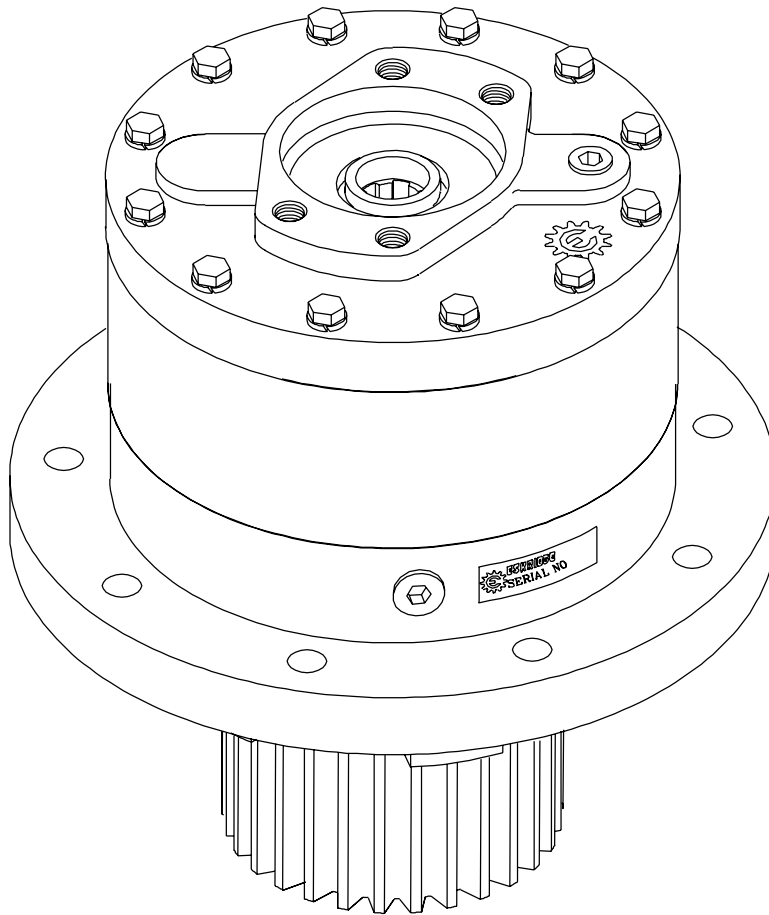
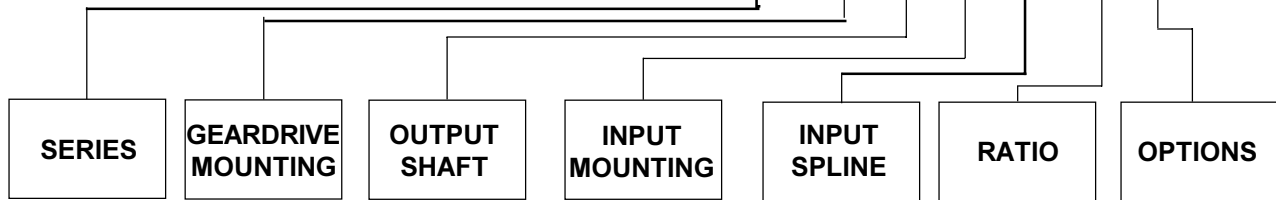


ESKRIDGE



EXAMPLE PART NUMBER: 50K A D1 A 4 - 16 Z



Series 50K Planetary Gearbox Service & Repair Manual

EFFECTIVE FOR:
S/N: 16401 - UP
DATE: 07/01/93 - UP



SERIES 50K SERVICE MANUAL

SINGLE & DOUBLE PLANETARY GEARDRIVE

This manual will assist in disassembly and assembly of the above model planetary geardrives. 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 geardrive 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 geardrive should be partially disassembled to inspect gears and bearings at 1000 hour intervals.

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 base or general purpose bearing grease sparingly every 50 operating hours or at regular maintenance intervals. Over-greasing the output bearing tends to fill the housing with grease and thicken the oil.

OPERATING POSITION

Horizontal shaft (Single)	1.25 pints (0,6 liters)
Vertical shaft (Single)	2.00 pints (1,0 liters)
Horizontal shaft (Double)	1.50 pints (0,7 liters)
Vertical shaft (Double)	2.50 pints (1,2 liters)

OIL CAPACITY

OIL LEVEL

To horizontal centerline of geardrive
To midway on upper/primary gearset
To horizontal centerline of geardrive
To midway on upper/primary gearset

DISASSEMBLY PROCEDURE:

All parts should be inspected as they are removed from unit. Scribe across mounting case **(1)**, ring gear **(2)**, and cover **(3)** joints on outside of gearbox to assure proper orientation of oil fill and drain plugs, motor mounting, etc., as the unit is reassembled.

1) Remove hydraulic motor and Eskridge Brake from gearbox. Drain oil.

2) Remove the twelve 7/16 x 3" hex cap screws **(27)** and 7/16 lockwashers **(31)**, which retain cover **(3)** and ring gear **(2)** to mounting case **(1)**.

3) Lift cover **(3)** off of unit and remove input gear **(12)** and input thrust washer **(26)**.

4) Remove Primary planetary assembly (includes items **6,8,14,17,25** and **30**).

5) Remove Planetary assembly (includes items **5,7,13,15,16,24**, and **29**).

6) 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 mounting case **(1)**. The only thing retaining output shaft **(4)** is the retaining ring **(22)**. Remove retaining ring **(22)**, spacer **(23)**, and shims **(10)**.

CAUTION: Retaining ring is no longer retaining output shaft. Take precautions if the unit is moved because the shaft may fall out.

7) With output shaft down through centerhole in press table and unit supported by case, 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 **cone (18)** will come out of unit attached to shaft.

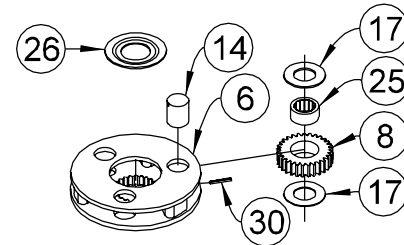
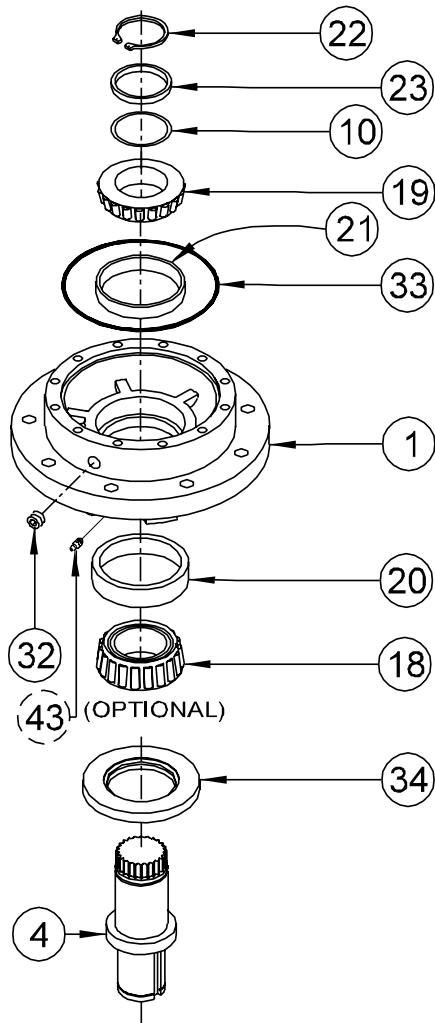
CAUTION: Care should be taken not to injure feet or damage output shaft during this procedure.

The unit is now disassembled into groups of parts and/or subassemblies. The area requiring repair or service should be identified by thorough inspection of the parts after they have been washed in solvent. If repair is necessary, refer to the individual repair section to follow.

OUTPUT SHAFT SUBASSEMBLY (ITEMS 4,18,34) DISASSEMBLY AND REPAIR



*PRIMARY PLANETARY SUBASSEMBLY (ITEMS 6,8,14,17,25, and 30) DISASSEMBLY AND REPAIR



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) Remove primary planet shafts (14) by pressing them out, thus shearing off roll pins.

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) Punch remainder of sheared-off roll pins from carrier and planet shafts. New roll pins are always required if they are sheared off.

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

1) 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). Shaft was pressed through inner bearing cone during shaft removal procedure; it is located in mounting case seated inside the inner bearing cup (21). In some instances outer bearing cone (18) may need to be removed if shaft seal (34) is to be replaced. If outside diameter of output shaft (external end opposite bearing) is smaller than the inside diameter of seal, then shaft seal may be replaced without removing bearing cone.

2) Lubricate inner lip of new shaft seal (34) and turn until open side of seal is up. Slide seal onto output shaft until it fits snug over shaft seal diameter.

3) Press outer bearing cone (18) onto output shaft (4). With small end of bearing cone pointing upward, start over internal end of shaft and press until bearing is seated tightly against shoulder. If the original bearing was removed only to replace shaft seal, it may be reused.

NOTE: Press only on inner race of bearing cone. DO NOT press on outer roller cage of bearing or it will damage bearing.

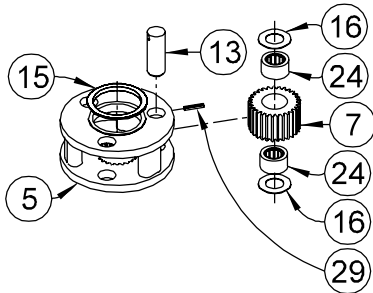
*Applies only to Double Planetary Models



striking planet gear teeth.

9) Repeat same process for remaining gears.

SECONDARY PLANETARY SUBASSEMBLY (ITEMS 5,7,13,15,16,24, and 29) DISASSEMBLY AND REPAIR



Follow same procedures as that for the Primary Planetary Subassembly, only substitute item numbers as indicated. Secondary carrier (5), secondary planet gear (7), secondary planet shaft (13), carrier cup washer (15), secondary planet washer (16), secondary planet bearing (24), secondary roll pin (29).

CASE SUBASSEMBLY (ITEMS 1,20,21, and 32) DISASSEMBLY AND REPAIR

1) Inspect inner and outer bearing cups (20,21). If cups are damaged, the cups and case (1) may need replacement. Contact Eskridge, inc. if you have questions.

2) Clean all foreign material from magnetic oil plug (32) located in side of mounting case (1). Add a small amount of pipe thread compound to pipe plug before installing it back into case.

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

UNIT ASSEMBLY REASSEMBLING

1) Start with case assembly (1). Turn case upside down and position on press table. Case pilot diameter 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 assembly (4), internal end down, and carefully lower into case (1) until the shafts outer bearing cone (18) is seated against outer bearing cup (20).

3) Press shaft seal (34) into case 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 unit assembly upright on output shaft.

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

5) While holding output shaft (4) with one hand, rotate case (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) 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.

7) Apply a layer of lithium bearing grease to inner bearing cup (21) surface.

8) 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 case (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 case is 50 to 80 in-lbs. This rolling torque is equal to a force of approximately 11 to 18 lbs if pulling on mounting case flange to rotate case (1). This may be determined by feel or by using a fish scale or similar measuring device to check rolling torque.

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 case (1). Assemble ring gear (2) to case (1). Refer back to scribe marks made across external joints of gearbox prior to Disassembly Procedure. Line up scribe marks between ring gear and case 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) Install secondary sun gear (11) in secondary carrier assembly. Install cup washer (15) on top of carrier assembly.

*13) Install primary carrier assembly into unit, splined hub down.

14) Insert input gear into unit so that teeth mesh with primary planet gears (8). Put input thrust washer (26) over top of input gear (12).

15) Fill unit with GL-5 grade EP 80/90 gear oil. Refer to the Oil Capacity Chart shown on page 2 of this manual.

16) Grease a new o-ring (33) and install it into bottom of cover (3). Refer back to scribe marks made across external joints prior to Disassembly Procedure. Line up scribe marks between cover 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 during step #16.

17) Install all twelve of the 7/16 lockwashers (31) and the 7/16 hex capscrews (27) and torque to 70 ft-lbs.

THE GEARBOX IS NOW READY FOR USE.



ESKRIDGE

MODEL 50K

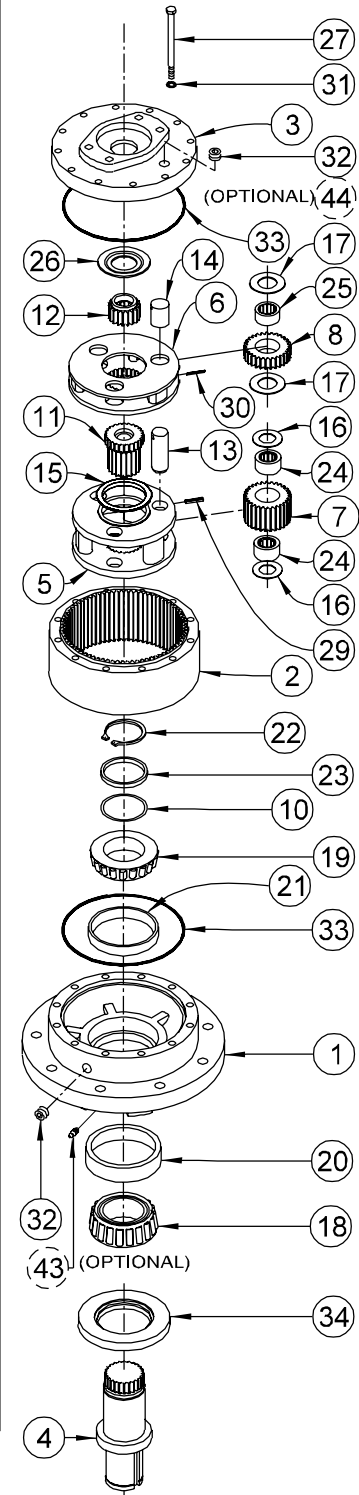
EFFECTIVE
FROM: S/N 16130 07-01-93
TO: (CURRENT)

DOUBLE PLANETARY

RATIO	16.65:1 4.08 4.08	20.62:1 5.05 4.08	20.62:1 4.08 5.05 INVERTED	25.53:1 5.05 5.05
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ITEM	QTY.	PART NUMBER	PART NUMBER	PART NUMBER	PART NUMBER
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1	1	50-004-3003	50-004-3003	50-004-3003	50-004-3003
		50-004-3013	50-004-3013	50-004-3013	50-004-3013
		50-004-3193	50-004-3193	50-004-3193	50-004-3193
2	1	50-004-1023	50-004-1023	50-004-1023	50-004-1023
3	1	50-004-1173	50-004-1173	50-004-1173	50-004-1173
		50-004-1183	50-004-1183	50-004-1183	50-004-1183
		50-004-1233	50-004-1233	50-004-1233	50-004-1233
		50-004-1333	50-004-1333	50-004-1333	50-004-1333
4	1	50-004-4012	50-004-4012	50-004-4012	50-004-4012
		50-004-4022	50-004-4022	50-004-4022	50-004-4022
		50-004-4032	50-004-4032	50-004-4032	50-004-4032
		50-004-4052	50-004-4052	50-004-4052	50-004-4052
		50-004-4212	50-004-4212	50-004-4212	50-004-4212
		50-004-4082	50-004-4082	50-004-4082	50-004-4082
		50-004-4092	50-004-4092	50-004-4092	50-004-4092
5	1	50-004-1062	50-004-1062	50-004-1052	50-004-1052
6	1	50-004-1082	50-004-1072	50-004-1082	50-004-1072
7	3	85-004-1051	85-004-1051	85-004-1041	85-004-1041
8	3	85-004-1031	85-004-1021	85-004-1031	85-004-1021
10	*	85-004-1221	85-004-1221	85-004-1221	85-004-1221
11	1	85-004-1412	85-004-1092	85-004-1072	85-004-1072
12	1	85-004-1402		85-004-1402	
		85-004-1102	85-004-1062		85-004-1062
		85-004-1122	85-004-1112		85-004-1112
		85-004-1533		85-004-1533	
		85-004-1542	85-004-1422		85-004-1422
		85-004-1582		85-004-1582	
13	3	71-004-0121	71-004-0121	71-004-0121	71-004-0121
14	3	81-004-0071	81-004-0071	81-004-0071	81-004-0071
15	1	50-004-1011	50-004-1011	50-004-1011	50-004-1011
16	6	85-004-1181	85-004-1181	85-004-1181	85-004-1181
17	6	81-004-1561	81-004-1561	81-004-1561	81-004-1561
18	1	01-102-0140	01-102-0140	01-102-0140	01-102-0140
19	1	01-102-0150	01-102-0150	01-102-0150	01-102-0150
20	1	01-103-0130	01-103-0130	01-103-0130	01-103-0130
21	1	01-103-0140	01-103-0140	01-103-0140	01-103-0140
22	1	01-160-0430	01-160-0430	01-160-0430	01-160-0430
23	1	50-004-1101	50-004-1101	50-004-1101	50-004-1101
24	6	01-105-0010	01-105-0010	01-105-0010	01-105-0010
25	3	01-105-0410	01-105-0410	01-105-0410	01-105-0410
26	1	50-004-1091	50-004-1091	50-004-1091	50-004-1091
27	12	01-150-1550	01-150-1550	01-150-1550	01-150-1550
29	3	01-153-0210	01-153-0210	01-153-0210	01-153-0210
30	3	01-153-0080	01-153-0080	01-153-0080	01-153-0080
31	12	01-166-0340	01-166-0340	01-166-0340	01-166-0340
32	2	01-207-0070	01-207-0070	01-207-0070	01-207-0070
33	2	01-402-0560	01-402-0560	01-402-0560	01-402-0560
34	1	01-405-0530	01-405-0530	01-405-0530	01-405-0530
43	(1)	01-215-0010	01-215-0010	01-215-0010	01-215-0010
44	(1)	01-216-0070	01-216-0070	01-216-0070	01-216-0070



▶ INVERTED RATIO SUNGEAR IS NOT COUNTERBORED FOR CODE 4 INPUT. MOTOR COMPATIBILITY MUST BE VERIFIED.

▶ FOR GREASE ZERK OPTION, ADD 'Z' SUFFIX TO BASE P/N

NOTES:
* BEARING PRELOAD DETERMINES QUANTITY OF SHIMS.

E.C.N. # 1803
X50KD2-AE DATE: 4-28-00

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

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 placed 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, whichever 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

20/28 SERIES
50 SERIES
60 SERIES
100 SERIES
130 SERIES
150 SERIES
250 SERIES (MODEL 250 & 252)
600 SERIES
1000 SERIES

TORQUE RATING

MAX. INTERMITTENT
20,000-28,000 IN-LB
50,000 IN-LB
60,000 IN-LB
100,000 IN-LB
130,000 IN-LB
150,000 IN-LB
250,000 IN-LB
600,000 IN-LB
1,000,000 IN-LB

MULTIPLE DISC BRAKES

SERIES

90B SAE B
90BA SAE B ADJUSTABLE TORQUE
92B SAE B LOW PROFILE
93 FOR NICHOLS MOTORS
95C SAE C
95W SAE C WHEEL MOUNT
98D SAE D

TORQUE RATING

TO 4,800 IN-LB
TO 4,800 IN-LB
TO 2,800 IN-LB
TO 6,100 IN-LB
TO 12,000 IN-LB
TO 21,000 IN-LB
TO 25,000 IN-LB

PLANETARY AUGER DRIVES (DIGGERS)

SERIES

D50 MODELS 1500, 2500 & 5000
76 MODELS BA & BC, TWO SPEED
77 MODELS BA, BC & BD
78 MODELS 35 & 48, TWO SPEED
75 MODELS 38 & 51, TWO SPEED

TORQUE RATING

1,500-5,000 FT-LB
8,000-12,500 FT-LB
6,000-12,500 FT-LB
9,000-12,500 FT-LB
16,500-20,000 FT-LB



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Your nearest Eskridge Distributor is:

WEBSITE: www.eskridgeinc.com
E-MAIL ADDRESS: sales@eskridgeinc.com

