TECHNI/TIPS

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Lubrication of Electric Motors

In servicing electric motor bearings, it is important that the right grease be applied in the right quantity. Both underlubrication and overlubrication are harmful. Underlubrication will result in bearing failure through inability of the insufficient amount of lubricant to perform successfully any one of its functions. Excess grease in the path of rotating parts offers high resistance to motion, and overheating and high internal pressure will result. Excessive leakage at bearing seals may occur.

The frequency of regreasing antifriction bearings of electric motors is affected by the following factors:

The quality of the grease used, especially as to its service life. Severity of service, including operating temperatures. Cleanliness of surroundings.
Presence of water.

Continuity of service. This may range from infrequent operation to 24 hour a day operation. Bearing size.
Speed and housing design.

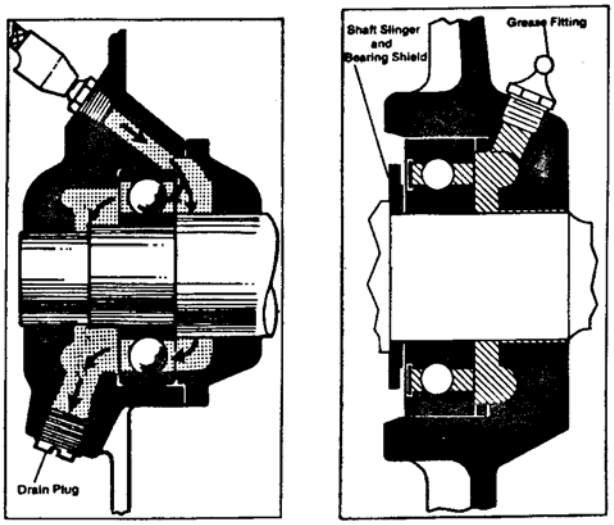
In many applications, motor bearings are greased once a year when routine inspection and maintenance work is done. In general, larger electric motors (greater than 40 hp) should be greased more frequently, such as every six months. On the other hand, small motors operating under non-severe conditions and using high quality grease, may not require regreasing for periods up to several years.
Ideally the following procedures should be followed when regreasing electric motor bearings:

1. Bearing with fitting and relief plug opposite.

A. Stop the motor.
B. Wipe clean the pressure gun fittings and relief plugs on the motor. Wipe clean the tip of the - grease gun.
C. Remove the relief plug to avoid damaging the bearing seals or forcing grease out along the motor shaft.
D. Free the relief hole of any hard grease.
E. Put the gun on the fitting and pump grease into the bearing until fresh grease comes out the hole.
F. Run the motor. The grease will come out of the hole. Continue to run until the pressure is relieved. Thirty minutes will be plenty of time for this to occur.
G. Clean and replace the relief plug.

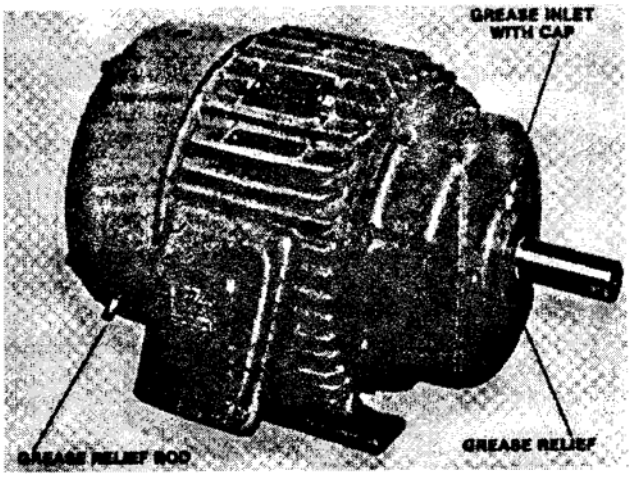
2. Bearing with fitting and no relief plug opposite.

A. Stop the motor.
B. Wipe clean the pressure gun fittings and the fitting on the grease gun. C. Put the gun on the fitting and pump grease into the bearing.
D. Remove the grease fitting.
E. Run the motor to allow the grease to come back out of the hole until pressure is relieved. If no grease comes out of the hole, the bearing was apparently quite dry.
F. Repeat Steps C and D until grease will back out of the hole with the fitting removed and allow pressure to relieve when the motor is running.
G. Clean and replace the grease fitting.



Above Left: Cross section of the shaft and bearing show flow of grease from input fitting through the drain plug, which must be removed during lubrication to allow old grease to be pushed out.

Above Right: Lubrication of bearings not furnished with a drain must be carried out with care to ensure purging of existing grease.



Industrial Motor Indicating Grease Fitting Locations

3. Bearing with relief-type fitting and no relief plug opposite.

A. Stop the motor.
B. Wipe clean the pressure gun fittings and the fitting on the grease gun.
C. Put the gun on the fitting and pump grease into the bearing until the grease comes out of the relief hole.

If after considerable pumping, grease does not come out of the relief hole, the relief slot may be plugged. 1) Remove the grease fitting. 2) Clean out the slot, replacing it with a new fitting if cleaning is not possible. 3) Replace the fitting and repeat Step C.

4. Bearing with single plug only (no fitting).

A. Stop motor.
B. Clean the area around the plug and the grease gun fitting.
C. Remove the plug.
D. Insert a fitting of the proper pipe size that will match the gun.
E. Put the gun on the fitting and pump grease into the bearing, pumping only a slight amount at first.
F. Remove the grease fitting.
G. Run the motor. Allow the grease to come back out of the hole until the pressure is relieved. If no grease comes out of the hole, the bearing was apparently quite dry. Repeat Steps E and F until the grease will back out of the hole with the fitting removed and allow pressure to relieve with the motor running.
H. Replace the plug.

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