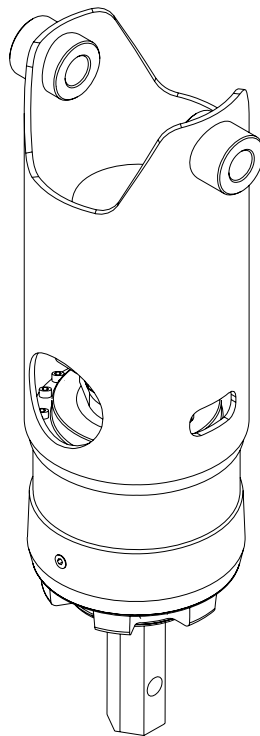
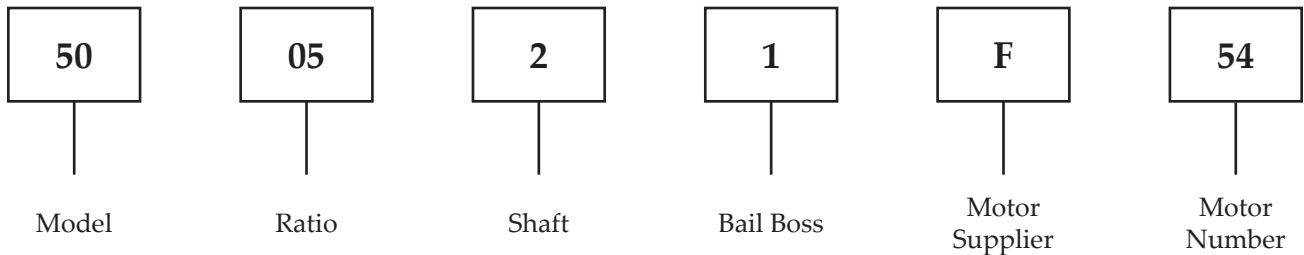


# ESKRIDGE

## D50L PLANETARY AUGER DRIVE SERVICE AND REPAIR MANUAL

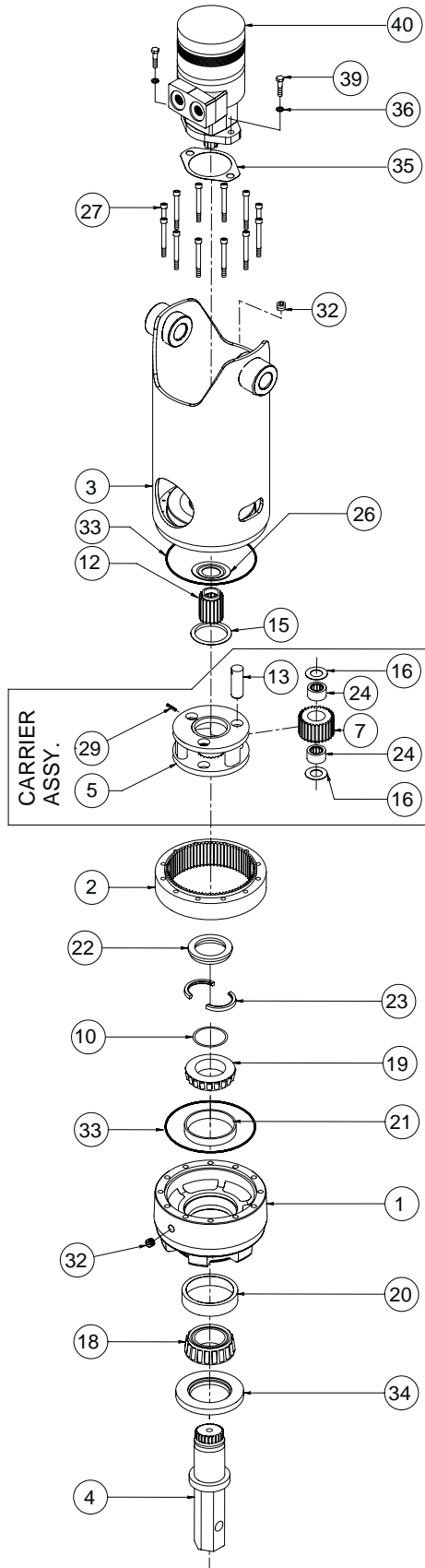


### Example Part Number



THIS SERVICE MANUAL IS EFFECTIVE  
FROM: ..... S/N 58670, SEPT. 2003  
TO: ..... CURRENT  
REF: ..... SMD50L-AA

# Single Stage Exploded View Drawing



# ESKRIDGE

## MODEL D50

WITH INTEGRAL BAIL

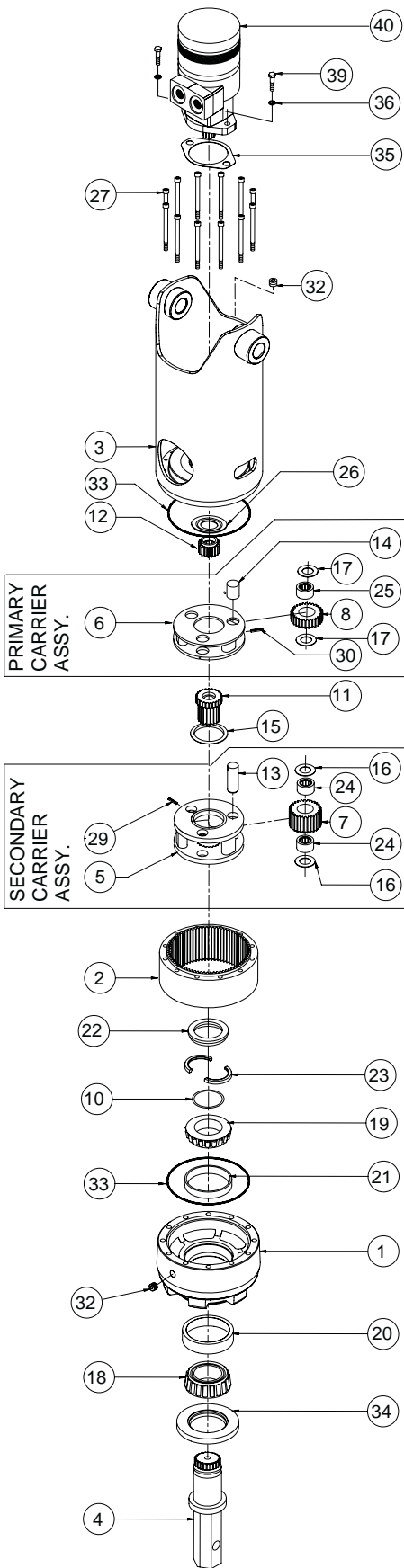
EFFECTIVE FROM: S/N 79406 03-05-08 TO: (CURRENT)		SINGLE PLANETARY	
DESCRIPTION		RATIO	
ITEM	QTY.	PART NUMBER	
1	1	50-004-3303	
2	1	50-004-1033	
3	1	50-005-2142	
3	1	50-005-2132	
4	1	50-004-4082L	
5	1	50-004-1052	
6	-	-	
7	3	85-004-1041	
8	-	-	
10	*	50-004-1521	
11	-	-	
12	1	85-004-1262	
13	3	71-004-0121	
14	-	-	
15	1	50-004-1011	
16	6	85-004-1181	
17	-	-	
18	1	01-102-0140	
19	1	01-102-0150	
20	1	01-103-0130	
21	1	01-103-0140	
22	1	50-004-1462	
23	1	50-004-1452	
24	6	01-105-0010	
25	-	-	
26	1	50-004-1091	
27	12	01-150-1830	
29	3	01-153-0210	
30	-	-	
32	2	01-207-0070	
33	2	01-402-0560	
34	1	01-405-0530	
35	1	90-004-1081	
36	2	01-166-0030	
39	2	01-150-0090	
40	1	01-304-0550	
40	1	01-304-0540	

NOTES: \* BEARING PRELOAD DETERMINES QUANTITY OF SHIMS.

SEAL KIT (P/N 85-016-0601) INCLUDES (2 EA.) O-RINGS AND (1 EA.) SEAL.

XD50LD1-AA / DATE: 03-04-2008

# Double Stage Exploded View Drawing



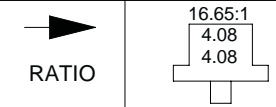
# ESKRIDGE

# MODEL D50

WITH INTEGRAL BAIL

EFFECTIVE  
FROM: S/N 58670 09-01-03  
TO: (CURRENT)

DOUBLE PLANETARY



DESCRIPTION			
ITEM	QTY.	PART NUMBER	
BASE	1	1	50-004-3303
RING GEAR	1	2	50-004-1023
COVER / BAIL ASSY 1" BAIL BOSSES	3	1	50-005-2142
COVER / BAIL ASSY 1-1/4" BAIL BOSSES			50-005-2132
OUTPUT SHAFT - HEX 2"	4	1	50-004-4082L
CARRIER-SECONDARY	5	1	50-004-1062
CARRIER-PRIMARY	6	1	50-004-1082
PLANET GEAR-SEC.	7	3	85-004-1051
PLANET GEAR-PRI.	8	3	85-004-1031
SHIM(S)	10	*	50-004-1521
SUN GEAR-SECONDARY	11	1	85-004-1412
INPUT GEAR (CODE 3 SAE 1"-6B)	12	1	85-004-1122
PLANET SHAFT-SECONDARY	13	3	71-004-0121
PLANET SHAFT-PRIMARY	14	3	81-004-0071
THRUST WASHER-SEC CUP	15	1	50-004-1011
THRUST WASHER-SEC.PLANET (GEAR)	16	6	85-004-1181
THRUST WASHER-PRI.PLANET (GEAR)	17	6	81-004-1561
BEARING CONE (OUTER)	18	1	01-102-0140
BEARING CONE (INNER)	19	1	01-102-0150
BEARING CUP (OUTER)	20	1	01-103-0130
BEARING CUP (INNER)	21	1	01-103-0140
LOCK RING	22	1	50-004-1462
SPLIT RING	23	1	50-004-1452
BEARING-SEC.PLANET	24	6	01-105-0010
BEARING-PRI.PLANET	25	3	01-105-0410
THRUST WASHER-INPUT	26	1	50-004-1091
SOCKET HEAD CAPSCREW 7/16-20 X 4.5 GR8	27	12	01-150-1820
ROLLPIN-SECONDARY 3/16 X 7/8	29	3	01-153-0210
ROLLPIN-PRIMARY 1/8 X 1	30	3	01-153-0080
PIPE PLUG-MAGNETIC 3/8 NPT-SOC HD	32	2	01-207-0070
O-RING 167 MM X 3 MM	33	2	01-402-0560
	34	1	01-405-0530
GASKET	35	1	90-004-1081
LOCK WASHER 1/2	36	2	01-166-0030
HHCS 1/2-13 X 1-1/2 GR5	39	2	01-150-0090
HYD. MOTOR (UNIT 5016-21F54 ONLY)	40	1	01-304-0540

NOTES: \* BEARING PRELOAD DETERMINES QUANTITY OF SHIMS.

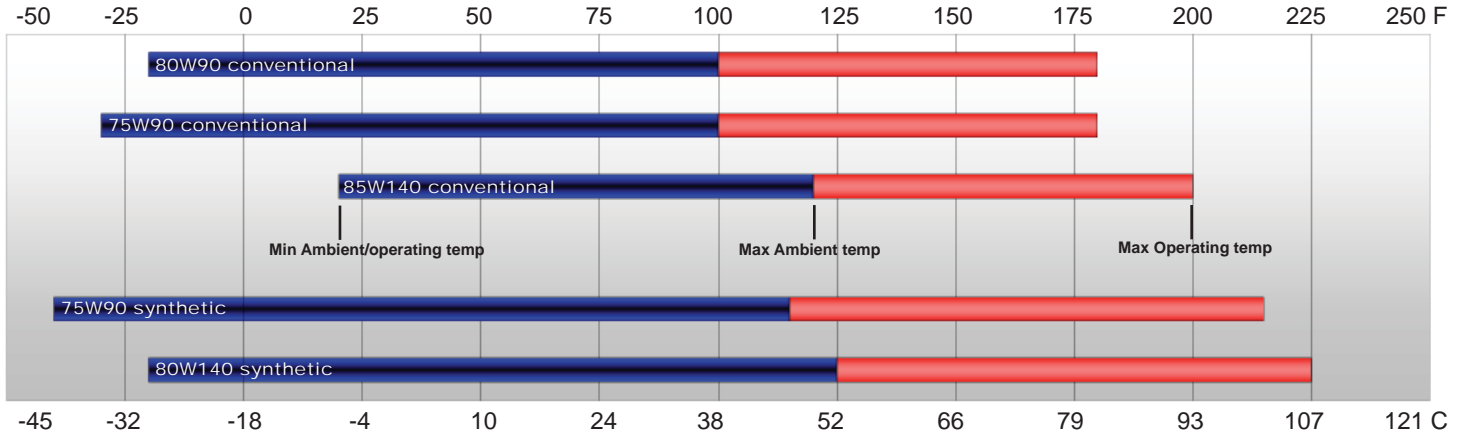
SEAL KIT (P/N 85-016-0601) INCLUDES (2 EA.) O-RINGS AND (1 EA.) SEAL.

XD50LD2-AA / DATE: 03-04-2008

# 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. The auger drive should be partially disassembled to inspect gears and bearings at 1000 hour intervals.





## 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 temp 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 D50 OIL CAPACITIES

Operating Position	Oil Capacity			Oil Level
	Single stage	Double stage	Triple stage	
 Horizontal Shaft	-	-	-	To horizontal centerline of auger drive 
 Vertical Shaft (Pinion Down)	2 pints / 0.95 liters	2.5 pints / 1.18 liters		To midway on upper/primary gear set 

## 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/diggers/diggerprodspecs.html>

# Unit Disassembly Procedure

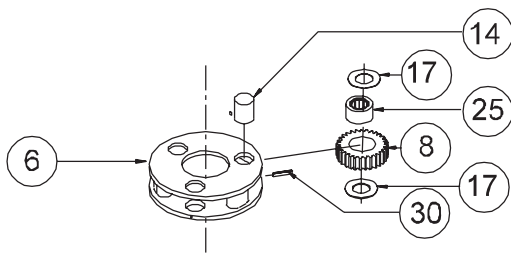
There are two types of model D50 units: single planetaries without a primary carrier and double planetaries with a primary planet carrier. Steps with an asterisk (\*) apply only to the double planetary model.

All parts should be inspected as they are removed from unit.

- 1) Scribe across base (1), ring gear (2) and cover/ bail assembly (3) joints on outside of gearbox to assure proper orientation of oil fill and drain plugs, motor mounting, etc., as the unit is reassembled.
- 2) Remove hydraulic motor (41) from auger drive. Drain oil.
- 3) Remove the twelve 7/16 x 4-1/2" socket head cap screws (27) and 7/16 lockwashers (31), which retain cover/bail assembly (3) and ring gear (2) to base (1).
- 4) Lift cover / bail assembly (3) off of unit; remove input gear (12) and input thrust washer (26).
- \*5) Primary planetary assembly is now ready for removal (includes items 6,8,14,17,25 & 30). Secondary sun gear (11) is splined to primary carrier (6) and may come out when removing planetary assembly; if not, remove sun gear.
- 6) The secondary planetary assembly (includes items 5, 7, 13, 15, 16, 24 & 29) is splined to the output shaft (4). It may now be lifted, by hand, from output shaft spline.

The unit is now disassembled into groups of parts and/or subassemblies. The area(s) requiring repair or service should be identified by thorough inspection of the parts after they have been washed in solvent.

## \*Primary Planet Carrier Subassembly



Disassembly

Rotate primary planet gears (8) to check for any abnormal noises or roughness in the primary planet bearings (25). At the same time, inspect planet gears for any damage or worn teeth. If replacement or further inspection is required, proceed as follows.

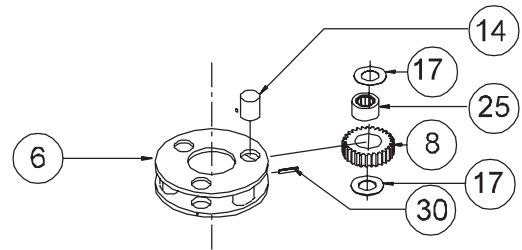
- 1) Drive the spring pins (or roll pins) (30) completely into the planet shafts (14) using a pin punch. Press planet shafts out of carrier (6).

**NOTE: Support primary carrier (6) only while pressing planet shafts.**

- 2) Slide planet gears (8) and primary planet washers (17) from carrier (6).
- 3) If any of the primary planet bearings (25) need replacing, press them out of planet gears.

- 4) Check primary planet shafts (14) for any abnormal wear, especially ones in which bearings needed to be replaced. If any abnormal wear is found, replace planet shaft.
  - 5) Using a punch, drive roll pins (30) out of planet shafts (14).
  - 6) Press new primary planet bearings (25) into planet gears, if required.
  - 7) With a primary planet washer (17) on both sides of planet gear and bearing installed, slide gear into carrier (6) and insert primary planet shaft (14) through carrier, planet gear, and washers. During planet shaft installation, align roll pin hole in planet shaft with the roll pin hole in outside diameter of carrier.
- NOTE: Inserting a 1/8" diameter punch in roll pin hole of planet shaft will help in the alignment of holes between planet shaft and carrier during Step 7.**
- 8) Once holes are properly aligned, drive a roll pin (30) through primary carrier and into planet shaft to retain parts. Use a drift to drive roll pin flush to carrier and to prevent striking planet gear teeth.
  - 9) Repeat same process for remaining gears.

## Secondary Planet Carrier Subassembly

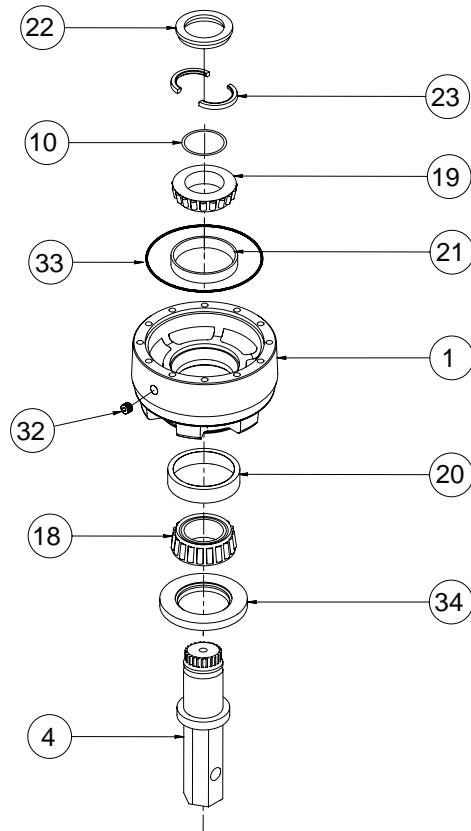


Disassembly

Follow the same procedure as that for the Primary Planet Carrier Subassembly, except substitute item numbers as indicated: secondary carrier (5), secondary planet gear (7), secondary planet shaft (13), secondary planet washer (16), secondary planet bearing (24) and secondary roll pin (29).

Steps with an asterisk (\*) apply only to the double planetary model.

## Base Subassembly



Disassembly

- 1) Place unit on a press table with the output shaft (4) protruding downward through a hole in the table; unit should be supported only by the base (1). The only thing retaining output shaft (4) is the locking ring (22) and split ring segments (23). Remove the locking ring (22) by prying upward, split ring segments (23) and shims (10).

**CAUTION: The Load-n-lock assembly is no longer retaining output shaft. Take precautions if the unit is moved as the shaft may fall out.**

- 2) With output shaft down through centerhole in press table and unit supported by base, press shaft out by applying press load to top end of shaft (internal end) until it passes through inner shaft bearing (19). Outer shaft bearing (18) and seal (34) will come out of unit attached to shaft.
- 3) Inspect inner and outer bearing cups (20 & 21). If cups are damaged, the cups and base (1) may need replacement. Contact Eskridge if you have questions.

**CAUTION: Care should be taken not to injure feet or damage output shaft during this procedure.**

- 4) If outer bearing cone (18) needs to be replaced, it will need to be pressed off of output shaft. Also inspect inner bearing cone (19).

**NOTE: When installing or removing bearings, press only on inner race of bearing cone. DO NOT press on outer roller cage of bearing or it will damage bearing.**

- 5) Clean all foreign material from magnetic oil plug (32) located on bottom of base (1). Add a small amount of pipe thread compound to pipe plug before installing it back into base.

**Steps with an asterisk (\*) apply only to the double planetary model.**

## Unit Reassembly

- 1) Start with base (1). Turn base upside down and position on press table. Base should be pointing upward with outer bearing cup (20) exposed. Apply a layer of lithium bearing grease to bearing cup surface.
- 2) Invert output shaft (4, load-n-lock retainer groove end down) and carefully lower into base (1) until the shaft's outer bearing cone (18) is seated against outer bearing cup (20).
- 3) Press shaft seal (34) into base until it is flush with bottom of pilot diameter. Use a press fixture, if possible, to avoid distorting seal. If press fixture is not available, a hammer and flat-ended drift may be used by tapping outer edge of seal lightly and alternating sides.
- 4) Stand base assembly upright on output shaft.

**CAUTION: The only thing holding output shaft and base together at this point is the tightness in fit of the shaft seal. Securely and cautiously turn unit upright, not allowing base and shaft to separate.**

- 5) While holding output shaft (4) with one hand, rotate base (1) to be certain it turns freely and smoothly. The slight resistance felt, if any, is due to shaft seal load (drag) on output shaft.
- 6) Apply a layer of lithium bearing grease to inner bearing cup (21) surface.
- 7) Install inner bearing cone (19, small end down) over internal end of output shaft. Press bearing on slowly until it is just seated against bearing cup (21). With a slight press load still applied, rotate base (1) by hand to ensure roller bearings are rotating evenly and smoothly. Inner bearing cone (18) may require additional press load to reach proper bearing preload. If roller bearings are seated properly, continue on to set and check bearing preload.

**SHAFT BEARING PRELOAD: Proper shaft bearing preload is achieved when torque required to rotate base is 50 to 80 in-lbs. This rolling torque is equal to a force of approximately 11 to 18 lbs if pulling on base flange to rotate base (1). This may be determined by feel or by using a fish scale or similar measuring device to check rolling torque.**

- 8) Install shims (10) over internal end of output shaft (4). Shims should slide all the way down to outer bearing cone (18), where they will rest. The same number (quantity) of shims removed from unit during disassembly should be returned. Follow shims with split ring segments (23). Segments will sit directly on top of bearing shims.

**NOTE: Quantity of shims (10) may vary from unit to unit. Bearing preload, set at the factory, determines quantity of shims.**

- 9) Install the locking ring (22) onto output shaft.
- 10) Lightly grease a new o-ring (33) and install it into o-ring groove in base (1). Assemble ring gear (2) to base (1). Refer back to scribe marks made across external joints of gear drive prior to Disassembly Procedure. Line up scribe marks between ring gear and base to give correct hole alignment.

**NOTE: Be certain that o-ring (33) stays seated in groove during Step 10.**

- 11) Install secondary carrier assembly into unit. Carrier assembly should be installed with hub side down **(24 tooth spline)**. Rotate carrier assembly back and forth to mesh secondary planet gear teeth **(7)** with ring gear **(2)** teeth. Once teeth mesh, let secondary carrier slide down until it contacts with output shaft spline. The carrier splined hub **(5)** should spline onto output shaft **(4)**. Carrier hub will rest on top of locking ring **(22)** when splines are fully engaged. Check to be certain carrier cup washer **(15)** is installed.
- \*12) Turn primary carrier assembly upside down so that splined end of carrier **(6)** is up. Insert splined end of secondary sun gear **(11)** into carrier spline until fully engaged. Install carrier assembly into unit, sun gear down. Sun gear teeth will mesh with secondary planet gears, and primary planet gear teeth **(8)** will mesh with ring gear **(2)**.
- 13) Put input thrust washer **(26)** over step of input gear **(12)**. Insert input gear into unit so that teeth mesh with planet gears.
- 14) Grease a new o-ring **(33)** and install it into bottom of cover/bail assembly **(3)**. Refer back to scribe marks made across external joints prior to Disassembly Procedure. Line up scribe marks between cover/bail assembly and ring gear **(2)** so that orientation of motor mount holes and oil plug are back to their original positions.

**NOTE: Be certain o-ring (33) stays seated in cover/bail assembly during Step 15.**

- 15) Install all twelve of the 7/16 lockwashers **(31)** and the 7/16 hex capscrews **(27)** and torque to 70 ft-lbs.
- 16) Fill unit with oil per the capacity and lubricant recommendations posted on page 4.
- 17) Lift bail assembly **(42)** onto planetary unit. Align access hole with motor ports. Secure with six hex head capscrews **(38)**, lockwashers **(36)** and nuts **(37)**; torque to 55 ft-lbs.
- 18) Install motor **(41)** with gasket **(35)**, using hex head cap screws **(39)** and lockwashers **(36)**; torque bolts to 55 ft-lbs.

**THE AUGER DRIVE IS NOW READY FOR USE.**