INSTRUCTION MANUAL
FOR
1” TO 3½” BORE
DODGE® SPECIAL DUTY
BEARINGS

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 failsafe device must be an integral part of the driven equipment beyond the speed reducer output shaft.

BALDOR®

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$1^3/_8$" to $3^1/_2$" Bore
Special Duty Bearings

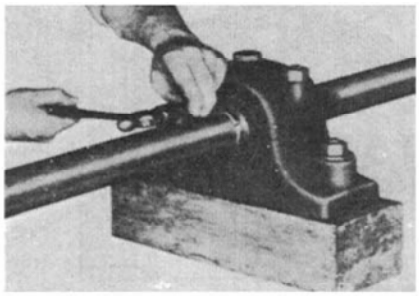


Figure 1

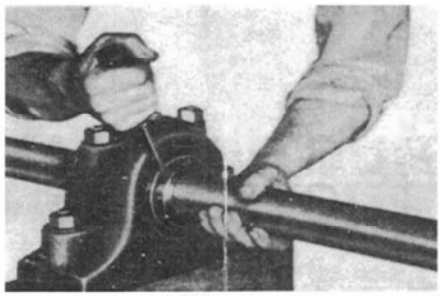


Figure 2

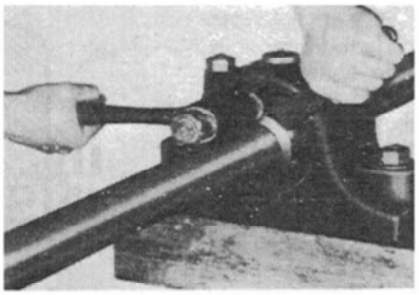


Figure 3

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 BEARING ON SHAFT

1. Shaft should be within commercial tolerances, straight, smooth and clean. Apply a coating of light oil to the shaft in the bearing area.
2. Apply a bead of silicone sealant (RTV) to the split in the adaptor prior to sliding bearing on shaft.
3. If necessary to expand adapter 51, loosen adapter nut 57 and tap on end of this nut.
4. Slide bearing on shaft and locate where wanted.
5. DO NOT BOLT OUTER HOUSING TO SUPPORT UNTIL BEARING IS TIGHTENED ON SHAFT.
6. Block up shaft to remove weight from bearing.

TO TIGHTEN BEARING ON SHAFT

7. To keep adapter 51 from turning on shaft tap on large end (opposite adapter nut —see figure 1). If large end of adapter is inaccessible, insert point of screwdriver between housing and adapter nut and twist screwdriver—see figure 2.
8. Tighten (turn clockwise) adapter nut 57 with wrench or barring rod.
9. When considerable effort is required to turn adapter nut use hammer and brass bar on end of nut while simultaneously turning with wrench or barring rod – see Figure 3. When adapter seems to be tight, also use a hammer on the wrench while hammering simultaneously on end of adapter.
10. Lock adapter nut by bending one prong of lock washer 58 into corresponding notch in back of the nut.

IMPORTANT:—NEVER LOOSEN ADAPTER NUT TO NEXT LOCKING POSITION.

11. Check hold-down bolts in outer housing to see that 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.
12. **EXPANSION BEARING:** Loosen 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. Tighten hold-down bolts. Retighten cap bolts. See Tables for tightening torques.

    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. See Tables for tightening torques.
13. After a short run make sure adapter 51 is tight as follows: loosen hold-down bolts: perform steps 6,8,9 and 10. Tighten hold-down bolts.

REMOVAL INSTRUCTIONS

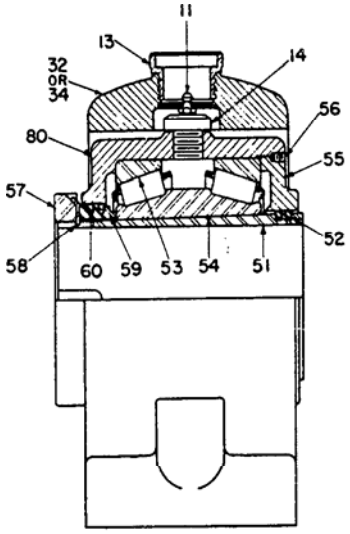
WARNING

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.

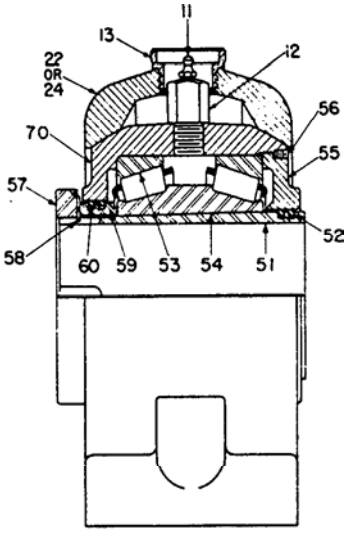
1. Unlock adapter nut by bending out prong of adapter nut lock washer.
2. Loosen hold-down bolts. Block up shaft if possible to remove weight from bearing.
3. Loosen adapter nut 57 about one turn, and hammer on end of nut to drive adapter through bore of Timken inner ring 54. Repeat until adapter has expanded enough so bearing can be removed from shaft. Use a soft hammer or block to prevent denting.

UNIT REPLACEMENT INSTRUCTIONS

1. Remove bearing from shaft per removal instructions above.
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. See tables for tightening torque.
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 block.
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 caps and bases match.
8. Replace bearing per installation instructions above.



EXPANSION TYPE



NON-EXPANSION TYPE

Table 1 – Cap Bolts Torque (Pillow Blocks)

	Cap Bolts			
Size	Qty.	Size	Torque Ft.-Lbs.	Hold-down Bolts
$1^3/_8$–$1^3/_4$ N-E	2	$^1/_2$–13	50	2
$1^3/_8$–$1^3/_4$ Exp.	4	$^3/_8$–16	20	2
$1^7/_8$–$2^1/_4$ N-E	2	$^5/_8$–11	55	2
$1^7/_8$–$2^1/_4$ Exp.	4	$^1/_2$–13	50	2
$2^3/_8$–3 N-E	2	$^3/_4$–10	100	2
$2^3/_8$–3 Exp.	4	$^5/_8$–11	55	2
$2^3/_8$–3 N-E & Exp.	2	$^3/_4$–10	100	4
$3^3/_{16}$–$3^1/_2$ N-E	2	$^7/_8$–9	170	2
$3^3/_{16}$–$3^1/_2$ Exp.	4	$^3/_4$–10	175	4
$3^3/_{16}$–$3^1/_2$ N-E	2	$^7/_8$–9	170	4
$3^3/_{16}$–$3^1/_2$ Exp.	4	$^3/_4$–10	100	2

Table 2 – Cap Bolts Torque (Flanges)

	Cap Bolts		
Size	Qty.	Size	Torque Ft.-Lbs.
$1^3/_8$–$1^3/_4$	2	$^1/_2$–13	50
$1^7/_8$–$2^1/_4$	2	$^5/_8$–11	100
$2^3/_8$–3	2	$^3/_4$–10	175
$3^3/_{16}$–$3^1/_2$	2	$^7/_8$–9	170

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 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.

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

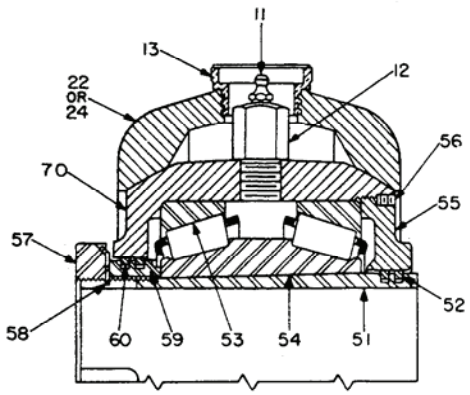
Lubrication Guide

Read Preceding Paragraphs Before Establishing Lubrication Schedule.

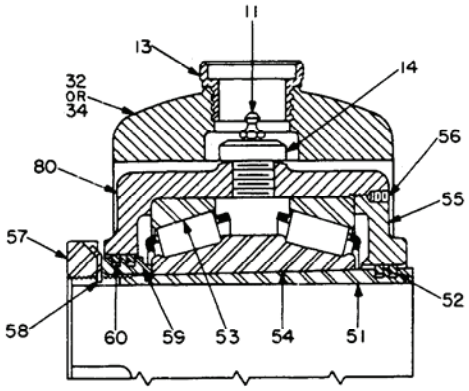
Hours Run per Day	Suggested Lubrication Period in Weeks							
	1 to 250 RPM	251 to 500 RPM	501 to 750 RPM	751 to 1000 RPM	1001 to 1500 RPM	1501 to 2000 RPM	2001 to 2500 RPM	2501 to 3000 RPM
8	12	12	10	7	5	4	3	2
16	12	7	5	4	2	2	2	1
24	10	5	3	2	1	1	1	1

Kind 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 Company Power Systems, Greenville, South Carolina.



NON-EXPANSION TYPE



EXPANSION TYPE

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.

Parts for 1" to 3½" Bore Special Duty Bearings

Reference	Name of Part	Required for One Assembly							Part Number for Various Shaft Sizes						
		Non-Expansion Pillow Bock	Expansion Pillow Block	D Unit	S-1 Unit	B-1 Unit	Non-Expansion Flange Bearing	Expansion Flange Bearings	$1\frac{3}{8}$ $1\frac{7}{15}$ $1\frac{1}{2}$	$1\frac{9}{16}$ $1\frac{5}{8}$ $1\frac{11}{16}$ $1\frac{3}{4}$	$1\frac{7}{8}$ $1\frac{15}{16}$ 2	$2\frac{1}{8}$ $2\frac{3}{16}$ $2\frac{1}{4}$	$2\frac{3}{8}$ $2\frac{7}{16}$ $2\frac{1}{2}$	$2\frac{5}{8}$ $2\frac{11}{16}$ $2\frac{3}{4}$ $2\frac{15}{16}$ 3	$3\frac{3}{16}$ $3\frac{3}{8}$ $3\frac{7}{16}$ $3\frac{1}{2}$
11	Lubrication Fitting	1	1	1	1	1	1	1	405015	405015	405015	405015	405015	405015	405015
12	Non-Expansion Lubrication Stud	1	0	1	0	★	1	0	–	–	405014	405014	405013	405013	405013
14	Expansion Lubrication Stud	0	1	0	1	0	0	1	405009	405009	405009	405009	405009	405011	405011
22	2-Bolt Non-Expansion Pillow Block Housing	1	0	0	0	0	0	0	066650	066666	066668	066674	066680	066692	066704
24	4-Bolt Non-Expansion Pillow Block Housing	1	0	0	0	0	0	0	–	–	–	–	066683	066695	066707
32	2-Bolt Non-Expansion Pillow Block Housing	0	1	0	0	0	0	0	066656	066665	066671	066677	066686	066698	066710
34	4-Bolt Non-Expansion Pillow Block Housing	0	1	0	0	0	0	0	–	–	–	–	066689	066701	066713
52	Small Piston Ring	2	2	2	2	2	2	2	410002	410004	410006	410014	410018	410028	410034
53	Cup	2	2	2	2	2	2	2	390678	390682	390684	390689	390693	390696	390702
54	Cone	1	1	1	1	1	1	1	390677	390681	390685	390688	390692	390697	390701
55	Adjustment Nut	1	1	1	1	1	1	1	066002	066007	066012	066017	066022	066027	066032
56	Adjustment Nut Lockscrew	1	1	1	1	1	1	1	400530	400530	400530	400530	400530	400530	400530
57	Adapter Nut	1	1	1	1	1	1	1	066004	066009	066014	066019	066024	066029	066034
58	Adapter Nut Lockwasher	1	1	1	1	1	1	1	082352	082353	082354	082355	082356	082357	082358
59	Spacer Ring	1	1	1	1	1	1	1	066003	066008	066013	066018	066023	066028	066033
60	Large Piston Ring	2	2	2	2	2	2	2	410004	410010	410016	410024	410026	410032	410036
70	Non-Expansion Inner Housing	1	0	1	0	0	1	0	066001	066006	066011	066016	066021	066026	066031
80	Expansion Inner Housing	0	1	0	1	0	0	1	066060	066062	066064	066066	066068	066070	066072
	Adapter Nut Spanner Wrench	1	1	1	1	1	1	1	066050	066051	066052	066053	066054	066055	066056
	B-1 Unit Housing	0	0	0	0	1	0	0	066086	066088	066090	066092	066094	066096	066098
	Non-Expansion Flange Bearing Housing	0	0	0	0	0	1	0	104250	104256	104262	104268	104274	104280	104286
	Expansion Flange Bearing Housing	0	0	0	0	0	0	1	104253	104259	104265	104271	104277	104283	104289

	Shaft Size →	$1\frac{3}{8}$	$1\frac{7}{16}$	$1\frac{1}{2}$	$1\frac{9}{16}$	$1\frac{5}{8}$	$1\frac{11}{16}$	$1\frac{3}{4}$	$1\frac{7}{8}$	$1\frac{15}{16}$	2	$2\frac{1}{8}$	$2\frac{3}{16}$	$2\frac{1}{4}$
13	Lubrication Cover	405063	405063	405063	405063	405063	405063	405063	405063	405063	405063	405063	405063	405063
	Non-Expansion Name Plate ‡⧗	412148	412148	412148	412148	412148	412148	412148	412148	412148	412148	412148	412148	412148
	Lubrication Cover	405043	405043	405043	405043	405043	405043	405043	405043	405043	405043	405043	405043	405043
	Expansion Name Plate ‡ ◆	403950	403950	403950	403950	403950	403950	403950	403950	403950	403950	403950	403950	403950
51	Adapter ▲	066111	066005	066112	066113	066114	066010	066115	066117	066015	066118	066120	066020	066121

	Shaft Size →	$2\frac{3}{8}$	$2\frac{7}{16}$	$2\frac{1}{2}$	$2\frac{5}{8}$	$2\frac{11}{16}$	$2\frac{3}{4}$	$2\frac{15}{16}$	3	$3\frac{3}{16}$	$3\frac{3}{8}$	$3\frac{7}{16}$	$3\frac{1}{2}$
13	Lubrication Cover	405063	405063	405063	405063	405063	405063	405063	405063	405063	405063	405063	405063
	Non-Expansion Name Plate ‡⧗	412148	412148	412148	412148	412148	412148	412148	412148	412148	412148	412148	412148
	Lubrication Cover	405043	405043	405043	405043	405043	405043	405043	405043	405043	405043	405043	405043
	Expansion Name Plate ‡ ◆	403950	403950	403950	403950	403950	403950	403950	403950	403950	403950	403950	403950
51	Adapter ▲	066123	066025	066124	066126	066127	066128	066030	066132	066134	066137	066035	066138

★ $1\frac{3}{8}$" to $2\frac{1}{2}$" shaft sizes require one Part Number 405014.
$2\frac{5}{8}$" to $3\frac{1}{2}$" require one Part Number 405013.
▲ One required.
↓ Not shown on drawing.
‡ Not furnished with pillow block or flange bearing unless specified.
⧗ One required for non-expansion pillow block or flange bearing.
◆ One required for expansion pillow block or flange bearing.