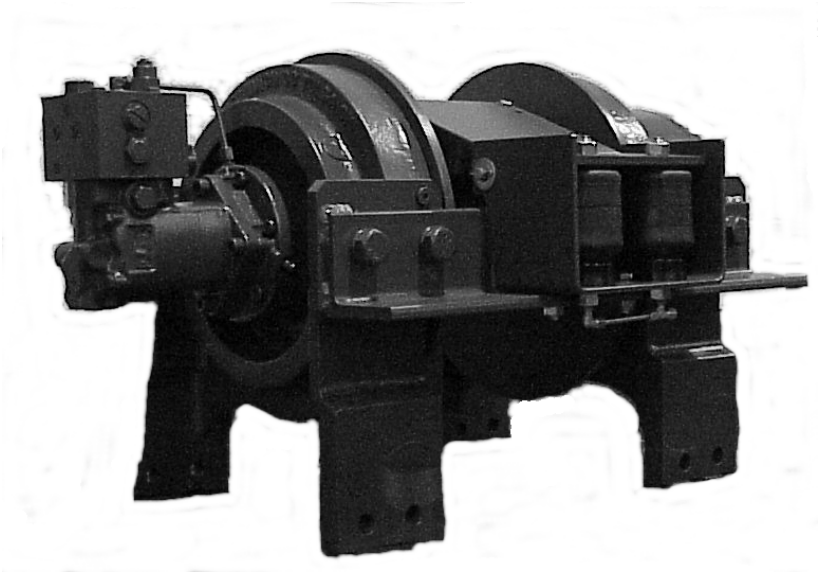
RAMSEY WINCH

OPERATING, SERVICE, AND MAINTENANCE MANUAL



MODEL RPH-50,000

2 SPEED W/AIR TENSIONER

INDUSTRIAL PLANETARY WINCH

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.)	22,670
Gear Reduction		51.35:1
Weight (without cable)		700 LBS. (318 Kg)

LAYER OF CABLE		**1**	**2**	**3**	**4**	**5**	**6**
***Rated line pull**	**lbs.**	50,000	41,800	36,000	31,600	28,100	25,400
per layer	**Kg.**	22,680	18,960	16,320	14,330	12,740	11,520
***Cable**	**ft.**	25	55	95	135	185	235
Capacity	**m**	7	16	28	41	56	71
***Line Speed**	**FPM**	23	27	31	35	39	43
(at 25 GPM)	**MPM**	6.9	8.2	9.4	10.6	11.8	13

* 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.

HYDRAULIC SYSTEM REQUIREMENTS

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

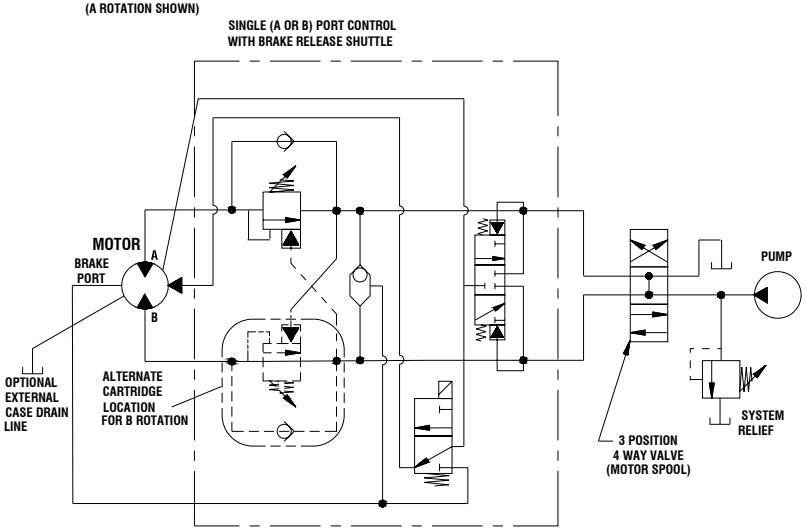
(1) Line pull (lb.) first layer vs. working pressure (PSI) and

(2) Line speed, first layer (FPM) vs. Flow (GPM). Performance based on a motor displacement of 9.6 cubic inches with 25 GPM maximum flow rate.

CAUTION: SYSTEM BACK PRESSURE MUST NO EXCEED 50 PSI OR BRAKE SHAFT FAILURE CAN OCCUR. IF BACK PRESSURE EXCEEDS 50 PSI, AND CANNOT BE REDUCED, AN EXTERNAL CASE DRAIN SHOULD BE RUN FROM THE MOTOR CASE DRAIN PORT (SEE PAGES 20-21) TO TANK OR A LINE/CONNECTION THAT HAS A PRESSURE BELOW 50 PSI. THE DRAIN LINE MUST BE ROUTED SO

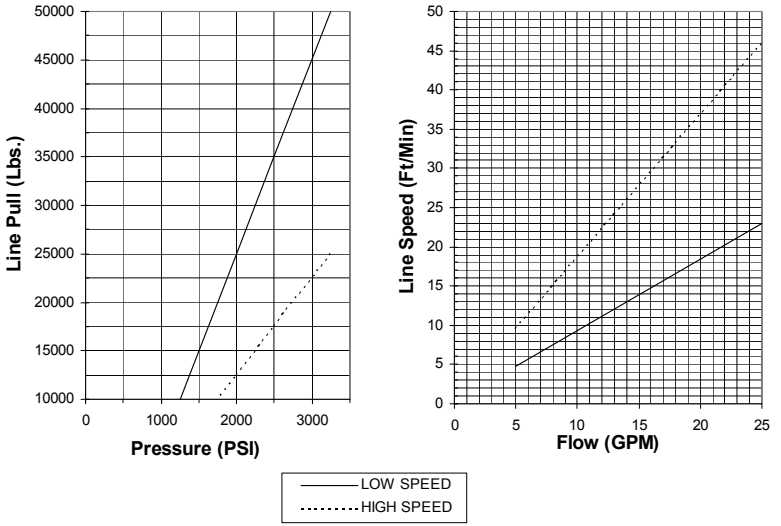
TYPICAL LAYOUT

(A ROTATION SHOWN)



PERFORMANCE CHARTS

(BASED ON 9.6 CU.IN./REV MOTOR)



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.

WINCH FRAME MOUNTING

Use (8) 5/8 inch diameter grade 5 or better bolts to attach mounting frame to wrecker.

Before operating 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.

CLUTCH OPERATION

To engage clutch:

1. Move the clutch control valve to the "clutch-engaged" position.
2. Anytime the temperature is below freezing, run motor in the "cable out" direction only until the drum starts to turn. In extreme cold temperatures (below 0° F/ -18° 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

2 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. **Do not change motor speed while 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.

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 the cable opposite the hook end into the hole in the drum barrel. Secure cable to drum barrel using setscrew furnished with winch. TIGHTEN SETSCREW SECURELY.
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.
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 against the cable anchor flange side of the cable drum.
5. Finish spooling all the cable onto the cable drum, taking care to form neatly wrapped layers.

The wire rope can easily be removed from the drum by loosening the setscrew.

WINCH 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. 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 tiebars and surrounding structure for cracks or deformation.

TROUBLESHOOTING GUIDE

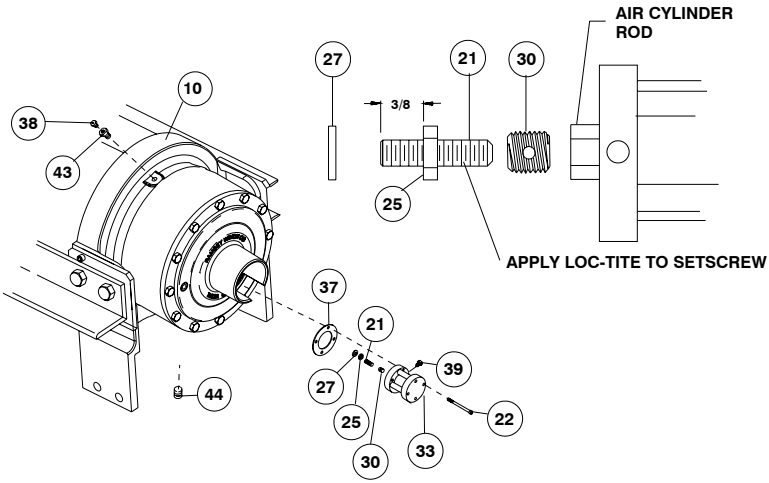
CONDITION	POSSIBLE CAUSE	CORRECTION
OIL LEAKS FROM WINCH	Seals damaged or worn	Replace seal.
	Too much oil	Drain excess oil. Refer to INSTRUCTIONS FOR OVERHAUL, pg. 16.
	Damaged gasket	Replace gasket.
	Damaged brake shaft seal	Replace brake, check back pressure to motor. If back pressure is more than 50 PSI, reduce back pressure or add external case drain line.
WINCH RUNS TOO SLOW	Low flow rate	Check flow rate. Refer to Hydraulic Systems Performance, page 4.
	Hydraulic motor worn out	Replace motor.
CABLE DRUM WILL NOT FREESPOOL	Clutch not disengaged	Check air pressure to clutch cylinder 100 PSI minimum required. Refer to drawing page 20-21 for more information.
	Excessive air pressure to cable tensioner	Reduce air pressure to tensioner.
BRAKE WILL NOT RELEASE	Brake line disconnected or blocked	Check brake function. Refer to page 16
LOAD LOWERS TOO FAST	Hydraulic lines to counter-balance valve incorrectly installed and/or cartridge plug position incorrect for drum rotation direction to reel cable in.	Refer to pages 20-21 for correct installation.

INSTRUCTIONS FOR OVERHAUL

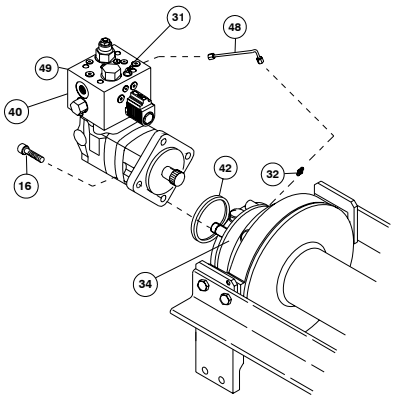
DIS-ASSEMBLY

1. Drain oil from gear housing #10 by removing pipe plug #44 from pipe nipple in end bearing. Remove reducer #43 and relief fitting #38. If new air cylinder is required, remove air cylinder #33 from cover by removing (4) capscrews #22.

   Remove washer #27, nut #25, setscrew #21, and insert #30 from end of air cylinder rod. Apply Loc-tite to threads of nut #25 and thread onto setscrew #21 to 3/8" from drive end, as shown below. Apply Loc-tite to threads of setscrew and thread insert #30 over end of setscrew and against nut. Use setscrew and nut to thread insert #30 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 #39 is damaged, remove and replace.

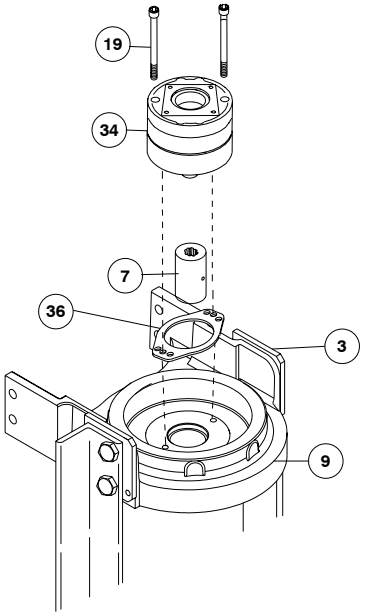


2. Disconnect tube #48 from fitting #31 on valve #49 and fitting #32 on brake #34. Remove motor #40 and O-ring #42 by removing (4) capscrews #16. Remove valve #49, if needed, from motor by loosening (4) capscrews #15, as shown on page 19.

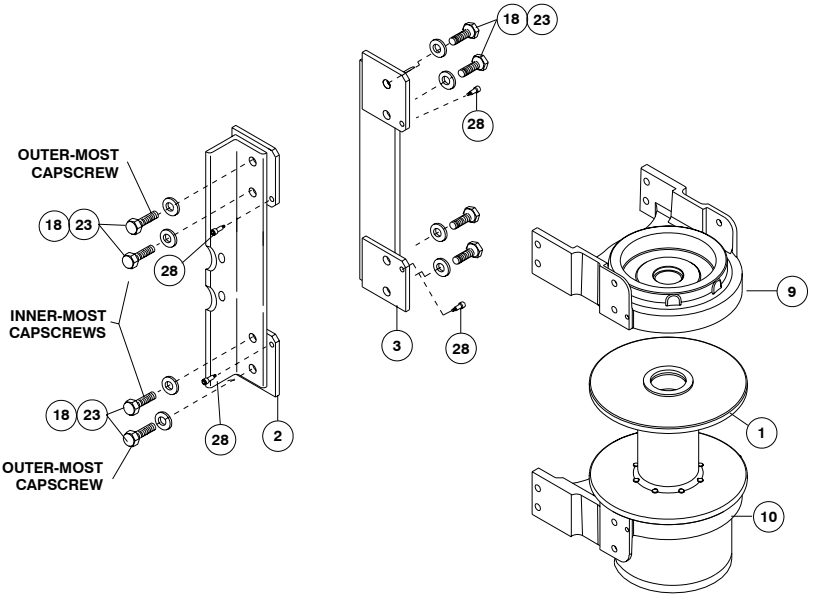


3. Remove brake mounting screws #19 from brake #34 to remove brake from end bearing #9. Take note of mounting configuration for proper mounting of parts during reassembly.

   Remove coupling #7 and gasket #36 from end bearing. Take note of mounting configuration for proper mounting of parts during re-assembly.

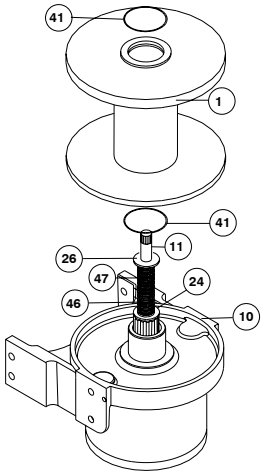


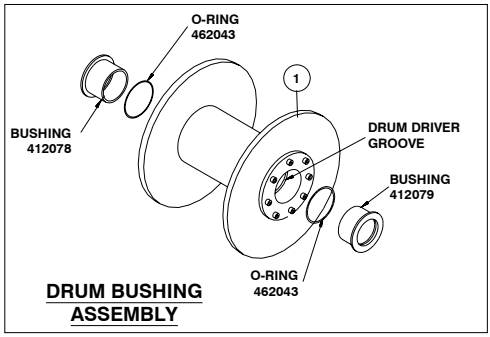
4. Remove winch from tie bars #2 and #3 by removing (8) capscrews #18, (8) lockwashers #23, and (4) shoulder bolts #28. Pull motor end bearing #9 from drum assembly #1.



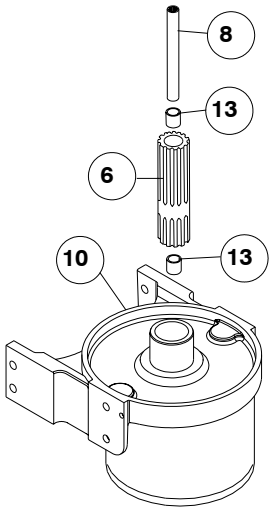
5. Pull drum assembly #1 upward from end bearing #10. Remove quad-rings #41 from grooves in drum bushings. Remove input shaft #11, clutch springs #46 & #47 and washers #24 & #26 from end bearing. Examine splined ends of input shaft for signs of wear, replace if damaged.

   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.

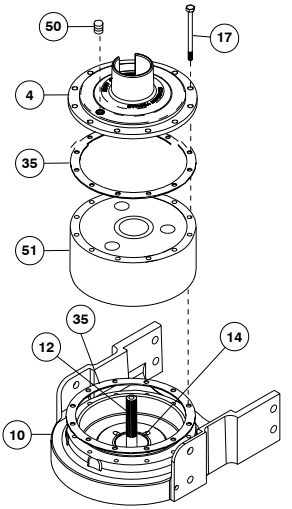




6. Remove output coupling #6 and coupling shaft #8 from end bearing #10. Examine bearings #13 pressed in output coupling for signs of wear. Replace bearings, if necessary, by pressing old bearings from coupling and press new bearings into each end of output coupling. Place coupling shaft into bearings.



7. Remove (12) capscrews #17 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 #4 and gasket #35 from end bearing #10. Examine shifter shaft #12 for signs of wear, replace if necessary. Examine bushing #14 for signs of wear. Replace bushing, if necessary, by pressing old bushing from housing and pressing new bushing into place.

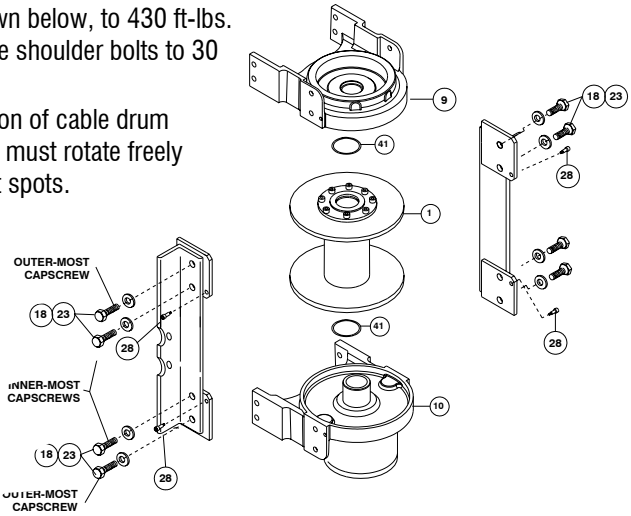


RE-ASSEMBLY

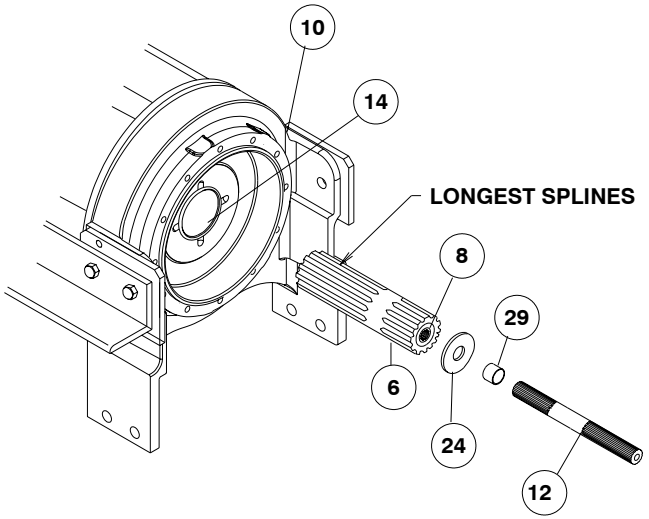
NOTE: DETERMINE MOUNTING CONFIGURATION OF WINCH (R.H. OR L.H. MOUNTED) BEFORE ATTACHING TIE BARS TO WINCH. TO ASSURE PARTS ARE MOUNTED TO PROPER SIDE, REFER TO WINCH MOUNTING CONFIGURATIONS ON PAGE 17.

8. Seat well-oiled quad-ring #41 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 and #3 using (8) capscrews #18 and lockwashers #23. Install (4) shoulder bolts #28 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.

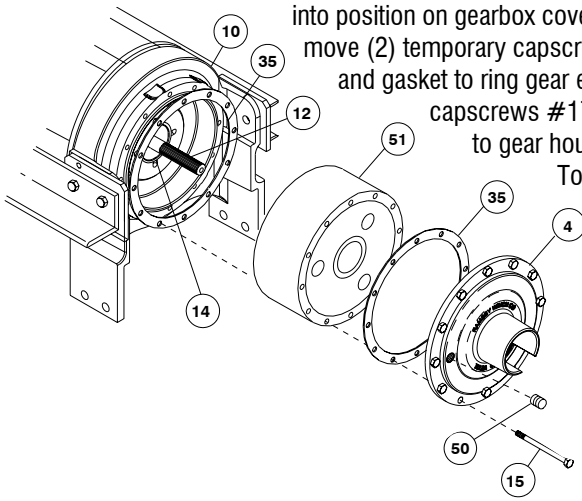
   Check rotation of cable drum assembly. It must rotate freely with no tight spots.



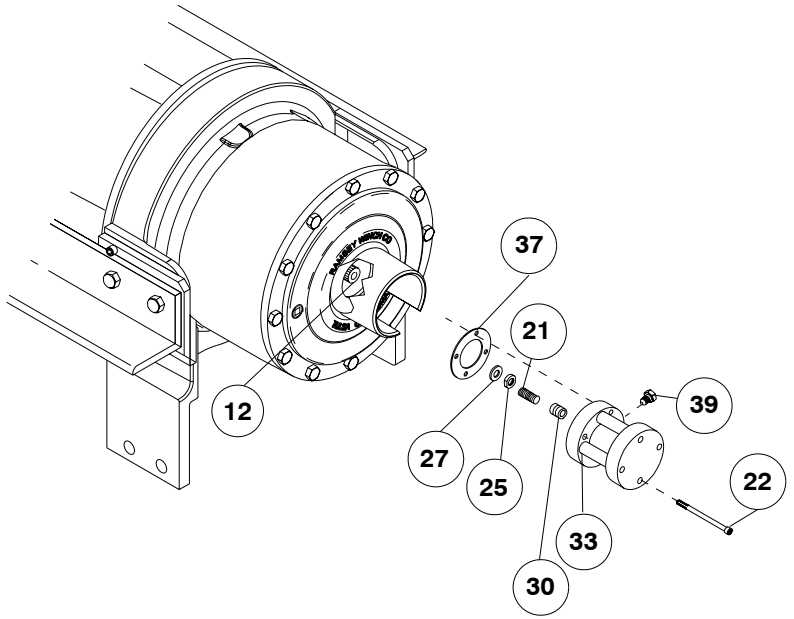
9. Place end (with longest splines) of output coupling assembly #6 through end bearing bushing #13 and mesh coupling spline with spline inside of drum. Slide clutch spacer #29 over end and against shoulder of shifter shaft #12. Place shifter shaft through washer #24 and into shaft coupling #6, meshing splines of shifter shaft with splines in shaft coupling.



10. Set gasket #35 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 #12 and mesh with teeth of input carrier. Apply grease to input thrust washer and place into slots of gearbox cover. Place gasket #35 into position on gearbox cover with sealer. Remove (2) temporary capscrews and attach cover and gasket to ring gear end bearing. Use (12) capscrews #17 to secure gearbox to gear housing end bearing. Torque capscrews to 87 ft-lbs. each, in a crisscross pattern.

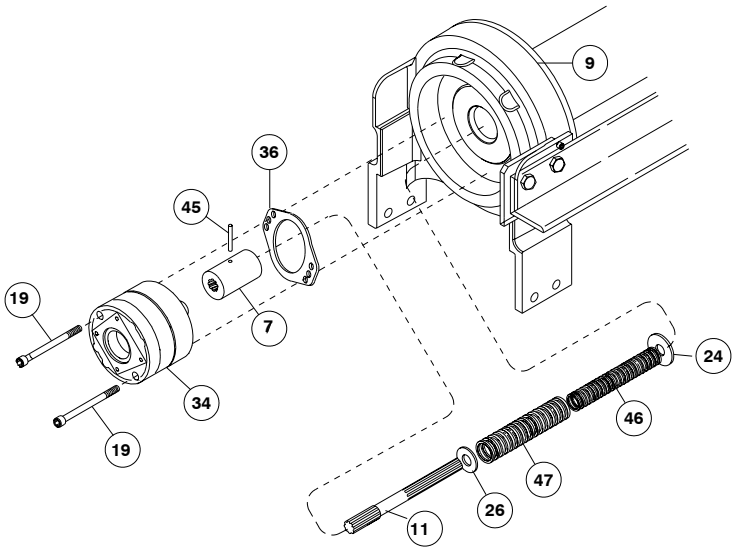


11. Pull rod from air cylinder as far as possible. Slide washer #25 over set-screw #20 and against nut attached to air cylinder rod. Place setscrew into hole of shifter shaft #12 and attach air cylinder to gear box cover using (4) capscrews #22. Apply Loc-tite PST thread sealer to threads of capscrews. Torque capscrews to 5 ft-lbs. each, in crisscross pattern.

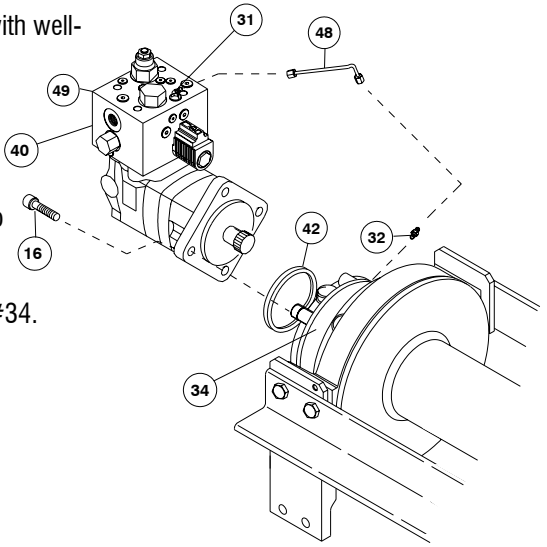


12. Liberally apply grease to shoulder of input shaft. Place 1-3/4 OD washer #26 over end of shaft and against shoulder of shaft. Place spring #46 inside of spring #47 and place both springs over shaft and against washer #26. Slide 2-3/8" OD clutch washer #24 over splined end of shaft and against springs. Use grease to hold springs and washers in place on shaft. Place end of shaft through drum. Mesh spline of input shaft with internal spline of coupling shaft inside of drum.

    With pin #45 installed in coupling, mesh spline of input shaft with internal spline of coupling #7 below. Slide coupling over end of shaft #11. Place gasket #36 into position on motor mounting surface of end bearing #9. Insert brake shaft with spline into coupling. Use (2) screws #19 to attach brake assembly to motor end bearing. Torque capscrews to 85 ft-lbs. each.

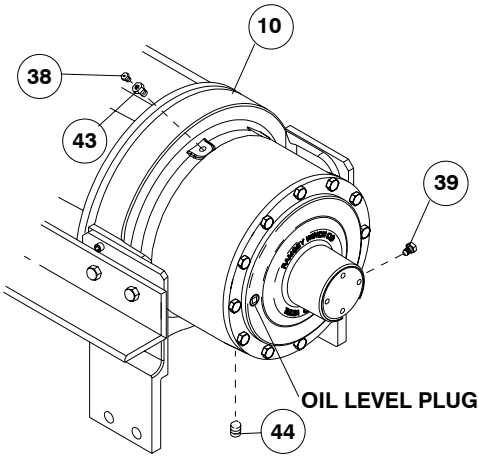


13. Attach motor #40 with well-oiled O-ring #42 to brake #34. Use (4) capscrews #16 and torque to 74 ft-lbs. each. Securely connect tube #48 to elbow #31, on valve #48, and fitting #32 on brake #34.



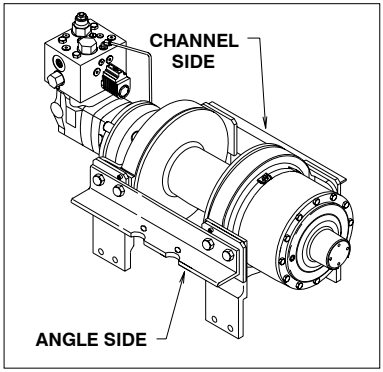
14. Apply Permatex to thread of plug #44. Thread plug into tapped hole in bottom of gear housing end bearing #10. Pour approximately 4.75 pints of SAE 80W-140 oil into end bearing.

    Check oil level by removing oil level plug noted below. Insert relief fitting #38 and thread reducer #43 into end bearing at oil fill hole. Be sure breather vent #39 and relief fitting #38 are not damaged and in good operating condition. Replace if necessary.

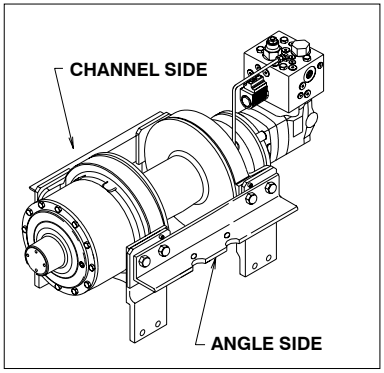


    Install winch and connect pressure lines. Apply at least 230 PSI pressure to release brake and verify that brake releases, by observing that the winch drum rotates.

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

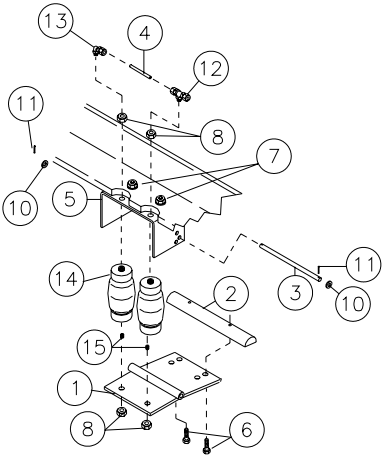
Note: Your winch will come in either an overwound or underwound version. The disassembly and reassembly is the same for either, but the appearance and mounting of the cable tensioner will be different (see figures at right and below). If you are not certain which version the winch you are working on is, refer to pages 19 and 20.

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

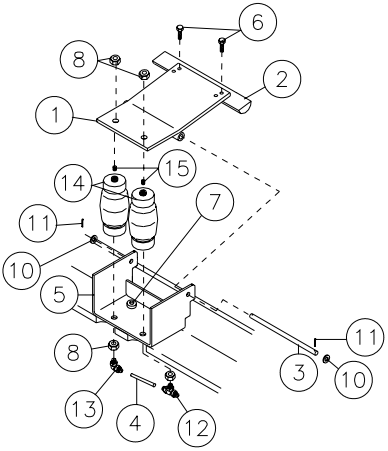
2. Remove nuts (item #8) from actuators (item #14) that hold the actuators to the tensioner plate (item #1). Remove pin (item #3) by removing cotter pin (item #11) and washer (item #10) on both sides.

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

4. Remove and replace any damaged parts. Tighten capscrews (item #6) that attach tensioner bar to tensioner plate to 20-25 ft-lbs. torque.

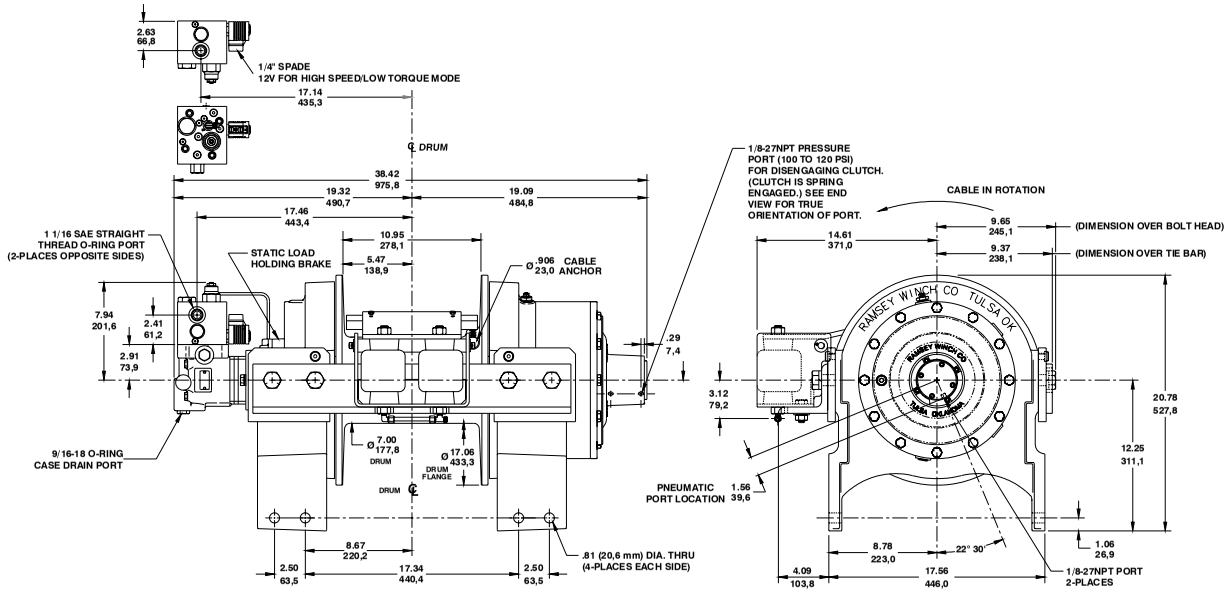


UNDERWOUND



OVERWOUND

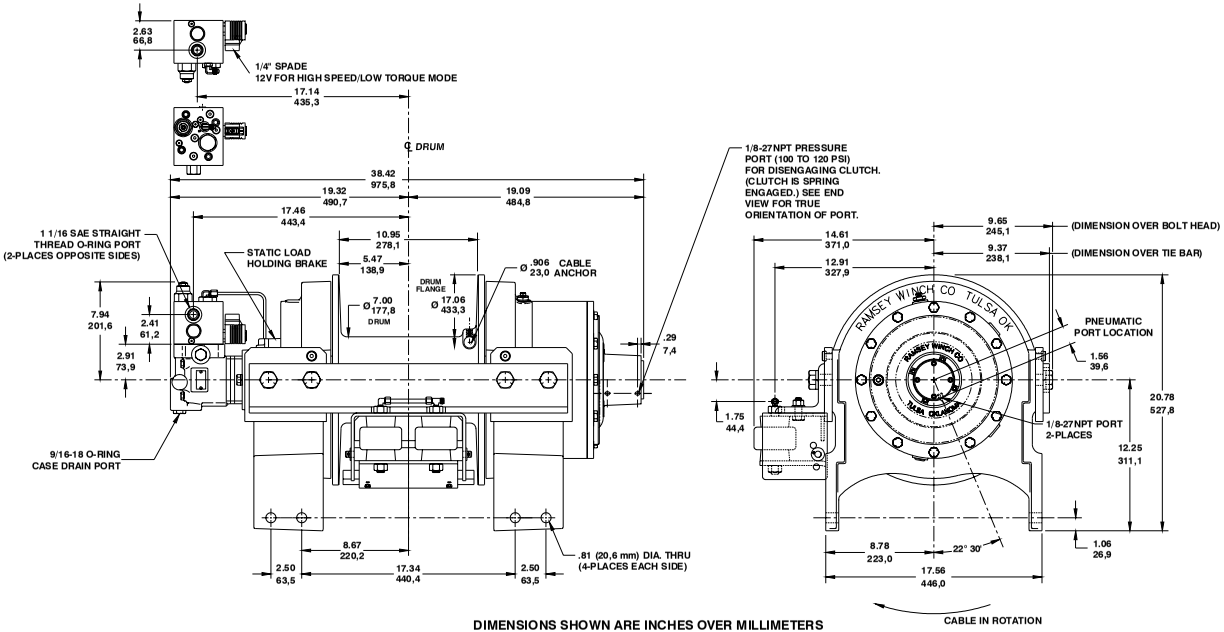
5. Insert the pin (item #3) through the bracket (item #5) and secure with the washer (item #10) and cotter pin (item #11). Replace nuts (item #8) and tighten to 8-10 ft-lbs. torque.
6. Center the tensioner bar between the drum flanges. Loosen (do not remove) the mounting bolts (item #7) and center with a scale or tape measure. Tighten the mounting bolts to 60-70 ft-lbs. torque.
7. Reconnect the air supply to the "T" 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 6.**



DIMENSIONS SHOWN ARE INCHES OVER MILLIMETERS

RPH 50,000

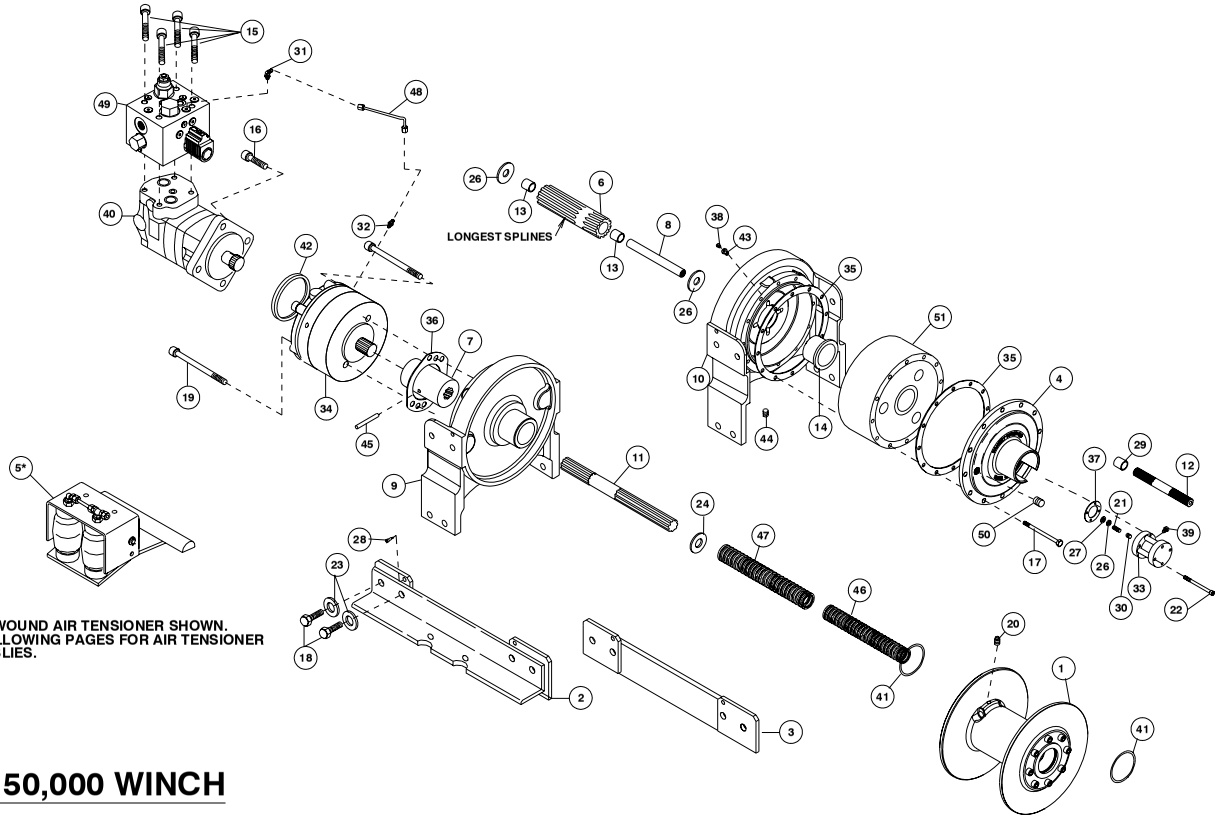
SHORT DRUM WITH LARGE FLANGES
R.H. MOUNTING CONFIGURATION
2-SPEED BEARINGLESS MOTOR
OVER WOUND AIR TENSIONER
"B" ROTATION SHOWN



DIMENSIONS SHOWN ARE INCHES OVER MILLIMETERS

RPH 50,000

SHORT DRUM WITH LARGE FLANGES
R.H. MOUNTING CONFIGURATION
2-SPEED BEARINGLESS MOTOR
UNDER WOUND AIR TENSIONER
"A" ROTATION SHOWN



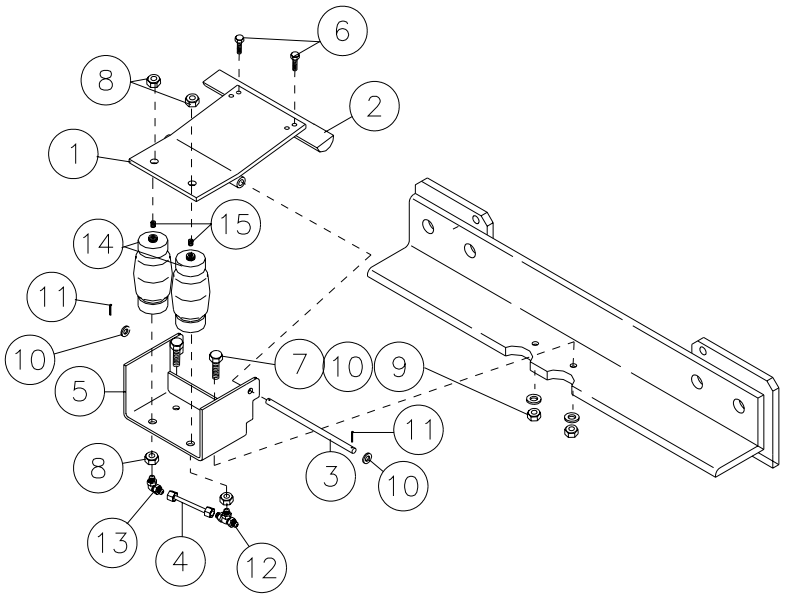
* UNDERWOUND AIR TENSIONER SHOWN.
SEE FOLLOWING PAGES FOR AIR TENSIONER ASSEMBLIES.

RPH 50,000 WINCH

RPH-50,000 WINCH PARTS LIST

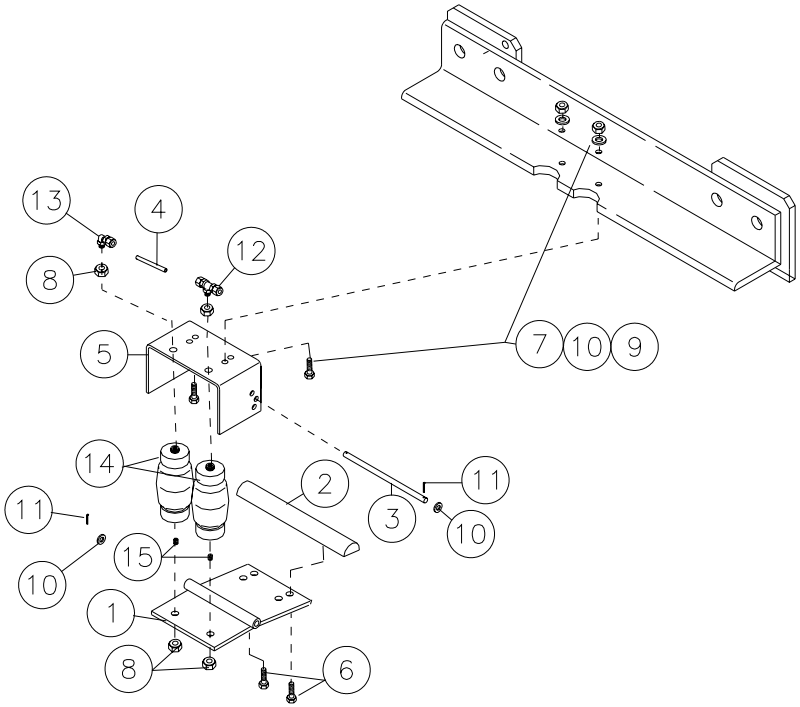
Item No.	Qty.	Parts No.	Description
1	1	234191	DRUM ASSEMBLY
2	1	243039	TIE PLATE - ANGLE SIDE
3	1	243040	TIE PLATE - FLAT SIDE
4	1	328158	GEARBOX COVER
5	1	299731	AIR TENSIONER ASSEMBLY (OVERWOUND)
	1	299732	AIR TENSIONER ASSEMBLY (UNDERWOUND)
6	1	324283	COUPLING - SHAFT
7	1	324298	COUPLING - BRAKE
8	1	324295	COUPLING - OUTPUT
9	1	338340	END BEARING - MOTOR
10	1	338341	END BEARING - GEAR
11	1	357516	SHAFT - INPUT
12	1	358064	SHAFT - INPUT SHIFTER
13	2	402117	BEARING
14	1	412086	THRUST BEARING
15	4	414400	CAPSCREW 3/8-24NF X 4 HX HD GR5
16	4	414542	CAPSCREW 1/2-13NC X 2 HX HD Z/P GR5
17	12	414557	BOLT 1/2-13NC X 6 HX HD GR5
18	8	414784	CAPSCREW 7/8-9NC X 2 HX HD GR5
19	2	414947	CAPSCREW 1/2-13NC X 1 HX SOC HD
20	1	416051	SETSCREW 5/16-24NF X 1 SOC HD CUP
21	1	416072	SETSCREW 1/2-13NC X 3/4 HX SOC HD CUP
22	4	416211	CAPSCREW #10-24NC X 3.25 HX SOC HD
23	8	418261	LOCKWASHER 7/8 MED Z/P
24	1	418429	THRUST WASHER
25	1	418430	LOCKNUT 5/16-24NF X 3/16 THK

Item No.	Qty.	Parts No.	Description
26	2	418460	WASHER - CLUTCH
27	1	418440	WASHER - CLUTCH 1.75 OD X 1 ID
28	4	418453	SHOULDER BOLT
29	1	426044	SPACER - CLUTCH
30	1	426045	INSERT - THREADED .312-24NF
31	1	432018	FITTING
32	1	432023	FITTING
33	1	433017	AIR CYLINDER
34	1	438023	BRAKE
35	2	442210	GASKET - GEARBOX
36	1	442215	GASKET - BRAKE
37	1	442217	GASKET - AIR CYLINDER
38	1	456008	RELIEF FITTING
39	1	456038	BREATHER VENT FITTING
40	1	458096	MOTOR, 2 SPD
41	2	462040	QUAD RING
42	1	462062	O-RING
43	1	468004	REDUCER
44	1	468019	PIPE PLUG
45	1	470075	PIN
46	1	494120	SPRING - CLUTCH, INNER
47	1	494114	SPRING - CLUTCH, OUTER
48	1	509015	HYDRAULIC TUBE ASSEMBLY
49	1	516035	MOTOR CONTROL VALVE 2 SPD "B" ROT.
	1	516035	MOTOR CONTROL VALVE 2 SPD "A" ROT.
50	1	468040	PIPE PLUG
51	1	530123	GEARBOX



CABLE TENSIONER (OVERWOUND) - 299704

Item No.	Qty.	Parts No.	Description
1	1	265019	TENSIONER PLATE ASSY
2	1	304167	TENSIONER BAR
3	1	346046	PIN
4	1	365038	TUBE, 1/4" DIA
5	1	408226	BRACKET ASSEMBLY
6	2	414278	CAPSCREW 3/8-16NC X 4 HX HD Z/P GR5
7	2	414948	CAPSCREW 1/2-13NC X 1-1/4 SOCKET HD
8	4	418080	NUT 5/8-11NC REG HEX Z/P
9	2	418069	NUT 1/2-13NC HEX REG Z/P
10	2	418223	WASHER 1/2 USS A FLAT Z/P
11	2	424005	COTTER PIN 1/8 X 1
12	1	432032	FITTING
13	1	432033	FITTING
14	2	433022	AIR ACTUATOR
15	2	468016	PIPE PLUG



CABLE TENSIONER (UNDERWOUND) - 299732

Item No.	Qty.	Parts No.	Description
1	1	265019	TENSIONER PLATE ASSEMBLY
2	1	304174	TENSIONER BAR
3	1	346046	PIN
4	1	365038	TUBE, 1/4" DIA
5	1	408226	BRACKET ASSEMBLY
6	2	414278	CAPSCREW 3/8-16NC X 4 HX HD Z/P GR5
7	2	414948	CAPSCREW 1/2-13NC X 1-1/4 SOCKET HD
8	4	418080	NUT 5/8-11NC REG HEX Z/P
9	2	418069	NUT 1/2-13NC HEX REG Z/P
10	2	418223	WASHER 1/2 USS A FLAT Z/P
11	2	424005	COTTER PIN 1/8 X 1
12	1	432032	FITTING
13	1	432033	FITTING
14	2	433022	AIR ACTUATOR
15	2	468016	PIPE PLUG

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

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