

Instruction Manual

DODGE® Special Duty Bearings

6-1/2" to 8" Bore

These instructions must be read thoroughly before installation or operation.

INSTALLATION INSTRUCTIONS

WARNING: To ensure that drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Failure to observe these precautions could result in bodily injury.

1. Shaft should be within commercial tolerances, straight, smooth and clean. Apply a light coating of oil or other rust inhibitor to the shaft in the bearing area. If this is a new installation, mount the non-expansion bearing first.
2. Loosen lockscrews in adapter nuts to prevent damage to threads on adapter.
3. Slide bearing on shaft; if necessary to expand adapter, loosen adapter nut at small end of adapter (end with instruction plate on inner housing) and tap on end of this nut. Locate bearing where wanted.
4. Do not bolt outer housing to support until bearing is tightened on shaft.
5. Block up shaft to remove weight from bearing.
6. Loosen (turn counter-clockwise 2 or 3 turns) adapter nut at large end of adapter to provide clearance between this nut and the bearing cone. Some clearance at this point is necessary and should be maintained during the tightening operating, Steps 7 and 8.
7. Tighten (turn clockwise) adapter nut at small end of adapter (end with instruction plate on inner housing), loosening other adapter nut as required to maintain clearance per Step 6. When considerable effort is required to turn adapter nut, use sledge and brass bar as shown in illustrations. Keep tightening nut with barring rod or spanner wrench while hitting on brass bar.
The adapter nut is nearly tight when a solid sound or ring, such as made by hitting directly on the end of a solid shaft, develops in the adapter nut. If possible, tighten more by hitting on the barring rod or spanner wrench and the brass bar simultaneously.
8. If possible line up one lockscrew hole in adapter nut with a slot in end of adapter. If adapter nut can no longer be tightened, do not back off to line up with slot in adapter. Tighten lockscrew onto shaft or onto adapter.
9. Tighten (turn clockwise) adapter nut at large end of adapter until it is snug against end of bearing cone. Tighten lockscrew in this nut onto shaft or onto adapter.
10. Check hold-down bolts in outer housing to see they are loose and free (If too tight an excessive thrust load could be imposed on bearing.) If bolts are very tight it may be advisable to loosen adapter to move slightly on shaft.

WARNING: Because of the possible danger to person(s) or property from accidents which may result from the improper use of products, it is important that correct procedures be followed: Products must be used in accordance with the engineering information specified in the catalog. Proper installation, maintenance and operation procedures must be observed. The instructions in the instruction manuals must be followed. Inspections should be made as necessary to assure safe operation under prevailing conditions. Proper guards and other suitable safety devices or procedures as may be desirable or as may be specified in safety codes should be provided, and are neither provided by Baldor Electric Company nor are the responsibility of Baldor Electric Company. This unit and its associated equipment must be installed, adjusted and maintained by qualified personnel who are familiar with the construction and operation of all equipment in the system and the potential hazards involved. When risk to persons or property may be involved, a fail safe device must be an integral part of the driven equipment beyond the speed reducer output shaft.

11. Loosen cap bolts in outer housing so unit is free to align in outer housing. Do not remove shims between cap and base of outer housing. If bearing is of the expansion type, inner unit should be located in the center of the outer housing so unit can move "freely in either direction. Tighten hold-down bolts. Retighten cap bolts.
12. After a short run make sure adapter is tight: loosen lock screws; loosen hold-down bolts; perform steps 5 to 11 inclusive.

TO REMOVE BEARING FROM SHAFT

1. Loosen lock screws in both adapter nuts and loosen hold-down bolts. Block up shaft to remove weight from bearing.
2. Loosen (turn counter-clockwise) adapter nut at small end of adapter.
3. Tighten Adapter Nut at large end of adapter. Use sledge and brass bar as shown in illustrations to break bearing cone loose on adapter, thus allowing adapter to loosen on shaft.

REPLACING A UNIT IN A PILLOW BLOCK WITH A NEW UNIT

1. Match mark cap and base of each outer housing before removing cap.
2. Fit each unit to its outer housing before putting on shaft.
3. Add or remove shims between cap and base as required to obtain "snug" fit of unit in outer housing with cap bolts drawn down securely. See Table 1 for tightening torques
4. Check fit by prying against lubrication stud in unit through the lubrication hole in housing cap with a screw driver or small pinch bar depending upon the size of the pillow blocks.
5. The "snug" fit becomes a matter of judgment. A "loose or sloppy" fit may allow a unit mount to move in its outer housing thus wearing the mating surfaces. Too "tight" a fit will not allow the unit to move and compensate for misalignment and for shaft deflection caused by belt pull and dead weight.
6. When reassembling pillow blocks make sure match marks (Step 1) on caps and bases match.
7. Loosen hold-down bolts on outer housings when tightening units on shaft. If units were removed from outer housings after being fitted to outer housings and then units were tightened on shaft, the hold-down bolts on outer housings should be loosened before placing the assembly of units and shaft in the outer housings. With the units tightened on the shaft the hold-down bolts on the outer housings should be loose in bolt holes before tightening nuts on hold-down bolts. If the bolts are tight in bolt holes, a unit should be moved slightly on shaft to provide looseness. This will help prevent preloading or inducing an initial thrust on bearings.

Notice:

When installing the bearing, it is very important that the split tapered adapter (bearing sleeve) be drawn down on the shaft as tight as possible. Use one of the following illustrated methods to overcome friction between the tapered adapter and the taper bored bearing cone and between the threads of the adapter and the adapter nut. The sudden jar developed by the sledge and brass bar (while the tightening force is being applied to the adapter nut) helps to overcome the friction, allowing the nut to be tightened to a greater degree than otherwise possible.



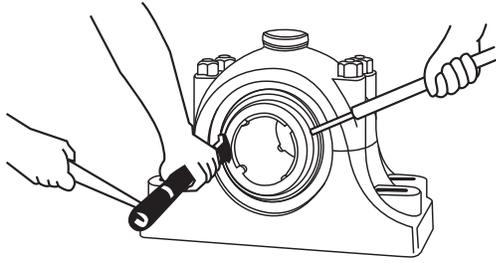


Figure 1 - Preferred Method -

Hitting directly on face of adapter nut with brass bar parallel to shaft, while applying torque with barring rod to tighten nut. ★▲

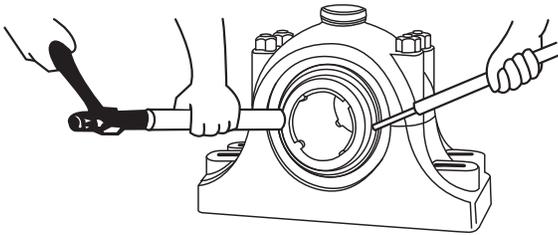


Figure 2 -

Hitting on nut at an angle where unable to hit at right angle to face. This method is not as effective as the method shown in Figure 1. ★▲

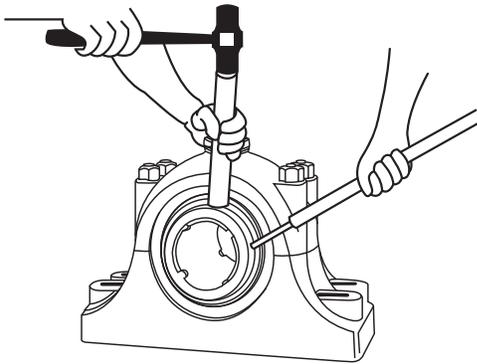


Figure 3 -

Hitting on O.D. of nut with brass bar held at right angle to shaft. This method is not as effective as the methods shown in Figures 1 or 2. ★▲

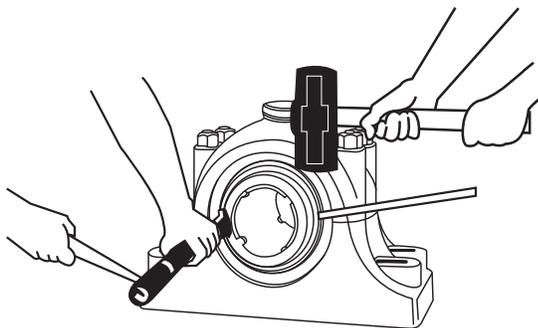


Figure 4 -

This is an alternate method to those shown in Figures 1, 2, and 3 in that a spanner wrench is used in place of the barring rod. ★■

- ★ Brass bar should not be less than 2" diameter.
- ▲ A 12" length of drill rod which is 1/64" less in diameter than the barring pockets is recommended for use as barring rod. Pipe should be used as shown for additional leverage.
- Pin in spanner wrench should be 1/64" less in diameter than the barring pockets.

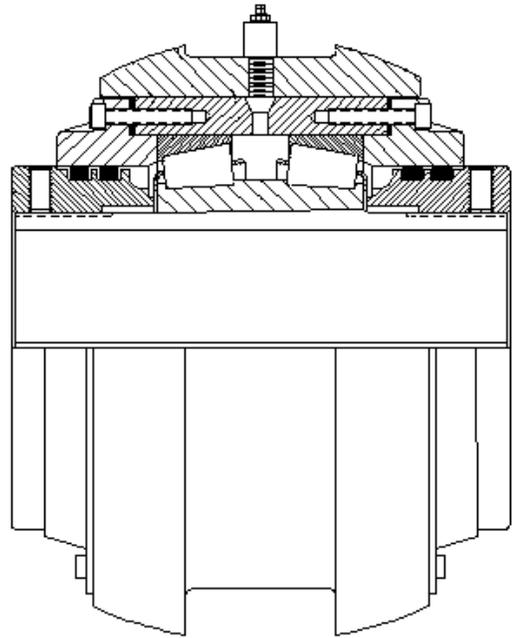


Figure 5 - Expansion Type

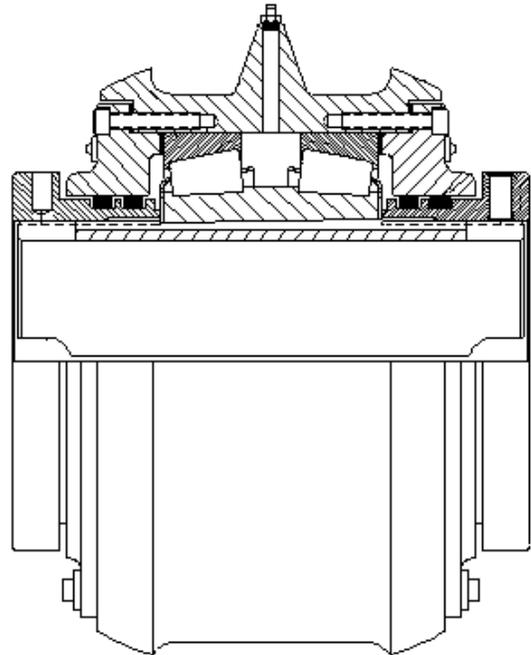


Figure 6 - Non-Expansion Type

Table 1 – Recommended Cap Bolt Torques

Shaft Size	Torque
6-1/2" - 7"	1100 ft-lbs
7-15/16" - 8"	1900 ft-lbs

LUBRICATION INSTRUCTIONS

Special Operating Conditions—Refer acid, chemical extreme or other special operating conditions to Baldor Electric Company, Dodge Bearing Engineering, Greenville, SC at 864-284-5700.

Storage or Special Shutdown—If exposed to wet or dusty conditions or to corrosive vapors, extra protection is necessary: Add grease until it shows at the seals; rotate the bearing to distribute grease; cover the bearing. After storage or idle period, add fresh grease before running.

High Speed Operation—In the higher speed ranges too much grease will cause overheating. The amount of grease that the bearing will take for a particular high speed application can only be determined by experience—see “Operating Temperature.” If excess grease in the bearing causes overheating, it will be necessary to remove grease fitting (also drain plug when furnished) to permit excess grease to escape. The bearing has been greased at the factory and is ready to run. When establishing a relubrication schedule, note that a small amount of grease at frequent intervals is preferable to a large amount at infrequent intervals.

Operation in Presence of Dust, Water or Corrosive Vapors— Under these conditions the bearing should contain as much grease as speed will permit, since a full bearing with consequent slight leakage is the best protection against entrance of foreign material. In the higher speed ranges too much grease will cause overheating—see “High Speed Operation” above. In the lower speed ranges it is advisable to add extra grease to a new bearing before putting into operation. Bearings should be greased as often as necessary (daily if required) to maintain a slight leakage of the seals.

Normal Operation—This bearing has been greased at the factory and is ready to run. Table 2 is a general guide for relubrication. However, certain conditions may require a change of lubricating periods as dictated by experience. See “High Speed Operation” and “Operation in Presence of Dust, Water or Corrosive Vapors” above.

Table 2 - Lubrication Guide

Suggested Lubrication in Weeks			
Hours Run per Day	1 to 250 RPM	251 to 500 RPM	501 to 750 RPM
8	12	12	10
16	12	7	5
24	10	5	2

Operating Temperature—Abnormal bearing temperature may indicate faulty lubrication. Normal temperature may range from “cool to warm to the touch” up to a point “too hot to touch for more than a few seconds,” depending on bearing size and speed, and surrounding conditions. Unusually high temperature accompanied by excessive leakage of grease indicates too much grease. High temperature with no grease showing at the seals, particularly if the bearing seems noisy, usually indicates too little grease. Normal temperature and slight showing of grease at the seals indicate proper lubrication.

Kind of Grease—Many ordinary cup greases will disintegrate at speeds far below those at which DODGE bearings will operate successfully if proper grease is used. DODGE bearings have been lubricated at the factory with an NLGI #2 lithium complex base grease. Relubricate with lithium or lithium complex base grease, or a grease which is compatible with the original lubricant and suitable for roller bearing service. In unusual or doubtful cases the recommendation of a reputable grease manufacturer should be secured.



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