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PS-X45

AEP Model
US Model



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STEREO TURNTABLE SYSTEM

SPECIFICATIONS

Turntable

Platter:	31 cm (12 1/4 in.), aluminum-alloy diecast
Motor:	Linear BSL (brushless and slotless) motor
Drive system:	Direct drive
Control system:	Crystal lock control, magnedisc servo control system
Speed:	33 1/3 rpm, 45 rpm
Starting characteristics:	Comes to nominal speed within a half revolution (33 1/3 rpm)
Wow and flutter:	0.02% (WRMS)*, 0.025% (WRMS) ±0.04% (DIN)
Signal-to-noise ratio:	78 dB (DIN-B)
Load characteristics:	0% up to 100 g stylus force (at lead-in groove of a record)
Speed deviation:	Within ±0.003%
Automatic system:	Lead-in, return, reject, repeat,

Tonearm

Type:	Statically balanced
Pivot-to-stylus length:	216.5 mm (8 1/2 in.)
Overall arm length:	300 mm (11 7/8 in.)
Overhang:	16.5 mm (21/32 in.)
Tracking error:	(+) 3° – (–) 1°
Stylus force adjustment range:	0 – 2.5 g
Cartridge shell weight:	5 g
Cartridge weight range:	(including supplied shell) 7.5 – 11.5 g 11 – 15 g (with extra weight)

— Continued on page 2 —

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS 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

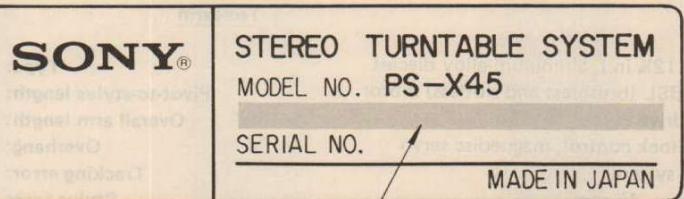
* This new measuring method concerns only the turntable assembly, including the platter. It excludes wow and flutter caused by the tonearm, the cartridge, or the record. Measured by obtaining signal from magnetic pick-up head.

Cartridge

Type: Moving-magnet
 Frequency response: 10 - 30,000 Hz
 Channel separation: 25 dB at 1 kHz
 Output voltage: 3 mV at 1 kHz, 5 cm/sec, 45°
 Load impedance: 50 kΩ - 100 kΩ
 Tracking force: 1.0 - 2.0 g (1.5 g recommended)
 Stylus: Sony ND-200G
 Weight: Elliptical (0.3 x 0.8 mil), nude diamond
 3.5 g

General

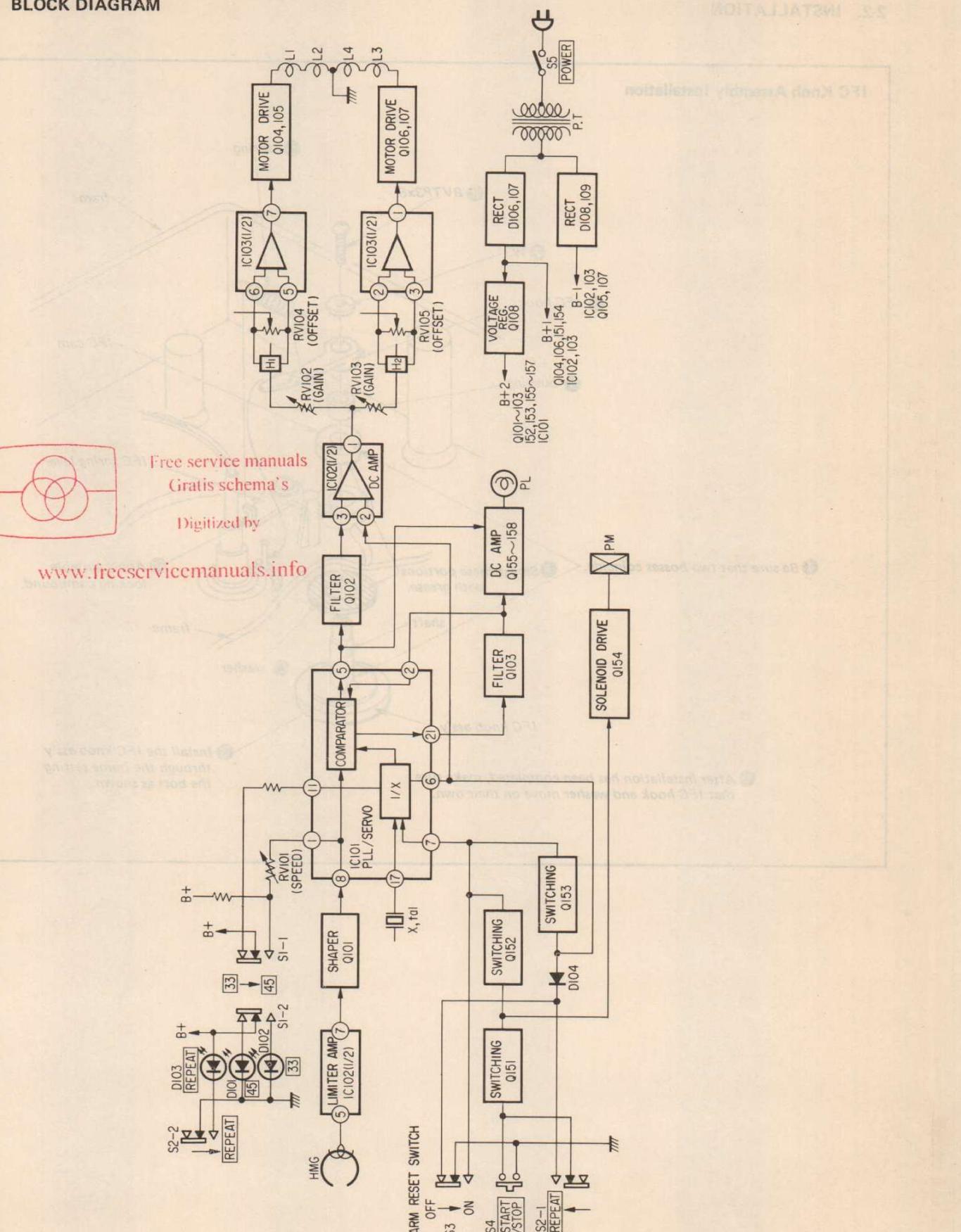
Power requirements: AEP model: 220 V ac, 50/60 Hz
 US model: 120 V ac, 60 Hz
 Power consumption: 12 W
 Dimensions: Approx. 430 x 135 x 375 mm (w/h/d)
 (17 x 5 $\frac{3}{8}$ x 14 $\frac{1}{8}$ in.)
 including projecting parts and controls
 Approx. 7 kg (15 lbs 7 oz), net
 Approx. 8.6 kg (19 lbs), in shipping
 carton
 Weight:

MODEL IDENTIFICATION
—Specification Label—

US model: AC 120V 60Hz 12W
 AEP model: AC 220V~50/60Hz 12W

SECTION 1
OUTLINE

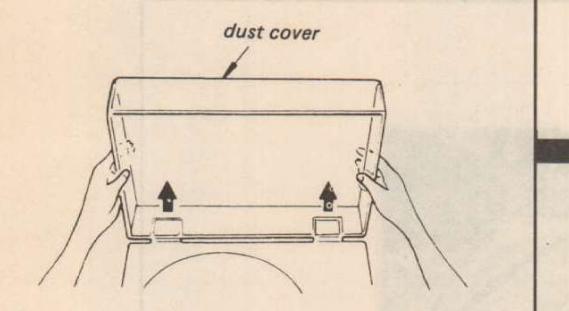
1-1. BLOCK DIAGRAM



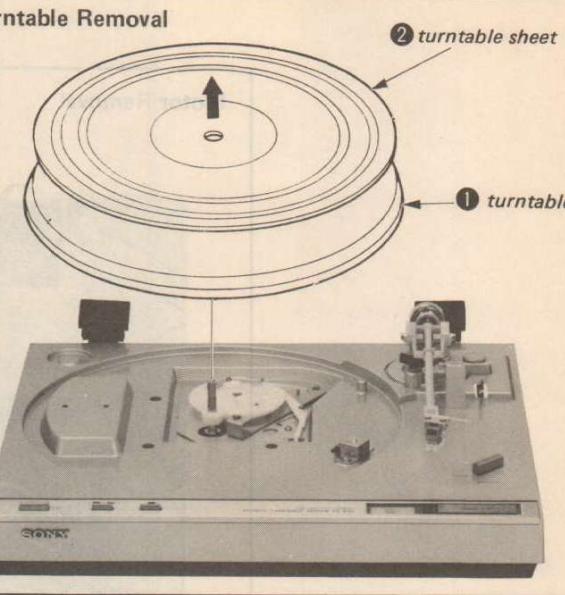
2-1. REMOVAL

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

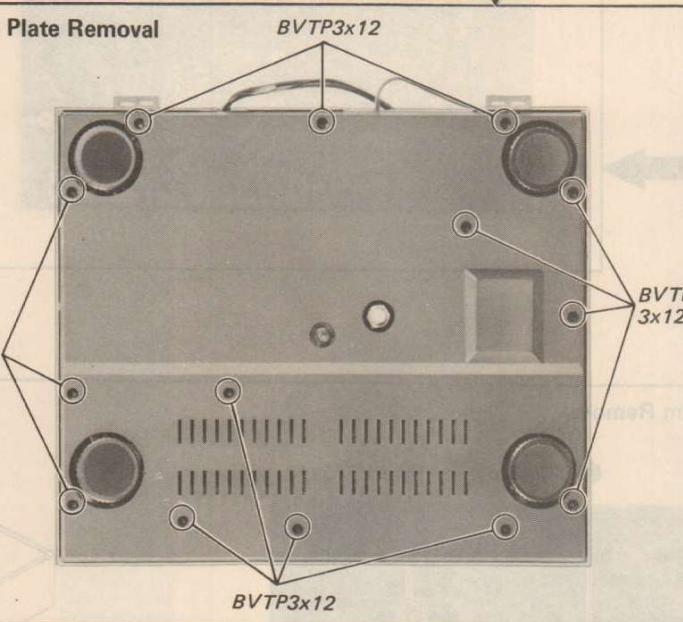
Dust Cover Removal

SECTION 2
DISASSEMBLY

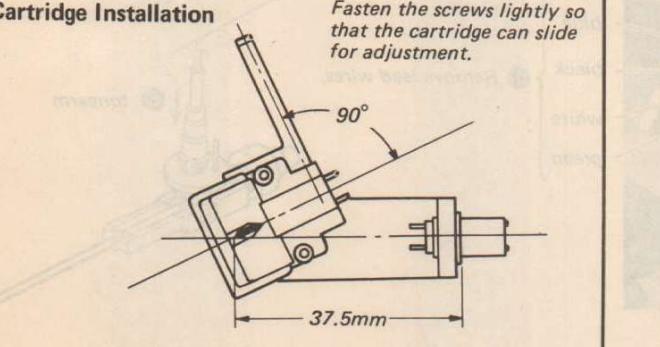
Turntable Removal



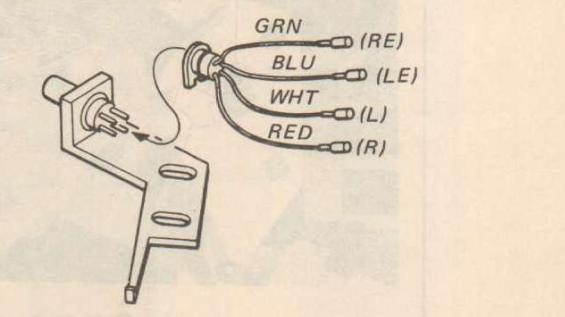
Bottom Plate Removal



Cartridge Installation

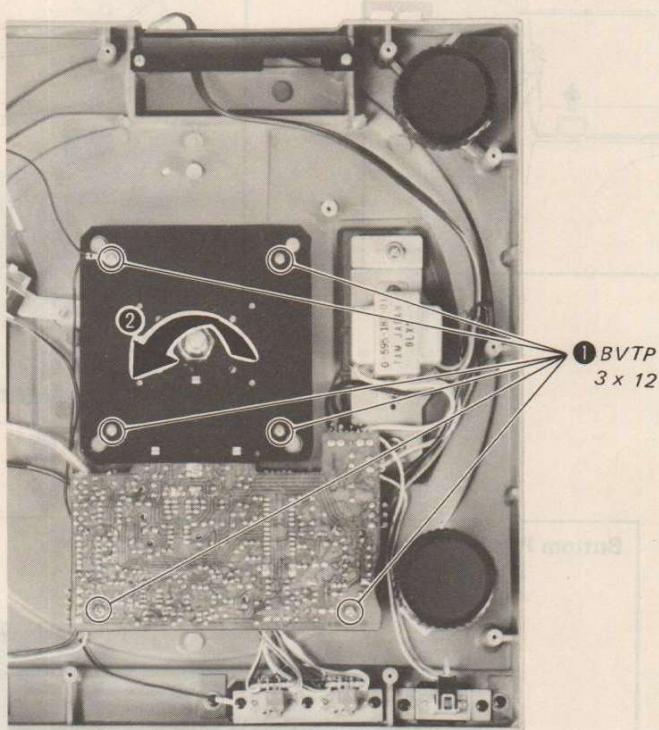


Lead Wire Connection

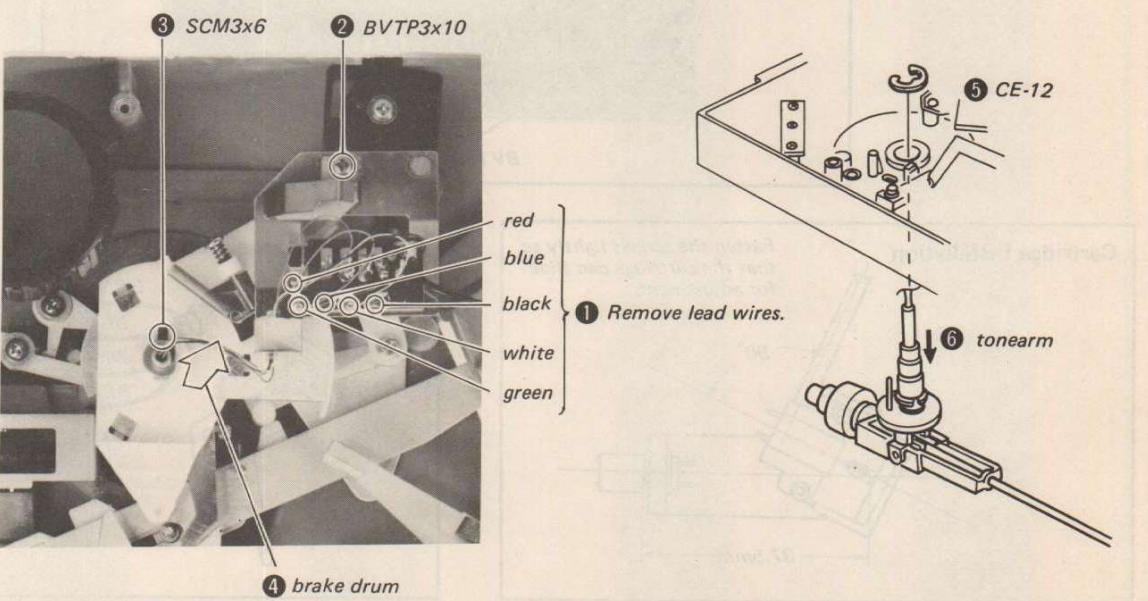


2.2. INSTALLATION

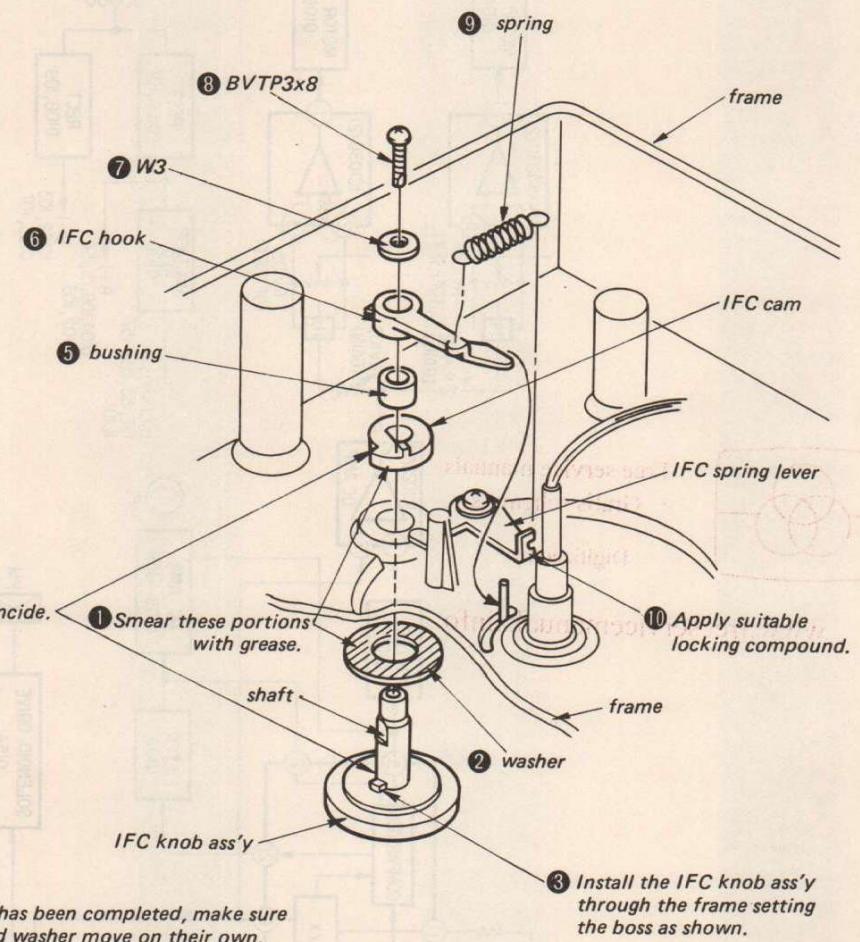
Motor Removal



Tonearm Removal

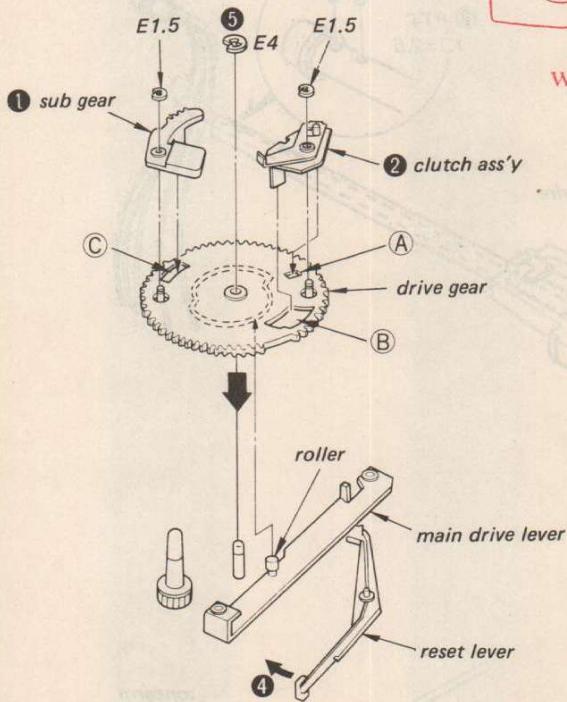


IFC Knob Assembly Installation



Drive Gear Installation

- ① Install the sub gear in hole ④ with E1.5.
- ② Install the clutch ass'y in holes ⑤ and ⑥ with E1.5.
- ③ After installation(①, ②) has been completed, make sure they move on their own.
- ④ Install the drive gear pushing the reset lever in the direction of arrow, when the roller of the main drive lever fits the gutter of the drive gear.

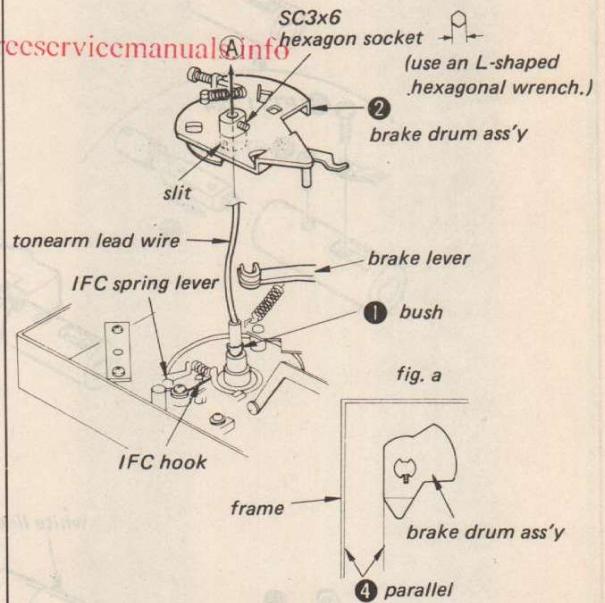


Brake Drum Installation

- ② Thread the brake drum ass'y with the tonearm lead wires. Pull the wires out in the direction of the arrow ⑦.
- ③ Set the tonearm on the arm rest.
- ④ Adjust the position of the brake drum to obtain the same height as the brake lever and also, so that the straight side of drum is parallel with the frame (See fig.a). Fix the drum by turning the set screw (SC3x6).

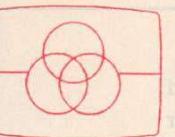
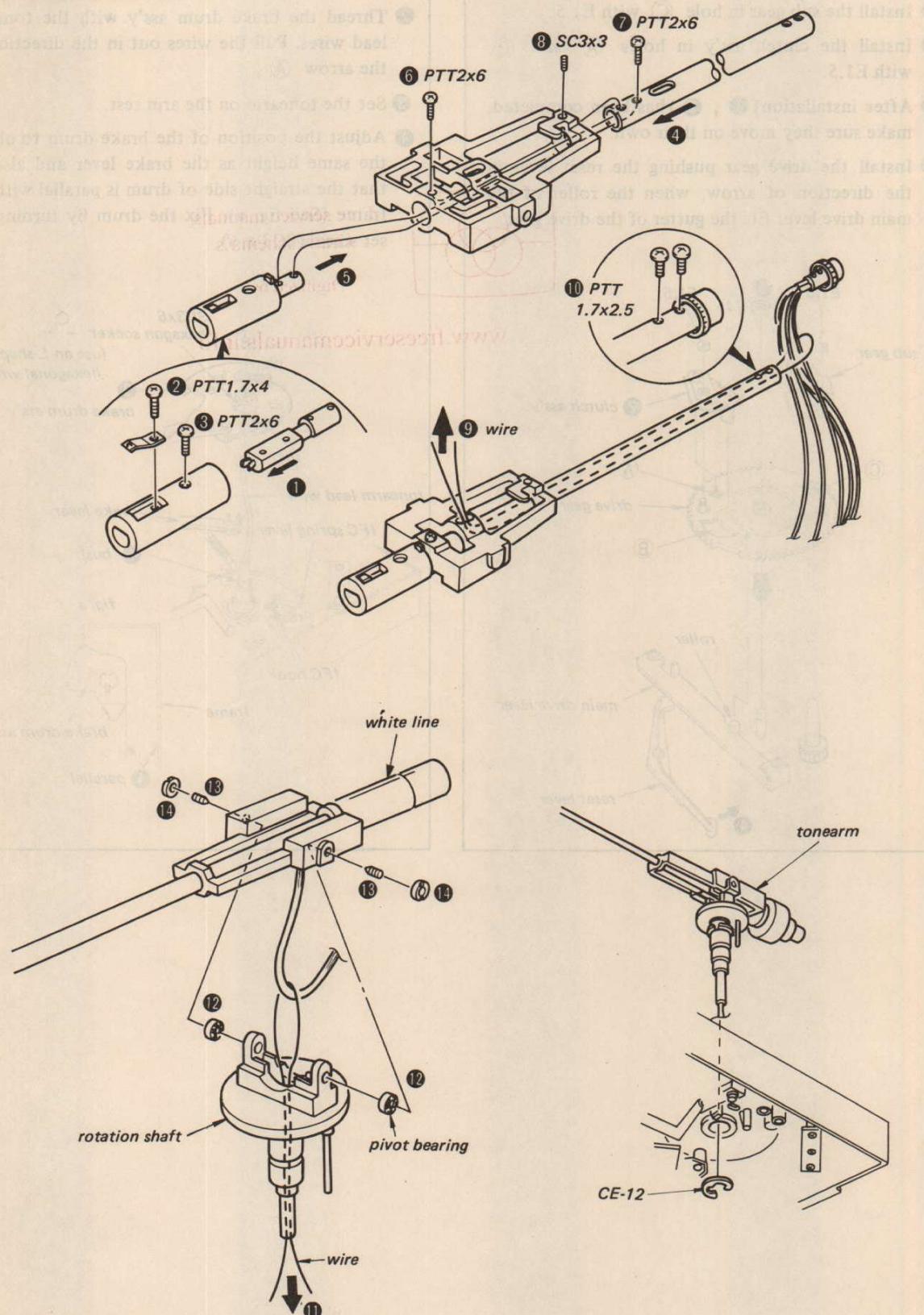
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TONEARM INSTALLATION

Tonearm Pipe Installation



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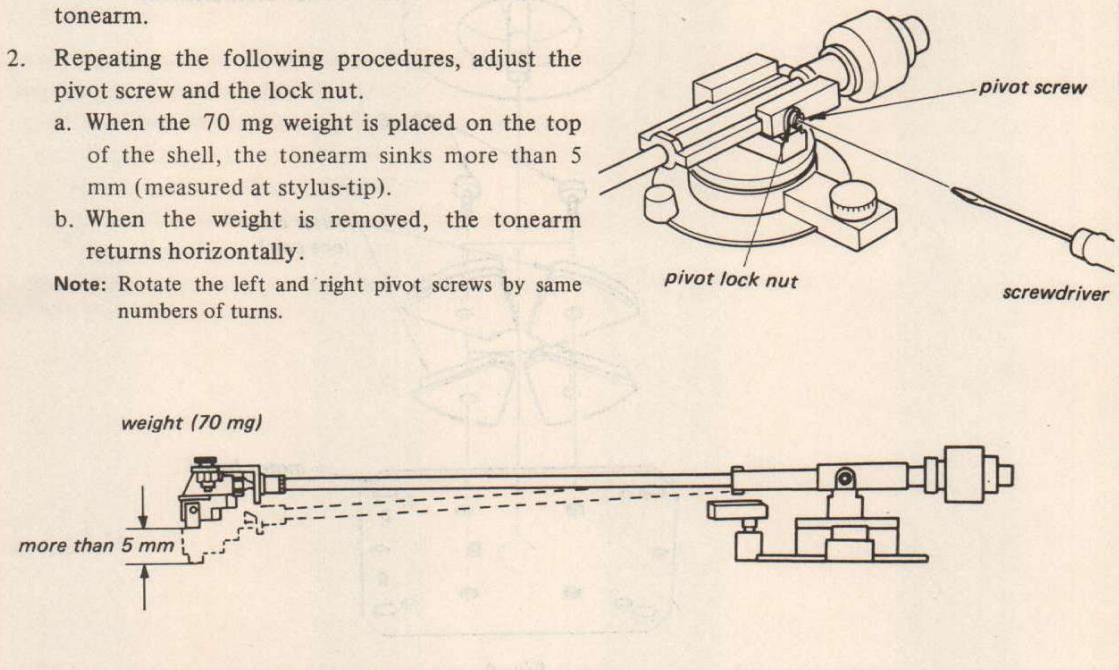
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Longitudinal Sensitivity Adjustment

1. Make the longitudinal balance adjustment of tonearm.
2. Repeating the following procedures, adjust the pivot screw and the lock nut.
 - a. When the 70 mg weight is placed on the top of the shell, the tonearm sinks more than 5 mm (measured at stylus-tip).
 - b. When the weight is removed, the tonearm returns horizontally.

Note: Rotate the left and right pivot screws by same numbers of turns.



MOTOR INSTALLATION

The motor and the servo amp board are assembled together. If found defective, disassemble the motor block as shown in Fig. A and repair it.

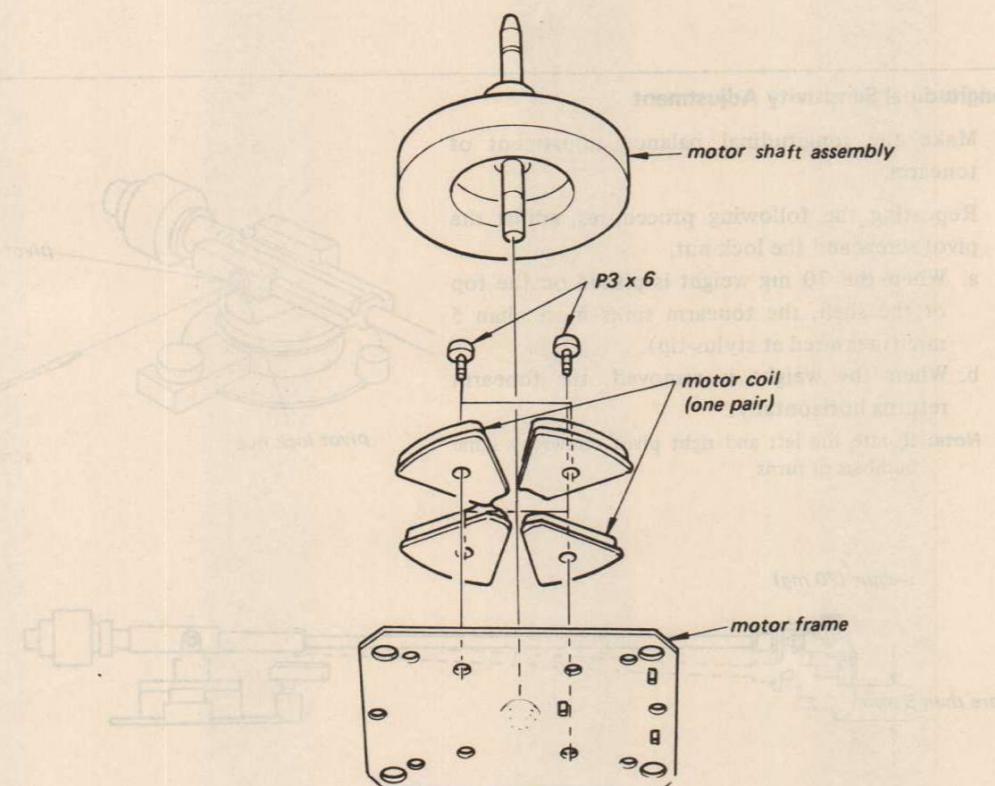
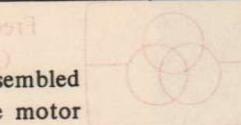


Fig. A

1. When the motor shaft is replaced, apply two drops of the SONY oil (OL-2KA) as shown below.
2. When the motor bearing and the thrust retainer plate are replaced, apply two drops of the SONY oil (OL-2KA) as shown below.

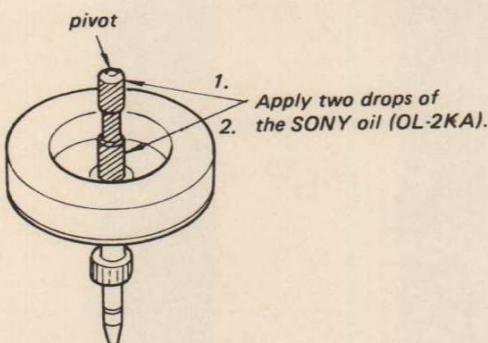


Fig. B

3. The motor coils are composed of two pairs.
 - a). Mount the coils on the motor frame so that the boss of the coil is placed in the hole of the frame as illustrated in Fig. C.
 - b). Push the coils in the direction of arrow and tighten the screws.

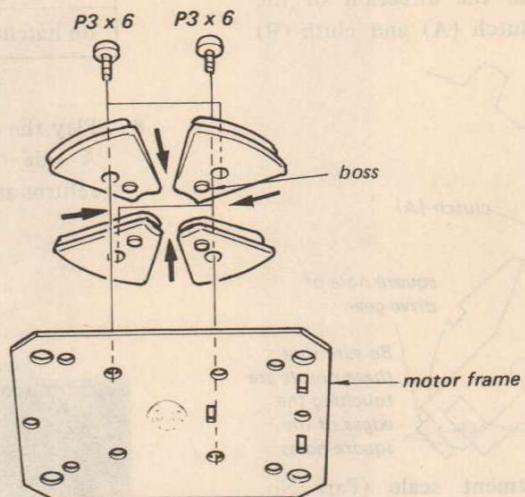


Fig. C

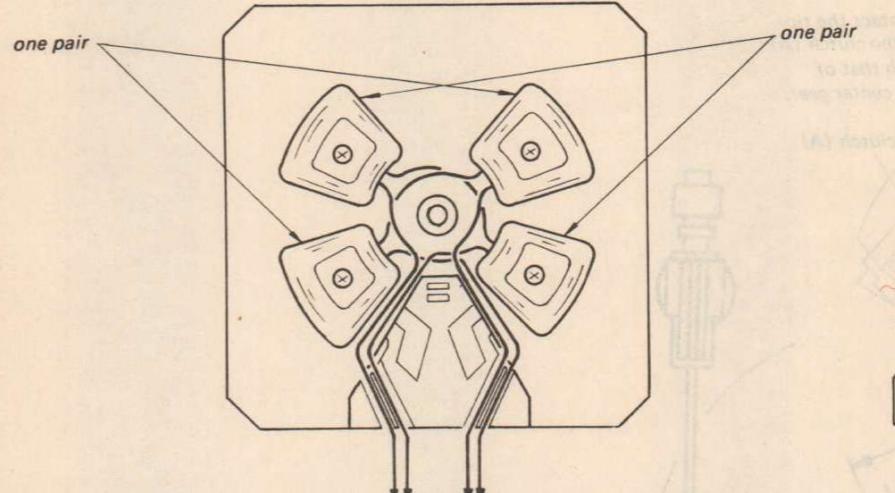


Fig. D

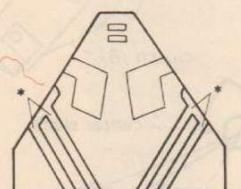


Fig. E

- c). Lay the leads of the coils as shown in Fig. D and fix the leads in the slot between the portions marked by *in Fig. E.
4. Insert the motor shaft assembly slowly in the motor bearing so that the motor shaft is not attracted by strong magnetic field strength.

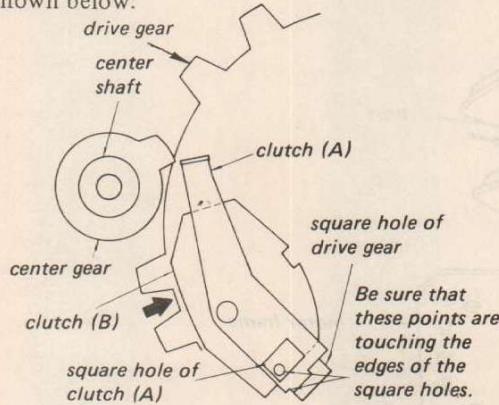
SECTION 3

ADJUSTMENTS

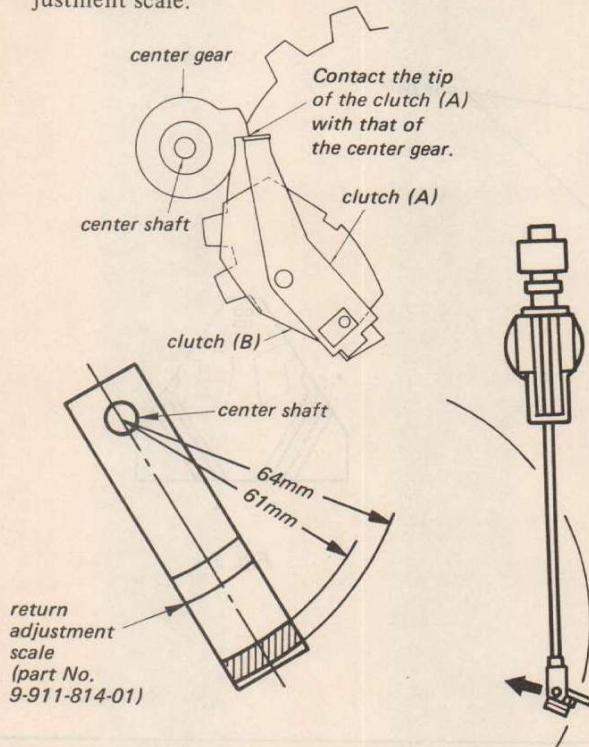
3-1 MECHANICAL ADJUSTMENTS

Automatic Return Position Adjustment

- Unplug the power cord.
- 1. Remove the turntable mat and turntable.
- 2. Put the tonearm on the arm rest.
- 3. Turn the center shaft clockwise by hand and turn the drive gear one turn by engaging the center gear with the drive gear. Then place the drive gear in the disengaging position.
- 4. Push the clutch (B) in the direction of the arrow and place the clutch (A) and clutch (B) as shown below:



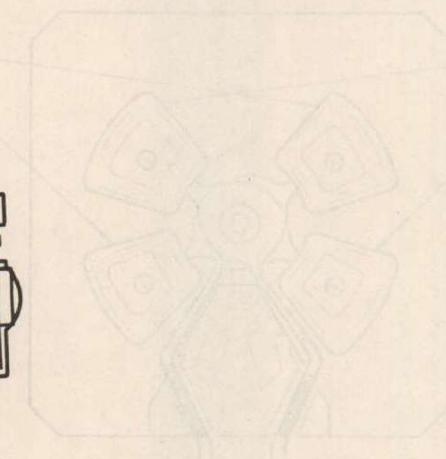
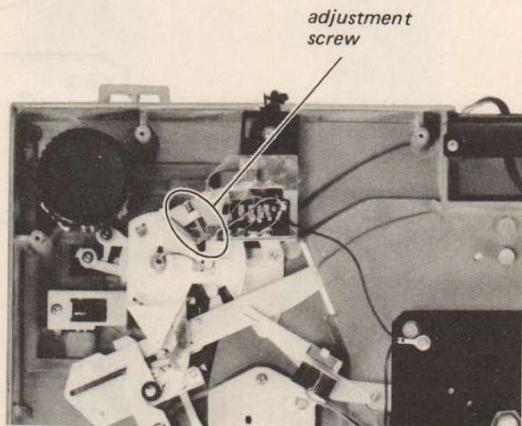
- 5. Put the return adjustment scale (Part No. 9-911-814-01) on the center shaft.
- 6. Move the tonearm toward the center shaft by hand so that the clutch (A) is positioned as shown below and confirm that the stylus is located on the hatched area of the return adjustment scale.

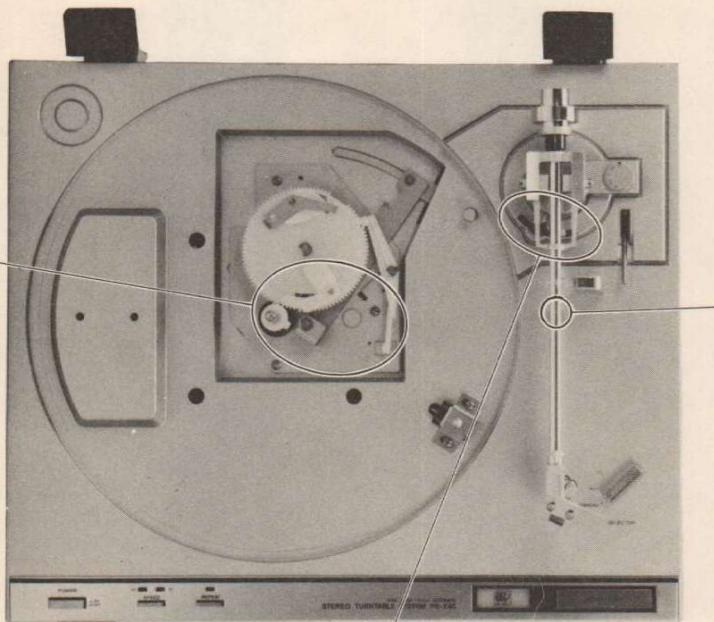


- 7. If necessary, adjust the adjustment screw.

Stylus Position	Adjustment Screw
outside of hatched area	clockwise
inside of hatched area	counterclockwise
on hatched area	correct

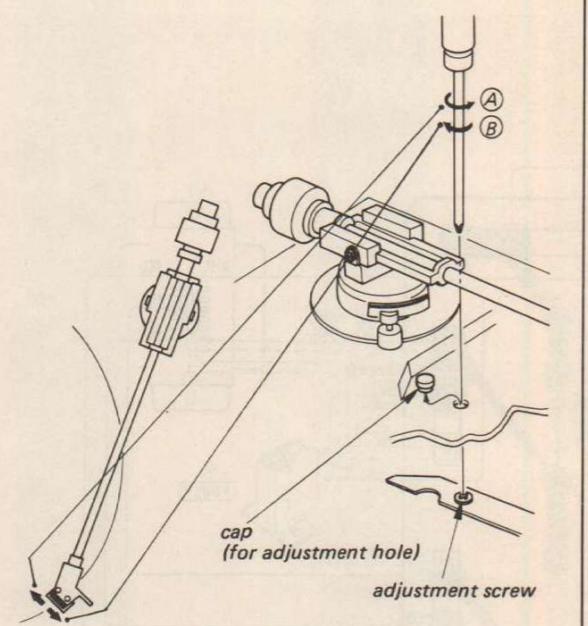
- 8. Play the automatic-return test record (YFSC-16, A side "C-3") and confirm that the tonearm returns at count 4 to 11.





Stylus Drop-point Adjustment

- Remove the cap from the adjustment hole.

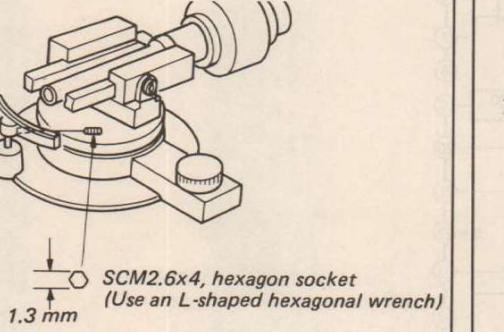


- Set the record size selector lever to the 30 (12") position and make sure that the stylus gets down on the specified point of the test record.

test record: YFSC-16

Arm Lifter Height Adjustment

- Unplug the power cord.



The clearance between the stylus tip and the record on the rubber mat should be 7-11mm ($\frac{5}{16}$ - $\frac{7}{16}$ "').

- If necessary, insert the screwdriver 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:

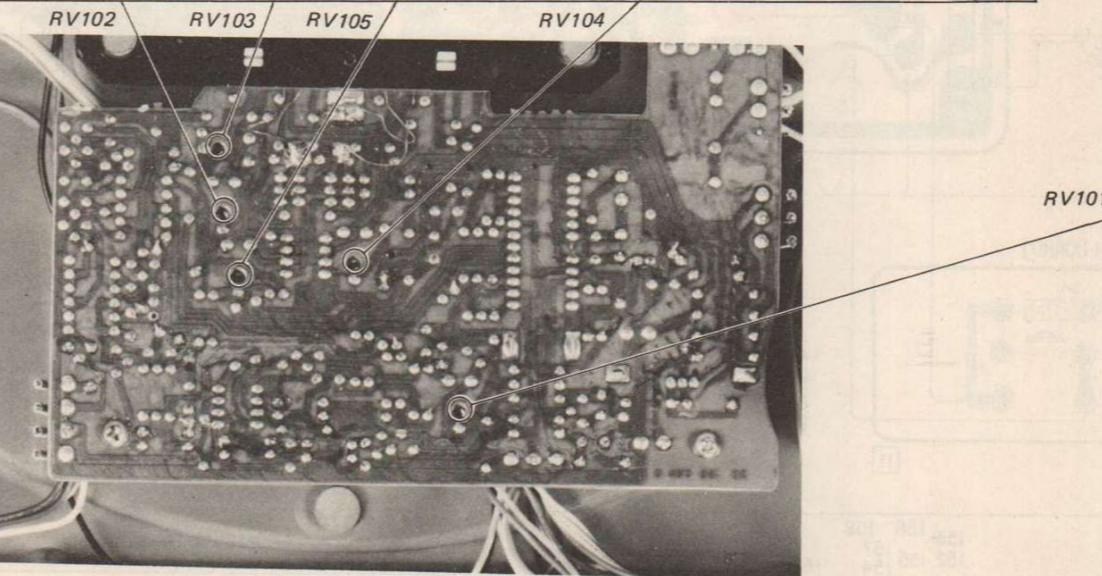
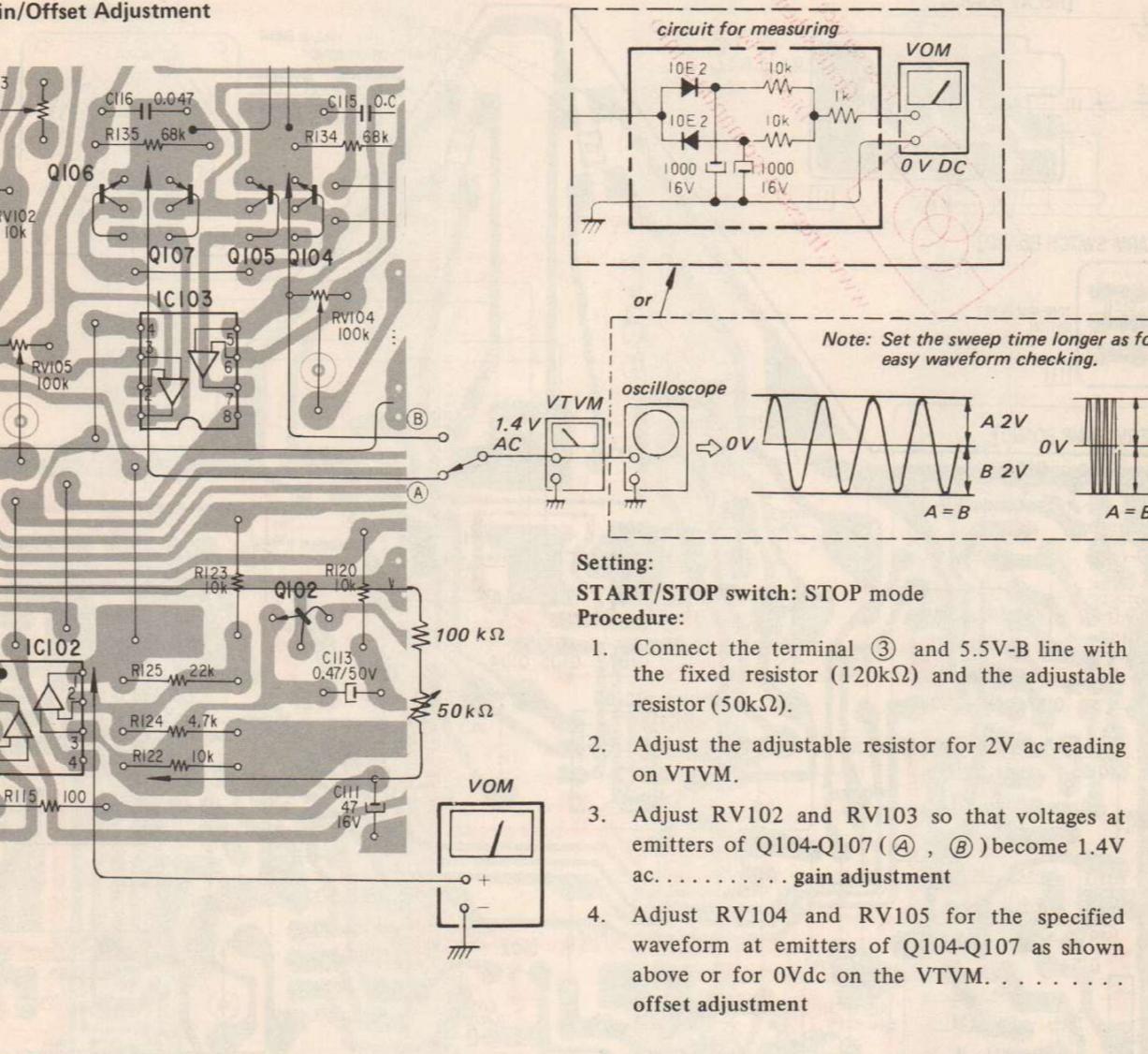
Turn the adjustment screw slightly clockwise (B).

- 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 12mm ($\frac{1}{2}$ ") by one turn of the adjustment screw.

3-2. ELECTRICAL ADJUSTMENTS

Gain/Offset Adjustment



Speed-Detecting Head Output Adjustment

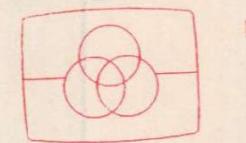
- Adjust the position of the speed-detecting head by loosening the two screws (TA, B 3 x 10) as shown in the figure so that the VTVM reading is more than 20 mV ac at 33 rpm.
- Make sure that the head does not touch the turntable and tighten the screws securely.

Note:

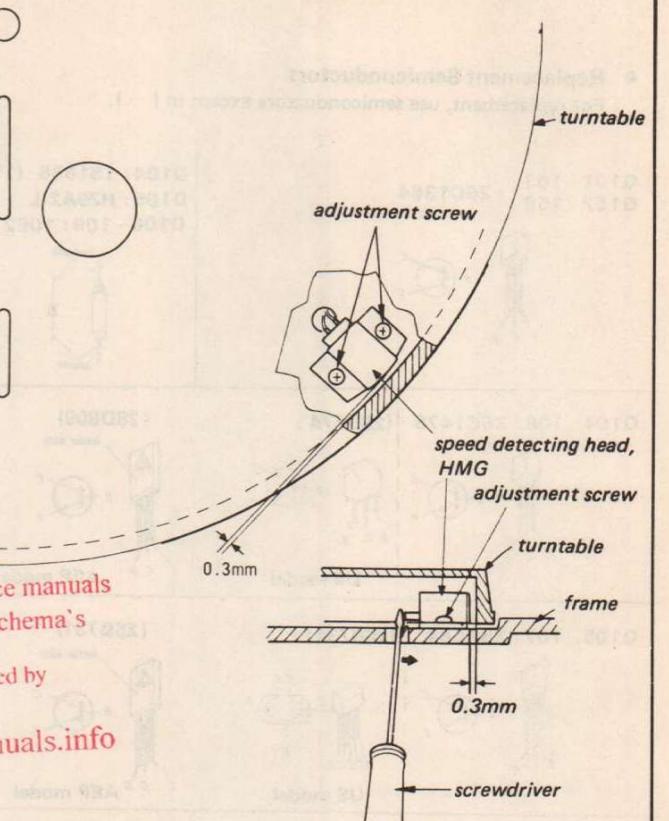
- Maladjustment results in wow-flutter.
- The clearance between the magnet-coated rim and the speed-detecting head is more than 0.3mm.

Reference:

Adjust the position of the speed-detecting head by inserting a card (approx. 0.3 mm thick) between the magnetic coating of the turntable and the speed-detecting head.



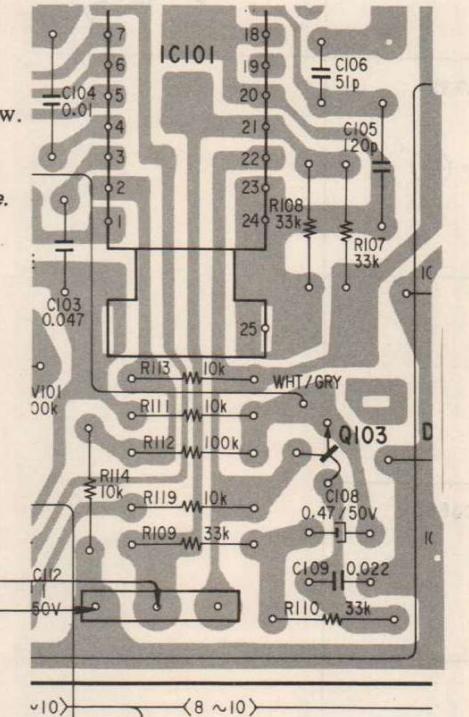
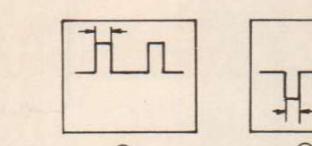
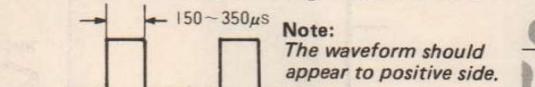
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Speed Adjustment

Setting:
SPEED Switch: 33

- Adjust RV101 for the specified waveform on oscilloscope as shown below.



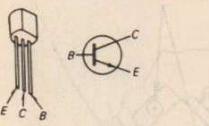
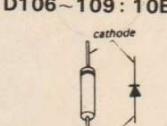
4-1. MOUNTING DIAGRAM

- Conductor Side -

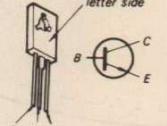
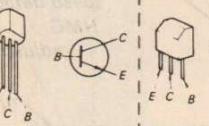
● Replacement Semiconductors

For replacement, use semiconductors except in ().

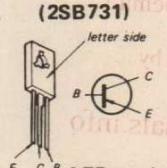
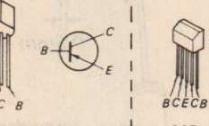
Q101~103 : 2SC1364

D104: 1S1555 (1T40)
D105: HZ9A2-L
D106~109: 10E2

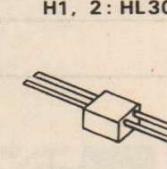
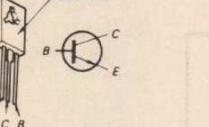
Q104, 106: 2SC1475 (2SD774)

(2SD809)
letter side

Q105, 107: 2SA684 (2SB734)

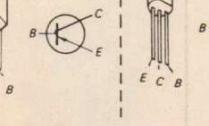
(2SB731)
letter side

Q108: 2SD414

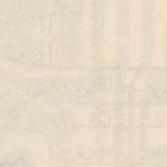
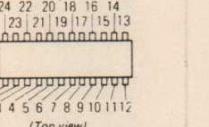


H1, 2: HL300C

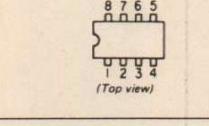
Q151: 2SA1027R (2SA733)



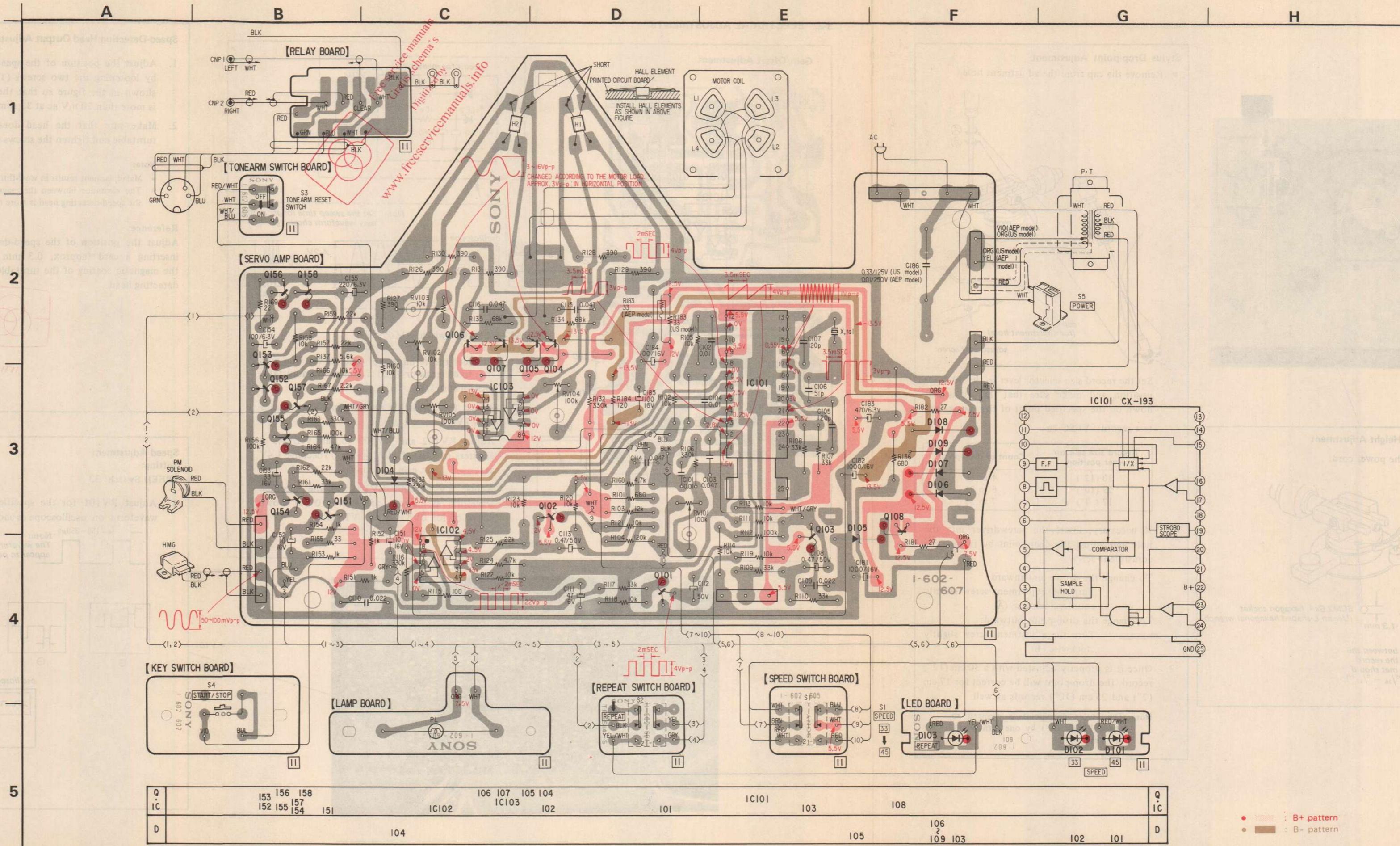
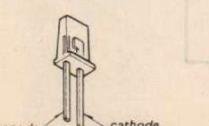
IC101: CX193



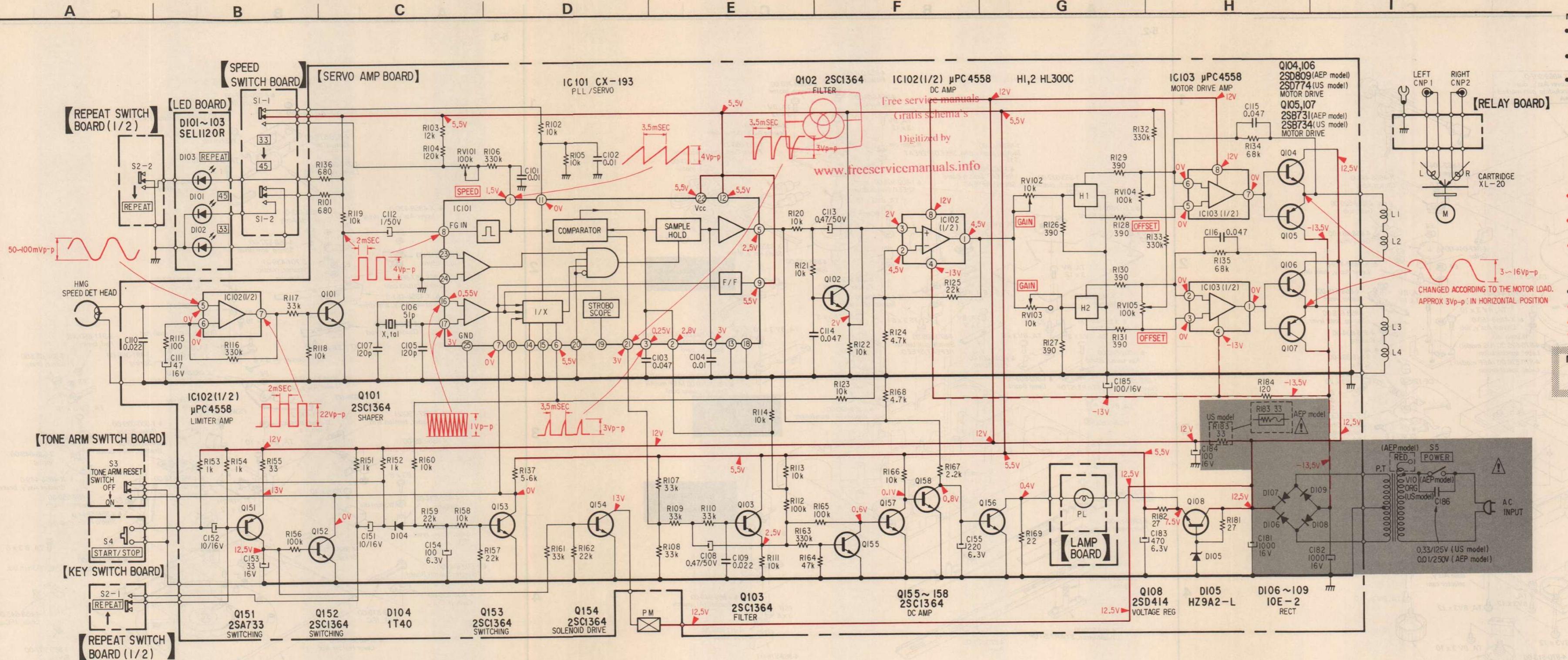
IC102, 103: μPC4558C (μPC4558)



D101~103: SEL1120R



4-2. SCHEMATIC DIAGRAM



Note:

- Capacitors are in μF unless otherwise noted. pF : $\mu\mu\text{F}$
 V or less are not indicated except for electrolytics.
Resistors are in ohms. $1/4 \text{ W}$ unless otherwise noted.

No	Switch	Position
1	SPEED	33
2	REPEAT	OFF
3	TONEARM RESET	OFF
4	START/STOP	OFF
5	POWER	OFF

- age variations may be noted due to normal produc-tolerances.

ages are dc with respect to ground unless otherwise ed.

ndings are taken under no-signal conditions with a M (20 k Ω /V).

ark: when tonearm is settled on the arm rest and S5 (POWER) is turned on.

: panel designation.

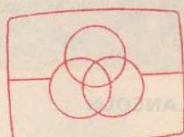
: adjustment for repair.

— : B+ bus.

— : B- bus

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

5-4.

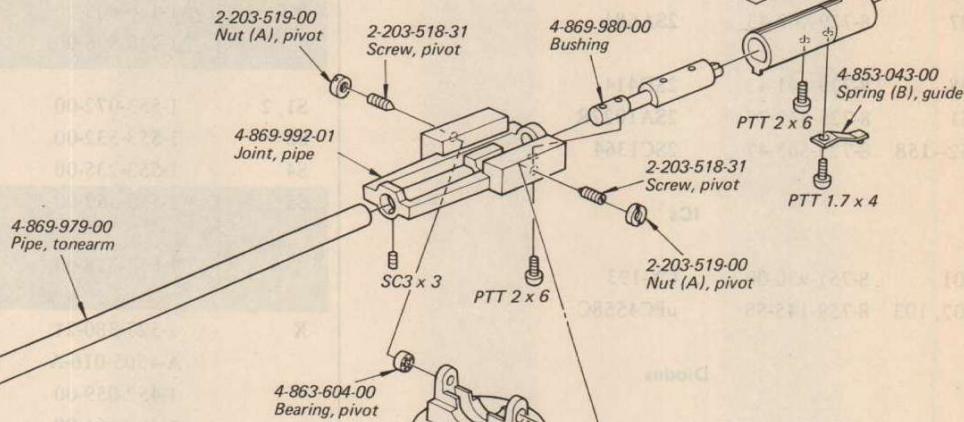
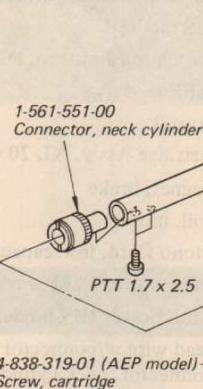


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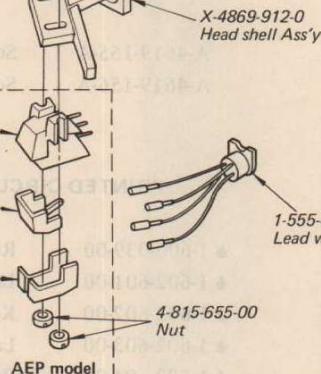


4-838-319-01 (AEP model)
Screw, cartridge

A-4505-016-A
Cartridge Ass'y, XL-20;
including parts
market •A, B

•A A-4587-020-A
Stylus Ass'y, ND-163

•B 2-330-163-00
Caver, stylus



1

2

3

4

5

SECTION 6

ELECTRICAL PARTS LIST

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>			<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>								
SEMICONDUCTORS															
Transistors															
<i>(Refer to page 28)</i>															
Q101-103	8-729-663-47	2SC1364			R183	{ ▲ 1-246-437-00	33	1/4W	carbon (US model)						
⇒ Q104	8-760-413-10	2SC1475				{ ▲ 1-217-393-00	33	1/4W	fusible (AEP model)						
⇒ Q105	8-729-468-43	2SA684													
⇒ Q106	8-760-413-10	2SC1475													
⇒ Q107	8-729-468-43	2SA684													
Q108	8-729-141-43	2SD414													
⇒ Q151	8-729-612-77	2SA1027R													
Q152-158	8-729-663-47	2SC1364													
ICs															
IC101	8-751-930-00	CX-193													
⇒ IC102, 103	8-759-145-58	μPC4558C													
Diodes															
D101-103	8-719-311-20	SEL1120R													
⇒ D104	8-719-815-55	1S1555													
D105	8-719-910-92	HZ9A2-L													
D106-109	▲ 8-719-200-02	10E2													
H1, 2	8-719-903-00	HL-300C													
CAPACITORS															
All capacitors are in μ F. Common capacitors are omitted. Refer to the lists on pages 28 and 29 for their part numbers.															
C106	1-102-491-00	51pF	50V	ceramic											
C181, 182	▲ 1-123-324-00	1,000	16V	electrolytic nonpolarized											
C186	{ ▲ 1-130-233-00	0.33	125V	film (US model)											
	{ ▲ 1-161-744-00	0.01	250V	ceramic (AEP model)											
RESISTORS															
All resistors are in ohms. Common 1/4W carbon resistors are omitted. Refer to the list on the last page for their part numbers.															
⇒: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.															

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

ACCESSORIES & PACKING MATERIALS	
<u>Part No.</u>	<u>Description</u>
X-4869-912-0	Head Shell Ass'y
X-4869-915-0	Screw Ass'y, cartridge
3-701-616-00	Bag, polyethylene
3-701-630-00	Bag, polyethylene
3-701-634-00	Bag, polyethylene
3-701-806-00	Adaptor (E), 45rpm
3-783-206-11	Manual, instruction (AEP model)
3-783-206-21	Manual, instruction (US model)
4-847-314-00	Bag, polyethylene
4-862-043-00	Cushion, arm
4-862-680-00	Bag, protection
4-863-668-00	Stopper, gear
4-869-962-00	DP Adjustor
4-869-974-00	Holder, table
4-869-975-00	Cushion, right
4-869-976-00	Cushion, left
4-869-977-00	Package, accessories
4-869-981-00	Weight, sub
4-870-528-00	Carton, individual
4-870-529-00	Shell Case
4-870-530-00	Shell Label

ELECTROLYTIC CAPACITORS

CAP. (μ F)	RATING					
	6.3 VOLT.	10 VOLT.	16 VOLT.	25 VOLT.	35 VOLT.	50 VOLT.
PART No.	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.47					→	1-121-726-00
1.0					→	1-121-391-00
2.2					→	1-121-450-00
3.3	→	→	→	→	1-121-392-00	1-121-393-00
4.7	→	→	→	→	1-121-395-00	1-121-396-00
10	→	→	→	1-121-651-00	1-121-398-00	1-121-738-00
22	→	→	→	1-121-479-00	1-121-480-00	1-121-662-00
33	→	→	→	1-121-403-00	1-121-404-00	1-121-652-00
47	→	→	1-121-352-00	1-121-409-00	1-121-410-00	1-121-653-00
100	→	→	1-121-414-00	1-121-415-00	1-121-416-00	1-121-357-00
220	1-121-419-00	1-121-420-00	1-121-421-00	1-121-422-00	1-121-261-00	1-121-423-00
330	1-121-751-00	1-121-805-00	1-121-521-00	1-121-654-00	1-121-655-00	1-121-656-00
470	1-121-424-00	1-121-425-00	1-121-426-00	1-121-733-00	1-121-361-00	1-121-810-00
1000	—	1-121-736-00	1-121-245-00	1-121-657-00	1-121-388-00	1-123-061-00
2200	1-121-658-00	1-121-659-00	1-121-660-00	1-123-067-00	1-121-984-00	—
3300	1-121-661-00	1-123-075-00	1-123-071-00	—	—	—

CAP. (μ F)	100 VOLT.	160 VOLT.	250 VOLT.	350 VOLT.
	PART No.	PART No.	PART No.	PART No.
0.47	—	—	—	—
1.0	1-123-249-00	1-123-252-00	1-123-003-00	1-121-168-00
2.2	1-123-250-00	1-123-026-00	—	1-123-028-00
3.3	1-121-995-00	—	1-123-004-00	1-123-006-00
4.7	1-123-255-00	1-121-246-00	1-121-759-00	1-123-007-00
10	1-121-126-00	1-121-999-00	1-123-254-00	1-123-008-00
22	1-121-996-00	1-123-253-00	1-123-005-00	1-123-022-00
33	1-121-997-00	1-121-757-00	—	—
47	1-123-251-00	1-121-919-00	—	—
100	1-123-084-00	—	—	—

CERAMIC CAPACITORS

CAP. (pF)	RATING					
	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (pF)
PART No.	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.5	1-101-837-00	22	1-102-959-00	150	1-101-361-00	0.001
0.75	1-101-586-00	24	1-102-960-00	160	1-101-367-00	0.0012
1.0	1-102-934-00	27	1-102-961-00	180	1-102-976-00	0.0015
1.5	1-101-576-00	30	1-102-962-00	200	1-102-977-00	0.0018
2.0	1-102-935-00	33	1-102-963-00	220	1-102-978-00	0.0022
3	1-102-936-00	36	1-102-964-00	240	1-102-979-00	0.0027
4	1-102-937-00	39	1-102-965-00	270	1-102-980-00	0.0033
5	1-102-942-00	43	1-102-966-00	300	1-102-981-00	0.0039
6	1-102-943-00	47	1-101-880-00	330	1-102-820-00	0.0047
7	1-102-944-00	51	1-101-882-00	360	1-102-821-00	0.0056
8	1-102-945-00	56	1-101-884-00	390	1-102-822-00	0.0068
9	1-102-946-00	62	1-101-886-00	430	1-102-823-00	0.0082
10	1-102-947-00	68	1-101-888-00	470	1-102-824-00	0.01
11	1-102-948-00	75	1-101-890-00	510	1-101-059-00	0.022
12	1-102-949-00	82	1-102-971-00	560	1-102-115-00	0.047
13	1-102-950-00	91	1-102-972-00	680	1-102-116-00	
15	1-102-951-00	100	1-102-973-00	820	1-102-117-00	
16	1-102-952-00	110	1-102-815-00			
18	1-102-953-00	120	1-102-816-00			
20	1-102-958-00	130	1-101-081-00			

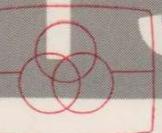
0.001 μ F = 1,000pF

CERAMIC (SEMICONDUCTOR) CAPACITORS

CAP. (μ F)	RATING					
	25 VOLT.	50 VOLT.	CAP. (μ F)	25 VOLT.	50 VOLT.	
PART No.	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.001	→	1-161-039-00	0.018	1-161-016-00	1-161-054-00	
0.0012	→	1-161-040-00	0.022	1-161-017-00	1-161-055-00	
0.0015		1-161-041-00	0.027	1-161-018-00	1-161-056-00	
0.0018		1-161-042-00	0.033	1-161-019-00	1-161-057-00	
0.0022		1-161-043-00	0.039	1-161-010-00	1-161-058-00	
0.0027	→	1-161-044-00	0.047	1-161-021-00	1-161-059-00	
0.0033	→	1-161-045-00	0.056	→	1-161-060-00	
0.0047	→	1-161-046-00	0.068	→	1-161-061-00	
0.0056	→	1-161-047-00	0.082	1-161-024-00	1-161-062-00	
0.0068	→	1-161-049-00	0.1	1-161-025-00	1-161-063-00	
0.0082	1-161-012-00	1-161-050-00				
0.01	1-161-013-00	1-161-051-00				
0.012	→	1-161-052-00				
0.015	1-161-015-00	1-161-053-00				

MYLAR CAPACITORS

CAP. (μ F)	RATING					
	50 VOLT.	100 VOLT.	200 VOLT.	CAP. (μ F)	50 VOLT.	100 VOLT.
PART No.	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.001	1-108-227-00	1-108-365-00	1-108-409-00	0.01	1-108-239-00	1-108



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AEP Model

SERVICE MANUAL

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1/4 WATT CARBON RESISTORS

Ω	Part No.										
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-576-00	13k	1-246-500-00	130k	1-246-524-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-577-00	15k	1-246-501-00	150k	1-246-525-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-578-00	16k	1-246-502-00	160k	1-246-526-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-579-00	18k	1-246-503-00	180k	1-246-527-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-580-00	20k	1-246-504-00	200k	1-246-528-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-581-00	22k	1-246-505-00	220k	1-246-529-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-582-00	24k	1-246-506-00	240k	1-246-530-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-583-00	27k	1-246-507-00	270k	1-246-531-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-584-00	30k	1-246-508-00	300k	1-246-532-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-585-00	33k	1-246-509-00	330k	1-246-533-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-586-00	36k	1-246-510-00	360k	1-246-534-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-587-00	39k	1-246-511-00	390k	1-246-535-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00

HARDWARE NOMENCLATURE

Screw:

 L: Length in mm
 D: Diameter in mm
 Type of head
 Indicated slotted-head only.
 Unless otherwise indicated, it means cross-recessed head (Phillips type).

Nut, Washer, Retaining ring:

 N 3
 Diameter of usable screw or shaft
 Reference designation

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	

