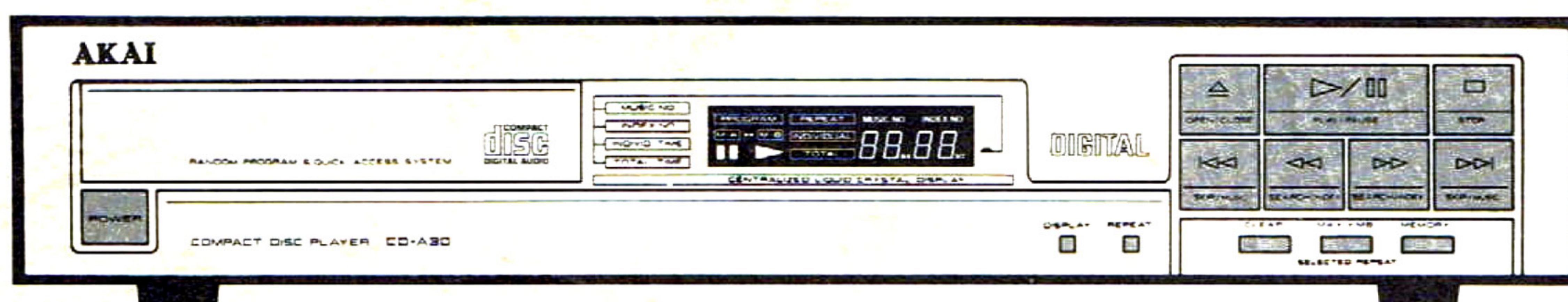


AKAI SERVICE MANUAL



COMPACT DISC PLAYER

MODEL **CD-A30**



MODEL **CD-A30**

SECTION 1	SERVICE MANUAL.....	5
SECTION 2	PARTS LIST	15

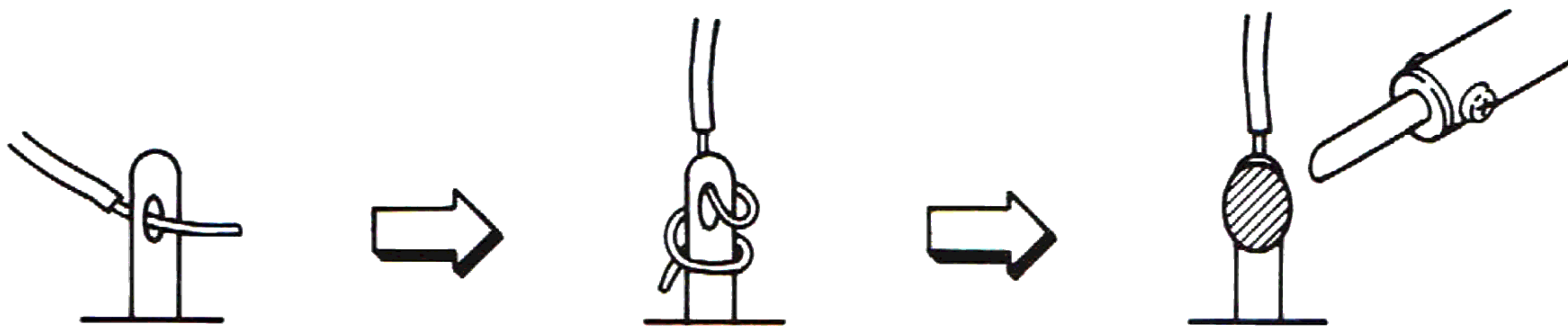
SAFETY INSTRUCTIONS

SAFETY CHECK AFTER SERVICING

Confirm the specified insulation resistance between power cord plug prongs and externally exposed parts of the set is greater than 10 Mohms, but for equipment with external antenna terminals (tuner, receiver, etc.) and is intended for **C** or **A**, specified insulation resistance should be more than 2.2 Mohms (ground terminals, microphone jacks, headphone jacks, line-in-out jacks etc.)

PRECAUTIONS DURING SERVICING

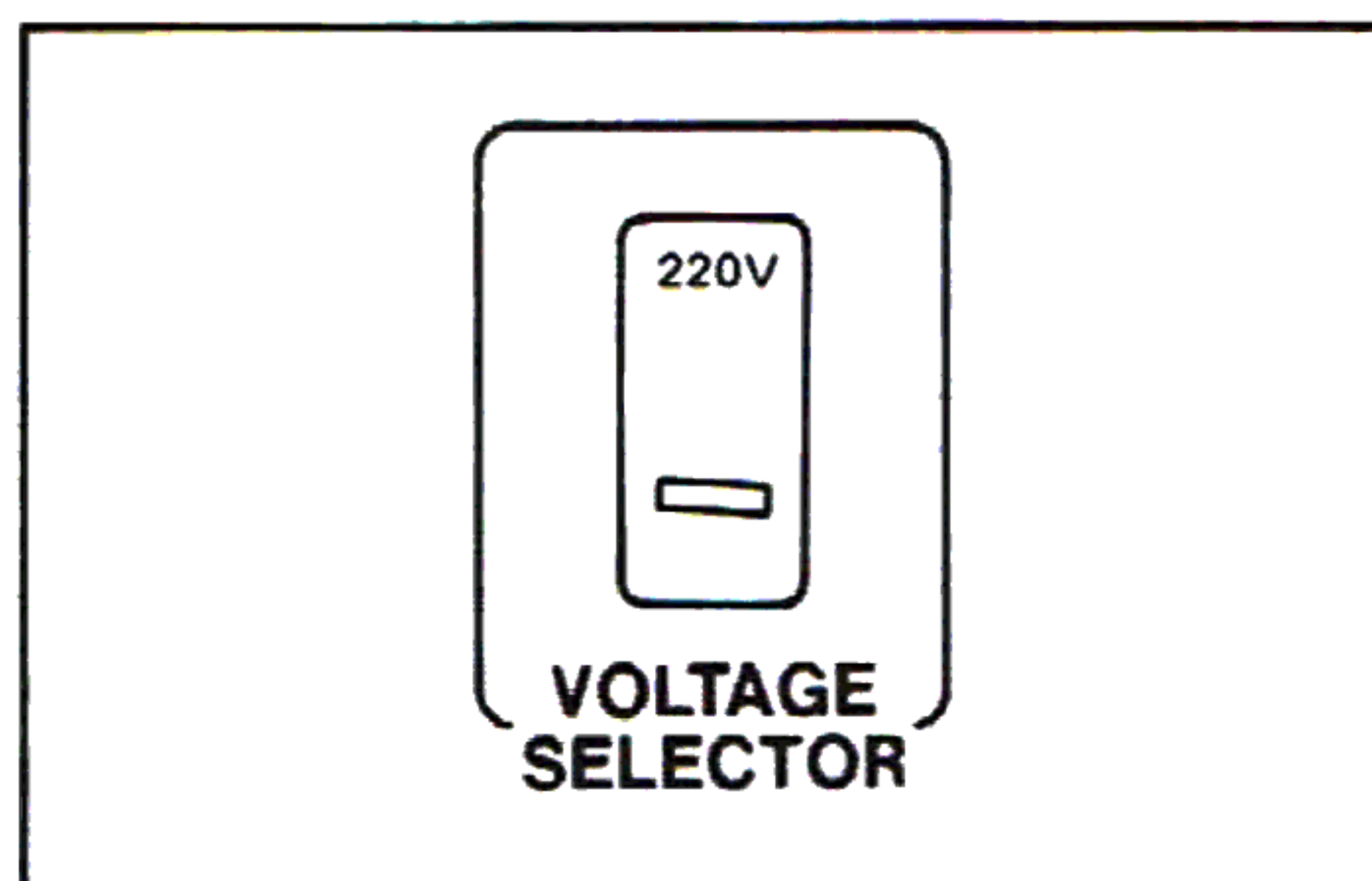
1. Parts identified by the **Δ** symbol parts are critical for safety.
Replace only with parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation. These must also be replaced only with specified replacements.
Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially:
 - 1) Wires covered with PVC tubing
 - 2) Double insulated wires
 - 3) High voltage leads
4. Use specified insulating materials for hazardous live parts. Note especially:
 - 1) Insulation Tape
 - 2) PVC tubing
 - 3) Spacers (Insulating Barriers)
 - 4) Insulation sheets for transistors
 - 5) Plastic screws for fixing microswitch (especially in turntable)
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).
7. Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locations.
9. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

VOLTAGE CONVERSION

Models for Canada, Europe, UK and Australia are not equipped with this facility. Each machine is preset at the factory according to destination, but some machines can be set to 110V – 120V or 220V – 240V, 120V or 230V as required. If your machine's voltage can be converted: Turn the voltage selector, located on the back panel, with a screwdriver until the correct voltage is indicated.



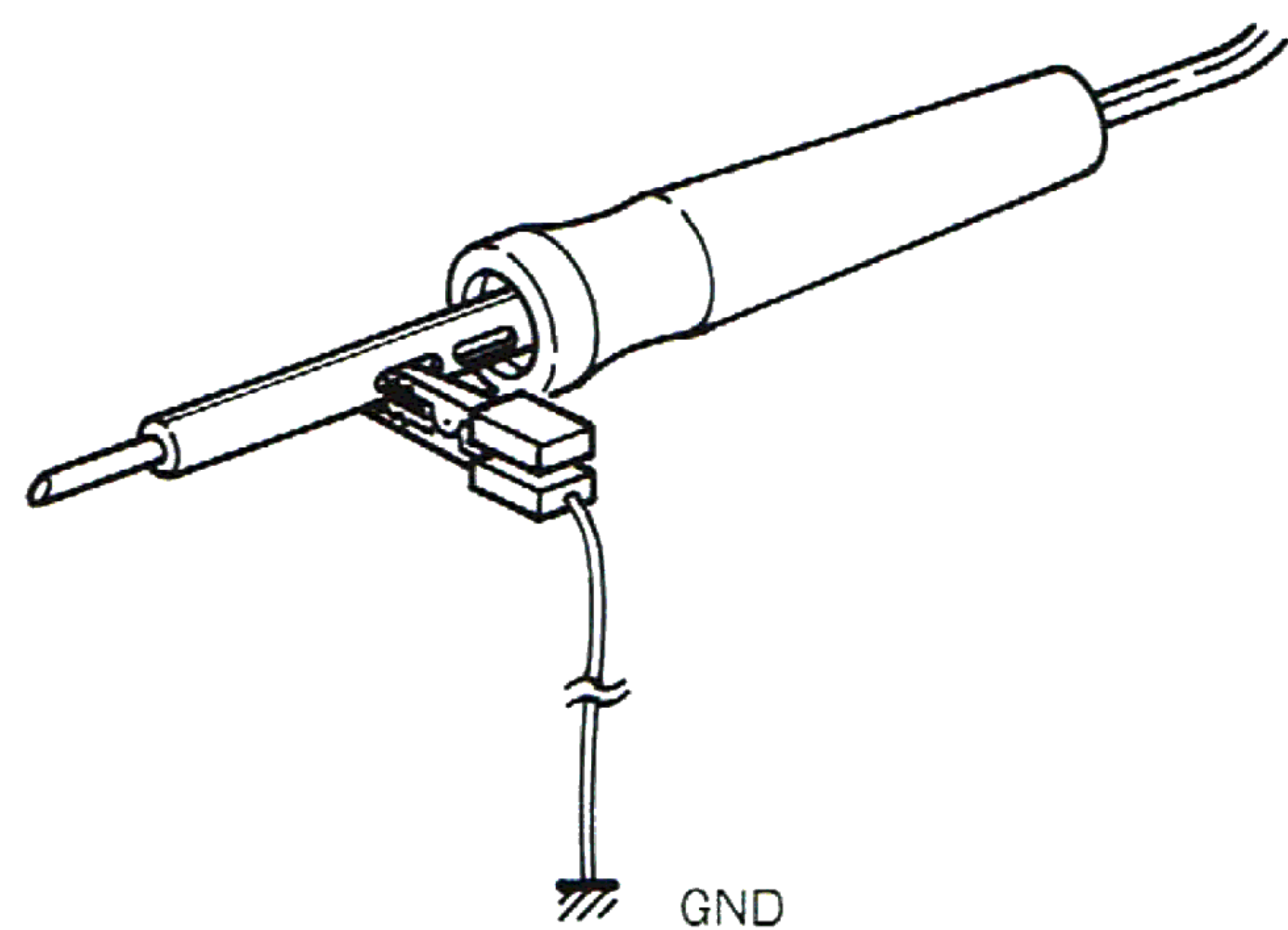
CYCLE CONVERSION

Cycle conversion is not necessary, since CD-A30 uses DC motors.

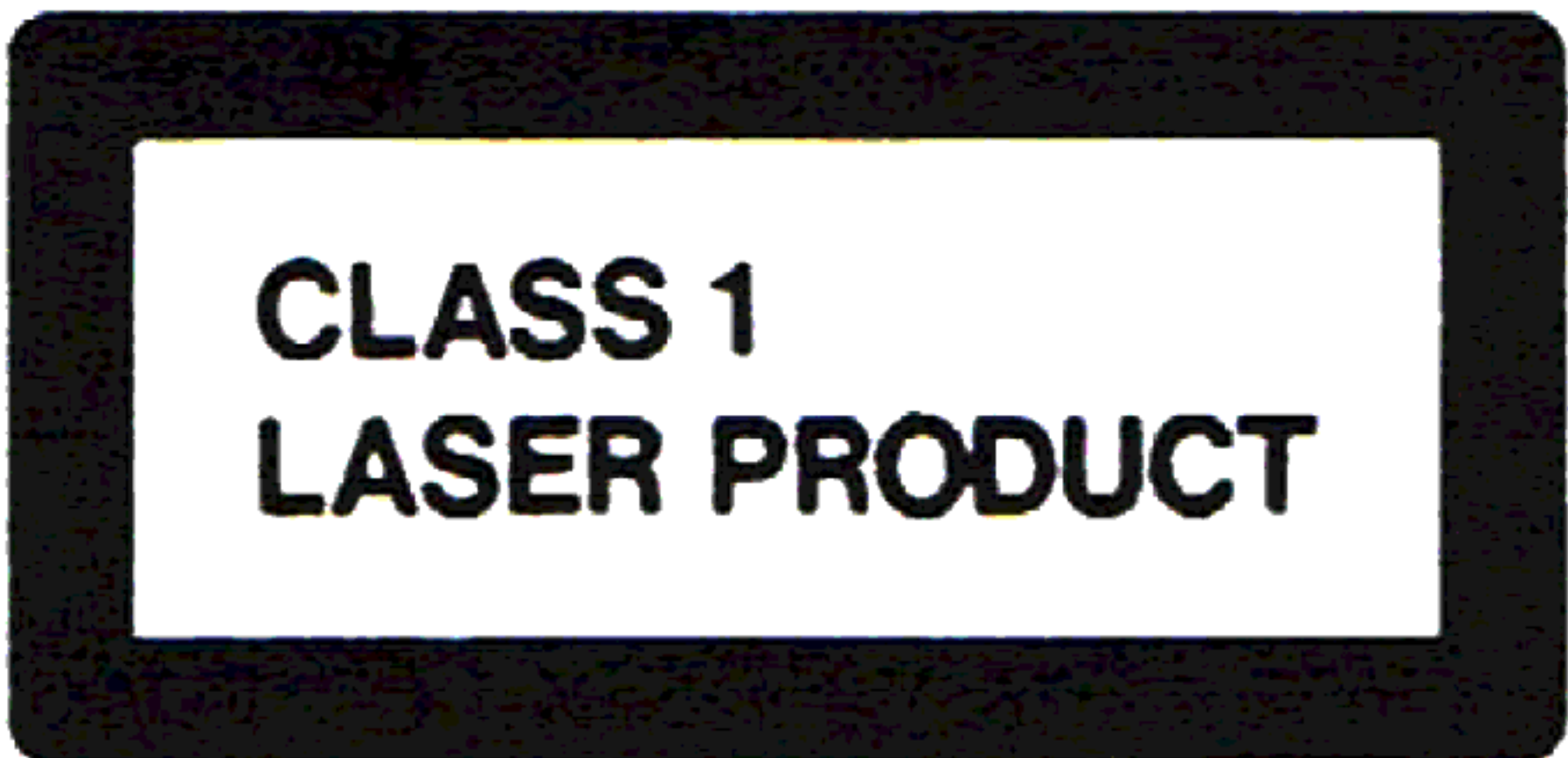
PRECAUTIONS IN REPAIRING

When repairing or adjusting the unit, please note the following points.

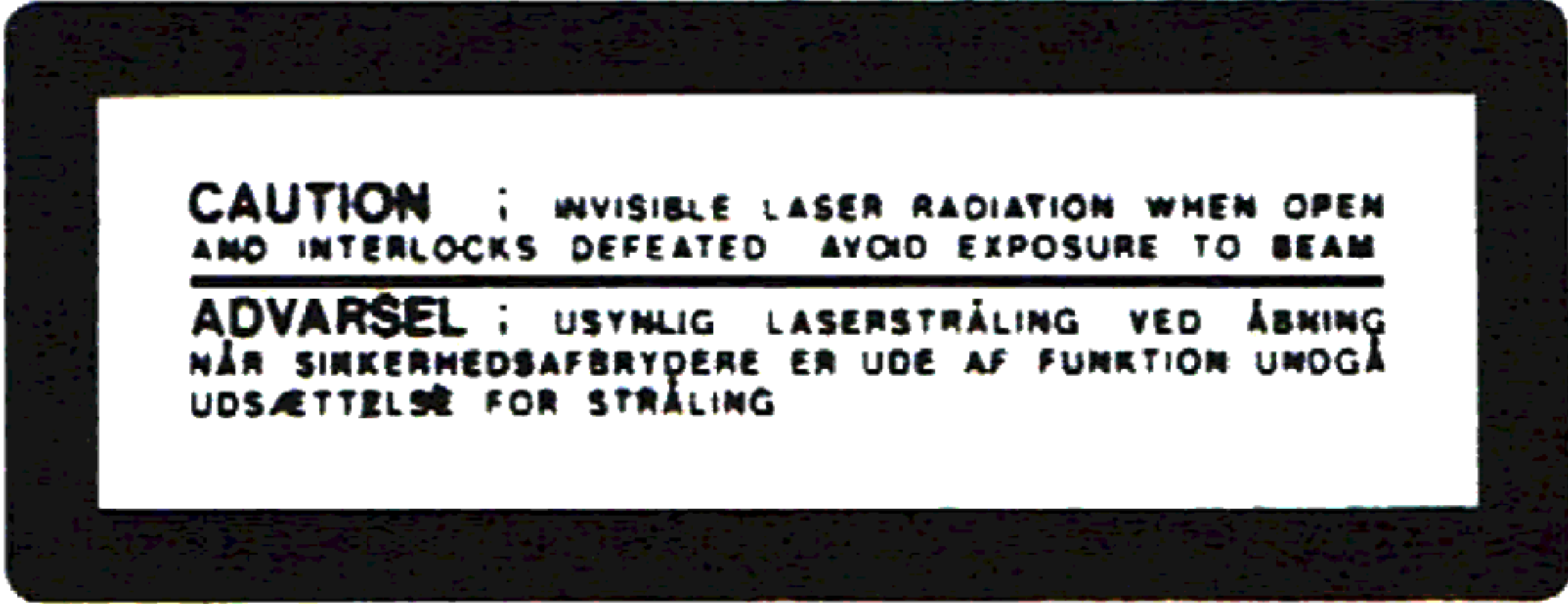
- 1. Do not put excessive pressure on the mechanical part (operation part), including the pick-up block, as extremely high mechanical precision is required in these parts.
- 2. When the base is removed for repair or adjustment, make sure that there are no metal objects in the narrow gap between the P.C. board or the mecha parts and the base.
- 3. The Micro-Computer (M50745-412SP) and the CD signal processing ICs (CX2018, CX2019, CX20133, CX23035 and CXK5816P-15L) can be damaged by static electricity or leakage from a soldering iron during repairing.
While soldering, please take the precautions against leakage as in the illustration.
- 4. Do not loosen any screws in the pick-up block.
When handling the pick-up block, please refer to the points to NOTE when replacing the pick-up block.
- 5. Keep safety for hazardous invisible Laser Radiation, DO NOT watch the Laser Beam (Objective Lens) directly.
- 6. Models for the same countries, Laser Warning Labels are affixed on the unit and inside of the unit, as shown below.
Read it carefully for your safety, when repairing or adjusting the unit.



[DENMARK]



A Label affixed on the unit

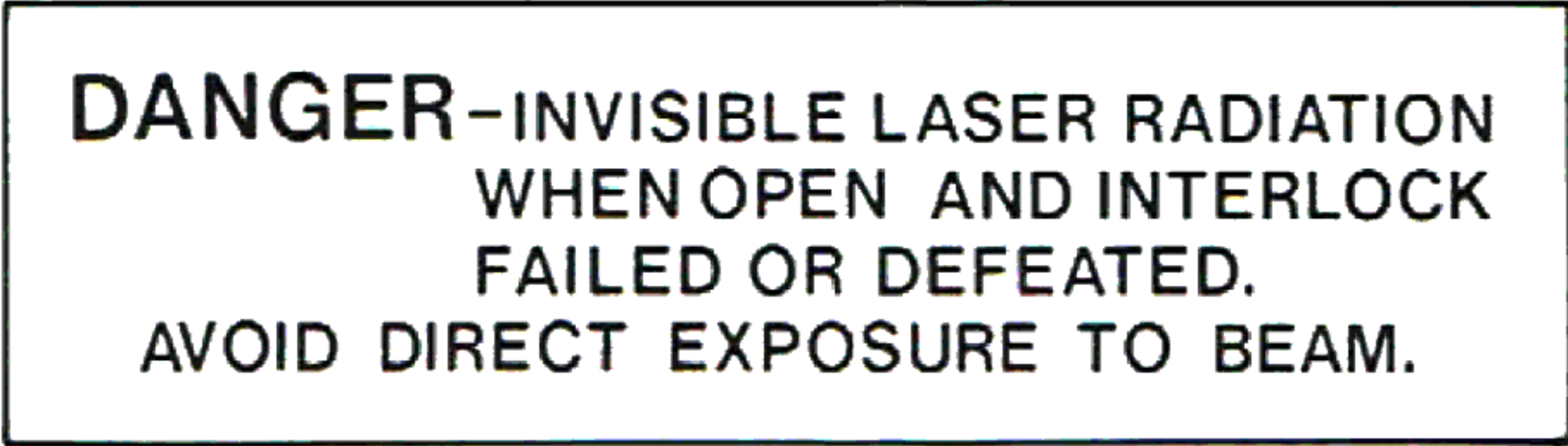


A1 A Label affixed inside of the unit

[USA]



A Label affixed on the unit



A1 A Label affixed inside of the unit

SECTION 1

SERVICE MANUAL

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I. SPECIFICATIONS

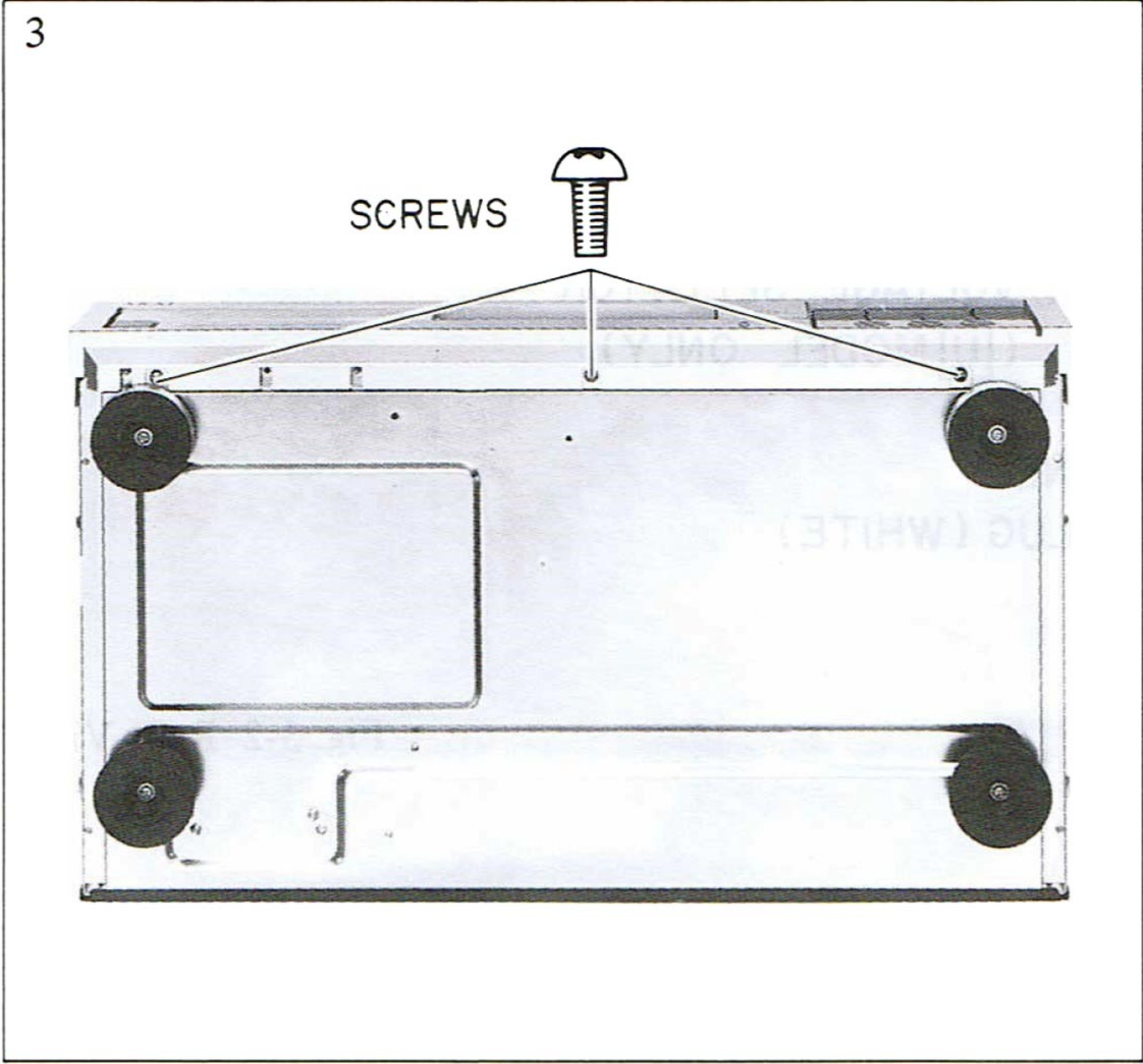
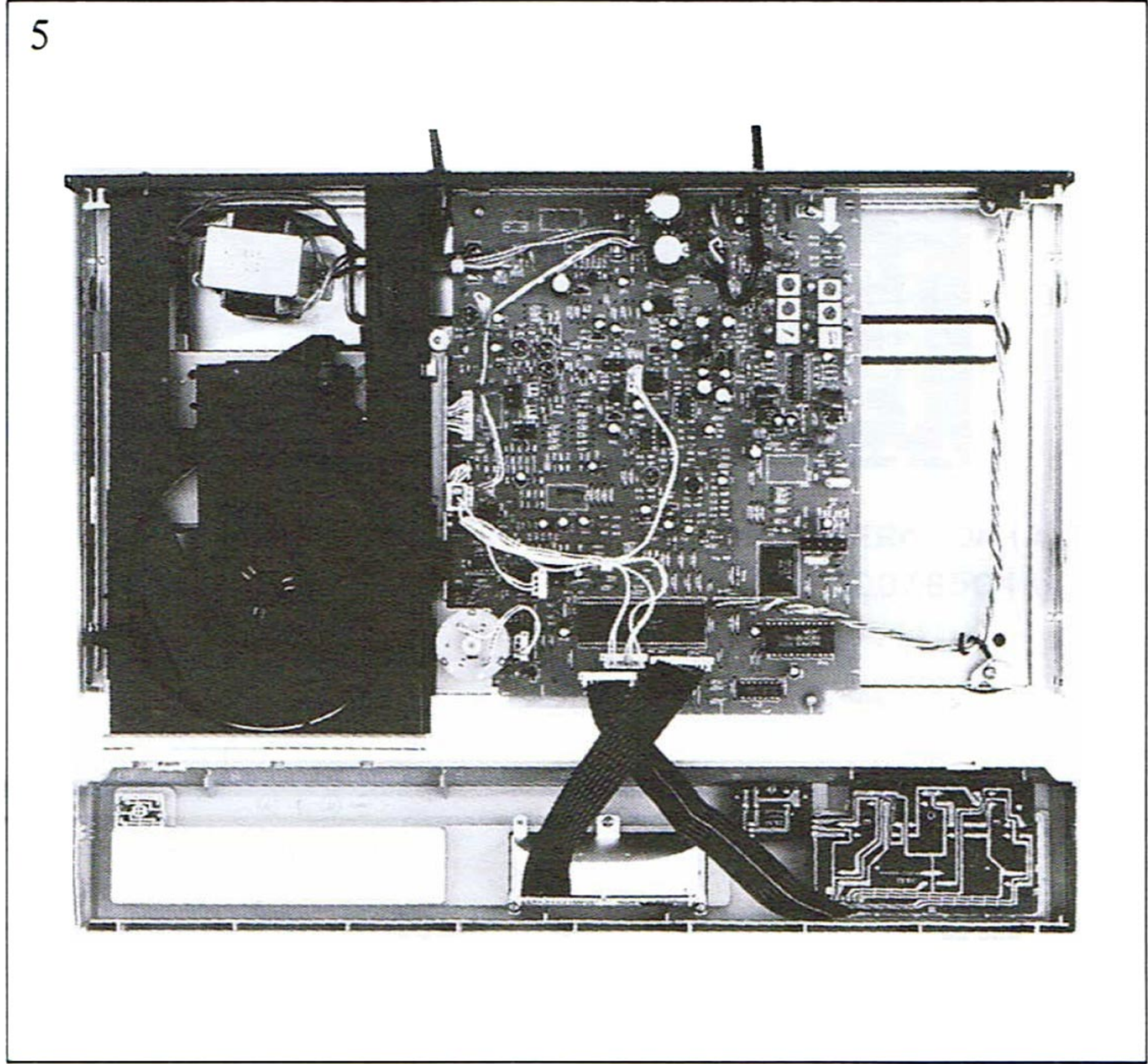
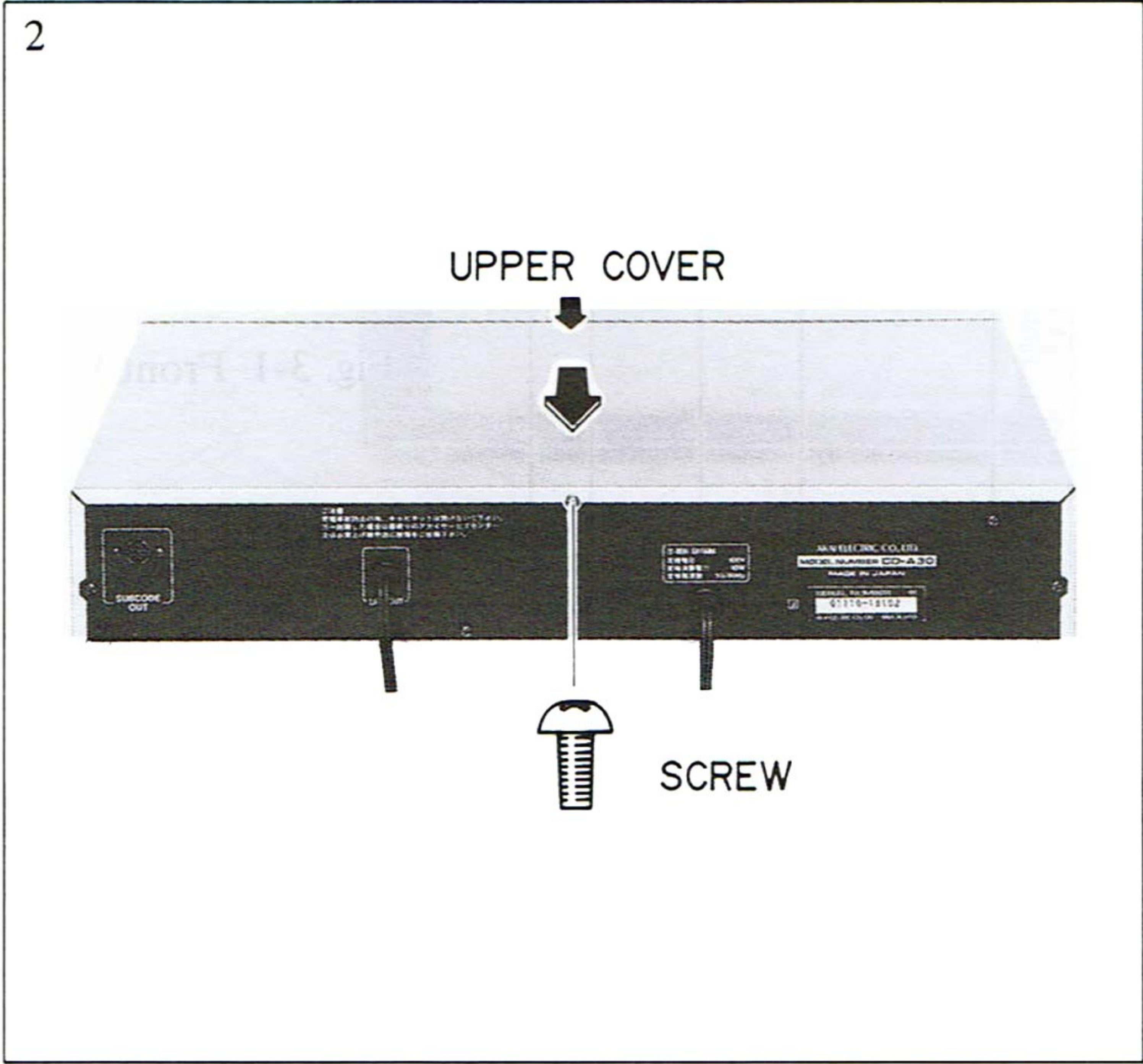
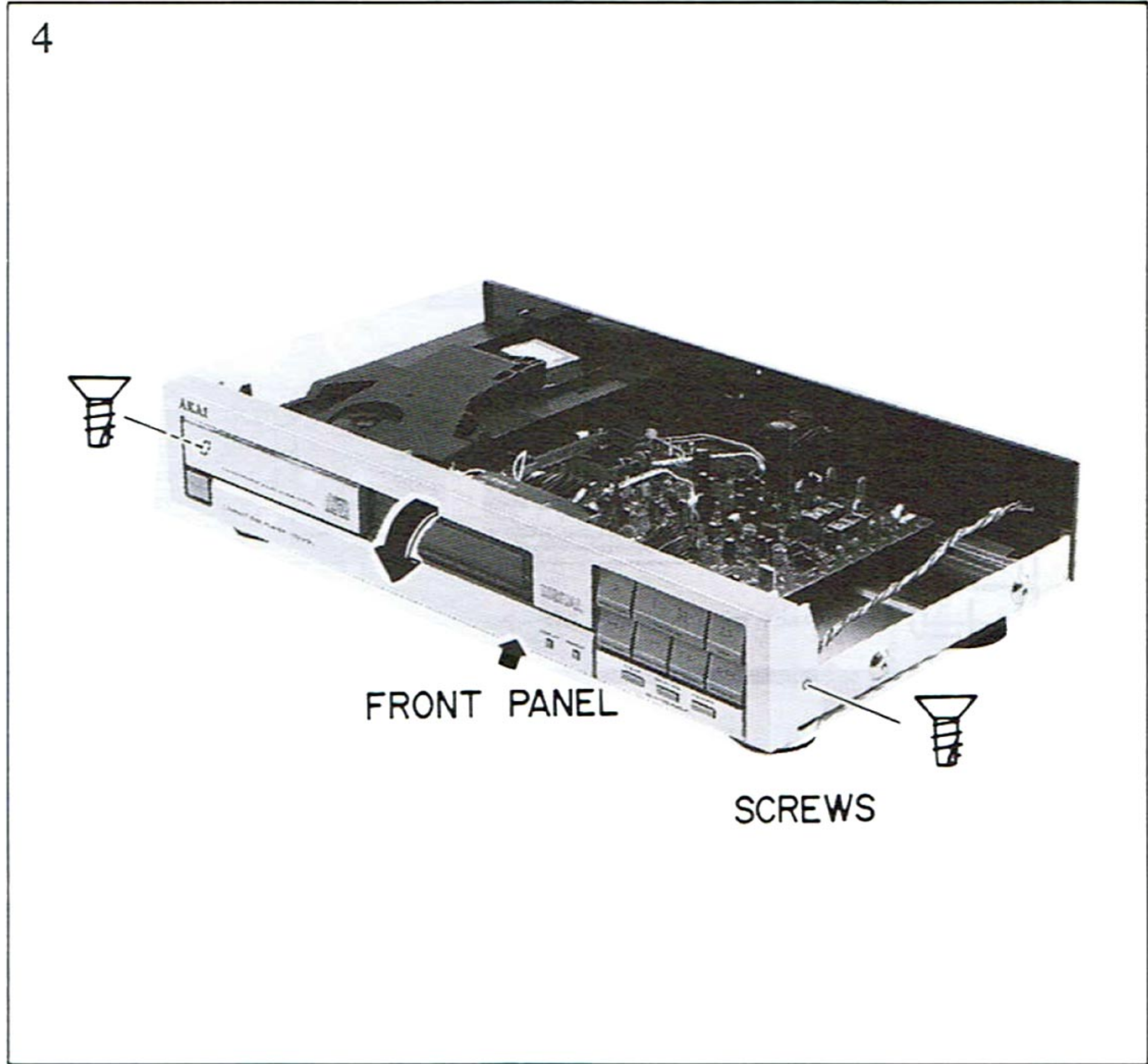
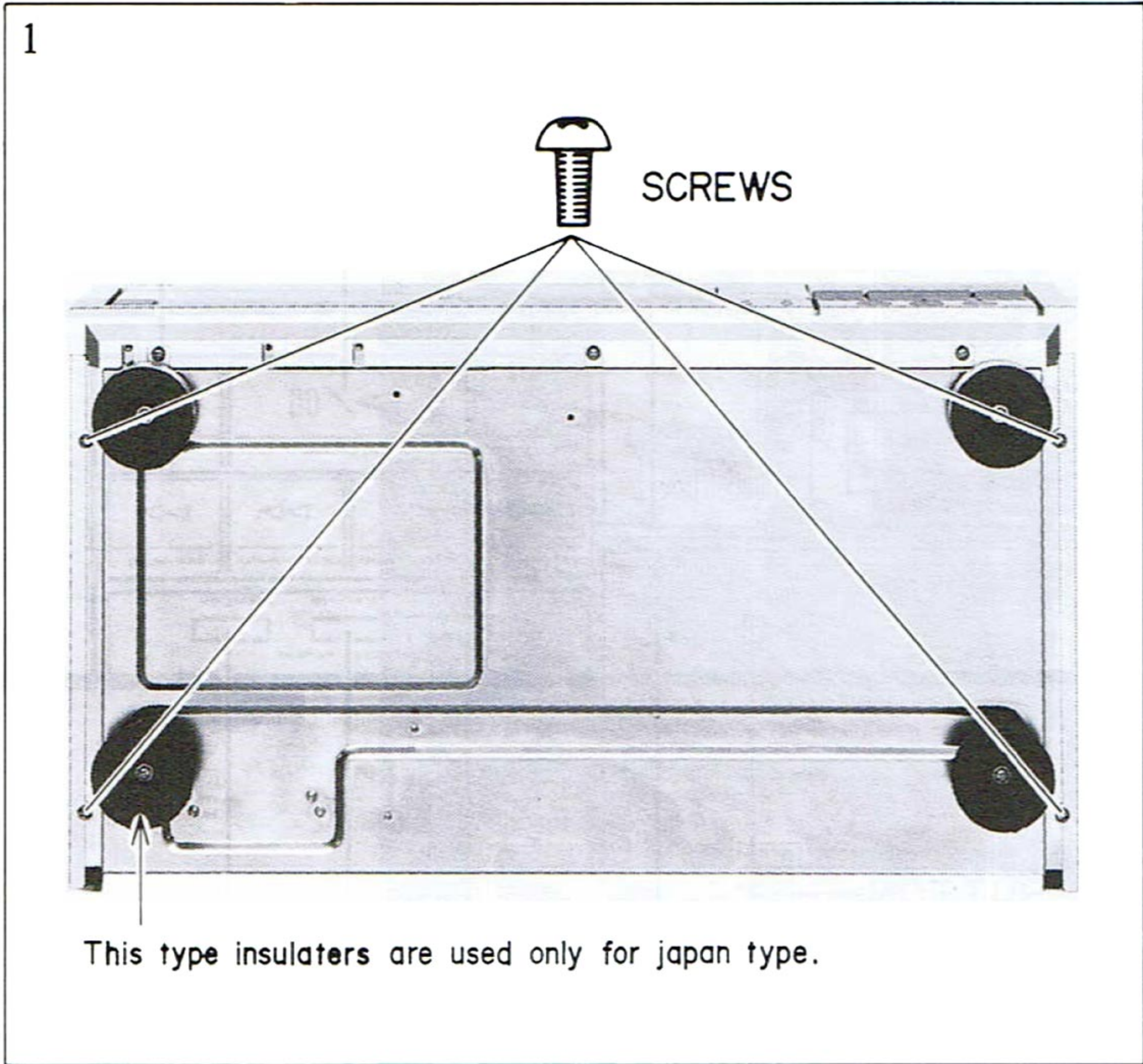
MODEL CD-A30

Sensor type	Optical
Pick-up system	3 beam semi-conductor laser
Channel	2
Sampling frequency	44.1 kHz
Frequency response	5 to 20,000 Hz
Dynamic range	90 dB
S/N ratio	90 dB
T.H.D.	0.006% (1 kHz)
Channel separation	86 dB (1 kHz)
Wow & flutter	Below measurable limits
Access time	2.6 sec
Line output level	2V
Power requirements	AC100V 50/60 Hz for Japan AC120V 50 Hz for USA & Canada AC220V 50 Hz for Europe except UK AC240V 50 Hz for UK & Australia AC110/120/220/240V, 50/60 Hz convertible for other countries
Power consumption	10W
Dimensions	440 (W) × 89 (H) × 260 (D) mm (17.3 × 3.5 × 10.2 inches)
Weight	3.5 kg (7.7 lbs)

*For improvement purposes, specifications and design are subject to change without notice.

II. DISMANTLING OF UNIT

In case of trouble, etc. necessitating dismantling, please dismantle in the order shown in the photographs.
Reassemble in reverse order.



NOTE: The unit used for picture is Japan type.

III. CONTROLS

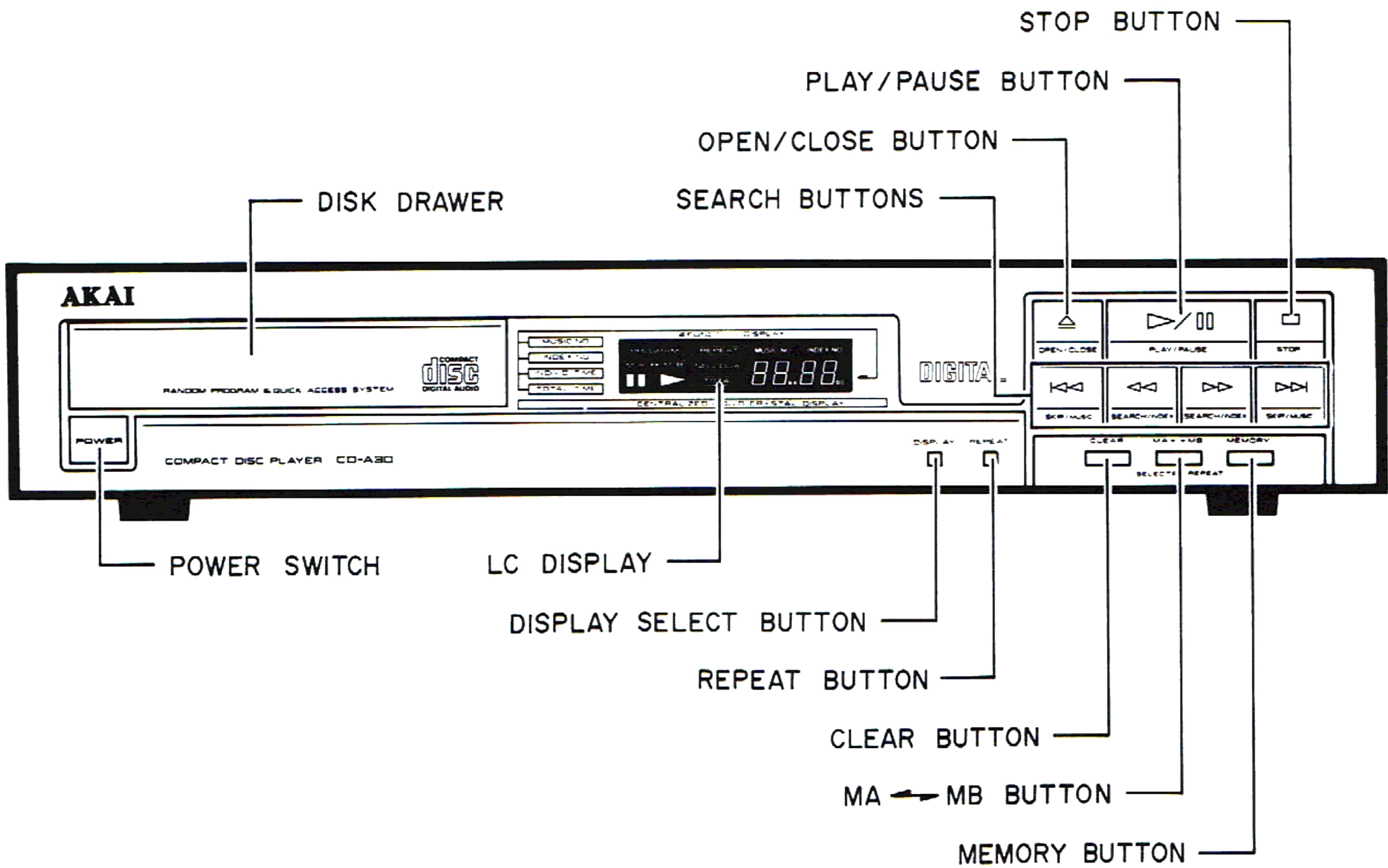


Fig. 3-1 Front View

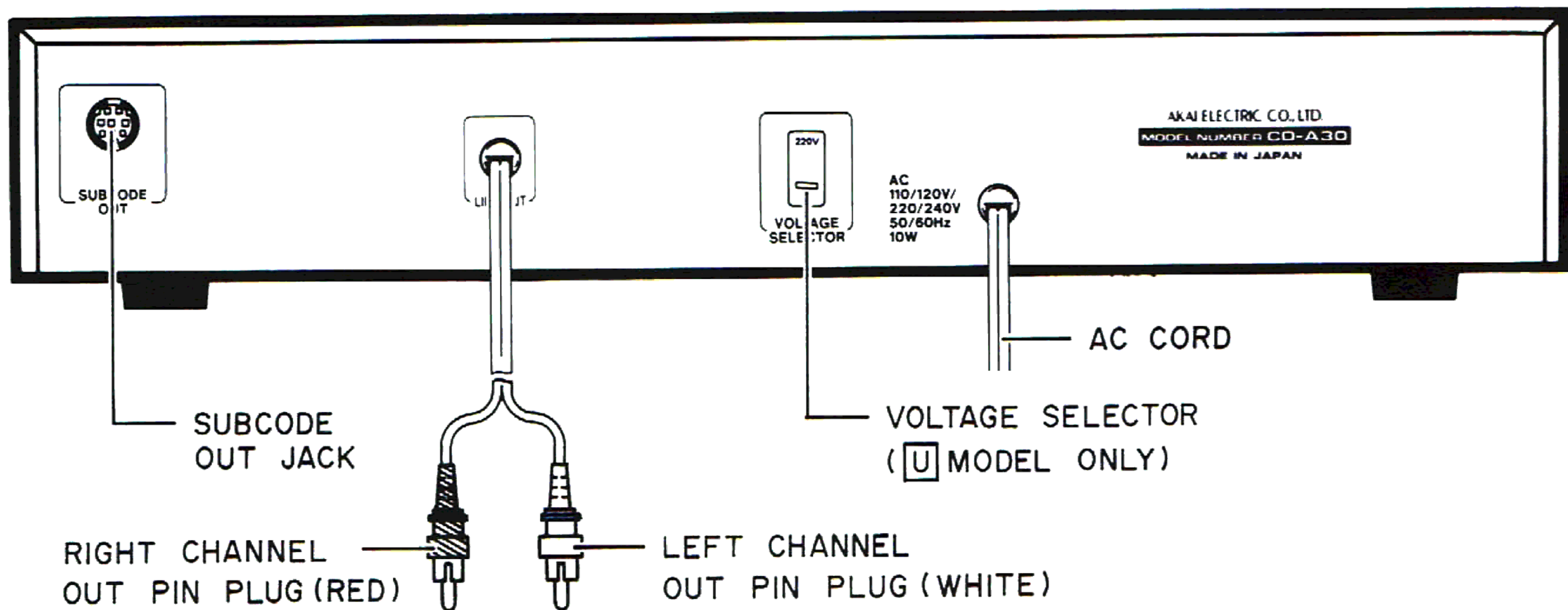


Fig. 3-2 Rear View

IV. PRINCIPAL PARTS LOCATION

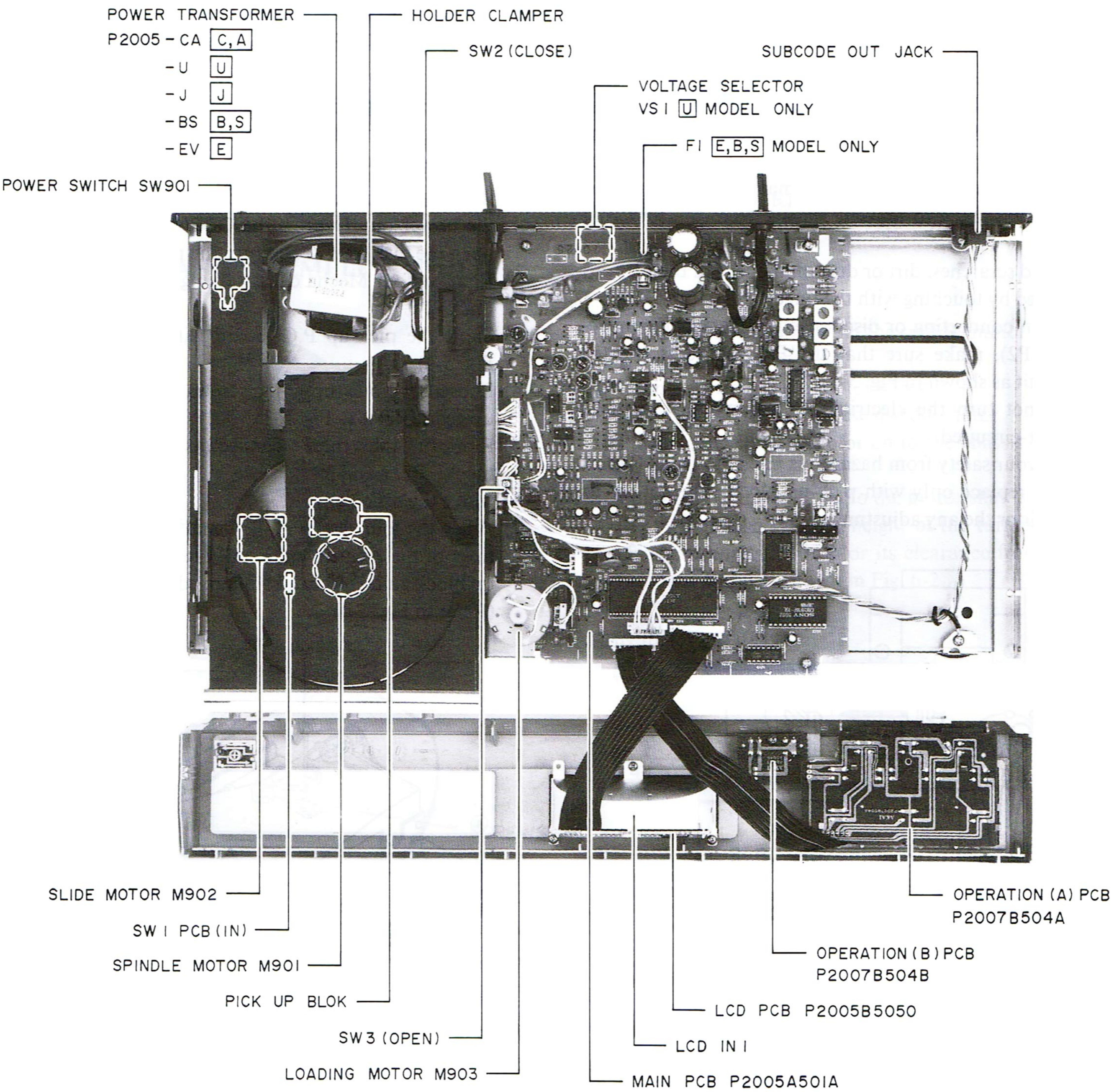


Fig. 4-1 Top View

V. REPLACEMENT OF THE PICK-UP BLOCK

5-1. PRECAUTIONS, WHEN REPLACING THE PICK-UP BLOCK

- 1) The LD (Laser Diode) fixed on the pick-up block P.C. board can be damaged by static electricity or leakage from a soldering iron. Do not touch the P.C. board of the pick-up block, or use a tester to check if the electricity is on. When soldering, make sure that precautions are taken to prevent leakage from the soldering iron.
- 2) Avoid scratches, dirt or dust on the lens of the pick-up caused by touching with the fingers.
- 3) When connecting or disconnecting the Black connector (P2), make sure that the P.C. board is shorted circuit as shown in Fig. 5-1. Do not turn the electricity "ON" while it remains short-circuited.
- 4) For your safety from hazardous invisible Laser Radiation, replace only with pick-up block. Do not try to repair or the any adjustment.

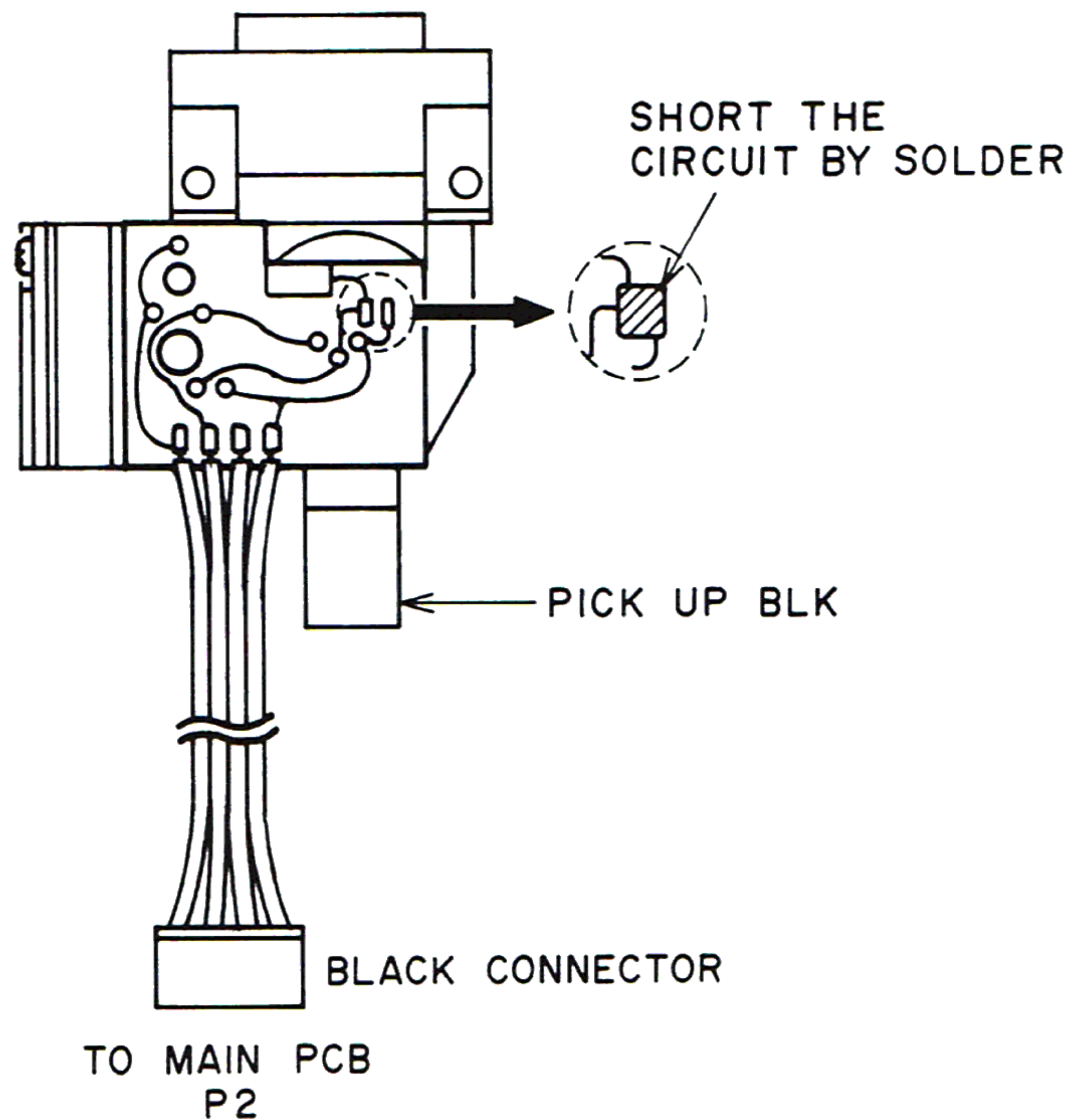


Fig. 5-1

5-2. PROCEDURES FOR CHANGING THE PICK-UP BLOCK

NOTE:
Keep your safety from hazardous invisible Laser Radiation, make sure that the power switch is OFF when removing the disk clamber.

- 1) Remove the upper cover and the front panel and turn the power on. Depress the OPEN/CLOSE button to open the disk tray. Then turn the power off.
- 2) Remove four Mecha chassis fixing screws A. (Refer to Fig. 5-2)
- 3) Short the pick-up P.C. board with solder. (Refer to Fig. 5-1)
- 4) Loosen two pick-up fixing screws B, remove the pick-up gear. (Refer to Fig. 5-3)
- 5) Remove the three connectors on the pick-up block: P1, 2 and 3.
- 6) Move the disk clamber.
- 7) When the four screws A, B, C and D, for the metal fittings of the pick-up guide rail are removed, the pick-up block guide rail can be removed. (Refer to Fig. 5-4)

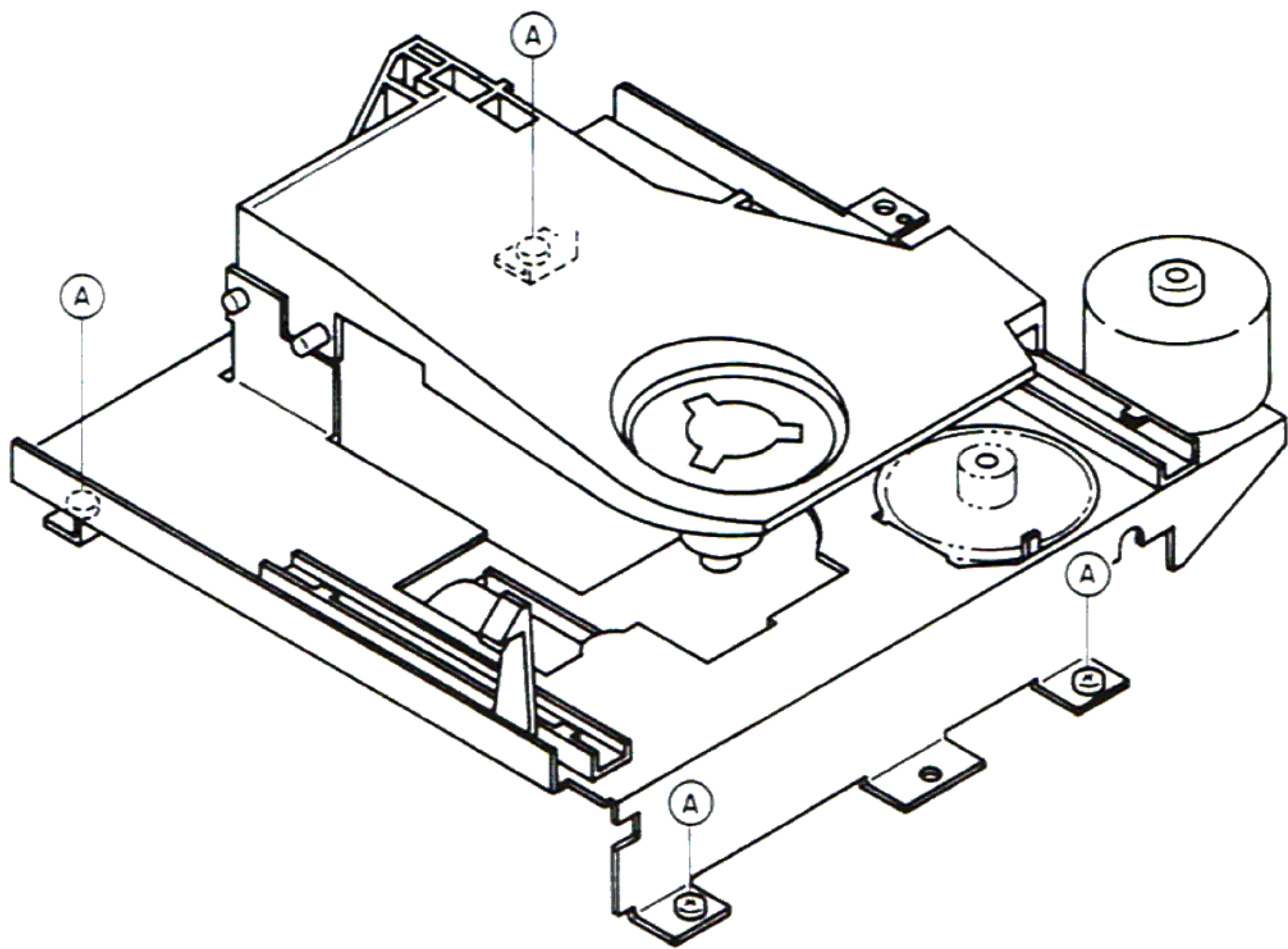


Fig. 5-2

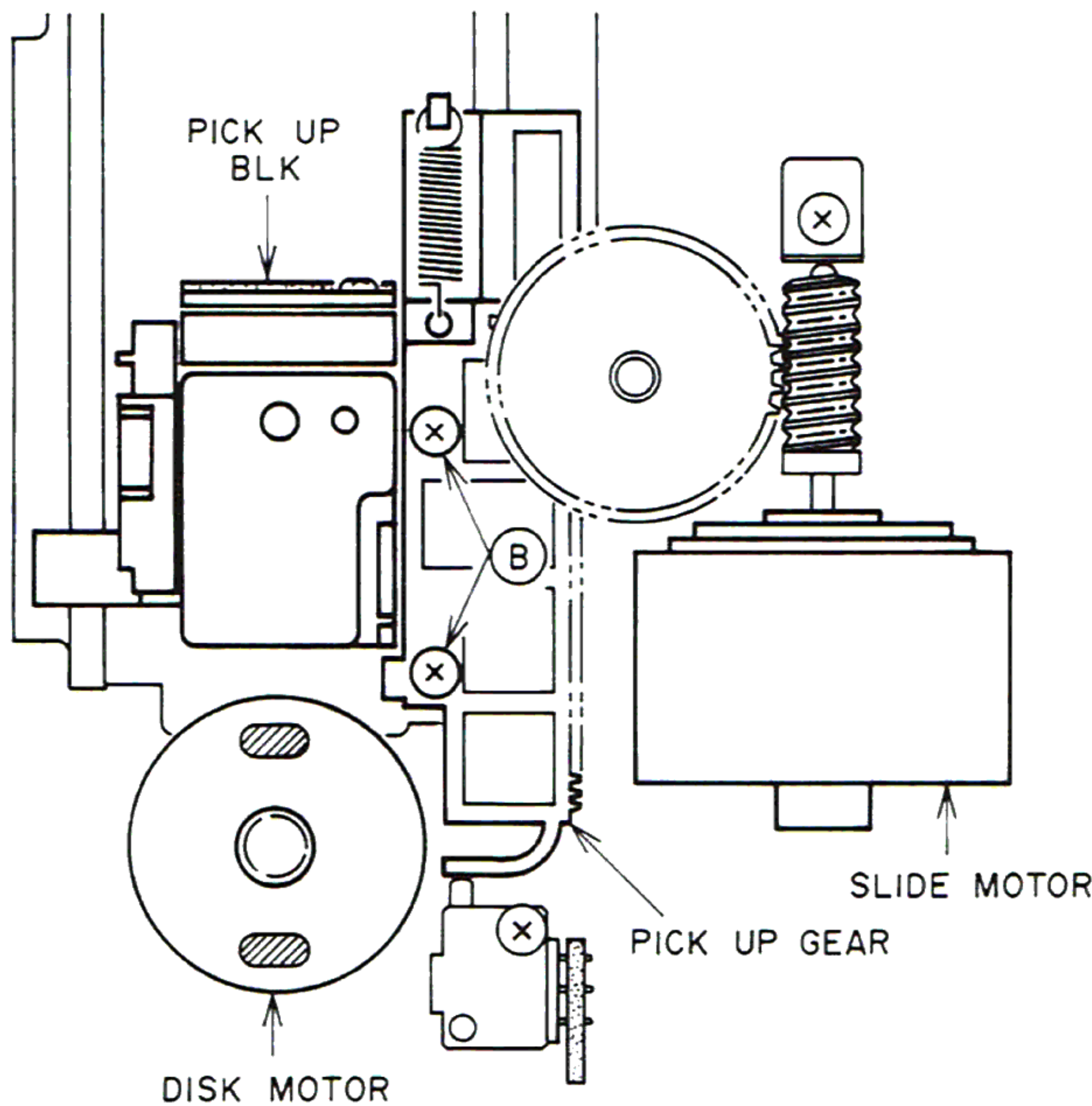


Fig. 5-3

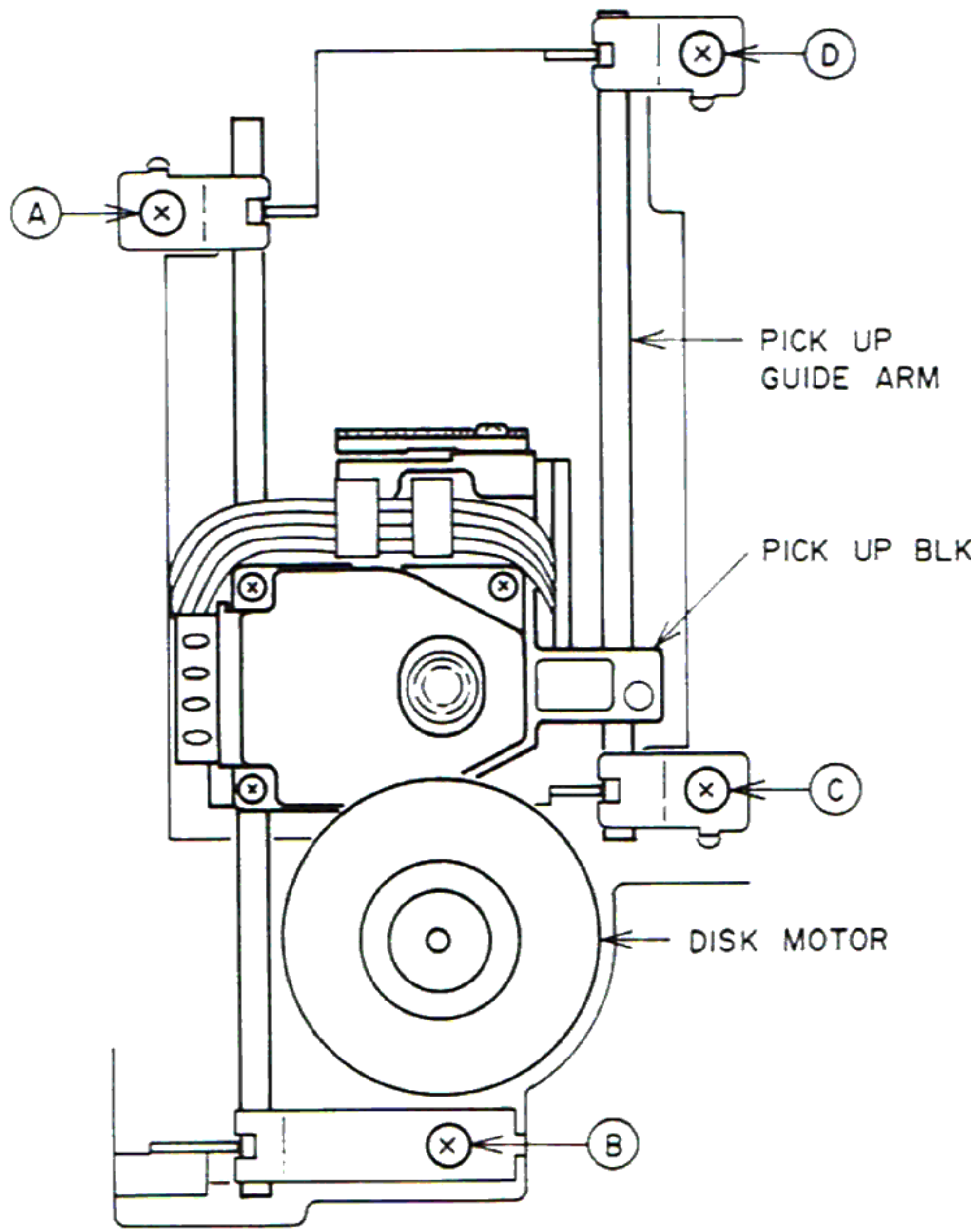


Fig. 5-4

VI. REPLACEMENT OF SPINDLE MOTOR

The turntable of the spindle motor has been pressed-in and they can not be replaced individually. When replacing the turntable or the spindle motor, replace the following parts as a set.

PARTS NO.	DESCRIPTION
BM-361225	MOTOR (SPINDLE)
MZ-362964	TURNTABLE
ZS-624870	HEXAGON SET SCREW

6-1. REMOVE AND ASSEMBLE SPINDLE MOTOR

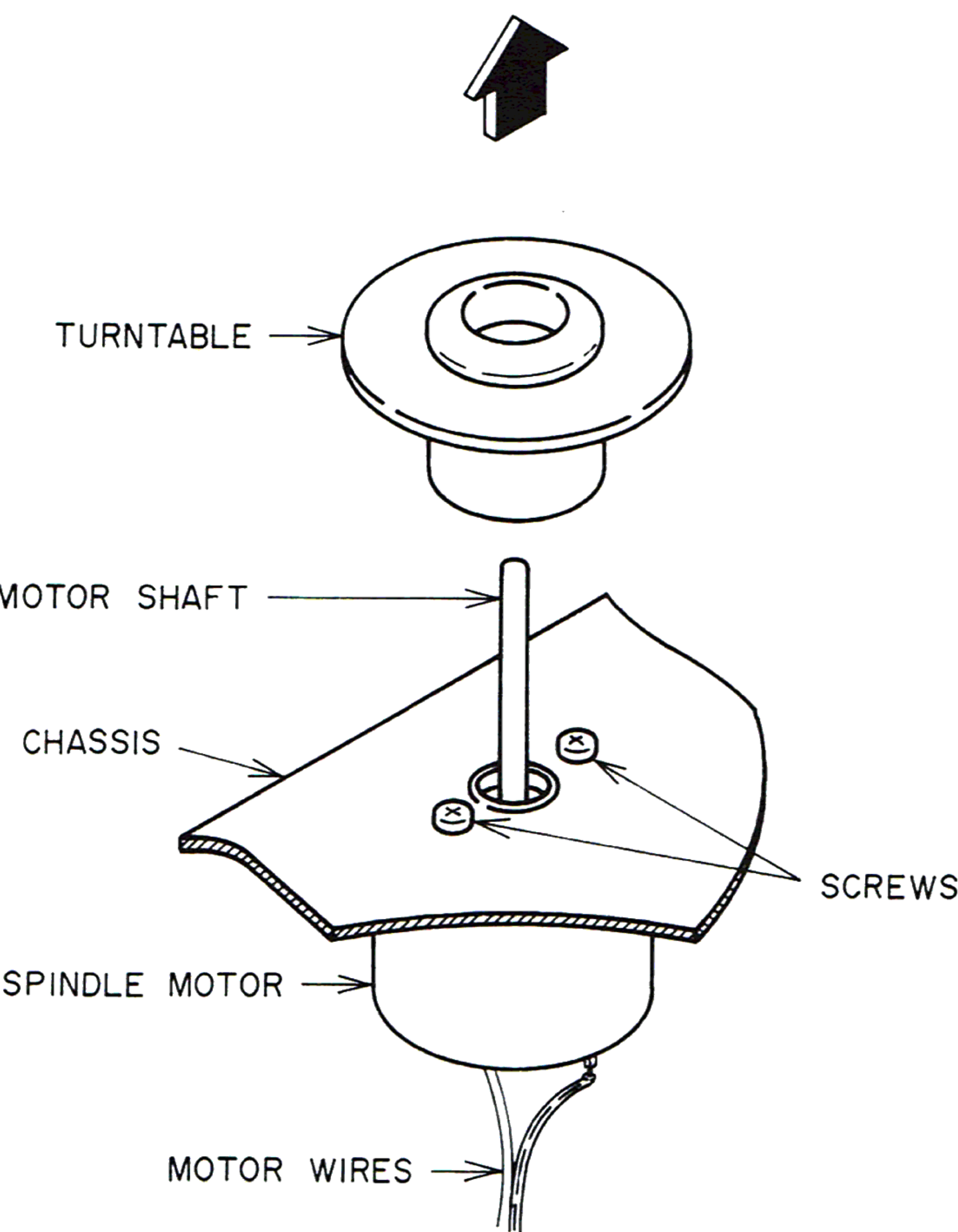


Fig. 6-1

- 1) Pull out the turntable from the spindle motor.
- 2) Remove two screws.
- 3) Unsolder two spindle motor wires.
- 4) Solder two wires to the new spindle motor.
- 5) Put the new spindle motor on to the chassis with two screws.
- 6) Put the new turntable on to the motor shaft and adjust the turntable so that the height of the turntable from chassis becomes 20 mm or its clearance from chassis becomes 4 mm as shown in Fig. 6-2.

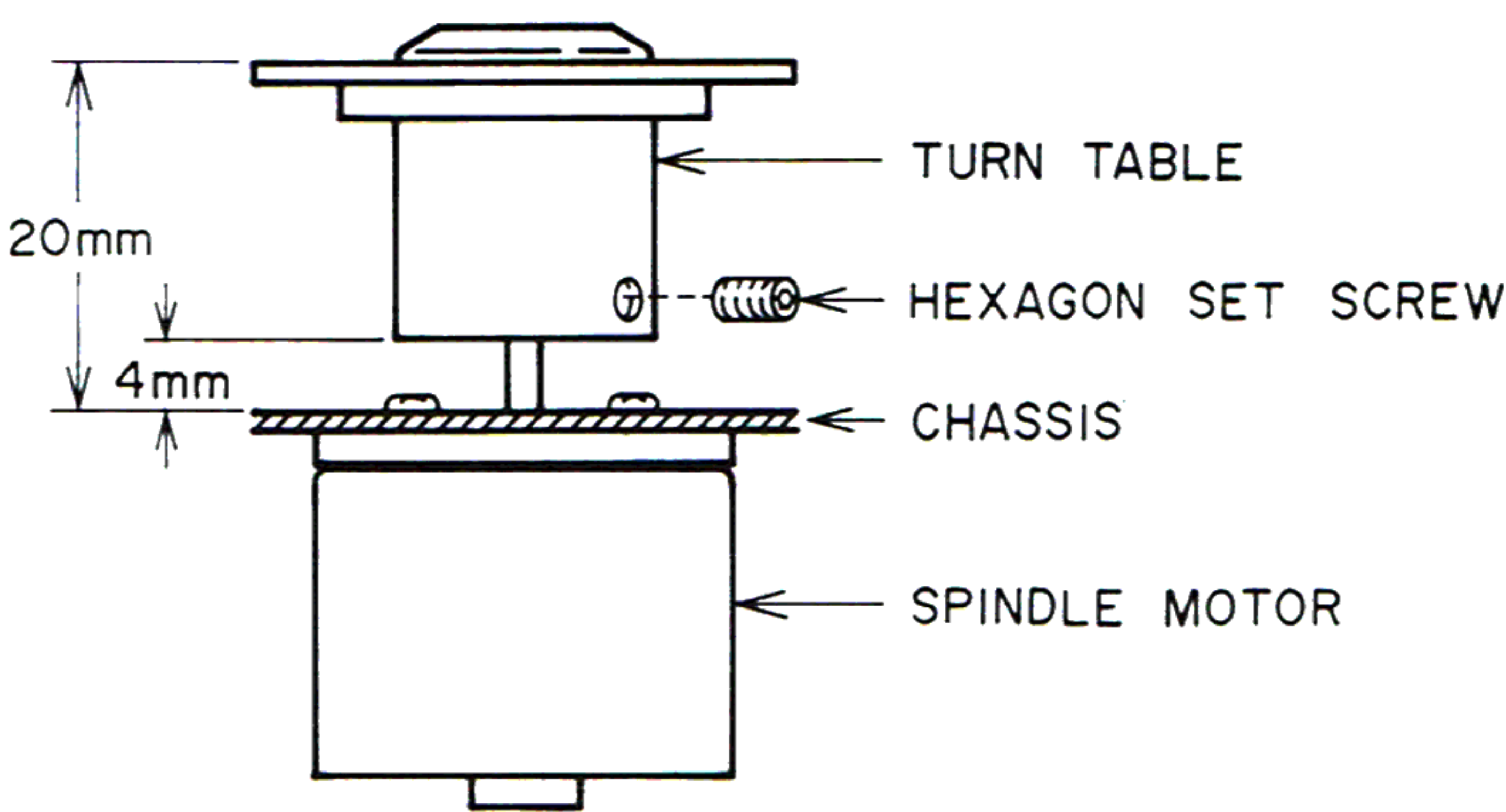


Fig. 6-2

VII. ADJUSTMENT

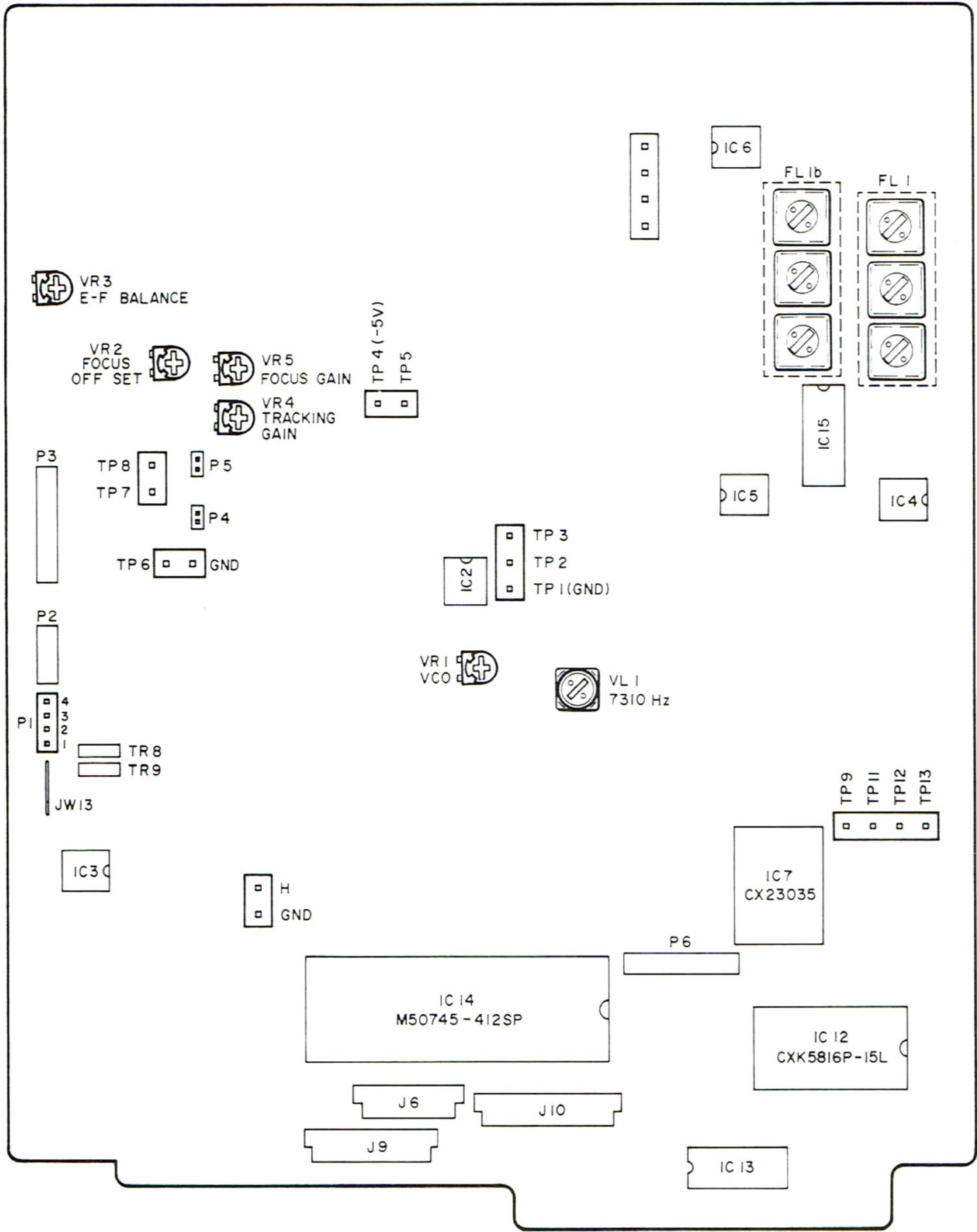


Fig. 7-1

7-1. ADJUSTMENT WHEN CHANGING THE PICK-UP

Change the pick-up, following the procedures in the V. REPLACEMENT OF THE PICK-UP BLOCK and when replacement is complete, turn the short terminal of the LD (Laser Diode) to open.

7-1-1. OPTICAL AXIS ADJUSTMENT

If the mechanical eccentricity is large when fixing the pick-up tracking errors become large. This in turn interferes with the tracking servo, so optical axis adjustment is necessary.

- 1) Disconnect P4 on the Main P.C. board (to turn the tracking servo off).
- 2) Connect an oscilloscope to TP7 on the Main P.C. board.
- 3) Place the normal music disc, then play back the first music on it and observe the waveform of TP7.
- 4) Turn the adjustment screw A by degrees (Refer to Fig. 7-2) as waveform (Refer to Fig. 7-3) of TP7 will become maximum.

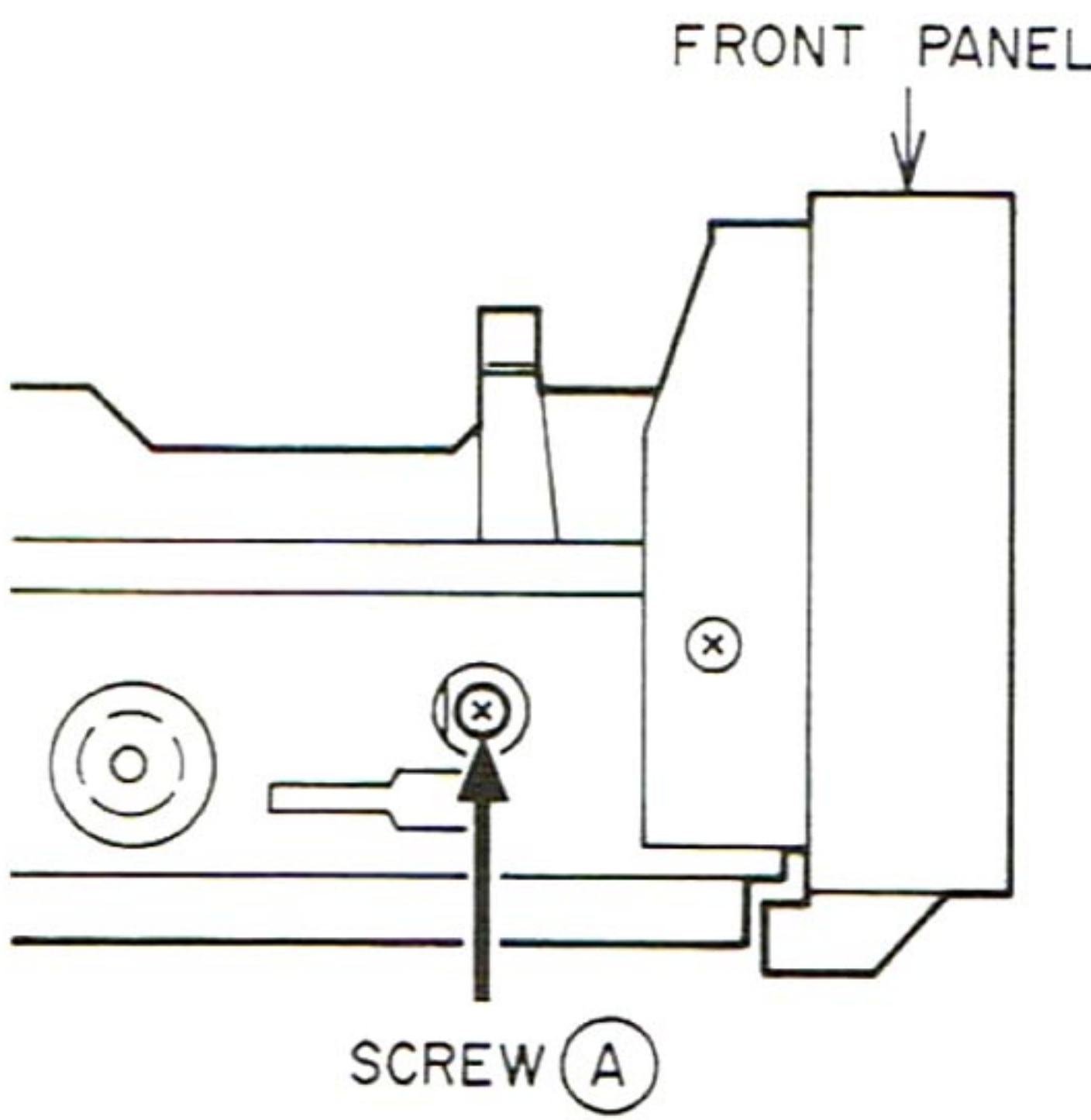


Fig. 7-2

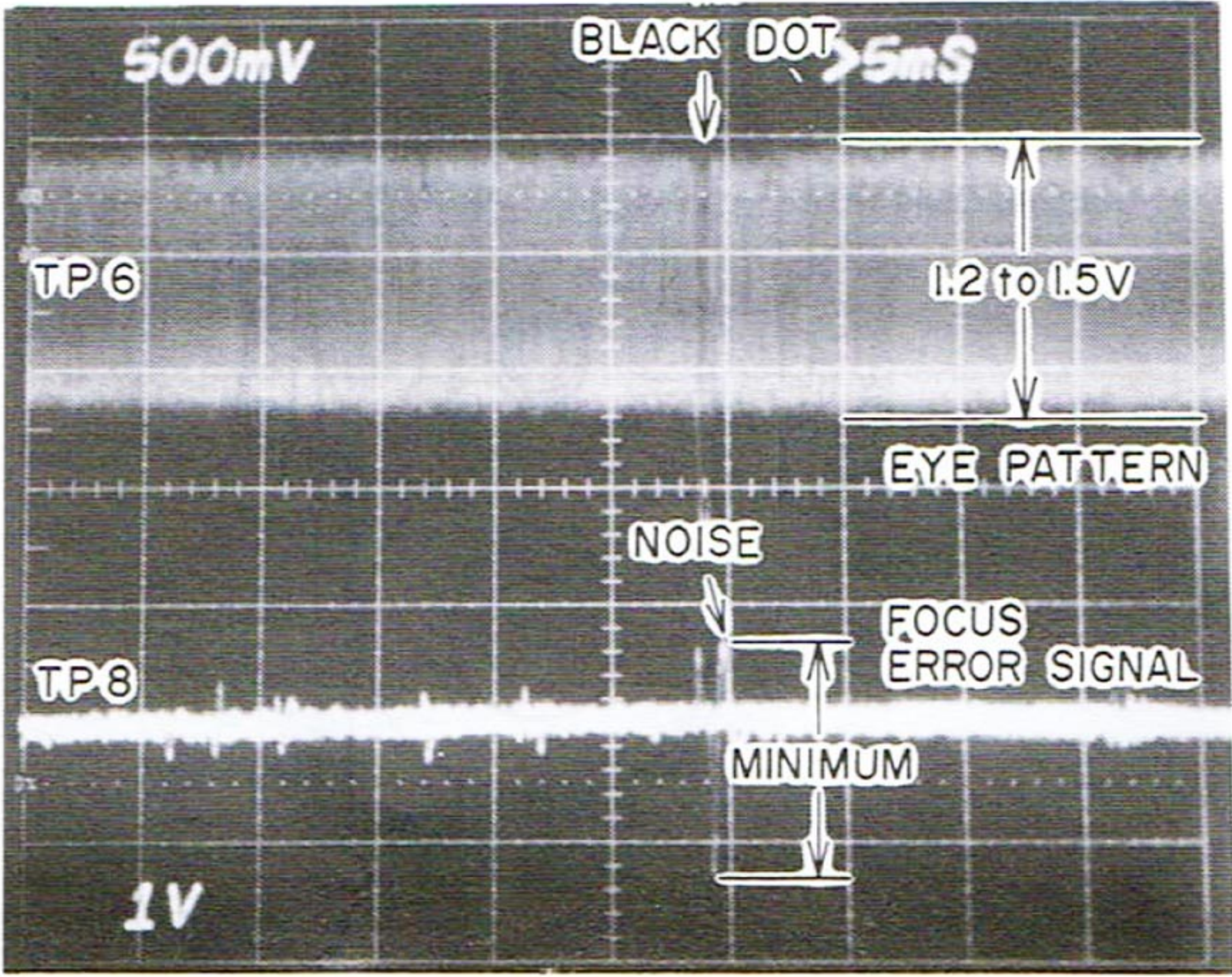


Fig. 7-3

* When it is difficult to observe maximum point of the waveform, use the following rectifier circuit as shown in Fig. 7-4.
Observe a change in DC voltage through above rectifier with oscilloscope and adjust the optical axis so that the DC voltage reading become maximum.

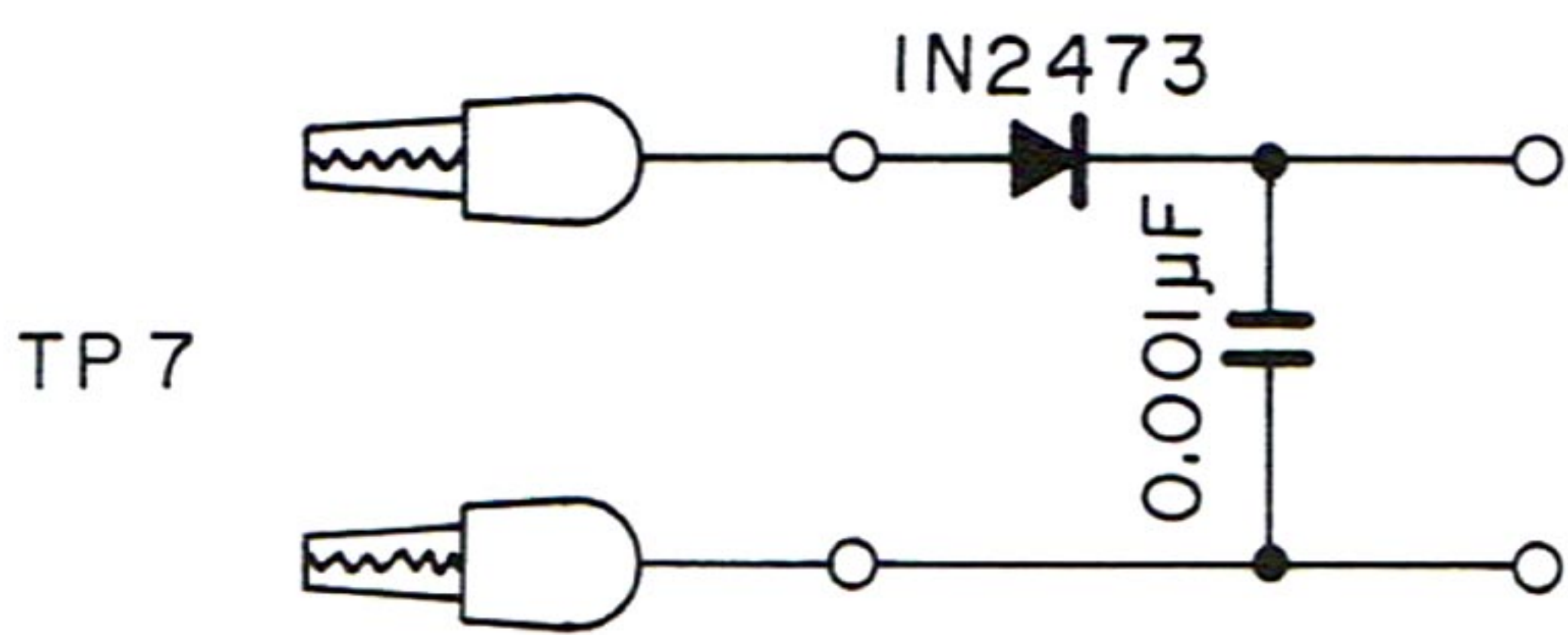


Fig. 7-4

7-1-2. READJUSTMENT OF E-F BALANCE
When the pick-up is changed, E-F balance adjustment must be performed.
Refer to item 7-2-4 for adjustment.

7-1-3. CHECKING THE ELECTRIC CURRENT OF THE LASER
The electric current of the laser is indicated on the labels on the pick-up.

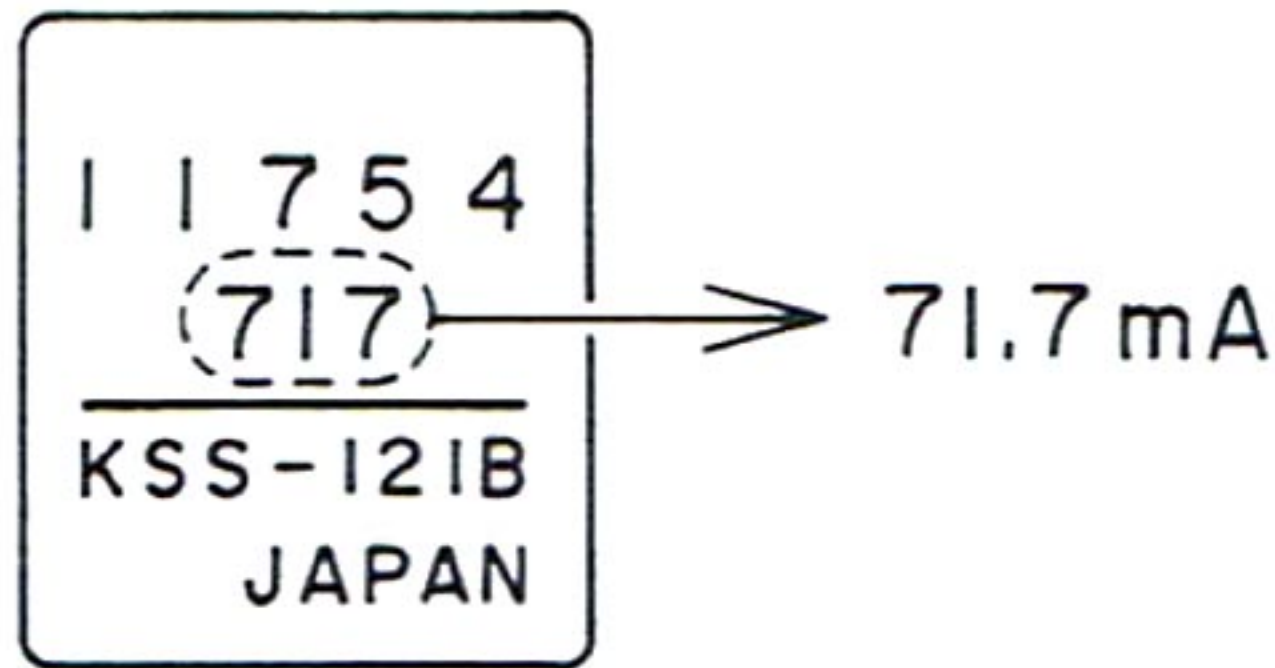


Fig. 7-5

1) Connect the millivoltmeter between TP4 and TP5 on the Main P.C. board and measure the voltage.

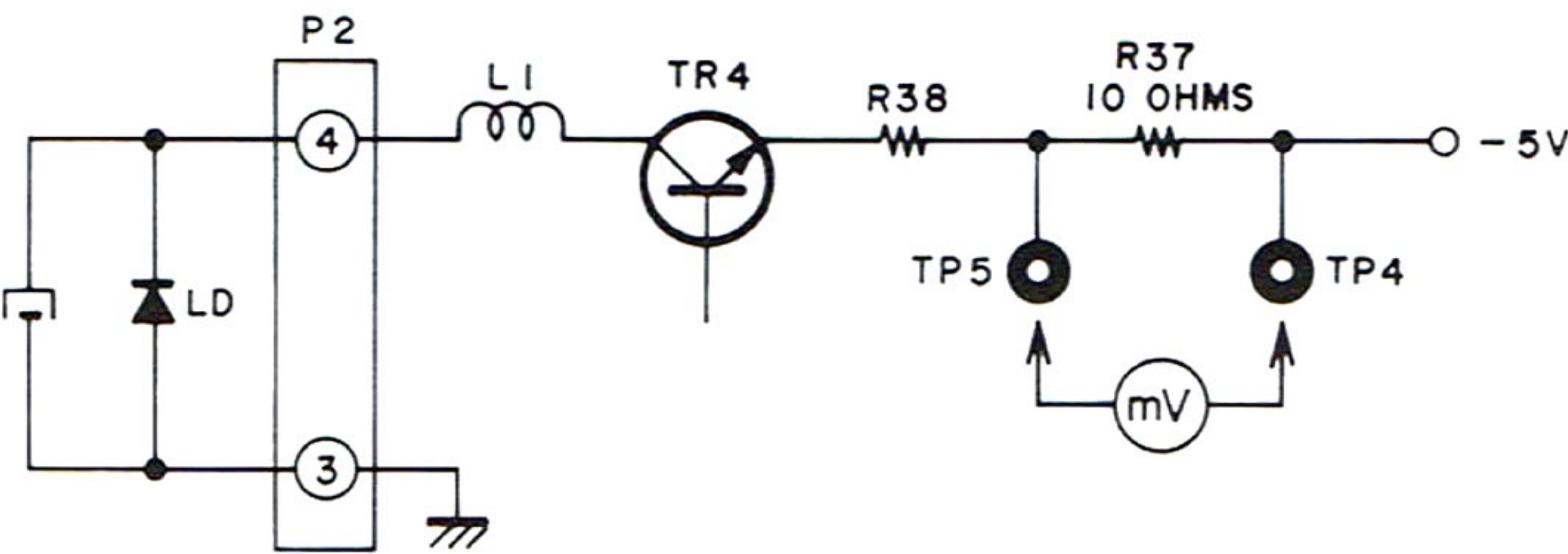


Fig. 7-6

2) Calculate the electric current of the laser from the voltage measured and check that is within ± 4 mA of the recommended value.
Electric current of the laser = Voltage measured $\div$ 10.

If the electric current of the laser exceeds ± 4 mA of the recommended value, change the pick-up again.

7-1-4. APC (AUTOMATIC POWER CONTROL) CIRCUITRY
This is a servo circuit to maintain the LD (Laser Diode) power of the pick-up. The LD power has been adjusted by VR1 (on the pick-up block) at manufacture.

Keep safety from hazardous invisible Laser Radiation, do not touch this VR1.

7-2. SERVO ADJUSTMENT

Servo adjustment is an adjustment to the control circuitry for accurate and safe disc play back. When adjusting use a SONY TYPE 3 (No. YEDS 7) or PHILIPS (No. 410056-2 or 400079-2) as a test disc.

7-2-1. VCO FREQUENCY ADJUSTMENT

- 1) Connect a short wire between TP2 and TP1 (GND).
- 2) Connect a frequency counter to TP9.
- 3) Adjust VL1 so that the frequency is $7,310 \pm 10$ Hz.

7-2-2. VCO ADJUSTMENT

- 1) Connect an oscilloscope to TP12 on the Main P.C. board.
- 2) Insert the SONY TEST DISC TYPE-3, then depress the OPEN/CLOSE button to close the disc tray.
- 3) The total music number selections on the test disc will be displayed on the LC display.
- 4) Play back the test disc and adjust VR1 so that the error flags are at minimum.



Fig. 7-7

7-2-3. FOCUS OFF-SET ADJUSTMENT

- 1) Connect the oscilloscope to TP6 and TP8 on the Main P.C. board.
TP6 Eye pattern waveform
TP8 Focus error signal
- 2) Play back the Track No. 17 of PHILIPS TEST DISC and adjust the VR2 so that the noise is at minimum.

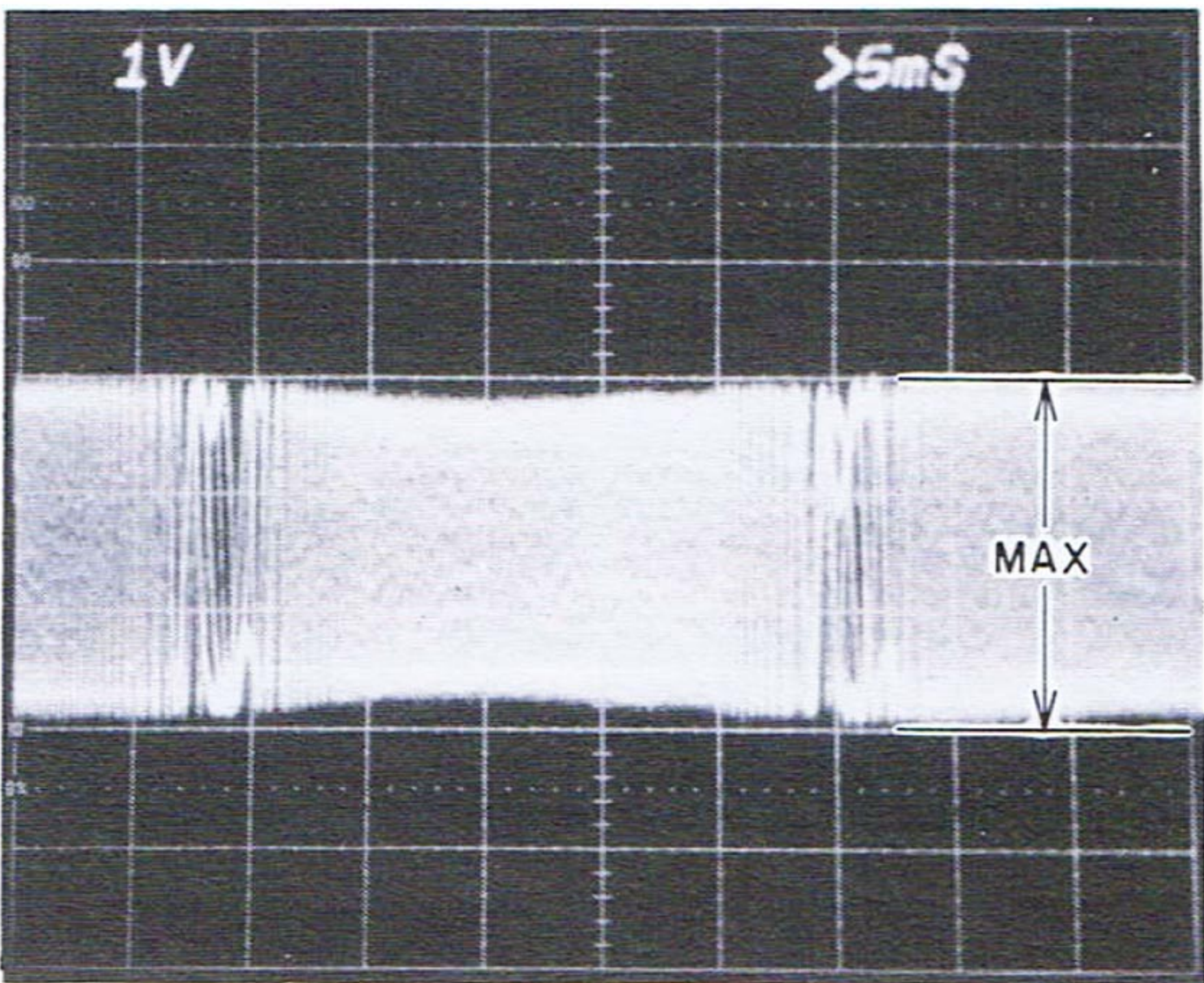


Fig. 7-8

7-2-4. E-F BALANCE ADJUSTMENT

This is to adjust the output balance of diodes E and F for tracking error detection.
When changing the pick-up adjusting the tracking constancy, this must be checked and adjusted.

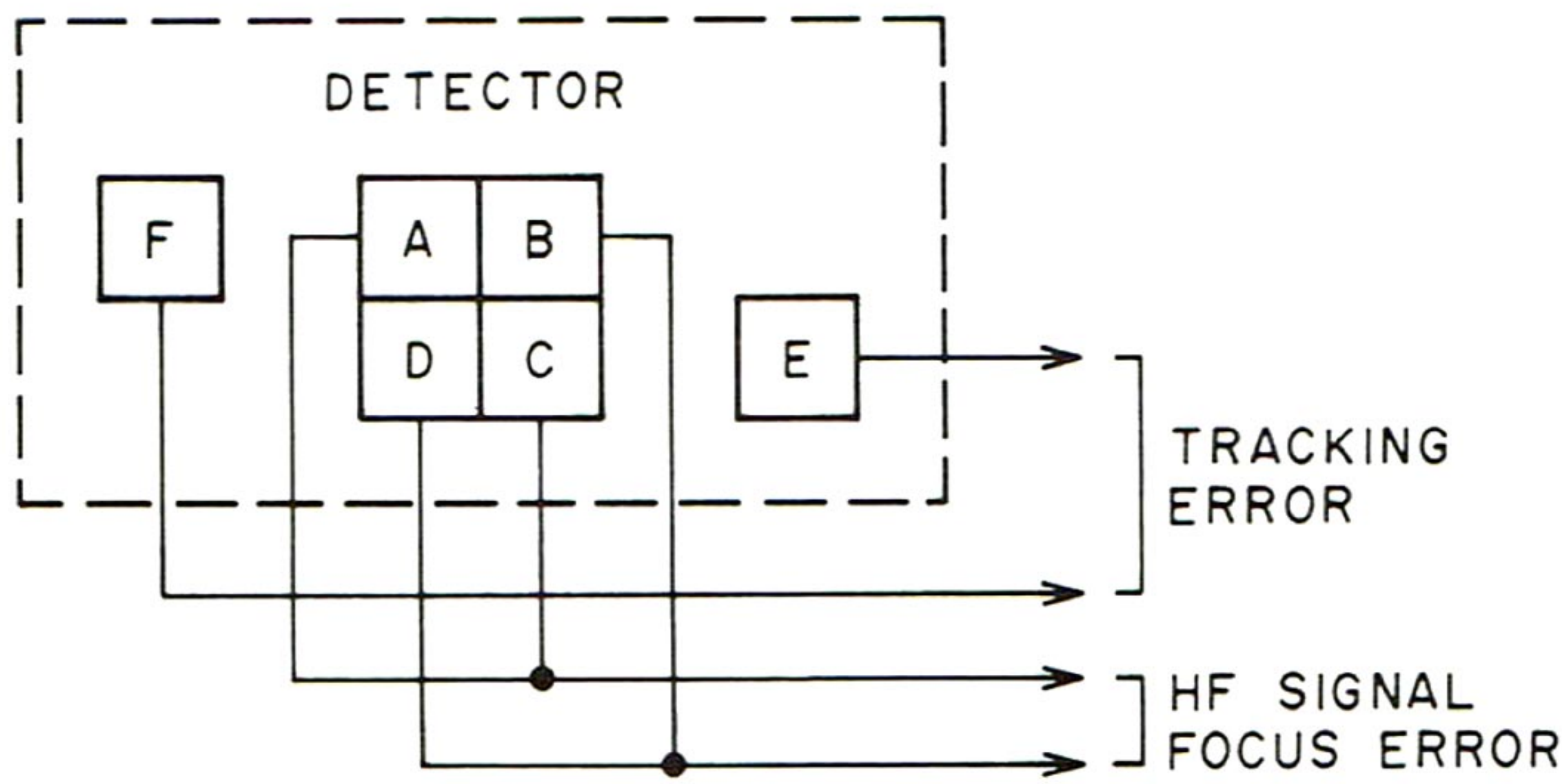


Fig. 7-9

- 1) Connect the oscilloscope to TP7 on the Main P.C. board.
Measure direct current voltage via an integral circuitry between TP7 and the oscilloscope as in illustration in Fig. 7-10.

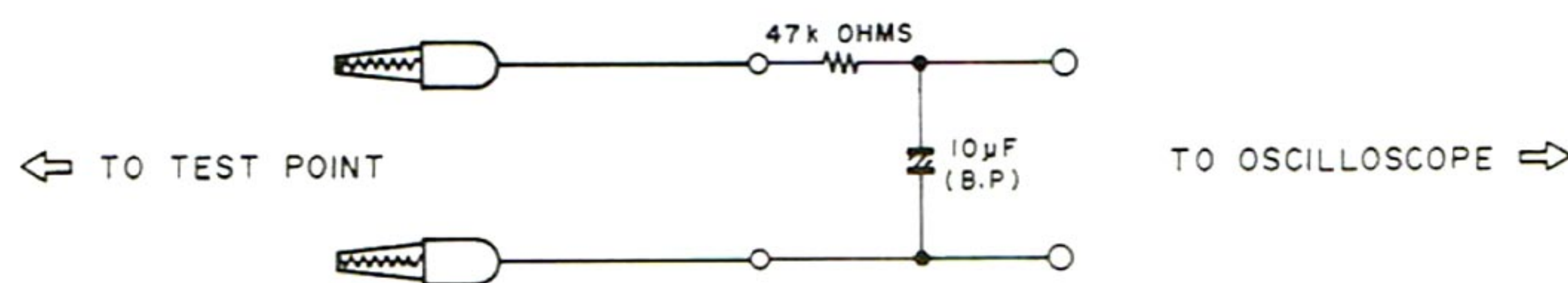


Fig. 7-10

- 2) Play back the test disc and turn the machine to pause.
- 3) Extract the short plug (P4) on the Main P.C. board.
- 4) Adjust the VR1 for E-F balance so that the ground level is center of the waveform.

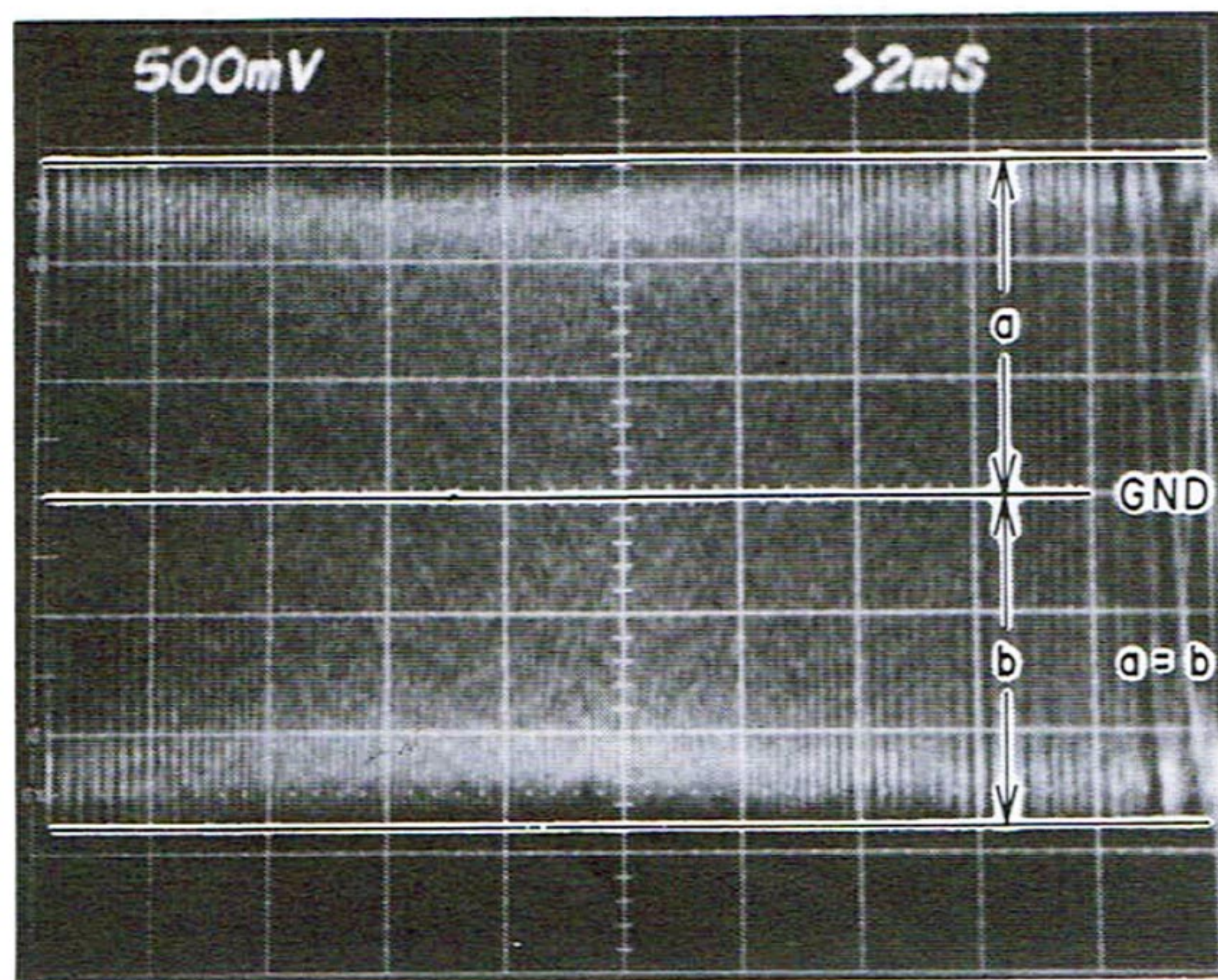


Fig. 7-11

7-2-5. FOCUS GAIN ADJUSTMENT

- 1) Connect the oscilloscope between P1-pin 1 terminal on the Main P.C. board and earth, and measure the voltage on the focus coil.
- 2) Play back the test disc and adjust VR5 so that the tracking coil voltage is 500 to 600 mVp-p.

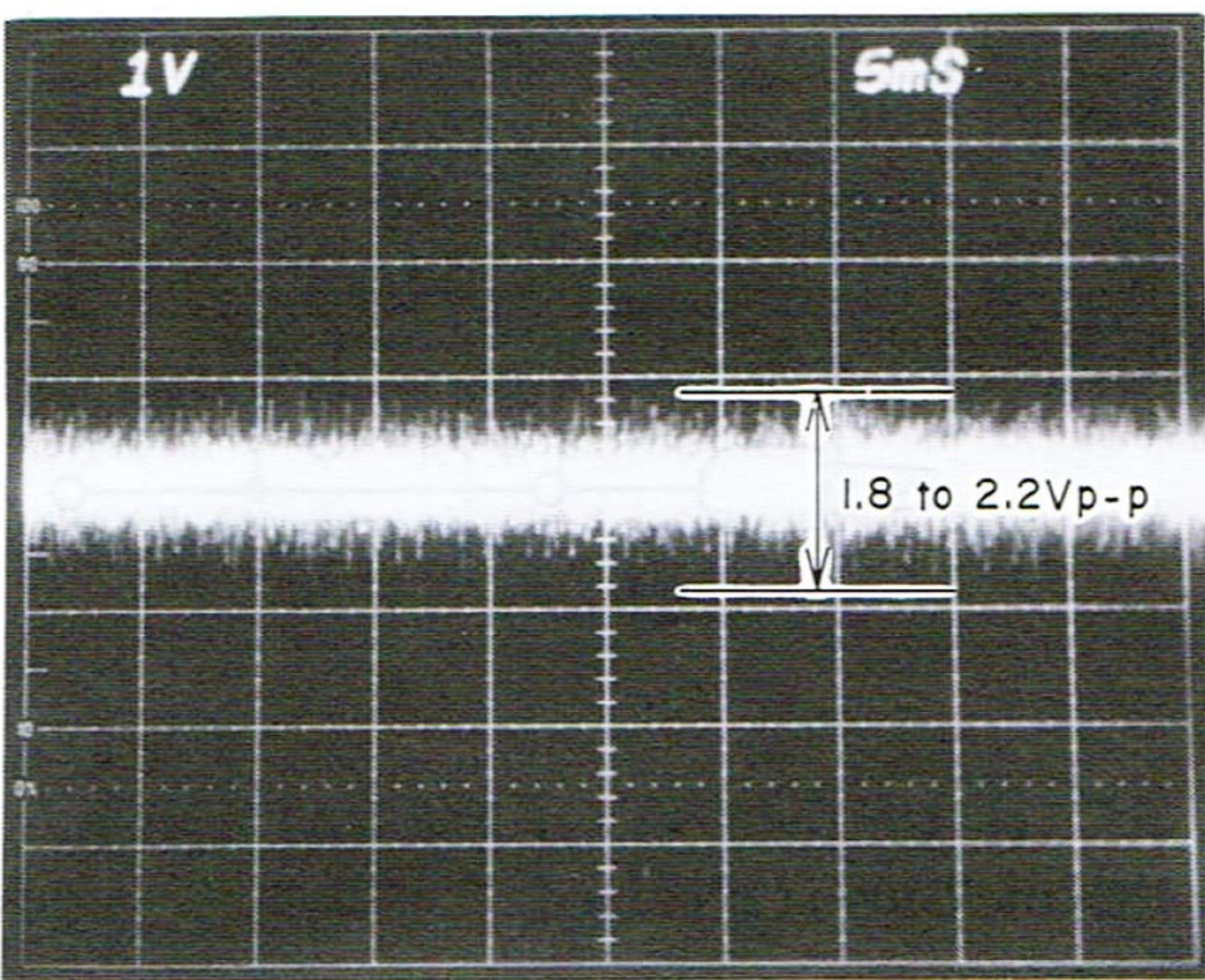


Fig. 7-12

7-2-6. TRACKING GAIN ADJUSTMENT

- 1) Connect the oscilloscope between P1-pin 3 terminal on the Main P.C. board and measure the voltage on the tracking coil.
- 2) Play back the test disc and adjust VR4 so that the tracking coil voltage is 1.8 to 2.2 Vp-p.

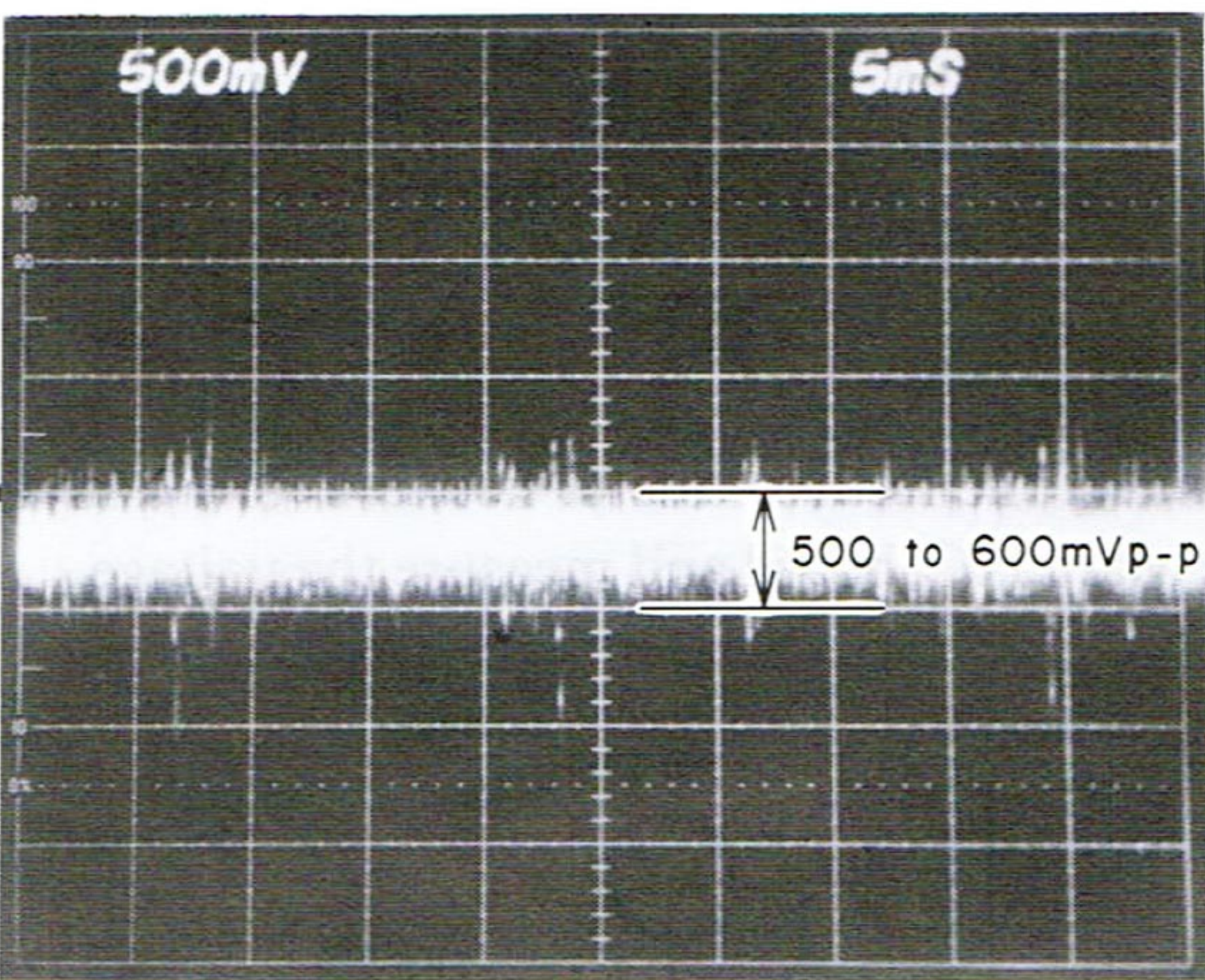


Fig. 7-13

REFERENCE:

If the sound jumps when the machine is lightly jolted, this means the tracking gain is small.
If a disc with a scratch of 600µ is played and the sound jumps, this means the tracking gain is large.
Philips No. 40079-2 Track No. 6, 01'05'' up till Track No. 7, 00'02''.

VIII. P.C BOARD TITLES AND IDENTIFICATION NUMBERS

PC BOARD TITLE		PC BOARD NUMBERS	REMARKS
MAIN	PC BOARD	P2005A501A-503A	
OPERATION (A)	PC BOARD	P2007B504A	
OPERATION (B)	PC BOARD	P2007B504B	
LCD	PC BOARD	P2005B5040	

SECTION 2

PARTS LIST

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7. ASSEMBLY BLOCK 21

8. FINAL ASSEMBLY BLOCK..... 22

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ATTENTION

- 1. When placing an order for parts, be sure to list the parts no. model no., and description of each part. If any of this information is omitted, there are instances in which parts cannot be shipped or the wrong parts will be delivered.
- 2. Please be careful not to make a mistake in the parts no. If the parts no. is in error, a part different from the one ordered may be delivered.
- 3. Because part numbers and part definitions and supply in the Preliminary Parts List may have been the subject of changes, please use this parts list for all future reference.

HOW TO USE THIS PARTS LIST

- 1. This Parts List shows those parts which are considered necessary for repairs. Other parts, such as resistors and capacitors, are shown in the "Common List for Service Parts" from which these parts should be selected and parts.
- 2. The Recommended Spare Parts List shows those parts in the Parts List which are considered particularly important for service.
- 3. Parts not shown in the Parts List and "Common List for Service Parts" will not in principle be supplied.
- 4. How to read the parts list
 - a) Mechanism Block
 - b) P.C Board

2. HEAD BASE BLOCK

REF. NO.	PART NO.	DESCRIPTION
2-1x	BH-T2023A320A	HEAD BASE BLOCK GX-F66R
2-2	HP-H2206A010A	HEAD R/P PR4-8FU C
2-3	ZS-477876	PAN20x03STL CMT
2-4	ZS-536488	BID20x08STL CMT
2-5	ZG-402895	CS ANGLE ADJUST SPRING

SP (Service Parts) Classification

A small "x" indicates the inability to show that particular part in the Photo or Illustration.

This number corresponds with the individual parts index number in that figure

This number corresponds with the Figure Number

6. SYS. CON. P C BOARD

REF. NO.	PART NO.	DESCRIPTION
6-IC1	EI-324536	IC HD14049BP
6-IC2	EI-336801	IC MB8841-564M
6-IC3	EI-331661	IC SN7405N
6-IC4	EI-336725	IC M54527P
6-TR1to4	ET-200985	TR 2SC2603 F,G
6-TR5to28	ET-554657	TR 2SA733A P,Q
6-D1	ED-318292	D SILICON H 1S2473T-77 T26
6-D2to4	ED-308952	D GERMA V 1K34A-LR F07
6-D5to10	ED-318292	D SILICON H 1S2473T-77 T26
6-X1	EI-318384	OSC X'TAL NC-18C 3.579545MHZ

SP (Service Parts) Classification

These reference symbols correspond with component symbols in the Schematic Diagrams.

- 5. The kind of part and its installation position can both be determined by the Part Number. To determine where a part number is listed, utilize the Parts Index at the end of the Parts List. It is necessary first of all to find the Part Number. This can be accomplished by using the Reference Number listed at the right of the part number in the Parts Index.

WARNING

⚠ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS

AVERTISSEMENT

⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT

RECOMMENDED SPARE PARTS LIST

Because, if the parts listed below are on hand, almost any repair can be accomplished, we suggest that you stock these Recommended Spare Parts Items.

REF. NO.	PART NO.	DESCRIPTION
1	N BM-P2005A110A	LOADING MOTOR BLK CD-M515
2	N BM-361225	SPINDLE MOTOR RF-310TB-11400
3	N BM-P2005A140A	SLIDE MOTOR BLK CD-M515
4	BO-359294	⚠ PICK UP KSS-121B
5	N BT-361204	⚠ TRANS POWER P2005-A, C (C, A)
6	N BT-361206	⚠ TRANS POWER P2005-B, S (B, S)
7	N BT-361205	⚠ TRANS POWER P2005-E, V (E)
8	N BT-361202	⚠ TRANS POWER P2005-J (J)
9	N BT-361201	⚠ TRANS POWER P2005-U/T (U)
10	ED-301911	D SILICON H DS448
11	ED-344280	D SILICON H GMA-01-FY2 F05
12	ED-306109	D SILICON W03B 100/1.0A
13	ED-353692	D VARACTER SVC321 C, D DOUBLE
14	ED-331617	D ZENER H HZ6 A3
15	ED-300035	D ZENER H HZ6 B3
16	ED-319167	D ZENER H HZ6 C3
17	ED-201581	D ZENER H HZ7 B1
18	EF-601964	⚠ FUSE SEMKO T 1.60A 250V
(E, B, S)		
19	EI-330352	IC BA6109
20	N EI-361234	IC CX 20108
21	N EI-361235	IC CX 20133
22	N EI-361232	IC CX 23035
23	N EI-362736	IC CXK5816P-15L
24	N EI-361233	IC CX20109
25	N EI-361230	IC LC7580
26	EI-355863	IC MB84053B
27	N EI-361237	IC M50745
28	EI-349719	IC M5218P
29	N EI-362588	IC M5238P
30	EI-304657	IC TC4011BP
31	EI-337360	IC μPC4082C
32	EI-349372	OSC CE CSA4.00MG 4MHz
33	N EI-361223	OSC X'TAL NR-18 35.002000MHz
34	N EI-361222	OSC X'TAL NR-18 8.467200MHz
35	N EL-361231	PL SOCKET 14.0V 100MA
36	N EM-361229	IND LCD 9421P
37	N EO-361227	COIL VARI 1 A119AN-16737Z
38	N EO-362920	COIL VARI 1 25-5430-13 WHITE
39	N EO-362921	COIL VARI 1 25-5431-13 RED
40	N EO-362922	COIL VARI 1 25-5432-13 BLACK
41	ES-357876	⚠ SW PUSH A2B-1A (C, A)
42	ES-357947	⚠ SW PUSH A2B-1A (U, J, E, B, S)
43	ES-344274	⚠ SW SELECTOR HXW0244-01-060
01-4 (U)		
44	N ES-362933	SW LEAF MSW-1294NBK
45	ES-344257	SW LEAF MSW-1418L 01-1 NO
46	ES-355842	SW SLIDE SSCTP1026A 01-2
47	ES-349474	SW TACT SKHHAM004A
48	ET-345626	⚠ TR 2SA1248 S, T
49	ET-354841	⚠ TR 2SA1282A F, G F05
50	ET-322598	⚠ TR 2SB632K E, F
51	ET-318237	⚠ TR 2SB764 E, F
52	ET-345625	⚠ TR 2SC3116 S, T
53	ET-357845	⚠ TR 2SC3242A F, G F05
54	ET-310148	⚠ TR 2SD612K E, F
55	ET-354897	TR FET 2SK170 BL, GR, V
56	ET-308472	TR 2SA1115 E, F, G F05
57	ET-349718	TR 2SA1392 S, T
58	ET-308141	TR 2SC2603 G F05
59	ET-349081	TR 2SC3383 S, T
60	ET-200986	TR 2SD863-V8 F
61	EV-358829	R S-FIX H RH0615CJ4J 3P 223
62	EV-356583	R S-FIX H RH0615CN3J 3P 332
63	EV-356577	R S-FIX H RH0615C14J 3P 103
64	EV-357619	R S-FIX H RH0615C15J 3P 104
65	N MB-362932	BELT LOADING
66	MR-352158	PULLEY GEAR
67	N MZ-359839	GEAR RACK
68	N MZ-359769	GEAR LOADING
69	N MZ-359760	GEAR PICK UP (A)

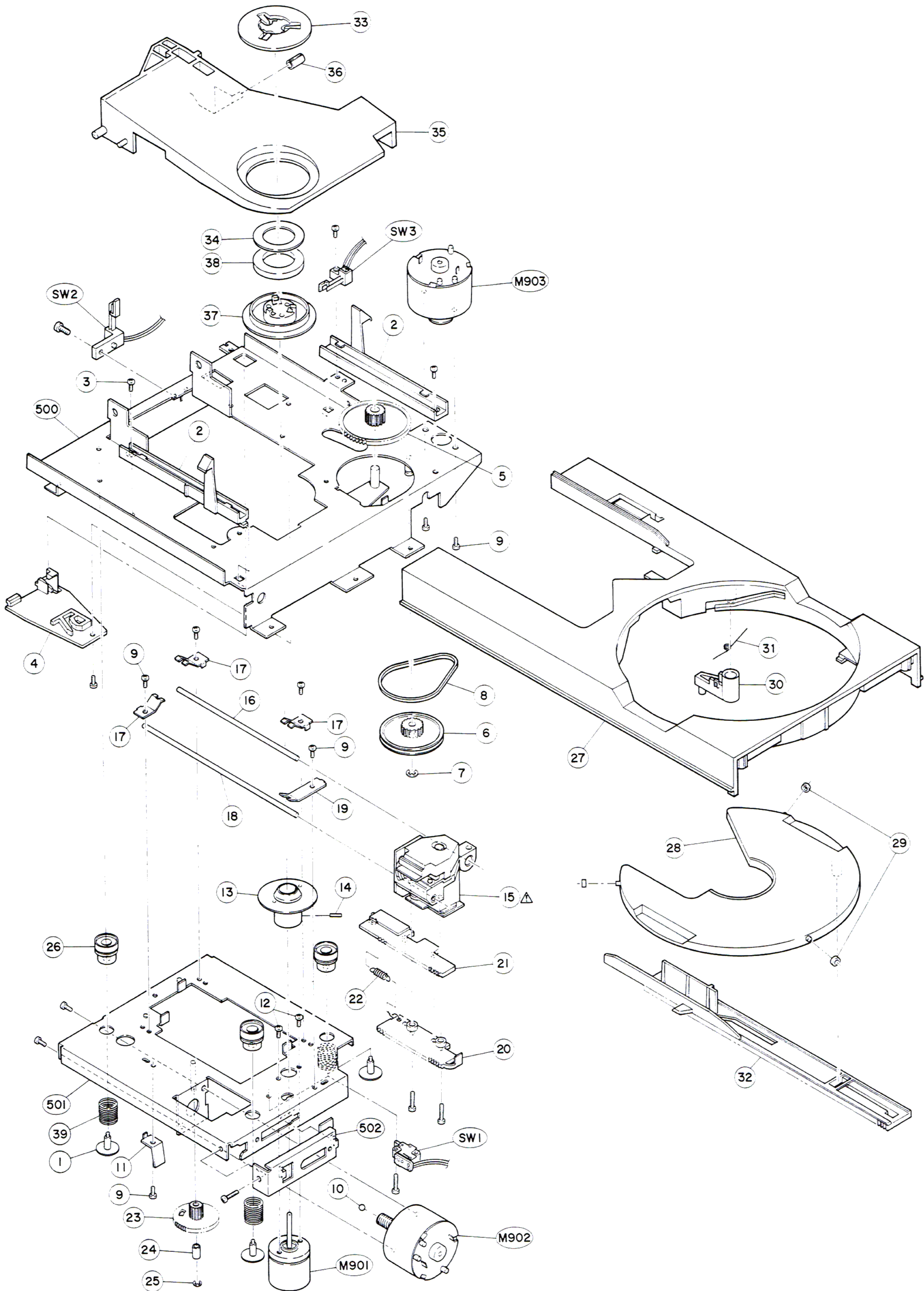
REF. NO.	PART NO.	DESCRIPTION
70	N MZ-359761	GEAR PICK UP (B)
71	N MZ-359762	GEAR WHEEL (A)
72	N MZ-359767	HOLDER RAIL
73	N MZ-362964	TURN TABLE CD

“NOTE” N: New Parts

SYMBOL FOR DESTINATION

- [A]: AAL (U.S.A)
- [B]: UK (ENGLAND)
- [C]: CSA (CANADA)
- [E]: CEE (EUROPE)
- [J]: JPN (JAPAN)
- [S]: SAA (AUSTRALIA)
- [U]: U/T (UNIVERSAL AREA)

MECHA BLOCK



PARTS LIST

1. MECHA BLOCK

REF. NO.	PART NO.	DESCRIPTION
1-1	ZS-366253	SCREW
1-2	MZ-359767	HOLDER RAIL
1-3	ZS-432843	PAN26 × 04STL CMT
1-4	MZ-359768	STOPPER TRAY
1-5	MZ-359769	GEAR LOADING
1-6	MR-352158	PULLEY GEAR
1-7	ZW-357164	RING E 230SUP CMT
1-8	MB-362932	BELT LOADING
1-9	ZS-592378	PAN26 × 03STL CMT
1-10	MV-368886	BALL 300STL
1-11	ZG-351817	SP PLATE THRUST
1-12	ZS-608095	PAN20 × 05STL CMT
*1-13	MZ-362964	TURN TABLE CD
*1-14	ZS-624870	6SET20 × 040SCM PKR HP
1-15	BO-359294	△ PICK UP KSS-121B
1-16	MS-359759	SHAFT SUB
1-17	MZ-351814	HOLDER SHAFT (A)
1-18	MS-351813A	SHAFT (A)
1-19	MZ-359836	HOLDER SHAFT (B)
1-20	MZ-359760	GEAR PICK UP (A)
1-21	MZ-359761	GEAR PICK UP (B)
1-22	ZG-357808	SP T6-03.2/0.29-11.2 T6-059
1-23	MZ-359762	GEAR WHEEL (A)
1-24	TC-676844	SPACER 3 × 6
1-25	ZW-270088	RING E190SUP CMT
1-26	MB-363112	CUSHION RUBBER (B)
1-27	SC-361087	COVER DISC TRAY
1-28	SZ-359775	HOLDER DISC
1-29	MR-345158	ROLLER
1-30	ML-359833	LEVER LOCK
1-31	ZG-359830	SP TORSION LEVER
1-32	MZ-359839	GEAR RACK
1-33	SC-359770	CAP CLAMP
1-34	MZ-361943	PLATE
1-35	MZ-359837	HOLDER CLAMPER
1-36	MH-639281	SPACER 3 × 8
1-37	MZ-359766	CLAMPER
1-38	MZ-362855	MAGNET FM27 × 17 × 3
1-39	ZG-366252	SP PUSH CUSHION
*1-M901	BM-361225	SPINDLE MOTOR
		RF-310TB-11400
1-M902	BM-P2005A140A	SLIDE MOTOR BLK CD-M515
1-M903	BM-P2005A110A	LOADING MOTOR BLK
		CD-M515
1-SW1	ES-355842	SW SLIDE SSCTP1026A 01-2
1-SW2	ES-362933	SW LEAF MSW-1294NBK
1-SW3	ES-344257	SW LEAF MSW-1418L 01-1 NO

NOTE: Parts listed in 1-1 to 1-SW3 on the exploded view and list are normally stocked for replacement purpose.

The remaining parts shown in this manual are not normally stocked, because they are seldom required for routine service.

NOTE * : When repairing 1-M901 (SPINDLE MOTOR) or 1-13 (TURN TABLE CD), replace the following items as a set.

- 1-M901 (SPINDLE MOTOR)
- 1-13 (TURN TABLE CD)
- 1-14 (6 SET 20 × 040 SCM PKR HP)

2. PC BOARD BLOCK

REF. NO.	PART NO.	DESCRIPTION
2-1	BA-P2005A020G	PC MAIN BLK CD-A30 (J)
2-1A	BA-P2005A020F	PC MAIN BLK CD-A30 (U)
2-1B	BA-P2005A020H	PC MAIN BLK CD-A30 (C, A)
2-1C	BA-P2005A020J	PC MAIN BLK CD-A30 (E, B, S)
2-2	BA-P2005A090A	PC LCD BLK CD-M515

3. MAIN PC BOARD

REF. NO.	PART NO.	DESCRIPTION
3-IC1,2	EI-337360	IC μPC4082C
3-IC3,6	EI-349719	IC M5218P
3-IC4,5	EI-362588	IC M5238P
3-IC7	EI-361232	IC CX23035
3-IC8	EI-361233	IC CX20109
3-IC9	EI-361234	IC CX20108
3-IC10	EI-361235	IC CX20133
3-IC11	EI-330352	IC BA6109
3-IC12	EI-362736	IC CXK5816P-15L
3-IC13	EI-304657	IC TC4011BP
3-IC14	EI-361237	IC M50745
3-IC15	EI-355863	IC MB84053B
3-TR1,8,12	ET-310148	△ TR 2SD612K E, F
3-TR2,9	ET-322598	△ TR 2SB632K E, F
3-TR3,5 to 7, 16,27,31	ET-308141	TR 2SC2603 G F05
3-TR4,10	ET-200986	△ TR 2SD863-V8 F
3-TR11,13	ET-318237	△ TR 2SB764 E, F
3-TR14	ET-357845	△ TR 2SC3242A F, G F05
3-TR15	ET-354841	△ TR 2SA1282A F, G F05
3-TR17,29,30	ET-349718	TR 2SA1392 S, T
3-TR18,25	ET-308472	TR 2SA1115 E, F, G F05
3-TR19	ET-354897	TR FET 2SK170 BL, GR, V
3-TR20,21, 26,28	ET-349081	TR 2SC3383 S, T
3-TR22	ET-345625	△ TR 2SC3116 S, T
3TR23,24	ET-345626	△ TR 2SA1248 S, T
3-D1,4,9, 13, 14	ED-344280	D SILICON H GMA-01-FY2 F05
3-D2	ED-300035	D ZENER H HZ6 B3
3-D5,6 to 8,17	ED-331617	D ZENER H HZ6 A3
3-D10 to 12	ED-306109	△ D SILICON W03B 100/1.0A
3-D15,16	ED-353692	D VARACTER SVC321 C, D DOUBLE
3-D18,21	ED-301911	D SILICON H DS448
3-D19	ED-319167	D ZENER H HZ6 C3
3-D20	ED-201581	D ZENER H HZ7 B1
3-VS1	ES-344274	△ SW SELECTOR HXW0244-01-060 01-4 (U)
3-VR1	EV-356583	R S-FIX H RH0615CN3J 3P 332
3-VR2,3	EV-357619	R S-FIX H RH0615C15J 3P 104
3-VR4	EV-358829	R S-FIX H RH0615CJ4J 3P 223
3-VR5	EV-356577	R S-FIX H RH0615C14J 3P 103
3-VL1	EO-361227	COIL VARI 1 A119AN-16737Z
3-VL2	EO-362920	COIL VARI 1 25-5430-13 WHITE
3-VL3	EO-362921	COIL VARI 1 25-5431-13 RED
3-VL4	EO-362922	COIL VARI 1 25-5432-13 BLACK
3-L1	EO-345913	COIL FIX 1 LAL03KH 100K
3-L2	EO-345902	COIL FIX 1 LAL03KH 1R0M
3-L3	EO-338112	COIL FIX 1 LAL04 100K
3-X1	EI-361222	OSC X'TAL NR-18 8.467200MHz
3-X2	EI-361223	OSC X'TAL NR-18 35.002000MHz
3-X3	EI-349372	OSC CE CSA4.00MG 4MHz
3-C38	EC-307684	C EC V F05 NP SM R47M 50DC
3-C65	EC-362734	C STY V S05 CQ09S2B 222J 125DC
3-C67	EC-347263	C MC V F05 FM 221J 500DC
3-C68	EC-350672	C PP V F05 PP 681J 50DC
3-C69,71	EC-345724	C PP V F05 PP 222J 50DC
3-C70	EC-361245	C PP V F05 PP 272J 50DC
3-C72	EC-361246	C PP V F05 PP 362J 50DC
3-C74,77	EC-362258	C EC CUT SM 682M 10.00DC
3-C90	EC-320548	△ C CE V F 103Z 250AC (U, J)
3-C90A	EC-338411	△ C CE V FZ 103P 400AC (C, A, E, B, S)
3-C92	EC-362234	C STY V S05 CQ09S2B 221J 125DC
3-C101	EC-305428	C TT V D 3R3M 10DC
3-C108	EC-362235	C PP V F05 PP 103J 50DC
3-J1	EJ-362303	DIN J TPX3204-01-030 8P
ASSEMBLY BLOCK		
3-F1	EF-601964	△ FUSE SEMKO T 1.60A 250V (E, B, S)

4. OPERATION (A) PC BOARD

REF. NO.	PART NO.	DESCRIPTION
4-TS1 to 10	ES-349474	SW TACT SKHHAM004A

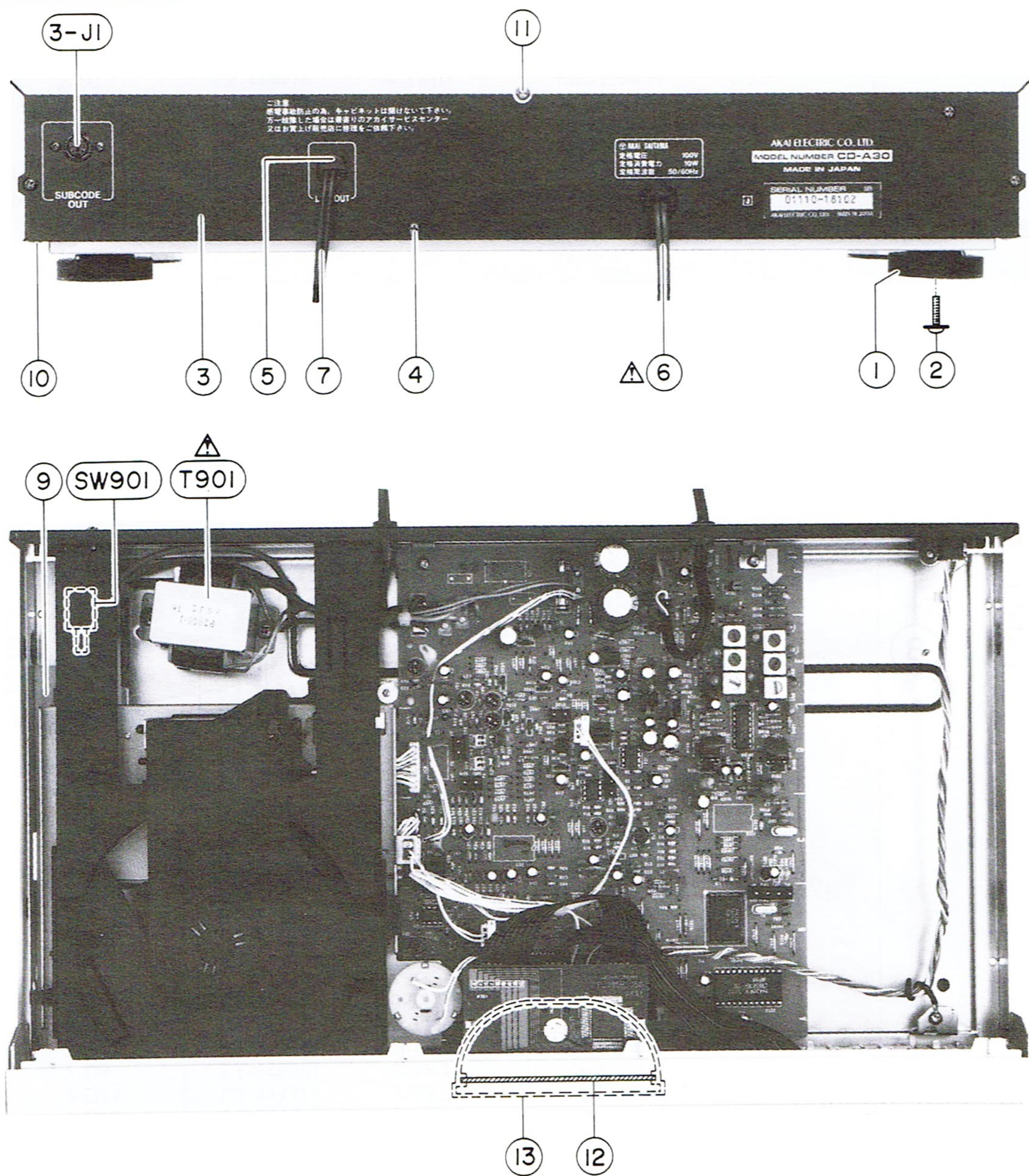
5. OPERATION (B) PC BOARD

REF. NO.	PART NO.	DESCRIPTION
5-TS11,12	ES-349474	SW TACT SKHHAM004A

6. LCD PC BOARD

REF. NO.	PART NO.	DESCRIPTION
LCD PC BOARD		
6-IC1	EI-361230	IC LC7580
ASSEMBLY BLOCK		
6-IN1	EM-361229	IND LCD 9421P
6-IN2	EL-361231	PL SOCKET 14.0V 100MA

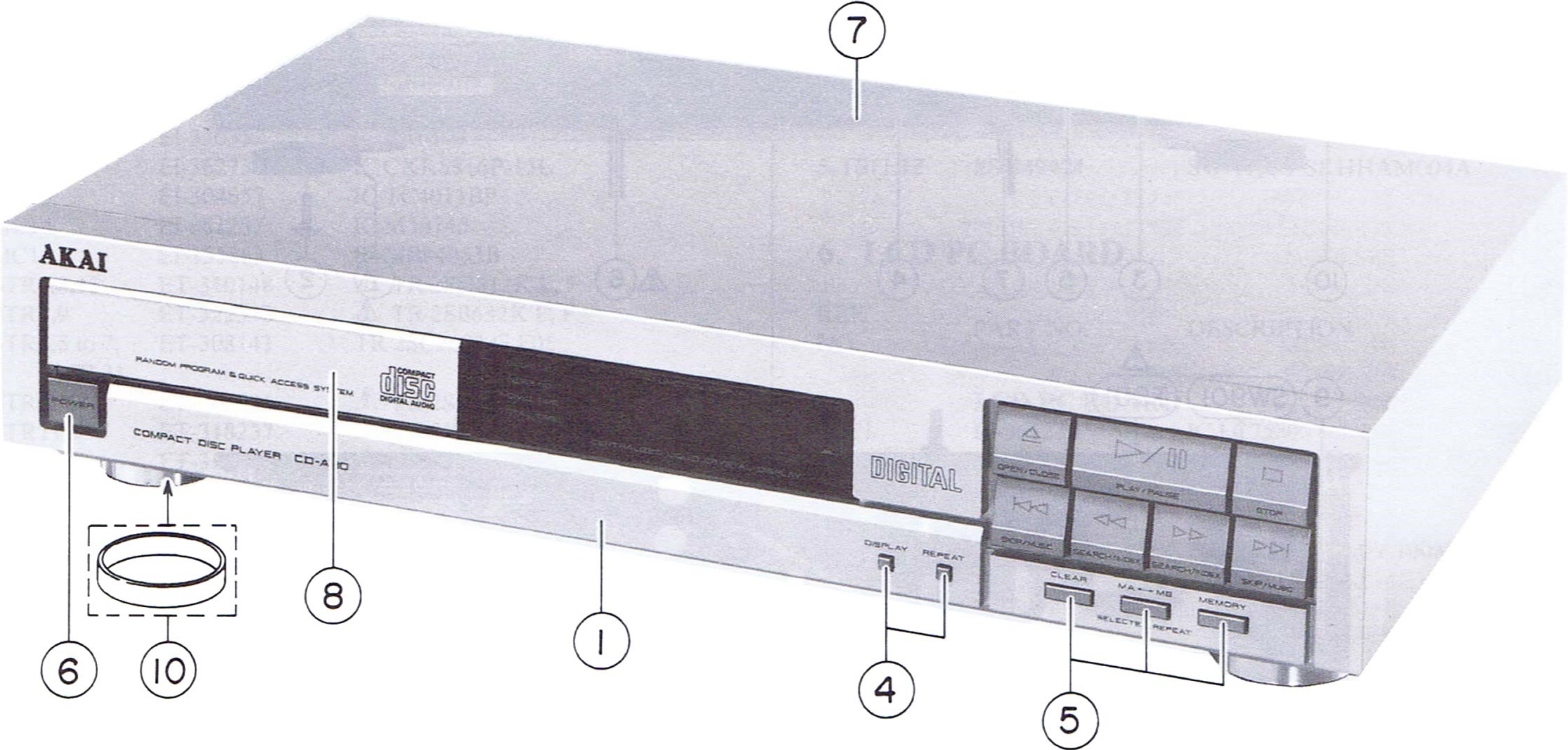
ASSEMBLY BLOCK



7. ASSEMBLY BLOCK

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
ASSEMBLY BLOCK			7-7A	EW-365948	CORD SAE-050 (UL) (A)
7-1	SA-364520	INSULATOR CD (J)	7-8x	ZS-336388	PT BR26 × 06STL CMT (HOLDER LCD FIX)
7-1A	SA-349332	FOOT (EXCEPT J)	7-9	MZ-362601	JOINT POWER
7-2	ZS-369042	SCREW Y2358 (7-1 FIX) (J)	7-10	ZS-320906	ST BR30 × 06STL CMT (COVER UPPER FIX)
7-2A	ZS-354869	ST BR30 × 06STL CMT C080 (7-1A FIX) (EXCEPT J)	7-11	ZS-345272	ST BR30 × 06STL BNI (COVER UPPER FIX)
7-3	SP-362614B	PANEL REAR CD-A30 (J)	7-12	SZ-362620	FILTER LCD
7-3A	SP-362614A	PANEL REAR CD-A30 (U)	7-13	SZ-359773	HOLDER LCD
7-3B	SP-362614C	PANEL REAR CD-A30 (A, C)	7-T901	BT-361202	⚠ TRANS POWER P2005-J (J)
7-3C	SP-362614D	PANEL REAR CD-A30 (E, V)	7-T901A	BT-361201	⚠ TRANS POWER P2005-U/T (U)
7-3D	SP-362614E	PANEL REAR CD-A30 (B, S)	7-T901B	BT-361204	⚠ TRANS POWER P2005-A, C (C, A)
7-4	ZS-354403	ST BR30 × 08STL BNI (PANEL REAR FIX)	7-T901C	BT-361205	⚠ TRANS POWER P2005-E, V (E)
7-5	EZ-631945	STRAIN RELIEF SR-4N-4	7-T901D	BT-361206	⚠ TRANS POWER P2005-B, S (B, S)
7-6	EW-363595	⚠ AC CORD 200 1165BVFF B070 A J	7-SW901	ES-357947	⚠ SW PUSH A2B-1A (U, J, E, B, S)
7-6A	EW-363659	⚠ AC CORD 200 0129AVFF B070 A U/T	7-SW901A	ES-357876	⚠ SW PUSH A2B-1A (C, A)
7-6B	EW-363801	⚠ AC CORD 200 0238PSPT1 B070 A UC	MAIN PC BOARD		
7-6C	EW-363672	⚠ AC CORD 200 0364 LCFL B070 A EV	3-J1	EJ-362303	DIN J TPX3204-01-030 8P
7-6D	EW-363684	⚠ AC CORD 200LCFL B070 A B			
7-6E	EW-363698	⚠ AC CORD 200 0436 LCFL B070 A S			
7-7	EW-365949	CORD SAE-051 (EXCEPT A)			

FINAL ASSEMBLY BLOCK



8. FINAL ASSEMBLY BLOCK

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
8-1	BD-B362603A1	PANEL FRONT PART	8-7B	SP-362613B	COVER UPPER-B
8-1B	BD-B362603B1	PANEL FRONT-B PART	8-8A	SP-362611A	PANEL TRAY CD-A30 (J)
8-2x	ZS-320906	ST BR30 × 06STL CMT (PANEL FRONT FIX)	8-8B	SP-362611B	PANEL TRAY CD-A30 (J)-B
8-3x	ZS-200676	T2CTS30 × 06STL CMT (PANEL FRONT FIX)	8-8C	SP-362611C	PANEL TRAY CD-A30
8-4	SK-362606A	KNOB (C)	8-8D	SP-362611D	PANEL TRAY CD-A30-B
8-4B	SK-362606B	KNOB (C)-B	8-9x	ZS-350934	PT BR30 × 08STL BNI (PANEL TRAY FIX)
8-5	SK-362607A	KNOB (D)	8-10	SZ-364521	CAP INSULATOR (J)
8-5B	SK-362607C	KNOB (D)-B			
8-6	SK-362609A	KNOB POWER			
8-6B	SK-362609B	KNOB POWER-B			
8-7	SP-362613A	COVER UPPER			

Symbol for color variation

Non: Standard color

B: Black

INDEX

PART NO.	REF. NO.	PART NO.	REF. NO.	PART NO.	REF. NO.	PART NO.	REF. NO.
BA-P2005A020F	2-1A	EO-362922	3-VL4	MZ-359769	1-5		
BA-P2005A020G	2-1	ES-344257	1-SW3	MZ-359836	1-19		
BA-P2005A020H	2-1B	ES-344274	3-VS1	MZ-359837	1-35		
BA-P2005A020J	2-1C	ES-349474	4-TS10	MZ-359839	1-32		
BA-P2005A090A	2-2	ES-349474	4-TS9	MZ-361943	1-34		
BD-B362603A1	8-1	ES-349474	4-TS6	MZ-362601	7-9		
BD-B362603B1	8-1B	ES-349474	4-TS4	MZ-362855	1-38		
BM-P2005A110A	1-M903	ES-349474	4-TS7	MZ-362964	1-13		
BM-P2005A140A	1-M902	ES-349474	4-TS1	SA-349332	7-1A		
BM-361225	1-M901	ES-349474	4-TS5	SA-364520	7-1		
BO-359294	1-15	ES-349474	4-TS8	SC-359770	1-33		
BT-361201	7-T901A	ES-349474	4-TS3	SC-361087	1-27		
BT-361202	7-T901	ES-349474	4-TS2	SK-362606A	8-4		
BT-361204	7-T901B	ES-349474	5-TS12	SK-362606B	8-4B		
BT-361205	7-T901C	ES-349474	5-TS11	SK-362607A	8-5		
BT-361206	7-T901D	ES-355842	1-SW1	SK-362607C	8-5B		
EC-305428	3-C101	ES-357876	7-SW901A	SK-362609A	8-6		
EC-307684	3-C38	ES-357947	7-SW901	SK-362609B	8-6B		
EC-320548	3-C90	ES-362933	1-SW2	SP-362611A	8-8A		
EC-338411	3-C90A	ET-200986	3-TR10	SP-362611B	8-8B		
EC-345724	3-C71	ET-200986	3-TR4	SP-362611C	8-8C		
EC-345724	3-C69	ET-308141	3-TR31	SP-362611D	8-8D		
EC-347263	3-C67	ET-308141	3-TR27	SP-362613A	8-7		
EC-350672	3-C68	ET-308141	3-TR3	SP-362613B	8-7B		
EC-361245	3-C70	ET-308141	3-TR7	SP-362614A	7-3A		
EC-361246	3-C72	ET-308141	3-TR6	SP-362614B	7-3		
EC-362234	3-C92	ET-308141	3-TR5	SP-362614C	7-3B		
EC-362235	3-C108	ET-308141	3-TR16	SP-362614D	7-3C		
EC-362258	3-C77	ET-308472	3-TR25	SP-362614E	7-3D		
EC-362258	3-C74	ET-308472	3-TR18	SZ-359773	7-13		
EC-362734	3-C65	ET-310148	3-TR1	SZ-359775	1-28		
ED-201581	3-D20	ET-310148	3-TR8	SZ-362620	7-12		
ED-300035	3-D2	ET-310148	3-TR12	SZ-364521	8-10		
ED-301911	3-D18	ET-318237	3-TR13	TC-676844	1-24		
ED-301911	3-D21	ET-318237	3-TR11	ZG-357808	1-22		
ED-306109	3-D11	ET-322598	3-TR9	ZG-351817	1-11		
ED-306109	3-D10	ET-322598	3-TR2	ZG-359830	1-31		
ED-306109	3-D12	ET-345625	3-TR22	ZG-366252	1-39		
ED-319167	3-D19	ET-345626	3-TR23	ZS-200676	8-3x		
ED-331617	3-D5	ET-345626	3-TR24	ZS-320906	7-10		
ED-331617	3-D6	ET-349081	3-TR28	ZS-320906	8-2x		
ED-331617	3-D7	ET-349081	3-TR26	ZS-336388	7-8x		
ED-331617	3-D17	ET-349081	3-TR20	ZS-344914	7-2		
ED-331617	3-D8	ET-349081	3-TR21	ZS-345272	7-11		
ED-344280	3-D14	ET-349718	3-TR29	ZS-350934	8-9x		
ED-344280	3-D13	ET-349718	3-TR30	ZS-354403	7-4		
ED-344280	3-D1	ET-349718	3-TR17	ZS-354869	7-2A		
ED-344280	3-D4	ET-354841	3-TR15	ZS-366253	1-1		
ED-344280	3-D9	ET-354897	3-TR19	ZS-432843	1-3		
ED-353692	3-D15	ET-357845	3-TR14	ZS-592378	1-9		
ED-353692	3-D16	EV-356577	3-VR5	ZS-608095	1-12		
EF-601964	3-F1	EV-356583	3-VR1	ZS-624870	1-14		
EI-304657	3-IC13	EV-357619	3-VR2	ZW-270088	1-25		
EI-330352	3-IC11	EV-357619	3-VR3	ZW-357164	1-7		
EI-337360	3-IC2	EV-358829	3-VR4				
EI-337360	3-IC1	EW-363595	7-6				
EI-349372	3-X3	EW-363659	7-6A				
EI-349719	3-IC6	EW-363672	7-6C				
EI-349719	3-IC3	EW-363684	7-6D				
EI-355863	3-IC15	EW-363698	7-6E				
EI-361222	3-X1	EW-363801	7-6B				
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