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FOLDER 18
SET 436

PHOTOFACT* Folder



V-M
MODEL 1201

## GENERAL INFORMATION

V-M Model 1201 record changer play a stack of records in automatic sequence and shut off after playing the last record.

As many as ten 12-inch, twelve 10-inch, or ten 12-inch and 10-inch records intermixed (all 33 or all 78) may be loaded on the spindle.

A stack of fourteen 7-inch, 45-rpm records (with a 45 adaptor spindle) will also play on this changer.

16 2/3-rpm records with 1 1/2-inch center holes can be played automatically; however, it is not advisable to allow the changer to shut off automatically after the last record has played.

The tone arm is equipped with an extra lead-in to receive a stereo cartridge. A monaural-stereo switch is located on the baseplate. "M" position is used when playing monaural records; "S" position, when playing stereo records.

Records are separated by movement of a finger in the center spindle. This finger directly separates records having a 1/4-inch center hole and actuates the knives and shelves of the spindle used for playing 45-rpm records.

The tripping method is the velocity type, requiring rapid tone arm acceleration to actuate the trip mechanism.

Unless otherwise specified, connect Model 1201 record changers to an outlet supplying 117 volts, 60 cycles AC only.

MANUFACTURED BY:

V-M Corp.
Benton Harbor, Michigan

*This material compiled and published by*

HOWARD W. SAMS & CO., INC., INDIANAPOLIS 6, INDIANA

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SET 436 FOLDER 18

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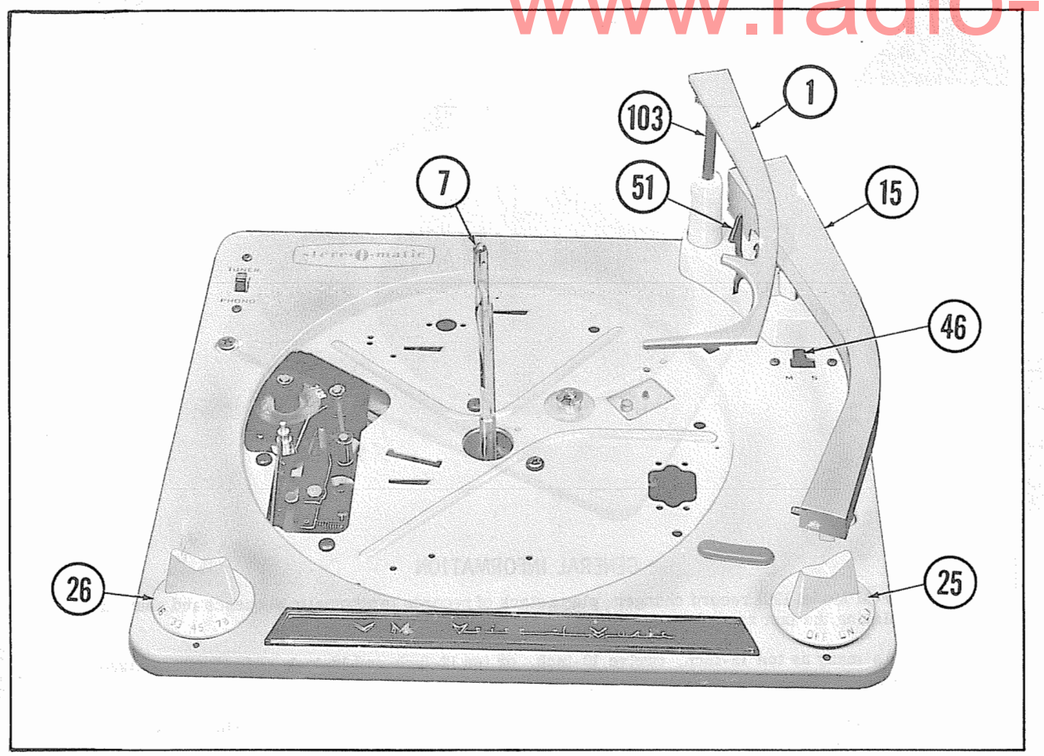


Fig. 1. Top View With Turntable Removed.

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## OPERATING INSTRUCTIONS

### Loading

1. Pull straight up on record support (1) until it clears the spindle. Then swing the record support out over the tone arm.

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





| Ref. No. | Part No. | Description |
|---|---|---|
| 1 | *16805 | Record Support |
| 2 | 14603 | Set Screw |
| 3 | 1650 | "C" Washer (Turntable Retainer) |
| 4 | *9455 | Turntable Assembly |
| 5 | 6877 | Bearing Washer |
| 6 | 6876 | Bearing Retainer |
| 7 | 6049 | Spindle Assembly |
| 8 | 6884 | Spindle Ball |
| | | Tone Arm & Hinge Ass'y. |
| 9 | 4923 | Pivot Screw |
| 10 | 4922 | Hinge Button |
| 11 | 7634 | Lock Spring |
| 12 | 7635 | Lift Screw |
| 13 | 18923 | Hinge Spring |
| 14 | 15293 | Weight Adjusting Spring |
| 15 | *16796 | Tone Arm |
| 16 | 6963 | Tone Arm Clip |
| 17 | 16710-A | Cartridge |
| 17A | 18639-A | Needle Unit |
| 18 | 18427 | Cartridge Mtg. Screw |
| 19 | 9375 | Needle Protector |
| 20 | 14498 | Keps Nut |
| 21 | 4937 | Safety Spring |
| 22 | 4339 | Safety Plate |
| 23 | 4327 | Lift Pin |
| 24 | 4072 | Hinge Arm Ass'y. |
| 24A | | Set Down Adj. Screw(Part of Item 24) |
| 25 | *16791 | Knob, On-Off-Rej. |
| 26 | *16792 | Knob, Speed Control |
| 27 | 1719 | "C" Washer |
| 28 | *5573 | Rest Post |
| 29 | 15044 | Mounting Bolt |
| 30 | 16558 | Screw, Switch Mtg. |
| 31 | 9823 | Screw, Works Ass'y. Mtg. |
| 32 | 6929 | Screw, Motor Ass'y. Mtg. |
| 33 | 8398 | Pal Nut |
| 34 | *16799 | Escutcheon |
| 35 | 18635 | Speed Nut |
| 36 | *18579 | Baseplate Ass'y. |
| 37 | 16810 | Retraction Rod |
| 38 | 15120 | Tuner-Phono Switch(Not on all units.) |
| 39 | 6916 | Control Bushing |
| 40 | 7114 | Control Lever Ass'y. |
| 41 | 7113 | Reject Spring |
| 42 | 6443 | Fibre Washer (Mtg. Bolts) |
| 43 | 1736 | "C" Washer (Mtg. Bolts) |
| 44 | 6919 | Reject Rod |
| 45 | 2916 | Screw, Rest Post Mtg. |
| 46 | 599 | Monaural-Stereo Switch |
| 47 | 2952 | Fibre Washer |
| 48 | 1652 | "C" Washer |
| 49 | 1720 | Speed Nut |
| 50 | 2563 | Spring, 12" Record Selector |
| 51 | 2957 | 12" Record Selector |
| 52 | 1588 | "C" Washer |
| 53 | 4172 | Spring, 12" Selector |
| 54 | 2580 | Rubber Bumper |
| 55 | 1719 | "C" Washer, Gear Mtg. |
| 56 | 9762 | Spring Washer, Gear Mtg. |
| 57 | 15451 | Frame Ass'y. |
| 58 | 9823 | Screw |
| 59 | 2284 | Control Shaft Ass'y. |
| 60 | 467 | AC Switch |
| 61 | 9533 | Return Spring |
| 62 | 2931 | Fibre Insulating Strip |
| 63 | 4950 | Fibre Washer (Part of Item 64) |

| Ref. No. | Part No. | Description |
|---|---|---|
| 64 | 6405 | Locator & Bushing Ass'y. |
| 65 | 5828 | Locator Ring |
| 66 | 2573 | Switch Cover |
| 67 | 4212 | Retainer, Switch Cover |
| 68 | 15450 | Finger & Shaft Ass'y. |
| 69 | 9557 | Retard Lever |
| 70 | 9510 | Anti-Skate Spring |
| 71 | 14551 | Lift Pin Spring |
| 72 | 1588 | "C" Washer |
| 73 | 6955 | Set Screw |
| 74 | 5022 | "C" Washer |
| 75 | 6885 | Safety Spring |
| 76 | 6874 | Push Rod |
| 77 | 6883 | Thrust Washer |
| 78 | 2579 | Spring, 7" Lever |
| 79 | 2581 | 7" Lever |
| 80 | 9849 | Screw |
| 81 | 6007 | Reset Lever |
| 82 | 2925 | Spring, Reset Lever |
| 83 | 9849 | Screw |
| 84 | 6966 | Shut-Off Lever Ass'y. |
| 85 | 9663 | Spring, Shut-Off Lever |
| 86 | 18773 | Retard & Clip Ass'y. |
| 87 | 16817 | Spring, Retard Arm |
| 88 | 6713 | Screw |
| 89 | 7125 | Gear Ass'y. |
| 90 | 1588 | "C" Washer |
| 91 | 4172 | Spring |
| 92 | 5339 | Pawl Lever |
| 93 | 5338 | Pawl Lever Spring |
| 94 | 2569 | Trip Lever Ass'y. |
| 95 | 4656 | Trip Link |
| 96 | 1588 | "C" Washer |
| 97 | 7121 | Slide Ass'y. |
| 97A | | Escape Lever(Part of Item 97) |
| 98 | 2246 | Spring, Slide Bearing |
| 99 | 2211 | Slide Bearing |
| 100 | 9849 | Screw |
| 101 | 6931 | Record Support Guide Ass'y. |
| 102 | 4857 | Screw |
| 103 | 6897 | Record Support Shaft |
| 104 | 7120 | Detent Spring & Link Ass'y. |
| 105 | 2585 | Spring, Escape Lever |
| 106 | 9849 | Screw |
| 107 | 14420 | Ejector Bracket |
| 108 | 9823 | Screw |

| Ref. No. | Part No. | | Description |
|---|---|---|---|
| | Alliance Motor | GI Motor | |
| | 18361 | 18781 | Motor Ass'y., Complete, 117V., 60 Cycle |
| 109 | 18398 | 19043 | Motor Plate Ass'y. |
| 110 | 5022 | 5022 | "C" Washer |
| 111 | 7434 | 6948 | Counter Balance Spring |
| 112 | 9134 | 9134 | Motor |
| 113 | 1652 | 1652 | "C" Washer |
| 114 | 2583 | 2583 | Fibre Washer |
| 115 | 7435 | 9092 | Idler Pulley |
| 116 | 1652 | 1652 | "C" Washer |
| 117 | 7437 | 6901 | Idler Link |
| 118 | 7438 | 6900 | Idler Arm Ass'y. |
| 119 | 7439 | 6949 | Idler Spring |
| 120 | 6631 | 6631 | Motor Mtg. Grommet |
| 121 | 6947 | 6947 | Detent Spring |

* Specify Color

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TROUBLE CHART (Con't.)

| SYMPTOM | CAUSE | REMEDY |
|---|---|---|
| | 8. Bent trip finger cam (68). | Straighten or replace. |
| Changer does not cycle when record has been played. | 1. No finishing trip groove on record. | Check record for eccentric trip groove in center of record. Some old records and home recordings do not have this eccentric trip groove. |
| | 2. Needle jumps out of grooves in record. | (a) Check trip pressure; the lateral pressure should not exceed 3 grams, (if pressure is excessive, see "Changer Trips Before Needle Reaches End of Record"). |
| | | (b) The record may be defective; the finishing groove is often too shallow. Check with a record that is known to be good. |
| | | (c) The needle point may be damaged or affected by an excessive accumulation of dust, lint, etc; check needle pressure as described under "Adjustments". |
| | | (d) There may be binding in the tone arm shaft and sleeve assembly (68) or between the tone arm return locator (64) and the trip finger cam (68); (See "Needle Does Not Track Properly Across Record). |
| | 3. Trip pawl binding on gear face. | The trip pawl must be free to move forward and engage the boss on the turntable hub when the trip lever releases it. Check for burrs or foreign matter lodged between the trip pawl and main gear (89). Do not oil as this might collect dirt and gum up the pawl. |
| | 4. Trip finger cam (68) bent. | Straighten or replace. |
| | 5. Trip link (95) bent. | Straighten or replace. |
| Changer trips before needle reaches end of record. | 1. Hole in record too large. | If the hole in the record is too large, the groove may turn eccentric with the spindle and cause premature tripping. |
| | 2. Binding of trip link (95). | With the trip link released, check the trip link for freedom of motion. It should be free to move without binding. |
| Needle does not track across record properly. | 1. Needle may be clogged by accumulation of lint, dirt, etc, or worn. | (a) Clean foreign material from around needle. |
| | | (b) Check needle to see if the tip is bent or broken. Replace if necessary. |
| | 2. Trip finger cam (68) does not disengage from the tone arm return locator (64) when cycle is completed. | There should be a 1/32" gap between the trip finger cam (68) and the tone arm return locator (64) when the machine is not in cycle. |
| | 3. Check the bearing in the tone arm post for binding. | (a) Check tone arm return locator (64) and trip finger cam (68) for binding (See 2 above). |
| | 4. Pickup leads too tight. | Give the pickup leads enough slack to allow the tone arm to move freely across a record. |



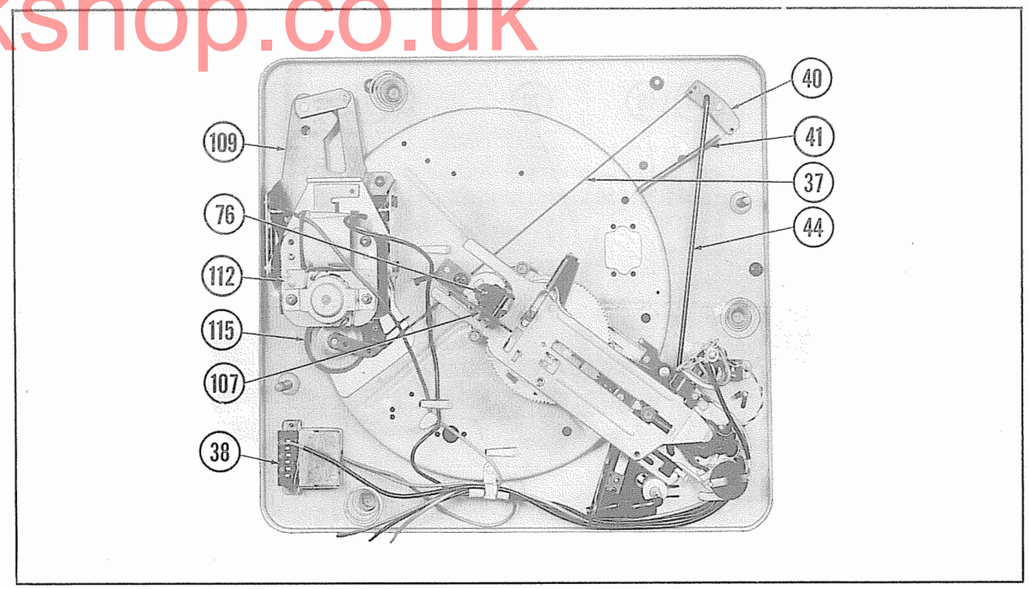


Fig. 2. Bottom View of Changer.

## Starting

Make sure the stylus and speed controls are in the position corresponding to the type of records to be played. Then turn Off-On-Rej. knob to Rej. and release. The changer will play and change each record, and shut off automatically after the last record has been played.

## Rejecting

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

## Unloading

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

## Manual Operation

Records without starting and fast-finishing grooves must be played manually. To play records manually, lift the record support arm and swing it to the right until it clears the turntable. Place record on spindle and lower to the turntable. Turn changer control knob to On position only. Gently place needle on record.

## CHANGE CYCLE

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

This changer has a velocity trip mechanism. The change cycle is started by the faster inward motion of the tone arm when the needle enters the trip grooves at the end of a record. Only records having fast-finishing grooves will operate this trip.

The tone arm and trip finger cam and shaft assembly (68) are connected so that they move in unison. As the tone arm nears the end of a record, trip finger cam (68) pushes trip link (95), engaging and pivoting trip lever (94). As trip lever (94) pivots, pawl lever (92) pivots with it and carries the trip pawl toward the turntable hub. 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.

When the needle enters the record lead-out groove, the trip pawl is moved far enough to definitely engage the projection on the turntable hub. The con-

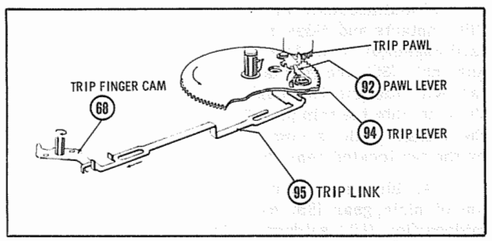


Fig. 3. Trip Mechanism Parts.

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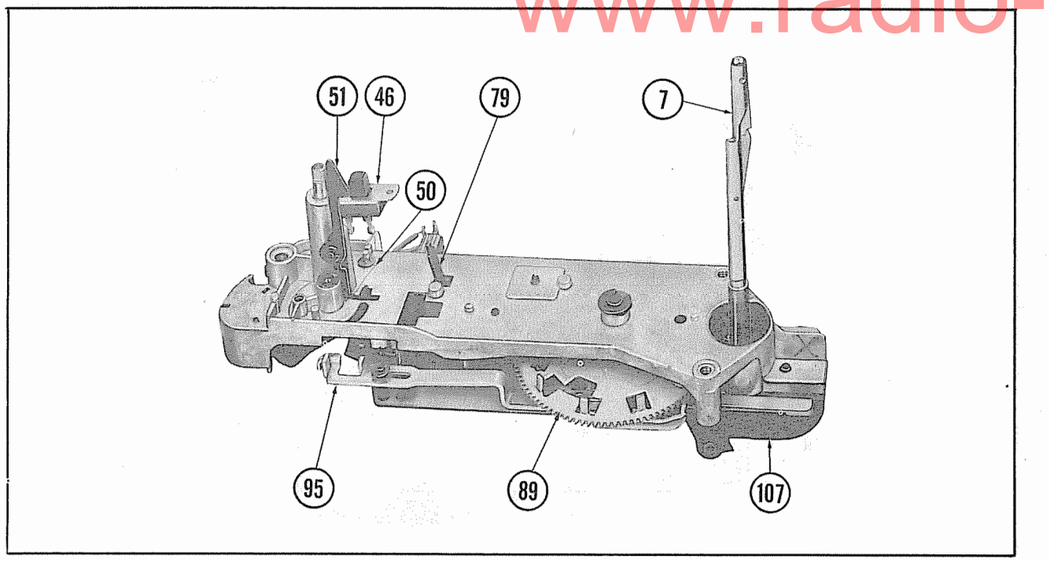


Fig. 4. Top View Of Cycling Mechanism.

tact between the trip pawl and turntable hub projection gives the necessary push for the teeth in main gear (89) to engage the teeth in the turntable hub, causing main gear (89) to rotate. This action starts the lateral travel of slide assembly (97). Slide assembly (97) is moved toward the rear by an eccentric mounted pin on main gear (89). This pin rides in the cross slot in slide assembly (97).

As the slide assembly begins to move, lift pin (23) rides up the incline on the rear of slide assembly (97), raising the tone arm. At the same time, trip finger cam (68) is pushed upward by lift pin spring (71), causing the two formed dimples in the trip finger cam to engage the two holes in tone arm return locator (64). This action controls the movement of the tone arm during the change cycle.

Slide assembly (97) continues to move away from the spindle until the formed end of slide (97) pushes against tone arm return locator (64). This action moves the tone arm out over tone arm rest (28).

A tab on the front of slide assembly (97) now contacts ejector bracket assembly (107). Ejector bracket (107) moves push rod (76) upward to acutate spindle assembly (7), dropping a record to the turntable.

Simultaneously, the trip pawl on top of main gear (89) contacts and rides along the curved finger of retard assembly (86). After leaving the finger of retard assembly (86), the trip lever assembly comes in contact with the trip link guide rivet. This action cams the pawl into the trip position again; however, before the change cycle is completed the trip pawl is reset by the tab located near the cross slot in slide (97).

At this time, the cam surface of the bracket on top of main gear (89) moves reset lever (81) to its midposition (10" setdown), where reset lever (81) is held by 12" record selector (51). Slide assembly (97) continues to the rear and then starts forward.

If 7" records are being changed, rubber bumper (54) and 7" setdown lever (79) are free to move upward. This action raises reset lever (81) to the upper position (7" setdown).

If 10" records are being changed, 7" setdown lever (79) will not rise, because rubber bumper (54) will contact the edge of the 10" record. Consequently, reset lever (81) remains in the midposition (10" setdown) as originally placed by the camming action of the bracket on top of main gear (89).

When a 12" record drops to the turntable, the record strikes 12" record selector (51) and pivots the selector toward the rear of the changer. This action disengages the end of reset lever (81) from the edge of 12" record selector (51) and permits reset lever (81) to drop into the recess at the bottom of 12" record selector (51). Reset lever (81) then engages the bottom step of tone arm return locator (64), positioning the tone arm for 12" setdown.

As slide assembly (97) continues forward, the tab on the rear of the slide moves clear of tone arm return locator (64) and trip finger cam (68), which are still locked together. This action permits tone arm return spring (61) to move the tone arm inward until one of the three setdown steps in tone arm locator (64) strikes reset lever (81), stopping the inward travel of the tone arm directly above the point of landing. The tone arm is then lowered to the lead-in groove of the record as lift pin (23) rides down the incline on the rear of slide assembly (97). As pressure is released from lift pin spring (71), trip finger cam (68) and tone arm return locator (64) separate, permitting the tone arm to track freely across the record.

After the record has played and the mechanism trips, the preceding sequence of cycling and playing of



## TROUBLE CHART (Con't.)

| SYMPTOM | CAUSE | REMEDY |
|---|---|---|
| | 4. Needle bent. | Replace with new needle. |
| | 5. Wire spring (50) broken. | 12" record selector (51) does not cock; check for broken 12" record selector spring (50). |
| | 6. Bent tone arm return locator (64). | Straighten or replace. |
| | 7. Bent trip finger cam (68). | Straighten or replace. |
| Needle does not set down on 12" record in proper position. | 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 (51). 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. Tone arm not adjusted properly. | (See "Adjustments".) |
| | 4. Binding of tone arm shaft and sleeve (68). | Clean and polish shaft (68) and lubricate with light oil. |
| | 5. Reset lever spring (82) broken. | Replace spring (82). |
| | 6. 12" record selector spring (50) broken. | Replace spring (50). |
| | 7. 12" record selector (51) binding. | The 12" record selector must be free to operate smoothly. Clean out dirt and straighten if bent, or replace. |
| | 8. Bent tone arm return locator (64). | Straighten or replace. |
| | 9. Bent trip finger cam (68). | Straighten or replace. |
| Needle does not set down on 7" record properly. | 1. 7" set-down lever spring (78) broken or weak. | Replace. |
| | 2. Tone arm not adjusted properly. | (See "Adjustments".) |
| | 3. 7" set-down lever screw (80) loose. | Tighten. |
| | 4. 7" set-down lever (79) hitting frame or baseplate where it goes through hole in frame. | Straighten or replace. |
| | 5. Reset lever (81) bent. | Replace. |
| | 6. 7" set-down lever (79) does not fall into opening in main gear. | Replace. |
| | 7. Bent tone arm return locator (64). | Straighten or replace. |

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| SYMPTOM | CAUSE | REMEDY |
|---|---|---|
| Record does not drop when changer cycles. | 1. Spindle push rod (76) broken, or bent. | Replace push rod (76). |
| | 2. Record finger in spindle not moving far enough to eject a record. | The record finger should move forward until it has reached a point flush with, or a maximum of, .010 beyond the spindle body (7).<br><br>To insure that the record finger is all the way forward, push rod (76) 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 (7) should be replaced. If a record is not pushed completely off the ledge it may hang on the spindle momentarily, then drop on the tone arm when it moves in over the turntable. |
| | 3. Check that ball bearing (8) 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 oversize hole will cause two records to drop at once. |
| | 2. Spindle guide not fully down. | If the spindle guide is not all the way down, more than one record may drop at a time.<br><br>(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.<br><br>(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. |
| | 3. Slight play in spindle (7). | Tighten spindle set screw (73). |
| Record hits tone arm. | 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. Tone arm not adjusted ed properly. | (See "Adjustments".) |
| Needle does not set down on 10" record in proper position. | 1. Tone arm not adjusted properly. | (See "Adjustments".)<br><br>(a) Loose nut (20) on pickup arm shaft and sleeve (68). |
| | 2. Tone arm shaft and sleeve (68) binding. | File off burrs and rough surfaces. Polish and lubricate shaft. |
| | 3. 7" set-down lever (79) and 12" record selector (51) not operating properly. | Insure that the proper operation and reset of the 7" set-down lever (79) and 12" record selector (51) is not being interfered with. |



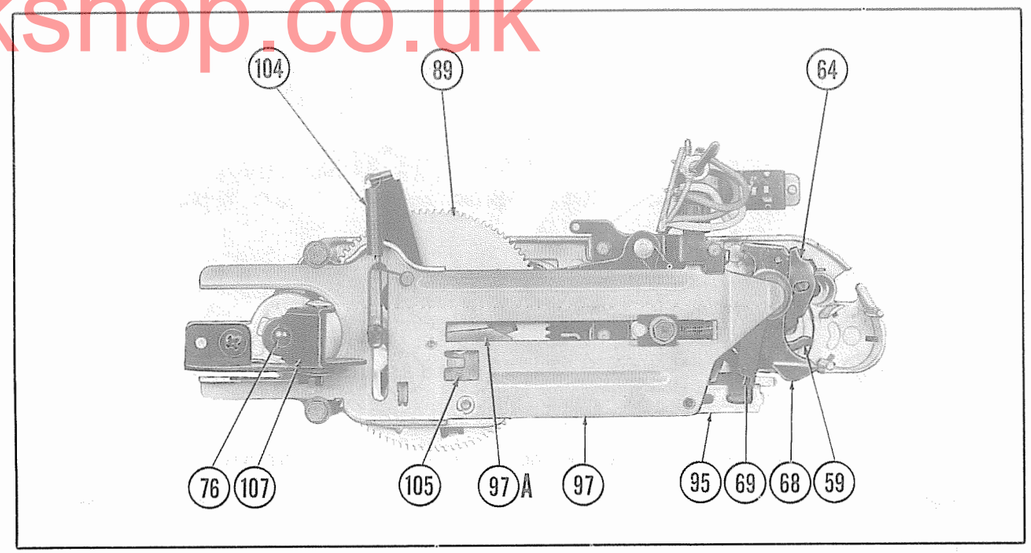


Fig. 5. Bottom Biew Of Cycling Mechanism.

records is again followed until only the last record of the stack remains on the spindle shelf.

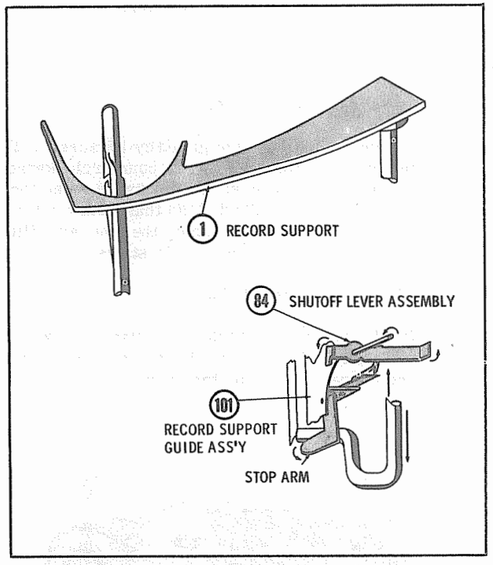


Fig. 6. Shutoff Mechanism Parts.

As the last record of the stack drops to the turntable, record support (1) drops below the shelf on spindle assembly (7), and the lower end of record support shaft (103) contacts the stop arm on record support guide assembly (101). The stop arm in turn applies force to shutoff lever (84). At this moment, cycling slide (97) is in its outermost position (away from the spindle), and the end of shutoff lever (84) is forced against escape lever (97A), preventing shutoff lever (84) from lowering further.

As cycling slide (97) returns to the out-of-cycle position, the end of shutoff lever (84) slides off escape lever (97A), permitting the end to extend down through the slot in the cycling slide. By this time, tone arm locator (64) has rotated too far to be blocked by shutoff lever (84), and the tone arm is permitted to land on the record.

After the last record has played, the mechanism again goes into cycle. When cycling slide (97) has reached its outermost position, the force applied to shutoff lever (84) from record support shaft (103) causes the end of shutoff lever (84) to extend through the slot in cycling slide (97). The other end of shutoff lever (84) rises and prevents tone arm locator (64) from rotating. This action positions the tone arm directly over tone arm rest post (28).

As cycling slide (97) moves back toward the spindle, trip link (95) pushes control lever (59), actuating power switch (60). Thus, power is removed from the motor, stopping the mechanism.

As slide assembly (97) returns to the out-of-cycle position, lift pin (23) rides down the slide incline and lowers the tone arm onto rest post (28).

## LUBRICATION

Additional lubrication should not be required for the life of the changer. However, if the changer has had extreme usage, or if parts are replaced, lubricate as follows:

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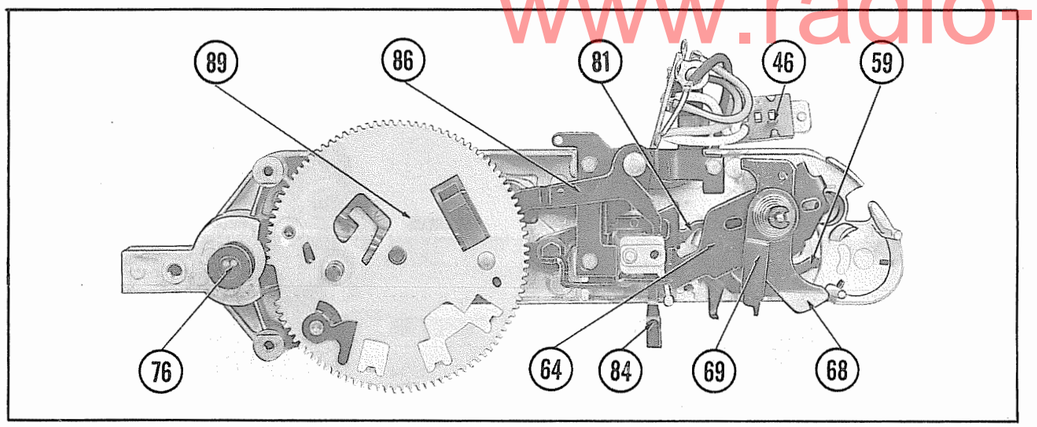


Fig. 7. Bottom View Of Cycling Mechanism With Slide Removed.

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

1. Edges of all slots in slide assembly (97).

2. Outer edges of tines on forked end of slide assembly (97).

3. Lift pin cam surface on slide assembly (97).

4. Lower surface of tone arm return locator (64).

5. Inner surface of tab on rear of slide assembly (97).

Apply one drop of light mineral oil to:

1. Trip finger cam shaft (68).

2. Push rod (76).

3. Top and bottom motor bearings.

## ADJUSTMENTS

### Needle Setdown (Refer to Fig. 8.)

The setdown position of the needle is adjusted by setdown adjustment screw (24A). Turn this screw until setdown is correct for a 10-inch record. When 10-inch setdown is correct, the 12-inch and 7-inch setdown will also be correct.

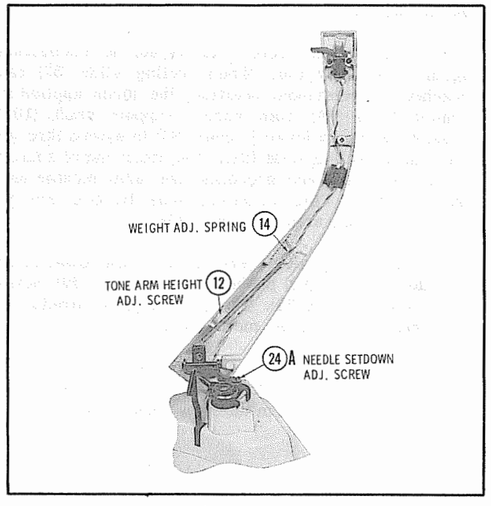


Fig. 8. Tone Arm Adjustment Points.

### Tone Arm Height (Refer to Fig. 8.)

The tone arm height is adjusted by lift screw (12). To raise tone arm, turn this screw counterclockwise. To lower tone arm, turn screw clockwise. The tone arm height should be adjusted so that, with a 1 1/8" stack of records on the turntable, the tone arm lifts 1/4" straight up as the change cycle starts.

### Needle Pressure (Refer to Fig. 8.)

Needle pressure should be between 6 and 8 grams. To adjust, place weight adjustment spring (14) in the proper slot in the tone arm.

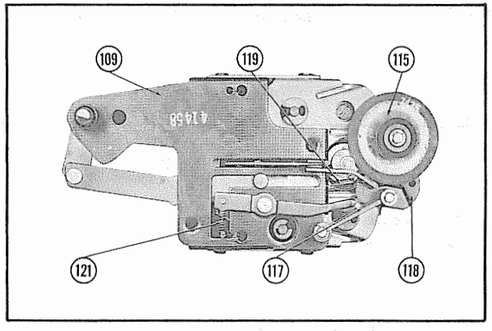


Fig. 9. Top View Of Motor.





| SYMPTOM | CAUSE | REMEDY |
|---|---|---|
| | 3. Defective motor idler | 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 idler. 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. Turntable scrapes. | If a scraping sound occurs as the turntable revolves, check;<br>(a) Turntable warped, causing outer rim to rise and fall.<br>(b) Motor idler or mounting plate bent. |
| | 5. Squeaks. | Squeaking sound as changer operates indicates lack of oil. Lubricate points indicated under "Lubrication". |
| Changer does not shut off after last record has been played. | 1. Record support (1) binding. | The record support must drop below the off-set shoulder of the spindle or the changer will not shut off. |
| | 2. Lever assembly (84) binding. | Clean out dirt and make sure lever 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 tone arm motion. | 1. Horizontal defects. | (a) Check tone arm return locator (64) for tightness.<br>(b) Check that tone arm return spring (61) is not weak and is hooked up properly. |
| | 2. Vertical defects. | (a) Lift pin (23) binding; clean out dirt and lubricate.<br>(b) Slide and cam (97) binds; check bearing points — clean and lubricate.<br>(c) Burrs in main slot in slide and cam (97) — remove with fine file.<br>(d) Ejector lever on ejector bracket assembly (107) binding. Straighten, remove burrs, and lubricate.<br>(e) Tone arm shaft and sleeve binding; clean and lubricate. |
| Noise during change cycle. | 1. Tines on the forked end of the slide and cam assembly (97) bent. | Replace. |
| | 2. Lack of lubrication. Grinding noise. | Lubricate ejector lever (107) where it contacts lower end of push rod (76). |
| Shuts off when last record drops. | 1. Shut-off bracket (101) bent. | Straighten or replace. |
| | 2. Record support bent. | Bend record support (1) until parallel with baseplate. |
| | 3. Loose shut-off lever assembly (84). | Tighten |
| | 4. Escape lever spring 105 missing. | Replace. |

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| 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. | (See "Turntable Does Not Revolve When Control Knob is Turned to 'On' Position" .) |
| | 2. Binding in drive mechanism. | 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.<br><br>(a) If binding occurs, check for foreign matter in the gear teeth, a bent gear bearing, or bent spindle bushing.<br><br>Straighten or replace. Clean and lubricate. |
| | 3. Binding between pick-up arm lift pin (23) and lift pin cam surface on slide and cam assembly. | Lift pin should ride freely on cam surface without binding. |
| | 4. Motor weak. | When everything checks all right, but the changer still stalls in cycle, the motor may be weak. |
| | 5. Grease on idler wheel. | Wipe off idler wheel rubber tire, inner rim of turntable and motor pulley with naptha or alcohol. |
| | 6. Idler wheel tension spring weak. | Replace spring. |
| Changer continues to cycle. | Reject mechanism binding. | (a) Make certain trip link (95) is not frozen in the reject position.<br><br>(b) Make certain changer control lever (59) is not binding and that it actuates trip link (95) when the changer control knob (25) is turned to reject.<br><br>(c) Check for binding of trip pawl, trip lever (94) and pawl lever (92); these must be free to turn easily.<br><br>(d) Check the changer control linkage, (44) and (59). |
| Noise during playing of record. | 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 (6). | Defective turntable bearings can cause rumble. Check for foreign matter in the bearing; also check for defective balls, binding between balls and ball retainer, and rough surface on washers. Clean ball bearing, sleeve bearing, and washers; lubricate with light mineral oil. |



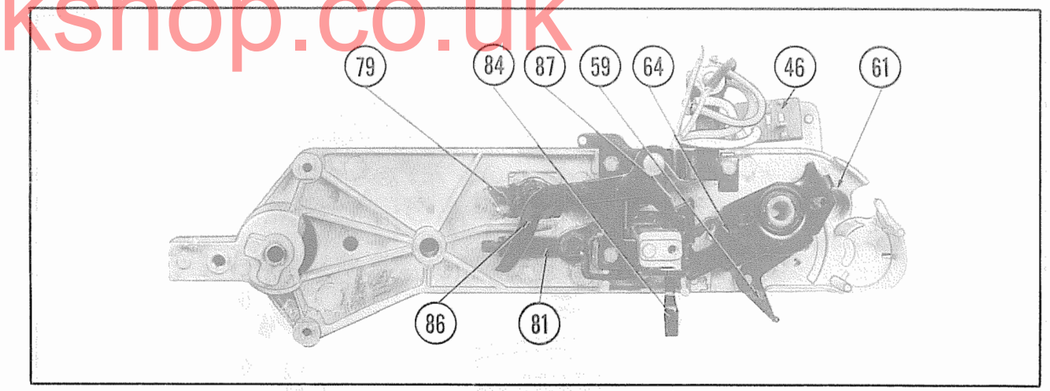


Fig. 10. Bottom View Of Cycling Mechanism With Slide And Cam Gear Removed.

TROUBLE CHART

| SYMPTOM | CAUSE | REMEDY |
|---|---|---|
| Turntable does not revolve when control is turned to "On" position. | 1. No current at motor. | (a) Check that current is reaching AC leads of changer.<br><br>(b) Check that switch is closing.<br><br>(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 wheel. | If drive spindle is turning but turntable is not:<br><br>(a) Check motor idler assembly to determine if it is free to contact the drive spindle and turntable rim.<br><br>(b) Wipe off inside rim of turntable (4) to remove dust, or if oily, clean the turntable rim and rubber tire of the idler wheel with naptha or alcohol. |
| Changer does not cycle when the control knob is turned to the "Rej." position. | 1. The manual reject not actuating the trip. | (a) Turn control knob (25) to the reject position; hold and see that control shaft assembly (59) has moved trip link (95) to the rear. This should actuate the trip pawl on main gear (89) which will bring the spur on the trip pawl in contact with the gear on the turntable hub.<br><br>(b) Check for binding of pawl lever (92), trip lever assembly (94) 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 control knob (25) is free. |
| Tone arm strikes records on spindle when it raises, or tone arm rest when it moves out. | 1. Tone arm height not adjusted properly. | (See instructions for adjusting tone arm height under "Adjustments".) |

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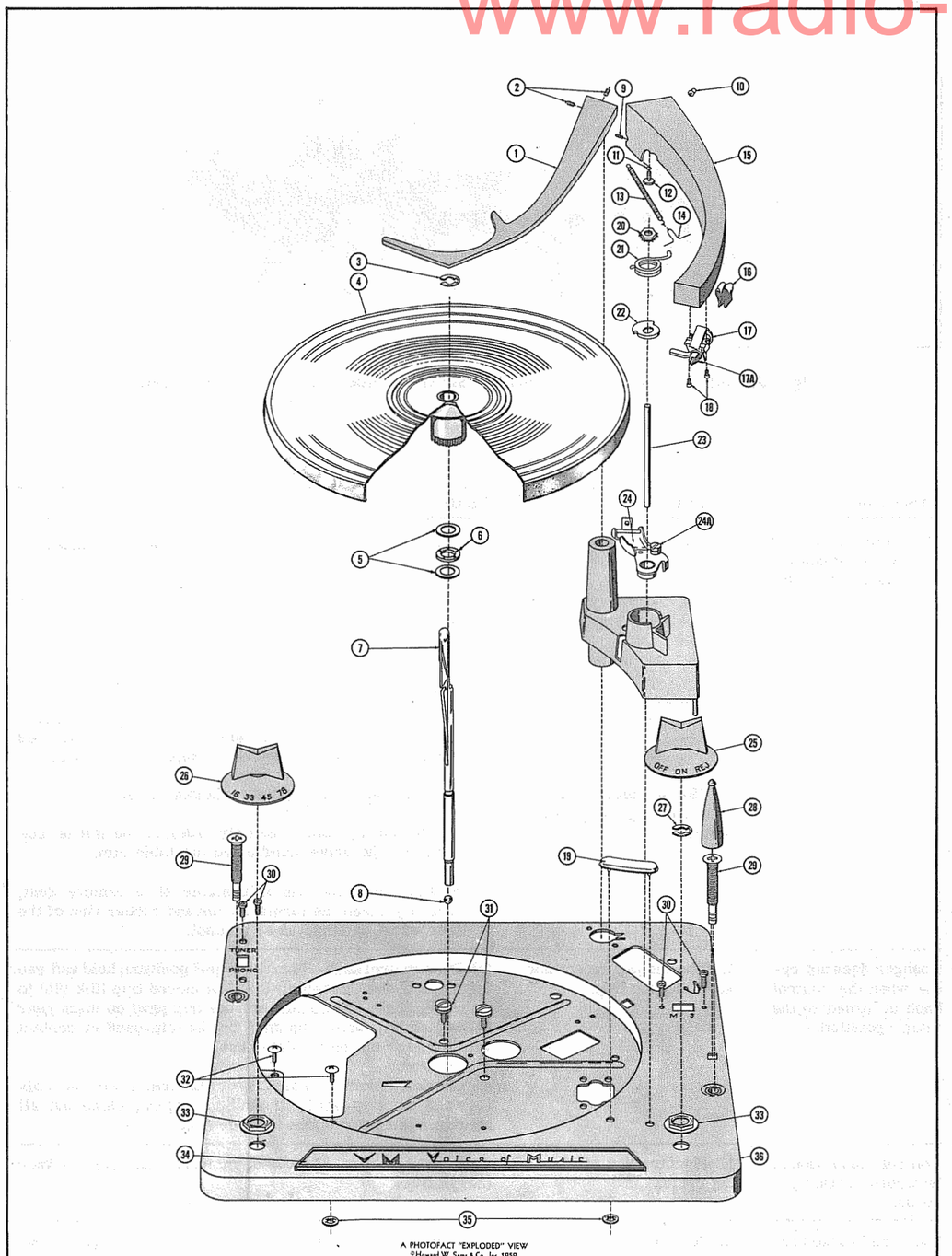


Fig. 11A. Exploded View Of Parts Above Baseplate.



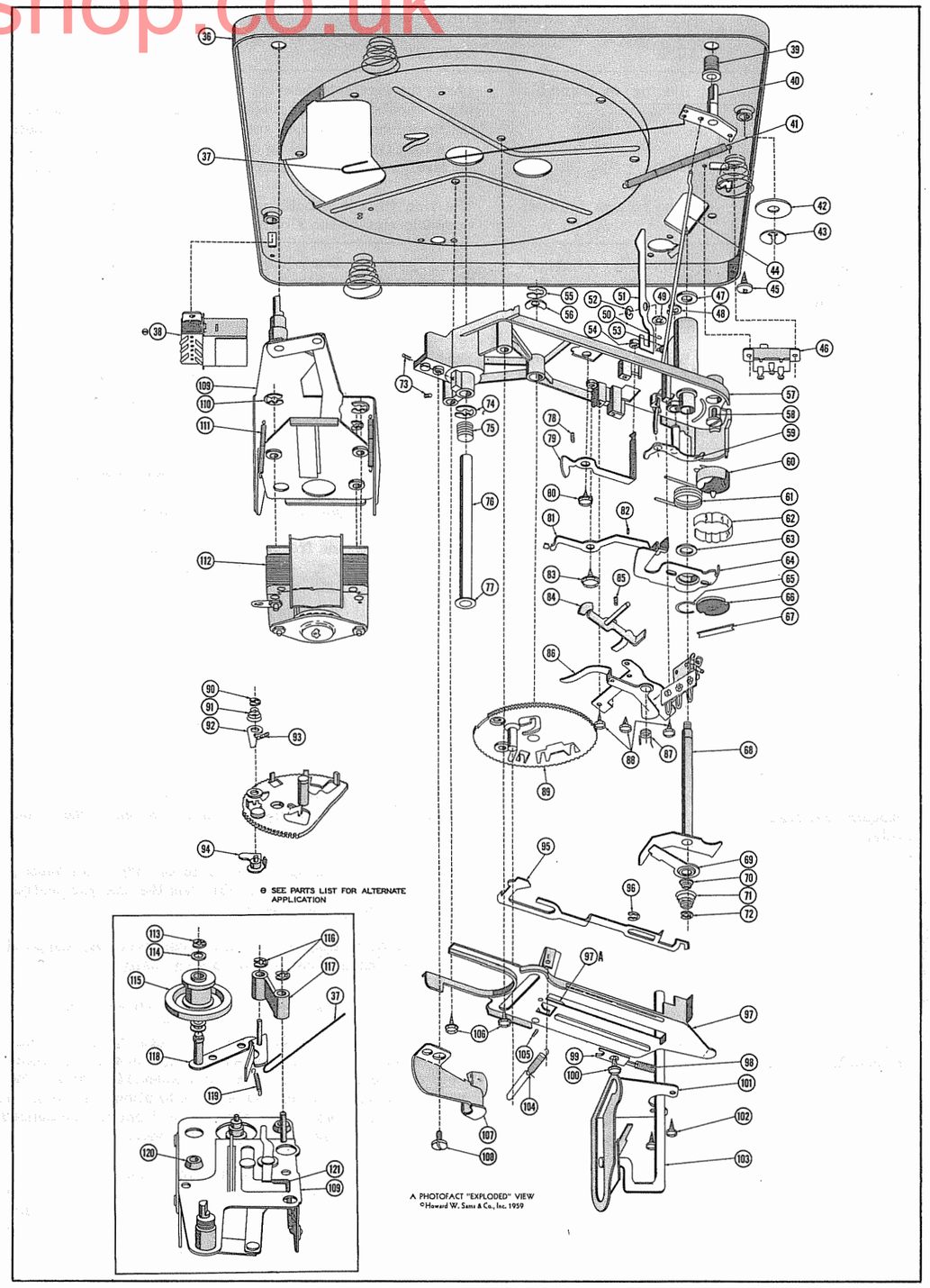


Fig. 11B. Exploded View Of Parts Below Baseplate.