

[*SGML Version - See Change Record* ]  
TECHNICAL MANUAL

**FOOD MIXING MACHINE  
HOBART H-600  
(60 QUART) 115 VOLT, 60  
CYCLE, 1 PHASE  
(60 QUART) 440 VOLT, 60  
CYCLE, 3 PHASE**

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| 1                 | 4-8-96      | FOOD MIXING MACHINE                   | RICHARD ACEVEDO                        |

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**WARNING**

**DISCONNECT MACHINE FROM POWER SOURCE BEFORE  
ATTEMPTING MAINTENANCE AND/OR ADJUSTMENTS**

**CHAPTER 1**

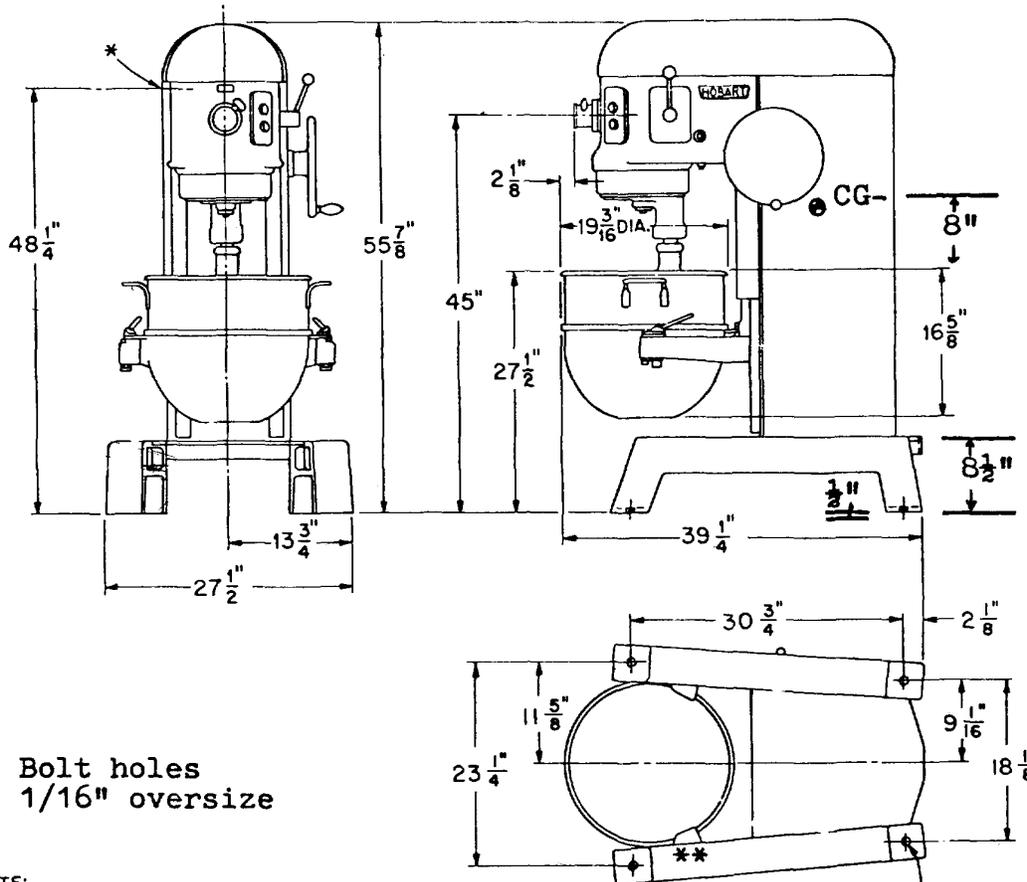
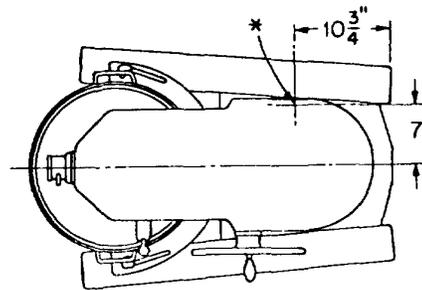
**INSTALLATION, OPERATION AND CARE OF MODEL H-600 MIXER**

**INSTALLATION DIAGRAM**

INSTALLATION H-600

\* DENOTES 1-1/16" HOLE FOR ELECTRICAL CONNECTION

**WARNING**  
ELECTRICAL CONNECTIONS SHOULD BE MADE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE OR SUCH CODES IN FORCE



\*\* Bolt holes 1/16" oversize

**NOTE:** BOLTING TO FLOOR UNNECESSARY EXCEPT ON SHIPBOARD

DECK PLATES AVAILABLE FOR PERMANENT MOUNTING

PL-10637

Wt. = 853#

D-109121

INSTALLATION DIAGRAM

INSTALLATION DIAGRAM, DWG #D-109121

**SIDE VIEW H-600 MIXER**

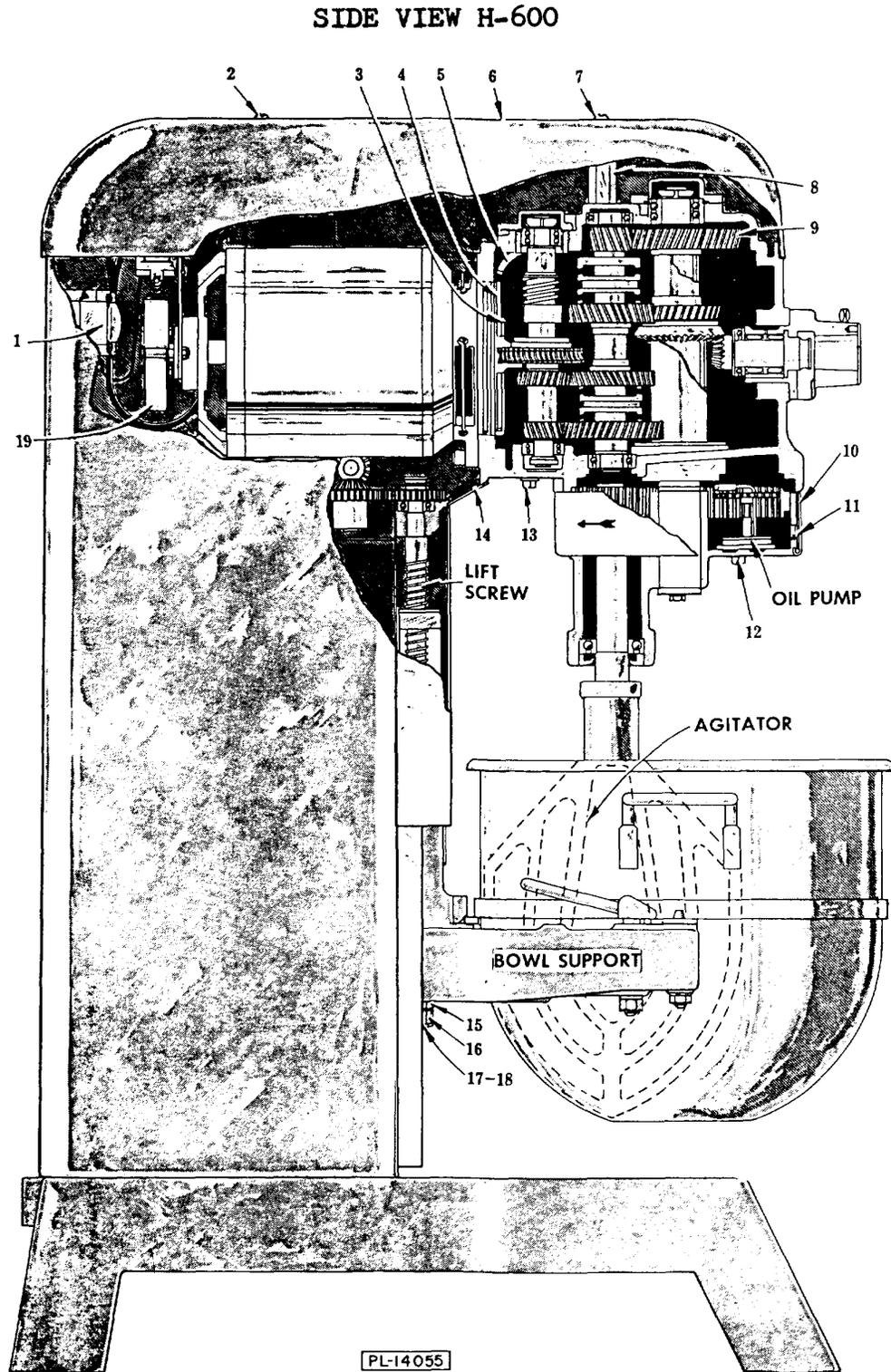


Fig. 1

Figure 1 DWG #PL-14055 (Side View of Machine)

## I. INSTALLATION

**LOCATION:** Place the Mixer in a convenient location, and allow working space on the handwheel or power bowl lift switch side. All maintenance can be handled from this side, the top, and the front. It should not be necessary to bolt the machine to the floor, although holes are provided in the base for use in special cases. Set the Mixer level and use shims if the floor is uneven. The machined edge on top of the transmission case makes an excellent surface for leveling.

**ELECTRIC CONNECTION:** Before making the electrical connections, read the specifications on the name plate to make sure that they agree with those of your electric service. Electrical connections should be made by qualified workmen who will observe all applicable Safety Codes and the National Electrical Code . Remove the top cover, which is held in place by two screws (2 and 7, [Fig. 1](#)). Bring the power line in through the hole at the top of the pedestal and connect to the motor controller. This is the only connection required. Connect three phase machines so the planetary runs in the direction shown by the arrow in [Fig. 1](#).

To start the motor, push START button. The speed selector handle must be at one of the numbers indicating a speed, not at an intermediate position.

**LUBRICATION:** The oil is drained from the machine before shipping, and both the transmission and the planetary must be refilled before operation.

A. **TO FILL THE TRANSMISSION** remove the front support for the top cover which serves as the oil-fill plug (8, [Fig. 1](#)). Use only the special transmission oil that is shipped with the machine. The oil level should be somewhere between the center and top of the oil gauge for correct lubrication. If the oil level falls below the gauge line when the motor is running, add more oil. While the machine is running, look down the oil-fill and make sure that oil is pouring out the delivery tube onto the gear face. Transmission Oil - Standard Gearep #85 or Texaco EP90 Mil-L-2105B capacity 1 gallon.

B. **FILLING THE PLANETARY:** The planetary of Model H-600 contains a gear pump which supplies oil to the internal gear and pinion. This oiling system is the key to the quiet operation and long life of the Mixer. The oil capacity in the recommended operating range is from 5 to 7 fluid ounces. Since approximately 1 oz. remains in the planetary after draining at the time of-shipping, 6 ozs. are shipped in an 8 oz. container labeled "Oil For Planetary". The following procedure should be observed:

1. Remove drain plug (12, [Fig. 1](#)) to check on previous draining of the planetary. Then replace.
2. Remove the drip cup (10, [Fig. 1](#)), which is held by two screws.
3. Remove the fill plug in the rim of the planetary and insert the tubing supplied with the mixer. Pour in the contents of the 8 oz. plastic container. Reinstall and tighten fill plug.
4. Replace the drip cup.

Planetary Oil - Standard Gearep #85 or Texaco EP90 Mil-L-2105B capacity 6 oz.

## II. OPERATION

Set the speed selector at desired speed and depress upper button marked START.

**SPEED SELECTION:** To change speeds, first turn off motor then shift selector to desired speed. Speed selection is made by lining up shift handle, (4, Fig. 2) with numbers on the shift selector plate. Moving the handle from one station to another does not shift gears but instead changes the engagement of clutches. Selector must always be positioned over speed number and never between numbers.

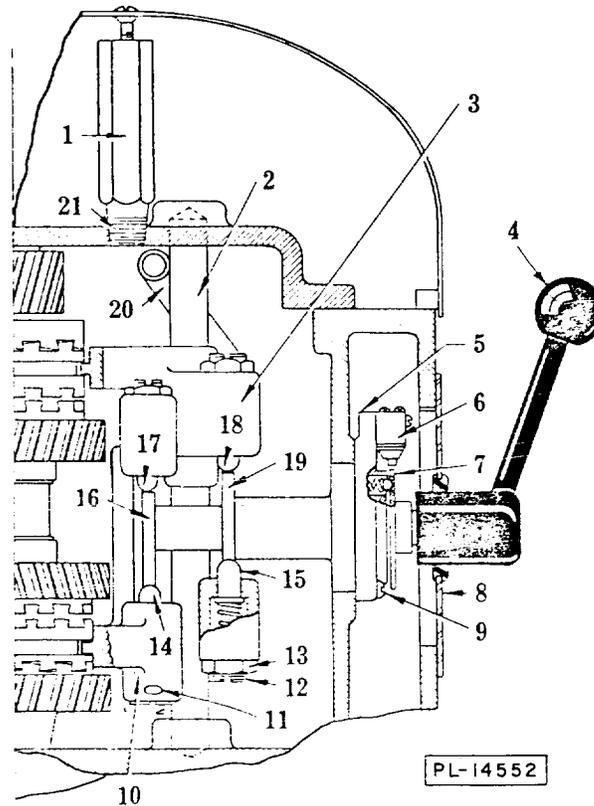


Fig. 2

Figure 2 DWG #PL-14425 (Speed Selector

**SPEED CONTROL:** The number "1" (LOW) is for heavy mixtures like dough, heavy batters and potatoes.

The number "2" (MEDIUM-LOW) is for mixing cake batters, mashing potatoes and for developing dough.

The number "3" (MEDIUM-HIGH) is for mixing maximum incorporation of air into light batches. The "D" whip is used for whipping cream, beating egg whites, mixing light icings, meringues and whipping.

The number "4" (HIGH) is for accelerated mixing maximum air incorporation into light batches similar to number "3".

The regular bowl for this mixer has a capacity of 60 quarts. By using an adapter and agitators to suit, bowls of 40 and 30 quart capacity can be substituted.

**BOWL LIFT:** Mixers without power bowl lift have a handwheel (Fig. 5) to raise and lower bowl.

**AGITATORS:** When placing an agitator on agitator shaft, lower the bowl. Push agitator up on shaft and turn agitator until drive pin on shaft reaches L-shaped slot in agitator shank. Agitators which may be used with this mixer are shown on the last page of this manual.

**ATTACHMENTS:** Various attachments and accessories are available for this mixer, such as: Power Dicer, Vegetable Slicer and Shredder,

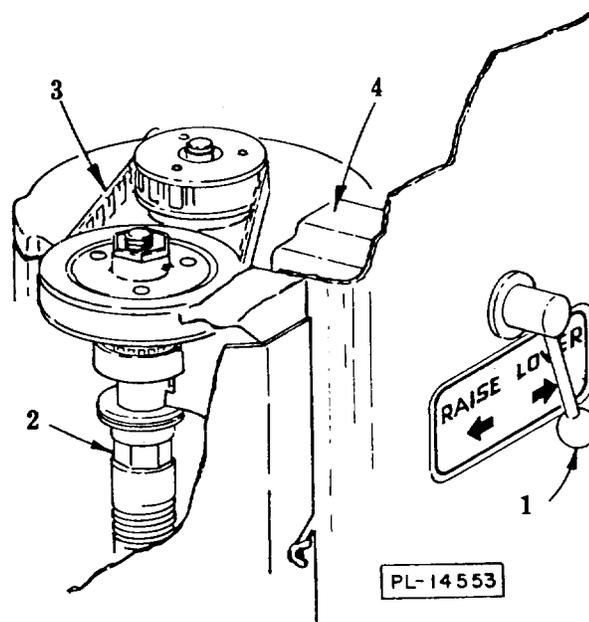


Fig. 3

Figure 3 DWG #PL-14426 (Bowl Lift Switch - Power Lift)

Meat and Food Chopper, Soup Strainer and Colander, Oil Dropper, Tray Support, Bowl Jacket, Bowl Truck, Bowl-Truck Adapter, Splash Cover and Bowl Extension Ring.

The H-600 mixer is equipped with a #12 attachment-hub and uses any size attachment with that size hub.

**MEAT AND FOOD CHOPPER:** The mixer is designed to drive the Meat and Food Chopper Attachment in third speed. If bone chips or other material clog the cylinder and stall the mixer, stop mixer at once. Take off adjusting ring and remove obstruction. Never start a stalled mixer in any speed until this has been done.

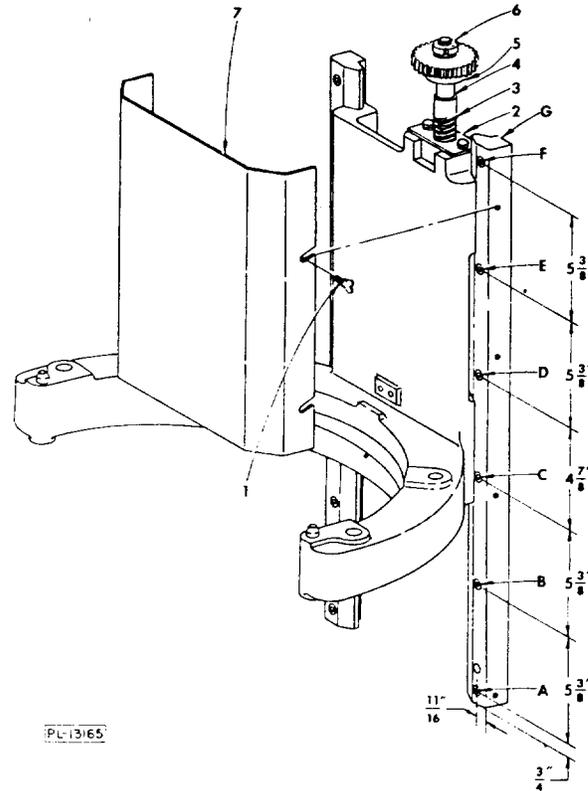


Fig. 4

Figure 4 DWG #PL-11913 (Bowl Support)

**OVERLOAD RELEASE:** When an overload condition occurs (commonly due to excessive bowl load or insufficient power deliver) correct the cause of overload. Wait a minute for the heater element to cool and restart mixer.

### III. MAINTENANCE

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

The mixer should be cleaned daily; wipe mixer with a clean damp cloth. The mixer should not be cleaned with a hose. The special base allows ample room to clean under the mixer. The bowl support apron (8, Fig. 4) has slots which permits easy removal by loosening the thumb screws. Behind this apron is an access cover (2, Fig. 4) which may be removed for cleaning.

**AGITATOR SHAFT BEARINGS:** Agitator Shaft Bearings are sealed and ordinarily require no attention. A Hobart service technician may remove the seals if greasing becomes necessary.

**BOWL LIFT:** A small can of Lubriplate 630AA or Gredag 33 grease is shipped with the mixer to be used on the lift screw and slideways. These areas should be lubricated semi-annually depending on the amount of usage. The lift screw and slideways can be reached by removing the apron.

The gearing is located on the handwheel bracket inside the pedestal. Disconnect mixer from the electrical power supply before removing top cover. Remove the top cover (6, Fig. 1) and wipe some grease on the gear teeth. The handwheel shaft may be oiled through an oiler on the handwheel bracket.

**DRIP CUP:** Should moisture condense in the planetary, due to atmospheric conditions or the type of work being done, the drip cup will prevent it from reaching the bowl. Take the cup off occasionally and wipe it out.

**MOTOR:** The front motor bearing receives oil from the transmission.

The rear bearing is grease-packed and should require no attention. However, if greasing does become necessary, a Hobart service technician can remove the seals.

**PLANETARY:** The same oil is used in the planetary as in the transmission, but due to the relatively small volume of oil, it may be advisable to change it more frequently than the transmission oil, especially under steaming conditions such as exist when large quantities of potatoes are being mashed. If the planetary is removed for cleaning, care should be taken to mesh the fiber pump-drive gear with the internal gear before shoving the planetary up into place.

**LUBRICATION:** When the machine is prepared for shipment, the transmission case and planetary are drained, and they must be refilled before operation. This procedure is explained under installation "lubrication". After that, a weekly check should be sufficient.

### NOTE

Observe the following routine:

1. The oil level in the transmission should be up to the line in the gauge.
2. The oil level in the planetary should be up to the filling opening. It will be necessary to take off the drip cup and remove the plug (11, Fig. 1) to check this.
3. Keep bowl slideways lubricated. Avoid excessive lubrication.

## IV. SERVICE INSTRUCTIONS

### BOWL SUPPORT

#### A. REMOVAL:

To remove the bowl support, it is necessary to take off the right-hand slideway (G, Fig. 4). Proceed as follows:

1. Remove the apron. It has screw slots and is held by four thumb screws (1, Fig. 4).
2. Break the paint covering the heads of the three lower screws (A, B and C, Fig. 4).
3. Run the bowl support all the way down and remove the bowl lift nut retainer (3, Fig. 4). Then run the nut back up the screw.
4. Take out the six socket-head screws (A, B, C, D, E and F Fig. 4) and remove the right-hand slideway.

The bowl support will then swing clear of the bowl lift screw.

## **B. REMOVING LOOSENESS BETWEEN BOWL SUPPORT AND WAYS:**

Excessive play in the bowl support can be taken up by loosening all the screws in the right-hand slideway. The left-hand slideway is doweled and need not be removed. Pull the slideways together by placing large clamps across the slideways at top and bottom of the bowl support when it is in its top position. Tighten the top four screws (F, E, D and C, Fig. 4). Run the bowl support down within 1-1/2" of bottom position, pull the bottom of the slideway in with a clamp, and tighten the two lowest screws (B and A, Fig. 4).

## **C. ADJUSTING AGITATOR CLEARANCE:**

Adjustment should always be made with the bowl and Type B beater in place. Remove the "caplug" cover (17, Fig. 1) and loosen the bumper stop (16, Fig. 1). Next loosen the lock nut (15, Fig. 1) and turn the screw (18, Fig. 1). Be sure to retighten the lock nut and the bumper stop, and reassemble the "caplug" after the proper adjustment has been obtained.

## **BOWL LIFT MECHANISM**

### **A. BOWL LIFT SCREW:**

Replacement of the bowl lift screw necessitates removal of the motor (see service instructions "motor") and the bowl support (see service instructions "bowl support").

End play adjustment in the bowl lift screw (4, Fig. 4) is provided by the lock nut (7, Fig. 4). Upward thrust on the lift screw is taken by a shoulder (5, Fig. 4) which bears against the transmission case; downward thrust is taken by the permanently sealed ball bearing (6, Fig. 4). A minimum of .005" end play should be allowed.

### **B. HANDWHEEL BRACKET:**

This bracket (7, Fig. 5) carries a pair of miter gears (3, Fig. 5) and the bowl lift gear (5, Fig. 5). It can be removed by taking off the handwheel, thus exposing the four screws (2, Fig. 5) that hold the clamping ring to the bracket.

The handwheel is secured to its shaft by a straight Groov-Pin (1, Fig. 5) which can be driven out in either direction. DO NOT POUND ON END OF HANDWHEEL SHAFT. Pry the bracket free from inside the pedestal, or drive the dowel pins through the holes in the pedestal.

The Flexloc nut (4, Fig. 5) must be set with the handwheel and bracket assembled to the pedestal as in Fig. 5. Allow just enough end play in the handwheel shaft to prevent the handwheel from binding against the clamping ring. The miter gears are held in proper relation by a spacer (6, Fig. 5) placed between the bowl lift gear and the handwheel bracket bearing. A new spacer may be necessary when replacing either of the gears or the bearing.

## **POWER BOWL LIFT MECHANISM**

### **A. FLEXA-GEAR:**

To replace the Flexa-Gear (3, Fig. 3) it is necessary to loosen four bolts mounting the power bowl lift assembly to the pedestal plate and slide the power bowl lift assembly toward the switch assembly (4, Fig. 3). The

Flexa-Gear will slide off over the pulley sheaves. Replace the Flexa-Gear and slide the power bowl lift assembly away from the switch assembly until the Flexa-Gear is tight. Apply Loctite 242 to threads and tighten the assembly mounting bolts to a torque of 13 to 17 in-lbs.

The Flexa-Gear should not have excessive slack. It should be installed tight. The entire assembly is designed so the Flex-Gear can be changed or adjusted without removing the mixer motor.

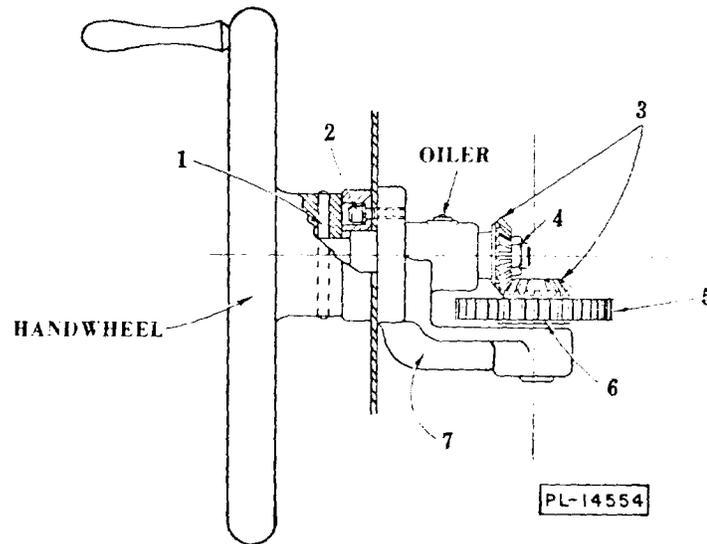


Fig. 5

Figure 5 DWG #PL-14420 (Bowl Lift Handwheel)

## B. BOWL LIFT SCREW AND NUT:

The following procedure should be used to remove the lift screw and nut. First, lower the bowl support to the bottom stop position. Remove the mixer motor (see service instructions "motor") and the Flexa-Gear (see service instructions "Flexa-Gear"). Next, remove the "Palnut" and spirol pin that retain the spring loaded detent plate. Lift the detent plate carefully to avoid losing the detent balls. Lift off the driven pulley. Remove the collar and rollpin. Then remove the lock nut and washer. Remove lift nut retainer. The lift screw and nut can then be lowered through the opening in the transmission case and free from the mixer.

To replace the screw, reverse the procedure. End play adjustment is provided by the lock nut. Upward thrust is taken by a needle roller thrust bearing. Downward thrust is taken by a permanently sealed ball bearing. A minimum of .005" end play should be allowed.

## PLANETARY

### A. REMOVAL OF PLANETARY:

Support the weight of the planetary while removing the retaining screw (2, Fig. 6). If the removal of the planetary proves difficult, use the two 3/8" tapped holes provided on opposite sides of the planetary shaft for anchoring a puller. The holes are plugged with nylon plugs.

If a pry is to be used between the planetary and the internal gear, always pry downward. The cast iron lip (1, Fig. 6) on top of the planetary is breakable. This lip serves as a trap for the oil and would have to be repaired if broken.

On reassembly of the planetary, care should be taken to mesh the fiber pump-drive gear with the internal gear before shoving the planetary up into place.

## **B. AGITATOR SHAFT:**

1. Remove the planetary as previously explained.
2. Take out the planetary oil seal (3, Fig. 6). This seal can be pried out by using a small screwdriver between the outside of the seal and the planetary casting.
3. Pry out the oil-retaining cap (9, Fig. 6) which is pressed into the top of the internal pinion. (Be sure to replace this cap when reassembling).
4. Remove the retaining ring (8, Fig. 6) and the pinion, then drive the agitator shaft down through the bearings.

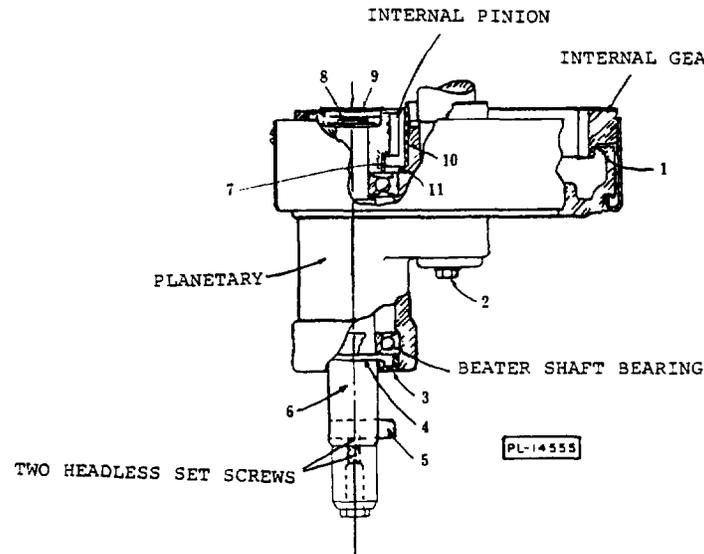
## **C. AGITATOR SHAFT BEARINGS:**

The seals of these bearings are easily removable for cleaning and repacking, should that be necessary. Bearing seals can be removed by inserting a knife blade under the rubber seal where it touches the outer race. They can be snapped back in place by hand.

If a new bearing must be installed, be sure to use a sealed bearing.

If the lower bearing does not come out with the agitator shaft (6, Fig. 6) it can be pulled down after the agitator shaft is out. The upper bearing can be pulled out after removal of the planetary oil baffle (7, Fig. 6).

When reassembling the oil baffle to the planetary a little Permatex around the "O" ring (11, Fig. 6) will improve the seal. Be careful not to cut the "O" ring on the edge of the planetary or baffle (7, Fig. 6).



-Fig. 6

Figure 6 DWG #PL-14421 (Agitator Shaft - Planetary)

#### D. PLANETARY SEAL:

The primary purpose of the seal (3, Fig. 6) is to keep moisture and ingredients from the bowl out of the lower bearing. It can be slipped down from the top of the shaft and over the small shoulder (4, Fig. 6) if care is taken. Grease the shoulder so that the seal will slide over it. If installing the seal from the bottom, you must remove the agitator shaft pin (5, Fig. 6), clean the shaft, and make sure that the lip of the seal is not cut or folded under. The lip must go up toward the bearing. Make sure that the spring is in place in the seal groove adjacent to the lip. If the lip of the seal is dry, the seal may squeal. A little lubrication worked under the lip will correct this.

#### PLANETARY OILING SYSTEM

##### A. OIL PUMP:

To reach the oil pump, the planetary must be taken off. See servicing instructions "planetary removal". The oil pump should not require attention, but check to see if it is pumping by turning the large fiber conveying gear counterclockwise as indicated by the arrow in Fig. 7.

If there is oil in the planetary, a stream should flow out the end of the manifold (1, Fig. 7) and fall back into the planetary. A little oil should also come out of the small hole (2, Fig. 7) and drip on the conveying gear. If no oil is delivered to the gear, the hole (2, Fig. 7) may be clogged.

To remove the pump, take out the two screws (4 & 7, Fig. 7). Insert the screwdriver through the hole (8, Fig. 7) to reach them. The other screws should not be touched, unless it is necessary to disassemble the pump.

The mechanism consists of two small gears which float in the pump body (5, Fig. 7). Therefore, if screws (3 & 6, Fig. 7) are disturbed, it will be necessary to align the top plate assembly with the pump body, so that the shaft and gears turn freely.

Screw 6 (Fig. 7) is smaller than screw 3 (Fig. 7), so that the pump cannot be assembled wrong.

The oil conveying gear is held to its shaft by a rollpin in the hub. The pin may be driven out in either direction.

#### B. PLANETARY OIL SHIELDS:

The shield (10, Fig. 6) is held in place around the hub of the planetary by friction.

Its purpose is to keep oil from being flung off the conveying gear and internal pinion onto the planetary shaft at high speed. Be sure to replace it if it is ever removed.

#### C. OIL LEVEL:

The oil level in the planetary is subject to considerable variation. The oil-fill hole is so located that it also serves as an overflow, if the machine is level.

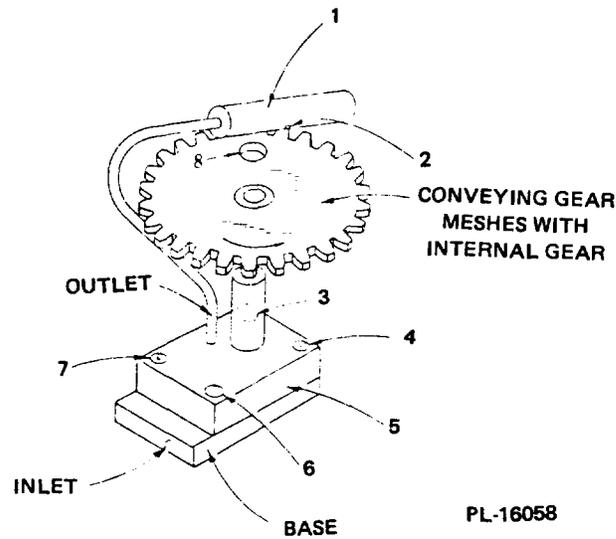


FIG. 7

Figure 7 DWG #PL-16146 (Planetary Oiling System)

If the planetary is dry, 6 ozs. of oil will bring the level up to the overflow. Sufficient time must be allowed to permit the oil to reach its own level. Machines that have been drained will still have at least 1 oz. left in them, and this must be taken into account. If too much oil is put in, it will be thrown out at high speed and collect in the drip cup.

The same grade of oil is used in the planetary as is used in the transmission. See [par. J](#).

#### D. OIL LEAKAGE:

Oil leakage is controlled in the following manner:

The planetary oil shield (10, Fig. 6) keeps oil from collecting on the hub and working down the planetary shaft.

The oil baffle (7, Fig. 6) keeps oil away from the agitator shaft as it is thrown off the pinion teeth or sloshes around in the planetary.

The friction plug (9, Fig. 6) stops any oil leakage from above.

## TRANSMISSION

### A. DISASSEMBLY OF TRANSMISSION:

To remove the transmission case cover take off the bearing retainers (2 & 8, Fig. 8). Take off the locking nuts (3 & 9, Fig. 8) and pry off the transmission case cover. The top ball bearings will come off with it. Lay the cover aside carefully so that the oil-delivery tube (20, Fig. 2) will not be bent.

Pull out the shifter slide rod (2, Fig. 2) and disengage upper and lower shifting yokes from the clutches. This can usually be done without taking off the name plate (8, Fig. 2) and gearshift bracket (5, Fig. 2). Be sure that the power to the machine is off before working on the gear-shift bracket.

The clutch shaft (21, Fig. 8) and worm gear shaft (34, Fig. 8) must be removed together. The worm gear shaft has a self-aligning ball bearing (26, Fig. 8) at the bottom, so that it can be tilted away from the worm far enough to clear it. Lift off the upper gear (11, Fig. 8) on the planetary shaft. Notice that the shim (7, Fig. 8) on top of this gear has the relieved side up.

Although this gear is reversible it should be reinstalled with the same side up, so mark the top when taking it off.

On the clutch shaft, remove the bearing (4, Fig. 8), washer (5, Fig. 8), top pinion (6, Fig. 8) and clutch (32, Fig. 8). Then work the clutch shaft and worm gear shaft assemblies out together.

The planetary shaft can be pulled out after the planetary has been removed. See servicing instructions "planetary removal".

If the lower bearing (23, Fig. 8) must be withdrawn, it will be necessary to first remove the chimney (22, Fig. 8). When replacing the chimney, be sure to get a good seal between it and the transmission case, to prevent leakage of oil.

### B. REMOVAL OF ATTACHMENT HUB:

The attachment hub (18, Fig. 8) is fastened to the transmission case by four bolts (17, Fig. 8). The heads of these bolts being inside the case, a partial disassembly of the transmission will be necessary before the attachment socket or the bevel pinion (20, Fig. 8) can be removed.

Replacement of the square drive sleeve (19, Fig. 8) however, can be accomplished without disturbing any of these parts. SEE REPLACEMENT OF SHEAR KEY, paragraph H.

### C. WORM GEAR SHAFT AND ADJUSTMENTS:

Start disassembly of the worm gear shaft from the bottom. When the locking nut (25, Fig. 8) is off, the gears and other parts will be loose on the shaft and may be taken off easily.

When reassembling, put on the retaining ring (33, Fig. 8), the spring (31, Fig. 8), the shock absorber part (30, Fig. 8) and the worm gear (28, Fig. 8). It will then be necessary to use a vise or press to get these parts up where they belong. Press the worm gear up far enough to permit insertion of the key (27, Fig. 8). Release the vise pressure carefully and avoid burring the worm gear because the bottom of the hub acts as a thrust bearing. The key (27, Fig. 8) will hold the assembly in place until the remaining parts can be threaded on and pulled up tight by the locking nut (25, Fig. 8).

When a sudden load causes the worm gear to turn slightly on its shaft, the cams (29, Fig. 8) move the compressor element (30, Fig. 8) upward so that the spring takes the shock.

The shock absorber action can be tested by holding the shaft in a vise, turning the worm gear by hand against the spring, and releasing.

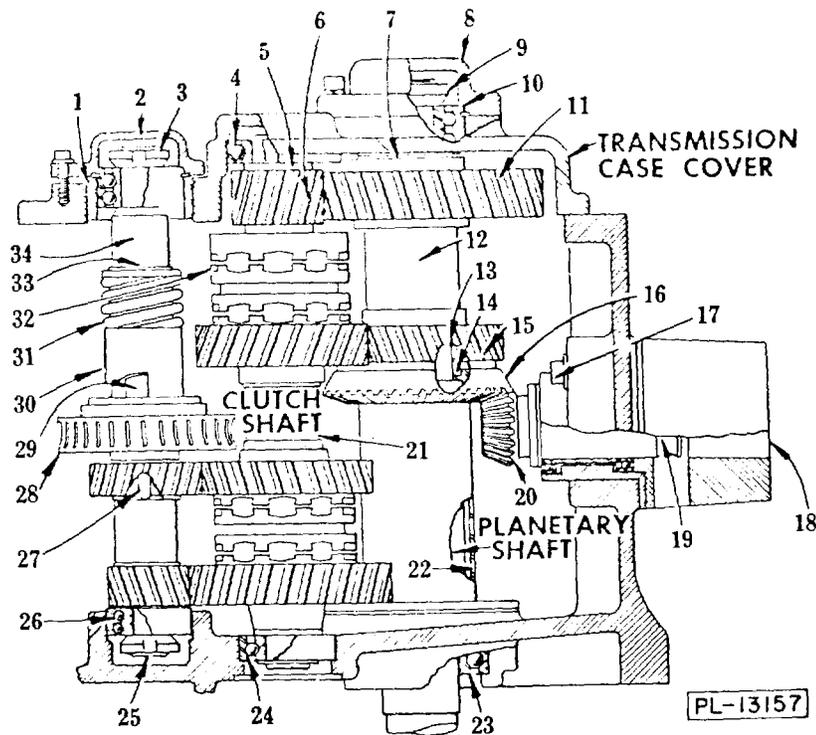


Fig. 8

Figure 8 DWG #PL-14423 (Transmission)

When reassembling the transmission, be careful not to cock the outer race of the self-aligning ball bearing (26, Fig. 8). It is possible to install the worm gear shaft by itself and then raise it far enough to get the clutch shaft in place without pulling the bearing (26, Fig. 8) out of its seat. This will avoid the risk of cocking the outer race.

The worm gear must mate properly with the worm on the motor shaft, and a vertical adjustment is provided by a sleeve (1, Fig. 8). The sleeve is correctly set at the factory and locked by two small set screws, so unless replacements have been made no change will be necessary.

Adjustment may be made as follows:

1. See that the transmission case cover is bolted down tight.
2. Take out the two small set screws (one on top of the other) that lock the sleeve (1, Fig. 8). Turn the sleeve (1, Fig. 8) a fraction of a turn in a clockwise direction until the motor shaft begins to bind when revolving the rotor by hand.
3. Turn the sleeve counterclockwise until the same thing occurs in the top position.
4. The total movement may be as much as half a turn. Mark the half-way point. Set the sleeve about midway between the half-way point and the top position. This will bring the worm gear on the high side of center, as it should be.

5. Use a drill to spot the adjusting sleeve for the set screw. A second set screw goes into the same tapped hole to lock the first one.

#### **D. CLUTCH SHAFT:**

All gears in this assembly must be free to turn on the shaft and the clutches should slide freely up and down on the splines. If a clutch seems to bind, take it off, turn it to a new position and try again. The top and bottom gears must have a few thousandths end play between the shaft shoulders and the washers that are between them and the ball bearings. The lower bearing (24, Fig. 8) on the clutch shaft must be assembled to take the downward thrust (thin section of outer bearing race up).

#### **E. THE PLANETARY SHAFT:**

An "O" ring (14, Fig. 8) is set in the bevel gear to prevent oil leakage down the planetary shaft. When moving the bevel gear (16, Fig. 8) on the shaft, be careful not to cut the "O" ring on the keyway (13, Fig. 8) that is just above it.

The bevel gear adjustment is governed by the thickness of the planetary-shaft shim (7, Fig. 8). This shim must be installed with relieved side up and the flat side down .

A new shim may be required if gear (11, Fig. 8), gear (15, Fig. 8), spacer (12, Fig. 8), or top bearing (10, Fig. 8) is replaced. A new bevel gear or pinion should not require any change in shims.

#### **F. THE SHIFTING YOKES:**

Change of speed is accomplished by turning the shift handle (4, Fig. 2) to one of the positions numbered on the shift selector plate (8, Fig. 2). Moving the handle turns the two cams (16 & 19, Fig. 2) which in turn operate the shifting yokes (3 & 10, Fig. 2) that engage and disengage the clutches. The spring-loaded plungers (14, 15, 17 & 18, Fig. 2) give some flexibility to the shifting so that the handle can be moved to a new position even if a clutch does not engage immediately.

The travel of a plunger can be adjusted by loosening a lock nut (13, Fig. 2) or taking out a cotter pin (11, Fig. 2) and turning a screw (12, Fig. 2). All of these screws should be set so that the total movement of each plunger is between 3/16" and 7/32". This insures that when the handle is moved to a different speed the clutch will not hang up in the previous speed. A clutch cannot be disengaged if it is transmitting power, but after the motor is shut off and the machine stops, shifting becomes effortless.

#### **G. SPEED CHANGE:**

The gear-shift bracket assembly (5, Fig. 2) can be removed as a unit by taking out four screws (9, Fig. 2). This bracket is easily removed and affords a handy inspection hole.

When replacing the bracket assembly, have the shift handle in third speed because the shifting yokes naturally take this position when the cams are withdrawn. Tilt the shift cam assembly toward the front of the machine until one side of the bracket is in contact with the transmission case. Then square up the bracket against its seat and insert the screws. It is very important to have a good seal to the transmission case. Paint the joint with Permatex or sealing compound.

## H. REPLACEMENTS OF SHEAR KEY IN ATTACHMENT DRIVE:

The attachment drive is protected by a shear key (1, Fig. 9) that will shear if the load becomes excessive. To replace a sheared key it is only necessary to remove the square-drive sleeve (3, Fig. 9). The sleeve can be taken out through the attachment socket. The screw (4, Fig. 9) that holds the sleeve in has a left-hand thread; turn it clockwise to remove.

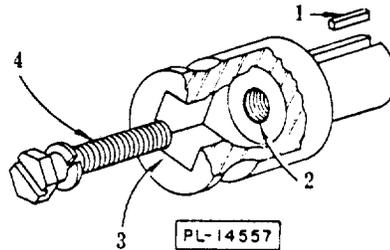


Fig. 9

Figure 9 DWG #PL-14424 (Attachment Drive Sleeve)

If the sleeve sticks and does not come out easily, insert a standard 3/8"-16 screw into the right-hand threads (2, Fig. 9). The screw should be long enough to reach out where it can be grasped and used as a puller.

After taking out the pieces of the sheared key check to see that the square-drive sleeve turns freely inside the pinion shank before putting in the new key.

## I. OILING SYSTEM:

The oil level in the transmission case should always be at, or slightly above, the line on the gauge. The transmission oiling system consists of a flinger (4, Fig. 1) pinned to the motor shaft behind the worm, a guide (3, Fig. 1) to direct the oil and a tube (5, Fig. 1) which delivers the oil to the gear (9, Fig. 1).

Remove oil fill plug (1, Fig. 2) to observe discharge end of the oil tube through the oil-fill hole (21, Fig. 2). After any service work has been done involving the opening of the transmission case, check the end of this tube to make certain that a full stream of oil is striking the gear. If the oil stream fails or is intermittent, the intake end of the tube has been bent .

## J. OIL:

The proper oil is shipped by the factory for use in this mixer. Hobart servicing offices have the current lubricants listed in their lubrication manual. It is a high quality extreme-pressure gear oil with oxidation and corrosion-inhibiting additives. Its viscosity is 72 Saybolt universal seconds at 210° F. If any other oil is substituted, it is important to check the flow out of the oil delivery tube. Any oil that is too heavy to circulate will not do for this application. In general, the oil should be as heavy as an SAE-30 motor oil, but no heavier than a light, all purpose, automotive gear oil.

Always check oil flow through the delivery tube.

## THE MOTOR

## A. REMOVING MOTOR:

1. Shut off the power to the mixer at the source and remove the top cover. NOTE: On models with power bowl lift, ALWAYS discharge the power bowl lift motor capacitor before servicing the motor or controls.
2. Take out the motor controller (1, Fig. 1). It will only be necessary to remove one screw at the top of the controller base.
3. Drain the oil from the transmission case. Remove the drain plug (13, Fig. 1).
4. Remove the cover plate (14, Fig. 1). This will give access to the bottom motor bolt. The other two bolts can be seen from the top of the mixer. Without a hoist, removing the motor is a two-man job.
5. On models without power bowl lift , work the motor out of its seat. Rest it on the throat of the pedestal, which helps to protect the bowl-lift gearing. Do not pull the motor back far enough so it falls on these gears.
6. On-models equipped with power bowl lift , be extremely careful when pulling motor out of its seat. The motor CANNOT be rested on the pedestal throat. Do NOT let the motor drop down on the power bowl lift assembly drive belt pulleys.

There is no problem of motor alignment, since the motor is located by the face and bore of its seat in the transmission case. An "O" ring serves as a seal between the motor and transmission case. Permatex spread on this diameter keeps oil from getting past the "O" ring and the machined grooves.

When installing the motor, be sure that the "O" ring is wet with Permatex or oil, so that it will be compressed when entering the transmission case and not be cut.

## B. THE OIL FLINGER:

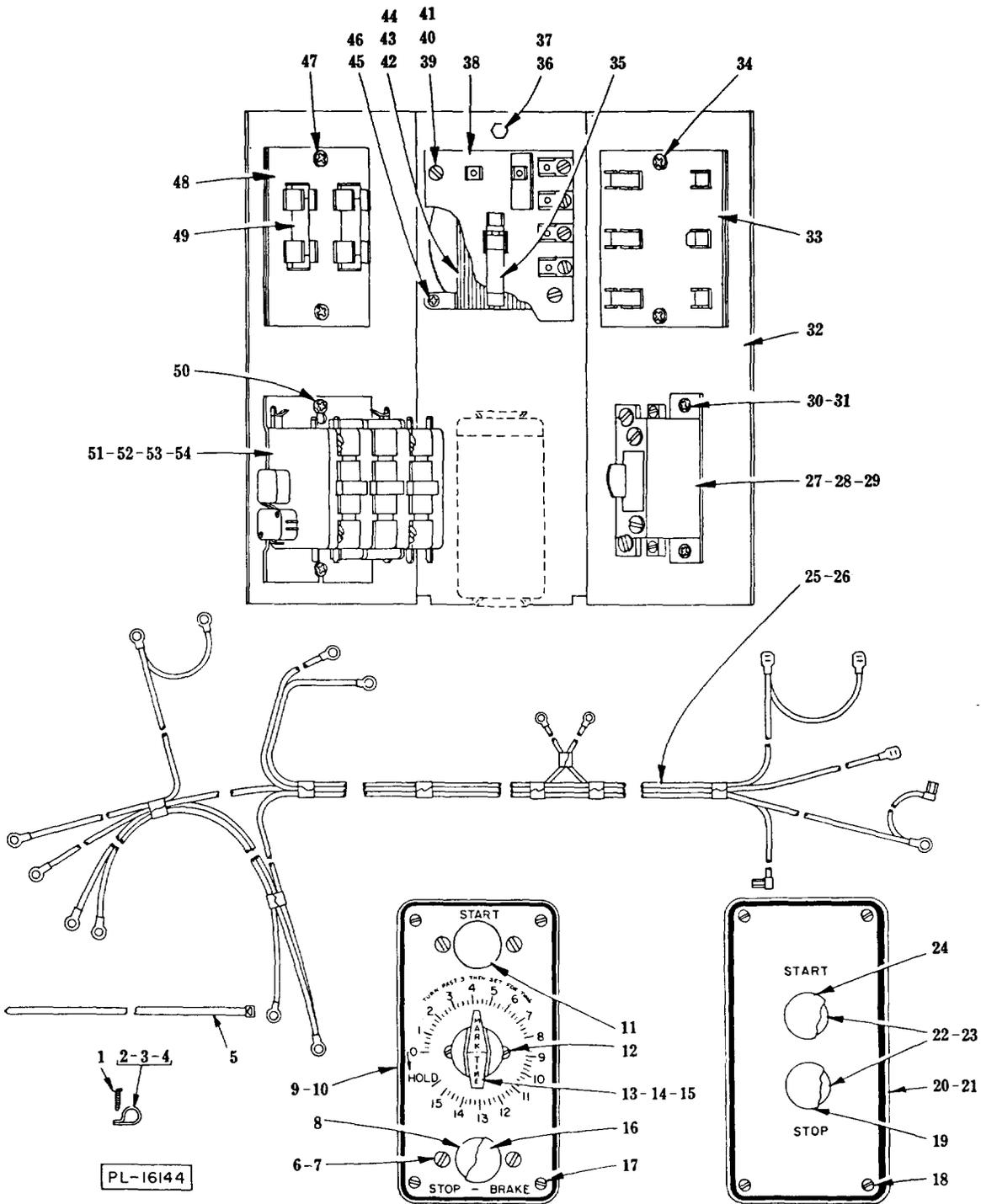
The oil flinger is small enough to clear the transmission case when withdrawing the motor. Before replacing the motor, check the flinger to see that it is running true. A flinger that is not running true can force oil through the bearing, which is objectionable.

If any oil appears inside the motor at the bottom of the bearing bracket, remove the flinger and examine the oil-return hole just below the bearing. If the bearing contains grease, there is a possibility that some of it may plug this hole. As long as this drain is open, no oil will accumulate in the motor.

## C. MOTOR LUBRICATION:

The front bearing receives oil from the transmission. The rear bearing is grease packed and should require no attention.

## TIMER AND CONTROL UNIT



TIMER AND CONTROL UNIT

TIMER AND CONTROL UNIT

## TIMER AND CONTROL UNIT

| ILLUS. PL-16144 | PART NO.        | NAME OF PART  | AMT.     |
|-----------------|-----------------|---|----------|
|                 | 1 SD-24-1       | Self-Tapping Screw - #10-24 x 3/8" Pan Hd. "Taptite"  | 3        |
|                 | 2 M-78752-6     | Clamp (50/60 Hz., 1 Ph.)  | 3        |
|                 | 3 M-78752-6     | Clamp (50/60 Hz., 3 Ph.)  | 2        |
|                 | 4 M-78752-3     | Clamp (50/60 Hz., 3 Ph.)  | 1        |
|                 | 5 B-113703      | Tie - Cable   | 2        |
|                 | * 6 SC-15-26    | Mach. Screw - #8-32 x 5/16" Oval Hd   | 4        |
|                 | * 7 WS-2-18     | Washer  | 4        |
|                 | * 8 A-102229    | Push Button Station Sub-Assy.   | 2        |
|                 | * 9 C-117853    | Plate - Timer (15 Min.)   | 1        |
|                 | * 10 M-69918    | Insulator - Push Button Station   | 1        |
|                 | * 11 A-102467-1 | Cap - Push Button (Start)   | 1        |
|                 | * 12 SC-13-7    | Mach. Screw - #5-40 x 1/4" Flat Hd.   | 2        |
|                 | * 13 A-103228   | Timer & Gasket Assy. (15 Min.) (Incls. item #12)  | 1        |
|                 | * 14 A-103229   | Timer, Dial & Gasket Assy. (30 Min.) (Incls. items #12 & 15)  | 1        |
|                 | * 15 B-73540    | Dial - Timer (30 Min.)  | 1        |
|                 | * 16 A-102467-2 | Cap - Push Button (Stop)  | 1        |
|                 | * 17 B-123131   | Self-Tapping Screw - #8-32 x 3/8" Truss Hd. "Taptite"   | 4        |
|                 | 18 B-123131     | Self-Tapping Screw - #8-32 x 3/8" Truss Hd. "Taptite"   | 4        |
|                 | 19 M-68984-2    | Cap - Push Button (Stop)  | 1        |
|                 | 20 M-69485      | Insulation - Push Button Station  | 1        |
|                 | 21 C-117850     | Plate - Switch  | 1        |
|                 | 22 B-102230     | Push Button Station Sub-Assy.   | 1        |
|                 | 23 SC-12-36     | Mach. Screw - #10-24 x 3/4" Fil. Hd.  | 2        |
|                 | 24 M-68984-1    | Cap - Push Button (Start)   | 1        |
|                 | * 25 E-121819   | Harness - Wiring  | 1        |
|                 | 26 E-122053     | Harness - Wiring (H-600) (Not Shown)  | 1        |
|                 | 27 B-88196-6-1  | Relay - Thermal Overload (1 Ph.)  | 1        |
|                 | 28 B-88196-5-1  | Relay - Thermal Overload (3 Ph.)  | 1        |
|                 | 29 ***          | Heater Element  | As Reqd. |
|                 | 30 SD-15-20     | Self-Tapping Screw - #10-32 x 3/8" Phil. Pan Hd. "Taptite" (Use with item #27)  | 2        |
|                 | 31 SD-15-20     | Self-Tapping Screw - #10-32 x 3/8" Phil. Pan Hd. "Taptite" (Use with item #28)  | 4        |
|                 | 32 E-121823     | Panel - Control   | 1        |
|                 | 33 C-121014     | Board - Terminal  | 1        |
|                 | 34 SD-15-20     | Self-Tapping Screw - #10-32 x 3/8" Phil. Pan Hd. "Taptite"  | 2        |
|                 | 35 FE-16-30     | Fuse (2 Amp.) (Use with items #42, 43 & 44)   | 2        |
|                 | 36 SC-36-14     | Fin. Bolt - 1/4"-20 x 1/2" Hex Hd.  | 1        |
|                 | 37 WL-3-38      | Lock Washer - 1/4" x.109" x.062"  | 1        |
|                 | 38 C-114707     | Terminals & Mounting Board Assy. (575/460 V., 60 Hz.; 380 V., 50 Hz., 3 Ph.) (230/200 V., 60 Hz., 1 & 3 Ph.; 220 V., 50 Hz., 1 & 3 Ph. W/Pilot Circuit) | 1        |
|                 | 39 SC-19-33     | Mach. Screw - #8-32 x 1/2" Bind. Hd.  | 2        |
|                 | 40 WL-7-7       | Lock Washer - #8 Ext. Shakeproof  | 2        |

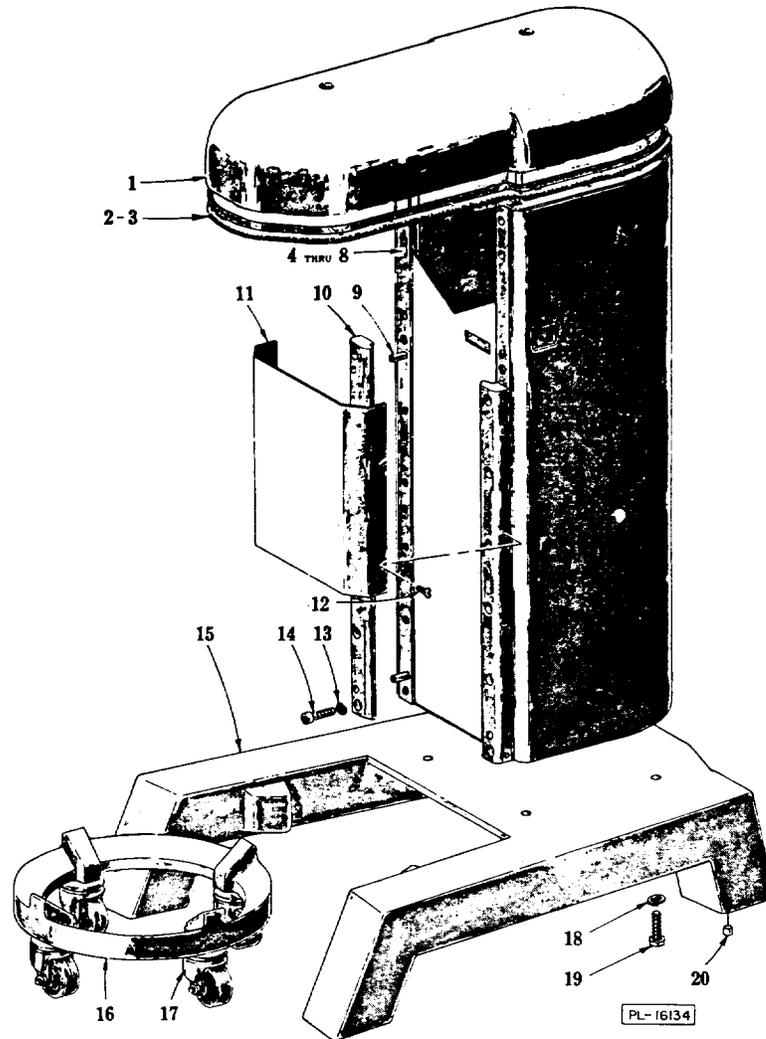
## TIMER AND CONTROL UNIT - Continued

| ILLUS. PL-16144 | PART NO.      | NAME OF PART   | AMT. |
|-----------------|---------------|--|------|
|                 | 41 NS-9-12    | Mach. Nut - #8-32 Hex  | 2    |
|                 | 42 B-120907   | Transformer (460 V., 60 Hz., 3 Ph.) (200/230 V., 60 Hz., 1 & 3 Ph. W/Pilot Circuit)  | 1    |
|                 | 43 B-120908   | Transformer (380 V., 50 Hz., 3 Ph.) (220 V., 50 Hz., 1 & 3 Ph. W/Pilot Circuit)  | 1    |
|                 | 44 B-121950   | Transformer (575 V., 60 Hz., 3 Ph.)  | 1    |
|                 | 45 SD-15-20   | Self-Tapping Screw - #10-32 x 3/8" Phil. Pan Hd. "Taptite"   | 2    |
|                 | 46 WL-7-12    | Lock Washer - #10 Ext. Shakeproof  | 2    |
| **              | 47 SD-12-20   | Self-Tapping Screw - #8-32 x 1/2" Phil. Truss Hd., Type 23   | 2    |
| **              | 48 C-120924   | Terminal Board Assy  | 1    |
| **              | 49 FE-21-1    | Fuse (3.5 Amp.)  | 2    |
|                 | 50 SD-15-20   | Self-Tapping Screw - #10-32 x 3/8" Phil. Pan Hd. "Taptite"   | 2    |
|                 | 51 B-121925-2 | Contacto (115 V., 50/60 Hz.) (200/230 V., 60 Hz. W/Pilot Circuit; 220 V., 50 Hz. W/ Pilot Circuit) (1 Ph.)                 | 1    |
|                 | 52 B-121925-1 | Contacto (200/230 V., 60 Hz.; 220 V., 50 Hz.) (1 Ph.)  | 1    |
|                 | 53 B-121926-2 | Contacto (575/460 V., 60 Hz.; 380 V., 50 Hz.) (200/230 V., 60 Hz. W/Pilot Circuit; 220 V., 50 Hz. W/Pilot Circuit) (3 Ph.) | 1    |
|                 | 54 B-121926-1 | Contacto (200/230 V., 60 Hz.; 220 V., 50 Hz.) (3 Ph.)  | 1    |

\*H-600-T.

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

\*\*Power Bowl Lift.



**BASE AND PEDESTAL UNIT**

BASE AND PEDESTAL UNIT

BASE AND PEDESTAL UNIT

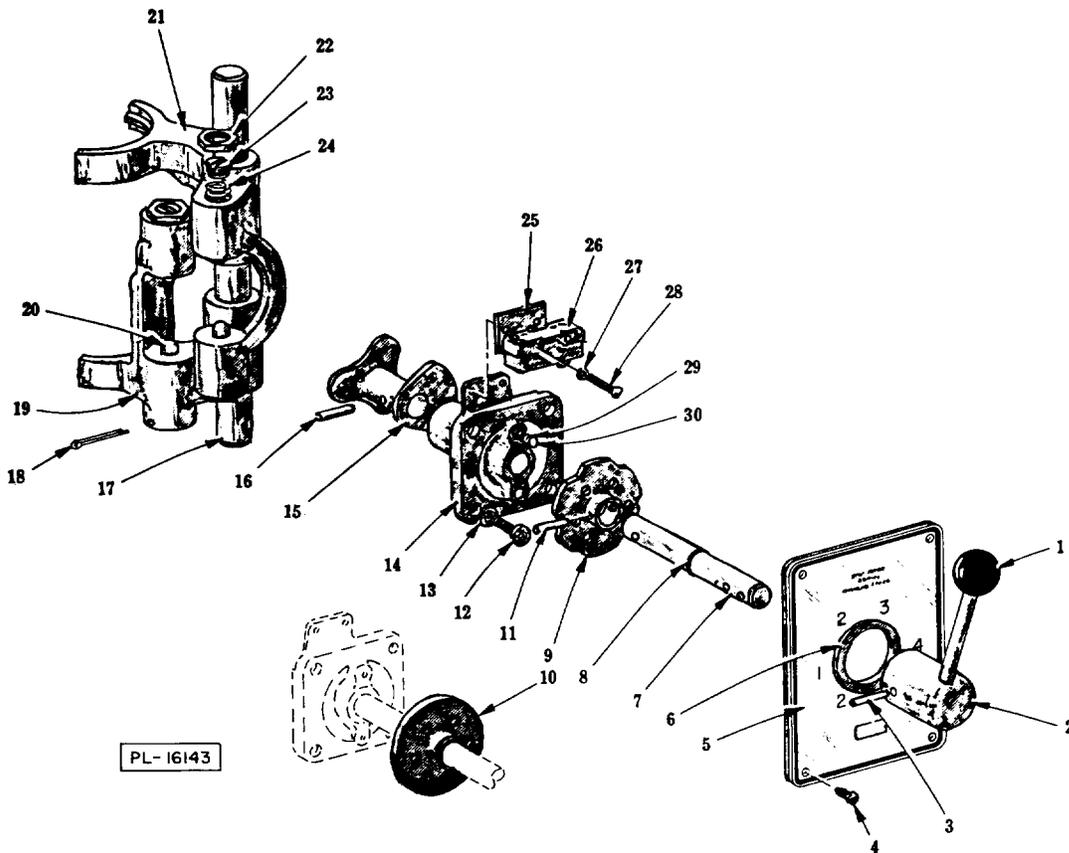
Parts List

| ILLUS.<br>PL-16134 | PART NO.       | NAME OF PART   | AMT. |
|--------------------|----------------|--|------|
|                    | 1 E-123298-1   | Cover - Top  | 1    |
|                    | 2 B-123687-2   | Gasket (39-3/4") (Back)                              | 1    |
|                    | 3 B-123687-3   | Gasket (42") (Front)                                 | 1    |
|                    | 4 E-121821-1   | Pedestal Assy. (Incls. item #9)                      | 1    |
|                    | * 5 E-121821-3 | Pedestal Assy. (Incls. item #9)                      | 1    |
|                    | 6 C-118544-1   | Lug - Solderless                                     | 1    |
|                    | 7 SD-24-1      | Self-Tapping Screw - #10-24 x 3/8" Pan Hd. "Taptite" | 1    |

Parts List - Continued

| ILLUS.   | PART NO.      | NAME OF PART  | AMT. |
|----------|---------------|---|------|
| PL-16134 | 8 WL-10-6     | Lock Washer - #10 Ext. Shakeproof                             | 1    |
|          | 9 D-11800-143 | Dowel   | 2    |
|          | 10 R-24189-3  | Slideway - Pedestal   | 2    |
|          | 11 S-24260    | Apron - Pedestal  | 1    |
|          | 12 P-70641-9  | Thumb Screw   | 4    |
|          | 13 WL-4-2     | Lock Washer - 3/8" x.136" x.070                               | 12   |
|          | 14 SD-15-12   | Self-Tapping Screw - 3/8"-16 x 1-1/2" Soc. Fil. Hd. "Taptite" | 12   |
|          | 15 E-110222   | Base  | 1    |
|          | 16 R-21922-1  | Bowl Truck Assy. (Incls. item #17)                            | 1    |
|          | 17 B-87669-1  | Caster  | 4    |
|          | 18 WL-4-11    | Lock Washer - 1/2" x.171" x.125"                              | 4    |
|          | 19 SC-62-83   | Fin. Bolt - 1/2"-13 x 1-1/2" Hex Hd.                          | 4    |
|          | 20 A-116395   | Plug - Base   | 4    |

\*Power Bowl Lift.



SHIFTING UNIT

SHIFTING UNIT

## SHIFTING UNIT

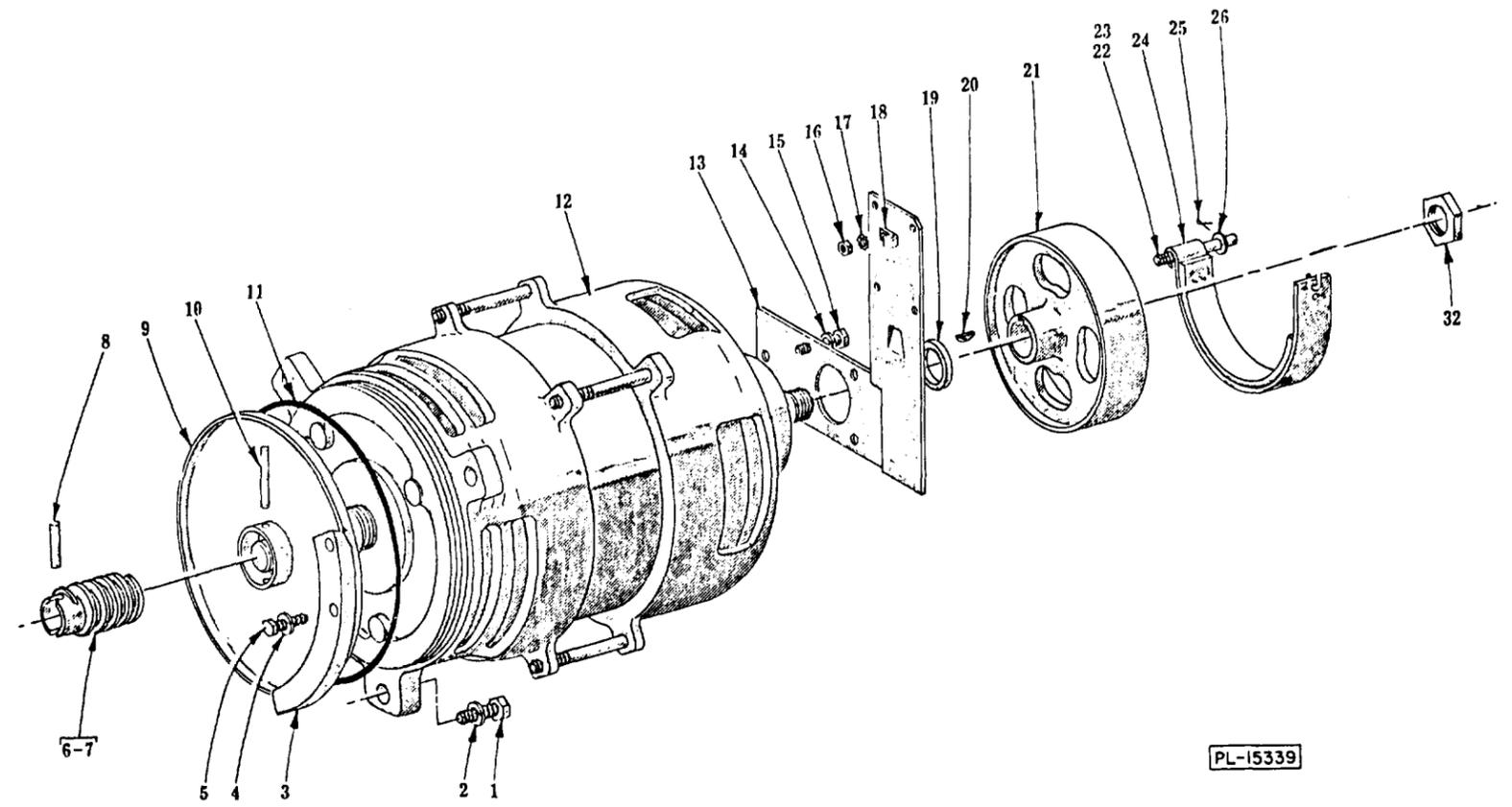
## Parts List

| ILLUS.<br>PL-16143 | PART NO.          | NAME OF PART  | AMT. |
|--------------------|-------------------|---|------|
|                    | 1 M-60468         | Knob - Gear Shift                                     | 1    |
|                    | 2 M-60469         | Handle and Hub Assy                                   | 1    |
|                    | 3 RP-2-3          | Rollpin - 3/16" Dia. x 1-1/4" Lg.                     | 1    |
|                    | 4 B-123131        | Self-Tapping Screw - #8-32 x 3/8" Truss Hd. "Taptite" | 4    |
|                    | 5 C-117873-1      | Plate - Shift Selector                                | 1    |
|                    | 6 M-60395         | Grommet - Gear Shift                                  | 1    |
|                    | 7 M-60400         | Shaft - Gear Shift                                    | 1    |
|                    | 8 D-67500-6       | "O" Ring  | 1    |
|                    | * 9 M-60394       | Hub & Cam Assy.                                       | 1    |
|                    | 10 B-61922-2      | Hub & Cam Assy. (H-600)                               | 1    |
|                    | 11 RP-2-10        | Rollpin - 3/16" Dia. x 1" Lg.                         | 1    |
|                    | 12 SC-40-14       | Cap Screw - 5/16"-18 x 3/4" Soc. Fil. Hd.             | 4    |
|                    | 13 WL-3-44        | Lock Washer - 5/16" x.125" x.078"                     | 4    |
|                    | 14 P-60359        | Bracket - Gear Shift                                  | 1    |
|                    | 15 P-24249        | Gear Shift Cam Assy.                                  | 1    |
|                    | 16 RP-2-5         | Rollpin - 1/4" Dia. x 7/8" Lg.                        | 1    |
|                    | 17 M-24227        | Shaft - Shifter                                       | 1    |
|                    | 18 PC-3-24        | Cotter Pin - 1/16" x 1-1/2"                           | 1    |
|                    | 19 R-24228        | Yoke - Lower Shifting                                 | 1    |
|                    | 20 M-24230        | Plunger - Shifting Yoke                               | 4    |
|                    | 21 R-24229        | Yoke - Upper Shifting                                 | 1    |
|                    | 22 M-24232        | Nut - Plunger Screw                                   | 3    |
|                    | 23 M-60723        | Screw - Shifting Plunger                              | 4    |
|                    | 24 M-24233        | Spring - Shifting Plunger                             | 4    |
|                    | * 25 M-60679      | Insulator   | 1    |
|                    | * 26 P-87711-71-1 | Switch - Interlock                                    | 1    |
|                    | * 27 WL-3-7       | Lock Washer #6 x.040" x.025"                          | 2    |
|                    | * 28 SC-9-45      | Mach. Screw - #6-32 x 1" Rd. Hd.                      | 2    |
|                    | 29 V-7009         | Spring  | 2    |
|                    | 30 BA-2-18        | Ball - 3/8" Dia.                                      | 2    |

\*H-600-T.



MOTOR AND BRAKE UNIT



PL-15339

MOTOR AND BRAKE UNIT

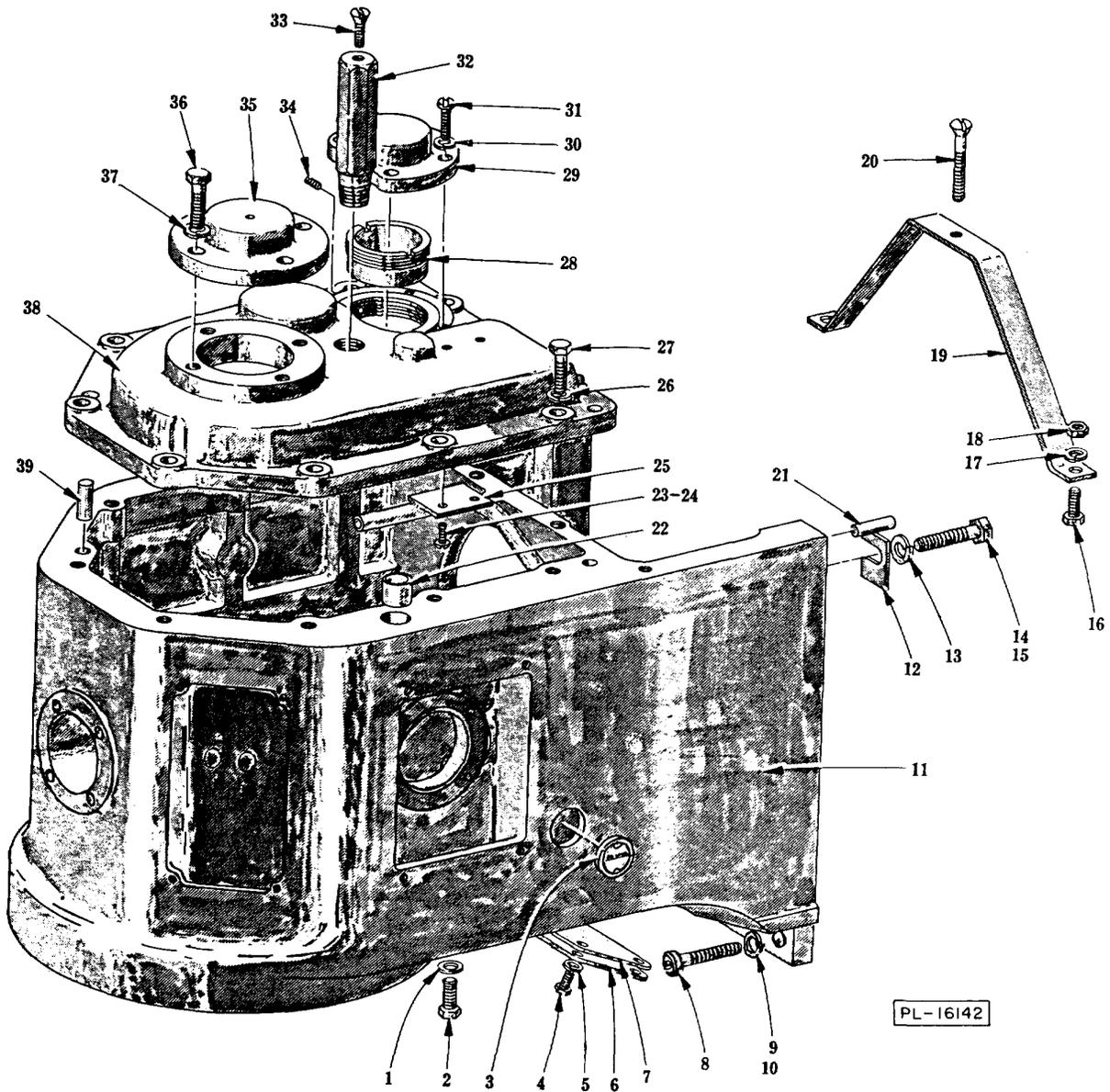


## MOTOR AND BRAKE UNIT

## Parts List

| ILLUS.<br>PL-15339 | PART NO.       | NAME OF PART                           | AMT. |
|--------------------|----------------|--|------|
|                    | 1 SC-36-98     | Fin. Bolt - 1/2"-13 x 1-1/4" Hex Hd.   | 3    |
|                    | 2 WL-4-12      | Lock Washer - 1/2" x.170" x.099"       | 3    |
|                    | 3 P-24610      | Guide - Oil Flinger                    | 1    |
|                    | 4 WL-3-43      | Lock Washer - 5/16" x.117" x.056"      | 2    |
|                    | 5 SC-36-28     | Fin. Bolt - 5/16"-18 x 1-1/4" Hex Hd.  | 2    |
|                    | 6 M-24298      | Worm - Drive (ST) (60 Hz.)             | 1    |
|                    | 7 M-24291      | Worm - Drive (ST) (50 Hz.)             | 1    |
|                    | 8 RP-2-6       | Rollpin - 1/4" Dia. x 1" Lg.           | 1    |
|                    | 9 P-24257-2    | Flinger and Hub Assy.                  | 1    |
|                    | 10 RP-2-4      | Rollpin - 3/16" Dia. x 1-5/8" Lg.      | 1    |
|                    | 11 D-67500-24  | "O" Ring - Bearing Bracket             | 1    |
|                    | 12 ---         | Motor (See Separate Motor Parts Sheet) | 1    |
|                    | * 13 P-24771   | Brake Mounting Bracket Assy.           | 1    |
|                    | * 14 WL-3-43   | Lock Washer - 5/16" x.117" x.056"      | 4    |
|                    | * 15 SC-37-75  | Fin. Bolt - 5/16"-18 x 3/4" Hex Hd.    | 4    |
|                    | * 16 NS-9-12   | Mach. Nut - #8-32 Hex.                 | 4    |
|                    | * 17 WL-7-6    | Lock Washer - #8 Ext. Shakeproof       | 4    |
|                    | * 18 M-24167-1 | Clamp - Lead Support                   | 1    |
|                    | * 19 B-120955  | Spacer - Brake Drum                    | 1    |
|                    | * 20 KW-3-5    | Key - #405 Woodruff                    | 1    |
|                    | * 21 R-60777   | Drum - Motor Brake                     | 1    |
|                    | * 22 M-24774   | Stud - Brake Band                      | 1    |
|                    | * 23 NS-32-7   | Stop Nut - 1/4"-20 "Flexloc"           | 1    |
|                    | * 24 P-24776   | Brake Band Assy.                       | 1    |
|                    | * 25 PC-3-32   | Cotter Pin - 3/32" x 1/2"              | 1    |
|                    | * 26 WS-3-20   | Washer                                 | 1    |
|                    | * 32 V-6566    | Nut - Lock                             | 2    |

\*H-600-T.



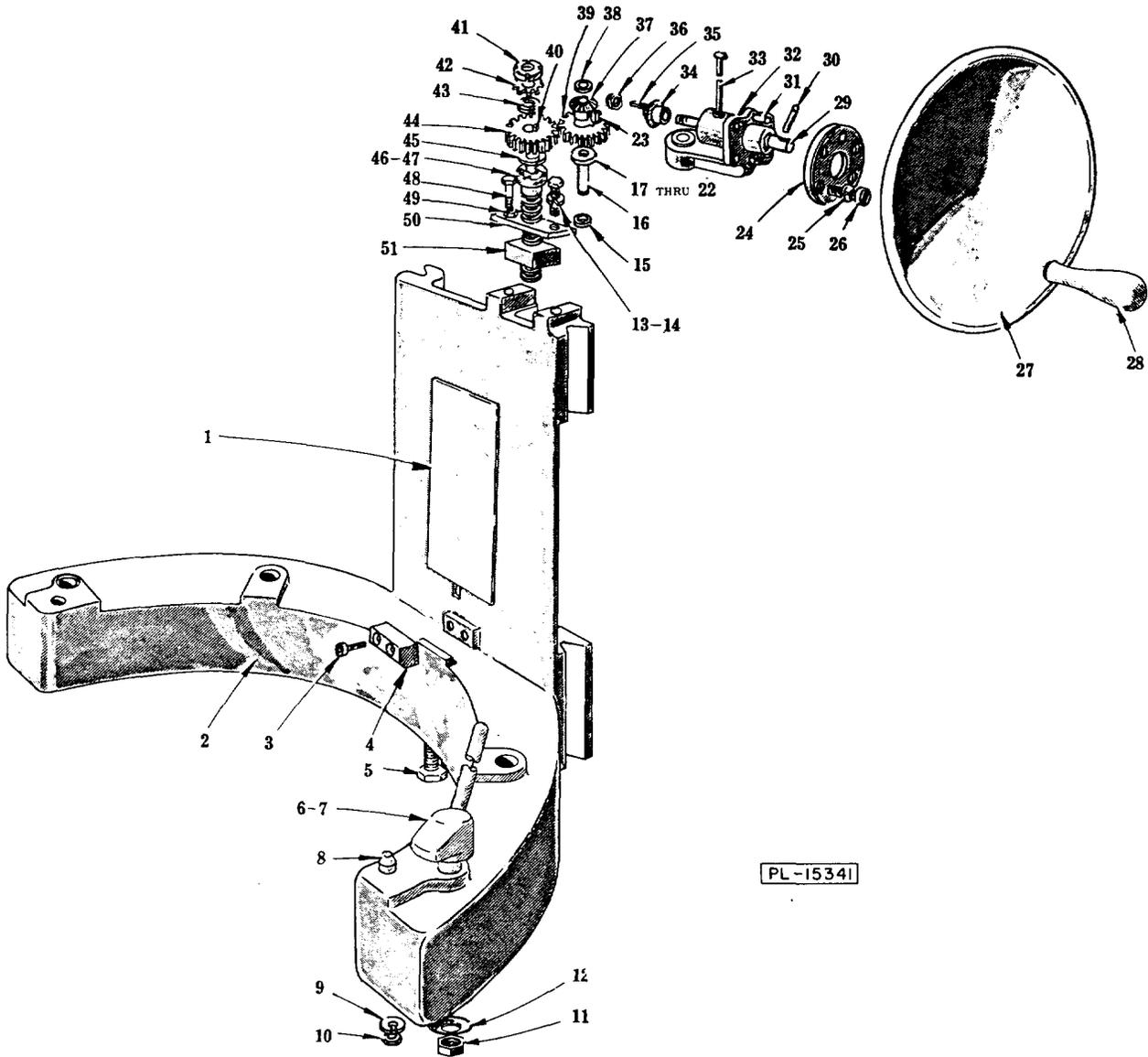
TRANSMISSION CASE UNIT

TRANSMISSION Case Unit

## TRANSMISSION CASE UNIT

## Parts List

| ILLUS.<br>PL-16142 | PART NO.       | NAME OF PART                                  | AMT.      |
|--------------------|----------------|---|-----------|
|                    | 1 WS-21-21     | Washer  | 1         |
|                    | 2 SC-62-60     | Fin. Bolt - 1/2"-20 x 1" Hex Hd.              | 1         |
|                    | 3 M-22793      | Gauge - Oil Level                             | 1         |
|                    | 4 SC-68-14     | Mach. Screw - #8-32 x 3/8" Trimmed Hex Hd.    | 4         |
|                    | 5 WL-3-15      | Lock Washer - #8 x .047" x .031"              | 4         |
|                    | 6 M-24264-1    | Plate - Transmission Case Cover               | 1         |
|                    | 7 M-24665      | Gasket - Transmission Case Cover Plate        | 1         |
|                    | 8 SC-40-36     | Cap Screw - 1/2"-13 x 1-3/4" Soc. Fil. Hd.    | 2         |
|                    | 9 WL-4-13      | Lock Washer - 1/2" x .171" x .125"            | 1         |
|                    | 10 WL-4-14     | Lock Washer - 1/2" x .109" x .172"            | 1         |
|                    | 11 E-120561    | Case - Transmission                           | 1         |
|                    | 12 M-68288     | Shim (.0179" Thk.)                            | As Req'd. |
|                    | 13 WL-4-13     | Lock Washer - 1/2" x .171" x .125"            | 4         |
|                    | 14 SC-62-66    | Fin. Bolt - 1/2"-13 x 1-3/4" Hex Hd.          | 2         |
|                    | 15 SC-62-67    | Fin. Bolt - 1/2"-13 x 2-1/4" Hex Hd.          | 2         |
|                    | 16 SC-36-4     | Fin. Bolt - 1/4"-20 x 3/4" Hex Hd.            | 2         |
|                    | 17 WL-3-37     | Lock Washer - 1/4" x .109" x .062"            | 2         |
|                    | 18 NS-13-1     | Full Nut - 1/4"-20 Hex Fin.                   | 2         |
|                    | 19 P-62108-1   | Strap - Top Anchoring                         | 1         |
|                    | 20 SC-16-19    | Mach. Screw - 1/4"-20 x 2" Oval Hd.           | 1         |
|                    | 21 D-11800-221 | Dowel   | 2         |
|                    | 22 V-24670     | Insulator - Fiber                             | 1         |
|                    | 23 SC-7-82     | Mach. Screw - #10-24 x 3/4" Rd. Hd.           | 2         |
|                    | 24 NS-32-1     | Stop Nut - #10-24 "Flexloc"                   | 2         |
|                    | 25 P-24253     | Oil Delivery Tube & Plate Assy.               | 1         |
|                    | 26 WL-4-2      | Lock Washer - 3/8" x .136" x .070"            | 11        |
|                    | 27 SC-62-48    | Fin. Bolt - 3/8"-16 x 1-1/8" Hex Hd.          | 11        |
|                    | 28 P-24254     | Sleeve - Worm Gear Adjusting                  | 1         |
|                    | 29 P-24256     | Retainer - Upper Worm Shaft Bearing           | 1         |
|                    | 30 WL-3-37     | Lock Washer - 1/4" x .109" x .062 "           | 4         |
|                    | 31 SC-38-5     | Cap Screw - 1/4"-20 x 1" Fil. Hd.             | 4         |
|                    | 32 M-24782     | Support - Top Cover Front                     | 1         |
|                    | 33 SC-15-70    | Mach. Screw - 1/4"-20 x 1" Oval Hd.           | 1         |
|                    | 34 SC-47-70    | Set Screw - #10-32 x 3/8" Soc. Hdls., Cup Pt. | 2         |
|                    | 35 P-24255     | Retainer - Planetary Bearing                  | 1         |
|                    | 36 SC-36-28    | Fin. Bolt - 5/16"-18 x 1-1/4" Hex Hd.         | 4         |
|                    | 37 WL-3-44     | Lock Washer - 5/16" x .125" x .078"           | 4         |
|                    | 38 T-24203     | Cover - Transmission Case                     | 1         |
|                    | 39 D-11800-224 | Dowel   | 2         |



**BOWL SUPPORT AND LIFT UNIT**

BOWL SUPPORT AND LIFT UNIT

## BOWL SUPPORT AND LIFT UNIT

## Parts List

## ILLUS. PL-1

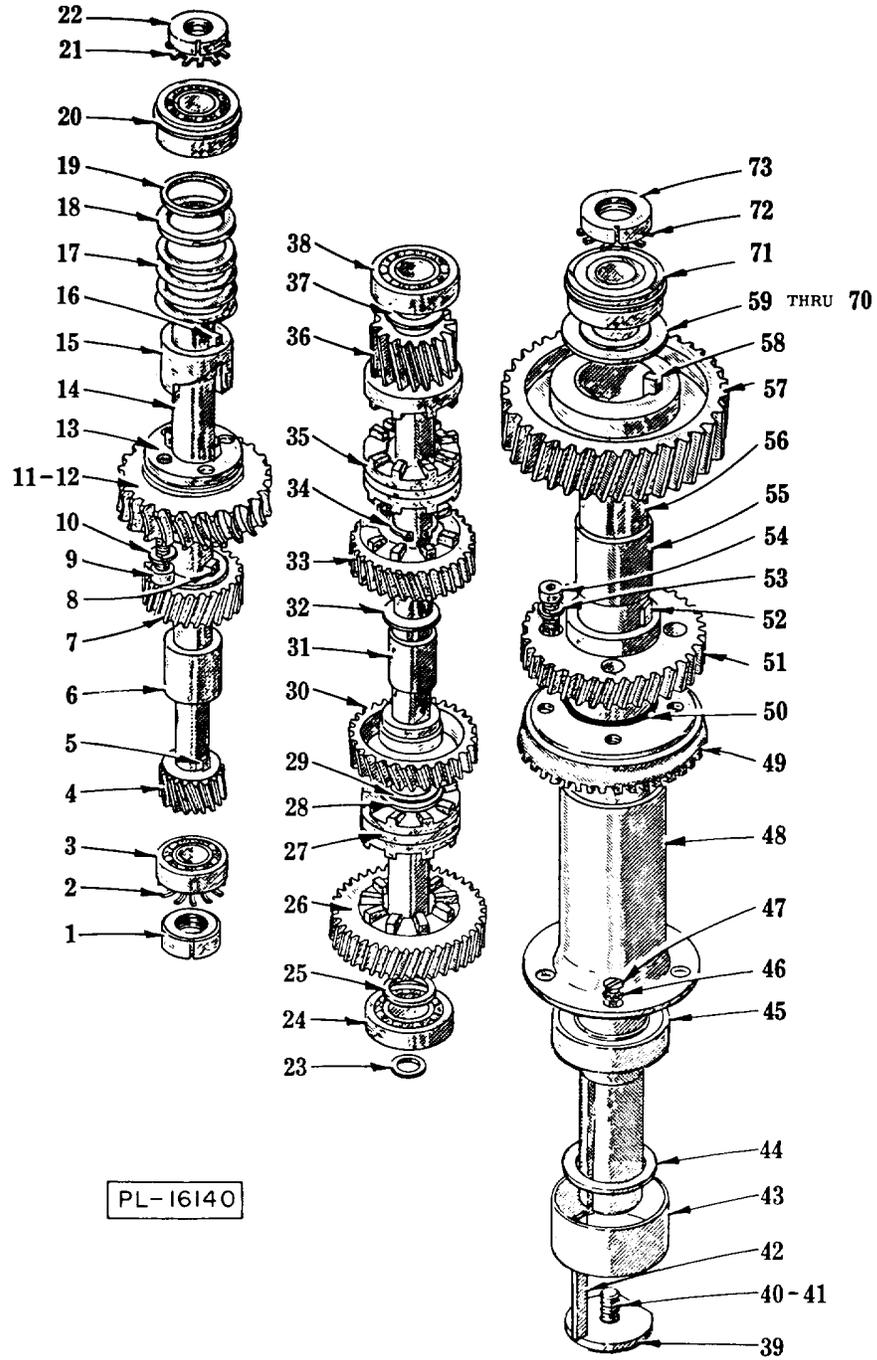
5341

| PART NO.       | NAME OF PART                                    | AMT.     |
|----------------|---|----------|
| 1 C-104493     | Cover - Access Opening                          | 1        |
| 2 E-122890     | Support - Bowl                                  | 1        |
| 3 SC-40-10     | Cap Screw - 1/4"-20 x 3/4" Soc. Fil. Hd.        | 2        |
| 4 M-24296      | Retainer - Bowl                                 | 1        |
| 5 SC-37-74     | Fin. Bolt - 3/8"-16 x 1-1/2" Hex Hd.            | 1        |
| 6 P-65922-14   | Bowl Clamp Assy. (R.H.)                         | 1        |
| 7 P-65922-15   | Bowl Clamp Assy. (L.H.) (Not Shown)             | 1        |
| 8 B-120349     | Stud - Bowl Locating                            | 2        |
| 9 WL4-12       | Lock Washer - 1/2" x .170" x .099"              | 2        |
| 10 NS-17-27    | Jam Nut - 1/2"-13 Hex Fin.                      | 2        |
| 11 NS-46-2     | Lock Nut - 5/8"-11 Hex "Nylok"                  | 2        |
| 12 M-64636     | Spring Washer - Bowl Clamp                      | 2        |
| 13 WL-4-2      | Lock Washer - 3/8" x .136" x .070"              | 1        |
| 14 SC-36-53    | Fin. Bolt - 3/8"-16 x 7/8" Hex Hd.              | 1        |
| 15 RR-5-2      | Retaining Ring (Spirolox)                       | 1        |
| 16 M-24194     | Shaft - Miter Gear                              | 1        |
| 17 M-24614-1   | Washer - Miter Gear Spacer (.096" Thk.)         | As Reqd. |
| 18 M-24614-2   | Washer - Miter Gear Spacer (.091" Thk.)         | As Reqd. |
| 19 M-24614-3   | Washer - Miter Gear Spacer (.086" Thk.)         | As Reqd. |
| 20 M-24614-4   | Washer - Miter Gear Spacer (.081" Thk.)         | As Reqd. |
| 21 M-24614-5   | Washer - Miter Gear Spacer (.076" Thk.)         | As Reqd. |
| 22 M-24614-6   | Washer - Miter Gear Spacer (.071" Thk.)         | AS Reqd. |
| 23 KW-3-3      | Key - #404 Woodruff                             | 1        |
| 24 M-24609-1   | Ring - Hand Wheel Brkt. Clamping                | 1        |
| 25 WL-3-48     | Lock Washer - 5/16" x .062" x .093"             | 4        |
| 26 SC-11-95    | Mach. Screw - 5/16"-18 x 1" Fil. Hd.            | 4        |
| 27 R-78181     | Hand Wheel & Handle Sub-Assy. (Incls. item #28) | 1        |
| 28 P-24765     | Handle - Bowl Lift Hand Wheel                   | 1        |
| 29 M-24191     | Shaft - Hand Wheel                              | 1        |
| 30 PG-7-19     | Groov-Pin - Type #5, 1/4" x 2-3/4"              | 1        |
| 31 RP-2-6      | Rollpin - 1/4" Dia. x 1" Lg.                    | 2        |
| 32 M-89684     | Hand Wheel Bracket & Bearing Sub-Assy.          | 1        |
| 33 OG-3-47     | Oiler - Special                                 | 1        |
| 34 M-24196     | Pinion - Bowl Lift Miter (23T)                  | 1        |
| 35 R-12430-47  | Key   | 1        |
| 36 NS-32-29    | Stop Nut - 1/2"-20 "Flexloc"                    | 1        |
| 37 M-24195     | Gear - Bowl Lift Miter (23T)                    | 1        |
| 38 RR-5-2      | Retaining Ring (Spirolox)                       | 1        |
| 39 M-24192     | Gear - Bowl Lift (41T)                          | 1        |
| 40 R-121430-43 | Key   | 1        |
| 41 NS-34-4     | Lock Nut - N. D. #N-03                          | 1        |
| 42 WL-12-4     | Lock Washer - N. D. #W-03                       | 1        |
| 43 WS-10-17    | Washer  | 1        |
| 44 M-24193     | Gear - Bowl Lift Screw (31T)                    | 1        |
| 45 WS-10-17    | Washer  | 2        |

## Parts List - Continued

**ILLUS. PL-1**

| <b>5341</b> | <b>PART NO.</b> | <b>NAME OF PART</b>         | <b>AMT.</b> |
|-------------|-----------------|-----------------------------|-------------|
|             | 46 BB-5-30      | Ball Bearing -N. D. #Z99503 | 1           |
|             | 47 C-120622     | Screw - Bowl Lift           | 1           |
|             | 48 B-122925     | Screw - Stop                | 1           |
|             | 49 NS-17-14     | Jam Nut - 3/8"-16 Hex Fin.  | 1           |
|             | 50 M-24201      | Retainer - Bowl Lift Nut    | 1           |
|             | 51 M-24198      | Nut - Bowl Lift Screw       | 1           |



TRANSMISSION UNIT

TRANSMISSION UNIT

## TRANSMISSION UNIT

## Parts List

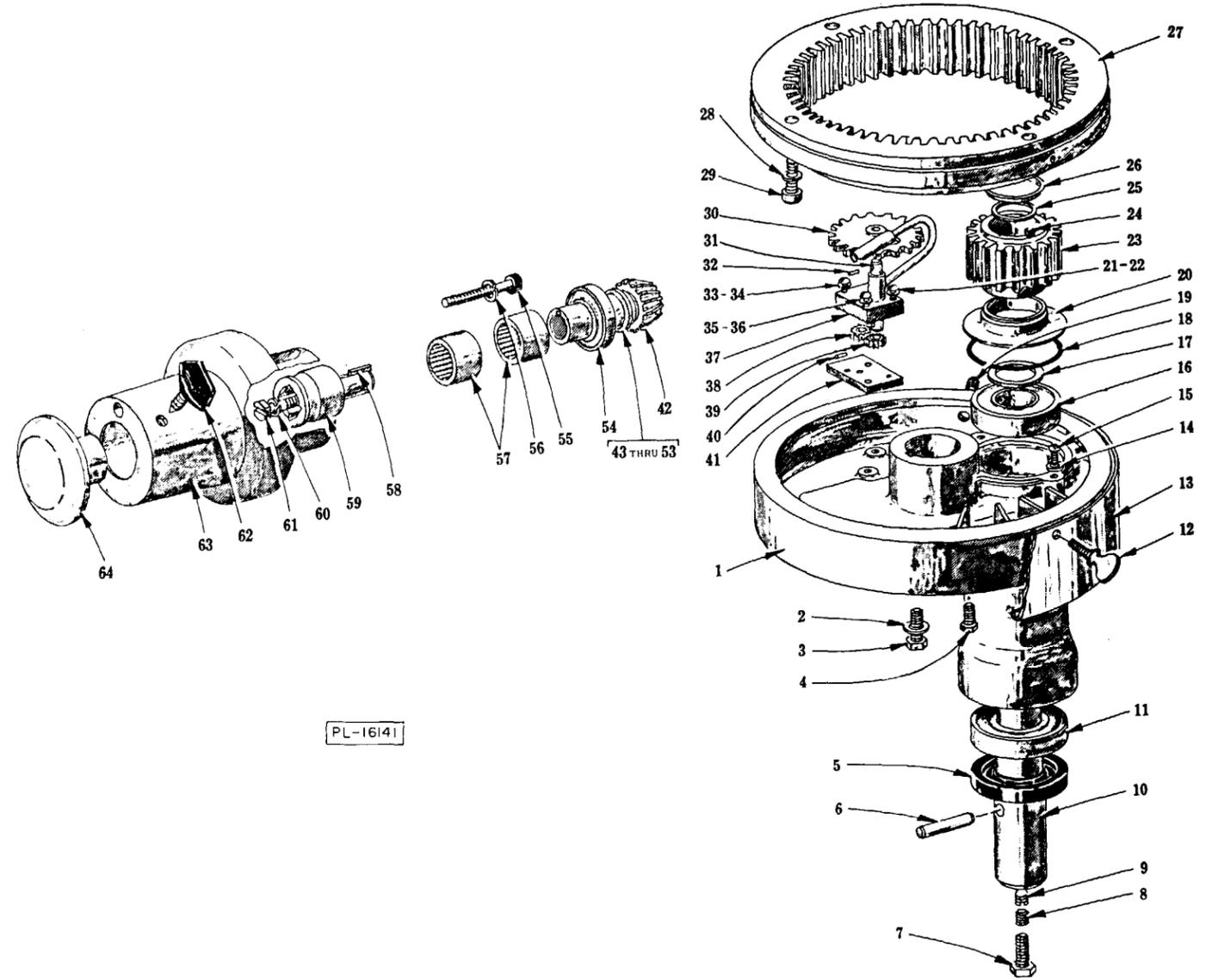
| ILLUS.<br>PL-16140 | PART NO.    | NAME OF PART                            | AMT. |
|--------------------|-------------|---|------|
| 1                  | NS-34-5     | Lock Nut - N. D. #N-04                  | 1    |
| 2                  | WL-12-5     | Lock Washer - N.D. #W-04                | 1    |
| 3                  | BB-12-7     | Ball Bearing - SKF #1204 Self-Alignment | 1    |
| 4                  | C-121382    | Gear - Lower Worm Shaft (17T)           | 1    |
| 5                  | R-12430-53  | Key - 3/16" x 3/16" x 15/16"            | 1    |
| 6                  | M-24206     | Spacer - Worm Gear Shaft                | 1    |
| 7                  | M-24207     | Gear - Upper Worm Shaft (25T)           | 1    |
| 8                  | R-12430-51  | Key - 3/16" x 3/16" x 25/32"            | 1    |
| 9                  | SC-40-8     | Cap Screw - 1/4"-20 x 1" Soc. Fil. Hd.  | 4    |
| 10                 | WL-3-37     | Lock Washer - 1/4" x .109" x .062"      | 4    |
| 11                 | P-24735     | Worm Gear (31T., 60 Hz.)                | 1    |
| 12                 | P-24288     | Worm Gear (26T., 50 Hz.)                | 1    |
| 13                 | P-61497     | Flange - Shock Absorber Drive           | 1    |
| 14                 | R-24204     | Shaft - Worm Gear                       | 1    |
| 15                 | P-61498     | Compressor - Shock Absorber             | 1    |
| 16                 | V-24546     | Key - Compressor to Shaft               | 1    |
| 17                 | M-9733      | Spring - Worm Shaft                     | 1    |
| 18                 | M-24238     | Washer - Shock Absorber                 | 1    |
| 19                 | RR-5-10     | Retaining Ring (Spirolox)               | 1    |
| 20                 | BB-9-37     | Ball Bearing - N. D. #45504V            | 1    |
| 21                 | WL-12-5     | Lock Washer -N. D. #W-04                | 1    |
| 22                 | NS-34-5     | Lock Nut -N. D. #N-04                   | 1    |
| 23                 | RR-5-4      | Retaining Ring (Spirolox)               | 1    |
| 24                 | BB-18-33    | Ball Bearing - Fafnir #205K             | 1    |
| 25                 | M-24210     | Spacer - Clutch Shaft                   | 1    |
| 26                 | P-24539     | Lower Clutch and Lower Gear Assy. (49T) | 1    |
| 27                 | P-24213     | Clutch - Shifting                       | 1    |
| 28                 | RR-4-13     | Retaining Ring (Truarc)                 | 1    |
| 29                 | M-60767     | Washer - Clutch Shaft                   | 1    |
| 30                 | P-24538     | Lower Clutch and Upper Gear Assy. (41T) | 1    |
| 31                 | R-24209     | Shaft - Clutch                          | 1    |
| 32                 | M-24216     | Washer - Clutch Shaft                   | 1    |
| 33                 | P-24537     | Upper Clutch and Lower Gear Assy. (33T) | 1    |
| 34                 | RR-4-13     | Retaining Ring (Truarc)                 | 1    |
| 35                 | P-24213     | Clutch - Shifting                       | 1    |
| 36                 | P-24545     | Upper Clutch and Upper Gear Assy. (17T) | 1    |
| 37                 | M-24210     | Spacer - Clutch Shaft                   | 1    |
| 38                 | BB-18-33    | Ball Bearing - Fafnir #205K             | 1    |
| 39                 | M-242666-1  | Washer - Planetary                      | 1    |
| 40                 | SC-62-58    | Fin. Bolt - 3/8"-24 x 1-1/4" Hex Hd.    | 1    |
| 41                 | WL-6-27     | Lock Washer - 3/8" x .136" x .070"      | 1    |
| 42                 | R-12430-195 | Key - 1/4" x 1/4" x 4"                  | 1    |
| 43                 | M-60486     | Shield - Planetary Oil                  | 1    |
| 44                 | M-24543     | Washer - Planetary Spacer               | 1    |
| 45                 | BB-15-26    | Ball Bearing - Fafnir #P9109PP          | 1    |

## Parts List - Continued

| ILLUS.<br>PL-16140 | PART NO.    | NAME OF PART                                | AMT.     |
|--------------------|-------------|---|----------|
| 46                 | WL-9-8      | Lock Washer - 1/4" Csk. Ext. Shakeproof     | 5        |
| 47                 | SC-13-79    | Mach. Screw - 1/4"-20 x 1/2" Flat Hd.       | 5        |
| 48                 | C-121478-1  | Chimney                                     | 1        |
| 49                 | P-61727     | Gear - Spiral Bevel (41T)                   | 1        |
| 50                 | D-67500-19  | "O" Ring - Bevel Gear                       | 1        |
| 51                 | P-24223     | Gear - Planetary Shaft Lower (35T)          | 1        |
| 52                 | R-12430-211 | Key - 5/16" x 5/16" x 1-1/16"               | 1        |
| 53                 | WL-3-48     | Lock Washer - 5/16" x .062" x .093"         | 4        |
| 54                 | SC-40-15    | Cap Screw - 5/16"-18 x 1-1/4" Soc. Fil. Hd. | 4        |
| 55                 | M-24224     | Spacer - Planetary Shaft                    | 1        |
| 56                 | S-24222     | Shaft - Planetary                           | 1        |
| 57                 | P-24225     | Gear - Upper Planetary Shaft (53T)          | 1        |
| 58                 | R-12430-210 | Key - 5/16" x 5/16" x 1-3/8"                | 1        |
| 59                 | M-24226-1   | Shim - Planetary Shaft (.141" Thk.)         | As Reqd. |
| 60                 | M-24226-2   | Shim - Planetary Shaft (.144" Thk.)         | As Reqd. |
| 61                 | M-24226-3   | Shim - Planetary Shaft (.147" Thk.)         | As Reqd. |
| 62                 | M-24226-4   | Shim - Planetary Shaft (.150" Thk.)         | As Reqd. |
| 63                 | M-24226-5   | Shim - Planetary Shaft (.153" Thk.)         | As Reqd. |
| 64                 | M-24226-6   | Shim - Planetary Shaft (.156" Thk.)         | As Reqd. |
| 65                 | M-24226-7   | Shim - Planetary Shaft (.159" Thk.)         | As Reqd. |
| 66                 | M-24226-8   | Shim - Planetary Shaft (.162" Thk.)         | As Reqd. |
| 67                 | M-24226-9   | Shim - Planetary Shaft (.165" Thk.)         | As Reqd. |
| 68                 | M-24226-10  | Shim - Planetary Shaft (.168" Thk.)         | As Reqd. |
| 69                 | M-24226-11  | Shim - Planetary Shaft (.171" Thk.)         | As Reqd. |
| 70                 | M-24226-12  | Shim - Planetary Shaft (.174" Thk.)         | As Reqd. |
| 71                 | BB-9-48     | Ball Bearing - MRC #5206KFFG                | 1        |
| 72                 | WL-12-7     | Lock Washer - N. D. #W-06                   | 1        |
| 73                 | NS-34-7     | Lock Nut - N. D. #N-06                      | 1        |



PLANETARY AND ATTACHMENT HUB UNIT



PL-16141

PLANETARY AND ATTACHMENT HUB UNIT



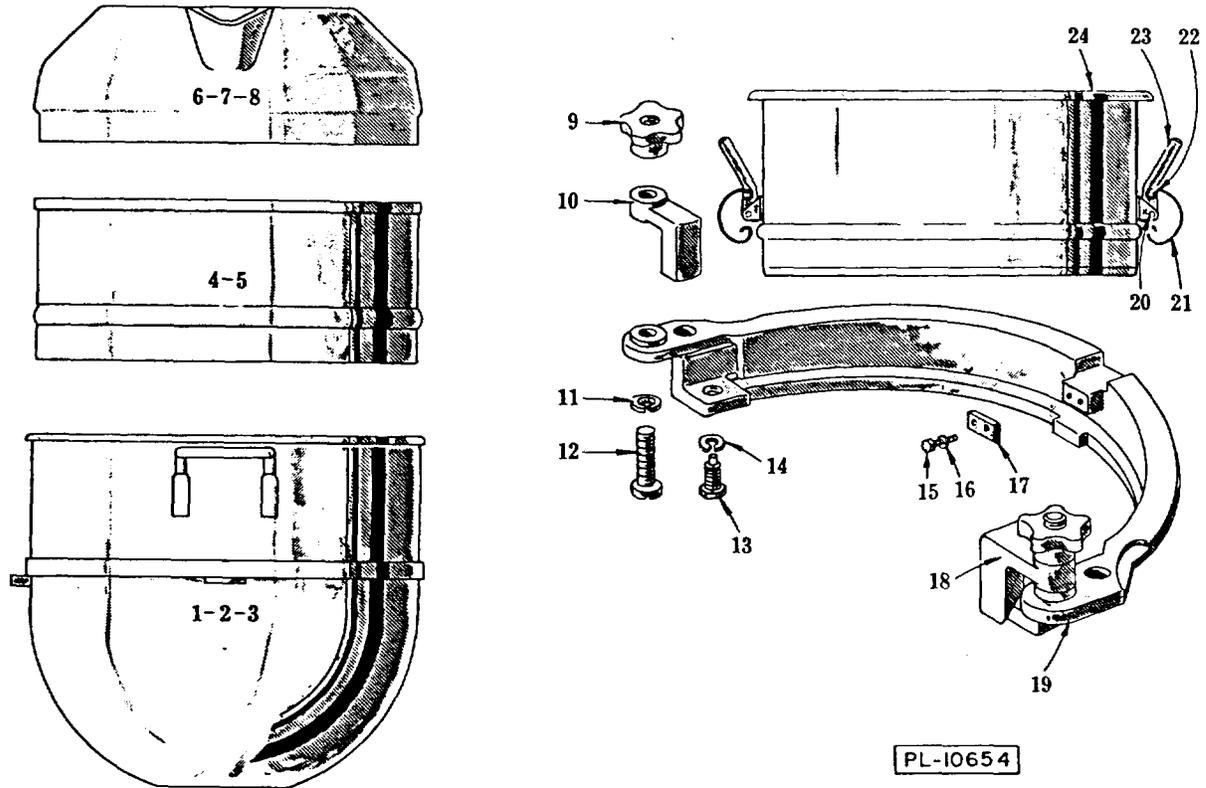
## PLANETARY AND ATTACHMENT HUB UNIT

## Parts List

| ILLUS.<br>PL-16141 | PART NO. | NAME OF PART | AMT.   |          |
|--------------------|----------|--------------|--|----------|
|                    | 1        | T-24265-1    | Planetary  | 1        |
|                    | 2        | WS-21-21     | Washer   | 1        |
|                    | 3        | SC-62-60     | Fin. Bolt - 1/2"-20 x 1" Hex Hd.                     | 1        |
|                    | 4        | SC-62-80     | Fin. Bolt - 3/8"-16 x 5/8" Hex Hd.                   | 2        |
|                    | 5        | M-24651      | Seal - Planetary                                     | 1        |
|                    | 6        | V-111156     | Pin - Agitator Shaft                                 | 1        |
|                    | 7        | M-64723      | Plug Screw - Agitator Shaft                          | 1        |
|                    | 8        | SC-47-41     | Set Screw - 3/8"-16 x 3/8" Soc. Hdls., Cup Pt.       | 1        |
|                    | 9        | V-7744       | Set Screw - Hdls., Cone Pt.                          | 1        |
|                    | 10       | M-64137      | Agitator Shaft Sub-Assy. (Incls. items #6, 7, 8 & 9) | 1        |
|                    | 11       | BB-7-39      | Ball Bearing - MRC #207-SZZ                          | 1        |
|                    | 12       | P-70641-11   | Thumb Screw - #8-32                                  | 2        |
|                    | 13       | R-60458      | Cup - Drip   | 1        |
|                    | 14       | WS-3-23      | Washer   | 2        |
|                    | 15       | SC-8-65      | Mach. Screw - 1/4"-20 x 3/8" Rd. Hd                  | 2        |
|                    | 16       | BB-6-36      | Ball Bearing - MRC #306-SZZ                          | 1        |
|                    | 17       | M-60768      | Shim - Internal Pinion                               | As Reqd. |
|                    | 18       | D-67500-21   | "O" Ring   | 1        |
|                    | 19       | FP-28-38     | Plug - 3/8" Hex Socket Pipe                          | 1        |
|                    | 20       | M-73010      | Oil Baffle - Planetary                               | 1        |
|                    | 21       | SC-9-50      | Mach. Screw - #10-32 x 3/4" Rd. Hd.                  | 1        |
|                    | 22       | WL-3-22      | Lock Washer - #10 x .055" x .040"                    | 1        |
|                    | 23       | P-24270      | Pinion - Internal (18T)                              | 1        |
|                    | 24       | R-12430-154  | Key  | 1        |
|                    | 25       | RR-5-8       | Retaining Ring (Spirolox)                            | 1        |
|                    | 26       | M-60071      | Cap - Oil Retaining                                  | 1        |
|                    | 27       | R-24267      | Gear - Internal (59T)                                | 1        |
|                    | 28       | WL-4-1       | Lock Washer - 3/8" x .078" x .125"                   | 4        |
|                    | 29       | SC-40-23     | Cap Screw - 3/8"-16 x 1-1/4" Soc. Fil. Hd.           | 4        |
|                    | 30       | M-60467      | Conveying Gear Assy. (18T)                           | 1        |
|                    | 31       | M-60444      | Shaft - Oil Pump                                     | 1        |
|                    | 32       | RP-2-8       | Rollpin - 5/64" Dia. x 11/16" Lg.                    | 1        |
|                    | 33       | SC-9-39      | Mach. Screw - #8-32 x 3/4" Rd. Hd.                   | 1        |
|                    | 34       | WL-3-15      | Lock Washer - #8 x .047" x .031"                     | 1        |
|                    | 35       | SC-9-51      | Mach. Screw - #10-32 x 7/8" Rd. Hd.                  | 2        |
|                    | 36       | WL-3-22      | Lock Washer - #10 x .055" x .040"                    | 2        |
|                    | 37       | C-123679     | Top Plate Assy                                       | 1        |
|                    | 38       | M-67736      | Gear - Oil Pump (15T)                                | 1        |
|                    | 39       | M-60445-2    | Gear - Oil Pump (15T)                                | 1        |
|                    | 40       | RP-2-9       | Rollpin - 5/64" Dia. x 3/8" Lg.                      | 1        |
|                    | 41       | M-60443      | Plate - Oil Pump Bottom                              | 1        |
|                    | 42       | P-61914      | Bevel Pinion (16T)                                   | 1        |
|                    | 43       | M-61920-1    | Shim - Bevel Pinion (.076" Thk.)                     | As Reqd. |
|                    | 44       | M-61920-2    | Shim - Bevel Pinion (.079" Thk.)                     | As Reqd. |
|                    | 45       | M-61920-3    | Shim - Bevel Pinion (.082" Thk.)                     | As Reqd. |

## Parts List - Continued

| <b>ILLUS.</b>   | <b>PART NO.</b> | <b>NAME OF PART</b>  | <b>AMT.</b> |
|-----------------|-----------------|--|-------------|
| <b>PL-16141</b> |                 |  |             |
|                 | 46 M-61920-4    | Shim - Bevel Pinion (.085" Thk.)   | As Reqd.    |
|                 | 47 M-61920-5    | Shim - Bevel Pinion (.088" Thk.)   | As Reqd.    |
|                 | 48 M-61920-6    | Shim - Bevel Pinion (.091" Thk.)   | As Reqd.    |
|                 | 49 M-61920-7    | Shim - Bevel Pinion (.094" Thk.)   | As Reqd.    |
|                 | 50 M-61920-8    | Shim - Bevel Pinion (.097" Thk.)   | As Reqd.    |
|                 | 51 M-61920-9    | Shim - Bevel Pinion (.100" Thk.)   | As Reqd.    |
|                 | 52 M-61920-10   | Shim - Bevel Pinion (.103" Thk.)   | As Reqd.    |
|                 | 53 M-61920-11   | Shim - Bevel Pinion (.107" Thk.)   | As Reqd.    |
|                 | 54 BB-13-3      | Ball Bearing - Nice #618   | 1           |
|                 | 55 SC-40-50     | Cap Screw - 5/16"-18 x 2-1/4" Soc. Fil. Hd.  | 4           |
|                 | 56 WL-3-44      | Lock Washer - 5/16" x .125" x .078"  | 4           |
|                 | 57 BN-2-6       | Needle Bearing (Torrington B-2212)   | 2           |
|                 | 58 R-12430-42   | Key  | 1           |
|                 | 59 P-61506      | Sleeve - Square Drive  | 1           |
|                 | 60 WL-3-44      | Lock Washer - 5/16" x .125" x .078"  | 1           |
|                 | 61 M-61279      | Screw - Special (L.H. Thread)  | 1           |
|                 | 62 C-108197-1   | Thumb Screw Assy   | 1           |
|                 | 63 R-61894-1    | Hub - Attachment   | 1           |
|                 | 64 C-114824-4   | Plug - Attachment Hole   | 1           |
|                 | P-60465         | Planetary Oil Pump Assy. (Incls. items #21, 22, 30, 31, 32, 33, 34, 37, 38, 39, 40 & 41) | 1           |
|                 | P-61919-1       | Attachment Hub Assy. (Incls. items #42 thru 61 & 63)                                     | 1           |



**BOWLS AND EQUIPMENT**

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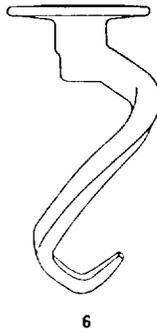
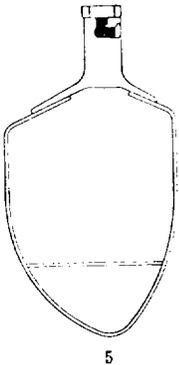
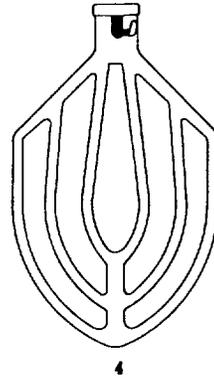
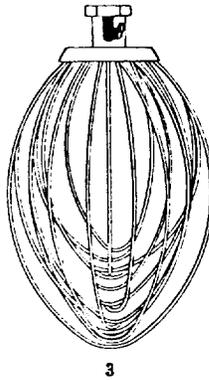
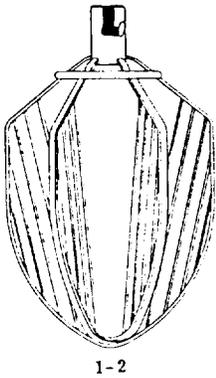
Parts List

| ILLUS.<br>PL-10654 | PART NO.     | NAME OF PART                                  | AMT. |
|--------------------|--------------|---|------|
|                    | 1 S-66461    | Bowl - 60 Qt.                                 | 1    |
|                    | 2 D-104432   | Bowl - 40 Qt.                                 | 1    |
|                    | 3 D-104415   | Bowl - 30 Qt.                                 | 1    |
|                    | 4 P-7985-1   | Extension - 40 Qt. Bowl                       | 1    |
|                    | 5 P-6474-1   | Extension - 30 Qt. Bowl                       | 1    |
|                    | 6 E-104681   | Cover - Splash (60 Qt.) (Plastic)             | 1    |
|                    | 7 S-82443-3  | Splash Cover Assy. - 40 Qt.                   | 1    |
|                    | 8 S-82443-1  | Splash Cover Assy. - 30 Qt.                   | 1    |
|                    | 9 M-8101-1   | Knob - Clamp Stud                             | 2    |
|                    | 10 M-24845-1 | Clamp - Adapter (60-40 Qt. & 60-30 Qt., L.H.) | 1    |
|                    | 11 WL-4-12   | Lock Washer - 1/2" x .170" x .099"            | 2    |
|                    | 12 M-22196   | Bolt - Bowl Lock                              | 2    |

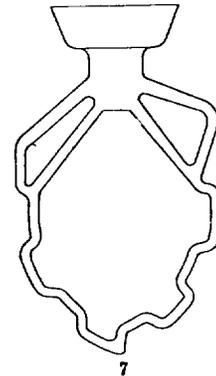
Parts List - Continued

ILLUS.  
PL-10654

| PART NO.     | NAME OF PART  | AMT. |
|--------------|---|------|
| 13 M-24846   | Stud - Bowl Locating  | 2    |
| 14 WL-4-18   | Lock Washer - 5/8" x .201" x .126"  | 2    |
| 15 SC-62-38  | Fin. Bolt - 1/4"-20 x 5/8" Hex Hd.  | 2    |
| 16 WL-3-36   | Lock Washer - 1/4" x .107" x .047"  | 2    |
| 17 M-24301   | Retainer - Bowl   | 1    |
| 18 M-60222-1 | Clamp - Adapter (60-40 Qt. & 60-30 Qt., R.H.)                                 | 1    |
| 19 S-65790-1 | Adapter - Bowl (60-40 Qt. & 60-30 Qt.)  | 1    |
| 20 RP-2-35   | Rollpin - 3/16" Dia. x 5/8" Lg.   | 2    |
| 21 P-62234-2 | Spring - Clamp (60 Qt.) (Flange Top Bowl)                                     | 2    |
| 22 RP-2-7    | Rollpin - 3/16" Dia. x 1-1/8" Lg.   | 2    |
| 23 M-11881   | Handle - Clamp (60 Qt.)   | 2    |
| 24 S-8569-6  | Extension - 60 Qt. (Flange Top Bowl) (Incls. items #20, 21, 22 & 23)          | 1    |
| M-62087-1    | Bowl Adapter Sub-Assy. Unit (60-40 Qt. & 60-30 Qt.) (Incls. items #9 thru 19) | 1    |



PL-16145



AGITATORS

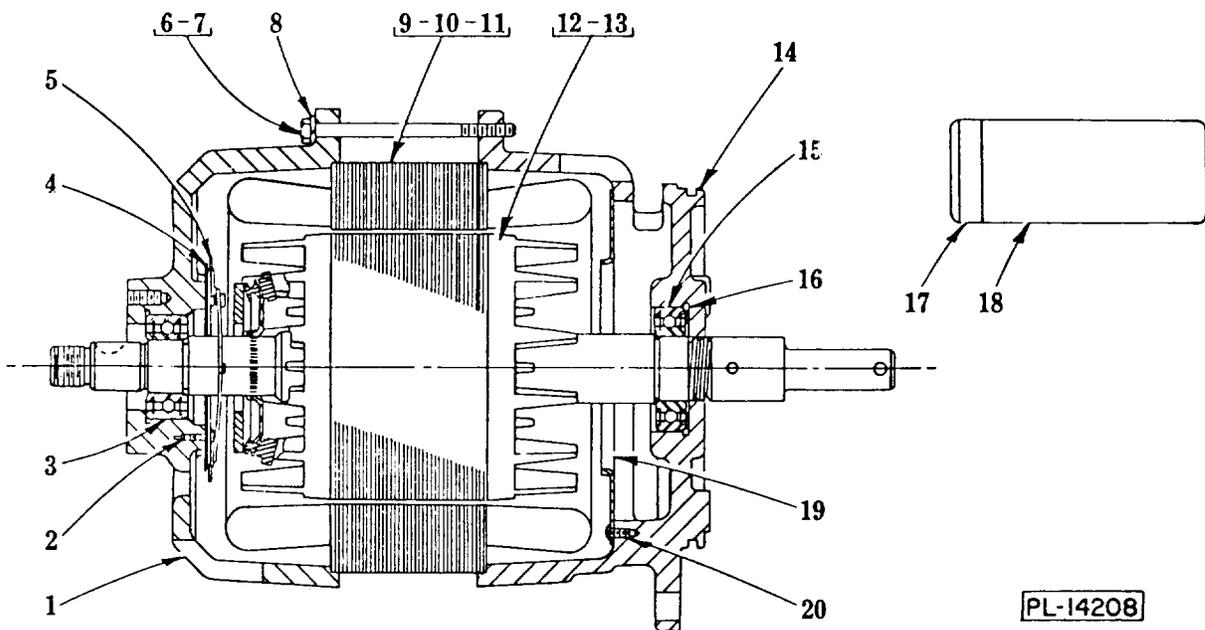
AGITATORS

**AGITATORS**

Parts List

| ILLUS.<br>PL-16145 | PART NO.  | PART NO.  | PART NO.  | NAME OF PART                   | AMT. |
|--------------------|-----------|-----------|-----------|--------------------------------|------|
|                    | 60 QT.    | 40 QT.    | 30 QT.    |                                |      |
| 1                  | D-123486  | D-123682  | ---       | "C" Six Wing Whip              | 1    |
| 2                  | ---       | ---       | D-123714  | "C" Four Wing Whip (Not Shown) | 1    |
| 3                  | S-24900-2 | S-23591-2 | R-10327-1 | "D" Wire Whip                  | 1    |
| 4                  | S-24308-1 | T-23620   | S-60052-1 | "B" Flat Beater                | 1    |
| 5                  | S-68096   | S-68095   | R-68822   | "P" Pastry Knife               | 1    |
| 6                  | E-121071  | ---       | ---       | "ED" Dough Arm - Spiral        | 1    |
| 7                  | S-60069   | R-8400    | R-10326   | "S" Sweet Dough Arm            | 1    |
|                    | R-60090   | S-60132-2 | R-72871   | "T" Wire Whip (Not Shown)      | 1    |
|                    | ---       | S-80693   | S-72858   | "E" Dough Arm (Not Shown)      | 1    |

**MOTOR REPLACEMENT PARTS**



Motor ML 19168-DA, DC, DP

Motor type and ML number are stamped on motor (sometimes under name plate).

When ordering motor replacement parts, in addition to motor Type and ML No., give Serial No., Model, ML, and all electrical data shown on machine name plate.

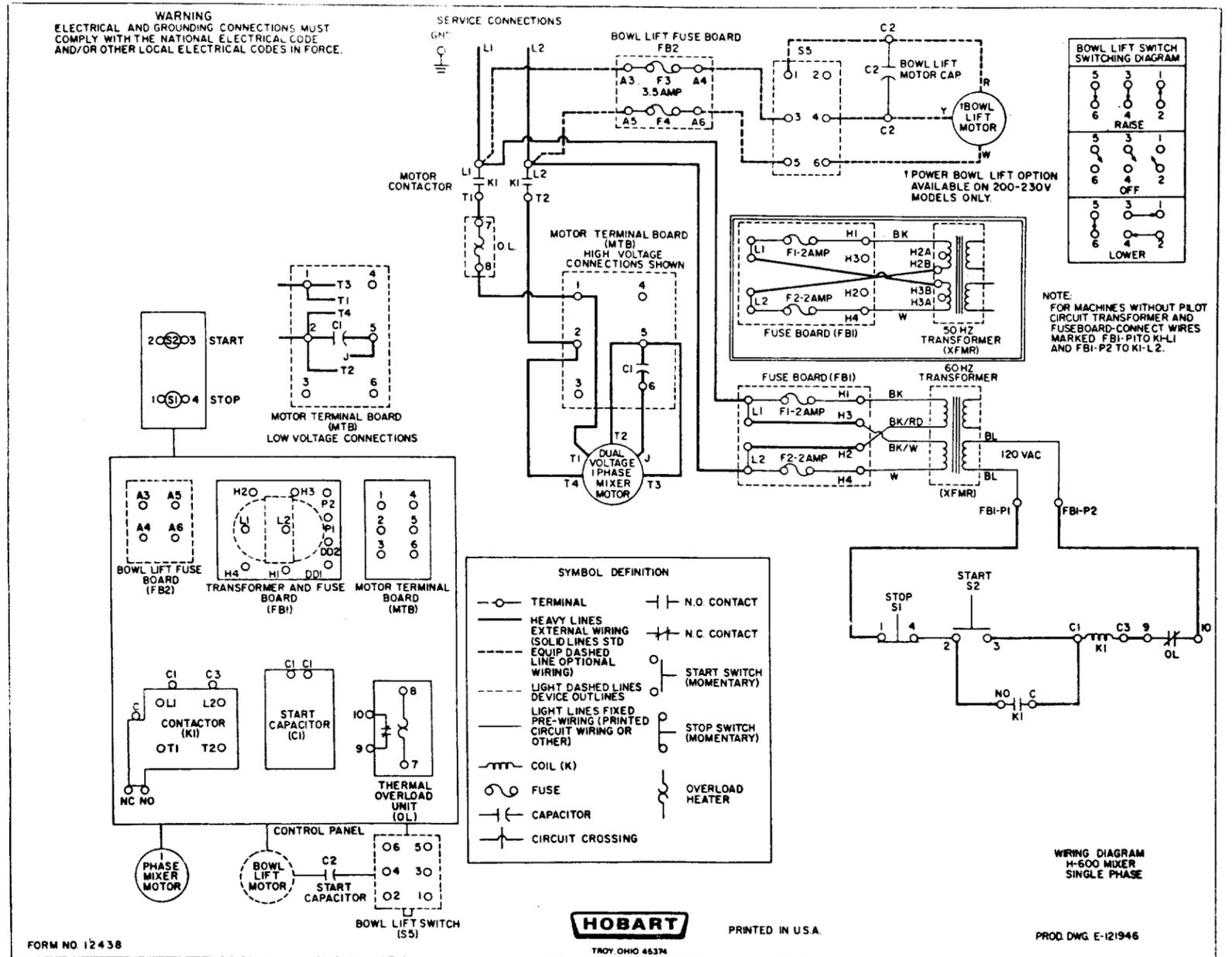
Parts List

| Illus.<br>PL-14208 | Part No.   | Name of Part                   | Amt. |
|--------------------|------------|--------------------------------|------|
| 1                  | E-119537-2 | Bracket - Bearing (Switch End) | 1    |

## Parts List - Continued

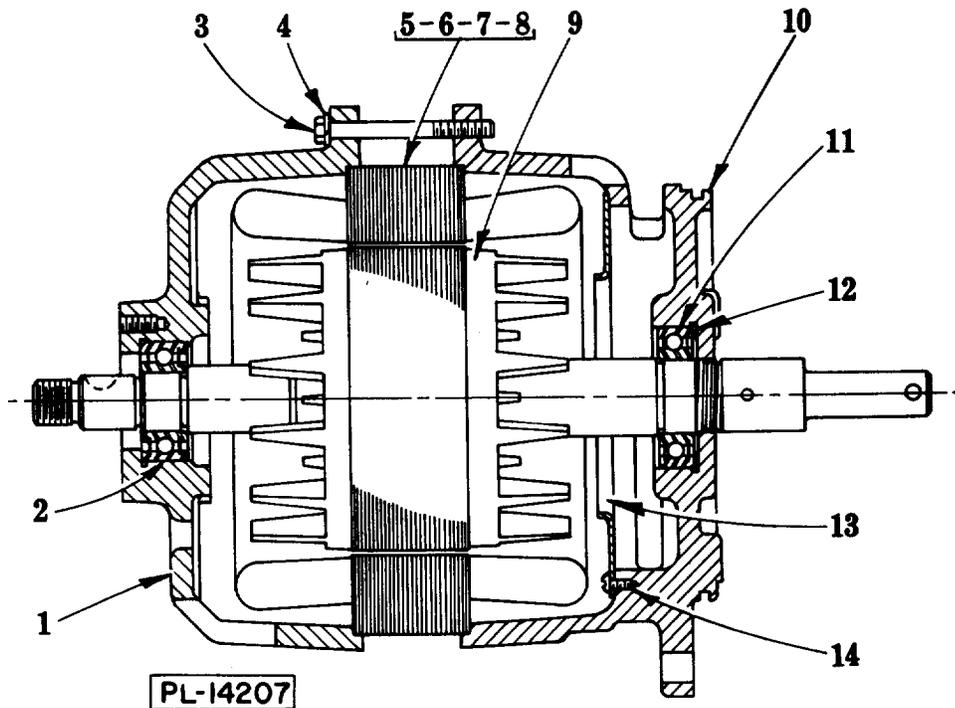
| <b>Illus.</b> | <b>Part No.</b> | <b>Name of Part</b>                           | <b>Amt.</b> |
|---------------|-----------------|---|-------------|
| 2             | SC-9-49         | Mach. Screw - #6-32 x 3/8" Rd. Hd.            | 2           |
| 3             | BB-16-24        | Ball Bearing - Fafnir #HW205PP                | 1           |
| 4             | C-121111        | Insulator - Switch                            | 1           |
| 5             | C-121110        | Switch - Starting (Stationary Part)           | 1           |
| 6             | SC-97-58        | Fin. Bolt - 1/4"-20 x 3 3/4" Hex Hd. (60 Hz.) | 4           |
| 7             | SC-97-59        | Fin. Bolt - 1/3"-20 x 4 1/4" Hex Hd. (50 Hz.) | 4           |
| 8             | WL-3-38         | Lock Washer - 1/4" x .109" x .062"            | 4           |
| 9             | D-65477-136-2   | Stator Assy. (115/230 V., 60 Hz.)             | 1           |
| 10            | D-65477-136-4   | Stator Assy. (200/400V., 60 Hz.)              | 1           |
| 11            | D-65477-136-6   | Stator Assy., (115/230V., 50 Hz.)             | 1           |
| 12            | C-2275-225      | Rotor Assy. (60 Hz.)                          | 1           |
| 13            | C-2275-224      | Rotor Assy., (50 Hz.)                         | 1           |
| 14            | E-119538        | Bracket - Bearing (Gear End)                  | 1           |
| 15            | BB-17-27        | Ball Bearing - Fafnir #206 KDD                | 1           |
| 16            | SL-3-10         | Loading Spring - N. D. #62                    | 1           |
| 17            | C-70486-3       | End Cap - Capacitor                           | 1           |
| 18            | D-70487-9       | Capacitor                                     | 1           |
| 19            | C-120864        | Baffle - Air                                  | 1           |
| 20            | SC-9-70         | Mach. Screw - #6-32 x 1/4" Rd. Hd.            | 3           |

**WIRING DIAGRAM**



WIRING DIAGRAM, 115 VOLT





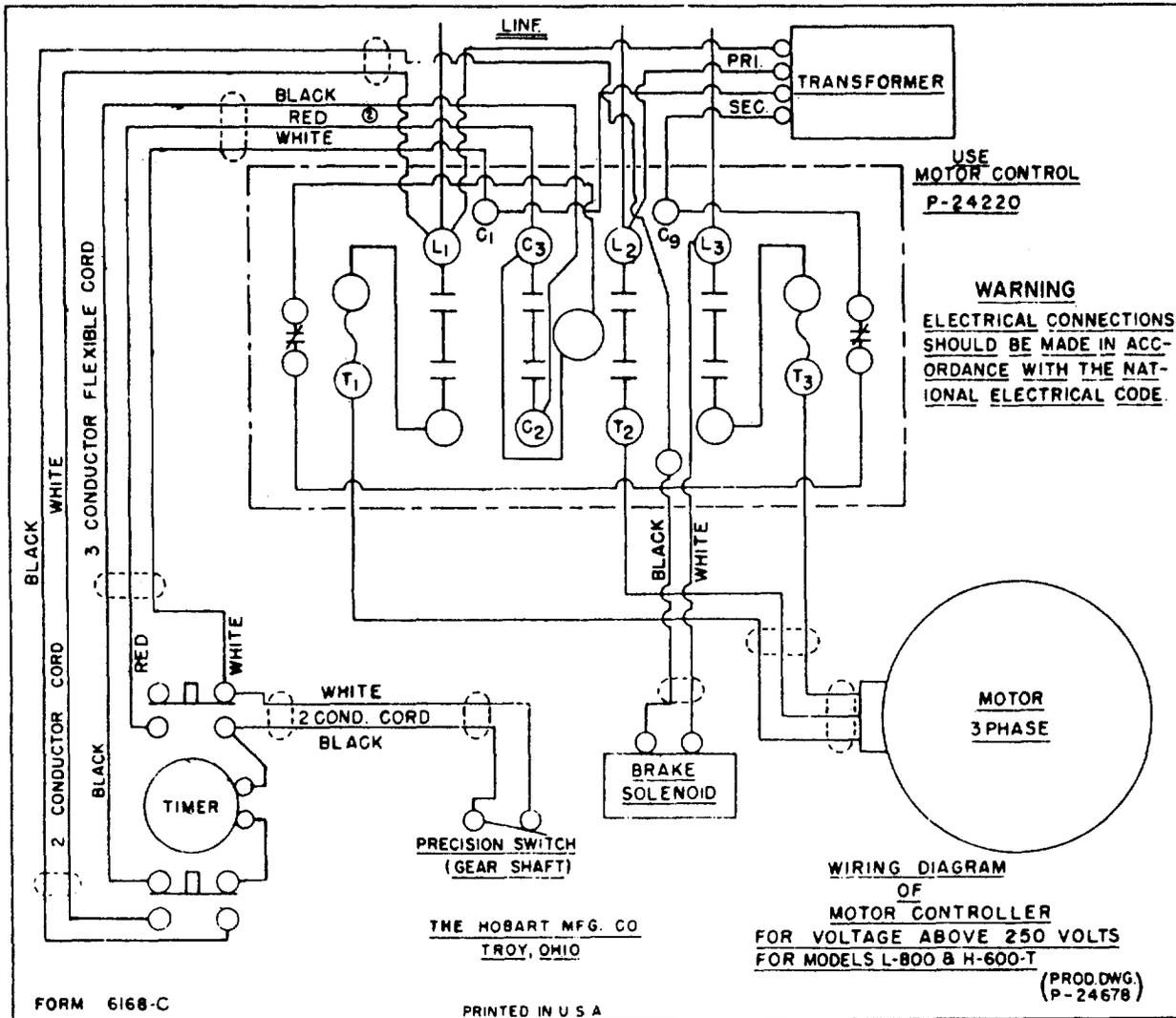
Motor ML 19167-DB, DM, DN, AG

Motor type and ML number are stamped on motor (sometimes under name plate).

When ordering motor replacement parts, in addition to motor Type and ML No., give Serial No., Model, ML, and all electrical data shown on machine name plate.

## Parts List

| Illus.   | Part No.        | Name of Part                         | Amt. |
|----------|-----------------|--------------------------------------|------|
| PL-14207 | 1 E-119537-2    | Bracket - Bearing (Switch End)       | 1    |
|          | 2 BB-16-24      | Ball Bearing - Fafnir #HW205PP       | 1    |
|          | 3 SC-97-16      | Fin. Bolt - 1/4"-20 x 2 3/4" Hex Hd. | 4    |
|          | 4 WL-3-38       | Lock Washer - 1/4" x .109" x .062"   | 4    |
|          | 5 D-65478-130-1 | Stator Assy. (200/400 V., 60 Hz.)    | 1    |
|          | 6 D-65478-130-2 | Stator Assy., (230/460 V., 60 Hz.)   | 1    |
|          | 7 D-65478-131-1 | Stator Assy., (230/400V., 50 Hz.)    | 1    |
|          | 8 D-65478-132-1 | Stator Assy., (575 V., 60 Hz.)       | 1    |
|          | 9 C-15747-295   | Rotor Assy.                          | 1    |
|          | 10 E-119538     | Bracket - Bearing (Gear End)         | 1    |
|          | 11 BB-17-27     | Ball Bearing - Fafnir #205 KDD       | 1    |
|          | 12 SL-3-10      | Loading Spring - N. D. #62           | 1    |
|          | 13 C-120864     | Baffle - Air                         | 1    |
|          | 14 SC-9-70      | Mach. Screw - #6-32 x 1/4" Rd. Hd.   | 3    |



WIRING DIAGRAM