

Service Manual

Compact Disc Player

SL-PS620A

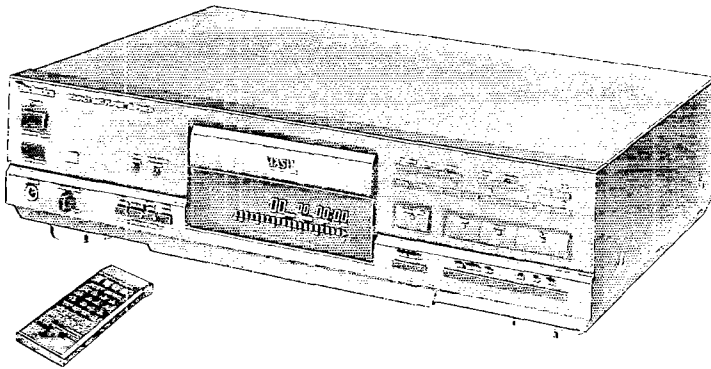
COMPACT
disc
DIGITAL AUDIO

DIGITAL

MASH*
 multi-stage noise shaping

Colour

(K) ... Black Type



Area

Suffix for Model No.	Area	Colour
(E)	Continental Europe.	(K)
(EB)	Great Britain.	
(EG)	F.R. Germany & Italy.	

SPECIFICATIONS

■ Audio

No. of channels	2 (left and right, stereo)
Frequency response	2~20,000 Hz, +0.3 dB
Output voltage	2 V (at 0 dB)
Dynamic range	99 dB
S/N ratio	113 dB
Harmonic distortion	0.0018% (1 kHz, 0 dB)
Total harmonic distortion	0.0028% (1 kHz, 0 dB)
Wow and flutter	Below measurable limit
DA converter	MASH (4 DAC)
Output impedance	Approx. 600Ω
Load impedance	More than 10 kΩ
Headphone output level	15 mW max. 32Ω (adjustable)

■ Pickup

Wavelength	780 nm
------------	--------

■ General

Power supply	AC 50/60 Hz. 230 V~240 V
Power consumption	10 W
Dimensions (W×H×D)	430×116×289 mm
Weight	4.6 kg

Note:

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

- * Technics (or Panasonic) developed the world's first MASH type DAC and ADC. MASH technology was invented by NTT (LSI Labs).
- * ※ MASH is a trademark of NTT.

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* TECHNICAL INFORMATION

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

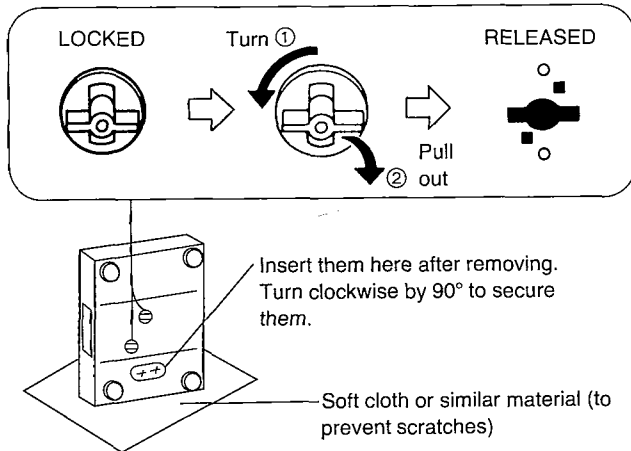
Technics

■ PLACEMENT

Before placement

Two transport security devices are secured to prevent the optical pickup from damage during transport.

Be sure to release them before use (**TRANSPORT SECURITY DEVICE**).



Note:

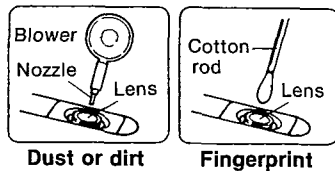
When transporting the unit, be sure to remove the compact disc from inside the unit. And replace the transport security devices again following the reverse order not to damage the optical pickup.

■ CLEANING OF LENS

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

• To remove dust or dirt

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



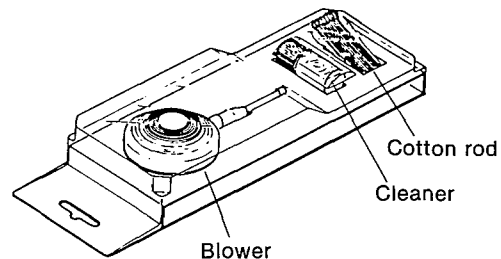
• To remove fingerprint

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

Cautions:

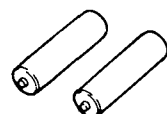
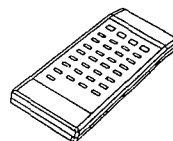
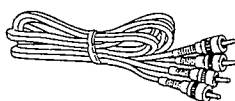
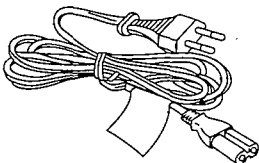
- Do not directly apply the cleaner solution to the lens. Do not apply too much solution to the cotton rod or otherwise the solution will flow into the player.
- Wipe the lens carefully. Do not give too much stress to the lens or otherwise it may scratch the lens or cause optical pickup trouble.
- If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

Lens cleaning kit (Part No. : SZZP1038C)



■ ACCESSORIES

- | | | | |
|--|--|---|--|
| • AC power supply cord... 1 pc.
[RJA0018-1K (E, EG)
SJA193 (EB)] | • Stereo connection cable.. 1 pc.
(SJP2249-3) | • Remote control transmitter
(EUR64798)..... 1 pc. | • Batteries 2 pcs.
Use two UM-4,
"AAA" (R03) size
(1.5V) batteries. |
|--|--|---|--|



Note: Configuration of 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 pickup lens.
Wave length: 780nm
Maximum output radiation power from pickup: 100μW/VDE

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

1. Do not disassemble the optical pickup 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 pickup lens for a long time.

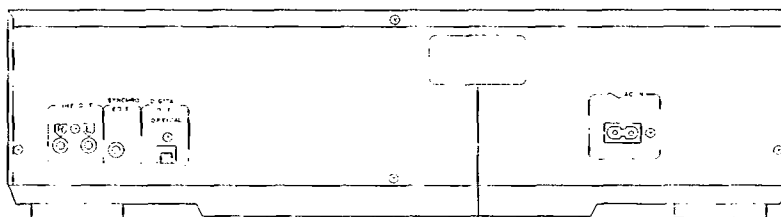
ACHTUNG: Dieses Produkt enthält eine Laserdioden. Im eingeschalteten Zustand wird unsichtbare Laserstrahlung von der Lasereinheit abgestrahlt.

Wellenlänge: 780 nm
Maximale Strahlungsleistung der Lasereinheit: 100 μW/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.

ADVASEL: I dette a apparat anvendes laser.



RQLS0060

VARO! Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.

WARNING! Ösynlig laserstrålning när denna del är öppnad och spårren är urkopplad. Betrakta ej strålen.

RQLS0060

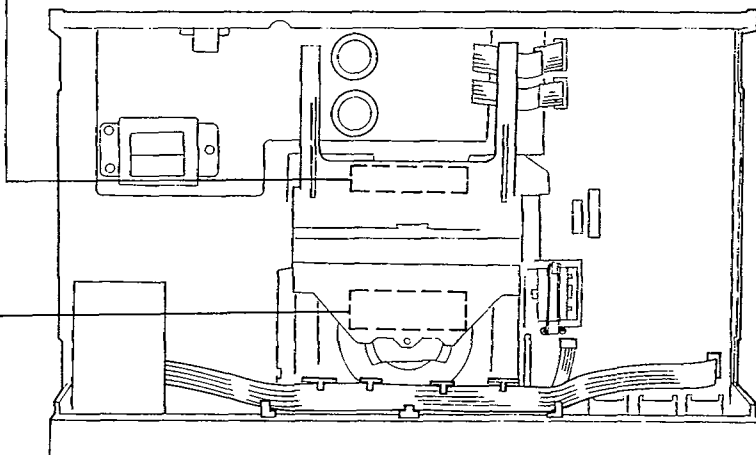
Obs:
Apparaten innehåller laser
Komponent av höger laserklass
än klass 1.

RQLS0022

ADVASEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAF-BRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.

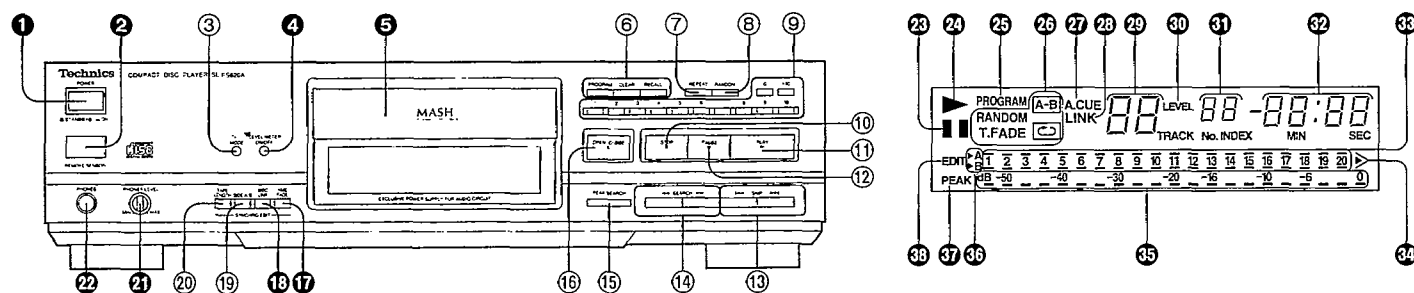
VORSICHT- Unsichtbare Laserstrahlung, wenn Abdeckung geöffnet. Nicht dem Strahl aussetzen.

RQLS0022



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 "STANDBY ⏻/ON" switch (POWER ■ STANDBY ⏻ ■ ON)

This switch switches ON and OFF the secondary circuit power only. The unit is in the "standby" condition when this switch is set to the STANDBY ⏻ position. Regardless of the switch setting, the primary circuit is always "live" as long as the power cord is connected to an electrical outlet.

② Remote control signal sensor (REMOTE SENSOR)

③ Time mode select button (TIME MODE)

④ Output level meter on/off button (LEVEL METER ON/OFF)

⑤ Disc tray

⑥ Buttons for program function •Program button (PROGRAM)

Pressing this button initiates the program play mode. You can then enter specific tracks using the numeric buttons.

•Clear button (CLEAR)

Each pressing this button makes one track cleared from the programmed sequence.

•Recall button (RECALL)

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

⑦ Repeat button (REPEAT)

⑧ Random play button (RANDOM)

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

⑨ Numeric buttons (>10, 0, 1~10)

⑩ Stop button (■ STOP)

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

⑪ Play button (▶ PLAY)

⑫ Pause button (⏸ PAUSE)

⑬ Skip buttons (◀◀ SKIP ▶▶)

These buttons can be used to skip by track in the forward or reverse direction.

⑭ 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.

⑮ Peak level search button (PEAK SEARCH)

Pressing this button enables the unit to search out the "peak signal" locations in tracks on a disc so as to adjust the suitable recording level on the cassette deck.

⑯ Disc tray open/close button (▲ OPEN/CLOSE)

⑰ Time fade button (TIME FADE)

Pressing this button in the pause or stop mode causes the fade-out function to work at the specified time.

Pressing this button in the edit mode causes the fade-out function to work at the end of the tape when the added track exceeds the remaining time of the tape.

⑱ Disc link button (DISC LINK)

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

⑲ 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.

⑳ 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 to be used, so that as little tape as possible is wasted.

㉑ Headphones volume control (PHONES LEVEL)

Avoid listening to music at high volume levels for extended periods of time.

㉒ Headphones jack (PHONES)

Indicators section

23 Pause indicator (II)

24 Play indicator (▶)

25 Program indicator (PROGRAM)

26 Operation indicators

The following indicators light during their respective operations.

- [A-B] [] : Peak level search
A-B repeat play (remote control operation)
- RANDOM: Random play
- [] : Repeat play
- T. FADE: Time fade (fade-out)

27 Auto cue indicator (A. CUE)

28 Disc link indicator (LINK)

29 Track number display (TRACK)

30 Level indicator (LEVEL)

This indicator lights when the output level is attenuated by the remote control.

31 Index/program number display (No., INDEX)

32 Time display (MIN, SEC)

33 Track number indicator (1-20)

34 "Over" mark (▶)

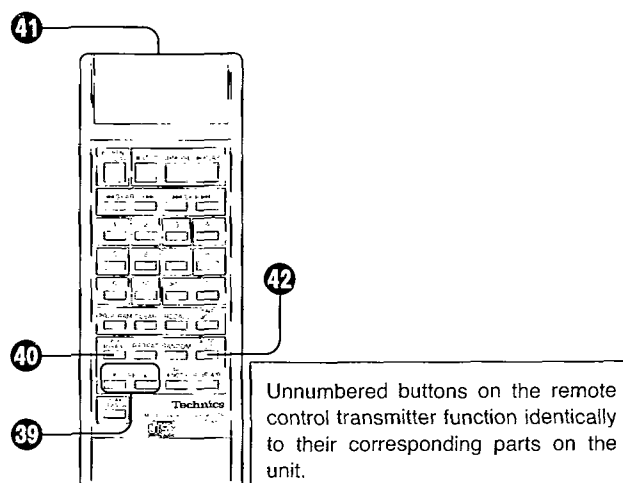
This indicator lights if the total number of tracks on the disc is 21 or more.

35 Output level indicator (dB, -50-0)

36 Tape side indicator (▶ A, ▶ B)

37 Peak level search indicator (PEAK)

38 Compact disc edit indicator (EDIT)



Remote control transmitter

39 Level buttons (▼ LEVEL ▲)

These buttons can be used to adjust output level (from 0 dB to -12 dB).

40 A-B repeat button (A-B REPEAT)

This button can be used to play the portion of a disc between two points (A and B) chosen by you.

41 Remote control signal transmission window

42 Auto cue button (AUTO CUE)

Pressing this button enables the unit to stop at the beginning of every track and switch to the play standby mode.

CONNECTIONS

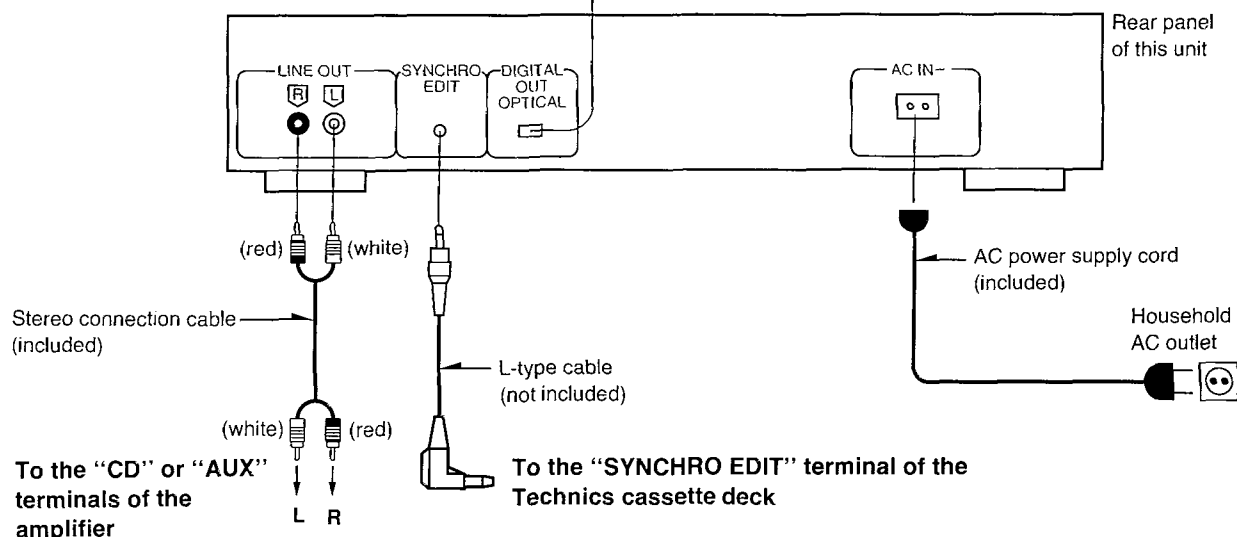
Turn all components off before making connections.

•Optical output terminal (DIGITAL OUT/OPTICAL)

This terminal can be used for connection with other equipment that has a digital input terminal, such as an amplifier, by using an optical cable (optional). A dust-protection cap is inserted in this terminal. Remove this cap only when a connection is to be made to this terminal.

Note:

Be sure to connect the stereo connection cable with the amplifier when using the synchro edit function even if the optical cable has been connected.

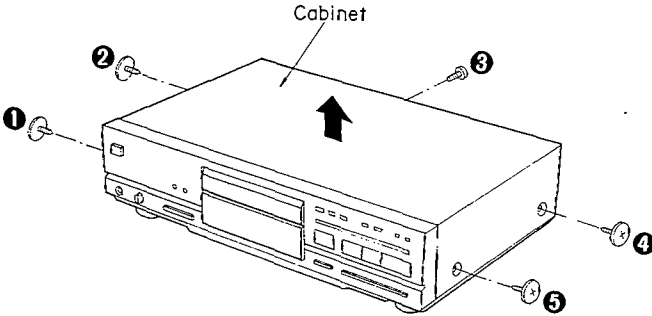
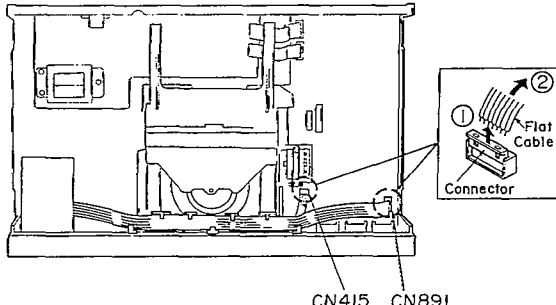
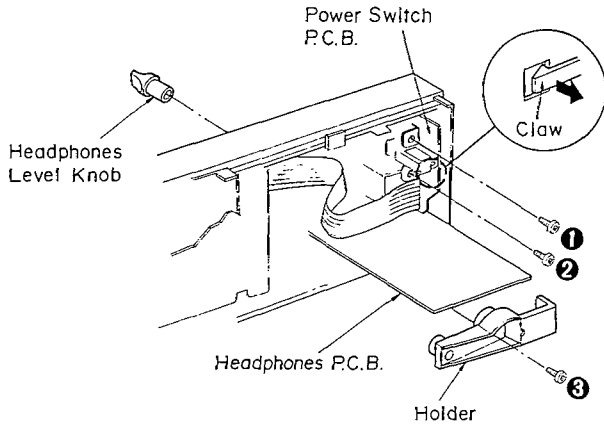
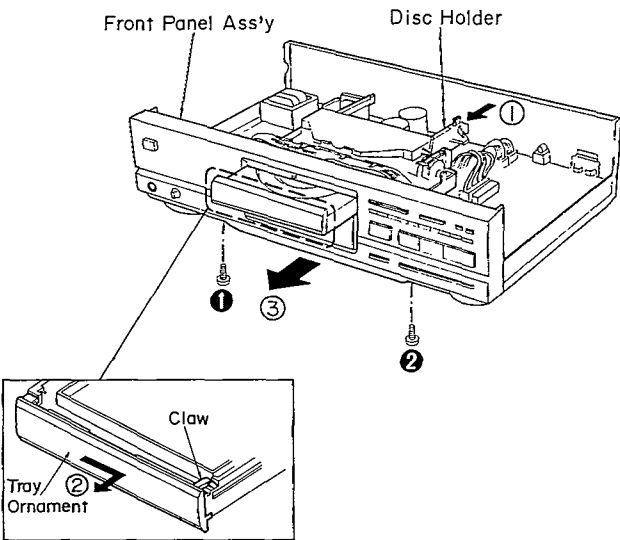


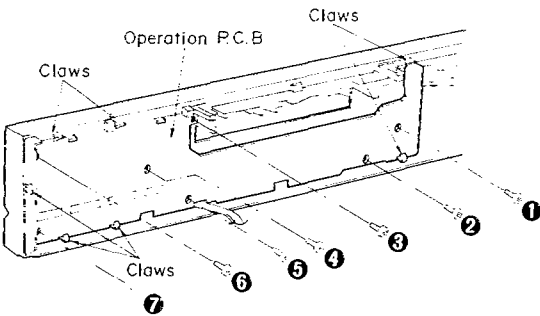
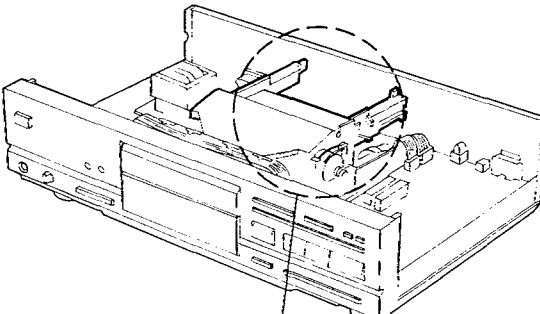
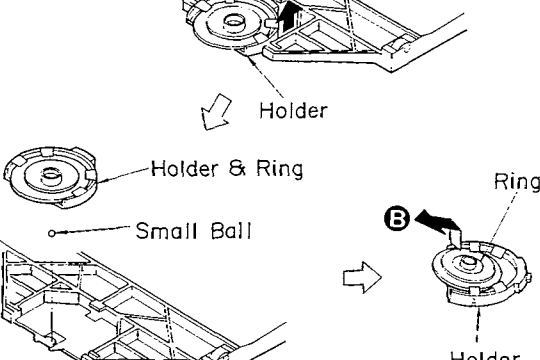
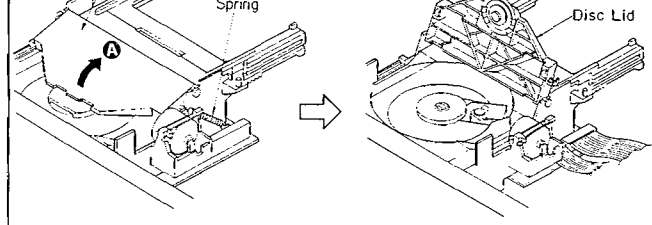
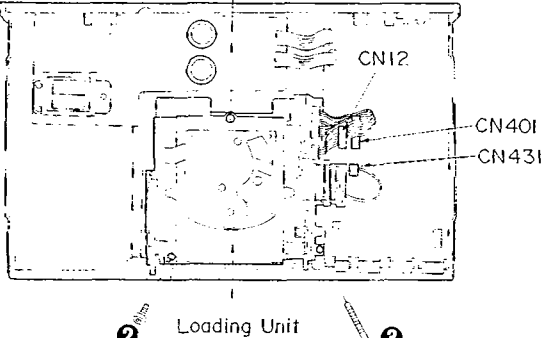
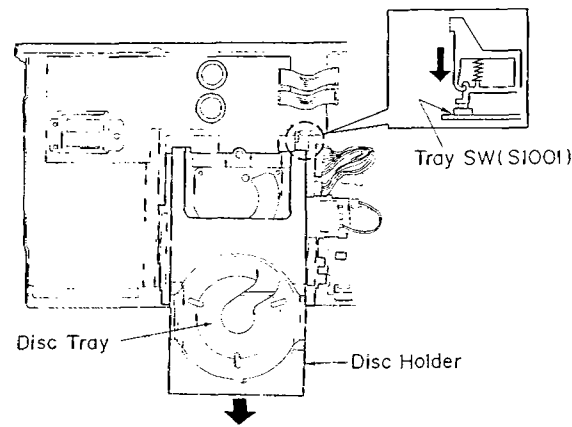
DISASSEMBLY INSTRUCTIONS

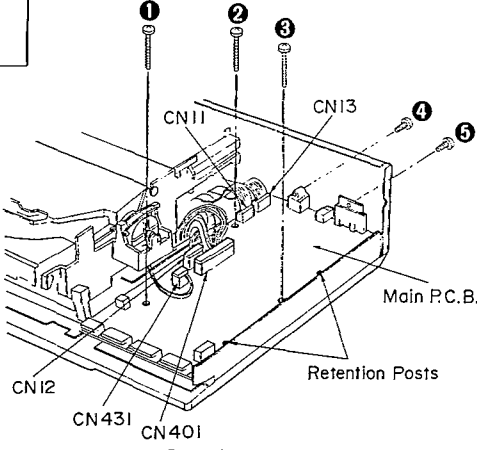
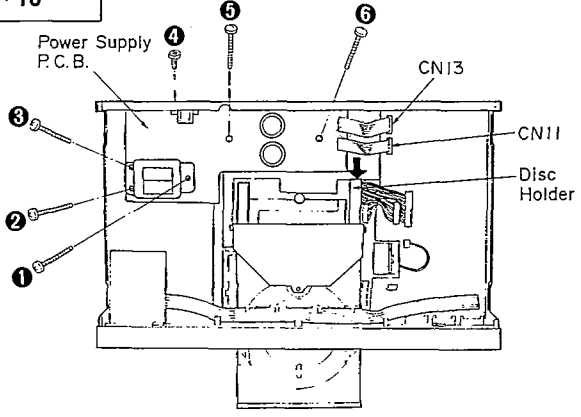
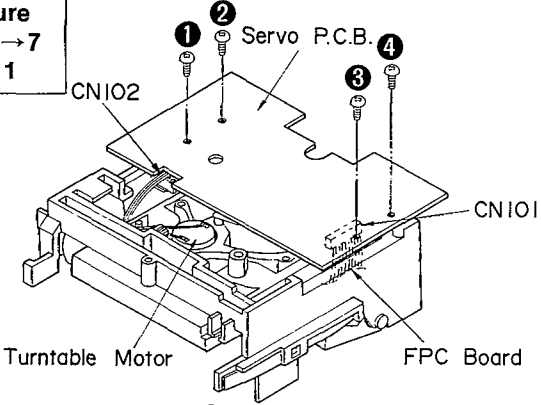
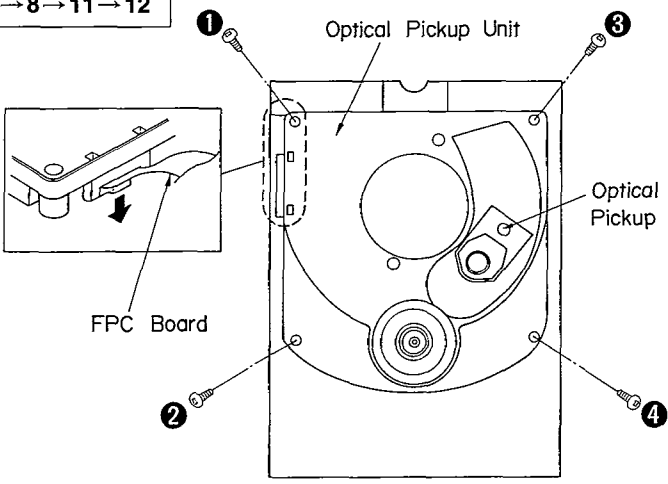
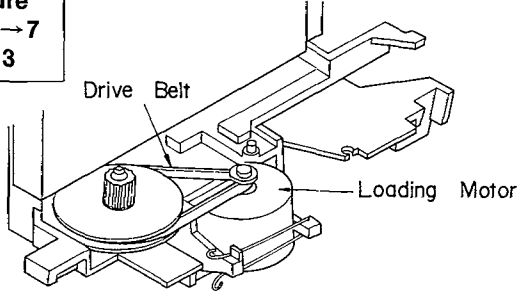
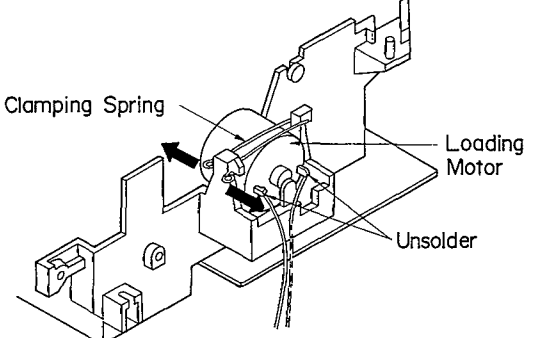
Warning: This product uses a laser diode. Refer to caution statements on page 3.

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

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

Ref. No. 1	Removal of the cabinet	Ref. No. 2	Removal of the front panel ass'y
Procedure 1		Procedure 1→2	
	 • Remove the 5 screws (①~⑤).		 1. Remove the 2 flat cables (CN415, CN891).
Ref. No. 3	Removal of the power switch P.C.B. and headphones P.C.B.		
Procedure 1→2→3			
	 ■ Removal of the power switch P.C.B. 1. Remove the 2 screws (①, ②). 2. Release the 1 claw. ■ Removal of the headphones P.C.B. 1. Pull out the headphones level knob. 2. Remove the 1 screw (③). 3. Remove the holder.		 [Rear Side] 2. Push the disc holder slowly in the direction of arrow ①. 3. Release the 1 claw and the ornament in the direction of arrow ②. 4. Remove the 2 screws (①, ②). 5. Remove the front panel ass'y in the direction of arrow ③.

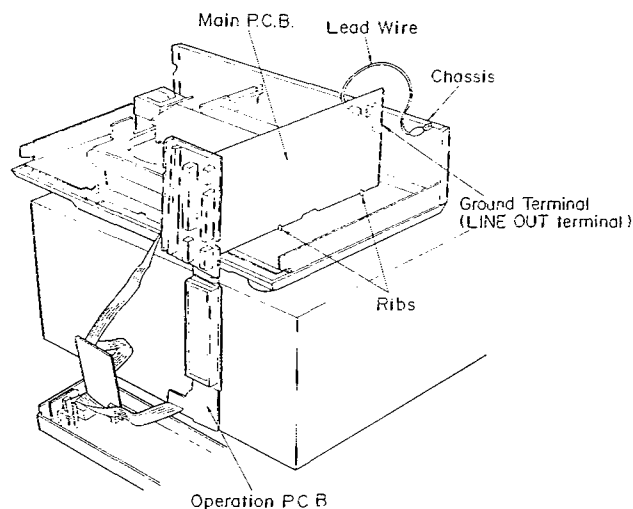
Ref. No. 4	Removal of the operation P.C.B.	Ref. No. 5	Removal of the disc lid
Procedure 1→2→4	 1. Remove the 7 screws (①~⑦). 1. Release the 7 claws.	Procedure 1→5	1. Remove the spring. 2. Move the disc lid in the direction of arrow (A) and pull out this in the direction of arrow (B). 
Ref. No. 6	Removal of the holder and ring		
Procedure 1→5→6	 1. Pull out the holder in the direction of arrow (A). 2. Remove the ring in the direction of arrow (B). Caution: Be sure to handle the small ball carefully.		
Ref. No. 8	Removal of the loading unit	Ref. No. 7	Removal of the disc holder
Procedure 1→2→5→7→8	 1. Remove the 3 screws (①~③). 3. Remove the 3 connectors (CN12, CN401, CN431).	Procedure 1→2→5→7	 1. Pull the disc holder slowly in the direction of arrow until the disc tray comes up. 2. Pull the disc holder until it stops. 3. Push the bracket of tray SW (S1001) in the direction of arrow. 4. Pull out the disc holder further to remove it.

Ref. No. 9 Procedure 1→2→9	Removal of the main P.C.B.	Ref. No. 10 Procedure 1→10	
	 1. Remove the 5 screws (①~⑤). 2. Remove the 3 connectors (CN12, CN401, CN431). 3. Remove the 2 flat cables (CN11, CN13). 4. Lift the main P.C.B. off the retention posts on the chassis.	 1. Push the disc holder slowly in the direction of arrow. 2. Remove the 6 screws (①~⑥). 3. Remove the 2 flat cables (CN11, CN13).	
Ref. No. 11 Procedure 1→2→5→7 →8→11	Removal of the servo P.C.B.	Ref. No. 12 Procedure 1→2→5→7 →8→11→12	
	 1. Remove the 4 screws (①~④). 2. Remove the FPC board (CN101) from the optical pickup. 3. Remove the 1 connector (CN102) of the turntable motor. Caution: To prevent the breakdown of the laser diode, antistatic shorting pin is inserted into the FPC board.	 1. Remove the 4 screws (①~④). 2. Remove the FPC board from the optical pickup.	
Ref. No. 13 Procedure 1→2→5→7 →8→13	Removal of the loading motor		
 1. Remove the drive belt.		 2. Release the clamping spring. 3. Unsolder the 2 terminals of the lead wire of the loading motor.	

CHECKING OF THE MAIN P.C.B.

1. Remove the cabinet (see Ref. No. 1 of the disassembly instructions).
2. Remove the front panel ass'y (see Ref. No. 2 of the same).
3. Remove the operation P.C.B. (see Ref. No. 4 of the same).
4. Remove the main P.C.B. (see Ref. No. 9 of the same).
5. Don't remove the connectors (CN12, CN401, CN431) and flat cables (CN11, CN13, CN415, CN891).
6. Connect the main P.C.B. ground terminal (LINE OUT terminal) to the chassis with a lead wire.

- When checking the soldered surface of the main P.C.B. and replacing the parts, do as shown below.



CHECKING OF THE SERVO P.C.B.

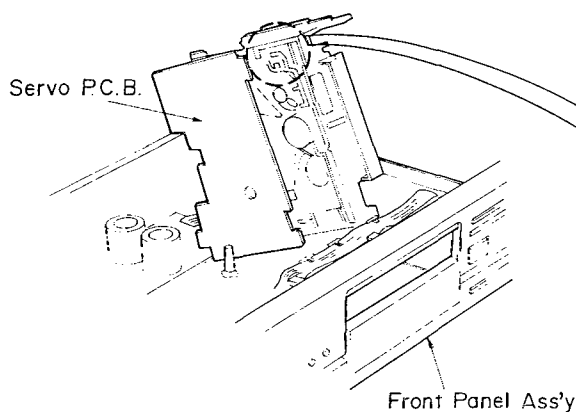
1. Remove the cabinet (see Ref. No. 1 of the disassembly instructions).
2. Remove the disc lid and disc holder (see Ref. No. 5 and No. 7 of the same).
3. Remove the loading unit (see Ref. No. 8 of the same).
4. When checking the soldered surface of the servo P.C.B. and replacing the parts, do as shown below.

(To play a disc)

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

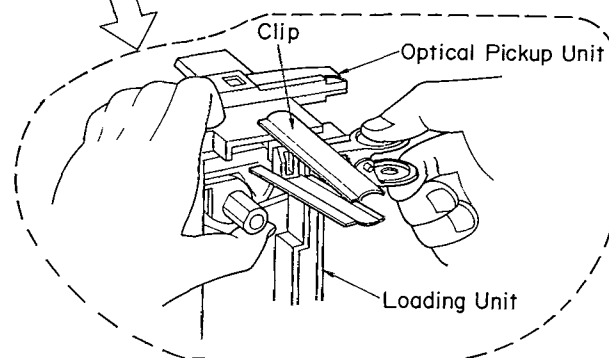
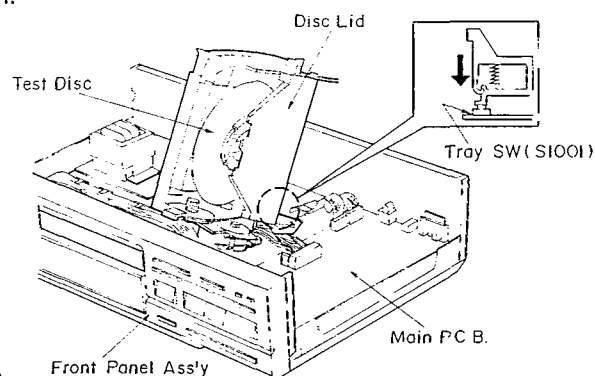
Note:

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



Note:

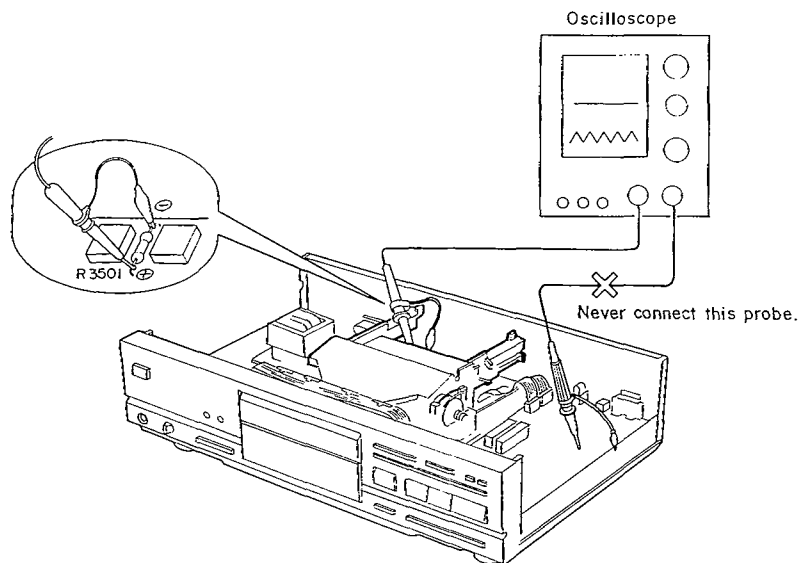
Put on the loading unit on the tabs of the front panel. (Fixed loading unit)
Hold the loading unit and the optical pickup unit with a clip. (Fixed optical pickup unit)
Secure the optical pickup assembly with a clip. (Otherwise the clammer will interfere with the disc, restricting turntable rotation.)



MEASUREMENTS AND ADJUSTMENTS

Caution:

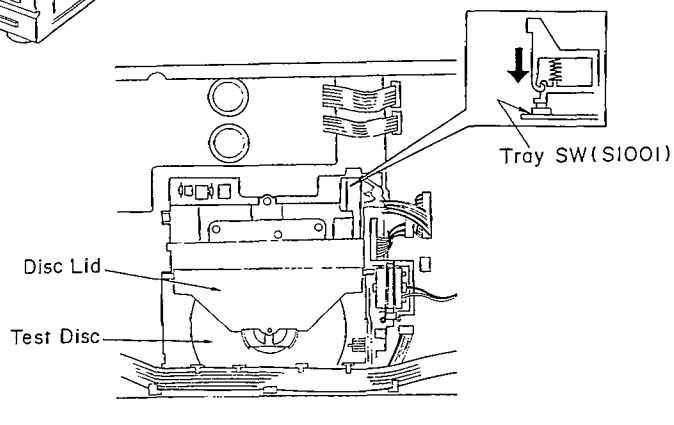
1. It is very dangerous to look at or touch the laser beam. (Laser radiation is invisible.)
With the unit turned "on", laser radiation is emitted from the pickup lens.
Avoid exposure to the laser beam, especially when performing adjustments.
2. During laser power or focus offset adjustment, never connect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



PREPARATION

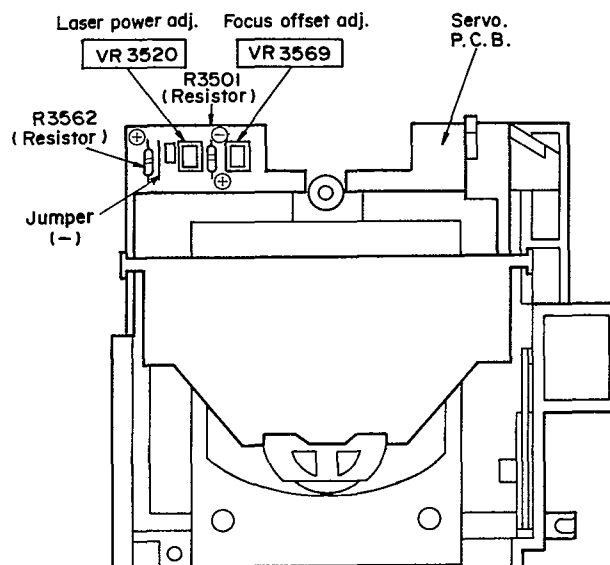
1. Remove the cabinet (see Ref No. 1 of the disassembly instructions).
2. Remove the disc holder (see Ref. No. 7 of the same).
3. Place the test disc on the turntable.
4. Turn "ON" the power switch at the player.
5. Push the bracket of tray SW (S1001) in the direction of the arrow and release it.

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



ADJUSTMENT POINTS

• Servo P.C.B.



Measuring Instruments

- * Playability test disc (SZZP1054C).
- * Normal disc (Ordinary musical program disc).

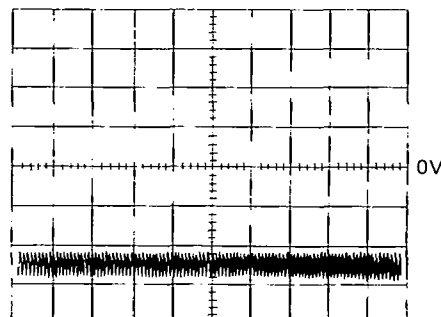
- * Dual-beam oscilloscope with bandwidth of 30MHz or better (with EXT trigger and 1:1 probe).

(1) LASER POWER ADJUSTMENT

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

Oscilloscope setting:

VOLT20mV
 SWEEP0.2msec.
 INPUTDC

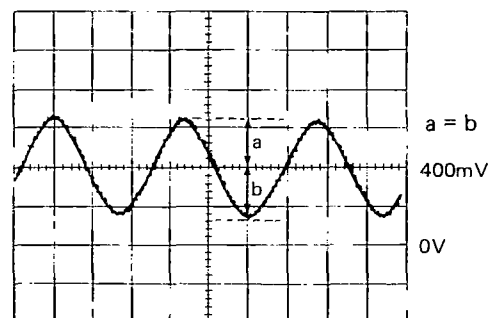


(2) FOCUS OFFSET ADJUSTMENT

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

Oscilloscope setting:

VOLT200mV
 SWEEP5msec.
 INPUTDC



(3) CHECK OF PLAY OPERATION AFTER ADJUSTMENT

* Checking Skip Search

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

* Checking Manual Search

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

* Playability check by test disc

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

■ TERMINAL FUNCTION OF IC'S

• IC6501 (482220973234/TDA8808T): Photo diode signal processor

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

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

• IC6503 (482220973235/TDA8809T): Radial error signal processor

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

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

• IC301 (MN6626): Digital signal processor

Pin No.	Mark	I/O Division	Function
1	AVSS	—	GND terminal
2	IREF	I	Reference current input
3	ARF	I	RF signal input
4	DRF	I	DSL bias terminal (Not used, open)
5	DSLIF	I/O	DSL loop filter terminal
6	PLLIF	I/O	PLL loop filter terminal
7	AVDD	I	Power supply terminal
8	RSEL	I	RF signal polarity setting terminal (Not used, connected to VDD)
9 16	TBUS7 TBUS0	O	Test terminal
17	FLAG	O	Flag terminal
18	IPFLAG	O	Interpolation flag terminal
19	FCLK	O	Crystal frame clock (Not used, open)
20	BYTCK	O	Byte clock (Not used, open)
21	WDCK	O	Word clock (Not used, open)
22	RST	I	Reset terminal
23	TX	O	Digital audio signal (Not used, open)
24	LDG	O	Lch deglitch signal (Not used, open)
25	RDG	O	Rch deglitch signal (Not used, open)
26	SRDATA	O	Serial data output (MSB first)
27	SCK	O	Serial bit clock output
28	LRCK	O	L/R discriminating signal
29	XCK	O	Crystal OSC terminal (f = 16.9344 MHz) (Not used, open)
30	PMCK	O	Frequency division clock signal (Not used, open) ($f = \frac{1}{192} \times CK = 88.2 \text{ kHz}$)
31	CSEL	I	Test terminal (Connected to GND)
32	PSEL		
33	X1	I	Crystal OSC terminal (f = 16.9344 MHz)
34	X2	O	
35	VSS	—	GND terminal
36	SUBQ	O	Sub-code Q data
37	SQCK	I	Sub-code Q register clock
38	CLDCK	O	Sub-code frame clock (f = 7.35 kHz) (Not used, open)

Pin No.	Mark	I/O Division	Function
39	BLKCK	O	Sub-code block clock (f = 75 Hz)
40	DEMPH	O	De-emphasis ON signal ("H": ON)
41	MEMP	I	Emphasis signal
42	MLD	I	Command load signal ("L": LOAD)
43	MCLK	I	Command clock signal
44	MDATA	I	Command data signal
45	D MUTE	I	Muting input ("H": MUTE)
46	SMCK	O	System clock (f = 4.2336 MHz)
47	STAT	O	Status signal (CRC, CUE, CLVS, TTSTOP, FCLV, SQOK)
48	CRC	O	Sub-code CRC check terminal ("H": OK, "L": NG)
49	SUBC	O	Sub-code serial output data (Not used, open)
50	SBCK	I	Sub-code serial output clock (Not used, open)
51	TRON	I	Tracking servo ON signal ("L": ON)
52	CLVS	O	Turntable servo phase synchro signal ("H": CLV, "L": Rough servo)
53	PC	O	Turntable motor ON signal ("L": ON)
54	ECM	O	Turntable motor drive signal (Forced mode)
55	ECS	O	Turntable motor drive signal (Servo error signal)
56	VDD	I	Power supply terminal
57	TEST	I	Test terminal (Normal: "H")
58	SSEL	I	"SUBQ" terminal mode select ("H": Q code buffer)
59	MSEL	I	"SMCK" terminal frequency select ("L": SMCK = 4.2336 MHz)
60	RESY	O	Re-synchronizing signal of frame sync. (Not used, open)
61	DO	I	Drop-out detection signal ("H": Drop-out) (Not used, connected to GND)
62	EFM	O	EFM signal (Not used, open)
63	PCK	O	PLL extract clock (f = 4.3218 MHz) (Not used, open)
64	PDO	O	Phase comparated signal of EFM and PCK (Not used, open)

• IC401 (MN1871617PMC): System control & FL drive

Pin No.	Mark	I/O Division	Function
1	VDD	I	Power supply terminal
2	OSC2	I	System clock input (f=4.2336MHz)
3	OSC1		
4	VSS	—	GND terminal
5	XI	I	Radial error digital signal
6	XO	O	Not Used, open
7	P47	I	
8 } 12	P46 } P42	I	Key return signal
13	SYNC REC	O	Synchro rec control
14	REC ENABLE	I	
15 } 18	P37 } P34	—	Not used, open and connected to terminal
19	P33	—	Not used, open and connected to terminal
20	P32		
21	P31		
22	P30		
23	P27		
24	OPEN/CLOSE	O	Loading motor control signal
25	DMUTE	O	Muting output ("H": MUTE)
26	SI/RD	I/O	On/off control and ready signal
27 } 30	B3 } B0	O	Control bits for off-, catch-, play-status and DAC output current
31	REMOCON	I	Remote control signal
32	REDIG	I	Radial error digital signal
33	MDATA	O	Command data signal
34	MCLK	O	Command clock signal
35	MLD	O	Command load signal ("L": LOAD)

Pin No.	Mark	I/O Division	Function
36	TL	I	Track loss input
37	RST	I	Reset terminal
38	SQCK	O	Sub-code Q register clock
39	SUBQ	I	Sub-code Q data
40	TRAY SW	I	Disc holder open/close det. terminal
41	BLKCK	I	Sub-code block clock (f=75Hz)
42	DODS	O	Drop-out detect signal
43	STAT	I	Status signal (CRC, CUE, CLVS, TTSTOP, FCLV, SQOK)
44	P95	—	Not used, open
45	CLVS	I	Spindle servo phase synchro signal ("H": CLV, "L": Rough servo)
46	TRON	O	Tracking servo ON signal ("L": ON)
47	DIV4	O	Radial error digital signal divided by four
48	EMPH	O	Emphasis signal
49	HFD	I	PLL on hold input
50	CM	—	Not used, connected to GND
51	130Hz	—	Not used, open
52	VPP	I	Power supply terminal for FL drive
53 } 56	16G } 13G	—	Not used, open
57 } 68	12G } 1G	O	FL digit signal
69 } 84	A/P1 } P/P16	O	FL segment signal and key scan signal

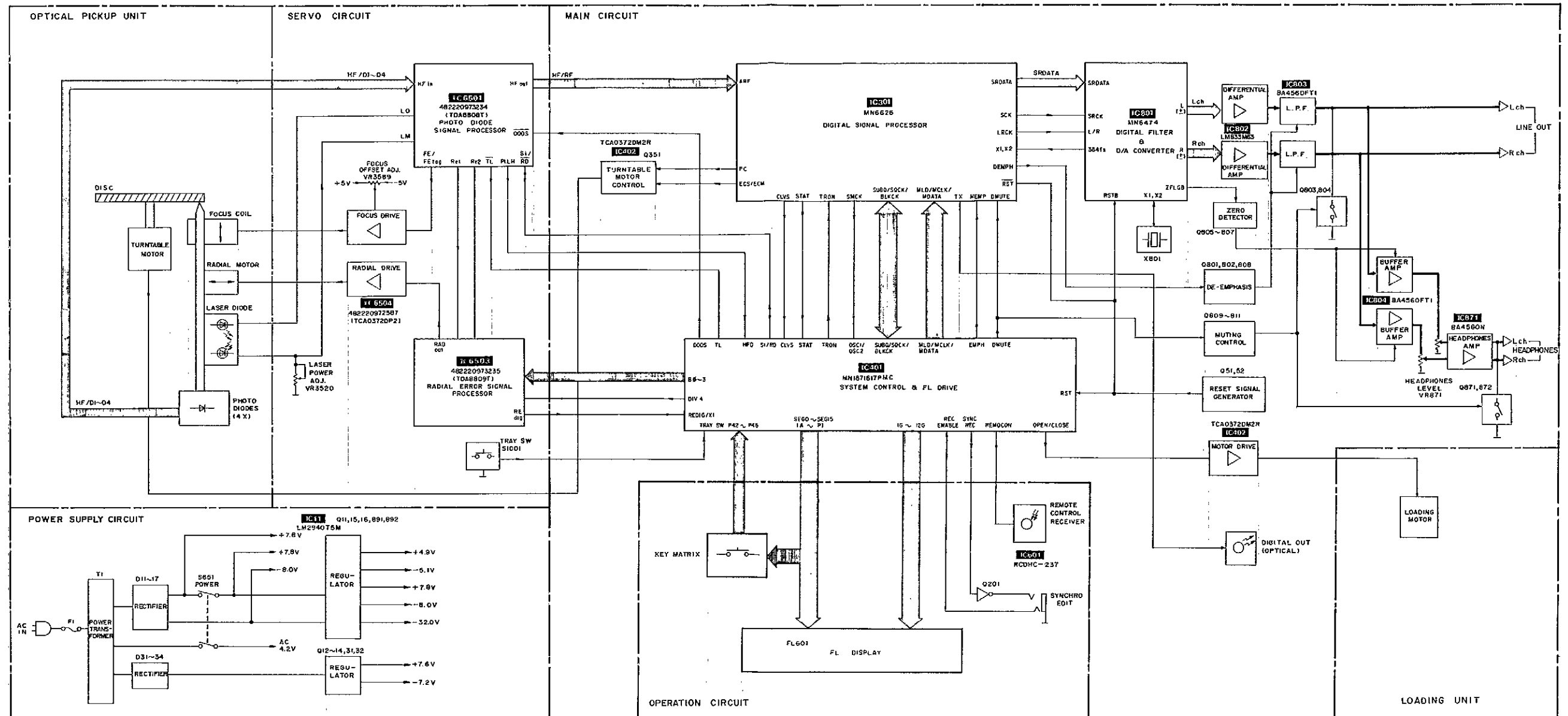
• IC801 (MN6474): Digital filter and D/A converter

Pin No.	Mark	I/O Division	Function
1	MLD	I	Command load input (load: L) (Not used, connected to VDD)
2	RSTB	I	Reset terminal
3	IE	I	Not used, connected to GND
4	TP1	—	TEST terminal
5	TP2	—	TEST terminal
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 terminal
11	OUTL (-)	O	Lch data output, (-) terminal
12	AVSS4	—	GND terminal
13	AVSS3	—	GND terminal
14	OUTL (+)	O	Lch data output, (+) terminal
15	AVDD3	I	Power supply terminal
16	NC	—	Not connected
17	AVDD2	I	Power supply terminal
18	OUTR (+)	O	Rch data output, (+) terminal
19	AVSS2	—	GND terminal (analog system)
20	AVSS1	—	GND terminal (analog system)
21	OUTR (-)	O	Rch data output, (-) terminal
22	AVDD1	I	Power supply terminal
23	DVDD1	I	Power supply terminal

Pin No.	Mark	I/O Division	Function
24	DVSS1	—	GND terminal (digital system)
25	X2	O	Crystal OSC terminal (33MHz)
26	X1	I	Crystal OSC terminal (33MHz)
27	NC	—	Not connected
28	DVDD2	I	Power supply terminal
29	DVSS2	—	GND terminal (digital system)
30	NSUB	I	Sub-strate terminal (Not used, connected to VDD)
31	ZFLGB	O	Zero input detector terminal
32	192fs	O	192fs (8.4672MHz) (Not used, open)
33	LRPOL	I	LR clock selector (Not used, connected to VDD)
34	LRCLK	I	LR discrimination signal input
35	BCLK	I	Serial bit clock input
36	SRDATA	I	Serial data input (MSB first)
37	DVSS3	—	GND terminal (digital system)
38	DVDD	I	Power supply terminal
39	384fs	O	384fs (16.9344MHz) output
40	PD	I	Power down terminal (Not used, connected to GND)
41	MDATA	I	Mode control data (Not used, connected to VDD)
42	MCLK	I	Data clock for MDATA (not used, connected to VDD)

■ BLOCK DIAGRAM

Note)
 Audio signal.



RAD out : Current output of integrated (Re2-Re1) input currents.
 B0~B3 : Control bits for radial circuit.
 D0~D4 : Photodiode currents.
 FE : Focus error signal.
 FE lag : Focus error signal for LAG network.
 HF in : HF amplifier and equalizer voltage output.
 HF out : HF current input.
 LM : Laser monitor diode input.
 LO : Laser amplifier current output.
 Re1 : Radial error signal 1 (summation of amplified currents D3 and D4).
 Re2 : Radial error signal 2 (summation of amplified currents D1 and D2).

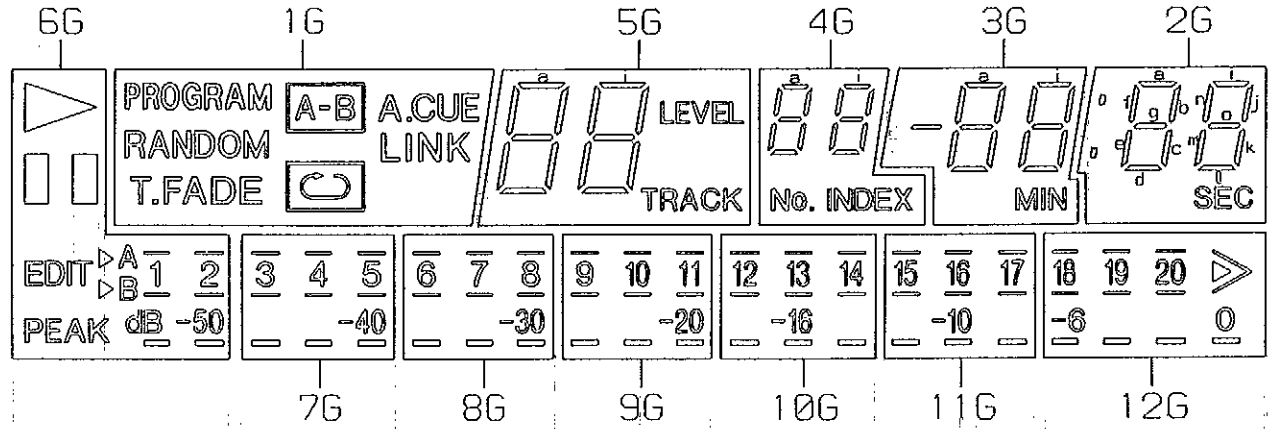
RE dig (RE DIG/X1) : Radial error digital.
 RE lag : Radial error signal for LAG network.
 SI/RD : On/off control for laser supply and focus circuit.
 TL : Track loss signal.
 Div4 : Radial error digital divided by four.
 HF/RF/ARF : RF (Audio) signal.
 TRAY SW : Disc holder open/close det. terminal.
 CLVS : Spindle servo phase synchro signal.
 STAT : Status command for CRC etc.
 DMUTE : Data mute command.
 MDATA : Mode control data.
 MLD : Load command for mode control data (Active Low).

P42~46 : Key return signal.
 1G~12G : FL digit signal.
 SEG0~15 : FL segment signal and key scan signal.
 MCLK : Data clock for MDATA.
 SUBQ : Sub-code Q data.
 CLDCK : Data frame clock (7.35KHz).
 BLKCK : Sub-code Q data block clock (75Hz).
 SQCK : Sub-code Q register clock.
 RST(RSTB) : Reset command (Active Low).
 TRON : Tracking servo ON command (Active Low).
 ECS/ECM : Turntable motor drive signal.
 PC : Turntable motor ON command (Active Low).
 SMCK : System clock (4.2336MHz).
 TX : Digital (optical) signal.

LRCK(L/R) : L/R data discrimination clock (88.2KHz).
 SRDATA : Serial data output (MSB first).
 SCK(SRCK) : Serial bit clock (2.82MHz).
 MEMP/EMPH : De-emphasis command (Active High).
 SYNC REC : Synchro rec control.
 REC ENABLE : Remote control signal.
 REMOCON : Remote control signal.
 384fs/X1, X2 : 384fs (16.9344MHz) signal.
 DEMPH : De-emphasis ON signal.
 L(±) : Lch data signal.
 R(±) : Rch data signal.
 OPEN/CLOSE : Loading motor control signal.
 ZFLGB : Zero input detector.

INTERNAL CONNECTION OF FL

Grid connection diagram



Anode connection table

	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G
P1	-	a	a	a	a	EDIT A/B	3	6	9	12	15	18
P2	-	b	b	b	b	(lower)	(3 lower)	(6 lower)	(9 lower)	(12 lower)	(15 lower)	(18 lower)
P3	RANDOM	f	f	f	f	(upper)	(3 upper)	(6 upper)	(9 upper)	(12 upper)	(15 upper)	(18 upper)
P4	T.FADE	g	g	g	g	1	4	7	10	13	16	19
P5		c	c	c	c	(1 lower)	(4 lower)	(7 lower)	(10 lower)	(13 lower)	(16 lower)	(19 lower)
P6	A-	e	e	e	e	(1 upper)	(4 upper)	(7 upper)	(10 upper)	(13 upper)	(16 upper)	(19 upper)
P7	B	d	d	d	d	2	5	8	11	14	17	20
P8	-	-	-	No.	LEVEL	(2 lower)	(5 lower)	(8 lower)	(11 lower)	(14 lower)	(17 lower)	(20 lower)
P9	-	i	i	i	i	(2 upper)	(5 upper)	(8 upper)	(11 upper)	(14 upper)	(17 upper)	(20 upper)
P10	PROGRAM	j	j	j	j	-	-	-	-	-	-	-
P11	LINK	n	n	n	n	-	-	-	-	-	-	-
P12	-	o	o	o	o	dB -50	-40	-30	-20	-16	-10	-6
P13	A.CUE	k	k	k	k	PEAK	-	-	-	-	-	(0.6 right)
P14	-	m	m	m	m	-	(left)	(left)	(left)	(left)	(left)	(left)
P15	-	l	l	l	l	-	(middle)	(middle)	(middle)	(middle)	(middle)	(middle)
P16	-	SEC	MIN	INDEX	TRACK	(right)	(right)	(right)	(right)	(right)	(right)	(right)

Pin connection

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
CONNECTION	F	F	N	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

NOTE 1) F1, F2 --- Filament 2) NP --- No pin 3) NC --- No connection 4) 16~126 --- Grid

SCHEMATIC DIAGRAM

(Parts list on pages 30, 31, 36, 37.)

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

Notes:

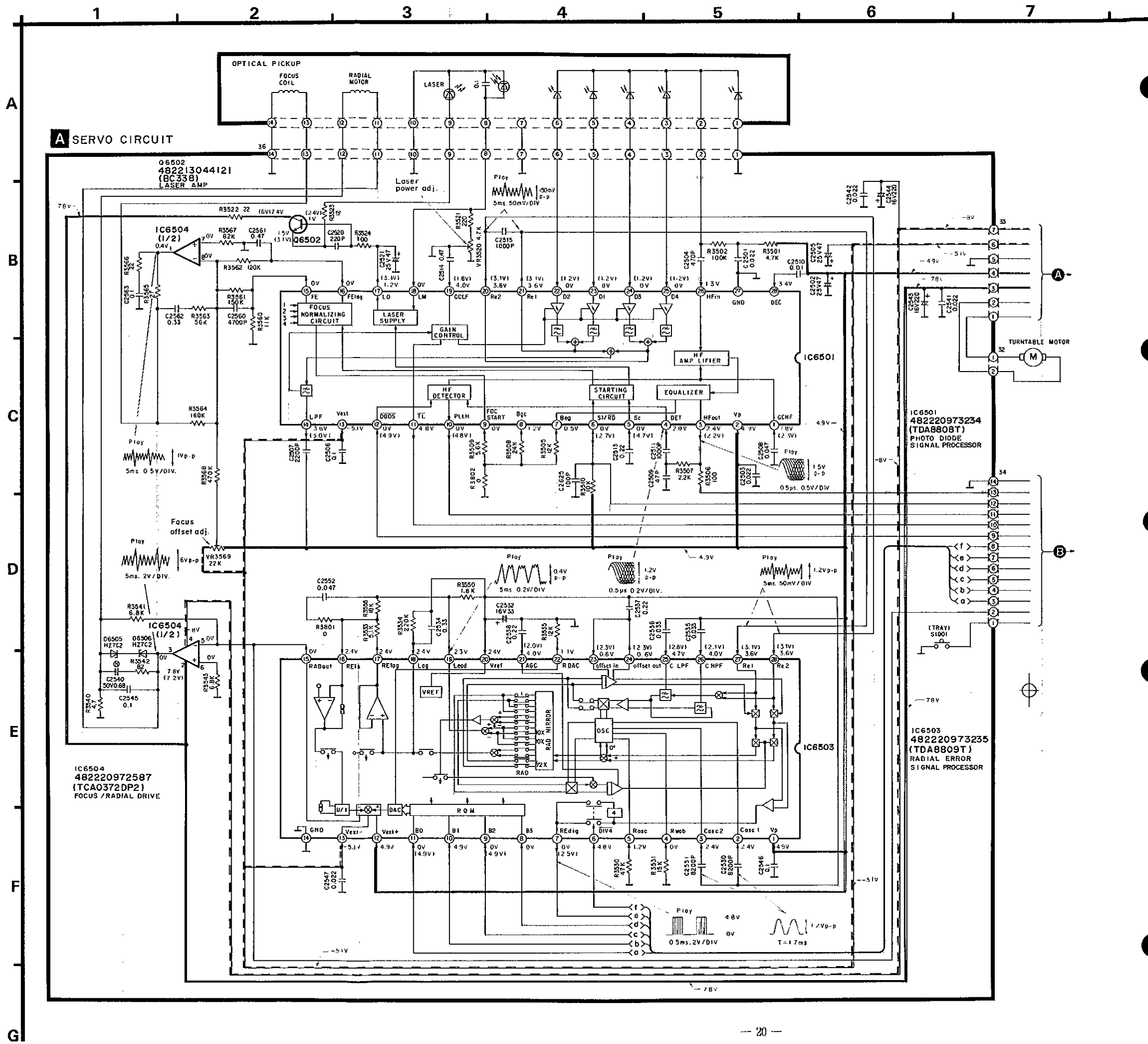
- S601~612 : Numeric (>10, 0, 1~10) switches.
 - S601: 0, S602: 1, S603: 2, S604: 3, S605: 4, S606: 5, S607: >10, S608: 10, S609: 9, S610: 8, S611: 7, S612: 6
 - S613 : Play (▶) PLAY switch.
 - S614 : Skip (◀◀) SKIP switch.
 - S615 : Search (◀◀) switch.
 - S616 : Program (PROGRAM) switch.
 - S617 : Disc link (DISC LINK) switch.
 - S618 : Output level meter on/off (LEVEL METER ON/OFF) switch.
 - S619 : Stop (■) STOP switch.
 - S620 : Skip (▶▶) SKIP switch.
 - S621 : Search (▶▶) switch.
 - S622 : Recall (RECALL) switch.
 - S623 : Tape-side select (SIDE A/B) switch.
 - S624 : Random play (RANDOM) switch.
 - S625 : Time fade (TIME FADE) switch.
 - S626 : Disc tray open/close (▲ OPEN/CLOSE) switch.
 - S627 : Pause (■) PAUSE switch.
 - S628 : Repeat (REPEAT) switch.
 - S629 : Clear (CLEAR) switch.
 - S630 : Edit tape length (TAPE LENGTH) switch.
 - S631 : Time mode select (TIME MODE) switch.
 - S632 : Peak level search (PEAK SEARCH) switch.
 - S651 : Power "STANDBY & /ON" (POWER) switch in "on" position.
 - S1001 : Tray (OPEN/CLOSE) switch.
- The voltage value and waveforms are the reference voltage of this unit measured by DC electronic voltmeter (high Impedance) and oscilloscope on the basis of chassis. Accordingly, there may arise some error in voltage values and waveforms depending upon the internal impedance of the tester or the measuring unit.
- *The parenthesized are the values of voltage generated during playing (Test disc 1kHz, L+R, 0dB), others are voltage values in stop mode.
- Important safety notice:
Components identified by Δ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
The supply part number is described alone in the replacement parts list.

Part No.	Production Part No.	Supply Part No.
IC11	LM2940T5M	LM2940T5
IC803, 804	BA4560FT1	SVIBA4560FT1

--- / --- : Positive voltage lines and negative voltage lines.
~~~~~ : Audio signal lines.

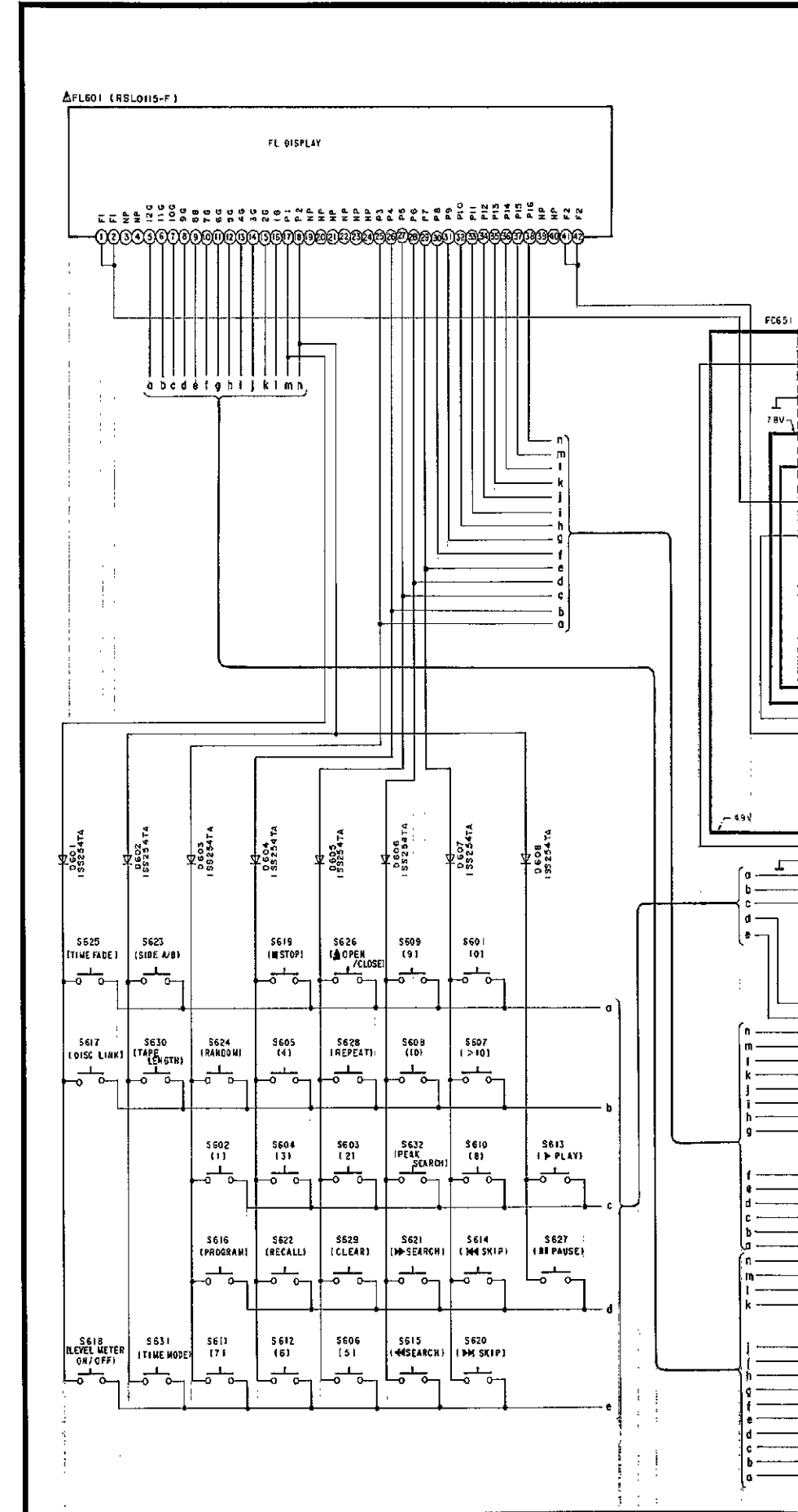
Caution!

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.

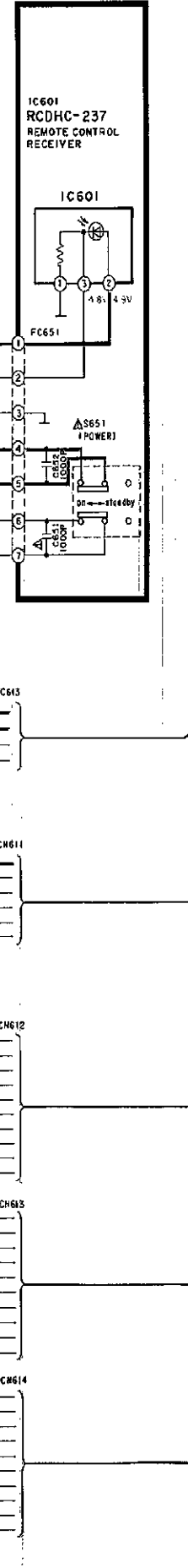


8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

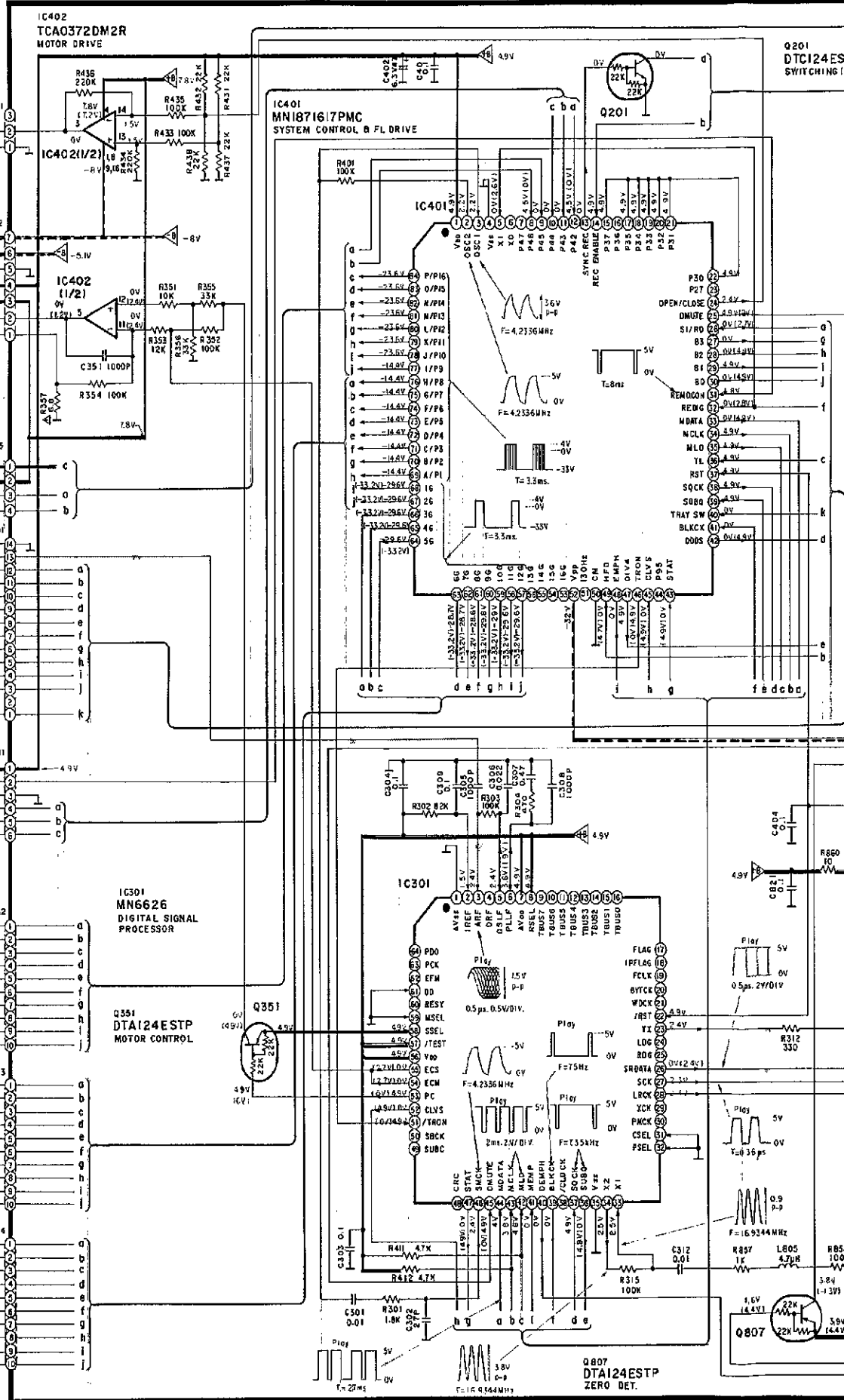
## B OPERATION CIRCUIT



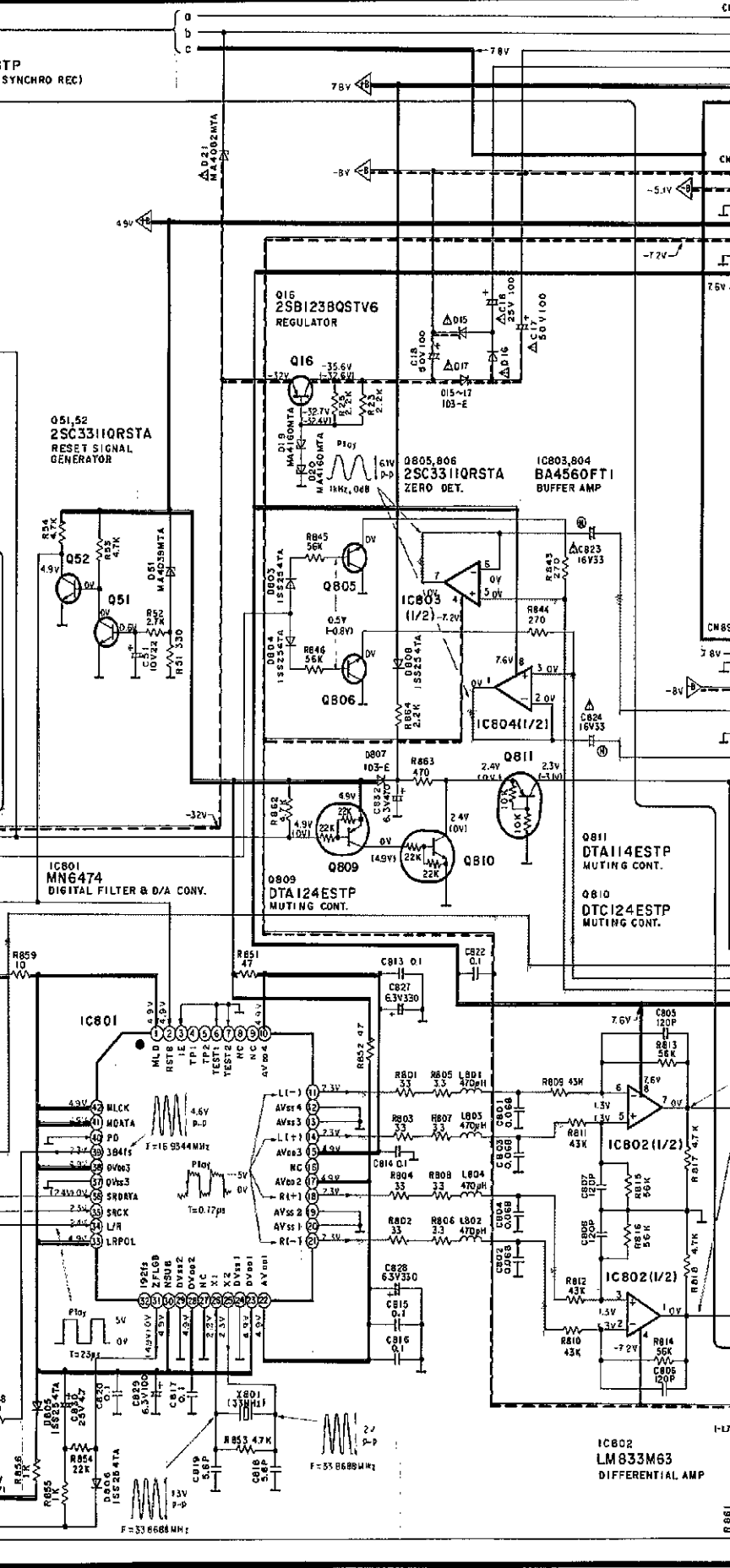
## C POWER SWITCH CIRCUIT



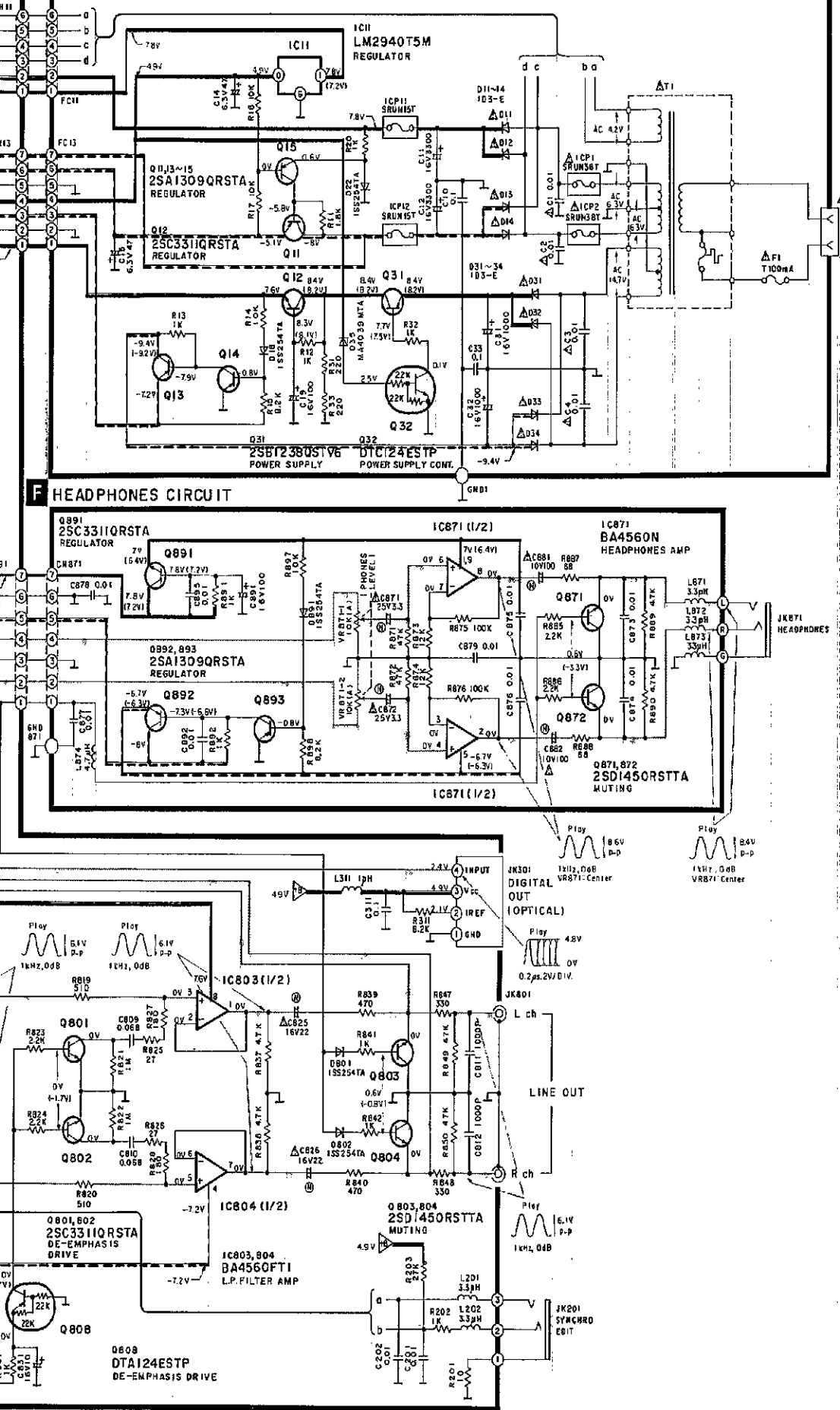
## D MAIN CIRCUIT



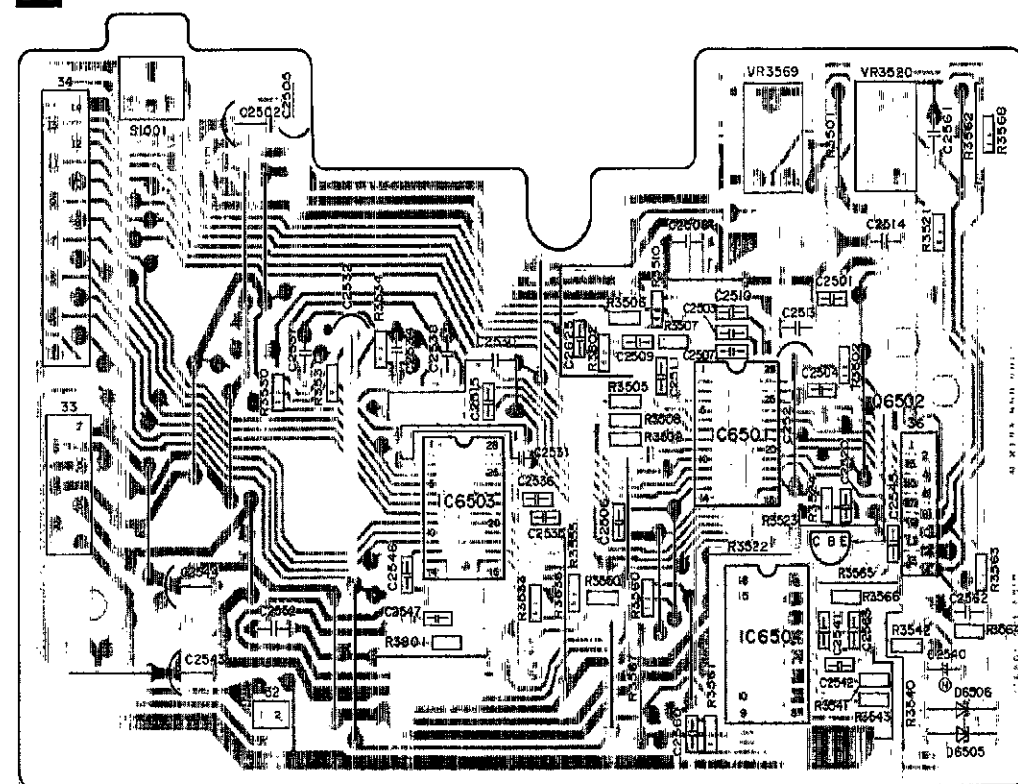
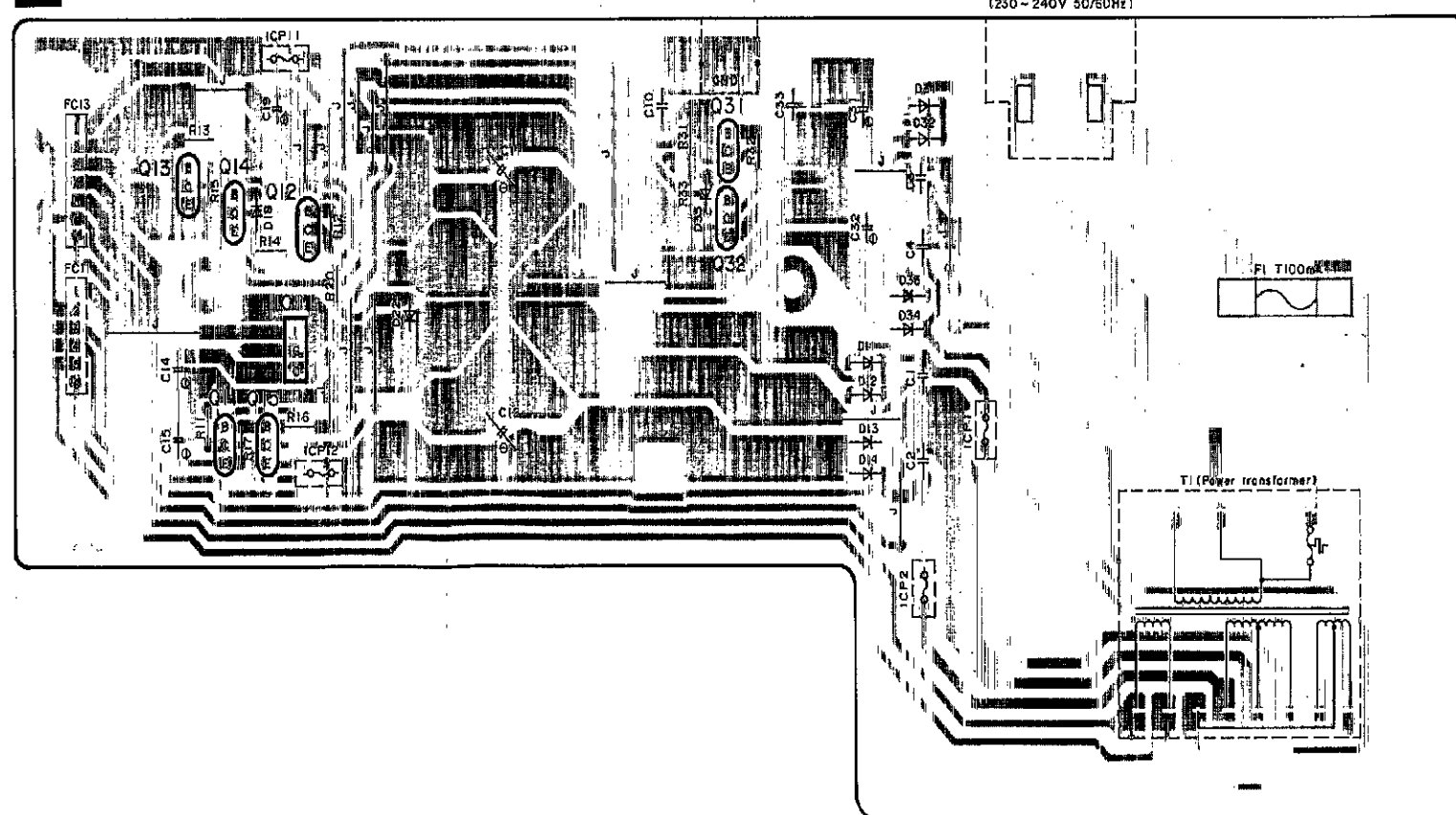
## E POWER SUPPLY CIRCUIT



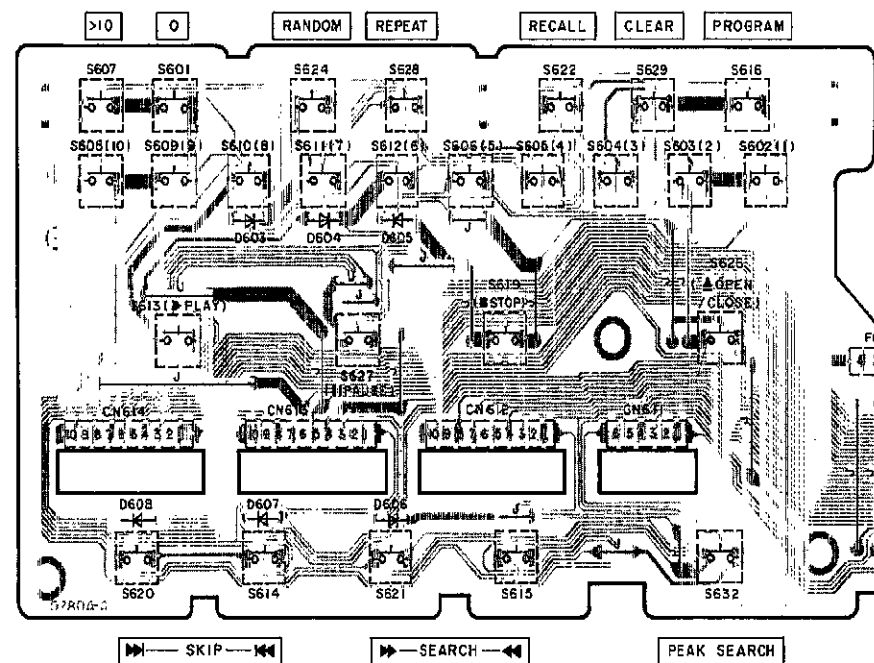
## F HEADPHONES CIRCUIT



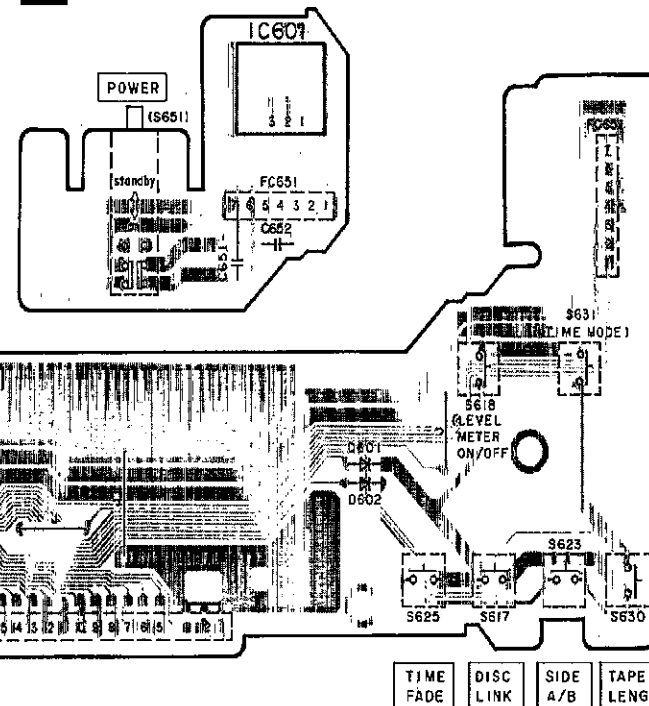
**A** SERVO P.C.B.

**E** POWER SUPPLY P.C.B.

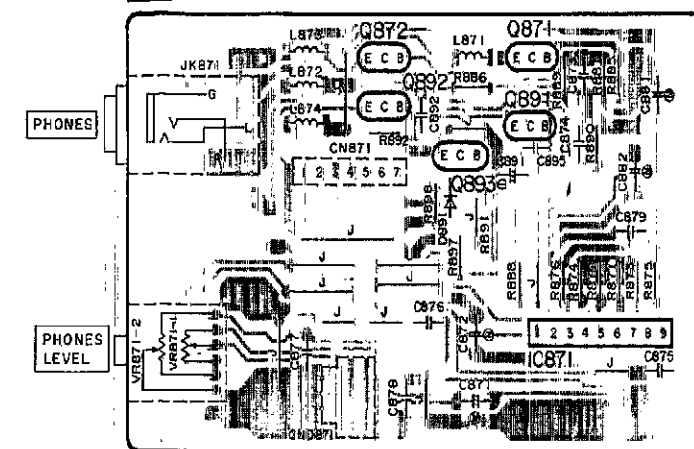
**B** OPERATION P.C.B.



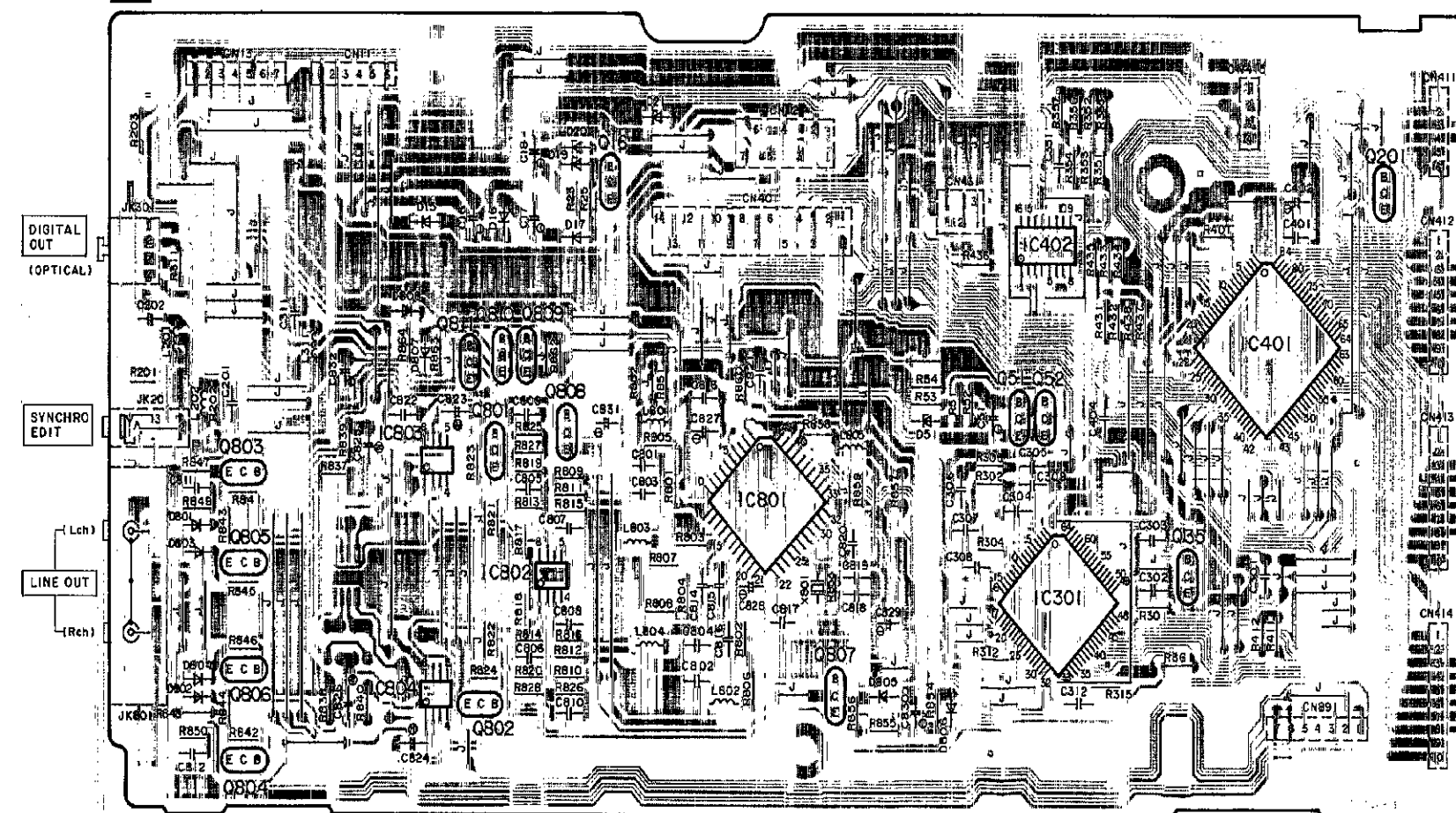
**C** POWER SWITCH P.C.B.



## F HEADPHONES P.C.B.

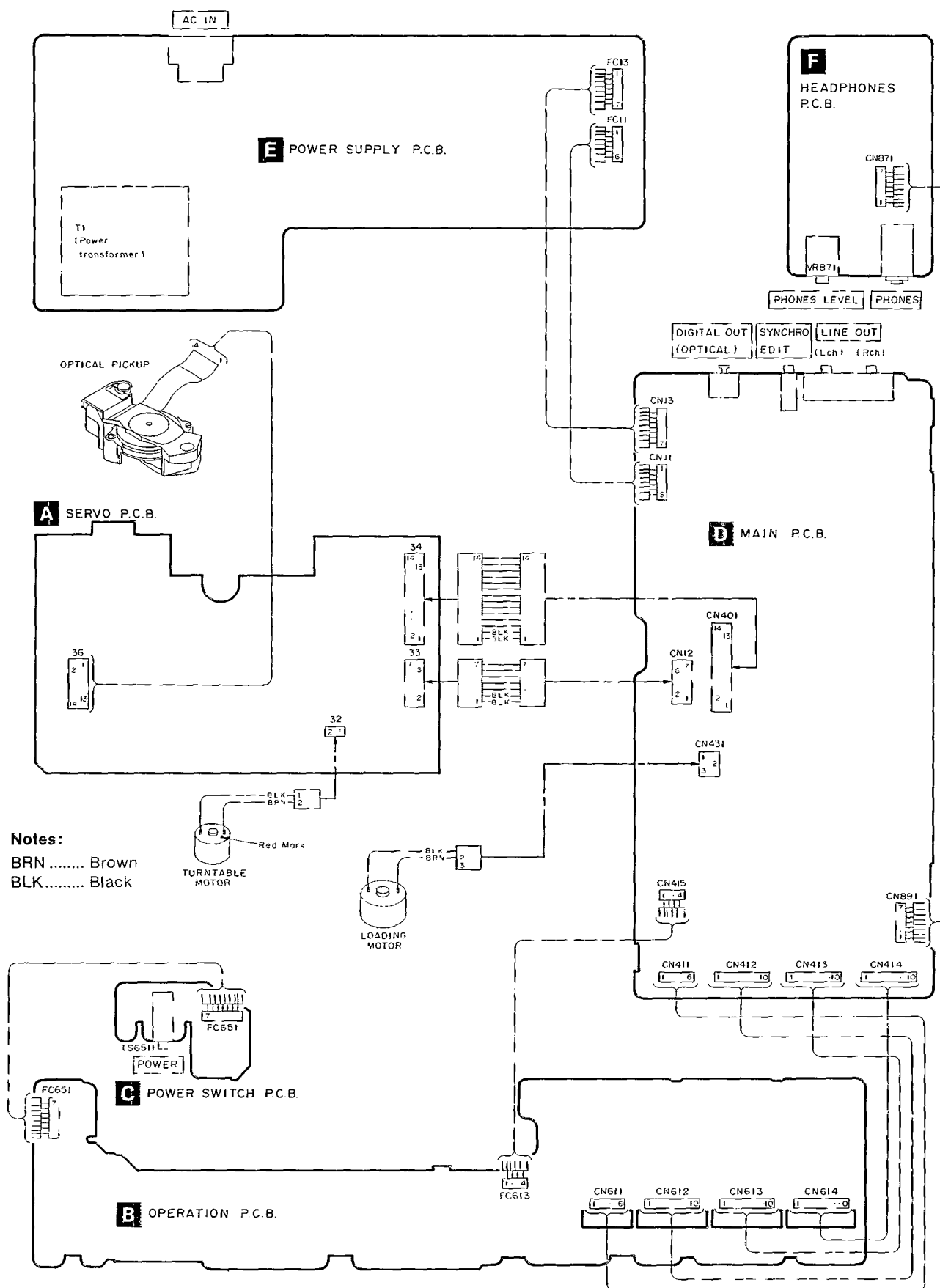


**D** MAIN P.C.B.



|                                                                          |                                                                            |                                                         |
|--------------------------------------------------------------------------|----------------------------------------------------------------------------|---------------------------------------------------------|
| <p><b>BA4560FT1</b></p>                                                  | <p><b>LM833M63</b></p>                                                     | <p><b>TCA0372DM2R</b></p>                               |
| <p><b>482220973234 (TDA8808T)</b><br/><b>482220973235 (TDA8809T)</b></p> | <p><b>482220972587 (TCA0372DP2)</b></p>                                    |                                                         |
| <p><b>MN6474</b></p>                                                     | <p><b>MN6626</b></p>                                                       | <p><b>MN1671617PMC</b></p>                              |
| <p><b>BA4560N</b></p>                                                    | <p><b>LM2940T5M</b></p> <p>1. Vin<br/>2. GND<br/>3. Vout</p>               | <p><b>RCDHC-237</b></p>                                 |
| <p><b>DTA114ESTP</b><br/><b>DTA124ESTP</b><br/><b>DTC124ESTP</b></p>     | <p><b>2SA1308QRSTA</b><br/><b>2SC3311QRSTA</b><br/><b>2SD1450RSTTA</b></p> |                                                         |
| <p><b>2SB1238QSTV6</b></p>                                               | <p><b>482213044121 (BC338)</b></p>                                         | <p><b>1SS254TA</b></p>                                  |
| <p><b>1D3-E</b></p>                                                      | <p><b>MA4039MTA</b><br/><b>MA4082MTA</b></p>                               | <p><b>MA4160MTA</b><br/><b>482213030861 (HZ7C2)</b></p> |

# WIRING CONNECTION DIAGRAM



# REPLACEMENT PARTS LIST

Notes: \* Important safety notice:

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

\* The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)

Parts without these indications can be used for all areas.

\* Remote Control Ass'y: Supply period for three years from termination of production.

\*[MB] Indicates in Remarks columns parts that are supplied by MBV.

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

\* ACHTUNG: Die lasereinheit nicht zerlegen.

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

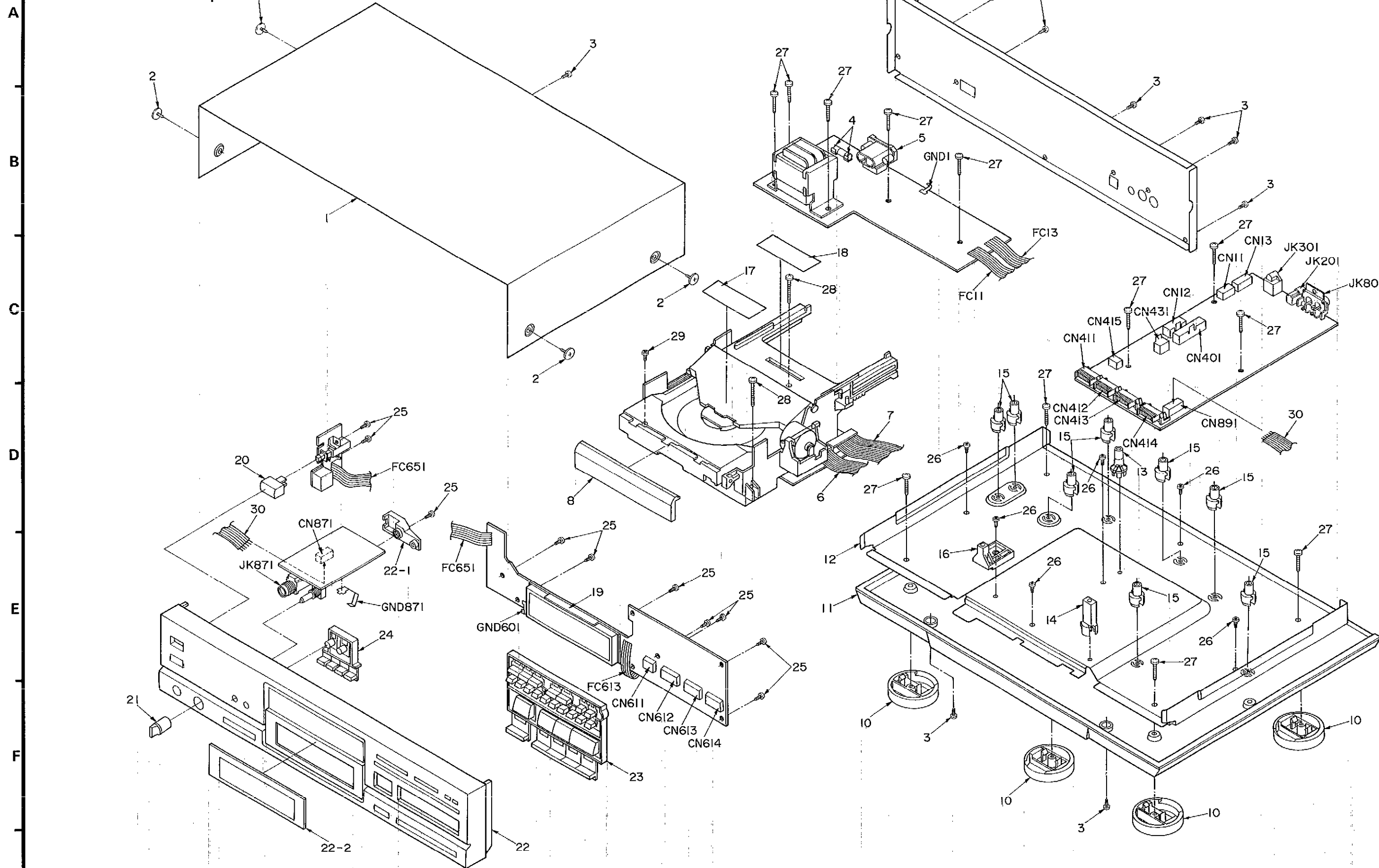
| Ref. No.   | Part No.     | Part Name & Description      | Remarks       | Ref. No.  | Part No.     | Part Name & Description | Remarks       |
|------------|--------------|------------------------------|---------------|-----------|--------------|-------------------------|---------------|
|            |              | INTEGRATED CIRCUIT(S)        |               | D801-806  | 1SS254TA     | DIODE                   |               |
|            |              |                              |               | D807      | 1D3-E        | DIODE                   | [MB]          |
|            |              |                              |               | D808      | 1SS254TA     | DIODE                   |               |
|            |              |                              |               | D891      | 1SS254TA     | DIODE                   |               |
| IC11       | LM2940T5     | IC, REGULATOR                |               |           |              | IC PROTECTOR(S)         |               |
| IC301      | MN6626       | IC, DIGITAL SIGNAL PROCESSOR |               | ICP1, 2   | SRUN38T      | IC PROTECTOR            | $\Delta$      |
| IC401      | MN1871617PMC | IC, SYSTEM CONTROL&FL DRIVE  | [MB]          | ICP11, 12 | SRUN15       | IC PROTECTOR            |               |
| IC402      | TCA0372DM2R  | IC, MOTOR DRIVE              |               |           |              | VARIABLE RESISTOR(S)    |               |
| IC601      | RCDHC-237    | IC, REMOTE CONTROL RECEIVER  |               | VR871     | EVJCB0F02A14 | V. R. HEADPHONES LEVEL  |               |
| IC801      | MN6474       | IC, DIGITAL FILTER&D/A CONV. |               |           |              | COIL(S)                 |               |
| IC802      | LM833M63     | IC, DIFFERENTIAL AMP         |               | L201, 202 | RLQZN3R3KL-D | COIL                    | [MB]          |
| IC803, 804 | SV1BA4560FT1 | IC, L. P. FILTER AMP         |               | L311      | RLQZN1R0KL-D | COIL                    |               |
| IC871      | BA4560N      | IC, HEADPHONES AMP           |               | L801-804  | RLQZN471KL-D | COIL                    | [MB]          |
|            |              | TRANSISTOR(S)                |               | L805      | RLQZN4R7KL-D | COIL                    |               |
| Q11        | 2SA1309A-R   | TRANSISTOR                   |               | L871-873  | RLQZN3R3KL-D | COIL                    | [MB]          |
| Q12        | 2SC3311A-Q   | TRANSISTOR                   |               | L874      | RLQZN4R7KL-D | COIL                    |               |
| Q13-15     | 2SA1309A-R   | TRANSISTOR                   |               |           |              | TRANSFORMER(S)          |               |
| Q16        | 2SB1238QSTV6 | TRANSISTOR                   |               | T1        | RTP1K4B008   | TRANSFORMER             | $\Delta$ [MB] |
| Q31        | 2SB1238QSTV6 | TRANSISTOR                   |               |           |              | OSCILLATOR(S)           |               |
| Q32        | DTC124EST    | TRANSISTOR                   |               | X801      | RSXA33M8J01T | OSCILLATOR (33MHz)      | [MB]          |
| Q51, 52    | 2SC3311A-Q   | TRANSISTOR                   |               |           |              | DISPLAY TUBE            |               |
| Q201       | DTC124EST    | TRANSISTOR                   |               | FL601     | RSL0115-F    | DISPLAY TUBE            | $\Delta$ [MB] |
| Q351       | DTA124ESTP   | TRANSISTOR                   |               |           |              | FUSE(S)                 |               |
| Q801, 802  | 2SC3311A-Q   | TRANSISTOR                   |               | F1        | XBA2CQ1TB0   | FUSE 250V T100mA        | $\Delta$      |
| Q803, 804  | 2SD1450RTA   | TRANSISTOR                   |               |           |              | SWITCH(ES)              |               |
| Q805, 806  | 2SC3311A-Q   | TRANSISTOR                   |               | S601      | EVQ21405R    | SW, NUMERIC 0           |               |
| Q807-809   | DTA124ESTP   | TRANSISTOR                   |               | S602      | EVQ21405R    | SW, NUMERIC 1           |               |
| Q810       | DTC124EST    | TRANSISTOR                   |               | S603      | EVQ21405R    | SW, NUMERIC 2           |               |
| Q811       | DTA114ESTP   | TRANSISTOR                   |               | S604      | EVQ21405R    | SW, NUMERIC 3           |               |
| Q871, 872  | 2SD1450RTA   | TRANSISTOR                   |               |           |              |                         |               |
| Q891       | 2SC3311A-Q   | TRANSISTOR                   |               |           |              |                         |               |
| Q892, 893  | 2SA1309A-R   | TRANSISTOR                   |               |           |              |                         |               |
|            |              | DIODE(S)                     |               |           |              |                         |               |
| D11-17     | 1D3-E        | DIODE                        | $\Delta$ [MB] |           |              |                         |               |
| D18        | 1SS254TA     | DIODE                        |               |           |              |                         |               |
| D19, 20    | MA4160M      | DIODE                        |               |           |              |                         |               |
| D21        | MA4082MTA    | DIODE                        | $\Delta$      |           |              |                         |               |
| D22        | 1SS254TA     | DIODE                        |               |           |              |                         |               |
| D31-34     | 1D3-E        | DIODE                        | $\Delta$ [MB] |           |              |                         |               |
| D35        | MA4039MTA    | DIODE                        |               |           |              |                         |               |
| D51        | MA4039MTA    | DIODE                        |               |           |              |                         |               |
| D601-608   | 1SS254TA     | DIODE                        |               |           |              |                         |               |

| Ref. No.  | Part No.     | Part Name & Description  | Remarks | Ref. No. | Part No.     | Part Name & Description  | Remarks |
|-----------|--------------|--------------------------|---------|----------|--------------|--------------------------|---------|
| S605      | EVQ21405R    | SW, NUMERIC 4            |         |          |              |                          |         |
| S606      | EVQ21405R    | SW, NUMERIC 5            |         |          |              | EARTH CONTACT(S)         |         |
| S607      | EVQ21405R    | SW, NUMERIC 10           |         |          |              |                          |         |
| S608      | EVQ21405R    | SW, NUMERIC 10           |         | GND1     | SUSD144      | EARTH CONTACT            |         |
| S609      | EVQ21405R    | SW, NUMERIC 9            |         | GND601   | SUSD144      | EARTH CONTACT            |         |
| S610      | EVQ21405R    | SW, NUMERIC 8            |         | GND871   | RMC0075      | EARTH CONTACT            | [MB]    |
| S611      | EVQ21405R    | SW, NUMERIC 7            |         |          |              |                          |         |
| S612      | EVQ21405R    | SW, NUMERIC 6            |         |          |              | FLAT CABLE(S)            |         |
| S613      | EVQ21405R    | SW, PLAY                 |         |          |              |                          |         |
| S614      | EVQ21405R    | SW, SKIP (B)             |         | FC11     | RWJ1806100KX | FLAT CABLE (6P)          | [MB]    |
| S615      | EVQ21405R    | SW, SEARCH (B)           |         | FC13     | RWJ1807100KX | FLAT CABLE (7P)          | [MB]    |
| S616      | EVQ21405R    | SW, PROGRAM              |         | FC613    | RWJ1804150XX | FLAT CABLE (4P)          | [MB]    |
| S617      | EVQ21405R    | SW, LINK                 |         | FC651    | RWJ1807150XX | FLAT CABLE (7P)          | [MB]    |
| S618      | EVQ21405R    | SW, LEVEL METER ON/OFF   |         |          |              |                          |         |
| S619      | EVQ21405R    | SW, STOP                 |         |          |              |                          |         |
| S620      | EVQ21405R    | SW, SKIP (F)             |         |          |              | SERVO P. C. B.           |         |
| S621      | EVQ21405R    | SW, SEARCH (F)           |         |          |              | INTEGRATED CIRCUIT(S)    |         |
| S622      | EVQ21405R    | SW, RECALL               |         |          |              |                          |         |
| S623      | EVQ21405R    | SW, SIDE A/B             |         | IC6501   | 482220973234 | I. C. PHOTO DIODE S. P.  | [MB]    |
| S624      | EVQ21405R    | SW, RANDOM               |         | IC6503   | 482220973235 | I. C. RADIAL ERROR S. P. | [MB]    |
| S625      | EVQ21405R    | SW, TIME FADE            |         | IC6504   | 482220972587 | I. C. FOCUS/RADIAL DRIVE | [MB]    |
| S626      | EVQ21405R    | SW, OPEN/CLOSE           |         |          |              |                          |         |
| S627      | EVQ21405R    | SW, PAUSE                |         |          |              | TRANSISTOR(S)            |         |
| S628      | EVQ21405R    | SW, REPEAT               |         |          |              |                          |         |
| S629      | EVQ21405R    | SW, CLEAR                |         | Q6502    | 482213044121 | TRANSISTOR               | [MB]    |
| S630      | EVQ21405R    | SW, TAPE LENGTH          |         |          |              |                          |         |
| S631      | EVQ21405R    | SW, TIME MODE            |         |          |              | DIODE(S)                 |         |
| S632      | EVQ21405R    | SW, PEAK SEARCH          |         |          |              |                          |         |
| S651      | RSP2B010     | SW, POWER                | A       | D6505    | 482213030861 | DIODE                    | [MB]    |
|           |              |                          |         | D6506    | 482213030861 | DIODE                    | [MB]    |
|           |              |                          |         |          |              |                          |         |
|           |              | CONNECTOR(S) & SOCKET(S) |         |          |              | VARIABLE RESISTOR(S)     |         |
| CN11      | RJS1A6606    | CONNECTOR (6P)           |         | VR3520   | 482210110685 | V. R. LASER POWER ADJ.   | [MB]    |
| CN12      | RJT001H007   | CONNECTOR (7P)           | [MB]    | VR3569   | 482210011193 | V. R. FOCUS OFFSET ADJ.  | [MB]    |
| CN13      | RJS1A6607    | CONNECTOR (7P)           | [MB]    |          |              |                          |         |
| CN401     | RJT001H014   | CONNECTOR (14P)          | [MB]    |          |              | SWITCH                   |         |
| CN411     | RJC003K006M1 | SOCKET (6P)              |         |          |              |                          |         |
| CN412-414 | RJU003K010M1 | SOCKET (10P)             |         | S1001    | 482227612523 | SW, TRAY                 | [MB]    |
| CN415     | RJS1A6604    | CONNECTOR (4P)           |         |          |              |                          |         |
| CN431     | RJT001H003   | CONNECTOR (3P)           | [MB]    |          |              |                          |         |
| CN611     | RJT003K006M1 | CONNECTOR (6P)           |         |          |              |                          |         |
| CN612 614 | RJT003K010M1 | CONNECTOR (10P)          |         |          |              |                          |         |
| CN871     | RJS1A6607    | CONNECTOR (7P)           | [MB]    |          |              |                          |         |
| CN891     | RJS1A6607    | CONNECTOR (7P)           | [MB]    |          |              |                          |         |
|           |              |                          |         |          |              |                          |         |
|           |              | JACK(S)                  |         |          |              |                          |         |
| JK201     | RJJ33701     | SYNCHRO EDIT             |         |          |              |                          |         |
| JK301     | T0TX174-A    | DIGITAL (OPTICAL) OUT    |         |          |              |                          |         |
| JK801     | RJH3201N     | LINE OUT                 |         |          |              |                          |         |
| JK871     | QJA0455ZC A  | HEADPHONES               |         |          |              |                          |         |

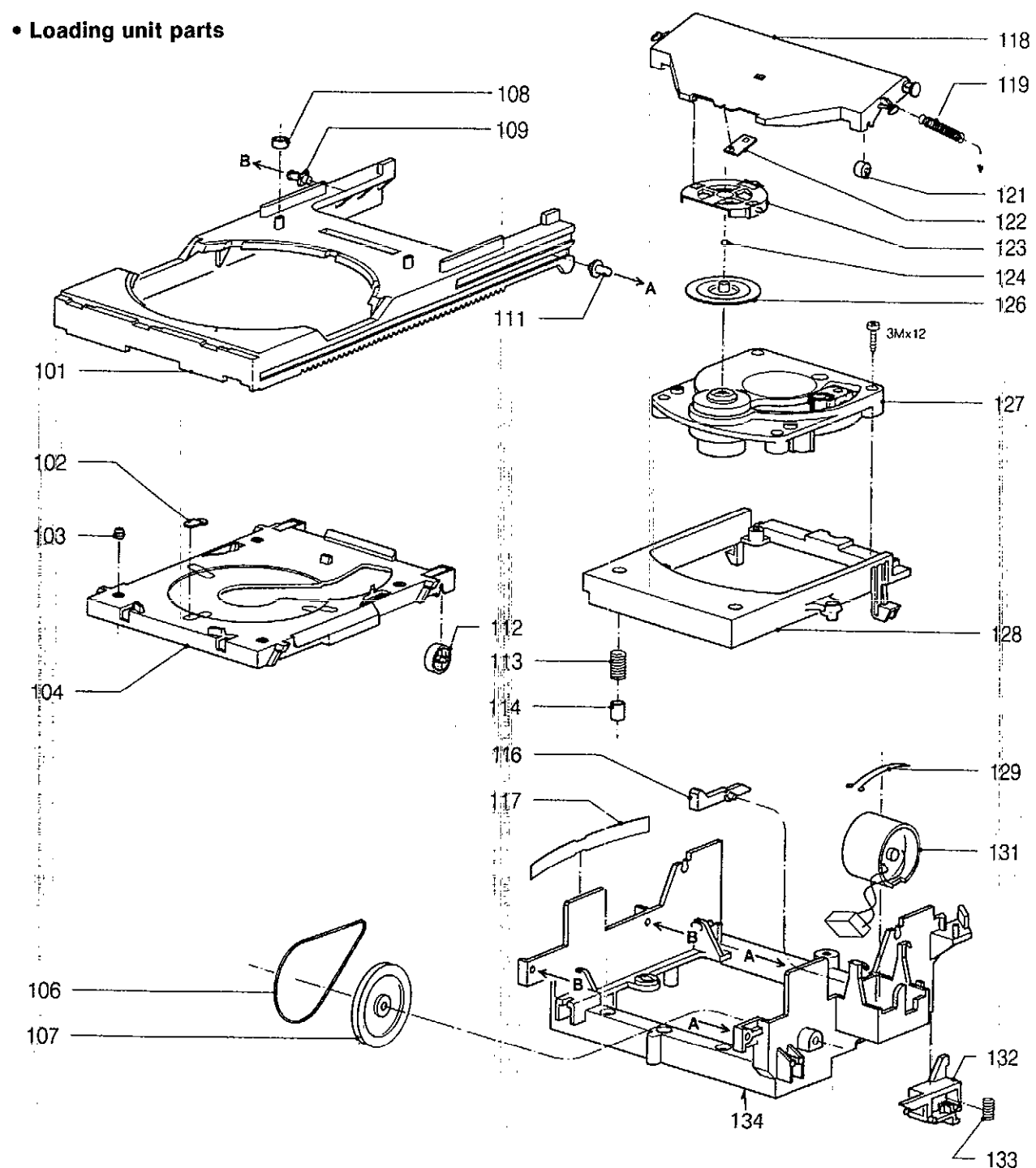
| Ref.No. | Part No.      | Part Name & Description | Remarks      | Ref.No. | Part No.     | Part Name & Description    | Remarks   |
|---------|---------------|-------------------------|--------------|---------|--------------|----------------------------|-----------|
|         |               | CABINET AND CHASSIS     |              | 117     | 482249263659 | SPRING, BLADE              | [MB]      |
|         |               |                         |              | 118     | 482244460568 | DISC LID                   | [MB]      |
| 1       | RKM0152-K     | CABINET                 | [MB]         | 119     | 482249232883 | SPRING, TENSION            | [MB]      |
| 2       | SNE2129-1     | SCREW                   |              | 121     | 482252890639 | ROLLER                     | [MB]      |
| 3       | XTBS3+8JFZ1   | SCREW                   |              | 122     | 482246692257 | PLATE                      | [MB]      |
| 4       | EYF52BC       | FUSE HOLDER             |              | 123     | 482240261207 | HOLDER                     | [MB]      |
| 5       | SJS9236       | AC INLET                | △            | 124     | 482252040177 | SMALL BALL                 | [MB]      |
| 6       | REX0007       | CONNECTOR ASS'Y (7P)    | [MB]         | 126     | 482253080503 | RING, PRESSURE             | [MB]      |
| 7       | REX0285       | CONNECTOR ASS'Y (14P)   | [MB]         | 127     | 482269130209 | OPTICAL PICKUP UNIT        | [MB]      |
| 8       | RGK0463-K     | TRAY ORNAMENT           | [MB]         | 128     | 482240261196 | SUPPORT                    | [MB]      |
| 9       | RFKHLPS620AE  | REAR PANEL ASS'Y        | (E, EG) [MB] | 129     | 482249263746 | CLAMPING SPRING            | [MB]      |
| 9       | RFKHLPS620AEB | REAR PANEL ASS'Y        | (EB) [MB]    | 131     | 482236120998 | LOADING MOTOR              | [MB]      |
| 10      | RKAO040B      | FOOT                    | [MB]         | 132     | 482240250244 | BRACKET                    | [MB]      |
| 11      | RKU0040-K     | CHASSIS BASE            | [MB]         | 133     | 482249251935 | SPRING, COMPRES.           | [MB]      |
| 12      | RMK0146       | CHASSIS                 | [MB]         | 134     | 482270112729 | CHASSIS                    | [MB]      |
| 13      | RMRO020       | SPACER(A)               | [MB]         |         |              | PACKING MATERIAL           |           |
| 14      | RMRO021       | SPACER(B)               | [MB]         |         |              |                            |           |
| 15      | RMRO377       | P. C. B. SUPPORT        | [MB]         | P1      | RPG1140      | PACKING CASE               | [MB]      |
| 16      | RMRO573-K     | SPACER(C)               | [MB]         | P2      | RPN0591      | CUSHION                    | [MB]      |
| 17      | RQLS0022      | LASER CAUTION LABEL     | [MB]         | P3      | RMRO024      | LOCK SHAFT                 | [MB]      |
| 18      | RQLS0060      | LASER CAUTION LABEL     | [MB]         | P4      | RQCA0059     | LOCK CAUTION SHEET         | [MB]      |
| 19      | RMRO523       | FL HOLDER               | [MB]         | P5      | XZB60X65A01Z | PROTECTION BAG (UNIT)      |           |
| 20      | RGU0030       | POWER BUTTON            |              | P6      | XZB23X35C03  | PROTECTION BAG (F. B. )    |           |
| 21      | RGW0048       | HEADPHONES LEVEL KNOB   |              |         |              | ACCESSORIES                |           |
| 22      | RFKGLPS620AE  | FRONT PANEL ASS'Y       | [MB]         |         |              |                            |           |
| 22-1    | RMRO512       | HEADPHONES HOLDER       | [MB]         | A1      | RFKSLPS620AE | INSTRUCTION MANUAL ASS'Y   | (E) [MB]  |
| 22-2    | RKW0197-R     | WINDOW                  | [MB]         | A1      | RQT1396-B    | INSTRUCTION MANUAL         | (EB) [MB] |
| 23      | RGU0711-K     | MAIN BUTTON             | [MB]         | A1      | RQT1397-D    | INSTRUCTION MANUAL         | (EG) [MB] |
| 24      | RGU0712-K     | SUB BUTTON              | [MB]         | A2      | RJA0018-1K   | AC POWER SUPPLY CORD       | (E, EG) △ |
| 25      | XTBS26+8J     | SCREW                   |              | A2      | SJA193       | AC POWER SUPPLY CORD       | (EB) △    |
| 26      | XTB3+10GFZ    | SCREW                   |              | A3      | RQA0013      | WARRANTY CARD              |           |
| 27      | XTB3+20JFZ    | SCREW                   |              | A4      | RQCB0169     | SERVICENTER LIST           |           |
| 28      | XTB3+35JFZ    | SCREW                   |              | A5      | SJP2249-3    | STEREO CONNECTION CABLE    |           |
| 29      | XTB3+8JFZ     | SCREW                   |              | A6      | EUR64798     | REMOTE CONTROL TRANSMITTER | [MB]      |
| 30      | RWJ1807480XX  | FLAT CABLE (7P)         | [MB]         | A6-1    | UR64EC804    | BATTERY COVER              |           |
|         |               | LOADING UNIT PARTS      |              |         |              |                            |           |
|         |               |                         |              |         |              |                            |           |
| 101     | 482244450603  | DISC HOLDER             | [MB]         |         |              |                            |           |
| 102     | 482232550176  | GROMMET, CABLE          | [MB]         |         |              |                            |           |
| 103     | 482232550177  | GROMMET, CABLE          | [MB]         |         |              |                            |           |
| 104     | 482246692251  | DISC TRAY               | [MB]         |         |              |                            |           |
| 106     | 482235810115  | DRIVE BELT              | [MB]         |         |              |                            |           |
| 107     | 482252232359  | WHEEL, GEAR             | [MB]         |         |              |                            |           |
| 108     | 482253251518  | RING, RUBBER            | [MB]         |         |              |                            |           |
| 109     | 482240261081  | GUIDE                   | [MB]         |         |              |                            |           |
| 111     | 482240261132  | GUIDE                   | [MB]         |         |              |                            |           |
| 112     | 482252890638  | ROLLER                  | [MB]         |         |              |                            |           |
| 113     | 482249251902  | SPRING, COMPRES.        | [MB]         |         |              |                            |           |
| 114     | 482246661587  | FOAM                    | [MB]         |         |              |                            |           |
| 116     | 482240261107  | LEVER                   | [MB]         |         |              |                            |           |

## ■ CABINET PARTS LOCATION

### • Cabinet and chassis parts



### • Loading unit parts

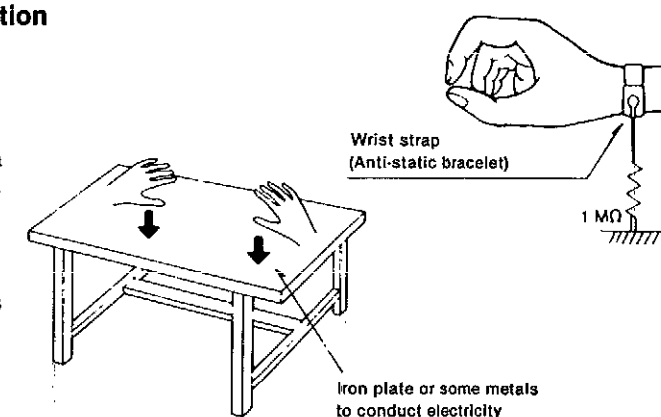


### • Grounding for electrostatic breakdown prevention

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

#### Caution:

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



RESISTORS & CAPACITORS

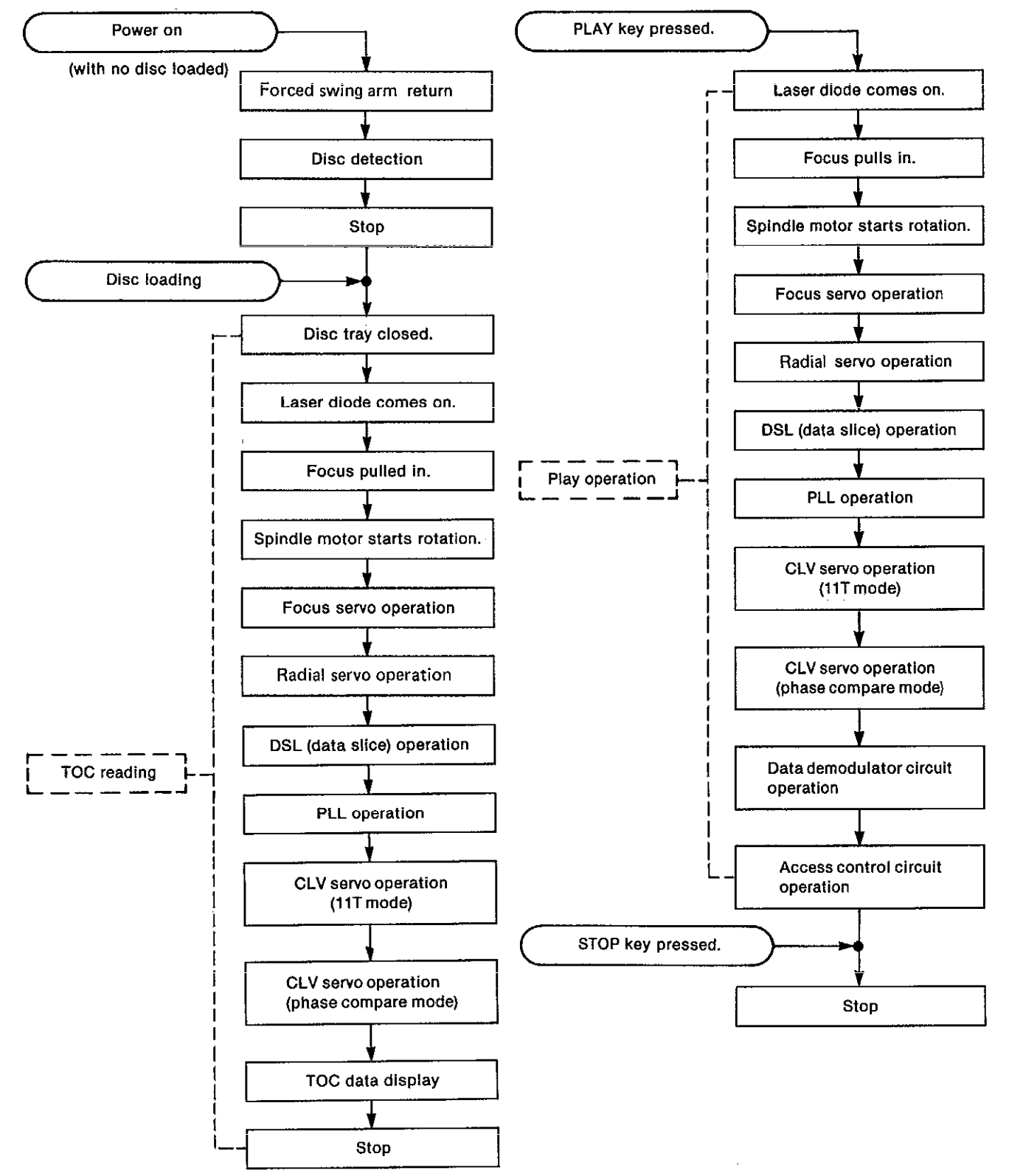
Notes : \* Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)  
\* Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM) , 1M=1,000k (OHM)  
\*[MB]Indicates in Remarks columns parts that are supplied by MBV.

| Ref. No.  | Part No.    | Values & Remarks | Ref. No.  | Part No.    | Values & Remarks | Ref. No.  | Part No.     | Values & Remarks |
|-----------|-------------|------------------|-----------|-------------|------------------|-----------|--------------|------------------|
|           |             | RESISTORS        |           |             |                  |           |              |                  |
| R11       | ERDS2TJ182  | 1/4W 1.8K        | R825, 826 | ERDS2TJ270T | 1/4W 27          | C308      | ECBT1H102KB5 | 50V 1000P        |
| R12, 13   | ERDS2TJ102  | 1/4W 1K          | R827, 828 | ERDS2TJ181T | 1/4W 180         | C309      | ECFR1E104ZF5 | 25V 0.1U         |
| R14       | ERDS2TJ103  | 1/4W 10K         | R837, 838 | ERDS2TJ472  | 1/4W 4.7K        | C311      | ECFR1E104ZF5 | 25V 0.1U         |
| R15       | ERDS2TJ822  | 1/4W 8.2K        | R839, 840 | ERDS2TJ471  | 1/4W 470         | C312      | ECBT1C103NS5 | 16V 0.01U        |
| R16, 17   | ERDS2TJ103  | 1/4W 10K         | R841, 842 | ERDS2TJ102  | 1/4W 1K          | C351      | ECBT1H102KB5 | 50V 1000P        |
| R20       | ERDS2TJ102  | 1/4W 1K          | R843, 844 | ERDS2TJ271  | 1/4W 270         | C401      | ECFR1E104ZF5 | 25V 0.1U         |
| R23       | ERDS2TJ222  | 1/4W 2.2K        | R845, 846 | ERDS2TJ563  | 1/4W 56K         | C402      | ECEADJKA470B | 6.3V 47U         |
| R25       | ERDS2TJ222  | 1/4W 2.2K        | R847, 848 | ERDS2TJ331  | 1/4W 330         | C404      | ECFR1E104ZF5 | 25V 0.1U         |
| R31       | ERDS2TJ221  | 1/4W 220         | R849, 850 | ERDS2TJ473  | 1/4W 47K         | C651      | ECBT1C102KB  | 16V 1000P Δ      |
| R32       | ERDS2TJ102  | 1/4W 1K          | R851, 852 | ERDS2TJ470  | 1/4W 47          | C652      | ECBT1C102KB  | 16V 1000P        |
| R33       | ERDS2TJ221  | 1/4W 220         | R853      | ERDS2TJ472  | 1/4W 4.7K        | C801-804  | ECQV1H683J23 | 50V 0.068U       |
| R51       | ERDS2TJ331  | 1/4W 330         | R854      | ERDS2TJ223  | 1/4W 22K         | C805-808  | ECBT1H121KB5 | 50V 120P         |
| R52       | ERDS2TJ272T | 1/4W 2.7K        | R855-857  | ERDS2TJ102  | 1/4W 1K          | C809, 810 | ECQV1H683J23 | 50V 0.068U       |
| R53, 54   | ERDS2TJ472  | 1/4W 4.7K        | R858      | ERDS2TJ101  | 1/4W 100         | C811, 812 | ECBT1H102KB5 | 50V 1000P        |
| R201      | ERDS2TJ100  | 1/4W 10          | R859, 860 | ERDS2TJ100  | 1/4W 10          | C813-817  | ECFR1E104ZF5 | 25V 0.1U         |
| R202      | ERDS2TJ102  | 1/4W 1K          | R861      | ERDS2TJ102  | 1/4W 1K          | C818, 819 | ECBT1H5R6K5  | 50V 5.6P         |
| R203      | ERDS2TJ273  | 1/4W 27K         | R862      | ERDS2TJ472  | 1/4W 4.7K        | C820-822  | ECFR1E104ZF5 | 25V 0.1U         |
| R301      | ERDS2TJ182  | 1/4W 1.8K        | R863      | ERDS2TJ471  | 1/4W 470         | C823, 824 | ECEA1CN330S  | 16V 33U Δ        |
| R302      | ERDS2TJ823T | 1/4W 82K         | R864      | ERDS2TJ222  | 1/4W 2.2K        | C825, 826 | ECEA1CN220B  | 16V 22U Δ        |
| R303      | ERDS2TJ104  | 1/4W 100K        | R871, 872 | ERDS2TJ473  | 1/4W 47K         | C827, 828 | ECEADJ3331B  | 6.3V 330U        |
| R304      | ERDS2TJ471  | 1/4W 470         | R873, 874 | ERDS2TJ123  | 1/4W 12K         | C829      | ECEADJKA101B | 6.3V 100U        |
| R311      | ERDS2TJ822  | 1/4W 8.2K        | R875, 876 | ERDS2TJ104  | 1/4W 100K        | C830      | ECEA1EKA4R7B | 25V 4.7U         |
| R312      | ERDS2TJ331  | 1/4W 330         | R885, 886 | ERDS2TJ222  | 1/4W 2.2K        | C831      | ECEA1CKA100B | 16V 10U          |
| R315      | ERDS2TJ104  | 1/4W 100K        | R887, 888 | ERDS2TJ680T | 1/4W 68          | C832      | ECEADJU471   | 6.3V 470U        |
| R351      | ERDS2TJ103  | 1/4W 10K         | R889, 890 | ERDS2TJ472  | 1/4W 4.7K        | C871, 872 | ECEA1EKN3R3B | 25V 3.3U Δ       |
| R352      | ERDS2TJ104  | 1/4W 100K        | R891, 892 | ERDS2TJ102  | 1/4W 1K          | C873, 874 | ECQB1H103KF3 | 50V 0.01U        |
| R353      | ERDS2TJ123  | 1/4W 12K         | R897      | ERDS2TJ103  | 1/4W 10K         | C875-879  | ECBT1C103NS5 | 16V 0.01U        |
| R354      | ERDS2TJ104  | 1/4W 100K        | R898      | ERDS2TJ822  | 1/4W 8.2K        | C881, 882 | ECEA1AN101XB | 10V 100U Δ       |
| R355, 356 | ERDS2TJ333  | 1/4W 33K         |           |             |                  | C891      | ECEA1CKA101B | 16V 100U         |
| R357      | ERD25FJ6R8  | 1/4W 6.8 Δ       |           |             |                  | C892      | ECBT1C103NS5 | 16V 0.01U        |
| R401      | ERDS2TJ104  | 1/4W 100K        |           |             |                  | C895      | ECBT1C103NS5 | 16V 0.01U        |
| R411, 412 | ERDS2TJ472  | 1/4W 4.7K        |           |             |                  |           |              |                  |
| R431, 432 | ERDS2TJ223  | 1/4W 22K         |           |             |                  |           |              |                  |
| R433      | ERDS2TJ104  | 1/4W 100K        |           |             |                  |           |              |                  |
| R434      | ERDS2TJ224T | 1/4W 220K        |           |             |                  |           |              |                  |
| R435      | ERDS2TJ104  | 1/4W 100K        |           |             |                  |           |              |                  |
| R436      | ERDS2TJ224T | 1/4W 220K        |           |             |                  |           |              |                  |
| R437, 438 | ERDS2TJ223  | 1/4W 22K         |           |             |                  |           |              |                  |
| R801-804  | ERDS2TJ330  | 1/4W 33          |           |             |                  |           |              |                  |
| R805-808  | ERDS2TJ3R3T | 1/4W 3.3         |           |             |                  |           |              |                  |
| R809-812  | ERDS2TJ433  | 1/4W 43K         |           |             |                  |           |              |                  |
| R813-816  | ERDS2TJ563  | 1/4W 56K         |           |             |                  |           |              |                  |
| R817, 818 | ERDS2TJ472  | 1/4W 4.7K        |           |             |                  |           |              |                  |
| R819, 820 | ERDS2TJ511  | 1/4W 510         |           |             |                  |           |              |                  |
| R821, 822 | ERDS2TJ105T | 1/4W 1M          |           |             |                  |           |              |                  |
| R823, 824 | ERDS2TJ222  | 1/4W 2.2K        |           |             |                  |           |              |                  |

TROUBLESHOOTING GUIDE

SL-PS620A Operation Sequence Check Sheet

Play Operation Sequence



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