

# DODGE Type C Pillow Blocks, Flange Bearings, Hanger Bearings and Units

These instructions must be read thoroughly before installation or operation.

**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. Read all instructions thoroughly before beginning.

## Installing Bearing on Shaft:

1. Bearings should be handled carefully to avoid drops or rough handling which might affect the end play adjustment of the Tapered Roller Bearing. This end play adjustment was made by skilled workers at the factory and must not be altered. Large bearings should be handled with a rope sling or bar through the bore. Outer housings of large pillow blocks may be removed for easy handling.
2. Shaft and bore of bearing must be clean and dry. Shaft should be within commercial tolerances: straight, smooth and clean.

**Table 1 - Recommended Shaft Tolerances**

Up to 1½"	1-9/16" to 4"	4-3/16" to 5"
+ .0000	+ .0000	+ .0000
- .0005	- .0010	- .0015

3. Loosen but do not remove clamp collar screws at both ends of bearing.

**IMPORTANT:** Position of clamp collars on sleeve must not be changed as this will alter internal bearing end play.

4. Position bearing on shaft to suit application. If bearing does not slip freely onto shaft, check shaft for size, burrs, swollen spots or other inaccuracies. If necessary to force bearing onto shaft always press or bump against sleeve. Do not press against collars. This may tighten the adjustment and cause the bearing to run hot.

5. **EXPANSION BEARINGS:** Bolt outer housing to support. Expansion type outer housings should be located so inner unit can move freely in either direction. Outer housing shims provide a proper fit and must not be removed.

**NON-EXPANSION BEARINGS:** Loosen cap bolts in outer housing a little so inner unit is free to align in outer housing. Bolt outer housing to support.

**NOTE:** When pillow block is subjected to heavy cap loads, use hardened washers and properly torqued grade 8 bolts to mount block to the structure.

**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.

**Table 2 – Recommended Cap Bolt Torques**

Bearing Size	Bolt Size	ft-lbs
1-3/16 - 1-3/4	1/2 -13 UNC	50-60
1-15/16 - 2-15/16	5/8 - 11 UNC	95-105
3 - 3-7/16	7/8 - 9 UNC	170-180
3-1/2 - 4	1-1/8 - 7 UNC	345-355
4-7/16 - 4-1/2	7/8 - 9 UNC	170-180
4-15/16 - 5	1 - 8 UNC	245-255

5. Tighten clamp collar screws at both ends of bearing, to torque value in Table 3 then tap on outside of both clamp collars using a soft hammer or block to prevent denting. It is important not to tap on end or corner of collars. Instead, tap straight against outside of collar as shown in Figure 1.
6. This will seat the collar threads into the tube threads. Repeat this operation until clamp collar screws are tight. Clamp collar screws must be tightened alternately to keep gap between collar halves the same on each side of shaft. Retighten cap bolts according to Table 2. Outer housing shims provide a proper fit and must not be removed.
7. Check that lube stud is in center of lube cover opening for both expansion and non-expansion bearings.

After 24 hours of running time, make sure both clamp collar screws are tight by repeating step 6.

**Table 3 - Recommended Collar Screw Torques**

Bearing Size (inches)	Screw Size	Inch-Pounds
1-3/16 - 1-15/16	5/16 -18	300
2 - 2-7/16	3/8 - 16	500
2-1/2 - 3-7/16	7/16 - 20	600
3-1/2 - 4	5/8 - 11	2000
4-7/16 - 4-1/2	3/4 - 10	3000
4-15/16 - 5	7/8 - 9	4500

## Removing Bearing from Shaft:

8. Loosen both clamp collar screws and slip bearing from shaft.
9. If bearing does not slip freely from shaft after clamp collar screws are loosened rap on outside of clamp collar using a soft hammer or block to prevent denting (see Figure 1). This will allow sleeve and clamp collar to expand.

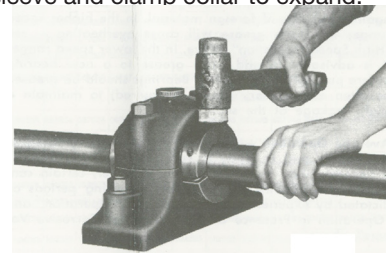


Figure 1



10. If bearing sleeve or the shaft has rusted, use penetrating oil between shaft and sleeve.
11. When pressure is necessary to move the bearing, press against end of sleeve.

### Replacing Unit In Pillow Block:

12. Match mark cap and base of each outer housing before removing cap.
13. Fit each unit to its outer housing before putting on shaft.
14. 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.
15. 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.
16. 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.
17. When reassembling pillow blocks make sure match marks (step 12) on caps and bases match.
18. Install bearings per steps 1 to 7.

## LUBRICATION INSTRUCTIONS

### STORAGE OR SPECIAL SHUT DOWN

If equipment will be idle for some time, before shutting down, add compatible grease to the bearing until grease purges from the seals. This will ensure protection of the bearing, particularly when exposed to severe environmental conditions. After storage or idle period, add fresh grease to the bearing before starting.

### 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" below. 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 at the seals.

### AVERAGE OPERATION

This bearing has been greased at the factory and is ready to run. The following table 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.

## MAINTENANCE

### GREASE LUBRICATION

DODGE Type C Bearings are prepacked with a NLGI #2 lithium complex grease. For relubrication select a grease that is compatible with #2 lithium complex. Relubricate in accordance with the recommendation of Table 4.

### OPERATING TEMPERATURES

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 a slight showing of grease at the seals indicate proper lubrication.

Table 4 - Lubrication Guide

Suggested Lubrication Period in Weeks								
Hours Run Per Day	1 to 250 RPM	251 to 500 RPM	501 to 750 RPM	751 to 1000 RPM	1001 to 1500 RPM	1501 to 2000 RPM	2001 to 2500 RPM	2501 to 3000 RPM
8	12	12	10	7	5	4	3	2
10	12	7	5	4	2	2	2	1
24	10	5	3	2	1	1	1	1

### KINDS 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 No.2 consistency lithium complex base grease which is suitable for normal operating conditions. Relubricate with lithium complex base grease or a grease which is compatible with original lubricant and suitable for roller bearing service. In unusual or doubtful cases the recommendation of a reputable grease manufacturer should be secured.

### SPECIAL OPERATING CONDITIONS

Refer acid, chemical, extreme or other special operating conditions to Baldor Electric.

**Table 5 - Parts for Type C Bearings - See Figure 2 on Page 4**

Ref	Name of Part	Non-Exp Pillow Block	Exp Pillow Block	D Unit	S-1 Unit	B-1 Unit	Hanger Bearing	Non-Exp Flange Bearing	Exp Flange Bearing	Quantity Required for One Assembly											
										1-3/16 1-1/4 1-5/16 1-7/16	1-1/2 1-11/16 1-3/4	1-15/16	2 2-3/16 2-1/4	2-3/8 2-7/16	2-1/2 2-11/16	2-7/8 2-15/16	3 3-3/16	3-7/16	3-1/2 3-3/4 3-15/16 4	4-7/16 4-1/2	4-15/16 5
3	Cup	2	2	2	2	2	2	2	2	390798	390800	390809	390816	390821	390828	390841	390848	390852	390782	390666	390707
4	Cone	2	2	2	2	2	2	2	2	390797	390799	390804	390812	390819	390824	390836	390846	390850	390854	391962	390857
	Seal Kit *▲	1	1	1	1	1	1	1	1	392165	392166	392167	392168	392169	392170	392171	392172	392173	392174	392175	392176
5	Inner Seal	2	2	2	2	2	2	2	2	219005	219006	219007	219008	219009	219041	219011	219012	219013	219015	219017	219019
6	Outer Seal	2	2	2	2	2	2	2	2	219025	219026	219027	219028	219029	219045	219045	219033	219033	219042	219043	219044
7A	Clamp Collar	2	2	2	2	2	2	2	2	070141	070142	070143	070144	070145	070110	070112	070153	070114	070116	070118	070152
8	Collar Screw	★	★	★	★	★	★	★	★	417081	417081	417081	417108	417108	417203	417203	417203	417203	417233	417260	417279
§	Collar Screw Lockwasher	4	4	4	4	4	4	4	4	.....	.....	.....	.....	.....	419048	419048	419048	419048	419052	419054	419055
10	Adjustment Lockwasher	2	2	2	2	2	2	2	2	419090	419090	419092	419094	419094	419098	419096	419098	419096	419100	419102	419104
11	Lubrication Fitting	1	1	1	1	1	1	1	1	405015	405015	405015	405015	405015	405015	405015	405015	405015	405015	405015	405015
12	Non-Exp Lubrication Stud	1	0	1	★	★	0	1	0	.....	.....	405014	405014	405013	105013	405013	405013	405013	405013	405013	405013
14	Exp Lubrication Stud	0	1	0	0	0	0	0	1	405009	405009	405009	405009	405009	405011	405011	405011	405011	405011	405011	405011
17A	Type C Seal	2	2	2	2	2	2	2	2	219050	219051	219052	219053	219054	219046	219056	219057	219058	219059	219060	219061
20	Non-Exp Inner Housing	1	0	1	0	0	0	1	0	065066	065067	065069	065071	065073	065075	065076	065078	065079	065081	065084	065086
22	2-Bolt Non-Exp Pillow Block Housing	1	0	0	0	0	0	0	0	066650	066662	066668	066674	066680	066692	066692	066704	066704	.....	.....	.....
24	4-Bolt Non-Exp Pillow Block Housing	1	0	0	0	0	0	0	0	.....	.....	.....	.....	066683	066695	066695	066707	066707	066716	066722	066728
30	Exp Inner Housing	0	1	0	1	0	0	0	1	087032	087034	087036	087038	087040	087042	087043	087045	087046	087048	087050	087052
32	Non-Exp Pillow Block Housing	0	1	0	0	0	0	0	0	066656	066665	066671	066677	066686	066698	066698	066710	066710	.....	.....	.....
34	4-Bolt Exp Pillow Block Housing	0	1	0	0	0	0	0	0	.....	.....	.....	.....	066689	066701	066701	066713	066713	066719	066725	066731
§	B-1 Unit Housing	0	0	0	0	1	0	0	0	069077	069079	069081	069083	069085	069087	069088	069090	069091	069093	.....	.....
§	Hanger Housing	0	0	0	0	0	1	0	0	061112	061114	061116	061118	061120	061122	061123	061125	061126	061128	.....	.....
§	Non-Exp Flange Bearing Housing	0	0	0	0	0	0	1	0	104250	104256	104262	104268	104274	104280	104280	104286	104286	104292	104298	104304
§	Exp Flange Bearing Housing	0	0	0	0	0	0	0	1	104253	104259	104265	104271	104277	104283	104283	104289	104289	104295	104301	104307

Ref	Name of Part	1-3/16	1-1/4	1-5/16	1-7/16	1-1/2	1-11/16	1-3/4	1-15/16	2	2-3/16	2-1/4	2-3/8	2-7/16	2-1/2	2-11/16
1	Pillow Block Sleeve	065001	065089	065090	065002	065092	065003	065095	065004	065143	065142	065146	065131	065130	065138	065137
§	Hanger Sleeve	061023	061024	.....	061026	061027	061031	061030	061032	061032	061136	061135	.....	061137	061143	061138
13	Lubrication Cover	405063	405063	405063	405063	405063	405063	405063	405063	405063	405063	405063	405063	405063	405063	405063
§	Name Plate ‡	405271	405271	405271	405271	405271	405271	405271	405271	405271	405271	405271	405271	405271	405271	405271

Ref	Name of Part	2-7/8	2-15/16	3	3-3/16	3-7/16	3-1/2	3-3/4	3-15/16	4	4-7/18	4-1/2	4-15/16	5
1	Pillow Block Sleeve	065134	065132	065141	065140	065135	065116	065165	065011	065167	065012	065164	065124	065125
§	Hanger Sleeve	.....	061139	061147	061140	061141	.....	.....	061060	.....	.....	.....	.....	.....
13	Lubrication Cover	405063	405063	405063	405063	405063	405063	405063	405063	405063	405063	405063	405063	405063
§	Name Plate ‡	405271	405271	405271	405271	405271	405271	405271	405271	405271	405271	405271	405271	405271

★ 1-3/16 to 2-7/16" shaft sizes require one Part Number 405014  
 2-1/2 to 5" shaft sizes require one Part Number 405013  
 \* Two required for 1-3/8" to 2-11/16, four for larger sizes  
**NOTE:** Order parts by the 6-digit part numbers, not the 2-digit reference number.

§ Not shown on drawing  
 ‡ Not furnished with pillow block or flange bearing unless specified  
 ▲ Items also included in the Kit or Assembly for this section

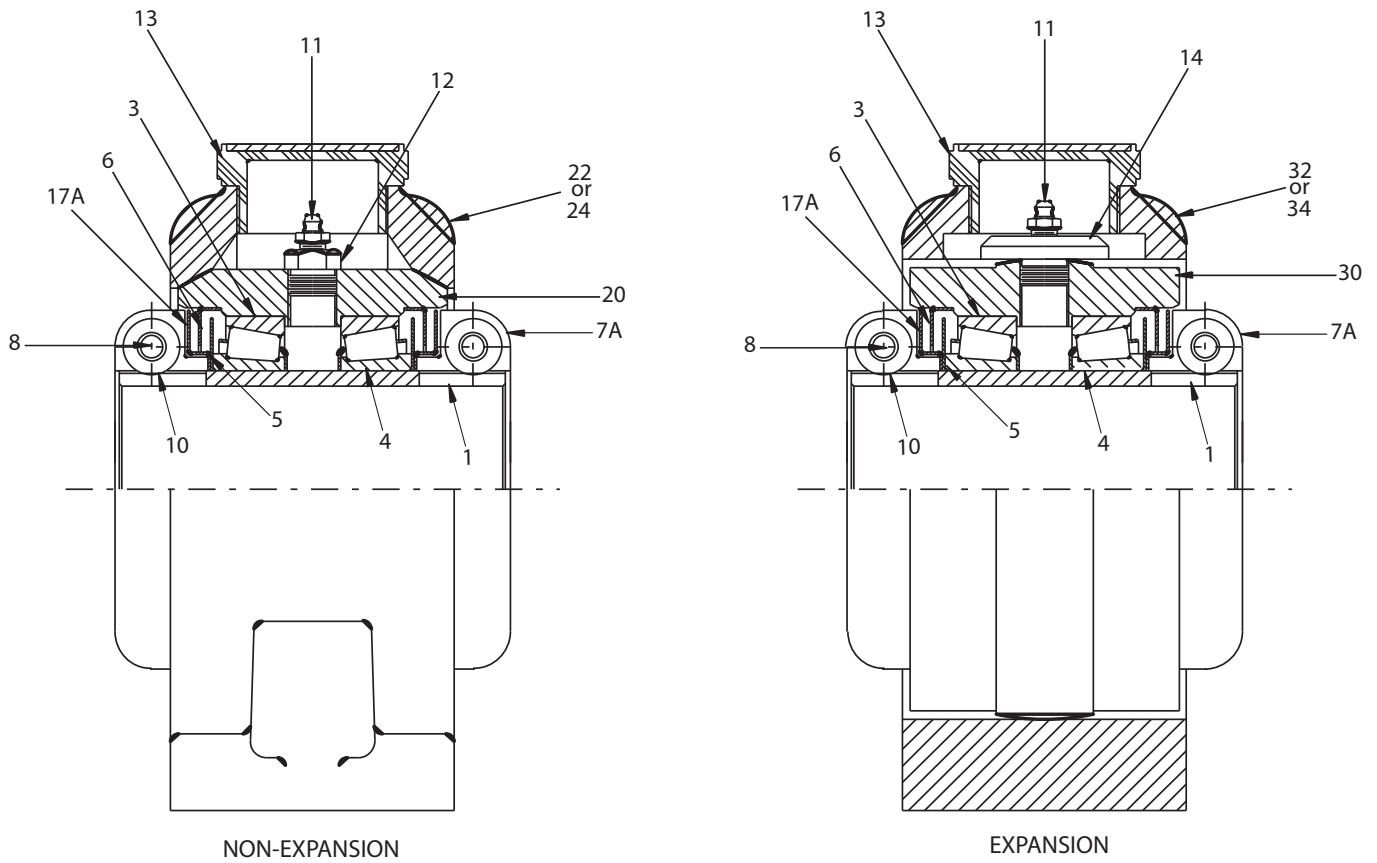


Figure 2 - Parts for Type C Bearings

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