

Dodge® mounted bearings: long term storage and shipment

Do you have some old unused bearings laying around and wonder if they are still good? Chances are if they have been laying around for three years or more without regular attention, they might have some problems. Without periodic attention to the bearing through relubrication, rotation, and continuous environmental monitoring the bearing could be headed toward premature failure prior to installation.

Long Term Storage - Grease

The following procedures should be used as a basis for long term anti-friction bearing storage. Refer to Instruction Manuals provided with your bearing for specific handling, installation, and maintenance information.

- (1) Be sure the bearing has been packaged with a corrosion retardant.
- (2) Pack the bearings 100% full with grease. For bearing units inject grease into the bearing cavity while hand turning until fresh grease is seen purging from the seal area. Applications such as conveyor pulleys and fans are frequently shipped to the job sight fully assembled to the shaft. If these units are to be stored for long periods of time they, too, should be packaged 100% full of grease.
- (3) Apply a thick bead of #3 or #4 grease at the junctures of the seal, housing, and shaft.
- (4) Bearings should then be packaged within a plastic sheeting but should not be completely sealed as this can trap moisture.
- (5) Store mounted bearings within an environment resistant to vibration. Heavy vibration around bearings will result in false Brinelling on the bearing raceways.
- (6) Store the mounted bearings in a temperature controlled and dry area. The temperatures should not exceed 150° F maximum, 50°F minimum, and the relative humidity should not exceed 60%.
- (7) Unmounted bearings should be stored flat on their side, not in an upright position as this can allow possible moisture to collect at the bottom of the raceway. Additionally, spherical bearings mounted in the upright position for extended periods of time can cause permanent deformation and out of roundness of the rings.
- (8) Inspect the bearings every three months or less. Check for oxidized or hardened grease, brittle seals, and any possible corrosion in and around the bearing.
- (9) Rotate the bearing regularly and add grease as needed. Shaft mounted ball or roller bearings should be rotated at least once a month in order to re-coat the rolling surfaces with fresh grease.

- (10) Once the bearing is to be placed in operation the excess storage lubricant must be purged. This can be accomplished by running equipment intermittently for five minutes at full speed and then allowing it to sit for 5 minutes. Repeat this procedure until the grease barely purges from the seals.
- (11) Make sure the bearing has been lubricated per instruction manual directions. After start-up, monitor the bearing operating temperatures, noise, and/or vibration. Excessive heating, noise, and/or vibration may indicate lubrication contamination, oxidation, corrosion, false Brinelling, or other problems within the system.

The main cause for problems in bearing storage are caused by lubricant breakdown surrounding the bearing. The standard life for long term bearing storage is about 5 years. Normally, this is due to the standard life of normal lubricant and corrosion inhibitors. Depending on the environmental factors grease will eventually oxidize, harden, and become "cakey." At this point it is virtually impossible to save the bearing. Without proper lubrication the bearing will corrode, rust, develop moisture stains, and the seals will become brittle and will be unable to function properly. In order to sustain sufficient bearing life it is imperative to relubricate regularly regardless of operation or storage.

Long Term Storage - Oil

The following procedures should be used as a basis for long term anti-friction bearing storage for mounted bearings with oil lubrication. Refer to Instruction Manuals provided with your bearing for specific handling, installation, and maintenance information.

- (1) Fill the pillow block assembly to a level just below the sealing surface of the bottom most seal diameter with a volatile corrosion inhibitor lubricating oil. Mount the cap to the base of the pillow block.
- (2) Rotate the bearing several full turns within the housing. Not only will this completely coat the entire bearing but it will release corrosion inhibiting vapors which will coat all of the exposed interior surfaces of the pillow block.
- (3) Seal all vents and other openings to the pillow block such as the seals. This will keep the housing air tight and will trap the corrosion inhibiting vapors within the block.
- (4) Rotate the shaft every two to six months a minimum of ten revolutions. This will re-coat the bearing with the oil and will re-release the corrosion inhibiting vapors. After rotation, reseal all vents.
- (5) Once the bearing is to be placed into operation, the pillow block needs to be drained of all volatile corrosion inhibiting lubricating oil and replaced with the recommended lubricating oil for the application.

Shipment

The preparation of anti-friction bearings for shipment is very important in that heavy shock loads can create false brinelling of the rolling elements. The following procedures should be used as a means to prevent mechanical damage to anti-friction bearings subject to weight or assembly loads of 100 lbs or more during transit.

- (1) Follow procedures 1 - 3 from the “Long Term Storage - Grease” section.

Regardless of individual shipment or assembly shipment, the bearing / bearing assembly needs to act as a single unit. This can be done by the following recommendations which will remove the internal clearance of the bearing and present some minor preloading.

(A) Individual Bearing

- (2a) Immobilize the inner ring of the bearing relative to the housing. This can be done by strapping metal banding around the outer diameter of the ring or collar to a skid placed below the housing. The same objective can be accomplished by strapping the metal band through the bore to the skid.

(B) Assembly Shipment

- (2b) Immobilize the shaft relative to the housing by strapping the shaft to the skid that the assembly is mounted on. Another option is to wedge the shaft up against the bearings. The shipment of vertical shaft assemblies is not recommended.