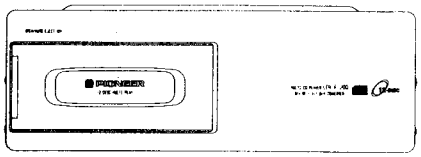
PIONEER®
*The Art of Entertainment*

# Service Manual

●CDX-P1200/UC



MULTI-COMPACT DISC PLAYER

# CDX-P1200 UC,EW,ES

COMPACT disc DIGITAL AUDIO

● **See the service manual CDX-M12/UC,EW (CRT1521) for the circuit description.**
● **See the separate manual CX-612 (CRT1518) for the CD mechanism description.**

## CONTENTS



## SPECIFICATIONS

### General

System ..... Compact disc audio system
Usable discs ..... Compact Disc
Signal format ..... Sampling frequency: 44.1 kHz
Number of quantization bits: 16; linear
Power source ..... 14.4 V DC (10.8 — 15.6 V allowable)
Max. current consumption ..... 1.0 A
Weight ..... 2.8 kg (6.2 lbs.)
Dimensions ..... 275 (W) × 93 (H) × 162 (D) mm
[10-7/8 (W) × 3-5/8 (H) × 6-5/8 (D) in.]

### Audio

Frequency characteristics ..... 5 — 20,000 Hz
(±1 dB)
Signal-to-noise ratio ..... 100 dB (1 kHz)
(IHF-A Network)
Dynamic range ..... 94 dB (1 kHz)
Output level ..... 500 mV (1 kHz, 0 dB)
Number of channels ..... 2 (stereo)

These specifications were determined and are presented in accordance with specification standards established by the Ad Hoc Committee of Car Stereo Manufacturers.

**Note:**
Specifications and the design are subject to possible modification without prior notice due to improvements.

### ● CD Player Service Precautions

1. Since this pin protects the mechanism during transport, be sure to affix it when it is transported for repair, etc.
2. For pick-up unit handling, please refer to "Disassembly". During replacement, handling precautions shall be taken to prevent an electrostatic discharge (protection by a short pin).
3. During disassembly, be sure to turn the power off since an internal IC might be destroyed when a connector is plugged or unplugged.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*MC-Service*

# CHAPTER 1

## 1. SAFETY INFORMATION

### 1.1 CDX-P1200/UC

**CAUTION**

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer.
Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty.
If you are not qualified to perform the repair of this product properly and safely; you should not risk trying to do so and refer the repair to a qualified service technician.

**WARNING**

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).
When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

### 1.2 CDX-P1200/EW

**1. Safety Precautions for those who Service this Unit.**

- **Follow the adjustment steps (see pages 1-8 through 1-26)in the service manual when servicing this unit. When checking or adjusting the emitting power of the laser diode exercise caution in order to get safe, reliable results.**

**Caution:**

1. **During repair or tests, minimum distance of 13cm from the focus lens must be kept.**
2. **During repair or tests, do not view laser beam for 10 seconds or longer.**

**2. A "CLASS 1 LASER PRODUCT" label is affixed to the rear of the player.**

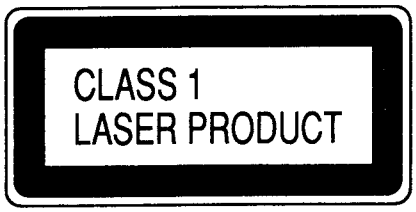



Fig.1

**3. The triangular label is attached to the mechanism unit frame.**

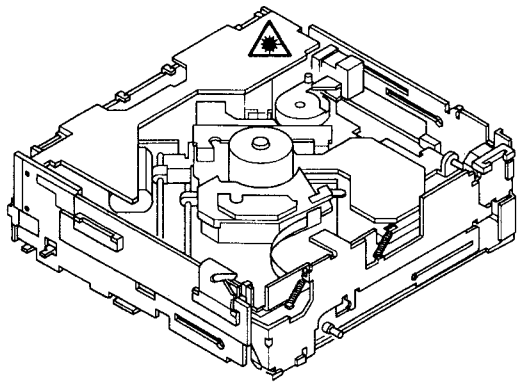


Fig.2

**4. Specifications of Laser Diode**

Specifications of laser radiation fields to which human access is possible during service.
Wavelength = 785 nanometers
Radiant power = 69.7 microwatts(Through a circular aperture stop having a diameter of 80 millimeters)
0.55 microwatts(Through a circular aperture stop having a diameter of 7 millimeters)

# 2. OPERATIONS AND CONNECTION

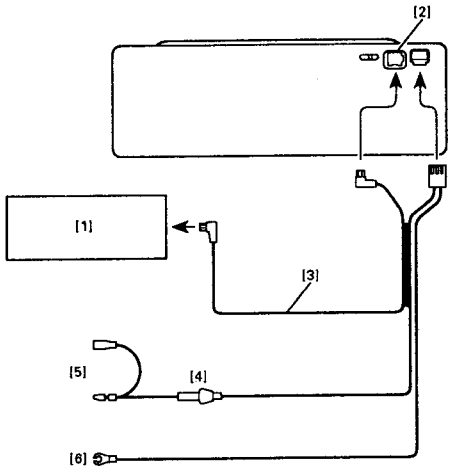



Fig. 3

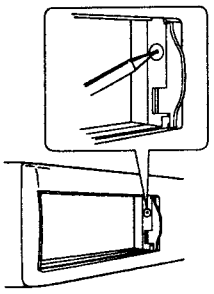


Fig. 4

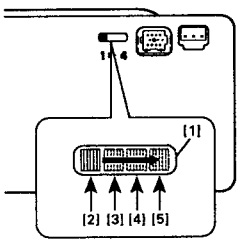



Fig. 5

## Connecting the Units

- Before mounting, remove the transportation pin (See "Transportation pin".) and connect the units temporarily. Check that the units are connected correctly by operating the multi-CD controller.
- After connection is complete, press the clear buttons on the player and the multi-CD controller with the tip of a pencil.
- *Be sure to connect the ground lead (black) to the vehicle body or some other metal part that is properly grounded to the chassis. If the ground lead is not properly connected, noise may occur or the player or multi-CD controller may not operate correctly.*
- *This unit is for vehicles with a 12-volt battery and negative grounding. Before installing it in a recreational vehicle, truck, or bus, check the battery voltage.*
- *To avoid shorts in the electrical system, be sure to disconnect the battery (–) cable before beginning installation.*
- *Check whether installation and wiring have been completed correctly. Replace the removed car components, then connect the end of the cable to the negative (–) terminal of the battery.*
- *Secure the wiring with cable clamps or adhesive tape. To protect the wiring, wrap adhesive tape around them where they lie against metal parts.*
- *Route and secure all wiring so it cannot touch any moving parts, such as the gear shift, handbrake, and seat rails. Do not route wiring in places that get hot, such as near the heater outlet. If the insulation of the wiring melts or gets torn, there is a danger of the wiring short-circuiting to the vehicle body.*
- *Don't pass the orange lead through a hole into the engine compartment to connect to the battery. This will damage the lead insulation and cause a very dangerous short.*
- *Do not shorten any leads. If you do, the protection circuit may fail to work when it should.*
- *Never feed power to other equipment by cutting the insulation of the power supply lead of the unit and tapping into the lead. The current capacity of the lead will be exceeded, causing over heating.*
- *Replace fuses only with the types stipulated on the fuse holder.*

**(Fig. 3)**
[1] Multi CD controller or Multiple installation adapter (such as CD-P44)
[2] IP-BUS output (black)
Connect the black connector of the cable to this connector.
[3] IP-BUS cable
[4] Fuse holder
[5] Orange
To the terminal always supplied with power regardless of ignition switch position.
[6] Black (ground)
To the vehicle (metal) body.

## Pressing the clear button

If the power does not switch on or if the compact disc player does not operate when the button on the multi-CD controller is pressed, or if the multi-CD controller display is incorrect, press this button on the player with the tip of a pencil to restore normal operation. (This button is located inside the door.) **Always press the clear button on the multi-CD controller, too, after pressing this button. (Fig. 4)**

- If the clear button is pressed when the player contains a magazine or the ignition switch is set to the ON or ACC position, the CD title display and ITS memory are cleared.

## Changing the Address Switch

- This unit can be connected from the second to fourth multi-CD players by using the separately sold multiple installation adapter (CD-P44). Each multi-CD player has an address switch so that the multiple installation adapter can identify which player is which. Set the address switch for each player as shown in Fig. 5.
- See the instruction manual for the multiple installation adapter (CD-P44) when you connect multi-CD players using the adapter.

**(Fig. 5)**

[1] Address switch
This switch can be set to address 1,2,3, or 4, starting from the left.
[2] Address 1
[3] Address 2
[4] Address 3
[5] Address 4

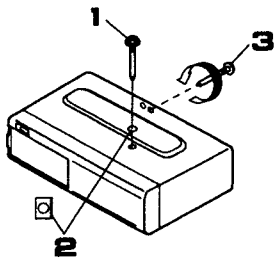



Fig. 6

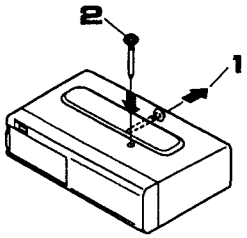



Fig. 7

## Transportation pin

### Removing the transportation pin

(Fig. 6)
A transportation pin is installed to protect the player during transportation. Before mounting the player, remove the transportation pin and cover the hole with the supplied adhesive seal. Screw the removed transportation pin into the specified hole; it will be needed if you retransport the player.

1. Peel off adhesive tape and remove the pin.
2. Cover the hole with the seal provided.
3. Screw the pin into the left-side hole of the 2 holes.

### Reinstalling the pin

(Fig. 7)
To transport the player, reinstall the transportation pin as follows:

**Before removing the player**
Play back the first track of a disc, and stop within 10 seconds. Remove the magazine, wait about 10 seconds, then remove the player.

1. Remove the pin.
2. Insert the pin in its original position, and fix it with Scotch tape.

# 3. DISASSEMBLY

### ● Removing the Case

1. Unfasten six screws A and then remove the upper case.
2. Unfasten four screws B and then remove the lower case.

### ● Removing the Grille Assy

1. Remove the connector.
2. Unlock four catches and dismount the grille assy.

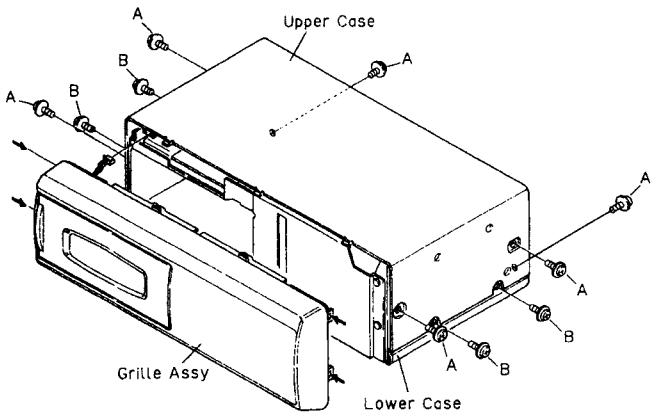



Fig.8

### ● Removing the Bracket L,R

1. Unfasten six screws.
2. Remove bracket L.
3. Remove bracket R.

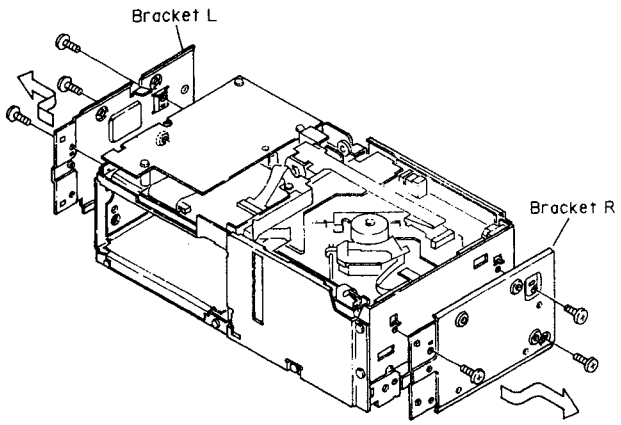



Fig.9

### ● Removing the Extension P.C.Board

1. Unfasten four screws.
2. Remove the connector.
3. Remove the extension P.C.Board.

NOTE: Be sure to screw in order of 1-4.

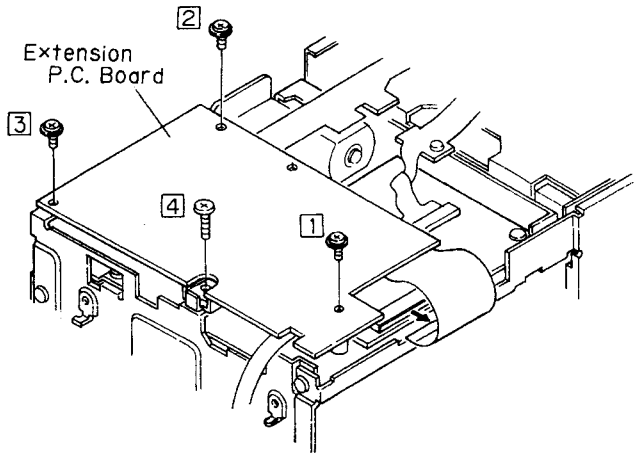



Fig.10

### ● CN351

Before disconnecting the CN351 connector (PU unit connector), attach a short pin as illustrated.

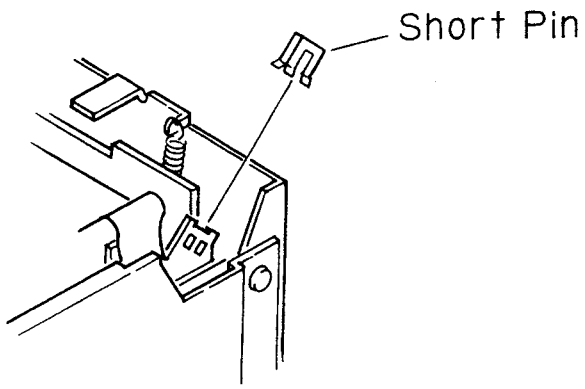



Fig.11

● **Removing the Main Unit**

1. Unfasten three screws.
2. Remove the three connectors.
3. Remove the main unit.

NOTE: Be sure to screw in order of 1-3.

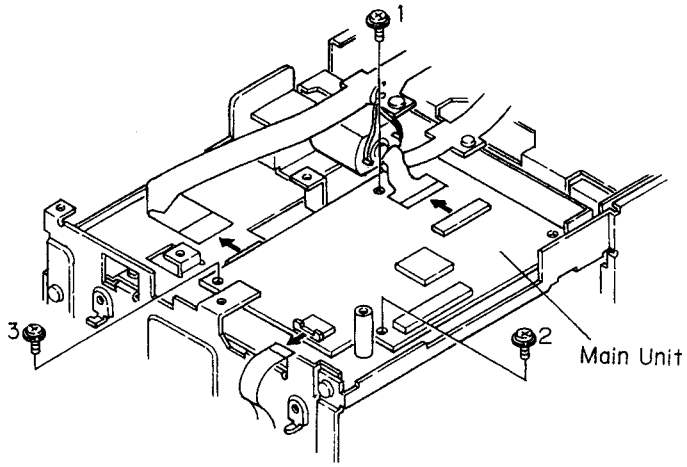



Fig.12

# 4. ADJUSTMENT

1) Precautions

- This unit uses a single power supply (+5V) for the regulator. The signal reference potential, therefore, is connected to REFOUT (approx. 2.5V) instead of GND.
  If REFOUT and GND are connected to each other by mistake during adjustments, not only will it be impossible to measure the potential correctly, but the servo will malfunction and a severe shock will be applied to the pick-up. To avoid this, take special note of the following.
  Do not connect the negative probe of the measuring equipment to REFOUT and GND together. It is especially important not to connect the channel 1 negative probe of the oscilloscope to REFOUT with the channel 2 negative probe connected to GND.
  And since the frame of the measuring instrument is usually at the same potential as the negative probe,change the frame of the measuring instrument to floating status.
  If by accident REFOUT comes in contact with GND, immediately switch the regulator or power OFF.
- Always make sure the regulator is OFF when connecting and disconnecting the various filters and wiring required for measurements.
- Before proceeding to further adjustments and measurements after switching regulator ON, let the player run for about one minute to allow the circuits to stabilize.
- Since the protective systems in the unit's software are rendered inoperative in test mode, be very careful to avoid mechanical and / or electrical shocks to the system when making adjustment.
- When loading and unloading discs during adjustment procedures, always wait for the disc to be properly clamped or ejected before pressing the another key. Otherwise, there is risk of the actuator being destroyed.
- Turn power off when pressing the button TRACK UP or the button TRACK DOWN key for focus search in the test mode. (Or else lens may stick and the actuator may be damaged.)

2) Test mode

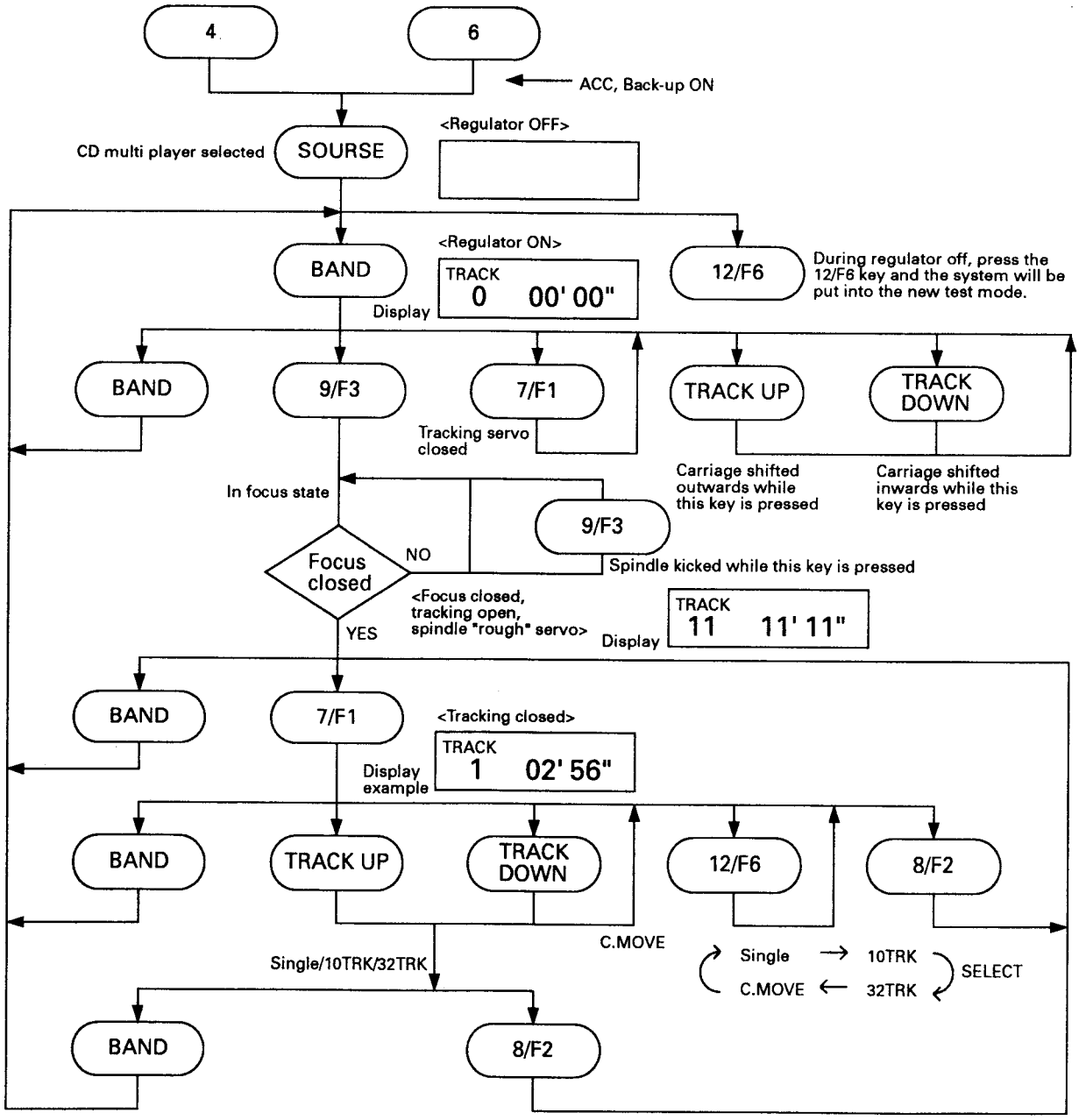
- This unit is adjusted in a combination with the multiple CD control unit (KEH-P5000, etc.). Each regulator key should be operated at the unit. With the KEH-P5000 taken up for reference, a description will be given below concerning how to enter into the test mode, including key operations. The key in the adjustment text is also one of the KEH-P5000 keys.
- How to enter into the test mode
  While pressing keys 4 and 6 at a time, press the back-up ON or clear button ON the KEH-P5000.
- Resetting the test mode
  Press the clear button ON the KEH-P5000. Subsequently press the clear button ON this unit. Or turn off this unit and the KEH-P5000 back-up and wait for about one minute.

a) CD multi-player

| Key | Function |
|---|---|
| BAND | Regulator ON / OFF |
| TRACK UP | FWD kick |
| TRACK DOWN | REV kick |
| 7/F1 | Tracking close |
| 8/F2 | Tracking open |
| 9/F3 | Focus close |
| 10/F4 | Focus open |
| 11/F5 | Jump-Off |
| 12/F6 | 1/10/32 jump / carriage move switching |

- SINGLE / 10TRK / 32TRK will continue to operate even after the key is released.Tracking closed the moment C-MOVE is released.
- With two or more players connected, disconnect any other CD multi-players and connect one changer only to the control unit. Unless the address switch is positioned at ONE, the system cannot be put into the test mode.

## ● Flow Chart


4
6
ACC, Back-up ON
CD multi player selected
SOURSE
<Regulator OFF>
BAND
<Regulator ON>
TRACK
0 00' 00"
Display
12/F6
During regulator off, press the 12/F6 key and the system will be put into the new test mode.
BAND
9/F3
7/F1
TRACK UP
TRACK DOWN
Tracking servo closed
Carriage shifted outwards while this key is pressed
Carriage shifted inwards while this key is pressed
In focus state
9/F3
Spindle kicked while this key is pressed
Focus closed
NO
YES
<Focus closed, tracking open, spindle "rough" servo>
Display
TRACK
11 11' 11"
BAND
7/F1
<Tracking closed>
Display example
TRACK
1 02' 56"
BAND
TRACK UP
TRACK DOWN
12/F6
8/F2
C.MOVE
Single
10TRK
C.MOVE
32TRK
SELECT
Single/10TRK/32TRK
BAND
8/F2

## ● Measuring Equipment and Jigs

| Adjustment | • Measuring equipment&jigs |
|---|---|
| **1 Grating Adjustment-1 (Rough adjustment)** | • Oscilloscope, clock driver, grating adjustment filter (bandpass filter)(GGF-133), AC milli-voltmeter<br>• SONY TYPE 4 (or ABEX TCD-782)<br>• Extension Cable:GGD1023 |
| **2 Tangential Skew Check** | • Oscilloscope, screwdriver<br>• SONY TYPE 4 (or ABEX TCD-782)<br>• Extension Cable:GGD1023 |
| **3 Grating Adjustment-1 (Fine adjustment)** | • Oscilloscope, clock driver, two low-pass filters<br>• SONY TYPE 4 (or ABEX TCD-782)<br>• Extension Cable:GGD1023 |
| **4 Grating Adjustment-2** | • Oscilloscope, grating adjustment driver, low-pass filter<br>• SONY TYPE 4 (or ABEX TCD-782)<br>• Extension Cable:GGD1023 |
| **5 FE Bias Adjustment** | • Oscilloscope, volume adjustment driver<br>• SONY TYPE 4 (or ABEX TCD-782)<br>• Extension Cable:GGD1023 |
| **6 RF Offset Adjustment** | • Oscilloscope, volume adjustment driver<br>• SONY TYPE 4 (or ABEX TCD-782)<br>• Extension Cable:GGD1023 |
| **7 TE Offset Adjustment-1** | • DC voltmeter or oscilloscope, volume adjustment driver<br>• Extension Cable:GGD1023 |
| **8 Tracking Balance Adjustment-1** | • Oscilloscope, volume adjustment driver<br>• SONY TYPE 4 (or ABEX TCD-782)<br>• Extension Cable:GGD1023 |
| **9 Focus Servo Loop Gain Adjustment-1** | • Oscillator, gain adjustment filter (GGF-065), oscilloscope, dual meter milli-voltmeter, volume adjustment driver<br>• SONY TYPE 4 (or ABEX TCD-782)<br>• Extension Cable:GGD1023 |
| **10 Focus Servo Loop Gain Adjustment-2** | • Oscillator, gain adjustment filter, oscilloscope, volume adjustment driver<br>• SONY TYPE 4 (or ABEX TCD-782)<br>• Extension Cable:GGD1023 |
| **11 Tracking Servo Loop Gain Adjustment-1** | • Oscillator, gain adjustment filter (GGF-065), oscilloscope, dual meter milli-voltmeter, volume adjustment driver<br>• SONY TYPE 4 (or ABEX TCD-782)<br>• Extension Cable:GGD1023 |
| **12 Tracking Servo Loop Gain Adjustment-2** | • Oscillator, gain adjustment filter, oscilloscope, volume adjustment driver<br>• SONY TYPE 4 (or ABEX TCD-782)<br>• Extension Cable:GGD1023 |
| **13 TE Offset Adjustment-2** | • DC voltmeter or oscilloscope, volume adjustment driver<br>• Extension Cable:GGD1023 |

| Adjustment | • Measuring equipment&jigs |
|---|---|
| **14 Checking FEY Level** | • Oscilloscope<br>• SONY TYPE 4 (or ABEX TCD-782)<br>• Extension Cable:GGD1023 |
| **15 Tracking Balance Adjustment-2 and Checking TEY Level** | • Oscilloscope, volume adjustment driver<br>• SONY TYPE 4 (or ABEX TCD-782)<br>• Extension Cable:GGD1023 |

## ● Adjustment Points

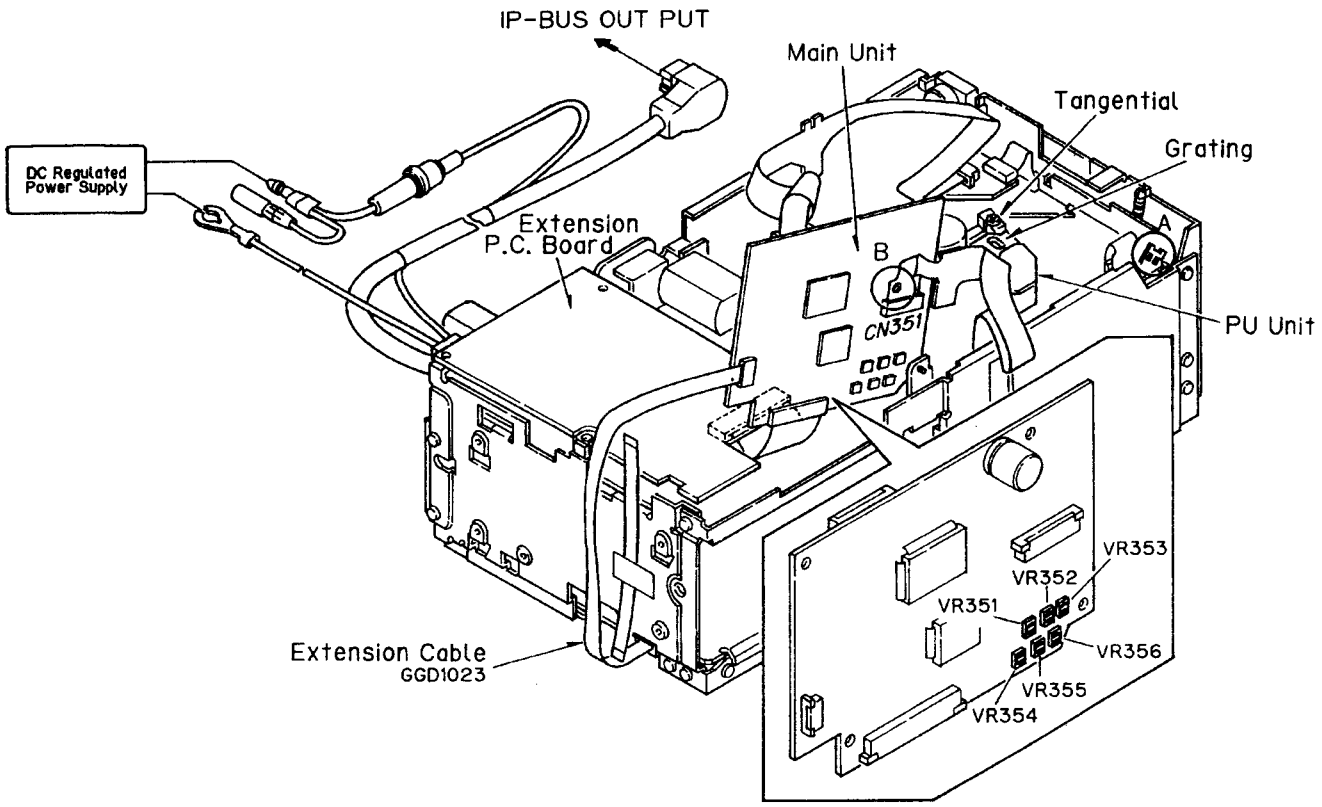



Fig.13

| | |
|---|---|
| VR351 | FE BIAS |
| VR352 | RF OFFSET |
| VR353 | TE OFFSET |
| VR354 | TRACKING BALANCE |
| VR355 | FOCUS SERVO LOOP GAIN |
| VR356 | TRACKING SERVO LOOP GAIN |

Note: When pulling out the connector CN351, be sure to install a short pin in section A. Alternatively, the land in section B may be short-circuited (by soldering or the like). When the connector is inserted, be sure to disconnect it before the power is turned on.

● **Test Point**

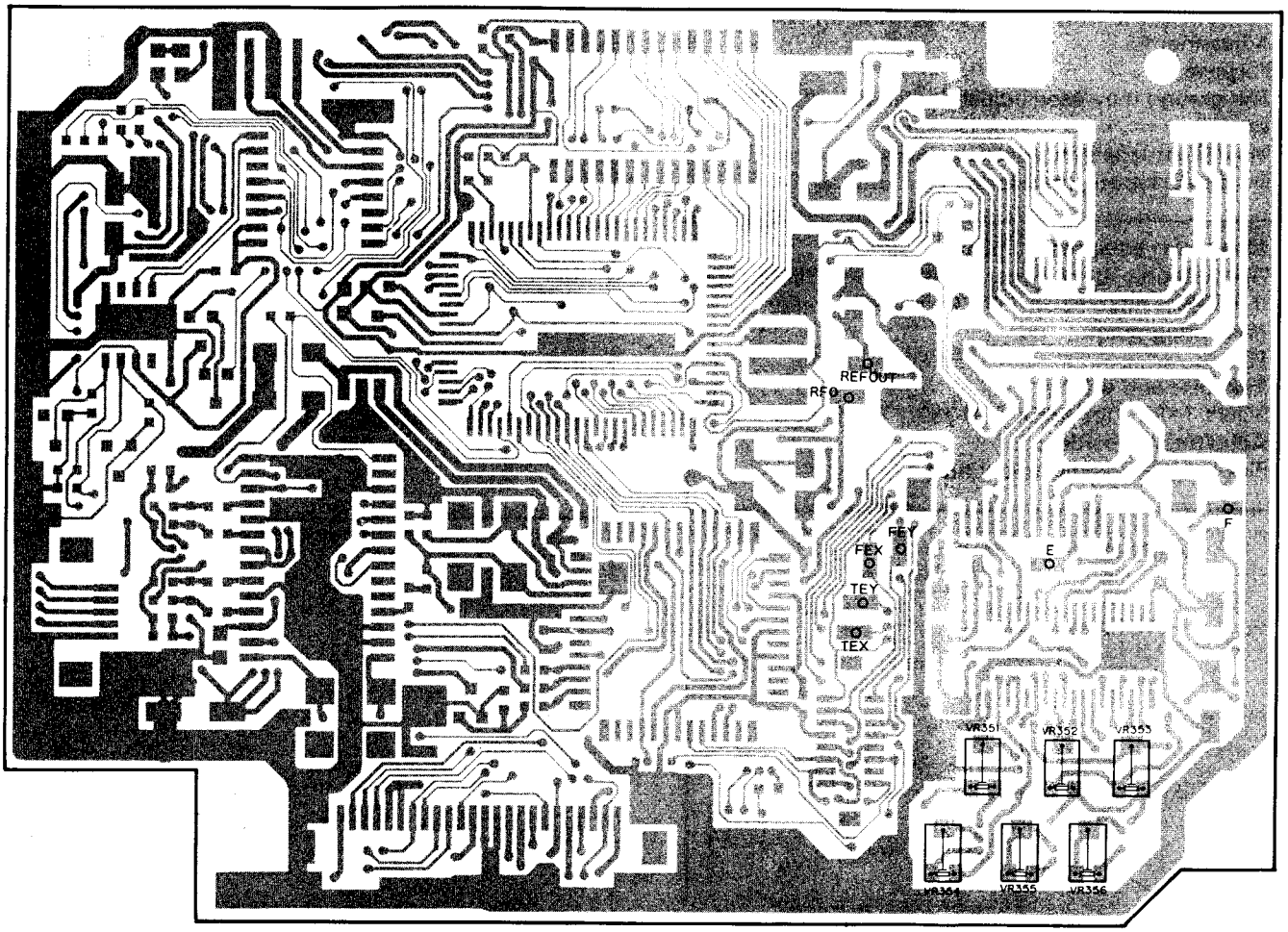
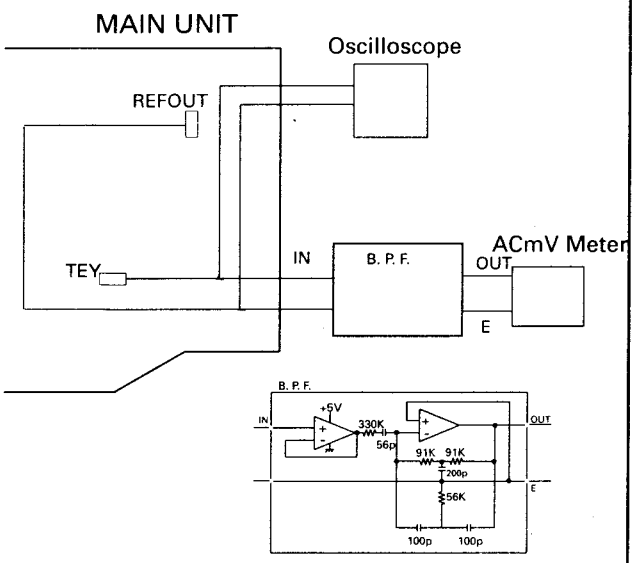



Fig.14

## 1 Grating Adjustment-1 (Rough adjustment)

- Grating Adjustment-1 (rough adjustment and fine adjustment) may be performed in Grating Adjustment-2.
- **Purpose:**
  The grating may need adjustment in a replaced pick-up unit.
- **Maladjustment symptoms:**
  No disc playback, track jumping.

- **Measuring equipment / jigs:**
  Oscilloscope, clock driver, grating adjustment filter (bandpass filter) (GGF-133), AC milli-voltmeter
- **Measuring point:**
  TEY
- **Test disc and setting:**
  SONY TYPE 4 (or ABEX TCD-782) Test mode
- **Adjustment position:**
  Pick-up grating adjustment hole



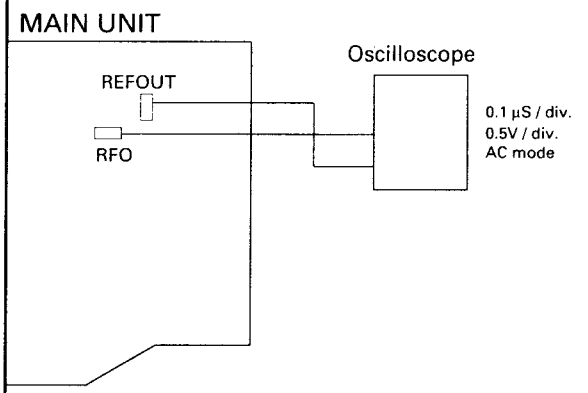

### Adjustment Procedure

1. In the test mode, set a test disc-loaded magazine and select the tray with a test disc.
2. Switch regulator ON .
3. Using the TRACK UP or TRACK DOWN key, move the pick-up to about the center of the test disc.
4. **Press the 9/F3 key to close focus.**
5. While monitoring the TEY filter output by AC milli-voltmeter, turn the grating adjustment hole slowly.The AC voltage increases and decreases while turning the screw. Search for the minimum voltage level. (This corresponds to the position where the grating is on a track, and is referred to as the null point.)
6. Then while monitoring TEY by oscilloscope, turn the driver slowly clockwise from the null point (as seen from under the pick-up) until the first waveform peak amplitude is reached.

## 2 Tangential Skew Check

- **Purpose:**
  To check whether tangential skew has been misaligned or not when replacing the pick-up unit.
- **Maladjustment symptoms:**
  No disc playback, track jumping.

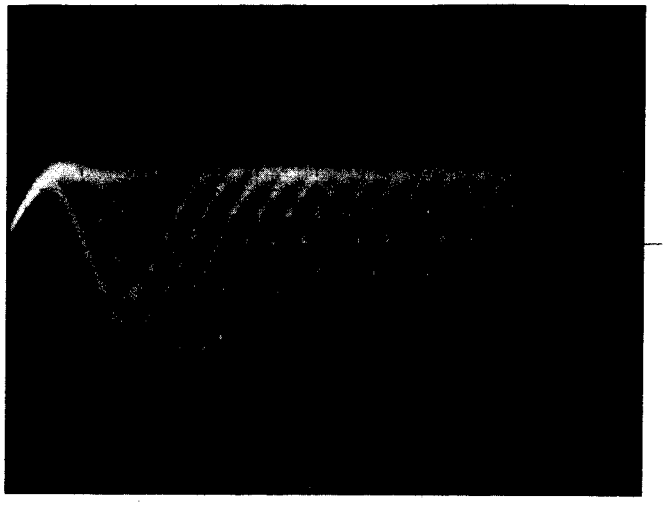
- **Measuring equipment / jigs:**
  Oscilloscope, screwdriver
- **Measuring point:**
  RFO
- **Test disc and setting:**
  SONY TYPE 4 (or ABEX TCD-782) Normal mode
- **Adjustment position:**
  Pick-up tangential adjustment screw




### Adjustment Procedure

1. Play tune TNO 12 in normal mode. (ABEX TCD-782:TNO19)
2. Adjust the tangential adjustment screw so that the RF wave-form will have a level maximized and an eye pattern clearly viewed. Turn the adjustment screw both clockwise and counterclockwise to points where the eye pattern deteriorates, and take the midway point as the adjustment point. As a general guide, look for an overall clear waveform, and one of the diamond shapes in the eye pattern. The diamond shapes should appear in fine lines at the point of optimum adjustment. Take care not to knock the pick-up with the screwdriver at this stage. (This kind of accident can result in loss of focus.) **(See Waveform 1,2)**
3. Apply "screw-lock" to the tangential adjustment screw.
4. After adjusting tangential skew, also adjust the grating.

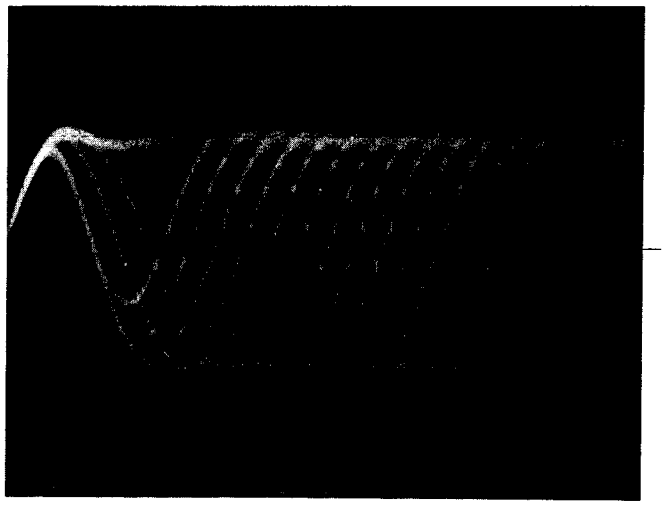
## 3 Grating Adjustment-1(Fine adjustment)



REFOUT

NG

Waveform 1



REFOUT

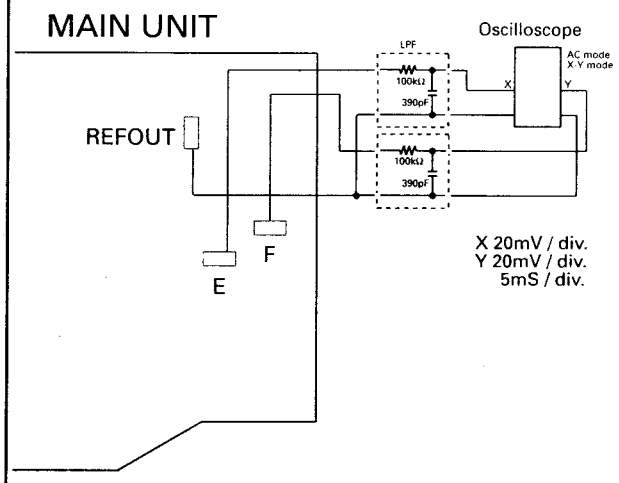
OK

Waveform 2

0.5V/div.
0.5µs/div.
DC mode

- **Purpose:**
  The grating may need adjustment in a replaced pick-up unit.
- **Maladjustment symptoms:**
  No disc playback, track jumping.

- **Measuring equipment / jigs:**
  Oscilloscope, clock driver, two low-pass filters
- **Measuring point:**
  E LPF output, F LPF output
- **Test disc and setting:**
  SONY TYPE 4 (or ABEX TCD-782) Test mode
- **Adjustment position:**
  Pick-up grating adjustment hole



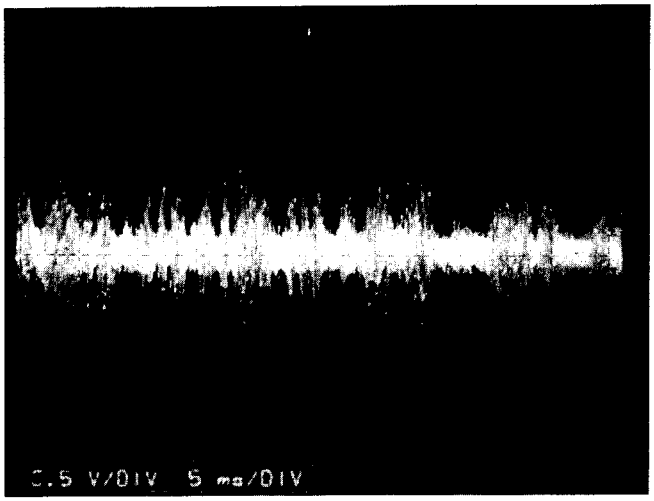

### Adjustment Procedure

1. Connect a low-pass filter as shown in the above diagram.
2. Switch regulator ON in test mode, and load a disc.
3. Using the TRACK UP or TRACK DOWN key, move the pick-up to about the center of the test disc.
4. **Press the 9/F3 key to close focus.**
5. Using the driver, adjust the Lissajous figure to a single line (or as close as possible).
   **(See Waveform 8)**
6. Switch regulator OFF and remove the filters.

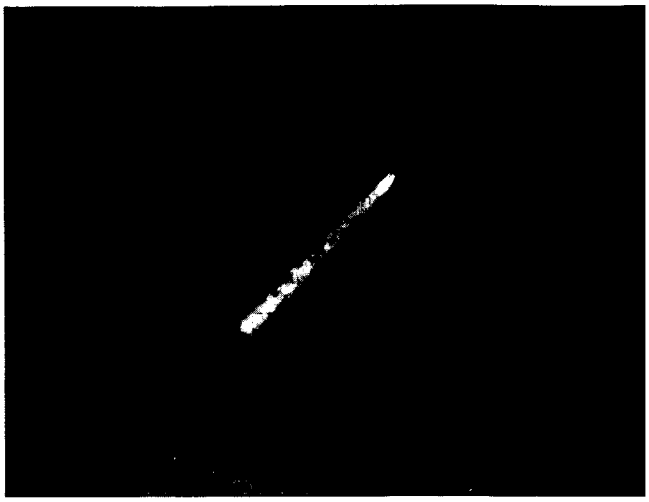
TEY waveform 5ms/div.,500mV/div.

Nul Point

Lissajous figure(AC input)
Horizontal axis E 20mV/div.
vertial axis F 20mV/div.

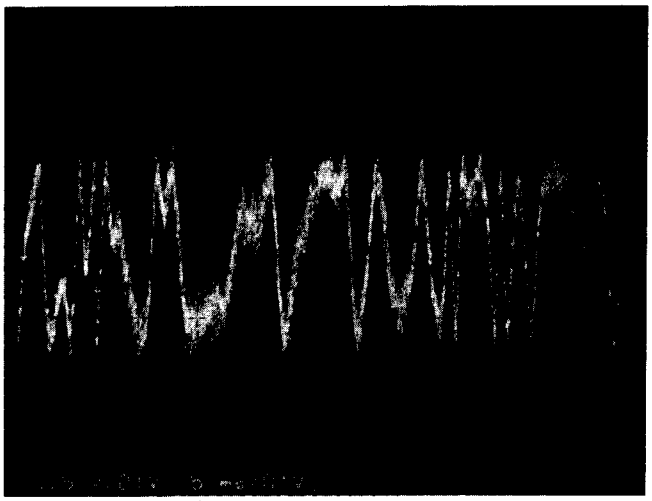



Waveform 3

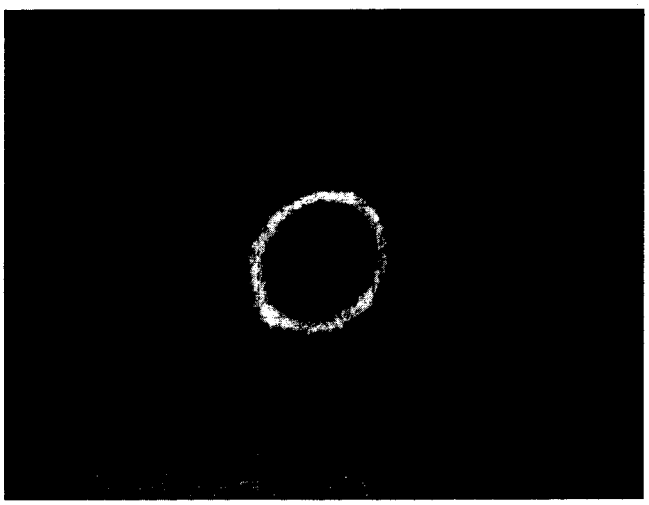


Waveform 4

"Rough" adjustment

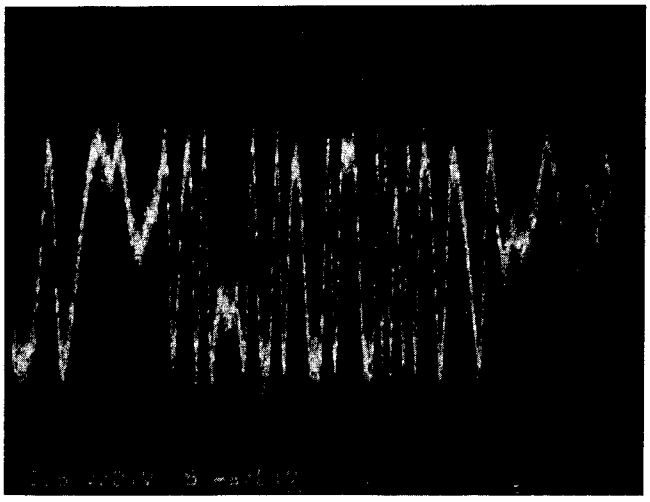


Waveform 5

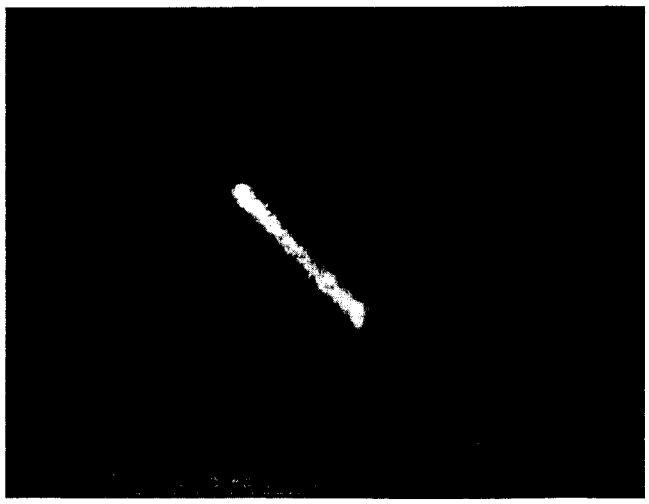


Waveform 6

Final adjustment



Waveform 7

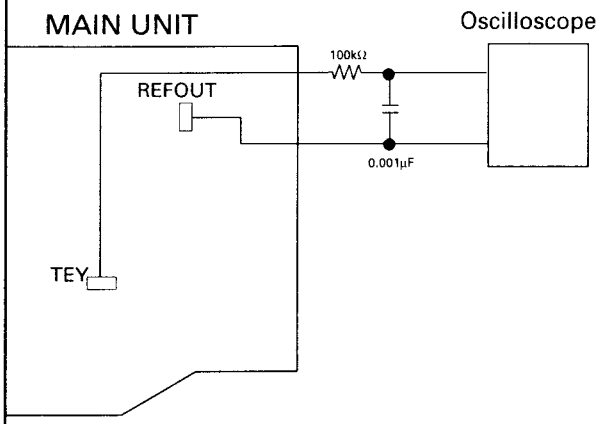


Waveform 8

## 4 Grating Adjustment-2

• Grating Adjustment-2 may be performed in Grating Adjustment-1 (rough adjustment and fine adjustment).
• **Purpose:**
The grating may need adjustment in a replaced pick-up unit.
• **Maladjustment symptoms:**
No disc playback, track jumping.

• **Measuring equipment / jigs:**
Oscilloscope, grating adjustment driver, low-pass filter
• **Measuring point:**
TEY
• **Test disc and setting:**
SONY TYPE 4 (or ABEX TCD-782) Test mode
• **Adjustment position:**
Pick-up grating adjustment hole




### Adjustment Procedure

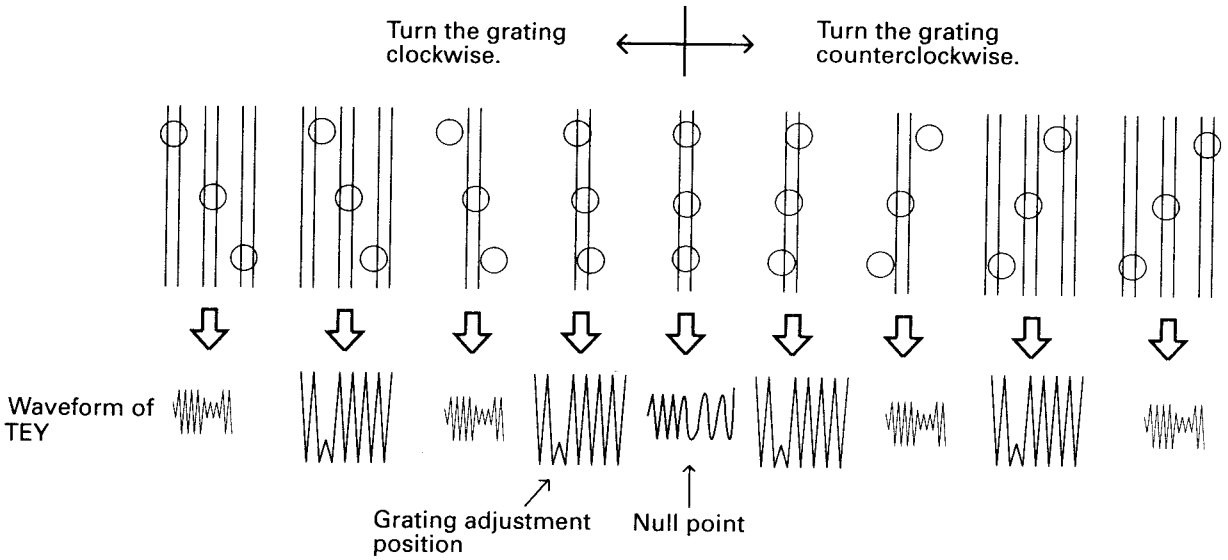
1. In the test mode, set a test disc-loaded magazine and select the tray with a test disc.
2. Switch regulator ON .
3. Using the TRACK UP or TRACK DOWN key, move the pick-up to center of the test disc.
4. **Press the 9/F3 key to close focus.**
5. Insert the adjusting screwdriver in the slit for the pick-up grating adjustment and adjust the grating to seek out the null point. For details, see following page.
6. As the screwdriver is slowly turned clockwise from the null point, the amplitude of the waveform increases gradually. As the screwdriver continues to be turned, the amplitude of the waveform decreases again. Adjust the grating to a point at which the amplitude of the waveform first reaches the maximum while the screwdriver is turned clockwise from the null point.

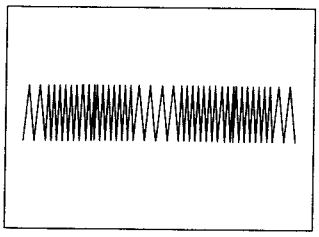
● **How to seek the null point**

When the screwdriver is inserted in the slit for grating adjustment while the angle of the grating is varied, the amplitude of the TEY tracking error signal varies.

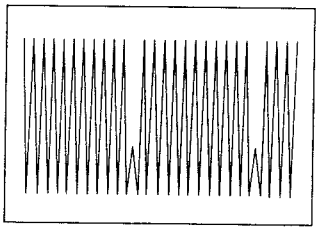
There are 5 or 6 positions where the amplitude of the waveform is decreased in the grating variable range. In only one of the waveform amplitude diminishing positions, the envelope is made smooth . This position denotes the state where three laser beams divided by the grating are aligned right on the same track.

This position is referred to as the null point. Adjust the grating to seek out the null point which is used as a reference position in performing the grating adjustment.

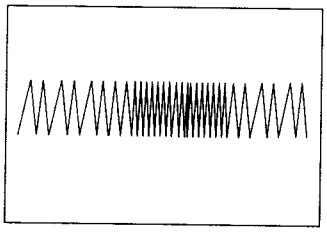


Waveform at null point



Waveform of maximum amplitude

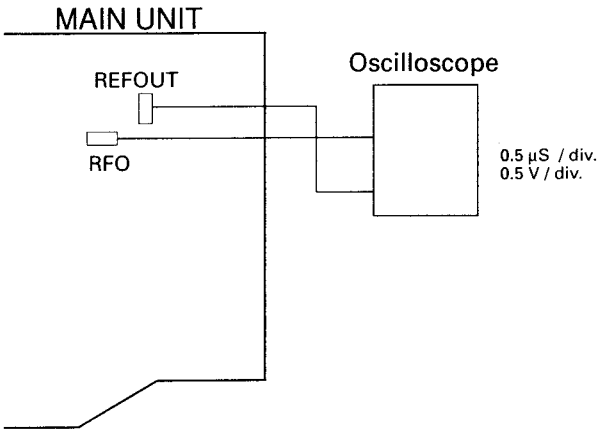


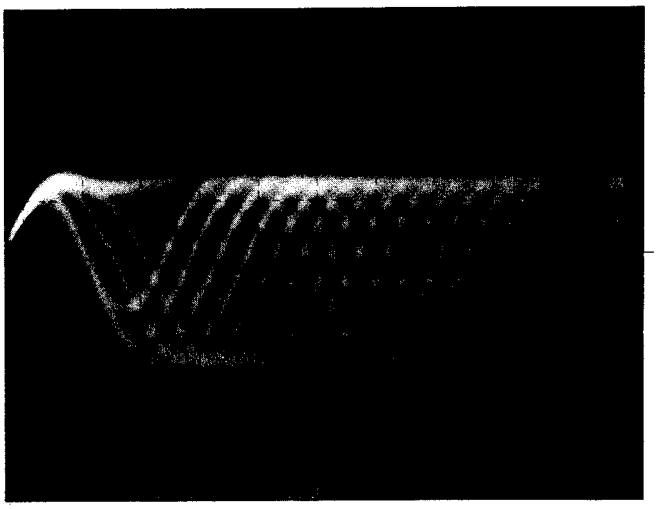
Waveform in positions other than null point

## 5 FE Bias Adjustment

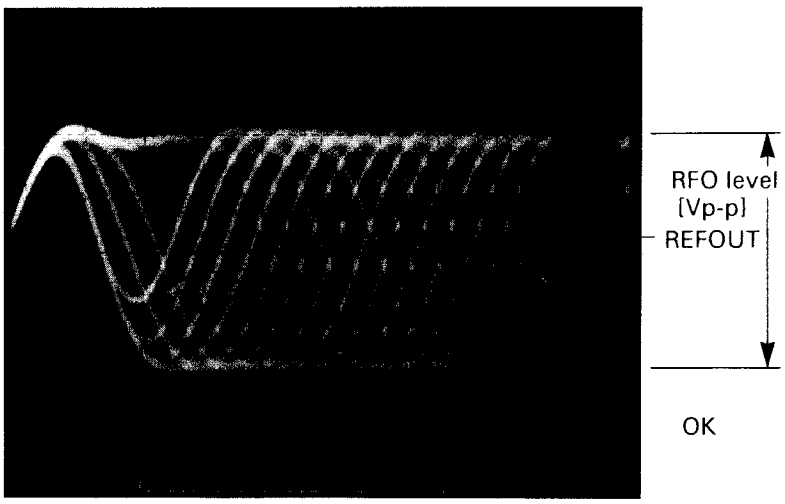
- **Purpose:**
  To adjust the focus servo bias to an optimum value.
- **Maladjustment symptoms:**
  Focus closing difficulty, poor playability.

- **Measuring equipment / jigs:**
  Oscilloscope, volume adjustment driver
- **Measuring point:**
  RFO
- **Test disc and setting:**
  SONY TYPE 4 (or ABEX TCD-782) Normal mode
- **Adjustment position:**
  VR351 (FEB)




**Waveform 9**



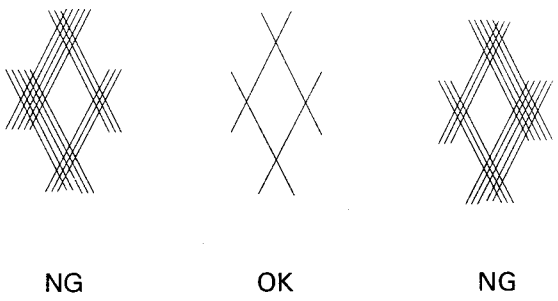

**Waveform 10**

### Adjustment Procedure

1. Play tune TNO 12 in normal mode.(ABEX TCD-782:TNO 19)
2. Observe RFO in respect to REFOUT in the oscilloscope, and adjust VR351 (FEB) to obtain maximum RF and optimum eye pattern. **(See Waveform 9,10)**
3. **After adjustment, measure the RFO output level shown in Waveform 10 and take actions shown below.**

| Output level | Action |
|---|---|
| 2.6Vp-p more than | Replace the pick-up |
| 1.2Vp-p - 2.6Vp-p | Normal |
| 1.2Vp-p less than | Replace the pick-up |

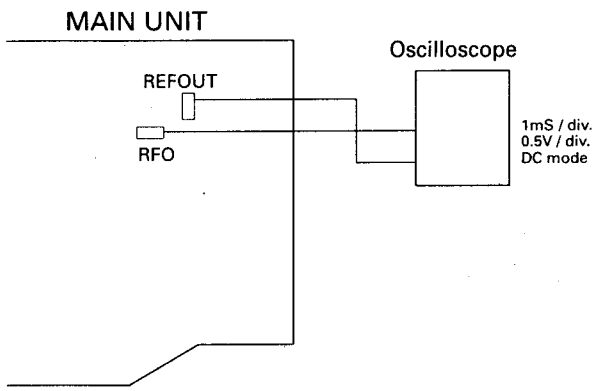
0.5V/div.
0.5µs/div.
DC mode



## 6 RF Offset Adjustment

- **Purpose:**
  To adjust the RF amplifier offset to a suitable value.
- **Maladjustment symptoms:**
  Focus closure fails readily.

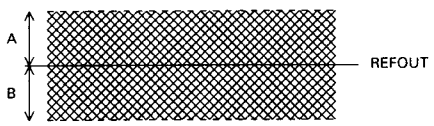
- **Measuring equipment / jigs:**
  Oscilloscope, volume adjustment driver
- **Measuring point:**
  RFO
- **Test disc and setting:**
  SONY TYPE 4 (or ABEX TCD-782) Normal mode
- **Adjustment position:**
  VR352 (RFO)




When using a multi-channel oscilloscope, do not connect the other negative probe to ground.

### Adjustment Procedure

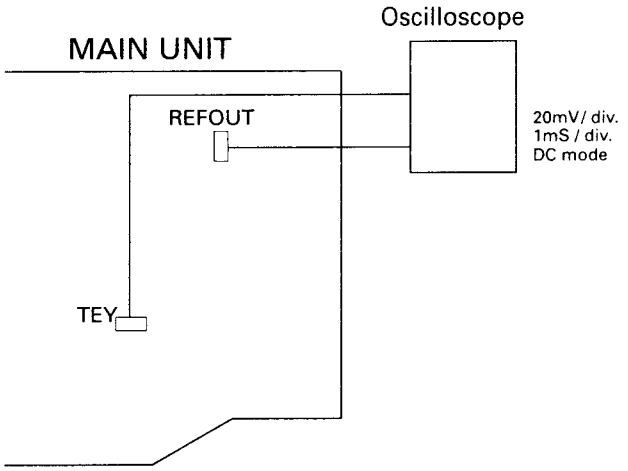
1. Play tune TNO 12 in normal mode.(ABEX TCD-782:TNO 19)
2. Using VR352 to adjust the RFO waveform so that REFOUT appears at the center.(A-B must not exceed 100 mV.)




## 7 TE Offset Adjustment-1

- **Purpose:**
  To adjust the electrical offset of the tracking servo to zero.
- **Maladjustment symptoms:**
  Search times too long, carriage run-away.

- **Measuring equipment / jigs:**
  DC voltmeter or oscilloscope, volume adjustment driver
- **Measuring point:**
  TEY
- **Test disc and setting:**
  Enpty magazine Test mode
- **Adjustment position:**
  VR353



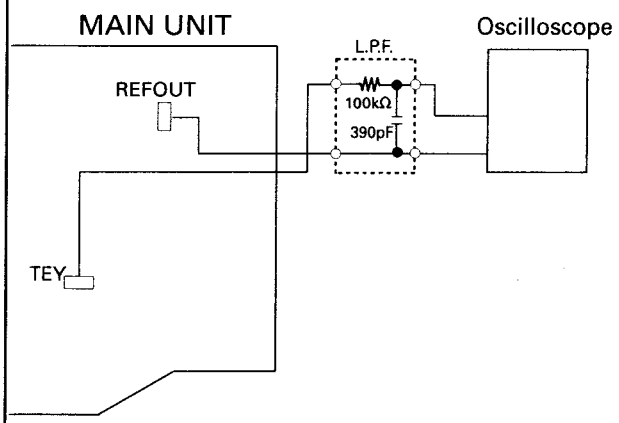

### Adjustment Procedure

1. Select a tray without a disc, while in test mode.
2. Switch regulator ON.
3. Using VR353, adjust the TEY output DC voltage in reference to REFOUT to a value of 0±25mV.
4. Switch regulator OFF.

## 8 Tracking Balance Adjustment-1

- **Purpose:**
  To adjust the tracking servo offset to zero.
- **Maladjustment symptoms:**
  Search times too long, poor playability, carriage run-away.

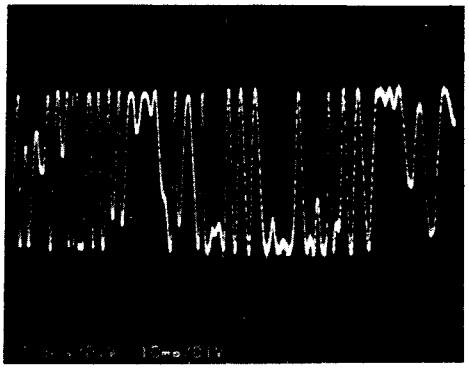
- **Measuring equipment / jigs:**
  Oscilloscope,volume adjustment driver
- **Measuring point:**
  TEY (Tracking error signal)
- **Test disc and setting:**
  SONY TYPE 4 (or ABEX TCD-782) Test mode
- **Adjustment position:**
  VR354 (T.BAL)

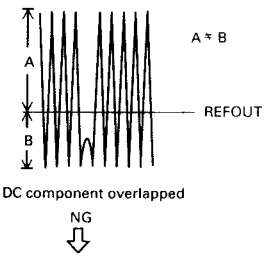



### Adjustment Procedure

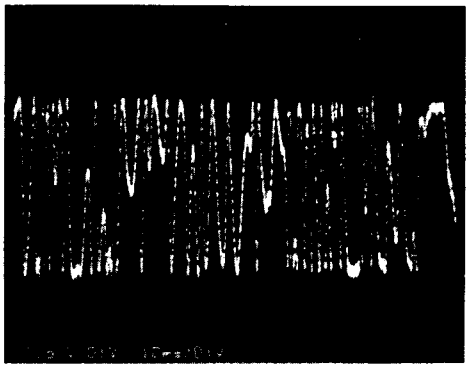
1. After checking that regulator is OFF, connect the low-pass filter as shown in the diagram.
2. Set the test disc. Switch regulator ON.
3. Using the TRACK UP or TRACK DOWN key, move the pick-up to about the center of the signal surface.
4. **Press the 9/F3 key to close focus.**
5. Using an oscilloscope, observe the TEY signal in respect to REFOUT.
   Then adjust VR354 (T.BAL)to set the positive and negative amplitudes to the same levels.
   **(See Waveform 11-13)**
6. Switch the power OFF.

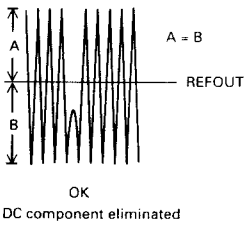
TEY waveform
0.5V/div.
10ms/div.



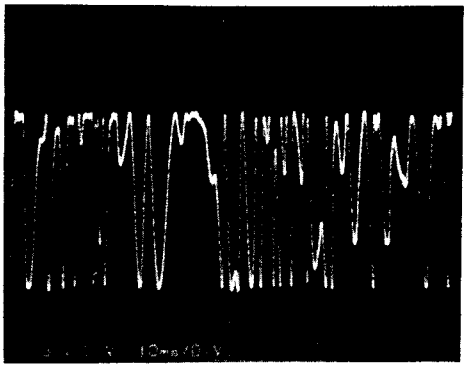


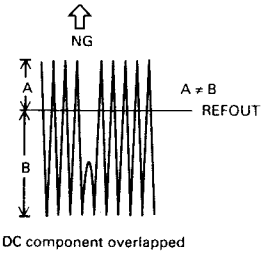

**Waveform 11**






**Waveform 12**



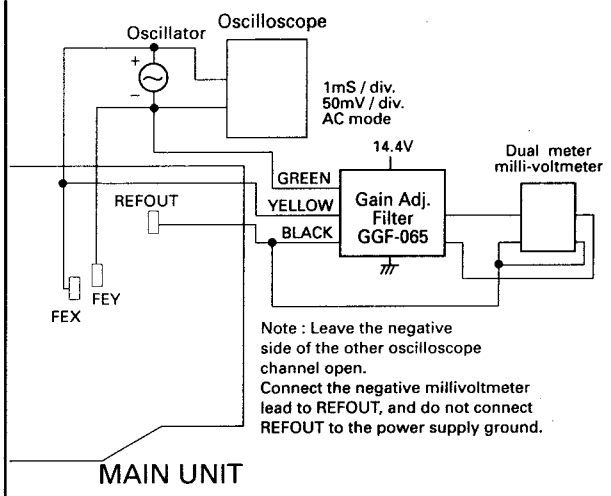



**Waveform 13**

## 9 Focus Servo Loop Gain Adjustment-1

- Focus Servo Loop Gain Adjustment-1 may be performed in Focus Servo Loop Gain Adjustment-2.
- **Purpose:**
  To adjust the focus servo loop gain to an optimum value.
- **Maladjustment symptoms:**
  Poor playability, reduced resistance to vibration, focus closure fails readily.

- **Measuring equipment / jigs:**
  Oscillator, gain adjustment filter (GGF-065), oscilloscope, dual meter milli-voltmeter, volume adjustment driver
- **Measuring point:**
  FEX, FEY
- **Test disc and setting:**
  SONY TYPE 4 (or ABEX TCD-782) Normal mode
- **Adjustment position:**
  VR355



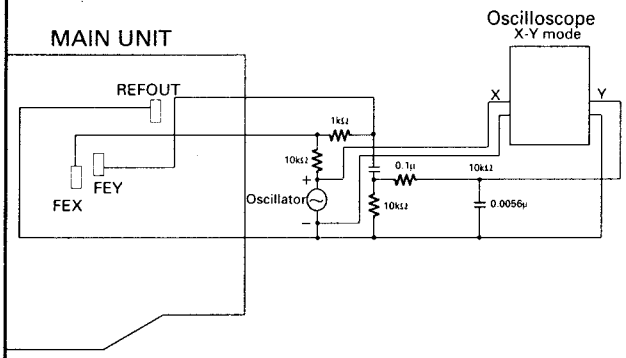

### Adjustment Procedure

1. After checking that the power is OFF, connect the gain adjustment filter and measuring equipment as shown in the above diagram.
2. Play tune TNO 12 in normal mode.(ABEX TCD-782 :TNO 19)
3. Set the oscillator to 1kHz,and observe the FEX/FEY output in the oscilloscope. Adjust the oscillator output to obtain a FEX/FEY output of 100mVp-p.
4. Adjust VR355 to obtain a milli-voltmeter difference of 0±0.5dB.

## 10 Focus Servo Loop Gain Adjustment-2

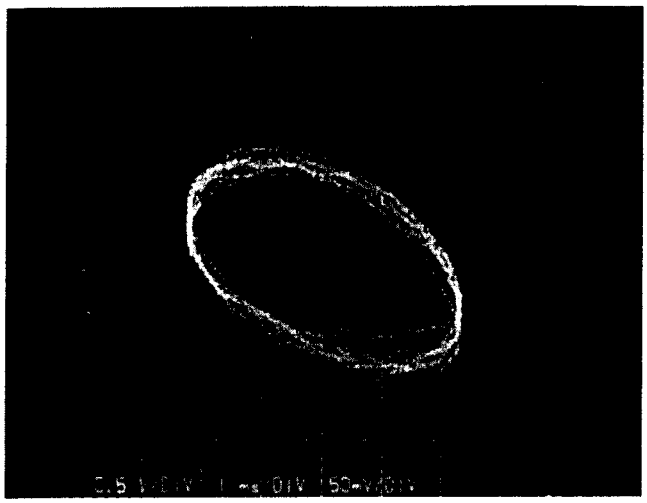
- **Purpose:**
  To adjust the focus servo loop gain to an optimum value.
- **Maladjustment symptoms:**
  Poor playabillity, reduced resistance to vibration, focus closure fails readily.

- **Measuring equipment / jigs:**
  Oscillator, gain adjustment filter, oscilloscope
- **Measuring point:**
  FEX, FEY
- **Test disc and setting**
  SONY TYPE 4 (or ABEX TCD-782) Normal mode
- **Adjustment position:**
  VR355




### Adjustment Procedure

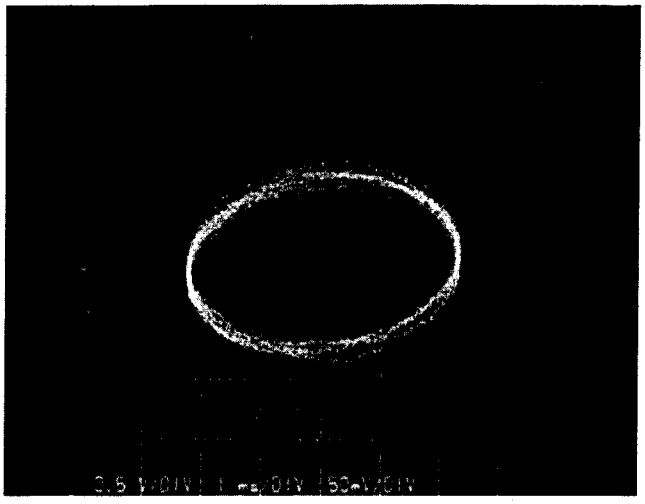
1. After checking that the power is OFF, connect the gain adjustment filter and measuring equipment as shown in the above diagram.
2. Play tuneTNO 12 in normal mode.(ABEX TCD-782:TNO 19)
3. Set the oscillator at 1kHz and adjust the output of the oscillator to 2Vp-p.
4. Adjust VR355 to make the Lissajou's figure of waveform symmetrical about X and Y axes respectively.



High-level gain

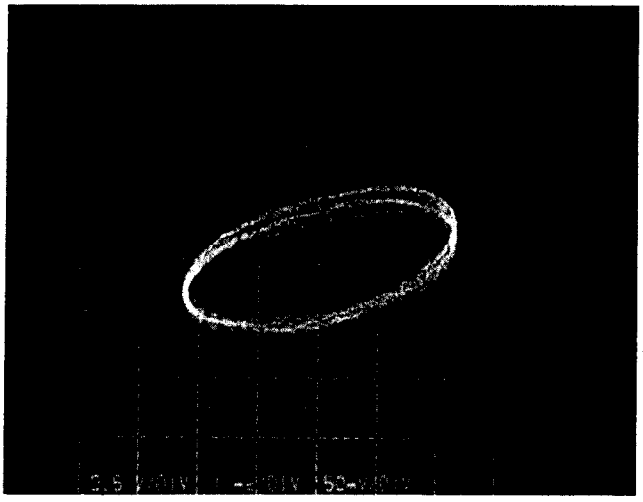
Focus
X=0.5V/div.
Y=50mV/div.
1ms/div.

**Waveform 14**



Optimum gain

**Waveform 15**



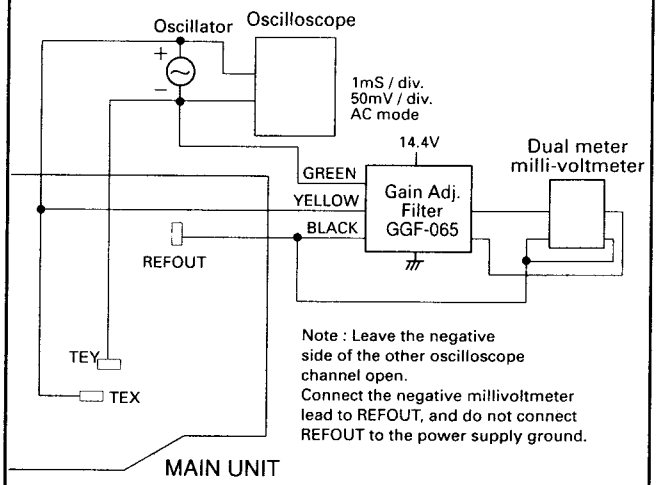
Low-level gain

**Waveform 16**

## 11 Tracking Servo Loop Gain Adjustment-1

- Tracking Servo Loop Gain Adjustment-1 may be performed in Tracking Servo Loop Gain Adjustment-2.
- **Purpose:**
  To adjust the tracking servo loop gain to an optimum value.
- **Maladjustment symptoms:**
  Poor playability, reduced resistance to vibration.

- **Measuring equipment / jigs:**
  Oscillator, gain adjustment filter(GGF-065), oscilloscope, dual meter milli-voltmeter, volume adjustment driver
- **Measuring point:**
  TEX, TEY
- **Test disc and setting:**
  SONY TYPE 4 (or ABEX TCD-782) Normal mode
- **Adjustment position:**
  VR356



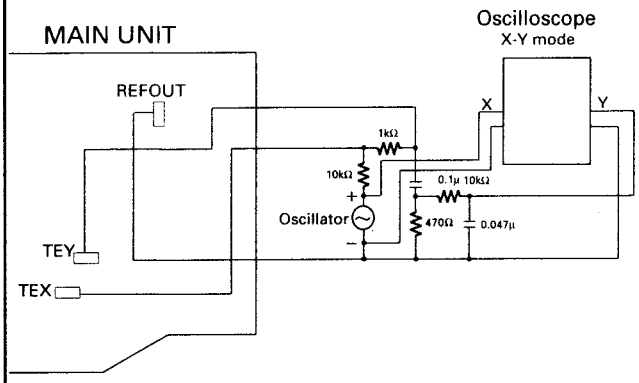

### Adjustment Procedure

1. After checking that the power is OFF, connect the gain adjustment filter and measuring equipment as shown in the above diagram.
2. Play tune TNO 12 in normal mode.(ABEX TCD-782:TNO19)
3. Set the oscillator to 1.4kHz, and observe the TEX/TEY output in the oscilloscope. Adjust the oscillator output to obtain a TEX/TEY output of 300mVp-p.
4. Adjust VR356 to obtain a milli-voltmeter difference of 0±0.5dB.

## 12 Tracking Servo Loop Gain Adjustment-2

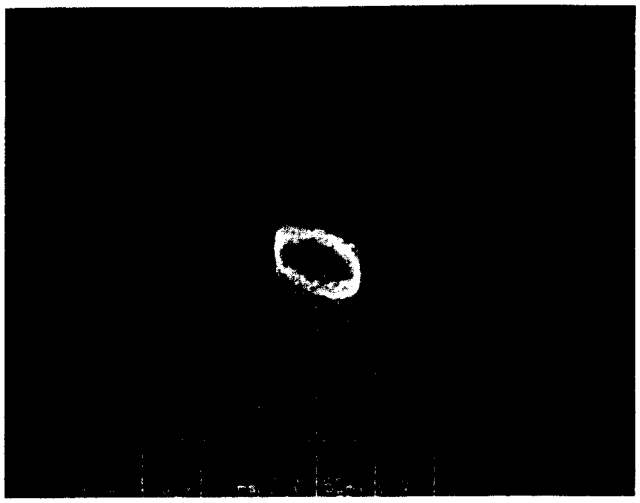
- **Purpose:**
  To adjust the tracking servo loop gain to an optimum value.
- **Maladjustment symptoms:**
  Poor playability, reduced resistance to vibration.

- **Measuring equipment / jigs:**
  Oscillator, gain adjustment filter, oscilloscope
- **Measuring point:**
  TEX, TEY
- **Test disc and setting:**
  SONY TYPE 4 (or ABEX TCD-782) Normal mode
- **Adjustment position:**
  VR356




### Adjustment Procedure

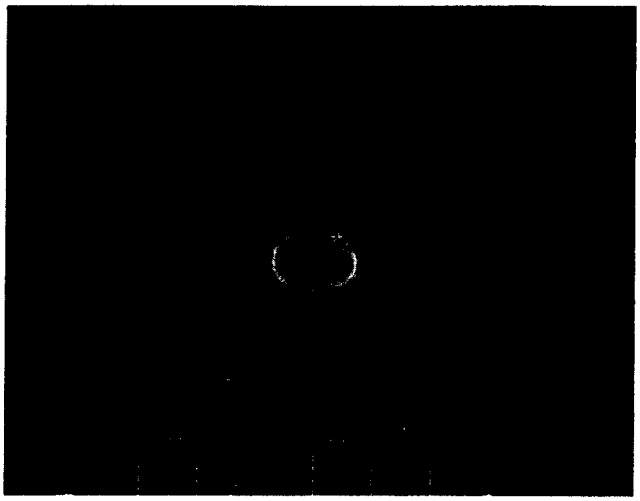
1. After checking that the power is OFF, connect the gain adjustment filter and measuring equipment as shown in the above diagram.
2. Play tune TNO 12 in normal mode.(ABEX TCD-782:TNO19)
3. Set the oscillator at 1.4kHz and adjust the output of the oscillator to 5Vp-p.
4. Adjust VR356 to make the Lissajou's figure of waveform symmetrical about X and Y axes respectively.



High-level gain

Tracking
X=5V/div.
Y=50mV/div.
2ms/div.

Waveform 17



Optimum gain

Waveform 18

Low-level gain

Waveform 19

## 13 TE Offset Adjustment-2

- **Purpose:**
  To adjust the electrical offset of the tracking servo to zero.
- **Maladjustment symptoms:**
  Search times too long, carriage run-away.

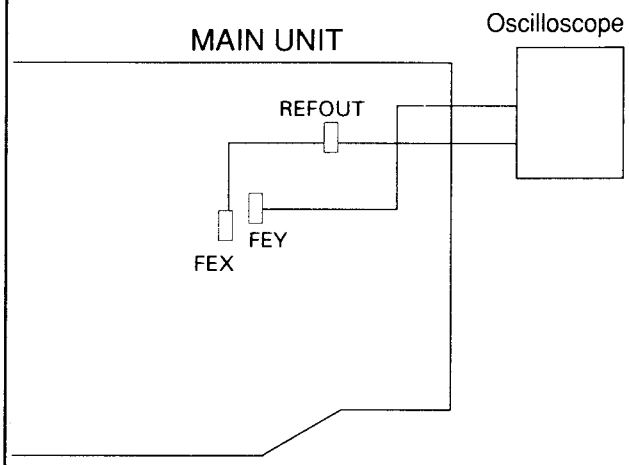
- **Measuring equipment / jigs:**
  DC voltmeter or oscilloscope,
  volume adjustment driver
- **Measuring point:**
  TEY
- **Test disc and setting:**
  No Disc Test mode
- **Adjustment position:**
  VR353

**Adjustment Procedure**
Same as for TE offset adjustment-1, but with the DC voltage of the TEY output adjusted to 0±50mV.
The purpose of this additional adjustment is to correct any deviations generated when carrying out the tracking balance and tracking servo loop gain adjustments after completing TE offset adjustment-1.

## 14 Checking FEY Level

- **Purpose:**
  Check the focus error level.
- **If the level is insufficient:**
  Focus is hard to close and the playability is worsened.

- **Measuring equipment / jigs:**
  Oscilloscope
- **Measuring point:**
  FEY
- **Test disc and setting:**
  SONY TYPE 4 (or ABEX TCD-782) Test mode

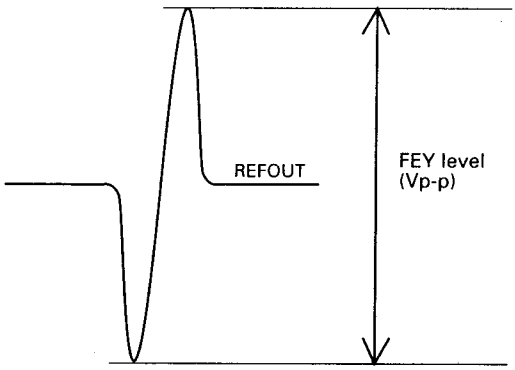



**Checkout Procedure(This checkout always must be performed after gain adjustment.)**

1. Connect the oscilloscope to REFOUT and FEY. Connect FEX to REFOUT.
2. In the test mode, set a test disc-loaded magazine and select a tray with a test disc.
3. Switch regulator ON.
4. Using the TRACK UP or TRACK DOWN key, move the pick-up to the center of the test disc.
5. **Press the 9/F3 key to close focus. During this action, the disc repeats acceleration and deceleration.**
6. Observe the FEY waveform and measure the FEY level.
7. Switch regulator OFF.
8. Disconnect FEX and REFOUT.

**Normal level of FEY:2.6Vp-p±0.6Vp-p**
If the level is less than the above, examine the peripheral circuits of the unit or replace the pick-up.


Waveform 20




In addition to the waveform shown above, the FEY level output produces another waveform like ⊣∿⊢ . However, take measurement only of the above figure of waveform.

## 15 Tracking Balance Adjustment-2 and Checking TEY Level

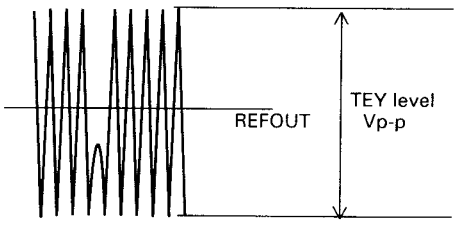
- **Purpose:**
  To adjust the tracking servo offset to zero.
- **Maladjustment symptoms:**
  Search times too long, poor playability, carriage run- away.

- **Measuring equipment / jigs:**
  Oscilloscope,
  volume adjustment driver
- **Measuring point:**
  TEY (Tracking error signal) L.P.F. output
- **Test disc and setting:**
  SONY TYPE 4 (or ABEX TCD-782) Test mode
- **Adjustment position:**
  VR354

**Adjustment Procedure**

Steps 1 through 5 are the same as the steps taken in the tracking balance adjustment-1.

6. Check to see that the level of positive and negative amplitudes of TEY signal. If there is deviation, make adjustment using VR354.
7. After adjustment measure the TEY level. (Measurement always should be made afrer the tracking gain adjustment is completed. Before the adjustment, normal level measurement cannot be achieved.)




**Normal range of TEY level:2.0±0.5Vp-p**

If the level is out of the above range, examine the peripheral circuits of the unit or replace the pick-up.

● **ICs**

● **Pin Functions (PD5262A)**

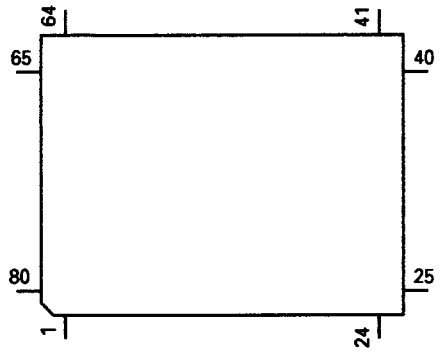
| Pin No. | Pin Name | I/O | I/O Format | Function and Operation |
|---|---|---|---|---|
| 1 | $\overline{TIN}$ | I | C | Tray position input |
| 2 | TEMP | | | Temperature detector |
| 3 | VDIN | | | Power supply short sensor input |
| 4 | RSTN | O | NM | Reset output |
| 5 | MIRR | I | NM | Mirror detector input |
| 6 | LOCK | I | NM | Spindle lock detector input |
| 7 | FOK | I | NM | FOK signal input |
| 8 | A0 | O | NM | LSI data control signal |
| 9 | XSCK | I/O | C/NM | LSI clock input/output |
| 10 | XSO | O | NM | LSI data output |
| 11 | XSI | I | C | LSI data input |
| 12 | $\overline{STB}$ | O | C | LSI strobe output |
| 13 | $\overline{RST}$ | O | C | LSI reset output |
| 14 | CCS | O | C | IP-BUS chip select |
| 15 | CPW | O | C | IP-BUS power control |
| 16 | $\overline{ASENS}$ | I | | ACC power sense input |
| 17 | $\overline{BSENS}$ | I | | Back up power sense input |
| 18 | CIRQ | I | | IP-BUS interrupt input |
| 19 | CCD | O | C | IP-BUS command / data appointment |
| 20 | CRW | O | C | IP-BUS read / wright appointment |
| 21 | CSCK | O | C | IP-BUS clock output |
| 22 | CSO | O | C | IP-BUS data output |
| 23 | CSI | I | C | IP-BUS data input |
| 24 | $\overline{EJSW}$ | I | | Eject key switch interrupt input |
| 25 | $\overline{MAG}$ | I | | Magazine lock switch interrupt input |
| 26 | CNVCC | I | | GND |
| 27 | $\overline{RESET}$ | I | | Reset input |
| 28 | EJLED | O | C | LED output for eject |
| 29 | CRST | O | C | IP-BUS reset output |
| 30 | XIN | I | | Crystal oscillating element connection pin |
| 31 | XOUT | O | | Crystal oscillating element connection pin |
| 32 | VSS | | | GND |
| 33–40 | D7-D0 | I/O | C | External RAM data line |
| 41 | $\overline{WE}$ | O | C | External RAM write enable |
| 42 | PROT | O | C | External RAM output enable |
| 43 | CS | O | C | External RAM chip select |
| 44–56 | A12-A0 | O | C | External RAM address line |
| 57 | $\overline{EJP}$ | I | C | Eject position switch |
| 58 | $\overline{6}$/12 | I | C | 6/12 switching input |
| 59 | FECNT | I/O | C | DEFECT port |
| 60 | POWER | O | C | CD +5V control |
| 61 | CONT | O | C | Servo driver power supply control |
| 62 | NC | I | C | Pull down |
| 63 | $\overline{HOME}$ | I | C | Home position detector input |
| 64 | OPTSW | I | C | Digital output ON/OFF input |
| 65 | LOAD | O | C | Mechanism power supply control |
| 66 | I3 | O | C | Motor driver control output |
| 67 | I1 | O | C | Motor driver control output |
| 68 | I2 | O | C | Motor driver control output |
| 69 | ENDOUT | O | C | Digital output enable signal |
| 70 | CDMUTE | O | C | CD mute output |

| Pin No. | Pin Name | I/O | I/O Format | Function and Operation |
|---|---|---|---|---|
| 71 | ADENA | O | C | A/D reference voltage output |
| 72 | $\overline{\text{TESTIN}}$ | I | C | Test program mode input |
| 73 | VCC | | | 5V |
| 74 | VREF | I | | A/D converter reference voltage input |
| 75 | AVSS | I | | A/D GND |
| 76 | UNIT#H | | | UNIT # input |
| 77 | UNIT#L | | C | UNIT # input |
| 78 | $\overline{\text{DISK}}$ | | | Disc detector input |
| 79 | $\overline{\text{TSEL}}$ | I | C | Tray position detector photo sensor |
| 80 | $\overline{\text{TOUT}}$ | I | C | Disc sensor timing input |

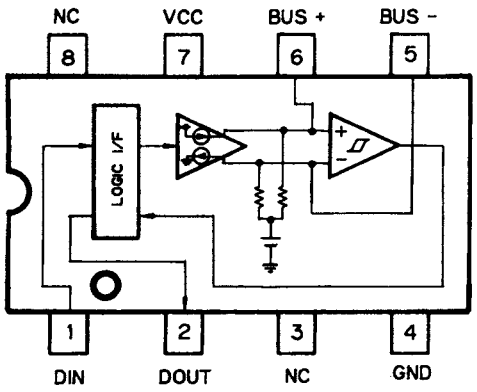
| I/O Format | Meaning |
|---|---|
| C | C MOS |
| NM | Middle resistivity<br>N channel open drain |

*IC's marked by* are MOS type.*
*Be careful in handing them because they are very liable to be damaged by electrostatic induction.*

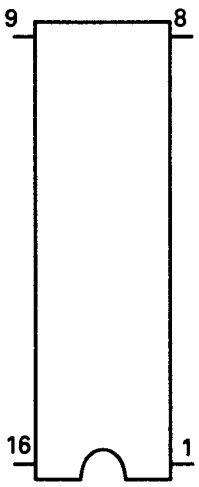
*PD5262A




PA0051AM




PD4308AM




**●Pin Functions (PD4308AM)**

| Pin | Pin Name | I/O | Function and Operation |
|---|---|---|---|
| 1 | IPSCK | I/O | Clock input/output |
| 2 | IPSI | I | Data input |
| 3 | IPSO | O | Data output |
| 4 | IPIRQ | I | Interrupt input |
| 5 | IPRW | O | Read / write output |
| 6 | X1 | | Crystal oscillator connection pin |
| 7 | X0 | | Crystal oscillator connection pin |
| 8 | GND | | GND |
| 9 | RX | I | Data input |
| 10 | TX | O | Data output |
| 11 | NC | | Not used |
| 12 | IPCD | O | Command/data output |
| 13 | IPCS | O | Chip select output |
| 14 | IPRST | O | Reset output |
| 15,16 | VDD | | Power supply |

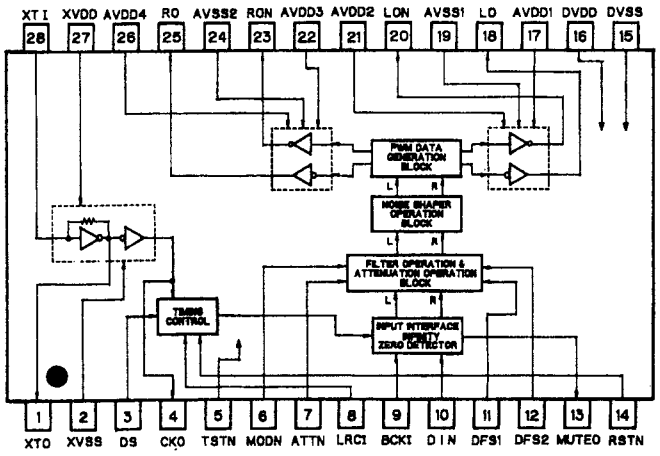
## ● Pin Functions (SM5871AS)

| Pin No. | Pin Name | I/O | Function and Operation |
|---|---|---|---|
| 1 | XTO | O | Oscillation output |
| 2 | XVSS | | Crystal VSS (0V) |
| 3 | DS | IP | Normal / high-speed play mode select (DS=L : Normal play mode) (DS=H : High-speed play mode) |
| 4 | CKO | O | Oscillation output clock (DS=L : 384fs),(DS=H : 192fs) |
| 5 | TSTN | IP | Test : H |
| 6 | MODN | IP | Mode control |
| 7 | ATTN | IP | Soft mute control |
| 8 | LRCI | IP | Input data sample rate (fs) clock : H=Lch,L=Rch |
| 9 | BCKI | IP | Input data bit clock |
| 10 | DIN | IP | Input data |
| 11 | DFS1 | IP | De-emphasis control 1 |
| 12 | DFS2 | IP | De-emphasis control 2 |
| 13 | MUTEO | O | Infinity zero detector output |
| 14 | RSTN | IP | System reset : H=Normal motion,L=System reset |
| 15 | DVSS | | Digital GND (0V) |
| 16 | DVDD | | Digital VDD (5V) |
| 17 | AVDD1 | | Analogue VDD 1 (5V) |
| 18 | LO | O | Lch PWM output (+) |
| 19 | AVSS1 | | Analogue GND 1 (0V) |
| 20 | LON | O | Lch PWM output (-) |
| 21 | AVDD2 | | Analogue VDD 2 (5V) |
| 22 | AVDD3 | | Analogue VDD 3 (5V) |
| 23 | RON | O | Rch PWM output (-) |
| 24 | AVSS2 | | Analogue GND 2 (0V) |
| 25 | RO | O | Rch PWM output (+) |
| 26 | AVDD4 | | Analogue VDD 4 (5V) |
| 27 | XVDD | | Crystal VDD (5V) |
| 28 | XTI | I | Oscillation input (384fs : DS=L),(192fs : DS=H) |

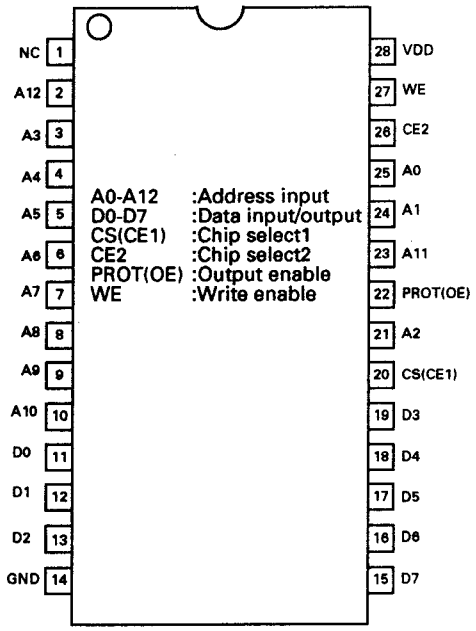
| ATTN | SELECT | MODN | |
|---|---|---|---|
| | | H | L |
| | H | Soft mute cancel motion | Soft mute motion hold (fix) |
| | L | Soft mute motion | |

| DFS2 | SELECT | DFS1 | |
|---|---|---|---|
| | | L | H |
| | L | De-emphasis ON 44.1kHz | De-emphasis OFF |
| | H | De-emphasis ON 48.0kHz | De-emphasis ON 32.0kHz |

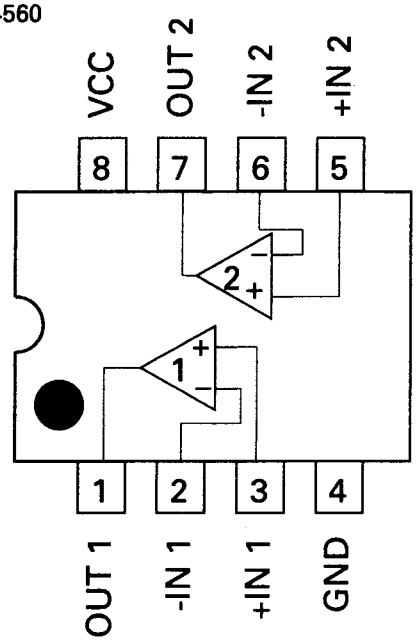
*SM5871AS



*LH-5160HN-10L



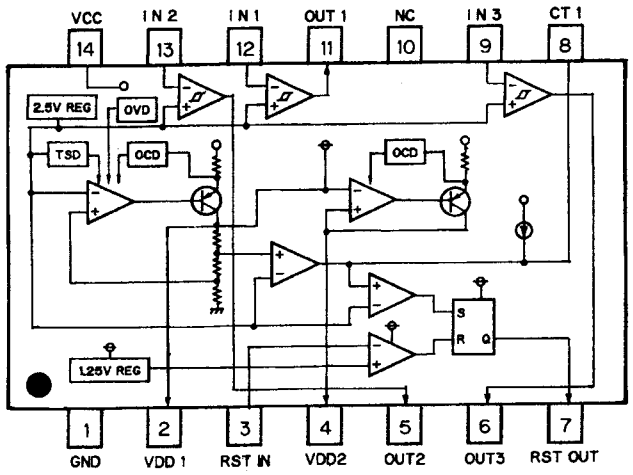

XRA4560F
XRA4560




## ● Pin Functions (PAJ001A)

| Pin No. | Pin Name | I/O | Function and Operation |
|---|---|---|---|
| 1 | GND | | IC P.C.Board (SUB) electric potential / The lowest electric potential of IC |
| 2 | VDD1 | O | Microcomputer 5V power supply output |
| 3 | RSTIN | I | Microcomputer reset control (VSL) detector input |
| 4 | VDD2 | O | Microcomputer pull up resistance 5V power supply output |
| 5 | OUT2 | O | Attenuation power detector 2 output |
| 6 | OUT3 | O | Attenuation power detector 3 output |
| 7 | RSTOUT | O | Microcomputer reset control output |
| 8 | CT1 | | Microcomputer reset delay time constant terminal |
| 9 | IN3 | I | Attenuation power detector 3 input |
| 10 | CF | | Reference filter capacitor connection terminal |
| 11 | OUT1 | O | Attenuation power detector 1 output |
| 12 | IN1 | I | Attenuation power detector 1 input |
| 13 | IN2 | I | Attenuation power detector 2 input |
| 14 | VCC | | IC power supply input / The highest electric potential of IC |

PAJ001A



# 5. ELECTRICAL PARTS LIST

**NOTES:**

- *Parts whose parts numbers are omitted are subject to being not supplied.*
- *The part numbers shown below indicate chip components.*

*Chip Resistor*

*RS1/○S○○○J,RS1/○○S○○○J*

*Chip Capacitor (except for CQS.....)*

*CKS....., CCS....., CSZS.....*

| =====Circuit Symbol & No. Part Name===== | Part No. |
|---|---|
| Unit Number : CWX1632 | |
| Unit Name : Main Unit | |
| MISCELLANEOUS | |
| IC 351 | UPC1347GS |
| IC 601 | UPD6374AGH |
| IC 602 652 | XRA4558F |
| IC 651 | PA3026 |
| IC 661 | TA78L05F |
| IC 701 | UPD6375GC |
| IC 702 | SM5871AS |
| IC 707 | XRA4560F |
| IC 708 | TA78L05F |
| IC 751 | PD5262A |
| IC 752 | LH5160HN-10L |
| IC 754 | PD4308AM |
| IC 755 | PA0051AM |
| IC 801 | XRA6247FP |
| Q 351 | 2SB1260 |
| Q 601 | 2SB709A |
| Q 651 725 781 801 | UN2211 |
| Q 652 653 802 | 2SB1184F5 |
| Q 721 | DTA123JK |
| Q 722 | DTC144EK |
| Q 723 | 2SC4453 |
| Q 724 | DTC114YK |
| Q 751 | UN2111 |
| D 651 652 | SC016-2 |
| D 751 | MA151A-MA |
| D 752 | MA151WK-MT |
| X 702 Crystal Resonator 16.9344MHz | CSS1067 |
| X 751 Ceramic Resonator 8.000MHz | CSS1107 |
| X 752 Ceramic Resonator 12.583MHz | CSS1108 |
| VR 351 352 355 Semi-fixed 47kΩ(B) | CCP1185 |
| VR 353 356 Semi-fixed 2.2kΩ(B) | CCP1177 |
| VR 354 Semi-fixed 22kΩ(B) | CCP1183 |
| Checker Chip | CKF1025 |
| RESISTORS | |
| R 353 | RS1/16S623J |
| R 354 746 747 748 749 750 751 753 756 760 | RS1/16S473J |
| R 355 | RS1/16S122J |
| R 356 357 658 | RS1/16S683J |
| R 358 359 654 | RS1/16S332J |
| R 360 | RS1/16S684J |
| R 361 | RS1/16S153J |
| R 369 605 607 666 678 720 775 905 908 912 | RS1/16S103J |
| R 370 381 | RS1/16S133J |
| R 375 377 609 613 651 663 671 672 791 804 | RS1/16S102J |
| R 379 | RS1/16S513J |
| R 380 754 761 767 772 777 782 784 788 796 | RS1/16S104J |
| R 382 | RS1/8S100J |
| R 383 | RS1/8S120J |
| R 606 | RS1/16S224J |

| =====Circuit Symbol & No. Part Name===== | Part No. |
|---|---|
| R 611 702 703 704 802 803 | RS1/16S102J |
| R 614 664 | RS1/16S912J |
| R 615 616 661 810 | RS1/16S472J |
| R 652 | RS1/16S162J |
| R 653 739 740 741 742 743 744 745 755 757 | RS1/16S222J |
| R 655 | RS1/16S362J |
| R 656 669 | RS1/16S183J |
| R 660 662 665 811 812 813 | RS1/10S131J |
| R 679 | RS1/16S333J |
| R 708 | RS1/16S201J |
| R 718 719 | RS1/16S101J |
| R 721 | RS1/16S471J |
| R 722 723 724 725 778 | RS1/16S103J |
| R 726 727 728 729 | RS1/16S752J |
| R 730 731 | RS1/16S163J |
| R 732 733 | RS1/16S163J |
| R 734 | RS1/16S472J |
| R 752 | RS1/16S123J |
| R 758 759 762 763 765 768 773 787 931 932 | RS1/16S222J |
| R 766 786 790 | RS1/16S563J |
| R 797 | RS1/16S473J |
| R 799 | RS1/16S513J |
| R 805 806 807 | RS1/16S563J |
| R 821 822 | RS1/16S0R0J |
| R 825 826 | RS1/10S241J |
| R 835 836 | RS1/10S241J |
| R 911 | RS1/16S433J |
| R 917 922 | RS1/16S104J |
| R 918 | RS1/16S154J |
| R 927 | RS1/16S104J |
| CAPACITORS | |
| C 351 | CEV470M6R3 |
| C 352 751 | CKSQYB104K16 |
| C 353 732 | CEV101M6R3 |
| C 354 355 608 609 610 | CEV100M16 |
| C 357 359 366 | CKSRYB102K50 |
| C 358 603 | CKSRYB331K50 |
| C 360 | CKSRYB271K50 |
| C 361 | CCSRCH220J50 |
| C 373 | CKSYB224K16 |
| C 601 | CKSRYB222K50 |
| C 604 652 654 | CKSYB224K16 |
| C 605 606 611 615 616 618 619 661 666 742 | CKSRYB103K50 |
| C 614 | CKSRYB821K50 |
| C 617 702 708 709 724 744 757 | CKSRYB103K50 |
| C 655 | CKSQYB333K25 |
| C 657 | CKSRYB391K50 |
| C 658 | CKSQYB272K50 |
| C 663 | CKSQYB333K25 |
| C 665 400μF/10V | CCH1120 |
| C 667 801 | CEV220M16 |

| =====Circuit Symbol & No. Part Name===== | | Part No. |
|---|---|---|
| C 720 | | CKSYB224K16 |
| C 725 726 | | CKSRYB102K50 |
| C 727 | | CKSRYB102K50 |
| C 728 729 | | CCSRCH080D50 |
| C 730 731 | | CKSYB104K16 |
| C 733 734 | | CCSRCH221J50 |
| C 737 738 | | CCSRCH680J50 |
| C 739 740 | | CCSRCH680J50 |
| C 741 | | CKSYB224K16 |
| C 743 | | CKSRYB103K50 |
| C 756 | | CKSRYB472K50 |
| C 758 | | CKSYB104K16 |
| C 759 | | CKSQYB104K16 |
| C 802 803 | | CKSQYB223K50 |

| Extension Unit |
|---|
| Consists of<br>•Extension P.C.Board<br>•Key P.C.Board |

Unit Number : CWX1695
Unit Name : Extension Unit

MISCELLANEOUS

| | | |
|---|---|---|
| IC 1601 | | XRA4560 |
| IC 1731 | | PAJ001A |
| Q 1601 1602 | | 2SD1048 |
| Q 1603 1722 | | DTA144EK |
| Q 1604 1711 1721 | | DTC114YK |
| Q 1712 | | DTA114EK |
| Q 1713 | | 2SB1299 |
| Q 1714 1715 1761 | | 2SC2458 |
| Q 1723 | | 2SD1859 |
| Q 1731 | | 2SC3673 |
| D 1601 1602 | | 1SS133 |
| D 1603 1701 1703 | | 1SR139 |
| D 1621 1622 | | RD18JSB1 |
| D 1711 | | HZS6LB1 |
| D 1721 | | HZS9LB3 |
| D 1722 1723 | | HZS5LLA |
| D 1731 | | HZS6LB1 |
| L 1701 | Choke Coil | CTH1129 |
| SW1751 | Switch (ADDRESS) | CSH1035 |
| SW1754 | Switch (RESET) | CSG1039 |
| SW1755 | Switch (EJSW) | CSN1027 |
| EF1701 | EMI Filter | CCG1006 |

RESISTORS

| | |
|---|---|
| R 1601 1602 1607 1608 | RD1/4PS562JL |
| R 1603 1604 | RD1/4PS682JL |
| R 1609 1610 | RD1/4PS102JL |
| R 1611 1612 | RD1/4PS432JL |
| R 1613 1614 | RD1/4PS562JL |
| R 1615 1712 1735 | RD1/4PS103JL |
| R 1621 1622 | RD1/4PS101JL |
| R 1701 1731 1733 | RD1/4PS104JL |
| R 1702 | RD1/4PS184JL |
| R 1711 | RD1/4PS222JL |
| R 1713 1714 | RD1/4PS331JL |
| R 1715 | RD1/4PS681JL |
| R 1716 | RD1/4PS242JL |
| R 1717 | RD1/4PS362JL |
| R 1721 1723 1724 | RD1/4PS432JL |
| R 1722 | RD1/4PS101JL |
| R 1732 | RD1/4PS104JL |
| R 1734 1751 | RD1/4PS102JL |
| R 1736 | RS1/10S101J |
| R 1737 | RD1/4PS153JL |

| =====Circuit Symbol & No. Part Name===== | | Part No. |
|---|---|---|
| R 1738 | | RS1/8S101J |
| R 1752 1753 1754 | | RD1/4PS513JL |
| R 1761 | | RD1/4PS433JL |
| R 1762 | | RD1/4PS273JL |
| R 1764 | | RS1/10S104J |

CAPACITORS

| | | |
|---|---|---|
| C 1603 1604 | | CCSQCH331J50 |
| C 1605 1606 | | CCSQSL222J50 |
| C 1607 1608 | | CEA330M10LL |
| C 1609 | | CKSYB103K25 |
| C 1610 1723 | | CEA101M10LL |
| C 1621 1622 | | CCSCH471J50 |
| C 1701 | | CKSQYB472K50 |
| C 1702 | | CEAS471M16 |
| C 1703 | 470µF/16V | CCH-114 |
| C 1704 1711 1721 1722 1734 1738 | | CKSQYB103K25 |
| C 1705 1713 | | CEA3R3M50LL |
| C 1712 | | CEA220M10LL |
| C 1726 1727 | | CEA3R3M50LS |
| C 1731 | | CEAR47M50LS2 |
| C 1732 | | CEA470M6R3LS |
| C 1733 | 2200µF/25V | CCL1027 |
| C 1736 | | CEA010M50LS2 |
| C 1737 | | CKSQYB104K16 |
| C 1739 | | CEA4R7M35LL |

Unit Number :
Unit Name : Mechanism P.C.Board

| | | |
|---|---|---|
| S 805 | Switch (HOME) | CSN1012 |

Unit Number :
Unit Name : Photo P.C.Board

| | | |
|---|---|---|
| D 1 | LED | BR4361F |
| S 801 802 | Switch (RSTP,MAG) | CSN1012 |

Miscellaneous Parts List

| | | |
|---|---|---|
| D 2 | LED | BR4361F |
| S 803 804 | Switch (TRP,DSP) | CSN1012 |
| P 801 802 | Photo Transistor | PT4800 |
| M 1 | Motor Unit (Spindle) | CXA4540 |
| M 2 | Motor Unit (Elevation) | CXA5325 |
| M 3 | Motor Unit (Loading) | CXA5324 |
| M 4 | Motor Unit (Carriage) | CXA4649 |
| | PU Unit | CGY1027 |

# 6. CIRCUIT DESCRIPTION

## ● Indicating An Error Number

If the CD should fail to operate, or if an error has taken place during the operation and resulted in an error, the player will enter into the error mode. And the cause of such error is numerically indicated.
This is aimed at assisting an analysis or a repair.

(1) Basic Means of Display

•With ERROR indicated in "MODE" on IP-BUS Display date, an error code is transmitte by the use of MIN and SEC. Identical date are transmitted with MIN and SEC.

•Examples of Display

E-XX (4 digits)
Err-XX (6 digits)
ERR-XX (6 digits)
ERROR-XX (8 digits)

(2) Error Codes

| Error Code | Classification | Description | Detail / Cause |
|---|---|---|---|
| 10 | ELECTRIC | Carriage home failure | Unmovable to and from the inner circumference<br>→ Home switch failed and / or carriage improper moved |
| 11 | ELECTRIC | Focus failure | Focussing failed<br>→ Disc scarred or stained on the back or vibrating hard |
| 12 | ELECTRIC | SETUP failure | Spindle failed to lock or subcode extraordinary<br>→ Spindle defective, disc scarred or stained or vibrating hard |
| 14 | ELECTRIC | Blank Disc | Unrecorded CD-R<br>The disc has been in inserted upside down |
| 30 | ELECTRIC | Search time out | Target address failed to reach<br>→ Carriage / tracking improperly and / or disc scarred |
| A0 | SYSTEM / MECHANISM | Power failure | Mechanism drive power supply VM short sense or no power supply<br>→ Switching transistor defective and / or power abnormal or LOAD terminal failure |
| 50 | MECHANISM | An error upon ejection | MAG SW release time has time out<br>Elevation time out when eject |
| 60 | MECHANISM | An error while putting in and out the tray | Tray in / out time has time out<br>Tray is caught when put in |
| 70 | MECHANISM | An error upon elevation | Elevation time has time out |
| 80 | MECHANISM | An error with an empty magazine inserted | No disc is available |

* Setup means a series of operations after focusing up to sound output.

## ● New Test Mode (IP-BUS System)

[Objective]

This feature is for performing failure analysis in aging.

Control is performed by the head unit (when the head unit enters the test mode).

Unless an abnormal event occurs, the operation is almost the same as normal CD-Multi operation. In case an error such as the servo error should occur, the operation stops with the indication of the replay time at the error without performing normal recovery.

[Main functions]

(1) When a CD is set up, the operation status is displayed.

(2) If the servo error occurs during play, the operation stops with the indication of the replay time at the error.
By pressing a particular key, the display indicating an error cause and replay time can be changed.

(3) Single unit operation is allowed. Disc change, normal play, TR+/-, FF/REW, play mode switching and random play may be performed.

[Details of operation]

(1) How to initiate the new test mode

First initiate the test mode, then select the CD-Multi.

When the jump changeover key is pressed with the power supply to the servo system being OFF, the CD-Multi enters the new test mode.

Because the head unit cannot know that the CD-Multi has entered the new test mode, the head unit is still placed in the test mode and outputs a command in the test mode when requested by pressing a particular key.

(2) How to leave the new test mode

After executing the hard reset of the head unit, the hard reset of the CD-Multi should be performed.

(3) Indicating an Operation Status During Setup

| Status No. | Description | Protection operation |
|---|---|---|
| 01 | Carriage home mode started | None |
| 02 | Carriage moving on the internal circumference | 10-second time out, home switch defect |
| 03 | Carriage moving on the external circumference | 10-second time out, home switch defect |
| 11 | Setup started | None |
| 12 | Spindle turn / Focus search started | None |
| 13 | Waiting for focus closing | Failure to focus closing |
| 14 | Spindle kicked and focus checked | Out of focus |
| 15 | Tracking closed and focus checked | Out of focus |
| 17 | Carriage closed and focus checked | Out of focus |
| 18 | Lock and subcode waiting | Failure to lock, subcode failed to read out of focus |
| 19 | End | None |

(4) Error Code Description

| Code | Classification | Description | Cause / Detail |
|---|---|---|---|
| 40 | ELECTRIC | Put out of focus detect | FOK=L 100ms<br>→ Scar, Stain, Vibration, Servo defect |
| 41 | ELECTRIC | Spindle unlocked detect | LOCK=L 150ms<br>→ Scar, Stain, Vibration, Servo defect |
| 42 | ELECTRIC | Subcode unacceptable detect | Subcode fails to read 500ms<br>→ Scar, Stain, Vibration, Servo defect |
| 43 | ELECTRIC | Sound skipped | Last address memory operated<br>→ Scar, Stain, Vibration, Servo defect |

(5) Operation of keys between TEST and NEW TEST Modes

| Command Code | Test Mode | | New Test Mode |
|---|---|---|---|
| | Name | Operation | Operation |
| 15 00 | DDCN | Servo power supply ON / OFF | — (Error stop time / cause select) |
| 15 01 | FWDKCK | FWD-KICK | TR+ / FF |
| 15 02 | REVKCK | REV-KICK | TR- / REW |
| 15 03 | TRKCLS | TRACKING CLOSE | — |
| 15 04 | TRKOPN | TRACKING OPEN | PLAY mode select |
| 15 05 | FCSCLS | FOCUS CLOSE | — |
| 15 06 | FCSOPN | FOCUS OPEN | RANDOM |
| 15 07 | JMPOFF | JUMP OFF | — |
| 15 08 | CRGTRK | 1/10/32 jump and carriage move select | AUTO / MANUAL select |

# 7. EXPLODED VIEW PARTS LIST

● **Chassis (Exploded View : Page 2-3)**

**NOTES:**

- *Parts marked by "✱" are generally unavailable because they are not in our Master Spare Parts List.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

● **Parts List**

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Screw | BMZ26P030FMC |
| | 2 | Screw | BMZ26P080FMC |
| | 3 | Cord (UC,ES) | CDE4211 |
| | | Cord (EW) | CDE4210 |
| | 4 | ••••• | |
| | 5 | ••••• | |
| | 6 | Pin | CLA2163 |
| | 7 | Lower Case | CNB1654 |
| | 8 | Upper Case | CNB1784 |
| | 9 | Bracket R | CNC5053 |
| | 10 | Bracket L | CNC5059 |
| | 11 | Insulator | CNM3628 |
| ✱ | 12 | Seal | CNM3648 |
| | 13 | Insulator | CNM3779 |
| | 14 | P.C.Board | CNP3500 |
| | 15 | Main Unit | CWX1632 |
| ◉ | 16 | CD Mechanism Unit | CXK2700 |
| | 17 | Spare Assy (Grille Assy) | CXX1110 |
| | 18 | Screw | PMS26P040FMC |
| | 19 | Screw | PMS30P040FZK |
| | 20 | Screw (M6×16) | CBA1295 |
| | 21 | Screw | HMB60P500FMC |
| | 22 | Screw | HMF40P080FZK |
| | 23 | Nut | NF60FMC |
| | 24 | Angle | CNB1763 |
| | 25 | Screw | BPZ26P080FMC |
| | 26 | Door | CAT1593 |
| | 27 | Spring | CBL1182 |
| | 28 | Connector | CDE4156 |
| | 29 | Grille | CNS2915 |
| | 30 | Guide | CNV3733 |
| | 31 | Extension Unit | CWX1695 |
| | 32 | Connector (CN801) (5P) | CKS1943 |
| | 33 | Connector (CN351) (17P) | CKS1955 |
| | 34 | Connector (CN752) (24P) | CKS1962 |
| | 35 | Connector (CN901) (16P) | CKS2495 |
| | 36 | Connector (CN804) (16P) | CKS1954 |
| | 37 | Plug (CN1701) (3P) | CKS-460 |
| | 38 | Plug (CN1751) (3P) | CKS1050 |
| | 39 | Connector (CN1702) (22P) | CKS1542 |
| | 40 | Plug (CN1752) (3P) | CKS1633 |
| | 41 | Connector (CN1601) (11P) | CKS2479 |
| | 42 | Heat Sink | CNC4447 |
| | 43 | Earth Plate | CNC4650 |
| | 44 | Bracket | CNC5048 |
| | 45 | Connector Bracket | CNC5181 |
| | 46 | Transistor (Q1713) | 2SB1299 |

## ● CD Mechanism Unit (Exploded View : Page 2-5)

## ● Parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Screw | BMZ20P025FMC |
| | 2 | Screw | BMZ20P030FMC |
| | 3 | ••••• | |
| | 4 | Screw | BMZ26P030FMC |
| | 5 | Screw | BMZ26P050FMC |
| | 6 | LED (D1,2) | BR4361F |
| | 7 | Screw (M2×4) | CBA1015 |
| | 8 | Screw (M2×2.5) | CBA1037 |
| | 9 | Screw (M2×7) | CBA1060 |
| | 10 | Screw (M2×3) | CBA1062 |
| | 11 | Screw (M1.7×5.5) | CBA1070 |
| | 12 | Screw (M2×3) | CBA1077 |
| | 13 | ••••• | |
| | 14 | Screw (M2×6) | CBA1229 |
| | 15 | Screw (M2×2.5) | CBA1251 |
| | 16 | Washer | CBF1037 |
| | 17 | Washer | CBF1038 |
| | 18 | Spring | CBH1430 |
| | 19 | Spring | CBH1488 |
| | 20 | Spring | CBH1489 |
| | 21 | Spring | CBH1490 |
| | 22 | Spring | CBH1491 |
| | 23 | Spring | CBH1492 |
| | 24 | Spring | CBH1493 |
| | 25 | Spring | CBH1494 |
| | 26 | Spring | CBH1495 |
| | 27 | Spring | CBH1497 |
| | 28 | Spring | CBH1498 |
| | 29 | Spring | CBH1499 |
| | 30 | Spring | CBH1585 |
| | 31 | Spring | CBH1501 |
| | 32 | Spring | CBH1503 |
| | 33 | Spring | CBH1504 |
| | 34 | Spring | CBH1505 |
| | 35 | Spring | CBH1506 |
| | 36 | Spring | CBH1537 |
| | 37 | Spring | CBH1538 |
| | 38 | Spring | CBH1563 |
| | 39 | Spring | CBH1569 |
| | 40 | Spring | CBL1138 |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 41 | Spring | CBL1181 |
| | 42 | Spring | CBL1156 |
| | 43 | Spring | CBL1157 |
| | 44 | Spring | CBL1158 |
| | 45 | Connector (5P) | CDE3906 |
| | 46 | PU Unit | CGY1027 |
| | 47 | Connector (6P) | CKS1944 |
| | 48 | Connector (15P) | CKS1953 |
| | 49 | Connector (17P) (CN1,2) | CKS1955 |
| | 50 | Connector (5P) | CKS2208 |
| | 51 | Shaft | CLA2027 |
| | 52 | Shaft | CLA2123 |
| | 53 | Shaft | CLA2126 |
| | 54 | Roller | CLA2127 |
| | 55 | Roller | CLA2159 |
| | 56 | Shaft | CLA2160 |
| | 57 | Collar | CLA2161 |
| | 58 | Shaft | CLA2210 |
| | 59 | Shaft | CLA2213 |
| | 60 | Shaft | CLA2238 |
| | 61 | Holder | CNC4073 |
| | 62 | Weight | CNC4551 |
| | 63 | Bracket | CNC4602 |
| | 64 | Arm | CNC4606 |
| | 65 | Holder | CNC4626 |
| | 66 | Side Frame (L) | CNC4627 |
| | 67 | R Frame | CNC4628 |
| | 68 | Scale | CNC4629 |
| | 69 | Bracket | CNC4630 |
| | 70 | CM Bracket | CNC4631 |
| | 71 | Bracket | CNC4632 |
| | 72 | Arm | CNC4634 |
| | 73 | Arm | CNC4635 |
| | 74 | Arm | CNC4636 |
| | 75 | TG Plate | CNC4637 |
| | 76 | Bracket | CNC4642 |
| | 77 | Frame | CNC4850 |
| | 78 | Frame | CNC4854 |
| | 79 | Cover | CNC4955 |
| | 80 | Frame | CNC4967 |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 81 | Spacer | CNM1787 |
| | 82 | Sheet | CNM3567 |
| | 83 | ••••• | |
| | 84 | P.C.Board | CNP3222 |
| | 85 | P.C.Board | CNP3225 |
| | 86 | P.C.Board | CNP3226 |
| | 87 | Ball | CNR1189 |
| | 88 | Gear | CNR1289 |
| | 89 | Gear | CNR1290 |
| | 90 | Gear | CNR1304 |
| | 91 | Guide | CNR1309 |
| | 92 | Holder | CNR1310 |
| | 93 | Holder | CNR1311 |
| | 94 | Belt | CNT1047 |
| | 95 | Holder | CNV3352 |
| | 96 | Arm | CNV3354 |
| | 97 | Lock | CNV3355 |
| | 98 | Screw Bearing | CNV3356 |
| | 99 | Holder | CNV3357 |
| | 100 | Roller | CNV3358 |
| | 101 | Cam | CNV3359 |
| | 102 | Guide | CNV3360 |
| | 103 | Guide | CNV3361 |
| | 104 | Holder | CNV3362 |
| | 105 | Holder | CNV3363 |
| | 106 | ••••• | |
| | 107 | Gear | CNV3366 |
| | 108 | Gear | CNV3367 |
| | 109 | Gear | CNV3368 |
| | 110 | Gear | CNV3371 |
| | 111 | TRYD Gear | CNV3372 |
| | 112 | CUPM Gear | CNV3373 |
| | 113 | Clamper UP Gear | CNV3374 |
| | 114 | Guide | CNV3375 |
| | 115 | Guide | CNV3376 |
| | 116 | Arm | CNV3377 |
| | 117 | Arm | CNV3378 |
| | 118 | Guide | CNV3379 |
| | 119 | Guide | CNV3380 |
| | 120 | ••••• | |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 121 | Gear | CNV3382 |
| | 122 | Gear | CNV3383 |
| | 123 | Gear | CNV3384 |
| | 124 | Guide | CNV3385 |
| | 125 | Arm | CNV3386 |
| | 126 | Roller | CNV3387 |
| | 127 | Wheel | CNV3526 |
| | 128 | Arm | CNV3546 |
| | 129 | Cover | CNV3547 |
| | 130 | Holder | CNV3548 |
| | 131 | Damper | CNV3549 |
| | 132 | Holder | CNV3584 |
| | 133 | Plate | CNV3629 |
| | 134 | Composite P.C.Board | CNX1986 |
| | 135 | ••••• | |
| | 136 | Composite P.C.Board | CNX2067 |
| | 137 | Composite P.C.Board | CNX1995 |
| | 138 | Composite P.C.Board | CNX1996 |
| | 139 | Composite P.C.Board | CNX1997 |
| | 140 | Composite P.C.Board | CNX1998 |
| | 141 | Composite P.C.Board | CNX1999 |
| | 142 | Switch (S801,802,803,804,805) | CSN1012 |
| | 143 | Motor Unit (Spindle) (M1) | CXA4540 |
| | 144 | Motor Unit (Carriage) (M4) | CXA4649 |
| | 145 | Stage Chassis Unit | CXA5287 |
| | 146 | ••••• | |
| | 147 | Mode Ring Unit | CXA5288 |
| | 148 | Steer R Unit | CXA5289 |
| | 149 | LM Bracket Unit | CXA5290 |
| | 150 | Rink Unit | CXA5291 |
| | 151 | Lever Unit | CXA5292 |
| | 152 | Arm Unit | CXA5293 |
| | 153 | Gear Arm Unit | CXA5294 |
| | 154 | Arm Unit | CXA5295 |
| | 155 | Plate Unit | CXA5296 |
| | 156 | TG Bracket Unit | CXA5297 |
| | 157 | CRG Chassis Unit | CXA5298 |
| | 158 | Bracket Unit | CXA5299 |
| | 159 | Arm Unit | CXA5300 |
| | 160 | Arm Unit | CXA5301 |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 161 | Screw Unit | CXA5302 |
| | 162 | Arm Unit | CXA5303 |
| | 163 | Bracket Unit | CXA5304 |
| | 164 | Bracket Unit | CXA5305 |
| | 165 | Holder Unit | CXA5308 |
| | 166 | Frame Unit | CXA5310 |
| | 167 | Arm Unit | CXA5311 |
| | 168 | Arm Unit | CXA5313 |
| | 169 | Bracket Unit | CXA5314 |
| | 170 | Arm Unit | CXA5315 |
| | 171 | Main Frame Unit | CXA5316 |
| | 172 | Lever Unit | CXA5317 |
| | 173 | Magazine Holder Unit | CXA5318 |
| | 174 | Upper Frame Unit | CXA5319 |
| | 175 | Bracket Unit | CXA5322 |
| | 176 | Motor Unit (Loading) (M3) | CXA5324 |
| | 177 | Gear | CNV3365 |
| * | 178 | Motor | CXM1069 |
| | 179 | Motor Unit (Elevation) (M2) | CXA5325 |
| | 180 | Gear | CNV3381 |
| * | 181 | Motor | CXM1061 |
| | 182 | Whom Bracket Unit | CXA5326 |
| | 183 | Arm Unit | CXA6362 |
| | 184 | Damper Unit | CXA5631 |
| | 185 | Clamper | HEF-102 |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 186 | Screw | JFZ14P016FNI |
| | 187 | ••••• | |
| | 188 | ••••• | |
| | 189 | ••••• | |
| | 190 | Screw | JFZ20P025FNI |
| | 191 | Screw | JGZ20P070FNI |
| | 192 | Screw | PMS20P025FMC |
| | 193 | Photo Transistor (P801,802) | PT4800 |
| | 194 | Washer | YE15FUC |
| | 195 | Washer | YE20FUC |
| | 196 | Washer | YE25FUC |
| | 197 | Sheet | CNM3798 |
| | 198 | Bracket | CNC5028 |
| | 199 | Insulator | CNM3786 |
| | 200 | Sheet | CNM3817 |
| | 201 | Screw | BMZ26P040FMC |
| | 202 | Screw (M2×2.5) | CBA1041 |
| | 203 | Screw (M2.6×3) | CBA1065 |
| | 204 | ••••• | |
| | 205 | Screw | JFZ17P025FNI |
| | 206 | Screw | JFZ17P035FNI |
| | 207 | Screw | JFZ20P030FNI |
| | 208 | Sheet | CNM3826 |
| | 209 | Roller | CLA2266 |
| | 210 | Spring | CBH1579 |

PIONEER
*The Art of Entertainment*

# Service Manual

MULTI-COMPACT DISC PLAYER

# CDX-P1200 UC,EW,ES

COMPACT disc DIGITAL AUDIO

● **See the service manual CDX-M12/UC,EW (CRT1521) for the circuit description.**
● **See the separate manual CX-612 (CRT1518) for the CD mechanism description.**

## CHAPTER 2

## CONTENTS

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K-FFA.DEC.1993 Printed in Japan

# 1. EXPLODED VIEW

● **Magazine Assy (CXA5482)**

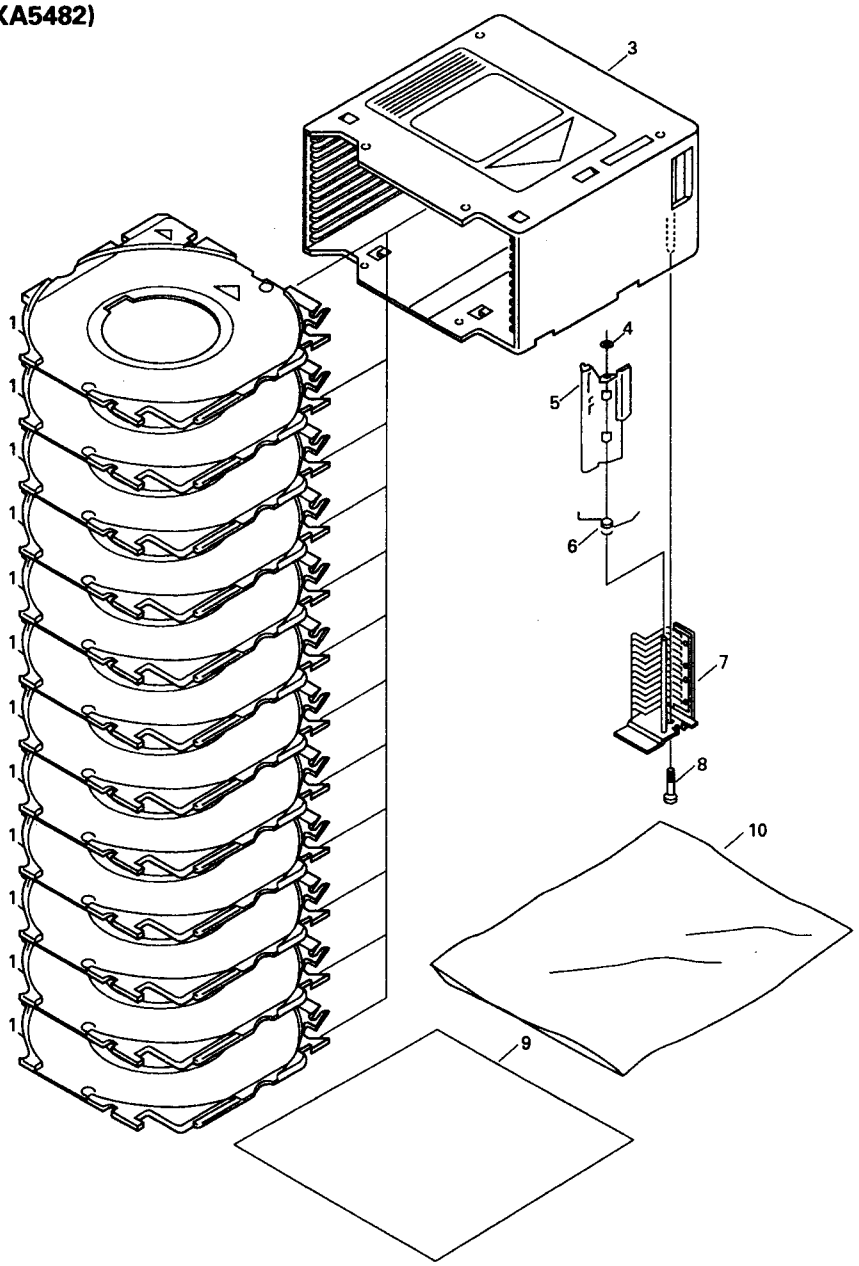



Fig.1

● **Parts List**

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Tray Unit | CXA5484 |
| | 2 | ••••• | |
| * | 3 | Case Unit | CXA5474 |
| | 4 | Washer | CBF1039 |
| * | 5 | Arm | CNV3465 |
| * | 6 | Spring | CBH1522 |
| * | 7 | Bracket Unit | CXA5476 |
| * | 8 | Screw (M2×13) | CBA1272 |
| * | 9-1 | Owner's Manual | CRD1638 |
| * | 9-2 | Label | CRW1247 |
| * | 10 | Polyethylene Bag | CEG1156 |

● **Chassis (Parts List : Page 1-36)**

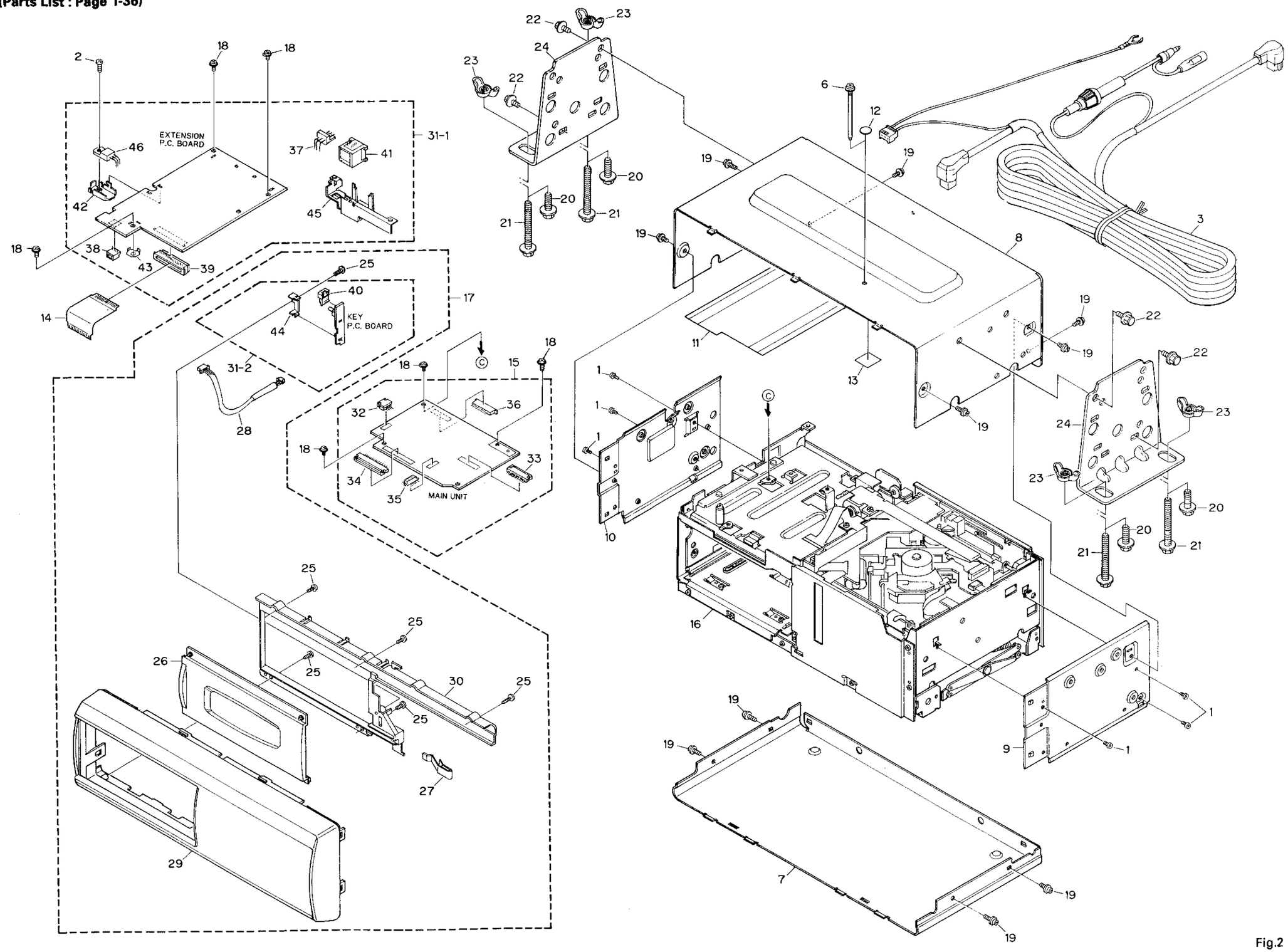



Fig.2

● **CD Mechanism Unit (Parts List : Page 1-37)**

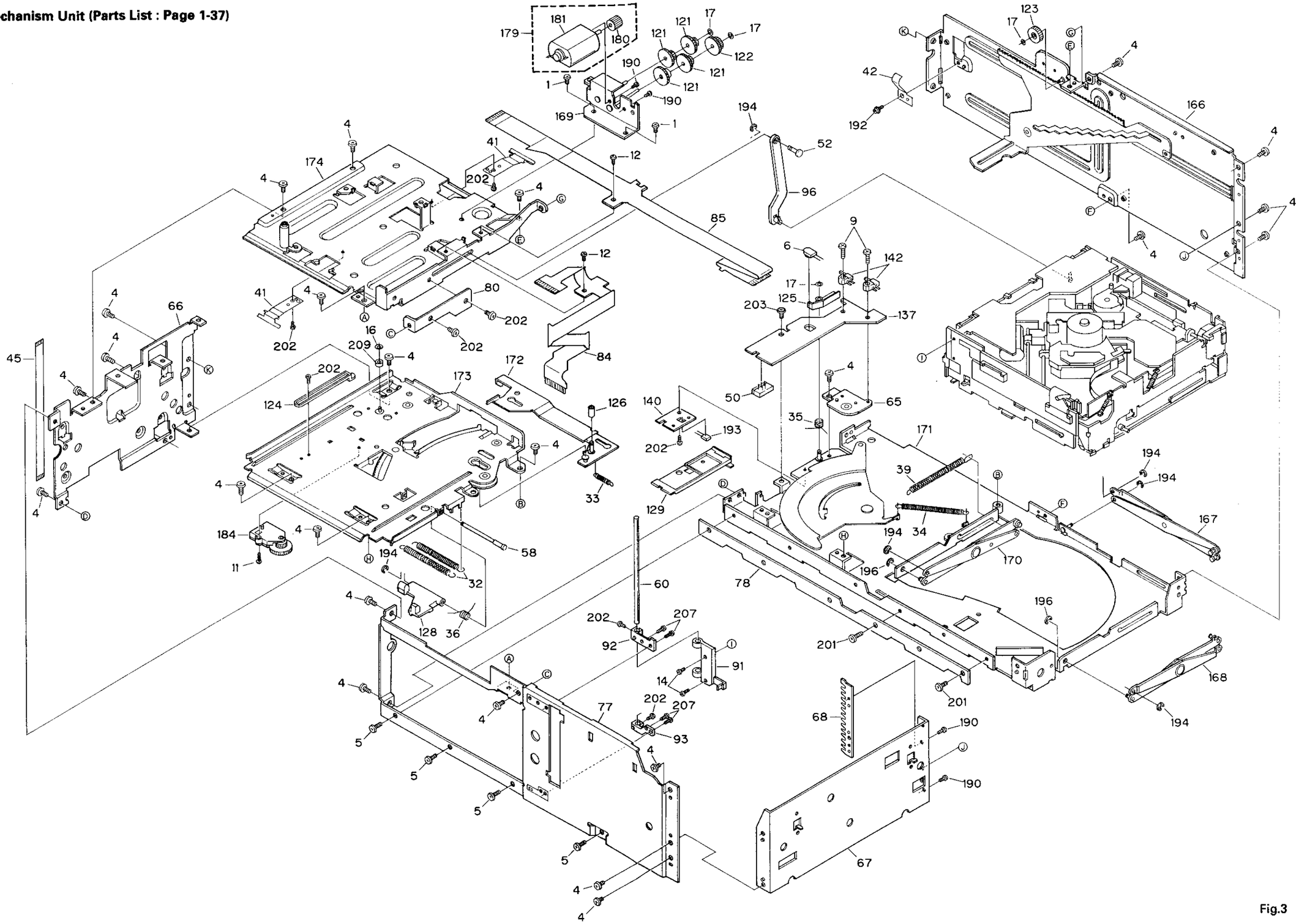
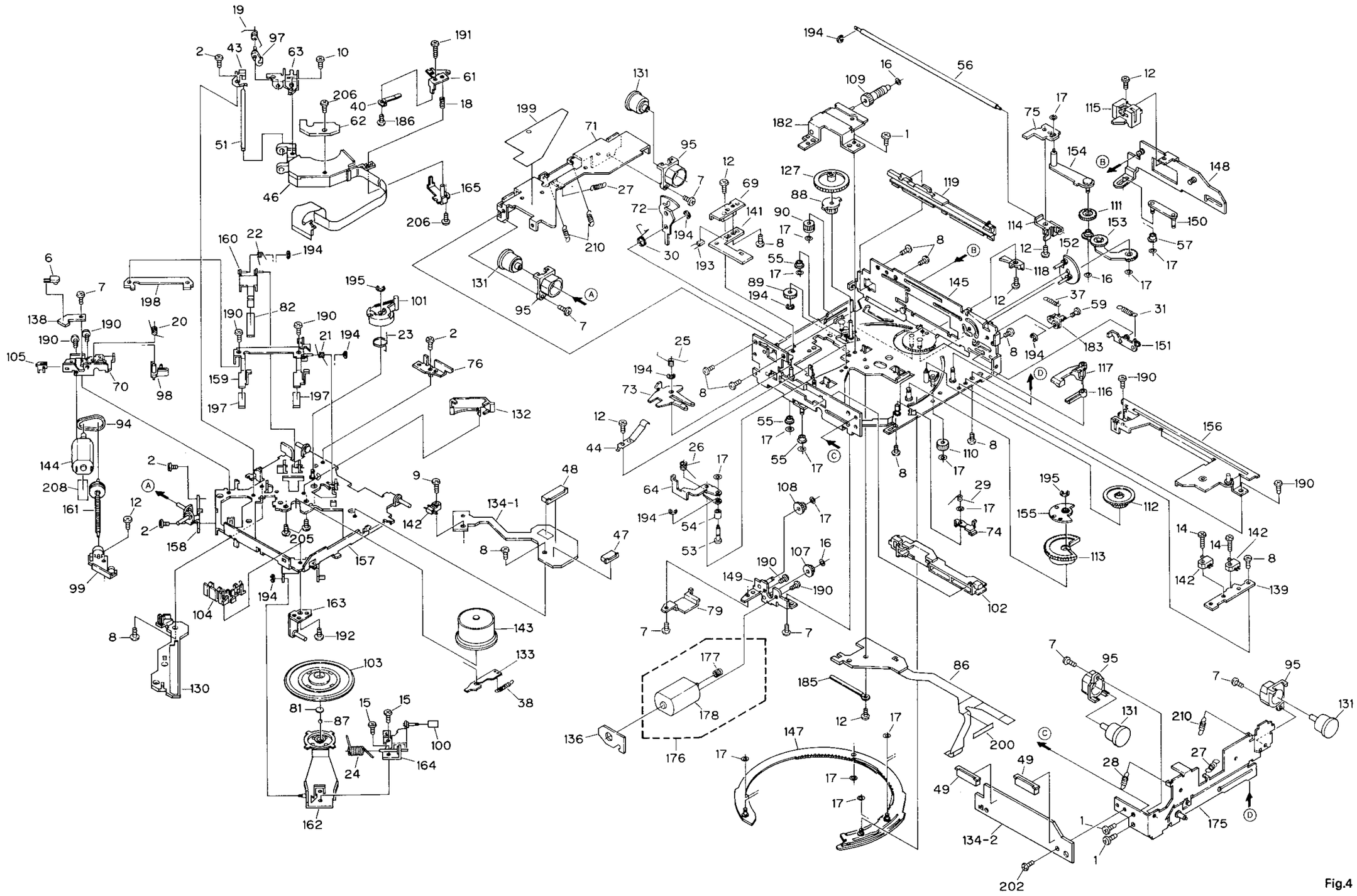



Fig.3


19
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144
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134-1
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185
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17
86
200
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49
134-2
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1
202
195
155
113
112
14
14
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142
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175
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Fig.4

## 2. PACKING METHOD

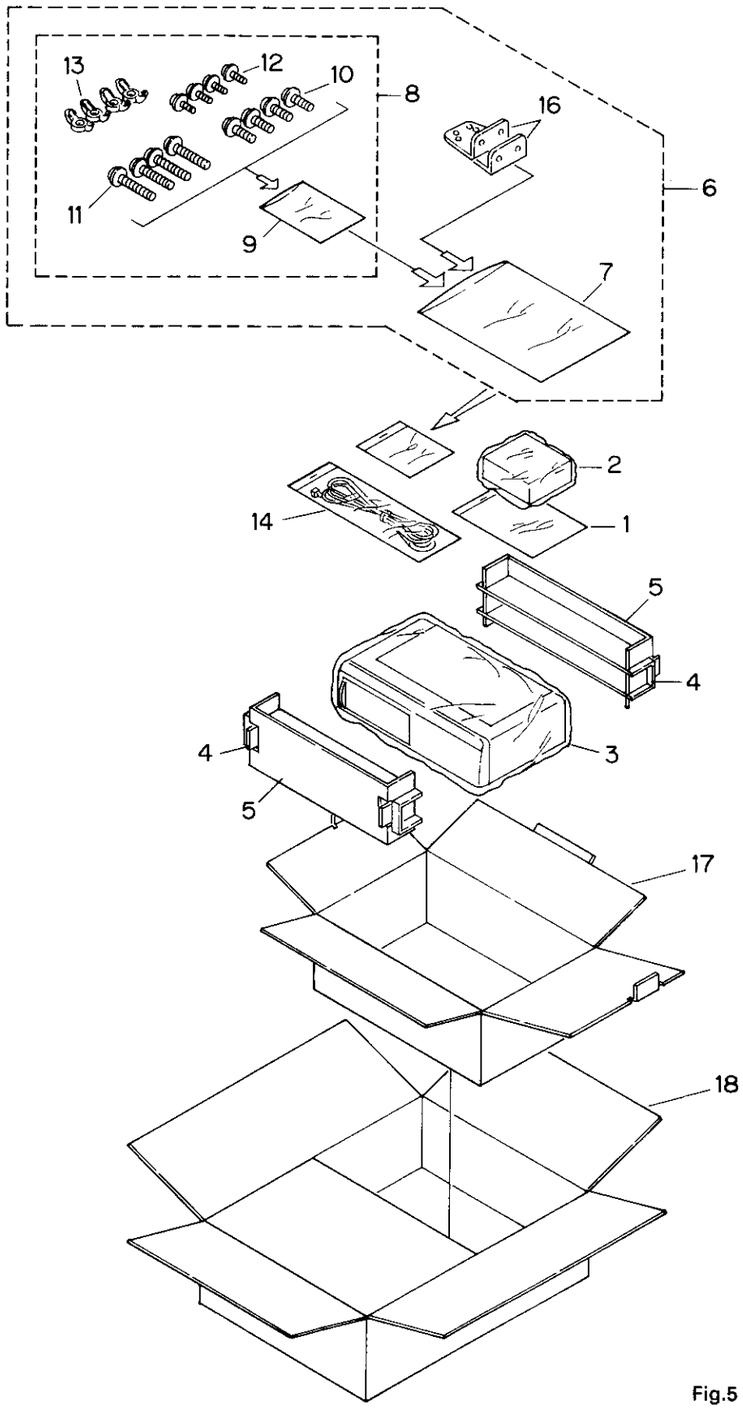



Fig.5



● **Parts List (CDX-P1200/UC)**

| Mark | No. | Description | Part No. |
|---|---|---|---|
| * | 1-1 | Card | ARY1048 |
| | 1-2 | Polyethylene Bag | CEG1116 |
| | 1-3 | Owner's Manual | CRD1704 |
| | 2 | Magazine Assy | CXA5482 |
| | 3-1 | Cover | CEG1149 |
| * | 3-2 | Seal | CNM3648 |
| * | 3-3 | Caution Card | CRP1112 |
| | 4 | Protector | CHP1536 |
| | 5 | Protector | CHP1537 |
| | 6 | Accessory Assy | CEA1928 |
| * | 7 | Polyethylene Bag | E36-622 |
| | 8 | Screw Assy | CEA1962 |
| * | 9 | Polyethylene Bag | E36-615 |
| | 10 | Screw (M6×16) | CBA1295 |
| | 11 | Screw | HMB60P500FMC |
| | 12 | Screw | HMF40P080FZK |
| | 13 | Nut | NR60FMC |
| | 14 | Cord | CDE4211 |
| | 15 | ••••• | |
| | 16 | Angle | CNB1763 |
| | 17 | Carton | CHG2394 |
| | 18 | Contain Box | CHL2394 |

• The CDX-P1200/EW and CDX-P1200/ES Parts Lists enumerate the parts which differ from those enumerated in the CDX-P1200/UC Parts List only. The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly. The CDX-P1200/UC Parts List is given on page 2-10.

| Mark | No. | Description | CDX-P1200/UC Part No. | CDX-P1200/EW Part No. | CDX-P1200/ES Part No. |
|---|---|---|---|---|---|
| * | 1-1 | Card | ARY1048 | ••••• | ••••• |
| | | Card | ••••• | CRY-062 | ••••• |
| | 1-3 | Owner's Manual | CRD1704 | ••••• | ••••• |
| | | Owner's Manual | ••••• | CRD1702 | ••••• |
| | | Owner's Manual | ••••• | CRD1703 | ••••• |
| | | Owner's Manual | ••••• | ••••• | CRD1701 |
| | 14 | Cord | CDE4211 | CDE4210 | CDE4211 |
| | 17 | Carton | CHG2394 | CHG2393 | CHG2395 |
| | 18 | Contain Box | CHL2394 | CHL2393 | CHL2395 |

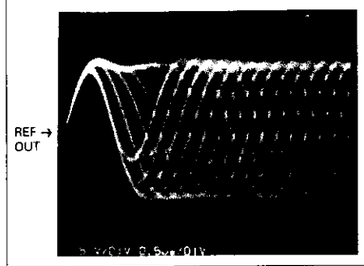
1-3 Owner's Manual

| Part No. | Model | Language |
|---|---|---|
| CRD1704 | CDX-P1200/UC | English,French |
| CRD1702 | CDX-P1200/EW | English,Italian,French,German,Dutch |
| CRD1703 | CDX-P1200/EW | Spanish,Portuguese,Swedish,Norwegian,Finnish |
| CRD1701 | CDX-P1200/ES | English,French,German,Spanish,Arabic |

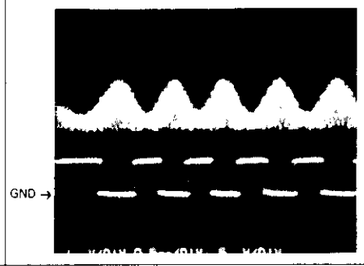
## ● Wave Forms

Note: 1. The encircled numbers denote measuring pointes in the circuit diagram.
2. Reference voltage
REFOUT: 2.5V

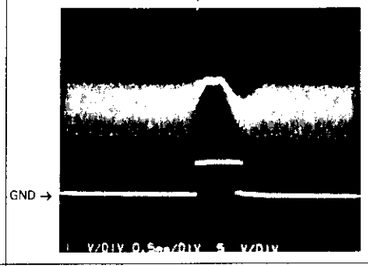
① RFO 0.5V/div. 0.5μs/div.
Normal mode: play



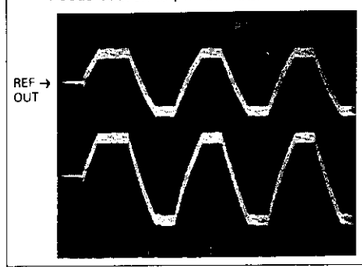

① CH1: RFO 1V/div. 0.5ms/div.
② CH2: MIRR 5V/div.
Test mode: Tracking open



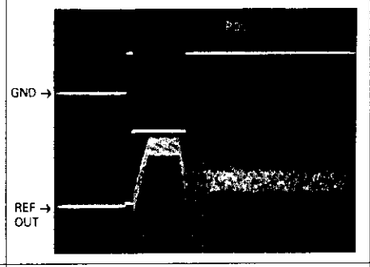

① CH1: RFO 1V/div. 0.5ms/div.
② CH2: MIRR 5V/div.
Normal mode: The defect part passes 800μm.



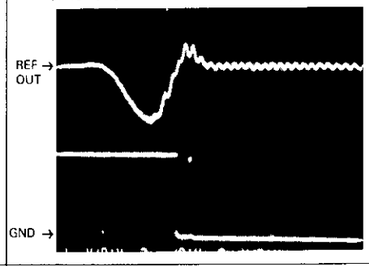

③ CH1: FIN 1V/div. 0.5s/div.
④ CH2: FOUT+ 2V/div.
Test mode: Connect the FEX to REFOUT.
Focus search is performed.



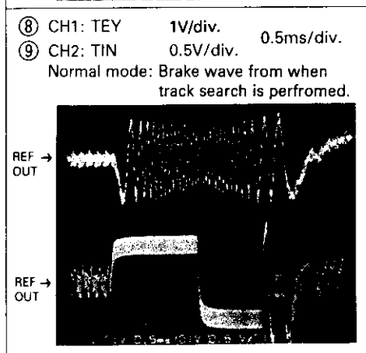

⑤ CH1: FOK 2V/div. 0.5s/div.
③ CH2: FIN 0.5V/div.
Normal mode: Focus close



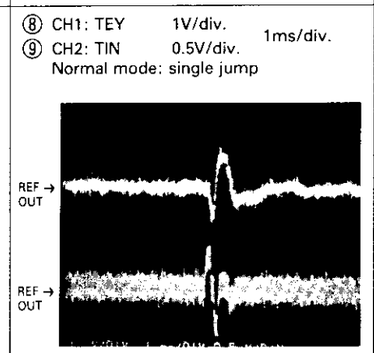

⑥ CH1: FEY 1V/div. 2ms/div.
⑦ CH2: XSO 2V/div.
Normal mode: Focus close
(The lens moves DOWN → UP)



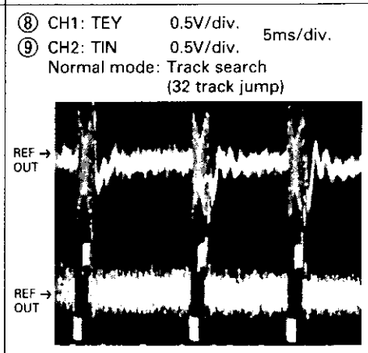

⑧ CH1: TEY 1V/div. 0.5ms/div.
⑨ CH2: TIN 0.5V/div.
Normal mode: Brake wave from when track search is perfromed.



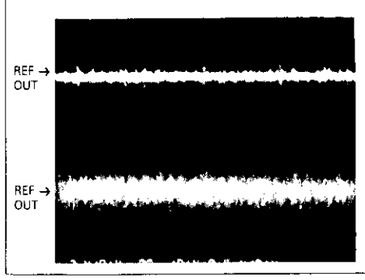

⑧ CH1: TEY 1V/div. 1ms/div.
⑨ CH2: TIN 0.5V/div.
Normal mode: single jump



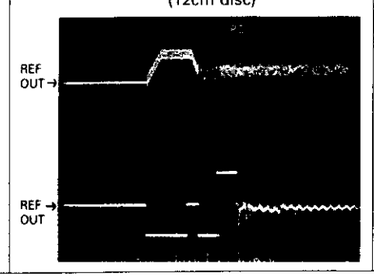

⑧ CH1: TEY 0.5V/div. 5ms/div.
⑨ CH2: TIN 0.5V/div.
Normal mode: Track search (32 track jump)



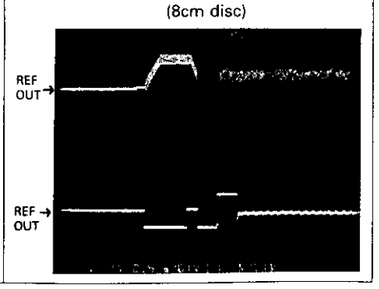

⑥ CH1: FEY 0.2V/div. 20ms/div.
③ CH2: FIN 0.5V/div.
Normal mode: Play




③ CH1: FIN 0.5V/div. 0.5s/div.
⑩ CH2: SIN 1V/div.
Normal mode: Focus search (12cm disc)

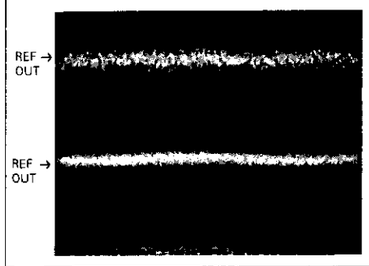



③ CH1: FIN 0.5V/div. 0.5s/div.
⑩ CH2: SIN 1V/div.
Normal mode: Focus search (8cm disc)

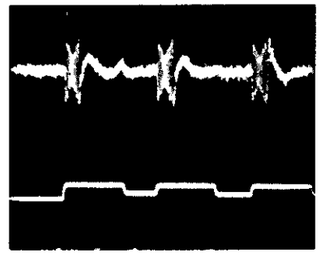





⑧ CH1: TEY 0.5V/div. 20ms/div.
⑨ CH2: TIN 0.5V/div.
Normal mode: Play

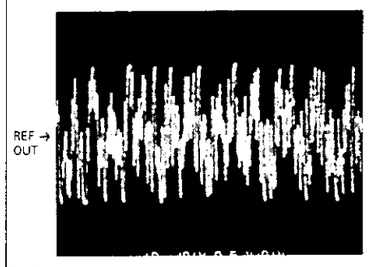



⑧ CH1: TEY 1V/div. 5ms/div.
㉓ CH2: CIN
Normal mode: Search



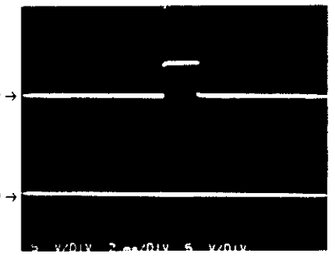
⑩ SIN 0.5V/div. 50ms/div.
Normal mode: Play (12cm disc)


⑩ SIN 0.5V/div. 10ms/div.
Search (12cm disc)

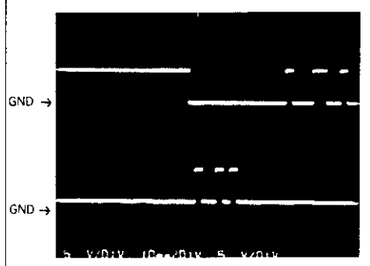



⑪ EFM 2V/div. 5μs/div.
Play

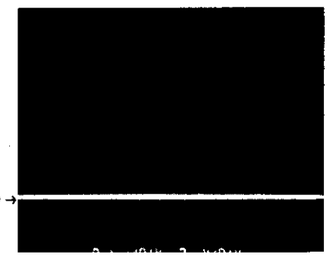

⑫ CH1: MDF 5V/div. 2ms/div.
⑬ CH2: MDR 5V/div.
Play




⑫ CH1: MDF 5V/div. 10ms/div.
⑬ CH2: MDR 5V/div.
Search

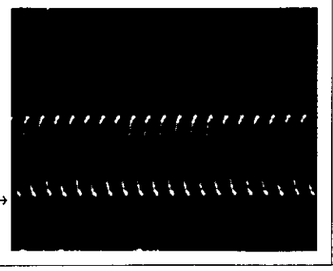



⑭ FLAG 2V/div. 0.1ms/div.
Play

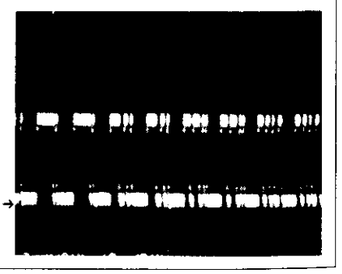



⑭ FLAG 2V/div. 0.1ms/div.
Search

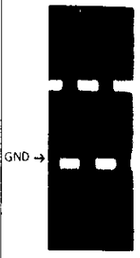

⑯ BCLK1 2V/div. 1μs/div.
Play




⑰ Dout 2V/div. 10μs/div.
Play




⑱ LRCK
Play



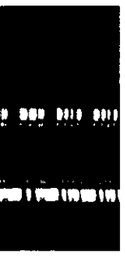
50ms/div.

n disc)

2ms/div.

0.1ms/div.

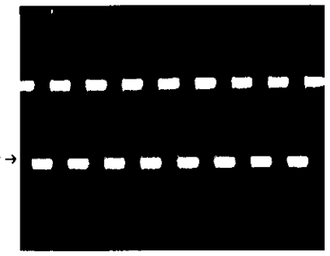
0µs/div.

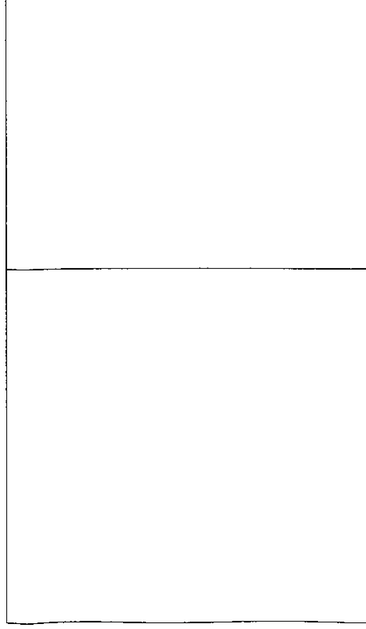




⑱ LRCK 2V/div 20µs/div.

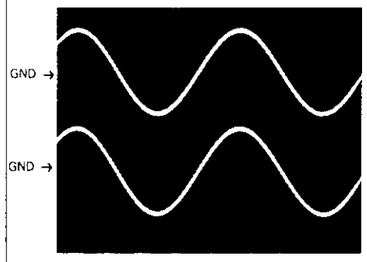
Play

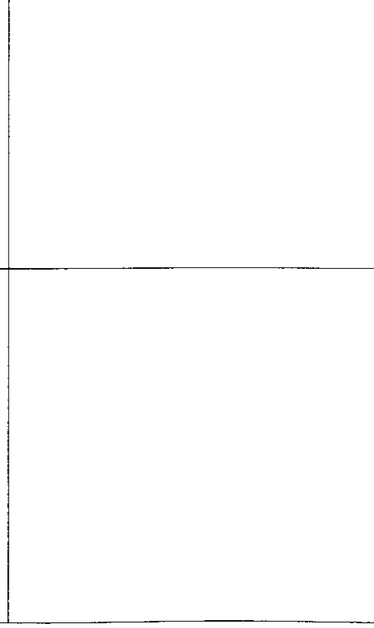




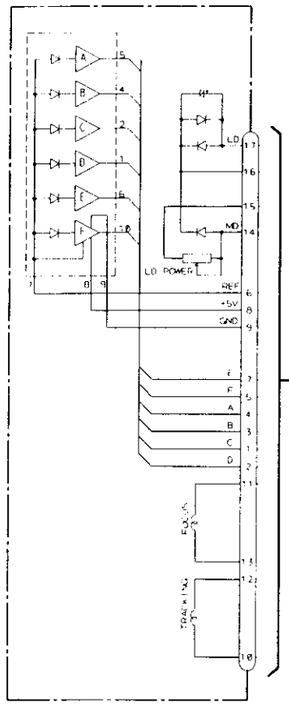
㉑ CH1: LCH 2V/div.
㉒ CH2: RCH 2V/div. 0.2ms/div.
Play (1kHz)



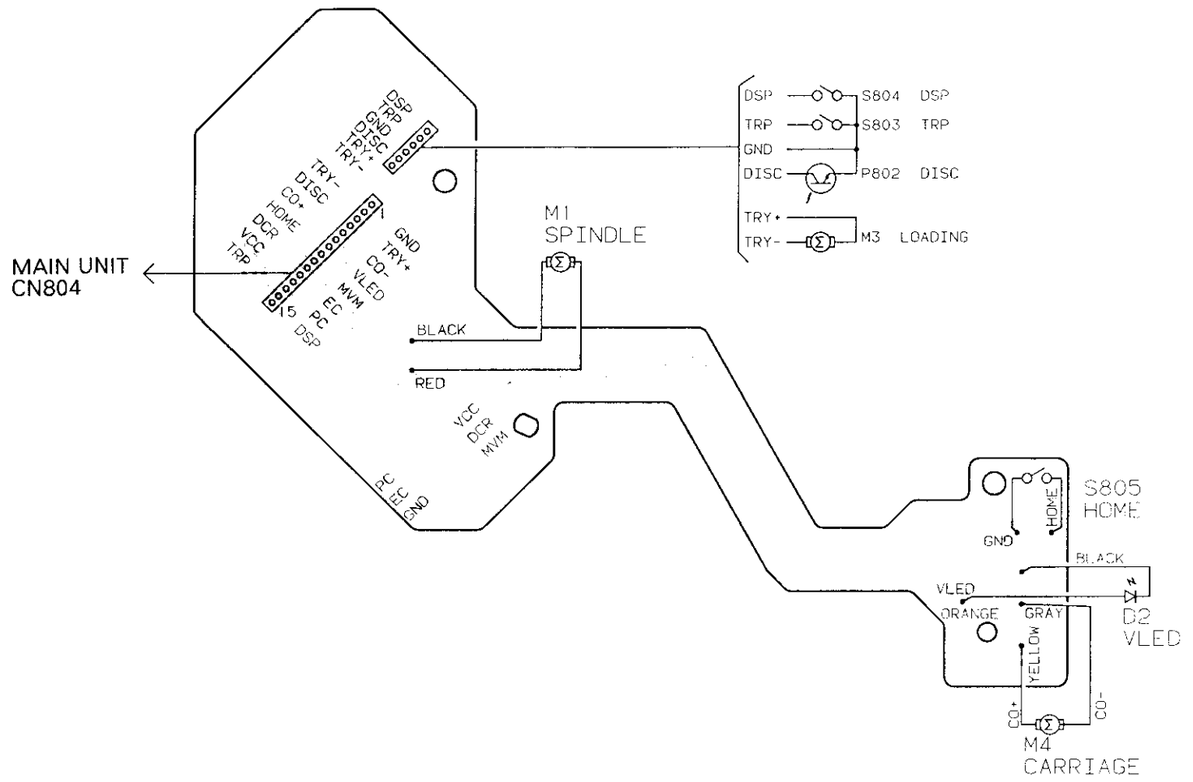



## 3. CONNECTION DIAGRAM(1)

PU UNIT




MECHANISM P.C. BOARD




P.C. BOARD

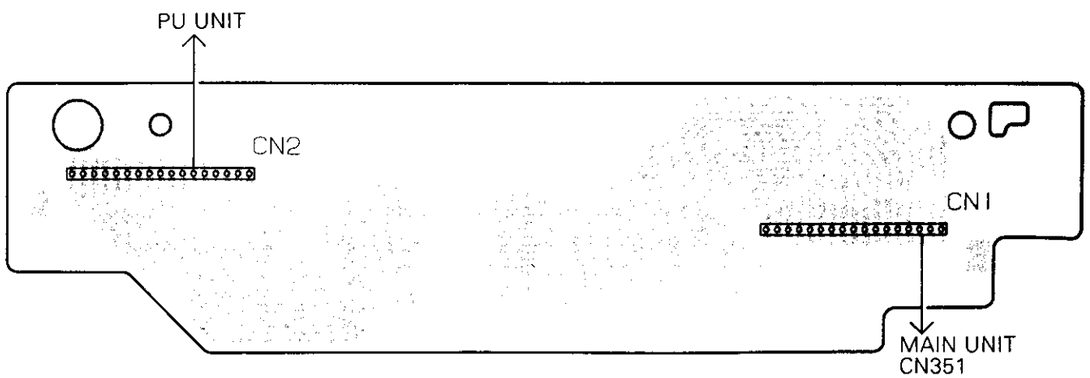
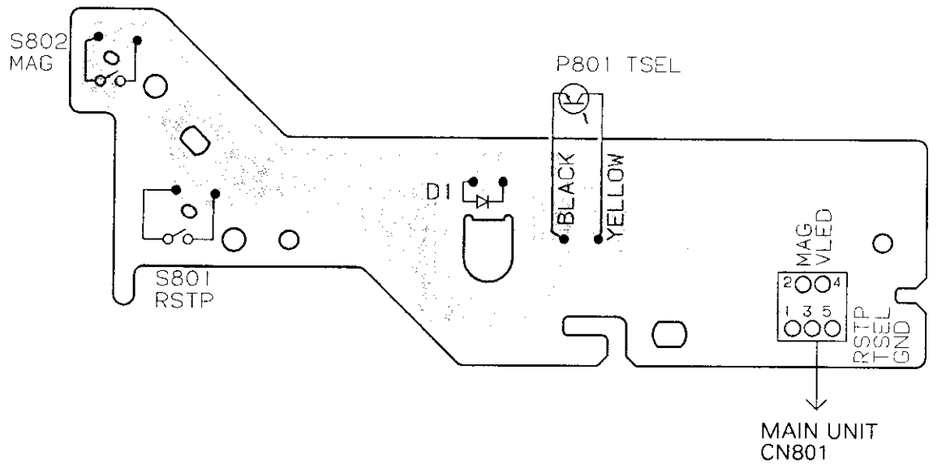



PHOTO P.C. BOARD




| IC. Q | ADJ |
|---|---|
| IC752 | |
| Q781 | |
| IC651 | |
| IC754 | |
| IC801 | |
| Q653 | |
| Q751 | |
| Q721 IC755 | |
| Q651 Q801 | |
| IC751 | |
| Q722 | |
| Q802 | |
| Q652 | |
| IC661 | |
| IC652 | |
| IC602 | |
| Q725 | |
| Q724 | |
| IC702 | |
| IC707 | |
| Q351 | |
| IC601 | |
| IC701 | |
| IC351 | |
| IC708 | |
| Q723 | |
| | VR353 |
| | VR352 |
| | VR351 |
| | VR356 |
| | VR355 |
| | VR354 |
| Q601 | |

MAIN UNIT

| IC. Q | ADJ |
|---|---|
| IC752 | |
| Q781 | |
| IC651 | |
| IC754 | |
| IC801 | |
| Q653 | |
| Q751 | |
| Q721 IC755 | |
| Q651 Q801 | |
| IC751 | |
| Q722 | |
| Q802 | |
| Q652 | |
| IC661 | |
| IC652 | |
| IC602 | |
| Q725 | |
| Q724 | |
| IC702 | |
| IC707 | |
| Q351 | |
| IC601 | |
| IC701 | |
| IC351 | |
| IC708 | |
| Q723 | |
| | VR353 |
| | VR352 |
| | VR351 |
| | VR356 |
| | VR355 |
| Q601 | VR354 |

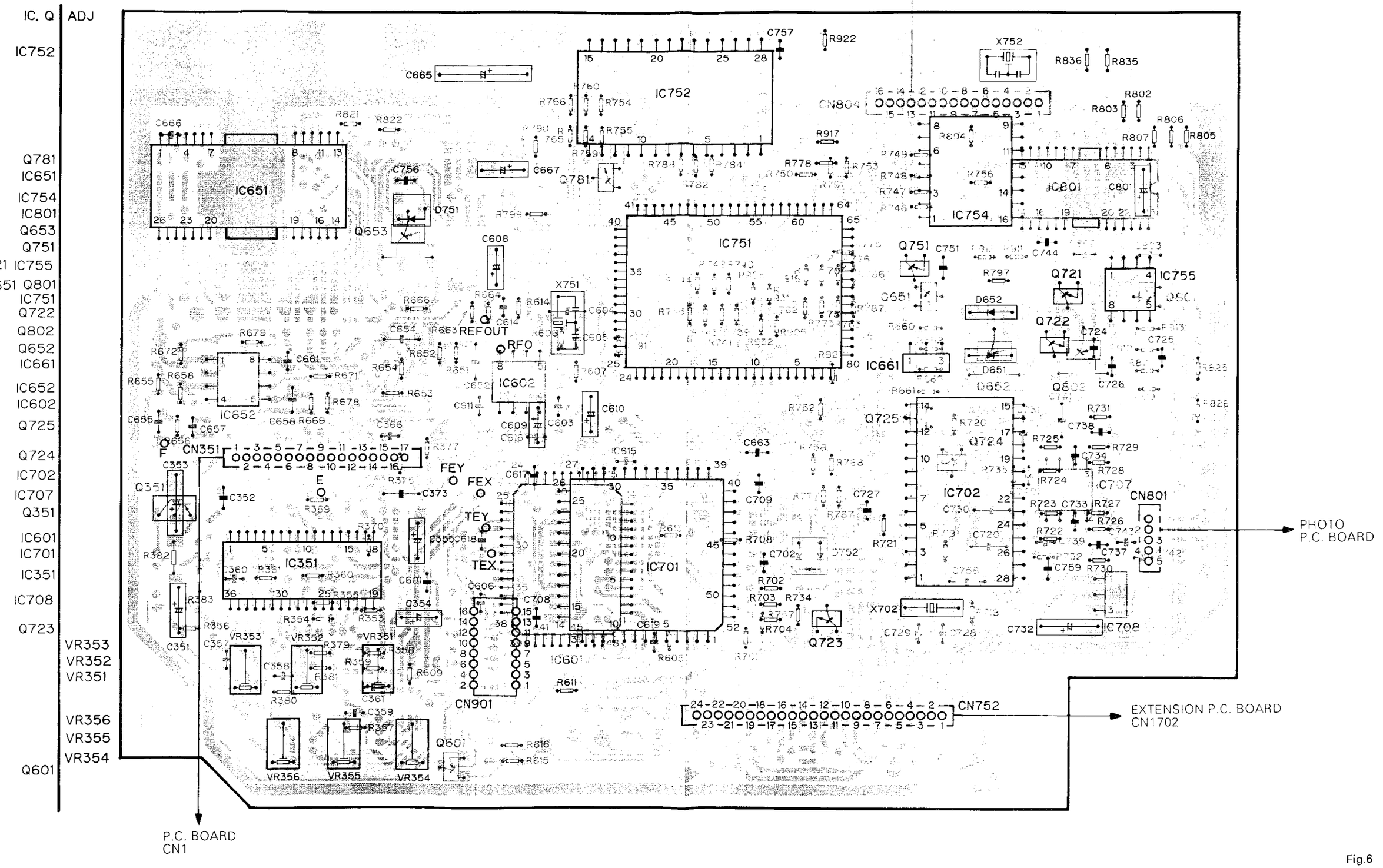
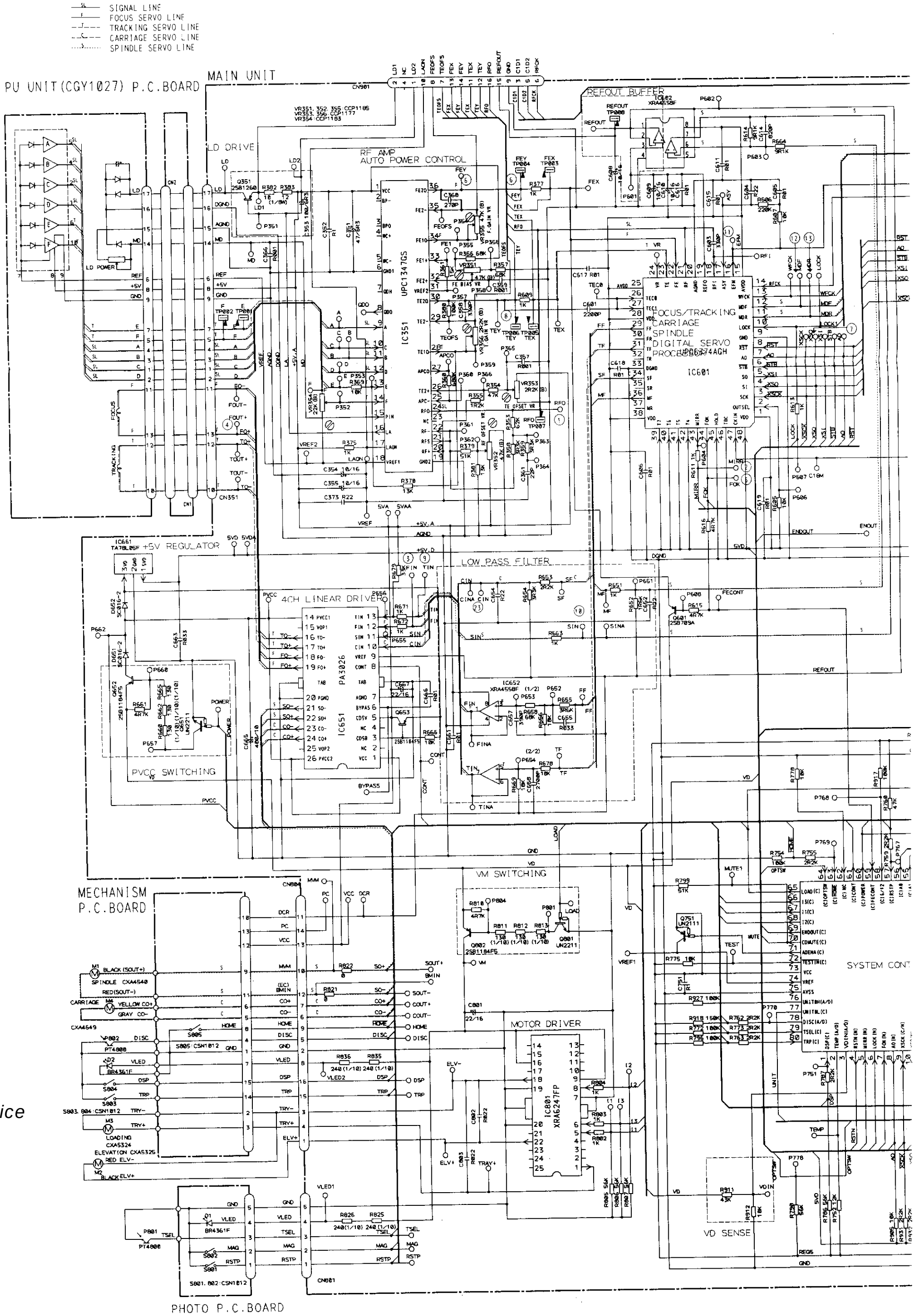



Fig.6

# 4. SCHEMATIC CIRCUIT DIAGRAM(1)



SWITCHES:
MECHANISM P.C.BOARD
S805: HOME SWITCH·ON-OFF
PHOTO P.C.BOARD
S801: RSTP SWITCH·ON-OFF
S802: MAG SWITCH··ON-OFF
MISCELLANEOUS
S803: TRP SWITCH··ON-OFF
S804: DSP SWITCH··ON-OFF

The underlined indicates the switch position.

NOTE:
Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.

Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as.
2.2→2R2
0.022→R022

DIGITAL SIGNAL PROCESSOR
UPD6375GC
IC701

D/A CONVERTER
X702 16.9344MHz
CSS1067
IC702 SM5871AS

LOW PASS FILTER
IC707 (1/2) XRA4560F
(2/2)

+5V REGULATOR
IC708 TA78L05F
Q723 2SC4453
Q725 UN2211
Q724 DTC114YK

SRAM
IC752 LH5160HN-10L

IC751
PD5262A
SYSTEM CONTROLLER
8.000MHz CSS1107 X751

IP-BUS DRIVER/ RECEIVER
IC755 PA0051AM
IP-BUS INTERFACE
IC754 PD4308AM
12.583MHz CSS1108 X752

Q721 DTA123JK
Q722 DTC144EK
Q781 UN2211

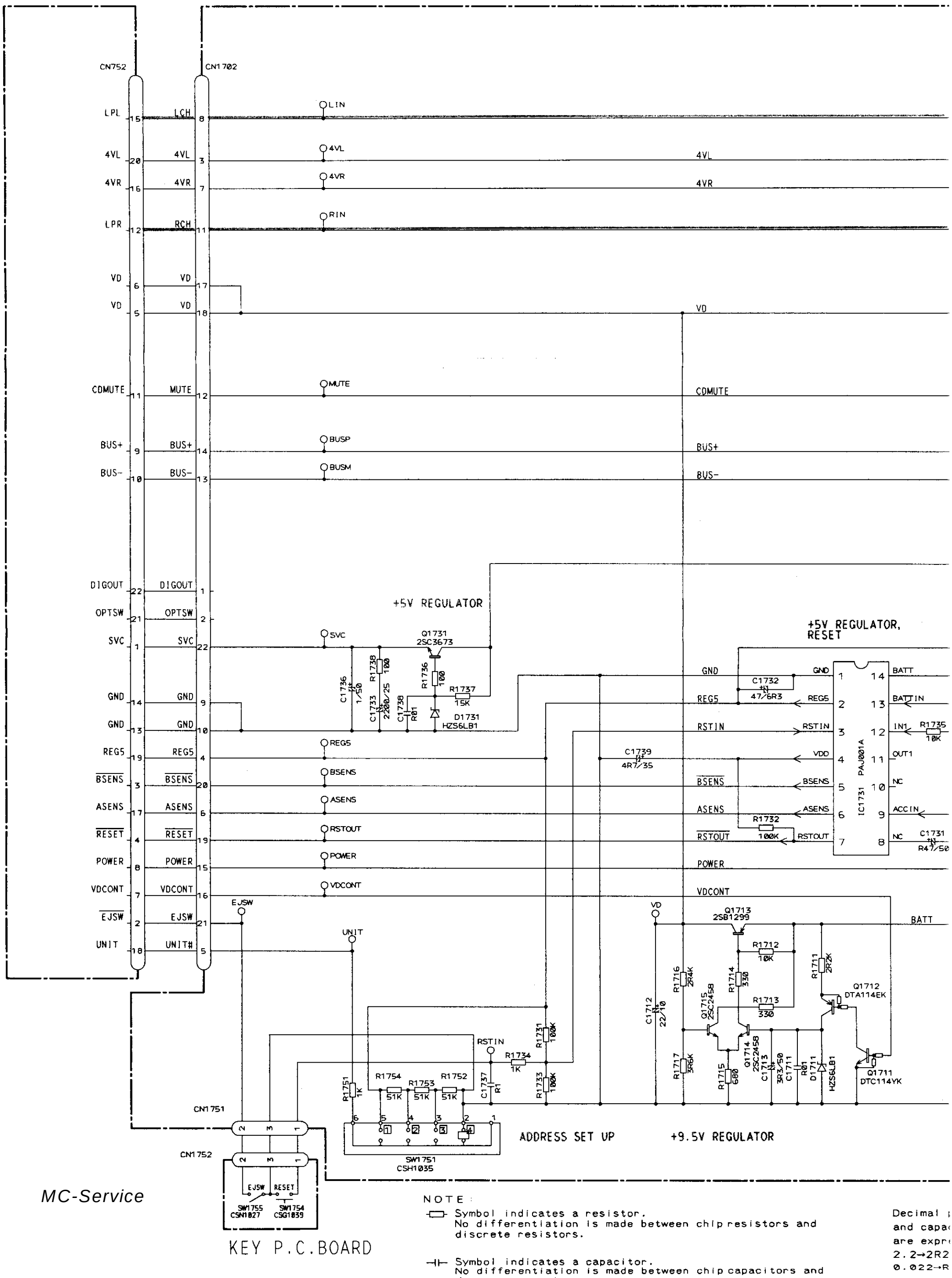
D752 MA151WK-MT
D751 MA151A-MA

CN752
EXTENSION P.C.BOARD
CN1702

*MC-Service*

Fig.7

## 5. SCHEMATIC CIRCUIT DIAGRAM(2)

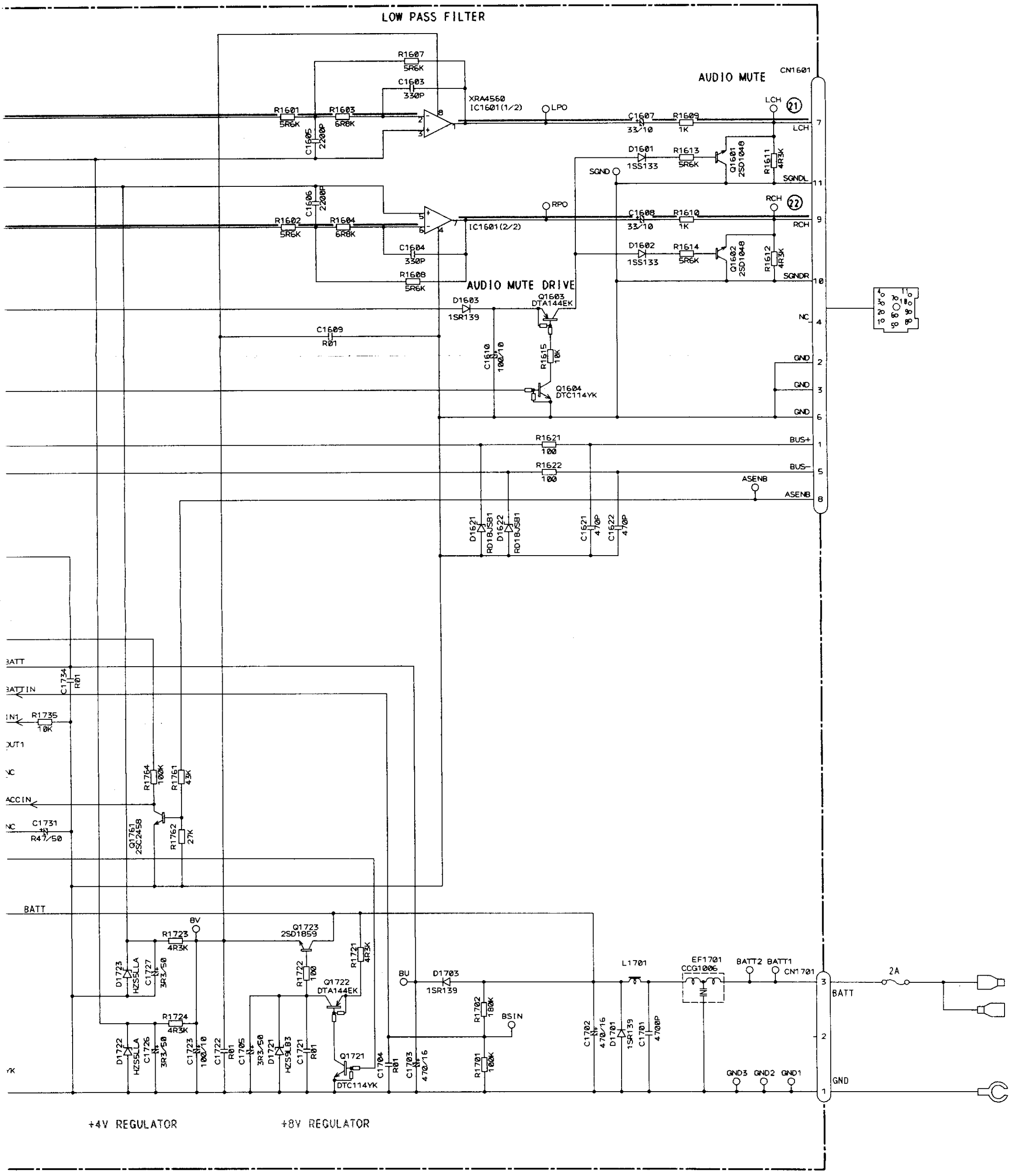



*MC-Service*

NOTE :

- Symbol indicates a resistor. No differentiation is made between chip resistors and discrete resistors.
- Symbol indicates a capacitor. No differentiation is made between chip capacitors and discrete capacitors.

Decimal p
and capac
are expr
2.2→2R2
0.022→R




Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

| EXTENSION UNIT |
| --- |
| Consists of<br>EXTENSION P.C.BOARD<br>KEY P.C.BOARD |

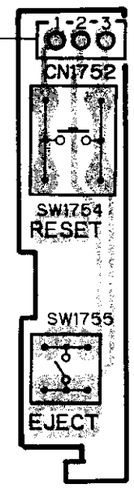
*MC-Service*

Fig.8

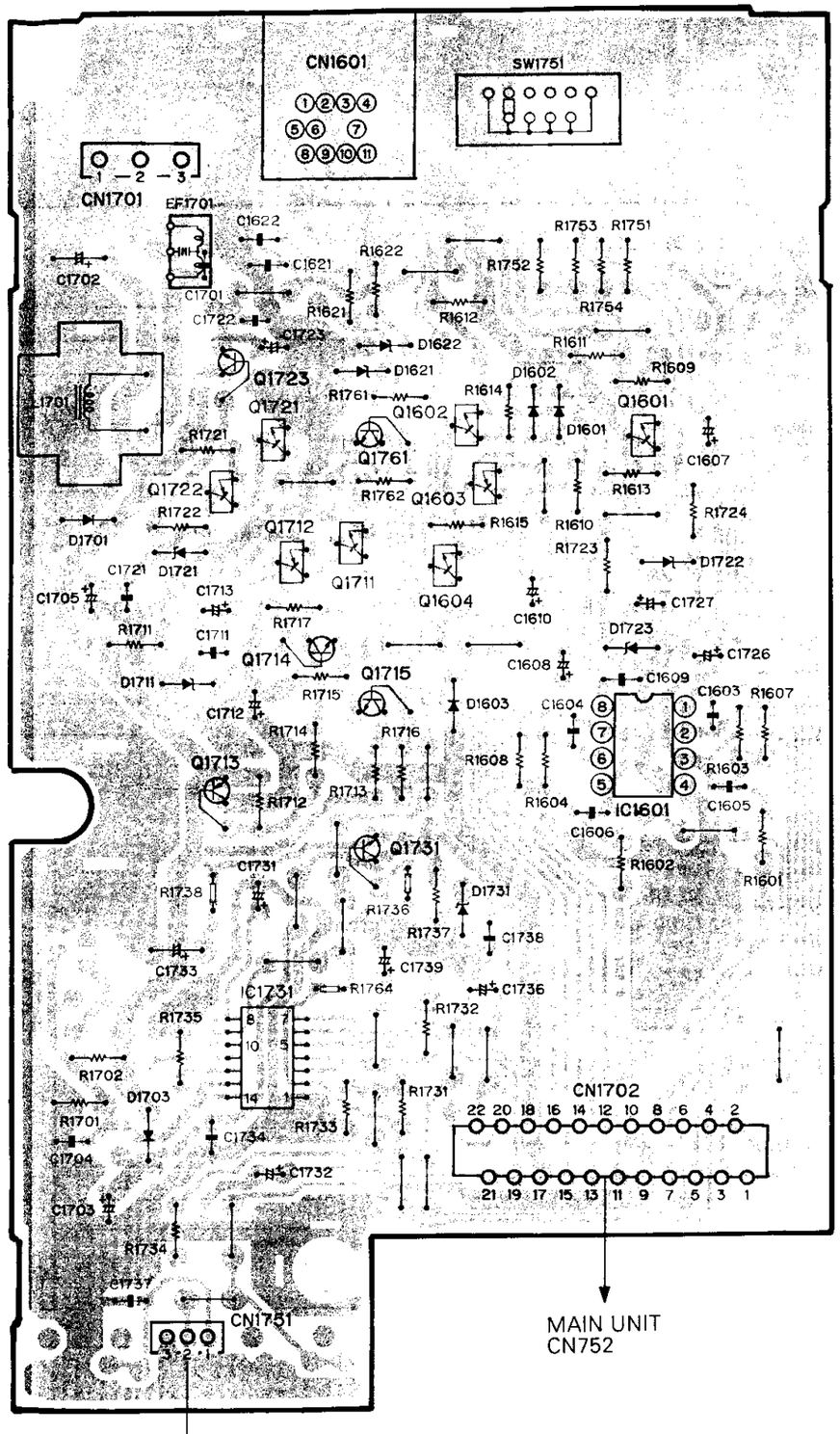
## 6. CONNECTION DIAGRAM(2)

KEY P.C. BOARD

EXTENSION P.C. BOARD CN1751




EXTENSION P.C. BOARD




IC, Q

A

Q1723

Q1602 Q1761
Q1721 Q1601

Q1722 Q1603

Q1711

B

Q1712 Q1604

Q1714

Q1715

IC1601

Q1713

Q1731

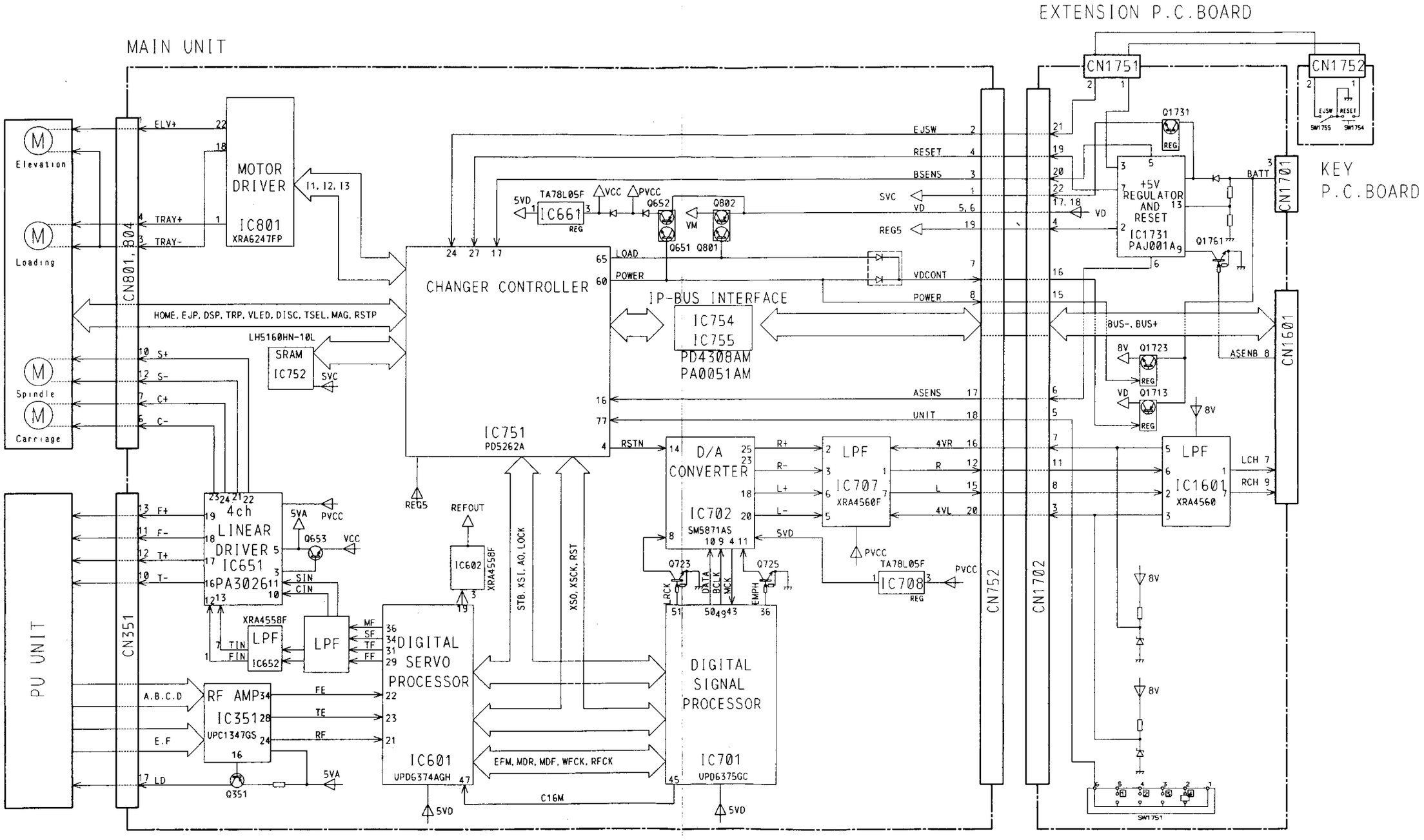
C

IC1731

D

Fig.9

## 7. BLOCK DIAGRAM




*MC-Service*

Fig.10