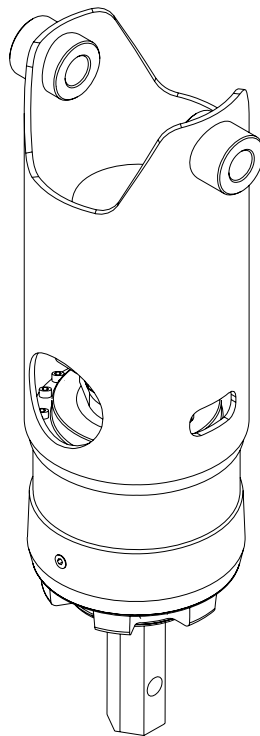
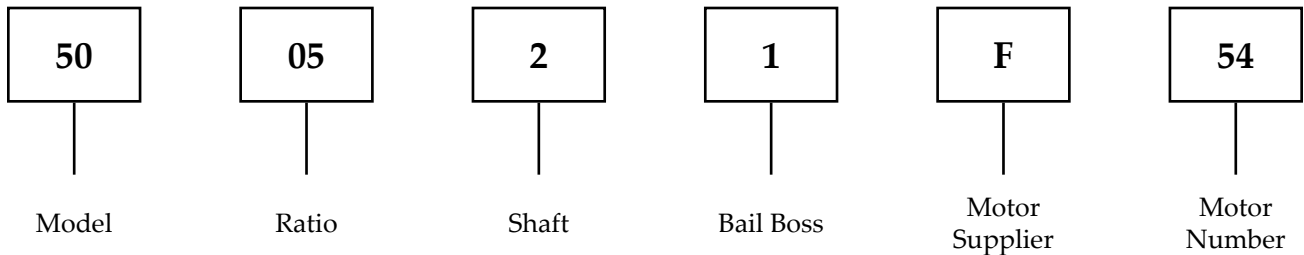


ESKRIDGE

D50K PLANETARY AUGER DRIVE SERVICE AND REPAIR MANUAL



Example Part Number



THIS SERVICE MANUAL IS EFFECTIVE
FROM: S/N 58670, SEPT. 2003
TO: CURRENT
REF: SMD50K-BA

D50 MODEL SERVICE MANUAL

SINGLE & DOUBLE PLANETARY AUGER DRIVES

This manual will assist in the disassembly and assembly of the above model Planetary Auger Drives. Item numbers, indicated in parentheses throughout this manual, refer to the exploded parts breakdown drawing. Individual customer specifications (mounting case, output shaft, brake 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. All gearboxes require a GL-5 grade EP 80/90 gear oil for lubrication. Manufacturer also recommends that unit be partially disassembled to inspect gears and bearings at 1000 hour intervals.

<u>Model</u>	<u>Oil Capacity</u>	<u>Oil Level</u>
Single Stage	2 pints / 0.95 liters	To horizontal centerline of gear drive
Double Stage	2.5 pints / 1.18 liters	To midway on upper/primary gear set

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Unit Disassembly Procedure

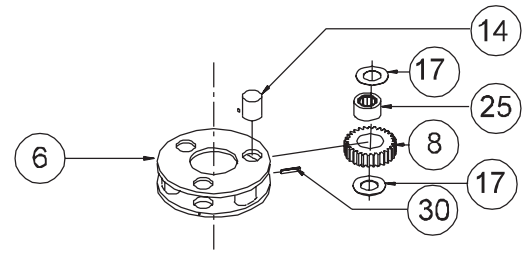
There are two types of model D50 units: single planetaries without a primary carrier and double planetaries with a primary planet carrier. Steps with an asterisk (*) apply only to the double planetary model.

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).

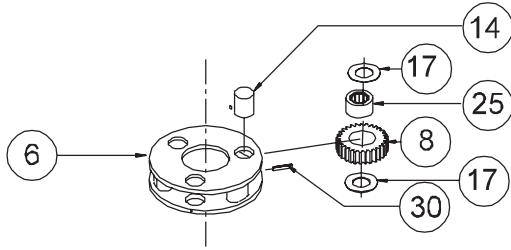
NOTE: Support primary carrier (6) only while pressing planet shafts.

- 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.

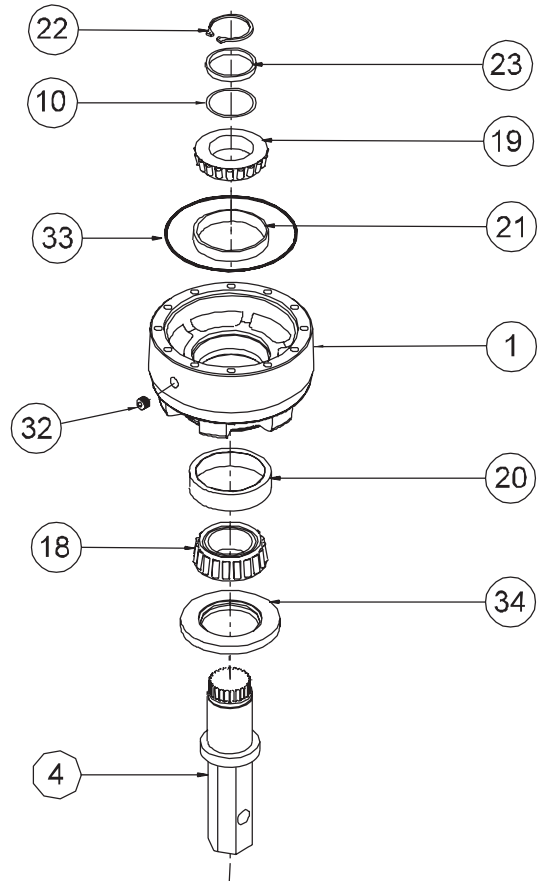
Secondary Planet Carrier Subassembly



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).

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 retaining ring (22). Remove the retaining ring (22), spacer (23) and shims (10).

CAUTION: Retaining ring is no longer retaining output shaft. Take precautions if the unit is moved: 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, retaining ring 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 bearing spacer (23). Spacer 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 a new retaining 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 retaining 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.

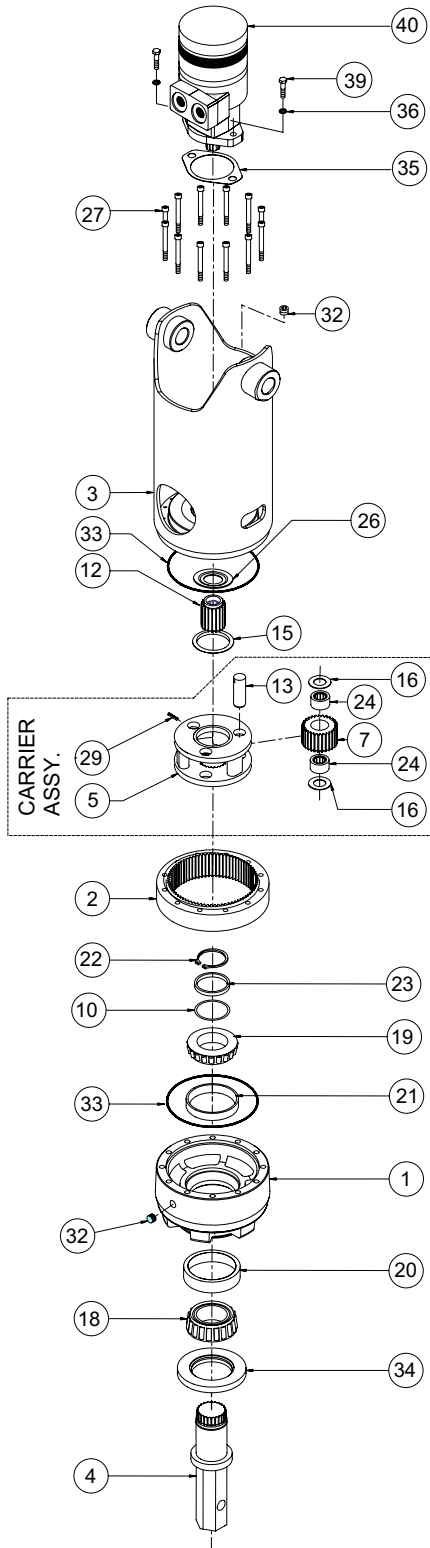
- 14) Grease a new o-ring (33) and install it into bottom of cover/bail assembly (3). Refer back to scribe marks made across external joints prior to Disassembly Procedure. Line up scribe marks between cover/bail assembly and ring gear (2) so that orientation of motor mount holes and oil plug are back 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 2.5 pints of a GL-5 grade EP 80/90 gear oil. Proper oil level will measure to middle of primary planet gears (8).
- 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.

Single Stage Exploded View Drawing



ESKRIDGE

MODEL D50

WITH INTEGRAL BAIL

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

SINGLE PLANETARY



DESCRIPTION

BASE	1	1	50-004-3303
RING GEAR	2	1	50-004-1033
COVER / BAIL ASSEMBLY 1" BAIL BOSSES	3	1	50-005-2142
COVER / BAIL ASSEMBLY 1-1/4" BAIL BOSSES			50-005-2132
OUTPUT SHAFT - HEX 2"	4	1	50-004-4082
CARRIER-SECONDARY	5	1	50-004-1052
CARRIER-PRIMARY	6	-	-
PLANET GEAR-SEC.	7	3	85-004-1041
PLANET GEAR-PRI.	8	-	-
SHIM(S)	10	*	85-004-1221
-	11	-	-
INPUT GEAR (CODE 3 SAE 1"-6B)	12	1	85-004-1262
PLANET SHAFT-SECONDARY	13	3	71-004-0121
PLANET SHAFT-PRIMARY	14	-	-
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	-	-
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
RETAINING RING	22	1	01-160-0430
SPACER	23	1	50-004-1101
BEARING-SEC.PLANET	24	6	01-105-0010
BEARING-PRI.PLANET	25	-	-
THRUST WASHER-INPUT	26	1	50-004-1091
SOCKET HEAD CAPSCREW 7/16-20 X 3.0 GR8	27	12	01-150-1830
ROLLPIN-SECONDARY 3/16 X 7/8	29	3	01-153-0210
ROLLPIN-PRIMARY 1/8 X 1	30	-	-
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
SEAL-SHAFT	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 5005-21F55 ONLY)	40	1	01-304-0550
HYD. MOTOR (UNIT 5005-21F54 ONLY)		1	01-304-0540

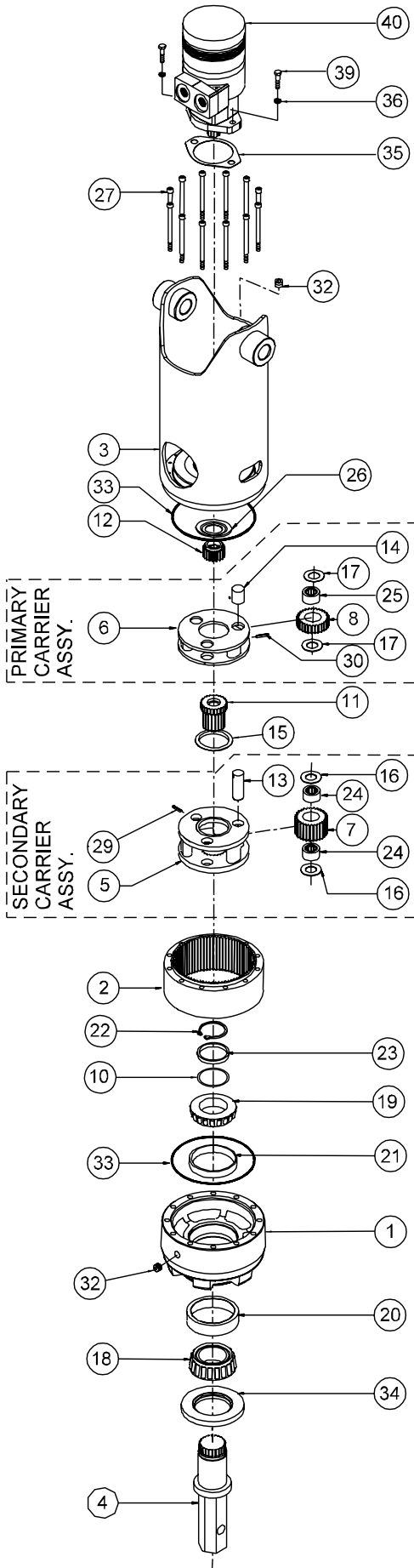
ITEM QTY. PART NUMBER

NOTES: * BEARING PRELOAD DETERMINES QUANTITY OF SHIMS.

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

XD50KD1-BB / DATE: 02-15-2006 / ECN: 2447

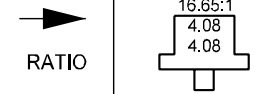
Double Stage Exploded View Drawing



MODEL D50
WITH INTEGRAL BAIL

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

DOUBLE PLANETARY



DESCRIPTION	RATIO	
	ITEM	QTY.
BASE	1	1
RING GEAR	2	1
COVER / BAIL ASSY 1" BAIL BOSSES	3	1
COVER / BAIL ASSY 1-1/4" BAIL BOSSES		
OUTPUT SHAFT - HEX 2"	4	1
CARRIER-SECONDARY	5	1
CARRIER-PRIMARY	6	1
PLANET GEAR-SEC.	7	3
PLANET GEAR-PRI.	8	3
SHIM(S)	10	*
SUN GEAR-SECONDARY	11	1
INPUT GEAR (CODE 3 SAE 1"-6B)	12	1
PLANET SHAFT-SECONDARY	13	3
PLANET SHAFT-PRIMARY	14	3
THRUST WASHER-SEC CUP	15	1
THRUST WASHER-SEC.PLANET (GEAR)	16	6
THRUST WASHER-PRI.PLANET (GEAR)	17	6
BEARING CONE (OUTER)	18	1
BEARING CONE (INNER)	19	1
BEARING CUP (OUTER)	20	1
BEARING CUP (INNER)	21	1
RETAINING RING	22	1
SPACER	23	1
BEARING-SEC.PLANET	24	6
BEARING-PRI.PLANET	25	3
THRUST WASHER-INPUT	26	1
SOCKET HEAD CAPSCREW 7/16-20 X 4.5 GR8	27	12
ROLLPIN-SECONDARY 3/16 X 7/8	29	3
ROLLPIN-PRIMARY 1/8 X 1	30	3
-	31	-
PIPE PLUG-MAGNETIC 3/8 NPT-SOC HD	32	2
O-RING 167 MM X 3 MM	33	2
SEAL-SHAFT	34	1
GASKET	35	1
LOCK WASHER 1/2	36	2
HHCS 1/2-13 X 1-1/2 GR5	39	2
HYD. MOTOR (UNIT 5005-21F55 ONLY)	40	-
HYD. MOTOR (UNIT 5005-21F54 ONLY)		-
HYD. MOTOR (UNIT 5016-21F54 ONLY)		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.

XD50KD2-BA DATE: 09-16-03

Eskridge Product Warranty

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

1. Prior to placing Units in service, the Customer shall provide proper storage such that foreign objects (e.g., rain or debris) cannot enter any Units via entry ports which are normally closed during operation.
2. The Customer must notify Eskridge in writing of any claim for breach of this warranty promptly after discovery of a defect. The warranty period shall commence when a unit is placed in service and shall expire upon the earlier of
 - a. the expiration of twelve (12) months from the date of Commencement of Service (as defined in Paragraph 4)
 - b. the completion of one thousand (1000) hours of service of the Units
 - c. 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 Units are installed or on which it is mounted, or
 - d. the installation or mounting of the Units in or on an item of machinery or equipment other than the first such item in which the Units are installed or on which the Units are mounted.
3. Units shall be deemed to have been placed in service (the "Commencement of Service") at the time the machinery or equipment manufactured or assembled by the Customer and in which the Units are installed or on which the Units are mounted is delivered to the Customer's dealer or the original end-user, which ever receives such machinery or equipment first.
4. This warranty shall not apply with respect to Units which, upon inspection by Eskridge, show signs of disassembly, rework, modifications, lack of lubrication or improper installation, mounting, use or maintenance.
5. Eskridge makes no warranty in respect to hydraulic motors mounted on any Units. Failure of any such motor will be referred to the motor manufacturer.
6. 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 Units or any defective component thereof. No cash payment or credit will be made for defective materials, workmanship, labor or travel. IN NO EVENT SHALL ESKRIDGE BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND OR NATURE, FOR WHICH DAMAGES ARE HEREBY EXPRESSLY DISCLAIMED.
7. From time to time, Eskridge may make design changes in the component Units manufactured by it without incorporating such changes in the component Units previously shipped. Such design changes shall not constitute an admission by Eskridge of any defects or problems in the design of previously manufactured component Units.
8. All freight charges on Units returned for warranty service are the responsibility of the Customer.

Warranty Return Policy

1. Any part/Unit(s) returned to Eskridge must be authorized by Eskridge with an assigned return (CSR) number.
2. All Units shall be returned freight prepaid.
3. Any Units qualifying for warranty will be repaired with new parts free of charge (except for freight charges to Eskridge as provided above).
4. If Units are found to be operable, you have two options:
 - a. The Units can be returned to you with a service charge for inspection, cleaning, and routine replacement of all rubber components and any other Units that show wear;
 - b. We can dispose of the Unit(s) at the factory if you do not wish it to be returned.

NOTE: Any order of Units 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 Units.

The foregoing warranty is the sole warranty made by Eskridge with respect to any Units 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 Units for the customer's intended use, application or purpose and the proper method of installation or mounting must be determined by the customer.

OTHER ESKRIDGE PRODUCTS

Planetary Gear Drives

<u>SERIES</u>	<u>MODELS</u>	<u>TORQUE RATING (IN-LB)</u> MAX. INTERMITTENT
20	20B, 20P, 20LB, 20LP	20,000
28	28B, 28P, 28M, 28LB, 28LP	50,000
50	50K/L, 50LG, 50N	50,000
65	60B, 60E, 60L	60,000
100	100E	100,000
105	105E	100,000
130	130	130,000
150	150	150,000
250	250K/L, 251K/L, 252K/L, 253K/L	250,000
600	600K/L	600,000
1000	100K/L	1,000,000

Multiple Disc Brakes

<u>SERIES</u>	<u>FEATURES</u>	<u>TORQUE RATING (IN-LB)</u>
90B	SAE B	TO 4,800
90BA	SAE B, ADJUSTABLE TORQUE	TO 4,800
92B	SAE B, LOW PROFILE	TO 2,800
93	FOR NICHOLS MOTORS	TO 6,100
95C	SAE C	TO 12,000
95W	SAE C WHEEL MOUNT	TO 21,000
98D	SAE D	TO 25,000

Planetary Auger Drives, Anchor Drives & Diggers

<u>SERIES</u>	<u>MODELS</u>	<u>TORQUE RATING (FT-LB)</u>
D50	1500, 2500 & 5000	1,500 - 5,000
76	BA & BC, 2-SPEED	8,000 - 12,500
77	BA, BC & BD	6,000 - 12,500
78	35 & 48, 2-SPEED	9,000 - 12,500
75	38 & 51, 2-SPEED	16,500 - 20,000
D600	D600	50,000
D1000	D1000	83,000

