

REALISTIC[®]

Service Manual

42-2960

LAB-400 FULLY AUTOMATIC DIRECT DRIVE TURNTABLE

Catalog Number: 42-2960



CUSTOM MANUFACTURED FOR RADIO SHACK  A DIVISION OF TANDY CORPORATION

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1. SPECIFICATIONS

General	NOMINAL	LIMIT
Type2-speed fully automatic direct drive system	
Platter .....	.Aluminum alloy die-cast 308mm outer diameter, weight 1.4kg.	
Motor .....	.Brushless DC servo direct drive motor	
Speed .....	.33-1/3 rpm and 45 rpm	
Pitch control range .....	.±4%	
Speed change system .....	.Electronic change-over system	
S/N .....	.53dB	.48dB
Wow & Flutter .....	.0.035% (WRMS)	.0.055%
Hum .....	.65dB	.55dB
Rumble .....	.65dB (DIN-B)	.55dB
Tone arm .....	.Static balance type, tubular	
Head shell .....	.Plug-in type	
Overall length .....	.302mm	
Effective length .....	.220mm	
Over hang .....	.15mm	
Adjustable force range .....	.0 to 4g	
Acceptable cartridge weight .....	.4 to 10g	
Cartridge .....	.Realistic/Shure Model R-1000E	
Frequency response .....	.20–20,000Hz	
Channel difference at 1 kHz .....	.2dB	.2.5dB
Channel separation at 1 kHz .....	.23dB	.16dB
Output voltage at 1 kHz 50mm/sec .....	.4.2mV	.2.8mV
Tracking force .....	.1-1/4g	
Stylus tip .....	.0.7mil	
Power source		
U.S.A. ....	.120V 60Hz	
Europe .....	.220–240V 50Hz	
Australia .....	.240V 50Hz	
Power consumption .....	.5W	.8W
Dimensions .....	.450(W)x355(D)x143(H)mm	
Weight .....	.7.2kg	
Accessories .....	.Head shell with cartridge .45 rpm adapter .Ground wire	

NOTE

Lubrication of the mechanism is not required. However, whenever a unit is brought in for adjustment or repair, always use good common sense - - clean any dust or dirt off of mechanical part and if moving parts do seem to bind, check for dirt and if necessary, add a very fine film of light-weight specially-formulated lubricant.

2. DISASSEMBLY INSTRUCTIONS

1) Removal of Bottom Cover

Remove the Dust Cover and Platter. Fasten the Tonearm to the Armrest. Remove 17 screws (U.S.A.) marked "★" or 18 screws (Europe and Australia) marked "★" and "●" in Figure 1.

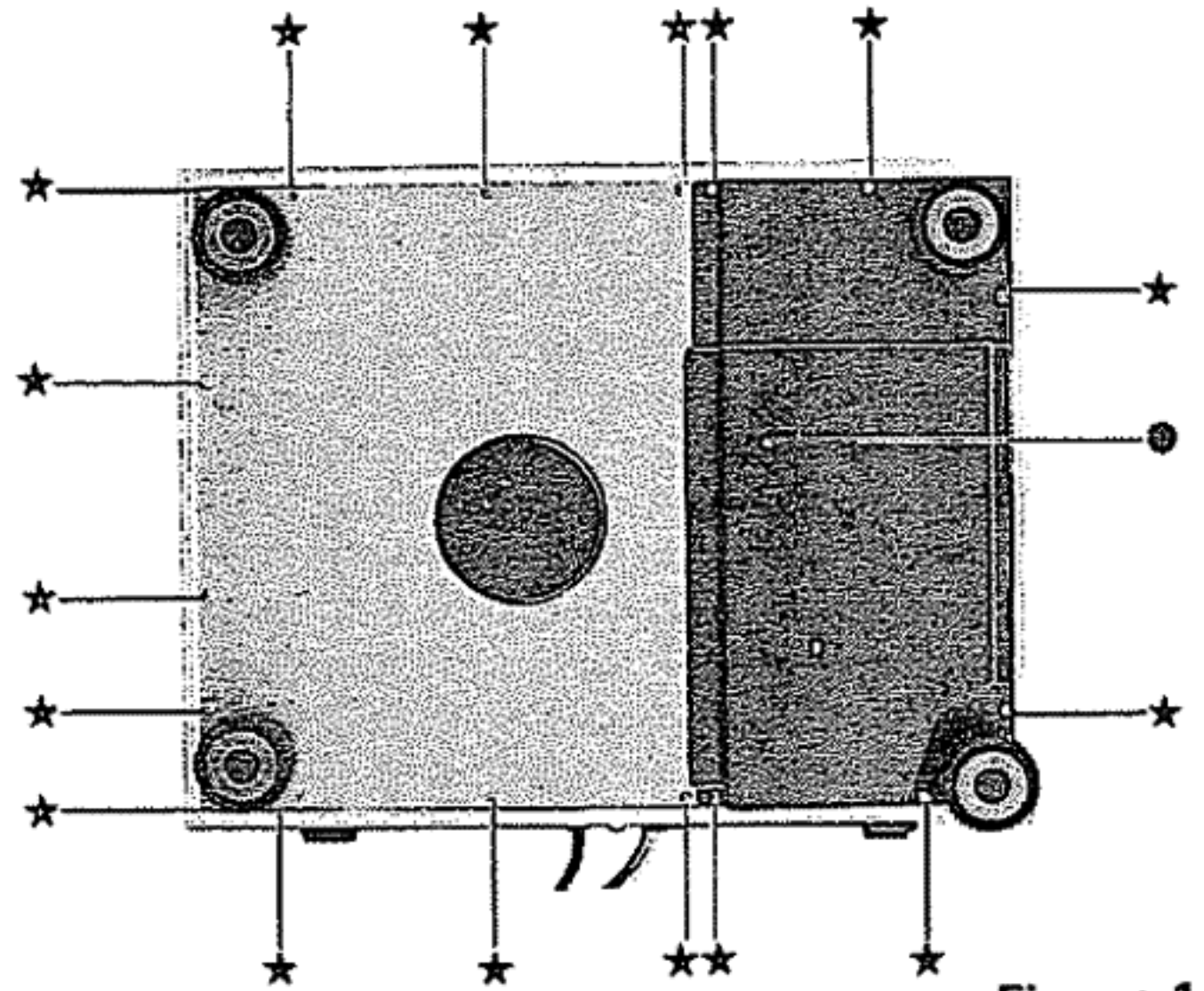


Figure 1

2) Removal of Automatic Mechanism

Unsolder the pick-up leads from the Printed Circuit Board. Detach 4 cord clamps shown in Figure 2. Remove 3 screws (U.S.A.) marked "☆", 4 screws (Europe) marked "☆" and "○", 5 screws (Australia) marked "☆", "○", and "□". Lift the Mechanism carefully. All parts mounted on the Automatic Mechanism chassis can then be removed from the control panel.

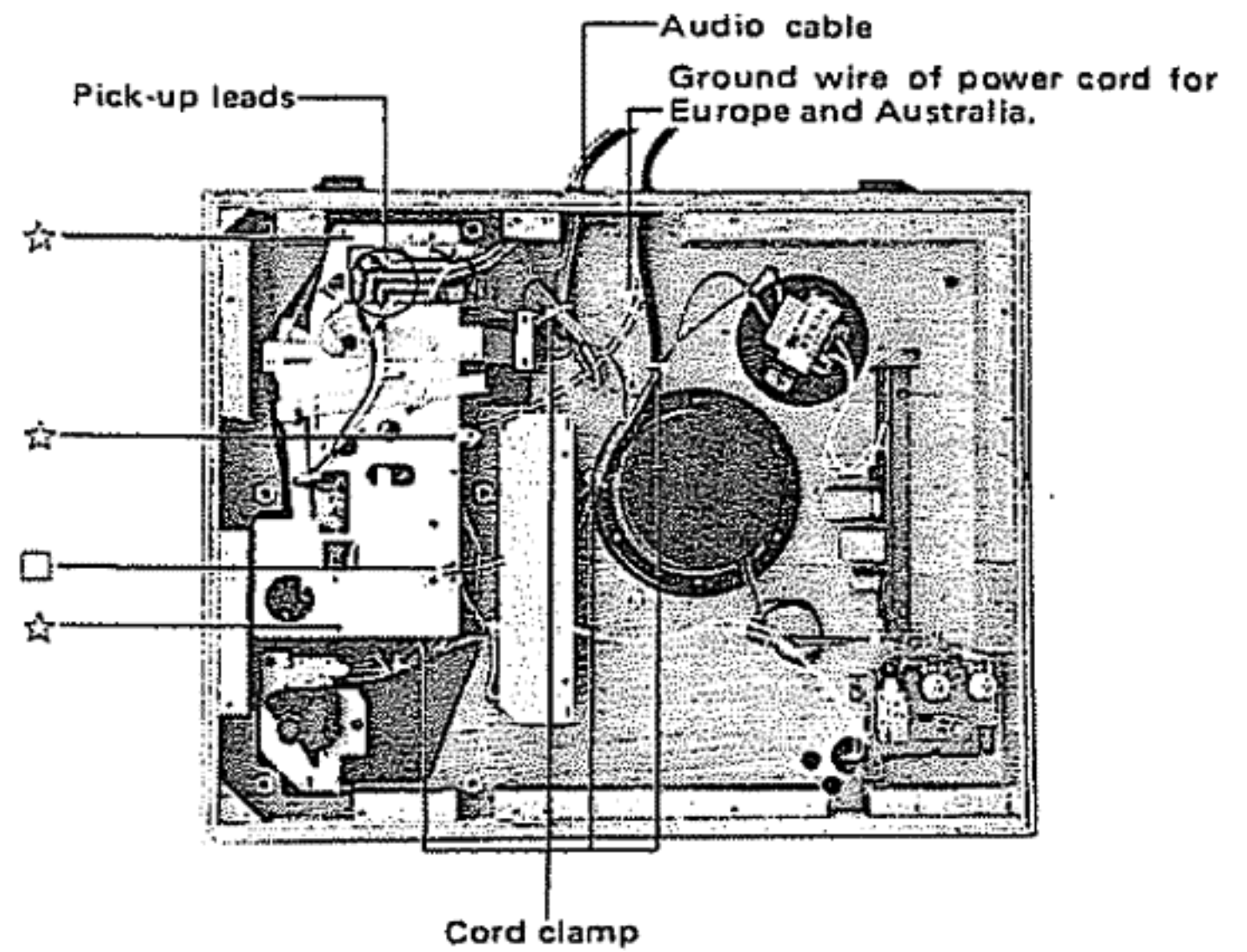


Figure 2

3) Removal of Control Panel

Detach 4 cord clamps shown in Figure 2. Remove 6 screws marked "★" in Figure 3. Lift right side carefully and turn over to left. Note: The Automatic Mechanism is accessible from the top without removing from cabinet as described above.

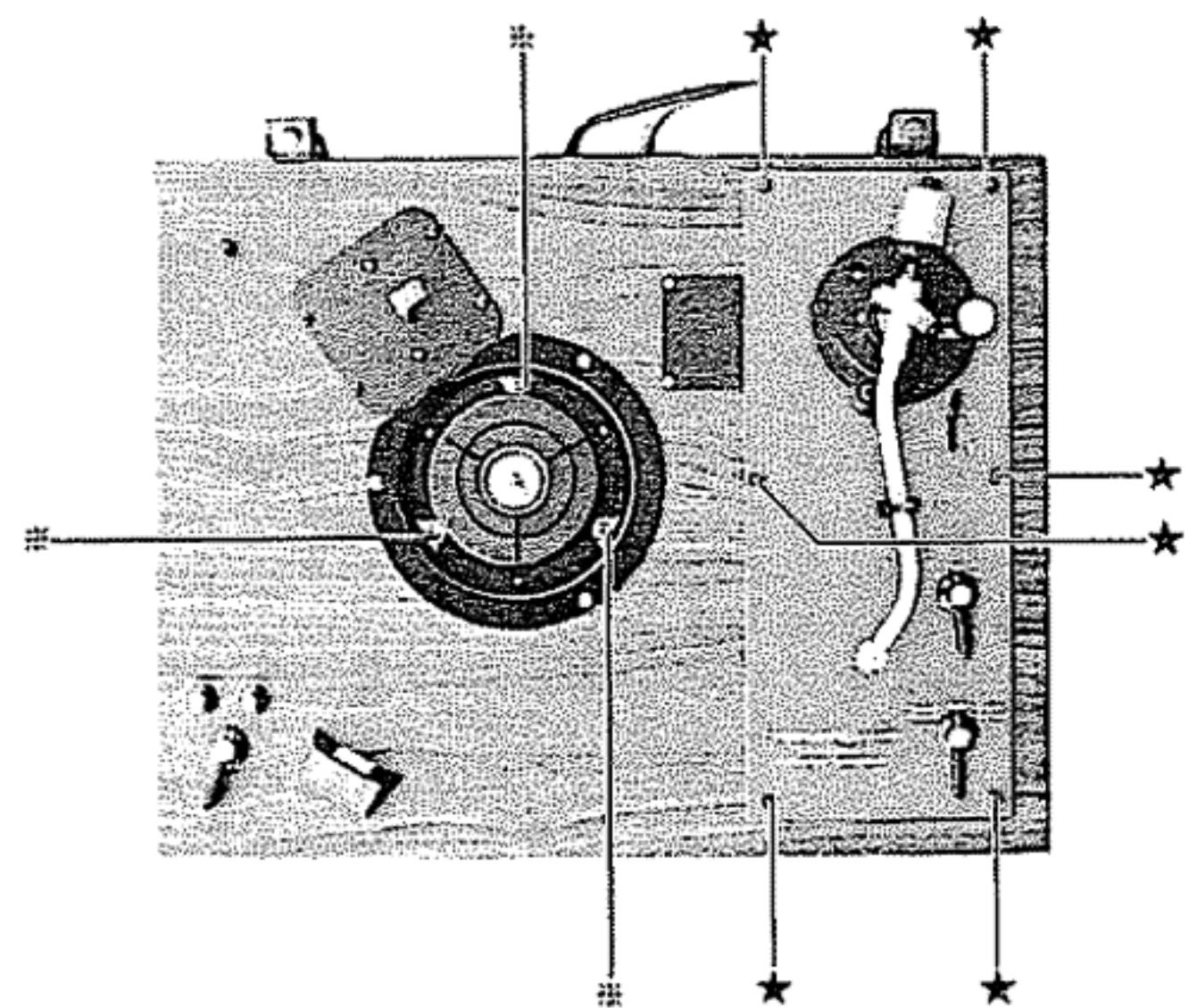


Figure 3

4) Removal of DC Motor

Remove Rubber Mat and Platter. Remove 3 screws marked "≡" in Figure 3. Detach the motor connector.

3. CARTRIDGE ASSEMBLY AND CONNECTIONS

Perform installation or replacement of the Cartridge as follows.

- 1) Attach the Cartridge to the headshell with screws.
- 2) The Polarities and L/R channel wires are shown in Figure 4. Make connections to the Cartridge following the instructions provided with it (and/or follow the markings on the Cartridge).

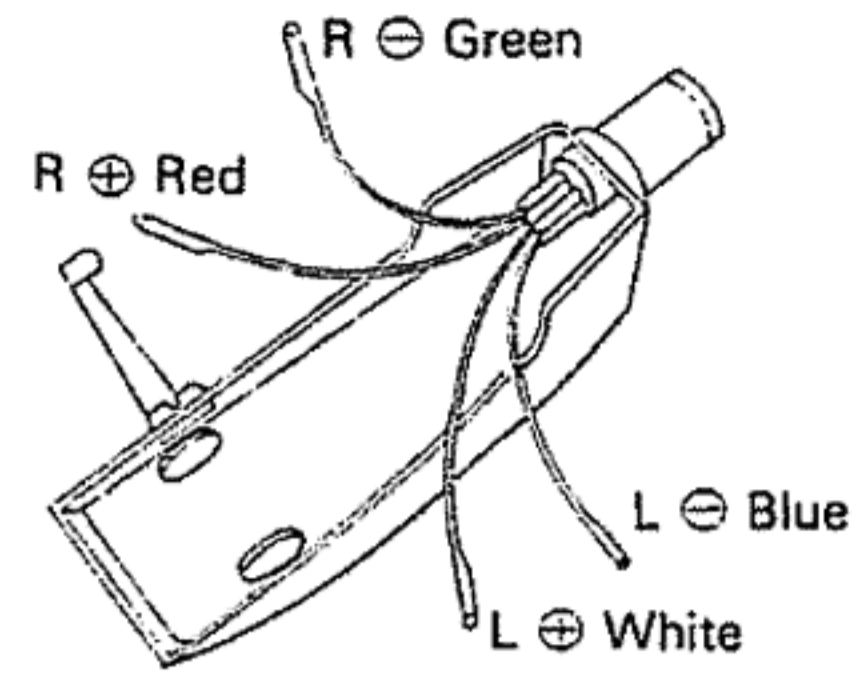


Figure 4

4. EXPLANATION OF AUTOMATIC MECHANISM

- 1) In the OFF Mode, S101, S102, S103 and S105 are OFF and S104 and Muting Switch are ON. Thus, Timing Motor is OFF and Cartridge output is short-circuited.
- 2) When the Cuing Lever is moved to the START/REJECT position, S101 and S102 will be ON, and the Timing Motor starts rotating.

As it rotates, the Starting Cam also rotates and the Cam pushes S103 to turn ON. After Cuing Lever returns to the OFF position, S101 and S102 become OFF but S103 is kept ON so the Timing Motor keeps rotating. At the same time the main DC motor starts operation.

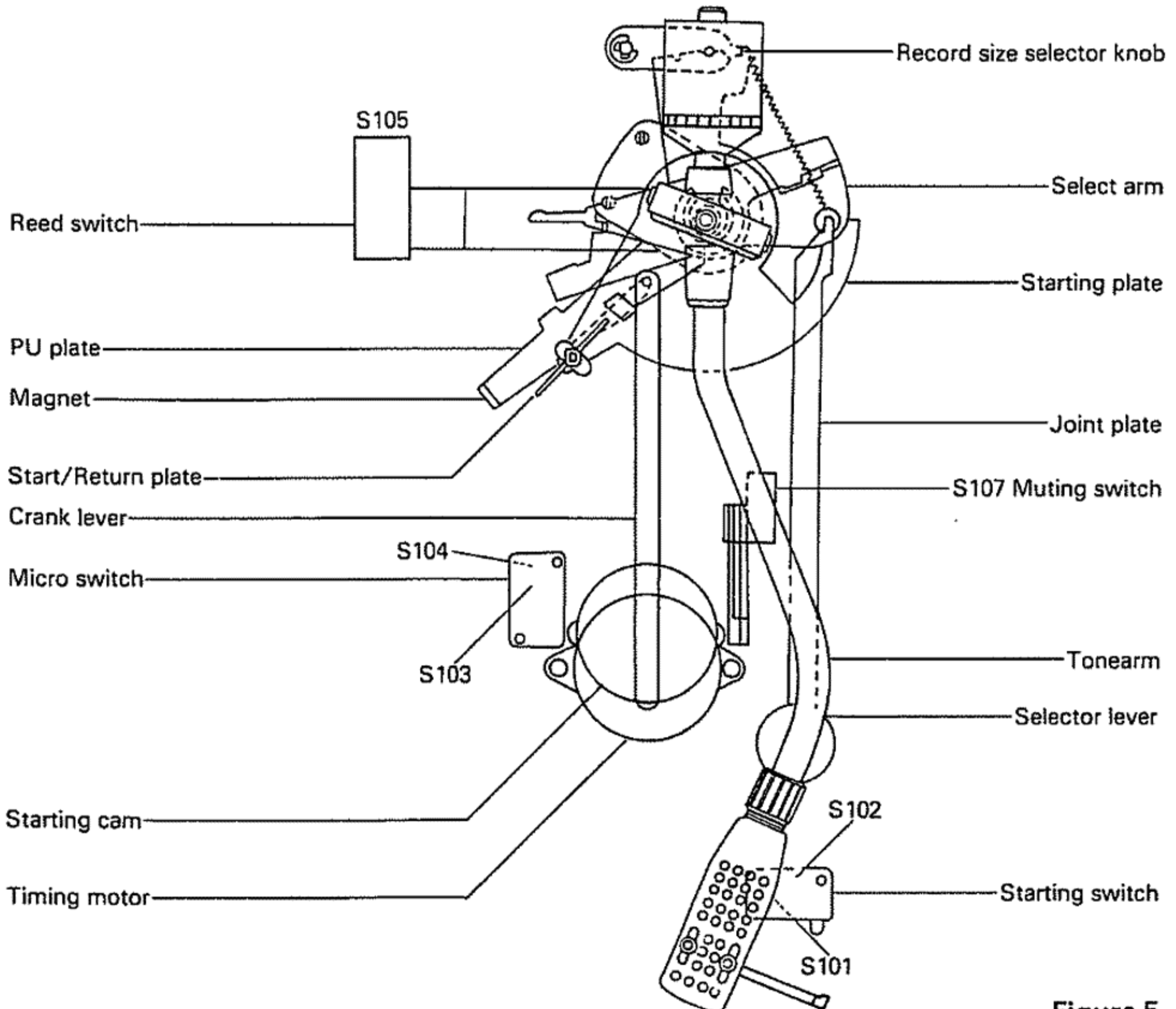


Figure 5

- 3) As the Starting Cam rotates, the Crank Lever moves and the Starting Plate will turn. The Start/Return Plate on the tip end of the Starting Plate pushes the PU Plate, which is linked with Tonearm. So, the Tonearm moves to the Platter.
- 4) When PU Plate comes to the position of Select Arm, the Select Arm stops the PU Plate and the Start/Return Plate will turn over and remove pressure from the PU plate. Now the Tonearm has reached the lead-in groove. The lead-in position can be changed by the Record Size Selector. Figure 5 shows the position for 10" records.
- 5) The Starting Plate will still be turning, and the Arm Lifter (which is on the outer edge of Starting Plate) will descend as the sloped portion of Starting Plate comes under the Arm Lifter.
- 6) Now, the Starting Cam has made a half revolution, and another cam will turn S104 off, and the first cam will open the Muting Switch. So the Timing Motor stops rotating and the Cartridge will be ON.
- 7) At the end of playing, the magnet on the tip end of PU Plate will move next to S105 reed switch. S105 will turn ON and the Timing Motor will start rotating. As the Starting Cam rotates, S104 will be turned ON again, so the Timing Motor keeps rotating.

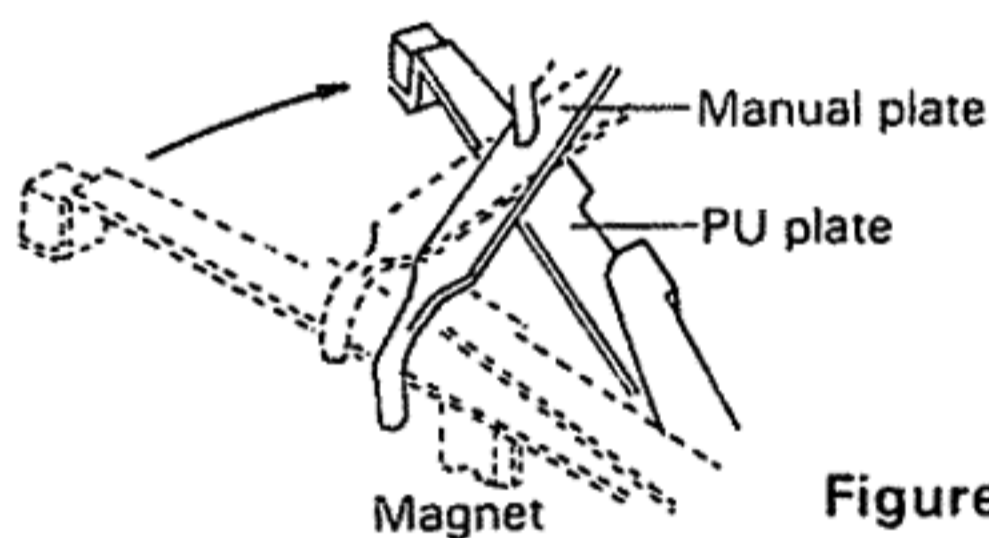


Figure 6

- 8) Now the Crank Lever move in the opposite direction as described step 3 above and the Tonearm will return to Armrest. The Starting cam finishes another half revolution and S 103 is turned OFF and Timing Motor and DC motor stop.
- 9) In START/REPEAT position, S 101 is kept ON; so Timing Motor keeps rotating even after the Starting Cam has finished a whole revolution.
- 10) Manual Reject:
When Cuing Lever is set to START/REJECT position, S 102 is turned ON and the Timing Motor starts rotating. Operation continues as in step 8.
- 11) Manual Play
When the Tonearm is manually moved toward the Platter, the PU Plate only moves and the Manual Plate slides off from the PU Plate and drops as shown in Figure 6. By setting the Cuing Lever to START/REJECT position, the Starting Plate together with Start/Return Plate will move as described earlier, but the Manual plate will make Start/Return Plate turn before it pushes the PU Plate. Therefore, the Tonearm will not be moved by Start/Return Plate and will descend on the groove manually selected.

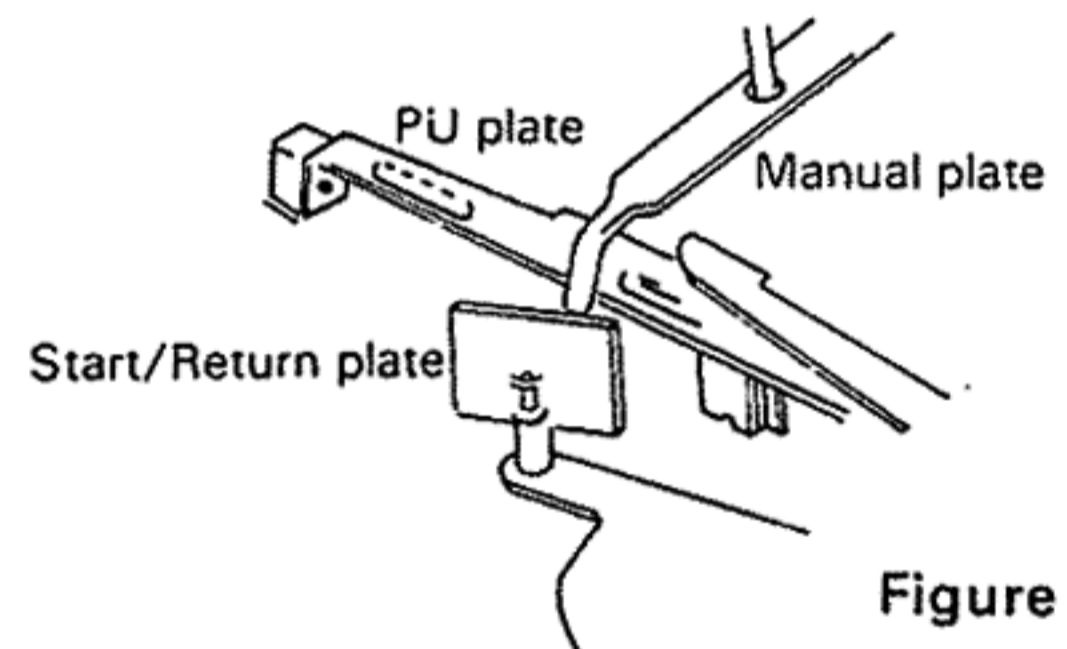


Figure 7

5. CAUTION: WHEN REPLACING MANUAL PLATE

- 1) The Manual Plate must not move off from the PU Plate when the tonearm is moved to the extreme right hand side (See Figure 8).

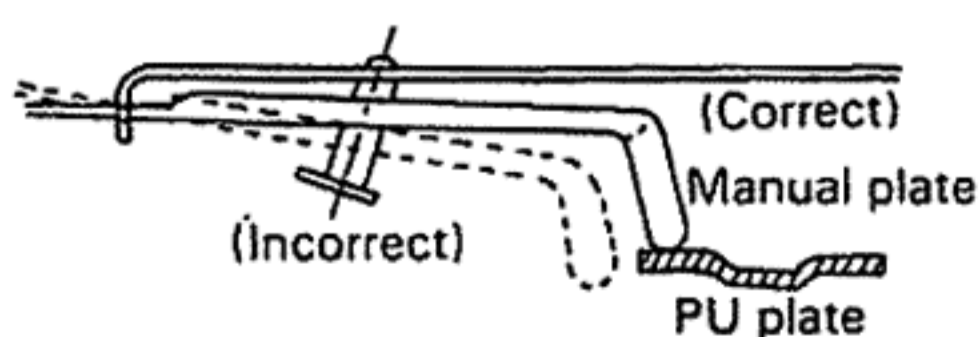


Figure 8

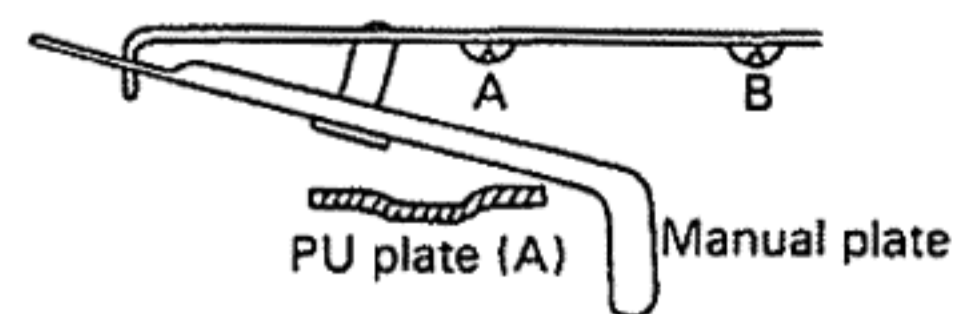


Figure 9

- When loosening screw A and B (See Figure 9) for replacing the Plate, refer to the following adjustment.

Move the Tonearm about 10mm to 15mm to the left of the arm-rest.

The clearance between the Manual Plate and Start/Return plate must be 2mm to 3mm as shown in Figure 10.

After above steps 1, and 2, tighten A and B once again.

- While the stylus tip rides in the first modulated groove (not lead-in groove) of 12" record (30cm), the manual plate must not touch the PU plate (See Figure 11).

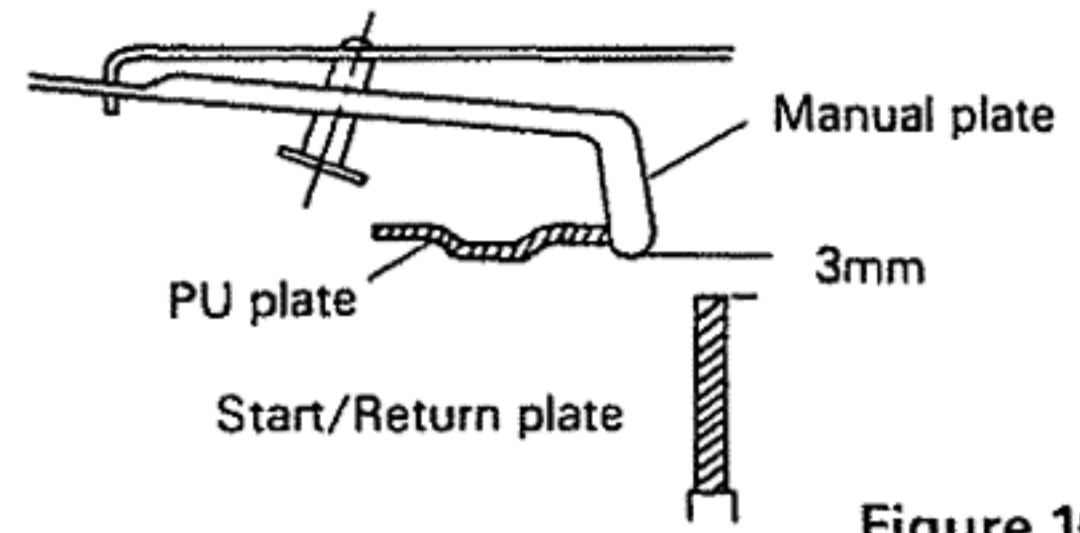


Figure 10

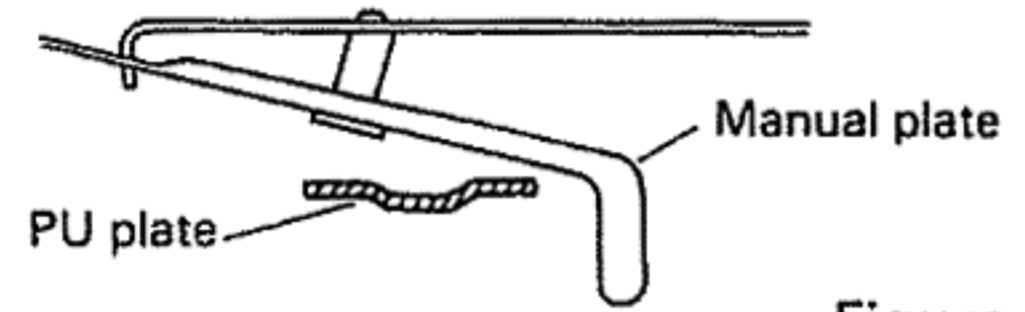


Figure 11

6. ADJUSTMENT INSTRUCTIONS

1) Overhang adjustment

Adjust the overhang when the cartridge is mounted. The tone arm overhang should be 15mm. Adjust it by moving the cartridge back and forth after loosening the cartridge mounting screws.

Tighten the cartridge mounting screws after adjustment is completed. (Figure 12)

2) Tracking force adjustment

The tracking force adjustment should be done before playing. The tracking force must be adjusted to the recommended value as shown on the instruction sheet of the cartridge.

- Rotate the Counter weight until the tone arm is balanced evenly.
- When the tone arm is balanced evenly turn the tracking force dial alone until the "0" on the dial ring of the counter weight is set over the indication line. The tone arm is now set at zero gram.
- Turn the counter weight slowly until the line comes to the specified force ($\frac{3}{4}$ - $1\frac{1}{4}$ g for the standard R1000E cartridge).

3) Anti-skating adjustment

Match the anti-skating dial setting to the tracking force setting.

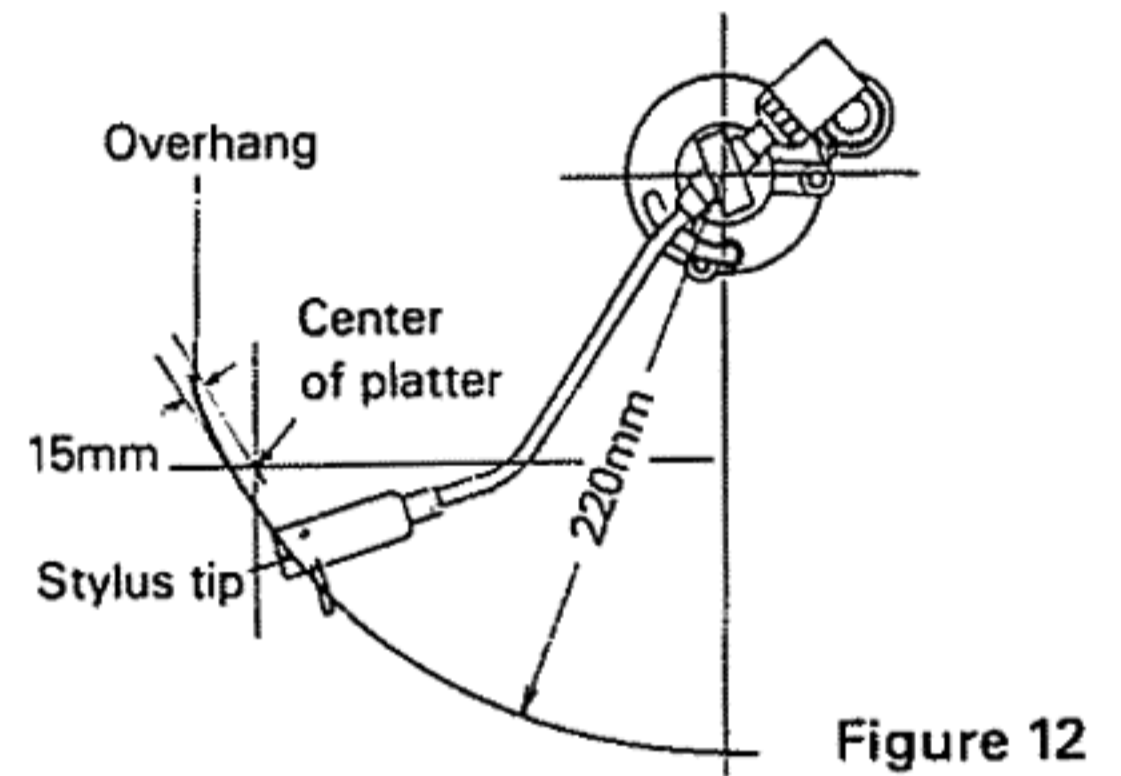


Figure 12

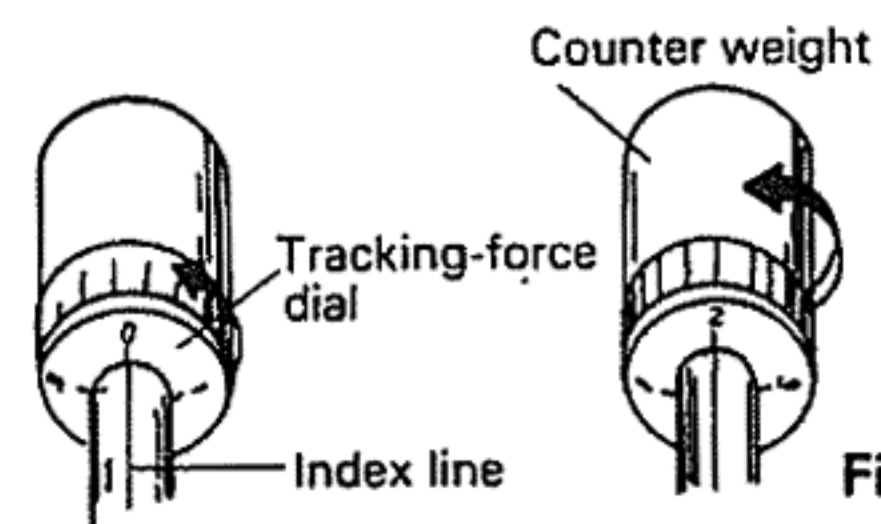
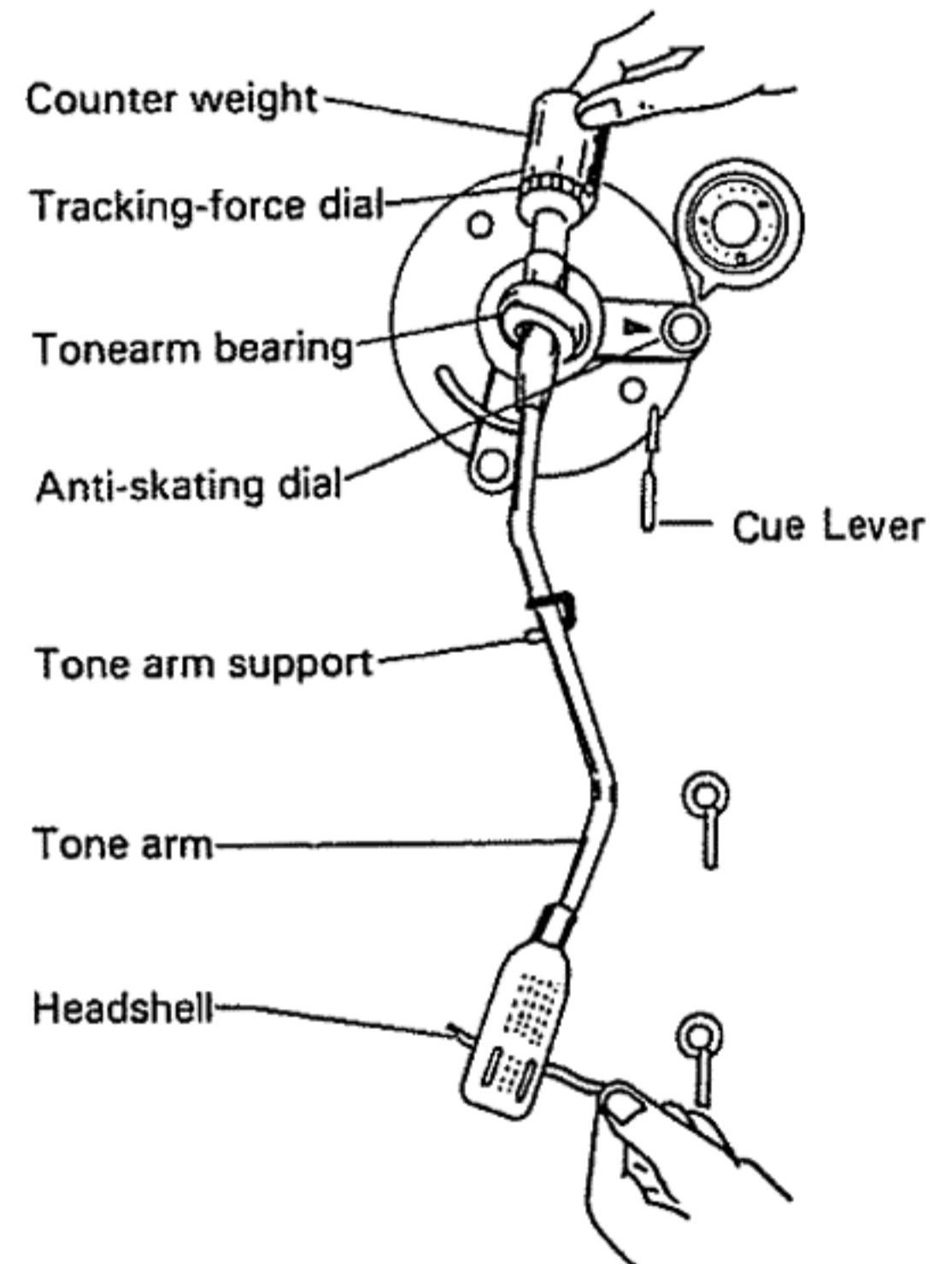


Figure 13

4) Adjustment of Cuing Height

To adjust the height of the stylus tip when using the cuing facility, loosen the screw of the cuing mechanism shown in (Figure 14).

Adjust the height of the Cuing so that the distance between the stylus tip and record is between 4–7 mm when a record is placed on the platter. After adjustment, tighten the screw securely.

5) Adjustment of automatic mechanism.

(1) Stylus Set-down adjustment

Move the Tonearm toward the center spindle until you see adjusting screw "A" accessible through the adjusting hole (see Figure 15). Adjust the screw so that Stylus Set-down is within 145mm to 147mm radius from the center spindle. To make the stylus set down closer to the center, turn the screw clockwise and to set down closer to the edge, turn the screw counter-clockwise.

(2) Auto Return Adjustment

Hold the arm on the arm rest so you can see screw "B" accessible through the adjusting hole. Adjust the screw so the stylus will lift off the record within the 57.5mm to 54.5mm radius from the center spindle. To make the stylus lift off later, turn the screw counter-clockwise, to lift off sooner, turn the screw clockwise.

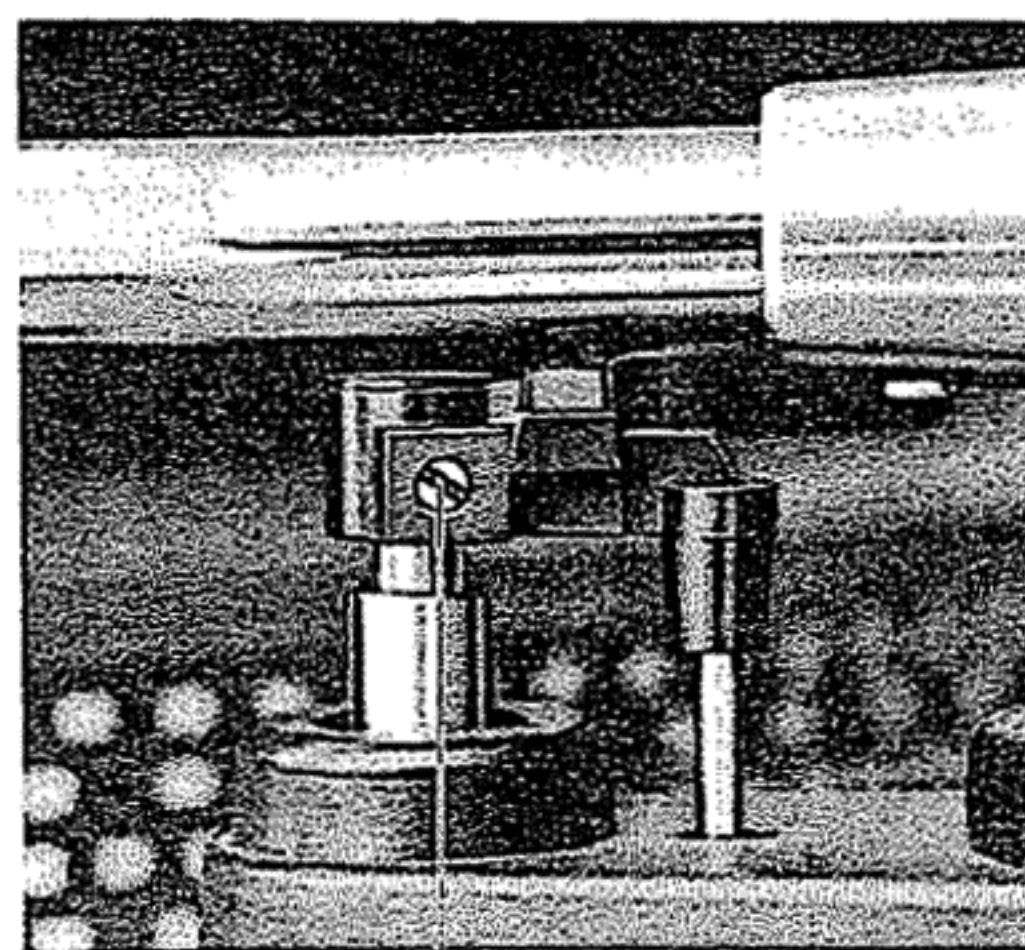
6) Speed Adjustment

When the pattern of the stroboscope appears to be moving and the rated speed cannot be obtained by turning a Speed Control knob, adjust the speed control semi-fixed resistor (SVR1, 2) through the hole of the bottom plate.

- (1) Set the Speed Changeover lever to the speed to be adjusted.
- (2) Set the Speed Control knob of the desired speed at the center.
- (3) Gradually turn SVR1 for 33 rotation and SVR2 for 45 rotation so that the pattern of the stroboscope appears to stop.

Approx. $\pm 6\%$ adjustment is possible.

Note: The DC Motor Assembly is precision assembled and adjusted at the factory. Never try to adjust and/or repair. Should the motor be defective, replace entire motor assembly.



Screw of the cuing mechanism

Figure 14

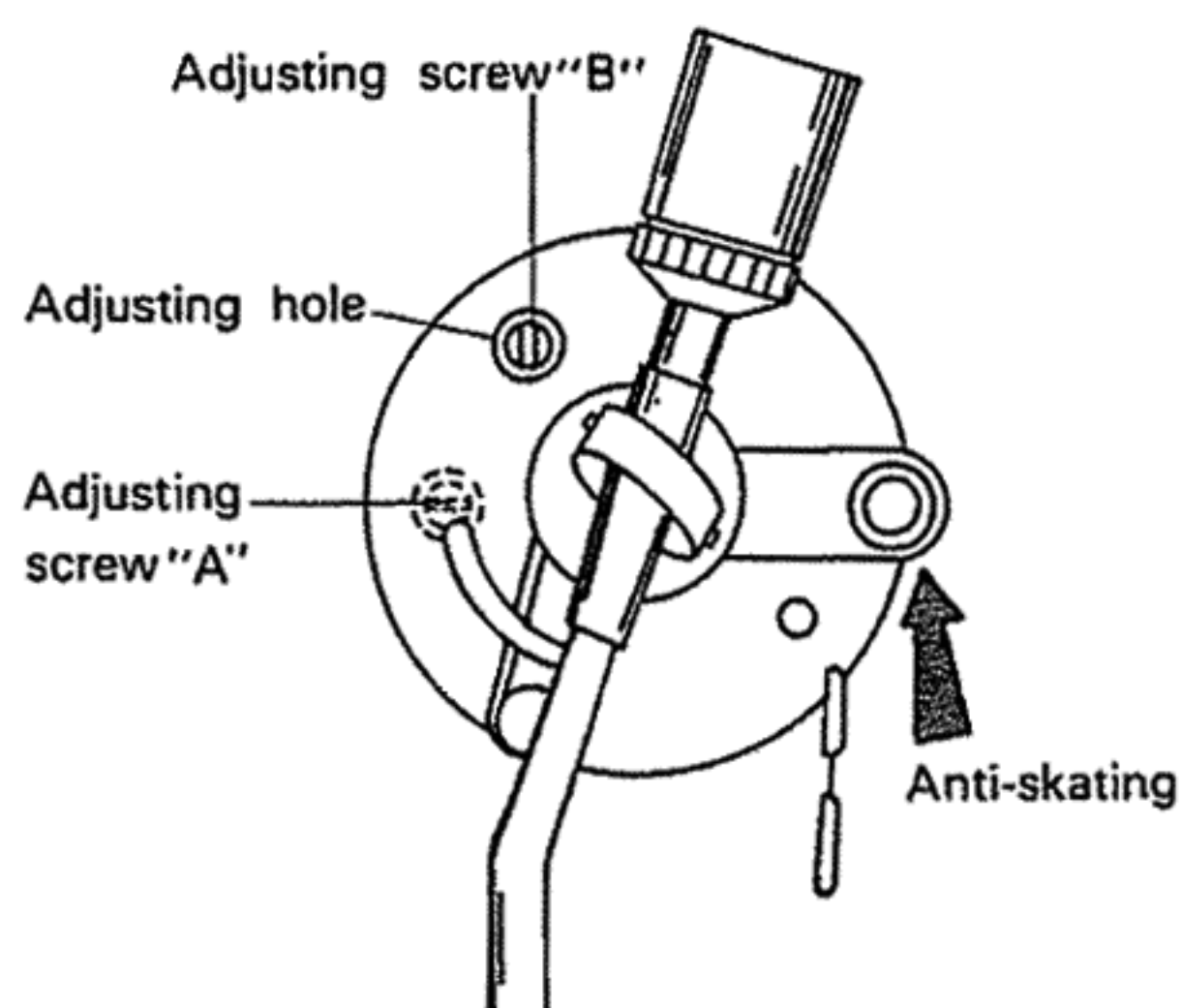


Figure 15

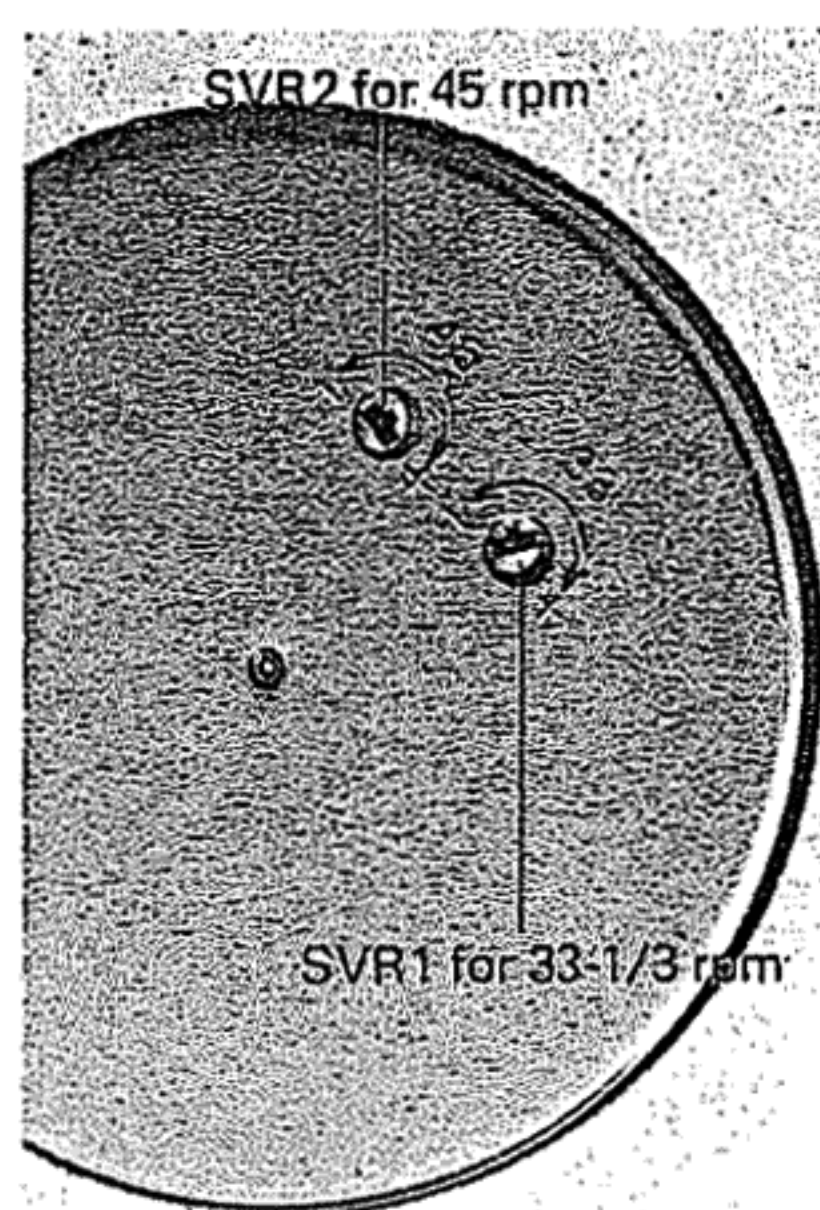
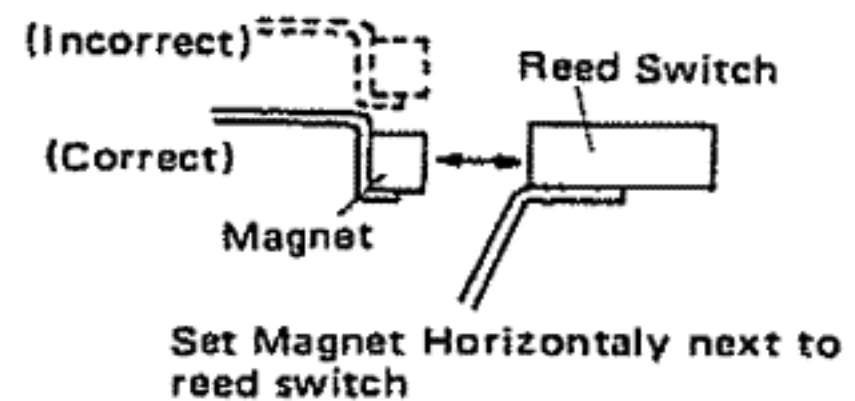
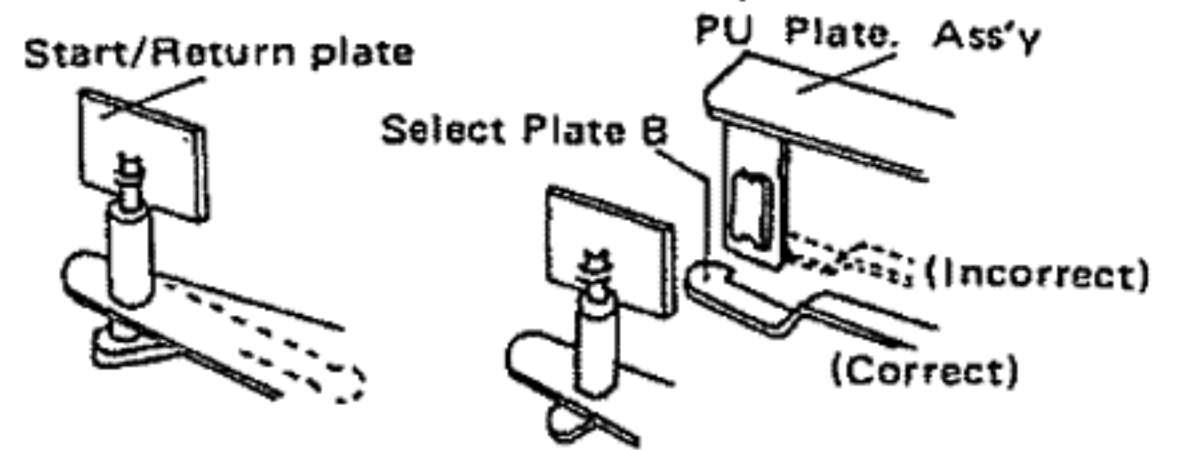


Figure 16

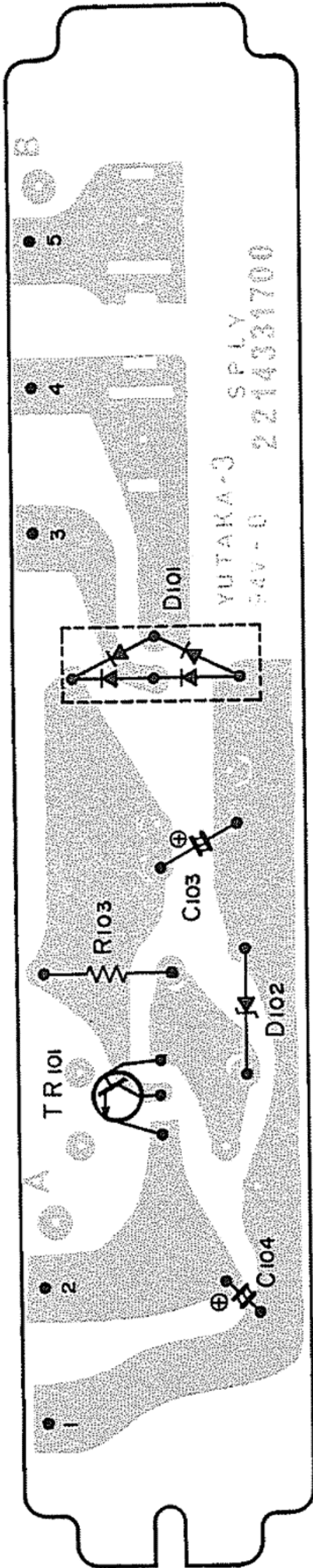
7. TROUBLESHOOTING

Symptom	Cause and What to Do
1. Turntable not rotating	1. Loose connection of power cord. 2. Defective start switch. 3. Defective timing motor.
2. No sound	4. Cartridge open 5. Loose connection of output cable 6. Improper connection of output cable 7. Defective muting switch 8. Improper operation of amplifier 9. Improper contact of tonearm and shell
3. Distorted or weak sound	10. Improper setting of stylus 11. Worn out stylus 12. Dirty stylus 13. Loose pivot of tonearm 14. Improper connection of cartridge leads 15. Poor record cutting
4. Hum	16. Cartridge leads open (ground side) 17. Loose connection of output cable 18. Improper connection of output cable 19. Improper contact of muting switch 20. Improper contact of tonearm and shell
5. Rumble	21. Defective motor
6. Improper tracking	22. Defective tonearm 23. Dirty stylus 24. Defective stylus 25. Improper stylus pressure (too light)
7. Auto mechanism problems	
7-1. Auto mechanism not operative	26. Defective start switch (Leaf switch) 27. Defective micro switch, S103. 28. Defective micro switch, S104. 29. Broken crank lever. 30. Defective timing motor.
7-2. Stylus set-down problems	31. Loose adjustments (Check Adjustment procedures) 32. Defective Start/Return plate
7-3. Auto-return problems	33. Improper setting of select plate B 34. Loose adjustments (Check Adjustment procedures) 35. Defective Reed switch (S105) 36. Weak magnet. 37. Improper setting of magnet

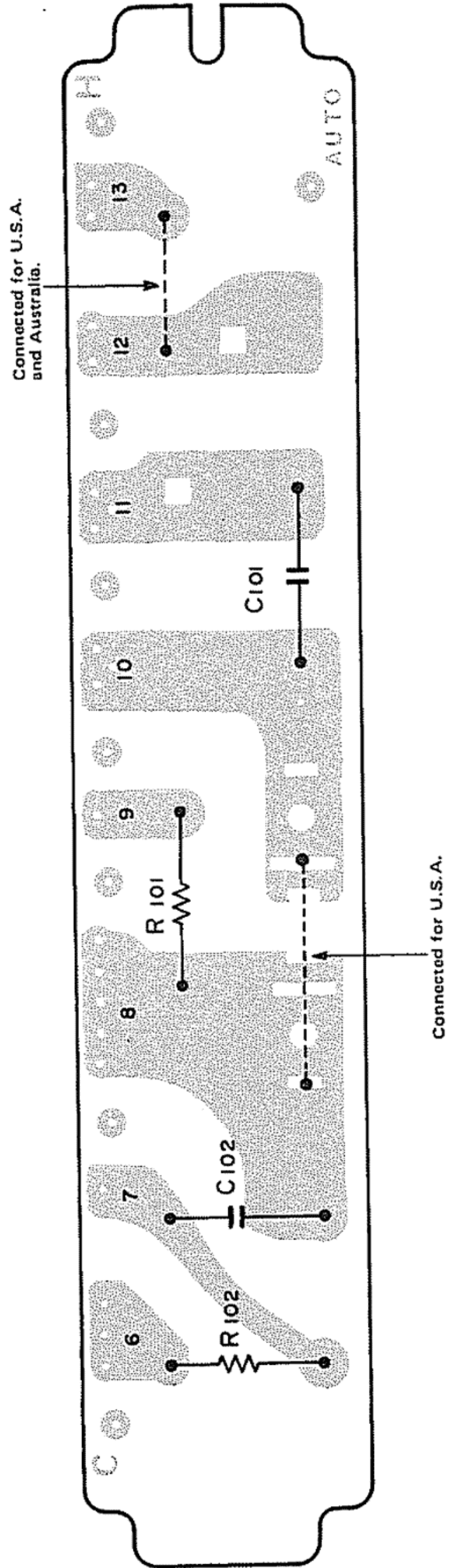


8. PRINTED CIRCUIT BOARD

PCB-POWER SUPPLY

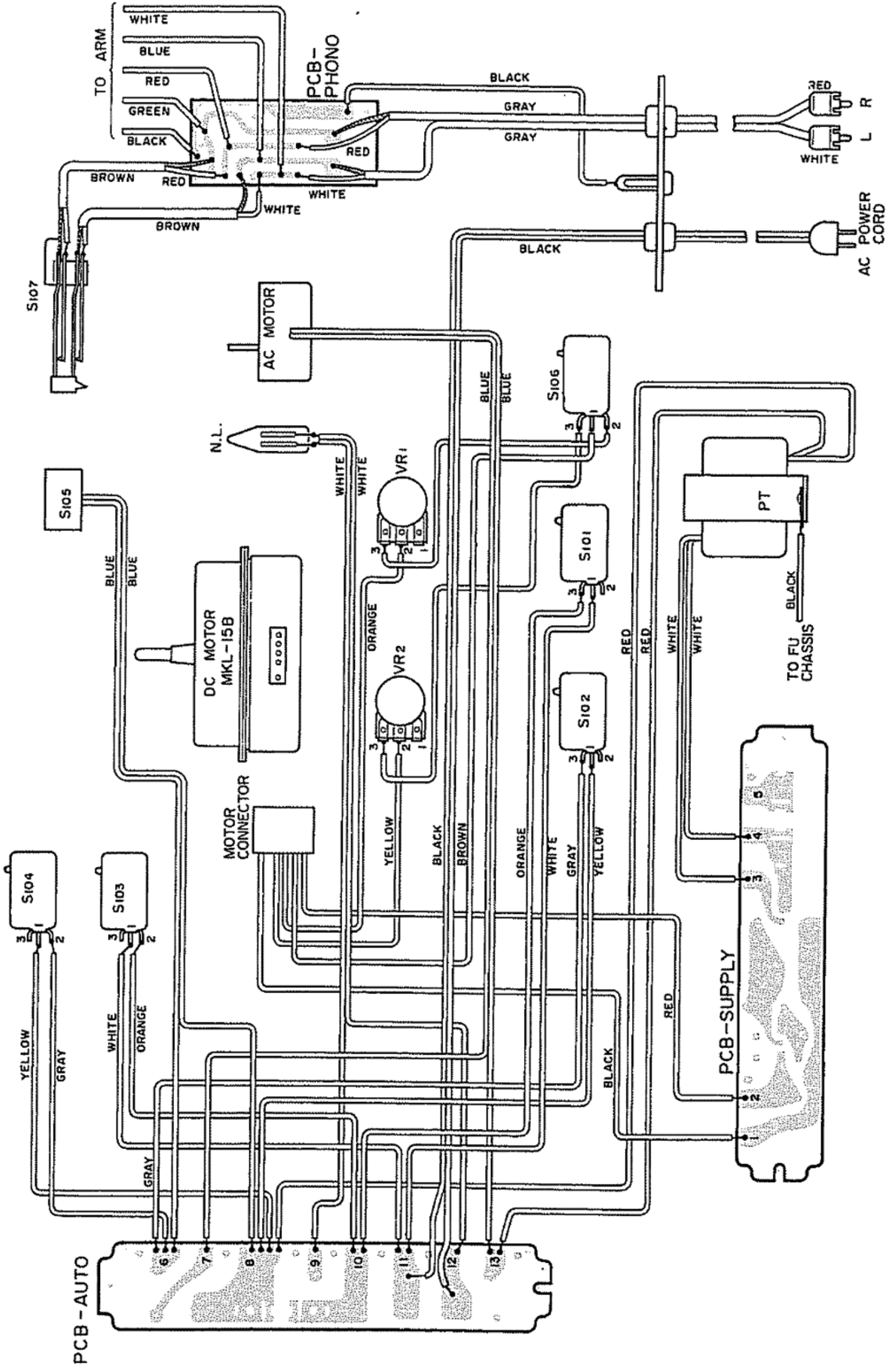


PCB-AUTO

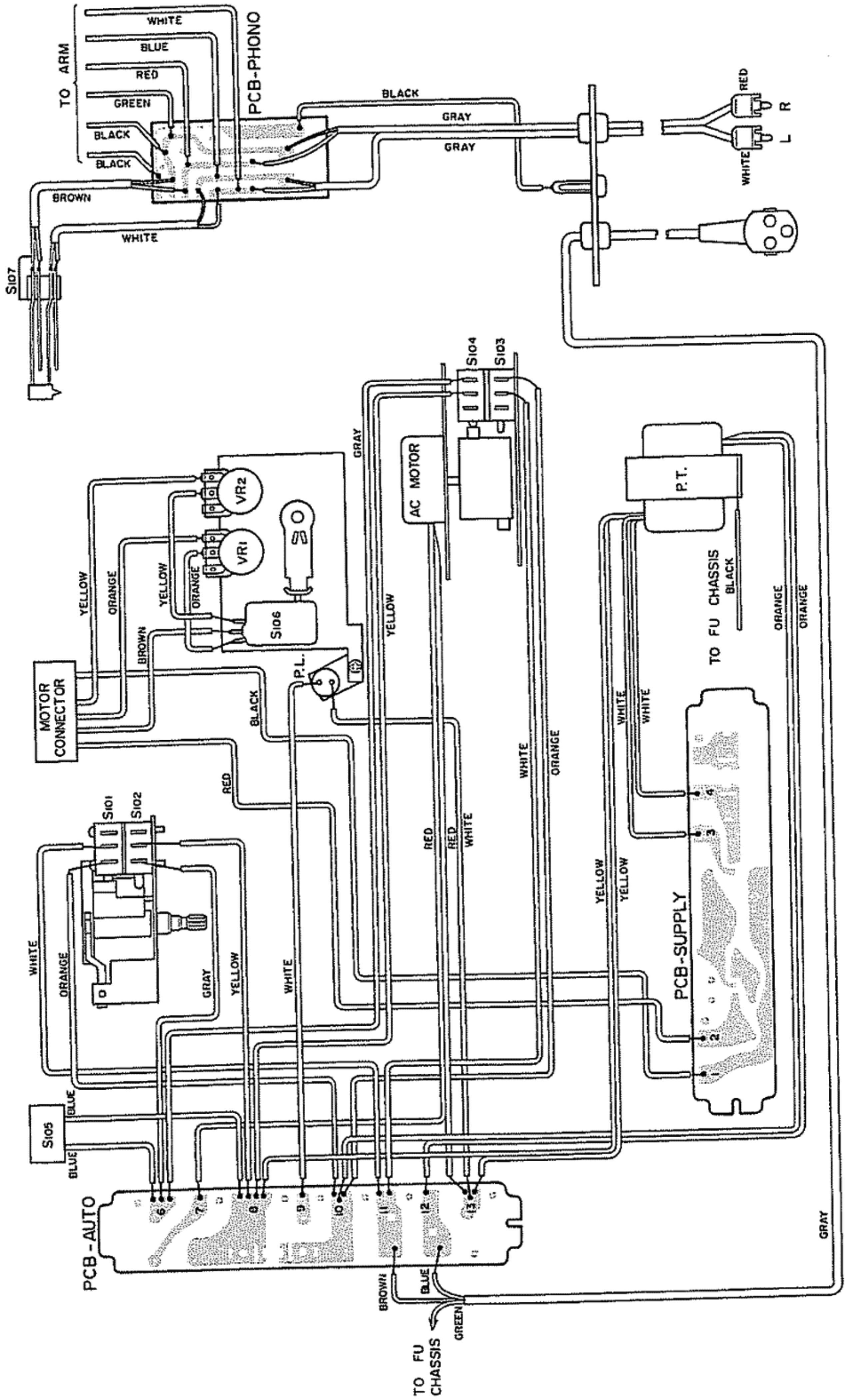


9. BOTTOM VIEW OF CHASSIS AND WIRING

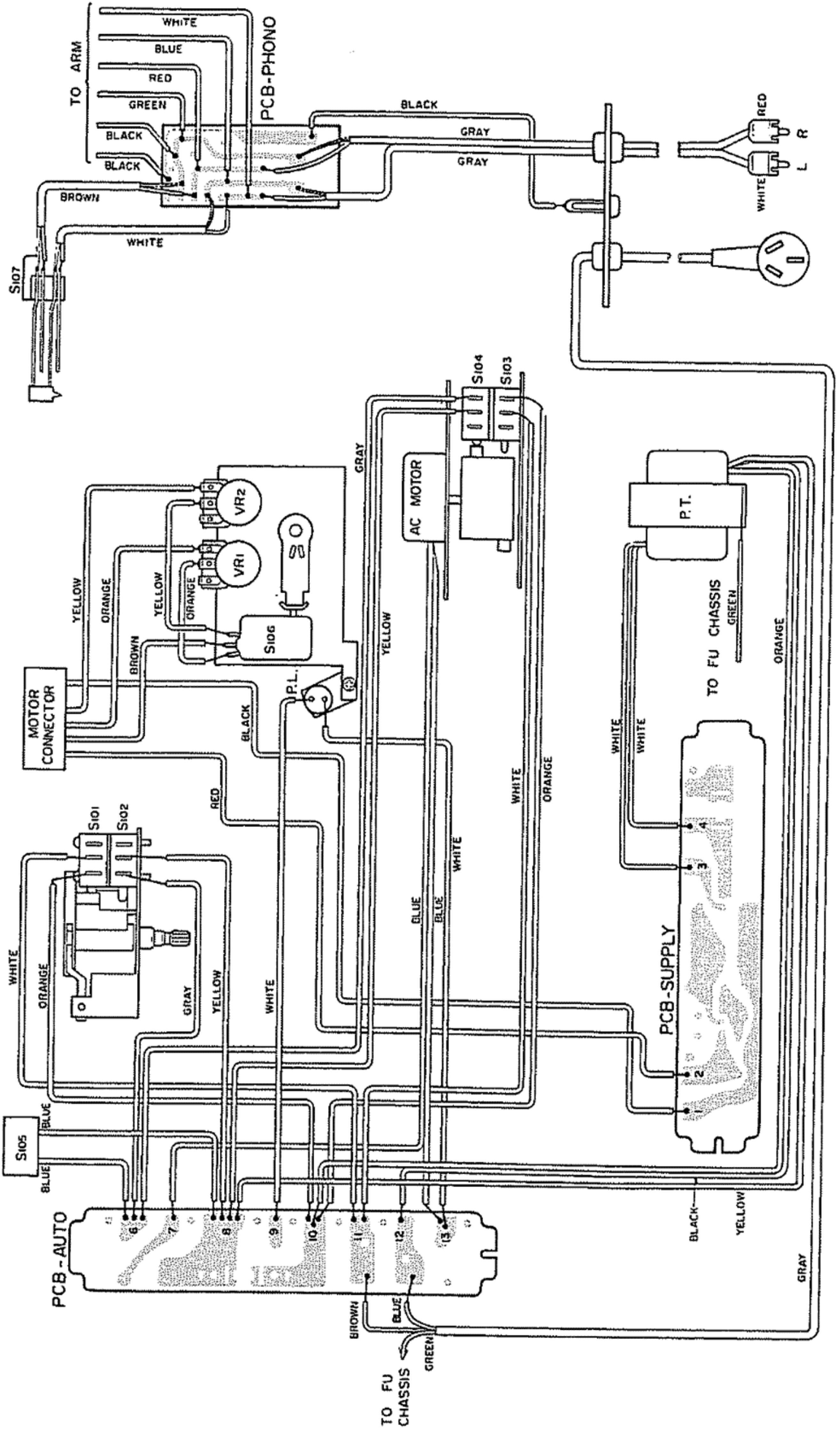
9-1 FOR U.S.A.



9-2 FOR EUROPE



9-3 FOR AUSTRALIA



10. ELECTRICAL PARTS LIST

TOLERANCE J: $\pm 5\%$, K: $\pm 10\%$, M: $\pm 20\%$
P: +100 - 0%

REF. NO.	DESCRIPTION	RS PART NO.	MFR'S PART NO.
CAPACITORS			
C101	Mylar 0.01 μF /125V, M (For U.S.A.)		22370167
	Metalized 0.01 μF /250V, M (For Europe)		22330112
	Metalized 0.01 μF /250V, M (For Australia)		22330112
C102	Metalized 0.0022 μF /125V, M (For U.S.A.)		22370172
	Metalized 0.0022 μF /250V, M (For Europe)		22330127
	Mylar 0.0022 μF /250V, M (For Australia)		22330127
C103	Electrolytic 470 μF /50V, P		22448471
C104	Electrolytic 100 μF /25V, P		22446101
RESISTORS			
R101	Metal Oxide 12 k ohm 1W, J (For U.S.A.)		22570171
	Metal Oxide 8.2 k ohm 1W, J (For Europe)		22570164
	Metal Oxide 12 k ohm 1W, J (For Australia)		22570171
R102	Carbon Film 100 k ohm $\frac{1}{2}$ W, K		22547101
R103	Carbon Film 2.2 k ohm $\frac{1}{4}$ W, J (For U.S.A.)		22545222
	Carbon Film 2.2 k ohm $\frac{1}{4}$ W, J (For Europe)		22545222
	Carbon Film 1 k ohm $\frac{1}{4}$ W, J (For Australia)		22545102
VR1	Variable Resistor 5 k ohm B	P - 1815	22622207
VR2	Variable Resistor 5 k ohm B	P - 1815	22622207
TRANSISTOR & DIODES			
TR101	2SD313 Sanyo		22114023
D101	SIRBA10 1A, I _{serge} = 30A, V _r max = 100V		22115224
D102	WZ182 18V, 500mW (Max)		22115332
MISCELLANIOUS			
S101, 102	Micro Switch (For U.S.A.)	S - 6051	22146426
	Micro Switch (For Europe)		22140351
	Micro Switch (For Australia)		22140351
S103, 104	Micro Switch (For U.S.A.)	S - 6052	22146335
	Micro Switch (For Europe)		22140351
	Micro Switch (For Australia)		22140351
S105	Reed Switch	S - 0811	22140428
S106	Micro Switch		22146335
S107	Leaf Switch	S - 8162	22146331
T101	Power Transformer (For U.S.A.)	TA - 0629	22223426
	Power Transformer (For Europe)		22223430
	Power Transformer (For Australia)		22223449
M1	Motor, AC (For U.S.A.)		22125459
	Motor, AC (For Europe)		22125487
	Motor, AC (For Australia)		22125459
M2	Motor, DC MKL-15B	M - 4400	22125486
N.L.	Neon Lamp, with Lead Wire	L - 0815	22113354
	Power Cord (For U.S.A.)	W - 2147	22176199
	Power Cord (For Europe)		22176560
	Power Cord (For Australia)		22176531

11. MECHANICAL PARTS LIST

REF. NO.	DESCRIPTION	RS PART NO.	MFR'S PART NO.
1	Cabinet (For U.S.A.)	Y-1493	20847876
	Cabinet (For Europe)	Y-1493	20847876
	Cabinet (For Australia)		20847906
2	Lamp Cover	RD-5133	20846616
3	Lamp Lens	RD-5134	22833849
4	Adaptor Holder	RD-5137	20746927
5	Plate Cover	RD-5136	29847877
6	Pickup Rest Assembly	RD-5166	20738717
7	Pickup Arm	RC-6301	20731844
8	Pickup Stand	RD-5138	20735652
9	Plate Spring		22772572
10	Anti-skating Cam	RC-6302	20757734
11	Anti-skating Lever	RC-6303	20754673
12	Anti-skating Cover	RC-6304	20847878
13	Torsion Spring		20707750
14	Lifter Shaft	RC-6305	20764724
15	Shank Pin	RC-6306	20763728
16	Push Spring	RC-6307	22771723
17	Lifter Bar Assembly	RC-6308	20764735
18	Pickup Plate Assembly	RD-5141	20754674
19	Magnet	RD-5144	22102041
20	Magnet	RD-5146	22102038
21	Sheet	RD-5148	20791977
22	Pull Spring	RD-5149	20705611
23	Scotch Sheet	RD-5150	20743788
24	Lifter Bracket Assembly	RD-5153	20735624
25	Cylinder	RD-5154	20885618
26	Lifter Plate	RD-5155	20746779
27	Seesaw Plate	RD-5157	20746780
28	Seesaw Shaft	RD-5158	20763883
29	Plate Spring	RD-5159	20709654
30	Lifter Cam	RD-5162	20757733
31	Steel Ball 1/8	RD-5163	74090318
32	Push Spring	RD-5234	22771644
33	Manual Plate Assembly	RD-5167	20754672
34	Full Auto Chassis Assembly	RD-5174	22719537
35	Action Plate Assembly	RD-5175	20751761
36	Turn Shaft	RD-5176	20763799
37	Turn Plate	RD-5177	20754609
38	Joint Plate	RD-5178	20754610
39	Select Plate Assembly (B)	RD-5179	20751786
40	Select Plate Assembly (A)	RD-5180	20751762
41	Select Plate Assembly	RD-5181	20751764
42	Bush	RD-5182	20881666
43	Pull Spring	RD-5183	20705672
44	Select Cam	RD-5184	20757714

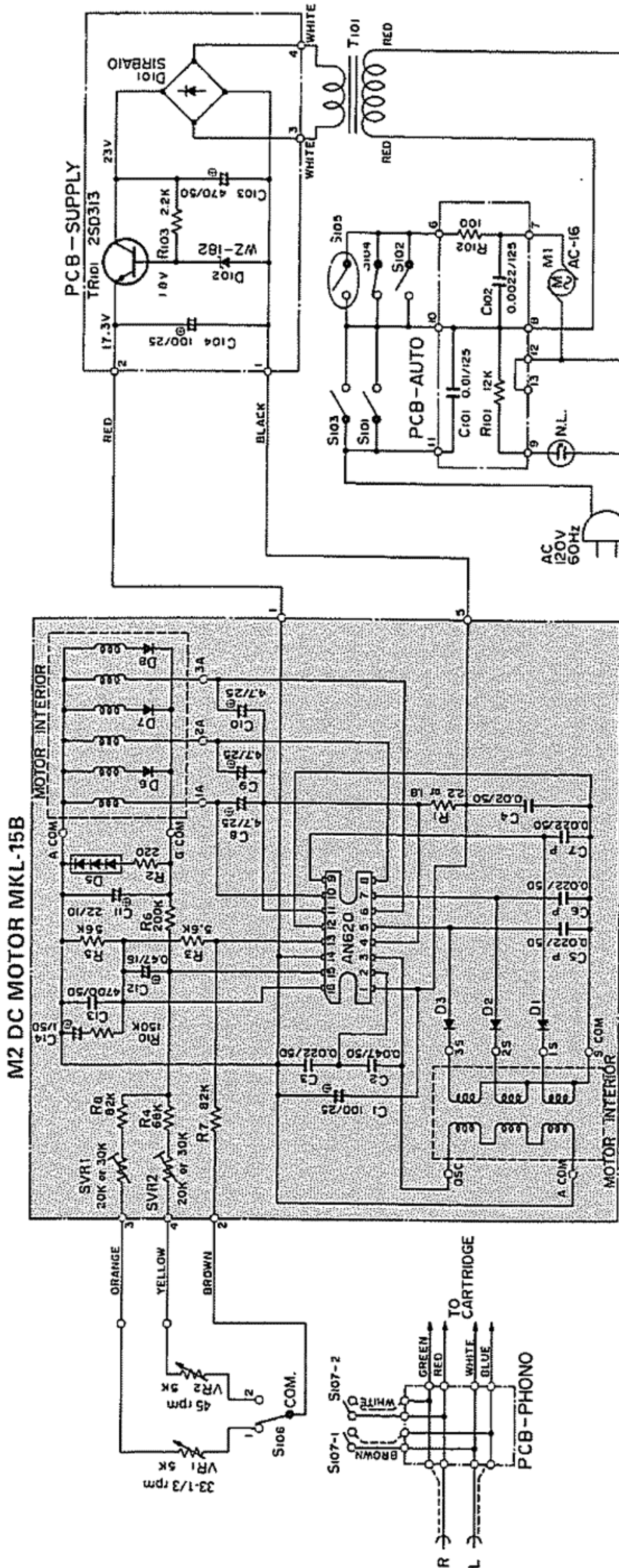
REF. NO.	DESCRIPTION	RS PART NO.	MFR'S PART NO.
45	Steel Ball 5/32	RD-5172	74090397
46	Crank Lever	RD-5185	20753771
47	Motor, See Electrical Parts List (M1)		
48	Action Cam	RD-5187	20757753
49	Torsion Spring	RD-5189	20707686
50	Leaf Switch, See Electrical Parts List (S107)		
51	Clamp Lug	RD-5191	22184125
52	Reed Switch, See Electrical Parts List (S105)		
53	Micro Switch, See Electrical Parts List (S103, S104)		
54	Sheet	RD-5192	20743882
55	Sheet	RD-5193	20743883
56	P.C. Board, Phono	X-7530	22143189
57	Push Spring (For U.S.A. only)		22771944
58	Switch Bracket	RD-5168	22755508
59	Lamp Holder	RD-5169	22755511
60	Neon Lamp, See Electrical Parts List (N. L)		
61	Select Shaft	RD-5171	22743580
62	Steel Ball 5/32	RD-5172	74090397
63	Micro Switch, See Electrical Parts List (S106)		
64	Variable Resistor, See Electrical Parts List (VR1, VR2)		
65	P.C. Board, Auto	X-7531	22143318
66	P.C. Board, Supply	X-7532	22143317
67	Radiator	RD-5227	22748624
68	Sub Panel Assembly	RD-5199	20711670
69	Start Cam	RD-5200	20757713
70	Plate Spring	RD-5201	22772561
71	Micro Switch, See Electrical Parts List (S101, S102)		
72	Barrier	RD-5202	22752875
73	Turntable	RC-4116	20723706
74	Dust Cover Assembly with Hinge B	Y-1494	20847879
75	Hinge B	RD-5197	20861688
76	Motor, See Electrical Parts List (M2)		
77	Motor Bracket	RD-5203	22755510
78	Bottom Cover	Z-3658	22832786
79	Foot With Rubber	F-0219	20842639
80	Foot With Rubber (Blue)		20842640
81	P.C. Board Bracket	RD-5204	22755509
82	Band	RD-5206	20975612
83	Clamp Lug		22754981
84	Speed Adjust Knob	RD-5207	20871915
85	Select Knob	RD-5209	20871916
86	Lifter Knob	RD-5208	20871917
87	Anti-skating Knob	RD-5210	20871918
88	Panel	Z-3660	22833851
89	Table Sheet	RC-4117	20723707
90	Power Transformer, See Electrical Parts List (T101)		

REF. NO.	DESCRIPTION	RS PART NO.	MFR'S PART NO.
91	Transformer Bracket	RD-5211	20021773
92	Rest Stand	RD-5212	20738646
93	Rubber Cap	RD-5213	20881768
94	Screen		22854691
95	US 1P Plug Cord (For U.S.A.)	W-2148	22164569
	US 1P Plug Cord (For Europe)		22164512
	US 1P Plug Cord (For Australia)		22164512
96	Bush For Plug Cord (For U.S.A.)	RD-5214	22185129
	Bush For Plug Cord (For Europe)		20881802
	Bush For Plug Cord (For Australia)		20881802
97	S 1P Terminal (For U.S.A.)	RD-5215	22162362
	S 1P Terminal (For Europe)		22162363
	S 1P Terminal (For Australia)		22162363
98	Bush For Power Cord (For U.S.A.)	RD-5216	20881676
	Bush For Power Cord (For Europe)		22185131
	Bush For Power Cord (For Australia)		22185131
99	P.C. Board Barrier	RD-5205	22748757
100	Bottom Board (For U.S.A.)	Z-3659	20826730
	Bottom Board (For Europe)		20826735
	Bottom Board (For Australia)		20826735
101	Cover For Power Transformer (For Europe)		22748571
	Cover For Power Transformer (For Australia)		22748571
102	Power Cord, See Electrical Parts List		
103	Tube For Neon Lamp		
104	Hinge A, For Dust Cover	RD-5129	20861689
105	Main Label (For U.S.A.)		22865624
	Main Label (For Europe)		22865627
	Main Label (For Australia)		22865627
	SCREWS		
S 1	Pan Head Screw, 3 x 8	RD-5142	70403008
S 2	Pan Head Screw, 4 x 12	RD-5143	70404012
S 3	Bind Head Screw, 2.6 x 4	RD-5145	22701636
S 4	Bind Head Screw, 2.6 x 6	RD-5235	70432606
S 5	Bind Head Screw, 2.6 x 8	RD-5164	70432608
S 6	Bind Head Screw, 2.6 x 14	RD-5165	70432614
S 7	Bind Head Screw, 3 x 6	RD-5186	70433006
S 8	Bind Head Screw, 3 x 30	RD-6219	70433030
S 9	Bind Head Screw, 4 x 10	RD-5223	70434010
S10	Bind Head Tapping Screw, 2 x 6	RD-5221	72632006
S11	Bind Head Tapping Screw, 2.6 x 5	RD-5139	72632605
S12	Bind Head Tapping Screw, 3 x 5	RD-5161	72633005
S13	Bind Head Tapping Screw, 3 x 6	RD-5186	72633006
S14	Bind Head Tapping Screw, 3 x 8	RD-5188	72633008
S15	Bind Head Tapping Screw, 3 x 16	RD-5173	72633016
S16	Bind Head Tapping Screw, 4 x 8	RD-5224	72634008

REF. NO.	DESCRIPTION	RS PART NO.	MFR'S PART NO.
S17	Bind Head Tapping Screw, 3 × 8		22701605
S18	Bind Head Tapping Screw 3 × 25	RD-5225	72603025
S19	Oval Head Screw, 4 × 10	RD-5198	70454010
S20	Hexagon Socket Head Screw, 4 × 12	RD-5217	22701635
S22	Flat Head Screw, 2.6 × 8	RD-5147	70442608
S23	Round Head Wood Screw, 3.1 × 10	RD-5135	74213110
S24	Round Head Wood Screw, 3.1 × 13	RD-5222	74213113
S25	Round Head Wood Screw, 3.1 × 13 (Black)		74213113
S26	Pan Head Cup Point Screw, 4 × 8 (Black)	RD-5130	20795941
S27	Special Screw	RD-5152	20795935
S28	Pan Head Cup Point Screw, 3 × 10	RD-5156	20795958
S29	Special Nut	RD-5194	20796680
S30	Bind Head Screw with Spring Washer, 3 × 10		20795981
S31	Bind Head Screw with Washer, 3 × 6	RD-5220	22701643
S32	Cup Point Set Screw, 2.6 × 4	RD-5140	74742604
S33	E Ring 2 φ	RD-5233	74050020
S34	E Ring 3 φ	RD-5232	74050030
S35	E Ring 4 φ	RD-5170	74050040
S36	E Ring 10 φ	RD-5229	22703578
S37	CS Ring 3 φ	RD-5230	74060030
S38	Flat Washer, 4.2 φ × 11 φ × 0.8t	RD-5160	20791649
S39	Flat Washer, 2.5 φ × 6 φ × 0.3t	RD-5231	20791609
S40	Flat Washer, 14 φ × 34 φ × 0.5t	RD-5190	22752756
S41	Spring Washer, 3 φ	RD-5226	74010030
S42	Hexagon Nut 3	RD-5218	73653000
S43	Flat Head Screw, 3 × 10		70443010

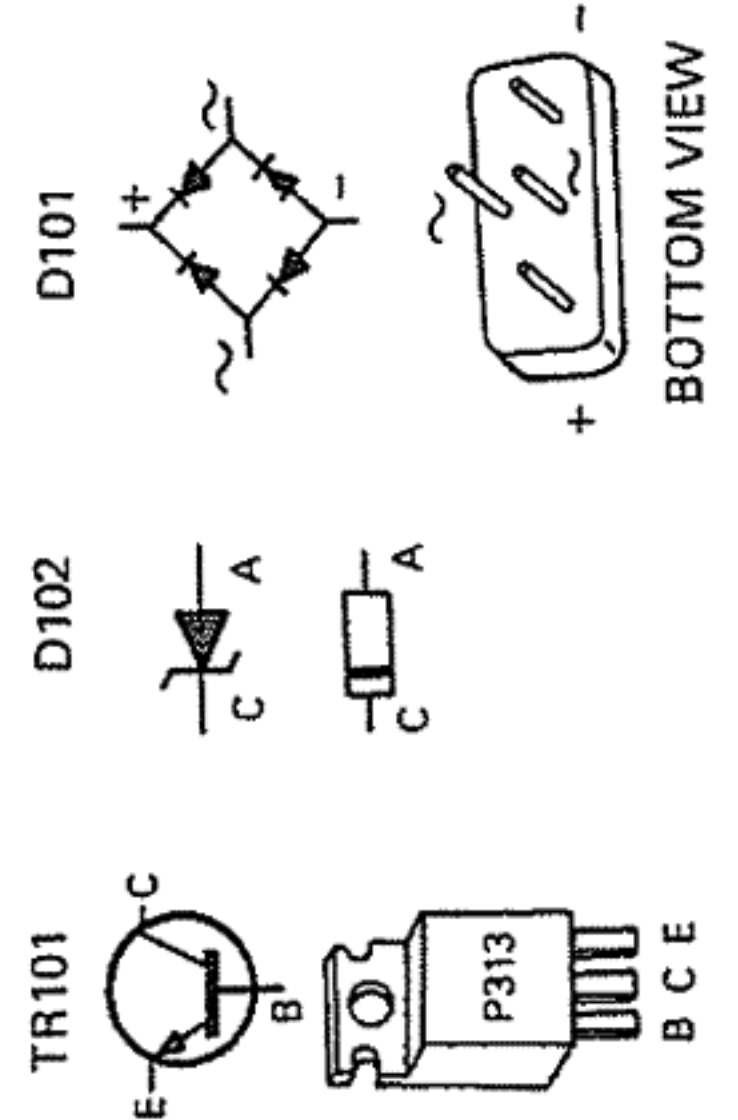
12. SCHEMATIC DIAGRAM

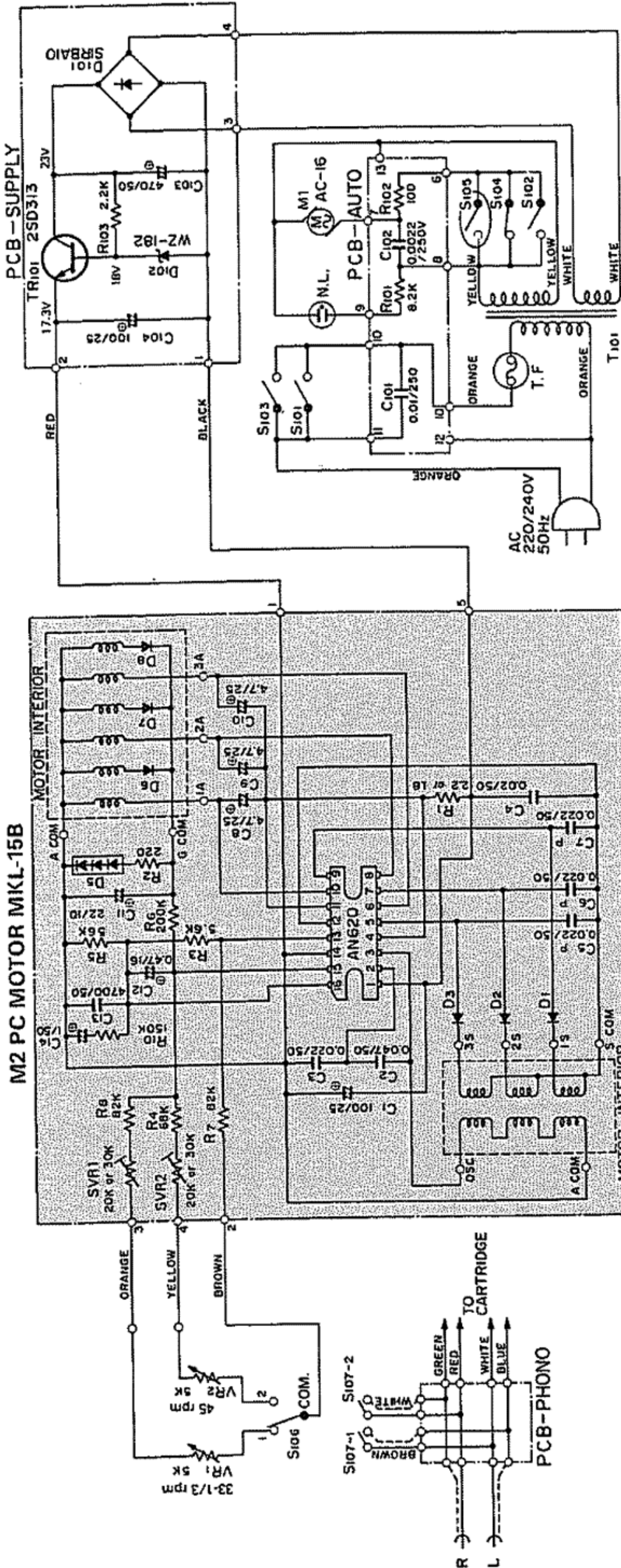
12-1 FOR U.S.A.



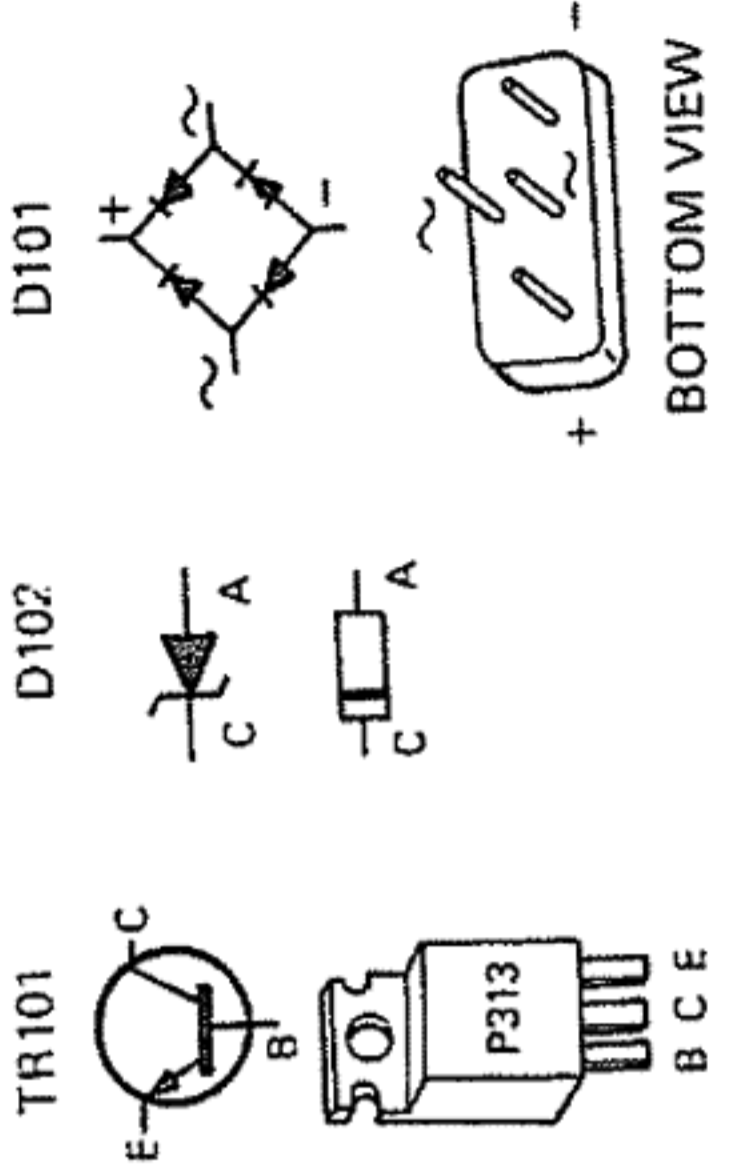
NOT SERVICEABLE

- NOTE:
- 1) ALL RESISTANCE VALUES ARE IN OHMS. K = 1,000
 - 2) ALL CAPACITANCE VALUES ARE IN MICROFARADS/WV.
 - 3) S101, 102, 103, 104 AND 106 ARE MICRO SWITCHES.
 - 4) S105 IS A REED SWITCH.
 - 5) S107 IS A LEAF SWITCH.

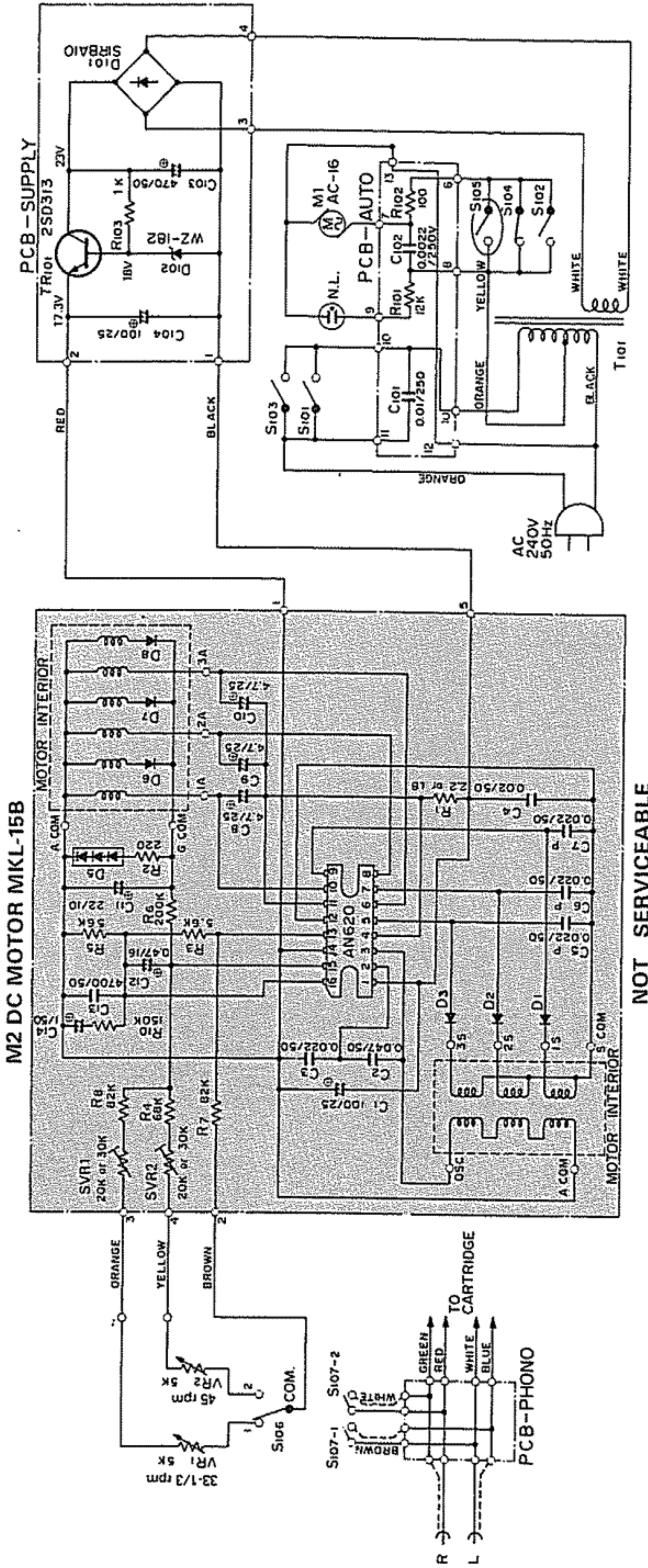




NOT SERVICEABLE

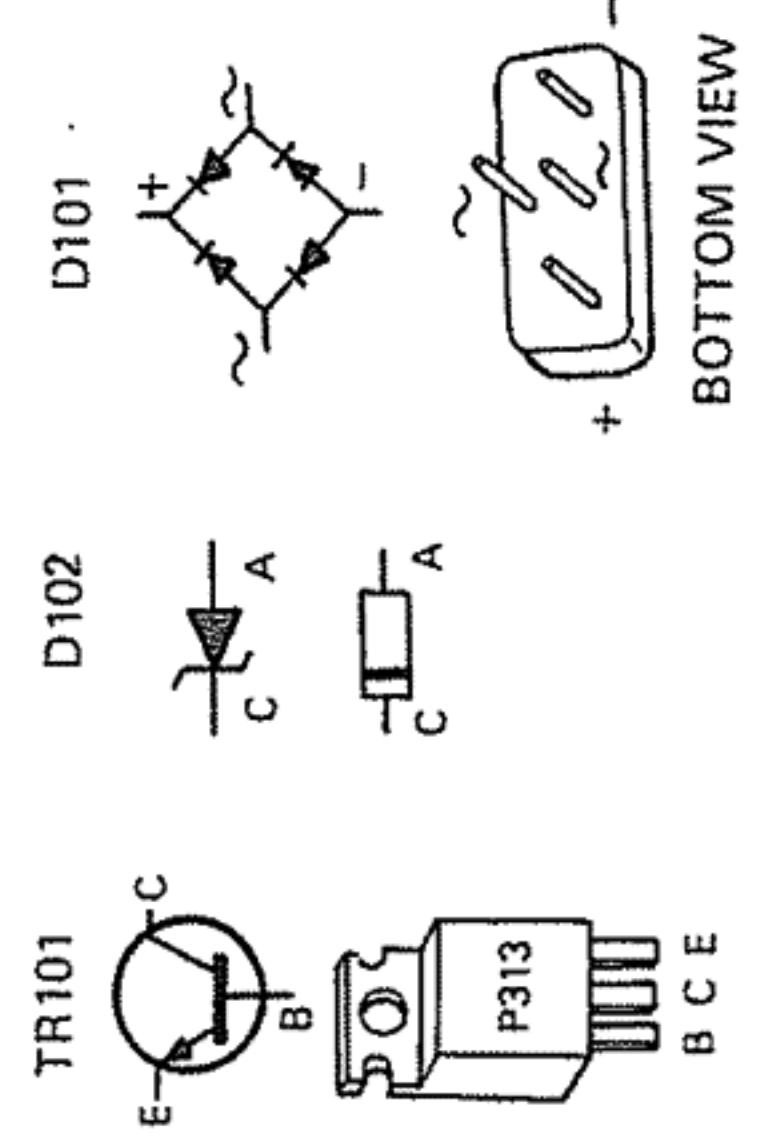


NOTE:
 1) ALL RESISTANCE VALUES ARE IN OHMS. K = 1,000
 2) ALL CAPACITANCE VALUES ARE IN MICROFARADS/WV.
 3) S101, 102, 103, 104 AND 106 ARE MICRO SWITCHES.
 4) S105 IS A REED SWITCH.
 5) S107 IS A LEAF SWITCH.
 TR101 D102 D101 E C B C A N N E C B C A P313 BOTTOM VIEW



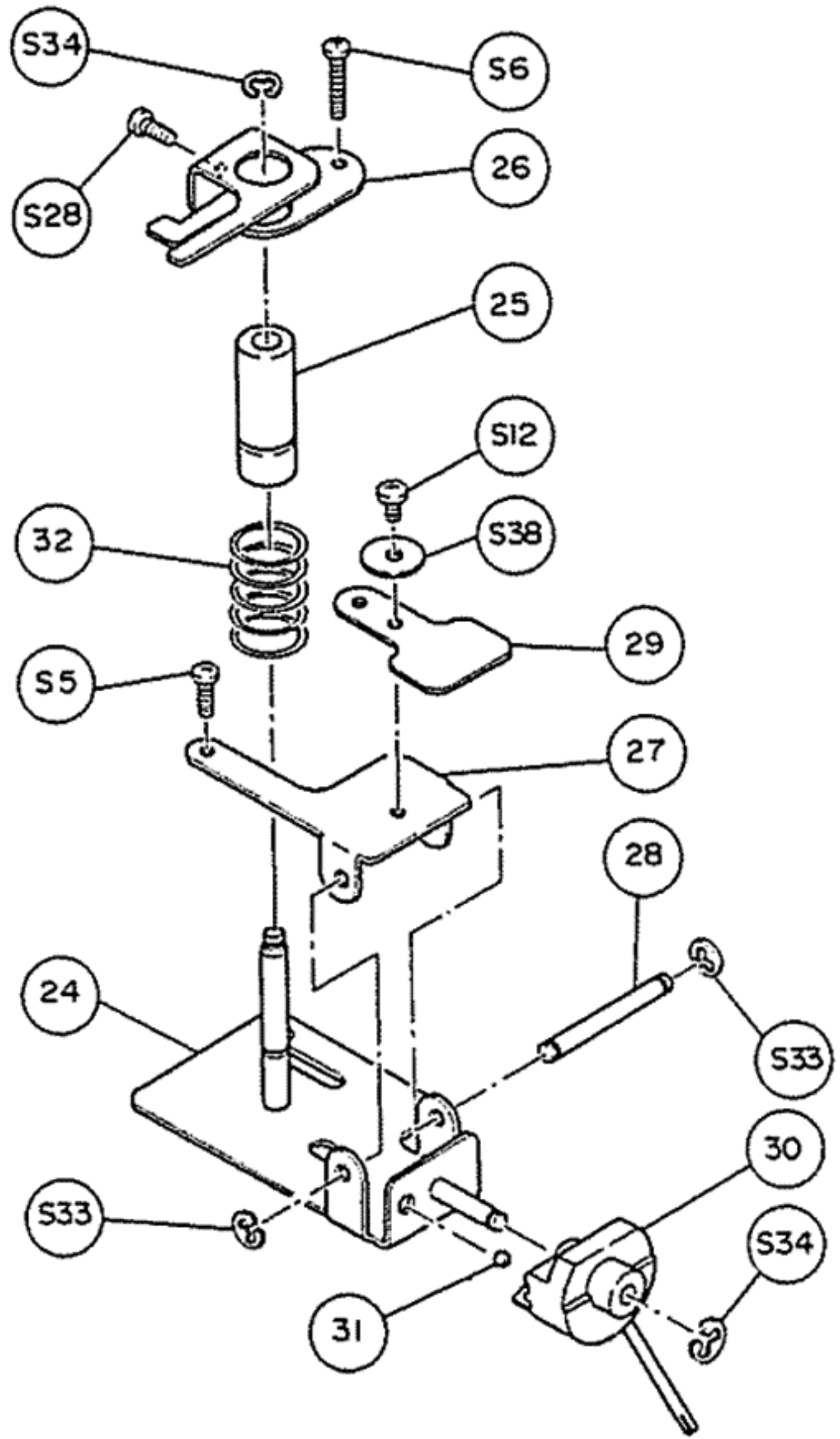
NOTE:

- 1) ALL RESISTANCE VALUES ARE IN OHMS. K = 1,000
- 2) ALL CAPACITANCE VALUES ARE IN MICROFARADS/WV.
- 3) S101, 102, 103, 104 AND 106 ARE MICRO SWITCHES.
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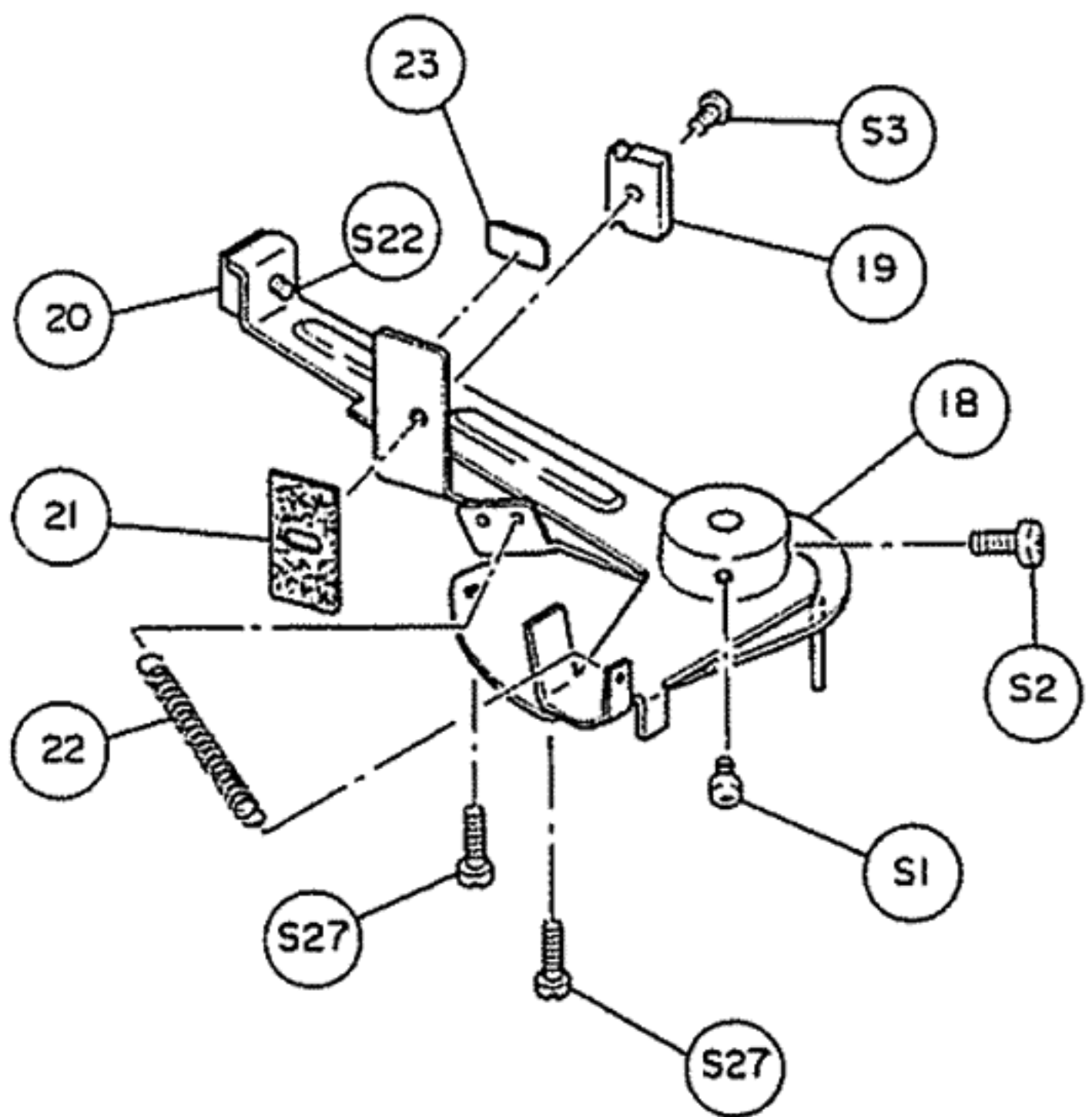


13. EXPLODED VIEW

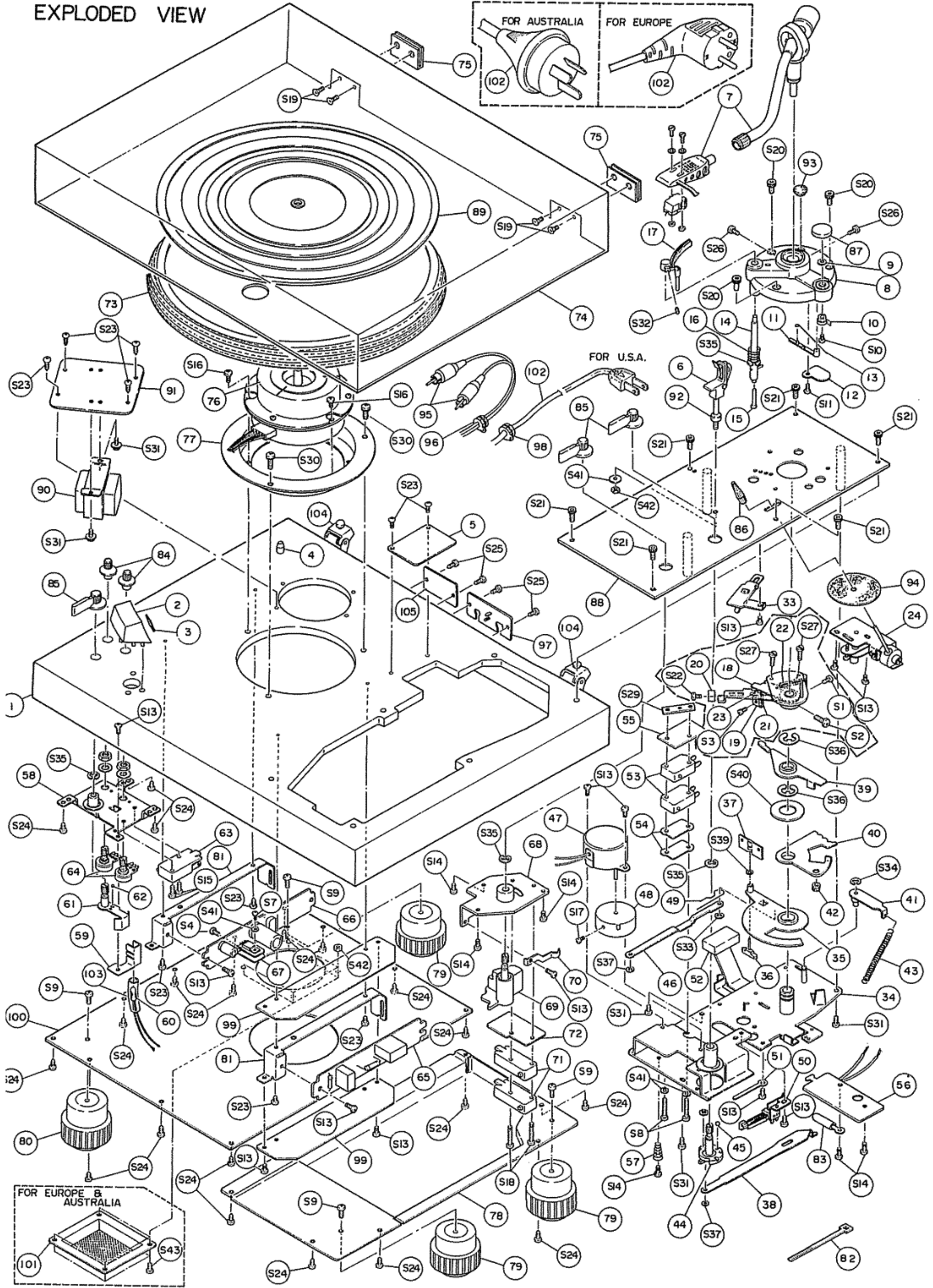
13-1 BRACKET ASSEMBLY




13-2 PU PLATE ASSEMBLY



EXPLODED VIEW



MEMO

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