

Service Manual


DIGITAL

Compact Disc Player
SL-P202

Color

(K) Black Type

Area

Country Code	Area	Color
(XL)	Australia	(K)
(XA)	Third Region	(K)

Please use this manual together with the service manual for Model No. SL-P202, Order No. AD8812327C2.

CHANGES

■ REPLACEMENT PARTS LIST

Notes: *Mentioned in this parts list are only those different from Model SL-P202 (E) area, all other parts are the same as for SL-P202 (E) area.

*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.

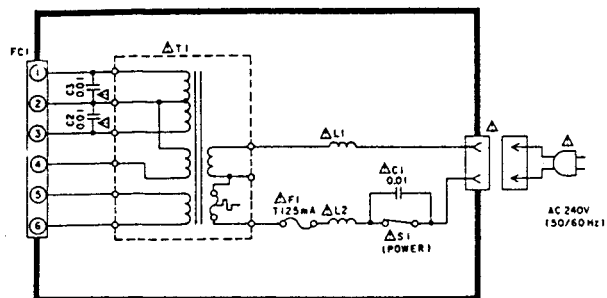
Ref No.	Change of Part No.		Part Name & Description	Remarks
	SL-P202 (E)	SL-P202 (XL • XA)		
CABINET AND CHASSIS				
2	SGPD800ZF2D	SGPD800ZF10Q	REAR PANEL for (XA) area	Change
		RGR0032	REAR PANEL for (XL) area	"
17 Δ	SJS9236	SJSD16	AC INLET for (XL) area	"
ACCESSORIES				
A1	SQUD414	SQUD414-1	INSTRUCTIONS MANUAL	Change
A2 Δ	SJA187	RJA0004	POWER CORD for (XA) area	"
		SJA173	POWER CORD for (XL) area	"
A4 Δ	————	SJP2915	AC PLUG ADAPTOR for (XA) area	Addition
IC PROTECTORS				
ICP1	————	SRUF38	I.C PROTECTOR for (XA) area	Addition
ICP2	————	SRUF38	I.C PROTECTOR for (XA) area	"
TRANSFORMER				
T1 Δ	SLTD5K097SE	SLTD5K099SX	POWER TRANSFORMER for (XA) area	Change
		SLTD5K098SG	POWER TRANSFORMER for (XL) area	"
FUSE				
F1 Δ	XBA2C012TB0	XBA2C025TB0	FUSE, 250 V, T250 mA for (XA) area	Change
SWITCH				
S2 Δ	————	SSR187-1	VOLTAGE SELECTOR SWITCH for (XA) area	Addition

Technics

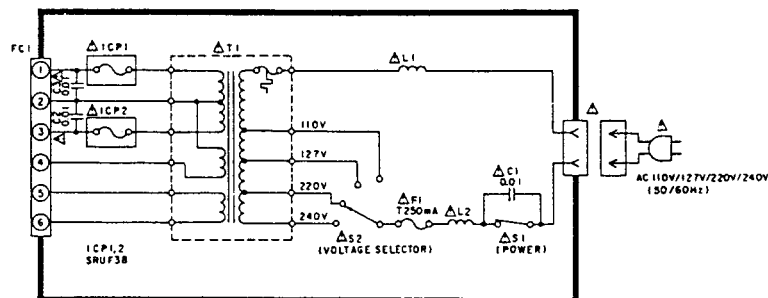
Matsushita Electric Industrial Co., Ltd.
Central P.O. Box 288, Osaka 530-91, Japan

■ SCHEMATIC DIAGRAM (Power supply circuit)

●For (XL) area.

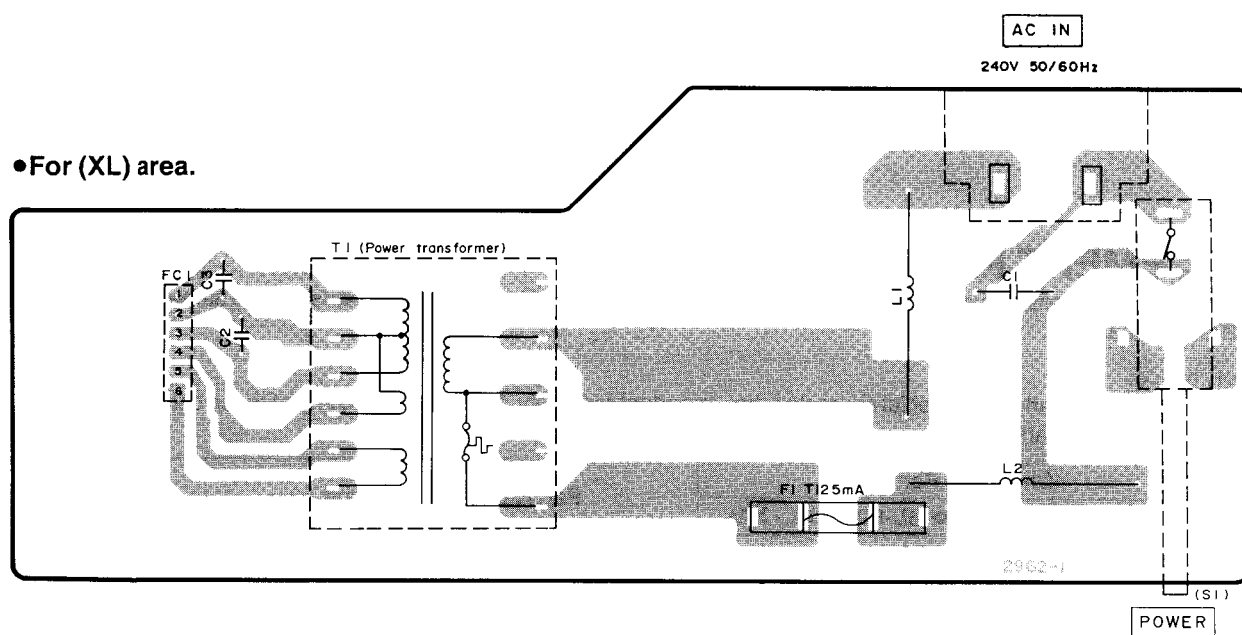


●For (XA) area.

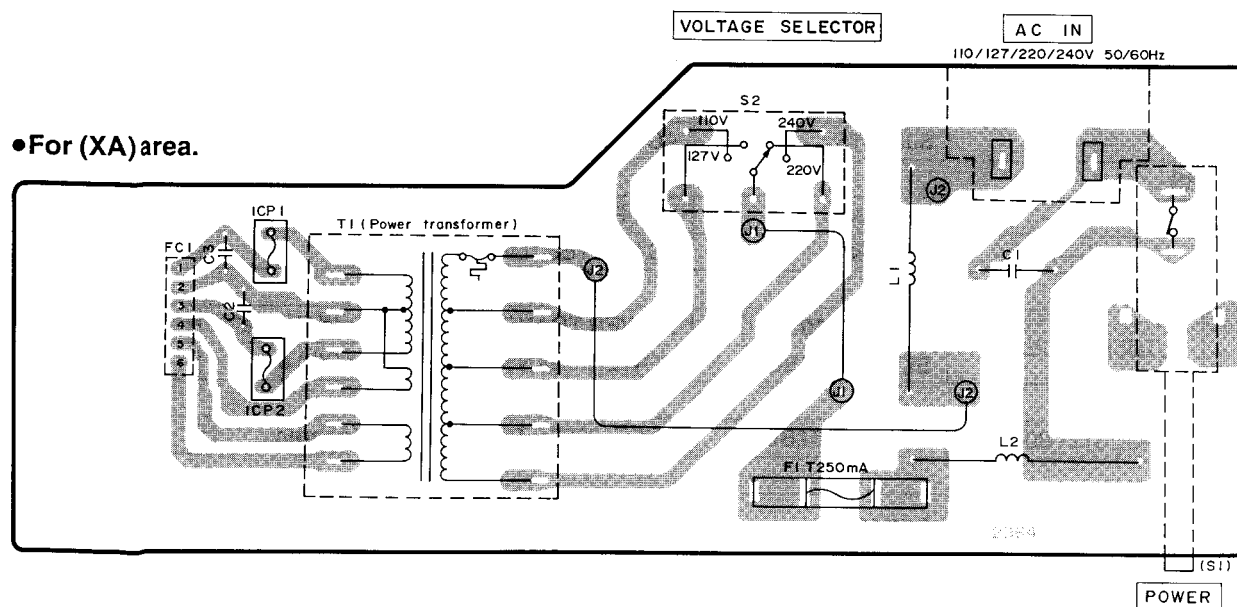


■ PRINTED CIRCUIT BOARDS (Power supply P.C.B.)

●For (XL) area.



●For (XA) area.



Service Manual

COMPACT
disc
DIGITAL AUDIO

DIGITAL

Compact Disc Player
SL-P202

Color

(K)...Silver Type
(S)...Black Type



Area

Country Code	Area	Color
(E)	Continental Europe.	(S) (K)

SPECIFICATIONS

■ Audio

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

■ Signal Format

Sampling frequency: 44.1 kHz
D-A conversion: 16-bit linear

■ Pickup

Wavelength: 780 nm

■ General

Power supply: AC 50/60 Hz, 220 V
Power consumption: 11 W
Dimensions (W×H×D): 430×92×274 mm
Weight: 3.6 kg

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

Technics

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

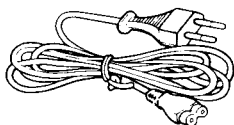
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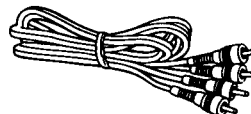
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ACCESSORIES

●AC power supply cord . . . 1
(SJA187)

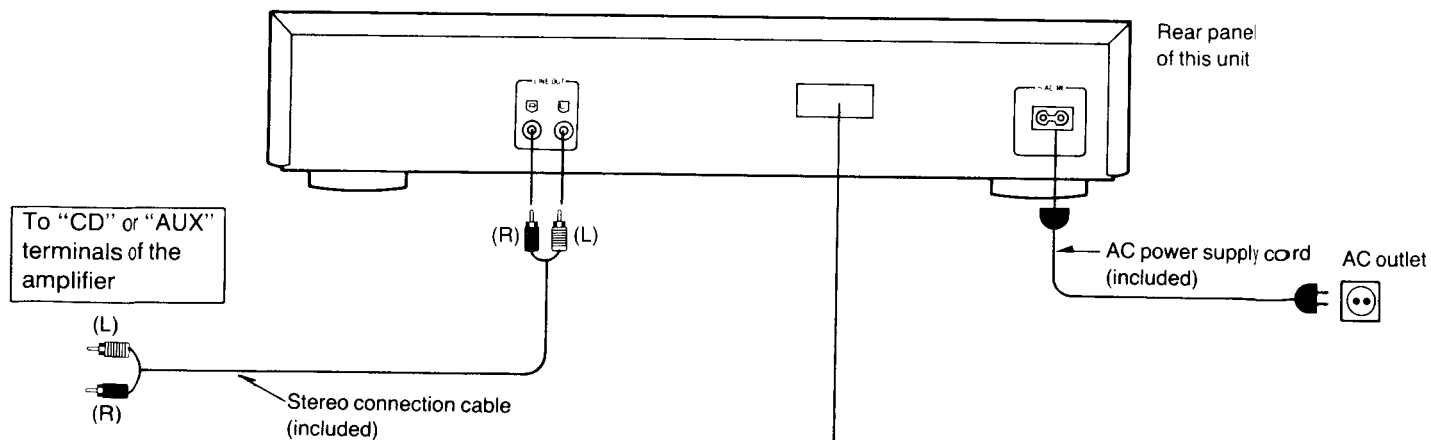


●Stereo connection cable 1
(SJP2249-3)



CONNECTIONS

Turn power off on all components before making connections.



Note:

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

■ 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 laserdiode. Im eingeschalteten zustand wird unsichtbare laserstrahlung von der lasereinheit abgestrahlt.

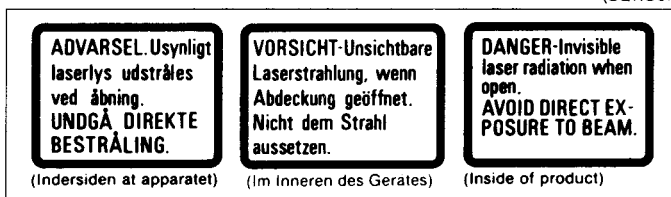
Wellenlänge: 780 nm
Maximale strahlungsleistung der lasereinheit: 100 μ W/VDE

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.

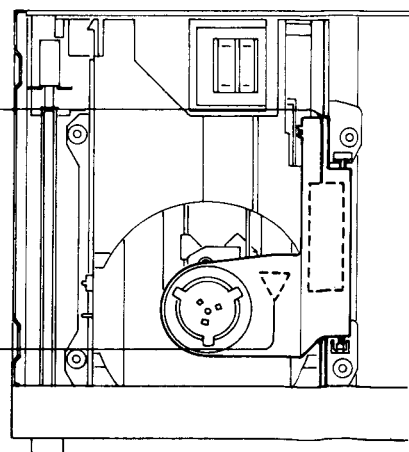
ADVASEL: I dette a apparat anvendes laser.

(SQWD87)

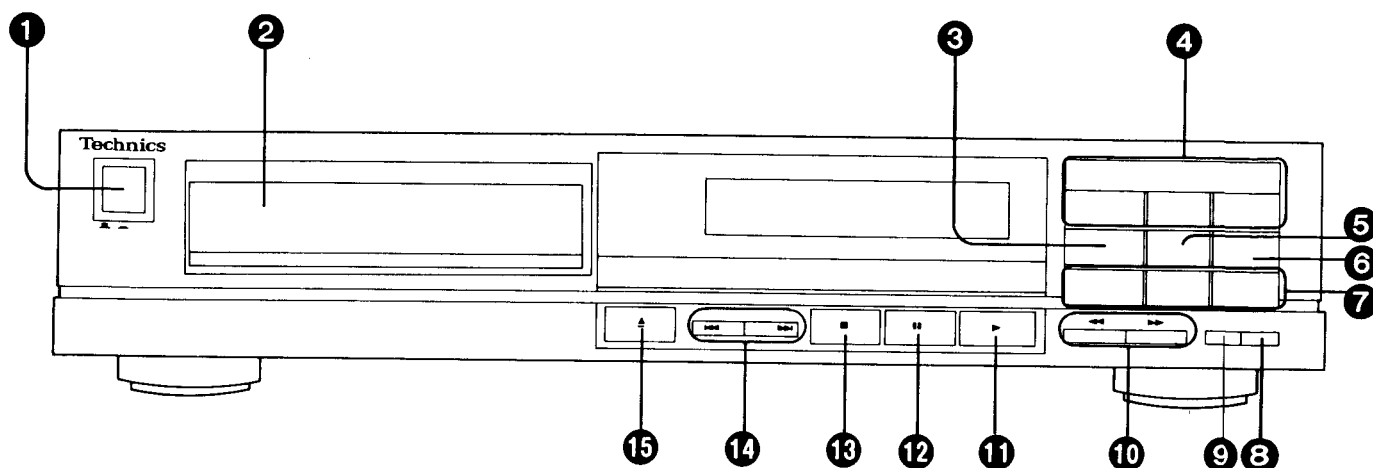


SQWD19

VAROITUS! Laite sisältää laserdiodin, joka lähettää näkymätöntä silmille vaarallista lasersäteilyä



■ LOCATION OF CONTROLS



Control section

1 Power switch (power)

If a disc has already been loaded, play will begin when the power is turned ON.

2 Disc holder

3 Time mode select button (time mode)

4 Buttons for edit function (edit)

•Edit tape length button (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 (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.

•Disc link button (disc link)

This button can be used for edit recording from several discs.

5 Random play button (random)

This button can be used to play the tracks on a disc in a random sequence.

6 Music scan button (music scan)

This button can be used to play the first part of each track in order.

7 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)

This button can be used to clear tracks from the programmed sequence one at a time.

•Recall button (recall)

This button can be used to display the contents of the programmed track sequence for confirmation.

8 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.

9 Repeat button (repeat)

10 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.

11 Play button (▶ play)

12 Pause button (|| pause)

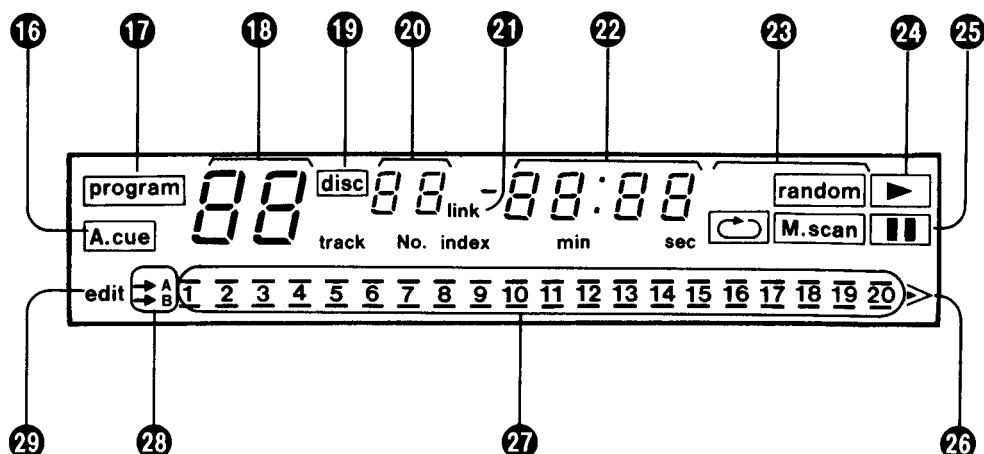
13 Stop button (■ stop)

This button can be used to stop disc play, as well as to cancel the various play modes.

14 Skip buttons (◀◀ skip/skip ▶▶)

These buttons can be used to specify the number of the desired track and the desired recording time of the tape.

15 Disc holder open/close button (▲ open/close)



Indicators section

- 16 Auto cue indicator (A. cue)
- 17 Programmed-play indicator (program)
- 18 Track number display (track)
- 19 Disc indicator (disc)
- 20 Index/program number display (index/No.)
- 21 Disc link indicator (link)
- 22 Time display (min/sec)
- 23 Operation indicators

The following indicators light during their respective operations.

random: Random play

⏮: Repeat play

M. scan: Music scan

- 24 Play indicator (▶)
- 25 Pause indicator (⏸)

- 26 "Over" mark (>)

This indicator lights if the total number of tracks on the disc is 21 or more.

- 27 Track number indicator (1-20)
- 28 Tape side indicator (A/B)
- 29 Compact disc edit indicator (edit)

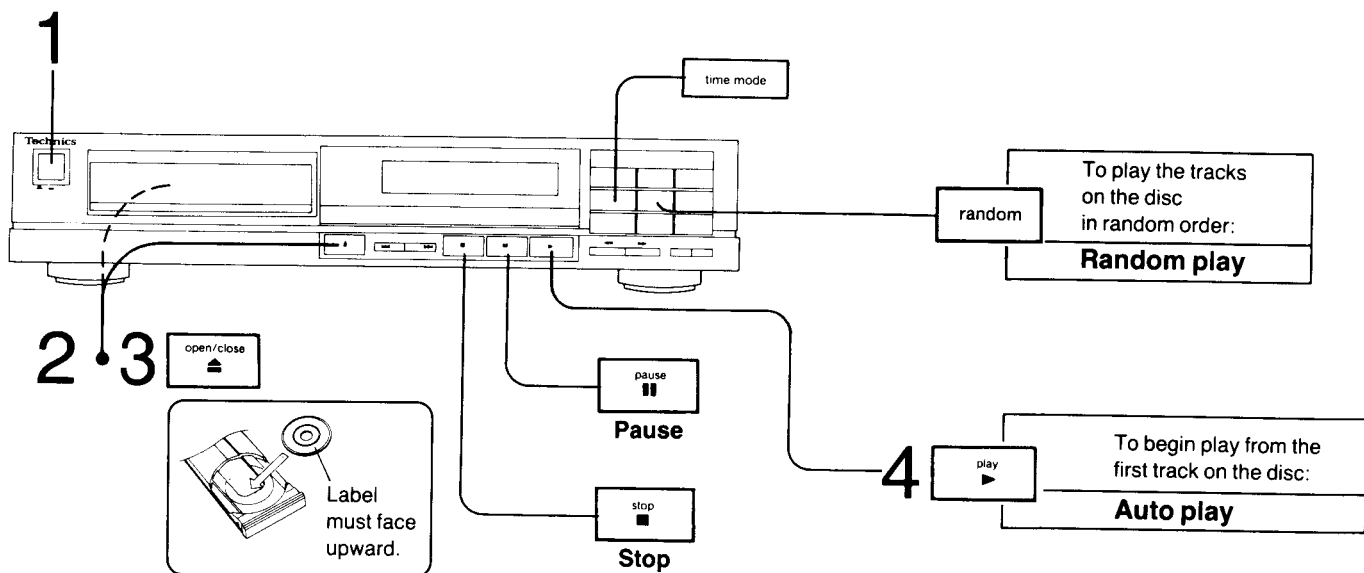
This unit can be operated by using remote control transmitters included with Technics receivers, etc. Face the remote control transmitter toward the control section of the unit.

Note:

Even though the play button of the remote control transmitter to be used is equipped with the pause function, only the play function is available for the unit.

BASIC OPERATION

Has the lock shaft been released?



Auto play

Playing an entire disc from the first track to the last.

Basic operations such as turning the power ON and OFF are the same for the other play modes as well.

1 Press the power switch to turn power ON.

Turn down your amplifier volume first. If, inadvertently, the volume is set too loud, damage to your speakers could result.

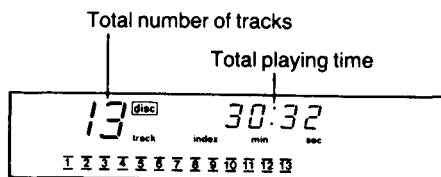
Auto-start function

If a disc has already been loaded into the disc holder, play will begin right away when the power is turned ON. This is for timer play.

2 Press the open/close button to open the disc holder and insert a disc.

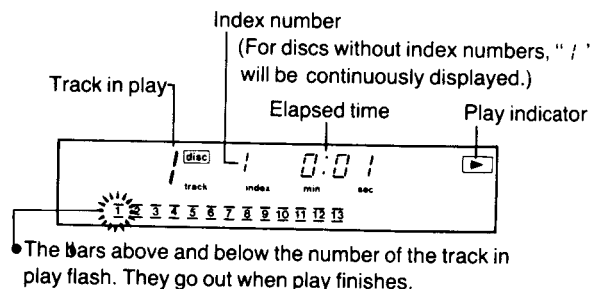
3 Press the open/close button again to close the disc holder.

The total number of tracks on the disc and the total playing time are displayed.



4 Press the play button.

Disc play begins from the first track on the disc.



- The unit stops automatically when the last track on the disc finishes playing. (The display returns to the total number of tracks and total playing time indications.)
- Switch power OFF when finished.

•To stop disc play, press the stop button.

The unit switches to the stop mode and the total number of tracks and total playing time are displayed.

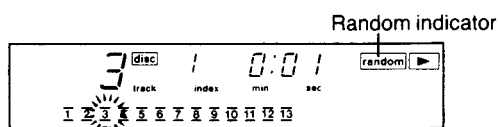
Notes:

- Attempting to change discs while the disc holder is in the process of opening can scratch or damage your discs.
- The total playing time displayed includes the silent sections between tracks. For this reason, it may differ by a few seconds from the playing time printed in the disc's liner notes.

Random play

All the tracks on the disc are played in a new, randomly selected order. The order is different every time. Listening to tracks in a different order can be a refreshing change of pace.

Press the random play button.



When play begins from track 3
(The bars above and below the number of the track in play flash. They go out when play finishes.)

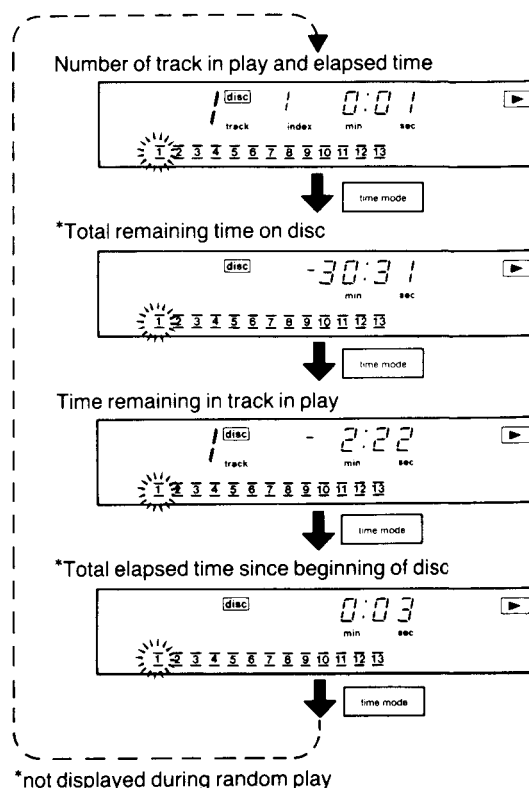
•The unit stops automatically when all tracks on the disc finish playing.

•**To cancel random play while a disc is playing, press the random play button again.**

When the track in play finishes playing, play continues from subsequent tracks in the normal order until the end of the disc is reached.

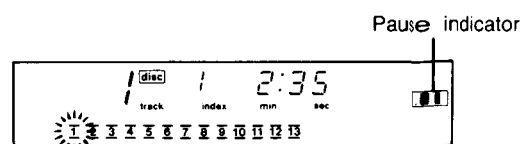
To change the indications of the time mode display

Each time the time mode select button is pressed during play or when the unit is in the pause mode switches the display among the following modes.



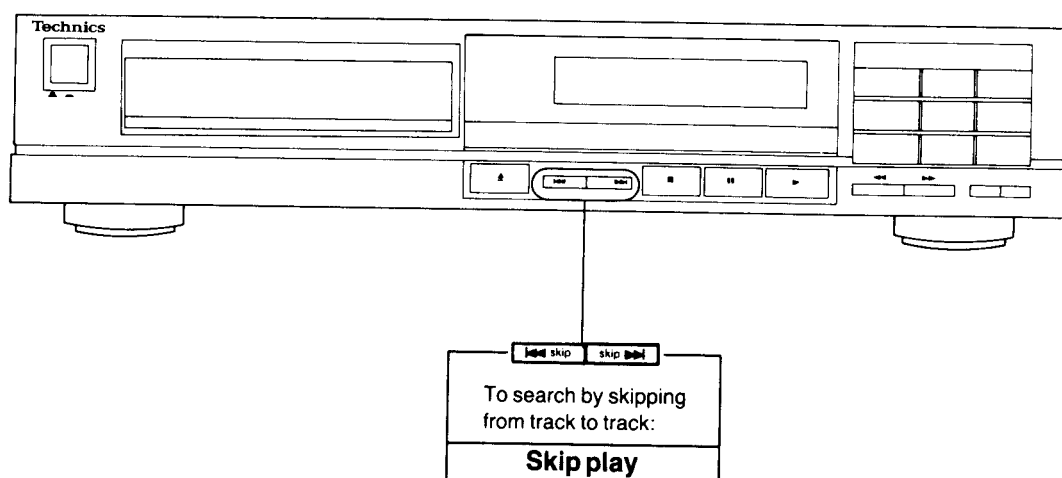
To temporarily stop disc play

Press the pause button.



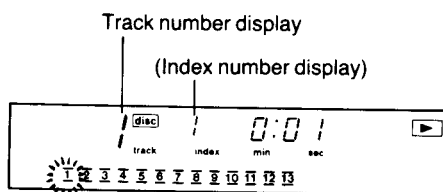
•Press the play button to play again.

■ SEARCH FUNCTIONS



Skip play

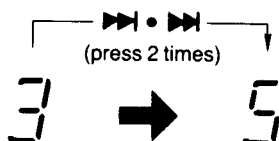
This function allows you to skip to the beginnings of tracks preceding or following the track in play and begins play immediately. It is a good idea to keep an eye on the track number display when using this function.



•To skip forward, press ►► button.

The unit skips ahead one track each time the button is pressed.

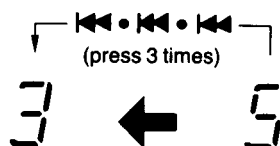
For example, to skip from track 3 to track 5:



•To skip backward, press ◄◄ button.

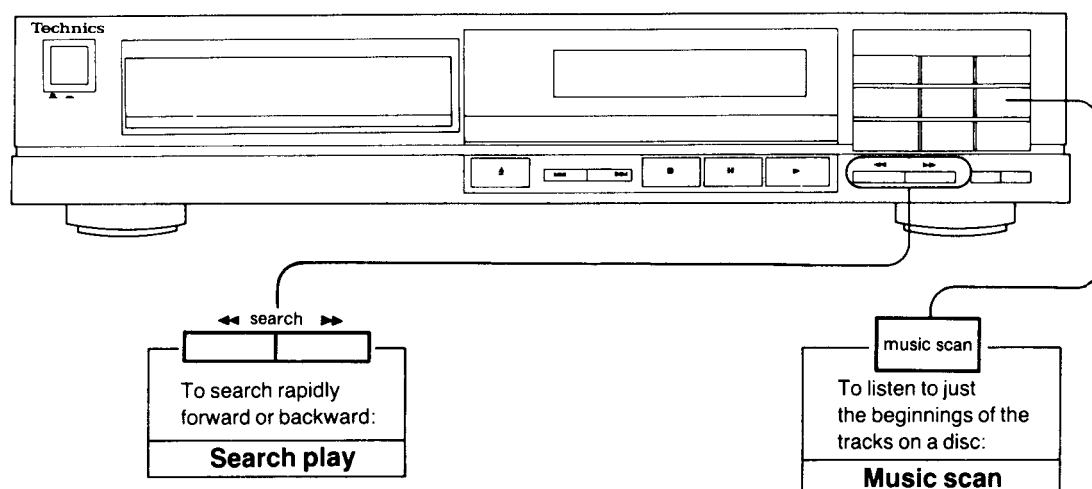
The first time the button is pressed, the unit skips back to the beginning of the track in play. Then it skips back one track for each additional press.

For example, to skip from track 5 to track 3 during play:



Helpful Hints:

- You can skip tracks when the unit is in the stop mode. Play begins automatically from the selected track and continues to the last track on the disc. The unit stops automatically when the last track on the disc finishes playing.
- You can also skip tracks when the unit is in the pause mode. The unit skips to the track selected and remains in the pause mode.



Search play

This function allows you to search rapidly forward or backward on the disc for specific sections.

● **To search forward, press ►► button.**

The unit begins searching in a forward direction.

● **To search backward, press ◄◄ button.**

The unit begins searching in a reverse direction.

The search speed is slow when the button is pressed at first and becomes faster if you keep it pressed down. Release the button when you reach the desired point on the disc.

■ Using search function in the pause mode

When the search button is released, the unit returns to the pause mode.

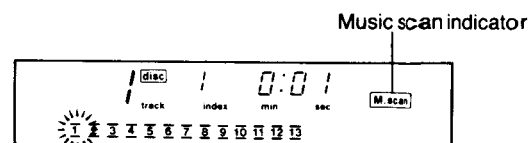
Music scan

This function plays only the first 15 seconds of each track on the disc.

It is useful for locating tracks in a disc when you are not sure of the contents of tracks.

Press the music scan button.

Music scan begins with playing the first 15 seconds of track 1.



- Once the beginning sections of all the tracks on the disc have finished playing, music scan is canceled and normal play begins from track 1.

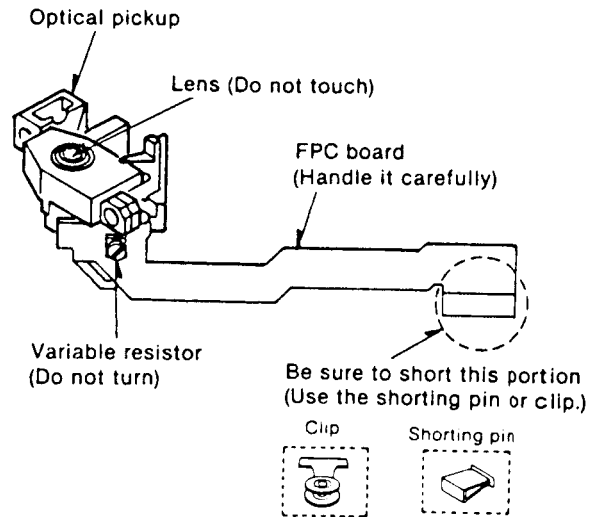
■ HANDLING PRECAUTIONS FOR OPTICAL PICKUP

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 give excessive shock to the optical pickup because it is of extremely precise structure.
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.

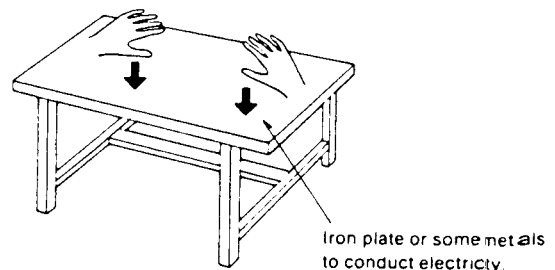
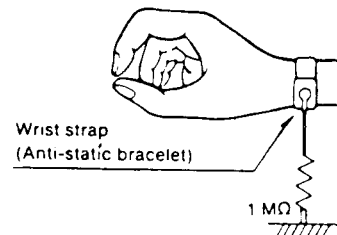


• Grounding for electrostatic breakdown prevention

1. Human body grounding
Use the anti-static wrist strap to relieve 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.

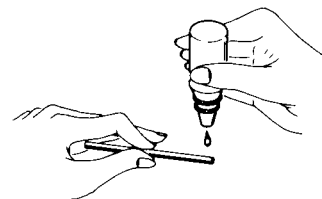


■ INSTRUCTIONS FOR TRAVERSE OIL (Part No. SZZ0L31)

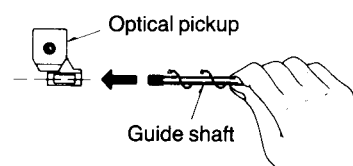
The container contains 6 g (approx. 3 ml) of oil, and one application (one shaft) requires 0.05 ml of oil.

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 SZZ0L31 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.



図(1)

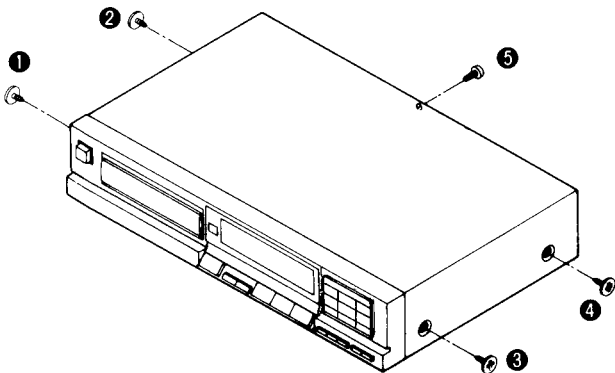
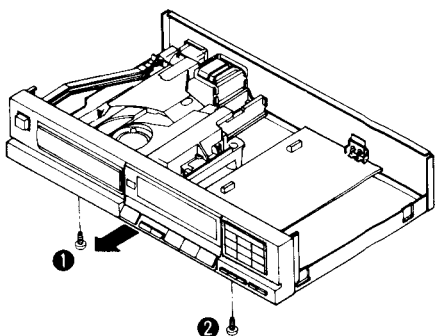
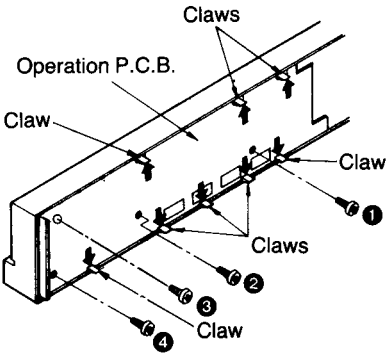


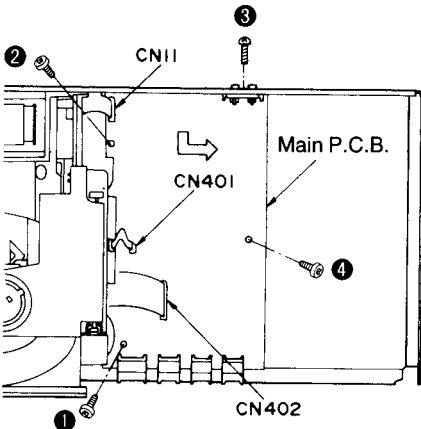
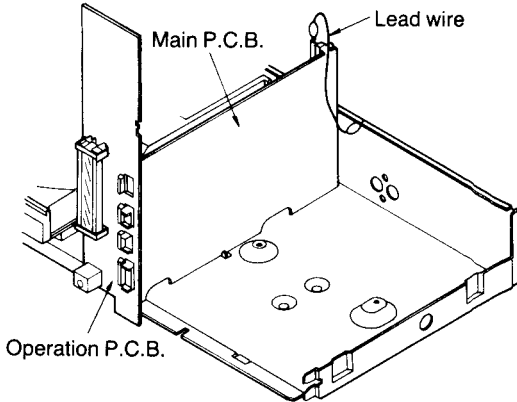
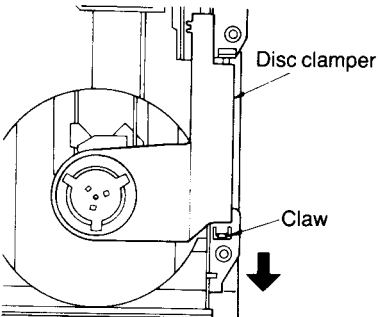
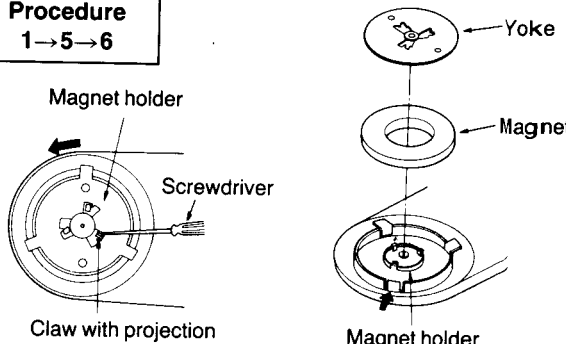
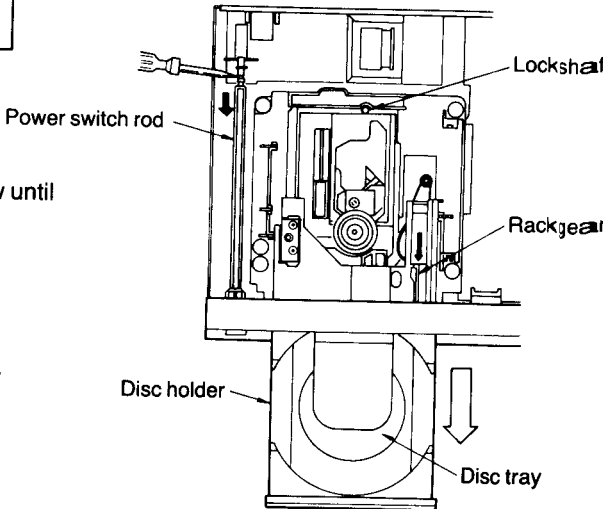
DISASSEMBLY INSTRUCTIONS

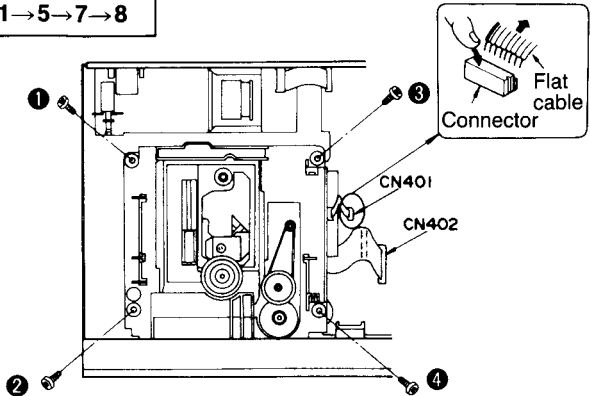
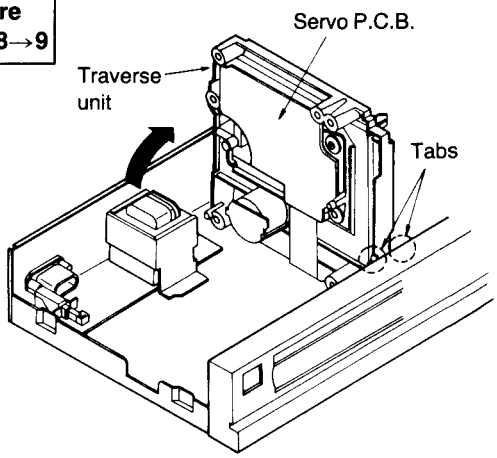
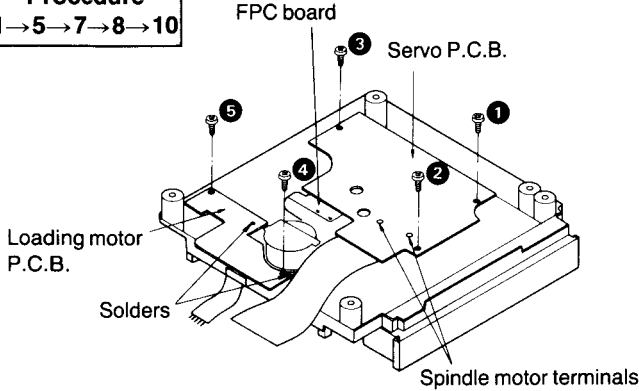
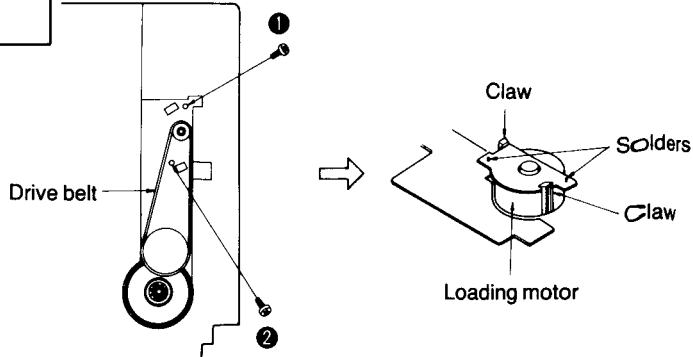
Warning: This product uses a laser diodes. Refer to caution statements on page 3.

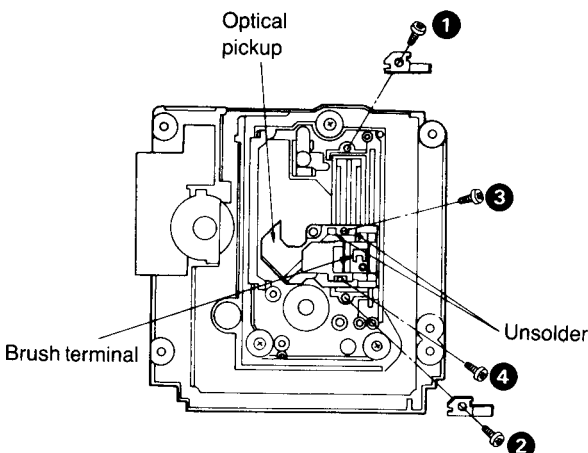
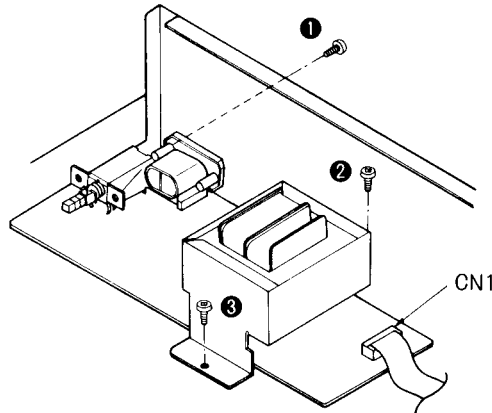
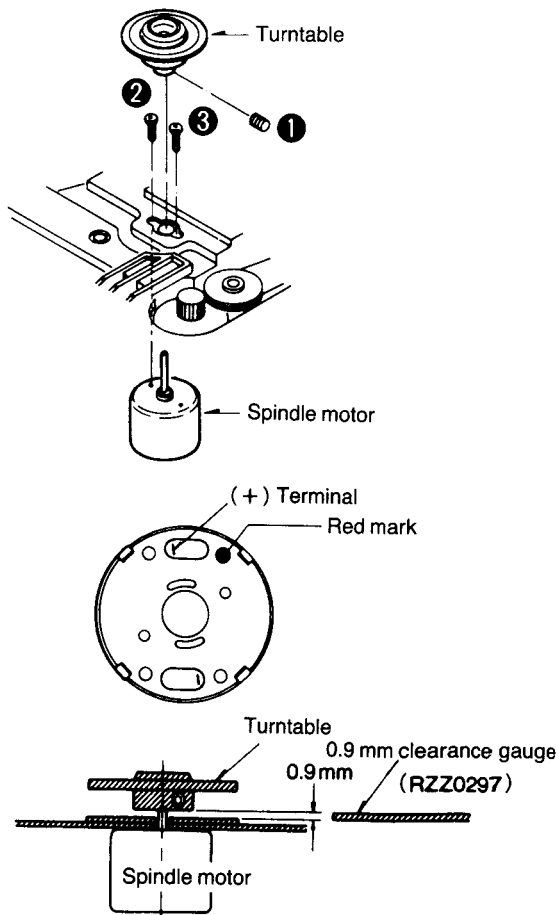
ACHTUNG: • Die Lasereinheit nicht zerlegen.

• Die Lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

Ref. No. 1	Removal of the cabinet	Ref. No. 2	Removal of the front panel
Procedure 1	 • Remove the 5 screws (1~5).	Procedure 1→2	 1. Remove the 2 screws (1, 2). 2. Remove the front panel in the direction of the arrow.
Ref. No. 3	Removal of the operation P.C.B.		
Procedure 1→2→3	 1. Remove the 4 screws (1~4). 2. Release the 8 claws in the direction of the arrows and remove the operation P.C.B.		

Ref. No. 4	Removal of the main P.C.B.	How to check the main P.C.B.	
Procedure 1→2→3→4	 - Remove the 4 screws (1~4). - Lift the main P.C.B. off the retention posts on the chassis. - Remove the main P.C.B. in the direction of the arrow.	- When checking the soldered surface of the main P.C.B. and replacing the parts, do as shown. 1. Connect the main P.C.B. ground terminal (LINE OUT terminal) to the chassis with a lead wire. 2. Connect the loading base grounding terminal to the chassis with a lead wire. 3. Connect the operation P.C.B. ground terminal to the chassis with a lead wire. 	
Ref. No. 5	Removal of the disc clamber	Ref. No. 6	Removal of the magnet and holder
Procedure 1→5	 Push the claw in the direction of the arrow and remove the disc clamber.	Procedure 1→5→6	 - While lifting the claw with a screwdriver, rotate magnet holder in the direction of the arrow and remove the yoke and magnet. - Release the claws of the magnet holder.
Ref. No. 7	Removal of the disc holder and power switch rod		
Procedure 1→5→7	Removal of the disc holder - Push the rack gear slowly in the direction of the arrow until the disc tray comes up. - Pull out the disc holder further to remove it. Note: Make sure to release the lock shaft. Removal of the power switch rod. - Set the power switch to the "OFF" position. - Remove the power switch rod by using a screwdriver. 		

Ref. No. 8	Removal of the loading base	Ref. No. 9	How to check the servo P.C.B.
Procedure 1→5→7→8	 1. Remove the 4 screws (①~④). 2. Remove the 2 flat cables (CN401, CN402).	Procedure 1→5→7→8→9	 •When checking the soldered surfaces of the servo P.C.B. and replacing the parts, do as shown. •Flat cables (CN401 and CN402) should be left connected.
Ref. No. 10	Removal of the servo P.C.B. and loading motor P.C.B.	To play a disc	
Procedure 1→5→7→8→10	 •Removal of the servo P.C.B. 1. Remove the 3 screws (①~③). 2. Unsolder the 2 terminals of spindle motor. 3. Remove the FPC board from the optical pickup. Caution: To prevent the breakdown of the laser diode, antistatic shorting pin is inserted into the FPC board. •Removal of the loading motor P.C.B. 1. Remove the 2 screws (④, ⑤). 2. Unsolder the 2 terminals of loading motor.	1. Place the test disc and magnet. 2. Switch the player on. 3. First push the Open/Close switch S102 in the direction of the arrow and then, within 4 seconds, push switch S101 in the direction of the arrow as shown in the figure.	
Ref. No. 11	Removal of the loading motor		
Procedure 1→5→7→8→11	1. Remove the drive belt. 2. Remove the 2 screws (①, ②). 3. Release the 2 claws. 4. Unsolder the 2 terminals of the lead wire of the loading motor.		

Ref. No. 12	Removal of the optical pickup	Ref. No. 13	Removal of the power supply P.C.B.
Procedure 1→5→7→8→ 10→12	Refer to the handling precautions for optical pickup and instructions for traverse oil (See page 10).	Procedure 1→5→7→13	
	1. Remove the 2 screws (①, ②). 2. Unsolder the 2 terminals and the 2 screws (③, ④).  Caution: Take care not to touch the brush terminal.	 1. Remove the 3 screws (①~③). 2. Remove the flat cable (CN1).	
Ref. No. 14	Removal of the spindle motor		
Procedure 1→5→7→8→ 10→14			
	1. Loosen the screw (①) by using a 1.27 mm allen wrench and remove the turntable. 2. Remove the 2 screws (②, ③). Caution: 1. Turntable height adjustment is necessary any time the turntable or spindle motor is replaced. 2. The (+) terminal of the spindle motor is indicated by the red mark. Adjustment of turntable height 1. Insert a 0.9 mm clearance gauge (RZZ0297) between the turntable and loading base as shown in the figure. 2. Tighten the turntable set-screw by using a 1.27 mm allen wrench. Caution: Refer to turntable height adjustment (See page 16).		

MEASUREMENTS AND ADJUSTMENTS

Caution:

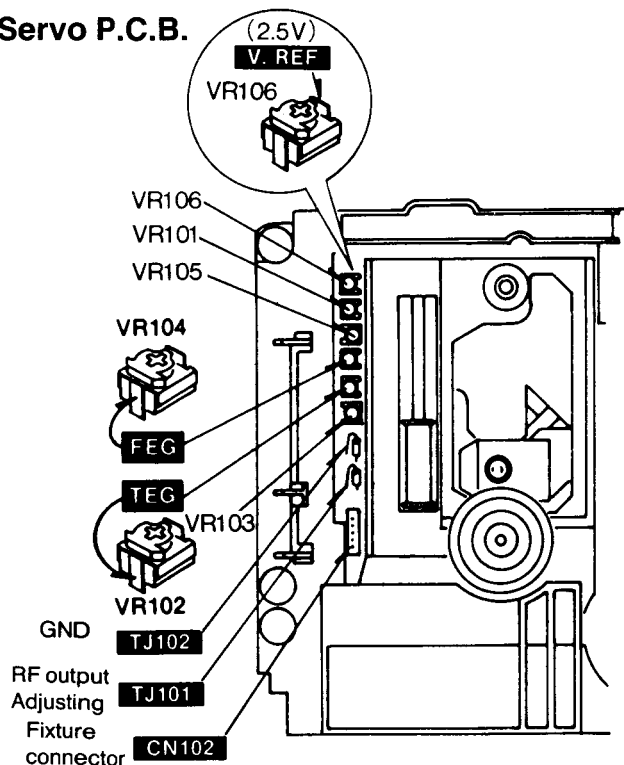
- It is very dangerous to look at or touch the laser beam. (Laser radiation is invisible.)
With the unit turned "on", laser radiation is emitted from the pickup lens.
Avoid exposure to the laser beam, especially when performing adjustments.

PREPARATION

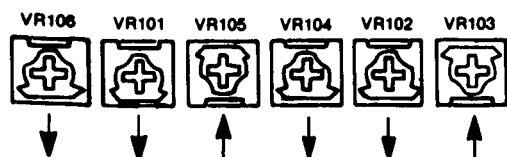
- Remove the cabinet (see Ref. No. 1 in disassembly instructions).
- Remove the disc clumper and magnet (see Ref. No. 6 of the same).
- Remove the disc holder and power switch rod (see Ref. No. 7 of the same).
- Place the test disc and magnet on the turntable.
- Switch the player on.
- First push the Open/Close switch S102 in the direction of the arrow, and then, within 4 seconds, push switch S101 in the direction of the arrow as shown in the figure.

ADJUSTMENT POINTS

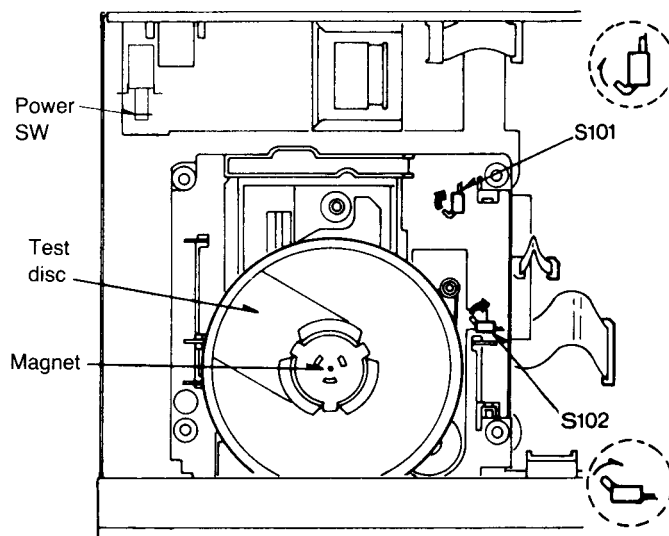
•Servo P.C.B.



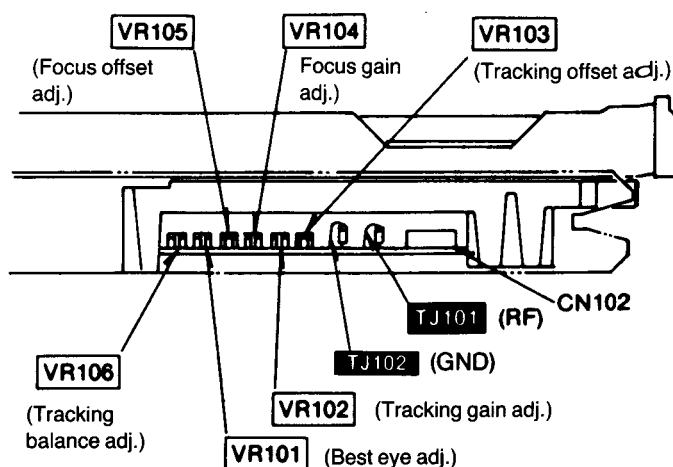
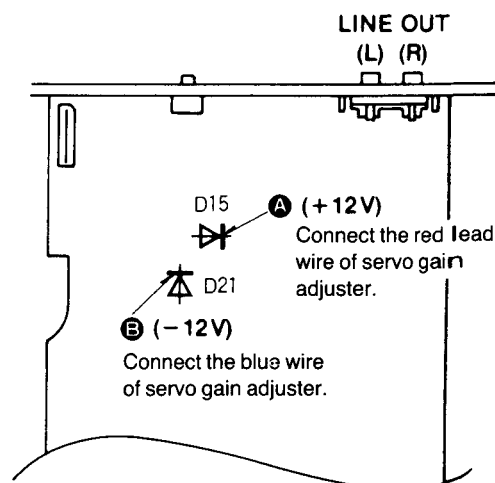
•Temporary setting of each VR



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



•Main P.C.B.



Measuring Instruments and Special Tools

- Servo gain adjuster (SZZP1017F or SZZP1094C)
- Test discs
 1. Playability test disc (SZZP1054C or SZZP1014F)
 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)
- Allen wrench (M1.27)
- 0.9 mm clearance gauge (RZZ0297)

As to the replacement of the following parts, refer to the specified sections for adjustment.

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

Adjusting Procedure

- If you have replaced the spindle motor or turntable, perform 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 VR104's **FEG** (+) and VR106's **V. REF** (-) terminals via a filter.
(Note: A voltage of 2.5 V appears at the V. REF terminal. Take care not to short the player's chassis to the oscilloscope ground.)

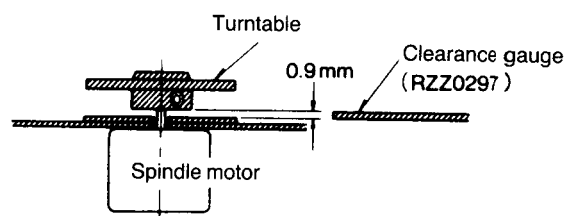
Oscilloscope setting:

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 (SZZP1014F or SZZP1054C).
6. Measure the DC level displayed 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.



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.)

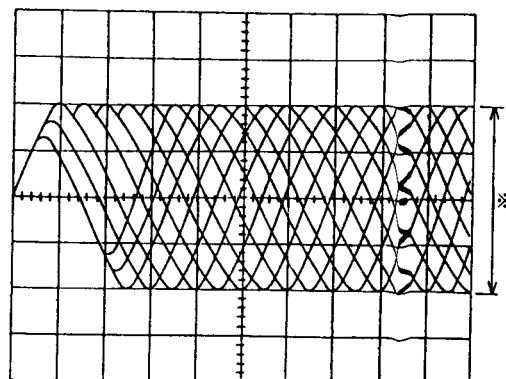
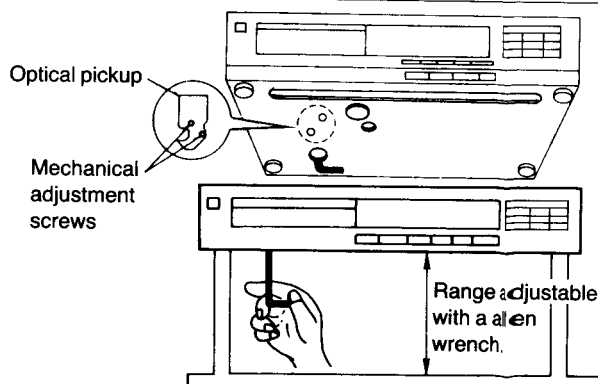
(2) MECHANICAL ADJUSTMENT

1. Connect the oscilloscope's CH. 1 probe across **TJ101** (+) and **TJ102** (-) on the Servo P.C.B.

Oscilloscope setting:

VOLT 100 mV
 SWEEP 0.5 μ s.
 Input coupling AC

2. Switch the player power **ON**, and play track 9 on the test disc (SZZP1056C).
3. Leave the player in Play mode and place it as shown in the figure on the right.
4. Alternately adjust the two mechanical adjusting screws with the 2.0 mm allen wrench until the RF signal amplitude variation on the oscilloscope is minimized.
5. After completing the adjustment, lock the **mechanical adjustments** with lock paint (RZZOL01).



*Minimize the variation of amplitude.

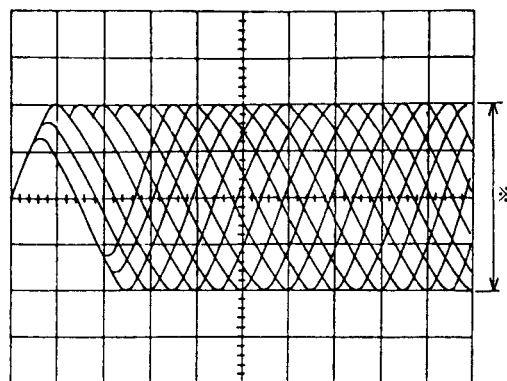
(3) BEST EYE (PD BALANCE) ADJUSTMENT

1. Connect the oscilloscope's CH. 1 probe across **TJ101** (+) and **TJ102** (-) on the Servo P.C.B.

Oscilloscope setting:

VOLT 200 mV
 SWEEP 0.5 μ s.
 Input coupling AC

2. Switch the player power **ON**, and play the 0.5 mm black dot on the test disc (SZZP1014F or SZZP1054C).
3. Adjust **VR101** until the RF signal eye pattern amplitude is maximized.



*Maximize the amplitude.

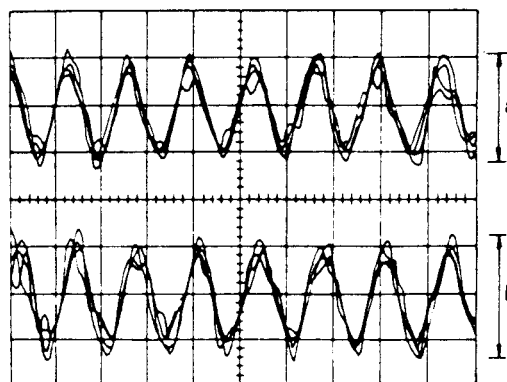
(4) FOCUS GAIN ADJUSTMENT

1. Connect the servo gain adjuster to the player (see page 19).
2. Set the servo gain adjuster's gain switch to position "2" and the ON/OFF switch to **ON**.
3. Set up the AF oscillator output for **825 Hz, 150 mVp-p**, and connect it across the OSC and GND terminals on the servo gain adjuster.
4. Connect oscilloscope's CH. 1 and CH. 2 probes to the servo gain adjuster's TP1 and TP2 terminals, respectively (TP3 is GND).

Oscilloscope setting:

VOLT 100 mV (both channels)
 SWEEP 1 msec.
 Input coupling AC

5. Play the test disc (SZZP1014F or SZZP1054C).
6. Set the servo gain adjuster's gain switch to position "3", and you will see a 825 Hz signal on the oscilloscope. Adjust **VR104** until the signal amplitudes on both channels become identical to each other.
7. Set the gain switch back to position "2".



*Adjust **VR104** until a equals b.

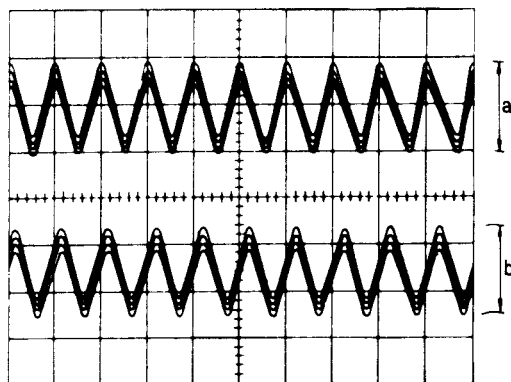
(5) TRACKING GAIN ADJUSTMENT

1. Set up the AF oscillator output for **1.1 kHz, 150 mVp-p**, and connect it across the OSC and GND terminals on the servo gain adjuster.
2. Connect oscilloscope's CH. 1 and CH. 2 probes to the servo gain adjuster's TP1 and TP2 terminals, respectively (TP3 is GND).

Oscilloscope setting:

VOLT 100 mV (both channels)
 SWEEP 1 msec.
 Input coupling AC

3. Switch the player power **ON**, and play the test disc (SZZP1014F or SZZP1054C).
4. Set the servo gain adjuster's gain switch to position "1", and you will see a 1.1 kHz signal on the oscilloscope. Adjust **VR102** until the signal amplitudes on both channels become identical to each other.
5. Set the gain switch back to position "2".



*Adjust **VR102** until a equals b.

(6) FOCUS OFFSET ADJUSTMENT

Note: Make sure that the servo gain adjuster's gain switch is set to position "2".

1. Connect the oscilloscope's CH.1 probe across **TJ101** (+) and **TJ102** (-) on the Servo P.C.B. and its CH.2 probe (+) to VR104's **FEG** terminal.

Oscilloscope setting:

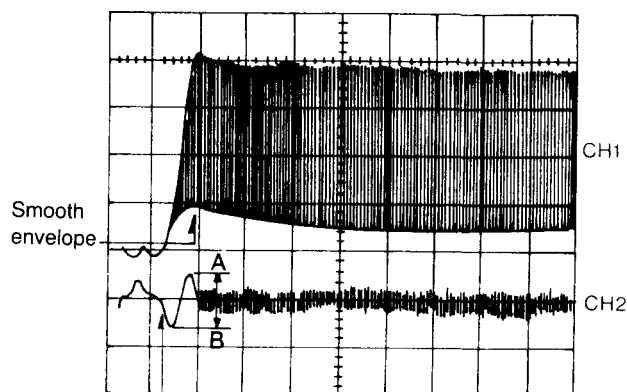
VOLT 100 mV (CH. 1)
100 mV (CH. 2)

SWEEP 0.5 ms.

Input coupling AC (both CH. 1 and 2)

Trigger mode NORM (trigger CH. 1)

2. Switch the player power **ON**, and play the **9** on the test disc (SZZP1057C).
3. 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.



Minimize the amplitude on make $A=B$.

(7) TRACKING OF OFFSET ADJUSTMENT

Note: Make sure that the servo gain adjuster's gain switch is set to position "2".

1. Connect the oscilloscope's CH.1 probe across **TJ101** (+) and **TJ102** (–) on the Servo P.C.B. and its CH.2 probe (+) to VR102's **TEG** terminal.

Oscilloscope setting:

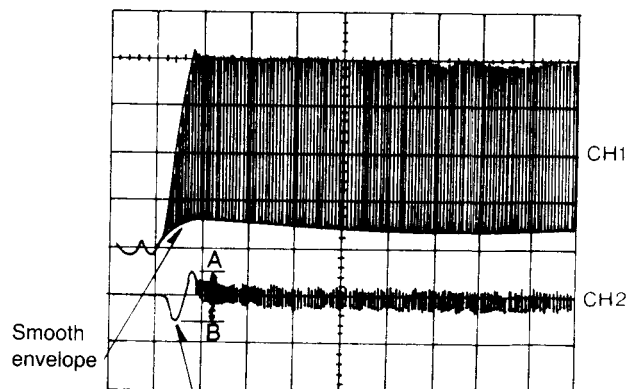
VOLT 100 mV (CH. 1)
200 mV (CH. 2)

SWEEP 0.5 ms

Input coupling AC (both CH. 1 and 2)

Trigger mode NORM (trigger CH. 1.)

2. Switch the player power **ON**, and play rack **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.



Minimize the amplitude on make $A=B$.

(8) TRACKING BALANCE ADJUSTMENT

1. Make sure that servo gain adjuster's gain switch is set to position "2".
2. Set up the AF oscillator output for **1.1 kHz, 600 mVp-p**, and connect it across the OSC and GND terminals on the servo gain adjuster.
3. Connect oscilloscope's CH. 1 probe across **TJ101** (+) and **TJ102** (-) on the Servo P.C.B. and CH. 2 probe (+) to the OSC terminal on the servo gain adjuster.

Oscilloscope setting:

VOLT 100 mV (CH. 1)

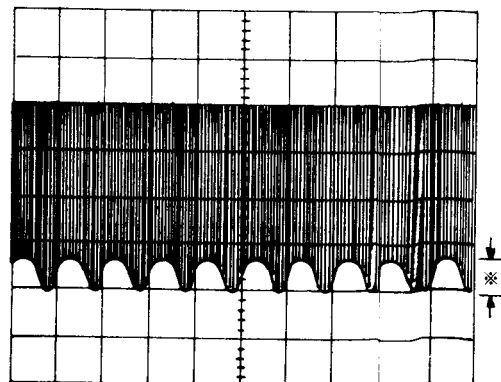
SWEEP 0.5 msec.

Input coupling AC (both CH. 1 and 2)

Trigger mode NORM (trigger CH. 2)

4. Switch the player power **ON**, and play the test disc (SZZP1014F or SZZP1054C).

5. Set the servo gain adjuster's gain switch to position "1", and adjust **VR106** until the jitter contained in the signal waveform on CH. 1 is minimized as shown below.
6. Disconnect the servo gain adjuster's leads from the player.



* Jitter should be minimized.

(9) 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.

● Connection of servo gain adjuster

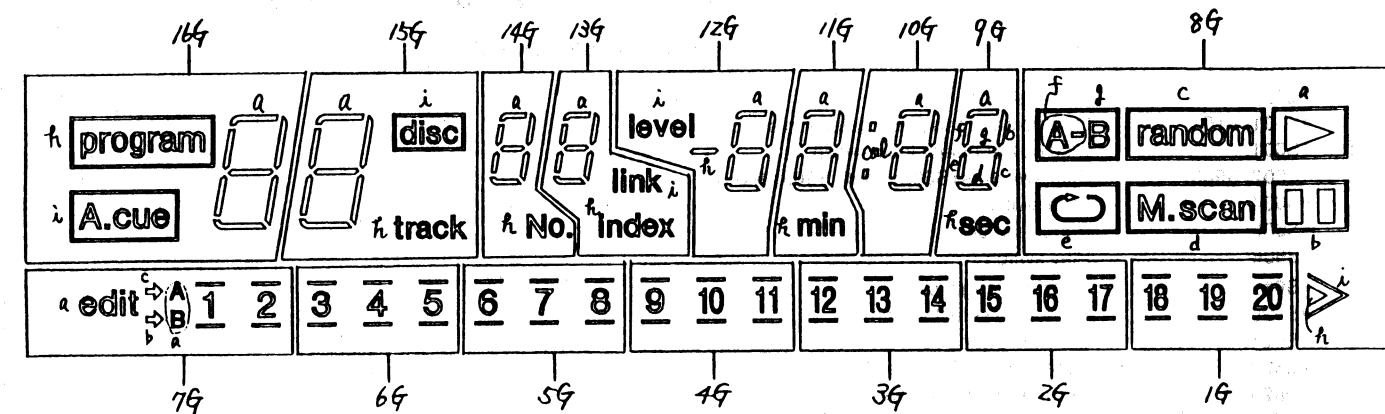
The diagram illustrates the connection of the servo gain adjuster (SZZP1017F) to the audio-frequency oscillator and the oscilloscope. The servo gain adjuster features an ON/OFF switch, a selector switch with positions 1, 2, and 3, and test points TP1, TP2, and TP3. The audio-frequency oscillator has GND and OSC terminals. The oscilloscope has CH1, CH2, and GND inputs. The conversion connector (SZZP1032F) is used to interface the servo gain adjuster with the device. Wires connect the oscillator's OSC terminal to the servo's OSC terminal, and the servo's TP1, TP2, and TP3 terminals to the oscilloscope's CH1, CH2, and GND inputs respectively. A color-coded wire (Blue, Red, Green) connects the servo's GND terminal to the oscillator's GND terminal. The diagram also shows a 3D perspective view of the servo gain adjuster installed in a device, with a label CN102 pointing to its location.

The following introduces the improved version of the current servo gain adjuster (SZZP1017F):

Features:

- Features:**
- (1) Contains all oscillation frequencies and output adjustments needed for focus servo gain, tracking servo gain, and tracking balance adjustment (requires no external oscillator).
 - (2) Panel indicators indicate the best points of focus and tracking servo gains (no oscilloscope needed).
 - (3) Internal power supply eliminates the need for power supply from the CD player.

● GRID ASSIGNMENT



42	41	40	39	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
F 2	F 2	N P	a	b	c	d	N P	N P	N P	e	f	g	h	i	16 G	15 G	14 G	13 G	N P	N P	N P	N P	12 G	11 G	10 G	9 G	8 G	7 G	6 G	5 G	4 G	N P	N P	N P	N P	3 G	2 G	1 G	N P	F 1	F 1

	16G	15G	14G	13G	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
a	a	a	a	a	a	a	a	a		edit A B	3	6	9	12	15	18
b	b	b	b	b	b	b	b	b		(L)	<u>3</u>	<u>6</u>	<u>9</u>	<u>12</u>	<u>15</u>	<u>18</u>
c	c	c	c	c	c	c	c	c	random	(H)	<u>3</u>	<u>6</u>	<u>9</u>	<u>12</u>	<u>15</u>	<u>18</u>
d	d	d	d	d	d	d	d	d	M.scan	1	4	7	10	13	16	19
e	e	e	e	e	e	e	e	e		(L) <u>1</u>	<u>4</u>	<u>7</u>	<u>10</u>	<u>13</u>	<u>16</u>	<u>19</u>
f	f	f	f	f	f	f	f	f	A-	(H) <u>1</u>	<u>4</u>	<u>7</u>	<u>10</u>	<u>13</u>	<u>16</u>	<u>19</u>
g	g	g	g	g	g	g	g	g	B	2	5	8	11	14	17	20
h	program	track	No.	index	—	min	col	sec		(L) <u>2</u>	<u>5</u>	<u>8</u>	<u>11</u>	<u>14</u>	<u>17</u>	<u>20</u>
i	A.cue	disc	-	link	level	-	-	-		(H) <u>2</u>	<u>5</u>	<u>8</u>	<u>11</u>	<u>14</u>	<u>17</u>	<u>20</u>

SCHEMATIC DIAGRAM (Parts list on page 45~47)

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

- S1: Power switch
- S101, S102: Disc holder open/close detection switches
- S601: Disc holder open/close switch
- S602, S603: Skip switches (S602: ◀, S603: ▶)
- S604: Stop switch
- S605: Pause switch
- S606: Play switch
- S619: Edit tape length switch
- S620: Tape-side select switch
- S621: Disk link switch
- S622: Time mode select switch
- S623: Programmed-play switch
- S624: Clear switch
- S625: Recall switch
- S626: Repeat switch
- S627: Auto cue switch
- S628: Random play switch
- S629: Music scan switch
- S630, S631: Search switches (S630: ◀, S631: ▶)

•The voltage value and waveform 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, 0 dB), 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.

—> : Positive voltage lines. ---> : 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.

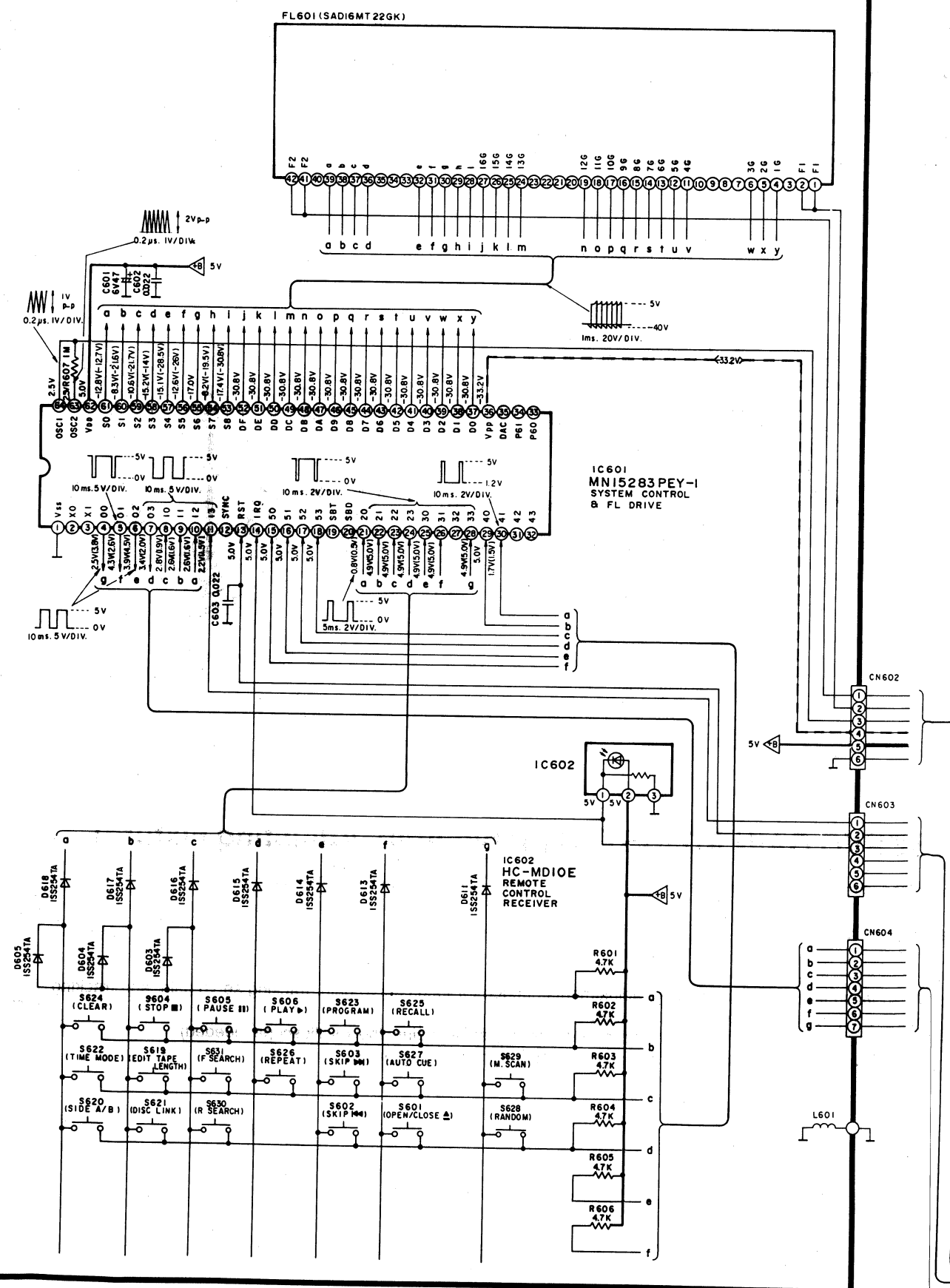
*Cover the parts boxes made of plastics with aluminum foil.

*Ground the soldering iron.

*Put a conductive mat on the work table.

*Do not touch the legs of IC or LSI with the fingers directly.

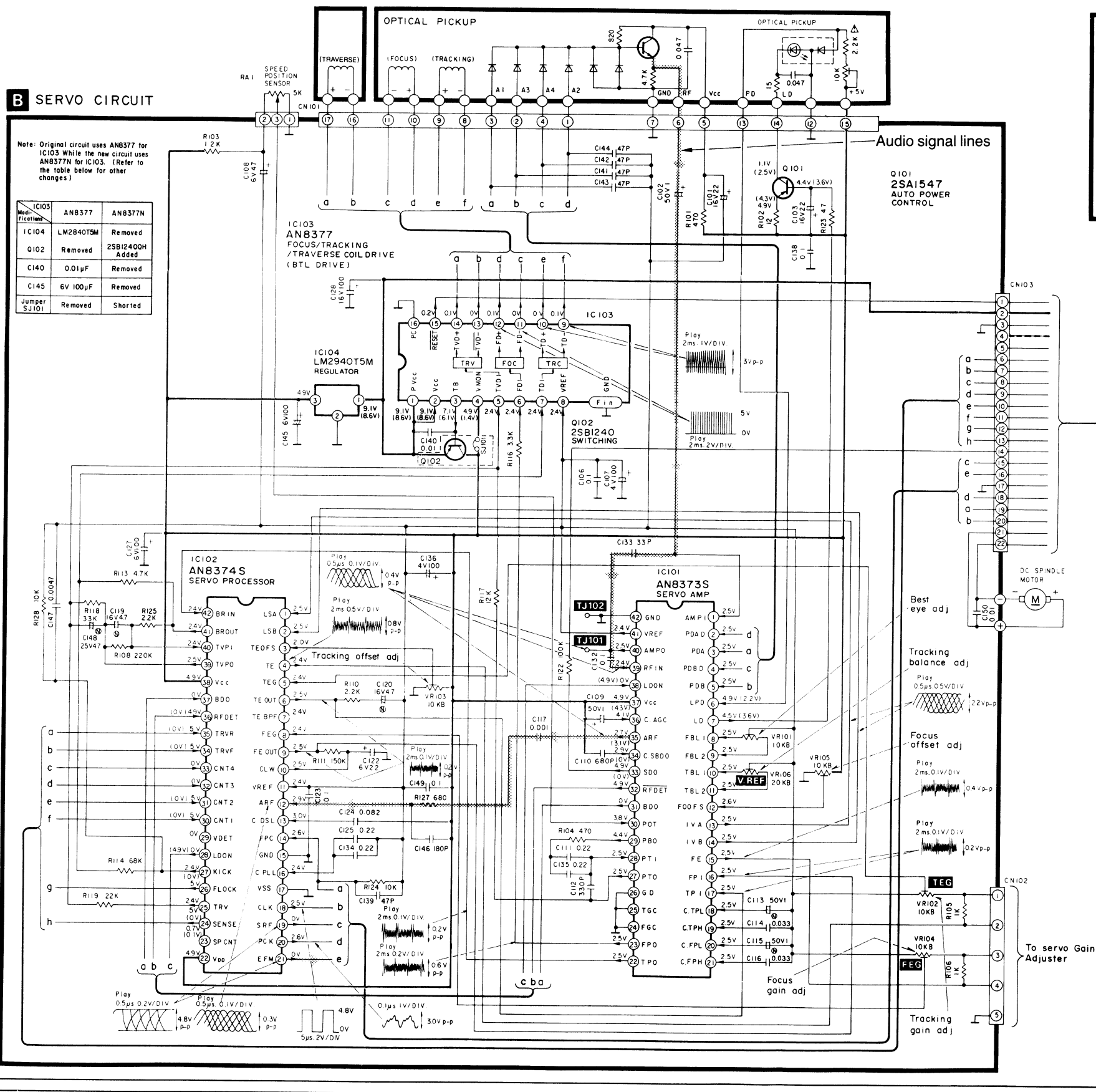
A OPERATION CIRCUIT



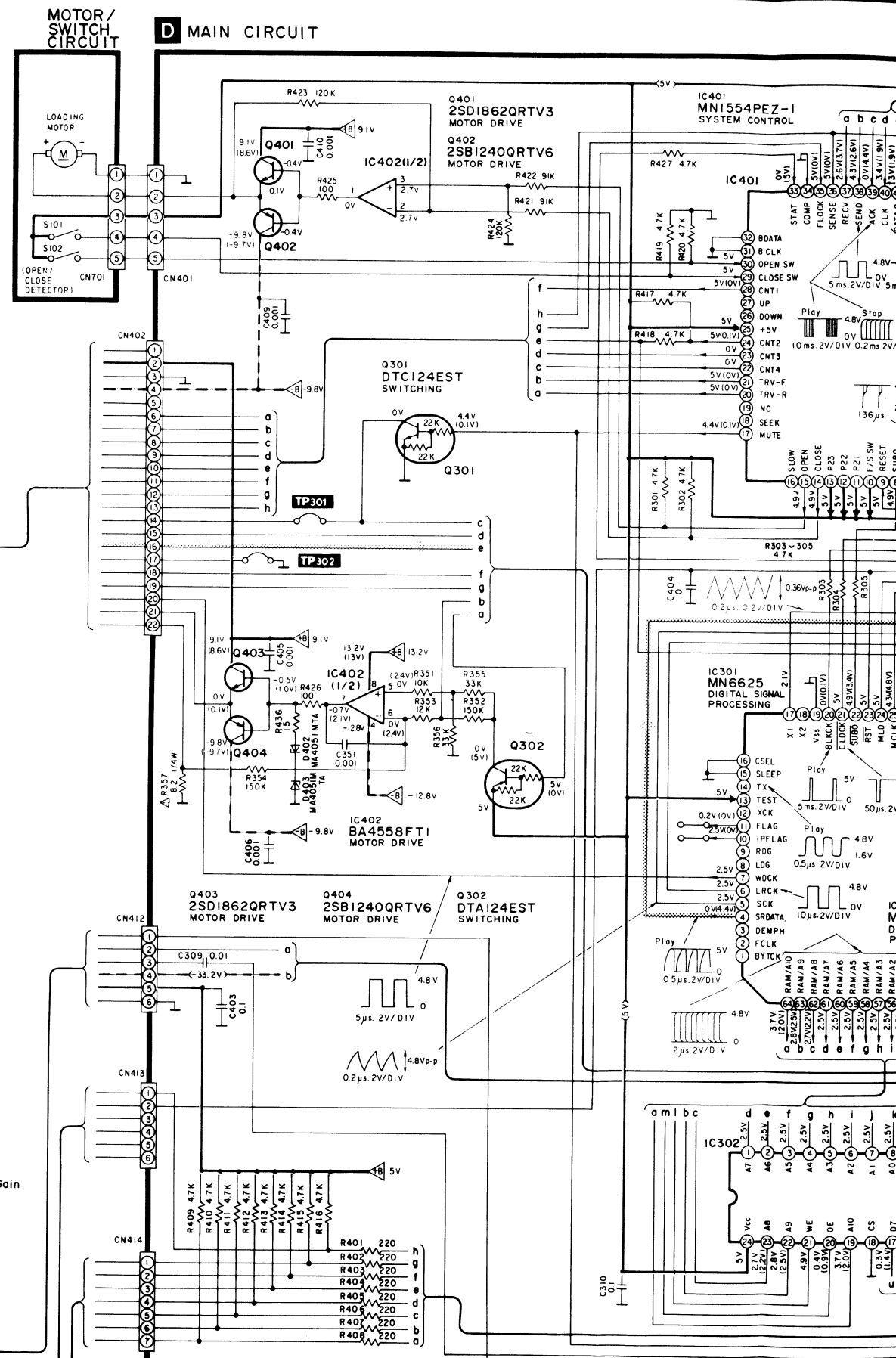
B SERVO CIRCUIT

Note: Original circuit uses AN8377 for IC103 While the new circuit uses AN8377N for IC103. (Refer to the table below for other changes)

Modifications	IC103	
	AN8377	AN8377N
IC104	LM2840T5M	Removed
Q102	Removed	2SB1240QH Added
C140	0.01 μ F	Removed
C145	6V 100 μ F	Removed
Jumper SJ101	Removed	Shorted

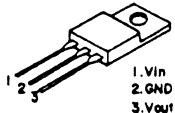
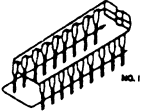
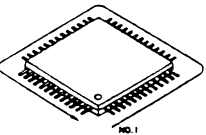
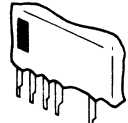
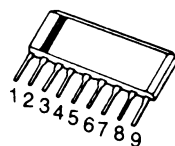
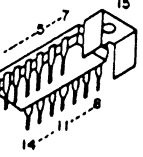
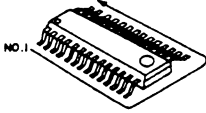
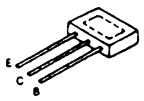
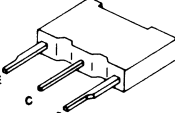
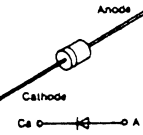
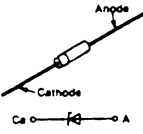


D MAIN CIRCUIT



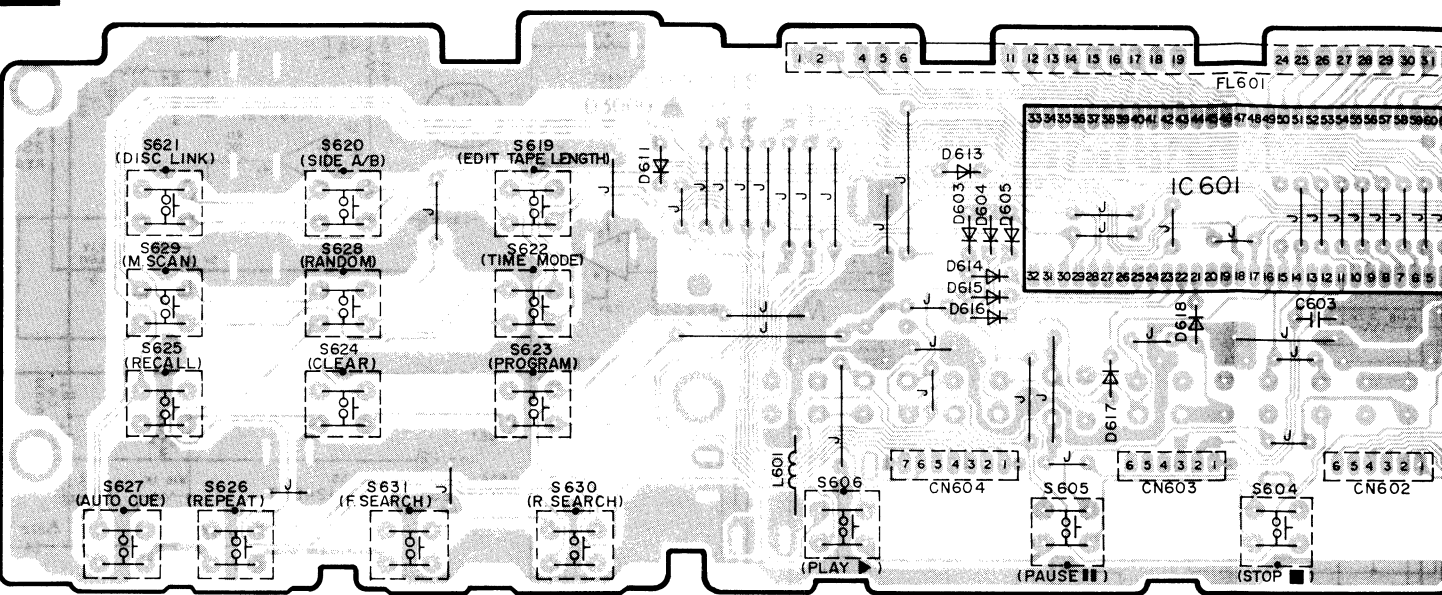


■ TERMINAL GUIDE OF IC's TRANSISTORS AND DIODES

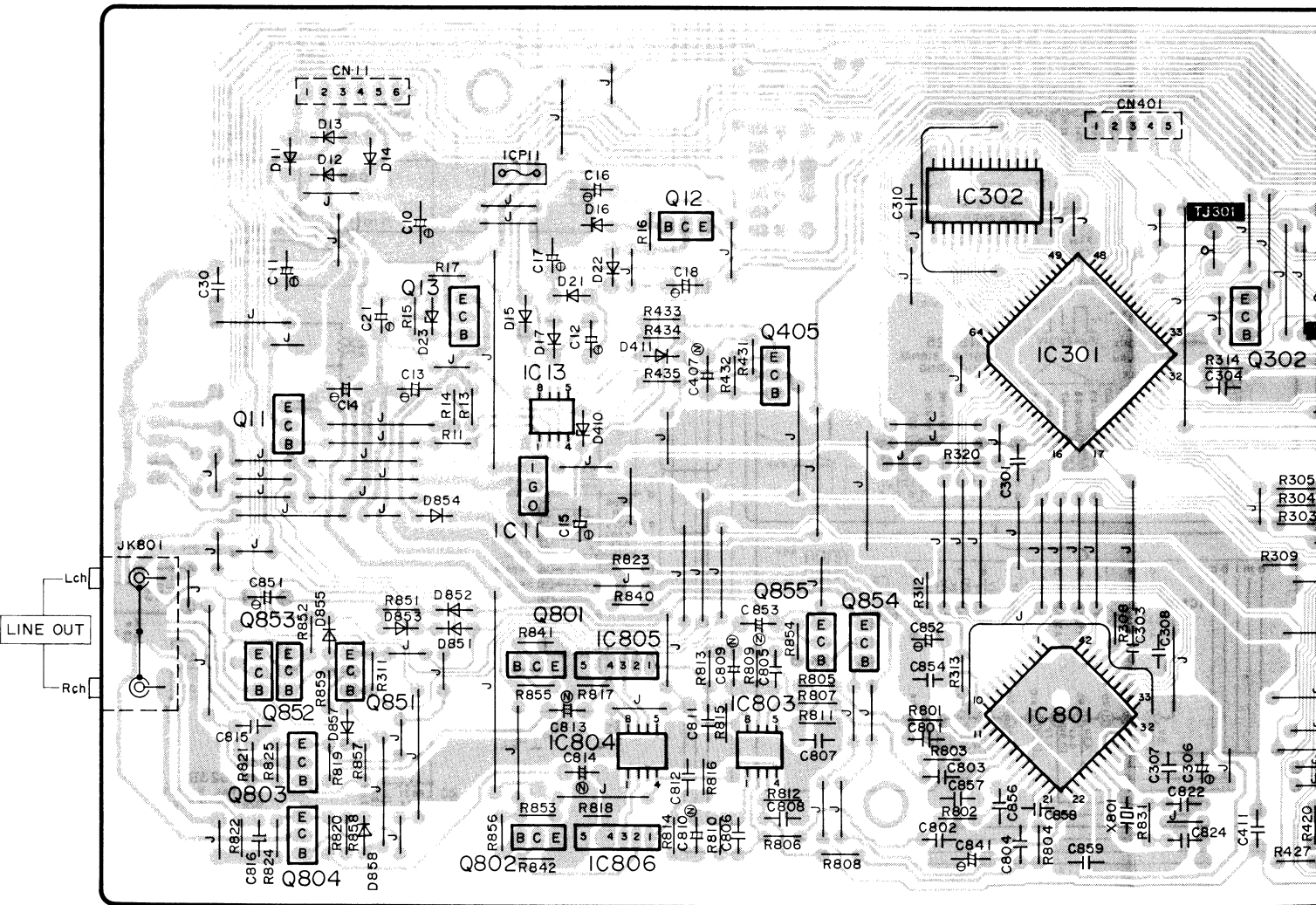
LN2940T5M  1. Vin 2. GND 3. Vout	 8 pin 24 pin 64 pin BA4558FT1 LM833M NJM4560M SVICXK5816M MN15283PEY-1	 42 pin 64 pin MN6623B MN6625 MN1554PEZ-1	SVIH8DN2175 
NJM4556SA 	 AN8377 16 pin	AN8373S AN8374S 	DTC124EST 2SA1309Q 2SC3311A-Q 2SD1450R DTA124EST 2SA1547QSTV2 
2SB1240-P 2SB1238QS 2SD1862-P 	MA165 SVDS5688GT3  Anode Cathode Ca A	MA4330M MA4062-H MA4150-M MA4033M 	

■ PRINTED CIRCUIT BOARDS

A OPERATION P.C.B.

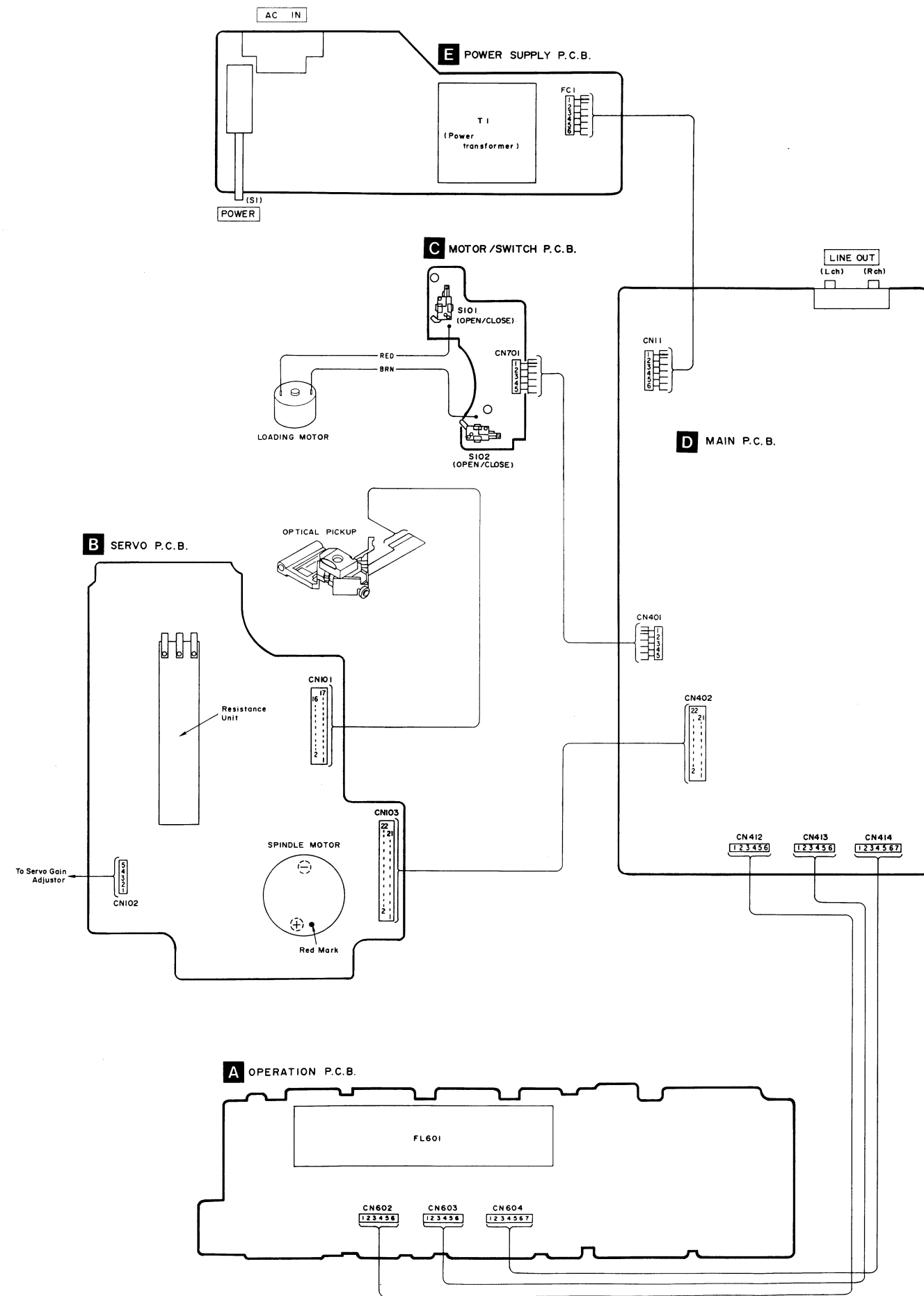


D MAIN P.C.B.

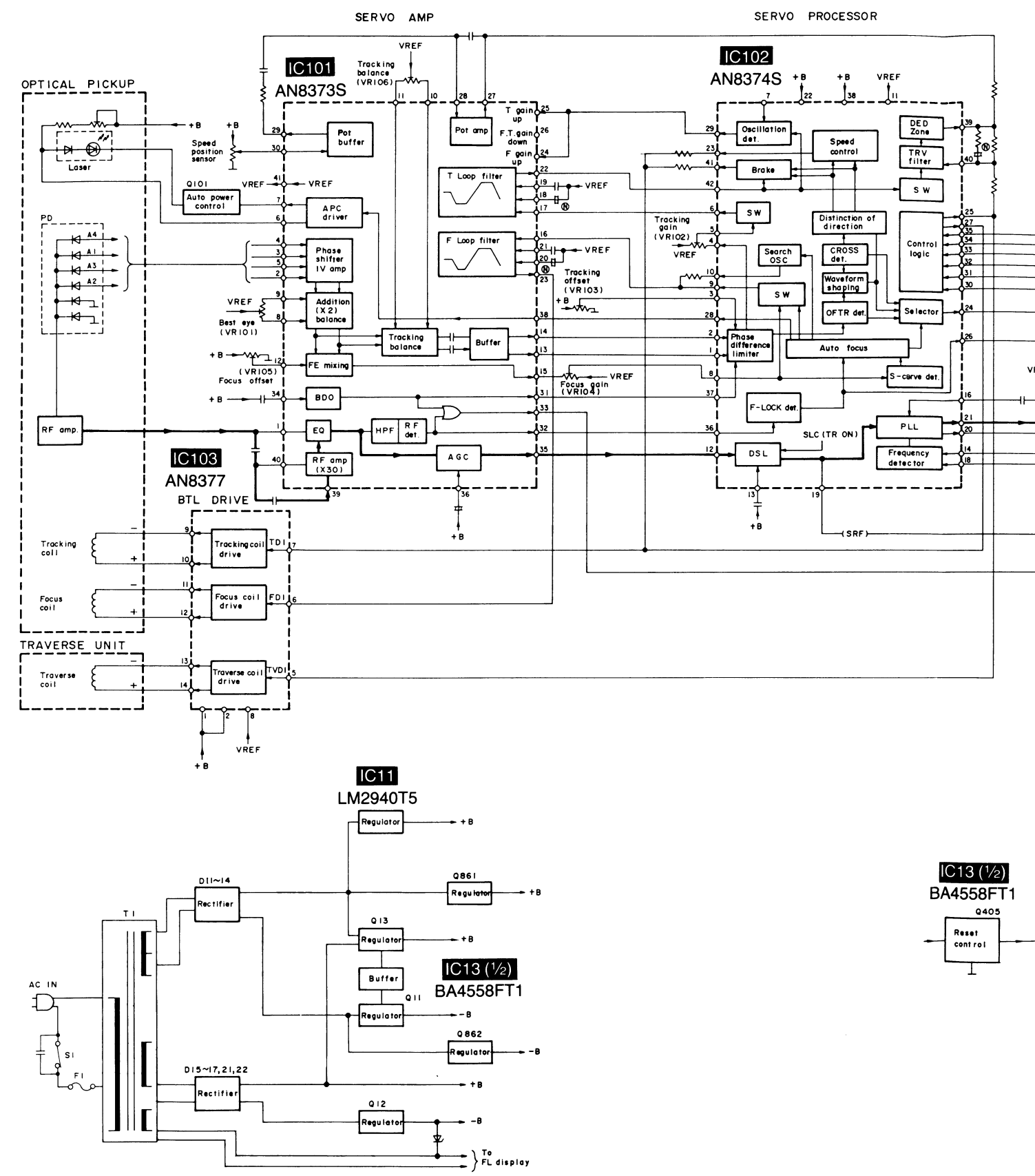


IC103	AN8377	AN8377N
Modifications		
IC104	LM2940T5M	Removed
Q102	Removed	2SB1240QR Added
C140	0.01 μ F	Removed
C145	6 V 100 μ F	Removed
Jumper SJ101	Removed	Shorted

■ WIRING CONNECTION DIAGRAM



■ BLOCK DIAGRAM

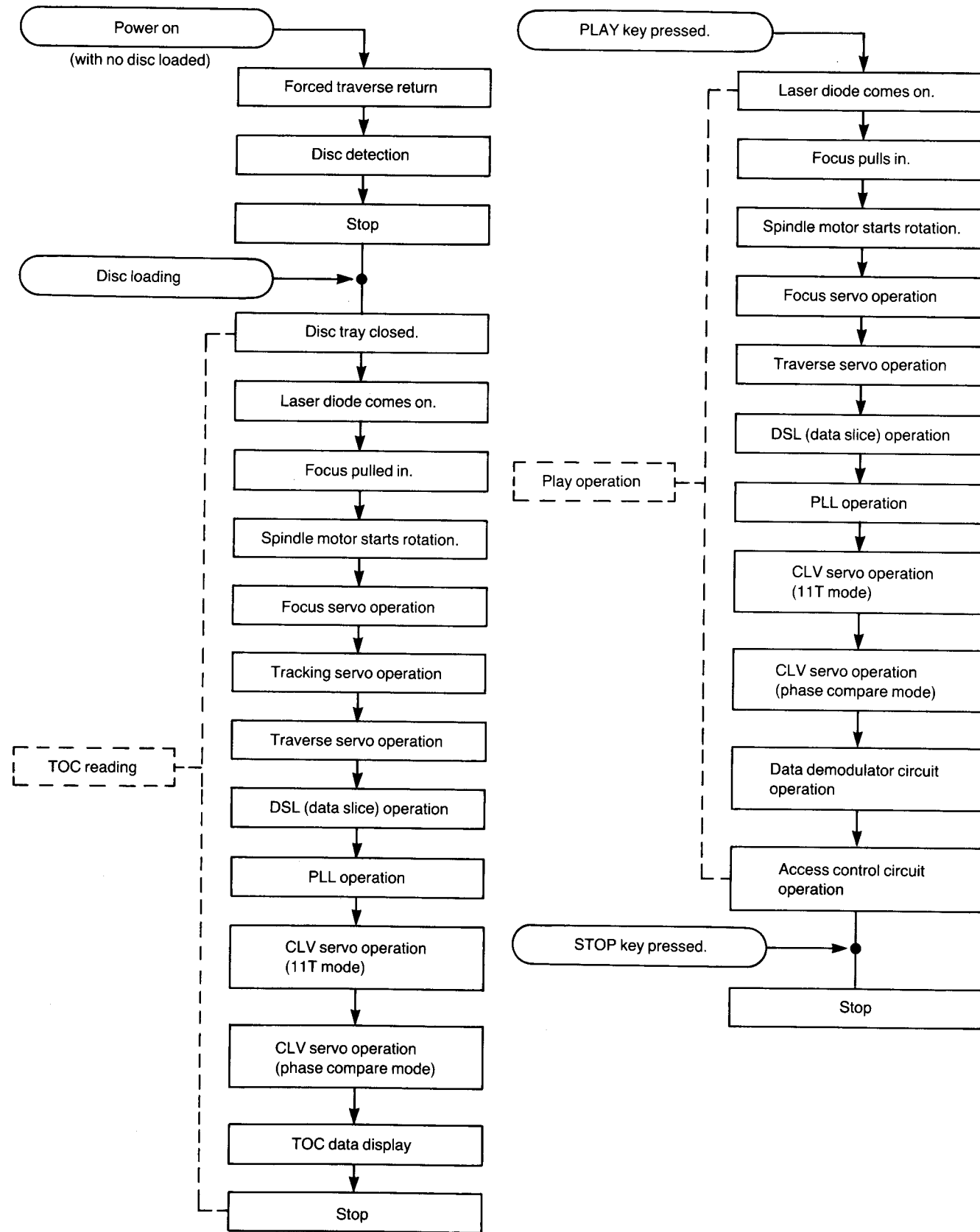




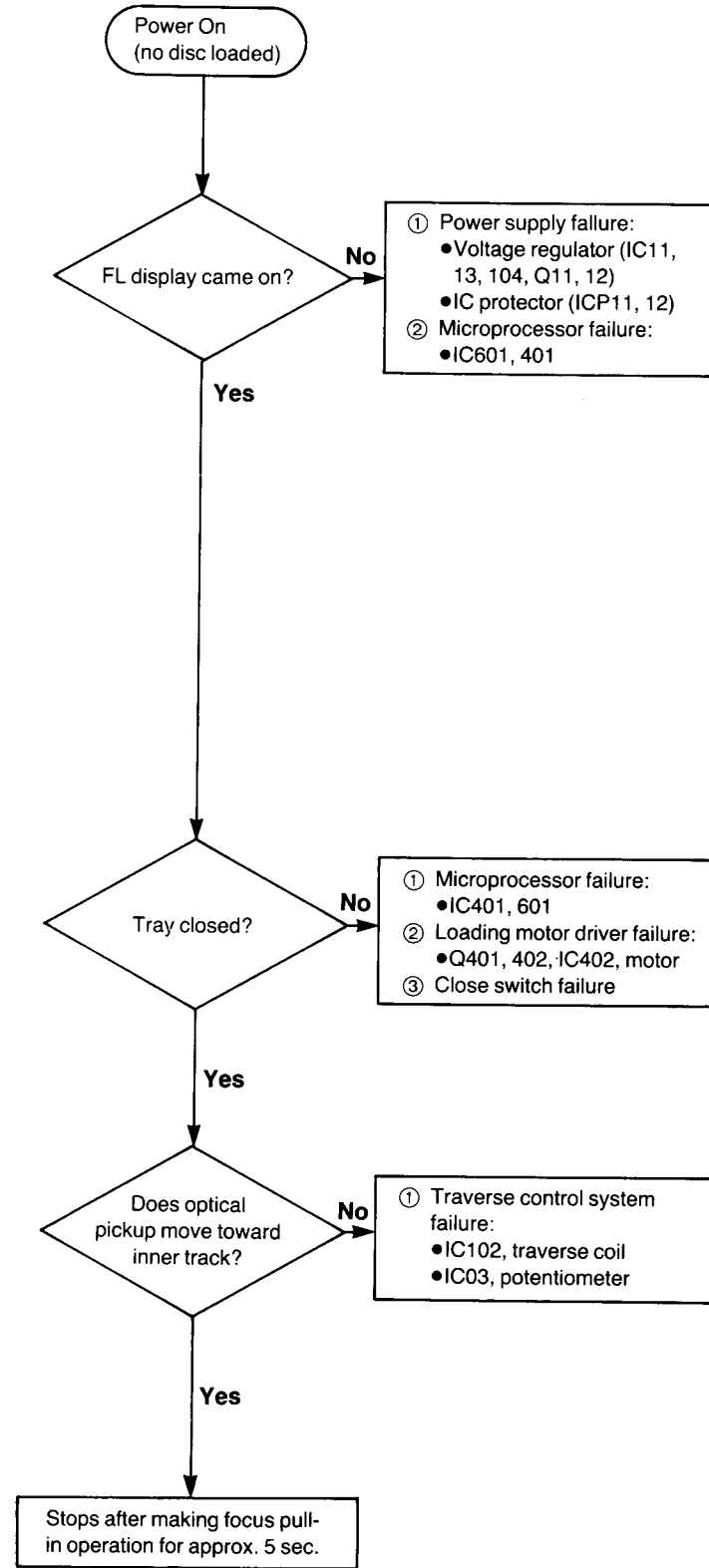
TROUBLESHOOTING GUIDE

SL-P202 Operation Sequence Check Sheet

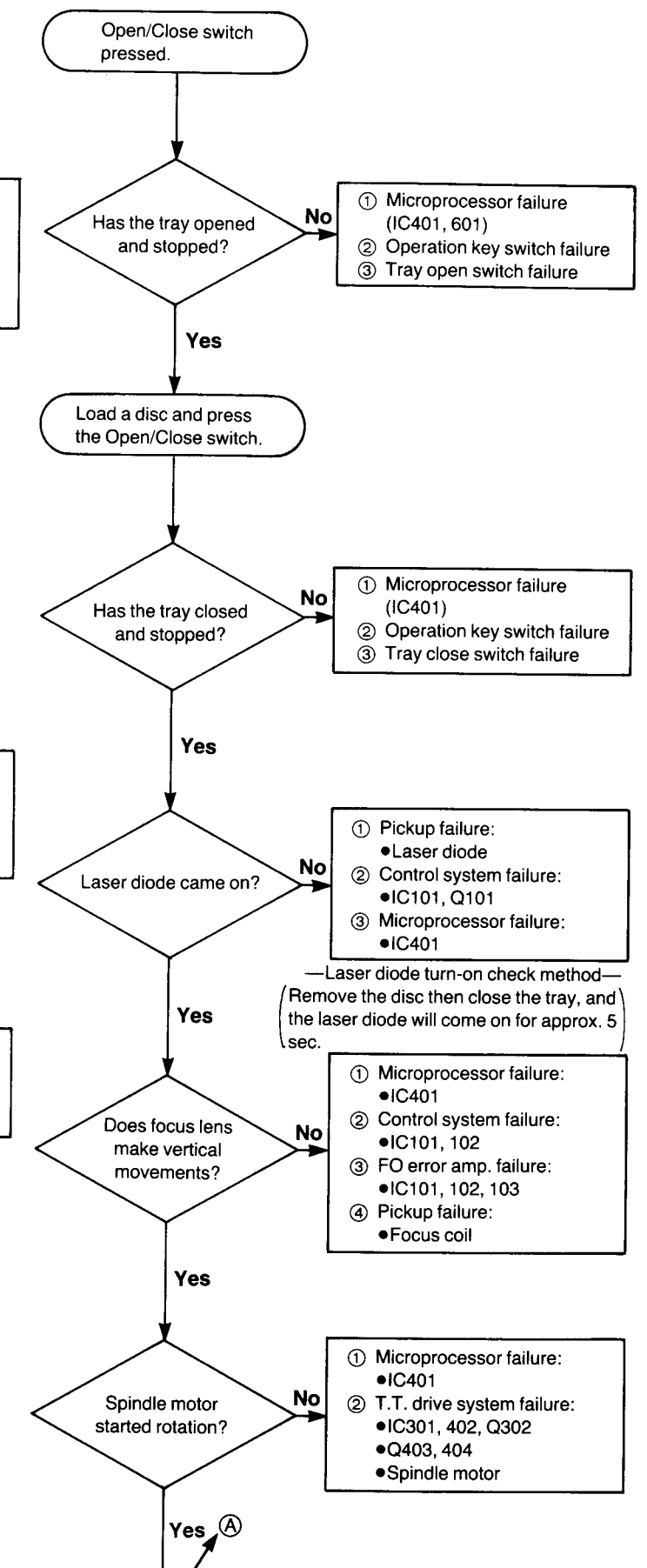
Play Operation Sequence



(Operation Sequence Just After Power On)



(TOC Read Operation-PLAY Operation)

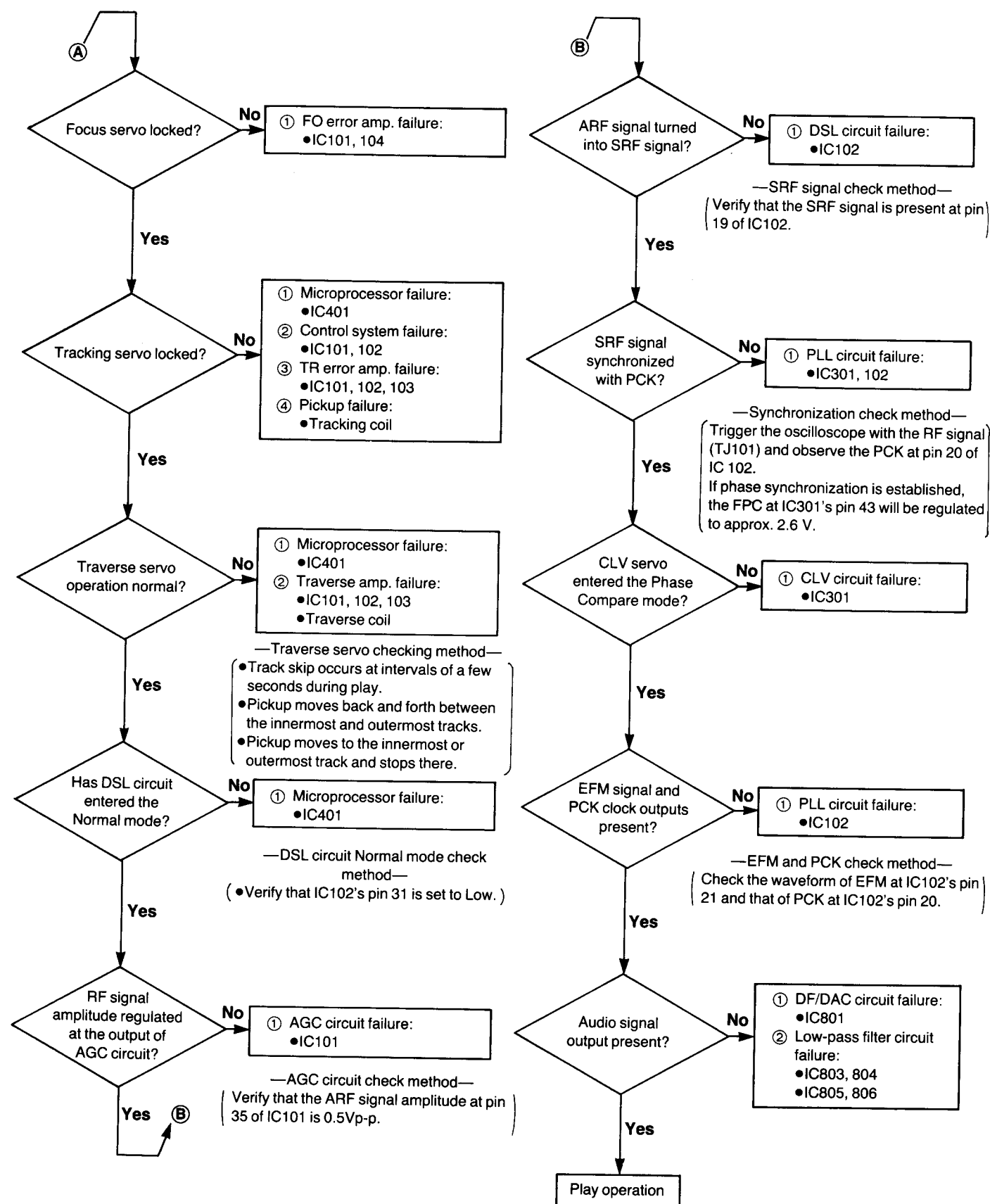


FUNCTIONS OF IC TERMINALS

●IC101 (AN8373S): Servo amp.

Pin No.	MarK	I/O Division	Function
1	AMP1	I	RF signal input (×30 amp.)
2	PDAD	I	Photo detector current input (A2)
3	PDA	I	Photo detector current input (A1)
4	PDBD	I	Photo detector current input (A4)
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	TPI	I	Tracking error signal input
18	C. TPL	I	Tracking error filter capacitor input
19	C. TPH	I	
20	C. FPL	I	
21	C. FPH	I	Focus error filter capacitor input

Pin No.	MarK	I/O Division	Function
22	TPO	O	Tracking error signal output
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 detections 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 (+5 V input)
38	LDON	I	Laser power control input
39	RF IN	I	RF signal input
40	AMPO	O	RF signal output
41	VREF	O	Reference voltage output
42	GND	I	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 (88.2 kHz) 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

Pin No.	Mark	I/O Division	Function
22	VDD	I	Power supply (+5 V input)
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 (+5 V input)
39	TVPO	O	Traverse position detecting resistor/capacitor inputs
40	TVPI	O	
41	BROUT	I	Tracking drive control output
42	BRIN	I	Tracking error signal input

●IC103 (AN8377): BTL drive

Pin No.	Mark	I/O Division	Function
1	PVCC	I	Driver power supply (+8.9 input)
2	VCC	I	Power supply (+8.9 V input)
3	TB	O	External transistor base driving output
4	VMON	O	Voltage output
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

Pin No.	Mark	I/O Division	Function
9	TD-	O	Inverting output of tracking driver
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
16	PC	I	PC input (connect to GND)

●IC301 (MN6625S): Digital signal processing

Pin No.	Mark	I/O Division	Function
1	BYTCK	O	Serial data byte clock (Not use, open)
2	LCLK	O	Crystal frame clock (Not use, open)
3	DEMPH	O	De-emphasis ON signal (de-emphasis ON at "H") (Not used, open)
4	SRDATA	O	Serial data output (MSB first)
5	SCK	O	Serial bit clock output
6	LRCK	O	LR discrimination signal output
7	WDCK	O	Serial data output word clock
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")
11	FLAG	O	Error flag terminal
12	XCK	O	Clock (16.9344 MHz) output (Not used, open)
13	TEST	I	Test mode selection (Not used, connected to +5 V)
14	TX	O	Digital signal output
15	SLEEP	I	Mode selector ("L": normal, "H": SLEEP mode)
16	CSEL	I	Test terminal ("L": normal)
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 block (Q data) clock (75 Hz)
21	CLDCK	O	Sub-code frame (Q data) clock (7.35 kHz)
22	SUBQ	O	Sub-code (Q data) output
23	RST	I	Reset signal input (reset at "L")
24	MLD	I	Command load signal input

Pin No.	Mark	I/O Division	Function
25	MCLK	I	Command clock signal input
26	MDATA	I	Command data input
27	DMUTE	I	Muting control
28	TRON	I	Tracking servo ON signal (tracking servo ON at "L")
29	STAT	O	Processing condition (CRC, CUE, CLVS, TT STOP, FCLV)
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	Clock output (4.2336 MHz)
33	VDD	I	Power supply (connected to +5 V)
34	MEMP	I	Emphasis signal input
35	FG	I	Spindle motor FG signal input (Not used, open)
36	PC	O	Spindle motor ON signal (ON at "L")
37	EC	O	Spindle motor drive signal
38	RESY	O	Resynchronizing signal (Not used, open)
39	DO	I	Drop-out signal (Drop-out at "H")
40	SRF	I	EFM signal input (DSL)
41	EFM	I	EFM signal input (PLL)
42	PCK	I	PLL extract clock input (4.3218 MHz)
43	FPC	O	PLL frequency comparison signal
44 } D7 51 } D0		I/O	16 K RAM data input/output
52	RAM/OE	O	16 K RAM OE signal
53	RAM/WE	O	16 K RAM WE signal
54 64	RAM/A0 RAM/A10	O	16 K RAM address signal (RAMA0: LSB, RAMA10: MSB)

●IC401 (MN1554PEZ-1): System control

Pin No.	Mark	I/O Division	Function
1	BRECV	—	(Not used, open)
2	BSEND	—	(Not used, open)
3	SYNC	O	(Not used, open)
4	SIRQ	I	Not used (connected to +5 V)
5	BLKCK	I	Sub-code block (Q data) clock input (75 Hz)
6	CLDCK	I	Sub-code block (Q data) clock input (7.35 kHz)
7	SBO	I	(Not used, open)
8	SUBQ	I	Sub-code (Q data) input
9	RST	I	Reset signal input
10 } 13	P20 } P23	O	Not used (connected to +5 V)
14	CLOSE	O	Loading motor "Close" command
15	OPEN	O	Loading motor "Open" command
16	SLOW	O	(Not used, open)
17	MUTE	O	Muting control
18	SEEK	O	Traverse servo control (Not used, open)
19	NC	—	Not connected
20	TRV. R	O	Traverse "Reverse" command signal
21	TRV. F	O	Traverse "Forward" command signal
22	CNT4	O	Optical servo IC control signal [KICKR: Kick direction (reverse) command]
23	CNT3	O	Optical servo IC control signal [KICKF: Kick direction (forward) command]
24	CNT2	O	Optical servo IC control (TRON: Tracking servo)
25	VDD	I	Power supply (connected to +5 V)
26	DOWN	O	(Not used, open)
27	UP	O	(Not used, open)
28	CNT1	O	Optical servo IC control signal (FOON: Focus servo)

Pin No.	Mark	I/O Division	Function
29	CLOSE	I	Disc holder "Open" detection
30	OPEN	I	Disc holder "Close" detection
31	BCLK	I	(Not used, connected to GND)
32	BDATA	I	(Not used, connected to GND)
33	STAT	I	Processing status input from signal processing LSI
34	COMP	O	TOC reading control (ON at "L") (connected to GND)
35	FLOCK	I	Optical servo condition (focus) input
36	SENSE	I	Optical servo condition (track cross) input
37	RECV	I	Data receipt command signal
38	SEND	I	Data transmission command signal
39	ACK	I	Data discrimination signal
40	CLK	I	Data lock signal
41 } 44	DATA0 } DATA3	I	Key scan signal
45 } 52	NC	I	Not connected
53	OSC2	I	Clock terminal
54	OSC1	I	Clock input
55	X1	I	Optical servo condition input
56	X0	O	(Not used, open)
57	GND	I	GND terminal
58	DMUTE	O	Muting control
59	MDATA	O	Command data output
60	MCLK	O	Data clock output (command clock signal)
61	MLD	O	Data output (command load signal)
62	DOUTON	O	Optical output control signal (Not used, open)
63	EMPH	O	Emphasis signal output
64	NC	—	Not connected

●IC601 (MN15283PEY-1): FL drive and Timing signal generator

Pin No.	Mark	Terminal Name	I/O Division	Function
1	VSS	GND	I	GND terminal
2	XO	—	O	(Not used, open)
3	XI	TRCNT	I	(Not used, open)
4	PO0	MRLY	O	Muting control terminal
5	PO1	MDATA	O	Command data output
6	PO2	MCLK	O	Data clock output (Command clock)
7	PO3	MLD	O	Data output (Command load)
8	P10	SLOW	O	Motor drive control
9	P11	FOR/REV	O	Motor drive control
10	P12	LOADING	O	Motor drive control
11	P13	HIGH	O	Motor drive control
12	SYNC	—	O	(Not used, open)
13	RST	RESET	I	Reset signal input (Reset at "L")
14	IRQ	BLKCK	I	Sub-code (Q data) clock (75 kHz) input
15 } 18	P50 } P53	KEY	I	Key scan signal input
19	SBT	CLDCK	I	(Not used, open)
20	SBD	SUBQ	I	
21	P20	—	O	(Not used, open)
22	P21	—	O	
23	P22	REV	O	Traverse "Reverse" Command signal

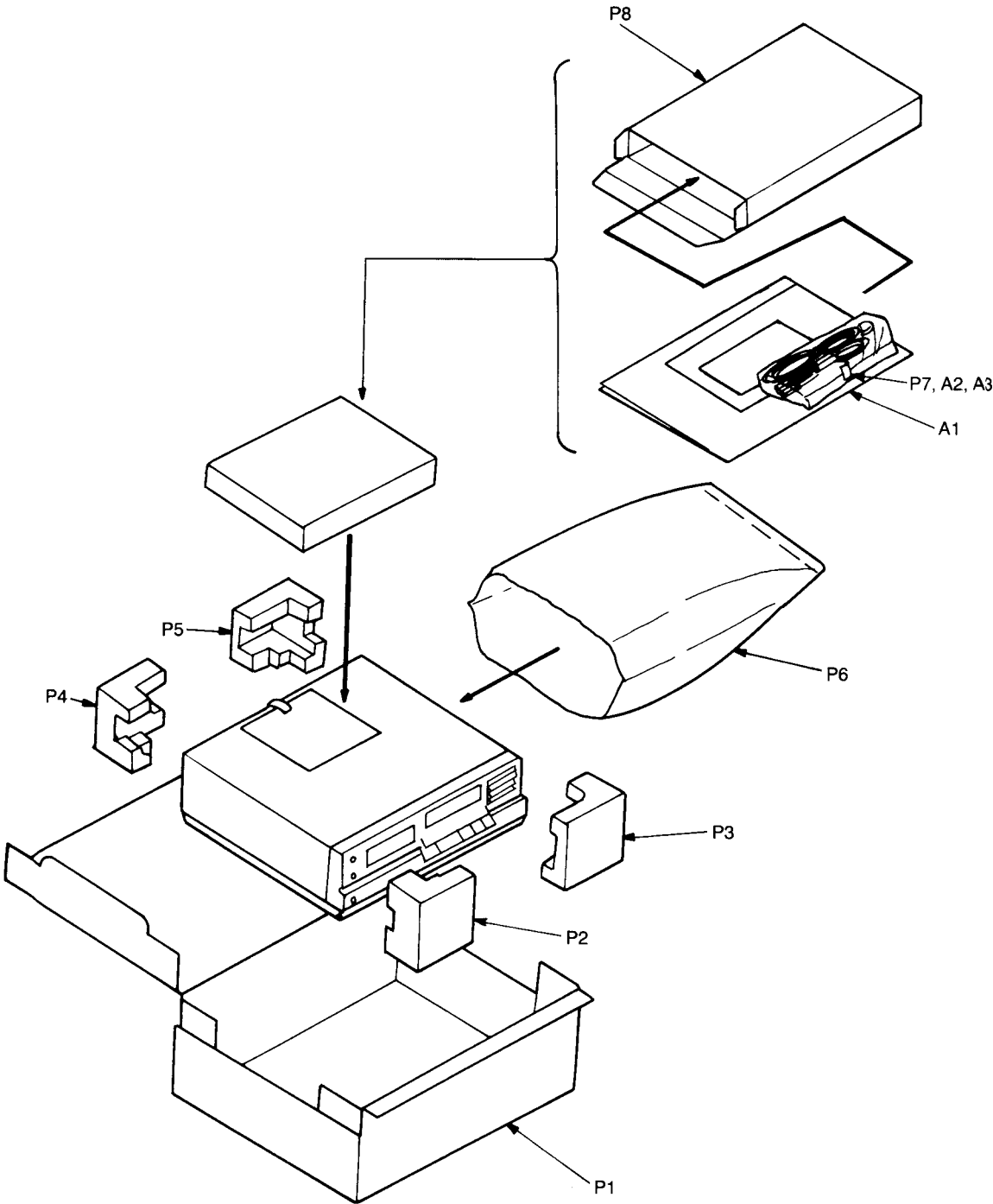
Pin No.	Mark	Terminal Name	I/O Division	Function
24	P23	FWD	O	Traverse "Forward" Command signal
25	P30	CNT4	O	Optical servo IC control signal [KICKR: Kick direction (reverse) control]
26	P31	CNT3	O	Optical servo IC control signal [KICKF: Kick direction (forward) control]
27	P32	CNT2	O	Optical servo IC control signal (TRON: Tracking servo)
28	P33	CNT1	O	(Not used, open)
29	P40	STAT	I	Processing status input from signal processing LSI
30	P41	HIGHT	I	Elevator high signal input
31	P42	FLOCK	I	(Not used, open)
32	P43	SENSE	I	
33	P60	PAUSE	O	(Not used, open)
34	P61	PLAY	O	
35	DAC	DAC	O	
36	VPP	—	I	FL drive power supply
37 } 52	D0 } DF	—	O	FL grid signal and key scan signal
53 } 61	S8 } S0	—	O	FL anode signal
62	VDD	—	I	Power supply (connected to +5 V)
63	OSC2	—	I	Clock terminal
64	OSC1	—	I	Clock signal input

●IC801 (MN6623B): 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 signal input (reset at "L")
3	IE	I	I ² S select terminal ("H" = I ² S)
4	TP1	—	TEST terminal (Not connected)
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 +5 V)
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 +5 V)
16	NC	—	Not connected
17	AVDD2	I	Power supply (connected to +5 V)
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 +5 V)
23	DVDD1	I	Power supply (connected to +5 V)
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 +5 V)
29	DVSS2	I	GND terminal (digital system)
30	NSUB	I	Sub-strate terminal
31	O OUT	—	Not used
32	192 fs	O	192 fs (Not used)
33	LRPOL	I	LR clock selector (Not used)
34	L/R	I	L/R clock
35	SRCK	I	Serial data best clock
36	SRDATA	I	Serial data input (MSB first)
37	DVSS3	I	GND terminal (digital system)
38	DVDD3	—	Power supply
39	384 fs	O	384 fs (16.9344 MHz) output
40	PD	I	Power down terminal
41	MDATA	I	Command data input
42	MCLK	I	Command clock input

■ PACKING



RESISTORS AND CAPACITORS

Notes : * Important safety notice :

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

* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)

Parts without these indications can be used for all areas.

Numbering System For Resistors

Example:

ERD	25	F	J	102
Type	Wattage (1/4W)	Shape	Tolerance	Value (1K Ω)
ERX	2	AN	J	471
Type	Wattage (2W)	Shape	Tolerance	Value (470 Ω)

Numbering System For Capacitors

Example:

ECKD	1H	102	Z	F
Type	Voltage (50V)	Value (0.001 μ F)	Tolerance	Unique
ECEA	50	M		330
Type	Voltage (50V)	Characteristics		Value (33 μ F)

● Capacity values are in microfarads (μ F) unless specified otherwise, P = Pico-farads (pF) F = Farads (F).

● Resistance values are in ohms (Ω), unless specified otherwise, 1K = 1,000 Ω , 1M = 1,000K Ω

Resistor Type	Wattage	Tolerance
ERD : Carbon	10 : 1/8W 12 : 1/2W	J : $\pm 5\%$
ERG : Metal Oxide	14 : 1/4W 25 : 1/4W	F : $\pm 1\%$
ERQ : Fuse Type Metal	1A : 1W 18 : 1/8W	G : $\pm 2\%$
ERX : Metal Film	S2 : 1/4W S1 : 1/2W	J : $\pm 5\%$
ERD L : Carbon (chip)	2F : 1/4W 50 : 1/2W	K : $\pm 10\%$
ERO K : Metal Film (chip)	2A : 2W 3A : 3W	M : $\pm 20\%$
ERC : Solid	6G : 1/10W 8G : 1/8W	
ERF : Incombustible Box-Shaped		
ERM : Wire-Wound		
RRJ : Chip Resistor		
ERJ : Chip Resistor		

Capacitor Type	Voltage	Tolerance
ECE : Electrolytic	0J : 6.3V 1A : 10V	K : $\pm 10\%$
ECCD : Ceramic	1C : 16V 1E : 25V	M : $\pm 20\%$
ECKD : Ceramic Capacitor	1H : 50V 1V : 35V	Z : +80 % -20
ECOM : Polyester	50 : 50V 05 : 50V	J : $\pm 5\%$
ECQP : Polypropylene	2H : 500V 2A : 100V	G : $\pm 2\%$
ECG : Ceramic	1 : 100V 1J : 63V	F : $\pm 1\%$
ECEA N : Non Polar Electrolytic	KC : 400V AC	C : $\pm 0.25\mu$ F
QCU : Ceramic (Chip Type)	KC : 125V AC (UL)	D : $\pm 0.5\mu$ F
ECUX : Ceramic (Chip Type)		
ECF : Semiconductor		
EECW : Liquid electrolyte double layer capacitor		

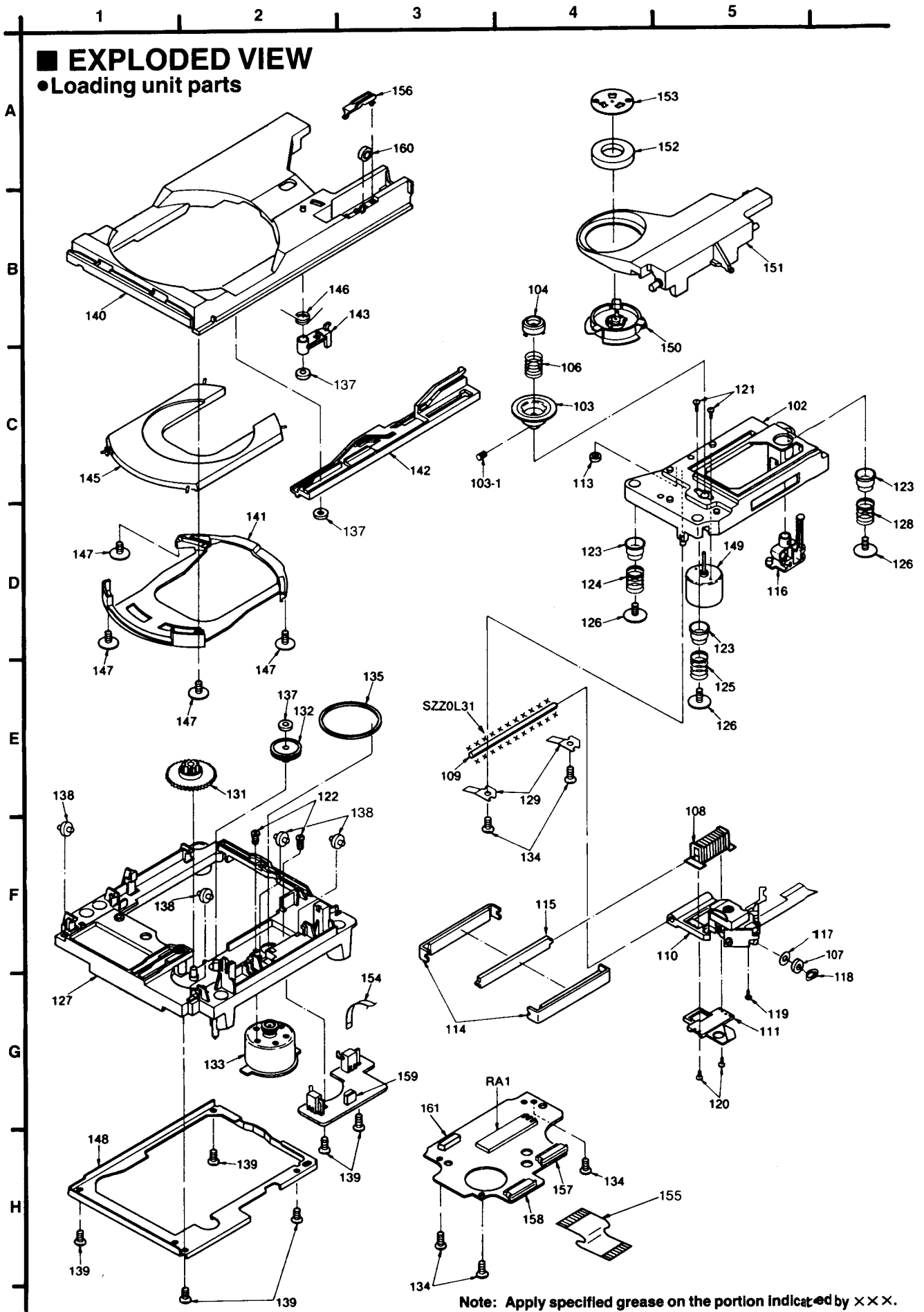
Ref. No.	Part No.	Value.	Ref. No.	Part No.	Value.	Ref. No.	Part No.	Value.
RESISTORS(VALUE,WATTAGE)			R414	ERDS2TJ472	4.7K 1/4	R823	ERDS2TJ331	330 1/4
R11	ERDS2TJ101	100 1/4	R415	ERDS2TJ472	4.7K 1/4	R824	ERDS2TJ331	330 1/4
R13	ERDS2TJ103	10K 1/4	R416	ERDS2TJ472	4.7K 1/4	R825	ERDS2TJ331	330 1/4
R14	ERDS2TJ103	10K 1/4	R417	ERDS2TJ472	4.7K 1/4	R831	ERDS2TJ472	4.7K 1/4
R15	ERDS2TJ331	330 1/4	R418	ERDS2TJ472	4.7K 1/4	R840	ERDS2TJ331	330 1/4
R16	ERDS2TJ102	1K 1/4	R419	ERDS2TJ472	4.7K 1/4	R841	ERDS2TJ105	1M 1/4
R17	ERDS2TJ471	470 1/4	R420	ERDS2TJ472	4.7K 1/4	R842	ERDS2TJ105	1M 1/4
R301	ERDS2TJ472	4.7K 1/4	R421	ERDS2TJ913T	91K 1/4	R851	ERDS2TJ102	1K 1/4
R302	ERDS2TJ472	4.7K 1/4	R422	ERDS2TJ913T	91K 1/4	R852	ERDS2TJ471	470 1/4
R303	ERDS2TJ472	4.7K 1/4	R423	ERDS2TJ124	120K 1/4	R853	ERDS2TJ333	33K 1/4
R304	ERDS2TJ472	4.7K 1/4	R424	ERDS2TJ124	120K 1/4	R854	ERDS2TJ183	18K 1/4
R305	ERDS2TJ472	4.7K 1/4	R425	ERDS2TJ101	100 1/4	R855	ERDS2TJ102	1K 1/4
R306	ERDS2TJ472	4.7K 1/4	R426	ERDS2TJ101	100 1/4	R856	ERDS2TJ102	1K 1/4
R307	ERDS2TJ104	100K 1/4	R427	ERDS2TJ472	4.7K 1/4	R857	ERDS2TJ102	1K 1/4
R308	ERDS2TJ561	560 1/4	R431	ERDS2TJ472	4.7K 1/4	R858	ERDS2TJ102	1K 1/4
R309	ERDS2TJ472	4.7K 1/4	R432	ERDS2TJ101	100 1/4	R859	ERDS2TJ102	1K 1/4
R311	ERDS2TJ472	4.7K 1/4	R433	ERDS2TJ153	15K 1/4	CAPACITORS(VALUE,VOLTAGE)		
R312	ERDS2TJ100	10 1/4	R434	ERDS2TJ393	39K 1/4	C1	$\triangle$ ECKDKC103PF2	0.01 125
R313	ERDS2TJ100	10 1/4	R435	ERDS2TJ102	1K 1/4	C2	ECKM1H103ZFX	0.01 50
R314	ERDS2TJ182	1.8K 1/4	R436	ERDS2TJ150	15 1/4	C3	ECKM1H103ZFX	0.01 50
R320	ERDS2TJ331	330 1/4	R801	ERDS2TJ103	10K 1/4	C10	ECEA1CU332	3300 16
R351	ERDS2TJ103	10K 1/4	R802	ERDS2TJ103	10K 1/4	C11	ECEA1CU222	2200 16
R352	ERDS2TJ154	150K 1/4	R803	ERDS2TJ103	10K 1/4	C12	ECEA1VU101	100 35
R353	ERDS2TJ123	12K 1/4	R804	ERDS2TJ103	10K 1/4	C13	ECEA1AK101	100 10
R354	ERDS2TJ154	150K 1/4	R805	ERDS2TJ273	27K 1/4	C14	ECEA1AK101	100 10
R355	ERDS2TJ333	33K 1/4	R806	ERDS2TJ273	27K 1/4	C15	ECEA0JK470	47 6.3
R356	ERDS2TJ333	33K 1/4	R807	ERDS2TJ273	27K 1/4	C16	ECEA1CU331	330 16
R357	ERDS2TJ8R2	8.2 1/4	R808	ERDS2TJ273	27K 1/4	C17	ECEA1CU331	330 16
R401	ERDS2TJ221	220 1/4	R809	ERDS2TJ473	47K 1/4	C18	ECEA1VU101	100 35
R402	ERDS2TJ221	220 1/4	R810	ERDS2TJ473	47K 1/4	C21	ECEA1CU221	220 16
R403	ERDS2TJ221	220 1/4	R811	ERDS2TJ473	47K 1/4	C30	ECFR1E104ZF5	0.1 25
R404	ERDS2TJ221	220 1/4	R812	ERDS2TJ473	47K 1/4	C301	ECFR1E104ZF5	0.1 25
R405	ERDS2TJ221	220 1/4	R813	ERDS2TJ221	220 1/4	C302	ECBT1C103NS5	0.01 16
R406	ERDS2TJ221	220 1/4	R814	ERDS2TJ221	220 1/4	C303	ECBT1H6R8K5	6.8P 50
R407	ERDS2TJ221	220 1/4	R815	ERDS2TJ474	470K 1/4	C304	ECBT1H220J5	22P 50
R408	ERDS2TJ221	220 1/4	R816	ERDS2TJ474	470K 1/4	C306	ECEA0JK101	100 6.3
R409	ERDS2TJ472	4.7K 1/4	R817	ERDS2TJ103	10K 1/4	C307	ECFR1E104ZF5	0.1 25
R410	ERDS2TJ472	4.7K 1/4	R818	ERDS2TJ103	10K 1/4	C308	ECFR1E104ZF5	0.1 25
R411	ERDS2TJ472	4.7K 1/4	R819	ERDS2TJ471	470 1/4	C309	ECBT1C103NS5	0.01 16
R412	ERDS2TJ472	4.7K 1/4	R820	ERDS2TJ471	470 1/4	C310	ECFR1E104ZF5	0.1 25
R413	ERDS2TJ472	4.7K 1/4	R821	ERDS2TJ473	47K 1/4	C351	ECBT1H102KB5	0.001 50
			R822	ERDS2TJ473	47K 1/4			

Ref. No.	Part No.	Value.	Ref. No.	Part No.	Value.	Ref. No.	Part No.	Value.
C401	ECFR1E104ZF5	0.1 25	C857	ECFR1E104ZF5	0.1 25	C108	ECEA0JKS470I	47 6.3
C402	ECEA0JK470	47 6.3	C858	ECFR1E104ZF5	0.1 25	C109	ECEA1HKS010I	1 50
C403	ECFR1E104ZF5	0.1 25	C859	ECFR1E104ZF5	0.1 25	C110	RCUV1H681KB	680P 50
C404	ECFR1E104ZF5	0.1 25	C881	ECEA1CN101SE	100 16	C111	ECUV1C224KR	0.22 16
C405	ECBT1H102KB5	0.001 50	C882	ECEA1CN101SE	100 16	C112	RCUV1H331KB	330P 50
C406	ECBT1H102KB5	0.001 50	RESISTORS(VALUE, WATTAGE)			C113	ECEA1HSN010I	1 50
C407	ECEA1HKNO10B	1 50	R101	ERDS2TJ47I	470 1/4	C114	RCUV1E333KB	0.033 25
C409	ECBT1H102KB5	0.001 50	R102	ERJ6GEYJ120V	12 1/10	C115	ECEA1HSN010I	1 50
C410	ECBT1H102KB5	0.001 50	R103	ERJ6GEYJ122	1.2K 1/10	C116	RCUV1E333KB	0.033 25
C411	ECFR1E104ZF5	0.1 25	R104	ERJ6GEYJ47I	470 1/10	C117	ECBT1H102KB5	0.001 50
C601	ECEA0JK470	47 6.3	R105	RRJ6GCJ102TE	1K 1/6	C119	ECEA1CKN4R7I	4.7 16
C801	ECBT1H680J5	68P 50	R106	RRJ6GCJ102TE	1K 1/6	C120	ECEA1CKN4R7I	4.7 16
C802	ECBT1H680J5	68P 50	R108	ERJ6GEYJ224V	220K 1/10	C122	ECEA0JKS220I	22 6.3
C803	ECBT1H680J5	68P 50	R110	ERDS2TJ222	2.2K 1/4	C123	RCUV1E104ZF	0.1 25
C804	ECBT1H680J5	68P 50	R111	ERJ6GEYJ154V	150K 1/10	C124	ECUV1E823KB	0.082 25
C805	ECBT1H470J5	47P 50	R113	ERJ6GEYJ472V	4.7K 1/10	C125	ECUV1C224KR	0.22 16
C806	ECBT1H470J5	47P 50	R114	ERJ6GEYJ683V	68K 1/10	C127	ECEA0JKF101I	100 6.3
C807	ECBT1H470J5	47P 50	R116	ERJ6GEYJ332V	3.3K 1/10	C128	ECEA1CKA101I	100 16
C808	ECBT1H470J5	47P 50	R117	ERJ6GEYJ123	12K 1/10	C132	ECUV1E104KB	0.1 25
C809	ECEA1EN3R3S	3.3 25	R118	ERJ6GEYJ333V	33K 1/10	C133	RCUV1H330KC	33P 50
C810	ECEA1EN3R3S	3.3 25	R119	RRJ6GCJ223TE	22K 1/6	C134	ECUV1C224KR	0.22 16
C811	ECBT1H102KB5	0.001 50	R122	ERDS2TJ104	100K 1/4	C135	ECUV1C224KR	0.22 16
C812	ECBT1H102KB5	0.001 50	R123	ERJ6GEYJ470V	47 1/10	C136	ECEA0GKS101I	100 4
C813	ECEA1CN220S	22 16	R124	RRJ6GCJ103TE	10K 1/6	C138	RCUV1E104ZF	0.1 25
C814	ECEA1CN220S	22 16	R125	RRJ6GCJ222TE	2.2K 1/6	C139	RCUV1H470KC	47P 50
C815	ECBT1H102KB5	0.001 50	R127	ERDS2TJ68I	680 1/4	C140	RCUV1E103KB	0.01 25
C816	ECBT1H102KB5	0.001 50	R128	RRJ6GCJ103TE	10K 1/6	C141	RCUV1H470KC	47P 50
C822	ECBT1H5R6K5	5.6P 50	CAPACITORS(VALUE, VOLTAGE)			C142	RCUV1H470KC	47P 50
C824	ECBT1H5R6K5	5.6P 50	C101	ECEA1CKS220I	22 16	C143	RCUV1H470KC	47P 50
C842	ECEA0JS33I	330 6.3	C102	ECEA1HKS010I	1 50	C144	RCUV1H470KC	47P 50
C851	ECEA0JU47I	470 6.3	C103	ECEA1CKS220I	22 16	C145	ECEA0JKF101I	100 6.3
C852	ECEA0JS33I	330 6.3	C106	RCUV1E104ZF	0.1 25	C146	RCUV1H181KC	180P 50
C853	ECEA1CKN100B	10 16	C107	ECEA0GKS101I	100 4	C147	RCUV1H472KB	0.0047 50
C854	ECFR1E104ZF5	0.1 25				C148	ECEA1ESN4R7I	4.7 25
C856	ECFR1E104ZF5	0.1 25				C149	RCUV1E104ZF	0.1 25
						C150	RCUV1E103KB	0.01 25

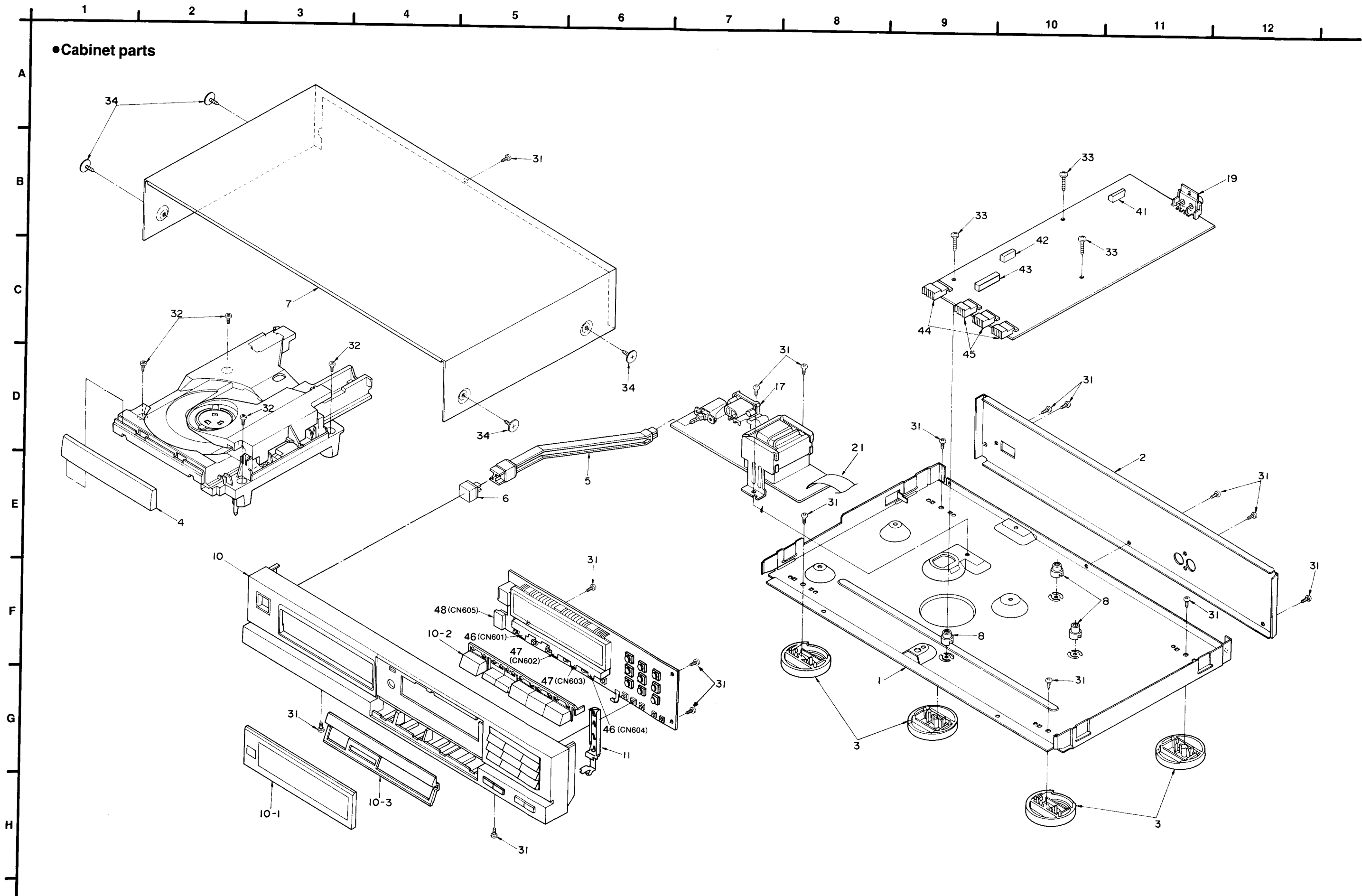
REPLACEMENT PARTS LIST

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.
* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)
Parts without these indications can be used for all areas.
* $\textcircled{K}$ mark parts are used for black type only.
* $\textcircled{S}$ mark parts are used for silver type only.
Parts other than $\textcircled{K}$ and $\textcircled{S}$ marked are used for all color types
* 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.	Description	Ref. No.	Part No.	Description
INTEGRATED CIRCUITS			D857	MA165	DIODE
IC11	LM2940T5	I.C. REGULATOR	D858	MA165	DIODE
IC13	BA4558FT1	I.C. RESET	VARIABLE RESISTORS		
IC301	MN6625	I.C. SIGNAL PROCESSING	VR871	EVU57A022A14	V.R. HEADPHONES VOL
IC302	SV1CXK5916M	I.C. 16K RAM	COILS AND TRANSFORMERS		
IC401	MN1554PEZ-1	I.C. SYSTEM CONTROL	L1	SLQX400-D	COIL
IC402	BA4558FT1	I.C. MOTOR DRIVE	L2	SLQX400-D	COIL
IC601	MN15263PEY-1	I.C. FL DRIVE	L601	VLP0053	COIL
IC602	HC-MD10E	I.C. REMOTE SENSOR	T1	Δ SLTD5K097SE	POWER TRANSFORMER
IC801	MN6623B	I.C. DF&D/A CONVERTER	OSCILLATORS		
IC803	LM833M	I.C. BUFFER AMP	X801	SVQ49U338S	OSCILLATOR
IC804	NJM4560M	I.C. BUFFER AMP	DISPLAYS		
IC805	SV1H8DN2175M	I.C. LPF	FL601	SAD16MT22GK	DISPLAY TUBE
IC806	SV1H8DN2175M	I.C. LPF	FUSES		
IC871	NJM4556SA	I.C. HEADPHONES AMP	F1	Δ XBA2C012TB0S	FUSE(250V,T125mA)
ICP11	Δ SRUN15	I.C.PROTECTOR	SWITCHES		
TRANSISTORS			S1	Δ ESB8249V	SW. POWER
Q11	2SB1240-P	TRANSISTOR	S101	SSPD17	SW. LOADING DETECTOR
Q12	2SB1238Q-S	TRANSISTOR	S102	SSPD18	SW. LOADING DETECTOR
Q13	2SD1862-P	TRANSISTOR	S601	EVQQS705G	SW. OPEN/CLOSE
Q301	DTC124EST	TRANSISTOR	S602	EVQQS705G	SW. SKIP(R)
Q302	DTA124EST	TRANSISTOR	S603	EVQQS705G	SW. SKIP(F)
Q401	2SD1862-P	TRANSISTOR	S604	EVQQS705G	SW. STOP
Q402	2SB1240-P	TRANSISTOR	S605	EVQQS705G	SW. PAUSE
Q403	2SD1862-P	TRANSISTOR	S606	EVQQS705G	SW. PLAY
Q404	2SB1240-P	TRANSISTOR	S619	EVQQS705G	SW. EDIT TAPE LENGTH
Q405	DTC124EST	TRANSISTOR	S620	EVQQS705G	SW. SIDE A/B
Q801	2SC3311A-Q	TRANSISTOR	S621	EVQQS705G	SW. DISC LINK
Q802	2SC3311A-Q	TRANSISTOR	S622	EVQQS705G	SW. TIME MODE
Q803	2SD1450R	TRANSISTOR	S623	EVQQS705G	SW. PROGRAM
Q804	2SD1450R	TRANSISTOR	S624	EVQQS705G	SW. CLEAR
Q851	DTA124EST	TRANSISTOR	S625	EVQQS705G	SW. RECALL
Q852	DTC124EST	TRANSISTOR	S626	EVQQS705G	SW. REPEAT
Q853	DTA114EST	TRANSISTOR	S627	EVQQS705G	SW. AUTO CUE
Q854	DTC124EST	TRANSISTOR	S628	EVQQS705G	SW. RANDOM PLAY
Q855	DTA124EST	TRANSISTOR	S629	EVQQS705G	SW. MUSIC SCAN
DIODES			S630	EVQQS705G	SW. B SEARCH
D11	SVDS5688GT3	DIODE, SI	S631	EVQQS705G	SW. F SEARCH
D12	SVDS5688GT3	DIODE, SI	INTEGRATED CIRCUITS		
D13	SVDS5688GT3	DIODE, SI	IC101	AN8373S	I.C. SERVO AMP
D14	SVDS5688GT3	DIODE, SI	IC102	AN8374S	I.C. SERVO PROCESS
D15	SVDS5688GT3	DIODE, SI	IC103	AN8377	I.C. B.T.L DRIVE
D16	MA4330M	DIODE	IC104	LM2940T5M	I.C. RESET
D17	SVDS5688GT3	DIODE, SI	TRANSISTORS		
D18	MA4062-H	DIODE	Q101	2SA1547QSTV2	TRANSISTOR
D21	SVDS5688GT3	DIODE, SI	VARIABLE RESISTORS		
D22	SVDS5688GT3	DIODE, SI	VR101	EVND3AA00B14	V.R. BEST EYE ADJ.
D23	MA4062-H	DIODE	VR102	EVND3AA00B14	V.R. TRACKING GAIN ADJ.
D402	MA4051-M	DIODE	VR103	EVND3AA00B14	V.R. TRACKING OFFSET ADJ.
D403	MA4051-M	DIODE	VR104	EVND3AA00B14	V.R. FOCUS GAIN ADJ.
D410	MA4033M	DIODE	VR105	EVND3AA00B14	V.R. FOCUS OFFSET ADJ.
D411	MA165	DIODE	VR106	EVND3AA00B24	V.R. TRACKING BALANCE AD
D851	MA165	DIODE	MAGNET RESISTOR ELEMENTS		
D852	MA165	DIODE	RA1	EWS7M0A00Q53	RESISTANCE UNIT
D853	MA165	DIODE			
D854	MA165	DIODE			
D855	MA165	DIODE			



EXPLODED VIEW



Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
CABINET AND CHASSIS			10-3	SGXD3371SW1A	ORNAMENT
1	SKUD250ZF0A	CHASSIS	11	RMC0013	BRACKET
2	SGPD800ZF2D	REAR PANEL	17	SJS9236	AC INLET
3	SKLD8-E	FOOT	18	SJJ146B	JACK
4	SGXD3380ZK0A	ORNAMENT	19	SJFD4M	TERMINAL BOARD
4	SGXD3380MA0A	ORNAMENT	21	SIKD552062	FLAT CABLE
5	SUBD15-1	ROD	31	XTB3+8JFZ	SCREW
6	SBC666-1	BUTTON, POWER	32	XTB3+8F	SCREW
6	SBC666	BUTTON, POWER	33	XTB3+16JFZ	SCREW
7	SKCD512KE1A	CABINET	34	SNE2129-1	SCREW
7	SKCD512SW1A	CABINET BODY	34	SNE2129	SCREW
8	SHE185-2	HOLDER	41	SJT30643-VML	CONNECTOR (6P)(CN11)
10	SGYLP202-KE	FRONT PANEL	42	SJT30543-VM	CONNECTOR(5P)(CN401)
10	SGYLP202-SE	FRONT PANEL	43	SJSD2221M	SOCKET (22P)(CN402)
10-1	SGUD225	ORNAMENT	44	SJS50780WLM	CONNECTOR(7P)(CN411, 414)
10-2	SBCD5290ZK0B	BUTTON, OPERATION	45	SJS50680WLM	SOCKET(6P)(CN412, 413)
10-2	SBCD5290MA0A	BUTTON, OPERATION	46	SJT30747WL	CONNECTOR(7P)(CN601, 604)
10-3	SGXD3371ZK1A	ORNAMENT	47	SJT30647WL	CONNECTOR(6P)(CN602, 603)
			48	EMCS0750ZL	CONNECTOR(7P)(CN605)

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
TRAVERSE DECK			131	SDGD58	MAIN GEAR
102	SISD22-1	TRAVERSE BASE	132	SDGD59-2	GEAR
103	SD0D28-1E	TURNTABLE	133	SIRD94-E	LOADING MOTOR
103-1	XXE26D5	SCREW	134	XTB3+10G	SCREW
104	SD0D29-2	RING	135	SMBD7	BELT
106	SRQA010ND4	SPRING	137	SFUMZ15R61	WASHER
107	SORD37	ROLLER	138	SDRD14	ROLLER
108	SORD38-E	COIL	139	XTB3+8G	SCREW
109	SUXD123-1	GUIDE SHAFT	140	SIRD97-2E	HOLDER
110	S0AD70A	OPTICAL PICKUP	141	SIRD107-1	TRAY BASE
111	SHRD176-E	COIL HOLDER	142	SIRD40-2	RACK GEAR
113	SHGD148	STOPPER	143	SIRD96	LOCK LEVER
114	SOYD21-E	YOKE	145	SIRD98-2	DISC TRAY
115	SOYD22	YOKE	146	SUSD83	SPRING
116	SHRD177-1	LOCK UNIT	147	SNSD36	SCREW
117	SHWD33	WASHER	148	SIWD105	BRACKET
118	SHWD34	WASHER	149	SJGDRF310T-2	SPINDLE MOTOR
119	SNSD31	SCREW	150	SIRD51-1	HOLDER
120	XTN2+5G	SCREW	151	SIRD42-3	LEAD WIRE CLAMP
121	XYN2+C8	SCREW	152	SOMD4	MAGNET
122	XYN26+J6	SCREW	153	SOYD2	YOKE
123	SHGD153-1	CUSHION RUBBER	154	SIKD150051	FLAT CABLE
124	SUSD136-1	SPRING	155	SIKD150221-1	FLAT CABLE
125	SUSD137-1	SPRING	156	SHRD150	ROLLER HOLDER
126	SNSD33	SCREW	157	SJSD1722M	SOCKET(17P)
127	SIWLP555-KN	LOADING BASE	158	SJSD2222M	SOCKET(22P)
128	SUSD145-1	SPRING	159	SJT30543-V	CONNECTOR(5P)
129	SUWD112	GUIDE SHAFT HOLDER	160	SDRD12	ROLLER
			161	EMCS0552MP	CONNECTOR(5P)

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
PACKING MATERIAL			P7	XZB26X17C03	PROTECTION BAG(CORDS)
P1	SPND367	PACKING CASE	P8	SPSD152	ACCESSORY BOX
P1	SPND368	PACKING CASE	ACCESSORIES		
P2	SPSD188	PAD(FL)	A1	SQUD414	INSTRUCTION MANUAL
P3	SPSD189	PAD(FR)	A1	SQUD415	INSTRUCTION MANUAL
P4	SPSD190	PAD(BL)	A2	SJA187	POWER CORD
P5	SPSD191	PAD(BR)	A3	SJP2249-3	OUTPUT CORD
P6	XZB60X60A01	PROTECTION BAG(UNIT)			