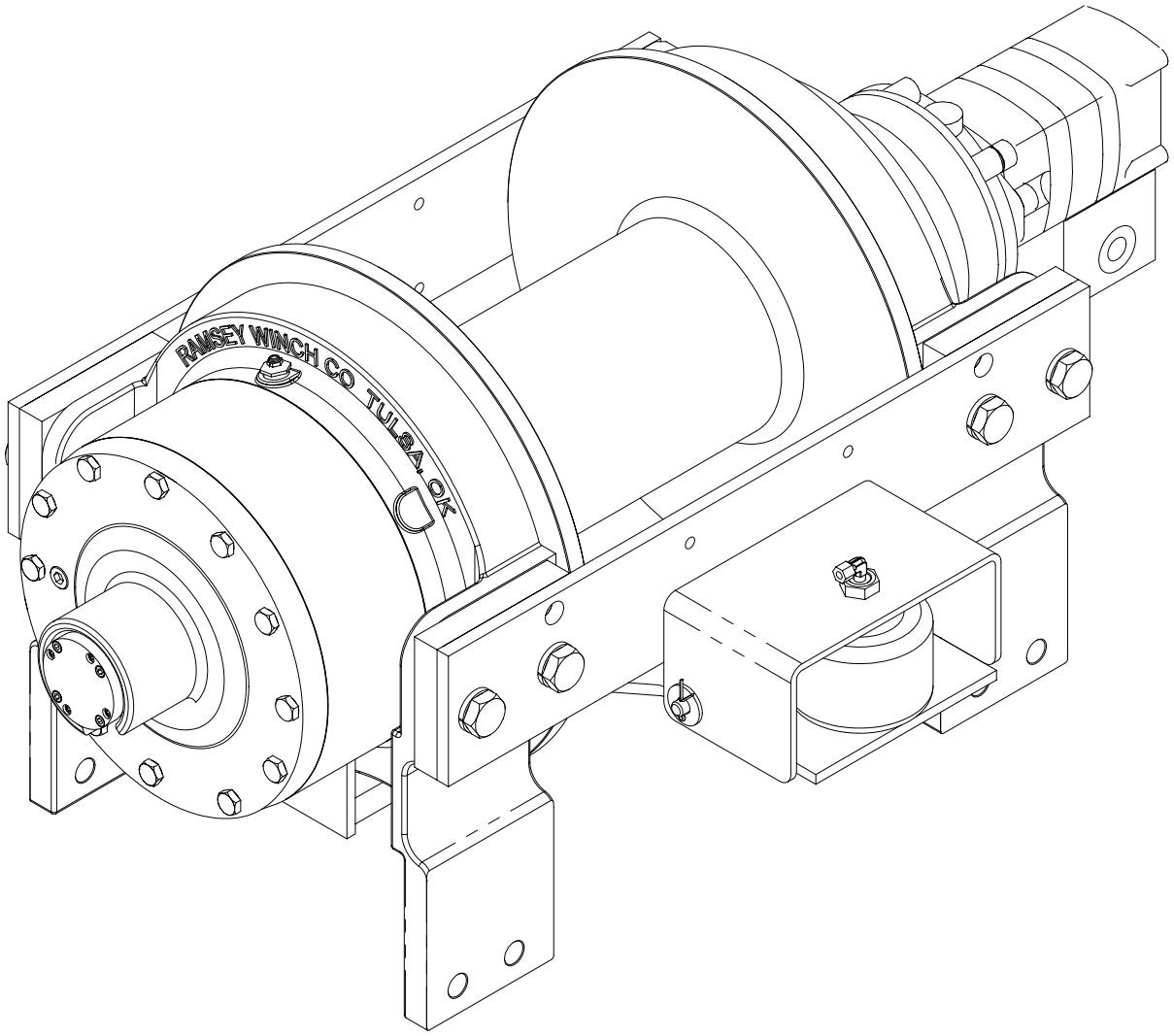
OPERATING, SERVICE AND MAINTENANCE MANUAL



MODEL RPH-50,000 2 SPEED INDUSTRIAL PLANETARY WINCH WITH AIR TENSIONER

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

TABLE OF CONTENTS

RAMSEY HYDRAULIC PLANETARY WINCH MODEL RPH 50,000

PLEASE READ THIS MANUAL CAREFULLY

This manual contains useful ideas in 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 "WARNINGS" 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 our winch, please follow instructions for prompt service on all warranty claims. Refer to back page for limited warranty.

SPECIFICATIONS (LOW SPEED MODE) *

Rated Line Pull (lbs) 50,000							
(Kg) 22,650							
Gear Reduction..... 51.35:1							
Weight (without cable) .....750 lbs. (341 Kg)							
LAYER OF CABLE		**1**	**2**	**3**	**4**	**5**	
Rated line pull per layer*	Lbs.	50,000	42,300	36,600	32,300	28,900	
	Kg	22,650	19,220	16,630	14,680	13,130	
Cable capacity*	Ft.	35	80	130	185	250	
	M	10	24	39	56	76	
Line Speed (at 20 GPM)*	FPM	16	18	21	23	25	
	MPM	4.8	5.6	6.4	7.2	7.9	
* These specifications are based on recommended wire rope of .75 inch dia. extra improved plow steel or equivalent.							

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

WARNINGS:

CLUTCH MUST BE TOTALLY ENGAGED BEFORE STARTING THE WINCHING OPERATION.

DO NOT START WINCH MOTOR BEFORE ENGAGING CLUTCH.

DO NOT DISENGAGE CLUTCH UNDER LOAD.

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 PEOPLE.

A MINIMUM OF 5 WRAPS OF CABLE AROUND THE DRUM BARREL IS NECESSARY TO HOLD THE LOAD. CABLE ANCHOR IS NOT DESIGNED TO HOLD LOAD.

WINCH MOUNTING

Use (8) 3/4" diameter grade 5 or better bolts to attach winch to the wrecker.

Before operating the winch for the first time, remove the cover from the breather vent at the back of the air cylinder and the relief fitting on top of the clutch housing.

CABLE INSTALLATION

1. Unwind cable by rolling it out along the ground to prevent kinking. Securely wrap end of wire rope, opposite hook, with plastic or similar tape to prevent fraying.
2. Insert the end of cable, opposite hook end, into the hole in drum barrel. Secure cable to drum barrel, using setscrew furnished with winch. **TIGHTEN SETSCREW SECURELY.**
3. Carefully run the winch in the “reel-in” direction, winding one full wrap of cable on the drum.
4. Apply air to the cable tensioner. Wind about 5 wraps of cable onto the drum and stop. Using a hammer tap these five wraps of cable over again the cable anchor flange side of the drum.
5. Finish spooling all the cable onto the cable drum, taking care to form neatly wrapped layers.

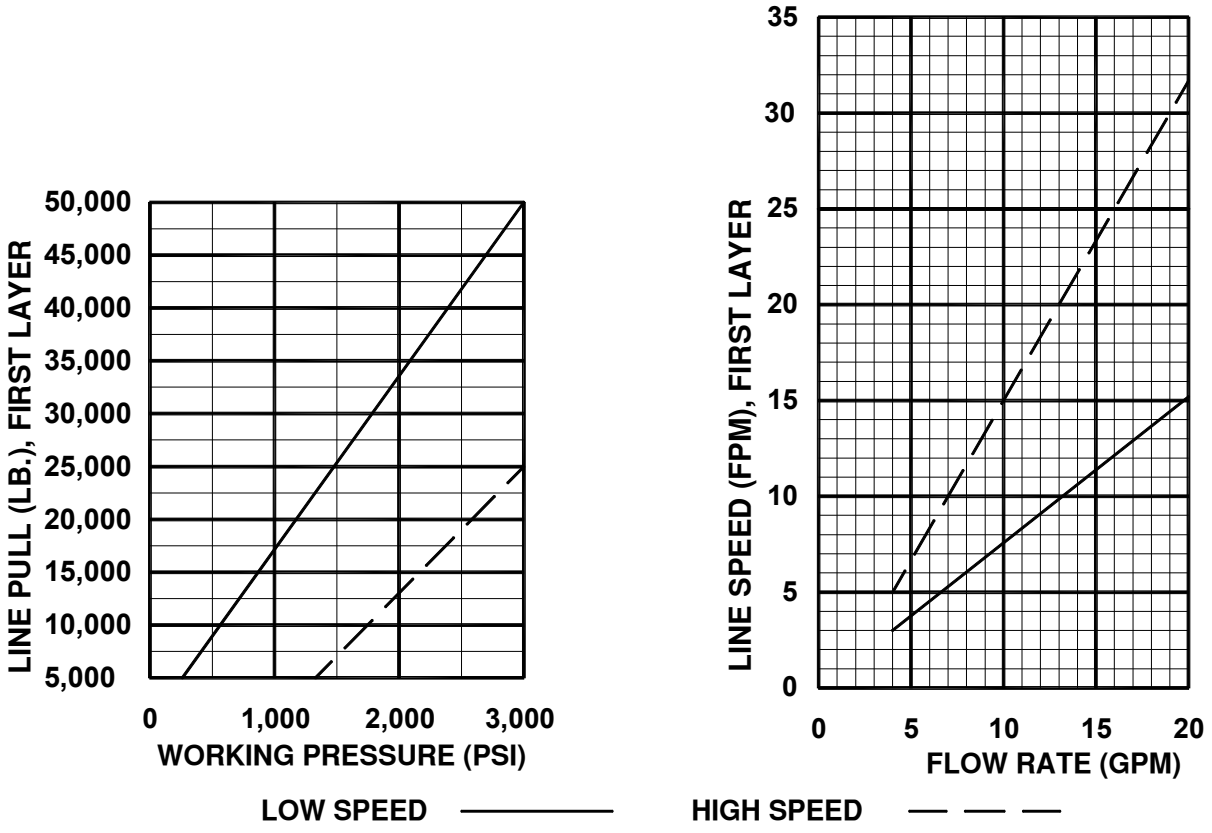
HYDRAULIC SYSTEM REQUIREMENTS

Refer to the performance charts to properly match your hydraulic system to RPH-50000 winch performance. The charts consist of:

(1) Line pull (lb.) first layer vs. working pressure (PSI) and (2) Line speed (FPM), first layer vs. flow (GPM). Performance based on a motor displacement of 11.9 cubic inches (at low speed) with 25 GPM maximum flow rate. See page 16 for motor port size.

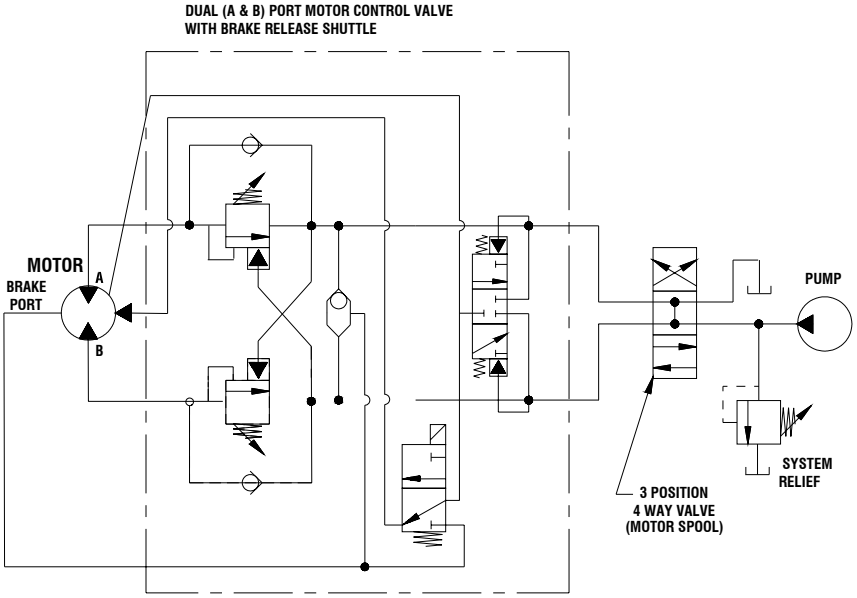
PERFORMANCE CHARTS

(BASED ON 11.9 CU. IN./REV MOTOR-LOW SPEED)



HYDRAULIC SCHEMATIC

TYPICAL LAYOUT



AIR SYSTEM REQUIREMENTS

The cable tensioner requires an independent, adjustable regulated air supply of between 50 and 90 PSI.

CAUTION: DO NOT EXCEED 100 PSI AIR PRESSURE TO THE ACTUATORS. THIS COULD CAUSE DAMAGE TO THE ACTUATORS.

The clutch release cylinder requires an air supply of between 100 and 120 PSI.

CLUTCH OPERATION

To engage clutch:

1. Move the clutch control valve to the “clutch engaged” position.
2. Anytime the temperature is below freezing, run the motor in the “cable out” direction only until the drum starts to turn. In extreme cold temperatures (below 0º F/-18º C), pull out on the cable by hand only until the drum starts to turn.
3. Wait at least 3 seconds for the clutch to fully engage, after which the winch is ready to winch in the cable.

WARNING: Do not attempt to engage the clutch by first running the winch motor and then moving the clutch control valve to the "clutch-engaged" position while the motor is running. Do not start picking up the load at the same time the clutch is being engaged.

To disengage clutch:

1. Run the winch in the "cable out" direction until the load is off the cable.
2. Move the clutch control valve to the "clutch-disengaged" position.
3. The cable may now be pulled off by hand.

TWO SPEED CONTROL OPERATION

Your winch is equipped with a 2-speed hydraulic motor. It is controlled by the application of 12 vDC to the Motor Control Valve solenoid (12v applied to the solenoid provides high speed/low torque mode). **Do not change motor speed while the winch is in operation. Loss of load control and/or damage to your winch could result.**

CABLE TENSIONER OPERATION

If you remove the cable entirely from the winch or this is a new installation:
The cable tensioner is not intended to be energized on a bare drum. Before applying air to the cable tensioner, install the cable.

To adjust the free spool effort of the cable tensioner: Disengage the winch clutch and free spool some cable off the drum. Adjust the air pressure to the cable tensioner to achieve the desired free spool effort that also prevents “bird-nesting” of the cable.

CAUTION: DO NOT EXCEED 100 PSI AIR PRESSURE TO THE ACTUATORS. THIS COULD CAUSE DAMAGE TO THE ACTUATORS.

WINCH OPERATION

The best way to get acquainted with how your winch operates is to make test runs before you use it. Plan your test in advance. Remember, you hear your winch, as well as see it operate. Learn to recognize the sounds of a light steady pull, a heavy pull, and sounds caused by load jerking or shifting. Gain confidence in operating your winch and its use will become second nature with you.

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.

MAINTENANCE

Adhering to the following maintenance schedule will keep your winch in top condition and performing as it should with a minimum of repair.

A. WEEKLY

1. Check the oil level and maintain it to the oil level plug. If oil is leaking out, determine location and repair.
2. Check the pressure relief plug in top of the gear housing. Be sure that it is not plugged.
3. Lubricate cable with light oil.

B. MONTHLY

1. Check the winch mounting bolts. If any are missing, replace them and securely tighten any that are loose. Use grade 5 or better bolts.
2. Inspect the cable. If the cable has become frayed with broken strands, replace immediately.

C. ANNUALLY

1. Drain the oil from the winch annually or more often if winch is used frequently.
2. Fill the winch to the oil level plug with clean kerosene. Run the winch a few seconds with no load in the reel in direction. Drain the kerosene from the winch.
3. Refill the winch to the oil level plug with all-purpose SAE 80W-140 gear oil.
4. Inspect tie bars and surrounding structure for cracks or deformation.

TROUBLE SHOOTING GUIDE

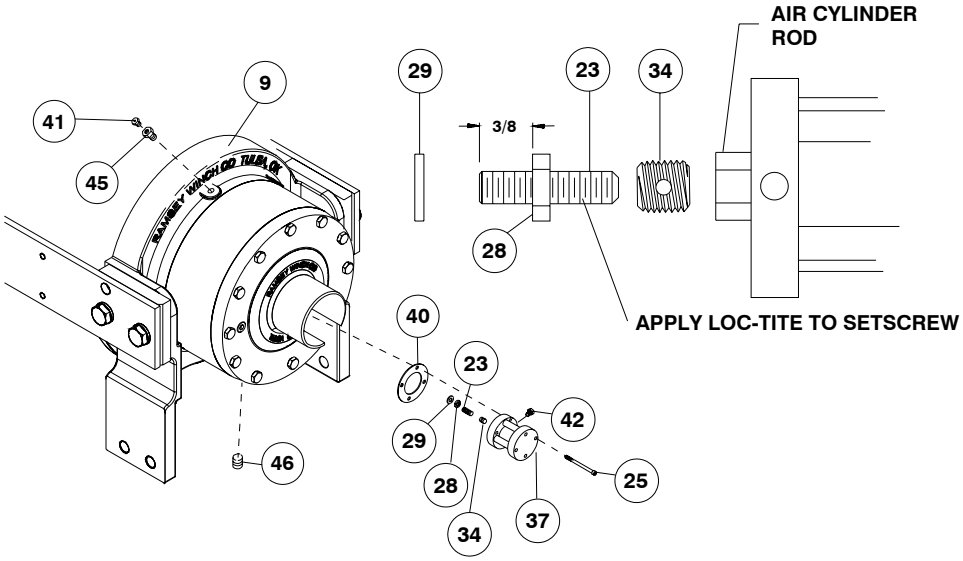
CONDITIONS	POSSIBLE CAUSE	CORRECTION
OIL LEAKS FROM WINCH	1. Seals damaged or worn.	1. Replace seal.
	2. Too much oil.	2. Drain excess oil. Refer to OPERATION.
	3. Damaged gaskets.	3. Replace gaskets.
WINCH RUNS TOO SLOW	1. Low flow rate.	1. Check flow rate. Refer to HYDRAULIC SYSTEMS performance chart page 2.
	2. Hydraulic motor worn out.	2. Replace motor.
CABLE DRUM WILL NOT FREESPOOL	1. Clutch not disengaged.	1. Check air pressure to clutch cylinder 100 PSI min. required Refer to page 16 for port location.
BRAKE WILL NOT RELEASE	1. Brake line disconnected or blocked.	1. Check brake function. Refer to page 13.

INSTRUCTIONS FOR OVERHAUL

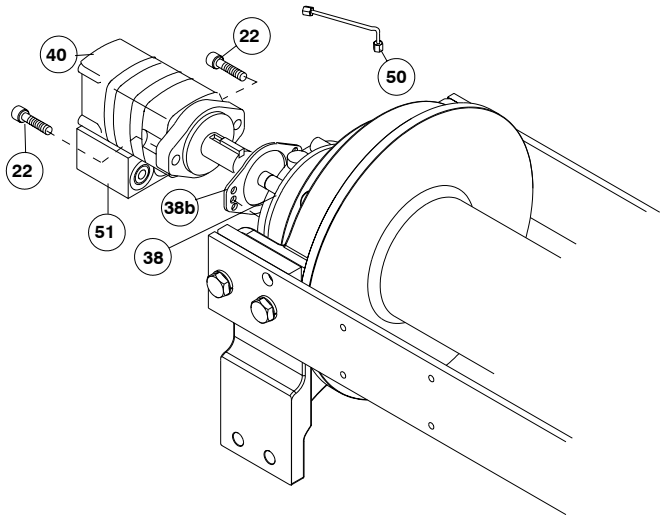
DIS-ASSEMBLY

1. Drain oil from gear housing #9 by removing pipe cap #46 from pipe nipple in end bearing. Remove reducer #45 and relief fitting #41. If new air cylinder is required, remove air cylinder #37 from cover by removing (4) capscrews #25.

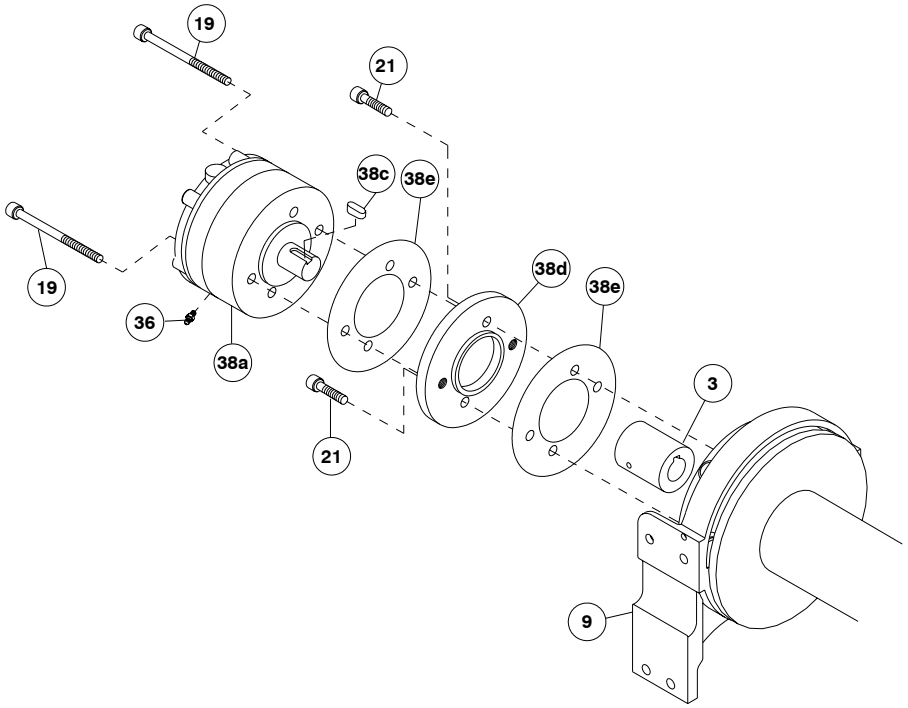
   Remove washer #29, nut #28, setscrew #23, and insert #34 from end of air cylinder rod. Apply Loc-tite to threads of nut #28 and thread onto setscrew #23 to 3/8" from drive end, as shown below. Apply Loc-tite to threads of setscrew and thread insert #34 over end of setscrew and against nut. Use setscrew and nut to thread insert #34 into end of air cylinder rod. Tighten nut against cylinder rod, keeping 3/8" distance from drive end of setscrew to nut. If breather vent #42 is damaged, remove and replace.



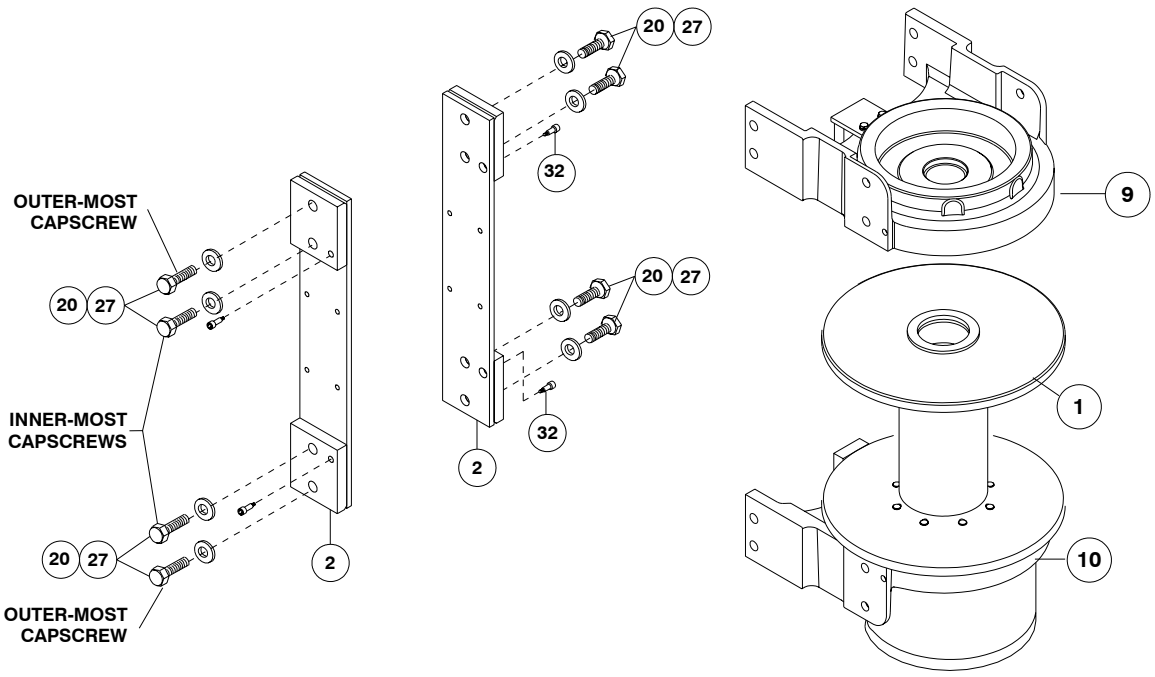
2. Disconnect tube #50 from elbow #35 on valve #51 and fitting #33 on bottom of brake #35. Remove motor #40 and gasket #35b by removing (2) capscrews #20. Remove valve #48, if needed, from motor by loosening (4) capscrews #18, as shown on page 17.



3. Remove brake assembly screws #19 from brake #38a to access (2) mounting screws #21 attaching brake to end bearing #9. **CAUTION: BRAKE IS SPRING-LOADED BY CLUTCH SPRING AND MUST BE RESTRAINED AGAINST END BEARING AS MOUNTING SCREWS ARE REMOVED.** Remove coupling #3 and gasket #38e from end bearing. Take note of mounting configuration for proper mounting of parts during re-assembly.

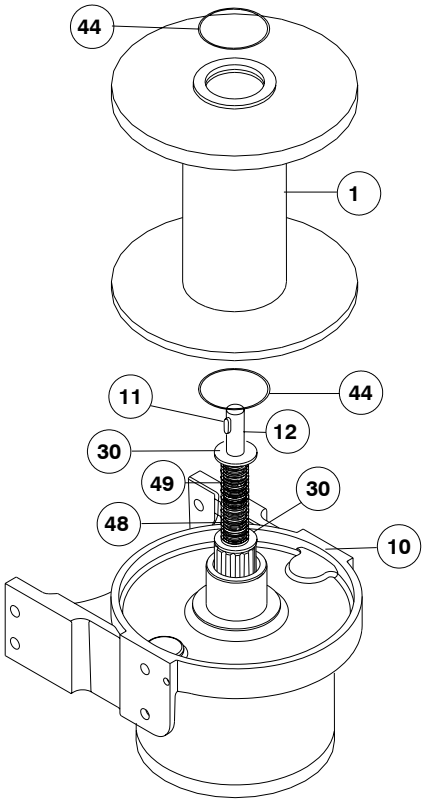


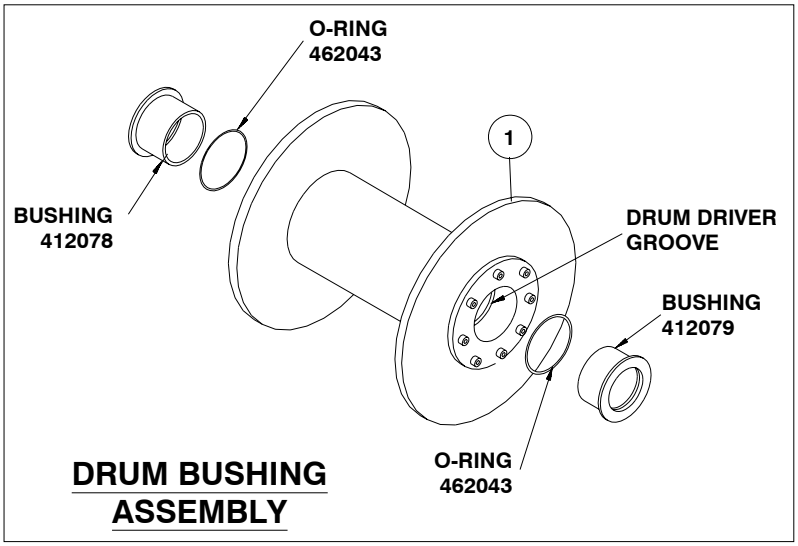
4. Remove winch from tie bars #2 by removing (8) capscrews #20, (8) lockwashers #27, and (4) shoulder bolts #32. Pull motor end bearing #9 from drum assembly #1.



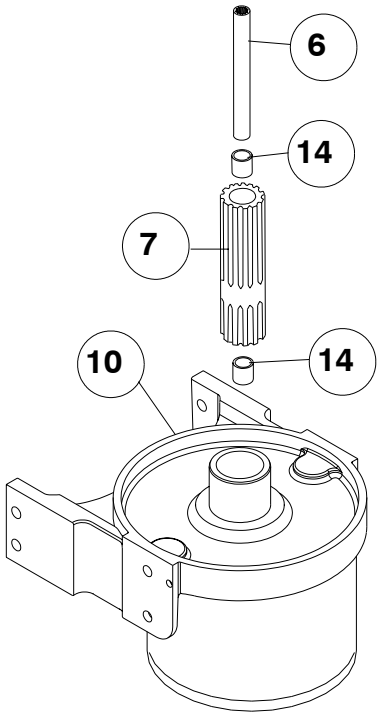
5. Pull drum assembly #1 upward from end bearing #10. Remove quad-rings #45 from grooves in drum bushings. Remove input shaft #11, clutch springs #48 & #49 and washers #31 & #32 from end bearing. Examine splined ends of input shaft for signs of wear, replace if damaged.

   Examine drum assembly #1 for signs of wear. If splines inside of drum driver (332148) are damaged, drum driver must be replaced. Remove drum driver by unscrewing (8) capscrews (414978). If bushings show signs of wear, replace by pressing old bushings from drum and removing o-rings from grooves in drum and drum driver. Place well-oiled o-rings (462043) into grooves in drum and drum driver. Press new bushing (412078) into end of drum opposite drum driver and press bushing (412079) into drum driver until flange of bushings are flush against drum and driver.

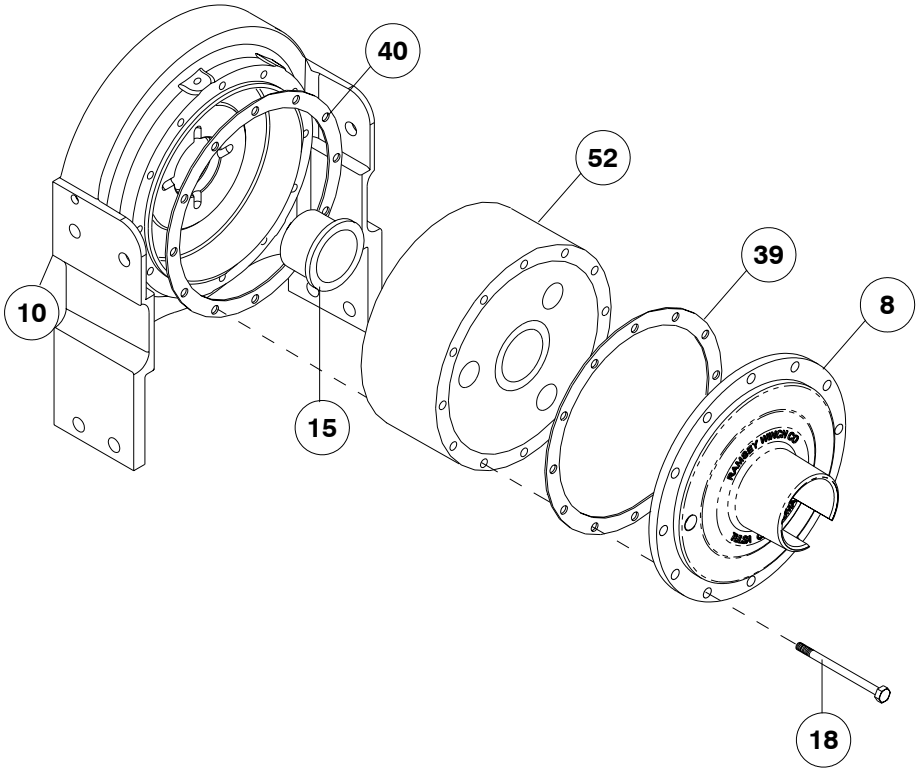




6. Remove output coupling #7 and coupling shaft #6 from end bearing #10. Examine bearings #14 pressed in output coupling for signs of wear. Replace bearings, if necessary, by pressing old bearings from coupling and press new bearings into each end of output coupling. Place coupling shaft into bearings.



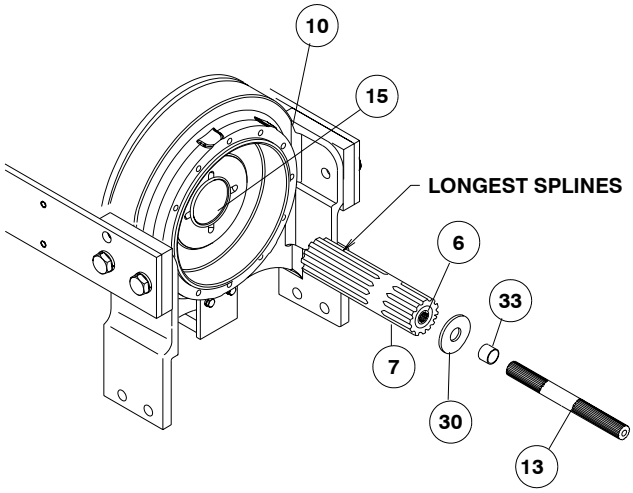
7. Remove (12) capscrews #18 to pull gear-housing cover and gasket from ring gear. Remove input thrust washer, sun gear and carrier assemblies from inside of ring gear. Remove ring gear #52 and gasket #40 from end bearing #10. Examine shifter shaft #13 for signs of wear, replace if necessary. Examine bushing #15 for signs of wear. Replace bushing, if necessary, by pressing old bushing from housing and pressing new bushing into place.



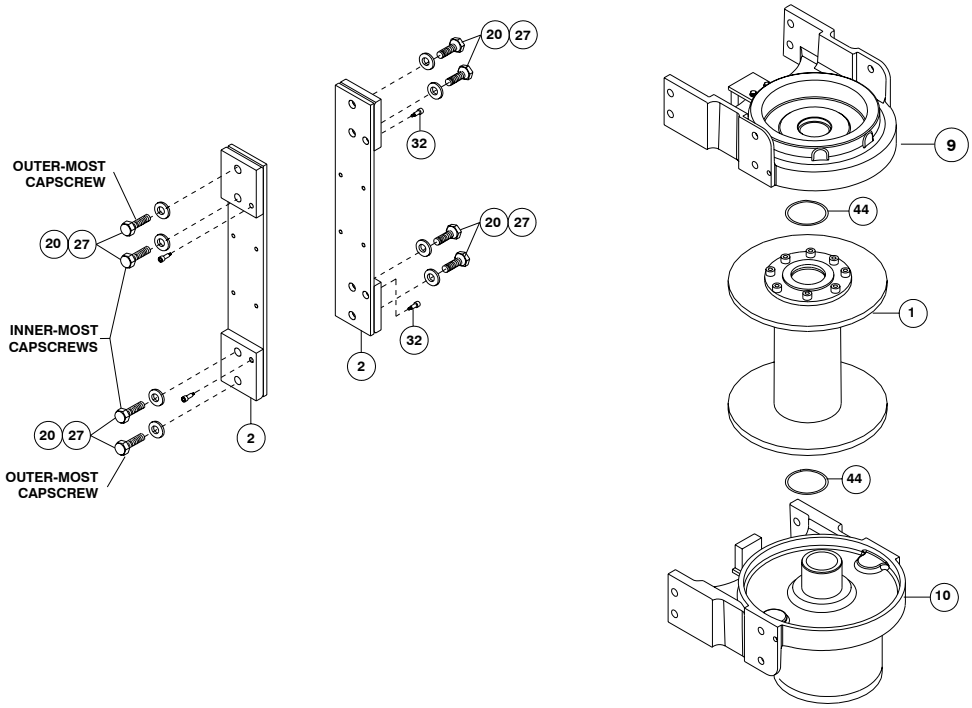
RE-ASSEMBLY

8. **NOTE:** DETERMINE MOUNTING CONFIGURATION OF WINCH (R.H. or L.H. MOUNTED) BEFORE ATTACHING TIE BARS TO WINCH, TO ASSURE PARTS ARE MOUNTED TO PROPER SIDE, REFER TO WINCH MOUNTING CONFIGURATIONS ON PAGE 13.

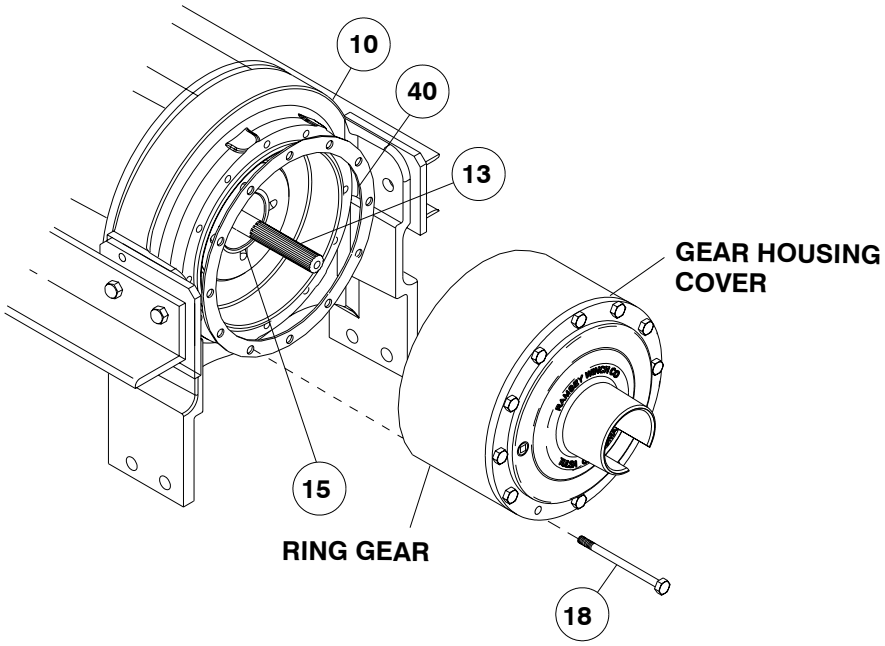
   Seat well-oiled quad-ring #44 into groove of bushing in each end of drum assembly #1. Carefully set drum assembly down over motor end bearing #9. Lift gear-housing end bearing #10 and set into place on drum assembly. Attach tie bars #2 using (8) capscrews #20 and lockwashers #27. Install (4) shoulder bolts #32 and hand tighten. Tighten (4) innermost capscrews securely, check rotation of cable drum. Tighten (4) outer-most capscrews securely, check rotation of cable drum. Torque capscrews, in innermost then outer-most pattern shown below, to 430 ft-lbs. each. Torque shoulder bolts to 30 ft-lbs. each. Check rotation of cable drum assembly. It must rotate freely with no tight spots.



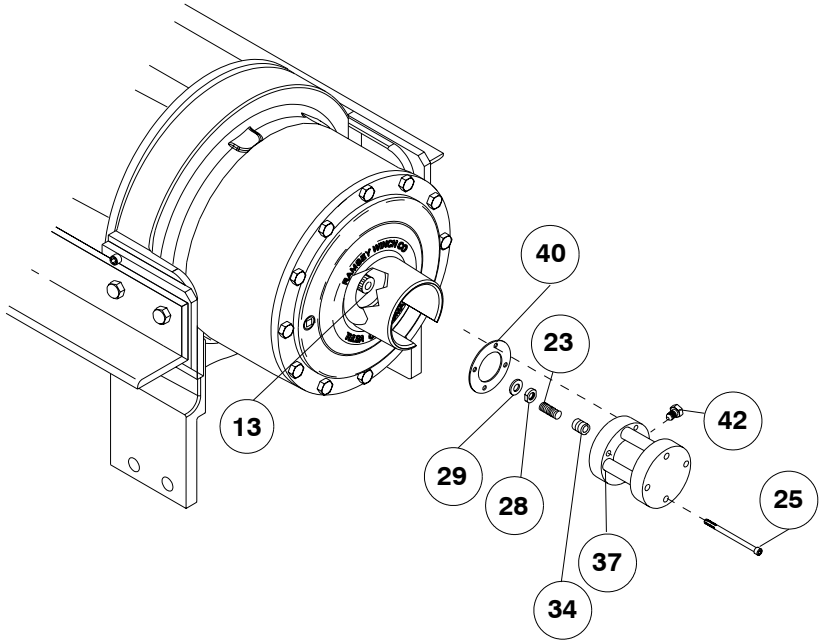
9. Place end (with longest splines) of output coupling assembly #7 through end bearing bushing #15 and mesh coupling spline with spline inside of drum. Slide clutch spacer #34 over end and against shoulder of shifter shaft #13. Place shifter shaft through washer #31 and into shaft coupling #8, meshing splines of shifter shaft with splines in shaft coupling.



10. Set gasket #40 into place on gear housing end bearing #10. Place ring gear onto end bearing, aligning holes in ring gear with holes in gasket and gear housing end bearing. Use (2) capscrews to temporarily secure ring gear to end bearing. Place (2) gear carrier assemblies into ring gear meshing carrier gears with ring gear. Slide input sun gear over shifter shaft #13 and mesh with teeth of input carrier. Apply grease to input thrust washer and place into slots of gearbox cover. Place gasket #38 into position on gearbox cover with sealer. Remove (2) temporary capscrews and attach cover and gasket to ring gear end bearing. Use (12) capscrews #18 to secure gearbox to gear housing end bearing. Torque capscrews to 87 ft-lbs. each, in a criss-cross pattern.



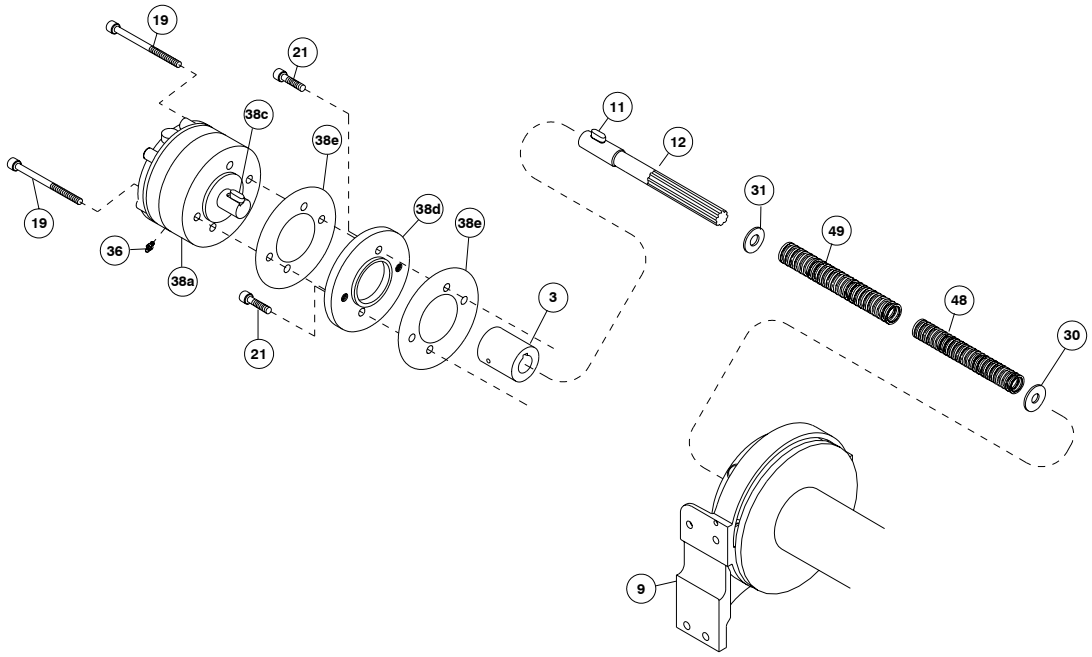
11. Pull rod from air cylinder as far as possible. Slide washer #29 over setscrew #23 and against nut attached to air cylinder rod. Place setscrew into hole of shifter shaft #13 and attach air cylinder to gear box cover using (4) capscrews #25. Apply Loc-tite PST thread sealer to threads of capscrews. Torque capscrews to 5 ft-lbs. each, in criss-cross pattern.



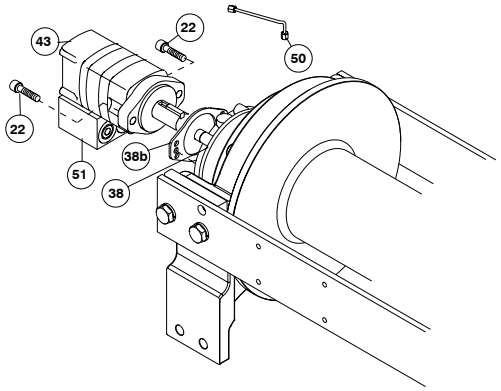
12. Gently tap key #11 into keyway of input shaft #12. Liberally apply grease to shoulder of input shaft. Place 1-3/4 OD washer #31 over end of shaft and against shoulder of shaft. Place spring #48 inside of spring #49 and place both springs over shaft and against washer #31. Slide 2-3/8 OD clutch washer #30 over splined end of shaft and against springs. Use grease to hold springs and washers in place on shaft. Place splined end of shaft through drum and into output coupling #7. Mesh spline of input shaft with internal spline of coupling shaft inside of drum.

    Align keyway of coupling #3 with key #11 and end of input shaft. Slide coupling over end of shaft #12. Place gasket #38e into position on motor mounting surface of end bearing #9. Insert brake shaft with key #39c into coupling. Use (2) screws #21 to attach brake adapter plate to motor end bearing. Torque capscrews to 85 ft-lbs. each. Apply second gasket #39e to other side of adapter plate. Re-attach brake #38a to brake adapter plate assembly using brake assembly screws #19. Torque capscrews to 97 ft-lbs. each.

    Note: Care must be taken to assure adapter plate and brake are seated properly prior to installing 1/2-13NC assembly bolts. Damage will occur to rotor stack or shaft snap ring if not properly installed.

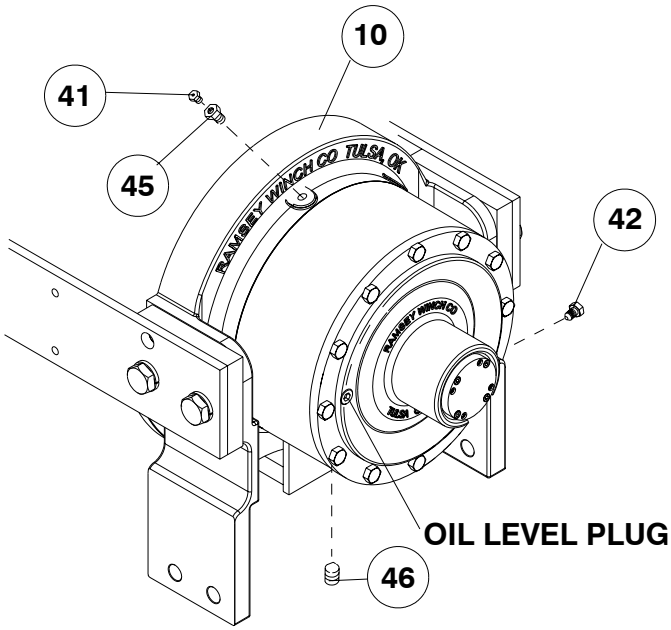


13. Attach motor #43 with well-oiled gasket #38b to brake #38. Use (2) capscrews #22 and torque to 74 ft-lbs. each. Securely connect tube #50 to elbow #35, in bottom of valve #51, and fitting #36 in bottom of brake #38.



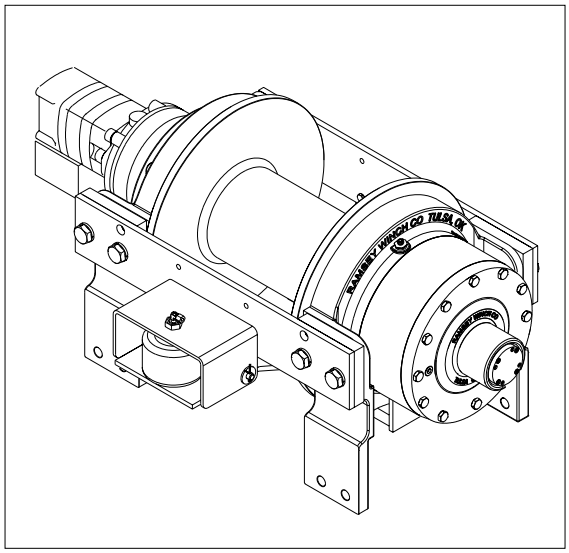
14. Apply Permatex to thread of plug #46. Thread plug into tapped hole in bottom of gear housing end bearing #10. Pour approximately 4.75 pints of SAE 80W-140 oil into end bearing. Check oil level by removing oil level plug noted below. Insert relief fitting #41 and thread reducer #45 into end bearing at oil fill hole. Be sure breather vent #42 and relief fitting #41 are not damaged and in good operating condition. Replace if necessary.

    Install winch and connect pressure lines. Apply at least 230 PSI pressure to release brake and verify that brake releases, by observing that the winch drum rotates.

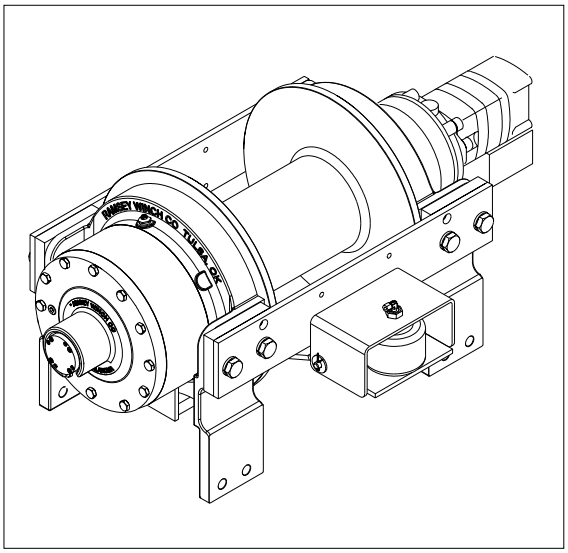


15. Check proper operation of clutch by applying air pressure to clutch air cylinder to disengage clutch. Verify that winch freespools. Re-engage clutch. A loud noise should be heard when the clutch engages. Winch drum should not freespool.

16. Operate winch forward and reverse to verify that drum rotates.



R. H. MOUNTING CONFIGURATION

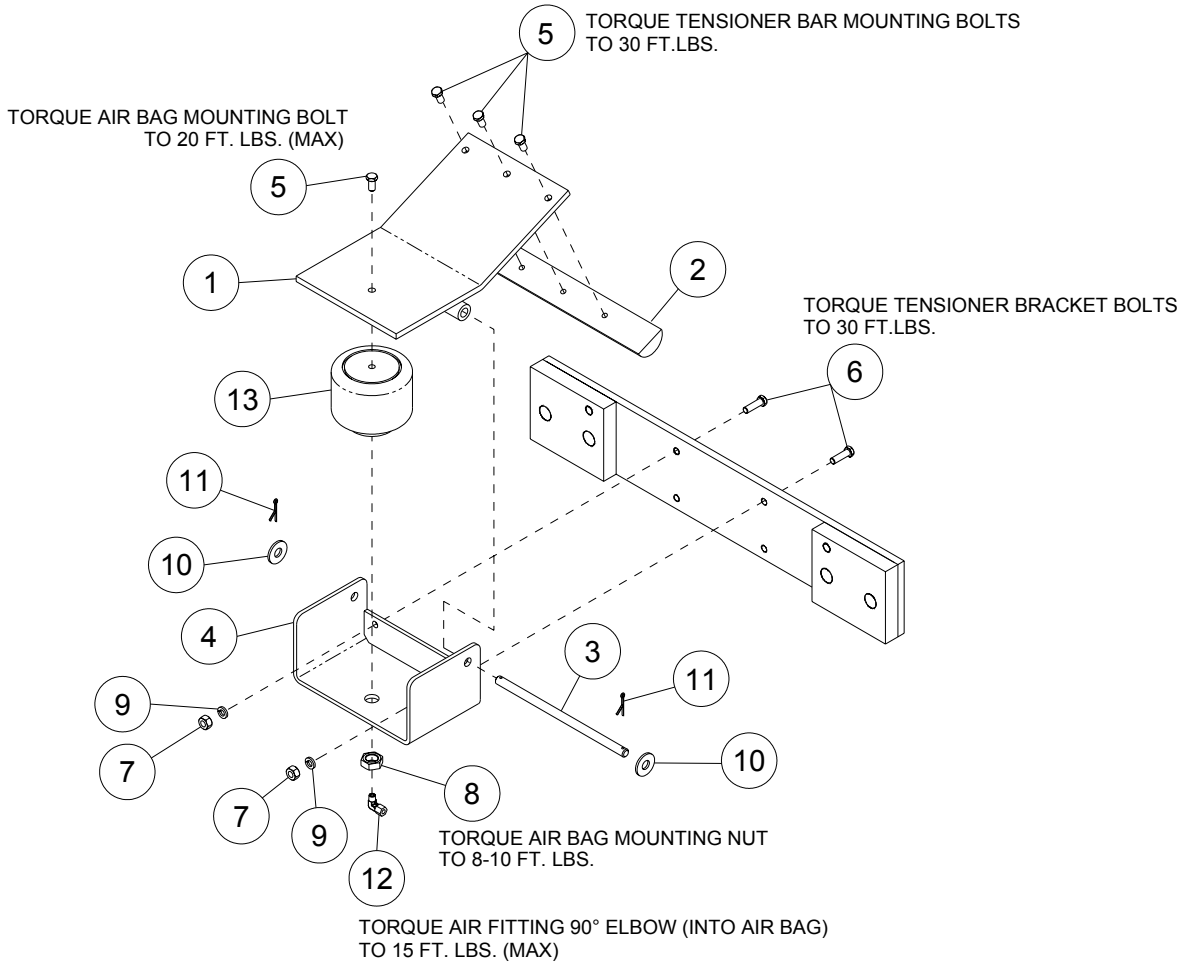


L. H. MOUNTING CONFIGURATION

WINCH MOUNTING CONFIGURATIONS

CABLE TENSIONER OVERHAUL

Note: Your winch will come in either an overwound or underwound version. The disassembly and reassembly of the cable tensioner is the same for either, but the mounting of the cable tensioner to the tiebar will be reversed for an underwound winch.



1. Disconnect the air supply from the cable tensioner at the elbow fitting (item #12).

2. Remove the tensioner from the tie bar by removing screws (item #6), nut (item #7) and washer (item #9).

3. Remove the screw (item #5) from the actuator (item #13) that holds the actuators to the tensioner plate (item #1). Remove the nut (item #8) that holds that actuator to the bracket.

4. Remove pin (item #3) by removing cotter pin (item #11) and washer (item #10) on both sides.

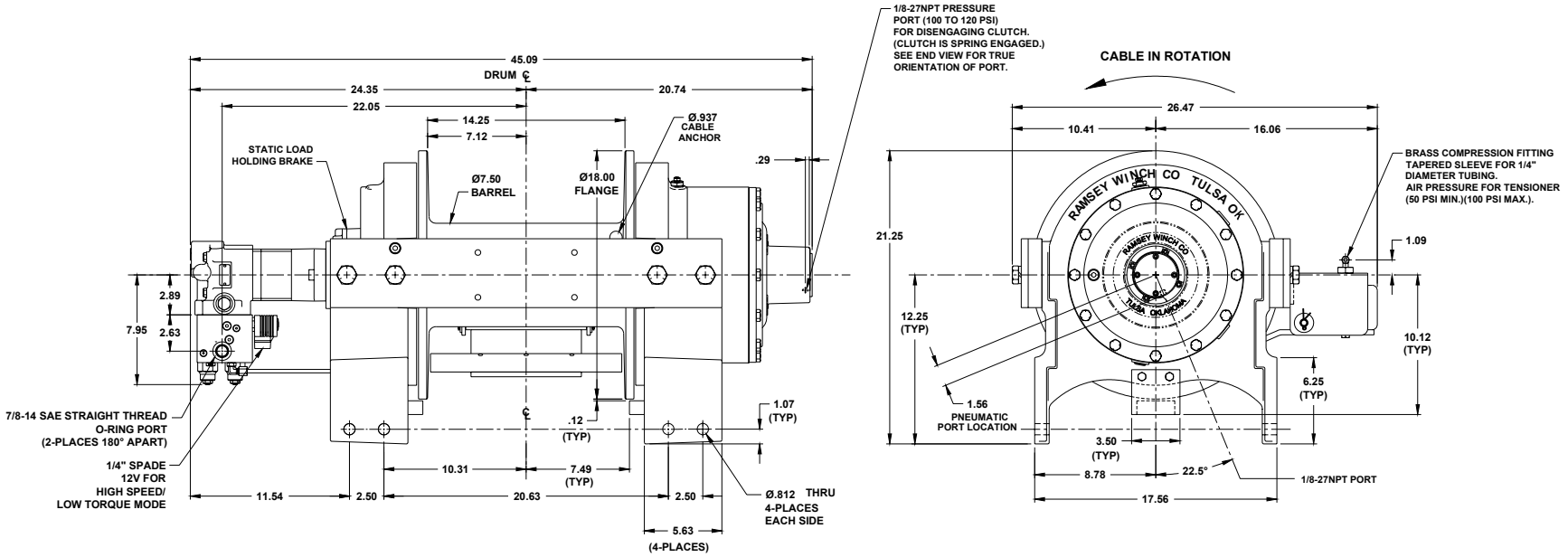
5. Remove the tensioner plate and inspect the actuators for damage.

6. Remove and replace any damaged parts. Tighten capscrews (item #5) that attach tensioner bar to tensioner plate to 30 ft-lbs. torque.

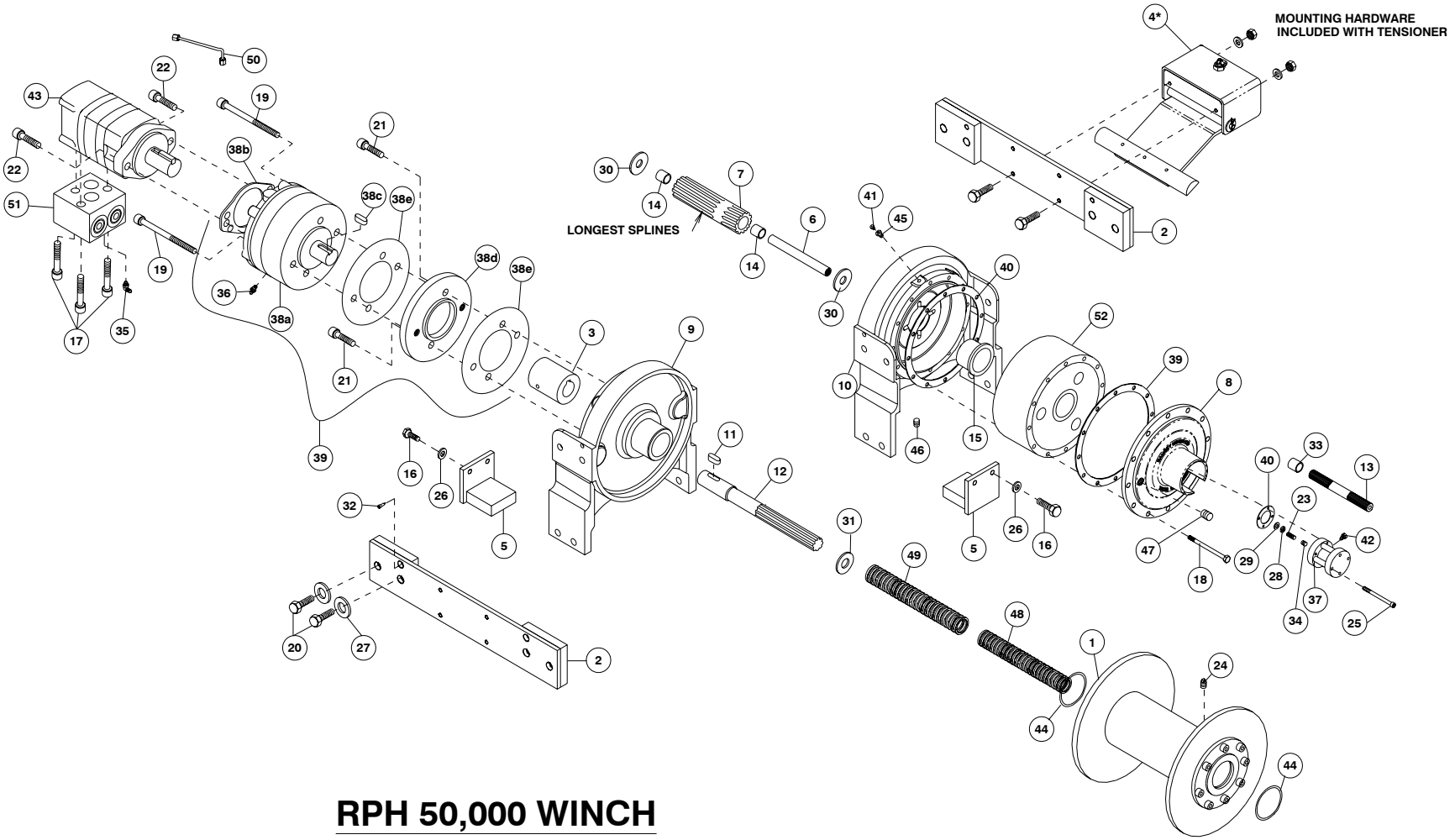
7. Insert the pin (item #3) through the bracket (item #4) and secure with the washer (item #10) and cotter pin (item #11).

8. Install the tensioner to the tie bar loosely. Center the tensioner bar between the drum flanges with a scale or tape measure. Tighten the mounting bolts to 30 ft-lbs. torque.

9. Reconnect the air supply to the elbow fitting (item #12) on the cable tensioner. Do not tighten more than 1/4 turn beyond hand tight. If the cable was removed, do not energize the cable tensioner until the cable is installed. See the instructions on page 4.



MODEL RPH-50000, 2-SPEED
L. H. MOUNTING CONFIGURATION

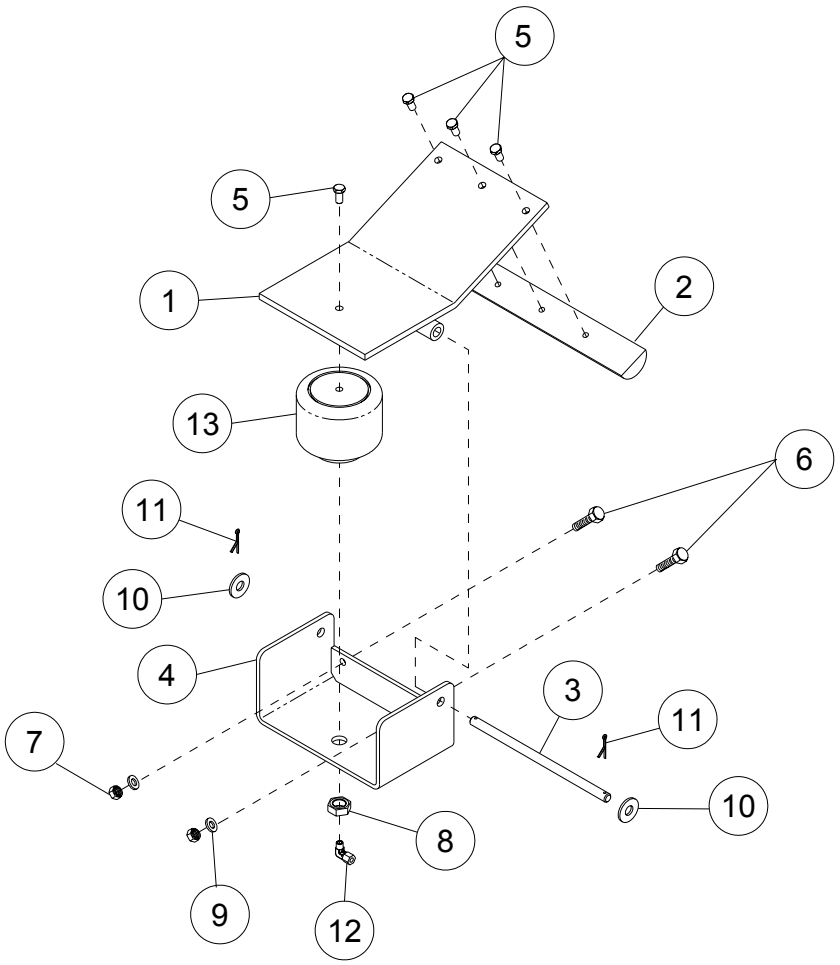


RPH 50,000 WINCH

PARTS LIST – RPH 50000, 2-SPEED

ITEM	QTY.	PART #	DESCRIPTION	ITEM	QTY.	PART #	DESCRIPTION
1	1	234202	DRUM ASSEMBLY	30	2	418460	WASHER – CLUTCH
2	2	243050	TIE BAR	31	1	418440	WASHER – SPRING, 1-3/4 OD
3	1	299733	BRAKE COUPLING ASSEMBLY	32	4	418453	SHOULDER BOLT
4	1	299743	TENSIONER ASSEMBLY (* See following page)	33	1	426044	SPACER – CLUTCH
5	2	312570	DRUM GUARD	34	1	426045	INSERT
6	1	324283	COUPLING – SHAFT	35	1	432018	FITTING – HYD. 7/16-20 90° ELBOW
7	1	324295	COUPLING – OUTPUT	36	1	432023	FITTING – 7/16-20 STRAIGHT
8	1	328158	COVER – GEAR HOUSING	37	1	433017	AIR CYLINDER
9	1	338340	END BEARING – MOTOR	38	1	438037	BRAKE ASSEMBLY:
10	1	338341	END BEARING – GEAR	a	1		BRAKE
11	1	342081	KEY – RD. END	b	1		MOTOR GASKET
12	1	357492	SHAFT – INPUT	c	1		BRAKE SHAFT KEY
13	1	358064	SHAFT – SHIFTER	d	1		ADAPTER PLATE
14	2	402117	BEARING	e	2		ADAPTER PLATE GASKET
15	1	412086	BUSHING – THRUST	39	2	442210	GASKET – GEAR BOX
16	4	414321	CAPSCREW-3/8-16NC X 1 LG, HXHD, GR5 BLK	40	1	442217	GASKET – AIR CYLINDER
17	4	414400	CAPSCREW 3/8-24NF X 4 LG. HX HD	41	1	456008	RELIEF FITTING
18	12	414557	CAPSCREW 1/2-13NC X 6 LG. HX HD GR 5	42	1	456038	BREATHER VENT
19	2	414595	CAPSCREW 1/2-13NC X 3 1/2 LG HX HD GR8	43	1	458126	MOTOR – HYDRAULIC
20	8	414788	CAPSCREW 7/8-9NC X 2-1/2 LG. HX HD	44	2	462040	QUAD. RING
21	2	414947	CAPSCREW 1/2-13 NC X 1 LG. SOC HD	45	1	468004	REDUCER
22	2	414948	CAPSCREW 1/2-13 NC X 1-1/4 LG. SOC HD	46	1	468019	PIPE PLUG
23	1	416051	SETSCREW 5/16-24NF X 1 LG. SOC HD	47	1	468040	PIPE PLUG
24	1	416072	SETSCREW 1/2-13NC X 3/4 LG. HX SOC HD	48	1	494106	SPRING
25	4	416211	CAPSCREW #10-24 NC X 3.25 HX SOC HD	49	1	494114	SPRING – CLUTCH, OUTER
26	4	418176	LOCKWASHER 3/8 MED. SECT	50	1	509125	TUBE ASSEMBLY
27	8	418261	LOCKWASHER 7/8 MED. SECT	51	1	516025	VALVE – CONTROL
28	1	418429	WASHER - THRUST	52	1	530123	GEAR BOX
29	1	418430	NUT – 5/16-24 NF X 1/8 THK, LOCK				

AIR TENSIONER ASSEMBLY (P/N 299743)



PARTS LIST

ITEM	QTY	PART #	DESCRIPTION
1	1	265102	TENSIONER ASSEMBLY
2	1	304179	TENSIONER BAR
3	1	346046	PIVOT PIN
4	1	408362	AIR TENSIONER BRACKET
5	4	414278	CAPSCREW 3/8-16NC X 3/4" HXHD BLACK
6	2	414316	CAPSCREW 3/8-16NC X 1 1/4" HXHD ZINC
7	2	418045	NUT 3/8-16NC HEX REG ZINC
8	1	418098	NUT 3/4-16NF HEX JAM
9	2	418177	LOCKWASHER 3/8 MED SECT ZINC
10	2	418223	FLAT WASHER 1/2 USS ZINC
11	2	424005	COTTER PIN
12	1	432033	FITTING-ELBOW
13	1	433029	AIR ACTUATOR

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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