INSTRUCTION MANUAL FOR
$3^{11}/_{16}$" TO 6" BORE
DODGE® SPECIAL DUTY BEARINGS

LUBRICATION INSTRUCTIONS

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 a little 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 in 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.

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.

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.

Lubrication Guide

Read Preceding Paragraph Before Establishing Lubrication Schedule.

HOURS Run per Day	Suggested Lubrication Period in Weeks				
	1 to 250 RPM	251 to 500 RPM	501 to 750 RPM	751 to 1000 RPM	1001 to 1250 RPM
8	12	12	10	7	5
16	12	7	5	4	2
24	10	5	3	2	1

Kind of Grease—Many ordinary cup greases will disintegrate at speeds far below those at which DODGE bear-ings will operate successfully if proper grease is used. DODGE bearings up to and including 5 shaft sizes have been lubricated at the factory with an NLGI #2 lithium complex base grease. DODGE bearings greater than 5 shaft size have been lubricated with an NLGI #2 EP additive lithium 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.

Special Operating Conditions—Refer acid, chemical, extreme or other special operating conditions to RELIANCE INDUSTRIAL COMPANY, Greenville, SC 29602.

WARNING: Because of the possible danger to persons(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 holding device must be an integral part of the driven equipment beyond the speed reducer output shaft.

BALDOR®

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MN3028
(Replaces 499897)

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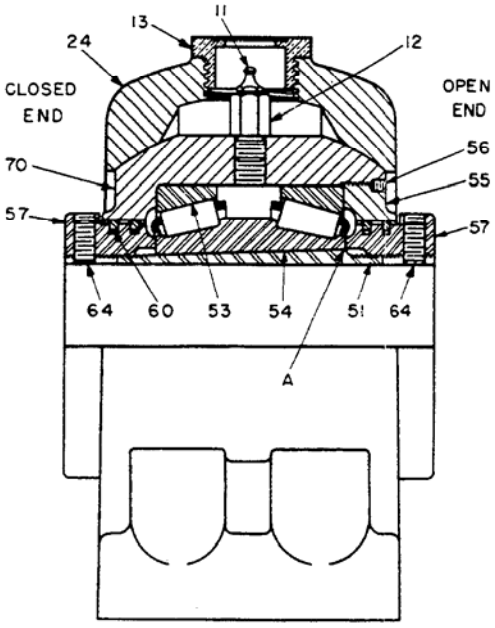
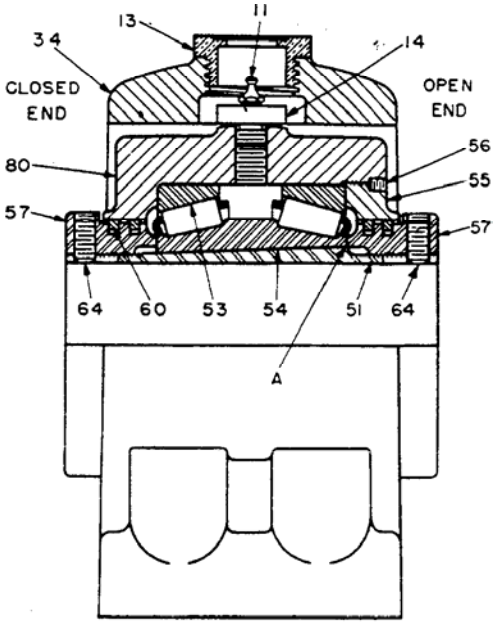
06/30/09

Parts for 3 11/16″ to 6″ Bore Special Duty Bearings (3 11/16″-5″ Size Shown)

NOTE: The two-digit numbers are for reference only. Order parts by the six-digit numbers in the Parts List. Each six-digit number is a complete identification of the part or assembly.



NON-EXPANSION (N-E) TYPE



EXPANSION (EXP) TYPE

Reference	Name of Part	Quantity Required for One Assembly							Part Numbers for Various Shaft Sizes			
		N-E Pillow Block	Exp. Pillow lock	D Unit	S-1 Unit	B-1 Unit	N-E Flange Bearing	Exp. Flange earing	3 11/16 to 4	4 7/16 to 4 1/2	4 15/16 to 5	5 7/16 to 5
11	Lubrication Fitting	1	1	1	1	1	1	1	405015	405015	405015	405015
12	Non-Expansion Lubrication Stud	1	..	1	..	1	1	..	405013	405013	405013	401013
14	Expansion Lubrication Stud	..	1	..	1	..	..	1	405011	405011	405011	405011
24	4-Bolt Non-Expansion Pillow Block Housing	1	..	..	..	..	..	..	066716	066722	066728	066734
34	4-Bolt Expansion Pillow Block Housing	..	1	..	..	..	..	..	066719	066725	066731	066737
⧫	Flange Housing Shims	..	..	..	..	..	6	6	427310	427311	427315	427317
⧫	4-Bolt Non-Expansion Pillow Block Housing Shims	6	..	..	..	..	..	..	427243	427244	427245	427246
⧫	4-Bolt Expansion Pillow Block Housing Shims	..	6	..	..	..	..	..	427283	427284	427285	427286
53	Timken Cup	2	2	2	2	2	2	2	390704	390707	390710	390713
54	Timken Cone	1	1	1	1	1	1	1	390705	390708	390711	309712
55	Adjustment Nut	1	1	1	1	1	1	1	066037	066041	066045	065468
56	Adjustment Nut Lockscrew	1	1	1	1	1	1	1	400530	400530	400530	400532
57	Adapter Nut	2	2	2	2	2	2	2	066038	066042	066046	065472
60	Piston Ring	4	4	4	4	4	4	4	410038	410040	410042	410044
64	Adapter Nut Lockscrew	2	2	2	2	2	2	2	400154	400158	400162	400198
70	Non-Expansion Inner Housing	1	..	1	..	..	1	..	066036	066040	066044	065467
80	Expansion Inner Housing	..	1	..	1	..	..	1	066074	066076	066078	065482
⧫	B-1 Unit Housing	..	..	..	..	1	..	..	066100	066101	066103	066104
⧫	Non-Expansion Flange Bearing Housing	..	..	..	..	..	1	..	104292	104298	104304	104314
⧫	Expansion Flange Bearing Housing	..	..	..	..	..	..	1	104295	104301	104307	104317

Reference	Name of Part	Part Numbers for Various Shaft Sizes											
		3 11/16	3 3/4	3 7/8	3 15/16	4	4 7/16	4 1/2	4 15/16	5	5 7/16	5 15/16	6
13	Lubrication Cover ▲‡	405063	405063	405063	405063	405063	405063	405063	405063	405063	405043	405043	405043
	N-E Name Plate ▲ ‡	412148	412148	412148	412148	412148	412148	412148	412148	412148	412148	412148	412148
	Exp. Name Plate ▲‡	403950	403950	403950	403950	403950	403950	403950	403950	403950	403950	403950	403950
51	Adapter ▲	066139	066140	066141	066039	066142	066043	066145	066047	066148	065441	065442	065443

Note: N-E is Non-Expansion & Exp. is Expansion type.

⧫ Not shown on drawing.

▲ One required.

‡Not furnished with pillow block or flange bearing unless specified.

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.

TO LOCATE BEARINGS ON SHAFT—

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.
2. Loosen lockscrews 64 in adapter nuts 57 to prevent damage to adapter 51. (If necessary to expand adapter 51, loosen adapter nut 57 at closed end of housing approximately two turns and tap on end of this nut.) Apply silicone sealant to the split in the adapter sleeve. This provides protection against contaminants.
3. Slide bearing on shaft and locate 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.** This is extremely important where the bearing and shaft are large; also, where heavy equipment is mounted on shaft.

TO TIGHTEN BEARING ON SHAFT—

6. Loosen (turn counter-clockwise 2 or 3 turns) adapter nut 57 at open end of housing (adjustment nut end).
7. Tighten (turn clockwise) adapter nut 57 at closed end of housing (end with instruction plate on inner housing). Check other nut periodically to see that it is loose as in Step 6. Make sure this nut does not touch end of bearing cone 54 during tightening operation. (See Arrow "A" on Drawing.)

   When considerable effort is required to turn adapter nut 57, 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.

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 cone and between the threads of the adapter and the adapter nut. The sudden jar developed by the sledge

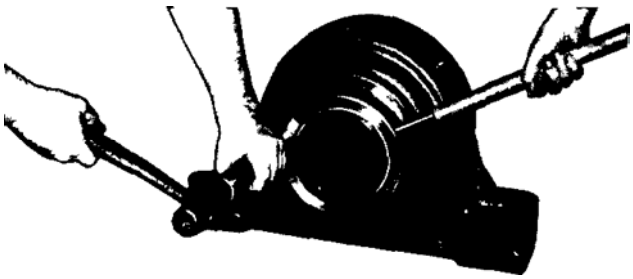


Figure 1 – Preferred Method – Hitting directly on face of adapter nut, with brass bar parallel to shaft, while applying torque with barring rod to tighten nut. ♠▲

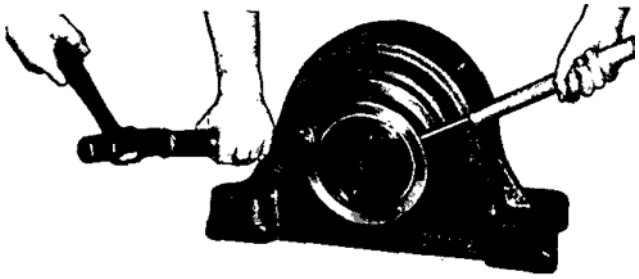


Figure 2 – Hitting on nut at an angle where unable to hit at right angle to face. This method is not as effective as the method shown in Figure 1.♠▲

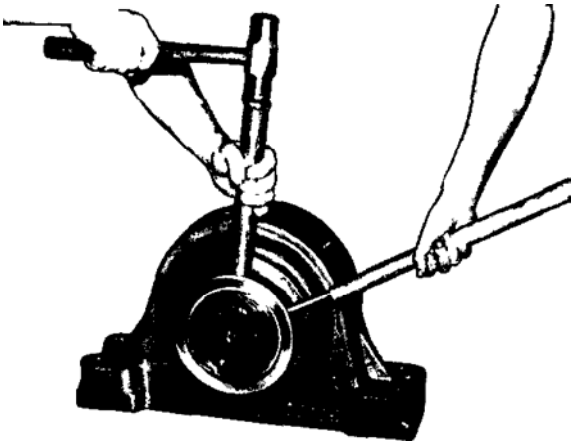


Figure 3 – Hiting on O.D. of nut with brass bar held at right angle to shaft. This method is not as effective as the methods shown in Figures 1 or 2. ♠▲

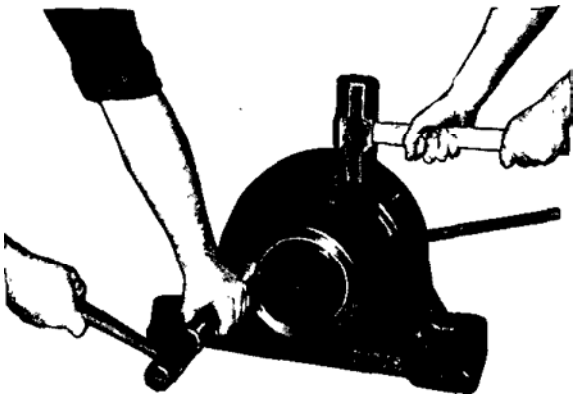


Figure 4 – This is an alternate method to those shown in Figures 1, 2 and 3 in that a spanner wrench is used in place of the barring rod. ♠▲

♠ For $3^1/_2$ and smaller shaft sizes the brass bar should not be less than 1" diameter; for $3^{15}/_{16}$" to 5" shaft sizes not less than $1^1/_4$" diameter; for $5^7/_{16}$" to 7" shaft sizes not less than $1^1/_2$" diameter, for $7^1/2$" to 10" shaft sizes not 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.

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.

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 51.
9. Tighten (turn clockwise) adapter nut 57 at open end of housing until it is snug against end of bearing cone 54. (See arrow "A" on drawing.) Tighten lockscrew 64 in this nut onto shaft or onto adapter 51.
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.
11. **Expansion Bearing:** Loosen the cap bolts in outer housing a little so unit is free to align. Inner unit should be located with unit housing in center of outer housing so unit can move freely in either direction. Do not remove shims between cap and base of outer housing. Tighten hold-down bolts. **Non-expansion Bearing:** Loosen cap bolts in outer housing a little so unit is free to align in outer housing. Tighten hold-down bolts. Retighten cap bolts on both expansion and non-expansion bearing.
12. After a short run make sure adapter 51 is tight as follows: loosen lock screws 64; loosen hold-down bolts; perform steps 5 to 11 inclusive.

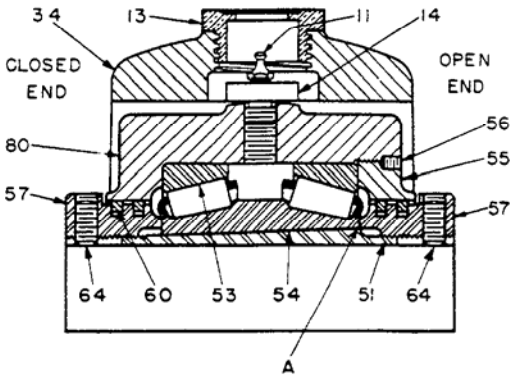
REMOVAL INSTRUCTIONS

1. Loosen lockscrew 64 in both adapter nuts 57 and loosen hold-down bolts. Block up shaft to remove weight from bearing.
2. Loosen (turn counterclockwise) adapter nut 57 at closed end of housing approximately two turns.
3. Tighten (turn clockwise) nut 57 at open end of housing. Use sledge and brass bar as in Fig. 4 to break the cones loose on the adapter, thus allowing the adapter to loosen on shaft.

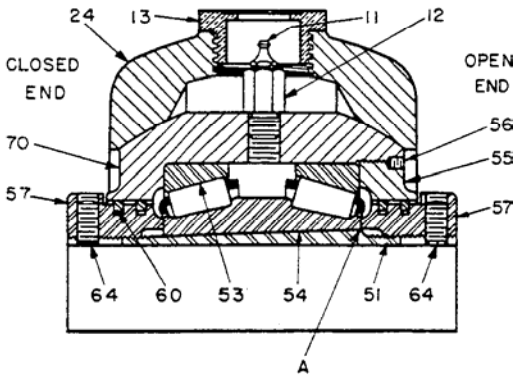
UNIT REPLACEMENT INSTRUCTIONS

1. Remove bearing from shaft per removal instructions.
2. Match mark cap and base of each outer housing before removing cap.
3. Fit each unit to its outer housing before putting on shaft.
4. 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.
5. 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.
6. 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.
7. When reassembling pillow blocks make sure match marks (step 2) on cap and bases match.

EXPANSION TYPE



NON-EXPANSION TYPE



(5 7/16-6 Size Shown)

Table 1 – Cap Bolts Torque (Pillow Blocks)

Size	Cap Bolts			Hold-down Bolts
	Qty.	Size	Torque Ft.-Lbs.	
$3^{11}/_{16}$–4 N-E & Exp.	2	$1^{1}/_{8}$–7	350	4
$4^{7}/_{16}$–$4^{1}/_{2}$ N-E	4	7/8–9	170	4
$4^{7}/_{16}$–$4^{1}/_{2}$ Exp.	2	$1^{1}/_{8}$–7	350	4
$4^{15}/_{16}$–5 N-E	4	1–8	250	4
$4^{15}/_{16}$–5 Exp.	2	$1^{1}/_{4}$–7	500	4
$5^{7}/_{16}$–6 N-E & Exp.	4	1–8	250	4

Table 2 – Cap Bolts Torque (Flanges)

Size	Cap Bolts		
	Qty.	Size	Torque Ft.-Lbs.
$3^{11}/_{16}$–$4^{1}/_{2}$	2	1–8	250
$4^{15}/_{16}$–5	4	1–8	250
$5^{7}/_{16}$–6	2	$1^{1}/_{4}$–7	500