

PS-X6/X7

US Model
Canadian Model
AEP Model
UK Model
E Model



PS-X7: AEP, UK, E model

PS-X6: AEP, UK, E model

Cartridge is only supplied with the turntable system of E model.

FULL AUTOMATIC STEREO TURNTABLE SYSTEM

SPECIFICATIONS

GENERAL

Power Requirements:	120V ac, 60 Hz (US, Canadian model) 110, 120, 220 or 240V ac, 50/60 Hz (AEP, UK, E model)
Power Consumption:	8W (US, Canadian model) 12W (AEP, UK, E model)
Dimensions:	Approx. 445 (w) x 150 (h) x 375 (d) mm 17 1/2 (w) x 5 7/8 (h) x 14 3/4 (d) inches including projecting parts and controls
Weight:	US, Canadian model Approx. 10.3 kg, 22 lb 12 oz (net) Approx. 12.1 kg, 26 lb 11 oz (in shipping carton) AEP, UK, E model Approx. 10.9 kg, 24 lb (net) Approx. 12.7 kg, 28 lb (in shipping carton)

TURNTABLE

Platter:	31.7 cm (12 1/2 inches), aluminum-alloy diecast
Motor:	DC servo-controlled motor (brushless and slotless)
Drive System:	Direct drive, crystal lock control system
Speed:	33 1/3 rpm, 45 rpm
Starting Characteristics:	Comes to nominal speed within a third revolution (33 1/3 rpm)

Wow and Flutter:	± 0.045% (DIN) 0.025% (WRMS)
S/N Ratio:	73 dB (DIN-B)
Initial Drift:	Within 0.0003%
Load Characteristics:	At 150g tracking force 0%
Speed Deviation:	Within 0.003%

TONEARM

Type:	Statically balanced, universal pivot
Pivot to Stylus Length:	216.5 mm, 8 1/2 inches
Overall Arm Length:	300 mm, 11 7/8 inches
Overhang:	16.5 mm, 21/32 inches
Tracking Error:	+3°, -1°
Tracking-force Adjustment Range:	0-3 g
Shell Weight:	10.5 g
Cartridge Weight Range:	2.5-9.5 g 8-14.5 g (with extra weight)

- Continued on page 2 -

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING 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.

SONY®

SERVICE MANUAL

CARTRIDGE (XL-15: E model)

Type: Moving magnet type
Frequency Range: 10–30,000 Hz
Channel Separation: 25 dB at 1 kHz
Output Voltage: 4 mV at 1 kHz, 5 cm/sec. 45°
Load Impedance: 50 kΩ
Tracking Force: 1.2–2.5 g (1.7 g recommended)
Stylus: Sony ND-15G (conical 0.6 mil diamond)
Weight: 5.2 g

MODEL IDENTIFICATION

– Specification Label –

PS-X6: US, Canadian model

SONY	STEREO TURNTABLE SYSTEM		
	MODEL NO. PS-X6		
	AC 120V	60Hz	8 W
	SERIAL NO. _____		
MADE IN JAPAN			

PS-X6: AEP, UK, E model

SONY	STEREO TURNTABLE SYSTEM		
	MODEL NO. PS-X6		
	~ 110. 120. 220. 240V 50/60Hz 12 W		
	SERIAL NO. _____		
MADE IN JAPAN		4-853-094-01	

PS-X7: US, Canadian model

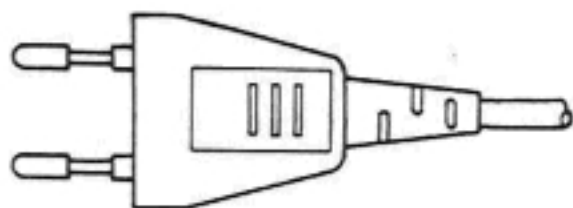
SONY	STEREO TURNTABLE SYSTEM		
	MODEL NO. PS-X7		
	AC 120V	60Hz	8 W
	SERIAL NO. _____		
MADE IN JAPAN			

PS-X7: AEP, UK, E model

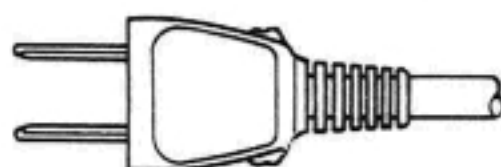
SONY	STEREO TURNTABLE SYSTEM		
	MODEL NO. PS-X7		
	~ 110. 120. 220. 240V 50/60Hz 12 W		
	SERIAL NO. _____		
MADE IN JAPAN		4-853-092-01	

– Power Cord of E model –

Euro-plug



Parallel-blade plug



SECTION 1 OUTLINE

1-1. MECHANICAL DESCRIPTION

Automatic Operation Mechanism

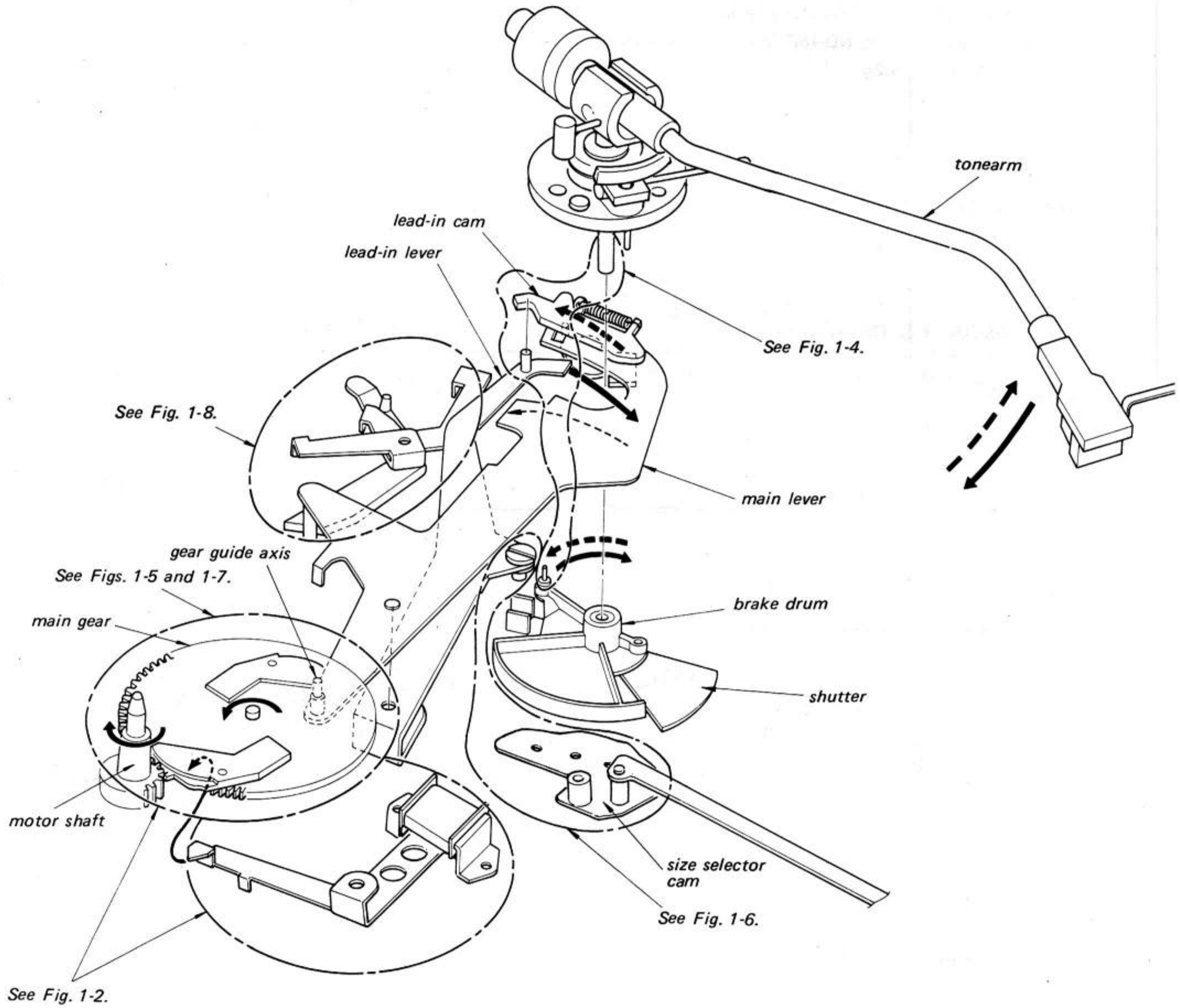


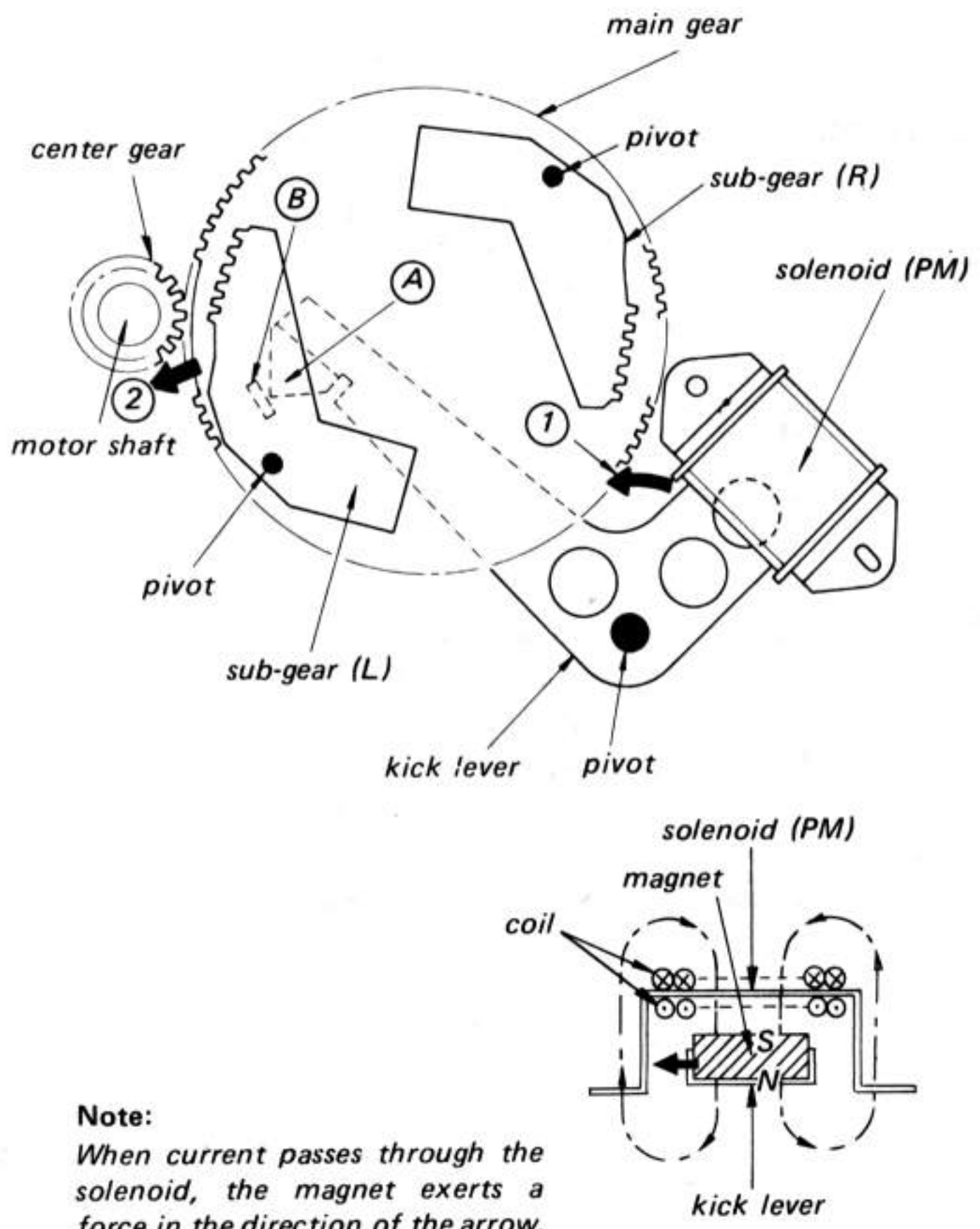
Fig. 1-1.

The PS-X6 and PS-X7 are a full-automatic turntable system, which means that the tonearm will move across to the record and commence to play, and then return to the arm rest again after the completion of the record, simply by the operation of control buttons. This cycle of operations is performed by the transfer of a series of changes from the main gear cam to the main lever. This series of changes is described below.

Operations During Start of Play

1. The tonearm's horizontal movement

1. When the metal part of the START/STOP button is touched by the hand, the system control circuit is activated, resulting in the motor commencing to rotate, and current flowing through the solenoid (PM).
2. With current flowing through the solenoid, the kick lever is pulled in direction ①, resulting in tip ① of the kick lever pushing against part ② of the sub-gear (L). This sub-gear is thus pushed out in direction ② to engage the center gear mounted on the motor shaft. (See Fig. 1-2.)



Note:
When current passes through the solenoid, the magnet exerts a force in the direction of the arrow. (Fleming's left hand rule.)

Fig. 1-2.

3. Once the revolving center gear engages the sub-gear (L), the main gear will commence to rotate in the counterclockwise direction due to the driving force supplied by the motor. It will stop again in the position shown in Fig. 1-7.
4. The gear guide axis at the tip of the main lever, is guided by the shaded section of the heart-shaped cam groove located on the main gear, moving across in a curved path ③ to position ①. Therefore, the main lever moves in the direction of arrow ③'. (See Fig. 1-3.)

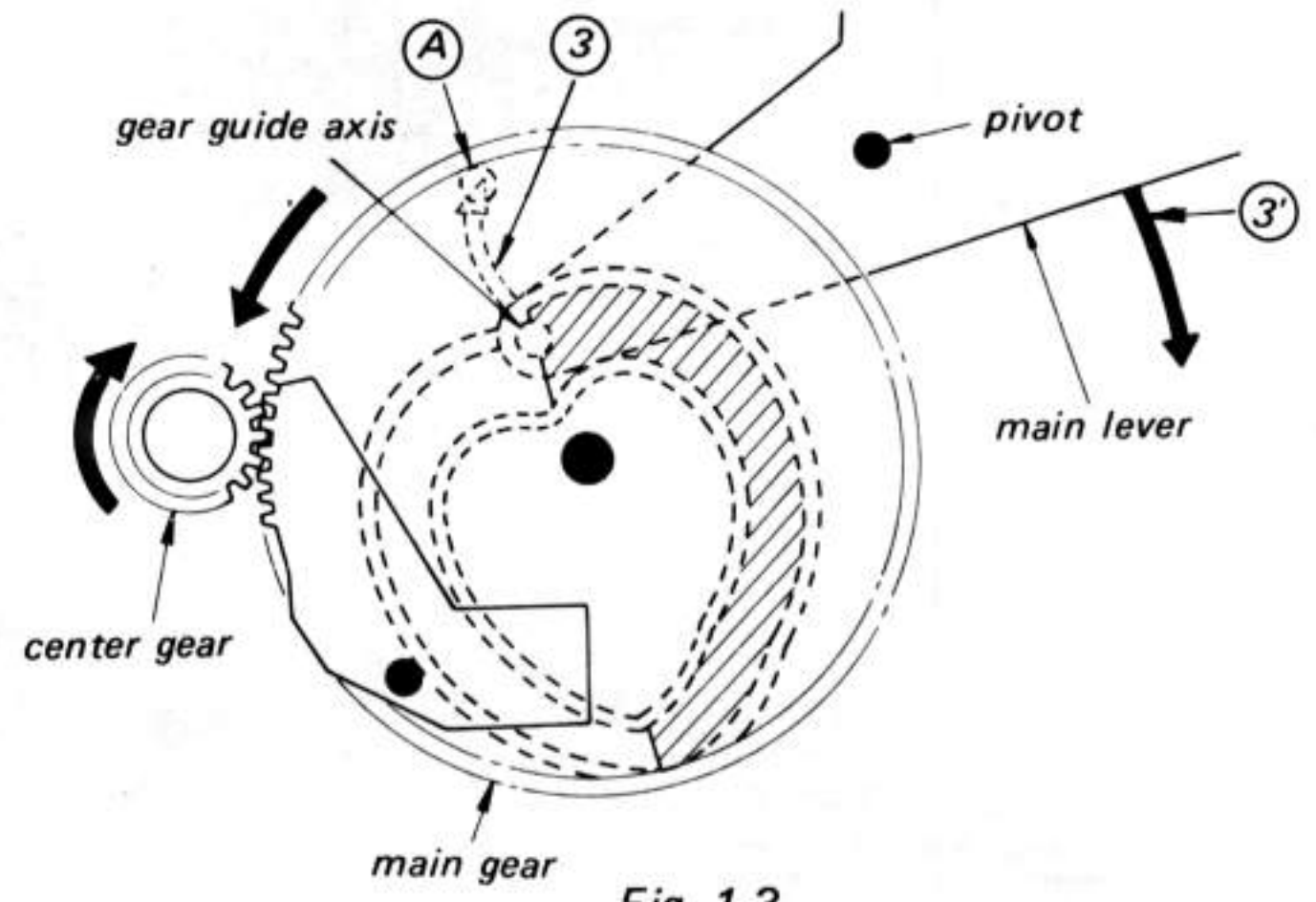


Fig. 1-3.

5. At this time, the lead-in lever moves in the direction of arrow ④, guided by the lead-in cam which moves together with the main lever. The tip ④ of the lead-in lever moves to position ②, pushing against a pin on the brake drum in the direction of arrow ⑥. And since this brake drum moves in unison with the tonearm, the tonearm will move across (horizontal movement) in the direction of arrow ⑤. (See Fig. 1-4.)

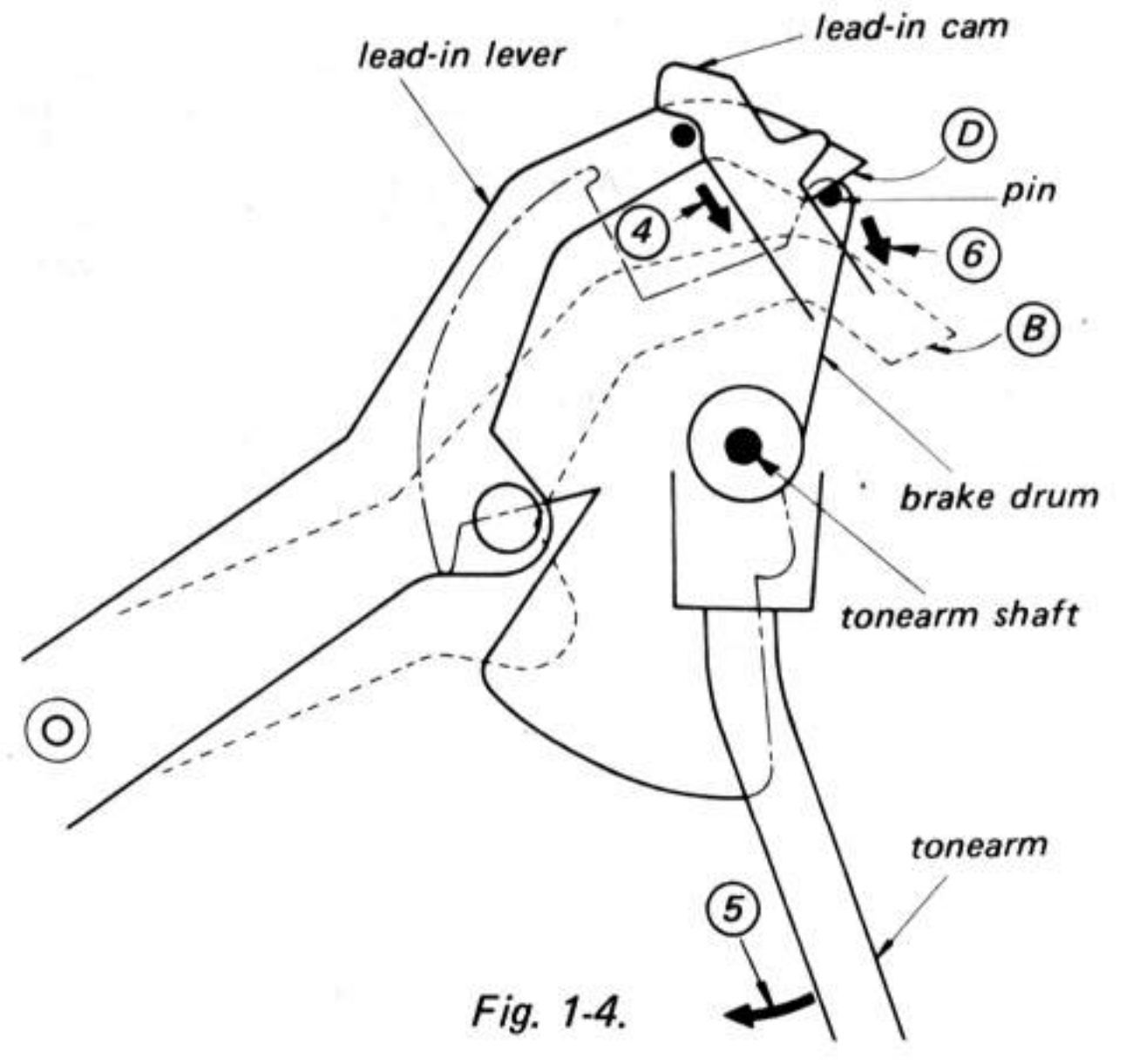


Fig. 1-4.

2. Lowering of tonearm onto record

1. The central axis of the push rod resting against the tonearm lifter is on the position (C) in STOP mode. (See Fig. 1-5.)
2. During lead-in, the main lever moves across in the direction of arrow (3') (See Fig. 1-3), resulting in the position of the central axis of the push rod moving across as shown by arrow (7). (Fig. 1-5.)

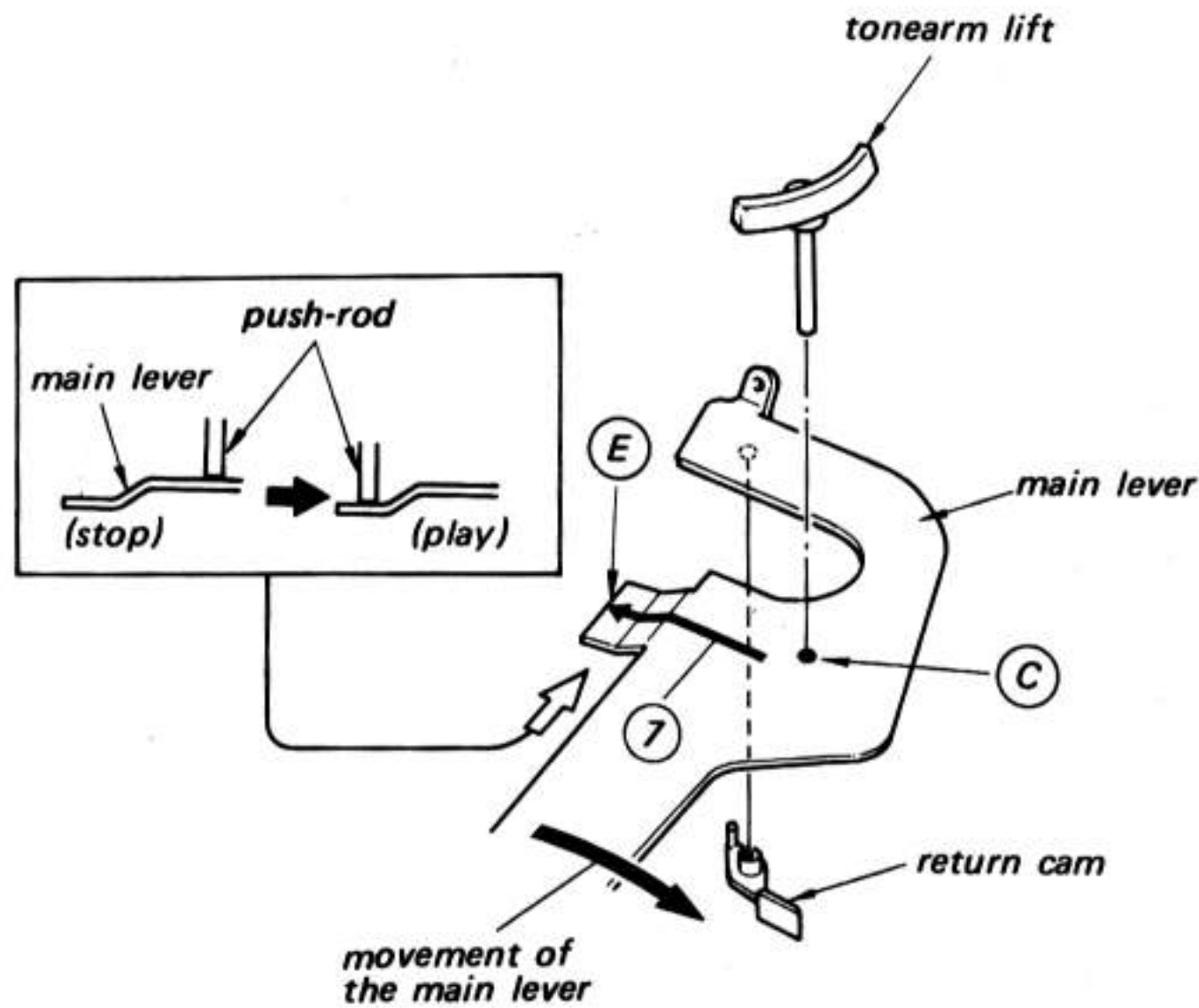


Fig. 1-5.

3. The guide-push stops at the position determined by the surface (G) (Fig. 1-6) of the record size selector cam. The push rod consequently descends to the lower position (E) of the main lever (Fig. 1-5), resulting in the tonearm lowering onto the surface of the record for the commencement of play.
4. The position where the tonearm lowers (30 cm, 25 cm, 17 cm) is determined by the position of the record size selector cam shown in Fig. 1-6. The guide-push of the lead-in lever moves across in direction of arrow (8) during lead-in, and meets the size selector cam at surface (G) (for the 30 cm example shown), thus determining the drop point at the outer edge of a 30 cm record. That is, this position determines the distance moved by the lead-in lever, which consequently determines the rotational angle of the brake drum (and of the tonearm as well). With the record size selector knob set to the MANUAL position, the lead-in lever moves a little and the tonearm does not move.
5. The attaching shaft of the guide-push is not positioned at a center of the guide-push and the edge of the record size selector cam is formed a curve, so the fine adjustment of the stylus drop-point can be performed by turning the guide-push.

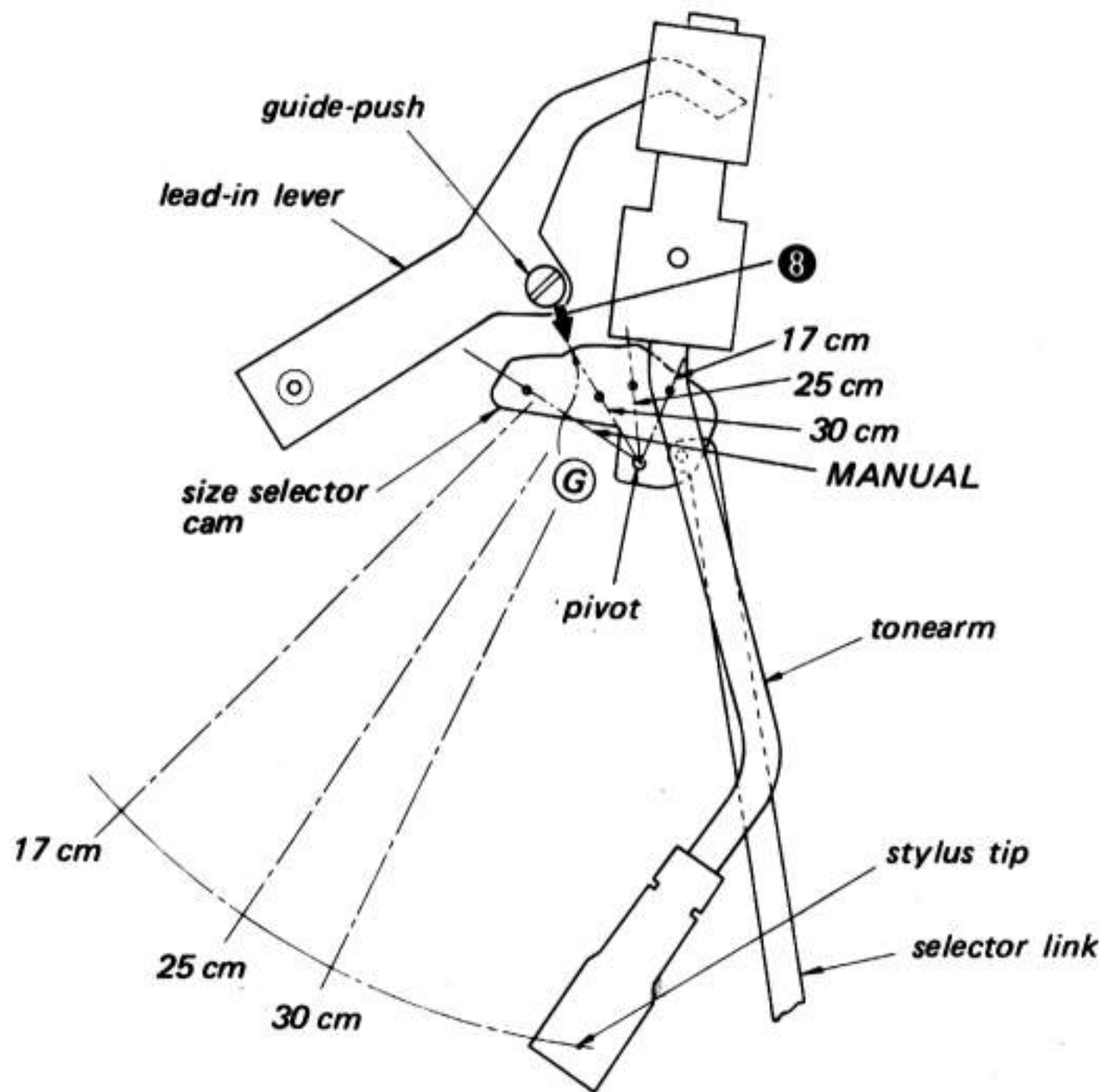


Fig. 1-6.

Operation During Return of Tonearm

Although the return operation can be activated in 2 different ways, the operation itself is the same.

- Tonearm made to return during playing of a record by touching the START/STOP button.
- Automatic return as a result of the tonearm activating the record end detector mechanism (luminous sensor record end detector).

1. While the record is being played, the main gear and main lever are in the positions as shown in Fig. 1-7.
2. If the START/STOP button is touched during play, or if the record finishes playing, the systems control circuit is activated. A current flows through the solenoid (PM), and the kick lever moves in the same way as at the beginning of record play (see Fig. 1-2). This time, however, the sub-gear (R) is pushed back and engaged with the center gear, thus rotating the main gear again in the counterclockwise direction.
3. The gear guide axis at the tip of the main lever is moved across to position (F) by following the curved path (9) due to the guiding action

of the shaded portion of the groove in the heart-shaped cam positioned on the main gear. The main lever consequently moves across in the direction of the arrow ⑨ (see Fig. 1-7).

- At this time, the push rod is forced back up onto the main lever, resulting in the tonearm lifting up from the record surface.

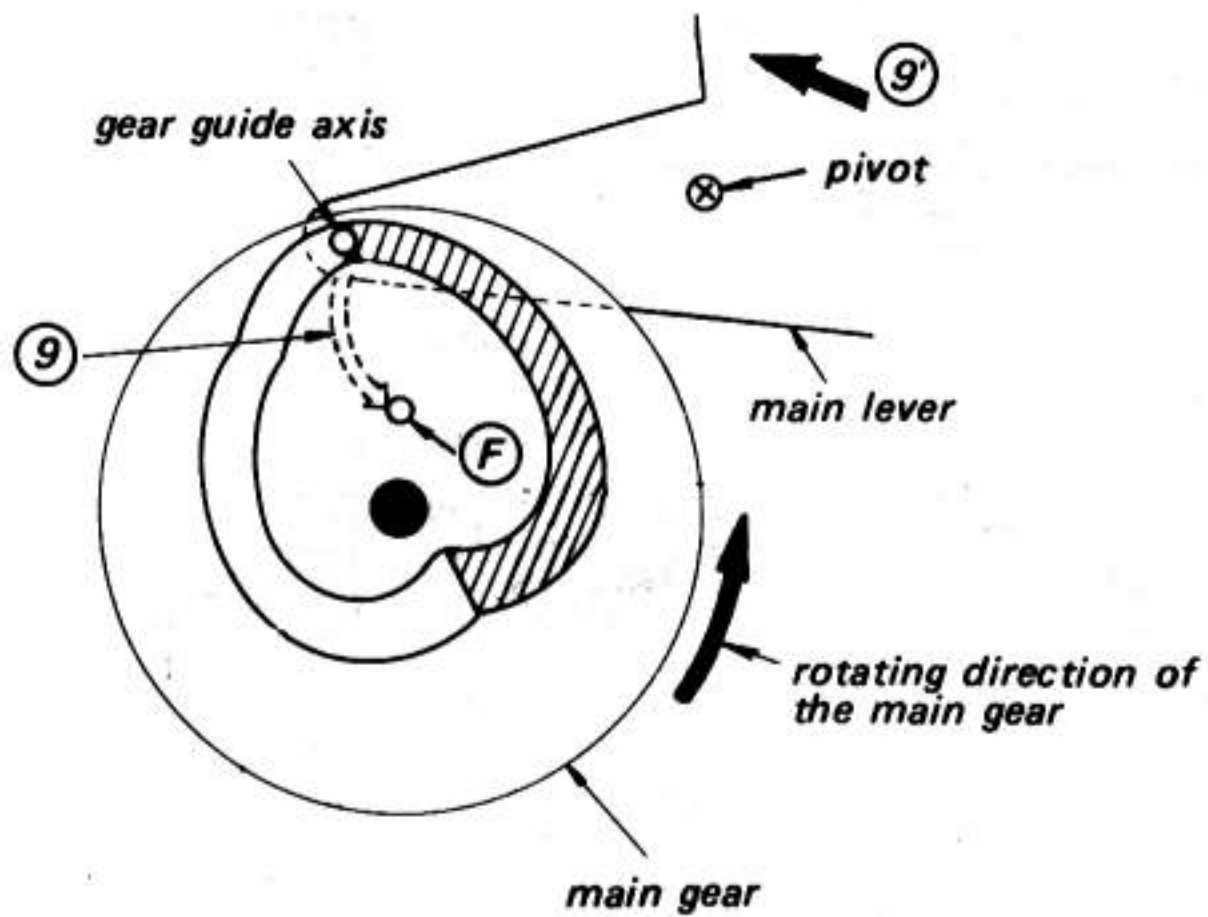


Fig. 1-7.

- The return cam attached to the main lever (see Fig. 1-5) pushes against the pin of the brake drum, forcing the tonearm to move back (horizontally) towards the arm rest.
- The return operation is completed when the tonearm arrives back at the arm rest. The main gear comes to a stop in the position shown in Fig. 1-3.

Brake Mechanism (Operation of brake lever)

A fixed amount of braking is applied to the brake drum in order to assure smooth travel of the tonearm during both lead-in and return.

Furthermore, a spring is also employed to exert pressure upon the main lever in the direction of arrow ⑩ (see Fig. 1-8), thus keeping the main gear in the stop position. (See Fig. 1-3.)

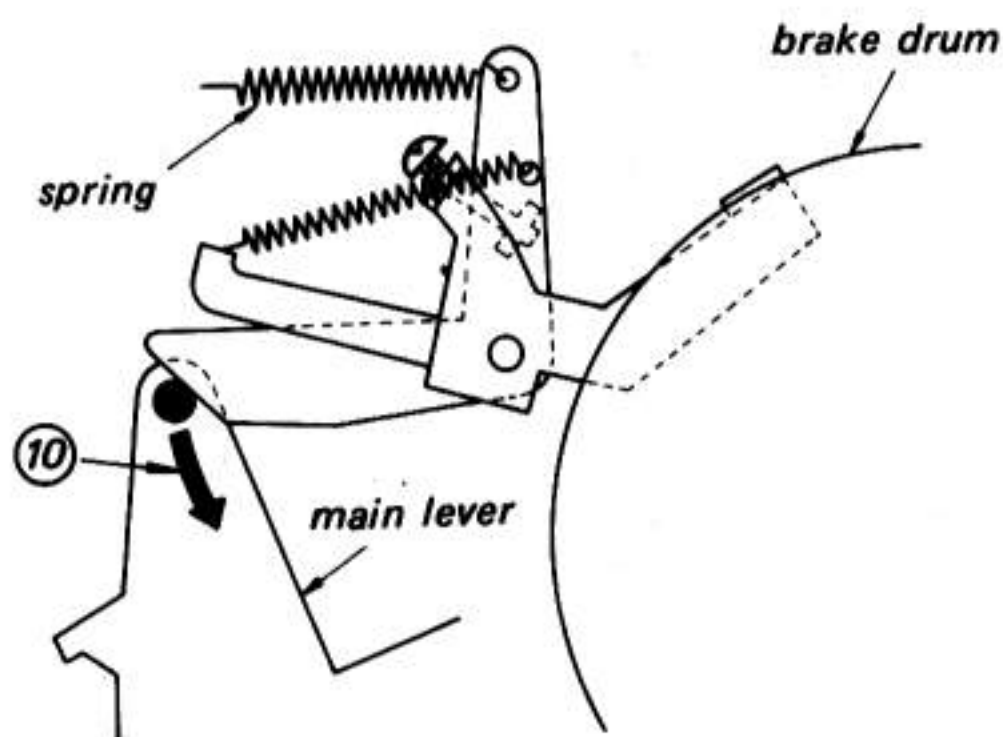


Fig. 1-8.

Record End Detector Mechanism (Luminous Sensor Record End Detector Mechanism)

(see Figs. 1-9 and 1-10)

This record end detector mechanism consists of a lamp, a photo-conductor (CdS), and a shutter connected to the shaft of the tonearm. Changes in position of the shutter (due to the gradual inward movement of the tonearm) results in changes in the amount of light received by the photosensitive element. When the stylus runs in the lead-out groove of the record, the tonearm suddenly moves across by a relatively larger amount, resulting in a sudden increase in the amount of light striking the photosensitive element, exceeding a preset value. An electronic circuit is consequently activated, resulting in current flowing through the solenoid.

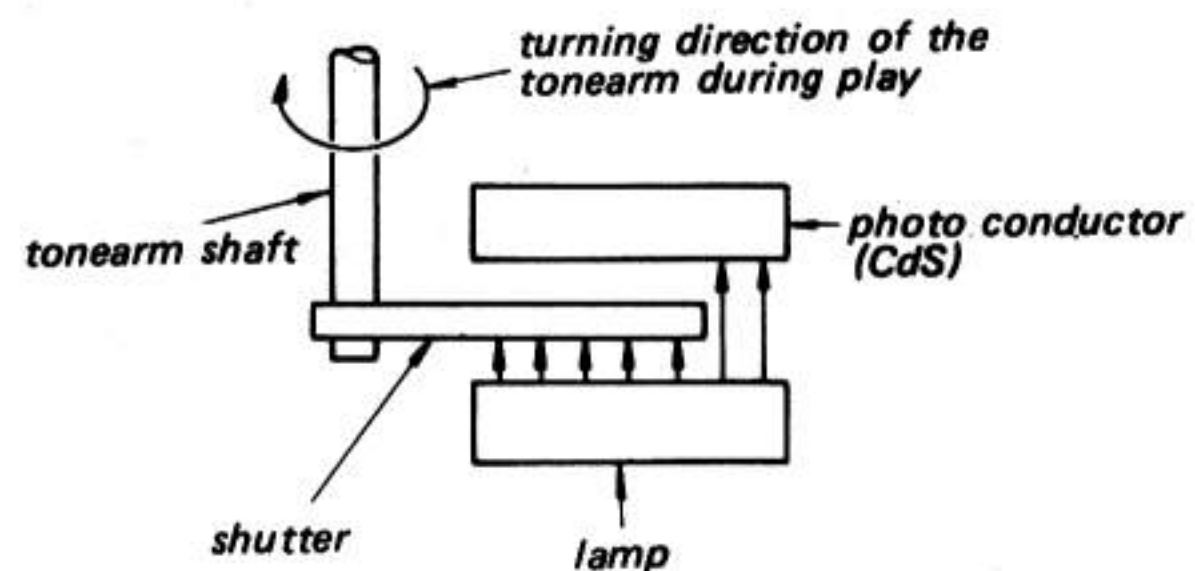


Fig. 1-9.

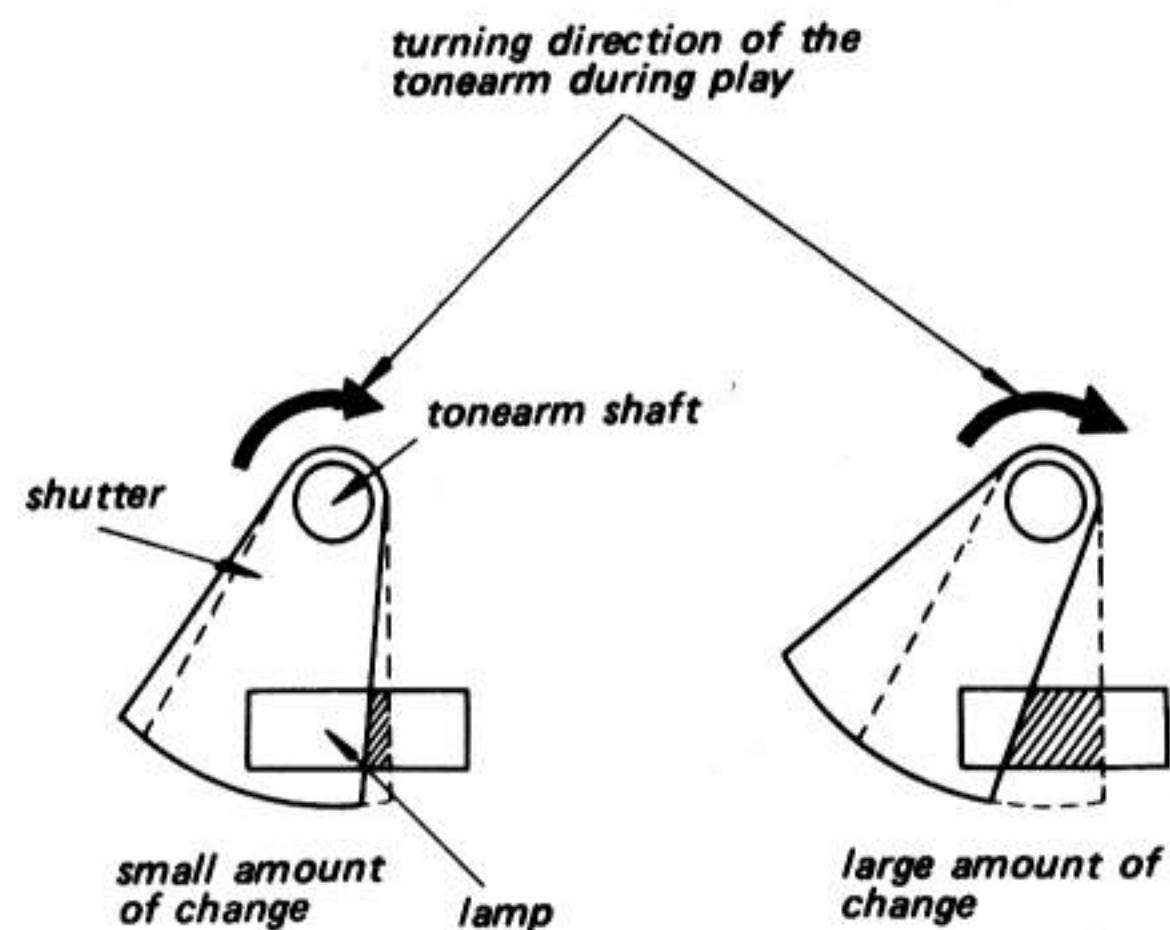
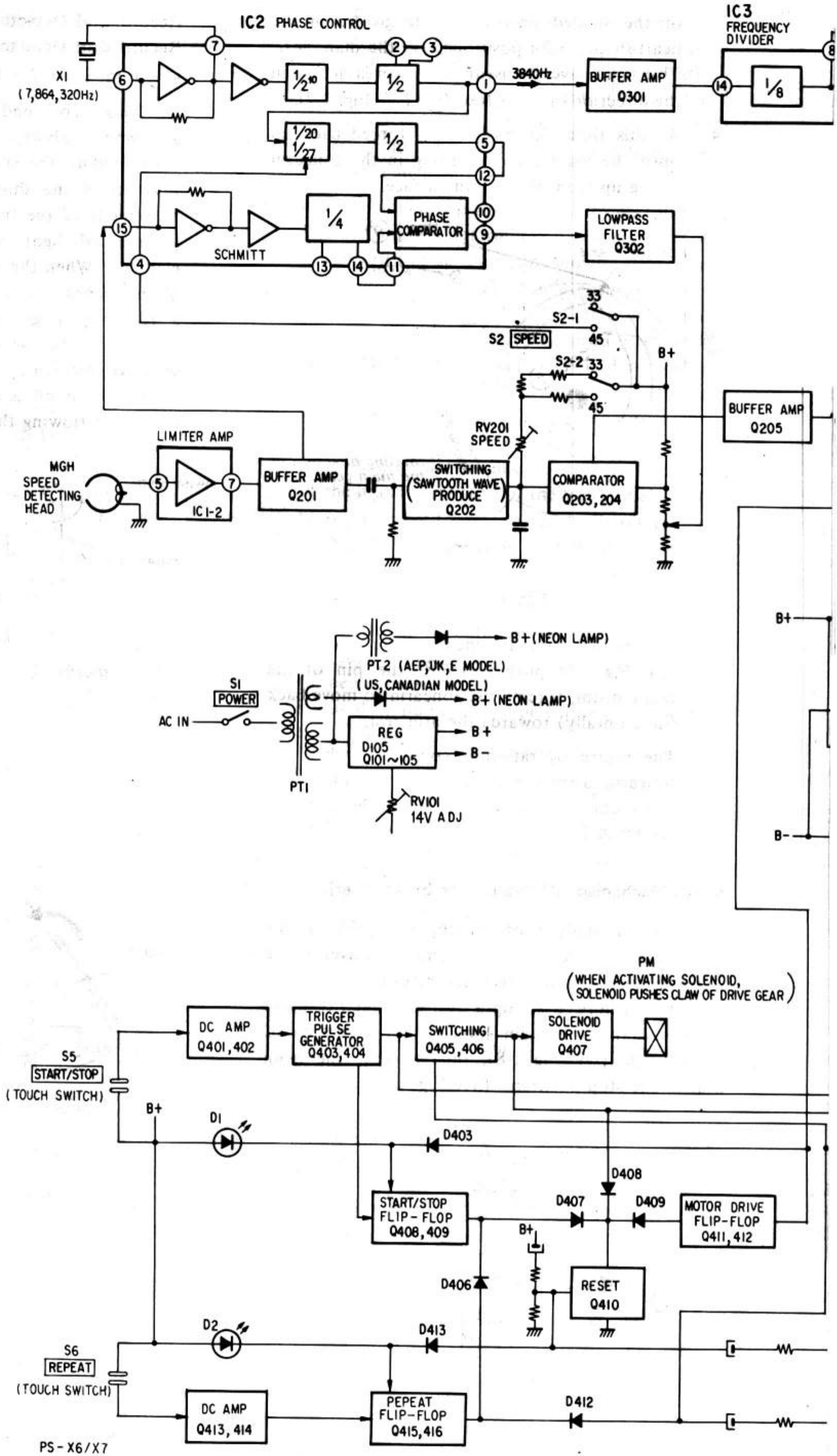
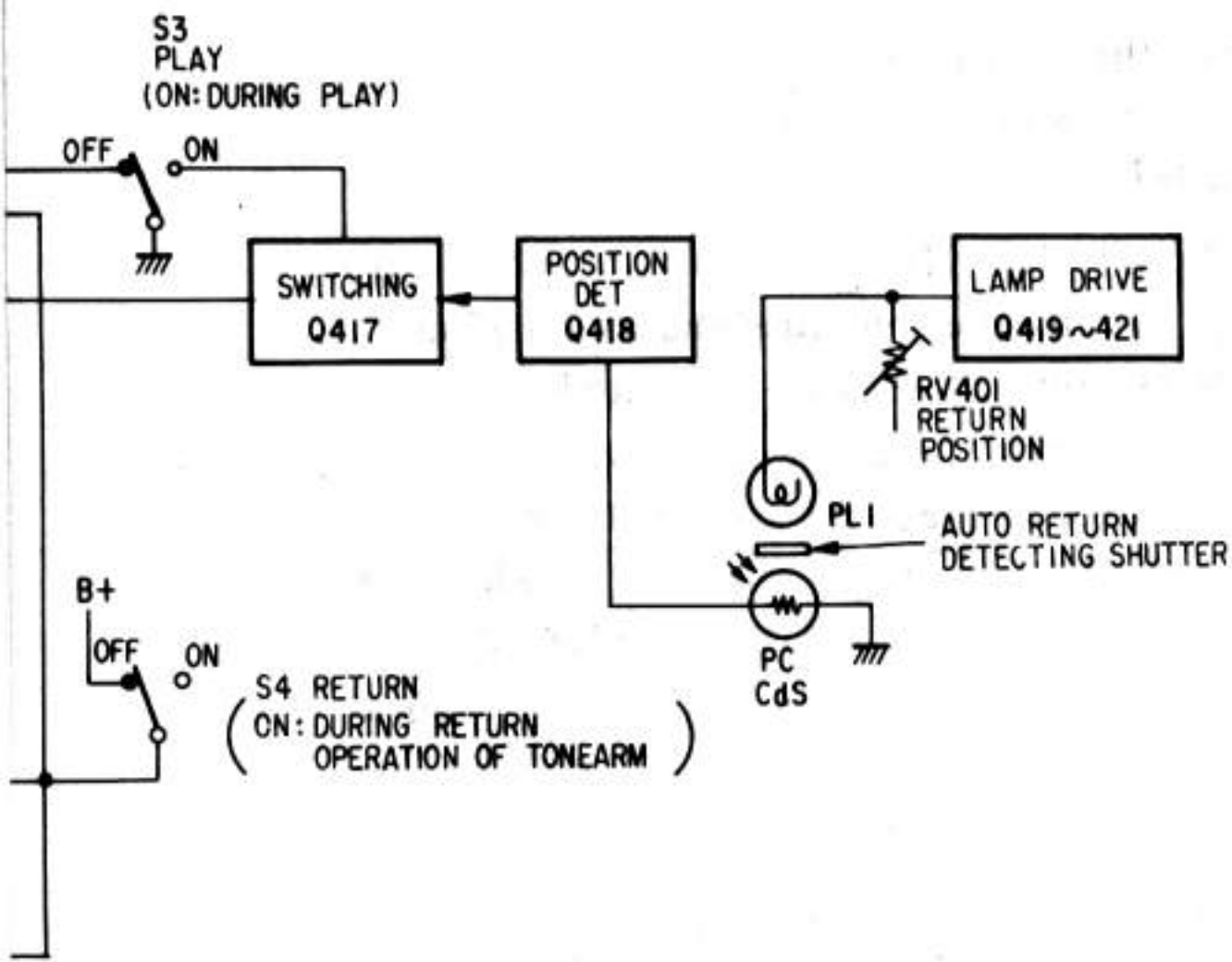
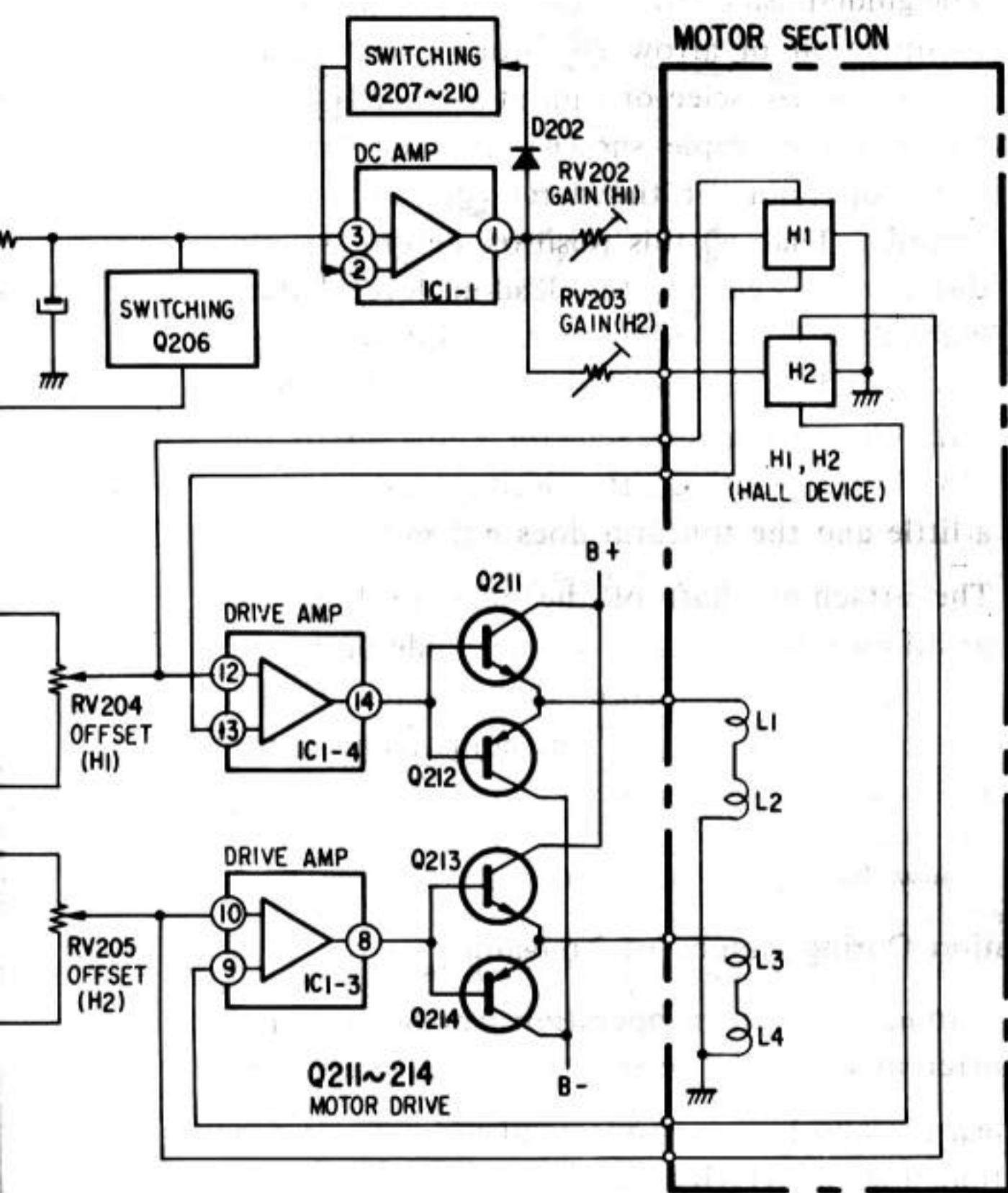
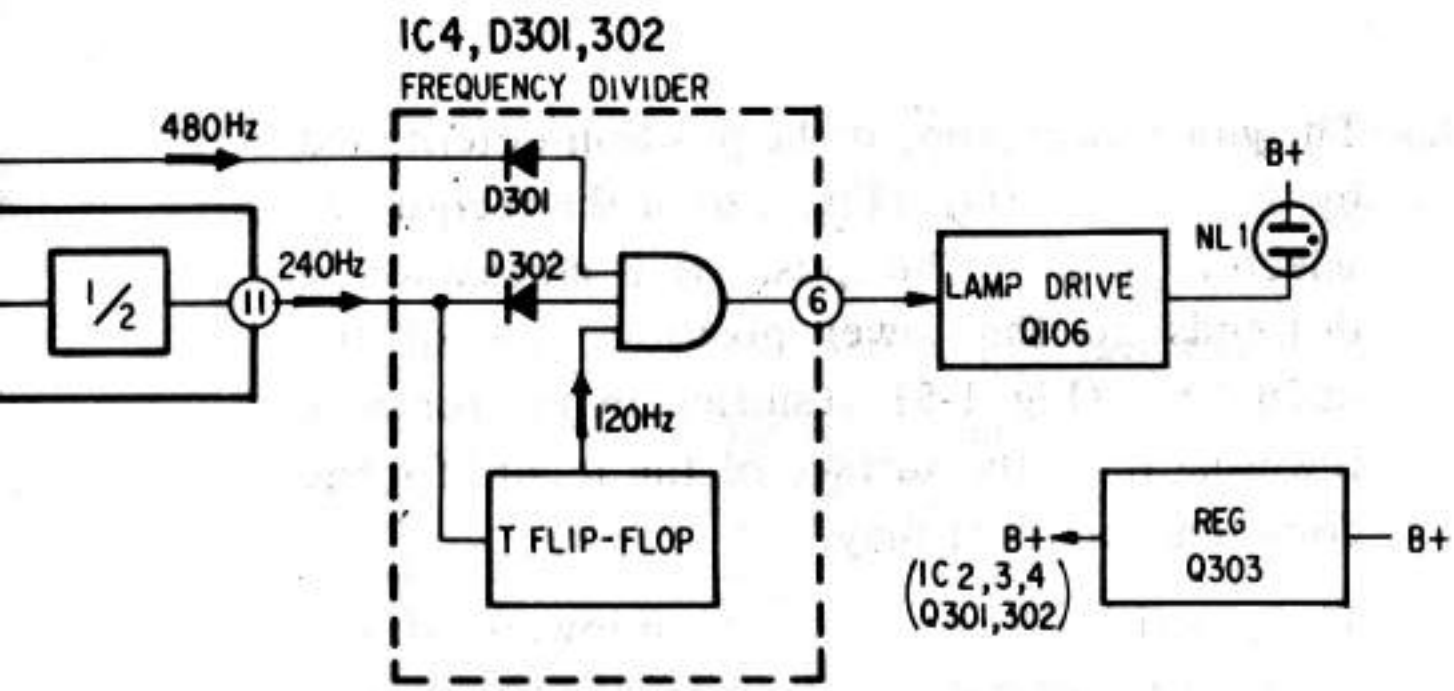


Fig. 1-10.

1-2. BLOCK DIAGRAM



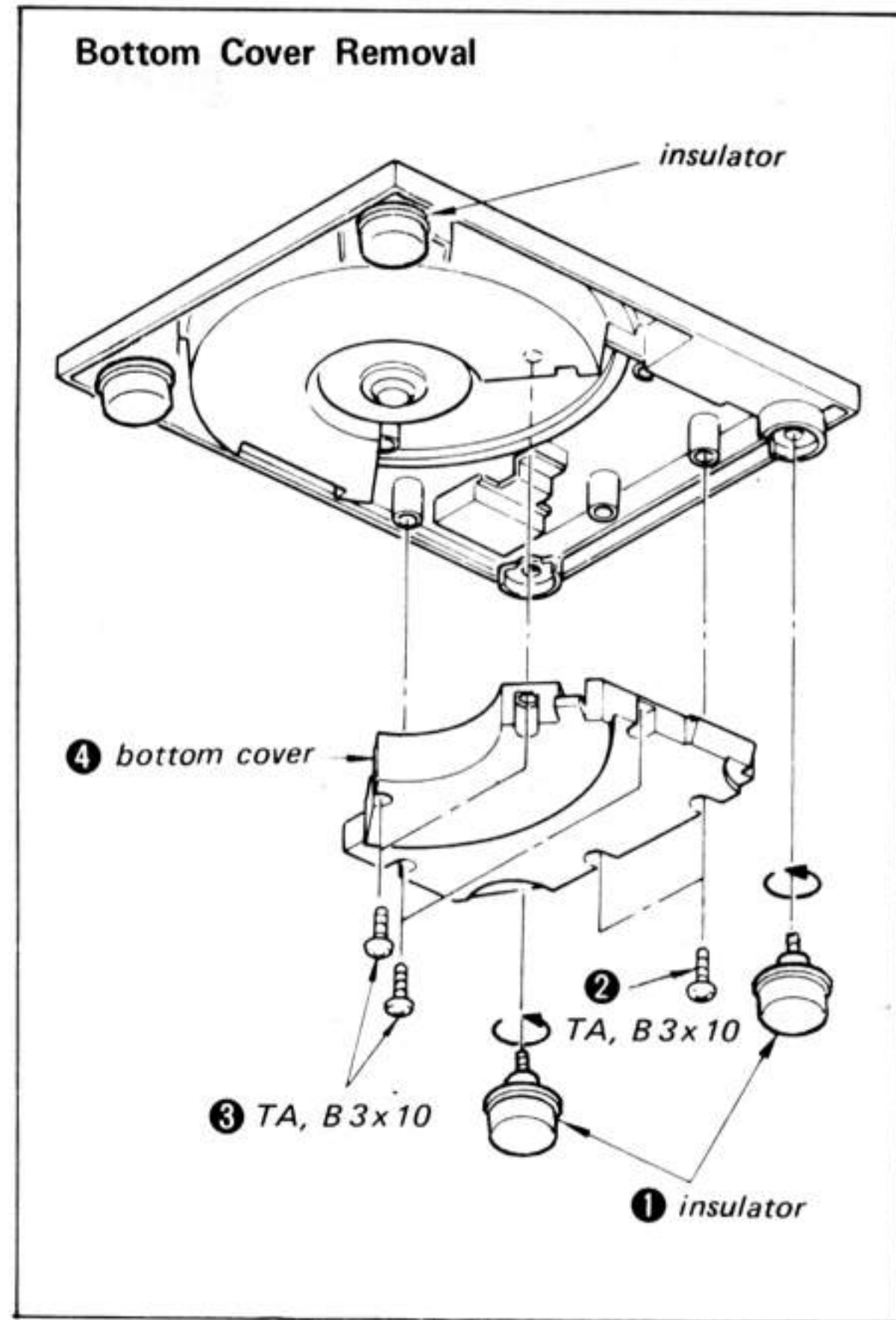
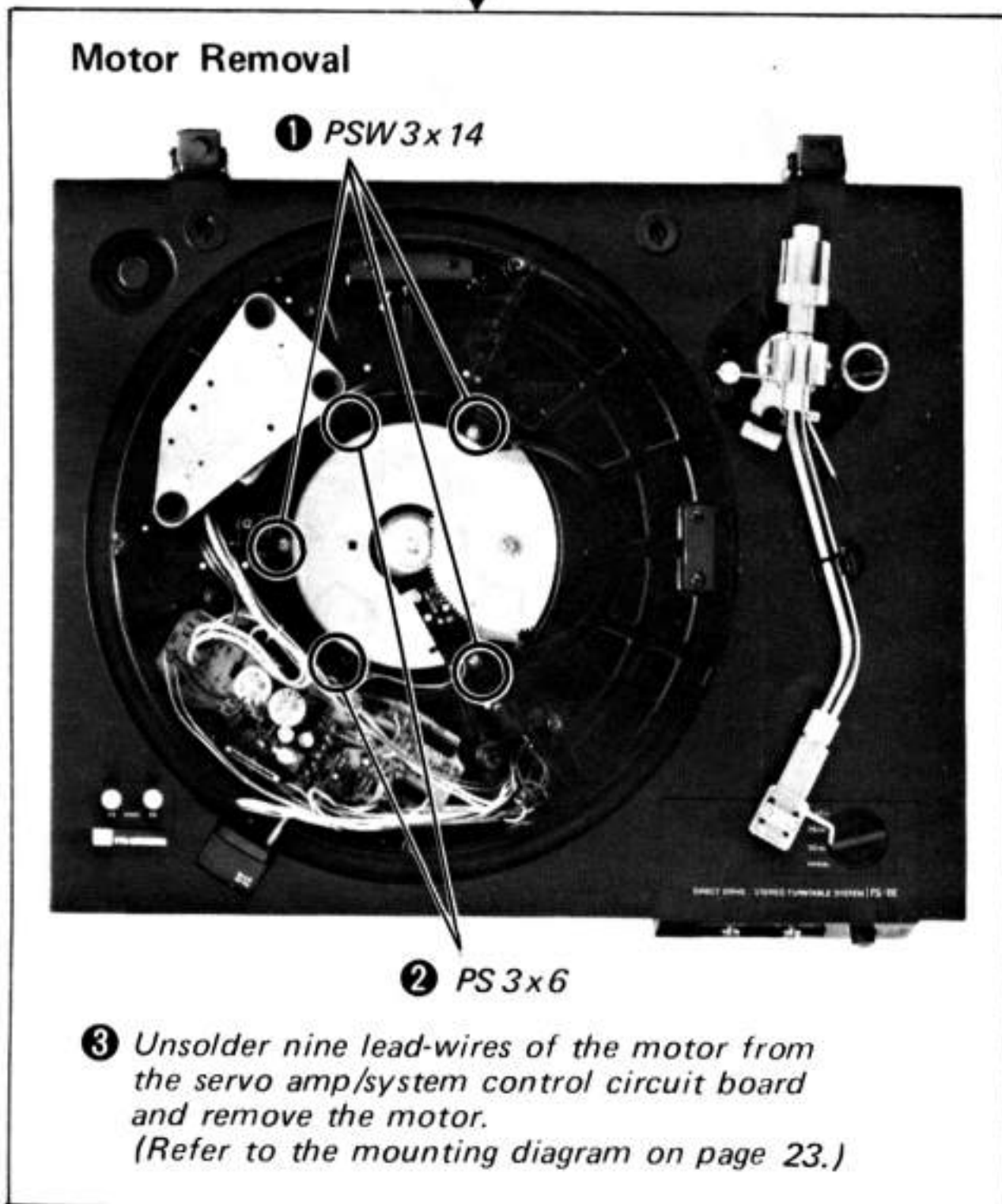
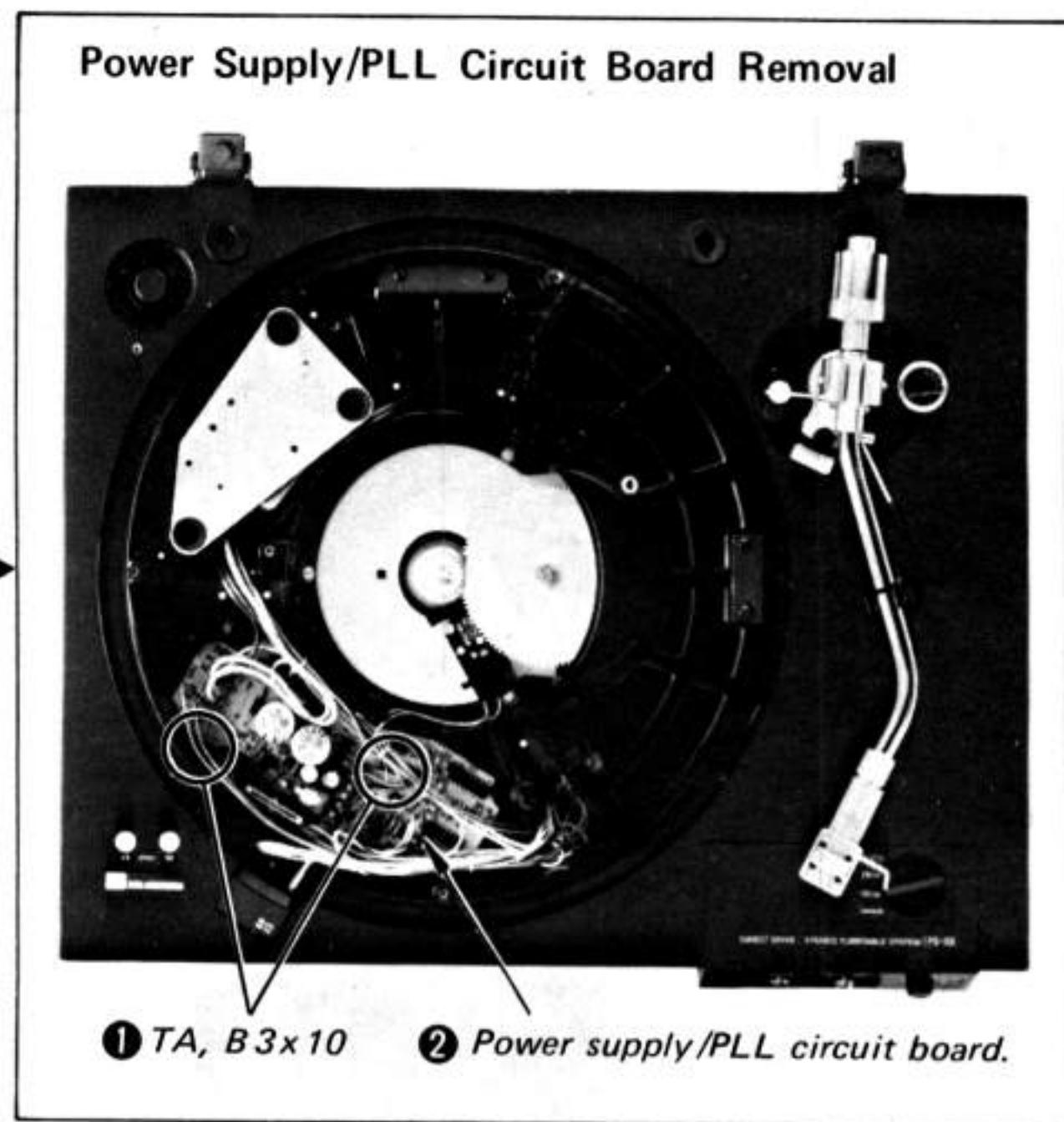
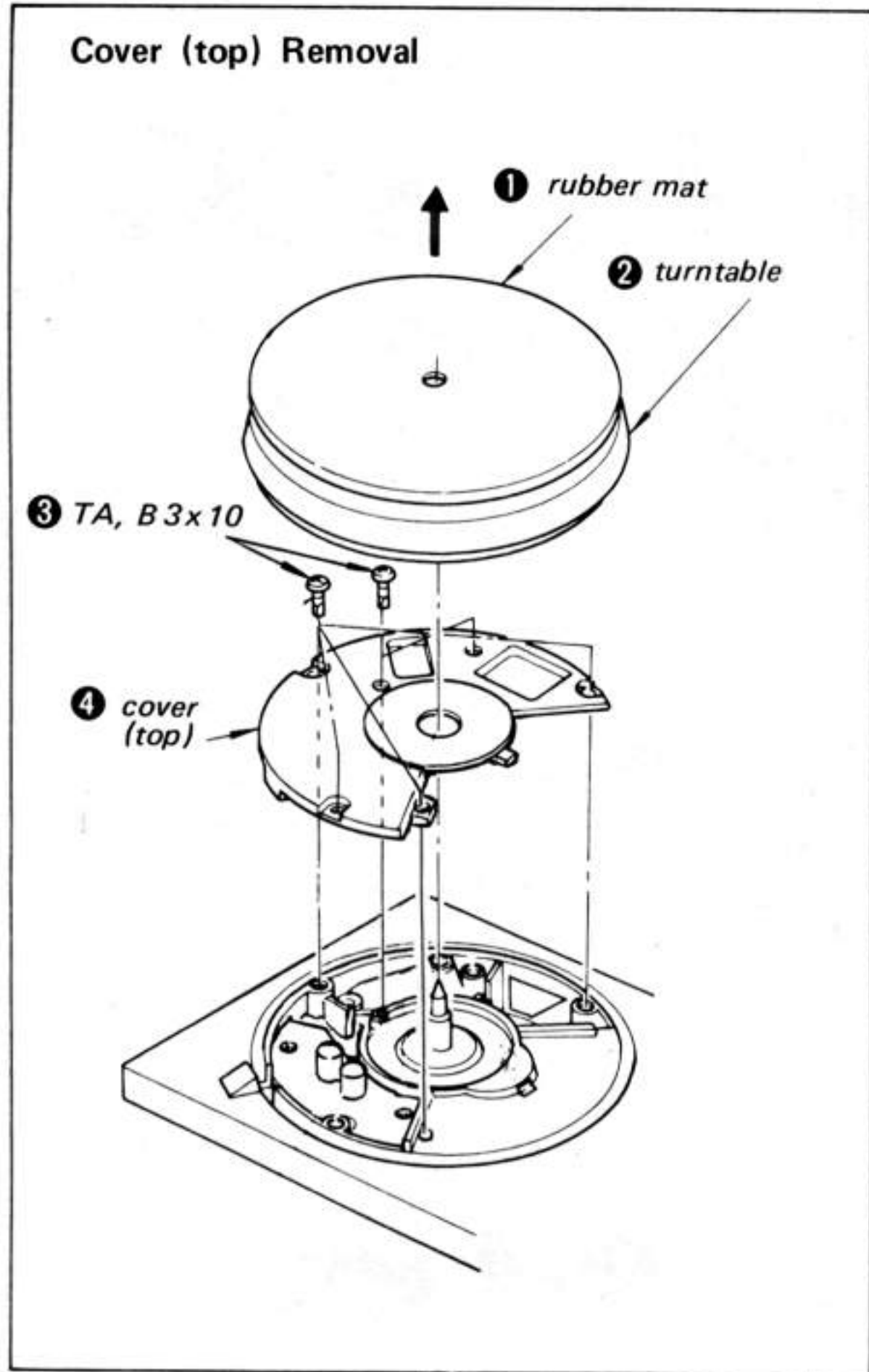
PS - X6/X7



**SECTION 2
DISASSEMBLY AND REPLACEMENT**

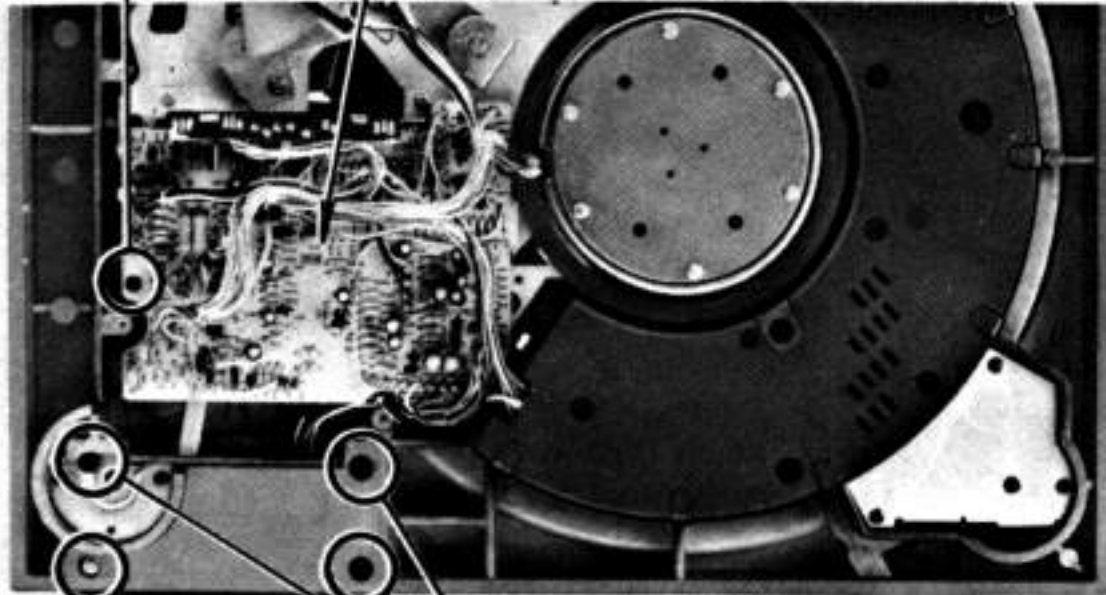
2-1. REMOVAL

Remove the parts in the numerical order.



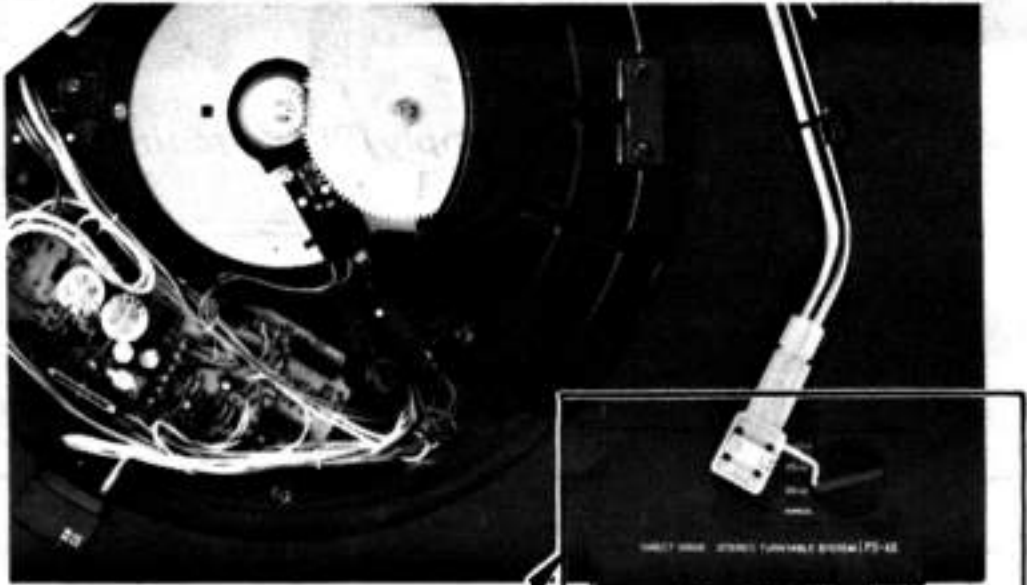
Servo Amp/System Control Circuit Board Removal

- ① TA, B 3x10 ② servo amp/system control circuit board



- ③ TA, P 3x30 W4 ④ TA, B 3x10

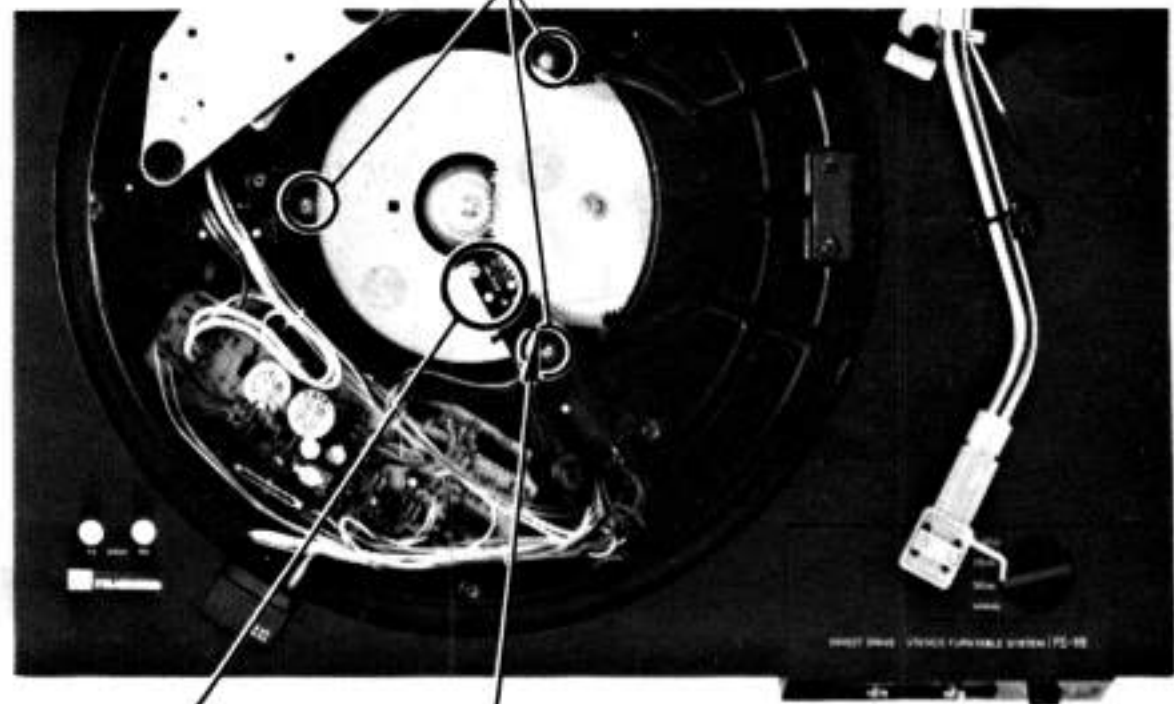
Control Panel Removal



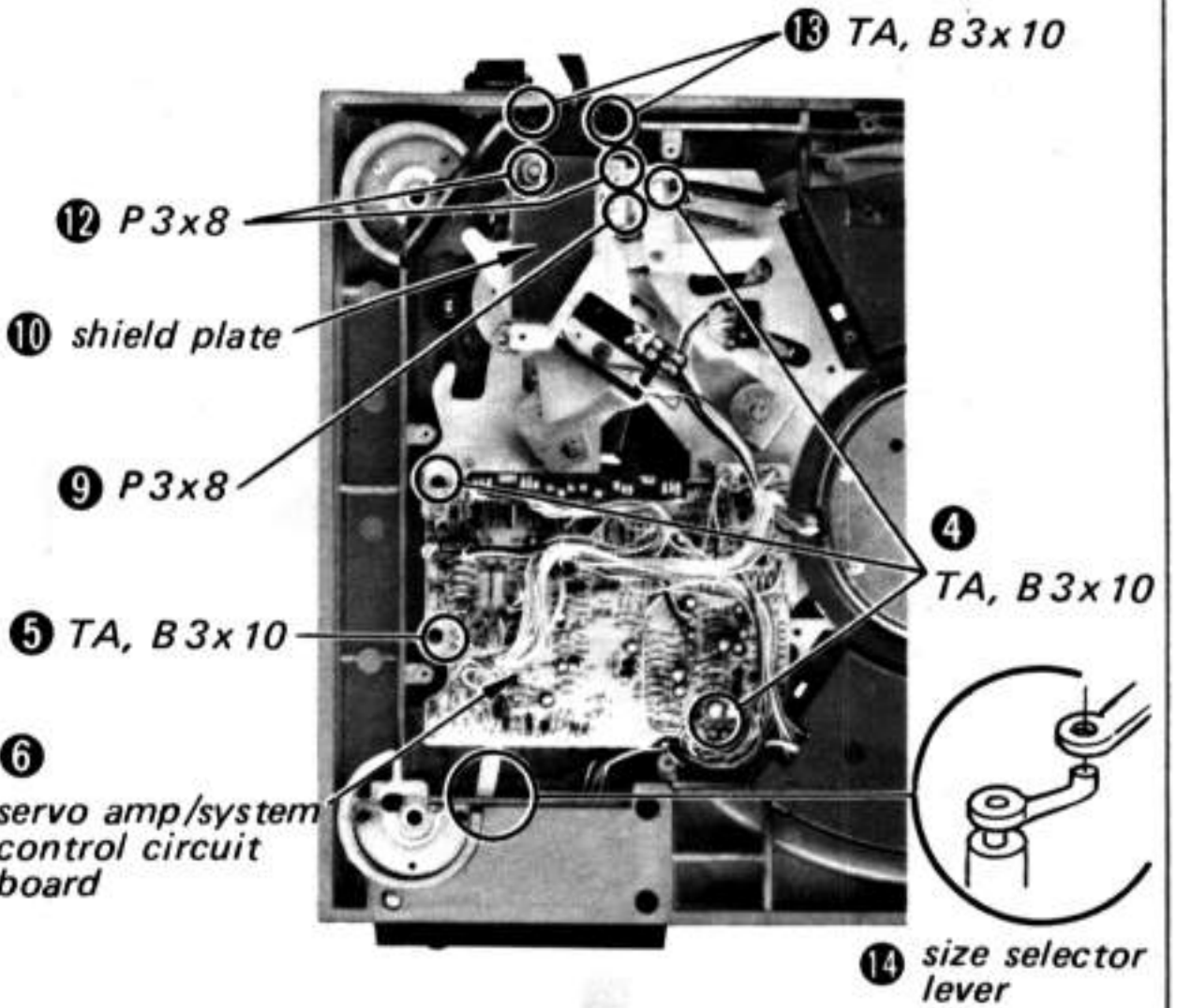
- ⑤ Control panel, touch switch circuit board, power switch, record size selector lever can be removed.

Sub-frame Removal

- ① PSW 3x14

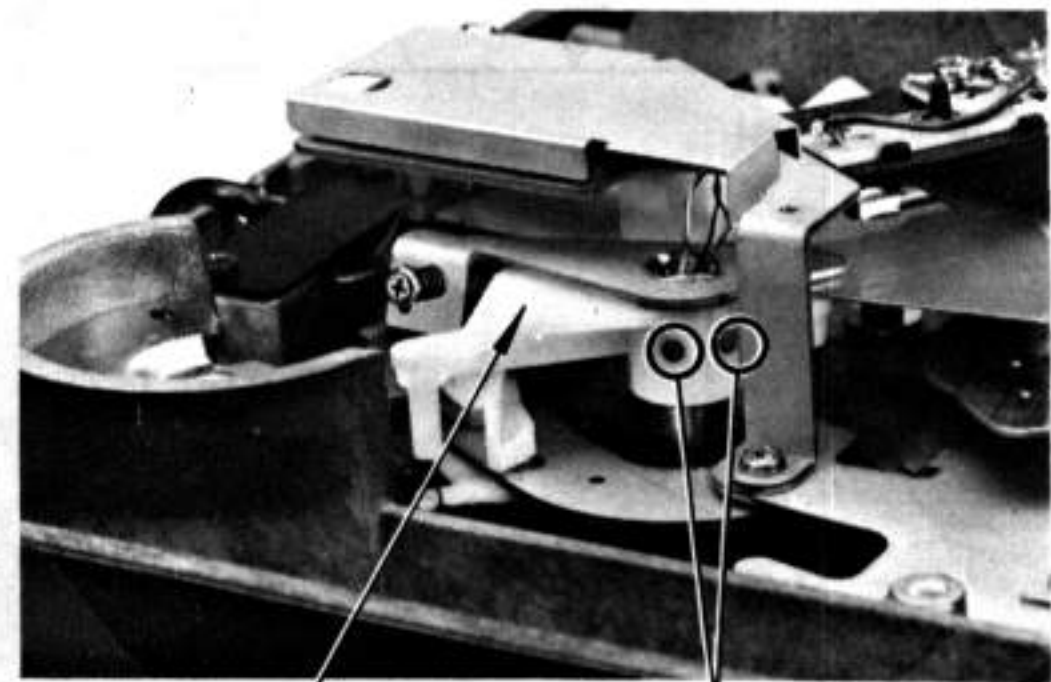
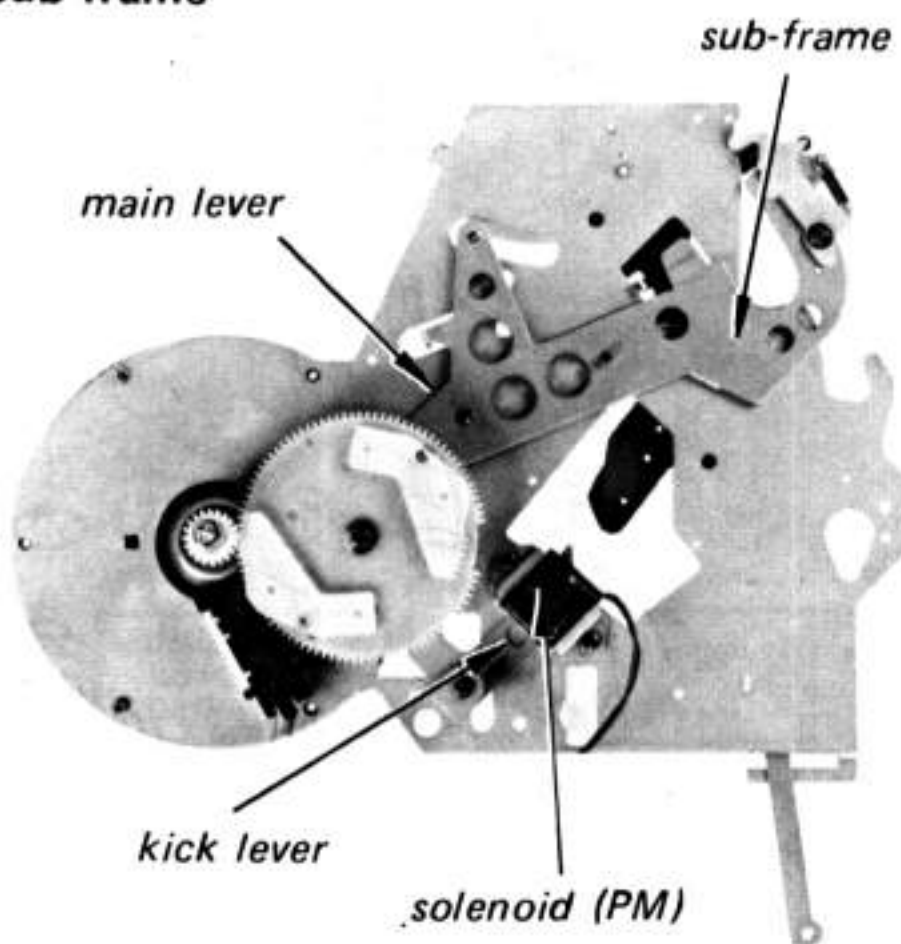


- ② PS 3x14 ③ return switch (S4)

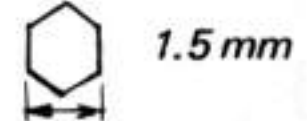


- ④ TA, B 3x10
⑤ TA, B 3x10
⑥ servo amp/system control circuit board
⑦ TA, B 3x10
⑧ P 3x8
⑨ shield plate
⑩ P 3x8
⑪ size selector lever

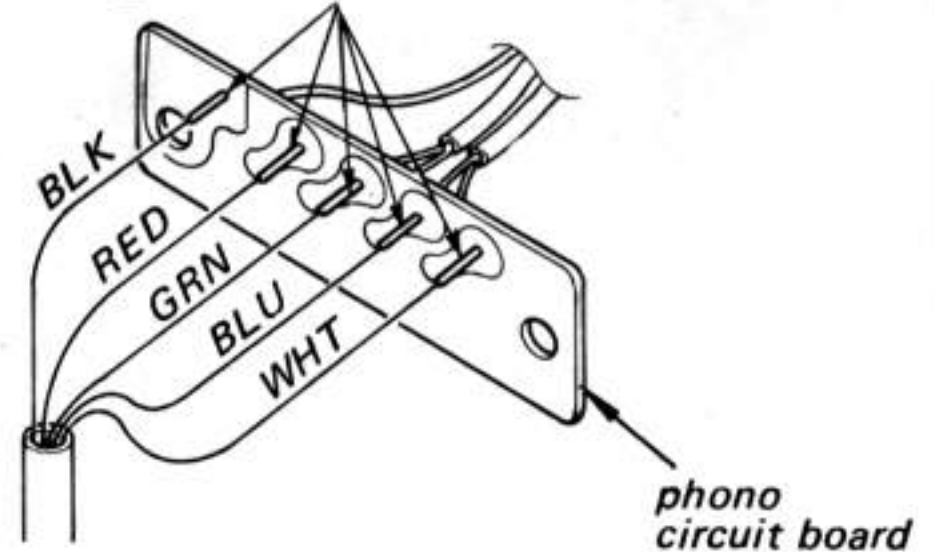
Sub-frame



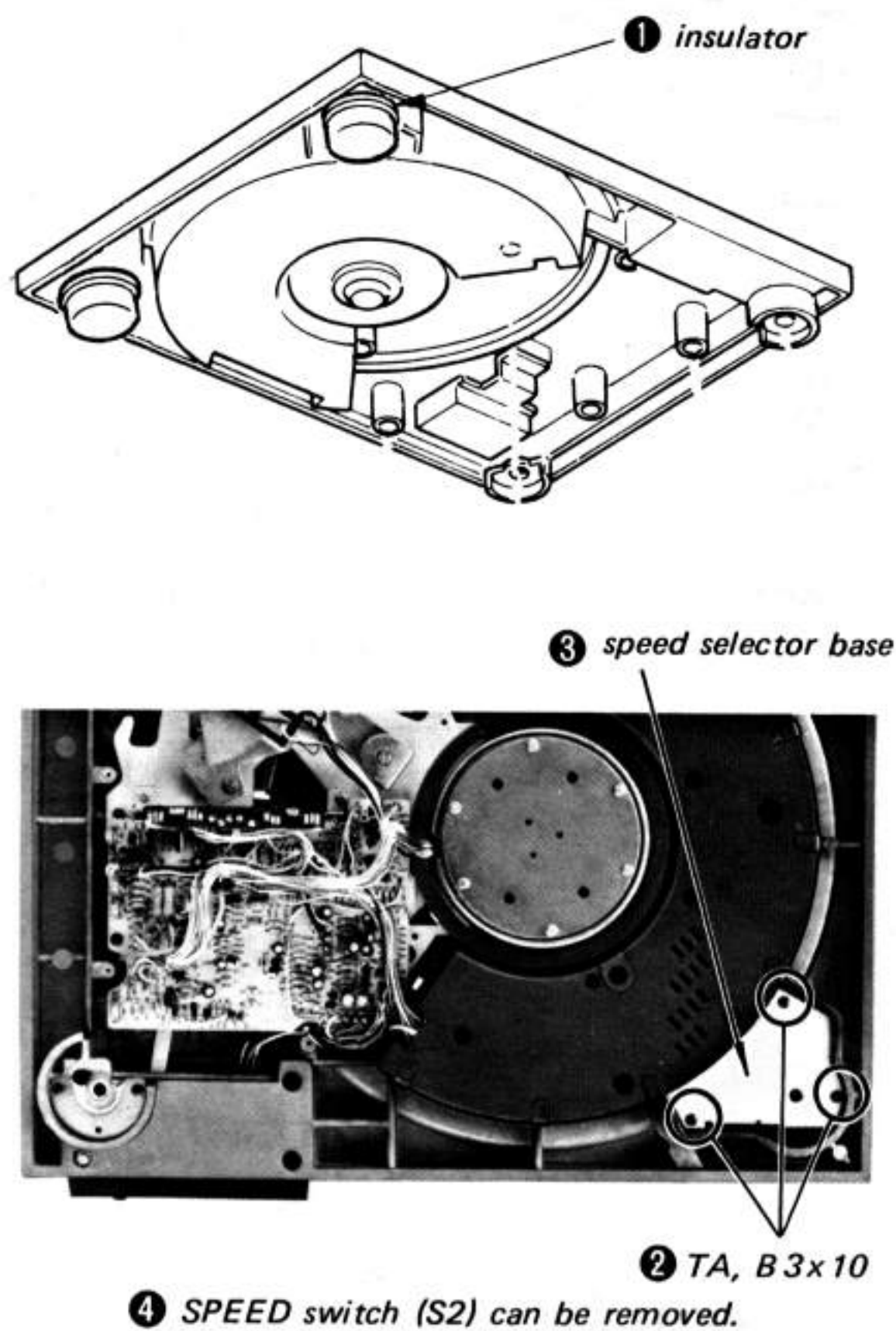
- ⑧ brake drum ⑦ SC M 3 x 6, hexagon socket



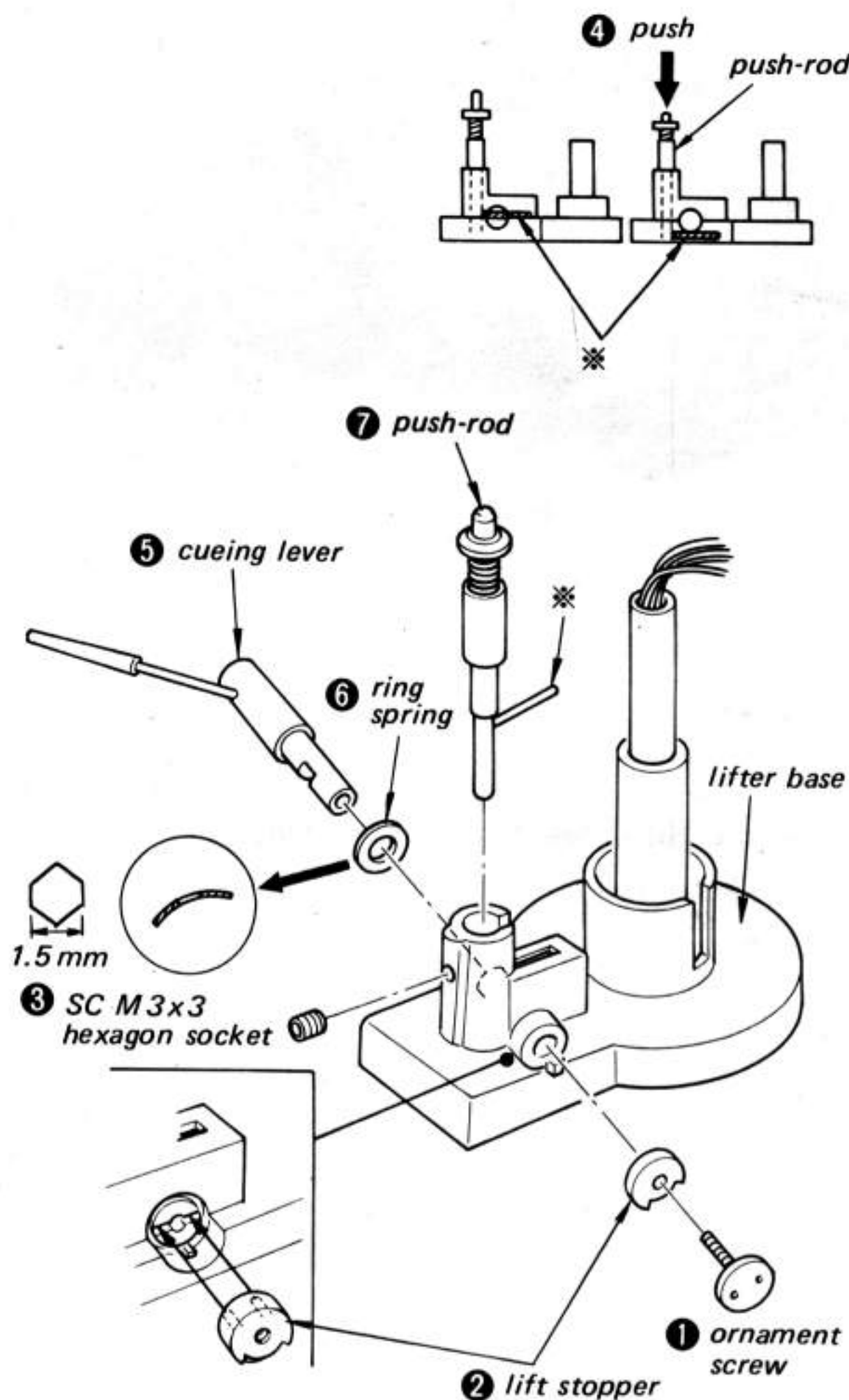
- ⑪ Unsolder five lead-wires.



SPEED Switch (S2) Removal



Arm Lifter Shaft Removal

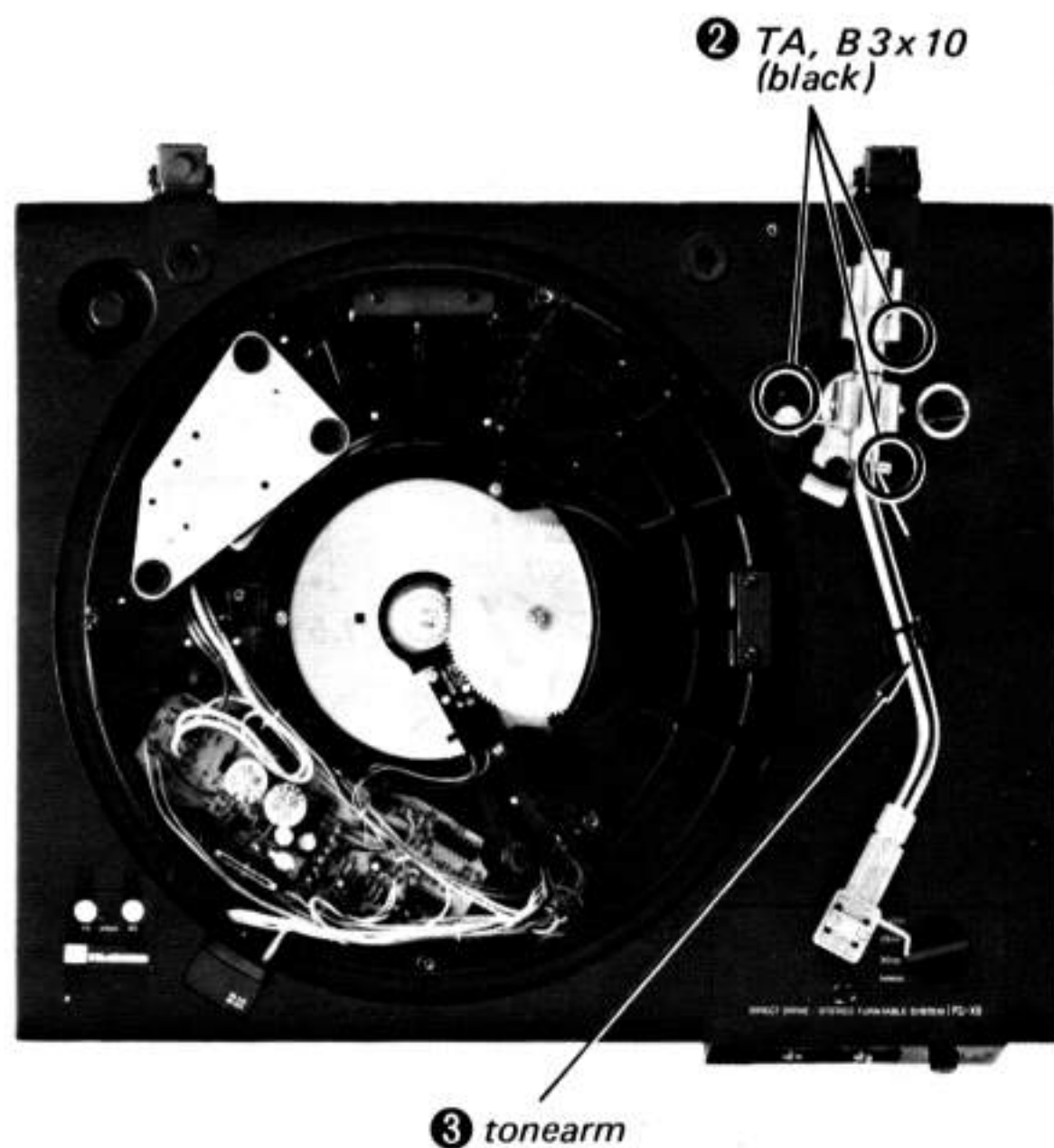


Note:

- When installing the cueing lever, take care to the direction of the ring spring 6.
- After installing the cueing lever, make sure that the push-rod is smoothly moved up and down by the cueing lever.

Tonearm Removal

1 Remove the brake drum and five lead wires.
(Refer to Sub-frame Removal - 8 and 11.)

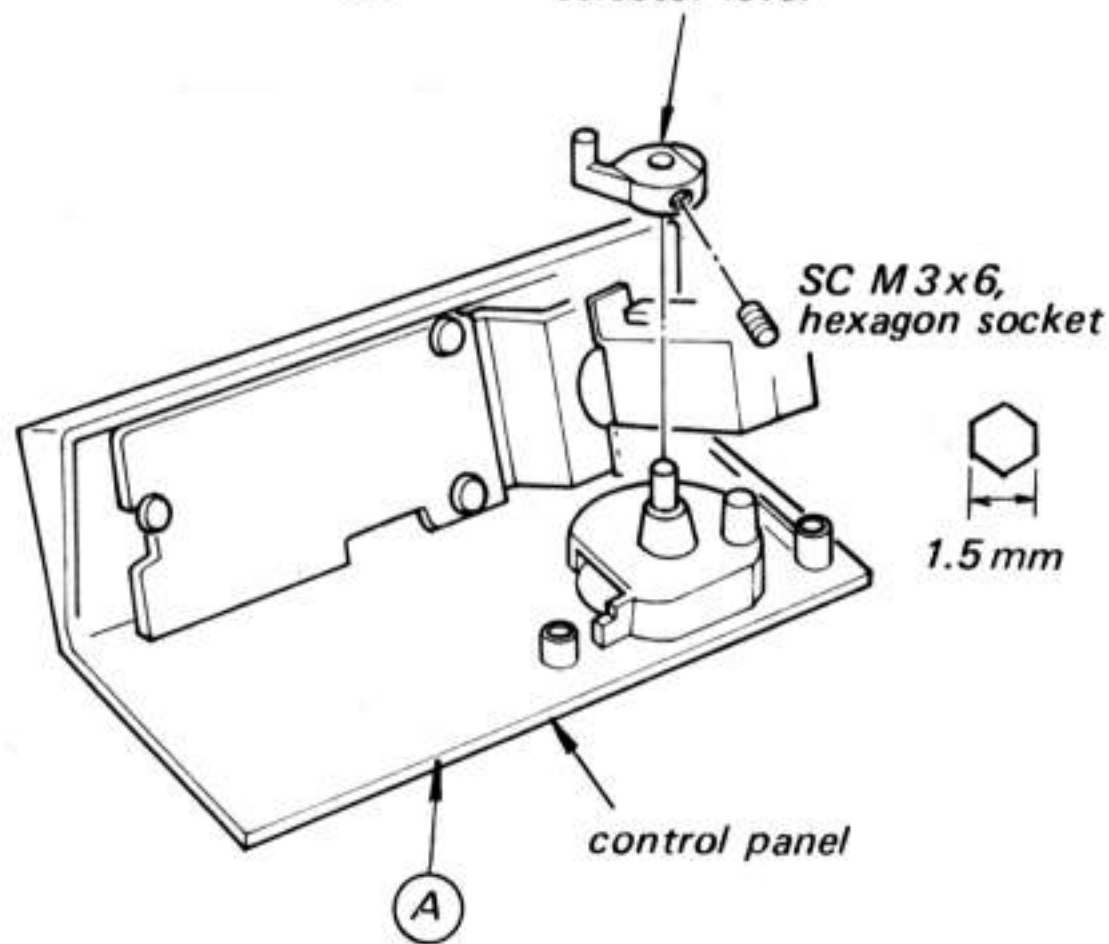
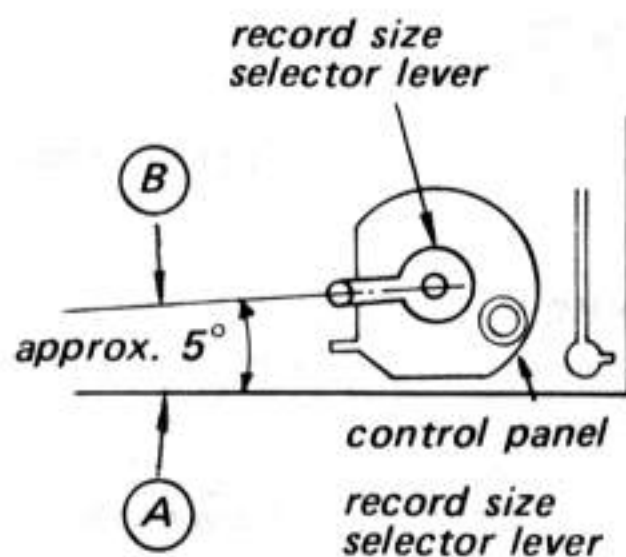
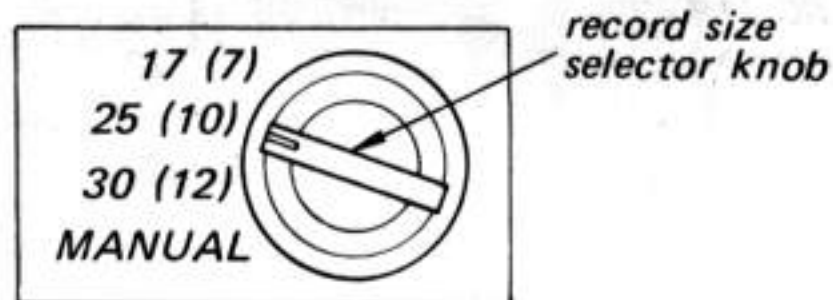


2-2. CAUTION FOR INSTALLATION



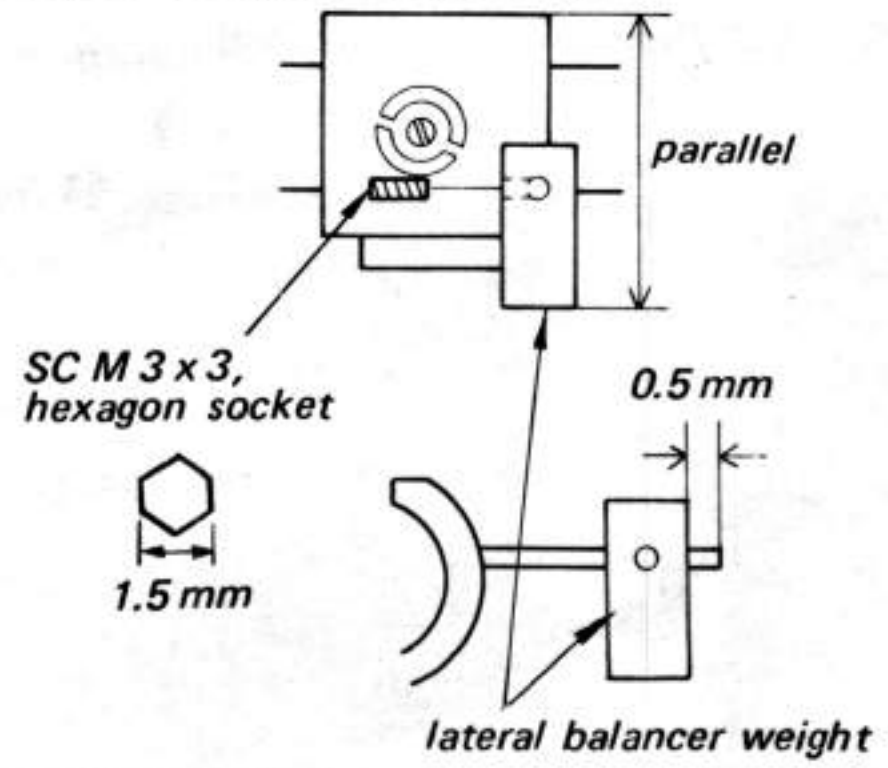
Record Size Selector Lever Installation

- 1 Set the record size selector knob to the 25 (10) position.
- 2 Install and set the record size selector lever as shown below.



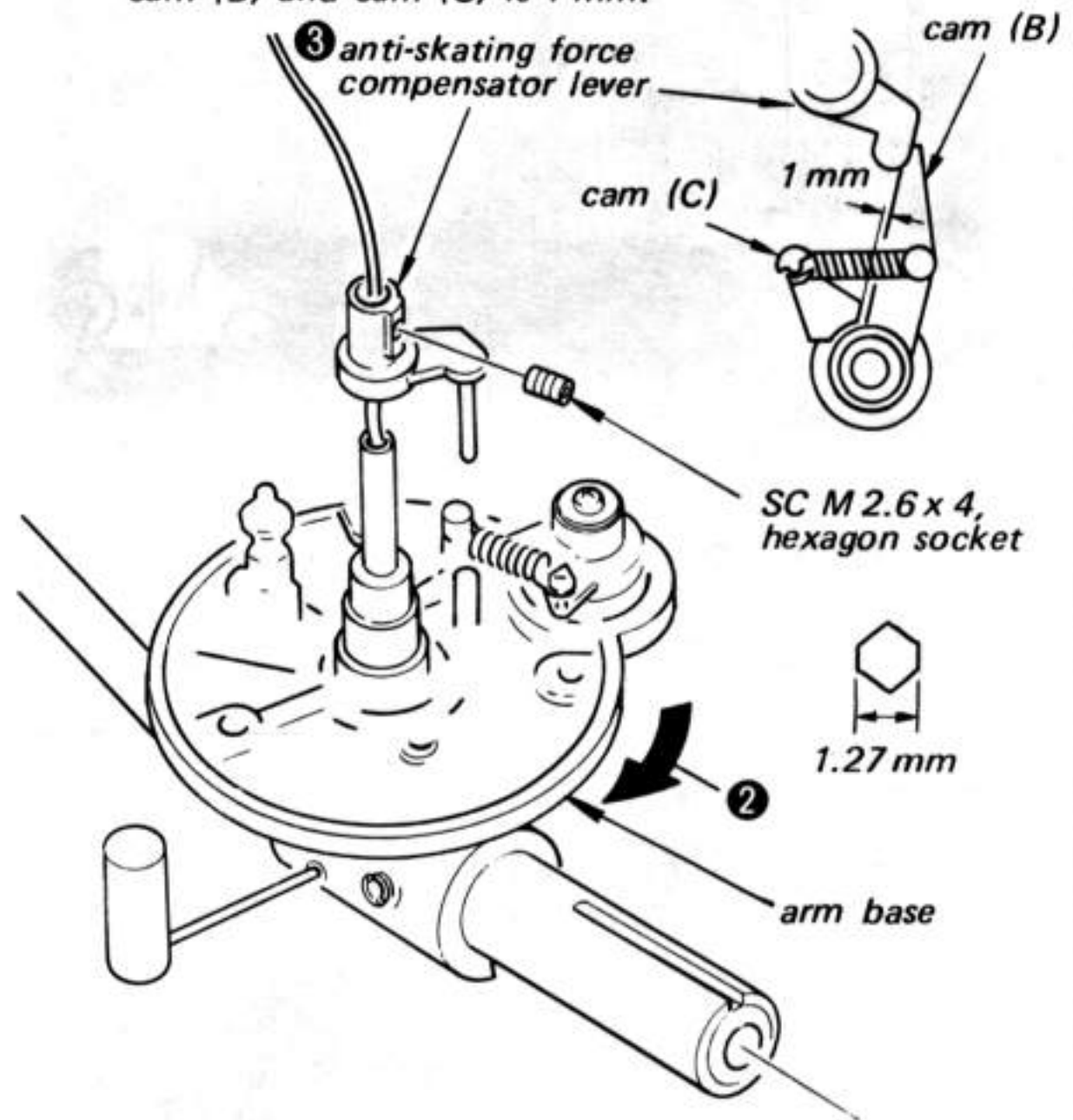
- 3 Set the record size selector knob to the MANUAL position and, when touching the start/stop switch, make sure that the tonearm does not move.

Lateral Balancer Weight Installation



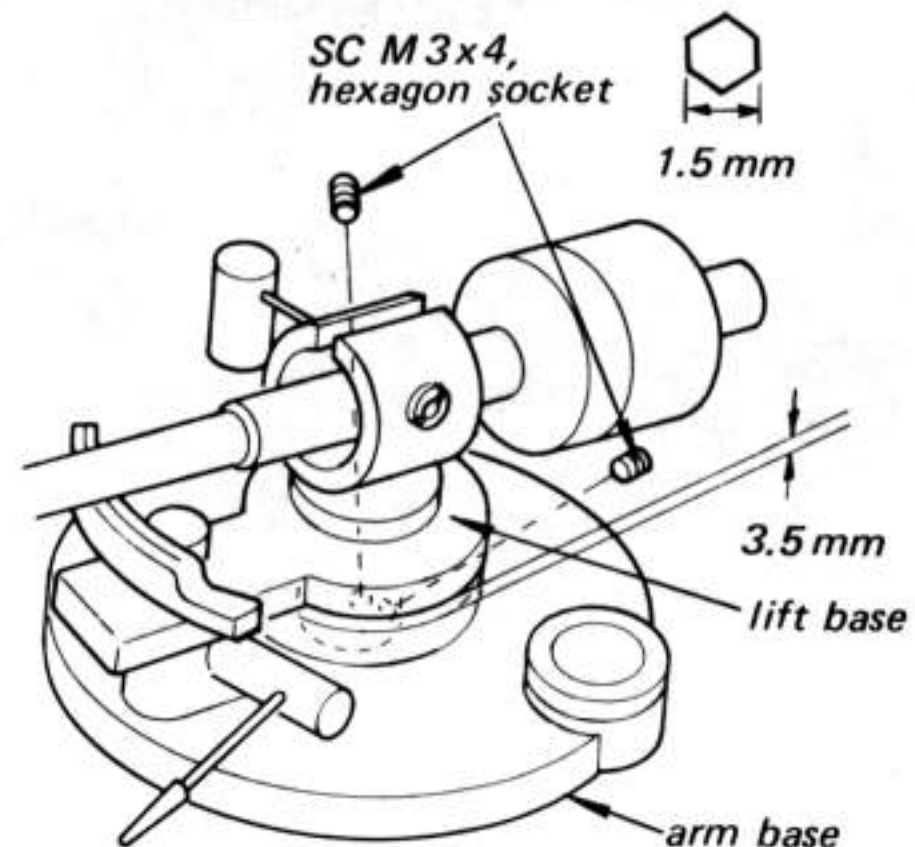
Anti-skating Compensator Lever Installation

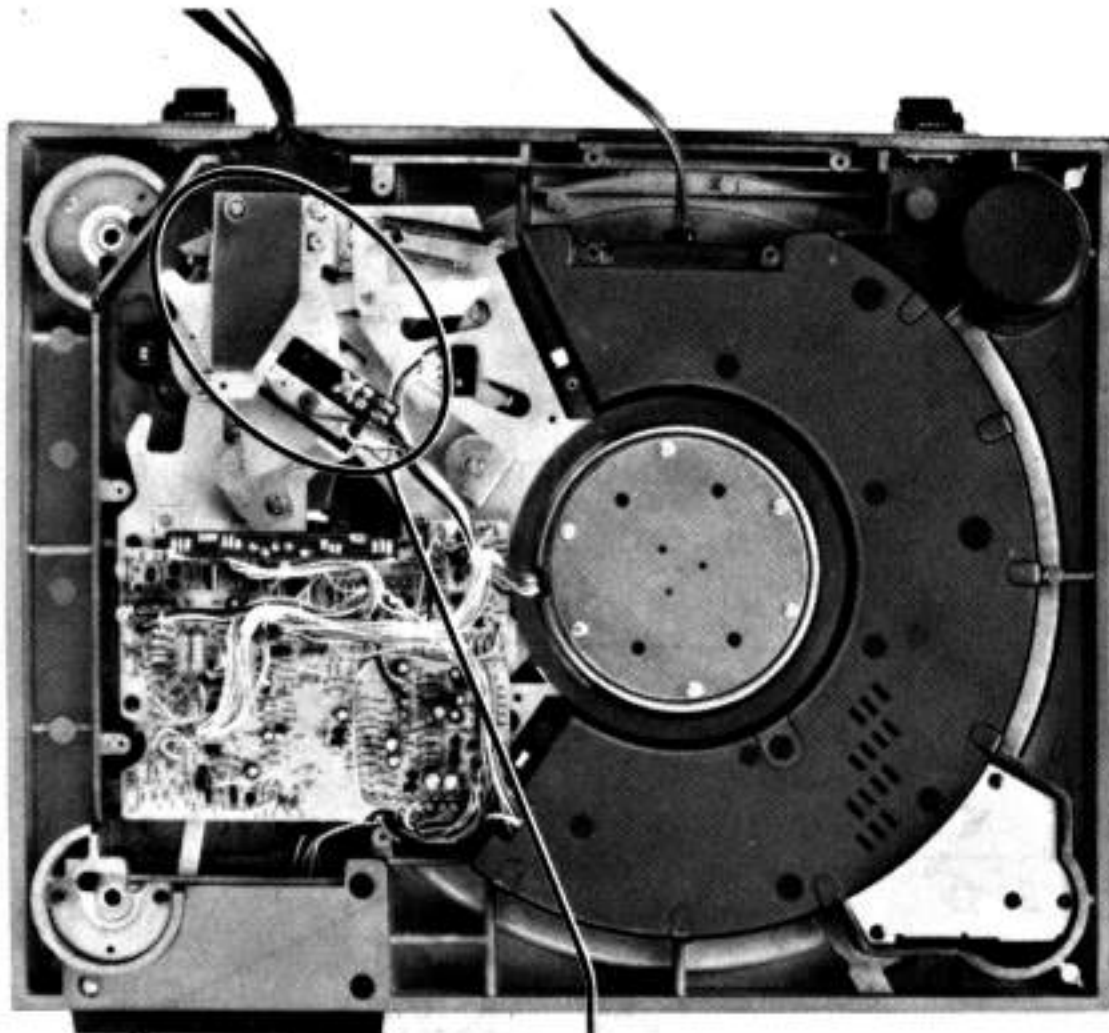
- 1 Set the anti-skating force compensator knob to 0.
- 2 Turn the arm base fully clockwise.
- 3 Install the anti-skating force compensator lever so that the clearance between the cam (B) and cam (C) is 1 mm.



Lift Base Installation

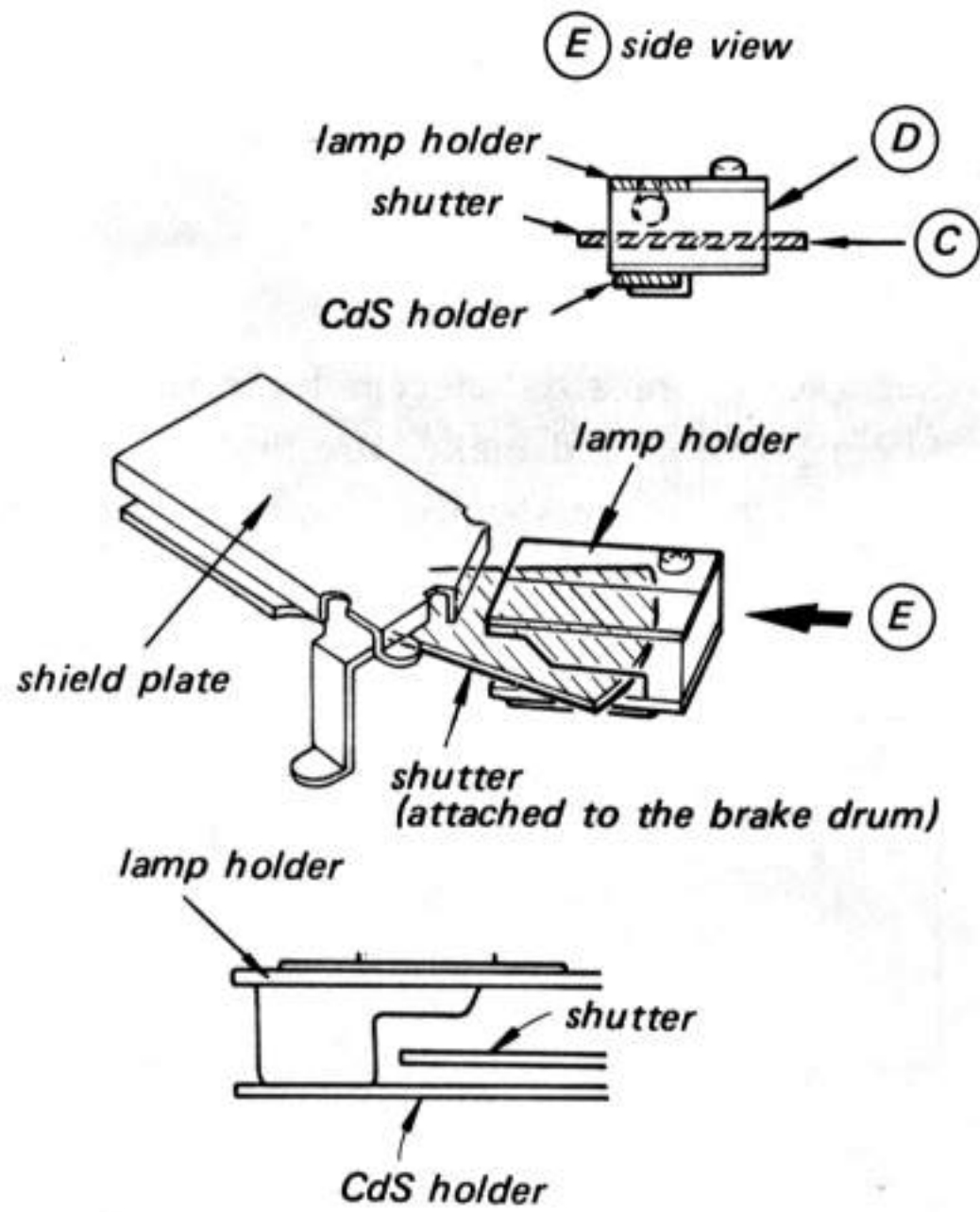
Install the lift base so that the clearance between the arm base and lift base is 3.5 mm.





Brake Drum Installation

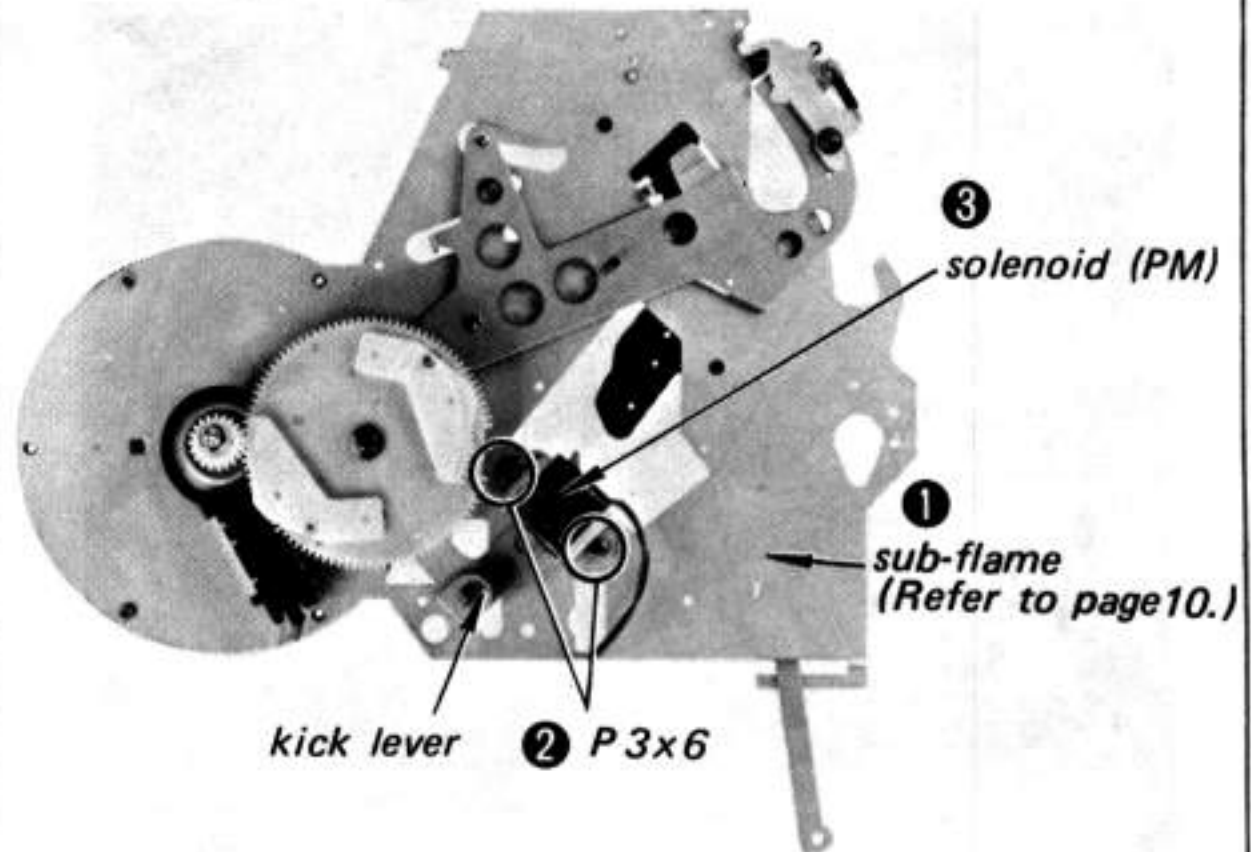
- 1 Install the brake drum at the tonearm shaft and set the tonearm on the tonearm rest.
- 2 Move the shutter to align the face (C) of the shutter and the face (D) of the lamp holder as shown below.



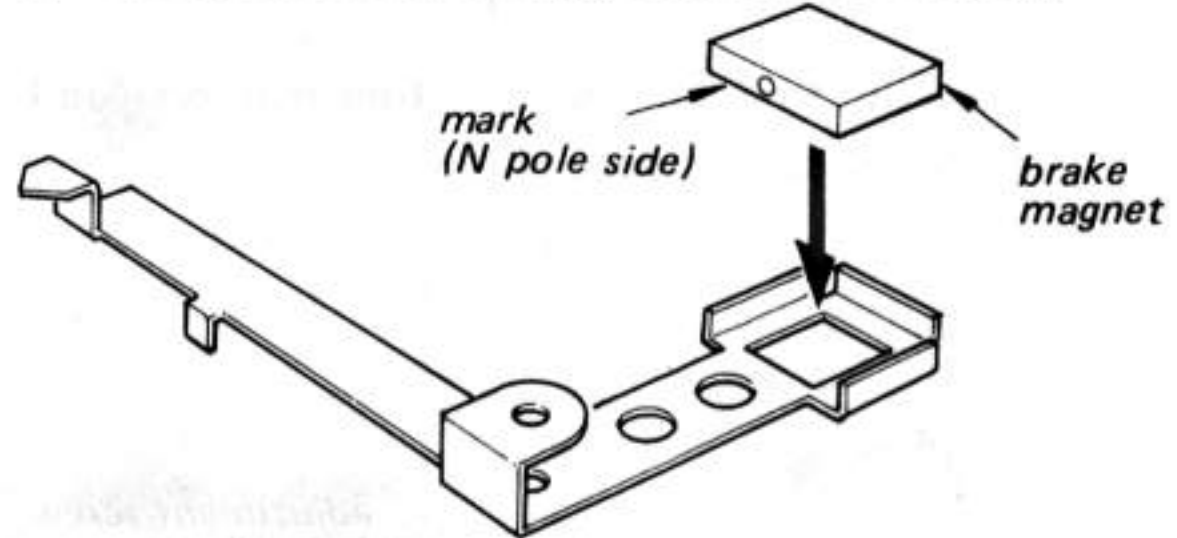
Note: Make sure that the shutter does not touch the lamp holder and the CdS holder.

Brake Magnet Installation

1. Remove the solenoid as shown below.



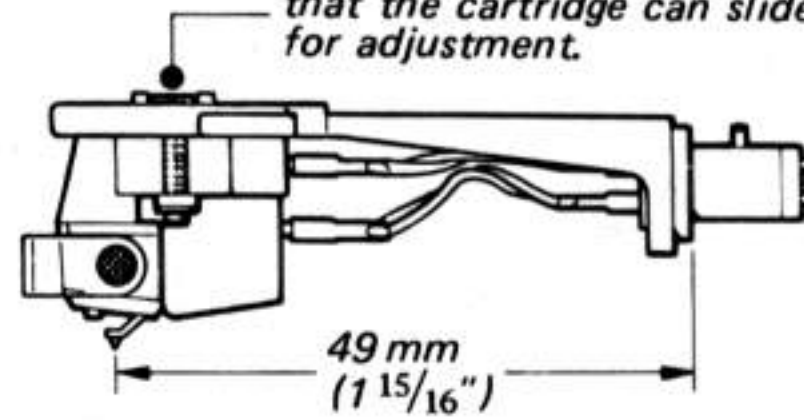
2. Apply the Sony bond master G580 to the brake magnet.
3. Install the brake magnet as shown below.



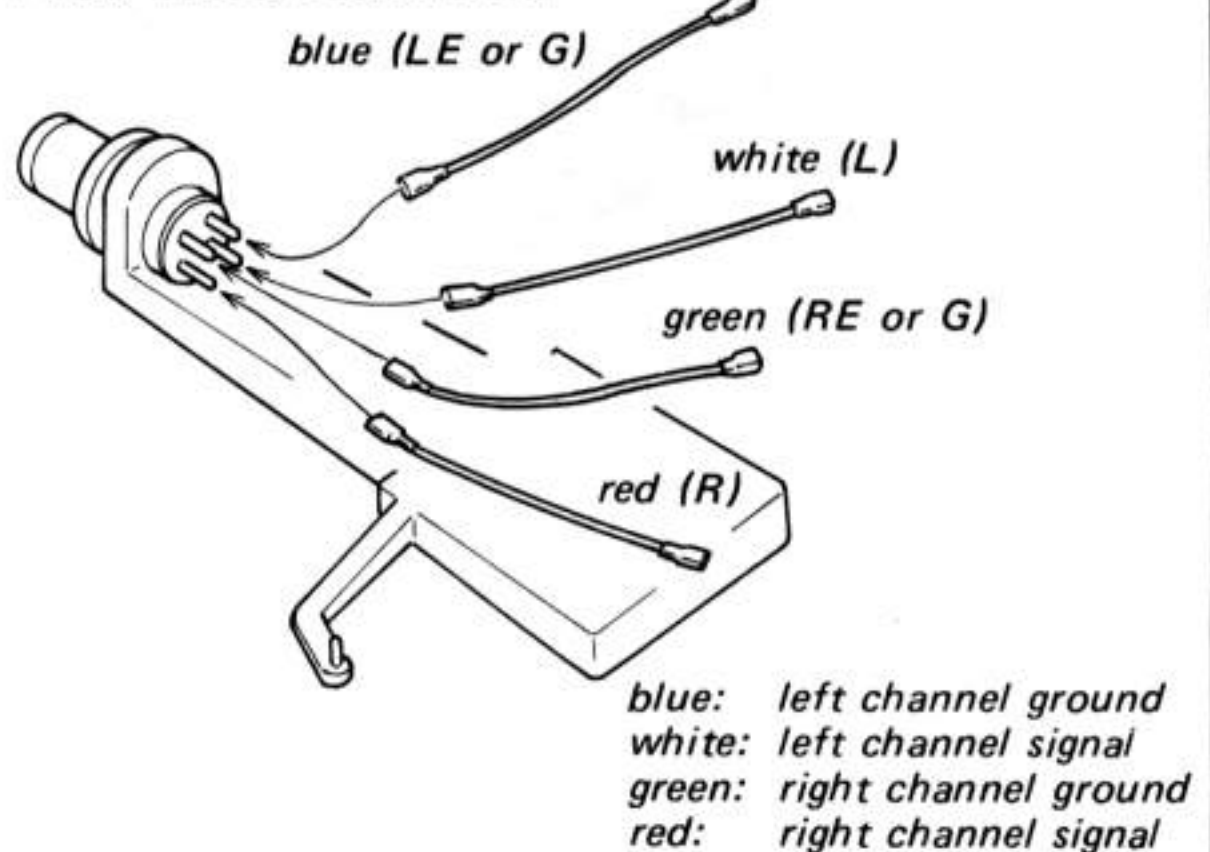
Cartridge Installation

Install the cartridge into the shell with the mounting screws so that the distance between the shell end and the stylus tip is 49 mm (1 15/16 inches).

Fasten the screws lightly so that the cartridge can slide for adjustment.

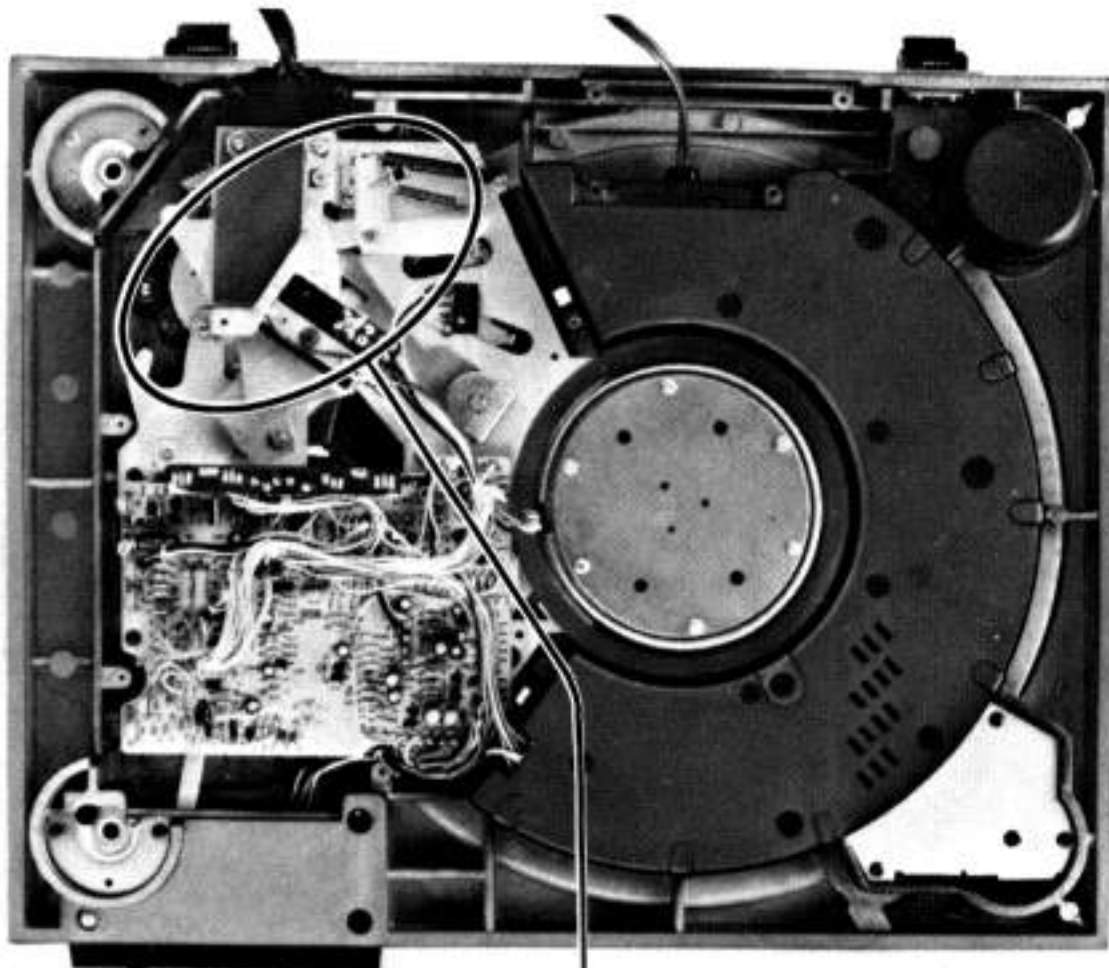


Lead Wires Connection



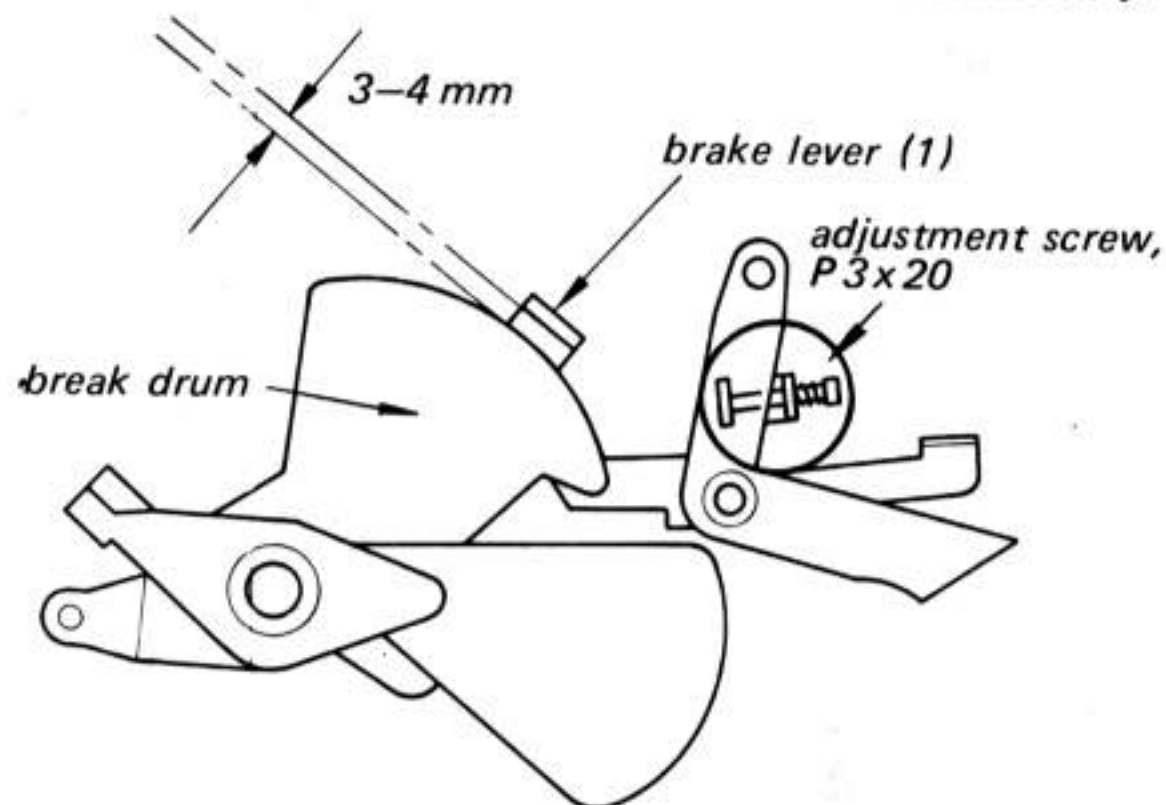
SECTION 3 ADJUSTMENTS

3-1. MECHANICAL ADJUSTMENTS

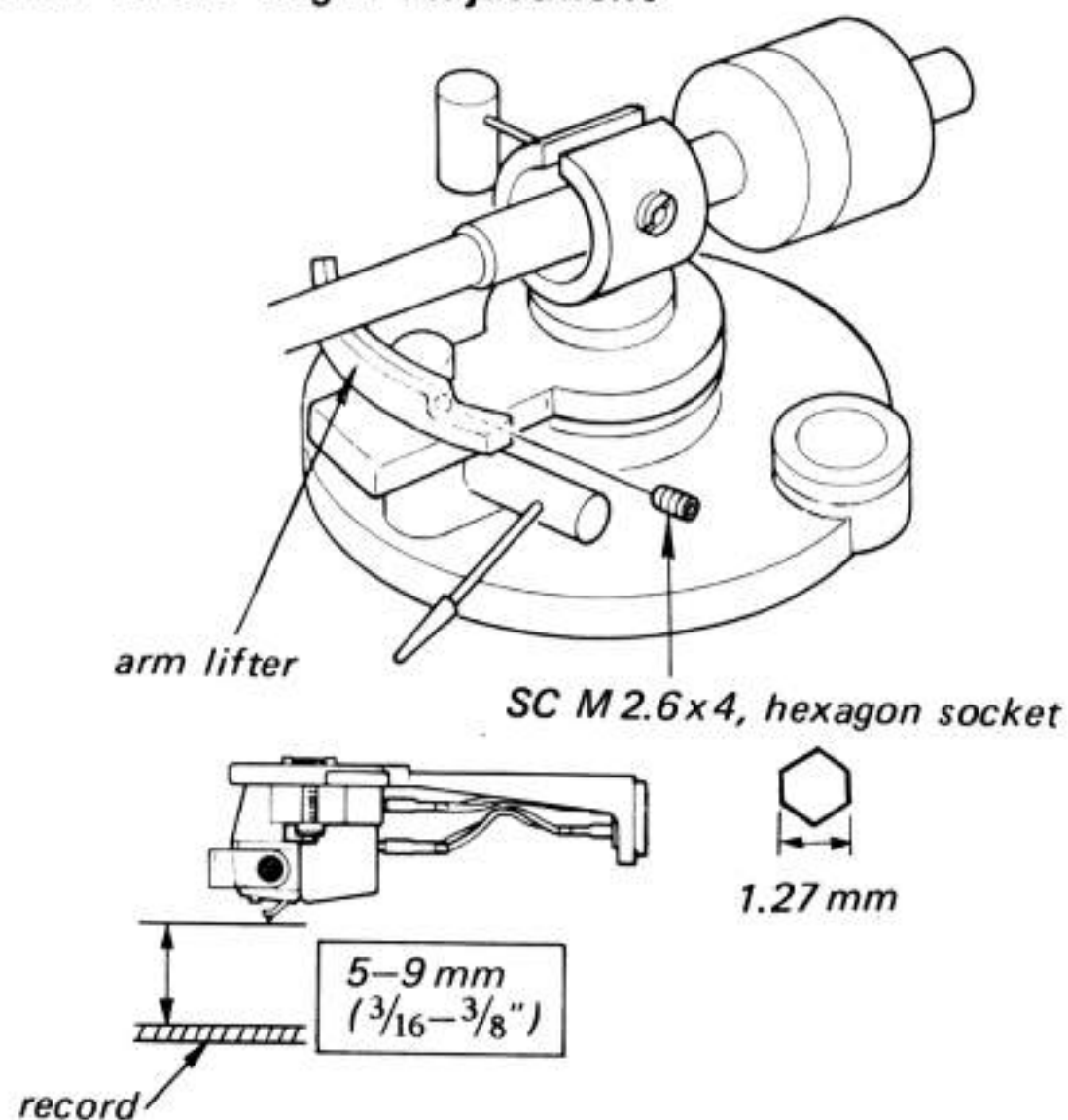


Brake Lever (1) Position Adjustment

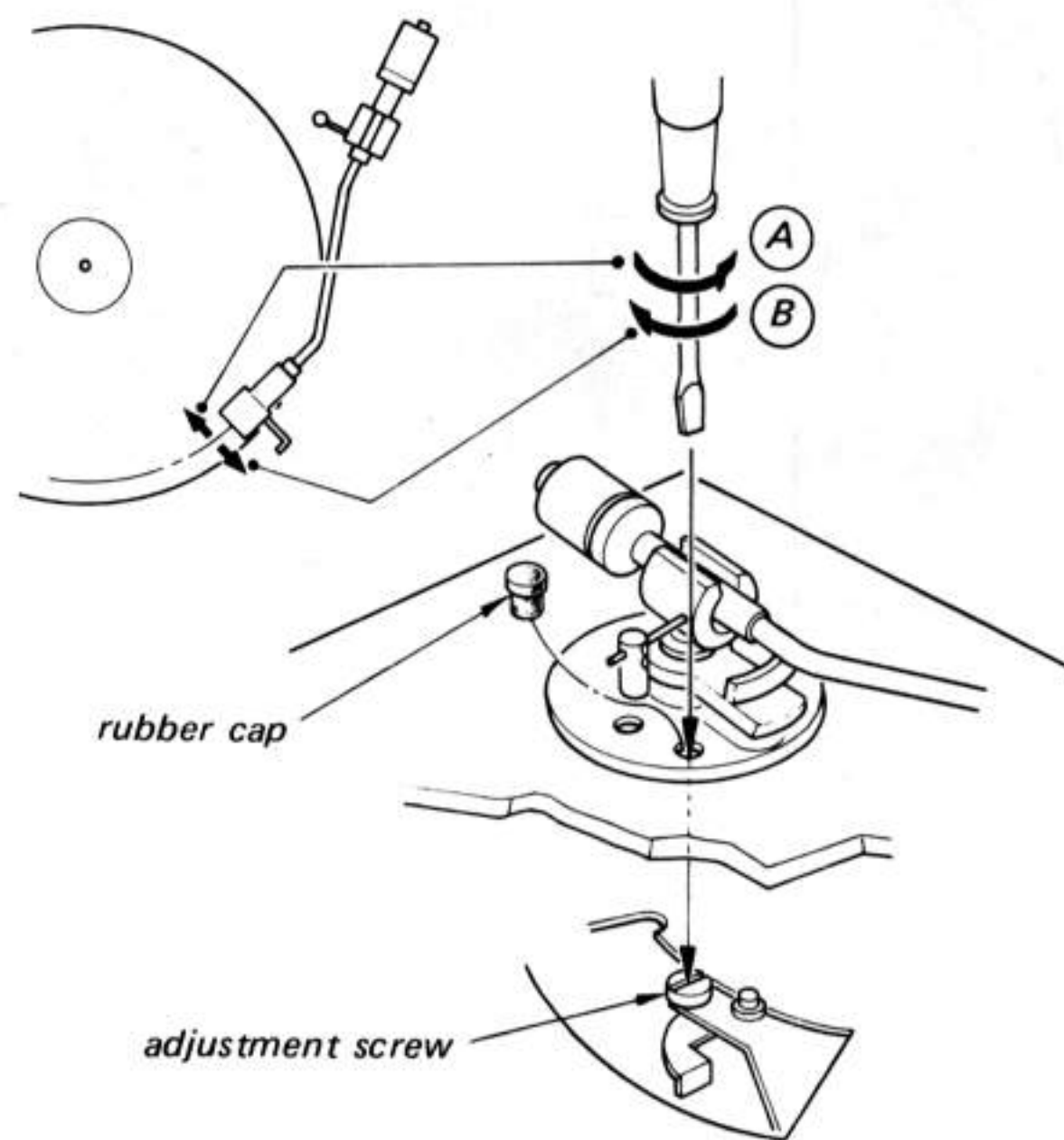
1. Set the tonearm on the tonearm rest and turn the adjustment screw as shown below.
2. Make sure that the tonearm moves smoothly.



Arm Lifter High Adjustment



Stylus Drop-point Adjustment



1. Set the record size selector lever to the 30 (12") position and make sure that the stylus gets down on the specified point of the test record.

test record: YFSC-16

Record size selector lever position	Count of drop-point
30 (12")	4 to 16
25 (10")	6 to 24
17 (7")	7 to 25

2. If necessary, insert the screw-driver into the hole and adjust the drop-point by turning the adjustment screw.

To change the drop-point inward:

Turn the adjustment screw slightly counterclockwise (A)

To change the drop-point outward:

Turn the adjustment screw slightly clockwise (B)

3. Once it is properly adjusted with a 30 cm (12") record, the drop-point will be correct for 17 cm (7") and 25 cm (10") records as well.

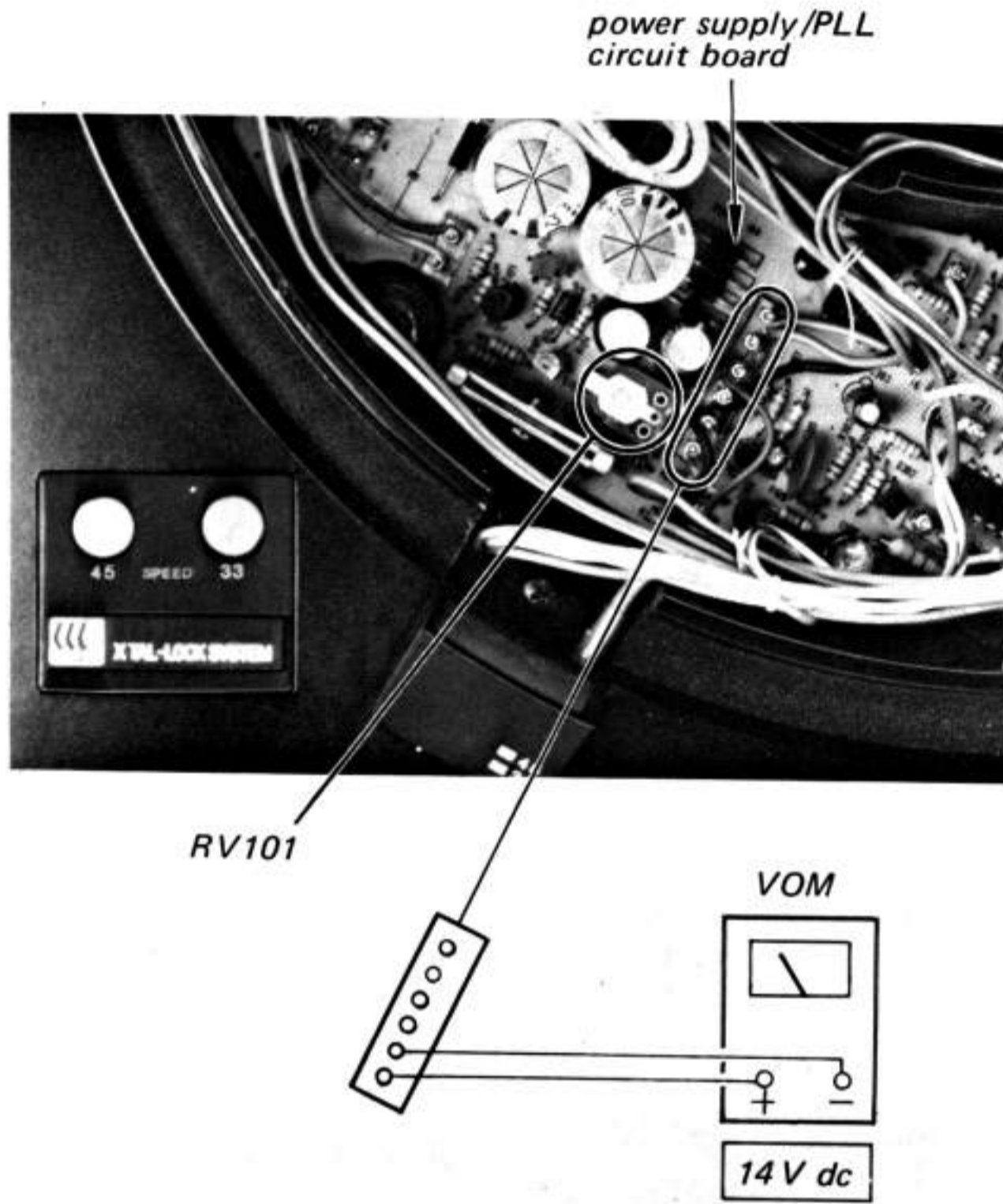
Note: The stylus drop-point is changed to about 12 mm (1/2") by one turn of the adjustment screw.

3-2. ELECTRICAL ADJUSTMENTS

Note: Wait a few seconds for warm-up after the power switch is turned on.

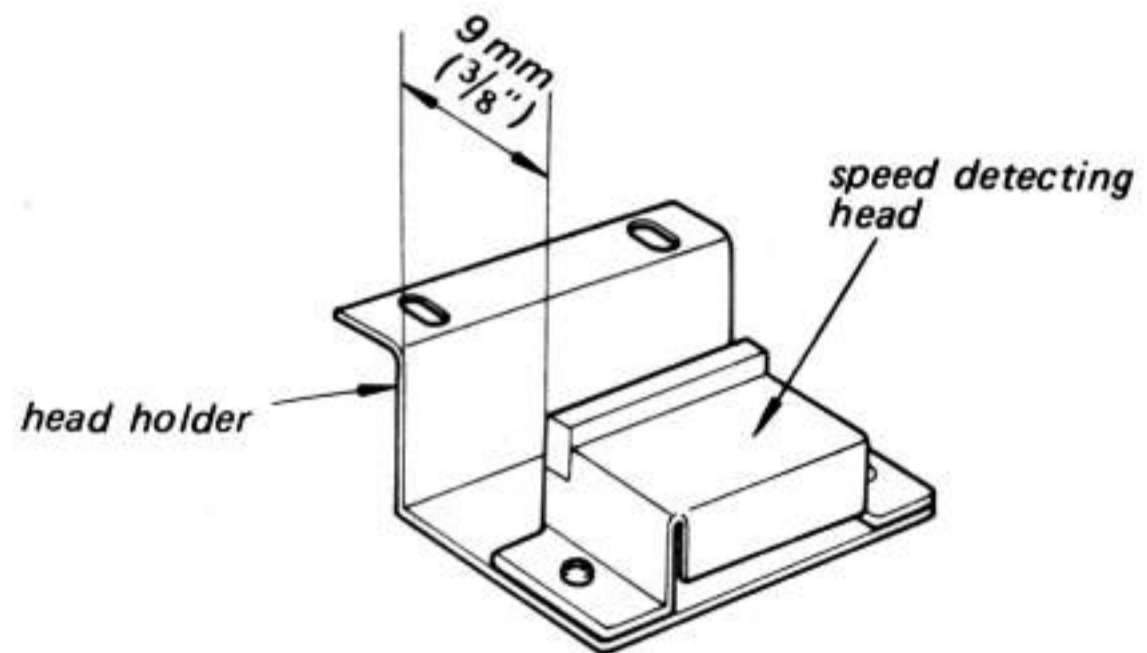
B+ (14 V) Adjustment

Adjust RV101 for 14V reading on VOM.

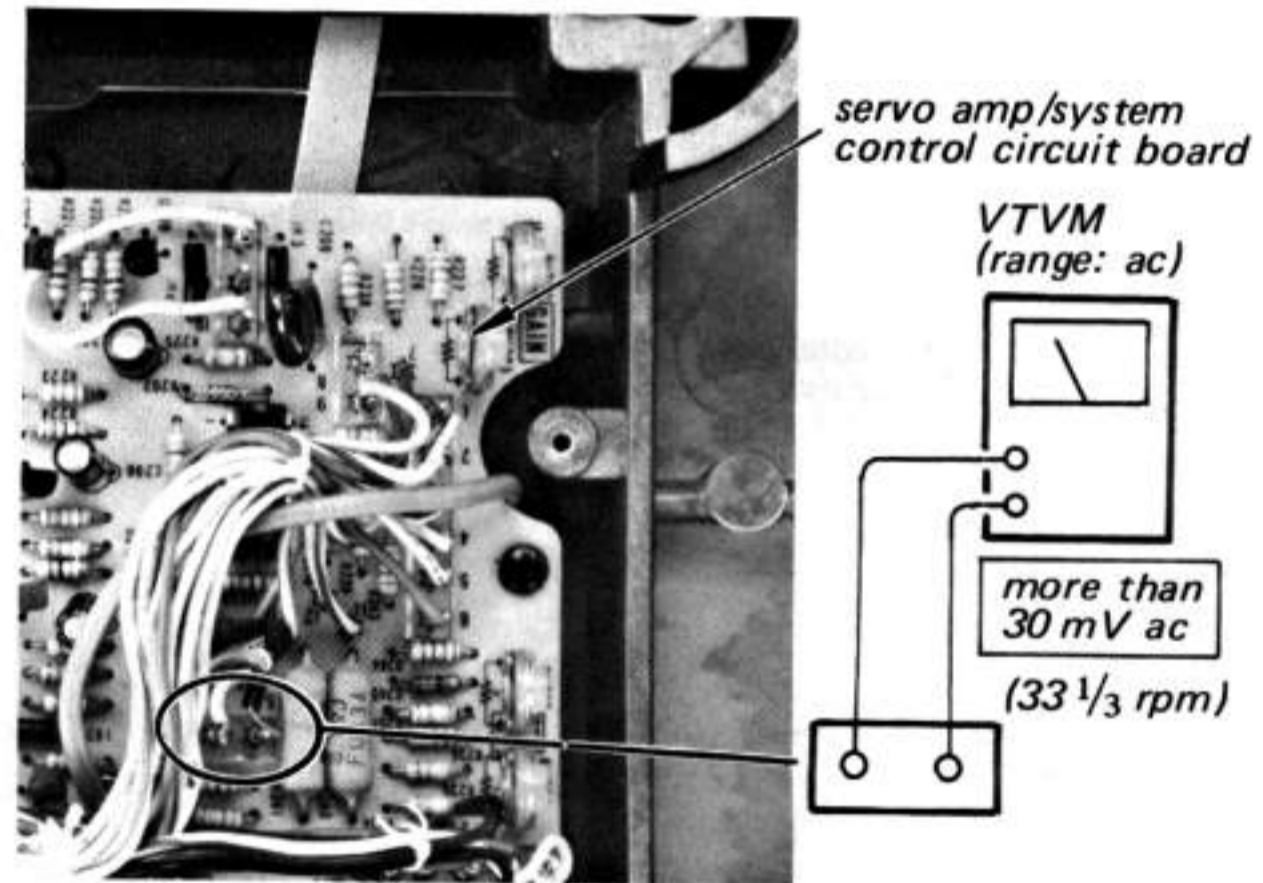


Speed Detecting Head Output Level Adjustment

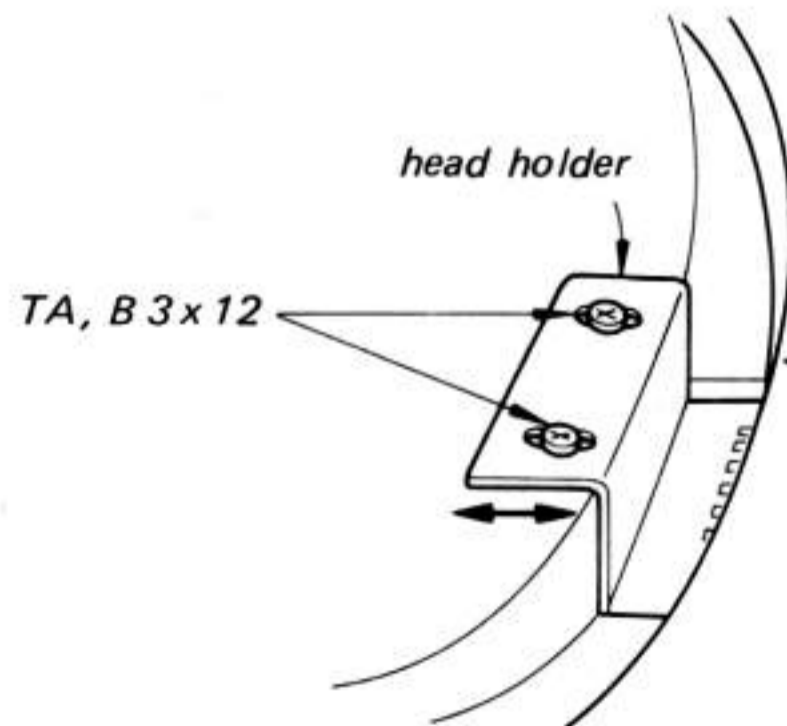
Before this adjustment, set the speed detecting head on the head holder as shown below.



1. Adjust the position of the head holder so that the VTVM reading is more than 30 mV ac at 33 1/3 rpm.
2. Make sure that the head does not touch the turntable and tighten the screws securely.



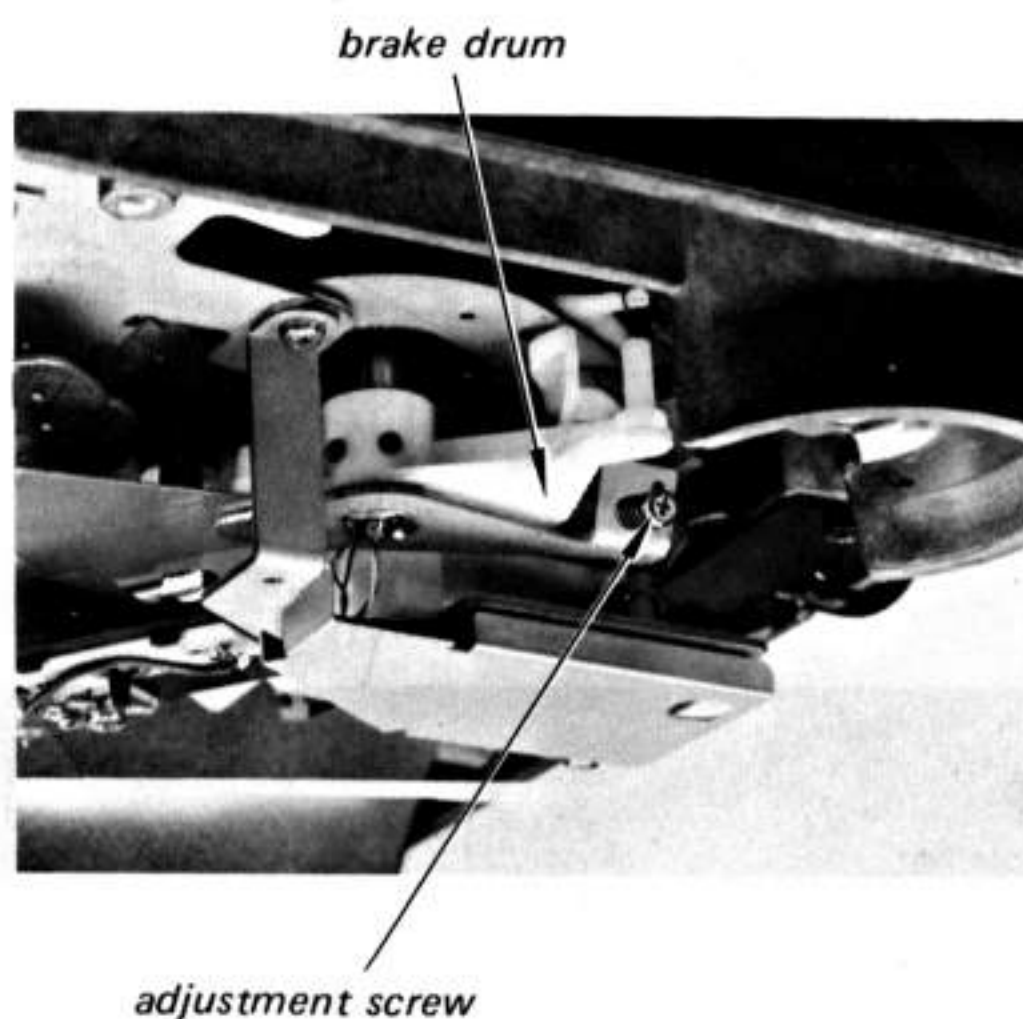
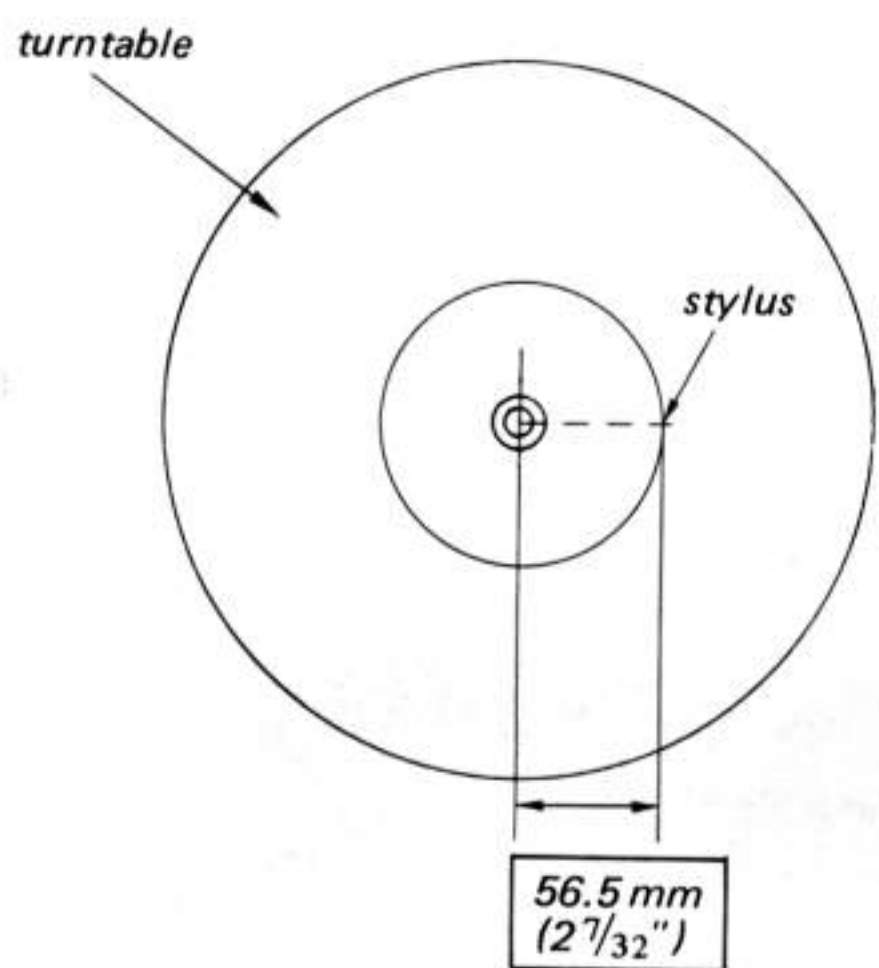
Adjustment Location:



Note: The clearance between the magnet coated rim and the speed detecting head is more than 0.3 mm.

Automatic Return Adjustment

1. Move the tonearm into the turntable center by hand so that the shutter keeps apart from the CdS and lamp holder.
2. With the play switch (S3) pushed, adjust RV401 for $1.6V \pm 0.2V$ reading on VOM.
3. Set the position of the stylus as shown below and turn the adjustment screw for $5.1V \pm 0.1V$ reading on VOM with the play switch (S3) pushed.
4. When playing the band 2 of the test record, make sure that the tonearm returns from the count 14 to 18 of the test record. If necessary, readjust the adjustment screw.
5. When playing the band 3 of the test record, make sure that the tonearm returns from the position of 1 kHz signal. If necessary, readjust RV401 and repeat above steps 4 and 5.



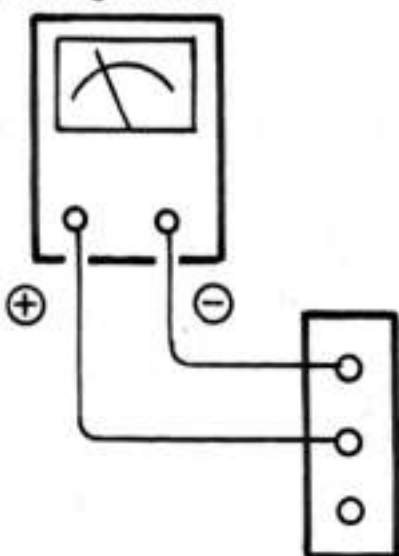
Adjustment Location:

— servo amp/system control board —

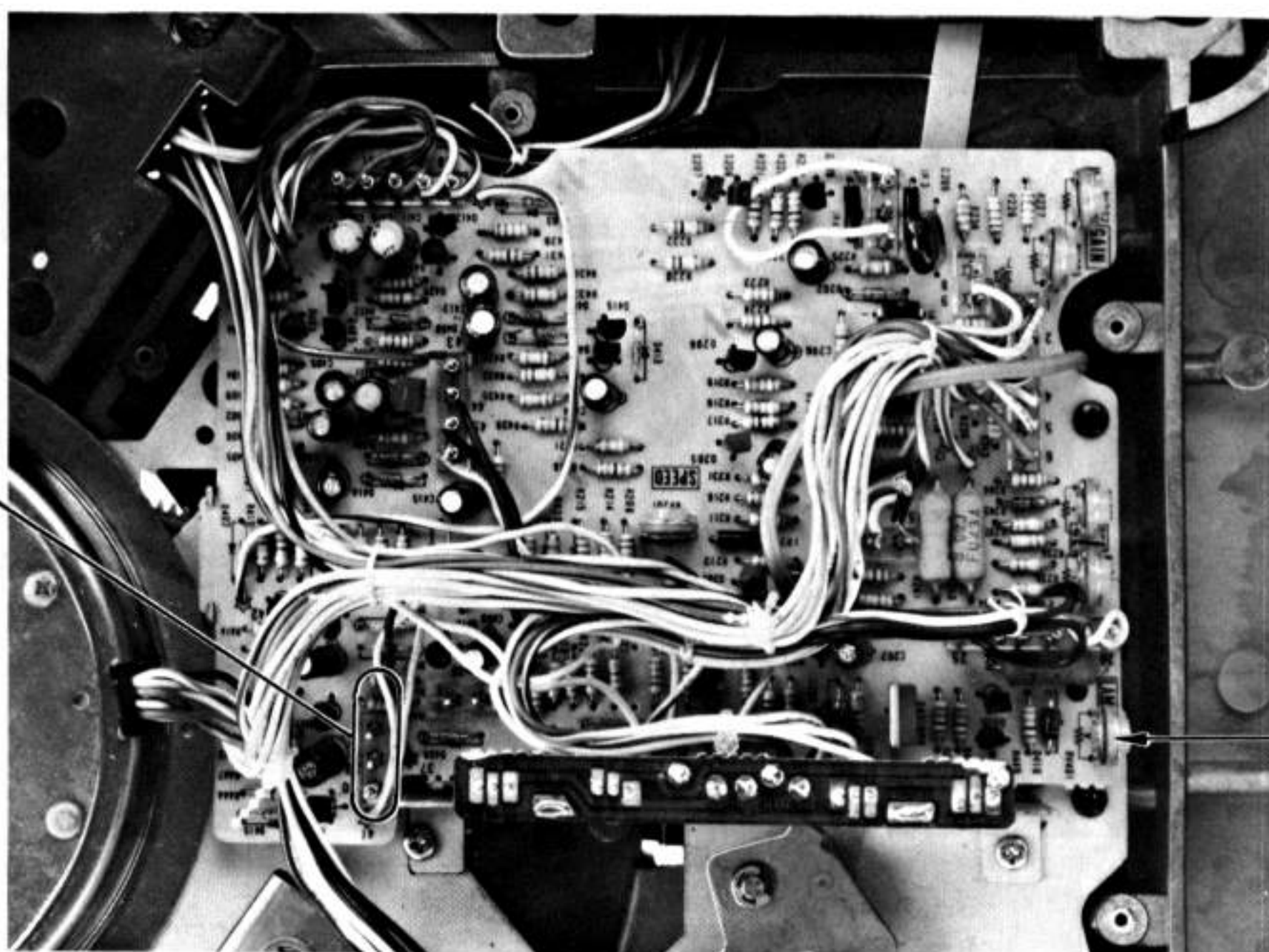
control panel side



VOM
(range: dc)



Step 2: $1.6V \pm 0.2V$
Step 3: $5.1V \pm 0.1V$

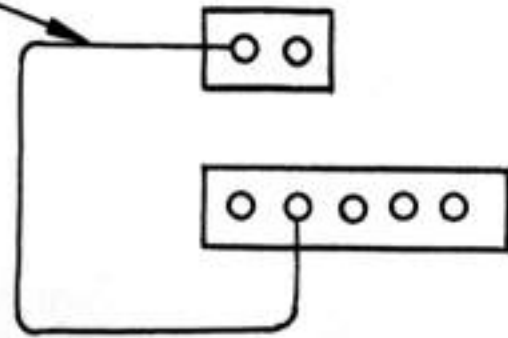


Note: When replacing the pilot lamp (PL1), this adjustment should be performed.

Turntable Speed Adjustment

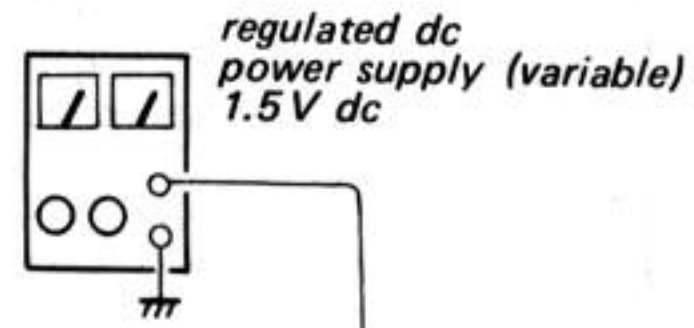
1. Disconnect the white lead wire and adjust RV201 so that the stroboscope pattern appears stationary.
2. Connect the white lead wire and make sure that the stroboscope pattern appears stationary after changing the turntable speed by hand.

Disconnect the white lead wire.

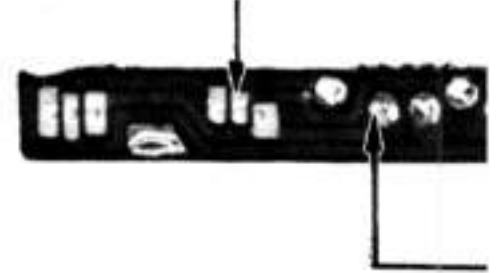


Hall Device Gain Adjustment (33 1/3 rpm)

1. Disconnect the white lead wire and connect the regulated power supply as shown below.



transistor circuit board

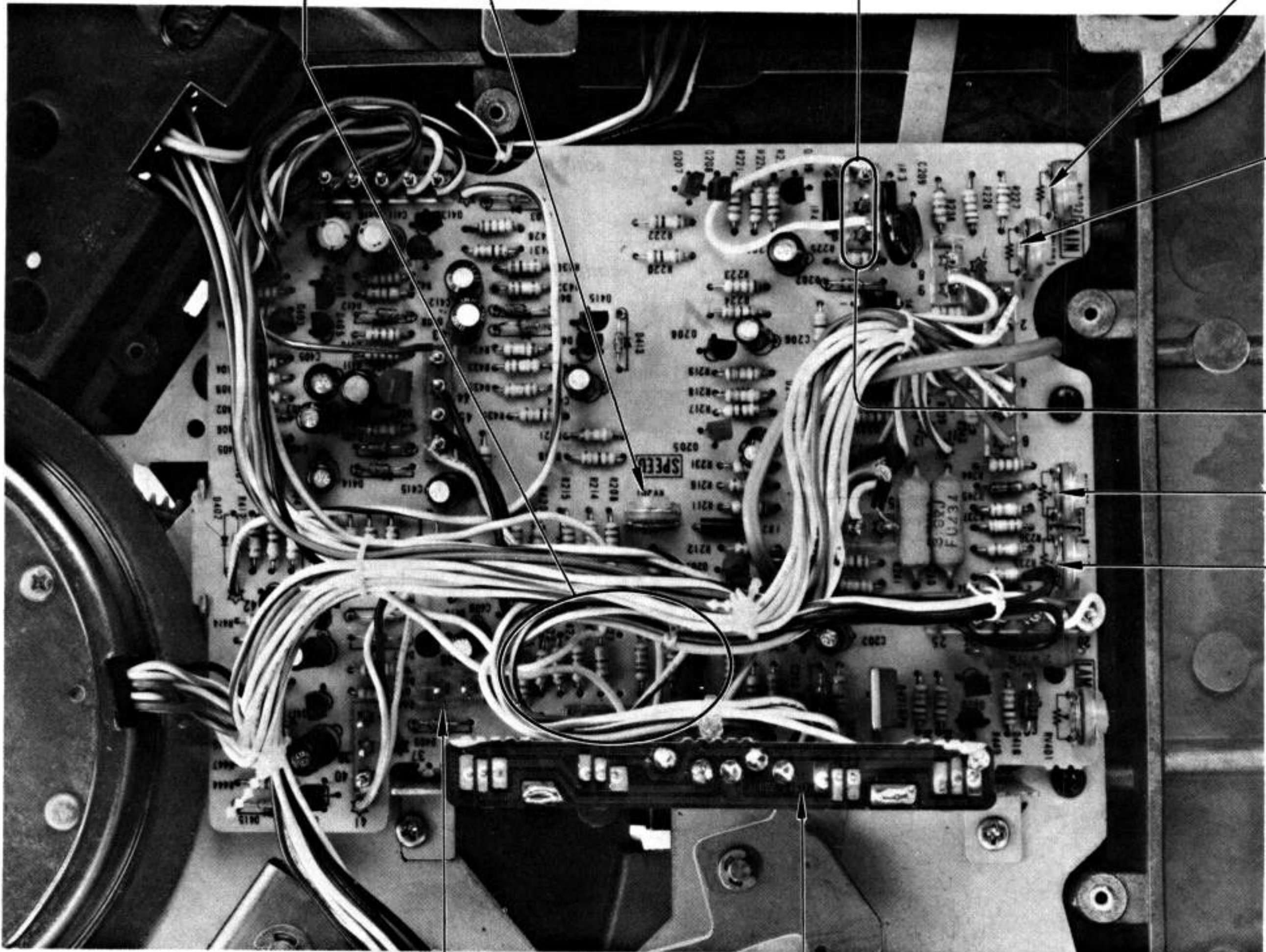


RV201

control panel side



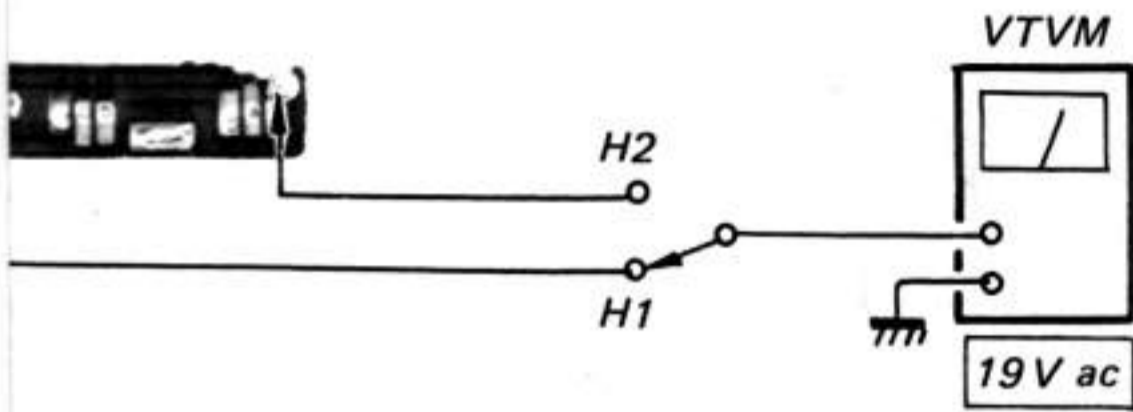
RV202 (H1)



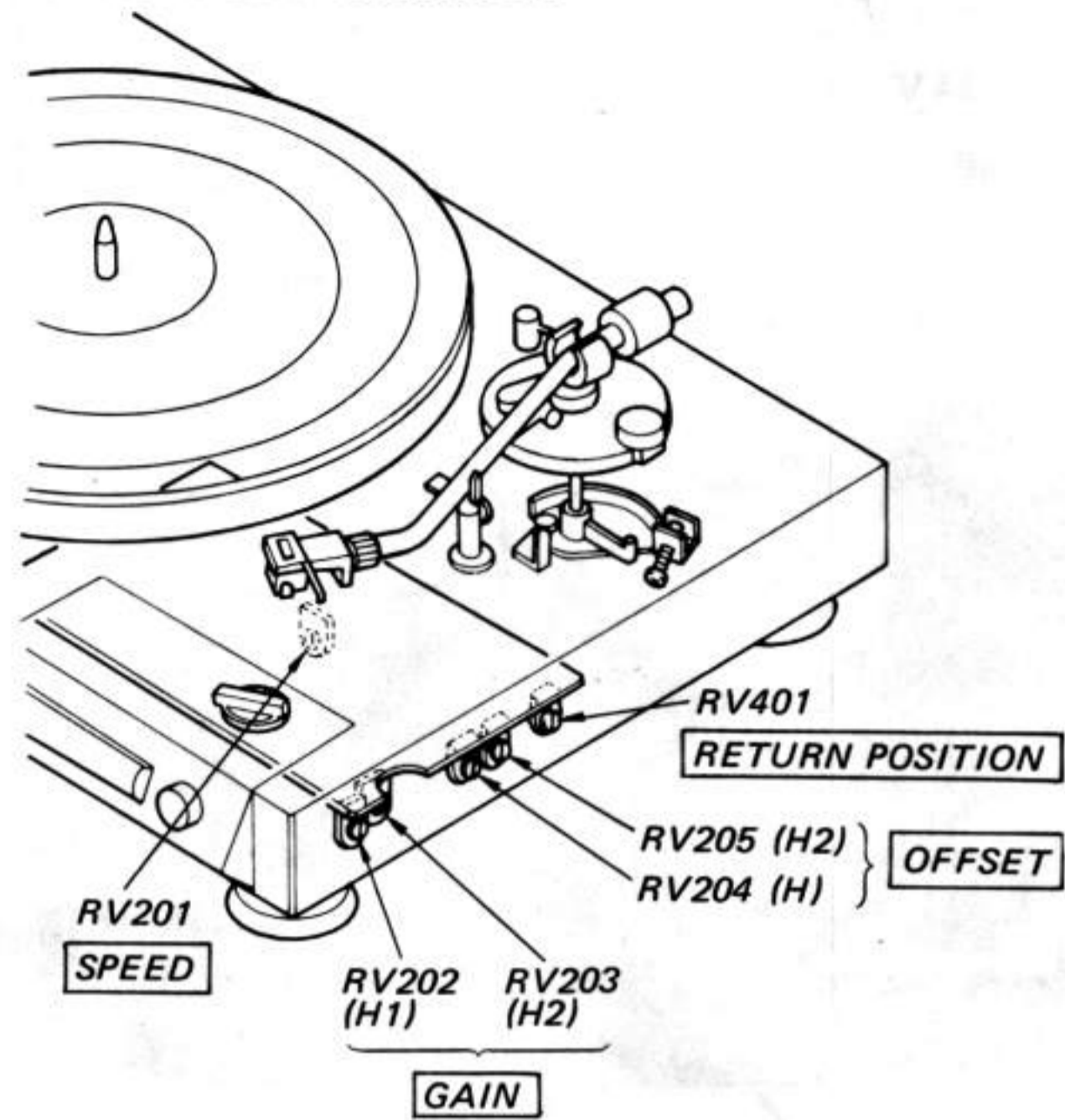
servo amp/system control circuit board

transistor circuit board

2. Connect VTVM to H1 and adjust RV202 for 1.9V ac reading on VTVM.
3. Connect VTVM to H2 and adjust RV203 for 1.9V ac reading on VTVM.



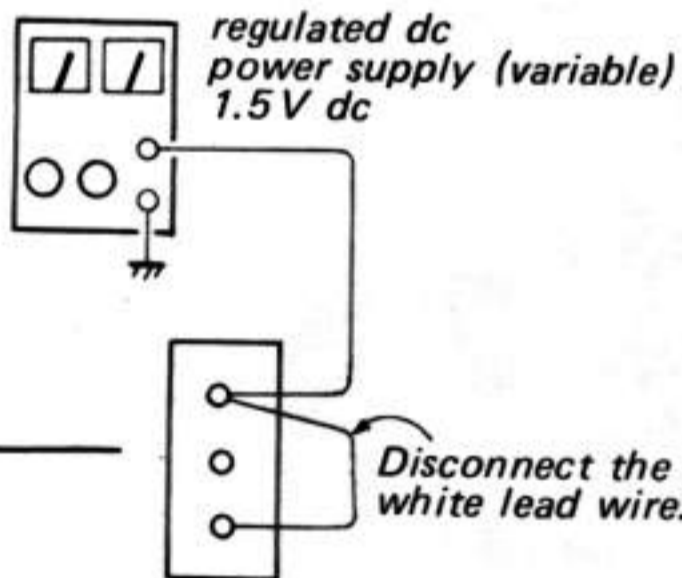
ADJUSTMENT LOCATION



RV203 (H2)

Motor Amp Offset Adjustment (33 1/3 rpm)

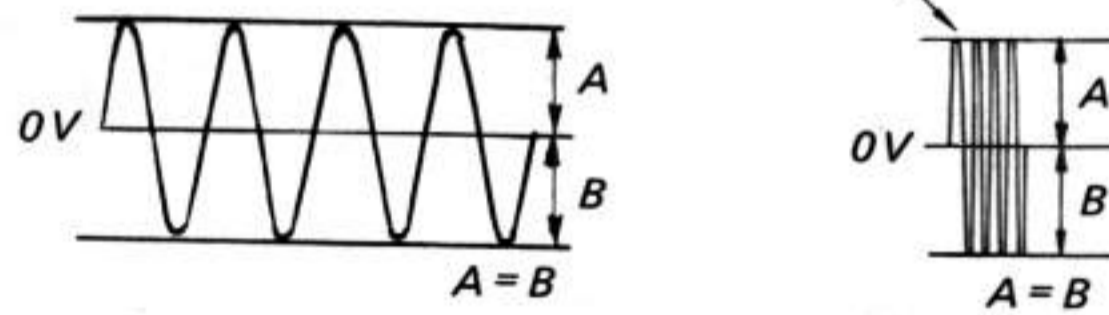
1. Disconnect the white lead wire and connect the regulated power supply as shown below.



2. Connect VTVM or oscilloscope to H1 and adjust RV204 for 0V dc VTVM reading or the waveform on oscilloscope as shown below.
3. Connect VTVM or oscilloscope to H2 and adjust RV205 for 0V dc VTVM reading or the waveform on oscilloscope as shown below.

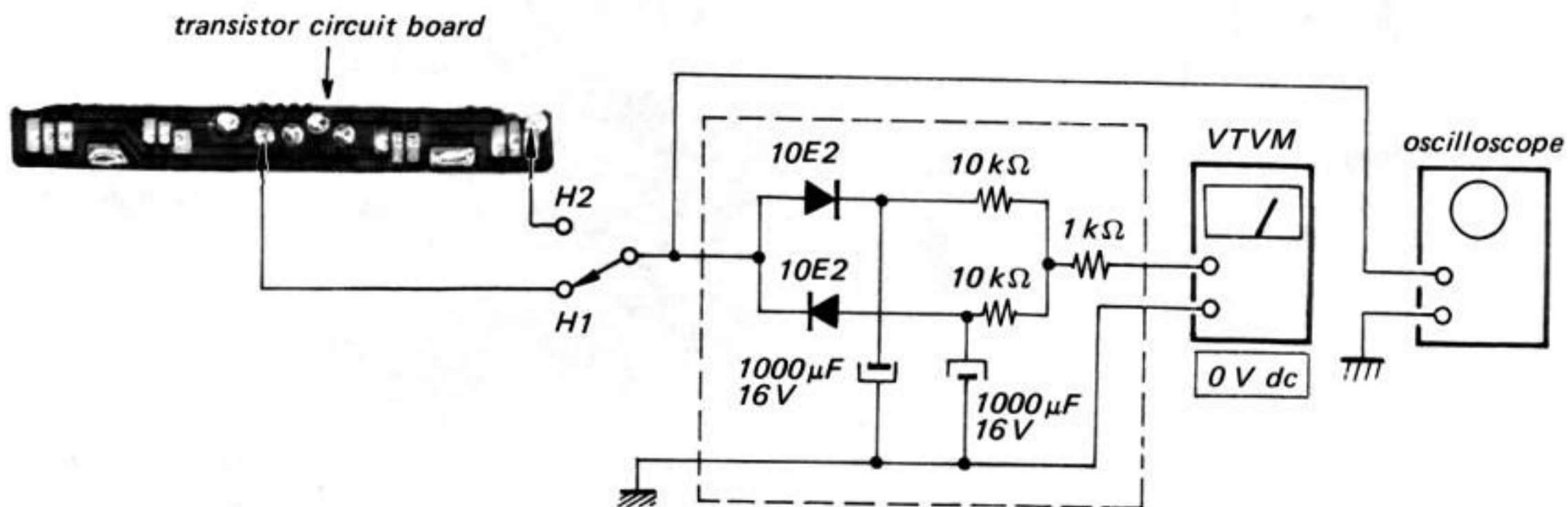
Waveform on Oscilloscope:

Note: Set the sweep time to longer for easy checking the waveform.



RV204 (H1)

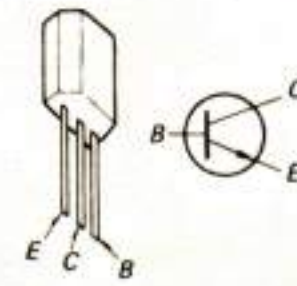
RV205 (H2)



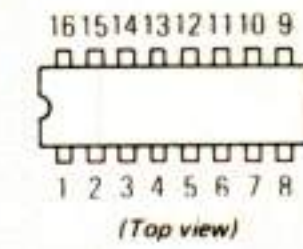
Replacement Semiconductors

For replacement, use semiconductors except in ().

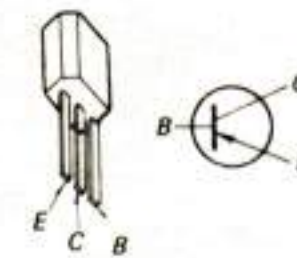
Q106: 2SC926A
 Q102, 103 } 2SC634A
 Q301-303 } (2SC633A)



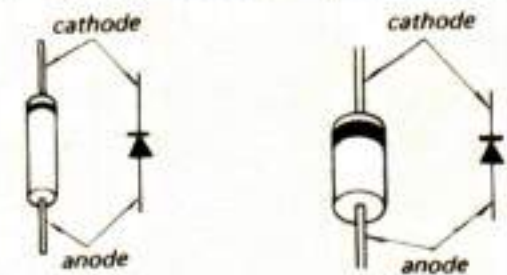
IC2: MSM5811



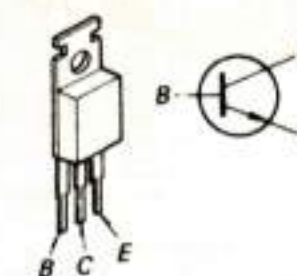
Q104: 2SA678
 (2SA677)



D101-104: 10E2 (GP08-D)



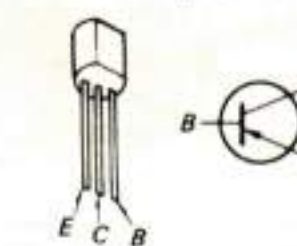
Q101: 2SC1061
 (2SC1419)



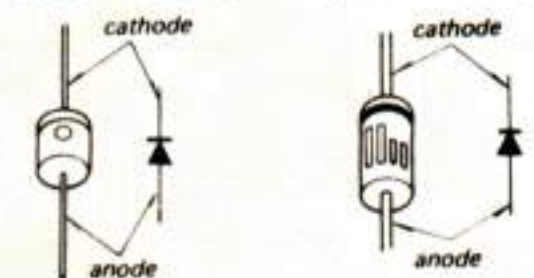
D301, 302: 1S1555
 (1T40)



Q105: 2SA684
 (2SA773)



D106: 10D6 (SIB01-06)

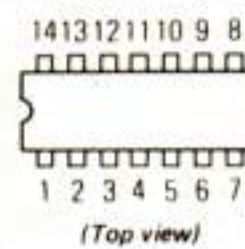


D105: EQB01-06
 (EQA01-06)



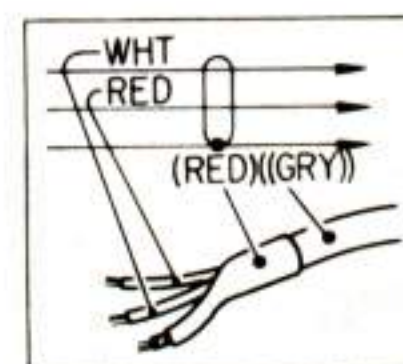
IC3: M53293P (SN7493AN)

IC4: M53200P (SN7400N)



Note:

- ○ : parts extracted from the component side.
- ● : parts extracted from the conductor side.
- ■ : B+ pattern.
- ■ : B- pattern.
- □ : nonflammable resistor.
- □ : fusible resistor.
- Readings are taken with a VOM (20 kΩ/V).
- (): 33 rpm
- no mark: with POWER switch set to ON and tonearm on arm rest
- Color code of sleeving over the end of the jacket.



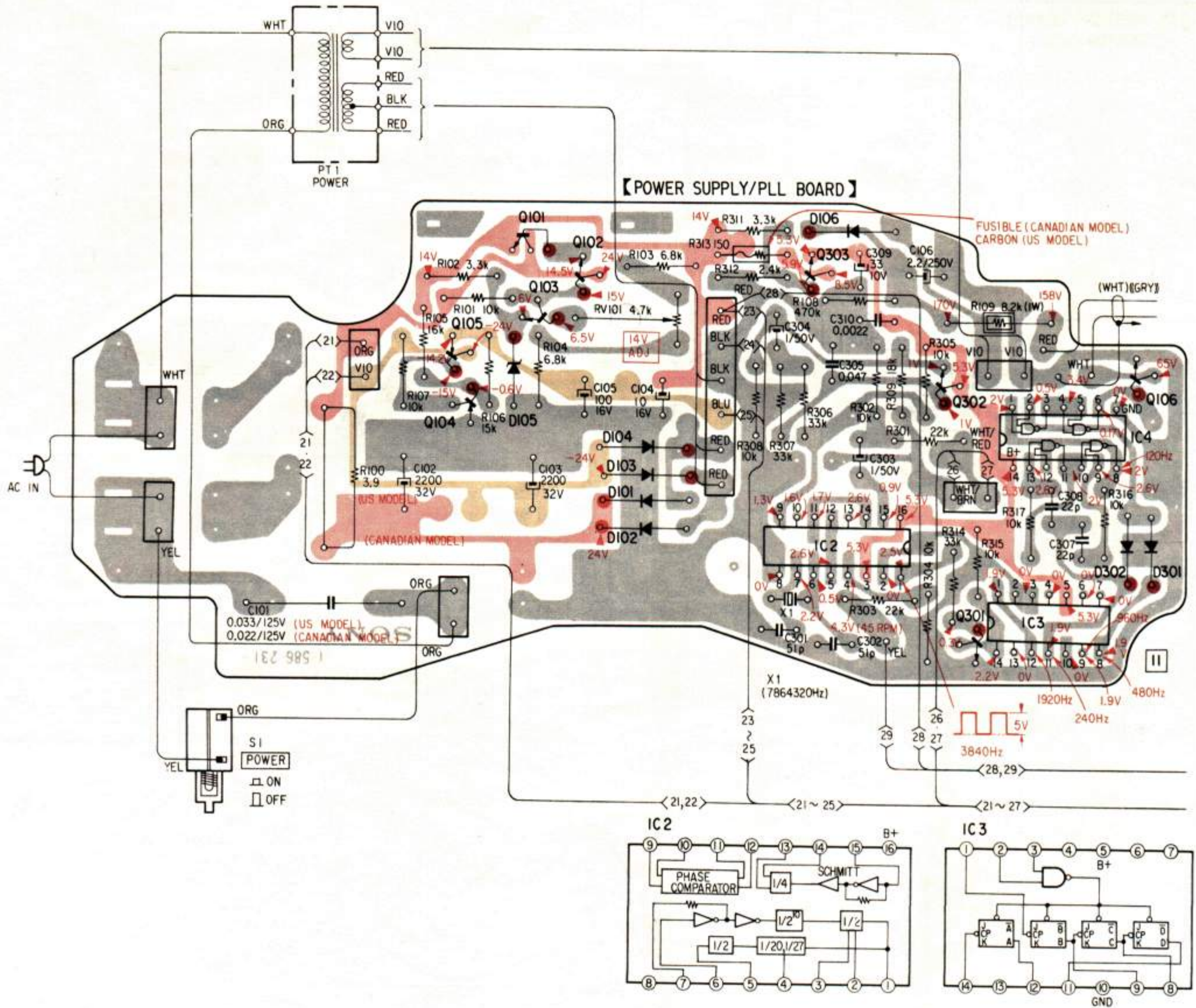
SECTION 4
DIAGRAMS

4-1. MOUNTING DIAGRAM – Power Supply/PLL Board –

– Conductor Side –

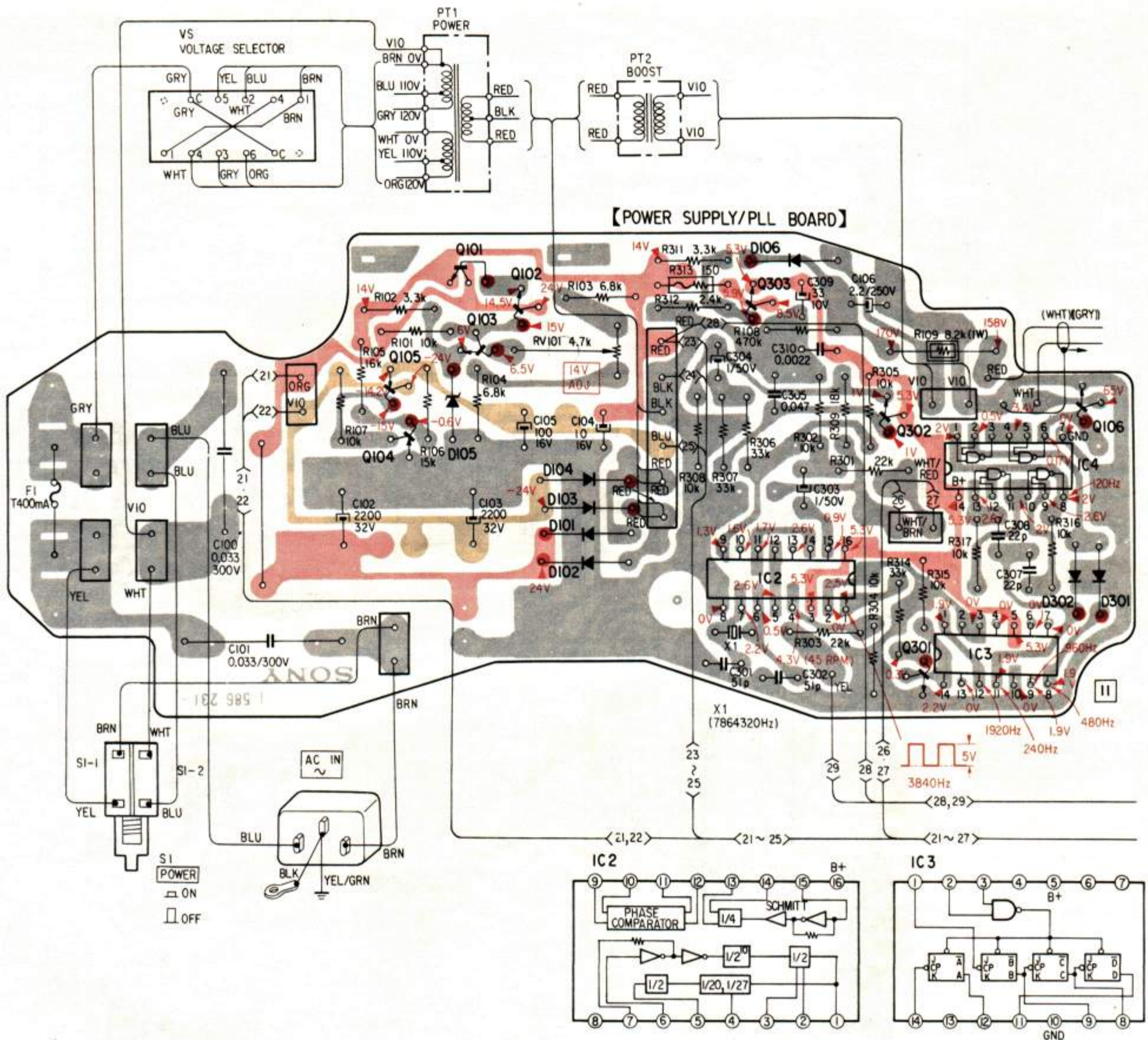
US, Canadian model

Q									
IC		105	101	102		303	302	IC 4	106
		104	103			IC 2	301	IC 3	
D			105	104		106			302,301
				103					
				101					
				102					



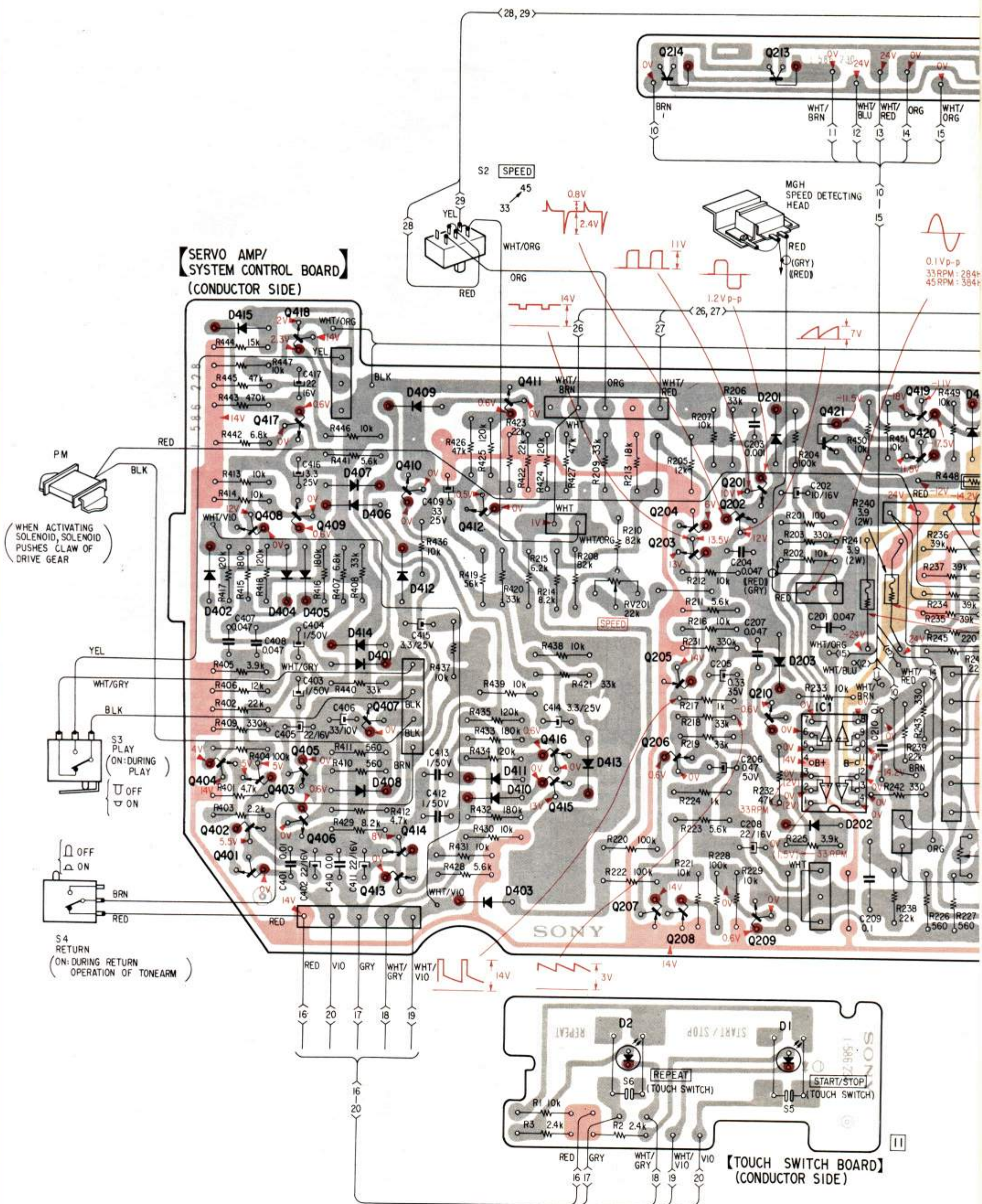
AEP, UK, E model

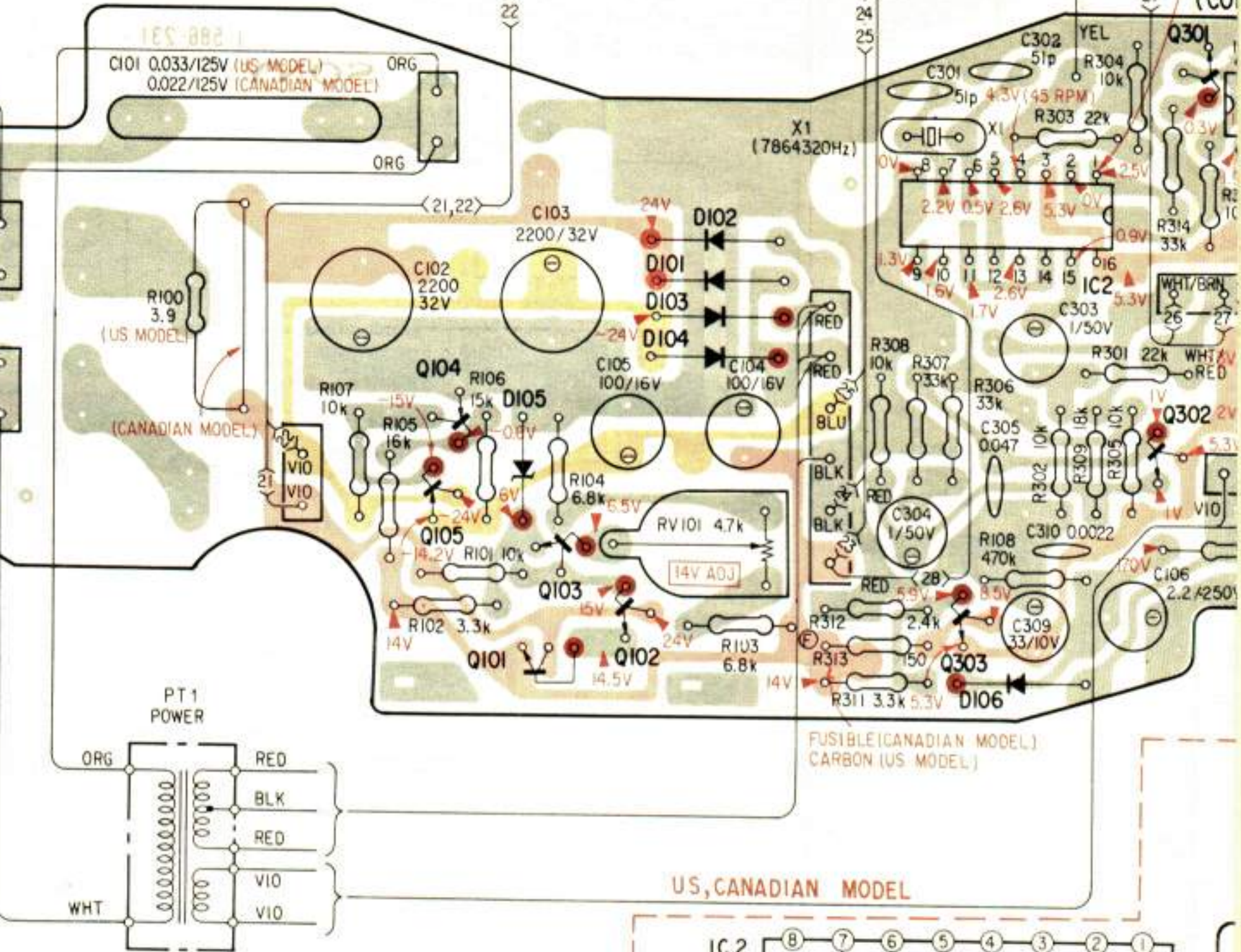
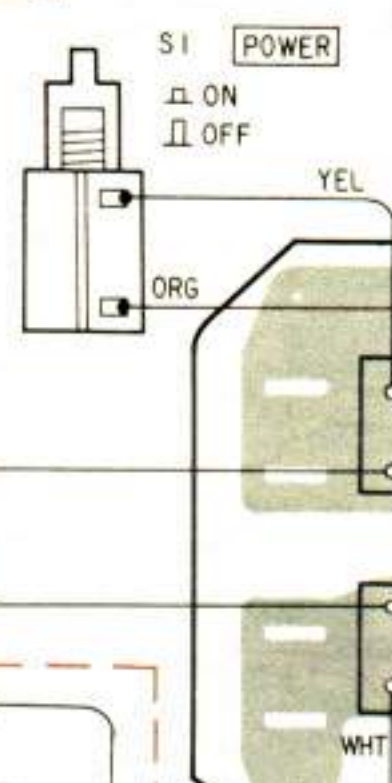
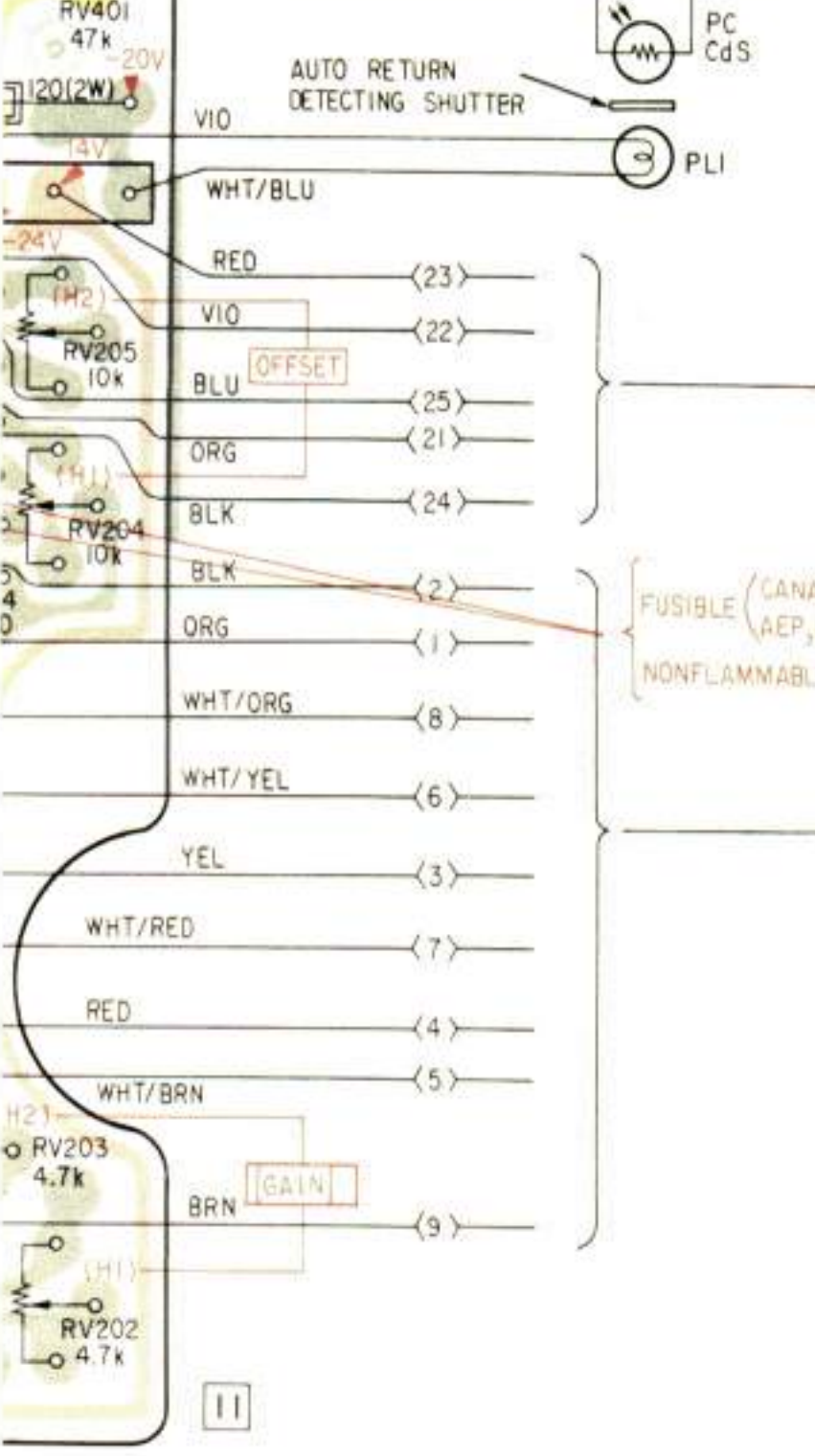
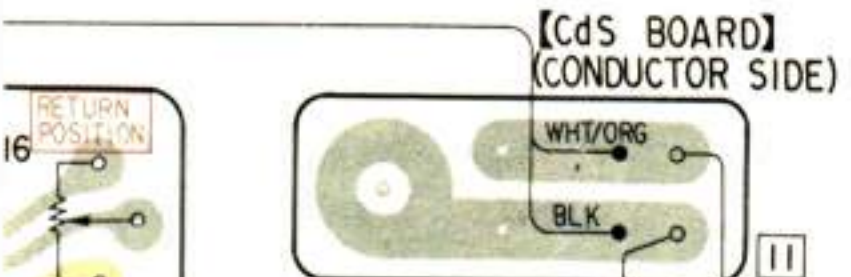
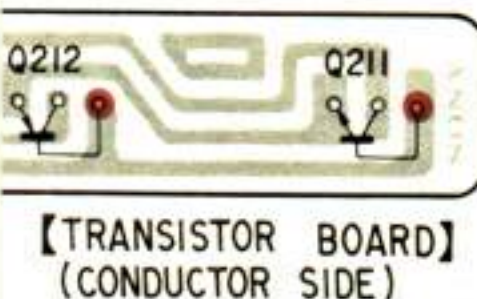
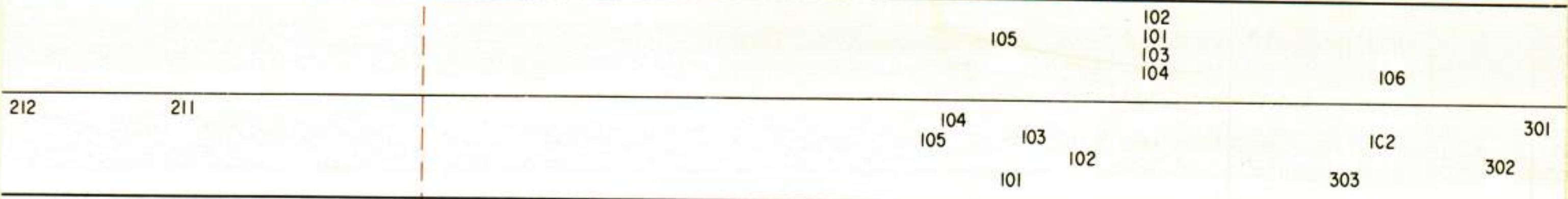
Q									
IC		I05	I01	I02		303	302	IC4	I06
		I04	I03			IC2	301	IC3	
D			I05		I04	I06			302,301
					I03				
					I01				
					I02				



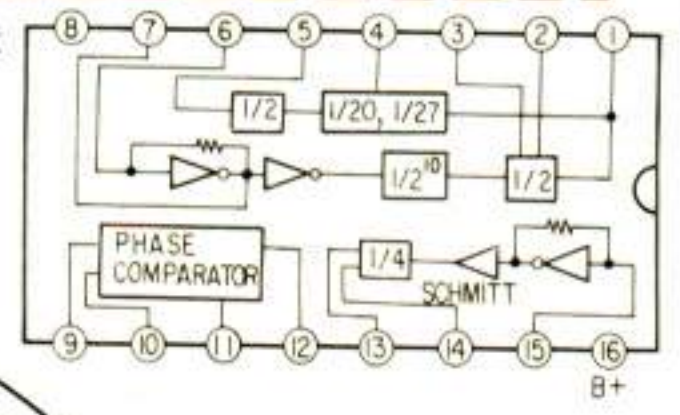
4-2. MOUNTING DIAGRAM

D	415	407	409	411	201	416
	402	404,405	414	412	203	202
			401		201	202
			408		203	202
Q, IC	408	418	410	411	213	421
	404	403	414	415	202	IC1
		405	413		210	419
		406			209	420
					204	
					205	
					207, 206	
					208	

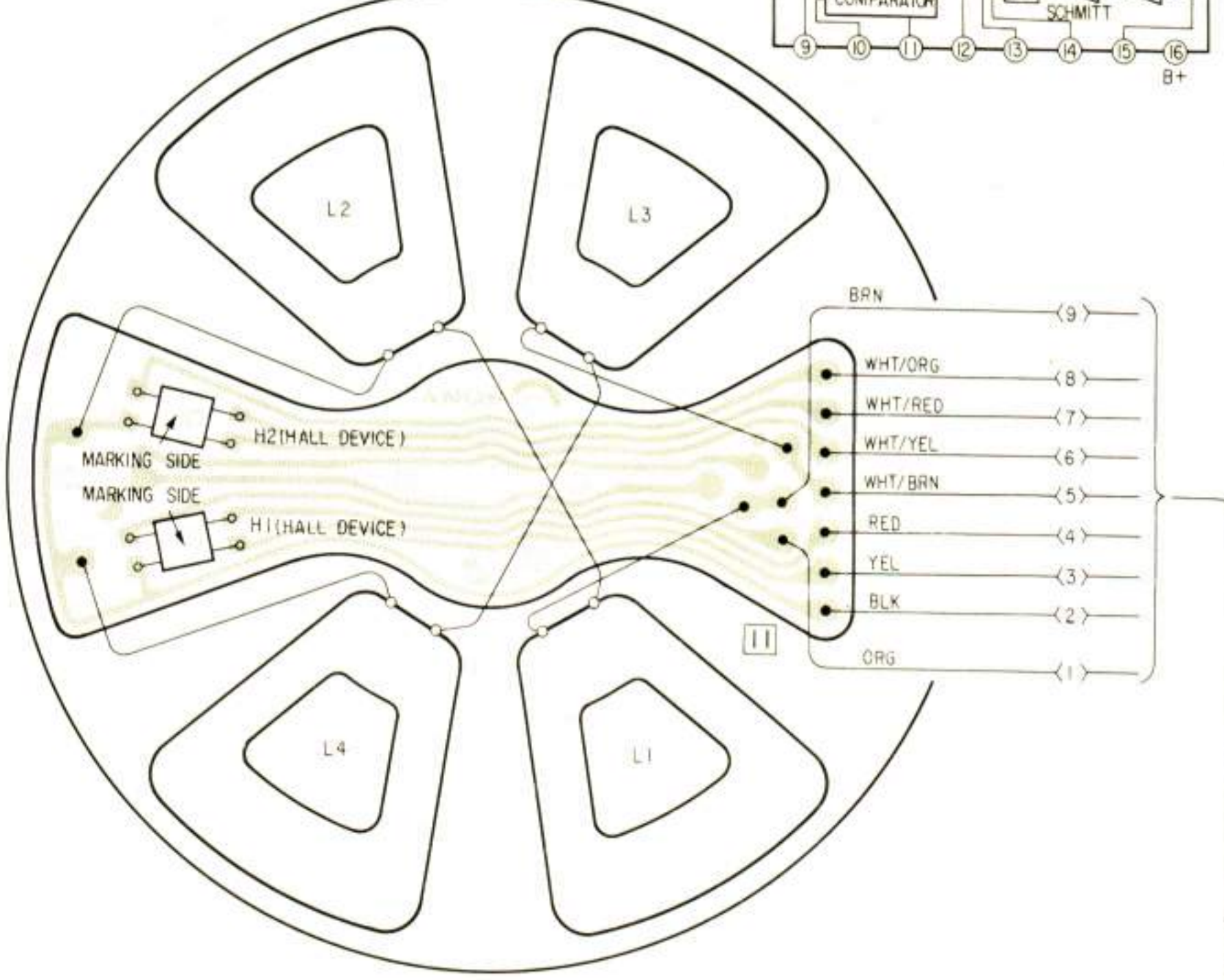




US, CANADIAN MODEL

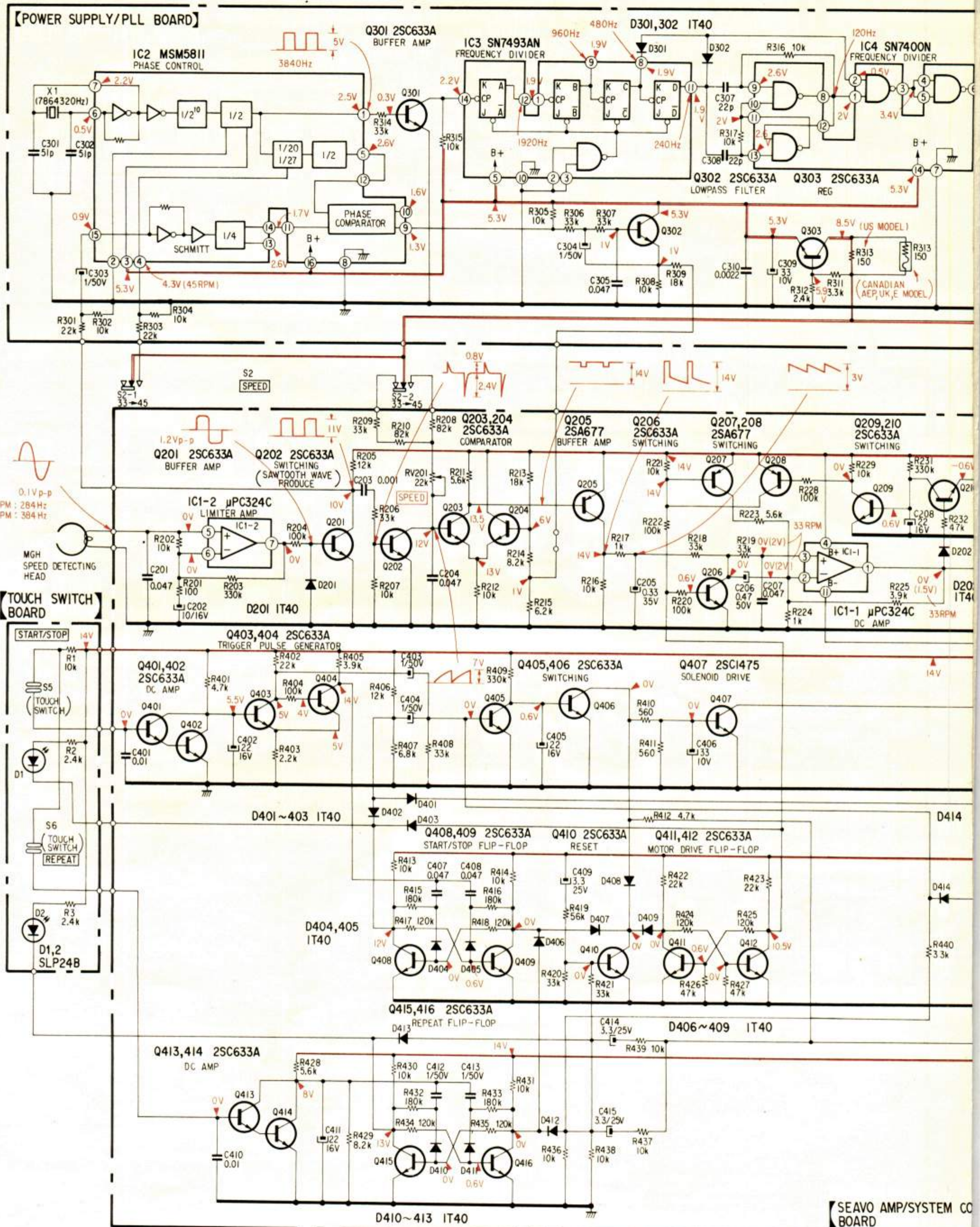


**[MOTOR SECTION]
(CONDUCTOR SIDE)**



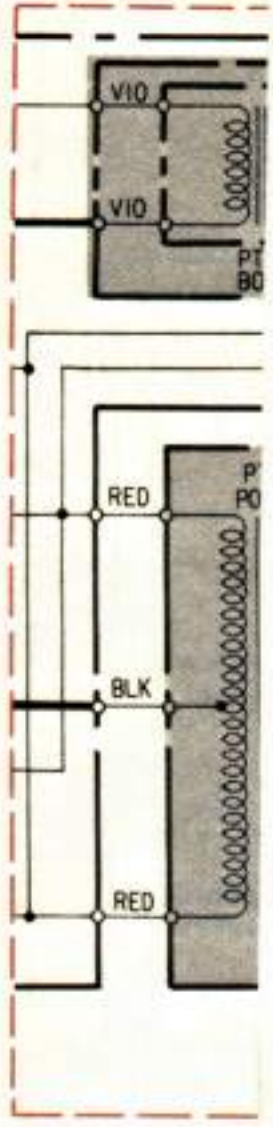
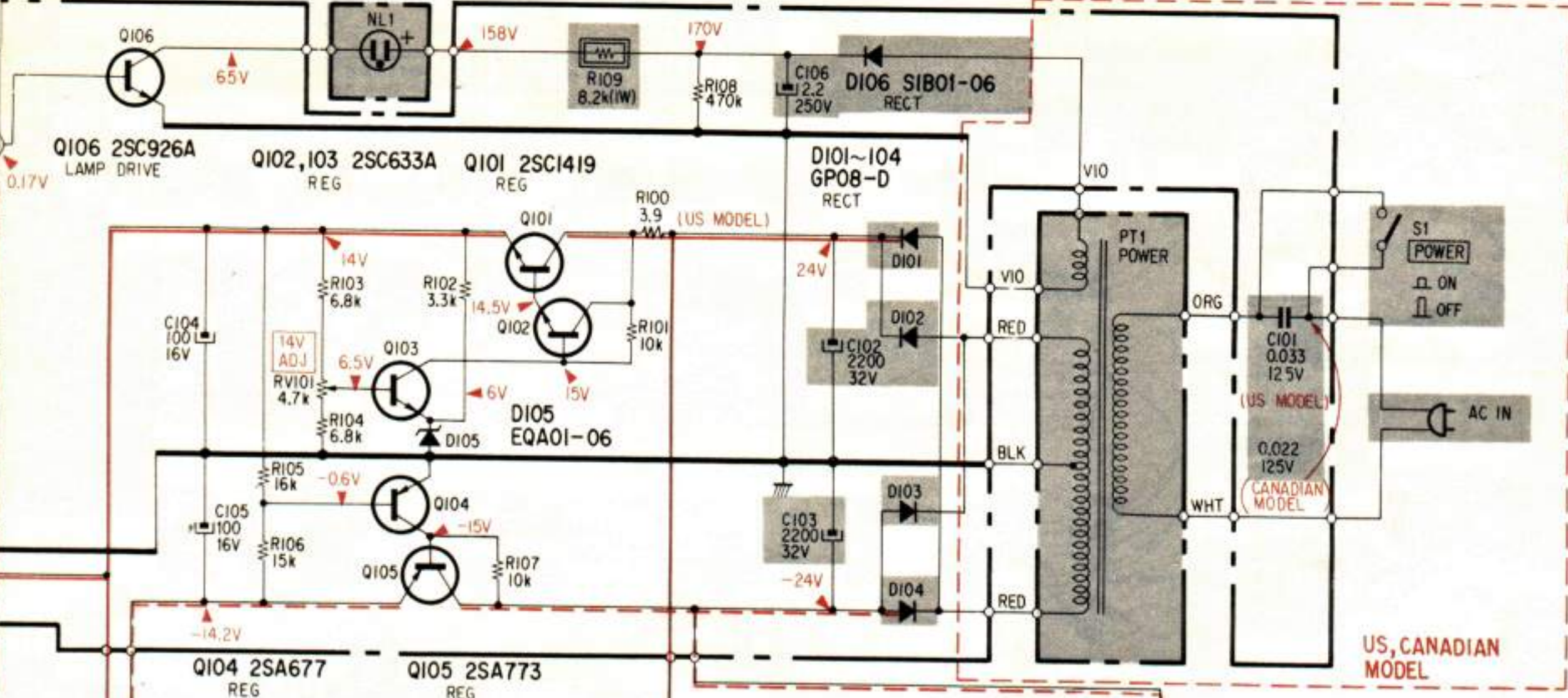
(1-9)

4-3. SCHEMATIC DIAGRAM

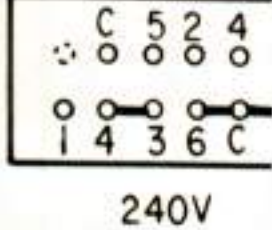
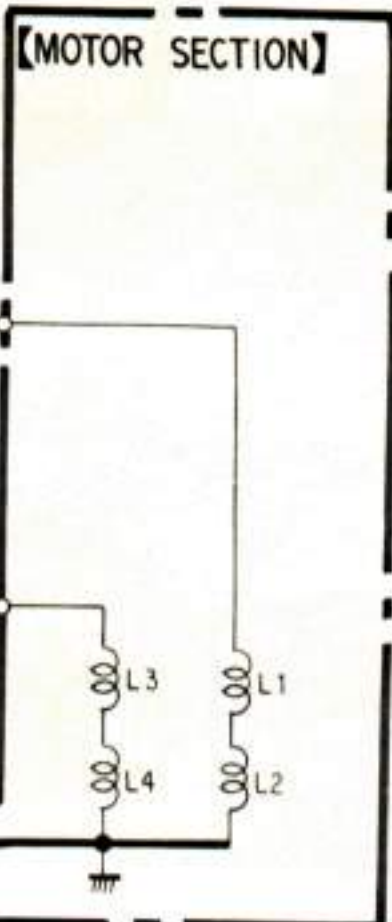
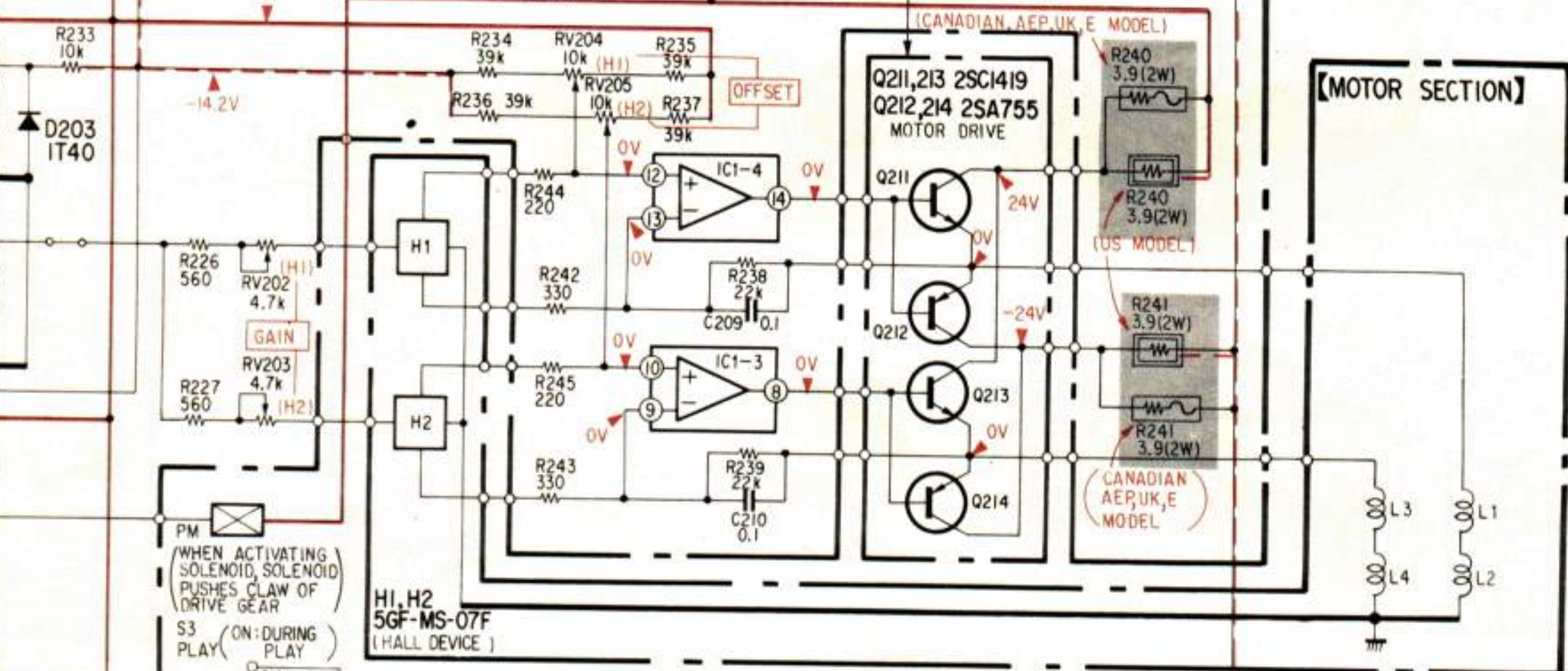


SEAVO AMP/SYSTEM CO BOARD

【NEON LAMP BOARD】

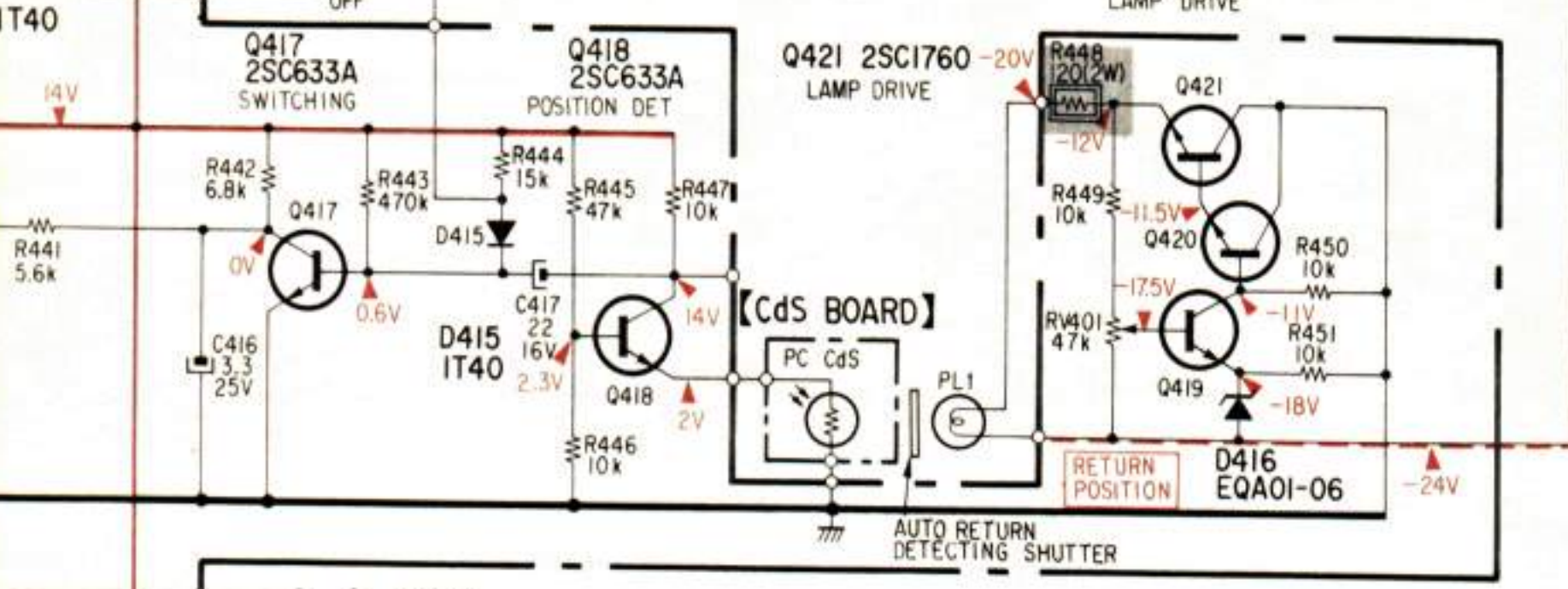


【TRANSISTOR BOARD】

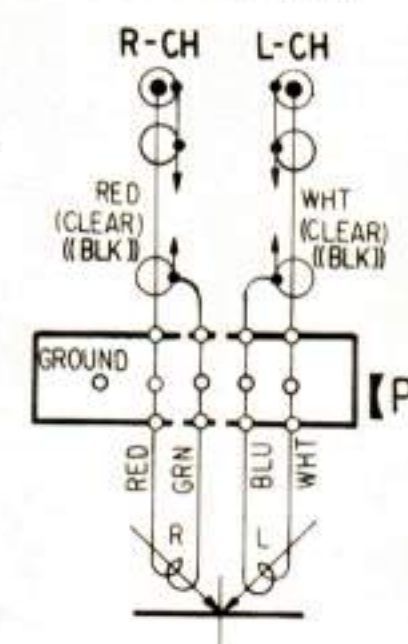


- Note:**
- All capacitors 50WV or less
 - All resistors kΩ = 1000Ω
 - All adjustments otherwise noted
 - : not connected
 - : fuse
 - : B+
 - : parallel
 - : adjustable
 - : readings are () : 33 ohms no mark: variable
 - Voltage variation tolerance
 - Switch

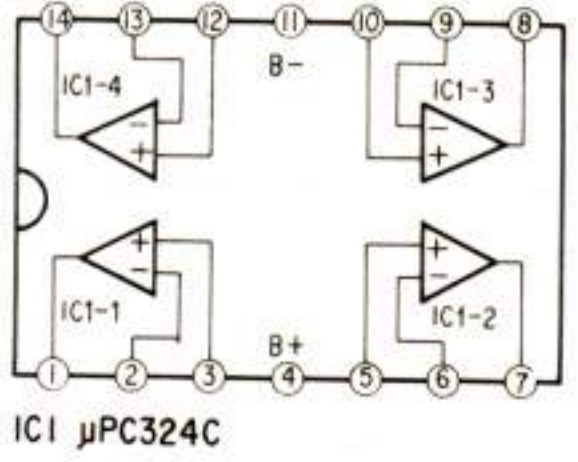
Q419, 420 2SC633A LAMP DRIVE



— TONEARM SECTION —



【PHONO BOARD】



Ref. No.
S1
S2
S3
S4
S5
S6

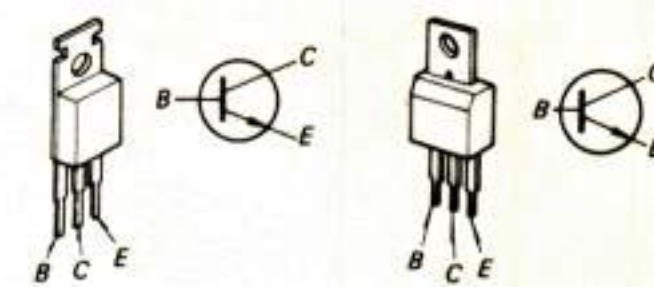
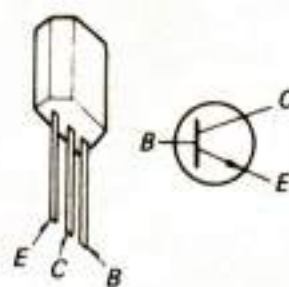
Note: The safe

Replacement Semiconductors

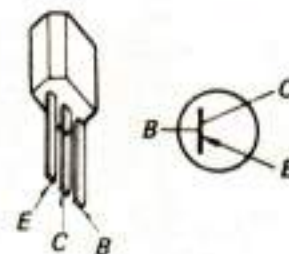
For replacement, use semiconductors except in ().

- Q106: 2SC926A
 Q102, 103, 201-204 }
 Q206, 209, 210 } 2SC634A
 Q301-303, 401-406 } (2SC633A)
 Q408-420

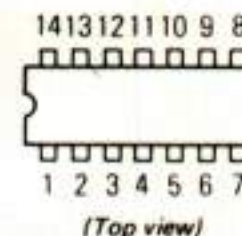
- Q421: 2SC1173 (2SC1760)



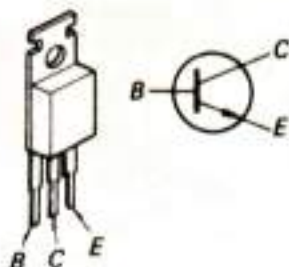
- Q104, 205 } 2SA678
 Q207, 208 } (2SA677)



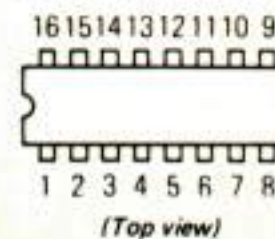
- IC1: μ PC324C
 IC3: M53293P (SN7493AN)
 IC4: M53200P (SN7400N)



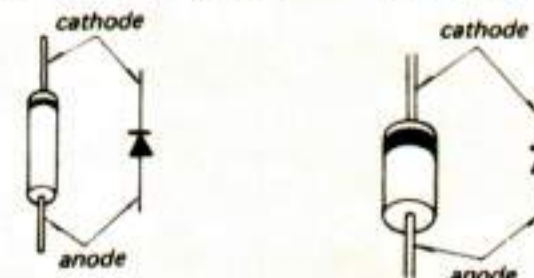
- Q101, 211, 213: 2SC1061 (2SC1419)



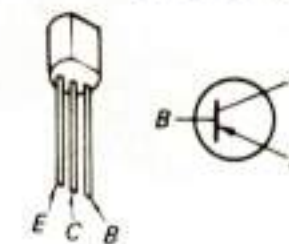
- IC2: MSM5811



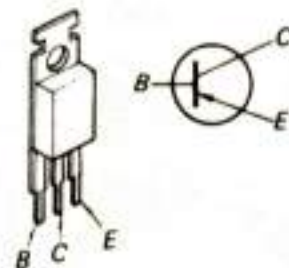
- D101-104: 10E2 (GP08-D)



- Q105: 2SA684 (2SA773)



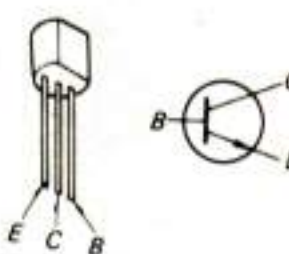
- Q212, 214: 2SA671 (2SA755)



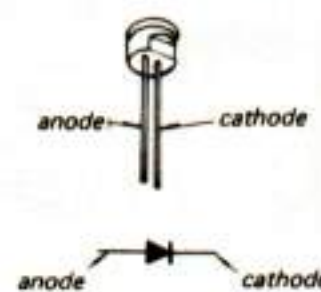
- D201-203 } 1S1555
 D301, 302 } (1T40)
 D401-415



- Q407: 2SC1475



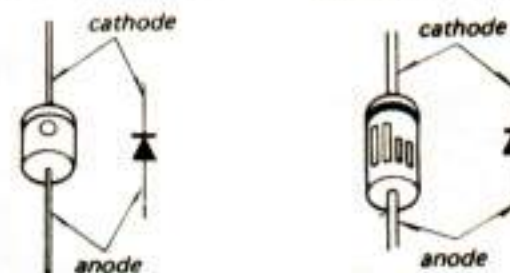
- D1, 2: SLP24B



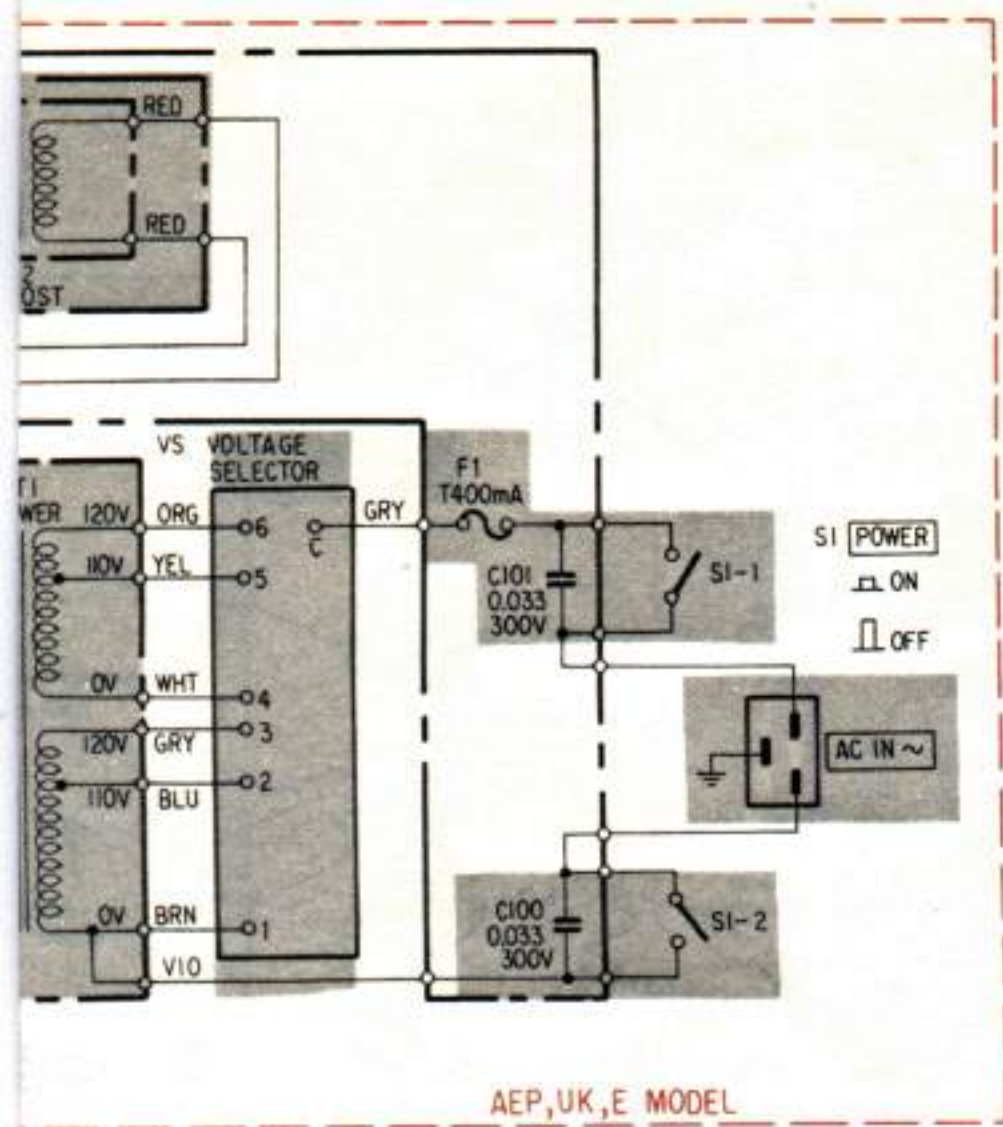
- H1, 2: 5GF-MS-07F



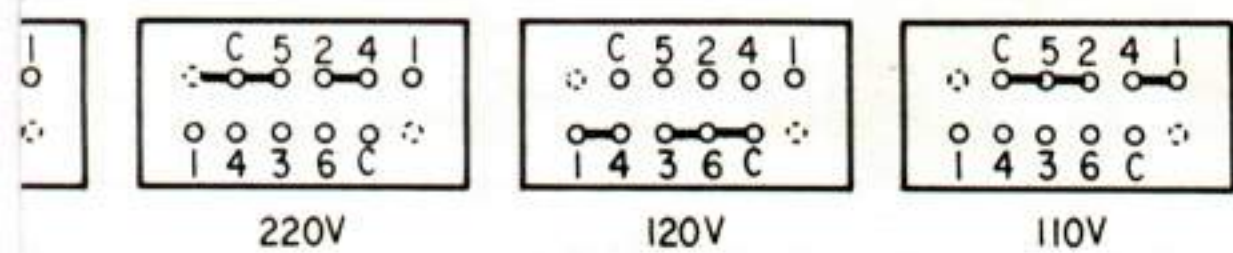
- D106: 10D6 (SIB01-06)



- D105, 416: EQB01-06 (EQA01-06)



AEP, UK, E MODEL

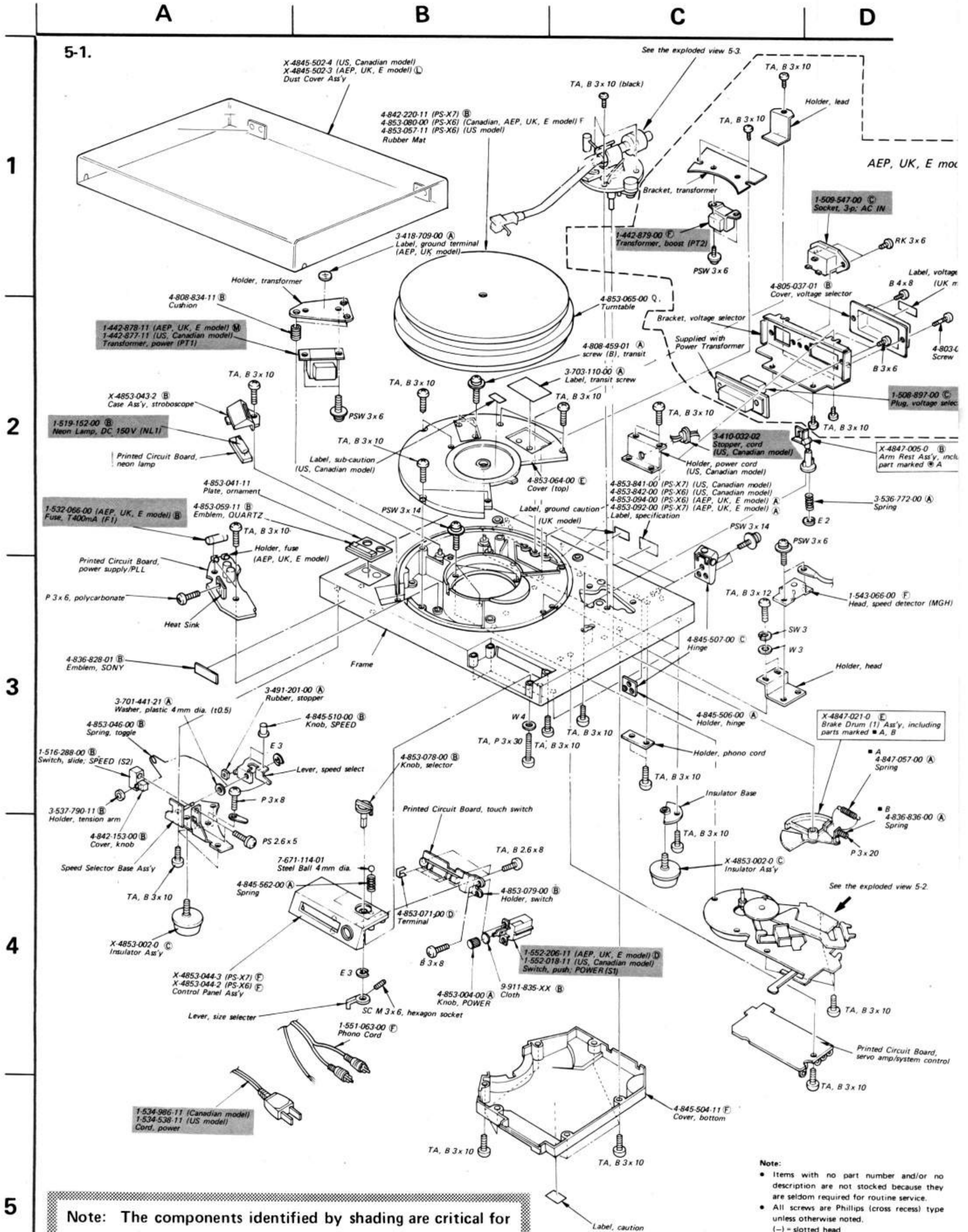


Values are in μ F unless otherwise noted. pF = $\mu\mu$ F
 Values are not indicated except for electrolytics.
 Values are in ohms, $\frac{1}{4}$ W unless otherwise noted.
 Values \geq M Ω = 1000 k Ω
 Resistor characteristic curve B, unless otherwise noted.
 Non-flammable resistor.
 Flame-resistant resistor.
 Bus.
 Panel designation.
 Adjustment for repair.
 B- bus.
 Value taken with a VOM (20 k Ω /V).
 ppm
 With POWER switch (S1) set to ON and tone arm at rest.
 Variations may be noted due to normal production tolerances.

Switch	Position
POWER	OFF
SPEED	33
PLAY	OFF
RETURN	OFF
START	OFF
REPEAT	OFF

Components identified by shading are critical for safety. Replace only with part number specified.

SECTION 5
EXPLODED VIEWS



5-2.

A

B

C

D

1
tel

selector
odel)

54-00 (A)

tor

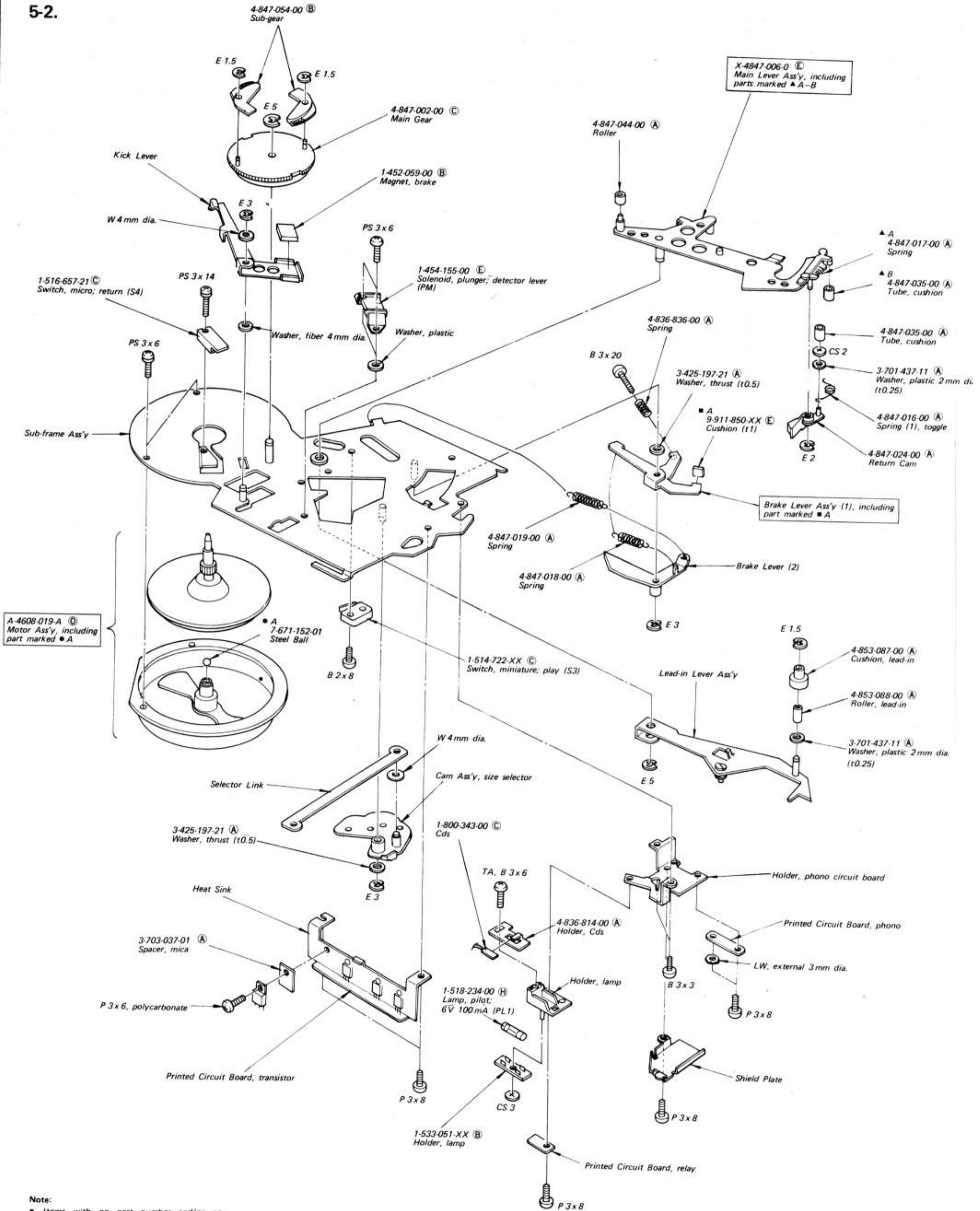
ding

2

3

4

5



- Note:
- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
 - All screws are Phillips (cross recess) type unless otherwise noted.
 - (-) = slotted head
 - Circled letters (A) to (Z) are applicable to European models only.

A B C D

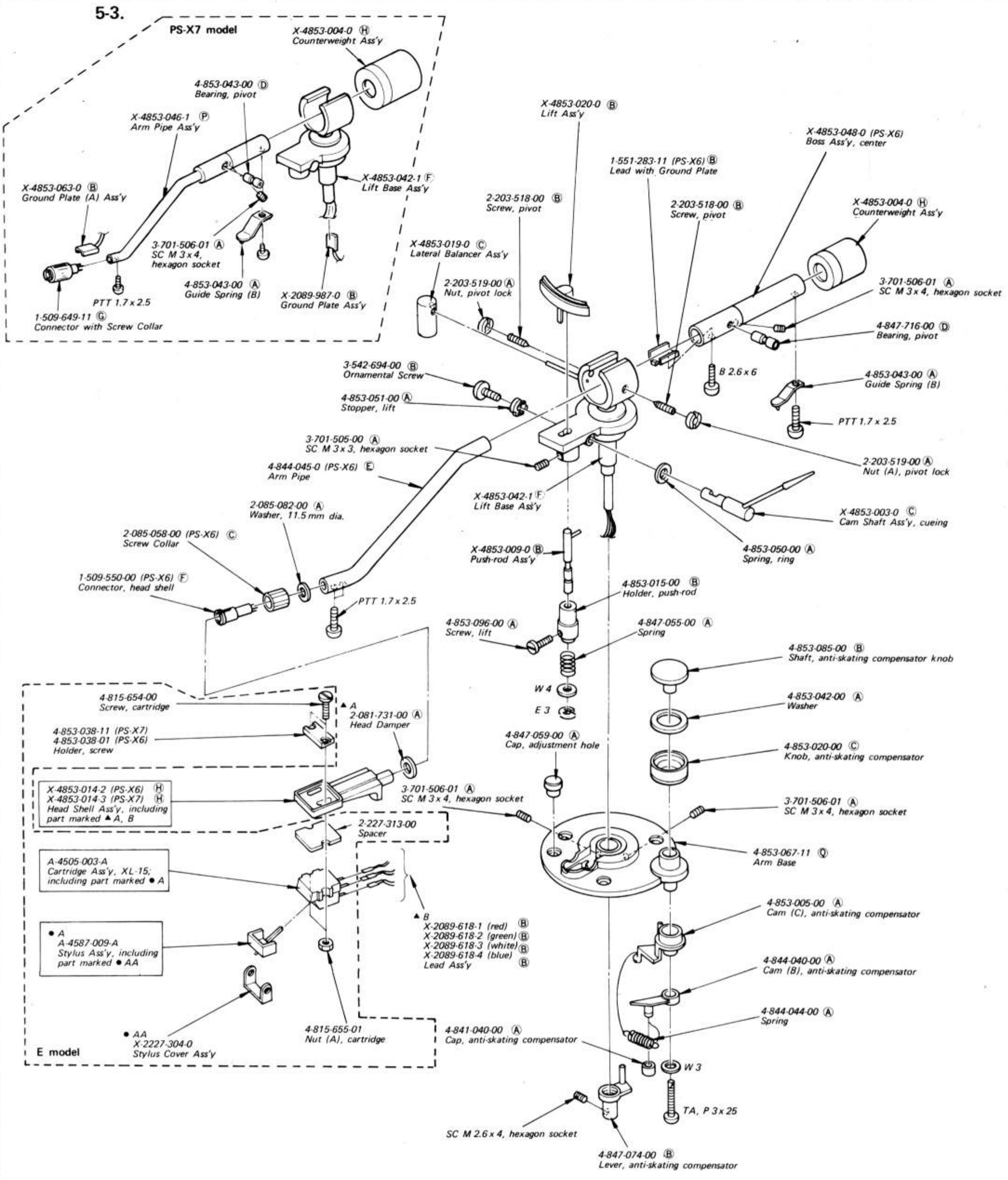
1

2

3

4

5



Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
- (-) = slotted head
- Circled letters (A to Z) are applicable to European models only.

SECTION 6 ELECTRICAL PARTS LIST

Note: Circled letters (A to Z) are applicable to European models only.

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
SEMICONDUCTORS		
Transistors		
⇒ Q101	Ⓓ	2SC1061
⇒ Q102,103	Ⓑ	2SC634A
⇒ Q104	Ⓒ	2SA678
⇒ Q105	Ⓒ	2SA684
Q106	Ⓓ	2SC926A
⇒ Q201-204	Ⓑ	2SC634A
⇒ Q205	Ⓒ	2SA678
⇒ Q206	Ⓑ	2SC634A
⇒ Q207,208	Ⓒ	2SA678
⇒ Q209,210	Ⓑ	2SC634A
⇒ Q211	Ⓓ	2SC1061
⇒ Q212	Ⓔ	2SA671
⇒ Q213	Ⓓ	2SC1061
⇒ Q214	Ⓔ	2SA671
⇒ Q301-303	Ⓑ	2SC634A
⇒ Q401-406	Ⓑ	2SC634A
Q407	Ⓒ	2SC1475
⇒ Q408-420	Ⓑ	2SC634A
⇒ Q421	Ⓒ	2SC1173
ICs		
IC1	Ⓖ	μPC324C
IC2	Ⓕ	MSM5811
⇒ IC3	Ⓖ	M53293P
⇒ IC4	Ⓔ	M53200P
Diodes		
D1,2	Ⓒ	SLP-24B
⇒ D101-104	Ⓑ	10E2
⇒ D105	Ⓑ	EQB01-06
⇒ D106	Ⓑ	10D6
⇒ D201-203	Ⓑ	1S1555
⇒ D301,302	Ⓑ	1S1555

⇒: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
⇒ D401-415	Ⓑ	1S1555
⇒ D416	Ⓑ	EQB01-06
H1,2	Ⓓ	5GF-MS-07F

TRANSFORMERS

PT1	1-442-877-11	Power (US, Canadian model)
PT1	1-442-878-11	Ⓜ Power (AEP, UK, E model)
PT2	1-442-879-11	Ⓕ Boost (AEP, UK, E model)

CAPACITORS

All capacitors are in μF and ceramic unless otherwise noted.
50WV or less are not indicated except for electrolytics. pF = μμF, elect = electrolytic

C100,101	1-108-750-11	Ⓑ 0.033	300V	mylar
				(AEP, UK, E model)
C101	1-108-750-11	0.033	125V	mylar
				(US model)
C101	1-130-098-11	Ⓒ 0.022	125V	polystyrol
				(Canadian model)
C102,103	1-123-047-11	Ⓒ 2200	32V	elect
C104,105	1-123-193-11	Ⓑ 100	16V	elect
C106	1-123-027-11	Ⓑ 2.2	250V	elect
C201	1-101-925-11	Ⓐ 0.047		
C202	1-121-651-11	Ⓐ 10	16V	elect
C203	1-102-074-11	Ⓐ 0.001		
C204	1-108-246-12	Ⓐ 0.047		mylar
C205	1-131-212-11	Ⓑ 0.33	35V	
C206	1-121-951-11	Ⓐ 0.47	50V	
C207	1-101-925-11	Ⓐ 0.047		
C208	1-123-191-11	Ⓐ 22	16V	elect
C209,210	1-108-251-12	Ⓐ 0.1		mylar
C301,302	1-102-491-11	Ⓐ 51p		
C303	1-121-391-11	Ⓐ 1	50V	elect
C304	1-121-952-11	Ⓐ 1	50V	elect
C305	1-101-925-11	Ⓐ 0.047		
C307,308	1-102-959-11	Ⓐ 22p		

Note: The components identified by shading are critical for safety. Replace only with part number specified.

Note: Circled letters (A to Z) are applicable to European models only.

Ref. No.	Part No.	Description
C309	1-123-194-11 (A) 33	10V elect
C310	1-101-919-11 (A) 0.0022	
C401	1-101-923-11 (A) 0.01	
C402	1-123-191-11 (A) 22	16V elect
C403,404	1-121-391-11 (A) 1	50V elect
C405	1-123-191-11 (A) 22	16V elect
C406	1-123-194-11 (A) 33	10V elect
C407,408	1-101-925-11 (A) 0.047	
C409	1-121-392-11 (A) 3.3	25V elect
C410	1-101-923-11 (A) 0.01	
C411	1-123-191-11 (A) 22	16V elect
C412,413	1-123-228-11 (B) 1	50V elect
C414-416	1-121-392-11 (A) 3.3	25V elect
C417	1-131-201-11 (C) 22	16V tantalum

RESISTORS

All resistors are in ohms. Common 1/4W carbon resistors are omitted. Check schematic diagram for values.

R109	1-213-154-11 (A) 8.2k	1W metal oxide
R240,241	1-206-453-11	3.9 2W metal oxide (US model)
R240,241	1-217-429-11 (B) 3.9	2W fusible (E, AEP, UK, Canadian model)
R313	1-217-401-11 (B) 150	1/4W fusible (E, AEP, UK, Canadian model)
R448	1-206-642-11 (A) 120	2W metal oxide
RV101	1-224-644-XX (B) 4.7k	adjustable
RV201	1-224-635-00 (B) 22k	adjustable
RV202,203	1-224-644-XX (B) 4.7k	adjustable
RV204,205	1-224-645-XX (B) 10k	adjustable
RV401	1-224-636-00 (B) 47k	adjustable

Ref. No.	Part No.	Description
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SWITCHES

S1	1-552-018-11	Push, POWER (US, Canadian model)
S1	1-552-206-00 (D)	Push, POWER (AEP, UK, E model)
S2	1-516-288-00 (B)	Slide, SPEED
S3	1-514-722-XX (C)	Miniature, play
S4	1-516-657-21 (C)	Micro, return

MISCELLANEOUS

F1	1-532-066-11 (B)	Fuse, T400 mA (AEP, UK, E model)
MGH	1-543-066-00 (F)	Head, speed detector
NL1	1-519-152-00 (B)	Neon Lamp, DC 150V 10mA
PL1	1-518-234-00 (B)	Lamp, pilot; 6V 100mA
PM	1-454-155-00 (E)	Solenoid, plunger; detector lever
	1-452-059-00 (B)	Magnet, brake
	1-508-897-00 (C)	Plug, voltage selector (AEP, UK, E model)
	1-509-547-11 (C)	Socket, 3-p; AC IN (AEP, UK, E model)
	1-509-550-00 (F)	Connector, head shell (PS-X6)
	1-509-649-11 (G)	Connector with screw collar (PS-X7)
	1-527-304-00 (F)	Crystal 7.864320 MHz
	1-533-051-XX (B)	Holder, lamp
	1-534-538-XX	Cord, power (US model)
	1-534-986-XX	Cord, power (Canadian model)
	1-551-063-00 (F)	Phono Cord
	1-551-283-11 (B)	Lead with Ground Plate (PS-X6)
	1-800-343-00 (C)	CdS
	A-4608-019-A (O)	Motor Ass'y
	X-2089-618-1 (B)	(red)
	X-2089-618-2 (B)	(green) Lead Ass'y,
	X-2089-618-3 (B)	(white) cartridge
	X-2089-618-4 (B)	(blue)

Note: The components identified by shading are critical for safety. Replace only with part number specified.

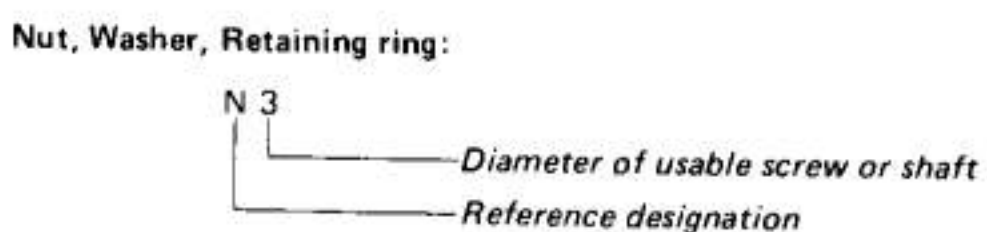
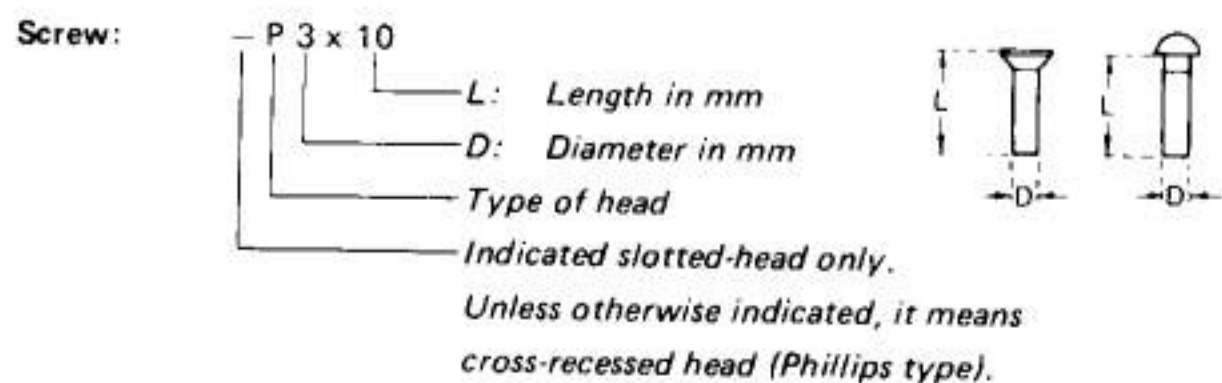
Note: Circled letters (A to Z) are applicable to European models only.

ACCESSORIES & PACKING MATERIALS

<u>Part No.</u>	<u>Description</u>	<u>Part No.</u>	<u>Description</u>
A-4504-003-A	Cartridge Ass'y, XL-15 (E model)	3-701-616-00	(A) Bag, plastic; shell
including;		3-701-630-00	(A) Bag, plastic; printed matters
A-4587-009-A	Stylus Ass'y	3-701-806-01	(A) Adaptor, 45 rpm
A-4587-009-A	Stylus Ass'y (E model)	3-770-314-11	(E) Manual, instruction (AEP, UK model)
including;		3-770-314-11	Manual, instruction (E model)
X-2227-304-0	Stylus Cover Ass'y	3-794-124-11	
X-4853-006- ² / ₃	(E) Screw Ass'y, cartridge (2: PS-X7 3: PS-X6) (AEP, UK, US, Canadian model)	3-770-314-21	Manual, instruction (US model)
including;		3-770-314-21	Manual, instruction (Canadian model)
3-701-614-00	(A) Bag, plastic	3-794-103-31	
2-054-625-00	(A) Screw (C), cartridge	3-793-395-11	(B) Gauge, tracking error check
2-056-532-00	(B) Screw (A), cartridge	3-793-867-11	(A) Leaflet, caution; power cord
2-224-081- ⁰¹ / ₁₁	(A) Screw (E), cartridge	3-793-867-11	(A) Leaflet, caution; rubber sheet (PS-X7)
2-227-313-00	(A) Spacer	4-847-092-00	(C) Screwdriver
4-815-655-01	(A) Nut (A), cartridge	4-847-314-00	(C) Bag, plastic
4-853-038- ⁰¹ / ₁₁	(C) Holder, screw (01: PS-X6 11: PS-X7)	4-848-002-00	(A) Cushion, arm-pipe
X-4853-018-0	(C) Sub-counterweight Ass'y	4-848-005-00	(C) Box, accessories
1-534-754-00	Cord, power; parallel-blade plug (E model)	4-848-006-00	(B) Bag, accessories
1-534-819-00	(G) Cord, power (UK model)	4-848-012-00	(A) Board, protection
1-551-216-00	Cord, power; euro-plug (E model)	4-849-790-00	(A) Bag, protection
2-227-313-00	Spacer (E model)	4-853-065-00	(Q) Sheet, protection (PS-X7)
3-550-734-00	Cord, Holder, euro-plug (E model)	4-853-838-00	(F) Carton (PS-X6)
3-701-613-00	(A) Bag, plastic; sub-counterweight	4-853-839-00	(C) Frame
		4-853-840-00	(F) Carton (PS-X7)
		4-853-847-00	(B) Board, protection (PS-X7)
		4-853-836-00	(C) Cushion

Note: The components identified by shading are critical for safety. Replace only with part number specified.

HARDWARE NOMENCLATURE



Reference Designation	Shape	Description	Remarks
SCREWS			
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		braizer-head screw	

Reference Designation	Shape	Description	Remarks
SELF-TAPPING SCREWS			
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self-tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
SET SCREWS			
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
NUT			
N		nut	
WASHERS			
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
RETAINING RINGS			
E		retaining ring	
G		grip-type retaining ring	