



PARTS LIST-Con't.

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
30	2221	Washer, Fibre			6901 Idler Link
31	2957	12" Record Selector			9330 Idler Tension Spring
32	1588	"C" Washer			6948 Counter Balance Spring
33	2580	Rubber Bumper			6947 Detent Spring
34	4172	Compression Spring			2773 Grommets
35	1652	"C" Washer			9032 Idler Pulley
36	1720	Speed Nut		7505	Tone Arm and Hinge Assy., Consists of:
37	2563	Spring-12" Record Selector			4923 Pivot Screw
38	6968	Die-Cast Frame	98		6001 Pivot Lock Screw
39	101	Screw-#10-24x5/16	99		7634 Lock Spring
40	3901	Reject Spring	100		7635 Lift Screw
41	2284	Control Shaft Assembly	101		6924 Hinge Spring
42	467	Switch	102		6965 Weight Adj. Spring
43	4938	Return Spring-Pick-up Arm	103		4922 Hinge Pivot Button
44	2931	Fibre Insulating Strip	104		7884A Tone Arm
45	6405	Locator and Bushing Assembly	105		6963 Tone Arm Clip
46	5828	Retainer Ring-Locator Plate	106		7477 Cartridge (Sonotone 9980)
47	2573	Switch Cover	107		9074 Screw-#2-56x1/8 Phillips
48	4212	Retainer-Switch Cover	108		Fillister Hd.
49	6892	Trip Finger Cam and Shaft Assy.		7500	Tone Arm and Hinge Assy., Consists Of:
50	6879	Retard Lever			9194 Knob Screw
51	6882	Lift Pin Spring			7635 Lift Screw
52	1588	"C" Washer			4072 Hinge Arm Assy.
53	6955	Set Screw-#8-32x1/4			4922 Hinge Pivot Button
54	5022	"C" Washer			4923 Pivot Screw
55	6885	Safety Spring			6001 Pivot Lock Screw
56	6874	Push Rod			6862-A-33 Turnover Knob
57	2579	Spring-7" Set-Down Lever			6865 Tone Arm
58	2581	7" Set-Down Lever			6866 Detent Spring
59	2274	Flat Washer-7" Set-Down Lever			7463 Cartridge (Shure PC-44)
60	4856	Screw-#6-32x1/4			7634 Lock Spring
61	6007	Reset Lever			6924 Hinge Spring
62	2925	Spring-Reset Lever			6963 Tone Arm Clip
63	492	Flat Washer-Reset Lever			6965 Adjusting Spring
64	4856	Screw-#6-32x1/4		7952	Tone Arm and Hinge Assy., Consists Of:
65	2579	Spring-Shut-Off Lever			9193 Cartridge Screw-3-48x5/16
66	6966	Shut-Off Lever Assy.			4072 Hinge Arm Assy.
67	6890	Muting Switch Bracket Assy.			3512 Cartridge (G. E.)
68	6880	Spring-Retard Arm			4922 Hinge Pivot Button
69	6713	Screw-#4-40Hex. Hd.			4923 Pivot Screw
70	6967	Gear Assembly			6001 Pivot Lock Screw
71	1588	"C" Washer			9031 Cartridge Knob
72	4172	Spring			6643 Hinge Spring
73	5339	Pawl Lever			6963 Tone Arm Clip
74	5338	Pawl Spring			6965 Adjusting Spring
75	2569	Trip Lever Assembly			7634 Lock Spring
76	4656	Trip Link			7635 Lift Screw
77	1588	"C" Washer			7459 Tone Arm
78	6970	Slide Assembly		6100	45 RPM Spindle-New Type
79	2246	Spring-Slide Bearing			Consists of
80	2211	Slide Bearing			6104-A4 Spindle Cap
81	4856	Screw-#6-32x1/2			6097 Spindle Clamp
82	6897	Record Support Shaft			6089 Separator Blade
83	6931	Record Support Guide Assy.	109		6093 Bolt Return Spring
84	4857	Screw-#6-32x3/8	110		6102 Actuator Lever Assy.
85	2274	Flat Washer	111		6088 Bolt
86	4856	Screw-#6-32x1/4			6093 Bolt Return Spring
87	6953	Ejector-Bracket Assembly	112		6087 Spindle Body
88	101	Screw-#10-24x5/16	113		5245 Screw, 4-40x7/8Fil.Hd.M.S.
89	2585	Spring-Escape Lever	114		6094 Fibre Washer
	6950	Motor Assembly Complete, 110V. -60C. -2Pole, Consists Of:	115		6096 Rotor
		6947 Detent Spring	116		5068 Spring-Rotor Lift
		6948 Counter Balance Spring	117		6095 Rotor Lift
		6949 Idler Spring	118		6099 Retainer
		6937 Idler Arm Assembly	119		
		6901 Idler Link	120		
		1652 "C" Washer	121		
		9092 Idler Pulley	122		
		6631 Motor Mtg. Grommet	123	6883	Thrust Washer
		Motor Assy. Complete, 110V. -60C. -4Pole 2 Coil, Consists Of:	124	5022	"C" Washer
		9033 Idler Mtg. Bracket Assy.	125	6945	Motor
			126	2583	Fiber Washer
			127	1652	"C" Washer
			128	6944	Motor Plate Assy.

V-M
MODEL 1200



Figure 1

GENERAL INFORMATION

V-M Model 1200 Tri-o-matic Record Changers are designed to play in automatic sequence a stack of records and shut off after playing of the last record.

As many as ten 12", twelve 10", or any assortment of 10" and 12" records (providing they are of the same speed and same type of groove) may be intermixed in any order.

A stack of twelve 7", 33 1/3 r. p. m. records or a stack of twelve 7", 45 r. p. m. records (with the use of a "45" Adaptor Spindle) will also play on this changer.

Record separation is accomplished by movement of a finger in the center spindle. This finger directly separates records having a 1/4" centerhole and actuates the knives and shelves of the centerpost used for the playing of 45 r. p. m. records having a 1 1/2" centerhole.

The tripping method used is the velocity type in which the trip link causes a trip pawl to engage a projection on the turntable hub and start the mechanism into cycle.

Connect this changer to an outlet supplying 117 volts, 60 cycle AC only, unless otherwise specified.

Manufactured by:

V-M Corporation
Benton Harbor, Michigan

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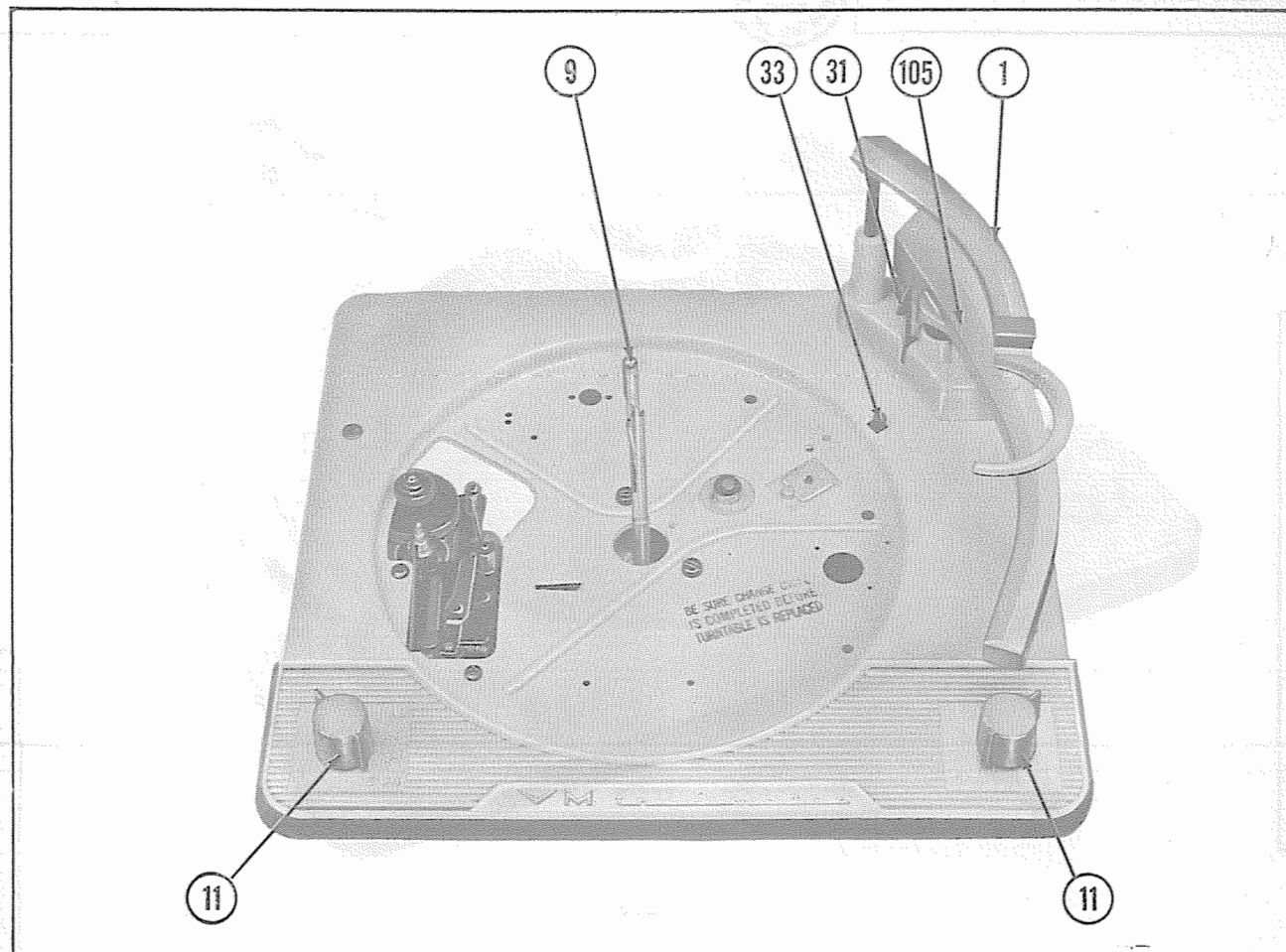


Figure 2

SPECIFICATIONS

Turntable Speed-

16 2/3, 33 1/3, 45, or 78 r.p.m.

Record Capacity-

Up to 12 seven-inch records.
Up to 12 ten-inch records.
Up to 10 twelve-inch records.
Up to 10 twelve and ten inch records intermixed.

CONTROLS

Two controls are provided on the baseplate, one on the right front corner and one on the left front corner.

The right-hand control is the Off-On-Reject control. Turning this control to the center or "On" position energizes the motor and starts the turntable, when turned to the right (clockwise) to the "Rej." position it starts the mechanism into complete automatic operation. The mechanism will shut off automatically after the last record has been played but can be shut off manually by turning this control to the left (counter-clockwise).

The left-hand control is the speed control. It has four normal positions, "16", "33", "45", and "S-78" to select the turntable speed desired. This control should be turned to the "S-78" position if the changer is not expected to be in use for an extended period of time.

PREPARING FOR OPERATION

Shipping Bolts-

Before placing in operation, the machine must be floated freely on the mounting springs. To float the changer, turn the two shipping bolts in a clockwise direction as far as they will go.

Leveling Record Changer-

It is essential to have the record changer absolutely level. Use a torpedo or similar type level on the record changer baseplate. Use adequate shims to level the record changer pan or combination cabinet to achieve perfect level.

OPERATING INSTRUCTIONS

Loading -

1. Pull straight up on record support knob (2) until record support clears spindle, swing support out over pick-up arm.

2. Place records on spindle and lower to offset shelf. Hold records level and replace record support over spindle.

TROUBLE CHART-Con't.

SYMPTOM	CAUSE	REMEDY
Needle does not set down on 12" record in proper position (refer to exploded view).	1. Diameter of 12" record undersize.	The set-down position of the needle for 12" records is determined by the edge of the record striking the 12" record selector (31). If a 12" record has a diameter of less than the standard size of 11-7/8" plus or minus 1/32", it may fail to depress the 12" record selector far enough.
	2. Enlarged center hole in record.	An enlarged center hole might fail to set the 12" record selector because it could produce the same effect as a small record.
	3. Pickup arm not adjusted properly.	(See "Adjustments") Page 7.
	4. Binding of pickup arm shaft and sleeve (49).	Clean and polish shaft (49) and lubricate with light oil.
	5. Reset lever spring (62) broken.	Replace spring (62).
	6. 12" record selector spring (37) broken.	Replace spring (37).
	7. 12" record selector (31) binding.	The 12" record selector must be free to operate smoothly. Clean out dirt and straighten if bent, or replace.
	8. Bent pickup arm return locator (45).	Straighten or replace.
	9. Bent trip finger cam (49).	Straighten or replace.
Needle does not set down on 7" record properly.	1. 7" set-down lever spring (57) broken or weak.	Replace.
	2. Pickup arm not adjusted properly.	(See Adjustments) Page 7.
	3. 7" set-down lever screw (60) loose.	Tighten.
	4. 7" set-down lever (58) hitting frame or baseplate where it goes through hole in frame.	Straighten or replace.
	5. Reset lever (61) bent.	Replace.

PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
	6000	Record Support Assy.(Complete), Consists of:	15	3887	Jam Nut #1/4x28
1		6932 Record Support	16	4937	Safety Spring
2		6864 Knob	17	3888	Lockwasher
3		6927 #4x1/4 Flat Head Screw	18	4339	Safety Plate
4		6928 Set Screws	19	4327	Lift Pin
5	7470	Cork Washer	20	4072	Hinge Arm Assembly
6	6958-A	Turntable Assembly	20A		Set-Down Adj. Screw (Part of Item 20)
7	6877	Bearing Washers	21	1719	"C" Washer
8	6876	Ball Bearing Retainer	22	6920-C	Escutcheon
9	6049	Spindle Shaft	23	5573-A31	Rest Post
10	6884	Ball Bearing	24	6916	Control Bushing
11	6918-A10	Control Knob	25	6936	Control Lever Assembly
12	2257	Pal Nut	26	6456	Mounting Bolt
13	101	Screw 10-24x3/8 Sems B. H.	27	2916	Screw (Rest Post Mtg.)
14	6929	Screw 8-32x3/16 B. H. M. S.	28	6919	Reject Rod
			29	1719	"C" Washer-Main Gear Assy.

TROUBLE CHART-Con't.

SYMPTOM	CAUSE	REMEDY
		record is not pushed completely off the ledge it may hang on the spindle momentarily, then drop on the pickup arm when it moves in over the turntable.
	3. Check that ball bearing(10) is not missing.	Replace.
Two records drop at once.	1. Hole in record too large.	Check the diameter of the hole in the record. An over-size hole will cause two records to drop at once.
	2. Spindle guide not fully down.	<p>If the spindle guide is not all the way down, more than one record may be dropped at a time.</p> <p>(a)Check the guide to be sure it is free and does not bind at any point. Clean out foreign matter or straighten if necessary. Do not oil.</p> <p>(b)When records are placed on the spindle, be sure the guide is all the way down. The guide will normally raise as a record is being dropped, but it should return to place immediately, by gravity.</p>
	3. Record pusher (56) defective.	The record pusher (56) may be deformed, etc. This may cause two records to drop at once. Replace with new pusher or replace spindle assembly.
	4. Slight play in spindle (9).	Tighten spindle set screw (53).
Record hits pickup arm (refer to exploded view).	1. Record finger not moving far enough forward to eject record.	(See "Record Does not drop when changer cycles").
	2. Record finger extending beyond outside diameter of spindle.	Cycle changer, by hand, until pusher shaft is at the top of its travel. Using new record as a gauge, pass it over the spindle to see if it binds at any point. File off high points on record finger with a fine file, until record will pass freely over spindle.
	3. Pickup arm not adjusted properly.	(See "Adjustments").
Needle does not set down on 10" record in proper position (refer to exploded view).	1. Pickup arm not adjusted properly.	(See "Adjustments").
		(a)Loose nut (15) on pickup arm shaft and sleeve (49).
	2. Pickup arm shaft and sleeve (49) binding.	File off burrs and rough surfaces. Polish and lubricate shaft.
	3. 7" set-down lever (58) and 12" record selector (31) not operating properly.	Insure that the proper operation and reset of the 7" set-down lever (58) and 12" record selector (31) is not being interfered with.
	4. Needle bent.	Replace with new needle.
	5. Wire spring (37) broken.	12" record selector (31) does not cock; check for broken 12" record selector spring (37).
	6. Bent pickup arm return locator (45).	Straighten or replace.
	7. Bent trip finger cam (49).	Straighten or replace.

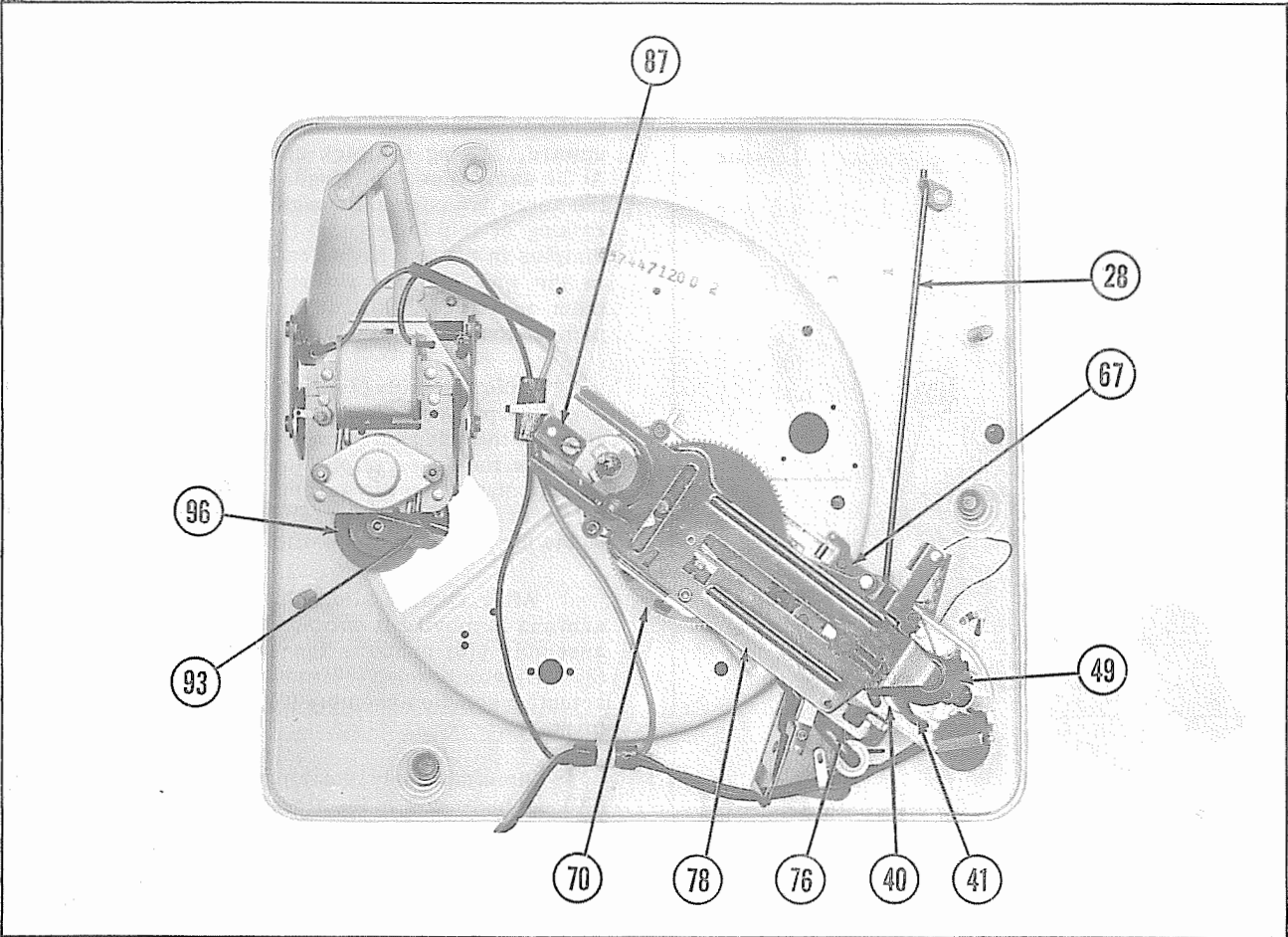


Figure 3

Starting—

To start the machine, after checking that the stylus and speed controls are in the position corresponding to type records to be played, turn "Off - On - Rej." knob to "Rej." and release. The changer will operate automatically until the last record has been played, at which time, the pick-up arm is returned to its rest and the supply to the motor is switched off.

Rejecting—

To reject a record at any time while the changer is operating, turn "Off - On - Rej." knob to "Rej." and release.

Stopping—

The changer may be stopped any time a record is playing by turning changer control knob to "Off." Lift pick-up arm and place on rest.

Unloading—

Lift record support clear of spindle and swing out over pick-up arm. Using both hands, with fingers under the edge of bottom record, lift records straight up and off spindle.

Manual Operation—

Records that do not have starting and fast-finishing grooves must be played manually. To play records

manually, lift the record support arm and swing to the right until clear of the turntable. Place record on spindle and lower to spindle shelf. Tilt record down toward left front of baseplate and lower to turntable. Turn changer control knob to "On" position only. Gently place needle on record.

Repeating Of 7", 10", Or 12" Records—

To repeat a record, swing record support clear of turntable, place record on turntable and start changer. Record repeats until control is turned "Off". If a 12" record is repeated, wait for the changer to finish cycling and reposition the pick-up arm manually to the 12" position.

CHANGE CYCLE

It is recommended that the change cycle operation be observed by rotating the turntable by hand. The action described below can then be readily followed and the function of each part more easily understood.

This changer is provided with what is known as velocity trip mechanism. The change cycle is started by the faster inward motion of the pick-up arm when the needle enters the trip grooves at the end of the record. Only records having fast-finishing grooves will operate this trip.

The pick-up arm and hinge assembly, and trip finger cam and shaft assembly (49) are secured together

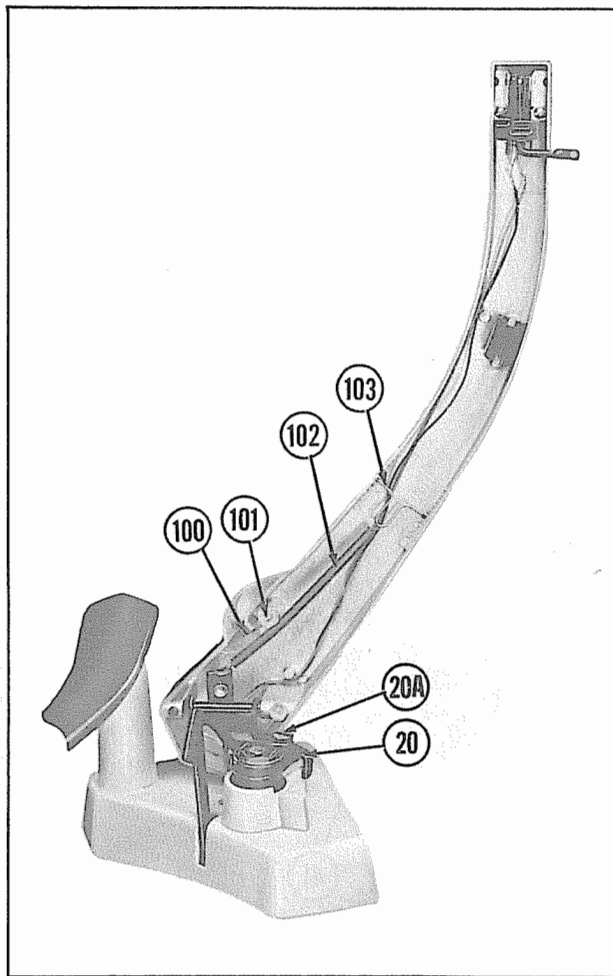
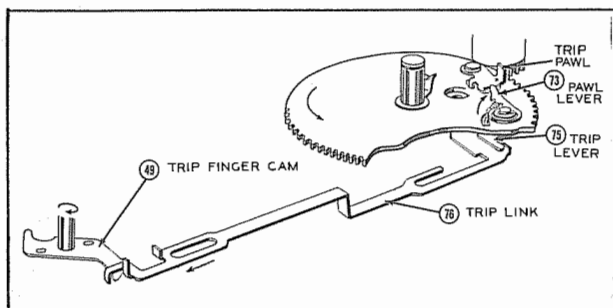


Figure 4

so that they move in unison, as the pick-up arm nears the end of a record, trip finger cam (49) pushes trip link (76), which, in turn, engages and pivots trip lever (75). As trip lever (75) pivots, pawl lever (73) pivots with it and carries the trip pawl toward the hub on the turntable. While a record is playing, the small motions of the trip pawl are not sufficient to cycle the mechanism because on each revolution of the turntable the wiping contact by the hub projection moves the trip pawl back to clear the projection.



In the first revolution of the turntable during which the pick-up arm advances rapidly, the trip pawl is moved far enough to definitely engage the projection on the turntable hub. The contact between the trip pawl and the turntable hub projection gives the necessary push for the teeth in main gear (70) to engage the teeth in the turntable hub, thus causing main gear (70) to rotate. This in turn, starts the lateral travel of the slide assembly (78). The slide assembly (78) moves to the rear thru the action of an eccentric mounted pin

on main gear (70), which rides in the cross slot on the slide assembly (78).

As the slide assembly begins to move, the cam surface on the rear of the slide pushes lift pin (19) upward, raising the pick-up arm clear of the record. At the same time, trip finger cam (49) is pushed up by the force transferred through lift pin spring (51). The raising of trip finger cam (49) causes the two formed dimples in the trip finger cam to engage the two holes in the pick-up arm return locator (45), and couple them together. This directs the movement of the pick-up arm during the change cycle.

Slide assembly (78) continues to move away from the centerpost until the formed end of slide (78) pushes against the pick-up arm return locator (45). This relieves the force of pick-up arm return locator (45) against shut-off lever assembly (66), permitting shut-off lever spring (65) to return the shut-off lever (66) to the normal (raised) position.

After cycling slide (78) has raised the pick-up arm and is moving it outward, the tab on front of slide assembly (78) contacts the ejector bracket assembly (87). Ejector bracket (87) moves push rod (56) upward, actuating spindle assembly (9), to drop a record to the turntable.

Simultaneously, the trip pawl on top of main gear (70) contacts and rides along the curved finger of the muting switch bracket assembly (67). This action moves the trip pawl and its associated levers into a neutral position. This prevents the trip pawl from re-engaging with the projection on the turntable hub which would start a new change cycle.

At this time, the cam surface of the bracket located on top of main gear (70) moves reset lever (61) to its mid-position (10" set-down) where it is held by the 12" record selector (31). Slide assembly (78) continues to the rear and then starts forward.

If 7" records are being changed, the rubber bumper (33) on 7" set-down lever (58) is free to move upward. This action of 7" set-down lever (58) raises reset lever (61) to the upper position (7" set-down).

If 10" records are being changed, the 7" set-down lever (58) will not operate as the rubber bumper (33) will contact the edge of the 10" record and reset lever (61) will remain in the mid-position (10" set-down) as originally placed by the camming action of the bracket on top of main gear (70).

When a 12" record drops to the turntable, it strikes the 12" record selector (31) and forces it backward. This disengages the end of reset lever (61) from the edge of the 12" record selector (31) and permits the reset lever (61) to drop down into the recess at the bottom of the 12" record selector (31). This position of the reset lever (61) causes it to engage the bottom step of the pick-up arm return locator (45) and will push the pick-up arm to land on the edge of a 12" record.

As the slide assembly (78) continues forward, the tab on the rear of the slide moves clear of the pick-up arm return locator (45) and the trip finger cam (49), which are still locked together. This action permits the pick-up arm return spring (43) to move the pick-up arm inward until one of the three set-down

TROUBLE CHART-Con't.

SYMPTOM	CAUSE	REMEDY
	2. Vertical defects.	(a) Lift pin (19) binding; clean out dirt and lubricate. (b) Slide and cam (78) binds; check bearing points--clean and lubricate. (c) Burrs in main slot in slide and cam (78)--remove with fine file. (d) Ejector lever on ejector bracket assembly (87) binding straighten, remove burrs, and lubricate. (e) Pickup arm shaft and sleeve binding; clean and lubricate.
Noise during change cycle.	1. Tines on the forked end of the slide and cam assembly (78) bent. 2. Lack of lubrication Grinding noise.	Replace. Lubricate ejector lever (87) where it contacts lower end of spindle (56).
Control knob does not detent on "33", "45", or "78" positions.	1. Detent spring off or broken.	Replace.
Cartridge drags on record.	Needle bent. Cartridge mounting screws loose.	Replace needle. Tighten.
Shuts off when last record drops.	1. Shut-off bracket (83) bent. 2. Record support bent. 3. Loose shut-off lever assembly (66).	Straighten or replace. Bend down slightly so record support (1) is parallel with the base plate. Tighten.
Will not play manually.	1. Trip link (76) bent. 2. Trip finger cam (49) bent.	Straighten or replace. Straighten or replace.
Impossible to adjust set-down.	1. Pickup arm shaft and sleeve assembly (49) defective.	Shift the safety plate (18) toward the eccentric set-down adjusting screw (20A), and tighten pickup arm shaft and sleeve nut (15). Hold pickup arm against rear stop and push on trip finger cam (49). The safety plate (18) should move away from the set-down adjusting screw (20A) and snap back when the trip finger cam (49) is released; if it does not, replace the pickup arm shaft and sleeve assembly (49). Hinge pivot screws may be adjusted favoring one side or the other.
Record does not drop when changer cycles.	1. Spindle pusher shaft (56) broken, or bent. 2. Record finger in spindle not moving far enough to eject a record.	Replace push shaft (56). The record finger should move forward until it has reached a point flush with, or a maximum of, .010 beyond the spindle body (9). To insure that the record finger is all the way forward, push rod (56) should be raised high enough by the ejector lever to slightly compress the pusher spring (See "Turntable Stalls During Cycle"). If the spring is compressed and the record finger does not move far enough forward to eject a record, the spindle (9) should be replaced. If a

TROUBLE CHART-Con't.

SYMPTOM	CAUSE	REMEDY
		ler. If the surface of the rubber tire is not smooth and even, replace the part. Should the bearing of the idler wheel show signs of excessive wear or be extremely wobbly, the idler wheel should be replaced.
4. Defective record.		Worn or defective records cause needle scratch and distortion of the recorded sound. If the record is warped , it may slip on the other records causing "Wow" (a waver in the recorded sound). An enlarged hole in the record can also cause "Wow".
5. Turntable scrapes.		If a scraping sound occurs as the turntable revolves, check: <div> (a) Turntable warped, causing outer rim to rise and fall. (b) Motor idler or mounting plate bent. </div>
6. Squeaks.		Squeaking sound as changer operates indicates lack of oil. Lubricate points indicated under "Lubrication".
7. 7" lever (58) loose.		Check 7" lever washer (59) and screw (60) to see if they are tight.
Distortion of recorded sound.	1. Defective record.	(See "Noise During Playing of Record").
	2. Defective amplifier.	Check phonograph amplifier and speaker.
	3. Bad Cartridge.	Replace.
	4. Bad Needle.	Replace.
No Sound During Play-ing.	1. Defective cartridge.	Replace.
	2. Defective wiring.	Check pickup leads for a shorted or open lead.
	3. Defective amplifier.	Check phonograph amplifier and speaker.
	4. Loose cartridge ter-minal clips.	Remove, squeeze together slightly, and replace.
Excessive record wear.	1. Binding on pickup arm.	(See "Needle Does Not Track Across Record Properly").
Changer does not shut off after last record has been played (refer to exploded view).	1. Record support binding (1).	The record support must drop below the off-set shoulder of the spindle or the changer will not shut off.
	2. Lever assembly binding (66).	Clean out dirt and make sure this operates smoothly.
	3. Shut-off bracket binding.	Check bracket and if bent, straighten.
	4. Shut off lever not engaging locator.	Adjust tab on slide that rotates the locator and trip finger when unit is cycling.
Rough pickup arm motion.	1. Horizontal defects .	(a) Check pickup arm return locator (45) for tightness. (b) Check that pickup arm return spring (43) is not weak and is hooked up properly. (c) Check that fiber washer (43A) is installed under pickup arm return locator.

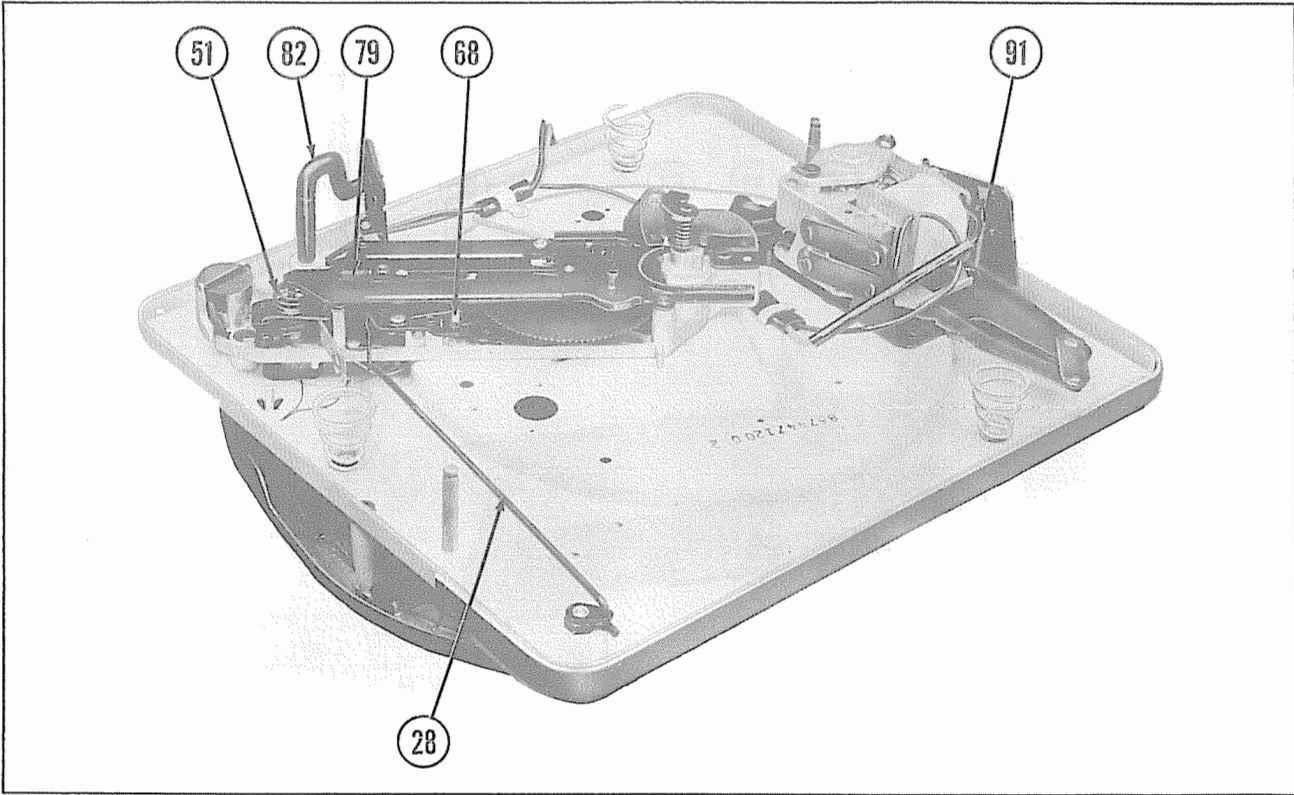


Figure 5

steps in the pick-up arm return locator (45) strike the reset lever (61), which has been positioned by the record being changed (see above). This stops the inward movement of the pick-up arm directly above the point of landing. The pick-up arm is then lowered to the lead-in groove of the record as the lift pin (19) rides down the incline on the rear of the slide assembly (78). As the pressure is released from lift pin spring (51), trip finger cam (49) and pick-up arm return locator (45) separate. This permits the pick-up arm to move freely across the record.

After the mechanism has been tripped it again follows the preceding sequence of cycling and playing the records until the last record of the stack has been played.

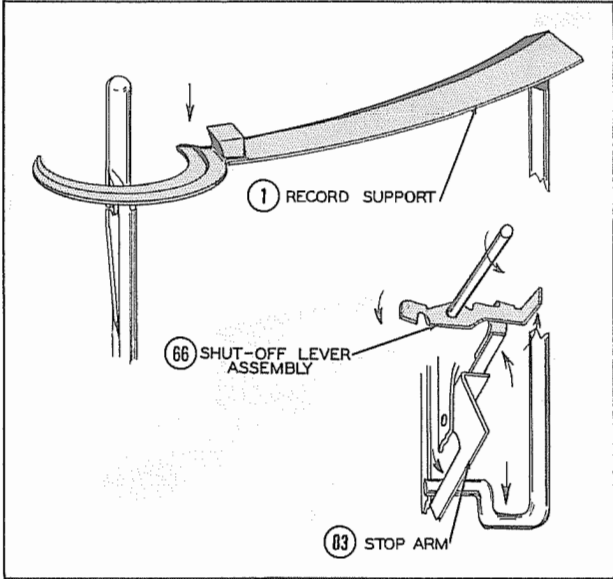


Figure 6

As the last record of the stack drops to the turntable the record support (1) drops below the shelf on the spindle assembly (9) and the lower end of record support shaft (82) contacts the stop arm on the record support guide assembly (83). This stop arm in turn applies force to shut-off lever (66). At this moment the cycling slide (78) is in the outermost position (away from centerpost) and the end of the shut-off lever (66) is forced against the escape lever (78A) which prevents it from lowering further. (See Figure 6)

As the cycling slide (78) returns to the out of cycle position the end of shut-off lever (66) slides off the escape lever (78A) permitting the end to extend down through the slot in the cycling slide. At this time the pick-up arm has rotated too far to be blocked by the other end of the shut-off lever (66) and the pick-up is permitted to land on the record.

After the last record has been played the mechanism again goes into change cycle, and the cycling slide (78) moves into its outermost position. At this moment the force which has been applied to the shut-off lever (66) from the record support shaft (82) causes the end of shut-off lever (66) to lower, thus extending further through the slot in cycling slide (78). The other end of shut-off lever (66) raises and blocks the pick-up arm return locator (45) which at this moment is held back by the cycling slide (78).

As the cycling slide (78) moves back toward the centerpost, it carries the raised trip link (76) along until finally the formed end of the trip link (76) pushes control lever (41) which in turn actuates power switch (42). This removes power from the motor and the mechanism stops.

As the slide assembly moves to the out of cycle position, lift pin (19) rides down the incline and lowers the pick-up arm to the rest post (23).

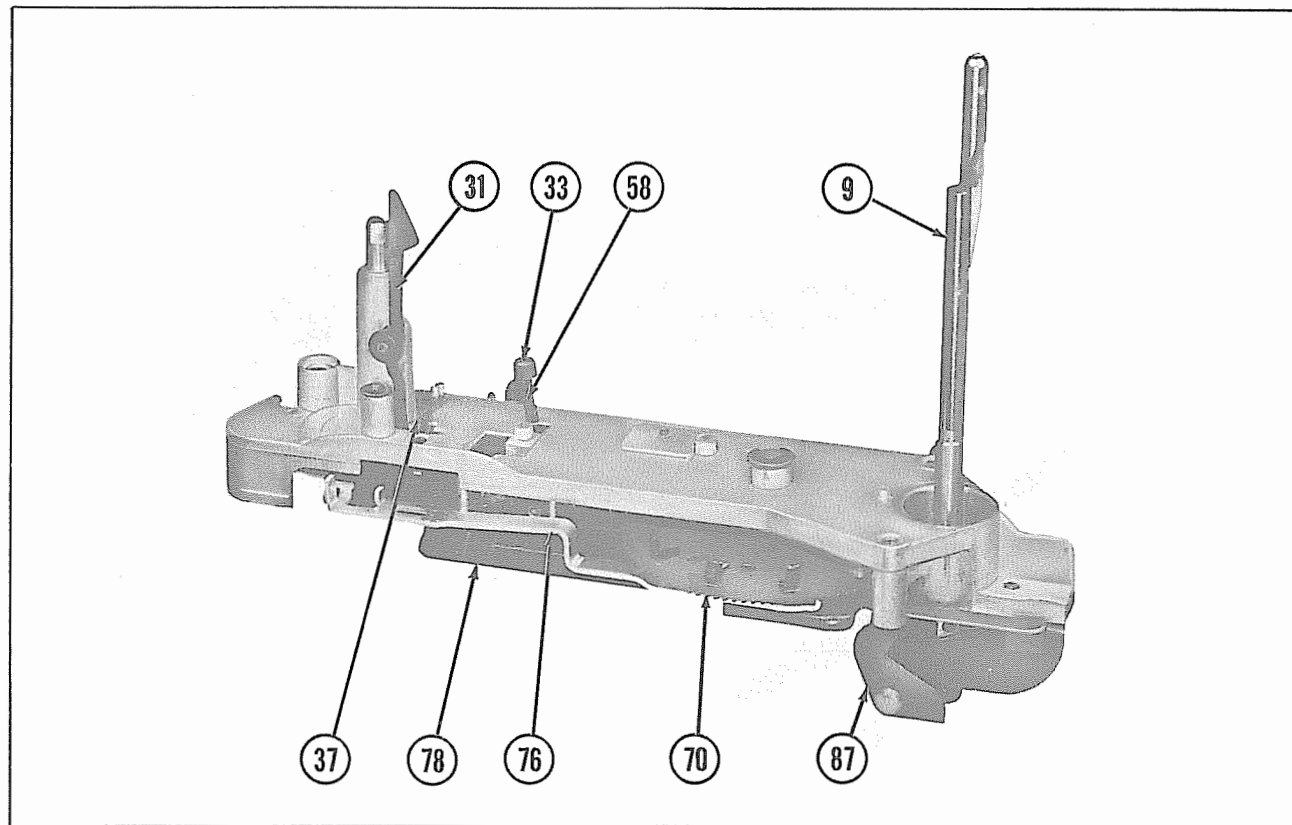


Figure 7

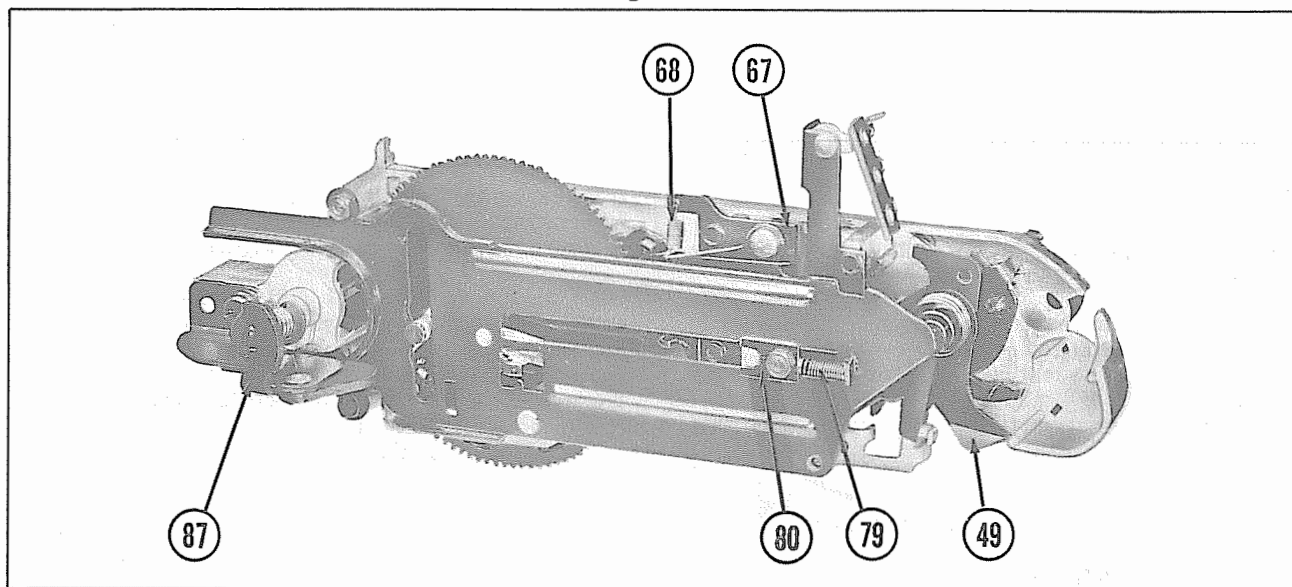


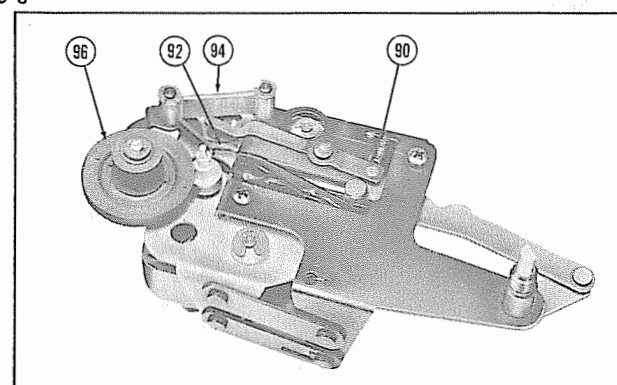
Figure 8

LUBRICATION

Additional lubrication should not be required for the life of the changer, but in cases of unusual use or high-operating temperature, the changer should be lubricated as follows: (Refer to the exploded view).

Apply Andok "B" or Texaco Sta-Put to:

1. Edges of all slots in slide assembly (78).
2. Outer edges of tines on forked end of slide assembly (78).
3. Lift pin cam surface on slide assembly (78).



Top View - Motor Assembly

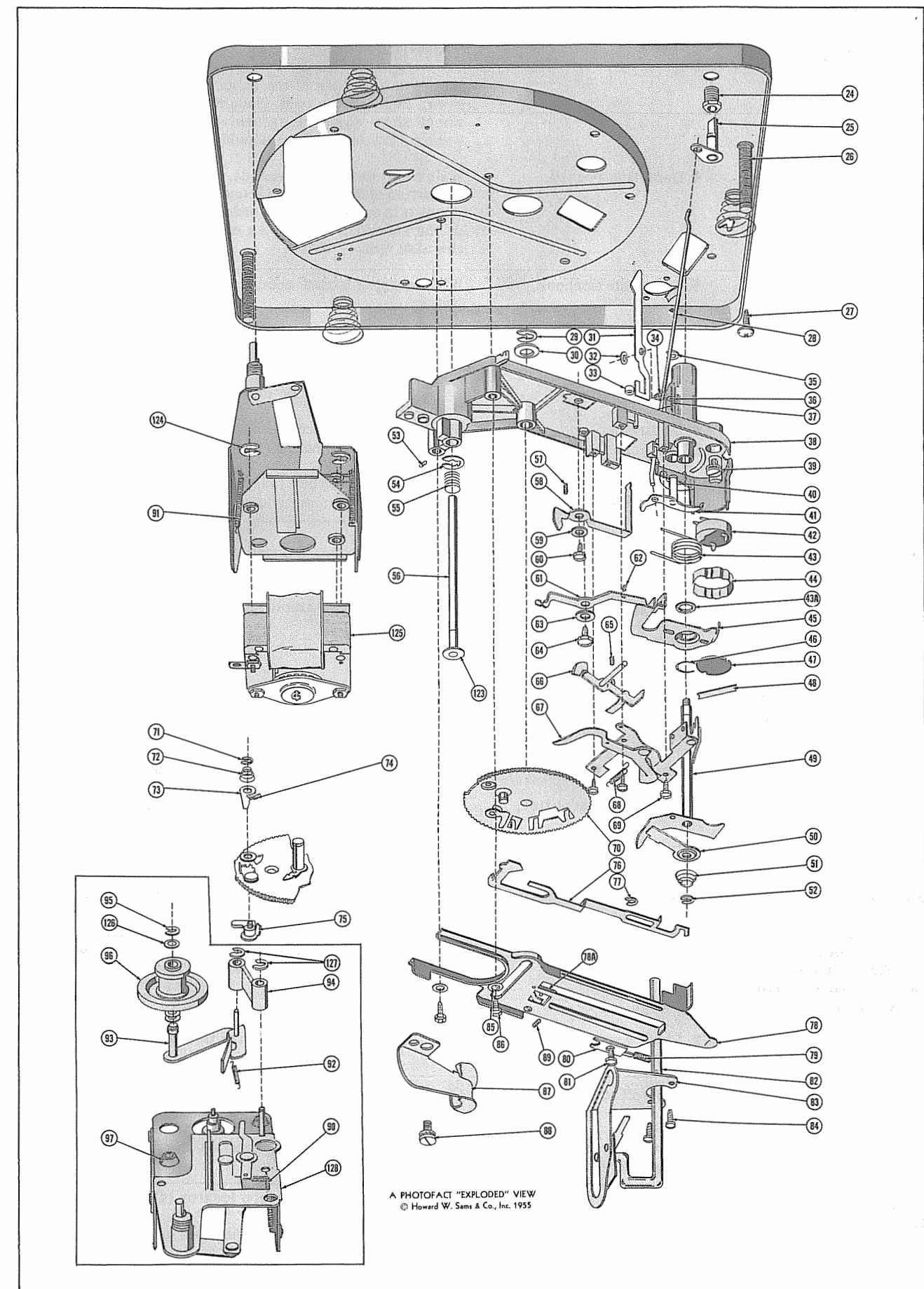
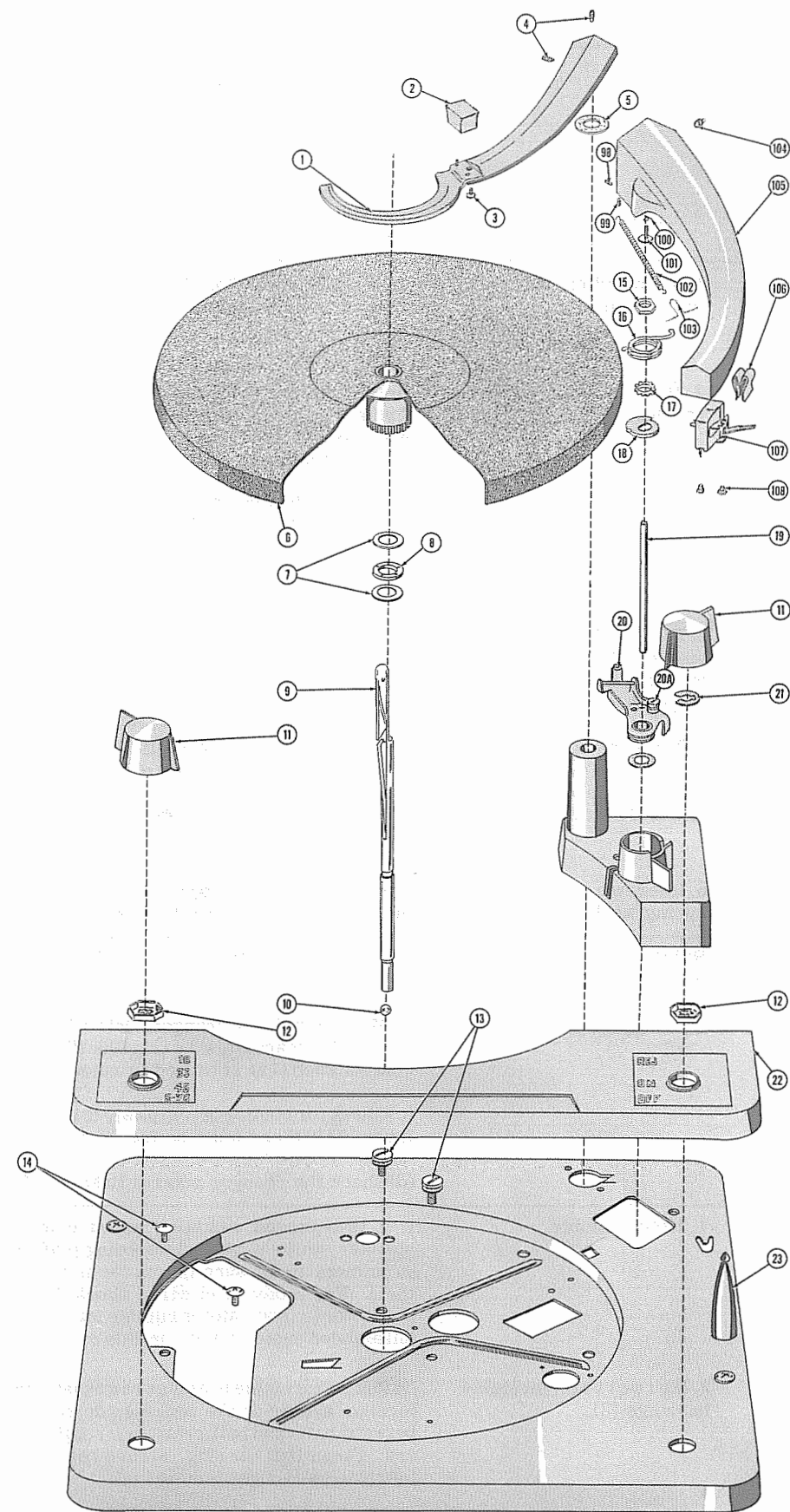


Figure 10B. Exploded View Of Parts Below Baseplate.



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Figure 10A. Exploded View Of Parts Above Baseplate.

4. Lower surface of pick-up arm return locator (45).
 5. Inner surface of tab on rear of slide assembly (78).
- Apply a small quantity of light mineral oil to:
1. Trip finger cam shaft (49).

ADJUSTMENTS

Needle Set-Down (Refer to Figure 4)-

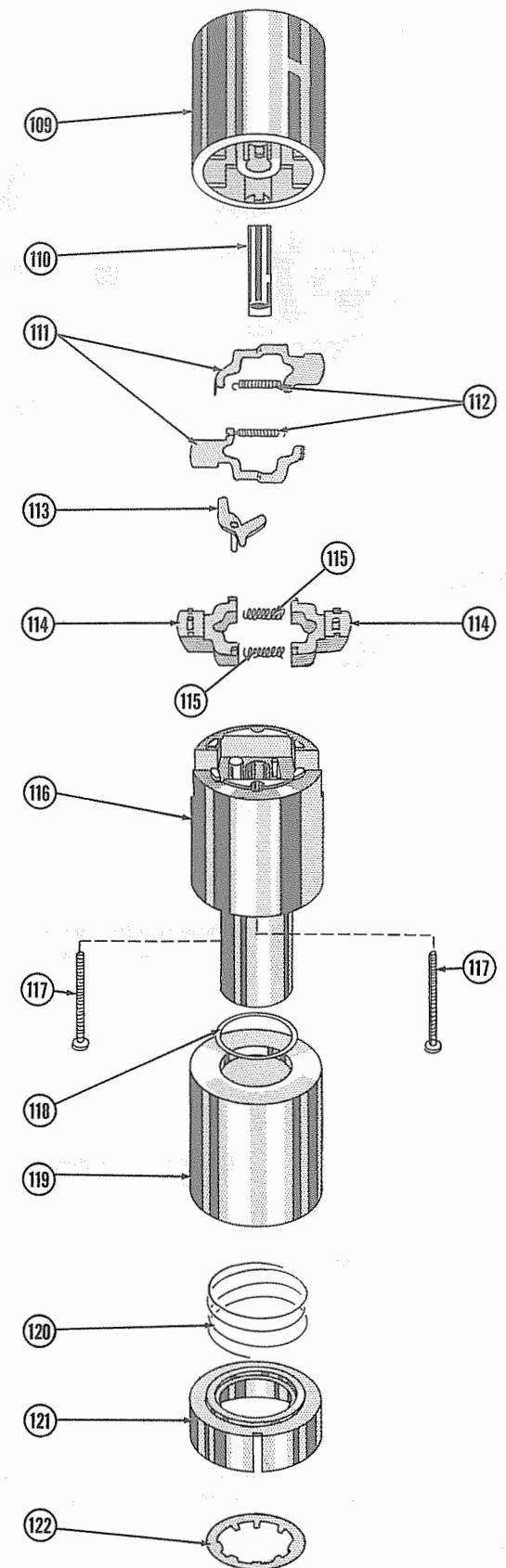
The set-down position of the needle is adjusted by means of the set-down adjustment screw (20A) mounted on the hinge arm assembly (20). Turn this screw adjusting pick-up arm for correct set-down on a 10" record. When the correct set-down is obtained for the 10" position, the 12" and the 7" needle set-down will also be correct.

Pick-up Arm Height (Refer to Figure 4)-

The pickup arm height is adjusted by the lift screw (101). To raise the height of the pick-up arm, turn this screw counterclockwise. To lower the pick-up arm, turn clockwise. The pick-up arm height should be adjusted so that with a 1 1/8" stack of records on the turntable the pick-up arm lifts 1/4" straight up as the change cycle starts.

Needle Pressure (Refer to Figure 4)-

The needle pressure should be between 8 and 10 grams. Adjustment is made by placing weight adjusting spring (103) in the slots, on the underside of the pick-up arm, which give the desired pressure.



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Exploded View Of 45 RPM Spindle.

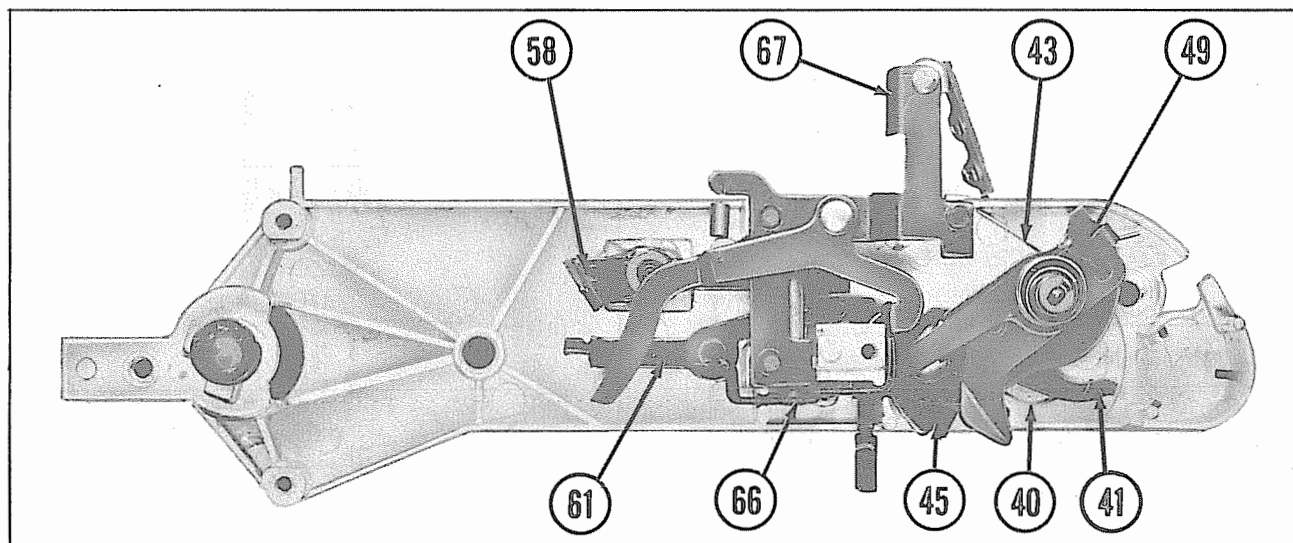


Figure 9

TRouble CHART

SYMPTOM	CAUSE	REMEDY
Turntable does not revolve when control is turned to "On".	1. No current at motor.	(a)Check that current is reaching AC leads of changer. (b)Check that switch is closing. (c)Check wiring and soldered terminals in the changer.
	2. Motor defective.	(a)Remove turntable to allow motor to operate without load. If current is reaching motor and drive spindle does not rotate, the motor is defective. Repair or replace.
	3. Motor idler wheel not engaging turntable rim.	If drive spindle is turning but turntable is not: (a)Check motor idler assembly to determine if it is free to contact the drive spindle and turntable rim. (b)Wipe off inside rim of the turntable (6) to remove flock, or if oily, clean the turntable rim and rubber tire of the idler wheel with naphtha or alcohol.
	4. Motor not in detent completely.	Check speed change slide for freedom of operation.
Changer does not cycle when the control knob is turned to the "Rej".	1. The manual reject not actuating the trip.	(a)Turn the control knob (11) to the reject position, hold and see that the control shaft assembly (41) has moved the trip link (76) to the rear. This should actuate the trip pawl on the main gear (70) which will bring the spur on the trip pawl in contact with the hub gear on the turntable hub. (b)Check for binding of the pawl lever (73), the trip lever assembly (75) and the trip pawl. If binding occurs, clean out all foreign matter and check for freedom.
Control knob cannot be turned to "On" position.	1. Machine shut off during cycle.	Turn the turntable clockwise, by hand, until the control knob (11) is free.
Pickup arm strikes records on spindle when it raises, or pickup arm rest when it moves out.	1. Pickup arm height not adjusted properly.	(See instructions for adjusting pickup arm height under "Adjustments").

TRouble CHART-Con't.

SYMPTOM	CAUSE	REMEDY
Turntable speed too slow (refer to exploded view).	1. Binding in turntable bearing.	Check the turntable bearing for freedom. Hold the motor idler wheel out of engagement with the turntable and spin the turntable, by hand, to see if it turns readily and coasts for a long time. If binding occurs, remove turntable, clean off foreign matter, and lubricate with light mineral oil.
	2. Line voltage too low.	The line voltage should not be less than 105 volts or the turntable may be too slow.
Turntable stalls or slows down during cycle; refer to exploded view.	1. Motor idler not engaging turntable.	1.(See "Turntable Does Not Revolve When Control Knob is Turned to "On" Position"). Hold idler away from turntable, or remove idler wheel. Cycle machine by turning turntable slowly by hand. The main gear should turn freely for the complete revolution without binding at any point. (a)If binding occurs, check for foreign matter in the gear teeth, a bent gear bearing, or bent spindle bushing. Straighten or replace. Clean lubricate.
	2. Binding in drive mechanism.	Lift pin should ride freely on cam surface without binding.
	3. Binding between pickup arm lift pin (19) and lift pin cam surface on slide and cam assembly.	When everything checks all right, but the changer still stalls in cycle, the motor may be weak.
	4. Motor weak.	1. Wipe off idler wheel rubber tire; inner rim of turntable and pulley tires with naphtha or alcohol.
	5. Grease on idler wheel.	Replace spring or bend motor tension spring anchor bracket to give desired tension.
	6. Idler wheel tension spring weak.	
Changer continues to cycle.	Reject mechanism binding.	(a)Make certain the trip link (76) is not frozen in the reject position. (b)Make certain the changer control lever (41) is not binding and that it actuates the trip link (76) when the changer control knob (11) is turned to reject. (c)Check for binding of trip pawl, trip lever (75) and pawl lever (73); these must be free to turn easily. (d)Check the changer control linkage, (28) and (41).
	1. Motor rumble.	If a low-pitched rumbling sound comes from the loud speaker while a record is being played, check motor grommets to be sure the motor is freely suspended on them. The motor lead wires should have slack to allow the motor to float. Motor rumble may also come from an unbalanced motor rotor; in this case, replace the motor.
	2. Defective turntable bearings (8).	Defective turntable bearings can cause rumble. Check for foreign matter in the bearing, defective balls, binding between balls and ball retainer; rough surface on washers. Clean ball bearing, sleeve bearing, and washers; lubricate with light mineral oil.
	3. Defective motor idler wheel.	A rapid thumping sound while the motor is running may indicate a flat spot on the motor idler wheel. If this condition does not clear up after ten minutes of running time, remove the turntable and check the rubber tire on the id-