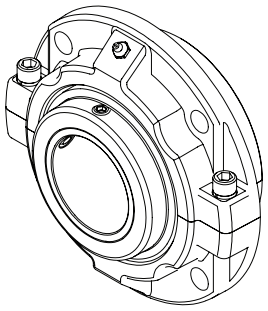
Type EXL – Piloted and 4-Bolt Flanges
Instruction Manual

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.



Piloted Flange

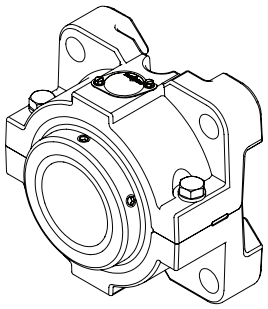
PILOTED FLANGE INSTALLATION

1. Clean shaft and bore of bearing. Lubricate with light oil or anti-seize compound.
2. Verify that shaft measures within tolerance: normal +0.000/-0.001
3. Loosen setscrews in collar and slide bearing onto the shaft. If force is necessary, tap inner race only with a light drift. For vertical applications, locate adjusting nut on bearing so nut faces upward.
4. Secure flange to mounting structure.
5. Tighten setscrews in collar to values shown in Table 1.
6. Housing bolts are torqued from the factory, but in the event they are loosened or removed, reinstall and torque to the value shown in Table 1.

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.

Table 1–Setscrew and Bolt Torques

Shaft size (Inches)	Set screw torque (In-lbs)	Housing bolt torque (In-lbs)
1-3/4 – 2	290	17
2-3/16 – 2-1/2	290	50
2-11/16 – 3	620	50
3-3/16 – 3-1/2	620	75
3-15/16 – 4	1325	75



4-Bolt Flange

4-BOLT FLANGE INSTALLATION

Top and bottom flange housing halves have match marks stamped on the mating faces. When reassembling the flange, make sure match mark on the housing halves match.

1. Shaft must be clean, free of burrs and lubricated. File nicks from housing bases.
2. Loosen setscrews in collar and slide bearings on shaft. If force is necessary, tap inner race only with a light drift. For vertical applications, locate adjusting nut on bearing so nut faces upward.
3. Position expansion (floating) pillow block on mounting surface and tighten base hold-down bolts.
4. Position non-expansion (fixed) pillow block in correct relation to shaft and mounting surface. Tighten base hold down bolts, then torque setscrews in collar per Table 3.
5. Mount a dial indicator on the shaft near the non-expansion (fixed) bearing. Place the indicator probe so that it contacts the machined surface of the S-1 Unit Housing perpendicular to that surface. See sketch below. Only one face of the S-1 Unit is a machined face.

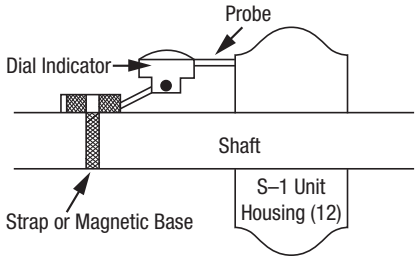


Figure 1 - S-1 Unit

6. Zero the indicator and sweep the machined face 360°, noting the total indicator turnout (TIR).
7. If the TIR is less than or equal to the value shown on Table 2. tighten the housing cap bolts per Table 4.

Table 2–Total Indicator Run-out (TIR)

Shaft size (Inches)	TIR (Inches)
1-3/16 – 1-7/16	0.0030
1-1/2 – 1-11/16	0.0035
1-3/4 – 2	0.0040
2-3/16	0.0040
2-1/4 – 2-1/2	0.0045
2-11/16 – 3	0.0055
3-3/16 – 3-1/2	0.0065
3-15/16 – 4	0.0070

8. If the TIR is greater than shown on Table 2, gently tap the machined face of the S-1 housing until the TIR is less than or equal to the value shown on Table 2. Then torque the housing cap bolts per Table 4. Sweep machined faces again to verify that the TIR is still less than or equal to the value shown on Table 2.
9. The non-expansion (fixed) bearing is now installed. Move to the expansion (floating) bearing.
10. Locate expansion unit in center of its axial travel or at extreme if maximum expansion is required (do not preload stop pin).
11. Torque setscrews of expansion unit per Table 3.
12. Repeat Steps 6, 7, 8 and 9 for the expansion bearing.
13. The expansion (floating) bearing is now installed.

Table 3–Set screw Torque

Bore size	Set screw size	In. - lbs.
1-3/16 – 1-1/4	5/16	165
1-3/8 – 1-7/16	5/16	165
1-1/2 – 1-11/16	5/16	165
1-3/4 – 2	3/8	290
2-3/16	3/8	290
2-1/4 – 2-1/2	3/8	290
2-11/16 – 3	1/2	620
3-3/16 – 3-1/2	1/2	620
3-15/16 – 4	5/8	1325

Table 4–Bolts Tightening Torque

Bolt size	Torque Ft. -lbs.
5/16 – 18	17-19
3/8 – 16	30-35
7/16 – 14	50-55
1/2 – 13	75-85
5/8 – 11	150-170
3/4 – 10	260-300

LUBRICATION GUIDELINES

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 relubrication, 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.

NOTE: Read preceding paragraphs before establishing lubrication schedule.

Table 5–Lubrication Guide

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	5	2	1	1	1	1

Lubrication recommendations are intended for standard products applied in normal operating conditions. For modified products, high temperature environments and other anomalous applications, contact product engineering at 864-284-5700.

Normal Operation—This bearing has been greased at the factory and is ready to run. Table 5 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 “Operating in Presence of Dust, Water, or Corrosive Vapors.”

High Speed Operation—High speed operation is 70 percent of maximum catalog speed and above. 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 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 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.” 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.

Operating Temperature—Abnormal bearing temperature may indicate faulty lubrication. Normal temperature may range from a few degrees up to 100°F above ambient, depending on bearing size, speed, loading and environmental conditions. Unusually high temperature, in this range, accompanied by excessive leakage of grease indicates too much grease. In the circumstance that there is excess grease in the bearing, remove the grease fitting to allow the excess grease to purge. When purging ceases, wipe excess grease with a clean rag and screw fitting back into the bearing. 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.

Special Operating Conditions—Refer acid, chemical, extreme or other special operating conditions to Dodge Product Support, Greenville, South Carolina.

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 an NLGI #2 lithium complex base grease. Relubricate with 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.

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.

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