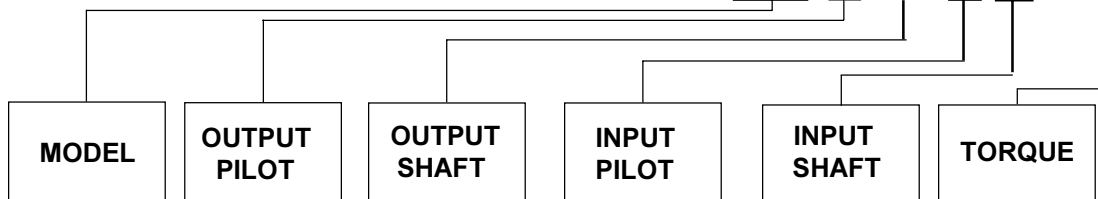


EXAMPLE PART NUMBER: 95 W 8 A 3 B068



## 95W Series Brake Service & Repair Manual

EFFECTIVE FOR:  
S/N: 35098 - UP  
DATE: 04/01/94 - UP

# MODEL 95W SERVICE MANUAL

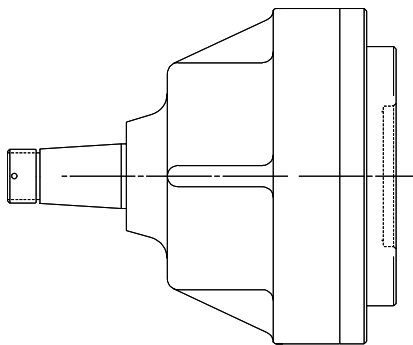
This manual will assist in disassembly and assembly of major components for all Model 95W Brakes. Item numbers, indicated in parentheses throughout this manual, refer to the Eskridge Model 95W exploded parts breakdown drawings. Individual customer specifications (mounting case, output shaft, brake assembly, etc.) may vary from exploded drawing and standard part numbers shown. If applicable, refer to individual customer drawing for details.

The Model 95W series Eskridge brake is manufactured for two specific types of holding torque requirements. The standard "fail-safe" requirement and the "slip protection" requirement. Both types are spring loaded (normally applied) with a hydraulic pressure required for release. All brakes are individually tested at the factory for function, leaks and static breadaway torque. Fail-safe type brakes are tested to be assured they are in excess of 110% of the fail-safe torque rating for the unit. A failsafe brake should be used when the only requirement is a minimum static holding torque. A slip protection brake should be used where an accurate specified torque is required, such as a side load protection on a crane or overload protection in a drivetrain. These brakes are tested to be within +/- 10% of the slip protection rating for the unit.

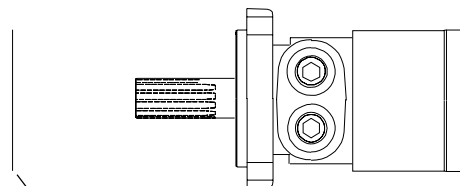
## SPECIFICATIONS

Maximum pressure	3,000 PSI	Maximum operating temperature	170°F
Maximum continuous pressure	3,000 PSI	Volume of oil to release brake	.50 cu. in.
Maximum speed	3,900 RPM	Approximate weight	44 lbs.
Shaft splines	30° involute, flat root side fit per ANSI B92.1-1970 Internal-class 7 External-class 5	Breakaway torque may vary +/- 10% from specified ratings. Use only mineral base hydraulic oil to release brake.	

95W Series Eskridge Brake



Motor



Gasket



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

# Disassembly

## Installation

**NOTE:** Before beginning installation procedures, visually inspect brake mounting flanges and shaft splines for damage during shipping.

1) Position brake and motor for mounting and to orient the bleed and release ports as required. If mounted with shaft horizontal, the bleed port should be at top. It might be necessary to release brake before it can be rotated to align mounting holes. If so, follow instructions in steps 5 and 6 prior to applying release pressure!

2) Use only SAE grade 5 (or better) fasteners for mounting brake and motor.

3) Allow at least one bolt diameter of thread engagement when selecting fastener lengths. Be sure fasteners will not bottom out when fully tightened.

4) See torque chart below for torque values.

5) Remove plastic protective plug from pressure port of brake and attach a hydraulic pressure line with a 7/16-20UNF-2A straight thread o-ring fitting. Use only mineral based hydraulic oil to test and operate the brake.

6) Apply low pressure (20-30 PSI) to brake release port. Loosen hollow hex plug (16) opposite pressure port just enough to allow air to bleed from between piston o-rings. After air has been bled from brake, remove pressure, tighten plug.

**NOTE:** The 95W is also supplied with a slotted jam nut and key for the tapered shaft. The tapered output shaft conforms to SAE J501 standards.

TORQUE IN FT - LBS				
THREAD SIZE	SAE GRADE 5		SAE GRADE 8	
	DRY	LUBED	DRY	LUBED
3/8-16	30	23	45	35
1/2-13	75	55	110	80
5/8-11	150	110	220	170
3/4-10	260	200	380	280

1) Remove any plugs and fittings from the brake pressure and bleed ports. Drain, or blow out, as much hydraulic oil as possible from the brake into a suitable container for proper disposal.

2) Remove snap ring (14).

3) Remove the four socket head cap screws (11) from output end of brake. The capscrews and cover (3) are under spring load. The capscrews should be loosened gradually and uniformly.

4) Place brake on a stable work platform, shaft down. Support the brake so it won't fall over.

5) Remove cover. This will expose the internal components of the brake. The case seal o-ring (21) will be attached to the cover pilot. Inspect the o-ring and replace with a new one if worn or damaged.

6) Note the color, number, and spacing of the springs (6) then remove them from piston (5). Inspect springs and replace with new ones if damaged, broken or discolored from heat.

7) Support the brake, with shaft up, in such a way that the piston can be pushed out the bottom. Two pairs of stacked 2 x 6 wood blocks work well.

8) Remove jam nut (13).

9) Using a soft-faced hammer, drive the shaft (2) and piston down out of the case.

10) Note arrangement of friction discs (8), separator plates (7), and spacer (4).

11) Remove friction discs, separator plates and spacer. Friction discs should be replaced with new ones if oil soaked (dry brakes only). Any friction discs or separator plates that are damaged, warped, or excessively worn should be replaced with new ones.

12) Minimum usable stack height, not including the spacer, is 1.650 inches. If the stack of friction discs and separator plates is less than this they should be replaced.

13) Inspect brake shaft splines and bearing journals for abnormal wear or damage.

14) Remove o-rings (19 & 20) and back-up rings

(17 & 18) from piston. Replace with new ones if worn or damaged.

15) If damaged, the bearings (10) can be removed and replaced. Check for wear spots and/or nicks on the sealing lips of the bearing seals.

## Assembly

**NOTE:** *Parts must be clean and dry before assembly. Visually inspect components for damage and abnormal wear. Do not use damaged or worn parts.*

1) Place brake case (1) on a stable work platform, needle bearing side down. If bearings (10) are not being replaced skip to step number 3.

2) If the bearings have been removed, press new bearings into the case. Lubricate the bearings and seals with a light coat of lithium grease.

3) Support the case in such a way that allows room for the shaft (2) to protrude out the bottom. Two pairs of stacked 2 x 6 wood blocks work well.

4) Push the shaft downward through oil seal and bearing until shaft shoulder is seated against bearing.

5) Install spacer (4).

6) Install separator plates (7) and friction discs (8) in exactly the same order as they were removed. There should be a separator on the top and bottom of the stack. Do not place a friction disc next to the piston. *Be careful not to contaminate the friction disc or separator plate surfaces with dirt, grease, or fluid other than the brake was designed to use.*

7) If replacing piston o-rings (19 & 20) and piston back-up rings (17 & 18), be sure o-rings are nearest each other with back-up rings to the outside of the piston (5). Lightly lubricate piston bores and o-rings. *Take care not to get lubricant onto friction pack.*

8) Gently slide piston into case until larger o-ring touches case. Using a light to medium duty press, push piston completely into bore. This will squeeze the o-rings and back-up rings and set piston against friction pack.

9) Place springs (6) into spring pockets in piston. Arrange springs in a symmetrical pattern.

10) If removed, install input bearing (9) and snap ring (15) into cover (3).

11) Install case seal o-ring (21) onto pilot of cover.

12) Set cover on top of piston, springs, and input end of shaft.

13) Apply a non-hardening thread-locking compound to each cap screw (11) and start each one into the case by hand. Tighten cap screws 1/2 turn at a time in a crisscross pattern until cover is tight against the case. Tighten to the torque shown in the chart on page 3. *A light to medium duty press can be used to push the cover down on to the case so the cover bolts can be installed more easily.*

14) Install snap ring (4) onto the brake shaft (2). If snap ring will not fit, lightly tap the opposite end of the brake shaft with a soft hammer. This will help seat the shaft onto the input bearing (9).

15) The brake is now ready for testing of fit, function and release pressure. Use only mineral based hydraulic oil to test and operate Eskridge multiple disc brakes. ***Bleed brake before pressurizing.*** To test release pressure, be sure one of the two hollow hex plugs (16) is installed. Connect a hydraulic power source (either a hand pump or port-a-power) to the other brake port. Bleed air from brake, then pressurize the brake slowly to the advertised release pressure, both initial and full. As you pressurize the brake, rotate the brake shaft. The brake shaft should be able to turn at the advertised initial release pressure (+ or - 25 PSI). There will be drag on the shaft. Increase the pressure slowly until the shaft spins freely, this is the full release pressure. As you pressurize the brake, look for signs of leaks which would indicate that the o-rings or back-up rings may have been damaged during assembly.

## Repair Kits Model 95W

**NOTE:**

*Due to the many combinations of torques and release pressures available for the 95W, it is impossible to detail each style and supply a repair kit for each individual model. The information listed in this manual is representative of all 95W brakes. The repair kits listed below will work with all combinations of torque vs. release pressure, input mountings and friction plates. It is entirely possible to have "extra"*

*parts left over from the repair kits after you have complete the repair or maintenance. If you are not sure about what is required for your brake and its configuration, please contact **Estridge, Inc.** sales or engineering department.*

Repair kits listed below are for use with the model 95W multiple disc brake.

**Friction Disc Kit, 95W      95-016-2491**

01-288-0072 Friction Disc, Bronze (8)

01-402-0621 O-Ring, Case Seal (1)

90-004-1061 Gasket, SAE"A" (1)

**Master Rebuild Kit, 95W    95-015-3241**

**Separator Plate Kit, 95W    95-016-2501**

01-288-0082 Separator Plate (9)

95-016-2491 Friction Disc Kit, 95W(1)

95-016-1191 Seal Kit, 95W (1)

01-100-0231 Bearing

(1)

**Seal Kit, 95W      95-016-1191**

01-400-0191 Back-up Ring, Piston (1)

01-400-0201 Back-up Ring, Piston (1)

01-402-0601 O-Ring, Piston

(1)

01-402-0611 O-Ring, Piston

(1)

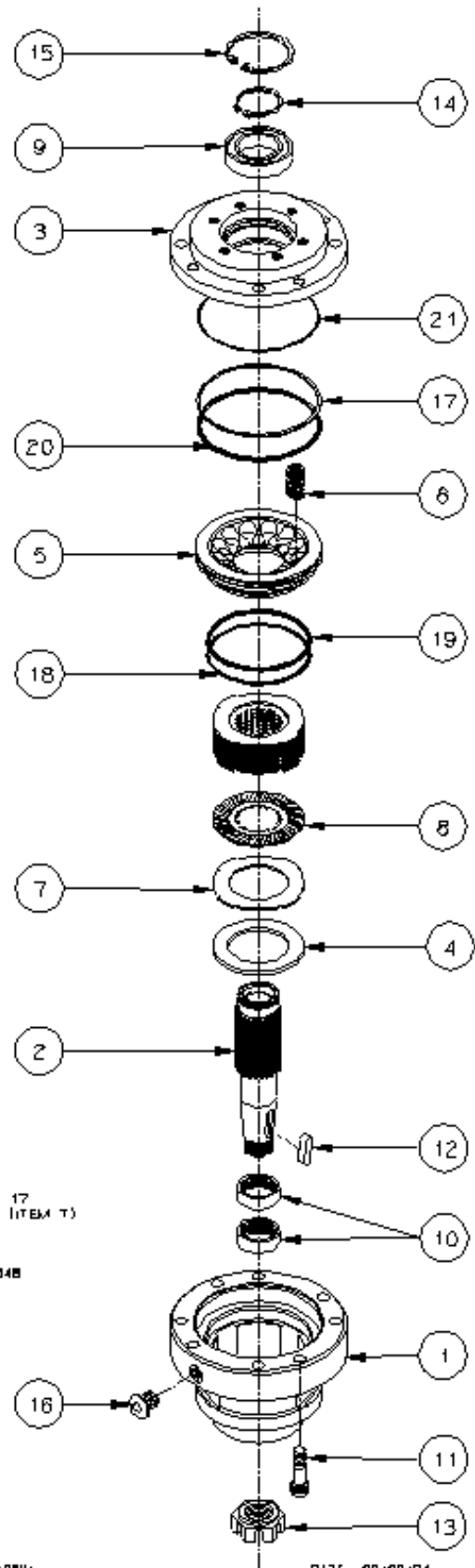
01-105-0490 Bearing, Needle (1)

## Model 95W

Item	Qty	Part No	Description
1	1	95-004-2144	CASE
2	1	95-004-2153	SHAFT - 95W (14T/1 5TPR.)
3	1	95-004-2013	COVER - SAE "A" 2 AND 4 BOLT
4	1	95-004-1032	SPACER
5	1	95-004-1092	PISTON
6	▶	01-281-0501	SPRING - COMPRESSION (3/4 X 1 BLUE)
7	▶	01-288-0082	SEPARATOR PLATE-STATOR
8	▶	01-288-0072	FRICITION DISC-ROTOR
9	▶	01-100-0231	BEARING - BALL
10	2	01-105-0520	BEARING - NEEDLE
11	4	01-150-1420	S H C S - 1/2-13 X 2 GRB
12	1	01-155-0120	KEY (3/8" SQ X 1.5 LONG)
13	1	01-158-0381	JAM NUT - SLOT (1 25-12UNF 2A DP5)
14	1	01-160-0050	RETAINING RING
15	1	01-160-0060	RETAINING RING
16	1	01-208-0020	HOLLOW HEX PLUG
17	1	01-400-0191	BACKUP RING
18	1	01-400-0201	BACKUP RING
19	1	01-402-0801	O-RING
20	1	01-402-0811	O-RING
21	1	01-402-0821	O-RING
22	1	90-004-1061	OASRET (MODIFIED 4 BOLT "A")(NOT SHOWN)

OPTIONAL KITS	PART NO.	ITEMS INCLUDED
SEAL KIT	95-018-1191	17, 18, 19, 20, 21 AND 22
FRICITION DISC KIT	95-018-2491	8
SEPARATOR PLATE KIT	95-018-2501	7
▶ MASTER REBUILD KIT (1 500" BRG)	95-015-3261	9, 10, SEAL & FRICITION KITS
▶ MASTER REBUILD KIT (40mm BRG)	95-015-3271	9, 10, SEAL & FRICITION KITS

- ▶ TOTAL QTY OF FRICITION DISCS (ITEM 8) AND SEPARATORS (ITEM 7) MUST EQUAL 17. FULL COMPLEMENT BRAKE INCLUDES 8 FRICITION DISCS (ITEM 8) & 9 SEPARATORS (ITEM 7)
- ▶ QTY OF SPRINGS (6, 8, 9, 10 OR 12) IS DETERMINED BY SPECIFIC BRAKE REQUIREMENTS.
- ▶ A SINGLE 1 500" BEARING (ITEM 10) WAS USED IN BRAKES WITH SERIAL NUMBERS THRU 30348



/SERV/95W

DATE 08/08/94

## 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 GEARBOXES

### SERIES

20/28 SERIES  
50 SERIES  
60 SERIES  
100 SERIES  
130 SERIES  
150 SERIES  
250 SERIES  
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 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:

