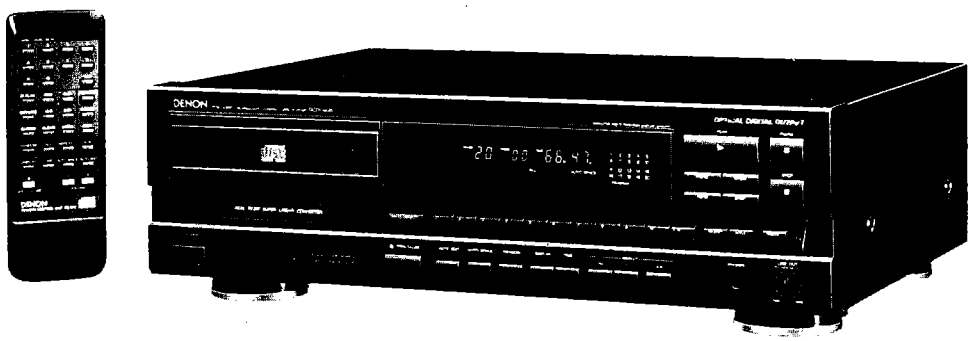
DENON

Hi-Fi Component

SERVICE MANUAL

STEREO CD PLAYER

MODEL DCD-1420



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NIPPON COLUMBIA CO., LTD.

IMPORTANT TO SAFETY

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION:

1. **Handle the power supply cord carefully**
   Do not damage or deform the power supply cord. If it is damaged or deformed, it may cause electric shock or malfunction when used. When removing from wall outlet, be sure to remove by holding the plug attachment and not by pulling the cord.
2. **Do not open the top cover**
   In order to prevent electric shock, do not open the top cover. If problems occur, contact your DENON dealer.
3. **Do not place anything inside**
   Do not place metal objects or spill liquid inside the CD player. Electric shock or malfunction may result.

Please, record and retain the Model name and serial number of your set shown on the rating label.
Model No. DCD-1420 Serial No. _____

IMPORTANT
(BRITISH MODEL ONLY)

The wires in this mains lead are coloured in accordance with the following code:

Blue:	Neutral
Brown:	Live

The colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows.
The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.
The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

NOTE: **This CD player uses the semiconductor laser. To allow you to enjoy music at a stable operation, it is recommended to use this in a room of 5°C – 35°C.**

SAFETY INSTRUCTIONS FOR AUDIO SET

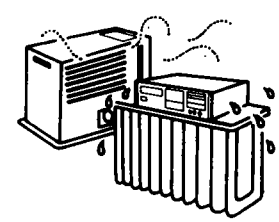
■ INSTALLATION

1. Operate the set only from a power source which is indicated on the rating label (indication) at the back of the set.
2. Frayed cords and broken plugs may cause a fire or shock hazard. Do not damage the power cord.
   - Do not cut and splice the power cord.
   - When removing the power cord from wall outlet, be sure to unplug by holding the plug attachment and not by pulling the cord. Do not hold the plug with wet hands.
   - Call your service technician for replacement of damaged cords and plugs.
3. Select a place so that the location or position does not interfere with the proper ventilation of the set for releasing heat generated during operation.
   - Select a flat and level surface allowing enough space for setting up and operation.
   - Never block the bottom ventilation holes placing the set on a bed, sofa, rug, etc.
   - Never place the set in a "built-in" enclosure unless proper ventilation is provided.
   - Never place the set near or over a radiator, heat register or stove.
   - Avoid locations where the set is exposed directly to the sun light.


Check voltage.

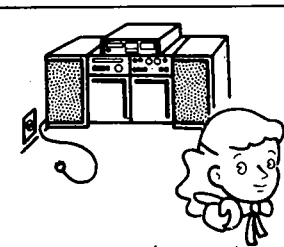

Do not pinch power cord.


Do not splice power cord.


Avoid heat.

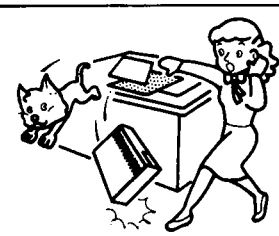
■ USE

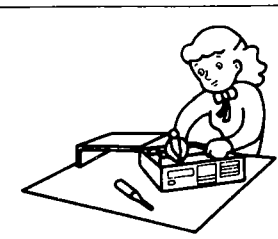
1. Do not expose the set to rain or water (liquid). Do not spill liquid or insert metal objects inside the set. Rain, water or liquid such as cosmetics as well as metal may cause electric shorts which can result in fire or shock hazard. If anything gets inside, unplug the power cord and have a DENON service technician check your set before further use.
2. Never leave your set switched on when leaving the house. For added protection of your audio system during lightning storm or when the set is to be left unused for a long period of time, be sure to unplug the power cord from the wall outlet.
3. Take care so that the set is not dropped to avoid damaging the cabinet which defeats safeguards or injuring yourself. If the set has been dropped or the cabinet has been damaged, unplug the set and have it checked by a DENON service technician to restore the safeguards.


Remove power in your absence.

■ SERVICING

1. The servicing of the set must not be attempted by yourself beyond that described in the operating instructions. In case of problems that cannot be settled by referring to your operating instructions, unplug the power cord and contact your DENON dealer. No user-serviceable parts are inside the set. Only qualified service technician can service inside your set.
2. Refer to the operating instructions for maintenance and


Do not drop.


No user-serviceable parts inside.

Thank you for purchasing this DENON Compact Disc Player. Please read the operating instructions thoroughly in order to acquaint yourself with the CD player and achieve maximum satisfaction from it.

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Please check to make sure the following items are included with the main unit in the carton:

(1) Operating Instructions 1
(2) Connection Cord 1
(3) Remote Control Unit RC-217 1

VAROITUS: **SUOJAKOTELOA EI SAA AVATA. LAITE SISÄLTÄÄ LASERDIODIN, JOKA LÄHETTÄÄ NÄKYMÄTÖNTÄ SILMILLE VARRALLISTA LASERSÄTEILYÄ.**

ADVARSEL: **USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLING.**

VARNING: **OSYNLIG LASERSTRÅLNING VID AVLÄGSNANDE AV APPARATENS HÖLJE. UNDVIK EXPONERING AV LASERSTRÅLNING.**

"CLASS 1
LASER PRODUCT"

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital appratus setout in the Radio Interference Regulations of the Canadian Department of Communication.

Le présent appareil numérique n'émet pas de bruites radioélectriques dépassant les limites applicables aux appareils numériques de la Class B prescrites dans le Réglement sur le brouillage redioélectrique édicté par le ministére des Communications du Canada.

FEATURES

The DCD-1420 Compact Disc Player incorporates DENON's Super Linear Converter which prevents deterioration of sound quality in PCM playback systems. This assures accurate reproduction of the digital signals recorded on compact discs no matter whether they are pure studio recordings or "live" performance recordings. All parts making up this CD player have selected with the greatest care in order to produce high quality realistic playback of the full musical content on compact discs.

(1) Real 20-bit Double Super Linear Converter
The use of Denon's unique system and D/A converters with excellent resolution to prevent zero cross distortion, the main cause of reduced sound quality in the PCM playback system, makes for sound field reproduction with rich musical expression.

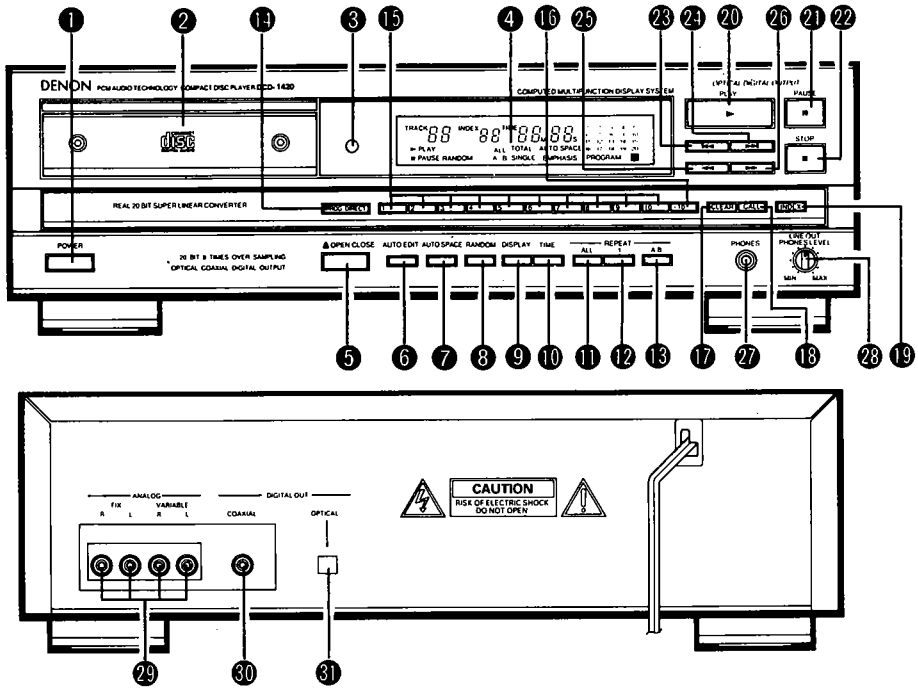
(2) High Performance Digital Filter
The DCD-1420 uses independent real 20-bit D/A converters for the left and right channels and an 8× oversampling high precision digital filter to bring out the best of the analog filter and offer clear, crisp sound.

(3) Remote Control Including Volume Control
Aside from such functions as play, pause, stop and direct search using the number buttons, the remote control unit also offers volume control using the "+" and "–" buttons. The remote control functions greatly enhance operability of the DCD-1420.

(4) Optical Digital Output
The information on the compact disc can be output in digital format to an external digital processor or D/A unit for playback.
Aside from the coaxial output, the DCD-1420 also includes an optical output, thereby improving sound quality and eliminating noise interference.

(5) Simple Playback of 8 cm CD Singles
8 cm CD signals can be played without using an adaptor.

NAMES AND FUNCTIONS OF PARTS



❶ Power Switch (POWER)

- When the power is turned on, "(00)" appears on the second portion on the TRACK NO. display, and if no disc is loaded, "(00:00:00)" appears on the digital display and the calendar lights after a few seconds.
- If the power is turned on with a disc already loaded, the total number of tracks on the disc is displayed on the TRACK NO. display, the total time is displayed on the TIME display, the numbers on the music calendar light up to the number of tracks on the disc, and playback begins.

❷ Disc Holder

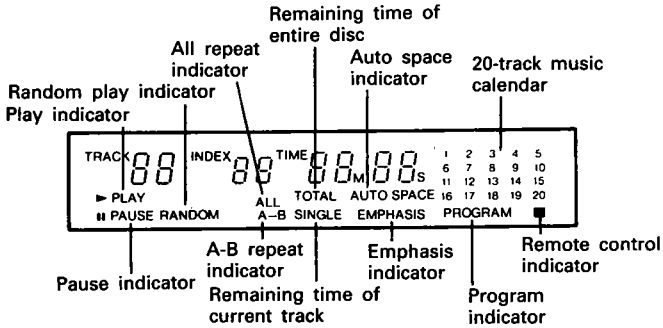
- Place the disc on the disc holder with the label facing up.
- Use the open/close button (⏏ OPEN/CLOSE) ❺ to open and close the disc holder.
- The disc holder may also be closed by pressing the play button (▶ PLAY) ⓴ or pause button (⏸ PAUSE) ㉑.

❸ Remote Control Sensor

- This sensor receives the infrared light transmitted from the wireless remote control unit.
- For remote control, point the supplied remote control unit RC-217 towards this sensor.
- When a signal is transmitted from the remote control unit, the remote control indicator in the display ❹ will light up briefly.

❹ Display

- The digital display is divided into sections, such as displays for track number, index, playback time and calendar, as shown below.



❺ Open/Close Button (⏏ OPEN/CLOSE)

- The disc holder is opened and closed by pressing this button.
- Press this button once to open the disc holder, and once again to close it.
- When the disc holder is closed with a disc loaded, the disc will rotate for a couple of seconds while the disc contents are read. The number of tracks and total playback time on the disc are then displayed on the digital display ❹.

❻ Auto Edit Button (AUTO EDIT)

- The tracks on the CD are automatically split into two halves, Side A and Side B, like an analog disc, with the division at the place between tracks which is closest to 1/2 the total playing time.
- When this button is pressed in the stop mode, the total playing time for the first half and the track numbers on the calendar are displayed for approximately 2 seconds. Next, the same is done for the second half, after which the unit is automatically set to the pause mode at the beginning of the first track. When the PLAY or PAUSE button is pressed, playback begins, and the unit is automatically set to the pause mode at the beginning of the first track of the second half which was previously displayed. When the PLAY or PAUSE button is pressed again, playback resumes, and the unit is automatically set to the stop mode at the end of the last track on the disc.
- This function will only work for discs with a total of 20 tracks or less. Also, when this function is used the mode is automatically set to the program mode, so direct search is not possible.
- The auto edit function is cleared when the OPEN/CLOSE, STOP or PROG/DIRECT button is pressed.
- The data for the total playing time recorded on the disc and the actual total playing time of the tracks differ, so there may be a difference between the time displayed in the stop mode (the total playing time) and the total of the times of the first and second halves in the auto edit mode (about 2 seconds).

❼ Auto Space Button (AUTO SPACE)

- Pressing this button will cause the [AUTO SPACE] indicator to light and a blank space of approximately 4 seconds is inserted between tracks during CD playback. Pressing the button once more, the [AUTO SPACE] indicator goes out and the Auto Space feature is cancelled.
- When one of the track search buttons (⏮ or ⏭) is pressed, the Auto Space function will not operate.
- The Auto Space function will work during normal playback as well as programmed playback.
- Although 4-second blanks are inserted between tracks, this additional time is not reflected by the indication on the time remaining display or time display when the Auto Edit function is engaged.

⑧ Random Play Button (RANDOM)
- Press this button to play the tracks on the disc in random order.

⑨ Display Button (DISPLAY)
- Press this button to turn the indicators on the display window off.
- When pressed once, only the track number, index number, and time will remain lit.
- When pressed again, all indicators are turned off, and only the track number will be displayed except during playback.

⑩ Time Mode Button (TIME)
- This button is used to select the desired indication on the TIME display. The indication on this display will change each time the button is pressed.
  Normally, the elapsed playback time of the current track is displayed.
  Pressing the button once, [SINGLE] is displayed and the remaining time of the current track is displayed.
  Pressing once more, [TOTAL] is displayed, and total playing time of remaining tracks is displayed. However, when programmed play is in progress, the total remaining time of the program is displayed.
  Press the button once again to return to the normal display of the elapsed playback time of the current track.

⑪ Repeat All Tracks Button (ALL)
- Press this button to repeat playback of all tracks.
- When this button is pressed, [ALL] lights on the display and all tracks on the disc or in a program will be repeatedly played back. Press this button once more to disengage the Repeat All function.

⑫ 1-track Repeat Button (1)
- Press this button to repeat one track only.
  When pressed during playback, the track currently playing is repeated.

⑬ A-B Repeat Button (A – B)
- Press this button for repeat playback between a designated starting point (A) and an ending point (B). (Refer to page 8 for details.)

⑭ Program/Direct Button (PROG/DIRECT)
- Press this button when you want to enter tracks for programmed playback. (Refer to page 7 for details.)

⑮ Number Buttons (1, 2, 3, 4, 5, 6, 7, 8, 9 and 10)
- Use these buttons for the direct search and program memory functions.
  For direct search, press for example button [3] if you want to hear track number 3. For track number 12, press [+10] then [2].
  To program tracks, press the PROG/DIRECT button to set to the program mode.

⑯ +10 Button (+10)
- Press this button first when selecting track numbers over 10. Use it together with the number buttons. For example, to select track number ⑮, press [+10] then [5].
  For track number 33, press [+10] three times, then press [3].

⑰ Clear Button (CLEAR)
- Use this to correct programmed tracks. (Refer to Page 7)

⑱ Call Button (CALL)
- Press this button to check the tracks which have been programmed.

⑲ Index Button (INDEX)
- Press this button to start playback from an index within a track. Use the number buttons to specify the index number.

⑳ Play Button (▶ PLAY)
- Press this button to start playback of a disc.
- When this button is pressed, [▶ PLAY] is displayed, and the track number being played is displayed together with the elapsed playback time of the track.
- Tracks are shown on the calendar display. Once a track has been played, the corresponding track number goes out on the

㉑ Pause Button (II PAUSE)
- Press this button to stop playback temporarily.
- If this button is pressed during playback, playback is stopped temporarily, the [▶ PLAY] indicator goes out and the [II PAUSE] indicator lights.
- Press this button or the play button (▶ PLAY) again to continue playback.

㉒ Stop Button (■ STOP)
- Press this button to stop playback.
  The disc will stop rotating, and the number of tracks and total playing time of the disc are displayed on the TRACK NO. and TIME displays, respectively.
- In case programmed playback is engaged when this button is pressed, the number of tracks and total playing time of the program are displayed.
- If this button is pressed in the stop mode, the program memory is cleared.

㉓ Automatic Search Reverse Button (⏮)
- Press this button to return the pickup to the beginning of the present track. Press again to return to other tracks.
- By pressing the button a number of times, the pickup will move back the corresponding number of tracks.

㉔ Automatic Search Forward Button (⏭)
- Press this button to move the pickup forward to the beginning of the next track. Press again to move ahead to other tracks.
- By pressing the button a number of times, the pickup will advance the corresponding number of tracks.

㉕ Manual Search Reverse Button (◀◀)
- Press this button during playback for fast reverse search. As long as the button is kept pressed, music signals are played back faster than normal.
- Pressing this button when the pause mode is engaged, you can quickly reverse the pickup to a desired position, three times faster compared to manual reverse search during playback. During this time, no sound is heard.

㉖ Manual Search Forward Button (▶▶)
- Press this button during playback for fast forward search. As long as the button is kept pressed, music signals are played back faster than normal.
- Pressing this button when the pause mode is engaged, you can quickly forward the pickup to a desired position, three times faster compared to manual forward search during playback. During this time, no sound is heard.

㉗ Headphones Jack (PHONES)
- For private listening, you can connect your headphones to this jack. Do not raise the volume level too much when listening through headphones. (Headphones are sold separately.)

㉘ Volume Control (LINE OUT/PHONES LEVEL)
- Use this to adjust the output level (VOLUME) of the headphones or line output (VARIABLE).
- The same operation is possible using the included remote control unit. (See Page 11)

㉙ Output Terminal (FIX-VARIABLE)
- Connect these jacks to the input jacks on your amplifier. (Refer to page 6 for details on the connections.)

㉚ Digital Output Jack (COAXIAL)
- This jack outputs digital data.
- We recommend using a 75-ohm pin cord (available in stores) for connections.

㉛ Digital Output Jack (OPTICAL)
- Outputs digital optically.

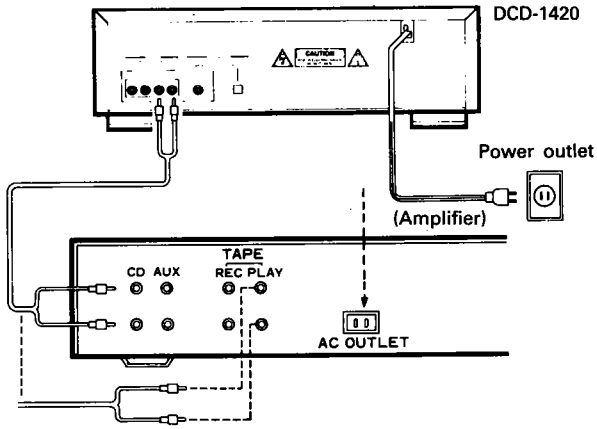
Continuous Operation
If the automatic search reverse button ㉓, the automatic search forward button ㉔, the CALL button ⑱, or the +10 button ⑯ are held in, the function of that button will be repeated.

CONNECTION

(1) Connecting the Output Terminal (FIX-VARIABLE)

Use the included pin cords to connect the left (L) and right (R) output terminal (FIX-VARIABLE) of the DCD-1420 to the CD, AUX, or TAPE PLAY left (L) and right (R) input jacks of the amplifier.

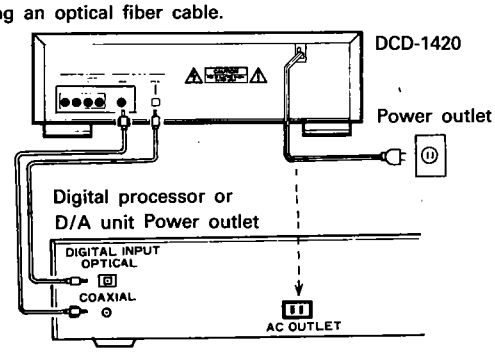
There are two types of output jacks, one of the variable type and one of the fixed type. Be sure to use the variable outputs if you want to be able to control the output level from the DCD-1420.



(2) Connecting the Digital Output Jack (COAXIAL/OPTICAL)

Use a 75-ohm pin cord to connect the digital output jack (COAXIAL) of the DCD-1420 to the digital input jack (COAXIAL) on a digital processor or D/A unit, available in stores.

In the same way, connect the digital output jack (OPTICAL) on the DCD-1420 with the optical input on a digital processor or D/A unit using an optical fiber cable.



Connection Precautions

- Before proceeding with connections or disconnections of cables and power cords, be sure to turn all system components off.
- Ensure that all cables are connected properly to the L (left) and R (right) jacks.
- Insert plugs fully into the terminals.
- Connect the output jacks to the amplifier CD, AUX or TAPE PLAY input jacks.

OPENING AND CLOSING THE DISC HOLDER AND LOADING A DISC

Opening and closing the disc holder (This operation only works while the power is on.)

1. Press the power switch (POWER) to turn on the power.
2. Press the open/close button (≜ OPEN/CLOSE).

How to load a disc

- Make sure the disc holder is completely open.
- Hold the disc by the edges and place it on the disc tray. (Do not touch the signal surface, i.e., the glossy side.)
- When using 12 cm. diameter discs, make sure the outer edge matches the tray guide circumference (Fig. 1), and when using CD singles (8 cm. diameter) match the outer edge with the inner tray guide circumference. (Fig. 2)
- Press the open/close button (≜ OPEN/CLOSE) to close the disc holder.
- When the disc holder is closed, the disc is read and after a few seconds the number of tracks and total playing time are displayed on the TRACK NO. and TIME displays, respectively.
- When the disc holder is open and a disc is loaded, you may also press the play (▶ PLAY) or pause (II PAUSE) button to close the disc holder. (If the play button (▶ PLAY) is pressed, playback will start immediately

Fig. 1

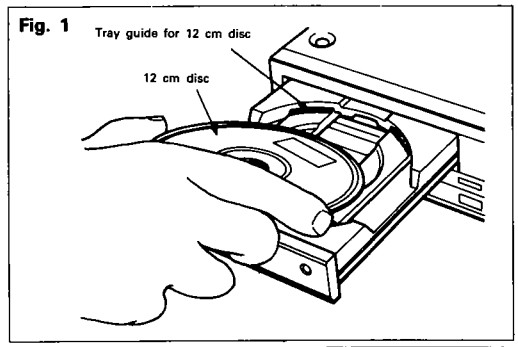
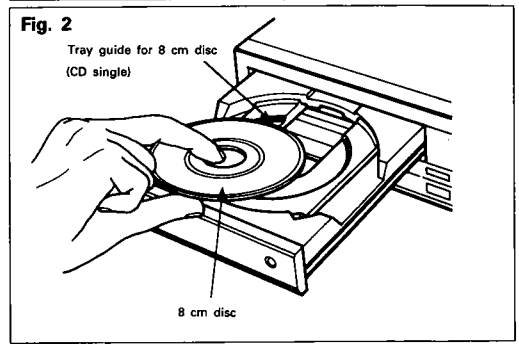


Fig. 2

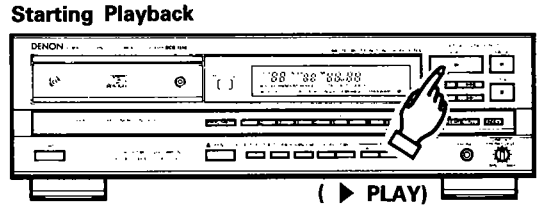


Caution:

- If your finger should get caught in the disc holder when it closes, press the open/close button (≜ OPEN/CLOSE).
- Do not place any foreign objects on the disc tray, and do not place more than one disc on the tray at a time. Otherwise malfunction may occur.
- Do not push in the disc tray manually when the power is off as this may cause malfunction and damage the CD player.

NORMAL CD PLAYBACK

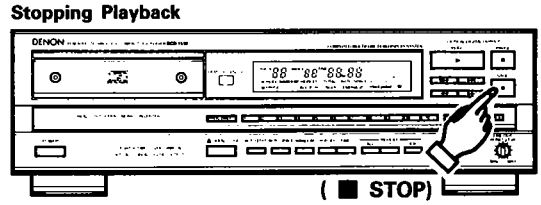
(1) Starting Playback



1 Press the power switch (POWER) to turn on the power.
2 Load the disc you want to play.
- When the disc holder is closed, the disc is read and the number of tracks and total playing time of the disc are displayed.

3 Press the play button (▶ PLAY).

(2) Stopping Playback

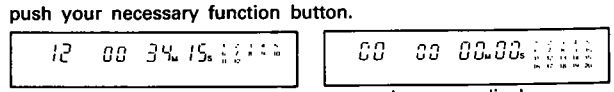


1 Press the stop button (■ STOP).
- When all tracks have been played on a disc, playback will stop by itself.

Precautions:

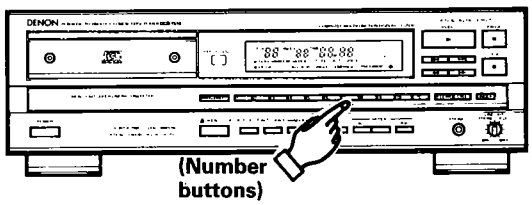
- If no disc has been loaded or the disc has been placed upside down, all indicators will light.
- When the information on the disc cannot be read correctly, for example due to dust or dirt on the disc, the indicators will read as shown below. Nothing will be shown on the TRACK NO. and TIME displays, and it may take quite a while to read the disc.
- When PLAY, PAUSE or NUMBER buttons are pushed just after turning on the unit with a disc inserted, the "TRACK INDEX TIME M S" display might not be indicated in the window. This is normal.

In this case, push the STOP button to light-up the display and then, push your necessary function button.



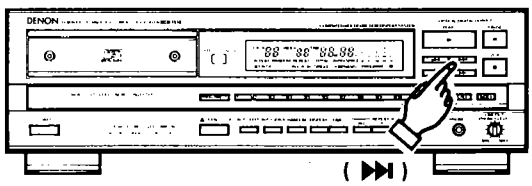
ADVANCED CD PLAYBACK

❶ Playing a Specific Track Direct Search ..... Number buttons



- Use the number buttons and the +10 button to input the number of the desired track.
  For example, to play track number 4, press [4], and to play track number 12, press [+10] and [2]. Playback will begin from that track.

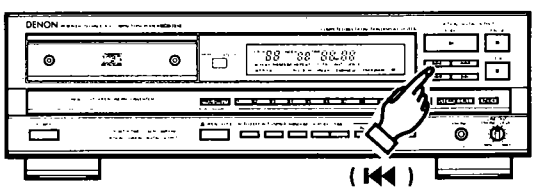
❷ Advancing to the next track during playback ..... Automatic Search



Press the Automatic search forward button (▶▶|) during playback.

- The pickup will advance to the beginning of the next track and playback will continue. Pressing the button several times will forward the pickup the corresponding number tracks.

❸ Returning to the beginning of the current track during playback ..... Automatic Search

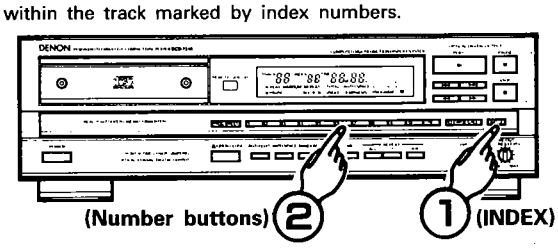


Press the Automatic search reverse button (|◀◀) during playback.

- The pickup will return to the beginning of the current track and playback will continue. Pressing the button several times will return the pickup the corresponding number tracks.

❹ Finding Sections Within a Track ..... Index Search

- With this function, you can find and play from the beginning of sections within the track marked by index numbers.



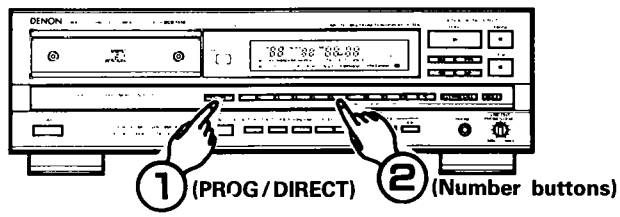
① "--" appears on the TRACK NO. display when the INDEX button is pressed.
② Input the track number using the number buttons.
Next, "--" appears on the INDEX display. Input the desired index number, and playback will start from that index number.
For example, to start from index 2 on track number 3, press INDEX, 3, then 2.

Indexes
- Indexes are numbers which are assigned to sections within a track. Check the disc's explanatory notes for the index numbers.
- If you input an index number not on the disc, playback will start from the last index number on the track.

❺ Playing Specific Tracks in a Specific Order ..... Programmed Play

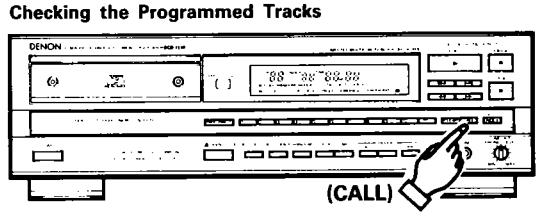
- With this function, you can choose any of the tracks on the disc and program them to play in any order.
- Programming is possible with the disc holder open.
- Up to 20 tracks can be programmed.
- The programmed tracks are shown on the calendar.

(1) Programming



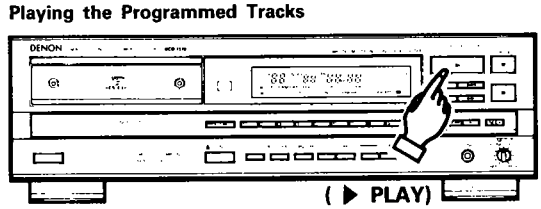
- Press the PROG/DIRECT button so that the [PROGRAM] indicator lights, then use the number buttons and the +10 button to program the tracks.
  For example, to program tracks 3, 12, and 7, press [PROG/DIRECT], [3], [+10], [2], and [7].
  The corresponding track number lights on the calendar each time a track is programmed, the track number is displayed on the TRACK NO. display, the number of tracks programmed is displayed on the INDEX display, and the total playing time of the programmed tracks is displayed on the TIME display. A few seconds after the last track has been programmed, the total number of tracks programmed is displayed on the TRACK NO. display and the total playing time of the programmed tracks is displayed on the TIME display.

(2) Checking the Programmed Tracks



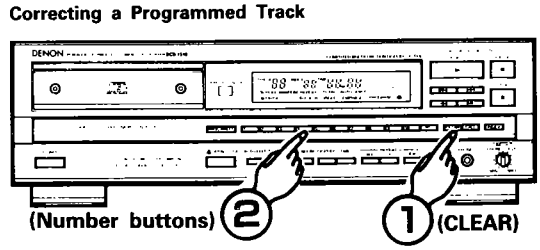
- Press the CALL button.
  The programmed tracks are displayed in order on the TRACK NO. display each time the CALL button is pressed.

(3) Playing the Programmed Tracks



- Press the (▶ PLAY) button to play the tracks in the programmed order.

(4) Correcting a Programmed Track



- To correct the last track which ahs been programmed, press the CLEAR button then progam the track correcity.
- To clear a track in the middele of the program, press the CALL button to recall the track, then press CLEAR button, and finally press STOP button.

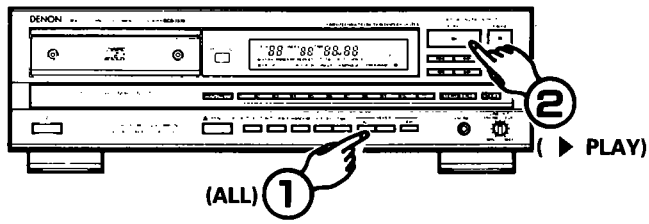
(5) Clearing the Program

- The entire program is cleared when the PROG/DIRECT button is pressed again. The program is also cleared when the (⏏ OPEN/CLOSE) button is pressed.
- If the PROG/DIRECT button is pressed during programmed play, the program is cleared and playback continues normally through to the last track on the disc.

NOTES

- If programming is done in the play or pause mode, the track currently playing is programmed at the first position. Other tracks can be added to the program, but the number of programmed tracks and the playing time will not be displayed.
- Direct search is not possible during programmed play. If the number buttons are pressed, that track is added to the end of the program.
- Programming is possible with the disc holder open. Track numbers greater than the number of tracks recorded on the disc can be programmed, but will be automatically cleared before playback begins.
- The remaining time per track will only be displayed for track numbers 1 through 20.
- The total program time and remaining program time are not displayed if tracks greater than track number 20 are programmed.

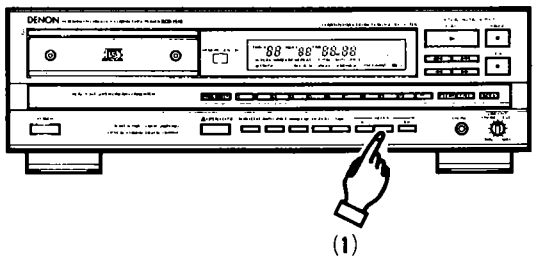
❻ Repeating playback of all tracks ..... Repeat All



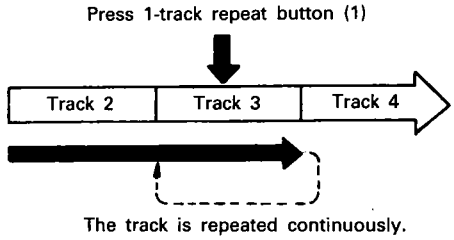
① Press the repeat all button (ALL).
② Press the play button (▶ PLAY).

- Pressing the repeat all tracks button (ALL), ALL is displayed.
- Steps ① and ② above may be reversed.
- To cancel repeat playback of all tracks, press the repeat all button (ALL) once more.
- Pressing the repeat all button (ALL) during programmed playback, playback of the tracks entered into the memory will be repeated.

❼ Repeating a Single Track ..... 1-track Repeat



- Press this button if you want to hear a track repeatedly.

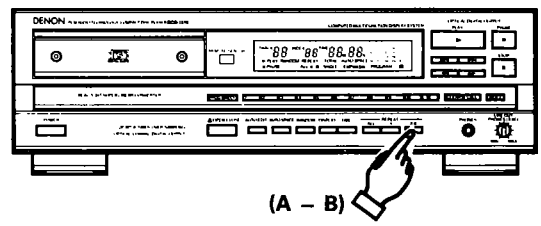


- When the 1-track repeat button (1) is pressed during playback, only the number of the track currently playing will remain lit on the calendar, as long as the track number is not over 20, and that track will be repeated.
- If the track number is 21 or over, the 1-track repeat function will work, but nothing will be lit on the calendar.
- When the 1-track repeat button (1) is pressed in the stop mode, track number 1 lights on the calendar and the 1 track repeat function is possible. To start, press the (▶ PLAY) button.
- To cancel 1-track repeat, press the 1-track repeat button (1) once again. Normal playback will resume.

NOTE:

1-track repeat is possible during the all track repeat function (when the ALL indicator is on) by pressing the 1-track repeat button (1). When this is done, the ALL indicator will remain lit, and the all track repeat mode will resume when the 1-track repeat button (1) is pressed again.

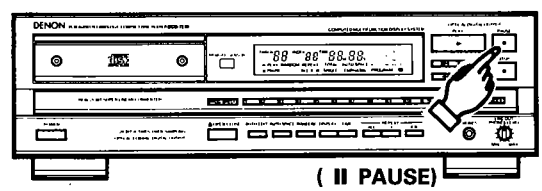
❽ Repeating playback of a desired interval ..... A-B Repeat



1. Start playback and press the A-B button when you reach the starting point of the interval. The A-B indicator starts blinking.
2. Continue playback or advance the pickup using the Automatic search forward button (▶▶|) or manual search forward button (▶▶) until the ending point is reached. Then press the A-B button once more. The A-B indicator will light.

- The pickup will now return to the starting point and repeat playback of the selected interval.
- This interval will be repeated until the A-B repeat mode is cancelled by pressing the A-B repeat button. The A-B indicator goes out.
- A-B repeat playback is not possible during programmed playback.

❾ Pausing playback at any point ..... Pause



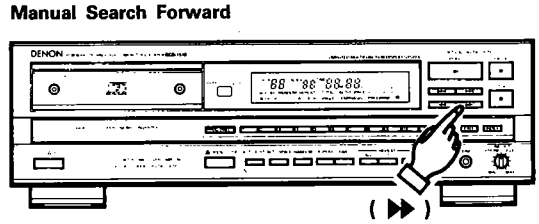
- Playback can be temporarily halted and then continued from the same point in the track.

1. Press the pause button (II PAUSE) during playback.
2. To continue playback, press the play button (▶ PLAY) or the pause button (II PAUSE) once more.

❿ Audible quick search ..... Manual Search

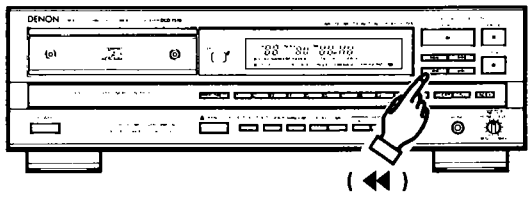
- Using this function, you can cue to a desired point within a track, either in the forward or reverse direction.
- Release the manual search button (◀◀ or ▶▶) when the desired point has been reached. Normal playback then continues.

(1) Manual Search Forward



1. Press the manual search forward button (▶▶) during playback. Playback of the track is sped up.
- As a reference, the current track number and elapsed playback time within the track are displayed.
- Manual search forward is approximately three times faster when engaged during the pause state compared to playback. In this case, no sound is heard however.
- If the manual search forward button (▶▶) is kept pressed after the end of the final track on the disc is reached, (--) is displayed and manual search stops. To return to another point, press the manual search reverse button (◀◀) until (--) disappears.

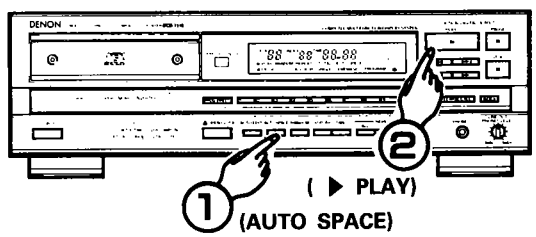
(2) Manual Search in Reverse



1. Press the manual search reverse button (◀◀) during playback. Reverse playback of the track is sped up.
- As a reference, the current track number and elapsed playback time within the track are displayed.
- Manual search in reverse is approximately three times faster when engaged during the pause state compared to playback. In this case, no sound is heard however.
- If the manual search reverse button (◀◀) is kept pressed after the beginning of the first track on the disc is reached, (--) is displayed and manual search stops. To return to another point, press the manual search forward button (▶▶) until (--) disappears.

⓫ Inserting blanks between tracks ..... Auto Space

- This is convenient feature that will insert 4-second blanks between tracks, which can be used when recording compact discs on tape.

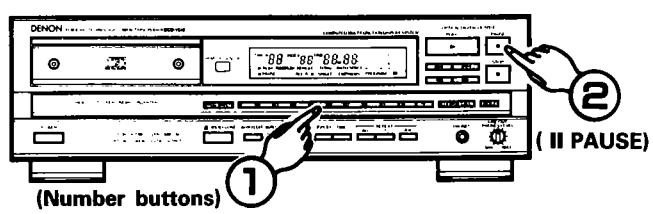


1. Pressing the auto space button (AUTO SPACE) will cause the AUTO SPACE indicator to light.
2. Press the play button (▶ PLAY) to start playback. When a track has been played to its end, a 4-second silence is made before the next track starts playing.
3. Press the auto space button (AUTO SPACE) again to cancel the function.

⓬ Searching and Pausing at the Beginning of the Track ..... Pause

(1) With Direct Search

- In this case, the set pauses at the beginning of the track found with the direct search operation.



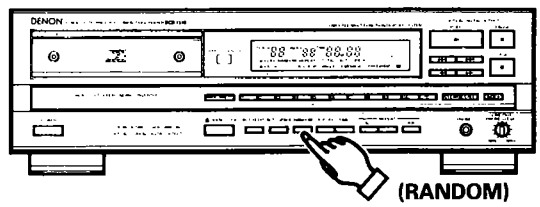
1 Press the number button(s) for the desired track.
2 Press the (II PAUSE) button.
- To start playback, press the (▶ PLAY) or (II PAUSE) button.

(2) With Program Search

- Press the (II PAUSE) button after the program search operation is completed. The set will pause at the beginning of the first programmed track.

⓭ Playing in Random Order ..... Random Play

- With this function, the tracks recorded on the disc can be played in a completely random order.



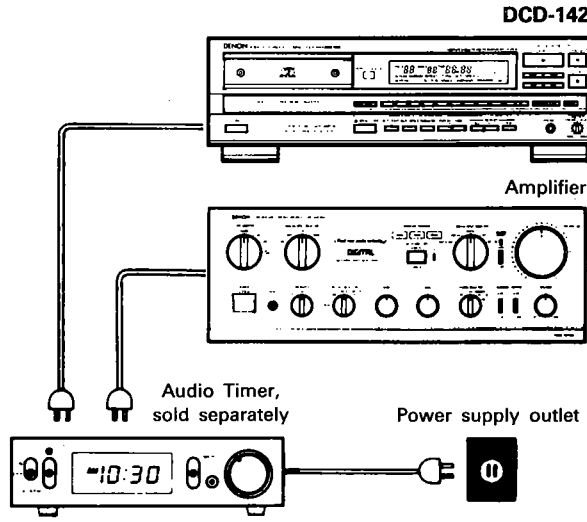
- When the RANDOM button is pressed, the RANDOM indicator lights and random play begins automatically.
- If the RANDOM button is pressed when tracks have been programmed, only the programmed tracks will be played, in random order.
- If the RANDOM button is pressed when the repeat function is set, the tracks will be played through once in random order, then played through again in a different order, etc.
- During random play, all of the tracks on the disc are displayed rapidly on the TRACK NO. display, and the track which will be played next cannot be known until playback starts.

NOTE:
- The remaining time in the total mode cannot be displayed during random play.
- If the RANDOM button is pressed when in the auto edit mode, the auto edit mode is cleared.

TIMER-CONTROLLED PLAYBACK

■ **Operation**
1. Turn on the power of all system components.
2. Set the input selector on the amplifier to correspond to the inputs the CD player is connected to.
3. Make sure a disc has been loaded in the disc holder.
4. Check the time on the timer and then set the desired turn-on time.
5. Turn the audio timer ON. Power is turned off automatically in all components connected to the timer.
6. When the preset turn-on time is reached, power is turned on in the system components, and CD playback starts from the first track.

■ **Connection**



THE COMPACT DISC

1. Precautions on handling compact discs

- Do not allow fingerprints, oil or dust on the surface of the compact disc. If the signal surface is dirty, wipe it off with a soft, dry cloth. Wipe in circular motions from the center and out.
  Use of DENON's AMC-12 CD cleaner is recommended.
- Do not use water, benzene, thinner, record sprays, electrostatic proof chemicals, or silicone-treated cloth to clean discs.
- Always use care when handling discs to prevent damaging the surface, in particular when removing a disc from the case and returning it.
- Do not bend compact discs.
- Do not apply heat to compact discs.
- Do not enlarge the hole in the center of the disc.
- Do not write on the disc and do not attach any labels.
- Condensation will form on the disc surface if it is brought into a warm room from a cold area, such as outdoors during winter. Wait until the condensation disappears. Never dry discs with hair dryers, etc.

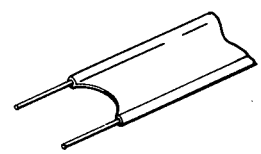
2. Precautions on storage

- After playing a disc, always return it to its case.
- Keep discs in the cases when they are not to be played. This will protect them from dust and dirt and prolong their service life.
- Do not store discs in the following places:
  1) Places exposed to direct sunlight for a considerable time.
  2) Places subject to accumulation of dust or high humidity.
  3) Places exposed to high temperatures, such as close to heater outlets.

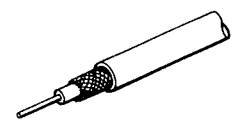
INSTALLATION PRECAUTIONS

The CD player uses a microcomputer for controlling internal electronic circuits. In the event that the player is used while a near-by tuner or TV is turned on, although unlikely, interference could occur either in the sound from the tuner or the picture of the TV. To avoid this, please take the following precautions.

- Keep the CD player as far away from the tuner or TV set as possible.
- Keep the power cable and connecting cable of the CD player separate from the antenna wires of the tuner and TV.
- Interference is particular likely to occur when an indoor antenna or a 300-ohm feeder cable is used. Thus, use of an outdoor antenna and 75-ohm coaxial cable is strongly recommended.



300-ohm feeder cable



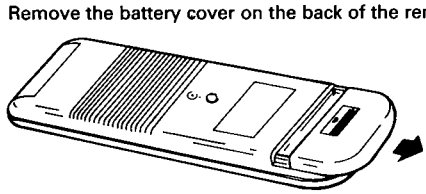
75-ohm coaxial cable

PLAYBACK USING THE REMOTE CONTROL UNIT

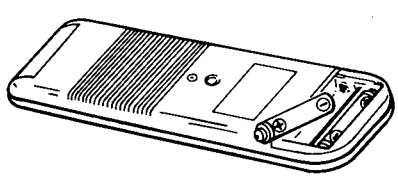
The accessory RC-217 remote control unit can be used to control the CD player from a convenient distance.

(1) Inserting the dry cell batteries

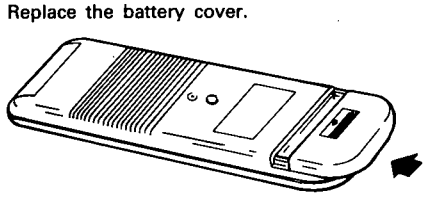
1. Remove the battery cover on the back of the remote control unit.



2. Insert two SUM-4 (standard size AAA) dry cell batteries with correct polarity as indicated inside the battery compartment.

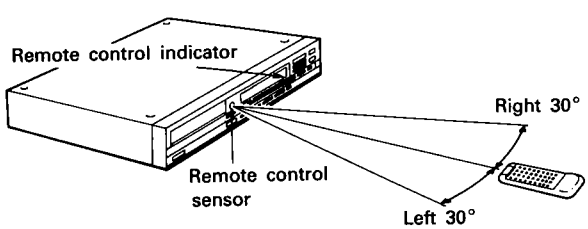


3. Replace the battery cover.



(2) Directions for Use

- Operate the remote control unit while pointing it towards the remote control sensor on the CD player (see below).



Notes on the Batteries

- The remote control unit uses standard size AAA dry cell batteries.
- The batteries will need to be replaced approximately once a year. Replacement may be necessary earlier depending on how much the remote control unit is used.
- If, in less than a year from the time new batteries were inserted, the remote control fails to operate the CD player from a near-by position, it is time to replace the batteries.
- Insert the batteries properly, following the polarity diagram inside the battery compartment, in other words make sure (+) and (–) terminals are properly aligned.
- Batteries are prone to damage and leakage.
  Therefore:
  - Do not combine new batteries with used ones.
  - Do not combine different types of batteries.
  - Do not jumper opposite poles of the batteries, expose them to heat, break them open nor expose of them in open fire.
- If the remote control unit is not to be used for a long period of time, remove the batteries from the unit.
- If the batteries have leaked, remove any traces of battery fluid from the battery compartment, wiping thoroughly with a dry cloth. Then insert new batteries.

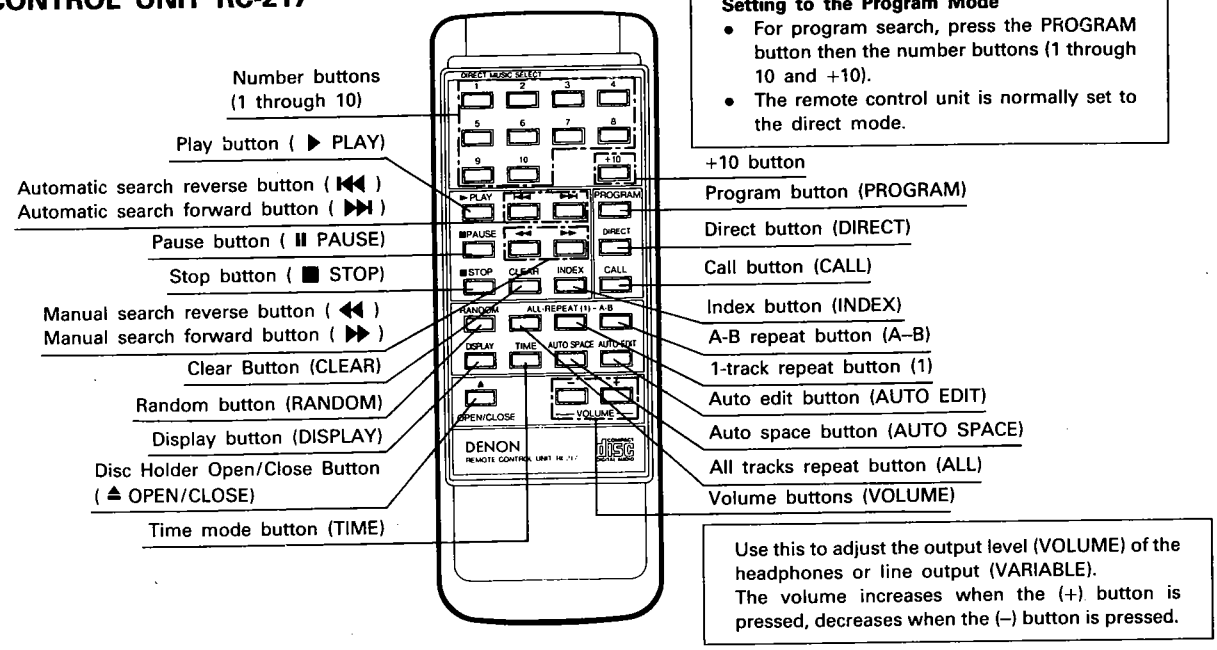
When a remote control signal is received, the remote control indicator on front of the CD player lights briefly.

- The remote control unit can be used at a distance up to 8 meters in a straight line from the CD player. This distance decreases if there are obstructions blocking the signal path or when the remote control unit is operated at an angle from the remote control sensor.
- The buttons on the remote control unit have identical functions with those on the CD player.
  However, the following functions cannot be remote controlled: Power ON/OFF.

Cautions on Use

- Do not press the operation buttons on the main unit and on the remote control unit simultaneously, as this will result in malfunction.
- The remote control unit may not operate properly if the remote control sensor is exposed to direct sunlight or strong artificial lighting, or if there is an object between the remote control unit and the remote control sensor.

REMOTE CONTROL UNIT RC-217



Setting to the Program Mode

- For program search, press the PROGRAM button then the number buttons (1 through 10 and +10).
- The remote control unit is normally set to the direct mode.

Use this to adjust the output level (VOLUME) of the headphones or line output (VARIABLE). The volume increases when the (+) button is pressed, decreases when the (–) button is pressed.

- **Direct Search**
  Normally, direct search is possible simply by pressing the desired number buttons.
- **Program Search (During playback, the track which is currently playing is programmed as the 1st track.)**
  Press the PROGRAM button, then press the number buttons.
  For example, to program tracks number 3, 11, and 5, press PROGRAM → 3 → +10 and 1 → 5.
  To cancel the program, press the DIRECT button.
- **Inputting the Track Numbers**
  For track numbers below 10, simply press the corresponding button. For track numbers of 11 and greater, press the +10 then the number buttons.
  For example, for track number 22 press +10 twice then 2.
- **Volume**
  The volume control on the unit will operate when the volume buttons are pressed. The volume can be checked by looking at the position of the control.

TROUBLESHOOTING

If the CD player does not seem to be functioning properly, check the following:

Disc holder does not open or close.
- Is the power on?

When a disc is loaded, 00:00:00 is displayed.
- Is the disc loaded properly? ..... See page 6

When the play button (▶ PLAY) is pressed, playback does not start.
- Is the disc dirty or scratched? ..... See page 10

There is no sound, or it is distorted.
- Is the output cord properly connected to the amplifier? ..... See page 6
- Have the amplifier controls been set correctly?

A specific section of the disc will not play.
- Is the disc dirty or scratched? ..... See page 10

Programmed playback does not work.
- Have programming been properly done? ..... See pages 7 and 10

Incorrect operation when buttons on the remote control are pressed.
- Is the remote control unit being operated too far from the CD player? ..... See page 10
- Are there obstacles blocking the ray?
- Is the remote control sensor exposed to strong light?
- Are the batteries exhausted?

SPECIFICATIONS

AUDIO

No. of Channels:	2 channels
Frequency Response:	2 ~ 20,000 Hz
Dynamic Range:	97 dB
Signal-to-noise Ratio:	108 dB
Harmonic Distortion:	0.003% (1 kHz)
Separation:	103 dB (1 kHz)
Wow & Flutter:	Below measurable limit: (±0.001% W.peak)
Output Voltage:	2.0 V, VARIABLE 0~2.0 V
DISCS	Compact Disc format
GENERAL CHARACTERISTICS	
Power Supply:	50/60 Hz, voltage is shown on rating label
Power Consumption:	13 W
Dimensions:	434 (17.1 in) W × 135 (5.2 in) H × 310 (12.2 in) D mm
Weight:	6.3 kg

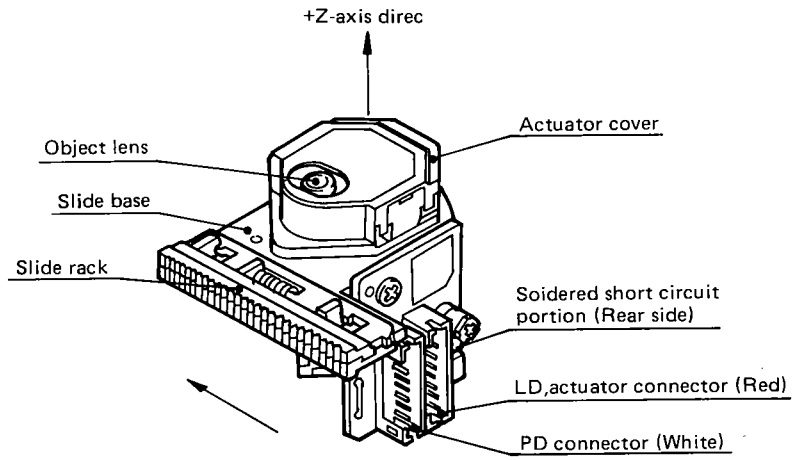
FUNCTIONS AND DISPLAY

Functions:	Direct selection, automatic search, programmed playback, repeat playback, manual search, auto space, time mode, auto edit, emphasis feature
Display:	Track number, time, music calendar, and engaged modes
Others:	Headphones jack
REMOTE CONTROL UNIT	RC-217
Remote Control System:	Infrared pulse system
Power Supply:	3 V DC; two SUM-4 (standard size AAA) dry cell batteries
External Dimensions:	60 (2.4 in) W × 165 (7.0 in) H × 17 (0.7 in) D mm
Weight:	95 g (including batteries)
SUPPLIED ACCESSORIES	Pin-plug connection cord

* Design and specifications are subject to change without notice in the course of product improvement.

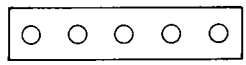
NOTE FOR HANDLING OF LASER PICK-UP

DESCRIPTION OF THE COMPONENTS



Label

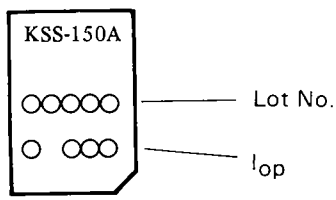
1. Serial number



This denotes the serial number used for quality control in the manufacturing plant.

Note: The numbers of figures in English numerals may be changed.

2. Label

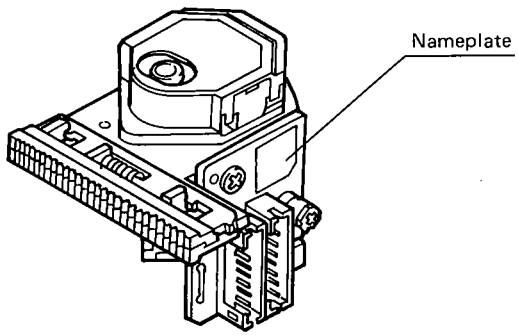


year
(last figure)
day month | quality control No.
○○ ○ ○ ○

but Oct. Nov. and Dec. are expressed by alphabetical letters of X, Y and Z.

10 1 10^{-1}
quality control ○ ○ ○ ○
LD drive current

3. Position of the labels

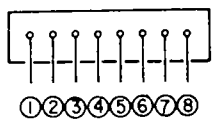


Note:
- The expressed unit is by mA, with omission of the decimal point as for example, 56.5 mA will be expressed as 565, but the head of English letter means the control in the manufacturing plant.
- If a voltage value in between No. 2 and No. 6 pins of TP102 of the servo and signal processor unit, the value of laser diode current "iop" can be found by a formula

"iop 1" = $\frac{V1}{22}$.

ELECTRICAL PIN CONNECTION

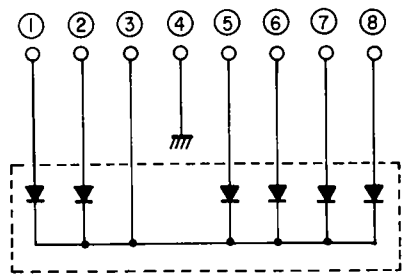
1. PD connector (JAPAN SOLDERLESS TERMINAL MFG CO. LTD "PH series" 8 pin)



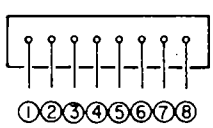
COLOR : WHITE

Pin No.	PD element
①	F
②	E
③	K
④	GND
⑤	A
⑥	B
⑦	C
⑧	D

PC Circuit Diagram



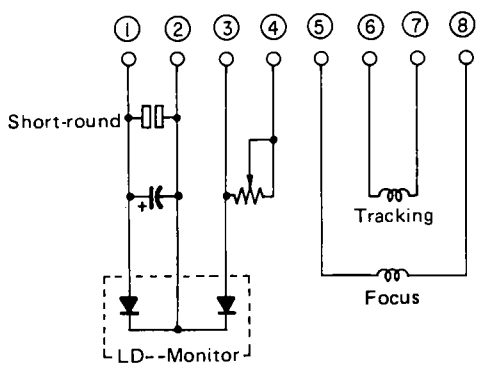
2. Actuator & LD connector (JAPN SOLDERLESS TERMINAL, MFG CO. LTD "PH series" 8 pin)



COLOR : RED

Pin No.	description
①	Laser
②	GND
③	monitor
④	reference
⑤	Fo (-)
⑥	Tr (+)
⑦	Tr (-)
⑧	Fo (+)

LD • Actuator Circuit Diagram



Cautions for Handling the Laser Pick-up

The laser pick-up KSS-150A is assembled and precisely adjusted using a sophisticated manufacturing process in our plant. Do not disassemble or attempt to readjust it. Please keep the following instructions carefully in handling pick-up.

1. Handle with Care

(1) Storage
Do not store the pick-up in dusty, high-temperatured or high-humidity environments.

(2) Please take care for preventing from shock by falling down or careless handling.

2. Laser Diode (LD)

(1) Protect your eyes
The laser beam may damage the human eye, since the intensity of the focused spot may reach 7 x 10^3 W/cm^2 even if the intensity at the objective lens is 400 μW maximum. As the light beam spreads after focused through the objective lens, it does not effect you in the place as far as more than 30 cms. However, do not look at the laser light beam either through the objective lens directly nor another lens or a mirror.

(2) Poison of As
Since the LD chip contains As (Arsenic), as GaAs + GaAlAs, as known as the poison, although the poison is relatively weak, in comparing with others, e.g. As_2O_3, $AsCl_3$ etc., and the amount is small, avoid putting the chip in acid or an alkali solution, heating it over 200°C or putting it into your mouth.

(3) Avoid surge current or electrostatic discharge
The LD may be damaged or deteriorated by it's own strong light if a large current is supplied to it, even if only a short pulse.
Make sure that there is no surge current in the LD driving circuit by switches or else. Be careful to handle pick-up as it may be damaged in a moment by human electrostatic discharge. The pins of the LD are short-circuited by solder for protection during shipment.
For safety handling of an LD, grounding the human body, measuring equipments and jig is strongly recommended. And still it is further desirable to make use of mat on the platform and floor for handling the LD.
To open the short circuit, remove the soldering quickly with a soldering iron whose metal part is grounded. The temperature of the soldering iron should be less than 320°C (30W).

3. Actuator

(1) The performance of the actuator may be effected if magnetic material is located nearby, since the actuator has a strong magnetic circuit. Do not permit dust to enter through the clearance of the cover.

(2) Cleaning the lens
It may change the specifications by attaching dust or ash on the object lens. Clean the lens with a cleaning paper dampened a little water, not pressing lens with so much strength by the cleaning paper.

4. Metal Bearing

As the metal bearing of Cu-compound sintered alloy is impregnated with FROIL946P(*Part No. 529 0054 007), never fail to supply the bushing with the same lubricant at the time of replacing the pick-up.

5. Handling

Please handle the laser pick-up with holding the slide base (rosin molded part).
When either a part of human body or some other things may happen to touch directly with the circuit part of P.W. Board, it may cause deterioration, take careful attention in handling this base.

6. Deterioration

When difficulty occurs either in focus or tracking adjustment nor able to adjust the focus or tracking, it seems that the laser pick-up is deteriorated. In these cases, check a value of laser diode current and give a decision for deterioration.

7. Fundamental Deterioration Decision of Laser Pick-up

(1) If a voltage value in between No. 2 and No. 6 pins of TP102 of the servo and signal processor unit, the value of laser diode current "iop" can be found by a formula "iop1" = $\frac{V1}{22}$.

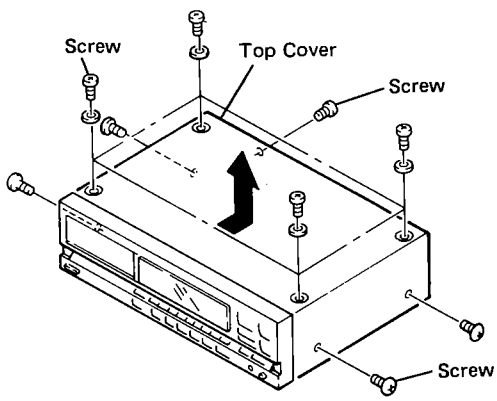
(2) If an "iop" exceeds ±10% compared with the IOP indication on the laser pick-up nameplate, there is a fair chance for deterioration when it is checked under a circumambient temperature 23°C.

(3) When the circumambient temperature changes ±10°C, "iop1" will change ±5%. The "iop1" will also be changed by the passage of time.

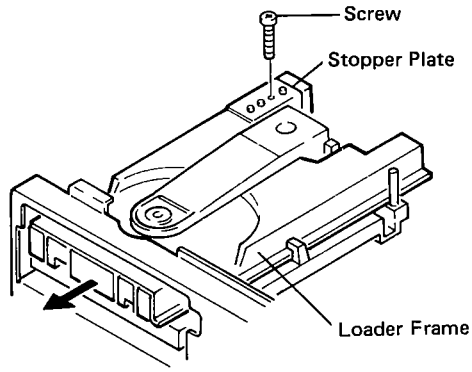
(4) In case of the above conditions taking into consideration and performed the adjustment in proper way, if the HF level at pin No. ① of TP102 on Main Unit, and in between GND4 becomes 1V or lesser values; or ajitter occurs great, the laser pick-up may be deteriorated.

DISASSEMBLY

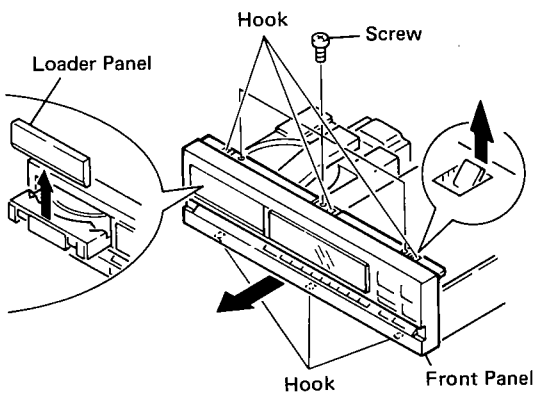
- **Top Cover**
  1. Remove 4 upper screws, rear screw, and 4 side screws.
  2. Remove Top Cover to arrow direction clear of both sidees.



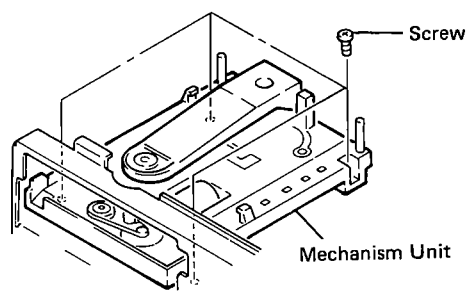
- **Loader**
  1. Remove screw, and remove Stopper Plate.
  2. Remove Loader Frame forward.



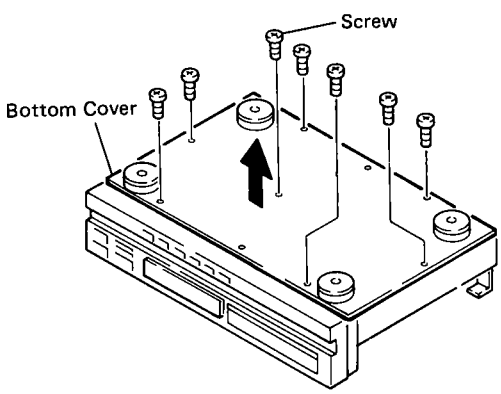
- **Front Cover**
  1. Pull Loader forward and remove Loader Panel.
  2. Remove 3 screws.
  3. Remove Front Panel clear of upper and lower hooks.



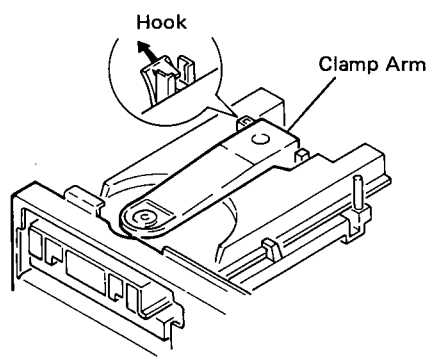
- **Mechanism Unit**
  1. Remove 4 screws.
  2. Remove Mechanism Unit.



- **Botton Plate**
  Remove 7 screws.



- **Clamp Arm**
  Remove hook as arrow direction.



ADJUSTMENT

Microcomputer built in the unit, comprises service program to facilitate servo adjustment by pushing operation button.

1. Start service program

(1) Turn power switch OFF.
(2) Shortcircuit pins ③, ④ of connector (TP102) on P.W.B. (Main Unit)
(Caution) Do not touch other pins.
(3) Turn power switch ON.
(Service program starts, and displays track number 01)

(Caution)
- When service program started normal operation of buttons will be defeated.

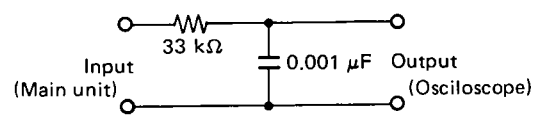
2. Service program function

Button	Function	Description
⏏ OPEN/CLOSE	Opens or closes the disc holder.	• Opens or closes only when disc is stopped. • Operate other keys after open or close .
■ STOP	Stops system function.	• Displays track number 01 . • Push when adjustment completed, or do it again.
▶ PLAY	Starts focus servo and disc turns.	• Push when adjust tracking offset. • When completed, displays track number 02 .
❚❚ PAUSE	Starts focus servo, tracking servo, slide servo, spindle servo.	• When PLAY button is pushed, starts tracking servo and slide servo. • When completed, track number 03 .
Other button	No normal operation.	• Do not operate buttons other than above. • If misoperated, immediately turn power switch OFF.

(Caution)
- Do not use remote control during service program mode.

3. Adjustment

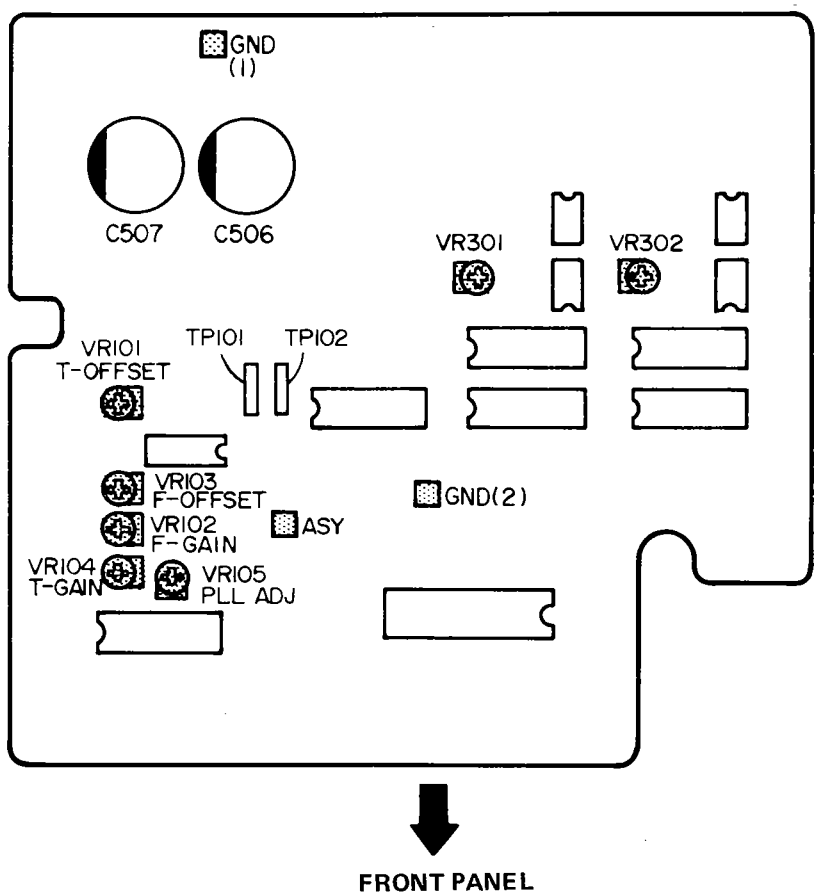
(1) Prior to start adjustment
Before adjusting laser P.U. and spindle motor, be sure adjust turntable height at the time of turntable assembly.
(2) Necessary equipment for adjustment
1 Dual trace oscilloscope
2 Reference disc (CA-1094) 富田靖子
3 Oscillator (10 Hz ~ 10 kHz, 0 ~ 3 Vp-p)
4 Frequency counter (readable more than 5 MHz)
5 Filter for measurement



(Filter for measurement)

(3) Location

MAIN UNIT
2U-1752B/1818A-1

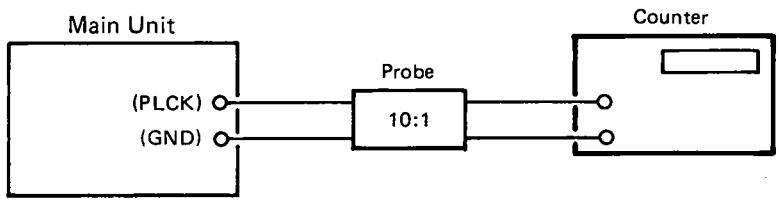


(4) Preset

1.	Start service program.	
2.	Preset VR101 ~ 105 as per left figure.	VR101 (T-OFFSET) 3 O'clock VR103 (F-OFFSET) 3 O'clock VR102 (F-GAIN) 3 O'clock VR104 (T-GAIN) 3 O'clock VR105 (PLL) 6 O'clock
3.	Step.	1. PLL 2. Tracking offset 3. Focus gain 4. Focus offset 5. Tracking gain 6. Tracking offset recheck.

4. PLL Adjust

Connection



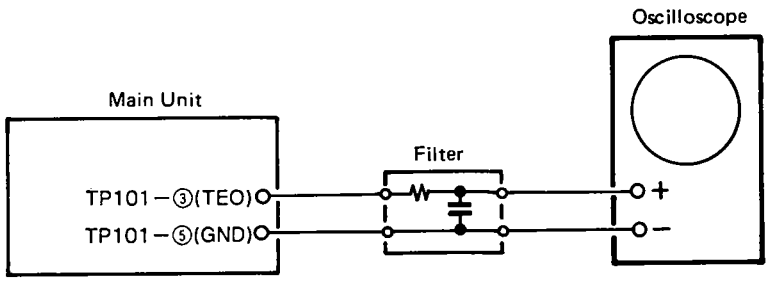
- Ground Test point [ASY] to GND1 or GND2.

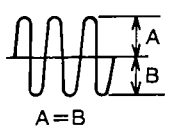
Adjust	Check	Step
(Volume)	(Counter)	• Turn PLL volume VR105 so that frequency counter reads 4.32 MHz.
VR105	4.32 MHz ± 10 kHz	

Note: Some P.C.Board has no GND2.

5. Tracking offset

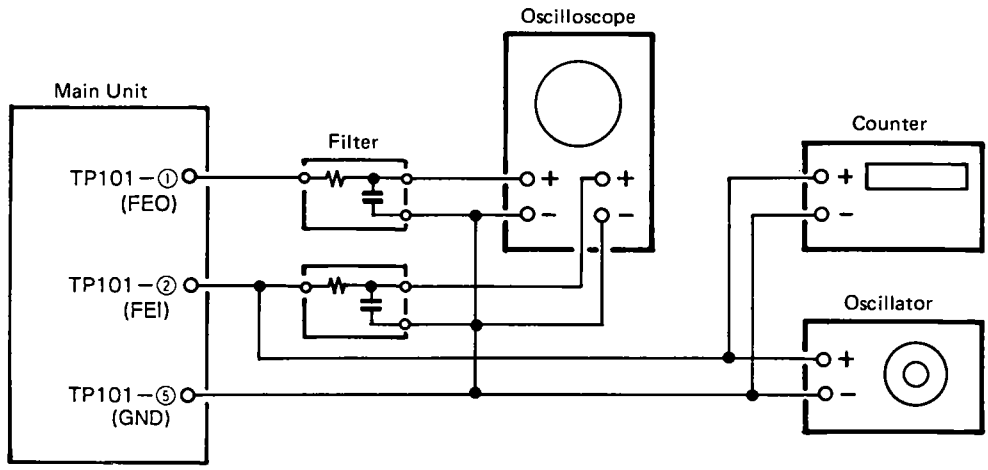
Connection



Oscilloscope (DC range)		Adjust	Check	Step
V	H	(Volume)	(Oscilloscope)	1. Push [▲ OPEN/CLOSE] and load disc holder reference disk.
0.1V/div	1~2 ms/div	VR101	 A=B	2. Push [▲ OPEN/CLOSE] and close disc holder. 3. Push [▶ PLAY] to turn disc. (Displays track number 02) 4. Short (+) (-) of oscilloscope and check the base line. 5. Adjust VR101 [T-OFFSET] to equalizer upper and lower amplitude of the waveform.

6. Focus gain

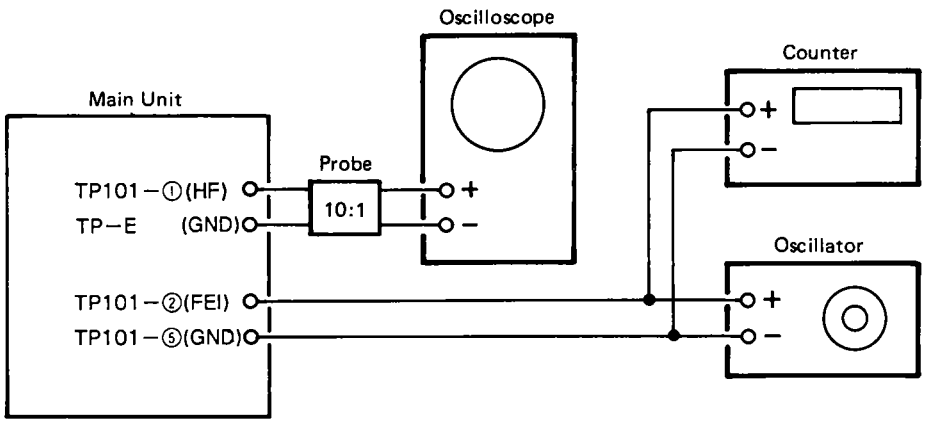
Connection

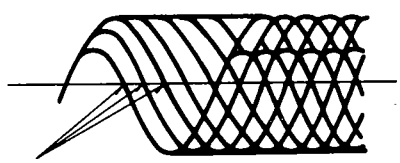
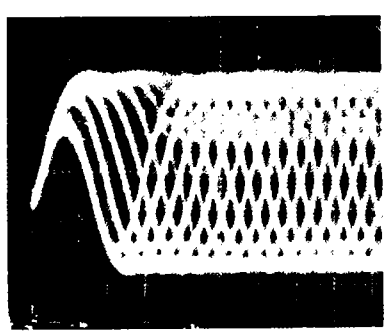


Oscillator	Counter	Oscilloscope V	Oscilloscope H	Adjust	Check	Step
750 Hz 1 Vp-p (±0.1 V)	750 Hz	• DC range • X-Y mode		VR102	(Oscilloscope) Y axis X axis Phase 90° Waveform not right X axis Y axis	1. Push [II PAUSE] (Displays track number 03) 2. Set oscillator to 750 Hz/1 Vp-p. 3. Switch oscilloscope input to X-Y mode. 4. Adjust VR102 [F-GAIN] to symmetrize Lissajous figures to X and Y axes.

7. Focus offset

Connection



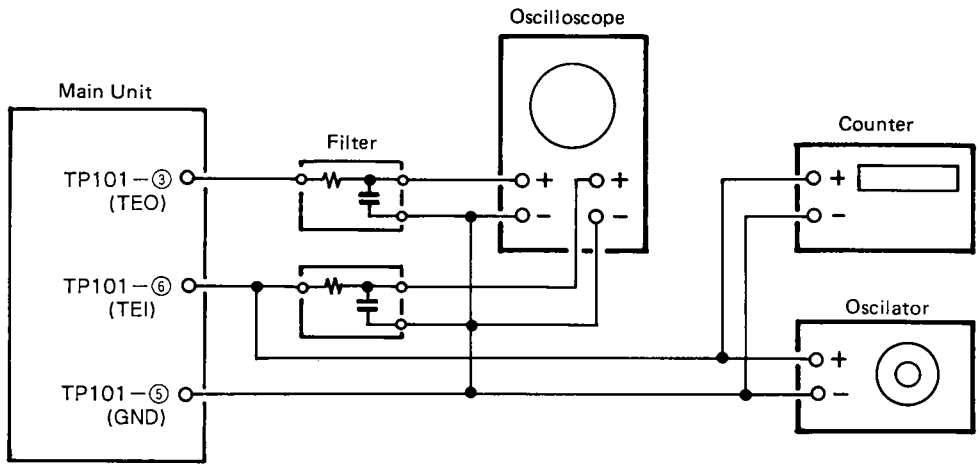
Oscillator	Counter	Oscilloscope		Adjust	Check
		V	H	(Volume)	(Oscilloscope)
750 Hz 1 Vp-p (±0.1 V)	750 Hz	50 mV/div or 20 mV/div	0.2 μs/div or 0.5 μs/div	VR103	 Adjust to minimize pattern jitter.  Pattern
		• Set input mode to ALTERNATE or CHOPPER.			

Step

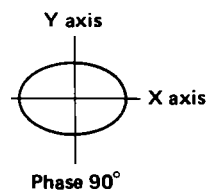
1. Push [II PAUSE].
2. Set oscillator to 750 Hz, 1 Vp-p (±0.1V)
3. VR103 [F-OFFSET] to minimize pattern jitter.

8. Tracking gain

Connection



• Caution: Connect oscillator after [II PAUSE] pushed and servo function started.

Oscillator	Counter	Oscilloscope V	Oscilloscope H	Adjust	Check	Step
• 2.1 kHz (±120 Hz) • 3 Vp-p (±0.1V)	2.1 kHz (±120 Hz)	• DC range • X-Y mode		VR104		1. Push [II PAUSE]. (Displays track number 03) 2. Connect oscillator. 3. Set oscillator to 2.1 kHz/3 Vp-p. 4. Switch oscilloscope input to X-Y mode. 5. Adjust VR104 [T-GAIN] to symmetrize Liseajous figures to X-Y axes.

9. Tracking offset adjustment check

(1) Adjust tracking offset again.
(2) Push [■STOP] and stop disc.
(3) Push [▶PLAY] and check disc turns.
Note: If disc does not turn, push [▶PLAY] again and check track number 02 is diasplayed.
(4) Check oscilloscope waveform upper and lower amplitude are same to base line.
(5) Push [■STOP] and stop disc.
(6) Push [▲OPEN/CLOSE] and remove the reference disc.

HEAT RUN MODE FUNCTION

1. Heat Run Mode

1) To active

Push and hold 1, 4, and 7 keys simultaneously, and turn power on. The remote control sensor indicator lights to show that the unit is shifted to Heat Run Mode.

Be sure the disc has been loaded.

Press the disc holder open/close button (▲OPEN/CLOSE) to cancel Heat Run Mode.

2) Operation

Shifting the unit to Play Mode from Heat Run Mode makes the unit replays from the first music, by opening the loader once and re-closes it when finish playing the last music (comes into lead out).

Hereafter, operates open/close of loader, servo on, reads TOC, and repeats playing the two music the first and last ones.

If a system error occurs during Heat Run Mode, it displays the error message TNO on the INDEX, and stops the operation. And displays the previous operation cycle number on TIME.

1. E1
   When focus servo is ineffective:
   - 1-1 E1-00 No FOK avails.
   - 1-2 E1-01 FOK avails but no FZC.
   - 1-3 E1-02 Both FOK and FZC avail, but FZC is short of masking time.
   - 1-4 E1-03 Both FOK and FZC avail, but FZC did not turn to "L" within specified time.
2. E2
   Disc turns, but fails to detect synchronous pattern (No GFS).
3. E3
   Fails to detect synchronous pattern (No GFS drives.):
   - 3-1 E3-00 During PLAY.
   - 3-2 E3-01 During SEARCH.
4. E4
   Servo avails, but fails to read TOC:
   - 4-1 E4-00 Fails to read subcode.
   - 4-2 E4-01 Reads subcode, but fails to lead-in.
   - 4-3 E4-02 Subcode and lead-in avail, but fails to read TOC within 15s.
5. E5
   Defective loader. (Switch fails to turn on.)
6. E6
   PU innermost circle switch fails to turn off.
7. E7
   PU innermost circle switch fails to turn on.

2. Chucking Test

1) To activate

Start regular Heat Run Mode, and press II (PAUSE) twice times, or 10 key. (During PLAY)

2) Operation

Repeats Close/Open loader, Servo on, reads TOC, selection of the first music.

3) Error Message

The same as per regular Heat Run Mode. Always displays number of operation cycle on TIME, immediately after the loader closes.

3. Sound Skipping Test

1) To activate

Start regular Heat Run Mode, and press +10 key. (During PLAY)

2) Operation

If sound skipping occurs more than ±8 frame (no continuous subcode), it stops the operation, and displays error message.

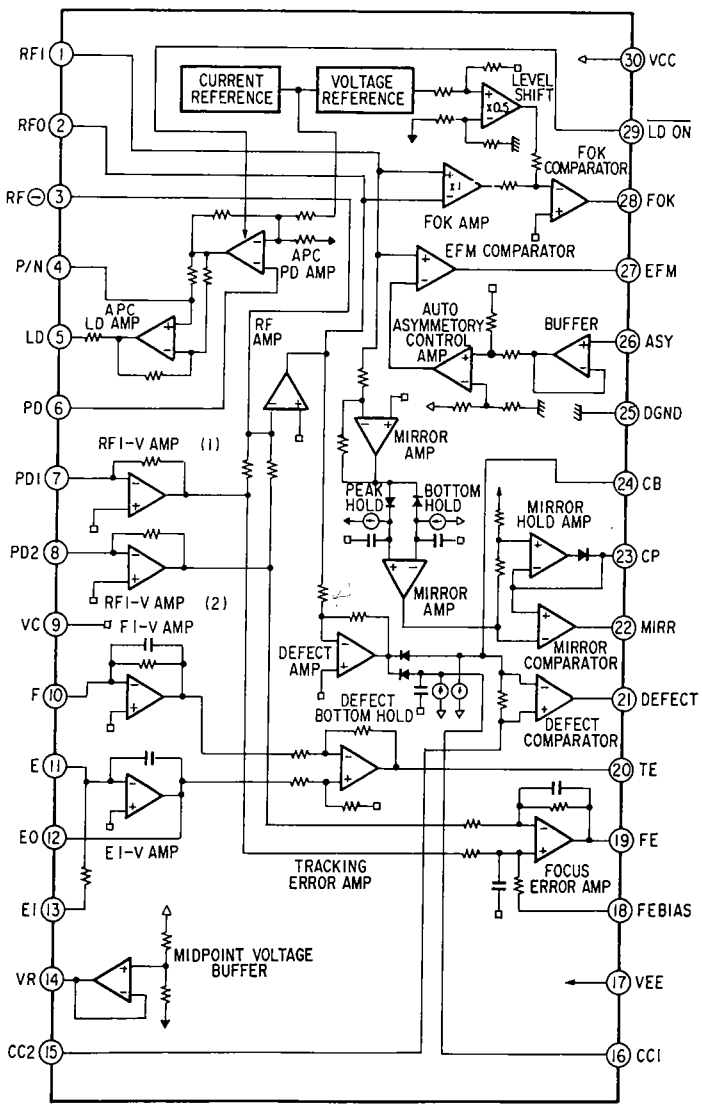
3) Error Message

E8 Sound skipping occurs.
Displays number of operation cycle on TIME.
Then, if press any key, display changes, and displays the section where skipping occurs on TNO INDEX TIME.

E1~E7 Same as per regular Heat Run Mode.

IC TERMINAL FUNCTION

CXA1081S



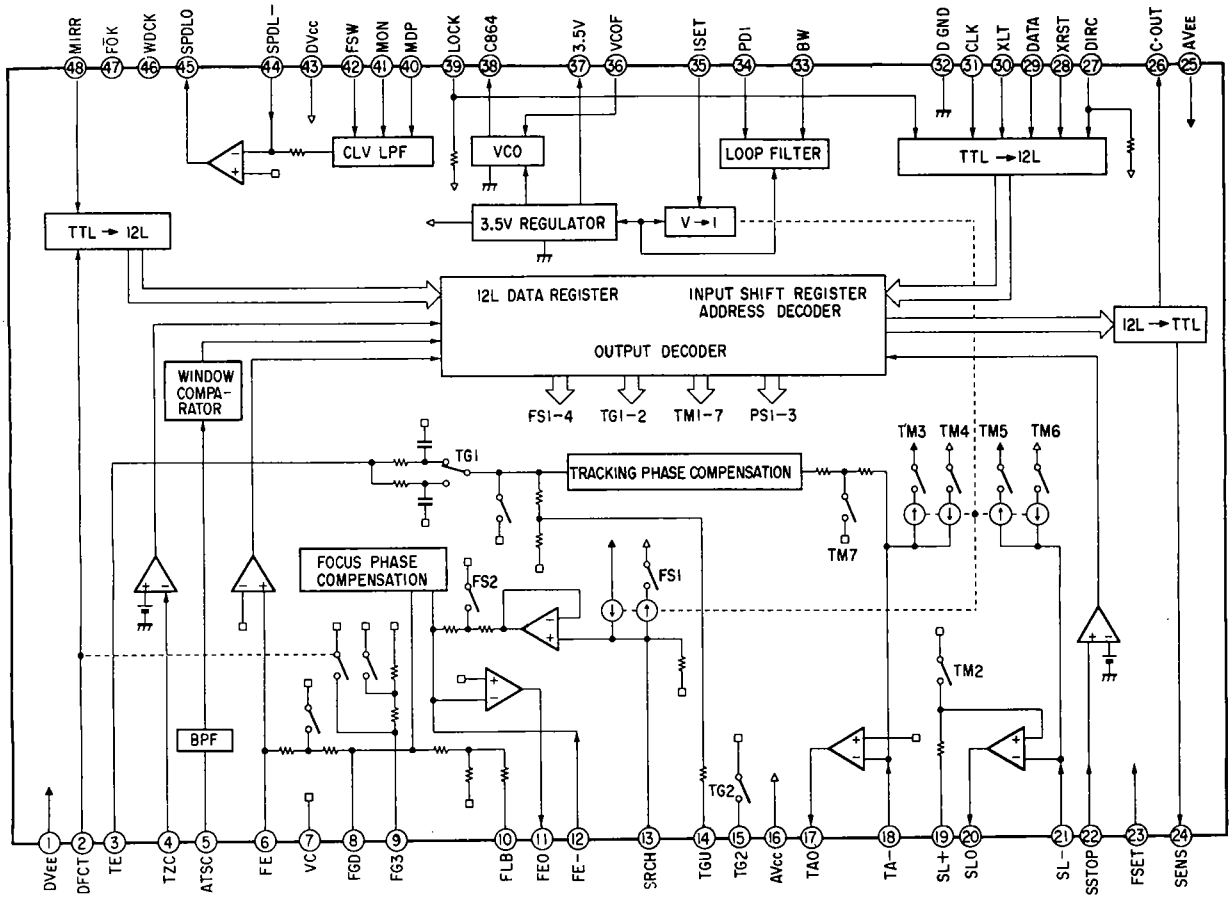
CXA1081S Terminal Function

Terminal No.	Terminal Symbol	I/O	DC voltage (V)	Terminal Function
1	RFI	I	0	Input terminal of capacitance coupled RF summing amplifier output.
2	RFO	O	V_{RFO}	Terminal for RF summing amplifier output. Check point of Eye pattern.
3	RF(–)	I	0	Feedback input terminal of RF summing amplifier.
4	P/N	I	0 (VC)	P-sub/N-sub shifting terminal for Laser Diode (LD). (DC voltage: at N-sub.)
5	LD	O	-1.8	Output terminal of APC (Automatic Power Control) LD amplifier. (DC voltage: at N-sub, PD opened.)
6	PD	I	0	Input terminal of APC (Automatic Power Control) PD amplifier. (DC voltage: opened.)
7	PD1	I	0	Reverse input terminal of RF I-V amplifier (1). Receives a input current through A + C terminals of photo diode.
8	PD2	I	0	Reverse input terminal of RF IV amplifier (2). Receives a input current through B + D terminals of photo diode.
9	VC	–	0	At ± dual-power supply: Becomes GND. At mono-power supply: Becomes VR. (connect to pin 14.)
10	F	I	0	Reverse input terminal of F I-V amplifier. Receives a input current through F terminal of photo diode.
11	E	I	0	Reverse input terminal of E I-V amplifier. Receives a input current through E terminal of photo diode.
12	EO	O	0	Output terminal of E I-V amplifier.
13	EI	I	0	Feedback input terminal of E I-V amplifier. For gain controlling of E I-V amplifier.
14	VR	O	V_{CVO}	Output terminal of DC voltages $(V_{CC} + V_{EE})/2$.
15	CC2	I	1.0	Input terminal of capacitance coupled defect bottom hold output.
16	CC1	O	1.2	Output terminal of defect bottom hold.
17	V_{EE}	–	-2.5	At ± dual-power supply: Becomes negative power supply terminal. At mono-power supply: Becomes GND.
18	FE BIAS	I	0	Bias terminal for non-reverse side of focus error amplifier. For CMR controlling of focus error amplifier.
19	FE	O	V_{FEO}	Output terminal of focus error amplifier.
20	TE	O	V_{TEO}	Output terminal of tracking error amplifier.
21	DEFECT	O	V_{DFCTL}	Output terminal of defect comparator. (DC voltage: Connect a 10 kΩ load resistance.)
22	MIRR	O	V_{MIRL}	Output terminal of MIRR comparator. (DC voltage: Connect a 10 kΩ load resistance.)
23	CP	I	-1.3	Connecting terminal for MIRR hold capacitor. Non-reverse input terminal of MIRR comparator.
24	CB	I	0	Connecting terminal for defect bottom hold capacitor.
25	D GND	–	-2.5	At ± dual-power supply: GND. At mono-power supply: GND (V_{EE}).
26	ASY	I	–	Input terminal of auto-asymmetry control.
27	EFM	O	V_{EFMH}	Output terminal of EFM comparator. (DC voltage: Connect a 10 kΩ load resistance.)
28	FOK	O	V_{FOKL}	Output terminal of focus OK comparator. (DC voltage: Connect a 10kΩ load resistance.)
29	$\overline{\text{LD ON}}$	I	-2.5 (D GND)	ON/OFF shifting terminal for laser diode (LD). (DC voltage: At LD ON.)
30	V_{CC}	–	2.5	Positive power supply terminal.

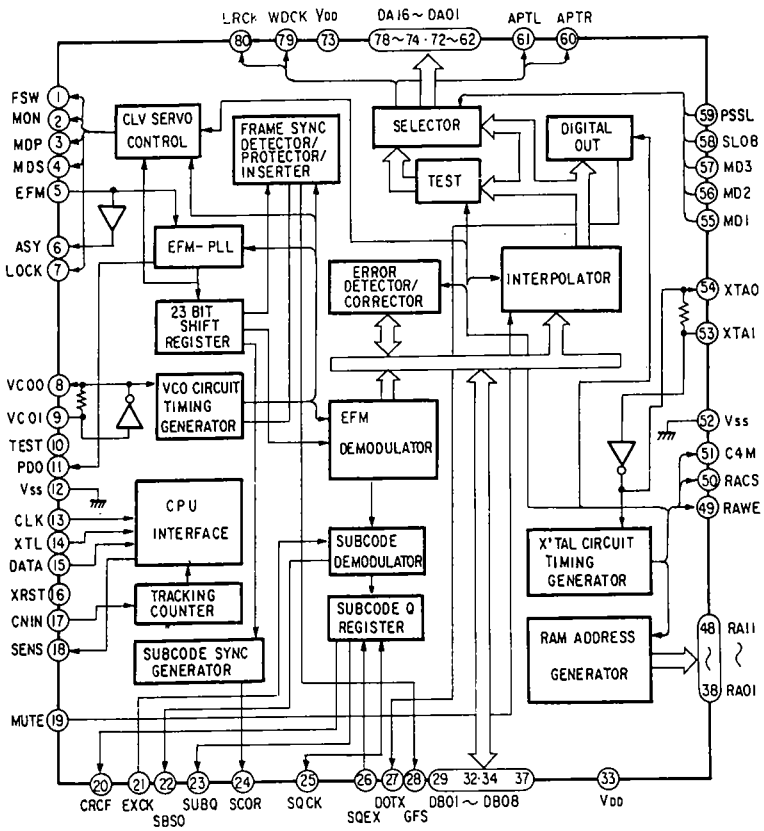
CXA1182AS Terminal Function

Terminal No.	Terminal Symbol	Terminal Function
2	DFCT	Defect signal input terminal. Defect measure circuit activates at "H".
3	TE	Tracking error signal input terminal.
4	TZC	Tracking zero cross comparator input terminal.
5	ATSC	Input terminal of ATSC detecting window comparator.
6	FE	Focus error signal input terminal.
8	FGD	In case of reducing higher range gain of focus servo, connect a capacitor between this terminal and terminal number (9).
9	FS3	Shifts higher range gain of focus servo by FS3 ON/OFF.
10	FLB	Terminal for external time constant to increase lower range of focus servo.
11	FEO	Focus drive output.
12	FE(–)	Reverse input terminal for focus amplifier.
13	SRCH	Terminal for external time constant to make focus search waveform.
14	TGU	Terminal for external time constant to shift higher range gain of tracking.
15	TG2	Terminal for external time constant to shift higher range gain of tracking.
17	TAO	Tracking drive output.
18	TA(–)	Reverse input terminal for tracking amplifier.
19	SL(+)	Non-reverse input terminal of sled amplifier.
20	SLO	Sled drive output.
21	SL(–)	Reverse input terminal of sled amplifier.
22	SSTOP	Terminal for limit switch ON/OFF to detect disc inner most circle.
23	FSET	Terminal to compensate peak in focus tracking phase, and for setting F_O in CLV LPF.
24	SENS	Terminal to output FZC, AS, TZC, SSTOP, $\overline{BUSY}$ by command from CPU.
26	C. OUT	Terminal to output signal for track number count.
27	DIRC	Terminal is used at the time of 1 track jump. A 47 kΩ pull up resistor is included.
28	XRST	Reset input terminal. Resets at "L".
29	DATA	Serial data input from CPU.
30	XLT	Latch input from CPU.
31	CLK	Serial data transfer clock input from CPU.
33	BW	Terminal for external time constant of loop filter.
34	PDI	Input terminal of PDO for CXD1125 phase comparator.
35	ISET	Delivers a current to set the height of focus search, track jump, and sled kick.
36	VCOF	Resistance value between this terminal and terminal (37) is nearly proportion to VCO free-run frequency.
38	C864	Output terminal of 8.64 MHz VCO.
39	LOCK	Reckless drive protection circuit activates at "L". A 47 kΩ pull up resistor is included.
40	MDP	Terminal to connect MDP terminal of CXD1125.
41	MON	Terminal to connect MON terminal of CXD1125.
42	Fsw	Terminal for external LPF time constant of CLV servo error signal.
44	SPDL(–)	Reverse input terminal for spindle drive amplifier.
45	SPDLO	Spindle drive output.
46	WDCK	Clock input for auto-sequence. Normally applied 88.2 kHz.
47	FOK	FOK signal input terminal.
48	MIRR	MIRR signal input terminal.

CXA1182S



CXD1125Q



CXD1125Q Terminal Function

Terminal No.	Terminal Symbol	I/O	Terminal Function
1	FSW	O	Output to shift time constant of output filter for spindle motor.
2	MON	O	ON/OFF control output for spindle motor.
3	MDP	O	Drive output for spindle motor. Rough control at CLV-S mode and phase control at CLV-P mode.
4	MDS	O	Drive output for spindle motor. Speed control at CLV-P mode.
5	EFM	I	Input of EFM signal from RF amplifier.
6	ASY	O	Output to control slice level of EFM signal.
7	LOCK	O	Sampling GFS signal by WFCK/16 and if it is "H", delivers "H"; if it is continuously "L" 8 times, delivers "L".
8	VCOO	O	VCO output. When EFM signal is locked, f=8.6436 MHz.
9	VCOI	I	VCO input.
10	TEST	I	(0V).
11	PDO	O	Phase comparing output for EFM signal and VCO/2.
12	Vss	–	GND (0V).
13	CLK	I	Serial data transfer clock input from CPU. Latches data by rising edge of clock.
14	XLT	I	Input of Latch from CPU. Latches 8-bit shift register data (serial data from CPU) to each register.
15	DATA	I	Input of serial data from CPU.
16	XRST	I	System reset input. Resets at "L".
17	CNIN	I	Input of tracking pulse.
18	SENS	O	Answer to address, output internal condition.
19	MUTG	I	Input of muting. When internal register A's ATTM is in "L", and MUTG is in "L" for normal condition; "H" for no sound condition.
20	CRCF	O	Output of CRC check result of sub-code Q.
21	EXCK	I	Clock input for serial output of sub-code.
22	SBSO	O	Serial output of sub-code.
23	SUBQ	O	Q output of sub-code.
24	SCOR	O	Output of sub-code sync. S0 + S1.
25	SQCK	I/O	Reading clock of sub-code Q.
26	SQEX	I	Selection input of SQCK.
27	DOTX	O	Digital out output. (When CXD1130Q or DO is OFF, output $\overline{\text{WFCK}}$.)
28	GFS	O	Output of indication for frame sync lock condition.
29	DB08	I/O	Data terminal of external RAM. DATA8 (MSB).
30	DB07	I/O	Data terminal of external RAM. DATA7.
31	DB06	I/O	Data terminal of external RAM. DATA6.
32	DB05	I/O	Data terminal of external RAM. DATA5.
33	V_{DD}	–	Power supply (+5V).
34	DB04	I/O	Data terminal of external RAM. DATA4.
35	DB03	I/O	Data terminal of external RAM. DATA3.
36	DB02	I/O	Data terminal of external RAM. DATA2.
37	DB01	I/O	Data terminal of external RAM. DATA1 (LSB).
38	RA01	O	Address output of external RAM. ADDR01 (LSB).
39	RA02	O	Address output of external RAM. ADDR02.
40	RA03	O	Address output of external RAM. ADDR03.
41	RA04	O	Address output of external RAM. ADDR04.
42	RA05	O	Address output of external RAM. ADDR05.
43	RA06	O	Address output of external RAM. ADDR06.
44	RA07	O	Address output of external RAM. ADDR07.
45	RA08	O	Address output of external RAM. ADDR08.

Terminal No.	Terminal Symbol	I/O	Terminal Function
46	RA09	O	Address output of external RAM. ADDR09.
47	RA10	O	Address output of external RAM. ADDR10.
48	RA11	O	Address output of external RAM. ADDR11.
49	RAWE	O	Write enable signal output for external RAM. (Active at "L".)
50	RACS	O	Chip select signal output for external RAM. (Active at "L".)
51	C4M	O	Dividing output of X'tal. f = 4.2336 MHz.
52	V_{SS}	—	GND (0V).
53	XTAI	I	X'tal oscillation circuit input. By selecting of mode, f = 8.4672 MHz or 16.9344 MHz.
54	XTAO	O	X'tal oscillation circuit output. By selecting of mode, f = 8.4672 MHz or 16.9344 MHz.
55	MD1	I	Mode selection input 1.
56	MD2	I	Mode selection input 2.
57	MD3	I	Mode selection input 3.
58	SLOB	I	Code switching input for audio data output. At "L" for 2's compliment output; at "H" for offset binary output.
59	PSSL	I	Mode switching input for audio data output. At "L" for serial output; at "H" for parallel output.
60	APTR	O	Control output for aperture compensation. In "H" for R-ch.
61	APTL	O	Control output for aperture compensation. In "H" for L-ch.
62	DA01	O	At PSSL = "H" for DA01 (LSB of parallel voice data) output. At PSSL = "L" for C1F1 output.
63	DA02	O	At PSSL = "H" for DA02 output; PSSL = "L" for C1F2 output.
64	DA03	O	At PSSL = "H" for DA03 output; PSSL = "L" for C2F1 output.
65	DA04	O	At PSSL = "H" for DA04 output; PSSL = "L" for C2F2 output.
66	DA05	O	At PSSL = "H" for DA05 output; PSSL = "L" for C2FL output.
67	DA06	O	At PSSL = "H" for DA06 output; PSSL = "L" for C2PO output.
68	DA07	O	At PSSL = "H" for DA07 output; PSSL = "L" for RFCK output.
69	DA08	O	At PSSL = "H" for DA08 output; PSSL = "L" for WFCK output.
70	DA09	O	At PSSL = "H" for DA09 output; PSSL = "L" for PLCK output.
71	DA10	O	At PSSL = "H" for DA10 output; PSSL = "L" for UGFS output.
72	DA11	O	At PSSL = "H" for DA11 output; PSSL = "L" for GTOP output.
73	V_{DD}	—	Power supply (+5V).
74	DA12	O	At PSSL = "H" for DA12 output; PSSL = "L" for RAOV output.
75	DA13	O	At PSSL = "H" for DA13 output; PSSL = "L" for C4LR output.
76	DA14	O	At PSSL = "H" for DA14 output; PSSL = "L" for $\overline{\text{C21O}}$ output.
77	DA15	O	At PSSL = "H" for DA15 output; PSSL = "L" for C21O output.
78	DA16	O	At PSSL = "H" for DA16 (MSB of parallel voice data) output. At PSSL = "L" for DATA output.
79	WDCK	O	Strobe signal output. At DF ON, 176.4 kHz. At CXD1125Q or DF OFF, 88.2 kHz.
80	LRCK	O	Strobe signal output. At DF ON, 88.2 kHz. At CXD1125Q or DF OFF, 44.1 kHz.

Note:

C1F1: ┐ Monitor output for error correction state what C1 is at
C1F2: ┘ decode.

C2F1: ┐ Monitor output for error correction state what C2 is at
C2F2: ┘ decode.

C2FL: Correction state output. Becomes "H" when C2 system in which presently under correction is unable to correct.

C2PO: C2 pointer indication output. Synchronizes with audio data output.

RFCK: Read frame clock output. 7.35 kHz of X'tal system.

WFCK: Write frame clock output. 7.35 kHz when locked on to X'tal system.

$\overline{\text{PLCK}}$: VCO/2 output. When locked to EFM signal, f = 4.3218 MHz.

UGFS: Output of unprotected frame sync pattern.

GTOP: Indication output of frame synchro in protected condition.

RAOV: Overflow and underflow indication outputs of ±4 frame jitter absorbing RAM.

C4LR: Strobe signal. At DF ON, 352.8 kHz. At CXD1125Q or DF OFF, 176.4 kHz.

$\overline{\text{C21O}}$: Reverse output of C210.

C21O: Bit clock output. At DF ON, 4.2336 MHz. At CXD1125Q or DF OFF, 2.1168 MHz.

DATA: Serial data output of audio signal.

PARTS LIST OF P.W. BOARD

SERVO & SIG. PRO. UNIT (2U-1752B/1818A)

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTOR GROUP			
IC100	2620842002	CXA-1081S	
IC102	2621008007	CXA-1182S	
IC103	2630565007	BA15218	
IC201	2630423000	M51953B	
IC202	2620739005	TC74HCU04P	
IC250	2621111004	M50957-134SP	
IC300	2621128000	SM5813APA	
IC301,302	2621014004	HG61H04B22P	
IC303,304	2620672007	PCM54HP	
IC305~308	2630568004	TC74HC4066	
IC311,312	2620864006	uPC4570C	
IC313,314	2630594007	NJM2068DAC	
IC321	2630198005	NJM4556D	
IC322	2630565007	BA15218	
IC401	2630565007	BA15218	
IC500	2630553006	NJM7805FA	
IC501	2630501003	NJM79M05FA	
IC502,503	2680073905	ICP-N15T	
TR101	2720025004	2SB562(C)	
TR103	2740136009	2SD1913	
TR104	2720093007	2SB1274	
TR105,107 109,111	2740036002	2SD468(C)	
TR106,108, 110,112	2720025004	2SB562(C)	
TR301	2740036002	2SD468(C)	
TR302	2720025004	2SB562(C)	
TR311~ 314 321,322	2740124901	2SD1504(E/F)	
TR315	2690026900	RN2202(10k-10k)	
TR316	2690025901	RN1202(10k-10k)	
TR319	2710101022	2SA933(Q)	
TR500	2710101022	2SA933(Q)	
D305	2760049011	1S2076A	
D501~506	2760519907	1SR35-200AT82	
D507	2760501928	HZ33L-3TD	
D508	2760051070	HZ7C-2TE	
RESISTOR GROUP			
R105	2452148000	RN14K2E360G	36Ω 1/4W
R106	2452153008	RN14K2E560G	56Ω 1/4W
VR101,102	2116056072	V06PB203	20kΩ
VR103	2116048022	V06PB103	10kΩ
VR104	2116056072	V06PB203	20kΩ
VR105	2116064064	V06PB102	1kΩ
VR301,302	2116056027	V06PB104	100kΩ
VR303	2110568003	V1620V20FB103M	10kΩ

Ref. No.	Part No.	Part Name	Remarks
CAPACITOR GROUP			
C103	2533614000	CC45SL1H300J	30pF 50V
C111,117, 146	2531024003	CK45F1H103Z	0.01μF 50V
C120	2531055014	CK45B1H561K	560pF 50V
C129,144, 194	2539036006	CK45=1E104ZT	0.1μF 25V
C130,147	2531180028	CK45B1H102KT	0.001μF 50V
C136,143	2533627000	CC45SL1H101J	100pF 50V
C105,106, 140	2533603008	CC45SL1H100DT	10pF 50V
C148	2533639001	CC45SL1H331J	330pF 50V
C191	2533643000	CC45SL1H471J	470pF 50V
C203	2539036006	CK45=1E104ZT	0.1μF 25V
C210,211	2534342041	CC45SL1H050CT	5pF 50V
C213	2539036006	CK45=1E104ZT	0.1μF 25V
C214	2531180028	CK45B1H102KT	0.001μF 50V
C215	2531024003	CK45F1H103Z	0.01μF 50V
C301,350, 352, 360~365	2539036006	CK45=1E104ZT	0.1μF 25V
C302	2533603008	CC45SL1H100DT	10pF 50V
C303,304, 341,366	2531024003	CK45F1H103Z	0.01μF 50V
C310	2533617007	CC45SL1H390J	39pF 50V
C325,326	2533634006	CC45SL1H201J	200pF 50V
C331,332	2533627000	CC45SL1H101J	100pF 50V
C515~518	2531024003	CK45F1H103Z	0.01μF 50V
C101,150, 151	2544260061	CE04W1H3R3M(SME)	3.3μF 50V
C104	2544254048	CE04W1C101M(SME)	100μF 16V
C115	2544260032	CE04W1HR47M(SME)	0.47μF 50V
C126	2544304930	CE04W1V6R8MT(SME)	6.8μF 35V
C131	2544260045	CE04W1H010M(SME)	1μF 50V
C132	2544254019	CE04W1C220M(SME)	22μF 16V
C138	2544260029	CE04W1HR33M(SME)	0.33μF 50V
C141	2543055905	CE04D1V4R7MBP(SME)	4.7μF 35V
C190	2544254022	CE04W1C330M(SME)	33μF 16V
C305	2544260045	CE04W1H010M(SME)	1μF 50V
C315~318	2544254064	CE04W1C331MT(SME)	330μF 16V
C335,336	2544261021	CE04W1H101MT(SME)	100μF 50V
C335,336, 343,344	2544261028	CE04W1H101M(SME)	100μF 50V
C342	2544256059	CE04W1E221M(SME)	220μF 25V
C353	2544254792	CE04W1C222MC(SME)	2200μF 16V
C354	2544254064	CE04W1C331M(SME)	330μF 16V
C504,505	2544254064	CE04W1C331M(SME)	330μF 16V
C506,507	2544254792	CE04W1C222MC(SME)	2200μF 50V
C512	2544261028	CE04W1H101M(SME)	100μF 50V
C514	2544262946	CE04W1J470M(SME)	47μF 63V
C102	2551120055	CQ93M1H272J	0.0027μF 50V
C113,121	2551120068	CQ93M1H332J	0.0033μF 50V
C114,116, 122,128	2551121025	CQ93M1H103J	0.01μF 50V
C123	2551120042	CQ93M1H222J	0.0022μF 50V

Ref. No.	Part No.	Part Name	Remarks
C134	2551121025	CQ93M1H103J	0.01μF 50V
C137	2551120000	CQ93M1H102J	0.001μF 50V
C139	2551120097	CQ93M1H562J	0.0056μF 50V
C327,328	2551120000	CQ93M1H102J	0.001μF 50V
C329,330	2551121025	CQ93M1H103J	0.01μF 50V
C110,125	2561034018	CF93A1H333J	0.033μF 50V
C124	2561034063	CF93A1H823J	0.082μF 50V
C127,145	2561035017	CF93A1H224J	0.22μF 50V
C135,142	2561034076	CF93A1H104J	0.1μF 50V
C340	2561034018	CF93A1H333J	0.033μF 50V
OTHER PARTS GROUP			
	2318063009	PULSE TRANSFORMER	
	2048256005	1P PIN JACK	
	2690084007	GP1F3IT	
	2048109013	HEADPHONE JACK	
	2048261003	4P PIN JACK	
X300	3990036013	CRYSTAL (16.9344MHz)	
L201,202	2350049007	BEAD INDUCTOR	
CB101	2050343087	8P CONN. BASE (KR-PH)	
CB102	2050321041	4P CONN. BASE (RED)	
CB103	2050343045	4P CONN. BASE (KR-PH)	
CB104	2050323036	3P CONNE. BASE (BLACK)	
CB105,202	2050343032	3P CONN. BASE (KR-PH)	
CB106	2050406034	3P CONN. BASE (KR-PH)	
CB201	2050321038	3P CONN. BASE (RED)	
CB501	2050343061	6P CONN. BASE (KR-PH)	
TP102,103	2050190065	6P NH CONN. BASE	
	2050343003	10P CONN. BASE (KR-PH)	
	2050491010	31P FFC CONN. BASE	
	2042329006	10P SAN-PH CONN. CORD	
KU-5862 DIGITAL SIG. PRO. UNIT			
IC1	2620736008	CXD1125	
IC2	2620673006	HM6116FP/LFP-4/3/2	
C3	2539036006	CK45=1E104Z	
C4	2544254051	CE04W1C221M(SME)	

DISPLAY UNIT (2U-1753)

Ref. No.	Part No.	Part Name	Remarks
D201~208	2760049011	1S2076A	
	2124699900	TACT SWITCH	
	3934061109	FIP9BNM7A	(FL TUBE)
	4990088002	QH3031HO	
	2050491010	31P FFC CONN. BASE	

POWER SUPPLY UNIT

2U-1754B (U.S.A./Canada)

Ref. No.	Part No.	Part Name	Remarks
⚠	2040223007	6P SAN-PH CORD	
⚠	2538014003	CK45F2GAC103M	0.01μF 400V
⚠	2124697009	POWER SWITCH	

2U-1754C (Europe)

Ref. No.	Part No.	Part Name	Remarks
⚠	2040223007	6P SAN-PM CORD	
⚠	2538014003	CK45F2GAC103M	0.01μF 400V
	4150299000	CONDENSER COVER	
⚠	2124697009	POWER SWITCH	

2U-1754D (Asia)

Ref. No.	Part No.	Part Name	Remarks
⚠	2040223007	6P SAN-PH CORD	
⚠	2538014003	CK45F2GAC103M	0.01μF 400V
	4150299000	CONDENSER COVER	
⚠	2124697009	POWER SWITCH	
⚠	2124698008	VOLTAGE SELECTOR(D)	

2U-1754E/F (Australia/U.K.)

Ref. No.	Part No.	Part Name	Remarks
⚠	2040223007	6P SAN-PH CORD	
⚠	2538014003	CK45F2GAC103M	0.01μF 400V
	4150299000	CONDENSER COVER	
⚠	2124697009	POWER SWITCH	

WARNING:
Parts marked with ⚠ and/or shading have special characteristics important to safety.
Be sure to use the specified parts for replacement.

PARTS LIST OF EXPLODED VIEW

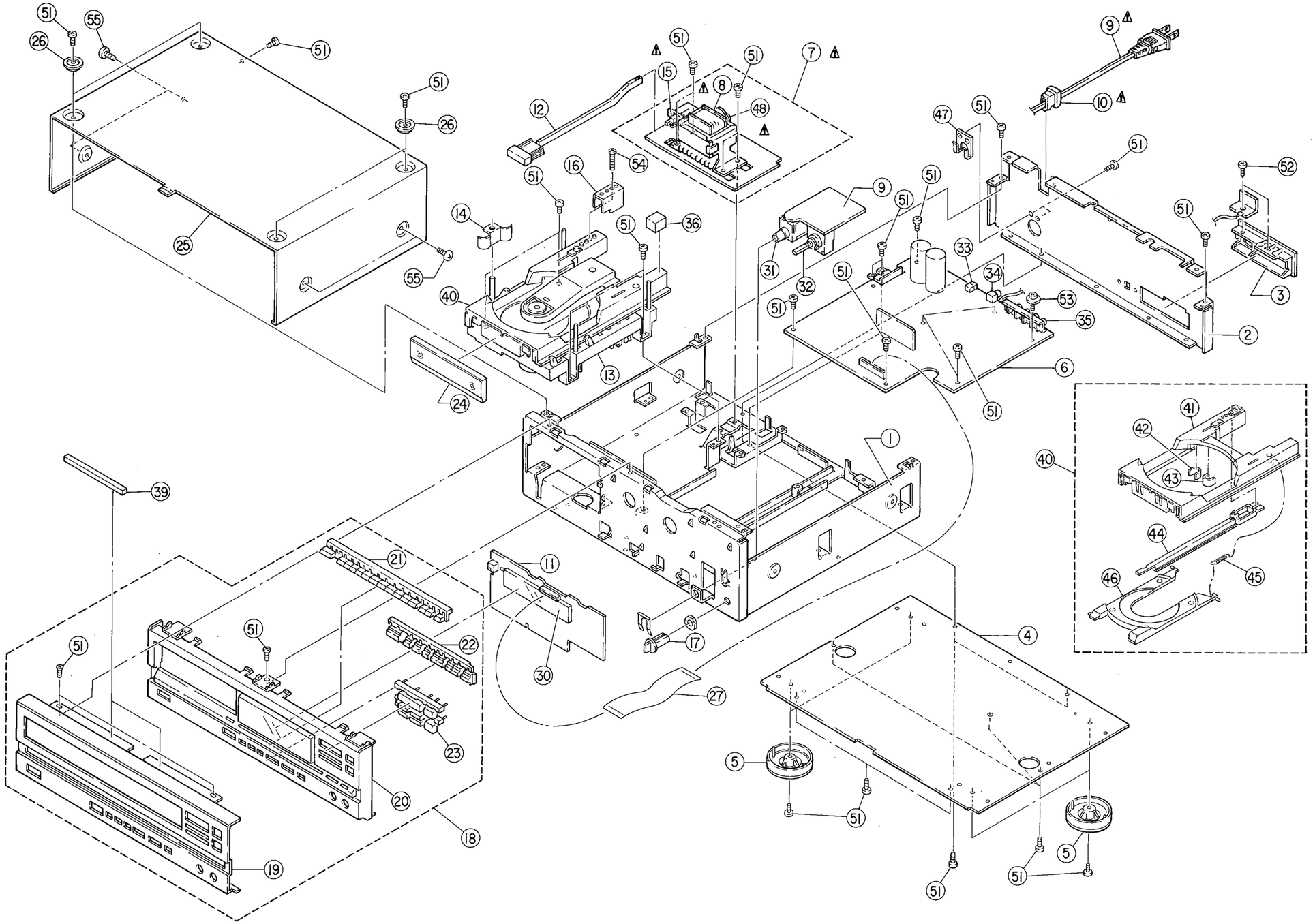
Ref. No.	Part No.	Part Name	Remarks
1	4110830205	CHASSIS	
2	1050813107	BACK PANEL	Europe,U.K. Australia
2	1050813123	BACKPANEL	U.S.A.
2	1050813136	BACKPANEL	Canada
2	1050813149	BACKPANEL	Asia
3	1031192106	PIN JACK HOLDER	
4	1050814300	BOTTOM COVER	
5	1040191004	FOOT Ass'y	
6	2U-1752B	SERVO & SIG UNIT	Europe,Asia, Australia,u.k.
6	2U-1818A	SERVO & SIG UNIT	U.S.A.,Canada
⚠ 7	2U-1754B	POWER SUPPLY UNIT	U.S.A.,Canada
⚠ 7	2U-1754C	POWER SUPPLY UNIT	Europe
⚠ 7	2U-1754D	POWER SUPPLY UNIT	Asia
⚠ 7	2U-1754E	POWER SUPPLY UNIT	Australia
⚠ 7	2U-1754F	POWER SUPPLY UNIT	U.K.
⚠ 8	2335740004	POWER TRANS	Europe,U.K., Australia
8	2335741003	POWER TRANS	U.S.A.,Canada
8	2335742002	POWER TRANS	Asia
⚠ 9	2062002031	AC CORD	Europe
9	2062025005	AC CORD	Australia
9	2062061001	AC CORD	U.S.A.,Canada
9	2062024006	AC CORD	U.K.
9	2006031026	AC CORD	Asia
10	4450056008	CORD BUSH	
11	2U-1753	DISPLAY UNIT	
12	1131067209	P. SW. LEVER Ass'y	
13	FG402	CD MECHA UNIT	
14	4630584002	SPRING PLATE	
15	2124697009	POWER SWITCH	
16	GEN0199	STOPPER P. SUB Ass'y	
17	1120572103	VR. KNOB	
18	GEN0380	FRONT PANEL SUB Ass'y	Europe,Asia Australia,U.K.
18	GEN0381	FRONT PANEL SUB Ass'y	U.S.A.,Canada
19	1441811213	FRONT PANEL	
20	1461013402	SUB PANEL Ass'y	Europe,Asia Australia,U.K.
20	1461013415	SUB PANEL Ass'y	U.S.A.,Canada
21	1131157106	TENKEY KNOB	

Ref. No.	Part No.	Part Name	Remarks
22	1131070102	KNOB SERIES	
23	1131071305	FUNCTION KNOB Ass'y	
24	1460961005	LOADER PANEL	
25	1020371103	TOP COVER	
26	1460772003	TOP COVER WASHER	
27	0090011009	31P FFC	
30	3930061109	FIP9BNM7A	
31	2048109013	HEADPHONE JACK	
32	2110568003	V1620V20FB103M	
33	2690084007	GP1F3IT	
34	2048256005	1P PIN JACK	
35	2048261003	4P PIN JACK	
36	4610346082	SPACER RUBBER	
37	—	—	
38	—	—	
39	1290131018	ANTI-NOISE RUBBER	
40	GEN0198	LOADER FRAME SUB Ass'y	
41	4310264503	LOADER FRAME	
42	1220165009	HIMERON SHEET	
43	1220110070	HIMERON SHEET	
44	4350110303	RACK	
45	4630574009	DISC TRAY SPRING	
46	4310284004	DISC TRAY Ass'y	
47	4122744004	V.HOLDER	Asia only
⚠ 48	2124698008	VOLTAGE SELECTOR (D)	Asia only
51	4737002021	3×8 CBTS(S)-B	
52	4737508017	3×10 CBTS(P)-B	
53	4718010100	SPECIAL SCREW	
54	4733808009	3×25 CBTS(1)	
55	4737018002	4×8 CTTS(S)-B	
★	5130985003	INST. LABEL	
★	5131220000	CAUTION LABEL	
★	5131484008	E2 RATING SHEET	Europe
★	5158030008	PRESET LABEL	Asia
★	5150359004	CAUTION SHEET	Asia
★	5131491004	RATING SHEET	Asia
★	5131494001	RATING SHEET	Australia,U.K.
★	5131485007	RATING SHEET	U.S.A.,Canada
★	5130209019	NOTICE SHEET	Australia
★	5138266009	DANGEROUS MARK	U.S.A.,Canada
★	5131381004	MANUFAC DATE LABEL	U.S.A.,Canada

NOTE FOR PARTS LIST

- Part indicated with the mark "◉" are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film ±5%, 1/6W, 1/4W Type in the P.W. Board parts list.
- ⚠ Means important safety item, which must be replaced when necessary, by a part specified or meeting the specification by the manufacturer.

EXPLODED VIEW



PARTS LIST OF PACKING & ACCESSORIES

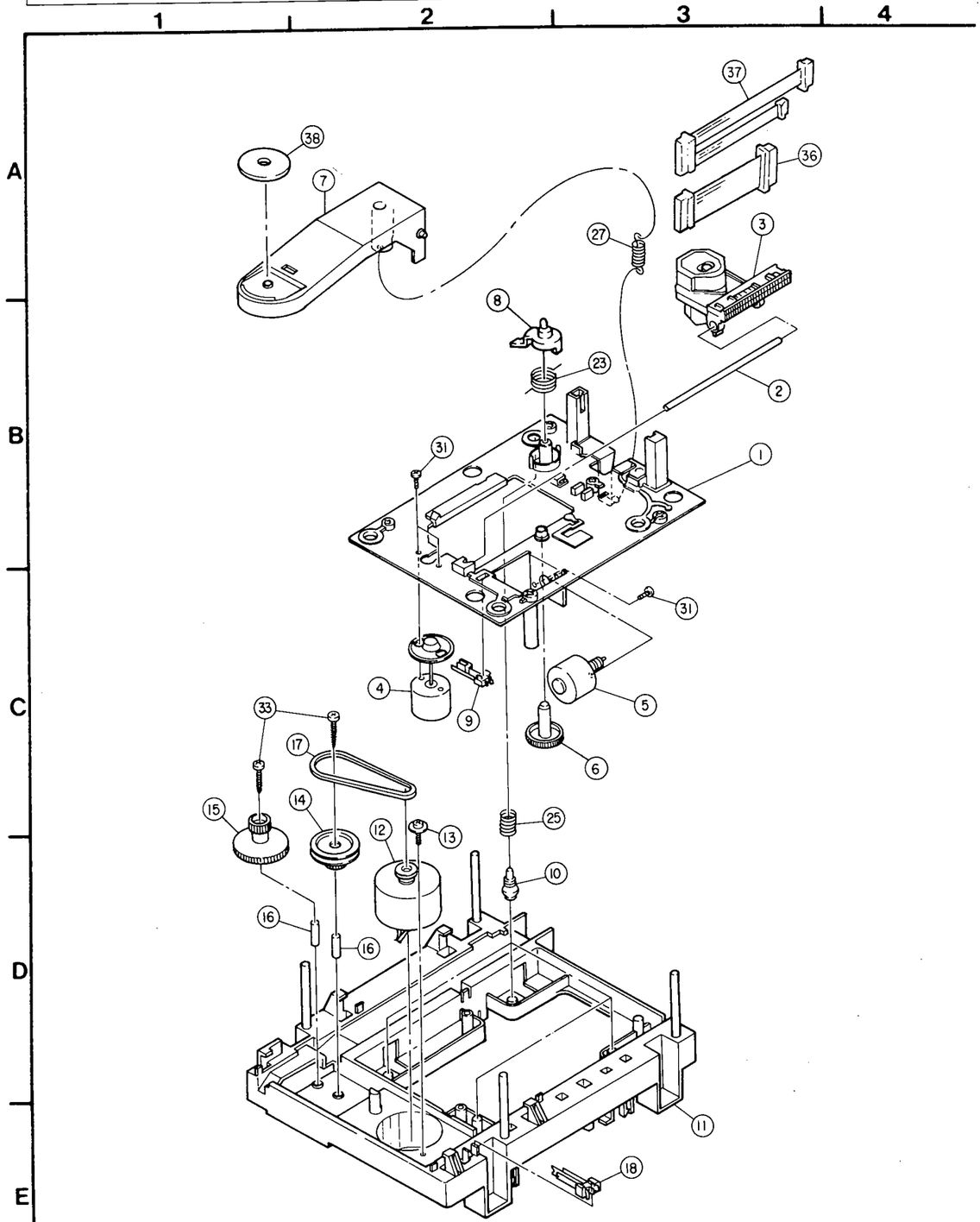
Ref. No.	Part No.	Part Name	Remarks
	5011322015	CARTON CASE	
	5030757108	CUSHION Ass'y	
	5050102092	STYLEN PAPER	
	5040092060	STYLEN PAPER	
	5050061007	ENVELOPE	
	5111798002	INST.MANUAL(E2)	Europe,U.K., Asia,,Australia, Canada
	5111802008	SWEDISH INST. MANUAL	Europe,Asia, Canada
	5111799001	INST.MANUAL(EU)	U.S.A. only
	2032223002	2P PIN CORD	
	4990122007	RC-217	
	5131338002	CONTROL CARD BASE	
	5131349004	THERMAL CARBON FILM	
⚠	2033667007	PLUG ADAPTER	Asia only
	5150388004	DCI WARRANTY	Canada only
	5150418107	DAI WARRANTY HOME	U.S.A. only
	5150439005	SAFETY INSTRUCTION	U.S.A. only

WARNING:
Parts marked with ⚠ and/or shading have special characteristics important to safety.
Be sure to use the specified parts for replacement.

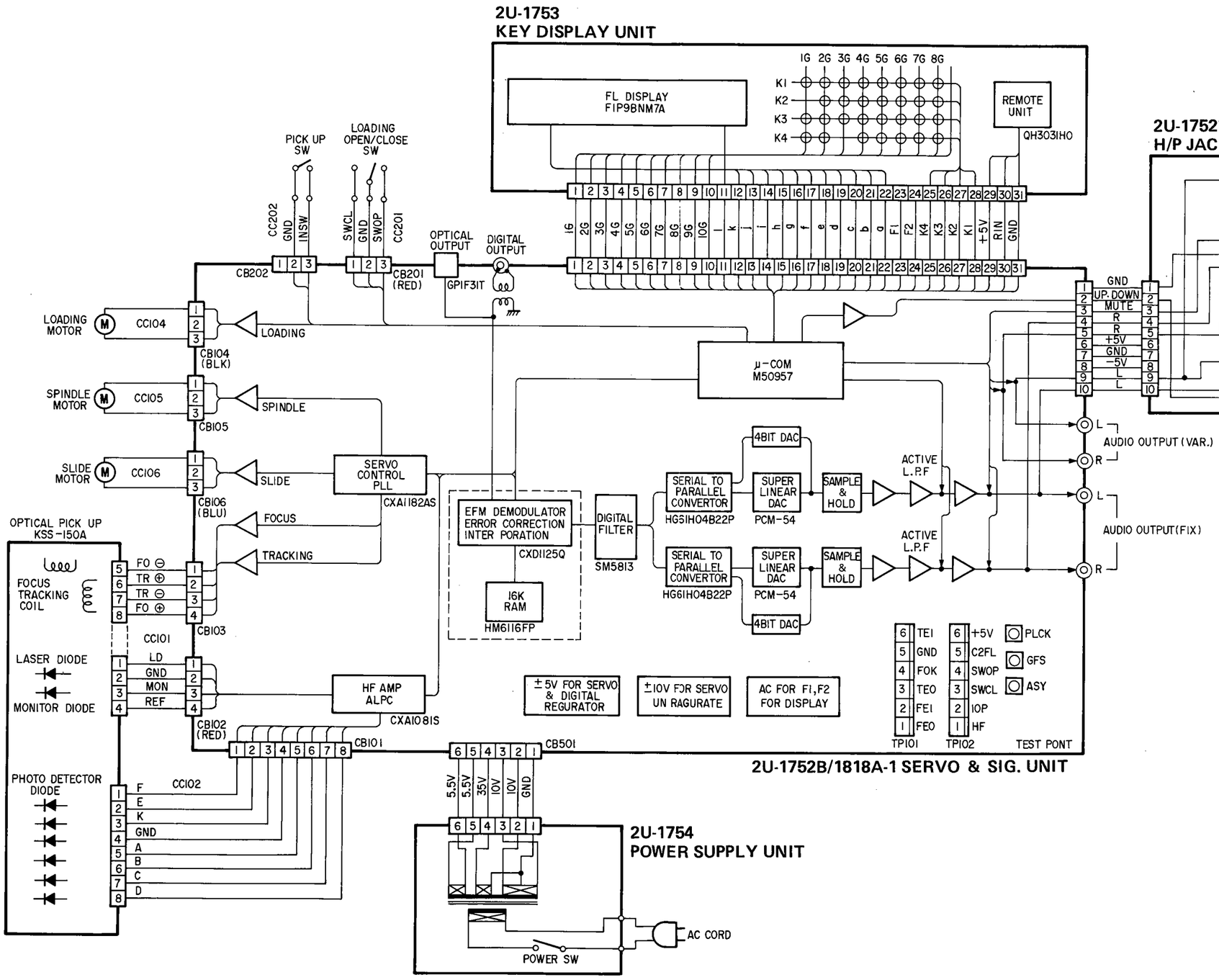
EXPLODED VIEW OF FG-402 MECHANISM UNIT

Ref. No.	Part No.	Part Name	Remarks
1	4110783501	PU MECHA.BASE	
2	4310262000	PU SLIDE SHAFT	
3	4990100003	LASER PU(KSS-150A)	
4	PS02A08	SPINDLE M.SUB Ass'y	
5	PS02A09	SLIDE M.SUB Ass'y	
6	4240127008	HELICAL GEAR	
7	4330505200	CLAMP ARM Ass'y	
8	4240129200	CLAMP CAM	
9	2124696000	LEAF SW(PU)	
10	4620078104	DAMPER	
11	4110789408	MECHA. BASE	
12	PLD1A49	LOADING M. SUB Ass'y	
13	4770262006	SPECIAL SCREW	
14	4240130008	PULLEY GEAR	
15	4240131007	GEAR	
16	4430799000	COLLAR	
17	4230050004	BELT	
18	2124613009	LEAF SW(O/C)	
19	–	–	
20	–	–	
21	–	–	
22	–	–	
23	4630585001	C.L.C. SPRING	
24	–	–	
25	4630583100	SPRING(F)	
26	–	–	
27	4630573000	CLAMPER SPRING	
28	–	–	
29	–	–	
30	–	–	
31	4713801039	2×3 CBS-Z	
32	–	–	
33	4733808009	3×25 CBTS(1)	
34	–	–	
35	–	–	
36	2042159069	8P PH CONNE WIRE	
37	2042282004	8P-4P,4P PH CORD	
38	4610448003	DAMP SHEET	

PARTS LIST OF FG-402 MECHANISM UNIT

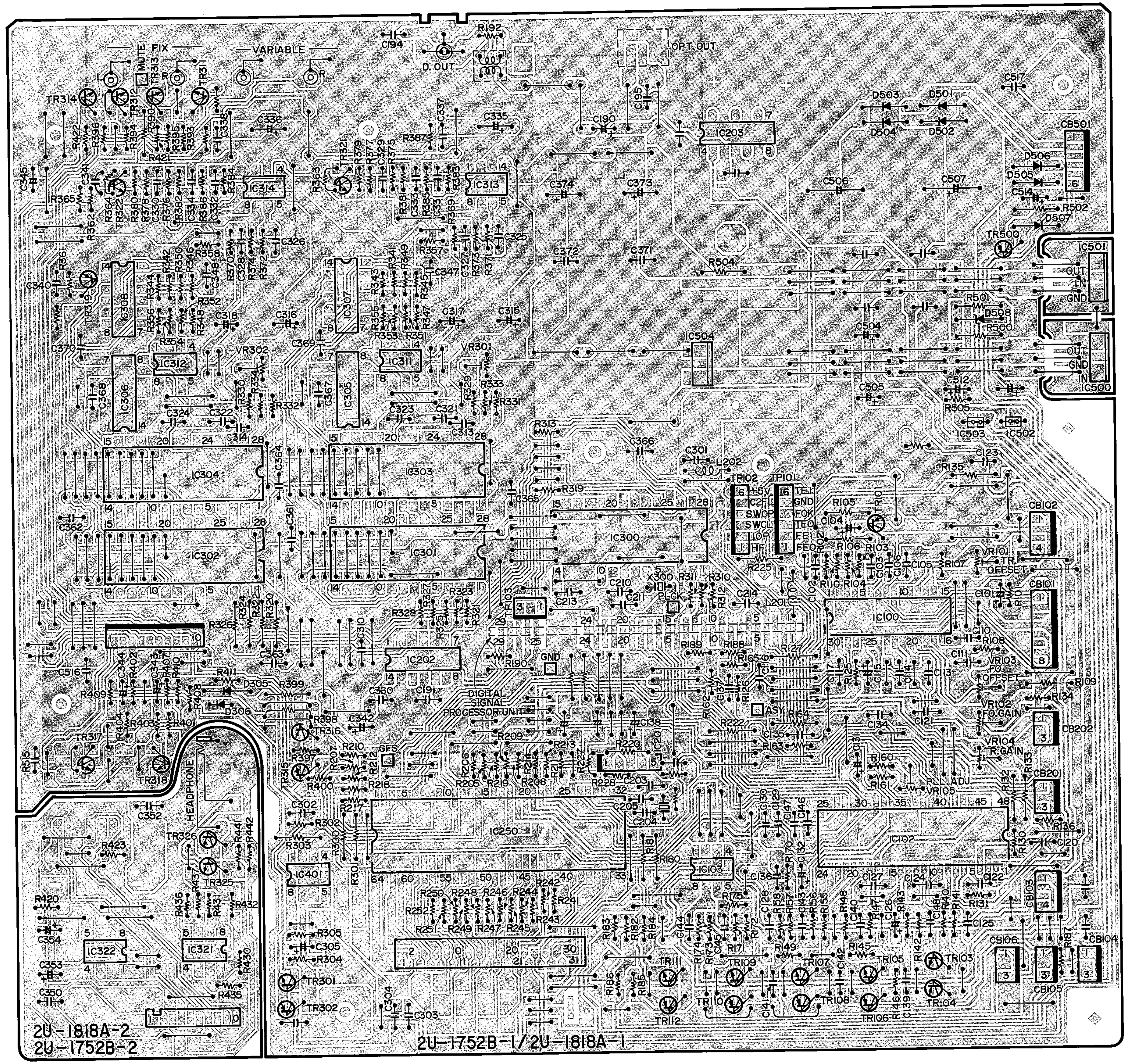


WIRING DIAGRAM

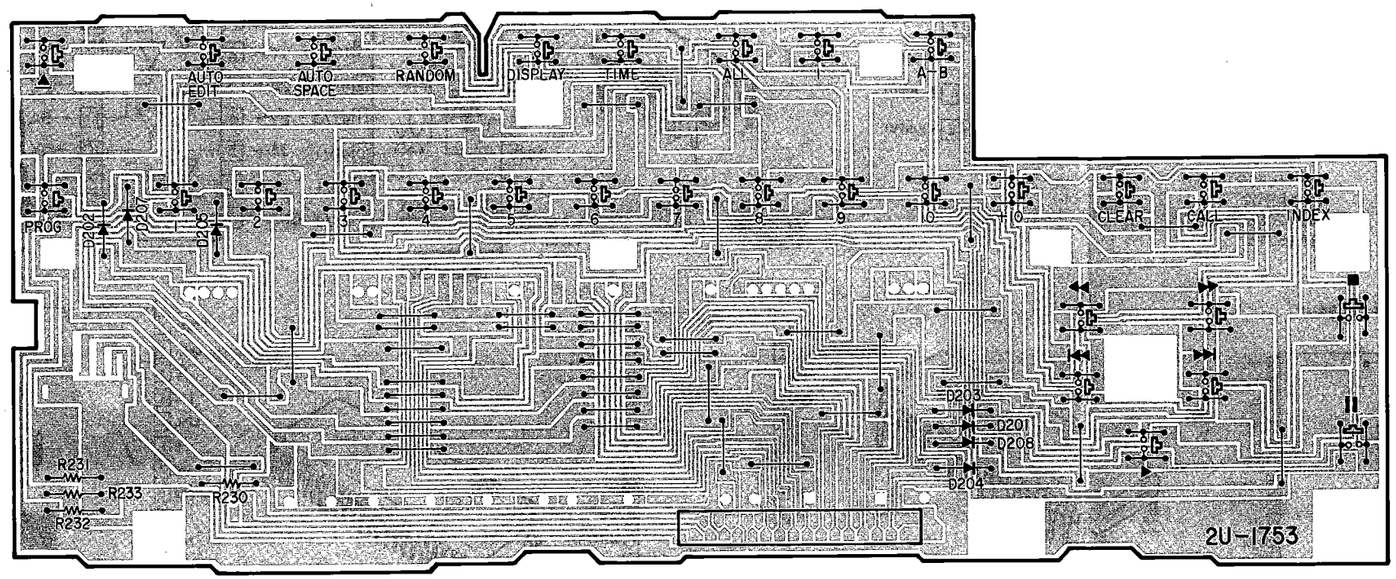


P.W. BOARD

2U-1752B/1818A SERVO & SIGNAL UNIT

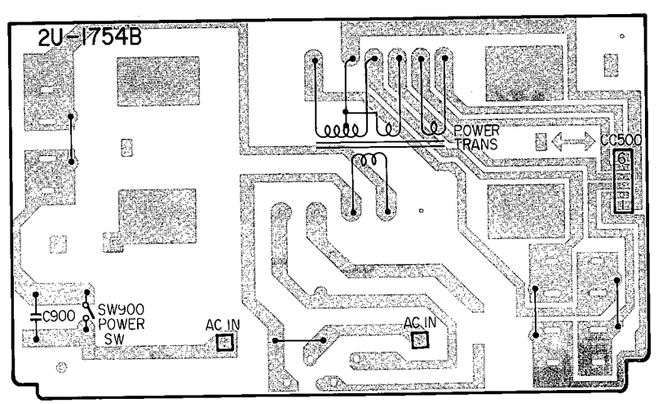


2U-1753 DISPLAY UNIT

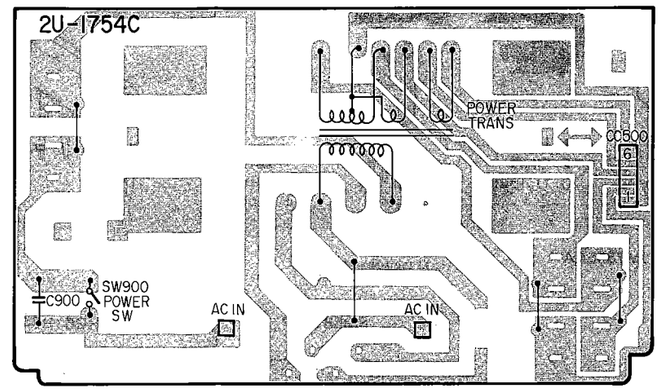


POWER SUPPLY UNIT

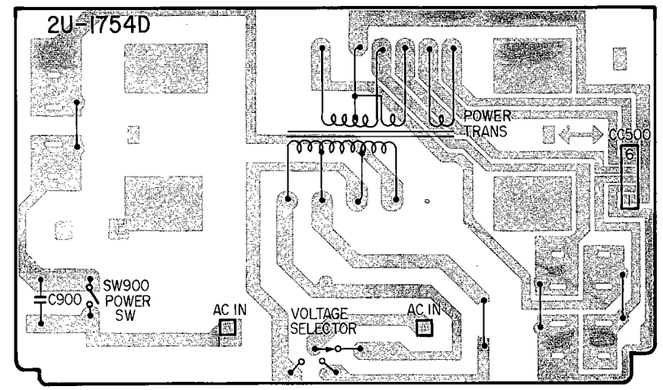
2U-1754B (U.S.A./Canada)



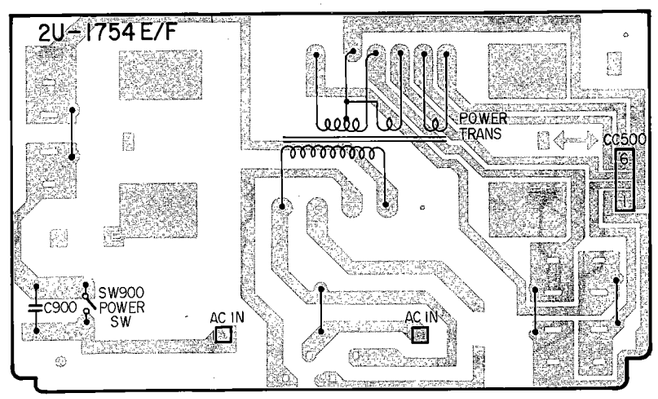
2U-1754C (Europe)



2U-1754D (Asia)

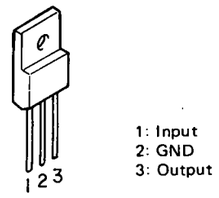


2U-1754E/F (Australia/U.K.)



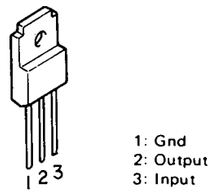
SEMICONDUCTORS

●IC



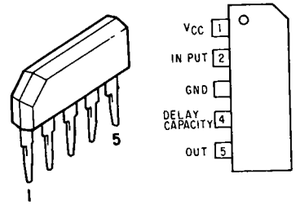
1: Input
2: GND
3: Output

NJM7805FA

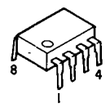


1: Gnd
2: Output
3: Input

NJM79M05FA



M51953B



NJM4556D
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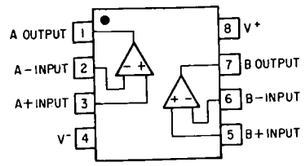
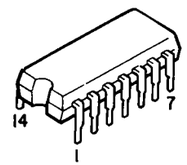
NJM2068DAC
BA15218



TC74HC4066



TC74HC4066
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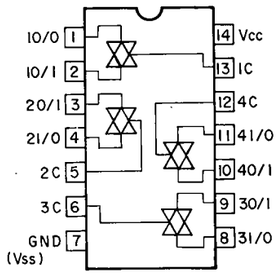
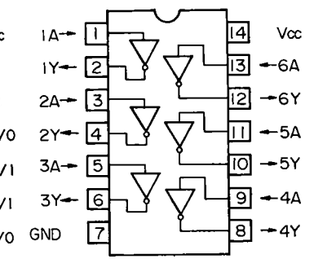


(TOP VIEW)

HD74HC04P



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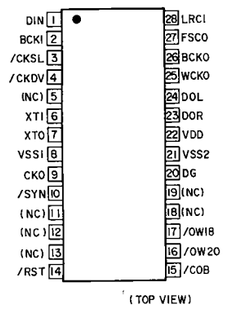
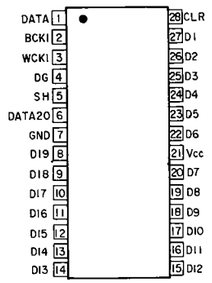


(TOP VIEW)

HG61H04B22P



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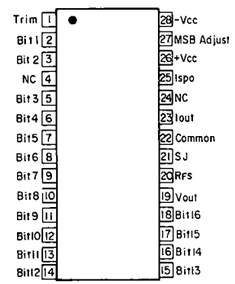

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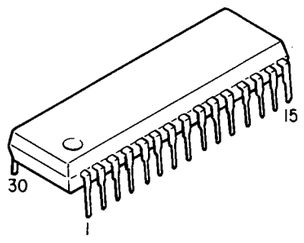
PCM-54HP



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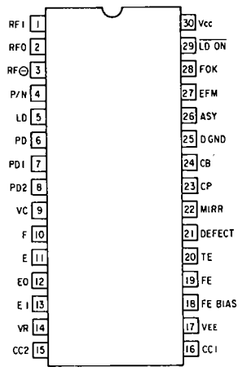

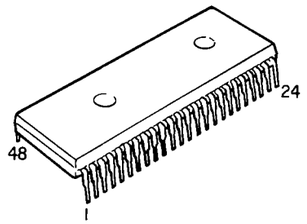

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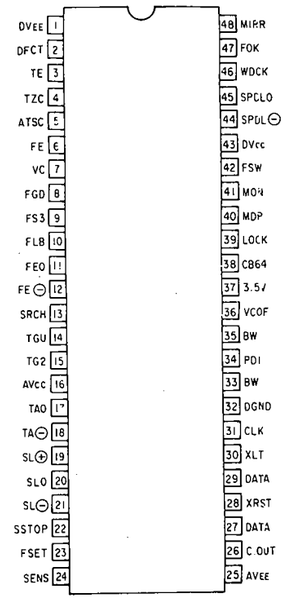

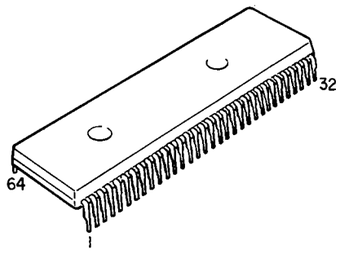

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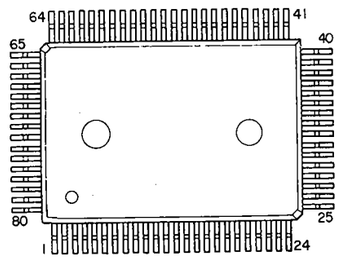
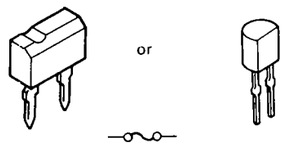


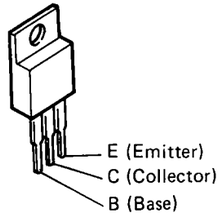
CXD1125

●ICプロテクター



ICP-F15

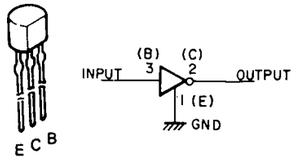
●トランジスター



2SB1274
2SD1913

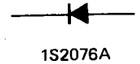
2SA933(Q)
2SD1504(E/F)

2SB562
2SD468(C)



RN1202(10K-10K)NPN
RN2202(10K-10K)PNP

●ダイオード



1S2076A
1S2076
1SR35-200

HZ7C-2
HZ33L-3

SCHEMATIC DIAGRAM

KU-5862 DIGITAL SIG.PRO UNIT

2U-1752B/1818A SERVO SIG. PRO UNIT

2U-1753 DISPLAY UNIT

2U-1752B-2/1818A-2 H/P JACK UNIT

2U-1754B POWER SUPPLY UNIT

U.S.A., Canada Models

Europe Models

Austraria, U.K. Models

Asia Models

2U-1754C

2U-1754E/F

2U-1754D

SIGNAL LINE

+B LINE

-B LINE

NOTES
ALL RESISTANCE VALUES IN OHM k = 1,000 OHM M = 1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD P = MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

CAUTION:
Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 240 k ohms, the unit is defective.

WARNING:
DO NOT return the unit to the customer until the problem is located and corrected.