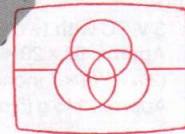


CDP-333ESD / 605ESD

SERVICE MANUAL

CDP-333ESD:
AEP Model

CDP-605ESD:
US Model
Canadian Model



Free service manuals
Gratis schema's

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SPECIFICATIONS

COMPACT DISC PLAYER

System	Compact disc digital audio system
Disc	Compact disc
Laser	Semiconductor laser ($\lambda = 780 \text{ nm}$)
Laser output	Max. 0.4 mW*
	*This output is the value measured at a distance of about 1.6 mm from the objective lens surface on the Optical Pick-up Block.
Spindle speed	200 rpm to 500 rpm (CLV)
Scan velocity	1.2–1.4 m/sec.
Error correction	Sony Super Strategy Cross Interleave Reed Solomon Code
Number of channel	Two
D/A conversion	16-bit linear
Frequency response	2 – 20,000 Hz $\pm 0.3 \text{ dB}$
Signal to noise ratio	More than 106 dB
Dynamic range	More than 97 dB
Harmonic distortion	Less than 0.0025% (1 kHz)
Channel separation	More than 100 dB (1 kHz)
Wow and flutter	Below measurable limit
Output jacks	

Disc

Track pitch	1.6 μm
Sampling frequency	44.1 kHz
Quantization	16 bit linear quantizing/channel
Modulation system	EFM
Transfer rate	2.03 Mbit/sec. (before modulation)

— Continued on page 2 —

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK \triangle ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET UNE MARQUE \triangle SUR LES DIAGRAMMES SCHEMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

	Max. output level	Load impedance	Output impedance
LINE OUT	2 V (50 k Ω)	More than 10 k Ω	200 Ω
DIGITAL OUT	0.5 V _{p-p} (75 Ω)	75 Ω	75 Ω
HEADPHONES	28 mW Variable, max	32 Ω	—



MICROFILM

COMPACT DISC PLAYER
SONY®

AUD

General

Power requirements

US, Canadian model . . . 120 V AC, 60 Hz
 AEP model 220 V AC, 50/60 Hz

Power consumption

20 W

Dimensions Approx. 430 × 110 × 340 mm (w/h/d)
 (17 × 4³/₈ × 13¹/₂ inches)

Weight Approx. 8.35 kg (18 lb 7 oz), net

REMOTE COMMANDER RM-D550

Remote control system

Infrared control

Power requirements

3 V DC with two size AA (R6) batteries

Dimensions Approx. 67 × 20 × 175 mm (w/h/d)
 (2³/₄ × 1³/₁₆ × 7 inches)

Weight Approx. 145 g (5 oz) incl. batteries

FEATURES

Direct selection

You can play a desired selection simply by pressing the corresponding numeric button (1-20).

Program play

You can play up to 20 selections in the desired order. Selections can be programmed even after play begins.

Variety of playing modes

Disc, program, single, shuffle and repeat playing modes.

Large and easy-to-read window display

Shows the elapsed playing time, the remaining time of the selection being played, the remaining time of the whole disc or remaining programmed selection numbers.

High quality sound

Ceramic resin deadening chassis is employed in the driving mechanism of the optical pick-up to avoid mechanical vibration. This assures exact signal reading from the track recorded on the compact disc.

TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>
	Specifications	1
	Features	2
	Model Identification	3
	Safety Check-Out	3
	Protection of Eyes from Laser Beam During Servicing	4
	Servicing Note	5
	Caution for Electrostatic Breakdown	6
	Flow Chart of BU-1E (Base Unit)	
	Troubleshooting	7
	Location of Controls	9
	Search Operation	12
	Information Display	13

1. OUTLINE

1-1.	Circuit Description	14
1-2.	Block Diagram	19

2. DISASSEMBLY 21

3. ADJUSTMENTS

3-1.	Mechanical Adjustment	26
3-2.	Electrical Adjustments	27

4. DIAGRAMS

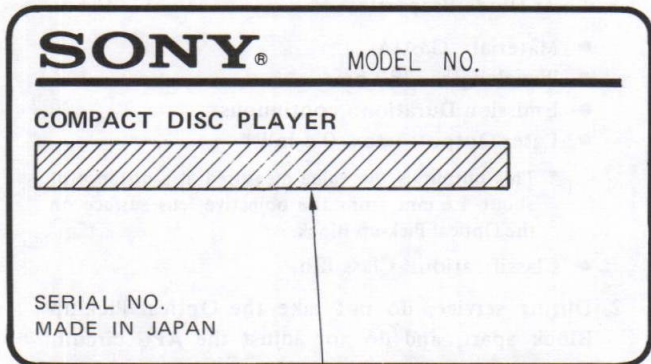
4-1.	BU-1E (Base Unit) Section Mounting Diagram	29
4-2.	Mounting Diagram	32
4-3.	Schematic Diagram	37

5. EXPLODED VIEWS AND PARTS LIST 44

6. ELECTRICAL PARTS LIST 50

MODEL IDENTIFICATION

— Specification Labels —



US, Canadian model: AC: 120 V ~ 60 Hz 20 W
AEP model: AC: 220 V ~ 50/60 Hz 20 W

SAFETY CHECK-OUT (US Model)

After correcting the original service problem, perform the following safety check before releasing the set to the customer:

Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

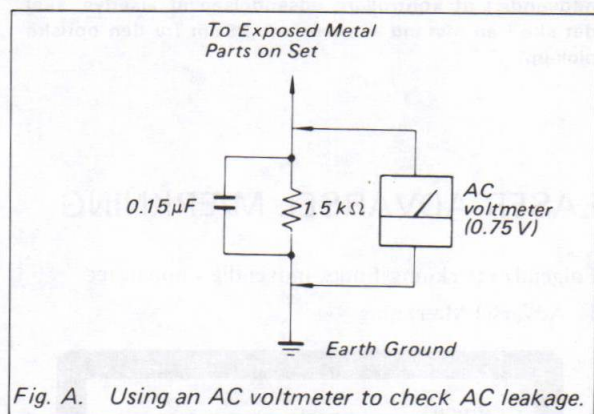


Fig. A. Using an AC voltmeter to check AC leakage.

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs a laser. Therefore, be sure to follow carefully the instructions below when servicing.

WARNING !!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION, BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 25 cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.

CAUTION:

The use of optical instrument with this product will increase eye hazard.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

1. Laser Diode Properties

- Material: GaAlAs
- Wavelength: 780 nm
- Emission Duration: continuous
- Laser Output: max. 0.4 mW*

* This output is the value measured at a distance of about 1.6 mm from the objective lens surface on the Optical Pick-up Block.

- Classification: Class IIIb.

2. During service, do not take the Optical Pick-up Block apart, and do not adjust the APC circuit. If there is a breakdown in the APC circuit (including laser diode), replace the entire Optical Pick-up Block (including APC board).

BESKYTTELSE AF ØJNE MOD LASERSTRÅLING UNDER SERVICE

I dette apparat anvendes laserlys. Derfor skal nedenstående instruktioner nøje følges under service.

Følg iverigt instruktionerne i servicemanualen.

ADVARSEL!!

Under service må øjnene ikke komme nær objektiv-linsen på den optiske pick-up enhed. I tilfælde af at det er nødvendigt at kontrollere udsendelsen af laserlys, skal det ske i en afstand af mere end 25 cm fra den optiske pick-up.

1. Laser-dioe data

- Materiale: GaAlAs
- Bølgelængde: 780 nm
- Udstråling: Kontinuerlig
- Laseroutput: Max. 0,4 mW*

* Målt i 1,6 mm afstand fra overfladen af objektiv-linsen på den optiske pick-up enhed.

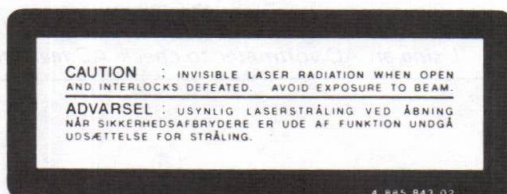
- Klassifikation: Klasse IIIb.

2. Adskil aldrig den optiske pick-up enhed under service, og juster ikke APC kredsløbet (Automatic Power Control). Hvis APC kredsløbet (incl. laserdioden) bryder ned, skal hele den optiske pick-up enhed (incl. APC printkortet) udskiftes.

LASER ADVARSEL MÆRKNING

Følgende mærkning findes indvendig i apparatet:

1. Advarsel Mærkning



VAROITUS: Laite sisältää, laserdiodin, joka lähettää (näkyvätöntä) silmille vaarallista lasersäteilyä.

— SERVICING NOTE —

LASER DIODE AND FOCUS SEARCH OPERATION CHECK

1. Remove disc pulley by lifting up chucking arm by hand. (Fig. A, B)
2. Make POWER switch on with no disc inserted and disc table closed.
3. Confirm that the operation indicated in Fig. C is performed while observing the objecting lens.

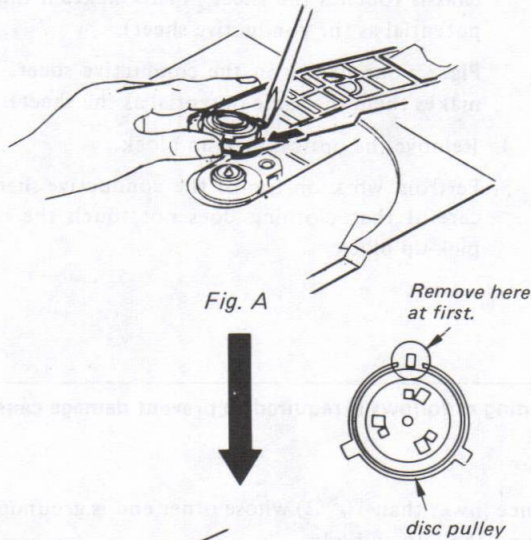


Fig. A

Remove here
at first.

disc pulley

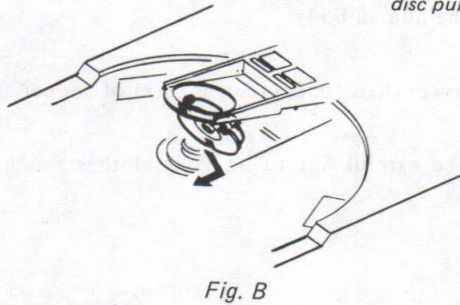
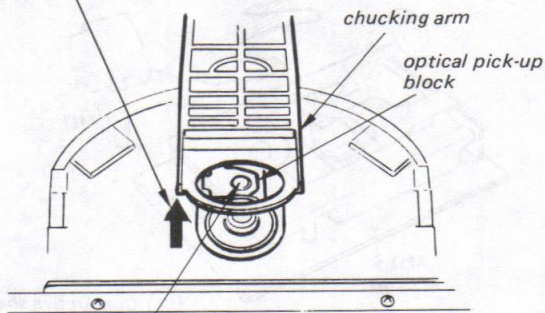


Fig. B

Lift up chucking arm by hand in
the direction of arrow.

- ① Confirm that laser beam is spread.
- ② Up and down motion of the objective lens. (3 times)

Fig. C

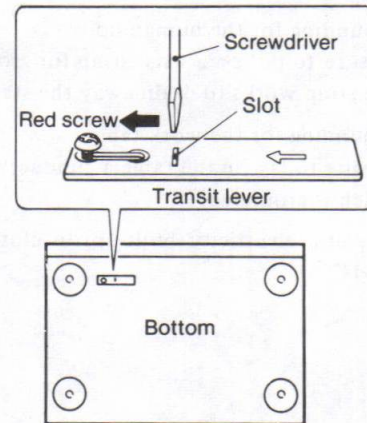
NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe more than 25 cm away from the objective lens.

NOTE ON THE TRANSIT LEVER

A transit lever is provided at the bottom of the unit to protect the optical system against shock during transportation. Before operating the CD player, be sure to move the lever in the direction of the arrow and secure it.

- 1 Loosen the red screw with a screwdriver.
- 2 Insert the screwdriver into the slot in the lever and move it in the direction of the arrow until it stops.
- 3 Tighten the red screw.



When transporting the unit again, move the lever in the opposite direction of the arrow and secure it with the screw.

— CAUTION FOR ELECTROSTATIC BREAKDOWN —

NOTES ON HANDLING THE BASE UNIT (BU-1E)

The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.

The printed matter below is included in the repair parts. During repair, use the procedure in the printed matter.

The following method is an example for reference purposes:

1. Place a conductive sheet on the workbench. (The black sheet used as repair parts wrapping).
2. Place the set on the conductive sheet so that the chassis touches the sheet. (This makes it the same potential as the conductive sheet).
3. Place your hands on the conductive sheet. (This makes them the same potential as the sheet).
4. Remove the optical pick-up block.
5. Perform work on top of the conductive sheet. Be careful that clothing does not touch the optical pick-up block.

Printed Matter Included in the Repair Parts

When opening or repairing a BU-1E, the procedure for grounding as follows is required to prevent damage caused by static electricity.

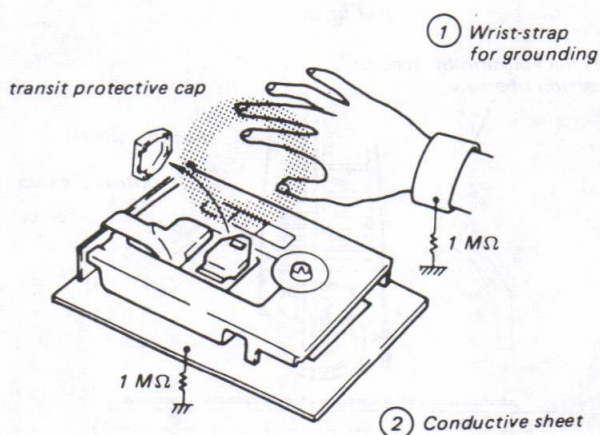
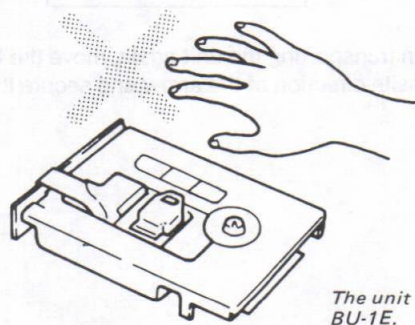
1. Grounding for the human body.

Be sure to put on a wrist-strap for grounding (with impedance lower than $10^8 \Omega$) whose other end is grounded. The strap works to drain away the static electricity built-up on the human body.

2. Grounding for the work table.

Be sure to lay on the table a conductive sheet (with impedance lower than $10^9 \Omega$) such as sheet of copper which is grounded.

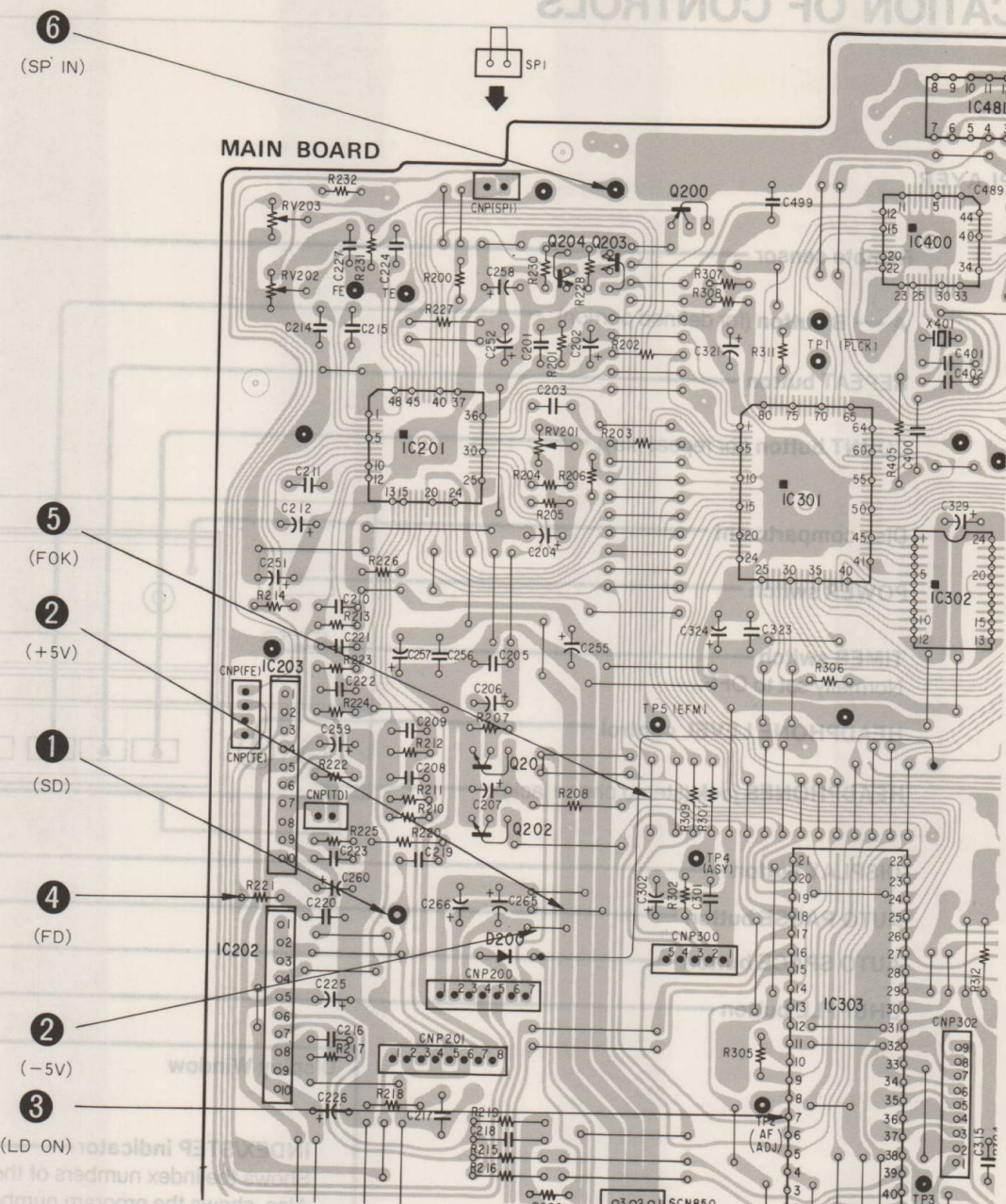
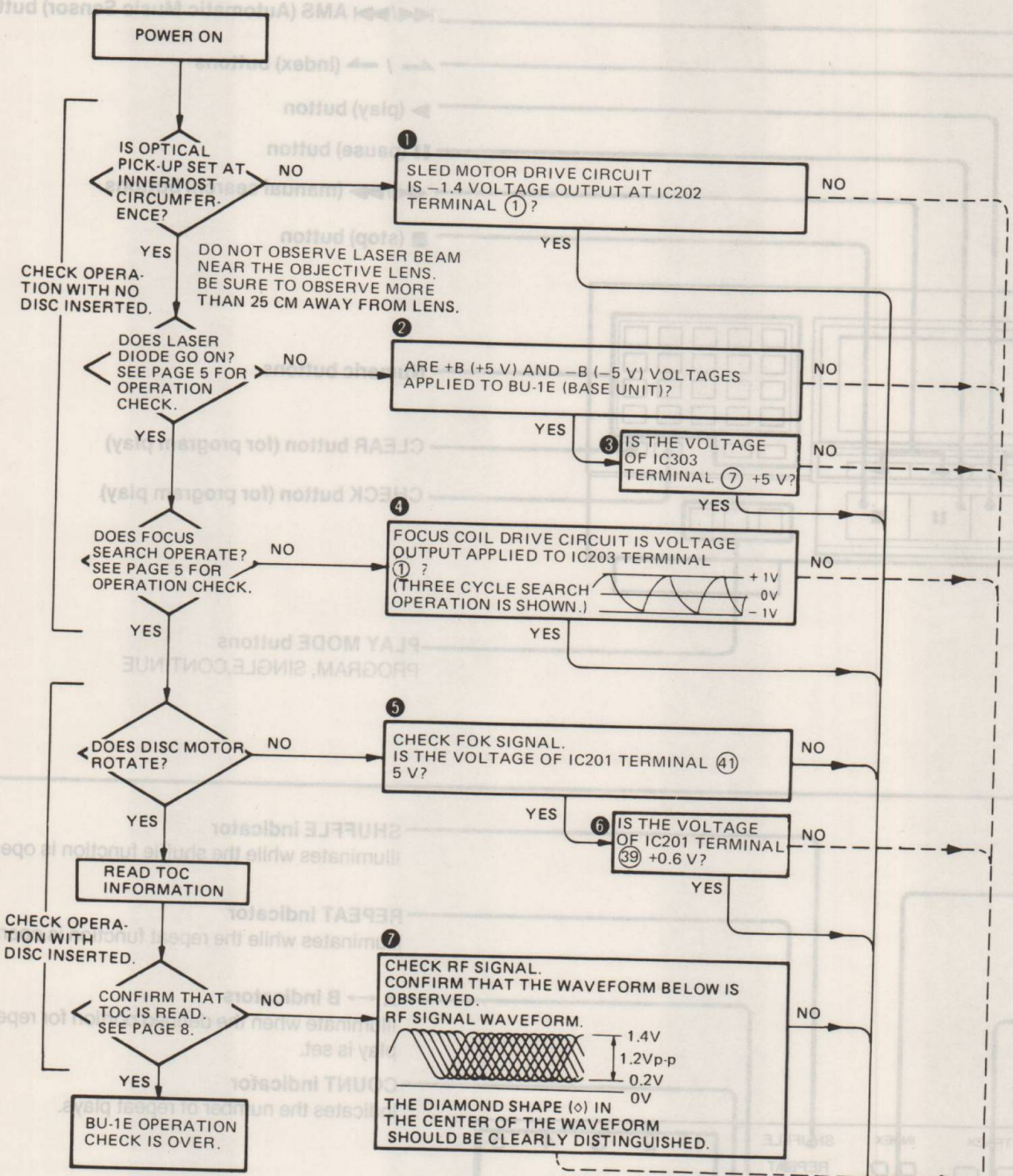
3. As static electricity built-up on clothes is not drained away, be careful not to let your clothes touch the BU-1C.



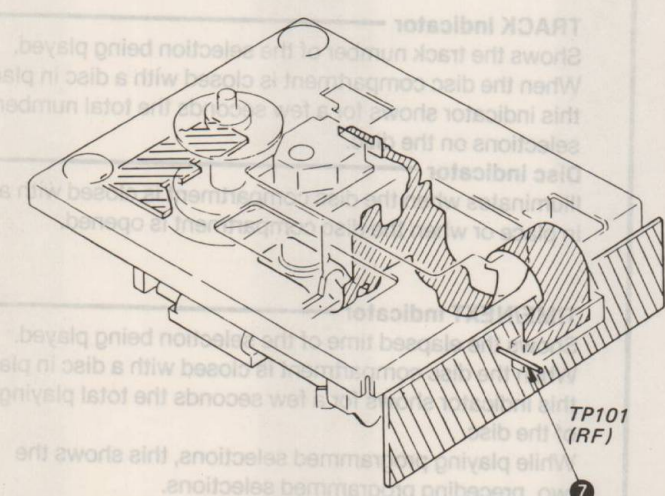
LOCATION OF CONTROLS

FLOW CHART OF BU-1E (BASE UNIT) TROUBLESHOOTING

- Confirm all connectors around BU-1E (base unit) are secured before the following check.

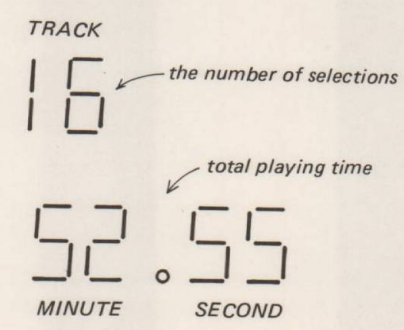


BU-1E (BASE UNIT)



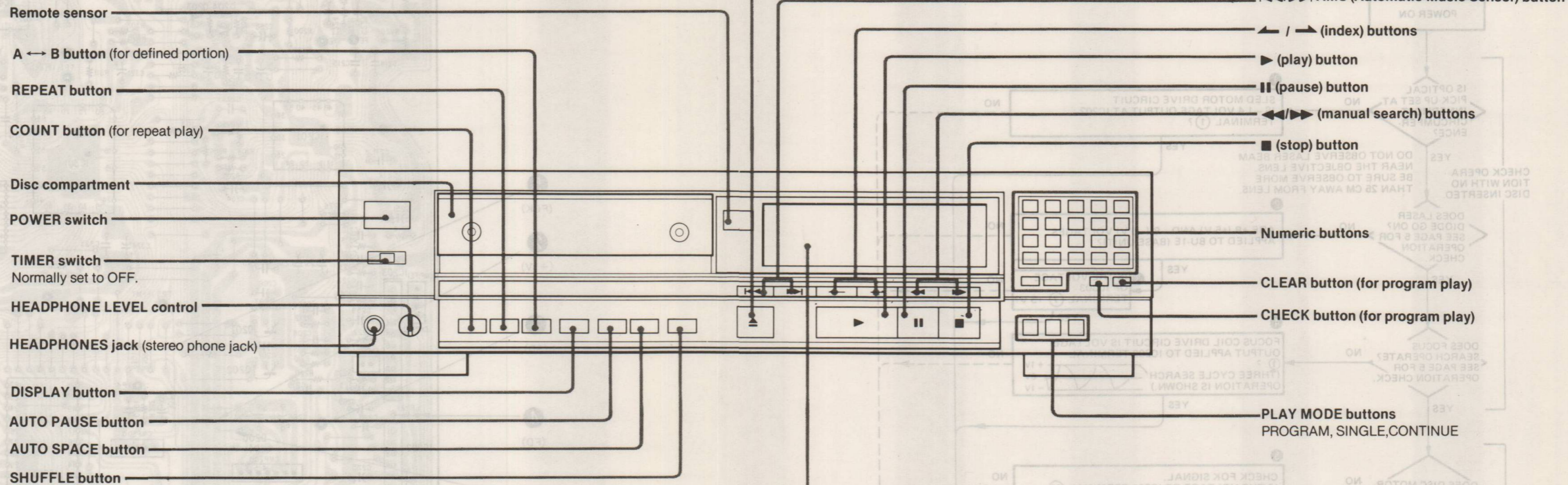
CHECKING TOC INFORMATION READING

If TOC information is read correctly, the number of selections on the disc and the total playing time will be displayed. The display will be as follows for YEDS-1.



LOCATION OF CONTROLS

DISC PLAYER



Display Window

INDEX/STEP indicator

Shows the index numbers of the selection being played. Also, shows the program numbers while programming or checking program.

TRACK indicator

Shows the track number of the selection being played. When the disc compartment is closed with a disc in place, this indicator shows for a few seconds the total number of selections on the disc.

Disc indicator

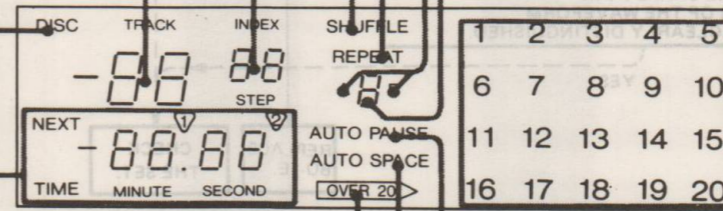
Illuminates when the disc compartment is closed with a disc in place or when the disc compartment is opened.

TIME/NEXT indicator

Shows the elapsed time of the selection being played. When the disc compartment is closed with a disc in place, this indicator shows for a few seconds the total playing time of the disc. While playing programmed selections, this shows the two preceding programmed selections.

OVER 20 display

Illuminates when a disc having more than 20 selections is placed in the disc compartment.



SHUFFLE indicator

Illuminates while the shuffle function is operating.

REPEAT indicator

Illuminates while the repeat function is operating.

A ↔ B indicators

Illuminate when the defined portion for repeat play is set.

COUNT indicator

Indicates the number of repeat plays.

Music calendar display

Displays disc selection numbers 1 - 20.

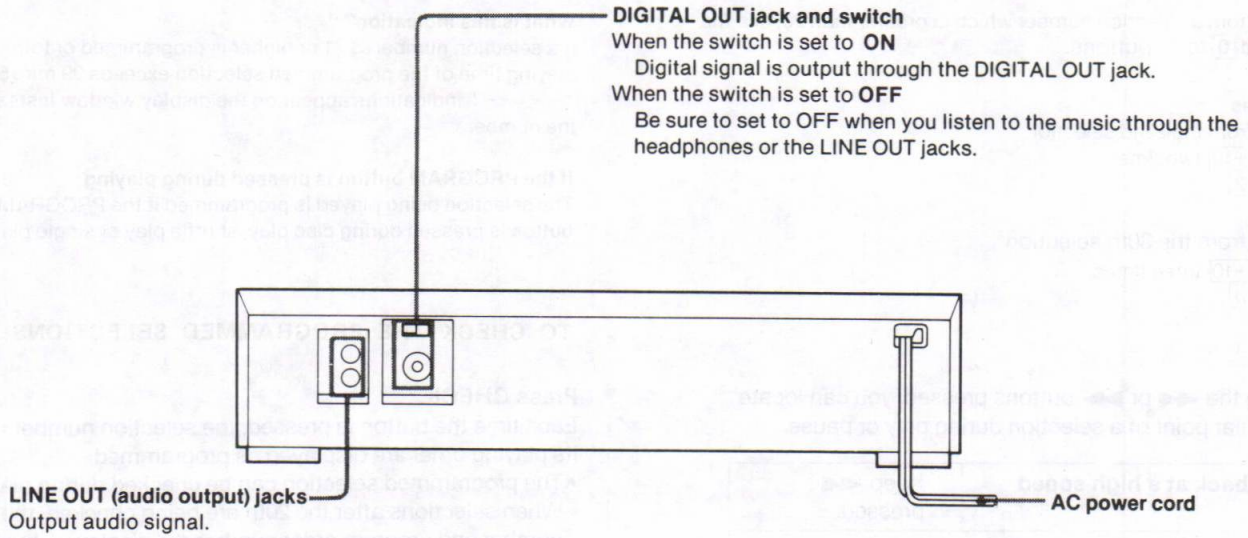
AUTO PAUSE indicator

Illuminates while the auto pause function is operating.

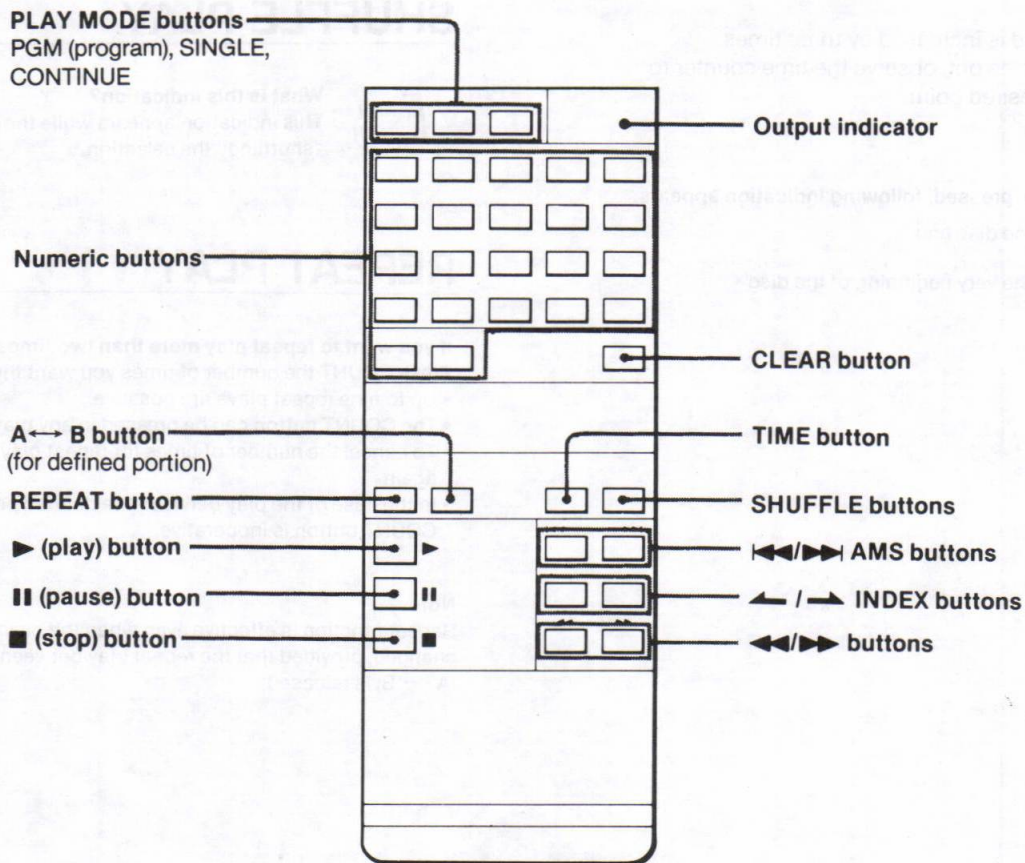
AUTO SPACE indicator

Illuminates while the auto space function is operating.

REAR PANEL



REMOTE COMMANDER



SEARCH OPERATION

To play from a selection number which is greater than 20, use the **+10** and **0** to **9** buttons.

Examples

To play from the 22nd selection

1 Press **+10** two times.

2 Press **2**.

To play from the 30th selection

1 Press **+10** three times.

2 Press **0**.

Keeping the **◀◀** or **▶▶** buttons pressed, you can locate a particular point of a selection during play or pause.

To go back at a high speed	Keep ◀◀ pressed.
To go ahead at a high speed	Keep ▶▶ pressed.

Release the button at the desired point found by monitoring the high-speed sound.

In pause mode

- The search speed is increased by three times.
- As no sound comes out, observe the time counter to search for the desired point.

Keeping **◀◀** or **▶▶** pressed, following indication appears.

| | : At the disc end

l l : At the very beginning of the disc

PROGRAM PLAY

What is this indication? " - - - - "

If a selection numbered 21 or higher is programmed or total playing time of the programmed selection exceeds 99 min. 59 sec., " - - - - " indications appear on the display window instead of the numbers.

If the PROGRAM button is pressed during playing

The selection being played is programmed if the PROGRAM button is pressed during disc play, shuffle play or single play.

TO CHECK THE PROGRAMMED SELECTIONS

Press CHECK.

Each time the button is pressed, the selection number and its playing order are displayed as programmed.

- The programmed selection can be checked during playing.
- When selections after the 20th are being checked, the track number and program order number are displayed, but there is no display in the music calendar.
- **END** is displayed when the last programmed selection plays.

SHUFFLE PLAY



What is this indication?

This indication appears while the player is "shuffling" the selection.

REPEAT PLAY

If you want to repeat play more than two times









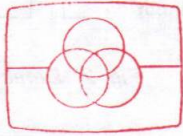
Press **COUNT** the number of times you want the play to repeat.

- Up to nine repeat plays are possible.
- The **COUNT** button can be pressed in any playing mode.
- To cancel the number of times for repeat play, press **REPEAT** again.
- In the case of the play between the defined portion (A ↔ B), the **COUNT** button is inoperative.

Note

Repeat function is effective even when the playing mode is changed, provided that the repeat play between the defined portion (A ↔ B) is released.

INFORMATION DISPLAY

	CONTINUE	SINGLE	PROGRAM	SHUFFLE																																																																
1 Normal display 	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">DISC</td> <td style="text-align: center;">TRACK</td> <td style="text-align: center;">INDEX</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">3</td> <td style="text-align: center;">1</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">3.02</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">TIME</td> <td style="text-align: center;">MINUTE</td> <td style="text-align: center;">SECOND</td> <td></td> </tr> </table> <p>Track number and elapsed playing time of each selection.</p>				DISC	TRACK	INDEX			3	1			3.02			TIME	MINUTE	SECOND																																																	
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5 DISPLAY TIME/NEXT(PGM) 	 Free service manuals Gratis schema's Digitized by www.freeservicemanuals.info		Same display as shown in step 1 .																																																																	

SECTION 1 OUTLINE

1-1. CIRCUIT DESCRIPTION

S SERVO (Defect Prediction Servo)

There was a detection circuit on former models (refer to CDP-103, CDP-303ES Service Manual circuit description) for detecting signal dropout caused by such defects as dirt on the disc or bubbles and scratches caused during production of the disc. However, that method had the disadvantage of a time lag between generation of the dropout and switching of servo loop gain, and sometimes detection could not be done.

With the S servo (defect prediction servo) used on this set, when a defect on the disc occurs in the same cycle as the rotation cycle, the system recognizes the cycle and detects the error. It predicts the timing at which the error will next be generated and controls the servo amount of the focus and tracking servo circuits. This means that servo gain switching is enabled immediately before the dropout occurs, and stable tracing relative to disc defects is possible.

It also has the same time precision at both the inner and outer circumferences because it responds to CLV by time data from the mechanism control IC.

Fig. 1 shows an outline of the S servo system.

Refer to Figures 2 and 3 for the following explanation of operation. When there is a defect on the disc, the RF signal is cut (A), envelope detection is done inside IC101 (the same as the conventional method) and output is from pin (21) (B).

That output signal (DFCT) is input to defect control IC IC304 pin (30) (E). The time data from mechanism control IC IC303 and DFCT input are compared inside IC304, the time of the next error is predicted, and just before dropout occurs, a signal is output from pin (29) (C). The timing of this output is set by IC304. The result of taking the OR of this output and IC101 pin (21) output is input to IC201 pin (44) (D) and the sequencer inside IC201 switches servo gain.

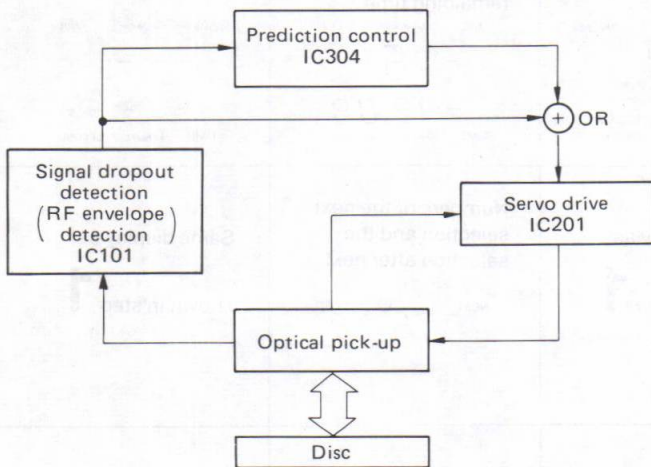


Fig. 1 S Servo Block Diagram

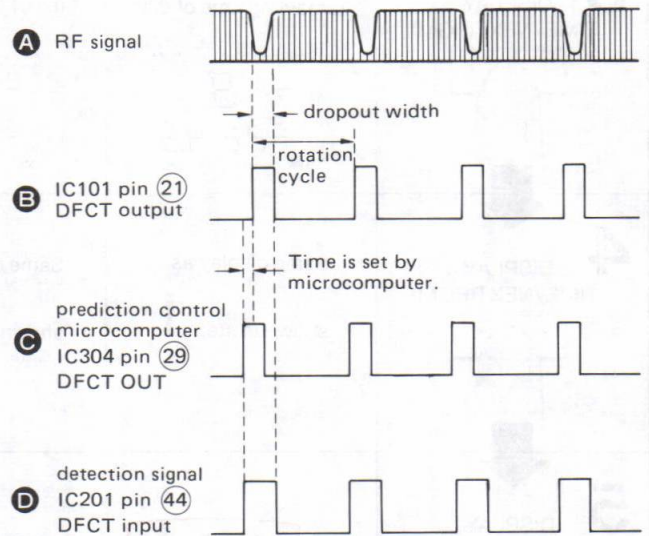


Fig. 2 Defect Detection Waveforms

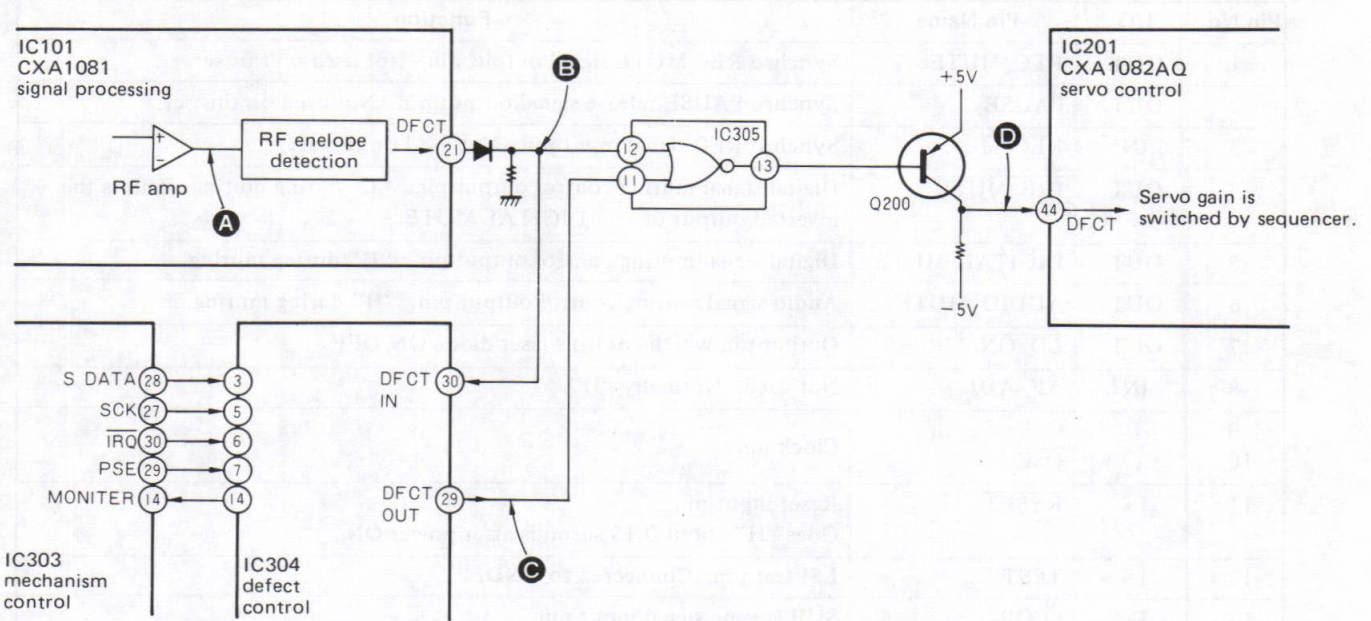


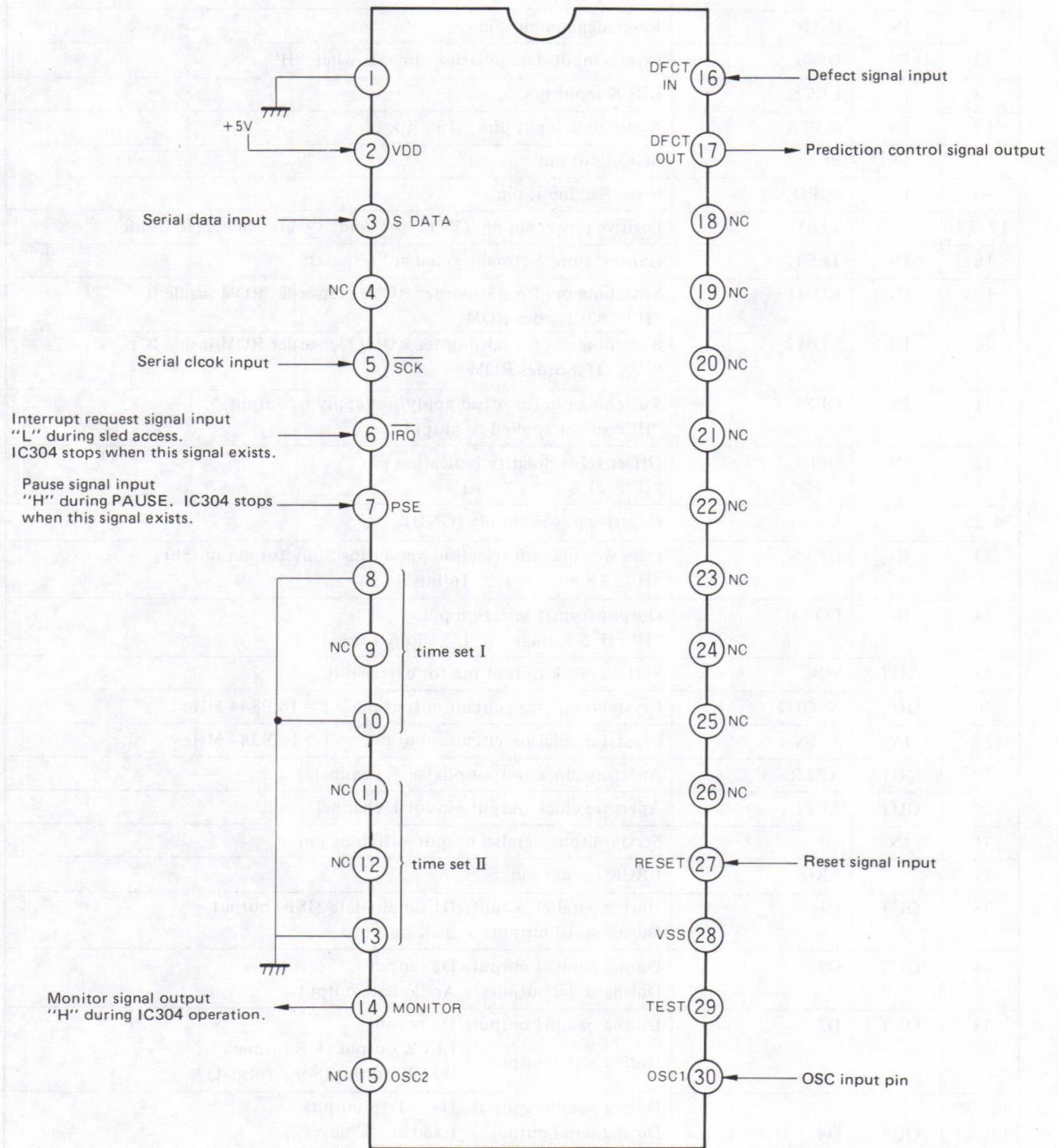
Fig. 3 Defect Detection Circuit

IC303 (MSM6404-181RS) PIN FUNCTIONS

Pin No.	I/O	Pin Name	Function
1	OUT	REC MUTE	Synchro REC MUTE signal output pin. Not used on this set.
2	OUT	PAUSE	Synchro PAUSE release signal output pin. Not used on this set.
3	IN	$\overline{\text{REC M}}$	Synchro REC signal input pin. Not used on this set.
4	OUT	$\overline{\text{D/F MUTE}}$	Digital signal muting control output pin. "L" during muting. This is the inverted output of (5) DIGITAL MUTE.
5	OUT	DIGITAL MUTE	Digital signal muting control output pin. "H" during muting.
6	OUT	AUDIO MUTE	Audio signal muting control output pin. "H" during muting.
7	OUT	$\overline{\text{LD ON}}$	Output pin which controls laser diode ON/OFF.
8	IN	AF ADJ	Not used. Normally "H".
9		OSC	Clock pins.
10	-	$\overline{\text{OSC}}$	
11	IN	$\overline{\text{RESET}}$	Reset input pin. Goes "H" about 0.15 seconds after power ON.
12	IN	TEST	LSI test pin. Connected to GND.
13	IN	SCOR	SUB Q sync signal input pin.
14	IN	MONITOR	Input pin for monitor signal from IC304. "H" during IC304 operation.
15	IN	$\overline{\text{IN SW}}$	Input pin which detects that disc table is closed. "L" during CLOSE.
16	IN	$\overline{\text{OUT SW}}$	Input pin which detects that disc table is open. "L" during OPEN.
17	IN	F OK	Focus OK signal input pin.
18	IN	SQCK	WFCK (Write Frame Clock) input pin.
19	IN	GFS	Guard Frame Sync input pin. "H" is input when data can be read normally.
20	IN	SUB Q	SUB Q signal (has data such as address, emphasis, etc.) input pin.
21	-	GND	Ground pin.
22	IN	SENSE	Input pin for IC201, IC301 SENS output.
23	OUT	CLOCK	Clock output pin for serial data transmission to IC201, IC301.
24	OUT	$\overline{\text{LATCH}}$	Latch output pin for serial data transmission to IC201, IC301.
25	OUT	DIRC	Output pin to IC201 during 1 track jump. Normally "H". Inverts direction of track jump when "L". Set to normal tracking mode by "H". Output "L" for a certain time when TZC rise or fall is detected.
26	OUT	DATA	Output pin for serial data to IC201, IC301.
27	OUT	$\overline{\text{S CK}}$	Clock output pin for serial data transmission to IC304.
28	OUT	S DATA	Serial data output pin to IC304.
29	OUT	PSE	Pause signal output pin to IC304. "H" during PAUSE.
30	OUT	$\overline{\text{IRQ}}$	Interrupt request signal output pin to IC304. "L" during sled access.
31	-	R/ $\overline{\text{W}}$	DATA input and output states (read and write) control (sync) signal.
32	OUT	S ACK	Output pin for acknowledge signal of IC700 M REQ signal.
33	IN	M REQ	IC700 M REQ signal input pin.
34-37	IN/OUT	CMD 0 - CMD 3	Data input/output pins with IC700.
38	IN	ADJUST	When this pin is made "L", IC303 does not load out the disc even if servo or other abnormalities are detected. This pin is used during servo, PLL and other adjustment. Direct search is also not done, and access can only be done by track jumping.

Pin No.	I/O	Pin Name	Function
39	OUT	LOAD IN	Output pin which drives the loading motor to the close side.
40	OUT	LOAD OUT	Output pin which drives the loading motor to the open side.
41	OUT	EPS	Output pin which detects disc emphasis and switches emphasis ON/OFF.
42	—	Vcc	Power supply pin (5V).

IC304 (LC6523-3270H) PIN FUNCTIONS



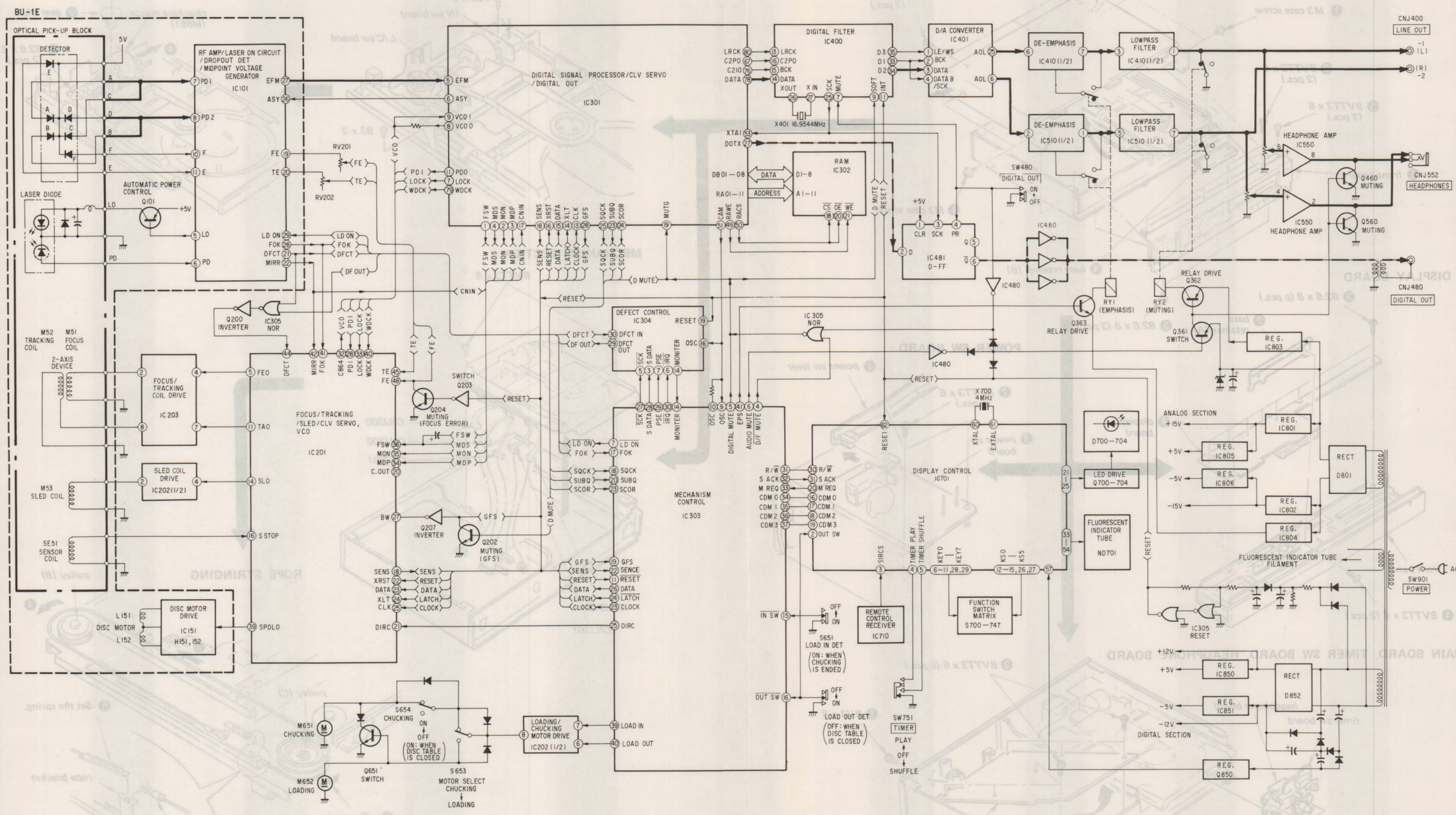
IC400 (CXD1088Q) PIN FUNCTIONS

Pin No.	I/O	Pin Name	Function
7	IN	MUTE	Muting signal input pin. Output is muted when "H".
8	IN	TEST1	LSI test pin. Normally fixed at "L" level.
9	IN	SOFT	Soft muting signal input pin. Soft muting when "H". Soft muting: Gradual muting, as for fade-out.
10	IN	HOLD	Mute operation ON/OFF switching pin. Mute operation stops when "H".
11	IN	INIT	Reset signal input pin.
12	IN	DPOL	Inverts input data polarity. Inverts when "H".
13	IN	LRCK	LRCK input pin.
14	IN	DATA	Audio data input pin. 16 bit x 2
15	IN	BCK	BCK input pin.
16	IN	C2PO	Error flag input pin.
17-39	-	VDD	Positive power supply (5V). (17) and (39) are connected inside.
18	IN	TEST2	LSI test pin. Normally fixed at "L" level.
19	IN	ROM1	Switching pin for 83rd-order ROM/21st-order ROM inside IC. "H": 83rd-order ROM
20	IN	ROM2	Switching pin for 83rd-order ROM/21st-order ROM inside IC. "H": 21st-order ROM
21	IN	OFST	Switching pin for offset apply/not apply to output. "H": offset applied to output
22	IN	OPDL	Offset value polarity indication pin. "H": +1% "L": -1%
6-28	-	Vss	Negative power supply (GND).
23	IN	DRES	Data word length selection pin during Sony format output. "H": 18 bit "L": 16 bit
24	IN	FORM	Output format selection pin. "H": I ² S format "L": Sony format
25	OUT	SCK	System clock output pin for external IC.
26	OUT	X OUT	Crystal oscillation circuit output pin. f = 16.9344 MHz
27	IN	X IN	Crystal oscillation circuit input pin. f = 16.9344 MHz
29	OUT	APTR	Aperture clock output pin for R channel.
30	OUT	APTL	Aperture clock output pin for L channel.
31	IN	SP	Serial output/parallel output switching pin.
32		LRO	LRCK output pin.
33	OUT	D1	During parallel output: D1 (audio data MSB) output During serial output: BCK output
34	OUT	D2	During parallel output: D2 output During serial output: Audio data output
35	OUT	D3	During parallel output: D3 output During serial output: { LRCK output (I ² S format) WFCK output (Sony format)
36-38 40-44 1-5	OUT	D4 - D16	During parallel output: D4 - D16 output During serial output: fixed at "L" level

SECTION 2
DISASSEMBLY

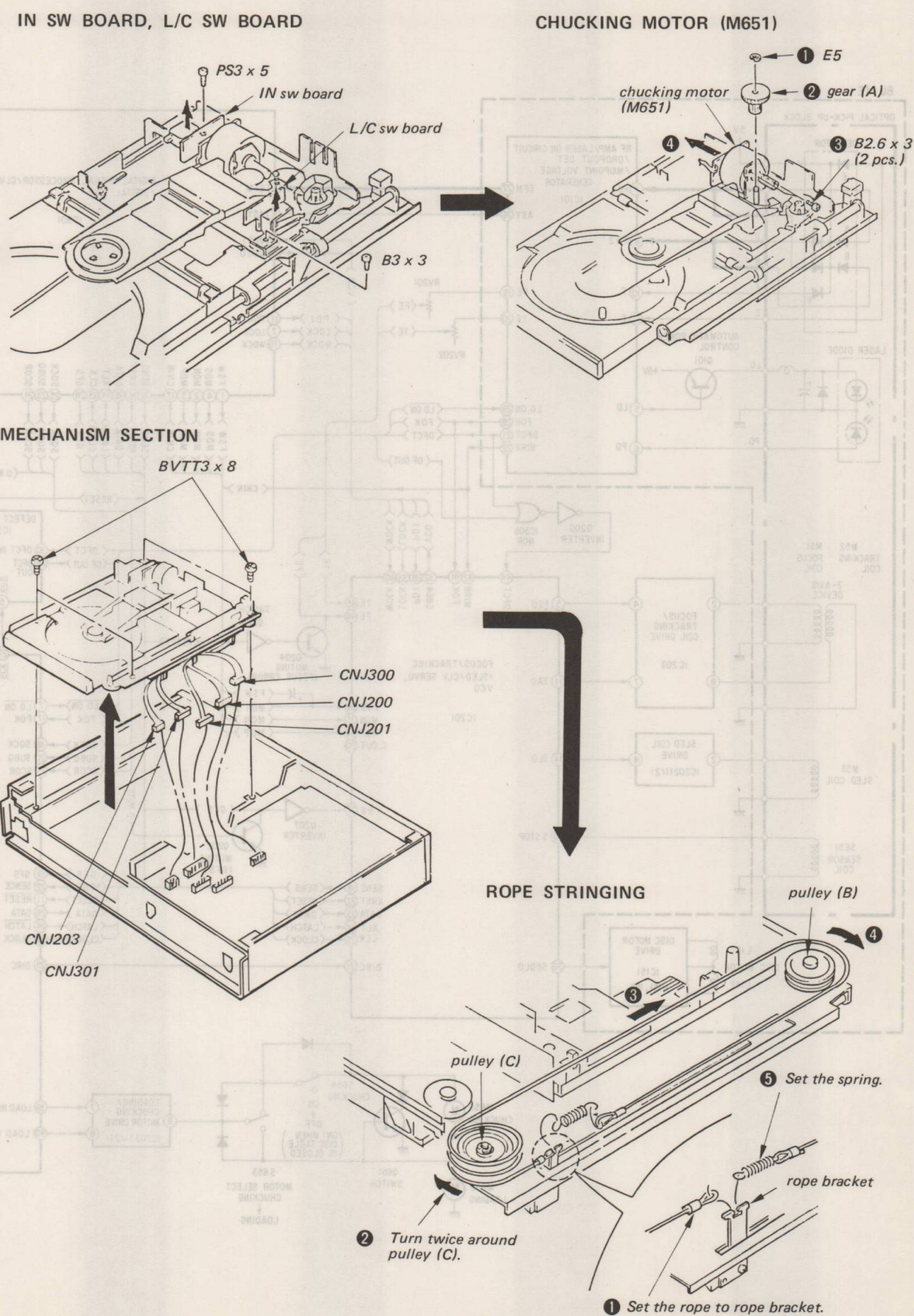
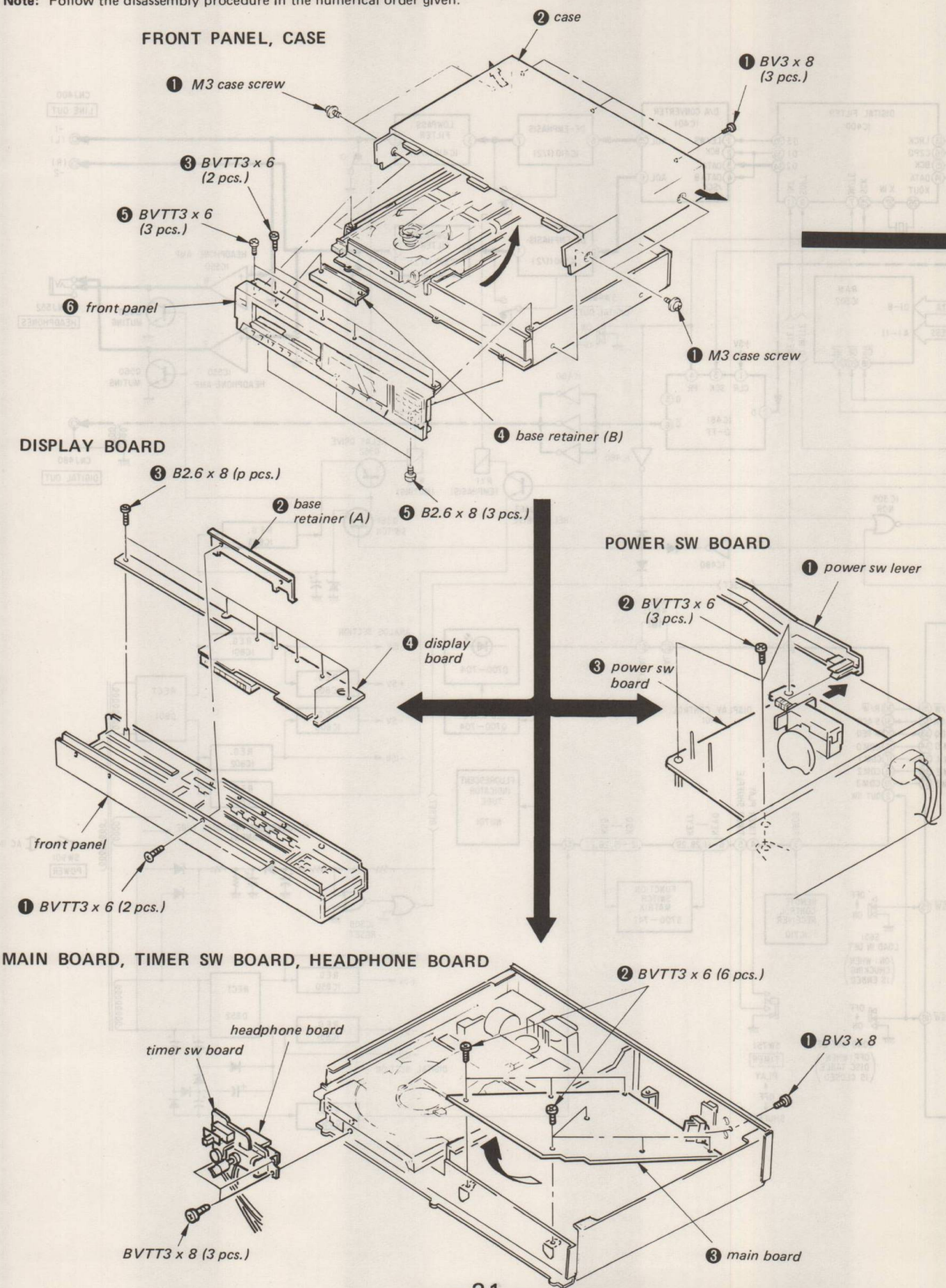
Note: Follow the assembly procedure in the numerical order given.

1-2. BLOCK DIAGRAM

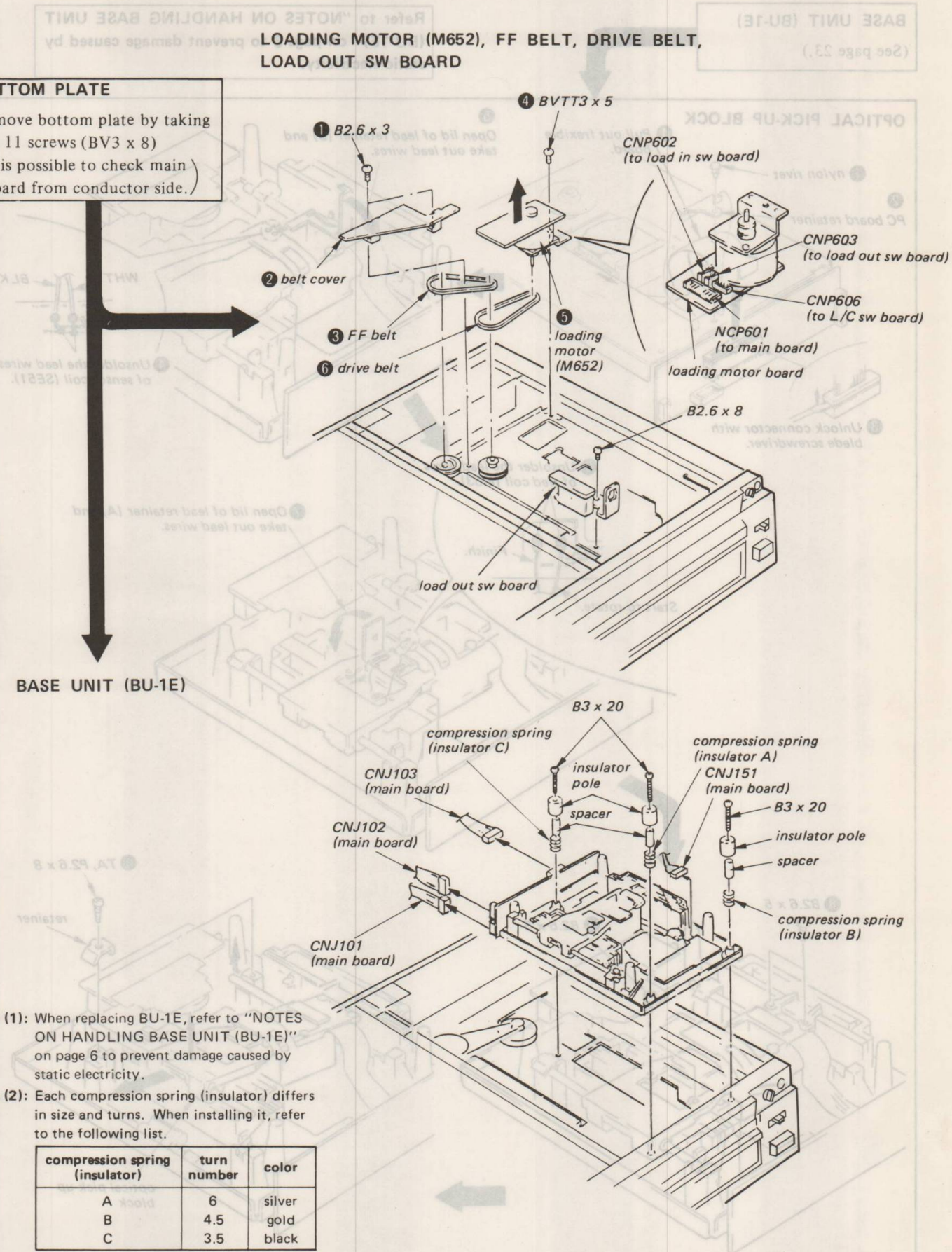


SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

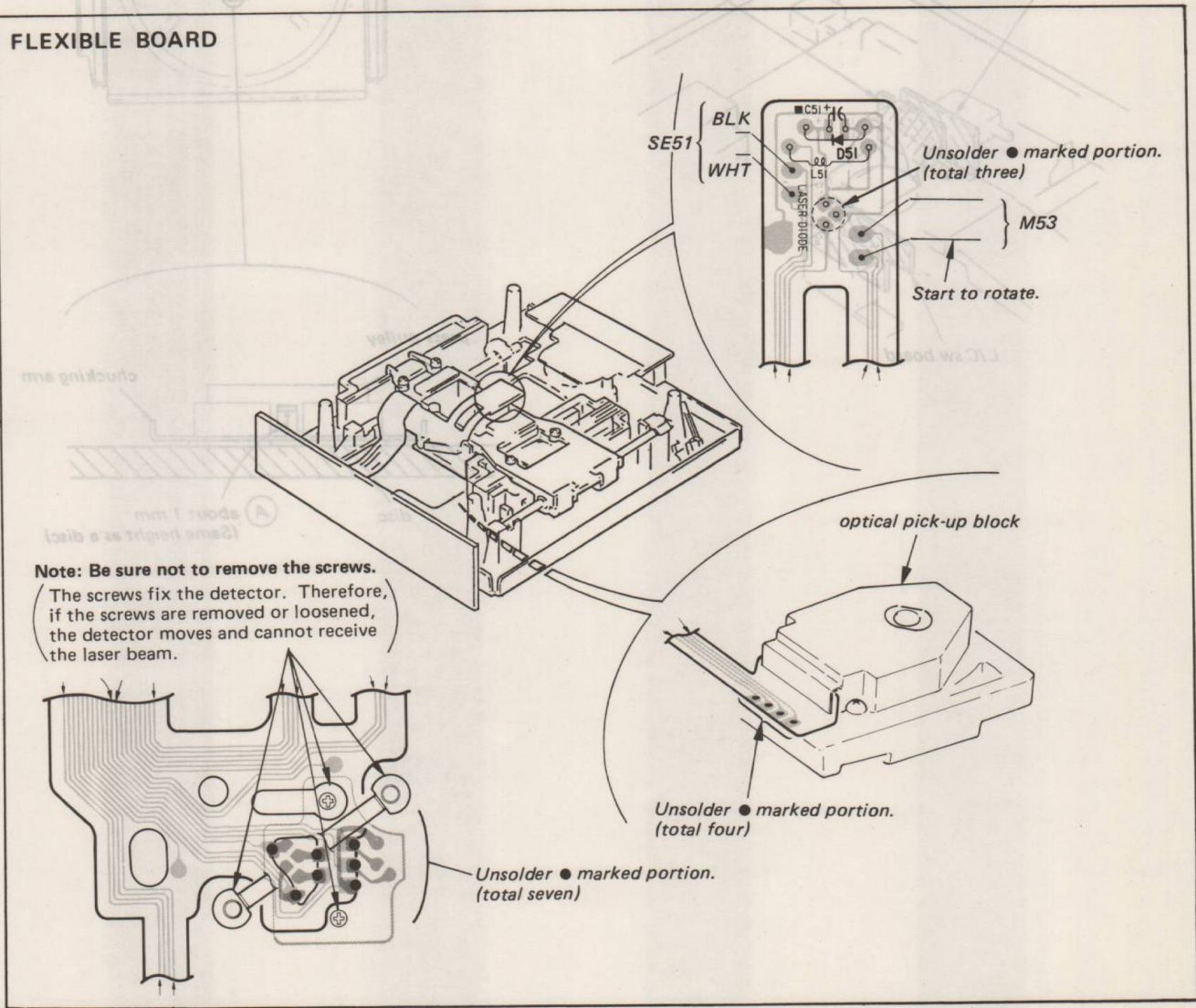
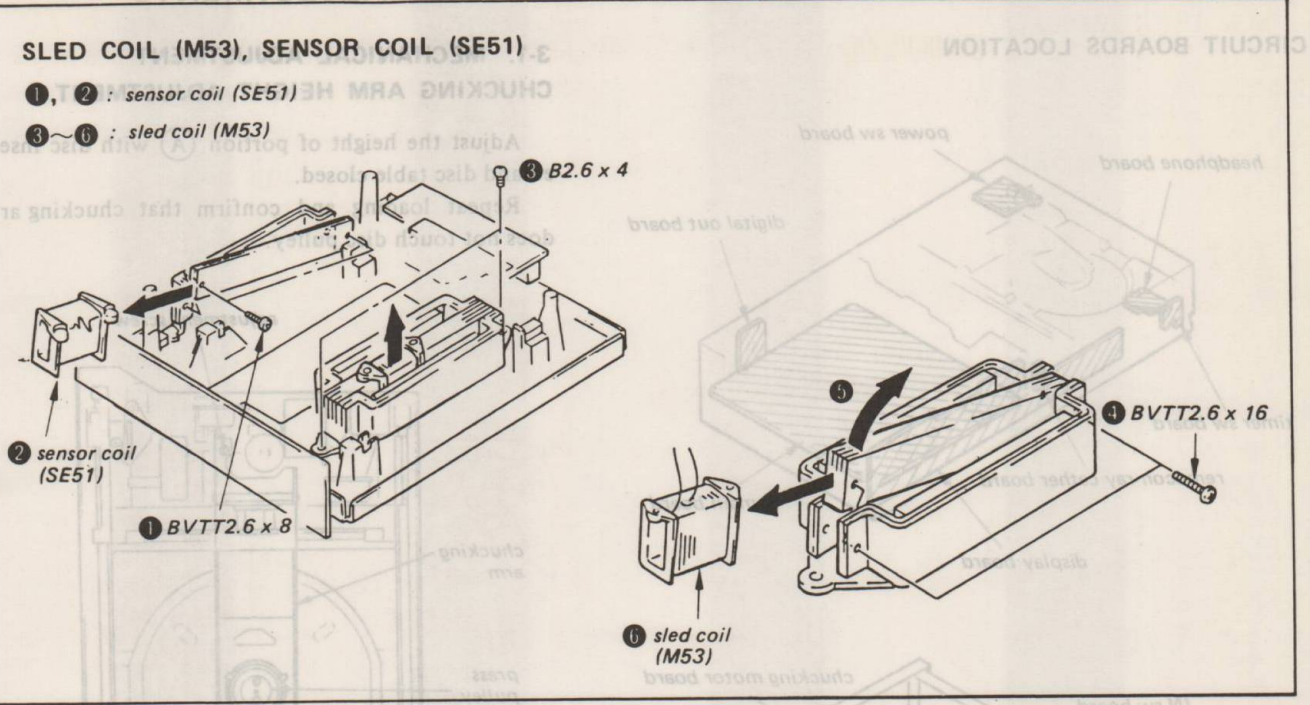
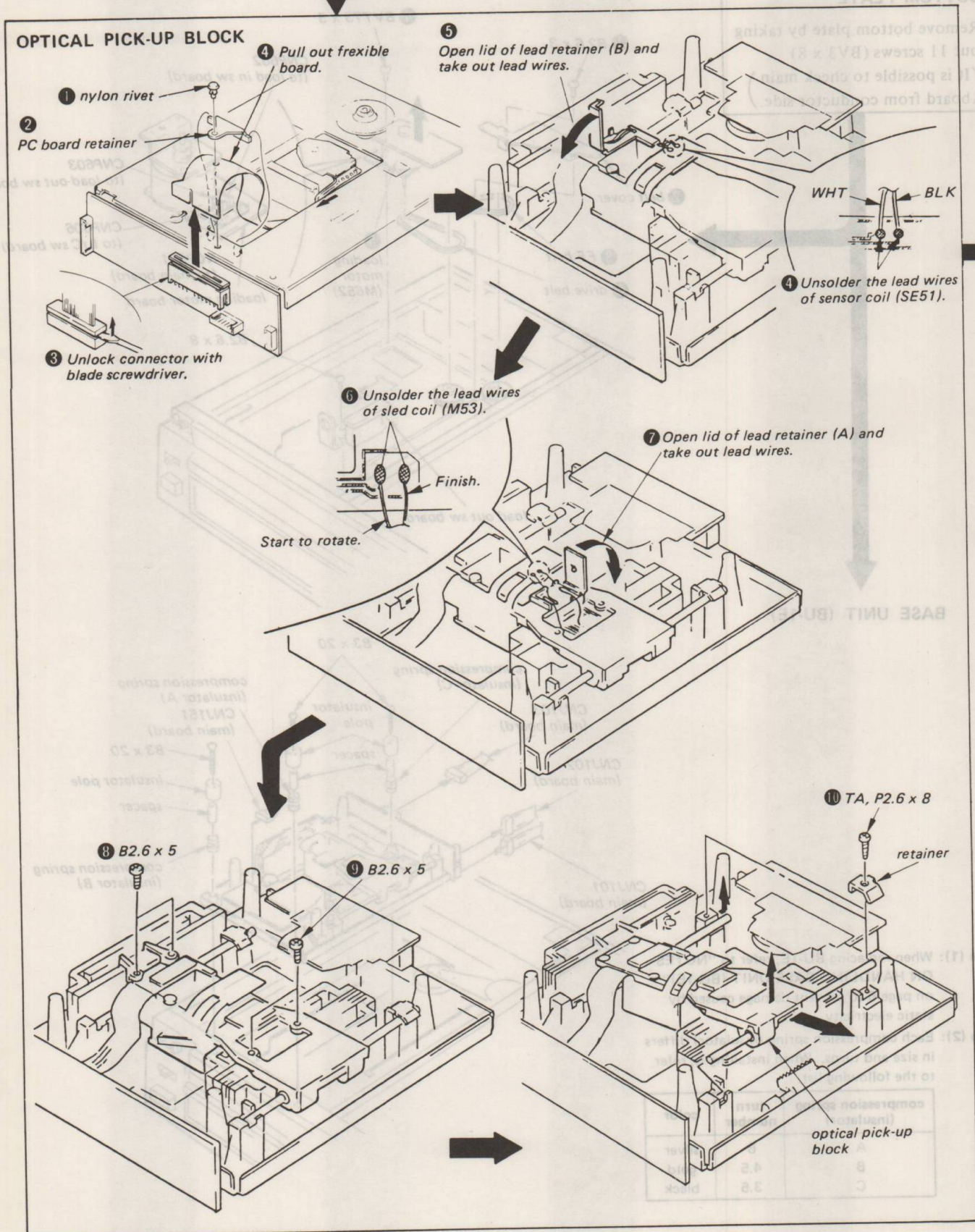


BOTTOM PLATE
Remove bottom plate by taking out 11 screws (BV3 x 8)
(It is possible to check main board from conductor side.)



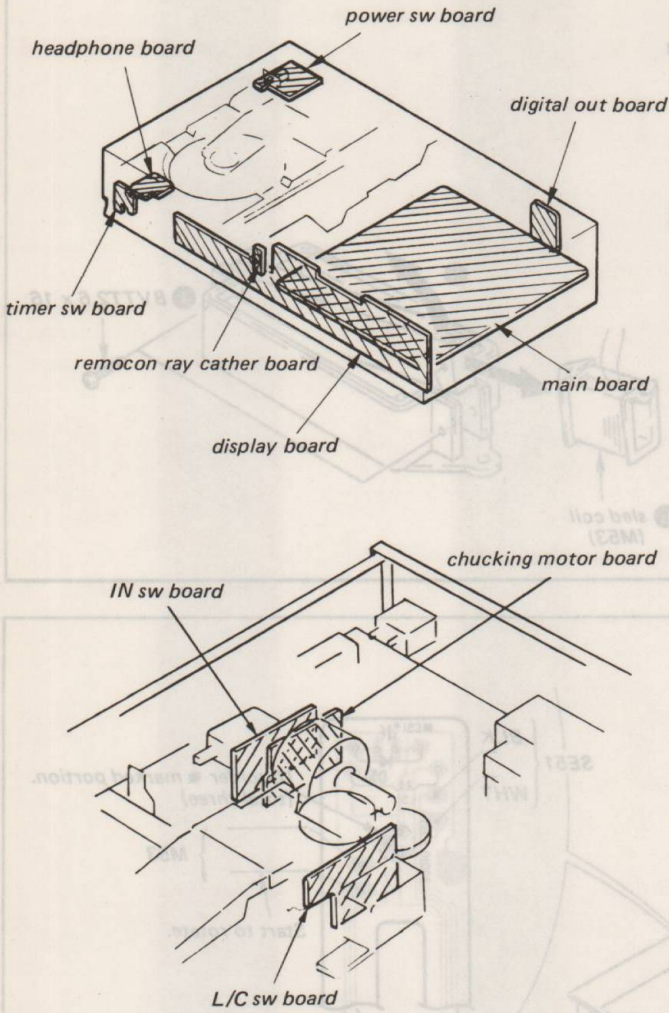
BASE UNIT (BU-1E)
 (See page 23.)

Refer to "NOTES ON HANDLING BASE UNIT (BU-1E)" on page 6 to prevent damage caused by static electricity.



SECTION 3 ADJUSTMENTS

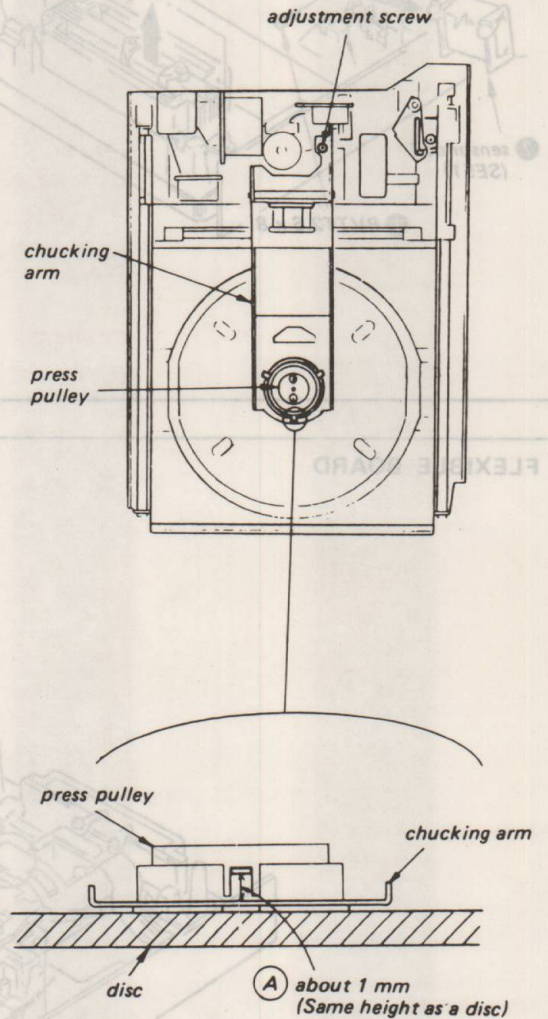
CIRCUIT BOARDS LOCATION



3-1. MECHANICAL ADJUSTMENT CHUCKING ARM HEIGHT ADJUSTMENT.

Adjust the height of portion (A) with disc inserted and disc table closed.

Repeat loading and confirm that chucking arm does not touch disc pulley.



Note: Be sure not to remove the screws. The screws fix the detector. Therefore, if the screws are removed or loosened, the detector moves and cannot receive the laser beam.

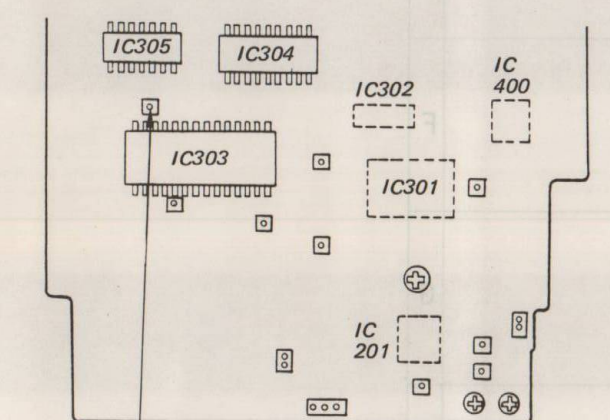
3-2. ELECTRICAL ADJUSTMENTS

1. Perform adjustments in the order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use the oscilloscope with more than 10 MΩ impedance.

Adjustment Mode

1. Connect main board test point ADJ and ground. (This is to prevent the disc table from opening even though pits are not read, by making micro-computer IC303 pin 38 low.)
2. Turn POWER switch on. (To reset microcomputer.)
After adjustment, remove the lead wire connecting test point ADJ and ground.

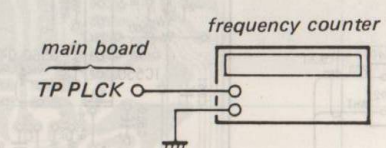
Adjustment Location: main board



test point ADJ. (Connect this test point to ground.)

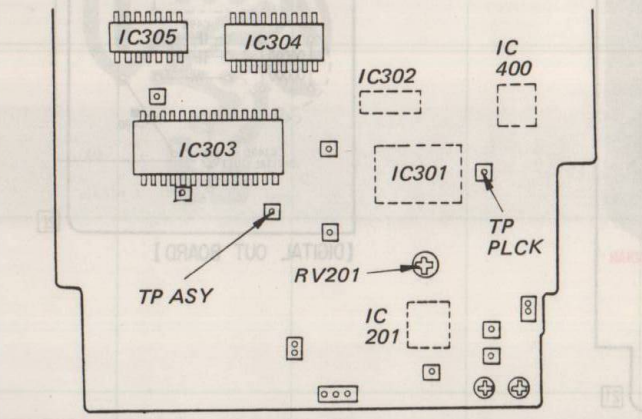
RF PLL Adjustment

Procedure:



1. Connect main board test point TP ASY and ground.
2. Connect the frequency counter to main board test point TP PLCK.
3. Turn POWER switch ON (stop mode).
4. Adjust main board RV201 so that the reading on frequency counter is 4.3218 MHz ±20 kHz.
5. Remove the lead wire connecting in step 1.
6. Put disc (YEDS-18) in and press ▷ PLAY button.
7. Confirm that reading on frequency counter is 4.3218 MHz.

Adjustment Location: main board



REFERENCE

Focus/Tracking Gain Adjustment

The following is a simple adjustment method.

— Primary Adjustment —

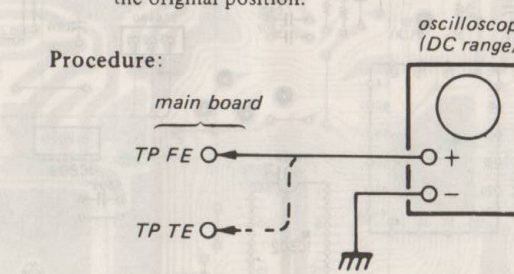
Note: Since exact adjustment cannot be performed, remember the positions of the controls before performing the adjustment. If the positions after the primary adjustment are only a little different, return the controls to the original position.

Focus/tracking gain determines the pick-up follow-up (vertical and horizontal) relative to mechanical noise and mechanical shock when the 2-axis device operate.

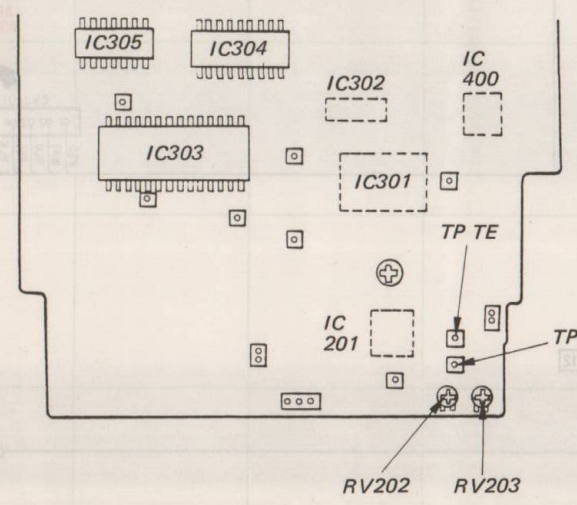
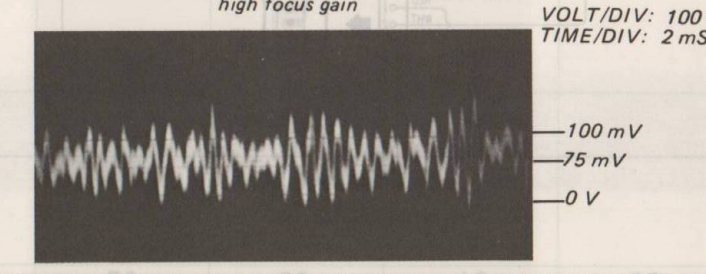
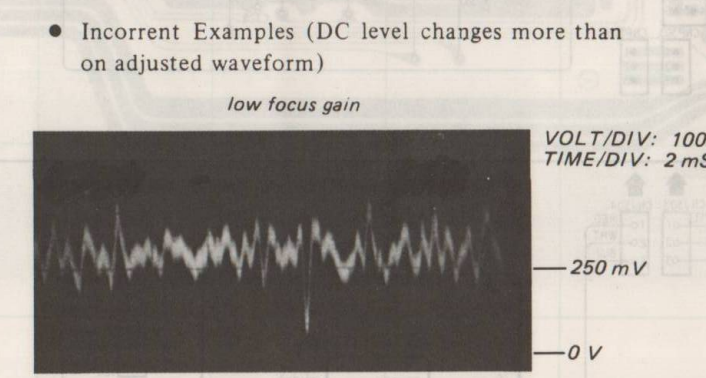
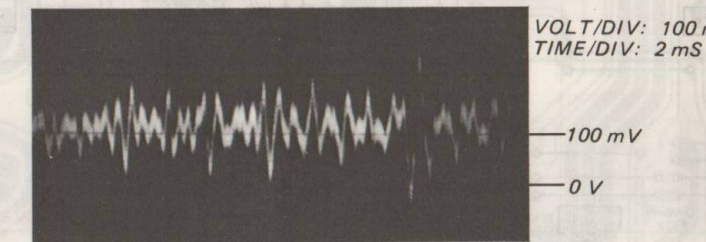
However, as these reciprocate, the adjustment is at the point where both are satisfied.

- When gain is raised, the noise when the 2-axis device operates increases.
- When gain is lowered, mechanical shock and skipping occurs more easily.
- When gain adjustment is off, the symptoms below appear.

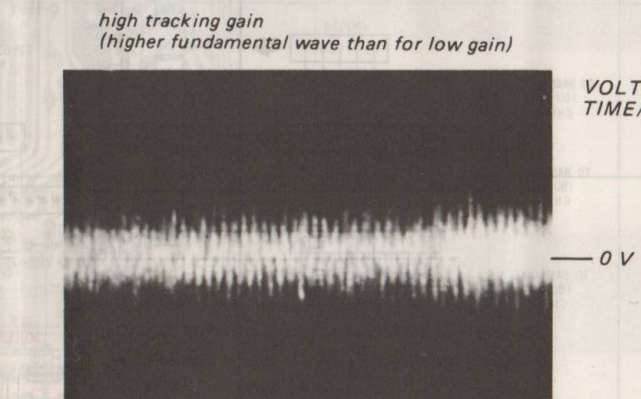
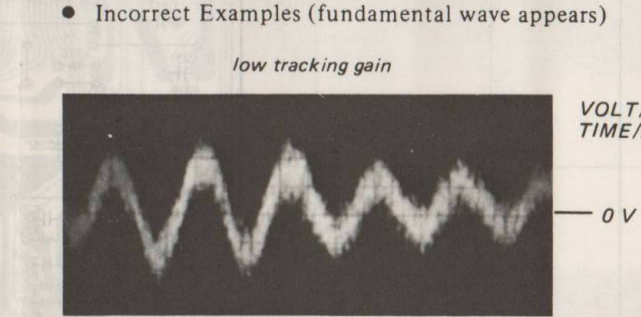
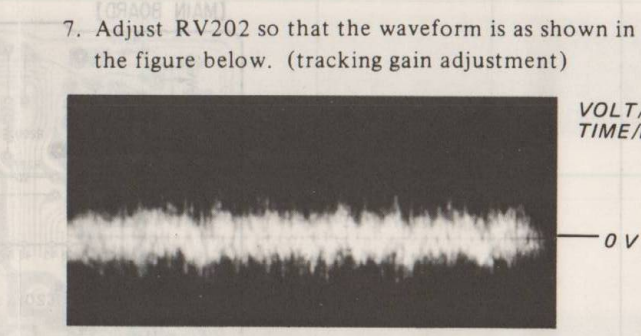
Symptoms	Gain	Focus	Tracking
• The time until music starts becomes longer for STOP →▷PLAY or automatic selection (◀▶▶▶ buttons pressed.) (Normally takes about 1 seconds.)	low	low	low or high
• Music does not start and disc continues to rotate for STOP →▷PLAY or automatic selection. (◀▶▶▶ buttons pressed.)	—	—	low
• Disc table opens shortly after STOP →▷PLAY.	low or high	—	—
• Sound is interrupted during PLAY. Or time counter display stops progressing.	—	—	low
• More noise during 2-axis device operation.	high	high	high



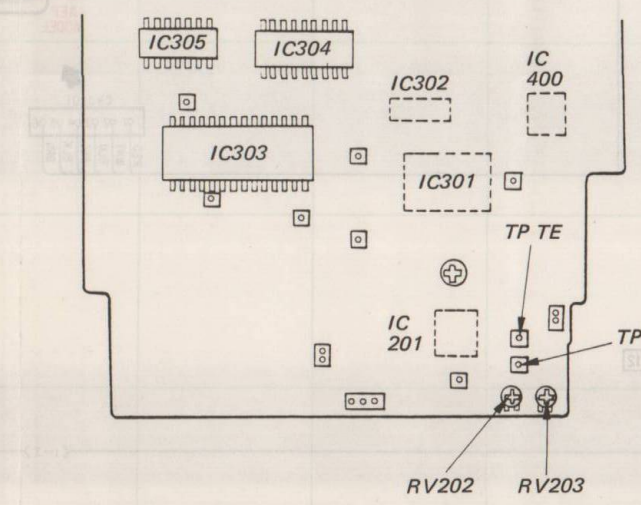
1. Keep the set horizontal. (If the set is not horizontal, this adjustment cannot be performed due to the gravity against the 2 axis device.)
2. Put set in adjustment mode. (See page 27.)
3. Insert disc (YEDS-18) and press ▷ PLAY button.
4. Connect oscilloscope to main board TP FE.
5. Adjustment RV203 so that the waveform is as shown in the figure below. (focus gain adjustment)



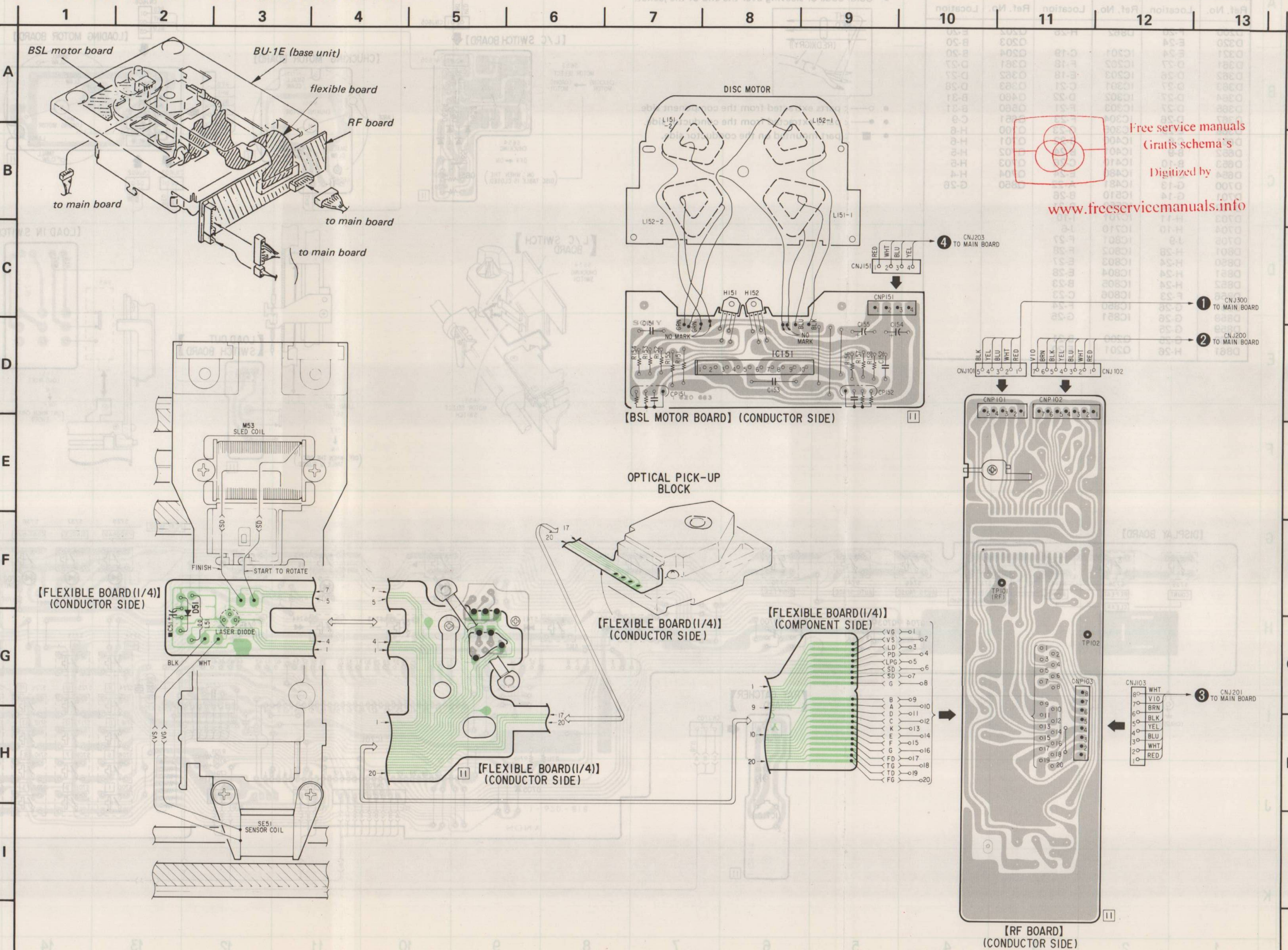
6. Connect oscilloscope to main board TP TE.



Adjustment Location: main board



4-1. MOUNTING DIAGRAM - BU-1E (BASE UNIT) SECTION -

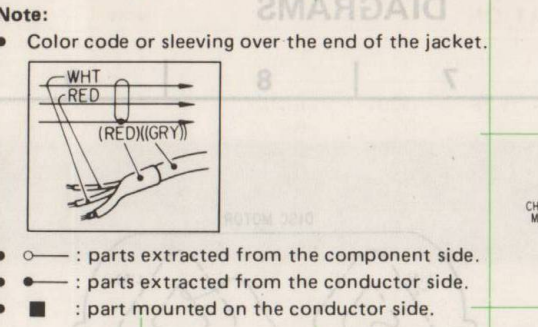


SECTION 4 DIAGRAMS

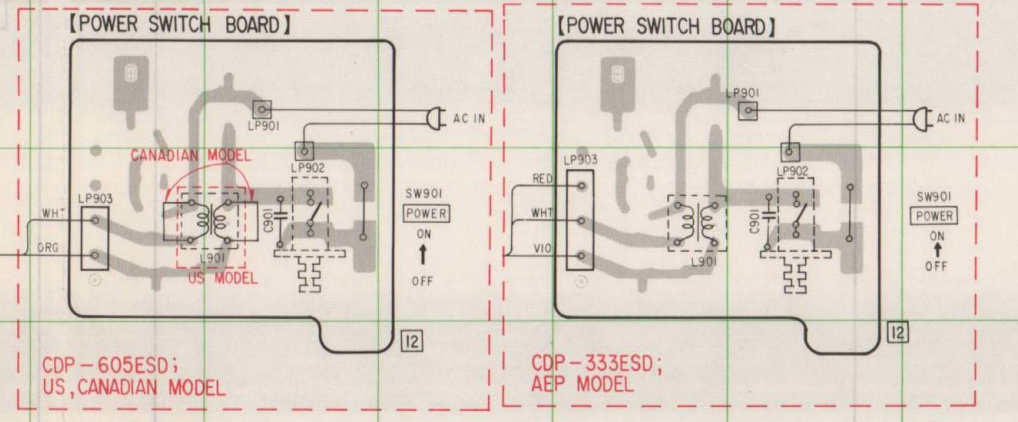
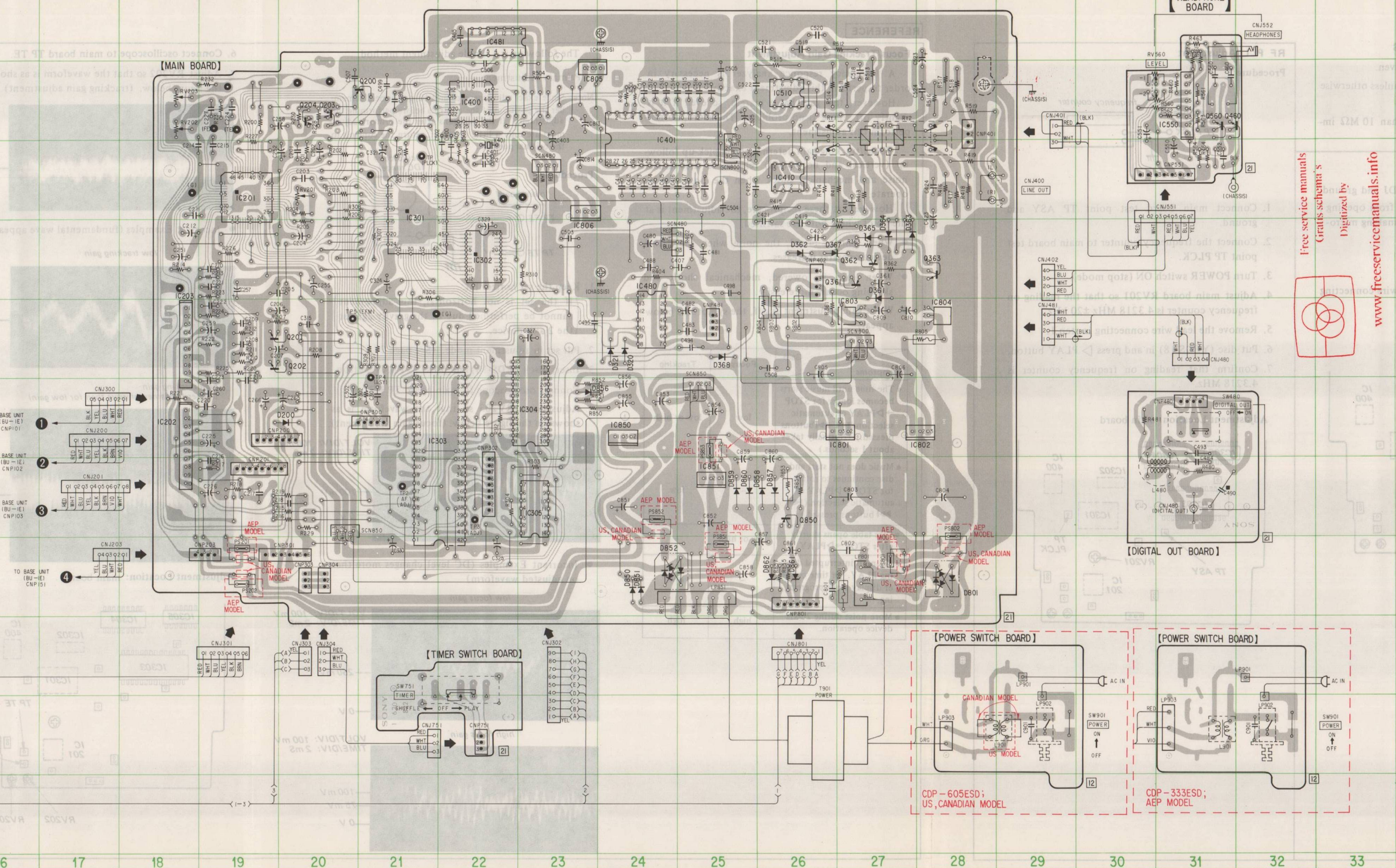
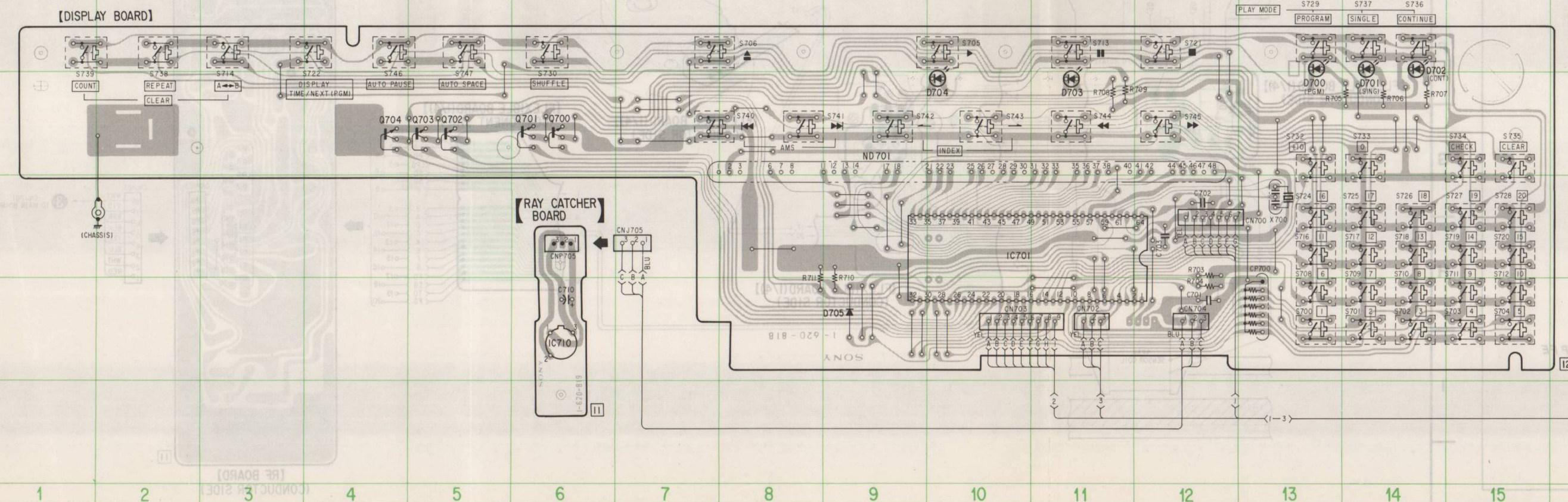
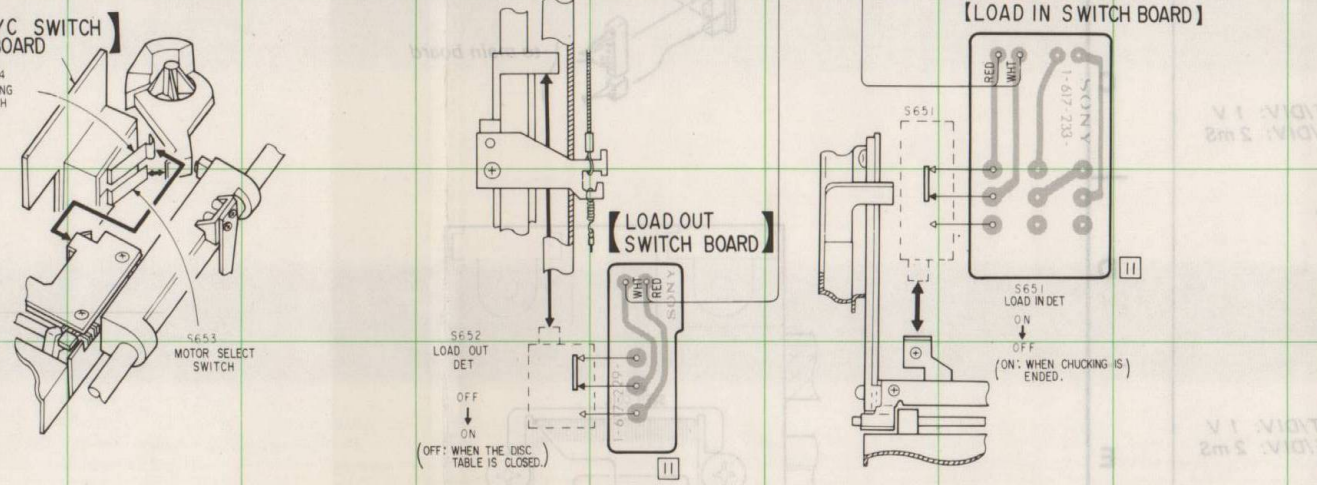
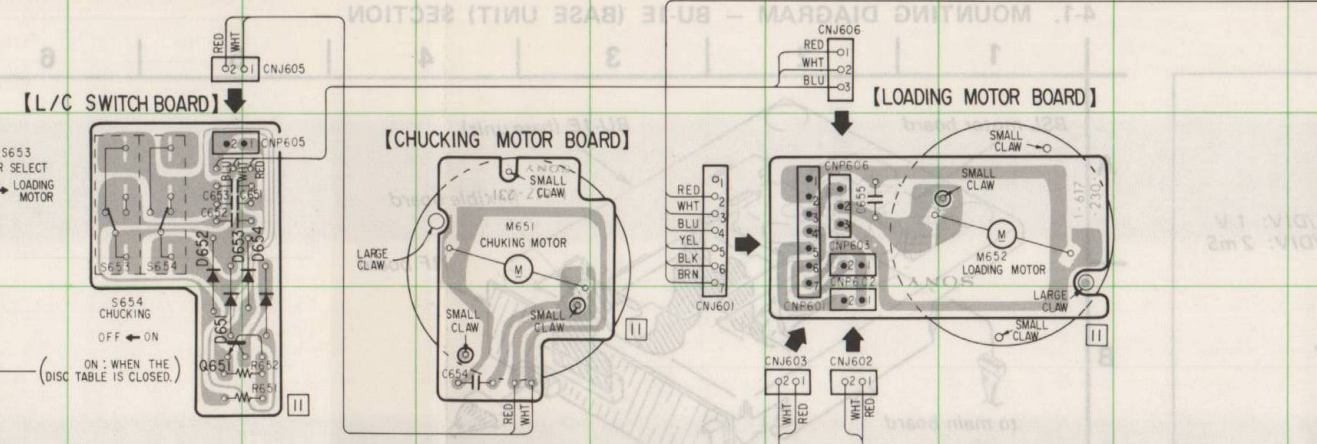
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● SEMICONDUCTOR LOCATION

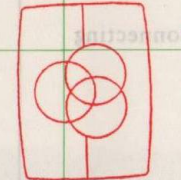
Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D200	F-20	D862	H-26	Q202	E-20
D320	E-24			Q203	B-20
D321	E-24	IC201	C-19	Q204	B-20
D361	D-27	IC202	F-18	Q361	D-27
D362	D-27	IC203	E-18	Q362	D-27
D363	D-27	IC301	C-21	Q363	D-28
D364	D-27	IC302	D-22	Q460	B-31
D365	D-27	IC303	F-21	Q560	B-31
D367	D-26	IC304	F-23	Q651	C-9
D368	E-25	IC305	G-23	Q700	H-6
D651	C-9	IC400	B-22	Q701	H-6
D652	B-9	IC401	B-24	Q702	H-5
D653	B-10	IC410	C-26	Q703	H-5
D654	C-10	IC480	E-24	Q704	H-4
D700	G-13	IC481	A-22	Q850	G-26
D701	G-14	IC510	B-26		
D702	G-14	IC550	B-31		
D703	H-11	IC701	I-10		
D704	H-10	IC710	J-6		
D705	J-9	IC801	F-27		
D801	H-28	IC802	F-28		
D850	H-24	IC803	E-27		
D851	H-24	IC804	E-28		
D852	H-24	IC805	B-23		
D856	F-23	IC806	C-23		
D857	G-26	IC850	F-24		
D858	G-26	IC851	G-25		
D859	G-25	Q200	B-21		
D860	G-25	Q201	E-20		
D861	H-26				

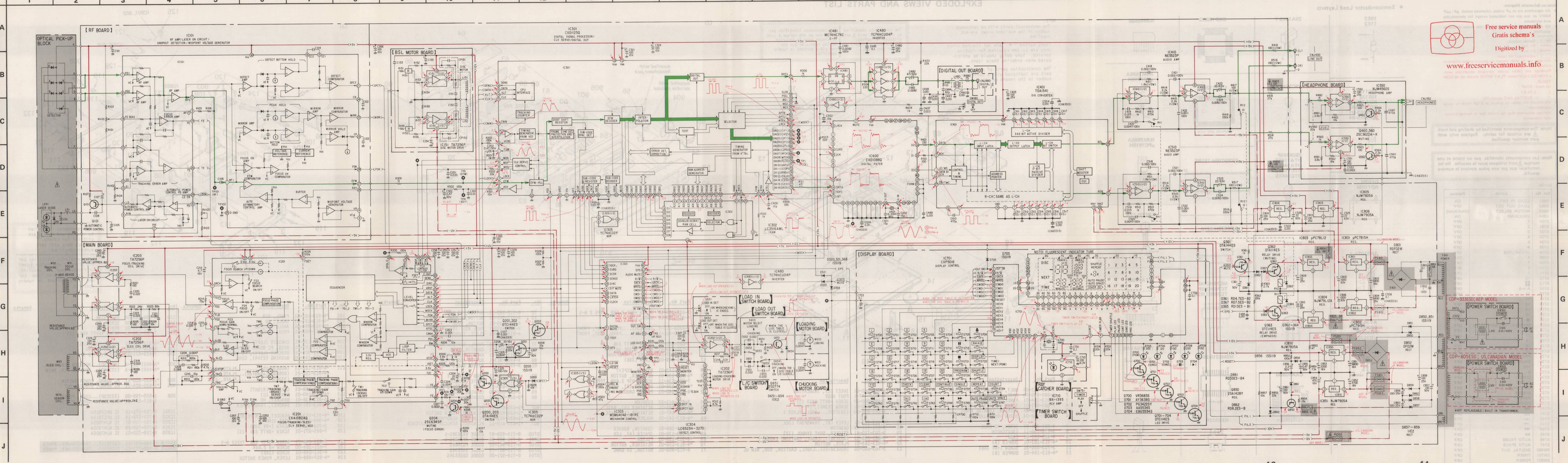


- : parts extracted from the component side.
- : parts extracted from the conductor side.
- : part mounted on the conductor side.

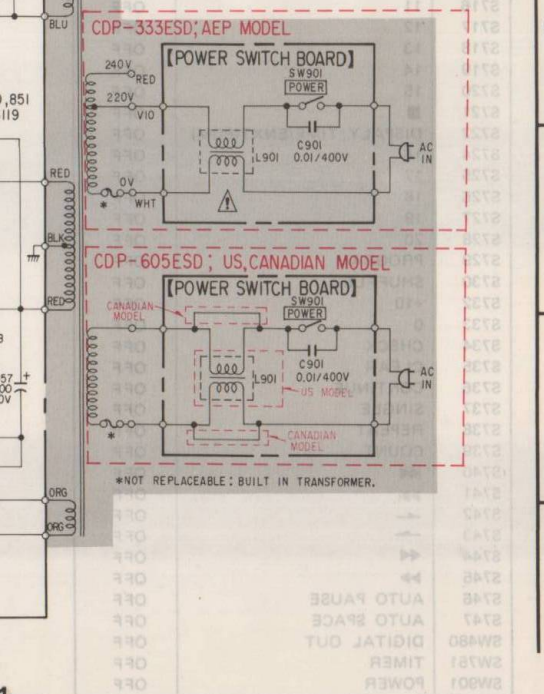


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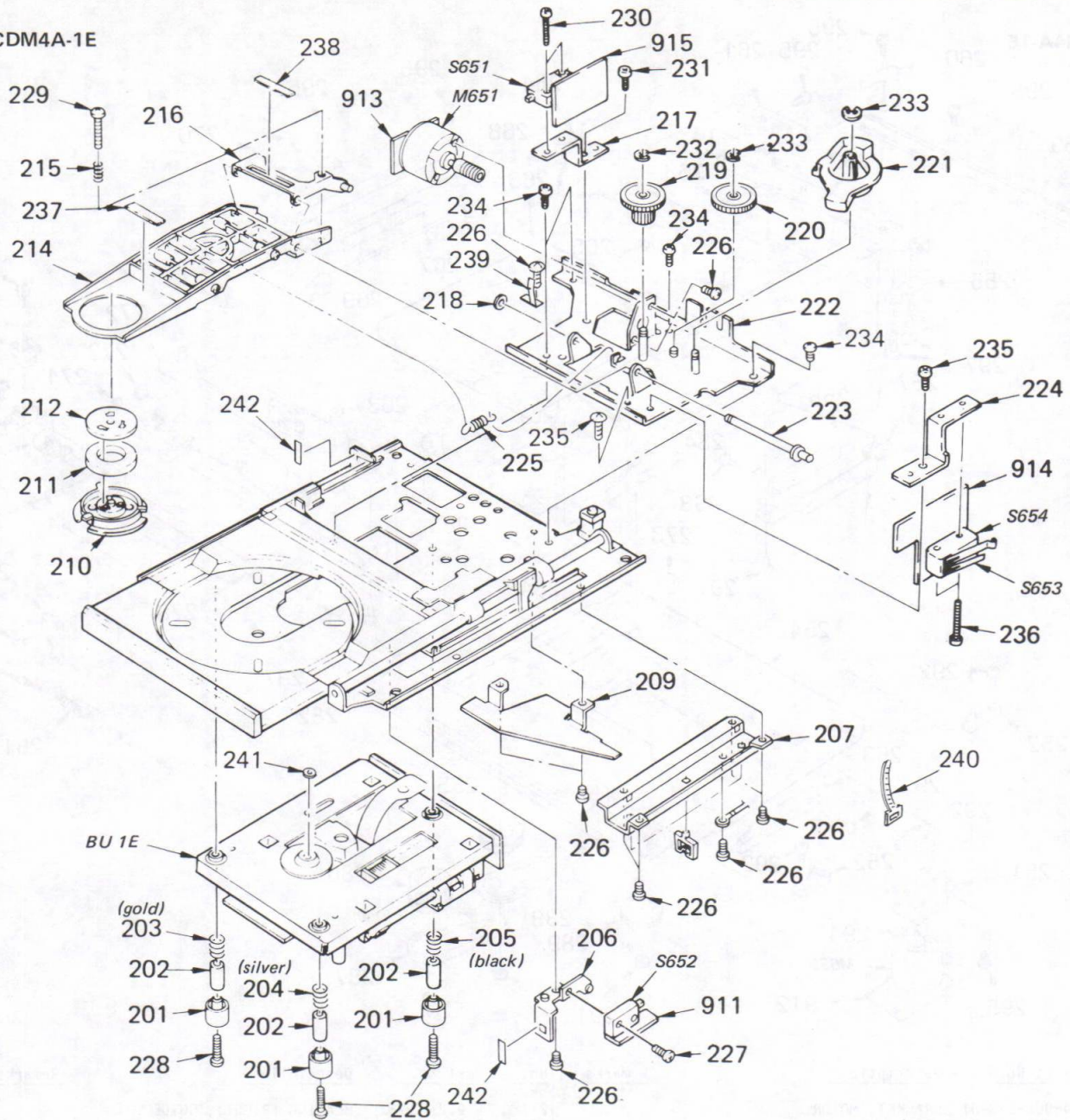


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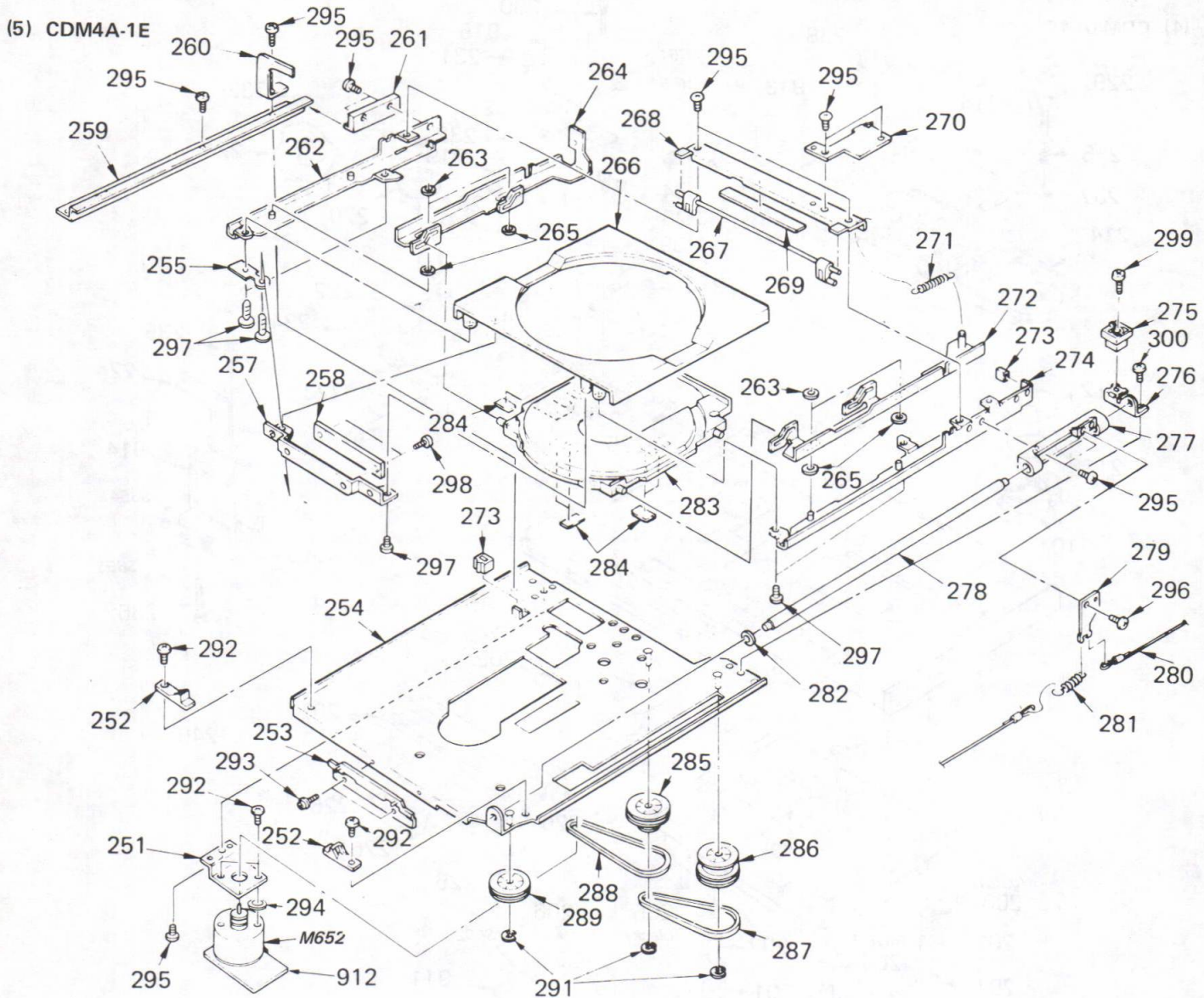
NOT REPLACIBLE; BUILT IN TRANSFORMER.

(4) CDM4A-1E



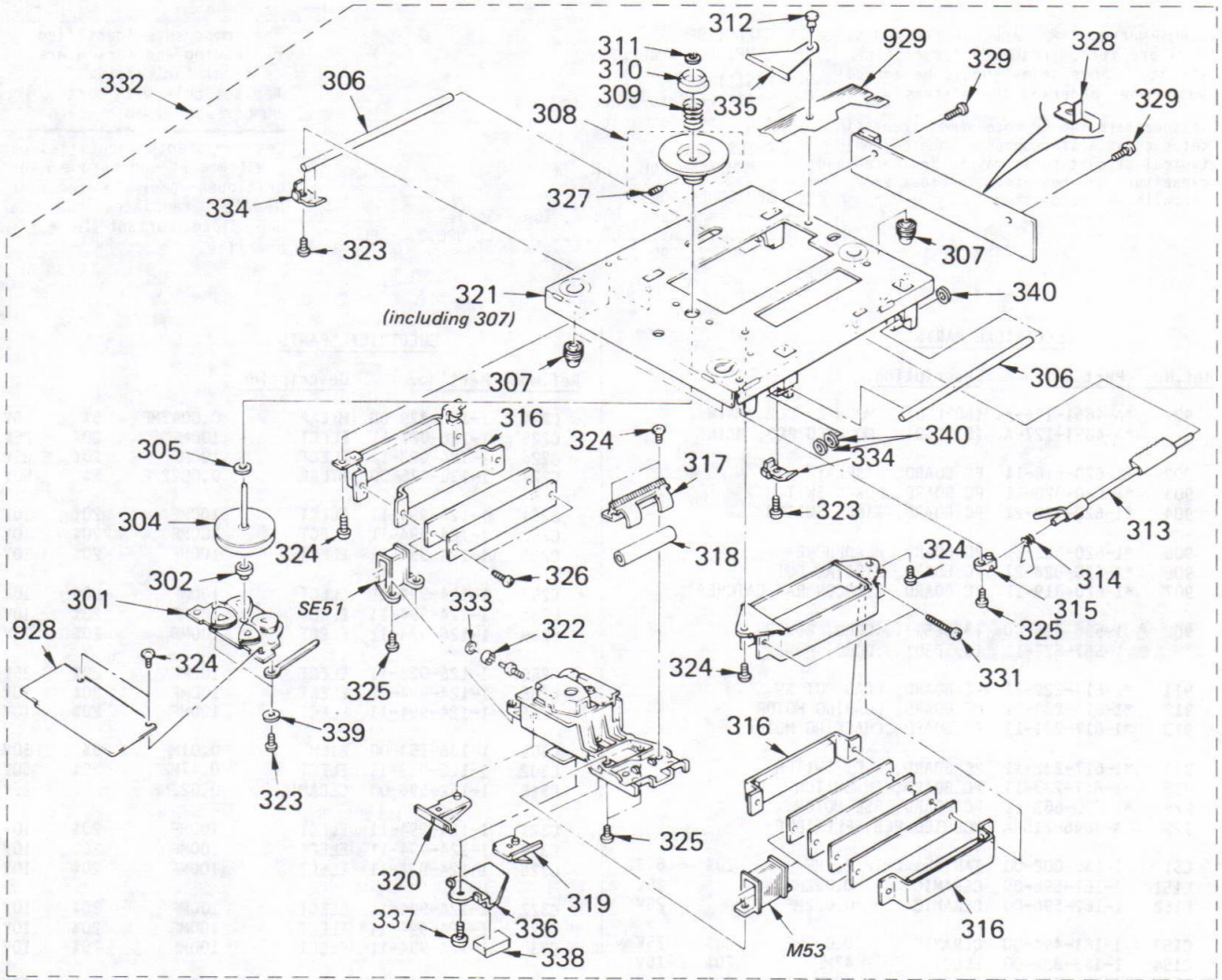
No.	Part No.	Description	Remarks
201	4-908-592-01	POLE (A), INSULATOR	
202	4-908-636-01	SPACER	
203	4-912-548-01	SPRING, COMPRESSION	
204	4-912-547-01	SPRING, COMPRESSION	
205	4-912-549-01	SPRING, COMPRESSION	
206	*4-908-541-01	BRACKET (C), SWITCH	
207	*X-4908-517-1	COVER ASSY, ROPE	
209	*4-908-597-01	COVER, BELT	
210	4-912-530-01	PULLEY, PRESS	
211	1-452-340-11	MAGNET	
212	*4-912-515-01	YOKE	
214	*X-4912-509-1	ARM ASSY, C	
215	4-908-559-01	SPRING, COMPRESSION	
216	X-4908-513-1	PLATE ASSY, ADJUSTMENT, ARM	
217	*4-912-543-01	BRACKET (D), SWITCH	
218	3-558-708-01	WASHER, STOPPER	
219	4-912-514-01	GEAR (A)	
220	4-912-525-01	GEAR (B)	
221	4-912-528-01	GEAR, CAM	
222	*X-4912-503-1	CHASSIS ASSY, SUB	
223	4-908-513-01	SHAFT, FULCRUM, C ARM	
224	*4-912-524-01	BRACKET (A), SWITCH	
225	4-908-555-01	SPRING, TENSION (C ARM)	

No.	Part No.	Description	Remarks
226	7-621-775-00	SCREW +B 2.6X3	
227	7-621-259-55	SCREW +P 2.6X8	
228	7-682-153-09	SCREW +B 3X20	
229	7-621-775-80	SCREW +B 2.6X16	
230	7-685-864-01	SCREW +BVTT 2.6X10 (S)	
231	7-682-646-09	SCREW +PS 3X5	
232	7-624-109-04	STOP RING 5.0, TYPE -E	
233	7-624-106-04	STOP RING 3.0, TYPE -E	
234	7-682-546-04	SCREW +BVTT 3X5 (S)	
235	7-682-544-09	SCREW +B 3X3	
236	7-621-257-85	SCREW +P 2.3X14	
237	*4-912-551-01	SHEET (C), DT PS	
238	*4-912-552-01	SHEET (B), DT PS	
239	*4-912-569-01	PLATE (B), GROUND	
240	3-701-748-00	CLAMP	
241	*4-912-553-01	SPACER (D)	
242	*4-913-199-01	CUSHION (D), CHASSIS	
911	*1-617-229-11	PC BOARD, LOAD OUT SW	
913	*1-617-231-11	PC BOARD, CHUCKING MOTOR	
914	*1-617-232-11	PC BOARD, L.C. SWITCH	
915	*1-617-233-11	PC BOARD, IN SWITCH	
M651	X-4902-019-1	CHUCKING MOTOR ASSY	



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
251	*4-908-523-01	BRACKET, MOTOR		277	4-912-538-01	BEARING (RIGHT), GUIDE	
252	4-908-540-01	GUIDE, ASSIST		278	4-912-521-01	SHAFT (RIGHT), GUIDE	
253	*X-4912-508-1	BRACKET ASSY, TABLE		279	*4-912-520-01	BRACKET, ROPE	
254	*X-4912-507-1	CHASSIS ASSY, MECHANICAL		280	4-912-517-01	ROPE	
255	*4-912-568-01	PLATE (A), GROUND		281	4-908-553-01	SPRING, COMPRESSION (ROPE)	
257	*4-912-566-01	BRACKET, L PANEL		282	4-912-512-01	CUSHION (A)	
258	*4-912-544-01	PLATE, FIXED		283	X-4912-511-1	PLATE ASSY, DISK	
259	*4-912-529-01	GUIDE, LOADING		284	*4-908-964-01	SHEET, PS, DT	
260	*4-912-527-01	RETAINER, TABLE		285	4-908-519-01	PULLEY (A)	
261	*4-912-534-01	GUIDE, SUB		286	4-908-525-01	PULLEY (C)	
262	*X-4912-504-1	BRACKET (LEFT) ASSY, TABLE		287	3-671-077-00	BELT, FF	
263	3-558-708-21	WASHER, STOPPER		288	4-908-591-01	BELT, DRIVING	
264	*4-912-531-01	PLATE (LEFT), CAM, DISK		289	4-908-524-01	PULLEY (B)	
265	3-701-439-11	WASHER		291	7-624-106-04	STOP RING 3.0, TYPE -E	
266	4-908-584-03	TABLE, DISK		292	7-621-775-00	SCREW +B 2.6X3	
267	4-908-534-01	LEVER, FUNCTION		293	7-621-759-60	+PSW, 2.6X8	
268	*4-912-532-01	REINFORCEMENT, TABLE		294	3-554-222-00	WASHER (2), CAPSTAN	
269	*4-912-526-01	SHEET		295	7-682-546-04	SCREW +BVTT 3X5 (S)	
270	*4-912-522-01	PLATE, SW		296	7-685-132-19	SCREW +BTP 2.6X5 TYPE2 N-S	
271	4-912-516-01	SPRING (DISK CAM), TENSION		297	7-685-646-79	SCREW +BVTP 3X8 TYPE2 SLIT	
272	*X-4912-506-1	PLATE (RIGHT) ASSY, CAM, DISK		298	7-685-791-04	SCREW +BVTT 2.6X5 (S)	
273	4-887-175-00	RUBBER, STOPPER		299	7-685-876-01	SCREW +BVTT 3X16 (S)	
274	*X-4912-505-1	BRACKET (RIGHT) ASSY, TABLE		300	7-682-646-09	SCREW +PS 3X5	
275	*4-912-513-01	STOPPER, TABLE		912	*1-617-230-11	PC BOARD, LOADING MOTOR	
276	*4-912-519-01	RETAINER (RIGHT), SHAFT		M652	A-4608-303-A	MOTOR ASSY, LOADING	

(6) BU-1E



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
301	A-4675-068-A	BRACKET ASSY, MOTOR		323	7-685-134-19	SCREW +P 2.6X8 TYPE2 SLIT	
302	2-622-105-01	RETAINER, THRUST		324	7-621-284-00	SCREW +B 2.6X4	
304	A-4675-069-A	ROTOR ASSY		325	7-621-775-20	SCREW +B 2.6X5	
305	3-701-439-21	WASHER		326	7-685-793-04	SCREW +BVTT 2.6X8 (S)	
306	4-908-201-03	SHAFT, SLIDE		327	7-621-734-09	SET-SCT, HEX. 2.6X3	
307	4-908-593-01	INSULATOR		328	*4-908-232-01	LUG, GROUND	
308	X-4908-202-1	PULLEY ASSY, DISK		329	7-685-864-01	SCREW +BVTT 2.6X10 (S)	
309	4-908-213-01	SPRING, COMPRESSION		331	7-685-867-01	SCREW +BVTT 2.6X16 (S)	
310	4-915-217-01	CAP, CENTERING		332	X-4915-033-1	BU-1E	
311	3-558-708-21	WASHER, STOPPER		333	7-624-105-04	STOP RING 2.3, TYPE -E	
312	3-531-576-01	RIVET		334	4-908-245-01	RETAINER (C), SHAFT, SLIDE	
313	4-908-227-01	LEVER, LOCK		335	*4-908-254-01	RETAINER BOARD	
314	4-908-230-01	SPRING		336	*4-908-255-01	SUPPORT, PC BOARD	
315	4-908-220-01	HOLDER, ROD		337	7-682-546-09	SCREW +B 3X6	
316	*A-4675-110-A	MAGNET ASSY, LINEAR		338	*4-919-205-01	CUSHION	
317	4-908-224-01	HOLDER, BEARING		339	7-688-002-01	W 2.6, SMALL	
318	4-908-221-01	BEARING		340	*4-908-269-01	CUSHION, SLIDE	
319	4-908-225-01	RETAINER (A), LEAD		918	*1-620-663-11	PC BOARD, BSL MOTOR	
320	4-908-219-01	RETAINER (B), LEAD		919	A-4646-215-A	MOUNTED PCB, FLEXIBLE	
321	*A-4675-112-A	BASE ASSY		M53	1-422-197-14	COIL (DRIVE)	
322	4-908-208-01	BEARING (NO-FLANGE), BALL		SE51	1-422-198-11	COIL (SENSOR)	

SECTION 6

ELECTRICAL PARTS LIST

NOTE:

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

- CAPACITORS:**
MF:µF, PF:µµF.
- RESISTORS**
• All resistors are in ohms.
• F : nonflammable
- COILS**
• MMH : mH, UH : µH
- SEMICONDUCTORS**
In each case, U : µ, for example:
UA....: µA..., UPA....: µPA..., UPC....: µPC,
UPD....: µPD...

The components identified by shading and mark **△** are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque **△** sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
901	*A-4651-126-A	(605ESD)...MOUNTED PCB, MAIN			
	*A-4651-127-A	(333ESD)...MOUNTED PCB, MAIN			
902	*1-620-818-11	PC BOARD, DISPLAY			
903	*1-620-820-11	PC BOARD, POWER SWITCH			
904	*1-620-822-21	PC BOARD, TIMER SWITCH			
905	*1-620-823-21	PC BOARD, HEADPHONE			
906	*1-620-824-21	PC BOARD, DIGITAL OUT			
907	*1-620-819-11	PC BOARD, REMOCON RAY CATCHER			
908	△ 1-555-795-00	(333ESD)...CORD, POWER			
	△ 1-557-577-11	(605ESD)...CORD, POWER			
911	*1-617-229-11	PC BOARD, LOAD OUT SW			
912	*1-617-230-11	PC BOARD, LOADING MOTOR			
913	*1-617-231-11	PC BOARD, CHACKING MOTOR			
914	*1-617-232-11	PC BOARD, L.C. SWITCH			
915	*1-617-233-11	PC BOARD, IN SWITCH			
928	*1-620-663-11	PC BOARD, BSL MOTOR			
929	A-4646-215-A	MOUNTED PCB, FLEXIBLE			
C51	1-135-008-00	TANTAL. CHIP 2.2MF	20%	6.3V	
C151	1-162-596-00	CERAMIC 0.022MF		25V	
C152	1-162-596-00	CERAMIC 0.022MF		25V	
C153	1-161-494-00	CERAMIC 0.022MF	30%	25V	
C154	1-123-332-00	ELECT 47MF	20%	16V	
C155	1-123-332-00	ELECT 47MF	20%	16V	
C201	1-136-159-00	FILM 0.033MF	5%	50V	
C202	1-126-043-11	ELECT 0.47MF	20%	50V	
C203	1-162-294-31	CERAMIC 0.001MF	10%	50V	
C204	1-124-991-11	ELECT 22MF	20%	10V	
C205	1-130-479-00	MYLAR 0.0047MF	5%	50V	
C206	1-126-005-11	ELECT 10MF	20%	16V	
C207	1-126-044-11	ELECT 1MF	20%	50V	
C208	1-136-163-00	FILM 0.068MF	5%	50V	
C209	1-130-479-00	MYLAR 0.0047MF	5%	50V	
C210	1-162-199-31	CERAMIC 10PF	5%	50V	
C211	1-136-165-00	FILM 0.1MF	5%	50V	
C212	1-131-369-00	TANTALUM 4.7MF	10%	16V	
C214	1-136-159-00	FILM 0.033MF	5%	50V	
C215	1-136-165-00	FILM 0.1MF	5%	50V	
C216	1-162-306-31	CERAMIC 0.01MF	20%	16V	
C217	1-162-596-00	CERAMIC 0.022MF		25V	
C218	1-162-306-31	CERAMIC 0.01MF	20%	16V	
C219	1-162-596-00	CERAMIC 0.022MF		25V	
C220	1-162-596-00	CERAMIC 0.022MF		25V	
C221	1-136-164-00	FILM 0.082MF	5%	50V	
C222	1-136-159-00	FILM 0.033MF	5%	50V	
C223	1-162-596-00	CERAMIC 0.022MF		25V	

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C224	1-130-479-00	MYLAR	0.0047MF	5%	50V
C225	1-126-023-11	ELECT	100MF	20%	25V
C226	1-126-023-11	ELECT	100MF	20%	25V
C227	1-130-475-00	MYLAR	0.0022MF	5%	50V
C251	1-124-994-11	ELECT	100MF	20%	10V
C252	1-124-994-11	ELECT	100MF	20%	10V
C255	1-124-994-11	ELECT	100MF	20%	10V
C257	1-124-994-11	ELECT	100MF	20%	10V
C258	1-124-994-11	ELECT	100MF	20%	10V
C259	1-126-023-11	ELECT	100MF	20%	25V
C260	1-126-023-11	ELECT	100MF	20%	25V
C265	1-124-994-11	ELECT	100MF	20%	10V
C266	1-124-994-11	ELECT	100MF	20%	10V
C301	1-136-153-00	FILM	0.01MF	5%	50V
C302	1-126-043-11	ELECT	0.47MF	20%	50V
C315	1-162-596-00	CERAMIC	0.022MF		25V
C321	1-124-994-11	ELECT	100MF	20%	10V
C324	1-124-994-11	ELECT	100MF	20%	10V
C325	1-124-994-11	ELECT	100MF	20%	10V
C327	1-124-994-11	ELECT	100MF	20%	10V
C329	1-124-994-11	ELECT	100MF	20%	10V
C330	1-124-994-11	ELECT	100MF	20%	10V
C361	1-126-044-11	ELECT	1MF	20%	50V
C400	1-162-199-31	CERAMIC	10PF	5%	50V
C401	1-162-203-31	CERAMIC	15PF	5%	50V
C402	1-162-203-31	CERAMIC	15PF	5%	50V
C403	1-123-333-00	ELECT	100MF	20%	25V
C407	1-162-596-00	CERAMIC	0.022MF		25V
C410	1-162-290-31	CERAMIC	470PF	10%	50V
C411	1-162-179-11	CERAMIC	0.1MF		50V
C412	1-162-179-11	CERAMIC	0.1MF		50V
C413	1-162-179-11	CERAMIC	0.1MF		50V
C414	1-162-179-11	CERAMIC	0.1MF		50V
C415	1-162-179-11	CERAMIC	0.1MF		50V
C416	1-162-179-11	CERAMIC	0.1MF		50V
C417	1-162-179-11	CERAMIC	0.1MF		50V
C418	1-136-254-11	FILM	0.002MF	3%	100V
C419	1-130-892-00	FILM	0.015MF	3%	100V
C420	1-136-233-11	FILM	0.0047MF	3%	100V
C421	1-136-254-11	FILM	0.002MF	3%	100V
C422	1-136-227-11	FILM	0.0011MF	3%	100V
C423	1-124-929-11	ELECT	22MF	20%	63V
C424	1-130-848-00	FILM	0.0082MF	10%	100V
C460	1-162-290-31	CERAMIC	470PF	10%	50V
C480	1-123-333-00	ELECT	100MF	20%	25V
C481	1-130-848-00	FILM	0.0082MF	10%	100V

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C482	1-123-359-00	ELECT	47MF	20%	50V
C483	1-130-848-00	FILM	0.0082MF	10%	100V
C484	1-162-218-31	CERAMIC	62PF	5%	50V
C485	1-162-179-11	CERAMIC	0.1MF		50V
C489	1-162-294-31	CERAMIC	0.001MF	10%	50V
C490	1-162-294-31	CERAMIC	0.001MF	10%	50V
C493	1-162-294-31	CERAMIC	0.001MF	10%	50V
C494	1-162-294-31	CERAMIC	0.001MF	10%	50V
C495	1-162-294-31	CERAMIC	0.001MF	10%	50V
C498	1-162-294-31	CERAMIC	0.001MF	10%	50V
C499	1-162-294-31	CERAMIC	0.001MF	10%	50V
C502	1-162-199-31	CERAMIC	10PF	5%	50V
C503	1-162-306-31	CERAMIC	0.01MF	20%	16V
C504	1-162-294-31	CERAMIC	0.001MF	10%	50V
C505	1-162-294-31	CERAMIC	0.001MF	10%	50V
C506	1-162-306-31	CERAMIC	0.01MF	20%	16V
C507	1-162-294-31	CERAMIC	0.001MF	10%	50V
C508	1-162-179-11	CERAMIC	0.1MF		50V
C511	1-162-179-11	CERAMIC	0.1MF		50V
C512	1-162-179-11	CERAMIC	0.1MF		50V
C513	1-162-179-11	CERAMIC	0.1MF		50V
C514	1-162-179-11	CERAMIC	0.1MF		50V
C515	1-162-179-11	CERAMIC	0.1MF		50V
C516	1-162-179-11	CERAMIC	0.1MF		50V
C517	1-162-179-11	CERAMIC	0.1MF		50V
C518	1-136-254-11	FILM	0.002MF	3%	100V
C519	1-130-892-00	FILM	0.015MF	3%	100V
C520	1-136-233-11	FILM	0.0047MF	3%	100V
C521	1-136-254-11	FILM	0.002MF	3%	100V
C522	1-136-227-11	FILM	0.0011MF	3%	100V
C523	1-124-929-11	ELECT	22MF	20%	63V
C524	1-130-848-00	FILM	0.0082MF	10%	100V
C525	1-124-929-11	ELECT	22MF	20%	63V
C526	1-124-929-11	ELECT	22MF	20%	63V
C550	1-123-333-00	ELECT	100MF	20%	25V
C551	1-123-333-00	ELECT	100MF	20%	25V
C552	1-162-596-00	CERAMIC	0.0022MF	10%	50V
C560	1-162-290-31	CERAMIC	470PF	10%	50V
C651	1-136-157-00	FILM	0.022MF	5%	50V
C652	1-136-157-00	FILM	0.022MF	5%	50V
C653	1-136-157-00	FILM	0.022MF	5%	50V
C654	1-130-479-00	MYLAR	0.0047MF	5%	50V
C655	1-130-479-00	MYLAR	0.0047MF	5%	50V
C701	1-162-179-11	CERAMIC	0.1MF		50V
C702	1-162-179-11	CERAMIC	0.1MF		50V
C703	1-162-179-11	CERAMIC	0.1MF		50V
C710	1-124-225-00	ELECT	100MF	20%	6.3V
C801	1-136-165-00	FILM	0.1MF	5%	50V
C802	1-130-789-00	FILM	1MF	10%	100V
C803	1-126-129-11	ELECT	6800MF	20%	35V
C804	1-126-129-11	ELECT	6800MF	20%	35V
C805	1-123-378-00	ELECT	1000MF	20%	63V
C806	1-123-378-00	ELECT	1000MF	20%	63V
C809	1-126-021-11	ELECT	33MF	20%	25V
C810	1-126-021-11	ELECT	33MF	20%	25V

The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C813	1-123-333-00	ELECT	100MF	20%	25V
C814	1-123-333-00	ELECT	100MF	20%	25V
C851	1-126-017-11	ELECT	6800MF	20%	16V
C852	1-126-016-11	ELECT	4700MF	20%	16V
C853	1-126-014-11	ELECT	2200MF	20%	16V
C854	1-126-012-11	ELECT	470MF	20%	16V
C855	1-126-043-11	ELECT	0.47MF	20%	50V
C856	1-126-045-11	ELECT	2.2MF	20%	50V
C857	1-124-122-11	ELECT	100MF	20%	50V
C858	1-124-478-11	ELECT	100MF	20%	25V
C859	1-124-478-11	ELECT	100MF	20%	25V
C860	1-124-478-11	ELECT	100MF	20%	25V
C861	1-126-052-11	ELECT	100MF	20%	50V
C901	Δ 1-161-744-00	CERAMIC	0.01MF		400V
CNJ151	*1-560-073-00	PIN, CONNECTOR			
CNJ400	1-563-558-11	JACK, PIN 2P (LINE OUT)			
CNJ480	1-507-567-71	JACK, PIN 1P (DIGITAL OUT)			
CNJ481	*1-564-706-41	PIN, CONNECTOR (SMALL TYPE) 4P			
CNJ552	1-507-863-21	JACK, LARGE TYPE (HEADPHONES)			
CNP200	*1-564-709-11	PIN, CONNECTOR (SMALL TYPE) 7P			
CNP201	*1-564-710-11	PIN, CONNECTOR (SMALL TYPE) 8P			
CNP203	*1-564-706-31	PIN, CONNECTOR (SMALL TYPE) 4P			
CNP300	*1-564-707-11	PIN, CONNECTOR (SMALL TYPE) 5P			
CNP301	*1-564-509-11	PLUG, CONNECTOR 6P			
CNP302	*1-506-503-11	PIN, CONNECTOR 9P			
CNP303	*1-564-337-00	PIN, CONNECTOR 3P			
CNP304	*1-564-705-11	PIN, CONNECTOR (SMALL TYPE) 3P			
CNP401	*1-564-506-11	PLUG, CONNECTOR 3P			
CNP402	*1-564-507-21	PLUG, CONNECTOR 4P			
CNP481	*1-564-706-41	PIN, CONNECTOR (SMALL TYPE) 4P			
CNP551	*1-564-510-21	PLUG, CONNECTOR 7P			
CNP601	*1-564-522-11	PLUG, CONNECTOR 7P			
CNP602	*1-564-505-11	PLUG, CONNECTOR 2P			
CNP603	*1-564-505-21	PLUG, CONNECTOR 2P			
CNP604	*1-564-505-11	PLUG, CONNECTOR 2P			
CNP606	*1-564-506-11	PLUG, CONNECTOR 3P			
CNP705	*1-564-496-11	PIN, CONNECTOR 3P			
CNP751	*1-564-705-11	PIN, CONNECTOR (SMALL TYPE) 3P			
CNP801	*1-564-341-11	PIN, CONNECTOR 7P			
CP151	1-233-079-11	COMPOSITION CIRCUIT BLOCK			
CP152	1-233-079-11	COMPOSITION CIRCUIT BLOCK			
CP700	1-232-967-11	COMPOSITION CIRCUIT BLOCK			
D51	8-719-911-19	DIODE 1SS119			
D200	8-719-940-76	DIODE 1SS132			
D320	8-719-940-76	DIODE 1SS132			
D321	8-719-940-76	DIODE 1SS132			
D361	8-719-109-81	DIODE RD4.7ES-B2			
D362	8-719-940-76	DIODE 1SS132			
D363	8-719-940-76	DIODE 1SS132			
D364	8-719-940-76	DIODE 1SS132			
D365	8-719-110-35	DIODE RD13ES-B1			
D367	8-719-110-03	DIODE RD7.5ES-B1			
D368	8-719-940-76	DIODE 1SS132			
D651	8-719-200-02	DIODE 10E2			
D652	8-719-200-02	DIODE 10E2			
D653	8-719-200-02	DIODE 10E2			
D654	8-719-200-02	DIODE 10E2			
D700	8-719-939-87	DIODE VR3638S-1			
D701	8-719-939-85	DIODE AY3638S-1			
D702	8-719-941-69	DIODE PG3668S			

ELECTRICAL PARTS

Ref.No.	Part No.	Description
D703	8-719-907-75	DIODE AA5534S
D704	8-719-921-05	DIODE EBG5534S
D705	8-719-940-76	DIODE 1SS132
D801 ▲	8-719-937-49	DIODE RDF02M
D850	8-719-940-76	DIODE 1SS132
D851	8-719-940-76	DIODE 1SS132
D852 ▲	8-719-937-50	DIODE DF02M
D856	8-719-940-76	DIODE 1SS132
D857	8-719-200-23	DIODE 11E2
D858	8-719-200-23	DIODE 11E2
D859	8-719-200-23	DIODE 11E2
D860	8-719-200-23	DIODE 11E2
D861	8-719-110-80	DIODE RD33ES-B4
D862	8-719-110-05	DIODE RD8.2ES-B
H151	8-719-800-31	DIODE THS103A-1
H152	8-719-800-31	DIODE THS103A-1
IC151	8-759-202-01	IC TA7256P
IC201	8-752-031-65	IC CXA1082AQ
IC202	8-759-202-01	IC TA7256P
IC203	8-759-202-01	IC TA7256P
IC301	8-752-322-04	IC CXD1125Q
IC302	8-759-910-36	IC MSM5218-20GS
IC303	8-759-940-64	IC MSM6404A-181RS
IC304	8-759-804-47	IC LC6523H-3270
IC305	8-759-202-12	IC TC74HC02P
IC400	8-759-939-35	IC CXD1088Q
IC401	8-759-939-94	IC TDA1541-N5
IC410	8-759-900-72	IC NE5532P
IC480	8-759-202-13	IC TC74HC04P
IC481	8-759-000-XX	IC MC74HC74N
IC510	8-759-900-72	IC NE5532P
IC550	8-759-700-40	IC NJM4560S
IC701	8-752-801-26	IC CXP5016H-178S
IC710	8-749-900-36	IC BX-1393
IC801	8-759-171-15	IC UPC7815H
IC802	8-759-179-15	IC UPC7915H
IC803	8-759-178-12	IC UPC78L12L
IC804	8-759-700-69	IC NJM79L12A
IC805	8-759-700-51	IC NJM7805A
IC806	8-759-700-28	IC NJM7905A
IC850	8-759-700-51	IC NJM7805A
IC851	8-759-700-28	IC NJM7905A
L51	1-408-563-00	MICRO INDUCTOR 10UH
L480	1-459-587-11	COIL (WITH CORE)
L901 ▲	1-421-340-00	(333ESD)...LINE FILTER
L901 ▲	1-421-580-00	(605ESD)...TRANSFORMER, LINE FILTER(LFT)
LP801	*1-535-116-00	TERMINAL
LP851	*1-535-118-00	TERMINAL
LP901	*1-535-476-11	TERMINAL
LP902	*1-535-476-11	TERMINAL
LP903	*1-535-139-00	(605ESD)...BASE POST 19MM(10MM PITCH) 2P
LP903	*1-535-140-00	(333ESD)...BASE POST 19MM(10MM PITCH) 3P
M53	1-422-197-14	COIL (DRIVE)
M651	X-4902-019-1	MOTOR ASSY, CHUCKING
M652	A-4608-303-A	MOTOR ASSY, LOADING
ND701	1-519-412-11	INDICATOR TUBE, FLUORESCENT

ELECTRICAL PARTS

Ref.No.	Part No.	Description
PS201 ▲	1-532-605-00	(333ESD)...LINK, IC
PS202 ▲	1-532-605-00	(333ESD)...LINK, IC
PS801 ▲	1-532-675-00	(333ESD)...LINK, IC
PS802 ▲	1-532-675-00	(333ESD)...LINK, IC
PS851 ▲	1-532-686-00	(333ESD)...LINK, IC
PS852 ▲	1-532-686-00	(333ESD)...LINK, IC
PS853 ▲	1-532-675-00	(333ESD)...LINK, IC
Q200	8-729-900-65	TRANSISTOR DTA144ES
Q201	8-729-900-80	TRANSISTOR DTC114ES
Q202	8-729-900-89	TRANSISTOR DTC144ES
Q203	8-729-900-65	TRANSISTOR DTA144ES
Q204	8-729-600-27	TRANSISTOR 2SC634SP
Q361	8-729-900-61	TRANSISTOR DTA114ES
Q362	8-729-900-61	TRANSISTOR DTA114ES
Q363	8-729-900-80	TRANSISTOR DTC114ES
Q460	8-729-107-99	TRANSISTOR 2SC3622A
Q560	8-729-107-99	TRANSISTOR 2SC3622A
Q651	8-729-177-43	TRANSISTOR 2SD774
Q700	8-729-900-80	TRANSISTOR DTC114ES
Q701	8-729-900-80	TRANSISTOR DTC114ES
Q702	8-729-900-80	TRANSISTOR DTC114ES
Q703	8-729-900-80	TRANSISTOR DTC114ES
Q704	8-729-900-80	TRANSISTOR DTC114ES
Q850	8-729-205-95	TRANSISTOR 2SA1428-Y
R151	1-249-417-11	CARBON 1K 5% 1/6W
R152	1-249-417-11	CARBON 1K 5% 1/6W
R153	1-249-417-11	CARBON 1K 5% 1/6W
R154	1-247-887-00	CARBON 220K 5% 1/6W
R155	1-249-417-11	CARBON 1K 5% 1/6W
R156	1-249-417-11	CARBON 1K 5% 1/6W
R157	1-249-417-11	CARBON 1K 5% 1/6W
R158	1-247-887-00	CARBON 220K 5% 1/6W
R200	1-249-441-11	CARBON 100K 5% 1/6W
R201	1-247-903-00	CARBON 1M 5% 1/6W
R202	1-247-862-00	CARBON 20K 5% 1/6W
R203	1-249-441-11	CARBON 100K 5% 1/6W
R204	1-215-434-00	METAL 3.6K 1% 1/6W
R205	1-247-881-00	CARBON 120K 5% 1/6W
R206	1-249-429-11	CARBON 10K 5% 1/6W
R207	1-249-433-11	CARBON 22K 5% 1/6W
R208	1-249-429-11	CARBON 10K 5% 1/6W
R210	1-249-425-11	CARBON 4.7K 5% 1/6W
R211	1-247-885-00	CARBON 180K 5% 1/6W
R212	1-247-901-00	CARBON 820K 5% 1/6W
R213	1-247-881-00	CARBON 120K 5% 1/6W
R214	1-247-876-00	CARBON 75K 5% 1/6W
R215	1-247-881-00	CARBON 120K 5% 1/6W
R216	1-247-881-00	CARBON 120K 5% 1/6W
R217	1-247-885-00	CARBON 180K 5% 1/6W
R218	1-249-405-11	CARBON 100 5% 1/6W
R219	1-247-885-00	CARBON 180K 5% 1/6W
R220	1-249-405-11	CARBON 100 5% 1/6W
R221	1-249-405-11	CARBON 100 5% 1/6W
R222	1-247-864-00	CARBON 24K 5% 1/6W
R223	1-249-439-11	CARBON 68K 5% 1/6W
R224	1-249-432-11	CARBON 18K 5% 1/6W
R225	1-249-405-11	CARBON 100 5% 1/6W

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ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R226	1-247-896-00	CARBON	510K	5%	1/6W
R227	1-249-429-11	CARBON	10K	5%	1/6W
R228	1-249-417-11	CARBON	1K	5%	1/6W
R229	1-249-429-11	CARBON	10K	5%	1/6W
R230	1-249-441-11	CARBON	100K	5%	1/6W
R231	1-249-429-11	CARBON	10K	5%	1/6W
R232	1-249-417-11	CARBON	1K	5%	1/6W
R301	1-249-429-11	CARBON	10K	5%	1/6W
R302	1-249-441-11	CARBON	100K	5%	1/6W
R303	1-249-437-11	CARBON	47K	5%	1/6W
R304	1-247-891-00	CARBON	330K	5%	1/6W
R305	1-247-903-00	CARBON	1M	5%	1/6W
R306	1-249-417-11	CARBON	1K	5%	1/6W
R307	1-215-469-00	METAL	100K	1%	1/6W
R308	1-215-469-00	METAL	100K	1%	1/6W
R309	1-249-417-11	CARBON	1K	5%	1/6W
R310	1-249-413-11	CARBON	470	5%	1/6W
R311	1-249-413-11	CARBON	470	5%	1/6W
R312	1-249-425-11	CARBON	4.7K	5%	1/6W
R361	1-247-713-11	CARBON	1K	5%	1/4W
R362	1-249-441-11	CARBON	100K	5%	1/6W
R363	1-249-422-11	CARBON	2.7K	5%	1/6W
R401	1-247-819-00	CARBON	330	5%	1/6W
R402	1-249-433-11	CARBON	22K	5%	1/6W
R404	1-249-417-11	CARBON	1K	5%	1/6W
R405	1-247-819-00	CARBON	330	5%	1/6W
R411	1-249-679-11	CARBON	1.8K		1/2W
R412	1-247-713-11	CARBON	1K		1/4W
R413	1-247-725-11	CARBON	470K		1/4W
R414	1-249-681-11	CARBON	2.2K		1/2W
R415	1-249-681-11	CARBON	2.2K		1/2W
R416	1-246-533-00	CARBON	330K		1/4W
R417	1-247-739-11	CARBON	100		1/2W
R418	1-249-586-11	CARBON	27K		1/4W
R419	1-247-739-11	CARBON	100		1/2W
R460	1-249-417-11	CARBON	1K	5%	1/6W
R461	1-249-424-11	CARBON	3.9K	5%	1/6W
R462	1-249-432-11	CARBON	18K	5%	1/6W
R463	1-249-405-11	CARBON	100	5%	1/6W
R464	1-249-421-11	CARBON	2.2K	5%	1/6W
R480	1-247-804-00	CARBON	75	5%	1/6W
R481	1-247-808-00	CARBON	110	5%	1/6W
R501	1-247-819-00	CARBON	220	5%	1/6W
R503	1-249-409-11	CARBON	220	5%	1/6W
R504	1-249-411-11	CARBON	330	5%	1/6W
R511	1-249-679-11	CARBON	1.8K		1/2W
R512	1-247-713-11	CARBON	1K		1/4W
R513	1-247-725-11	CARBON	470K		1/4W
R514	1-249-681-11	CARBON	2.2K		1/2W
R515	1-249-681-11	CARBON	2.2K		1/2W
R516	1-246-533-00	CARBON	330K		1/4W
R517	1-247-739-11	CARBON	100		1/2W
R518	1-249-586-11	CARBON	27K		1/4W
R519	1-247-739-11	CARBON	100		1/2W
R560	1-249-417-11	CARBON	1K	5%	1/6W
R561	1-249-424-11	CARBON	3.9K	5%	1/6W
R562	1-249-432-11	CARBON	18K	5%	1/6W
R563	1-249-405-11	CARBON	100	5%	1/6W
R564	1-249-421-11	CARBON	2.2K	5%	1/6W
R651	1-249-417-11	CARBON	1K	5%	1/6W

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R652	1-249-417-11	CARBON	1K	5%	1/6W
R703	1-249-433-11	CARBON	22K	5%	1/6W
R704	1-249-433-11	CARBON	22K	5%	1/6W
R705	1-247-818-00	CARBON	300	5%	1/6W
R706	1-249-406-11	CARBON	120	5%	1/6W
R707	1-249-405-11	CARBON	100	5%	1/6W
R708	1-249-409-11	CARBON	220	5%	1/6W
R709	1-249-407-11	CARBON	150	5%	1/6W
R710	1-249-441-11	CARBON	100K	5%	1/6W
R711	1-249-441-11	CARBON	100K	5%	1/6W
R801	△.1-217-397-00	FUSIBLE	68	5%	1/4W F
R802	△.1-217-399-00	FUSIBLE	100	5%	1/4W F
R803	△.1-217-399-00	FUSIBLE	100	5%	1/4W F
R804	△.1-217-397-00	FUSIBLE	68	5%	1/4W F
R805	△.1-217-397-00	FUSIBLE	68	5%	1/4W F
R850	1-247-696-11	CARBON	47	5%	1/4W
R851	1-247-852-00	CARBON	7.5K	5%	1/6W
R852	1-249-441-11	CARBON	100K	5%	1/6W
R853	△.1-217-387-00	FUSIBLE	10	5%	1/4W F
R854	1-247-716-11	CARBON	1.8K	5%	1/4W
R855	1-249-433-11	CARBON	22K	5%	1/6W
R857	1-249-429-11	CARBON	10K	5%	1/6W
RV201	1-228-990-00	RES, ADJ, METAL GLAZE	1K		
RV202	1-237-194-11	RES, ADJ, CARBON	20K		
RV203	1-237-194-11	RES, ADJ, CARBON	20K		
RV560	1-230-997-21	RES, VAR, CARBON	20K/20K		(HEADPHONES LEVEL)
RY401	1-515-645-11	RELAY			
RY402	1-515-645-11	RELAY			
S651	1-554-205-00	SWITCH, PUSH (LOAD IN DET)			
S652	1-554-205-00	SWITCH, PUSH (LOAD OUT DET)			
S653	1-553-636-00	SWITCH, MICRO (MOTOR SELECT)			
S654	1-570-447-11	SWITCH, MICRO (CHUCKING)			
S700	1-554-303-21	SWITCH, KEY BOARD (1)			
S701	1-554-303-21	SWITCH, KEY BOARD (2)			
S702	1-554-303-21	SWITCH, KEY BOARD (3)			
S703	1-554-303-21	SWITCH, KEY BOARD (4)			
S704	1-554-303-21	SWITCH, KEY BOARD (5)			
S705	1-554-303-21	SWITCH, KEY BOARD ()			
S706	1-554-303-21	SWITCH, KEY BOARD (OPEN/CLOSE)			
S708	1-554-303-21	SWITCH, KEY BOARD (6)			
S709	1-554-303-21	SWITCH, KEY BOARD (7)			
S710	1-554-303-21	SWITCH, KEY BOARD (8)			
S711	1-554-303-21	SWITCH, KEY BOARD (9)			
S712	1-554-303-21	SWITCH, KEY BOARD (10)			
S713	1-554-303-21	SWITCH, KEY BOARD ()			
S714	1-554-303-21	SWITCH, KEY BOARD (A<->B)			
S716	1-554-303-21	SWITCH, KEY BOARD (11)			
S717	1-554-303-21	SWITCH, KEY BOARD (12)			
S718	1-554-303-21	SWITCH, KEY BOARD (13)			
S719	1-554-303-21	SWITCH, KEY BOARD (14)			
S720	1-554-303-21	SWITCH, KEY BOARD (15)			
S721	1-554-303-21	SWITCH, KEY BOARD ()			
S722	1-554-303-21	SWITCH, KEY BOARD (DISPLAY TYME/ENXT (PGM))			

The components identified by shading and mark △ are critical for safety. Replace only with part number specified.

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ELECTRICAL PARTS

Ref.No.	Part No.	Description
S724	1-554-303-21	SWITCH, KEY BOARD (16)
S725	1-554-303-21	SWITCH, KEY BOARD (17)
S726	1-554-303-21	SWITCH, KEY BOARD (18)
S727	1-554-303-21	SWITCH, KEY BOARD (19)
S728	1-554-303-21	SWITCH, KEY BOARD (20)
S729	1-554-303-21	SWITCH, KEY BOARD (PROGRAM)
S730	1-554-303-21	SWITCH, KEY BOARD (SHUFFLE)
S732	1-554-303-21	SWITCH, KEY BOARD (+10)
S733	1-554-303-21	SWITCH, KEY BOARD (0)
S734	1-554-303-21	SWITCH, KEY BOARD (CHECK)
S735	1-554-303-21	SWITCH, KEY BOARD (CLEAR)
S736	1-554-303-21	SWITCH, KEY BOARD (CONTINUE)
S737	1-554-303-21	SWITCH, KEY BOARD (SINGLE)
S738	1-554-303-21	SWITCH, KEY BOARD (REPEAT)
S739	1-554-303-21	SWITCH, KEY BOARD (COUNT)
S740	1-554-303-21	SWITCH, KEY BOARD (
S741	1-554-303-21	SWITCH, KEY BOARD (
S742	1-554-303-21	SWITCH, KEY BOARD (
S743	1-554-303-21	SWITCH, KEY BOARD (
S744	1-554-303-21	SWITCH, KEY BOARD (
S745	1-554-303-21	SWITCH, KEY BOARD (
S746	1-554-303-21	SWITCH, KEY BOARD (AUTO PAUSE)
S747	1-554-303-21	SWITCH, KEY BOARD (AUTO SPACE)
SE51	1-422-198-11	COIL (SENSOR)
SW480	1-516-778-XX	SWITCH, SLIDE (DIGITAL OUT)
SW751	1-552-809-00	SWITCH, SLIDE (TIMER)
SW901	1-553-318-00	SWITCH, PUSH (POWER)
T901	1-448-731-11	(333ESD)...TRANSFORMER, POWER
T901	1-448-733-11	(605ESD)...TRANSFORMER, POWER
X401	1-567-741-11	VIBRATOR, CRYSTAL 16.9344MHZ
X700	1-567-686-11	OSCILLATOR, CERAMIC 4MHZ

The components identified by shading and mark **A** are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque **A** sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

ACCESSORY & PACKING MATERIAL

Part No.	Description
1-463-683-11	REMOTE COMMANDER (RM-D550)
1-558-787-31	CORD, CONNECTION
3-701-630-00	BAG, POLYETHYLENE
3-703-390-01	(605ESD:US)...INSTRUCTION
*3-795-629-11	(333ESD).....INSTRUCTION
3-765-687-11	(333ESD)...MANUAL, INSTRUCTION
3-765-687-21	(605ESD)...MANUAL, INSTRUCTION
3-765-687-31	(605ESD:Canadian)...MANUAL, INSTRUCTION
3-765-687-41	(333ESD).....MANUAL, INSTRUCTION
4-912-955-11	(605ESD:US).....INDIVIDUAL CARTON
4-912-955-21	(605ESD:Canadian)...INDIVIDUAL CARTON
4-912-955-31	(333ESD).....INDIVIDUAL CARTON
4-913-177-01	CHUSHION
4-913-941-01	HOLDER, COMMANDER
4-917-494-01	LID, BATTERY (for REMOTE COMMANDER)