

DODGE® Adapter Mounted DODGE USAF 500/600 Series Pillow Blocks

These instructions must be read thoroughly before installation or operation.

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.

INSPECTION

Inspect shaft to ensure the shaft is smooth, straight, clean and within commercial tolerances. Inspect bearing. Do not allow bearing to be exposed to any dirt or moisture. Do not remove preservative compound as it acts as both a protectant and lubricant and is also compatible with standard greases.

INSTALLATION

WARNING: Threaded eyebolt cap holes in 5"/125 mm and larger pillow blocks are rated for the weight of the cap only. Do not use the cap eyebolt holes to lift the entire pillow block or any auxiliary equipment. Failure to follow this precaution could result in bodily injury.

CAUTION: To ensure proper functioning of V-ring seals, do not reinstall V-ring seals until after the housing cap has been set in place and tightened. Failure to observe this precaution could result in damage to or premature failure of the equipment.

NOTE: Housing caps and bases are not interchangeable; they must be matched with mating half. Install nonexpansion bearing first.



Figure 1 - Internal Clearance

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 risks 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.

1. Apply a coating of light oil or other rust inhibitor to the adapter area of the shaft.
2. Measure the internal clearance of the bearing before mounting. Place the bearing in an upright position as shown in Figure 1. Seat the inner ring and roller elements by pressing down firmly on the inner ring bore while rotating the inner ring a few times. Position the roller assemblies so that a roller is at the topmost position on either side. For bore sizes above 6-1/2", press these top rollers inward ensuring contact with center guide flange. Using a feeler gauge measure the clearance for each side by inserting as far as possible and sliding over top of roller. Write down the measured clearance for use in Step 3e.

NOTE: Do not rotate bearing when moving feeler between roller and outer ring.

NOTE: For seal types other than TRIPLE-TECT such as DROP-IN TRIPLE-TECT, LER, auxiliary seals, and split seals follow the instruction manual supplied with the seals.

3. Install the bearing parts in the following sequence (refer to parts drawing):
 - a. V-ring Seal — Slide one of the V-ring seals onto the shaft, making sure lip is toward the bearing.

NOTE: Do not install V-ring seal on seal ring until housing cap has been set in place and tightened.
 - b. Seal Ring — Install a seal ring on shaft with largest O.D. toward bearing.
 - c. Adapter Sleeve — Slide adapter sleeve onto the shaft, threaded end outboard to the approximate location of the bearing. Apply a coating of light oil to sleeve O.D. Do Not Use Grease.
 - d. Bearing — Make sure that the internal clearance has been written down. Install bearing on adapter sleeve, tapered bore of bearing to match tapered O.D. of adapter sleeve. Locate bearing in proper position on shaft.
 - e. Lockwasher and Locknut — Install the lockwasher (7 1/2" and smaller sizes only) on the adapter sleeve with inner prong located in the slot of the sleeve. Install locknut, chamfered face toward bearing.

Tighten locknut using a spanner wrench and hammer until clearance noted in step 2 is reduced by amount shown in Table 1. During this step shaft should be supported so all weight is off of the bearing.

Find a lockwasher tab that aligns with a locknut slot and bend tab into slot. If slot is past tab then tighten, not loosen, locknut to meet a washer tab. Sizes larger than 7-1/2" require a lockplate bolted to the locknut with the inner prong of the plate located in the slot of the adapter sleeve. If necessary tighten, not loosen, locknut to allow prong to fit in adapter slot. Lock plates for 9" and 10-1/2" must be hand-fitted on the job.



TABLE 1 – Reduction in Internal Clearance

Shaft Diameter	Reduction in Internal Clearance (inches)*
1-7/16 – 1-11/16	.0010/.0012
1-15/16, 2-3/16	.0012/.0015
2-7/16, 2-1/2, 2-11/16, 2-3/4	.0015/.0020
2-15/16, 3, 3-3/16, 3-7/16, 3-1/2	.0018/.0025
3-15/16, 4, 4-3/16	.0020/.0028
4-7/16, 4-1/2, 4-15/16, 5	.0025/.0035
5-3/16, 5-7/16, 5-1/2	.0030/.0040
5-15/16, 6, 6-7/16, 6-1/2	.0030/.0045
6-15/16, 7	.0035/.0050
7-1/2, 7-15/16, 8	.0040/.0055
8-7/16, 8-1/2, 8-15/16, 9	.0045/.0060
9-7/16, 9-1/2, 10, 10-1/2	.0045/.0065

* Amount of clearance to be removed from clearance measured in Step 2.

- f. Seal Ring — Install second seal ring with large O.D. toward locknut.
- g. V-ring Seal — Slide second V-ring seal onto the shaft, making certain lip is toward bearing.
Note: Do not Install V-ring seal on seal ring until housing cap has been set in place and tightened.
- 4. Remove any paint, dirt or burrs from the mating surfaces of the housing halves. Thoroughly clean seal grooves on both sides. Set lower half of housing on base and apply grease to the bearing seats.
- 5. Apply grease to the bearing and seal rings. The lubricant should be smeared between the rolling elements (see Grease Lubrication section).
- 6. Place shaft with bearing into lower half while carefully guiding the seal rings into the housing grooves.
- 7. Bolt lower half of the non-expansion bearing to the base. Move shaft endwise so spacer ring can be inserted as shown on drawing. Center all other bearings on same shaft in their housing seats.
Note: Only one bearing per shaft is non-expansion; other bearings should be expansion. When pillow block is subjected to heavy cap loads, use hardened washers and properly torqued grade 8 bolts to mount block to the structure.
- 8. When closed end is required and the block is not cast closed, the optional end plug should be fit into the center seal ring groove of the housing. Shaft extension should not be beyond adapter to insure no rubbing with end plug or housing on cast closed end.
- 9. On pillow blocks 10" bore and above, a bead of silicone sealant should be applied between the cap and the base.

10. Grease the bearing seal grooves in the housing cap and place over the bearing after wiping the mating surfaces. The two dowel pins will align the cap with the lower housing half.

Note: Each cap must be matched with its mating lower half, as these parts are not interchangeable. Cap and base have serial number stamped at joint. The serial numbers should line up and match.

- 11. Tighten cap bolts to the recommended torque shown in Table 2.
- 12. Assure there is running clearance at seal rings then install V-ring seals on the seal rings.
- 13. Misalignment of pillow blocks must not exceed $\pm 1/2^\circ$.
- 14. Apply a thick coat of grease to any exposed surface of the V-ring seals.

MAINTENANCE

Remove the housing cap in order to inspect bearing grease. Before reassembly it is important the V-ring seals be removed if TRIPLE TECT seal installation tools are not available. If available, do not remove seals and follow cap installation outlined in the seals instruction manual.

GREASE LUBRICATION


USAF bearings are specifically designed for dirty, dusty or wet environments. In order to properly protect bearings during installation, pack the bearing insert 100% full immediately after having properly mounted bearing on the shaft. If the RPM of the application falls between 20% and 80% of maximum RPM (Table 5), pack the lower half of the housing one half full. If the RPM of the application is less than 20% of maximum RPM, pack bearing housing cavity 100% full. If the RPM exceeds 80% of maximum RPM, pack the lower half of the housing 1/3 full.

WARNING: Regreasing requires rotating parts to be exposed. Exercise extreme care during such operations. Failure to follow this precaution could result in bodily injury.

At each regreasing cycle, for applications up to 80% of maximum RPM, slowly add grease until fresh grease is seen purging at the seals. Regreasing should be done while bearing is rotating. Remote regreasing lines should be added to avoid endangering personnel.

If the RPM is greater than 80% of maximum RPM, add 4 strokes of a handgun at each regreasing cycle for bores up to 2". For bores greater than 2" and up to 5" add 8 strokes of handgun at each regreasing cycle. For bores greater than 5" and up to 10-1/2" add 16 strokes of a handgun at each regreasing cycle. For units running above 80% of maximum RPM, running temperature should be monitored. If a drastic change in running temperature is noted, it is recommended to remove used grease and recharge with fresh grease per above instructions.

Table 2 - Recommended Cap Bolt Torque Values (Ft - lbs)

Hsg Series	509	511	515	516	520	526	528	538	544S
	510	513		517	522	622	530	540	544
		610		518	524		532	048	052
		611		613	617		534	632	056
				615	620		536	634	056L
				616			624		638
							626		
							628		
Size	3/8 – 16	7/16 – 14	1/2 – 13	5/8 – 11	3/4 – 10	7/8 – 9	1 – 8	1-1/4 – 7	1-1/2 – 6
Grade 5 	24-30	40-50	60-75	120-150	208-260	344-450	512-640	896-1120	1560-1950
Stainless Steel (316)	16-20	25-30	35-45	75-90	105-130	165-200	240-290	435-540	745-930

Select a grease with a operating temperature viscosity which will provide full film lubrication (Table 3). Use a 50°F-100°F increase in bearing temperature above ambient, depending on RPM and load. Use Table 4 as a general guide for regreasing the bearings. A small amount of grease at frequent intervals is preferable to a large amount of grease at infrequent intervals. For special applications involving high speeds or high temperatures, consult DODGE.

Table: 3 Viscosity of Oil in the Grease

DN Δ	Viscosity for Loads Up to 18% of Dyn. Cap. (SUS @ Oper. Temp.) *	DN Δ	Viscosity for Loads Up to 18% of Dyn. Cap. (SUS @ Oper. Temp.) *
100	3500	1400	625
200	3150	1600	525
300	2750	1800	450
400	2375	2000	400
500	2000	3000	300
600	1750	4000	200
700	1500	5000	150
800	1300	6000	130
900	1075	7000	110
1000	900	8000	100

Δ DN = bore diameter (ins.) x RPM

* For loads above 18% of dynamic capacity an EP grease with the above viscosity is recommended.

**Table 4: Regreasing Intervals (Months)*
(Based on 12 hours per day 150°F Max)**

Shaft Size	RPM								
	250	500	750	1000	1250	1500	2000	2500	3000
1-7/8 thru 1-15/16	8	6	4	3	2	1	.5	.5	.25
2-3/16	7	5	3	2	1	1	.5	.25	.25
2-7/16 thru 3	6	4	3	2	1	.5	.25	.25	
3-3/16 thru 3-1/2	5	3	2	1	.5	.5	.25		
3-15/16 thru 4-1/2	4	3	2	1	.5	.25			
4-15/16 thru 5-1/2	3	2	1	.5	.25				
5-15/16 thru 7	2	1	1	.5					
7-1/2 thru 9-1/2	1	1	.5						
9-15/16 thru 10-1/2	1	.5							

* For continuous operation, 24 hrs./day, decrease greasing interval by 50%. Above 10-1/2" bore, consult DODGE Engineering.

Table 5: Maximum RPM

Shaft Size	500 Series		600 Series	
	Grease	Oil	Grease	Oil
1-7/8	5600	7000	3800	4800
1-11/16	5300	6700	3400	4300
1-15/16	4500	5600	3200	4000
2-3/16	3800	4500	2600	3400
2-7/16, 2-1/2	3400	4300	2200	3000
2-11/16, 2-3/4	3200	4000	2200	3000
2-15/16, 3	3000	3800	2000	2800
3-3/16	2600	3400	-	-
3-7/16, 3-1/2	2200	3000	1700	2200
3-15/16, 4	2000	2800	1500	1900
4-3/16	1900	2400	1400	1800
4-7/16, 4-1/2	1800	2200	1300	1700
4-15/16, 5	1700	2200	1200	1600
5-3/16	1600	2000	1100	1500
5-7/16, 5-1/2	1500	1800	1000	1400
5-16/16, 6	1300	1700	950	1300
6-7/16, 6-1/2	1300	1600	900	1100
6-15/16, 7	1200	1300	850	1100
7-3/16	1100	1200	-	-
7-1/2, 7-15/16, 8	950	1000	-	-
8-7/16, 8-1/2, 8-15/16, 9	950	1000	-	-
9-7/16, 9-1/2	900	950	-	-
9-15/16, 10, 10-7/8, 10-1/2	850	900	-	-

Table 6 - USAF 500 and 600 Series Pillow Blocks - Dowel Pin, Lubrication, and Mounting Hole Positions

Hsg. Series	Brg. Series	AA	BB	CC	GG1	GG2	G. Max Dia.	HH	H		II	JJ1	JJ2	J	
									Hole Size	Bolt Size				Hole Size	Bolt Size
509	22209	1-29/64	27/32	1/4	5-5/16	29/32	15/64	-	-	-	-	6-5/16	1-11/32	7/16	3/8
510	22210	1-17/32	57/64	17/64	5-5/16	29/32	15/64	-	-	-	-	6-5/16	1-11/32	7/16	3/8
511	22211	1-21/32	1	9/32	6-11/16	1-1/16	5/16	-	-	-	-	7-7/8	1-9/16	9/16	1/2
513	22213	1-27/32	1-9/32	11/32	7-1/2	1-1/4	5/16	9-1/16	11/16	5/8	10-1/4	8-21/32	1-7/8	9/16	1/2
515	22215	1-7/8	1-7/32	23/64	7½	1-1/4	5/16	9-1/16	11/16	5/8	10-1/4	8-21/32	1-7/8	9/16	1/2
516	22216	2-1/32	1-3/8	5/16	8-19/32	1-3/8	5/16	10-1/4	13/16	3/4	11-9/16	9-15/16	2-1/16	11/16	5/8
517	22217	2-1/16	1-15/32	13/32	8-19/32	1-3/8	5/16	10-1/4	13/16	3/4	11-9/16	9-15/16	2-1/16	11/16	5/8
518	22218	2-3/8	1-1/2	7/16	9-7/16	1-29/64	5/16	11-13/32	13/16	3/4	12-5/8	11-1/32	2-9/32	11/16	5/8
520	22220	2-11/16	1-23/32	17/32	10-¼	1-39/64	5/16	12-19/32	15/16	7/8	14-23/64	11-13/16	2-19/32	13/16	3/4
522	22222	2-13/16	1-15/16	19/32	11-1/32	1-25/32	15/32	13-25/32	15/16	7/8	15-1/2	12-19/32	2-29/32	13/16	3/4
524	22224	3-1/8	1-29/32	11/16	11-27/64	1-25/32	15/32	13-7/8	15/16	7/8	15-7/8	13	2-29/32	13/16	3/4
526	22226	3-1/4	2-3/32	3/4	12-25/32	2-3/64	15/32	14-31/32	1-1/16	1	17-3/8	14-9/16	3-5/32	15/16	7/8
528	22228	3-31/64	2-17/32	3/4	13-19/32	2-5/32	15/32	16-17/32	1-5/16	1-1/4	18-11/16	15¾	3-5/8	1-1/16	1
530	22230	3-27/32	2-17/32	13/16	14-3/4	2-3/8	15/32	17-23/32	1-5/16	1-1/4	19-1/2	16-15/16	3-15/16	1-1/16	1
532	22232	4-3/32	2-9/16	29/32	15-9/16	2-23/64	15/32	18-1/2	1-5/16	1-1/4	20-9/32	17-23/32	3-15/16	1-1/16	1
534	22234	4-1/8	3	1	-	-	-	20-1/2	1-9/16	1-1/2	23-3/8	-	-	-	-
536	22236	4-5/16	3	1	-	-	-	22-1/4	1-9/16	1-1/2	25-1/4	-	-	-	-
538	22238	4-1/2	3-1/8	1-1/8	-	-	-	23	1-9/16	1-1/2	26-5/8	-	-	-	-
544	22244	5-13/64	3-5/8	1-3/16	-	-	-	26-5/16	1-13/16	1-3/4	30-3/4	-	-	-	-
609	22309K	1-21/32	1	9/32	6-11/16	1-1/16	5/16	-	-	-	-	7-7/8	1-9/16	9/16	1/2
610	22310K	1-27/32	1	11/32	6-49/64	1-1/16	5/16	-	-	-	-	7-7/8	1-9/16	9/16	1/2
611	22311K	1-27/32	1-9/16	11/32	7-1/2	1-1/4	5/16	9-1/16	11/16	5/8	10-1/4	8-21/32	1-7/8	9/16	1/2
613	22313K	2-1/32	1-3/8	5/16	8-19/32	1-3/8	5/16	10-1/4	13/16	3/4	11-19/32	9-15/16	2-1/16	11/16	5/8
615	22315K	2-3/8	1-1/2	7/16	9-7/16	1-29/64	5/16	11-13/32	13/16	3/4	12-5/8	1-11/32	2-9/32	11/16	5/8
616	22316K	2-17/32	1-5/8	17/32	9-7/16	1-29/64	5/16	11-13/32	13/16	3/4	13	1-11/32	2-9/32	11/16	5/8
617	22317K	2-11/16	1-23/32	17/32	10-1/4	1-39/64	5/16	12-19/32	15/16	7/8	14-23/64	11-13/16	2-19/32	13/16	3/4
620	22320K	3-1/8	1-29/32	11/16	11-27/64	1-25/32	15/32	13-7/8	15/16	7/8	15-7/8	13	2-29/32	13/16	3/4
622	22322K	3-1/4	2-3/32	3/4	12-25/32	2-3/64	15/32	14-31/32	1-1/16	1	17-3/8	14-9/16	3-5/32	15/16	7/8
624	22324K	3-27/32	2-17/32	13/16	14-3/4	2-3/8	15/32	17-23/32	1-5/16	1-1/4	19-1/2	16-15/16	3-15/16	1-1/16	1
626	22326K	4-3/32	2-9/16	29/32	15-9/16	2-23/64	15/32	18-1/2	1-5/16	1-1/4	20-9/32	17-23/32	3-15/16	1-1/16	1
628	22328K	4-1/8	3	1	-	-	-	20-1/2	1-9/16	1-1/2	23-3/8	-	-	-	-
630	22330K	4-5/16	3	1	-	-	-	22-1/4	1-9/16	1-1/2	25-1/4	-	-	-	-
632	22332K	4-1/2	3-1/8	1-1/8	-	-	-	23	1-9/16	1-1/2	26-5/8	-	-	-	-
634	22334K	4-55/64	3-7/32	1-1/8	-	-	-	23-3/4	1-9/16	1-1/2	27-1/4	-	-	-	-
638	22338K	5-13/64	3-5/8	1-3/16	-	-	-	26-5/8	1-13/16	1-3/4	30-3/4	-	-	-	-

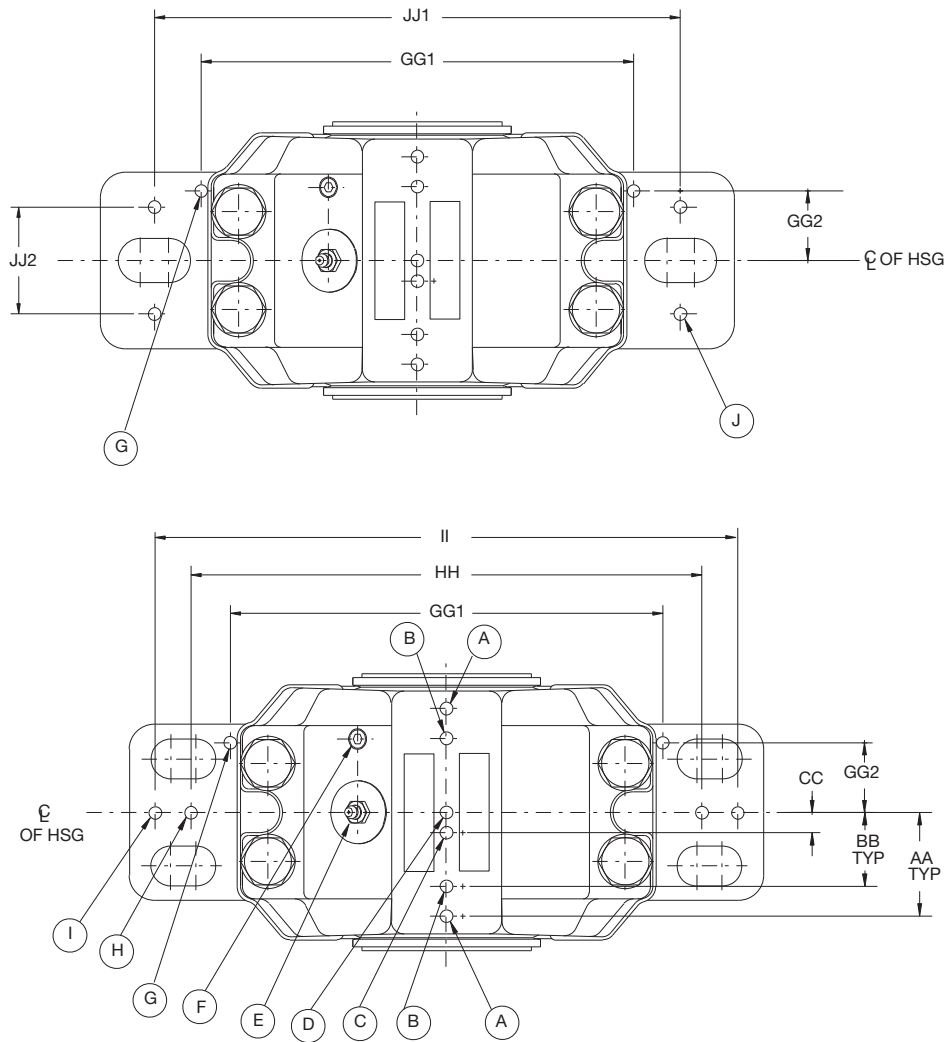


Figure: 1

Table: 7

Item	Description
A	Optional Seal Grease Location
B	Optional Location for Vent, Vibration Pickup and/or Grease Location for Non W33 Grooved Bearing
C	Position for Thermocouple Location
D	Position for Lubrication of Bearing with W33 Groove
E	Lubrication Port for W33 Groove Groove Bearing Drilled Standard on Pillow Blocks
F	Pre-drilled and Tap Location for Vent or Side Lubrication for Bearing without W33 Groove
G	Dowel Pin Location for Metric Plummer Blocks
H	Drilling Location for Two Bolt Mounting or Optional Dowel Pin Location
I	Optional Location for Dowel Pin Location
J	Drilling Location for Four Bolt Mounting or Optional Dowel Pin Location

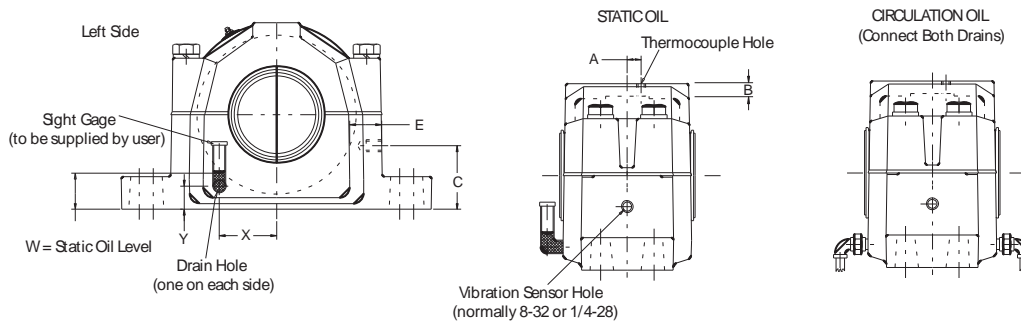


Table 8: USAF 500 and 600 Series Circulating Oil

Shaft Size	Block Size	Circulating Oil Flow		Static Oil Level	Drain Hole, Dry Sump ***			Thermocouple Hole		Vibration Sensor Hole	
		Amount Sufficient for Normal Lubrication	Maximum Amount for Heat Dissipation Due to External Heat		Location		Size NPT	Location	Wall Thck.	Location	Wall Thck.
					Gal./Min.	Gal./Min.					
1-7/16	509	.0025	.07	59/64	1-3/32	5/8	1/8-27	1/4	3/8	1-3/16	15/16
1-11/16	510	.0030	.09	1-5/64	1-1/4	13/16	1/8-27	17/64	19/64	1-49/64	31/32
1-15/16	511	.0040	.10	1-5/32	1-5/16	53/64	1/8-27	9/32	17/32	1-57/64	1-1/8
2-3/16	513	.0050	.15	1-7/64	1-21/32	25/32	1/8-27	11/32	37/64	2-1/64	1-1/8
2-7/16, 2-1/2	515	.0060	.175	1-5/32	1-25/32	7/8	1/4-18	23/84	5/8	2-1/4	1-3/16
2-11/16, 2-3/4	516	.0065	.195	1-1/4	1-31/32	61/64	1/4-18	5/18	1/2	2-9/32	1-33/64
2-15/16, 3	517	.0075	.20	1-3/8	2-1/8	1-1/16	3/8-18	13/32	43/64	2-1/2	1-7/16
3-3/16	518	.0080	.25	1-15/32	2-1/4	1-1/8	3/8-18	7/16	39/64	2-23/32	1-29/64
3-7/16, 3-1/2	520	.011	.35	1-41/64	2-5/8	1-1/4	3/8-18	17/32	45/64	3-5/64	1-43/64
3-15/16, 4	522	.015	.42	1-51/64	2-7/8	1-11/32	3/8-18	19/32	17/32	3-23/64	1-23/32
4-3/16	524	.0175	.48	1-27/32	3-3/16	1-3/8	1/2-14	11/16	49/64	3-3/8	1-55/64
4-7/16, 4-1/2	526	.019	.55	2-11/32	3-5/16	1-5/8	1/2-14	3/4	1	4-1/32	2-5/32
4-15/16, 5	528	.023	.60	2-1/32	3-5/8	1-15/32	1/2-14	3/4	57/64	4-1/32	2-5/32
5-3/16	530	.025	.75	2-1/32	3-19/32	1-23/64	1/2-14	13/16	7/8	4-11/32	2-1/4
5-7/16, 5-1/2	532	.030	.80	2-3/32	4-1/32	1-21/64	1/2-14	29/32	59/64	4-33/64	2-7/32
5-15/16, 6	534	.035	.85	2-3/16	4-5/32	1-21/64	1/2-14	1	1-25/64	4-31/32	2-45/64
6-7/16, 6-1/2	536	.037	.875	2-27/64	4-7/32	1-5/8	1/2-14	1	1-21/64	5-1/4	2-3/4
6-15/16, 7	538	.039	1.0	2-17/32	4-3/4	1-39/64	1/2-14	1-1/8	1-1/4	5-1/2	3-3/32
7-1/2, 7-15/16, 8	544	.050	1.4	3-1/4	5-7/16	2-1/32	1/2-14	1-3/16	1-1/2	6-5/8	3-23/64
1-7/16	609	.0040	.10	1-9/32	1-5/16	53/64	1/8-27	9/32	17/32	1-57/64	1-1/8
1-11/16	610	.0045	.12	1-3/8	1-17/32	63/64	1/8-27	11/32	35/64	2-1/16	1-1/8
1-15/16	611	.0050	.15	1-7/16	1-21/32	2-5/32	1/8-27	11/32	37/64	2-1/64	2-5/32
2-3/16	613	.0065	.195	1-13/32	1-31/32	61/64	1/4-18	5/16	1/2	2-9/32	1-33/64
2-7/16, 2-1/2	615	.0080	.25	1-19/32	2-1/4	1-1/8	3/8-18	7/16	39/64	2-23/32	1-29/64
2-11/16, 2-3/4	616	.010	.26	1-11/16	2-3/8	1-11/64	3/8-18	17/32	21/32	2-47/64	1-15/32
2-15/16, 3	617	.011	.35	1-3/4	2-5/8	1-1/4	3/8-18	17/32	45/64	3-5/64	1-43/64
3-7/16, 3-1/2	620	.0175	.48	2-1/32	3-3/16	1-3/8	1/2-14	11/16	49/64	3-3/8	1-55/64
3-15/16, 4	622	.019	.55	2-13/32	3-5/16	1-5/8	1/2-14	3/4	1	4-1/32	2-5/32
4-3/16	624	.025	.75	2-3/8	4-19/32	1-23/64	1/2-14	13/16	7/8	4-11/32	2-1/4
4-7/16, 4-1/2	626	.030	.80	2-7/16	4-1/32	1-21/64	1/2-14	29/32	59/64	4-33/64	2-7/32
4-15/16, 5	628	.035	.85	2-9/16	4-5/32	1-21/64	1/2-14	1	1-25/64	4-31/32	2-45/64
5-3/16	630	.037	.875	2-5/8	4-7/32	1-5/8	1/2-14	1	1-21/64	5-1/4	2-3/4
5-7/16, 5-1/2	632	.039	1.0	2-11/16	4-3/4	1-39/64	1/2-14	1-1/8	1-1/4	5-1/2	2-3/4
5-15/16, 6	634	.042	1.0	2-3/4	4-29/32	1-17/32	1/2-14	1-1/8	1-1/8	5-13/16	2-27/32
6-15/16, 7	638	.050	1.4	3-3/8	5-7/16	2-1/32	1/2-14	1-3/16	1-1/2	6-5/8	3-23/64

* Based on oil temperature of 130°F–150°F & oil level at center line of lowest roller. For maximum oil flow values, both drains should be used. Mount block with drain holes on right side of block center line when rotation is CCW.

** Static oil level is measured from bottom of block base to meniscus on oil sight gauge. (Non-rotating mode)

*** For wet sump, consult DODGE Engineering.

Above 8" shaft size, consult DODGE Engineering, Tel.: 864-284-5700.

LONG-TERM STORAGE OF PREASSEMBLED BEARINGS

Applications such as conveyor pulleys and fans are shipped to a job site with bearings already mounted. Since these units may be stored for long periods of time in unprotected areas subject to rain, dust, etc. bearings should be packed 100% full and so tagged at bearing assembly to prevent contamination or corrosion of the bearings. Rotate bearings or shaft at least once a month. Prior to installation on the structure, if the application RPM is greater than 20% of catalog maximum speed, excess grease must be removed to the levels previously outlined. Removal of excess grease must be done in a clean, protected environment.

OIL LUBRICATION

USAF bearings are specifically designed to handle either grease or oil lubrication. Oil lubrication is normally required at high speeds as well as high loads or whenever heat from an external source is flowing into the bearing. Oil lubrication may be static or circulating. With static oil, fill the bearing cavity with oil up to the center line of the lower roller. The dimension is identified as "W" (Table 8). Mount an oil sight gauge on the drilled and tapped hole on the side of the pillow block for visual indication. The oil level may drop or rise during operation depending on the rotation of the bearing. Both the static oil level and the running oil level should be marked on the oil sight gauge and properly identified. Oil should be replaced semiannually.

For circulating oil, the flow rate and size of return drains are shown in Table 8. Consult DODGE application engineering for recommendations.

MOUNTING INSTRUCTIONS FOR SELF-ALIGNING BALL BEARINGS

NOTE: When using double-row, self-aligning ball bearings in a Dodge USAF housing, it is necessary to switch the position of the grease fitting and the pipe plug in the cap of the housing in order to lubricate the bearing since it does not have a W33 lubrication groove in its outside diameter.

The mounting procedure for an adapter-mounted self-aligning ball bearing in a split pillow block housing is similar to that of an adapter mounted spherical roller bearing with the exception of the bearing driveup procedure. The internal clearance of a double row self-aligning ball bearing cannot be measured accurately in the field.

The mounting instructions for the adapter-mounted spherical roller bearing in a split pillow block housing can be used for the mounting of self-aligning ball bearings by omitting Step 2, and substituting the following for Steps 3d and 3e in the mounting procedure under the heading INSTALLATION on page 1 of this manual:

Wipe any residual oils or greases from the shaft, all adapter sleeve surfaces and the bearing bore prior to mounting. Install the bearing onto the adapter sleeve, tapered bore of the bearing matching the tapered O.D. of the adapter sleeve. Locate the bearing in proper position on shaft.

Install the lockwasher on the adapter sleeve with the inner prong located in the slot of the sleeve and pointing towards the bearing. Install the locknut, chamfered side towards the bearing. Tighten the locknut by hand or with a spanner wrench until the adapter sleeve has just begun to grab the shaft and cannot be easily moved or rotated.

Two methods of final tightening can be used. Either rotate the nut through the given angle or rotate the nut until the measured axial displacement of the inner ring is equal to dimension-S from Table 8. Find a lockwasher tab that lines up with a locknut slot and bend the tab into the slot. If slot is past tab then tighten, not loosen, locknut to meet a washer tab. When properly mounted, the bearing should rotate easily and it should be possible to swivel the outer ring manually. Tightening angle α and dimension-S are obtained from the following table corresponding to the bearing bore series:

Table 9: Axial Description

Bearing Bore Series	Tightening Angle α (degrees)	Axial Displacement-S For series 12K (mm/in)	Axial Displacement-S For series 22K (mm/in.)
09	70	0.31/0.0122	0.31/0.0122
10	70	0.31/0.0122	0.31/0.0122
11	90	0.40 / 0.0157	0.39/0.0154
12	90	0.40 / 0.0157	0.39/0.0154
13	90	0.40 / 0.0157	0.39/0.0154
15	120	0.45 / 0.0177	0.43/0.0169
16	120	0.45 / 0.0177	0.43/0.0136
17	120	0.58/0.0228	0.54/0.0213
18	120	0.58/0.0228	0.54/0.0213
10	120	0.58/0.0228	0.54/0.0213
20	120	0.58/0.0228	0.54/0.0213
21	120	0.67/0.0264	0.66/0.0260
22	120	0.67/0.0264	0.66/0.0260
24	120	0.67/0.0264	



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