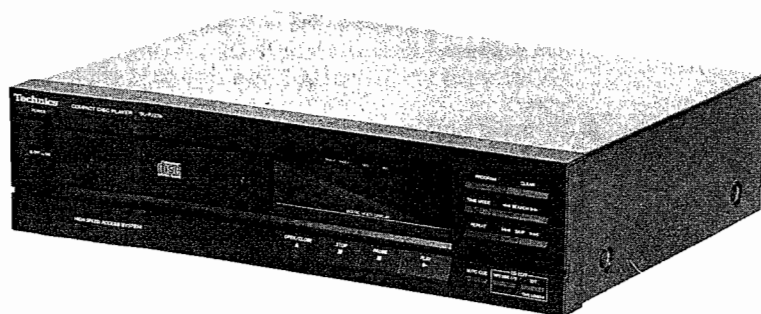


Service Manual

Compact Disc Player SL-PJ27A

Color

(K)... Black Type



Area

| Country Code | Area | Color |
|--------------|-----------------------|-------|
| (E) | Continental Europe. | (K) |
| (EB) | Great Britain. | (K) |
| (EG) | F.R. Germany & Italy. | (K) |

■ SPECIFICATIONS

■ Audio

| | |
|---------------------------|----------------------------|
| No. of channels | 2 (left and right, stereo) |
| Frequency response | 2-20,000 Hz ± 0.5 dB |
| Output voltage | 2 V (at 0 dB) |
| Dynamic range | 96 dB |
| S/N ratio | 96 dB |
| Total harmonic distortion | 0.005% (1 kHz, 0 dB) |
| Harmonic distortion | 0.003% (1 kHz, 0 dB) |
| Wow and flutter | Below measurable limit |
| Output impedance | Approx. 600Ω |
| Load impedance | More than 10 kΩ |

■ Pickup

Wavelength 780 nm

■ General

| | |
|--------------------|-------------------|
| Power supply | |
| For Great Britain: | AC 50/60 Hz, 240V |
| For others: | AC 50/60 Hz, 220V |
| Power consumption | 10 W |
| Dimensions (W×H×D) | 360×96×283 mm |
| Weight | 3.4 kg |

Specifications subject to change without notice.

Weight and dimensions shown are approximate.

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* TECHNICAL INFORMATION

* This technical information is located on pp 49 ~ 56 of the SL-PJ46A Service Manual (Order No. AD8902036C2). Therefore, refer to that Service Manual.

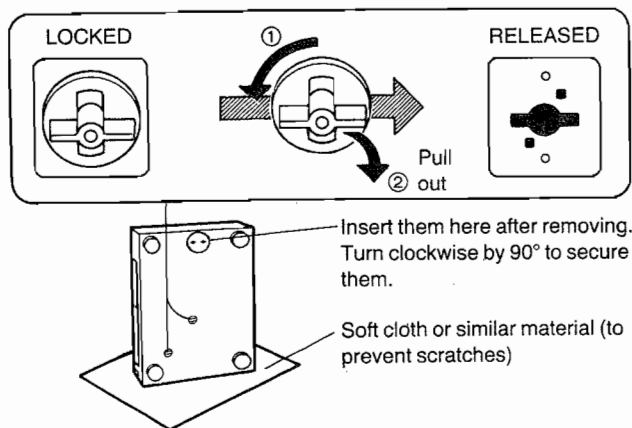
Technics

Matsushita Electric Industrial Co., Ltd.
Central P.O. Box 288, Osaka 530-91, Japan

■ PLACEMENT

Before placement

Two transport security devices are secured to prevent the optical pickup from damage during transport. Be sure to release them before use.



Note:

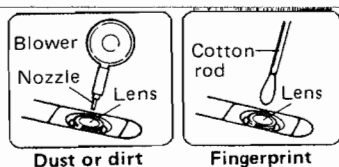
When transporting the unit, be sure to remove the compact disc from inside the unit. And replace the transport security devices again following the reverse order not to damage the optical pickup.

■ CLEANING OF LENS

If the lens is stained causing sound skip or operation failure, open the top cover by pressing the open button, and clean the lens.

● **To remove dust or dirt**

Blow the lens with the blower provided in the cleaning kit to remove dust or dirt.



● **To remove fingerprint**

If the blower is not enough, moisten the cotton rod with the lens cleaner solution and wipe the lens with it from center of the lens to outside.

■ ACCESSORIES

- AC power supply cord 1

| |
|--------------------|
| SFDAC05E03 (E, EG) |
| SJA188 (EB) |
- L-type cable 1
 (SJP2257T)

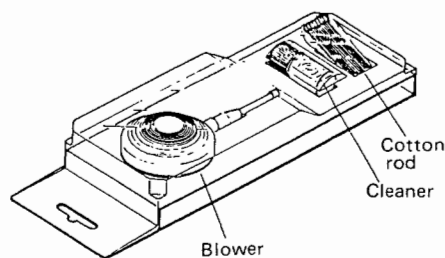
Notes of placement

- **This unit is a precision instrument. Be sure to place it on a flat surface.**
- **Avoid places such as the following:**
 - Near any equipment or device that generates strong magnetism.
 - On any heat-generating equipment or device, or in any place where the temperature is high (35°C or higher).
 - Extremely cold places (5°C or below).
 - Near a tuner or TV (It may cause noise in the broadcast, or disturbance of the TV picture.)
- **When carrying or storing the unit, handle it with care so it is not subjected to any strong bumps.**
 Always remove the disc before storing the unit for any period of time.
- **To avoid problems due to vibration.**
 - Do not place a book or similar object under this unit.
 - Do not route the connection cables (of this or other units) across the operation panel, across the top, or under the unit.

Cautions:

- Do not directly apply the cleaner solution to the lens. Do not apply too much solution to the cotton rod or otherwise the solution will flow into the player.
- Wipe the lens carefully. Do not give too much stress to the lens or otherwise it may scratch the lens or cause optical pickup trouble.
- If the solution should be too much applied, wipe the lens with a dry cotton rod.

Lens cleaning kit (Part No. : SZZP1038C)



- Stereo connection cable 1
 (SJP2249-3)

■ PRECAUTION OF LASER DIODE

CAUTION: This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pick up lens.

Wave length: 780 nm

Maximum output radiation power from pick up: 100 μ W/VDE

Laser radiation from the pick up lens is safety level, but be sure the followings:

1. Do not disassemble the optical pick up unit, since radiation from exposed laser diode is dangerous.
2. Do not adjust the variable resistor on the pickup unit. It was already adjusted.
3. Do not look at the focus lens using optical instruments.
4. Recommend not to look at pick up lens for a long time.

ACHTUNG: Dieses Produkt enthält eine Lasereinheit. Im eingeschalteten Zustand wird unsichtbare Laserstrahlung von der Lasereinheit abgestrahlt.

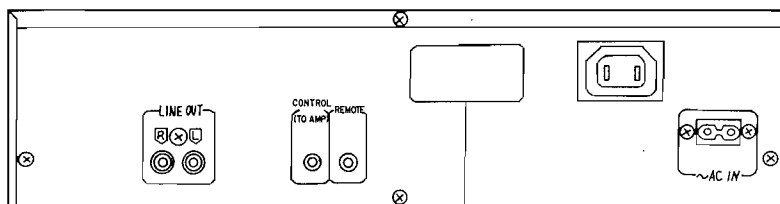
Wellenlänge: 780 nm

Maximale Strahlungsleistung der Lasereinheit: 100 μ W/VDE

Die Strahlung an der Lasereinheit ist ungefährlich, wenn folgende Punkte beachtet werden:

1. Die Lasereinheit nicht zerlegen, da die Strahlung an der freigelegten Laserdiode gefährlich ist.
2. Den werksseitig justierten Einstellregler der Lasereinheit nicht verstellen.
3. Nicht mit optischen Instrumenten in die Fokussierlinse blicken.
4. Nicht über längere Zeit in die Fokussierlinse blicken.

ADVARSEL: I dette a apparat anvendes laser.

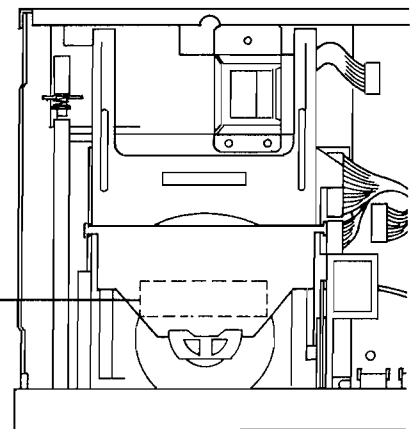


SQWD7

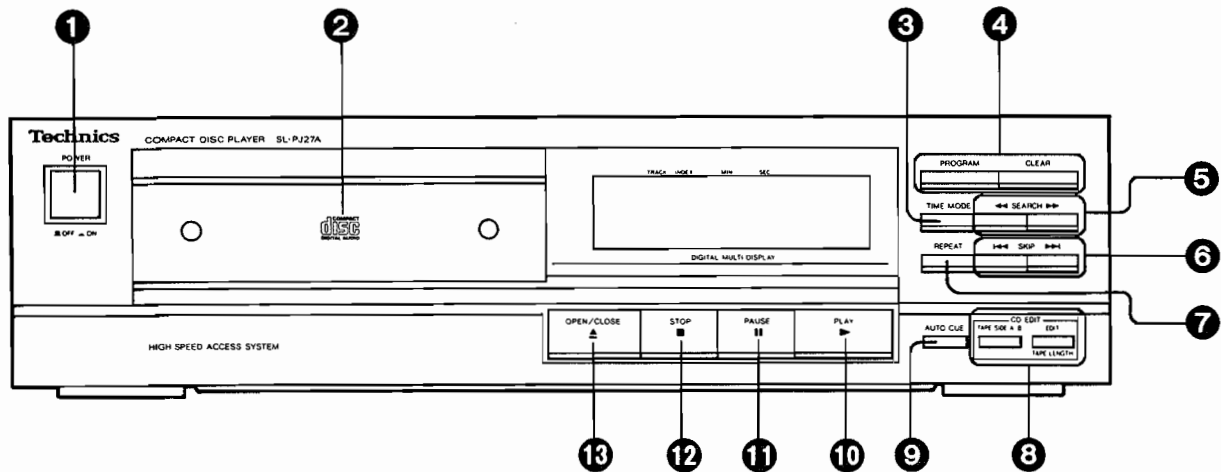


Obs:
Apparaten innehåller laser
Komponent av höger laserklass
än klass 1.

RQLS0022



LOCATION OF CONTROLS



Control section

1 Power switch (POWER OFF ON)

2 Disc holder

3 Time mode select button (TIME MODE)
Use this button to select the desired time display mode.

- 4 Buttons for program function**
- **Programmed-play button (PROGRAM)**
Pressing this button initiates the programmed play mode. You can then enter specific tracks using the skip buttons.
 - **Clear button (CLEAR)**
Each pressing this button makes one track cleared from the programmed sequence.

5 Search buttons (SEARCH)
These buttons can be used to move rapidly forward or backward on the disc during play. The search speed is slow when the button is pressed at first and becomes faster if the button is pressed and held continuously.

6 Skip buttons (SKIP)
These buttons can be used to specify the number of the desired track and the desired recording time of the tape.

7 Repeat button (REPEAT)

8 Buttons for CD edit function (CD EDIT)

- **Edit tape length button (EDIT TAPE LENGTH)**
When compact discs are to be recorded to tape, this button can be used to calculate the number of tracks that can be recorded on each side of the tape, depending on the length of the cassette tape used, so that as little tape as possible is wasted.
- **Tape-side select button (TAPE SIDE A/B)**
When recording compact discs to tape, this button can be used to check the number of tracks and amount of tape left over for side A or B.

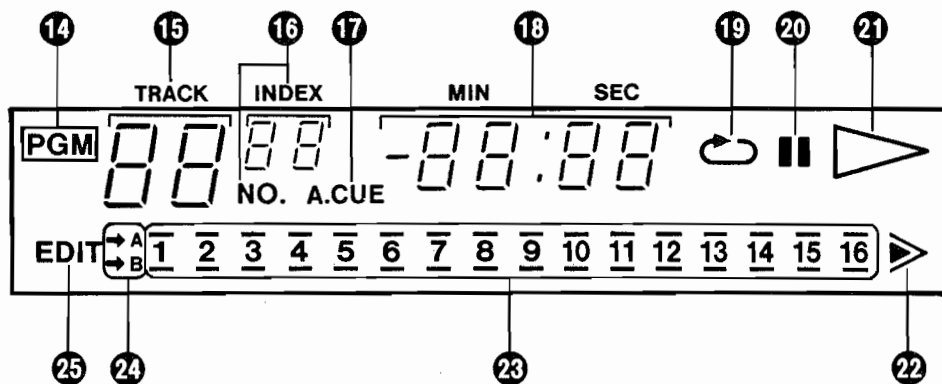
9 Auto cue button (AUTO CUE)
Pressing this button causes the unit to skip automatically to the beginning of the next track on the disc and switch to the play standby mode.

10 Play button (PLAY)

11 Pause button (PAUSE)

12 Stop button (STOP)
This button can be used to stop the disc play, as well as to cancel the various play modes.

13 Disc holder open/close button (OPEN/CLOSE)



Indicators section

- 14** Programmed-play indicator (PGM)
- 15** Track number display (TRACK)
- 16** Index/program number display (NO./INDEX)
- 17** Auto cue indicator (A. CUE)
- 18** Time display (MIN/SEC)
- 19** Repeat indicator (↺)
- 20** Pause indicator (||)
- 21** Play indicator (▷)
- 22** "Over" mark (▷)

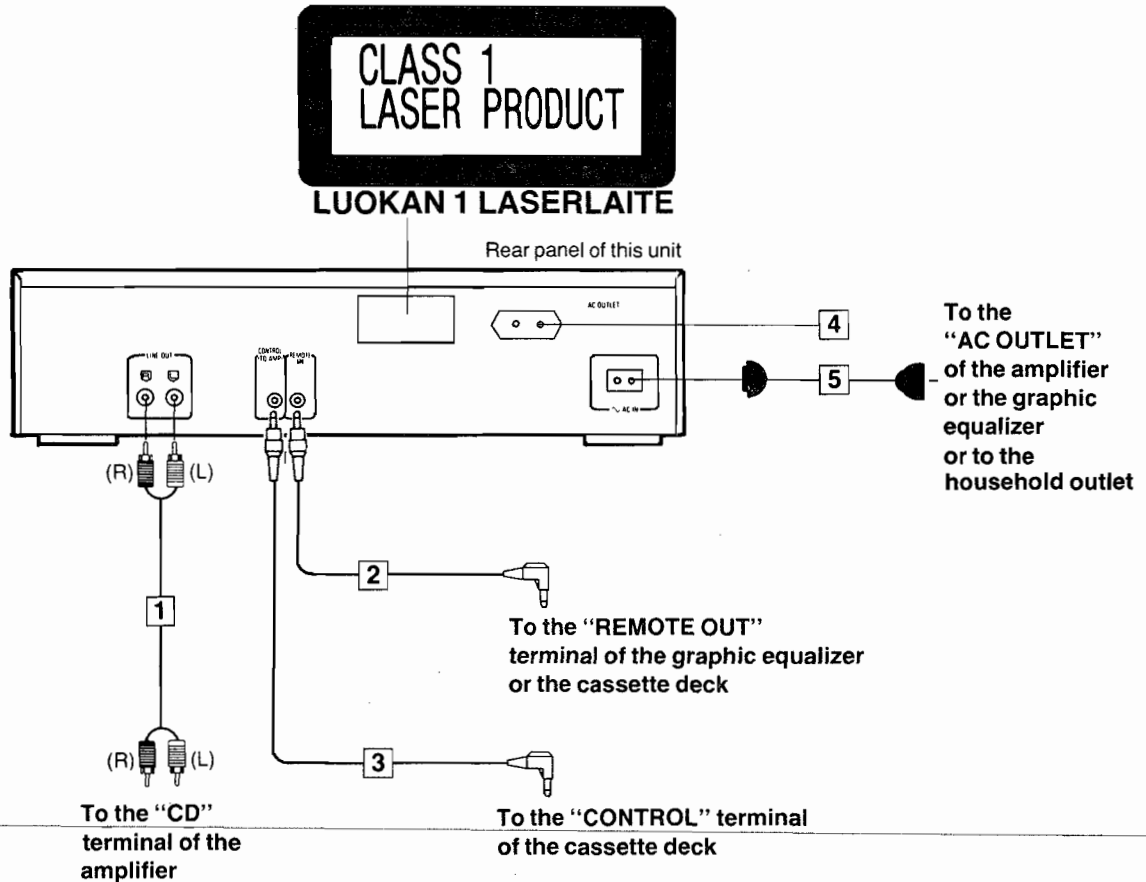
This indicator lights if the total number of tracks on the disc is 17 or more.
- 23** Track number indicator (1-16)
- 24** Tape side indicator (A/B)
- 25** Compact disc edit indicator (EDIT)

If this unit is connected with Technics Hi-Fi component system whose remote control transmitter has button for compact disc operation, the pause function may not be activated by pressing the button during compact disc play.

■ CONNECTIONS

Notes:

- Turn power off on all components before making connections.
- See the operating instructions of the tuner for details.



1 Stereo connection cable (included)

2 L-type cable (included)

This cable can be used only with a Technics graphic equalizer or a cassette deck having the appropriate "REMOTE OUT" terminal.

Note:

To use this unit with the system X90D or X50D, connect this L-type cable to the "REMOTE OUT" terminal of the tuner (instead of the cassette deck).

3 L-type cable (included)

This cable can be used only with a Technics amplifier having the appropriate "CONTROL" terminal.

Note:

To use this unit with the system X90D or X50D, connect this L-type cable to the "CONTROL" terminal of the cassette deck.

4 "UNSWITCHED" outlet

Power is always available, regardless of power switch.

This outlet is exclusively for the connection of other audio equipment, such as a tape deck, etc. Be sure the power consumption does not exceed the wattage specified near the AC outlet.

5 AC power supply cord (included)

Note:

The configuration of the AC outlet and AC power supply cord differs according to area.

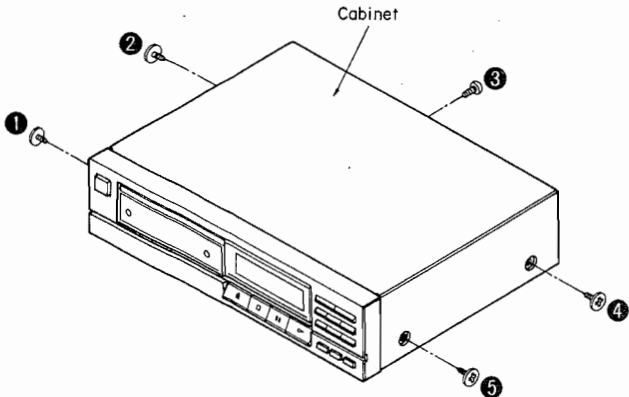
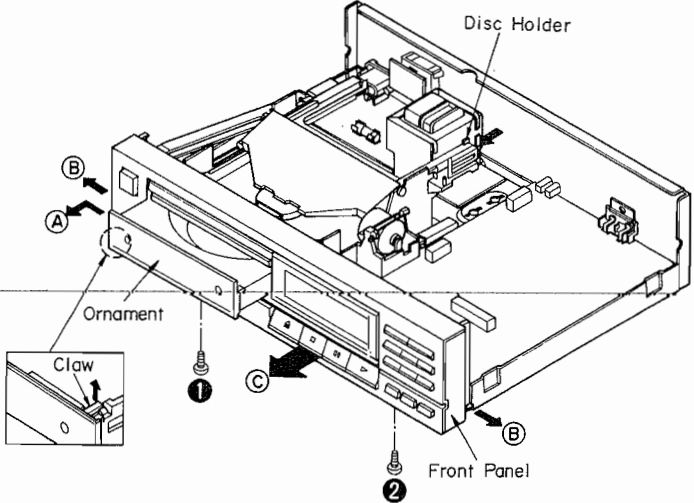
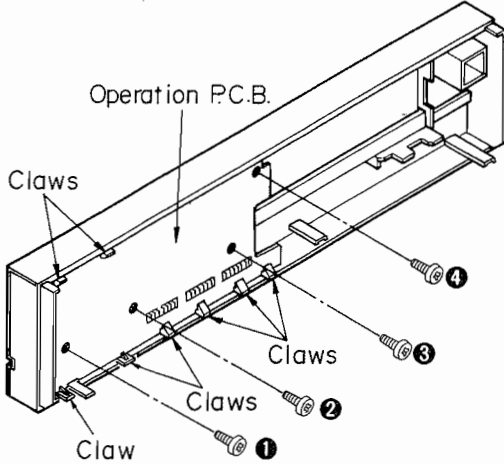
■ DISASSEMBLY INSTRUCTIONS

Warning: This product uses a laser diode. Refer to caution statements on page 3.

ACHTUNG: •Die lasereinheit nicht zerlegen.

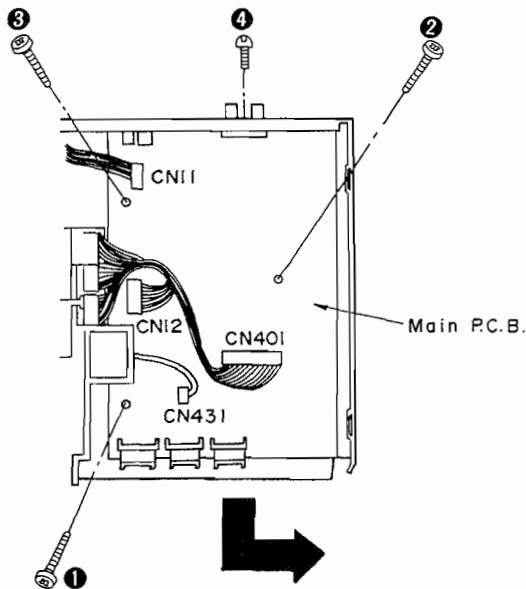
•Die lasereinheit darf nur gegen eine vom hersteller spezifizizierte einheit ausgetauscht werden.

* This CD player is equipped with FPC board, so handle them with care during disassembly and reassembly.

| Ref. No. 1 | Removal of the cabinet | Ref. No. 2 | Removal of the ornament of disc holder and the front panel |
|--|--|---|---|
| Procedure 1 | 1. Remove the 5 screws (❶ ~ ❺). | Procedure 1→2 | A. Ornament of disc holder 1. Push the disc holder slowly in the direction of the arrow. 2. Release the 1 claw and the ornament in the direction of the arrow (❶). |
|  | | B. Front panel 1. Remove the 2 screws (❶, ❷). 2. Slightly pull out the front panel in the direction of the arrow (❸). 3. Remove the front panel in the direction of the arrow (❹).  | |
| Ref. No. 3 | Removal of the operation P.C.B. | | |
| Procedure 1→2→3 | 1. Remove the 4 screws (❶ ~ ❹). 2. Release the 8 claws. | | |
|  | | | |

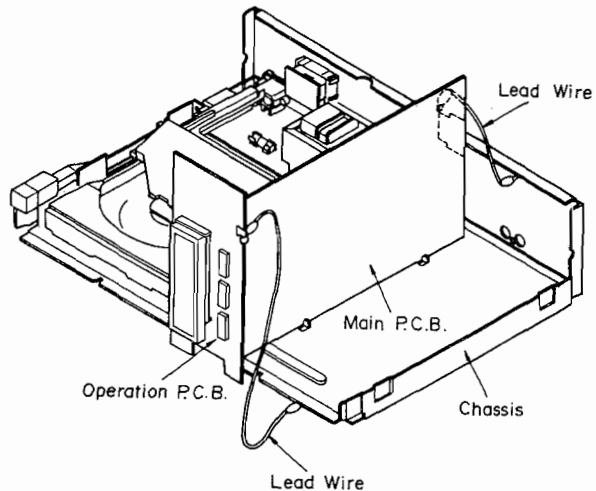
Ref. No. 4 **Removal of the main P.C.B.**

- Procedure 1→2→3→4**
1. Remove the 4 screws (①~④).
 2. Remove the 4 connectors (CN11, CN12, CN401, CN431).
 3. Lift the main P.C.B. off the retention posts on the chassis.
 4. Remove the main P.C.B. in the direction of the arrow.



How to check the main P.C.B.

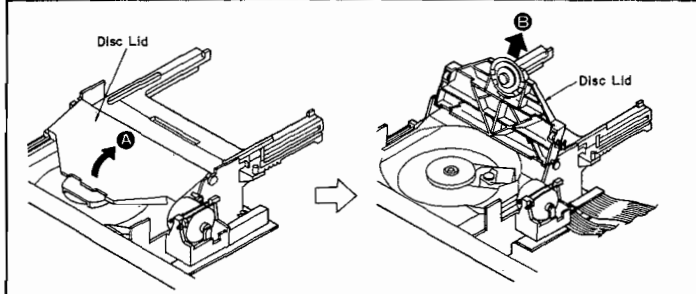
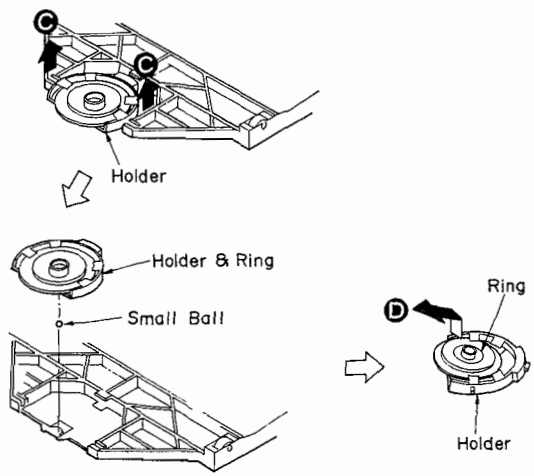
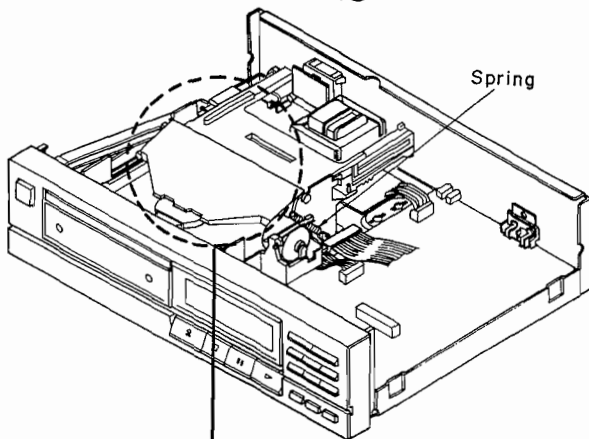
- When checking the soldered surface of the main P.C.B. and replacing the parts, do as shown below.
1. Connect the main P.C.B. ground terminal (LINE OUT terminal) to the chassis with a lead wire.
 2. Connect the operation P.C.B. ground terminal to the chassis with a lead wire.



Ref. No. 5 **Removal of the disc lid and holder**

- Procedure 1→5**
1. Remove the spring.
 2. Move the disc lid in the direction of the arrow (A) and pull out this in the direction of the arrow (B).

3. Pull out the holder in the direction of the arrow (C).



- Caution:** Be sure to handle the small ball carefully.
4. Remove the ring in the direction of the arrow (D).

| | |
|---|--|
| Ref. No. 6 | Removal of the disc holder and power switch rod |
| Procedure 1→2→5→6 | |
| <p>A. Disc holder</p> <ol style="list-style-type: none"> 1. Pull the disc holder slowly in the direction of the arrow until the disc tray comes up. 2. Pull the disc holder until it stops. 3. Push the bracket of tray SW (S1001) in the direction of the arrow. 4. Pull out the disc holder further to remove it. <p>B. Power switch rod</p> <ol style="list-style-type: none"> 1. Set the power switch in the "OFF" position. 2. Remove the power switch rod by using a screwdriver. | |
| | |

| | |
|---|------------------------------------|
| Ref. No. 7 | Removal of the loading unit |
| Procedure 1→2→5→6→7 | |
| <ol style="list-style-type: none"> 1. Remove the 3 screws (①~③). 2. Remove the 3 connectors (CN12, CN401, CN431). | |
| | |

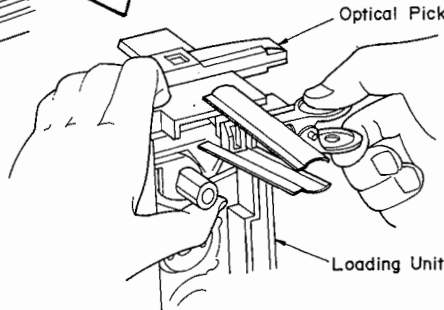
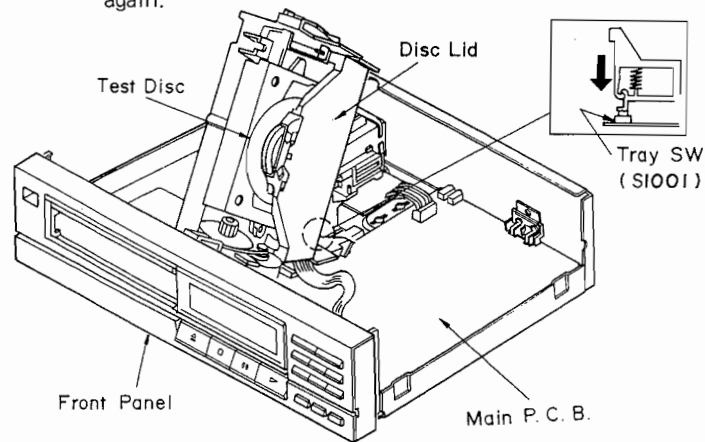
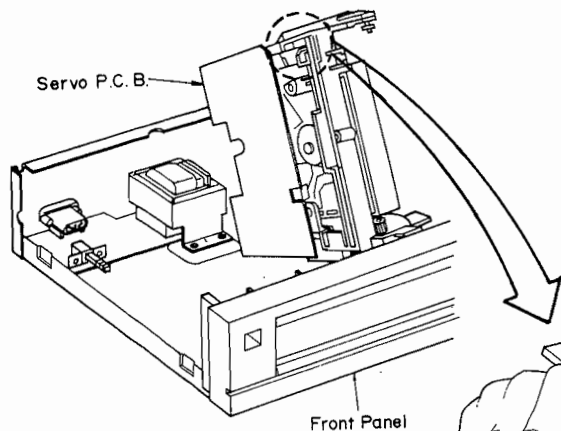
| | |
|--|-------------------------------------|
| Ref. No. 8 | Checking of the servo P.C.B. |
| Procedure 1→2→5→6 →7→8 | |
| <ul style="list-style-type: none"> • When checking the soldered surface of the servo P.C.B. and replacing the parts, do as shown below. | |

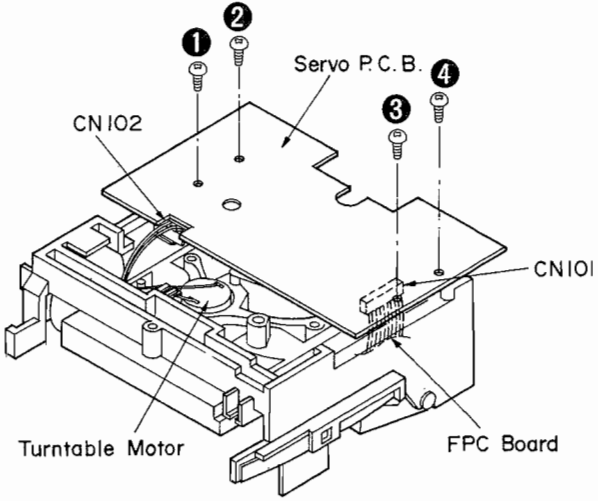
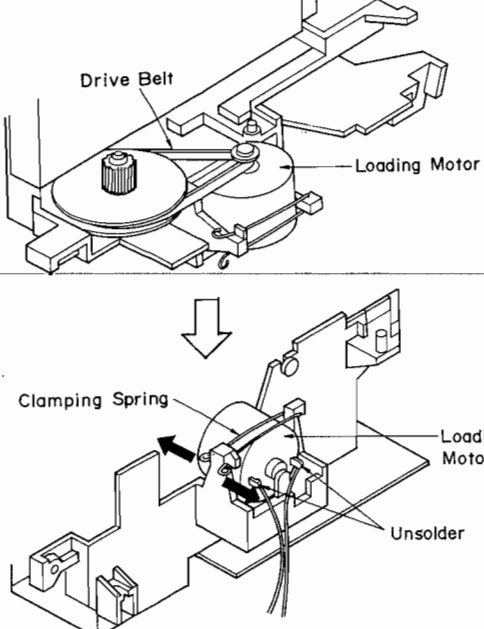
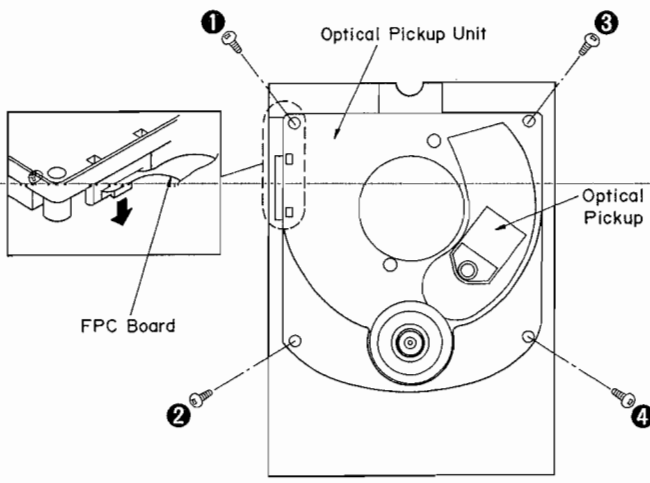
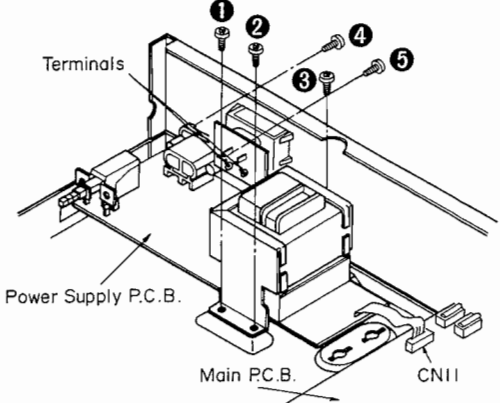
(To play a disc)

1. Place the test disc.
2. Reinstall the disc lid to the loading unit.
3. Turn "ON" the power switch of the player.
4. Push the bracket of tray SW (S1001) in the direction of the arrow and release it.

Note: Insert the loading unit into the tabs of the front panel. (Fixed loading unit)
Secure the optical pickup assembly with a clip. (Otherwise the clammer will interfere with the disc, restricting turntable rotation.)

Note: If the test disc fails to rotate, press the tray switch again.

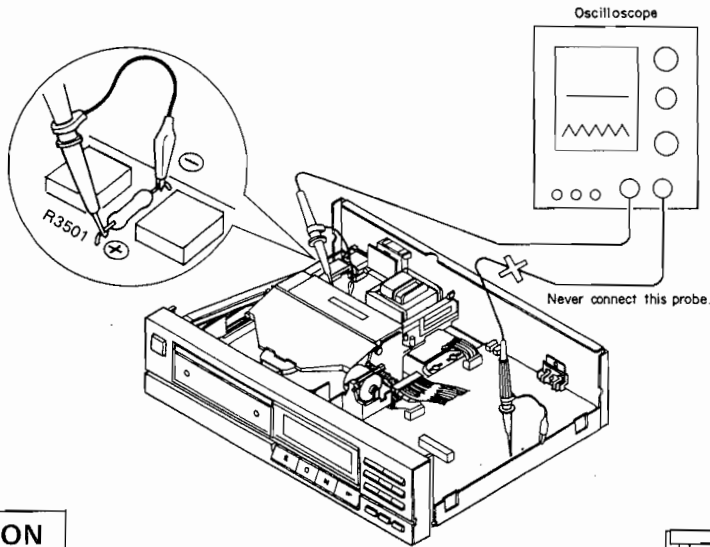


| | | | |
|--|--|--|--|
| <p>Ref. No. 9</p> | <p>Removal of the servo P.C.B.</p> |  | |
| <p>Procedure 1→2→5 →6→7→9</p> | <p>1. Remove the 4 screws (❶ ~ ❷). 2. Remove the FPC board (CN101) from the optical pickup. 3. Remove the 1 connector (CN102) of the turntable motor.</p> <p>Caution : To prevent the breakdown of the laser diode, antistatic shorting pin is inserted into the FPC board.</p> | | |
| <p>Ref. No. 10</p> | <p>Removal of the loading motor</p> | <p>Ref. No. 11</p> | <p>Removal of the optical pickup unit</p> |
| <p>Procedure 1→2→5 →6→10</p> | <p>1. Remove the drive belt. 2. Release the clamping spring. 3. Unsolder the 2 terminals of the lead wire of the loading motor.</p> | | <p>Procedure 1→2→5→6 →7→9→11</p> |
|  | | <p>1. Remove the 4 screws (❶ ~ ❷). 2. Remove the FPC board from the optical pickup.</p>  | |
| <p>Ref. No. 12</p> | <p>Removal of the power supply P.C.B.</p> |  | |
| <p>Procedure 1→2→5→6 →12</p> | <p>1. Remove the 5 screws (❶ ~ ❷). 2. Remove the 1 connector (CN11). 3. Unsolder the 2 terminals.</p> | | |

MEASUREMENTS AND ADJUSTMENTS

Caution:

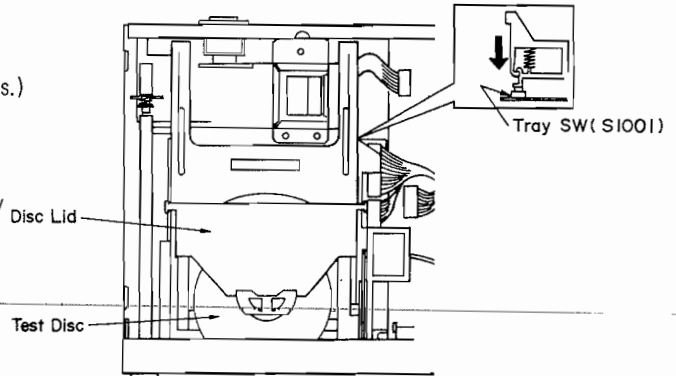
1. It is very dangerous to look at or touch the laser beam. (Laser radiation is invisible.)
With the unit turned "on", laser radiation is emitted from the pickup lens.
Avoid exposure to the laser beam, especially when performing adjustments.
2. During laser power or focus offset adjustment, never connect the other probe to the unit.
(Otherwise the unit's power supply will sustain damage.)



PREPARATION

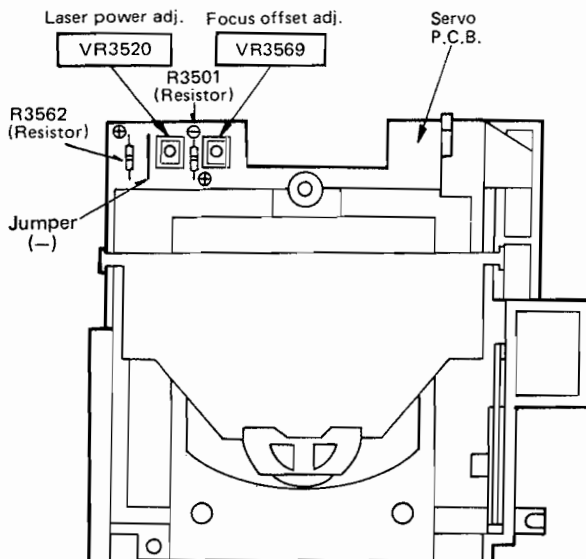
1. Remove the cabinet (see Ref No. 1 of the disassembly instructions.)
2. Remove the disc holder (see Ref No. 6 of the same).
3. Place the test disc on the turntable.
4. Turn "ON" the power switch at the player.
5. Push the bracket of tray SW (S1001) in the direction of the arrow and release it.

Note: If the test disc fails to rotate, press the tray switch again.

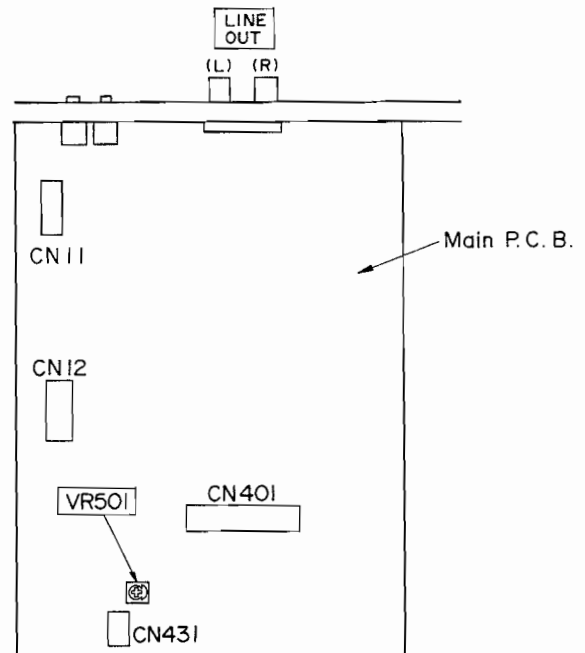


ADJUSTMENT POINTS

• Servo P.C.B.



• Main P.C.B.



Measuring Instruments

- * Playability test disc (SZZP1054C).
- * Normal disc.

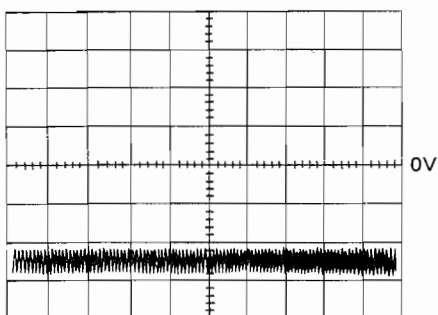
- * Dual-beam oscilloscope with bandwidth of 30MHz or better (with EXT trigger and 1:1 probe).

(1) LASER POWER ADJUSTMENT

1. Connect the oscilloscope's CH1 probe across (+) and (-) of **R3501** (Resistor) on the servo-P.C.B.
2. Switch the player power ON, and play track No. 1 on the test disc (SZZP1054C).
3. Adjust **VR3520** so that the voltage is **-50 ± 2mV**.

Oscilloscope setting:

[VOLT 20mV INPUT DC]
 [SWEEP 0.2msec.]

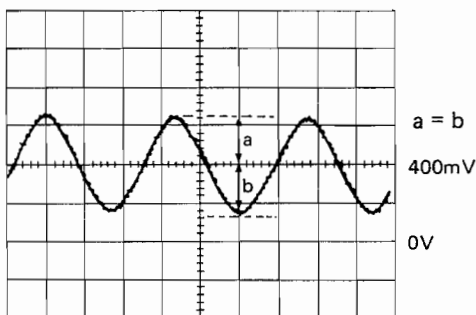


(2) FOCUS OFFSET ADJUSTMENT

1. Connect the oscilloscope's CH1 probe across **R3562** (Resistor)(+) and **Jumper**(-) on the servo P.C.B.
2. Switch the player power ON, and play track No.1 on the test disc (SZZP1054C).
3. Adjust **VR3569** until the signal amplitude become in the center of **400mV**.

Oscilloscope setting:

[VOLT 200 mV INPUT DC]
 [SWEEP 5msec.]



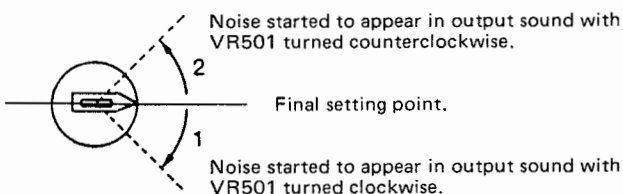
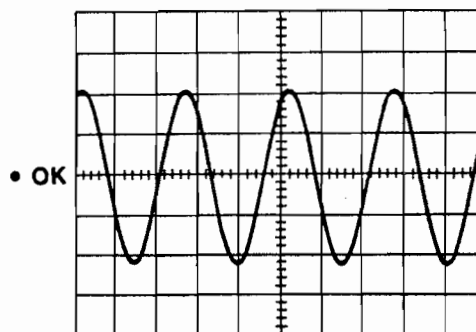
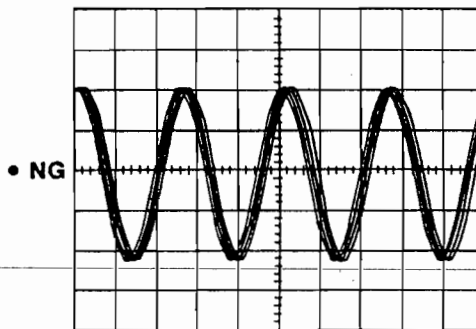
(3) PLL ADJUSTMENT

1. Connect CH1 of the oscilloscope to the **LINE OUT terminal** (either of Lch or Rch) and **ground**.

Oscilloscope setting: VOLT 1V
 SWEEP 1msec.
 INPUT DC

2. Switch the player power ON, and play track No. 6 (wedge 0.7mm) on the test disc (SZZP1054C).
3. Check the waveform displayed on the oscilloscope and adjust **VR501** in the following steps.

- Step 1.** Turn **VR501** clockwise slowly and observe the point at which the waveform on the oscilloscope begins to be disturbed.
- Step 2.** Turn **VR501** counterclockwise slowly and observe the point at which the waveform on the oscilloscope begins to be disturbed.
- Step 3.** Set **VR501** in the middle between the points observed in the above steps "1" and "2".



(4) CHECK OF PLAY OPERATION AFTER ADJUSTMENT

*** Checking Skip Search**

1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

*** Checking Manual Search**

1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

*** Playability check by test disc**

1. Play the 0.7 mm black dot and the 0.7 mm wedge on the defect test disc (SZZP1054C) and verify that no sound skip or noise occurs.

■ TERMINAL FUNCTIONS OF IC'S

● IC6501 (TDA8808T): Photo diode signal processor

| Pin No. | Mark | I/O Division | Function |
|---------|-----------|--------------|--|
| 1 | GCHF | I | Gain control input of HF amplifier. Current output from HF amplitude detector |
| 2 | Vp | I | Positive supply voltage |
| 3 | HFout | O | HF amplifier and equalizer voltage output |
| 4 | DET | I | HF detector voltage input |
| 5 | Sc | I | Starting up capacitor input |
| 6 | Si/RD | I/O | On/off control (start input); ready signal output (starting up procedure successful) |
| 7 | Beq | I | Equalizer reference current input |
| 8 | Bgc | I | DC and LF gain control reference current input |
| 9 | FOC START | I | Focus normalizing circuit starting current |
| 10 | PLLH | O | PLL on hold output |
| 11 | TL | O | Track loss output |
| 12 | DODS | I | Drop out detector suppression input |
| 13 | Vext | I | Negative supply connection for FE and FElag output stage; also substrate connection |
| 14 | LPF | O | Low pass filter for Iret, used in track loss (TL) detector and LF gain control |

| Pin No. | Mark | I/O Division | Function |
|---------|--------|--------------|--|
| 15 | FE | O | Current output of normalized, switched focus error signal |
| 16 | FElag | O | Current output of switched focus error signal, intended for lag network |
| 17 | LO | O | Laser amplifier current output |
| 18 | LM | I | Laser monitor diode input |
| 19 | GCLF | I | Gain control input for AC and LF amplifiers. Current output from LF amplitude detector |
| 20 | Re2 | O | Summation of amplified currents from D3 and D4 |
| 21 | Re1 | O | Summation of amplified currents from D1 and D2 |
| 22, 23 | D1, D2 | I | Current inputs to DC and LF photo diode amplifier |
| 24, 25 | D3, D4 | I | Current inputs to DC and LF photo diode amplifier |
| 26 | HFin | I | Current input to HF amplifier |
| 27 | GND | I | Ground connection of device |
| 28 | DEC | I | Decoupling input (internal bypass) |

● IC6503 (TDA8809T): Radial error signal processor

| Pin No. | Mark | I/O Division | Function |
|---------|---------|--------------|---|
| 1 | Vp | I | Positive supply voltage |
| 2 | Cosc1 | I | Frequency setting capacitors for oscillator |
| 3 | Cosc2 | | |
| 4 | Rwob | | |
| 5 | Rosc | I | Biassing resistor for oscillator frequency and internal amplitude |
| 6 | DIV4 | I | Divide-by-4 input |
| 7 | REdig | O | Digital output of sign (Re2 – Re1) |
| 8 | B3 | I | Input control bits for off-, catch-, play-status and DAC output current |
| 9 | B2 | | |
| 10 | B1 | | |
| 11 | B0 | | |
| 12 | Vext(+) | I | Positive external voltage input |
| 13 | Vext(-) | I | Negative external voltage input (also substrate connection) |
| 14 | GND | I | GND terminal |
| 15 | RADout | O | Current output of amplified (Re2 – Re1) input currents |
| 16 | REin | I | Radial error input |
| 17 | RElag | O | Voltage output of integrated (Re2 – Re1) input currents |

| Pin No. | Mark | I/O Division | Function |
|---------|------------|--------------|---|
| 18 | Lag | I | Connection of integrator capacitor for (Re1 – Re2) input currents |
| 19 | Lead | O | Lead output |
| 20 | Vref | I | Internal reference voltage output |
| 21 | AGC | I | Gain control input for radial error signal |
| 22 | RDAC | O | Biassing resistor for current output for track jumping (3½ bits) |
| 23 | offset in | I | Offset control input for radial offset |
| 24 | offset off | O | Offset control output for radial offset |
| 25 | CLPF | I | Low-pass filter for Re1 and Re2, used for radial offset control |
| 26 | CHPF | I | High-pass filter for Re1 and Re2, used for radial offset control |
| 27 | Re1 | I | Input for amplified currents from photo-diodes D1 and D2 |
| 28 | Re2 | I | Input for amplified currents from photo diodes D3 and D4 |

● IC301 (MN6625): Digital signal processor

| Pin No. | Mark | I/O Division | Function |
|---------|--------|--------------|---|
| 1 | BYTCK | O | Serial data byte clock (Not used, open) |
| 2 | FCLK | O | Crystal frame clock (Not used, open) |
| 3 | DEMPH | O | De-emphasis ON signal (de-emphasis ON at "H") |
| 4 | SRDATA | O | Serial data output (MSB first) |
| 5 | SCLK | O | Serial bit clock output |
| 6 | LRCK | O | LR discrimination clock (88.2kHz) |
| 7 | WDCK | O | Serial data output word clock (Not used, open) |
| 8 | LDG | O | L channel deglitch signal (Not used, open) |
| 9 | RDG | O | R channel deglitch signal (Not used, open) |
| 10 | IPFLAG | O | Interpolation flag (interpolation at "H") (Not used, open) |
| 11 | FLAG | O | Error flag terminal (Not used, open) |
| 12 | XCK | O | Clock (16.9344 MHz) output (Not used, open) |
| 13 | TEST | I | Test mode selection (Not used, connected to +4.9V) |
| 14 | TX | O | Digital signal output (Not used, open) |
| 15 | SLEEP | I | Mode selector ("L": normal, "H": SLEEP mode) (Not used, connected to GND) |
| 16 | CSEL | I | Test terminal ("L": normal) (Not used, connected to GND) |
| 17 | X1 | I | Clock input (16.9344 MHz) |
| 18 | X2 | O | Clock output (16.9344 MHz) (Not used, open) |
| 19 | VSS | I | GND terminal |
| 20 | BLKCK | O | Sub-code Q data block clock (75 Hz) |
| 21 | CLDCK | O | Sub-code frame clock (7.35 kHz) |
| 22 | SUBQ | O | Sub-code Q data |
| 23 | RST | I | Reset command |
| 24 | MLD | I | Load command for mode control data |

| Pin No. | Mark | I/O Division | Function |
|---------------|------------------------|--------------|---|
| 25 | MCLK | I | Data clock for MDATA |
| 26 | MDATA | I | Mode control data |
| 27 | DMUTE | I | Data mute command |
| 28 | TRON | I | Tracking servo ON signal (tracking servo ON at "L") |
| 29 | STAT | O | Status command for CRC etc. . . |
| 30 | SUBC | O | Sub-code serial output data (Not used, open) |
| 31 | SBCK | I | Clock for sub-code serial output (Not used, open) |
| 32 | SMCK | O | System clock (4.2336 MHz) |
| 33 | VDD | I | Power supply (connected to +4.9V) |
| 34 | MEMP | I | Deemphasis command |
| 35 | FG | I | Turntable motor FG signal input (Not used, open) |
| 36 | PC | O | Turntable motor ON command (ON at "L") |
| 37 | EC | O | Turntable motor drive signal |
| 38 | RESY | O | Resynchronizing signal (Not used, open) |
| 39 | DO | I | Drop-out detection signal (Drop-out at "H") |
| 40 | SRF | I | Sliced RF signal |
| 41 | EFM | I | Modulation data |
| 42 | PCK | I | PLL extract clock (4.2336 MHz) |
| 43 | FPC | O | PLL frequency comparison signal |
| 44 } 51 | D7 } D0 | I/O | 16K RAM data input/output |
| 52 | RAM OE | O | Read out enable |
| 53 | RAM WE | O | Write enable |
| 54 } 64 | RAM A0 } RAM A10 | O | 16K RAM address signal (RAMA0: LSB, RAMA10: MSB) |

● IC401 (MN187164PJW3): System control & FL drive

| Pin No. | Mark | I/O Division | Function |
|---------------|-------------------|--------------|--|
| 1 } 7 | SEG6 } SEG0 | O | FL segment signal |
| 8 | VPP | I | FL drive power supply (connected to -31.4V) |
| 9 | VDD | I | Power supply (Connected to 4.9V) |
| 10 | OSC2 | I | Clock terminal |
| 11 | OSC1 | I | Clock input |
| 12 | VSS | - | GND terminal |
| 13 | XI | I | Digital input of sign (Re2 - Re1) |
| 14 | XO | - | Net used, open |
| 15 | P27 | O | Synchro rec control terminal |
| 16 | P26 | O | Loading motor control signal |
| 17 | P25 | O | Muting control signal |
| 18 | P24 | I/O | On/off control (start input); ready signal output (starting up procedure successful) |
| 19 } 22 | P23 } P20 | O | Output control bits for off- catch-, play- status and DAC output current |
| 23 | IRQ1 | I | Remote control signal |
| 24 | IRQ0 | I | Digital input of sign (Re2 - Re1) |
| 25 | P13 | O | Mode control data |
| 26 | P12 | O | Data clock for MDATA |
| 27 | P11 | O | Load command for mode control data |

| Pin No. | Mark | I/O Division | Function |
|---------------|--------------------|--------------|--|
| 28 | P10 | I | Track loss input |
| 29 | RST | I | Reset command |
| 30 | P05 | I | Sub-code frame clock (7.35 kHz) |
| 31 | P04 | I | Sub-code Q data |
| 32 | P03 | I | Disc holder open/close det. signal input |
| 33 | SBT0 | I | Sub-code Q data block clock (75 Hz) |
| 34 | SB0 | O | Drop out detector/Tracking servo ON signal output |
| 35 | P00 | I | Status command for CRC etc. |
| 36 | SYNC | - | Not used, open |
| 37 | CM | - | GND terminal |
| 38 | P47 | O | Divide-by 4 output |
| 39 | P46 | O | Deemphasis command |
| 40 | P45 | I | PLL on hold input |
| 41 } 45 | P44 } P41 | I | Key return signal and key scan signal. |
| 46 } 61 | DGT0 } DGT15 | O | FL digit signal and key scan signal |
| 62 | P61 | O | Synchro rec control signal |
| 63 64 | SEG8 SEG7 | O | FL segment signal |

• IC501 (AN8371S): Data slice and PLL

| Pin No. | Mark | I/O Division | Function |
|---------|--------|--------------|---|
| 1 | VEE | I | Power supply (connected to -5.2V) |
| 2 | SRF | O | Sliced RF signal |
| 3 | EFM | O | Modulation data |
| 4 | D.GND | I | GND terminal (digital system) |
| 5 | PCK | O | PLL extract clock (4.2336MHz) |
| 6 | VCC | I | Power supply (connected to +4.9V) |
| 7 | VA | I | VCO free run frequency adjusting current input (Not used, open) |
| 8, 9 | VC1, 2 | I | Capacitor connection for VCO oscillator frequency |
| 10 | VR | I | Resistor connection for VCO oscillator frequency |
| 11 | PD | I | Capacitor connection for PLL DO protection |
| 12 | PL1 | I | PLL loop filter connection |

| Pin No. | Mark | I/O Division | Function |
|---------|-------|--------------|---|
| 13 | PL2 | I | PLL loop filter connection |
| 14 | FPC | I | PLL frequency comparison signal |
| 15 | RF | I | Data |
| 16 | ARF | O | RF signal output with AGC output |
| 17 | AGC | I | ARF signal input for AGF drop-out detection input |
| 18 | AC | I | Loop filter for AGC connected |
| 19 | DO | O | Drop-out detection signal |
| 20 | A.GND | I | GND terminal (analog system) |
| 21 | DSL | I | RF signal input for data slicing |
| 22 | SLC | I | Slicing level control signal input (Not used, connected to GND) |
| 23 | FC1 | I | Filter capacitor for data slicer connected |
| 24 | FC2 | I | Filter capacitor for data slicer connected |

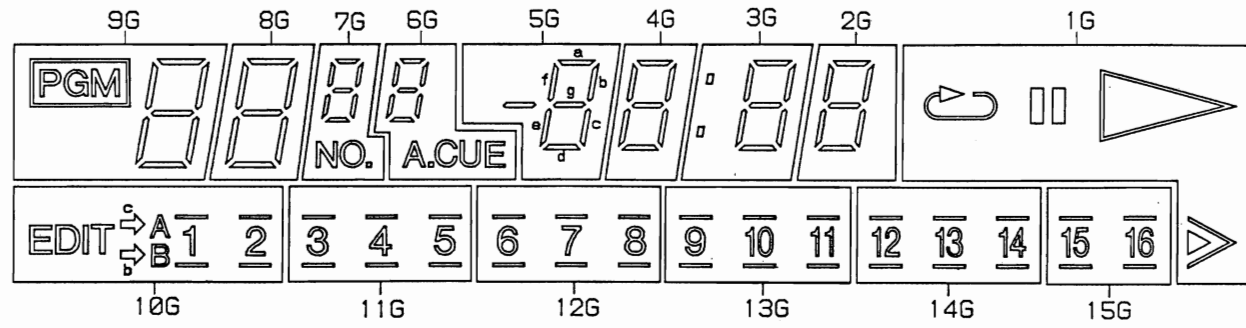
• IC801 (MN6474): Digital filter and D/A converter

| Pin No. | Mark | I/O Division | Function |
|---------|----------|--------------|------------------------------------|
| 1 | MLD | I | Command load input (load: L) |
| 2 | RSTB | I | Reset command |
| 3 | IE | I | Not used, connected to GND |
| 4 | TP1 | — | TEST terminal |
| 5 | TP2 | — | |
| 6 | TEST1 | I | TEST terminal 1 (connected to GND) |
| 7 | TEST2 | I | TEST terminal 2 (connected to GND) |
| 8 | NC | — | Not connected |
| 9 | NC | — | Not connected |
| 10 | AVDD4 | I | Power supply (connected to +4.7V) |
| 11 | OUTL (-) | O | Lch data output, (-) terminal |
| 12 | AVSS4 | I | GND terminal |
| 13 | AVSS3 | I | GND terminal |
| 14 | OUTL (+) | O | Lch data output, (+) terminal |
| 15 | AVDD3 | I | Power supply (connected to +4.7V) |
| 16 | NC | — | Not connected |
| 17 | AVDD2 | I | Power supply (connected to +4.7V) |
| 18 | OUTR (+) | O | Rch data output, (+) terminal |
| 19 | AVSS2 | I | GND terminal (analog system) |
| 20 | AVSS1 | I | GND terminal (analog system) |
| 21 | OUTR (-) | O | Rch data output, (-) terminal |

| Pin No. | Mark | I/O Division | Function |
|---------|--------|--------------|--|
| 22 | AVDD1 | I | Power supply (connected to +4.7V) |
| 23 | DVDD1 | I | Power supply (connected to +4.8V) |
| 24 | DVSS1 | I | GND terminal (digital system) |
| 25 | X2 | O | Clock output |
| 26 | X1 | I | Clock input |
| 27 | NC | — | Not connected |
| 28 | DVDD2 | I | Power supply (connected to +4.8V) |
| 29 | DVSS2 | I | GND terminal (digital system) |
| 30 | NSUB | I | Sub-strate terminal (Not used, connected to +4.8V) |
| 31 | ZFLGB | O | Zero input detector terminal (Not used, open) |
| 32 | 192fs | O | 192 fs (8.4672MHz) (Not used, open) |
| 33 | LRPOL | I | LR clock selector (Not used, connected to +4.8V) |
| 34 | LRCLK | I | LR discrimination signal input |
| 35 | BCLK | I | Serial bit clock input |
| 36 | SRDATA | I | Serial data input (MSB first) |
| 37 | DVSS 3 | I | GND terminal (digital system) |
| 38 | DVDD | I | Power supply (connected to +4.8V) |
| 39 | 384 fs | O | 384 fs (16.9344MHz) output |
| 40 | PD | I | Power down terminal (Not used, connected to GND) |
| 41 | MDATA | I | Mode control data |
| 42 | MCLK | I | Data clock for MDATA |

INTERNAL CONNECTION OF FL

Grid assignment



Anode connection

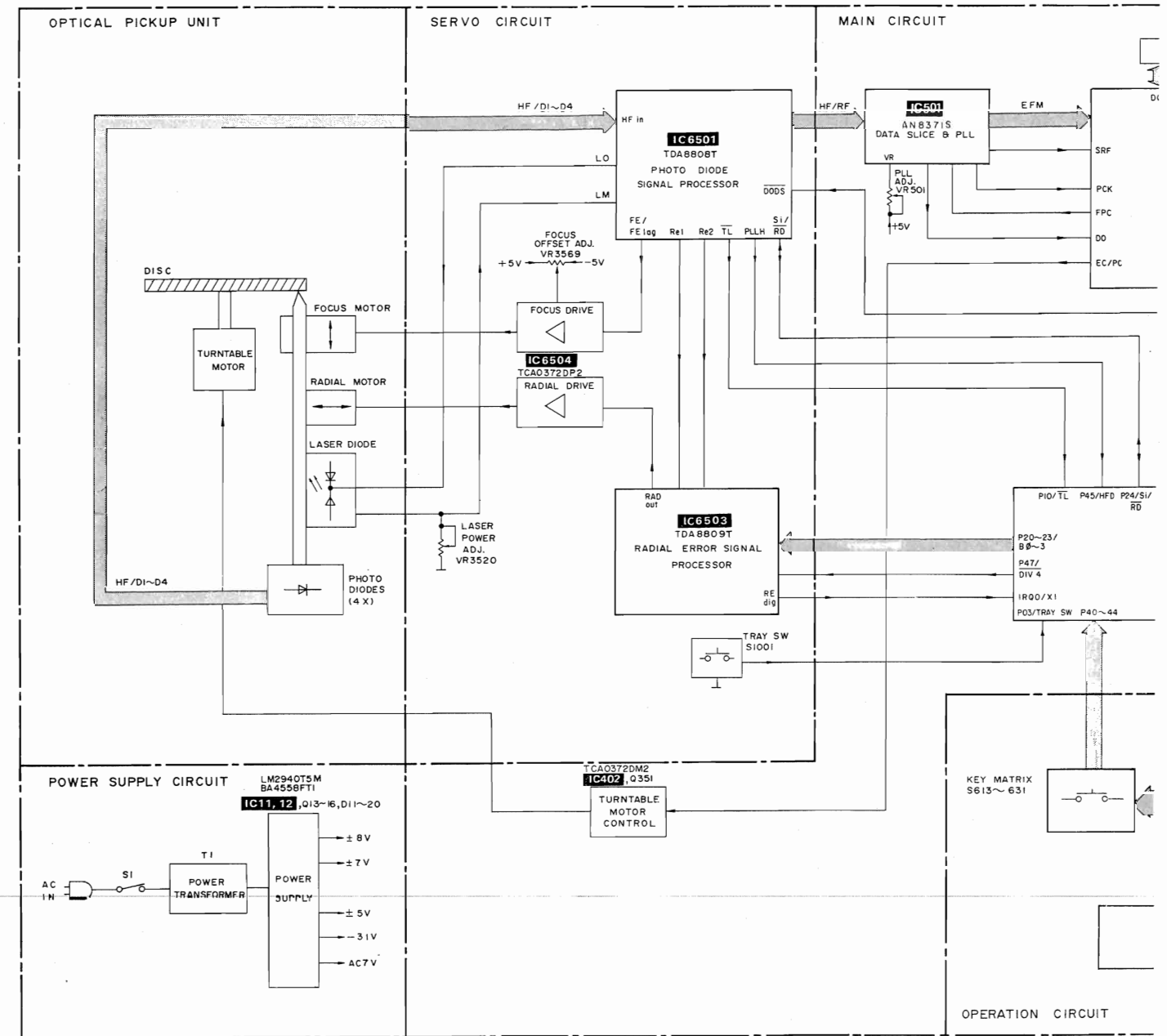
| | 15G | 14G | 13G | 12G | 11G | 10G | 9G | 8G | 7G | 6G | 5G | 4G | 3G | 2G | 1G |
|---|------|------|------|-----|-----|--------------------------------|-----|----|-----|-------|----|----|----|----|----|
| a | 15 | 12 | 9 | 6 | 3 | EDIT ^A _B | a | a | a | a | a | a | a | a | ▶ |
| b | (15) | (12) | (9) | (6) | (3) | → | b | b | b | b | b | b | b | b | ■ |
| c | (15) | (12) | (9) | (6) | (3) | → | c | c | c | c | c | c | c | c | - |
| d | 16 | 13 | 10 | 7 | 4 | 1 | d | d | d | d | d | d | d | d | - |
| e | (16) | (13) | (10) | (7) | (4) | (1) | e | e | e | e | e | e | e | e | ↻ |
| f | (16) | (13) | (10) | (7) | (4) | (1) | f | f | f | f | f | f | f | f | - |
| g | - | 14 | 11 | 8 | 5 | 2 | g | g | g | g | g | g | g | g | - |
| h | - | (14) | (11) | (8) | (5) | (2) | PGM | - | NO. | - | - | - | - | - | ▶ |
| i | - | (14) | (11) | (8) | (5) | (2) | - | - | - | A.CUE | - | - | - | - | ↘ |

Pin connection

| PIN NO. | 36 | 35 | 34 | 33 | 32 | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
|------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|---|---|---|---|---|---|---|---|
| CONNECTION | F | F | N | N | a | b | c | d | e | f | g | h | i | 15 | 14 | 13 | 12 | N | N | N | N | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | N | N | F | F |

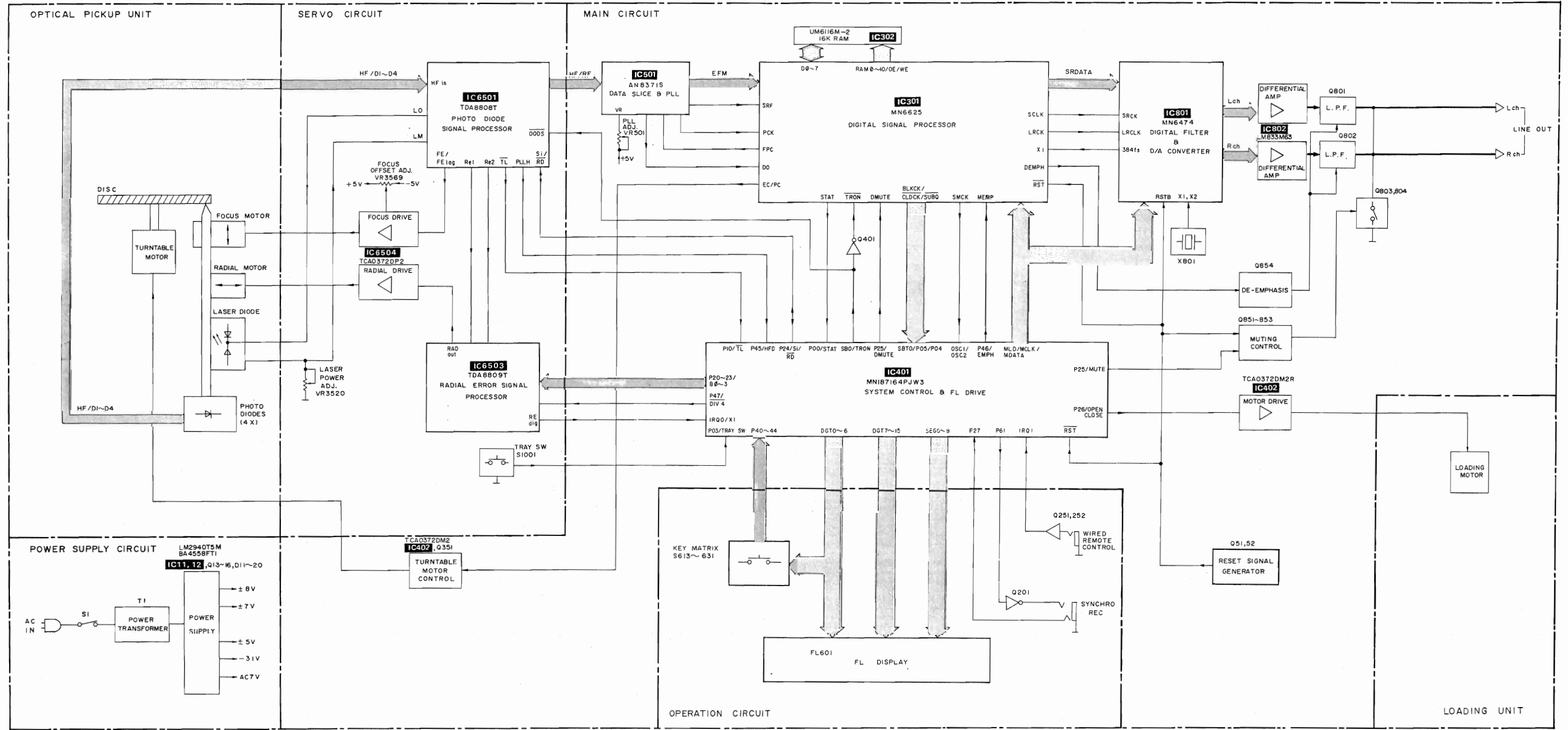
Note 1.) NP.....No pin.
 2.) F1, F2.....Filament
 3.) 1G~15G.....Grid

BLOCK DIAGRAM



- RAD out : Current output of integrated (Re2 - Re1) input currents.
- B0 ~ B3: : Control bits for radial circuit.
- DODS : Drop out detector suppression.
- D1 ~ D4 : Photodiode currents.
- FE : Focus error signal.
- FE lag : Focus error signal for LAG network.
- HF : HF output for DEMOD.
- HFD : HF detector output for DEMOD.
- (PLLH)
- HFin : HF current input.
- LM : Laser monitor diode input.
- LO : Laser amplifier current output.
- Re1 : Radial error signal 1 (summation of amplified currents D3 and D4).
- Re2 : Radial error signal 2 (summation of amplified currents D1 and D2).
- RE dig (IRQO/XI) : Radial error digital.
- RE lag : Radial error signal for LAG network.
- Si/RD : On/off control for laser supply and focus circuit.
- TL : Track loss signal.
- Div4 : Radial error digital divided by four.
- HF/RF : Data.
- D0 : Drop-out detection signal (Active High).
- SRF : Sliced RF signal.
- EFM : Modulation data.
- PCK : PLL extract clock (4.2336MHz).
- FPC : PLL frequency comparison signal.
- STAT : Status command for CRC etc.
- DMUTE : Data mute command.
- MDATA : Mode control data.
- MLD : Load command for mode control data (Active Low).

■ BLOCK DIAGRAM



RAD out : Current output of integrated (Re2 - Re1) input currents,
 B0 ~ B3: : Control bits for radial circuit.
 D0DS : Drop out detector suppresion.
 D1 ~ D4 : Photodiode currents.
 FE : Focus error signal.
 FE lag : Focus error signal for LAG network.
 HF : HF output for DEMOD.
 HFD (PLLH) : HF detector output for DEMOD.
 HFIn : HF current input.
 LM : Laser monitor diode input.
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 Re1 : Radial error signal 1 (summation of amplified currents D3 and D4).
 Re2 : Radial error signal 2 (summation of amplified currents D1 and D2).

RE dig (IRQ0/XI) : Radial error digital.
 RE lag : Radial error signal for LAG network.
 Si/RD : On/off control for laser supply and focus circuit.
 TL : Track loss signal.
 Div4 : Radial error digital divided by four.
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 DO : Drop-out detection signal (Active High).
 SRF : Sliced RF signal.
 EFM : Modulation data.
 PCK : PLL extract clock (4.2336MHz).
 FPC : PLL frequency comparison signal.
 STAT : Status command for CRC etc.
 DMUTE : Data mute command.
 MDATA : Mode control data.
 MLD : Load command for mode control data (Active Low).

P40~44 : Key return signal.
 DGT0~15 : Key scan signal and FL digit signal.
 SEG0~8 : FL segment signal.
 MCLK : Data clock for MDATA.
 SUBQ : Sub-code Q data.
 CLDCK : Data frame clock (7.35KHz).
 BLKCK : Sub-code Q data block clock (75 Hz).
 RST (RSTB) : Reset command (Active Low).
 TRON : Tracking servo ON command (Active Low).
 EC : Turntable motor drive signal.
 PC : Turntable motor ON command (Active Low).
 SMCK (OSC1/OSC2) : System clock (4.2336MHz).
 OE : Read out enable.
 WE : Write enable.

Note) * -> Audio signal.
 LRCK : L/R data discrimination clock (88.2KHz) (LRCLK)
 SRDATA : Serial data output (MSB first)
 SCLK (SRCK) : Serial bit clock (2.82MHz)
 MEMP (EMPH) : Deemphasis command (Active High)
 P27/P61 : Synchro rec control
 IRQ1 : Remote control signal
 384fs (X1) : 384fs (16.9344MHz) signal
 DEMPH : De-emphasis ON signal
 TX : Digital signal output
 D0~7 : 16K RAM data
 RAM0~10 : 16K RAM address signal
 P25 (MUTE) : Muting control signal
 P26 (OPEN/CLOSE) : Loading motor control signal

SCHEMATIC DIAGRAM

(Parts list on pages 32 ~ 34, 40, 41.)

(This schematic diagram may be modified at any time with development of new technology.)

Notes:

- S1 : Power switch in "on" position.
- S613 : Play (▶) PLAY switch.
- S614 : Skip (◀) switch.
- S615 : Search (◀◀) switch.
- S616 : Program (PROGRAM) switch.
- S617 : Auto cue (A CUE) switch.
- S619 : Stop (■) STOP switch.
- S620 : Skip (▶▶) switch.
- S621 : Search (▶▶) switch.
- S623 : Tape side select (SIDE A/B) switch.
- S624 : Random (RANDOM) switch.
- S626 : Disc holder open/close (▲ OPEN/CLOSE) switch.
- S627 : Pause (■) PAUSE switch.
- S628 : Repeat (REPEAT) switch.
- S629 : Clear (CLEAR) switch.
- S630 : Edit (EDIT) switch.
- S631 : Time mode select (TIME MODE) switch.
- S1001 : Tray (OPEN/CLOSE) switch.

• The voltage value and waveforms are the reference voltage of this unit measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of chassis. Accordingly, there may arise some error in voltage values and waveforms depending upon the internal impedance of the tester or the measuring unit.

*The parenthesized are the values of voltage generated during playing (Test disc 1kHz, L+R, 0dB), others are voltage values in stop mode.

Important safety notice:

Components identified by Δ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

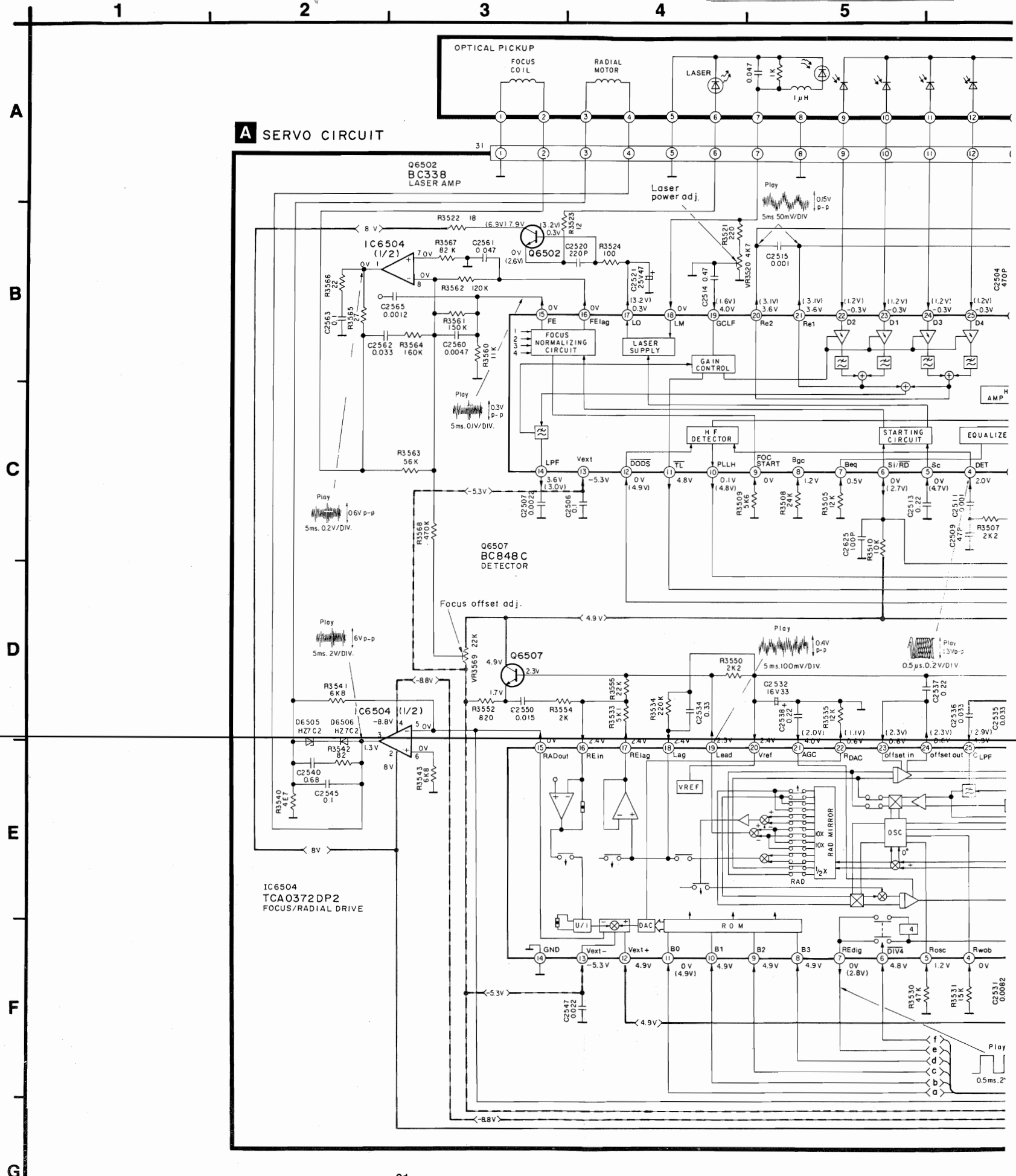
• \leftarrow \rightarrow / \leftarrow \rightarrow : Positive voltage lines and negative voltage lines.

• --- : Audio signal lines.

Caution!

IC and LSI are sensitive to static electricity. Secondary trouble can be prevented by taking care during repair.

- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the pins of IC or LSI with fingers directly.



A

B

C

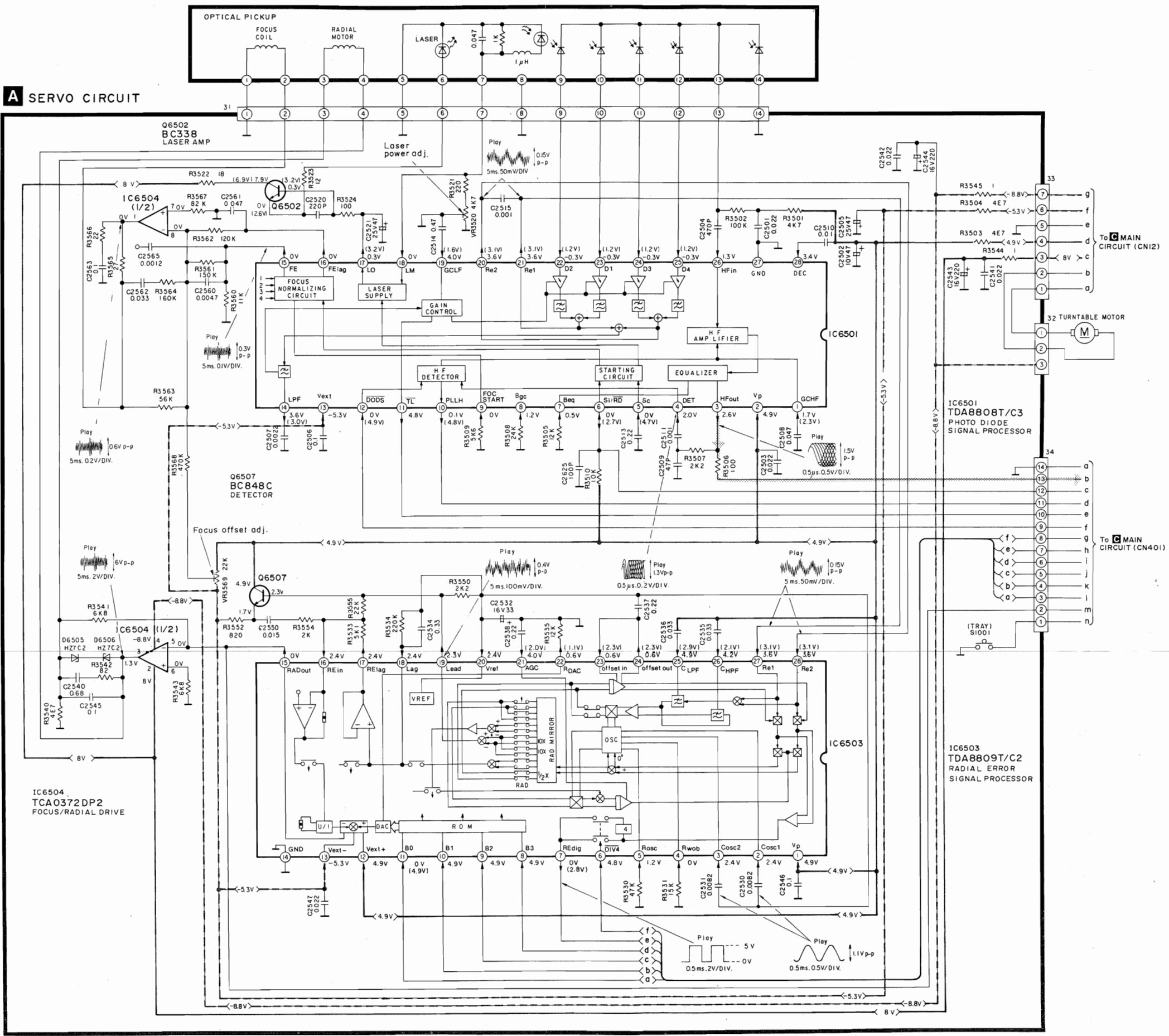
D

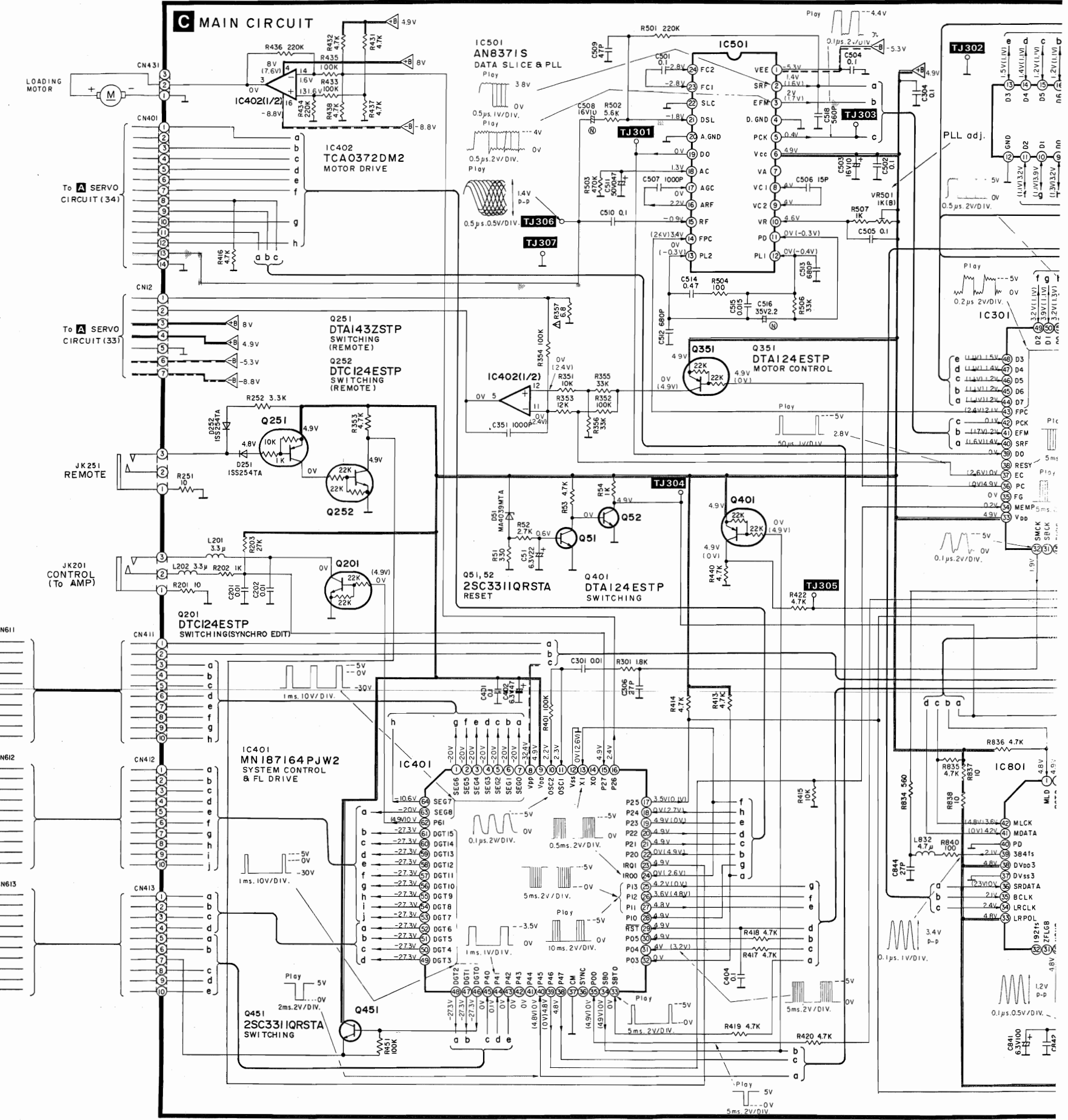
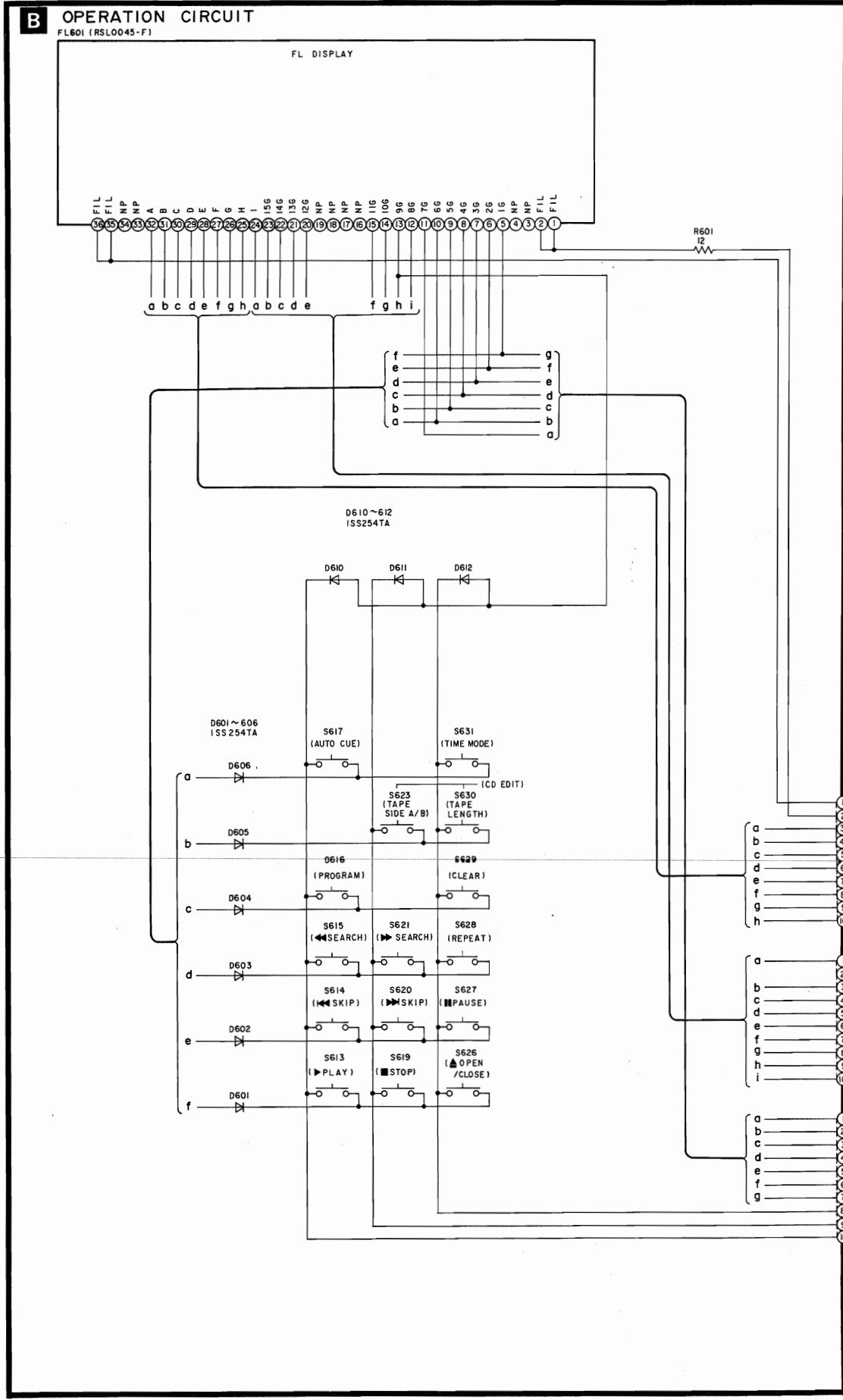
E

F

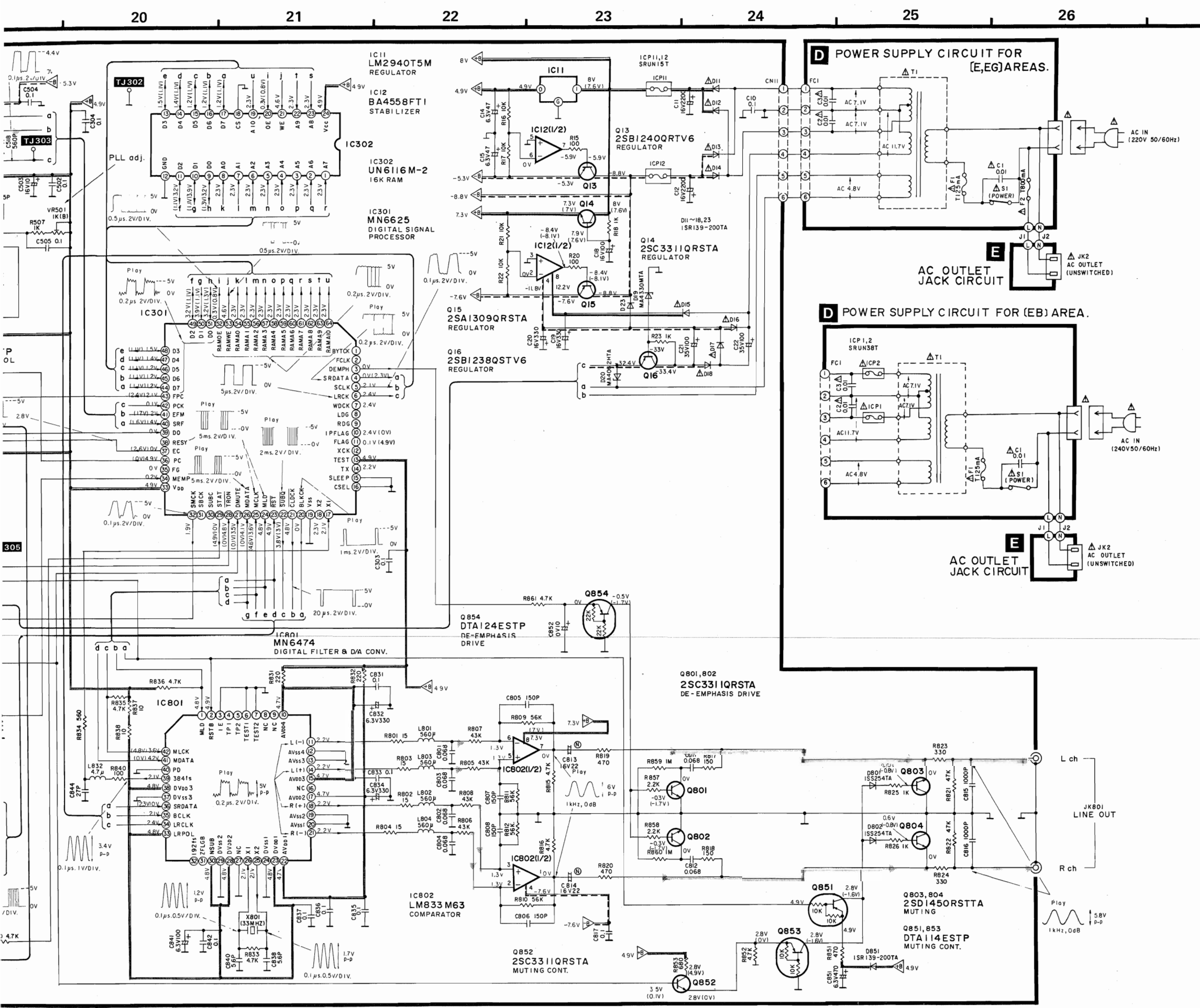
G

A SERVO CIRCUIT





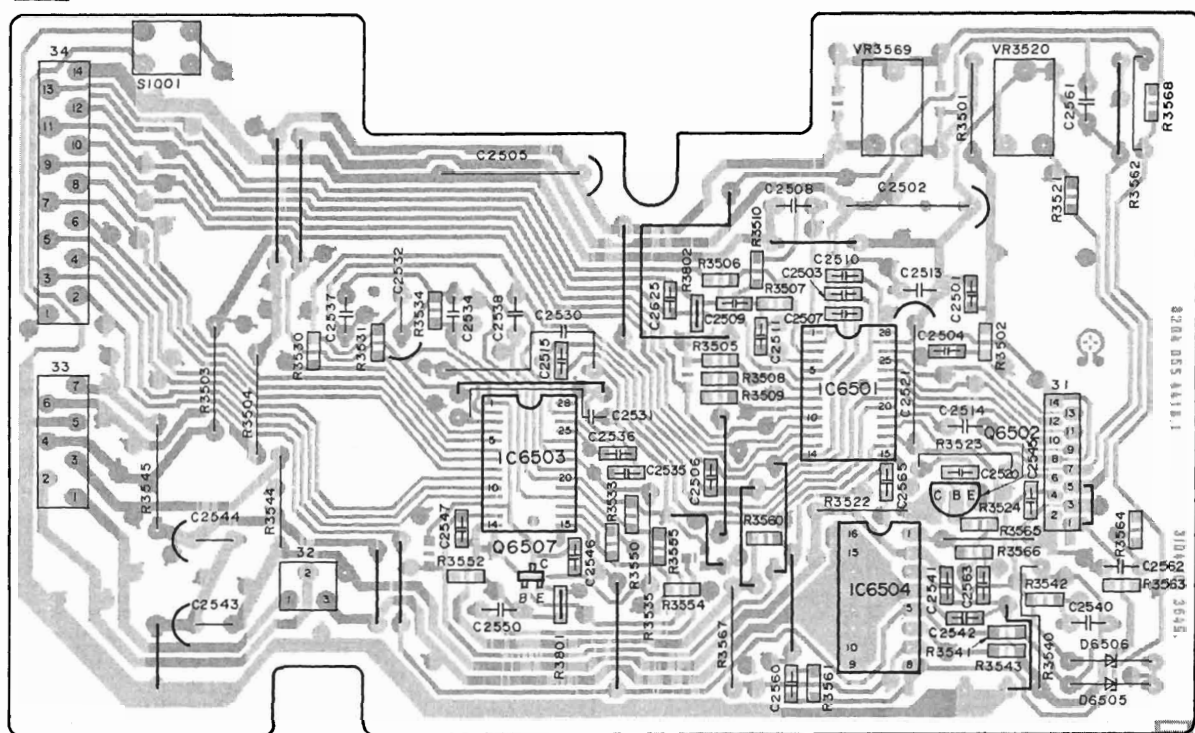
■ TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES



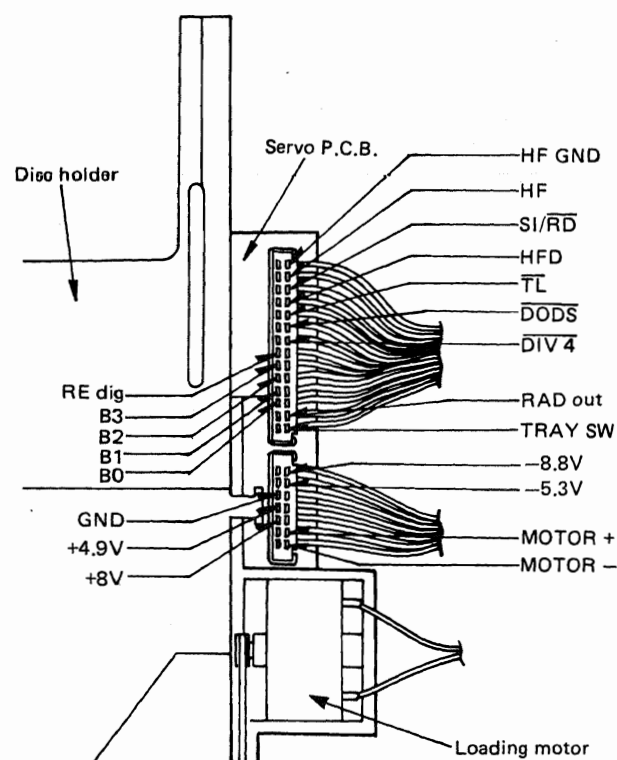
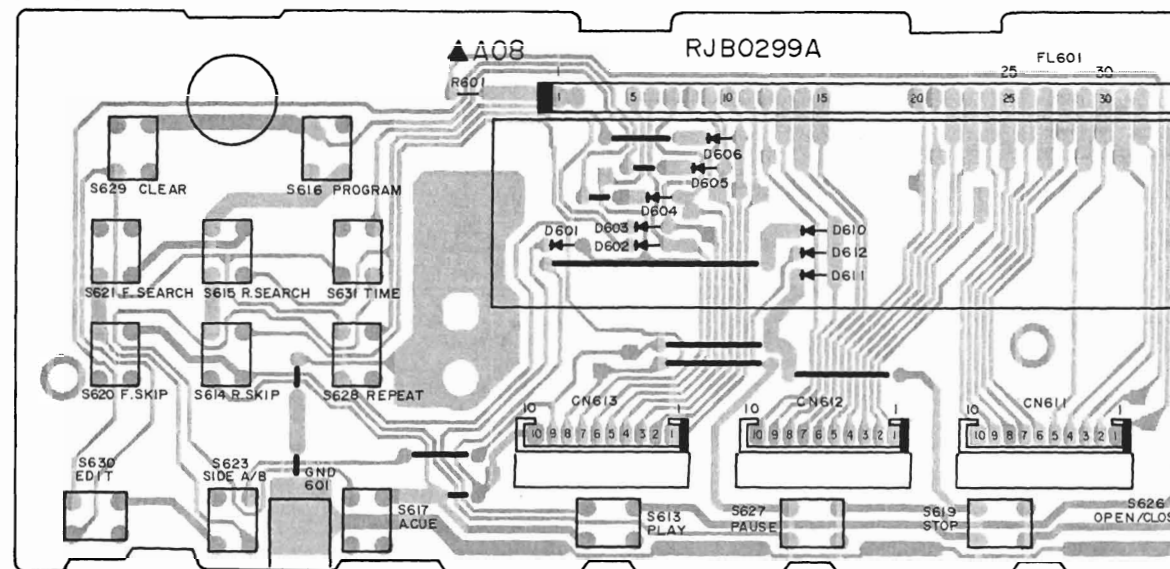
| | | | | | |
|--|---------------------------|--------|--|-------------------------|--------------|
| | 4822 209 72587 (TCA0372) | 16 Pin | | SRUN15T | SRUN38T |
| | TCA0372DM2R | 16 Pin | | LM2940T5M | |
| | LM833M63 | 8 Pin | | | |
| | BA4558FT1 | 8 Pin | | DTA124ESTP | DTA143ZSTP |
| | AN8371S | 24 Pin | | 2SA1309RSTA, | 2SD1450RSTA, |
| | 4822 209 73234 (TDA8808T) | 24 Pin | | 2SC3311QRSTA | |
| | 4822 209 73235 (TDA8809T) | 28 Pin | | DTC124ESTP | |
| | MN6474 | 42 Pin | | 2SB1238QSTV6, | 2SB1240QRTV6 |
| | MN6625 | 64 Pin | | 1SS254TA, | 1SR139-200TA |
| | MN187164PJW3 | 64 Pin | | MA4330MTA, | MA4062HTA, |
| | 4822 130 44121 (BC338) | 3 Pin | | MA4039MTA | |
| | DTA124ESTP | 3 Pin | | 4822 130 81101 (HZ7C2) | |
| | 2SA1309RSTA, | 3 Pin | | 5322 130 42136 (BC848C) | |
| | 2SD1450RSTA, | 3 Pin | | | |
| | 2SC3311QRSTA | 3 Pin | | | |
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PRINTED CIRCUIT BOARDS

A SERVO P.C.B.

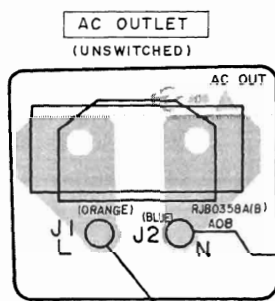


B OPERATION P.C.B.

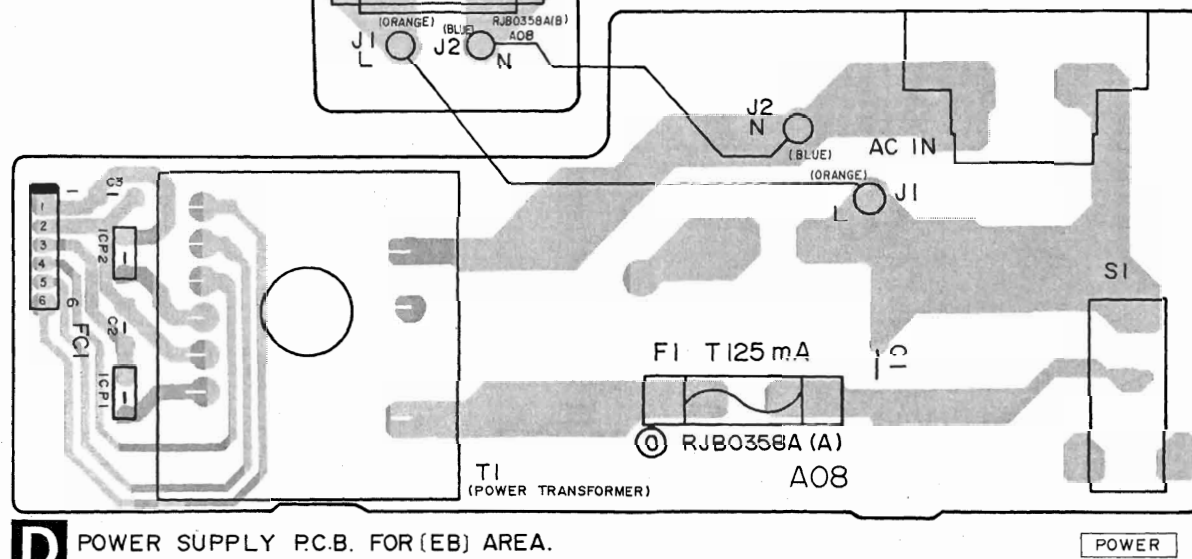


Note: Use connector pins to check servo circuit voltages and waveforms.

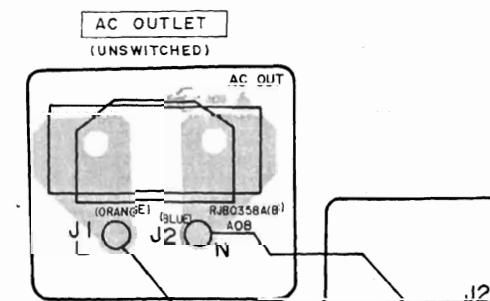
E AC OUTLET JACK P.C.B.



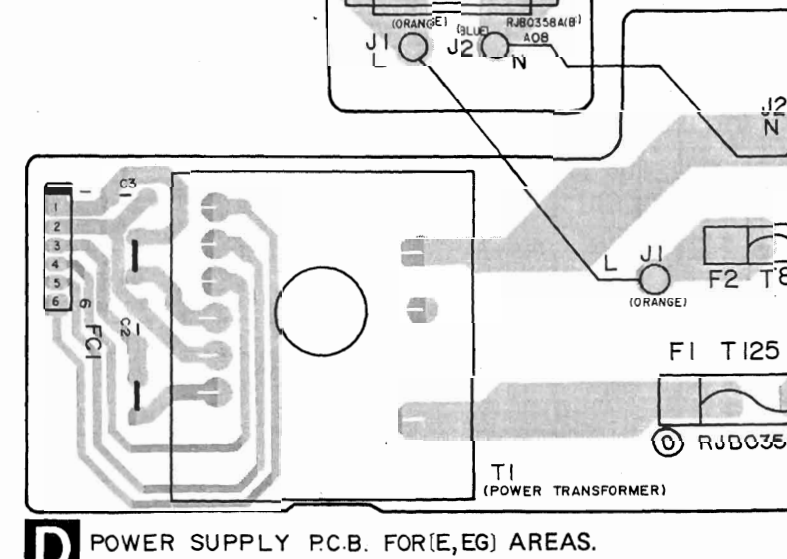
D POWER SUPPLY P.C.B. FOR (EB) AREA.

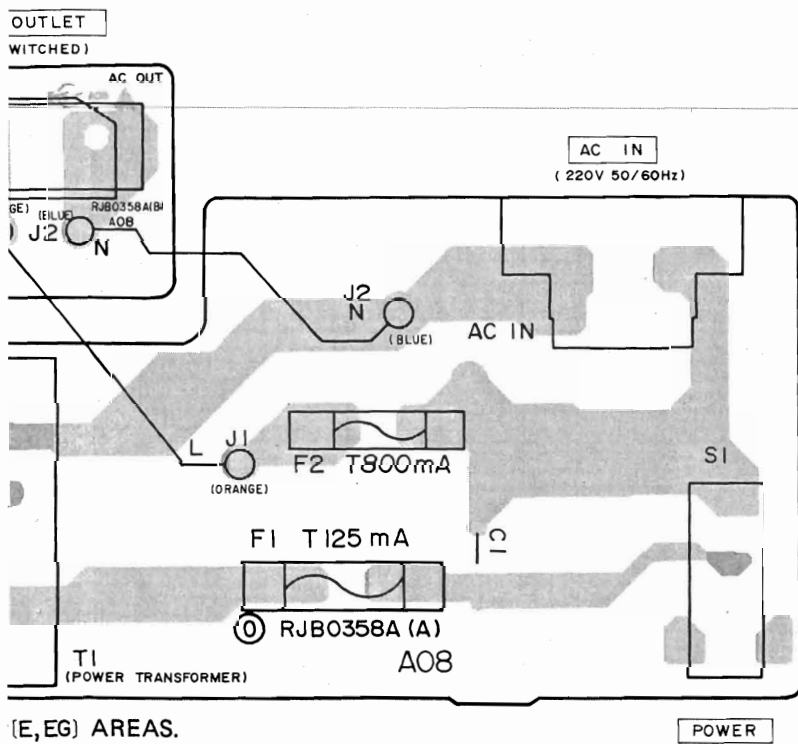
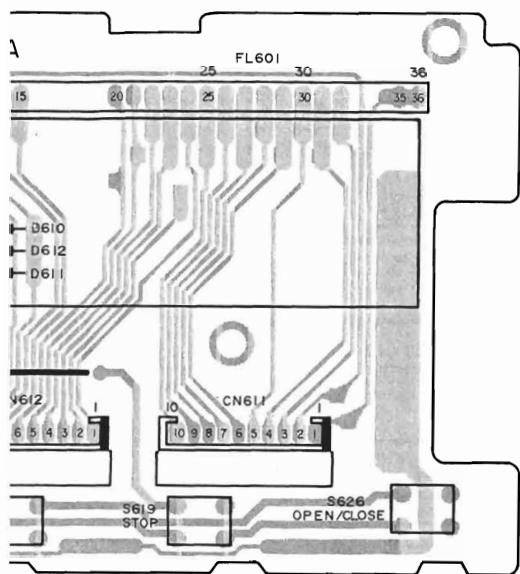


E AC OUTLET JACK P.C.B.



D POWER SUPPLY P.C.B. FOR (E, EG) AREAS.

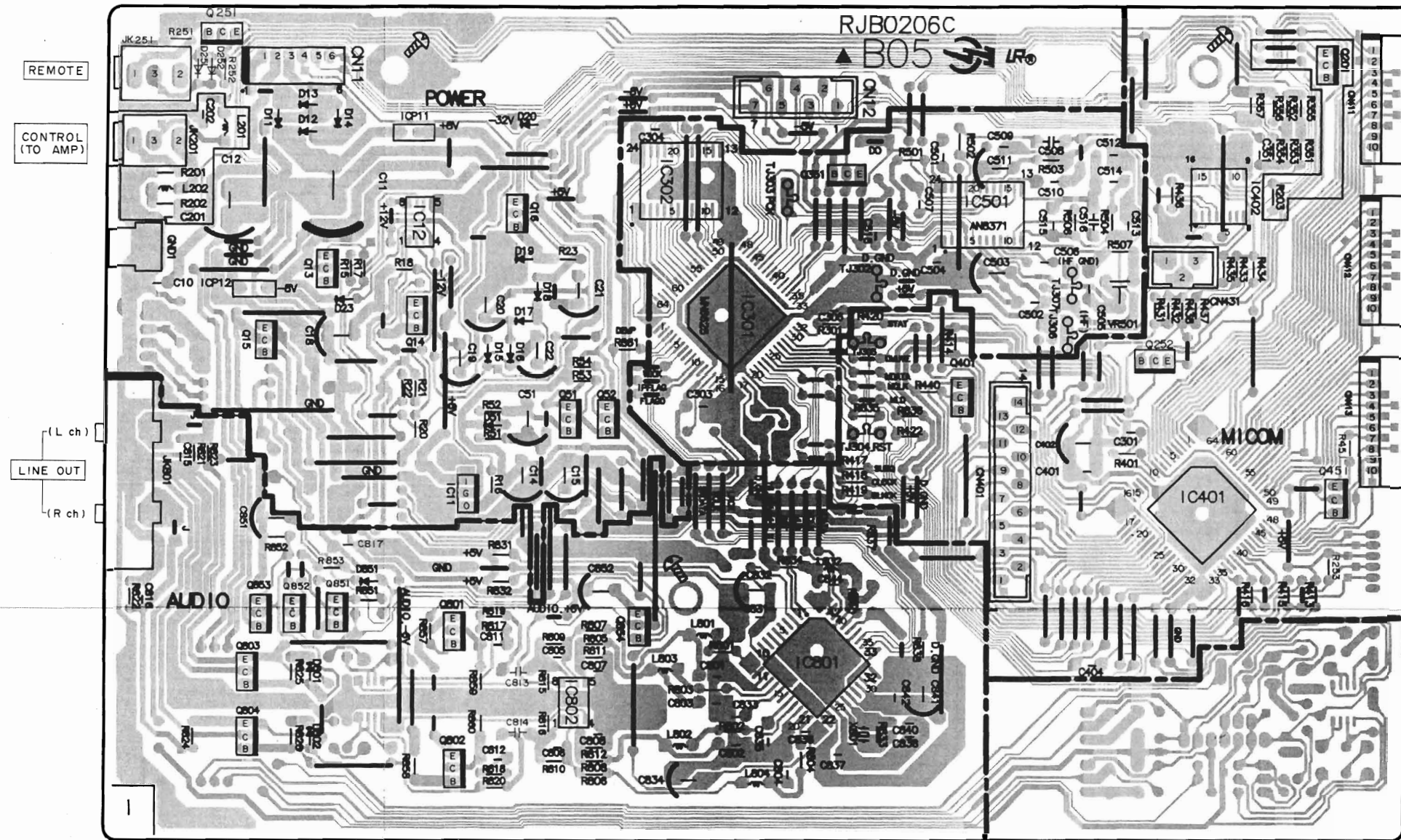




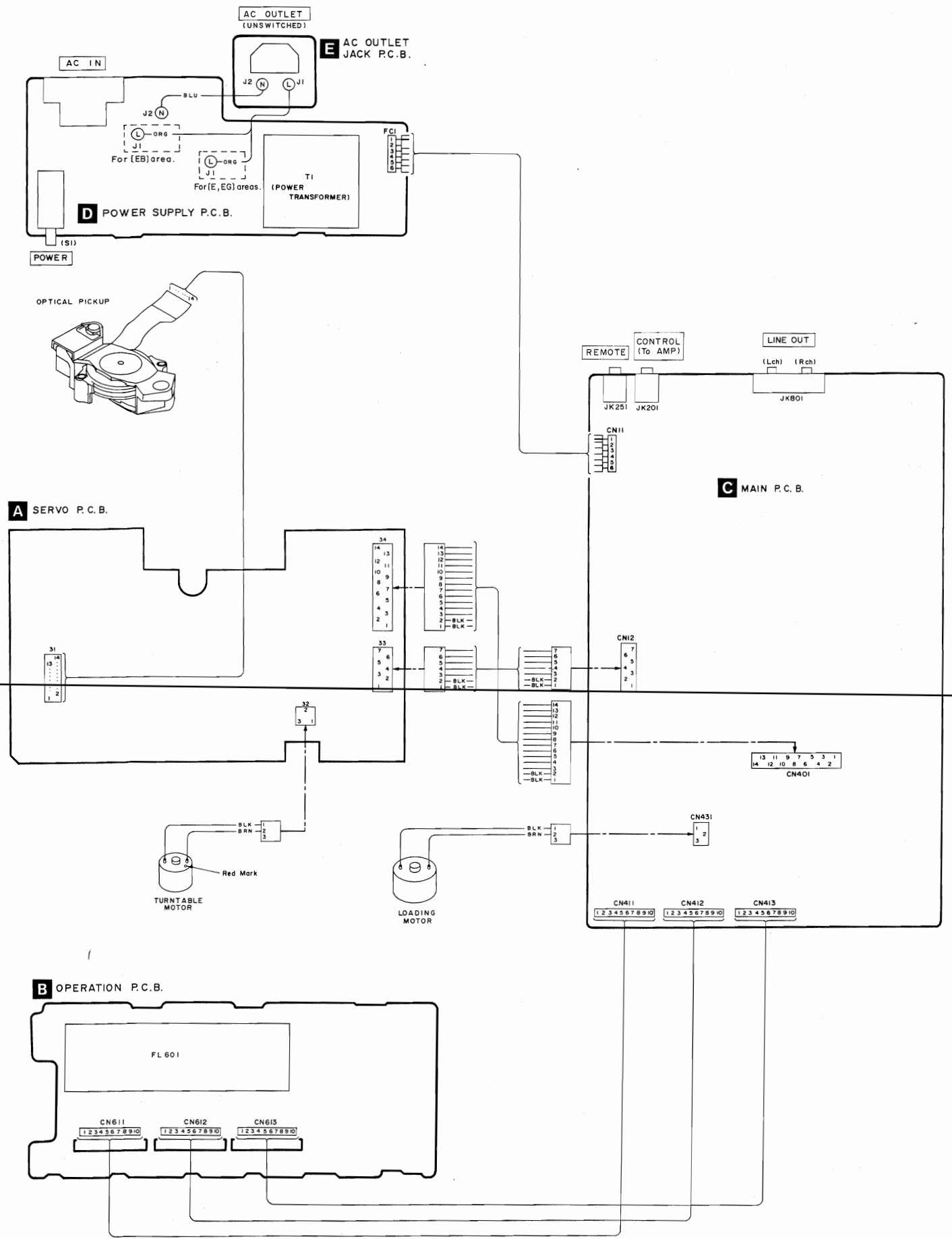
(E, EG) AREAS.

POWER

C MAIN P.C.B.



WIRING CONNECTION DIAGRAM



REPLACEMENT PARTS LIST

Notes : * Important safety notice:

- Components identified by Δ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
- * The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.) Parts without these indications can be used for all areas.
- * Remote Control Ass'y: Supply period for three years from termination of production.
- * \square Indicates in Remarks columns parts that are supplied by MBV.
- * Warning : This product uses a laser diode. Refer to caution statements on page 3.
- * ACHTUNG : Die lasereinheit nicht zerlegen.
Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

| Ref. No. | Part No. | Part Name & Description | Remarks | Ref. No. | Part No. | Part Name & Description | Remarks |
|-----------|--------------|------------------------------|----------|-----------|--------------|-------------------------|----------------------------|
| | | INTEGRATED CIRCUIT(S) | | | | I. C, PROTECTOR | |
| IC11 | LM2940T5M | IC, REGULATOR | | ICP1, 2 | SRUN38T | IC, PROTECTOR | (EB) Δ |
| IC12 | BA4558FT1 | IC, STABILIZER | | ICP11, 12 | SRUN15T | IC, PROTECTOR | |
| IC301 | MN6625 | IC, DIGITAL S. P. | | | | VARIABLE RESISTOR(S) | |
| IC302 | UM6116M-2 | IC, 16K RAM | | | | | |
| IC401 | MN187164PJW2 | IC, SYSTEM CONTROL&FL DRIVE | | VR501 | EVNDXAA00B13 | V. R, PLL ADJ. | |
| IC402 | TCA0372DM2 | IC, MOTOR DRIVE | | | | COIL(S) | |
| IC501 | AN8371S | IC, DATA SLICE&PLL | | | | | |
| IC801 | MN6474 | IC, DIGITAL FILTER&D/A CONV. | | L201, 202 | ELEV3R3KA | COIL | |
| IC802 | LM833M63 | IC, DIFFERENTIAL AMP | | L801-804 | ELEV561KA | COIL | |
| | | TRANSISTOR(S) | | L832 | ELEPK4R7KA | COIL | |
| Q13 | 2SB1240QRTV6 | TRANSISTOR | | | | TRANSFORMER(S) | |
| Q14 | 2SC3311QRSTA | TRANSISTOR | | T1 | ETP48JJG61CN | POWER TRANSFORMER | (E, EG) Δ \square |
| Q15 | 2SA1309QRSTA | TRANSISTOR | | T1 | ETP48JJG71BN | POWER TRANSFORMER | (EB) Δ \square |
| Q16 | 2SB1238QSTV6 | TRANSISTOR | | | | OSCILLATOR(S) | |
| Q51, 52 | 2SC3311QRSTA | TRANSISTOR | | | | | |
| Q201 | DTC124ESTP | TRANSISTOR | | X801 | SVQ49U338S | OSCILLATOR | |
| Q251 | DTA143ZSTP | TRANSISTOR | | | | DISPLAY TUBE | |
| Q252 | DTC124ESTP | TRANSISTOR | | FL601 | RSL0045-F | DISPLAY TUBE | |
| Q351 | DTA124EST | TRANSISTOR | | | | FUSE | |
| Q401 | DTA124EST | TRANSISTOR | | F1 | XBA2C012TBO | FUSE | Δ |
| Q451 | 2SC3311QRSTA | TRANSISTOR | | F2 | XBA2C08TBO | FUSE | (E, EG) Δ |
| Q801, 802 | 2SC3311QRSTA | TRANSISTOR | | | | SWITCH(ES) | |
| Q803, 804 | 2SD1450RSTTA | TRANSISTOR | | S1 | ESB8249V | SW, POWER | Δ |
| Q851 | DTA114ESTP | TRANSISTOR | | S613 | EVQQB005R | SW, PLAY | |
| Q852 | 2SC3311QRSTA | TRANSISTOR | | S614 | EVQQB005R | SW, SKIP (R) | |
| Q853 | DTA114ESTP | TRANSISTOR | | S615 | EVQQB005R | SW, SEARCH (R) | |
| Q854 | DTA124EST | TRANSISTOR | | S616 | EVQQB005R | SW, PROGRAM | |
| | | DIODE(S) | | S617 | EVQQB005R | SW, AUTO CUE | |
| D11-18 | 1SR139-200TA | DIODE | Δ | S619 | EVQQB005R | SW, STOP | |
| D19 | MA4330MTA | DIODE | | S620 | EVQQB005R | SW, SKIP (F) | |
| D20 | MA4062HTA | DIODE | | S621 | EVQQB005R | SW, SEARCH (F) | |
| D23 | 1SR139-200TA | DIODE | | S623 | EVQQB005R | SW, SIDE A/B | |
| D51 | MA4039MTA | DIODE | | | | | |
| D251, 252 | 1SS254TA | DIODE | | | | | |
| D601-606 | 1SS254TA | DIODE | | | | | |
| D610-612 | 1SS254TA | DIODE | | | | | |
| D801, 802 | 1SS254TA | DIODE | | | | | |
| D851 | 1SR139-200TA | DIODE | | | | | |

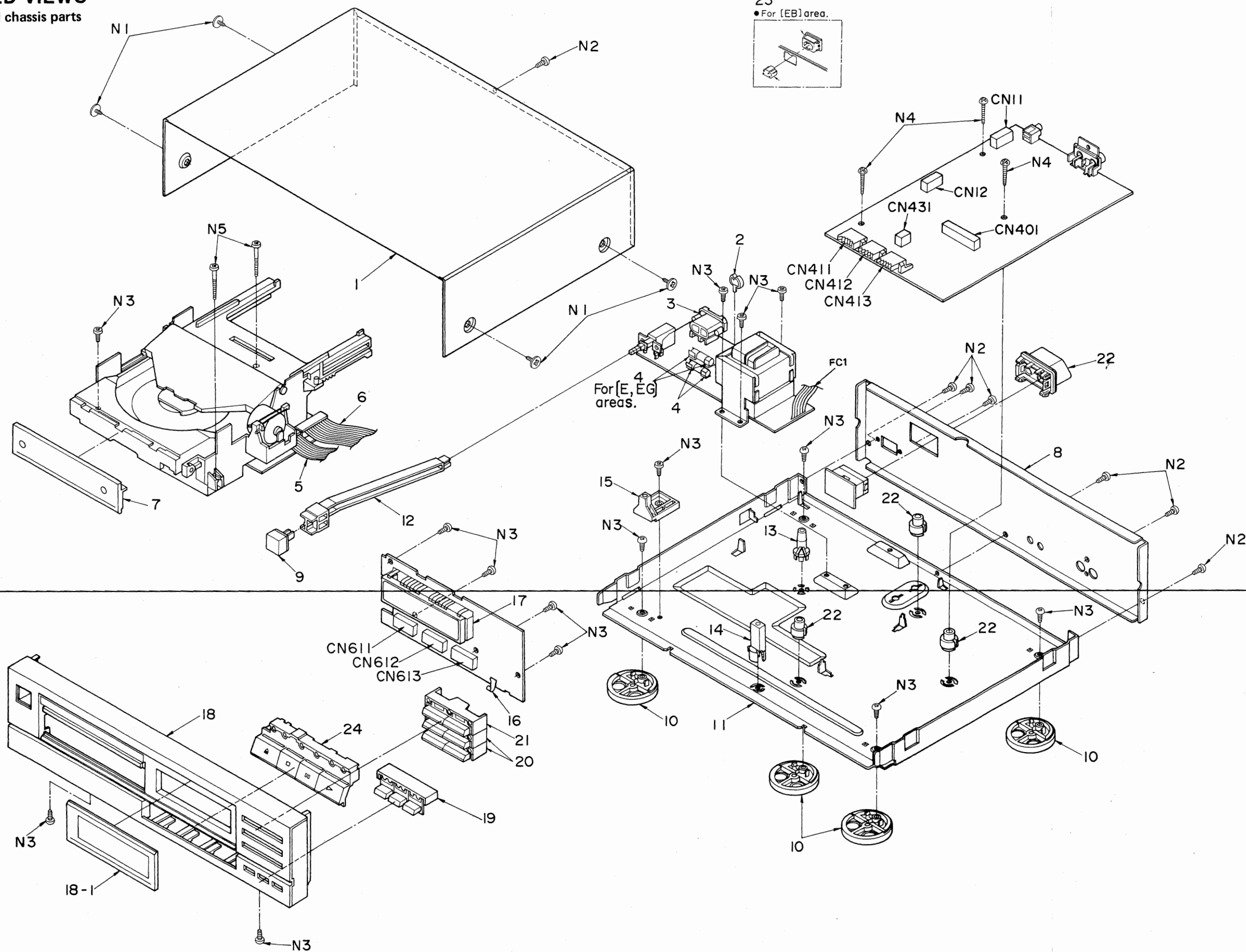
| Ref. No. | Part No. | Part Name & Description | Remarks | Ref. No. | Part No. | Part Name & Description | Remarks |
|-----------|--------------|------------------------------|---------|----------|--------------|-------------------------|---------|
| S626 | EVQB005R | SW, OPEN/CLOSE | | VR3569 | 482210020522 | V. R, FOCUS OFFSET ADJ. | [MB] |
| S627 | EVQB005R | SW, PAUSE | | | | | |
| S628 | EVQB005R | SW, REPEAT | | | | SWITCH | |
| S629 | EVQB005R | SW, CLEAR | | | | | |
| S630 | EVQB005R | SW, EDIT | | S1001 | 482227612523 | SW, TRAY | [MB] |
| S631 | EVQB005R | SW, TIME | | | | | |
| | | CONNECTOR (S) AND SOCKET (S) | | | | | |
| CN11 | SJT30643-V | CONNECTOR (6P) | | | | | |
| CN12 | RJTO01H007 | CONNECTOR (7P) | [MB] | | | | |
| CN401 | RJTO01H014 | CONNECTOR (14P) | [MB] | | | | |
| CN411-413 | RJU003K010M1 | SOCKET (10P) | | | | | |
| CN431 | RJTO01H003 | CONNECTOR (3P) | [MB] | | | | |
| CN611-613 | RJTO03K010M | SOCKET (10P) | | | | | |
| | | FLAT CABLE | | | | | |
| FC1 | RWJ1806100KQ | FLAT CABLE (6P) | | | | | |
| | | EARTH CONTACT | | | | | |
| GND1 | SJSD144 | EARTH CONTACT | | | | | |
| | | JACK (S) | | | | | |
| JK2 | SJS9333B | JACK, AC OUTLET | (E, EG) | | | | |
| JK2 | SJS9332B | JACK, AC OUTLET | (EB) | | | | |
| JK201 | RJJ33T01 | JACK, CONTROL | | | | | |
| JK251 | RJJ33TR01 | JACK, REMOTE CONTROL | | | | | |
| JK801 | RJH3201N | JACK, LINE OUT | | | | | |
| | | <SERVO P. C. B. > | | | | | |
| | | INTEGRATED CIRCUITS | | | | | |
| IC6501 | 482220973234 | I. C, PHOTO DIODE S. P. | [MB] | | | | |
| IC6503 | 482220973235 | I. C, RADIAL ERROR S. P. | [MB] | | | | |
| IC6504 | 482220972587 | I. C, FOCUS/RADIAL DRIVE | [MB] | | | | |
| | | TRANSISTORS | | | | | |
| Q6502 | 482213044121 | TRANSISTOR | [MB] | | | | |
| Q6507 | 532213042136 | TRANSISTOR | [MB] | | | | |
| | | DIODES | | | | | |
| D6505 | 482213081101 | DIODE | [MB] | | | | |
| D6506 | 482213081101 | DIODE | [MB] | | | | |
| | | VARIABLE RESISTORS | | | | | |
| VR3520 | 482210110685 | V. R, LASER POWER ADJ. | [MB] | | | | |

- Notes : * Important safety notice:
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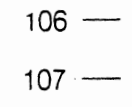
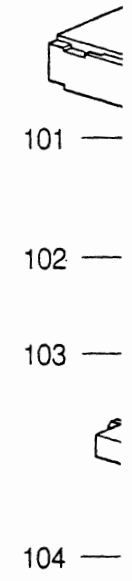
| Ref. No. | Part No. | Part Name & Description | Remarks | Ref. No. | Part No. | Part Name & Description | Remarks |
|----------|--------------|-------------------------|----------------------|----------|--------------|------------------------------|--------------|
| | | CABINET AND CHASSIS | | P7 | XZB26X17C03 | PROTECTION BAG (CORD) | |
| 1 | RKM0015-1K | TOP CASE | \boxed{MB} | P8 | RPH0026 | PROTECTION SHEET | |
| 2 | SHRD187 | CLAMP | | | | ACCESSORIES | |
| 3 | SJS9236 | AC INLET | Δ | A1 | RFKSLPJ27AEK | INSTRUCTION MANUAL ASS'Y (E) | \boxed{MB} |
| 4 | SJT390 | FUSE HOLDER | Δ | A1 | RQT0307-B | INSTRUCTION MANUAL (EB) | \boxed{MB} |
| 5 | REX0007 | CONNECTOR ASS'Y (7P) | \boxed{MB} | A1 | RQT0308-D | INSTRUCTION MANUAL (EG) | \boxed{MB} |
| 6 | REX0008 | CONNECTOR ASS'Y (14P) | \boxed{MB} | A2 | RQA0013 | WARRANTY CARD | |
| 7 | RGK0223B | TRAY ORNAMENT | | A3 | RQC0169 | SERVICENTER LIST | |
| 8 | RGRO007H-C | REAR PANEL | (E, EG) \boxed{MB} | A4 | SFDAC05E03 | POWER CORD (E, EG) Δ | |
| 8 | RGRO007I-D | REAR PANEL | (EB) \boxed{MB} | A4 | SJA188 | POWER CORD (EB) Δ | |
| 9 | SBC666-1 | POWER KNOB | | A5 | SJP2249-3 | OUTPUT CORD | |
| 10 | RKA0042B | FOOT | \boxed{MB} | A6 | SJP2257T | M3 CORD | |
| 11 | RMK0023-1 | CHASSIS | \boxed{MB} | A7 | RQCA0059 | CAUTION (LOCK SHAFT) | \boxed{MB} |
| 12 | RMRO084 | POWER SW ROD | \boxed{MB} | | | LOADING UNIT PARTS | |
| 13 | RMRO020 | SPACER(A) | \boxed{MB} | 101 | 482244450603 | TRAY | \boxed{MB} |
| 14 | RMRO021 | SPACER(B) | \boxed{MB} | 102 | 482232550176 | GROMMET, CABLE | \boxed{MB} |
| 15 | RMRO022 | SPACER(C) | \boxed{MB} | 103 | 482232550177 | GROMMET, CABLE | \boxed{MB} |
| 16 | SUSD144 | EARTH CONTACT | | 104 | 482246692251 | PLATE | \boxed{MB} |
| 17 | RMRO264 | VFD HOLDER | | 106 | 482235810115 | BELT, DRIVING | \boxed{MB} |
| 18 | RFKGLPJ27AEK | FRONT PANEL ASS'Y | \boxed{MB} | 107 | 482252232359 | WHEEL, GEAR | \boxed{MB} |
| 18-1 | RKWO079 | WINDOW | \boxed{MB} | 108 | 482253251518 | RING, RUBBER | \boxed{MB} |
| 19 | RGU0063 | EDIT KNOB | | 109 | 482240261081 | GUIDE | \boxed{MB} |
| 20 | RGU0329 | SKIP KNOB | | 111 | 482240261132 | GUIDE | \boxed{MB} |
| 21 | RGU0330 | PROGRAM KNOB | | 112 | 482252890638 | ROLLER | \boxed{MB} |
| 22 | SHE185-2 | P. C. B. SUPPORT | | 113 | 482249251902 | SPRING, COMPRES. | \boxed{MB} |
| 23 | SJS9333A | AC OUTLET COVER (E, EG) | | 114 | 482246661587 | FOAM | \boxed{MB} |
| 23 | SJS9332A | AC OUTLET COVER (EB) | | 116 | 482240261107 | LEVER | \boxed{MB} |
| 24 | RGU0057-1 | MAIN KNOB | | 117 | 482249263659 | SPRING, BLADE | \boxed{MB} |
| | | SCREWS | | 118 | 482244460568 | LID | \boxed{MB} |
| N1 | SNE2129-1 | SCREW | | 119 | 482249232883 | SPRING, TENSION | \boxed{MB} |
| N2 | XTB3+8JFZ1 | SCREW | | 121 | 482252890639 | ROLLER | \boxed{MB} |
| N3 | XTB3+8JFZ | SCREW | | 122 | 482246692257 | PLATE | \boxed{MB} |
| N4 | XTB3+16JFZ | SCREW | | 123 | 482240261207 | HOLDER | \boxed{MB} |
| N5 | XTB3+35JFZ | SCREW | | 124 | 482252040177 | BALL | \boxed{MB} |
| | | PACKING MATERIAL | | 126 | 482253080503 | RING, PRESSURE | \boxed{MB} |
| P1 | RPG0371 | PACKING CASE | \boxed{MB} | 127 | 482269130209 | OPTICAL PICKUP UNIT | \boxed{MB} |
| P2 | RPN0073A | CUSHION (F) | \boxed{MB} | 128 | 482240261196 | SUPPORT | \boxed{MB} |
| P3 | RPN0073B | CUSHION (B) | \boxed{MB} | 129 | 482249263746 | SPRING, CLAMPING | \boxed{MB} |
| P4 | RMRO024 | LOCK SHAFT | \boxed{MB} | 131 | 482236120998 | MOTOR | \boxed{MB} |
| P5 | XZB60X60A01 | PROTECTION BAG (UNIT) | | 132 | 482240250244 | BRACKET | \boxed{MB} |
| P6 | XZB23X35C03 | PROTECTION BAG (F. B.) | | 133 | 482249251935 | SPRING, COMPRES. | \boxed{MB} |
| | | | | 134 | 482246450715 | CHASSIS | \boxed{MB} |

■ EXPLODED VIEWS

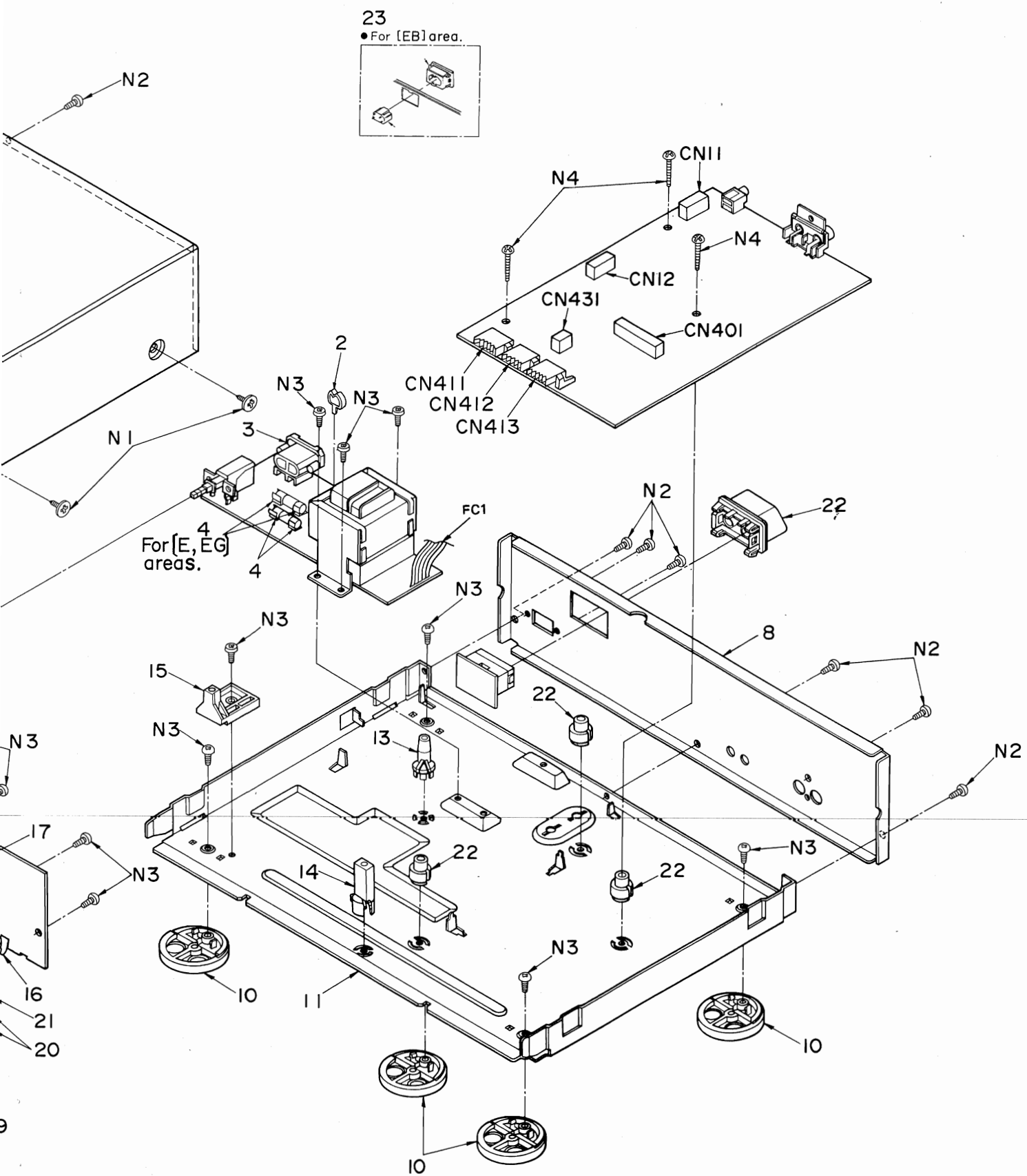
● Cabinet and chassis parts



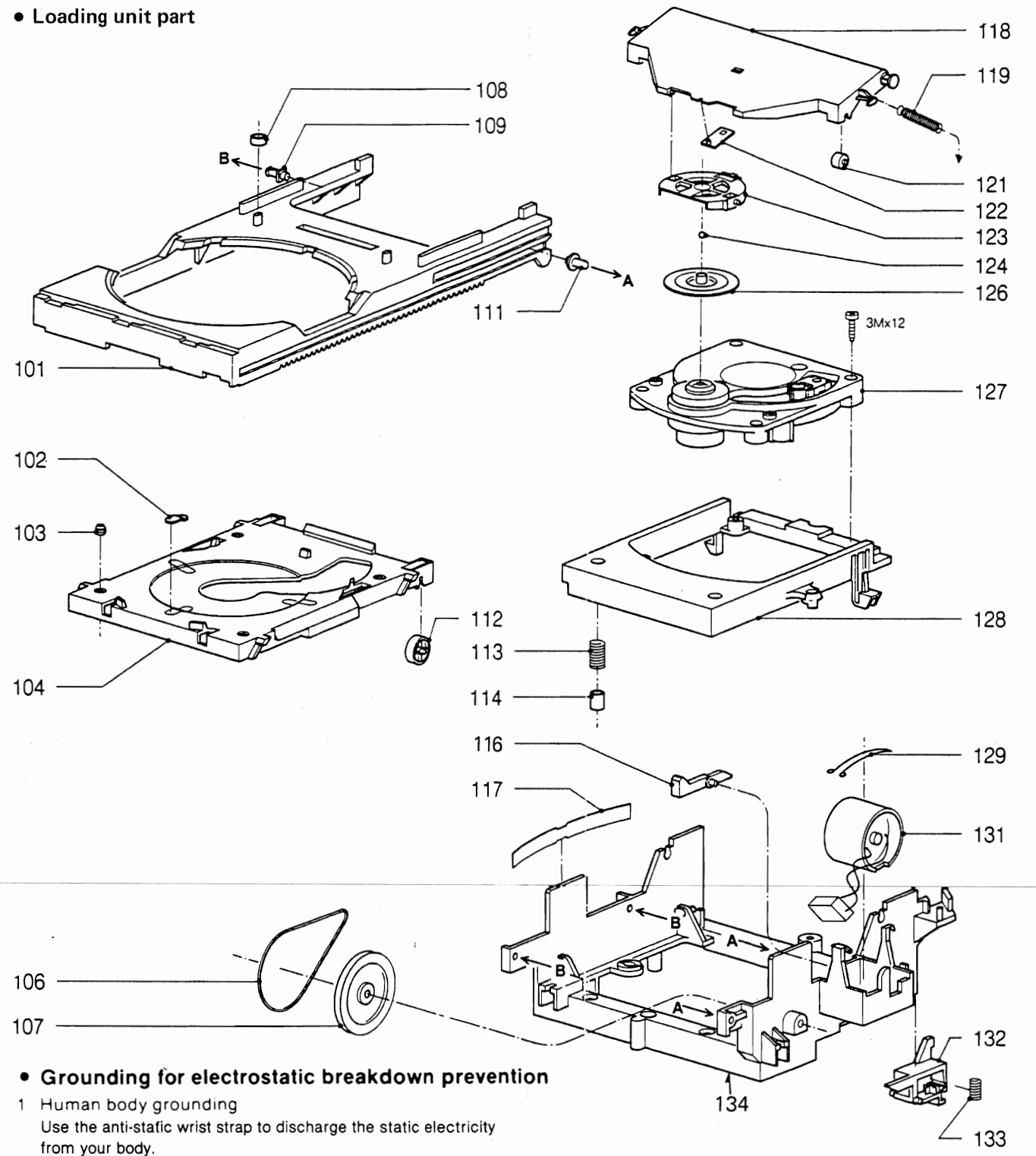
● Loader



● Gro
1 Hum
Use th
from y
2 Work
Put a
area
sheet
Caution
The stat
through
clothes



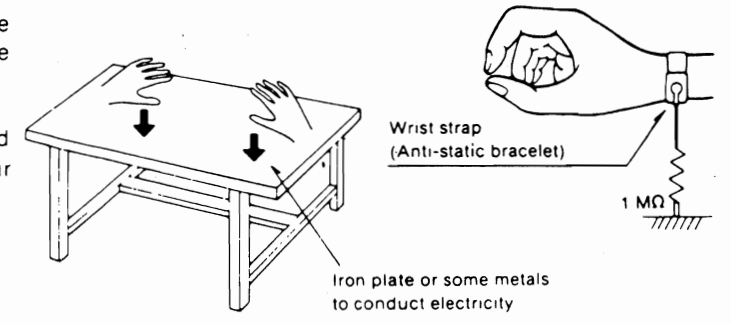
● Loading unit part



● Grounding for electrostatic breakdown prevention

- 1 Human body grounding
Use the anti-static wrist strap to discharge the static electricity from your body.
- 2 Work table grounding
Put a conductive material (sheet) or steel sheet on the area where the optical pickup is placed, and ground the sheet.

Caution:
The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the optical pickup



RESISTORS AND CAPACITORS

TROUBLE

Notes : * Important safety notice: Components identified by Δ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts. [MB] Indicates in Remarks columns parts that are supplied by MBV. Capacity value are in microfarads (uF), unless specified otherwise, P=Pico-farads (pF) F=Farads (F) Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM) , 1M=1,000k (OHM)

Table with 8 columns: Ref. No., Part No., Values & Remarks, Ref. No., Part No., Values & Remarks, Ref. No., Part No., Values & Remarks. Contains resistor and capacitor data for various components.

Table with 6 columns: Ref. No., Part No., Values & Remarks, Ref. No., Part No., Values & Remarks. Contains capacitor data for various components.

Play Operati

Power (with no disc

Disc lo

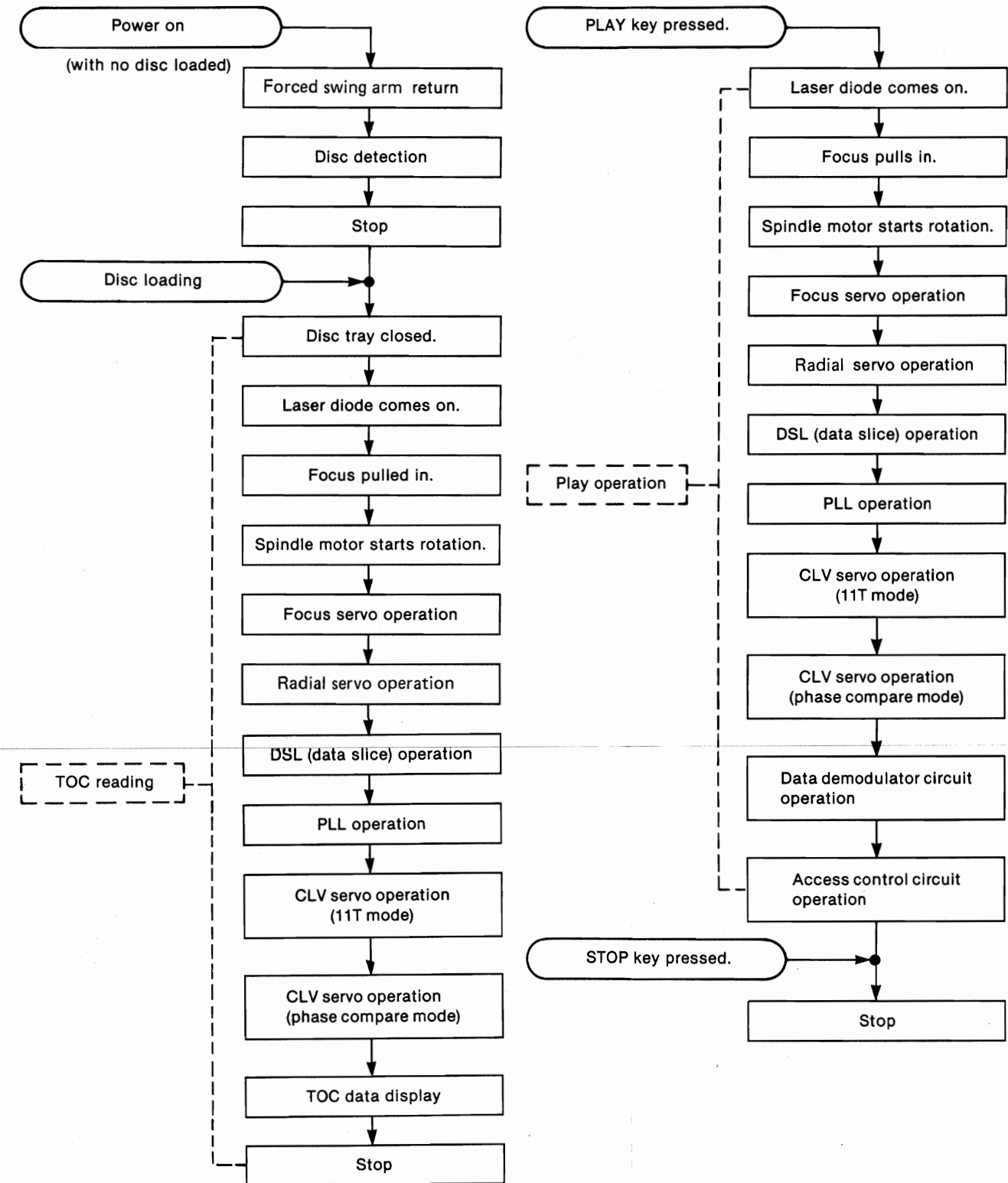
TOC reading

■ TROUBLESHOOTING GUIDE

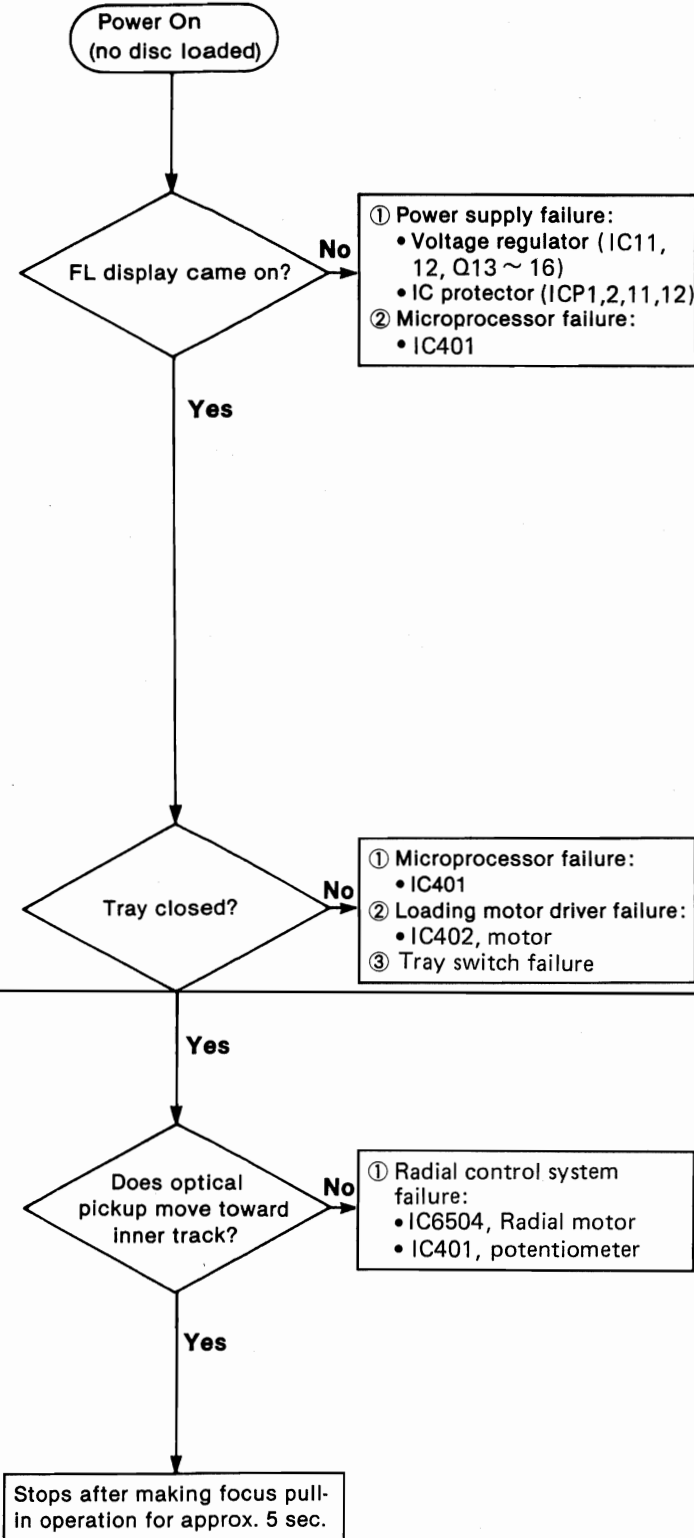
| Ref. No. | Part No. | Values & Remarks | Ref. No. | Part No. | Values & Remarks |
|----------|--------------|------------------|----------|--------------|------------------|
| R3544 | 482211130483 | 1/3 1 [MB] | C2547 | 482212233147 | 50 0.022 [MB] |
| R3545 | 482211130483 | 1/3 1 [MB] | C2550 | 482212151049 | 63 0.015 [MB] |
| R3550 | 482211190248 | 1/8 2K2 [MB] | C2551 | 482212151225 | 63 18NF [MB] |
| R3551 | 482211690417 | 1/8 15K [MB] | C2560 | 482212231784 | 50 0.0047 [MB] |
| R3552 | 482211190171 | 1/8 820 [MB] | C2561 | 482212151252 | 100 0.047 [MB] |
| R3554 | 482211690421 | 1/8 2K [MB] | C2562 | 532212142661 | 63 0.033 [MB] |
| R3555 | 482211190251 | 1/8 22K [MB] | C2563 | 482212233104 | 63 100NF [MB] |
| R3560 | 482211191494 | 1/8 11K [MB] | C2565 | 482212232808 | 50 0.0012 [MB] |
| R3561 | 482211690417 | 1/8 150K [MB] | C2625 | 482212231765 | 50 100P [MB] |
| R3562 | 482211652845 | 3/5 120K [MB] | | | |
| R3563 | 482211190573 | 1/8 56K [MB] | | | |
| R3564 | 482211191495 | 1/8 160K [MB] | | | |
| R3565 | 482211652354 | 1/2 27 [MB] | | | |
| R3566 | 482211190186 | 1/8 22 [MB] | | | |
| R3567 | 482211652478 | 1/2 82K [MB] | | | |
| R3568 | 482211190161 | 1/8 470K [MB] | | | |
| R3801 | 482211190163 | OE [MB] | | | |
| R3802 | 482211190163 | OE [MB] | | | |
| | | CAPACITORS | | | |
| C2501 | 482212233147 | 50 0.022 [MB] | | | |
| C2502 | 482212422027 | 10 47 [MB] | | | |
| C2503 | 482212233147 | 50 0.022 [MB] | | | |
| C2504 | 482212231727 | 63 470P [MB] | | | |
| C2505 | 482212422027 | 25 47 [MB] | | | |
| C2506 | 482212233104 | 63 100NF [MB] | | | |
| C2507 | 482212231644 | 63 0.0022 [MB] | | | |
| C2508 | 532212142491 | 100 0.047 [MB] | | | |
| C2509 | 482212231772 | 50 47P [MB] | | | |
| C2510 | 482212232442 | 50 0.01 [MB] | | | |
| C2511 | 482212231746 | 50 0.001 [MB] | | | |
| C2513 | 482212142245 | 63 0.22 [MB] | | | |
| C2514 | 482212151252 | 100 0.47 [MB] | | | |
| C2515 | 482212231746 | 50 0.001 [MB] | | | |
| C2520 | 482212231965 | 63 220P [MB] | | | |
| C2521 | 482212422027 | 2.5 47 [MB] | | | |
| C2530 | 482212151321 | 63 0.0082 [MB] | | | |
| C2531 | 482212151321 | 63 0.0082 [MB] | | | |
| C2532 | 482212440272 | 16 33 [MB] | | | |
| C2534 | 532212142661 | 63 0.33 [MB] | | | |
| C2535 | 532212231848 | 63 0.033 [MB] | | | |
| C2536 | 532212231848 | 63 0.033 [MB] | | | |
| C2537 | 482212142245 | 63 0.22 [MB] | | | |
| C2538 | 482212142245 | 63 0.22 [MB] | | | |
| C2540 | 482212441583 | 50 0.68 [MB] | | | |
| C2541 | 482212233147 | 50 0.022 [MB] | | | |
| C2542 | 482212233147 | 50 0.022 [MB] | | | |
| C2543 | 482212440196 | 16 220 [MB] | | | |
| C2544 | 482212440196 | 16 220 [MB] | | | |
| C2545 | 482212233104 | 63 0.1 [MB] | | | |
| C2546 | 482212233104 | 63 0.1 [MB] | | | |

SL-PJ27A Operation Sequence Check Sheet

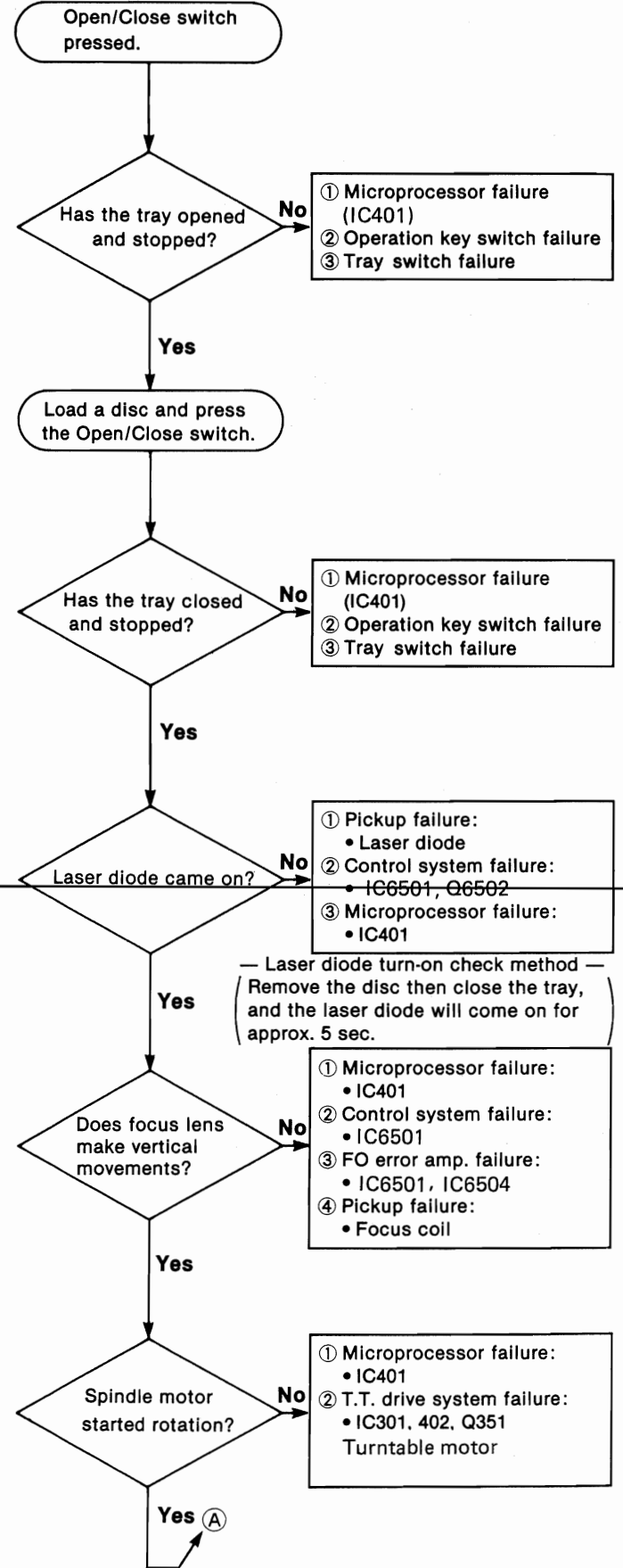
Play Operation Sequence

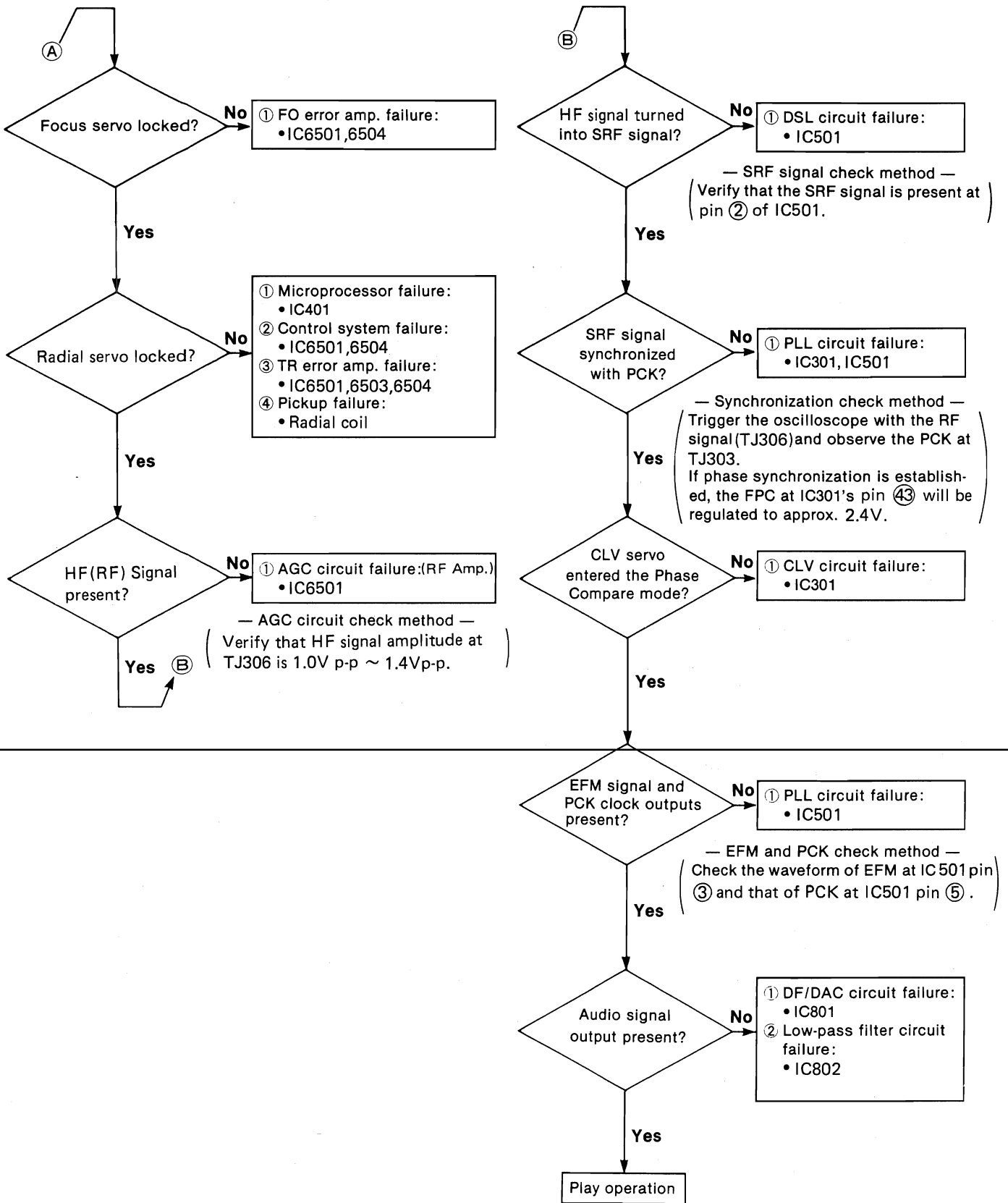


(Operation Sequence Just After Power On)



(TOC Read Operation-PLAY Operation)





PACKING

