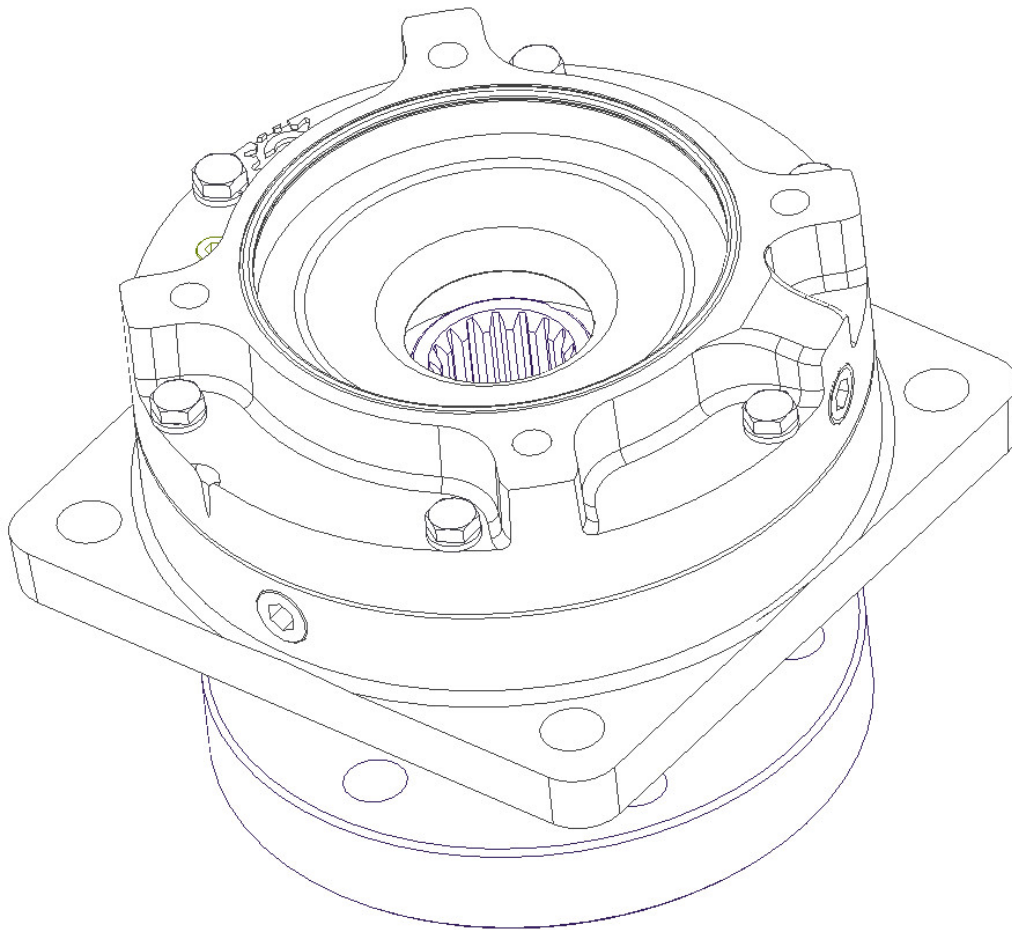




## SERVICE MANUAL MODEL 28 BEARING ADAPTER



**WARNING:** While working on this equipment, use safe lifting procedures, wear adequate clothing and wear hearing, eye and respiratory protection.

**THIS SERVICE MANUAL IS EFFECTIVE:**  
S/N: 119739 TO CURRENT  
DATE: 2/3/2014 TO CURRENT  
VERSION: SM28LM-AA

**NOTE:** Individual customer specifications (mounting case, output shaft, brake assembly, etc.) may vary from exploded drawing and standard part numbers shown. If applicable, refer to customer drawing for details.



## MODEL 28 BEARING ADAPTER

EFFECTIVE FROM: SN-119739 02-03-2014

PARTS LIST				
GROUP	ITEM	QTY	PART NUMBER	DESCRIPTION
	1	1	28-004-3657	CASE - B28
	2	1	A	OUTPUT SHAFT
	3	1	B	COVER
16	-	-	28-016-2002	SEAL KIT
	16A	1	01-405-0550	SEAL
	16B	1	01-406-0111	SEAL V-RING
	16C	1	01-402-0560	O-RING
20	-	-	-	SHAFT BEARINGS
	20A	2	01-102-0160	BEARING CONE
	20B	2	01-103-0160	BEARING CUP
25	-	-	-	HARDWARE
	25A	6	01-150-1400	HHCS
	25G	6	01-166-0110	LOCK WASHER, 5/16
	30	2	01-207-0070	PIPE PLUG (3/8 MAGNETIC)
35	-	-	-	MISCELLANEOUS
	35A	*	20-004-1091	SHIM
	35B	1	20-004-1362	SPLIT RING (20-L-SEGMENT)
	35C	1	20-004-1372	LOCK RING (20L)

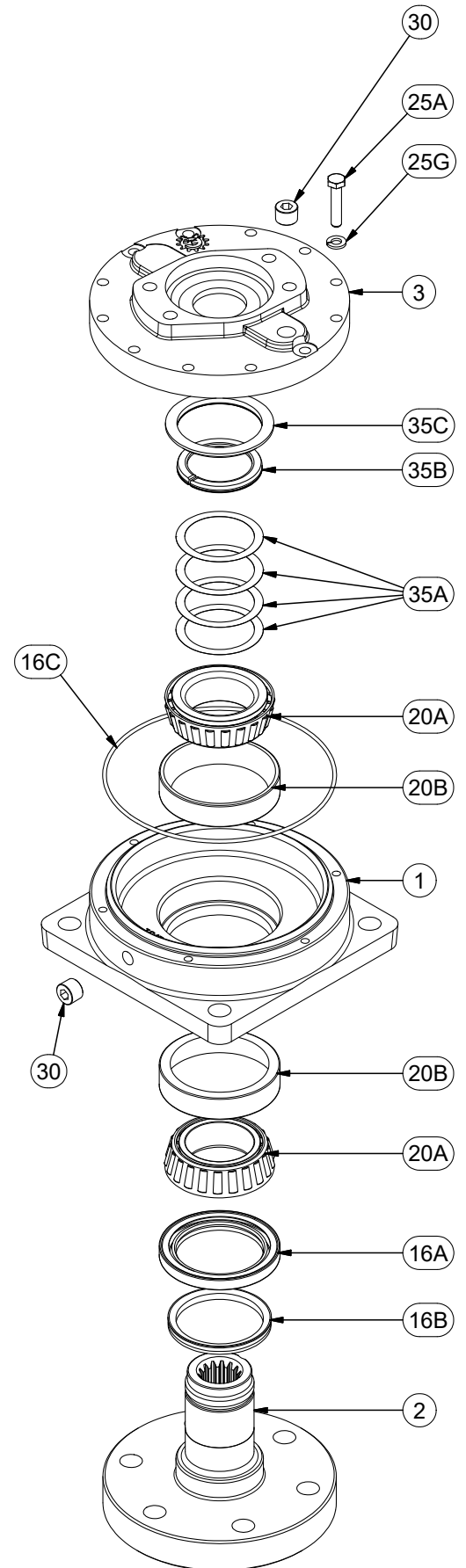
\*QUANTITY DEPENDANT UPON DESIRED BEARING PRELOAD  
X28LM ECN: - REV: A 09-03-2020 HWP

A

ITEM 2 (INPUT SPLINE) OPTIONS	
PART NUMBER	DESCRIPTION
28-004-4230L	14T 12/24 DP
28-004-4228L	17T 12/24 DP

B

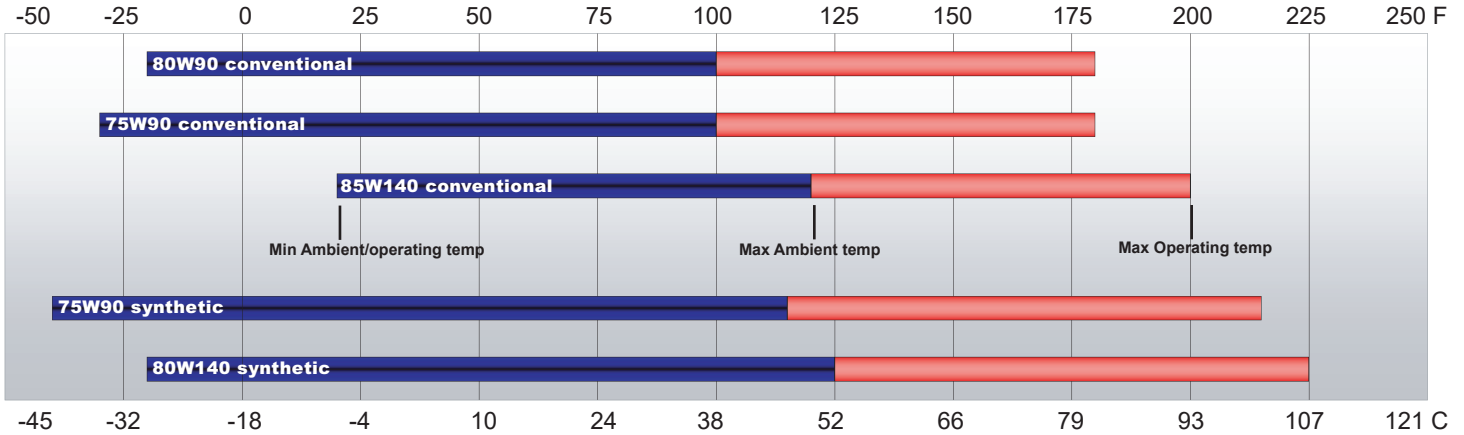
ITEM 3 (COVER) OPTIONS	
PART NUMBER	DESCRIPTION
85-004-1513	SAE 'A' 2 & MOD 4-BOLT
85-004-1503	SAE 'B' 2-BOLT
28-004-1013	SAE 'C' 4-BOLT



# LUBRICATION & MAINTENANCE

Using the chart below, determine an appropriate lubricant viscosity. Use only EP (extreme pressure) or API GL-5 designated lubricants. Change the lubricant after the first 50 hours of operation and at 500 hour intervals thereafter.







## Recommended ambient and operating temperatures for conventional and synthetic gear lubricants



**Note:** Ambient temperature is the air temperature measured in the immediate vicinity of the gearbox. A Gearbox exposed to the direct rays of the sun or other radiant heat sources will operate at higher temperatures and therefore must be given special consideration. The max operating temperature must not be exceeded under any circumstances, regardless of ambient temperature.

If your unit was specified "shaft up" or with a "-Z" option, a grease zerk was provided in the base housing. For shaft-up operation, the output bearing will not run in oil and must be grease lubricated. Use a lithium based or general purpose bearing grease sparingly every 50 operating hours or at regular maintenance intervals. Over-greasing the output bearing should be avoided as it tends to fill the housing with grease and thicken the oil

## ESKRIDGE MODEL 28L OIL CAPACITIES

Operating Position		Oil Capacity	Oil Level
	Horizontal Shaft	Single/Double stage 14 oz / .41 L	To horizontal centerline of gear drive 
	Vertical Shaft (Pinion Up)	-	- 
	Vertical Shaft (Pinion Down)	17 oz / .50 L	See Product Specifications Sheet 

## ESKRIDGE PART NUMBER INTERPRETATION

**Note:** All non custom Eskridge Geardrives are issued a descriptive part number which includes information regarding the Model, means of shaft retention, base style, shaft style, input mounting, input shaft size, overall ratio and various available options. For a detailed breakdown of this information, please refer to Eskridge product specification sheets found at: <http://www.eskridgeinc.com/geardrives/gearprodspecs.html>

# Unit Disassembly Procedure

All number references refer to the exploded drawing on Page 2.

- 1) Scribe a diagonal line across the outside of the unit from the cover (3) to the base (1) before disassembly to aid in the proper positioning of pieces during reassembly.
- 2) Remove drain plugs (30) and drain oil from unit. The oil will drain faster and more completely if warm. Tilt the unit so that the drain port in the base (1) points downward to drain as much oil as possible.
- 3) Remove the six hex-head capscrews (25A) and lockwashers (25G).
- 4) Remove cover (3), and inspect o-ring (16C). Discard o-ring if damaged or deformed.
- 5) Remove the lock ring (35C) using a heel bar or puller. Be careful not to pry against the bearing cage (20A). Remove split ring segments (35B) and shims (35A).

**Caution: Since the output shaft is no longer retained, care should be taken to avoid personal injury. Care should also be taken not to damage the shaft while pressing through base.**

- 6) Base (1) should be set spindle side down, as shown, on a plate or table. Press output shaft through the bottom of base by applying a load to top end (internal end) of shaft until it passes through inner shaft bearing cone (20A). Shaft seal (16A) will also be pressed out and will likely be damaged.
- 7) A gear puller or bearing splitter may be used to remove the outer bearing cone (20A) from the shaft (2). If reusing old bearing cone, do not pull on or damage roller cage. Remove the shaft seal (16A) and v-ring seal (16B) for inspection or replacement.
- 8) Inspect inner and outer bearing cups (20B). If cups are damaged, drive them out using a brass drift or remove with a puller.

# Unit Assembly Procedure

- 1) Clean all foreign material from oil plugs (30).
- 2) Place base (1) (output side up, opposite shown) on the table.
- 3) Apply a layer of lithium or general purpose bearing grease to the roller contact surface of outer bearing cup (20B).
- 4) Lubricate inner lip of v-ring seal (16B) and fit onto the shaft (2) seal diameter and against the shoulder.
- 5) Lubricate inner lip of shaft seal (16A) and slide it onto the shaft (2) until it fits snugly over the shaft seal diameter with the open side of the seal toward the inside of the unit.
- 6) Press outer bearing cone (20A) (large end down as shown) onto the shaft until it seats against the shoulder.

**Note: Press bearing cone onto output shaft by pressing on inner race only. DO NOT press on roller cage, as it may damage bearing.**

- 7) Place the shaft (2) with the bearing (20A), shaft seal (16A), and v-ring seal (16B) into the base (1).
- 8) Flip this assembly, resting it on the end of the output shaft (2).
- 9) Place thin shims (1/8 to 3/16 inch thick) between shaft seal (16A) and face of spindle (2). Being careful not to damage v-ring seal (16B), press lightly on base (1) until shaft seal is flush with base. Remove shims.
- 10) Apply a layer of lithium or general purpose bearing grease to the roller contact surface of the inner cup (20B). Press the inner bearing cone (20A) (large end up as shown) onto the shaft (2) until it is seated against inner bearing cup (20B).
- 11) Bearing preload may result in a rolling torque that varies between 35 to 65 in-lbs. The bearing preload should be tailored to your application; a low-speed application may require a high pre-load, high-speed applications usually benefit from low pre-load. Adding shims (35A) will increase the pre-load on the bearing set. Determine your pre-load requirement and install shims to obtain this pre-load. Install the Load-N-Lock segments (35B) over the shims and into the groove in the output shaft. With the Load-N-Lock segments firmly installed place lock ring (35C) over the segments.
- 12) Lubricate o-ring (16C) and install in the pilot of the cover (3). Noting the scribed line made during disassembly, install the cover.
- 13) Install the six hex-head cap-screws (25A) with lockwashers (25G). **Torque the cap-screws to 25 ft-lb dry or 18 ft-lb if the fasteners are lubricated.**
- 14) Ensure the unit spins freely by using a splined shaft to drive the shaft (2).
- 15) Fill the unit with GL5 EP 80/90 gear oil to the proper level, as specified, using the oil fill hole in the cover (3).

**The unit is now ready to use.**