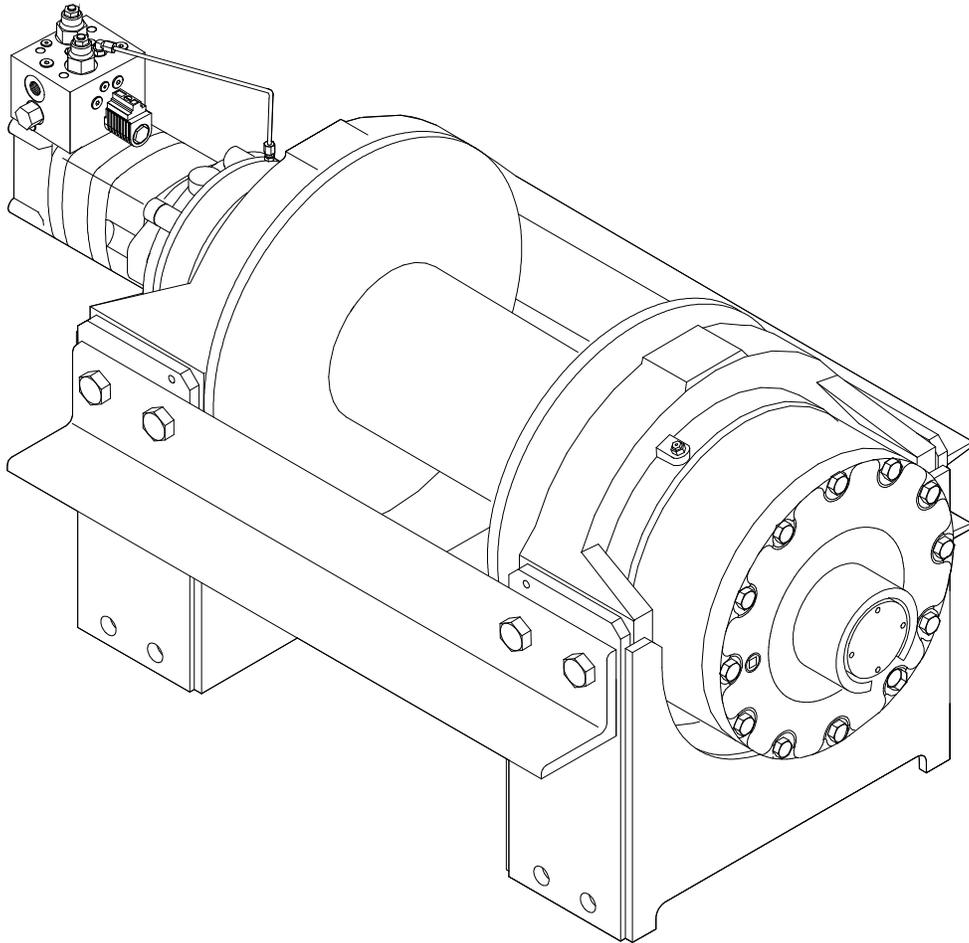




# OPERATING, SERVICE, AND MAINTENANCE MANUAL



## MODEL RPH-35,000 INDUSTRIAL PLANETARY WINCH



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

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# RAMSEY HYDRAULIC PLANETARY WINCH MODEL RPH 35,000

## **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\***

Rated Line Pull (lbs.) .....						35,000
(Kg.) .....						15,909
Gear Reduction .....						31.89:1
Weight (without cable) .....						568 lbs. (258 Kg)
LAYER OF CABLE		1	2	3	4	5
*Rated line pull	lbs.	35,000	28,600	24,200	21,000	18,500
per layer	Kg.	15,909	13,000	11000	9,545	8,390
*Cable Capacity	ft.	25	60	105	155	200
	m	7.6	18.3	32	47.2	60
*Line Speed (at	FPM	15.4	18.6	21.1	23.5	28
15 GPM)	MPM	4.7	5.7	6.4	7.2	8.5
* 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 FRAME MOUNTING**

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

## **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.

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

## **HYDRAULIC SYSTEM REQUIREMENTS**

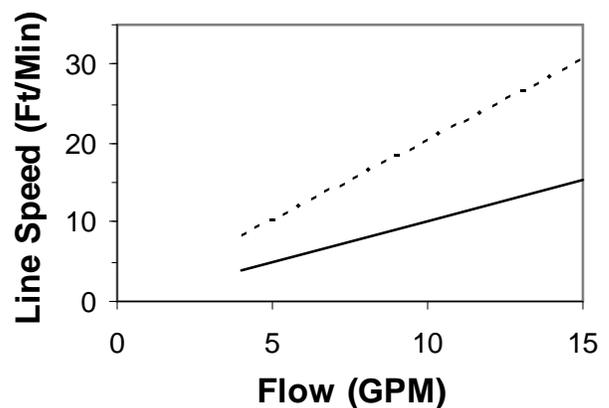
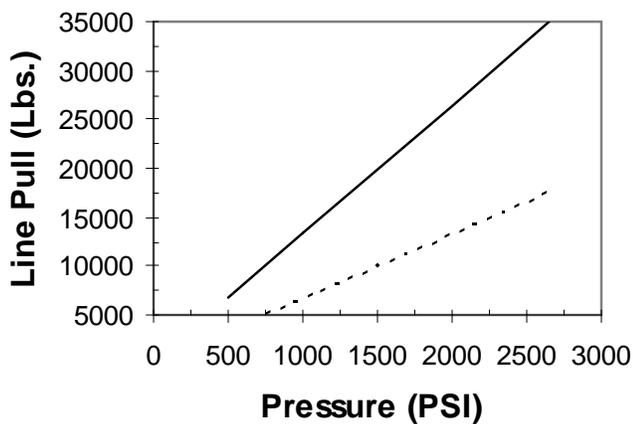
Refer to the performance charts, below, to properly match your hydraulic system to RPH 35000 winch performance.

The charts consist of :

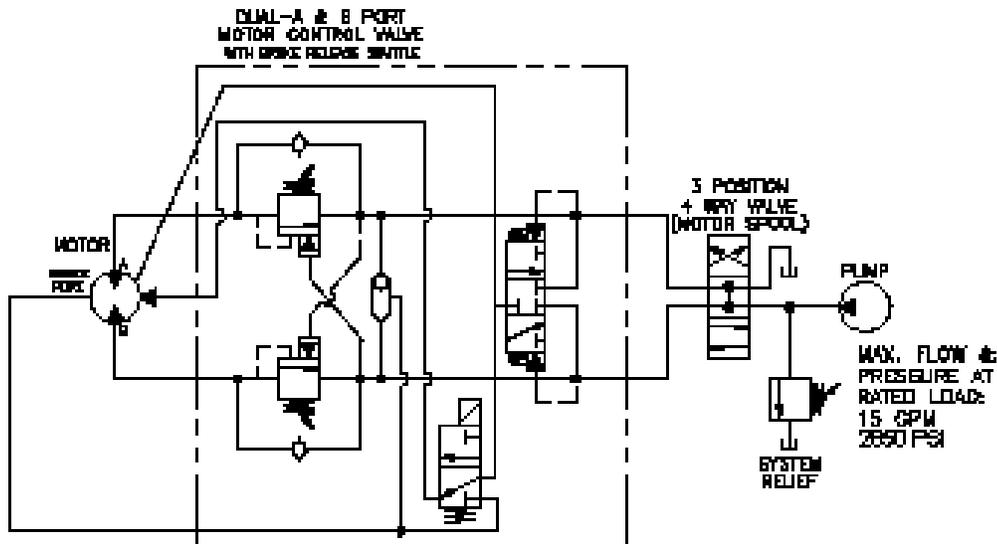
(1) Line pull (lb.) first layer vs. working pressure (PSI) and (2) Line speed, first layer (FPM) vs. gallons per minute (GPM). Performance based on a motor displacement of 11.9 cubic inches with 15 GPM maximum flow rate. See page 14 for motor port size.

## **PERFORMANCE CHARTS**

————— LOW SPEED      ..... HIGH SPEED



## TYPICAL LAYOUT:



## 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 (see Typical Layout illustration above). **DO NOT CHANGE MOTOR SPEED WHILE WINCH IS IN OPERATION. LOSS OF LOAD CONTROL COULD RESULT AND/OR DAMAGE TO YOUR WINCH.**

## 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**

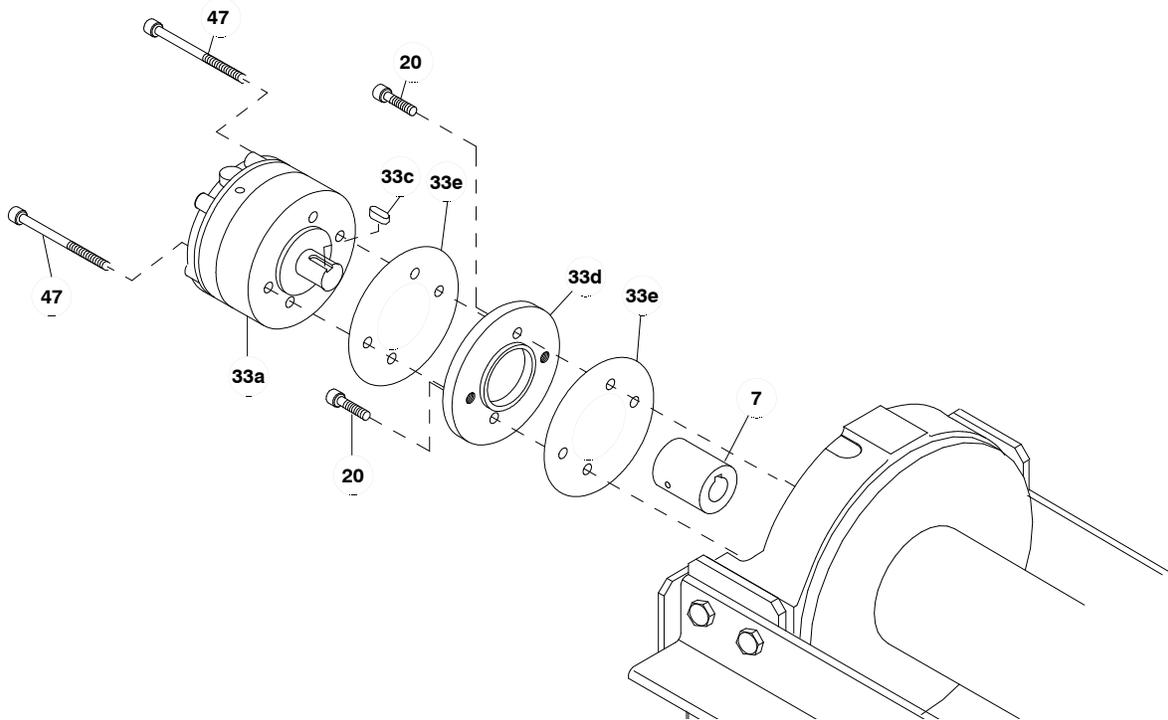
1. Drain the oil from the winch annually or more often if winch is used frequently.
2. Fill the winch to the oil level plug with clean kerosene. Run the winch a few seconds with no load in the reel in direction. Drain the kerosene from the winch.
3. Refill the winch to the oil level plug with all purpose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

## **TROUBLESHOOTING GUIDE**

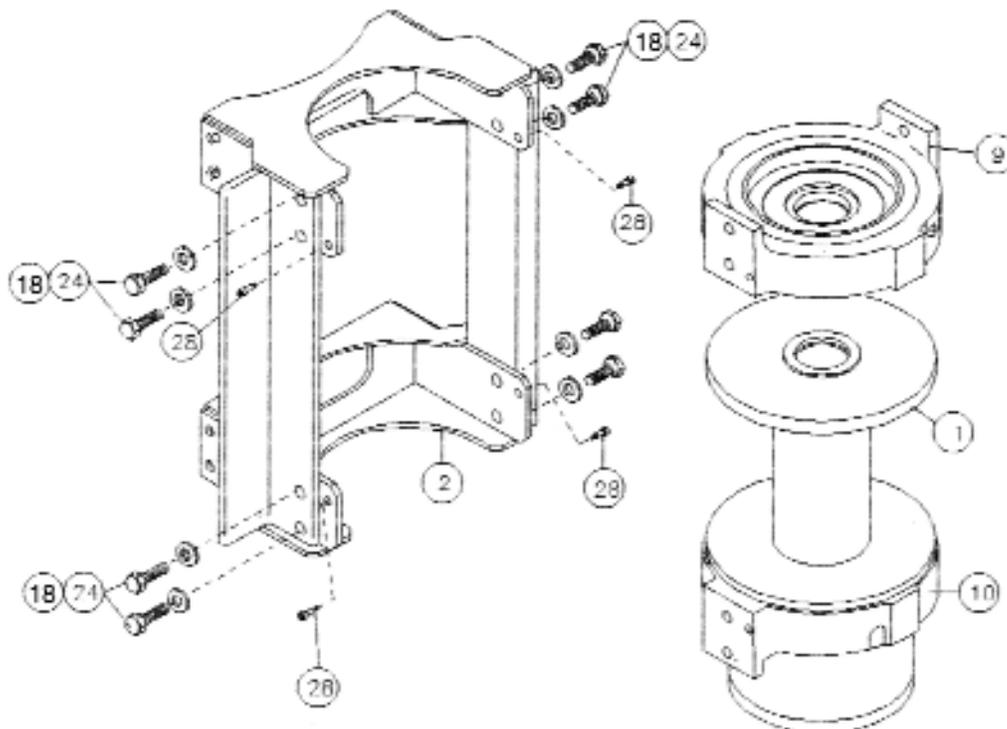
<b>CONDITION</b>	<b>POSSIBLE CAUSE</b>	<b>CORRECTION</b>
OIL LEAKS FROM WINCH	Seals damaged or worn	Replace seal.
	Too much oil	Drain excess oil. Refer to Operation.
	Damaged gasket	Replace gasket.
WINCH RUNS TOO SLOW	Low flow rate	Check flow rate. Refer to Specifications page 1.
	Hydraulic motor worn out	Replace motor.
CABLE DRUM WILL NOT FREESPOOL	Clutch not disengaged	Check air pressure to clutch cylinder 90 PSI minimum required. Refer to drawing page 15 for more information.
BRAKE WILL NOT RELEASE	Air in hydraulic system	Bleed air from brake. Refer to page 12.



- Remove brake assembly screws (item #16) from brake (item #33a) to access (2) mounting screws (item #20) attaching brake adapter plate (item #33d) to end bearing (item #9). **CAUTION: Brake is spring loaded by clutch spring and must be restrained against end bearing as mounting screws (item #20) are removed.** Remove coupling (item #7) and gasket (item #33e) from end bearing. Take note of mounting configuration for proper mounting of parts during re-assembly.



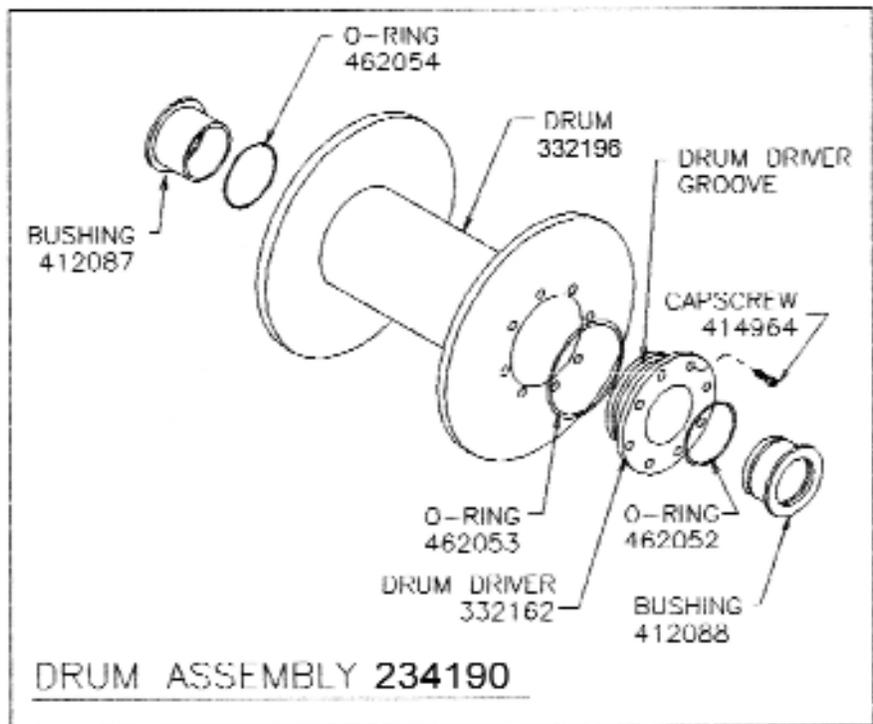
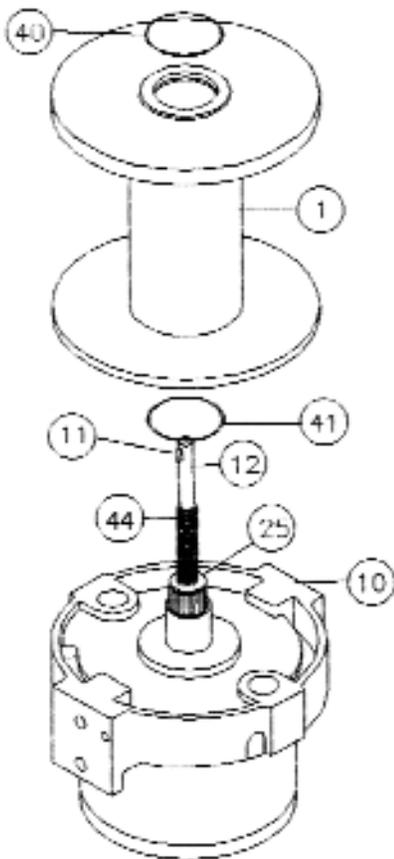
- Remove winch from upright mounting frame (item #2) by removing (8) capscrews (item #18), (8) lockwashers (item #24) and (4) shoulder bolts (item #28). Pull motor end bearing (item #9) from drum assembly (item #1).



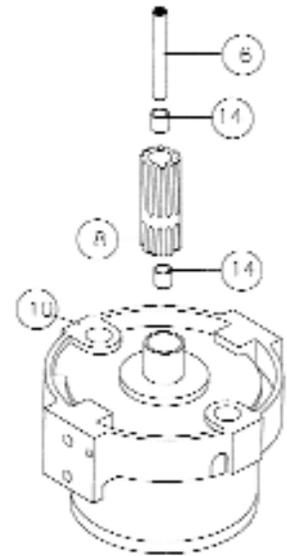
5. Pull drum assembly (item #1) upward from end bearing (item #10). Remove quad-rings (item #40 & #41) from grooves in drum bushings. Remove input shaft (item #12), clutch spring (item #44) and washer (item #25) from end bearing (item #10). Examine key (item #11) and input shaft for signs of wear, replace if damaged.

Examine drum assembly (item #1) for signs of wear. If splines inside of drum driver (332162) are damaged, drum driver must be replaced. Remove drum driver by unscrewing (8) capscrews (414964). Place well oiled o-ring (462053) into drum driver groove and attach driver to drum (332196) using (8) capscrews (414964). Torque capscrews to 120 ft. lbs. each, in criss-cross pattern.

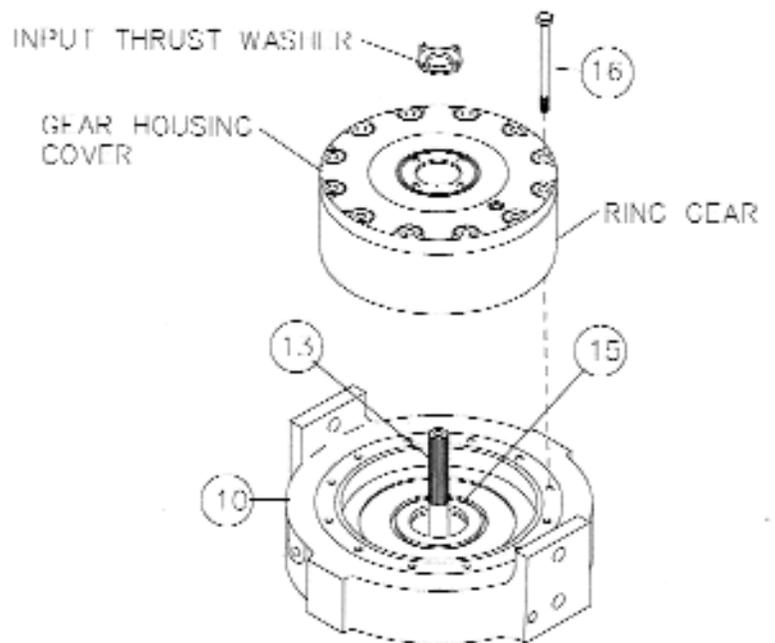
Press old bushings from drum and drum driver. Remove o-rings (462054 & 462052) from grooves in drum and drum driver bushing (412088). Place well oiled o-rings (462054 & 462052) into grooves in drum and outer diameter of drum driver bushing (412088). Press new bushing (412087) into end of drum opposite drum driver and press bushing (412088) into drum driver until flange of bushings are flush against drum and driver.



6. Remove output coupling (item #8) and coupling shaft (item #6) from end bearing (item #10). Examine bearings (item #14), pressed in output coupling (item #8), for signs of wear. Replace bearings, if necessary, by pressing old bearings from coupling and press new bearings (item #14) into each end of output coupling (item #8). Place coupling shaft (item #6) into bearings (item #14).

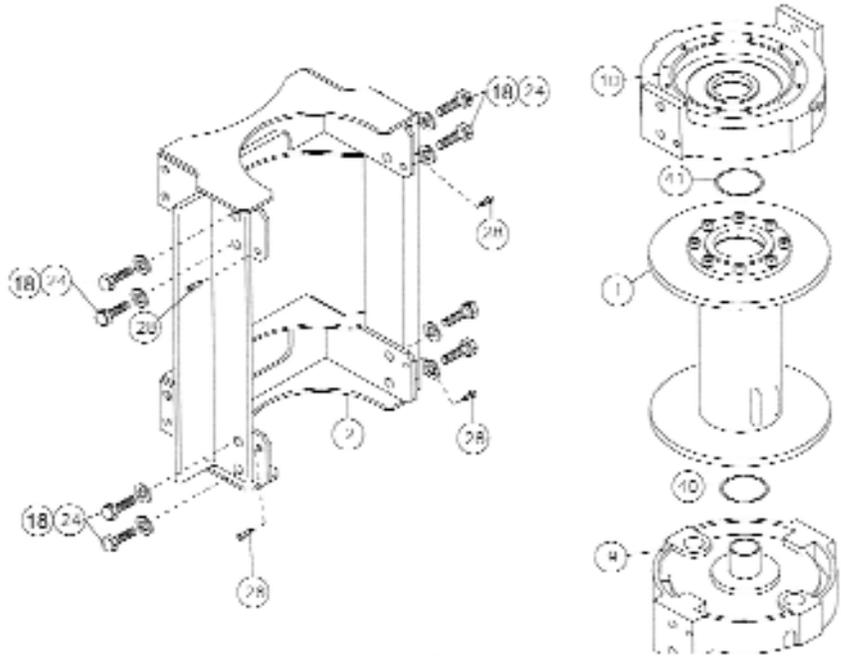


7. Remove (12) capscrews (item #16) to pull gear housing cover from ring gear. Remove input thrust washer, sun gear and carrier assemblies from inside of ring gear. Remove ring gear from end bearing (item #10). Examine shifter shaft (item #13) for signs of wear, replace if necessary. Examine bushing (item #15) for signs of wear. Replace bushing, if necessary, by pressing old bushing from housing and pressing new bushing into place.



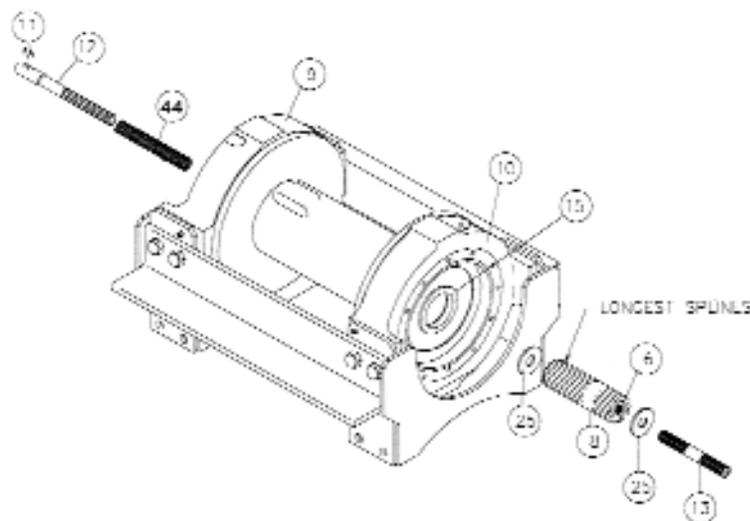
8. NOTE: DETERMINE MOUNTING CONFIGURATION OF WINCH (R.H. or L.H. MOUNTED) BEFORE ATTACHING UPRIGHT FRAME TO WINCH, TO ASSURE PARTS ARE MOUNTED TO PROPER SIDE, REFER TO WINCH MOUNTING CONFIGURATIONS, PAGE 13.

Seat well oiled quad-rings (item #40 & #41) into groove of bushing in each end of drum assembly (item #1), as shown. Carefully set drum assembly (item #1) down over motor end bearing (item #9). Lift gear housing end bearing (item #10) and set into place on drum assembly. Attach upright frame (item #2) to end bearings. Install (4) shoulder bolts (item #28) and hand tighten. Install (8) capscrews with lockwashers (item #18 & #24). Tighten (4) inner-most capscrews securely, check rotation of cable drum. Tighten (4) outer-most capscrews securely, check rotation of cable drum. Torque capscrews, in above inner-most then outer-most pattern, to 250 ft. lbs. each. Torque (4) shoulder bolts to 30 ft. lbs. each. Make sure cable drum assembly rotates freely at this point.



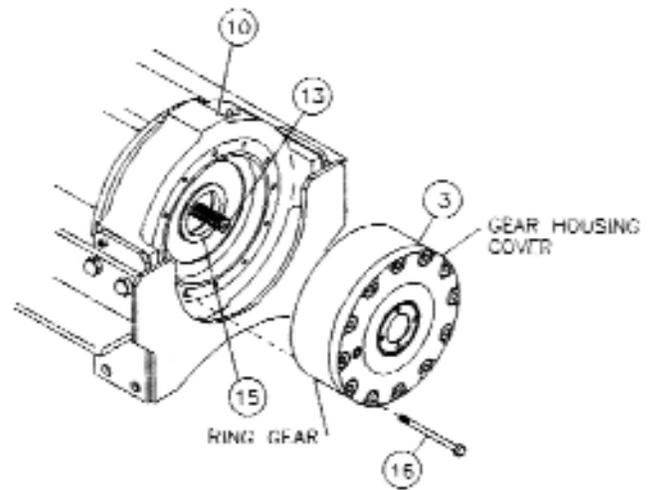
9. Gently tap key (item #11) into keyway of input shaft (item #12). Liberally apply grease to shoulder of input shaft (item #12). Place spring (item #44) over splined end of shaft. Use grease to hold spring in place on shaft. Place spring and splined end of shaft through motor end bearing (item #9) and drum until shaft extends through bushing (item #15). Place clutch washer (item #25) over splined end of shaft and against spring.

Place end of output coupling assembly (item #8), with longest splines, through end bearing bushing (item #15) and mesh shaft coupling spline with splined end of shaft. Place short splined end of shifter shaft (item #13) through washer (item #25) and into shaft coupling (item #6), meshing splines of shifter shaft with splines in shaft coupling.



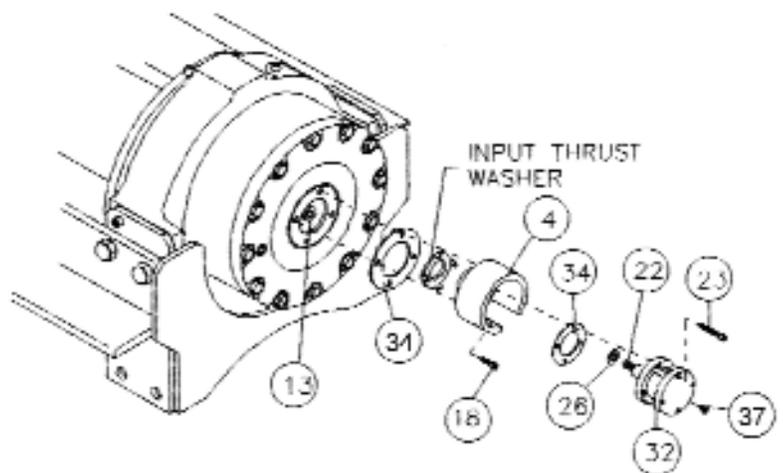
10. Apply RTV sealing compound to ring gear mounting surface of end bearing (item #10). Place ring gear onto end bearing, aligning holes in ring gear with holes and gear housing end bearing. Use (2) capscrews to temporarily secure ring gear to end bearing.

Place (2) gear carrier assemblies into ring gear meshing carrier gears with ring gear. Remove (2) temporary capscrews, making sure that ring gear and carrier assemblies are securely against end bearing (item #10). Apply RTV sealing compound to cover mounting surface of ring gear (item #3) and attach cover to ring gear. Use (12) capscrews (item #16) to secure gear box to gear housing end bearing. Torque capscrews to 39 ft. lbs. each, in criss-cross pattern.



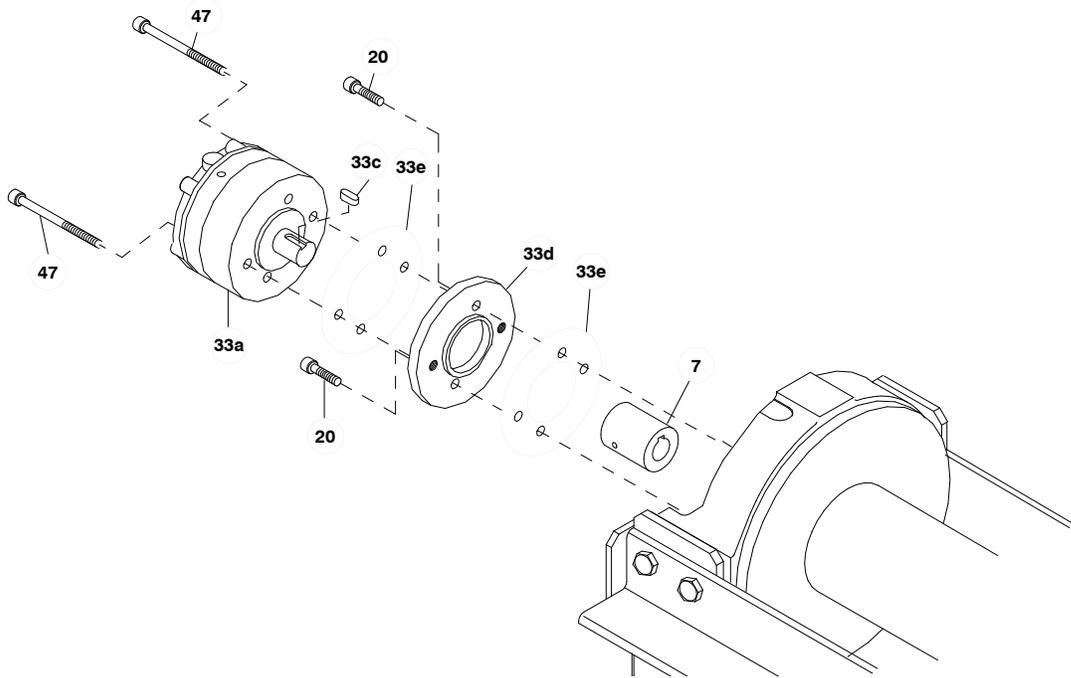
11. Slide input sun gear over shifter shaft (item #13) and mesh with teeth of input carrier. Apply grease to input thrust washer and place into slots of air cylinder adapter (item #4). Place gasket (item #34) into position on gear box cover with sealer and attach adapter to cover using (4) capscrews (item #18). Apply Loctite PST thread sealer to threads of capscrews. Torque capscrews to 13 ft. lbs. each, in criss-cross pattern.

Pull rod from air cylinder as far as possible. Slide washer (item #26) over setscrew (item #22) and against nut attached to air cylinder rod. Place setscrew into hole of shifter shaft (item #13). Attach new air cylinder (item #32) and gasket (item #34) with sealer, to adapter using (4) capscrews (item #23). Apply Loctite PST thread sealer to threads of capscrews. Torque capscrews to 5 ft. lbs. each, in criss-cross pattern.

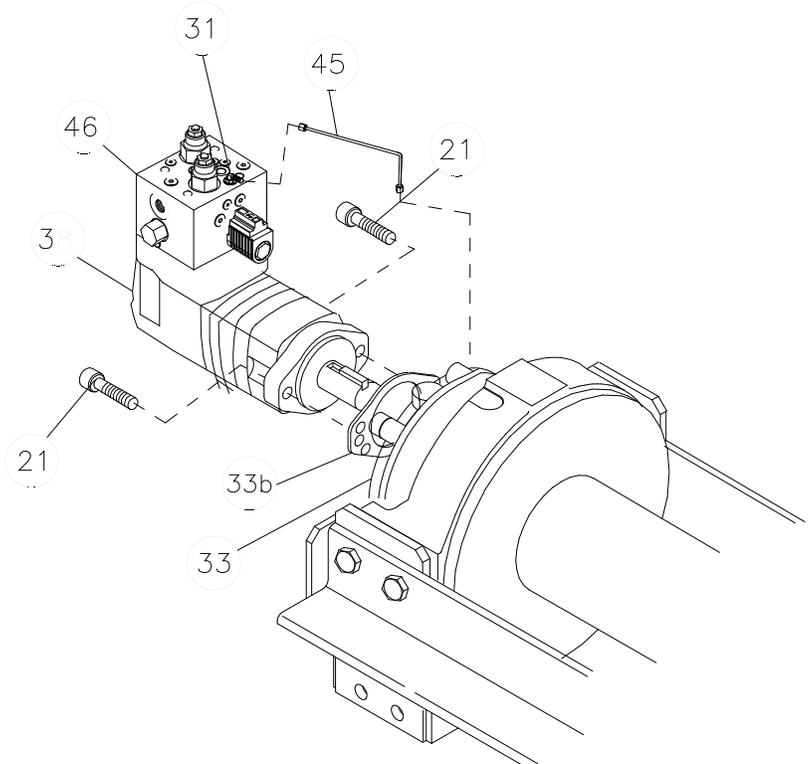


12. Align keyway of coupling (item #7) with key and end of input shaft sticking out of the end bearing. Slide coupling over end of shaft. Place gasket (item #33e) into position on motor mounting surface of end bearing (item #9). Insert brake shaft with key (item #33c) into coupling. Use (2) screws (item #20) to attach brake adapter plate (item #33d) to motor end bearing. Alternately tighten one, then the other of the capscrews (item #20) in a back and forth manner, thus compressing spring (item #44) and pulling the adapter plate down against end bearing (item #9). Torque capscrews to 85 ft lbs each. Re-attach brake (item #33a) to adapter plate using brake assembly screws (item #47). Torque capscrews to 97 ft. lbs. each.

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

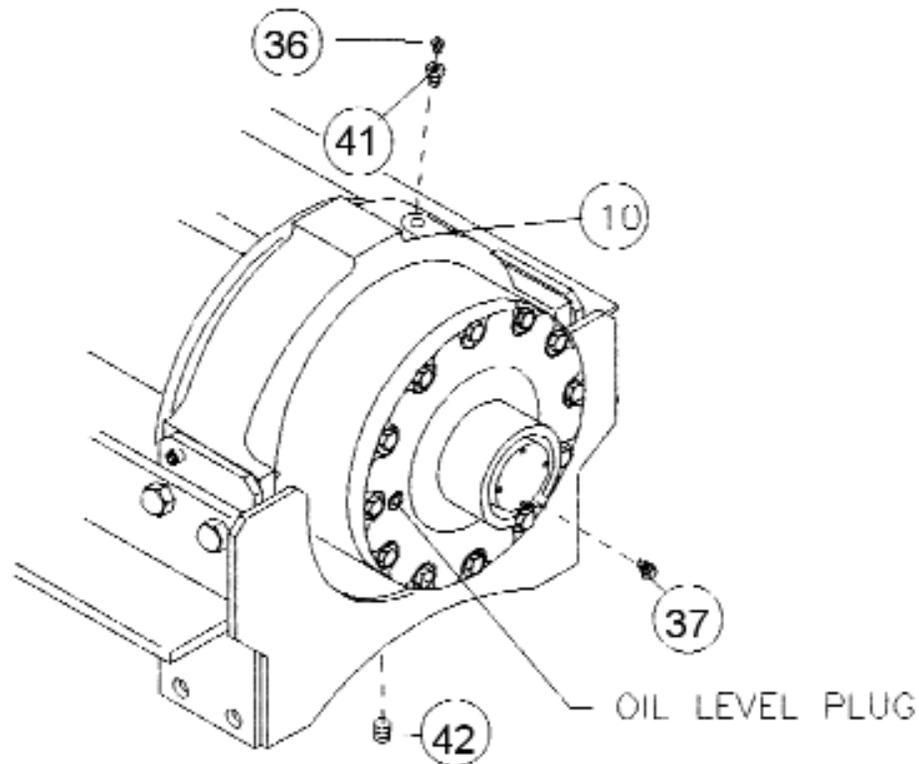


13. Attach motor (item #38) with gasket (item #35) to brake (item #33). Use (4) capscrews (item #21) and torque to 74 ft. lbs. each. Securely connect tube (item #45) to fitting (item #31) on top of valve and fitting (item #30) on top of brake (item #33).



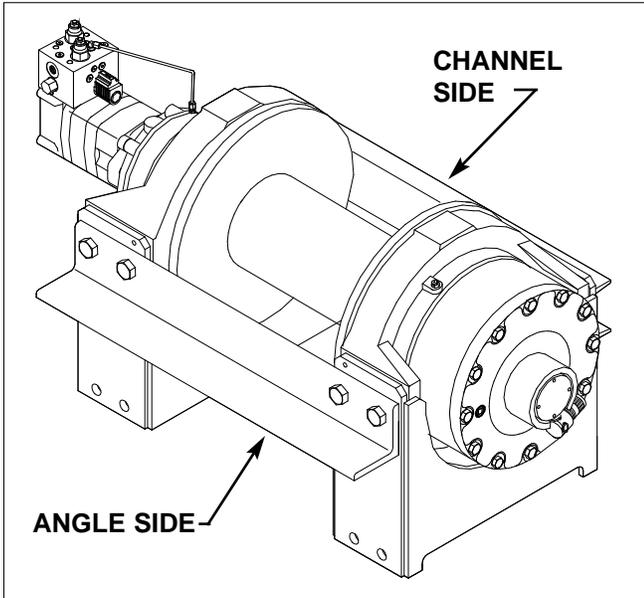
14. Apply Permatex to threads of plug (item #42). Thread plug into tapped hole in bottom of gear housing end bearing (item #10). Pour approx. 2.50 pints of SAE 80W-140 oil into end bearing. Check oil level by removing oil plug noted below. Insert relief fitting (item #36) and thread reducer (item #41) into end bearing at oil fill hole. Be sure breather vent (item #37) are not damaged and in good operating condition. Replace if necessary.

Install winch and connect pressure lines. Bleed pressure release section of brake by loosening bleeder fitting on brake and allowing air to escape while slowly applying hydraulic system pressure to the winch. Apply at least 230 PSI pressure to release brake and verify that brake releases, by observing that the winch drum rotates.

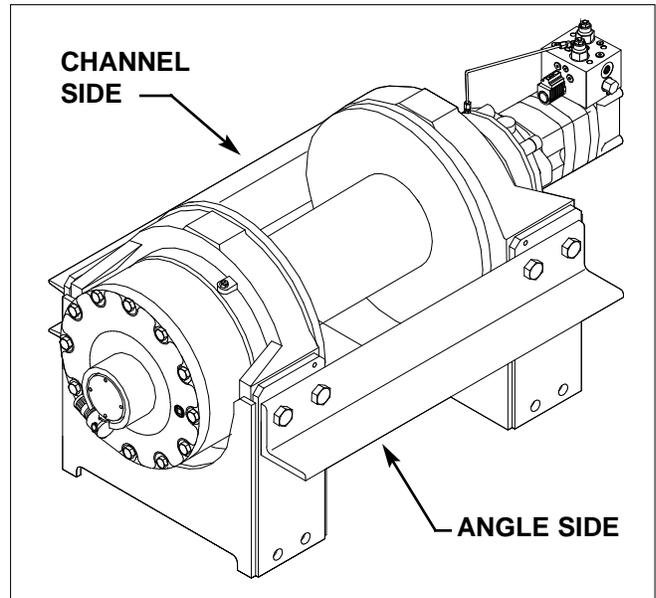


15. Check proper operation of clutch by applying air pressure to clutch air cylinder to disengage clutch. Verify that winch freespool. Re-engage clutch. A loud noise should be heard when clutch engages. Winch drum should not freespool.
16. Operate winch forward and reverse to verify that drum rotates.

# WINCH MOUNTING CONFIGURATIONS

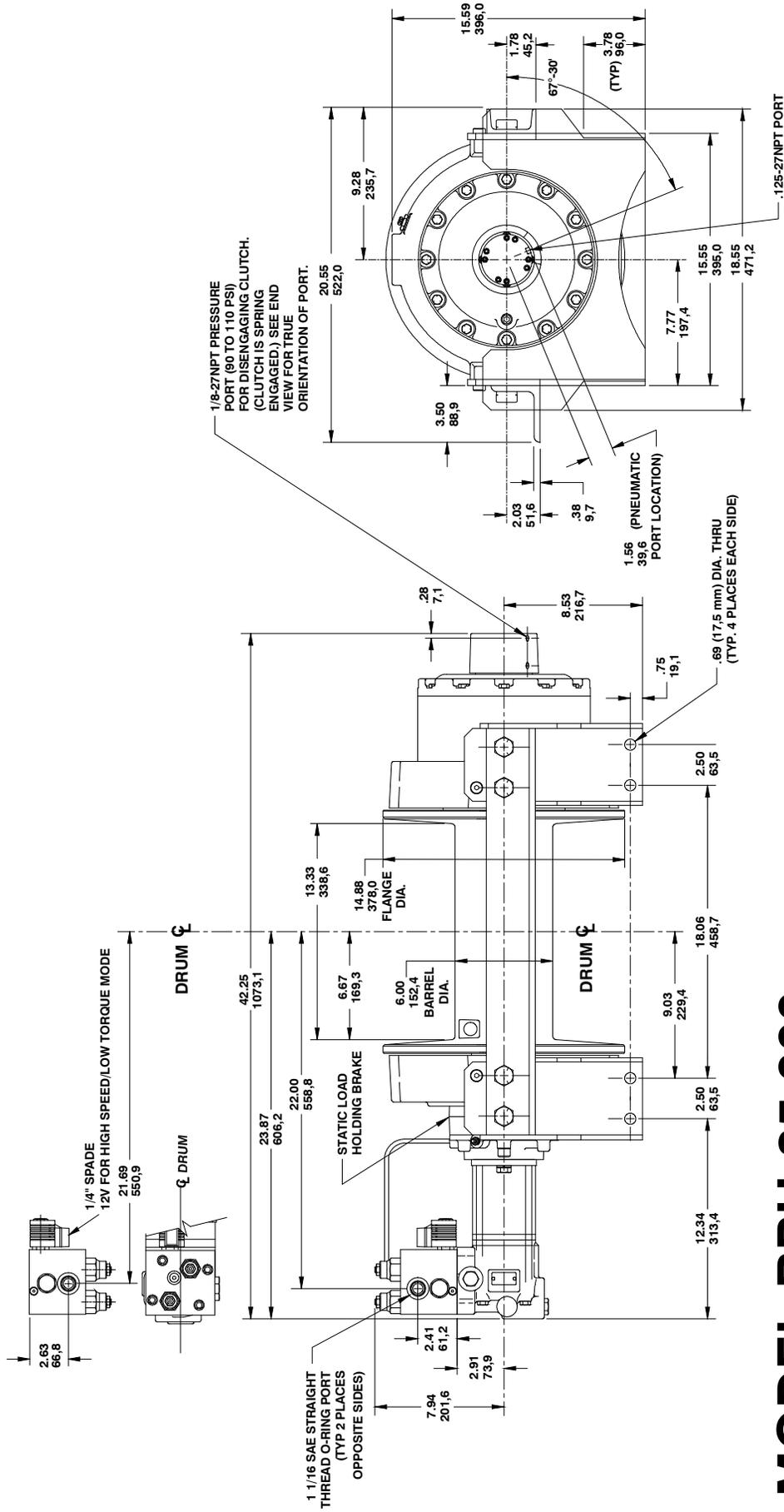


R. H. MOUNTING  
CONFIGURATION



L. H. MOUNTING  
CONFIGURATION

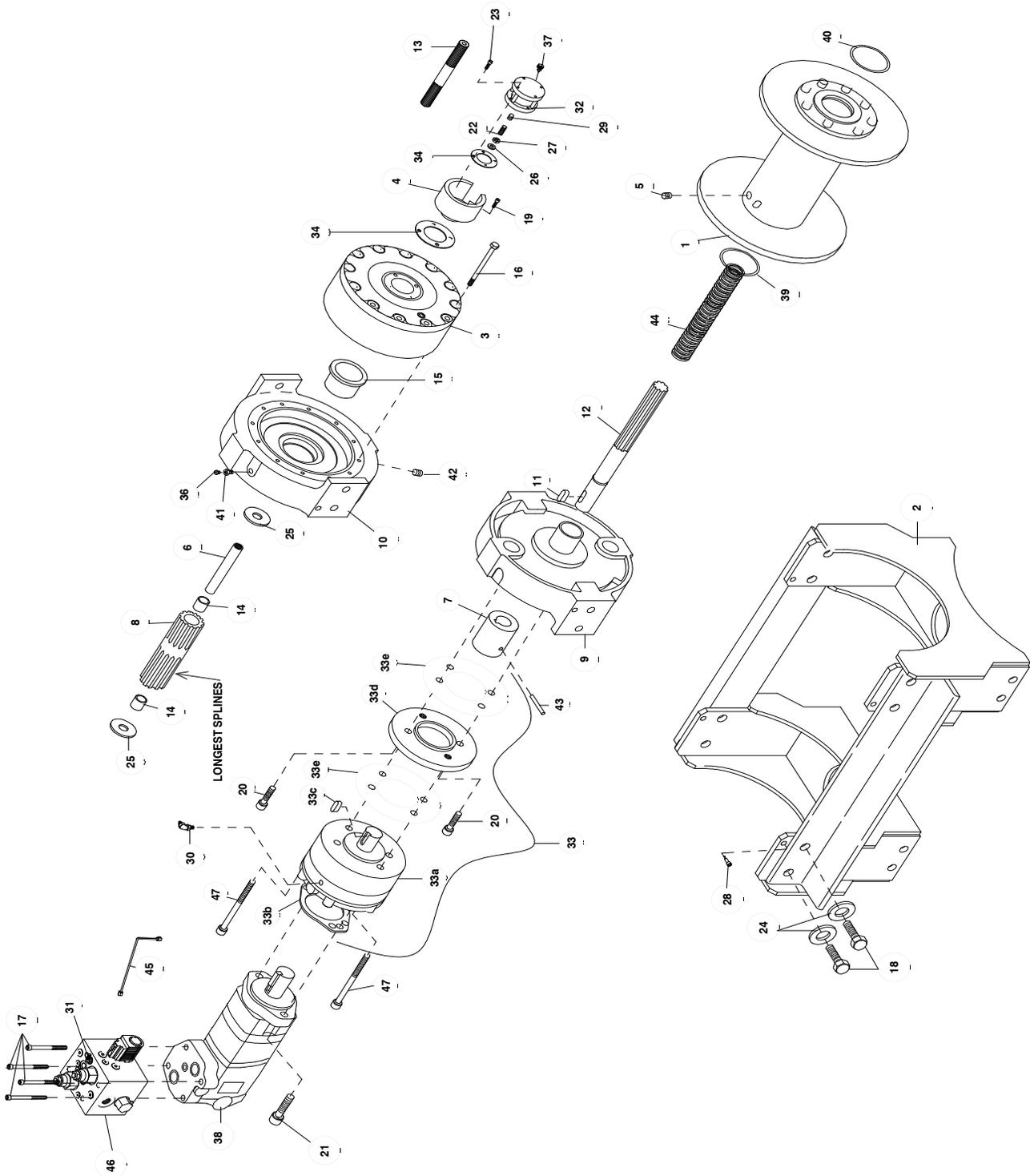
## NOTES



DIMENSIONS SHOWN ARE INCHES OVER MILLIMETERS

# MODEL RPH-35,000

R.H. MOUNTING CONFIGURATION  
11.9 CU. IN. STD 2-SPEED MOTOR



# RPH-35,000 WINCH

# RPH-35,000 WINCH PARTS LIST

Item No.	Qty.	Parts No.	Description	Item No.	Qty.	Parts No.	Description
1	1	234167	DRUM ASSEMBLY	27	1	418433	LOCKNUT - 5/16-24NF X 3/16 THK
2	1	242156	FRAME ASSEMBLY - UPRIGHT	28	4	418453	SHOULDER BOLT - .5 X .75 LG/.37-16
3	1	296433	GEAR BOX ASSEMBLY	29	1	426045	INSERT - THREADED
4	1	300069	ADAPTER - AIR CYLINDER	30	1	432018	FITTING - 90 4 SAE/4 JIC
5	1	314013	CABLE ANCHOR	31	1	432023	FITTING - 7/16-20
6	1	324286	COUPLING - SHAFT	32	1	433014	AIR CYLINDER
7	1	324287	COUPLING - MOTOR	33	1	438037	BRAKE ASSEMBLY
8	1	324288	COUPLING - OUTPUT	a	1		BRAKE
9	1	338292	END BEARING - MOTOR	b	1		MOTOR END GASKET
10	1	338293	END BEARING - GEAR	c	1		KEY
11	1	342081	KEY	d	1		ADAPTER PLATE
12	1	357493	SHAFT - INPUT	e	2		ADAPTER PLATE GASKET
13	1	358065	SHAFT - INPUT SHIFTER	34	1	442216	GASKET
14	2	402119	BEARING				
15	1	412086	THRUST BEARING	36	1	456008	RELIEF FIT
16	12	414272	SCREW 3/8-16NC X 5 1/2 HX HD GR5 P/BLK	37	1	456038	FITTING - VENT, BREATHER
17	4	414400	CAPSCREW 3/8-24NF X 4 HX HD GR5	38	1	458126	MOTOR - HYDRAULIC
18	8	414777	CAPSCREW 3/4-10NC X 1 3/4 HX HD GR5	39	1	462013	QUAD RING
19	4	414864	CAPSCREW 5/16-18NC X 3/4 HX SOC HD	40	1	462050	QUAD RING
20	2	414947	CAPSCREW 1/2-13NC X 1 HX SOC HD	41	1	468004	REDUCER
21	2	414948	CAPSCREW 1/2-13NC X 1 1/4 SOC HD	42	1	468019	PIPE PLUG
22	1	416051	SETSCREW 5/16-24NF X 1 SOC HD CUP	43	1	470089	ROLL PIN
23	4	416233	SCREW #10-24NC X 2 1/2 HX SOC HD	44	1	494108	SPRING CLUTCH SHIFTER
24	8	418249	LOCKWASHER 3/4 MED SECT Z/P	45	1	509125	TUBE ASSEMBLY - HYDRAULIC BRAKE
25	2	418431	WASHER 2.38 X .878 X .062 THK	46	1	516025	VALVE - MOTOR CONTROL
26	1	418432	THRUSTWASHER - NYLATRON 5/16 ID	47	2	414595	CAPSCREW 1/2-13NC X 3 1/2 HX HD GR8

## **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.



### **RAMSEY WINCH COMPANY**

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