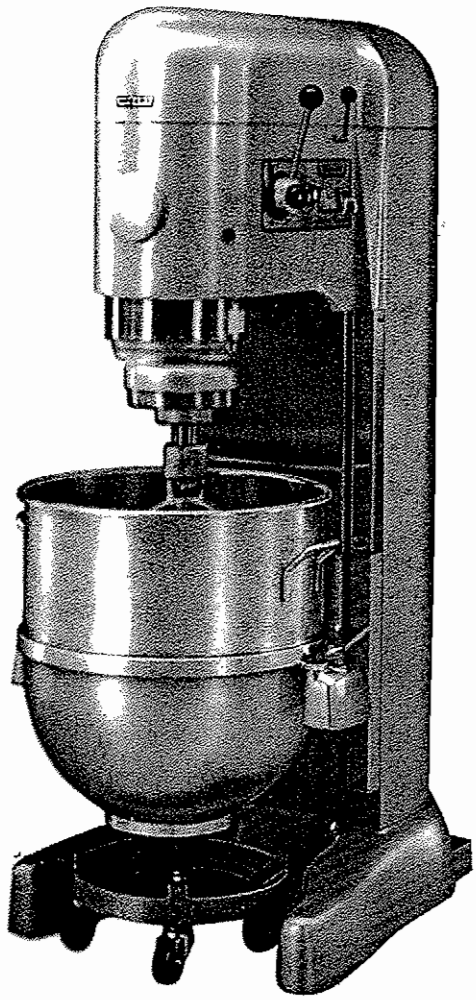
HOBART

INSTRUCTION MANUAL

... with Replacement Parts



MODEL V-1401 SERIES MIXERS

(INCLUDES MOTOR PARTS)

ML-19668 V-1401
ML-19670 V-1401-U

ML-19669 V-1401 (17" Higher Than Standard)
ML-19671 V-1401-U (17" Higher Than Standard)

THIS MANUAL REPLACES AND SHOULD BE USED INSTEAD OF FORM 10555F (3-78)

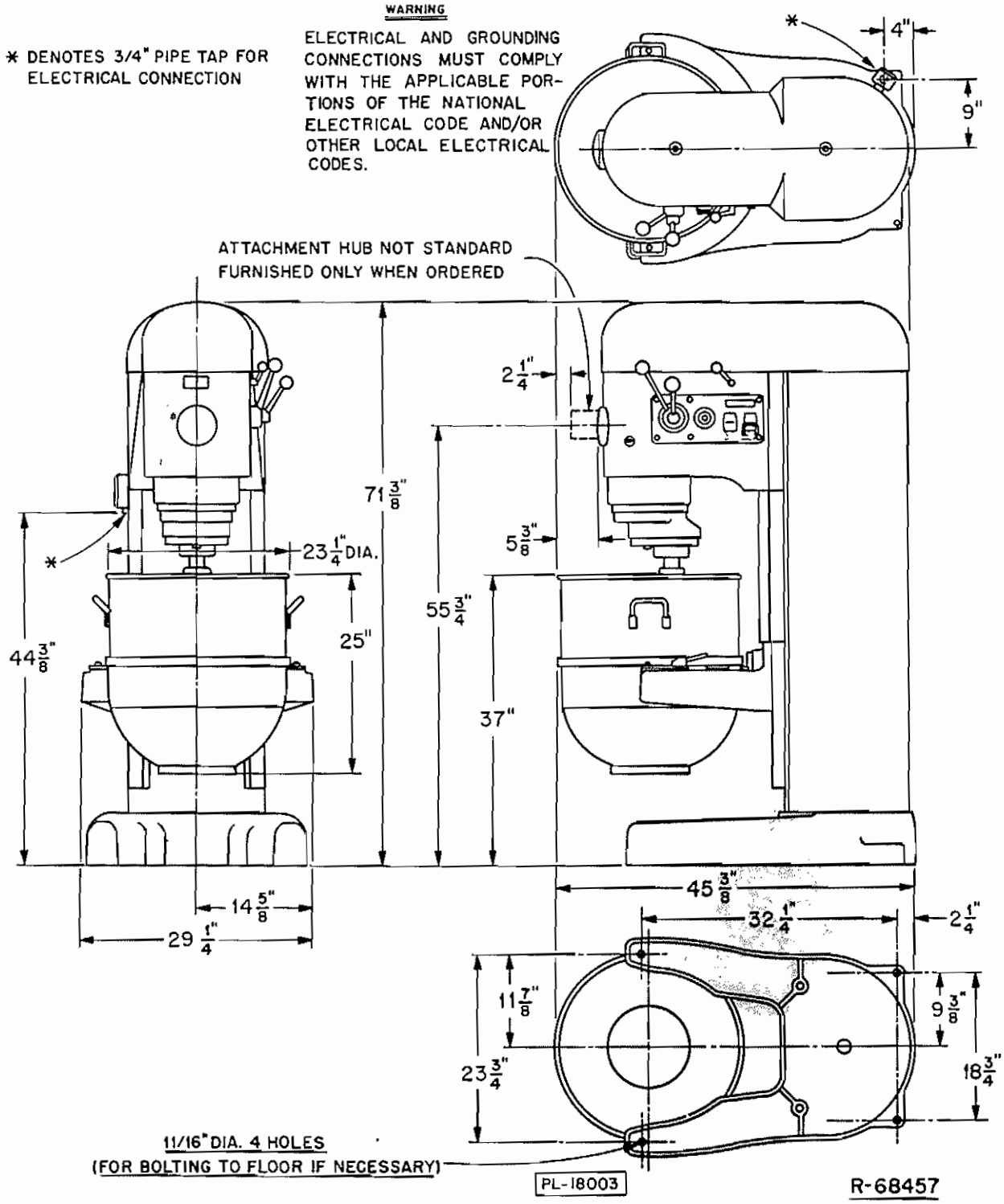
PRIOR ML'S COVERED IN THIS MANUAL:

ML-16451 V-1401
ML-18821 V-1401-U

ML-17280 V-1401 (17" Higher Than Standard)
ML-31133 V-1401-U (17" Higher Than Standard)

A product of HOBART CORPORATION TROY, OHIO 45374

FORM 13966A (Rev. 6-82) (Supsds. F. 13966)



INSTALLATION DIAGRAM

Installation, Operation and Care of MODELS V-1401 & V-1401-U MIXERS

Save These Instructions

GENERAL

The V-1401 series mixers have a bowl capacity of 140 quarts. With the use of adapters and special agitators, 30, 40, 60, or 80 quart bowls may also be used. The mixer is powered by a 5 H.P. motor and is available for single- or three-phase electrical service.

The V-1401-U, which meets USDA requirements, features a burnished aluminum transmission case and chrome-plated top cover, planetary, and drip cup.

OPTIONS

The V-1401 series mixers may be ordered with a #22 attachment hub which will accept any #22 attachment. Various #22 attachments and accessories available for this mixer through Hobart include: Model 22 Power Dicer; Model 22 Vegetable Slicer and Shredder; Model 22 Meat and Food Chopper; Model 22 Speed Drive; Soup Strainer and Colander; Tray Support; Bowl Jacket; Bowl Truck; Splash Cover and Bowl Extension Ring. The V-1401 may also be ordered with a higher-than-standard column.

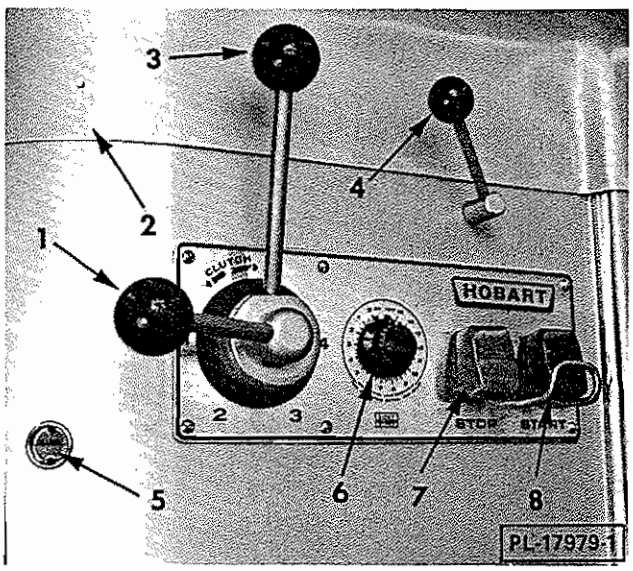


Fig. 1

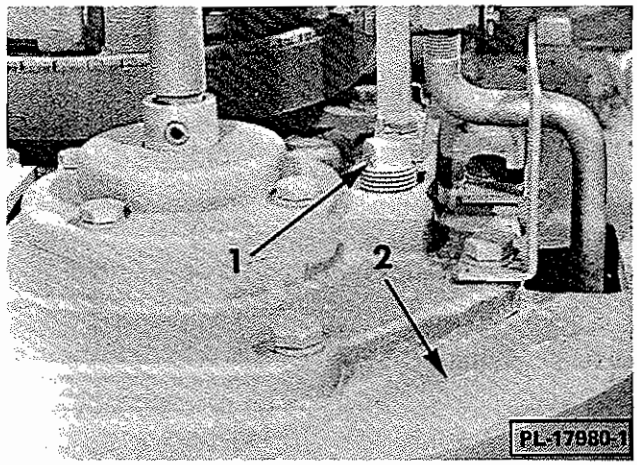


Fig. 2

INSTALLATION

NOTE: Immediately after unpacking, machine should be checked for possible damage. If this machine is found to be damaged after unpacking, save the packing material and contact the shipper.

LOCATION

The mixer should be placed in a convenient location allowing adequate servicing space on the operational controls side, above, and in front of the mixer. Holes are provided in the base for permanent bolting to the floor although this is not necessary in normal installations. It is, however, recommended that mixers with the higher-than-standard column option be bolted down.

LEVELING

Once located, the machine must be leveled. Remove the top cover screws and the top cover (2, Fig. 1). Place a level on the machined surface (2, Fig. 2) of the transmission case. Slide shims under the legs of the base as necessary to level the mixer.

LUBRICATION

All lubricating oils are drained from the machine before shipping and must be replaced before operating.

CAUTION: There are different lubricants for the transmission and planetary. Do not interchange these oils as damage to the mixer may result.

Transmission

To fill transmission, remove the top cover (2, Fig. 1) and transmission fill plug (1, Fig. 2). Pour the contents of bottle labeled Transmission Oil, shipped with machine, into the case. The oil level should be between the center and top of the oil level gauge (5, Fig. 1). If the oil falls below this when the motor is running, more oil is required. When adding oil, add small amounts at a time and check during operation.

Planetary

The recommended oil capacity is 5 to 7 fluid ounces. Since approximately 1 ounce remains in the planetary after draining, 6 ounces are shipped with the machine. Use the oil in the bottle labeled Planetary Oil.

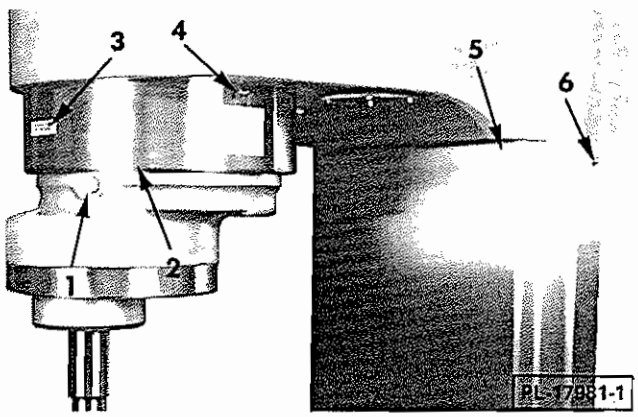


Fig. 3

Remove the planetary fill plug (1, Fig. 3). Check to assure the drain plug (1, Fig. 4) is tight. Slip one end of the tubing (supplied) over the nozzle end of the container labeled Planetary Oil. Place the other end of the plastic tube in the planetary and pour entire contents into the machine. Replace the fill plug.

NOTE: Additional information on routine lubrication may be found under MAINTENANCE.

ELECTRICAL

Before making electrical connections, check the specifications on the data plate (2, Fig. 5) to assure they agree with those of your electrical service.

WARNING: ELECTRICAL AND GROUNDING CONNECTIONS MUST COMPLY WITH THE

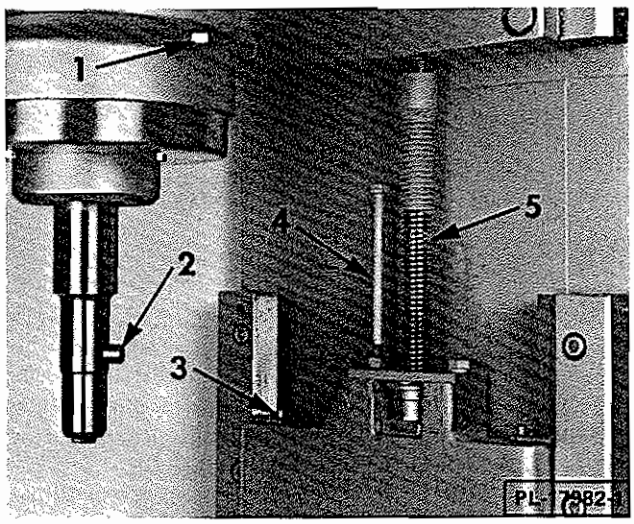


Fig. 4

APPLICABLE PORTIONS OF THE NATIONAL ELECTRICAL CODE AND/OR OTHER LOCAL ELECTRICAL CODES.

WARNING: DISCONNECT ELECTRICAL POWER SUPPLY AND PLACE A TAG AT THE DISCONNECT SWITCH INDICATING THE CIRCUIT IS BEING WORKED ON.

A hole for 3/4" conduit is in the junction box, (1, Fig. 5) located on the rear of the pedestal. Connect the input power leads to the pigtail leads from the motor controller. A solderless lug is provided for the service ground.

BRANCH CIRCUIT SIZE AND PROTECTION

DUAL ELEMENT TIME-DELAY FUSE

Volts	Phase	Min. Ckt. Ampacity	Max. Fuse Size	60°C Copper Wire Size
200	1	50	50	6
230	1	40	40	8
200	3	25	25	10
230	3	25	25	10
460	3	15	15	14

INVERSE TIME CIRCUIT BREAKER

Volts	Phase	Min. Ckt. Ampacity	Max. Ckt. Bkr. Size	60°C Copper Wire Size
200	1	60	60	4
230	1	50	50	6
200	3	30	30	10
230	3	30	30	10
460	3	20	20	12

NOTE: The above information compiled in accordance with the National Electrical Code, 1981 edition.

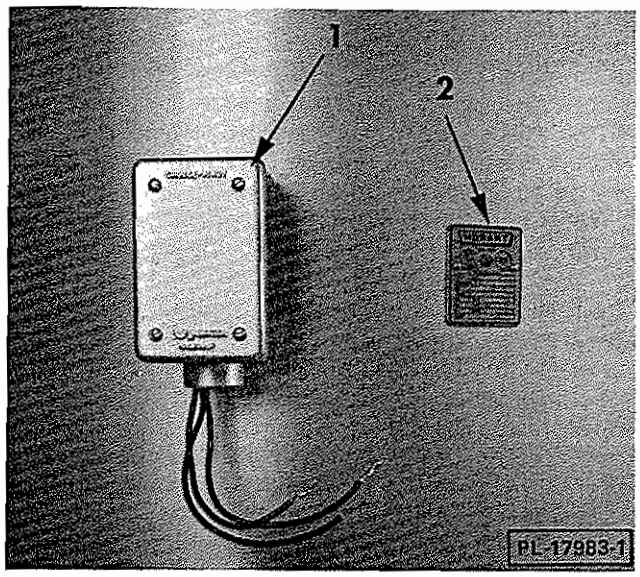


Fig. 5

Three-phase machines must be connected so the planetary turns in the direction of the arrow (3, Fig. 3). To check the direction of rotation, turn the power disconnect switch ON. Place the speed selector (1, Fig. 1) in #1. Place timer (6, Fig. 1) on HOLD. Energize machine momentarily by pushing START then STOP and verify the direction of rotation.

If motor rotation is incorrect, DISCONNECT ELECTRICAL POWER SUPPLY and interchange any two of the power supply leads.

OPERATION

CONTROLS

Operational controls include a timer (6, Fig. 1), a START switch (8, Fig. 1), a STOP switch (7, Fig. 1), a clutch handle (3, Fig. 1), a speed selector handle (1, Fig. 1), and a power bowl lift handle (4, Fig. 1).

A brake, which is used to stop the planetary, is actuated by moving the clutch handle to the STOP position. The motor will continue to run with the clutch handle in the STOP position unless the STOP switch is depressed.

POWER BOWL LIFT

The power bowl lift is used to raise or lower the bowl with the motor running. To use the power bowl lift, move the clutch handle (3, Fig. 1) to the STOP position. Place the timer knob on HOLD and press the START button. Move the power bowl lift handle (4, Fig. 1) from the center neutral position clockwise to raise the bowl or counterclockwise to lower it. An overload slip clutch will ratchet at the top and bottom stop positions to signal end of travel and to protect the operating mechanism. CAUTION: Before lowering the bowl onto the bowl truck, always unlock both bowl clamps (1, Fig. 6).

NOTE: On new machines, the power bowl lift handle may need to be manually returned to neutral until parts are broken in.

BOWL

Lower the bowl lift to its bottom stop. Select agitator to be used and place it inside bowl. Position the bowl so the square alignment bracket is to the back and the bowl locating studs (2, Fig. 6) on the bowl support fit into the alignment holes of the bowl. Raise the bowl yoke until the bowl is seated. Lock bowl in place by rotating the bowl clamps (1, Fig. 6) over the ears of the bowl.

NOTE: Due to variations in bowls and agitators, it is RECOMMENDED that the agitator clearance be checked and adjusted if necessary with every bowl or agitator change. See ADJUSTMENTS for recommended procedure.

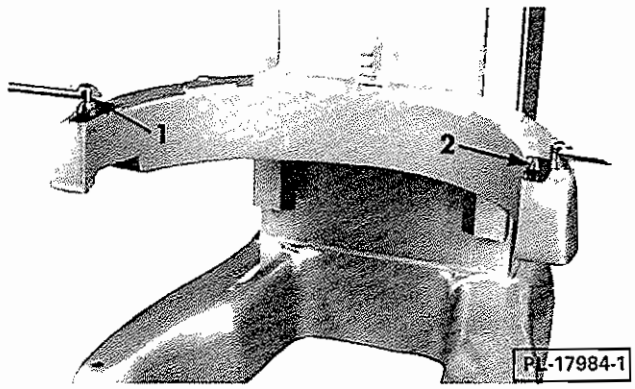


Fig. 6

AGITATORS

With the bowl in place and the lift at its bottom stop, push the agitator shank up on the shaft and turn clockwise until the drive pin (2, Fig. 4) of the shaft latches in the bayonet slot of the agitator shank. Agitators which may be used with this mixer are shown on the last page of this manual.

When changing agitators during operation, move the clutch handle to the STOP position, lower the bowl, and push the STOP switch. The agitator may now be removed.

SPEEDS

Speed #1 (Low) is for heavy mixtures like dough, heavy batters, and potatoes.
Speed #2 (Medium - Low) is for mixing cake batters, mashing potatoes, and for developing dough.
Speed #3 (Medium - High) is for incorporation of air into light batches.
Speed #4 (High) is for accelerated and maximum air incorporation into light batches.

NOTE: For additional information on attachment operations and mixing speeds refer to the Use and Applications Handbook included with this machine.

MIXING

For non-timed operation, place the clutch handle in the STOP position and set the speed selector handle (1, Fig. 1) at the desired speed. Set the timer (6, Fig. 1) on HOLD and depress the START switch (8, Fig. 1). Move the clutch handle from STOP to RUN to start mixing. At completion of mixing, move the clutch handle to STOP and depress the STOP switch (7, Fig. 1).

For timed operation, place the clutch handle in the STOP position and set the speed selector handle (1, Fig. 1) at the desired speed. Set the timer (6, Fig. 1) at the desired time (if less than 3 minutes turn past 3 and back to the desired time), and depress the START switch (8, Fig. 1). Move the clutch handle from STOP to RUN to start mixing.

If it is necessary to stop the mixer before timer has expired, move the clutch handle to STOP and depress the STOP switch (7, Fig. 1). The mixer may be restarted by depressing START switch if timer has not expired. If timer has expired, it must be reset before depressing START switch. The clutch handle should then be moved to RUN to start mixing.

TO CHANGE SPEEDS, DISENGAGE THE CLUTCH by moving the clutch handle (3, Fig. 1) to STOP position. The brake is automatically actuated. When the agitator shaft has stopped, move the speed selector handle to the desired speed. Make certain the speed selector handle lines up with number on the shift selector plate. NEVER POSITION THE HANDLE BETWEEN NUMBERS. PLACE THE CLUTCH HANDLE IN RUN POSITION TO CONTINUE OPERATION.

ATTACHMENTS (Attachment Hub Option)

Always place the clutch handle in the STOP position and press the STOP switch before installing or removing attachments.

Install the attachment into the attachment hub of the mixer. Make certain the square shank of the attachment is in the square drive of the mixer. Secure the attachment by tightening the thumb screw. Place the speed selector handle at the desired speed. Turn mixer ON and move clutch handle to RUN to operate attachment. To stop, move clutch handle to STOP and press the STOP switch.

The meat and food chopper attachment should be operated in speed #3. If bone chips or other material in the cylinder stall the mixer, stop the mixer at once. Do not attempt to restart the mixer in a lower speed. Remove the adjusting ring, knife, plate, and worm and remove the obstruction.

MAINTENANCE

WARNING: DISCONNECT ELECTRICAL POWER SUPPLY AND PLACE A TAG AT THE DISCONNECT SWITCH INDICATING THE CIRCUIT IS BEING WORKED ON BEFORE BEGINNING ANY MAINTENANCE PROCEDURE.

CLEANING

A kit, including a brush and bowl scraper, is furnished to aid cleaning operations. The bowl scraper with a cloth wrapped around it provides a tool to reach the narrow opening between the bowl yoke and pedestal at the slideways. Other areas may be cleaned by using the brush.

The mixer should be thoroughly cleaned daily. DISCONNECT ELECTRICAL POWER SUPPLY BEFORE CLEANING. Do not use a hose on the mixer. It should be washed with a clean damp cloth.

The bowl support apron (5, Fig. 3) may be easily removed by loosening the thumb screws (6, Fig. 3). The inner apron may be removed by removing its screws.

The drip cup (2, Fig. 3) should be removed periodically and wiped clean. It is removed by loosening the two thumb screws (4, Fig. 3) and pulling down.

LUBRICATION

Planetary

The oil in the planetary should be checked periodically. Remove the drip cup (2, Fig. 3) by loosening the two thumb screws and pulling down. Remove the fill plug (1, Fig. 3). Oil should be even

with the bottom of the fill plug hole. If oil does not run out, slowly add Gearep #85 until it begins to overflow. Replace the fill plug and drip cup.

An oil drain is located at the bottom of the planetary. Should draining be necessary, remove the drip cup and place a suitable catch pan under the planetary. Remove the drain plug (1, Fig. 4). When oil is completely drained, replace the drain plug. Remove the fill plug and replenish with 6 ounces of Gearep #85.

Transmission

For correct lubrication, the oil level should be between the center and top of the oil gauge (5, Fig. 1) when the machine is not running. If the oil falls below this, remove the top cover and the fill plug (1, Fig. 2). Pour Gearep #140 into the transmission until oil returns to the gauge line. Replace the fill plug and top cover. Use caution not to overfill the transmission as leakage may result.

Planetary Seal

Occasionally, the planetary seal may become dry and squeal during operation. Work a little tasteless mineral oil under lip of seal to alleviate this.

Bowl Lift

The slideways and the lift screw should be lubricated about twice a year depending upon amount of use. To reach these areas, loosen the thumb screws (6, Fig. 3) and remove the bowl support apron (5, Fig. 3). Remove the inner apron by removing its screws. Oilers (3, Fig. 4) are provided for lubricating bowl slideways. Lower the bowl support to expose oilers and use Havoline #10 oil. The lift screw (5, Fig. 4) is lubricated by applying a thin coat of Lubriplate 630AA (supplied). Replace the aprons and tighten screws.

ADJUSTMENTS

Agitator Clearance

Remove the bowl support apron (5, Fig. 3) and inner apron. Install the bowl and lock in place. Install the "B" beater. With the bowl in its raised position, DISCONNECT ELECTRICAL POWER SUPPLY.

The clearance between the agitator and the bottom of the bowl should be no more than 3/32".

Loosen the lock nut, and turn the stop screw (4, Fig. 4) clockwise to decrease the clearance or counterclockwise to increase the clearance. Tighten the lock nut while holding the stop screw.

NOTE: It may be necessary to restart the mixer and lower the bowl in order to turn the stop screw counterclockwise.

Operate the bowl lift several times contacting both bottom and top stops. With the bowl lift against the top stop, recheck the clearance to assure correct adjustment.

Bowl Clamp

The tension of the bowl clamp is controlled by a spring washer and lock nut. The adjustment is made from the under side of the bowl support. Turning the lock nut clockwise will loosen the clamp and counterclockwise will tighten the clamp.

NOTE: If repeated adjustments are required, additional service is indicated. Contact an authorized Hobart Service Representative.

TROUBLESHOOTING

SYMPTOM – Mixer will not start.

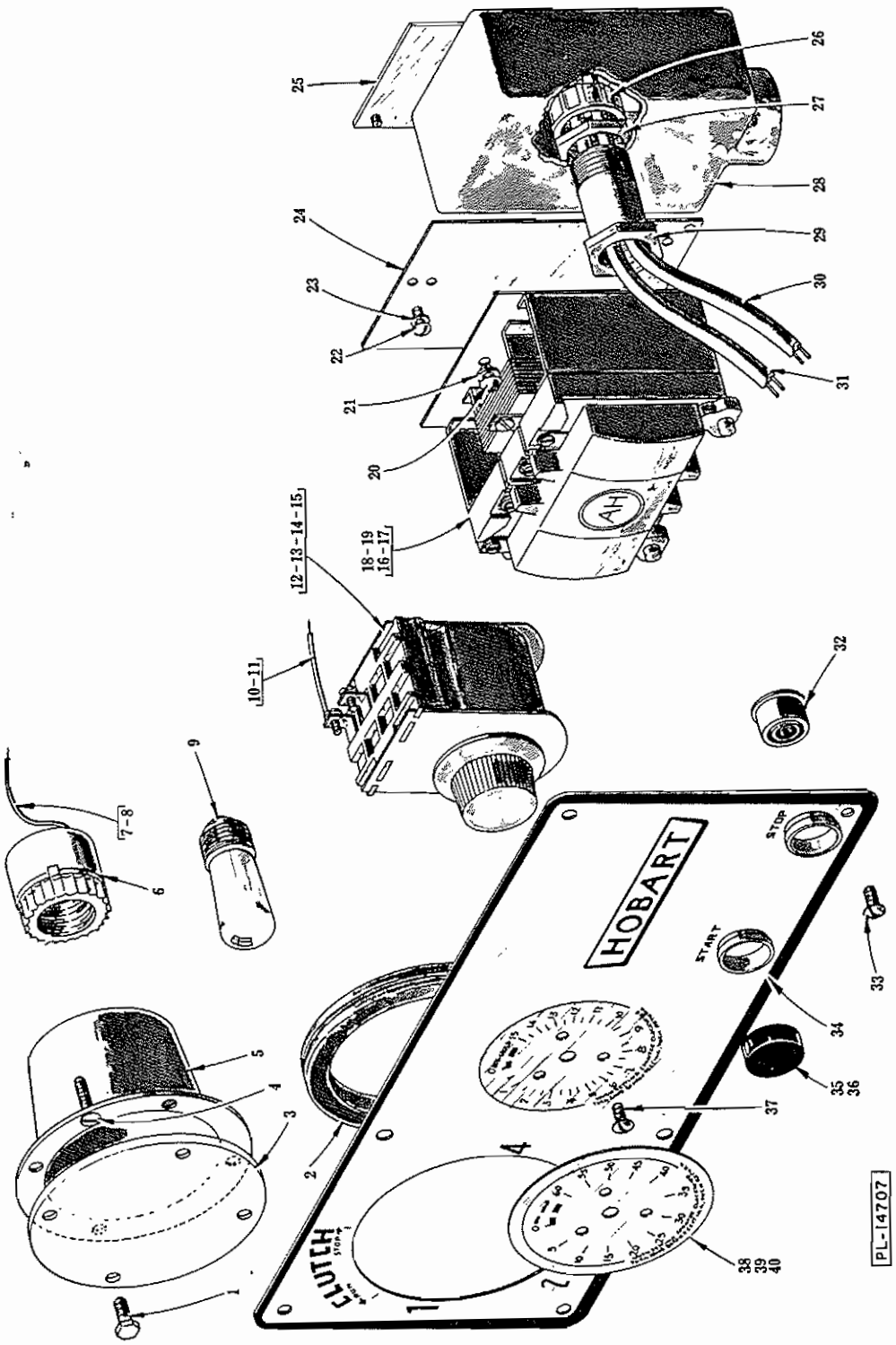
POSSIBLE CAUSE:

1. Electrical power supply disconnect switch in open position or fuse blown.
2. Mixer or attachment overloaded.

SYMPTOM – Agitator touching bowl.

POSSIBLE CAUSE:

1. Bowl clamp(s) not closed.
2. Bowl clamp(s) improperly adjusted.
3. Improper agitator clearance.

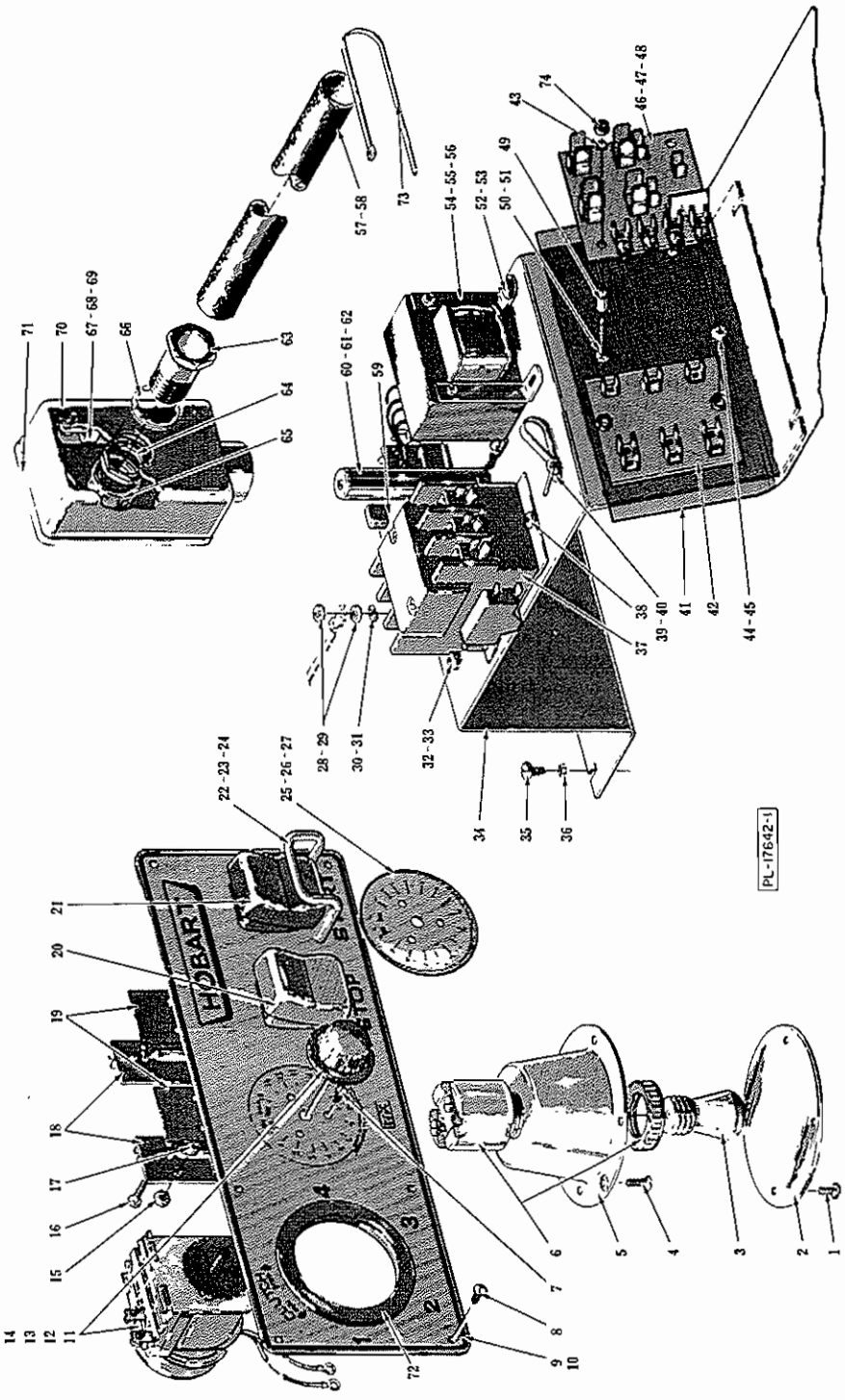


ELECTRICAL UNIT

ELECTRICAL UNIT

ILLUS. PL-14707	PART NO.	NAME OF PART	AMT.
1	SC-68-14	Mach. Screw - #8-32 x 3/8" Trimmed Hex Hd	4
2	M-64462	Grommet - Gear Shift Hub	1
3	M-64470	Lens - Bowl Light	1
4	SC-14-67	Mach. Screw - #8-32 x 5/8" Flat Hd	1
5	P-64469	Socket - Mounting & Reflector	1
6	M-74541	Receptacle	1
7	C-87532-19	Lead - Receptacle to Controller (10" Lg.) (C-1)	1
8	C-87532-20	Lead - Receptacle to Controller (10" Lg.) (C-3)	1
9	BL-2-5	Light Bulb (10 W., 230 V.)	1
10	C-87532-17	Lead - Controller to Timer (7" Lg.) (C-5)	1
11	C-87532-18	Lead - Controller to Timer (7" Lg.) (C-2)	1
12	A-103470	Timer & Gasket Assy. (15 Min.)	1
13	A-122788	Timer, Dial & Gasket Assy. (18 Min.) (50 Hz.) (Incls. items #40)	1
14	A-103471	Timer, Dial & Gasket Assy. (30 Min.) (Incls. item # 39)	1
15	A-103472	Timer, Dial & Gasket Assy. (60 Min.) (Incls. item #38)	1
16	P-87712-2-1	Starter - Magnetic (Less Elements) (200/230 V., 60 Hz., 1 Ph.)	1
17	P-87712-12-1	Starter - Magnetic (Less Elements) (200/230 V., 60 Hz.; 220 V., 50 Hz.) (3 Ph.)	1
18	P-87712-23-1	Starter - Magnetic (Less Elements) (460 V., 60 Hz.; 380 V., 50 Hz.) (3 Ph.)	1
19	*	Heater Element - Magnetic Starter	AR
20	SC-7-37	Mach. Screw - #8-32 x 1/4" Rd. Hd	3
21	WL-3-15	Lock Washer - #8 Light	3
22	SC-7-37	Mach. Screw - #8-32 x 1/4" Rd. Hd	3
23	WL-3-15	Lock Washer - #8 Light	3
24	P-64505	Plate - Controller Mounting (Use with items #16 & 17)	1
25	FE-4-21	Cover - Junction Box	1
26	FE-7-14	Bushing - 3/4" Conduit	1
27	FE-7-12	Lock Nut - 3/4"	2
28	P-64495	Box - Junction	1
29	M-64494	Bushing - Conduit	1
30	P-62336-65	Conduit - 3/4" x 20" Lg. (Non-Metallic)	1
31	P-62336-66	Conduit - 3/4" x 8" Lg. (Non-Metallic)	1
32	B-122759	Button - Start/Stop	2
33	B-123131	Self-Tapping Screw - #8-32 x 3/8" Serrated Hd. "Taptite"	6
34	E-123119-1	Plate - Switch	1
35	A-102467-2	Cap - Push Button (Stop) (Red)	1
36	A-102467-1	Cap - Push Button (Start) (Black)	1
37	SC-10-32	Mach. Screw - #8-32 x 3/8" Truss Hd	3
38	M-79819	Dial - Timer (60 Min.)	1
39	M-79818	Dial - Timer (30 Min.) (Not Shown)	1
40	B-109594	Dial - Timer (18 Min.) (50 Hz.) (Not Shown)	1

*Give Elec. Spec., Mach. Model & Motor Type.

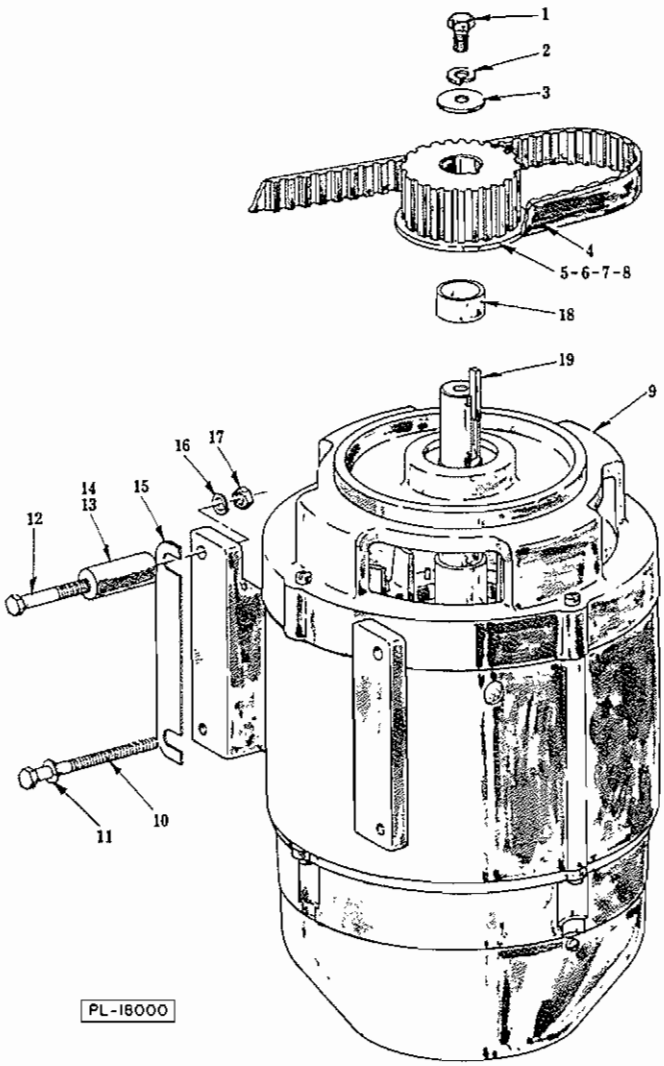


ELECTRICAL UNIT

ILLUS. PL-17642-1	PART NO.	NAME OF PART	AMT.
1	SC-68-14	Mach. Screw - #8-32 x 3/8" Trimmed Hex Hd	4
2	M-64470	Lens - Bowl Lift	1
3	BL-2-29	Light Bulb (10 W., 125 V.)	1
4	SC-14-45	Mach. Screw - #8-32 x 3/8" Flat Hd	1
5	P-64469	Socket - Mounting & Reflector	1

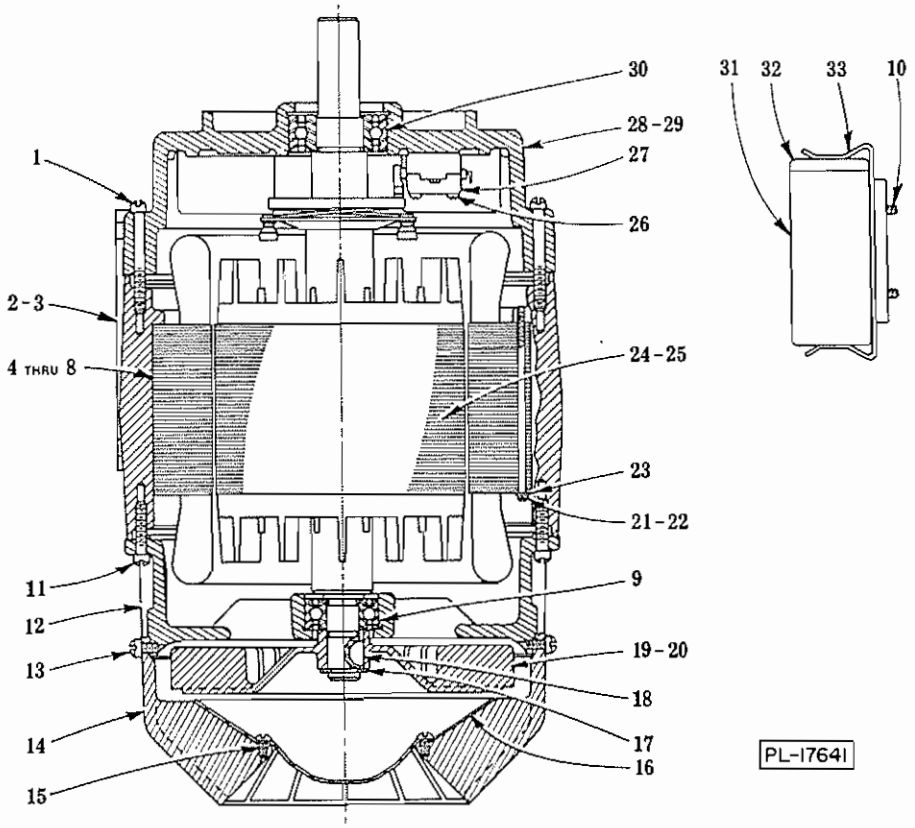
ELECTRICAL UNIT (Cont.)

ILLUS. PL-17642-1	PART NO.	NAME OF PART	AMT.
6	M-74541	Receptacle	1
7	SC-10-32	Mach. Screw - #8-32 x 3/8" Truss Hd	3
8	B-123131	Screw - #8-32 x 3/8" Serrated Hd	6
9	E-290487-2	Plate - Switch (Standard Machine)	1
10	E-123958-2	Plate - Switch (Higher than Standard Machine)	1
11	A-124941	Timer & Gasket Assy. (15/18 Min.) (Incls. item #14)	1
12	A-124942	Timer & Gasket Assy. (30 Min.) (Incls. item #14)	1
13	A-124943	Timer & Gasket Assy. (60 Min.) (Incls. item #14)	1
14	A-103004	Gasket - Timer Shaft	1
15	NS-31-1	Full Nut - #6-32 Hex Fin	4
16	SD-9-40	Self-Tapping Screw - #6-32 x 3/4" Pan Hd., Type F	4
17	B-118349	Stand Off - Reed Board	8
18	C-278074	Reed Mounting Board Assy	2
19	B-124022	Insulator - Reed Board	2
20	D-120872-4	Switch Assy. (Stop)	1
21	D-120872-2	Switch Assy. (Start)	1
22	B-116525	Guard - Switch	1
23	B-123109	Screw - #6-32 x 3/8" Serrated Hd	2
24	WS-2-14	Washer	2
25	B-109594	Dial - Timer (18 Min.)	1
26	M-79818	Dial - Timer (30 Min.)	1
27	M-79819	Dial - Timer (60 Min.)	1
28	SC-9-64	Mach. Screw - #6-32 x 1" Rd. Hd	4
29	NS-9-7	Mach. Nut - #6-32 Hex	9
30	WL-3-9	Lock Washer - 6" Medium	4
31	B-119994	Spacer	4
32	SD-15-20	Self-Tapping Screw - #10-32 x 3/8" Phil. Pan Hd. "Taptite"	1
33	B-124674	Tie - Cable	2
34	E-124676	Panel - Control	1
35	SD-24-1	Self-Tapping Screw - #10-24 x 3/8" Pan Hd. "Taptite"	4
36	WL-10-6	Lock Washer - #10 Ext. Shakeproof	4
37	B-121926-2	Contactor Assy. (3 Pole)	1
38	SD-15-20	Self-Tapping Screw - #10-32 x 3/8" Phil. Pan Hd. "Taptite"	2
39	SD-15-20	Self-Tapping Screw - #10-32 x 3/8" Phil. Pan Hd. "Taptite"	1
40	B-124674	Tie - Cable	1
41	D-290376	Cover - Control	1
42	C-121014	Terminal Board Assy. (Use with Dual Voltage 3 Ph.)	1
43	WL-10-6	Lock Washer - #10 Ext. Shakeproof	2
44	SD-15-20	Self-Tapping Screw - #10-32 x 3/8" Pan Hd. "Taptite"	AR
45	WS-19-6	Washer	1
46	C-114707	Fuse Board Assy	1
47	FE-19-48	Fuse (BBS - .8 Amps.)	2
48	FE-16-29	Fuse (BBS - 1 Amp.)	2
49	B-119994	Spacer	2
50	SC-9-64	Mach. Screw - #6-32 x 1" Rd. Hd	2
51	NS-9-7	Mach. Nut - #6-32 Hex	2
52	SD-15-20	Self-Tapping Screw - #10-32 x 3/8" Pan Hd. "Taptite"	2
53	WL-7-12	Lock Washer - #10 Ext. Shakeproof	2
54	C-111983-2	Power Input Board Assy. (60 Hz.) (Incls. item #56)	1
55	C-111983-4	Power Input Board Assy. (50 Hz.) (Incls. item #56)	1
56	FE-22-63	Fuse (AGA - 3, 3 Amps.)	1
57	P-62336-77	Conduit - Flexible (1" Dia. x 24")	1
58	P-62336-78	Conduit - Flexible (1" Dia. x 12")	1
59	E-278328	Motor Protection Board	1
60	B-124655	Support - Top Cover	1
61	SC-36-14	Cap Screw - 1/4"-20 x 1/2" Hex Hd	1
62	WL-3-38	Lock Washer - 1/4" Medium	1
63	M-64494	Bushing - Conduit	1
64	FE-7-12	Lock Nut - 3/4"	2
65	FE-7-14	Bushing - 3/4" Conduit	1
66	WL-19-5	Lock Washer - 1-1/8" Int. Shakeproof	1
67	C-118544-4	Lug - Solderless	1
68	SD-24-1	Self-Tapping Screw - #10-24 x 3/8" Pan Hd. "Taptite"	1
69	WL-10-6	Lock Washer - #10 Ext. Shakeproof	1
70	P-64495	Box - Junction	1
71	FE-4-21	Cover - Junction Box (Incls. Fasteners)	1
72	M-64462	Grommet - Gear Shift Hub	1
73	B-113703	Tie - Cable	AR
74	NS-9-7	Mach. Nut - #6-32 Hex	2



MOTOR UNIT

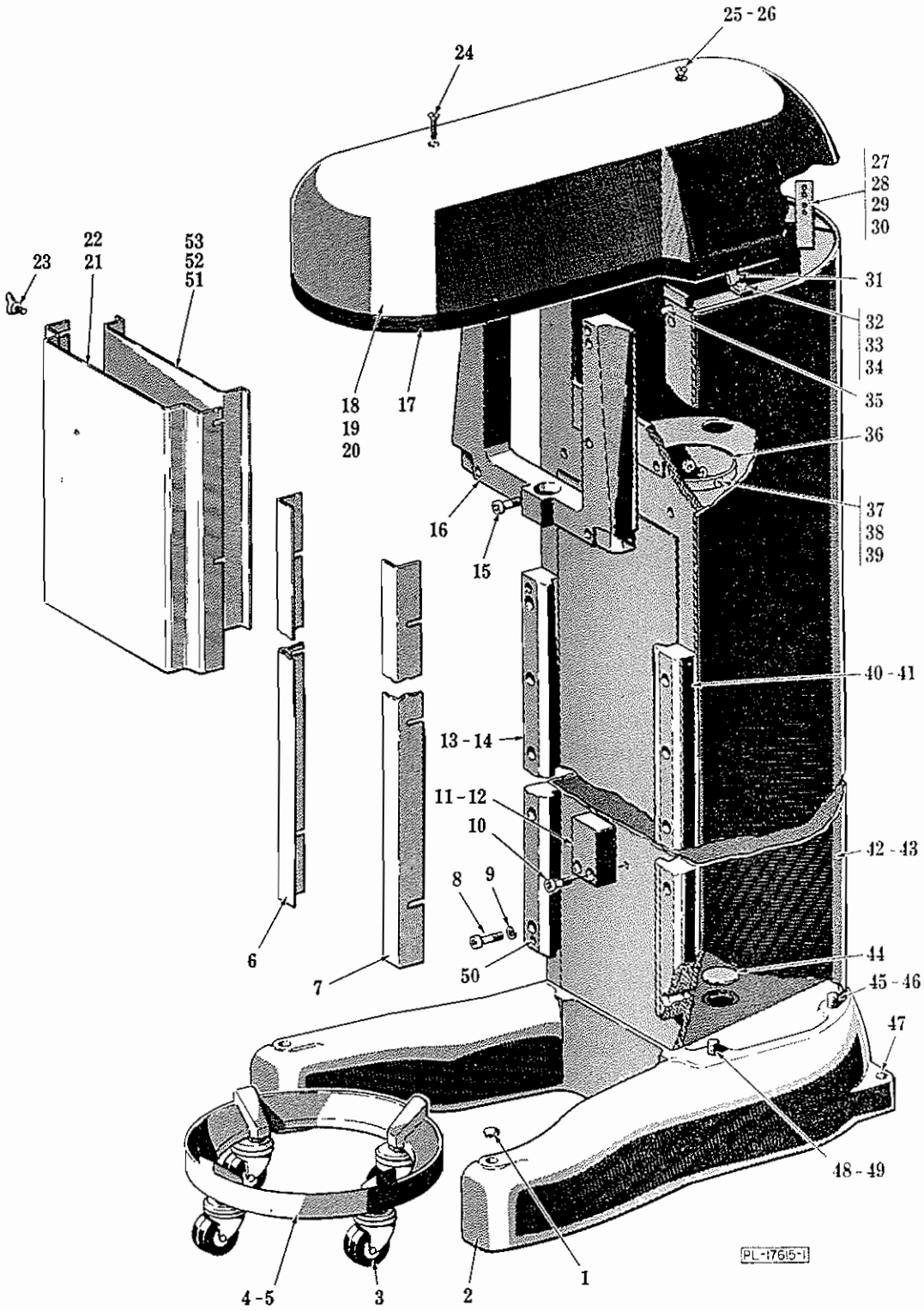
ILLUS. PL-18000	PART NO.	NAME OF PART	AMT.
1	SC-36-52	Cap Screw - 3/8"-16 x 3/4" Hex Hd	1
2	WL-4-2	Lock Washer - 3/8" Light	1
3	WS-18-41	Washer	1
4	P-68043	Flexa-Gear	1
5	C-120678	Drive Gear (Flexa-Gear) (20T) (60 Hz.)	1
6	C-120679	Drive Gear (Flexa-Gear) (23T) (50 Hz.)	1
7	B-120682	Flange - Pulley (60 Hz.)	1
8	B-120680	Flange - Pulley (50 Hz.)	1
9	ML-40507	Motor (Give Elec. Spec.)	1
10	SC-62-9	Cap Screw - 3/8"-16 x 4" Hex Hd	2
11	WL-4-2	Lock Washer - 3/8" Light	2
12	SC-62-10	Cap Screw - 3/8"-16 x 3-3/4" Hex Hd	2
13	M-67912-1	Spacer - Motor (60 Hz.)	4
14	M-67912-2	Spacer - Motor (50 Hz.)	4
15	B-9007	Shim - Motor	AR
16	WL-4-2	Lock Washer - 3/8" Light	2
17	NS-13-22	Full Nut - 3/8"-16 Hex Fin	2
18	A-118816	Spacer	1
19	C-109070-19	Key - .250" x .250" x 1.50"	1



MOTOR

ILLUS. PL-17641	PART NO.	NAME OF PART	AMT.
1	SC-38-55	Cap Screw 5/16"-18 x 2-1/4" Fil. Hd	4
2	T-68069	Field Ring	1
3	V-6651	Bushing - Insulating (Not Shown)	1
4	D-65477-151-1	Stator Assy. (200 V., 60 Hz., 1 Ph.)	1
5	D-65477-151-2	Stator Assy. (230 V., 60 Hz., 1 Ph.)	1
6	D-65478-151-1	Stator Assy. (200 V., 60 Hz., 3 Ph.)	1
*7	D-65478-152-1	Stator Assy. (230/460 V., 60 Hz., 3 Ph.)	1
*8	D-65478-153-1	Stator Assy. (220/380/415 V., 50 Hz., 3 Ph.)	1
9	BB-16-37	Ball Bearing - Fafnir #W204 PPCI	1
10	SD-29-6	Self-Tapping Screw - #10-24 x 1/2" Flat Hd., Type F (1 Ph.)	4
11	SC-11-98	Mach. Screw - 5/16"-18 x 1-1/4" Fil. Hd	4
12	S-64372	Bracket - Bearing (Fan End)	1
13	SC-12-45	Mach. Screw - 1/4"-20 x 3/8" Fil. Hd	2
14	R-64379	Housing - Blower	1
15	SC-8-9	Mach. Screw - #10-24 x 3/8" Rd. Hd	4
16	R-64501	Cone - Blower	1
17	RR-4-6	Retaining Ring	1
18	KW-3-10	Key - #606 Woodruff	1
19	D-275183	Fan - Ventilating	1
20	SC-47-12	Set Screw - 1/4"-20 x 3/8" Hdls., Kn. Cup Pt	2
21	SC-11-56	Mach. Screw - #10-32 x 4-3/4" Fil. Hd. (1 Ph.)	8
22	SC-12-62	Mach. Screw - #10-32 x 4" Fil. Hd. (3 Ph.)	8
23	WS-2-15	Washer	8
24	C-22275-220	Rotor Assy. (1 Ph.)	1
25	C-15747-293	Rotor Assy. (3 Ph.)	1
26	SC-9-85	Mach. Screw - #6-32 x 1-1/4" Rd. Hd. (1 Ph.)	4
27	C-117548	Switch - Starting (Stationary Part) (1 Ph.)	1
28	E-117547-2	Bracket - Bearing (Pulley End) (1 Ph.)	1
29	E-117547-1	Bracket - Bearing (Pulley End) (3 Ph.)	1
30	BB-17-34	Ball Bearing - Fafnir #W206KLL	1
31	D-70487-17	Capacitor (1 Ph.)	2
32	D-70486-4	End Cap - Capacitor (1 Ph.)	2
33	P-66621-2	Bracket - Capacitor (1 Ph.)	2
	M-68007	Blower Housing & Cone Assy. (Incls. items #14, 15 & 16)	1

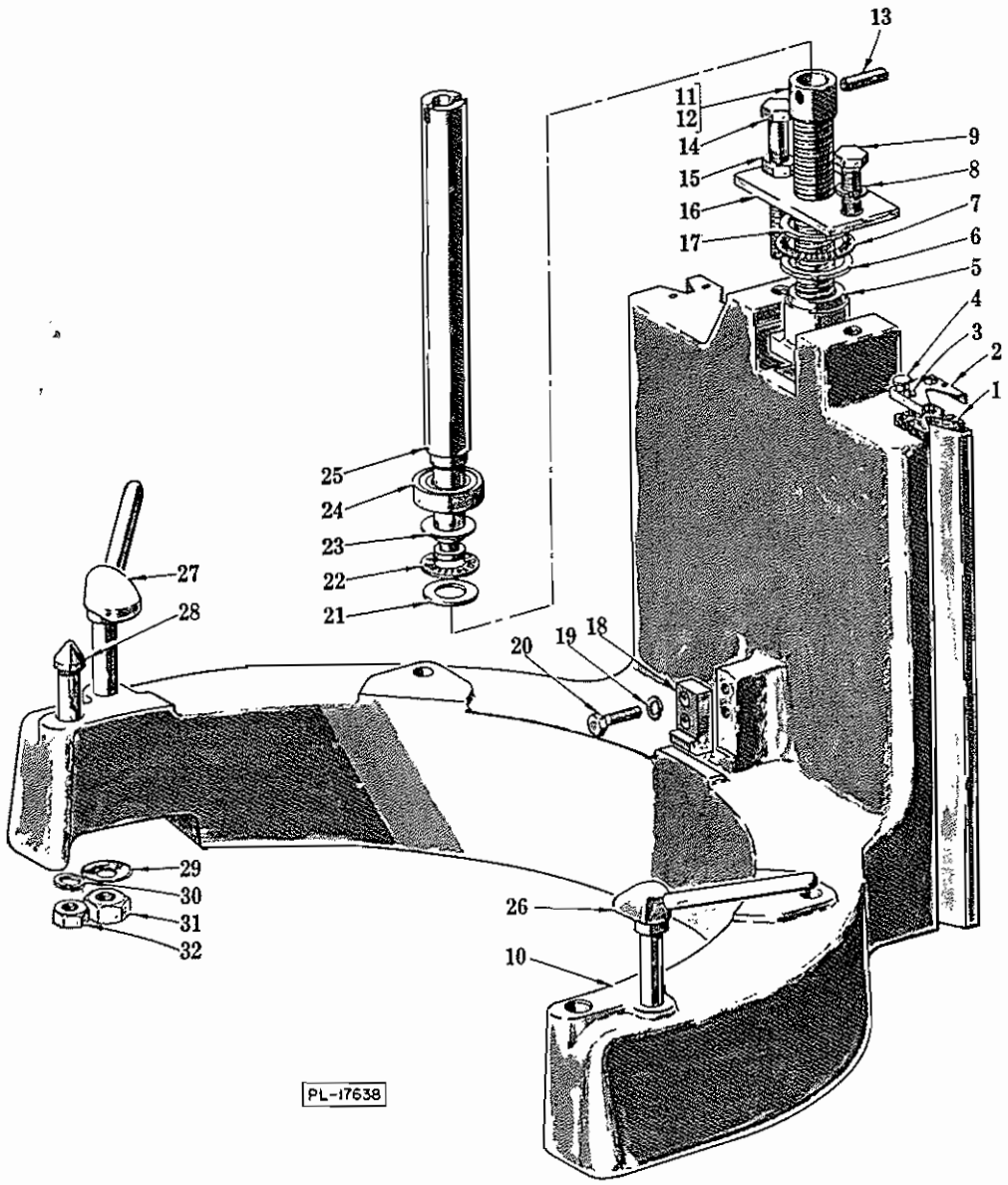
*To Replace a Single Voltage Stator (3 Leads), Order the Appropriate Dual Voltage Stator plus B-294127 Service Kit.



BASE AND PEDESTAL UNIT

BASE AND PEDESTAL UNIT

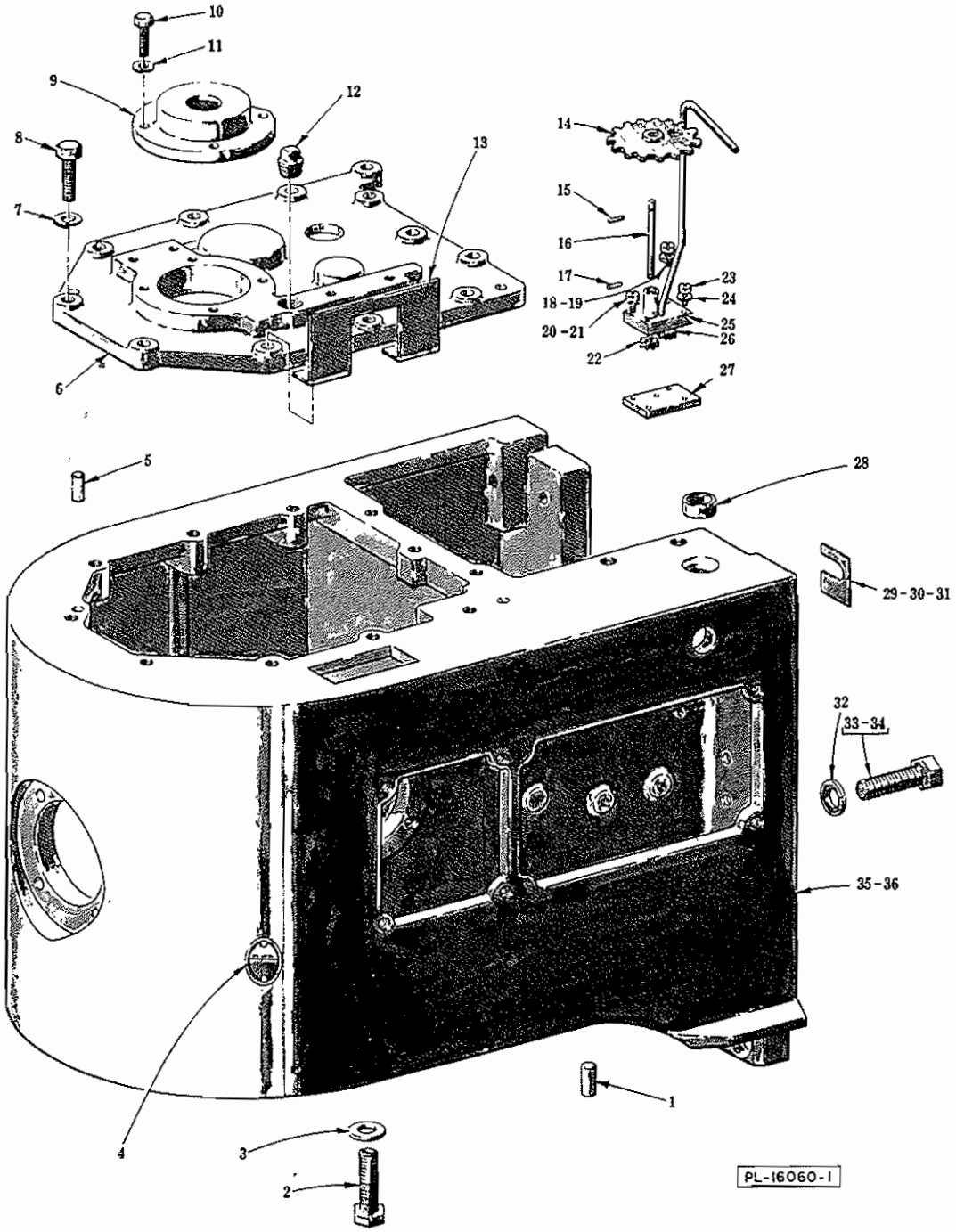
ILLUS. PL-17615-1	PART NO.	NAME OF PART	AMT.
1	M-72442-1	Plug - Button (Used to plug holes for hold down bolts)	2
2	T-67880-2	Base	1
3	B-87669-1	Caster - Bowl Truck	4
4	R-21922-1	Bowl Truck Assy. (Painted) (Incls. item #3)	1
5	R-21922-3	Bowl Truck Assy. (Aluminum) (Incls. item #3)	1
6	D-102155	Slideway Cover Assy. (L.H.) (17" Higher than Standard Machine)	1
7	D-102151	Slideway Cover Assy. (R.H.) (17" Higher than Standard Machine)	1
8	SC-40-69	Cap Screw - 1/2"-20 x 2" Soc. Fil. Hd	AR
9	WL-4-13	Lock Washer - 1/2" Medium	AR
10	SC-40-69	Cap Screw - 1/2"-20 x 2" Soc. Fil. Hd	2
11	C-290408-1	Block - Stop (Standard Machine)	1
12	C-290408-2	Block - Stop (17" Higher than Standard Machine) (Not Shown)	1
13	S-67890	Slideway (L.H.) (Standard Machine)	1
14	D-102144	Slideway (L.H.) (17" Higher than Standard Machine)	1
15	SC-40-45	Cap Screw - 5/8"-11 x 2" Soc. Fil. Hd	1
16	T-67923-2	Adapter - Transmission Case	1
17	M-24781-4	Seat - Top Cover Rubber	1
18	S-67956-1	Top Cover Assy. (Incls. item #17) (Painted)	1
19	S-67956-2	Top Cover Assy. (Incls. item #17) (Chrome Plated)	1
20	M-80029	Clip - Top Cover	4
21	S-67906	Apron (Standard Machine)	1
22	E-102147	Apron (17" Higher than Standard Machine)	1
23	P-70641-9	Thumb Screw - #10-24	4
24	SC-15-76	Mach. Screw - 1/4"-20 x 1-3/4" Oval Hd	1
25	SC-16-19	Mach. Screw - 1/4"-20 x 2" Oval Hd. (Use with item #31)	1
26	SC-15-70	Mach. Screw - 1/4"-20 x 1" Oval Hd	1
27	C-117550	Holder - Capacitor (1 Ph.)	1
28	SC-36-4	Cap Screw - 1/4"-20 x 3/4" Hex Hd. (1 Ph.)	2
29	WL-3-37	Lock Washer - 1/4" Medium (1 Ph.)	2
30	NS-13-1	Full Nut - 1/4"-20 Hex Fin	2
31	R-67909	Strap - Top Anchoring (ML-16451 & ML-18821 Only)	1
32	SC-36-4	Cap Screw - 1/4"-20 x 3/4" Hex Hd. (Use with item #31)	2
33	WL-3-37	Lock Washer - 1/4" Medium (Use with item #31)	2
34	NS-13-1	Full Nut - 1/4"-20 Hex Fin. (Use with item #31)	2
35	D-11800-180	Dowel	2
36	S-67918	Conduit - Air	1
37	SC-8-68	Mach. Screw - 1/4"-20 x 1/2" Rd. Hd	3
38	WL-3-37	Lock Washer - 1/4" Medium	3
39	NS-17-1	Jam Nut - 1/4"-20 Hex Fin	3
40	S-67889	Slideway (R.H.) (Standard Machine)	1
41	D-102143	Slideway (R.H.) (17" Higher than Standard Machine)	1
42	T-67881	Pedestal Assy. (Standard Machine)	1
43	E-102142	Pedestal Assy. (17" Higher than Standard Machine)	1
44	PL-3-39	Plug - 2-1/4" Expansion	1
45	SC-37-1	Cap Screw - 1/2"-13 x 1-1/2" Hex Hd	2
46	WL-4-12	Lock Washer - 1/2" Light	2
47	M-72442-1	Plug - Button (Used to plug holes for hold down bolts)	2
48	SC-37-36	Cap Screw - 5/8"-11 x 3-1/2" Hex Hd	2
49	WL-4-18	Lock Washer - 5/8" Light	2
50	D-11800-143	Dowel	2
51	E-291201	Apron - Inner (Standard Machine)	1
52	SD-10-32	Self-Tapping Screw - #4-24 x 5/16" Pan Hd., Type BT	2
53	D-102150	Apron - Inner (17" Higher than Standard Machine)	1



BOWL SUPPORT UNIT

BOWL SUPPORT UNIT

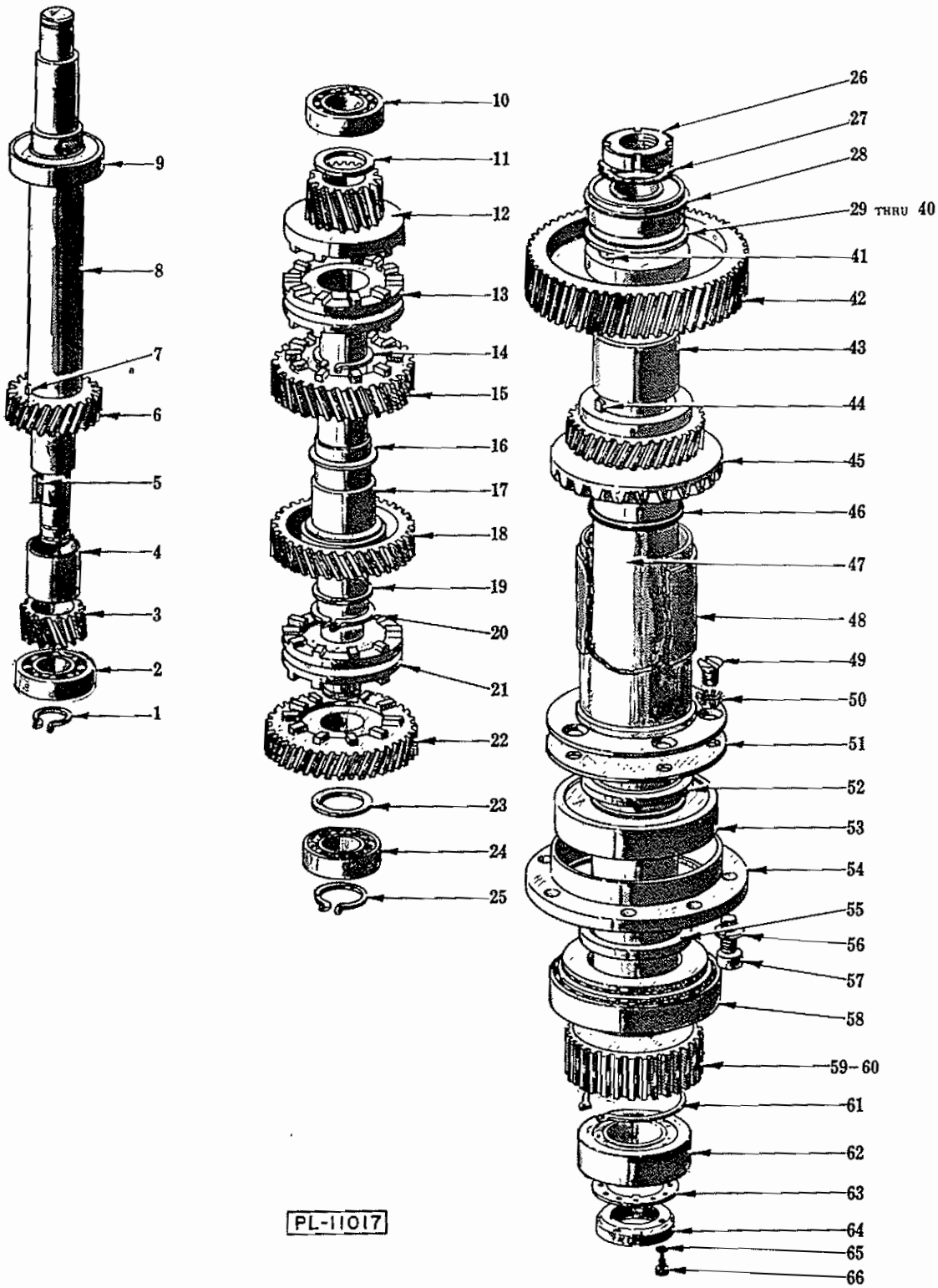
ILLUS. PL-17638	PART NO.	NAME OF PART	AMT.
1	M-65683	Wiper - Felt	2
2	M-65682	Retainer - Wiper	2
3	SC-7-44	Mach. Screw - #8-32 x 5/8" Rd. Hd	4
4	OG-3-23	Oiler	2
5	P-68322	Nut - Bowl Lift	1
6	M-68321	Washer - Lift Screw Thrust	1
7	BN-2-11	Thrust Bearing - Needle	1
8	WL-4-13	Lock Washer - 1/2" Medium	1
9	SC-36-98	Cap Screw - 1/2"-13 x 1-1/4" Hex Hd	1
10	T-122930-2	Support - Bowl	1
11	C-290367-3	Bowl Lift Screw Assy. (Standard Machine)	1
12	C-290367-4	Bowl Lift Screw Assy. (17" Higher than Standard Machine)	1
13	PS-4-21	Spirol Pin - 3/8" Dia. x 1-1/2" Lg	1
14	M-68443	Stop Screw - Bowl Yoke	1
15	NS-13-30	Full Nut - 1/2"-13 Hex Fin	1
16	M-67955	Retainer - Nut	1
17	M-68321	Washer - Lift Screw Thrust	1
18	M-64394	Retainer - Bowl	1
19	WL-3-44	Lock Washer - 5/16" Medium	2
20	SC-36-27	Cap Screw - 5/16"-18 x 1" Hex Hd	2
21	M-64558	Washer - Thrust	1
22	BN-2-18	Thrust Bearing - Needle	1
23	M-64558	Washer - Thrust	1
24	BB-17-39	Ball Bearing - MRC #205-SZZ	1
25	P-64389	Extension - Lift Screw	1
26	P-65922-14	Bowl Clamp Assy. (R.H.)	1
27	P-65922-15	Bowl Clamp Assy. (L.H.)	1
28	M-19195-1	Stud - Bowl Locating	2
29	M-64636	Washer - Bowl Clamp Spring	2
30	WL-4-12	Lock Washer - 1/2" Light	2
31	NS-46-18	Lock Nut - 5/8"-11 Hex "Nylok"	2
32	NS-13-30	Full Nut - 1/2"-13 Hex Fin	2



TRANSMISSION CASE UNIT

TRANSMISSION CASE UNIT

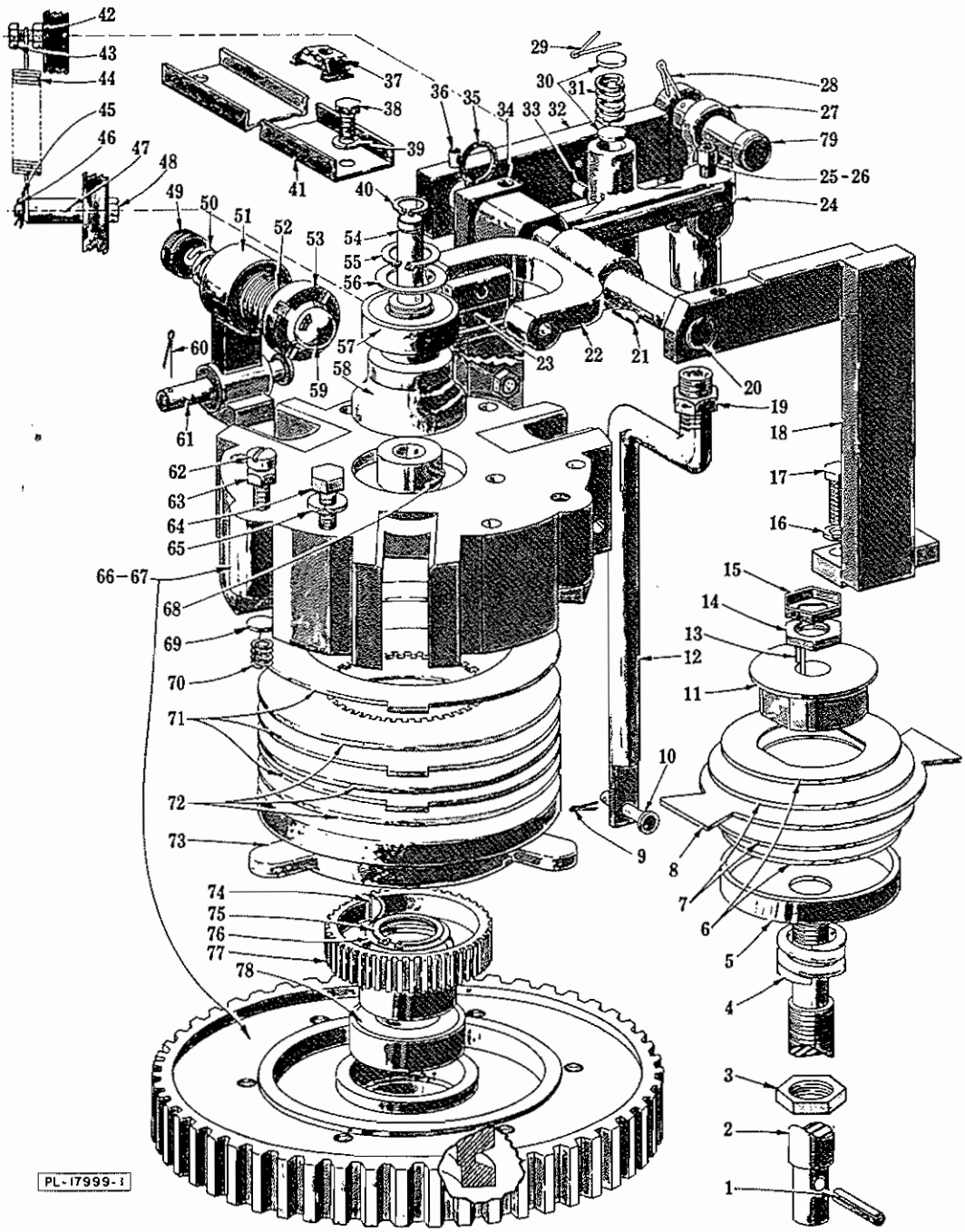
ILLUS. PL-16060-1	PART NO.	NAME OF PART	AMT.
1	D-11800-142	Dowel	2
2	SC-62-60	Cap Screw - 1/2"-20 x 1" Hex Hd	1
3	WS-21-21	Washer	1
4	M-22793	Gauge - Oil Level	1
5	D-11800-224	Dowel	2
6	E-106868	Cover - Transmission Case	1
7	WL-4-2	Lock Washer - 3/8" Light	11
8	SC-62-41	Cap Screw - 3/8"-16 x 1-1/2" Hex Hd	11
9	B-106867	Retainer - Upper Bearing	1
10	SC-36-27	Cap Screw - 5/16"-18 x 1" Hex Hd	4
11	WL-3-48	Lock Washer - 5/16" High Collar	4
12	FP-28-13	Plug - 1/2" Sq. Hd. Pipe	1
13	P-73488	Stop - Clutch Arm	1
14	M-64554	Drive Gear Assy. (25T)	1
15	RP-2-8	Rollpin - 5/16" Dia. x 11/16" Lg	1
16	M-64489	Shaft	1
17	RP-6-5	Rollpin - 1/16" Dia. x 3/8" Lg	1
18	SC-11-10	Mach. Screw - #8-32 x 5/18" Fil. Hd	1
19	WL-3-15	Lock Washer - #8 Light	1
20	SC-12-47	Mach. Screw - #10-32 x 5/8" Fil. Hd	1
21	WL-3-22	Lock Washer - #10 Light	1
22	C-290276	Gear - Oil Pump (15T) (Drive)	1
23	SC-12-48	Mach. Screw - #10-32 x 7/8" Fil. Hd	2
24	WL-3-22	Lock Washer - #10 Light	2
25	C-123680	Housing & Tube Assy	1
26	C-290277	Gear - Oil Pump (15T)	1
27	M-64488	Plate - Oil Pump Bottom	1
28	V-6651	Bushing - Insulating	3
29	M-72992-1	Shim - Trans. Case (.010" Thk.)	AR
30	M-72992-2	Shim - Trans. Case (.018" Thk.)	AR
31	M-72992-3	Shim - Trans. Case (.036" Thk.)	AR
32	WL-4-19	Lock Washer - 5/8" Medium	5
33	SC-62-16	Cap Screw - 5/8"-11 x 3-3/4" Hex Hd	3
34	SC-62-17	Cap Screw - 5/8"-11 x 3-1/2" Hex Hd	2
35	T-74198-4	Case - Transmission (Painted)	1
36	T-74198-3	Case - Transmission (Aluminum)	1
	P-290231	Transmission Oil Pump Assy. (Incls. items #14 thru 22, 25, 26 & 27)	1



TRANSMISSION GEAR UNIT

TRANSMISSION GEAR UNIT

ILLUS. PL-11017	PART NO.	NAME OF PART	AMT.
1	RR-4-7	Retaining Ring	1
2	BB-10-16	Ball Bearing - NTN #5304	1
3	C-121382	Gear - Main Drive Shaft Lower (17T)	1
4	M-24206	Spacer - Worm Gear	1
5	B-120937	Key - Special	1
6	C-24207	Gear - Main Drive Shaft Upper (25T)	1
7	M-64670	Key - Special	1
8	R-74221	Shaft - Main Drive	1
9	BB-7-46	Ball Bearing - N.D. #7506	1
10	BB-8-30	Ball Bearing - Fafnir #205W	1
11	M-24210	Spacer - Clutch Shaft	1
12	P-24545	Upper Clutch Upper Gear Assy. (17T)	1
13	P-24213	Clutch - Shifting	1
14	RR-4-13	Retaining Ring	1
15	P-64698	Upper Clutch Lower Gear Assy. (35T)	1
16	M-24216	Washer - Clutch Shaft	1
17	R-24209	Shaft - Clutch	1
18	P-24538	Lower Clutch Upper Gear Assy. (41T)	1
19	M-60767	Washer - Clutch Shaft	1
20	RR-5-14	Retaining Ring	1
21	P-24213	Clutch - Shifting	1
22	P-24539	Lower Clutch Lower Gear Assy. (49T)	1
23	M-74222	Spacer - Clutch Shaft (Lower)	1
24	BB-18-22	Ball Bearing - Fafnir #7305W	1
25	RR-5-4	Retaining Ring	1
26	NS-34-8	Lock Nut - N.D. #N-07	1
27	WL-17-9	Lock Washer - TW 107	1
28	BB-9-13	Ball Bearing - MRC-5207KFFG	1
29	B-106888-1	Shim - Planetary Shaft (.141" Thk.)	AR
30	B-106888-2	Shim - Planetary Shaft (.144" Thk.)	AR
31	B-106888-3	Shim - Planetary Shaft (.147" Thk.)	AR
32	B-106888-4	Shim - Planetary Shaft (.150" Thk.)	AR
33	B-106888-5	Shim - Planetary Shaft (.153" Thk.)	AR
34	B-106888-6	Shim - Planetary Shaft (.156" Thk.)	AR
35	B-106888-7	Shim - Planetary Shaft (.159" Thk.)	AR
36	B-106888-8	Shim - Planetary Shaft (.162" Thk.)	AR
37	B-106888-9	Shim - Planetary Shaft (.165" Thk.)	AR
38	B-106888-10	Shim - Planetary Shaft (.168" Thk.)	AR
39	B-106888-11	Shim - Planetary Shaft (.171" Thk.)	AR
40	B-106888-12	Shim - Planetary Shaft (.174" Thk.)	AR
41	R-12430-211	Key	1
42	P-24225	Gear - Upper Planetary Shaft (53T)	1
43	M-67891	Spacer - Planetary Shaft	1
44	R-12430-215	Key	1
45	R-67894	Gear - Cluster (33T) & (25T)	1
46	D-67500-16	"O" Ring	1
47	E-106890	Shaft - Planetary	1
48	P-67897	Chimney & Flange Assy	1
49	SC-14-75	Mach. Screw - 1/4"-20 x 7/16" Flat Hd	5
50	WL-9-8	Lock Washer - 1/4" Csk. Ext. Shakeproof	5
51	P-68227	Gasket - Chimney	1
52	M-67900	Spacer - Lower Bearing Upper	1
53	BB-8-32	Ball Bearing - MRC #212-MFZ	1
54	R-67896	Carrier - Lower Bearing	1
55	M-67901	Spacer - Lower Bearing Lower	1
56	A-120288	Lock Washer - Special	6
57	SC-40-14	Cap Screw - 5/16"-18 x 3/4" Soc. Fil. Hd	6
58	BR-2-31	Roller Bearing - Cup & Cone Assy	1
59	P-67904	Sun Gear (23T)	1
60	R-12430-161	Key - Sun Gear	1
61	RR-6-6	Retaining Ring	1
62	BR-2-15	Roller Bearing - Cup & Cone Assy	1
63	M-64982	Washer - Tongue	1
64	M-65275	Lock Nut - Special Bearing	1
65	WL-3-15	Lock Washer - #8 Light	1
66	M-65277	Cap Screw - Special	1

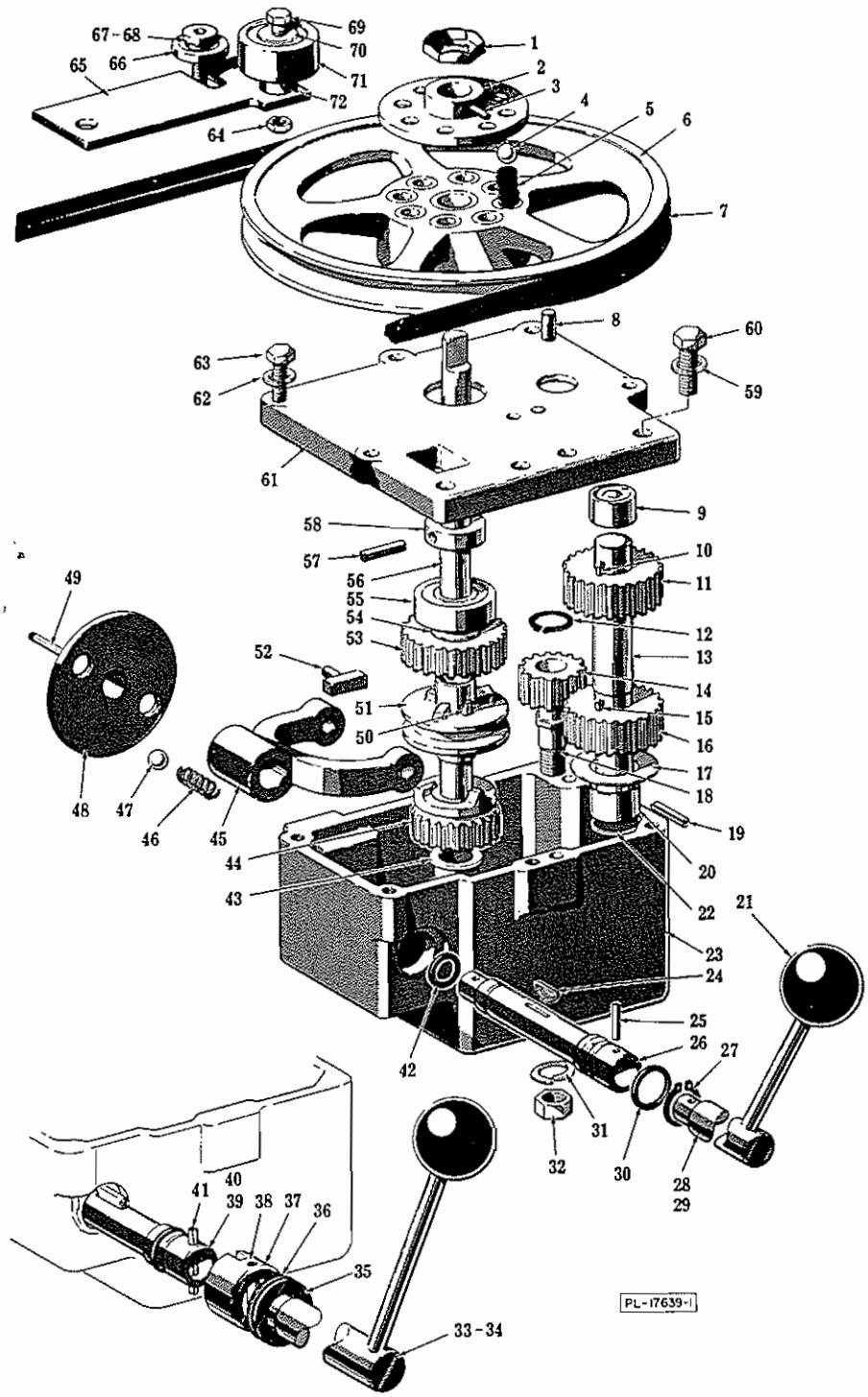


CLUTCH AND BRAKE UNIT

ILLUS. PL-17999-1	PART NO.	NAME OF PART	AMT.
1	RP-2-27	Rollpin - 5/16" Dia. x 1" Lg	1
2	M-64483	Shaft - Brake	1
3	NS-17-49	Jam Nut - 3/4"-16 Hex Fin	1
4	V-10107	Spring - Brake	1
5	M-64481	Plate - Pressure	1
6	M-22489	Disc - Friction	2
7	M-64480	Washer - Friction	2
8	M-64482	Plate - Engaging	1

CLUTCH AND BRAKE UNIT (Cont.)

ILLUS. PL-17999-1	PART NO.	NAME OF PART	AMT.
9	PC-3-32	Cotter Pin - 3/32" x 1/2"	1
10	M-64632	Pin - Connector	1
11	M-64479	Hub - Brake	1
12	B-106900	Rod - Clutch	1
13	R-12430-24	Key	1
14	NS-17-40	Iam Nut - 5/8"-18 Hex Fin	1
15	NS-35-21	Special Nut - 5/8"-18 "Palnut"	1
16	WL-3-44	Lock Washer - 5/16" Medium	4
17	SC-36-27	Cap Screw - 5/16"-18 x 1" Hex Hd	4
18	P-64527	Clutch Shaft Support Assy. (L.H.)	1
19	NS-13-35	Full Nut - 1/2"-20 Hex Fin	1
20	P-64525	Shaft - Clutch	1
21	KW-3-10	Key - #606 Woodruff	1
22	P-64532	Yoke - Clutch Shifting	1
23	A-103655	Clutch Bearing Retainer Assy	2
24	A-68529	Brake Arm Assy. (Incls. items #25 & 26)	1
25	SC-40-22	Cap Screw - 3/8"-16 x 1" Soc. Hd	1
26	NS-13-22	Full Nut - 3/8"-16 Hex Fin	1
27	M-19173-1	Clevis - Clutch Rod	1
28	PC-3-34	Cotter Pin - 3/32" x 3/4"	1
29	PC-3-38	Cotter Pin - 3/32" x 1-1/4"	1
30	V-11352	Disc - Spring	2
31	V-7433-1	Spring - Brake Arm	1
32	A-103654	Brake and Clutch Arm Assy. (Incls. item #33)	1
33	PS-4-15	Spirol Pin - 1/4" Dia. x 1-1/8" Lg	1
34	M-64526	Clutch Shaft Support Assy. (R.H.)	1
35	RR-4-18	Retaining Ring	2
36	PS-4-15	Spirol Pin - 1/4" Dia. x 1-1/8" Lg	1
37	M-64652	Nut - Special	1
38	SC-36-1	Cap Screw - 1/4"-20 x 3/8" Hex Hd	2
39	WL-3-36	Lock Washer - 1/4" Light	2
40	RR-4-17	Retaining Ring	1
41	P-64528	Channel - Top Anchoring	1
42	NS-13-1	Full Nut - 1/4"-20 Hex Fin	1
43	SC-36-4	Cap Screw - 1/4"-20 x 3/4" Hex Hd	1
44	M-65084-1	Spring - Clutch Linkage	1
45	WS-3-20	Washer	1
46	PC-3-32	Cotter Pin - 3/32" x 1/2"	1
47	M-65122	Stud - Spring Mounting	1
48	NS-17-6	Jam Nut - 5/16"-18 Hex Fin	1
49	V-7343	Screw - Hollow	3
50	V-8827	Spring - Ball Operating	3
51	P-64430	Arm - Clutch	3
52	A-103652	Clutch Spring Screw Assy. (Incls. items #49, 50, 51, 53 & 59)	3
53	V-7344	Lock Nut	3
54	M-72558	Post - Guide	1
55	RR-4-7	Retaining Ring	1
56	WS-12-41	Washer	1
57	BB-15-3	Ball Bearing - N.D. #773LO4	1
58	P-64529	Cam - Clutch Operating	1
59	BA-2-23	Ball - 1/2" Dia	3
60	PC-3-34	Cotter Pin - 3/32" x 3/4"	3
61	M-64631	Pin - Clutch Arm Pivot	3
62	SC-12-2	Mach. Screw - 5/16"-18 x 1-1/2" Fil. Hd	3
63	NS-17-8	Jam Nut - 5/16"-18 Hex Fin	3
64	SC-37-96	Cap Screw - 5/16"-18 x 2-3/4" Hex Hd	6
65	WL-3-44	Lock Washer - 5/16" Medium	6
66	S-110706	Driven Gear (54T) & Clutch Arm Plate Assy. (60 Hz.) (Incls. items #64 & 65)	1
67	S-110704	Driven Gear (52T) & Clutch Arm Plate Assy. (50 Hz.) (Incls. items #64 & 65)	1
68	SC-64-3	Set Screw - 1/4"-28 x 1/4" Soc. Hdls., Cup Pt. "Nylok"	1
69	V-11352	Disc - Spring	3
70	M-18046	Spring - Release	3
71	P-64432	Disc - Outer	3
72	P-64433	Disc - Inner	3
73	R-64429-2	Plate - Pressure	1
74	M-64670	Key - Special	1
75	RR-4-9	Retaining Ring	1
76	WS-13-44	Washer - Shim	2
77	P-64434	Hub - Spline	1
78	BB-15-8	Ball Bearing - MRC #105-KSZZ	3
79	M-19256-1	Pin - Clevis	1

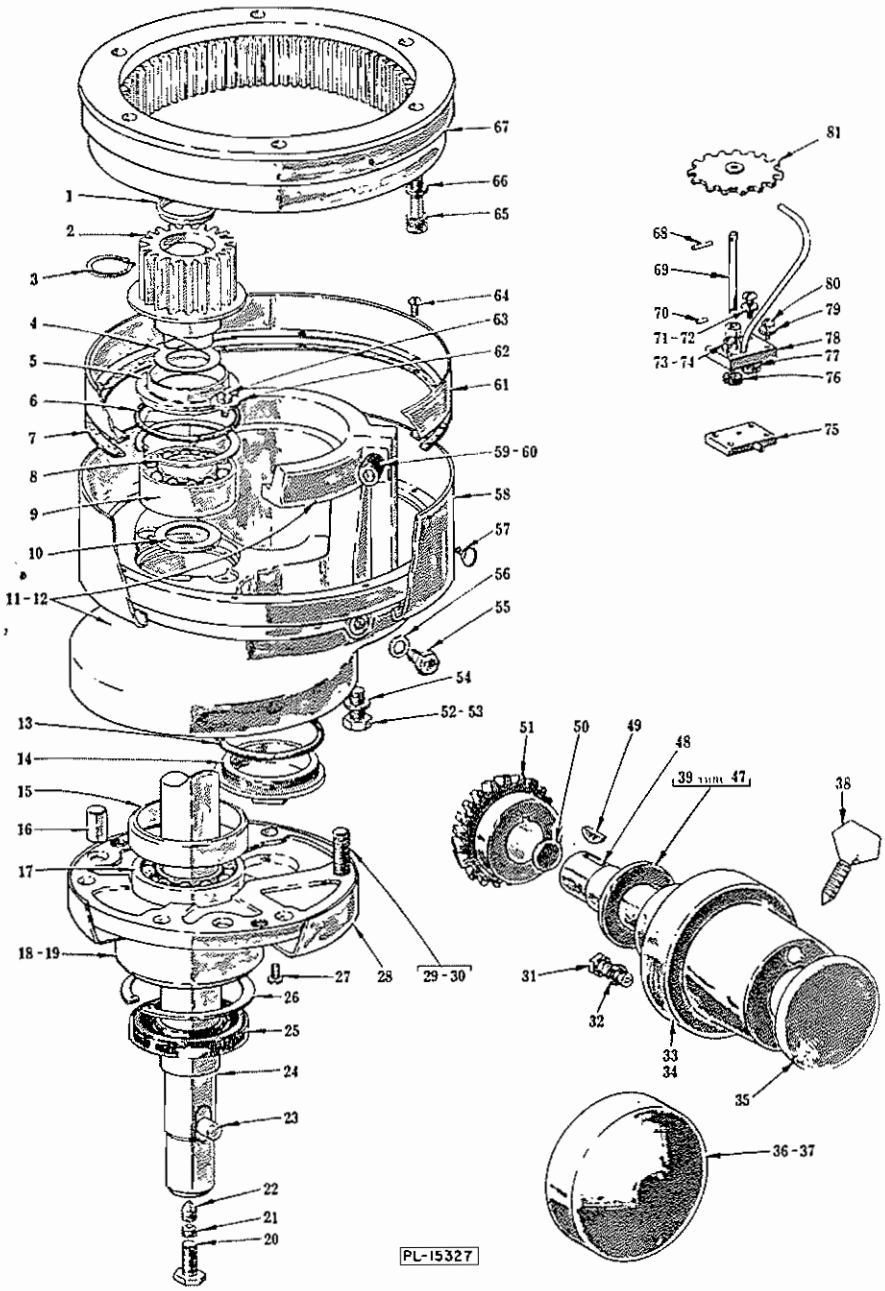


POWER BOWL LIFT UNIT

ILLUS. PL-17639-1	PART NO.	NAME OF PART	AMT.
1	NS-35-17	Special Nut - 9/16"-18 "Palnut"	1
2	M-67915	Hub & Detent Plate Assy	1
3	PS-4-9	Spirol Pin - 3/16" Dia. x 1" Lg	1
4	BA-2-18	Ball - 3/8" Dia	8
5	M-64616	Spring - Slip Clutch Detent	8

POWER BOWL LIFT UNIT (Cont.)

ILLUS. PL-17639-1	PART NO.	NAME OF PART	AMT.
6	R-67913	V-Pulley & Bushing Assy	1
7	BV-13-17	V-Belt	1
8	D-11800-90	Dowel	2
9	BN-2-9	Needle Bearing - Torrington #M-1081	1
10	KW-3-3	Key - #404 Woodruff	1
11	C-12699	Gear - Output (23T)	1
12	RR-4-17	Retaining Ring	1
13	M-64400	Shaft - Output	1
14	M-64726	Idler Gear Assy. (15T)	1
15	KW-3-3	Key - #404 Woodruff	1
16	C-12699	Gear - Output (23T)	1
17	A-120407	Washer	1
18	M-64523	Stud - Idler	1
19	PS-4-15	Spirol Pin - 1/4" Dia. x 1-1/8" Lg	1
20	BN-2-8	Needle Bearing - Torrington #B-108	1
21	M-60468	Knob - Bowl Lift Handle	1
22	M-64643	Oil Seal - Bowl Lift	1
23	S-64395	Gear - Box - Bowl Lift	1
24	KW-3-10	Key - #606 Woodruff	1
25	PS-3-14	Spirol Pin - 3/16" Dia. x 7/8" Lg	1
26	P-65567	Shaft - Yoke	1
27	RR-4-6	Retaining Ring	1
28	M-64727-1	Lift Control Shaft & Handle Assy. (Painted)	1
29	M-64727-2	Lift Control Shaft & Handle Assy. (Chrome Plated)	1
30	D-67500-7	"O" Ring	1
31	WL-4-13	Lock Washer - 1/2" Medium	1
32	NS-17-27	Jam Nut - 1/2"-13 Hex Fin	1
33	M-68341-1	Lift Control Shaft & Handle Assy. (Painted)	1
34	M-68341-2	Lift Control Shaft & Handle Assy. (Chrome Plated)	1
35	WS-11-46	Washer	AR
36	A-120408	Washer	4
37	M-68339	Sleeve - Yoke Shaft Connector	1
38	PS-4-11	Spirol Pin - 3/16" Dia. x 1-1/4" Lg	1
39	P-68261	Shaft - Yoke	1
40	D-67500-5	"O" Ring	1
41	PS-4-11	Spirol Pin - 3/16" Dia. x 1-1/4" Lg	1
42	D-67500-5	"O" Ring	1
43	M-64641	Bearing - Gear Box	1
44	A-103642	Lower Clutch Gear & Brg. Assy. (20T)	1
45	P-64410	Yoke - Reversing	1
46	V-7009	Spring - Ball	2
47	BA-2-18	Ball - 3/8" Dia	2
48	B-110876	Hub & Detent Plate Assy	1
49	PS-4-9	Spirol Pin - 3/16" Dia. x 1" Lg	1
50	M-64670	Key - Special	1
51	P-64399	Clutch	1
52	M-64403	Shoe - Clutch	2
53	A-103641	Upper Clutch Gear & Brg. Assy. (25T)	1
54	WS-9-11	Washer	1
55	BB-5-19	Ball Bearing - Fafnir #H202PP	1
56	P-64401	Shaft - Input	1
57	RP-2-25	Rollpin - 1/8" Dia. x 7/8" Lg	1
58	M-64405	Collar - Input Shaft	1
59	WL-4-2	Lock Washer - 3/8" Light	2
60	SC-36-54	Cap Screw - 3/8"-16 x 1" Hex Hd	2
61	R-291045	Cover - Gear Box	1
62	WL-3-37	Lock Washer - 1/4" Medium	6
63	SC-36-5	Cap Screw - 1/4"-20 x 7/8" Hex Hd	6
64	NS-13-11	Full Nut - 5/16"-18 Hex Fin	1
65	P-64508	Plate - Belt Tightener Mounting	1
66	M-68839	Washer - Belt Tightener	1
67	SC-61-4	Cap Screw - 5/16"-18 x 1" Soc. Flat Hd	1
68	WL-9-14	Lock Washer - 5/16" Csk. Ext. Shakeproof	1
69	M-64507	Special Screw	1
70	WS-4-20	Washer	1
71	B-122101	Belt Tightener Assy	1
72	M-111669	Bushing - Belt Tightener	1

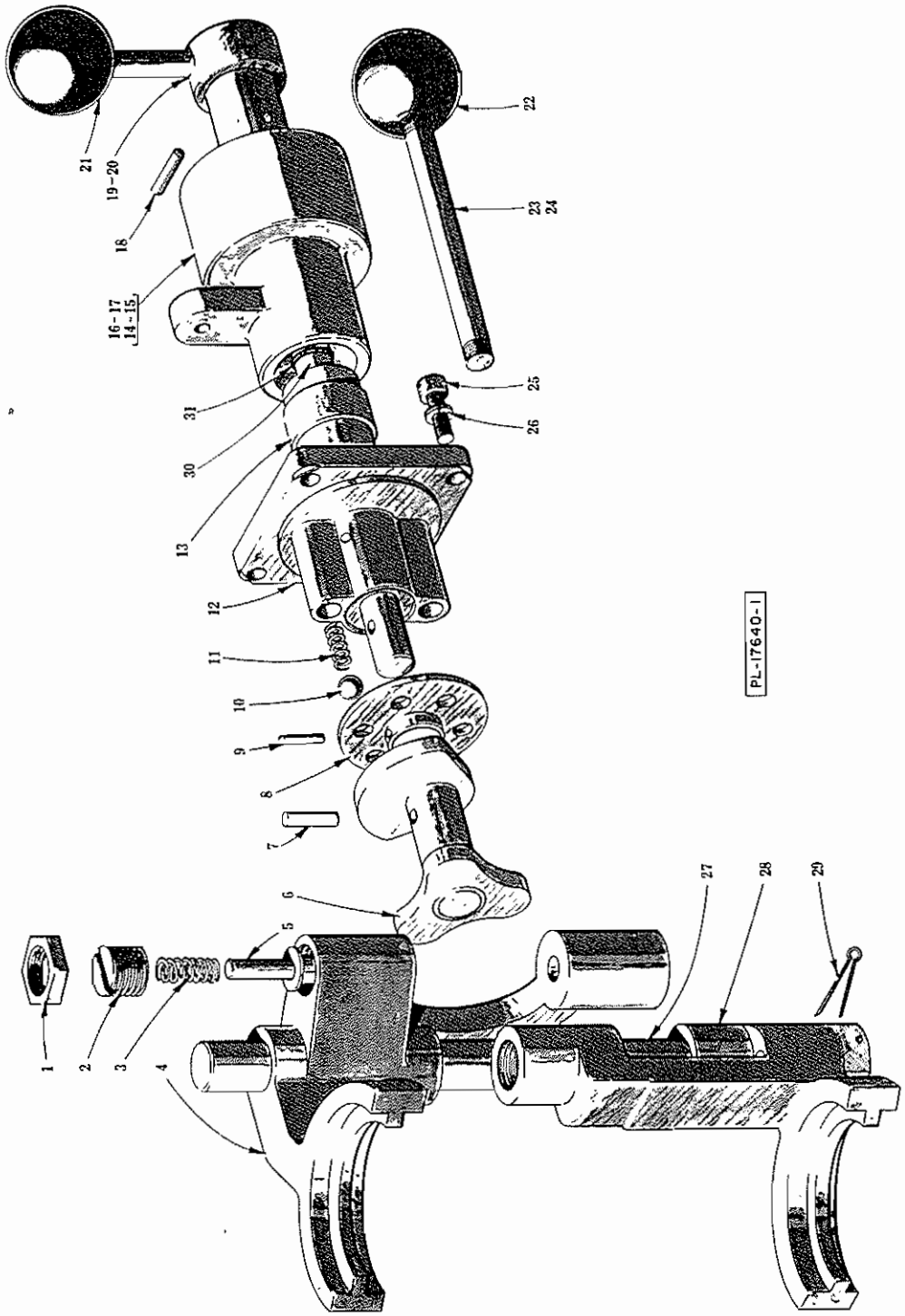


PLANETARY AND ATTACHMENT HUB UNIT

ILLUS. PL-15327	PART NO.	NAME OF PART	AMT.
1	M-60071	Cap - Oil Retaining	1
2	M-67886	Internal Pinion & Oil Deflector Assy. (18T)	1
3	RR-6-8	Retaining Ring	1
4	M-68277	Shim - Internal Pinion	AR
5	M-73011	Baffle - Planetary Oil	1
6	D-67500-21	"O" Ring	1
7	R-64464	Gasket - Planetary	1
8	RR-4-24	Retaining Ring	1
9	BB-9-44	Ball Bearing - MRC #5207-KF	1
10	M-67902	Spacer - Agitator Shaft	1
11	D-110360-1	Planetary & Brg. Cap Assy. (Painted) (Incls. items #59 & 60)	1
12	D-110360-2	Planetary & Brg. Cap Assy. (Chrome Plated) (Incls. items #59 & 60)	1
13	D-67500-21	"O" Ring	1
14	P-64384-2	Cap - Seal	1
15	M-67903	Locator - Bearing	1
16	D-11800-237	Dowel	2

PLANETARY AND ATTACHMENT HUB UNIT (Cont.)

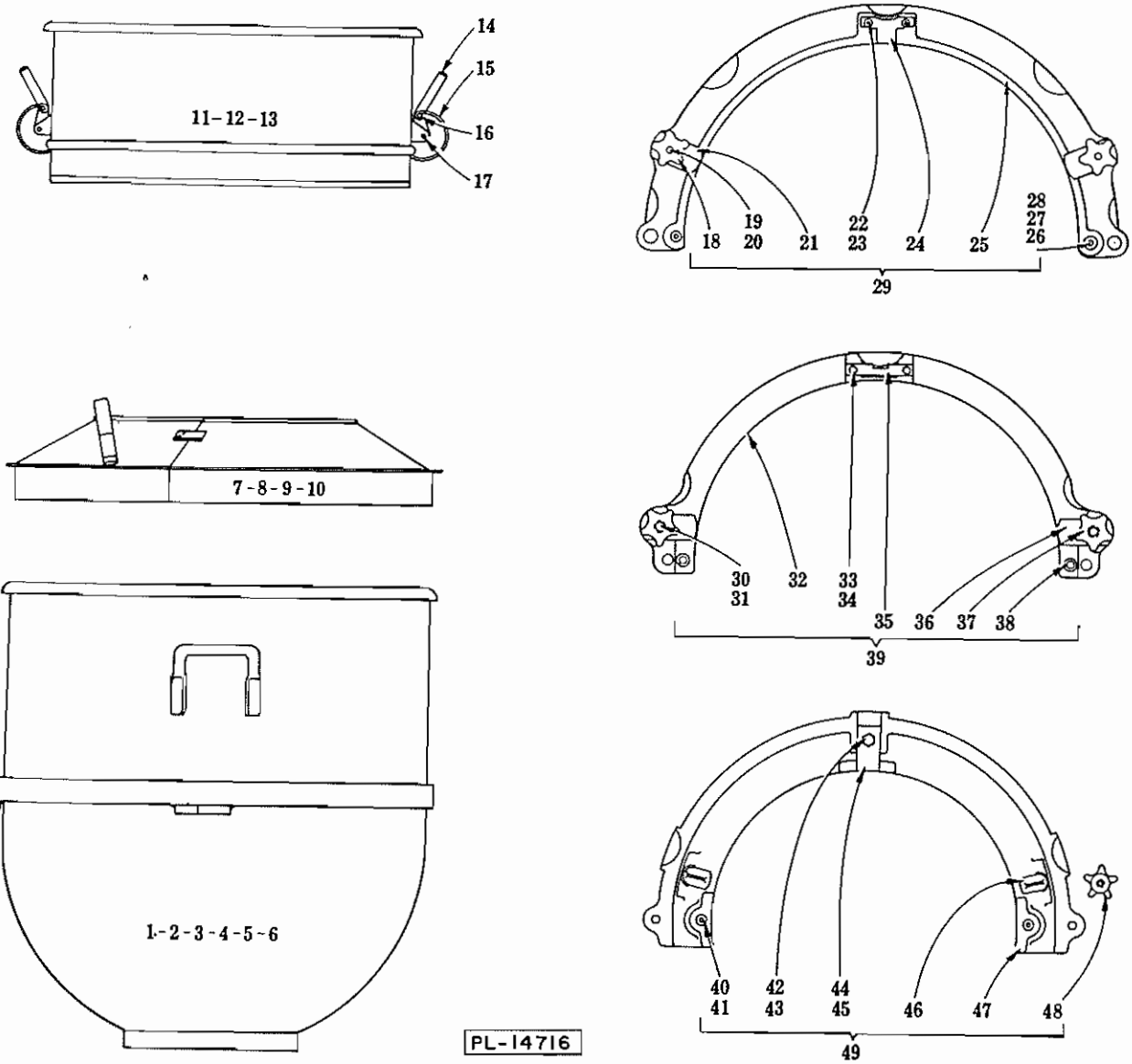
ILLUS. PL-15327	PART NO.	NAME OF PART	AMT.
17	BB-9-45	Ball Bearing - MRC #5210-KF	1
18	S-67921-1	Plate - Bearing (Painted)	1
19	S-67921-2	Plate - Bearing (Chrome Plated)	1
20	M-64723	Plug - Agitator Shaft	1
21	SC-47-41	Set Screw - 3/8"-16 x 3/8" Hdls., Cup Pt	1
22	V-7744	Set Screw - Cone Pt	1
23	B-77757	Pin - Agitator Shaft	1
24	M-73821	Agitator Shaft Unit Assy. (Incls. items #20, 21, 22 & 23)	1
25	P-68045	Seal - Planetary	1
26	RR-6-7	Retaining Ring	1
27	M-80531	Screw - Special "Nylok"	2
28	R-68041	Cover - Planetary Brg. Plate	1
29	SC-62-19	Cap Screw - 1/2"-13 x 2" Hex Hd	6
30	WL-4-13	Lock Washer - 1/2" Medium	6
31	SC-36-57	Cap Screw - 3/8"-16 x 1-1/4" Hex Hd	4
32	WL-4-2	Lock Washer - 3/8" Light	4
33	S-64380-3	Hub - Attachment (Painted)	1
34	S-64380-2	Hub - Attachment (Chrome Plated)	1
35	P-24799-1	Plug - Attachment Hub	1
36	P-64612-1	Cover - Attachment Hub (Painted)	1
37	P-64612-2	Cover - Attachment Hub (Aluminum)	1
38	C-108197-2	Thumb Screw - 1/2"-12	1
39	M-11091-3	Shim - Bevel Pinion (.056" Thk.)	AR
40	M-11091-4	Shim - Bevel Pinion (.062" Thk.)	AR
41	M-11091-5	Shim - Bevel Pinion (.080" Thk.)	AR
42	M-11091-6	Shim - Bevel Pinion (.106" Thk.)	AR
43	B-11091-7	Shim - Bevel Pinion (.092" Thk.)	AR
44	M-11091-8	Shim - Bevel Pinion (.086" Thk.)	AR
45	M-11091-9	Shim - Bevel Pinion (.098" Thk.)	AR
46	M-11091-10	Shim - Bevel Pinion (.068" Thk.)	AR
47	M-11091-11	Shim - Bevel Pinion (.074" Thk.)	AR
48	M-103911	Sleeve - Sq. Drive	1
49	KW-3-15	Key - #807 Woodruff	1
50	PL-3-22	Plug - 1-1/8" Expansion	1
51	P-64422	Bevel Pinion (Attach.) (21T)	1
52	SC-62-60	Cap Screw - 1/2"-20 x 1" Hex Hd (Painted) (Drain Plug for Planetary)	1
53	SC-37-26	Cap Screw - 1/2"-20 x 1" Hex Hd. (Chrome Plated) (Drain Plug for Planetary)	1
54	WS-21-21	Washer	1
55	M-64465-3	Plug - Oil Fill	1
56	WS-21-20	Washer	1
57	P-70641-11	Thumb Screw - #8-32	2
58	R-67895	Cup - Drip	1
59	SC-40-35	Cap Screw - 1/2"-13 x 1-1/2" Soc. Fil. Hd	2
60	WL-4-14	Lock Washer - 1/2" High Collar	2
61	R-64478	Extension - Planetary	1
62	WS-3-46	Washer	2
63	SC-11-72	Mach. Screw - 1/4"-20 x 3/8" Fil. Hd	2
64	SC-9-70	Mach. Screw - #6-32 x 1/4" Rd. Hd	8
65	SC-40-28	Cap Screw - 3/8"-16 x 2-1/2" Soc. Fil. Hd	6
66	WL-4-1	Lock Washer - 3/8" High Collar	6
67	R-67907	Gear - Internal (59T)	1
68	RP-2-8	Rollpin - 5/64" Dia. x 11/16" Lg	1
69	M-64489	Shaft - Oil Pump	1
70	RP-6-5	Rollpin - 1/16" Dia. x 3/8" Lg	1
71	SC-9-39	Mach. Screw - #8-32 x 3/4" Rd. Hd	1
72	WL-3-15	Lock Washer - #8 Light	1
73	SC-9-50	Mach. Screw - #10-32 x 3/4" Rd. Hd	1
74	WL-3-22	Lock Washer - #10 Light	1
75	M-64844	Bottom Plate Planetary Oil Pump Assy	1
76	C-290277	Gear - Oil Pump (15T)	1
77	C-290276	Gear - Oil Pump (15T)	1
78	C-123681	Housing & Tube Assy	1
79	WL-3-22	Lock Washer - #10 Light	2
80	SC-9-51	Mach. Screw - #10-32 x 7/8" Rd. Hd	2
81	M-64614	Drive Gear Assy. (15T)	1
	B-290232-2	Planetary Oil Pump Assy. (Incls. items #68 thru 78 and item #81)	1
	B-89050-1	Planetary Unit Assy. (Painted) (Incls. items #1 thru 11, 15, 16, 17, 18, 24, 25, 26, 29, 30, 52 54, 55, 56, 61, 62, 63, 64 & items #68 thru 81)	1
	B-89050-2	Planetary Unit Assy. (Chrome Plated) (Incls. items #1 thru 10, 12, 15, 16, 17, 19, 24, 25, 26, 29, 30, 53, 54, 55, 56, 61, 62, 63, 64 & items #68 thru 81)	1



SHIFTING UNIT

SHIFTING UNIT

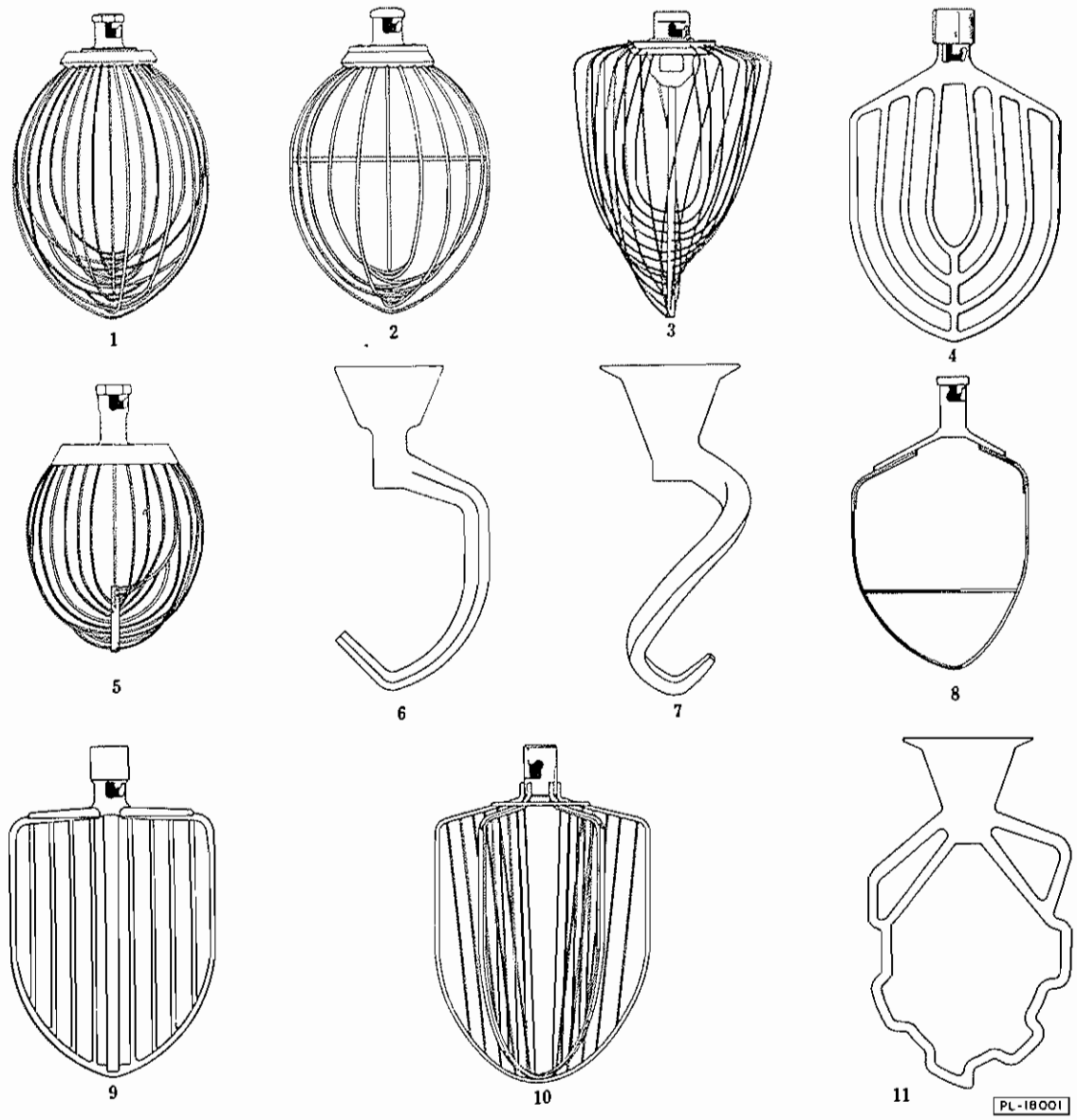
ILLUS. PL-17640-1	PART NO.	NAME OF PART	AMT.
1	M-24232	Nut - Plunger Screw	3
2	M-60723	Screw - Shifting Plunger	4
3	M-24233	Spring - Shifting Plunger	4
4	R-24229	Yoke - Upper Shifting	1
5	M-24230	Plunger - Shifting Yoke	4
6	P-24249	Gear Shift Cams Assy	1
7	RP-2-5	Rollpin - 1/4" Dia. x 7/8" Lg	1
8	B-61922-2	Hub and Cam Assy	1
9	RP-2-10	Rollpin - 3/16" Dia. x 1" Lg	1
10	BA-2-18	Ball - 3/8" Dia	2
11	V-7009	Spring	2
12	R-64413	Bracket - Gear Shift	1
13	B-119721	Bushing - Clutch Hub	2
14	A-106114-1	Clutch Handle Hub Assy. (Painted) (Incls. item #13) (Use W/ML-16451 & ML-17280)	1
15	A-106114-2	Clutch Handle Hub Assy. (Chrome Plated) (Incls. item #13) (Use W/ML-18821 & ML-31133)	1
16	A-105710-1	Clutch Handle Hub Assy. (Painted) (Incls. item #13) (Use W/ML-19668 & ML-19669)	1
17	A-105710-2	Clutch Handle Hub Assy. (Chrome Plated) (Incls. item #13) (Use W/ML-19670 & ML-19671)	1
18	RP-2-10	Rollpin - 3/16" Dia. x 1" Lg	1
19	M-64553-1	Gear Shift Handle & Hub Assy. (Painted)	1
20	M-64553-2	Gear Shift Handle & Hub Assy. (Chrome Plated)	1
21	M-64645	Knob (Gear Shift)	1
22	M-64645	Knob (Clutch)	1
23	M-64418-1	Handle - Clutch (Painted)	1
24	M-64418-2	Handle - Clutch (Chrome Plated)	1
25	SC-11-93	Mach. Screw - 5/16"-18 x 3/4" Fil. Hd	4
26	WL-3-43	Lock Washer - 5/16" Light	4
27	M-64830	Shaft - Shifter	1
28	R-24228	Yoke - Lower Shifting	1
29	PC-3-24	Cotter Pin - 1/16" x 1-1/2"	1
30	P-64417	Shaft - Gear Shift	1
31	D-67500-6	"O" Ring	1



BOWLS AND ADAPTERS

BOWLS AND ADAPTERS

ILLUS. PL-14716	PART NO.	NAME OF PART	AMT.
1	S-88908-2	Bowl - 140 Qt	1
2	S-66468-1	Bowl - 100 Qt. (Use with 80 Qt. Adapter)	1
3	S-66465-1	Bowl - 80 Qt. (Use with 80 Qt. Adapter)	1
4	D-107124	Bowl - 80 Qt. (Reinforced) (Use with 80 Qt. Adapter)	1
5	S-66461	Bowl - 60 Qt. (Use with 60 Qt. Adapter)	1
6	D-104432	Bowl - 40 Qt. (Use with 80 & 40 Qt. Adapters)	1
7	S-23298-1	Splash Cover Assy. (140 Qt.)	1
8	S-82443-7	Splash Cover Assy. (100 & 80 Qt.)	1
9	E-104681	Splash Cover (60 Qt.) (Plastic)	1
10	S-82443-3	Splash Cover Assy. (40 Qt.)	1
11	S-8569-2	Extension Assy. (100 & 80 Qt. Flange Top Bowl) (Incls. items #14 thru 17)	1
12	S-8569-6	Extension Assy. (60 Qt. Flange Top Bowl) (Incls. items #14 thru 17)	1
13	D-7985-1	Extension Assy. (40 Qt. Bowl)	1
14	M-11881	Handle - Clamp (For items #11 & 12)	2
15	P-62234-2	Spring - Clamp (Flange Top Bowl) (For items #11 & 12)	2
16	RP-2-7	Rollpin - 3/16" Dia. x 1-1/8" Lg. (For items #11 & 12)	2
17	RP-2-35	Rollpin - 3/16" Dia. x 5/8" Lg. (For items #11 & 12)	2
18	M-8101-1	Knob - Clamp Stud	2
19	M-22196	Bolt - Bowl Lock	2
20	WL-4-11	Lock Washer - 1/2" Medium	2
21	M-65532-1	Clamp - Bowl Adapter	2
22	SC-36-40	Cap Screw - 5/16"-18 x 1-1/4" Hex Hd	2
23	WL-3-47	Lock Washer - 5/16" Medium	2
24	M-21020	Retainer - Bowl	1
25	S-65792	Adapter (140 to 80 Qt.)	1
26	M-62110	Stud - Bowl Locating	2
27	WL-4-4	Lock Washer - 3/8" Light	2
28	NS-13-25	Full Nut - 3/8"-16 Hex Fin	2
29	D-62111	80 Qt. Bowl Adapter Assy. Unit (Incls. items #18 thru 28)	1
30	M-22196	Bolt - Bowl Lock	2
31	WL-4-11	Lock Washer - 1/2" Medium	2
32	S-65791-1	Adapter (80 to 60 Qt.)	1
33	SC-37-88	Cap Screw - 5/16"-18 x 1-1/4" Hex Hd	2
34	WL-3-47	Lock Washer - 5/16" Medium	2
35	M-24289	Retainer - Bowl	1
36	M-65532-1	Clamp - Bowl Adapter	2
37	M-8101-1	Knob - Clamp Stud	2
38	M-24300	Pin - Bowl Locating	2
39	C-61033-1	60 Qt. Adapter Assy. Unit (Incls. items #30 thru 38)	1
40	B-7629-2	Stud - Bowl Locating	2
41	WL-4-17	Lock Washer - 5/8" Light	2
42	SC-62-37	Cap Screw - 1/2"-13 x 1" Hex Hd	1
43	WL-4-11	Lock Washer - 1/2" Medium	1
44	B-7624-1	Retainer - Bowl	1
45	A-111671	Shim (.010" Thk.)	AR
46	M-8100-1	Stud - Clamp	2
47	R-111165-1	Adapter (80 to 40 Qt.)	1
48	M-111268-1	Knob - Clamp Stud	2
49	D-24653-1	40 Qt. Bowl Adapter Assy. Unit (Incls. items #40 thru 48)	1



AGITATORS

ILLUS. PL-18001	PART NO.	PART NO.	PART NO.	PART NO.	NAME OF PART	AMT.
	140 QT.	80 QT.	60 QT.	40 QT.		
1	S-24647-2	S-23522-2	S-24900-2	S-23591-2	"D" Wire Whip	1
2	D-121035	E-121036	R-60090	S-60132-2	"I" Wire Whip	1
3	T-19220	---	---	---	"Q" Spiral Whip	1
4	T-68064	S-23490	S-24308-1	T-23620	"B" Flat Beater	1
5	---	R-16418-1	---	---	"K" Spiral Whip	1
6	---	---	---	S-80693	"E" Dough Arm	1
7	E-114276	T-86841	E-121071	---	"ED" Dough Arm	1
8	E-104225	E-104229	S-68096	S-68095	"P" Pastry Knife	1
9	S-24705-2	R-15320	---	---	"J" Wing Beater	1
10	E-123678	D-123489	D-123486	D-123682	"C" Wing Whip	1
11	T-69854	S-9875-1	S-60069	R-8400	"S" Sweet Dough Arm	1
	---	R-8077	---	---	"G" Six Wing Whip (Not Shown)	1