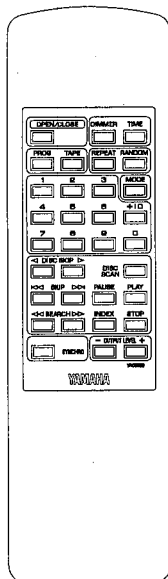
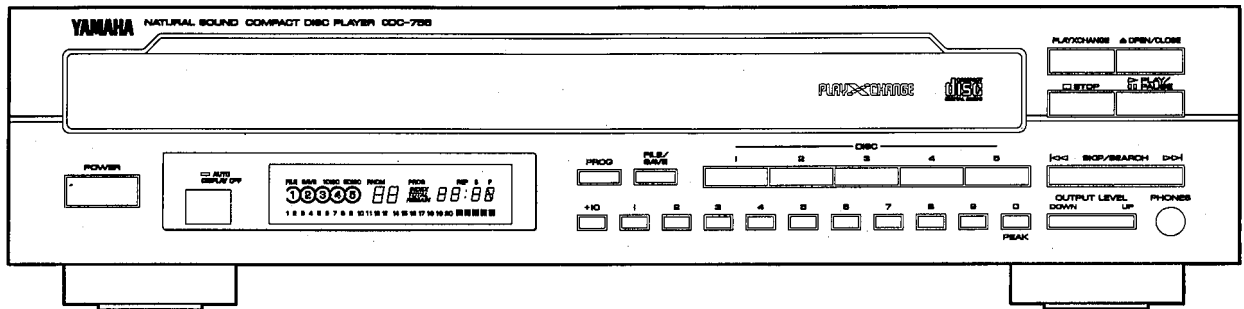


# COMPACT DISC PLAYER CDC-755

## 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 any 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 part replacement. Recheck all work before you apply power to the unit.

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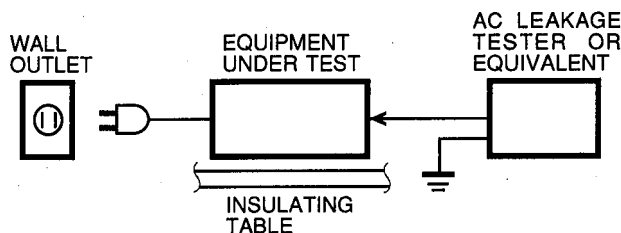
100507

**YAMAHA**  
YAMAHA CORPORATION  
P.O. Box 1, Hamamatsu, Japan

1.9K-833 Printed in Japan '95.2

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



**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.

### PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs a laser. Therefore, be sure to carefully follow the instructions below when servicing .

1. Laser Diode Properties
  - Material : GaAlAs
  - Wavelength : 780 nm
  - Emission Duration : Continuous
  - Laser Output : max. 44.6  $\mu$ W\*
2. When checking the laser diode emission, keep your eyes more than 30 cm away from the objective lens.

\* This output is the value measured at a distance of about 200 mm from the objective lens surface on the Optical Pick-up Block.

## 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.

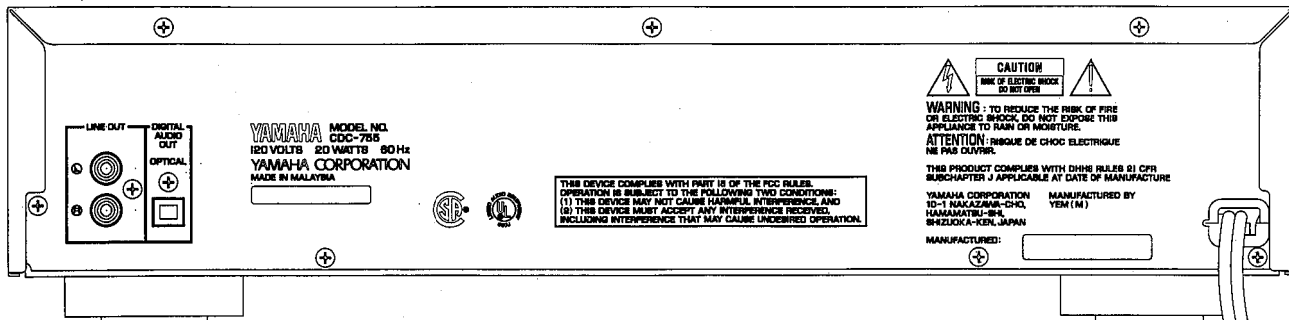
**DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHATSOEVER!**

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

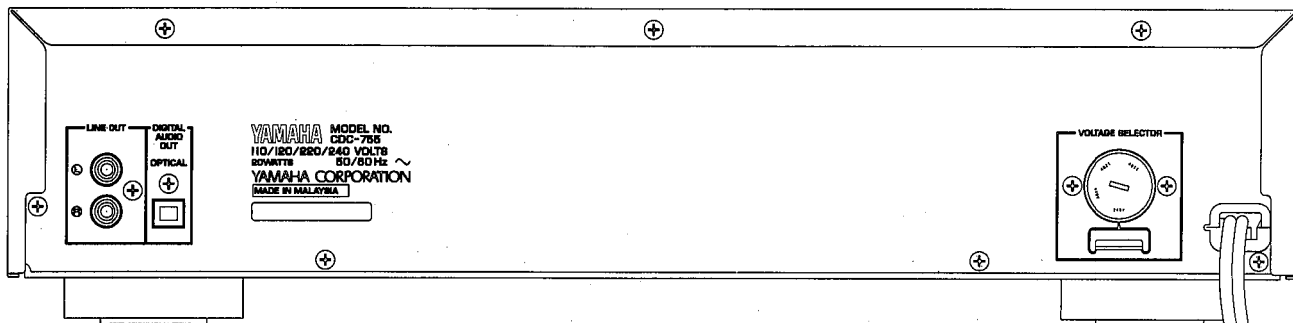
If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.

## REAR PANELS

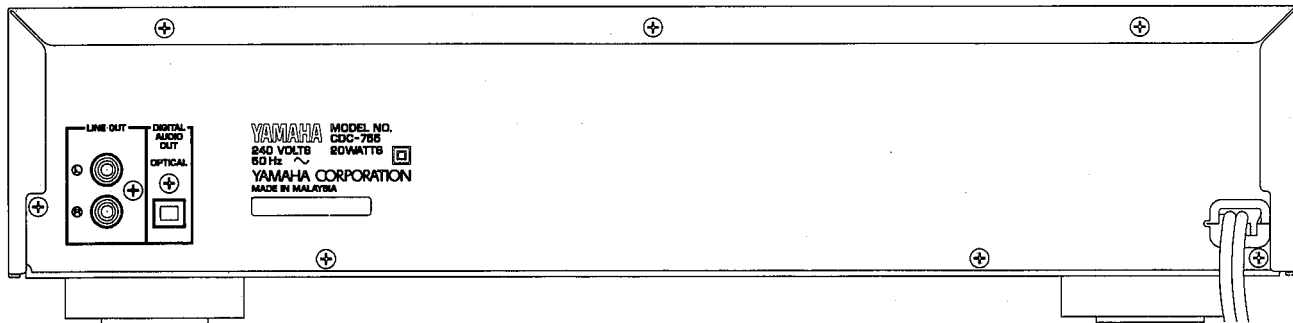
### U, C models



### R model



### A model



#### CAUTION FOR TRANSPORTING THIS UNIT

When transporting this unit, first remove all discs from the disc tray and close the tray by pressing the **OPEN/CLOSE** button, and then switch off the power after you confirm that the display has turned as follows.



Never switch off the power if the display does not turn as above, otherwise the unit will get out of order during transport because the internal mechanism is not locked.

## ■ SPECIFICATIONS

### ■ AUDIO SECTION

|                               |                            |
|-------------------------------|----------------------------|
| Frequency Response            | 2Hz~20kHz±0. 5dB           |
| Harmonic Distortion+Noise     | Less than 0. 0025%, (1kHz) |
| S/N Ratio                     | 115dB                      |
| Dynamic Range                 | 100dB                      |
| Wow & Flutter                 | Unmeasurable               |
| Output Voltage(1kHz, 0dB)     | 2. 0V                      |
| Headphone Output(1kHz, -20dB) | 200mV/150Ω                 |

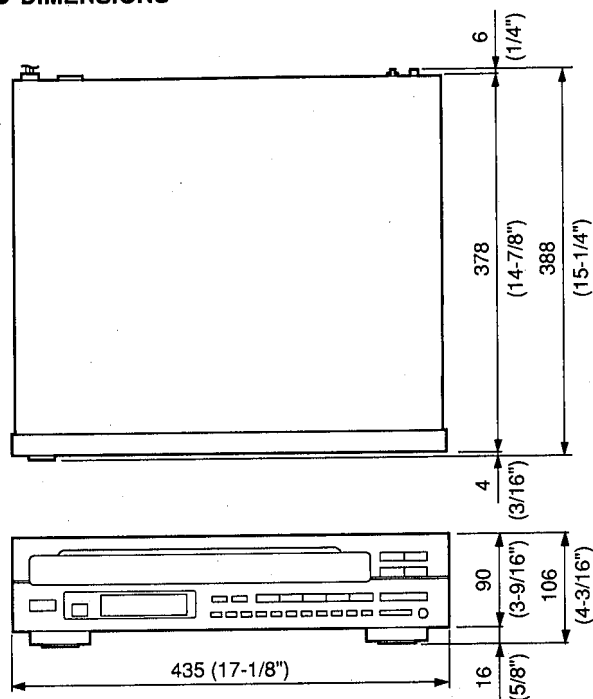
### ■ GENERAL

|   |                             |
|---|-----------------------------|
| <b>Power Requirements</b>   |                             |
| U, C models   | 120V AC 60Hz                |
| A model   | 240V AC 50Hz                |
| R model   | 110/120/220/240V AC 50/60Hz |
| <b>Power Consumption</b> 20W  |                             |
| <b>Dimensions (W x H x D)</b> 435 x 106 x 388 mm<br>(17-1/8" x 4-3/16" x 15-1/4")               |                             |
| <b>Weight</b> 5. 6kg (12 lbs 5 oz)  |                             |
| <b>Accessories</b> Pin plug cord<br>Remote control transmitter<br>Dry-cell: x2 (Size "AA", R06) |                             |

\* Specifications subject to change without notice.

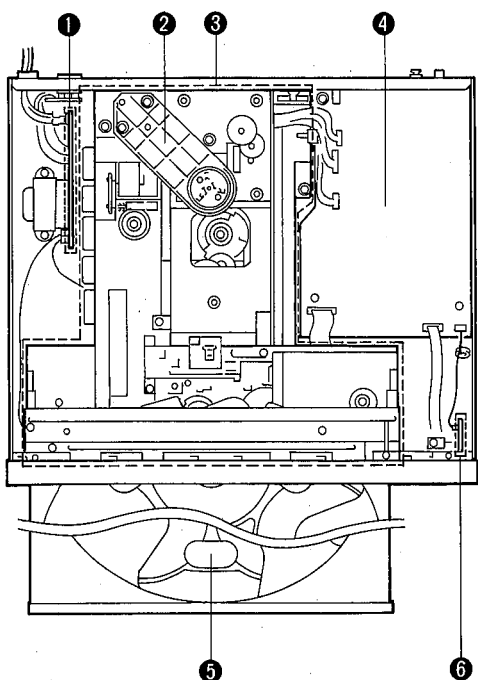
- U ..... USA model
- C ..... Canadian model
- A ..... Australian model
- R ..... General model

### ● DIMENSIONS



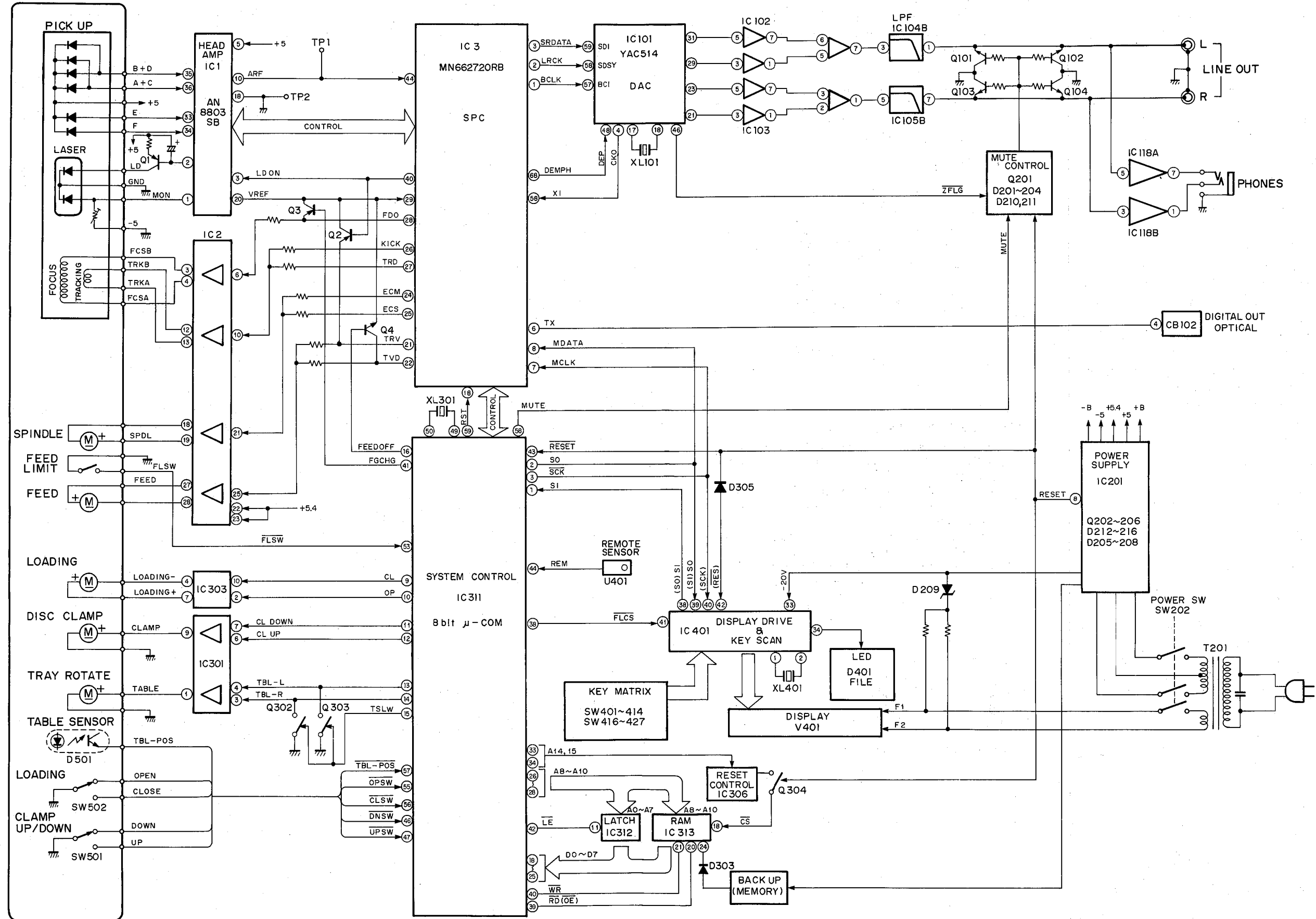
Unit : mm (inch)

## ■ INTERNAL VIEW



- ① P. C. B. MAIN (4)
- ② CLAMP ASS'Y
- ③ CM-100 UNIT
- ④ P. C. B. MAIN (1)
- ⑤ TRAY ASS'Y
- ⑥ P. C. B. MAIN (7)

■ BLOCK DIAGRAM



## DISASSEMBLY PROCEDURES

(Remove parts in the order as numbered.)

### 1. Removal of Top Cover

- Remove 4 screws (1) and also 3 screws (2) as shown in Fig. 1.

### 2. Removal of Clamp Ass'y

- Remove 2 screws (3) as shown in Fig. 1.

### 3. Removal of Front Panel Unit

- Remove 5 screws (4) and also 1 screw (5) as shown in Fig. 1.
- Remove connectors (#101, #203, #302) from the P. C. B. Main.
- Take off the Front Panel Unit slowly as shown in Fig. 1.

### 4. Removal of Tray Ass'y

- Remove 1 screw (6) as shown in Fig. 1.
- Turn Gear/L02 as shown in Fig. 2 counter clockwise gradually till immediately before the tray starts to move and stop it there.

**CAUTION** : Gear/L02, if turned counter clockwise continuously, will mesh with the gear of the tray and the tray will come out. When removing the tray, use care so that Gear/L02 will not mesh with the gear of the tray.

- Pull out the Tray Ass'y.

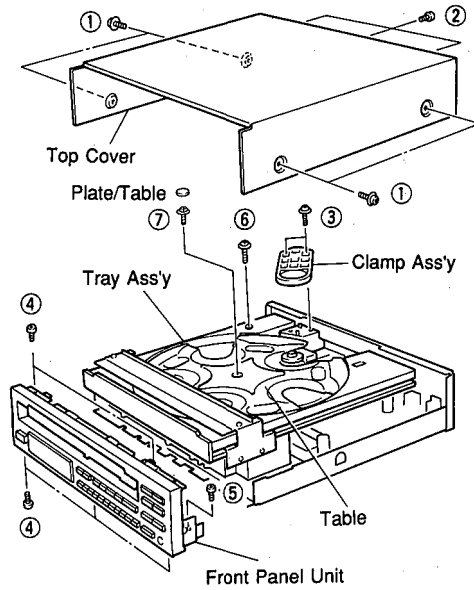


Fig. 1

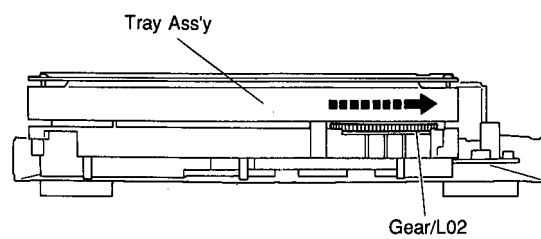


Fig. 2

### 5. Removal of Table

- Remove the Plate/Table as shown in Fig. 1.
- Remove 1 screw (7) and then take off the Table as shown in Fig. 1.

**● Precaution for installation of the Tray Ass'y.**  
On Tray Ass'y setting. Check the Direction of marking "▲" on gear according to this drawing.

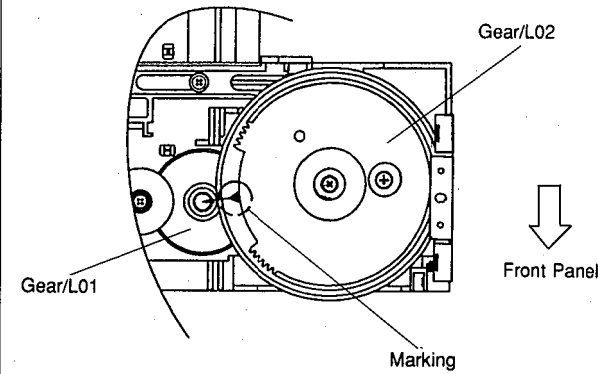


Fig. A

### IMPORTANT : Installation of Table.

Install the table according to the following procedure.

- Slide the Lever/RT so that the Gear/RT1 becomes free. (Fig.B-1)
- With the "▲" mark on the Gear/RT1 aligned with the same mark on the Tray, lock it with the Lever/RT. (Fig.B-1)
- Install the Table by aligning it to the thick line on "▲" mark. (Fig.B-2)

\*Check that the Table is locked after installation.

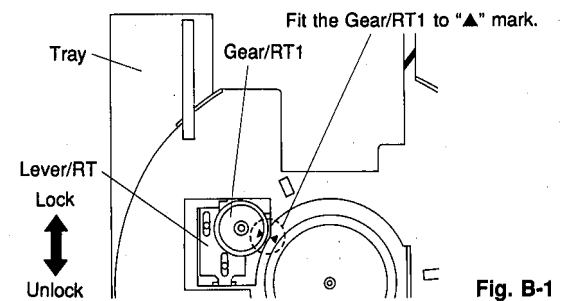


Fig. B-1

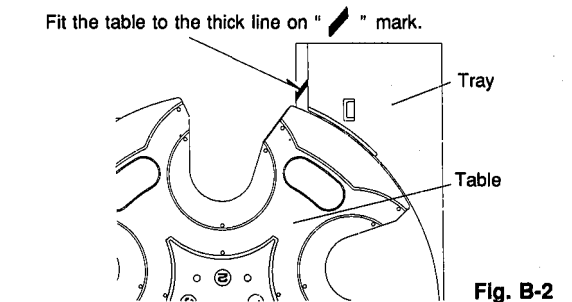
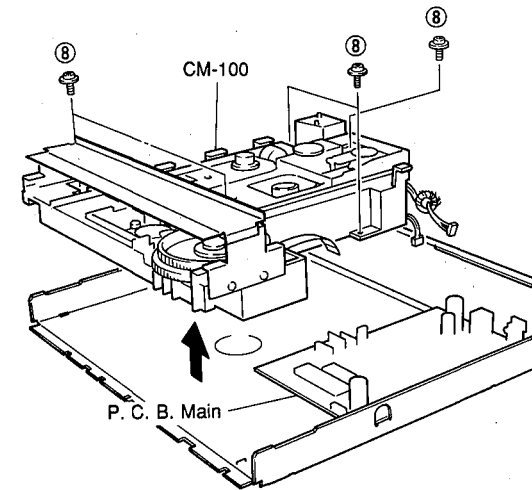


Fig. B-2

### 6. Removal of CM-100 Unit

- Remove 5 screws (8) as shown in Fig. 3.
- Remove connectors (#1, #2, #3, #201) from the P. C. B. Main.
- Take the CM-100 Unit out slowly as shown in Fig. 3.



\* The P. C. B. MAIN can be removed in this state.  
Fig. 3

### 7. Removal of Pick-up Head

- Remove 1 screw (9) and then remove the PU Unit Ass'y as shown Fig. 4.

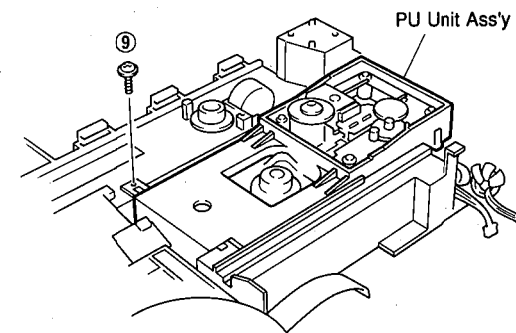


Fig. 4

- Pull out 4 Pins (10) and then remove the PU Mechanism Unit as shown in Fig. 5.

\* The Pick-up Head can be replaced without removing the PU Mechanism Unit.

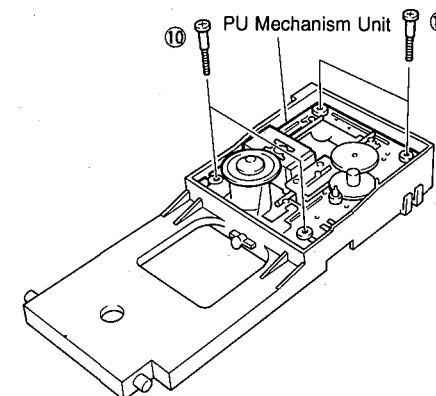


Fig. 5

### ● Operation Check Procedure

- Disassembly
  - Remove the top cover.
  - Remove the Clamp Ass'y.
  - Remove the stabilizer from the clasper.

Turn the Plate clockwise by 30° while holding the Stabilizer, and the Plate will come off. Remove the Stabilizer from the Clasper.
- Clamp the disc by using the stabilizer.
- Set to the TEST mode and check for any faulty conditions.

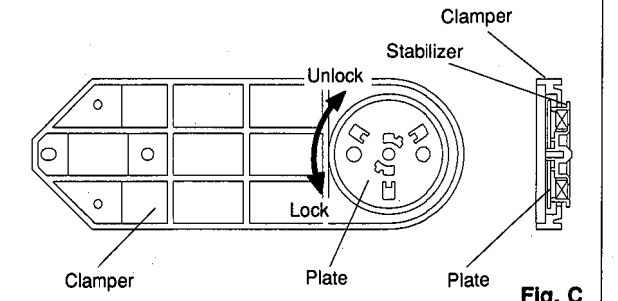


Fig. C

- Pull out the Gear/Power as shown in Fig. 6.
- Remove 4 screws (11) and then remove the Pick-up Head as shown in Fig. 6.

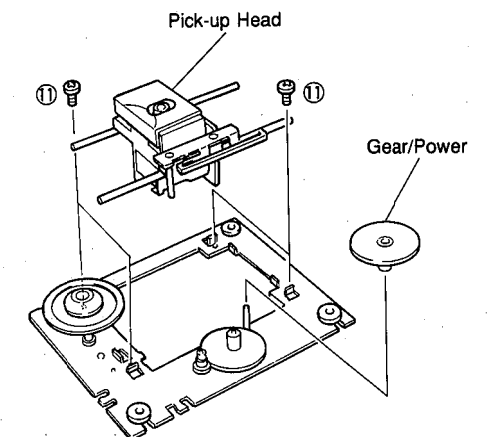


Fig. 6

**● Check that the disc table height is as specified below.**

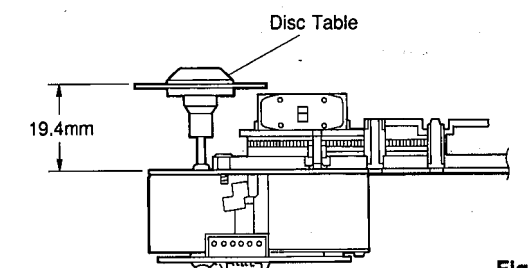
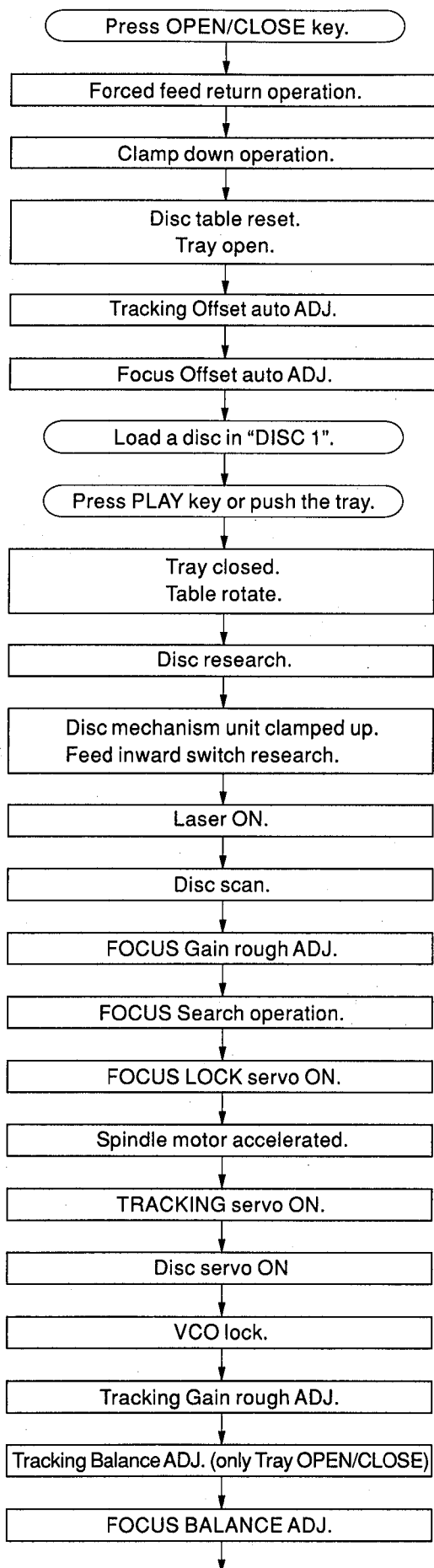


Fig. D

# STANDARD OPERATION CHART



"OPEN" appears in the TIME indicator.

"TRV" signal is output until detection of LIMIT switch.

Proceeds to next step after detection of CLAMP switch. (SW501)

Stop after detection of LOADING switch. (SW502)

"DISC" flash.

Proceeds to next step after detection of LOADING switch. (SW502)  
DISC "1" is turned to DM clamp position.

"DISC" from flashing to lighting.

Proceeds to next step after detection of CLAMP switch (SW501)  
if FLSW = L (IC311, 53 pin) Proceed to next step.

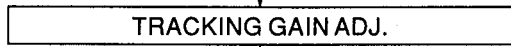
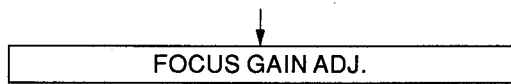
LSON = "H" (IC1, 3 pin)

$\overline{\text{FLOCK}}$  = "H" → "L" (IC311, 62 pin)

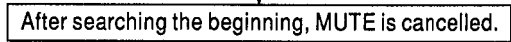
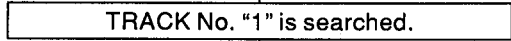
$\overline{\text{TLOCK}}$  = "H" → "L" (IC311, 61 pin)

CRC = "H" (IC3, 67 pin)

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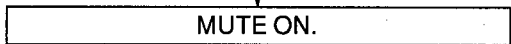
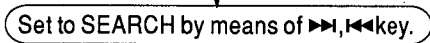


\*TOC READ \* ~ Data fetch cycle ~

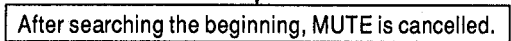
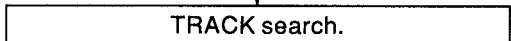


: MUTE OFF = "L" → "H", "0:00" appears in the time indicator.  
(IC311, 58 pin)

~ PLAY ~

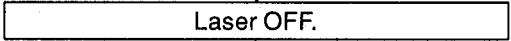
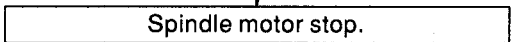
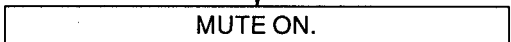
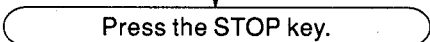


: MUTE OFF = "H" → "L"

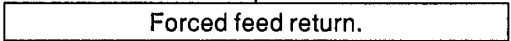


: MUTE OFF = "L" → "H", "0:00" appears in the time indicator.

~ PLAY ~



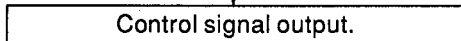
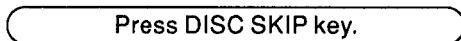
: LSON = "H" → "L" (IC1, 3 pin)



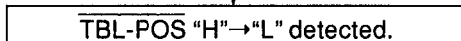
: FLSW = "L" (IC311, 53 pin)

~ STOP ~

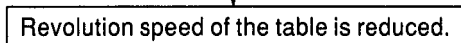
● Tray Operation



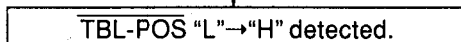
: TBL-R = "L" → "H"  
(IC311, 14 pin)



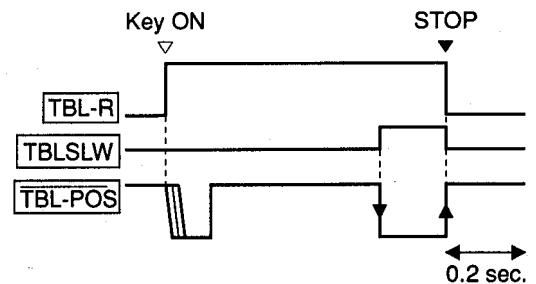
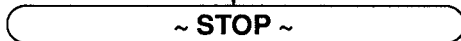
: TBL-POS = "H" → "L"  
(IC311, 57 pin)



: TBLSLW = "L" → "H"  
(IC311, 15 pin)



: TBL-POS = "L" → "H", Control signal off  
(IC311, 57 pin)



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## ■ TEST MODE

### ● Starting TEST mode

Test mode is brought about when the power is turned on while the "PLAY/PAUSE" and "STOP" keys on the panel are simultaneously pressed and held.

When the test mode is brought about, all the displays light up for about 1 second.

And stopped in product mode, press the FILE key of the remote control transmitter while pressing and holding the STOP key on the panel. The operation mode turns from the product mode to the test mode.

### ● Function List of Panel keys

Note) "traverse servo" means the same as "feed servo"

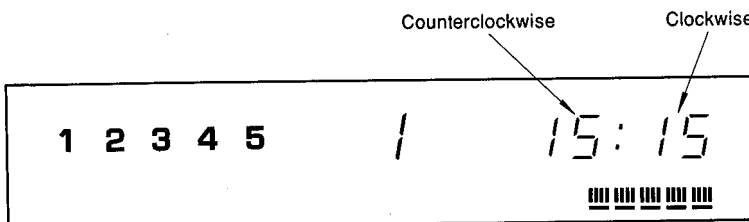
| PANEL KEY         | FUNCTION  |
|-------------------|---|
| OPEN/CLOSE        | Tray open/close.  |
| PLAYXCHANGE       | Rotating the mode of coefficients. (Coefficient mode→Coefficient setting→Product mode) Pressing twice will set to the product mode. |
| PLAY/PAUSE        | Plays if focus servo is effective. TRON, MUTE OFF.  |
| STOP              | All stop. (Focus, spindle, feed, laser, tray, etc.) Initializes FL display.   |
| ◀◀SKIP            | Backward traverse move. (If inner SW turns on, traverse is stopped.)<br>(Coefficient set up mode : upper digit down.)               |
| ▶▶SKIP            | Forward traverse move.<br>(Coefficient set up mode : upper digit up.)   |
| DISC 1            | Returns to product mode. (Tray and table inoperative.)  |
| DISC 2            | Adjustment mode 1 (TR-offset, FO-offset, FO-rough gain adjustment)  |
| DISC 3            | Adjustment mode 2 (TR-balance, TR-rough gain adjustment)  |
| DISC 4            | Adjustment mode 3 (FO-fine gain, TR-fine gain, FO-balance adjustment)   |
| DISC 5            | Measurement the rotating time of the turn table. (Slow speed)   |
| PROG              | Decelerates or stops spindle.   |
| OUTPUT LEVEL DOWN | Output level down.<br>(Coefficient set up mode : address down.)   |
| OUTPUT LEVEL UP   | Output level up.<br>(Coefficient set up mode : address up.)   |
| +10               | —   |
| 1                 | Returns to product mode. (tray and table inoperative.)  |
| 2                 | Adjustment mode 1 (TR-offset, FO-offset, FO-rough gain adjustment)  |
| 3                 | Adjustment mode 2 (TR-balance, TR-rough gain adjustment)  |
| 4                 | Adjustment mode 3 (FO-fine gain, TR-fine gain, FO-balance adjustment)   |
| 5                 | Turn table turns counterclockwise. (Slow speed)   |
| 6                 | Turn table turns clockwise. (Slow speed)  |
| 7                 | Turn table turns counterclockwise. (Fast speed)   |
| 8                 | Turn table turns clockwise. (Fast speed)  |
| 9                 | 10 TRACK KICK-continuously  |
| 0                 | 10 TRACK KICK-continuously  |
| FILE/SAVE         | Checks external RAM (TEST OK → MUTE ON, TEST NG → MUTE OFF)   |

● Function List of Remote Control Transmitter

CUSTOM CODE = (79)x

| CODE | KEY            | FUNCTION   |
|------|----------------|--|
| 00   | MODE           | Traverse servo off   |
| 01   | OPEN/CLOSE     | Tray open/close  |
| 02   | PLAY           | PLAY (FOON, TRON, TVON (FEON), SPON)   |
| 04   | ◀◀SKIP         | Backward traverse move. (If inner SW turns on, traverse is stopped.)<br>(Coefficient set up mode : upper digit down) |
| 05   | ◀◀SEARCH       | Clamp down.<br>(Coefficient set up mode : lower digit down)  |
| 06   | ▶▶SEARCH       | Clamp up.<br>(Coefficient set up mode : lower digit up)  |
| 07   | ▶▶SKIP         | Forward traverse move.<br>(Coefficient set up mode : upper digit up)   |
| 08   | REPEAT         | FOON, TROF (Enter focus search if focus servo is off.)   |
| 0A   | TIME           | Checks FL display. (888888→All lamps→goes out.)  |
| 0B   | INDEX          | FOON, TROF, TVOF (FEOF) (Enter focus search if focus servo is off.)  |
| 0C   | PROG           | Rotates or accelerates spindle.  |
| 10   | 0              | Forward 150 TRACK KICK continuously  |
| 11   | 1              | Returns to product mode. (Tray and Table inoperative.)   |
| 12   | 2              | Adjustment mode 1 (TR-offset, FO-off set, FO-rough gain adjustment)  |
| 13   | 3              | Adjustment mode 2 (TR-balance, TR-rough gain adjustment)   |
| 14   | 4              | Adjustment mode 3 (FO-fine gain, TR-fine gain, FO-balance adjustment)  |
| 15   | 5              | Backward 1 TRACK KICK continuously   |
| 16   | 6              | Forward 1 TRACK KICK continuously  |
| 17   | 7              | Backward 30 TRACK KICK continuously  |
| 18   | 8              | Forward 30 TRACK KICK continuously   |
| 19   | 9              | Backward 150 TRACK KICK continuously   |
| 1A   | +10            | Enter coefficient set up mode.   |
| 1B   | RANDOM         | SPON (Spindle servo on.)   |
| 1C   | OUTPUT LEVEL - | Output level down.<br>(Coefficient set up mode : address down)   |
| 1D   | OUTPUT LEVEL + | Output level up.<br>(Coefficient set up mode : address up)   |
| 1E   | DIMMER         | Checks FL display. (888888→All lamps→goes out.)  |
| 4F   | DISC SKIP▶     | DISC SKIP + (Clockwise)  |
| 50   | DISC SKIP◀     | DISC SKIP - (Counterclockwise)   |
| 53   | DISC SCAN      | Measurement the rotating time of the turn table (Fast speed)   |
| 55   | PAUSE          | FOON, TROF, TVOF (FEOF) (Enter focus search if focus servo is off.)  |
| 56   | STOP           | All stop. (Focus, spindle, traverse, laser, tray, etc.)  |
| 57   | TAPE           | Spindle free (off)   |
| 58   | SYNCHRO        | Backward traverse move   |

Note : Display at time measurement.



The time display shows the time for 1 rotation of the turn table.  
The unit of time is 0.1 second (rotate fast) or 1 second (rotate slow).

## ■ ERROR MESSAGE

When stopped by any cause, press "STOP" of the remote control while pressing and holding the "STOP" on the panel key. The operation mode turns to the mode allowing the display of messages.  
(The error messages are cleared with the power off.)

### ● Error Messages List

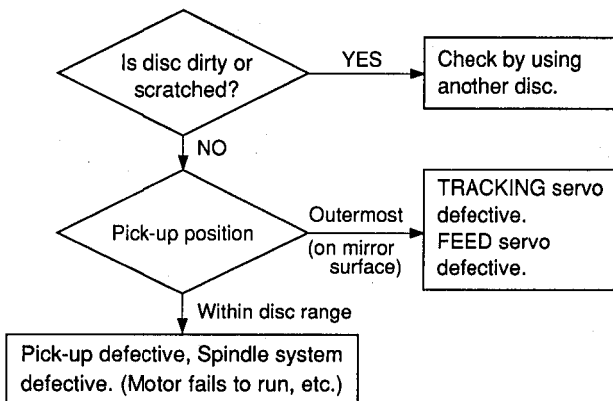
| ERROR MESSAGE | DESCRIPTION   |
|---------------|---|
| E - X 0       | Data cannot be read after finishing search.   |
| E - X 1       | Data cannot be read during PLAY (x = 0), PAUSE (x = 4) or SCAN (x = 3).               |
| E - 7 1       | At the start, tracking servo is not effective.  |
| E - 7 2       | At the start, spindle servo PLL is not effective.                                     |
| E - 7 3       | At the start, data can never read.  |
| E - X 4       | Close switch does not work with tray closed.  |
| E - X 5       | Open switch does not work with tray open.   |
| E - X 6       | Table does not turn.  |
| E - X 7       | Traverse (Feed) inner circumference switch does not work.                             |
| E - X 8       | Recovery action fails after focus drop.   |
| E - X 9       | Clamp down switch does not work with clamp down.                                      |
| E - X A       | Clamp up switch does not work with clamp up.  |
| E r r         | MN662720 does not give response of SENSE, with resetting by the unit's microcomputer. |

\* Meaning of each state ("X") :

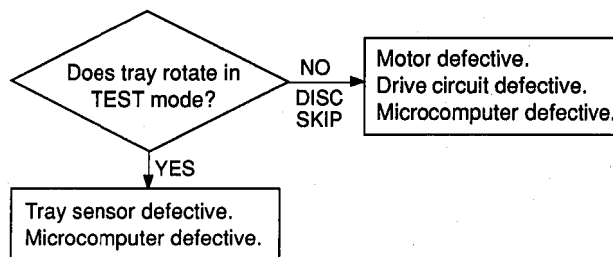
- (X = 0) .....PLAY
- (X = 2) .....SCAN
- (X = 3) .....PAUSE
- (X = 4) .....PEAK SEARCH
- (X = 5) .....SEARCH
- (X = 6) .....DISC SCAN
- (X = 7) .....START
- (X = 8) .....STOP
- (X = 9) .....DISC SEARCH
- (X = -) .....EJECT
- (X = C) .....NO DISC

### 1) Error Code Troubleshooting

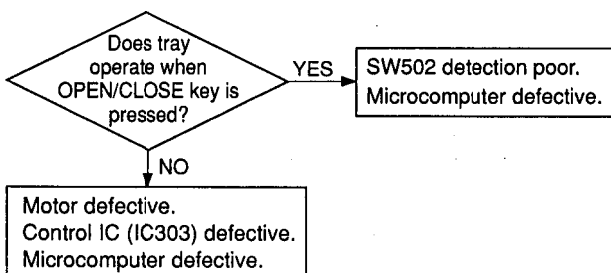
Error codes **X0**, **X1**, **73** .....Data cannot be read.



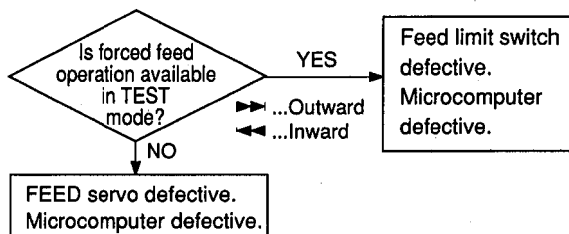
Error code **X6** .....Poor table rotation.



Error codes **X4**, **X5** .....Poor tray loading operation.

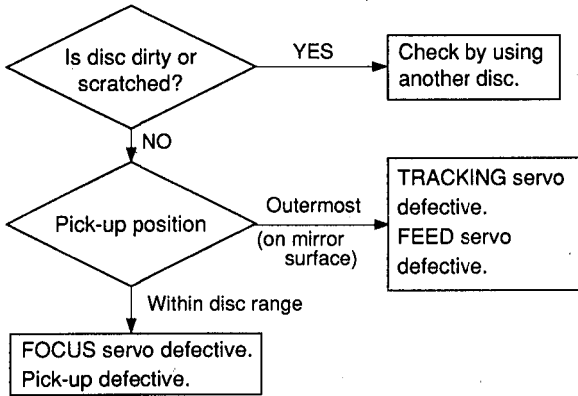


Error code **X7** .....FEED operation defective. (Limit switch fails)

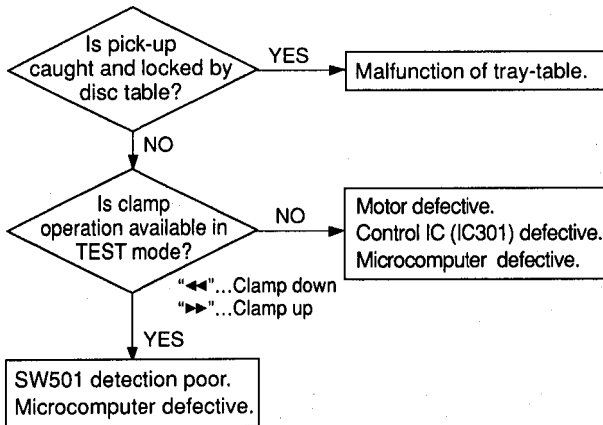


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Error code **X8** .....Focus drops.

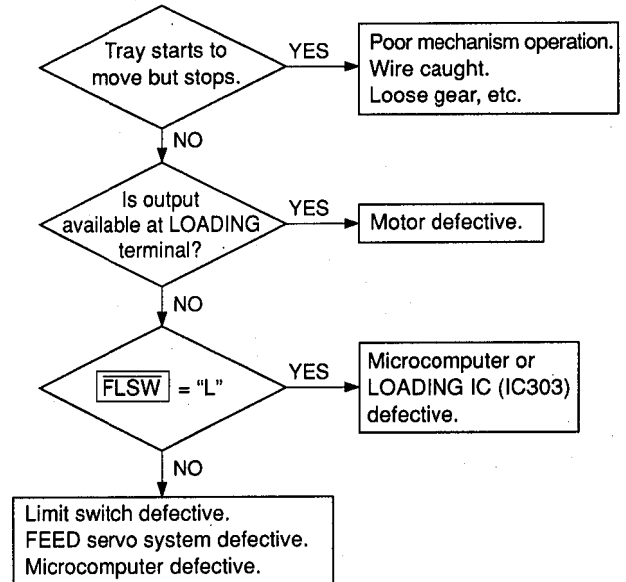


Error code **X9**, **XA** .....Poor clamp operation.

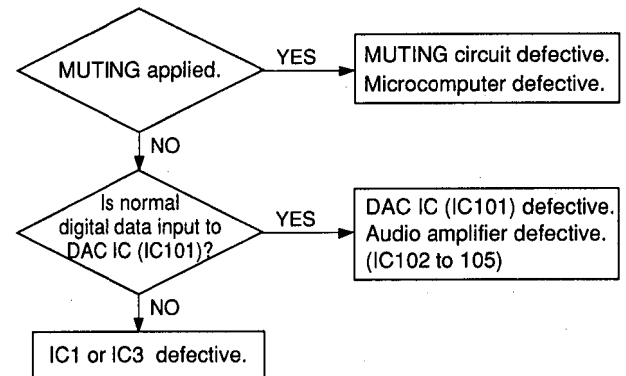


2) Troubleshooting from System Malfunctions.

a) Tray fails to come out/go in.

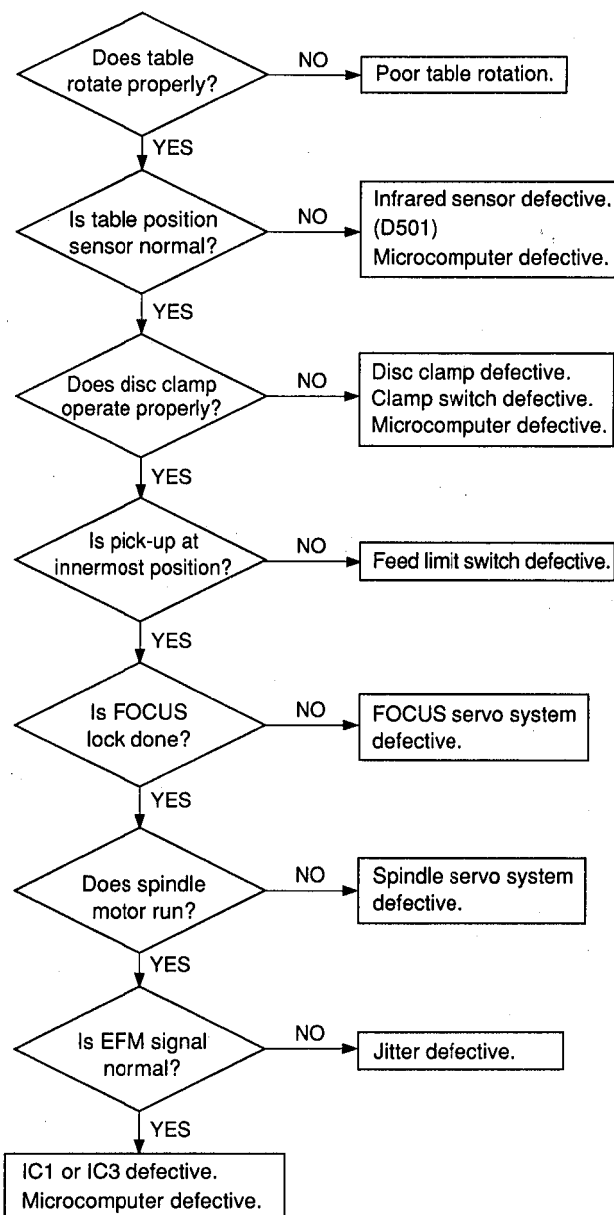


b) No sound generated, Sound cut during play. (but time display advanced properly)

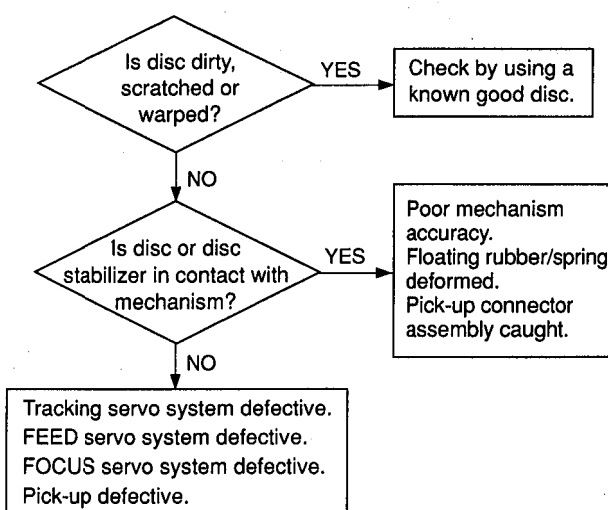


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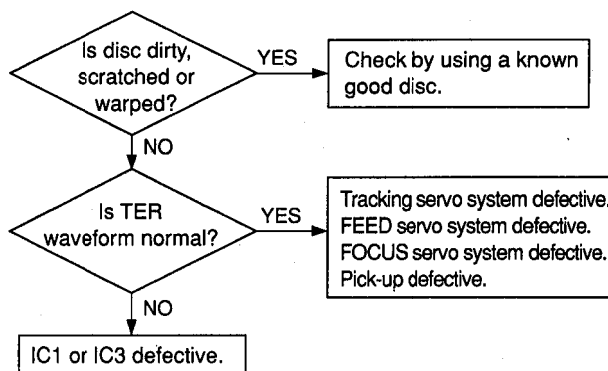
**c) Operates as if no disc loaded.  
(although loaded)**



**d) Sound skips.  
(Time display fails to advance properly)**



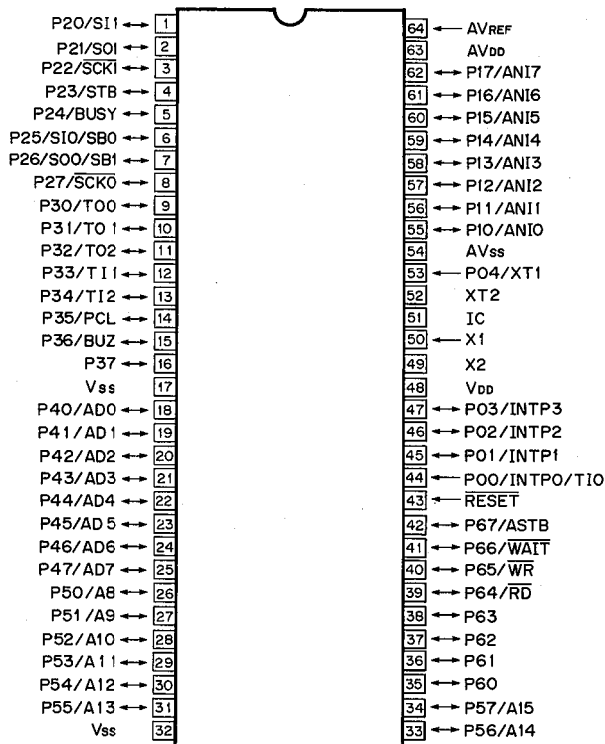
**e) No search provided.  
(Sound skipped after search)**



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# IC DATA

IC311 :  $\mu$ PD78014CW



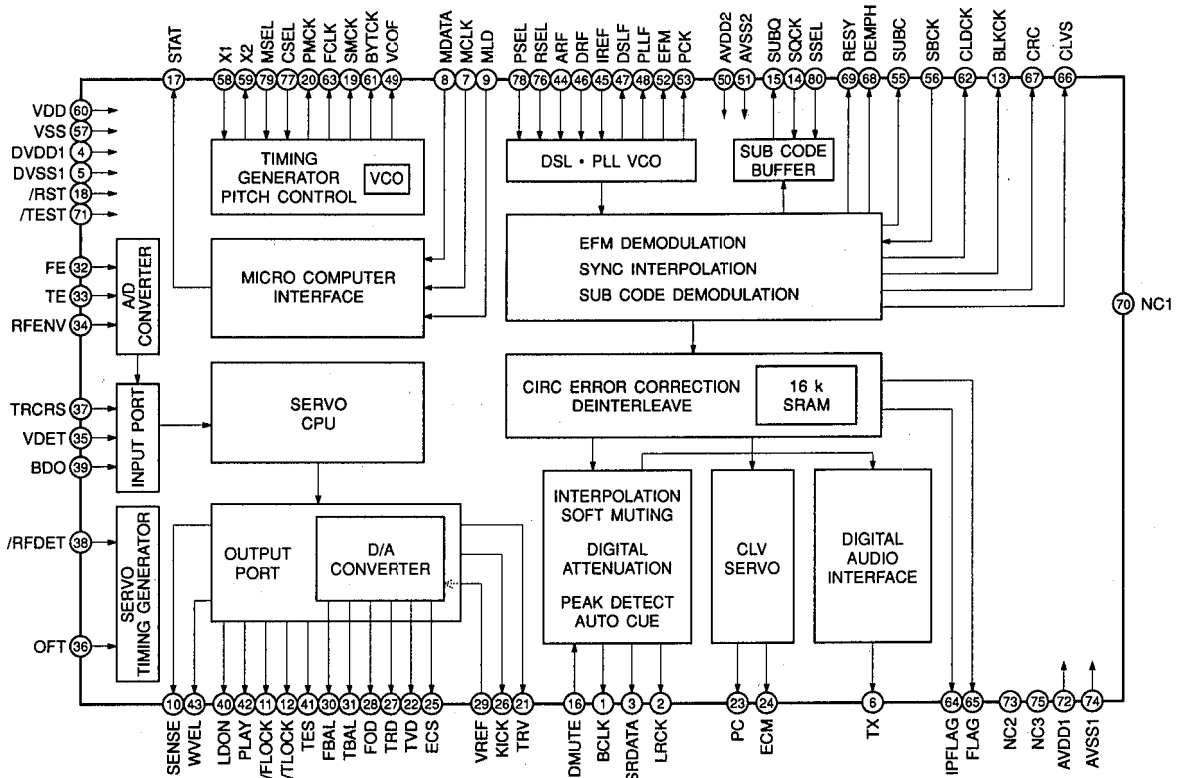
| No. | Port        | Description | I/O | Function                                    |
|-----|-------------|-------------|-----|---|
| 1   | P20/SI1     | SI          | I   | Serial data input from CXP2201              |
| 2   | P21/SO1     | MDATA SO    | O   | Serial data output to MN662720 and CXP2201  |
| 3   | P22/SCK1    | MCLK SCK    | O   | Serial clock output to MN662720 and CXP2201 |
| 4   | P23/STB     | MLD         | O   | MN662720 chip select                        |
| 5   | P24/BUSY    | SENSE       | I   | SENSE signal input from MN662720            |
| 6   | P25/SI0/SB0 | SUBQ        | I   | Sub-code serial data input                  |
| 7   | P26/SO0/SB1 | STAT        | I   | STAT signal input from MN662720             |
| 8   | P27/SCK0    | SQCK        | O   | Sub-code serial data output                 |
| 9   | P30/TO0     | CLOSE       | O   | Tray close signal                           |
| 10  | P31/TO1     | OPEN        | O   | Tray open signal                            |
| 11  | P32/TO2     | CL DOWN     | O   | Clamp down signal                           |
| 12  | P33/TI1     | CL UP       | O   | Clamp up signal                             |
| 13  | P34/TI2     | TBL-L       | O   | Table rotate L (counterclockwise).          |
| 14  | P35/PCL     | TBL-R       | O   | Table rotate R (clockwise).                 |
| 15  | P36/BUZ     | TBLSLOW     | O   | Table rotate slow.                          |
| 16  | P37         | FEED OFF    | O   | Feed servo control                          |
| 17  | VSS         | VSS         |     | GND   |
| 18  | P40/ADD     | D0          | I/O | Data output to LC3517BL-15 and 74HC573.     |
| 19  | P41/AD1     | D1          | I/O |   |
| 20  | P42/AD2     | D2          | I/O |   |
| 21  | P43/AD3     | D3          | I/O |   |
| 22  | P44/AD4     | D4          | I/O |   |
| 23  | P45/AD5     | D5          | I/O |   |
| 24  | P46/AD6     | D6          | I/O |   |
| 25  | P47/AD7     | D7          | I/O |   |
| 26  | P50/AB      | A8          | I/O | Address output to LC3517BL-15.              |
| 27  | P51/A9      | A9          | I/O |   |

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| No. | Port          | Description | I/O | Function  |
|-----|---------------|-------------|-----|---|
| 28  | P52/A10       | A10         | I/O | Address output to LC3517BL-15.  |
| 29  | P53/A11       | A11         | I/O | ] N. C.   |
| 30  | P54/A12       | A12         | I/O |   |
| 31  | P55/A13       | A13         | I/O |   |
| 32  | VSS           | VSS         |     | GND   |
| 33  | P56/A14       | A14         | I/O | ] Address output to 74HC00.   |
| 34  | P57/A15       | A15         | I/O |   |
| 35  | P60           | KEY3        | I   | ] N.C.  |
| 36  | P61           | KEY2        | I   |   |
| 37  | P62           | KEY1        | I   |   |
| 38  | P63           | FLD CS      | O   | CXP2201 chip select   |
| 39  | P64/RD        | RD          | O   | Read timing signal to LC3517BL-15.  |
| 40  | P65/WR        | WR          | O   | Write timing signal to LC3517BL-15.   |
| 41  | P66/WAIT      | FCS GAIN    | O   | Focus control   |
| 42  | P67/ASTB      | ASTB        | O   | Address latch signal to 74HC573.  |
| 43  | RESET         | RES         | I   | Operation starts at $\underline{\quad} \rightarrow$ and stops at $\leftarrow \underline{\quad}$ |
| 44  | P00/INTP0/TI0 | REM         | I   | Remote control input  |
| 45  | P01/INTP1     | BLKCK       | I   | Sub code block clock input from MN662720  |
| 46  | P02/INTP2     | DOWN SW     | I   | PU unit down limit switch, ON at "L".   |
| 47  | P03/INTP3     | UP SW       | I   | PU unit up limit switch, ON at "L".   |
| 48  | VDD           | +5          |     | +5  |
| 49  | X2            | X2          |     | ] Crystal oscillator. (8.467MHz)  |
| 50  | X1            | X1          | I   |   |
| 51  | IC(VPP)       | VSS         |     | GND   |
| 52  | XT2           | —           |     | N.C.  |
| 53  | P04/XT1       | FL SW       | I   | Feed origin switch input. Feed origin at "L".   |
| 54  | AVSS          | VSS         |     | GND   |
| 55  | P10/ANI0      | OP SW       | I   | Open state of tray sensing switch input. Open state at "L".                                     |
| 56  | P11/ANI1      | CL SW       | I   | Closed state of tray sensing switch input. Closed state at "L".                                 |
| 57  | P12/ANI2      | TBL POS     | I   | Sensor to detect table position.  |
| 58  | P13/ANI3      | MUTE        | O   | Analog mute output (mute at "L")  |
| 59  | P14/ANI4      | MNRST       | O   | Reset output MN662720   |
| 60  | P15/ANI5      | DMUTE       | O   | Digital mute signal output to MN662720 (mute at "H")  |
| 61  | P16/ANI6      | TLOCK       | I   | Tracking clock signal from MN662720   |
| 62  | P17/ANI7      | FLOCK       | I   | Focus clock signal from MN662720  |
| 63  | AVDD          | +5          |     | +5V   |
| 64  | AVREF         | VDD         | I   | +5V   |

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**IC3 : MN662720RB**  
**Signal Processor & Controller**

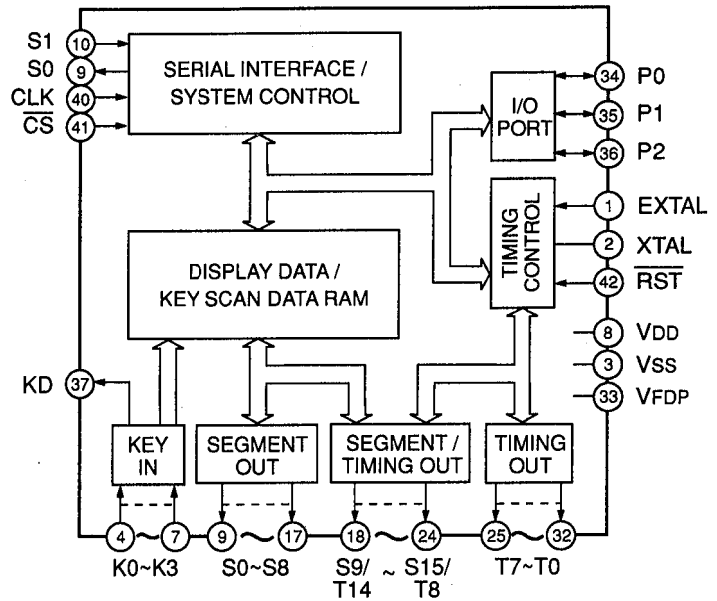
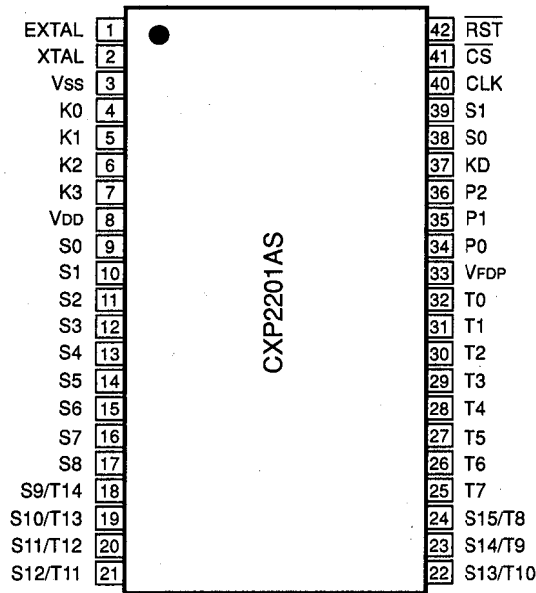


| Pin No. | Pin Name | I/O | FUNCTION  |
|---------|----------|-----|---|
| 1       | BCLK     | O   | Bit clock output for SR DATA  |
| 2       | LRCK     | O   | L/R identification signal output  |
| 3       | SRDATA   | O   | Serial data output  |
| 4       | DVDD1    | I   | Power supply for digital circuit  |
| 5       | DVSS1    | I   | GND for digital circuit   |
| 6       | TX       | O   | Digital, audio, interface output signal   |
| 7       | MCLK     | I   | Microprocessor command clock signal input (data latched at leading edge)                |
| 8       | MDATA    | I   | Microprocessor command data input   |
| 9       | MLD      | I   | Microprocessor command load signal input L : LOAD                                       |
| 10      | SENSE    | O   | Sense signal output   |
| 11      | FLOCK    | O   | Focus servo drawing signal (L : when drawn)   |
| 12      | TLOCK    | O   | Tracking servo drawing signal (L : when drawn)  |
| 13      | BLKCK    | O   | Sub code block clock signal   |
| 14      | SQCK     | I   | Clock input for sub-code Q register   |
| 15      | SUBQ     | O   | Sub-code Q code output  |
| 16      | DMUTE    | I   | Muting input H : MUTE   |
| 17      | STAT     | O   | Status signal   |
| 18      | RST      | I   | Reset input L : RESET   |
| 19      | SMCK     | O   | 8.4672MHz clock signal output when MSEL = H 4.2336MHz clock signal output when MSEL = L |
| 20      | PMCK     | O   | 88.2KHz clock signal output   |
| 21      | TRV      | O   | Traverse (Feed) forced feed output  |
| 22      | TVD      | O   | Traverse (Feed) drive output  |
| 23      | PC       | O   | Spindle motor ON signal L : ON  |
| 24      | ECM      | O   | Spindle motor drive signal (forced mode output) 3-State                                 |
| 25      | ECS      | O   | Spindle motor drive signal (servo error signal output)                                  |



| Pin No. | Pin Name | I/O | FUNCTION  |
|---------|----------|-----|---|
| 26      | KICK     | O   | Kick pulse output   |
| 27      | TRD      | O   | Tracking drive output   |
| 28      | FOD      | O   | Focus drive output  |
| 29      | VREF     | I   | Reference voltage for DA output block   |
| 30      | FBAL     | O   | Focus balance adjustment output   |
| 31      | TBAL     | O   | Tracking balance adjustment output  |
| 32      | FE       | I   | Focus error signal input (analog input)   |
| 33      | TE       | I   | Tracking error signal input (analog input)  |
| 34      | RFENV    | I   | RF envelope signal input (analog input)   |
| 35      | VDET     | I   | Oscillation detect signal input (H : DETECT)  |
| 36      | OFT      | I   | Off track signal input (H : OFF TRACK)  |
| 37      | TRCRS    | I   | Track cross signal input  |
| 38      | RFDET    | I   | RF detect signal input (L : DETECT)   |
| 39      | BDO      | I   | Drop out signal input (H : DROP OUT)  |
| 40      | LDON     | O   | Laser ON signal output (H : ON)   |
| 41      | TES      | O   | Tracking error shunt signal output (H : SHUNT)  |
| 42      | PLAY     | O   | Play signal output (H : PLAY)   |
| 43      | WVEL     | O   | Double speed status signal output   |
| 44      | ARF      | I   | RF signal input   |
| 45      | IREF     | I   | Reference current input terminal  |
| 46      | DRF      | I   | Bias terminal for DSL   |
| 47      | DSLFL    | I/O | Loop filter terminal for DSL  |
| 48      | PLLFL    | I/O | Loop filter terminal for PLL  |
| 49      | VCOFL    | I/O | Loop filter terminal for VCO  |
| 50      | AVDD2    | I   | Power supply for analog circuit (for DSL, PLL, OA output blocks)  |
| 51      | AVSS2    | I   | GND for analog circuit (for DSL, PLL, DA output blocks)   |
| 52      | EFM      | O   | EFM signal output   |
| 53      | PCK      | O   | PLL extract clock output (f PCK = 4.321MHz)   |
| 54      | PDO      | O   | EFM signal to PCK signal phase comparison signal output   |
| 55      | SUBC     | O   | Sub-code serial output data output  |
| 56      | SBCK     | I   | Clock input for sub-code serial output  |
| 57      | VSS      | I   | GND for oscillation circuit   |
| 58      | X1       | I   | Crystal oscillation circuit input terminal (f = 16.9344MHz)   |
| 59      | X2       | O   | Crystal oscillation circuit output terminal (f = 16.9344MHz)  |
| 60      | VDD      | I   | Power supply for oscillation circuit  |
| 61      | BYTCK    | O   | Byte clock output   |
| 62      | CLDCK    | O   | Sub-code frame clock signal output (f CLDCK = 7.35kHz)  |
| 63      | FCLK     | O   | Crystal frame clock output (f FCLK = 7.35kHz)   |
| 64      | IPFLAG   | O   | Interpolation flag output H : INTERPOLATION   |
| 65      | FLAG     | O   | Flag output   |
| 66      | CLVS     | O   | Spindle servo phase synchronous status signal out H : CLV L : ROUGH SERVO   |
| 67      | CRC      | O   | Sub-code CRC check result output H : OK , L : NG  |
| 68      | DEMPH    | O   | Deemphasis detect signal output H : ON  |
| 69      | RESY     | O   | Re-synchronous signal output of frame synchronization H : SYNCHRONOUS L : ASYNCHRONOUS                              |
| 70      | NC1      | -   | N. C.   |
| 71      | TEST     | I   | Test terminal (Normal : H)  |
| 72      | AVDD1    | I   | Power supply for digital circuit  |
| 73      | NC2      | -   | N. C.   |
| 74      | AVSS1    | I   | GND for digital circuit   |
| 75      | NC3      | -   | N. C.   |
| 76      | RSEL     | I   | RF signal polarity specifying terminal<br>RSEL = H when Bright level is at "H" RSEL = L when Bright level is at "L" |
| 77      | CSEL     | I   | Crystal oscillation frequency specifying terminal (Normal : L)  |
| 78      | PSEL     | I   | Test terminal (Normal : L)  |
| 79      | MSEL     | I   | SMCK terminal Output frequency switch terminal H : SMCK = 8.4672MHz , L : SMCK = 4.2336MHz                          |
| 80      | SSEL     | I   | SUBQ terminal Output mode switch terminal H : Q code buffer use mode  |

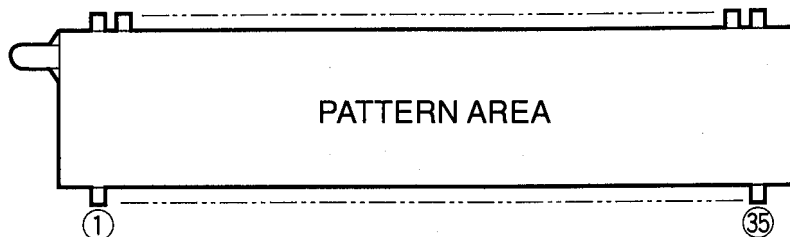
**IC401 : CXP2201AS**  
**Display Drive & Controller**



| Pin No. | Pin Name      | I/O | Function   |
|---------|---------------|-----|--|
| 1       | EXT           | I   | Ceramic connecting terminal for system clock oscillation.                  |
| 2       | XT            | O   | When using an external clock, data is input to EXT and XT is left open.    |
| 3       | VSS           | —   | Connect to VSS.  |
| 4~7     | K0~K3         | I   | Key input terminal (with built-in pull-down resistor)                      |
| 8       | VDD           | —   | Connect to VDD.  |
| 9~17    | S0~S8         | O   | Output terminal exclusively for segment (with built-in pull-down resistor) |
| 18~24   | S9/T14~S15/T8 | O   | Output terminal for both segment/timing (with built-in pull-down resistor) |
| 25~32   | T7~T0         | O   | Output terminal exclusively for timing (with built-in pull-down resistor)  |
| 33      | VFDP          |     | Load power supply terminal for FDP   |
|         | NC            | —   | OPEN   |
| 34~36   | P0~P2         | I/O | Port input/output terminal (large current output)                          |
| 37      | KD            | O   | Key input detect terminal  |
| 38      | S0            | O   | Serial data output terminal  |
| 39      | S1            | I   | Serial data input terminal   |
| 40      | CLK           | I   | Shift clock input terminal   |
| 41      | CS            | I   | Chip select input terminal   |
| 42      | RST           | I/O | Reset terminal (with built-in pull-up resistor and power on reset circuit) |

## ■ DISPLAY DATA (VS415000)

### ● V401 : 9-ST-14GK

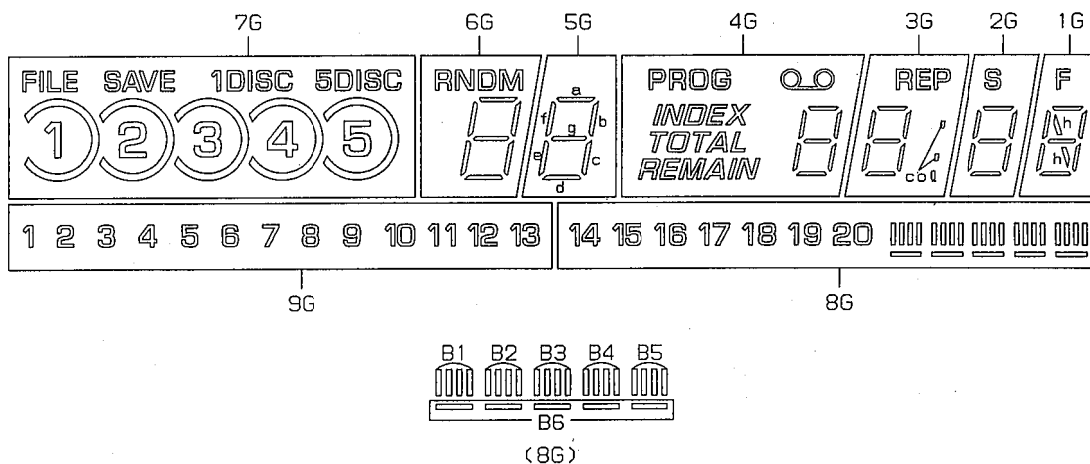


### • PIN CONNECTION

| PIN NO.    | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13  | 14  | 15  | 16  | 17  | 18 |
|------------|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|----|
| CONNECTION | F1 | F1 | NP | P1 | P2 | P3 | P4 | P5 | P6 | P7 | P8 | P9 | P10 | P11 | P12 | P13 | P14 | NX |
| PIN NO.    | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31  | 32  | 33  | 34  | 35  |    |
| CONNECTION | NX | NX | NX | NX | NX | 9G | 8G | 7G | 6G | 5G | 4G | 3G | 2G  | 1G  | NP  | F2  | F2  |    |

NOTE 1) F1, F2 ..... Filament  
 2) NP ..... No pin  
 3) NX ..... No extend pin  
 4) P1~P14 ... Datum Line  
 5) 1G~9G .... Grid

### • GRID ASSIGNMENT



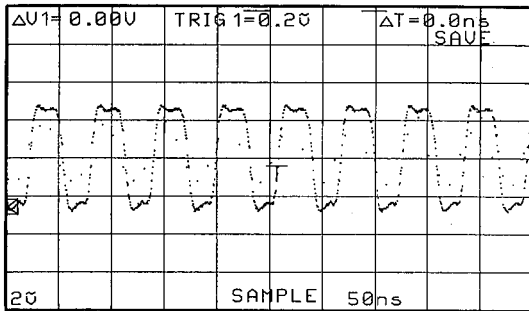
### • ANODE CONNECTION

|     | 9G | 8G | 7G    | 6G   | 5G | 4G     | 3G  | 2G | 1G |
|-----|----|----|-------|------|----|--------|-----|----|----|
| P1  | 1  | 14 | (5)   | d    | d  | d      | d   | d  | d  |
| P2  | 2  | 15 | 5     | e    | e  | e      | e   | e  | e  |
| P3  | 3  | 16 | (4)   | c    | c  | c      | c   | c  | c  |
| P4  | 4  | 17 | 4     | g    | g  | g      | g   | g  | g  |
| P5  | 5  | 18 | (3)   | f    | f  | f      | f   | f  | f  |
| P6  | 6  | 19 | 3     | b    | b  | b      | b   | b  | b  |
| P7  | 7  | 20 | (2)   | a    | a  | a      | a   | a  | a  |
| P8  | 8  | B6 | 2     | —    | —  | —      | col | —  | h  |
| P9  | 9  | B1 | (1)   | RNDM | —  | OO     | REP | S  | F  |
| P10 | 10 | B2 | 1     | —    | —  | REMAIN | —   | —  | —  |
| P11 | 11 | B3 | 5DISC | —    | —  | TOTAL  | —   | —  | —  |
| P12 | 12 | B4 | 1DISC | —    | —  | INDEX  | —   | —  | —  |
| P13 | 13 | B5 | SAVE  | —    | —  | PROG   | —   | —  | —  |
| P14 | —  | —  | FILE  | —    | —  | —      | —   | —  | —  |

## ■ TEST POINT WAVEFORMS

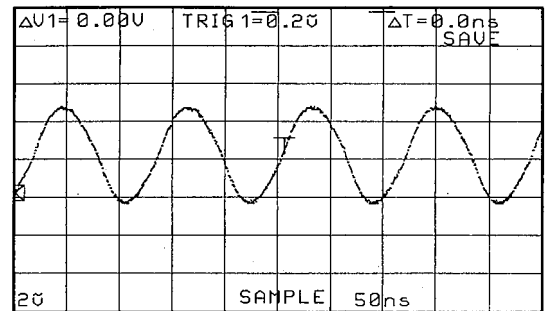
### Point ① (Pin 59 of IC3)

V : 2V/div H : 50nsec/div  
DC range 1 : 1 probe



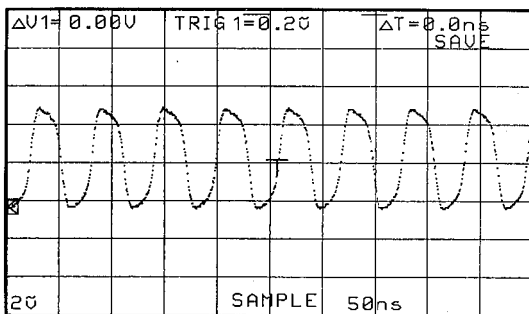
### Point ③ (Pin 49 of IC311)

V : 2V/div H : 50nsec/div  
DC range 1 : 1 probe



### Point ② (Pin 17 of IC101)

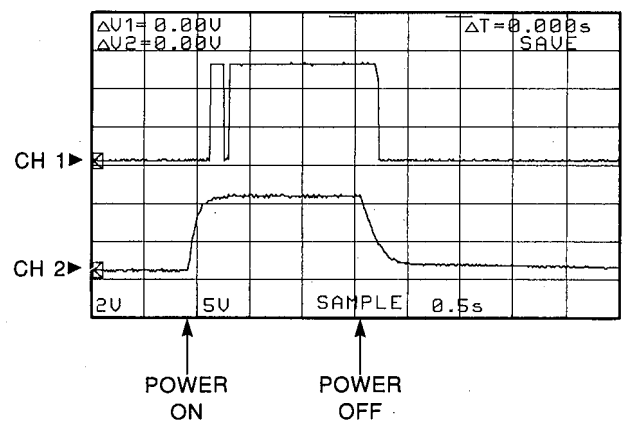
V : 2V/div H : 50nsec/div  
DC range 1 : 1 probe



### Point ④

CH 1 : Pin 59 of IC311  
CH 2 : Collector of Q204

V : 2V/div (CH 1) V : 5V/div (CH 2)  
H : 0.5sec/div DC range 1 : 1 probe



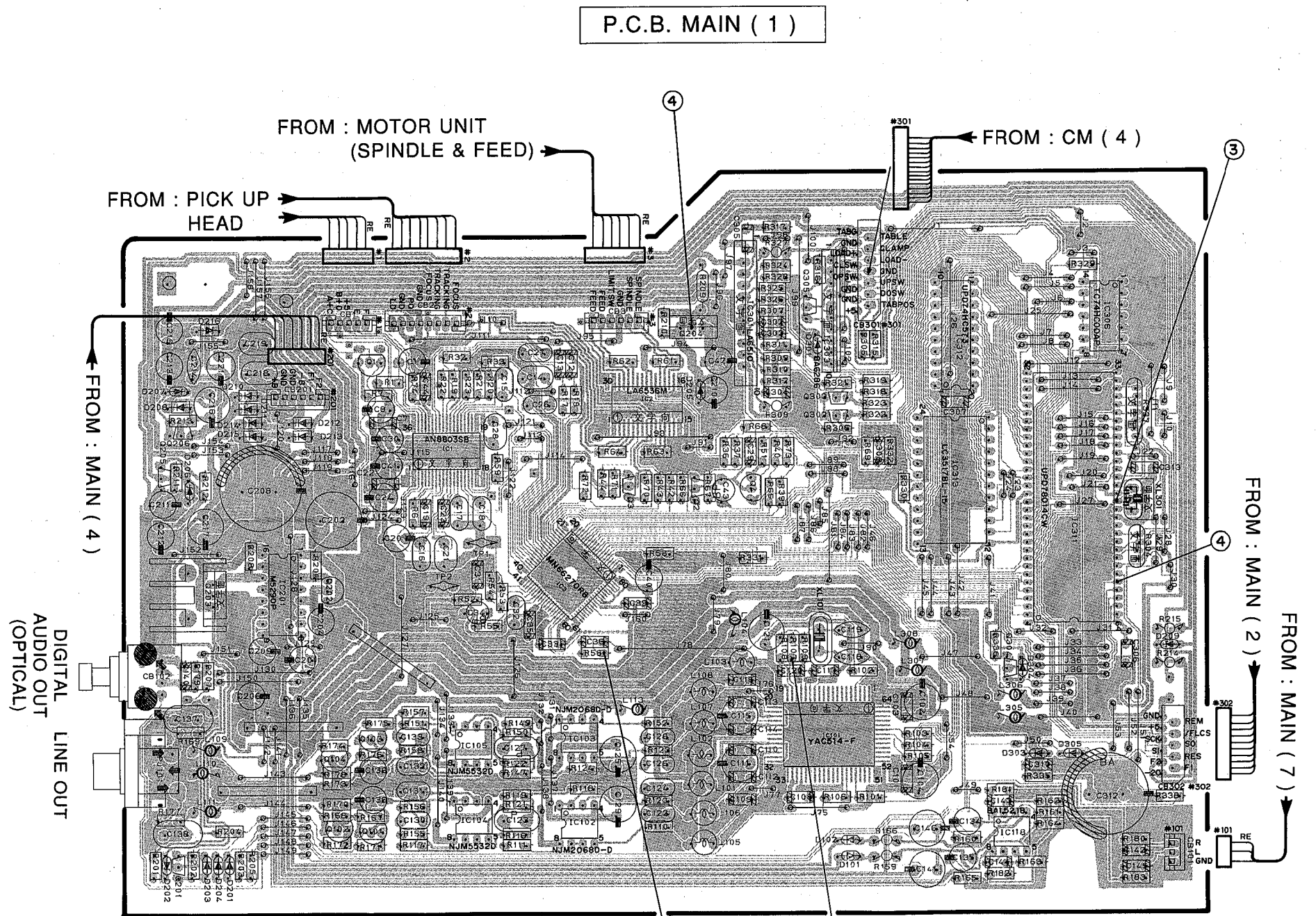
■ PRINTED CIRCUIT BOARD (Foil side)

① to ④ : TEST POINT WAVEFORMS (See page 21)

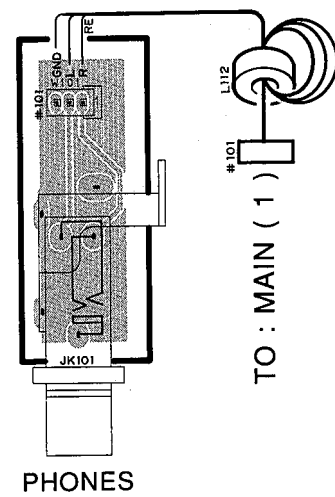
● Semiconductor Location

| Ref No. | Location |
|---------|----------|
| IC1     | D3       |
| IC2     | E3       |
| IC3     | E3       |
| IC101   | F4       |
| IC102   | E4       |
| IC103   | E4       |
| IC104   | E4       |
| IC105   | E4       |
| IC118   | G4       |
| IC201   | D3       |
| IC301   | F2       |
| IC303   | F2       |
| IC306   | G2       |
| IC311   | G3       |
| IC312   | F2       |
| IC313   | F3       |

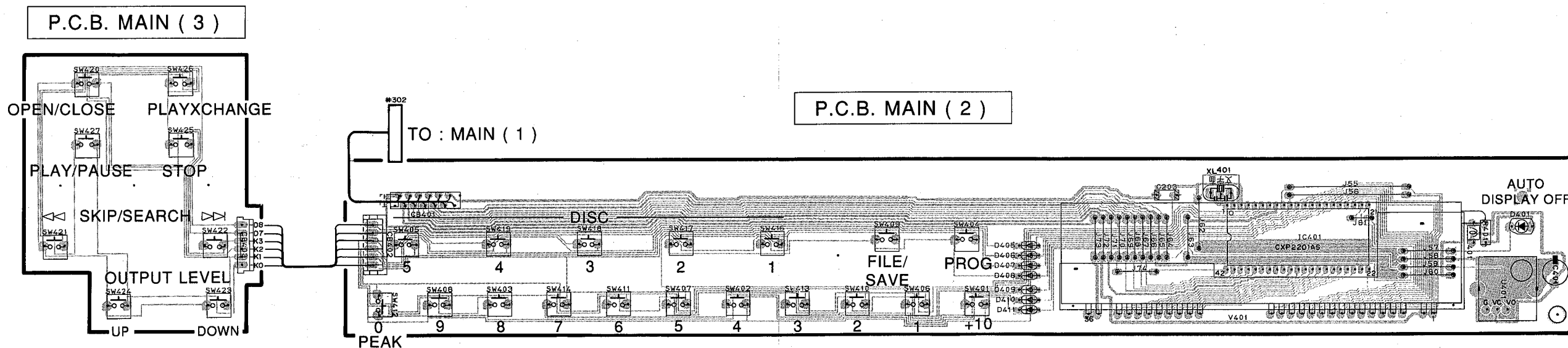
| Ref No. | Location |
|---------|----------|
| Q1      | D2       |
| Q2      | E3       |
| Q3      | E3       |
| Q4      | F3       |
| Q101    | D4       |
| Q102    | D4       |
| Q103    | D4       |
| Q104    | D4       |
| Q201    | C4       |
| Q202    | D3       |
| Q203    | D3       |
| Q204    | E2       |
| Q205    | C3       |
| Q206    | C3       |
| Q302    | F3       |
| Q303    | F3       |
| Q304    | G4       |
| Q305    | F2       |



P.C.B. MAIN ( 7 )

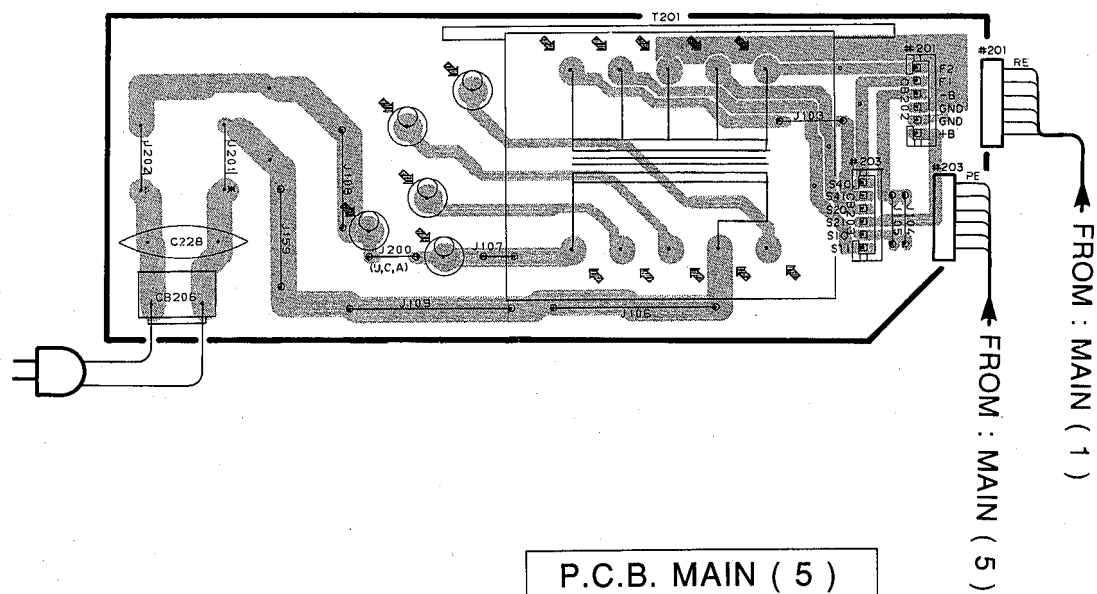


PRINTED CIRCUIT BOARD (Foil side)



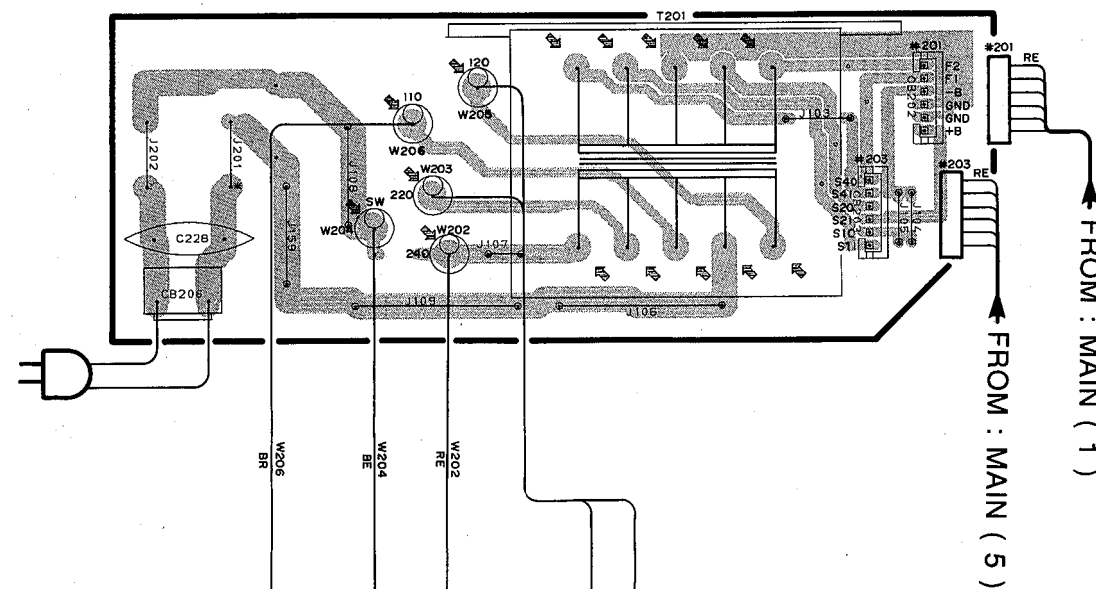
● Except R model

P.C.B. MAIN ( 4 )

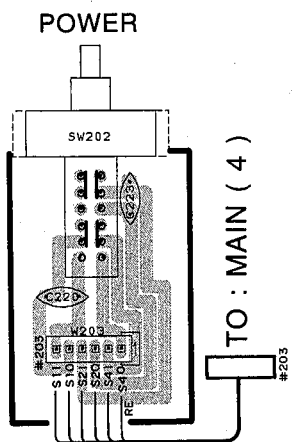


● R model

P.C.B. MAIN ( 4 )

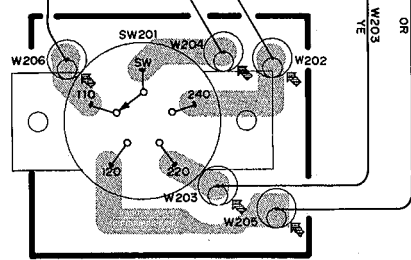


P.C.B. MAIN ( 5 )



VOLTAGE SELECTOR

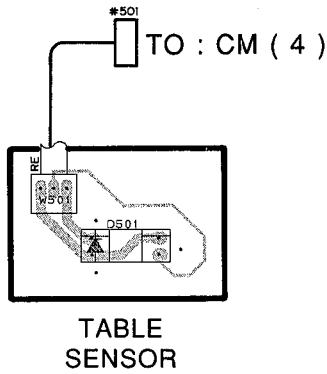
P.C.B. MAIN ( 6 )



1

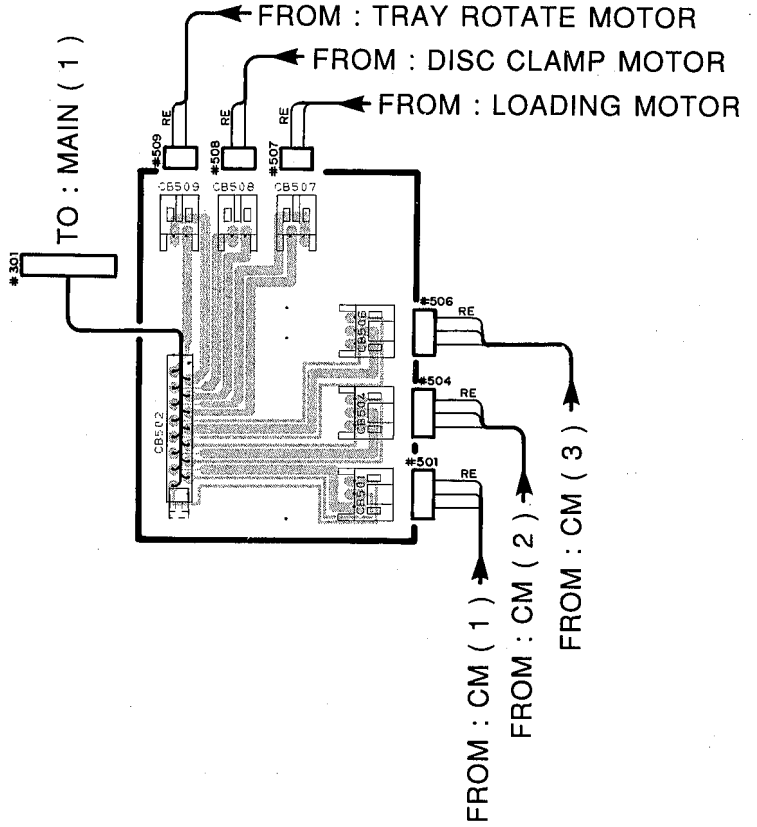
■ PRINTED CIRCUIT BOARD (Foil side)

P.C.B. CM ( 1 )



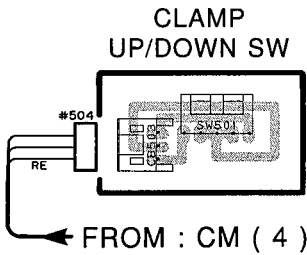
2

P.C.B. CM ( 4 )



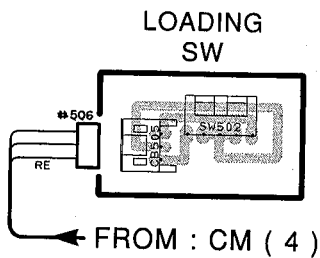
3

P.C.B. CM ( 2 )



4

P.C.B. CM ( 3 )



5

6

7

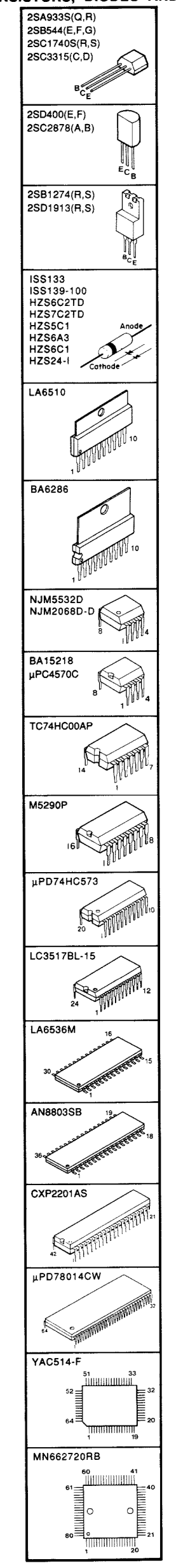
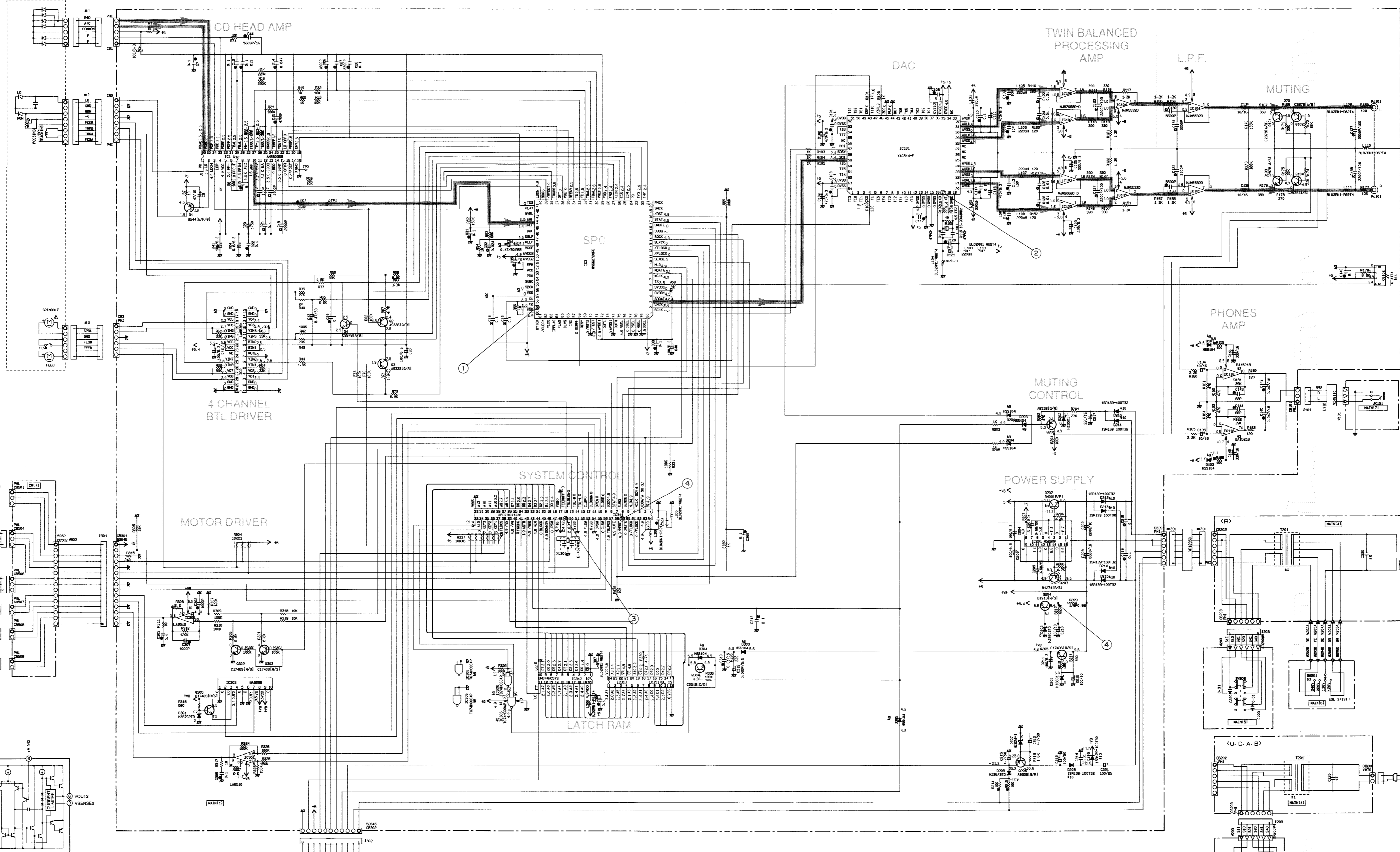




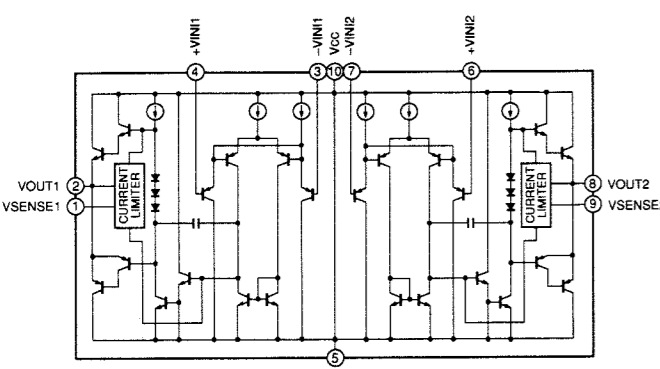
■ SCHEMATIC DIAGRAM

① to ④ : TEST POINT WAVEFORMS (See page 21)

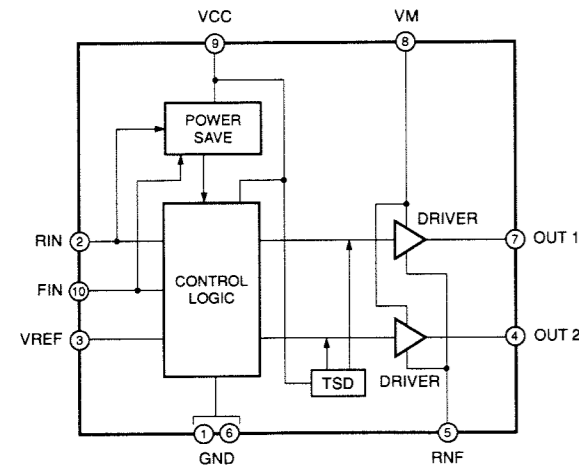
PIN CONNECTION DIAGRAM OF TRANSISTORS, DIODES AND ICs.



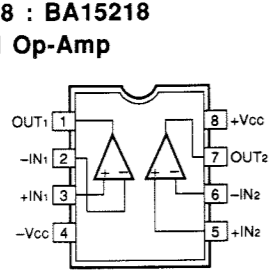
IC301 : LA6510 Dual Power Operational Amp



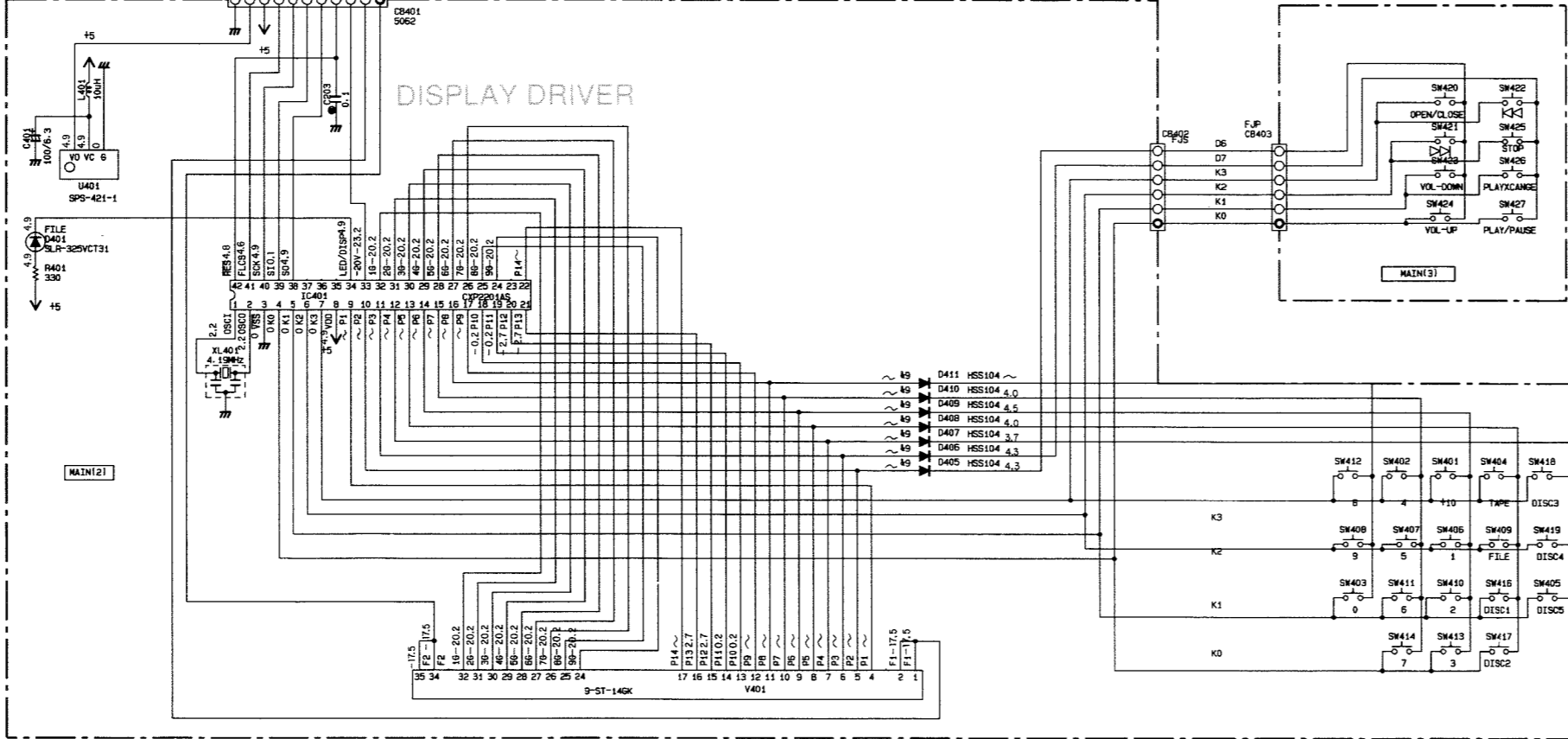
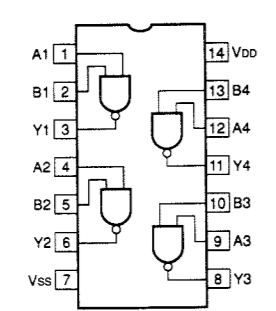
IC303 : BA6286 Motor Driver



IC104, 105 : NJM5523D IC102, 103 : NJM2068D-D IC118 : BA15218 Dual Op-Amp



IC306 : TC74HC00AP Quad 2-Input NAND Gate



Interchangeable Parts at Manufacture-Stage

| Mark | Reference Parts Number                  | Parts Name                 |
|------|---|----------------------------|
| k4   |   |                            |
| k5   | IC306                                   | TC74HC00AP                 |
| k7   | IC312                                   | TC74HC00AP                 |
| k9   | 0101-100-201-203-204<br>303-305-405-411 | H05104-100133-100176       |
| k10  | 0206-210-216                            | ISR139-100T32<br>11E54 TA1 |
| k11  | CR102                                   | TOTX174<br>TOTX170         |
| k12  | IC1                                     | AN8803SB<br>AN8806SB       |

|   | U-C   | R       | A               |
|---|-------|---------|-----------------|
| 1 | 1201  | XL801   | XL832 XL833     |
| 2 | C228  | F138410 | VE17820 VE17920 |
| 3 | SM201 | X       | VL50800 X       |
| 4 |       |         |                 |
| 5 |       |         |                 |

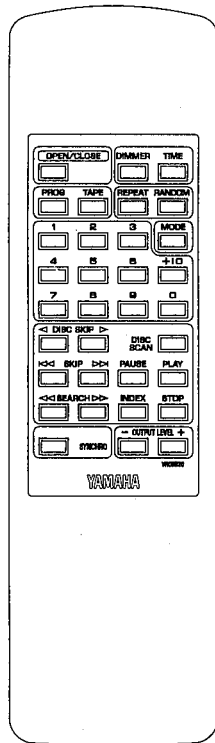
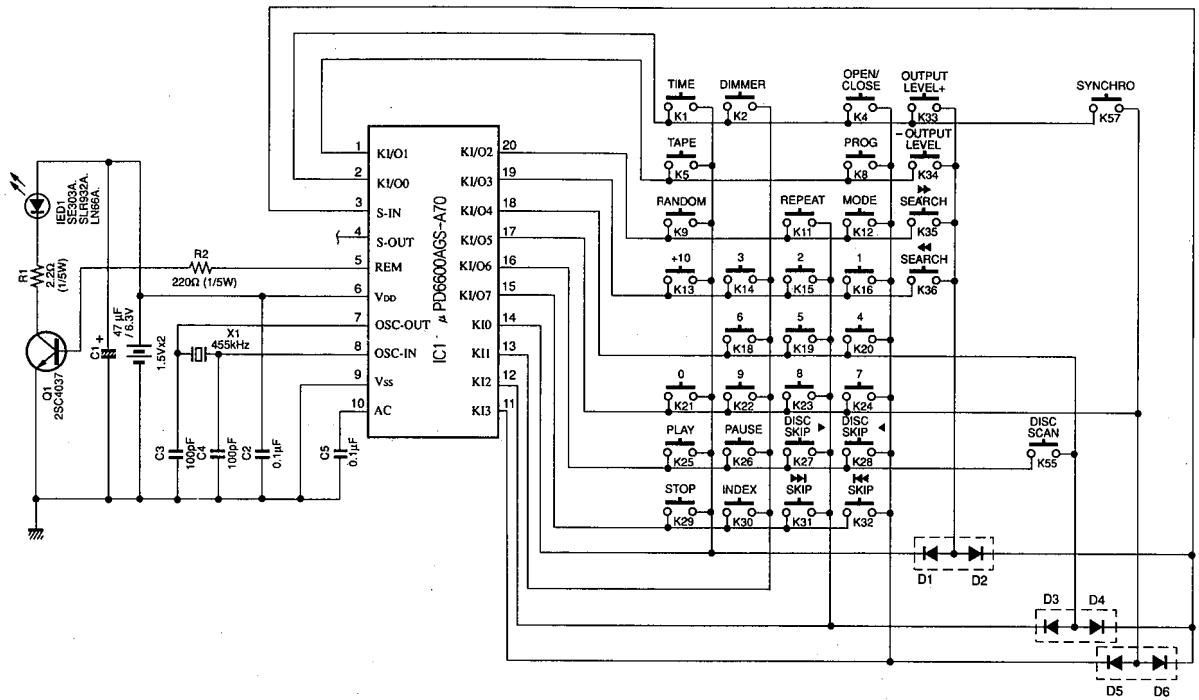
| REMARKS | PARTS NAME                        | REMARKS | PARTS NAME                      |
|---------|-----------------------------------|---------|---------------------------------|
| NO MARK | ELECTROLYTIC CAPACITOR            | NO MARK | CARBON FILM RESISTOR (P=5)      |
| ○       | LANTHANIUM CAPACITOR              | ○       | CARBON FILM RESISTOR (P=10)     |
| □       | CERAMIC CAPACITOR                 | △       | METAL GLAZE FILM RESISTOR       |
| ◇       | CERAMIC TUBULAR CAPACITOR         | ▲       | METAL FILM RESISTOR             |
| ◎       | POLYESTER FILM CAPACITOR          | □       | FILM PROOF CARBON FILM RESISTOR |
| ○       | POLYSTYRENE FILM CAPACITOR        | □       | CEMENT MOLDED RESISTOR          |
| ○       | MICA CAPACITOR                    | ○       | SEMI-VARIABLE RESISTOR          |
| ○       | POLYPROPYLENE FILM CAPACITOR      | ■       | CHIP RESISTOR                   |
| ●       | SEMI-CONDUCTIVE CERAMIC CAPACITOR |         |                                 |

| REMARKS | PARTS NAME                      |
|---------|---------------------------------|
| ○       | CARBON FILM RESISTOR (P=5)      |
| ○       | CARBON FILM RESISTOR (P=10)     |
| △       | METAL GLAZE FILM RESISTOR       |
| ▲       | METAL FILM RESISTOR             |
| □       | FILM PROOF CARBON FILM RESISTOR |
| □       | CEMENT MOLDED RESISTOR          |
| ○       | SEMI-VARIABLE RESISTOR          |
| ■       | CHIP RESISTOR                   |

All voltage are measured with a 10MQ/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.

# REMOTE CONTROL TRANSMITTER CDC-755

## SCHEMATIC DIAGRAM



| KEY No. | FUNCTION       | CUSTOM CODE (HEX) | REVERSE CUSTOM CODE (HEX) | DATA CODE (HEX) | REMARKS   |    |
|---------|----------------|-------------------|---------------------------|-----------------|-----------|----|
|         |                |                   |                           |                 | D0        | D7 |
| K 1     | TIME           | 79                | 86                        | 0A              | 01010000  |    |
| K 2     | DIMMER         | 79                | 86                        | 1E              | 01111000  |    |
| K 4     | OPEN/CLOSE     | 79                | 86                        | 01              | 10000000  |    |
| K 5     | TAPE           | 79                | 86                        | 57              | 110101010 |    |
| K 8     | PROG           | 79                | 86                        | 0C              | 00110000  |    |
| K 9     | RANDOM         | 79                | 86                        | 1B              | 11011000  |    |
| K11     | REPEAT         | 79                | 86                        | 08              | 00010000  |    |
| K12     | MODE           | 79                | 86                        | 00              | 00000000  |    |
| K13     | +10            | 79                | 86                        | 1A              | 01011000  |    |
| K14     | 3              | 79                | 86                        | 13              | 11001000  |    |
| K15     | 2              | 79                | 86                        | 12              | 01001000  |    |
| K16     | 1              | 79                | 86                        | 11              | 10001000  |    |
| K18     | 6              | 79                | 86                        | 16              | 01101000  |    |
| K19     | 5              | 79                | 86                        | 15              | 10101000  |    |
| K20     | 4              | 79                | 86                        | 14              | 00101000  |    |
| K21     | 0              | 79                | 86                        | 10              | 00001000  |    |
| K22     | 9              | 79                | 86                        | 19              | 10011000  |    |
| K23     | 8              | 79                | 86                        | 18              | 00011000  |    |
| K24     | 7              | 79                | 86                        | 17              | 11101000  |    |
| K25     | PLAY           | 79                | 86                        | 02              | 01000000  |    |
| K26     | PAUSE          | 79                | 86                        | 55              | 10101010  |    |
| K27     | DISC SKIP ▶    | 79                | 86                        | 4F              | 11110010  |    |
| K28     | ◀ DISC SKIP    | 79                | 86                        | 50              | 00001010  |    |
| K29     | STOP           | 79                | 86                        | 56              | 01101010  |    |
| K30     | INDEX          | 79                | 86                        | 0B              | 11010000  |    |
| K31     | SKIP ▶▶        | 79                | 86                        | 07              | 11100000  |    |
| K32     | ◀◀ SKIP        | 79                | 86                        | 04              | 00100000  |    |
| K33     | OUTPUT LEVEL + | 79                | 86                        | 1D              | 10111000  |    |
| K34     | - OUTPUT LEVEL | 79                | 86                        | 1C              | 00111000  |    |
| K35     | SEARCH ▶▶      | 79                | 86                        | 06              | 01100000  |    |
| K36     | ◀◀ SEARCH      | 79                | 86                        | 05              | 10100000  |    |
| K55     | DISC SCAN      | 79                | 86                        | 53              | 11001010  |    |
| K57     | SYNCHRO        | 79                | 86                        | 58              | 00011010  |    |

CDC-755

# PARTS LIST

## ■ ELECTRICAL PARTS

■ **WARNING**

Components having special characteristics are marked  $\triangle$  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 last page.

**ABBREVIATIONS IN THIS LIST ARE AS FOLLOWS :**

|            |                                |            |                                |
|------------|--------------------------------|------------|--------------------------------|
| C.A.EL.CHP | : CHIP ALUMI. ELECTROLYTIC CAP | L.EMIT     | : LIGHT EMITTING MODULE        |
| C.CE       | : CERAMIC CAP                  | LED.DSPLY  | : LED DISPLAY                  |
| C.CE.ARRAY | : CERAMIC CAP ARRAY            | LED.INFRD  | : LED, INFRARED                |
| C.CE.CHP   | : CHIP CERAMIC CAP             | MODUL.RF   | : MODULATOR, RF                |
| C.CE.ML    | : MULTILAYER CERAMIC CAP       | PHOT.CPL   | : PHOTO COUPLER                |
| C.CE.M.CHP | : CHIP MULTILAYER CERAMIC CAP  | PHOT.INTR  | : PHOTO INTERRUPTER            |
| C.CE.SAFTY | : RECOGNIZED CERAMIC CAP       | PHOT.RFLCT | : PHOTO REFLECTOR              |
| C.CE.TUBLR | : CERAMIC TUBULAR CAP          | PIN.TEST   | : PIN, TEST POINT              |
| C.CE.SMI   | : SEMI CONDUCTIVE CERAMIC CAP  | PLST.RIVET | : PLASTIC RIVET                |
| C.EL       | : ELECTROLYTIC CAP             | R.ARRAY    | : RESISTOR ARRAY               |
| C.MICA     | : MICA CAP                     | R.CAR      | : CARBON RESISTOR              |
| C.ML.FLM   | : MULTILAYER FILM CAP          | R.CAR.CHP  | : CHIP RESISTOR                |
| C.MP       | : METALLIZED PAPER CAP         | R.CAR.FP   | : FLAME PROOF CARBON RESISTOR  |
| C.MYLAR    | : MYLAR FILM CAP               | R.FUS      | : FUSABLE RESISTOR             |
| C.MYLAR.ML | : MULTILAYER MYLAR FILM CAP    | R.MTL.CHP  | : CHIP METAL FILM RESISTOR     |
| C.PAPER    | : PAPER CAPACITOR              | R.MTL.FLM  | : METAL FILM RESISTOR          |
| C.PLS      | : POLYSTYRENE FILM CAP         | R.MTL.OXD  | : METAL OXIDE FILM RESISTOR    |
| C.POL      | : POLYESTER FILM CAP           | R.MTL.PLAT | : METAL PLATE RESISTOR         |
| C.POLY     | : POLYETHYLENE FILM CAP        | RSNR.CE    | : CERAMIC RESONATOR            |
| C.PP       | : POLYPROPYLENE FILM CAP       | RSNR.CRYS  | : CRYSTAL RESONATOR            |
| C.TNTL     | : TANTALUM CAP                 | R.TW.CEM   | : TWIN CEMENT FIXED RESISTOR   |
| C.TNTL.CHP | : CHIP TANTALUM CAP            | R.WW       | : WIRE WOUND RESISTOR          |
| C.TRIM     | : TRIMMER CAP                  | SCR.BND.HD | : BIND HEAD B-TITE SCREW       |
| CN         | : CONNECTOR                    | SCR.BW.HD  | : BW HEAD TAPPING SCREW        |
| CN.BS.PIN  | : CONNECTOR, BASE PIN          | SCR.CUP    | : CUP TITE SCREW               |
| CN.CANNON  | : CONNECTOR, CANNON            | SCR.TERM   | : SCREW TERMINAL               |
| CN.DIN     | : CONNECTOR, DIN               | SCR.TR     | : SCREW, TRANSISTOR            |
| CN.FLAT    | : CONNECTOR, FLAT CABLE        | SUPRT.PCB  | : SUPPORT, P.C.B.              |
| CN.POST    | : CONNECTOR, BASE POST         | SURG.PRTCT | : SURGE PROTECTOR              |
| COIL.MX.AM | : COIL, AM MIX                 | SW.TACT    | : TACT SWITCH                  |
| COIL.AT.FM | : COIL, FM ANTENNA             | SW.LEAF    | : LEAF SWITCH                  |
| COIL.DT.FM | : COIL, FM DETECT              | SW.LEVER   | : LEVER SWITCH                 |
| COIL.MX.FM | : COIL, FM MIX                 | SW.MICRO   | : MICRO SWITCH                 |
| COIL.OUTPT | : OUTPUT COIL                  | SW.PUSH    | : PUSH SWITCH                  |
| DIOD.ARRAY | : DIODE ARRAY                  | SW.RT.ENC  | : ROTARY ENCODER               |
| DIODE.BRG  | : DIODE BRIDGE                 | SW.RT.MTR  | : ROTARY SWITCH WITH MOTOR     |
| DIODE.CHP  | : CHIP DIODE                   | SW.RT      | : ROTARY SWITCH                |
| DIODE.VAR  | : VARACTOR DIODE               | SW.SLIDE   | : SLIDE SWITCH                 |
| DIOD.Z.CHP | : CHIP ZENER DIODE             | TERM.SP    | : SPEAKER TERMINAL             |
| DIODE.ZENR | : ZENER DIODE                  | TERM.WRAP  | : WRAPPING TERMINAL            |
| DSCR.CE    | : CERAMIC DISCRIMINATOR        | THRMST.CHP | : CHIP THERMISTOR              |
| FER.BEAD   | : FERRITE BEADS                | TR.CHP     | : CHIP TRANSISTOR              |
| FER.CORE   | : FERRITE CORE                 | TR.DGT     | : DIGITAL TRANSISTOR           |
| FET.CHP    | : CHIP FET                     | TR.DGT.CHP | : CHIP DIGITAL TRANSISTOR      |
| FL.DSPLY   | : FLUORESCENT DISPLAY          | TRANS      | : TRANSFORMER                  |
| FLTR.CE    | : CERAMIC FILTER               | TRANS.PULS | : PULSE TRANSFORMER            |
| FLTR.COMB  | : COMB FILTER MODULE           | TRANS.PWR  | : POWER TRANSFORMER ASS'y      |
| FLTR.LC.RF | : LC FILTER ,EMI               | TUNER.AM   | : TUNER PACK, AM               |
| GND.MTL    | : GROUND PLATE                 | TUNER.FM   | : TUNER PACK, FM               |
| GND.TERM   | : GROUND TERMINAL              | TUNER.PK   | : FRONT-END TUNER PACK         |
| HOLDER.FUS | : FUSE HOLDER                  | VR         | : ROTARY POTENTIOMETER         |
| IC.PRTCT   | : IC PROTECTOR                 | VR.MTR     | : POTENTIOMETER WITH MOTOR     |
| JUMPER.CN  | : JUMPER CONNECTOR             | VR.SW      | : POTENTIOMETER WITH ROTARY SW |
| JUMPER.TST | : JUMPER, TEST POINT           | VR.SLIDE   | : SLIDE POTENTIOMETER          |
| L.DTCT     | : LIGHT DETECTING MODULE       | VR.TRIM    | : TRIMMER POTENTIOMETER        |

Note) Those parts marked with "#" are not included in the P.C.B. ass'y.

| Schm Ref. | PART NO. | Description  |              |
|-----------|----------|--------------|--------------|
| *         | VS786800 | P. C. B.     | MAIN(UC)     |
| *         | VS786900 | P. C. B.     | MAIN(R)      |
| *         | VS787000 | P. C. B.     | MAIN(A)      |
| CB1       | VD004800 | CN. BS. PIN  | 5P           |
| CB2       | VD005100 | CN. BS. PIN  | 8P           |
| CB3       | VD004900 | CN. BS. PIN  | 6P           |
| CB101     | VD004600 | CN. BS. PIN  | 3P           |
| CB102     | VG067200 | L. EMIT      | TOTX174      |
| CB201     | VD004900 | CN. BS. PIN  | 6P           |
| CB202     | VD004900 | CN. BS. PIN  | 6P           |
| CB203     | VD004900 | CN. BS. PIN  | 6P           |
| CB206     | VG879900 | CN. BS. PIN  | 2P           |
| CB301     | VM859600 | CN. BS. PIN  | 15P          |
| CB302     | VM859500 | CN. BS. PIN  | 11P          |
| CB401     | VM689200 | CN           | 11P          |
| C1        | VF760000 | C. EL        | 100uF 10V    |
| C7        | VH053100 | C. CE. TUBLR | 0. 1uF 50V   |
| C8        | VJ837200 | C. EL        | 47uF 16V     |
| C12       | VH053100 | C. CE. TUBLR | 0. 1uF 50V   |
| C13       | VH053100 | C. CE. TUBLR | 0. 1uF 50V   |
| C14       | UA654470 | C. MYLAR     | 0. 047uF 50V |
| C15       | UA653470 | C. MYLAR     | 4700pF 50V   |
| C16       | UA652100 | C. MYLAR     | 100pF 50V    |
| C17       | UA653220 | C. MYLAR     | 2200pF 50V   |
| C18       | UA653220 | C. MYLAR     | 2200pF 50V   |
| C19       | VH053100 | C. CE. TUBLR | 0. 1uF 50V   |
| C20       | VJ839100 | C. EL        | 1uF 50V      |
| C21       | UA655100 | C. MYLAR     | 0. 1uF 50V   |
| C22       | VH053100 | C. CE. TUBLR | 0. 1uF 50V   |
| C23       | VG278800 | C. CE. TUBLR | 560pF 50V    |
| C24       | VR498100 | C. EL        | 6. 8uF 6. 3V |
| C26       | UA653180 | C. MYLAR     | 1800pF 50V   |
| C27       | UA653330 | C. MYLAR     | 3300pF 50V   |
| C28       | UA655100 | C. MYLAR     | 0. 1uF 50V   |
| C29       | VH053100 | C. CE. TUBLR | 0. 1uF 50V   |
| C30       | VF760000 | C. EL        | 100uF 10V    |
| C31       | VH053100 | C. CE. TUBLR | 0. 1uF 50V   |
| C32       | UA654240 | C. MYLAR     | 0. 024uF 50V |
| C33       | VH053100 | C. CE. TUBLR | 0. 1uF 50V   |
| * C34     | UK665470 | C. EL        | 0. 47uF 50V  |
| C35       | VH053100 | C. CE. TUBLR | 0. 1uF 50V   |
| C36       | VH053100 | C. CE. TUBLR | 0. 1uF 50V   |
| C39       | VH053100 | C. CE. TUBLR | 0. 1uF 50V   |
| C40       | VF760000 | C. EL        | 100uF 10V    |
| C41       | VF760000 | C. EL        | 100uF 10V    |
| C42       | VF760000 | C. EL        | 100uF 10V    |
| * C43     | UK665470 | C. EL        | 0. 47uF 50V  |
| C44       | VG279800 | C. CE. TUBLR | 5600pF 16V   |
| C101      | VH053100 | C. CE. TUBLR | 0. 1uF 50V   |
| C102      | UJ628470 | C. EL        | 470uF 10V    |
| C103      | VH053100 | C. CE. TUBLR | 0. 1uF 50V   |
| C104      | UJ628470 | C. EL        | 470uF 10V    |
| C108      | VH053100 | C. CE. TUBLR | 0. 1uF 50V   |

\* New Parts

| Schm Ref. | PART NO. | Description  |          |       |
|-----------|----------|--------------|----------|-------|
| C109      | VF466600 | C. CE. TUBLR | 10pF     | 50V   |
| C110      | VH053100 | C. CE. TUBLR | 0. 1uF   | 50V   |
| C111      | VG287100 | C. EL        | 470uF    | 10V   |
| C112      | VF466600 | C. CE. TUBLR | 10pF     | 50V   |
| C113      | VF466600 | C. CE. TUBLR | 10pF     | 50V   |
| C114      | VH053100 | C. CE. TUBLR | 0. 1uF   | 50V   |
| C115      | VG287100 | C. EL        | 470uF    | 10V   |
| C116      | VF466600 | C. CE. TUBLR | 10pF     | 50V   |
| C117      | VH053100 | C. CE. TUBLR | 0. 1uF   | 50V   |
| C118      | VA761400 | C. CE        | 47pF     | 50V   |
| C119      | VA761400 | C. CE        | 47pF     | 50V   |
| C120      | VH053100 | C. CE. TUBLR | 0. 1uF   | 50V   |
| C121      | UJ628470 | C. EL        | 470uF    | 10V   |
| C122      | UA654100 | C. MYLAR     | 0. 01uF  | 50V   |
| C123      | VP847100 | C. PP        | 2200pF   | 100V  |
| C124      | UA654100 | C. MYLAR     | 0. 01uF  | 50V   |
| C125      | VH619100 | C. EL        | 220uF    | 6. 3V |
| C126      | UA654100 | C. MYLAR     | 0. 01uF  | 50V   |
| C127      | VP847100 | C. PP        | 2200pF   | 100V  |
| C128      | UA654100 | C. MYLAR     | 0. 01uF  | 50V   |
| C129      | VH619100 | C. EL        | 220uF    | 6. 3V |
| C130      | Vi716400 | C. MYLAR     | 5600pF   | 50V   |
| C131      | Vi715900 | C. MYLAR     | 2200pF   | 50V   |
| C132      | Vi715900 | C. MYLAR     | 2200pF   | 50V   |
| C133      | Vi716400 | C. MYLAR     | 5600pF   | 50V   |
| C134      | VJ836900 | C. EL        | 10uF     | 16V   |
| C135      | VJ836900 | C. EL        | 10uF     | 16V   |
| C136      | VR619800 | C. EL        | 10uF     | 16V   |
| C137      | VL883800 | C. PP        | 2200pF   | 100V  |
| C138      | VL883800 | C. PP        | 2200pF   | 100V  |
| C139      | VR619800 | C. EL        | 10uF     | 16V   |
| C140      | VH053100 | C. CE. TUBLR | 0. 1uF   | 50V   |
| C141      | UJ638330 | C. EL        | 330uF    | 16V   |
| C142      | VJ599000 | C. CE. TUBLR | 0. 047uF | 16V   |
| C143      | VG277700 | C. CE. TUBLR | 68pF     | 50V   |
| C144      | VG277700 | C. CE. TUBLR | 68pF     | 50V   |
| C145      | VJ599000 | C. CE. TUBLR | 0. 047uF | 16V   |
| C146      | UJ638330 | C. EL        | 330uF    | 16V   |
| C201      | UJ865680 | C. EL        | 0. 68uF  | 50V   |
| C202      | VF904800 | C. EL        | 2200uF   | 16V   |
| C203      | VH053100 | C. CE. TUBLR | 0. 1uF   | 50V   |
| C204      | VF760000 | C. EL        | 100uF    | 10V   |
| C206      | VF760000 | C. EL        | 100uF    | 10V   |
| C208      | Vi578400 | C. EL        | 6800uF   | 16V   |
| C209      | UJ865680 | C. EL        | 0. 68uF  | 50V   |
| C210      | VF760000 | C. EL        | 100uF    | 10V   |
| C211      | VF760000 | C. EL        | 100uF    | 10V   |
| C212      | VF760000 | C. EL        | 100uF    | 10V   |
| C213      | UM416470 | C. EL        | 4. 7uF   | 50V   |
| C214      | FG214100 | C. CE        | 0. 01uF  | 50V   |
| C215      | UM416470 | C. EL        | 4. 7uF   | 50V   |
| C216      | UJ668100 | C. EL        | 100uF    | 50V   |
| C217      | UJ648220 | C. EL        | 220uF    | 25V   |

\* New Parts

| Schm Ref. | PART NO. | Description  |                     |          |
|-----------|----------|--------------|---------------------|----------|
| C218      | Vi550600 | C. MYLAR. ML | 0.1uF               | 50V      |
| C219      | Vi550600 | C. MYLAR. ML | 0.1uF               | 50V      |
| C220      | FG214100 | C. CE        | 0.01uF              | 50V      |
| C221      | UJ648100 | C. EL        | 100uF               | 25V      |
| C223      | FG214100 | C. CE        | 0.01uF              | 50V      |
| C228      | Fi384100 | C. CE. SAFTY | 0.01uF              | 400V(UC) |
| C228      | VE179200 | C. CE. SAFTY | 0.01uF              | 400V(RA) |
| C302      | VF467000 | C. CE. TUBLR | 1000pF              | 50V      |
| C303      | VH053100 | C. CE. TUBLR | 0.1uF               | 50V      |
| C304      | VF467000 | C. CE. TUBLR | 1000pF              | 50V      |
| C305      | VH053100 | C. CE. TUBLR | 0.1uF               | 50V      |
| C306      | VH053100 | C. CE. TUBLR | 0.1uF               | 50V      |
| C307      | VH053100 | C. CE. TUBLR | 0.1uF               | 50V      |
| C308      | VH053100 | C. CE. TUBLR | 0.1uF               | 50V      |
| C310      | VF467300 | C. CE. TUBLR | 0.01uF              | 16V      |
| C312      | VQ353000 | C. EL        | 22000uF             | 5.5V     |
| C313      | VH053100 | C. CE. TUBLR | 0.1uF               | 50V      |
| C401      | VF760000 | C. EL        | 100uF               | 10V      |
| D101      | VD631600 | DIODE        | 1SS133, 176, HSS104 |          |
| D102      | VD631600 | DIODE        | 1SS133, 176, HSS104 |          |
| D201      | VD631600 | DIODE        | 1SS133, 176, HSS104 |          |
| * D202    | VP642400 | DIODE. ZENR  | HZS5C1              | 5.0V     |
| D203      | VD631600 | DIODE        | 1SS133, 176, HSS104 |          |
| D204      | VD631600 | DIODE        | 1SS133, 176, HSS104 |          |
| D205      | VM974500 | DIODE. ZENR  | HZS6C2TD            | 6.0V     |
| * D206    | VQ592700 | DIODE. ZENR  | HZS6C1              | 6.0V     |
| * D207    | VS858600 | DIODE. ZENR  | HZS24-1             | 24V      |
| D208      | VH770800 | DIODE        | 1SR139-100          |          |
| * D209    | VP642500 | DIODE. ZENR  | HZS6A3              | 6.0V     |
| D210      | VH770800 | DIODE        | 1SR139-100          |          |
| D211      | VH770800 | DIODE        | 1SR139-100          |          |
| D212      | VH770800 | DIODE        | 1SR139-100          |          |
| D213      | VH770800 | DIODE        | 1SR139-100          |          |
| D214      | VH770800 | DIODE        | 1SR139-100          |          |
| D215      | VH770800 | DIODE        | 1SR139-100          |          |
| D216      | VH770800 | DIODE        | 1SR139-100          |          |
| D301      | VM974800 | DIODE. ZENR  | HZS7C2TD            | 7.0V     |
| D303      | VD631600 | DIODE        | 1SS133, 176, HSS104 |          |
| D304      | VD631600 | DIODE        | 1SS133, 176, HSS104 |          |
| D305      | VD631600 | DIODE        | 1SS133, 176, HSS104 |          |
| D401      | VS132300 | LED (RED)    | SLR-325VCT31        |          |
| D405      | VD631600 | DIODE        | 1SS133, 176, HSS104 |          |
| D406      | VD631600 | DIODE        | 1SS133, 176, HSS104 |          |
| D407      | VD631600 | DIODE        | 1SS133, 176, HSS104 |          |
| D408      | VD631600 | DIODE        | 1SS133, 176, HSS104 |          |
| D409      | VD631600 | DIODE        | 1SS133, 176, HSS104 |          |
| D410      | VD631600 | DIODE        | 1SS133, 176, HSS104 |          |
| D411      | VD631600 | DIODE        | 1SS133, 176, HSS104 |          |
| IC1       | XM571A00 | IC           | AN8803SB            |          |
| * IC2     | XN105A00 | IC           | LA6536M             |          |
| IC3       | XN481A00 | IC           | MN6627ORB           |          |
| IC101     | XM911A00 | IC           | YAC514-F            |          |
| IC102     | XA987001 | IC           | NJM2068D-D          |          |

\* New Parts

| Schm Ref. | PART NO. | Description |  |                   |
|-----------|----------|-------------|--|-------------------|
| IC103     | XA987001 | IC          |  | NJM2068D-D        |
| IC104     | iG142800 | IC          |  | NJM5532D          |
| IC105     | iG142800 | IC          |  | NJM5532D          |
| IC118     | Xi249A00 | IC          |  | BA15218           |
| IC201     | XD201A00 | IC          |  | M5290P            |
| IC301     | XF947A00 | IC          |  | LA6510            |
| * IC303   | XQ135A00 | IC          |  | BA6286            |
| IC306     | iR000001 | IC          |  | TC74HC00AP        |
| * IC311   | XQ177A00 | IC          |  | uPD78014CW        |
| IC312     | iR057320 | IC          |  | uPD74HC573 LATCH  |
| IC313     | XE859A00 | IC          |  | LC3517BL-15       |
| IC401     | XM832A00 | IC          |  | CXP2201AS         |
| * JK101   | VS899700 | JACK. PHONE |  | JY-6317-02-030    |
| L101      | VB056900 | COIL        |  | 220uH             |
| L102      | VB056900 | COIL        |  | 220uH             |
| L103      | VB056900 | COIL        |  | 220uH             |
| L104      | VP133800 | FER. BEAD   |  | BL02RN1-R62T4     |
| L105      | VB056900 | COIL        |  | 220uH             |
| L106      | VB056900 | COIL        |  | 220uH             |
| L107      | VB056900 | COIL        |  | 220uH             |
| L108      | VB056900 | COIL        |  | 220uH             |
| L109      | VP133800 | FER. BEAD   |  | BL02RN1-R62T4     |
| L110      | VP133800 | FER. BEAD   |  | BL02RN1-R62T4     |
| L111      | VP133800 | FER. BEAD   |  | BL02RN1-R62T4     |
| L112      | Vi491100 | FER. CORE   |  | BP53RB19012080M   |
| L113      | VP133800 | FER. BEAD   |  | BL02RN1-R62T4     |
| L305      | VP133800 | FER. BEAD   |  | BL02RN1-R62T4     |
| L306      | VP133800 | FER. BEAD   |  | BL02RN1-R62T4     |
| L307      | VP133800 | FER. BEAD   |  | BL02RN1-R62T4     |
| L308      | VP133800 | FER. BEAD   |  | BL02RN1-R62T4     |
| L401      | Vi544500 | COIL        |  | 10uH              |
| PJ101     | VJ898400 | JACK. PIN   |  | 2P                |
| Q1        | iB054430 | TR          |  | 2SB544 D, E, F, G |
| Q2        | iA093320 | TR          |  | 2SA933S Q, R      |
| Q3        | iA093320 | TR          |  | 2SA933S Q, R      |
| Q4        | iC287820 | TR          |  | 2SC2878 A, B      |
| Q101      | iC287820 | TR          |  | 2SC2878 A, B      |
| Q102      | iC287820 | TR          |  | 2SC2878 A, B      |
| Q103      | iC287820 | TR          |  | 2SC2878 A, B      |
| Q104      | iC287820 | TR          |  | 2SC2878 A, B      |
| Q201      | iA093320 | TR          |  | 2SA933S Q, R      |
| Q202      | iD040040 | TR          |  | 2SD400            |
| Q203      | VS883300 | TR          |  | 2SB1565 E, F      |
| Q204      | VS883400 | TR          |  | 2SD2394 E, F      |
| Q205      | iC174020 | TR          |  | 2SC1740S R, S     |
| Q206      | iA093320 | TR          |  | 2SA933S Q, R      |
| Q302      | iC174020 | TR          |  | 2SC1740S R, S     |
| Q303      | iC174020 | TR          |  | 2SC1740S R, S     |
| Q304      | VC529400 | TR          |  | 2SC3315 C, D      |
| Q305      | iC174020 | TR          |  | 2SC1740S R, S     |
| R159      | HV455100 | R. CAR. FP  |  | 100 Ω 1/4W        |
| R166      | HV455100 | R. CAR. FP  |  | 100 Ω 1/4W        |
| R209      | Vi868300 | R. FUS      |  | 0.68 Ω 1/6W       |

\* New Parts

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| Schm Ref. | PART NO. | Description  |             |          |
|-----------|----------|--------------|-------------|----------|
| R214      | HV455100 | R. CAR. FP   | 100 Ω       | 1/4W     |
| R215      | HV455100 | R. CAR. FP   | 100 Ω       | 1/4W     |
| R304      | VQ379400 | R. ARRAY     | 10K Ω x3    |          |
| R308      | HV453220 | R. CAR. FP   | 2.2 Ω       | 1/4W     |
| R327      | HV453220 | R. CAR. FP   | 2.2 Ω       | 1/4W     |
| R337      | VQ379600 | R. ARRAY     | 10K Ω x6    |          |
| △ SW201   | VL908000 | VOLT. SELCT  | ESE-370 (R) |          |
| △ SW202   | Vi272700 | SW. PUSH     |             |          |
| SW401     | VG392900 | SW. TACT     | SKHVAA      |          |
| SW402     | VG392900 | SW. TACT     | SKHVAA      |          |
| SW403     | VG392900 | SW. TACT     | SKHVAA      |          |
| SW404     | VG392900 | SW. TACT     | SKHVAA      |          |
| SW405     | VG392900 | SW. TACT     | SKHVAA      |          |
| SW406     | VG392900 | SW. TACT     | SKHVAA      |          |
| SW407     | VG392900 | SW. TACT     | SKHVAA      |          |
| SW408     | VG392900 | SW. TACT     | SKHVAA      |          |
| SW409     | VG392900 | SW. TACT     | SKHVAA      |          |
| SW410     | VG392900 | SW. TACT     | SKHVAA      |          |
| SW411     | VG392900 | SW. TACT     | SKHVAA      |          |
| SW412     | VG392900 | SW. TACT     | SKHVAA      |          |
| SW413     | VG392900 | SW. TACT     | SKHVAA      |          |
| SW414     | VG392900 | SW. TACT     | SKHVAA      |          |
| SW416     | VG392900 | SW. TACT     | SKHVAA      |          |
| SW417     | VG392900 | SW. TACT     | SKHVAA      |          |
| SW418     | VG392900 | SW. TACT     | SKHVAA      |          |
| SW419     | VG392900 | SW. TACT     | SKHVAA      |          |
| SW420     | VG392900 | SW. TACT     | SKHVAA      |          |
| SW421     | VG392900 | SW. TACT     | SKHVAA      |          |
| SW422     | VG392900 | SW. TACT     | SKHVAA      |          |
| SW423     | VG392900 | SW. TACT     | SKHVAA      |          |
| SW424     | VG392900 | SW. TACT     | SKHVAA      |          |
| SW425     | VG392900 | SW. TACT     | SKHVAA      |          |
| SW426     | VG392900 | SW. TACT     | SKHVAA      |          |
| SW427     | VG392900 | SW. TACT     | SKHVAA      |          |
| △ * T201  | XL831A00 | TRANS. PWR   | (UC)        |          |
| △ * T201  | XL832A00 | TRANS. PWR   | (R)         |          |
| △ * T201  | XL833A00 | TRANS. PWR   | (A)         |          |
| TP1       | VL448600 | JUMPER. TST  |             |          |
| TP2       | VL448600 | JUMPER. TST  |             |          |
| U401      | VK498900 | L. DTCT      | S-100       |          |
| * V401    | VS415000 | FL. DSPLY    | 9-ST-14GK   |          |
| XL101     | VJ719800 | RSNR. CRYST  | 16.9344MHz  |          |
| XL301     | VN773800 | RSNR. CE     | 8.467MHz    |          |
| XL401     | VJ677200 | RSNR. CE     | 4.19MHz     |          |
|           | VR506800 | HEAT. SINK   | PUH16-25    |          |
|           | VQ713000 | SUPRT        | FL          |          |
|           | VQ948800 | SHEET        | FL          |          |
|           | VS257700 | PLATE. GND   |             |          |
|           | VB966900 | CN           | IMSA-6024   |          |
|           | ED330066 | SCR. BND. HD | 3x6         | FCRM3-BL |

\* New Parts

| Schm Ref.  | PART NO. | Description |           |
|------------|----------|-------------|-----------|
| * VS778600 |          | P. C. B.    | CM        |
| CB501      | VB858200 | CN. BS. PIN | 3P        |
| CB502      | VM689400 | CN          | 15P       |
| CB503      | VB858200 | CN. BS. PIN | 3P        |
| CB504      | VB858200 | CN. BS. PIN | 3P        |
| CB505      | VB858200 | CN. BS. PIN | 3P        |
| CB506      | VB858200 | CN. BS. PIN | 3P        |
| CB507      | VB858100 | CN. BS. PIN | 2P        |
| CB508      | VB858100 | CN. BS. PIN | 2P        |
| CB509      | VB858100 | CN. BS. PIN | 2P        |
| D501       | VS743900 | PHOT. INTR  | GP1S53V   |
| SW501      | Vi294000 | SW. LEVER   | SSCF21    |
| SW502      | Vi294000 | SW. LEVER   | SSCF21    |
| * W502     | VT033200 | CN. FLAT    | 15P 120mm |

\* New Parts

A

B

C

D

E

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# EXPLODED VIEW

1

2

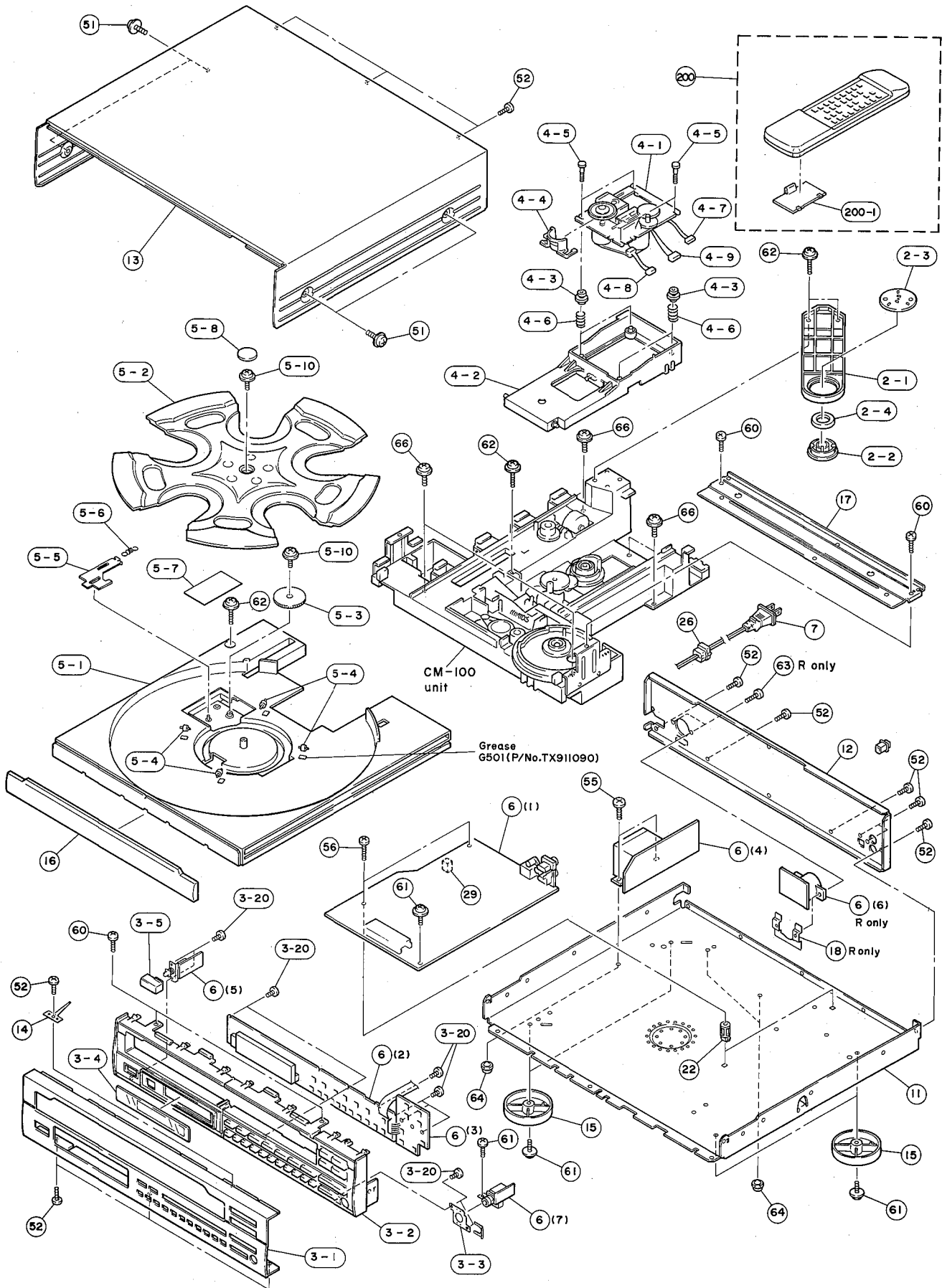
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MECHANICAL PARTS

| Ref. No. | PART NO. | Description                  | Remarks            | Markets |
|----------|----------|------------------------------|--------------------|---------|
| * 2- 1   | VS037800 | CLAMPER                      |                    |         |
| 2- 2     | VL782500 | STABILIZER                   |                    |         |
| * 2- 3   | VS500400 | PLATE                        | STABILIZER         |         |
| * 2- 4   | VQ930900 | MAGNET                       | DH29. 6x18x3. 6FMS |         |
| * 3- 1   | VS253700 | FRONT PANEL                  |                    |         |
| * 3- 2   | VS308800 | SUB PANEL                    |                    |         |
| * 3- 3   | VS257400 | PLATE, HP                    |                    |         |
| * 3- 4   | VS259000 | WINDOW PANEL                 |                    |         |
| 3- 5     | VQ780000 | BUTTON                       |                    |         |
| 3-20     | EP630290 | BIND HEAD P-TITE SCREW       | 3x6 FCRM3-BL       |         |
| 4- 1     | VM444300 | PU MECHA. UNIT               | CD90V1YA           |         |
| * 4- 2   | VS037600 | HOLDER                       |                    |         |
| * 4- 3   | VQ775600 | DAMPER, BUSH                 |                    |         |
| 4- 4     | VP660500 | BARRIER                      | PU                 |         |
| * 4- 5   | VS037700 | SCREW, 2                     |                    |         |
| * 4- 6   | VQ386500 | SPRING                       |                    |         |
| * 4- 7   | VS841500 | CONNECTOR ASS'Y              | 5P 170mm           |         |
| * 4- 8   | VS841600 | CONNECTOR ASS'Y              | 6P 180mm           |         |
| * 4- 9   | VT033500 | CONNECTOR ASS'Y              | 8P 200mm           |         |
| * 5- 1   | VS034000 | TRAY                         | B                  |         |
| * 5- 2   | VS034400 | TABLE                        | B                  |         |
| * 5- 3   | VS036000 | GEAR, RT1                    |                    |         |
| * 5- 4   | VS037300 | ROLLER                       |                    |         |
| * 5- 5   | VS037200 | LEVER, RT                    |                    |         |
| * 5- 6   | VS036900 | SPRING, RT                   |                    |         |
| * 5- 7   | VS037900 | SHEET, TRAY                  | B                  |         |
| * 5- 8   | VS051900 | PLATE, TABLE                 | B                  |         |
| 5-10     | VA775100 | BW HEAD P-TITE SCREW         | 3x8-10 FCRM3-BL    |         |
| * 6      | VS786800 | P. C. B. ASS'Y               | MAIN               | (UC)    |
| * 6      | VS786900 | P. C. B. ASS'Y               | MAIN               | (R)     |
| * 6      | VS787000 | P. C. B. ASS'Y               | MAIN               | (A)     |
| △* 7     | VQ508500 | POWER CORD ASS'Y             |                    | (R)     |
| △* 7     | VQ508600 | POWER CORD ASS'Y             |                    | (A)     |
| △* 7     | VS168300 | POWER CORD ASS'Y             |                    | (UC)    |
| * 11     | VS254200 | CHASSIS, MAIN                |                    |         |
| * 12     | VS254700 | REAR PANEL                   |                    | (UC)    |
| * 12     | VS254800 | REAR PANEL                   |                    | (R)     |
| * 12     | VS254900 | REAR PANEL                   |                    | (A)     |
| * 13     | VS254400 | TOP COVER                    |                    |         |
| * 14     | VQ775900 | GROUND PLATE                 |                    |         |
| 15       | VQ780300 | LEG                          | D60xH16            |         |
| * 16     | VS258800 | LID 755                      |                    |         |
| * 17     | VS256900 | FRAME, PANEL                 |                    |         |
| * 18     | VS257300 | PLATE, R                     |                    | (R)     |
| 22       | Vi048500 | SUPPORT, P. C. B.            |                    |         |
| 26       | VN158600 | CORD STOPPER                 | No. 2104           |         |
| * 29     | VQ366100 | DAMPER, PCB                  |                    |         |
| 51       | EL300470 | BW HEAD S-TITE SCREW         | 4x8-10 FCRM3-BL    |         |
| 52       | EN301010 | BIND HEAD BONDING TAP. SCREW | 3x8 FCRM3-BL       |         |
| 55       | EK396010 | BIND HEAD S-TITE SCREW       | 4x8 FCRM3-BL       |         |
| 56       | EP630640 | BIND HEAD P-TITE SCREW       | 3x20 FCRM3-BL      |         |
| 60       | Ei330086 | BIND HEAD B-TITE SCREW       | 3x8 FCRM3-BL       |         |
| 61       | EK930010 | BW HEAD TAPPING SCREW        | 3x8-8 FCRM3-BL     |         |

\* New Parts

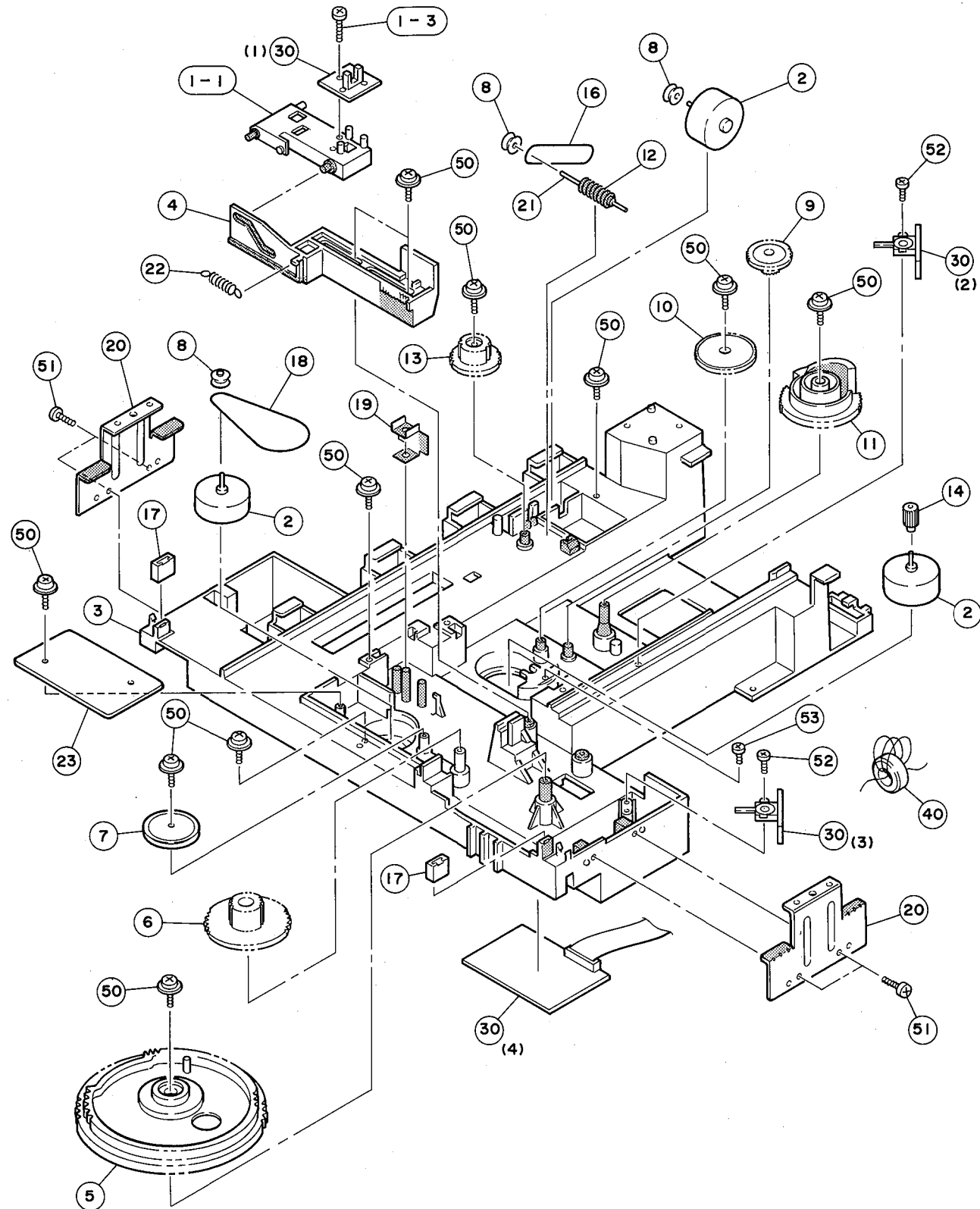
| Ref. No. | PART NO. | Description                | Remarks        | Markets |
|----------|----------|----------------------------|----------------|---------|
| * 62     | EX602620 | BW HEAD P-TITE SCREW       | 3x12-10 ZMC2-Y |         |
| 63       | EP630280 | BIND HEAD B-TITE SCREW     | 3x10 FCRM3-BL  | (R)     |
| 64       | EX601580 | HEXAGONAL BLIND NUT        | 4mm FCRM3-BL   |         |
| 66       | EX602630 | BW HEAD S-TITE SCREW       | 4x10 FCRM3-BL  |         |
|          |          | ACCESSORIES                |                |         |
| * 200    | VR039200 | REMOTE CONTROL TRANSMITTER |                |         |
| 200-1    | CX675150 | LID                        |                |         |
| *        | VS381600 | PIN PLUG CORD              | 1.0m           |         |
| *        |          | BATTERY, MANGANESE         | SUM-3, AA, R06 |         |

\* New Parts



CDC-755

1 ■ EXPLODED VIEW (CM-100 Unit)

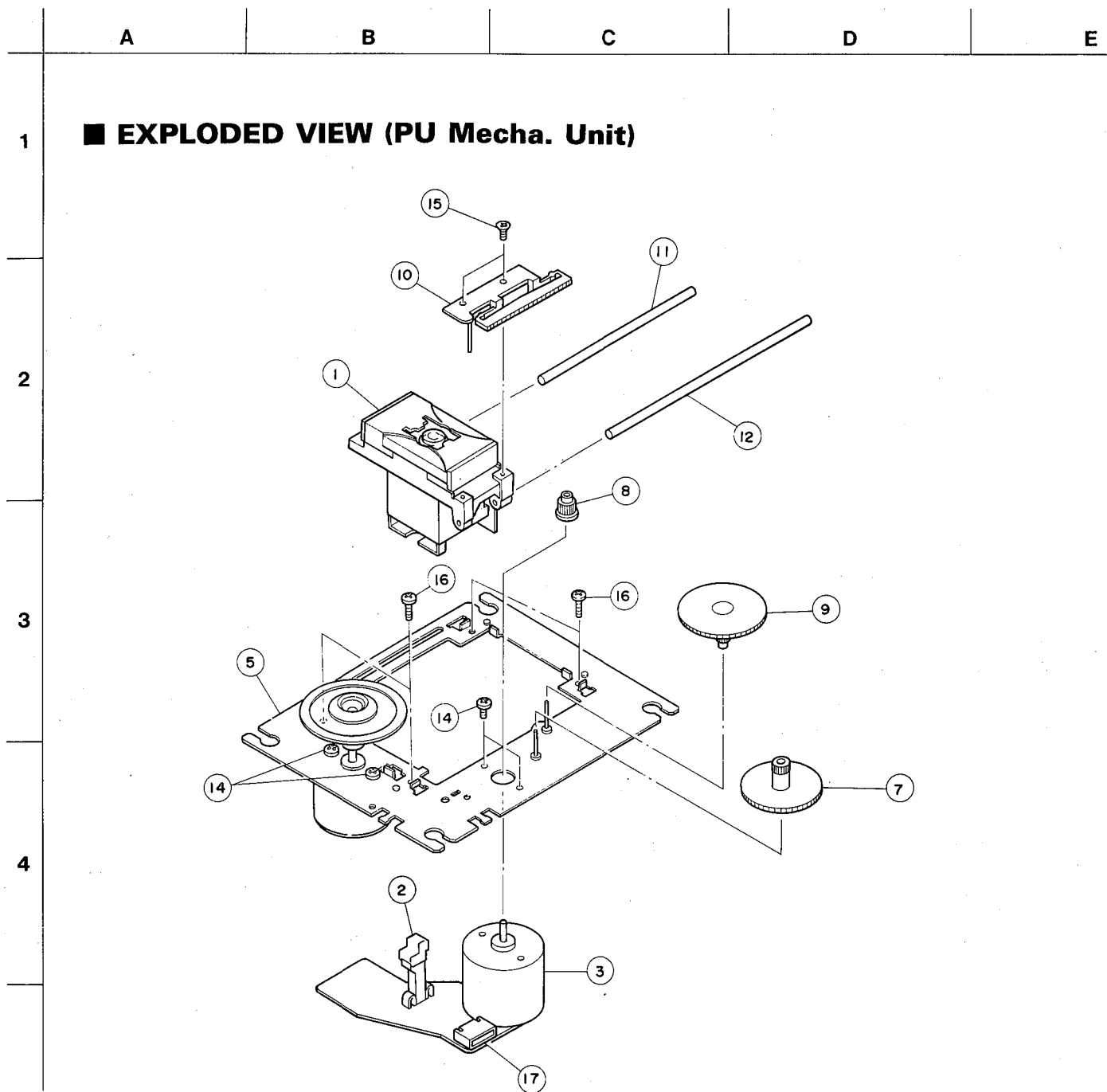


■ : Apply the grease  
G501 (P/No. TX911090)

■ MECHANICAL PARTS (CM-100 Unit)

| Ref. No. | PART NO. | Description            | Remarks         | Markets |
|----------|----------|------------------------|-----------------|---------|
| * 1- 1   | VS036700 | HOLDER, SENSOR         |                 |         |
| 1- 3     | EX601360 | BIND HEAD P-TITE SCREW | 3x10 FCRM3-BL   |         |
| 2        | VM444200 | MOTOR                  | RF-500TB-14415  |         |
| * 3      | VS033900 | CHASSIS                |                 |         |
| * 4      | VS036400 | SLIDE CAM              |                 |         |
| * 5      | VS035000 | GEAR, LO2              |                 |         |
| * 6      | VS035300 | GEAR, LO1              |                 |         |
| * 7      | VS036100 | GEAR PULLEY            |                 |         |
| * 8      | VS036200 | PULLEY                 |                 |         |
| * 9      | VS035400 | GEAR, CL2              |                 |         |
| * 10     | VS035500 | GEAR, CL1              |                 |         |
| * 11     | VS036300 | CAM, CL                |                 |         |
| * 12     | VS035700 | GEAR                   |                 |         |
| * 13     | VS035800 | GEAR, WW               |                 |         |
| * 14     | VP627900 | GEAR, CL               |                 |         |
| * 16     | VS036500 | BELT, RT               |                 |         |
| * 17     | VQ775500 | DAMPER, TRAY           |                 |         |
| * 18     | VQ776900 | BELT                   | V               |         |
| * 19     | VS037100 | LEVER                  |                 |         |
| * 20     | VS037400 | SUPPORT, TRAY          |                 |         |
| * 21     | VS036600 | SHAFT, 2               |                 |         |
| * 22     | VS036800 | SPRING, CAM            |                 |         |
| * 23     | VT435400 | SHEET                  | B               |         |
| * 30     | VS778600 | P.C.B. ASS'Y           | CM              |         |
| 40       | VP128600 | FERRITE CORE           | FSOB160PB       |         |
| 50       | VA775100 | BW HEAD P-TITE SCREW   | 3x8-10 FCRM3-BL |         |
| 51       | EX601360 | BIND HEAD P-TITE SCREW | 3x10 FCRM3-BL   |         |
| 52       | VF617600 | PAN HEAD P-TITE SCREW  | 2.6x8 FCRM3-BL  |         |
| 53       | ED326056 | BIND HEAD SCREW        | 2.6x5 ZMC2-BL   |         |

\* New Parts



| Ref. No. | PART NO. | Description     | Remarks        | Markets       |
|----------|----------|-----------------|----------------|---------------|
|          | VM444300 | PU MECHA. UNIT  | GD90VIYA       |               |
| 1        | PX601520 | PICK UP ASS'y   | SF-91P         | 1EA0A41A03100 |
| 2        | KX603540 | LIMIT SWITCH    |                | 1EA4S13A00800 |
| 3        | JX601050 | MOTOR           |                | 1EA4M10A02100 |
| 5        | NX611200 | CHASSIS ASS'y   |                | 1EA0311A02900 |
| 7        | CX618680 | GEAR            | MIDDLE         | 1EA2511A06300 |
| 8        | CX618690 | GEAR            | MOTOR          | 1EA2511A06400 |
| 9        | CX618700 | GEAR            | POWER          | 1EA2511A06500 |
| 10       | AX615020 | PLATE           | RACK           | 1EA2731A01400 |
| 11       | AX615030 | GUIDE BAR       |                | 1EA2362A00400 |
| 12       | AX615040 | GUIDE BAR       |                | 1EA2362A00500 |
| 14       | EX602300 | PAN HEAD SCREW  | 1.7x2.5 ZMC2-Y | SE3PN172R5SE  |
| 15       | EB020056 | FLAT HEAD SCREW | 2x5 ZMC2-Y     | SE1FN205ROSE  |
| 16       | EX602310 | SPECIAL SCREW   |                | SFXEA01800    |
| 17       | LX606800 | CONNECTOR       | 6P             | 42369750000   |

\* New Parts

# 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          | 10 kΩ  | HF45 7100          | HF45 7100          |
| 1.8 Ω  | HJ35 3180          | *                  | 11 kΩ  | HF45 7110          | HF45 7110          |
| 2.2 Ω  | HJ35 3220          | HF85 3220          | 12 kΩ  | HJ35 7120          | HF85 7120          |
| 3.3 Ω  | HJ35 3330          | HF85 3330          | 13 kΩ  | HF45 7130          | HF45 7130          |
| 4.7 Ω  | HJ35 3470          | HF85 3470          | 15 kΩ  | HF45 7150          | HF45 7150          |
| 5.6 Ω  | HJ35 3560          | HF85 3560          | 18 kΩ  | HF45 7180          | HF45 7180          |
| 10 Ω   | HF45 4100          | HF45 4100          | 22 kΩ  | HF45 7220          | HF45 7220          |
| 15 Ω   | HJ35 4150          | HF85 4150          | 24 kΩ  | HF45 7240          | HF45 7240          |
| 22 Ω   | HF45 4220          | HF45 4220          | 27 kΩ  | HJ35 7270          | HF85 7270          |
| 27 Ω   | HJ35 4270          | HF85 4270          | 30 kΩ  | HF45 7300          | HF45 7300          |
| 33 Ω   | HF45 4330          | HF45 4330          | 33 kΩ  | HF45 7330          | HF45 7330          |
| 39 Ω   | HJ35 4470          | HF85 4390          | 36 kΩ  | HF45 7360          | HF45 7360          |
| 47 Ω   | HF45 4470          | HF45 4470          | 39 kΩ  | HF45 7390          | HF45 7390          |
| 56 Ω   | HF45 4560          | HF45 4560          | 47 kΩ  | HF45 7470          | HF45 7470          |
| 68 Ω   | HF45 4680          | HF45 4680          | 51 kΩ  | HF45 7510          | HF45 7510          |
| 75 Ω   | HF45 4750          | HF45 4750          | 56 kΩ  | HF45 7560          | HF45 7560          |
| 82 Ω   | HF45 4820          | HF45 4820          | 62 kΩ  | HF45 7620          | HF45 7620          |
| 91 Ω   | HF45 4910          | HF45 4910          | 68 kΩ  | HF45 7680          | HF45 7680          |
| 100 Ω  | HF45 5100          | HF45 5100          | 82 kΩ  | HF45 7820          | HF45 7820          |
| 110 Ω  | HJ35 5110          | HF85 5110          | 91 kΩ  | HF45 7910          | HF45 7910          |
| 120 Ω  | HF45 5120          | HF45 5120          | 100 kΩ | HF45 8100          | HF45 8100          |
| 150 Ω  | HF45 5150          | HF45 5150          | 110 kΩ | HF45 8110          | HF45 8110          |
| 160 Ω  | HJ35 5160          | *                  | 120 kΩ | HF45 8120          | HF45 8120          |
| 180 Ω  | HF45 5180          | HF45 5180          | 150 kΩ | HF45 8150          | HF45 8150          |
| 200 Ω  | HF45 5200          | HF45 5200          | 180 kΩ | HF45 8180          | HF45 8180          |
| 220 Ω  | HF45 5220          | HF45 5220          | 220 kΩ | HJ35 8220          | HF85 8220          |
| 270 Ω  | HF45 5270          | HF45 5270          | 270 kΩ | HF45 8270          | HF45 8270          |
| 330 Ω  | HF45 5330          | HF45 5330          | 300 kΩ | HF45 8300          | HF45 8300          |
| 390 Ω  | HF45 5390          | HF45 5390          | 330 kΩ | HF45 8330          | HF45 8330          |
| 430 Ω  | HF45 5430          | HF45 5430          | 390 kΩ | HJ35 8390          | HF85 8390          |
| 470 Ω  | HF45 5470          | HF45 5470          | 470 kΩ | HF45 8470          | HF45 8470          |
| 510 Ω  | HF45 5510          | HF45 5510          | 560 kΩ | HJ35 8560          | HF85 8560          |
| 560 Ω  | HF45 5560          | HF45 5560          | 680 kΩ | HJ35 8680          | HF85 8680          |
| 680 Ω  | HF45 5680          | HF45 5680          | 820 kΩ | HJ35 8820          | HF85 8820          |
| 820 Ω  | HF45 5820          | HF45 5820          | 1.0 MΩ | HF45 9100          | HF45 9100          |
| 910 Ω  | HF45 5910          | HF45 5910          | 1.2 MΩ | HJ35 9120          | *                  |
| 1.0 kΩ | HF45 6100          | HF45 6100          | 1.5 MΩ | HJ35 9150          | HF85 9150          |
| 1.2 kΩ | HF45 6120          | HF45 6120          | 1.8 MΩ | HJ35 9180          | HF85 9180          |
| 1.5 kΩ | HF45 6150          | HF45 6150          | 2.2 MΩ | HJ35 9220          | HF85 9220          |
| 1.8 kΩ | HF45 6180          | HF45 6180          | 3.3 MΩ | HJ35 9330          | HF85 9330          |
| 2.0 kΩ | HJ35 6200          | HF85 6200          | 3.9 MΩ | HJ35 9390          | *                  |
| 2.2 kΩ | HF45 6220          | HF45 6220          | 4.7 MΩ | HJ35 9470          | HF85 9470          |
| 2.4 kΩ | HJ35 6240          | HF85 6240          |        |                    |                    |
| 2.7 kΩ | HF45 6270          | HF45 6270          |        |                    |                    |
| 3.0 kΩ | HF45 6300          | HF45 6300          |        |                    |                    |
| 3.3 kΩ | HF45 6330          | HF45 6330          |        |                    |                    |
| 3.6 kΩ | HJ35 6360          | HF85 6360          |        |                    |                    |
| 3.9 kΩ | HF45 6390          | HF45 6390          |        |                    |                    |
| 4.7 kΩ | HF45 6470          | HF45 6470          |        |                    |                    |
| 5.1 kΩ | HF45 6510          | HF45 6510          |        |                    |                    |
| 5.6 kΩ | HF45 6560          | HF45 6560          |        |                    |                    |
| 6.8 kΩ | HF45 6680          | HF45 6680          |        |                    |                    |
| 8.2 kΩ | HF45 6820          | HF45 6820          |        |                    |                    |
| 9.1 kΩ | HF45 6910          | HF45 6910          |        |                    |                    |

