

**FAIRBANKS-MORSE**

*Axial  
Air-Gap*



**HORIZONTAL  
VERTICAL**

*Ball Bearing*  
**SQUIRREL CAGE  
INDUCTION MOTORS**

**MARCH 1956**

# AXIAL AIR GAP

Alternating Current, Squirrel Cage Induction,  
Ball Bearing, Vertical and Horizontal

## MOTORS

Type: QZA and QZAE  
Type: QZAC and QZACU

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## GENERAL

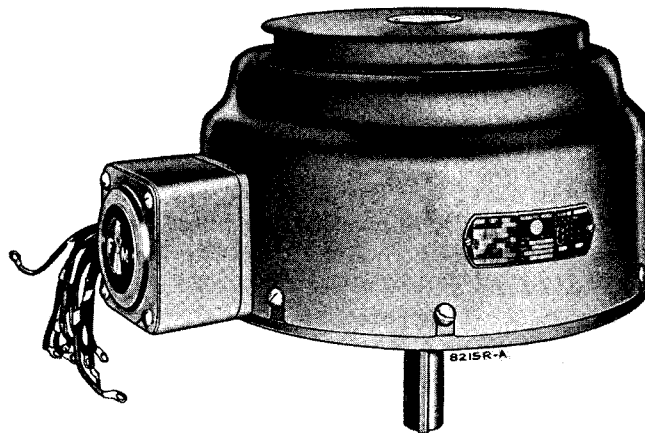
## Introduction

Your Fairbanks-Morse motor is designed to give maximum life and trouble free service. To obtain the fullest benefit of this service life, it will be necessary to give the machine reasonable care and maintenance.

For best maintenance results, it is suggested that the customer set up a regular maintenance schedule and keep accurate records of the checks and repair work preformed.

A study of this manual will give the customer a good guide as to the type of care and maintenance his Fairbanks-Morse motor requires.

Refer to the contents page for rapid location of information desired.



Illus. 1. Axial Air Gap Motor Adapted to Vertical Shaft Installation

All Fairbanks-Morse electrical equipment is manufactured, inspected and tested in accordance with rigid standards designed to insure top motor performance.

## Name Plate

The name plate covers all the data required for complete and accurate identification of the unit. When writing to the manufacturer concerning a particular electrical unit, submit the complete name plate data. This information may be submitted to the nearest Branch House.

## Description - Type QZA and QZAE

Axial air gap motors are alternating current squirrelcage induction motors. The motor rotor is supported by a heavy duty double row thrust ballbearing and a deep groove single row guide ball bearing. Open motors are self-

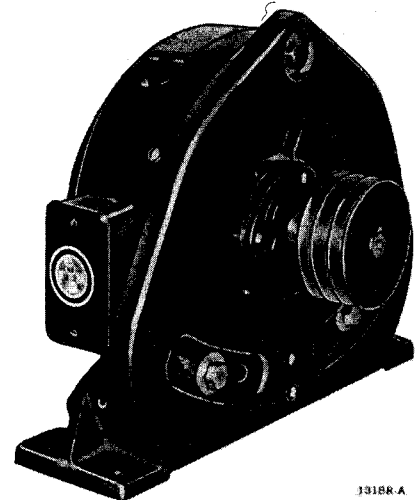


Illus. 2. Axial Air Gap Motor Adapted to Horizontal Shaft Installation

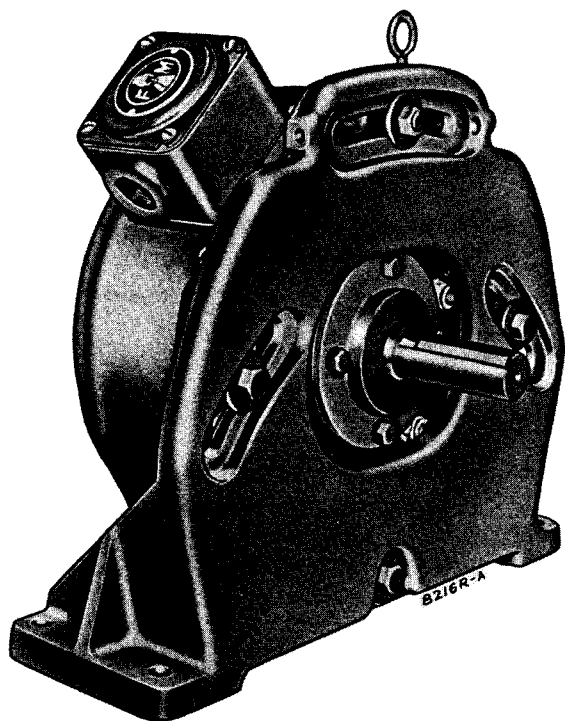
ventilated, drawing air in at the rotor end and discharging air at the periphery of the base. The motor fans are cast integral with the rotor spider. Totally enclosed, non-ventilated motors have covers with no vent openings, otherwise the construction is the same as open motors.

In Frame 3555, the rotor and stator cores are bolted to the rotor spider and stator frame respectively. This is accomplished by providing tapped holes in the cores.

In Frames L4060-L60105 and 4060-65117, the rotor and stator cores are welded to the



Illus. 3. Axial Air Gap Motor with Pivot Base for Belted Service, Frames 4060-65117



Illus. 4. Axial Air Gap Motor with Pivot Base for Belted Service, Frame 70130

rotor spider and stator frame respectively.

In Frame 70130, the rotor core is welded to the rotor spider and the stator core is bolted to the stator frame. This is accomplished by welding special studs to the stator core.

The motors are constructed so that they may be mounted in practically any position and on the driven equipment.

#### Description - Type QZAC and QZACU

The totally enclosed, fan cooled, axial air gap motors differ in construction from other axial air gap motors mainly in the enclosing housing. Rather than having a sheet steel cover, the motor is enclosed with a cast iron coil guard and coil guard ring. The ring encircles the rotor making a running, close clearance fit between the outer end ring and the enclosing housing. On the coil guard is fastened a cover which can be offered with two types of cover caps, one for horizontal operation and the other for vertical operation. The conduit box is also made of cast iron. As with other axial air gap motors, the ribs on the rotor spider serve as fans, taking air in at the center and exhausting it around the base; only in this case, the air does not pass directly over the stator winding but over the ribbed coil guard, thus keeping the motor winding completely isolated from the outside atmosphere. Totally enclosed fan cooled motors are built in frames 4570 through 70130.

#### Unpacking

The machine should be unpacked and carefully inspected for damage or for the presence of foreign material in the machine. If the crate or wrapping is damaged when the unit is received, unpack the machine in the presence of a claim adjuster. Report any apparent breakage or injury to the carrier.

#### Storage

When machines are received they should be put in a dry, clean place, especially when put in storage and not used immediately. If a machine is stored for any length of time, finished parts should be inspected periodically and greased to prevent rusting. If the machine is not dry, it should be properly dried out before storage. See Drying Out the Motor.

### INSTALLATION

#### Mounting

All axial air gap motors are suitable for either vertical, horizontal or pivot base mounting, after minor modifications are made. For installations where a belt drive is required, the pivot base illustrated in Illus. 3 and 4 is recommended since the base is designed to provide belt tension adjustment.

Axial air gap motors have a mounting fit on the outside diameter of the stator frame that is concentric with the shaft. The face of the mounting flange is square with the shaft. This design feature facilitates mounting the motor on a machine or base, and assures a true running pulley pinion or coupling.

The mounting holes are located in the stator frame, therefore, it will be necessary to remove the cover to gain access to them.

#### Pulley, Pinion or Coupling

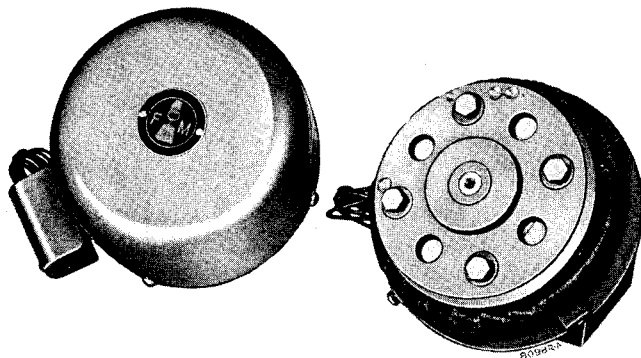
The pulley, pinion or coupling should be located as close to the bearing as possible and should not be driven on or off the shaft as this is injurious to the bearings. If a tight fit on the shaft is required, it is advisable to employ a shrink fit to avoid pounding on the shaft. By heating the drive member in oil at 150° F. to 200° F., it will have expanded sufficiently to slide it onto the shaft.

When removing a tight pulley, pinion or coupling, always use a suitable puller.

For QZAC and QZACU Motors

**CAUTION:** Do not press nor drive couplings

or sheaves on the shaft unless the cover is removed and the shaft backed up. The bearing retaining ring is sufficiently rigid to maintain the air gap under normal operating conditions but cannot withstand the pressure or driving force applied in pressing on a tight fitting coupling if required to support this force alone.



Illus. 5. Frame 3555 Motor with or without Cover

#### Alignment

The motor shaft should be carefully aligned when directly coupled to the driven equipment. Make certain that the coupling halves are both concentric and parallel.

Misalignment can cause undue bearing wear and possible breakdown.

#### WIRING

All motor and control wiring should be carefully installed in accordance with the National Electric Code and any starting devices should be grounded.

Instructions for wiring and installation of starting device are furnished with that equipment.

#### Single Speed Motors

To reverse the rotation of any three phase motor, interchange any two line leads. To reverse the rotation of any two phase interchange the line leads to one phase.

**BE SURE THE MOTOR IS CONNECTED FOR THE PROPER VOLTAGE. SEE DIAGRAM ON MOTOR NAME PLATE.**

#### Multi-Speed Motors

Connect motor leads in accordance with diagram on motor name plate, together with diagram furnished with control device for proper installation and wiring.

#### Protective Devices

Starting fuses should be approximately two and one-half times the ampere rating of the motor.

The running fuses, thermal heater elements, or overload relay settings, should be rated or set for at least 1.25 and not over 1.5 times the full-load ampere rating of the motor. (See name plate for proper ampere rating.) It is very important to use only properly rated protective devices for overload protection. When all phases are not properly protected, there is the possibility of the motor operating single phase until it burns out.

#### Conduit Box

On frame 3555, the conduit box is integral with the cover and the leads are brought from the motor thru a hole into the conduit box. They are protected where they pass thru the sheet metal cover by a rubber gromet.

On frames L4060-L60105 and 4060-65117, a pressed steel conduit box is fastened to a separate mounting bracket with a nipple and locknut permitting removal of the one piece sheet steel cover without disconnecting the motor leads. In assembling the conduit box to the bracket, the head of the nipple is placed inside the bracket, the locknut and bushing are then put inside the conduit box.

On frame 70130, the conduit box is cast iron rather than pressed steel and is attached to the stator frame so that the sheet steel cover may be removed without disconnecting the motor leads.

The conduit boxes on all frame sizes, except 3555, may be assembled on the motor to permit entry of the leads from any one of four directions.

#### OPERATION

##### Before Starting

- (1) Be sure that the machine is dry, particularly on the first start and after the machine has stood idle for some time.
- (2) Check the voltage stamped on the name plate to be sure that it corresponds with the line voltage.
- (3) Check all connections to the motor and control with the wiring diagrams.
- (4) See if the rotor turns freely.
- (5) See that all drain and fill plugs or caps are in place and tight.
- (6) See that the bearings are properly lubricated. (See lubrication.)

(7) Make a visual inspection to see that no foreign material has entered the motor.

### Starting

Before putting the motor into service, it is desirable to run it without load long enough to determine that the wiring is correct and the motor has no undue heating.

If the motor starts slowly, either the voltage may be low or the motor may be overloaded.

If the motor hums, but does not start, or slows down under load, it may be due to low voltage or an open circuit. An open circuit may be a blown fuse, or a burned or poor contact in starting device.

An open circuited line may be located by checking the voltage on the line side of the motor terminals with a voltmeter or test light, the motor being disconnected. Do this with the starting device on both the "Start Position" and "Run Position." If one line is dead in either position, it would indicate either a blown fuse or burned contact in that line.

### Heating

Do not depend upon the hand to determine the temperature of a motor. Motors are rated on the basis of degrees Centigrade rise above the temperature of the surrounding air. This temperature rise is stamped on the motor name plate. If the temperature rise exceeds this value or becomes excessively high, take the temperature of the motor and surrounding air and if possible, a reading of voltage, amperes and kilowatt input to motor. Submit this data to the nearest branch office.

Any sudden rising of temperature will warrant on immediate shutdown and examination of the machine. Slow but steady rise in temperature levels should also be investigated.

The motor temperature can be taken by taping thermometers to the motor windings.

For convenience, the Fahrenheit - Centigrade conversion formulae are given here.

$$\begin{aligned}\text{Degrees Centigrade} &= 5/9 \times (F^{\circ} - 32) \\ \text{Degrees Fahrenheit} &= 9/5 \times C^{\circ} + 32\end{aligned}$$

## MAINTENANCE

### Cleaning

It is most important that accumulations of oil, water, dirt, and dust are not permitted to cover the machine, enter it, or block ventilation. Remove any such accumulations from the machine and surrounding operating area.

Wipe the exterior of the machine to keep it

clean. When necessary, use a suitable solvent to remove dirt accumulations from the machine surface.

Electrical machines should be protected from and kept free of acids, alkalies, chemical compounds and gas fumes that may cause insulation deterioration.

### Clean Windings

Accumulations of any foreign materials should be kept off the windings. Failure to keep the windings clean may result in short circuits, grounding of insulated surfaces, and in increased temperature rise.

The frequency of cleaning windings will have to be determined by operating conditions. However, it is a good policy to clean the windings at least once a year. Greasy or oily deposits may be wiped off with a lint free cloth dipped in a suitable solvent. Take care not to leave solvent deposits on the windings. Light accumulations of non-conductive dust may be removed by compressed air. Use a pressure range of 40 to 60 psi. Do not blow directly into the windings. When dirt and dust accumulations are heavy or of a highly conductive nature, it is best to use an especially built vacuum cleaner to clean the machine. Follow the cleaner instructions carefully.

### Varnishing

At the yearly cleaning time, it is a good policy to revarnish and bake the windings.

The windings should be checked on a regular schedule, based on operating duty and conditions, for deterioration. Any weak spots may be revarnished with a good grade of quick drying varnish.

Always use topgrade material for varnishing windings.

### Clean Bearings

The bearing and all the related parts must be clean and completely free of foreign material. Place the bearing and related parts in a wire basket and suspend the basket in a suitable solvent. The length of time that the parts are left in the basket depends on the amount of dirt and oxidation. Unless the bearing is nearly clean, it is best to soak the parts overnight. The washed parts can be wiped clean with a lint free cloth in most cases. However, a fiber or nylon whiskbroom or bottle brush is best to clean hard to get at areas. **DO NOT USE A WIRE BRUSH!** On finished surfaces, the wire will scratch. And more important, wire bristles can get into the bearing and cause breakdown.

It is advisable to clean a new bearing at the time of installation. This will insure against foreign material being lodged in the bearing and causing breakdown.

### Solvents

When the parts of a motor need cleaning, use a suitable petroleum solvent such as kerosene, petroleum spirits or Stoddard solvent. Care must be taken to utilize solvents in accordance with the solvent manufacturer's instructions. Protection in accordance with local laws regarding fire hazards must be provided. Gasolines containing lead compounds should not be used because of their toxic nature. Light petroleum solvents may be more effective but must be free of corrosive action and must be followed up with flushing oil.

### Drying Out the Motor

All electrical machinery should be kept dry. If it is exposed to excessive moisture, in any form, the machine should be thoroughly dried out before it is placed in service. Machines that are in continuous operation will stay warm enough to prevent moisture condensation, even in a very steamy room. Machines that stand idle for long periods of time or that operate intermittently under damp conditions or that operate intermittently in cold areas and in areas of wide temperature range subject to moisture condensation should be checked carefully and dried when necessary.

A good way to dry out a machine is to apply low D-C voltage to the winding. A convenient source of power for this is to use a direct current welding set. Alternating current, from a welding transformer, can be used. Install an ammeter in the line and do not exceed the rated amperage of the motor.

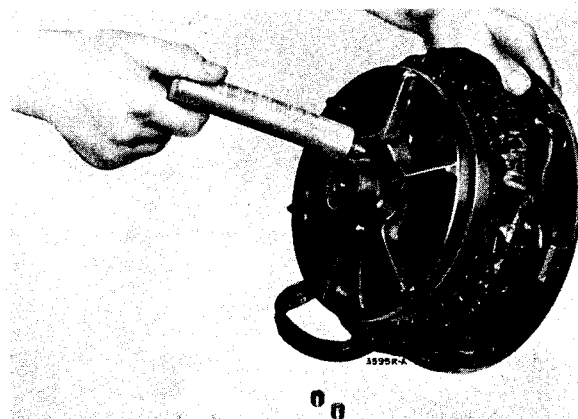
In order to determine the temperature of the windings at all times, it is the general practice to place centigrade thermometers at convenient locations on the windings to be dried out. At no time should the temperature reading on these thermometers exceed a reading of 75° C.

The machine may be dried with external heat under a canvas cover. Be sure that the covering is well vented.

In drying out machines, it is common practice to use a megger instrument and take readings of the insulation resistance in megohms at periods of one-half or one hour. It is practically impossible to state for how long a period of time this drying out process should be carried out. It will vary widely with the amount of moisture in the machine and with the physical size of the machine involved. The best method

of determining the effectiveness of the drying out process is by plotting a curve of megger readings with the insulation resistance in megohms as ordinate and time as abscissa. Such a curve will start out when the machine is cold at some certain value and as the drying out process continues will gradually increase until they become a fairly constant value. When these values from hour to hour give practically the same readings, it is safe to assume that the machine is dry.

**CAUTION:** Take precautions against fire when drying insulation. Be sure that all connections are tight and of adequate strength. Keep inflammable materials away. Keep a CO<sub>2</sub> type fire extinguisher on hand at all times.



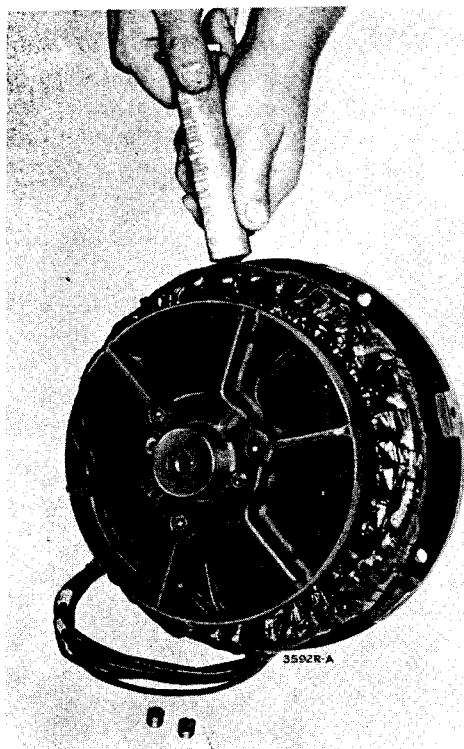
Illus. 6. Method of Lubricating Rotor Bearing, Both Plugs Removed, Old Grease Being Forced Out

### Lubrication

Frame 3555 motors are lubricated for life at the factory without provision for relubrication. The rotor bearing is of the sealed prelubricated type and is a press fit on the stator hub. No inner closure is used. The stator bearing is a shielded bearing and is adequately lubricated at the factory.

When the bearings are opened or removed, regreasing will be necessary on reassembly. Pack the bearings and fill the housing 1/2 full.

All other frame size bearings should be greased at regular intervals. The main purpose of grease is to protect the highly finished bearing surfaces and to provide an oil film between surfaces to reduce friction. It is important to use a chemically neutral grease made from pure paraffin mineral oils and **FREE FROM GRAPHITE**. All motors are shipped from the factory with Fairbanks-Morse FMCO Universal Operating Temperature grease in the



Illus. 7. Method of Lubricating Stator Bearing. Plugs Removed from Both Lubrication Fittings

bearings unless otherwise ordered.

Fairbanks-Morse grease meets the above specification and is made especially for anti-friction bearings. Fairbanks-Morse grease is available in convenient size tubes for all sizes of bearings. Fairbanks-Morse grease specification FMCO<sub>2</sub> Hi-Temp<sub>2</sub> will operate satisfactorily from -20° F. to 260° F. When ordering

grease tubes, give motor frame size.

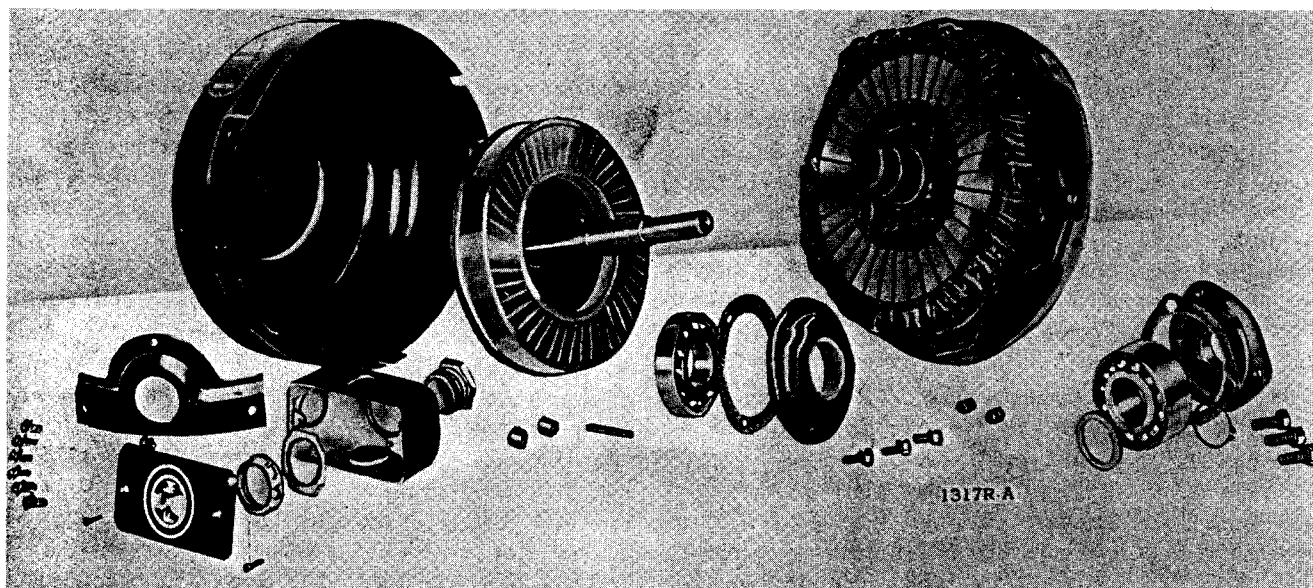
When to lubricate a motor depends on the length of time a motor is operated and the type of installation. As they leave the factory, motors are supplied with sufficient grease in the bearings for one year's service, based on an eight (8) hour day, for most applications.

When greasing a bearing, it is recommended that the bearing and bearing housing be filled approximately 1/2 full. Care should be taken to avoid over-greasing the bearing. Heating of the bearings is usually caused by too much instead of too little grease. A careful inspection of the bearing should be made to determine heating trouble before more grease is added. **EXTREME CARE MUST BE TAKEN TO SEE THAT NO DIRT BE ALLOWED TO GET INTO THE BEARING AT ANY TIME.** Before removing the plugs to add grease, the area surrounding the grease parts should be wiped clean. The bearings should not be pressure lubricated unless a pressure relief plug is used. The motor should be run before plugs are replaced to allow excess grease to run out.

As shown in Illus. 6, the free end bearing is lubricated thru either of two holes provided in the rotor spider. Similarly, the pulley end bearing is provided with two pipe connections to facilitate lubrication. When greasing, both plugs should be removed so that the new grease can force the old grease out.

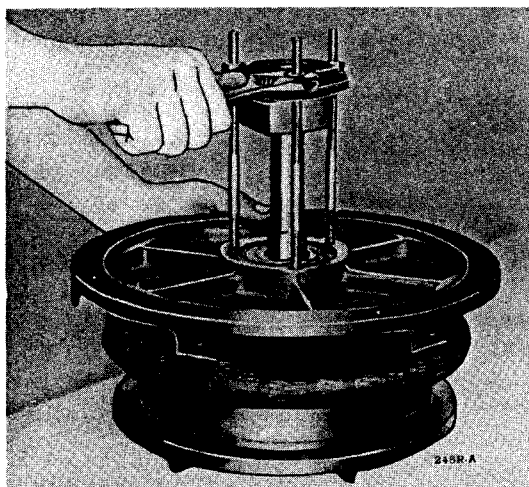
It is recommended that the bearings be flushed out occasionally and new grease added. For the correct flushing solvent, see the section on solvents.

To flush out a bearing, proceed as follows: remove one of the pipe plugs, pour in a small amount of flushing liquid, run the motor a few



Illus. 8. Axial Air Gap Motor, Disassembled





Illus. 9. Removing the Stator Bearing, Puller Consisting of Bearing Closure, Flat Plate and Through Bolts

minutes to circulate the solvent, then drain by removing both plugs. Repeat this process until all the old grease and flushing liquid are removed, so that the new grease will not become diluted.

#### DISASSEMBLY AND REASSEMBLY

##### General

When possible, all repair work should be performed in a clean work area. Regardless of location or working conditions, clean the outside of the machine thoroughly. Always take every precaution to keep dirt or any foreign material away from the bearings, windings, or any part of the unit subject to damage. To clean parts, refer to "Cleaning" for the proper methods and correct solvent. Be sure that all parts are properly cleaned before they are reassembled.

Refer to Illus. 8 and to the cross-sectional views in the renewal parts section to become familiar with the machine parts.

##### Gaskets

Never reassemble motor parts without gaskets if gaskets were used in the original assembly. New replacements should be used for gaskets that have been damaged to the extent of impairing their sealing ability.

##### Motor Disassembly

The following steps apply to frame sizes L4060-L60105 and 4060-65117.

Step No. 1 - Remove the cover.

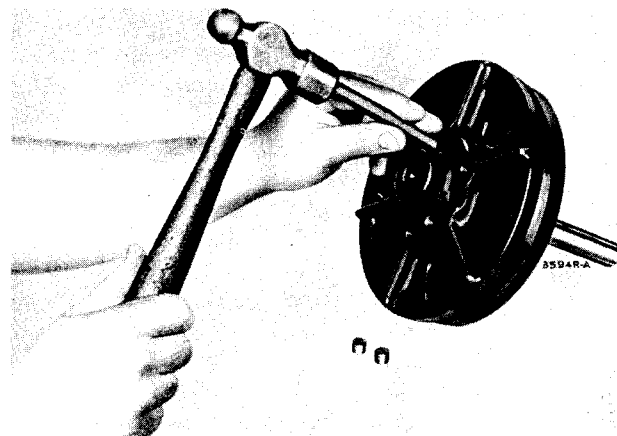
Step No. 2 - Remove the capscrews or nuts which hold the motor to the machine or base, lift off the motor, then proceed to remove the pulley, pinion or coupling as explained under "INSTALLATION."

Step No. 3 - Remove the pulley end bearing closure (Pc. S6A) and closure gasket (Pc. S7).

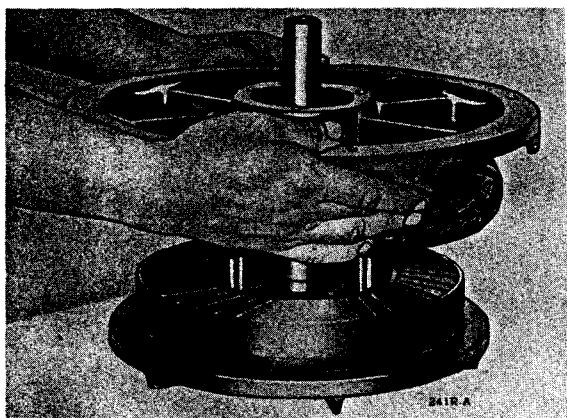
Step No. 4 - Remove bearing retaining ring.

Step No. 5 - By setting up the special bearing puller as shown and turning the screw, the rotor and shaft can be pressed free of the stator frame and bearing. When this is done, the pulley end bearing and the shaft collar can be taken out of the stator by hand. The bearing puller can be furnished on special order. See Illus. 9.

Step No. 6 - After having completed step 1 thru 5, the free end bearing can be removed. First, remove the inner closure (Pc. H4A) and gasket by taking out the closure capscrews. Before removing this bearing closure, scribe a mark on the closure and the spider so that it can be reassembled in the same position and thus will not destroy the balance. Then, remove the pipe plugs from the two holes in the motor spider (Pc. C1) thru which the bearing is lubricated. By carefully inserting drift pins into the holes, and tapping on the outer race of the bearing, it can be driven out of the rotor spider. See Illus. 10.



Illus. 10. Driving the Free End Bearing Out of the Rotor Assembly



Illus. 11. Assembling the Stator and Rotor After the Rotor Bearing is in Place

Step No. 7 - If it should be necessary to press the shaft out of the rotor spider, the pin which locks the shaft in position must be driven out first. Upon reassembly, the shaft must be drilled after it is pressed in, and dowel fitted securely.

The disassembly of frame 3555 is the same as frames 4060-65117 except for Steps No. 6 and 7. On this frame size, the rotor bearing is pressed onto the stator hub and stays on the hub on disassembly. If it is necessary to remove the bearing from the hub, pull it off. No rotor pin is used in frame 3555.

The disassembly of frame 70130 is the same as frames 4060-65117 except for Step No. 4. On this step, it will be necessary to remove the bearing nut and lockwasher.

#### Motor Reassembly

The following steps apply to frame sizes L4060-L60105 and 4060-65117.

Step No. 1 - Press the free end bearing into the rotor spider, replace gasket and inner closure in the same position it was when the motor was dismantled, and tighten the closure capscrews.

Step No. 2 - Carefully lower the stator assembly (without the stator bearing) onto the rotor shaft as shown in Illus. 11.

Step No. 3 - Place the shaft collar (Pc. B9) over the end of the shaft and into the stator frame. It is important that the collar be properly installed

since it controls the air gap and limits the end play.

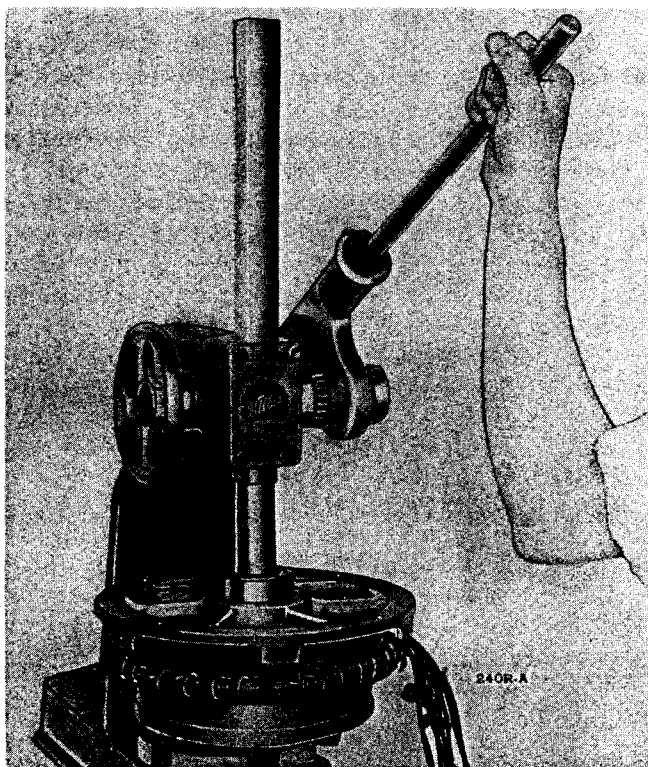
Step No. 4 - Press the bearing onto the shaft as shown in Illus. 12. Assemble bearing with ball loading notches facing out. Use a sleeve or section of pipe which will engage evenly all around on the inner race of the bearing, and apply pressure.

Step No. 5 - Replace bearing retaining ring.

Step No. 6 - Replace the closure gasket, outer closure, and tighten the capscrews. It is extremely important to use only the proper gasket and that the capscrews be kept tight at all times since these factors also control the air gap.

Step No. 7 - Replace the pulley, pinion or coupling on the shaft as recommended under "INSTALLATION," place in position on base or driven machine, and tighten the mounting nuts or capscrews as the case may be.

Step No. 8 - Before replacing the cover, check both bearings to see that they are



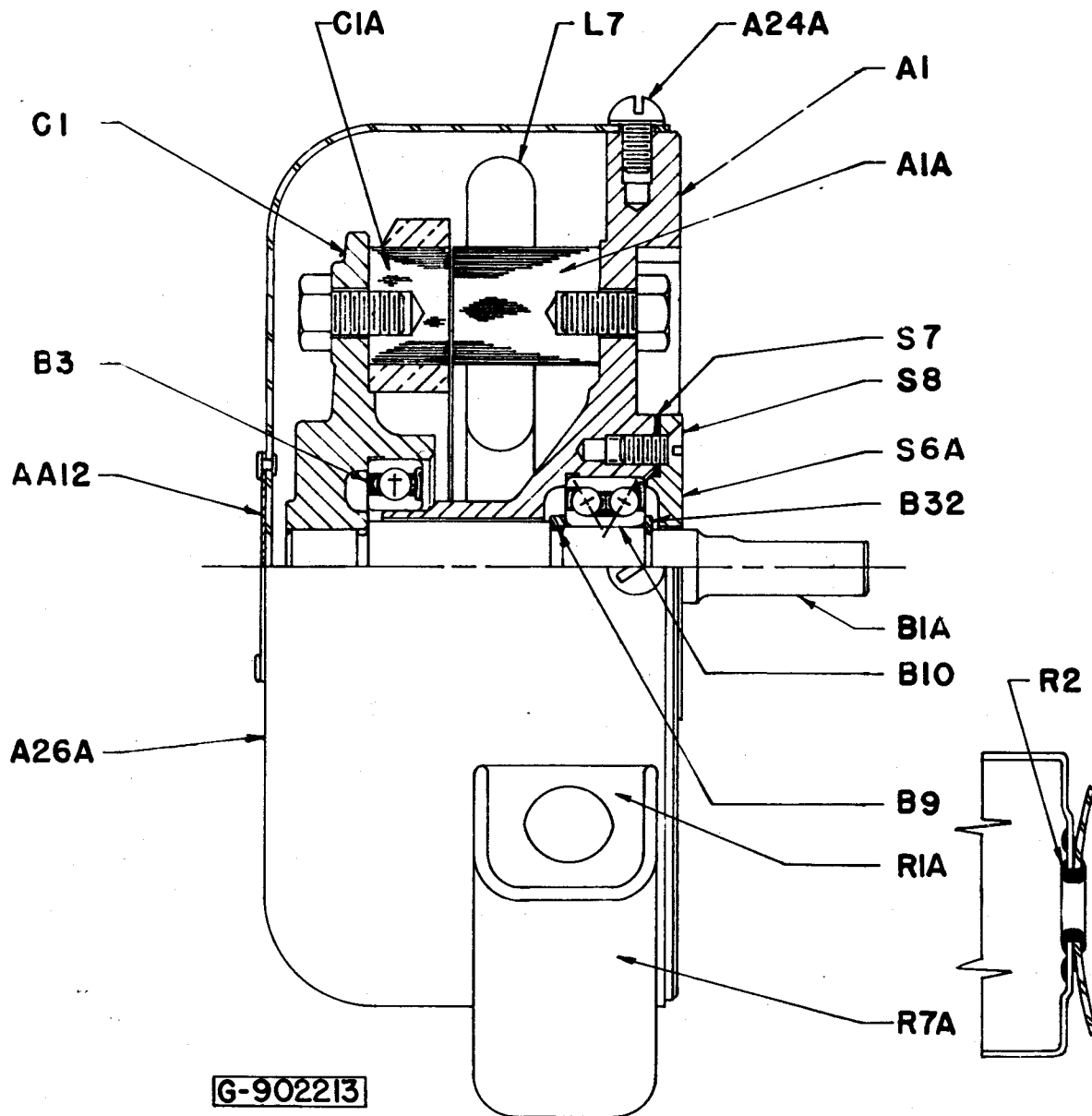
Illus. 12. Pressing the Stator Bearing into the Stator. Hollow Sleeve on Shaft Engages the Inner Race of the Bearing

properly lubricated. Prescribed method of greasing can be found under "Lubrication."

The reassembly of frame 3555 is the same as frames 4060-65117 except for Step No. 1.

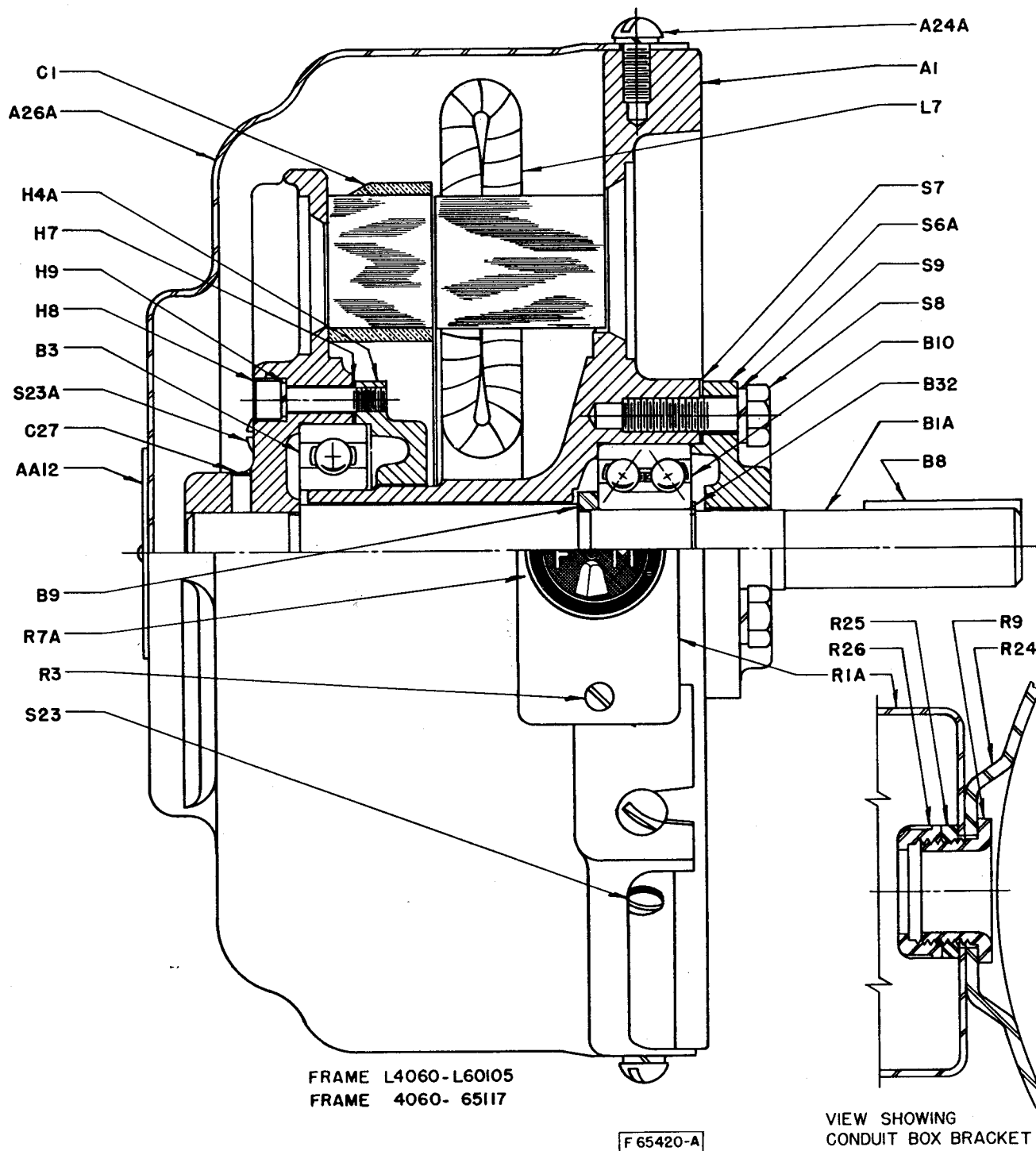
If removed, press the free end bearing onto the stator hub.

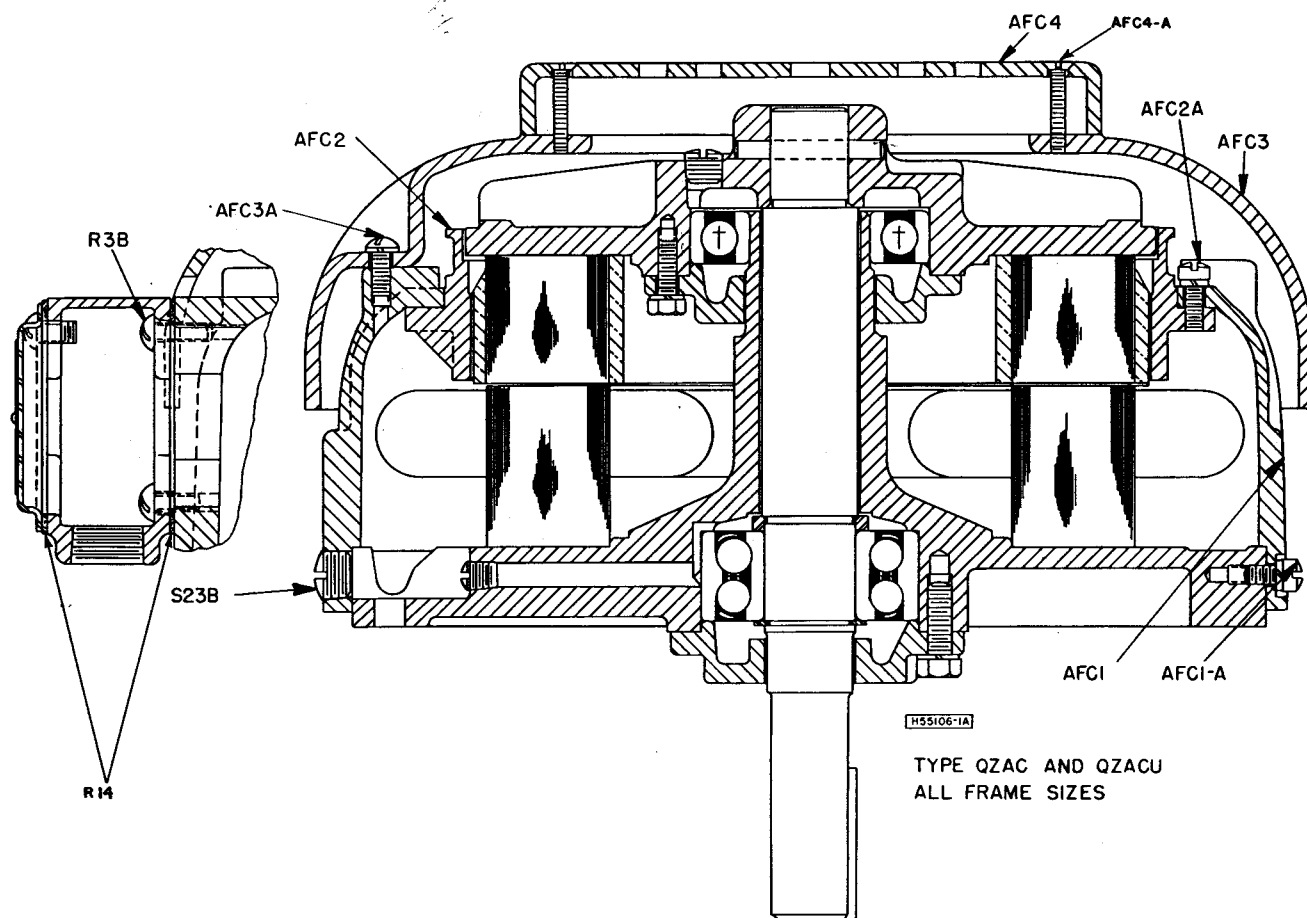
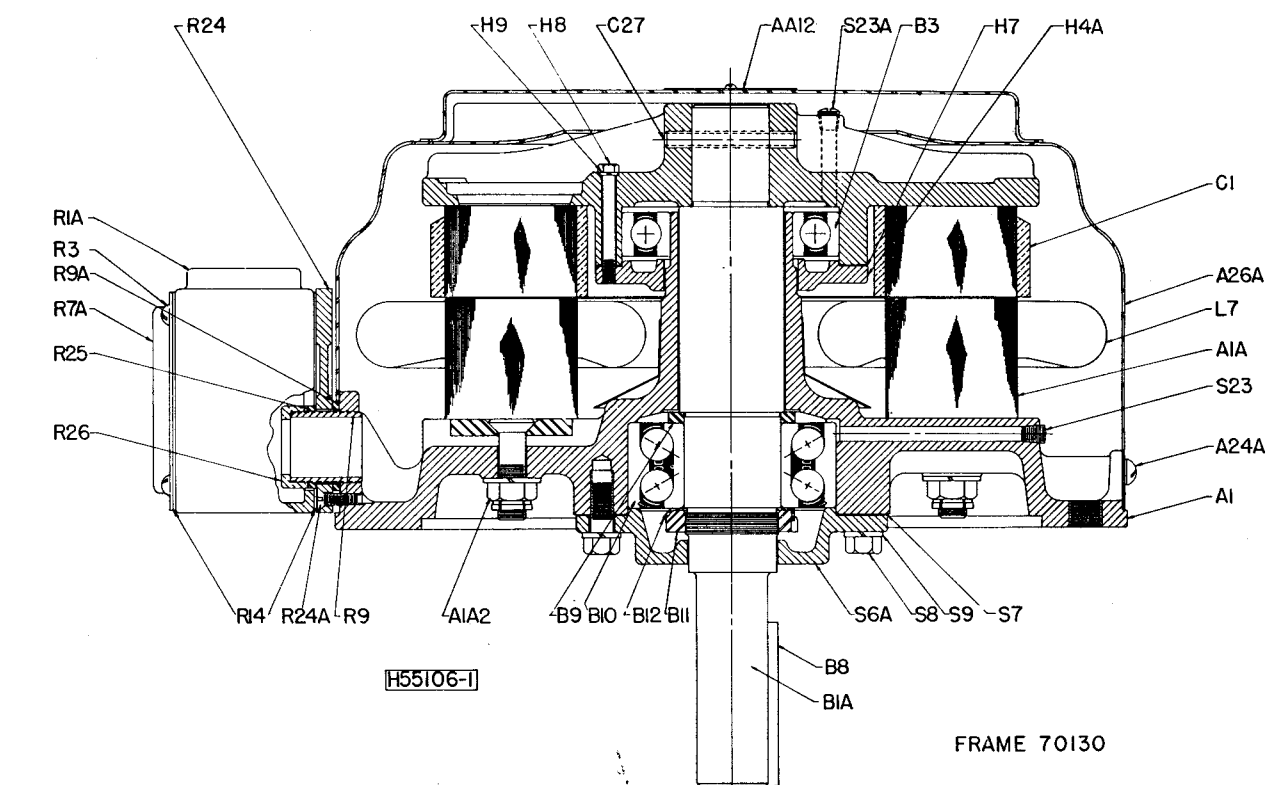
The reassembly of frame 70130 is the same as frames 4060-65117 except for Step No. 5. On this step, it will be necessary to replace the bearing lockwasher and nut.



SECTION VIEW OF COND. BOX

FRAME 3555





## RENEWAL PARTS

To facilitate and expedite the furnishing of service parts, it is important that both the machine which is being serviced and the part required, be properly identified. Therefore, when requesting information, always specify the serial number of the motor and, if available, complete name-plate data. When ordering service parts, give the information listed above along with the "RENEWAL NUMBER" and the "NAME OF PART" as listed.

Items classified as store stock (capscrews, eyebolts, nuts, pins, pipe, pipe couplings, pipe elbows, pipe plugs, pipe tees, rivets, screws, setscrews, washers, lockwashers and Woodruff keys) are not shown or listed by renewal part numbers. When such stock items are ordered, give name and size (capscrew - 1/2-13x1).

FRAME A = 3555, FRAME B = L4060-L60105 and 4060-65117, FRAME C = 70130

## TYPE QZA and QZAE

Renewal Part No.	Name of Part	Frame A	Frame B	Frame C
A1	Stator Frame - includes: Stator Frame and Stator Core Welded or Bolted Together. Furnished with Complete Set of Coils, Winding, Slot Insulation and Wedges, Inserted and Connected.	x	x	x
A1A2	Core Nut			x
A12	Name Plate (Data) - Not Shown	x	x	x
AA12	Trade-mark Plate	x	x	x
A24A	Conduit Bracket and Cover Screws and Lockwashers	x	x	x
A26A	Sheet Metal Cover	x	x	x
B1A	Shaft	x	x	x
B3	Rotor or Free End Bearing	x	x	x
B8	Pulley Key		x	x
B9	Shaft Collar	x	x	x
B10	Stator or Drive End Bearing	x	x	x
B11	Stator Bearing Lockwasher			x
B12	Stator Bearing Locknut			x
B32	Stator Bearing Retaining Ring	x	x	
C1	Rotor Assembly - Always includes: Rotor Spider, Rotor Shaft and Laminations, Copperspun and Welded or Bolted Together	x	x	x
C27	Rotor Pin		x	x
H4A	Rotor Bearing Closure		x	x
H7	Rotor Bearing Closure Gasket		x	x
H8	Rotor Bearing Closure Capscrew		x	x
H9	Rotor Bearing Closure Lockwasher		x	x
L7	Set of Coils	x	x	x
N20	Angle Pivot Base		x	x
N21	Angle Pivot Base Capscrews		x	x
N22	Angle Pivot Base Washer		x	x
N23	Angle Pivot Base Lockwasher (N Items are not Shown)		x	x

Renewal Part No.	Name of Part	Frame A	Frame B	Frame C
R1A	Conduit Box		x	x
R2	Rubber Grommet	x		
R3	Conduit Box Cover Screws		x	x
R7A	Conduit Box Cover	x	x	x
R9	Pipe Nipple		x	x
R9A	Spacing Collar			x
R14	Conduit Box and Cover Gasket			x
R24	Conduit Box Bracket		x	x
R24A	Conduit Box Bracket Flat Head Machine Screw			x
R25	Conduit Locknut		x	x
R26	Conduit Bushing		x	x
S6A	Stator Bearing Closure	x	x	x
S7	Stator Bearing Closure Gasket	x	x	x
S8	Stator Bearing Closure Capscrew	x	x	x
S9	Stator Bearing Closure Lockwasher		x	x
S23	Stator Bearing Lubrication Plugs		x	x
S23A	Rotor Bearing Lubrication Plugs		x	x

## PARTS PECULIAR TO AXIAL AIR GAP TYPE QZAC and QZACU MOTORS

Renewal Part No.	Name of Part
AFC1	Coil Guard
AFC1A	Coil Guard Screw
AFC2	Coil Guard Ring
AFC2A	Coil Guard Ring Screw
AFC3	Cover
AFC3A	Cover Screw
AFC4	Cover Cap
AFC4A	Cover Cap Flat Head Machine Screw
S23B	Slotted Head Pipe Plug
R3B	Conduit Box Screw
R14	Conduit Box and Cover Gasket

NOTE: For all other renewal parts refer to the QZA and QZAE parts list of the same frame size as the motor being serviced.

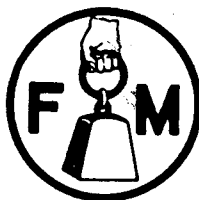
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