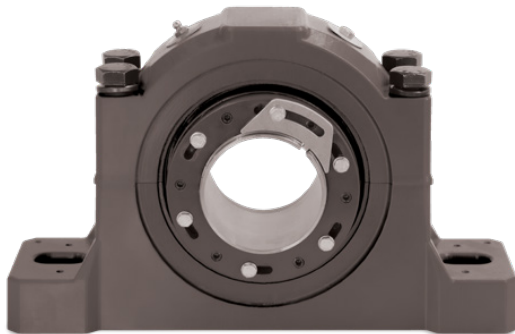


ISAF Safety Mount Bearing 4-15/16" to 7" Instruction Manual

These instructions must be read thoroughly before installation or operation. This instruction manual was accurate at the time of printing. Please see dodgeindustrial.com for updated instruction manuals.

WARNING: To ensure the 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.

WARNING: All products over 25 kg (55 lbs) are noted on the shipping package. Proper lifting practices are required for these products.



REQUIRED TOOLS

- 3/8" rod (fits in hole drilled into the OD of the external nut)
- Marker or grease pen
- Impact hex drive socket
- 1/2" drive ratchet
- Dead blow mallet
- Torque wrench

INSPECTION

Inspect shaft to ensure it is smooth, straight, clean, and within commercial tolerances.

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 Dodge® nor are the responsibility of Dodge. 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 holding device must be an integral part of the driven equipment beyond the speed reducer output shaft.

Typical Commercial Shaft Tolerances

| Shaft Size | Plus | Minus |
|----------------------|------|-------|
| Up to 1-1/2" | .000 | .002 |
| Over 1-1/2 to 2-1/2" | .000 | .003 |
| Over 2-1/2 to 4" | .000 | .004 |
| Over 4 to 6" | .000 | .005 |
| Over 6 to 8" | .000 | .006 |
| Over 8 to 9" | .000 | .007 |
| Over 9" | .000 | .008 |

MOUNTING

Install Non-Expansion Bearing First

The locknut assembly is comprised of an external nut and internal nut. The bearing is shipped such that there is a gap between the two nuts. The two nuts must maintain this gap prior to mounting the bearing. The dual nut configuration prior to installation is shown in Figure 1. Note the position of the external nut slots relative to the hex cap bolts.

The socket setscrews located in the external nut are used only to dismount the bearing. Ensure that they are flush with the outer face of the external nut prior to mounting. They should be positioned this way when shipped from the factory, but their position should be verified. If they protrude into the gap between locknuts during installation, the bearing cannot be mounted correctly.

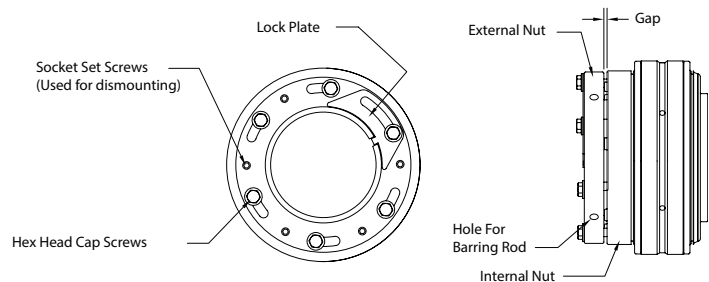


Figure 1 - Bearing with Dual Nut as Shipped with Gap



NOTE: All weight must be removed from the bearing when obtaining the zero reference point.

1. Slide bearing assembly onto the shaft. If the bearing will not slide onto the shaft, rotate the nut assembly counter clockwise until the bearing will freely slide onto the shaft.

NOTE: Ensure socket set screws located in the external locknut are flush with the outer face of the external nut prior to mounting.

2. Slide bearing to the desired position on the shaft.
3. The zero reference point is defined as the point when the clearance between the adapter sleeve, shaft, and bearing bore has been removed. As soon as the zero reference point is reached, the adapter is collapsed around the shaft and you will not be able to move the bearing axially along the shaft.

To reach the zero reference point, rotate the locknut clockwise with both hands to tighten. Holes are drilled into the OD of the external nut to be used with a 3/8" rod to help tighten the nut. Once the adapter cannot be tightened further by hand, firmly push or pull the locknut along the shaft to test if the zero reference point has been reached. If the adapter sleeve is still able to slide or spin on the shaft, strike the OD of the external nut with a dead blow or rubber mallet, then tighten by hand again. Repeat the push/pull test. Continue to alternate tightening and testing the locknut until the adapter no longer slides axially on the shaft. No further tightening is required.

4. **Important: Mark a line across the front and top of the adapter and external nut to be used as a location reference, see Figure 2. This is a critical point and represents the location of the nut assembly before the hex head bolts are tightened.**

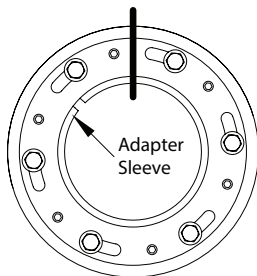


Figure 2 - Mark Face of External Nut and Adapter

5. Loosen but do not remove the hex head bolts. Use 3/8" rod to hold external nut in position when loosening the hex head bolts. While holding the external nut with a 3/8" rod, grasp one of the hex head bolts, and rotate the internal nut counter clockwise to shoulder the hex head bolts as shown in Figure 3. See Figure 4 demonstrating this step. **If the external nut moves during this step, it is imperative to reposition the nut assembly so that the external nut is positioned with the alignment mark made in step 4 before proceeding to the next step. Make sure the spacing stud is visible in the slot as shown in Figure 3, or the nut will not install correctly.**

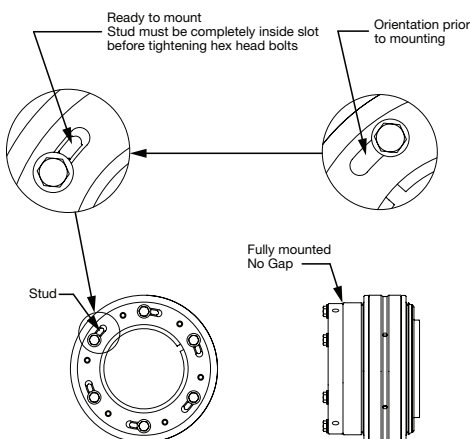


Figure 3 - Nut Rotated and Ready for Installation

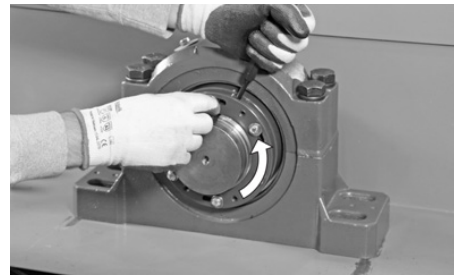


Figure 4 - Holding External Nut and Rotating Internal Nut Using Hex Head Bolt

6. At this point the machined studs used to create the gap have been positioned inside the elongated slots, and the two nuts can be pulled together, which installs the bearing on the shaft. **If the external nut moves during this step, it is imperative to reposition the nut assembly so that the external nut is positioned with the alignment mark made in step 4 before proceeding to the next step.** Gradually tighten the hex head bolts in a star pattern, as shown in Figure 5, until the external nut firmly seats against the internal nut and the gap is completely closed as shown in Figure 3 (not yet full torque).
7. Remove the hex head bolt nearest to the slot in the adapter. A slight gap may appear between the two nuts when the hex head bolt is removed. This is a normal occurrence and the gap will close up when the hex head bolt is reinstalled. Install the lock plate so that the tab fits into the adapter slot. If the lock plate does not line up with the two holes, it can be flipped over to fit as shown in Figure 1. Reinstall the hex head bolt to secure the lock plate. **Using a star pattern, as shown in Figure 5, torque the hex head bolts to the values shown in Table 1.** It is considered a best practice to initially tighten the hex head bolts to 50% of full torque, then tighten again to 100% full torque (using the star pattern both times).

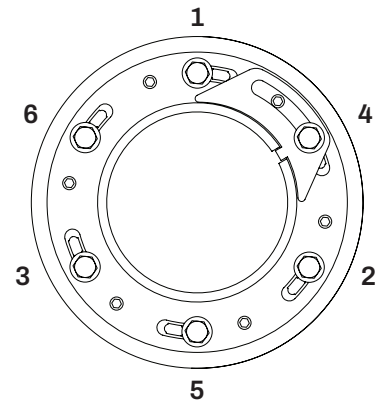


Figure 5 - Correct Installation Star Pattern

Table 1-Installation Hex Head Bolt Size and Torque Ratings

| Shaft Size (inches) | Hex HD Bolt Size & Grade | Torque (max) | | Socket Size (mm) |
|---------------------|--------------------------|--------------|-----|------------------|
| | | ft-lbs | Nm | |
| 4 15/16 – 5 | M10-1.5 X 45, CL 8.8 | 30 | 40 | 17 |
| 5 7/16 – 5 1/2 | M12-1.75 X 45, CL 8.8 | 50 | 65 | 19 |
| 5 15/16 – 6 | M16-2.0 X 45, CL 8.8 | 120 | 165 | 24 |
| 6 7/16 – 7 | M16-2.0 X 50, CL 8.8 | 120 | 165 | 24 |

8. Bolt down pillow block to structure. **NOTE: Bearing will shift axially during installation or drive up of the bearing. Important to position the housing with shoulder bolts away from you (opposite side of the nut) to allow for movement during the mounting process.**

Install Expansion Unit

1. Turn locknut counter clockwise until it will freely slide onto the shaft.
 - a. If the locknut is facing away from the non-expansion bearing: Align housing and snug the mounting bolts. Push the insert as far as possible in the direction of the non-expansion bearing
 - b. If the locknut faces the non-expansion bearing: Align housing and snug the mounting bolts. Position the insert in the middle of the expansion travel. This is necessary because the insert shifts toward the nut during installation.

NOTE: All weight must be removed from the bearing when obtaining the zero reference point.

2. Follow steps 3 through 8 under mounting of the non-expansion bearing.

DISMOUNTING

1. Remove the hold down bolts securing the bearing to the pedestal.
2. Remove weight from bearing with slings or jacks.
3. Loosen the hex head mounting bolts so that a 3/8 inch gap is present between all of the hex head bolts and external nut. Tighten the socket set screws in a star pattern to dismount the bearing. The setscrews drive against the internal nut which pushes the bearing off the adapter. Make sure the hex head mounting bolts are loose during dismounting. If the external nut contacts the hex head mounting bolts, the bearing can no longer be loosened. If the hex head mounting bolts become tight during dismounting, loosen them again to create a gap with the internal nut. Continue to tighten the socket set screws until the bearing fully dismounts and can be freely removed from the shaft. Socket set screws and hex sizes are shown in Table 2.

Table 2–Dismount set screw sizes

| Shaft Size Inches | Socket Set Screw Size | Hey Key Size mm |
|-------------------|-----------------------|-----------------|
| 4 15/16–5 | M10-1.5 | 5 |
| 5 7/16–5 1/2 | M12-1.75 | 6 |
| 5 15/16–6 | M16-2.0 | 8 |
| 6 7/16–7 | M16-2.0 | 8 |

REASSEMBLY AFTER DISMOUNT

To set up the dual nut assembly after dismounting the bearing, follow the steps below.

1. With the bearing still on the shaft, back out socket setscrews until they are flush with the outer face of the external nut.
2. Loosen the hex head mounting bolts and position the external nut so that it is seated on top of the raised tabs, which creates the gap between the external and internal nuts. The external nut should be rotated counter clockwise so that the bolts are shouldered against the side of slot as shown in Figure 6. Thread the hex head bolts into the internal nut through each one of the slots on the external nut about 3 turns.

NOTE: It is important to loosen but not remove the bolts to maintain the relative position of matched locknuts. If they are removed, ensure the marks are aligned to maintain concentricity.

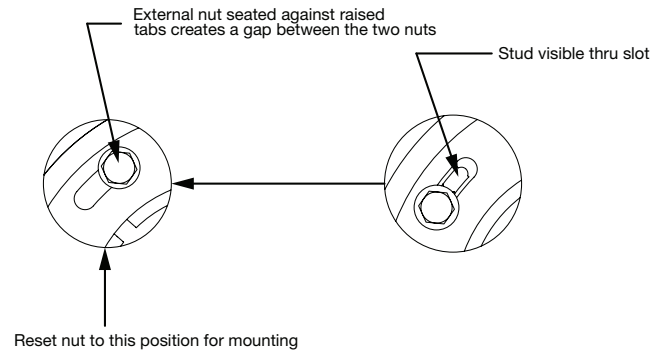


Figure 6 - External Nut Position for Installation

3. Rotate the locknut assembly approximately 3 turns counter-clockwise to expand the adapter to allow mounting on the shaft.

NOTE: Typically 3-4 exposed threads beyond the face of the external nut are visible.
4. Hand tighten each hex head bolt first and then torque the screws to 20-30 ft-lbs using a star pattern to ensure the external and internal locknut move as a set.

FIELD CONVERSION OF A NON-EXPANSION BEARING INTO AN EXPANSION BEARING

ISAF

1. Remove bearing cap.
2. Remove stabilizing ring.
3. Reassemble cap on base and torque cap bolts to 512-640 ft-lbs.

GREASE LUBRICATION

Dodge IP, ISAF, and ISN bearings are pre-packed with NLGI-2 Lithium Complex Grease. For relubrication select a grease that is compatible with a #2 Lithium Complex grease. Relubricate in accordance with Table 3.

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.

Table 3—Relubrication Intervals (Months) Based on 12 hours per day, 150°F

| Shaft Size | | RPM | | | | | | | | |
|------------|-----------------|-----|-----|------|------|------|------|------|------|-------|
| mm | inch | 250 | 500 | 750 | 1000 | 1250 | 1500 | 2000 | 2500 | >3000 |
| 30 - 50 | 1 1/8 - 2 | 4 | 3 | 2 | 2 | 1 | 0.5 | 0.25 | 0.25 | 0.25 |
| 55 | 2 3/16 - 2 1/4 | 3.5 | 2.5 | 1.5 | 1 | 0.5 | 0.5 | 0.25 | 0.25 | 0.25 |
| 60 - 75 | 2 3/8 to 3 | 3 | 2 | 1.5 | 1 | 0.5 | 0.25 | 0.25 | 0.25 | 0.25 |
| 80 - 85 | 3 3/16 - 3 1/2 | 2.5 | 1.5 | 1 | 0.5 | 0.25 | 0.25 | 0.25 | 0.25 | |
| 90 - 110 | 3 11/16 - 4 1/2 | 2 | 1.5 | 1 | 0.5 | 0.25 | 0.25 | 0.25 | | |
| 115 - 135 | 4 15/16 - 5 1/2 | 1.5 | 1 | 0.5 | 0.25 | 0.25 | 0.25 | | | |
| 140 - 150 | 5 15/16 - 6 | 1 | 0.5 | 0.5 | 0.25 | 0.25 | 0.25 | | | |
| 160 - 170 | 6 7/16 - 7 | 1 | 0.5 | 0.25 | 0.25 | 0.25 | | | | |

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