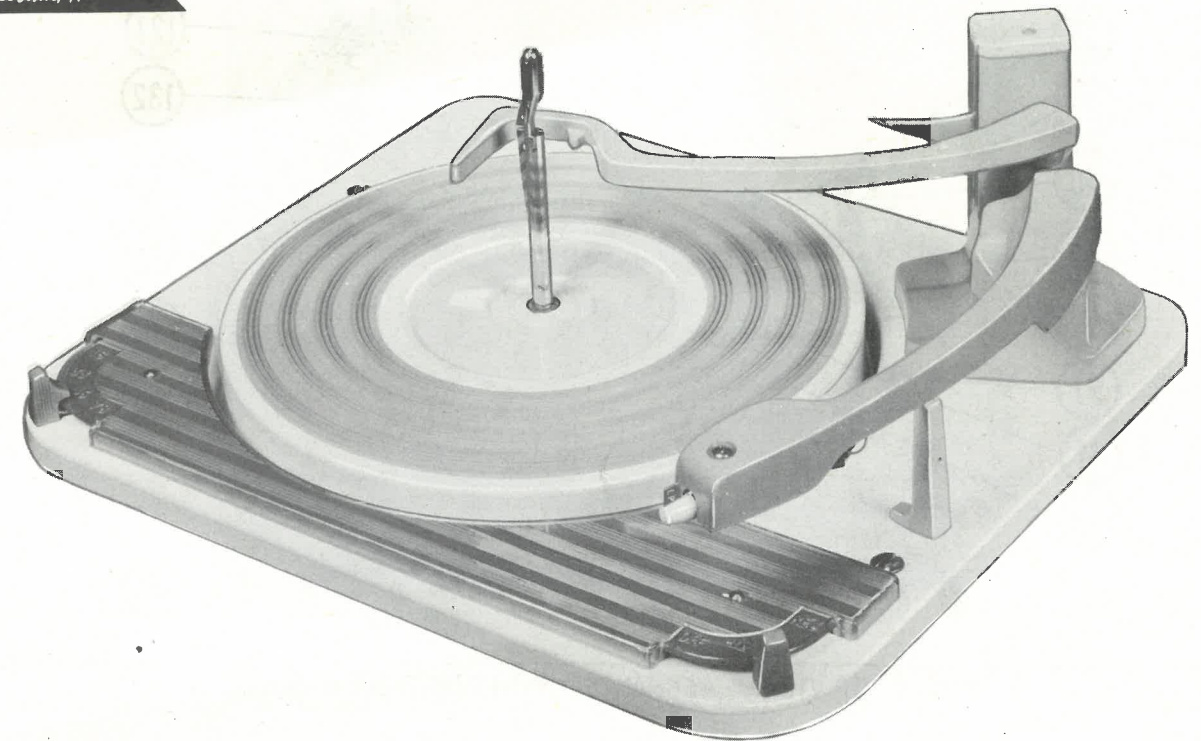




MONARCH
MODEL UA12



MONARCH
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GENERAL INFORMATION

Monarch Model UA12 record changers play a stack of records in automatic sequence and shut off after the last record has been played. The only manual adjustment necessary is to turn the pickup to the "78" or "L. P." Position and rotate the speed Control knob to the desired speed.

To play records with a large center hole, put on the special 45-rpm spindle (available as an accessory.) Be certain the spindle is properly engaged.

After the last record of a stack has been played, the pickup arm will return to its rest post, and the changer will shut off automatically.

Connect this record changer to an AC supply only. It is adapted for 110 to 120 volts, 60 cycles.

B.S.R. (USA) Ltd.

*See letter
8/5/60*

Imported by:

~~Discus (USA) Inc.~~
115-10 14th Road
College Point 56
N. Y.

DISCUS

Manufactured by:

Birmingham Sound Reproducers, Ltd.
Monarch Works
Old Hill, Staffs
England

This material compiled and published by

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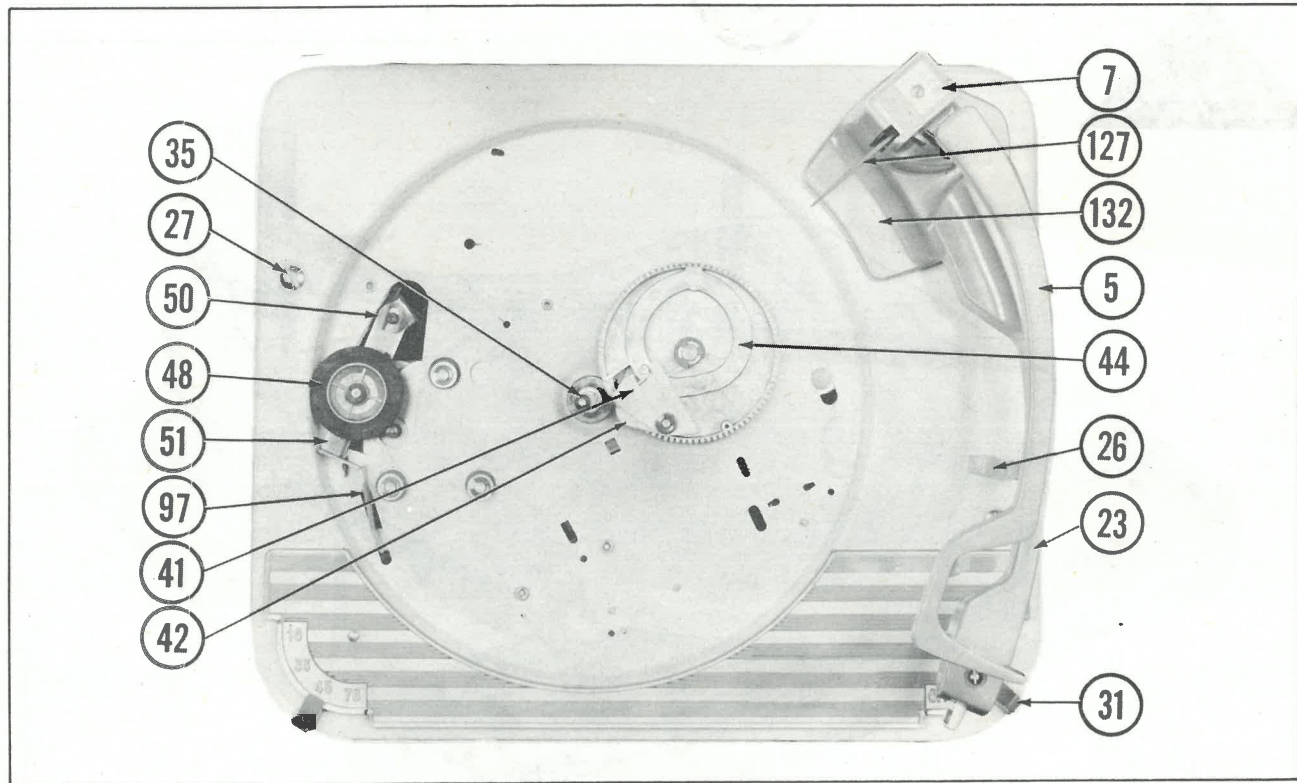


FIG. 1 TOP VIEW OF MECHANISM WITH TURNTABLE REMOVED

PREPARING FOR OPERATION

1. Remove safety guard from needle.
2. Unclip pickup arm by lifting it clear and replacing it lightly on top of rest post.
3. Turn needle, cartridge, and Speed Selector knob for type of records to be played.

OPERATING INSTRUCTIONS

Loading

Grasp control arm (5) at the rear, lift it, and swing clear of the records. Place records on the center spindle (not to exceed ten 12 - or 10 -inch or twelve 7-inch). Then place control arm (5) back on top of records.

NOTE: Intermixed records must be the same speed and have the same type of groove.

Starting

Be sure the stylus and speed controls are in the position corresponding to the type of records to be played. Move the On-Off-Reject lever fully to the right, and release. The lever will return to the On position, and the changer will start to cycle.

Rejecting

To reject a record, move the On-Off-Reject lever fully to the right. The changer will cycle and play the next record.

Manual Operation

To play one record at a time, follow this procedure:

Place the record on the turntable. Place control arm (5) in its operating position. Turn On-Off-Reject lever to the Manual position. The turntable will revolve at the speed selected. Lift the pickup arm from its rest post and place it on the record. The record will now play. When the record has finished, the pickup arm will return to the rest post, and the changer will shut off.

To Remove The Records

Lift control arm (5) and turn it out of the way before removing the records from the center spindle.

Stopping

The record changer may be stopped at any time by turning the On-Off-Reject lever to the Off position. Allow the pickup to return to the rest post before lifting control arm (5) or removing the records.

MECHANICAL PARTS LIST (CON'T.)

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
20B		Screw 6 B. A. x 3/8" Ch. Hd. (Pickup Height)	73	A102137	Cutoff Lever Assembly
21	A102124	Spring (Pickup Balancing)	74	A102142	Switch Plate Assembly
22	T. C. 8M	Cartridge	75	A102120	Spring (Switch Plate)
	T. C. 8H	Cartridge	76	B102008	Retaining Plate
	T. C. 8S	Cartridge (Stereo)	77	A102097	Pickup Raising Spindle
22A	T. C. 8R	Needle (78 RPM)	78	A102103	Washer (Pickup Raising Spindle)
	T. C. 8G	Needle (L. P.)	79	A102118	Spring (Pickup Raising Spindle)
	T. C. 8RS	Needle (Stereo)	80	B102151	Quadrant Assembly
23	D102033	Pickup Arm	81	A102116	Spring (Actuating Slide)
24		Screw 6 B. A. x 3/16" Hd.	82	A102141	Actuating Slide Assembly
25	A102030	Screw Escutcheon	83	A102139	Toggle Assembly
26	B102036	Pickup Rest	84	A102083	Actuating Slide Spacer
27	A101603	Transit Screw	85		Screw Type 25 4-32 x 3/16" B. Hd.
28	A102069	Escutcheon Pin (2)	86	B102153	Operating Plate Final Assembly
29	C102064	Escutcheon	87	A102029	Spring (Cut-off)
30	A102080	Knob Spindle (2)	88	A102108	Circlip
31	B102065	Knob (2)	89	A102251	Retaining Clip
32		Screw Type 25 4-24 x 1/4" B. H. (2)	90	A102237	Washer
33	A102146	Reject Lever Assembly	91		Screw Type 25 4-24 x 1/4" B. Hd.
34	D102169	Mainplate Riveting Assembly	92	A102012	Feed Lever Raising Spring
35	A102156	Center Spindle Assembly	93	A100762	Circlip
36	A101506	Thrust Washer	94	A102123	Spring (Operating Plate)
37	A101649	Ball Race And Thrust Washers	95	A101465	Cable Clamp
38	A101506	Thrust Washer	96		Screw Type 25 6-20 x 1/4 B. Hd.
39	A102058	Damping Washer	97	B102028	Switch Lever
40	A100762	Circlip	98	A102017	Support Plate (Part of Mainplate)
41	A102043	Actuating Pawl	99	A102111	Retaining Clip
42	A102044	Friction Link	100		AC Connector
43	A102110	Circlip	101		AC Connector Screws
44	A102134	Cam Gear Final Assembly	102	B102157	Switch Box Assembly
45	A102055	Turntable Bearing	103		Screw 6 B. A. x 15/16" R. Hd. (2)
46	A100762	Circlip	104	A102181	Rubber Mounting (3)
47	A101620	Jockey Pulley Spindle Washer (2)	105	A102307	Motor Shield
48	A101623	Jockey Pulley Assembly	106	B102159	T. P. 8/6 Motor Assembly
49	A102145	Speed Change Lever Assembly	107	A102013	Washer (Part of Mainplate)
50		Circlip	108	A102002	Raising Pillar (Part of Mainplate)
51	A102185	Jockey Arm	109	A101460	Clip
52		Lockwasher 6 B. A.	110	A102004	Jockey Arm Pivot
53		Half Nut 6 B. A.	111	B102005	Speed Change Slide
54	A100762	Circlip (3)	112		Circlip
55	A101646	Washer (3)	113	A102122	Spring (Speed Change Slide)
56		Full Nut 6 B. A. (2)	114	A102006	Raising Shoe
57		Lockwasher 6 B. A. (2)	115	A102003	Raising Shoe Spacer
58	A102131	Circlip	116	A102117	Spring (Raising Pillar)
59	A102101	Washer	117	A102000	Raising Bracket
60	A102128	Washer	118	B102149	Selector Unit Assembly
61	A102166	Retaining Clip (2)	119	B102010	Selector Column
62	A101679	Spring (Unit Mounting 3)	120	B102009	Trip Arm
63		Screw Type 25 8-18 x 1/2" B. Hd.	121	A102114	Spring (Trip Arm)
64	A102129	Spring (Transfer Lever)	122	A100762	Circlip
65	A102140	Transfer Lever Assembly	123	A102113	Spring (Selector Arm)
66	A102108	Circlip	124	A100785	Circlip
67	A102109	Circlip	125	A102112	Spring (Selector Lever)
68	B102154	Support Casting Assembly	126	B102014	Selector Lever
69	A102352	Tag	127	B102011	Selector Arm
70		Screw Type 25 6-20 x 3/8" B. Hd. (3)	128	A102121	Spring (Cut-off Lever)
71	A102136	Control Lever Assembly	129		Screw Type 25 4-24 x 3/16" B. Hd. (2)
72	A102119	Spring (Control Lever)	130		Screw Type 25 6-20 x 1/2" B. Hd.
			131	A102127	Reject Link

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FOLDER 6

TROUBLE CHART (CON'T.)

Symptom	Cause	Remedy
	2. Defective turntable bearings.	2. Check for foreign matter in the bearings or on thrust washer (36), or defective balls or binding between balls and ball cage. Grease ball race (37). Lubricate center spindle (35) with light oil.
	3. Defective jockey pulley (48).	3. A rapid thumping sound while the motor is running may indicate uneven wear of jockey pulley (48). If the surface of the rubber tire is rough, replace the jockey pulley.
	4. Defective records.	4. Worn or defective records cause rumble, scratch, and distorted sound. A warped record may slip on the other records, causing wow. An enlarged hole can also cause wow.
	5. Squeaks.	5. Squeaks indicate a lack of oil. Lubricate.
Pickup arm strikes underside of record on spindle when it rises, or needle catches on top of last record when pickup arm moves in.	1. Pickup arm height incorrect. 2. Control arm (5) not holding records level.	1. See "Pickup Arm Height" under "Adjustments". 2. Gently twist control arm (5) until it will hold record stack parallel to top of turntable.
Distorted sound.	1. Defective record. 2. Defective amplifier. 3. Faulty cartridge. 4. Dirty needle.	1. Do not use record. 2. Check amplifier and speaker. 3. Replace cartridge. 4. Clean needle.
No sound	1. Defective cartridge. 2. Defective wiring. 3. Defective amplifier.	1. Replace cartridge. 2. Check for shorts or open circuit in pickup leads. 3. Check amplifier and speaker.

MECHANICAL PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	A102167	Turntable Center Dish Assembly	12	A102115	Spring (Pickup Overload Plate)
2	A100779	Circlip	13	A102041	Pickup Overload Plate
3	D102018	Turntable Mat	14	B102045	Pickup Hinge
4	C102164	Turntable Assembly	15		Screw 6 B. A. x 3/8" Ch. Hd. (Needle Setdown)
5	B102155	Control Arm Assembly	16	A102109	Circlip
6		Screw Type 25 4-24 x 5/16" Hd.	17	A102104	Washer
7	B102050	Selector Cover	18	B102062	Pickup Height Adjusting Plate
8		Screw 4 B. A. x 1/4" Ch. Hd.	19	A102268	Pickup Securing Spring
9	A102276	Clamping Plate	20		Screw Type 25 4-24 x 1/4" B. Hd.
10	A102078	Pivot Pin	20A	A100807	Spring
11	A102089	P. U. Spindle Nut			

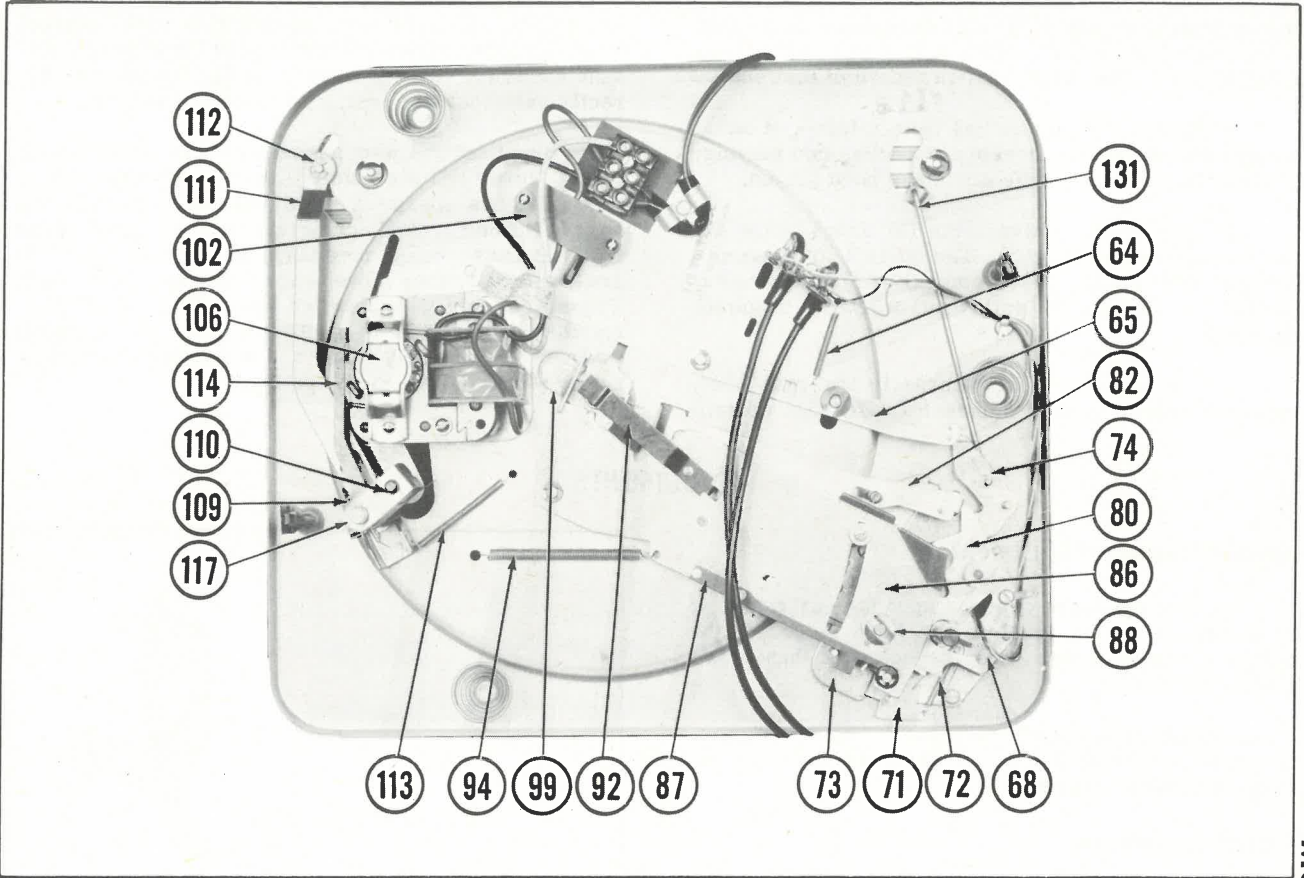


FIG. 2 BOTTOM VIEW OF MECHANISM
CHANGE CYCLE

Observe the change cycle by manually rotating the turntable. The following action can then be readily followed, and the function of each part can be more easily understood.

The automatic trip mechanism operates on the velocity trip principle. The faster inward motion of the pickup arm as it reaches the lead-out groove at the end of a record, trips the mechanism.

Pickup arm (23) and quadrant assembly (80) are connected and move together. As pickup arm (23) nears the end of a record, quadrant assembly (80) pushes actuating slide assembly (82) forward. Actuating slide assembly (82) contacts friction link (42). It, in turn, moves actuating pawl (41) toward center spindle (35).

As pickup arm (23) enters the lead-out groove, actuating pawl (41) moves rapidly toward the turntable hub. The projection on the turntable hub (Point "A" on Exploded View) seizes and turns actuating pawl (41) counterclockwise, thereby rotating cam gear (44) counterclockwise also. Cam gear (44) meshes with the turntable hub and rotates with the hub.

Cam gear (44) is connected to operating plate (86) by a shaft with a roller extending up from operating plate (86). This shaft runs in the eccentric groove in the bottom of cam gear (44). The eccentric groove in cam gear (44) controls all vertical and horizontal movements of pickup arm (23). Pickup arm (23) is lifted from the record by cam gear (44), which rotates and drives operating plate (86) forward. As operating

plate (86) moves forward, pickup raising spindle (77) is forced up the incline on operating plate (86). The spindle contacts pickup height adjusting plate (18), forcing pickup arm (23) up and clear of the record.

About the same time pickup arm (23) reaches its maximum height, toggle assembly (83) — on top of operating plate (86) — contacts quadrant assembly (80), forcing pickup arm (23) back toward the rest post.

As pickup arm (23) reaches the rest post, center spindle (35) is actuated by operating plate (86). The record feed lever is pushed toward the motor, dropping a record on the turntable. As the record drops, it strikes selector arm (127), forcing it downward. (The amount of downward movement depends on the size of the record being played: a 10-inch record moves selector arm (127) down only half way; a 12-inch record forces the arm down all the way; a 7-inch record does not touch the arm at all.) Quadrant assembly (80) has three notches — a 12-, 10-, and 7-inch notch. The selector arm (127) positions selector lever (126), so that the proper notch is obtained for the record being played.

Cam gear (44) now reaches a point in the eccentric groove at which operating plate (86) moves toward the rear of the unit. This action moves quadrant assembly (80) toward the rear of the unit. Pickup arm (23) moves out and over the record lead-in groove. The arm is stopped by the proper notch on quadrant assembly (80). As operating plate (86) moves back,

pickup raising spindle (77) rides back down the incline on operating plate (86). This action permits pickup arm (23) to set down in the lead-in groove of the record.

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

At this time, control arm (5) drops below the shelf on center spindle (35). The control-arm assembly shaft is notched. When control arm (5) is seated, control lever spring (72) pulls control lever (71) against the notch.

As pickup arm (23) returns to the rest post, quadrant assembly (80) moves forward past control

lever (71). Control lever spring (72) pulls control lever (71) forward and thereby blocks the path of quadrant assembly (80). Pickup arm (23) is stopped directly over the rest post, and rests on the post.

Since control arm assembly (5) is seated, both control lever (71) and cutoff lever (73) have moved to the right. As operating plate (86) moves toward the rear of the unit, cutoff spring (87) contacts cutoff lever (73). Because cutoff lever (73) and switch plate (74) are connected, they move toward the rear of the unit. Transfer lever (65) and switch lever (97) are both actuated by switch plate (74). Switch lever (97) shuts off switch box assembly (102), and also retracts jockey pulley (48) from the motor pulley.

ADJUSTMENTS

Needle Pressure Adjustment

Needle pressure depends upon the cartridge. It is measured on the level of the first record at the needle. The pressure must be not less than 6 nor more than 10 grams.

To adjust the needle pressure, reposition pick-up balancing spring (21) in the various holes until the correct pressure is obtained.

Pickup Arm Height

The point of the needle should clear the top record by 1/8 inch when a stack of 10 records is on the turntable. In addition, the pickup arm should clear the underside of a record on the center spindle, as well as the top of the rest post.

To raise pickup arm (23), turn screw (20B) clockwise; to lower the arm, turn the screw counterclockwise.

Needle Setdown Adjustment

The setdown position of the needle on the record is adjusted by means of screw (15). Turn this screw until the needle sets down 1/8 inch from the edge of a 10-inch record. (It is advisable to make this adjustment with a stack of 10 inch records on the turntable.) When the 10-inch setdown is correct, the 12- and 7-inch setdown will also be correct.

Speed Change Adjustment

- 1. Remove turntable.
- 2. Turn the Speed Change lever to 33.
- 3. Through the screw-driver slot in jockey arm pivot (110), adjust jockey pulley (48) until it is

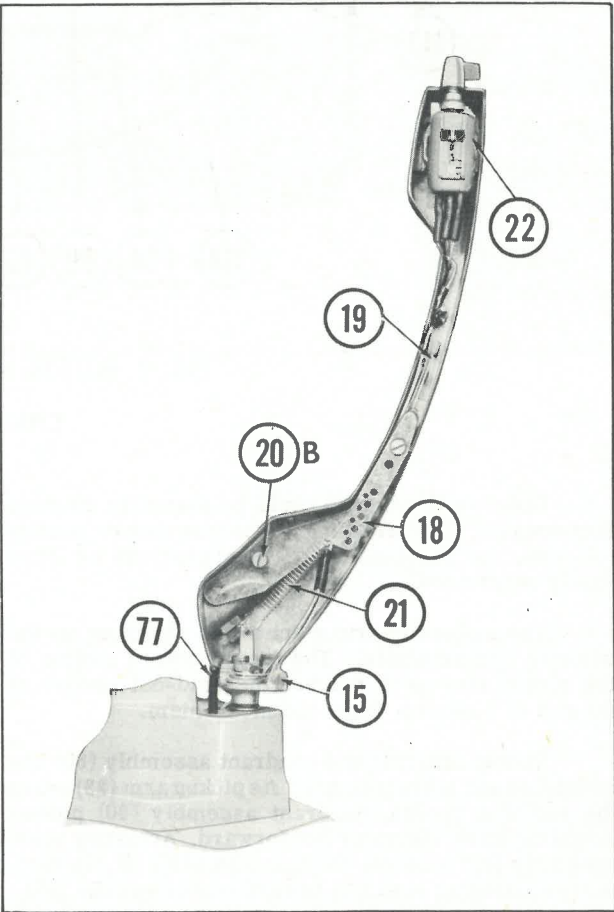


FIG. 3 UNDERSIDE OF TONE ARM

just below the first shoulder of motor spindle (106A). Turn jockey arm pivot (110) clockwise to lower jockey pulley (48) and counterclockwise to raise it.

LUBRICATION

Under normal operation the original lubrication should last for a long time. However, if the changer is operated continuously for long periods of time, so that the mechanism becomes noisy or the levers and sliding members respond sluggishly, lubricate as follows:

- With medium grease:
- 1. Raising shoe (114).
 - 2. Jockey arm pivot (110).

TROUBLE CHART (CON'T.)

Symptom	Cause	Remedy
	3. Jockey pulley (48) not driving.	3. Carefully clean the inside rim of the turntable and the rubber tire of jockey pulley (48) to remove any oil or dirt.
	4. Jockey pulley (48) not engaging turntable rim.	4. Make sure spring (116) is connected properly, and jockey arm (48) is free to pivot.
Pickup arm does not locate on rest post.	1. Toggle (83) loading too tight.	1. Replace circlip (88).
Changer fails to switch off after pickup has played last record and returned to rest post.	1. AC leads foul switch slide. 2. Faulty switch.	1. Move AC leads clear of slide. 2. Disconnect from AC. Remove cover and check operation of contacts. Replace switch if necessary.
	3. Tight cutoff lever (73).	3. Free lever by moving it backward and forward several times.
	4. Cutoff lever spring (87) weak or loose.	4. Replace spring (87).
Changer continues to cycle; pickup arm drops onto record every cycle.	1. Operating plate spring (94) weak or loose.	1. Replace spring (94).
Changer does not shut off after the last record has been played.	1. Control arm (5) not dropping. 2. Control lever (71) and cutoff lever (73) overlapping.	1. Make sure control arm (5) is in the operating position and drops freely. If necessary, oil spindle. 2. Make sure levers are flat and contact edge-to-edge only.
Pickup arm remains on record run-out groove.	1. No finishing run-out groove on record. 2. Needle jumps out of groove in record. 3. Faulty actuating pawl (41) and friction link (42).	1. Check record for eccentric run-out groove. 2. Make sure needle pressure is correct, and record is not defective. Check for damage or dust on needle. Replace or clean needle if necessary. Make sure all moving parts and bearing surfaces of pickup spindle assembly are free and lightly oiled. 3. When friction link (42) has been moved toward center of cam gear (44) and then slowly pushed outwards, it should also carry actuating pawl (41) outward as it starts moving. If the pawl does not move freely with the link, it will not engage the turntable projection (A) to start the cycle. If the assembly sticks, remove it, and clean and lightly oil bushing of actuating pawl (41).
Noise while record plays.	1. Low-pitched rumble from loudspeaker.	1. Make sure motor is freely suspended on motor rubber mounting. The motor leads should have enough slack that the motor can float.

TROUBLE CHART (CON'T.)

Symptom	Cause	Remedy
Pickup arm does not move in when set down on record.	1. No run in groove on record.	1. Make sure the record is the standard type with a run in groove from the outside edge of the record to the recorded section.
Pickup arm fails to move in to play last record, but returns to rest post (26), and unit switches off.	1. Control lever(71) sticking. 2. Control lever spring (72) stretched or loose.	1. Free control lever (71) by moving it backward and forward several times. 2. Replace spring (72).
Turntable stops in middle of change cycle.	1. Jockey pulley(48)slipping.	1. Clean inside rim of turntable and the rubber tire of the jockey pulley (48) to remove any oil and dirt.
Turntable speed too slow.	1. Binding in motor bearing. 2. Binding in turntable bearing. 3. Jockey pulley(48)slipping. 4. Line voltage too low. 5. Operating temperature too low.	1. Tap side of motor lamination lightly, to free self-aligning bearings. 2. If turntable bearing does not turn easily when jockey pulley (48) is disengaged, remove turntable and clean; then lubricate with light oil. 3. Make sure jockey arm pivot (110) is free in raising bracket (117), end of jockey arm (51) not jammed on unit plate, spring (116) not loose. 4. The line voltage should not be less than 100 volts. 5. If the changer has been standing in a cold place or is to be operated in surroundings at a temperature of less than 45° F., the turntable speed will be slow initially.
Turntable revolves when On-Off-Reject lever is operated, but pickup arm remains on its rest post.	1. On-Off-Reject lever not operated correctly. 2. Pickup arm clipped to rest post. 3. Actuating slide(82)trapped under friction link (42).	1. Be sure On-Off-Reject lever is fully to the right, except when operating the changer manually. 2. Lift pickup arm clear, and replace lightly on top of rest post. 3. Revolve cam gear (44) by hand to free On-Off-Reject lever.
Turntable does not rotate when On-Off-Reject lever is moved to On.	1. No current to motor. 2. Defective motor.	1. Make sure current is reaching external AC leads, and switch is functioning properly. Check all wiring and contacts to and from switch. 2. Remove turntable and operate motor without a load. If motor spindle is not rotating and AC supply is reaching the motor, the motor is faulty and should be repaired or replaced.

3. Surfaces of operating plate (86).

4. Teeth of cam gear (44).

With medium oil:

1. Pivots of pickup hinge (14).

2. Bearing of pickup raising spindle (77).

3. Bearing of turntable (4).

With light oil:

1. Spindle of jockey pulley (48). (Do not get oil on the tire of jockey pulley (48), or on the turntable rim.)

TROUBLE CHART

Symptom	Cause	Remedy
Pickup arm (23) does not track correctly across record.	1. Tip of needle clogged with dust. 2. Tip of needle broken or worn. 3. Pickup leads too tight. 4. Changer not level. 5. Binding or friction in pickup raising spindle (77). 6. Insufficient needle pressure. 7. Actuating slide (82) sticking. 8. Worn record, or record has damaged groove.	1. Clean the needle. 2. Replace needle if tip is broken or worn. 3. Give pickup leads enough slack that pickup can move freely across record. 4. Level changer with a level. 5. Make sure all moving parts and bearing surfaces are free and are lightly oiled. 6. See "Needle Pressure" under "Adjustment". 7. This lever must be free to slide on its bearing surfaces. Check for bends, rust, or other foreign matter. 8. Do not use record.
Record does not drop when changer cycles.	1. Deformed record feed lever, part of center spindle (35).	1. Replace record feed lever.
After playing last record, pickup arm returns to 7-inch position, and changer shuts off.	1. Control lever(71) sticking. 2. Control lever spring (72) stretched or loose.	1. Free control lever (71) by moving it backward and forward several times. 2. Replace spring (72).
Record drops, pickup arm moves on to record, and changer shuts off.	1. Control lever (71) and cut-off lever (73) overlapping. 1. Hole in record too large. 2. Record keeper on center spindle (35) not fully down. 3. Control arm (5) not holding records level.	1. See that levers are flat and contact edge-to-edge only. 1. Do not use record. 2. Carefully clean and remove burrs. Do not oil; it should fall under its own weight. 3. Gently twist control arm (5) until it will hold record stack parallel to top of turntable.
Pickup arm does not setdown properly on records.	1. Pickup arm not adjusted correctly.	1. See "Needle Setdown" under Adjustments.

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FOLDER 6

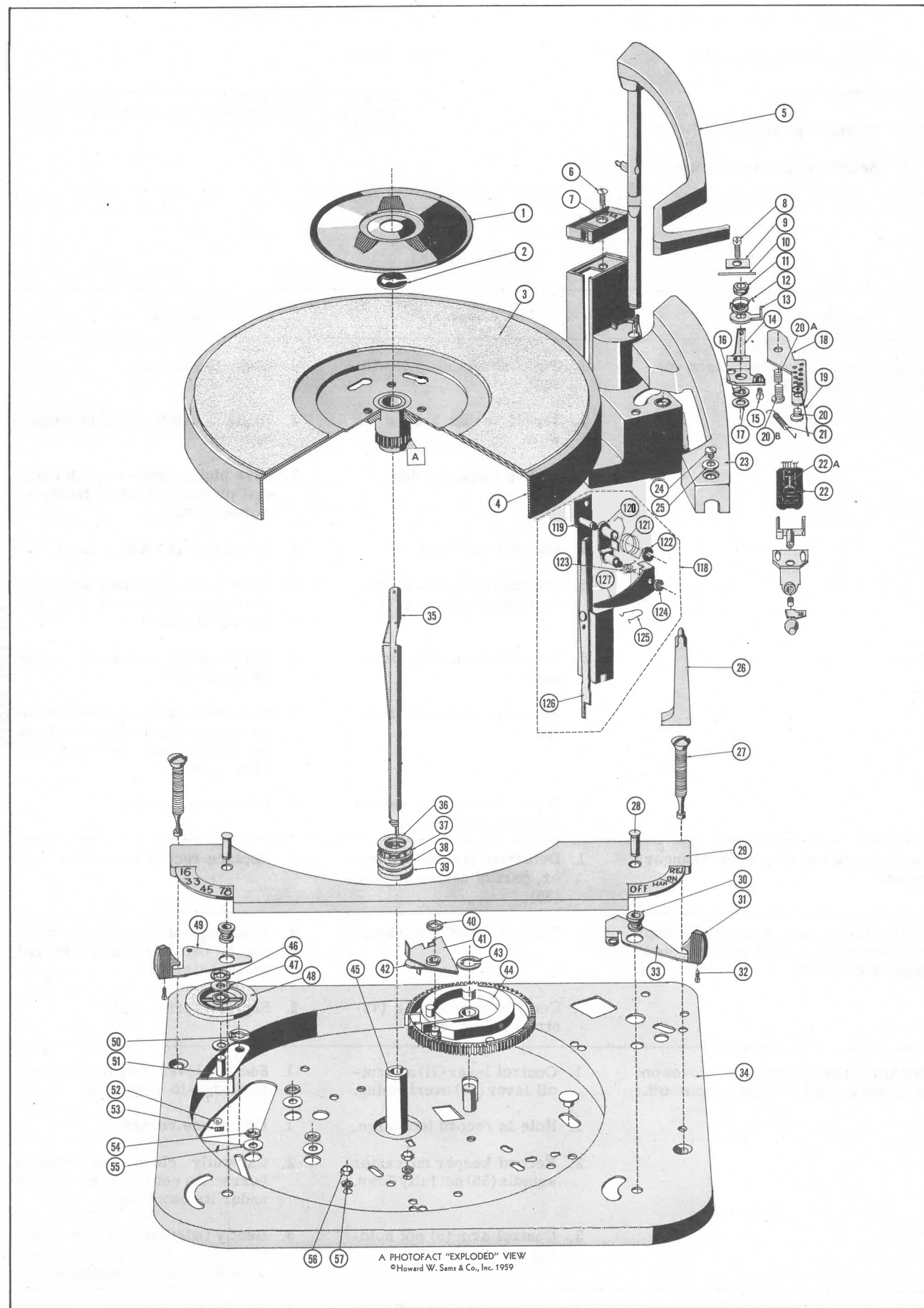


FIG. 4A EXPLODED VIEW OF PARTS ABOVE BASEPLATE

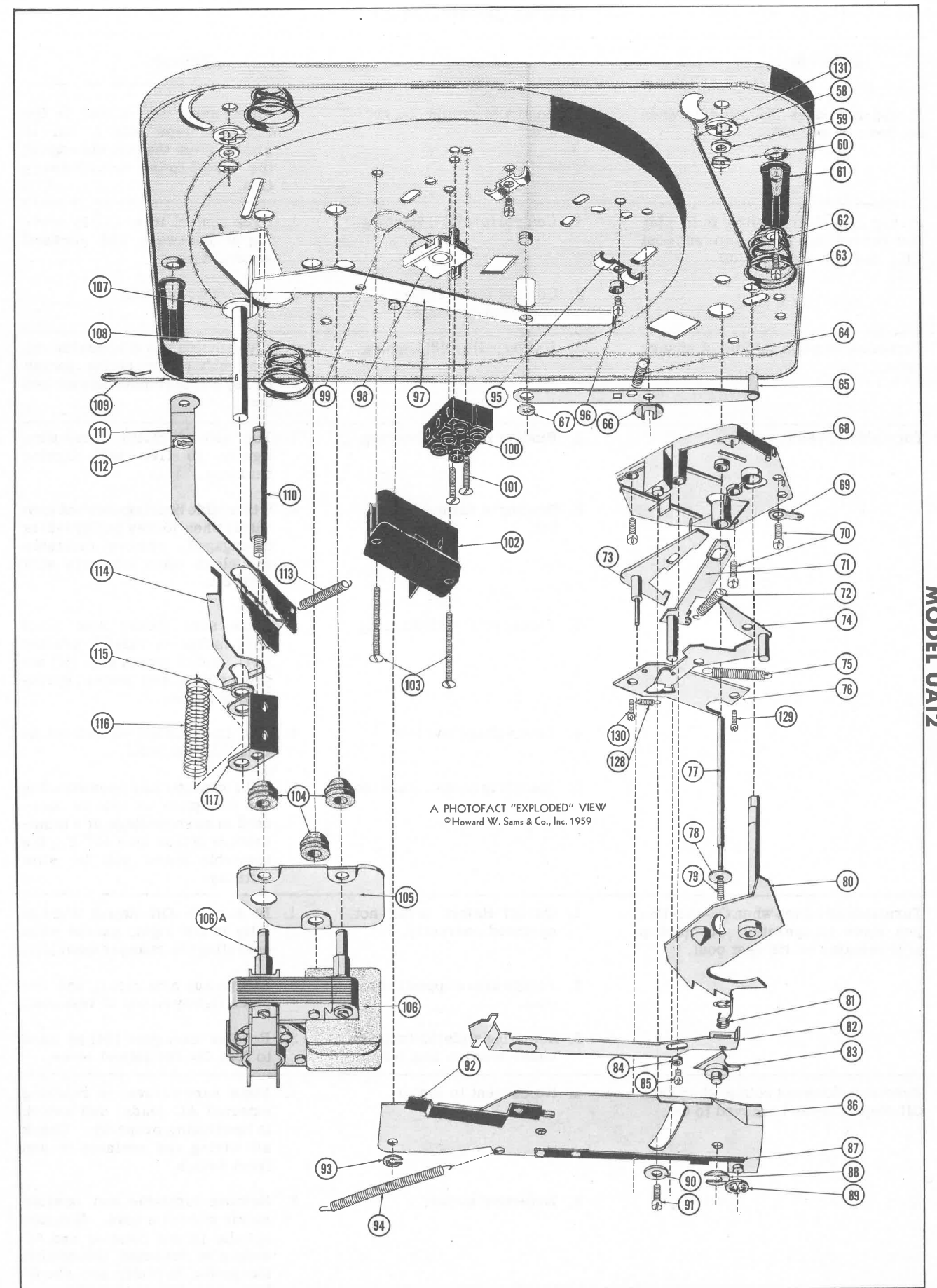


FIG. 4B EXPLODED VIEW OF PARTS BELOW BASEPLATE