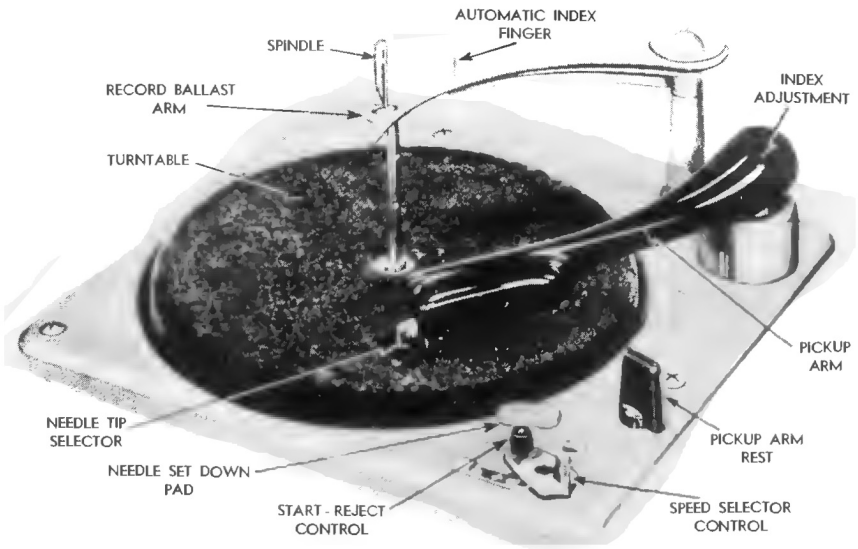
WEBSTER-CHICAGO

MODELS 100 AND 101 RECORD CHANGERS

NOTE: The mechanism of Models 100 and 101 are identical. The difference between them is one of styling and appearance.



The basic Model 100 Mechanism is used in the following models:

Model 100-1 is the basic record changer chassis with a Crystal pickup cartridge and replaceable needle. The needle and cartridge have high compliance so they will play both standard groove and microgroove records at low needle pressure.

Model 100-27 is the same basic mechanism as above with special pickup arm and interchangeable plug-in heads designed for the G. E. Variable Reluctance Cartridges.

Model 100-55, Model 100-557 are models 100-1 and 100-27 respectively mounted on an attractive metal base to fully enclose and protect the mechanism.

Model 100-62 is a complete portable phonograph with the Model 100-1 record changer, an amplifier and speaker mounted in an attractive burgundy leatherette carrying case.

Model 100-64 is the basic Model 100 mechanism mounted in an attractive burgundy leatherette carrying case for portable use.

FOR "AUTOMATIC" RECORD CHANGE

1. Lift the Record Ballast Arm and swing it away from the spindle until it "latches" with a light snap. The Automatic Index Finger will follow
2. Place up to a 1-inch stack of any one size of records on the Spindle and swing the Record Ballast Arm back to the spindle allowing it to drop in position with the spindle in the hole. The Automatic Index Finger will remain away from the record until the change cycle starts. It will then move in to feel the diameter of the record and automatically index the pickup needle to the proper playing position.
3. Then turn Needle Tip Selector to correct position for records being played. Move the Speed Selector Lever to the correct speed for the records being played and push the START-REJECT control.
4. To reject any record while playing in the Automatic Position, push the Reject control.

After the last record has been played, the entire stack may be removed from the turntable at one time. The simplest procedure is as follows:

a. Lift and turn the Record Ballast Arm weight out of position until it latches. Be sure the pickup arm is on the pickup arm rest.
b. Place the fingers of both hands under opposite edges of the bottom record. Do not apply pressure to the top record but keep your thumbs free, and lift the stack of records straight up, following the contours of the spindle. This permits the stack of records to follow the curve of the spindle without binding.

FOR "MANUAL" RECORD CHANGE

1. Lift the Record Ballast Arm and swing it and the Automatic Index Finger away from the spindle. The changer is then automatically in "manual" until the Record Ballast Arm is mov-

ed in and placed over the spindle. The pickup arm can be moved in or out without tripping the Velocity Trip automatic mechanism so long as the Record Ballast Arm and Automatic Index Finger are left in this position.

2. Turn Needle Tip Selector to correct position for record being played. Place a record on the turntable. Move the Speed Control Lever to the correct speed for the record being played and then place the needle gently on the record. To stop the mechanism at any time turn the Speed Selector Lever to an "OFF" position.

SERVICE INFORMATION

The functions and most probable misadjustments of the main assemblies are as follows (reference numbers refer to the exploded views).

FAILS TO CHANGE RECORDS AUTOMATICALLY

The Main Cam Assembly (61) drives the mechanism associated with the action of the Pickup Arm (23) and the Record Selector assemblies. It, in turn is driven by the gear train (9) and the Turntable which is rim driven by the phonograph motor.

The Cam Drive Gear (56) is put in motion or "tripped" by means of the "Velocity Trip" (57) or by the manually operated "reject" trip (25). When the movement of the Pickup Arm toward the spindle is greater than ⅛" in ½ revolution of the turntable, the Velocity Trip Arm (76) trips the Velocity Trip (57). This releases the Actuating Pawl on the Main Cam Assembly (61), allowing it to engage the Cam Drive Gear (56) and driving it through the change cycle. The pressure from the Velocity Trip Arm required to actuate the trip mechanism is negligible.

The Velocity Trip Arm (76) follows the movement of the Pickup Arm through a weighted friction clutch (75). This clutch must be kept free of oil and grease. If the clutch does not cause the Velocity Trip Arm to trip the mechanism, clean the clutch parts with carbon tetrachloride. This clutch should operate the trip mechanism without placing undue drag on the movement of the pickup arm.

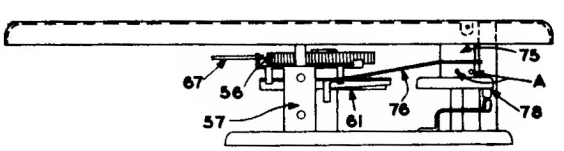


Fig. 1

Also check for:

1. Velocity Trip (57) binding on its mounting Pin (J of 69).
2. Slight burr on end of the Actuating Pawl or on the underside of the hook end of the Velocity Trip (57).
3. Actuating Pawl stuck (part of Main Cam Assembly (61) engaged by the hook end of the Velocity Trip (57)).
4. Velocity Trip Arm (76) bent and not hitting the Velocity Trip (57).
5. Velocity Trip Arm (76) fails to touch the Velocity Trip.
6. Velocity Trip (57) rubbing on the underside of the Cam Drive Gear (56).
7. No velocity lead-in groove or eccentric groove in the center of record.
8. Foreign matter in record groove.
9. Badly worn record.
10. Badly bent or worn needle.
11. Spindle out of adjustment. (See "Does not push off records.")
12. Rubber bumper on Velocity Trip (57) damaged by sharp edges of reset points of gear (56). Replace bumper, Part No. 24P023. The bumper can be slipped off its stud and a new one forced on.

CHANGES RECORDS PREMATURELY

At the completion of the change cycle, the Actuating Pawl (part of 61), is disengaged from the Cam Drive Gear (56) by the hook end of the Velocity Trip (57), which has been returned to its normal position by the reset points on the Cam Drive Gear (56).

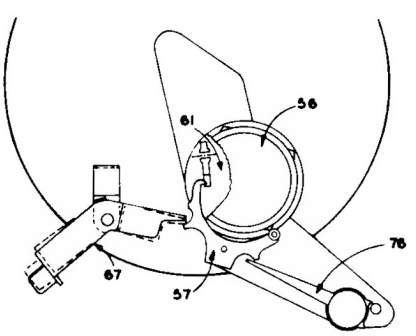


Fig. 2

If the vertical clearance between the lip on the Velocity Trip Lever and the edge of the Main Cam is too small, it will prevent the hooked end of the Velocity Trip Lever from engaging the trigger. Adjust the clearance between the lip on the Velocity Trip Lever and the Main Cam to be within $\frac{1}{32}$" and $\frac{1}{64}$" when the roller is contacting the point of one of the reset points on the Cam Drive.

Also check for:

1. Velocity Trip (57) rubbing on Cam Drive Gear (56).
2. Manual Trip Lever (67) binding.
3. "Disengage Roller" broken on the Velocity Trip (57).

PICKUP ARM DOES NOT CLEAR 1" RECORD STACK

The vertical movement of the pickup arm is controlled by the angle of the pickup arm raising lever (62 and Fig. 3). The needle should approach the top record of a full 1" stack of records on the turntable with approximately $\frac{1}{16}$" clearance.

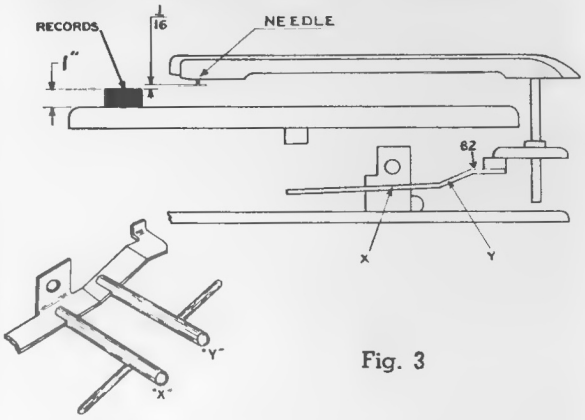


Fig. 3

To adjust:

1. Put a full 1" stack of records ON THE TURNTABLE.
2. Trip the "Reject" control and rotate the turntable clockwise until the pickup arm reaches its highest point.
3. Be sure the front or 10" notch in the pickup arm raising disc engages the pickup arm raising lever.
4. If the needle does not clear the top record or if it raises too high, adjust by holding the pickup arm raising lever (62) at point X and bending at Y as indicated in Fig. 3.

CAUTION: All adjusting bends should be made slowly, using slight but firm, easy pressure. Be careful to bend only up and down, not across the lever.

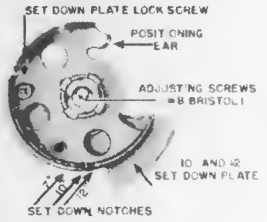
Be sure the set screws in the Pickup Arm Raising Disc (78A) are not loose and are properly positioned in the alignment holes.

NEEDLE SET DOWN POINT INCORRECT

The pickup arm should set the needle down at or just outside the "lead-in" groove of the record, regardless of the size of the record. It is advisable to follow a set routine when checking for the proper needle set down positioning. At the factory the following routine is followed:

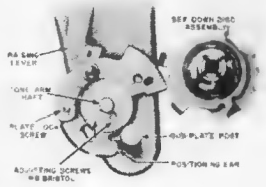
7" ADJUSTMENT

1. Place a 7" Record on the spindle and permit the Automatic Index Finger to rest against the edge of the record. With the Speed Selector in the "OFF" position, press the Reject Button and revolve the turn table by hand thereby putting changer through its change cycle. Note action of the Raising Lever; when this lever reaches its highest point and its farthest outward excursion, the edge of the lever should seat in the 7" notch of the Raising Disk. In this position of the Disk its positioning ear should touch the sub plate post. If necessary bend the ear so that the above action occurs each time the changer is cycled with a 7" record on the spindle.



2. Continue the change cycle until the needle is just above the 7" record. Nearly exact indexing can now be attained by means of the adjusting screws in the hub of the Raising Disk. These screws have pointed ends which fit into "off-center" holes in the Tone Arm Shaft. By simultaneously loosening one screw and tightening the other the needle can be brought just over the lead-in groove of the record.

   This adjustment requires the use of two No. 8 Bristol wrenches. After the adjustment has been made both set-screws should be tight.



Trip Arm Stop Plate Not Shown

3. A vernier adjustment of the index is made by means of the slotted screw beneath the hole at the back end and on top of the tone arm.
4. Note that there is no mechanical connection between the Raising Disk and the Set Down Assembly. Also note that 7" indexing is determined by the Raising Disk independently of the Set Down Disk.

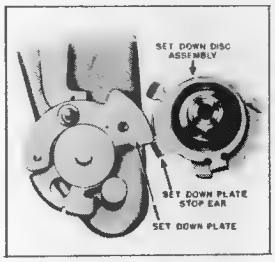
   WHEN THE 7" INDEX ADJUSTMENT IS COMPLETED *DO NOT* ALTER ANY OF PARAGRAPH 1 AND 2 ADJUSTMENTS WHEN ADJUSTING FOR 10" AND 12".

10" AND 12" INDEX ADJUSTMENTS

5. Make certain 7" indexing is correct. If not adjustment must be made as described above.

6. 10" indexing is determined by the engagement of the 10"-12" Set Down Plate with the Set Down Plate Stop Ear because the Ear restricts the movement of the Raising Disk causing the Raising Lever to come out of the 7" notch and slide into the 10" notch.

7. Place a 10" record on the spindle and permit the Index Arm to rest against the edge of the record. With the Speed Selector in the "OFF" position, press the reject button and revolve the turntable by hand until the record drops and the needle is just above the level of the record. At this point the Raising Lever should be in the 10" notch and proper indexing will occur. If not, the Set Down Plate can be adjusted by loosening the Plate Lock Screw and moving the plate so that it permits the Raising Lever to "fall" into and stay in the 10" notch. Be sure to retighten the Lock Screw.

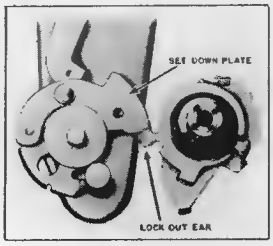


Trip Arm Stop Plate Not Shown

8. 12" indexing is the same as 10" except that the more inward position of the Set Down Plate Ear, restricting the movement of the Raising Disk causes the Raising Lever to come out of the 7" notch, pass through the 10" notch and "fall" into the 12" notch.

LOCK-OUT

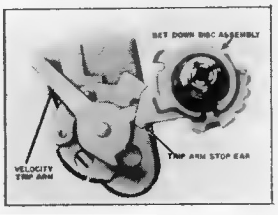
9. When the last record of a stack is being played the Index Arm moves against the Over-Arm bringing the Lock-out Ear into a position shown below. At the end of the record the Raising Lever returns the Raising Disk to the position shown to the right. But when it attempts to carry the Disk inward again, the Disk movement is completely restricted by the Lock-Out Ear causing the Tone Arm assembly to come to rest on the rest button.



10. The Lock-Out Ear can be bent to properly adjust it for performing the above function.

11. IF A PERSON HOLDS OR MOVES THE INDEX ARM WHILE THE RECORD CHANGER IS GOING THROUGH ITS CHANGE CYCLE THE LOCK-OUT EAR MAY BECOME BENT OR THE SET DOWN PLATE MAY BE FORCED OUT OF POSITION THEREBY EFFECTING 10"-12" INDEXING.

If it is necessary to adjust the Lock-Out Ear make sure it is not positioned so low that it interferes with the free movement of the Set Down Plate during change cycle when records are on the spindle.



MANUAL PLAY

12. For manual playing of records the Index Arm is swung away from the spindle as far back as it will go. This causes the Trip Arm Stop Ear to engage the Velocity Trip Arm and prevent it from tripping and cycling the changer mechanism.

13. On early production of Model 100 some Pickup Arm Raising Disks (part No. 11X552) were produced with the 7" notch slightly out of location. If such a changer is adjusted for 7" indexing it is possible that reliable 10"-12" setdown cannot be attained. This condition requires that the Disk be replaced with one of later production in which the 7" notch has been corrected.

Record Changers bearing production tags (under the main plate) carrying the code number 375-023 or smaller may require replacement of the Disk. Those carrying the code number 375-024 or higher are equipped with the proper disk.

ERRATIC NEEDLE SETDOWN POSITIONING

If all adjustments to assure a correct needle set down seem all right and the needle still sets down at odd and wrong positions, check:

1. Lip (D of 73, Fig. 8) should engage G of 64A by only about $\frac{3}{32}$". If it is difficult for G to clear D, the movement of the pickup arm will not be properly controlled and erratic "Indexing" will result. Bend D, if necessary, to permit, smooth, easy separation of these two parts.

CANNOT "REJECT" RECORDS

Pushing the Reject button (25) causes the Trip Lever Arm (67) to contact the Velocity Trip mechanism (57), putting the change mechanism in cycle.

If you cannot "Reject" records, check the perpendicular ear of the Velocity Trip mechanism. It may be bent so the Trip Lever Arm cannot touch it.

CANNOT PLAY RECORDS "MANUALLY" OR ONE AT A TIME

The changer is automatically in "manual" whenever the Record Ballast Arm (1A) and the Index Finger (1C) are turned out as far as they will go, as tho you were loading a stack of records. The finger D of (73) holds the finger G of (64A), causing finger A of (73) to hold the velocity trip arm away from the change mechanism as long as the Index Finger is "out" away from the spindle.

If the mechanism "trips" with the Index Finger in the Manual position check for:

1. No detent in end of finger D of (73).
2. Dirt in the detent
3. Finger A of (73) bent

DOES NOT PUSH OFF RECORDS

The action of the vertical cam of (64) on the bent lever plate (71) forces the actuating rod (A) up into the spindle (3) to move the record push off finger forward, pushing off the bottom record of the unplayed stack.

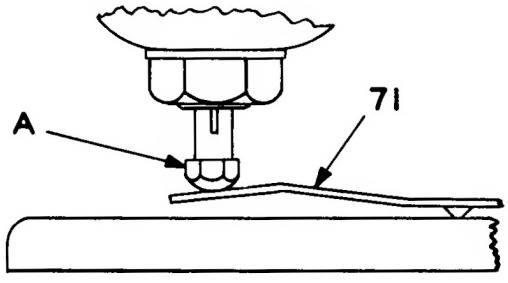


Fig. 6

If the push off finger fails to release the record:

1. Put a full 1" stack of 12" records on the spindle, turn on the A.C. power and trip the Reject button. If the bottom record is not pushed off:
2. Turn the Adjusting nut (A) ¼ turn counter-clockwise out of the spindle to make the actuating rod slightly longer.

   If the bottom record still does not drop, continue turning the adjusting nut counter-clockwise, ¼ turn at a time, until the record is pushed off.

   CAUTION: If the actuating rod is turned out too far, the cam of (64) will not be able to complete its motion and the changer will stall in cycle. When a change cycle has been completed there should be very slight play at both ends of the rocker lever (71).

MORE THAN ONE RECORD IS DROPPED DURING A CHANGE CYCLE

If more than one record is dropped at a time, it will be found to be due to:

1. Foreign matter in spindle recess causing the latch to stick.
2. Exceptionally thin records.
3. Bent spindle.

INCORRECT TURNTABLE SPEED

The three speed mechanism and the motor are one assembly. The Drive Wheels (31, 32 and 33) are mounted on a movable metal plate (35) in such a way that moving the Speed Selector Lever (27) moves the correct wheel into position between the motor shaft and the Turntable drive idler (79). The tongue of the detent spring (53) fits into an indentation in the edge of the metal plate to index the speed selector wheels and hold them firmly in the desired position.

"OFF" indentations between each speed position hold the drive wheels away from the motor shaft and the Turntable idler when the Speed Selector Lever is in an "off" position.

If the Turntable speed is incorrect, check for:

1. Turntable Idler (79) cocked at an angle. Bend the wheel and shaft to straighten wheel.
   CAUTION: Do not bend idler (79) toward the drive wheels (31, 32, 33). Bend only sideways or away from the wheels.
2. The drive wheel mounting assembly (part of motor assembly (44)) must not bind. There should be at least $\frac{1}{64}$" play at point "A". Bend the raised metal stop if more clearance is needed.
3. The entire motor assembly (44 plus 35, etc.) should be free floating. There should be slight play of the Speed Control Lever (27) between the "78" and "33" positions and the stops at the end of the speed selector dial.
4. Defective drive wheels (31, 32, 33).

CHANGE CYCLE STARTS BEFORE END OF RECORD

If the Trip Assembly chatters while the changer is running or if the changer cycles before the entire record is played, there is probably insufficient clearance between the hook end of the Velocity Trip (57) and the actuating gear (56). This clearance should be adjusted to be within $\frac{1}{32}$" to $\frac{1}{64}$" by bending the lever.

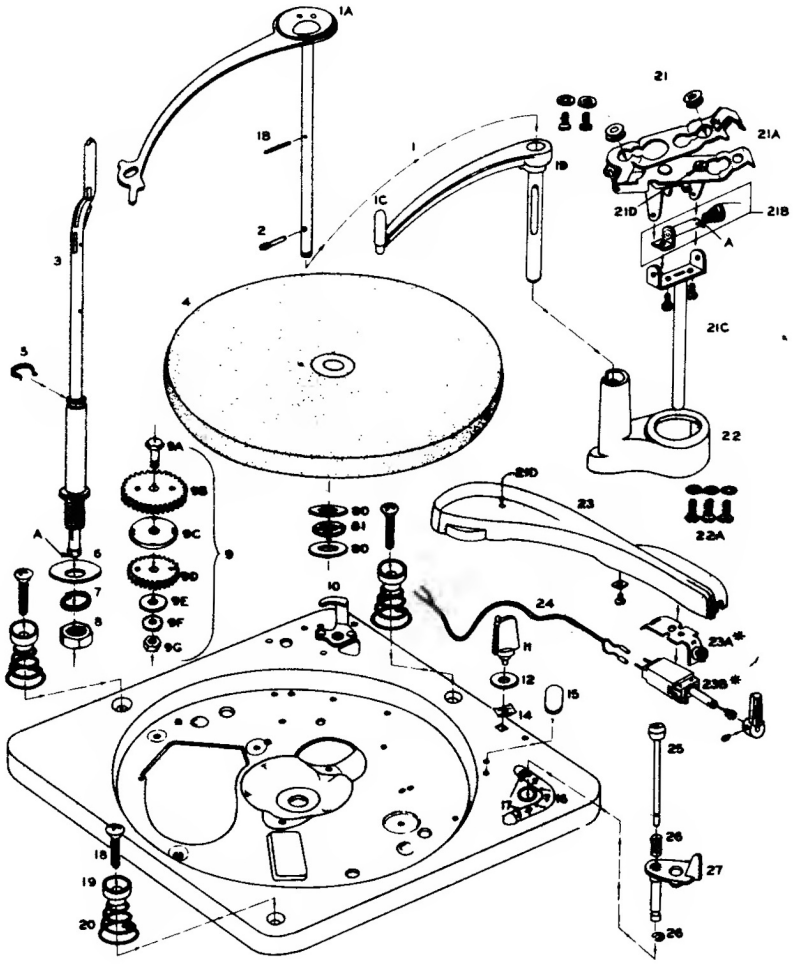


Fig. 7
Exploded View above Main Plate

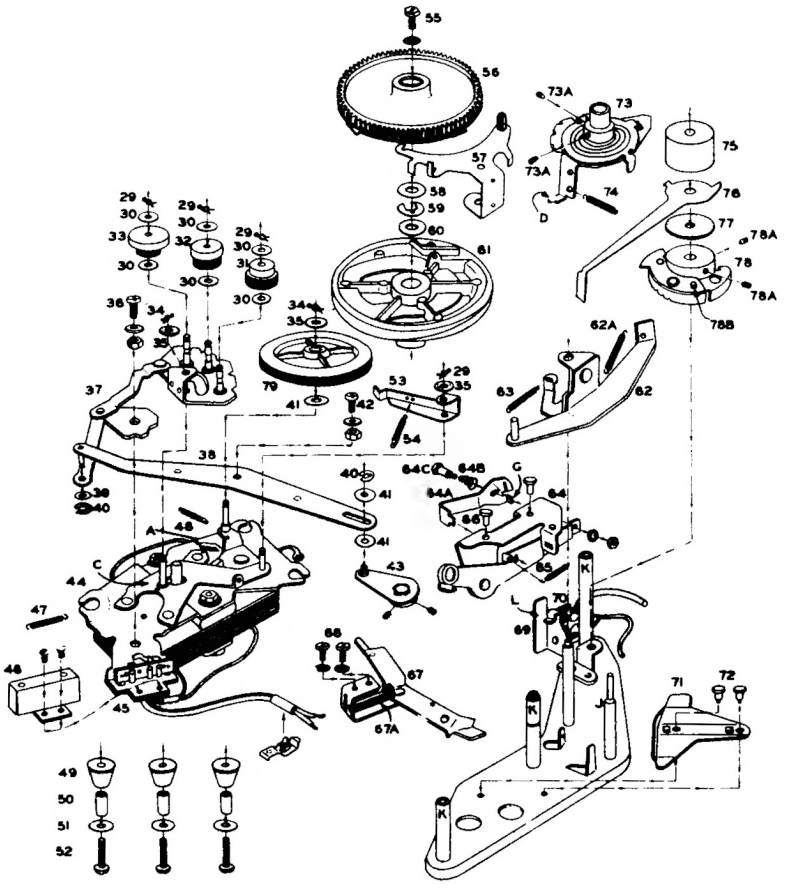


Fig. 8
Exploded View below Main Plate

MODEL 100 RECORD CHANGER
SERVICE INSTRUCTIONS
MODEL No. 100—REPLACEMENT PARTS LIST

WEBSTER-CHICAGO

Figure numbers refer to the exploded views above.

NOTE: The mechanism of Models 100 and 101 are identical. The difference between them is one of styling and appearance.

Figure Number	Part Number	Description	List* Price
1	11X550	Record Ballast Arm and Index Finger Assembly — Complete	$2.80
1A	11X549	Record Ballast Arm	1.87
1B	41P731	Knurled Pin for 11X550	.10
1C	24P048	Index Finger Cushion	.08
1D	42X218	Index Finger Arm	1.75
2	41P743	Knurled Pin for 11X549	.08
3	11X558	Spindle	4.65
4	11X138	Turntable	3.65
5	50P221	Retainer for Turntable	.03
6	25P289	Cup Washer — Spindle Mounting	.01
7	25P403	Lock Washer — Spindle Mounting	.01
8	26P687	Nut — Spindle Mounting	.05
9	11X132	Idler Gear Assembly	.70
9A	41P333	Shoulder Screw	.12
9B	47P024	Idler Gear — Large	.30
9C	45P342	Coupler — for 11X132	.10
9D	47P023	Idler Gear — Small	.25
9E	25P284	Washer — for 11X132	.03
9F	25P222	Lock Washer — for 11X132	.02
9G	26P046	Nut — for 11X132	.02
10	45P191	Stop Bracket for Pickup Arm	.16
11	49P099	Pickup Arm Rest	.40
12	25P388	Washer	.02
14	26P554	Speed Nut	.03
15	24P004	Needle Pad	.15
16	78P508	Speed Indicator Dial	.20
17	27P205	Rivet for Indicator Dial	.03
18	26P740	Mounting Screw	.05
19	24P007	Mounting Grommet	.05
20	46P116	Mounting Spring	.05
21	21X282	Pickup Arm Hinge and Shaft Assembly	2.00
21A	21X283	Pickup Arm Hinge	.90
21B	11X386	Pickup Arm Counter Balance	.60
21C	11X385	Pickup Arm Shaft	.40
22	42P219	Housing	1.25
22A	26P747	Housing Mounting Screw	.03
23	49X123-X	Pickup Arm	1.60
		The mounting bracket required will depend upon the cartridge used. Order exact replacement cartridges from your parts distributor by the cartridge manufacturer's part number, stamped on the cartridge. The mounting bracket need not be replaced when replacing the cartridge. Nor is the bracket usually included in the replacement cartridge package.	
23A			
23B			
24	20X1363-1	Pickup Cord and Lug Assembly	1.50
25	49X135	Reject Button	.50
26	46P226	Compression Spring — Reject Button	.03
27	42X217	Speed Selector Lever	1.00
28	25P447	"C" Retainer for Reject Button	.02
29	50P034	Reainer Clip	.03
30	25P406	Fibre Washer	.02
31	11X456	Drive Wheel — 33 R.P.M.	1.00
32	11X458	Drive Wheel — 45 R.P.M.	1.00
33	11X460	Drive Wheel — 78 R.P.M.	1.00

Figure Number	Part Number	Description	List* Price
34	50P125	Retaining Clip	$ .05
35	25P030	Felt Washer	.02
36	41P673	Shoulder Screw — Switch Cam	.12
37	17X481	Drive Wheel Mounting Plate and Cam	1.30
38	11X539	Speed Selector Arm	.50
39	25P030	Felt Washer for 11X539	.02
40	25P439	"C" Washer for 11X539	.02
41	25P046	Fibre Washer	.02
42	41P747	Shoulder Screw for 11X539	.12
43	11X540	Speed Selector Link and Hub	.82
44	17X467	Motor and Top Bridge Assembly	9.50
45	32P054	A.C. Switch	1.00
46	45P819	Switch Cover	.20
47	46P139	Tension Spring — Index Plate	.10
48	46P134	Tension Spring — Idler Link	.10
49	25P363	Motor Mount Grommet	.10
50	41P592	Motor Mount Sleeve	.06
51	25P367	Motor Mount Washer	.03
52	26P110	Motor Mount Screw	.05
53	45P817	Speed Selector Lock Lever	.20
54	46P187	Tension Spring — Lock Lever	.10
55	26P748	Screw — Main Plate to Sub Plate Assembly	.02
56	11X032	Main Actuating Gear	.90
57	11X320	Velocity Trip	.45
58	25P343	Washer — for 11X545	.03
59	25P342	"C" Washer — for 11X545	.04
60	25P083	Washer — for 11X545	.02
61	11X545	Main Cam Assembly	1.85
62	11X553	Pickup Arm Raising Lever	1.25
62A	46P022	Tension Spring — Raising Lever	.10
63	46P221	Tension Spring — Raising Lever	.10
64	11X546	Cam Lever and Bracket — Complete	1.25
64A	45P921	Cycle Stop Arm	.25
64B	46P218	Compression Spring	.10
64C	41P746	Shoulder Screw for 11X546	.10
65	46P017	Tension Spring for 11X546	.06
66	27P072	Rivet for Cam Lever Mounting	.02
67	11X542	Reject Trip Lever	.90
67A	46P219	Tension Spring — Trip Lever	.10
68	26P747	Screw — Trip Lever Mounting	.03
69	45P926	Positioning Plate	.30
70	70P045	Standoff Lug Assembly	.10
71	45P909	Spindle Actuating Lever	.30
72	27P217	Rivet for Mounting 45P909	.05
73	11X547	Set Down Disc Assembly	1.50
74	46P225	Tension Spring — Set Down Disc	.10
75	41P576	Clutch Weight	.30
76	45P935	Velocity Trip Arm	.10
77	23P009	Felt Washer — Velocity Trip	.02
78	11X552	Pickup Arm Raising Disc	1.25
79	11X366	Idler Wheel	.75
80	25P269	Washer — Bearing Race	.08
81	11X058	Turntable Bearing	.20

*Prices subject to change without notice.