

**REALISTIC**<sup>®</sup>

# Service Manual

42-2975

## LAB-420 FULLY AUTOMATIC DIRECT DRIVE TURNTABLE

Catalog Number: 42-2975



CUSTOM MANUFACTURED FOR RADIO SHACK  A DIVISION OF TANDY CORPORATION

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# 1. SPECIFICATIONS

General	NOMINAL	LIMIT
Type .....	2 speed, direct drive, auto-return system	
Platter .....	Aluminium alloy die-cast, 310 mm outer diameter, weight 1.4kg.	
Motor .....	20 pole brushless DC servo-type	
Speed .....	33-1/3 rpm and 45 rpm	
Pitch control range .....	±4%	
Speed change system .....	Electronic change-over system	
S/N .....	Better than 53 dB	48 dB
Wow & Flutter .....	Less than 0.03% WRMS	
Hum .....	65 dB	55 dB
Rumble .....	65 dB (DIN-B)	55 dB
Tone arm .....	Static-balance type, tubular	
Head shell .....	Plug-in type	
Overall length .....	302 mm	
Effective length .....	220 mm	
Over hang .....	15 mm	
Adjustable force range .....	0 to 4 g	
Acceptable cartridge weight .....	3.2 to 8.5 g	
Cartridge .....	Realistic/Shure Model R-1000ED	
Frequency response .....	20 – 20,000 Hz	
Channel difference at 1kHz .....	2 dB	2.5 dB
Channel separation at 1kHz .....	23 dB	16 dB
Output voltage at 1kHz 50mm/sec .....	4.2mV	2.8mV
Tracking force .....	1-1/4 g	
Stylus tip .....	0.7 mil	
Power source		
U.S.A/Canada .....	120V 60 Hz	
Europe .....	230V 50 Hz	
Australia .....	240V 50 Hz	
Power consumption .....	8W	8W
Dimensions .....	450(W) x 355(D) x 143(H) mm	
Weight .....	8 kg	
Accessories .....	Head shell with cartridge 45 rpm adaptor	

**NOTE:** Nominal Specs represent the design specs; all units should be able to approximate these –some will exceed and some may drop slightly below these specs. Limit specs represent the absolute worst condition which still might be considered acceptable; in no case should a unit perform to less than within any Limit Spec.

**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 from mechanical parts 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. Bottom Board Removal

- (1) Remove the Dust Cover, Turntable and Rubber pad. Lock the Tone Arm and turn the unit over.
- (2) Remove six screws from the Bottom Board and lift up the Bottom Board.

### 2. Motor Removal

- (1) Disconnect the motor-wiring plug.
- (2) Remove three screws (A) from the Motor and remove it from the bottom.

### 3. Chassis Removal

- (1) Remove seven knobs except Anti-skating Knob.
- (2) Remove the Bottom Board.
- (3) From the bottom side, remove two Cord Clamps by removing four screws (B). Then unsolder the wires connecting the Tone Arm and the Phono P.C. Board.
- (4) Remove five screws (C) securing the Chassis and screw (D) securing the bracket for the Phono P.C. Board.
- (5) Retighten two screws on the Pickup Plate and remove it.
- (6) The Chassis with some parts can now be removed.

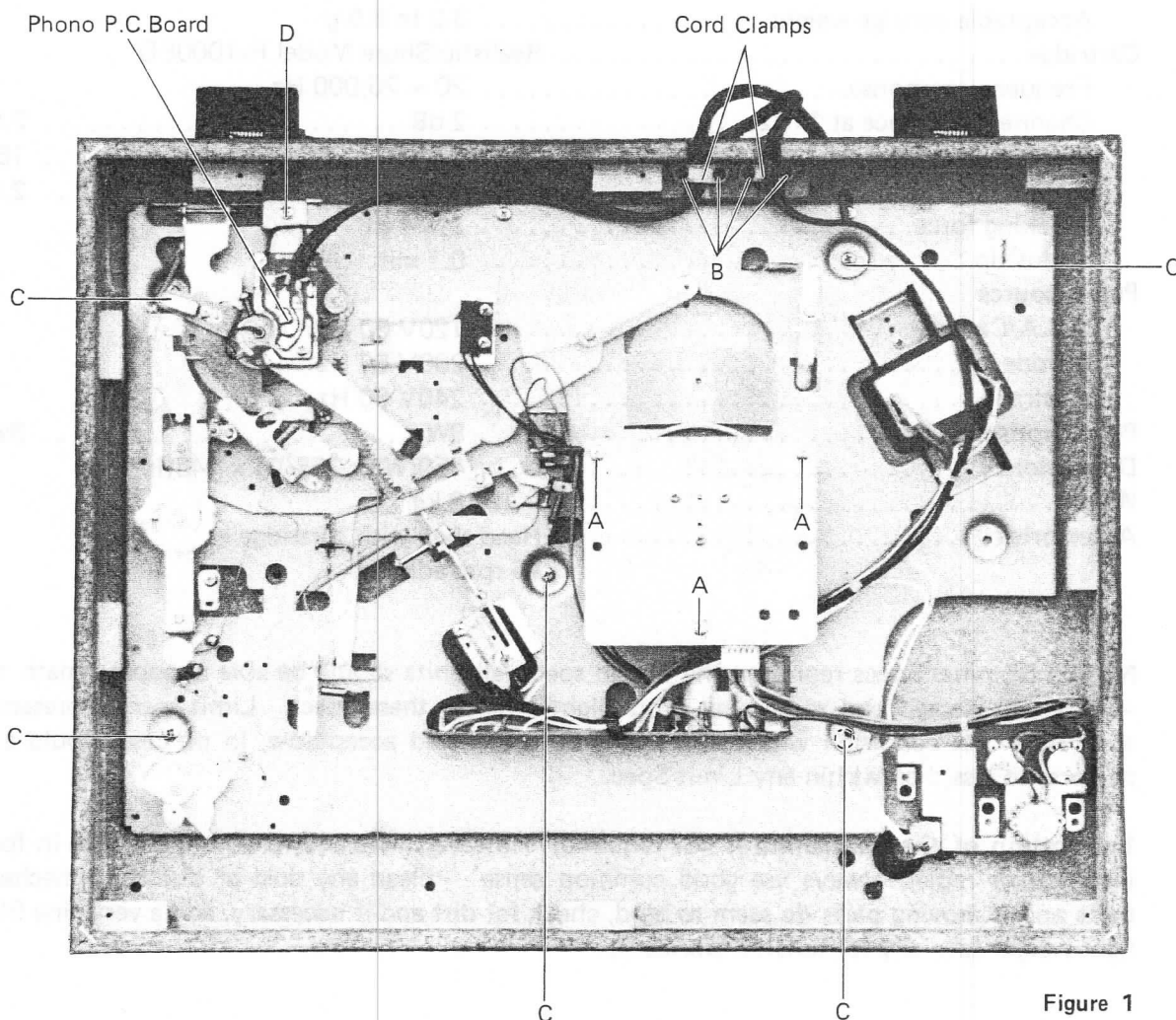


Figure 1



### 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 2. Make connections to the Cartridge following the instructions provided with it (and/or follow the markings on the Cartridge).

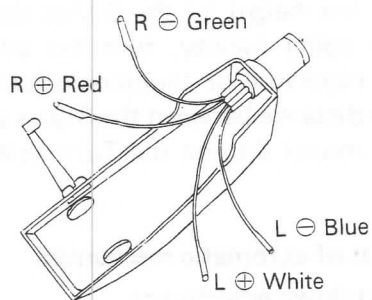


Figure 2

### 4. 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 3)

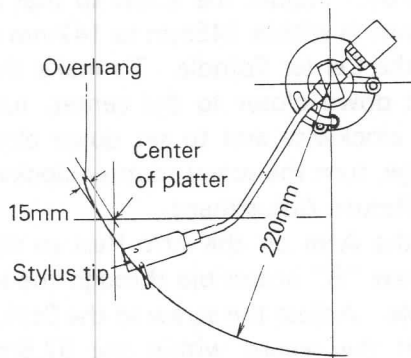
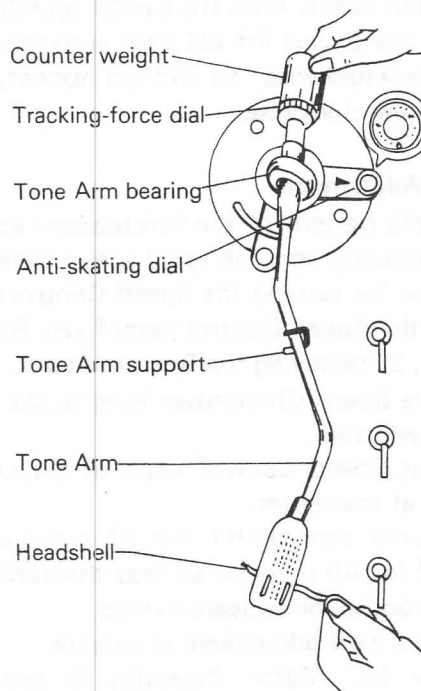


Figure 3

#### 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 for the Cartridge.

- (1) Rotate the Counter weight until the Tone Arm is balanced evenly.
- (2) 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 grams.
- (3) Turn the Counter weight slowly until the line comes to the specified force ( $3/4 - 1\frac{1}{4}g$  for standard R1000ED cartridge).



#### 3. Anti-skating adjustment

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

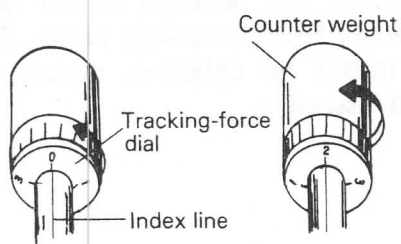


Figure 4

#### 4. Adjustment of Cuing Height

To adjust the height of the Stylus tip when using the cuing facility, turn the adjusting screw (E) clockwise or counter-clockwise and adjust the distance between the Stylus tip and face of a record disc on the Turntable to be 6mm.

#### 5. Adjustment of automatic mechanism

##### (1) Stylus Set-down adjustment

Move the Tone Arm toward the Center Spindle until you see adjusting screw "A" accessible through the adjusting hole (see Figure 6). 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 the Speed Control knob, adjust the Speed Control Semi-fixed Resistor (SVR1, 2) removing the Bottom Board.

- (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.  $\pm 4\%$  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.

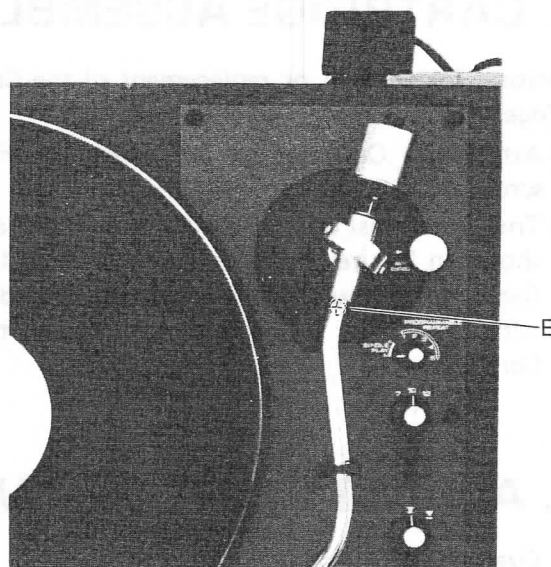


Figure 5

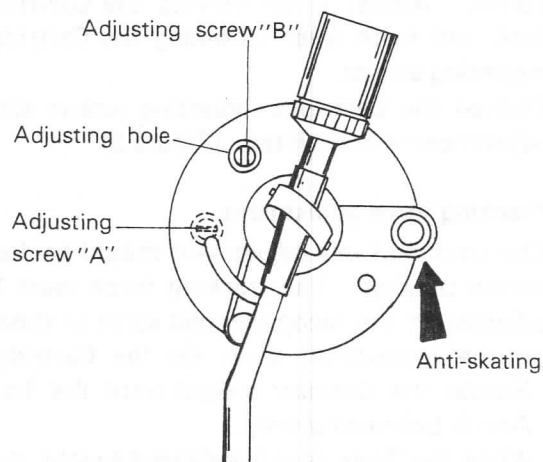
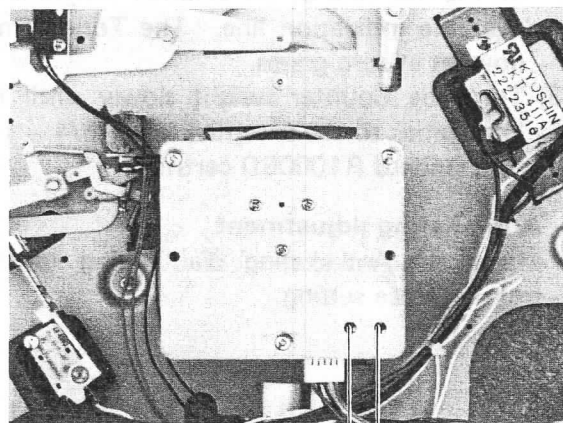


Figure 6



SVR 1 (33rpm)

SVR 2 (45rpm)

Figure 7

## 5. EXPLANATION OF AUTOMATIC MECHANISM OPERATION

### 1. Motor and Mechanism

- (1) Microswitch (S2) starts or stops the DC Motor (M1).
- (2) Before starting, the sloped edge of the GEAR (44) pushes up the lower Switch Lever (52). The Spring (54) between lower Switch Lever (52) and upper Switch Lever (53) causes the upper Switch Lever (53) to descend. It does not descend as the other end of the upper Switch Lever (53) is pressed down by the Lever Switch (39). So the Plastic lever (51) does not push the Microswitch (S2) ON.
- (3) When the Function lever is set to START, the Lever Switch (39) turns and releases the upper Switch Lever (53). The Lever Switch is held in that position with the projection of the upper Lever (53). Then the upper Lever (53) pushes and holds the plastic Lever (51) to keep the Microswitch ON. (Figure 9)
- (4) The other end of the Lever Switch (39) pushes the Reject Lever (22), and the Lever pushes out the Clutch Plate to connect it with the Motor Gear. (Figure 10)
- (5) The Motor Gear turns the Main Gear (42) and the Gear (44) moves in the direction of arrow turning the Pickup Gear (45). The Tone Arm goes out from Arm Rest and begins playing. (Figure 11)

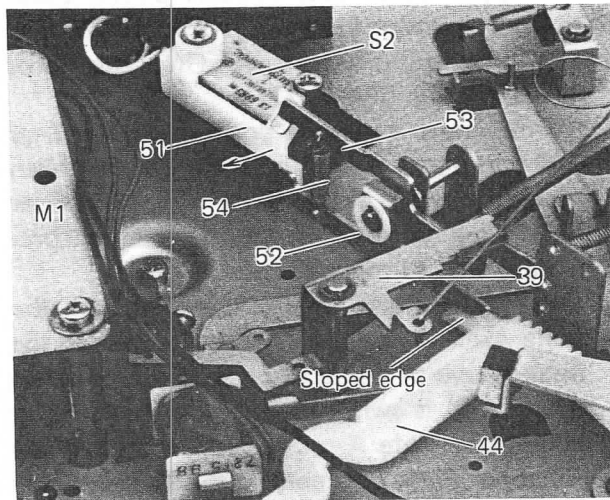


Figure 8

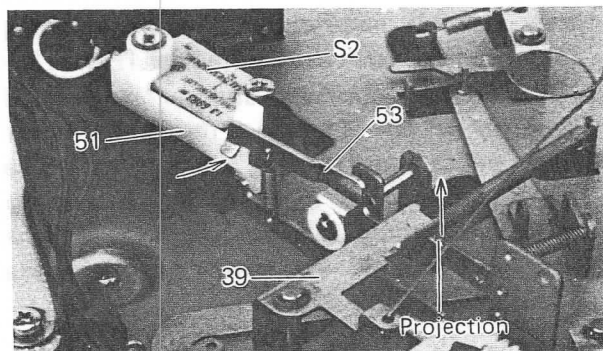


Figure 9

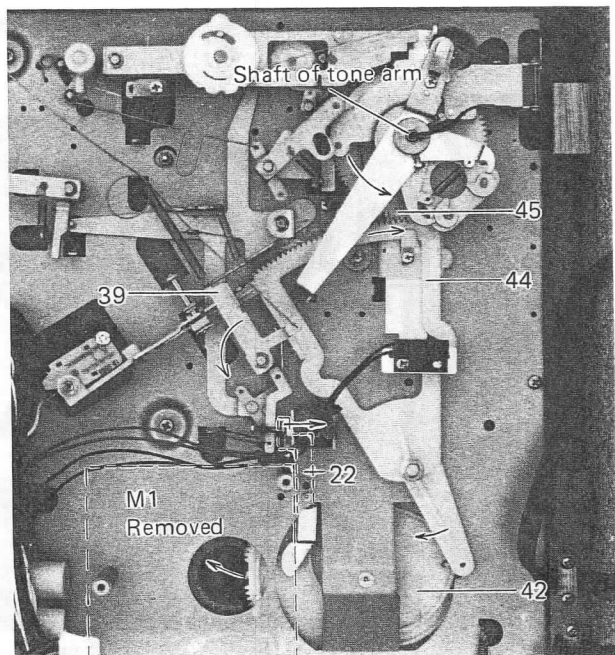


Figure 11

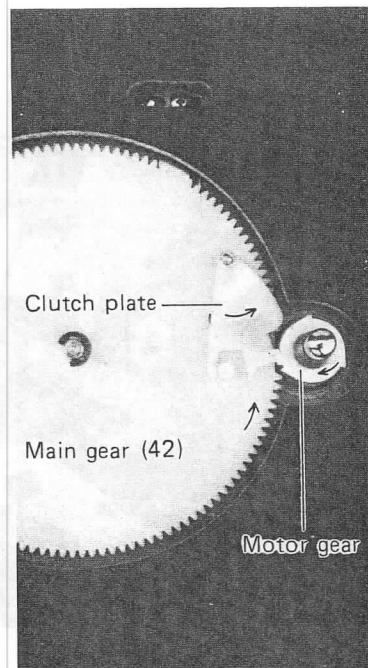


Figure 10

- (6) The extension of the Gear releases the lower Switch Lever (52). The lever goes down and releases the upper Switch Lever (53). Before the upper Lever (53) releases plastic Lever (51), the lower Lever (52) holds the Lever (51) turning the Microswitch ON. The Motor keeps turning. (Figure 12)
- (7) At the most extended position of the Gear (44), the non-gearred position of the Main Gear meets the Motor Gear. The Main Gear (42) stops turning and only the motor (turntable) keeps turning. (Figure 13)
- (8) The Pickup Plate Assy (62) moves with the Tone Arm. When the Tone Arm comes to the final groove of the record disc, the Proximity-Switch (S3) is switched ON by the magnet on the Pickup Plate Assy. The Switch turns the Solenoid (L1) ON, pulling the Reject Lever (22). The Clutch Plate on the Main Gear is pushed out to turn the Main Gear. It returns the Gear (44) and Pickup Gear (45) to swing back the Tone Arm to the Arm Rest. (Figure 14)
- (9) At the Rest position, another non-gearred position of the Main Gear meets the Motor Gear and it stops turning. At the same time the sloped edge of the Gear (44) pushes up the lower Switch Lever (52) to turn OFF the Microswitch (S2). The Motor stops with the Turntable. (Figure 15)

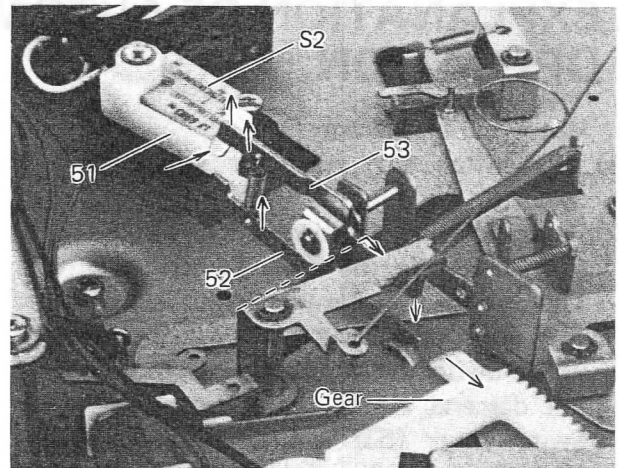


Figure 12

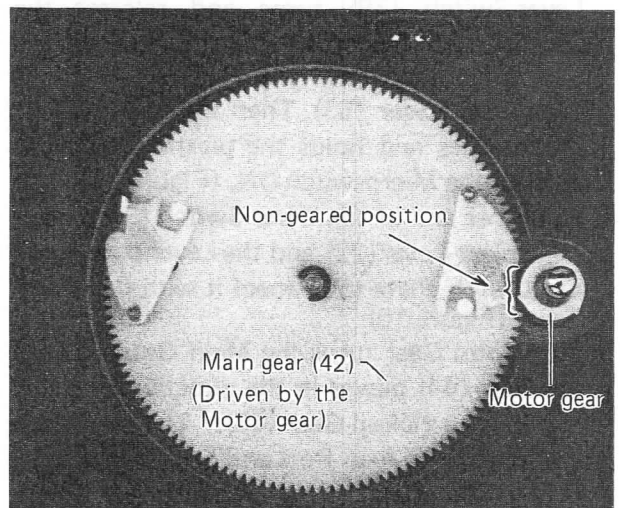


Figure 13

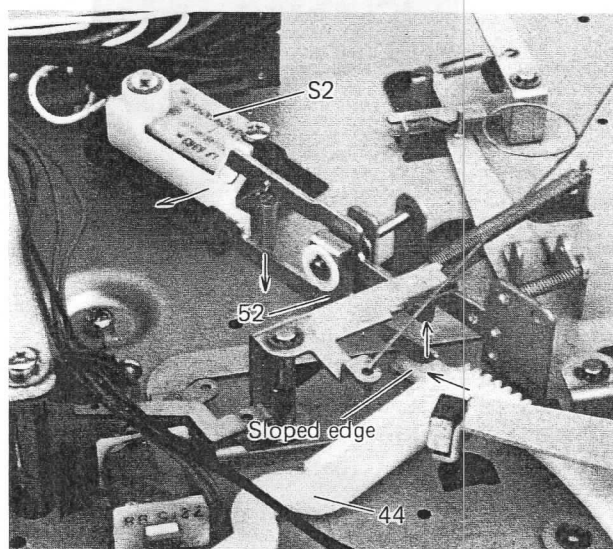


Figure 15

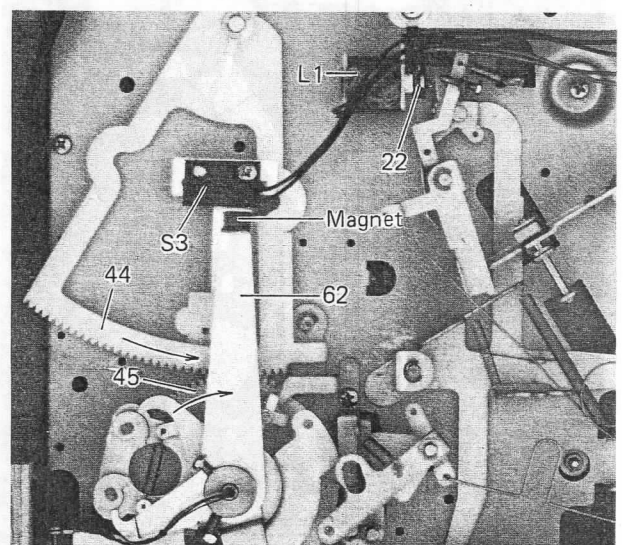


Figure 14



## 2. Tone Arm

- (1) The Tone Arm swings with the Pickup Plate Assy (62). The Turn Plate (46) on the Pickup Gear (45) turns the Pickup Plate Assy, touching the Boss (A) on the Pickup Plate to the correct point selected by the Size selector.
- (2) The Turn Plate turns every 1/4 rotation as a wire spring holds its square edges.
- (3) The Turn Plate (46) has two pairs of crossed bars. The Upper bar is provided to push the Boss (A) on the Pickup Plate Assy. The Lower bar is provided for returning the Upper bar to its Stand-by position by the Guide Plate (59).
- (4) The Turn Plate (46) catches the Boss (A) at the top end of the Upper bar and brings it to where the Pickup Plate is stopped by the Record Size selector. As the Pickup Gear keeps rotating, the Turn Plate spins and frees the Pickup Plate from the pushing force.
- (5) Before Pickup Gear reaches the extended position, the Turn Plate is spun to its Stand-by position by one hook of the Guide Plate (59). (Figure 17)
- (6) At the end of playing, Pickup Gear is returned by Gear (44) to its Rest position. On the way, the Turn Plate is waiting and returns the Pickup Plate. It is spun to free the Boss (A) on the Pickup Plate from the pushing force at the Rest position of the Tone Arm. It is spun again by another hook of the Guide Plate to its Stand-by position. (Figure 18)

## 3. Manual Playing

- (1) At the start of Auto-In, the Boss on the Manual Plate (57) is pushed off from the root of outer edge of the Upper bar of the Turn Plate (46). The Upper bar catches the Boss (A) on the Pickup Plate (62) to carry out the Tone Arm. (Figure 19)

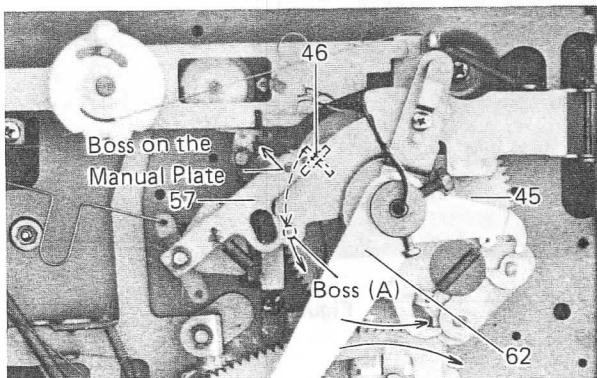
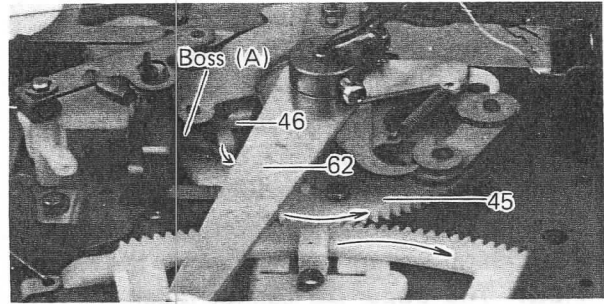


Figure 19



Upper bar catching the boss (A).

Figure 16

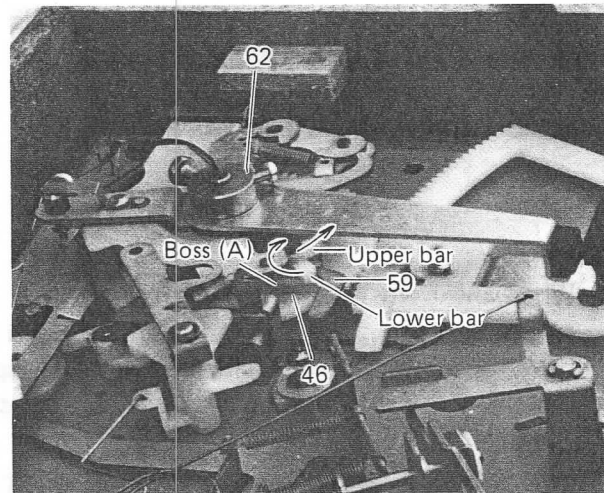


Figure 17

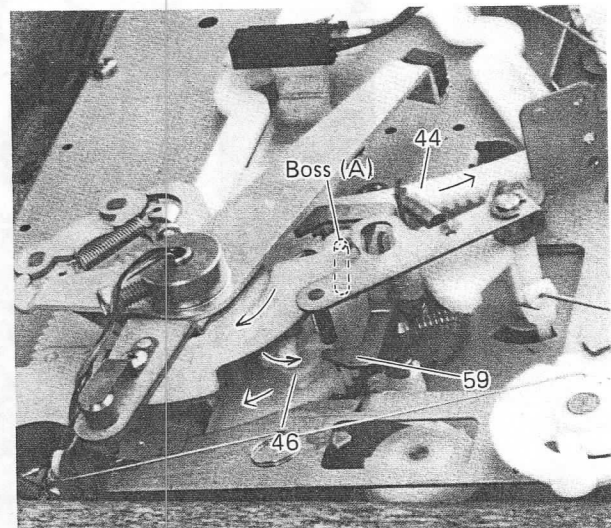
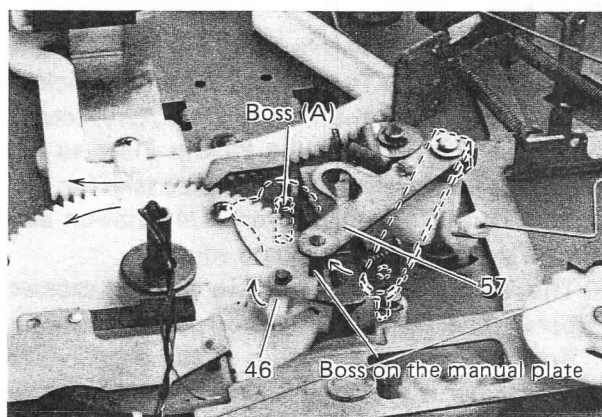


Figure 18

- (2) If the Tone Arm is swung manually to the record disc, the Pickup Plate is turned manually with the Tone Arm and Boss on the Manual Plate (57) returns to the root of the Upper bar of the Turn Plate (46).
- (3) When the Pickup Gear (45) starts turning by shifting the Function Lever to PLAY, the Turn Plate is spun at the Boss on the Manual Plate. The Upper bar cannot touch the Boss (A) on the Pickup Plate and the Tone Arm starts tracking at the desired groove of the record disc. (Figure 20)
- (4) If the Manual Plate is not provided and the Size selector is set to 7", and the Tone Arm is on the outer groove beyond 7", the Tone Arm will be forced into 7" groove. This damages Stylus and record disc.



Spinning Turn Plate by the boss on the Manual Plate. The Pickup Plate Assy is removed for clarity.

Figure 20

#### 4. Auto Repeat

- (1) When the Cam (10) is turned from "0" to another position, the top end of the Repeat Lever (12) comes out from the hole of the Cam (10) and rotates the Repeat Lever counter-clockwise.
- (2) By the rotation of the repeat Lever (12), spring (5) is pulled to turn the Start Lever (14) counter-clockwise but the hook of the Lever (30) stops the rotation of the Start Lever (14).

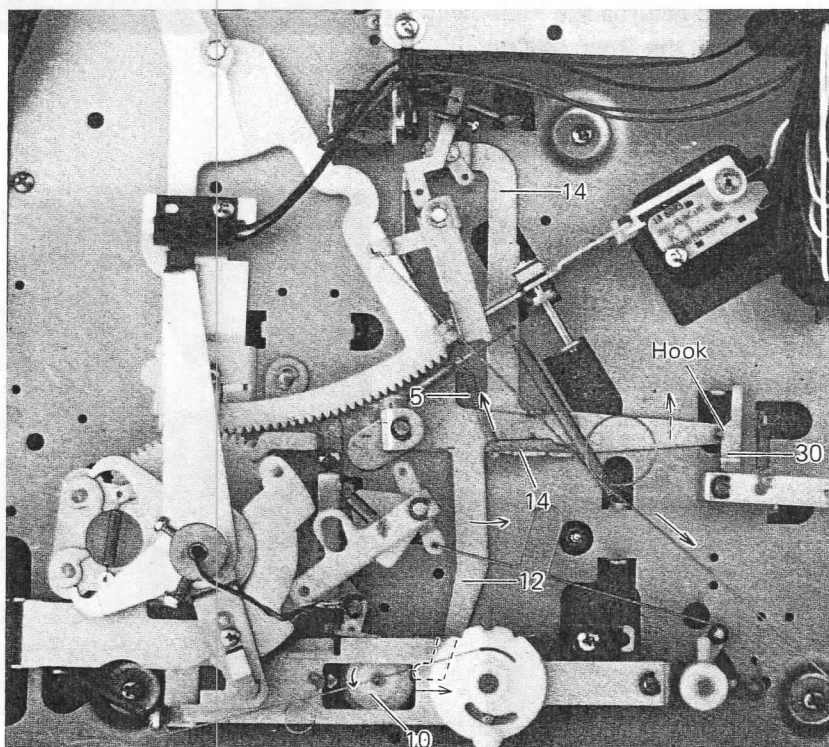


Figure 21



- (3) Turning the Function Lever to START, the Lever (30) turns and releases the Start Lever (14) and turns it counter-clockwise. Another end of the Start Lever (14) pushes the Reject Lever (22) and starts rotation of Gear (44) and Pickup Gear (45).

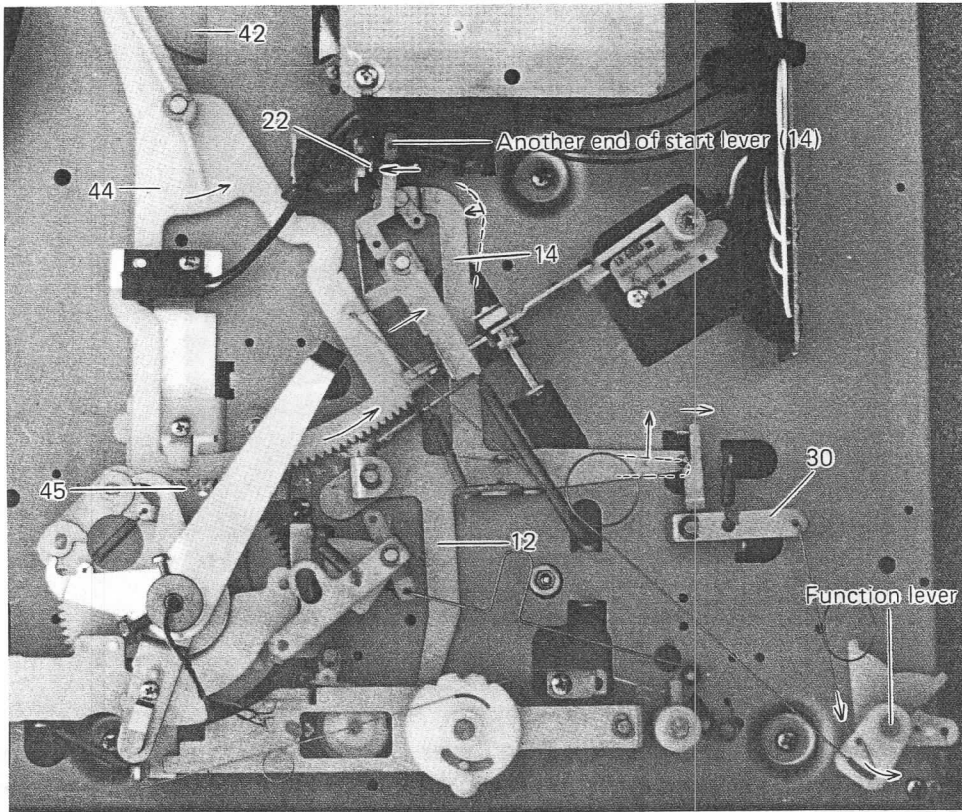


Figure 22

- (4) When the Gear (44) comes back to the starting position, side of the Gear (44) pushes the end-plate of the Start Lever (14) to push the Reject Lever (22) so the Main Gear (42) starts rotating again.

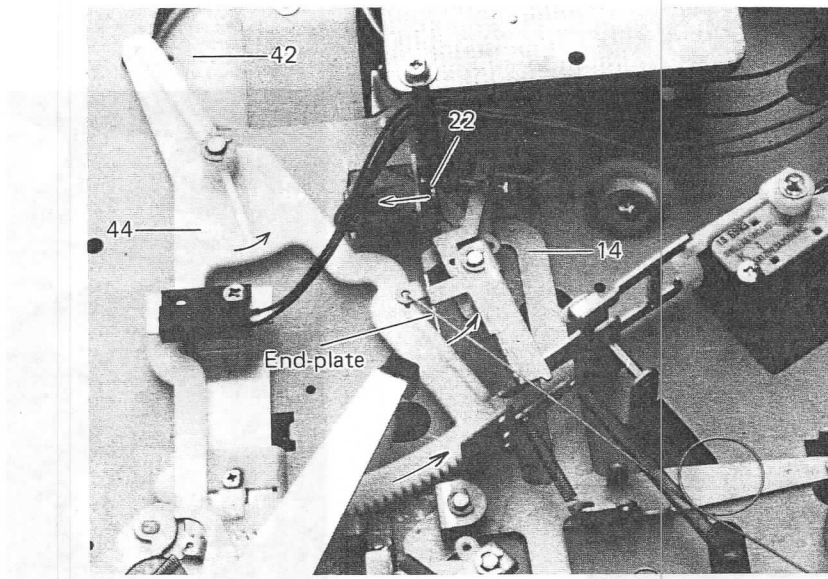


Figure 23

- (5) Each time the Pickup Gear (45) returns, the Clutch Lever (8) returns the Cam (10) one step.
- (6) At the "0" position of the Gear (10), the top end of the Repeat Lever falls into the hole of the Cam (10). The Start Lever (14) returns to the Normal position and stops Repeat playing.

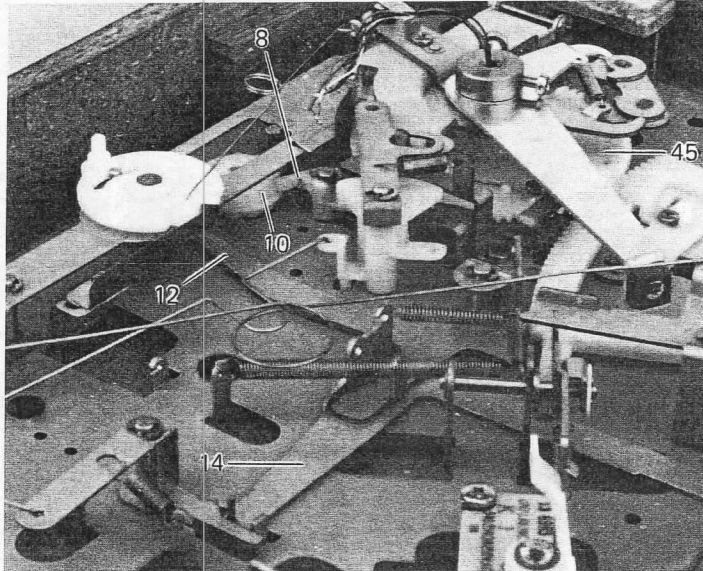


Figure 24

#### 5. Record Size Selector (Auto-In)

- (1) Rotation of the Select Shaft (19) swings the Stop Lever (17) from right (left) to left (right).
- (2) The Stop Lever (17) has three steps for 7", 10" and 12". The step, selected by the Select Shaft (19), intercepts rotation of the Pickup Plate Assy (62) at another Boss (B) on the Pickup Plate Assy.
- (3) At the start, the Turn Plate catches the Boss (A) and turns the Pickup Plate Assy to be intercepted by the Stop Lever and Boss (B).
- (4) The Tone Arm stops and waits the descend time of the Stop Lever at this position. (Figure 25)
- (5) At the extended position of the Pickup Gear, the Stop Lever (17) descends and the Boss (B) becomes free from the Stop Lever so the Tone Arm becomes free from any force and begins tracking the groove of record disc. (Figure 26)

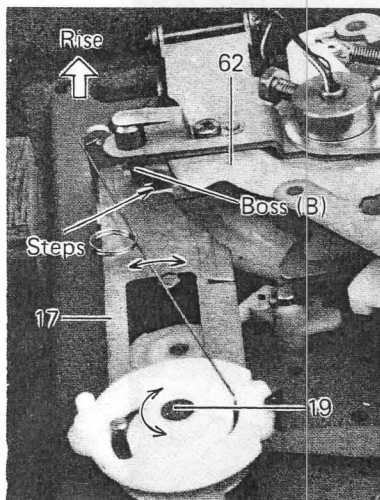


Figure 25

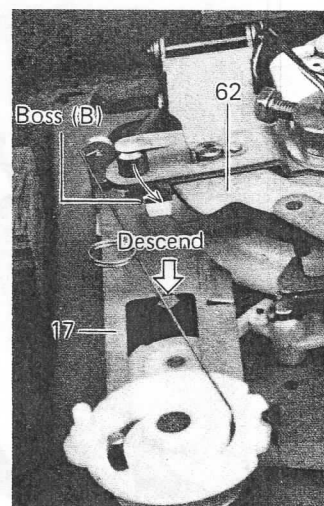


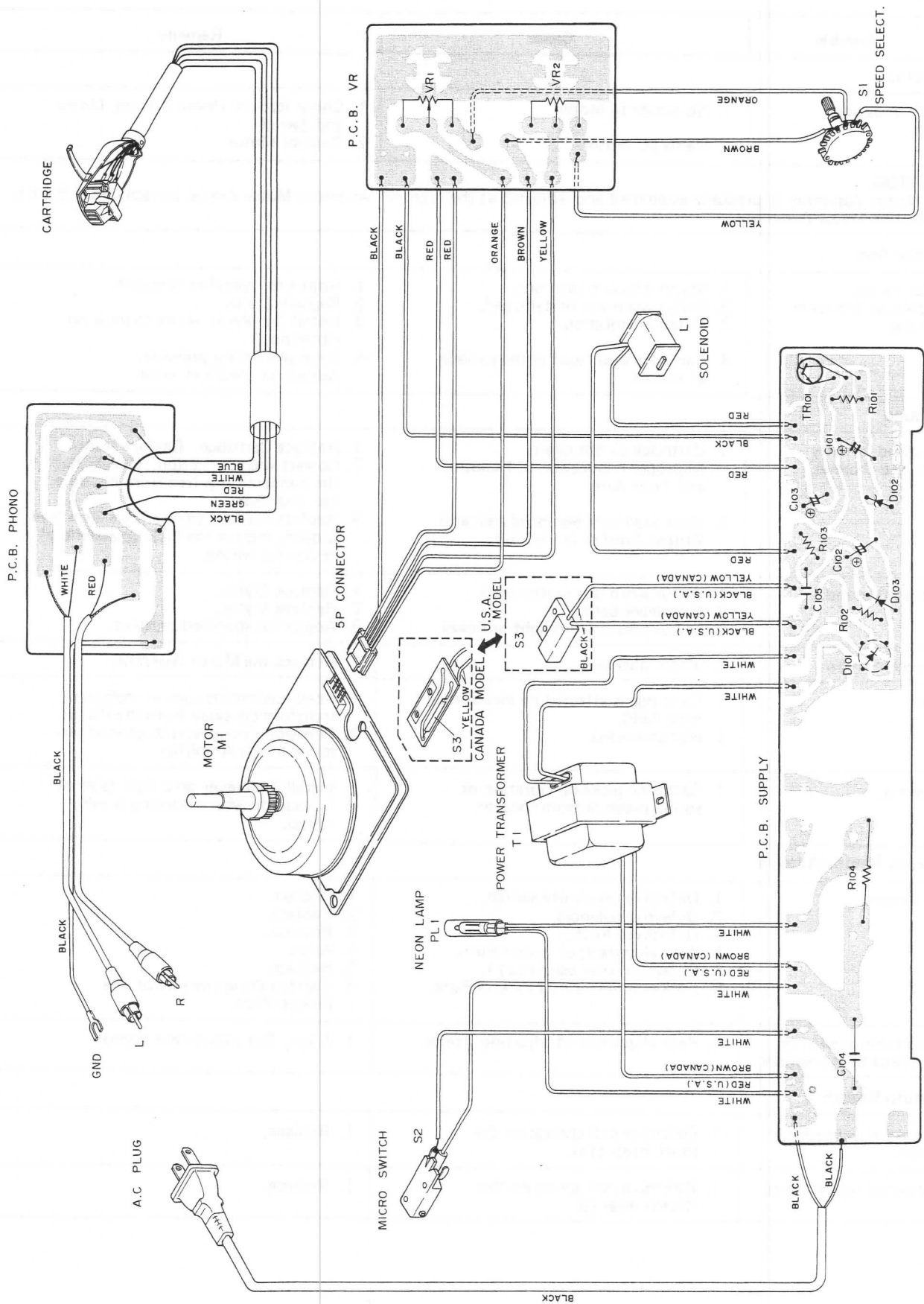
Figure 26

## 6. TROUBLESHOOTING GUIDE

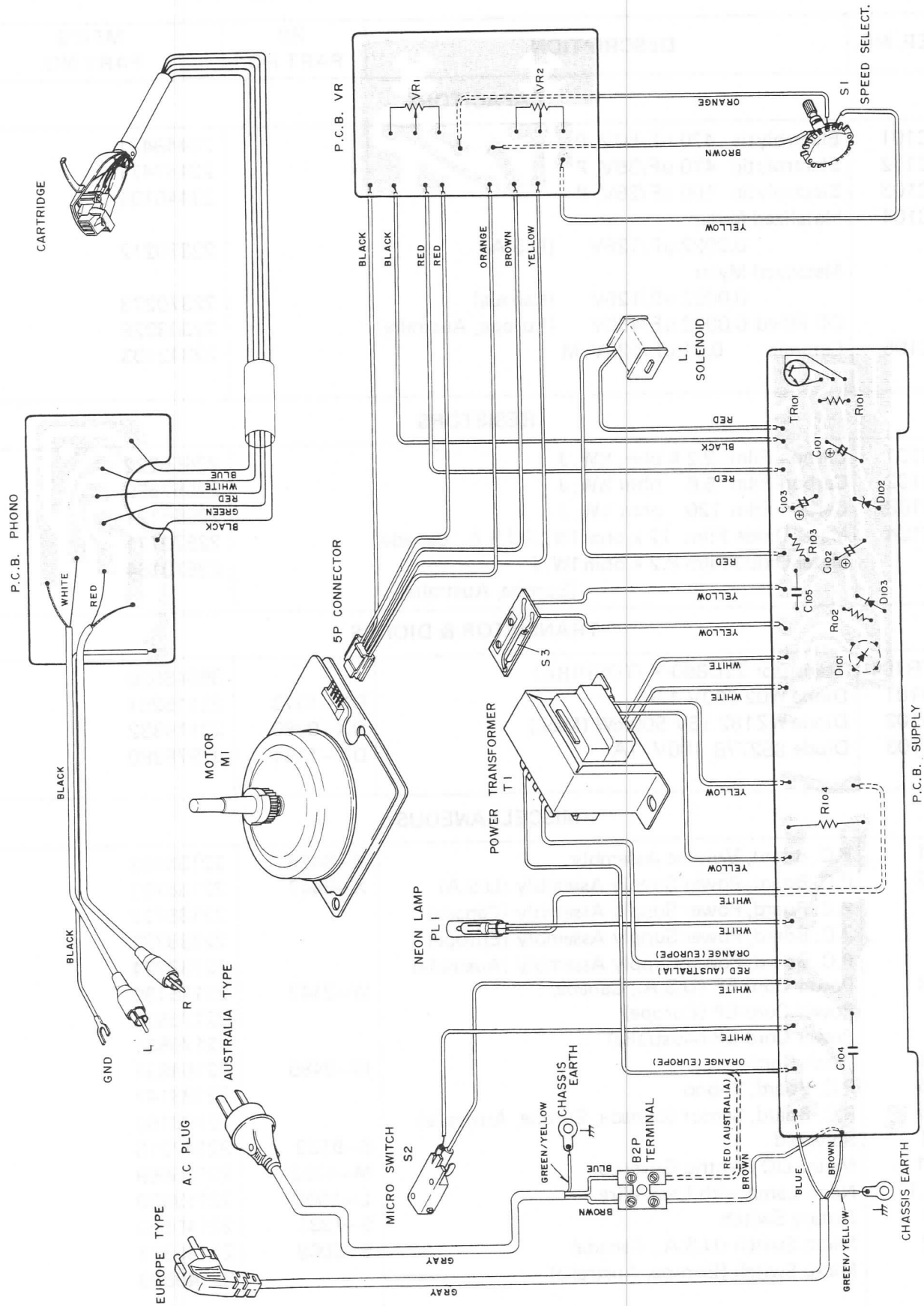
Trouble	Cause	Remedy
<b>Motor</b>		
Motor does not rotate.	<ol style="list-style-type: none"> <li>1. No power to Motor.</li> <li>2. Damaged Motor.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check leads of Power Circuit, Motor and Switch.</li> <li>2. Replace Motor.</li> </ol>
<p><b>CAUTION:</b> The Motor Assembly is precisely assembled and adjusted at the factory. An entire Motor should be replaced if there is a defective Motor Assembly.</p>		
<b>Tone Arm</b>		
Stylus causes jumping or improper tracking.	<ol style="list-style-type: none"> <li>1. Stylus pressure too light.</li> <li>2. Stylus worn out or damaged.</li> <li>3. External vibration.</li> <li>4. Cartridge case touches the surface of record.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust for specified pressure.</li> <li>2. Replace Stylus</li> <li>3. Install the player where there is no vibration.</li> <li>4. Excessive Stylus pressure. Adjust for specified value.</li> </ol>
<b>Sound</b>		
No sound, or only from one channel.	<ol style="list-style-type: none"> <li>1. Cartridge circuit open.</li> <li>2. Improper connection of Headshell and Tone Arm.</li> <li>3. Open lead between Headshell and Output Cord or mis-wiring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace Cartridge. Replace leads.</li> <li>2. Correct the connection. Check that the connection is free from oil, dust etc. and clean.</li> <li>3. Replace the lead (if the Tone Arm lead is open, replace the Pick-up assembly) or correct wiring.</li> </ol>
Distorted sound.	<ol style="list-style-type: none"> <li>1. Stylus worn out or damaged.</li> <li>2. Cantilever bent.</li> <li>3. Stylus pressure too light or heavy.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace Stylus.</li> <li>2. Replace Stylus.</li> <li>3. Adjust for specified pressure.</li> </ol>
Rumble or wow.	<ol style="list-style-type: none"> <li>1. Motor damaged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace the Motor Assembly.</li> </ol>
Hum.	<ol style="list-style-type: none"> <li>1. Cartridge is affected by electromagnetic field.</li> <li>2. Not grounded.</li> </ol>	<ol style="list-style-type: none"> <li>1. Keep equipment such as motors or transformers away from the Player.</li> <li>2. Connect ground lead to ground terminal of the Amplifier.</li> </ol>
Howling.	<ol style="list-style-type: none"> <li>1. Cartridge picks up vibration or sound pressure from speaker.</li> </ol>	<ol style="list-style-type: none"> <li>1. Install the player on a rigid table or in location where howling is minimized.</li> </ol>
<b>Auto Return/Auto-In</b>		
No Return.	<ol style="list-style-type: none"> <li>1. Defective proximity switch.</li> <li>2. Defective solenoid.</li> <li>3. Defective clutch.</li> <li>4. Poor alignment of Auto-return.</li> <li>5. Defective roter spring (47).</li> <li>6. Loose connection of Pickup Plate.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace.</li> <li>2. Replace.</li> <li>3. Replace.</li> <li>4. Align.</li> <li>5. Replace.</li> <li>6. Tighten the set screws on the Pickup Plate.</li> </ol>
Unsuitable auto-in or auto-returning position.	<ol style="list-style-type: none"> <li>1. Poor alignment of adjusting screws.</li> </ol>	<ol style="list-style-type: none"> <li>1. Align. See adjustment section.</li> </ol>
<b>Auto-Repeat</b>		
Abnormal auto repeat action.	<ol style="list-style-type: none"> <li>1. Defective pull springs on the Start levers (14).</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace.</li> </ol>
Abnormal repeat times.	<ol style="list-style-type: none"> <li>1. Defective pull spring on the Clutch lever (8).</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace.</li> </ol>

# 7. BOTTOM VIEW OF P.C. BOARD AND WIRING

7-1 FOR U.S.A./CANADA



7-2 FOR EUROPE/AUSTRALIA





## 8. 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.
<b>CAPACITORS</b>			
C101	Electrolytic 470 $\mu$ F/50V, P		22448471
C102	Electrolytic 470 $\mu$ F/35V, P		22447471
C103	Electrolytic 100 $\mu$ F/25V, P		22446101
C104	Metalized Mylar 0.0022 $\mu$ F/125V (U.S.A.)		22370212
	Metalized Mylar 0.0022 $\mu$ F/125V (Canada)		22370273
	Oil Filled 0.0022 $\mu$ F/450V (Europe, Australia)		22303029
C105	Ceramic 0.01 $\mu$ F/125V, M		22342103
<b>RESISTORS</b>			
R101	Carbon Film 2.2 k ohm $\frac{1}{4}$ W, J		22555222
R102	Carbon Film 5.6 ohm $\frac{1}{2}$ W, J		22557569
R103	Carbon Film 120 ohm $\frac{1}{4}$ W, J		22555121
R104	Metal Oxide Film 12 k ohm 1W, J(U.S.A., Canada)		22570171
	Metal Oxide Film 8.2 k ohm 1W, J (Europe, Australia)		22570164
<b>TRANSISTOR &amp; DIODES</b>			
TR101	Transistor 2SD880-Y (TOSHIBA)		36848520
D101	Diode W02 200V 1.5A	DX-1373	22115251
D102	Diode WZ182 18V 500mW (Max.)	DX-0980	22115332
D103	Diode S5277B 100V 1A	DX-1131	37978380
<b>MISCELLANEOUS</b>			
E1	P.C. Board, Volume Assembly	X-8455	22136463
E2	P.C. Board, Power Supply Assembly (U.S.A)	X-8447	22138721
	P.C. Board, Power Supply Assembly (Canada)		22138722
	P.C. Board, Power Supply Assembly (Europe)		22138723
	P.C. Board, Power Supply Assembly (Australia)		22138724
E3	Power Cord-EP (U.S.A., Canada)	W-2147	22176199
	Power Cord-EP (Europe)		22176516
	Power Cord-EP (Australia)		22176531
E4	Patch Cord	W-2485	22164834
E5	P.C. Board, Phono		22193147
E6	P.C. Board, Sensor (Canada, Europe, Australia)		22193169
L1	Solenoid	S-9132	22147215
M1	Motor DC Electric Governor	M-4552	22125569
PL1	Neon Lamp with Lead Wire	L-1008	22113450
S1	Rotary Switch	S-1331	22140550
S2	Micro Switch (U.S.A., Canada)	S-6069	22140321
	Micro Switch (Europe, Australia)		22140559



REF. NO.	DESCRIPTION	RS PART NO.	MFR'S PART NO.
S3	Proximity Switch (U.S.A.)	S-1395	22140583
	Proximity Switch (Canada, Europe, Australia)		22140615
T1	Power Transformer (U.S.A.)	TA-0803	22223516
	Power Transformer (Canada)		22223522
	Power Transformer (Europe)		22223532
	Power Transformer (Australia)		22223533
VR1, 2	Variable Resistor 16B 3 k ohm for Speed Adjust	P-2128	22622213

## 9. MECHANICAL PARTS LIST

REF. NO.	DESCRIPTION	RS PART NO.	MFR'S PART NO.
<b>CABINET PARTS</b>			
301	Cabinet (U.S.A.)	Z-5464	20847992
	Cabinet (Canada)		20848629
	Cabinet (Europe, Australia)		00848628
301-1	Hinge	RD-5836	20861706
302	Transformer Cover	RD-5813	20746984
303	Adaptor Holder	RD-5137	20746927
304	Lamp Cover	RD-5133	20846616
305	Lamp Lens	RD-5134	22833849
306	Panel	RD-5465	20713842
307	Special Rivet for Panel	RD-5815	20798756
308	Pickup Rest Assembly	RD-5816	20738730
309	Rest Stand	RD-5212	20738646
310	Pickup Arm Assembly	RC-6400	20731915
310-1	Counter Weight	RC-8057	20731930
310-2	Head Shell	RC-6364	20736629
311	Pickup Stand	RD-5817	20735687
312	Rubber Cap	RD-5213	20881768
313	Anti-skating Cam	RD-5818	20757758
314	Anti-skating Knob	RD-5819	20872610
315	Anti-skating Lever (Small)	RD-5820	20754767
316	Anti-skating Lever (Large)	RD-5821	20754768
317-1	Anti-skating Lever (Round)	RD-5822	20754769
317-2	Anti-skating Lever (Round)		20754824
318	Spring Plate for Anti-skating	RD-5330	22772572
319	Pull Spring for Anti-skating	RD-5823	22776661
320	Lifter Bar Assembly	RD-5824	20764772
321	Push Spring for Bar Lifter	RD-5825	22776641
322	Lift Shaft	RD-5826	20764788
323	Push Spring for Lift Shaft	RD-5827	22776642
324	Bottom Cover	Z-5466	20847997
325	Turntable	RC-4116	20723706
326	Dust Cover	Y-1529	20847985
327	Knob (Speed, Cue, Function, Size)	RD-5828	20871916

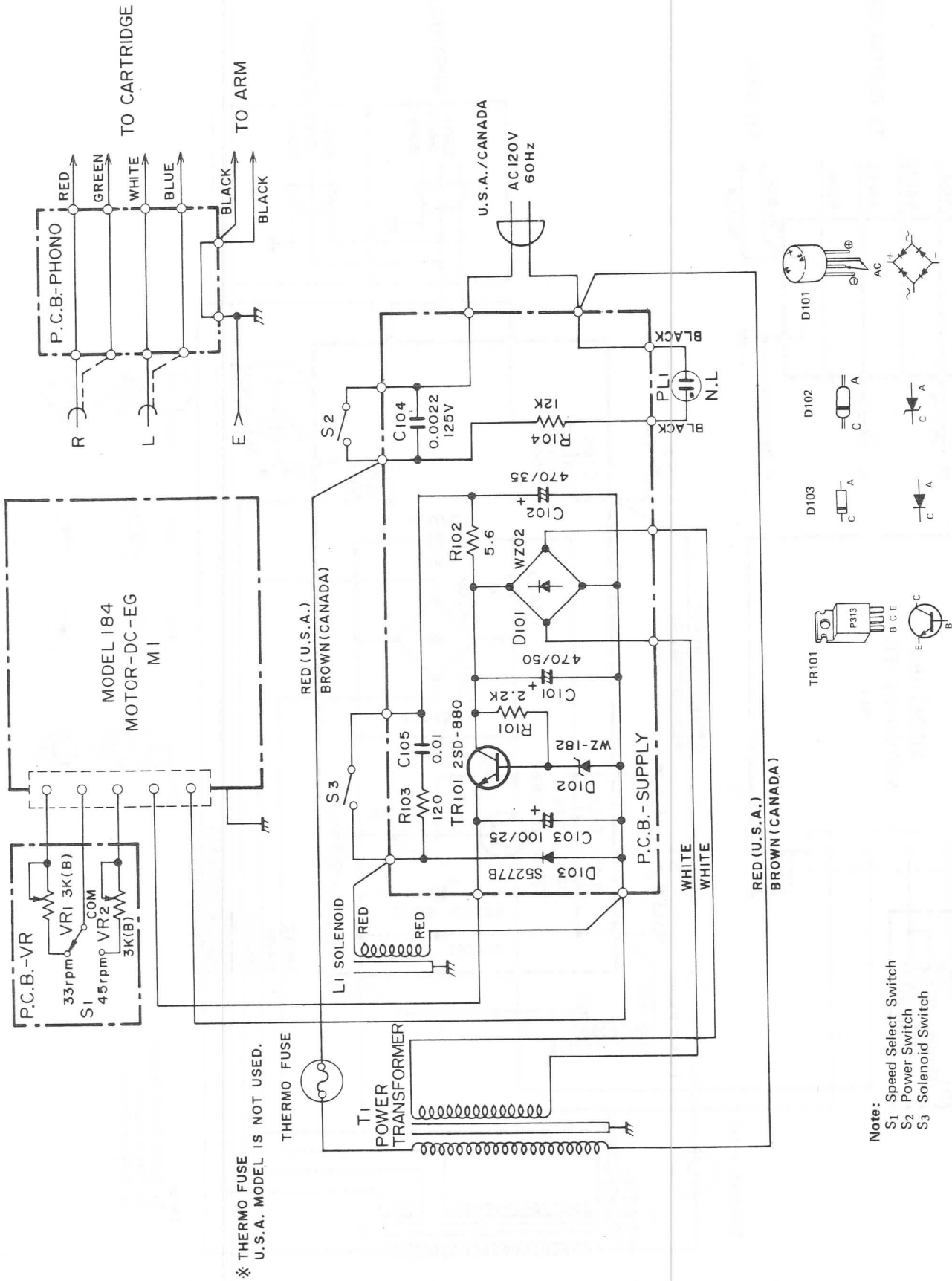
REF. NO.	DESCRIPTION	RS PART NO.	MFR'S PART NO.
328	Speed Adjust Knob	RD-5829	20871935
329	Repeat Knob	RD-5830	20872609
330	Foot	RD-5831	20842650
331	Cord Clamp		22184182
332-1	Mounting Screw	RD-5832	20794069
332-2	Washer		20791077
332-3	Nut		20796027
333	Table Sheet (U.S.A.)	RD-5833	20723726
333	Table Sheet (Canada, Europe, Australia)		22723729
334	Main Lable (U.S.A.)	RD-5834	22865776
	Main Lable (Canada)		22865784
	Main Lable (Europe, Australia)		22865785
335	Adaptor 45 r.p.m.	RC-7112	20971653
336	Bracket Switch	RD-5835	22755547
337	Lamp Holder	RD-5169	22755511
<b>MECHANISM PARTS</b>			
1	Chassis Assembly		20015793
2	Seesaw Lever	RD-5754	20754764
3	Seesaw Shaft	RD-5755	20764762
4	Pull Spring for Start Lever (Large) (U.S.A.)	RD-5756	22776622
	Pull Spring for Start Lever (Large) (Canada, Europe, Australia)		22772616
5	Pull Spring for Start Lever (Small)	RD-5757	22776629
6	Lever for Repeat	RD-5758	20754755
7	Pull Spring	RD-5759	22776626
8	Clutch Lever Assembly	RD-5760	20754763
9	Pull Spring for Clutch	RD-5761	22776625
10	Cam for Repeat	RD-5762	20757757
11	Bearing for Cam	RD-5763	20773891
12	Start Lever for Repeat (U.S.A.)	RD-5764	20754757
	Start Lever for Repeat (Canada, Europe, Australia)		20754818
14	Start Lever Assembly	RD-5765	20754775
15	Lever Assembly for Brake	RD-5766	20754766
16	Pin for Lever Assembly		22746604
17	Stop Lever		20754759
18	Pull Spring for Stop Lever	RD-5769	22776660
19	Select Shaft for Size Select		20764781
20	Torsion Spring for Size Select	RD-5771	20707770
21	Spring Plate for Select Shaft	RD-5772	20707761
22	Reject Lever	RD-5773	20754758
23	Pull Spring for Reject Lever	RD-5769	22776624
24	Cushion, Nylon Fiber		22756900
26	Lever Shaft for Lifter Bar		20764756
27	Joint for Lifter Shaft		22746602
28	Cam for Start	RD-5778	20757759

REF. NO.	DESCRIPTION	RS PART NO.	MFR'S PART NO.
		RD-5779	20707769
29	Torsion Spring for Lifter Shaft	RD-5780	20754756
30	Lever for Repeat	RD-5781	20707767
31	Torsion Spring for Start	RD-5782	22776655
32	Pull Spring for Repeat	RD-5849	20754761
33	Switch Lever for Auto-return		22776659
34	Pull Spring for Switch Lever	RD-5783	20757760
35	Lifter Cam for Manual Plate	RD-5784	20764771
36	Switch Shaft for Switch Lever		20773890
37	Bearing for Pickup Gear		20764758
38	Shaft for Pickup Gear	RD-5787	20754760
39	Switch Lever for Micro Switch	RD-5788	20764765
40	Reject Pole for Start Cam	RD-5757	22776629
41	Pull Spring for Switch Lever	RD-5790	20727645
42	Main Gear (Large Round)	RD-5791	20754770
43	Auto Clutch for Main Gear	RD-5792	20727648
44	Gear (Fan Shaped)	RD-5793	20727646
45	Pickup Gear (Small Round)	RD-5794	20754753
46	Turn Plate	RD-5795	22775529
47	Torsion Spring for Turn Plate	RD-5796	22740549
48	Gear Stopper	RD-5797	22776627
49	Pull Spring for Gear Stopper	RD-5798	20743968
50	Gear Guide	RD-5799	20754785
51	Switch Lever for Micro Switch (Small)	RD-5800	20754786
52	Switch Lever for Micro Switch (Right)	RD-5801	20754787
53	Switch Lever for Micro Switch (Left)	RD-5802	22776638
54	Pull Spring for Micro Switch		22753664
55	Spacer for Switch Lever	RD-5804	22752797
56	Special Washer	RD-5805	20754777
57	Manual Plate (U.S.A.)		20754823
	Manual Plate (Canada, Europe, Australia)	RD-5806	22776637
58	Pull Spring for Manual Plate	RD-5807	20754776
59	Guide Plate (U.S.A.)		20754821
	Guide Plate (Canada, Europe, Australia)	RD-5808	22748849
60	Barrier for Micro Switch	RD-5213	20881768
61	Rubber Cap	RD-5809	20754750
62	Pickup Plate Assembly	RD-5146	22102038
63	Magnet		22748794
64	Radiator	RD-5811	20735689
65-1	P.C. Board Bracket (Metal)		20735703
65-2	P.C. Board Bracket (Plastic)	RD-5333	22754981
66	Clamp Lug for Patch Cord		22755516
67	Clamp Lug for Lead Wire		22748865
68	Barrier for Supply P.C. Board (Australia)		22748783
69	Barrier for Terminal-B2F (Australia)		22162373
70	Terminal-B2P (Australia)		22161067
71	Lug 4 $\phi$ (Europe, Australia)		22161066
72	Lug 3 $\phi$ (Europe, Australia)		

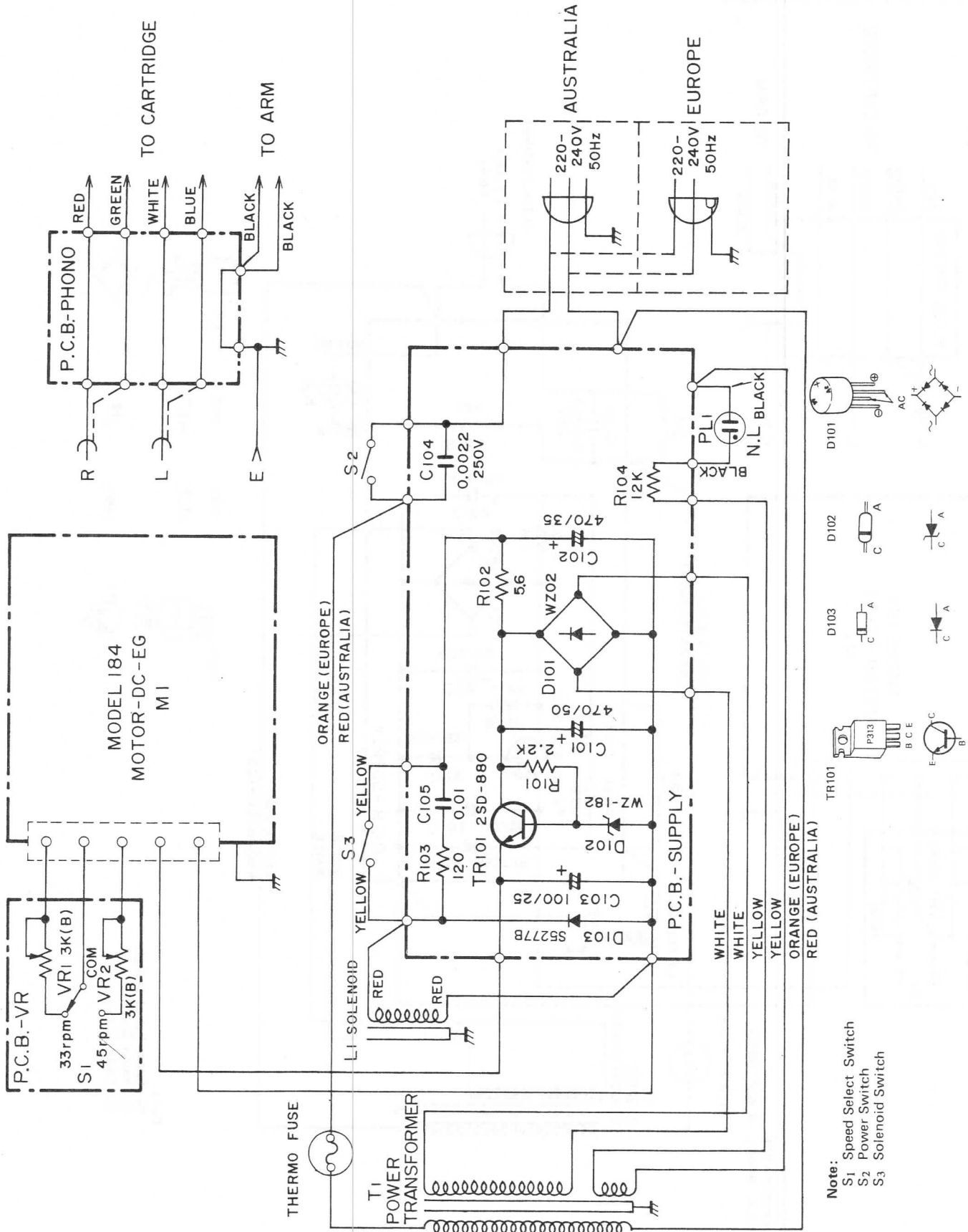
REF. NO.	DESCRIPTION	RS PART NO.	MFR'S PART NO.
<b>SCREWS</b>			
N1	Bind Head Tapping Screw, 3 x 5	RD-5161	72633005
N2	Bind Head Tapping Screw, 3 x 6 (U.S.A.)	RD-5186	72633006
N3	Bind Head Screw, 2.6 x 4	RD-5145	70432604
N4	Bind Head Screw, 2.6 x 3	RD-5235	22701679
N5	Bind Head Screw, 2.6 x 12		70432612
N6	Bind Head Screw, 3 x 16		70433016
N7	Bind Head Screw, 4 x 8		70434008
N8	Bind Head with Spring Washer, 3 x 8	RD-5837	20795986
N9	Flat Head Screw, 2 x 8 (Black)	RD-5838	22701755
N10	Pan Head Tight Tapping Screw, 3 x 6		20795857
N11	Pan Head Plastic Screw, 3 x 25	RD-5839	22701599
N12	Pan Head Cap Point Screw, 4 x 10 (Black)	RD-5130	20795919
N13	Pan Head Screw, 4 x 20 (Black)	HD-2090	22701745
N14	Pan Head with Spring Washer, 4 x 10	RD-5840	22701756
N15	Round Head Wood Screw, 3.1 x 8 (Black)	RD-3224	22701673
N16	Round Head Wood Screw, 3.1 x 13		74213113
N17	Round Head Wood Screw, 3.1 x 16		74213116
N18	E-Ring 1.5 $\phi$	RD-5842	74050015
N19	E-Ring 2.5 $\phi$	RD-5843	74050025
N20	E-Ring 3.0 $\phi$	RD-5232	74050030
N21	E-Ring 4.0 $\phi$	RD-5170	74050040
N22	CS-Ring 2.0 $\phi$	RD-5844	74060020
N23	Hexagon Nut 3mm	RD-5218	73653000
N24	Hexagon Nut 7mm	RD-5845	22702540
N25	Hexagon Nut 9mm	RD-5846	20796631
N26	Special Nut for Anti-skating	RD-5847	22702539
N27	Flat Washer 2mm		74001020
N29	Flat Washer 3mm		74001030
N30	Spring Washer 3mm		74010030
N31	Special Washer, 3.2 $\phi$ x 10 $\phi$ x 0.5t	RD-5848	22703553
N32	Flat Head Screw, 2.6 x 8		22701612
N33	Bind Head Tapping Screw, 2 x 8		72632008
N34	Bind Head Tapping Screw, 3 x 30		72633030
N35	Bind Head Tapping Screw, 2.6 x 5		72632605
N36	Bind Head Screw, 2.6 x 8		70432608
N37	Special Washer		22753673
N38	Special Washer		22753674
N39	Bind Head Tapping Screw, 3 x 16		72633016
N40	Special Screw FT (Europe, Australia)		20795896
N41	Lock Washer (Europe, Australia)		74022030
N42	Round Head Wood Screw, 31 x 8 (Black) (Canada)		22701612

# 10. SCHEMATIC DIAGRAM

10-1 FOR U.S.A./CANADA



10-2 FOR EUROPE/AUSTRALIA





# 11. EXPLODED VIEWS

