70:00 | 〃 | 〃 | | | U,C,R,A,B,G | |
| | FG 21 12 20 | Ceramic Cap. | セ ラ コ ン | C125 | | | |
| | FG 21 12 70 | 〃 | 〃 | C148, 189, 191 | | | |
| | FG 21 13 30 | 〃 | 〃 | C131 | | | |
| | FG 21 14 70 | 〃 | 〃 | C106 | | | |
| | FG 21 21 00 | 〃 | 〃 | C108 | | | |
| | FG 11 25 60 | 〃 | 〃 | C147 | | | |
| | FG 21 31 00 | 〃 | 〃 | C132 | | | |
| | FG 24 41 00 | 〃 | 〃 | C128, 137, 138, 141~144, 149, 155, 156, 197, 198 | | | |
| | FG 24 42 20 | 〃 | 〃 | C192, 195 | | | |
| | FG 24 44 70 | 〃 | 〃 | C127, 161 | | | |
| | FA 15 31 50 | Mylar Cap. | マ イ ラ ー コ ン | C175, 176 | | | |
| | FA 15 32 20 | 〃 | 〃 | C121 | | | |
| | FA 15 32 40 | 〃 | 〃 | C169, 170 | | | |
| | FA 15 33 30 | 〃 | 〃 | C124 | | | |
| | FA 15 33 90 | 〃 | 〃 | C129 | | | |
| | FA 15 41 00 | 〃 | 〃 | C105 | | | |
| | FA 15 41 20 | 〃 | 〃 | C112, 171, 172 | | | |
| | FA 15 41 80 | 〃 | 〃 | C163 | | | |
| | FA 15 43 30 | 〃 | 〃 | C113 | | | |
| | FA 15 44 70 | 〃 | 〃 | C119 | | | |
| | FA 15 46 80 | 〃 | 〃 | C120, 167, 168 | | | |
| | FA 15 51 00 | 〃 | 〃 | C109, 110, 123, 126 | | | |
| | FA 15 52 40 | 〃 | 〃 | C130 | | | |
| | FA 15 52 70 | 〃 | 〃 | C116 | | | |
| | FA 15 53 90 | 〃 | 〃 | C115 | | | |
| | FA 15 58 20 | 〃 | 〃 | C114 | | | |
| | UT 45 26 80 | Polypropylene Film Cap. | ポ リ プ ロ コ ン | C165, 166 | | | |
| | UJ 11 74 70 | Electrolytic Cap. | ケ ミ コ ン | C101, 102 | | | |
| | UJ 11 82 20 | 〃 | 〃 | C162 | | | |
| | UJ 11 84 70 | 〃 | 〃 | C153 | | | |
| | UJ 12 81 00 | 〃 | 〃 | C111, 118, 150 | | | |
| | UJ 12 82 20 | 〃 | 〃 | C157, 159, 160 | | | |
| | UJ 13 71 00 | 〃 | 〃 | C103, 104, 190 | | | |
| | UJ 13 72 20 | 〃 | 〃 | C173, 174 | | | |
| | UJ 13 73 30 | 〃 | 〃 | C145, 146 | | | |
| | UJ 13 81 00 | 〃 | 〃 | C135 | | | |
| | UJ 13 82 20 | 〃 | 〃 | C134, 136 | | | |
| | UJ 15 71 00 | 〃 | 〃 | C151 | | | |
| | Ui 36 56 80 | 〃 | 〃 | C133 | | | |
| | UJ 16 62 20 | 〃 | 〃 | C107, 117, 119 | | | |
| | UJ 16 71 00 | 〃 | 〃 | C122, 158 | | | |
| | UJ 15 84 70 | 〃 | 〃 | C152 | | | |
| | UJ 11 91 00 | 〃 | 〃 | C154 | | | |
| | UJ 14 92 20 | 〃 | 〃 | C139, 140 | | | |
| | VB 17 01 00 | 〃 | バックアップケミコン | C164 | | | |
| | HV 45 34 70 | Flame Proof Carbon Resistor | 不燃化カーボン抵抗 | R156, 157, 203, 212 | | | |
| | HV 45 51 50 | 〃 | 〃 | R217 | | | |
| | VB 86 21 00 | Pre-Set Potentiometer | 半 固 定 抵 抗 | VR103 | | | |
| | VC 61 25 00 | 〃 | 〃 | VR104 | | | |

※New Parts (新規部品) NR

01010-V00

CDX-510/U

| Ref. No. | Part No. | Description | 部 品 名 | Remarks | Common Model | Markets | ランク |
|----------|-------------|-----------------------|----------------|--------------|----------------------------------|--------------------|-------------|
| | VB 86 19 00 | Pre-Set Potentiometer | B100KΩ | 半 固 定 抵 抗 | VR101,102 | | |
| | VB 86 22 00 | // | B470KΩ | // | VR105 | | |
| | iA 09 33 00 | Transistor | 2SA933S(Q,R) | ト ラ ン ジ ス タ | Q102,106,116,119,120,122,127 | } Inter-changeable | |
| | iA 11 15 10 | // | 2SA1115(E,F) | // | // | | |
| | iX 60 31 70 | // | 2SA1310(R,S,T) | // | // | | |
| | iA 09 34 00 | // | 2SA934 | // | Q103,115,126 | } Inter-changeable | |
| | iB 05 44 10 | // | 2SB544 | // | // | | |
| | iC 17 40 00 | // | 2SC1740S(S,R) | // | Q101,110~113,117,118,123,128,133 | } Inter-changeable | |
| | iC 26 03 10 | // | 2SC2603(E,F) | // | // | | |
| | iX 60 31 80 | // | 2SC3312(R,S,T) | // | // | | |
| | iC 20 60 00 | // | 2SC2060 | // | Q104,114,124,125 | } Inter-changeable | |
| | iD 04 00 00 | // | 2SD400 | // | // | | |
| | iX 60 42 00 | // | 2SC2878(A,B) | // | Q105,107~109,129~132 | } Inter-changeable | |
| | iC 33 27 00 | // | 2SC3327 | // | // | | |
| | VC 50 21 00 | // | 2SD1915 | // | // | | |
| | iC 19 83 00 | // | 2SC1983 | // | Q121 | | |
| | iC 28 78 00 | // | 2SC2878 | // | Q137 | | |
| | iF 00 34 50 | Diode | ISS133 | ダ イ オ ー ド | D105,107,108 | | |
| | iH 00 14 30 | // | ISR35-100A | // | D109~112,118 | | |
| | iF 00 62 90 | Zener Diode | MTZ5.6B | ツェナーダイオード | D106,114 | | |
| | iF 01 08 80 | // | MTZ10A | // | D116,117 | | |
| | iF 00 89 10 | // | MTZ6.8B | // | D115 | | |
| | iF 01 07 40 | // | MTZ6.2B | // | D113 | | |
| | iF 01 06 00 | // | MTZ3.9B | // | D104 | | |
| * | VE 50 71 00 | // | MA4030-L | // | D101,102 | | |
| | iG 03 47 00 | IC | AN6551 | I C | IC102,103,105,106,108,110 | } Inter-changeable | |
| | iG 07 68 00 | // | NJM4558S | // | // | | |
| | iG 13 22 00 | // | BA715 | // | // | | |
| | iG 08 02 00 | // | NJM2043S | // | IC101,107 | | |
| | XA 95 60 01 | // | NJM2068S | // | IC109 | | |
| | iG 05 51 00 | // | TC4053BP | // | IC111 | } Inter-changeable | |
| | iG 10 59 00 | // | μPD4053BC | // | // | | |
| | VC 16 07 00 | // | STA341M | // | IC104 | | |
| | iG 15 35 00 | // | BA6218 | // | IC112 | | |
| | iG 11 92 00 | // | μPD4016-CX | // | IC114 | | |
| * | XD 89 80 01 | // | PCM56L | // | IC115 | | |
| | XB 69 80 01 | // | YM3616 | // | IC113 | | |
| | XB 70 00 01 | // | YM3619 | // | IC116 | | |
| | iF 00 49 10 | Varator Diode | 1SV55 | F Mバラクタダイオード | D103 | } Inter-changeable | |
| | iF 00 49 20 | // | SVC211 | // | // | | |
| | GE 90 20 00 | OSC Coil | 3.3μH | 発 振 コ イ ル | T101 | | |
| | VB 97 11 00 | Coil | 20μH | コ イ ル | L101,102 | | U,C,R,A,B,G |
| | VD 47 37 00 | SB Coil | 60μH | S B コ イ ル | L107 | | U,C,R,A,B,G |
| | VC 39 87 00 | Crystal Resonator | 17.28MHz | 水 晶 振 動 子 | XL101 | | |
| * | VF 09 65 00 | Pin Jack | 2P | ピ ン ジャ ッ ク | PJ101 | | |

*New Parts (新規部品) NR

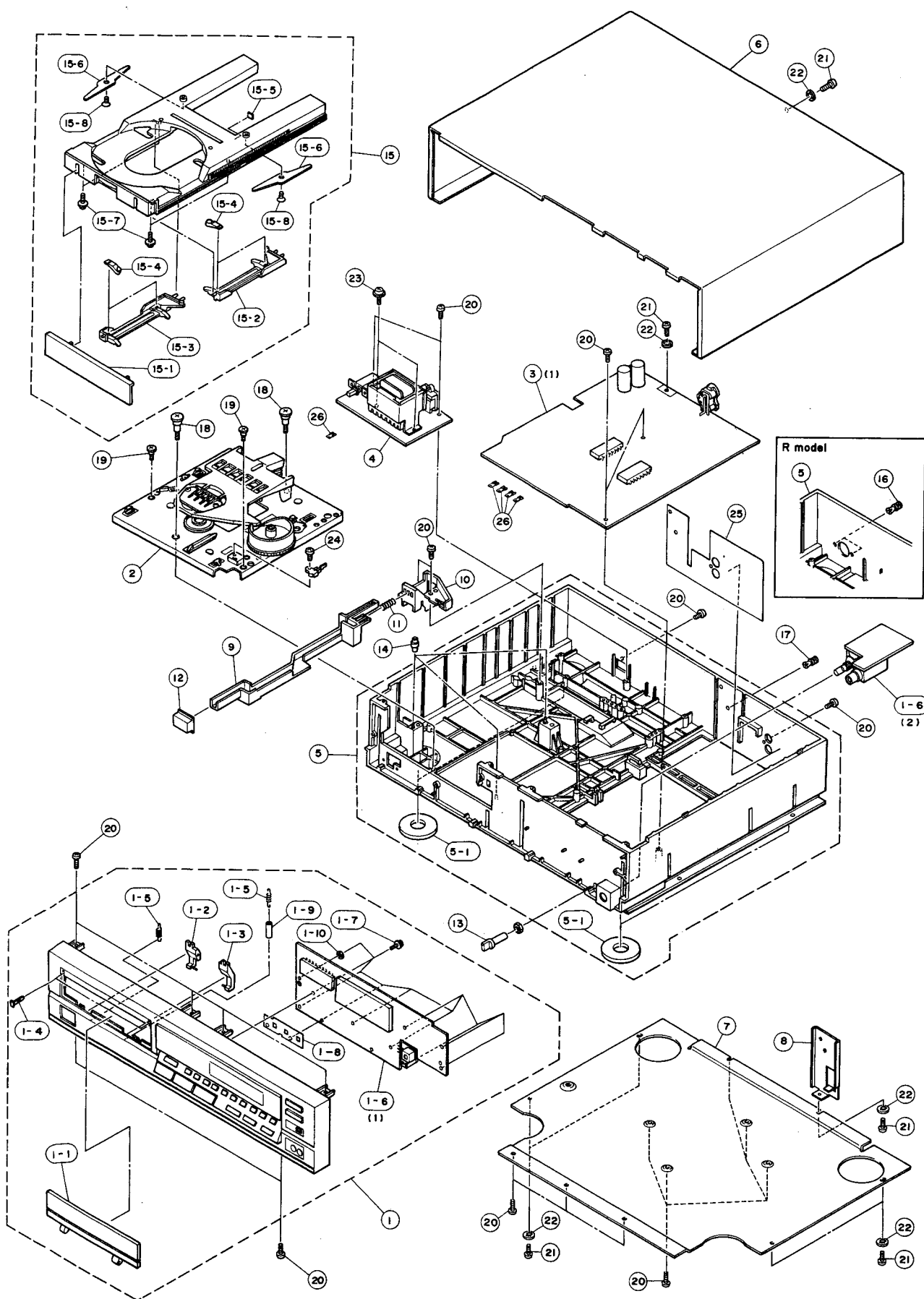
| Ref. No. | Part No. | Description | 部品名 | Remarks | Common Model | Markets | ランク |
|----------|-------------|----------------------------|--------------------------|---------------|--------------|---------|-----|
| | VD 00 45 00 | Base Pin | 2P i-Type P H ベースピン | CB103 | | | |
| | VD 00 46 00 | // | 3P i-Type // | CB104,105,113 | | | |
| | VD 00 48 00 | // | 5P i-Type // | CB106,114 | | | |
| | VD 00 49 00 | // | 6P i-Type // | CB107,115 | | | |
| | VD 00 51 00 | // | 8P i-Type // | CB108 | | | |
| | VD 00 53 00 | // | 10P i-Type // | CB109 | | | |
| | LB 20 13 90 | // | TEB2P-SHF 2.5ピッチベースピン | CB110,116~118 | | | |
| | LB 40 05 70 | // | TEB4P-SHF // | CB111 | | | |
| | LB 50 02 50 | // | TEB5P-SHF // | CB112 | | | |
| | LB 92 50 60 | Short Plug | 6P i-Type i型ショートプラグ | CB101 | | | |
| | LA 00 41 20 | Test Point Pin | IP テストポイントピン | | | | |
| | BB 06 95 10 | Ground Plate | ランド金具 | | | | |
| | BA 08 40 00 | Heat Sinck | 放熱器 | | | | |
| | Ei 33 00 86 | Binding Head Tapping Screw | 3×8 FCRM3-BI バインドタッピングネジ | PACK | | | |
| ※ | NA 09 70 50 | Power Supply Unit | 電源ユニット | | | J | |
| ※ | NA 09 70 60 | // | // | | | U,C | |
| ※ | NA 09 70 70 | // | // | | | R | |
| ※ | NA 09 70 80 | // | // | | | A,B | |
| ※ | NA 09 70 90 | // | // | | | G | |
| ※ | XD 84 60 01 | Power Transformer | 電源トランス | PT1 | | J | △ |
| ※ | XD 84 70 01 | // | // | // | | U,C | △ |
| ※ | XD 84 80 01 | // | // | // | | R | △ |
| ※ | XD 84 90 01 | // | // | // | | A,B,G | △ |
| | VC 09 79 00 | Power Switch | ESB-82102V-F 電源スイッチ | SW901 | | | △ |
| | LA 00 58 10 | Voltage Selector | HXW0206-01-010 電圧切換器 | SW902 | | R | △ |
| | Fi 41 41 00 | Ceramic Cap. | 0.01μF セラコン | C901 | | | △ |
| | Fi 41 41 00 | // | 0.01μF // | C902,903 | | G | △ |
| | VA 77 84 00 | Line Filter | ELF18D 290V ラインフィルタ | F901 | | G | △ |
| ※ | VE 15 80 00 | AC Inlet | M1770-B ACインレット | | | J,U,C | △ |
| ※ | VE 36 74 00 | // | M1779-B // | | | R,A,B,G | △ |

※New Parts (新規部品) NR

| Ref. No. | Part No. | Description | 部品名 | Remarks | Common Model | Markets | ランク |
|----------|-------------|-----------------------------|---------------------|------------------|--------------|---------|-------------|
| ※ | NA 09 69 50 | Operation Circuit Board | オペレーションシート | Black | | | |
| ※ | NA 09 75 40 | // | // | Silver | | | |
| | FG 24 41 00 | Ceramic Cap. | 0.01μF 50V セラコン | C402 | | | |
| | FG 21 14 70 | // | 47pF 50V // | C185,186 | | | |
| | FG 21 22 20 | // | 220pF 50V // | C181,182 | | | |
| | FZ 00 41 30 | Semiconductive Ceramic Cap. | 0.1μF 25V 半導体セラコン | C196,401,403~405 | | | |
| | UJ 13 71 00 | Electrolytic Cap. | 10μF 16V ケミコン | C179,180 | | | |
| | UJ 11 74 70 | // | 47μF 6.3V // | C183,184 | | | |
| | UJ 12 81 00 | // | 100μF 10V // | C177,178 | | | |
| | HV 45 51 20 | Flame Proof Carbon Resistor | 120Ω 1/4W 不燃化カーボン抵抗 | R261,262 | | | |
| ※ | VE 47 83 00 | Resistor Array | 47kΩ×4 抵抗アレイ | R414 | | | |
| ※ | VE 47 84 00 | // | 47kΩ×6 // | R415 | | | |
| ※ | VE 49 05 00 | // | 47kΩ×3 // | R413 | | | |
| | VC 50 93 00 | Rotary Volume | 50kA×2 | ロータリーボリューム | | | VR106 |
| | iF 00 34 50 | Diode | ISS133 | ダイオード | | | D401~403 |
| | XC 25 00 01 | IC | M54564P | I C | | | IC402~404 |
| | iG 07 74 00 | // | NJM4556S | // | | | IC117 |
| | XD 49 10 01 | // | M50747 | // | | | IC401 |
| | XD 49 00 01 | // | LU59521 | // | | | IC405 |
| | KA 90 63 80 | Switch | EVQ-QRB-04M | ライトタッチスイッチ | | | SW401~422 |
| | VB 97 11 00 | Coil | 20μH | コイル | | | L103,104 |
| | VB 47 37 00 | SB Coil | 60μH | S B コイル | | | L108 |
| | KA 90 63 70 | END Switch | MSW-1485 | エンドスイッチ | | | SW101 |
| | VD 85 31 00 | Receiver Unit | GPIU501 | 受光ユニット | | | U401 |
| | LB 30 24 30 | Phone Jack | | ホンジャック | | | JK101 Black |
| | LB 30 24 20 | // | | // | | | // Silver |
| ※ | VE 22 42 00 | Display Unit | FV230 | 蛍光表示管 | | | V401 |
| | VE 22 24 00 | Ceramic Resonator | 8MHz | セラミック振動子 | | | XL401 |
| | VE 82 88 00 | Sheet | | シート | | | |
| | VF 17 78 00 | Sheet, Filter | | シートフィルター | | | |
| ※ | VF 26 13 00 | Sheet | | シートダブルフェイス | | | |

※New Parts (新規部品) NR

EXPLODED VIEW

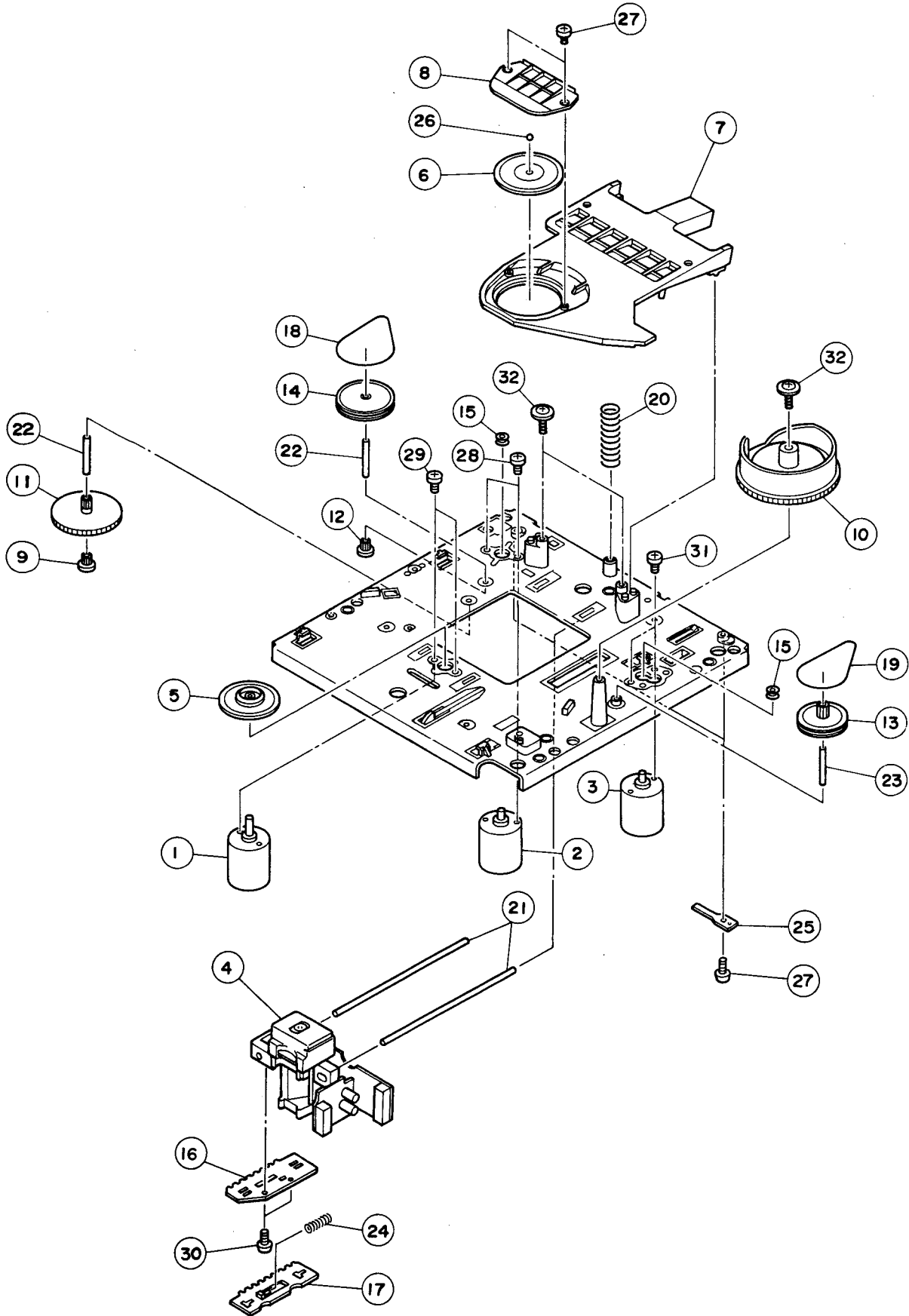


MECHANISM PARTS Note) φ : Diameter

| Ref. No. | Part No. | Description | 部品名 | Remarks | Common Model | Markets | ランク |
|----------|-------------|----------------------------|-------------------|---------------|--------------|-------------|-----|
| ※ 1 | VE 53 46 00 | Panel Unit | パネルユニット | Black | | J,R,A,B,G | |
| ※ // | VE 53 47 00 | // | // | // | | U,C | |
| ※ // | VE 53 48 00 | // | // | Silver | | J,R,A,B,G | |
| ※ // | VE 53 49 00 | // | // | // | | U,C | |
| ※ 1-1 | NX 60 16 20 | Lid Ass'y | リッド Ass'y | Black | | | |
| ※ // | NX 60 16 30 | // | // | Silver | | | |
| 1-2 | VC 50 57 00 | Holder, Lid (L) | ホルダー/リッド (L) | | CLV-1 | | |
| 1-3 | VC 50 58 00 | // (R) | // (R) | | // | | |
| 1-4 | VE 04 16 00 | Pad, Disc | パッド/ディスク | | | | |
| 1-5 | VB 95 80 00 | Spring | スプリング/TE | | | | |
| ※ 1-6 | NA 09 75 40 | Operation Circuit Board | オペレーションシート | Silver | | | |
| ※ // | NA 09 69 50 | // | // | Black | | | |
| 1-7 | EX 60 08 40 | BW Head Tapping Screw | 2×6(φ5.5)FCRM3-BI | BWヘッドタッピングネジ | | | |
| 1-8 | VF 10 34 00 | Sheet | シート | | | | |
| 1-9 | VC 72 50 00 | Tube | チューブ | | | | |
| 1-10 | VF 42 10 00 | Washer | φ10 | ワッシャー | | | |
| ※ 2 | VE 53 56 00 | Disc Mechanism Unit | DM-710A | D M ユニット | | | |
| ※ 3 | NA 09 69 90 | Main Circuit Board | | メインシート | | J | |
| ※ // | NA 09 70 00 | // | | // | | U,C,R,A,B,G | |
| ※ 4 | NA 09 70 50 | Power Unit | | 電源ユニット | | J | |
| ※ // | NA 09 70 60 | // | | // | | U,C | |
| ※ // | NA 09 70 70 | // | | // | | R | |
| ※ // | NA 09 70 80 | // | | // | | A,B | |
| ※ // | NA 09 70 90 | // | | // | | G | |
| ※ 5 | VE 51 81 00 | Main Chassis Ass'y | | メインシャーシ Ass'y | | J,U,C,A,B,G | |
| ※ // | VE 51 82 00 | // | | // | | R | |
| ※ 5-1 | VC 96 54 00 | Pad | | パッド | | | |
| 6 | AA 63 12 00 | Top Cover | | トップカバー | Black | CDX-500 | |
| // | VC 51 68 00 | // | | // | Silver | // | |
| ※ 7 | VE 95 55 00 | Bottom Cover | | ボトムカバー | | | |
| 8 | AA 63 12 30 | Ground Plate | | アース金具 | | CDX-500 | |
| 9 | CB 65 91 40 | Rod | | ロッド/SW | | // | |
| 10 | CB 65 91 50 | Holder | | ホルダー/SW | | | |
| 11 | VB 95 81 00 | Spring | | スプリング/CO | | | |
| ※ 12 | VE 79 23 00 | Button | | ボタン | POWER Black | | |
| ※ // | VE 79 24 00 | // | | // | // Silver | | |
| 13 | CB 65 91 00 | Knob | | ツマミ | PHONES Black | CDX-500 | |
| // | VC 51 70 00 | // | | // | // Silver | // | |
| 14 | VE 30 92 00 | Damper | | ダンパー | | | |
| 15 | VE 20 00 00 | Tray Ass'y | | トレイ Ass'y | | CD-M555 | |
| 15-1 | VE 30 08 00 | Panel | | パネル | | | |
| 15-2 | CB 65 60 10 | Lifter, R2 | | リフター R2 | | | |
| 15-3 | CB 65 60 00 | // , L2 | | // L2 | | | |
| 15-4 | CB 65 60 20 | Disc Pad 2 | | ディスクパッド 2 | | | |
| 15-5 | CB 62 79 60 | Cushion Rubber | | クッションゴム | | | |
| 15-6 | AA 63 08 30 | Spring, Lifter | | スプリングリフター | | | |
| 15-7 | EX 60 02 40 | BW Head Tapping Screw | 3×8(φ10)FCRM3-BI | BWヘッドタッピングネジ | | | |
| 15-8 | EO 33 00 86 | Flat Head Tapping Screw | 3×8 FCRM3-BI | 皿タッピングネジ | PACK | | |
| 16 | CB 65 77 50 | Plastic Rivet | | プラスチックリベット | | R | |
| 17 | CB 06 88 80 | // | | // | | | |
| 18 | NB 63 83 90 | Special Screw Ass'y | | 段付ネジ Ass'y | | | |
| 19 | VC 32 03 00 | Special Screw | | 段付ネジ | | | |
| 20 | Ei 33 01 06 | Binding Head Tapping Screw | 3×10 FCRM3-BI | バインドタッピングネジ | PACK | | |

※New Parts (新規部品) NR

■EXPLODED VIEW (DM-710A)



MECHANISM PARTS (DM-710A)

Note) φ : Diameter

| Ref. No. | Part No. | Description | 部 品 名 | Remarks | Common Model | Markets | ランク |
|----------|----------------|----------------------------|----------------|--------------|--------------|---------|-----|
| ※ | VE 53 56 00 | Disc Mechanism Unit | DM-710A | D M ユ ニ ッ ト | | | |
| ※ | 1 VE 35 62 00 | Motor | | モ ー タ ー | DISC | DM-710 | |
| ※ | 2 VE 35 61 00 | // | | // | FEED | // | |
| ※ | 3 VE 35 63 00 | // | | // | LOADING | // | |
| ※ | 4 VE 18 84 00 | Optical Pick Up Head | | 光ピックアップヘッド | | // | |
| | 5 NB 62 99 70 | Turntable Unit | | ターンテーブルユニット2 | | | |
| | 6 CB 64 24 00 | Stabilizer | | スタビライザー2 | | | |
| ※ | 7 VF 19 39 00 | Flapper | | フ ラ ッ パ ー | | | |
| | 8 CB 65 55 40 | Thrust Bearing | | スラストベアリング2 | | | |
| | 9 CB 65 55 50 | Pinion Gear | | ピニオンギア2 | | | |
| | 10 CB 65 55 60 | Loading Cam | | ローディングカム2 | | | |
| ※ | 11 VE 02 29 00 | Gear, Drive | | ギヤー/ドライブ | | DM-710 | |
| ※ | 12 VE 02 28 00 | Gear, Pulley | | ギヤー/プーリー | | // | |
| ※ | 13 VE 98 00 00 | Idle, Pulley | | アイドルプーリー | | | |
| ※ | 14 VE 02 30 00 | Pulley, Feed | | プーリー/フィード | | DM-710 | |
| | 15 CB 65 85 10 | P. Pulley | | P プ ー リ ー | | | |
| ※ | 16 VE 02 25 00 | Rack, Gear A | | ラック/ギヤーA | | DM-710 | |
| ※ | 17 VE 02 26 00 | Rack, Gear B | | ラック/ギヤーB | | // | |
| ※ | 18 VE 02 34 00 | Belt, Feed | | ベルト/フィード | | // | |
| ※ | 19 VE 80 18 00 | Belt, Loading | | ベルト/ローディング | | // | |
| ※ | 20 VE 64 78 00 | Spring | | スプリング/フラッパ | | | |
| ※ | 21 VE 02 31 00 | Shaft, PU710 | | シャフト/PU710 | | DM-710 | |
| ※ | 22 VE 02 33 00 | Shaft, Drive Gear | | シャフト/ドライブギヤー | | // | |
| | 23 AA 61 93 30 | Shaft (S) | | シャフト(S) | | | |
| ※ | 24 VE 17 93 00 | Spring | | スプリング/ラック710 | | | |
| | 25 VD 73 24 00 | // | | スプリング/BE | | | |
| | 26 VD 93 87 00 | Roler, SP | φ2.5 | ロ ー ラ ー S P | | | |
| | 27 Ei 32 60 56 | Binding Head Tapping Screw | 2.6×5 FCRM3-BI | バインドタッピングネジ | PACK | | |
| | 28 ED 32 00 56 | Bindind Head Screw | 2×5 ZMC2-BI | バインド小ネジ | PACK | | |
| | 29 ED 32 00 46 | // | 2×4 ZMC2-BI | // | PACK | | |
| | 30 ED 32 60 66 | // | 2.6×6 FCRM3-BI | // | PACK | | |
| | 31 ED 33 00 66 | // | 3×6 FCRM3-BI | // | PACK | | |
| | 32 EK 33 00 10 | BW Head Tapping Screw | 3×12 FCRM3-BI | BWヘッドタッピングネジ | | | |

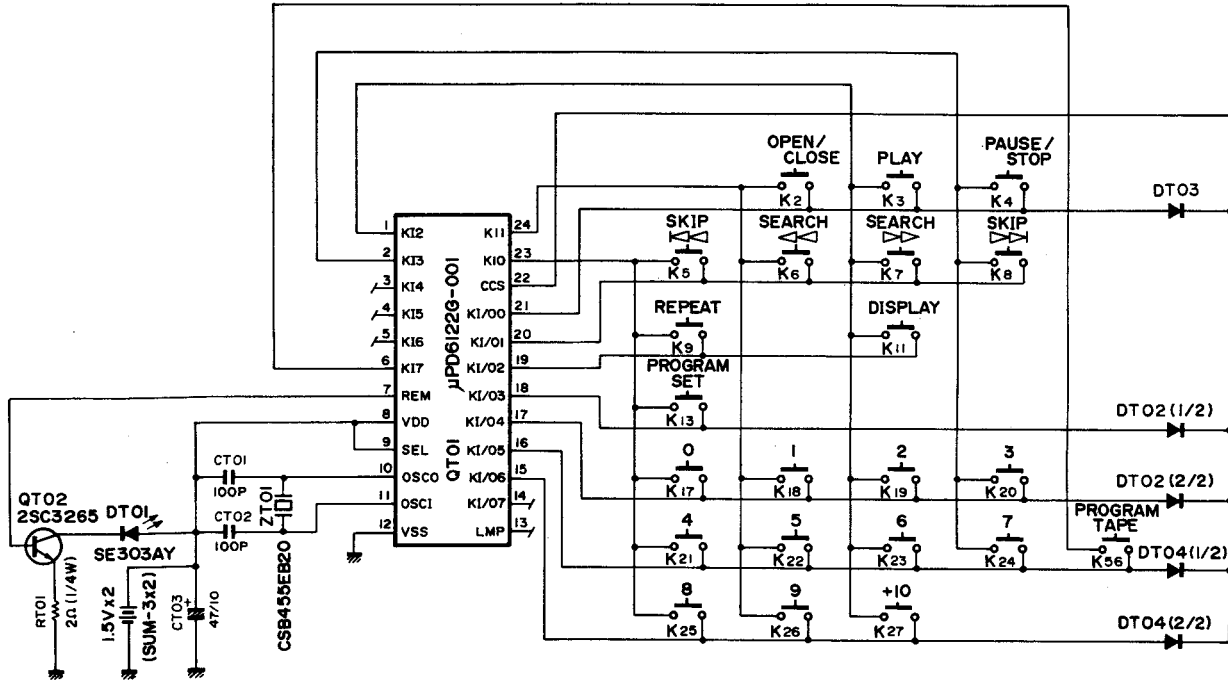
※New Parts (新規部品) NR

CDX-510/U

CDX-510/U

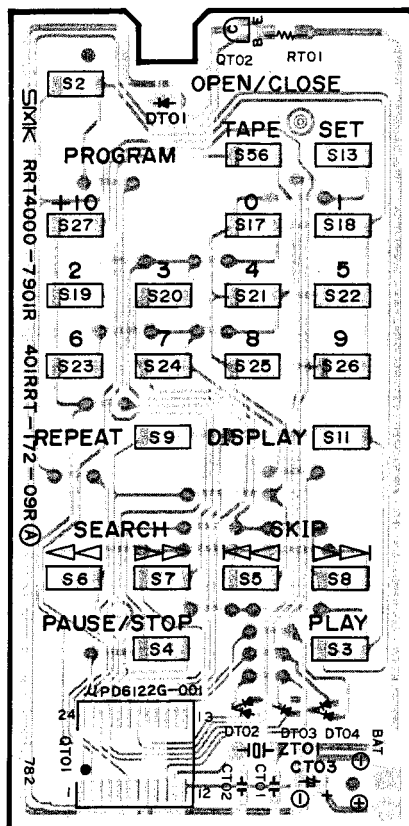
RS-CDX510 REMOTE CONTROL TRANSMITTER

SCHEMATIC DIAGRAM



DT02~04: ISS184

PRINTED CIRCUIT BOARD

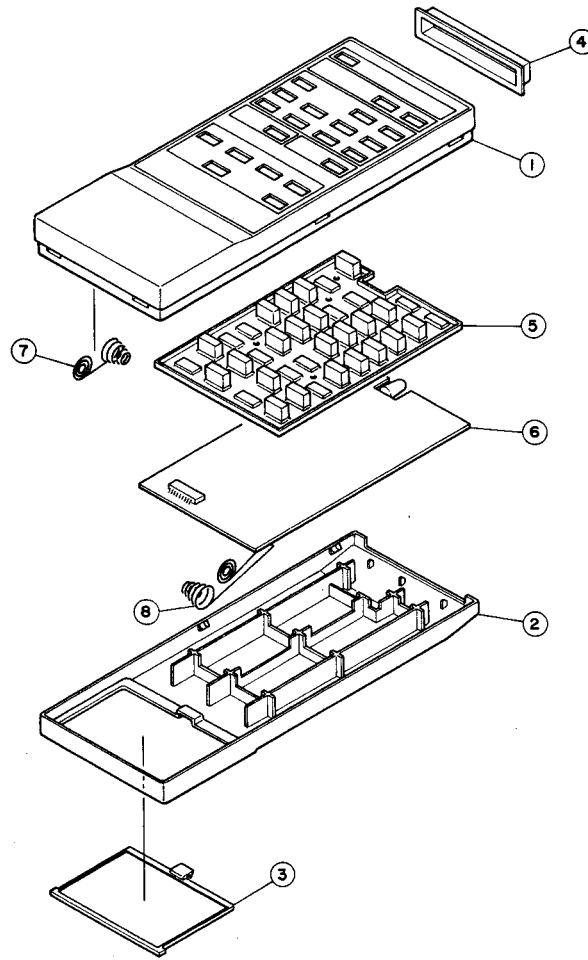


1 EXPLODED VIEW (RS-CDX510)

2

3

4



| Ref. No. | Part No. | Description | 部品名 | Remarks | Common Model | Markets | ランク |
|----------|----------------|----------------------------|--------------|---------------------|--------------|-------------------|-----|
| ※ | VE 54 00 00 | Remote Control Transmitter | RS-CDX510 | リモートコントロールトランスミッター | Black | | |
| ※ | VE 54 02 00 | " | " | " | Silver | | |
| ※ | 1 CX 60 30 40 | Case A | | ケース A | Black | I02RRT-120-12R | |
| ※ | // CX 60 30 50 | " | | " | Silver | I02RRT-120-13R | |
| ※ | 2 CX 60 30 60 | Case B | | ケース B | Black | I02RRT-121-01R | |
| ※ | // CX 60 30 70 | " | | " | Silver | I02RRT-121-04R | |
| ※ | 3 CX 60 30 80 | Cover | | カバー | Black | I03RRT-026-01R | |
| ※ | // CX 60 30 90 | " | | " | Silver | I03RRT-026-23R | |
| ※ | 4 CX 60 31 00 | Filter | | フィルター | | 811RRT-020-01R | |
| ※ | 5 CX 60 31 10 | Rubber, Contact | | 導電ゴムシート | | 421RRT-081-32R | |
| ※ | 6 NX 60 16 40 | P.C. Board Ass'y | | プリント基板 Ass'y | | 401RRT-172-09R | |
| ※ | 7 LX 60 10 80 | Terminal A | | ターミナル A | | 411RRT-068-01R | |
| ※ | 8 LX 60 10 90 | Terminal B | | ターミナル B | | 411RRT-069-01R | |
| | | P.C.Board Ass'y | | プリント基板 Ass'y | | | |
| ※ | iX 61 16 30 | IC | μPD6122G-001 | IC | QT01 | Z-Y0291-96122#01 | |
| ※ | iX 61 16 40 | Transistor | 2SC3265(O) | トランジスタ | QT02 | Z-R0310-03265#01 | |
| ※ | iX 60 34 70 | LED | SE303A(Y) | 赤外線LED | DT01 | Z-S0280-20303 | |
| | FG 21 21 00 | Ceramic Cap | 100pF 50V | セラコン | CT01,02 | Z-V30CJ101JJ-B#01 | |
| | UJ 12 74 70 | Electrolytic Cap | 47μF 10V | ケミコン | CT03 | Z-V27AB470CHW01 | |
| | QX 60 00 20 | Ceramic Resonator | CSB455EB20 | セラミック発振子 | ZT01 | E-R20006-001 | |
| | HX 60 14 00 | Carbon Resistor | 2Ω 1/4W | カーボン抵抗 | RT01 | Z-W30AA-2R0DJ#01 | |
| | iX 61 16 50 | Diode | ISS184 | ダイオード | DT02~04 | Z-T0300-30184 | |

※New Parts (新規部品) NR

Parts List for Carbon Resistor

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

1/4W Type

HJ35○○○○

10mm

1/6W Type

HF85○○○○

5mm