79

DENON

Hi-Fi Component

SERVICE MANUAL

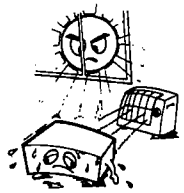
MODEL DCM-520

STEREO CD PLAYER

— TABLE OF CONTENTS —

NIPPON COLUMBIA CO., LTD.

NOTE ON USE

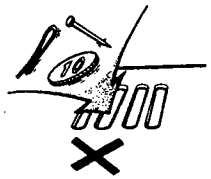


Be careful of high temperatures

- Do not place the set in a location where it will be exposed to direct sunlight or near a heating appliance.

Caution on rack/cabinet installation

- Avoid installing the set in a closed-type rack.
- When installing in a rack or cabinet, provide a sufficiently large ventilation opening to promote heat radiation.

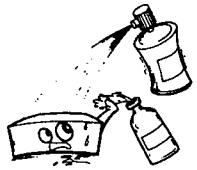


Do not allow foreign matter into the equipment

- Be especially careful of needles, hair pins, and coins getting into the set.

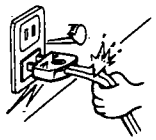
Caution on humidity, water, and dust

- Do not place the set in a location where there is high humidity or a lot of dust.
  Flower vases or other items containing water should not be placed on top of the set.



Care of the case

- Avoid the use of pesticides near the set as well as wiping the case with benzine, thinner or other solvents since they may cause a change in quality or color. Use a soft cloth when wiping away dirt and follow the instructions carefully when using chemically treated cloths.

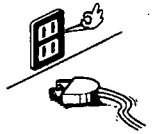


Care with the power cord

- When removing the plug from the receptacle, do not pull the power cord; be sure to hold the plug when removing it.

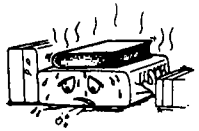
Do not open the case

- Opening the top cover or the bottom plate of the case and inserting your hand is dangerous. Do not open the case.
  If some trouble arises with the performance of the set, remove the power plug soon and contact the store where the set was purchased or a nearby dealer.



During your absence

- When not using the set for an extended period such as when taking a trip, be sure to disconnect the plug from the receptacle.



For sets with ventilation holes

Do not block the ventilation holes of the set

- Blocking of the ventilation holes will lead to damage of the set.
- The ventilation holes are very important for heat radiation from within the set. Care must be taken since placing an object against the holes will result in an extreme rise of temperature within the set.

Thank you for purchasing the DENON compact disc player. Read the Operating Instructions thoroughly, and operate this player properly.

– TABLE OF CONTENTS –

In addition to the CD Player unit, please check to make sure the following items are included in the packing box.

(1) Operating Instructions 1
(2) Warranty Card 1
(3) Connection Cords 1
(4) Remote Control Unit RC-239 1
(5) R6P (AA size) Dry batteries 2

FEATURES

The DCM-520 is a 5 discs carousel type CD changer which includes DENON's unique ΛS.L.C. (Super Linear Converter) which eliminates sound quality deterioration in the PCM audio system in order to reproduce the exact sound captured in the studio or at the live performance recorded on the compact disc, in addition to components rigorously selected for their high performance and excellent audio quality to recapture the original sound in full.

(1) Real 20-bit ΛS.L.C. (Super Linear Converter)
The use of DENON's unique system for preventing zero cross distortion, the main factor in loss of sound quality in the PCM playback section, plus real 20-bit D/A converters with superior resolution, offers reproduction of the original sound field with rich musical expression.

(2) High Performance Digital Filter
8 times oversampling with noise shaping high precision digital filter has been adopted for the DCM-520. This helps the unit achieve outstanding linear phase characteristics.

(3) Newly developed carousel-type changer mechanism included
This mechanism can house five discs, and while one disc is playing the remaining four discs can be changed. In addition, the carousel can be rotated either clockwise or counterclockwise, so searching between discs is fast.

(4) Favorite Track File (F.T. FILE)
This function stores your favorite tracks for each of the discs. Using a deletion method, this function deletes up to 6 tracks on 1 disc, providing storage for up to 100 discs. Storage is retained even after the power is switched off.

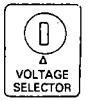
(5) Playback of 8 cm (3-inch) CDs
8 cm (3-inch) CDs can be played.

(6) Digital Output (Coaxial)
The data on the compact disc is output in digital form, so playback is possible with an external digital processor or D/A unit.

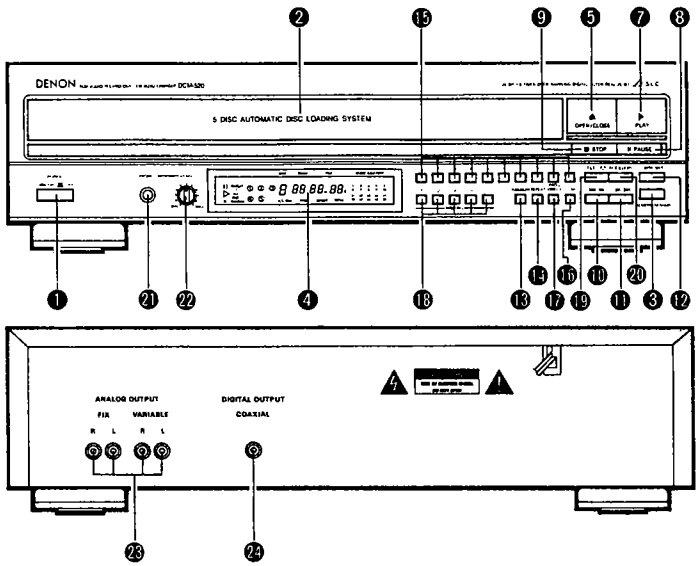
CAUTIONS DURING USE

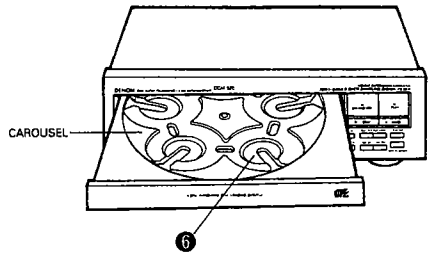
- This compact disc player is capable of playing discs which have the mark at right.
- During track selection, during search and when the player sustains a strong impact, the disc's rotational speed changes greatly, causing a small noise to be emitted. This is not a malfunction of the player.
- If the CD player is operated while an FM or AM broadcast is being received, there may be noise in the FM or AM reception. Please switch the power to the CD player off at such times.
- The DCM-520 has a broad dynamic range. Please exercise caution when turning up the volume on the amplifier in cases when the playback volume is low. If the volume is turned up too high, it could damage the speakers.
- Do not use any discs but exclusive audio discs with this CD player.
- Placing this player or its connection cords near a TV or other audio device could cause a humming sound to be emitted. If this occurs, relocate the player or reroute the connection cords.
- Be sure to remove the disc from the player before moving it. The disc could be damaged if left in the player while it is being moved.
- Do not place any object in the tray in the position where the disc is loaded, or open and close the tray with anything inside. Foreign objects in the tray could damage the play mechanism.
- Do not move the player from a cold place to a warm place suddenly. If the player is cold when brought into a warm room, condensation could form, preventing proper operation of the player. If condensation does form on the player when it is brought into a warm room, wait at least 30 minutes before use.

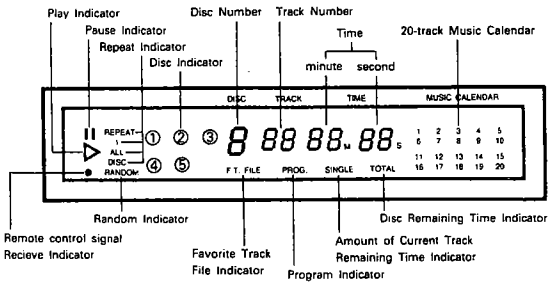
- **Line Voltage Selection (for multiple voltage model only)**
  - The desired voltage may be set with the VOLTAGE SELECTOR knob on the rear panel, using a screwdriver.
  - Do not twist the VOLTAGE SELECTOR knob with excessive force as this may cause damage.
  - If the VOLTAGE SELECTOR knob does not turn smoothly, please contact a qualified serviceman.



NAMES OF PARTS AND THEIR FUNCTIONS







❶ Power Switch (POWER)
- Press this button to switch on the power.
- When the power is turned off, the unit is set to the standby mode.
  If the power is turned off during playback or while the disc information is displayed on the time display when the drawer is closed, several seconds after the power is turned back on, the number of the disc appears on the disc number display, the total number of tracks on that disc is displayed on the track number display, and the total time is displayed on the time display, and approximately 1 second later playback starts.

❷ Loading drawer
- Discs can be loaded and unloaded when this drawer is open. Do not force the drawer closed by hand.

❸ Remote Control Receptor (REMOTE SENSOR)
- This receptor receives infrared signals from the wireless remote control unit.
- Aim the wireless remote control unit (RC-239) at this receptor window when operating it.

❹ Display Window
- The Disc No., Track No., playing time and other information are displayed in the display window.

❺ Open/Close Button (⏏ OPEN/CLOSE)
- Press this button when opening.
- The drawer is opened toward the front.
- Press the button again to close the drawer.

❻ Disc trays (1 ~ 5)
- One disc per tray can be loaded.

❼ Play Button (▶ PLAY)
- Press this button to play a disc.
  The [▶] indicator lights up when the button is pressed, the number of the disc and the track being played is displayed by the Disc Number and Track No. indicator, and the amount of elapsed time for the current track is displayed by the Time indicator.
- The [▶] indicator goes off after playing of the final track of the final disc is finished and the player stops.

❽ Pause Button (⏸ PAUSE)
- Press this button to stop play temporarily.
- Pressing the Pause button during play stops play temporarily. The [▶] indicator goes off and the [⏸] indicator lights up.
- To cancel the Pause state, press either the Play button ❼ or press the Pause button ❽ a second time.

❾ Stop Button (■ STOP)
- Press this button to stop play.

❿ Automatic/Manual 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.
- Keep on pressing this button for more than 0.5 seconds during playback for fast reverse search. As long as the button is kept pressed, music signals are played back faster than normal.
- Keep on pressing this button for more than 0.5 seconds 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.

⓫ Automatic/Manual 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.
- Keep on pressing this button for more than 0.5 seconds during playback for fast forward search. As long as the button is kept pressed, music signals are played back faster than normal.
- Keep on pressing this button for more than 0.5 seconds 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.

⓬ Disc skip Button (DISC SKIP)
- Each time this button is pressed, the carousel will rotate in a clockwise direction to the next tray position. This allows for loading or unloading of discs.
  This button is also used to select the next disc, in the normal play continuously.

⓭ Random Button (RANDOM)
- Press this button to begin random play.
- Pressing this button during stop, and press play button play to full automatic random play.
- Pressing this button during playing of a program starts random play of the tracks in the program.
  (See Page 11, item ❼.)

⓮ Repeat Button (REPEAT)
- Press this button for repeated playback. The [REPEAT] indicator appears on the display. The following three types of repeat modes are available:
- When pressed once, the [REPEAT] and [1] indicators light and the track currently playing is repeated.
- When pressed again, the [REPEAT] and [1 DISC] indicators light and all the tracks on the disc currently playing are repeated.
- When pressed again, the [REPEAT] and [ALL DISC] indicators light and all the discs currently set on the tray are repeated.
- When pressed again, the [REPEAT] and [ALL DISC] indicators turn off and the repeat mode is cancelled.
  The repeat function can also be used during programmed and random playback, but in this case only the all repeat ([ALL DISC] indicator) modes are available.
  (Refer to Page 11 item ❻.)

⓯ Track Number Buttons (1 ~ 10)
- Press these buttons when making direct track selections or when entering tracks in program memory.
  For example, when making a direct track selection, press the 3 button when desiring to play track 3. The player will then begin playing track [3]. When desiring to play track 12, press [+10], then [2]. When making a program, press the Program/Direct button ⓱ to enter the Program Mode.

⓰ +10 Button (+10)
- Press this button when selecting a track with a number greater than 11.
  Use this button in combination with the number buttons ⓯. For example, when selecting track number 15, press [+10], then [5].
  To select track number 32, press [+10], [+10], [+10], then [2].

⓱ Program/Direct Button (PROG/DIRECT)
- Pressing this button selects between program memory and direct track selection

⑱ **Disc Number Buttons (1 ~ 5)**
- Press these buttons to specify which disc you want to play.

⑲ **Favorite Track File Button (F.T. File – FILE)**
- Press when switching to the F.T. file mode and when storing the program of the F.T. file to the file. (Refer to Page 13, Item ⑪.)

⑳ **Favorite Track File Clear Button (F.T. File – CLEAR)**
- Press to delete the program of the F.T. file which is stored in the file. (Refer to Page 13, Item ⑪.)

㉑ **Headphone Jack (PHONES)**
- Insert the jack of the headphones when desiring to listen to a disc privately. (Headphones are sold separately.)

㉒ **Volume Adjustment Knob (LEVEL)**
- Use this knob to adjust the output level (volume) for the headphones and line output (VARIABLE).

㉓ **Output Terminal (FIX-VARIABLE)**
- Connect the connection cords from these terminals to the amplifier's input terminals. (See page 9 for connections.)

㉔ **Digital Output Jack (COAXIAL)**
- This jack outputs digital data.
- We recommend using a 75-ohm pin cord (available in stores) for connections.

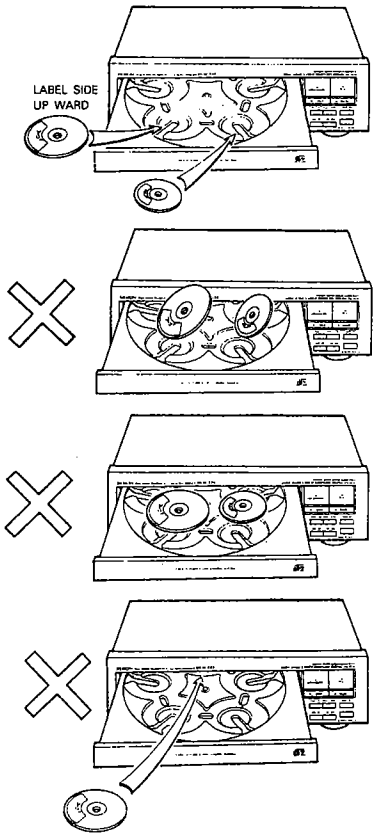
Note:
- Do not stop the carousel by hand when it is turning. If this is done, the microprocessor erroneously determines the disc number and the disc can be damaged.

OPENING AND CLOSING THE DRAWER AND LOADING A DISC

Opening and closing the drawer (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 drawer 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.)
- Set the disc properly in the tray according to its size.
  Set 8cm discs in the center hole.
  Set 12cm discs in the outer hole.
- When the drawer is opened during the stop mode, discs can be loaded in the disc 1 to disc 4 trays. If the DISC SKIP button is pressed, the carousel turns and a disc can be loaded in the disc 5 tray.
  When the drawer is opened during the play mode, it is possible to load and unload discs in all of the disc trays other than the one whose disc is currently playing. In this case, the DISC SKIP button will not operate.
- Press the open/close button (⏏ OPEN/CLOSE) to close the drawer.

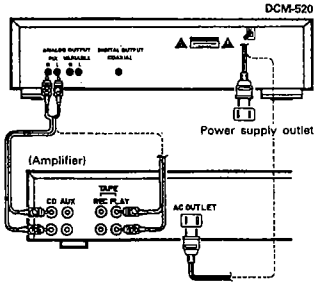
Caution:
- The player will not operate properly and the disc may even be damaged if it is not set correctly.
- If your finger should get caught in the drawer when it closes, press the open/close button (⏏ OPEN/CLOSE).
- Do not place any foreign objects on the disc tray, and do not place more than one 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.
- Do not touch the carousel while it is turning. Also, do not turn the carousel by hand when it is stopped. Doing so could damage it.



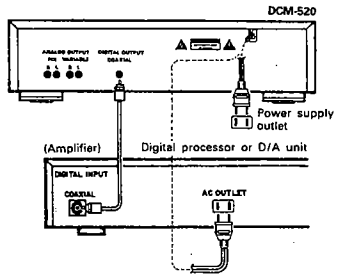
- Do not insert disc where indicated by arrow.
  This could damage the internal mechanism in the unit.

CONNECTIONS

(1) Connecting the Output Terminal (FIX-VARIABLE)
- Connect one end of the connection cord supplied with the CD Player to the output terminals (FIX-VARIABLE), left (L) and right (R) of the CD Player, and the other end to the CD, AUX or TAPE PLAY input terminals, left (L) and right (R), of the amplifier.



(2) Connecting the Digital Output Jack (COAXIAL)
Use a 75-ohm pin cord to connect the digital output jack (COAXIAL) of the DCM-520 to the digital input jack (COAXIAL) on a digital processor or D/A unit, available in stores.

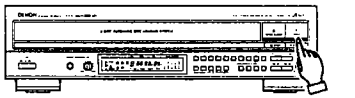


Connection Precautions
- Before proceeding with connections or disconnections of cables and power cords, be sure to turn all system components off.
- Ensure that all cables are connected properly to the L (left) and R (right) jacks.
- Insert plugs fully into the terminals.
- Connect the output jacks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

NORMAL PLAY

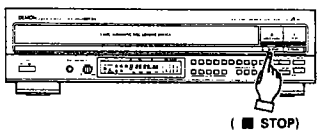
Follow the steps below to get an understanding of the disc play procedure.

(1) Starting Playback



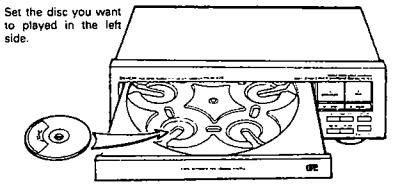
1. Turn the power switch on and press the open/close (⏏ OPEN/CLOSE) button to open the drawer.
2. Set the disc to be played in the tray on left side.
3. Press the play button (▶).
4. The drawer closes and the disc just loaded is played.
5. The disc number, track number and elapsed time, etc., for the disc currently playing appear on the display window.
6. If the open/close (⏏ OPEN/CLOSE) button is pressed while a disc is playing, playback continues, but the drawer opens and four discs can be replaced.
   Press the open/close (⏏ OPEN/CLOSE) button again to close the drawer.

(2) Stopping Playback



1. Press the stop button (■) to stop playback.
2. To replace discs, press the open/close (⏏ OPEN/CLOSE) button. The disc which was playing switches over to the left side and the drawer opens.

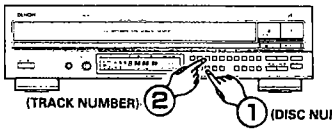
- Set the disc you want to played in the left side.



OTHER PLAY METHODS

In addition to normal play, the following methods can be used when playing a disc.

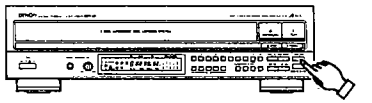
❶ To Play the Desired Disc and Desired Track ..... Direct Selection



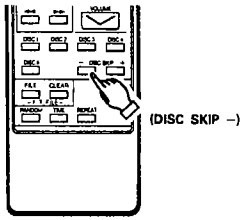
1 Press the button for the number of the desired disc (1 to 5).
2 Next, press the number of the desired track (1 to 10 and +10 buttons).

- Input the number of the track you would like to play with the 10 buttons. If you would like to play the 4th track on the 3rd disc, press [3] for the Disc Number, then [4] for the Track Number. If you would like to play the 12th track on the 5th disc, press [5] for the Disc Number and [+10] and [2] for the Track Number. Play will begin from the number of the disc and the track input.

❷ To Move to the Next Disc During Playback ..... Disc Skip



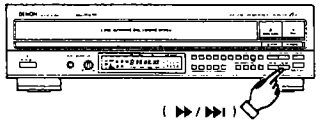
1 Press the disc skip button. The carousel in the drawer turns and the disc on the next tray is played.
For example, if disc number 3 was playing, the disc switches to disc number 4, and if disc number 5 was playing, the disc switches to disc number 1.
2 In addition, when the Disc Skip – button on the RC-239 remote control unit is pressed, the carousel turns in the opposite direction and the previous disc is played.



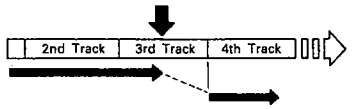
❸ To Move to the Next Track during Play ..... Automatic Search

Press the Automatic/Manual search forward button (▶▶ / ▶▶I) for less than 0.5 seconds 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.

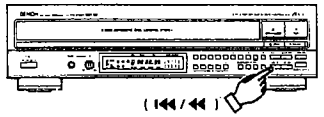


Press the ▶▶ / ▶▶I button



- During Random or Program operation, player moves to the beginning of the next random or program track selection.

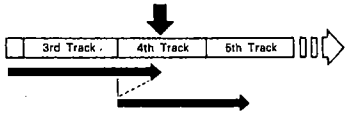
❹ To return to the beginning of the track now being played ..... Automatic Search



Press the Automatic/Manual search reverse button (I◀◀ / ◀◀) for less than 0.5 seconds 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.

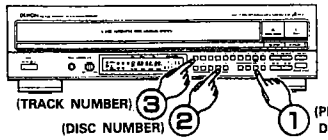
Press the I◀◀ / ◀◀ button



❺ To Play the Desired Discs and the Desired Tracks in the Desired Order ..... Program Selection

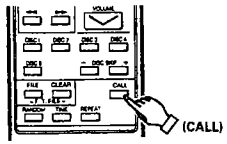
- You can play certain tracks on the loaded discs in any order.
- Tracks on a disc not loaded can also be programmed, but if you try to play that disc, the microprocessor detects that it is not loaded and the following disc is played automatically.
- Up to 20 tracks can be set in a program.
- A program can be made for a single entire disc.

(1) Programming



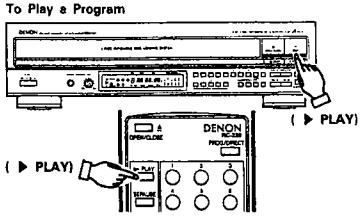
- Pressing the Program (PROG/DIRECT) button causes the [PROG.] indicator to light up. Select the disc, track in the program using the Disc Number buttons and the Track Number buttons and [+10] button. For example, if you would like to hear the 3rd track of the 2nd disc and the 12th track of the 5th disc, press [PROG/DIRECT], Disc Number [2], Track Number [3], Disc Number [5], then Track Number [+10], [2]. It is not necessary to specify the disc if all the tracks in the program are from the same disc.
If all the tracks are being selected from the same disc, all the tracks on a particular disc can be played, such as from the 1st track of the 3rd disc, all tracks of the 5th disc and the 5th track of the 5th disc.
In this case, press [PROG/DIRECT], Disc Number [3], Track Number [1], Disc Number [5], then Disc Number [5], Track Number [5].

(2) To Check the Programmed Tracks



- Press the call button on the RC-239 wireless remote control unit. The contents of the program are displayed in order one item at a time each time the Call button is pressed.

(3) To Play a Program



- Press the Play (▶ PLAY) button to play the programmed selections in the order in which they were programmed.

(4) To Erase all the Contents of a Program

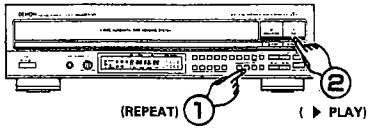
- Pressing the PROG/DIRECT button once more erases the entire program. Pressing the open/close (⏏ OPEN/CLOSE) button also erases the contents of a program.
- Pressing the PROG/DIRECT button while a program is being played cancels the program. Play will then be continuous to the end of the disc currently being played, after which the player will stop automatically.

Cautions

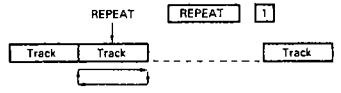
- If a program is run during playing of a track or from the Pause state, the track which is currently being played becomes the 1st track in the program.
- Additional tracks can be added to the program, but the player will not display the number of tracks in the program or the playing time.
- Direct selection cannot be done while a program is being played. Inputting the track number of a desired track with the Track Number buttons adds the input track to the end of the program.
- When programming, do not program a track number which is not recorded on the disc. If such a number is programmed by mistake, the player ignore the program.
- The CLEAR button on remote control unit RC-239 cannot be used to clear the program. This button is only for F.T. FILE.

❻ To Repeat Play of All Tracks ..... Repeat Play

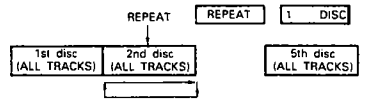
- Press the Repeat (REPEAT) button. The [REPEAT] indicator will light up.
- Steps ① and ② can be done in any order, with the same results.



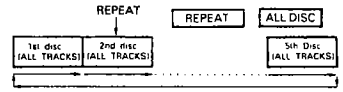
- When the repeat button is pressed once, the [REPEAT] and [1] indicators light. In this mode, the track currently playing is repeated.



- If the repeat button is pressed again, the [REPEAT] and [1 DISC] indicators light, and the disc currently playing is repeated.



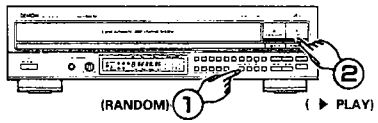
- If the repeat button is pressed again, the [REPEAT] and [ALL DISC] indicators light, and all the discs currently loaded are repeated.



- Pressing the Repeat (REPEAT) button during play will also cause the player to repeat play (of all tracks).
- To cancel repeat play, press the Repeat (REPEAT) button once more.
- Pressing the Repeat (REPEAT) button while a program is being played will cause the tracks in the program to be played again in order.
- Pressing the Repeat (REPEAT) button during Random play will cause the tracks to be played again at random.

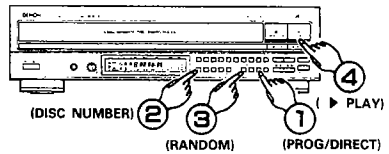
❼ Letting the Player Select the Order of Play ..... Random Play

(1) Full Random Play



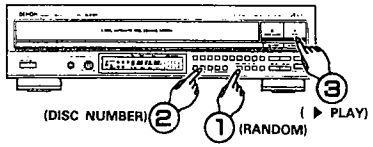
- Press the Random button, then press the Play button. The microcomputer will then start play of the tracks on the 5th disc at random.

(2) Program Random Play



- After pressing the PROG/DIRECT button and inputting a program (See item ❺ on page 10), press the Random button, then the Play button. The microcomputer will then select tracks from the program at random and play them.

(3) Disc Sequential Random Play



- Press the Random button. Next press the Disc Number buttons for the discs to be played, in the desired order, then press the Play button. The microcomputer will then select tracks from the specified discs to be played at random, in the order in which the discs were selected.
  Up to 5 discs can be selected, and the same disc can be selected, two or more times. Disc sequential random play is cancelled when play ends.

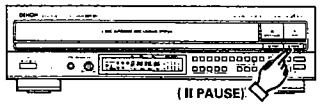
(4) To Cancel Random Play

- Pressing the Random button once more cancels the Random function. Play will then proceed from the track currently being played to the end of the last track on the disc, then stop.
  Pressing the open/close (⏏ OPEN/CLOSE) button also cancels the Random function.

Cautions

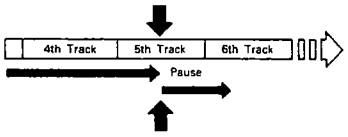
- Pressing the Random button during normal play starts full random play.
- Pressing the Random button during Program play starts random play of the tracks in the program, including the tracks which have already been played.
- During random play, the player may display the number of disc which is not loaded in the tray. In such a case, the player will read the disc information, then reset automatically to correct. This is not a malfunction.

❽ To Stop Play Temporarily ..... Pause



- Pressing the Pause button during play stops play at that point. Pressing the Pause button once more starts play again from the same point.

1 Press the Pause (PAUSE) button.



2 Press the Play (▶ PLAY) button or the Pause (II PAUSE) button.

* Press the Play (▶ PLAY) button or the Pause (II PAUSE) button to start play.

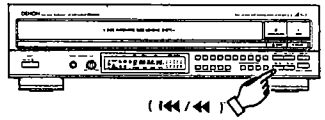
❾ Audible quick search ..... Manual Search

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

(1) Manual Search Forward

1. Keep on pressing the automatic/manual search forward button (▶▶/⏭) for more than 0.5 seconds 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 automatic/manual search forward button (▶▶/⏭) is kept pressed after the end of the final track on the disc is reached, (JJ) is displayed and manual search stops. To return to another point, press the automatic/manual search reverse button (⏮/◀◀) until (JJ) disappears.

(2) Manual Search in Reverse

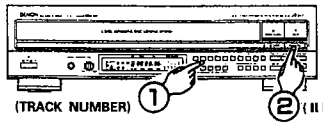


1. Keep on pressing the automatic/manual search reverse button (⏮/◀◀) for more than 0.5 seconds during playback. Reverse playback of the track is sped up.
- As a reference, the current track number and elapsed playback time within the track are displayed.
- Manual search in reverse is approximately three times faster when engaged during the pause state compared to playback. In this case, no sound is heard however.
- If the automatic/manual search reverse button (⏮/◀◀) is kept pressed after the beginning of the first track on the disc is reached, (CC) is displayed and manual search stops. To return to another point, press the automatic/manual search forward button (▶▶/⏭) until (CC) disappears.

❿ To Cue and Stop Play ..... Pause

(1) Cuing by Direct Selection

- Cuing by direct selection, then entering the Pause state, is convenient for practicing vocals with background music.



1. Press the Track Number buttons to set the number of the desired track.
2. Press the Pause (II PAUSE) button.

- To start play, press the Play (▶ PLAY) button or the Pause (II PAUSE) button.

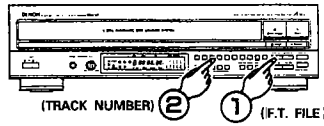
(2) Cueing by Program Selection

- After setting the desired track selections in a program, press the Pause (II PAUSE) button. The player will advance to the beginning of the 1st track in program memory and wait in the Pause state.

⓫ Stores your favorite tracks for each of the discs ..... Favorite Track File (F.T. FILE)

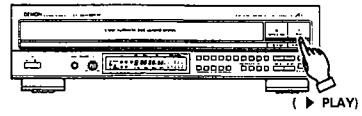
- Permits programming of the tracks you do not wish to listen to from among the tracks recorded on the disc, then skips these tracks when the disc is played.
- When these tracks are recorded to the file, the program is automatically called by setting the F.T. FILE mode, even after the disc has been changed and the power switched off.
- Up to 6 tracks can be programmed within 1 disc.
- Up to 100 discs can be recorded to file.
- The program contents are displayed on a calendar.

(1) Disc programming and recording to file



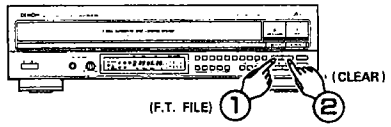
- Pressing the FILE button in the stopped condition will light up F.T. FILE . Select the tracks to be programmed using the Track Number button and the +10 button.
  For example, to program the 3rd, 12th, and 7th tracks, press FILE , 3 , +10 , 2 , and 7 .
  Each time a track is specified, that track number is deleted in the calendar. The total number of tracks to be played is displayed under TRACK No. and the total play time is displayed under TIME.
- When recording the program to file, after selecting the program, press the FILE button. "FILE" will be displayed on the time display for about 1 second.

(2) Programmed Play



- Pressing the ▶ PLAY button will call the files for each of the discs to be played, then play the disc, skipping the programmed tracks.

(3) To delete the programs recorded to the file



- Press the FILE button and press the CLEAR button while "FILE" is being displayed on the time display.
  "CLER" will be displayed on the time display for about 1 second and the program of that disc will be deleted from the file.

(4) Contents of the F.T. FILE

- Up to 100 discs can be recorded to the F.T. FILE.
  When 100 discs have been recorded, if a new disc is loaded, the program cannot be recorded by pressing the FILE button after track selection according to the operation of Step (1). This procedure will result in "FULL" being displayed on the time display for about 1 second.
  When the program of a new disc is recorded to the file, first delete the file that has already been recorded using the operation of Step (3).

CAUTION

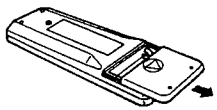
- Pressing the program/direct button (PROGRAM/DIRECT) sets the direct mode.
- Pressing the Number button and the +10 button during play provides direct track selection.
- When track selection has not been made, all recorded tracks are played.
- Can be used only when the drawer is closed.
- The remaining time display of the track is limited to the 1st through 20th tracks of the disc.
- For discs with 21 or more tracks recorded, the total time at the time of programming and the program remaining time are not displayed.
- After the program track selection, changing to a separate disc before recording to the file will result in program cancellation.
- Program calling is not possible with the CALL button in the F.T. FILE mode.
- Random play is possible in the F.T. FILE mode. In this case, disc sequential random using the F.T. FILE is set.
- When in the random mode, the F.T. FILE mode cannot be set even when the FILE button is pressed. It is also not possible to store or erase files. Set the F.T. FILE mode, program, then press the RANDOM button.

PLAY USING THE REMOTE CONTROL UNIT

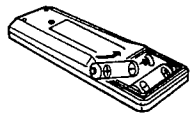
The DCM-520 CD Player can be controlled from across the room using the accessory Remote Control Unit RC-239.

(1) Inserting the Dry Battery

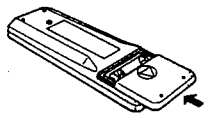
1. Remove the cover on the back of the remote control unit.



2. Insert 2 R6P (AA size) dry batteries. Check the polarity indications inside the case for correct insertion.



3. Replace the cover on the back of the remote control unit.

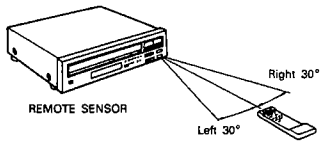


Cautions Concerning Dry Batteries

- Use only R6P (AA size) dry batteries in the remote control unit.
- Depending on the frequency of use, the dry batteries should be replaced approximately once per year.
- If the remote control unit fails to control the CD Player, even before a year has passed, replace the dry batteries with new ones.
- Be sure to follow polarity indications inside the case of the remote control unit, inserting the + end and – end of each battery in the directions indicated.
- Batteries may become damaged or leak under the following conditions.
  - * Using new batteries together with old ones.
  - * Using different types of batteries together.
  - * Do not short batteries, take them apart, subject them to heat or throw them into a fire.
- When the remote control unit is not used for a long period of time, remove the dry batteries.
- If fluid leaks from the batteries, be sure to wipe up all battery fluid inside the battery case and replace the batteries with new ones.

(2) Using the Remote Control Unit

- Aim the remote control unit toward the light receptor in the front of the CD Player, as shown in the drawing below.
- The remote control unit can be used up to a distance of 8 meters in a straight line from the CD Player. However, this distance will be shortened if there is some obstruction between the remote control unit and the light receptor, or if the beam of light is slanted.

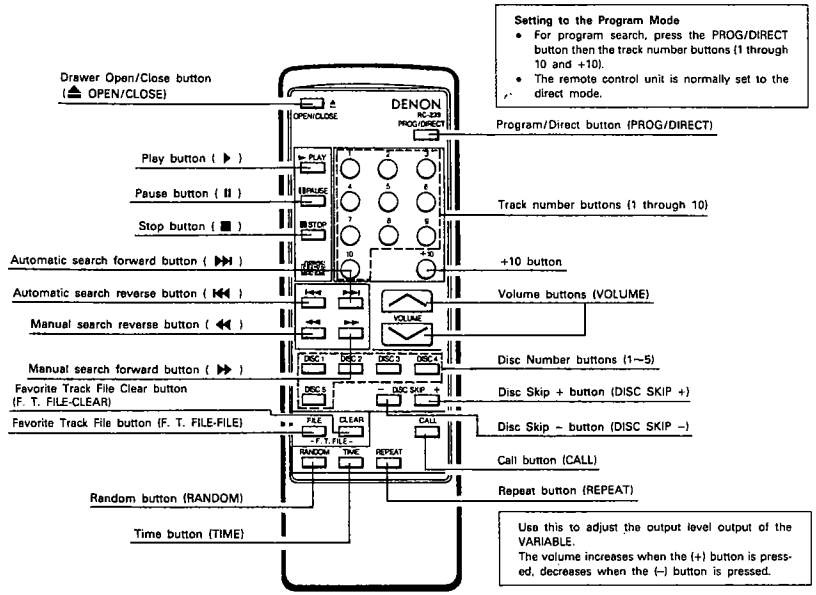


- The remote control unit has the same functions as the main unit, but the following operations cannot be done.
  1. Switching the power on and off.
  2. Adjusting headphone volume.

Cautions During Use

- Do not press the operating buttons on the main unit and the remote control unit at the same time. This could cause a malfunction.
- Operation of the remote control unit will be hindered if a strong light from the sun or a light fixture is shining on the REMOTE SENSOR, or if there is an obstruction between the remote control unit and the CD player unit.

REMOTE CONTROL UNIT RC-239



- **Direct Selection**
  Normally, direct search is possible simply by pressing the desired number buttons.
- **Program Selection (During playback, the track which is currently playing is programmed as the 1st track.)**
  Press the PROG/DIRECT button, then press the number buttons.
  For example, to program tracks number 3, 11, and 5, press PROG/DIRECT → 3 → +10 and 1 → 5.
  To cancel the program, press the PROG/DIRECT button.
- **Inputting the Track Numbers**
  For track numbers below 9, simply press the corresponding button. For track numbers of 10 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.

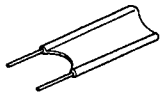
- **Skipping Discs**
  The Disc Skip button (DISC SKIP +, –) will not function in the random and program modes.
  During disc sequential random playback, when the Disc Skip + button is pressed, the following disc is played in random order.

- The Time indicator indicates the amount of elapsed time for the track currently being played, the amount of time remaining for the current track and, the amount of time remaining for all tracks yet to be played.
  Normally, the amount of elapsed time for the current track is displayed. Pressing this button once causes the [SINGLE] indicator to light up, displaying the amount of time remaining for the current track. Pressing the button once more turns the [SINGLE] indicator off and causes the [TOTAL] indicator to light up, displaying the time remaining for all tracks yet to be played on the disc. Pressing the button once again turns the [TOTAL] indicator off and causes the indicator to display the elapsed time for the current track.
- During playback, the total remaining time is the remaining time for the disc. For programmed playback, the remaining time for the program is only displayed when the programmed tracks are all on the same disc.
  In the case of 21st and subsequent tracks, the time remaining for one track is displayed "----". When 21st and subsequent tracks is programmed, the time remaining for all tracks is displayed "----".
  "----" is displayed when tracks on more than one disc are programmed.

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

COMPACT DISCS

1. **Cautions in Handling Compact Discs**
   - Do not get fingerprints, oil, dirt or other substances on the compact disc. If the disc becomes dirty, wipe it off with a dry, soft cloth. DENON AMC-20/21 CD Cleaner is recommended.
   - Do not clean compact discs with benzene, paint thinner, water, record spray, anti-static agent, silicon cloth or similar substances.
   - Take particular care to prevent scratches to the back side of the compact disc when removing it from the case and when inserting it in its case.
   - Do not bend compact discs.
   - Do not apply to compact discs.
   - Do not attempt to enlarge the center hole of the disc.
   - Do not write on the label (printed) side of the disc with a ball point pen or pencil.
   - Bringing a CD into a warm room from a cold place could cause moisture to condense on the disc surface. Do not attempt to dry the disc with a hair dryer, etc.

2. **Storage of Compact Discs**
   - After play, be sure to remove the disc from the player.
   - To prevent dust, scratches, deformation, etc., be sure to store compact discs in their case.
   - Do not store compact discs in the following locations.
     1. Places where direct sunlight strikes for long periods of time.
     2. Places with a high humidity or a lot of dust.
     3. Places reached by heat from a heater or similar appliance.

TROUBLE? CHECK THE PLAYER TO FIND WHAT'S WRONG

Even when it appears that there is trouble, check the following points carefully.

The drawer won't open / close when the Open / Close button is pressed.
- Is the Power switch on?

After a disc is loaded (0 00 00_M 00_S) is displayed in the display window.
- Is the disc loaded correctly? ..... See page 8, 9.

Play does not begin when the Play button is pressed.
- Is the disc dirty or scratched? ..... See page 16.

There is no sound, or the sound is distorted.
- Is the output cord connected correctly to the amplifier? ..... See page 9.
- Does the sound return to normal when the amplifier's knobs are adjusted or the proper input device is selected?

The player won't go to the place specified in the search.
- Is the disc dirty or scratched? ..... See page 16.

A program cannot be played.
- Is the method used to make a program and run it correct? ..... See page 10, 11.

The player won't operate correctly when the remote control unit is used.
- Are the dry batteries in the remote control unit dead? ..... See page 14.
- Is the remote control unit located too far from the CD Player unit? ..... See page 14.

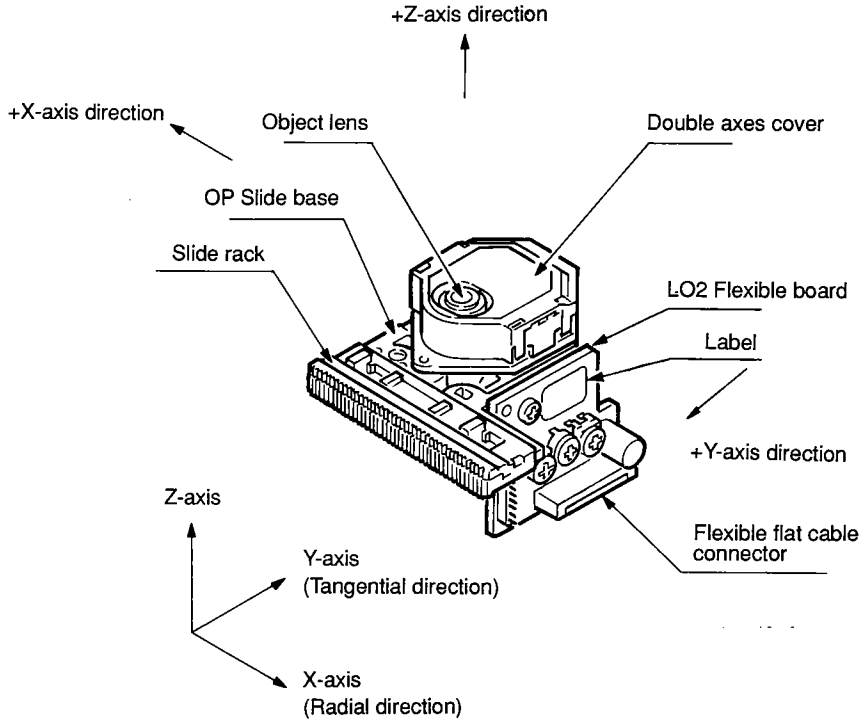
SPECIFICATIONS

AUDIO	
No. of Channels:	2 channels
Frequency Response:	2 ~ 20,000 Hz
Dynamic Range:	98 dB
dbSignal-to-Noise Ratio:	110 dB
Harmonic Distortion:	0.003% (1 kHz)
Separation:	102 dB (1 kHz)
Wow & Flutter:	Less than the measuring (+0.001% W. peak)
Output Voltage:	FIX. 2.0 V, VARIABLE 0 ~ 2.0 V
DISC USED	Audio compact discs are used 12cm (5in) and 8cm (3in)
GENERAL CHARACTERISTICS	
Power Supply:	50/60 Hz, Voltage is shown on rating label.
Power Consumption:	11W
External Dimensions:	434 (W)× 114 (H) × 388 (D) mm (17-3/32 × 4-17/32 × 15-9/32 inches)
Weight:	6.0 kg
FUNCTIONS AND DISPLAY	
Functions:	Five discs can be used. Direct track selection Program selection, Random play, etc.
Display:	Disc number, Track number, time (min., sec.), Play, Pause, Repeat, Random, etc.
Others:	Headphones jack (Level Variable)
REMOTE CONTROL UNIT	RC-239
Remote Control Method:	Infrared pulse system
Power Supply:	3 V DC; two R6P (standard size AA) dry cell batteries
External Dimensions:	60 (W)× 177 (H)× 18 (D)mm (2-23/64 × 6-31/32 × 18-45/64 inches)
Weight:	100 g (including batteries)
SUPPLIED ACCESSORIES	Pin-plug connection cord

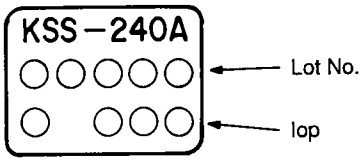
* Design and specifications are subject to change without notice in the course of product improvement.

NOTE FOR HANDLING OF LASER PICK-UP

DESCRIPTION OF THE COMPONENTS



Label



year
(last figure)

day month | quality control No.

○○ ○ ○ ○

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

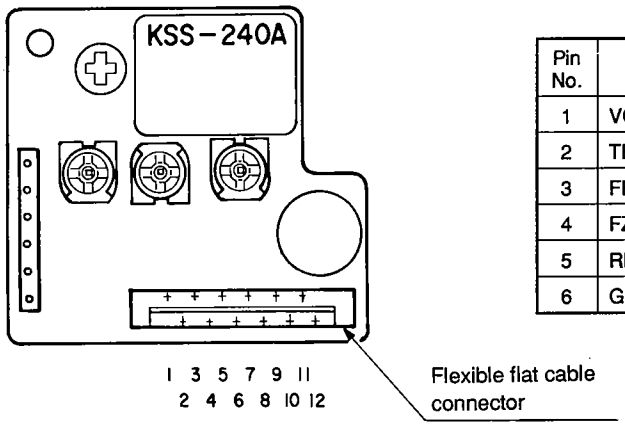
10 1 10^{-1}

quality control ○ ○ ○ ○

LD drive current

The expressed unit is by mA, with omission of the decimal point as for example, 56.5mA will be expressed as 565, but the head of English letter means the control in the manufacturning plant.

PIN CONNECTOR



Pin No.	Description	Input/ Output	Pin No.	Description	Input/ Output
1	VC (+2.5V)	OUT	7	Vcc (+5V)	IN
2	TE (TRK ER signal)	OUT	8	LDC (LD Control)	IN
3	FE (FCS ER signal)	OUT	9	FCS+ (Double axes)	IN
4	FZC (FZC signal)	OUT	10	TRK+ (Double axes)	IN
5	RF (RF signal)	OUT	11	TRK– (Double axes)	IN
6	GND	IN	12	FCS– (Double axes)	IN

Caution for Handling the Laser Pick-up

The laser pick-up KSS-240A 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 7×10^3 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 or 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 its 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 objective lens. Clean the lens with a cleaning paper dampened with 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 side 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

As KSS-240A comprises built-in RF Amp and APC curcuit, it resists stronger against external electrostatic damages than the former typed pickup. However, there is possibility of pickup distorioration in the following cases.

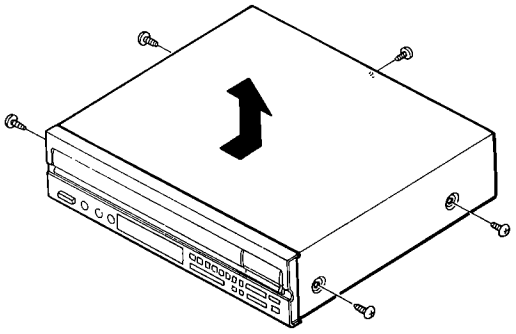
(1) Low HF level, or with great numbers of jitters.

(2) Tracking offset (EF Balance) is out of order (Refer to "Confirmation Method of Adjustment " for confirmation on (1) and (2)).

DISASSEMBLY

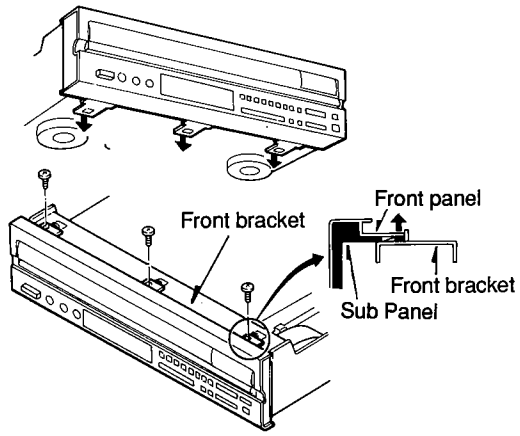
- **Top Cover**

  Remove 4 screws from both sides and 1 screw from Rear Panel and slide Top Cover slightly background (approx. 5mm) and pull it up.



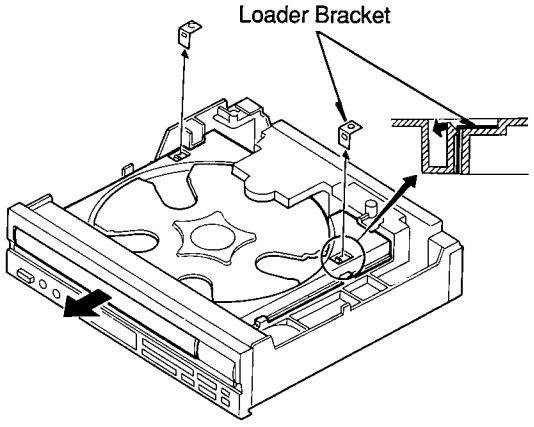
- **Front Panel**

  1. Remove 3 hooks from bottom surface of unit.
  2. Remove screws fixing front bracket and detach sub-panel from hook of the front bracket.



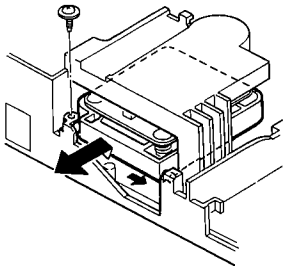
- **Loader Frame Ass'y**

  1. Remove hooks of loader frame, and pull out 2 loader brackets from right and left sides.
  2. Pull the loader frame assembly frontward.



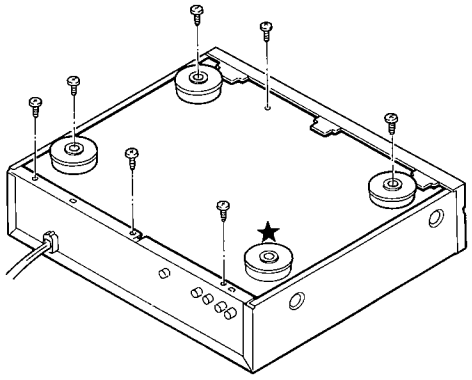
- **PU Mechanism**

  After removing rear panel, remove 1 screw.

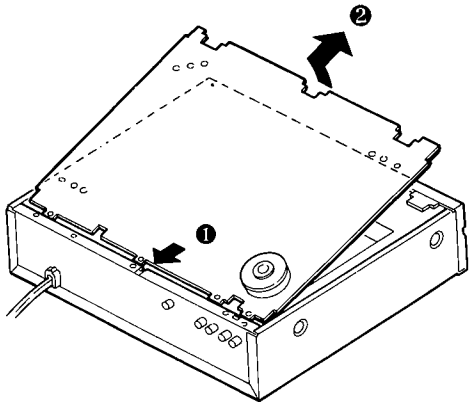


- **Bottom Cover**

  1. Remove 3 screws fixing foot and 1 screw fixing bottom cover and 3 screws fixing rear panel, 6 in total. (These screws are P-tight type).
     Do not remove screws marked with ★ .
     (This screw is S-tight type)



  2. ❶ Slide the bottom cover backward (approx. 5mm) and when it touches the rear panel in end, ❷ lift up front portion of the bottom cover and pull it.



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 J246 (SWOP) and J247 (SWCL) of TP102 on P.W.B. (Main Unit)
(Caution) Do not touch other jumper wires.

(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

- Make sure a disc has been loaded in the NO.1 disc tray.

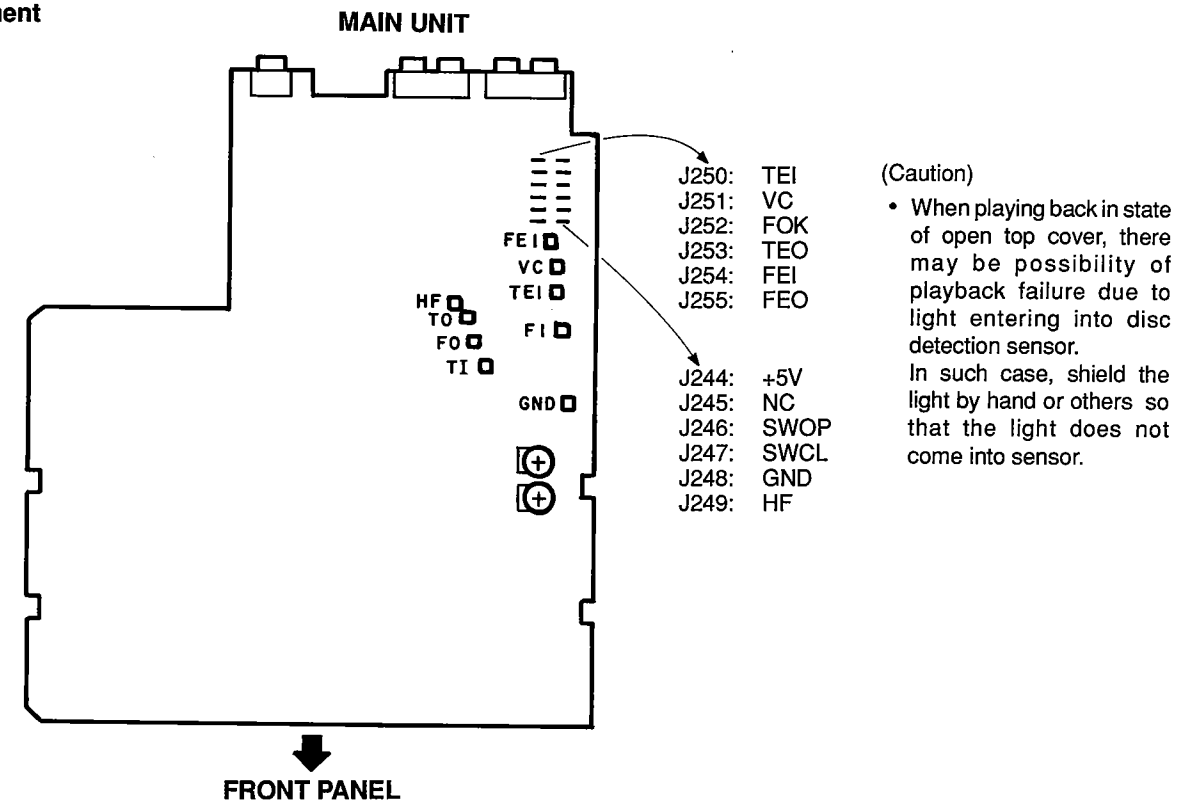
Button	Function	Description
OPEN/CLOSE	Opens or closes the disc holder.	● Opens or closes only when disc is stopped. ● Operate other keys after open or close.
■ STOP	Stops system function.	● Displays track number 01 . ● Push when adjustment completed, or do it again.
▶ PLAY	Starts focus servo and disc turns.	● Push when adjust tracking offset. ● When completed, displays track number 02 .
II PAUSE	Starts focus servo, tracking servo, slide servo, spindle servo.	● When PAUSE 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) Location

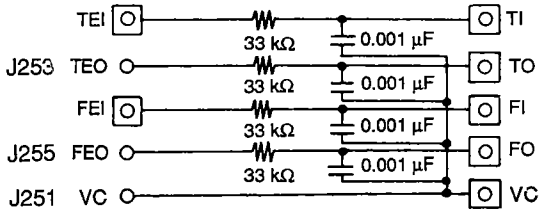


(Caution)

- When playing back in state of open top cover, there may be possibility of playback failure due to light entering into disc detection sensor.
In such case, shield the light by hand or others so that the light does not come into sensor.

(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 KHz)



" ⊡ " is Terminal Pin on Main Unit.

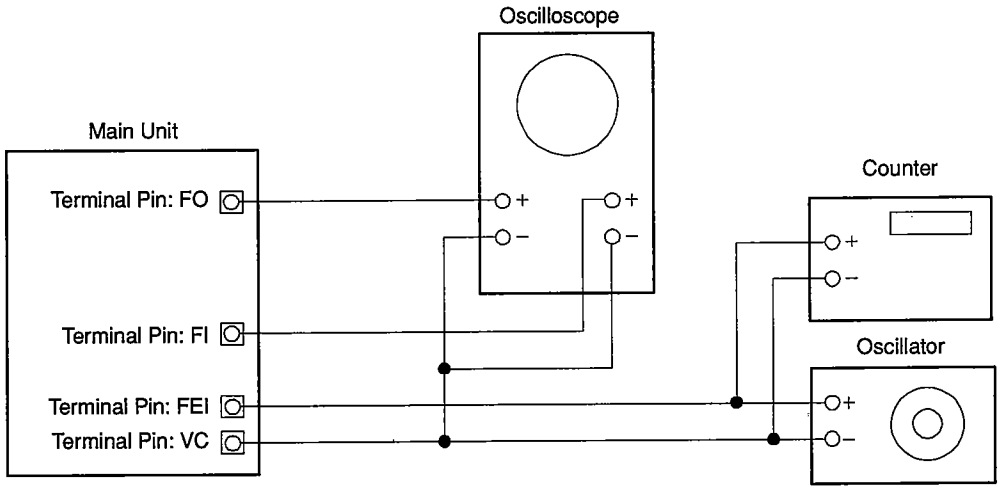
(Filter for measurement in Main Unit)

(3) Preset

1.	Start service program.	
2.	Preset VR101, 102 as per right figure.	VR101 (F-GAIN) 12 O'clock VR102 (T-GAIN) 12 O'clock
3.	Step.	1. Focus gain (VR101) 2. Tracking gain (VR102)

4. Focus gain

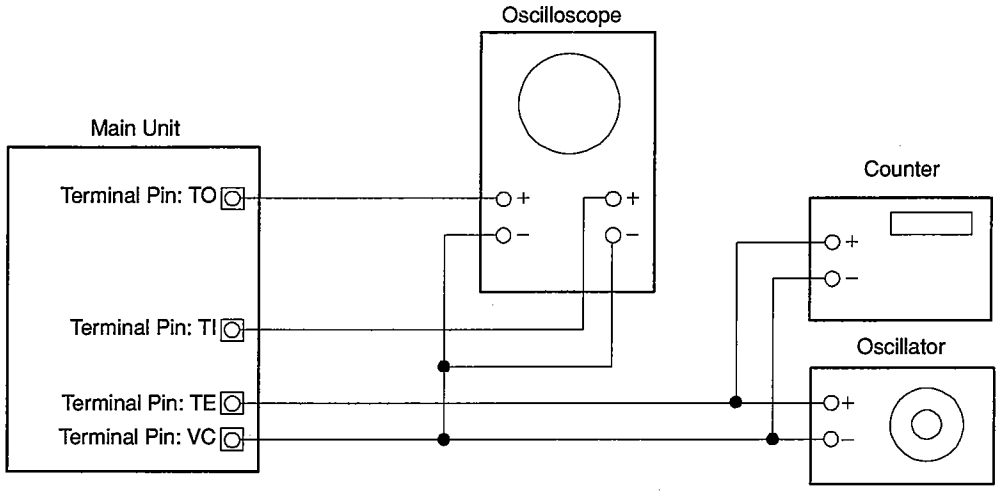
Connection



Oscillator	Counter	Oscilloscope V	Oscilloscope H	Adjust	Check	Step
930 Hz 4 Vp-p (±0.1 V)	930 Hz	● DC range ● X-Y mode		VR101	(Oscilloscope) Y axis / X axis Phase 90° Waveform not right Y axis / X axis	1. Push [II PAUSE] (Displays track number 03) 2. Connect oscillator. 3. Set oscillator to 930 Hz/4 Vp-p. 4. Switch oscilloscope input to X-Y mode. 5. Adjust VR101 [F-GAIN] to symmetrize Lissajous figures to X-Y axes.

5. Tracking gain

Connection

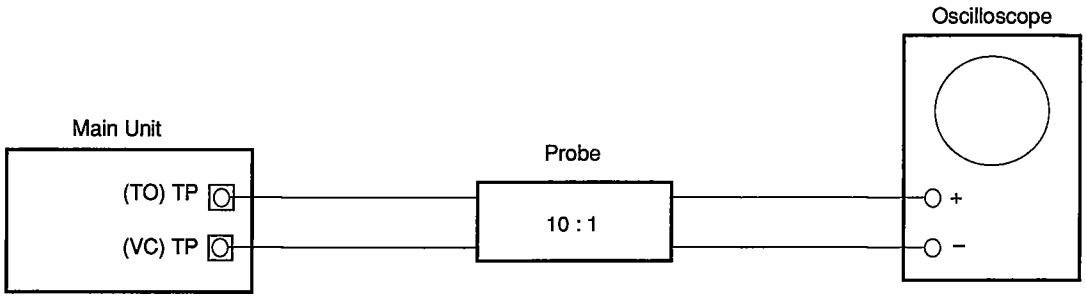


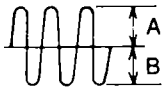
• Caution: Connect oscillator after [II PAUSE] pushed and servo function started.

Oscillator	Counter	Oscilloscope V	Oscilloscope H	Adjust	Check	Step
		V	H	(Volume)	(Oscilloscope)	
● 2.9 kHz (±120 Hz) ● 1.5 Vp-p (±0.1V)	2.9 kHz (±120 Hz)	● DC range ● X-Y mode		VR102	Y axis / X axis / Phase 90° Waveform not right: X axis / Y axis	1. Push [II PAUSE]. (Displays track number 03) 2. Connect oscillator. 3. Set oscillator to 2.9 kHz/1.5 Vp-p. 4. Switch oscilloscope input to X-Y mode. 5. Adjust VR102 [T-GAIN] to symmetrize Lissajous figures to X-Y axes.

6. Tracking offset (E/F Balance)

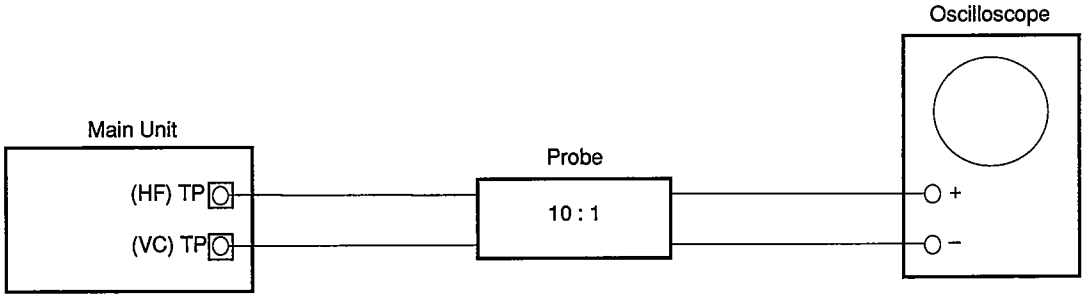
Connection

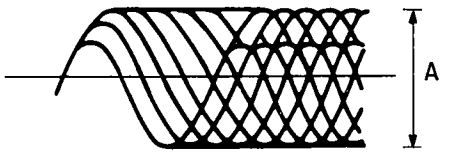
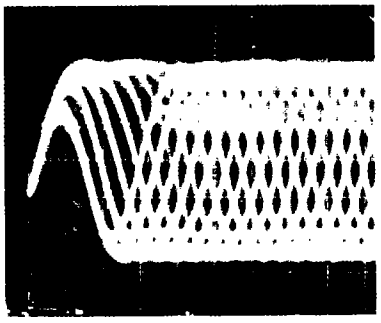


Osciloscope		Check	Step
V	H	(Oscilloscope)	
0.1v/div	1~2 ms/div	 $\frac{A-B}{A+B} < 20\%$	1. Push ▲ OPEN/CLOSE and load disc holder referrence disk. 2. Push ▲ OPEN/CLOSE and close disc holder. 3. Push ▶ PLAY to turn disc. (Displays track number 02) 4. Short (+)(−) of oscilloscope and check the base line. 5. Confirm that upper and lower amplitude of the waveform is symmetric against 0V.

7. HF level

Connection



Osciloscope		Check	Step
V	H	(Oscilloscope)	
50mv/div or 20mV/div	0.2μ/div or 0.5μ/div	 A=1.2+0.3Vp-p	1. Push PAUSE . (Displays track number 03) 2. Check HF level of oscilloscope. 3. Confirm that the waveform is in good shape. (◊ pattern in center must be able to discriminate clearly.)
• Set input mode to ALTERNATE or CHOPPER.		 Pattern	

HEAT RUN MODE FUNCTION

Heat Run Mode

1) To activate

While hold pushing PLAY, PAUSE, STOP keys simultaneously, turn the unit power on. The remote control sensor indicator will light to show that the unit is shifted in Heat Run mode.
Be sure to load the disc previously.
Press the disc holder open/close button (⏏ OPEN/CLOSE) to cancel Heat Run mode.

★ This mode functions only for a disc with 21 pieces of music or more. For a disc with 20 pieces of music or lesser, please do not use.

2) Operation

During the Heat Run mode to shift the unit in Play mode makes the unit replays from the first music after opens the loader once and re-closes it when finish playing the last track (comes into lead out).
Hereafter, operates open/close of loader, servo on, reading of TOC, and playing repeatedly, and repeats playing the two tracks; the first and the last ones.

3) Error Message

When the system error occurs while in Heat Run mode, the following error message will display on the Track No. indicator and stops operation.

1. E1
   At the time of Focus Servo does not activate.
2. E2
   When unable to detect synchronous pattern however the disc is in rotating. (GFS does not drive.)
3. E3
   No synchronous pattern can be detected while in Play mode. (No GFS drives.)
4. E4
   When TOC is unreadable in despite of servo is activated.
5. E5
   In case of loader malfunctions. (Unable to turn on the switch.)
6. E6
   The inner circle switch of Pick-up does not turn off.
7. E7
   The inner circle switch of Pick-up does not turn on.
8. E10
   Improper function of Pick-up base UP/ DOWN.
9. E11
   •Improper function of disc Select.

★ The number of operation up to the stop will be displayed on the minute and second portion of the indicator.

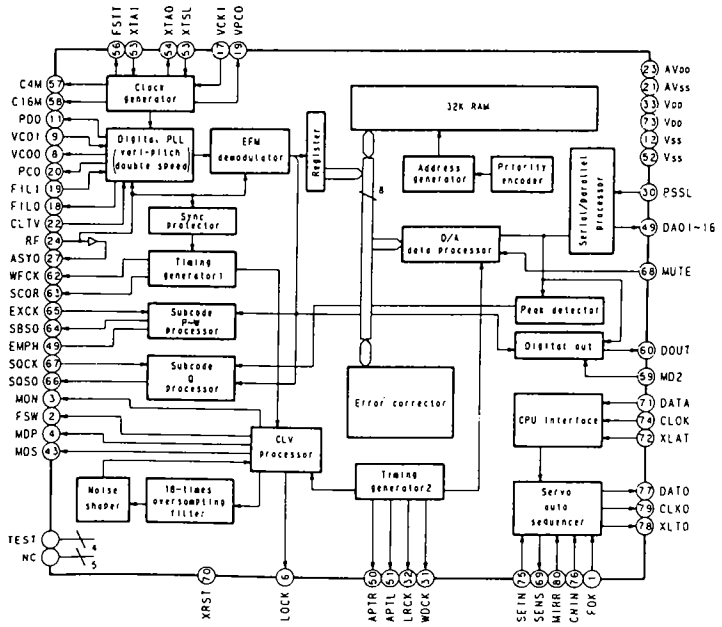
IC TERMINAL FUNCTION LIST

CXD2500AQ Terminal Function

Terminal No.	Symbol	I/O		Terminal Function
1	FOK	I		Input terminal for OK focussing. Use for Servo-autosequencer.
2	FSW	O	Z,0	Output to shift time constant of output filter for spindle motor.
3	MON	O	1,0	ON/OFF control output for spindle motor.
4	MDP	O	1,Z,0	Servo control for spindle motor.
5	MDS	O	1,Z,0	Servo control for spindle motor.
6	LOCK	O	1,0	Sampling GFS by 460 Hz and if it is "H", delivers "H" ; if it is continuously "L" 8 times, delivers "L".
7	NC	—		
8	VCOO	O	1,0	Oscillation current output for analog EFM PLL.
9	VCOI	I		Oscillation current output for analog EFM PLL. f LOCK=8.6436MHz.
10	TEST	I		TEST output. Normally GND.
11	PDO	O	1,Z,0	Charge pump output for analog EFM PLL.
12	Vss			GND.
13	NC	—		
14	NC	—		
15	NC	—		
16	VPCO	O	1,Z,0	Charge pump output for variable pitch PLL.
17	VCKI	O		Clock input from external VCO for variable pitch. fc center=16.9344MHz.
18	FILO	O	Analog	Filter output for master PLL. (slave=digital PLL)
19	FILI	I		Filter input for master PLL.
20	PCO	O	1,Z,0	Charge pump output for master PLL.
21	AVss			Analog GND.
22	CLTV	I		Control voltage input for master VCO.
23	AV_{DD}			Analog power supply (+5V).
24	RF	I		EFM signal input.
25	BIAS	I		Constant-current input for Asymmetry circuit.
26	ASYI	I		Comparate voltage input for Asymmetry.
27	ASYO	O	1,0	Full swing output for EFM. (L=Vss, H=VDD).
28	ASYE	I		L: Asymmetry circuit → OFF. H: Asymmetry cirquit → ON.
29	NC	—		
30	PSSL	I		Input to shift output mode of audio data. Serial output at L; parallel output at H.
31	WDCK	O	1,0	D/A Interface for 48 bit slot. Word-clock f=2 Fs.
32	LRCK	O	1,0	D/A Interface for 48 bit slot. LR-clock f= Fs.
33	V_{DD}			Power supply (+5V).
34	DA16	O	1,0	At PSSL=1 for DA16 (MBS) output; PSSL=0 for serial data of 48 bit slot. (2s'COMP, MSB first).
35	DA15	O	1,0	At PSSL=1 for DA15 output; PSSL=0 for bit clock of 48 bit slot.
36	DA14	O	1,0	At PSSL=1 for DA14 output; PSSL=0 for serial data of 64 bit slot. (2s'COMP, LSB first).
37	DA13	O	1,0	At PSSL=1 for DA13 output; PSSL=0 for bit clock of 64 bit slot.
38	DA12	O	1,0	At PSSL=1 for DA12 output; PSSL=0 for LR clock of 64 bit slot.
39	DA11	O	1,0	At PSSL=1 for DA11 output; PSSL=0 for GTOP output.
40	DA10	O	1,0	At PSSL=1 for DA10 output; PSSL=0 for XUGF output.
41	DA09	O	1,0	At PSSL=1 for DA09 output; PSSL=0 for XPLCK output.
42	DA08	O	1,0	At PSSL=1 for DA08 output; PSSL=0 for GFS output.
43	DA07	O	1,0	At PSSL=1 for DA07 output; PSSL=0 for RFCK output.
44	DA06	O	1,0	At PSSL=1 for DA06 output; PSSL=0 for C2PO output.
45	DA05	O	1,0	At PSSL=1 for DA05 output; PSSL=0 for XRAOF output.
46	DA04	O	1,0	At PSSL=1 for DA04 output; PSSL=0 for MNT3 output.
47	DA03	O	1,0	At PSSL=1 for DA03 output; PSSL=0 for MNT2 output.
48	DA02	O	1,0	At PSSL=1 for DA02 output; PSSL=0 for MNT1 output.
49	DA01	O	1,0	At PSSL=1 for DA01 output; PSSL=0 for MNT0 output.
50	APTR	O	1,0	Control output for aperture compensation. In H for R-ch.
51	APTL	O	1,0	Control output for aperture compensation. In H for L-ch.

Terminal No.	Symbol	I/O		Terminal Function
52	Vss			GND.
53	XTAI	I		X'tal oscillation circuit input. By selecting of mode, f=16.9344MHz or 33.8688MHz.
54	XTAO	O	1,0	X'tal oscillation circuit input. f=16.9344MHz.
55	XTSL	I		Selection input terminal of X'tal. "L" for X'tal 16.9344MHz; H for 33.8688MHz.
56	FSTT	O	1,0	2/3 Dividing output of 53 and 54 terminal. No change by variable pitch.
57	C4M	O	1,0	4.2336MHz output. When variable pitched, simultaneously changes.
58	C16M	O	1,0	16.9344MHz output. When variable pitched, simultaneously changes.
59	MD2	I		Digital-out ON/OFF control. ON at H; OFF at L.
60	DOUT	O	1,0	Digital-out output terminal.
61	EMPH	O	1,0	When playback disc emphasized, outputs H; otherwise outputs L.
62	WFCK	O	1,0	WFCK (Write Flame Clock) output.
63	SCOR	O	1,0	Output of subcode sync. S0+S1. H output when either one detected.
64	SBSO	O	1,0	Serial output of Sub P~W.
65	EXCK	I		Clock iutput for SBSO read-out.
66	SQSO	O	1,0	Output for Sub Q 80 bits and PCM peak level 16 bits.
67	SQCK	I		Clock input for SQSO read-out.
68	MUTE	I		Mute at H; remove mute at L.
69	SENS	—	1,Z,0	SENS output. Outputs to CPU.
70	XRST	I		System reset input. Resets at "L".
71	DATA	I		Input of serial data from CPU.
72	XLAT	I		Input for latch from CPU. Latches serial data at release.
73	VDD			Power supply (+5V).
74	CLOK	I		Serial data transfer clock input from CPU.
75	SEIN	I		SENS input from SSP.
76	CNIN	I		Input of tracking pulse.
77	DATO	O	1,0	Serial data output to SSP.
78	XLTO	O	1,0	Serial data latch output to SSP.
79	CLKO	O	1,0	Serial data transfer clock output to SSP.
80	MIRR	I		Mirror signal input. Use for track jump for over 128 tracks, using autosequencer.

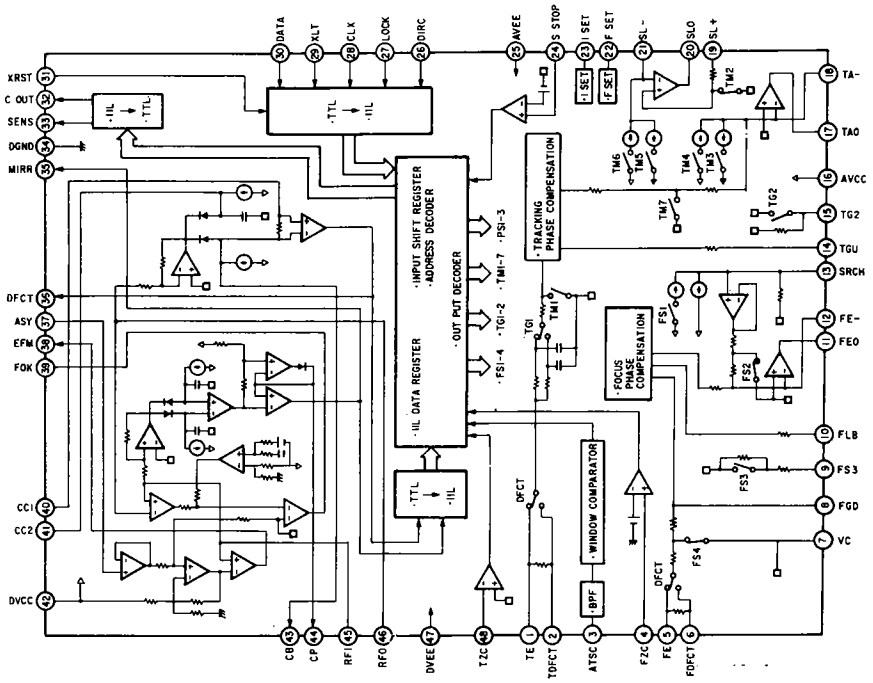
CXD2500AQ



CXA1372S Terminal Function

Terminal No.	Symbol	I/O	Terminal Function
1	TE	I	Tracking error signal input terminal.
2	TDFCT	I	Capacitor connecting terminal for time constant at the time of defect.
3	ATSC	I	Input terminal of ATSC detecting window comparator.
4	FZC	I	Input terminal of focus zero-cross comparator.
5	FE	I	Focus error signal input terminal.
6	FDFCT	I	Capacitor connecting terminal for time constant at the time of defect.
7	Vc	I	Mid-point voltage input terminal.
8	FGD	I	In case of reducing higher range gain of focus servo, connect a capacitor between this terminal and terminal number (9).
9	FS3	I	Shifts higher range gain of focus servo by FS3 ON/OFF.
10	FLB	I	Terminal for external time constant to increase lower range of focus servo.
11	FEO	O	Focus drive output.
12	FE–	I	Reverse input terminal for focus amplifier.
13	SRCH	I	Terminal for external time constant to make focus search waveform.
14	TGU	I	Terminal for external time constant to shift higher range gain of tracking.
15	TG2	I	Terminal for external time constant to shift higher range gain of tracking.
17	TAO	O	Tracking drive output.
18	TA–	I	Reverse input terminal for tracking amplifier.
19	SL+	I	Non-reverse input terminal for sled amplifier.
20	SLO	O	Sled drive output.
21	SL–	I	Reverse input terminal for sled amplifier.
22	FSET	I	Terminal to compensate peak in focus/tracking phase.
23	ISET	I	Delivers a current to set the height of focus search, track jump, and sled kick.
24	SSTOP	I	Terminal for limit switch ON/OFF to detect disc innermost circle.
26	DIRC	I	Terminal is used at the time of 1 track jump. A 47 kohm pull up resistor is included.
27	LOCK	I	Reckless drive protection circuit of sled; activates at "L". A 47k ohm pull up resistor is included.
28	CLK	I	Serial data transfer clock input from CPU.
29	XLT	I	Latch input from CPU.
30	DATA	I	Serial data input from CPU.
31	XRST	I	Reset input terminal. Resets at "L".
32	C.OUT	O	Terminal to output signal for track number count.
33	SENS	O	Terminal to output FZC, AS, TZC, SSTOP by command from CPU.
35	MIRR	O	Output terminal for MIRR comparator.
36	DFCT	O	Output terminal for DEFECT comparator.
37	ASY	I	Input terminal for auto-symmetric control.
38	EFM	O	Output terminal for EFM comparator.
39	FOK	O	Output terminal for focus OK (FOK) comparator.
40	CC1	O	DEFECT bottom hold output terminal.
41	CC2	I	Input terminal to input DEFECT bottom hold output by capacitance combination.
43	CB	I	Capacitor connecting terminal for DEFECT bottom hold.
44	CP	I	MIRR hold capacitor connecting terminal. A non-reverse input terminal for MIRR comparator.
45	RFI	I	Input terminal to input RF summing amplifier output by capacitance combination.
46	RFO	O	Output terminal for RF summing amplifier. Check point for eye pattern.
48	TZC	I	Tracking zero-cross comparator input terminal.

CXA1372S



NOTE ON 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.

WARNING:

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

• Resistors

Ex.: RN 14K 2E 182 G FR

Type / Shape and performance / Power / Resistance / Allowable error / Others

RD : Carbon RC : Fixed RS : Metallic film RW : Winding RN : Metal film RK : Metal mixture	2B : 1/4W 2E : 1/4W 2H : 1/2W 3A : 1W 3D : 2W 3F : 3W 3H : 5W	F : ±1% G : ±2% J : ±5% K : ±10% M : ±20%	P : Pulse-resistant type NL : Low noise type NB : Non-burning type FR : Fuse resistor F : Lead wire forming

Resistance

1 8 2 ⇨ 1800Ω = 1.8kΩ

- 2-digit effective number, decimal point indicated by R.
- Indicates number of zeros after effective number
- Units: Ω

• Capacitors

Ex.: CE 04W 1H 2R2 M BP

Type / Shape and performance / Dielectric strength / Capacity / Allowable error / Others

CE : Aluminum foil electrolyte CA : Aluminum solid electrolyte CS : Tantalum electrolyte CQ : Film CK : Ceramic CC : Ceramic CP : Oil CM : Mica CF : Metallized CH : Metallized	0J : 6.3V 1A : 10V 1C : 16V 1E : 25V 1V : 35V 1H : 50V 2A : 100V 2B : 125V 2C : 160V 2D : 200V 2E : 250V 2H : 500V 2J : 630V	F : ±1% G : ±2% J : ±5% K : ±10% M : ±20% Z : +80% -20% P : +100% -0% C : ±0.25pF D : ±0.5pF = : Others	HS : High stability type BP : Non-polar type HR : Ripple-resistant type DL : For charge and discharge HF : For assuring high frequency U : UL part C : CSA part W : UL-CSA type F : Lead wire forming

Capacity

2 R 2 ⇨ 2.2μF

- 1-digit effective number, decimal point indicated by R.
- 2-digit effective number, decimal point indicated by R.
- Units: μF, (for P, pF (μμF)
- When the dielectric strength is indicated in AC, "AC" is included after the dielectric strength value.

PRINTED WIRING BOARD PARTS LIST

2U-2371 MAIN UNIT

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTOR GROUP			
IC101	262 1305 001	IC CXA1372S	
IC103~106	263 0565 007	IC BA15218	
IC201	262 1566 002	IC M38173M6-129FP	
IC202	262 1514 009	IC CXD2500AQ	
IC203	262 1567 001	IC X24C08P	
IC205	262 1265 002	IC TC74HCU04AP	
IC301	262 1450 008	IC SM5840CP	
IC302,303	262 1180 006	IC CF37606	
IC304	262 1265 002	IC TC74HCU04AP	
IC306,307	262 1171 002	IC PCM61P	
IC308,309	262 0864 006	IC μPC4570C	
IC501	263 0693 005	IC M5290P	
IC502~505	268 0073 905	IC Protector ICP-N15T	
TR101	272 0025 907	Transistor 2SB562(C)TF	
TR102	274 0036 905	Transistor 2SD468(C)TF	
TR103	272 0025 907	Transistor 2SB562(C)TF	
TR104	274 0036 905	Transistor 2SD468(C)TF	
TR105	272 0025 907	Transistor 2SB562(C)TF	
TR106	274 0036 905	Transistor 2SD468(C)TF	
TR107	272 0025 907	Transistor 2SB562(C)TF	
TR108	274 0036 905	Transistor 2SD468(C)TF	
TR180	272 0025 907	Transistor 2SB562(C)TF	
TR181	274 0136 009	Transistor 2SD1913	
TR182	272 0025 907	Transistor 2SB562(C)TF	
TR183	274 0036 905	Transistor 2SD468(C)TF	
TR184	272 0025 907	Transistor 2SB562(C)TF	
TR185	274 0036 905	Transistor 2SD468(C)TF	
TR190	269 0040 902	Digital Tr. DTC144ES(47K-47K)	
TR501	274 0136 009	Transistor 2SD1913	
TR502	272 0093 007	Transistor 2SB1274	
TR503	271 0101 925	Transistor 2SA933(Q)T-70	
TR702	269 0014 909	Digital Tr. DTA124XS(22K-47K)	
TR703	269 0020 906	Digital Tr. DTC114ES(10K-10K)	
TR704	271 0101 925	Transistor 2SA933(Q)T-70	
TR706,707	274 0160 907	Transistor 2SD2144STPU	
TR711	274 0036 905	Transistor 2SD468(C)TF	
TR712	272 0025 907	Transistor 2SB562(C)TF	
D501~506	276 0553 905	Diode 1SR35-200A(T93X)	
D507	276 0483 910	Zener Diode HZS30-2TD	
D508	276 0465 912	Zener Diode HZS7B-2TD	
D701	276 0432 903	Diode 1SS270A TE	
RESISTOR GROUP			
VR101,102	211 6077 912	Adjust 20K ohm	V06PB203
VR302,303	211 6077 938	Adjust 100K ohm	V06PB104
CAPACITOR GROUP			
C103	255 1206 908	Film 0.0033μF/50V	CQ93M1H332JT
C104	253 1179 990	Ceramic 560pF/50V	CK45B1H561KT
C107	256 1034 937	Metallized 0.047μF/50V	CF93A1H473JT

Ref. No.	Part No.	Part Name	Remaks
C108	255 1204 900	Film 0.0022μF/50V	CQ93M1H222JT
C109~112	256 1034 979	Metallized 0.1μF/50V	CF93A1H104JT
C113	254 4337 910	Electrolytic 6.8μF/50V	CE04W1H6R8MT
C114	256 1035 910	Metallized 0.22μF/50V	CF93A1H224JT
C116	255 1212 905	Film 0.01μF/50V	CQ93M1H103JT
C118,119	253 1180 921	Ceramic 0.001μF/50V	CK45B1H102KT
C120,121	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103ZT
C122,123	254 4260 919	Electrolytic 0.22μF/50V	CE04W1HR22MT
C124	255 1212 905	Film 0.01μF/50V	CQ93M1H103JT
C125	256 1034 911	Metallized 0.033μF/50V	CF93A1H333JT
C126	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103ZT
C127	255 1206 908	Film 0.0033μF/50V	CQ93M1H332JT
C128	255 1212 905	Film 0.01μF/50V	CQ93M1H103JT
C129	255 1209 905	Film 0.0056μF/50V	CQ93M1H562JT
C131	255 1212 905	Film 0.01μF/50V	CQ93M1H103JT
C132	253 1179 929	Ceramic 150pF/50V	CK45B1H151KT
C133	253 4536 970	Ceramic 20pF/50V	CC45SL1H200JT
C135	254 3055 918	Electrolytic 10μF/35V Bipolar	CE04D1V100MBPT
C136	253 4443 908	Ceramic 200pF/50V	CC45SL1H201JT
C138	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT
C139,142	253 4537 979	Ceramic 51pF/50V	CC45SL1H510JT
C148	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT
C150,151	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT
C153	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT
C155	253 1181 904	Ceramic 0.01μF/50V	CK45=F1H103ZT
C160~163	253 1180 921	Ceramic 0.001μF/50V	CK45B1H102KT
C175	256 1034 979	Metallized 0.1μF/50V	CF93A1H104JT
C176	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103ZT
C180	253 4536 941	Ceramic 15pF/50V	CC45SL1H150JT
C181	253 4538 910	Ceramic 75pF/50V	CC45SL1H750JT
C182	253 4536 941	Ceramic 15pF/50V	CC45SL1H150JT
C201	253 4538 949	Ceramic 100pF/50V	CC45SL1H101JT
C202	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT
C203	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103ZT
C204	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT
C210	256 1034 937	Metallized 0.047μF/50V	CF93A1H473JT
C211	253 1180 947	Ceramic 0.0015μF/50V	CK45B1H152KT
C212	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT
C223,224	253 4535 955	Ceramic 5pF/50V	CC45SL1H050CT
C253	254 4254 954	Electrolytic 220μF/16V	CE04W1C221MT
C301	253 1179 961	Ceramic 330pF/50V	CK45B1H331KT
C302,303	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT
C304,305	253 1180 918	Ceramic 820pF/50V	CK45B1H821KT
C306,307	253 4442 909	Ceramic 180pF/50V	CC45SL1H181JT
C308,309	253 1180 921	Ceramic 0.001μF/50V	CK45B1H102KT
C310,311	253 4443 908	Ceramic 200pF/50V	CC45SL1H201JT
C316,317	254 4250 929	Electrolytic 100μF/6.3V	CED04W0J101MT
C501	254 4254 792	Electrolytic 2200μF/16V	CE04W1C222MC
C502	254 4255 717	Electrolytic 4700μF/16V	CE04W1C472MC
C503,504	254 4254 954	Electrolytic 220μF/16V	CE04W1C221MT
C505	254 4260 964	Electrolytic 3.3μF/50V	CE04W1H3R3MT
C507	254 4261 918	Electrolytic 47μF/50V	CE04W1H470MT
C508	254 4261 921	Electrolytic 100μF/50V	CE04W1H101MT
C509,510	254 4261 905	Electrolytic 33μF/50V	CE04W1H330MT
C511	254 4260 964	Electrolytic 3.3μF/50V	CE04W1H3R3MT
C701	254 4260 948	Electrolytic 1μF/50V	CE04W1H010MT
C703	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT

2U-2372 DISPLAY UNIT

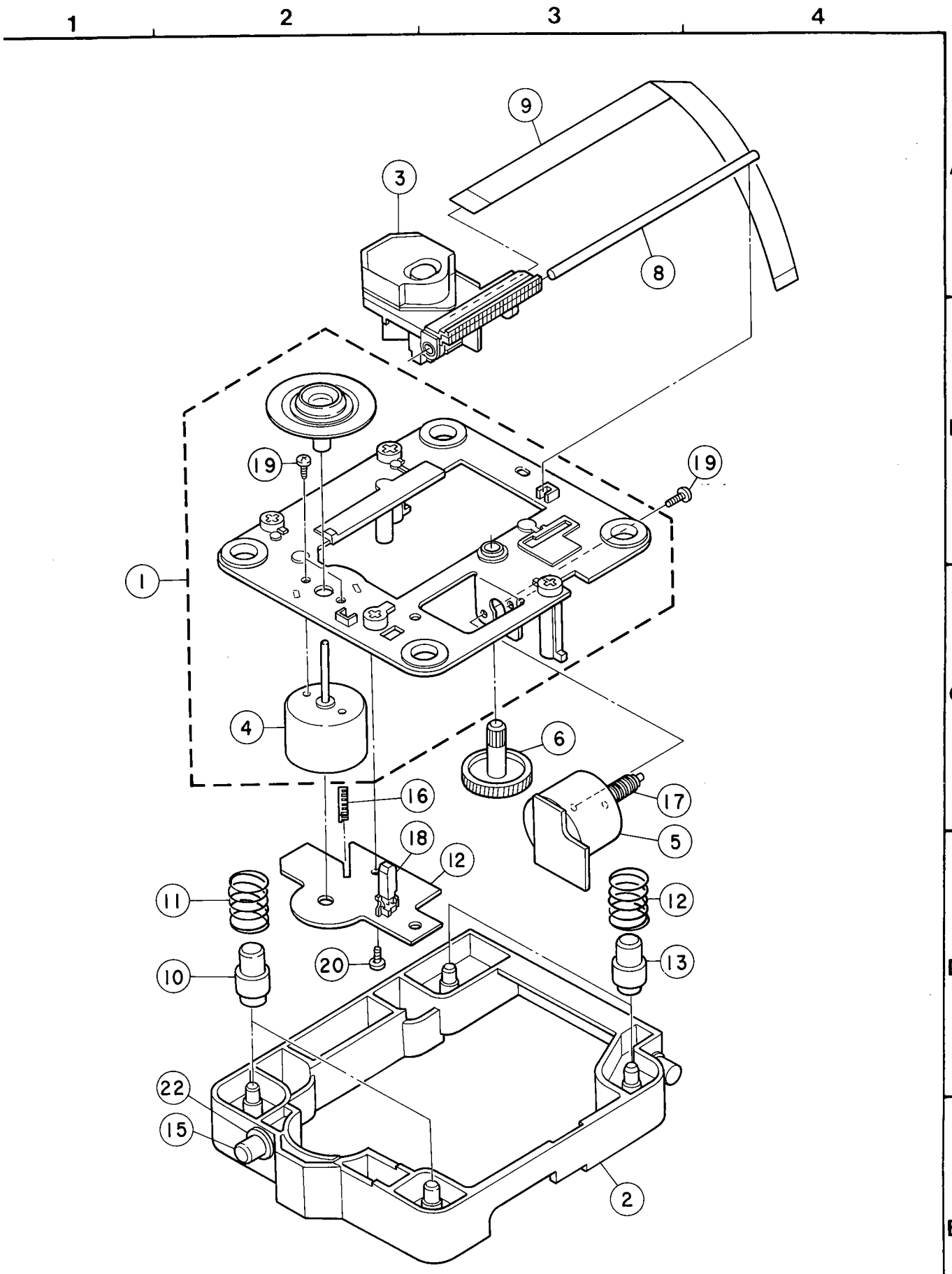
Ref. No.	Part No.	Part Name	Remarks
C704	253 4538 949	Ceramic 100pF/50V	CC45SL1H101JT
C710~714	253 1180 921	Ceramic 0.001μF/50V	CK45B1H102KT
C716,717	254 4254 941	Electrolytic 100μF/16V	CE04W1C101MT
C730	253 9036 909	Ceramic 0.1μF/25V	CK45=1E104ZT
C731	254 4254 925	Electrolytic 33μF/16V	CE04W1C330MT
C734	254 4254 954	Electrolytic 220μF/16V	CE04W1C221MT
C910	254 3056 917	Electrolytic 1μF/50V	CE04B1H010MBP
OTHER PARTS			
X200	399 0036 013	X'tal (16.9344MHz)	
	231 8063 009	PULSE TRANS	
	204 8373 001	2P PIN JACK	OUT(FIX, VAR)
	204 8356 002	1P PIN JACK	OUT(COAXIAL)
CB101	205 0683 006	FFC CONN. BASE (12P)	
CB102	205 0343 058	5P CONN. BASE(KR-PH)	
CB103	205 0406 063	6P CONN. BASE(KR-PH)	
CB104	205 0543 036	3P CONN. BASE(YEL)	
CB105	205 0406 034	3P CONN. BASE(KR-PH)	
CB106	205 0343 032	3P CONN. BASE(KR-PH)	
CB107	205 0321 038	3P CONN. BASE(RED)	
CB108	205 0323 036	3P CONN. BASE(BLK)	
CB501	205 0343 036	6P CONN. BASE(KR-PH)	
	205 0581 001	2P VH CONN. BASE	
CB701	205 0375 000	10P CONN. BASE(KR-PH)	
	205 0491 010	31P FFC CONN.BASE	
	212 1072 009	DETECT SW (SSCF21)	
	278 0009 002	PT491F (ORIMAGE)	PHOTO TRANSISTOR
	278 0010 004	GL450 (ORIMAGE)	PHOTO DIODE
	203 4805 020	3P PH-SAN CONN. CORD	
	203 4805 033	3P PH-SAN CONN. CORD	
	204 0349 004	6P PH-SAN CONN. CORD	
	203 4850 004	3P PH-SAN CONN. CORD	
⚠	233 5941 007	POWER TRANSFORMER (EU)	

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTOR GROUP			
IC705	263 0565 007	IC BA15218	
TR600,601	274 0160 907	Transistor 2SD2144STPU	
D601~607	276 0432 903	Diode 1SS270A TE	
CAPACITOR GROUP			
C702,703	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103ZT
C705,706	253 4538 907	Ceramic 68pF/50V	CC45SL1H680J
C721,722	254 4254 909	Electrolytic 10μF/16V	CE04W1C100MT
OTHER PARTS			
	212 5604 910	LIGHT TOUCH SWITCH	
	212 1039 000	1P PUSH SWITCH	POWER
	393 4132 009	FL TUBE (FIP 8RM6)	
	499 0150 008	REMOTE SENSOR (SBX1610-52)	
	204 8341 004	HEAD PHONE JACK	
	205 0491 010	31P FFC CONN. BASE	
CB111	205 0343 045	4P CONN. BASE (KR-PH)	
CB115	205 0355 046	4P KR CONN. BASE(L)	
FC601	009 0063 002	31P FFC CABLE	
	203 0422 041	1P CONTACT ASS'Y	
	211 0747 015	V1620V30FA103K	
	278 0006 005	PHOTO INT	
	217 0172 002	POWER MOTOR (ROULETTE)	
	203 6213 005	4P KR-DA CONN. CORD	
	203 6218 026	4P KR-DA CONN. CORD	
	204 2329 022	10P SAN-PH CONN. CORD	

PARTS LIST OF MECHANISM EXPLODED VIEW (FG-30)

Ref. No.	Part No.	Part Name	Remarks
1	GEN 1636	SPINDLE MOTOR SUB ASS'Y	
2	GEN 1408	MECHA. FRAME SUB ASS'Y	
3	499 0191 009	LASER P.U	(KSS-240A)
5	GEN 1397	SLIDE MOTOR SUB ASS'Y	
6	424 0164 003	HELICAL GEAR	
8	443 1094 005	P.U SHAFT	
9	009 0051 001	12P. FFC	
10	462 0078 104	DAMPER	
11	463 0583 100	SPRING (F)	
12	461 0661 000	SPRING F. (R)	
12	2U- 2298	MOTOR SWITCH UNIT	
13	462 0078 117	DAMPER	
15	443 1036 005	MECHA. GUIDE PIN	
16	443 1093 006	FFC CLAMPER	
17	424 0128 007	SLIDE MOTOR	
18	212 6013 005	INNER SWITCH (PU)	
19	471 3801 039	2×3 CBS-Z SCREW	
20	473 7505 010	2.6×6 CBTS(P)-Z SCREW	
22		WASHER	

EXPLODED VIEW OF MECHANISM UNIT



PARTS LIST OF EXPLODED VIEW

Ref. No.	Part No.	Part Name	Remarks
◉ 1	103 1483 501	MECHA. CHASSIS	
◉ 2	105 0988 207	REAR PANEL	U.S.A.
◉	105 0988 249	REAR PANEL	Canada
◉ 3	105 0989 400	BOTTOM COVER	
4	104 0208 007	FOOT ASS'Y	
◉ 5	103 1522 006	SUB PANEL ASS'Y	
◉ 6	144 2179 006	FRONT PANEL	
◉ 7	2U- 2372	DISPLAY UNIT	
◉ 7-1		DISPLAY UNIT	
◉ 7-2		HEAD PHONE UNIT	
◉ 7-3		ROULETTE MOTOR UNIT	
◉ 7-4	ROULETTE MOTOR UNIT		
◉ 7-5	VOLUME UNIT		
◉ 8	2U- 2371	P.W.B. UNIT	
◉ 8-1		MAIN UNIT	
◉ 8-2		POWER TRANS. UNIT	
◉ 8-3		ROULETTE SENSOR UNIT	
◉ 9	431 0313 108	LOADER FRAME	
◉ 10	421 0593 109	ROULETTE	
11	146 1297 008	LOADER PANEL	
12	424 0174 103	HELICAL GEAR	
◉ 15	461 0689 008	HIMERON SHEET	
◉ 16	412 3349 107	MOTOR BRACKET	
17	GEN 1682	ROULETTE MOTOR SUB ASS'Y	
◉ 19	412 3350 109	LOADER BRACKET	
◉ 20	461 0659 009	LOADER STOPPER	
◉ 21	412 3348 108	FRONT BRACKET	
22	009 0063 002	31P FFC CABLE	
24	393 4132 009	FL TUBE	(FIP 8RM6)
25	499 0150 008	REMOTE SENSOR	(SBX1610-52)
26	113 1496 003	FUNCTION KNOB	
27	113 1497 002	SERIES KNOB	
28	211 0747 002	VARIABLE RESISTOR	(V1620V30FA103)
29	204 8341 004	HEAD PHONE JACK	
30	212 1039 000	1P PUSH SWITCH	
◉ 31	143 0504 007	REMOTE SENSOR WINDOW	
32	113 1357 207	POWER SWITCH KNOB	
33	112 0703 008	HEAD PHONE KNOB	
⚠ 34	206 2086 002	AC CORD WITH CONNECTOR	
⚠ 35	445 0056 008	CORD BUSH	
⚠ 36	233 5941 007	POWER TRANSFORMER	
37	FG- 30	CD MECHA. UNIT	
38	424 0172 105	CLAMPING CAM	
39	421 0573 006	CLAMP YOKE	
40	431 0205 009	CLAMP FERRO	
41	421 0574 306	CLAMPER PRESS	
43	424 0173 104	LOADING GEAR	
44	GEN 1680	LOADING MOTOR SUB ASS'Y	
45	424 0130 011	PULLEY GEAR	
46	423 0061 006	BELT	
47	GEN 1678	CLAMP MOTOR SUB ASS'Y	
48	424 0130 008	PULLEY GEAR	
49	423 0061 006	BELT	
◉ 50	443 1161 006	COLLAR	
51	204 8356 002	1P PIN JACK	
52	204 8373 001	2P PIN JACK	
53	204 8373 001	2P PIN JACK	
56	424 0093 116	WORM GEAR ASS'Y	
◉ 57	102 0479 005	TOP COVER	
58	477 0096 007	PUSH RIVET	
59	475 1005 017	4W WASHER	
60	473 7501 014	3×14 CBTS(P)-Z SCREW	
◉ 63	412 3442 004	BLIND PLATE	
64	461 0690 000	MOTOR SPRING	
◉ 65	412 3400 004	EARTH PLATE	
◉ 66	412 3371 007	SUPPORT BRACKET	
◉ 67	421 0574 306	CLAMPER PRESS	
70	441 1401 003	WASHER	
71	441 1401 045	WASHER	
◉ 72	412 3446 000	CAM STOPPER	
◉ 74	441 1402 002	ROULETTE STOPPER	
101	473 7509 016	4×10 CBTS(P)-B SCREW	
102	473 7015 018	3×8 CBTS(S)-B SCREW	
103	477 0262 006	SPECIAL SCREW	
104	473 7508 017	3×10 CBTS(P)-B SCREW	
105	473 7500 015	3×8 CBTS(P)-Z SCREW	
106	473 7512 016	3×12 CFTS(P)-B SCREW	
108	473 7002 021	3×8 CBTS(S)-B SCREW	
109	473 7002 018	3×8 CBTS(S)-Z SCREW	
120	471 8301 039	2×3 CBS-Z SCREW	
121	473 7500 060	3×18 CBTS(P) SCREW	
122	473 7508 059	3×20 CBTS(P)-B SCREW	

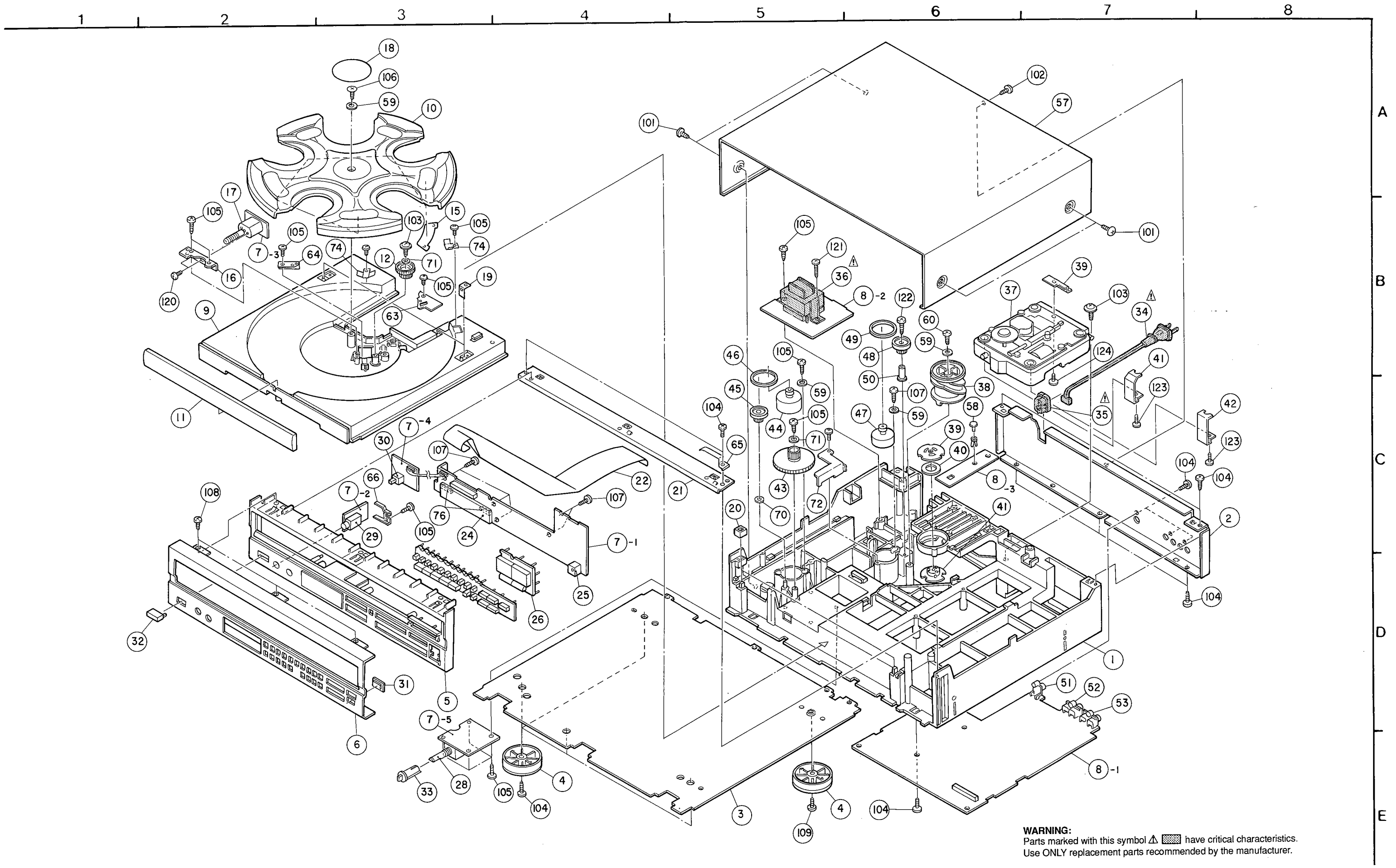
DCM520 PACKING & ACCESSORIES

Ref. No.	Part No.	Part Name	Remarks	Q'ty
	504 0092 060	STYRENE PAPER	AC CORD	1
	505 0102 089	STYRENE PAPER		1
	503 0970 008	CUSHION		2
	501 1543 027	CARTON CASE		1
	505 8006 019	ENVELOPE		1
	511 2256 006	INST. MANUAL(1)	U.S.A.	1
	511 2259 003	INST. MANUAL(2)	Canada	1
	203 6305 007	2P PIN CORD		1
	499 0226 000	REMOTE CONTROLLER	RC-239	1

WARNING:

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

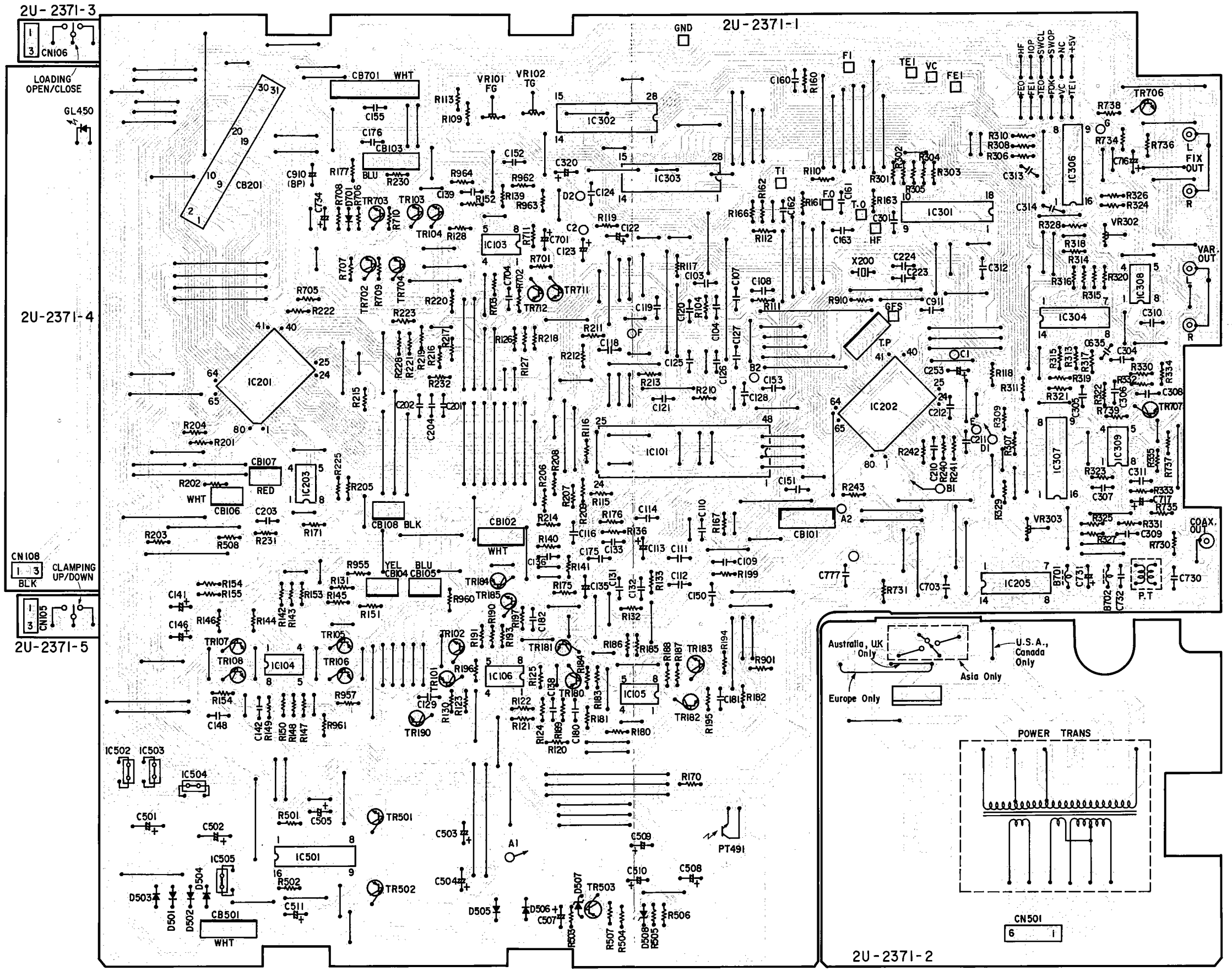
EXPLODED VIEW



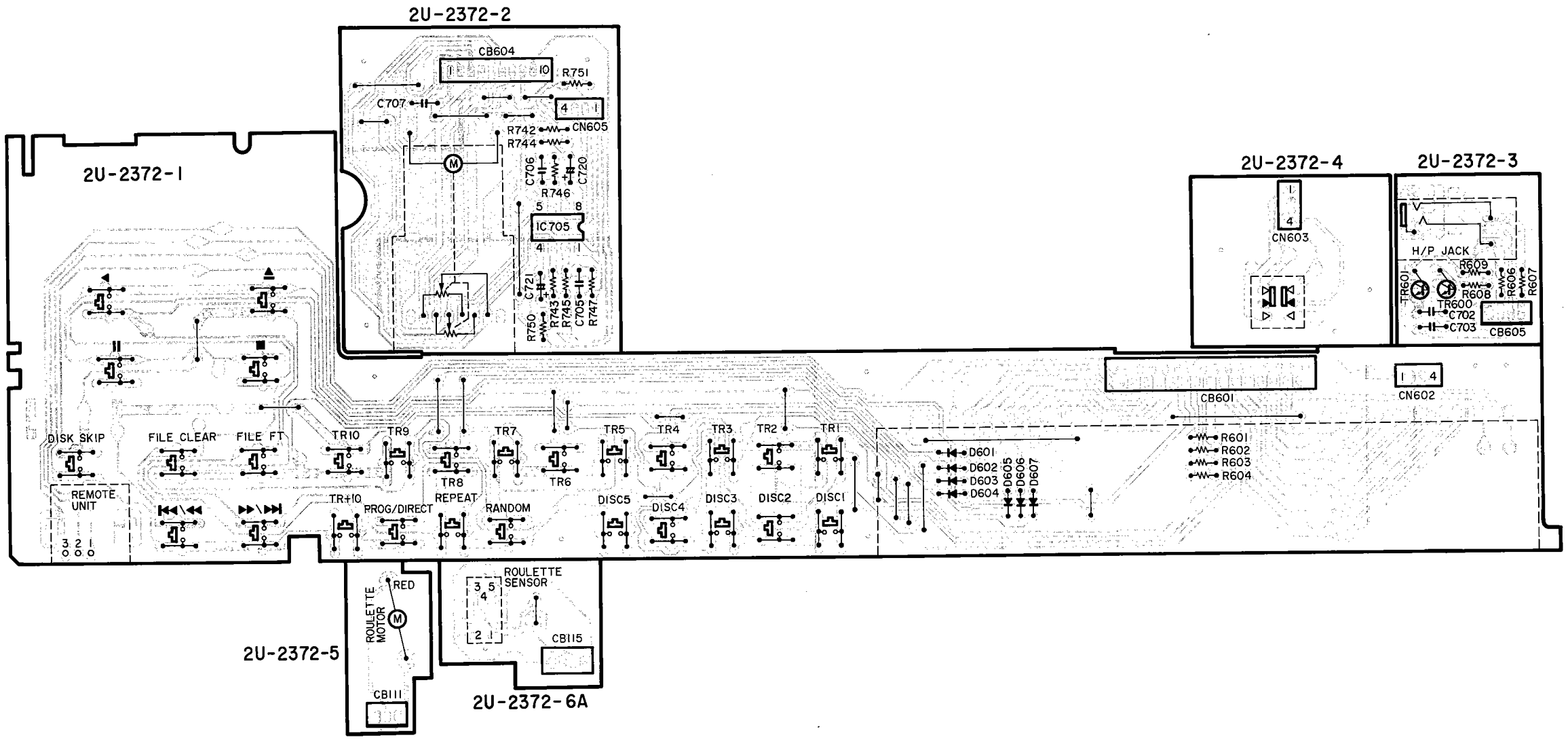
WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

P.W.BOARD

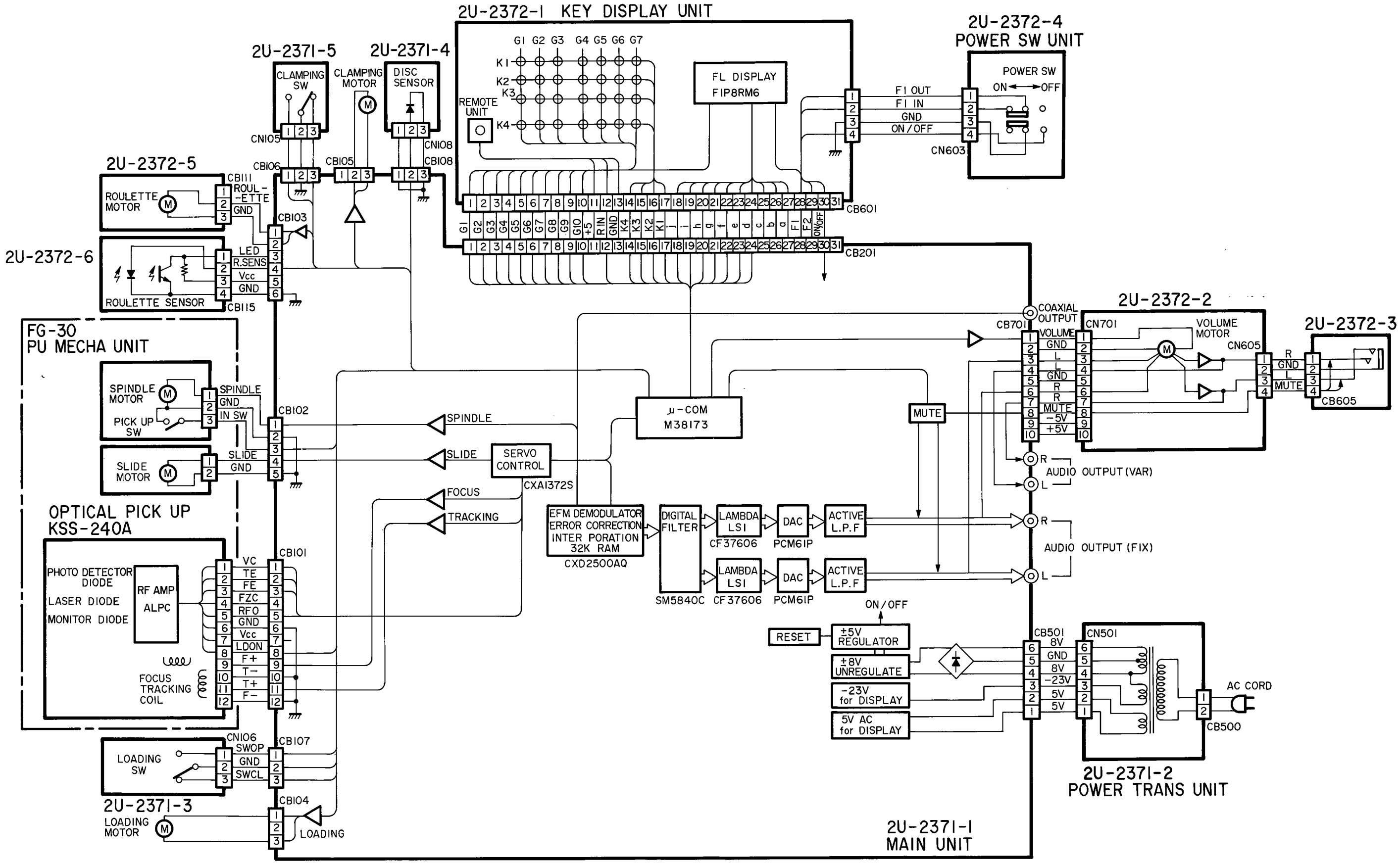
2U-2371 MAIN UNIT



2U-2372 DISPLAY UNIT

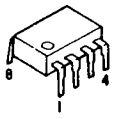


WIRING DIAGRAM

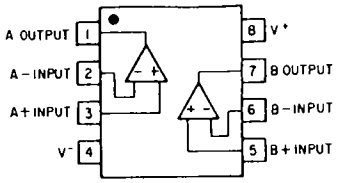


SEMICONDUCTORS

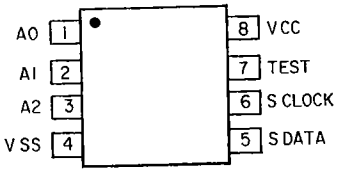
● IC's



BA15218
µPC4570C
X24C08P



BA15218
µPC4570C



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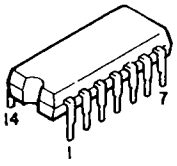

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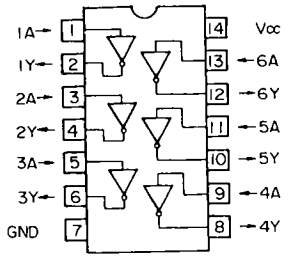

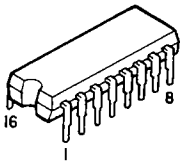

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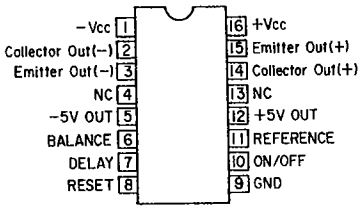

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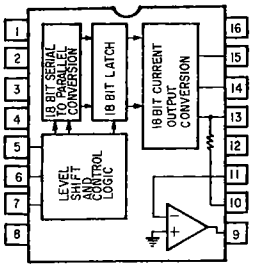

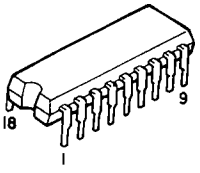

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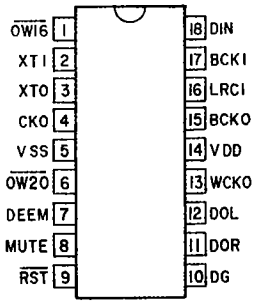

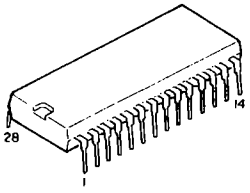

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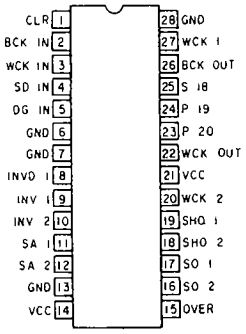

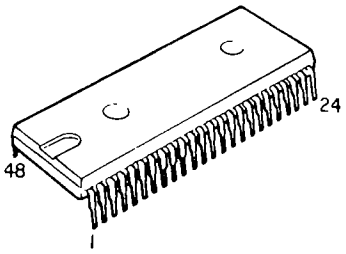

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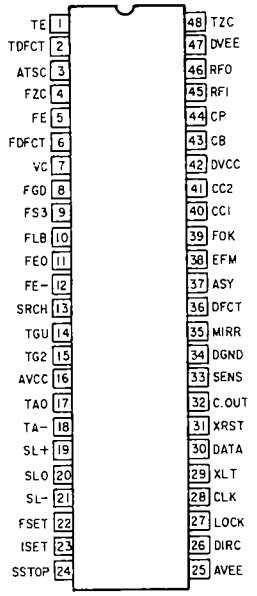

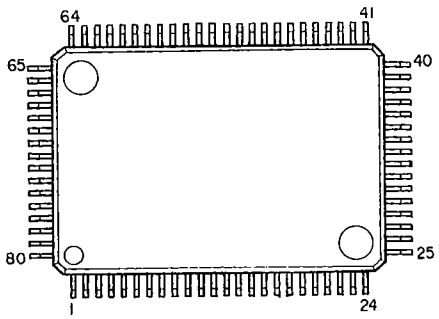

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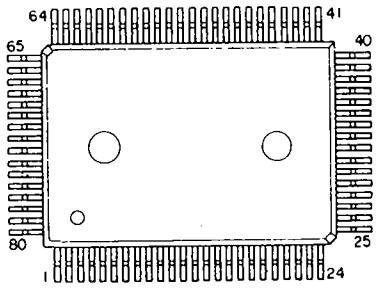

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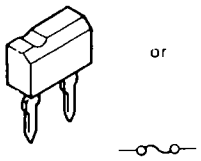

ICP-F15

ICP-N15

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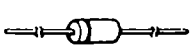

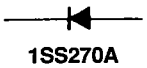

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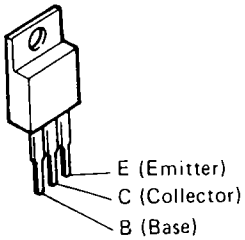
HZS7B-2
HZS27-2

● TRANSISTORS



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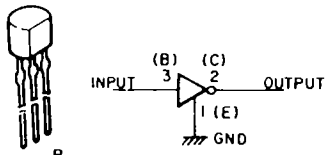

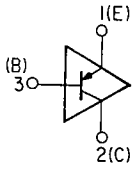

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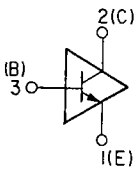

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