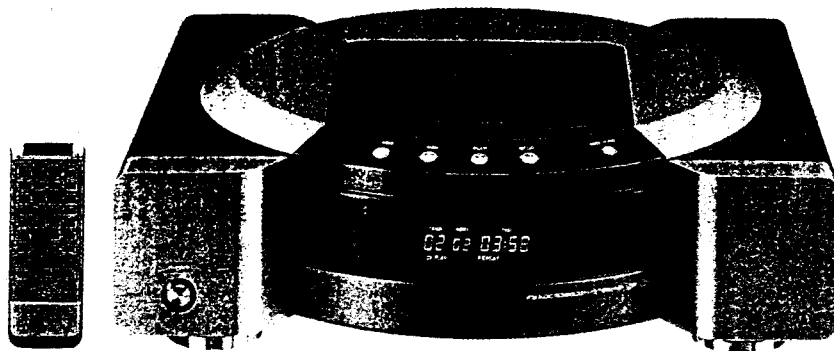


DENON

Hi-Fi Component

SERVICE MANUAL MODEL DP-S1 CD TRANSPORT



— TABLE OF CONTENTS —

OPERATING INSTRUCTIONS	2 - 11
SPECIFICATIONS	12
NOTE FOR HANDLING OF LASER PICK-UP	13, 14
DISASSEMBLY	15
ADJUSTMENT	16 - 22
SEMICONDUCTORS	23 - 29
PARTS LIST OF P.W.BOARD	30 - 33
PARTS LIST OF MECHANISM UNIT	33
EXPLODED VIEW OF MECHANISM UNIT	33
PARTS LIST OF EXPLODED VIEW	34
PARTS LIST OF PACKING & ACCESSORIES	34
EXPLODED VIEW	35
P.W.BOARD	36, 37
WIRING DIAGRAM	38
SCHEMATIC DIAGRAM	39, 40

NIPPON COLUMBIA CO., LTD.

IMPORTANT TO SAFETY

WARNING:

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

CAUTION:

- 1. Handle the power supply cord carefully. Do not damage or deform the power supply cord... 2. Do not open the top cover... 3. Do not place anything inside...

Please, record and retain the Model name and serial number of your set shown on the rating label

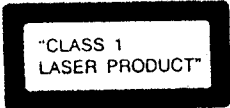


CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

CLASS 1 LASER PRODUCT LUOKAN 1 LASERLAITE KLASSE 1 LASERAPPARAT



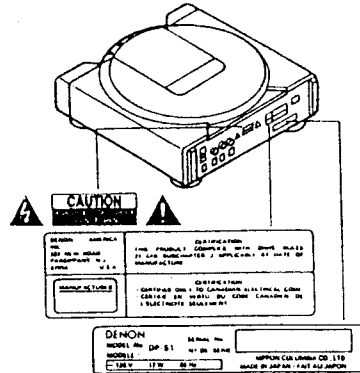
ADVARSEL: USTYRLIG LASERSTRÅLING VED ÅBNING... VARNING: OM APPARATEN ANVÄNDS PÅ ANNAT SÄTT ÄN I DENNA BRUKSANVISNINGEN...



NOTE:

This CD transport uses the semiconductor laser. To allow you to enjoy music at a stable operation, it is recommended to use this in a room of 5 C (41 F) - 35 C (95 F).

LABELS (for U.S.A. model only)



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

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

NOTE:

This unit may cause interference to radio and television reception if you do not operate it in strict accordance with this OPERATING INSTRUCTIONS

This unit complies with Class B computing device rules in accordance with the specifications in Sub-part J or Part 15 of the FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation.

- a) Turn the other unit to improve reception
b) Move this unit
c) Move this unit away from others
d) Plug this unit respectively into a different AC outlet

* This is note in accordance with Section 15.838 of the FCC Rules.

IMPORTANT (BRITISH MODEL ONLY)

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

Blue: Neutral Brown: Live

The colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black

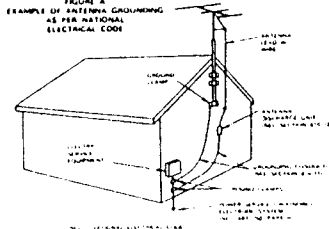
The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red

SAFETY INSTRUCTIONS

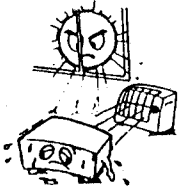

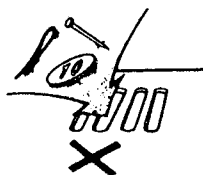
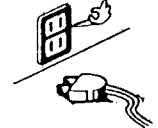

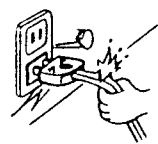
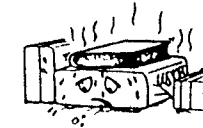

- 1. Read Instructions - All the safety and operating instructions should be read before the appliance is operated.
2. Retain Instructions - The safety and operating instructions should be retained for future reference.
3. Heed Warnings - All warnings on the appliance and in the operating instructions should be adhered to.
4. Follow Instructions - All operating and use instructions should be followed.
5. Water and Moisture - The appliance should not be used near water...
6. Carts and Stands - The appliance should be used only with a cart or stand that is recommended by the manufacturer.
6A. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.
7. Wall or Ceiling Mounting - The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
8. Ventilation - The appliance should be situated so that its location or position does not interfere with its proper ventilation.
9. Heat - The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
10. Power Sources - The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
11. Grounding or Polarization - Precautions should be taken so that the grounding or polarization means of an appliance is not defeated.
12. Power Cord Protection - Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them.
14. Clearing - The appliance should be cleaned only as recommended by the manufacturer.
15. Power Lines - An outdoor antenna should be located away from power lines.
16. Outdoor Antenna Grounding - If an outside antenna is connected to the receiver, be sure the antenna system is grounded so as to provide some protection against voltage surges and built-up static charges.
17. Nonuse Periods - The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
18. Object and Liquid Entry - Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
19. Damage Requiring Service - The appliance should be serviced by qualified service personnel when:
A. The power supply cord or the plug has been damaged, or
B. Objects have fallen, or liquid has been spilled into the appliance, or
C. The appliance has been exposed to rain, or
D. The appliance does not appear to operate normally or exhibits a marked change in performance, or
E. The appliance has been dropped, or the enclosure damaged.
20. Servicing - The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.



FIGURE A EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE



NOTE ON USE/OBSERVATIONS RELATIVES A L'UTILISATION/NOTAS SOBRE EL USO

 <ul style="list-style-type: none"> • Avoid high temperatures. Allow for sufficient heat dispersion when installed on a rack. • Eviter des températures élevées. Tenir compte d'une dispersion de chaleur suffisante lors de l'installation sur une étagère. • Evite altas temperaturas. Permita la suficiente dispersión del calor cuando está instalado en la consola. 	 <ul style="list-style-type: none"> • Keep the set free from moisture, water, and dust. • Protéger l'appareil contre l'humidité, l'eau et la poussière. • Mantenga el equipo libre de humedad, agua y polvo. 	 <ul style="list-style-type: none"> • Do not let foreign objects in the set. • Ne pas laisser des objets étrangers dans l'appareil. • No deje objetos extraños dentro del equipo.
 <ul style="list-style-type: none"> • Unplug the power cord when not using the set for long periods of time. • Débrancher le cordon d'alimentation lorsque l'appareil n'est pas utilisé pendant de longues périodes. • Desconecte el cordón de energía cuando no utilice el equipo por mucho tiempo. 	 <ul style="list-style-type: none"> • Do not let insecticides, benzene, and thinner come in contact with the set. • Ne pas mettre en contact des insecticides, du benzène et un diluant avec l'appareil. • No permita el contacto de insecticidas, gasolina y diluyentes con el equipo. 	
 <ul style="list-style-type: none"> • Handle the power cord carefully. Hold the plug when unplugging the cord. • Manipuler le cordon d'alimentation avec précaution. Tenir la prise lors du débranchement du cordon. • Maneje el cordón de energía con cuidado. Sostenga el enchufe cuando desconecte el cordón de energía. 	 <p>*(For sets with ventilation holes)</p> <ul style="list-style-type: none"> • Do not obstruct the ventilation holes. • Ne pas obstruer les trous d'aération. • No obstruya los orificios de ventilación. 	 <ul style="list-style-type: none"> • Never disassemble or modify the set in any way. • Ne jamais démonter ou modifier l'appareil d'une manière ou d'une autre. • Nunca desarme o modifique el equipo de ninguna manera.

In order to make operation more easily understandable, the illustrations used in these instructions differ slightly in places with the actual product.

We greatly appreciate your purchase of this Denon product. To ensure that you take fullest advantage of your CD transport, read these instructions carefully before using the unit and be sure to always operate it properly. After reading these instructions, be sure to keep them for future reference should questions or problems arise.

— TABLE OF CONTENTS —

FEATURES	6
INSTALLATION PRECAUTIONS	7
THE COMPACT DISC	7
NAMES AND FUNCTIONS OF PARTS	8~10
CONNECTIONS	11, 12
OPENING AND CLOSING THE DOOR AND LOADING DISCS	13
NORMAL CD PLAYBACK	14
ADVANCED CD PLAYBACK	14~18
TIMER-CONTROLLED PLAYBACK	18
PLAYBACK USING THE REMOTE CONTROL UNIT	19, 20
TROUBLESHOOTING	21
SPECIFICATIONS	22

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

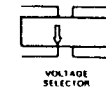
- (1) Operating Instructions 1
- (2) Connection Cord 1
- (3) Remote Control Unit RC-248 1
- (4) Remote Control Unit Case 1
- (5) R03 AAA Dry Cell Battery 2
- (6) Stabilizer 1
- (7) Stabilizer Case 1

IMPORTANT
(CANADIAN MODEL ONLY)

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

• Line Voltage Selection (for multiple voltage models only)

- Be sure to check that the voltage selector on the rear panel is set to the proper voltage.
- If not, contact your store of purchase.
- Never remove screws or try to switch the voltage selector on your own.



• FOR U.S.A. & CANADA MODEL ONLY

CAUTION

TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

• POUR LES MODELES AMERICAINS ET CANADIENS UNIQUEMENT

ATTENTION

POUR PREVENIR LES CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

FEATURES

The DP-S1 is a top quality CD transport developed based on a policy of fully eliminating vibration and resonance within an innovative design. Vibration and resonance are eliminated through a newly developed pickup mechanism, a large stabilizer, triple-layer flotation, and a frame design which keeps the influence of external acoustic pressure to the absolute minimum. The DP-S1 provides five types of digital outputs and an ultra high-speed synchronous optical link (ST-GEN LOCK) for ultimate synchronized driving.

(1) Newly developed pickup mechanism unit

1. A strong cast aluminum pickup base thoroughly eliminates extraneous vibration.
2. A high torque motor provides accurate, extremely smooth rotation, minimizing jitter. In addition, the self-centering stainless steel turntable is driven with an ultra-thick spindle shaft (6mm in diameter), and a very hard, low friction ruby (5mm in diameter) is used for the bearing, providing outstandingly high endurance.
3. The opening of the disc loading section is air-shielded with a special rubber material to suppress the effect of air vibration entering through gaps, greatly improving the airtightness of the pickup mechanism.

(2) Extremely stable disc playback thanks to a large stabilizer (included)

1. The stabilizer holds the disc down to correct any warping in the disc and prevent jitter during signal readout.
2. The stabilizer also thoroughly suppresses any resonance in the disc itself.
3. The moment of inertia generated by the stabilizer, which is heavier than the disc, creates extremely stable rotation and improves the readout jitter margin.

(3) Thorough anti-resonant construction

1. The large insulator absorbs vibrations from the floor through a combination of aluminum and sintered alloy.
2. The mechanism base which supports the pickup mechanism is floated from the frame with elastic rubber.
3. The pickup mechanism is itself floated with an oil damper and spring. This Triple Floating Mechanism structure shuts out external vibration to provide playback with excellent vibration resistance.
4. The highly rigid pickup mechanism is placed at the center where it is least likely to be affected by external vibration. This also makes for excellent weight distribution.
5. The heavyweight chassis and low center of gravity create an ideal non-resonant design.
6. The design makes use of spherical surfaces and radial forms to keep the influence of external acoustic pressure to a minimum.

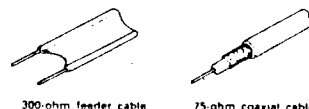
(4) Synchronized driving with an ultra high speed synchronized optical link (ST-GEN LOCK)

1. The speed at which data transfer is a very rapid 50 Mbit/sec, nearly 10 times that of conventional optical links (6 Mbit/sec). This virtually eliminates transmission distortion due to signal delay (jitter).
2. The D/A converter master clock is synchronized with the CD Transport clock, improving clock precision and suppressing jitter.
3. The AT&T ST-LinkTM system is used for the interface, allowing direct one-way connection to high quality foreign-made D/A converters.

INSTALLATION PRECAUTIONS

If the DP-S1 or other electronic equipment using microprocessors is used at the same time as a tuner or TV, noise or disturbance may be produced in the sound or picture on the tuner or TV. If this should happen, please take the following measures:

- Keep the DP-S1 as far away from the tuner or TV set as possible.
- Keep the power cable and connecting cables of the DP-S1 separate from the antenna wires of the tuner and TV.
- Interference is particularly 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

- Noise may be heard in AM or FM broadcasts if the DP-S1 is turned on while listening to AM or FM broadcasts. If this happens, turn the DP-S1's power off.
- Humming may occur if the DP-S1 is installed near a TV or other audio component or if their connection cords are nearby. If this happens, try setting the components or their connection cords in a different position.
- Always remove discs when moving the DP-S1. Discs may be damaged if left in the DP-S1.
- Do not insert any objects other than discs in the disc insertion slot, as this may damage the DP-S1.
- Do not move the DP-S1 suddenly from a cold place to a warm one. If this is done, water droplets (condensation) may form on the lens, in which case the DP-S1 will not operate properly. If this happens, wait 30 minutes before using the DP-S1.

- Only use discs containing the mark shown at the right on the DP-S1.

- The disc's speed of rotation may change greatly or the sound may decrease if the DP-S1 is subject to strong shocks during playback or searching, but this is not a malfunction.

- Only use discs which exclusively contain audio signals.
- An electrical discharge due to static electricity may be produced between the pin and your finger or any other part of your body if it is placed near the turntable pin when the room is dry and your body is charged with static electricity.

If this happens, the pickup may move slowly from the inside of the disc towards the outside. In this case, press the OPEN/CLOSE button to close the door then open it back up. The pickup will return to the inside of the disc and the DP-S1 will now operate normally.

- A metallic click may be heard when playback is started after the stabilizer is placed on the disc.

This is the sound of the pin in the stabilizer which prevents the stabilizer from slipping entering the guide pin groove, and is not a malfunction.

- A special sheet is attached to the bottom of the stabilizer to improve contact between the stabilizer and the disc. When the stabilizer is placed on the disc, this special sheet strongly adheres to the disc. If the stabilizer is lifted suddenly, the disc may stick to the sheet, lift off the turntable, then fall and be scratched. Thus, always remove the stabilizer slowly, lifting it straight up.

COMPACT
disc
DIGITAL AUDIO

THE COMPACT DISC

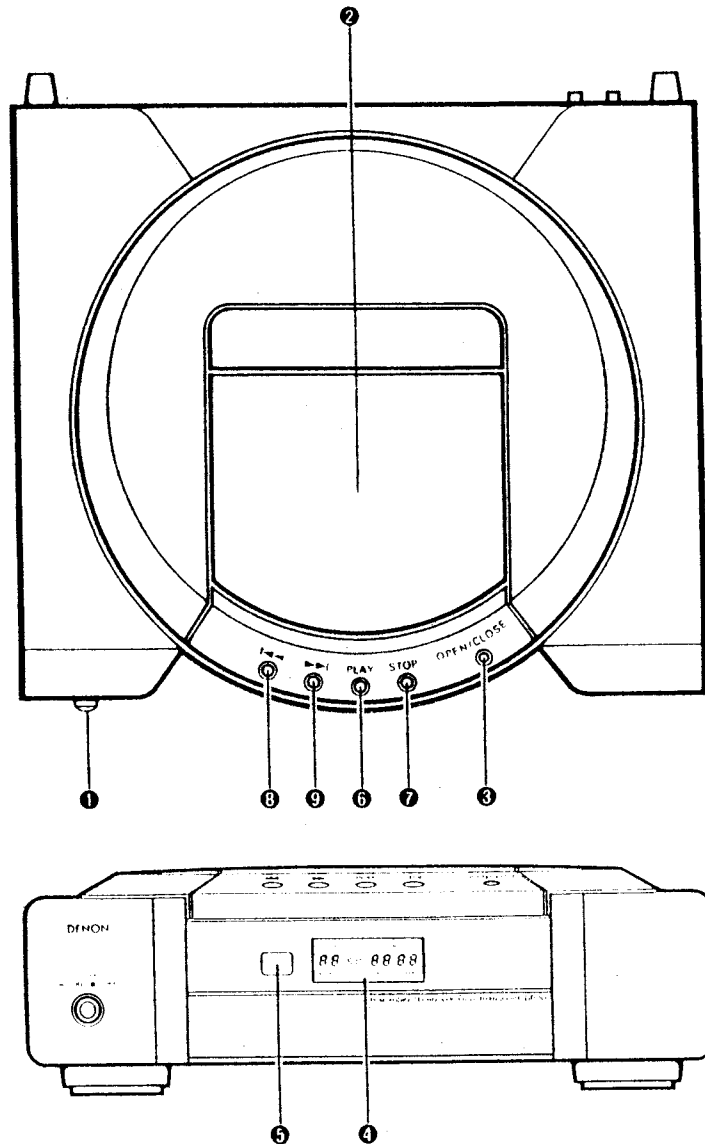
1. Precautions on handling compact discs

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

2. Precautions on storage

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

NAMES AND FUNCTIONS OF PARTS



1 Power Switch (POWER)

- Press this to turn on the power of the DP-S1.
- When the power turns on, "DD" appears on the TRACK section of the display, and if no disc is loaded, "DD 00 00 00" appears on the display after several seconds. If a disc is loaded and the door is closed, after several seconds the total number of tracks on the disc appears on the TRACK display, and the total time of the disc appears on the TIME display.

2 Door

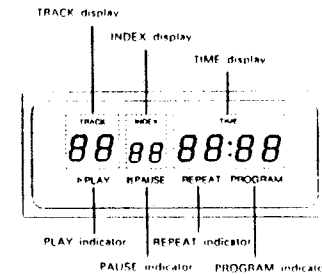
- This is where the disc is loaded.
- Use the OPEN/CLOSE button to open and close the door.
- The door can also be closed by pressing the Play button.

3 Door OPEN/CLOSE Button (OPEN/CLOSE)

- Press this to open and close the door.
- Press one to open the door, again to close it.
- If a disc is loaded when the door is closed, the disc turns for several seconds then stops, and the total number of tracks and total playing time of the disc appear on the display.

4 Display

- Information such as the track number, index number, and playing time is displayed here.



5 Remote Control Sensor

- This is where the signals from the remote control unit are received.
- Point the remote control unit (RC-248) at this sensor when operating it.

6 Play Button (PLAY)

- Press this to play the disc.
- When pressed, the [▶▶▶] indicator appears, and the number of the track currently playing, the index number, and the elapsed playing time are displayed.
- Once the last track is played, the [▶▶▶] indicator turns off and the stop mode is set.

7 Stop Button (STOP)

- Press this to stop playback.
- When pressed, the disc stops turning, the total number of tracks on the disc appears on the TRACK display, and the total playing time appears on the TIME display.
- During programmed playback, the total number of programmed tracks and the total programmed playing time are displayed.

8 Automatic Search Reverse Button (◀◀)

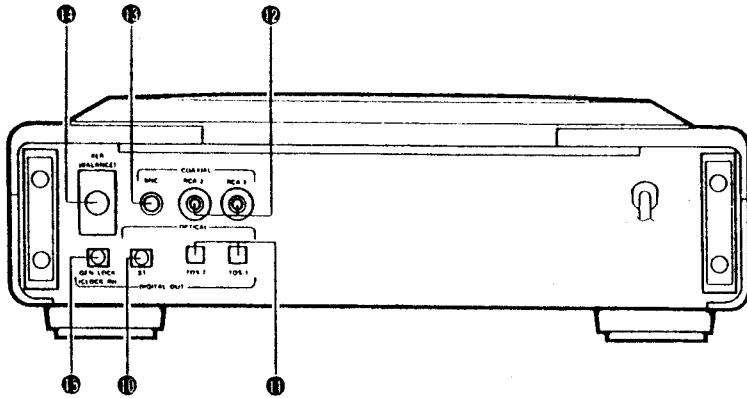
- Press this button to move the disc back to the beginning of previous tracks.
- When pressed in the play or pause modes, the disc is moved back by a number of tracks equal to the number of times the button is pressed.

9 Automatic Search Forward Button (▶▶)

- Press this button to move the disc forward to the beginning of subsequent tracks.
- When pressed in the play or pause modes, the disc is moved forward by a number of tracks equal to the number of times the button is pressed.

Continuous button operation

When buttons 8 or 9 are held in, the number of tracks changes continuously.



10 Digital Output Jack (OPTICAL-ST)

- Digital data is output in optical form from this jack.
- Use an ST-Link™ optical fiber cable for connection.

11 Digital Output Jacks (OPTICAL-TOS-1 and TOS-2)

- Digital data is output in optical form from these jacks.
- Use optical fiber cables for connection.

12 Digital Output Jacks (COAXIAL-RCA-1 and RCA-2)

- Digital data is output from these jacks.
- Use the included RCA pin plug cords or 75 ohm RCA pin-plug cords for connection.

13 Digital Output Jack (COAXIAL-BNC)

- Digital data is output from this jack.
- Use a coaxial cord with BNC connectors for connection.

14 Digital Output Jack (BALANCE)

- Digital data is output from this jack.
- Use a Canon connector (XLR type) cord for connection.

15 Synchronizing Clock Input Jack (GEN LOCK CLOCK INPUT-ST)

- This is the clock input jack for synchronized driving using the clock signals from the separately sold DA-S1 D/A converter.
- Use an ST-Link™ optical fiber cable (same as jack 10) for connection of this jack.
- ST-Link™ is a registered trademark of AT&T.

CONNECTIONS

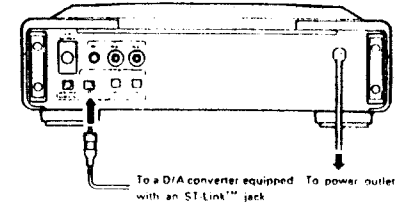
Always turn the power of all components off when making connections.

Output Jack Connections

1 Digital Output Jack (OPTICAL-ST)

- Connect as shown on the diagram using an optical fiber cable (ST-Link™ type), available in stores.
- The jack includes a cap. Remove the cap, line up the protruding part of the jack with the guide groove in the connector, turn clockwise and insert securely until the cable is locked.

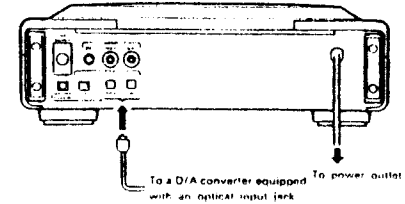
DP S1



2 Digital Output Jacks (OPTICAL-TOS-1 and TOS-2)

- Connect as shown on the diagram using an optical fiber cable, available in stores.
- The jack includes a cap. Remove the cap, then insert the cord securely so that it is locked.

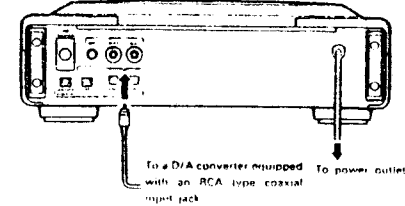
DP S1



3 Digital Output Jacks (COAXIAL-RCA-1 and RCA-2)

- Use the included connection cords or store-bought 75 ohm RCA pin-plug cords for connection.

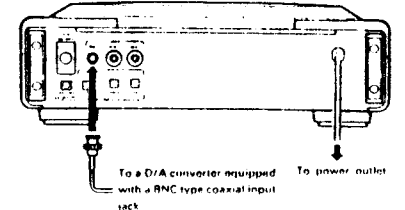
DP S1



4 Digital Output Jack (COAXIAL-BNC)

- Connect as shown on the diagram using a coaxial cord with BNC type connectors, available in stores.

DP S1



⑤ Digital Output Jack (BALANCE)

- Connect as shown on the diagram using a Canon connector (XLR type) cord, available in stores



• Line up this indent with the protruding part of the connector

- 1 : Common
- 2 : Cold
- 3 : Hot

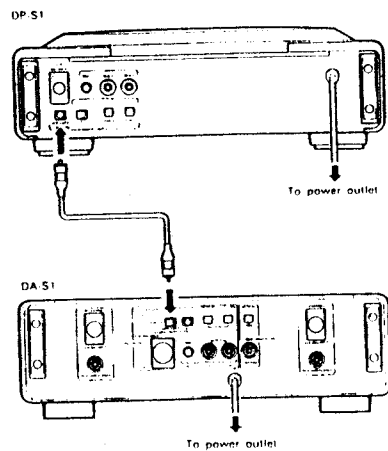
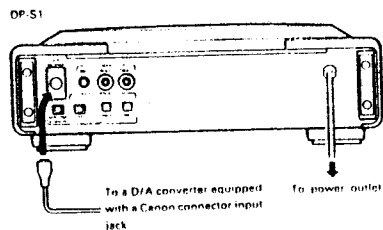
NOTE:

Do not short-circuit the hot or cold terminal with the common terminal.

Input Jack Connections

① Synchronizing Clock Input Jack (GEN LOCK CLOCK INPUT-ST)

- For synchronized driving (ST-GEN LOCK) with the separately sold DA S1 D/A converter, connect as shown on the diagram using an ST-Link™ type optical fiber cable.
- The jack includes a cap. Remove the cap, line up the protruding part of the jack with the guide groove in the connector, turn clockwise and insert securely until the cable is locked.

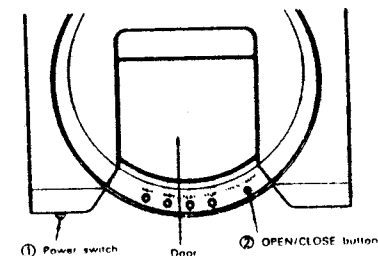


OPENING AND CLOSING THE DOOR AND LOADING DISCS

■ Opening and Closing the Door

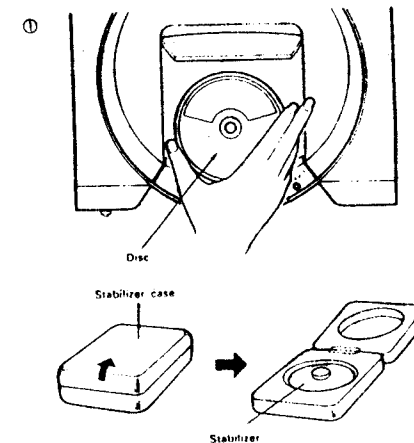
(The door cannot be opened and closed if the power is off.)

- ① Press the Power switch to turn the power on.
- ② Press the OPEN/CLOSE button to open the door.

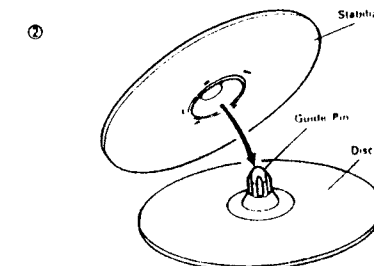


■ Loading Discs

- ① Hold the disc without touching its data surface, then set it on the turntable with the labeled side facing up. Make sure the door is fully open when loading the disc.
- ② Set the included stabilizer on the disc in such a way that the guide pin in the turntable enters the hole in the center of the stabilizer. Make sure that the stabilizer is fit securely on the disc. The stabilizer is stored in the stabilizer case.



- ③ Press the OPEN/CLOSE button to close the door. Several seconds after the door is closed, the total number of tracks on the disc appears on the TRACK display and the total time of the disc appears on the TIME display. The door can also be closed by pressing the Play button, in which case playback begins from track 1.



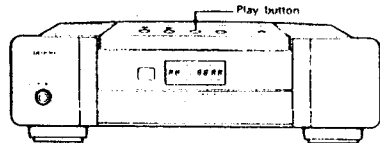
NOTES:

- Do not drop the stabilizer or hit it against other objects. Doing so may deform it, in which case it will no longer fit snugly over the disc.
- Always place the included stabilizer over the disc when playing discs. The disc may be scratched if other objects are set on the disc or the stabilizer is not used.

NORMAL CD PLAYBACK

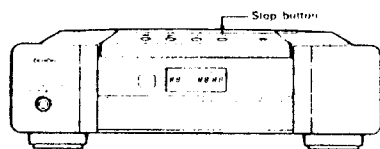
First try playing a disc following the procedure described below.

1 Starting Playback



- Turn on the Power and load a disc.
- Press the Play button.
 - The number of the track currently playing, the index number, and the elapsed playing time are displayed.

2 Stopping Playback



NOTES

- If the OPEN/CLOSE button is operated when no disc is loaded or the disc is loaded upside-down, "00" appears on TRACK display, and after several seconds the display changes to "00 00 00:00".
- The display will read as shown below if the information on the innermost section of the disc cannot be read properly due to scratches or dirt on the disc. If this happens, some time may be required for searching and other operations.

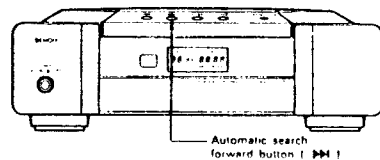
Normal	01 00 28 56
When information cannot be read properly:	00 00 00:00

- Press the Stop button.
 - The stop mode is set automatically once all the tracks on the disc have been played.

ADVANCED CD PLAYBACK

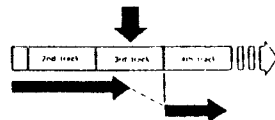
1 Moving to following tracks during playback

Automatic Search



- Press the Automatic search forward button (▶▶).

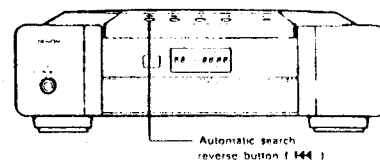
Press the Automatic search forward button (▶▶).



- Press and hold in the Automatic search forward button (▶▶) during playback to move the disc forward continuously to the beginning of subsequent tracks.

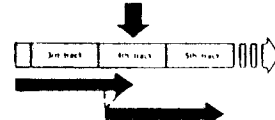
2 Returning to the beginning of the current track

Automatic Search



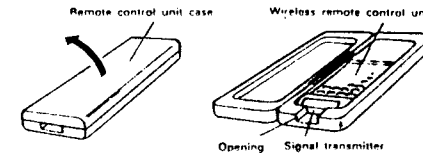
- Press the Automatic search reverse button (◀◀).
 - Press the Automatic search reverse button (◀◀) again during the search operation to move the disc back to previous tracks.

Press the Automatic search reverse button (◀◀).



In addition to normal CD playback, various playback features can be operated from the included wireless remote control unit.

- The wireless remote control unit is stored in the remote control unit case, and can be operated without removing it from the case.



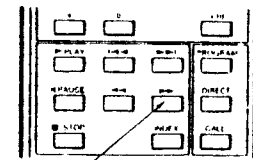
NOTE
The remote control unit case includes a hole to let the signals emitted from the wireless remote control unit's transmitter through. The wireless remote control unit will not operate if it is set in the case backwards or upside down.

3 Finding a track while listening at high speed

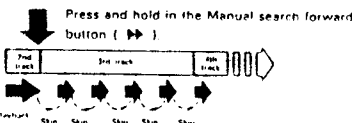
Manual Search

- This function allows you to skip through the disc at high speed while listening to the sound. Use this feature to find the desired section of a long track or to start playback from the middle of a track.
- Once the desired section is found with the Manual search operation, release the Manual search forward (▶▶) or Manual search reverse (◀◀) button to resume normal playback from that point.

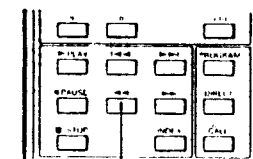
(1) Manual search forward



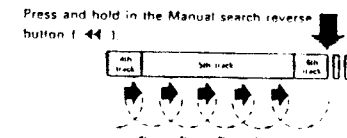
Manual search forward button (▶▶)



(2) Manual search reverse



Manual search reverse button (◀◀)

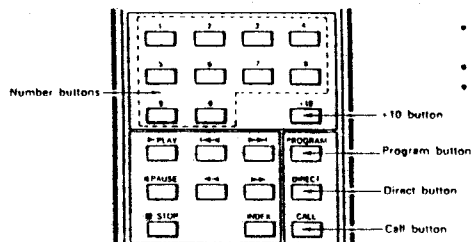


- Press and hold in the Manual search forward button (▶▶) during playback to skip through the disc at high speed.
 - The number of the track currently playing, the index number, and the elapsed playing time are displayed during the manual search operation.
 - In the pause mode, the disc moves at approximately three times the normal playing speed, and no sound is heard.
 - "JJ" appears on the display and the manual search operation stops if the end of the last track on the disc is reached while pressing the Manual search forward button. To resume playback, press the Manual search reverse button (◀◀) until the "JJ" mark turns off, then perform a different operation.

- Press and hold in the Manual search reverse button (◀◀) during playback to skip through the disc in the reverse direction at high speed.
 - The number of the track currently playing, the index number, and the elapsed playing time are displayed during the manual search operation.
 - In the pause mode, the disc moves at approximately three times the normal playing speed, and no sound is heard.
 - "CC" appears on the display if the beginning of the first track on the disc is reached while pressing the Manual search reverse button. Press the Manual search forward button (▶▶) until the "CC" mark turns off, then perform a different operation.

4 Playing specific tracks in a specific order

Programmed Playback



- Use this function to select certain tracks on the disc and program them to play in any order you like.
- Programming is possible with the door open.
- Up to 20 tracks can be programmed.

(1) Programming

- Press the Program button. The **PROGRAM** indicator appears.
- Use the Number buttons and the +10 button to select the tracks you wish to program. For example, to program the 3rd, 12th and 7th tracks on a disc containing 15 tracks, press **PROGRAM**, **3**, **+10**, **2** and **7**.
- Each time a track is selected, the number of the track is displayed on the TRACK display, the number of tracks in the program is displayed on the INDEX display, and the total time of the programmed tracks is displayed on the TIME display. Several seconds after programming is completed, the total number of programmed tracks appears on the TRACK display and the total programmed playing time appears on the TIME display.

(2) Checking the programmed tracks

- Press the Call button. The programmed tracks appear in order on the TRACK display each time the button is pressed.

(3) Playing the programmed tracks

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

(4) Clearing the entire program

- Press the Direct button to clear the entire program. The program is also cleared if the OPEN/CLOSE button is pressed.
- If the Direct button is pressed during programmed playback, the program is canceled and normal playback continues from the current track through to the end of the disc.

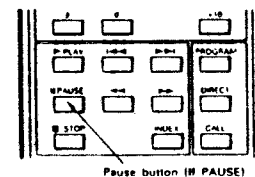
NOTES:

- If programming is done during the play or pause mode, the current track is set at the first place in the program. In this case, other tracks can be added to the program, but the number of tracks and playing time will not be displayed.
- The direct search operation is not possible during programmed playback. If the Number buttons or the +10 button are pressed, the corresponding track is added to the end of the program.
- Programming is also possible with the door open. In this case, if a track number not included on the disc is programmed, that track number is automatically cleared from the program when playback starts.
- The total program time will not be displayed if track numbers greater than 20 are programmed.

5 Stopping momentarily during playback

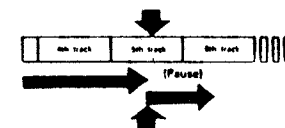
Pause

- This function lets you stop playback momentarily and resume playback from the same point.



- To resume playback, either press the Play button (▶ PLAY) or press the Pause button (II PAUSE) again.

① Press the Pause button (II PAUSE).



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

6 Pausing at the beginning of track after searching

Pause

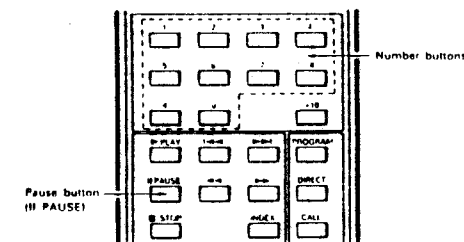
(1) Direct search

- Use this function to pause at the beginning of tracks found with the direct search function. This function comes in handy for example to practice karaoke.

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

① Use the Number buttons to specify the desired track.

② Press the Pause button (II PAUSE).



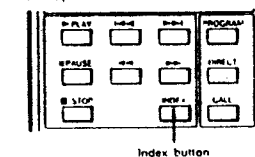
(2) Program search

- Press the Pause button (II PAUSE) after setting the program. The pause mode is set at the beginning of the first track in the program.

7 Finding sections within a track

Index Search

- Use this function to find the beginning of sections within a track indicated by index numbers.



① Press the Index button. " _ _ " appears on the TRACK display.

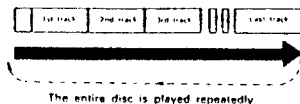
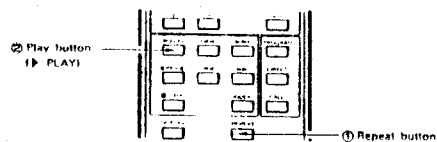
- Use the Number buttons to specify the track number. " _ _ " now appears on the INDEX display. Next specify the desired index number. Playback begins from the specified index number. For example, to start from index number 2 on track 3, press **INDEX**, **3** and **2**.

About Index Numbers

- Index numbers are numbers which divide a track into smaller sections. Check the CD's explanatory notes to see if the disc includes index numbers.
- If an index number not included on the disc is specified, playback starts from the last index number in the track.

8 Playing all tracks repeatedly

Repeat Playback

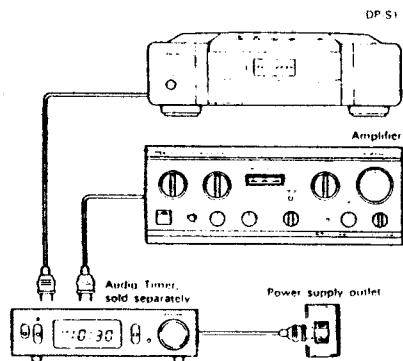


- ① Press the Repeat button.
- ② Press the Play button (▶ PLAY).
- The **REPEAT** indicator appears when the Repeat button is pressed.
- The Repeat button can also be pressed after pressing the Play button (▶ PLAY).

- The repeat mode is also set if the Repeat button is pressed during playback.
- To cancel the repeat mode, press the Repeat button again.
- If the Repeat button is pressed during programmed playback, the programmed tracks are played repeatedly in the programmed order.

TIMER-CONTROLLED CD PLAYBACK

■ Connection



■ Operation

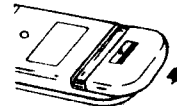
- 1 Turn on the power of all system components.
- 2 Set the input selector on the amplifier to correspond to the inputs the DP-S1 is connected to.
- 3 Make sure a disc has been loaded in the Door.
- 4 Check the time on the timer and then set the desired turn-on time.
- 5 Turn the audio timer ON.
Power is turned off automatically in all components connected to the timer.
- 6 When the preset turn-on time is reached, power is turned on in the system components, and CD playback starts from the first track.

PLAYBACK USING THE REMOTE CONTROL UNIT

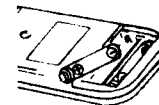
The CD transport can be operated from a distance using the included RC-248 remote control unit.

(1) Inserting the dry cell batteries

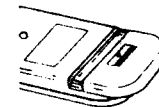
- 1 Remove the battery cover on the back of the remote control unit.



- 2 Insert two R03 (standard size AAA) dry cell batteries with correct polarity as indicated inside the battery compartment.



- 3 Replace the battery cover.



Notes on the Batteries

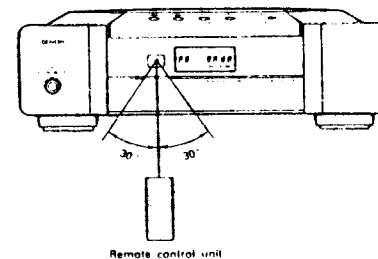
- The remote control unit uses standard size AAA dry cell batteries.
- The batteries will need to be replaced approximately once a year. Replacement may be necessary earlier depending on how much the remote control unit is used.
- If, in less than a year from the time new batteries were inserted, the remote control fails to operate the DP-S1 from a near-by position, it is time to replace the batteries.
- Insert the batteries properly, following the polarity diagram inside the battery compartment, in other words make sure (+) and (-) terminals are properly aligned.
- Batteries are prone to damage and leakage. Therefore:
 - Do not combine new batteries with used ones.
 - Do not combine different types of batteries.
 - Do not jumper opposite poles of the batteries, expose them to heat, break them open nor expose of them in open fire.
- If the remote control unit is not to be used for a long period of time, remove the batteries from the unit.
- If the batteries have leaked, remove any traces of battery fluid from the battery compartment, wiping thoroughly with a dry cloth. Then insert new batteries.

(2) Directions for Use

- The remote control unit may not operate properly if the remote control sensor is exposed to direct sunlight or strong artificial light, or if there is an obstacle between the remote control unit and the remote control sensor.

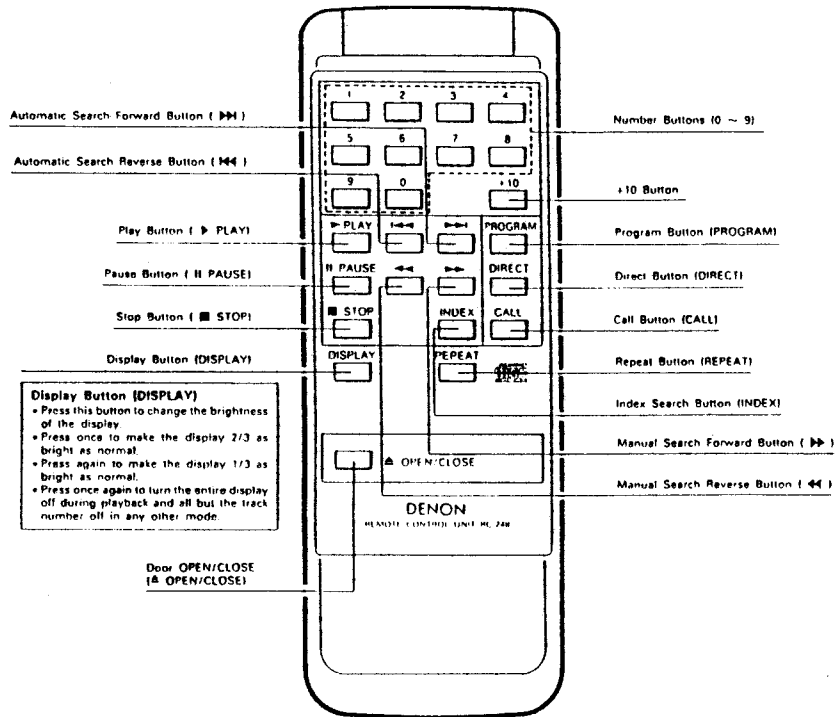
NOTES

- Do not press buttons on the remote control unit and main unit simultaneously. Doing so may result in malfunction.



- Point the remote control unit at the remote control sensor as shown on the diagram. The remote control unit will operate from a linear distance of approximately 8 meters, but this distance will be shortened if there are obstacles or if operated from an angle.

REMOTE CONTROL UNIT RC-248



- **Direct Search**
Normally, direct search is possible simply by pressing the desired number buttons.
- **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.
- **Program Search** (During playback, the track which is currently playing is programmed as the 1st track.)
Press the Program button, then press the Number buttons.
For example, to program tracks number 3, 11, and 5, press PROGRAM → 3 → +10 and 1 → 5.
To cancel the program, press the Direct button.

TROUBLESHOOTING

Check the following once again before assuming there is a problem with the DP-S1:

- Are all connections correct?
- Is the DP-S1 being operated properly as described in the instructions?

If the set is not operating properly, check as shown on the table below. If this does not solve the problem, the DP-S1 may be malfunctioning. Turn the power off immediately and contact your store of purchase.

Symptom	Cause	Refer to:
Door does not open or close.	Power is not turned on.	Page 13
Display reads "00" even though disc is loaded.	Disc is not properly loaded.	Page 14
Playback does not start when PLAY button (▶ PLAY) is pressed.	Disc is dirty or scratched.	Page 14
No sound is produced or sound is distorted.	Output cords are not properly connected to the amplifier or D/A converter. Amplifier controls are not properly set.	Pages 11 and 12
Disc does not play from specified position.	Disc is dirty or scratched.	Page 7
Programmed playback does not work.	Programmed playback operation is not being performed properly.	Page 16
Index search operation does not work (numbers greater than 1 are not displayed).	Index search operation is not being performed properly. Check whether or not the disc contains index numbers of 2 or greater.	Page 17
Remote control unit does not operate properly.	Batteries are worn. Remote control unit is being operated from an excessive distance.	Page 19

SPECIFICATIONS

- **Discs:** Compact Disc format
- **Signal format**
 - Sampling frequency:** 44.1 kHz
 - Quantization bits:** 16 bits linear/channel
 - Transmission baud rate:** 4.3218 Mb/sec
- **Digital output signal format**
 - Format:** Digital audio interface
 - **OPTICAL-ST**
 - Peak optical power:** -16 dBm or greater
 - Acceptable laser wavelength:** 875 nm
 - **OPTICAL-TOS**
 - Peak optical power:** -12 dBm
 - Acceptable laser wavelength:** 660 nm
 - **COAXIAL-RCA**
 - Output voltage:** 0.5 Vp-p/75 ohm
 - **COAXIAL-BNC**
 - Output voltage:** 0.5 Vp-p/75 ohm
 - **BALANCE**
 - Output voltage:** 5.0 Vp-p/110 ohm
- **Digital input signal format**
 - **GEN LOCK CLOCK**
 - INPUT-ST**
 - Acceptable laser power:** -30 dBm or greater
 - Acceptable laser wavelength:** 875 nm
 - Signal format:** 16.9344 MHz (384 fs), Duty 50% clock
- **Pickup**
 - Type:** Reflex lens drive optical pickup
 - Reflex lens drive method:** Two-dimensional parallel driving
 - Light source:** Semiconductor laser
 - Wavelength:** 780 nm
- **General**
 - Power supply:** 60 Hz, voltage is shown on rating label
 - Power consumption:** 17 W
 - Dimensions:** 434 (W) × 143 (H) × 400 (D) mm
(17-3/32" × 5-40/64" × 15-3/4")
 - Weight:** 16.7 kg (36 lbs 14 oz)
- **Functions and displays**
 - Functions:** Direct search, automatic search, programmed search, repeat playback, manual search, index search, etc.
 - Displays:** Track, index, time, program, etc.
- **Remote control unit:** RC-248
 - Remote control system:** Infrared pulse system
 - Power source:** 3 V DC; two R03 (standard size AAA) dry cell batteries
 - External dimensions:** 60 (W) × 164 (H) × 16 (D) mm
(2-23/64" × 6-29/64" × 5/8")
 - Weight:** 98 g (including batteries)
(Approx. 4 oz)

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

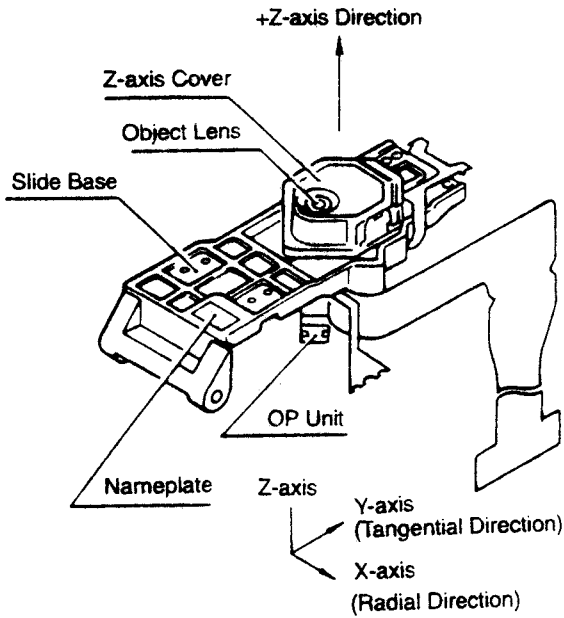
ADVARSEL : USYNLIG LASERSTRÅLING VED ÅBNING. NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLING.

VARO! AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

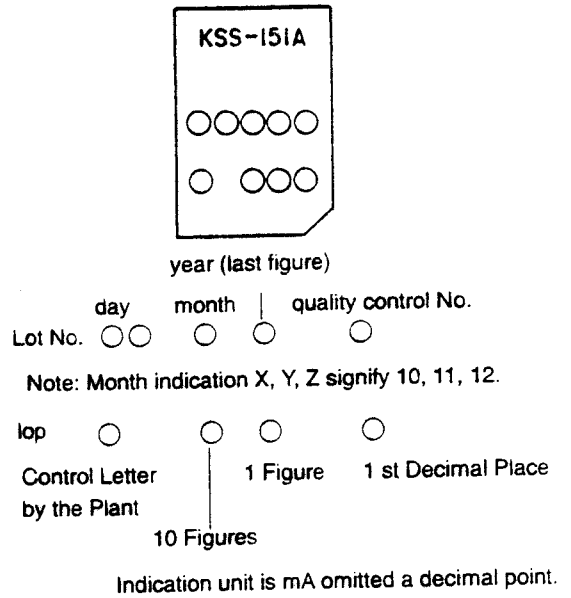
VARNING – OSYNLIG LASERSTRÅLNING NÅR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.

NOTE FOR HANDLING OF LASER PICK-UP

● **NAMES OF PARTS**

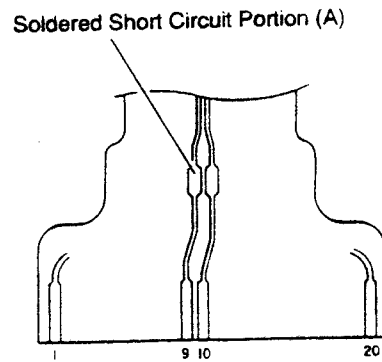


● **NAME PLATE**



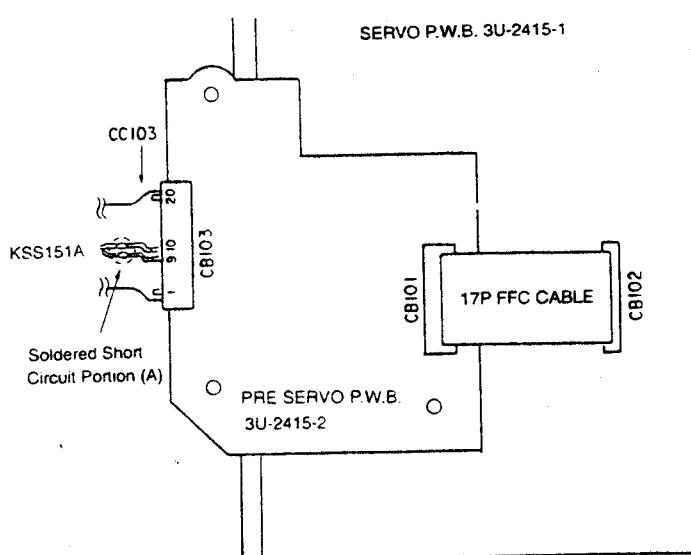
● **CONNECTION DIAGRAM OF CONNECTOR (1)**
KSS-151A Accessory flexible wire terminals

No.	Description	No.	Description
1	Linear motor	11	PD
2	Linear motor	12	VR
3	2-axis -F	13	GND
4	-T	14	PD D
5	+T	15	C
6	+F	16	A
7	Sensor	17	B
8	Sensor	18	K
9	LD GND	19	F
10	LD	20	E



Note: The soldered connecting portion must be bridged when removing CC103.

● **CONNECTION DIAGRAM OF CONNECTOR (2)**
KSS-151A → PRE SERVO P.W.B.(3U-2415-2) → SERVO P.W.B. (3U-2415-1)



Caution for Handling the Laser Pick-up

The laser pick-up KSS-151A 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. General Care

(1) Storage

Do not store the pick-up in dusty, high-temperature 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 $1.3 \times 10^4 \text{ W/cm}^2$ even if the intensity at the objective lens is $400 \mu\text{W}$ maximum. As the light beam spreads after focused through the objective lens, it does not effect you in the place as far as more than 30 cms. However, do not look at the laser light beam either through the objective lens directly nor another lens or a mirror.

(2) Poison of As

Since the LD chip contains As (Arsenic), as GaAs + GaAlAs, as known as the poison, although the poison is relatively weak, in comparing with others, e.g. As₂O₃, AsCl₃ 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 [Soldered short circuit portion (A)].

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. X-axis 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 when dust or dirt is stuck on the object lens. For cleaning, use a dry lens cleaning paper applying no excessive pressure to the lens. If it is difficult to remove it, moisten the paper with a little amount of water. At this time never drip water other than the lens portion.

4. Metal Bearing

The metal bearing of Cu-compound sintered alloy is impregnated with oil. However, supply oil with the specified oil FROIL 947P(529 0054 007), at the pick-up replacing time. You do not normally need lubricate the bushing in initializing time nor supplying oil in running time.

5. Handling

Please handle the laser pick-up with holding by optical base.

When either a part of human body or some other things may happen to touch directly with the circuit part of either the LD or PD PCB, it may cause deterioration, take careful attention in handling this base.

6. Deterioration of Laser Pick-up

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

7. Fundamental Deterioration Decision of Laser Pick-up

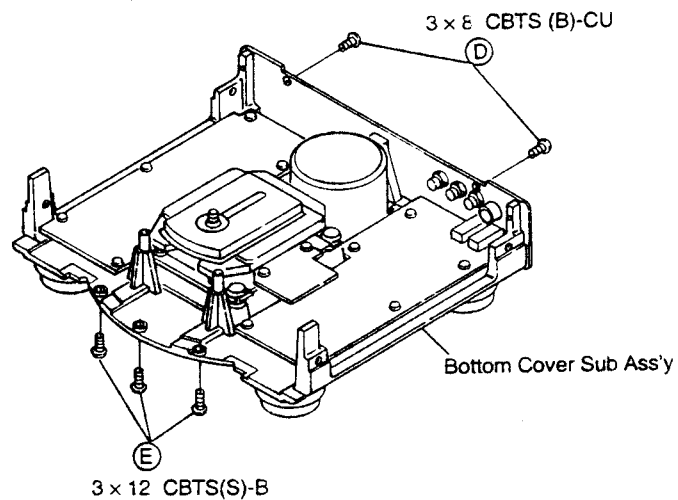
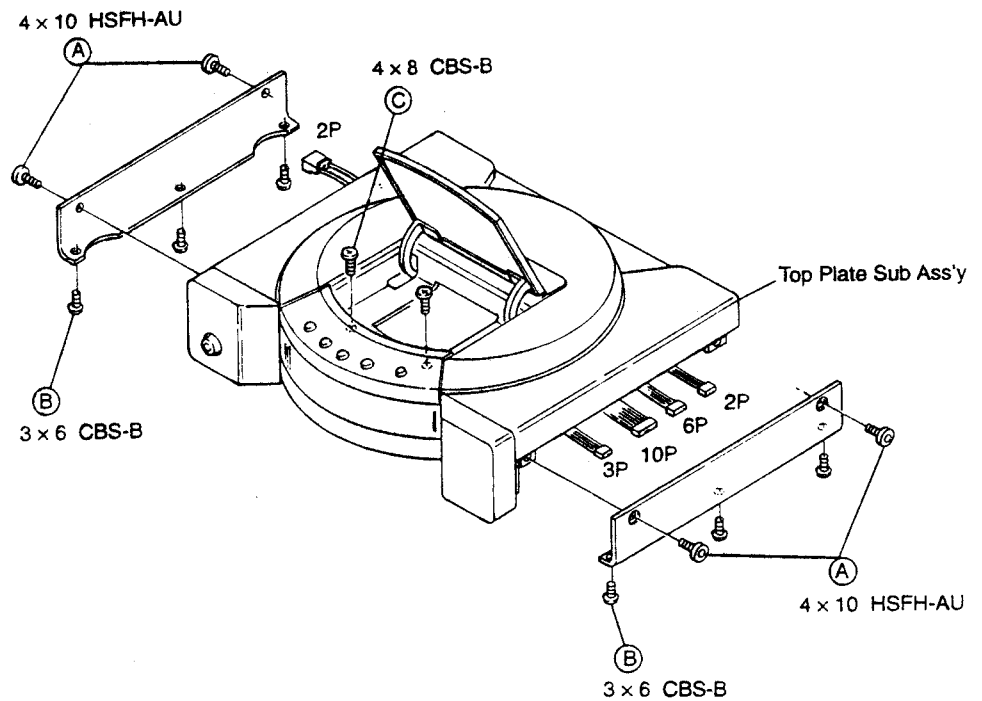
- (1) If a voltage value in across Pin ⑥ of TP102 (+5V) and pin ② (iop) of Unit (3U-2415) is V1, the value of laser diode current "iop 1" can be found a formula

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

- (2) If a "iop" exceeds $\pm 10\%$ compared with the IOP indication on the laser pick-up nameplate, there is a fair chance to deterioration when it is checked under a circumambient temperature 23°C.
- (3) When the circumambient temperature changes $\pm 10^\circ\text{C}$, "iop 1" will change $\pm 5\%$. The "iop 1" will also be changed by the passage of time.
- (4) In case of the above conditions taking into consideration and performed the adjustment in proper way, if the HF level across pin ① (HF) of TP102 and across GND of TP101 in 3U-2415 becomes 0.6V or less values; or a jitter occurs great, the laser pick-up may be deteriorated.

DISASSEMBLY

- 1) Remove 10 Screws (A) , (B) from both side panel, and detach side panel.
- 2) Pull out 4 right side connectors (2P, 6P, 10P, 3P) and 1 left side connector (2P).
- 3) Disassemble Top Plate Sub Ass'y and Bottom Cover Sub Ass'y by means of removing 7 screws (C , D , E).



3. Adjustment

(1) Prior to start adjustment

Before adjusting laser P.U. and spindle motor, be sure adjust turntable height at the time of turntable assembly.

(2) Necessary equipment for adjustment

- 1 Dual trace oscilloscope
- 2 Reference disk (CA-1094)
- 3 Oscillator (10Hz ~ 10kHz, 0 ~ 3 Vp-p)
- 4 Frequency counter (readable more than 5 MHz)
- 5 Filter for measurement

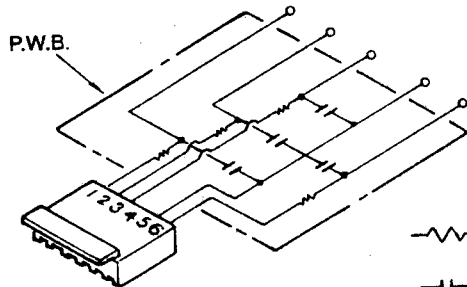
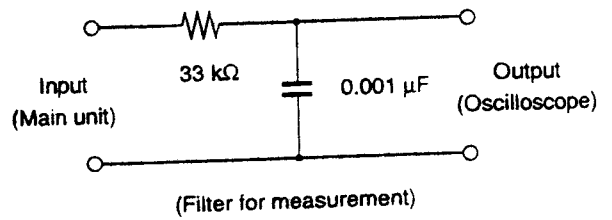
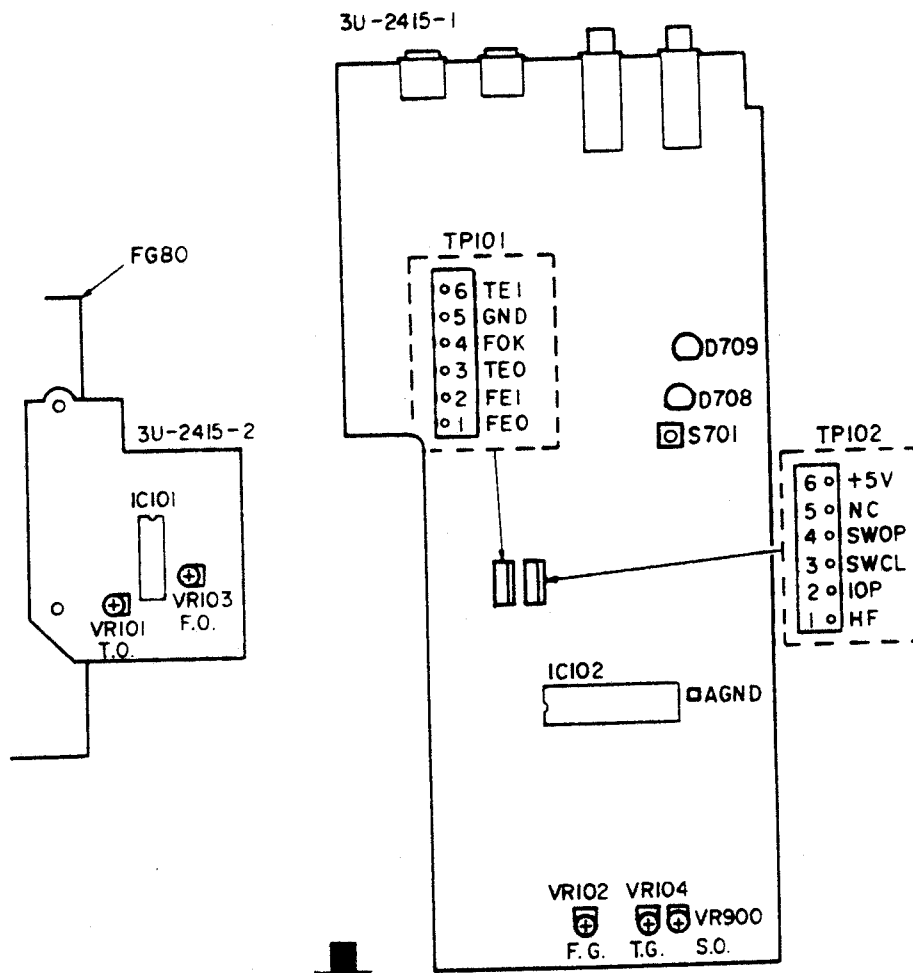







Figure Jig Combination

(3) Location

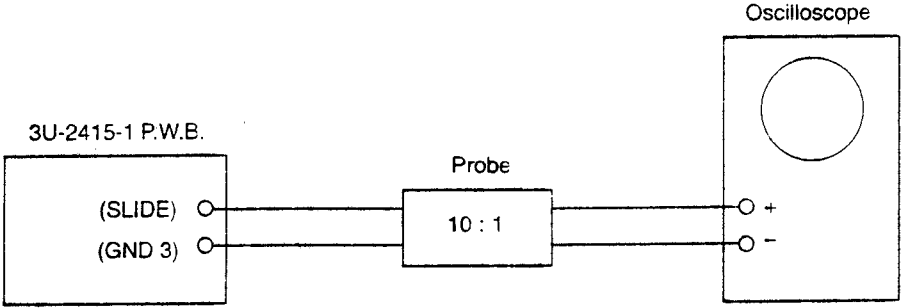


FRONT PANEL

(4) Preset

1.	Start service program.	
2.	Preset VR101 – 104, VR900 as per left figure.	<div style="display: flex; flex-wrap: wrap; justify-content: space-around;"> <div style="text-align: center;"> <p>VR101 (T.O)</p>  <p>6 o'clock</p> </div> <div style="text-align: center;"> <p>VR900 (S.O)</p>  <p>6 o'clock</p> </div> <div style="text-align: center;"> <p>VR103 (F.O)</p>  <p>6 o'clock</p> </div> <div style="text-align: center;"> <p>VR104 (T.G)</p>  <p>6 o'clock</p> </div> <div style="text-align: center;"> <p>VR102 (F.G)</p>  <p>6 o'clock</p> </div> </div>
3.	Step.	<ol style="list-style-type: none"> 1. Slide offset 2. Tracking offset 3. Focus gain 4. Focus offset 5. Tracking gain 6. Tracking offset recheck

4. Slide offset

Connection			
			
Oscilloscope	Adjust	Check	Step
(DC range)	(Volume)	(Oscilloscope)	<ol style="list-style-type: none"> 1. Short the + and - terminal of the oscilloscope and check the base line. 2. Adjust the VR900 [SLIDE] to $0\text{ V} \pm 0.05\text{V}$.
V	H	$0\text{V} \pm 0.05\text{V}$	
0.1 V/div	1 – 2 mS/div		
		VR900 (3U-2415-1)	

5. Tracking offset

Connection				
Oscilloscope		Adjust	Check	Step
(DC range)		(Volume)	(Oscilloscope)	<ol style="list-style-type: none"> 1. Press the OPEN/CLOSE button to open the door. 2. Set the reference disc on the turntable. 3. Set the included stabilizer on the reference disc. 4. Press the OPEN/CLOSE button to close the door. 5. Push PLAY button to turn disc. 6. Short (+) (-) of oscilloscope and check the base line. 7. Adjust VR101 [T-OFFSET] to equalizer upper and lower amplitude of the waveform.
V	H	VR101 (3U-2415-2)	<p>A = B</p>	
0.1 V/div	1 - 2 mS/div			

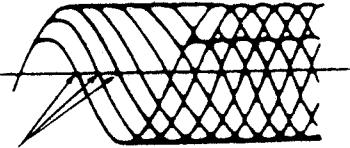
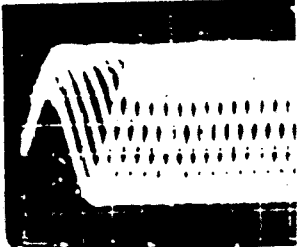
6. Focus gain

Connection

Oscillator	Counter	Osilloscope		Adjust (Volume)	Check (Oscilloscope)	Step
		V	H			
580 Hz 1 Vp-p (±0.1 V)	580 Hz	● DC range	● X-Y mode	VR102 (3U-2415-1)	<p>Y axis</p> <p>X axis</p> <p>Phase 90°</p> <p>Waveform nor right</p> <p>X axis</p> <p>Y axis</p> <p>X axis</p> <p>Y axis</p>	<ol style="list-style-type: none"> 1. Push ►►. 2. Set oscillator to 580 Hz/1 Vp-p. 3. Switch oscilloscope input to X-Y mode. 4. Adjust VR102 [F-GAIN] to symmetrize Lissajous figures to X and Y axes. <ul style="list-style-type: none"> ● If the tracking gain is not properly adjusted, the waveform becomes as per the left figure.

7. Focus offset

Connection

Oscillator	Counter	Oscilloscope		Adjust (Volume)	Check (Oscilloscope)
		V	H		
580 Hz 1 Vp-p (±0.1 V)	580 Hz	50 mV/div or 20 mV/div	0.2 μs/div or 0.5 μs/div	VR103 (3U-2415-2)	 Adjust to minimize pattern jitter.  Pattern
		• Set input mode to ALTERNATE or CHOPPER.			

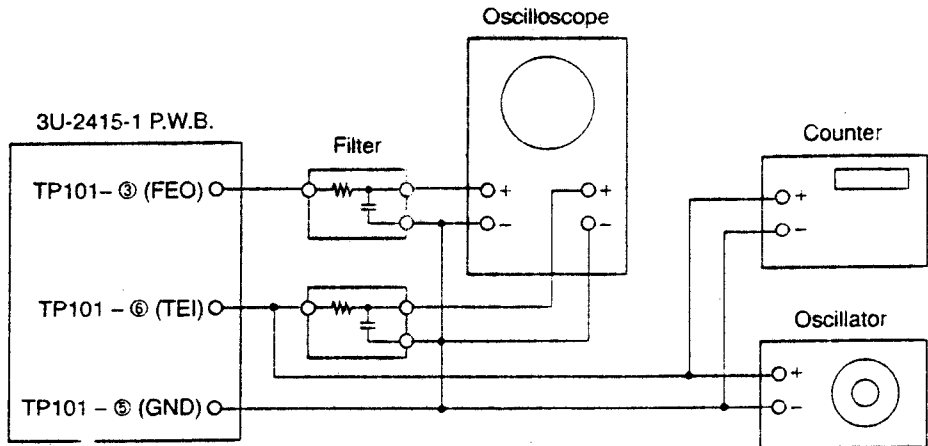
Step


1. Push .
2. Set Oscillator to 580 Hz, 1 Vp-p (± 0.5V).
3. VR103 [F-OFFSET] to minimize pattern jitter.

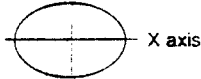
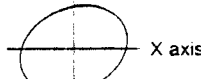
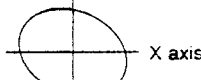

- If the focus offset is not properly adjust causing the increase of jitter amount thus producing the intermittent sound may occur.

8. Tracking gain


Connection



● Caution: Connect oscillator after  pushed and servo function started.

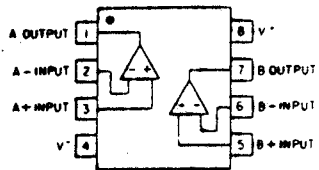
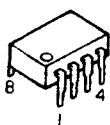
Oscillator	Counter	Oscilloscope		Adjust (Volume)	Check (Oscilloscope)	Step
		V	H			
<ul style="list-style-type: none"> ● 1.8 kHz (± 120 Hz) ● 3 Vp-p (± 0.1V) 	1.8 kHz (± 120 Hz)	<ul style="list-style-type: none"> ● DC range ● X-Y mode 		VR104 (3U-2415-1)	<p style="text-align: center;">Phase 90°</p>  <p style="text-align: center;">Waveform nor right</p>  	<ol style="list-style-type: none"> 1. Push . 2. Connect oscillator. 3. Set oscillator to 1.8 kHz/3 Vp-p 4. Switch oscilloscope input to X-Y mode. 5. Adjust VR104 [T-GAIN] to symmetrize Lissajous figures to X-Y axes. <ul style="list-style-type: none"> ● If the focus gain is not properly adjusted, the waveform becomes as per the left figure.

9. Tracking offset adjustment check

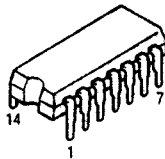
- (1) Adjust tracking offset again.
- (2) Push STOP button and stop disc.
- (3) Push PLAY button and check disc turns.
 Note: If disc does not turn, push PLAY button again and check track number  is displayed.
- (4) Check oscilloscope waveform upper and lower amplitude are same to base line. (Difference of vertical amplitude should be within the range of 5% to the base line.)
- (5) In case the height of waveform differs adjust the with the VR101.
- (6) Push STOP button and stop disc.

SEMICONDUCTORS

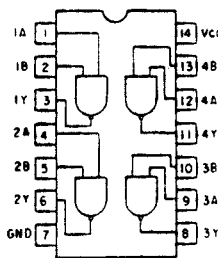
● IC's (Microcomputer)



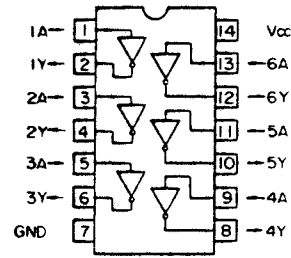
BA15218



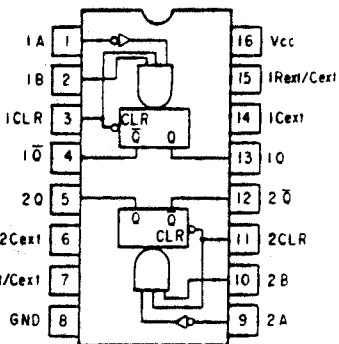
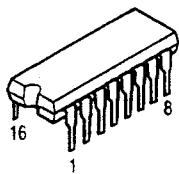
**TC74HC00AP
TC74HCU04AP**



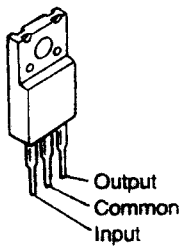
TC74HC00AP



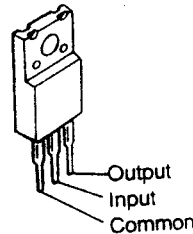
TC74HCU04AP



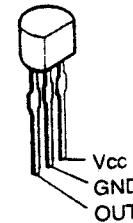
TC74HC123AP



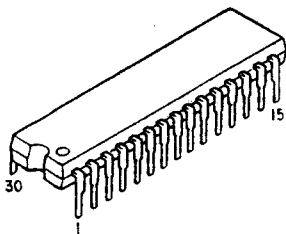
**NJM7805FA(S)
NJM7808FA(S)
NJM7812FA(S)**



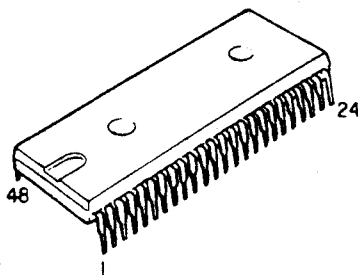
**NJM7905FA
NJM7908FA
NJM7912FA**



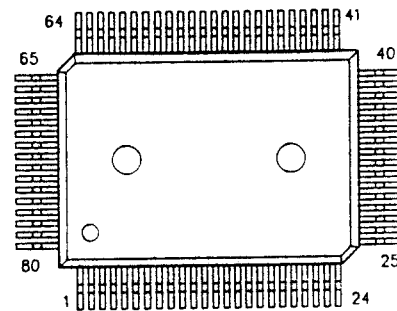
PST529C



CXA1081S

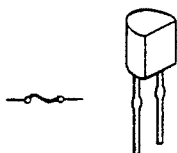


CXA1372S



CXD2500BQ

● IC Protector



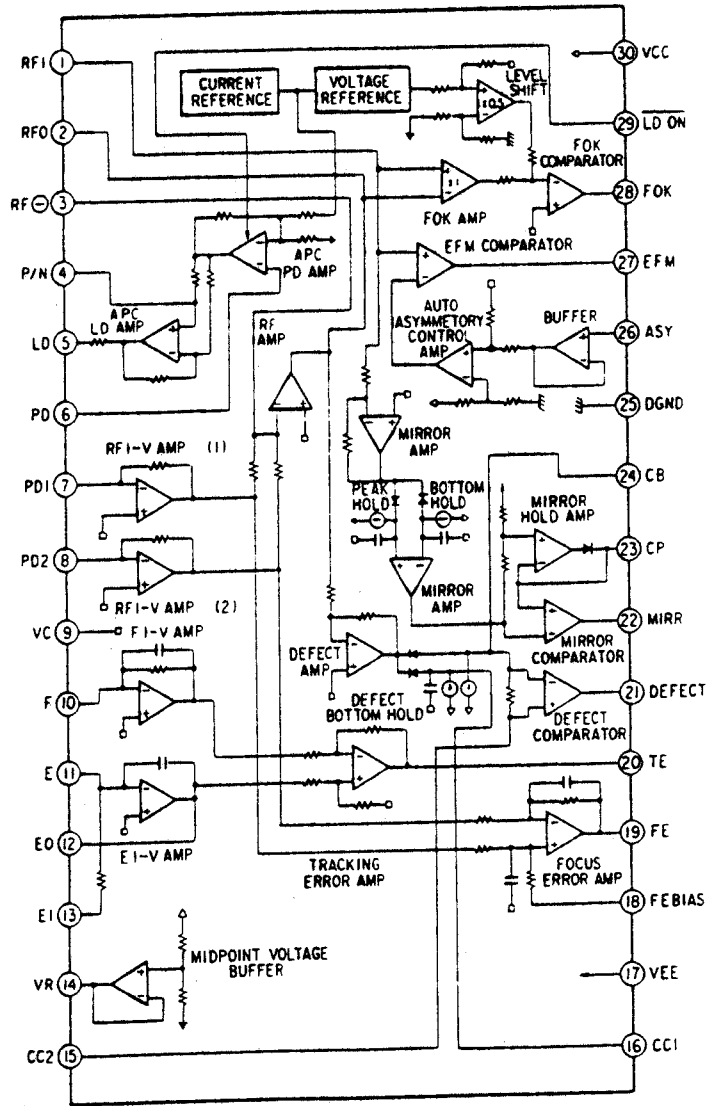
**ICP-N15T
ICP-N20T**

CXA1081S Terminal Function

V_{CC} = 2.5V, V_{EE} = D_{GND} = -2.5V, V_C = GND

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

CXA1081S

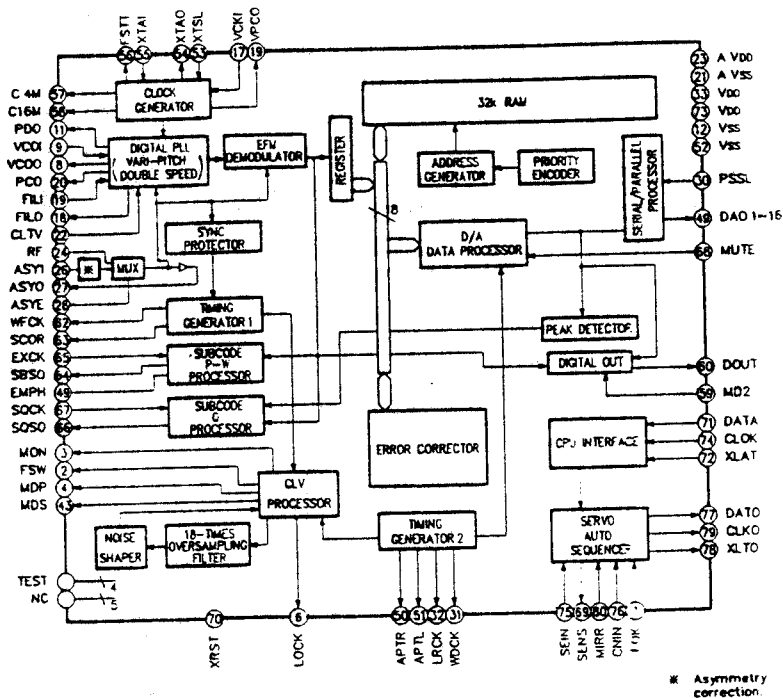


CXD2500BQ Terminal Function

Terminal No.	Symbol	I/O	Terminal Function
1	FOK	I	Input terminal for OK focusing. 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	AVDD		Analog power supply (+5V).
24	RF	I	EFM signal input.
25	BIAS	I	Constant-current input for Asymmetry circuit.
26	ASYI	I	Comparator 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 circuit → 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	VDD		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 input for SBSO read-out.
66	SOSO	O 1,0	Output for Sub Q 80 bits and PCM peak level 16 bits.
67	SOCK	I	Clock input for SOSO read-out.
68	MUTE	I	Mute at H; remove mute at L.
69	SENS	- 1,2,0	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	CLOCK	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.

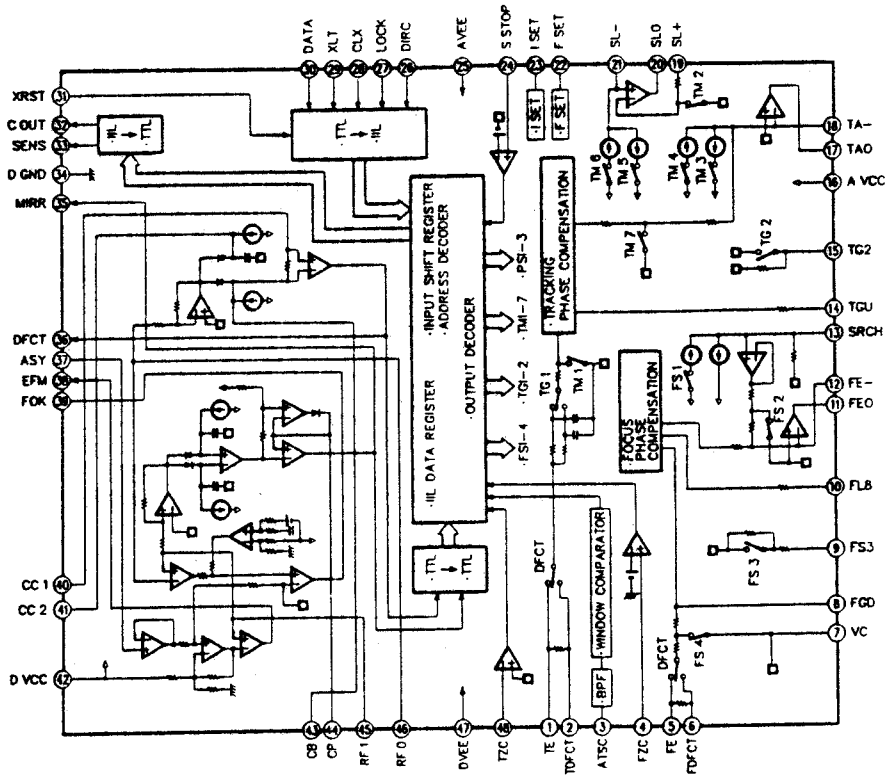
CXD2500BQ



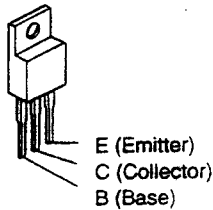
CXA1372S Terminal Function

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	FDCT	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	C	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	CE	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



● TRANSISTORS



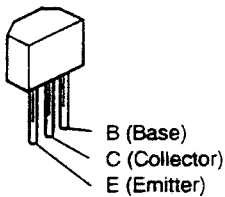
2SD1913
2SB1274



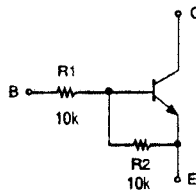
2SA933
2SC1740



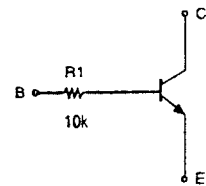
2SB562(C)
2SD468(C)



DTC-114ES(10k-10k)T
DTC-314TS(TP)

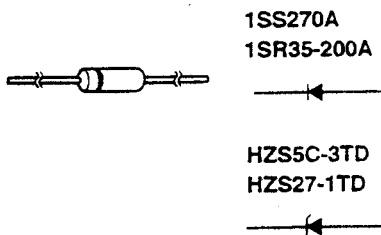


DTC-114ES(10k-10k)T



DTC-314TS(TP)

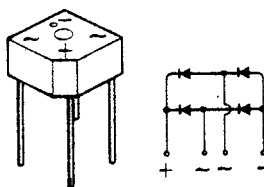
● DIODES



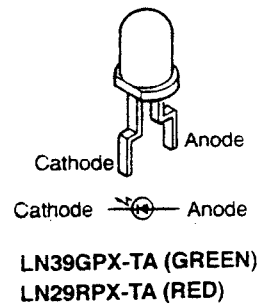
1SS270A
1SR35-200A

HZS5C-3TD
HZS27-1TD

S4VB20



● LED



LN39GPX-TA (GREEN)
LN29RPX-TA (RED)

NOTE FOR PARTS LIST

- Part indicated with the mark "◎" are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "1" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film ±5%, 1/4W Type in the P.W.Board parts list. (Refer to the Schematic Diagram for those parts.)

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	2B : 1/8W	F : ±1%	P : Pulse-resistant type
RC : Composition	2E : 1/4W	G : ±2%	NL : Low noise type
RS : Metal oxide film	2H : 1/2W	J : ±5%	NB : Non-burning type
RW : Winding	3A : 1W	K : ±10%	FR : Fuse-resistor
RN : Metal film	3D : 2W	M : ±20%	F : Lead wire forming
RK : Metal mixture	3F : 3W		
	3H : 5W		

• **Resistance**

$\frac{1}{\text{---}} \frac{8}{\text{---}} \frac{2}{\text{---}} = 1800 \text{ ohm} = 1.8 \text{ kohm}$
Indicates number of zeros after effective number.
2-digit effective number.

• Units: ohm

$\frac{1}{\text{---}} \frac{R}{\text{---}} \frac{2}{\text{---}} = 1.2 \text{ ohm}$
1-digit effective number.
2-digit effective number, decimal point indicated by R.

• Units: ohm

● **Capacitors**

Ex.: CE 04W 1H 2R2 M BP
Type Shape and performance Dielectric strength Capacity Allowable error Others

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

• **Capacity (electrolyte only)**

$\frac{2}{\text{---}} \frac{2}{\text{---}} \frac{2}{\text{---}} = 2200\mu\text{F}$
Indicates number of zeros after effective number.
2-digit effective number.

• Units: μF .

$\frac{2}{\text{---}} \frac{R}{\text{---}} \frac{2}{\text{---}} = 2.2\mu\text{F}$
1-digit effective number.
2-digit effective number, decimal point indicated by R.

• Units: μF .

• **Capacity (except electrolyte)**

$\frac{2}{\text{---}} \frac{2}{\text{---}} \frac{2}{\text{---}} = 2200\text{pF} = 0.0022\mu\text{F}$
(More than 2) — Indicates number of zeros after effective number.
2-digit effective number.

• Units: μF .

$\frac{2}{\text{---}} \frac{2}{\text{---}} \frac{1}{\text{---}} = 220\text{pF}$
(0 or 1) — Indicates number of zeros after effective number.
2-digit effective number.

• Units: pF.

• When the dielectric strength is indicated in AC, "AC" is included after the dielectric strength value.

(3U-2417)DISPLAY UNIT

Ref. No.	Part No.	Part Name	Remarks
C747	253 4538 94	Ceramic 100pF/50V	CC45381H101JT DD-3
C801	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103ZT DD-3
C803,804	253 1184 901	Ceramic 0.1μF/50V	CK93E1H104MT TCD
C900	256 1034 940	Metallized 0.056μF/50V	CF93A1H563JT
C901	255 4235 976	Film 0.015μF/100V	CQ93P2A153JT NH
C902	253 1184 901	Ceramic 0.1μF/50V	CK93E1H104MT TCD
C903	—	—	—
C904	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103ZT DD-3
C905	—	—	—
C906	—	—	—
C908	254 3056 917	Electrolytic 1μF/50V (Bipolar)	CE04D1H010MBPT SME

OTHER PARTS

X701	399 0036 013	Crystal Oscillator (16.9344MHz)	
EF701-703	235 0089 009	EMI Filter	
U701	269 0141 005	Connector ODL50-1361AAC(R)	SYNC -CLOCK IN
U702	269 0140 006	Connector ODL50-1261AAC(T)	ST OUT
U703,704	269 0117 000	Connector TOTX176	TOS-1. TOS-2 OUT
PT701-703	231 8063 009	Pulse Trans.	
L701	253 0049 900	Beads Inductor	
S701	212 4699 900	Tact Switch	
CB101,102	205 0491 023	17P FFC Connector Base	
CB103	205 0602 032	20P FFC Connector Base	
CB104	205 0343 061	6P Connector Base(KR-PH)	
CB105	205 0395 035	3P KR Connector Base(L)RED	
CB107	205 0685 033	3P Connector Base(BLK)L	
CB201	205 0275 029	12P EH Connector Base	
CB702	205 0233 032	3P EH Connector Base	
CB703	205 0277 030	3P EH Connector Base (RD)	
CB704	205 0278 039	3P EH Connector Base (BK)	
CB705	205 0355 088	8P KR Connector Base (L)	
CB706	205 0480 005	10P KR Connector Base (L)	
CB707	205 0355 062	6P KR Connector Base (L)	
CB708	205 0276 031	3P EH Connector Base (BU)	
TP101,102	205 0190 065	6P NH Connector Base	
TP103	205 0343 058	5P Connector Base(KR-PH)	

Ref. No.	Part No.	Part Name	Remarks
D601,602	276 0432 903	Diode 1SS270A TE	
	393 8004 007	FL Tube	FIP8L8
	499 0269 009	Remote Sensor	GP1U571X
CB600	205 0355 062	6P KR Connector Base (L)	
CB601	205 0480 005	10P KR Connector Base (L)	
CB602	205 0355 088	8P KR Connector Base (L)	
CB603-607	205 0355 033	3P KR Connector Base (L)	
CB608-612	205 0160 037	3P NH Connector Base	

(3U-2618) MOTOR DRIVE UNIT

Ref. No.	Part No.	Part Name	Remarks
----------	----------	-----------	---------

SEMICONDUCTORS GROUP

IC001	263 0424 902	IC M5218FP	
H001,002	268 0053 019	HW-101C (Q)	
TR001	272 0081 909	Transistor 2SB966S	
TR002	274 0114 908	Transistor 2SD874R	
TR003	279 0024 909	Transistor FMY1-T99	
TR004	272 0081 909	Transistor 2SB966S	
TR005	274 0114 908	Transistor 2SD874R	
TR006	279 0024 909	Transistor FMY1-T99	

RESISTORS GROUP (not included Carbon Film ±5% 1/4W type)

R001	247 1006 961	Chip 270ohm 1/8W	RM73B2B471JT
R002	247 0006 904	Chip 270ohm 1/10W	RM73B--271JT
R003	247 0009 985	Chip 10kohm 1/10W	RM73B--103JT
R004	247 1012 997	Chip 200kohm 1/8W	RM73B2B204JT
R005	247 0012 998	Chip 200kohm 1/10W	RM73B--204JT
R006,007	247 1007 999	Chip 1.6kohm 1/8W	RM73B2B162JT
R008	247 1006 961	Chip 470ohm 1/8W	RM73B2B471JT
R009	247 1006 903	Chip 270ohm 1/8W	RM73B2B271JT
R010	247 1009 954	Chip 10kohm 1/8W	RM73B2B103JT
R011	247 1012 997	Chip 200kohm 1/8W	RM73B2B204JT
R012	247 0012 998	Chip 200kohm 1/10W	RM73B--204JT
R013,014	247 1007 999	Chip 1.6kohm 1/8W	RM73B2B162JT

CAPACITORS GROUP

C001	257 0006 927	Ceramic (Chip) 470pF/50V	CC73SL1H471JT
C003	257 1006 926	Ceramic (Chip) 470pF/50V	CC73SL1H471JT
C005	257 0014 935	Ceramic (Chip) 0.1μF/25V	CK73F1E104ZT
C007	257 0014 935	Ceramic (Chip) 0.1μF/25V	CK73F1E104ZT

OTHER PARTS

L001-004	346 8156 014	Coil	
CC104	204 0425 009	6P Connector Cord	

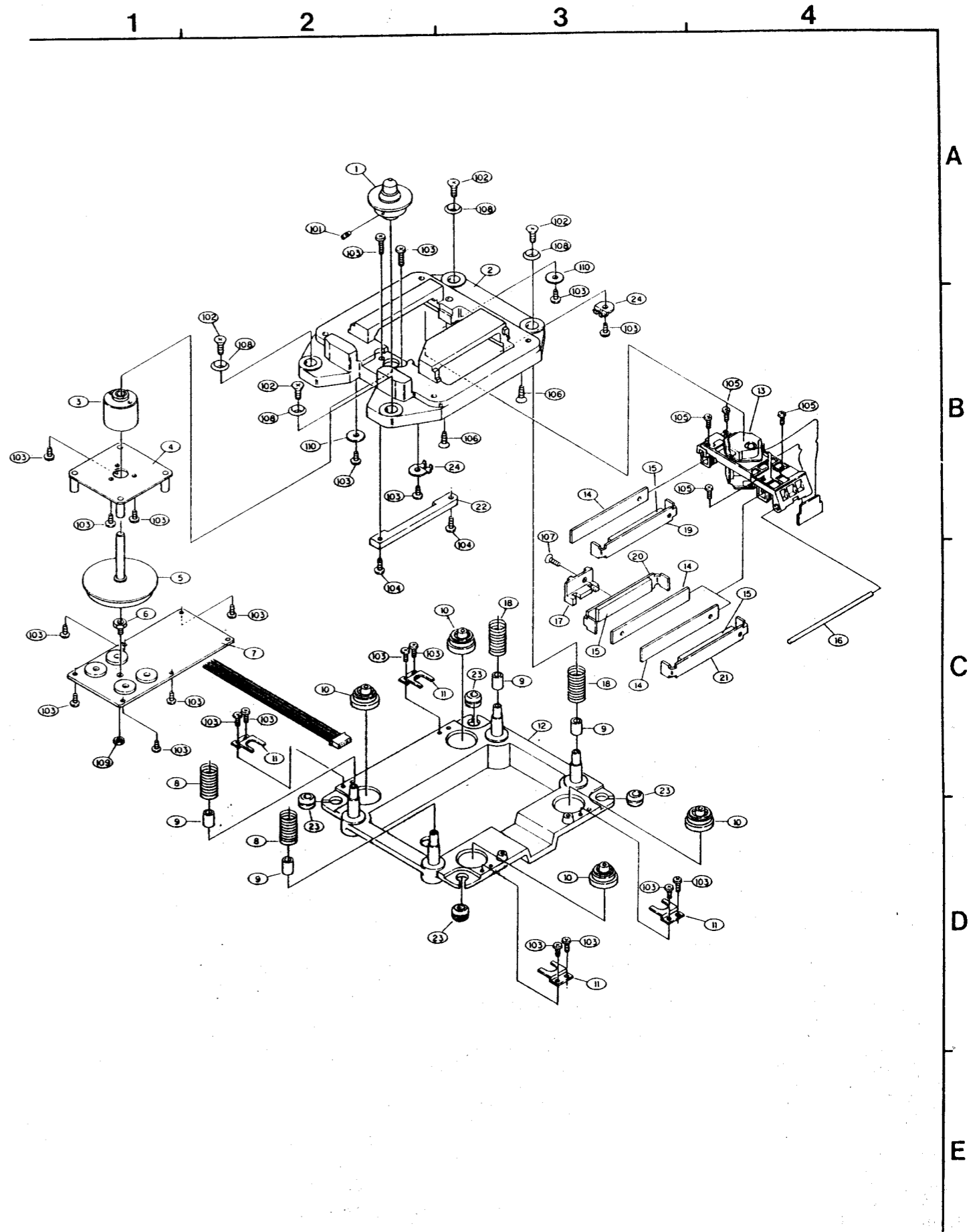
(3U-2418) POWER UNIT

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC501	263 0801 004	IC NJM7812FA(S)	
IC502	263 0641 002	IC NJM7912FA	
IC503	263 0810 008	IC NJM7808FA(S)	
IC504	263 0503 001	IC NJM7908FA	
IC505	263 0809 006	IC NJM7805FA(S)	
IC506	263 0554 005	IC NJM7905FA	
IC507	263 0652 907	IC PST529C	
TR501	271 0101 925	Transistor 2SA933(Q)T-70	
D500	276 0305 001	Diode S4VB20	
D501,502	276 0553 905	Diode 1SR35-200A(T93X)	
D503	276 0460 920	Zener Diode	HZS5C-3TD
D504	276 0482 908	Zener Diode	HZS27-1TD
D505,506	276 0432 903	Diode 1SS270A TE	
RESISTORS GROUP (not included Carbon Film ±5% 1/4W type)			
CAPACITORS GROUP			
C500	253 8014 702	Ceramic(Chip) 0.01μF/400VAC	CK45F2GAC103MC
C501-504	254 4356 771	Electrolytic 3300μF/50V	CE04W1H332MC ARS
C509,510	255 6167 000	Film 0.01μF/125V	CQ09S2B103K(B)
C513,514	256 1055 709	Metallized 1μF/100V	CF93B2A105KC GUG
C513,514	255 6167 000	Film 0.01μF/125V	CQ09S2B103K(B)
C515-520	254 4356 755	Electrolytic 220μF/50V	CE04W1H221MC ARS
C521-524	256 1054 001	Metallized 1μF/50V	CF93B1H105K GSG
C525	254 4313 950	Electrolytic 100μF/50V	CE04W1H101MT ASF
C526	254 4367 906	Electrolytic 47μF/63V	CE04W1J470MT ASF
C527	254 4313 918	Electrolytic 10μF/50V	CE04W1H100MT ASF
C528	253 1181 904	Ceramic(Chip) 0.01μF/50V	CK45F1H103ZT DD-3
OTHER PARTS			
F500	206 1025 051	Fuse(1.6)	
	EP-5870	Fuse Holder	
CB501	205 0581 001	2P VH Connector Base	
CB502	205 0768 002	2P VH Connector Base(BLK)	
CB503	205 0581 001	2P VH Connector Base	
CB504	205 0825 000	3P AC Connector Base	
CB505	205 0841 000	3P AC Connector Base(BK)	
CB507	205 0825 000	3P AC Connector Base	
CB505	205 0841 000	3P AC Connector Base(BK)	
CB510,511	205 0653 036	3P VH Connector Base	
CB512	205 0275 029	12P EH Connector Base	

PARTS LIST OF (FG-80) MECHANISM UNIT

Ref. No.	Part No.	Part Name	Remarks
1	421 0672 101	TURN TABLE ALL ASS'Y	
2	315 0354 205	P.U HOUSING ASS'Y	
3	346 0098 002	SPINDLE MOTOR HOUSING ASS'Y	
4	441 1538 109	HOUSING BASE ASS'Y	
5	GEN 2482 H	ROTOR YOKE SUB ASS'Y	
6	431 0353 003	THRUST METAL ASS'Y	
7	GEN 2483	MOTOR DRIVE SUB ASS'Y	
8	463 0758 003	FLOAT SPRING (Front)	
9	462 0131 009	MECHA. PLATE BOSS RUBBER	
10	462 0122 005	OIL DAMPER	
11	441 1573 009	DAMPER STOPPER	
12	411 1258 200	MECHA. PLATE ASS'Y	
13	GEN 2473	LASER P.U SUB ASS'Y	
14	433 0480 008	YOKE (B)	
15	341 0030 007	MAGNET	
16	443 0617 302	P.U SHAFT	
17	449 0040 207	F. WIRE HOLDER	
18	463 0759 002	FLOAT SPRING (Rear)	
19	GEN 2472	MAGNET SUB ASS'Y (3)	
20	GEN 2470	MAGNET SUB ASS'Y (1)	
21	GEN 2471	MAGNET SUB ASS'Y (2)	
22	315 0351 004	P.U GUIDE	
23	461 0789 005	MECHA. PLATE CUSHION	
24	441 0993 004	YOKE HOLDER	
101	474 4306 053	SCREW 3x3 BSS	
102	471 2405 038	SCREW 4x10 CFS MFNIB	
103	471 3303 016	SCREW 3x6 CBS Z	
104	471 3304 028	SCREW 3x8 CBS- B	
105	473 8010 009	SCREW M1.7x4 #0(W) ZNB	
106	471 2304 032	SCREW 3x8 CFS BKNI	
107	471 2809 003	SCREW 2.6x4 CFS ZNC	
108	475 1164 000	ROSETTE WASHER	
109	475 6100 001	NUT 3φ 3N BKNI	
110	475 1140 008	WASHER 3φ	

EXPLODED VIEW OF MECHANISM UNIT



PARTS LIST OF EXPLODED VIEW

Ref. No.	Part No.	Part Name	Remarks	Ref. No.	Part No.	Part Name	Remarks
1	105 1091 229	REAR PANEL	U.S.A.	57	412 3736 008	POWER SWITCH BRACKET(B)	Europe only
1	105 1091 232	REAR PANEL	Europe	61	113 1620 002	BUTTON (D10)	
1	105 1091 216	REAR PANEL	Multi-Voltage	62	113 1622 000	BUTTON (D8)	
2	144 2318 003	REAR PLATE		63	443 1282 105	COLLAR	
3	144 2304 305	TOP PLATE		64	461 0820 003	DANP RUBBER	
4	144 2317 101	SIDE PANEL(Right-Upper)		65	412 3693 002	P.W.B. BRACKET	
5	144 2316 209	SIDE PANEL(Left-Upper)		66	463 9071 008	SPRING	
6	144 2319 109	SIDE PANEL(Below)		67	476 1003 009	3E RING	
7	144 2302 103	REAR FOOT		68	461 0819 001	SPONGE	
8	411 1255 009	BOTTOM CHASSIS		70	203 4967 007	3P VH CONNECTOR CORD	Europe, Multi-Voltage
9	144 2305 207	FRONT PANEL		70	203 4967 036	3P VH CORD	U.S.A.
10	143 0848 200	WINDOW		71	203 8390 010	5P-3P VH WIRE	Europe
11	102 0539 000	DOOR		71	203 8392 005	5P-3P VH CORD	U.S.A.
12	469 0041 006	DOOR PACKING		72	461 0811 106	DOOR CUSHION	
13	424 0202 101	DOOR ARM(R)		73	412 3694 001	REAR ANGLE	
14	424 0203 100	DOOR ARM(L)		74	445 0048 016	CORD HOLDER (L50)	
15	422 0462 000	DOOR SHAFT		75	GEN 2457	DOOR MOTOR SUB ASSY	
16	475 1165 009	SLIT WASHER		76	441 1585 013	FRICTION PLATE ASSY	
17	203 4926 006	CANNON CONNECTOR	XLR-3-32-A176	77	441 1560 009	MASKING PLATE	
18	204 9801 006	1P PIN JACK		78	441 1559 104	SPRING PLATE	
18-1	be attached	(NUT)		79	463 0760 004	DOOR SPRING	
18-2	be attached	(WASHER)		80	462 0130 000	SPRING RUBBER	
19	205 0842 009	BNC CONNECTOR		81	443 1310 006	HOOK	
19-1	be attached	(NUT)		82	441 1579 003	SPACER	
19-2	be attached	(WASHER)		83	414 0691 003	DOOR SHIELD	
19-3	be attached	(WASHER)		84	144 2315 103	TOP ESCUTCHEON	
20	424 0210 009	PULLEY GEAR 1		85	475 1165 009	SLIT WASHER	
21	423 0061 006	BELT		86	463 0764 107	GEAR SPRING	
22	424 0211 008	GEAR 1		87	463 0763 108	ARM GEAR SPRING	
23	424 0212 007	ARM GEAR 1		88	462 0128 009	TEFLON SHEET(B)	
24	462 0127 000	TEFLON SHEET(A)		89	421 0680 009	GEAR GUIDE	
25	441 1540 207	GEAR PLATE(1) ASSY		90	421 0679 007	ARM GEAR GUIDE	
26	3U-2417	DISPLAY UNIT		91	475 1166 008	SLIT WASHER	
27	441 1542 205	GEAR PLATE(2)		92	GEN 2460	DOOR SWITCH SUB ASSY	
28	393 8004 007	FL TUBE	FIP8L8				
29	441 1567 109	TRANS. DAMPER(A)					
30	203 4926 006	POWER TRANSFORMER					
31	109 0225 001	HOUSING COVER					
32	144 2314 104	SIDE ESCUTCHEON(R)					
34	FG-80	CD MECHANISM UNIT					
35	3U-2415	SERVO UNIT					
36	269 0117 000	OPTICAL TERMINAL	TOTX176				
37-1	269 0141 005	OPTICAL TERMINAL	ODL50-1361AAC(R)				
37-2	269 0140 006	OPTICAL TERMINAL	ODL50-1261AAC(T)				
38	3U-2418	POWER UNIT					
39	104 0267 006	FOOT ASSY					
40	414 9095 011	CU DAMPER					
50	412 3690 102	CONNECTING PLATE					
51	412 3736 008	POWER SWITCH BRACKET(B)	Multi-Voltage				
52	412 3693 002	P.W.B. BRACKET	U.S.A.				
53	412 3691 004	ESCUTCHEON ANGLE					
54	144 2312 106	SIDE ESCUTCHEON(L) ASSY					
55	113 1625 007	POWER SWITCH BUTTON ASSY					
56	412 3744 003	POWER SWITCH BRACKET(A)	Europe, Multi-Voltage				
56	412 3692 003	POWER SWITCH BRACKET	U.S.A.				

PARTS LIST OF PACKING & ACCESSORIES

Ref. No.	Part No.	Part Name	Remarks	Ref. No.	Part No.	Part Name	Remarks	Qty
122	475 6100 001	NUT 3 φ 3N BKNI			504 0092 060	Styrene Paper	For AC Cord	1
123	471 3839 001	SCREW 3x14 CBS-CU			505 0131 076	Cabinet Cover	For Equipment	1
124	471 3404 025	SCREW 4x8 CBS			503 1092 008	Cushion Ass'y		1
125	475 6107 004	M2 NUT BKNI			505 0266 006	Remote Controller Case Cover		1
					101 2493 002	Remote Controller Case		1
					504 0158 001	Inner Sheet (RE)		2
					399 0213 001	Remote Controller (RC-248)		1
					505 0265 007	Disc Stabilizer Case Cover		1
					101 2494 001	Disc Stabilizer Case		1
					504 0157 002	Inner Sheet (ST)		2
					GEN 2559	Disc Stabilizer Sub Ass'y		1
					502 0822 001	Inner Carton		1
					501 1716 016	Carton Case		1
					505 8023 050	Envelope		1
					203 0549 005	Pin Cord (75ohm)		1
					511 2520 004	Instruction Manual(3)		1
					511 2521 003	Instruction Manual(5)	Europe Only	1
					515 0623 109	DAI Warranty Home	U.S.A. Only	1
					515 8030 008	Preset Label	Multi-Voltage Only	1
					202 0044 002	Plug Adapter	Multi-Voltage Only	1
					513 9111 001	Color Label (Gold)		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.

1

2

3

4

5

6

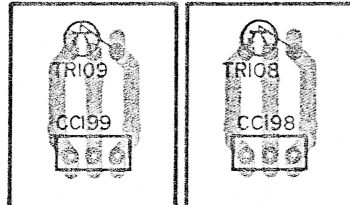
7

8

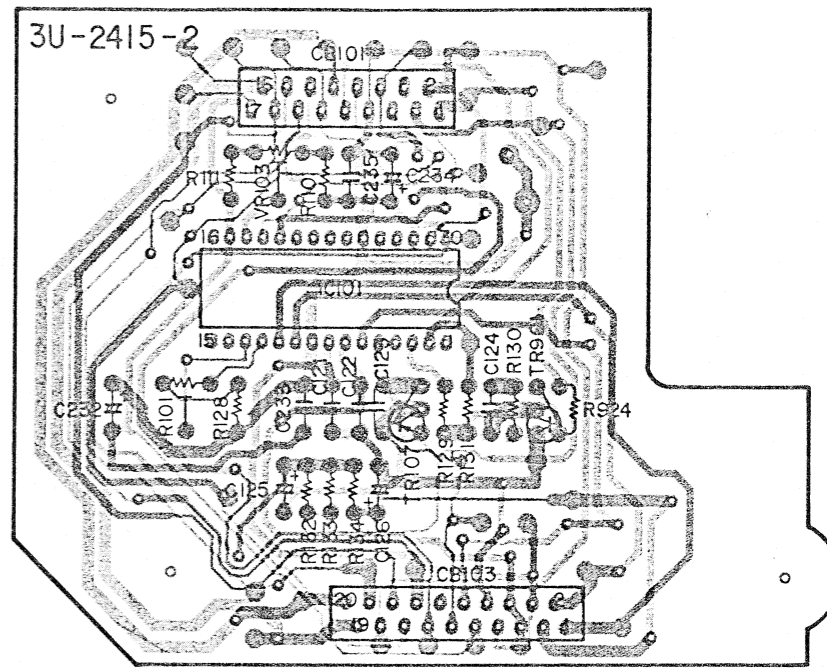
(3U-2415) SERVO UNIT

A

3U-2415-4 3U-2415-3



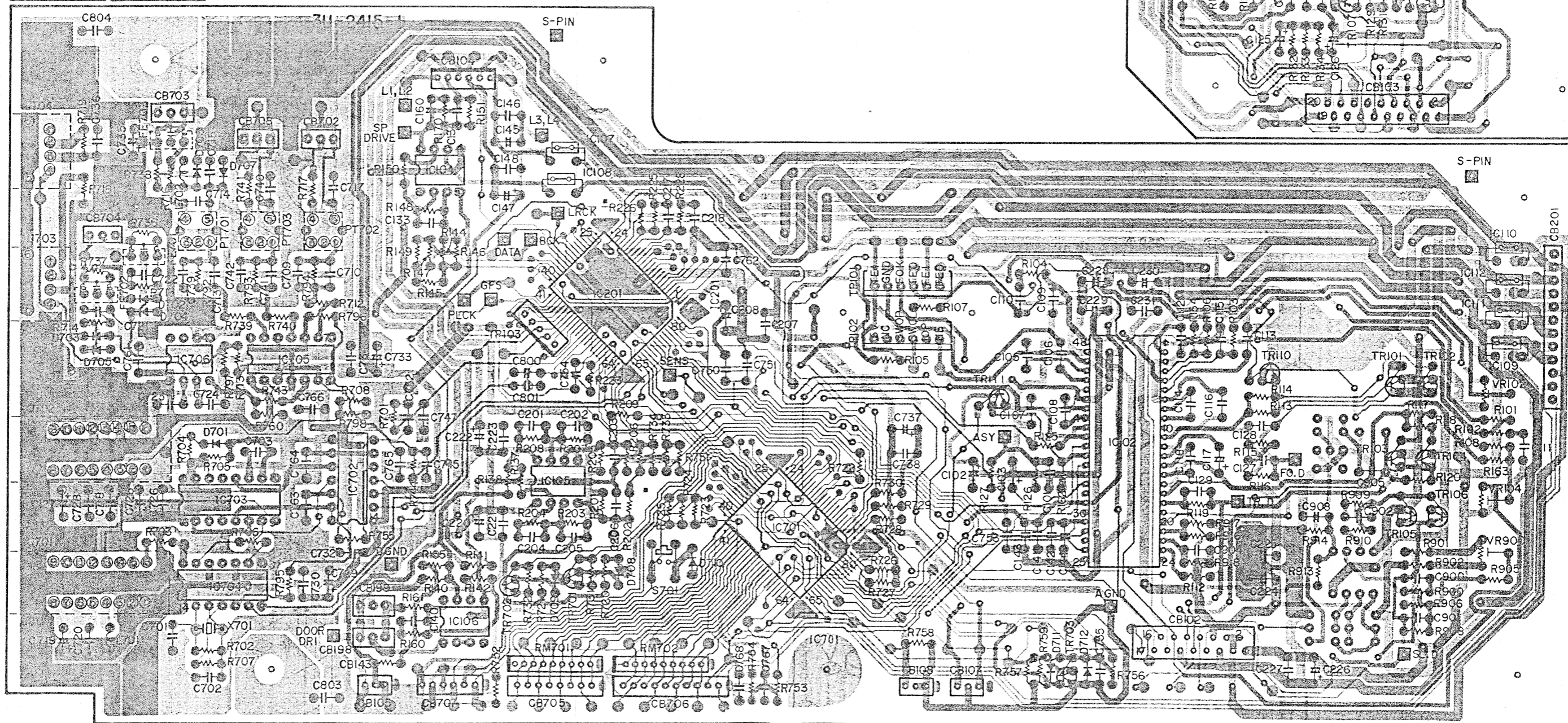
B



C

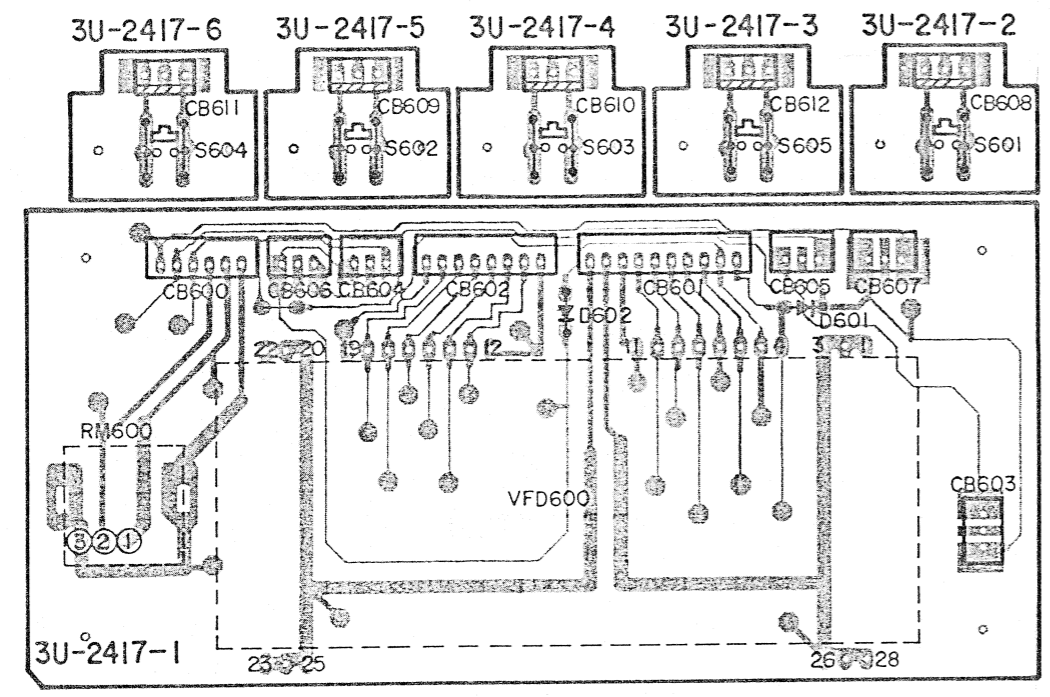
D

E

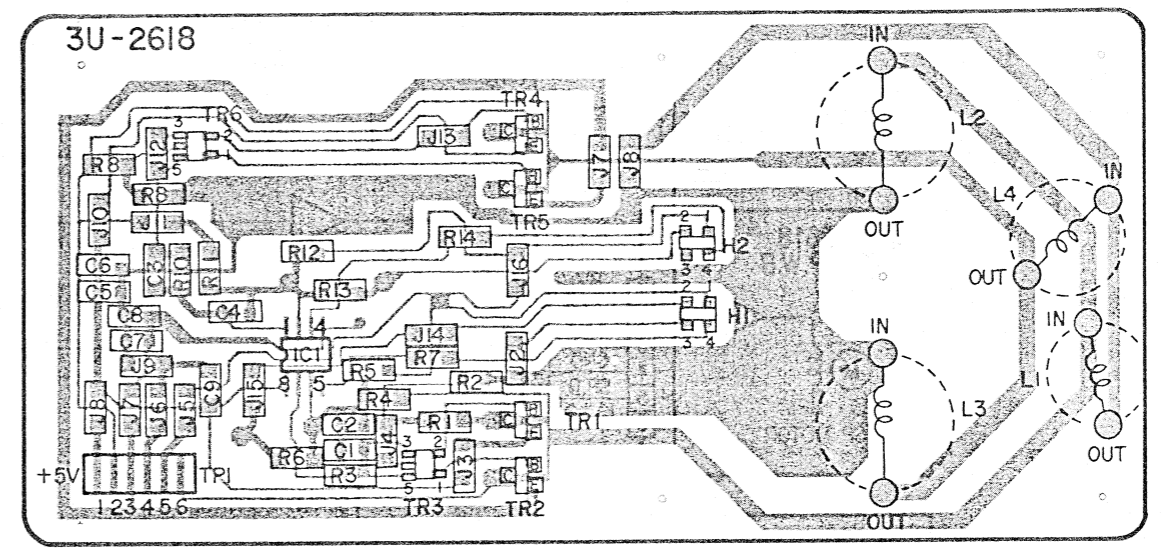


1 2 3 4 5 6 7 8

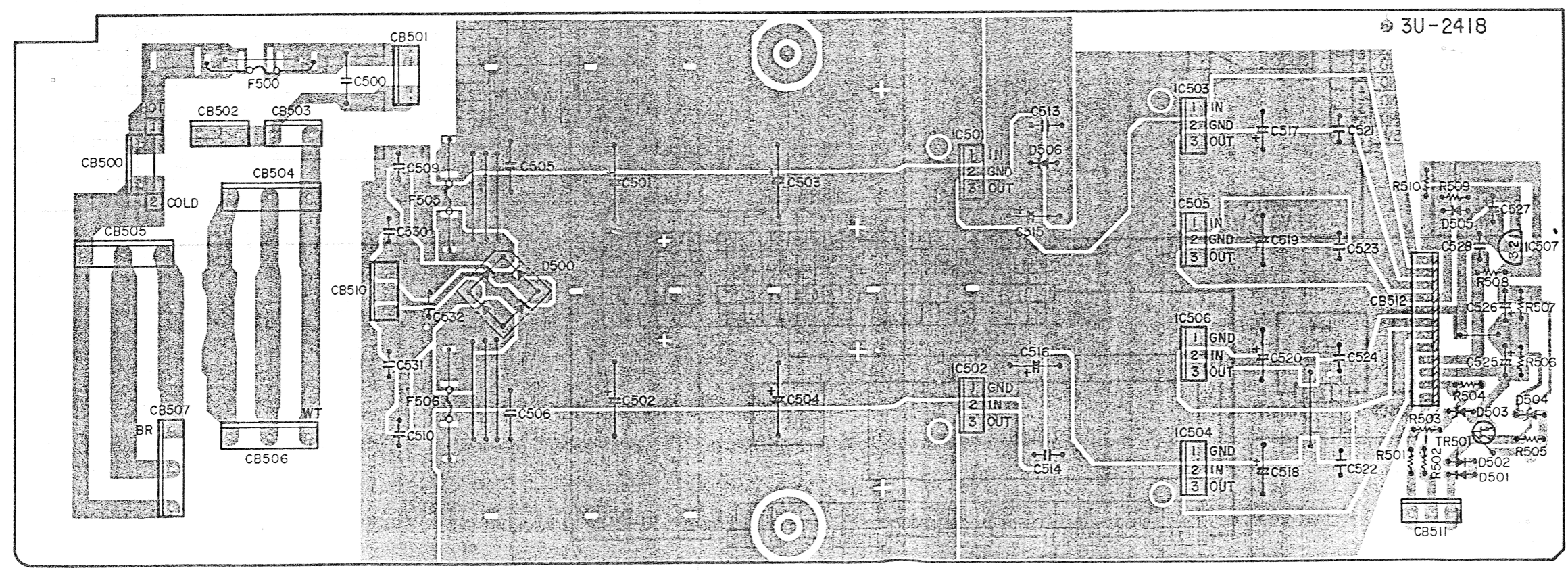
(3U-2417) DISPLAY UNIT



(3U-2618) SPINDLE MOTOR UNIT

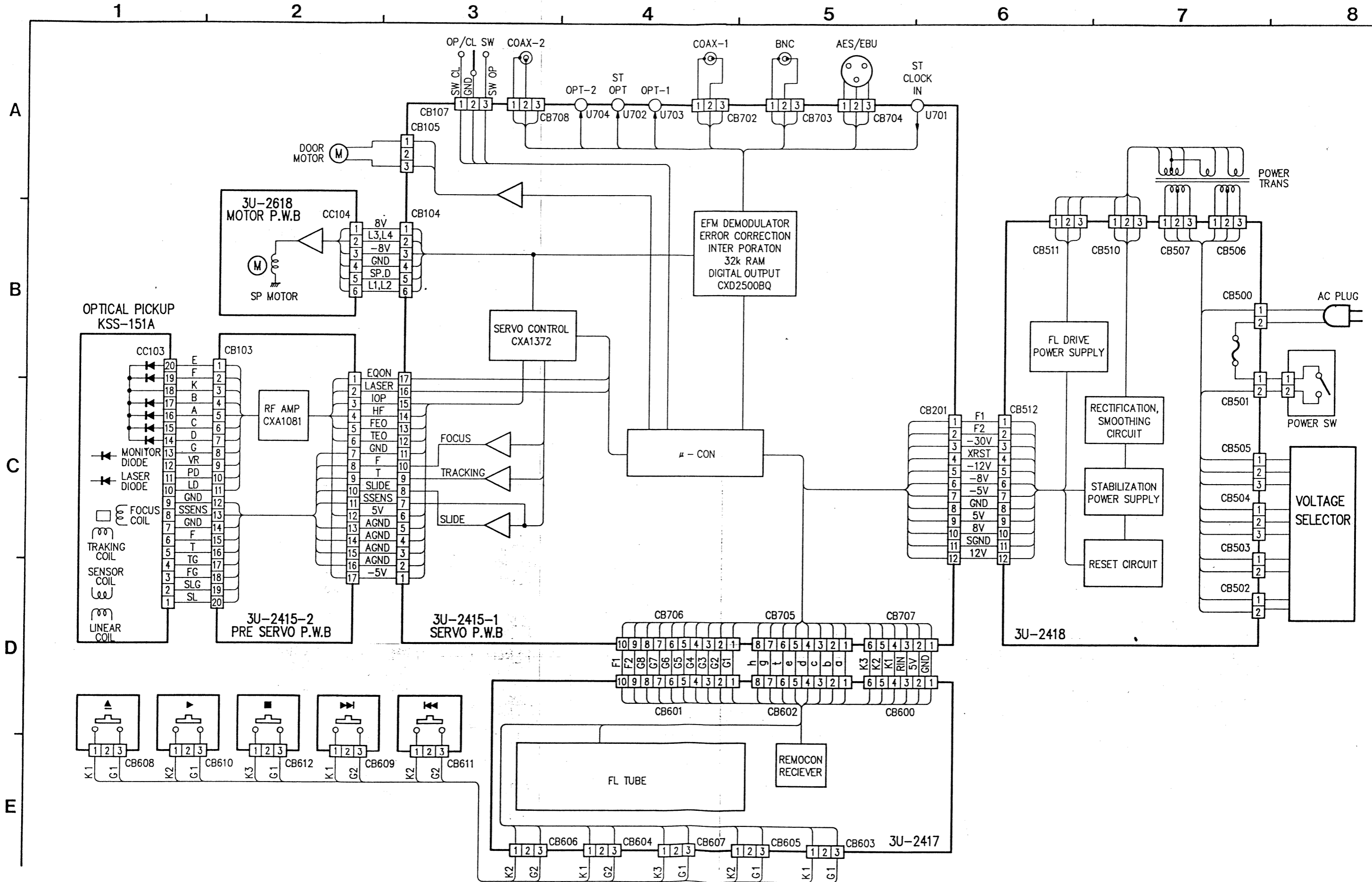


(3U-2418) POWER UNIT

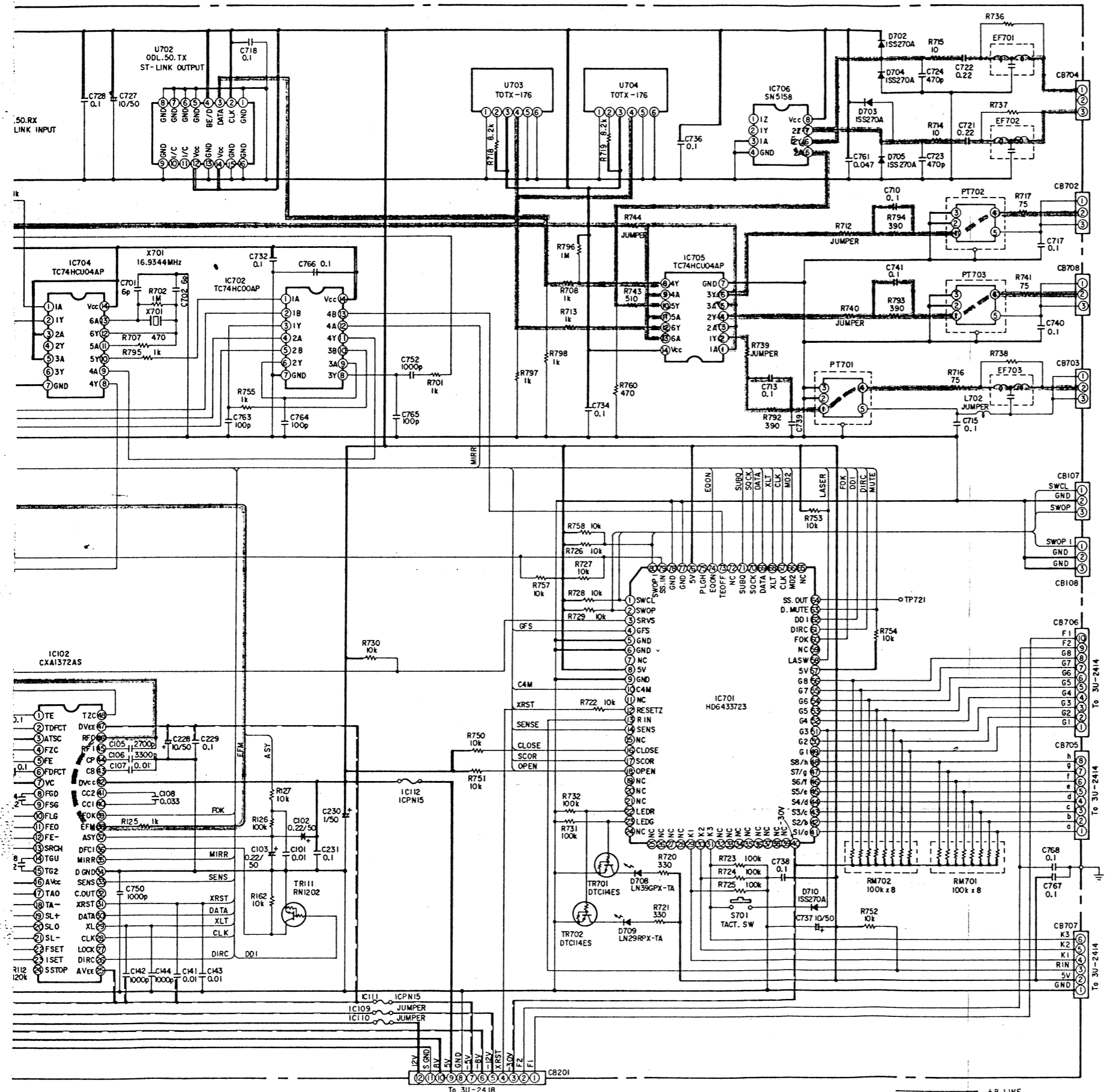


A
B
C
D
E


WIRING DIAGRAM



9 10 11 12 13 14 15



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

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

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

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

A
B
C
D
E

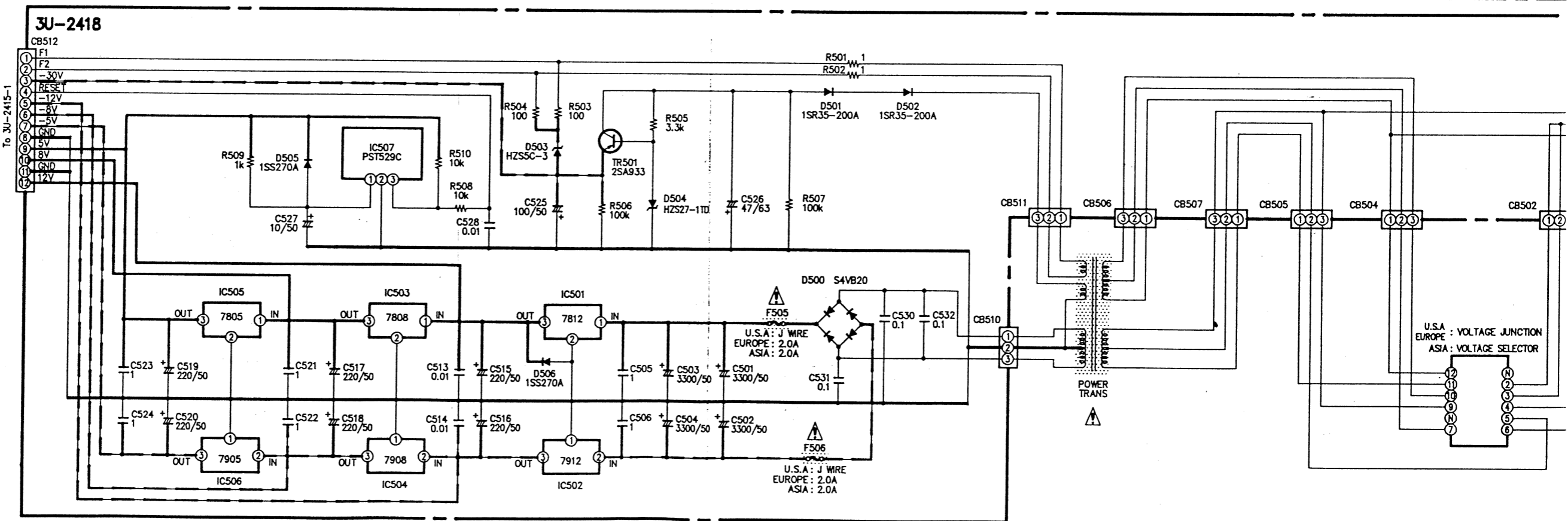
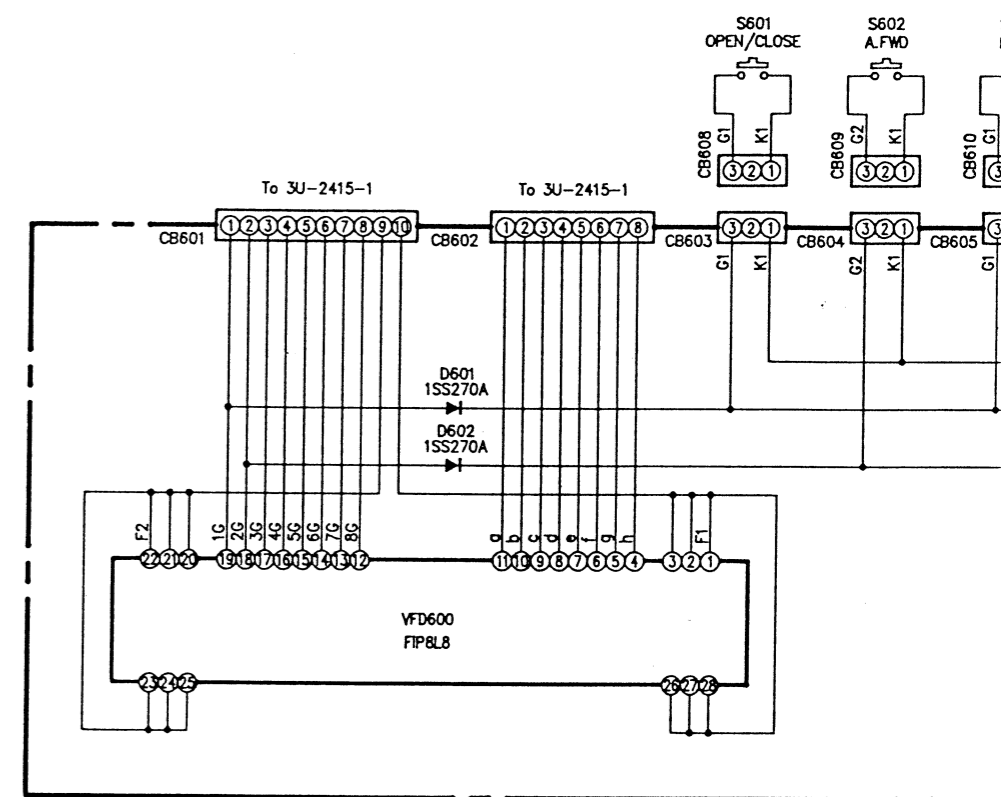
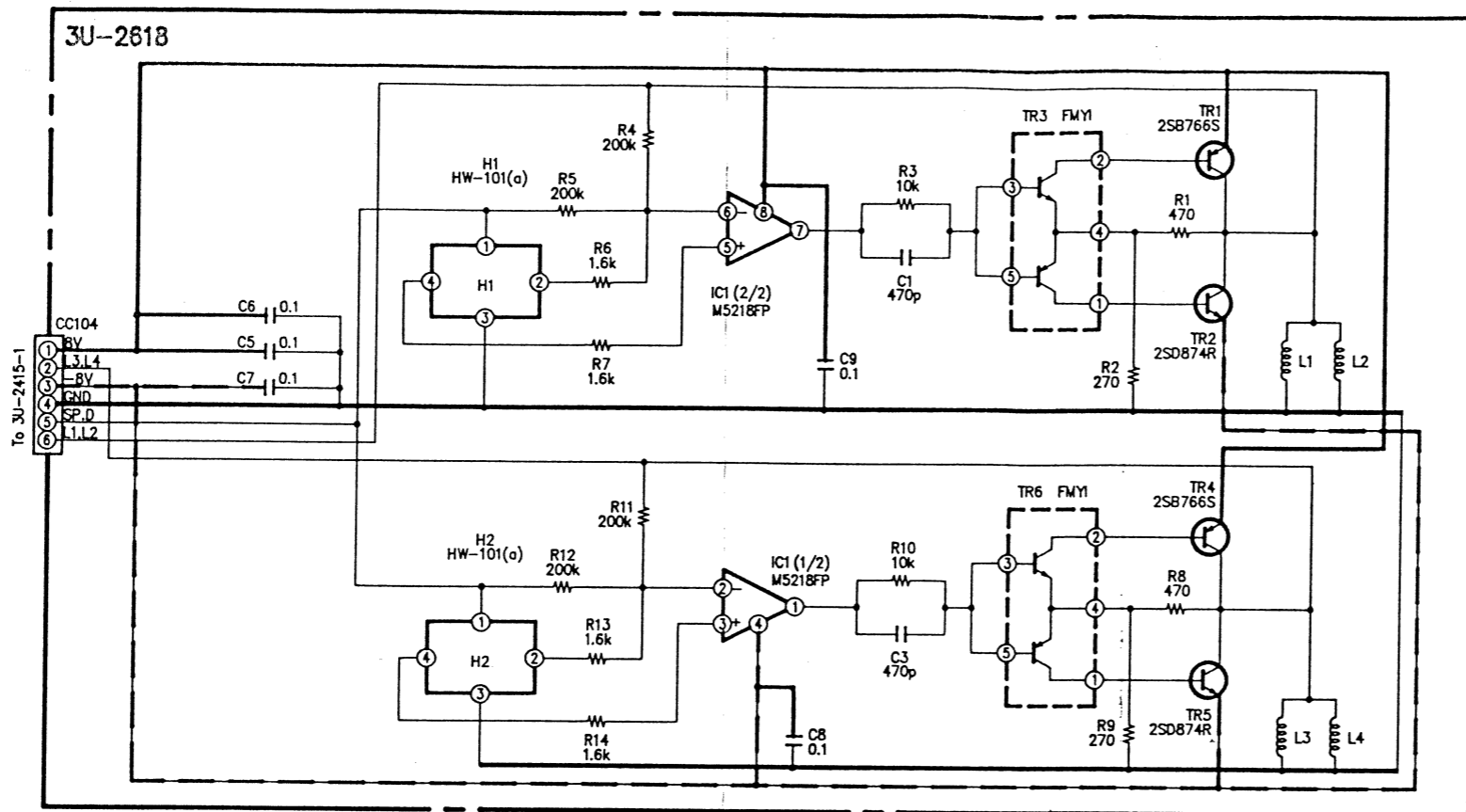
A

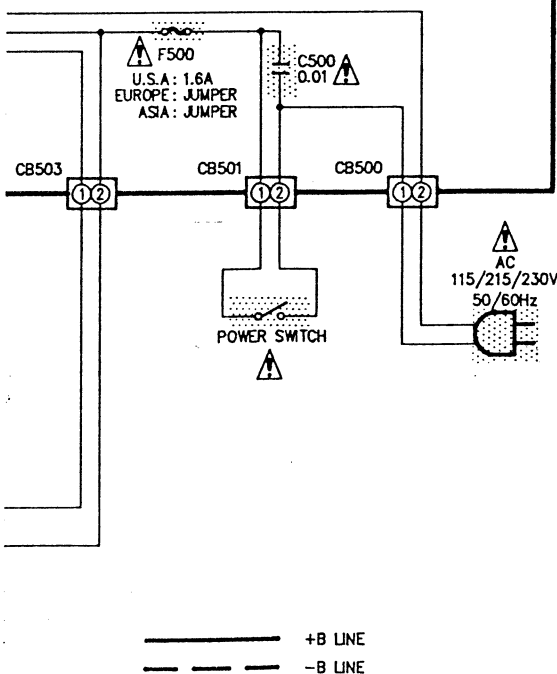
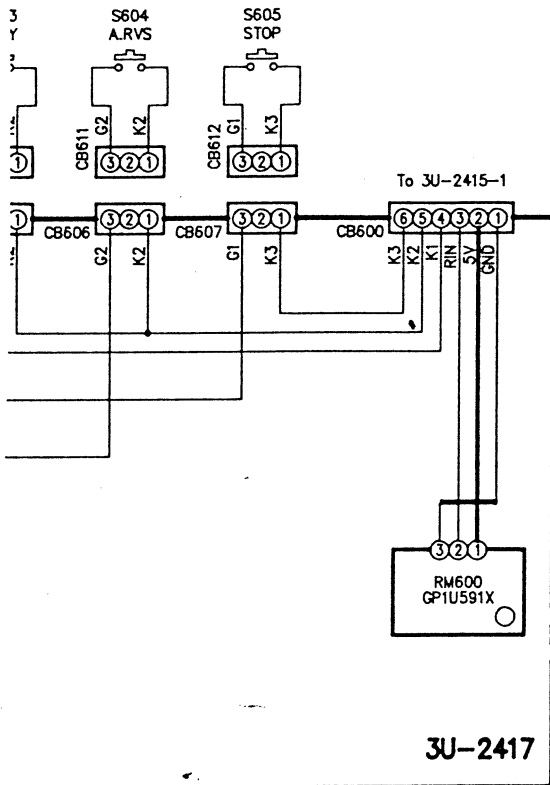
B

C


D

E





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

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

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

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