

PART NUMBER EXAMPLE:

75 51 - 3 2 F60

K2R

SERIES

DRIVE
RATIO

OUTPUT
SHAFT

BAIL BOSS
DIAMETER
CODE

MOTOR
CODE

OPTIONS

Series 75 Planetary Automatic Kickdown Auger Drive Service & Repair Manual

EFFECTIVE FOR:
FROM S/N: 23280
TO: (CURRENT)

SM75K2-A-

SERIES 75 SERVICE MANUAL

HYDRASYNC™ PLANETARY AUGER DRIVE

This manual will assist in disassembly and assembly of the above model auger drive. Item numbers, indicated in parentheses throughout this manual, refer to the exploded parts breakdown drawing. Individual customer specifications (output shaft hex size, motor, bail assembly, etc.) may vary from exploded drawing and standard part numbers shown. If applicable, refer to individual customer drawing for details.

For any spare or replacement parts, contact your distributor or equipment manufacturer. Always try to have available the auger drive unit part number, serial number and date code on the serial tag. This information may be necessary for verification of any component part numbers. Component part numbers and/or manufacturing lot numbers may be stamped on individual parts. This information may also be helpful in identifying replacement components.

LUBRICATION & MAINTENANCE

Change the oil after the first 50 hours of operation. Oil should be changed at 500 hour intervals thereafter. Use a GL-5 grade EP 80/90 gear oil (EP = "Extreme Pressure"). The manufacturer recommends that the unit be partially disassembled to inspect gears, splines, and bearings at 1000 hour intervals.

OIL CAPACITY: 10 PINTS

Proper oil level will measure to middle of primary planet gears when auger drive is in vertical position.



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

UNIT DISASSEMBLY PROCEDURE

(Refer to exploded view drawing on page 7)

- 1) Scribe a diagonal line across the outside of the unit from the cover (4) to the base (1) before disassembly to assure proper positioning of pieces during reassembly.
- 2) Remove magnetic drain plug (33) and drain oil from unit. Maximum drainage occurs when oil is warm.
- 3) Remove the kickdown valve body (38) by loosening the two hex head cap screws (50) and associated tubing and fittings (39). The hex head cap screws are trapped between the mounting plate on the bail and the motor. They can only be removed once the valve body has been removed. The tubes and small fittings on the kickdown mechanism are not serviced separately but as a kit which contains all the necessary fittings and tubing. If these are not damaged, they can be reused.
- 4) Remove the large fitting (49) from the motor outlet.

5) Remove the twenty hex head capscrews (29) and lockwashers (32).

6) Remove bail (37), and motor (46)

7) Remove the cover (4), thrust washer (28), input gear (11), and carrier thrust washer (14). Inspect o-ring (15); discard if damaged or if it has taken a set.

8) Lift the primary planet carrier assembly out of the unit (includes items 5, 10, 13, 16, 25, & 30).

9) If sun gear (9) has not been removed from gearbox, do so now. (Sometimes the sun gear remains in the primary carrier (5).)

10) Remove primary ring gear (2). Inspect second o-ring (15), as before; discard if damaged.

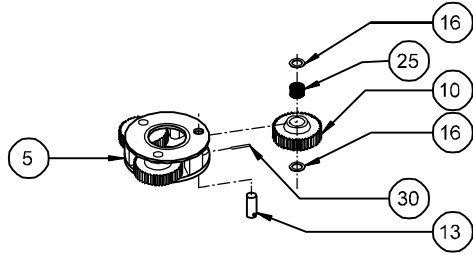
11) Remove carrier thrust washer (14). Lift the secondary planetary assembly out of the unit (includes items 6, 8, 12, 17, 23, 24, & 31). Use a puller if necessary.

12) Remove secondary ring gear (3). Inspect third o-ring (15), as before; discard if damaged.

13) The unit is now disassembled into groups of parts. The area(s) requiring repair should be identified by thorough inspection of the parts after they have been cleaned and dried. Then refer to the appropriate group repair section below.

1. Primary Planet Carrier subassembly
2. Secondary Planet Carrier subassembly
3. Base subassembly
4. Kickdown Assembly

PRIMARY PLANET CARRIER SUBASSEMBLY (ITEMS 5, 10, 13, 16, 25, & 30) DISASSEMBLY AND REPAIR



Rotate planet gears (10) to check for abnormal noise or roughness in bearings (25) or planet shafts (13). If further inspection or replacement is required, proceed as follows.

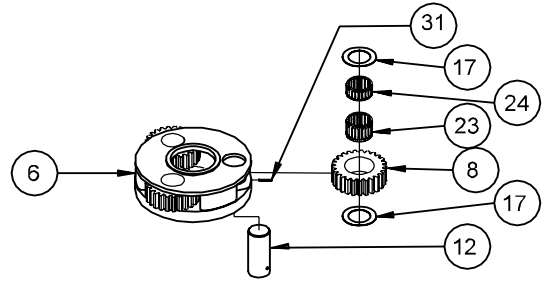
NOTE: Support carrier (5) only while pressing out planet shafts.

- 1) Drive roll pins (30) completely into the planet shafts (13).
- 2) Press or drive planet shafts (13) out of carrier (5).
- 3) Remove planet gears (10) and planet washers (16) from the carrier (5).
- 4) If the planet bearings (25) require replacement, press them out of the planet gears (10) and replace with new ones.
- 5) Check primary planet shafts (13) for any abnormal wear, especially ones where bearings needed to be replaced. If any abnormal wear is found, replace planet shafts.
- 6) Use 3/16 inch pin punch to remove roll pins (30) from planet shafts (13).

RE-ASSEMBLY

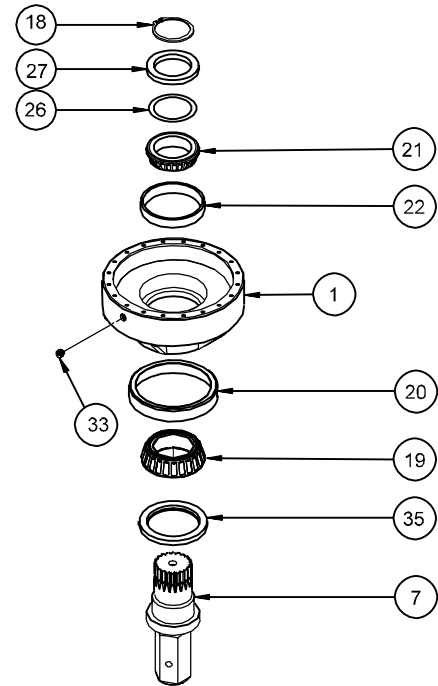
- 1) With planet washers (16) on both sides of the planet gear (10) and with bearings (25) installed, slide gear into the carrier (5). Insert the planet shaft (13) through the carrier, washers, and planet gear.
- 2) Planet shafts (13) should be installed with chamfered end of 3/16 inch hole toward outside diameter of the carrier (5). This will aid in alignment of holes while inserting roll pins (30).
- 3) Drive a roll pin (30) through the carrier hole and into the planet shaft to retain the parts. Repeat for other planet gears.

SECONDARY PLANET CARRIER SUBASSEMBLY (ITEMS 6, 8, 12, 17, 23, 24, & 31) DISASSEMBLY AND REPAIR



Follow the same procedure as that for the primary planetary assembly. Substitute items as indicated: planet gears (8), planet bearings (23 & 24), planet shafts (12), roll pins (31), carrier (6) and washers (17).

BASE SUBASSEMBLY (ITEMS 1, 7, 18, 19, 20, 21, 22, 26, 27, 33, & 35) DISASSEMBLY AND REPAIR



- 1) Remove the shaft retaining ring (18). Remove the spacer (27) and shim(s) (26).

CAUTION: Output shaft is no longer retained. Care should be taken not to injure feet because output shaft can fall out. Care should also be taken not to damage output shaft when shaft is pressed through base.

2) Output shaft removal. Base **(1)** should be set pinion side down, as shown, on a plate or table with output shaft **(7)** protruding through a hole in table. Press output shaft out bottom of base by applying a load to top end **(internal end)** of shaft until it passes through inner shaft bearing cone **(21)**.

3) If outer bearing cone **(19) (on the shaft)** needs to be removed a gear puller may be used, otherwise skip to step number 6. If reusing old bearing cone, do not pull on or damage roller cage. Remove the shaft seal **(35)** for inspection or replacement.

4) Lubricate inner lip of new shaft seal **(35)** and slide the seal onto the shaft **(7)** until it fits snugly over shaft seal diameter with the open side toward the inside of the gearbox.

NOTE: Press bearing cone onto output shaft by pressing on inner race only. DO NOT press on roller cage or it may damage bearing.

5) Press outer bearing cone **(19) (large end down as shown)** onto the shaft until it seats against the shoulder. Bearing cone **(19)** may be reused if it was removed only to replace the seal **(35)**.

6) Inspect inner and outer bearing cups **(20 & 22)** and replace if necessary.

5) Apply a layer of lithium or general purpose bearing grease to surface of inner bearing cup **(22)**. Press the inner bearing cone **(21) (large end up as shown)** onto the shaft **(7)** until it is

BASE ASSEMBLY

1) Clean all foreign material from magnetic oil plug **(33)** located on side of base **(1)**. Add a small amount of pipe thread compound to pipe plug before installing back into base.

2) Place the base **(1) (output side up, opposite shown)** on the press table.

3) Apply a layer of lithium or general purpose bearing grease to surface of outer bearing cup **(20)**. Insert the shaft into the base **(bearing cone down)** and use a soft hammer to install the shaft seal **(35)** into the mounting base.

CAUTION: Output shaft is not retained at this point.

4) Invert this assembly so it is standing on the shaft **(on the press table)**.

NOTE: Press bearing cone onto output shaft by pressing on inner race only. DO NOT press on roller cage or it may damage bearing.

just seated against inner bearing cup **(22)**. A slight preload of less than 100 in-lbs rolling torque should be obtained.

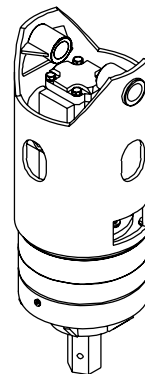
6) Relieve the press and slide the shim(s) **(26)** and the spacer **(27)** onto the shaft **(7)**. Install the retaining ring **(18)** into the shaft groove. It is important that the retaining ring is completely seated in the groove. If the retaining ring cannot be installed into the groove, one shim must be removed and the procedure must be repeated. Once the retaining ring is installed, check for proper shaft bearing preload by pressing down on the end of the shaft and rotating the mounting base. There should be from 20 to 60 in-lbs of rolling resistance in the bearings. If the retaining ring is not tight against the spacer, remove the spacer and add one shim and repeat the procedure until the preload is acceptable.

KICKDOWN ASSEMBLY

If you experience problems with your kickdown system, please contact Eskridge for service.

All subassembly service or repairs should be complete at this time. Continue on through UNIT ASSEMBLY to complete unit buildup.

UNIT ASSEMBLY REASSEMBLING



(Refer to exploded drawing on page 7 and Figure 1 on page 5)

NOTE: For Kickdown assembly, see drawing on page 5.

1) When all subassemblies are complete, unit is ready to be assembled.

2) Lubricate o-ring **(15)** and install on the O.D. pilot of the secondary ring gear **(3)**. Referring to scribe marks for proper orientation, install the secondary ring gear **(3)** onto the base **(1)**.

3) Install the secondary planet carrier **(6)**; assemble by rotating it until planet gears line up with ring gear teeth and shaft spline. Press until fully seated on shaft **(7)**.

4) Lubricate o-ring **(15)** and install on the O.D. pilot of the primary ring gear **(2)** and install the primary ring gear **(2)**. Refer to scribe marks for proper orientation.

5) Slide the sun gear **(9)** into the secondary planet carrier **(6)**.

6) Install carrier thrust washer **(14)**.

7) Install primary planet carrier **(5)**; assemble by rotating it until planet gears line up with ring gear teeth and sun gear spline. Assembly should drop into place.

8) Slide the input gear **(11)** into the primary planetary carrier.

9) Install carrier thrust washer **(14)** and input gear thrust washer **(28)**.

10) Lubricate o-ring **(15)** and install on the O.D. pilot of the cover **(4)**. Position the cover **(4)** with the proper orientation.

11) Install the motor **(46)** using new o-ring **(45)**, if necessary.

12) Attach hydraulic motor **(46)** to mounting pad on cover **(4)** with two capscrews **(50)** and lock washers **(44)**. Torque to 130 ft-lbs.

13) Install the 1/4 NPT fitting in motor case drain hole. Install JIC tee on previous fitting with outlets horizontal facing left and right.

14) Install one of the standard 90 degree elbows in the valve drain port of the motor.

15) In the left side, of tee fitting, install the tube from the case drain fittings to the valve drain port fitting on the motor.

16) Install the tube which runs from the right side of the tee fitting from above and move the tube nut up to the top end of the tube. Keep the nut in place by wrapping some tape around the tube just under the nut.

17) Install bail and be sure it is oriented correctly with the cover. Install the twenty 1/2-13 capscrews **(29)** with hardened, flatwashers **(32)** and torque to 110 ft-lbs(dry), 80 ft-lbs(lubed).

18) Install the fitting **(49)** into the outlet of the motor; use a large crows-foot wrench, if necessary. Install one of the straight fittings into the outlet fitting **(49)**. This fitting must be oriented vertically, pointing up.

19) With all fittings in the valve body **(47)** oriented as shown in Figure 1 and tight, slide the two hex-head cap screws **(50)** and washers **(51)** into the valve body **(47)**. Install the valve body **(47)** into the bail **(37)**.

20) Attach the upper end of the tube from step 15 into the long 90 degree elbow; use a crows-foot wrench, if necessary.

21) Install one of the 90 degree fittings into the shift port of the motor.

22) Install the tube from the lower right fitting of the valve body **(47)** to the shift port of the motor **(46)**.

23) Install the last straight fitting into the pressure sense port on the motor **(46)**.

24) Install the tube from the upper right fitting of the valve body **(47)** to the pressure sense port on the motor **(46)**.

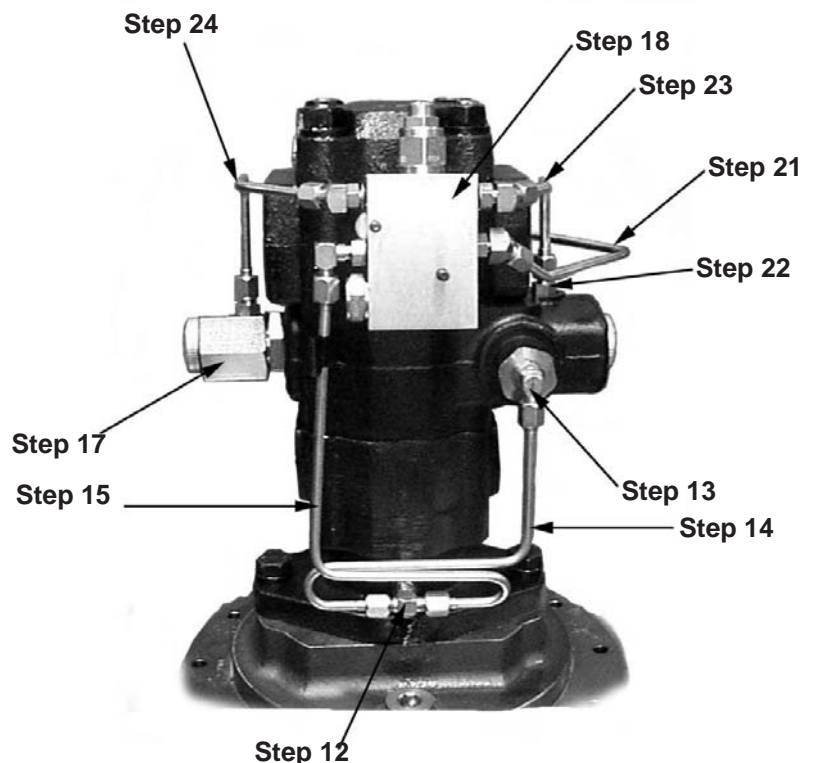
25) Install the tube from the upper left fitting on the valve body **(47)** to the pressure sense port on the motor outlet fitting **(49)**.

26) Double check all connections for tightness and be sure valve body attaching cap screws **(50)** are tight.

27) Fill to proper level, as specified on page 2, with EP 80/90 gear oil.

THE AUGER DRIVE IS NOW READY TO USE.

Figure 1





KICKDOWN MODELS 75 SERIES (HYDRASYNC) AUGER DRIVE

EFFECTIVE:
FROM: S/N 27060 02-16-00
TO: CURRENT

		RATIO PRI.:1/SEC.:1				
		51.43:1	40.25:1	37.80:1	29.58:1	
ITEM	QTY	DESCRIPTION	PART NO.	PART NO.	PART NO.	
1	1	BEARING CARRIER 75	75-004-3012			
2	1	RING GEAR-PRIMARY	25-004-1012			
3	1	RING GEAR-SECONDARY	25-004-1022			
4	1	COVER	25-004-1222			
5	1	CARRIER-PRIMARY	25-004-1032	25-004-1032	25-004-1042	
6	1	CARRIER-SECONDARY	25-004-1062	25-004-1072	25-004-1072	
7	1	OUTPUT SHAFT 2 5/8 HEX (75/250)	75-004-4022			
		OUTPUT SHAFT 3" HEX (75/250)	75-004-4012			
8	3	PLANET GEAR-SECONDARY	25-004-1082	25-004-1092	25-004-1092	
9	1	SUN GEAR-SECONDARY	25-004-1142	25-004-1152	25-004-1152	
10	3	PLANET GEAR-PRIMARY	25-004-1102	25-004-1112	25-004-1112	
11	1	INPUT GEAR 14 T 12/24 SPLINE	25-004-1162	25-004-1172	25-004-1172	
12	3	PLANET SHAFT-SECONDARY	25-004-1021			
13	3	PLANET SHAFT-PRIMARY	25-004-1031			
14	2	THRUST WASHER-SECONDARY (CAR.)	25-004-1132			
15	3	O-RINGS- 276	01-402-0020			
16	6	WASHER-PRIMARY PLANET	81-004-1561			
17	6	WASHER-SECONDARY PLANET	25-004-1041			
18	1	RETAINING RING-	01-160-0600			
19	1	BEARING CONE-	01-102-0120			
20	1	BEARING CUP-	01-103-0110			
21	1	BEARING CONE-	01-102-0250			
22	1	BEARING CUP-	01-103-0250			
23	3	BEARING-SEC.	01-105-0550			
24	3	BEARING-SEC.	01-105-0560			
25	3	BEARING-PRI.	01-105-0570			
26	★	SHIM (0.005" steel)	25-004-1051			
27	1	SUPPORT RING	25-004-1061			
28	1	THRUST WASHER	81-004-2683			
29	20	HHCS-(1/2-13x7.5) GR8	01-150-1660			
30	3	SPRING PIN-(3/16x1)	01-153-0020			
31	3	SPRING PIN-(3/16x1 1/4)	01-153-0190			
32	20	FLAT WASHER-(1/2 X 7/8 X 1/8)	01-166-0120			
33	1	PIPE PLUG-(1/2 NPT MAGNETIC)	01-207-0041			
34	1	PLUG-(PARKER# 05HP-12)	01-208-0030			
35	1	SEAL	01-405-0500			
BAILS	37	2"BOSS- BACKHOE, M50 1.25 X 2.5 - 2.5 X 2.5 MTRS	75-005-2092K			
		1.5" BOSS, M50 1.25 X 2.5 THRU 2.5 X 2.5 MTRS.	75-005-2082K			
		2"BOSS, M50 1.25 X 2.5 THRU 2.5 X 2.5 MTRS	75-005-2042K			
43	2	H.H.C.S. (5/8-11 X 1-3/4)	01-150-0110			
44	2	LOCKWASHER (5/8)	01-166-0040			
45	1	O-RING (PARKER NO. 250)	01-402-0010			
MTRS	46	MOTOR - C.S. M50 1.5 X 2.5 (HI)	01-304-0600			
		MOTOR - C.S. M51 2.5 X 2.5 (HI) (SPL SEAL)	01-304-0610			
		MOTOR - C.S. M50 2.0 X 2.5 (HI) (SPL SEAL)	01-304-0620			
	47	1	VALVE BODY 2-DIRECTION	01-308-0150		
	48	1	KIT-TUBE AS&FIT'G KICKDOWN-58	01-309-0580		
			KIT-TUBE AS&FIT'G KICKDOWN 61	01-309-0610		
	49	1	FITTING -16-16 TO -4 KICKDOWN	01-316-0020		
	50	2	HHCS 1/4-20 X 1.75 GR 5	01-150-1690		
	51	2	FLATWASHER (1/4)	01-166-0390		

* QUANTITY OF SHIMS DETERMINED BY BEARING PRELOAD.

OPTIONS
SEAL KIT P/N 25-018-2021
INCLUDES 1 EA. OF ITEM 35 AND ITEM 45.
PLUS A QTY 3 OF ITEM 15

