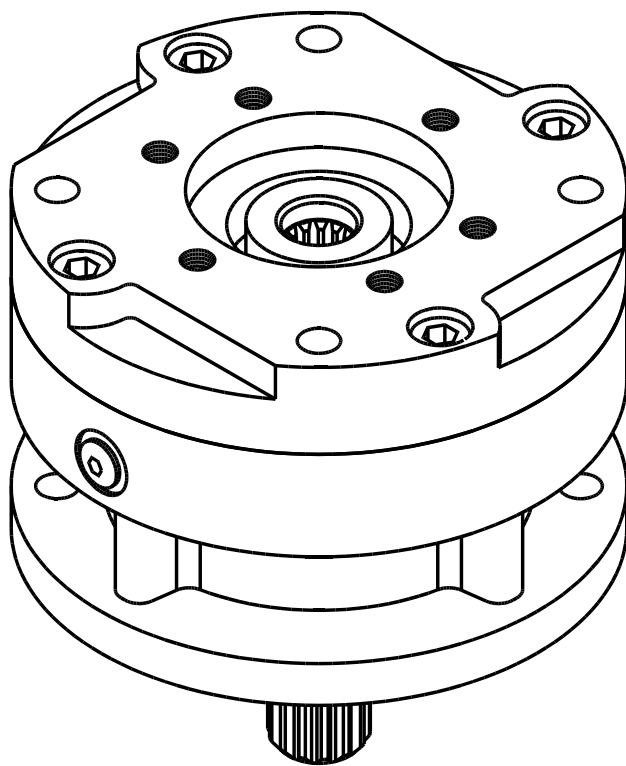




95C MULTIPLE DISC BRAKE SERVICE AND REPAIR MANUAL



Example Part Number

95	C	4	A	2	B037	W
Series	Output Pilot	Output Spline	Input Pilot	Input Spline	Torque Code	Options

THIS SERVICE MANUAL IS EFFECTIVE
FROM:..... S/N 85378, MAY 2007
TO: CURRENT
REF: SM95C-AJ

A Ramsey Industries Brand

95C SERVICE MANUAL

SPRING-APPLIED, HYDRAULICALLY-RELEASED, MULTIPLE-DISC BRAKE

This manual will assist in disassembly and assembly of major components for all Model 95C Brakes. Item numbers, indicated in parentheses throughout this manual, refer to the Eskridge model 95C 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 95C Series Eskridge brake is a spring applied, hydraulically released, multiple disc parking brake. The 95C is designed for "failsafe" type operations. Temperature, wear, and contamination of the friction surfaces will affect the performance of the brake and should be taken into consideration when specifying a required torque rating. Care should be taken to avoid damaging the splines or mounting surfaces during installation. The model 95C is not intended for use in dynamic applications. Please contact Eskridge Sales Dept. about any flow through applications. Brake operation should be tested during normal service operation. Brake inspection and service should be part of the normal service and maintenance schedule of the equipment or vehicle in which it is used. Any loss of holding torque requires the removal, inspection and replacement of suspect components.

SPECIFICATIONS

Maximum release pressure	3,000 PSI*	Maximum operating temperature	170° F
Maximum continuous pressure	3,000 PSI*	Volume of oil to release brake	.5 cu. in.
Maximum speed at full release pressure	3,900 RPM	Approximate weight	42 lbs.

Shaft splines 30° involute, flat root side fit per ANSI B92.1 internal - class 7, external - class 5

Breakaway torque may vary +/- 10% from specified ratings. Use only mineral base hydraulic oil to release brake.

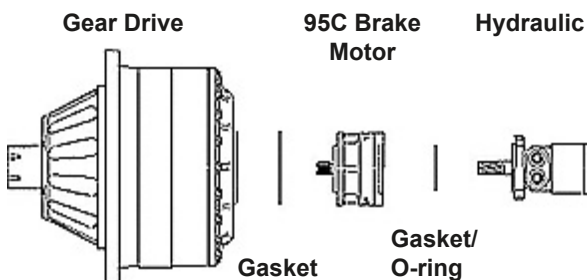
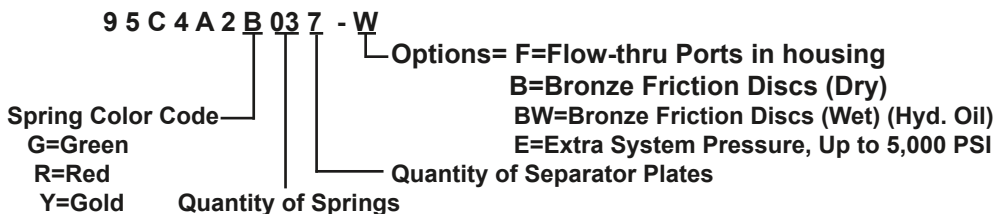
*5,000 PSI with 'E'-Extra Pressure option

Torque ratings are based on standard friction material in ATF-F fluid media or dry bronze at (0) PSI back pressure. Break away torque may vary +/-10% from specified ratings. The "W" wet option applies to bronze friction discs only and is furnished with mineral base hydraulic oil. Torque rating for wet bronze brakes will vary depending upon the type of oil used. Use only mineral base hydraulic oil for release of brake. For flow-thru option "F", use only fluids that are compatible with internal seals. Use of fluids other than specified above will alter torque values.



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

TORQUE CODE AND OPTIONS



Torque in Ft-Lbs

Thread Size	SAE Grade 5		SAE Grade 8	
	Dry	Lubed	Dry	Lubed
3/8-16	30	23	45	32
1/2-13	75	55	110	80
5/8-11	150	110	220	170
3/4-10	260	200	380	280

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.

Disassembly

- 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) Place brake on stable work platform, shaft down. Support the brake so it won't fall over.
- 3) Remove the four socket head cap screws (8) from input end of brake. The capscrews and cover (2) are under spring load. The capscrews should be loosened gradually and uniformly.
- 4) Remove cover. This will expose the internal components of the brake. The case seal o-ring (17) will be attached to the cover pilot. Inspect the o-ring and replace with a new one if worn or damaged.
- 5) Remove thrust washer (4).
- 6) Note the color, number, and spacing of the springs (10) then remove them from piston (6). 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) Using a soft-faced hammer, drive the shaft (5) and piston down out of the case.
- 9) Note arrangement of friction discs (11), separator plates (12), and spacer (3).
- 10) 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.
- 11) 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.
- 12) Inspect brake shaft splines and bearing journals for abnormal wear or damage.
- 13) Remove o-rings (15 & 16) and back-up rings (13 & 14) from piston. Replace with new ones if worn or damaged.

NOTE: Standard o-rings for 3,000 PSI are black nitrile. Option 'E' Extra Pressure o-rings for 5,000 PSI system pressure are light yellow or cream colored urethane.

- 14) If damaged, the oil seal (18) and bearing (7) can be removed

and replaced. Check for wear spots or nicks on the sealing lip of oil seal. Rotate inner race of bearing: rotation should be smooth and without excess drag.

Assembly

NOTE: Parts must be clean and dry before assembly. Clean contamination from the friction disks using liquid Ether or liquid Freon. If these chemicals are not available replace the friction disks! Cleaning the sintered bronze material with any other media can affect the brakes torque rating! 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, bearing side down. If the oil seal (18) and bearing (7) are not being replaced skip to step number 4.
- 2) Install seal from either side of case, pressing until top of seal is flush with case. Open side of seal should be facing inside of brake. A seal installation tool is recommended.
- 3) Press in bearing (7) from outside. Press against the bearing outer race until the bearing is fully seated in the case. A bearing installation tool is recommended.
- 4) Support the case in such a way that allows room for the shaft (5) to protrude out the bottom. Two pairs of stacked 2 x 6 wood blocks work well.
- 5) Push the shaft downward through oil seal and bearing until shaft shoulder is seated against bearing.
- 6) Install shims (23), then spacer (3). Shims may be added or removed as necessary to fine-tune the brake's torque rating.
- 7) Install separator plates (12) and friction discs (11) 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.**
- 8) If replacing piston o-rings (15 & 16) and piston back-up rings (13 & 14), be sure o-rings are nearest each other with back-up rings to the outside of the piston (6). Lightly lubricate piston bores and o-rings. **Take care not to get lubricant onto friction pack.**
- 9) 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.
- 10) Place springs (10) into spring pockets in piston. Arrange springs in a symmetrical pattern.
- 11) Install thrustwasher (4).
- 12) For optional double bearing brakes, install bearing into cover (2).
- 13) Install case seal o-ring (17) onto pilot of cover.
- 14) Set cover on top of piston, springs, and input end of shaft.
- 15) Apply a non-hardening thread-locking compound to each cover cap screw (8) and start each one into the case by hand. Tighten cover cap screws 1/2 turn at a time in a criss-cross 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.

- 16) 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 (9) 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.

NOTE: Maximum operating pressure is 3,000 PSI with standard nitrile o-rings on piston and 5,000 PSI with 'E' option urethane o-rings. Operation above this pressure is detrimental to the life of the brake and could be dangerous.

THE BRAKE IS NOW READY FOR USE.

95C Repair Kits

Due to the many combinations of torques and release pressures available for the 95C, 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 95C 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 Eskridge sales or engineering department.

Friction Disc Kit **95-016-2491**
01-288-0072 Friction Disc, Bronze (8)

Separator Plate Kit **95-016-2501**
01-288-0082 Separator Plate (9)

Seal Kit - Standard **95-016-1181**
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)
01-402-0621 O-Ring, Case Seal (1)
01-402-0010 O-Ring, Mtr., "C" (1)
01-402-0220 O-Ring, Mtr., "B" (1)
01-405-0561 Shaft Seal (1)
90-004-1061 Gasket, SAE "A" (1)
90-004-1091 Gasket, SAE "B" (2bolt) (1)
90-004-1391 Gasket, SAE "C" (4bolt) (1)

Master Rebuild Kit - Standard **95-015-3241**
95-016-2491 Friction Disc Kit, 95C (1)
95-016-1181 Seal Kit, 95C (1)
01-100-0221 Bearing (1)
95-004-1041 Thrust Washer (1)

Master Rebuild Kit - Double Bearing Option **95-015-3251**
95-016-2491 Friction Disc Kit, 95C (1)
95-016-1181 Seal Kit 95C (1)
01-100-0221 Bearing (1)
01-100-0231 Bearing (1)

Option 'E'-Extra Pressure Option (5.000 PSI) Kits

Seal Kit - High Pressure **95-016-1211**
Same as standard seal kit but substitute:
01-402-0870 for 01-402-0601
01-402-0880 for 01-402-0611

Master Rebuild Kit - High Pressure **95-015-3291**
Same as standard master rebuild kit but substitute:
95-016-1211 for 95-016-1181

Master Rebuild Kit - Double Bearings - High Pressure **95-015-3301**
Same as standard master rebuild kit - double bearings but substitute:
95-016-1211 for 95-016-1181

95C Brake Exploded View Drawing

Model 95C

EFFECTIVE FOR:
FROM S/N: 85378 05-16-07
TO: CURRENT

ITEM	QTY	PART NO.	DESCRIPTION
1	1	95-004-1004	CASE - (STANDARD)
		95-004-1124	CASE - FLOW-THRU COOLING PORTS ('F' OPTION)
2	1	95-004- (A)	COVER -
3	1	95-004-1032	SPACER -
4	1	95-004-1041	THRUST WASHER -
		01-100-0231	BEARING- (DOUBLE BRG. 'D' OPTION)
5	1	95-004- (B)	SHAFT -
6	1	95-004-1092	PISTON -
7	1	01-100-0221	BEARING
8	4	01-150-0030	SOC. HD. CAP SCR. (1/2-13 X 1.25 GR8)
9	1	01-208-0020	HOLLOW HEX PLUG (7/16-20)
10	*	01-261-0501	SPRING (3/4 X 1 BLUE)
11	*	01-288-0072	FRICITION DISC-ROTOR
12	*	01-288-0082	SEPARATOR PLATE-STATOR
13	1	01-400-0191	BACKUP RING
14	1	01-400-0201	BACKUP RING
15	1	01-402-0601	O-RING - (BUNA N) (STANDARD)
		01-402-0870	O-RING - (URETHANE) ('E' OPTION)
		01-402-0611	O-RING - (BUNA N) (STANDARD)
		01-402-0880	O-RING - (URETHANE) ('E' OPTION)
17	1	01-402-0621	O-RING
18	1	01-405-0561	SEAL
19	1	01-402-0010	O-RING
20	1	(C)	MOTOR GASKET OR O-RING
23	4	80-004-1151	SHIM

(A)

(C)

CODE	INPUT MOUNT	COVER		MOTOR O-RING
		SINGLE BEARING	DOUBLE BEARING	
A	SAE 'A' 2/4 BOLT	95-004-1023	95-004-1083	90-004-1061 (GASKET)
B	SAE 'B' 2-BOLT	95-004-1143	95-004-2073	01-402-0820
H	SAE 'B' 4-BOLT	95-004-1103	95-004-1113	
K	SAE 'C' 2-BOLT	95-004-1173	95-004-2063	01-402-0010
C	SAE 'C' 4-BOLT	95-004-1013	95-004-1073	

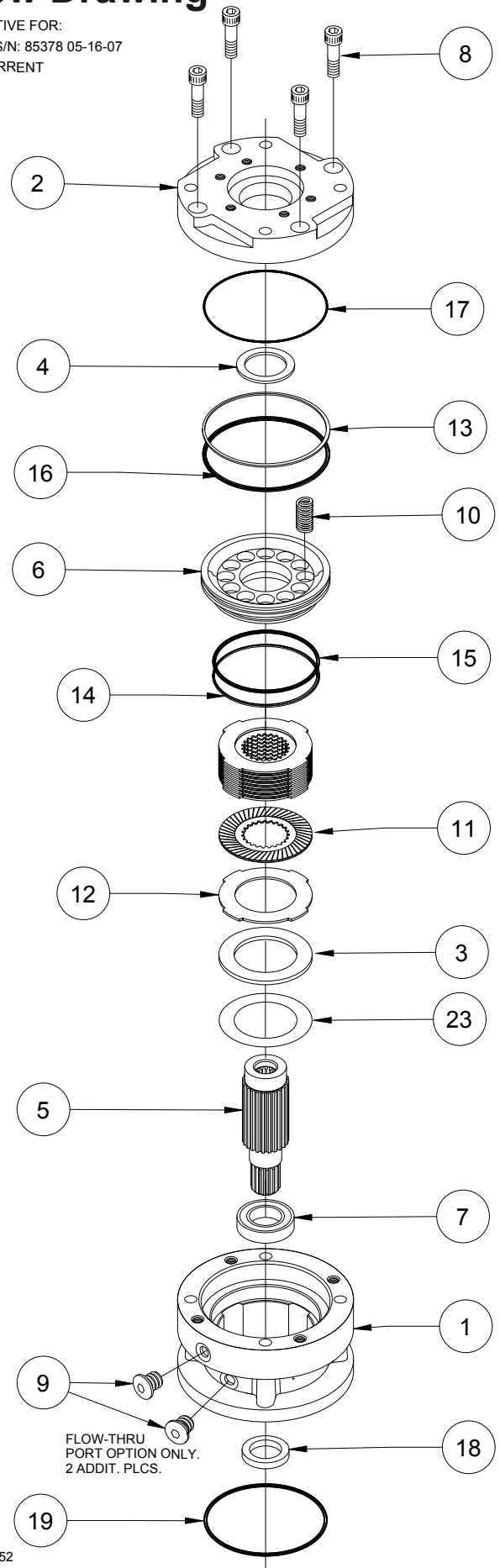
(B)

SHAFT IN/OUT	PART NO.
6B/14T	95-004-1063
6B/21T	95-004-2083
13T/14T	● 95-004-1053 SHAFT AND 33-004-0231 14T TO 13T SPLINE ADAPTOR
14T/14T	95-004-1053 3
14T/21T	95-004-2123
17T/14T	95-004-1163 4

OPTIONAL KITS	PART NO.		ITEMS INCLUDED
	(STANDARD)	('E' OPTION)	
SEAL KIT	95-016-1181	95-016-1211	13,14,15,16,17,18,19 & 20 (ALL OPTIONS)
FRICITION DISC KIT	95-016-2491	95-016-2491	11
SEPARATOR PLATE KIT	95-016-2501	95-016-2501	12
MASTER REBUILD KIT SGL BRG	95-015-3241	95-015-3291	4,7, SEAL & FRICITION KITS
MASTER REBUILD KIT DBL BRG	95-015-3251	95-015-3301	4,7, SEAL & FRICITION KITS

NOTES:

- TOTAL QTY OF FRICITION DISCS (ITEM 11) AND SEPARATORS (ITEM 12) MUST EQUAL 17. FULL COMPLEMENT BRAKE INCLUDES 8 FRICITION DISCS (ITEM 11) AND 9 SEPARATORS (ITEM 12).
- QTY OF SPRINGS MUST BE 2,3,4,6,8,9,10 OR 12 AS DETERMINED BY SPECIFIC BRAKE REQUIREMENTS.
- COMPATIBLE WITH CHAR-LYNN 4000 MOTOR. REPLACES 95-004-1153 SHAFT.
- COMPATIBLE WITH CHAR-LYNN 6000 MOTOR WITH "SINGLE BEARING" OPTION ONLY.
- STANDARD PISTON O-RINGS FOR 3,000 PSI ARE BLACK NITRILE. OPTION 'E' EXTRA PRESSURE O-RINGS FOR 5,000 PSI SYSTEM PRESSURE ARE LIGHT YELLOW OR CREAM COLORED URETHANE.



ECN: 2652
X95C-AI

DATE 05-16-07

ESKRIDGE FINISHED PRODUCT LIMITED WARRANTY

1.1 **Scope of Warranty Coverage.** Upon the terms and subject to the conditions set forth in this limited warranty:

(a) ESKRIDGE (referred to herein as “**ESKRIDGE**” or the “**Manufacturer**”) warrants to each initial end user customer (a “**Purchaser**”) of a new finished product together with any accessories manufactured and sold directly from ESKRIDGE (the “**Product**”) that the Product shall be free from defects in material and workmanship, under normal working and service conditions, for a period of eighteen (18) months from the date the Product is shipped from ESKRIDGE. (the “**Warranty Term**”). A Purchaser shall be eligible for an additional eighteen (18) months of coverage in addition to the Warranty Term (also referred to as the “**Standard (+) PLUS benefit**”) only if the Purchaser (i) complies with Section 1.2(a) and (ii) registers the Product during the Warranty Term at myproduct.eskridgeinc.com.

(b) Notwithstanding the foregoing, this warranty does not cover components damaged by accident, abuse, misuse, neglect, untrained operators, collision, overloading, modification, disassembly, rework, misapplication, improper installation, lack of lubrication or maintenance, or improper service. This warranty does not cover the paint or material finish, removal or reinstallation of the Product, or normal wear and tear and loss of functionality due to aging of the Product (which may include but is not limited to bearings, bushings, seals, O-rings, gaskets, brake material, motor brushes, electrical cables and more).

1.2 **Eligibility of Warranty Coverage.**

(a) A Purchaser shall be eligible for warranty coverage under this Limited Warranty during the Warranty Term only if:

(i) Prior to placing a Product in service, and throughout use of the Product during the Warranty Term, the Purchaser provides (or causes to be provided) proper storage such that foreign objects (e.g. rain or debris) cannot enter any Product through entry ports which are normally closed during operation.; and

(ii) The Purchaser maintains, or causes to be maintained, the Product according to commercially reasonable standards and utilizes the Product for the purposes for which it was created; and

(iii) No repairs or alterations have been made by any party other than ESKRIDGE, including Purchaser, unless otherwise authorized in writing by ESKRIDGE.

1.3 **Transferability of Warranty.**

(a) This warranty is transferable only from the Purchaser to the first subsequent transferee (the “**Transferee**”) of the Product from Purchaser upon (i) written notification to ESKRIDGE and (ii) registration of the transfer, both within 30 days of such Product transfer.

(b) Upon satisfaction of transfer requirements set forth in Section 1.3(a), the Transferee shall succeed to all the rights and obligations of the Purchaser set forth in this Limited Warranty.

1.4 **Certain Limitations on Scope of Warranty Service.**

(a) Any obligation of ESKRIDGE under this warranty, statutory or otherwise, is limited to the repair of the Product, at its factory or Authorized Service Centers. Notwithstanding the foregoing, if field service or repair is performed by ESKRIDGE at the request of the Purchaser and no defect is found with material or workmanship of the Product, the Purchaser shall compensate ESKRIDGE for its time and expenses within thirty (30) days of delivery of an invoice relating to the same. If repair is determined by ESKRIDGE in its sole, absolute and uncontrolled discretion to be impossible or impractical, then ESKRIDGE may satisfy this warranty by replacing the Product. ESKRIDGE will not provide any cash payment or credits for defective materials or workmanship.

(b) Purchaser shall be responsible for any and all freight charges for any Product receiving warranty service under this limited warranty. Any travel time, transportation charges, freight charges, or similar costs incurred by ESKRIDGE in connection with the replacement or repair of defective parts, shall, be the responsibility of the Purchaser. If applicable, ESKRIDGE shall invoice Purchaser for the total amount of such charges within sixty (60) days of fulfilling its duties under this warranty, payable within thirty (30) days of delivery of such invoice. In no event shall ESKRIDGE be liable for bills for service, labor or other expenses that have been incurred by the Purchaser without approval or prior authorization by ESKRIDGE for inspection, maintenance, or repair of the Product.

(c) If a Product is found to be operable upon inspection, the Product, at Purchaser's election, may be either (1) returned to the Purchaser with a service charge from ESKRIDGE for inspection, cleaning, and routine replacement of all rubber components and any other parts that show wear; or (2) ESKRIDGE can dispose of the product safely.

1.5 Limitations of Liability. ESKRIDGE shall in no event be liable for punitive, special or consequential damages relating to the Product or this Warranty. ESKRIDGE makes no warranty in respect to third-party accessories, upgrades, or additions to the Product.

1.6 Improving Product. ESKRIDGE reserves the right to improve the Product through changes in design or materials as it may deem desirable or necessary without being obligated to incorporate, upgrade, or otherwise modify previously manufactured products.

1.7 Limitations of Warranty.

(a) THE WARRANTY SET FORTH ABOVE IS THE ONLY EXPRESS WARRANTY. ESKRIDGE HEREBY DISCLAIMS AND EXCLUDES ANY OTHER EXPRESS, IMPLIED, OR STATUTORY WARRANTIES, ARISING BY OPERATION OF LAW, COURSE OF DEALING, COURSE OF PERFORMANCE, USAGE, OF TRADE, OR OTHERWISE, INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND INTELLECTUAL PROPERTY RIGHTS OF A THIRD PARTY.

(b) ANY IMPLIED WARRANTY WHICH BY LAW MAY NOT BE EXCLUDED IS LIMITED IN DURATION TO ONE (1) YEAR FROM THE DATE OF ORIGINAL RETAIL PURCHASE OF THE PRODUCT.

(c) This warranty gives you specific legal rights, and you may also have other rights which vary from jurisdiction to jurisdiction.

(d) This warranty is valid only in the U.S.A. and Canada. For warranty outside the U.S.A. and Canada contact your nearest Eskridge Distributor.

1.8 No Modifications to Warranty. No ESKRIDGE dealer, distributor, agent or employee is authorized to make any modification, extension or addition to this warranty.

1.9 How to Apply for Warranty Coverage.

All claims are handled by contacting your nearest Eskridge Distributor. For questions, please contact customer support: eskcustomersupport@ramseyindustries.com.

Visit [Dealer Locator - Eskridge](#) for Eskridge Distributor locations and contact information.

Additional warranty, service support, product information, and parts information can be found on www.eskridgeinc.com.