

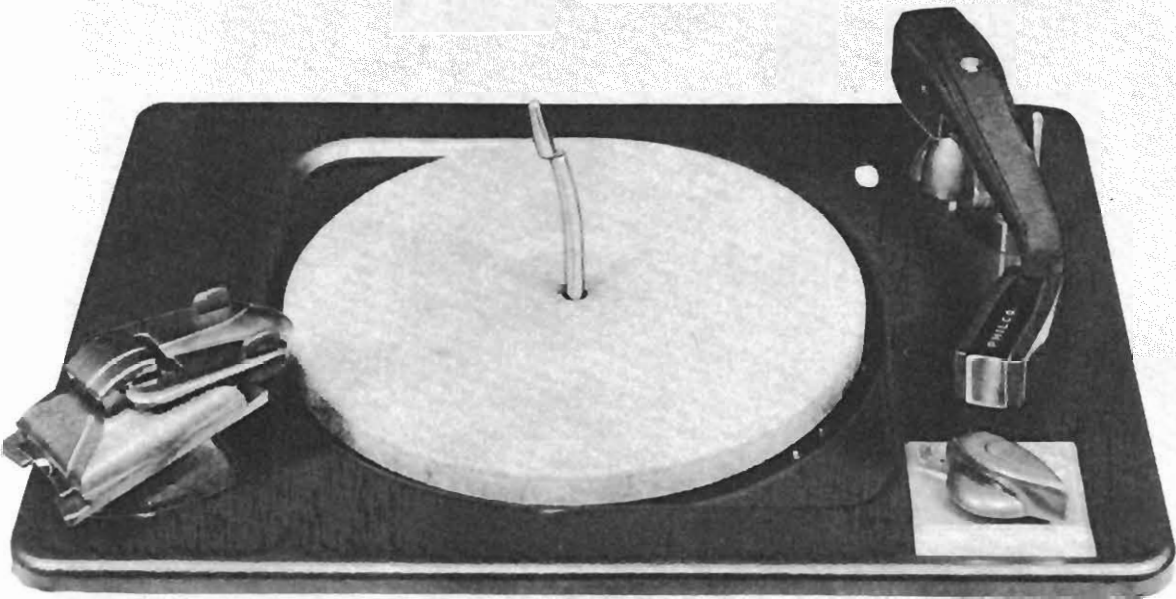
PARTS LIST

Ref. No.	Part No.	DESCRIPTION	Ref. No.	Part No.	DESCRIPTION
1	1W-14318	Pickup arm height adjustment screw	56	56-2597	Turntable shaft ball race
2	56-2976	Pickup arm	57	54-4220	Turntable shaft cushion washer
3		Nut for height adjustment screw	58	56-2596	Turntable shaft washer
4	56-2713	Pickup arm counterweight	59	76-1615	Index bracket assembly
5	56-2623	Pickup arm lift rod	59A		Index bracket stabilizer
6	76-1622	Pickup head assembly	60		Index lever spring
7		Dynamic pickup (part of 6)	61	76-1904	Index disc assembly
8	56-2929	Pickup clamp plate	62	76-1618	Push-off cam lever assembly
9	1W-10817	Pickup clamp screw	63	76-1602	Main cam assembly
10		Pickup cover plate	64	76-1603	Lift arm assembly
11	56-2919	Record spindle	64A		Lift arm pivot (part of 64)
12	35-2638	Pickup needle	65	56-2568	Positioning cam
13	56-2710	Pickup arm locknut	65A	56-2569	Positioning cam screw
14	56-2598	Pickup arm bearing screw	66	56-2595	Turntable shaft assembly
15	56-2915	Record shelf cap cover	67	56-2563	Retaining washer
16	56-2656	Record shelf cap retaining spring	68	56-2615	Segment spring
17	56-2653	Record pressure arm	69	56-2562	Spring lug
18	54-4208	Record pressure arm rubber bumper	70	56-2564	Latch spring
19	56-2654	Record pressure arm spring	71	56-2561	Gear segment
20	56-2652	Record shelf cap	72	76-1601	Intermediate gear assembly
21	56-2655	Pin for pressure arm spring	73	28-8496	Cam lever retaining spring
22	56-2628	Push-off slide	74	56-2917	Cam lever
23	56-2635	Push-off cam shaft	75	56-2560	Main gear
23A	76-1617	Push-off cam	76	1W-35951	Main gear pin
24		Turntable	77	76-1605	Solenoid assembly
25	56-2622	Pickup arm shaft	77A		Solenoid adjustment screw
25A		Pickup arm shaft washer	78	76-1599	Changer mechanism sub-assembly
25B		Pickup arm shaft nut	79	56-2920	Push-off lever guide
26	56-3532	Lift rod spring	80	56-3591	Pull-rod spring
27	1W-19978	Adjustment nut for lift rod	81	56-2657	Cam pull rod
28	56-2597	Upper ball race	82	28-8711	Slide shaft retaining spring
29	5W-2017	Ball bearing (3 used)	83	76-1925	Slide shaft assembly (short)
30	54-7063	Ball retainer	84	76-1926	Slide shaft assembly (long)
31	56-2597	Lower ball race	85		"C" washer (part of 83 and 84)
32	54-4252	Control switch knob	86	56-6253	Turntable shaft nut
33		Nut for switch (part of 48)	87	76-1722	Main gear shaft assembly
34	54-4250	Switch escutcheon plate	88	56-2570	Positioning cam spring
35	1W-10639	Motor mounting screw	89	56-2573	Push-off arm stop spring
36	1W-52100	Motor mounting washer	90	76-1606	Trip contact assembly
37	56-2997	Motor mounting spacer	90A		Trip contact adjustment screw
38	54-4254	Motor mounting grommet	91	76-2066	Push link
39	76-2379	Idler wheel	91A	56-3090	Push-off arm spring
40		Idler wheel washer	92	56-2793	Push-off "C" washer
41	56-2619	Record shelf	93		"C" Washer for gear shaft (87)
42		Record shelf shaft (part of 41)	94		Flat washer for gear shaft (87)
43	56-2618	Record shelf stanchion	95	56-2570	Push-off lever spring
44	35-1298	Motor	96	56-2627	Cross link spring
45	56-2621	Pickup arm shaft bushing	97	56-2626	Cross link
46	56-2620	Pickup arm rest post	98	56-2714	Push-off lever extension spring
47	76-1600	Main base plate	99	76-1723	Push-off lever extension
48	42-1734	Control switch	100	76-1608	Push-off lever
49	56-2617	Pull cord spring	101	56-2578	Push-off lever screw
50	76-1620	Trip arm assembly	102	54-7124	Pull cord
50A	54-4181	Trip pawl rubber bumper (part of 50)	A		Slider cam spring
50B		Set-down adjustment pin	B		Cam guide
51	56-2599	Turntable shaft ring spring	C		Guide arm spring
52	56-2596	Turntable shaft washer	D		Slider cam
53	54-4220	Turntable shaft cushion washer	E		Guide arm
54	56-2597	Turntable shaft ball race	F	56-3610	Slider cam rock spring
55	54-7063	Turntable shaft ball retainer	G	76-1612	Main cam assembly
55A	5W-2017	Turntable shaft ball bearing (3 used)	H	56-2584	Cam slider rod

PHOTOFACT* Folder

PHILCO
MODEL M-4

PHILCO
MODEL M-4



TOP VIEW

GENERAL INFORMATION

The M-4 is an automatic, solenoid trip, single-post changer. It is designed to play and automatically change either ten 12-inch, or twelve 10-inch standard records. Provision is made for manual operation. When the control switch is in the "off" position, the idler wheel is pulled away from the turntable rim and motor shaft to prevent flat spots from forming on the idler wheel rubber tire when the changer is not in use.

Manufacturer

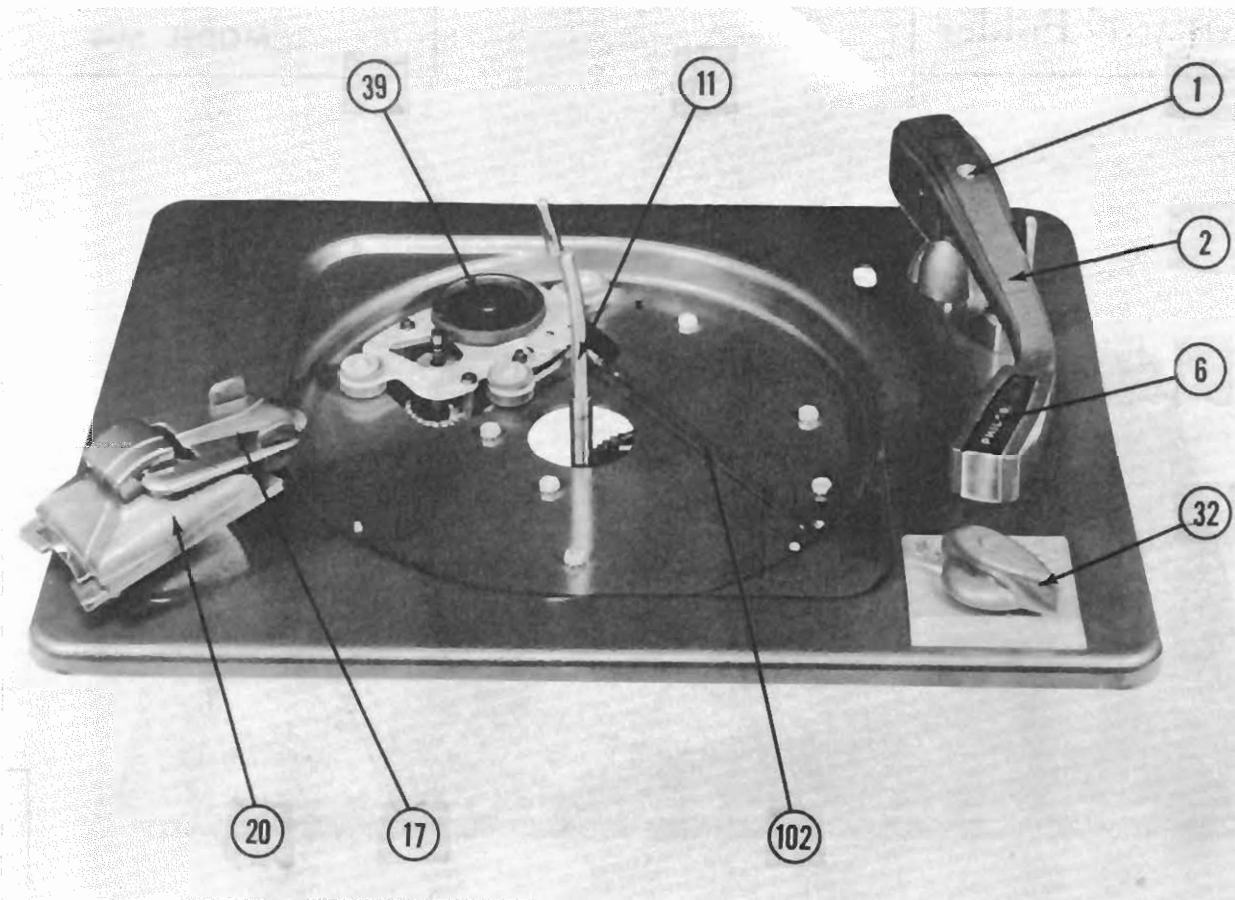
PHILCO RADIO AND TELEVISION CORPORATION
Philadelphia, Pennsylvania

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PHILCO
MODEL M-4

Page One



TOP VIEW LESS TURNTABLE

LOADING

To Load:

1. Place the spindle in its opening in the center of the turntable with the offset toward the record shelf.
2. Place the pickup arm on the restpost.
3. Set the record shelf for the size record to be played.
4. Place records on spindle with edge of stack on record shelf.
5. Place the record pressure arm (17) over the stack of records.
6. Turn the control switch to "Reject" and allow its spring to return it to the "automatic" position.

The changer will then play the entire stack of records, repeating the last until turned off.

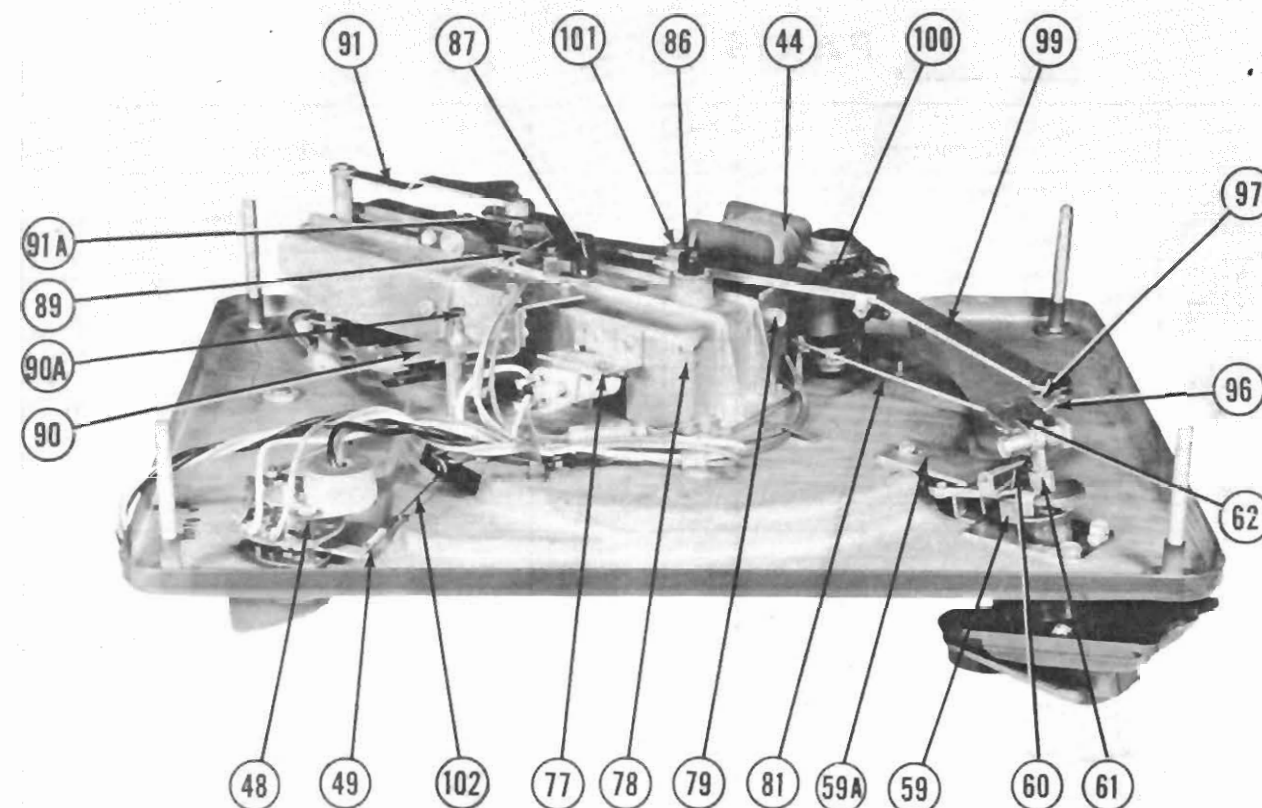
To Unload:

1. Turn the control switch to "off."
2. Pull the spindle from its socket.
3. Lift the records from the turntable.

THE CHANGE CYCLE

As the pickup arm moves toward the center of the record, it carries the trip arm assembly (50) with it. The trip pawl rubber bumper (50A) is pulled across the abrasive surface of the trip contact assembly (90). When the needle enters the eccentric groove, the slight backward motion of the arm causes the trip pawl to straighten as its direction of travel is changed. This straightening action depresses the abrasive strip and closes the contacts of the assembly, energizing the solenoid (77). The plunger of the solenoid then releases the latch holding the retractable segment (71) and allowing the segment to engage the hub gear of the turntable.

The intermediate gear (72), its circumference completed by the retractable segment (71), then drives the main gear (75), which moves the main cam assembly (63) toward the center of the mechanism along the slide shafts (83, 84) by means of the push link (91). As the main gear (75) rotates, a cam on its lower surface actuates



SIDE VIEW

LUBRICATION

Use a light grease, such as vaseline, on the following parts (manufacturer supplies lubricant, Philco Part No. 60130):

- Lift Arm Pivot Bushing (64A)
- All Shafts (excluding pickup arm shaft)
- Push-off Cam (23A) and Shaft (23)
- All Pivot Studs
- Index Disc (61)
- Turntable Shaft
- Cam Slider Rods (83, 84, H)
- Slots in Positioning Cam (65)
- Pickup Arm Pivots
- Teeth of Main Gear (75)
- Cam Surfaces of Main Gear (75)

Use light oil (SAE10) on the following points (manufacturer supplies Philco Part No. 45-2594):

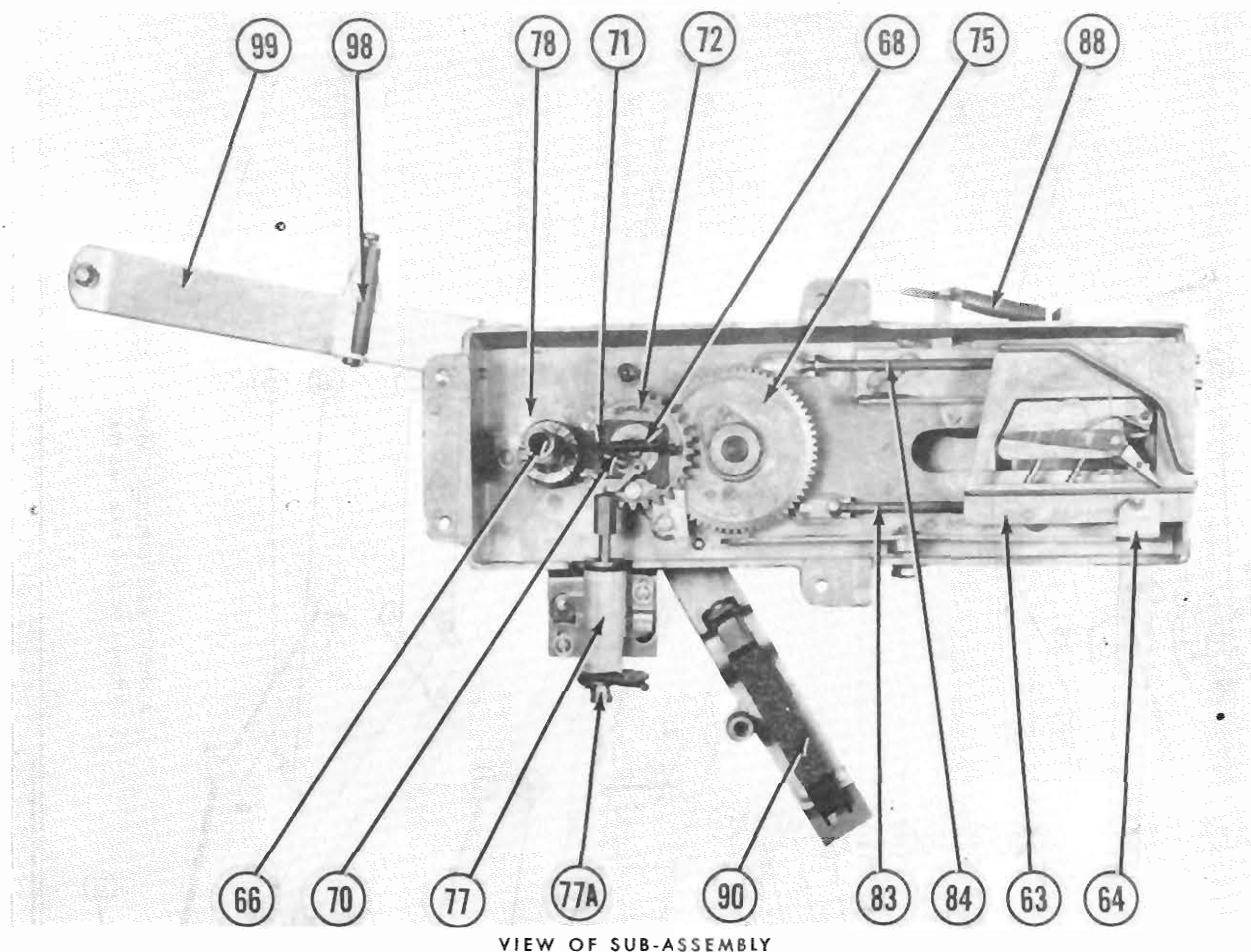
- Motor Bearings
- Idler Wheel (39) Bearing and Lever Assembly
- Pickup Arm Shaft (25) and Bearings (29)
- Turntable Shaft Bearings (55A)

Do not lubricate or allow oil or grease to contact the following:

- Rim of Idler Wheel (39)
- Retractable Gear Segment (71) or its teeth or latch
- Guide Arm (E) or Guide (B)
- Plunger of Solenoid (77)
- Trip Pawl (50A)

REPLACING NEEDLE

The dynamic pickup used in this changer uses a special needle, Part No. 35-2638. Needles of larger diameter must not be used. The needle seats in a rubber socket and no tools are necessary for its replacement. The old needle should be pulled straight out. Do not pull sideways or the unit may be damaged. Insert the new needle through the rubber washer and move it around gently to locate the hole in the coil assembly. Then push the needle straight in. It may be necessary to move the needle slightly to locate the hole in the rubber socket. After the needle is seated properly, twist it so the bend is in the direction of record rotation.



VIEW OF SUB-ASSEMBLY

ADJUSTMENTS

Pickup Arm Set-Down Point:

The pickup arm set-down point is adjusted by means of an eccentric pin (50B) having a slotted head and turned with a screwdriver through a hole in the main base plate.

Proper adjustment is such that the set-down point is $\frac{1}{8}$ " from the edge of the record. If the range of adjustment of this pin is not wide enough, the clamp screw holding the trip arm assembly (50) to the pickup arm shaft (25) may be loosened and the assembly turned slightly.

Tripping Adjustment:

The tripping mechanism should operate with the slight backward movement of the pickup arm caused by the eccentric groove of a standard record (not less than $\frac{1}{16}$ "). This should occur when the arm is between $1\frac{1}{2}$ " and 3" from the center of the record.

With the tone arm in a position which brings the rubber-tipped pawl (50A) to the center of the flat surface of the upper contact strip (90), the rubber-tipped pawl should be at an angle of about 45° . The

hex head screw on the underside of the contact assembly is provided for contact spacing adjustment. Proper spacing is approximately $\frac{1}{32}$ ".

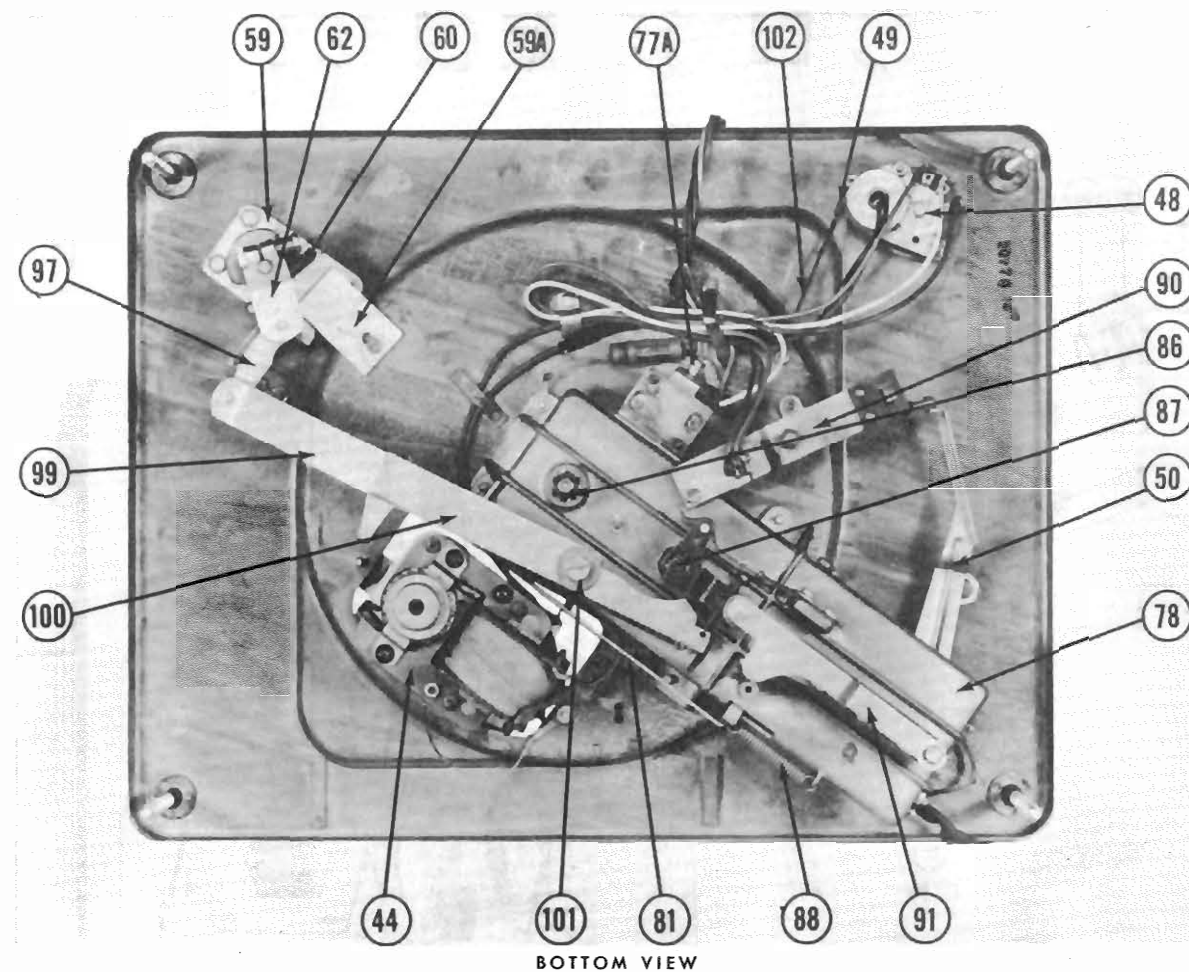
Pickup Arm Lift Adjustment:

With the pickup arm $1\frac{1}{2}$ " from the center of the spindle, the head should clear the bottom of the unplayed record stack by $\frac{1}{16}$ " to $\frac{1}{8}$ " and the needle should clear the turntable surface by approximately $1\frac{1}{4}$ ". Adjustment is made by turning the pickup arm adjustment screw (1) which is reached through a hole in the top of the pickup arm. A second adjustment point is provided by the nut (27) on the lower end of the lift rod (5).

Record Shelf Adjustment:

The correct position of the record shelf is such that the curve of the shelf matches the curve of a record. A standard record should rest with its outer edge against the push-off slide (22). The center of the record should drop before the edge.

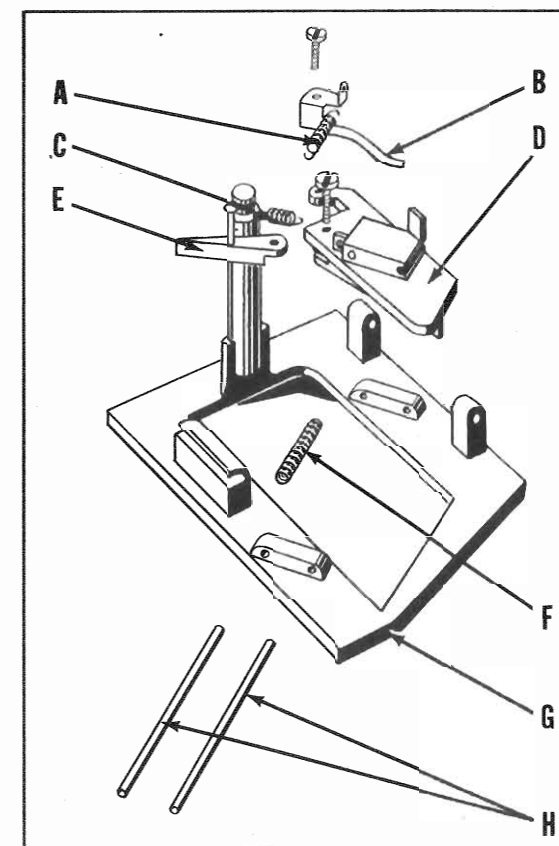
The manufacturer supplies a special gauge, Philco Part No. 45-1470, which will facilitate this adjustment.



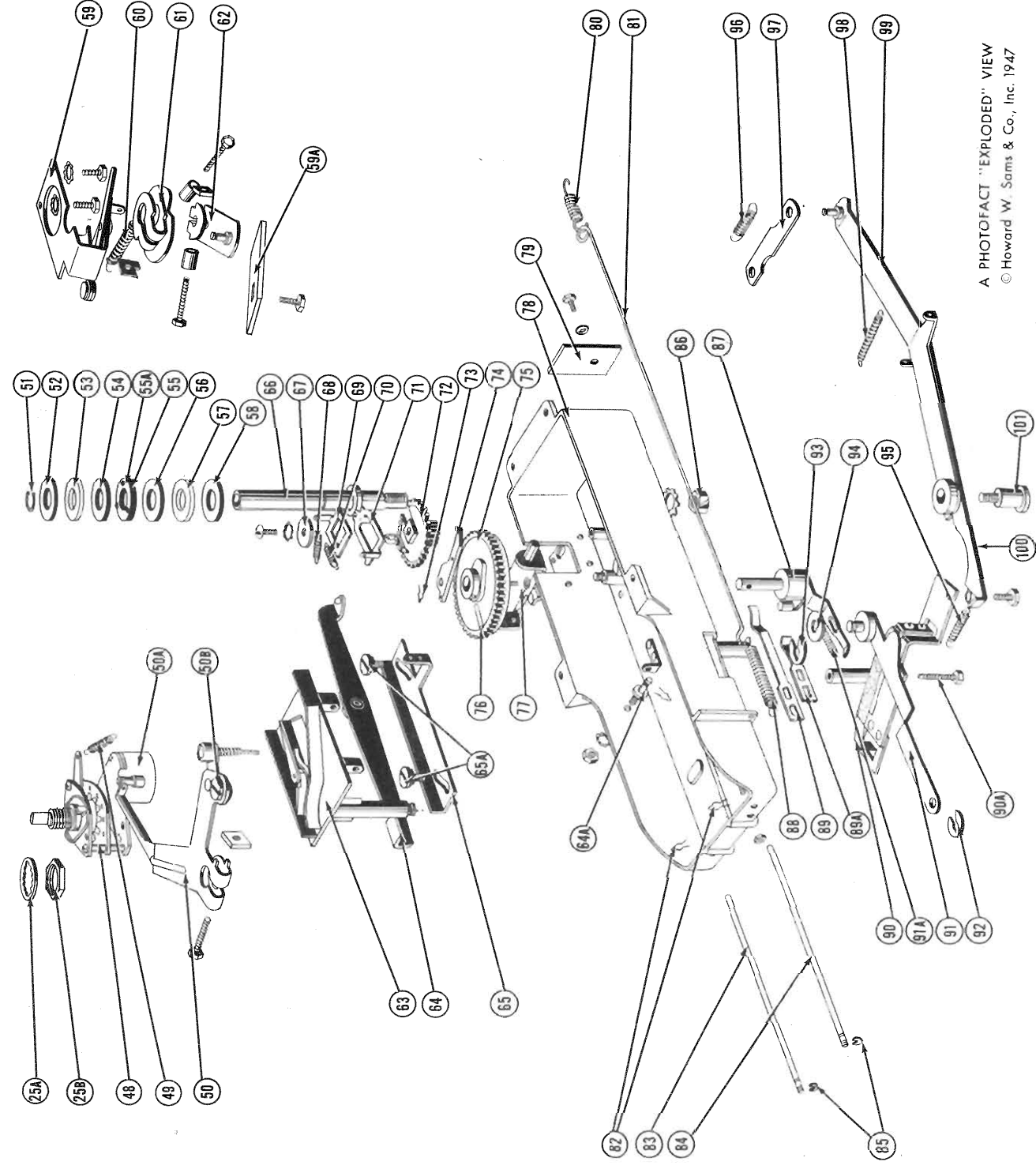
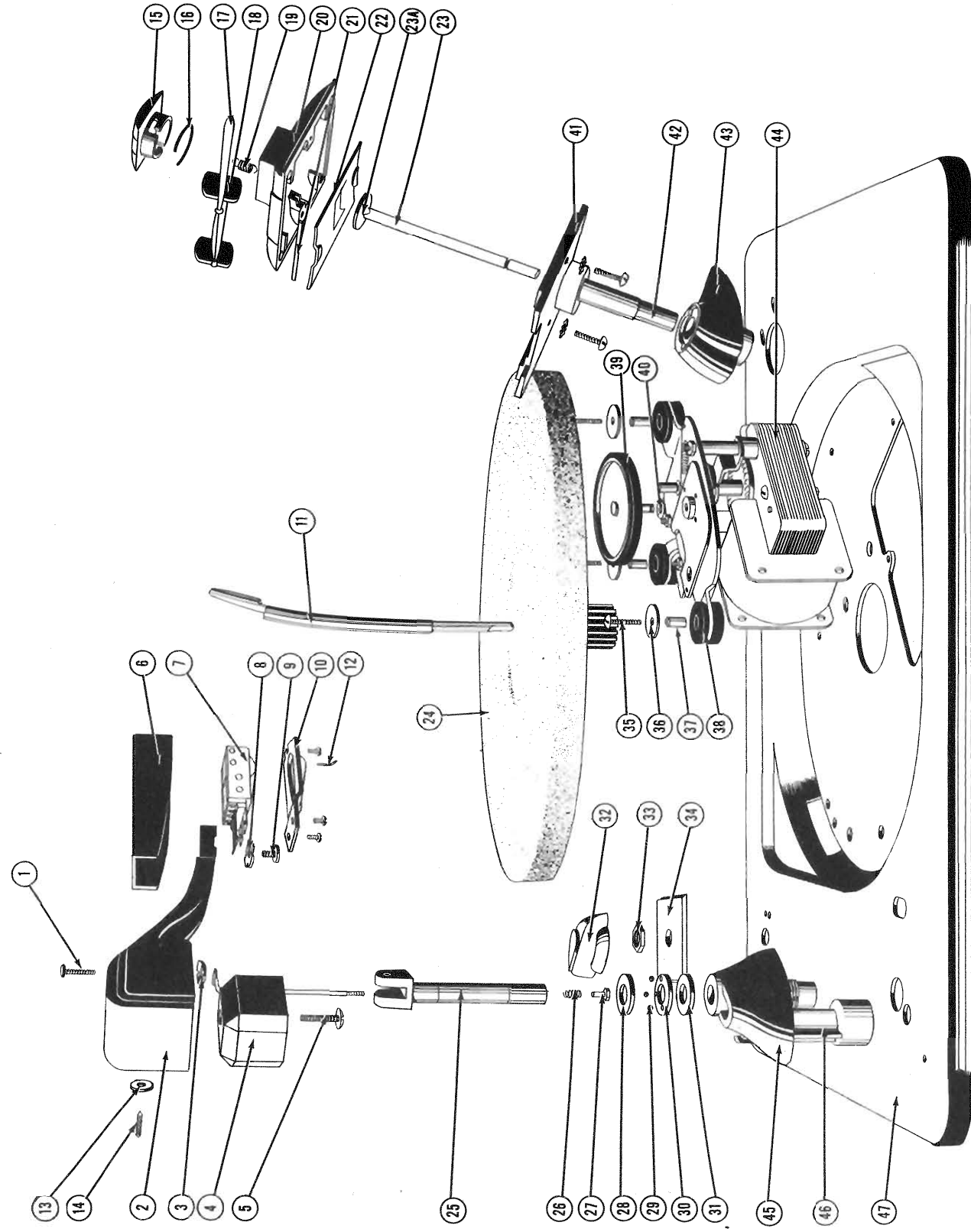
BOTTOM VIEW

the lift arm (64) which raises the pickup arm by means of the lift rod (5). As the main cam approaches the turntable center, it moves the raised pickup arm away from the record by means of a coil spring finger (part of 50). The main cam then reverses its direction of travel and moves away from the center of the mechanism.

The pickup arm is then moved to its set-down point as its coil spring finger contacts the slider cam (D). The change in set-down point between 10- and 12-inch records is accomplished by shifting the slider cam. This is done by the positioning cam (65) which is controlled by the setting of the record shelf through the cam pull rod (81). Just before the main cam returns to its normal position, the gear segment (71) is retracted by the cam lever (74) which is actuated by a cam on the top surface of the main gear (75). The segment is then held by its latch and is ready for the next cycle. When the retracted portion of the intermediate gear turns to the turntable gear, the pickup arm has lowered to the record and the cycle is complete.



EXPLODED VIEW MAIN CAM ASSEMBLY



A PHOTOFACT "EXPLODED" VIEW
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