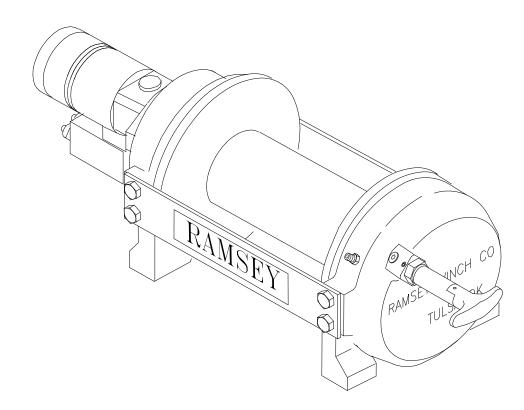


OPERATING, SERVICE AND MAINTENANCE MANUAL



MODEL RPH 15,000 Planetary Winch

Intended Purpose: Vehicle recovery and pulling of loads



CAUTION: READ AND UNDERSTAND THIS MANUAL BEFORE INSTALLATION AND OPERATION OF WINCH. SEE SAFEGUARDS AND WARNINGS!

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IMITIED WARRANTYBACK COV	/ER

RAMSEY HYDRAULIC PLANETARY WINCH MODEL RPH 15,000

PLEASE READ THIS MANUAL CAREFULLY

This manual contains useful ideas for obtaining the most efficient operation from your Ramsey Winch, and safety procedures one needs to know before operating a Ramsey Winch. Do not operate this winch until you have carefully read and understand the "WARNING" and "OPERATION" sections of this manual.

WARRANTY INFORMATION

Ramsey Winches are designed and built to exacting specifications. Great care and skill go into every winch we make. If the need should arise, warranty procedure is outlined on the back of your self-addressed postage paid warranty card. Please read and fill out the enclosed warranty card and send it to Ramsey Winch Company. If you have any problems with your winch, please follow instructions for prompt service on all warranty claims. Refer to back page for limited warranty.

SPECIFICATIONS*

Rated Line Pull (lbs.) (kgs.)							.15,000 6,800	
Gear Reduction Weight (without cable							7.7:1 36 kgs.)	
LAYER OF CABLE		1	2	3	4	5		6*'
*Rated line pull per layer	Lbs. Kg.	15,000 6,800	12,600 5,710	10,800 4,890	9,500 4,300	8,500 3,850	7,600 3,440	
Cable capacity	Ft. M.	35 10	75 22	125 38	180 54	240 73	310 94	
Line speed (at 15 GPM)	FPM MPM	25 7,6	29 8,8	34 10,3	39 11,8	44 13,4	48 14,6	
*These specifications rope and a 24.0 Cu. **Last layer does not	In./Rev	. motor.		1/2" (13 m	ım) EIPS w	ire]

NOTE: The rated line pulls shown are for the winch only. Consult the wire rope manufacturer for wire rope ratings.

WARNINGS:

CLUTCH MUST BE FULLY ENGAGED BEFORE STARTING THE WINCH.

DO NOT DISENGAGE CLUTCH UNDER LOAD.

DO NOT LEAVE CLUTCH ENGAGED WHEN WINCH IS NOT IN USE.

STAY OUT FROM UNDER AND AWAY FROM RAISED LOADS.

STAND CLEAR OF CABLE WHILE PULLING. DO NOT TRY TO GUIDE CABLE.

DO NOT EXCEED MAXIMUM LINE PULL RATINGS SHOWN IN TABLE.

DO NOT USE WINCH TO LIFT, SUPPORT, OR OTHERWISE TRANSPORT PERSONNEL.

A MINIMUM OF 5 WRAPS OF CABLE AROUND THE DRUM BARREL IS NECESSARY TO HOLD THE LOAD. CABLE CLAMP (SETSCREW) IS NOT DESIGNED TO HOLD LOAD.

IN CAR CARRIER APPLICATIONS, AFTER PULLING VEHICLE ON CARRIER, BE SURE TO SECURE VEHICLE TO CARRIER BED. DO NOT MAINTAIN LOAD ON WINCH CABLE WHILE TRANSPORTING VEHICLE. DO NOT USE WINCH AS A TIE DOWN.

WHEN PULLING A HEAVY LOAD PLACE A BLANKET, JACKET, OR TARPAULIN OVER THE CABLE FIVE OR SIX FEET FROM THE HOOK.

AVOID CONDITIONS WHERE LOAD SHIFTS OR JERKS OCCUR, AS THEY MAY INDICATE A DANGEROUS SITUATION.

WINCH MOUNTING

ESSENTIAL MOUNTING INSTRUCTIONS TO MAINTAIN ALIGNMENT OF PLANETARY WINCH COMPONENTS

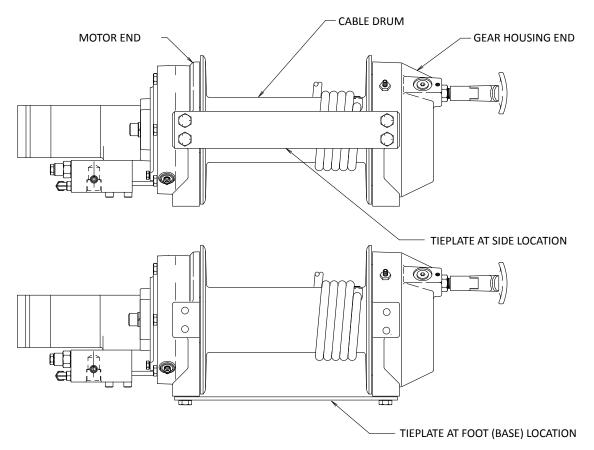
It is most important that this winch be mounted securely so that the three major sections (the motor end, the cable drum and the gear housing end) are properly aligned. Excessive bushing wear and difficulty in freespooling are usually symptoms of misalignment.

In the as-installed condition, if the winch is mid mounted at least one tie plate must be attached to the mounting feet at the bottom of the winch to maintain alignment. **NOTE:** If the winch is foot mounted at least one tie plate must remain mounted at mid point of winch to maintain alignment. It is always desirable to use both tie plates in the final installed configuration.

Angle Mounting Kit, #251173, is recommended for maximum ease in mounting the winch. The angle kit will allow the winch to be mounted in upright or midmount applications and will meet the criteria of serving as a solid and true mounting surface.

When mounting the winch with other than the recommended Ramsey Angle Kit, the mounting hole patterns described on pages 14-15 must be used. The mounting surface must be flat within .015 inch and sufficiently stiff to resist flexing. If a steel plate is used for foot mounting it should be .750 inch thick. For this mounting application eight (8) $5/8-11NC \times 1-1/2$ Lg. Gr. 5 capscrews with lockwashers will be needed to mount winch. Capscrews should be torqued to 173 ft. lb. (235 Nm.).

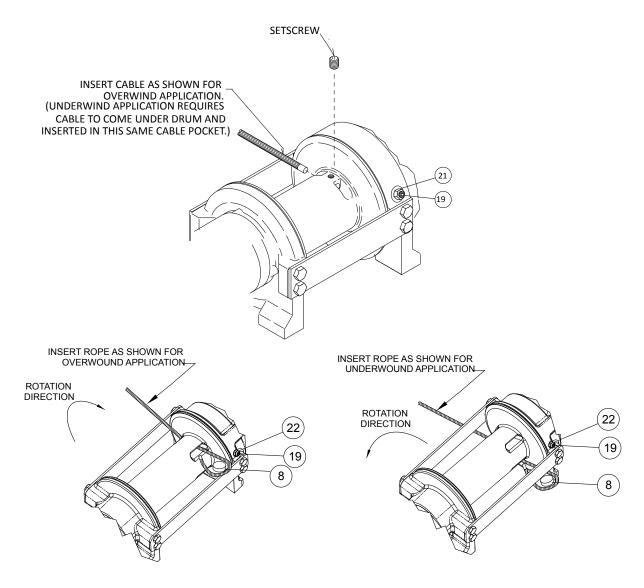
NOTE: If angles or a steel plate are used in mounting winch, tie plates provided with winch are to be attached to the remaining mounting pads, whether they be side or foot.



CABLE INSTALLATION

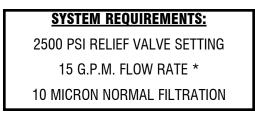
- 1. Unwind cable by rolling it out along the ground to prevent kinking. Securely wrap end of cable, opposite hook, with plastic or similar tape to prevent fraying.
- 2. Place taped end of cable into hole in cable drum, as shown below. Use 3/8-16NC x 1/2 lg. Hx. Soc. drive setscrew (part of 234173 drum assembly) to secure cable to drum.
- 3. Carefully run winch in the "reel-in" direction. Keeping tension on end of cable, spool all the cable onto the cable drum, taking care to form neatly wrapped layers.

After installing cable, check freespool operation. Disengage clutch and pull on cable at a walking speed. If cable "Birdnests", loosen jam nut (item #22) and turn nylon screw (item #19) clockwise to increase drag on drum. If cable pull is excessive loosen nylon setscrew by turning counterclockwise. Tighten jam nut when proper setting is obtained. **CAUTION: Over-TIGHTENING OF JAM NUT MAY STRIP NYLON SETSCREW.**



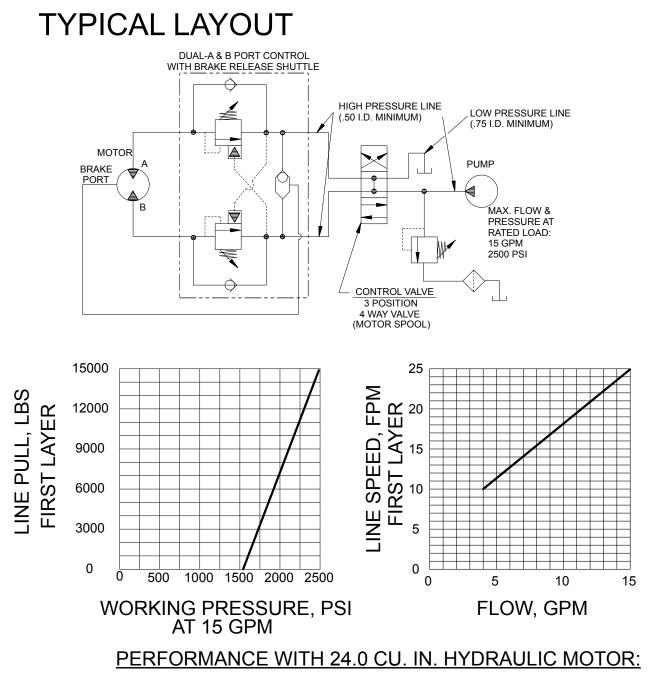
HYDRAULIC SYSTEM REQUIREMENTS

Refer to the performance charts below to properly match your hydraulic system to the winch performance. The charts consist of: (1) line pull (LB) first layer vs. working pressure (PSI); (2) line speed, first layer (FPM) vs. flow (GPM). A motor spool directional control valve is recommended.



* Caution: Do not exceed 20 G.P.M. If exceeded, motor and winch may be damaged.

PERFORMANCE CHARTS



OPERATION

The best way to get acquainted with how your winch operates is to make test runs before you actually use it. Plan your test in advance. Remember, you hear your winch, as well as see it operate. Get to recognize the sounds of a light steady pull, a heavy pull, and sounds caused by load jerking or shifting. Avoid conditions where load shifts or jerks occur, as they may indicate a dangerous situation.

The uneven spooling of cable, while pulling a load, is not a problem, unless there is a cable pileup on one end of drum. If this happens, reverse the winch to relieve the load and move your anchor point further to the center of the vehicle. After the job is done you can unspool and rewind for a neat lay of the cable.

When pulling a heavy load place a blanket, jacket or tarpaulin over the cable about five or six feet behind the hook. In the event of a broken cable, this will slow the snap back of the cable and could prevent serious injury.

The winch clutch allows rapid unspooling of the cable from the cable drum for hooking onto the load. The clutch is operated by the clutch shifter lever or air shifter.

WARNING: DO NOT DISENGAGE CLUTCH UNDER LOAD.

MANUAL CLUTCH SHIFTER (Refer to page 14)

TO DISENGAGE CLUTCH: Run the winch in the reverse (reel out) direction until load is off the cable. Pull handle out and rotate 90°. With handle in the "DISENGAGED" position, cable may now be free-spooled from drum.

TO ENGAGE CLUTCH: Pull handle out, rotate 90° and release handle. Run the winch in reverse until the clutch handle snaps fully into the "ENGAGED" position. DO NOT attempt to pull a load unless the handle is fully at the "ENGAGED" position. If manual shift indicator light is present, the green light is lit when clutch is fully "ENGAGED". DO NOT attempt to pull a load unless the green light is lit.

AIR CYLINDER CLUTCH SHIFTER (Refer to page 15)

TO DISENGAGE CLUTCH: Run the winch in the reverse (reel out) direction until load is off the cable. Apply air pressure to the .125-27 NPT port: 80 PSI (min.), 150 PSI (max.). CAUTION: Pressure must not exceed 150 PSI.

TO ENGAGE CLUTCH: Remove air pressure from the cylinder (a return spring engages the plunger). Run winch in reverse until the clutch engagement indicator light (green light) is lit. DO NOT attempt to pull a load unless the green light is lit. To connect light to the vehicle electrical system refer to the Electrical Schematic on page 15.

MAINTENANCE

- 1. Inspect the cable for damage and lubricate frequently. If the cable becomes frayed with broken strands, replace immediately.
- Check that the clutch is fully engaging. See OPERATION instructions, above, for the appropriate clutch shifter. FOR MANUAL CLUTCH ONLY: Monthly disengage clutch, put several drops of oil on the shaft and work clutch IN and OUT several times to lubricate inside of clutch cylinder.
- 3. Check to see that drum cable does not overrun (BIRDNEST) when freespooling. Refer to page 5.
- 4. Replace drum bushings and seals if seals begin to seep grease. Refer to OVERHAUL INSTRUCTIONS, page 9. Add additional lubricant, Mobilith SHC 007, to gears if required.

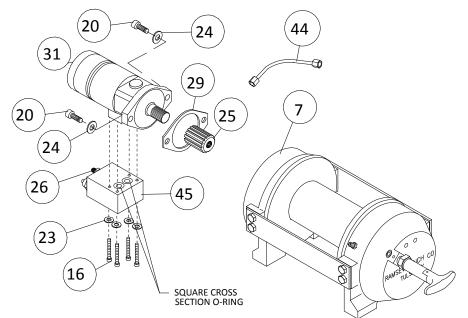
INSTRUCTIONS FOR OVERHAUL OF RAMSEY WINCH MODEL RPH 15,000

DISASSEMBLY

Take note of mounting configuration for proper mounting of parts during re-assembly. Replace all gaskets, o-rings, and seals with new ones during re-assembly.

Disconnect tube (item #44) from elbows on bottom of brake housing (item #7) and valve (item #45). Remove motor (item #31) from brake housing (item #7) by unscrewing capscrews (item #20). Tap motor lightly to disengage.

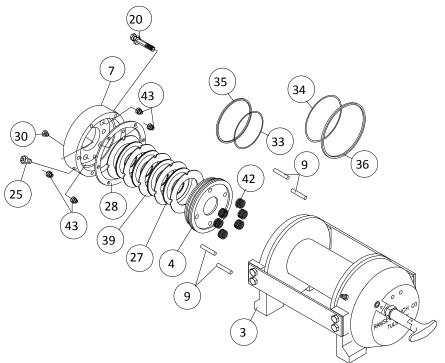
Remove coupling (item #25) from brake housing. Examine coupling for signs of wear, replace if necessary. If necessary remove valve (item #45) from motor by removing capscrews (item #16) and lockwashers (item #23). If valve is removed make sure two square cross section O-rings remain seated in their counter bores in valve.



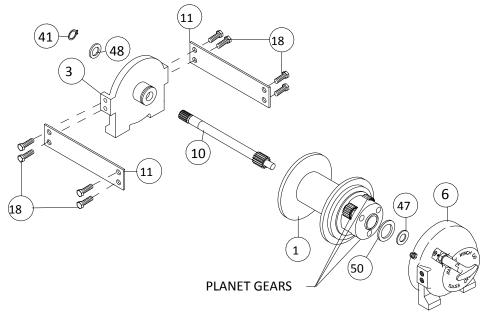
Remove brake housing (item #7) from end bearing (item #3) by unscrewing (6) capscrews (item #20) in a criss-cross pattern (2 turns each) until all capscrews are removed from brake housing. Remove brake parts from brake housing. Examine brake discs (item #27) for signs of wear and replace if necessary. Examine O-rings (items #33 and #34) and backup O-rings (items #35 and #36)for signs of wear. Remove O-rings and backup O-rings from grooves in brake piston (item #4).

Remove and examing springs (items #42 and #43) for damage, replace if necessary.

Examine fitting (item #30) to assure that fittings are in proper working condition, replace if necessary.

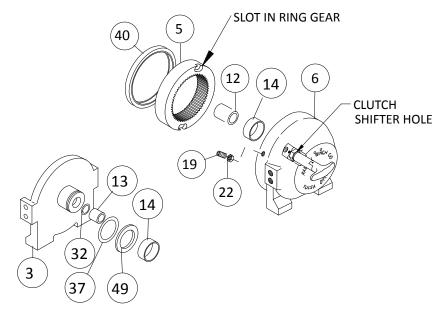


Remove tie plates (item #11) from end bearings (items #3 & #6) by unscrewing capscrews (item #18), as shown. Slide motor end bearing (item #3) from drum (item #1) and drum from gear housing end bearing (item #6). Remove input shaft (item #10) and thrust washers (items #47 & #50) from end bearings. Inspect gear teeth and splined end of shaft (item #10) for signs of wear. If necessary replace shaft.



Remove o-ring (item #37) and bushing (item #14) from outside of motor end bearing (item #3), remove o-ring (item #32) and bearing (item #13) from inside of motor end bearing. Dip new o-ring (item #32) in oil and seat into groove inside of end bearing and press new bearing (item #13) into end bearing. Press bushing (item #14) onto end bearing and dip o-ring (item #37) in oil and seat into groove of end bearing.

Remove seal (item #40) from gear housing end bearing (item #6). Loosen nut (item #22) and remove nylon setscrew (item #19) and remove ring gear (item #5) from gear housing end bearing. Remove bushing (item #14) and bearing (item #12) from gear housing end bearing (item #6). Press new bushing (item #14) and bearing (item #12) into place in end bearing. Install ring gear and nylon setscrew and nut. Ring gear must be fully seated in gear housing end bearing (item #6) and slot in ring gear must be aligned with clutch shifter hole. Dip new seal in oil and install in gear housing end bearing, with sharp edge of seal outward.



Generously apply grease (MOBILITH SHC 007) to teeth of ring gear (item #5), teeth of planet gears in drum (item #1) and to bushing in end bearing (item #6). Apply grease to teeth of gear and short end of shaft (item #8). Place gear end of shaft through backside of drum (item #1) rotate shaft to mesh shaft gear with planet gear in drum. Apply grease to end of shaft and to I.D. and O.D. of bushing protruding from drum. Set thrust washer (item #50) over bushing and against drum. Place drum assembly into end bearing meshing planet gears with output gear on shaft and with ring gear in end bearing. End of drum shaft is placed into bearing pressed in end bearing (item #6).

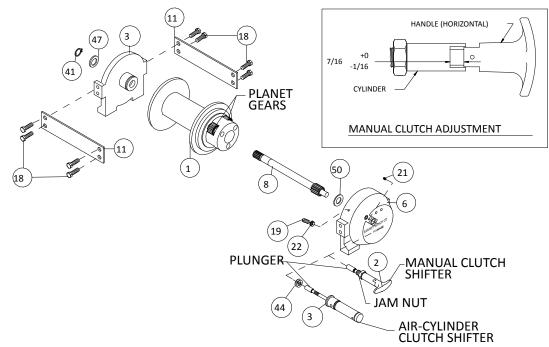
Apply grease to O.D. of bushing protruding from drum. Set thrust washer (item #47) over bushing and against drum. Assemble motor end bearing (item #3) to drum assembly and use tie plates (item #11) and capscrews (item #18) to hold both end bearings together. Tighten capscrews to 173 Ft. Lbs. (235 Nm.). If necessary, remove and replace appropriate shifter assembly (item #2 or #3), as follows:

MANUAL CLUTCH SHIFTER ASSEMBLY

Remove by loosening setscrew (item #21), jam nut and unscrewing clutch shifter. Be sure slot in ring gear is not aligned with clutch shifter hole in end bearing. Rotate drum, if necessary, to insure hole and slot are not aligned. Reinstall clutch shifter with plunger, jam nut and handle positioned in cylinder housing, as shown. Thread assembly (with handle engaged in cylinder slot) into the end bearing. Pull drum toward the gear housing end bearing to remove play. Hold drum in this position and continue threading the shifter assembly in until the gap between the end of the handle and cylinder is $7/16 + 0_{-1/16}$ inch and handle is in the horizontal position, as shown below. **NOTE:** This gap will vary with drum endplay. With the drum pulled against the gear housing, the gap should be 3/8 inch. Lightly tighten jam nut. Rotate drum until handle snaps fully into the engaged position. Pull handle out and rotate 90°. Verify that drum can be rotated freely (at least one full revolution) with clutch shifter at DISENGAGED position. Securely tighten jam nut while holding the handle. Tighten setscrew securely. Re-check clutch operation as described on page 7.

AIR CYLINDER SHIFTER ASSEMBLY

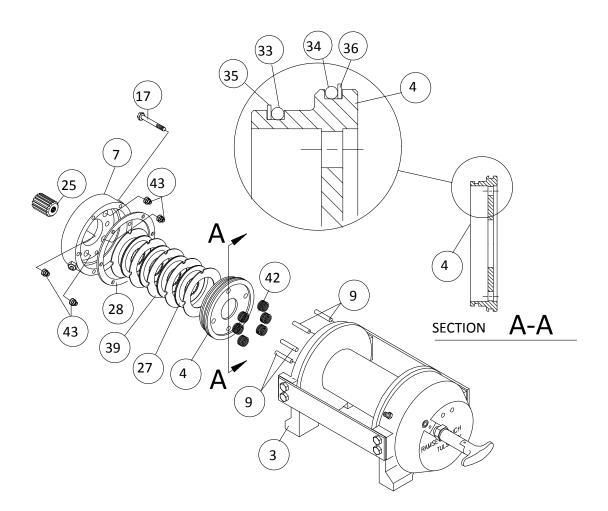
Remove by loosening setscrew (item #21), jam nut and unscrewing clutch shifter. To reinstall, thread air cylinder into housing. Install one or two shims (item #44) under cylinder head, if needed, to orient air cylinder port for pneumatic connections. Tighten setscrew. Refer to page 7 and check for proper operation of the clutch.



Set winch on gear housing end with motor end bearing up. Insert (6) springs (item #42) into pockets of motor end bearing. Install coupling (item #25) over splined end of shaft (item #8). Put (4) brake pins (item #9) into (4) holes in motor end bearing. Install well-oiled o-ring (items #33 and #34) and backup o-rings (items #35 and #36) into grooves in O.D. of piston (item #4). Place o-rings into portions of grooves nearest center of piston in both cases. See Section A-A at right.

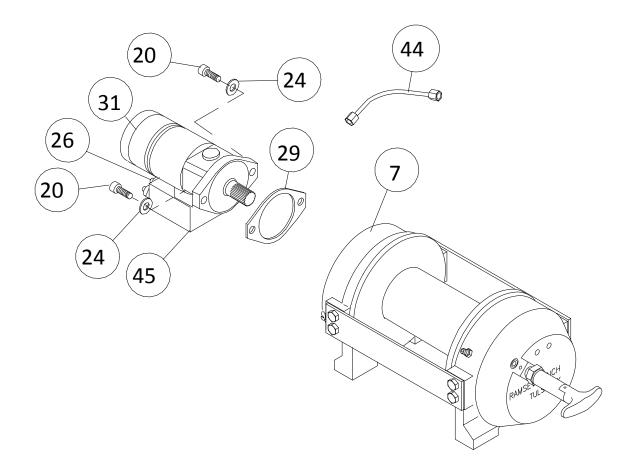
Piston (item #4), brake discs (item #27), and separator plates (item #39) must be clean and free of grease and oil.

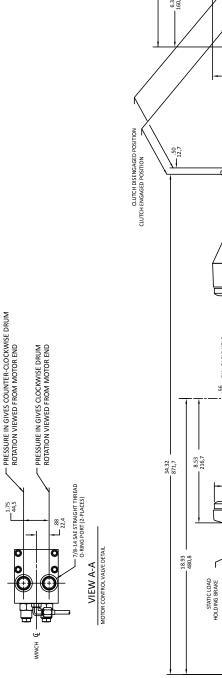
Place piston over pins (item #9) and on top of springs (item #42). Place separator places (item #39) and brake discs (item #27) alternately on top of piston, as shown. Press larger diameter end of (4) springs (item #43) into pockets in brake housing (item #7). Place gasket (item #28) on top of end bearing (item #4). Place brake housing over brake parts with fitting ports downward toward mounting feet. Align mounting holes and force brake housing down onto end bearing (item #4). Apply 271 Loc-tite to 6 capscrews (item #17) and finger tighten until flush with surface of brake housing. Tighten capscrews (2 turns each) in a criss-cross pattern until a torque of 30 ft-lbs. for each capscrew is achieved.

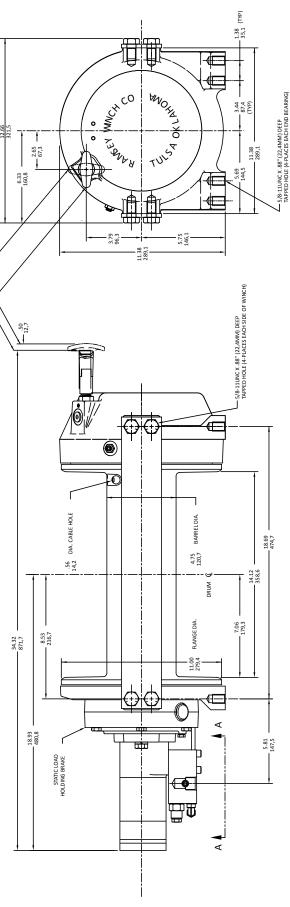


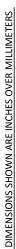
Place gasket (item #29) into position on mounting surface of motor (item #31). Slide motor shaft into coupling and attach motor to brake housing (item #7). Use (2) capscrews (item #20) with lockwashers (item #24) and torque to 87 ft.-lbs. (118 Nm) each. Securely connect tube (item #44) to elbows (item #26) in valve (item #45) and in bottom of brake housing.

Apply at least 550 PSI hydraulic pressure to release brake and verify that brake releases by observing that the winch drum rotates.

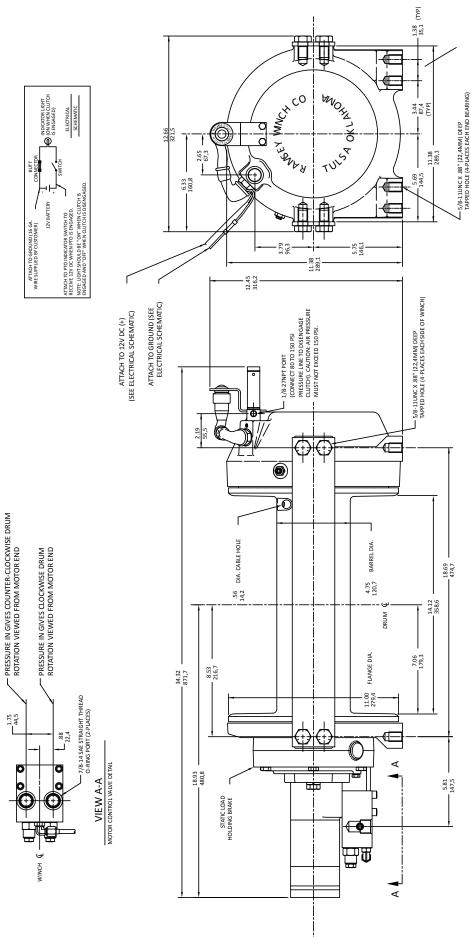






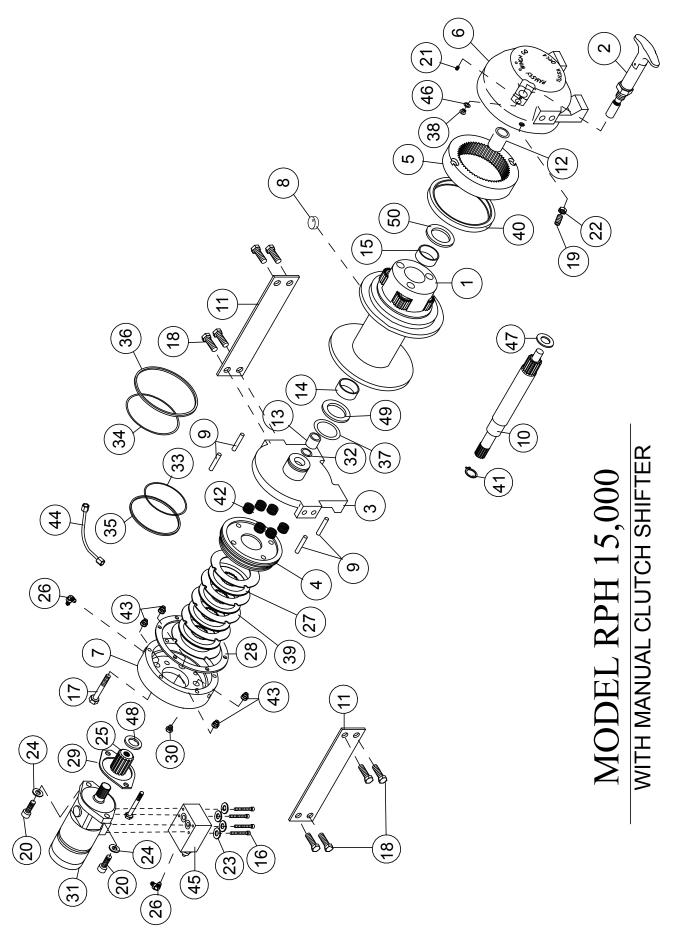


MODEL RPH-15,000 WITH MANUAL CLUTCH SHIFTER



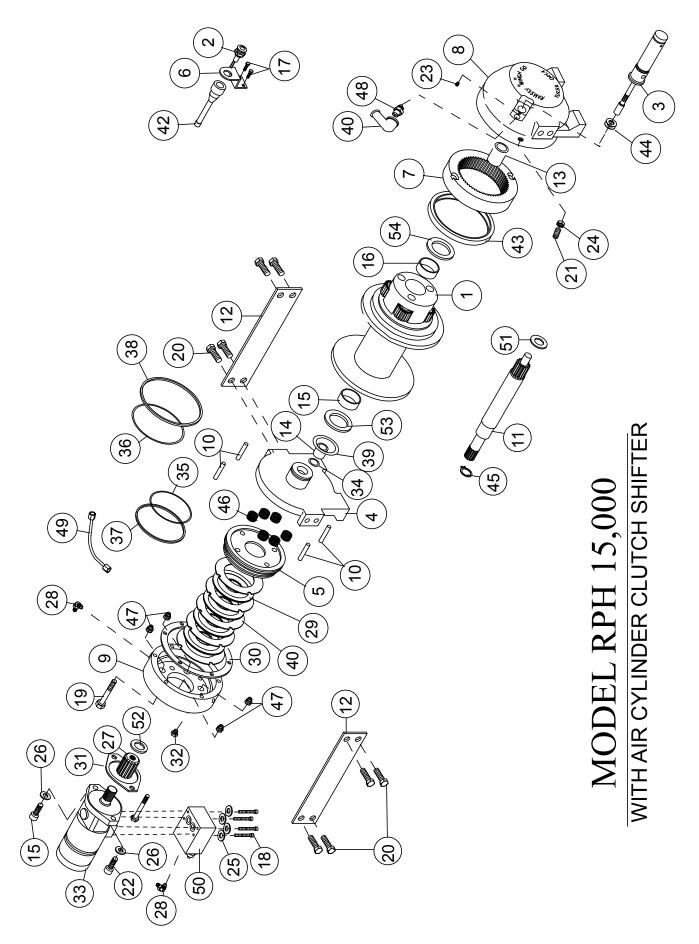
DIMENSIONS SHOWN ARE INCHES OVER MILLIMETERS

MODEL RPH-15,000 WITH AIR SHIFTER



PARTS LIST - RPH 15000 WITH MANUAL CLUTCH SHIFTER

1 1 234173 STD. DRUMASSY. 25 1 431015 2 1 234226 SHORT DRUMASSY. SHIFTERASS 25 1 432023 3 1 234226 SHORT DRUMASSY. SHIFTERASS 25 1 432023 3 1 236042 PISTON - BRAKE 29 1 442223 5 1 338302 HSG-BRAK, RD 23 1 442203 6 1 338302 HSG-BRAK, RD 33 1 452056 7 1 338302 HSG-BRAK, RD 33 1 452056 8 1 33606 ROPE ANCHOR* 33 1 452056 8 1 338302 HSFT - INPUT (SID. DRUM) 35 1 462056 10 1 357513 SHAFT - INPUT (SID. DRUM) 35 1 462056 11 2 3357513 SHAFT - INPUT (SID. DRUM) 35 1 462056 11 2 <t< th=""><th>ITE</th><th>ITEM</th><th>QTY.</th><th>PART NO.</th><th></th><th>ITEM</th><th>ατγ.</th><th>PART NO.</th><th>DESCRIPTION</th></t<>	ITE	ITEM	QTY.	PART NO.		ITEM	ατγ.	PART NO.	DESCRIPTION
1 234226 SHORT DRUM ASS'Y. SHIFTER ASS' 26 2 432018 2 1 276052 GEAR-RING 27 4 438022 3 1 238445 HOUSING- GEAR, END BEARINGH 28 1 443022 5 1 338417 PIN - BRAKE 29 1 442026 6 1 338014 FND BRG-GEAR HSG. 31 1 442056 7 1 338414 FND BRG-GEAR HSG. 31 1 442056 7 1 338414 FND BRG-GEAR HSG. 31 1 45056 7 1 338414 FND BRG-GEAR HSG. 31 1 462056 8 1 A36047 FNOT FNUM) 33 1 462056 11 2 395236 FTE PLATE (SHORT DRUM) 33 1 462057 11 2 395236 TTE PLATE (SHORT DRUM) 33 1 462056 11 2 3575	П		-	234173	STD. DRUM ASS'Y.	25	1	431015	COUPLING - BRAKE
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6 1 338414 END BRG-GEAR HSG. 31 1 45800 7 1 338302 HSG-BRAKE, RP 32 1 45800 8 1 315009 ROPE ANCHOR* 33 1 462057 9 4 315009 ROPE ANCHOR* 33 1 462058 10 1 357518 FIAFT - INPUT (SIDD RUM) 35 1 462059 11 2 395236 TIE PLATE (SHORT DRUM) 36 1 462060 11 2 395236 TIE PLATE (SHORT DRUM) 36 1 462060 12 1 472052 SHAFT - INPUT (SHORT DRUM) 36 1 462060 13 1 472052 ST4111 422060 39 5 474111 14 1 472052 SHAFT - INPUT (SHORT DRUM) SEAN 37 1 452060 13 1 472052 SHAFT - INPUT (SHORT DRUM) SHAFT 4 41111	U)	10	1	334177	PIN - BRAKE	30	1	456038	FITTING - VENT
7 1 333302 HSG-BRAKE, RP 32 1 462056 8 1 315009 ROPE ANCHOR* 33 1 462057 9 4 315009 ROPE ANCHOR* 33 1 462056 10 1 357518 SHAFT - INPUT (STD. DRUM) 35 1 462059 11 2 357513 SHAFT - INPUT (SHORT DRUM) 35 1 462050 11 2 357521 SHAFT - INPUT (SHORT DRUM) 36 1 462061 12 357523 SHAFT - INPUT (SHORT DRUM) 36 1 462061 13 1 474224 TE PLATE (SHORT DRUM) BEARING 37 1 462061 13 1 472026 39 5 474111 14 402121 BEARING - MOTOR END BEARING 38 1 472052 14 1 402121 BEARING - MOTOR END BEARING 39 4 441111 13 1 4102121 BE	Ū	.0	1	338414		31	1	458090	MOTOR-HYDRAULIC
8 1 315009 ROPE ANCHOR* 33 1 462057 9 4 346045 PIN - BRAKE 34 1 462058 10 1 357518 SHAFT - INPUT (STD. DRUM) 35 1 462059 11 357511 SHAFT - INPUT (STD. DRUM) 36 1 462059 12 357521 SHAFT - INPUT (STD. DRUM) 36 1 462050 12 357521 SHAFT - INPUT (STD. DRUM) 36 1 462050 11 2 395236 TIE PLATE (SHORT DRUM) 37 1 462061 12 402120 BEARING - MOTOR END BEARING 39 1 472052 13 1 402120 BUSHING - DRUM (MTR. END) 41 1 470037 14 1 412096 BUSHING - DRUM (G.HSG. END 41 494110 15 1 412096 BUSHING - DRUM (G.HSG. END 41 1 4940037 16 4 41 4141459		~	1	338302	HSG-BRAKE, RP	32	1	462056	O-RING
9 4 346045 PIN - BRAKE 34 1 462058 10 1 357518 SHAFT - INPUT (STD. DRUM) 35 1 462059 11 257521 SHAFT - INPUT (SHORT DRUM) 35 1 462050 11 357521 SHAFT - INPUT (SHORT DRUM) 36 1 462060 12 395236 TIE PLATE (SHORT DRUM) BEARIN 37 1 462061 12 1 32571 BLAFT - INPUT (SHORT DRUM) BEARIN 37 1 462061 13 1 402120 BEARING - MOTOR END BEARING 38 1 472052 14 1 402120 BEARING - MOTOR END BEARING 39 5 474111 14 412095 BUSHING - DRUM (MTR. END) 41 1 490037 15 1 412095 BUSHING - DRUM (MTR. END) 41 1 490110 16 4 4 41 4 444111 44003 16 414159 CAPSCREW -	ω	~	1	315009	ROPE ANCHOR*	33	1	462057	O-RING
10 1 357518 SHAFT - INPUT (STD. DRUM) 35 1 462059 1 357521 SHAFT - INPUT (SHORT DRUM) 36 1 462060 11 2 395236 TIE PLATE (SHORT DRUM) BEARIN 37 1 462060 12 1 395236 TIE PLATE (SHORT DRUM) BEARIN 37 1 462061 12 1 402120 BEARING - MOTOR END BEARING 39 5 474111 13 1 402121 BEARING - MOTOR END BEARING 39 5 474111 13 1 402121 BEARING - MOTOR END BEARING 39 1 465061 14 1 402121 BEARING - MOTOR END BEARING 39 1 472052 15 1 412095 BUSHING - DRUM (MTR. END) 41 1 486101 16 4 1 412096 BUSHING - DRUM (MTR. END) 41 1 490037 17 6 414159 CAPSCREW - 5/8-110C X 2-1/2 LG H 43	01	6	4	346045	PIN - BRAKE	34	1	462058	O-RING
1 357521 SHAFT - INPUT (SHORT DRUM) 36 1 462060 11 2 395236 TIE PLATE (SHORT DRUM) BEARIN 37 1 462061 12 395236 TIE PLATE (SHORT DRUM) BEARIN 37 1 462061 12 474224 TIE PLATE (SHORT DRUM) BEARIN 38 1 472052 13 1 402120 BEARING - MOTOR END BEARING 39 5 474111 13 1 402121 BEARING - MOTOR END BEARING 39 5 474111 14 1 412096 BUSHING - DRUM (MTR. END) 41 1 486101 14 1 412096 BUSHING - DRUM (MTR. END) 41 1 490037 16 4 414120 CAPSCREW - 5/16-18 X 1-1/2 LG H 43 4 494112 17 6 4144303 CAPSCREW - 5/16-18 X 1-1/2 LG H 43 4 4944112 18 8 414664 CAPSCREW - 5/16-18 X 1-1/2 LG H 43 4 4944112 </td <td></td> <td>0</td> <td>1</td> <td>357518</td> <td></td> <td>35</td> <td>1</td> <td>462059</td> <td>O-RING</td>		0	1	357518		35	1	462059	O-RING
2 395236 TIE PLATE (SHORT DRUM) BEARIN 37 1 462061 2 474224 TIE PLATE (SHORT DRUM) BEARIN 38 1 472052 1 402120 BEARING - MOTOR END BEARING 39 5 474111 1 402121 BEARING - MOTOR END BEARING 39 5 474111 1 402121 BEARING - MOTOR END BEARING 39 5 474111 1 402121 BEARING - MOTOR END BEARING 39 5 474111 1 402121 BEARING - MOTOR END BEARING 40 1 486101 1 402121 BEARING - MOTOR END BEARING 39 5 474111 1 402121 BEARING - MOTOR END BEARING 39 5 474110 1 412096 BUSHING - DRUM (MTR. END) 41 1 486101 490037 4 414159 CAPSCREW - 3/8-16NC X 2-1/2 LG H 43 4 494112 6 414664 CAPSCREW - 5/8-11NC X 1-1/4 LG 45 1	8		1	357521	SHAFT - INPUT (SHORT DRUM)	36	1	462060	O-RING
2 474224 TIE PLATE (SHORT DRUM) BEARIN 38 1 472052 1 402120 BEARING - MOTOR END BEARING 39 5 474111 1 402121 BEARING - MOTOR END BEARING 39 5 474111 1 402121 BEARING - MOTOR END BEARING 39 5 474111 1 402121 BEARING - MOTOR END BEARING 40 1 486101 1 402121 BEARING - MOTOR END BEARING 40 1 486101 1 412095 BUSHING - DRUM (MTR. END) 41 1 490037 4 414159 CAPSCREW - 5/16-18 X 1-1/2 LG H 43 4 494112 6 4144103 CAPSCREW - 5/16-18 X 1-1/2 LG H 43 4 494112 8 414643 CAPSCREW - 5/16-18 X 1-1/2 LG H 43 4 494112 1 414026 SETSCREW - 5/16-18 X 1-1/2 LG H 43 4 41412 1 414646 CAPSCREW - 5/16-18 X 1-1/2 LG H 45 1 518037	Ч	Ļ	2	395236	TIE PLATE (SHORT DRUM) BEARIN	37	1	462061	O-RING (Drum)
1 402120 BEARING - MOTOR END BEARING 39 5 474111 1 402121 BEARING - MOTOR END BEARING 39 5 474111 1 402121 BEARING - MOTOR END BEARING 40 1 486101 1 402121 BEARING - MOTOR END BEARING 40 1 486101 1 412095 BUSHING - DRUM (MTR. END) 41 1 490037 4 412096 BUSHING - DRUM (G.HSG. END 42 6 494112 6 414303 CAPSCREW - 5/16-18 X 1-1/2 LG H 43 4 494112 6 414303 CAPSCREW - 5/16-18 X 1-1/2 LG H 43 4 494112 7 414664 CAPSCREW - 5/16-18 X 1-1/2 LG H 43 4 494112 8 414664 CAPSCREW - 5/16-18 X 1-1/2 LG H 45 1 516013 1 414926 SETSCREW - 5/16-18 X 1-1/2 LG H 45 1 518047 2 414948 CAPSCREW - 1/2-13NC X 1-1/4 LG 47 1 518054			2	474224	TIE PLATE (SHORT DRUM) BEARIN	38	1	472052	PLUG
1 402121 BEARING - MOTOR END BEARING 40 1 486101 1 412095 BUSHING - DRUM (MTR. END) 41 1 490037 1 412095 BUSHING - DRUM (MTR. END) 41 1 490037 1 412096 BUSHING - DRUM (G.HSG. END) 42 6 494110 4 414159 CAPSCREW - 5/16-18 X 1-1/2 LG H 43 4 494112 6 414303 CAPSCREW - 3/8-16NC X 2-1/2 LG 44 1 509009 8 414664 CAPSCREW - 5/8-11NC X 1 LG. HX. 45 1 516013 1 414926 SETSCREW - 3/8-16NC X 1 LG. K 45 1 516013 2 414926 SETSCREW - 1/2-13NC X 1-1/4 LG 47 1 518047 1 416016 SETSCREW - 1/2-13NC X 1-1/4 LG 47 1 518054 1 416016 SETSCREW - 1/4-20NC 48 1 518054 1 418063 NUT 3/8 - 16NC HEX. JAM 49 1 518053	н Н	2	1	402120	BEARING - MOTOR END BEARING	39	ъ	474111	PLATE SEPARATOR
1 412095 BUSHING - DRUM (MTR. END) 41 1 490037 1 412096 BUSHING - DRUM (G.HSG. END 42 6 494110 4 414159 CAPSCREW - 5/16-18 X 1-1/2 LG H 43 4 494112 6 414303 CAPSCREW - 5/8-11NC X 1-1/2 LG H 43 4 494112 8 414664 CAPSCREW - 5/8-11NC X 1-1/4 LG HX. 45 1 516013 1 414926 SETSCREW - 5/8-11NC X 1-1/4 LG HX. 45 1 518037 1 414926 SETSCREW - 3/8-16NC X 1-1/4 LG HX. 45 1 518037 2 414948 CAPSCREW - 1/2-13NC X 1-1/4 LG HY. 46 1 518037 1 414016 SETSCREW - 1/2-13NC X 1-1/4 LG 47 1 518052 1 418063 NUT 3/8 - 16NC HEX. JAM 49 1 518053 4 418063 LOCKWASHER - 5/16 MED SECT Z 50 1 518054 2 418218 LOCKWASHER - 5/16 MED SECT Z 50 1 518054	н Н	ņ	1	402121	BEARING - MOTOR END BEARING	40	1	486101	SEAL-GEAR HSG
1 412096 BUSHING - DRUM (G.HSG. END 42 6 494110 4 414159 CAPSCREW - 5/16-18 X 1-1/2 LG H 43 4 494112 6 414303 CAPSCREW - 3/8-16NC X 2-1/2 LG H 43 4 494112 8 414664 CAPSCREW - 3/8-16NC X 1 LG. HX. 45 1 509009 1 414926 SETSCREW - 3/8-16NC X 1 LG., SQ 46 1 518037 2 414926 SETSCREW - 3/8-16NC X 1 LG., SQ 46 1 518037 1 414926 SETSCREW - 1/2-13NC X 1-1/4 LG 47 1 518037 1 414948 CAPSCREW - 1/2-13NC X 1-1/4 LG 47 1 518037 1 416016 SETSCREW - 1/2-13NC X 1-1/4 LG 47 1 518052 1 416016 SETSCREW - 1/2-13NC X 1-1/4 LG 47 1 518053 1 416016 SETSCREW - 1/2-13NC X 1-1/4 LG 47 1 518054 1 418003 NUT 3/8 - 16NC HEX. JAM 49 1 518053 2 418063 LOCKWASHER - 5/16 MED SECT 2 50 <td>Ļ.</td> <td>4</td> <td>1</td> <td>412095</td> <td>BUSHING - DRUM (MTR. END)</td> <td>41</td> <td>1</td> <td>490037</td> <td>SNAP RING</td>	Ļ.	4	1	412095	BUSHING - DRUM (MTR. END)	41	1	490037	SNAP RING
4 414159 CAPSCREW - 5/16-18 X 1-1/2 LG H 43 4 494112 6 414303 CAPSCREW - 3/8-16NC X 2-1/2 LG 44 1 509009 8 414664 CAPSCREW - 5/8-11NC X 1LG. HX. 45 1 516013 1 414926 SETSCREW - 3/8-16NC X 1 LG., SQ 46 1 518037 2 414948 CAPSCREW - 3/8-16NC X 1-1/4 LG 47 1 518047 1 414926 SETSCREW - 1/2-13NC X 1-1/4 LG 47 1 518037 1 414948 CAPSCREW - 1/2-13NC X 1-1/4 LG 47 1 518037 1 416016 SETSCREW - 1/2-13NC X 1-1/4 LG 47 1 518052 1 416016 SETSCREW - 1/2-13NC X 1-1/4 LG 48 1 518053 1 418036 NUT 3/8 - 16NC HEX. JAM 49 1 518053 2 418063 LOCKWASHER - 5/16 MED SECT Z 50 1 518053 2 418218 LOCKWASHER - 1/2 LD MED. SECT . 50 1 518054	н Н	Ņ	1	412096	BUSHING - DRUM (G.HSG. END	42	9	494110	SPRING BRAKE
6 414303 CAPSCREW - 3/8-16NC X 2-1/2 LG. 44 1 509009 8 414664 CAPSCREW - 5/8-11NC X 1 LG. HX. 45 1 516013 1 414926 SETSCREW - 3/8-16NC X 1 LG., SG 46 1 518037 2 414948 CAPSCREW - 3/8-16NC X 1-1/4 LG 47 1 518037 1 414048 CAPSCREW - 1/2-13NC X 1-1/4 LG 47 1 518052 1 414048 CAPSCREW - 1/2-13NC X 1-1/4 LG 47 1 518052 1 416016 SETSCREW - 1/4-20NC 48 1 518052 1 418036 NUT 3/8 - 16NC HEX. JAM 49 1 518053 2 418063 LOCKWASHER - 5/16 MED SECT Z 50 1 518054 2 418218 LOCKWASHER - 1/2 ID MED. SECT. 50 1 518054	Ĥ	9	4	414159		43	4	494112	SPRING BRAKE
8 414664 CAPSCREW - 5/8-11NC X 1 LG. HX. 45 1 516013 1 414926 SETSCREW - 3/8-16NC X 1 LG., SQ 46 1 518037 2 414948 CAPSCREW - 1/2-13NC X 1-1/4 LG 47 1 518047 1 416016 SETSCREW - 1/4-20NC 48 1 518052 1 416016 SETSCREW - 1/4-20NC 48 1 518052 1 418036 NUT 3/8 - 16NC HEX. JAM 49 1 518053 2 418063 LOCKWASHER - 5/16 MED SECT Z 50 1 518053 2 418218 LOCKWASHER - 1/2 ID MED. SECT. 50 1 518054	Ч	2	9	414303		44	1	509009	TUBE ASSEMBLY
1 414926 SETSCREW - 3/8-16NC X 1 LG., Sq 46 1 518037 2 414948 CAPSCREW - 1/2-13NC X 1-1/4 LG 47 1 518047 1 416016 SETSCREW - 1/2-20NC 48 1 518052 1 416016 SETSCREW - 1/4-20NC 48 1 518052 1 418036 NUT 3/8 - 16NC HEX. JAM 49 1 518053 4 418063 LOCKWASHER - 5/16 MED SECT 2 50 1 518053 2 418218 LOCKWASHER - 1/2 ID MED. SECT. 50 1 518054	Ļ	Ω.	∞	414664		45	1	516013	VALV-MOTOR CONTROL
2 414948 CAPSCREW - 1/2-13NC X 1-1/4 LG 47 1 518047 1 416016 SETSCREW - 1/4-20NC 48 1 518052 1 418036 NUT 3/8 - 16NC HEX. JAM 49 1 518053 4 418063 LOCKWASHER - 5/16 MED SECT 2 50 1 518053 2 418218 LOCKWASHER - 1/2 ID MED. SECT. 50 1 518054	Ĥ	<u>م</u>	1	414926		46	1	518037	THRUST WASHER
1 416016 SETSCREW - 1/4-20NC 48 1 518052 1 418036 NUT 3/8 - 16NC HEX. JAM 49 1 518053 4 418063 LOCKWASHER - 5/16 MED SECT 7 50 1 518054 2 418218 LOCKWASHER - 1/2 ID MED. SECT. 50 1 518054	Ñ	0	2	414948		47	1	518047	THRUST WASHER
1 418036 NUT 3/8 - 16NC HEX. JAM 49 1 518053 4 418063 LOCKWASHER - 5/16 MED SECT 2 50 1 518054 2 418218 LOCKWASHER - 1/2 ID MED. SECT. 72 1 518054	2	1	1	416016	Т	48	1	518052	THRUST WASHER
4 418063 LOCKWASHER - 5/16 MED SECT 50 1 518054 2 418218 LOCKWASHER - 1/2 ID MED. SECT. 1 518054	0	2	1	418036	NUT 3/8 - 16NC HEX. JAM	49	1	518053	THRUST WASHER (MTR. END)
2 418218 LOCKWASHEF	0	ŝ	4	418063		50	1	518054	THRUST WASHER (G. HSG. END)
	Ď.	4	2	418218	LOCKWASHER - 1/2 ID MED. SECT				



PARTS LIST - RPH 15000 WITH AIR-CYLINDER CLUTCH SHIFTER

27 1 431015 29 4 438022 30 1 442220 31 1 442220 33 1 442220 31 1 442220 32 1 442220 33 1 456038 33 1 456038 33 1 456038 33 1 462056 34 1 462056 35 1 462056 36 1 462056 37 1 462056 38 1 462057 39 1 462056 39 1 462057 39 1 462057 39 1 462061 47 1 486101 47 1 482045 48 1 482045 49 1 490037 47 1 486101 50 5 494110 51 5 4941	ITEM	QTY.	PART NO.	PART NO. ESCRIPTION	ITEM	QТY.	PART NO.	DESCRIPTION
1 234200 SHORT DRUM ASS'Y. SHIFTER ASS' 28 432018 1 286020 LIGHT ASS'Y 29 4 438022 1 276053 SHIFTER ASS'Y AIR 30 1 432023 1 276053 SHIFTER ASS'Y AIR 30 1 432023 1 276053 SHIFTER ASS'Y AIR 31 1 455038 1 383414 HOUSING - GEAR, END BEARING 32 1 452057 1 338302 HOUSING - GEAR, END BEARING 35 1 462057 1 338302 HOUSING - GEAR, END BEARING 35 1 462057 338302 HOUSING - GEAR, END BEARING 35 1 462057 37 338302 HOUSING - BRAKE 33 1 462056 34 462057 338302 HOUSING - GEAR, END BEARING 35 1 462056 474111 335751 SHAFT - INPUT (STD. DRUM) 38 1 462057 474214 335751	Ч	1	234173	STD. DRUM ASS'Y.	27	1	431015	COUPLING - BRAKE
1 236020 LIGHT ASSY 29 4 438022 1 276053 SHIFTER ASSY AIR 30 1 442020 1 276053 SHIFTER ASSY AIR 30 1 442020 1 388445 END BEARING - MOTOR 31 1 456038 1 312526 BRACKET - LIGHT MTG. 32 1 452056 1 312526 BRACKET - LIGHT MTG. 33 1 452056 338414 HOUSING - ERAK 33 1 452056 33 1 338414 HOUSING - ERAK, END BEARING 35 1 462056 338414 HOUSING - ERAK 37 1 462056 37 1 338414 HOUSING - ERAK 37 1 462056 338414 HOUSING - ERAK 37 1 462056 37 338302 HIFT- INPUT (SITD. DRUM) 38 1 462066 34 35551 SHAFT - INPUT (SITD. DRUM) 38 1<		Ч	234200	SHORT DRUM ASS'Y. SHIFTER ASS'	28	2	432018	FITTING - 7/16 ELBOW
1 278053 SHIFTER ASSY AIR 30 1 442220 1 338345 END BEARING - MOTOR 31 1 45503 1 338345 END BEARING - MOTOR 31 1 456038 1 33844 HOUSING - MOTOR 32 1 456038 1 33417 GEAR-RING 33 1 456036 33414 HOUSING - GEAR, END BEARING 33 1 452056 338302 HOUSING - BRAKE 33 1 462056 338302 HOUSING - BRAKE 35 1 462055 338302 HOUSING - BRAKE 35 1 462055 338302 HOUSING - GEAR, END BEARING 35 1 462055 357518 SHAFT - INPUT (SHORT DRUM) 39 1 462061 35751 SHAFT - INPUT (SHORT DRUM) 39 1 462056 35536 TIE PLATE (SHORT DRUM) 39 1 462061 35536 TIE PLATE (SHORT DRUM) 39 1 422061 1 402120 BEARING 40<	2	Ч	236020	LIGHT ASS'Y	29	4	438022	DISC - BRAKE
1 338345 END BEARING - MOTOR 31 1 44223 1 312526 BRACKET - LIGHT MTG. 32 1 456038 1 312526 BRACKET - LIGHT MTG. 33 1 456038 1 33417 GEAR-RING 33 1 45005 1 33417 GEAR-RING 33 1 45005 1 33414 HOUSING - BRAKE 33 1 45005 338302 HOUSING - BRAKE 35 1 462056 338302 HOUSING - BRAKE 35 1 462057 338302 HOUSING - BRAKE 35 1 462056 355515 SHAFT - INPUT (SHORT DRUM) 38 1 462056 355535 SHAFT - INPUT (SHORT DRUM) 38 1 462056 355536 SHAFT - INPUT (SHORT DRUM) 38 1 462066 35553 SHAFT - INPUT (SHORT DRUM) 38 1 462061 35553 SHAFT - INPUT (SHORT DRUM) 38 1 462061 35554 TIE PLATE (SHORT DRUM)	ŝ	Ч	276053	SHIFTER ASS'Y AIR	30	1	442220	GASKET - BRAKE
1 306042 PISTON - BRAKE 32 1 456038 1 312526 BRACKET - LIGHT MTG. 33 1 456038 1 33414 HOUSING -GEAR, END BEARING 35 1 462056 1 338302 HOUSING -GEAR, END BEARING 35 1 462056 1 338302 HOUSING -BRAKE 36 1 462056 1 338302 HOUSING -BRAKE 35 1 462056 1 338302 HOUSING -BRAKE 36 1 462056 1 337518 SHAFT - INPUT (STD. DRUM) 38 1 462061 2 347224 TE PLATE (STD. DRUM) BEARING 40 5 474111 2 395236 TE PLATE (STD. DRUM) BEARING 40 5 474111 2 395236 TE PLATE (STD. DRUM) BEARING 40 5 474111 2 395236 TE PLATE (STD. DRUM) BEARING 40 5 474111 </th <td>4</td> <td>Ч</td> <td>338345</td> <td>END BEARING - MOTOR</td> <td>31</td> <td>1</td> <td>442223</td> <td>GASKET - MOTOR</td>	4	Ч	338345	END BEARING - MOTOR	31	1	442223	GASKET - MOTOR
1 312526 BRACKET - LIGHT MTG. 33 1 45800 1 33417 GEAR-RING 34 1 462056 1 33414 HOUSING -GEAR, END BEARING 35 1 462056 1 33802 HOUSING -BRAKE 36 1 462056 1 338302 HOUSING -BRAKE 37 1 462059 1 337518 SHAFT - INPUT (STD. DRUM) 38 1 462050 1 35751 SHAFT - INPUT (STD. DRUM) 38 1 462061 2 395236 TE PLATE (STD. DRUM) 38 1 462061 2 395236 TE PLATE (STD. DRUM) 39 1 462061 2 395236 TE PLATE (STD. DRUM) BEARING 40 5 474111 2 395236 TE PLATE (STD. DRUM) BEARING 41 1 462061 3 35721 SHAFT - INPUT (STD. DRUM) BEARING 40 5 474111 2 39236 TE PLATE (STD. DRUM) BEARING 41 422061 42 <td>Ŋ</td> <td>Ч</td> <td>306042</td> <td>PISTON - BRAKE</td> <td>32</td> <td>1</td> <td>456038</td> <td>FITTING - VENT</td>	Ŋ	Ч	306042	PISTON - BRAKE	32	1	456038	FITTING - VENT
1 334177 GEAR-RING 34 1 462056 1 338302 HOUSING -GEAR, END BEARING 35 1 462057 1 338302 HOUSING - BRAKE 36 1 462058 1 357518 SHAFT - INPUT (STD. DRUM) 38 1 462059 1 357521 SHAFT - INPUT (SHORT DRUM) 38 1 462061 2 395236 TE PLATE (SHORT DRUM) 39 1 462061 2 395236 TE PLATE (SHORT DRUM) 39 1 462061 2 474224 TE PLATE (SHORT DRUM) 39 1 462061 2 47724 TE PLATE (SHORT DRUM) 39 1 462061 2 474224 TE PLATE (SHORT DRUM) 39 1 462061 2 474111 1 4 42011 1 482013 1 402120 BEARING MOTOR END 42 1 486101 1 402121 BEARING MOTOR END 42 1 486101 1 40212	9	Ч	312526	BRACKET - LIGHT MTG.	33	1	458090	MOTOR-HYDRAULIC
1 338414 HOUSING -GEAR, END BEARING 35 1 462057 1 338302 HOUSING - BRAKE 37 1 462059 1 357518 SHAFT - INPUT (STD. DRUM) 37 1 462050 1 357521 SHAFT - INPUT (STD. DRUM) 38 1 462061 2 355236 TIE PLATE (STD. DRUM) BEARING 40 5 474111 2 395236 TIE PLATE (SHORT DRUM) BEARING 40 5 474111 2 395236 TIE PLATE (SHORT DRUM) BEARING 40 5 474111 2 395236 TIE PLATE (SHORT DRUM) BEARING 40 5 474111 2 395236 TIE PLATE (SHORT DRUM) BEARING 40 5 474111 1 402120 BEARING 40 5 474111 1 402121 BEARING 40 5 474111 1 402121 BEARING 40 5 474111 1 402121 BEARING 40 5 474112 1 412096 BUSHI	7	Ч	334177	GEAR-RING	34	1	462056	O-RING
1 338302 HOUSING - BRAKE 36 1 462058 4 346045 PIN - BRAKE 37 1 462059 1 357518 SHAFT - INPUT (STD. DRUM) 38 1 462060 1 357521 SHAFT - INPUT (STD. DRUM) 38 1 462061 2 355236 TIE PLATE (STD. DRUM) BEARIN 40 5 474111 2 395236 TIE PLATE (STD. DRUM) BEARING 40 5 474111 2 395236 TIE PLATE (STD. DRUM) BEARING 40 5 474111 2 395236 TIE PLATE (STD. DRUM) BEARING 40 5 474111 1 305236 TIE PLATE (SHORT DRUM) BEARING 40 5 474111 1 402121 BEARING MOTOR END BEARING 40 5 474111 1 402121 BEARING MOTOR END BEARING 40 5 474111 1 402121 BEARING MOTOR END BEARING 41 1 482045 1 402055 BUSHING MOTOR END BEARING 42	8	Ч	338414	HOUSING -GEAR, END BEARING	35	1	462057	O-RING
4 346045 PIN - BRAKE 37 1 462059 1 357518 SHAFT - INPUT (STD. DRUM) 38 1 462060 1 357521 SHAFT - INPUT (SHORT DRUM) 39 1 462060 2 395236 TE PLATE (SHORT DRUM) 39 1 462061 2 395236 TE PLATE (SHORT DRUM) 39 1 462061 2 395236 TE PLATE (SHORT DRUM) BEARING 40 5 474111 2 395236 TE PLATE (SHORT DRUM) BEARING 40 5 474111 2 395236 TE PLATE (SHORT DRUM) BEARING 40 5 474111 2 47424 TE PLATE (SHORT DRUM) BEARING 41 41 482013 1 402121 BEARING MOTOR END BEARING 42 1 482013 1 402121 BEARING MOTOR END 42 1 482013 1 412096 BUSHING - DRUM (MTR. END) 44 2 484110 1 412096 BUSHING - DRUM (G.HSG. END<	6	Ч	338302	HOUSING - BRAKE	36	1	462058	O-RING
1 357518 SHAFT - INPUT (STD. DRUM) 38 1 462060 2 357521 SHAFT - INPUT (SHORT DRUM) 39 1 462061 2 395236 TIE PLATE (STD. DRUM) BEARING 40 5 474111 2 395236 TIE PLATE (SHORT DRUM) BEARING 40 5 474111 2 474224 TIE PLATE (SHORT DRUM) BEARING 40 5 474111 1 402120 BEARING 40 5 474111 1 402121 BEARING 40 5 474111 1 402121 BEARING 40 5 474111 1 402121 BEARING 40 4 48007 1 402121 BEARING 40 4 48007 1 412096 BUSHING - DRUM (MTR. END) 44 2 48607 1 412096 BUSHING - DRUM (G.HSG. END 45 1 49037 1 412096 BUSHING - DRUM (G.HSG. END 47 4 494110 2 414159 CAPSCREW - 5/16.IS X 1-1/	10	4	346045	PIN - BRAKE	37	1	462059	O-RING
1 357521 SHAFT - INPUT (SHORT DRUM) 39 1 462061 2 395236 TIE PLATE (STD. DRUM) BEARING 40 5 474111 2 474224 TIE PLATE (SHORT DRUM) BEARING 40 5 474111 2 474224 TIE PLATE (SHORT DRUM) BEARING 40 5 474111 1 402120 BEARING MOTOR END BEARING 42 1 482013 1 402121 BEARING - MOTOR END BEARING 43 1 482013 1 402121 BEARING - DRUM (MTR. END) 44 2 486101 1 412096 BUSHING - DRUM (G.HSG. END 45 1 490037 2 414036 CAPSCREW - 5/16-18 X 1-1/2 LG F 46 6 494110 4 41159 CAPSCREW - 5/8-11NC X 1 LG. HX. 48 1 504021 8 414664 SETSCREW - 3/8-16NC X 1 LG. SC 49 494112 6 1 414926 CAPSCREW - 3/8-16NC X 1 LG. SC 49 1 504021 8 414664 SETSCREW - 1/2-13NC X 1-1/4 LG 50 </th <td>11</td> <td>Ч</td> <td>357518</td> <td></td> <td>38</td> <td>1</td> <td>462060</td> <td>O-RING</td>	11	Ч	357518		38	1	462060	O-RING
2 395236 TIE PLATE (STD. DRUM) BEARING 40 5 474111 2 474224 TIE PLATE (SHORT DRUM) BEARING 41 1 482013 1 402120 BEARING 42 1 482045 1 402121 BEARING MOTOR END BEARING 43 1 486101 1 402121 BEARING - MOTOR END BEARING 43 1 486007 1 412095 BUSHING - DRUM (MTR. END) 44 2 486101 2 414036 CAPSCREW - 5/16-18 X 1-1/2 LG F 46 6 494110 2 414036 CAPSCREW - 5/16-18 X 1-1/2 LG F 46 6 4941112 6 414159 CAPSCREW - 5/16-18 X 1-1/2 LG F 46 6 4941112 8 414664 SETSCREW - 5/16-18 X 1-1/2 LG F 46 6 4941112 8 414664 SETSCREW - 1/2-13NC X 1-1/4 LG 50 1 510003 1 414926 CAPSCREW - 1/2-13NC X 1-1/4 LG 50 1 510013 7 1 414926 CAPSCREW - 1/2-13NC X 1-1/4 LG		Ч	357521	SHAFT - INPUT (SHORT DRUM)	39	1	462061	O-RING (Drum)
2 474224 TIE PLATE (SHORT DRUM) BEARIN 41 1 482013 1 402120 BEARING 42 1 482045 1 402121 BEARING 42 1 482045 1 402121 BEARING 42 1 486101 1 402121 BEARING 42 1 486101 1 412095 BUSHING - DRUM (MTR. END) 44 2 488007 1 412096 BUSHING - DRUM (G.HSG. END 45 1 490037 2 414036 CAPSCREW - 5/16-18 X 1-1/2 LG P 46 6 494110 4 414159 CAPSCREW - 3/8-16NC X 2-1/2 LG 47 4 494112 6 414303 CAPSCREW - 3/8-16NC X 1-1/4 LG 50 1 504021 8 414664 SETSCREW - 1/2-13NC X 1-1/4 LG 50 1 516013 1 1 414968 SETSCREW - 1/2-13NC X 1-1/4 LG 50 1 518047 1 1 414964 SETSCREW - 1/2-13NC X 1-1/4 LG 50 1 518047 1	12	2	395236		40	Ŋ	474111	PLATE SEPARATOR
1 402120 BEARING 42 1 486101 1 402121 BEARING - MOTOR END BEARING 43 1 486101 1 412095 BUSHING - DRUM (MTR. END) 44 2 488007 1 412096 BUSHING - DRUM (MTR. END) 44 2 488007 1 412096 BUSHING - DRUM (G.HSG. END 45 1 490037 2 414036 CAPSCREW - 5/16-18 X 1-1/2 LG H 46 6 494110 4 41159 CAPSCREW - 5/8-11NC X 1-1/2 LG H 46 6 494112 6 414303 CAPSCREW - 3/8-16NC X 2-1/2 LG. HX 48 1 504021 8 414664 SETSCREW - 3/8-16NC X 1-1/4 LG 50 1 516013 7 1 414926 CAPSCREW - 1/2-13NC X 1-1/4 LG 50 1 516013 7 1 414926 CAPSCREW - 1/2-13NC X 1-1/4 LG 50 1 516013 7 1 414948 SETSCREW - 1/2-13NC X 1-1/4 LG 50 1 518047 7 1 418036 LOCKWASHER		2	474224	TIE PLATE (SHORT DRUM) BEARIN	41	1	482013	GROMMET
1 402121 BEARING - MOTOR END BEARING 43 1 486101 1 412095 BUSHING - DRUM (MTR. END) 44 2 488007 1 412096 BUSHING - DRUM (MTR. END) 45 1 490037 2 414036 CAPSCREW - 5/16-18 X 1-1/2 LG F 46 6 494110 2 414159 CAPSCREW - 5/16-18 X 1-1/2 LG F 46 6 4941112 4 414159 CAPSCREW - 5/8-11NC X 1LG F 46 6 4941112 6 414303 CAPSCREW - 5/8-11NC X 1LG. HX. 48 1 504021 8 414664 SETSCREW - 3/8-16NC X 1-1/4 LG 50 1 504021 1 414926 CAPSCREW - 1/2-13NC X 1-1/4 LG 50 1 516013 1 414926 CAPSCREW - 1/2-13NC X 1-1/4 LG 50 1 516013 1 414926 CAPSCREW - 1/2-13NC X 1-1/4 LG 50 1 516013 1 414948 SETSCREW - 1/2-13NC X 1-1/4 LG 50 1 518047 2 416016 NUT 3/8 - 16NC HEX. JAM 52 <td< th=""><td>13</td><td>Ч</td><td>402120</td><td>BEARING</td><td>42</td><td>1</td><td>482045</td><td>RUBBER BOOT</td></td<>	13	Ч	402120	BEARING	42	1	482045	RUBBER BOOT
1 412095 BUSHING - DRUM (MTR. END) 44 2 488007 1 412096 BUSHING - DRUM (G.HSG. END) 45 1 490037 2 414036 CAPSCREW - 5/16-18 X 1-1/2 LG H 46 6 494110 2 414159 CAPSCREW - 3/8-16NC X 2-1/2 LG 47 4 494112 6 414303 CAPSCREW - 5/8-11NC X 1LG. HX. 48 1 504021 8 414664 SETSCREW - 3/8-16NC X 1-1/4 LG 50 1 504021 1 414926 CAPSCREW - 1/2-13NC X 1-1/4 LG 50 1 504021 1 414926 CAPSCREW - 1/2-13NC X 1-1/4 LG 50 1 509009 1 414926 CAPSCREW - 1/2-13NC X 1-1/4 LG 50 1 516013 1 414926 CAPSCREW - 1/2-13NC X 1-1/4 LG 50 1 516013 1 414926 CAPSCREW - 1/2-13NC X 1-1/4 LG 50 1 516013 2 416016 NUT 3/8 - 16NC HEX. JAM 52 1 518052 7 2 416016 NUT 3/8 - 16NC MASHER - 1/2 ID MED SECT </th <td>14</td> <td>Ч</td> <td>402121</td> <td>BEARING - MOTOR END BEARING</td> <td>43</td> <td>1</td> <td>486101</td> <td>SEAL - GEAR HSG</td>	14	Ч	402121	BEARING - MOTOR END BEARING	43	1	486101	SEAL - GEAR HSG
1 412096 BUSHING - DRUM (G.HSG. END 45 1 490037 2 414036 CAPSCREW - 5/16-18 X 1-1/2 LG H 46 6 494110 4 414159 CAPSCREW - 5/16-18 X 1-1/2 LG H 46 6 494112 6 414159 CAPSCREW - 3/8-16NC X 2-1/2 LG. 47 4 494112 6 414303 CAPSCREW - 5/8-11NC X 1 LG. K 48 1 504021 8 414664 SETSCREW - 3/8-16NC X 1 LG., S(49 1 509009 1 414926 CAPSCREW - 1/2-13NC X 1-1/4 LG 50 1 516013 7 1 414926 CAPSCREW - 1/2-13NC X 1-1/4 LG 50 1 516013 7 2 416016 NUT 3/8 - 16NC HEX. JAM 52 1 518047 7 2 418036 LOCKWASHER - 5/16 MED SECT 53 1 518052 7 4 418063 LOCKWASHER - 1/2 ID MED SECT 53 1 518053 7 2 418063 LOCKWASHER - 1/2 ID MED SECT 53 1 518054 7 <	15	Ч	412095	Bushing - Drum (Mtr. End)	44	2	488007	SHIM
2 414036 CAPSCREW - 5/16-18 X 1-1/2 LG F 46 6 494110 4 414159 CAPSCREW - 3/8-16NC X 2-1/2 LG. 47 4 494112 6 414303 CAPSCREW - 5/8-11NC X 1 LG. HX. 48 1 504021 8 414664 SETSCREW - 5/8-11NC X 1 LG., S(49 1 509009 1 1 414926 CAPSCREW - 1/2-13NC X 1-1/4 LG 50 1 516013 1 1 414926 CAPSCREW - 1/2-13NC X 1-1/4 LG 50 1 516013 1 2 416016 NUT 3/8 - 16NC HEX. JAM 52 1 518047 1 2 416016 NUT 3/8 - 16NC HEX. JAM 52 1 518047 1 3 418036 LOCKWASHER - 5/16 MED SECT Z 53 1 518053 1 4 418063 LOCKWASHER - 1/2 ID MED SECT Z 53 1 518053 1 2 418063 LOCKWASHER - 1/2 ID MED SECT Z 53 1 518053 1 2 418063 LOCKWASHER - 1/2 ID MED SECT 55 1 35	16	Ч	412096	BUSHING - DRUM (G.HSG. END	45	1	490037	SNAP RING
4 414159 CAPSCREW - 3/8-16NC X 2-1/2 LG. 47 4 494112 6 414303 CAPSCREW - 5/8-11NC X 1 LG. HX. 48 1 504021 8 414664 SETSCREW - 5/8-11NC X 1 LG., S(49 1 509009 1 1 414926 CAPSCREW - 1/2-13NC X 1-1/4 LG 50 1 516013 1 1 414926 CAPSCREW - 1/2-13NC X 1-1/4 LG 50 1 516013 1 2 416016 NUT 3/8 - 16NC HEX. JAM 52 1 518047 1 1 418036 LOCKWASHER - 5/16 MED SECT Z 53 1 518052 1 2 418063 LOCKWASHER - 1/2 ID MED. SECT Z 53 1 518053 1 2 418063 LOCKWASHER - 1/2 ID MED SECT Z 53 1 518054 1 2 418018 LOCKWASHER - 1/2 ID MED SECT 55 1 351009 1	17	2	414036	1	46	9	494110	SPRING BRAKE
6 414303 CAPSCREW - 5/8-11NC X 1LG. HX. 48 1 504021 8 414664 SETSCREW - 3/8-16NC X 1 LG., S(49 1 509009 1 1 414926 CAPSCREW - 1/2-13NC X 1-1/4 LG 50 1 516013 1 1 414926 CAPSCREW - 1/2-13NC X 1-1/4 LG 50 1 516013 1 2 416016 NUT 3/8 - 16NC HEX. JAM 52 1 518047 1 1 418036 LOCKWASHER - 5/16 MED SECT Z 53 1 518052 1 2 418063 LOCKWASHER - 1/2 ID MED. SECT Z 53 1 518054 1 2 418063 LOCKWASHER - 1/2 ID MED. SECT Z 53 1 518054 1 2 418063 LOCKWASHER - 1/2 ID MED. SECT 55 1 351009	18	4	414159	1	47	4	494112	SPRING BRAKE
8 414664 SETSCREW - 3/8-16NC X 1 LG., St 49 1 509009 1 414926 CAPSCREW - 1/2-13NC X 1-1/4 LG 50 1 516013 1 414948 SETSCREW - 1/2-13NC X 1-1/4 LG 50 1 516013 2 416016 NUT 3/8 - 16NC HEX. JAM 52 1 518047 1 418036 LOCKWASHER - 5/16 MED SECT Z 53 1 518052 4 418063 LOCKWASHER - 1/2 ID MED. SECT Z 53 1 518053 2 418218 LOCKWASHER - 1/2 ID MED. SECT 55 1 351009	19	9	414303	-,´	48	1	504021	SWITCH ASS'Y
1 414926 CAPSCREW - 1/2-13NC X 1-1/4 LG 50 1 516013 1 414948 SETSCREW - 1/4-20NC 51 1 518047 2 416016 NUT 3/8 - 16NC HEX. JAM 52 1 518052 1 418036 LOCKWASHER - 5/16 MED SECT Z 53 1 518053 4 418063 LOCKWASHER - 1/2 ID MED. SECT Z 53 1 518054 2 418218 LOCKWASHER - 1/2 ID MED. SECT 55 1 351009	20	∞	414664		49	1	509009	TUBE ASSEMBLY
1 414948 SETSCREW - 1/4-20NC 51 1 518047 2 416016 NUT 3/8 - 16NC HEX. JAM 52 1 518052 1 418036 LOCKWASHER - 5/16 MED SECT Z 53 1 518053 4 418063 LOCKWASHER - 1/2 ID MED. SECT 54 1 518054 2 418218 LOCKWASHER - 1/2 ID MED. SECT 55 1 351009	21	Ч	414926	I.	50	1	516013	VALV-MOTOR CONTROL
2 416016 NUT 3/8 - 16NC HEX. JAM 52 1 518052 1 418036 LOCKWASHER - 5/16 MED SECT Z 53 1 518053 4 418063 LOCKWASHER - 1/2 ID MED. SECT 54 1 518054 2 418218 LOCKWASHER - 1/2 ID MED. SECT 55 1 351009	22	Ч	414948	Т	51	1	518047	THRUST WASHER
1 418036 LOCKWASHER - 5/16 MED SECT Z 53 1 518053 4 418063 LOCKWASHER - 1/2 ID MED. SECT 54 1 518054 2 418218 LOCKWASHER - 1/2 ID MED SECT 55 1 351009	23	2	416016	NUT 3/8 - 16NC HEX. JAM	52	1	518052	THRUST WASHER
4 418063 LOCKWASHER - 1/2 ID MED. SECT 54 1 518054 7 2 418218 LOCKWASHER - 1/2 ID MED SECT. 55 1 351009	24	1	418036	LOCKWASHER - 5/16 MED SECT Z	53	1	518053	THRUST WASHER (MTR. END)
2 418218 LOCKWASHER - 1/2 ID MED SECT. 55 1 351009	25	4	418063	LOCKWASHEI	54	1	518054	THRUST WASHER (G. HSG. END)
	26	2	418218	LOCKWASHER - 1/2 ID MED SECT.	55	1	351009	ROPE ANCHOR *

LIMITED WARRANTY

RAMSEY WINCH warrants each new RAMSEY Winch to be free from defects in material and workmanship for a period of one (1) year from date of purchase.

The obligation under this warranty, statutory or otherwise, is limited to the replacement or repair at the Manufacturer's factory, or at a point designated by the Manufacturer, of such part that shall appear to the Manufacturer, upon inspection of such part, to have been defective in material or workmanship.

This warranty does not obligate RAMSEY WINCH to bear the cost of labor or transportation charges in connection with the replacement or repair of defective parts, nor shall it apply to a product upon which repair or alterations have been made, unless authorized by Manufacturer, or for equipment misused, neglected or which has not been installed correctly.

RAMSEY WINCH shall in no event be liable for special or consequential damages. RAMSEY WINCH makes no warranty in respect to accessories such as being subject to the warranties of their respective manufacturers.

RAMSEY WINCH, whose policy is one of continuous improvement, reserves the right to improve its products through changes in design or materials as it may deem desirable without being obligated to incorporate such changes in products of prior manufacture.

If field service at the request of the Buyer is rendered and the fault is found not to be with RAMSEY WINCH's product, the Buyer shall pay the time and expense to the field representative. Bills for service, labor or other expenses that have been incurred by the Buyer without approval or authorization by RAMSEY WINCH will not be accepted See warranty card for details.



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