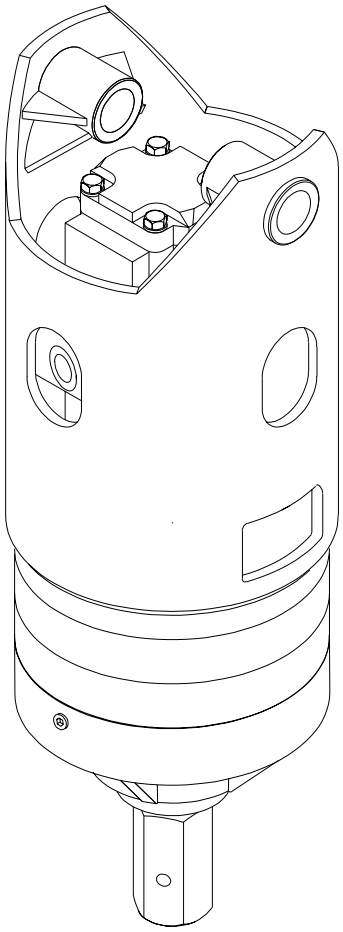
ESKRIDGE



MODEL 74

Planetary DiggerDrive
Service & Repair Manual

EFFECTIVE FOR:
S/N: 00001-UP
DATE:04/01/86-UP

MODEL 74 SERVICE MANUAL

HYDRASYNC™ PLANETARY DIGGERDRIVE

This manual will assist in disassembly and assembly of major components for all Model 74 Planetary Auger drives. Item numbers, indicated in parentheses throughout this manual, refer to the Eskridge Model 74 exploded parts breakdown drawings. Individual customer specifications (bail assembly, output shaft, hydraulic motor, etc.) may vary from exploded drawing and standard part numbers shown. If applicable, refer to individual customer drawing for details.

LUBRICATION AND MAINTENANCE

The oil should be changed after the first 50 hrs. of use and at 500 hr. intervals thereafter. Gearboxes in auger drives require GL-5 grade EP 80/90 gear oil for lubrication. The manufacturer recommends that the unit be partially disassembled to inspect gears 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. Unit will need to be tilted back slightly when filling through oil fill hole to achieve proper capacity.

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

UNIT DISASSEMBLY

(Refer to exploded view drawing on page 7)

1) Scribe a diagonal line, from the bail **(47)** to the base **(1)**, across the outside of the auger drive to assure proper orientation of parts as they are re-assembled.

2) To drain oil, position unit on its side and remove oil plug **(37)** located in the base **(1)**. To help ventilate oil while draining, loosen or remove oil plug **(38)** located in cover **(4)**. Maximum drainage occurs when oil is warm.

NOTE: Particular care should be taken when placing the unit in a position for servicing. Unit should be blocked up so that weight of the unit is resting on the base. This fixture must be secure so that the auger drive will not tip over during disassembly and assembly procedures.

3) Remove the twelve hex head cap screws **(30)** and lock washers **(35)** from inside bail assembly **(47)**. Lift bail assembly from unit**.**

NOTE: There are no bolts retaining the major components together. Proceed with caution when moving the unit.

4) Remove the two cap screws **(43)** and lock washers **(44)** from hydraulic motor **(46)**. Remove motor from unit. Check o-ring **(45)** for damage.

NOTE: Two 1/2" dowels **(31)** connect the cover **(4)** to the primary ring gear **(2)**. A puller device or pry bars may be needed to separate parts. If using pry bars, care should be taken not to damage seal surface between mating parts.

5) Remove the cover **(4)**, input gear **(13)**, and thrust washer **(17)**. Discard gasket **(18)**.

6) Lift the primary planet carrier assembly out of the unit **(includes items 5,12,15,19,25, & 32)**.

7) Remove thrust washer **(16)**. If sun gear **(11)** has not been removed from auger drive, do so now. (Sometimes the sun gear remains in the primary carrier **(5)**.)

8) There are two dowels **(31)** connecting the primary and secondary ring gears **(2 & 3)** together. The primary ring gear **(2)** may be removed by inserting two 3/8-16 capscrews into the threaded holes in the ring gear. Continue threading the capscrews into the holes to cause separation of the dowels and primary ring. Remove primary ring gear **(2)**. Discard gasket **(18)**.

9) Lift the secondary planetary assembly out of the unit **(includes items 6,10,14,24, & 33).** Use a puller if necessary.

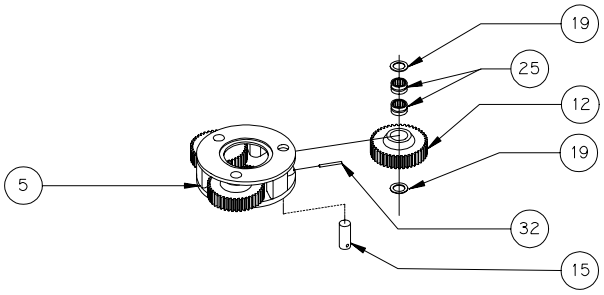
10) There are four dowels **(31)** connecting the secondary ring gear **(3)** to the base **(1).** Insert two 3/8-16 capscrews into the threaded holes and separate the ring from the mounting base as done for the primary ring. Remove secondary ring gear. Discard gasket **(18)**.

11) 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

PRIMARY PLANET CARRIER SUBASSEMBLY

(ITEMS 5,12,15,19,25, & 32) DISASSEMBLY AND REPAIR



Rotate planet gears **(12)** to check for abnormal noise or roughness in bearings **(25)** or planet shafts **(15)**. If further inspection or replacement is required, proceed as follows.

1) Drive roll pins **(32)** completely into planet shafts **(15)**.

2) Press or drive planet shafts **(15)** out of carrier **(5)**.

3) Remove planet gears **(12)** and planet washers **(19)** from the carrier **(5)**.

4) If the planet bearings **(25)** require replacement, press them out of the planet gears **(12)** and replace with new ones.

5) Check primary planet shafts **(15)** for any abnormal wear, especially ones where bearings needed to be replaced. If any abnormal wear is found, replace planet shafts.

6) Remove the roll pins **(32)** from planet shafts **(15)**.

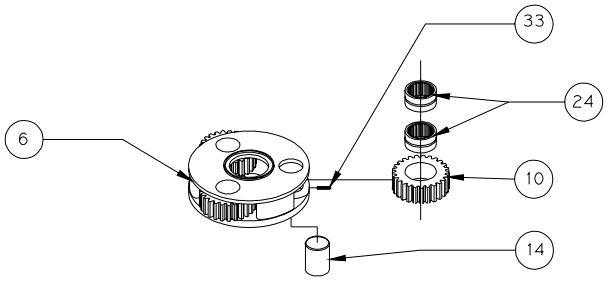
7) With planet washers **(19)** on both sides of the planet gear **(12)** and with bearings **(25)** installed, slide gear into the carrier **(5)**. Insert the planet shaft **(15)** through the carrier, washers, and planet gear.

8) Planet shafts **(15)** should be installed with chamfered end of 1/8 inch hole toward outside diameter of the carrier **(5)**. This will aid in alignment of holes while inserting roll pins **(32)**.

9) Drive three roll pins **(32)** through the carrier holes and into the planet shafts to retain the parts.

SECONDARY PLANET CARRIER SUBASSEMBLY

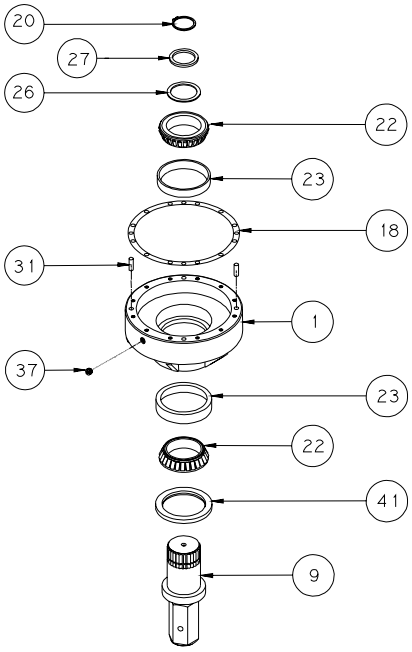
(ITEMS 6,10,14,24, & 33) DISASSEMBLY AND REPAIR



Follow the same procedure as that for the primary planetary assembly. Substitute items as indicated: planet gears **(10)**, planet bearings **(24)**, planet shafts **(14)**, roll pins **(33)** and carrier **(6)**. No washers are needed.

BASE SUBASSEMBLY

(ITEMS 1,9,18,20,22, 23,26,27,31,37, & 41)



DISASSEMBLY AND REPAIR

1) Remove the shaft retaining ring **(20)**. 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 **(9)** 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 **(22)**.

NOTE: If reusing old bearing cone, do not damage roller cage by pulling on it.

3) If outer bearing cone **(22) (on the shaft)** needs to be replaced a gear puller may be used.

4) Remove the shaft seal **(41)** for inspection or replacement. Lubricate inner lip of new shaft seal **(41)** and slide the seal onto the shaft **(9)** until it fits snugly over shaft seal diameter with the open side toward the inside of the auger drive.

5) Inspect inner and outer bearing cups **(23)** and replace if necessary.

BASE ASSEMBLY

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

1) Press outer bearing cone **(22) (large end down as shown)** onto the shaft until it seats against the shoulder.

2) Clean all foreign material from magnetic oil plug **(37)** located on side of base **(1).** Add a small amount of pipe thread compound to pipe plug before installing back into base.

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

4) Apply a layer of lithium or general purpose bearing grease to surface of outer bearing cup **(23)**. Insert the shaft into the base **(bearing cone down)** and use a soft hammer to install the shaft seal **(41)** into the base.

CAUTION: Output shaft is not retained at this point.

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

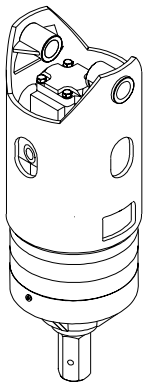
NOTE: Press bearing cone onto output shaft by pressing on inner race only. DO NOT press on roller cage or it may damage bearing.

6) Apply a layer of lithium or general purpose bearing grease to surface of inner bearing cup **(23)**. Press the inner bearing cone **(23) (large end up as shown)** onto the shaft **(9)** until it is just seated against inner bearing cup **(23)**. A slight preload of less than 100 in-lbs rolling torque should be obtained.

7) Relieve the press and slide the shim(s) **(26)** and the spacer **(27)** onto the shaft **(9)**. Install the retaining ring **(20)** 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 0 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.

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)

1) When all subassemblies are complete, unit is ready to be assembled. Place lower assembly back on blocks, which were used during the initial UNIT DISASSEMBLY procedures, for remaining unit build-up.

2) Place a new gasket **(18)** on the base **(1)**. Refering to scribe marks for proper orientation, start the secondary ring gear **(3)** onto the base.

3) If installing a new ring gear, always install new dowel pins **(31)** into ring gear before re-assembling into unit.

4) Place a flat metal plate over ring gear and use a hydraulic press to push the ring gear down into place.

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

6) Place a new gasket **(18)** on the secondary ring gear **(3)** and install the primary ring gear **(2)** as described in step number 4. Refer to scribe marks for proper orientation.

7) Check to be sure retaining ring **(34)** is installed on sun gear **(11)**. Slide the sun gear **(11)** into the secondary planet carrier.

8) Install thrust washer **(16)**.

9) Install primary planet carrier **(5)** assembly by rotating it until planet gears line up with ring gear teeth and sun gear spline. It may be easier to install the sun gear **(12)** into the bottom of the primary carrier and then install primary carrier.

10) Slide the input gear **(13)** into the primary planetary carrier.

11) Install thrust washer **(17)**.

12) Place a new gasket **(18)** on the primary ring gear **(2)** and position the cover **(4)** with the proper orientation.

13) Attach hydraulic motor **(46)** to mounting pad on cover **(4)** with two capscrews **(43)** and lock washers **(44)**. Torque to 130 ft-lbs.

14) Line up scribe mark on bail assembly **(47)** with scribe mark on cover **(4)** and place bail over hydraulic motor **(41)**. Install twelve cap screws **(30)** and lockwashers **(35)** inside bail assembly and torque to 30 ft-lbs.

15) Add gear oil as specified on page 2, after unit is sealed with a brake and/or motor.

THE DIGGERDRIVE IS NOW READY TO USE.

ESKRIDGE

74 HYDRASYNC (TM)

AUGER DRIVE

ITEM	QTY	PART NO.	DESCRIPTION
1	1	74-004-1033	BASE - 74
2	1	80-004-0832	RING GEAR-PRIMARY
3	1	80-004-0812	RING GEAR-SECONDARY
4	1	74-004-1104	COVER-SAE 'C' 2-BOLT
5	1	-A-	CARRIER-PRIMARY
6	1	80-004-0823	CARRIER-SECONDARY
9	1	-B-	OUTPUT SHAFT
10	3	80-004-1012	PLANET GEAR-SECONDARY
11	1	80-004-1022	SUN GEAR-SECONDARY
12	3	-C-	PLANET GEAR-PRIMARY
13	1	-D-	INPUT GEAR
14	3	80-004-1031	PLANET SHAFT-SECONDARY
15	3	71-004-0121	PLANET SHAFT-PRIMARY
16	1	80-004-1051	THRUST WASHER-SECONDARY
17	1	80-004-1061	THRUST WASHER-PRIMARY
18	3	80-004-1041	GASKET-RING GEAR
19	6	71-004-0861	WASHER-PRIMARY PLANET
20	1	01-160-0420	RETAINING RING - (OUTPUT SHAFT)
22	2	01-102-0120	BEARING CONE - (OUTPUT SHAFT)
23	2	01-103-0110	BEARING CUP - (OUTPUT SHAFT)
24	6	01-105-0430	BEARING-SEC. - (PLANET GEAR)
25	6	01-105-0010	BEARING-PRI. - (PLANET GEAR)
26	*	80-004-1141	SHIM
27	1	80-004-1131	SPACER
30	12	01-150-1290	HEX.HEAD CS (1/2-13 X 7-1/2) GR5
31	8	01-152-0040	DOWEL (1/2 X 1-1/2)
32	3	01-153-0020	ROLL PIN (3/16 X 1)
33	3	01-153-0190	ROLL PIN (3/16 X 1-1/4)
34	1	01-160-0430	RETAINING RING - (SUN)
35	12	01-166-0030	LOCKWASHER-MED.(1/2)
37	1	01-207-0041	PIPE PLUG (1/2 NPT MAGETIC)-(BASE)
38	1	01-208-0030	PLUG -(COVER)
41	1	01-405-0500	SEAL
43	2	01-150-0110	H.H.C.S. (5/8-11 X 1-3/4)
44	2	01-166-0040	LOCKWASHER (5/8)
45	1	01-402-0010	O-RING (PARKER NO. 250)
46	1	PER CUST.SPEC.	MOTOR
47	1	-E-	BAIL ASSY

	SHAFTS - OUTPUT	PART NO.
-B-	OUTPUT SHAFT - 2-5/8 HEX	74-004-1042
	OUTPUT SHAFT - 3" HEX	74-004-1112

	BAIL ASSEMBLY	PART NO.
-E-	BAIL ASSY-ALL 2SPD MTRS/1-1/2" BOSS	74-005-2082
	BAIL ASSY-ALL 2SPD MTRS/2" BOSS	74-005-2042

	DESCRIPTION	PART NO.	
-A-	CARRIER - PRI	80-004-1093	80-004-1083
-C-	PLANET GEAR PRI	73-004-1032	73-004-1022
-D-	INPUT GEAR 14T 12/24	73-004-1012	73-004-1002
	RATIO ⟹	37.80:1	51.43:1

* QUANTITY OF SHIMS DETERMINED BY BEARING PRELOAD.

OPTIONS
SEAL KIT P/N 74-016-0201
INCLUDES 1 EA. OF ITEM 41 AND ITEM 45.
PLUS A QTY 3 OF ITEM 18

EFFECTIVE DATE: 3-14-91

SERIAL NO. 13956

E.C.N. NONE
SERV/X74-0014

DATE: 07-14-95

PRODUCT WARRANTY

ESKRIDGE, INC. ("Eskridge") warrants to its original purchaser ("Customer") that new component parts ("Parts") sold by Eskridge to the Customer will be free of defects in material and workmanship and will conform to standard specifications set forth in current Eskridge sales literature or to any custom specifications of the Customer acknowledged in writing by Eskridge, **SUBJECT TO THE FOLLOWING QUALIFICATIONS AND LIMITATIONS:**

1) Prior to placing warranted Parts in service, the Customer shall provide proper storage such that foreign objects (e.g., rain or debris) cannot enter any Parts via entry ports which are normally closed during operation.

2) If Parts requiring motorized power for operation are received from Eskridge without a motor, documentation must be available indicating proper lubrication upon placement of the Parts in service.

3) The Customer must notify Eskridge in writing of any claim for breach of this warranty promptly after discovery of a defect and in any event prior to the termination of the warranty period, which shall commence when a unit is placed in service and shall expire upon the earlier of (i) the expiration of twelve (12) months from the date of Commencement of Service (as defined in Paragraph 4) (ii) the completion of one thousand (1,000) hours of service of the Parts (iii) the expiration of six (6) months after the expiration of any express warranty relating to the first item of machinery or equipment in which the Parts are installed or on which it is mounted, or (iv) the installation or mounting of the Parts in or on an item of machinery or equipment other than the first such item in which the Parts are installed or on which the Parts are mounted.

4) Parts shall be deemed to have been place in service (the "Commencement of Service") at the time the machinery or equipment manufactured or assembled by the Customer and in which the Parts are installed or on which the Parts are mounted is delivered to the Customer's dealer or the original end-user, which ever receives such machinery or equipment first.

5) This warranty shall not apply with respect to Parts which, upon inspection by Eskridge, show signs of disassembly, rework, modifications or improper installation, mounting, use or maintenance.

6) Eskridge makes no warranty in respect to hydraulic motors mounted on any Parts. Failure of any such motor will be referred to the motor manufacturer.

7) Claims under this warranty will be satisfied only by repair of any defect(s) or, if repair is determined by Eskridge in its sole, absolute and uncontrolled discretion to be impossible or impractical, by replacement of the Parts or any defective component thereof. No cash payment or credit will be made for defective materials or workmanship. IN NO EVENT SHALL ESKRIDGE BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND OR NATURE, WHICH DAMAGES ARE HEREBY EXPRESSLY DISCLAIMED.

8) From time to time, Eskridge may make changes in the component parts manufactured by it without incorporating such changes in the component parts previously shipped. Such changes shall not constitute an admission by Eskridge of any defects or problems with previously manufactured component parts.

9) All freight charges on Parts returned for warranty service are the responsibility of the Customer.

THE FOREGOING WARRANTY IS THE SOLE WARRANTY MADE BY ESKRIDGE WITH RESPECT TO ANY PARTS, AND IS IN LIEU OF ANY AND ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, ESKRIDGE EXPRESSLY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, REGARDLESS OF ANY KNOWLEDGE ESKRIDGE MAY HAVE OF ANY PARTICULAR USE OR APPLICATION INTENDED BY THE PURCHASER. THE SUITABILITY OR FITNESS OF THE PARTS FOR THE CUSTOMER'S INTENDED USE, APPLICATION OR PURPOSE AND THE PROPER METHOD OF INSTALLATION OR MOUNTING MUST BE DETERMINED BY THE CUSTOMER.

WARRANTY RETURN POLICY

1) All Parts shall be returned freight prepaid.
2) Any Parts qualifying for warranty will be repaired with new Parts free of charge (except for freight charges as provided above).
3) If parts are found to be operable, you have two options:
   a. The Parts can be returned to you with a service charge for inspection, cleaning, and routine replacement of all rubber components and any other parts that show wear; or
   b. We can dispose of the Parts at the factory if you do not wish it to be returned.

NOTE: Any order of Parts by customer shall only be accepted by Eskridge subject to the terms stated herein. Any purchase order forms used by Customer (to accept this offer to sell) which contain terms contrary to, different from, or in addition to the terms herein shall be without effect, and such terms shall constitute material alteration of the offer contained herein under K.S.A 84-2-207 (2)(b), and shall not become part of the contract regarding the sale of the Parts.

OTHER ESKRIDGE PRODUCTS

PLANETARY GEARDRIVES

SERIES	TORQUE RATING MAX. INTERMITTENT
20/28 SERIES	20,000-28,000 IN-LBS
50 SERIES	50,000 IN-LBS
60 SERIES	60,000 IN-LBS
100 SERIES	100,000 IN-LBS
130 SERIES	130,000 IN-LBS
150 SERIES	150,000 IN-LBS
250 SERIES	250,000 IN-LBS
600 SERIES	600,000 IN-LBS
1000 SERIES	1,000,000 IN-LBS

MULTIPLE DISC BRAKES

SERIES	TORQUE RATING
90B SAE B	TO 4,800 IN-LBS
90BA SAE B ADJUSTABLE TORQUE	TO 4,800 IN-LBS
92B SAE B LOW PROFILE	TO 2,800 IN-LBS
93 FOR NICHOLS MOTORS	TO 6,100 IN-LBS
95C SAE C	TO 12,000 IN-LBS
95W WHEEL MOUNT	TO 21,000 IN-LBS
98D SAE D	TO 25,000 IN-LBS

PLANETARY DIGGERDRIVES

SERIES	TORQUE RATING
D50 MODELS 1500, 2500 & 5000	1,500-5,000 FT-LBS
76 MODELS BA & BC, TWO SPEED	8,000-12,500 FT-LBS
77 MODELS BA, BC & BD	6,000-12,500 FT-LBS
78 MODELS 35 & 48, TWO SPEED	9,000-12,500 FT-LBS
75 MODELS 38 & 51, TWO SPEED	16,500-20,000 FT-LBS

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