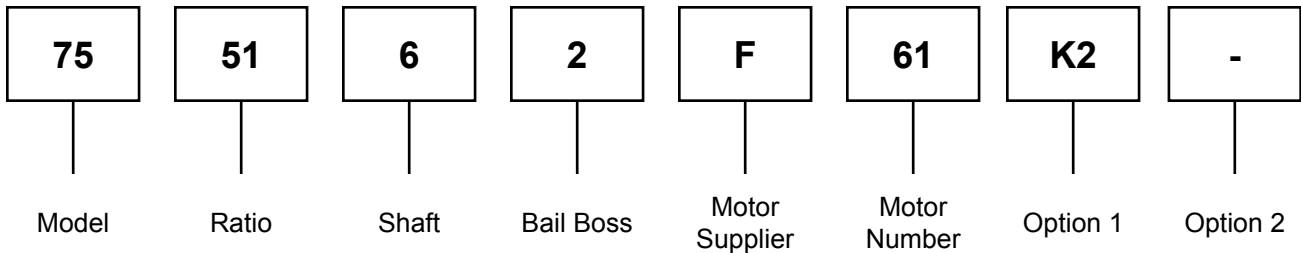




**SERVICE MANUAL  
75 SERIES DIGGER MODELS  
WITH AUTOMATIC KICKDOWN**



**Example Part Number**



**THIS SERVICE MANUAL IS EFFECTIVE:  
S/N: 102358 TO CURRENT  
DATE: 7-2012 TO CURRENT  
VERSION: SM75K2\_0413**

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

# Exploded View Drawing

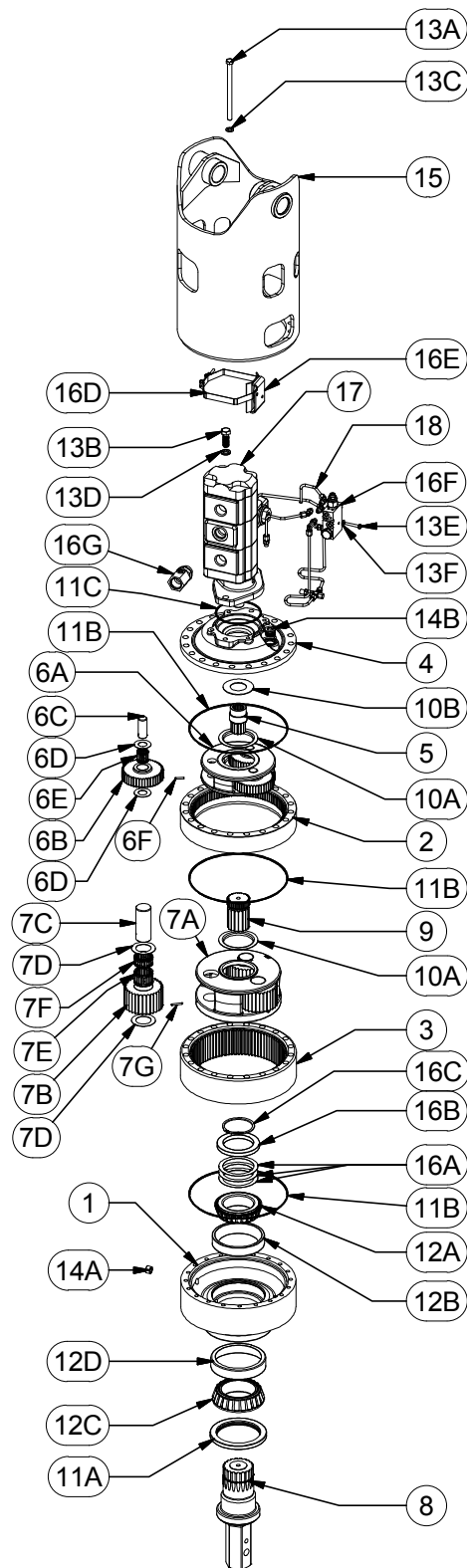


EFFECTIVE  
FROM: SN 102358 07-01-2012  
TO: CURRENT

X75K2 ab ECN:3451E 07-11-12 HWP

KICKDOWN MODEL 75 SERIES (HYDRASYNC) AUGER DRIVE							
GROUP	ITEM	QTY	DESCRIPTION	51.43:1	40.25:1	37.80:1	29.58:1
	1	1	BEARING CARRIER	75-004-3012	75-004-3012	75-004-3012	75-004-3012
	2	1	RING GEAR- PRI	25-004-1012	25-004-1012	25-004-1012	25-004-1012
	3	1	RING GEAR- SEC	25-004-1022	25-004-1022	25-004-1022	25-004-1022
	4	1	COVER	25-004-1222	25-004-1222	25-004-1222	25-004-1222
	5	1	INPUT GEAR	25-004-1162	25-004-1162	25-004-1172	25-004-1172
6	-	1	CARRIER ASSY-PRI	25-005-2001	25-005-2001	25-005-2011	25-005-2011
	6A	1	CARRIER - PRI	25-004-1032	25-004-1032	25-004-1042	25-004-1042
	6B	3	PLANET GEAR - PRI	25-004-1102	25-004-1102	25-004-1112	25-004-1112
	6C	3	PLANET SHAFT - PRI	25-004-1031	25-004-1031	25-004-1031	25-004-1031
	6D	6	THRUST WASHER - PLANETS	81-004-1561	81-004-1561	81-004-1561	81-004-1561
	6E	3	BEARING	01-105-0570	01-105-0570	01-105-0570	01-105-0570
	6F	3	ROLL PIN	01-153-0020	01-153-0020	01-153-0020	01-153-0020
7	-	1	CARRIER ASSY - SEC	25-005-2031	25-005-2041	25-005-2031	25-005-2041
	7A	1	CARRIER - SEC	25-004-1062	25-004-1072	25-004-1062	25-004-1072
	7B	3	PLANET GEAR - SEC	25-004-1082	25-004-1092	25-004-1082	25-004-1092
	7C	3	PLANET SHAFT	25-004-1021	25-004-1021	25-004-1021	25-004-1021
	7D	6	PLANET WASHER	25-004-1041	25-004-1041	25-004-1041	25-004-1041
	7E	3	BEARING	01-105-0550	01-105-0550	01-105-0550	01-105-0550
	7F	3	BEARING	01-105-0560	01-105-0560	01-105-0560	01-105-0560
	7G	3	ROLL PIN	01-153-0190	01-153-0190	01-153-0190	01-153-0190
8	-	1	SHAFTS	-	-	-	-
	-	-	OUTPUT SHAFT - 2-5/8 HEX	75-004-4022	75-004-4022	75-004-4022	75-004-4022
	-	-	OUTPUT SHAFT - 3" HEX	75-004-4012	75-004-4012	75-004-4012	75-004-4012
9	1	1	SUN GEAR - SEC.	25-004-1142	25-004-1152	25-004-1142	25-004-1152
10	-	-	THRUST WASHERS	-	-	-	-
	10A	2	CARRIER THRUST WASHER	25-004-1132	25-004-1132	25-004-1132	25-004-1132
	10B	1	INPUT THRUST WASHER	81-004-2883	81-004-2883	81-004-2883	81-004-2883
11	-	-	SEALS & O-RINGS	-	-	-	-
	11A	1	OUTPUT SHAFT SEAL	01-405-0500	01-405-0500	01-405-0500	01-405-0500
	11B	3	O-RING	01-402-0020	01-402-0020	01-402-0020	01-402-0020
	11C	1	O-RING	01-402-0010	01-402-0010	01-402-0010	01-402-0010
12	-	-	OUTPUT SHAFT BEARINGS	-	-	-	-
	12A	1	INNER BEARING CONE	01-102-0250	01-102-0250	01-102-0250	01-102-0250
	12B	1	INNER BEARING CUP	01-103-0250	01-103-0250	01-103-0250	01-103-0250
	12C	1	OUTER BEARING CONE	01-102-0120	01-102-0120	01-102-0120	01-102-0120
	12D	1	OUTER BEARING CUP	01-103-0110	01-103-0110	01-103-0110	01-103-0110
13	-	-	HARDWARE	-	-	-	-
	13A	20	HEX HEAD CAP SCREW (1/2-13 X 7.5)	01-150-1660	01-150-1660	01-150-1660	01-150-1660
	13B	2	HHCS (5/8-11 X 1-3/4)	01-150-0110	01-150-0110	01-150-0110	01-150-0110
	13C	20	FLATWASHER - HDN (1/2 X 7/8 X 1/8)	01-166-0120	01-166-0120	01-166-0120	01-166-0120
	13D	2	LOCKWASHER - 5/8 ZINC PLATED	01-166-0040	01-166-0040	01-166-0040	01-166-0040
	13E	2	HHCS (1/4-20 X 1.75)	01-150-1690	01-150-1690	01-150-1690	01-150-1690
	13F	2	FLAT WASHER (1/4)	01-166-0390	01-166-0390	01-166-0390	01-166-0390
14	-	-	PLUGS AND GREASE FITTINGS	-	-	-	-
	14A	1	PLUG - 1/2 NPT MAGNETIC	01-207-0041	01-207-0041	01-207-0041	01-207-0041
	14B	1	HOLLOW HEX PLUG (05HP-12)	01-208-0030	01-208-0030	01-208-0030	01-208-0030
15	-	1	BAIL ASSEMBLIES	-	-	-	-
	-	-	2" BOSS - BACKHOE M50 MOTORS	75-005-2222	75-005-2222	75-005-2222	75-005-2222
	-	-	1.5" BOSS, M50 MOTORS	75-005-2082	75-005-2082	75-005-2082	75-005-2082
	-	-	2" BOSS M50 MOTORS	75-005-2222	75-005-2222	75-005-2222	75-005-2222
16	-	-	MISCELLANEOUS	-	-	-	-
	16A	*	SHIM	25-004-1051	25-004-1051	25-004-1051	25-004-1051
	16B	1	SUPPORT RING (250)	25-004-1061	25-004-1061	25-004-1061	25-004-1061
	16C	1	RETAINING RING	01-160-0600	01-160-0600	01-160-0600	01-160-0600
	16D	1	BAND CLAMP	01-365-0020	01-365-0020	01-365-0020	01-365-0020
	16E	1	BRACKET	01-360-0040	01-360-0040	01-360-0040	01-360-0040
	16F	1	VALVE BODY 2-DIRECTION	01-308-0150	01-308-0150	01-308-0150	01-308-0150
	16G	1	FITTING-16-16 TO -4 KICKDOWN	01-316-0020	01-316-0020	01-316-0020	01-316-0020
17	-	1	MOTORS	-	-	-	-
	-	-	MOTOR - C.S. M50 1.5 X 2.5 (HI) (SPL SEAL)	01-304-0600	01-304-0600	01-304-0600	01-304-0600
	-	-	MOTOR - C.S. M51 2.5 X 2.5 (HI) (SPL SEAL)	01-304-0610	01-304-0610	01-304-0610	01-304-0610
18	-	1	TUBE KIT	-	-	-	-
	-	-	KIT - TUBE ASSY. & FITTING KICKDOWN 60	01-309-0600	01-309-0600	01-309-0600	01-309-0600
	-	-	KIT - TUBE ASSY. & FITTING KICKDOWN 61	01-309-0610	01-309-0610	01-309-0610	01-309-0610

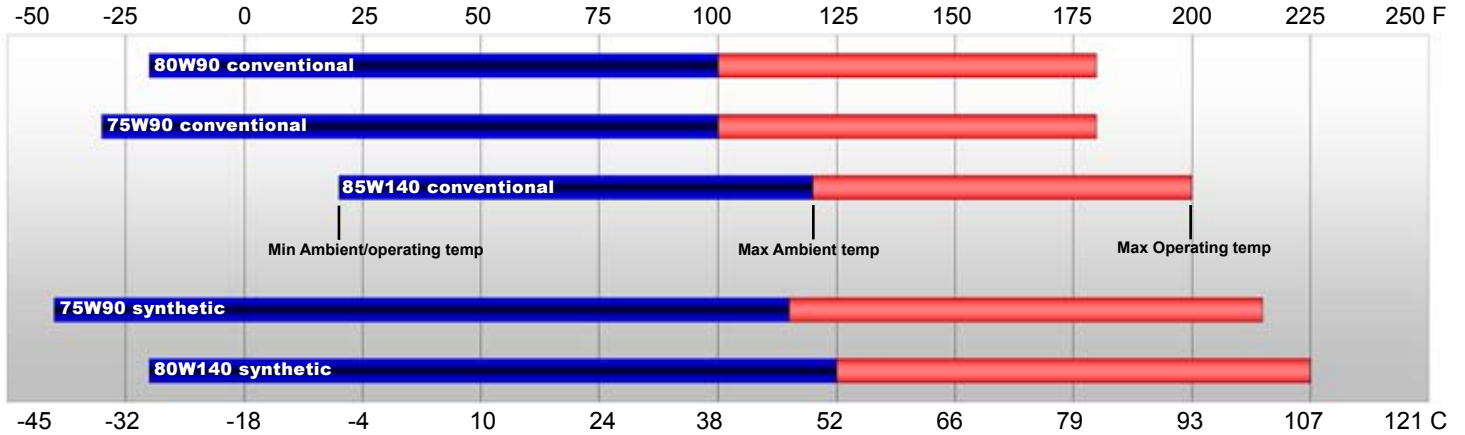
\* NUMBER OF SHIMS DEPENDANT UPON BEARING PRELOAD.



# 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 75 OIL CAPACITY

Operating Position	Oil Capacity			Oil Level
	Single stage	Double stage	Triple stage	
 Vertical Shaft (Pinion Down)		10 pts / 4.7 liters		To midway on upper/ primary gear set 



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

## ESKRIDGE PART NUMBER INTERPRETATION

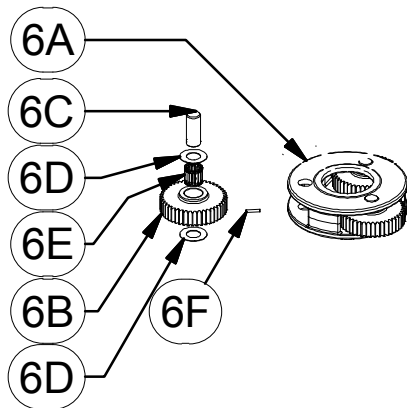
**Note:** All non custom Eskridge Geardrives are issued a descriptive part number which includes information regarding the Model, means of shaft retention, base style, shaft style, input mounting, input shaft size, overall ratio and various available options. For a detailed breakdown of this information,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

# Unit Disassembly Procedure

- 1) Scribe a diagonal line across the outside of the unit from the bail (15) to the base (1) before disassembly to aid in the proper positioning of pieces during reassembly.
- 2) Remove magnetic drain plug (14A) and drain oil from unit. The oil will drain out faster and more completely if warm.
- 3) Disconnect the kickdown tube from the large fitting (16G) on the motor (17) outlet port. Remove the large fitting.
- 4) Remove the twenty hex-head capscrews (13A) and flat washers (13C).
- 5) Separate bail (15) from cover (4) and remove from digger assembly.
- 6) Inspect kickdown tube kit (18) and valve body (16F). If nothing is damaged, no replacement or service is necessary. Leave the tube kit and valve body assembled on the motor for the remainder of the unit disassembly and inspection. If there is damage, the tube kit must be replaced as a complete kit.
- 7) Remove hex-head capscrews (13B) and lockwashers (13D) and remove motor (17) from cover (4).
- 8) Remove cover (4), thrust washers (10B & 10A), and input gear (5). Inspect o-ring (11B); discard if damaged or deformed.
- 9) Lift Stage I planet carrier assembly (6) out of the unit. Remove ring gear (2) and inspect o-ring (11B); discard if damaged or deformed.
- 10) Remove secondary sun gear (9) and thrust washer (10A).
- 11) Lift the Stage II planet carrier assembly (7) out of the unit.
- 12) Remove the Stage II ring gear (3). Inspect o-ring (11B); as before, discard if damaged.
- 13) The unit is now separated into subassemblies. The area(s) requiring repair should be identified by thorough inspection of the individual components after they have been cleaned and dried.

## Stage I Carrier Subassembly

(Items 6A, 6B, 6C, 6D, 6E & 6F)



### Disassembly

- 1) Rotate planet gears (6B) to check for abnormal noise or roughness in bearings (6E) or planet shafts (6C). If further

inspection or replacement is required, proceed as follows.

**NOTE: Support only the carrier (6A) while pressing out planet shafts.**

- 2) Drive roll pins (6F) completely into the planet shafts (6C).
- 3) Press or drive planet shafts (6C) out of carrier (6A).
- 4) Remove planet gears (6B) and thrust washers (6D) from the carrier (6A).
- 5) Inspect the planet gear (6B) bearing bore, planet shaft (6C) and bearings (6E). Check for spalling, bruising or other damage. Replace components as necessary.
- 6) Check primary planet shafts (6C) for any abnormal wear, especially ones where bearings needed to be replaced. If any abnormal wear is found, replace planet shafts.
- 7) Use 3/16 inch pin punch to remove roll pins (6F) from planet shafts (6C).

**NOTE: If either the bearings or the planet shafts (pins) are damaged, both components should be replaced.**

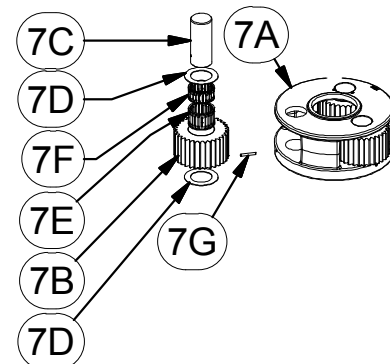
### Reassembly

- 1) Install bearing (6E) into planet gear (6B). Place one thrust washer (6D) on each face of the planet gear. Install gear assembly into carrier (6A).
- 2) Planet shafts (6C) should be installed with chamfered end of 3/16 inch hole toward outside diameter of the carrier (6A). This will aid in alignment of holes while inserting roll pins (6F).
- 3) Drive a roll pin (6F) through the carrier hole and into the planet shaft to retain the parts. Repeat for other planet gears.

## Stage II Carrier Subassembly

(Items 7A, 7B, 7C, 7D, 7E, 7F, & 7G)

### Disassembly



- 1) Rotate planet gears (7B) to check for abnormal noise or roughness in bearings (7E & 7F). If further inspection or replacement is required, proceed as follows.
- 2) Drive roll pins (7G) completely into the planet shafts (7C).
- 3) Slide planet shafts (7C) out of carrier (7A).
- 4) Remove planet gears (7B), washers (7D) and bearings (7E & 7F) from carrier (7A).

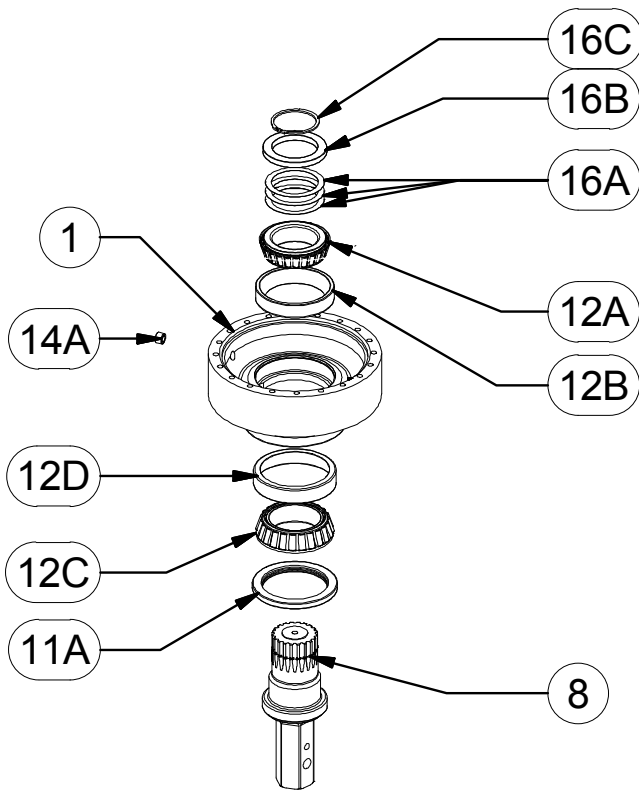
- 5) Inspect the planet gear (7B) bearing bore, planet shaft (7C) and bearings (7E & 7F). Check for spalling, bruising or other damage. Replace components as necessary.
- 6) Remove roll pins (7G) from primary planet shafts (7C) using a 3/16 inch pin punch.

### Reassembly

- 1) Rebuild primary planet carrier assembly in reverse order using any needed new parts.
- 2) Install bearing (7E & 7F) into planet gear (7B). Place one thrust washer (7D) on each face of the planet gear. Install gear assembly into carrier (7A).
- 3) Planet shafts (7C) should be installed with the chamfered end of the 3/16 inch hole towards the outside diameter of the carrier (7A); this will aid in alignment of holes while inserting roll pins (7G).
- 4) Drive roll pin (7G) into the carrier hole and into the planet shaft to retain the parts. Repeat for remaining planet gears.

## Base Subassembly

(Items 1, 8, 11A, 12A, 12B, 12C, 12D, 14A, 16A, 16B, 16C)



### Disassembly

- 1) Remove the retaining ring (16C), support ring (16B) and shims (16A).

**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 it when it is pressed through base.

- 2) Base (1) should be set shaft side down, as shown, on a plate or table. Press output shaft (8) through the bottom of base by applying a load to top end (internal end) of shaft until it passes through inner shaft bearing cone (12A).

**Note:** Removing the shaft from the base assembly damages the shaft seal and the seal will need to be replaced.

- 3) A gear puller may be used to remove the outer bearing cone (12C) from the shaft (8). If reusing old bearing cone, do not pull on or damage roller cage. Remove the shaft seal (11A) from the shaft for replacement.
- 4) Inspect inner and outer bearing cups (12B & 12D). If cups are damaged, drive them out using a brass drift and utilizing the bearing knock-out notches in the base (1)

### Reassembly

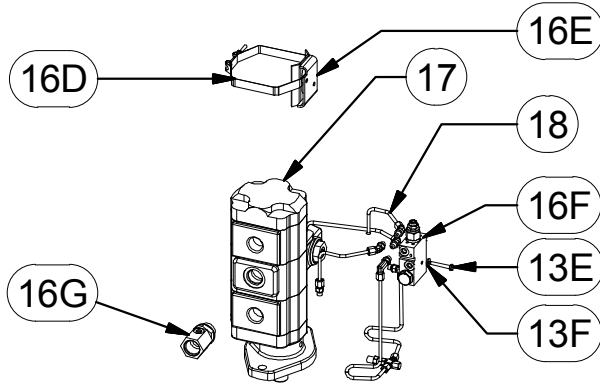
- 1) Clean all foreign material from magnetic oil plug (14A) located on the side of the base (1).
- 2) Place base (1) (output side up, opposite shown) on the table.
- 3) Apply a layer of lithium or general purpose bearing grease to the roller contact surface of outer bearing cup (12D).
- 4) Press outer bearing cone (12C) (large end down as shown) onto the shaft (8) 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.

- 5) Place the shaft (8) with the bearing (12C) into the base (1).
- 6) Flip this assembly, resting the base (1) on the end of the output shaft (8).
- 7) Apply a layer of lithium or general purpose bearing grease to the roller contact surface of the inner bearing cup (12B). Press the inner bearing cone (12A) (large end up as shown) onto the shaft (8) until it is seated against inner bearing cup.
- 8) Without the shaft seal (11A) installed, the preload may result in a rolling torque that varies between 50 to 300 in-lb. 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 (16A) will increase the pre-load on the bearing set. Determine your pre-load requirement and install shims to obtain this pre-load. Place the support ring (16B) over the shims (16A) and install the retaining ring (16C) into the groove in the shaft (8).
- 9) Lubricate inner lip of new shaft seal (11A) and slide it onto the shaft (8) and over the shaft seal diameter then press the seal into the base bore (1).

# Kickdown Subassembly

(Items 13E, 13F, 16D, 16E, 16F, 16G, 17, 18)



- 13) Place bail (15) onto assembly and align holes in bail and cover (4) using scribed line made during disassembly as a reference. Install and torque the 20 1/2-13 hex head capscrews (13A) with flatwashers (13C). **Torque the capscrews to 110 ft-lbs dry, or 80 ft-lbs if fasteners are lubricated.**
- 14) Fill the unit to the proper level, as specified, with GL5 EP 80/90 gear oil.

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

If you experience problems with your kickdown system, please refer to the Kickdown Assembly or Kickdown Adjustment instructions. If neither of these solves your problem, contact Eskridge for service.

**All subassembly service or repairs should be complete at this time. Continue to Unit Assembly to complete unit buildup.**

## Unit Assembly

- 1) When all subassemblies are complete, the unit is ready to be assembled.
- 2) Install the Stage II carrier assembly (7) onto the output shaft; align the splines of the carrier (7A) with the splines of the shaft (8) and slide the carrier onto the shaft.
- 3) Lubricate o-ring (11B) and install on the pilot of the Stage II ring gear (3).

**Caution: Hold ring gear by outside or use lifting device to prevent injury.**

- 5) Install Stage II sun gear (9) into Stage II carrier assembly (7). Place thrust washer (10A) onto Stage II carrier (7A).
- 6) Align gear teeth of ring gear (3) with the gear teeth of the planet gears (7B) and place on base. Align mounting holes of ring gear with holes in base using the scribed line made during disassembly for reference.
- 7) Lubricate o-ring (11B) and install on the pilot of the Stage I ring gear (2). Install ring gear and align mounting holes of ring gear with holes in base. Use the scribed line made during disassembly for reference.
- 8) Slide Stage I carrier (6A) onto Stage II sun gear (9).
- 9) Install input gear (5) and thrust washers (10A & 10B). Lubricate o-ring (11B) and install on the pilot of the gearbox cover (4). Noting the scribed line made during disassembly, install cover.
- 10) Ensure the unit spins freely by using a splined shaft to drive the input gear (5).
- 11) Install motor (17) onto cover (4) using hex-head capscrews (13B) and lockwashers (13D). Lube fasteners and torque to 110 ft-lb.
- 12) If the kickdown system was removed, reassemble as detailed in Kickdown Assembly Instructions.