

Grip Tight® Adapter Mount Ball Bearings

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.

SHAFT & MOUNTING SURFACE INSPECTION

Shaft should be smooth, straight and within commercial tolerances (Table 1). Remove burrs and align mounting surfaces within 2 degrees.

Table 1–Shaft Tolerances

Shaft Size (in)	Commercial Shaft Tolerances (in)
Up to 1-1/2"	+0.000" / - 0.002"
1-5/8" to 2-1/2"	+0.000" / - 0.003"
2-11/16" to 3-1/2"	+0.000" / - 0.004"

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.

ASSEMBLE ADAPTER & BEARING

If the locknut is loose from the bearing, **first** place locknut into bearing inner ring groove, **then** insert adapter into bearing bore until it rests against the locknut. Rotate locknut clockwise to engage adapter sleeve.



Figure 1

PILLOW BLOCKS & TAPPED BASE HOUSINGS

NOTE: For Tapped Base (TB) housings, drill mounting holes with 1/16" minimum bolt clearance to assist with proper installation.

1. During installation it is best practice to remove all weight from the bearing via slings or jacks. However, if it is difficult to remove all weight, ensure the dead weight on the bearing during installation does not exceed the values listed in Table 2 below.

Table 2–Maximum Dead Load on Bearing During Installation

Series	Max Dead Load Per Bearing (lbs)
203 - 206	60
207 - 210	65
211 - 214	70
215 - 218	75

2. Slide the unit into position onto the shaft. If the unit will not slip onto the shaft, turn locknut counter-clockwise to expand adapter sleeve.
3. Wearing gloves, rotate locknut clockwise, by hand, as tight as possible until adapter sleeve does not spin on the shaft or move axially. If the locknut has been tightened as far as possible by hand and the assembly still slides or spins on the shaft, then lightly tap on locknut outer diameter while continuing to turn locknut relative to the adapter sleeve by hand. After slight rotation (approximately 1/16 turn) of the

locknut, recheck for adapter sleeve axial slip. Repeat this step as necessary. Scribe a line on the locknut above the adapter sleeve slot.



Figure 2

4. Lock bearing to shaft by rotating locknut, with a spanner wrench or drift & hammer, clockwise by amount shown in Table 3.

NOTE: The use of air chisels is not recommended.

Table 3—Locknut Rotation from Hand-Tight

Series	Shaft Size GT (Normal Duty)	Shaft Size GTM (Medium Duty)	Locknut Rotation
203 - 204	1/2" - 3/4" 17 - 20 mm	--- ---	1/2 Turn
205 - 209	7/8" - 1-3/4" 25 - 45 mm	3/4" - 1-1/2" 20 - 40 mm	2/3 Turn
210 - 218	1-15/16" - 2-15/16" 50 - 75 mm	1-11/16" - 3-1/2" 45 - 85 mm	1 Turn

Center housing and mounting bolts over mounting holes & tighten bolts to proper torque (Table 4). Tighten locknut set screw until Allen (hex) key bends (25 in-lbs for 3/32" in inch nuts, 2.7 N-m for 2.5 mm hex key in metric nuts).

Table 4—Mounting Bolt Torque (in-lbs)

Metal Housings		Non-Metallic Polymer Housing			
All Housing Types		Pillow Block, 2 & 4 Bolt Flange, Flange Bracket		Tapped Base	
Bolt Size (in)	Dry Torque (in lbs)	Bolt Size (in)	Dry Torque (18-8 Stainless) (in lbs)	Bolt Size (in)	Dry Torque (18-8 Stainless) (in lbs)
3/8	240	3/8	225	3/8	175
7/16	384	7/16	350	7/16	350
1/2	600	1/2	500	1/2	400
5/8	1200	9/16	650		
3/4	2100	5/8	1000		
7/8	2040				

5. Repeat steps above for mounting 2nd housing. Do not tighten mounting bolts on 2nd housing until second bearing has been completely locked to the shaft. Bolts must fit freely between housing & mounting surface. If the mounting bolts do not fit freely, loosen mounting bolts on both housings and center both units. If the bolts still do not fit freely, remove one unit from the shaft, reposition housing and reinstall.

ALL FLANGE HOUSINGS

NOTE: Special attention to the installation procedure for flange bearings is necessary to maintain the proper internal clearance & achieve maximum life. The installation of the first flange differs from the installation of the second flange.

1. Follow instructions under Assemble Adapter & Bearing section on page 1.
2. During installation, it is best practice to remove all weight from the bearing via slings or jacks. However, if it is difficult to remove all weight, ensure the dead weight on the bearing during installation does not exceed the values listed in Table 2.
3. Slide the FIRST flange into position onto the shaft. If the bearing will not slip onto the shaft, turn locknut counter clockwise to expand adapter sleeve.
4. Wearing gloves, rotate locknut clockwise by hand, as tight as possible, until adapter sleeve does not spin on the shaft or move axially. If the locknut has been tightened as far as possible by hand and the assembly still slides or spins on the shaft then lightly tap on locknut outer diameter while continuing to turn locknut relative to the adapter sleeve by hand. After slight rotation (approximately 1/16 turn) of the locknut, recheck for adapter sleeve axial slip. Repeat this step as necessary. Scribe a line on the locknut above the adapter sleeve slot.
5. This is the starting point. Scribe a line on the locknut above the adapter sleeve slot. Lock bearing to shaft by rotating locknut, with a spanner wrench or drift & hammer, clockwise by amount shown in Table 3.

NOTE: The use of air chisels is not recommended.

6. Tighten locknut setscrew until 3/32" Allen key bends (25 in-lbs). Tighten housing bolts to proper torque (Table 4).
7. Slide the SECOND flange onto the shaft and hand tighten as in step 4 but leave 1/16" minimum gap between the flange housing & the mounting surface.
8. It is important to note that the 1/16" minimum gap between the flange housing and the mounting surface must be maintained while getting the bearing hand tight to the shaft. Wearing gloves, rotate the locknut clockwise, by hand, until adapter sleeve grips and does not spin or move axially on the shaft.

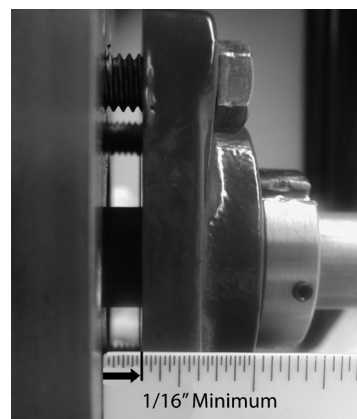


Figure 3

If needed, tap on the locknut outer diameter while turning the locknut to assist with this step. At this point you should have difficulty in rotating the locknut by hand and you should not be able to move the bearing axially along the shaft by hand. If the bearing can be moved axially along the shaft by hand then continue rotating the nut gradually until it grips the shaft. Scribe a line on the locknut above the adapter sleeve slot.

9. Insert housing bolts and pull the housing flush with mounting surface by alternately tightening the bolts to the proper torque (Table 4).
10. Lock bearing to shaft by rotating locknut, with a spanner wrench or drift & hammer, clockwise by amount shown in Table 3. Tighten locknut setscrew until Allen (hex) key bends (25 in-lbs for 3/32" in inch nuts, 2.7 N-m for 2.5 mm hex key in metric nuts).
11. Rotate the shaft by hand, no binding or excessive drag should be felt. If excessive drag is felt, loosen the second bearing and reinstall starting at step 8.

WIDE SLOT AND NARROW SLOT TAKE-UP HOUSINGS

NOTE: Special attention to the installation procedure for WSTU and NSTU bearings is necessary to maintain the proper internal clearance and achieve maximum life. The installation of the first bearing differs from the second bearing.

1. If the locknut is loose from the bearing, FIRST place locknut into bearing inner ring groove, THEN insert adapter into bearing bore until it rests against the locknut. Rotate locknut clockwise to engage adapter sleeve.
2. During installation it is best practice to remove all of the weight from the bearing via slings or jacks. However, if it is difficult to remove all weight then insure the dead weight on the bearing during installation does not exceed the values listed in Table 2.
3. Slide both bearing units into position onto the shaft and into the frame and attach bearings to frame screw. If the bearing will not slip onto the shaft or move axially, turn locknut counter clockwise to expand adapter sleeve.
4. Start with the complete installation of the first bearing. Wearing gloves, rotate locknut clockwise, by hand, as tight as possible until adapter sleeve does not spin on the shaft or move axially. If the locknut has been tightened as far as possible by hand and the assembly still slides or spins on the shaft then lightly tap on locknut outer diameter while continuing to turn locknut relative to the adapter sleeve by hand. After slight rotation (approximately 1/16 turn) of the locknut, recheck for adapter sleeve axial slip. Repeat this step as necessary. Scribe a line on the locknut above the adapter sleeve slot.
5. Lock bearing to shaft by rotating locknut, with a spanner wrench or brass bar & hammer, clockwise by amount shown in Table 3.

NOTE: The use of air chisels is not recommended.

6. Tighten locknut setscrew until Allen (hex) key bends (25 in-lbs for 3/32" in inch nuts, 2.7 N-m for 2.5 mm hex key in metric nuts).
7. Once the first bearing has been installed, insert a shim (outlined in Table 6) between the guide rail and housing slot on the side of the rail CLOSEST to the locknut. To prevent the bearing from being cocked, install a shim at both top and bottom rails, between each TURF rail and TU housing on the locknut side as shown in the figure below. Shim housing until rail and slot are snug against each other.

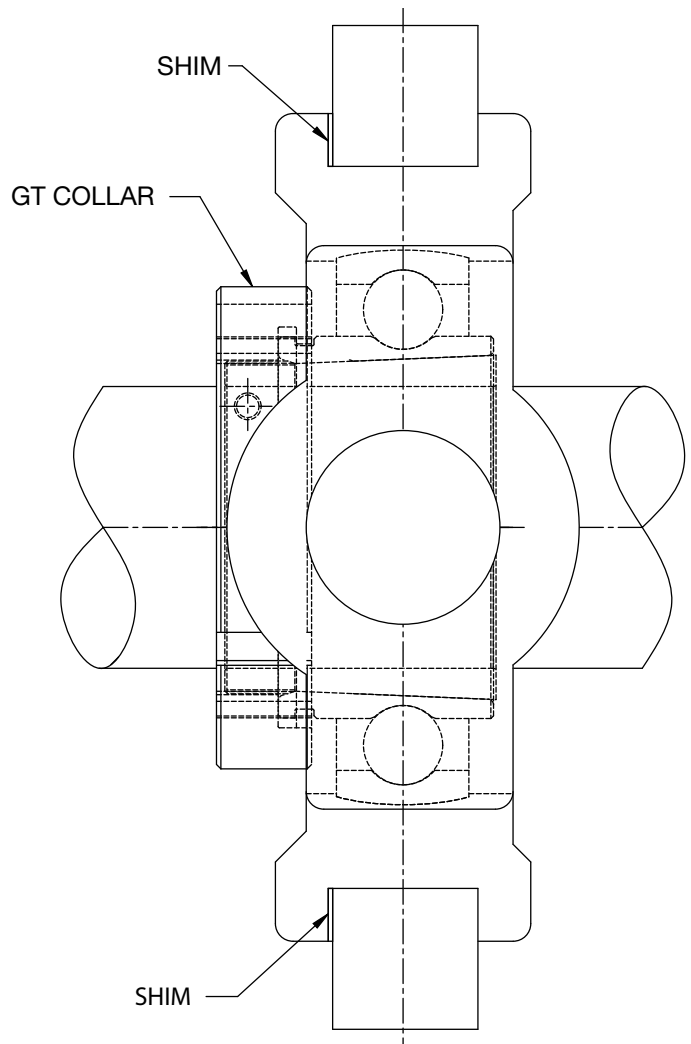


Figure 4

8. Begin the installation of the second TU by inserting a shim between the guide rail and housing slot on the side of the rail CLOSEST to the locknut. Install a shim on both the top and bottom of the TU rails as shown in the figure above. Use the same shim thickness and procedure that was used in step 7. The shims are used to push the bearing housing away from each other so they have room to move up the tapered adapter sleeve during the installation process of the second bearing. By shimming the bearing housing out, the bearings will end up mid-center on the TUFR rail after installation of the second bearing.
9. Wearing gloves, rotate locknut clockwise, by hand, as tight as possible until adapter sleeve does not spin on the shaft or move axially. If the locknut has been tightened as far as possible by hand and the assembly still slides or spins on the shaft then lightly tap on locknut outer diameter while continuing to turn locknut relative to the adapter sleeve by hand. After slight rotation (approx. 1/16 turn) of the locknut, recheck for adapter sleeve axial slip. Repeat this step as necessary. Scribe a line on the locknut above the adapter sleeve slot.
10. Remove the shims from both bearings.
11. Lock second bearing to shaft by rotating locknut with a spanner wrench or drift pin & hammer, clockwise by amount shown in Table 3. Tighten locknut setscrew until 3/32" Allen key bends (25 in-lbs).
12. Rotate the shaft by hand, no binding or excessive drag should be felt. If excessive drag is felt, loosen the second bearing and reinstall starting at step 7.

DISMOUNTING ALL UNITS

1. Remove all weight from the bearing via slings or jacks and secure the shaft from rotation.
2. Loosen the housing mounting bolts and completely remove set screw in the locknut.
3. Rotate locknut counter clockwise with spanner wrench or drift & hammer until bearing is free.

LUBRICATION

This bearing is factory lubricated with a lithium or lithium complex* base grease which is suitable for most applications. However, extra protection is necessary if the bearing is subjected to excessive moisture, dust, corrosive vapor or other harsh environments. In these cases, the bearing should contain as much grease as speed will permit (a full bearing with consequent slight leakage through the seal is the best protection against contaminant entry).

For re-lubrication, select a grease that is compatible with a lithium or lithium complex* grease. The following table is a general guide for normal operating conditions. However, some situations may require a change in lubricating periods as dictated by experience. Generally, a lower quantity of grease at frequent intervals is more effective than a greater quantity at extended lubrication intervals. Lubrication recommendations are intended for standard products applied in general operating conditions. For modified products, high temperature environments and other anomalous applications, contact Product Support in Simpsonville, South Carolina at +1 864 297 4800.

Successful operation is dependent upon adequate lubrication. Precaution should be taken during handling and recycling grease, oil or water glycol mixtures.

NOTE: Dodge E-Z Kleen ball bearing product line is lubricated with an aluminum complex base grease.

Table 5—Suggested Lubrication Intervals in Weeks

Hours Run Per Day	RPM							
	1 to 250	251 to 500	501 to 750	751 to 1000	1001 to 1500	1501 to 2000	2001 to 2500	2500 to Max
8	12	12	10	7	5	4	3	3
16	12	7	5	4	2	2	1	1
24	10	5	3	2	1	1	1	1

Table 6—Approximate Shim Thickness Required

Bearing Type	Shaft Diameter	Shim Thickness
Narrow Slot GT/GTM	All	0.060"
Wide Slot GT	Up to 1-7/16" or 35mm	0.030"
Wide Slot GT	Larger than 1-7/16" or 35mm	0.060"
Wide Slot GTM	Up to 1-1/4" or 30mm	0.030"
Wide Slot GTM	Larger than 1-1/4" or 30mm	0.060"

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