

## How to Use this Manual

The following instructions and recommendations apply to all standard Falk™ Type NRT backstops.

Their performance and life depend largely upon how they are installed and serviced. Drawings are representative of this series of backstops and may not agree in exact detail with all backstop sizes.

When requesting information, specify the M.O. number, backstop size, model number, maximum running rpm, torque rating, torque arm angle degrees, and date stamped on the backstop nameplate.

This manual provides detailed instructions on installation, maintenance, and parts identification. Use the following Table of Contents to locate required information.

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**CAREFULLY FOLLOW THE INSTRUCTIONS IN THIS MANUAL FOR OPTIMUM PERFORMANCE AND TROUBLE FREE SERVICE.**

## Introduction

**IMPORTANT:** Mount the backstop ONLY at the torque arm angle degrees ( $\pm 5^\circ$ ) stated on the nameplate and as described in Figure 4, page 5. Lubrication lines and oil level will be incorrect for other angles; refer revised specifications to the Factory.

**WARRANTY** — Rexnord Industries, LLC (the “Company”) warrants that NRT backstops (I) conform to Company’s published specifications, and (II) are free from defects of material for three years from the date of shipment.

Company does not warrant any non-Company branded products or components (manufacturer’s warranty applies) or any defects in, damage to, or failure of products caused by: (I) dynamic vibrations imposed by the drive system in which such products are installed unless the nature of such vibrations has been defined and accepted in writing by Company as a condition of operation; (II) failure to provide suitable installation environment; (III) use for purposes other than those for which designed, or other abuse or misuse; (IV) unauthorized attachments, modifications or disassembly, or (V) mishandling during shipping.

## Safety Codes & General Precautions

**WARNING:** Consult applicable local and national safety codes for proper guarding of rotating members. Lock out

power source and remove all external loads from drive before servicing drive or accessories.

**DISMANTLING, REPAIR, & PARTS REPLACEMENT** — See page 11. The backstop and normal associated equipment (shaft, pulleys, etc.), involve moving parts, therefore consult local, state, OSHA, and ANSI safety codes for proper guarding of revolving parts and possible pinch points. (A pinch point occurs at the contact point between the backstop torque arm and end covers, and between the torque arm and stirrup. See Figs. 2, 3, and 5).

Carefully read and follow all supplementary instructions and tags attached to the backstop and then file for future reference.

Operate the backstop within the torque rating, overrunning speed, temperature range, and torque arm angle listed on the nameplate. Follow lubrication instructions in this manual.

When removing backstop from shaft, do not apply heat to the backstop. Apply axial force to the hub of the backstop only.

Damage may occur to the backstop if it remains under full load for extended periods of time. Remove the load before shutting down the equipment.

If the shaft was accidentally rotated in the wrong direction of rotation at start-up, the backstop may have been damaged. Return the backstop to the Factory for inspection.

## Application Requirements

**BACKSTOP APPLICATION** — The Falk NRT backstop is designed to prevent reverse rotation in applications such as inclined conveyors, bucket elevators, fans, rotary pumps, and kilns. If local safety codes permit, the backstop may be used as a backup for a brake on these applications, but NOT in people conveying systems such as elevators, manlifts, ski tows or ski lifts. Also, DO NOT use the backstop as a substitute for a brake.

**OPERATING TEMPERATURES** — Enclosure of the backstop may cause overheating. Provide adequate ventilation. Backstop operating temperatures, at maximum overrunning speed, may reach 200°F (93°C). Determine the effect of this temperature on the driven equipment and provide cooling if necessary.

If a backstop operates in the sun at ambient temperatures over 100°F (38°C), then special measures should be taken to protect the backstop from solar energy. This protection can consist of a canopy over the backstop or reflective paint on the backstop. If neither is possible, a cooling device such as a fan may be required to prevent the sump temperature from exceeding the allowable maximum of 200°F (93°C).

**INDEXING** — Falk NRT backstops can be used for indexing service. Refer application data to the Factory for selection. Indexing is defined as continuous cyclic or periodic application of the backstop as encountered in the conversion of reciprocating or oscillating motion into intermittent linear motion.

**JOGGING** — Defined as start/stop movement with jerking or jolting motion is permissible. NOTE: There must be at least one complete overrunning revolution between backstop operations or it is considered an indexing application.

**EXPLOSIVE ATMOSPHERES** — The purchaser is responsible for taking adequate precautions to prevent spark generation in explosive atmospheres. Consideration should be given to spark generation that may occur when the torque arm strikes the stirrup.

**CHEMICAL ATMOSPHERES** — The backstop may be damaged if exposed to certain types of chemicals or vapors; for example, potash dust, chlorine gas, carbon tetrachloride, etc. These materials may cause deterioration of the seals or aluminum roller cage rings.

**AXIAL RETAINING COLLARS** — Axial retention of the backstop is required to prevent the backstop from moving on the shaft (either off the shaft or toward the headshaft bearing), causing increased loads on the backstop bearings. Rexnord offers axial retaining collars as an optional extra charge accessory for all applications. The collars are manufactured to fit the backstop and the shaft and can be mounted on either side of the backstop. This allows the retaining collars to be mounted on the shaft inside of the backstop if the application requirements so dictate. If two collars were furnished with the backstop, mount one collar on each side of the backstop (so backstop is sandwiched between the collars).

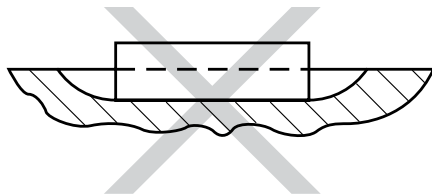
**LUBRICATION LINES, SIGHT GAUGE & BREATHER** — Do not assemble to backstop until backstop is mounted on the shaft.

## General Instructions

**BACKSTOP-SHAFT FITS** — The shaft must have a 125 micro-inch (or finer) finish and clearance fits specified in Table 2 (page 6).

**KEYS & KEYWAYS** — Keys to be used with Falk NRT backstops are furnished by the Factory. They are either cold drawn 1045 steel or heat-treated alloy steel (310-350 HB).

**DO NOT USE SLED RUNNER TYPE KEYWAY. IT MAY INDUCE UNDUE FORCES ON BACKSTOP.**



**BACKSTOP MOUNTING POSITIONS** — The backstop rotational axis must be horizontal within 5° for all applications.

The NRT backstop is capable of being mounted at any desired angle, per Figures 2 and 4, page 5; however, a horizontal mounting at 0° or 180° is preferred. The mounting angle must be specified at the time of purchase. This enables Rexnord to custom fit the lubrication lines and establish and mark the proper static oil level for the specified mounting angle. The lubrication lines, sight gauge and breather are removed for shipping purposes.

Furnished lubrication lines and oil level will be incorrect for mounting angles not within 5° of the angle stamped on the nameplate — refer revised specifications to the Factory.

**TORQUE ARM STOPS (OR STIRRUP)** — The torque arm stops must be designed to resist the force developed by the actual torque applied to the backstop. The minimum recommended distance to the torque arm stop is .9N as illustrated in Figure 1, page 5, and Table 3, page 6. Use torque arm stops capable of withstanding the loads tabulated in Table 3, page 6.

Where shorter than recommended torque arms are required, the stirrup should be designed to withstand the increased reaction forces of the shorter torque arm.

$$\text{Actual Retention Force} = \frac{\text{Actual Peak Backstopping Torque}}{\text{Actual Application Dimension N}}$$

The torque arm must be free to move within the stirrup. Provide clearance on three sides per Figure 3, page 5. DO NOT restrict torque arm movement by welding or securing the torque arm to any supporting structure.

Locate the torque arm support surface parallel ( $\pm 1/2^\circ$ ) to the torque arm surface.

Prevent accumulation of any foreign material or ice around torque arm and torque arm stirrup which could restrict free movement of the torque arm.

**LIFTING INSTRUCTIONS** — See Figure 5, page 5. Cotter pins must be locked to prevent axial movement of torque arm pin. Sling torque arm as shown. Use clamps or similar device to prevent sling from slipping.

**TABLE 1 — Shaft and Keyway Dimensions – Inch**

Size	Nominal Shaft Diameter (Over-Thru)	Shaft Keyway		Backstop Keyway		Key ①			
		Width	Depth	Width	Depth	Width x Height	Key Length Furnished	Minimum Key Engagement	Key Material ②
1075NRT	2.3125 - 2.7500	.625	.313	.625	.313	.625 x .625	7.25	6.50	2
	2.7500 - 3.2500	.750	.375	.750	.375	.750 x .750	7.00	6.00	1
	3.2500 - 3.5625	.875	.438	.875	.438	.875 x .875	5.50	4.50	1
	3.5625 - 3.7500	.875	.313	.875	.323	.875 x .625	7.25	5.50	1
	3.7500 - 3.9375	1.000	.500	1.000	.250	1.000 x .750	7.00	6.50	1
1085NRT	2.9375	.750	.375	.750	.375	.750 x .750	7.50	7.00	2
	2.9375 - 3.2500	.750	.375	.750	.375	.750 x .750	7.50	7.00	2
	3.2500 - 3.7500	.875	.438	.875	.438	.875 x .875	6.00	4.50	2
	3.7500 - 4.5000	1.000	.500	1.000	.500	1.000 x 1.000	7.00	5.50	1
	4.5000 - 4.7500	1.250	.625	1.250	.625	1.250 x 1.250	7.00	4.00	1
4.7500 - 5.1875	1.250	.625	1.250	.250	1.250 x .8750	7.00	7.00	1	
1095NRT	3.4375	.875	.438	.875	.438	.875 x .875	9.50	9.00	2
	3.4375 - 3.7500	.875	.438	.875	.438	.875 x .875	9.50	9.00	2
	3.7500 - 4.5000	1.000	.500	1.000	.500	1.000 x 1.000	9.00	8.50	1
	4.5000 - 5.0000	1.250	.625	1.250	.625	1.250 x 1.250	7.00	6.00	1
	5.0000 - 5.5000	1.250	.625	1.250	.500	1.250 x 1.125	7.00	6.50	1
1105NRT	4.9375	1.250	.625	1.250	.625	1.250 x 1.250	7.50	7.00	2
	4.9375 - 5.5000	1.250	.625	1.250	.625	1.250 x 1.250	7.50	7.00	2
	5.5000 - 6.5000	1.500	.750	1.500	.750	1.500 x 1.500	8.00	6.50	1
	6.5000 - 7.4375	1.750	.750	1.750	.750	1.750 x 1.500	9.00	5.50	1
1115NRT	5.9375	1.500	.750	1.500	.750	1.500 x 1.500	8.75	8.00	2
	5.9375 - 6.5000	1.500	.750	1.500	.750	1.500 x 1.500	8.75	8.00	2
	6.5000 - 7.5000	1.750	.750	1.750	.750	1.750 x 1.500	9.00	8.50	1
	7.5000 - 8.0000	2.000	.750	2.000	.750	2.000 x 1.500	9.00	8.00	1
	8.0000 - 8.4375	2.000	.750	2.000	.500	2.000 x 1.250	10.50	10.50	1
1125NRT	7.2500	1.750	.750	1.750	.750	1.750 x 1.500	11.00	10.50	1
	7.2500 - 7.5000	1.750	.750	1.750	.750	1.750 x 1.500	11.00	10.50	1
	7.5000 - 9.0000	2.000	.750	2.000	.750	2.000 x 1.500	11.00	10.50	1
1135NRT	8.5000	2.000	.750	2.000	.750	2.000 x 1.500	11.00	10.00	2
	8.5000 - 9.0000	2.000	.750	2.000	.750	2.000 x 1.500	11.00	10.00	2
	9.0000 - 10.5000	2.500	.875	2.500	.875	2.500 x 1.750	12.00	11.00	1
1145NRT	9.0000	2.000	.750	2.000	.750	2.000 x 1.500	13.00	12.50	2
	9.0000 - 11.0000	2.500	.875	2.500	.875	2.500 x 1.750	12.00	11.50	2
	11.0000 - 12.0000	3.000	1.000	3.000	1.000	3.000 x 2.000	13.00	11.00	1
1155NRT	10.5000	2.500	1.250	2.500	1.250	2.500 x 2.500	12.00	11.00	2
	10.5000 - 11.0000	2.500	1.250	2.500	1.250	2.500 x 2.500	12.00	11.00	2
	11.0000 - 13.0000	3.000	1.000	3.000	1.000	3.000 x 2.000	13.00	12.50	2
	13.0000 - 13.2500	3.500	1.250	3.500	1.250	3.500 x 2.500	12.00	9.00	2
1165NRT	12.5000	3.000	1.000	3.000	1.000	3.000 x 2.000	15.50	12.00	2
	12.5000 - 13.0000	3.000	1.000	3.000	1.000	3.000 x 2.000	15.50	12.00	2
	13.0000 - 15.0000	3.500	1.250	3.500	1.250	3.500 x 2.500	12.00	12.00	2
	15.0000 - 15.5000	4.000	1.500	4.000	1.500	4.000 x 3.000	13.00	9.00	2
1175NRT	13.5000	3.500	1.250	3.500	1.250	3.500 x 2.500	16.00	15.50	2
	13.5000 - 15.0000	3.500	1.250	3.500	1.250	3.500 x 2.500	16.00	15.50	2
	15.0000 - 17.5000	4.000	1.500	4.000	1.500	4.000 x 3.000	13.00	12.50	2
1185NRT	15.5000	4.000	1.500	4.000	1.500	4.000 x 3.000	17.00	16.50	2
	15.5000 - 18.0000	4.000	1.500	4.000	1.500	4.000 x 3.000	17.00	16.50	2
	18.0000 - 20.0000	5.000	1.750	5.000	1.750	5.000 x 3.500	14.00	13.50	2

① Keys are furnished by Rexnord to suit shaft and backstop keyways. Keys are either cold drawn 1045 material or heat-treated alloy steel (310-350HB).

② #1 Keys are cold-drawn 1045 steel.

#2 Keys are heat-treated alloy steel (310-350HB).



**TABLE 1A — Shaft and Keyway Dimensions – Metric (Millimeters)**

Size	Nominal Shaft Diameter (Over-Thru)	Shaft Keyway		Backstop Keyway		Key ①			
		Width	Depth	Width	Depth	Width x Height	Key Length Furnished	Minimum Key Engagement	Key Material ②
1075NRT	58 - 65	18.0	7.0	18.0	4.4	18 x 11	210	210	2
	65 - 75	20.0	7.5	20.0	4.9	20 x 12	200	185	2
	75 - 85	22.0	9.0	22.0	5.4	22 x 14	180	160	2
	85 - 95	25.0	9.0	25.0	5.4	25 x 14	150	140	2
	95 - 100	28.0	10.0	28.0	4.9	28 x 14.5	180	140	2
1085NRT	75 - 85	22.0	9.0	22.0	5.4	22 x 14	210	210	2
	85 - 95	25.0	9.0	25.0	5.4	25 x 14	210	210	2
	95 - 110	28.0	10.0	28.0	6.4	28 x 16	180	170	2
	110 - 130	32.0	11.0	32.0	7.4	32 x 18	150	120	2
1095NRT	95 - 110	28.0	10.0	28.0	6.4	28 x 16	265	265	2
	110 - 130	32.0	11.0	32.0	7.4	32 x 18	230	225	2
	130 - 150	36.0	12.0	36.0	7.4	36 x 19	180	160	2
1105NRT	120 - 130	32.0	11.0	32.0	7.4	32 x 18	265	265	2
	130 - 150	36.0	12.0	36.0	8.4	36 x 20	265	265	2
	150 - 170	40.0	13.0	40.0	9.4	40 x 22	220	210	2
	170 - 200	45.0	15.0	45.0	10.4	45 x 25	170	165	2
1115NRT	150 - 170	40.0	13.0	40.0	9.4	40 x 22	290	290	2
	170 - 200	45.0	15.0	45.0	10.4	45 x 25	290	280	2
	200 - 225	50.0	17.0	50.0	11.4	50 x 28	220	220	2
1125NRT	180 - 200	45.0	15.0	45.0	10.4	45 x 25	305	305	2
	200 - 230	50.0	17.0	50.0	11.4	50 x 28	305	305	2
	230 - 240	56.0	20.0	56.0	12.4	56 x 32	280	250	2
1135NRT	210 - 230	50.0	17.0	50.0	11.4	50 x 28	350	350	2
	230 - 260	56.0	20.0	56.0	12.4	56 x 32	350	350	2
	260 - 280	63.0	20.0	63.0	12.4	63 x 32	330	315	2
1145NRT	260	56.0	20.0	56.0	12.4	56 x 32	350	350	2
	260 - 290	63.0	20.0	63.0	12.4	63 x 32	350	350	2
	290 - 300	70.0	22.0	70.0	14.4	70 x 36	350	340	2
1155NRT	290 - 330	70.0	22.0	70.0	14.4	70 x 36	360	360	2
	330 - 350	80.0	25.0	80.0	15.4	80 x 40	360	330	2
1165NRT	320 - 330	70.0	22.0	70.0	14.4	70 x 36	415	395	2
	330 - 380	80.0	25.0	80.0	15.4	80 x 40	415	395	2
	380 - 405	90.0	28.0	90.0	17.4	90 x 45	380	365	2
1175NRT	380 - 440	90.0	28.0	90.0	17.4	90 x 45	430	415	2
	440 - 465	100.0	31.0	100.0	19.5	100 x 50	430	415	2
1185NRT	440 - 500	100.0	31.0	100.0	19.5	100 x 50	450	430	2

① Keys are furnished by Rexnord to suit shaft and backstop keyways. Keys are either cold drawn 1045 material or heat-treated alloy steel (310-350HB)

② #1 Keys are cold-drawn 1045 steel.

#2 Keys are heat-treated alloy steel (310-350HB).

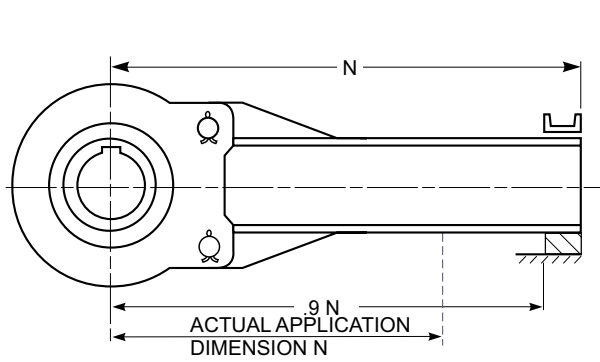


Figure 1

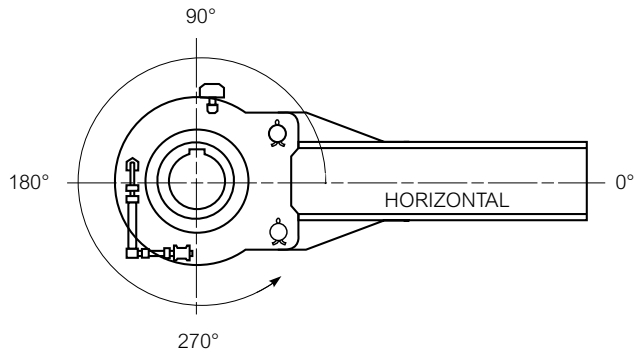


Figure 4

THE BACKSTOP ROTATIONAL AXIS (ie.-Bore Axis) MUST BE HORIZONTAL WITHIN 5°

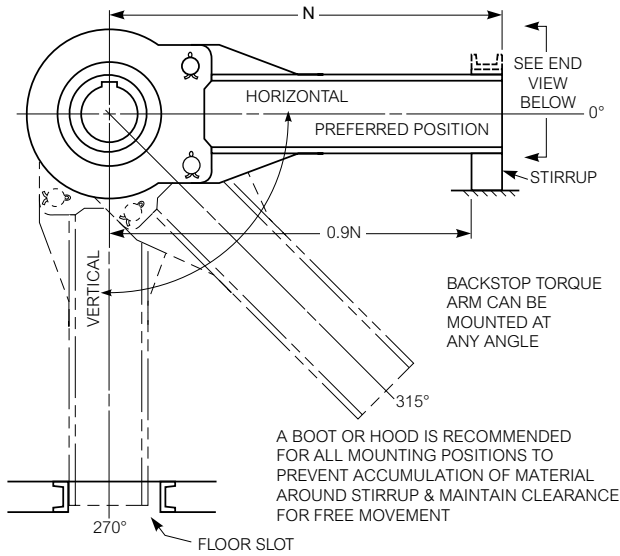


Figure 2

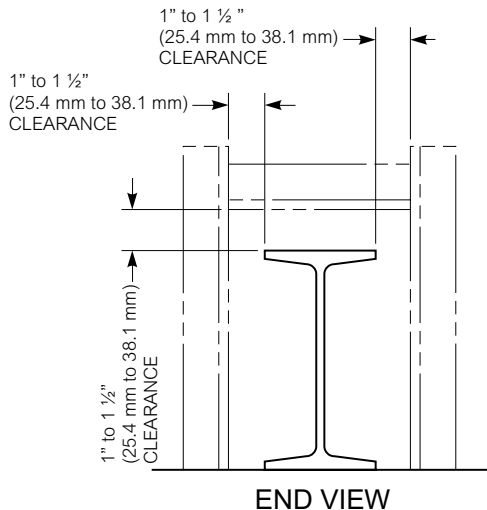


Figure 3

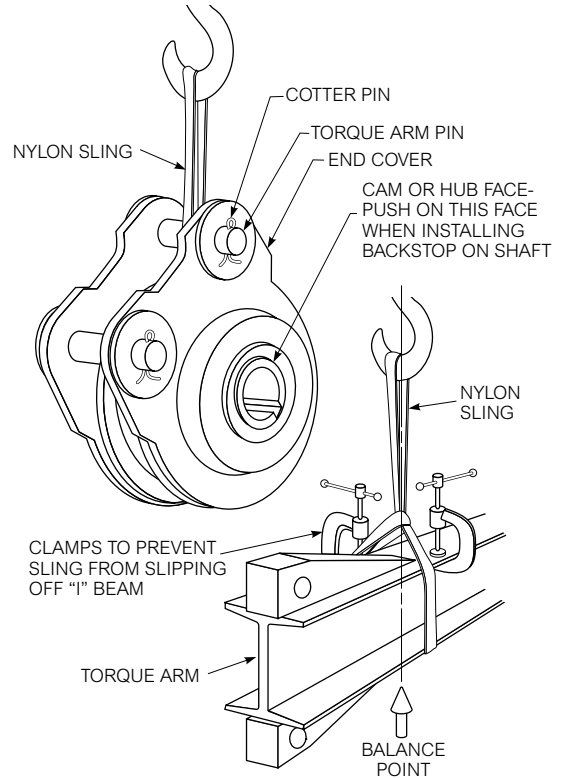


Figure 5

**TABLE 2 — Backstop – Shaft Fits (Inch<sup>①</sup>)**

Nominal Diameter (From-Includes)	Nominal Shaft Tolerance	Nominal Bore Diameter Tolerance	Bore–Shaft <sup>②</sup> Min–Max Clearance
1.9375 – 2.9375	+0.0000, –.0010	+0.0005, +.0015	.0005 – .0025
3.0000 – 7.9375	+0.0000, –.0010	+0.0010, +.0025	.0010 – .0035
8.0000 – 11.9375	+0.0000, –.0010	+0.0015, +.0035	.0015 – .0045
12.0000 – 14.9375	+0.0000, –.0010	+0.0020, +.0045	.0020 – .0055
15.0000 – 20.0000	+0.0000, –.0020	+0.0020, +.0045	.0020 – .0065

① Backstops for metric shafts are supplied w/E7 bore and D10 keyway tolerance assuming m6 shaft diameter and h9 keyway tolerance.

② A 125 micro-inch (or finer) shaft finish and clearance fit specified above are recommended.

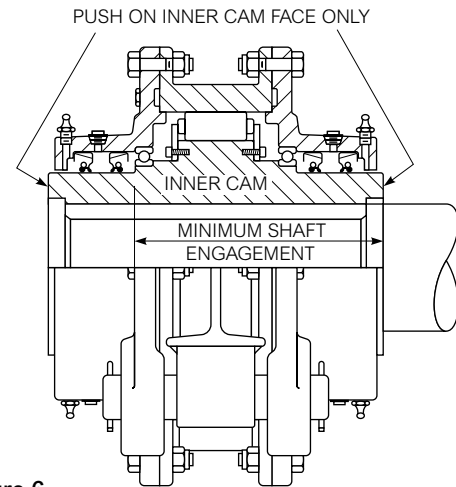


Figure 6

**TABLE 3 — Backstop Reaction Force at Torque Arm Stirrup (Inch & Metric)**

Backstop Size	Catalog Torque Rating		N Torque Arm Length (See drawing on next page)		.9N =/.5" (127mm)		Torque Arm Reaction Force <sup>③</sup>	
	lb-ft	Nm	Inch	mm	Inch	mm	lb	N
<b>1075NRT</b>	10,000	13,600	36.00	914	32.50	822	5,550	24,700
<b>1085NRT</b>	16,000	21,700	48.00	1219	43.00	1097	6,700	29,800
<b>1095NRT</b>	28,000	38,000	54.00	1372	48.50	1235	10,500	46,700
<b>1105NRT</b>	45,000	61,000	66.00	1676	59.50	1508	13,600	60,500
<b>1115NRT</b>	75,000	102,000	72.00	1829	65.00	1646	20,800	92,550
<b>1125NRT</b>	105,000	142,000	78.00	1981	70.00	1788	27,000	120,100
<b>1135NRT</b>	150,000	203,000	82.00	2083	74.00	1875	36,500	162,400
<b>1145NRT</b>	212,000	287,000	88.00	2235	79.00	2011	48,300	214,850
<b>1155NRT</b>	249,000	338,000	94.00	2386	84.50	2146	53,300	237,100
<b>1165NRT</b>	346,000	469,000	100.00	2540	90.00	2286	69,200	307,850
<b>1175NRT</b>	519,000	704,000	120.00	3048	108.00	2743	86,500	384,850
<b>1185NRT</b>	747,000	1,013,000	120.00	3048	108.00	2748	124,500	553,800

③ Reaction force is based on .9N torque arm length and 1.5 catalog rating:

$$\text{Force (lb)} = \frac{1.50 \times \text{Catalog Torque Rating (lb-ft)} \times 12 \text{ (inch per foot)}}{.9N \text{ (in)}}$$

$$\text{Force (N)} = \frac{1.50 \times \text{Catalog Torque Rating (Nm)} \times 1000 \text{ (mm per m)}}{.9N \text{ (mm)}}$$

For reduced length torque arms, substitute actual N dimension in formula.

**Installation**

**MOUNT BACKSTOP — CAUTION:** Before installing backstop, check direction of shaft-free rotation and required rotation of motor. The backstop overrunning (or free rotation) direction is indicated by a rotation arrow on each side of the backstop.

1. Clean the shaft and remove burrs.
2. Slide the axial retaining collar onto the shaft ONLY if the bore size or application requires a collar to be on the shaft inside of (or ahead of) the backstop.
3. Coat shaft and key with oil or anti-seize compound to ease installation of key, as well as backstop. Mount the heat-treated key furnished with the backstop.
4. Refer to Figure 5, page 5. Lift backstop and slide it onto shaft. Apply axial force only to the inner cam face of the backstop. The backstop must be positioned to meet certain minimum engagement requirements which vary with backstop and bore size. Minimum required engagement is determined by the GREATER distance of:
  - A. Minimum required backstop key engagement as shown in Tables 1 and 1A, pages 3 and 4, or
  - B. Minimum shaft/inner cam engagement as shown in Figure 6 and Table 4. If two axial retention collars are required, provide adequate shaft length to permit mounting the collars.

**TABLE 4 — Minimum Shaft Engagement**

Unit Size	1075	1085	1095	1105	1115	1125	1135	1145	1155	1165	1175	1185
Inches	6.2	6.2	8.1	8.1	9.0	9.6	11.4	11.4	11.5	13.8	14.3	14.7
mm	158	158	206	206	229	244	290	290	292	351	363	373

5. In all cases where a Rexnord axial retaining collar is used (other than the applications referred to in Step 2 above), mount the collar to the backstop. First tighten the fasteners to the backstop and then the fasteners to the shaft. Torque to the (lb-in) given in Table 5. For bore sizes requiring the use of two axial retention collars, mount collars (one on each side) on the shaft and tighten fasteners to the shaft.

**TABLE 5 — Axial Retaining Collar Fastener Tightening Torque<sup>③</sup> — lb-in/Nm**  
(all Fasteners are UNC)

Fastener Size	Tightening Torque (lb-in)	Tightening Torque (Nm)
.375"-16	440	50
.500"-13	1,025	116
.625"-11	2,050	232
.750"-10	3,475	393
1.000"- 8	7,875	890
1.250"- 7	13,750	1550

③ Do not oil fasteners.

**MOUNT TORQUE ARM**

1. Lift torque arm as shown in Figure 5, page 5, and attach it to the backstop with torque arm pins and cotter pins supplied with backstop. Lock cotter pins.
2. Place torque arm in torque arm support and then complete construction of the torque arm support as previously described under TORQUE ARM STOPS (OR STIRRUP) on page 2.

**CAUTION:** Check to see that backstop is not axially restrained through the torque arm and that accumulation of foreign material or ice cannot restrict movement of the torque arm.

**INSTALL LUBRICATION LINES, SIGHT GAUGE, & BREATHER**

1. As previously stated, Rexnord custom fits the lubrication lines and marks the static oil level to suit the torque arm mounting angle specified at the time of purchase. The lubrication lines, sight gauge, and breather are removed for shipping purposes. The torque arm mounting angle is stamped on the backstop nameplate, and the backstop must be mounted within  $\pm 5^\circ$  of this angle. See Figure 7, page 8, for interpretation of mounting angle. Lubrication lines and oil level will be incorrect for other angles.

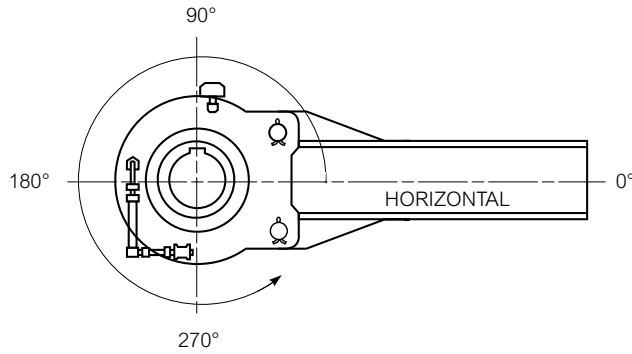


Figure 7

Use the above diagram to interpret the mounting angle specified on the backstop nameplate. View the backstop assembly from the shaft extension end as shown above.

**DO NOT exceed the mounting angle by  $\pm 5^\circ$  of the specification on the backstop nameplate.**

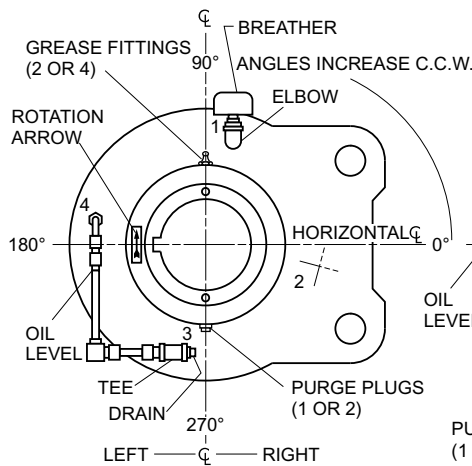


Figure 9

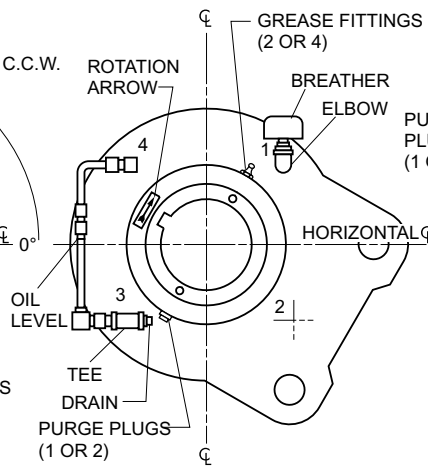


Figure 10

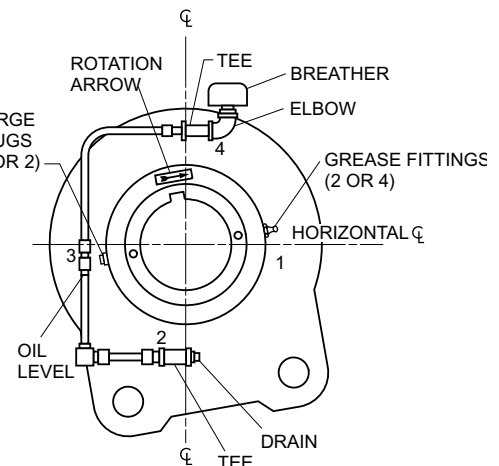


Figure 11

2. The lubrication lines, sight gauge and breather are removed for shipping, the pipe tees and elbows (see Figures 9, 10, and 11) are left in the end cover at the proper angles for simple reassembly. The tees and elbows are plugged for shipment.
3. The sight gauge/piping subassembly must be mounted in a position that allows direct viewing of oil level markings. Figures 9, 10, and 11 are examples of left-hand assembly configurations. Similar right-hand configurations are possible.
4. Coat all pipe threads with Permatex #3 or equivalent.
5. Position backstop and torque arm at angle stamped on nameplate ( $\pm 5^\circ$ ). Remove plug from the lowest pipe tee and attach sight gauge/piping subassembly. DO NOT tighten fittings.
6. With the sight gauge in the proper vertical position, locate and remove the plug nearest the unattached upper end of the sight gauge/piping subassembly.

This plug may be in the backstop end cover (Figures 9 and 10) or it may be in the upper pipe tee (Figure 11). Install fitting but DO NOT tighten.

7. Position sight gauge oil level groove to the appropriate dimension shown in Figure 12 and Table 6, page 9, and tighten all fittings.
8. Refer to the following page for recommended lubricant. Drain and flush residual shipping oil with specified lubricant. Fill with lubricant by removing the pipe plug in the elbow installed at Rexnord in the uppermost hole. Also remove the uppermost pipe plug in the opposite end cover to act as a vent. Fill to marks on oil sight glass. Replace plugs after filling.
9. Install breather and associated piping parts in the same elbow referred to in Step 8 above.
10. Backstops ordered as spares must be referenced to the original Falk M.O. number from the nameplate. Confirm power, speed, rotation, and torque arm angle.



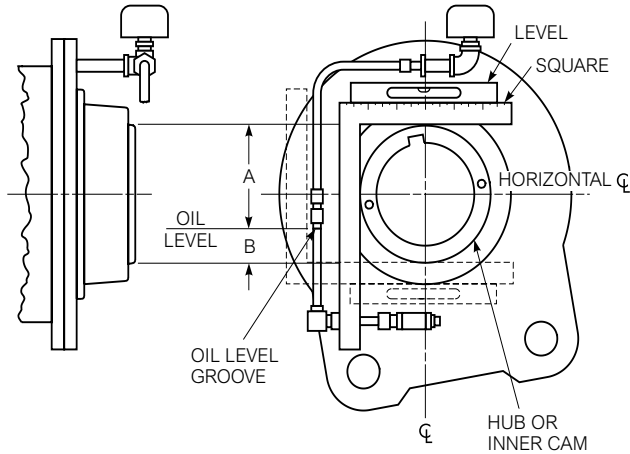


Figure 12 — METHODS OF MEASURING LOCATION OF OIL

TABLE 6 — Oil Level Dimensions<sup>①</sup> – Inch (mm)

Unit Size	Dimension "A"	Dimension "B"
1075	4.0 (102)	0.8 (20)
1085	5.3 (135)	1.2 (30)
1095	5.8 (147)	1.2 (30)
1105	7.6 (193)	1.7 (43)
1115	8.6 (218)	2.2 (56)
1125	9.7 (246)	2.3 (58)
1135	10.8 (274)	3.0 (76)
1145	12.1 (307)	2.9 (74)
1155	14.1 (358)	3.5 (89)
1165	15.1 (384)	4.4 (112)
1175	18.6 (472)	5.4 (137)
1185	20.0 (508)	5.0 (127)

① Adjust piping so that the oil level indicator on sight gauge is within ±1/4" (±6 mm) of Dimension "A" or "B."

**Lubrication**

**RECOMMENDED LUBRICANTS** — Refer to Tables 8 thru 12 (pages 10 and 11) for transmission fluids, oils and greases meeting Rexnord specifications. **NOTE:** Lubricants listed are typical products ONLY and should not be construed as exclusive recommendations.

Read and carry out all instructions on name and lubrication plates and heed all warning tags. Determine minimum and maximum ambient temperature in which the backstop is to operate and use the recommended lubricant for the particular size backstop which corresponds to the temperature conditions.

**CAUTION: DO NOT USE EXTREME PRESSURE LUBRICANTS OR GREASES.** Typical extreme pressure additives are sulphur, chlorine, lead and phosphorus derivatives, as well as graphite and molybdenum disulfide, which act under conditions of heat and pressure to produce a coating on the working surfaces.

**OIL LEVEL** — Fill the backstop with specified lubricant to the static level indicated by the scribed line on the vertical sight gauge. Check oil level in sight glass only when the unit is not operating. During operation the oil level in the sight glass will drop due to distribution of oil around the periphery of the housing. Approximate oil capacities are given in Table 7.

TABLE 6A — Recommended Lubricants

	Extreme Cold Ambient	Cold Ambient	Normal Ambient	High Temperature Ambient
Temperature Range (Degree F)	-40°F to -15°F	-15°F to +40°F	+32°F to 125°F	Greater than 125°F
Temperature Range (Degree C)	-40°C to -26°C	-26°C to +4°C	0°C to 52°C	Greater than 52°C
Unit Sizes 1075 NRT 1095NRT	Mobil Aero HFA or Dexron ATF	Dexron ATF or AGMA #2 Oil	Dexron ATF or AGMA #2 Oil	AGMA #3 Oil
Unit Sizes 1105NRT 1145NRT	Mobil Aero HFA or Dexron ATF	SAE 10W40 with pour point of at least -20°F (-29°C)	AGMA #4 Oil	Consult Factory
Unit Sizes 1155NRT-1185NRT	Mobil Aero HFA or Dexron ATF	SAE 10W40 with pour point of at least -20°F (-29°C)	AGMA #5 Oil	Consult Factory

TABLE 7 — Approximate Oil Capacities<sup>②</sup>

Backstop Size	Oil Capacity Aprox. Pints (Liters)	Grease Purge Qty-Oz (grams) <sup>③</sup>
1075	.50 (0.24)	2.25 (64)
1085	.75 (0.35)	3.00 (85)
1095	1.50 (0.71)	7.00 (198)
1105	2.00 (0.95)	9.00 (255)
1115	4.00 (1.89)	7.50 (213)
1125	5.00 (2.37)	8.25 (234)
1135	6.50 (3.08)	5.50 (156)
1145	8.00 (3.79)	10.25 (291)
1155	10.00 (4.73)	12.00 (340)
1165	16.00 (7.57)	8.00 (227)
1175	20.00 (9.46)	12.00 (340)
1185	26.00 (12.30)	16.75 (475)

② Use these quantities as a guide when ordering oil. Always fill to the static level indicated on the sight gauge.

③ Ounce (gram) per side.

**GREASE PURGED SEALS** — Backstops are furnished with grease purged tandem seals which, when greased, provide maximum protection under the most unfavorable conditions such as atmospheres laden with taconite or similarly severe abrasive dusts.

The inner seal cavity is grease packed by Rexnord for all backstops. Refer to Figure 13, page 10. **DO NOT FIELD PURGE INNER SEAL CAVITY.**

The option of adding grease to the outer grease cavity is the purchaser's; however, it is recommended that grease be added when operating in abrasive atmospheric conditions. Adding grease to the cavity is NOT RECOMMENDED if grease could contaminate the material being processed as in the food and drug industries.

To purge OUTER purge chambers, pump NLGI #2 grease into OUTER grease fittings until contaminated grease is expelled around the shaft. Wipe off purged grease.

If outer grease cavity is to be greased or purged, and the backstop is equipped with a shaft guard, remove guard cover to observe when grease is expelled from around the shaft.

**CAUTION: DO NOT use pressurized grease guns.**

**PURGING GREASE**

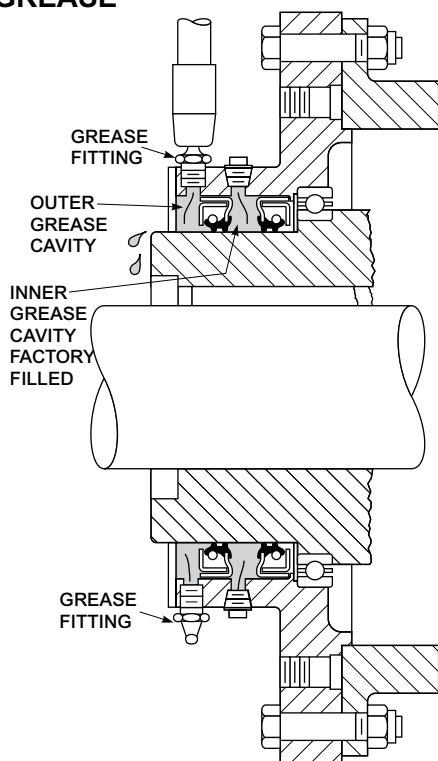


Figure 13

**TABLE 8 — Cold Climate Lubricant**

Ambient Temperature Range -10°F to -40°F (-23°C to -40°C) — Mobil Aero HFA

**TABLE 10 — Dexron Automatic Transmission Fluids**

API Gravity	— 28.2
Pour Point	— -50°F (-46°C)
Viscosity at 104°F (40°C) SSU	— 187
Viscosity Index ASTM D-2270	— 161
Color	— Red
Ambient Temp Range	— -40°F to +125°F (-40°C to +52°C)
Max Lube Operating Temp	— +200°F (+93°C)
Manufacturer	Lubricant
Amoco Oil Co.	Dexron A-T-F
Atlantic Richfield Co.	Arco Dexron ATF II
Cities Service Oil Co.	Automatic Trans. Fluid-Dexron Type
Conoco Inc.	Conoco Dexron II Fluid
Exxon Co. U.S.A.	Exxon ATF
Gulf Oil Co. U.S.	Automatic Trans. Fluid-Dexron
Mobil Oil Corp.	Mobil ATF D/M
Phillips Petroleum Co.	Automatic Trans. Fluid-Dexron
Shell Oil Co.	Domax T-6
Texaco Inc.	Texmatic Fluid 8570

**TABLE 11 — Multi-Viscosity Oils<sup>①</sup>**

Manufacturer	Lubricant
Amoco Oil Co.	Amoco LDO 10W40
Atlantic Richfield Co.	Arco Supreme 10W40
Cities Service Oil Co.	All Season Multi-Grade 10W40
Conoco Inc.	Tracon Supreme 10W40
Exxon Co. U.S.A.	Uniflo 10W40
Gulf Oil Co. U.S.	Gulf Pride Prem. 10W40
Mobil Oil Corp.	Mobil Super 10W40
Phillips Petroleum Co.	Trop-Artic All-Season 10W40
Shell Oil Co.	Fire & Ice 10W40
Texaco Inc.	Havoline Super Prem. 10W40

① Ambient Temperature Range -15°F to +40°F (-26°C to +4°C).  
SAE 10W-40 motor oil with a pour point of at least -20°F (-29°C).

**TABLE 9 — Petroleum-Based R & O Gear Oils** (Maximum operating temperature of lubricants 200°F (93°C))

AGMA Viscosity Grade	2	3	4	5	
ISO Viscosity Grade	68	100	150	220	
Viscosity	cSt @ 40°C	61.2-74.8	90-110	135-165	198-242
	SSU @ 100°F	284-347	417-510	626-804	918-1140
Manufacturer	Lubricant	Lubricant	Lubricant	Lubricant	
Amoco Oil Co. BP Oil Co. Chevron U.S.A., Inc. Citgo Petroleum Corp.	Amer. Ind. Oil 68 Turbinol T-68 Hydraulic Oil AW 68 Citgo Pacemaker 68	Amer. Ind. Oil 100 Turbinol T-100 Machine Oil AW 100 Citgo Pacemaker 100	Amer. Ind. Oil 150 ..... Machine Oil AW 150 Citgo Pacemaker 150	Amer. Ind. Oil 220 Energol HLP-HD 220 Machine Oil AW 220 Citgo Pacemaker 220	
Conoco Inc. Exxon Co., U.S.A. Houghton International Inc. Imperial Oil Ltd.	Dectol R & O Oil 68 Teressitic 68 Hydro-Drive HP-300 Teresso 68	Dectol R & O Oil 100 Teressitic 100 Hydro-Drive HP-500 Teresso 100	Dectol R & O Oil 150 Teressitic 150 Hydro-Drive HP-750 Teresso 150	Dectol R & O Oil 220 Teressitic 220 Hydro-Drive HP-1000 Teresso 220	
Kendall Refining Co. Keystone Lubricants Lyondell Petrochemical (ARCO) Mobil Oil Corp.	Kenoil R & O AW 68 KLC-20 Duro 68 DTE Oil Heavy	Kenoil R & O AW 100 KLC-30 Duro 100 DTE Oil Heavy	Four Seasons AW 150 KLC-40 Duro 150 DTE Oil Extra Heavy	..... KLC-50 Duro 220 DTE Oil BB	
Petro-Canada Prod. Phillips 66 Co. Shell Oil Co. Shell Canada Ltd.	Harmony 68 Magnus Oil 68 Turbo T68 Tellus 68	Harmony 100 Magnus Oil 100 Morlina 100 Tellus 100	Harmony 150 or 150D Magnus Oil 150 Morlina 150 Tellus 150	Harmony 220 Magnus Oil 220 Morlina 220 Tellus 220	
Texaco Lubricants Unocal 76 (East) Unocal 76 (West) Valvoline Oil Co.	Regal Oil R & O 68 Unax RX 68 Turbine Oil 68 Valvoline AW ISO 68	Regal Oil R & O 100 Unax RX 100 Turbine Oil 100 Valvoline AW ISO 100	Regal Oil R & O 150 Unax RX 150 Turbine Oil 150 Valvoline AW ISO 150	Regal Oil R & O 220 Unax RX 220 Turbine Oil 220 Valvoline AW ISO 220	

**TABLE 12 — Greases for Grease Purged Outer Seals<sup>①</sup>** (0° to 200°F (-18° to +93°C))

Manufacturer	Lubricant
Amoco Oil Co. Exxon Company, U.S.A. E.F. Houghton & Co. Imperial Oil Ltd.	Amoco Rykon Premium Grease No. 2 Unirex N2 Cosmolube 2 Unirex N2L
Kendoll Refining Co. Shell Oil Co. Shell Canada Limited Texaco Lubricants	Multi-Purpose Lithium Grease L421 Alvania Grease 2 Alvania Grease 2 Marfak #2

<sup>①</sup> The option of adding grease is the purchaser's. Adding grease to the outer seal cavities is **NOT RECOMMENDED** if grease could contaminate the material being processed as in the food and drug industries — use food grade greases.

### Preventive Maintenance

**AFTER FIRST WEEK OF OPERATION** — Drain lubricant and flush with fresh lubricant by operating 5 to 10 minutes. Drain again and fill with fresh, clean lubricant.

**LUBRICANT CHANGES** — For normal operating conditions (8 to 10 hours per day) with low dust or abrasive environment and ambient temperatures less than 150°F (66°C), change lubricant every six months or 2500 hours, whichever occurs first.

For 24 hours per day operating conditions, change lubricants every three months of operation.

For operation in a dusty or abrasive environment, it may be necessary to change lubricant and flush every 300 hours. Have a lubricant supplier test oil samples from the backstop periodically and recommend economical change periods based on the rate of lubricant contamination and degradation.

**PURGING GREASE SEALS** — Periodically, (at least at every lubricant change) depending upon the frequency and degree of contamination, purge contaminated grease from outer grease purged seals. See instructions on page 9 for purging grease.

**TORQUE ARM ALIGNMENT** — Check alignment of the torque arm whenever the lubricant is changed. Maintain clearances between torque arm and support as specified in the **TORQUE ARM STOPS (OR STIRRUP)** paragraph, page 2.

### Dismantling, Repair & Parts Replacement

**WARNING:** *DO NOT* attempt to service or remove backstop before removing load.

An important part of the Falk NRT backstop manufacturing process is the full load and overrunning testing with specially instrumented equipment. Consequently, return NRT backstops to Rexnord for repair and full load testing.

Except for replacement of oil seals (Service Manual 568-130), NRT backstops should not be dismantled or repaired in the field. If seals are to be replaced, it is important that the cam and roller assemblies not be removed from the outer race. Removal will void applicable warranties.

When writing to Rexnord Service Department concerning required service, state nature of problem and give complete data from backstop nameplate: M.O. number, size, date, etc.

### Stored or Inactive Backstops

Backstops are shipped **WITHOUT LUBRICANT** but do contain one ounce of Motorstor<sup>®</sup> vapor phase rust inhibitor which will protect internal parts against rust for a period of up to six months.

If the backstop is to be stored or inactive for more than six months, add the recommended amount of lubricant from Table 7, page 9, and add one ounce of Motorstor every additional six month period. Replace breather with pipe plug for extended storage.

Indoor dry storage is recommended. If outdoor storage is necessary, cover the backstop with a tarpaulin or suitable covering.

<sup>®</sup> Product of the Daubert Chemical Co., Chicago, IL.

**BEFORE PLACING BACKSTOP IN OPERATION** — Drain lubricant mixture and replace breather and oil sight gauge, if removed. Flush backstop and refill with clean, fresh lubricant per instructions above.

### PART DESCRIPTIONS

- |               |  |                                     |                              |
|---------------|--|-------------------------------------|------------------------------|
| 1. End Cover  | 7. Roller Cage End Rings (2)                         | 11. Optional Axial Retaining Collar | 13. Roller Cage Fasteners    |
| 2. Gasket     | 8. Inner Cam   | 12. Stop Lug                        | 14. Rotation Direction Plate |
| 3. Bearing    | 9. Outer Race  |                                     | 15. End Cover Fasteners      |
| 4. Outer Seal | 10. Labyrinth Shroud<br>(Not available on all sizes) |                                     | 16. Torque Arm               |
| 5. Inner Seal |  |                                     | 17. Torque Arm Pin           |
| 6. Rollers    |  |                                     |                              |

