

Service Manual

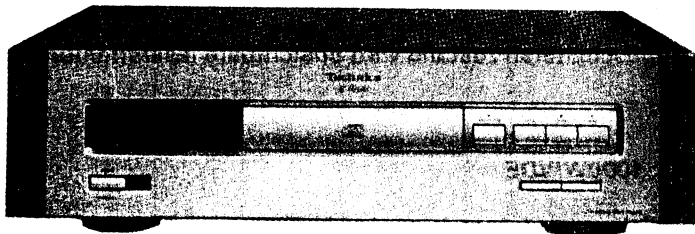
COMPACT
disc
DIGITAL AUDIO

DIGITAL

Compact Disc Player
SL-Z1000

Color

(A)... Gold Type



Area

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

MECHANISM SERIES (RAE0101)

SPECIFICATIONS

■ Spindle motor	
Type	Brushless DD motor
■ Traverse system	
Type	High Speed Linear Motor Access System
■ Signal format	
Sampling frequency	44.1 kHz
Error correction	Technics New Super Decoding Algorithm (8 Samples Linear Interpolation)

■ Pickup	
Type	Aspherical Surface Glass Press Lens One beam
Beam source	Semiconductor laser
Wave length	780 nm
■ General	
Power supply	AC 50/60 Hz, 110 V/127 V/220 V/240 V
Power consumption	18 W
Dimensions (W×H×D)	484×139×419 mm
Weight	20 kg

Specifications subject to change without notice.
Weight and dimensions shown are approximately.

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■ 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: 780nm
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.

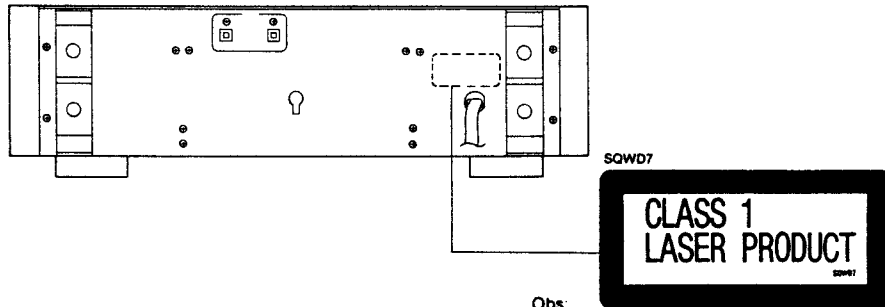
ACHTUNG: Dieses produkt enthält eine laserdioden. Im eingeschalteten zustand wird unsichtbare laserstrahlung von der lasereinheit abgestrahlt.

Wellenlänge: 780nm
Maximale strahlungsleistung der lasereinheit: 100 μ W/VDE

Die strahlung an der lasereinheit ist ungefährlich, wenn folgende punkte beachtet werden:

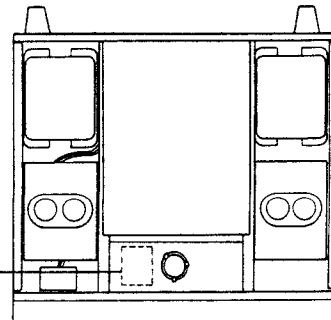
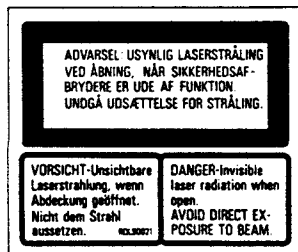
1. Die lasereinheit nicht zerlegen, da die strahlung an der freigelegten laserdioden gefährlich ist.
2. Den werkseitig justierten einstellregler der lasereinheit nicht verstellen.
3. Nicht mit optischen instrumenten in die fokussierlinse blicken.
4. Nicht über längere zeit in die fokussierlinse blicken.

ADVARSEL: I dette a apparat anvendes laser.

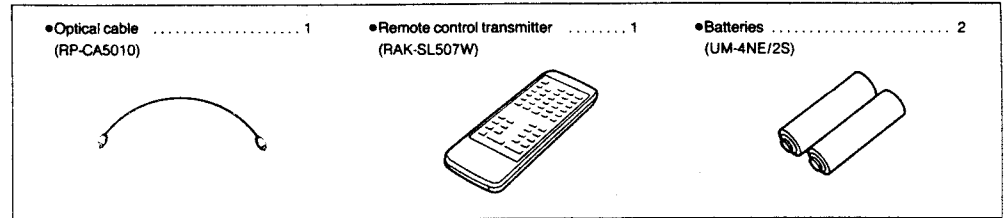


Obs:
Apparaten innehåller laser
Komponent av höger laserklass
än klass 1.

ROLS0021



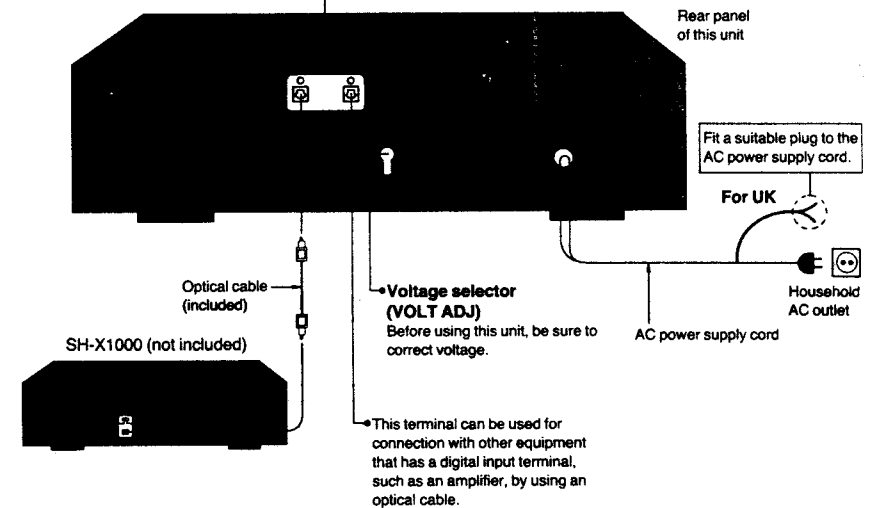
■ ACCESSORIES



■ CONNECTIONS

Turn power off on all components before making connections.

• **Optical output terminal (DIGITAL OUT/OPTICAL)**
A dust-protection cap is inserted in this terminal. Remove this cap only when a connection is to be made to this terminal.



CAUTION

When using the optical cable, please keep the following points in mind:

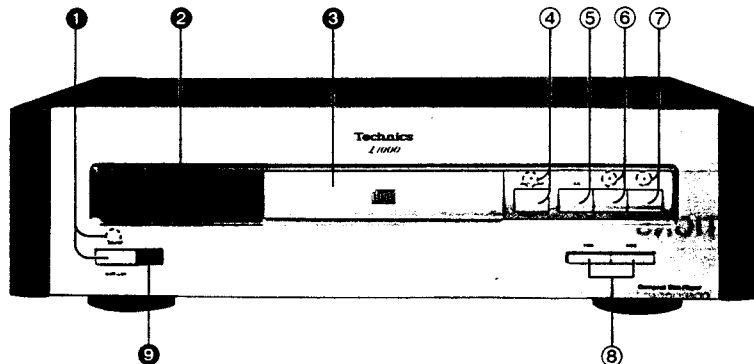
1. The maximum length of optical cable to be used with this unit is 3 m (approx. 10 ft.).
2. Always make sure the plug is fully inserted. If the plug is not inserted all the way, an imperfect connection will result.
3. The optical cable must never be bent or coiled tightly. Doing so will permanently damage the optical fiber in the cable and, therefore, prevent proper data transmission. If the cable must be coiled (for storage, etc.), the diameter of the loop should be at least 15 cm (approx. 6 inches).
4. Handle the optical cable's plug very carefully. Keep the plug free from dust or damage. Dust can be removed by wiping the plug with a soft cloth. Do not use any cleaners or solvents to clean the plug.

Note:

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

LOCATION OF CONTROLS

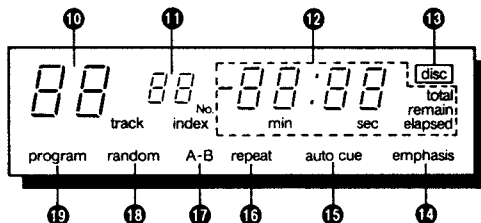
The functions indicated by the black numbers (with white background, ③, etc.) can also be activated using the remote control transmitter.



Control section

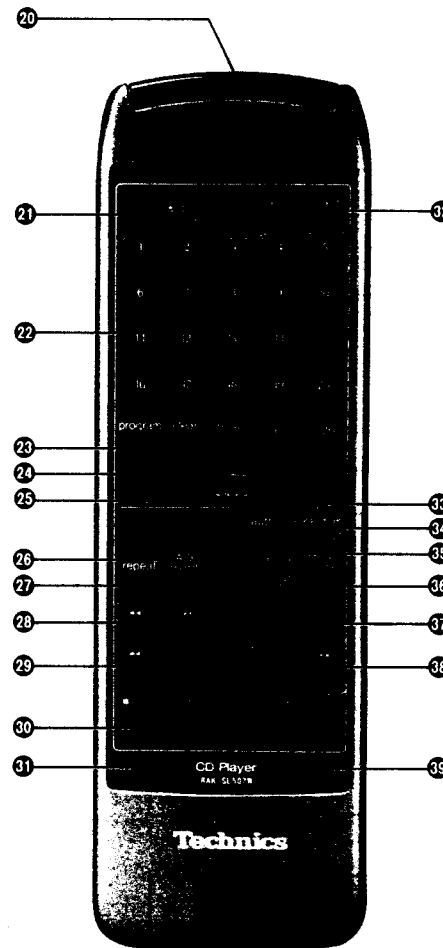
- ① Power switch and indicator (power)
- ② Display panel
- ③ Disc holder
- ④ Disc holder open/close button and indicator (open/close)
- ⑤ Stop button (stop)
This button is used to stop disc play, as well as to cancel the various play modes.
- ⑥ Pause button and indicator (pause)
- ⑦ Play button and indicator (play)
- ⑧ Skip buttons (◀◀ ▶▶)
These buttons are used to skip by track in the forward or reverse direction.
- ⑨ Remote control signal sensor

Indicators section



- ⑩ Track number display (track)
- ⑪ Index/program number display (index/No.)
- ⑫ Time display (min/sec)
The indicators display the following types of time information.
"total": total elapsed time since the beginning of the disc or total time remaining until the end of the disc, depending on whether the "elapsed" or "remain" indicator is illuminated.
"remain": time remaining until the end of the current selection
"elapsed": time elapsed since the beginning of the current selection
- ⑬ Disc indicator (disc)
- ⑭ Emphasis indicator (emphasis)
This indicator illuminates when discs recorded with pre-emphasis in the high-frequency range are played.
- ⑮ Auto cue play indicator (auto cue)
- ⑯ Repeat play indicator (repeat)
- ⑰ A-B repeat play indicator (A-B)
- ⑱ Random play indicator (random)
- ⑲ Program play indicator (program)

Remote control transmitter



- ⑳ Remote control signal transmission window
- ㉑ Disc holder open/close button (▲ open/close)
- ㉒ Numeric buttons (1-20, 0, >20)
- ㉓ Program button (program)
Pressing this button initiates the programmed play mode. You can then enter specific tracks using the numeric buttons.
- ㉔ Clear button (clear)
This button is used to clear tracks from the programmed sequence one at a time.
- ㉕ Recall button (recall)
This button is used to display the contents of the programmed track sequence for confirmation.
- ㉖ A-B repeat button (A-B repeat)
This button is used to play a portion of a disc between two points (A and B).
- ㉗ Repeat button (repeat)
- ㉘ Slow search buttons (◀◀ slow search ▶▶)
These buttons can be used to move forward or backward on the disc during play at slow speed.
- ㉙ Fast search buttons (◀◀ fast search ▶▶)
These buttons can be used to move forward or backward on the disc during play at high speed.
- ㉚ Stop button (■ stop)
- ㉛ Pause button (|| pause)
- ㉜ Input selectors (CD, aux1, aux2)
- ㉝ Auto cue button (auto cue)
- ㉞ Random play button (random)
This button is used to play the tracks on a disc in a random sequence.
- ㉟ Display switch (display on/off)
This switch allows you to turn off the display during play if you wish.
The display illuminates for about 5 seconds whenever an operation button is pressed and then switches to off again.
Note:
When the power is first switched on, the "display off" function is reset.
- ㊱ Time mode select button (time mode)
- ㊲ Index skip buttons (← index skip →)
These buttons are used to skip by index number (subdivisions within the current track).
- ㊳ Skip button (◀◀ skip ▶▶)
- ㊴ Play button (▶ play)

DESCRIPTION OF TECHNICAL FEATURES

Anti-Vibration Linear Traverse Mechanism and 4-Point Equi-Loaded Floating Optical Deck

In order to increase its anti-vibration performance, this SL-Z1000 CD player features a number of innovations designed to combat vibration not only in the construction of its chassis and panels but also in its traverse mechanism.

Magnetic Attraction Type of Anti-Vibration Linear Traverse Mechanism

When external vibration gives rise to mechanical play in the traverse mechanism of a CD player, the optical pick-up attached to the mechanism can be expected to vibrate in both the focus and tracking directions, with the result that it will be dislodged from the track where it is positioned.

In order to safeguard against this, a metal roller incorporating high-precision ball bearings is employed in the SL-Z1000's traverse mechanism's sub guide section. (See Fig. 1)

What happens is that the metal roller is attracted by a magnet so that it is held tightly against the sub guide shaft, thereby eliminating mechanical play and improving the player's anti-vibration performance.

A comparison between the SL-Z1000 and conventional products reveals an improvement of more than 1G over the entire 10 to 100 Hz range. In fact, the resonance in the mechanism from 50 to 100 Hz which existed in conventional products has been eliminated. (See Fig. 2)

4-Point Equi-Loaded Floating Optical Deck

As a means of canceling out the effects of external vibration transmitted to its optical decks, Technics has for some time now used a floating construction based on a combination of coiled springs and rubber dampers.

However, this system was sometimes characterized by the fact that a different load was subjected to each of the floating supports and that, depending on the vibration mode, the optical deck was subject to torsional vibration.

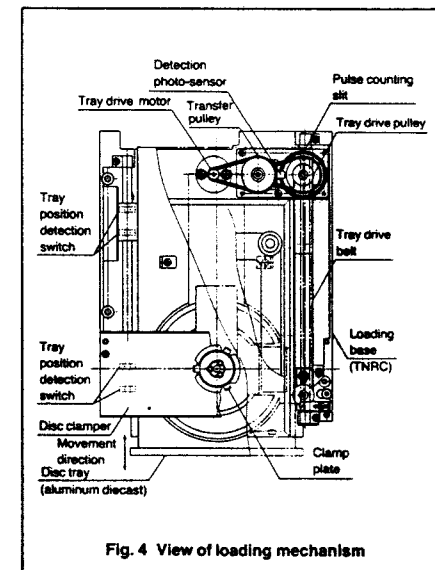
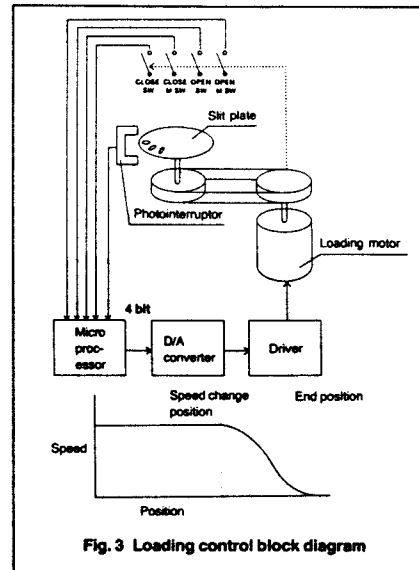
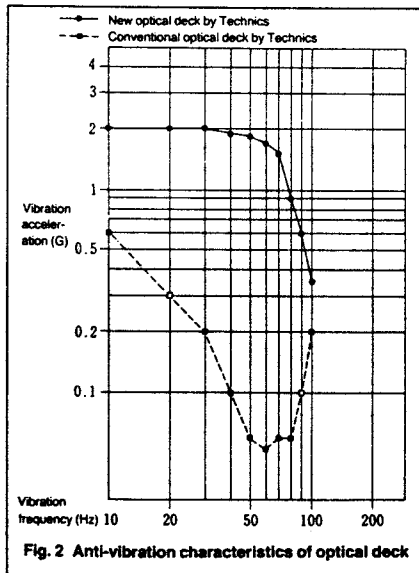
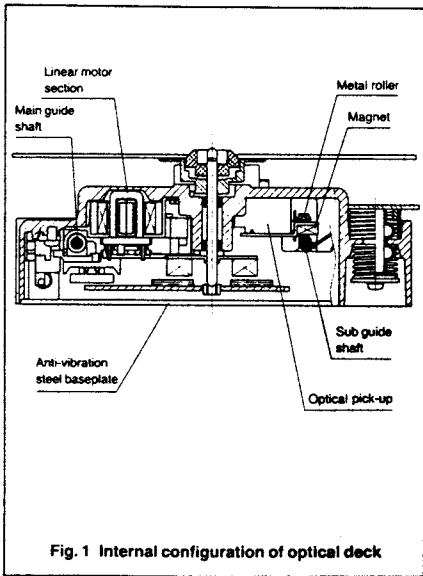
In order to eliminate this occurrence, the SL-Z1000 features a construction in which the load is equally distributed over the four floating supports. This makes it possible to keep the optical deck horizontal at all times without the problem of torsion arising and also to improve the deck's anti-vibration performance.

The aluminum diecast material used in the panels also contributes to dimensional stability and a high degree of rigidity.

Speed-Controlled soft Loading

When it comes to the actual disc loading, a great deal of attention has been paid to the "feel" of the disc loading and unloading operations, and a design enabling noise-free and smooth movement has been adopted. (See the control block diagram in Fig. 3 and the view of the mechanism in Fig. 4)

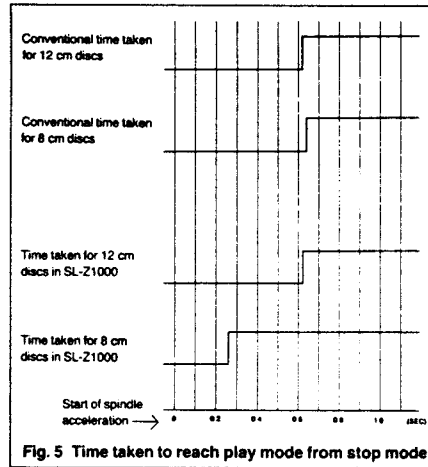
When, during the loading operation, the detector switch senses the speed change position before the end position, the microprocessor gradually reduces the drive voltage of the loading motor via the D/A converter. The speed of the motor is detected using the photo-interruptor and slit plate and fed back to the microprocessor. This process enables the movement to be kept stable and constant at all times even in the face of load variations caused by temperature changes and fluctuations in the frictional force of the mechanism.



Disc-Oriented Spindle Acceleration Control

There is a more than 3-fold difference in inertial mass between ordinary 12 cm discs and 8 cm discs. Despite this fact, the same time value from the stop mode to the play mode as that applying with the larger 12 cm discs was demanded in conventional CD players for 8 cm discs with their lower inertial mass. This was because the time taken for the spindle motor to accelerate from the stop mode was aligned with the time optimally suited for the 12 cm discs and, as such, it was not at all appropriate as the acceleration time for the 8 cm discs.

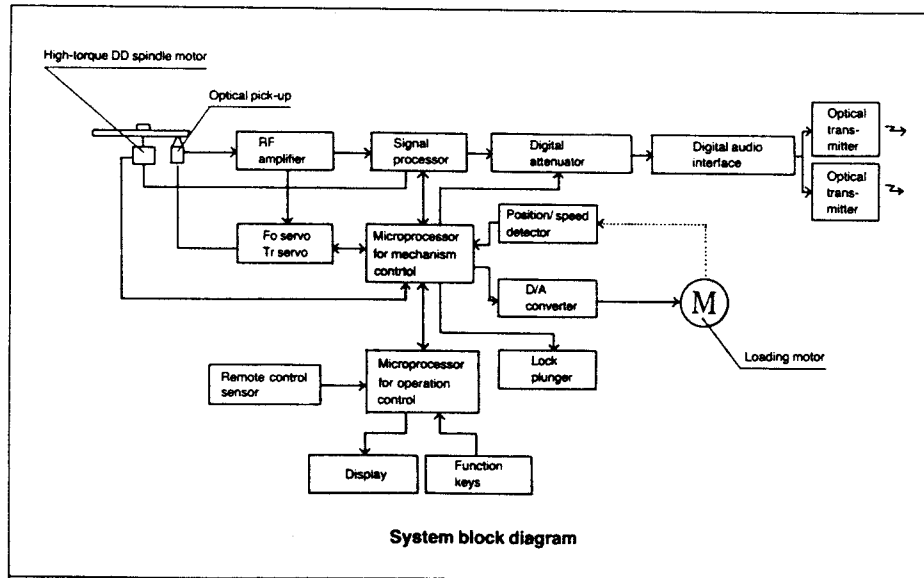
The SL-Z1000 solves this problem by installing a rotary detector (FG) in the DD spindle motor which detects the FG signal cycle and helps to control the acceleration time of the spindle. As a result, the time taken from the stop mode to the play mode can be made the shortest whatever the inertial mass of the discs loaded. (See Fig. 5)



TROUBLESHOOTING GUIDE

Before requesting service for this unit, check the chart below for a possible cause of the problem you are experiencing. Some simple checks or a minor adjustment on your part may eliminate the problem and restore proper operation. If you are in doubt about some of the check points, or if the remedies indicated in the chart do not solve the problem, refer to the directory of authorized service centers (enclosed with this unit) to locate a convenient service center, or consult your Technics dealer for instructions.

Problem	Probable cause(s)	Suggested remedy
The disc holder does not close when a disc is inserted and the disc holder open/close button is pressed.	The disc is not properly inserted.	• Take it out and insert it again.
The disc is inserted but the total number of tracks and total playing time are not displayed.	The disc is upside down.	• Check to be sure the label is facing upward.
	The disc is dirty.	• Wipe it with a soft cloth.
	The disc is scratched.	• Replace it with a new disc.
	The disc is warped.	
	The disc is not within specified standards.	• Exchange the disc for another one.
A certain MUSIC PASSAGE can't be played correctly.	Moisture has condensed in the unit.	• Switch ON the unit and wait about one hour before using the unit.
A certain MUSIC PASSAGE can't be played correctly.	The disc is dirty.	• Wipe it with a soft cloth.
	The disc is scratched.	• Replace it with a new disc.
Operation by remote control transmitter is not correct.	No disc is loaded.	• Insert the disc.
	The remote control transmitter batteries are consumed.	• Replace them with new batteries.
	The batteries have been inserted incorrectly. [The (+) and (-) polarities are reversed.]	• Insert them so that the polarities are correct.
	There is an obstruction between the remote control transmitter and this unit.	• Remove the obstruction.
Disc play does not start.	The unit is in the auto cue mode.	• Press the play button. • Press the auto cue button to cancel the auto cue mode.



About moisture

Moisture may form on the lens in the following cases...

- Immediately after a heater has been turned on.
- In a steamy or very humid room.
- When the unit is suddenly moved from a cold environment to a warm one.

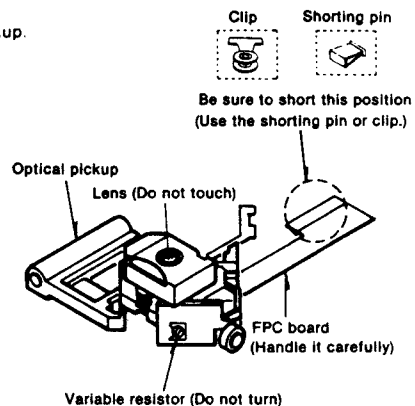
If moisture forms inside this unit, it may not operate properly. To correct this problem, turn on the power and wait about one hour for the moisture to evaporate.

HANDLING PRECAUTIONS FOR OPTICAL PICKUP

The laser diode in the optical pickup may break down due to potential difference caused by static electricity of clothes or human body.
So, be careful of electrostatic breakdown during repair of the optical pickup.

• Handling of optical pickup

1. Do not subject the optical pickup to static electricity as it is extremely sensitive to electrical shock.
2. To prevent the breakdown of the laser diode, an anti-static shorting pin is inserted into the flexible board (FPC board).
When removing or connecting the short pin, finish the job in as short time as possible.
3. Take care not to apply excessive stress to the flexible board (FPC board)
4. Do not turn the variable resistor (laser power adjustment). It has already been adjusted

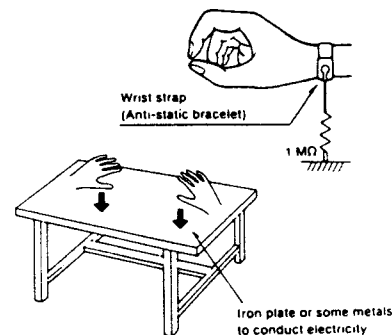


• Grounding for electrostatic breakdown prevention

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.

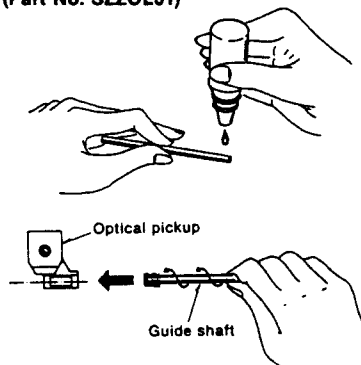


INSTRUCTIONS FOR TRAVERSE OIL (Part No. SZZOL31)

The container contains 6g (approx. 3ml) of oil.
One application (one shaft) uses 0.05ml of oil.

How to Use

- (1) Remove the guide shaft in the traverse deck from the optical pickup and clean off any dust from the guide shaft.
- (2) Apply one drop of the SZZOL31 to the tip of the guide shaft.
- (3) Hold the guide shaft so that its oiled end touches the optical pickup and insert it into the bearing while rotating it slowly.
- (4) After securing the guide shaft, move the optical pickup by hand several times to the left and right to distribute the oil on the guide shaft.



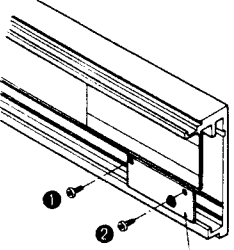
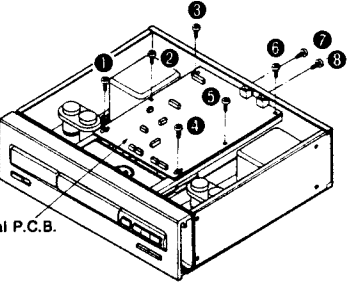
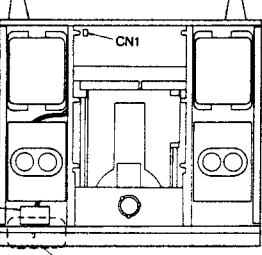
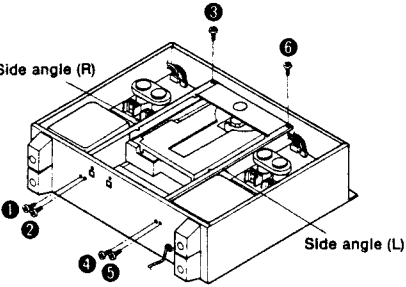
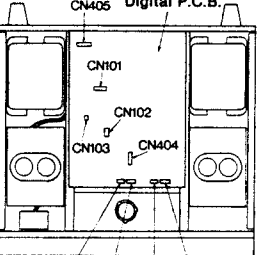
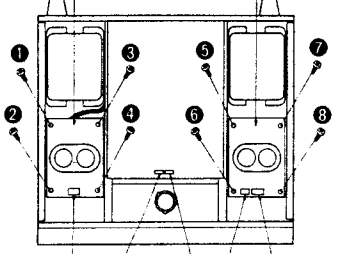
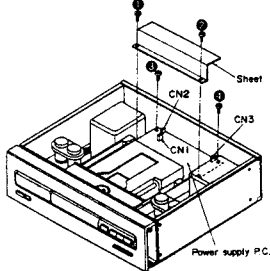
“ATTENTION SERVICER”

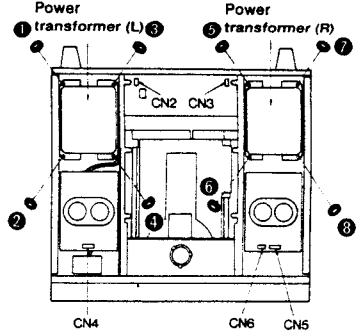
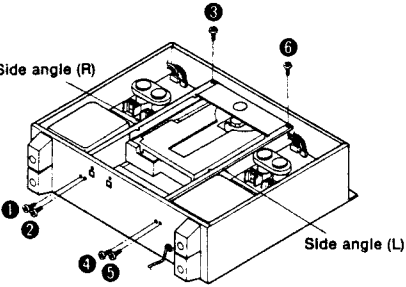
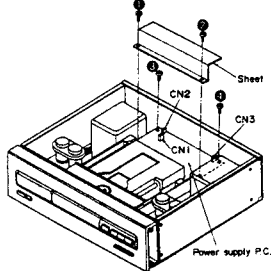
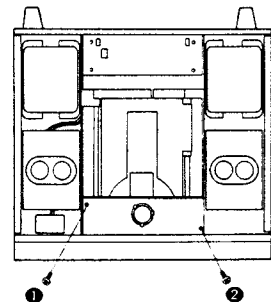
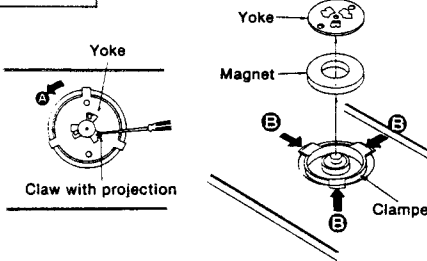
Some chassis components may have sharp edges. Be careful when disassembling and servicing.

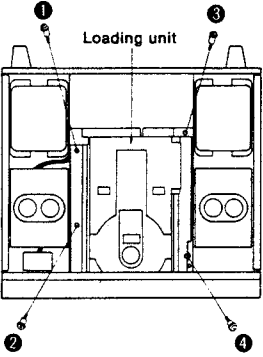
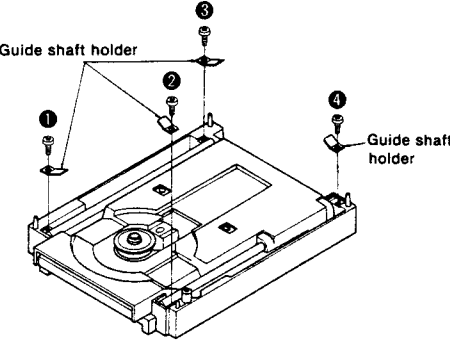
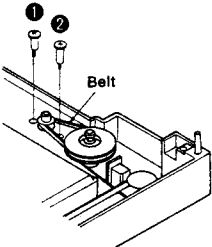
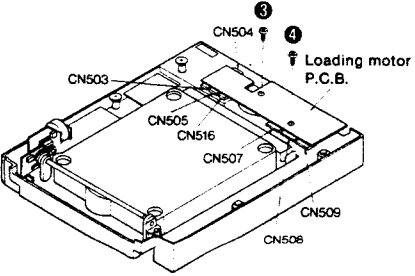
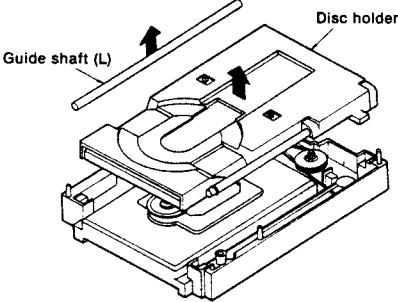
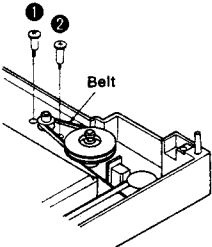
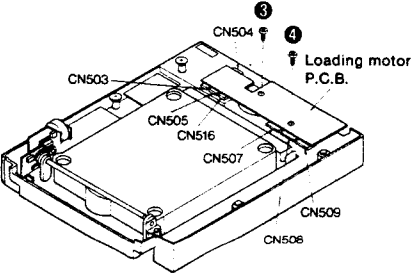
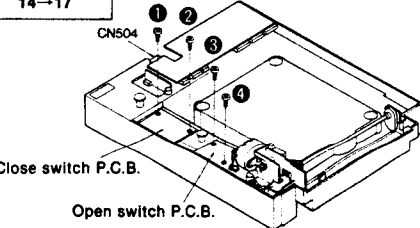
DISASSEMBLY INSTRUCTIONS

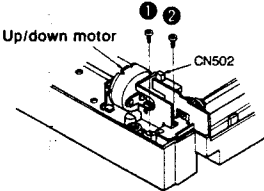
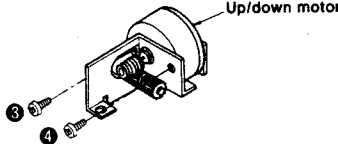
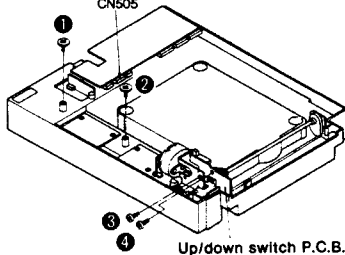
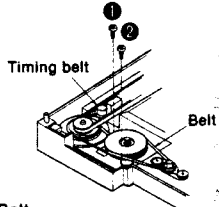
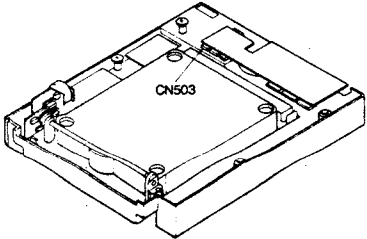
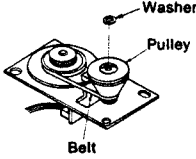
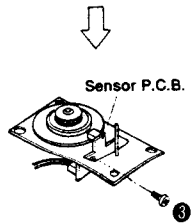
Warning: This product uses a laser diode. Refer to caution statements on page 2.
ACHTUNG: • Die lasereinheit nicht zerlegen.
• Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

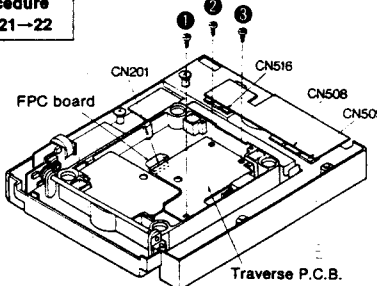
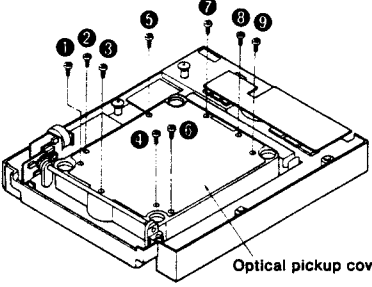
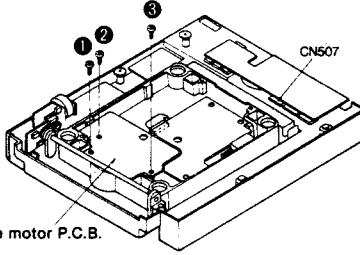
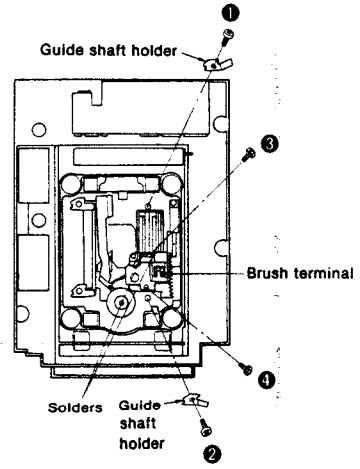
Ref. No. 1	Removal of the cabinet	Ref. No. 2	Removal of the front panel
Procedure 1	<p>Side wood (L)</p> <p>Cabinet</p> <p>Side wood (R)</p> <p>AC OUTLET</p> <p>Power switch button</p> <p>Disc holder</p> <p>Tray ornament</p> <p>Allen wrench (2.5mm)</p> <p>Open/close switch button</p> <p>Screws</p> <p>1. Remove the 8 screws (①~⑧). 2. Remove the cabinet in the direction of the arrow.</p>	Procedure 1→2	<p>1. Set the power switch in the “ON” position. 2. Push the open/close switch button and pull out the disc holder. 3. Remove the 2 screws set of the tray ornament by using allen wrench and remove the tray ornament. 4. Push the open/close button, and shut the disc holder. Then set the power switch in the “OFF” position.</p> <p>Front panel</p> <p>CN402</p> <p>CN401</p> <p>5. Remove the 8 screws (①~⑧). 6. Remove the 2 connectors (CN401, CN402). 7. Remove the front panel in the direction of the arrow.</p>
Ref. No. 3	Removal of the FL P.C.B.		
Procedure 1→2→3	<p>FL P.C.B.</p> <p>• Remove the 4 screws (①~④).</p>		
Ref. No. 4	Removal of the operation P.C.B.		
Procedure 1→2→4	<p>Operation P.C.B.</p> <p>• Remove the 4 screws (①~④).</p>		

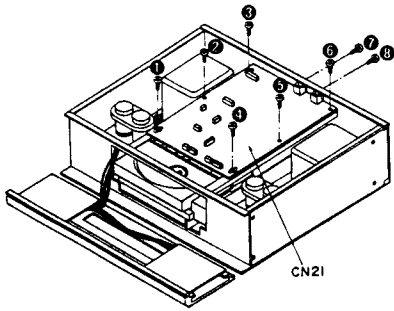
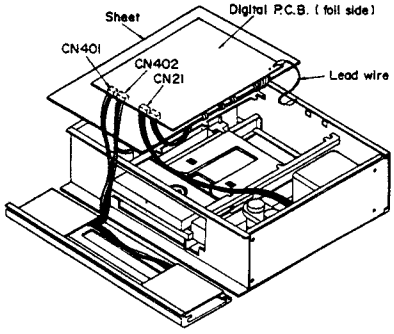
Ref. No. 5	Removal of the remote control sensor P.C.B.	Ref. No. 6	Removal of the digital P.C.B.
Procedure 1→2→3→5	 <p>Remote sensor P.C.B.</p> <p>• Remove the 2 screws (①, ②).</p>	Procedure 1→6	 <p>Digital P.C.B.</p> <p>1. Remove the 8 screws (①~⑧).</p>
Ref. No. 7	Removal of the power switch P.C.B.	Ref. No. 10	Removal of the side angle (L), (R)
Procedure 1→2→6→7	<p>1. Remove the 1 connector (CN1).</p> <p>2. Remove the 2 screws (①, ②).</p>  <p>Power switch P.C.B.</p>  <p>Side angle (R)</p> <p>Side angle (L)</p>	 <p>Digital P.C.B.</p> <p>2. Remove the 9 connectors (CN11, CN21, CN101, CN102, CN103, CN401, CN402, CN404, CN405).</p>	
Ref. No. 8	Removal of the power supply P.C.B. (L), (R)	Ref. No. 11	Removal of the power supply P.C.B.
Procedure 1→8	<p>■ Removal of the power supply P.C.B. (L)</p> <p>1. Remove the 4 screws (①~④).</p> <p>2. Remove the 2 connectors (CN4, CN11).</p> <p>■ Removal of the power supply P.C.B. (R)</p> <p>1. Remove the 4 screws (⑤~⑧).</p> <p>2. Remove the 3 connectors (CN5, CN6, CN21).</p>  <p>Power supply P.C.B. (L) Power supply P.C.B. (R)</p>	Procedure 1→6→10→11	<p>1. Remove the 2 screws (①, ②).</p>  <p>Power supply P.C.B.</p>

Ref. No. 9	Removal of the power transformer (L), (R)	 <p>Power transformer (L)</p> <p>Power transformer (R)</p>	
Procedure 1→6→9	<p>■ Removal of the power transformer (L)</p> <p>1. Remove the 4 nuts (①~④).</p> <p>2. Remove the 2 connectors (CN2, CN4).</p> <p>■ Removal of the power transformer (R)</p> <p>1. Remove the 4 nuts (⑤~⑧).</p> <p>2. Remove the 3 connectors (CN3, CN5, CN6).</p>	Ref. No. 12	Removal of the yoke, magnet and clamper
Ref. No. 10	Removal of the side angle (L), (R)	Ref. No. 11	Removal of the power supply P.C.B.
Procedure 1→6→10	<p>• Remove the 6 screws (①~⑥).</p>  <p>Side angle (R)</p> <p>Side angle (L)</p>	Procedure 1→6→10→11	<p>1. Remove the 2 screws (①, ②).</p> <p>2. Remove the sheet.</p> <p>3. Remove the 2 screws (③, ④).</p> <p>4. Remove the 3 connectors (CN1, CN2, CN3).</p>  <p>Power supply P.C.B.</p>
Ref. No. 12	Removal of the clamp chassis	Ref. No. 13	Removal of the yoke, magnet and clamper
Procedure 1→6→10→12	<p>1. Remove the 2 screws (①, ②).</p> 	Procedure 1→6→10→12→13	 <p>Yoke</p> <p>Magnet</p> <p>Claw with projection</p> <p>Clamper</p>
		<p>1. While lifting the claw with a screwdriver, rotate clamper in the direction of the arrow ② and remove the yoke and magnet.</p> <p>2. Push the claw of the clamper in the direction of the arrow ③ and remove the clamper.</p>	

Ref. No. 14	Ref. No. 15
Removal of the loading unit Procedure 1→2→6→10→12→13→14 • Remove the 4 screws (①~④). 	Removal of the disc holder Procedure 14→15  1. Remove the 4 screws (①~④). 2. Remove the 4 guide shaft holders.
Ref. No. 16	Ref. No. 17
Removal of the loading motor P.C.B. Procedure 14→16  1. Remove the belt. 2. Remove the 2 screws (①, ②).  3. Remove the 7 connectors (CN503, CN504, CN505, CN507, CN508, CN509, CN516). 4. Remove the 2 screws (③, ④).	Removal of the disc holder  3. Remove the guide shaft (L). 4. Remove the disc holder in the direction of the arrow.
Removal of the loading motor P.C.B. Procedure 14→16  1. Remove the belt. 2. Remove the 2 screws (①, ②).  3. Remove the 7 connectors (CN503, CN504, CN505, CN507, CN508, CN509, CN516). 4. Remove the 2 screws (③, ④).	Removal of the open switch P.C.B. and close switch P.C.B. Procedure 14→17  1. Remove the 4 screws (①~④). 2. Remove the 1 connector (CN504).

Ref. No. 18	Ref. No. 19
Removal of the up/down motor Procedure 14→18 1. Remove the 2 screws (①, ②). 2. Remove the 1 connector (CN502).  3. Remove the 2 screws (③, ④). 	Removal of the up/down switch P.C.B. Procedure 14→18→19  1. Remove the 4 screws (①~④). 2. Remove the 1 connector (CN505).
Ref. No. 20	Ref. No. 20
Removal of the sensor P.C.B. Procedure 14→20  1. Remove the Belt. 2. Remove the 2 screws (①, ②). 3. Remove the timing belt.  4. Remove the 1 connector (CN503).	5. First remove the washer and next, remove the pulley and belt. 6. Remove the 1 screw (⑤).  

Ref. No. 21	Removal of the optical pickup cover	Ref. No. 22	Removal of the traverse P.C.B.
Procedure 14→21	1. Remove the 9 screws (①~⑨).	Procedure 14→21→22	
 <p>Optical pickup cover</p>		<ol style="list-style-type: none"> 1. Remove the 3 screws (①~③). 2. Remove the 3 connectors (CN508, CN509, CN516). 3. Remove the FPC board (CN201). <p>Caution: To prevent the breakdown of the laser diode, antistatic shorting pin is inserted into the FPC board.</p>	
Ref. No. 23	Removal of the spindle motor P.C.B.		
Procedure 14→21→23	1. Remove the 3 screws (①~③). 2. Remove the 1 connector (CN507).	 <p>Spindle motor P.C.B.</p>	
<ol style="list-style-type: none"> 1. Remove the 2 screws (①, ②). 2. Remove the guide shaft holders. 3. Unsolder the 2 terminals and the 2 screws (③, ④). <p>Cautions:</p> <ul style="list-style-type: none"> • Refer to the handling precautions for optical pickup and instructions for traverse oil (See page 8). • Take care not to touch the brush terminal. 			
Ref. No. 24	Removal of the optical pickup		
Procedure 14→21→23→24			

Ref. No. 25	How to check the digital P.C.B.		
Procedure 1→2→25			<ol style="list-style-type: none"> 1. Remove the 8 screws (①~⑧). 2. Remove the front panel (See page 9). 3. Pull the front panel down at a 90 degree angle as shown in the figure above. 4. Remove CN21, CN401 and CN402 and turn over the P.C.B. 5. Attach CN21. 6. Pull the lead wires of CN401 and CN402 out of the unit and have them loosen enough. <ol style="list-style-type: none"> 7. Attach CN401 and CN402. 8. When checking the soldered surface and replacing the parts, do as shown. 9. Be sure to re-arrange the lead wires of CN401 and CN402 properly after finishing check. <p>Note: Connect the main P.C.B. ground terminal to the chassis with a lead wire.</p>

BEFORE REPAIR

This unit contains no audio circuitry (D/A converter, digital filter). Servicing or checking the unit requires a digital processor or amplifier equipped with an optical CD jack (e.g. SH-X1000, SU-MA10, SU-V90D, SU-V100D).

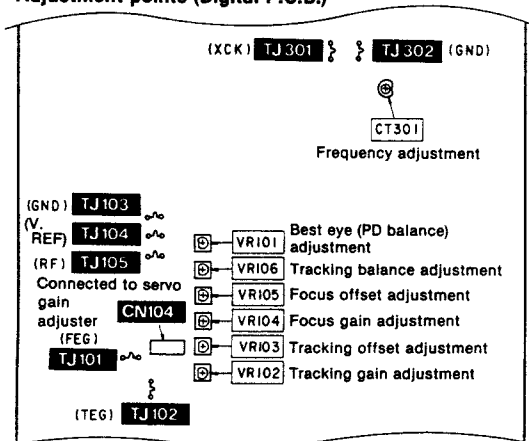
MEASUREMENTS AND ADJUSTMENTS

Warning: This product uses a laser diode. Refer to caution statements on page 2.

ACHTUNG: • Die Lasereinheit nicht zerlegen.
• Die Lasereinheit darf nur gegen eine vom Hersteller spezifizierte Einheit ausgetauscht werden.

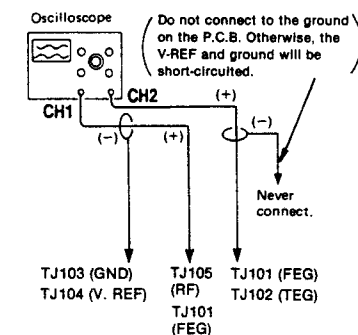
Caution: During adjustment, never connect CH-2 probe's GND to any place for it may short Vref line. (Connect CH-1 probe's GND to specified TP, described in each section.)

Adjustment points (Digital P.C.B.)

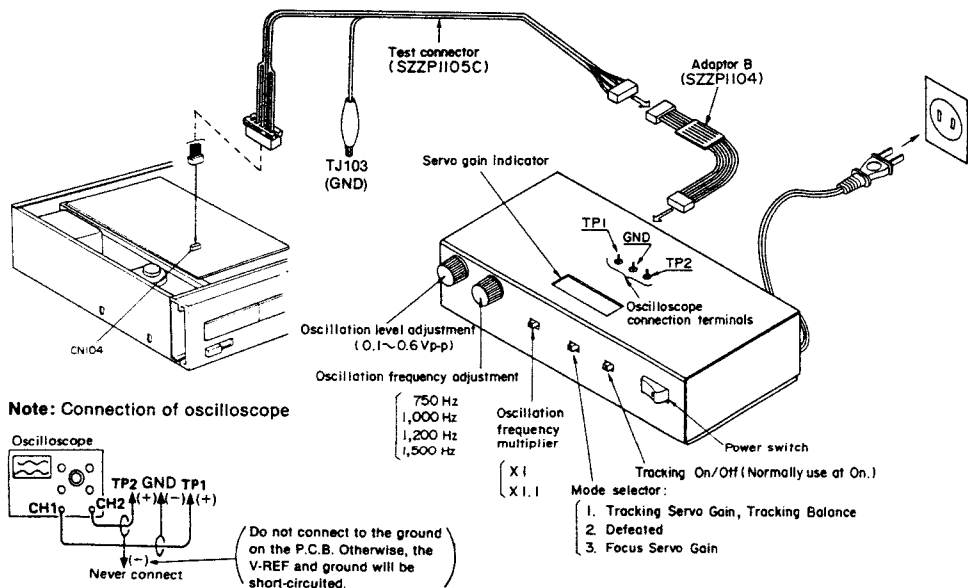


Connection of oscilloscope

(For best eye, focus offset, tracking offset, tracking balance, turntable height and mechanical adjustments.)



Connection of servo gain adjuster (For tracking gain, focus gain and tracking balance adjustments.)



Measuring Instruments and Special Tools

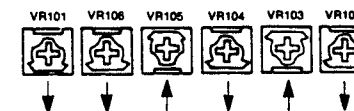
- * Servo gain adjuster (SZZP1094C-1)
 - Test connector (SZZP1105C)
 - Adaptor B (SZZP1104)
- * Test discs
 1. Playability test disc (SZZP1054C)
 2. Uneven test disc (SZZP1056C)
 3. Black band test disc (SZZP1057C)
- * Normal disc
- * Dual-beam oscilloscope with bandwidth of 30 MHz or better (with EXT trigger and 1 : 1 probe).
- * Audio frequency (AF) oscillator
- * Conversion connector (SZZP1032F)
- * Allen wrench (M2.0) (SZZP1101C)
- * Allen wrench (M1.27 or M1.25)
- * 0.9mm clearance gauge (RZZ0297)
- * Filter
- * Frequency counter

Perform adjustments depend on the part to be replaced according to followings:

- (1) Spindle motor Items (1), (3) to (8)
- (2) Turntable Items (1), (3), to (8)
- (3) Optical pickup Items (2) to (8)

Temporary setting of each VR

Temporary VR setting if any of the trimmer VRs are replaced or require readjustment, temporarily set them to the following positions:

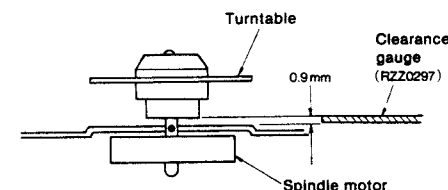


Adjusting Procedure

* If you have replaced the optical pickup, spindle motor, or turntable, do the following adjustment:

(1) TURNTABLE HEIGHT ADJUSTMENT

1. Insert the 0.9 mm clearance gauge (RZZ0297) between the turntable and the loading base (see the figure at right).
2. Tighten the turntable retention screw with the 1.27 mm allen wrench.
3. Connect the oscilloscope's CH. 1 probe across TJ101 (FEG) (+) and TJ104 (V. REF) (-) terminal via a filter. (Note: A voltage of 2.5V appears at the V. REF terminal. Take care not to short the player's chassis to the oscilloscope ground.)



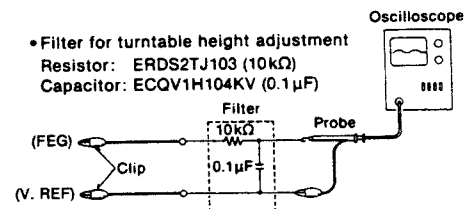
Note 2. If the measured amplitude greatly surpasses or falls short of the range above, set VR105 at or around the center, then try to adjust the height again. (Then be sure to adjust the focus offset as well.)

Oscilloscope setting: VOLT 50 mV
SWEEP 1 ms.
Input coupling ... DC

4. Adjust oscilloscope's DC zero balance.
5. Switch the player power ON, and play the test disc (SZZP1054C).
6. Measure the voltage amplitude of the signal on the oscilloscope.

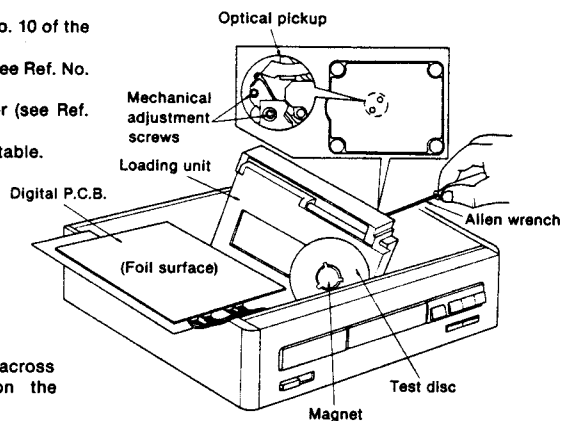
Note 1. If the measured amplitude is within a range of +/- 15 mV, the turntable height is correct. If it is outside this range, adjust the turntable height by using the clearance gauge as a pry.

If the amplitude exceeds +15 mV, lower turntable.
If the amplitude is below -15 mV, elevate the turntable.



(2) MECHANICAL ADJUSTMENT**PREPARATION**

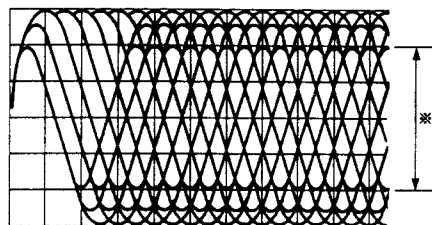
- Remove the cabinet (see Ref. No. 1 of the dis-assembly instructions).
- Remove the digital P.C.B. (see Ref. No. 6 of the same).
- Remove the side angle (L), (R) (see Ref. No. 10 of the same).
- Remove the clamp chassis and magnet (see Ref. No. 12, 13 of the same).
- Remove the loading unit and disc holder (see Ref. No. 14, 15 of the same).
- Set the test disc and magnet on the turntable.



- Connect the oscilloscope's CH. 1 probe across **TJ105** (RF) (+) and **TJ103** (GND) (-) on the digital P.C.B.

Oscilloscope setting: VOLT100mV
SWEEP0.5 μ s.
Input coupling.....AC

- Switch the player power ON, and play track 9 on the test disc (SZZP1056C). (Playing any other track may yield a false adjustment.)
- Leave the player in Play mode, and place it as shown in the figure on the right.
- Alternately adjust the two mechanical adjusting screws with the 2.0mm allen wrench (SZZP1101C) until the vertical fluctuation of RF signal is minimized and the eye pattern is most stretched.
- After completing the adjustment, lock the mechanical adjustment screws with lock paint (RZZOL01).



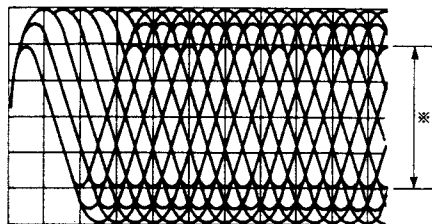
※ Most stretched eye pattern.

(3) BEST EYE (PD BALANCE) ADJUSTMENT

- Connect the oscilloscope's CH. 1 probe across **TJ105** (RF) (+) and **TJ103** (GND) (-) on the digital P.C.B.

Oscilloscope setting: VOLT100mV
SWEEP0.5 μ s.
Input coupling.....AC

- Switch the player power ON, and play the 1kHz (track 1) on the test disc (SZZP1054C).
- Adjust **VR101** until the vertical fluctuation of RF signal is minimized and the eye pattern is most stretched.



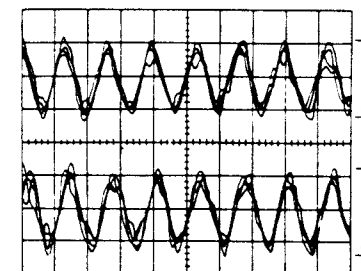
※ Most stretched eye pattern.

(4) FOCUS GAIN ADJUSTMENT

- Set the "FREQUENCY" dial of the servo gain adjuster's to "750" the "RANGE" selector to "x1" and the "OSC LEVEL" control to "0.3" (750 Hz, 300mVp-p).
- Set the "MODE SELECTOR" to position "2," and the "TRACKING ON/OFF" switch to "ON."
- Play track 1 (1kHz) on the test disc (SZZP1054C).
- Change the "MODE SELECTOR" switch setting from position "2" to "3."
- Adjust **VR104** until the green "SERVO GAIN" indicator LED comes on to indicate "GOOD."
- Set the "MODE SELECTOR" switch from position "3" back to "2."

Note: With the new version of the servo gain adjuster, connect TP1, TP2, and TP3 to an oscilloscope, and you will be able to perform all adjustments while monitoring the waveforms on the oscilloscope screen. Adjust **VR104** until the signal amplitude on one channel becomes identical to that on the other, as shown at right. This adjustment procedure also applies to the former version of the servo gain adjuster.

Oscilloscope setting: VOLT100mV
(both channels)
SWEEP1ms.
Input coupling.....AC

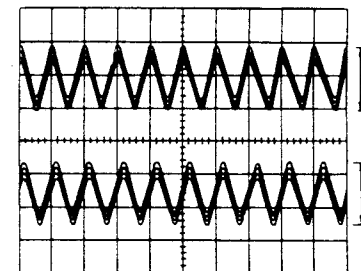


※ Adjust **VR104** until a equals b.

(5) TRACKING GAIN ADJUSTMENT

- Set the "FREQUENCY" dial of the servo gain adjuster's to "1,000" the "RANGE" selector to "x1" and the "OSC LEVEL" control to "0.3" (1kHz, 300mVp-p).
- Play track 1 (1kHz) on the test disc (SZZP1054C).
- Set the "MODE SELECTOR" switch from position "2" to "1."
- Adjust **VR102** until the green "SERVO GAIN" indicator LED comes on to indicate "GOOD."
- Set the "MODE SELECTOR" switch from position "1" back to "2."

Note: When using an oscilloscope for this adjustment, follow the procedure given in the "Note" in (4), "Adjusting Focus Gain" above.



※ Adjust **VR102** until a equals b.

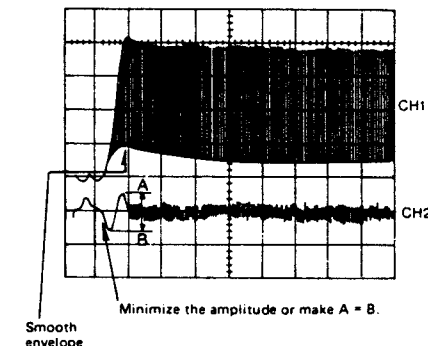
(6) FOCUS OFFSET ADJUSTMENT

Note: Set the "MODE SELECTOR" switch of the Servo Gain Adjuster to position "2."

- Connect the oscilloscope's CH. 1 probe across **TJ105** (RF) (+) and **TJ103** (GND) (-) on the digital P.C.B. and its CH. 2 probe (+) to **TJ101** (FEG) (+).

Oscilloscope setting: VOLT 200mV (CH. 1)
100mV (CH. 2)
SWEEP 0.2ms.
Input coupling... AC (both CH. 1 and 2)
Trigger mode... NORM (trigger CH. 1.)

- Switch the player power ON, and play track 9 on the test disc (SZZP1057C).
- Trigger the oscilloscope's CH. 1 so that the following waveforms are observed. Adjust **VR105** until the dip in the RF signal envelope on CH. 1 is smooth and the signal amplitude on CH. 2 is minimized, i.e. when amplitude A equals amplitude B.



Smooth envelope

Minimize the amplitude or make A = B.

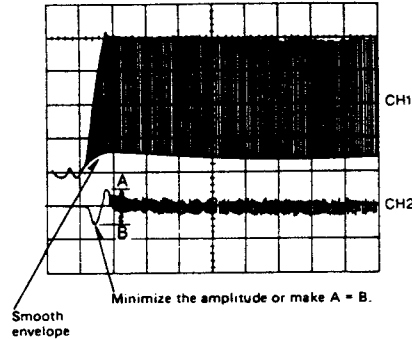
(7) TRACKING OFFSET ADJUSTMENT

Note: Set the "MODE SELECTOR" switch of the Servo Gain Adjuster to position "2."

1. Connect the oscilloscope's CH. 1 probe across **TJ105** (RF) (+) and **TJ103** (GND) (-) on the digital P.C.B., and its CH. 2 probe (+) to **TJ102** (TEG) (+).

Oscilloscope setting: VOLT.....200mV (CH. 1)
 100mV (CH. 2)
 SWEEP.....0.2 ms.
 Input coupling... AC (both CH. 1 and 2)
 Trigger mode... NORM (trigger CH. 1.)

2. Switch the player power ON, and play track 9 on the test disc (SZZP1057C).
3. Trigger the oscilloscope's CH. 1 so that the following waveforms are observed. Adjust VR103 until the dip in the RF signal envelope on CH. 1 is smooth and the signal amplitude on CH. 2 is minimized, i.e. when amplitude A equals amplitude B.

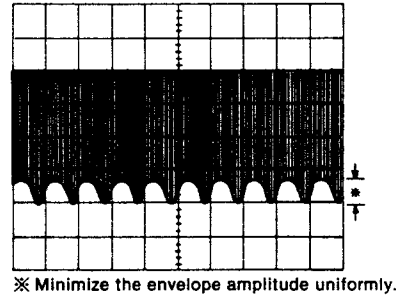


(8) TRACKING BALANCE ADJUSTMENT

1. Set the "FREQUENCY" dial of the servo gain adjuster's to "1,000" the "RANGE" selector to "x1" and the "OSC LEVEL" control to "0.6" (1kHz, 600mVp-p).
2. Connect the hot lead of the oscilloscope's CH. 1 probe to **TJ105** (RF) and the cold lead to **TJ103** (GND).
- * Connect the hot lead of the oscilloscope's CH. 2 probe to TP1 on the servo gain adjuster.

Oscilloscope setting: VOLT.....100mV (CH. 1)
 200mV (CH. 2)
 SWEEP.....0.1ms.
 Input coupling.....AC (both CH. 1 and CH. 2)
 Trigger mode.....NORM (trigger CH. 2)

3. Play track 1 (1kHz) on the test disc (SZZP1054C).
4. Set the "MODE SELECTOR" switch of the servo gain adjuster to position "1."
5. The waveform as shown at right will appear on the oscilloscope. Adjust VR106 until the envelope amplitude indicated by the asterisk is minimized uniformly.



(9) FREQUENCY ADJUSTMENT

1. Connect the frequency counter to **TJ302** (GND), **TJ301** (XCK).
2. Adjust CT301 for 16.9344 MHz ± 10Hz on frequency counter reading.

(10) 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).

*** Checking Using Defect 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.
2. Play the middle tracks of the uneven test disc and verify that no sound skip or noise occurs.

■ TERMINAL FUNCTION OF IC'S

• IC101 (AN8373S): Servo amp.

Pin No.	Mark	I/O Division	Function
1	AMP1	I	RF signal input (X30 amp.) (Not used, connected to GND)
2	PDAD	I	Photo detector current input (A2) (Not used, open)
3	PDA	I	Photo detector current input (A1)
4	PDBD	I	Photo detector current input (A4) (Not used, open)
5	PDB	I	Photo detector current input (A3)
6	LPD	I	Non-inverting laser power input
7	LD	O	Laser power auto control output
8	FBL1	I	PD balance adjustment
9	FBL2	I	
10	TBL1	I	Tracking balance adjustment
11	TBL2	I	
12	FOOFS	I	Focus offset adjustment
13	IVA	O	Current/voltage conversion output (A)
14	IVB	O	Current/voltage conversion output (B)
15	FE	O	Focus gain adjustment output
16	FPI	I	Focus error signal input
17	TP1	I	Tracking error signal input
18	C. CPL	I	Tracking error filter capacitor input
19	C. TPH		
20	C. FPL	I	Focus error filter capacitor input
21	C. FPH		
22	TPO	O	Tracking error signal output

Pin No.	Mark	I/O Division	Function
23	FPO	O	Focus error signal output
24	FGC	I	Focus gain up signal input (Not used, connected to GND)
25	TGC	I	Tracking gain up signal input (Not used, connected to GND)
26	GD	I	Focus/tracking gain down signal input (Not used, connected to GND)
27	PTO	O	Position detecting amp. output
28	PTI	I	Position detecting amp. input
29	PBO	O	Position detecting buffer output
30	POT	I	Position detecting buffer input
31	BDO	O	Dropout detection output
32	RFDET	O	RF detection signal output
33	SDO	O	Dropout detection pulse output
34	C. SBDO	I	Dropout detecting capacitor input
35	ARF	O	RF signal output
36	C. AGC	I	AGC detecting capacitor input
37	VCC	I	Power supply
38	LDON	I	Laser power control input
39	RF IN	I	RF signal input
40	AMPO	O	RF signal output (Not used, open)
41	VREF	O	Reference voltage output
42	GND	—	Ground terminal

• IC102 (AN8374S): Servo processor

Pin No.	Mark	I/O Division	Function
1	LSA	I	Phase difference input (A)
2	LSB	I	Phase difference input (B)
3	TEOFS	I	Tracking offset adjustment
4	TE	O	Tracking gain adjustment
5	TEG	I	
6	TE OUT	O	Tracking error signal output
7	TE BPF	I	Tracking error gain detecting filter (Not used, open)
8	FEG	I	Focus gain adjustment
9	FE OUT	O	Focus error signal output
10	CLW	O	Triangular wave oscillator capacitor input
11	VREF	I	Reference voltage input
12	ARF	I	RF signal input
13	CDSL	I	Data slice filter capacitor input
14	FPC	I	Frequency difference signal input
15	GND	I	Ground terminal
16	C. PLL	I	PLL loop filter constant
17	VSS	I	Ground terminal
18	CLK	I	Frequency pull-in clock signal (88.2kHz) input
19	SRF	O	Sliced and digitized RF signal output
20	PCK	O	Clock output extracted from SRF
21	EFM	O	EFM signal output synchronous with PCK
22	VDD	I	Power supply terminal

• IC103 (AN8377N): BTL drive

Pin No.	Mark	I/O Division	Function
1	PVCC	I	Driver power supply terminal
2	VCC	I	Power supply terminal
3	TB	O	External transistor base driving output
4	VMON	O	Voltage output (Not used, open)
5	TVDI	I	Traverse error signal input
6	FDI	I	Focus error signal input
7	TDI	I	Tracking error signal input
8	VREF	I	Reference voltage input
9	TD-	O	Inverting output of tracking driver

Pin No.	Mark	I/O Division	Function
23	SPCNT	O	Track crossing speed control output (Not used, open)
24	SENSE	O	Selector output (track crossing state)
25	TRV	O	Traverse servo control output
26	FLOCK	O	Focus lock signal output
27	KICK	O	Track kick signal output
28	LDON	O	Laser power control output
29	VDET	O	Focus/tracking gain up output (Not used, open)
30	CNT1	I	Control input (FOON: Focus servo ON signal)
31	CNT2	I	Control input (TRON: Tracking servo ON signal)
32	CNT3	I	Control input (KICKF: Kick direction (forward) command)
33	CNT4	I	Control input (KICKR: Kick direction (reverse) command)
34	TRVF	I	Traverse forward command signal
35	TRVR	I	Traverse backward command signal
36	RFDET	I	RF detection signal input
37	BDO	I	Dropout detection input
38	VCC	I	Power supply terminal
39	TVPO	O	Traverse position detecting resistor/capacitor inputs
40	TVPI	I	
41	BROUT	O	Tracking drive control output
42	BRIN	I	Tracking error signal input

Pin No.	Mark	I/O Division	Function
10	TD+	O	Non-inverting output of tracking driver
11	FD-	O	Inverting output of focus driver
12	FD+	O	Non-inverting output of focus driver
13	TVD-	O	Inverting output of traverse driver
14	TVD+	O	Non-inverting output of traverse driver
15	RESET	O	Reset signal output (Not used, open)
16	PC	I	PC Input (connect to GND)

• IC301 (MN6622): Digital signal processor

Pin No.	Mark	I/O Division	Function
1	MEMP	I	Emphasis signal input
2	PC	O	Spindle motor "ON" signal (ON at "L")
3	EC	O	Spindle motor drive signal
4	FG	I	Not used, open
5	TTF	I	Spindle motor free run (Not used, connected to GND)
6	FLAG0	O	Not used, open
7	IPFLAG	O	Not used, open
8	FLAG6	O	Not used, open
9	PCK	I	PLL extract clock input (4.2336 MHz)
10	VDD	I	Power supply terminal
11	EFM	I	EFM signal input (PLL)
12	SRF	I	EFM signal input (DSL)
13	DO	I	Drop-out signal ("H" at drop-out)
14	CLVS	O	Not used, open
15	FPC	O	PLL frequency comparison signal
16	BSEL	O	Not connected
17	RIN	I	Remote control signal input (Not used, connected to power supply)
18	FSL	I	Not used (connected to GND)
19	SLEEP	I	Not used (connected to GND)
20	SUBC	O	Sub code series output
21	SBCK	I	Sub code shift clock input
22	BLKCK	O	Sub-code block (Q-data) clock (75Hz)
23	CLDCK	O	Sub-code frame (Q-data) clock (7.35kHz)
24	SUBQ	O	Sub-code (Q-data) output
25	CRC	O	Not used, open
26	RST	I	Reset signal input ("L" = Reset)
27	MLD	I	Data input (command load)
28	MCLK	I	Data clock input (command clock)
29	MDATA	I	Data input (command data)
30	DMUTE	I	Muting control input
31	TRON	I	Tracking servo "ON" signal (ON at "L")
32	STAT	O	Processing condition (CRC, OTC, CLVOK, TT, STOP) output

Pin No.	Mark	I/O Division	Function
33	TX	O	Digital output signal (Not used, open)
34	TSTR	I	Not used, connected to power supply
35	TEST	I	Not used, connected to power supply
36	VSS	I	GND terminal
37	X2	O	Clock output (16.9344 MHz)
38	X1	I	Clock input (16.9344 MHz)
39	SEL	I	Not used, connected to GND
40	LDG/WDCKS	O	Lch deglitch signal/word clock for serial DAC
41	RDG	O	Not used, open
42	DEMPH	O	Not used, open
43	SMCK	O	Clock output (4.2336 MHz)
44	WS	O	Not used, open
45	SRCK	O	Not used, open
46	XCK	O	Clock output
47	DA15/SRDATA	O	DA parallel output (MSB/serial data output (MSB FIRST))
48	DA14/SRDATA	O	Not used, open
49	DA13/SCK	O	DA parallel output/serial data output bit clock
50	DA12/WDCK	O	Not used, open
51	DA11/BYTCK	O	Not used, open
52	VSS	I	GND terminal
53	DA10/R/L	O	DA parallel output/R/L signal (R at "H")
54	DA9	O	Not used, open
56	DA7		
57	DA6	O	Not used (connected to GND)
58	DA5	O	Not used, open
63	DA0		
64	D7	I/O	16K RAM DATA
71	D0		
72	RAMOE	O	16K RAM OE signal
73	RAMWE	O	16K RAM WE signal
74	RAMA0	O	16K RAM address
84	RAMA10		

• IC303 (YM3615): Digital attenuator

Pin No.	Mark	I/O Division	Function	Pin No.	Mark	I/O Division	Function
1	VSS	—	GND terminal	8	VDD	I	Power supply terminal
2	M0	I	Mode select terminal L: 2 DAC, H: 1 DAC	9	UP	I	Digital volume up clock input
3	M1	I	Mode select terminal L: floating output, H: fixed	10	DOWN	I	Digital volume down clock input
4	BCI	I	Digital signal bit clock	11	DR0	O	Rch data output at 2 DAC (Not used, open)
5	WCI	I	Digital signal word clock	12 15	AD1 AD4	O	Signal output for floating (Not used, open)
6	DLI	I	Data signal input	16	DL0	O	Lch, Rch Data output
7	DRI	I	Data signal L: floating operation, on H: floating operation, off				

• IC304 (CXD1075P): Digital audio interface

Pin No.	Mark	I/O Division	Function	Pin No.	Mark	I/O Division	Function
1	BCK	I	Bit clock input	15	TX	O	Transmission data output
2	DATA	I	Data signal input	16	C9	I	Category code preset input (Not used, connected power supply)
3	LRCK	I	L/R distinction clock	17	TEST	I	Test mode select input (Ordinal: L)
4	VRDTY	I	Validity flag input	18	RESET	I	Reset signal input
5	C10	—	Category code preset input (Not used, connected to GND)	19	CBSL	I	Serial/parallel select input (Not used, connected to power supply)
6	CRCF	I	Data cycle signal	20	D7	I	Emphasis information preset input
7	VSS	—	GND terminal	21	VDD	I	Power supply terminal
8	CKSL	I	Reference clock select input (Not used, connected to power supply)	22	D6	I	Copy prohibit information preset input
9	LSFT	I	LSB/MSB first select input (Not used, connected to power supply)	23	D5	I	Internal resistor preset input
10	XILR	I	LRCK select input (Not used, connected to power supply)	24	D4	—	(Not used, connected GND)
11	INVB	—	(Not used, connected to GND)	25	D3	I	Sub-code block (Q code) clock (75Hz)
12	192FS	I	192fs (8.4672MHz) signal output (Not used, open)	26	D2	I	Sub-code frame (Q code) clock (7.35kHz)
13	XTAL	O	Crystal oscillator terminal (Not used, open)	27	D1	I	Sub-code series output
14	EXTAL	I	Clock (16.9344 MHz) input	28	EXCK	O	Sub-code shift clock output

• IC401 (MN1554PJY): System control

Pin No.	Mark	I/O Division	Function	Pin No.	Mark	I/O Division	Function
1	MCLK	O	Data clock output (Command clock signal)	31	FG ON	—	(Not used, connected to GND)
2	MLD	O	Data clock output (Command clock signal)	32	STAT	I	Processing status input from signal processing LSI
3	SYNC	O	(Not used, open)	33	SPFG	I	Spindle motor FG signal input
4	SIRQ	I	(Not used, connected to power supply)	34	LOFG	I	Loading motor FG signal input
5	IRQ	I	Sub-code block (Q code) clock input (75Hz)	35	CLOSE M SW	I	Disc holder "Close" detection
6	SBT	I	Sub-code frame (Q code) clock input (7.35kHz)	36	OPEN M SW	I	Disc holder "Open" detection
7	SBO	I	(Not used, open)	37	CLOSE SW	I	Disc holder "Close" detection
8	SBI	I	Sub-code (Q code) input	38	OPEN SW	I	Disc holder "Open" detection
9	RST	I	Reset signal input	39	UP SW	I	Traverse unit up detection
10	RECV	I	Data receipt command signal	40	DOWN SW	I	Traverse unit down detection
11	SEND	I	Data transmission command signal	41	PLUNG	O	Traverse clock cancel control
12	ACK	I	Data discrimination signal	42	CW/CCW	O	Motor drive control signal input
13	CLK	I	Data lock signal	43	UP/DOWN	O	Motor drive control signal output (Up/Down)
14 17	D0 D3	I	Key scan signal	44	OPEN/CLOSE	O	Motor drive control signal output (Loading motor)
18 19	P40 P41	—	(Not used, open)	45 48	D0 D3	O	Motor drive control signal output
20	TRV-R	O	Traverse "Reverse" command signal	49	UP	O	Digital volume up clock output
21	TRV-F	O	Traverse "Forward" command signal	50	DOWN	O	Digital volume down clock output
22	CNT4	O	Optical servo IC control signal (KICK R: Kick direction [reverse] command)	51 52	PB2 PB3	—	(Not used, open)
23	CNT3	O	Optical servo IC control signal (KICK F: Kick direction [forward] command)	53	OSC2	I	Clock input terminal (4.2336 MHz)
24	CNT2	O	Optical servo IC control signal (TRON: Tracking servo)	54	OSC1	I	Optical servo condition input
25	VDD	I	Power supply terminal	55	XI	I	Optical servo condition input
26 27	PC0 PC1	—	(Not used, open)	56	XO	O	(Not used, open)
28	CNT1	O	Optical servo IC control signal (FOON: Focus servo)	57	VSS	—	GND terminal
29	FLOCK	I	Optical servo condition (focus) input	58	MEMP	O	Emphasis signal output
30	SENSE	I	Optical servo condition (track cross) input	59	COPY	O	Copy prohibit information preset output
				60	A/D	O	Internal resistor preset output
				61 62	MUTE2 D. OUT	—	(Not used, open)
				63	D MUTE	O	Muting control
				64	MDATA	O	Command data output

• IC601 (MB88724BPJX1): FL drive & timing signal generator

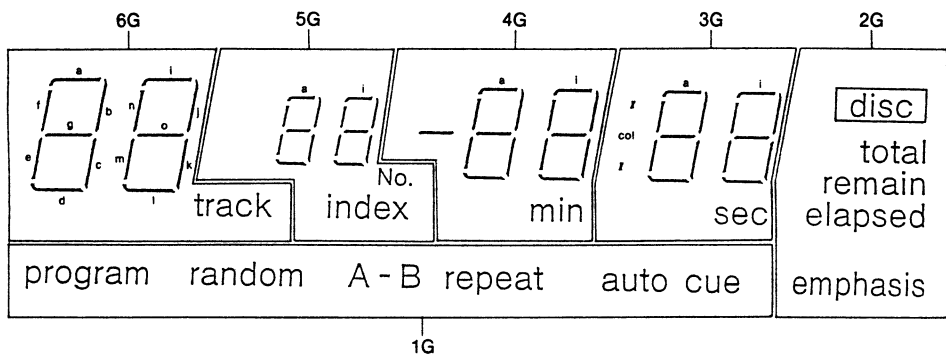
Pin No.	Mark	I/O Division	Function	Pin No.	Mark	I/O Division	Function
1	C0	O	FL grid signal	32	VSS	—	GND terminal
2	C1			33	X	O	Clock terminal (4.2336MHz)
3	C2			34	EX	I	Not used, connected to power supply
4	C3			35	SE	I	
5	C4			36	WD	—	GND terminal
6	C5			37	XL	O	(Not used, open)
7	C6			38	EXL	I	(Not used, connected to power supply)
8	C7			39	P60		
9	C8			40	P61	I	Key return signal
10	C9			41	P62		
11	C10			42	P63		
12	C11			43	P70		
13	C12	O	LED drive (POWER)	44	P71		
14	C13	O	LED drive (PLAY)	45	P72		
15	C14	O	LED drive (PAUSE)	46	P73	I	FL drive power supply terminal
16	C15	O	LED drive (OPEN/CLOSE)	47	VF		
17	P00	O	Key scan signal	48	S0	O	FL anode signal
18	P01	O	Data discrimination signal	49	S1		
19	P02	O	Data lock signal	50	S2		
20	P03	O	Key scan signal	51	S3		
21	P10			52	S4		
22	P11			53	S5		
23	P12			54	S6		
24	P13	I	Remote control signal input	55	S7		
25	P40	I	(Not used, connected to power supply)	56	S8		
26	P41	O	Data receipt command signal (Not used connected to power supply)	57	S9		
27	P42	O	Data transmission command signal (Not used, connected to power supply)	58	S10		
28	P43	O	(Not used, connected to power supply)	59	S11		
29	P50	I	(Not used, connected to power supply)	60	S12		
30	P51	I	(Not used, connected to power supply)	61	S13		
31	RES	I	Reset signal input (reset at "L")	62	S14		
				63	S15	I	Power supply terminal
				64	VCC		

• IC801 (AN3821K): Spindle motor drive

Pin No.	Mark	I/O Division	Function	Pin No.	Mark	I/O Division	Function
1	A3	O	Drive signal output	12	ER	O	Turn direction output (Not used, open)
2	ATC	O	All output current	13	VCC	I	Power supply terminal
3	A2	O	Drive signal output	14	VH+	O	Hole element power supply
4	GB	I	Generation brake input (Not used, open)	15	ECR	I	Reference voltage input
5	H3-	I	Hole element voltage input (inversion)	16	EC	I	Torque command input
6	H3+	I	Hole element voltage input (normal)	17	RCC	I	Ripple cancel control input (Not used, open)
7	H2-	I	Hole element voltage input (inversion)	18	PCV	I	Voltage return phase compensation terminal
8	H2+	I	Hole element voltage input (normal)	19	TL	I	Torque limit terminal (Not used, open)
9	H1-	I	Hole element voltage input (inversion)	20	CS	O	Current detection terminal
10	H1+	I	Hole element voltage input (normal)	21	GND	—	GND terminal
11	E/S	I	Turn direction command input	22	PCT	I	Current return phase compensation
				23	A1	O	Drive signal output
				24	VM	I	Power supply terminal

INTERNAL CONNECTION OF FL

Grid connection diagram

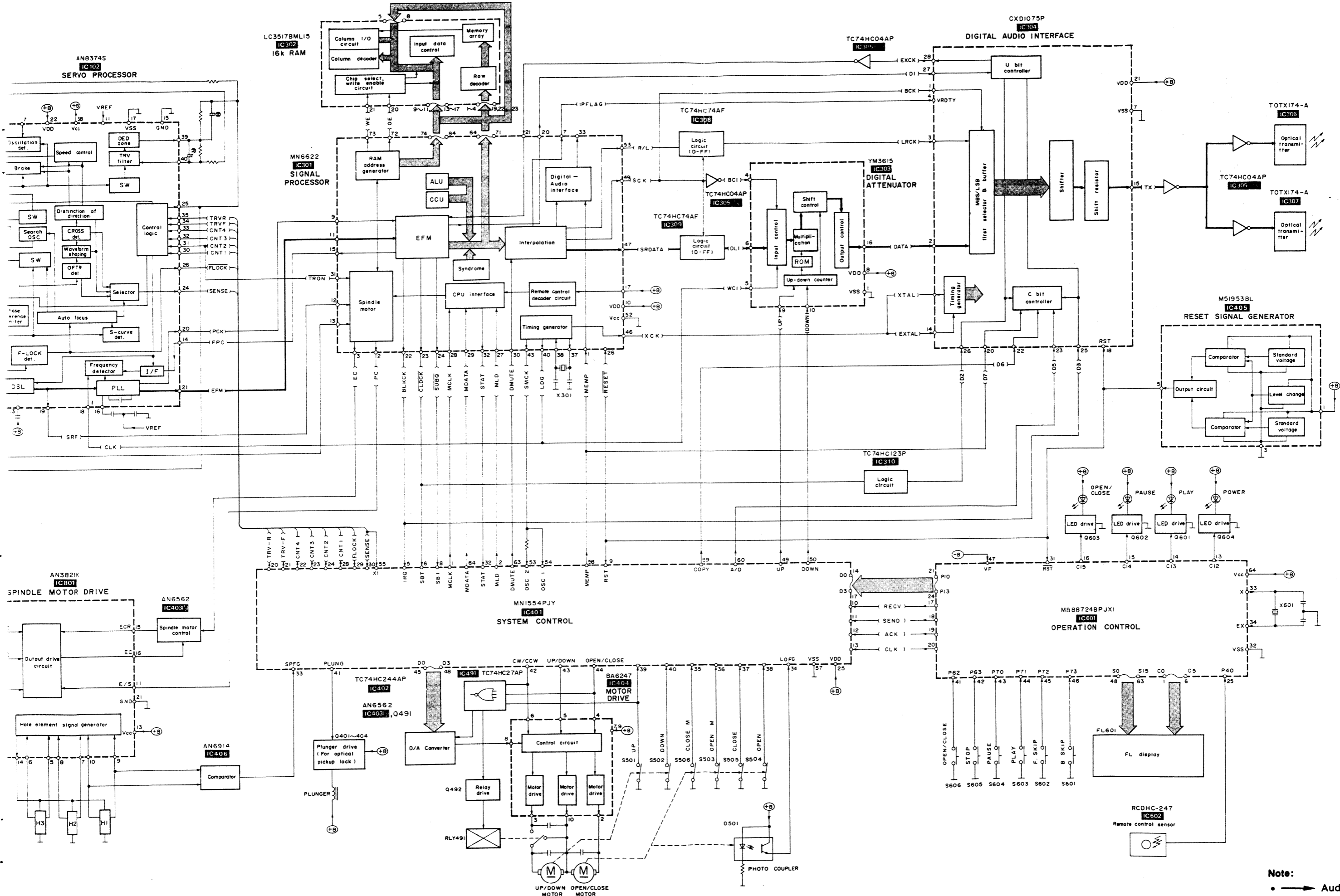


Anode connection table

	6G	5G	4G	3G	2G	1G
S0	a	a	a	a	disc	-
S1	b	b	b	b	emphasis	-
S2	f	f	f	f	-	program
S3	g	g	g	g	-	random
S4	c	c	c	c	elapsed	-
S5	e	e	e	e	remain	A-
S6	d	d	d	d	total	B
S7	-	NO.	—	col	-	repeat
S8	i	i	i	i	-	-
S9	j	j	j	j	-	auto cue
S10	n	n	n	n	-	-
S11	o	o	o	o	-	-
S12	k	k	k	k	-	-
S13	m	m	m	m	-	-
S14	ℓ	ℓ	ℓ	ℓ	-	-
S15	track	index	mim	sec	-	-

Pin connection

Pin No.	38	37	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	N	6	6	4	3	2	1	N	N	N	S	S	S	S	S	S	S	N	N	N	S	S	S	S	S	S	S	N	N	N	N	F	F	
	2	2	P	P	P	G	G	G	G	G	P	P	P	16	14	13	12	11	10	9	8	P	P	P	7	6	6	4	3	2	1	0	P	P	P	1	1	



Note:
 ● → Audio signal

■ SCHEMATIC DIAGRAM (Parts list on pages 46, 47, 54, 55.)




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

Notes:

- S1 : Power (power) switch in "on" position.
- S2 : Voltage selector switch "240V" position.
- S501, 502 : Traverse deck up/down detection switches.
[S501: UP, S502: DOWN]
- S601, 602 : Skip switches.
[S601: ◀◀, S602: ▶▶]
- S603 : Play (play) switch.
- S604 : Pause (pause) switch.
- S605 : Stop (stop) switch.
- S606 : Disc holder open/close (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 1 kHz, 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.

Part No.	Original Part No.	Supply Part No.
IC403	AN6562	AN1358
IC602	RCDHC-247	RCD0003
D503~506	GP1S53V	SVDGP1S53

-  /  : Positive voltage lines and negative voltage lines.
-  : audio signal lines.

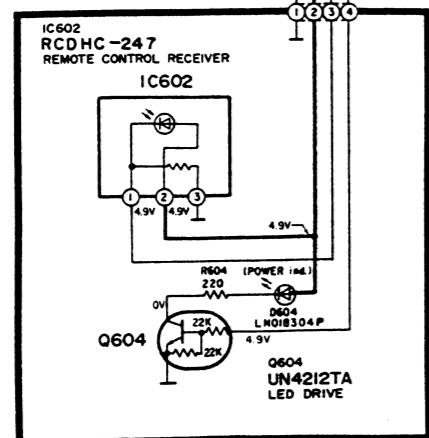
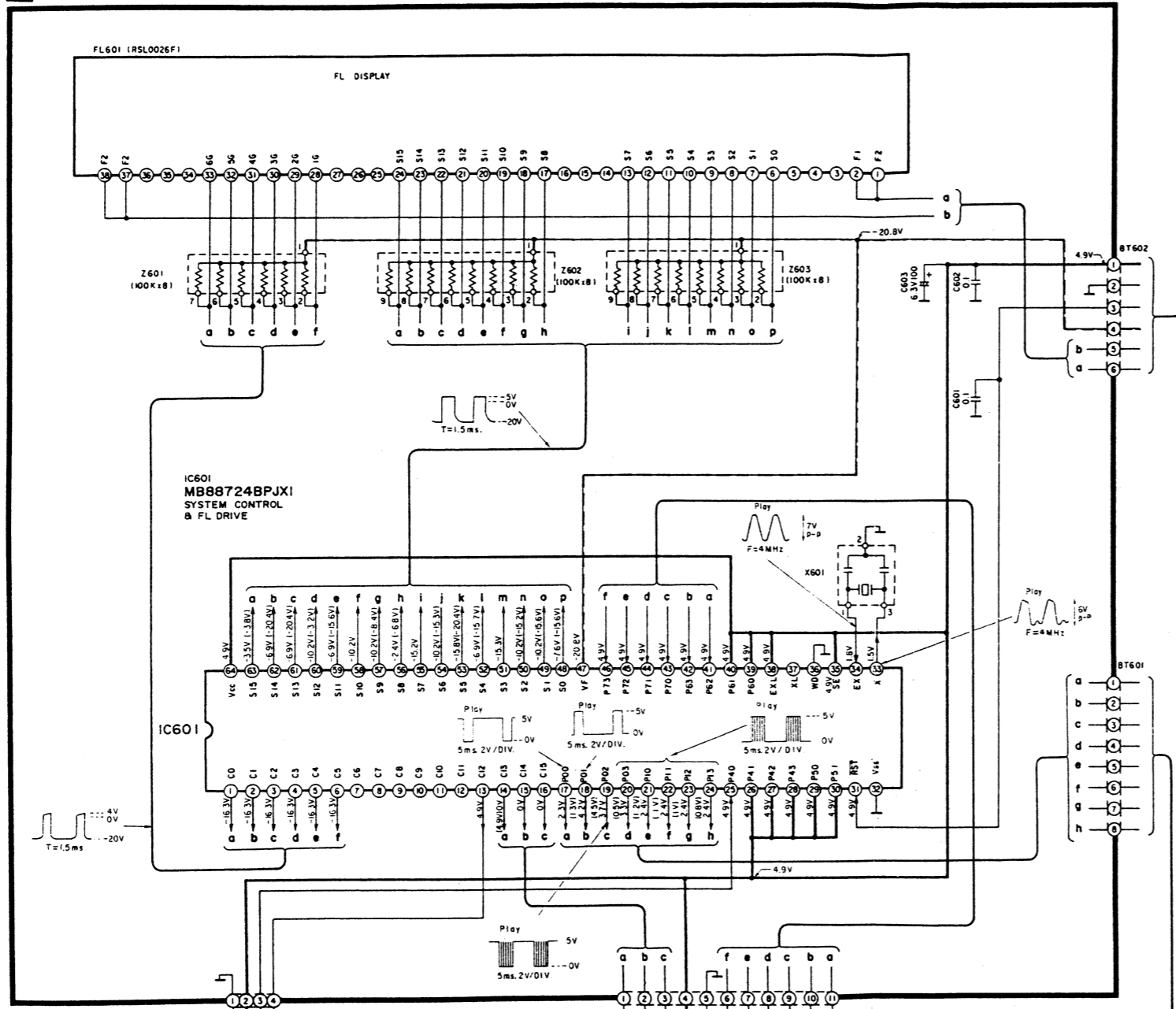
Caution!

IC and LSI are sensitive to static electricity.

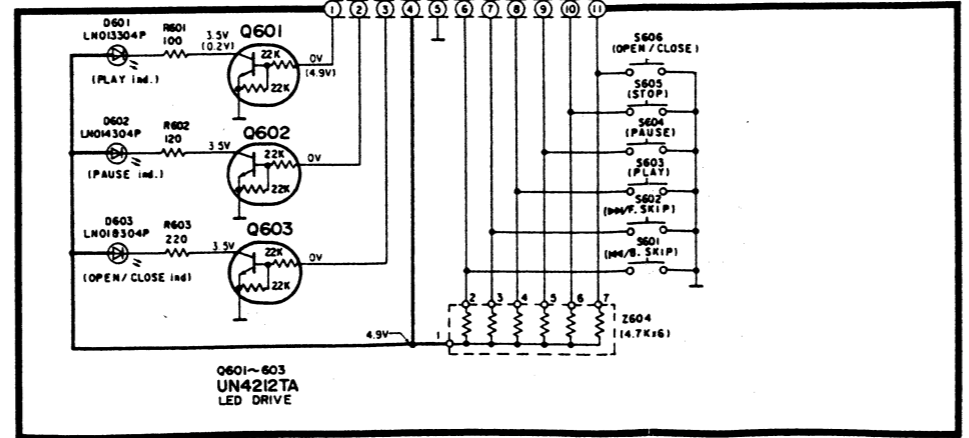
Secondary trouble can be prevented by taking care during repair.

- 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 FL DRIVE CIRCUIT

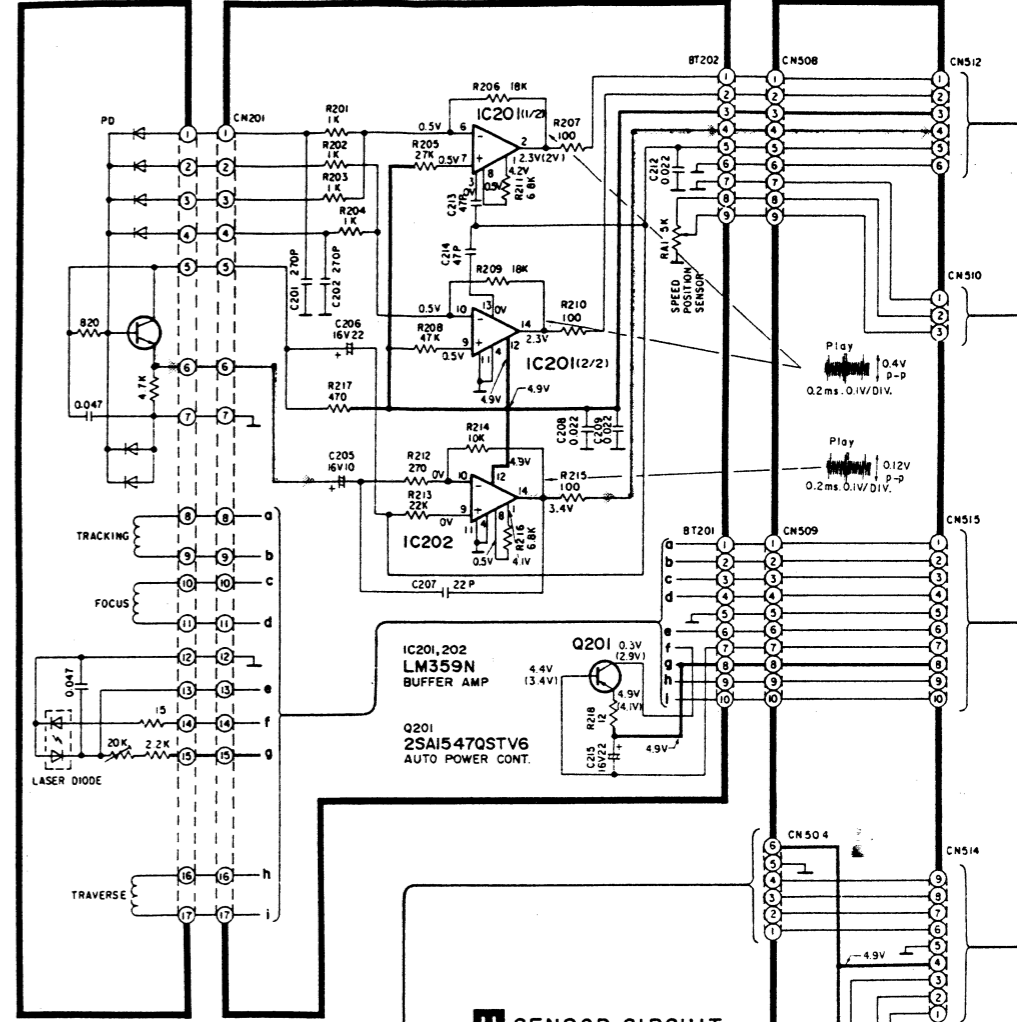


B REMOTE SENSOR CIRCUIT

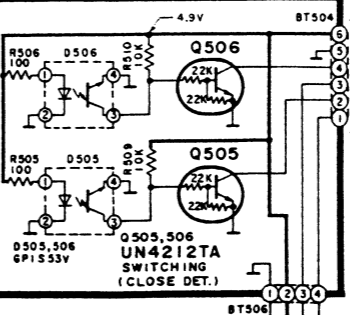


C OPERATION CIRCUIT

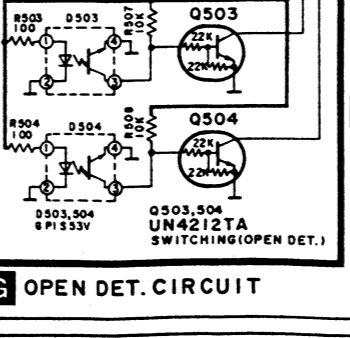
D TRAVERSE CIRCUIT



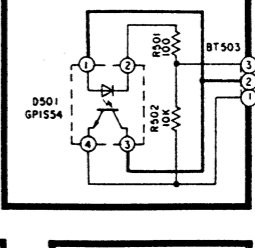
F CLOSE DET. CIRCUIT



G OPEN DET. CIRCUIT



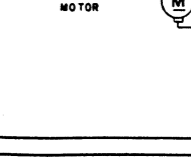
H SENSOR CIRCUIT



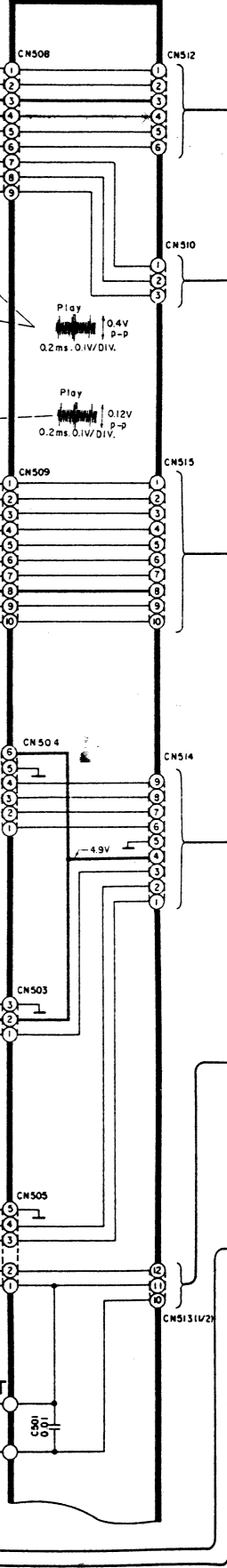
I UP/DOWN MOTOR CIRCUIT



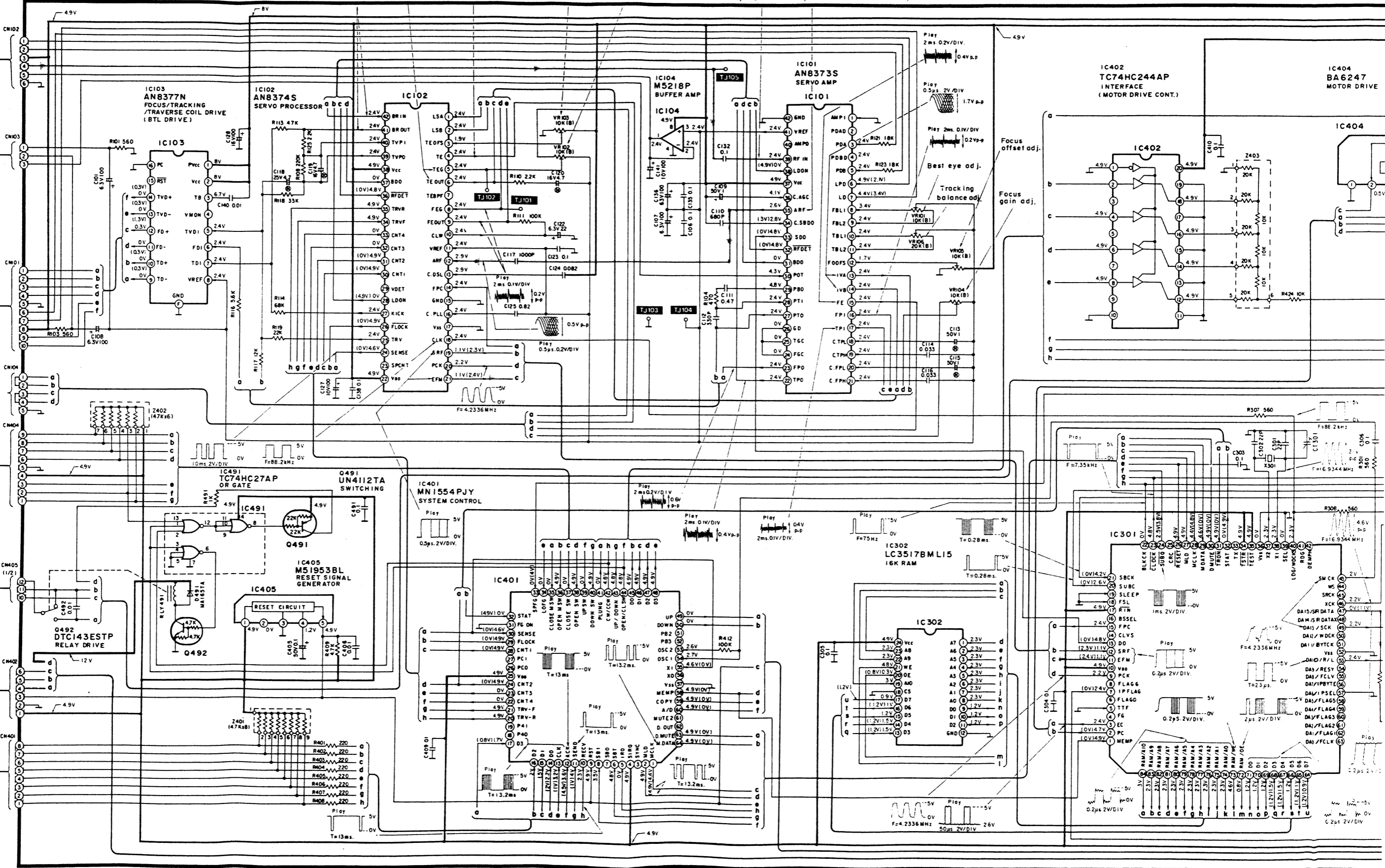
J UP/DOWN SWITCH CIRCUIT

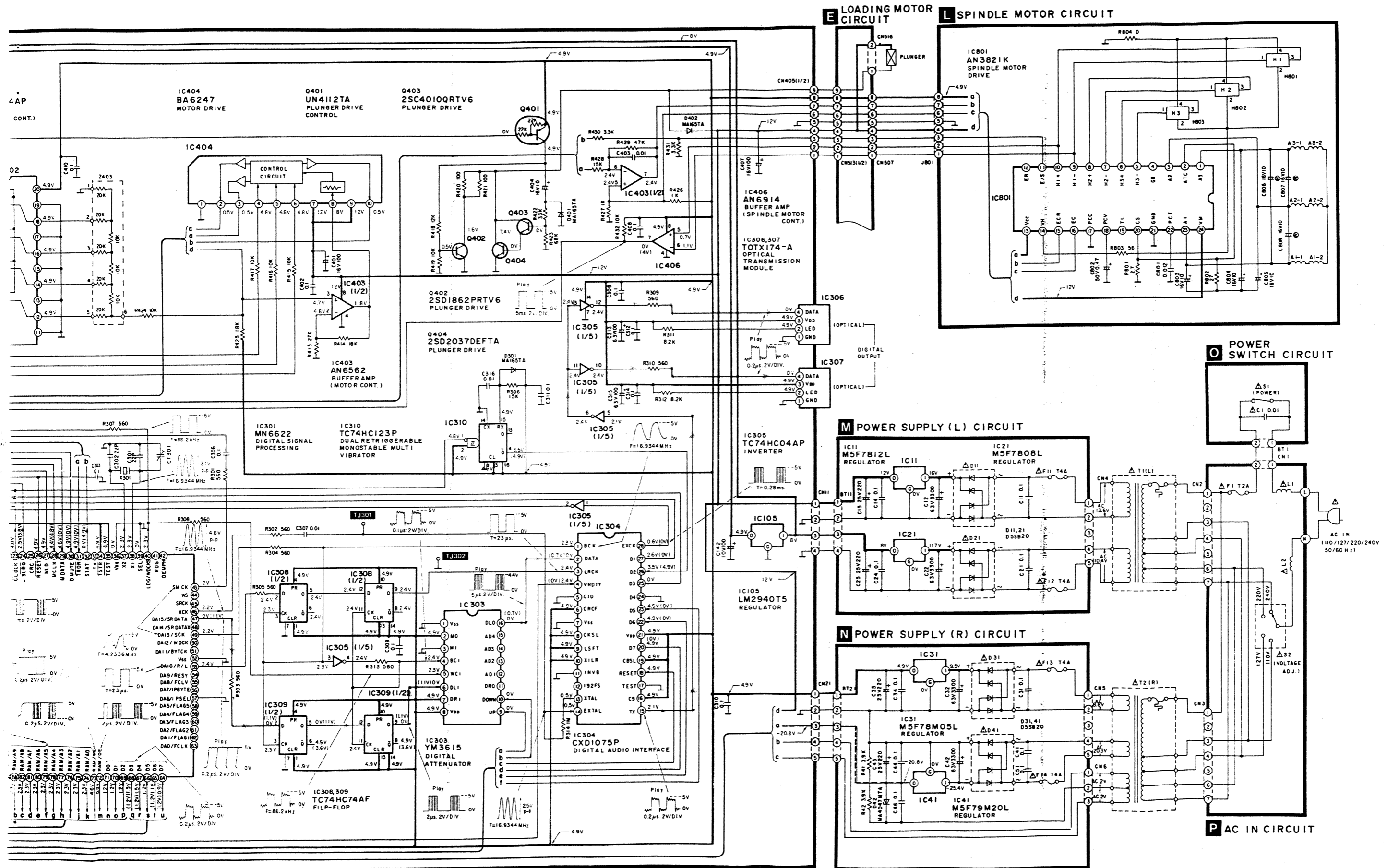


E LOADING MOTOR CIRCUIT



K DIGITAL CIRCUIT





E LOADING MOTOR CIRCUIT

L SPINDLE MOTOR CIRCUIT

O POWER SWITCH CIRCUIT

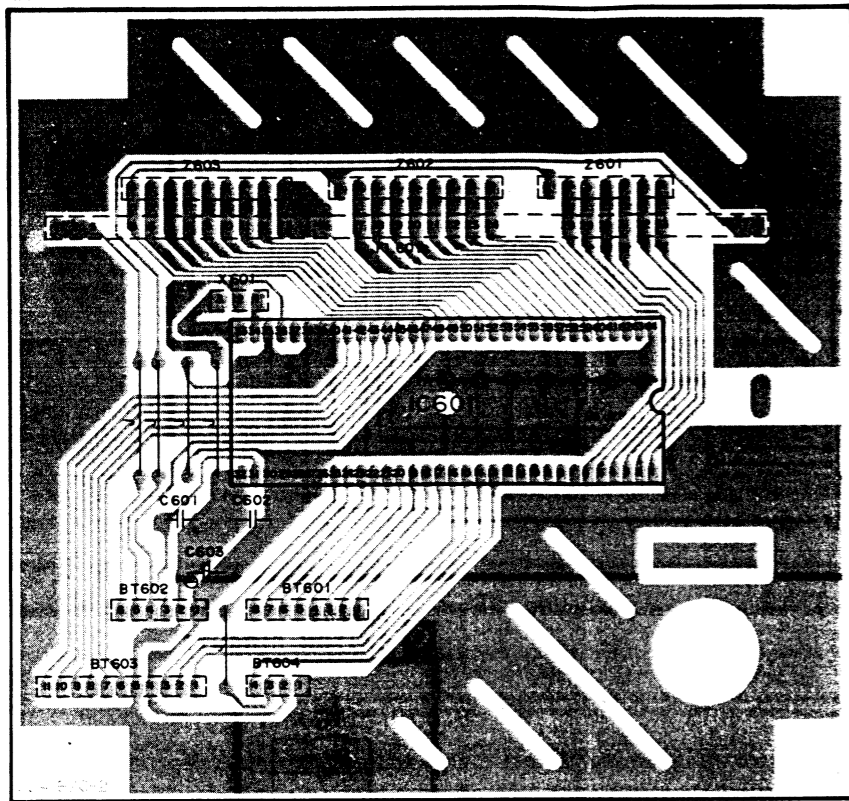
M POWER SUPPLY (L) CIRCUIT

N POWER SUPPLY (R) CIRCUIT

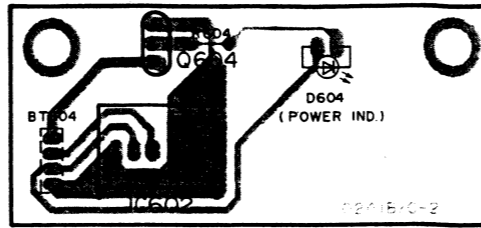
P AC IN CIRCUIT

PRINTED CIRCUIT BOARDS

A FL DRIVE P.C.B.

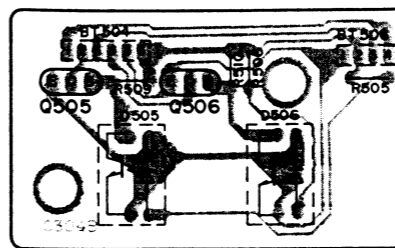


B REMOTE SENSOR P.C.B.

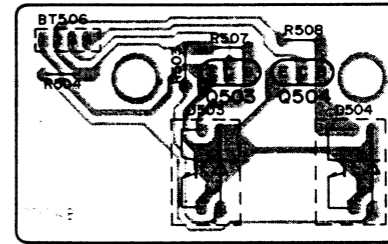


REMOTE SENSOR

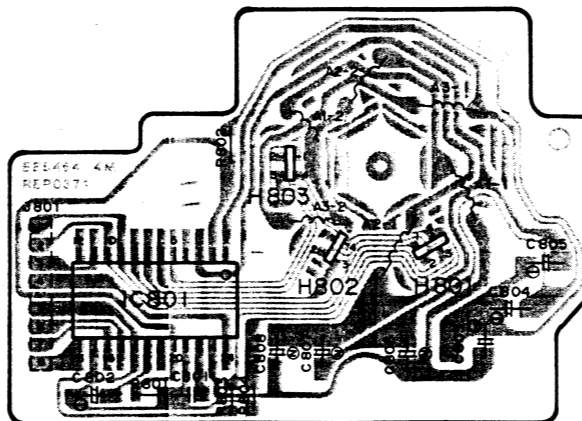
F CLOSE DET. P.C.B.



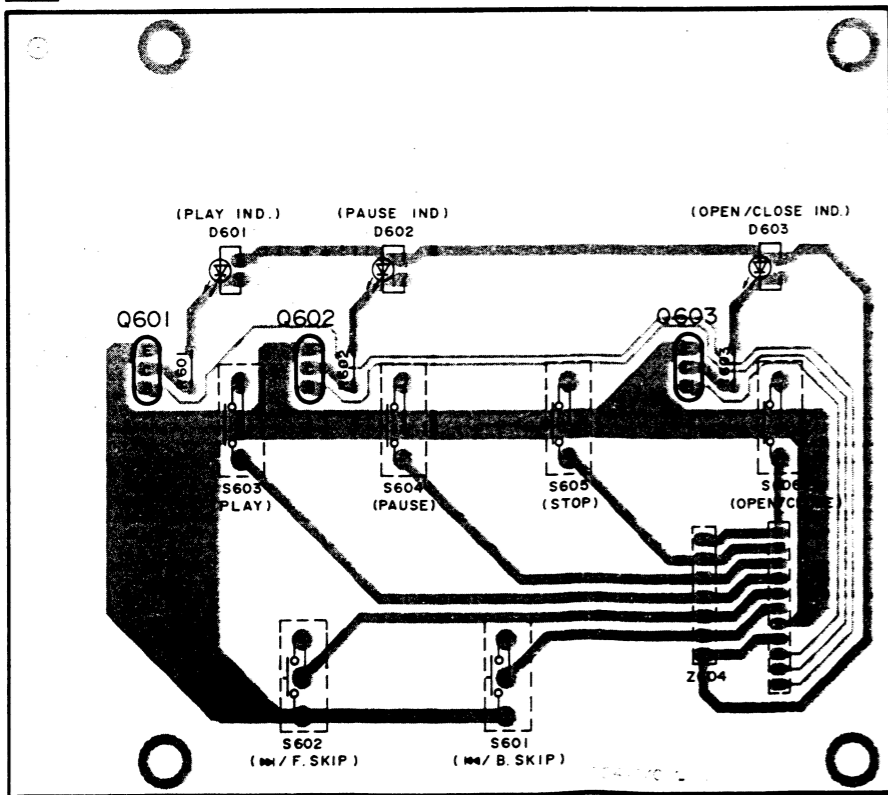
G OPEN DET. P.C.B.



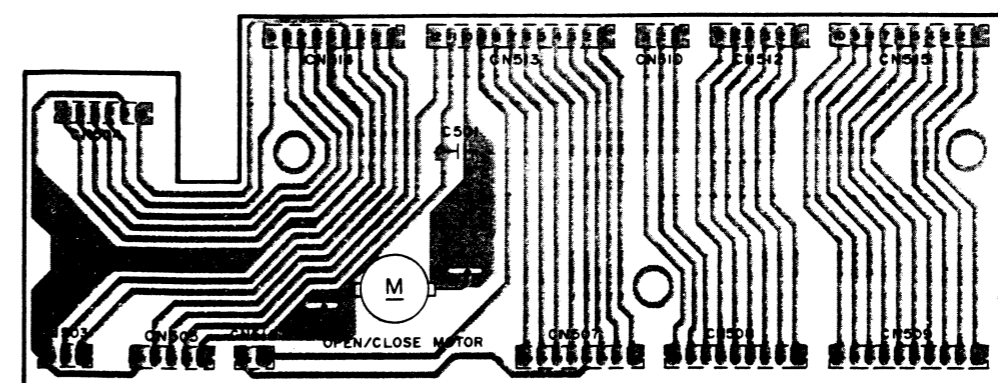
L SPINDLE MOTOR P.C.B.



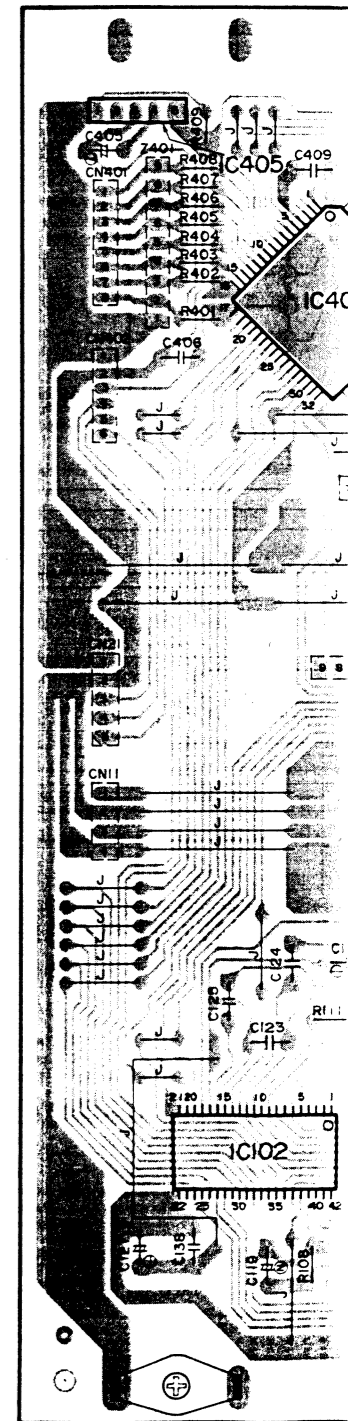
C OPERATION P.C.B.



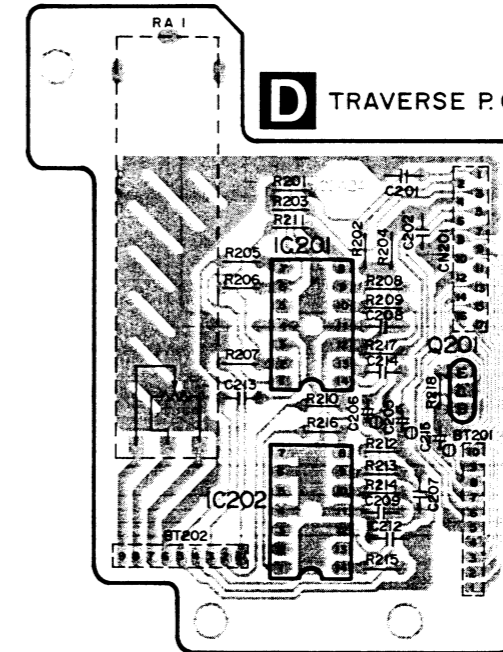
E LOADING MOTOR P.C.B.



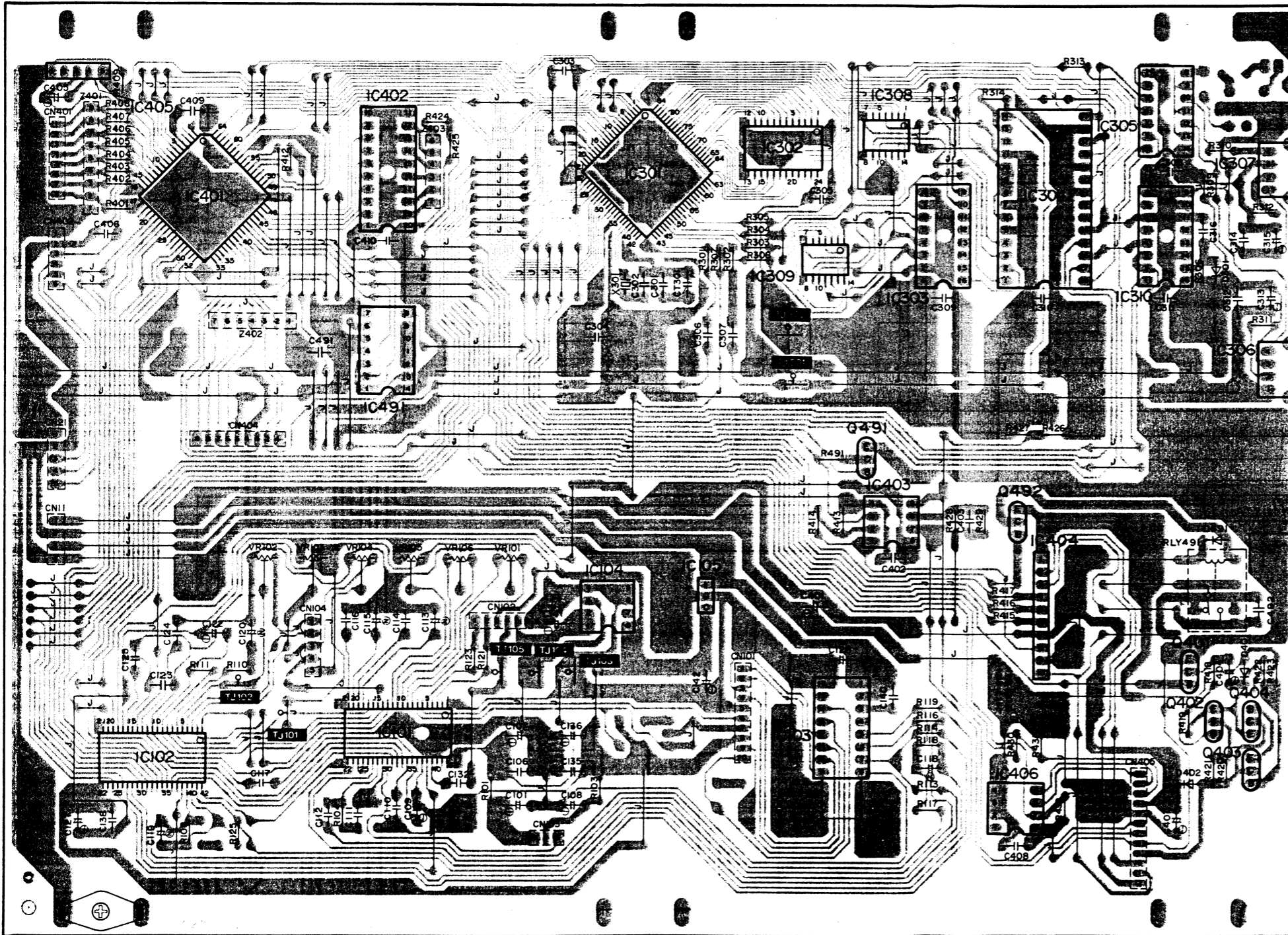
K DIGITAL P.C.B.



D TRAVERSE P.C.B.



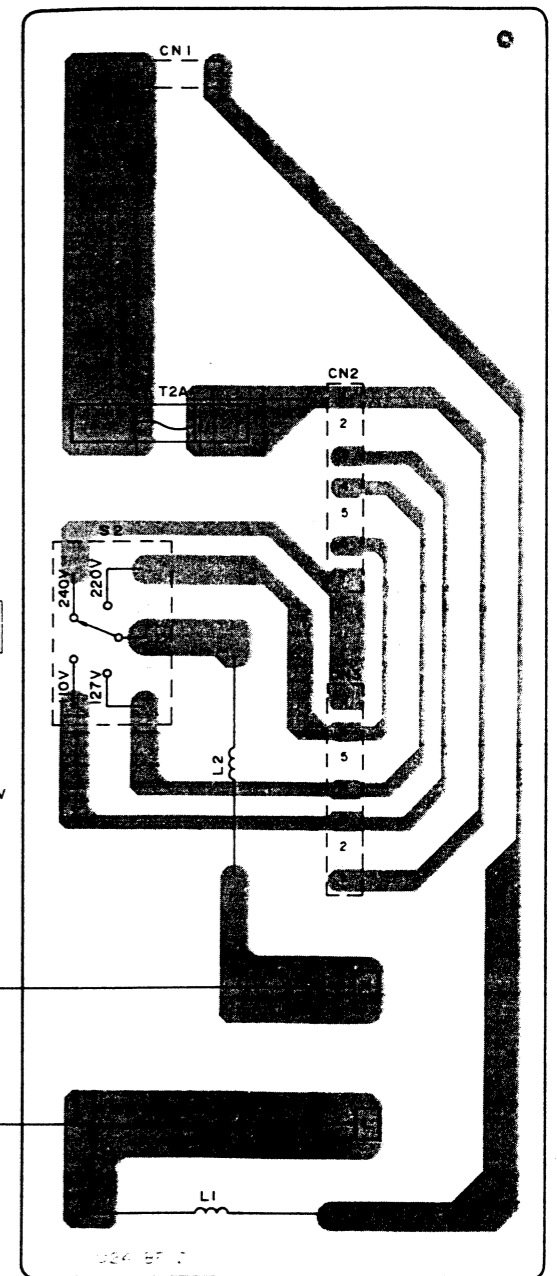
K DIGITAL P.C.B.



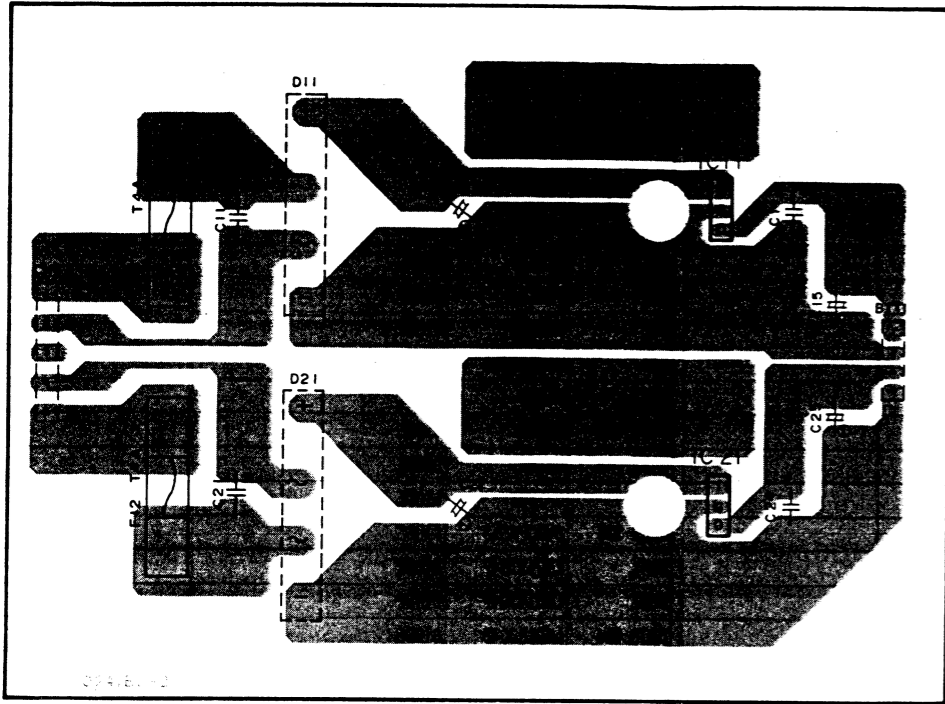
DIGITAL OUTPUT (OPTICAL)

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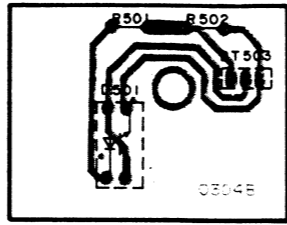
P AC IN P.C.B. For (E, EB, EG) areas.



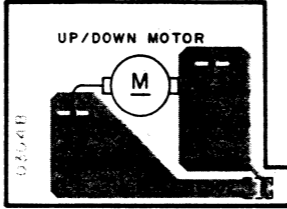
M POWER SUPPLY (L) P.C.B. For [E,EB,EG] areas.



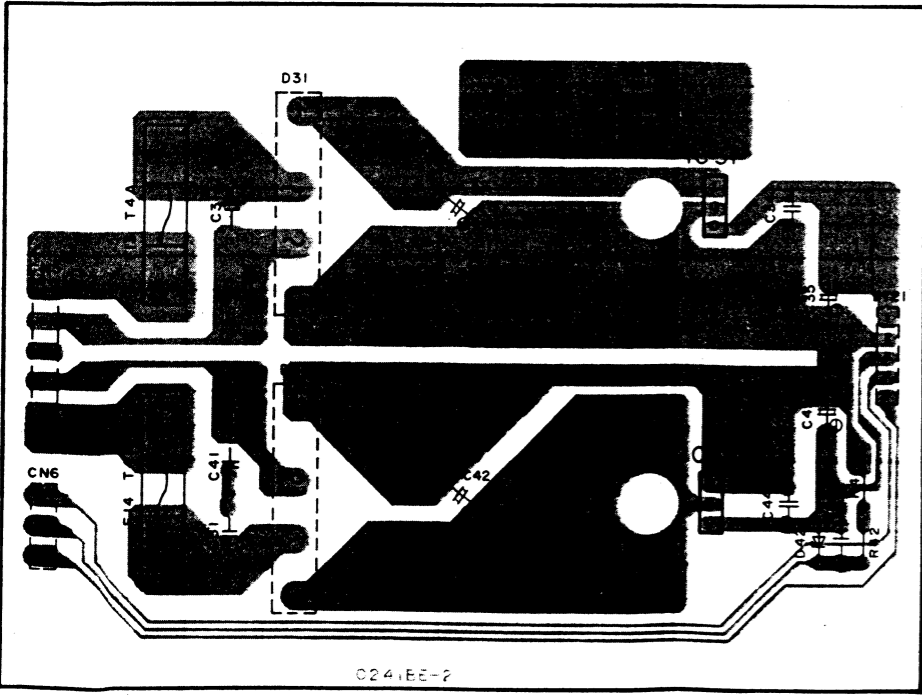
H SENSOR P.C.B.



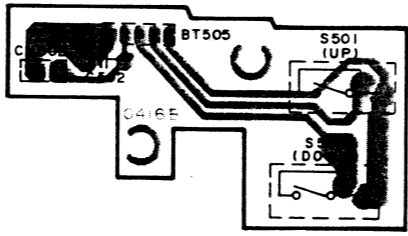
I UP/DOWN MOTOR P.C.B.



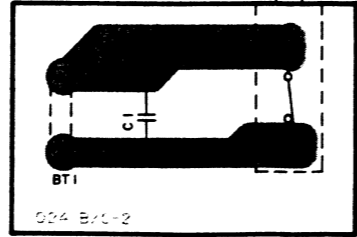
N POWER SUPPLY (R) P.C.B. For [E,EB,EG] areas.



J UP/DOWN SWITCH P.C.B.



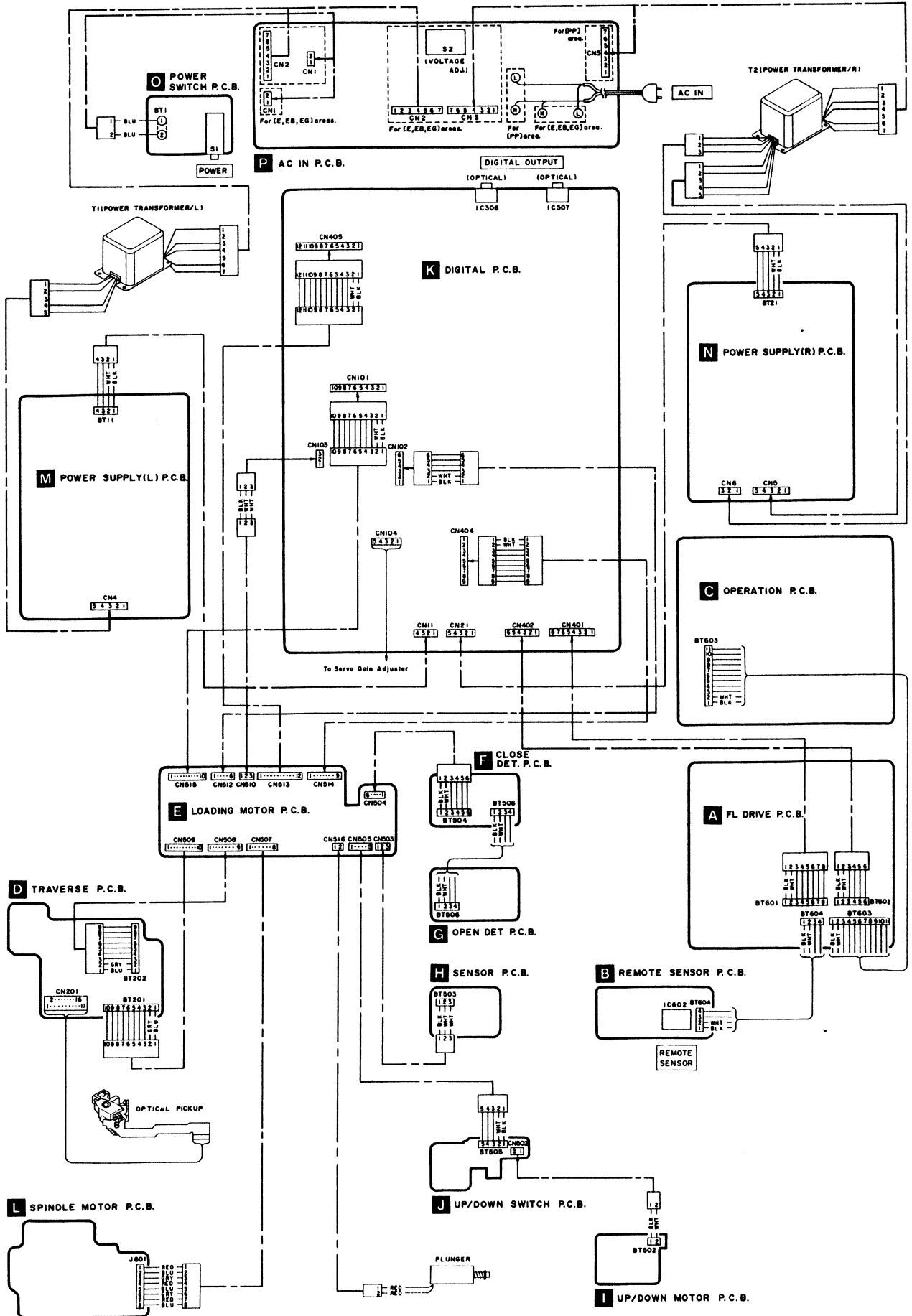
O POWER SWITCH P.C.B.



TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

<table border="1"> <tr><td>M5218P</td><td></td></tr> <tr><td>AN6562</td><td>8 Pin</td></tr> <tr><td>AN6914</td><td></td></tr> <tr><td>LM359N</td><td></td></tr> <tr><td>TC74HC04AP</td><td>14 Pin</td></tr> <tr><td>TC74HC27AP</td><td></td></tr> <tr><td>YM3615</td><td>16 Pin</td></tr> <tr><td>TC74HC123P</td><td></td></tr> <tr><td>TC74HC244AP</td><td>20 Pin</td></tr> <tr><td>CXD1075P</td><td>28 Pin</td></tr> <tr><td>MB88724BPJX1</td><td>64 Pin</td></tr> </table>	M5218P		AN6562	8 Pin	AN6914		LM359N		TC74HC04AP	14 Pin	TC74HC27AP		YM3615	16 Pin	TC74HC123P		TC74HC244AP	20 Pin	CXD1075P	28 Pin	MB88724BPJX1	64 Pin	<table border="1"> <tr><td>TC74HC74AF</td><td>14 Pin</td></tr> <tr><td>LC3517BML15</td><td>24 Pin</td></tr> <tr><td>AN3821K</td><td></td></tr> <tr><td>AN8373S</td><td>42 Pin</td></tr> <tr><td>AN8374S</td><td></td></tr> </table>	TC74HC74AF	14 Pin	LC3517BML15	24 Pin	AN3821K		AN8373S	42 Pin	AN8374S	
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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.

* Warning: This product uses a laser diode. Refer to caution statements on page 2.

* 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)					
IC11	MSF7812L	IC, REGULATOR		D11	D5SR20	DIODE	Δ
IC21	MSF7808L	IC, REGULATOR		D21	D5SR20	DIODE	Δ
IC31	MSF7805L	IC, REGULATOR		D31	D5SR20	DIODE	Δ
IC41	MSF7820L	IC, REGULATOR		D41	D5SR20	DIODE	Δ
IC101	AN8373S	IC, SERVO AMP		D42	MA4047MTA	DIODE	
IC102	AN8374S	IC, SERVO PROCESSOR		D301	MA165	DIODE	
IC103	AN8377N	IC, BTL DRIVE		D401, 402	MA165	DIODE	
IC104	MS218P	IC, OPE. AMP		D491	MA165	DIODE	
IC105	LM2940T5	IC, REGULATOR		D501	GP1SS4	DIODE	
IC201, 202	LM359N	IC, I/V CONVERTER		D503-506	SYDGP1SS3	DIODE	
IC301	MM6622	IC, SIGNAL PROCESSOR		D601	LN013304P	DIODE	
IC302	LC35178ML15	IC, SRAM		D602	LN014304P	DIODE	
IC303	YM3615	IC, DIGITAL VOLUME		D603, 604	LN018304P	DIODE	
IC304	CXD1075P	IC, D/A INTERFACE				HALL ELEMENT(S)	
IC305	TC74HC04AP	IC, INVERTER GATE		H801-803	HW101AD	HALL ELEMENT	
IC306, 307	TDX174-A	IC, DIGITAL OUTPUT				VARIABLE RESISTOR(S)	
IC308, 309	TC74HC74AF	IC, D. LATCH		VR101	EYND3AA00B14	V. R. BEST EYE ADJ.	
IC310	TC74HC123P	IC, LOGIC		VR102	EYND3AA00B14	V. R. TRACKING GAIN ADJ.	
IC401	MM1554PJY	IC, MECHANISM CONTROL		VR103	EYND3AA00B14	V. R. TRACKING OFFSET ADJ.	
IC402	TC74HC244AP	IC, BUFFER		VR104	EYND3AA00B14	V. R. FOCUS GAIN ADJ.	
IC403	AM1358	IC, OPERATION AMP		VR105	EYND3AA00B14	V. R. FOCUS OFFSET ADJ.	
IC404	BA6247	IC, MOTOR DRIVE		VR106	EYND3AA00B24	V. R. TRACKING BALANCE ADJ.	
IC405	MS1953BL	IC, RESET				COMPONENT COMBINATION(S)	
IC406	AN6914	IC, COMPARATOR		Z401	EXBF9E472J	COMPONENT COMBINATION	
IC491	TC74HC27AP	IC, NOR GATE		Z402	EXBF7E472J	COMPONENT COMBINATION	
IC601	MB88724BPJX1	IC, OPERATION CONTROL		Z403	EXBLD4103G	COMPONENT COMBINATION	
IC602	RC00003	IC, REMOTE CON. RECEIVER		Z601	EXBF7E104J	COMPONENT COMBINATION	
IC801	AN3821K	IC, SPINDLE MOTOR DRIVE		Z602, 603	EXBF9E104J	COMPONENT COMBINATION	
		TRANSISTOR(S)		Z604	EXBF7E472J	COMPONENT COMBINATION	
Q201	2SA1547QSTV6	TRANSISTOR				COIL(S)	
Q401	UN4112	TRANSISTOR		L1, 2	SLQ400-D	COIL	Δ
Q402	2SD1862PRTV6	TRANSISTOR				TRANSFORMER(S)	
Q403	2SC4010QRTV6	TRANSISTOR		T1	RFKCLZ1000A	TRANSFORMER ASS'Y	Δ
Q404	2SD2037DEFTA	TRANSISTOR		T2	RFKCLZ1000B	TRANSFORMER ASS'Y	Δ
Q491	UN4112	TRANSISTOR				DIODE(S)	
Q492	DTC143ESTP	TRANSISTOR					
Q503-506	UN4212TA	TRANSISTOR					
Q601-604	UN4212TA	TRANSISTOR					

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		OSCILLATOR(S)		CN11	SJT3415	CONNECTOR (4P)	
				CN21	SJT3511	CONNECTOR (5P)	
X301	RSXB16M9A01	OSCILLATOR		CN101	RJP10G182A	CONNECTOR (10P)	
X601	RSXY4M00M02	OSCILLATOR		CN102	RJP6G182A	CONNECTOR (6P)	
		DISPLAY TUBE		CN103	RJP3G182A	CONNECTOR (3P)	
				CN104	EMCS0552M	CONNECTOR (5P)	
				CN201	SJSD1727M	CONNECTOR (17P)	
FL601	RSL0026-F	DISPLAY TUBE		CN401	RJP6G182A	CONNECTOR (6P)	
		FUSE (S)		CN402	RJP6G182A	CONNECTOR (6P)	
F1	XBA2C20T80	FUSE 250V T2A	Δ	CN404	RJP6G182A	CONNECTOR (6P)	
F11-14	XBA2C40T80	FUSE 250V T4A	Δ	CN405	RJP12G182A	CONNECTOR (12P)	
		SWITCH (ES)		CN502	RJP2G172A	CONNECTOR (2P)	
S1	ESB99713V	SW, POWER	Δ	CN503	RJP3G172A	CONNECTOR (3P)	
S2	SSR187-1	SW, VOLTAGE SELECTOR	Δ	CN504	RJP6G172A	CONNECTOR (6P)	
SS01	RSH1A011-1	SW, UP		CN505	RJP5G172A	CONNECTOR (5P)	
SS02	SSPD12	SW, DOWN		CN507	RJP6G172A	CONNECTOR (6P)	
S601	RSM0003D	SW, SKIP (R)		CN508	RJP6G172A	CONNECTOR (6P)	
S602	RSM0003D	SW, SKIP (F)		CN509	RJP10G172A	CONNECTOR (10P)	
S603	RSM0003D	SW, PLAY		CN510	RJP3G182A	CONNECTOR (3P)	
S604	RSM0003D	SW, PAUSE		CN512	RJP6G182A	CONNECTOR (6P)	
S605	RSM0003D	SW, STOP		CN513	RJP12G182A	CONNECTOR (12P)	
S606	RSM0003D	SW, OPEN/CLOSE		CN514	RJP9G182A	CONNECTOR (9P)	
		CABLE (S)		CN515	RJP10G182A	CONNECTOR (10P)	
				CN516	RJP2G172A	CONNECTOR (2P)	
						TRIMMER	
				CT301	ECRHA020D41	TRIMMER	
						RELAY (S)	
BT1	REX9135	CONNECTOR UNIT (2P)		RLY491	RSY5A237P12	RELAY	
BT11	REX9140S-1	CONNECTOR UNIT (4P)					
BT21	REX9141S-1	CONNECTOR UNIT (5P)					
BT201	REX0154	CONNECTOR UNIT (10P)					
BT202	REX0155	CONNECTOR UNIT (9P)					
BT502	REX9126	CONNECTOR UNIT (2P)					
BT503	REX9123	CONNECTOR UNIT (3P)					
BT504	REX0283	CONNECTOR UNIT (6P)					
BT505	REX0282	CONNECTOR UNIT (5P)					
BT506	REX0281	CONNECTOR UNIT (4P)					
BT601	REX9137S-2	CONNECTOR UNIT (8P)					
BT602	REX9139S-2	CONNECTOR UNIT (6P)					
BT603	REX9134-1	CONNECTOR UNIT (11P)					
BT604	REX9136	CONNECTOR UNIT (4P)					
J801	REX0153	CONNECTOR UNIT (8P)					
		CONNECTOR (S)					
CN1	SFDJ5285-02A	CONNECTOR (2P)					
CN2, 3	RJP1A6007	CONNECTOR (7P)					
CN4, 5	RJP1A3505	CONNECTOR (5P)					
CN6	RJP1A3303	CONNECTOR (3P)					

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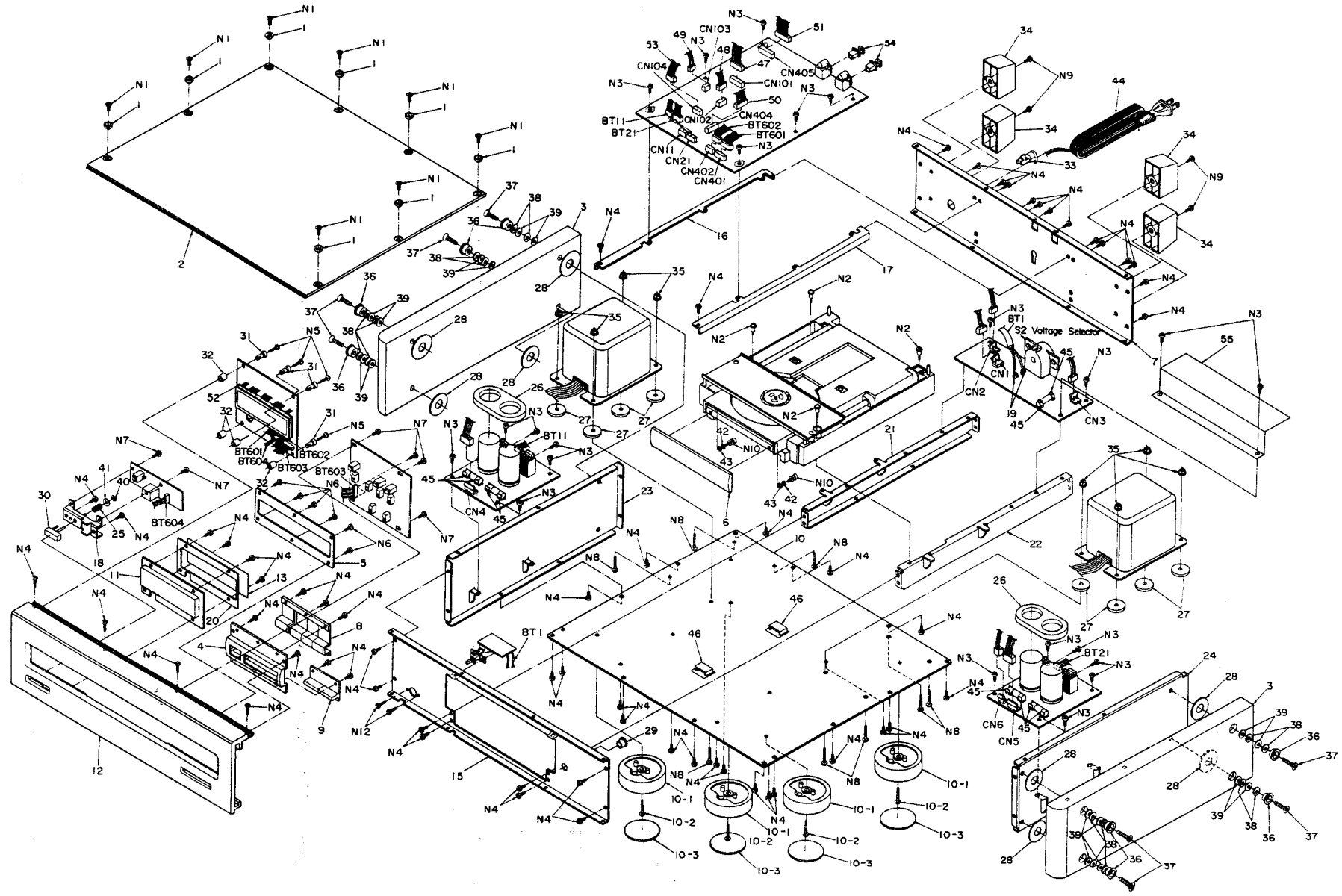
Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS					
1	RGQ029	SPACER		41	XWG3FZ	WASHER	
2	RFKRGK1000-A	CABINET		42	XWA3BFZ	WASHER	
3	RGND174-1	SIDE WOOD		43	XWE3FZ	WASHER	
4	RFKWLZ1000AA	BUTTON BASE ASS'Y		44	SFDB311ED1	POWER CORD	Δ (E, EG)
5	RGND177	ORNAMENT		44	SJA192	POWER CORD	Δ (EB)
6	RGND178	TRAY ORNAMENT		45	SJT390	FUSE HOLDER	Δ
7	RFKWLZ1000E	REAR PANEL ASS'Y	(E)	46	SHR058	CLAMPER	
7	RFKWLZ1000EB	REAR PANEL ASS'Y	(EB)	47	REXS128S-1	CONNECTOR UNIT (10P)	
8	RFKWLZ1000CA	OPERATION BUTTON ASS'Y		48	REXS129S-1	CONNECTOR UNIT (6P)	
9	RFKWLZ1000DA	SKIP KNOB ASS'Y		49	REXS130S-1	CONNECTOR UNIT (3P)	
10	RRQ0012	CHASSIS		50	REXS131S-1	CONNECTOR UNIT (9P)	
10-1	RKAD005	FOOT		51	REXS132S-1	CONNECTOR UNIT (12P)	
10-2	XTB4+20JFZ	SCREW		52	SJWD139-1	FL HOLDER	
10-3	SKYD4	FOOT RUBBER		53	SRD001N14E	CONNECTOR UNIT (5P)	
11	RFKWD063	ORNAMENT		54	VJA1034	PROTECTION CAP	
12	RFKWLZ1000-A	FRONT PANEL ASS'Y		55	RMZ0106	INSULATING SHEET	
13	RKWD065-2	FL FILTER				SCREWS	
15	RMAD011-1	FRAME FRONT		N1	XTS3+8FFC	SCREW	
16	RMAD213	ANGLE (L)		N2	RHD30011	SCREW	
17	RMAD214	ANGLE (R)		N3	XSH3+8FB	SCREW	
18	RFKWLZ1000BA	POWER BUTTON BASE ASS'Y		N4	XTBS3+8JFZ1	SCREW	
19	SJT777	POWER TERMINAL		N5	XTB3+16JFZ	SCREW	
20	RMAD224	PLATE		N6	XTB3+6JFZ	SCREW	
21	RMAD252	MECH ANGLE (L)		N7	XTB3+8JFB	SCREW	
22	RMAD253	MECH ANGLE (R)		N8	XTB4+16FFZ	SCREW	
23	RMAD255	SIDE ANGLE (L)		N9	XTB4+12JFZ	SCREW	
24	RMAD256	SIDE ANGLE (R)		N10	XVE346FZS	SCREW	
25	RMND116	SPRING		N12	XYN3+CBFZ	SCREW	
26	RMFO050	SPONGE				TRAVERSE DECK	
27	RMGD013	TRANS RUBBER					
28	RMGD117	SIDE WOOD RUBBER		101	SHRD176-2	BRUSH HOLDER	
29	RMQD164	BUSH		102	GTW-3	RING	
30	RFKWLZ1000-A	POWER KNOB ASS'Y		103	RFKWLZ1000MA	SOLENOID ASS'Y	
31	RMQD020	SPACER		103A	RMQD117	SPRING	
32	RMQD024	SPACER		104	RMQD118	LOCK SPRING	
33	SHR127	CORD BUSHING	(E, EG)	105	RMQD079	FLOATING RUBBER	
33	SHR129	CORD BUSHING	(EB)	106	RMQD089	SOLENOID BASE	
34	SKL241	BACK GARD		107	RMQD091	PLATE	
35	SNE4065	NUT		108	RMQD092	PROTECTION CAP	
36	SNE98	SCREW SHEET		109	RMQD126	RING	
37	XSS5+35PVC	SCREW		110	RMQD218	LOCK BASE	
38	RFWS0001	WASHER		111	RMQD219	LOCK UNIT	
39	XWE5X12PVC	WASHER		112	RMQD220	BACK PLATE	
40	XUC2FT	E. RING		113	RMQD044	SUB SHAFT	

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
114	RMQD002	SPASER		180	RMQD099-2	LOADING BASE	
115	RRAD012	YOKE UNIT (A)		181	RFKWLZ1000HA	SUB BASE ASS'Y	
117	RKD0009	BEARING		182	RMQD367	TRAY GUIDE	
118	RFKWLZ1000KA	ROTER UNIT ASS'Y		183	RMQD237	FLANGE	
119	RKD0067	TRAVERSE BASE UNIT		184	RMQD194	GUIDE SHAFT (L)	
120	SILD01202	EARTH WIRE		185	RMQD195-1	GUIDE SHAFT (R)	
121	RRQD087	COTL UNIT		186	RMQD197-2	SHAFT	
122	RKQD095	TURN TABLE UNIT		187	RMQD228	SHAFT	
123	SHGD148	STOPPER RUBBER		188	RFKPLZ1000BA	MOTOR ASS'Y (LOADING)	
125	SHWD33	WASHER (A)		189	RKQD089-1	TRAY UNIT	
126	SHWD34	WASHER (B)		191	SHGR26	DUST COVER CUSHION	
127	SRQD10ND4	TURN TABLE SPRING		192	SHGD154	FLOATING SPASER	
128	SRQD05ND1	TURN TABLE WASHER		193	SHRD27	RING	
129	SHWD112-1	GUIDE SHAFT HOLDER		194	SILD12011	EARTH LEAD UNIT (A)	
130	SJXD123-1	GUIDE SHAFT		196	RMQD305	CLAMPER	
131	RFKWLZ1000LA	OPTICAL PICKUP ASS'Y	Δ	197	RMQD121	BELT	
132	SOYD22	YOKE (B)		198	SKSD10	SCREW	
133	XNG2E	NUT		199	SKSD33	SCREW	
135	XSN2+3	SCREW		200	SOYD2	CLAMPER YOKE	
136	XTB2+5J	SCREW		202	XTB2+4J	SCREW	
137	XTB3+4J	SCREW		203	XTB3+10G	SCREW	
138	XTN2+5G	SCREW		204	XTB3+6JFZ	SCREW	
139	XTN26+5J	SCREW		205	XTN2+4J	SCREW	
140	XWA3B	WASHER		206	XUC3FT	E. RING	
151	RGD0125	GEAR		207	XWE44B	WASHER	
152	RFKPLZ1000AA	MOTOR ASS'Y (UP/DOWN)		208	XWE4E8FY	WASHER	
153	RFKWLZ1000A	DRIVE SHAFT ASS'Y		209	XYN26+C4	SCREW	
154	RDPO027	TRANSFER PULLEY (1)		210	XYN26+F6	SCREW	
155	RDPO028	TRANSFER PULLEY (2)		211	XYS8	WASHER	
156	RDPO029	DRIVE PULLEY		212	XYN3+C8	SCREW	
157	RDV0011	TIMING BELT		213	SKSD9	SCREW	
158	RHD26002	SCREW		214	RMAD218	ORNAMENT	
159	RMQD322A	CUSHION RUBBER		215	XYN3+CBFZ	SCREW	
160	RMW27001	WASHER		216	XQN17+C6	SCREW	
161	RFKWLZ1000B	CLAMP PLATE HOLDER				PACKING MATERIAL	
162	RMAD231	ANGLE					
163	RMAD232	ANGLE					
164	RMAD233	ANGLE		P1	RFQD598	PACKING CASE	
165	RFKWLZ10001A	PLATE ASS'Y (1), PULLEY		P2	RFND240-2	PAD	
166	RFKWLZ10001A	PLATE ASS'Y (2), PULLEY		P3	SPH6494	PROTECTION SHEET	
167	RFKWLZ1000GA	PLATE ASS'Y MOTOR				ACCESSORIES	
168	RMAD238-2	SHAFT HOLDER (1)					
169	RMAD241	SHAFT HOLDER		A1	RQT0655-G	INSTRUCTION MANUAL	(EB)
170	RMQD120	FLOATING SPRING (A)		A2	RQT0656-D	INSTRUCTION MANUAL	(EC)
171	RMQD121	FLOATING SPRING (B)		A3	RFKSLZ1000E	INST. MANUAL ASS'Y	(E)
172	RMQD122	TENTION SPRING		A4	RQAD013	WARRANTY CARD	
173	RMQD038	PLATE		A5	RQCB0169	SERVICENTER LIST	
174	RMQD058	GUIDE SHAFT HOLDER		A6	RAK-SLS07W	REMOTE CONTROLLER	
175	RMQD064	EARTH SPRING		A7	UM-4NE/2S	BATTERY	
176	RMQD085	SPASER RUBBER		A8	RP-CA5010	OPTICAL OUTPUT CABLE	
177	RMQD086	STOPPER RUBBER		A9	XZB15K25C03	PROTECTION BAG (COAD)	
178	RMQD104-1	SPASER		A10	BRQD020-1H	BATTERY COVER	
179	RMND012	MAGNET					

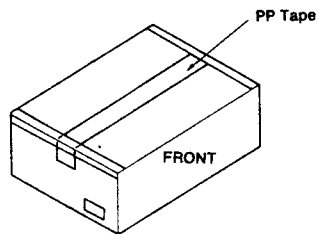
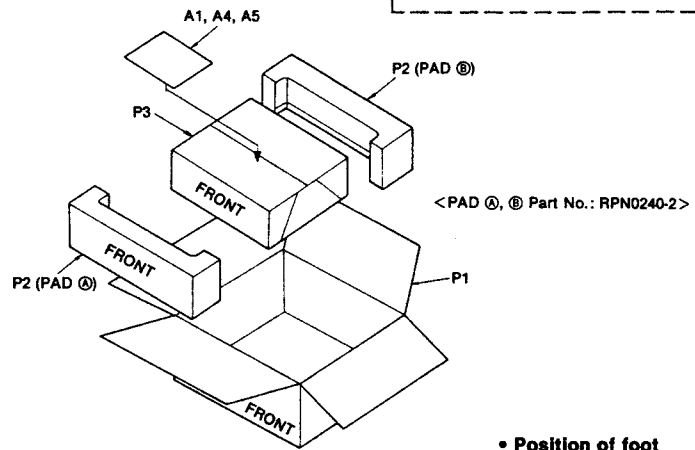
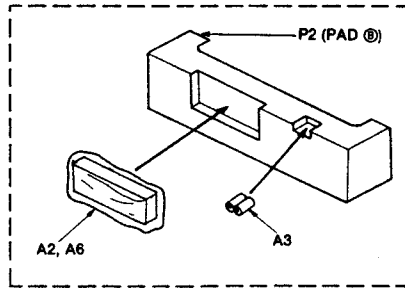
EXPLODED VIEW

• Cabinet and chassis part

A
B
C
D
E
F
G



PACKING



• Position of foot
(Dimension: mm)

