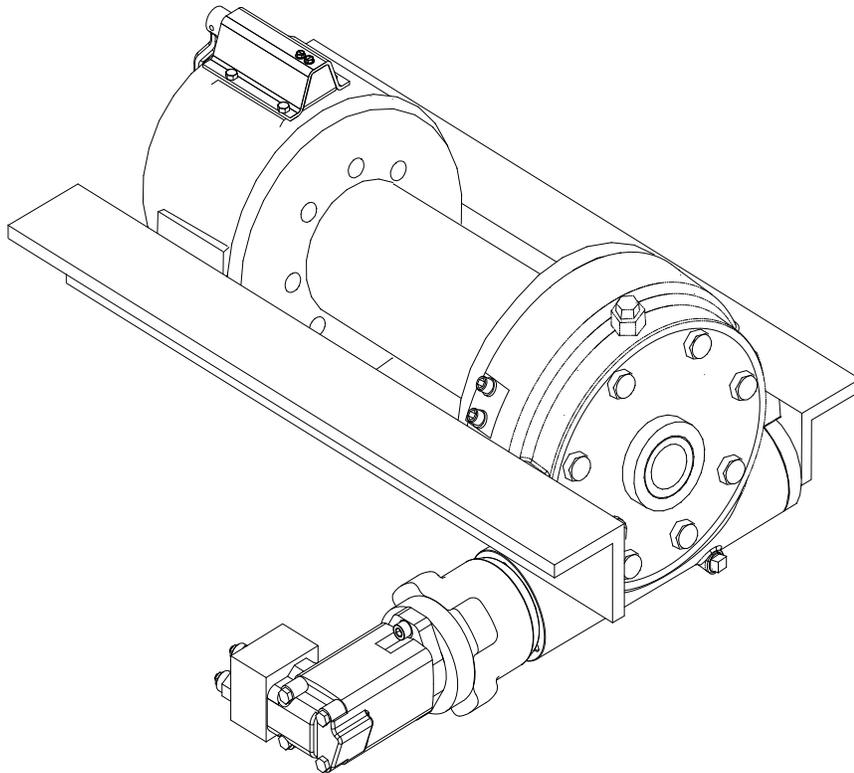




# OPERATING, SERVICE AND MAINTENANCE MANUAL



## MODEL H-930 SERIES DOW-LOK<sup>®</sup> EQUIPPED INDUSTRIAL LOW-MOUNT WINCHES



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

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## RAMSEY WINCH MODEL H-930 DOW-LOK

### 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.

### 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: CONFORMS TO SAE J706					
Rated Line Pull 1st Layer		(lbs) .....	30,000		
		(kgs) .....	13,590		
Gear Reduction:.....		41:1			
Shipping Weight H-930 .....		515 lbs. (238 kgs)			
Layer of Cable		1	2	3	4
Rated Line Pull	lbs	30,000	24,500	20,700	18,000
	kgs	13,590	11,090	9,370	8,150
*Cable capacity	ft	25	65	105	155
	m	7	19	31	47
Line Speed	FPM	13	17.6	20	24
	MPM	3.9	5.3	6	7.2
*These specifications are based on recommended cable of 3/4" (19mm) 6x19 extra improved plow steel cable.					

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

## **TECHNIQUES OF 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 the 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.

The Dow-lok® clutch provides freespooling and clutch engagement with the cable drum. With the clutch disengaged, the cable can be freespoiled off the drum. For winching in the load, the clutch must be fully engaged with the drum.

Notches on the shifter shaft engage the bracket to positively latch the Dow-lok® clutch in the engaged, "IN" position or disengaged, "OUT" position.

TO DISENGAGE CLUTCH raise handle so notch clears bracket. Pull handle out and latch the shaft notch onto bracket.

**DO NOT ATTEMPT TO DISENGAGE WITH A LOAD ON THE WINCH.**

TO ENGAGE CLUTCH raise handle so notch clears bracket. and push handle in as far as it will go. The clutch will automatically spring into engagement and latch when the clutch aligns with the drum shaft. In order to attain full engagement, internal elements of the clutch **MUST** be aligned. This alignment will take place when cable drum or cable drum shaft turns a maximum of 1/4 revolution.

**DO NOT ATTEMPT TO LIFT A LOAD UNLESS NOTCH IN SHIFTER SHAFT IS SECURELY LATCHED. KEEP CLEAR OF SPRING LOADED HANDLE DURING AUTOMATIC ENGAGEMENT.**

The air-shifter clutch allows rapid unspooling of the cable, from cable drum, for hooking onto load. The air shifter requires a separate, regulated air supply of 60-90 PSI. The clutch is operated by an air-cylinder as follows:

TO DISENGAGE CLUTCH run the winch in the reverse "OUT" direction until the load is off the cable. Apply 70-90 PSI to inlet port fitting of air cylinder.

TO ENGAGE CLUTCH remove air pressure from air cylinder. Run the winch in reverse "OUT" direction until the cable drum starts turning. After the clutch is fully engaged, the winch is ready for winching in the cable.

## **WARNINGS**

- **CLUTCH MUST BE TOTALLY ENGAGED BEFORE STARTING THE WINCHING OPERATION.**
- **DO NOT DISENGAGE THE 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 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 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 in good operating condition so that hot oil gasses may escape.
3. Lubricate cable with light oil.

### **B. MONTHLY**

1. Lubricate the various grease fittings located in the cable drum, end bearing, clutch housing or clutch operating linkage. Any good grade of moly-disulfide containing grease is acceptable.
2. On the Dow-Lok clutch, check the action of the locking ring. Make sure it is spring loaded and free to move fully against the cable drum in the engaged position and that it is pulled full away from the cable drum and latched when disengaged.
3. Check the winch mounting bolts. If any are missing, replace them and securely tighten any that are loose. Make sure to use only grade 5 bolts or better.
4. 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 minutes 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 E.P. 140 gear oil.
4. Inspect frame and surrounding structure for cracks or deformation.
5. Gear wear can be estimated by rocking the drum back and forth and if necessary drain oil and remove cover for closer inspection.

## **WINCH MOUNTING**

It is most important that this winch be mounted securely so that the three major sections (the clutch housing end, the cable drum, and the gear housing end) are properly aligned.

All standard model 930/H-930 series winches are furnished with recommended mounting angles. Angle size is 1/2x4x4 high strength steel angle.

## **CABLE INSTALLATION**

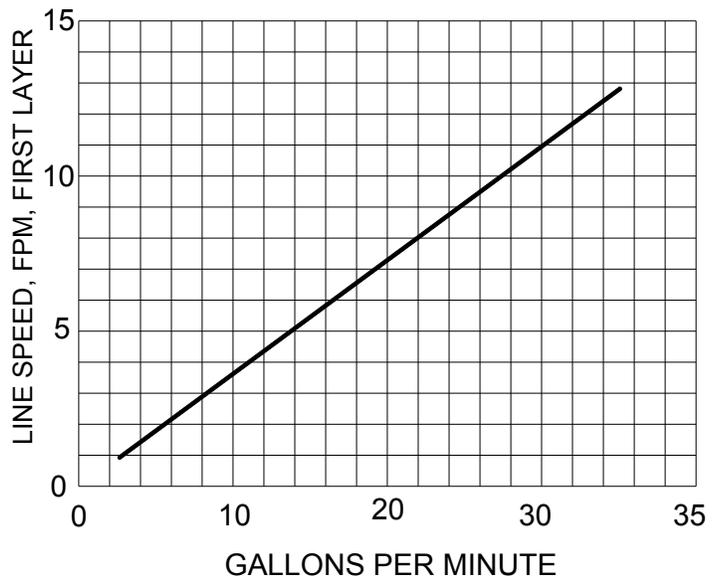
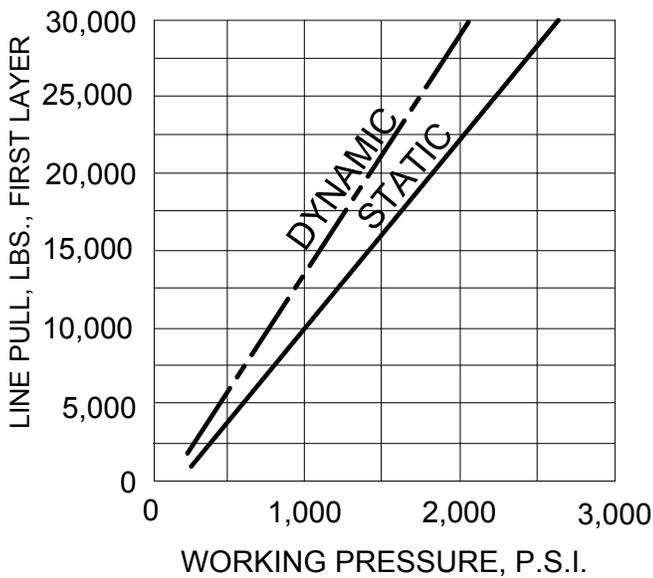
1. Unwind cable by rolling it out along the ground to prevent kinking. Securely wrap end of wire rope, opposite hook, with plastic or similar tape to prevent fraying.
2. Insert end of cable, opposite hook end, into the hole in drum barrel. Secure cable to drum barrel, using setscrew furnished with winch, **TIGHTEN SETSCREW SECURELY.**
3. Carefully run the winch in the "reel-in" direction. Keeping tension on end of cable, spool all the cable onto the cable drum, taking care to form neatly wrapped layers.

# HYDRAULIC SYSTEMS

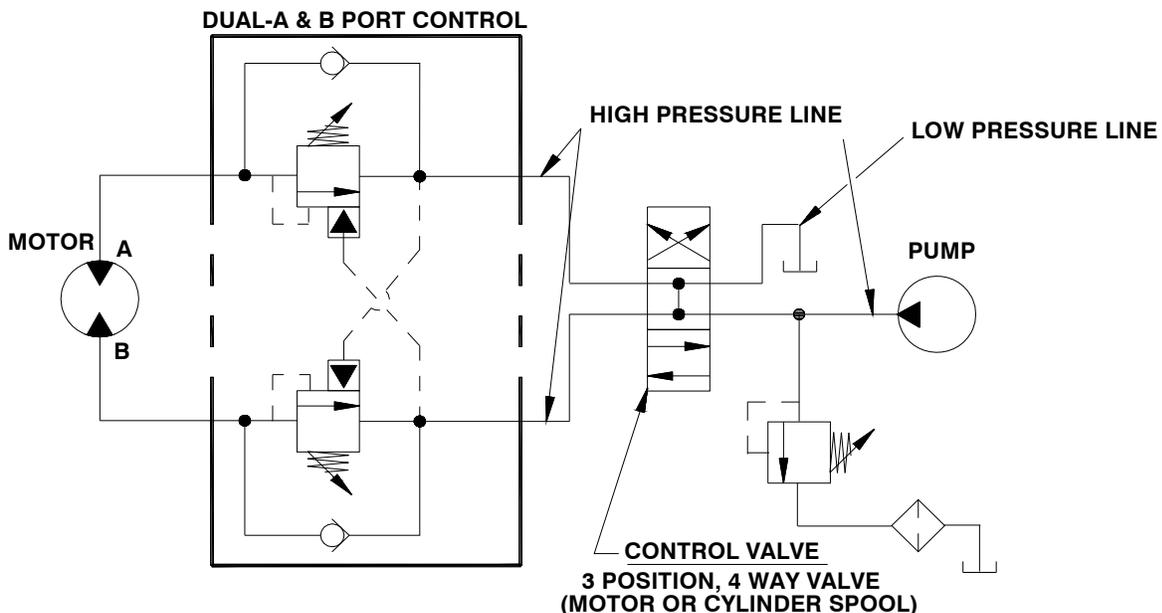
Refer to the performance charts, below, to properly match your hydraulic system to the H930 Series Winch performance. The charts consist of: (1) Line speed, first layer (F.P.M.) vs. gallons per minute (G.P.M.) and (2) Line pull (lbs.) first layer vs. working pressure (P.S.I.). STATIC (solid line) refers to hoisting a suspended load from rest; DYNAMIC (dotted line) refers to maintaining the motion of a moving load.

Performance based on a motor displacement of 24 cubic inches with 35 GPM maximum flow rate. See page 14 for motor port size.

**H930 Performance**  
**30,000 Lb. Duty Rating**  
**41:1 Gear Ratio**



## TYPICAL LAYOUT

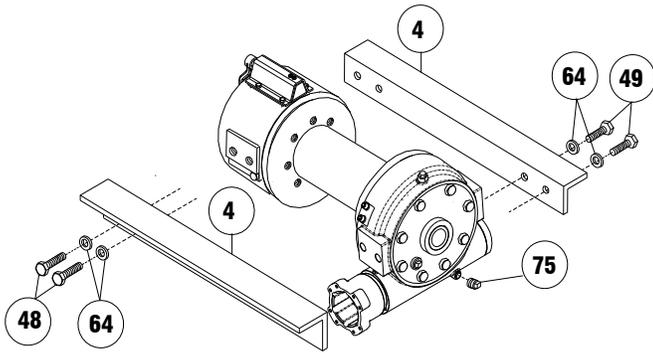


## TROUBLESHOOTING GUIDE

CONDITION	POSSIBLE CAUSE	CORRECTION
CLUTCH INOPERATIVE OR BINDS UP	Dry or rusted shaft.	Clean and lubricate.
	Bent yoke or linkage	Replace yoke or shaft assembly
	Debris in clutch	Clean and lubricate.
	Clutch not disengaging, drum does not freespool	Adjust clutch air shifter. See page 14.
OIL LEAKS FROM HOUSING	Seal damaged or worn	Replace seal.
	Too much oil.	Drain excess oil. Refer to <i>Techniques of Operation</i> .
	Damaged gasket	Replace gasket
WINCH RUNS TOO SLOW	Hydraulic motor worn out.	Replace motor.
	Low flow rate.	Check flow rate. Refer to Hydraulic Systems Performance Chart, page 2.
CABLE DRUM WILL NOT FREE SPOOL	Winch not mounted squarely, causing end bearings to bind drum.	Check mounting. Refer to <i>Winch Mounting</i> section.
	Clutch not disengaged.	Check air pressure to clutch cylinder--70 psi minimum required.
CABLE BIRDNESTS WHEN CLUTCH IS DISENGAGED	Drag brake disc worn.	Replace discs.
HYDRAULIC FLUID LEAKS FROM HOLE IN MOTOR ADAPTER	Damaged motor shaft seal.	Replace seal.

# INSTRUCTIONS FOR OVERHAUL FOR MODEL H930 "DOW-LOK" WINCH

## DISASSEMBLY



Refer to parts list and parts drawing pages for actual item numbers and corresponding parts numbers.

(1)  
Drain oil from gear housing by removing pipe plug (item #75) from gear housing.

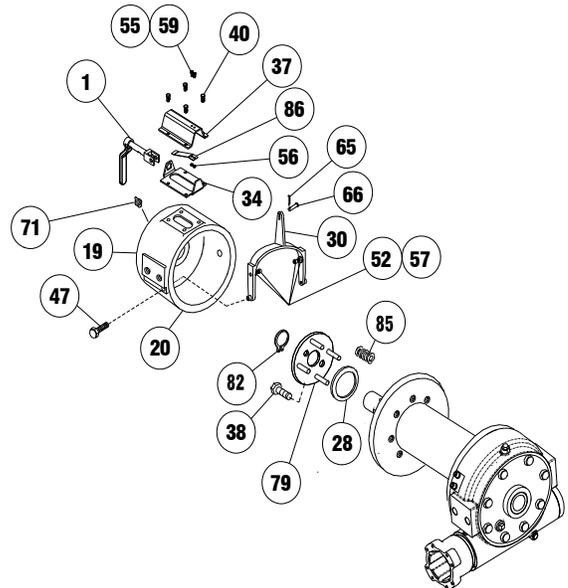
Shift clutch into the engaged "IN" position. Remove frame angles (item #4) from winch by unscrewing (items #48 & #49) cap screws with lockwashers (item #64)

(2)  
Remove two cap screws (item #49) from clutch housing (item #20). Remove the clutch shifter cover (item #37) by removing four cap screws (item #40). Remove the shifter lever assembly (item #1) by removing cotter pin and clevis pin (items #65 & #66).

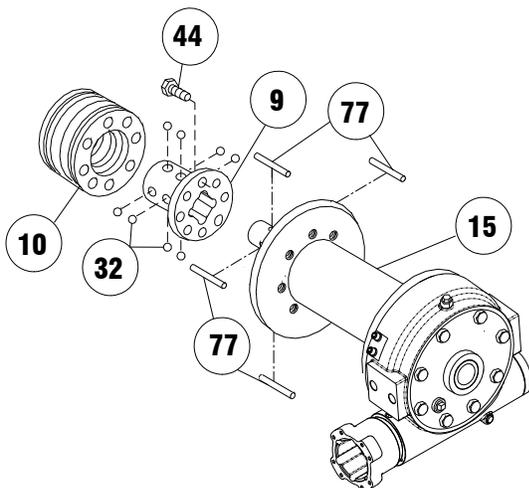
NOTE: The shifter lever assembly (item #1) and bracket (item #34) will remain together. If it is necessary to separate them, you must loosen the large jam nut and screw the clevis and nut off the shifter shaft. If necessary, remove the flat springs (item #86) by removing the two cap screws, lockwashers and nuts (items #55, #59 & #56).

Remove clutch housing from end of drum shaft along with yoke (item #30). NOTE: It will be necessary to pull the yoke upward inside the clutch housing as far as it will go in order to clear the locking ring attached to drum. Press in on retainer plate (item #79) to relieve the spring tension and remove the retainer ring (item #82).

Remove four cap screws (item #38), retainer plate, springs (item #85) and spacer (item #28).



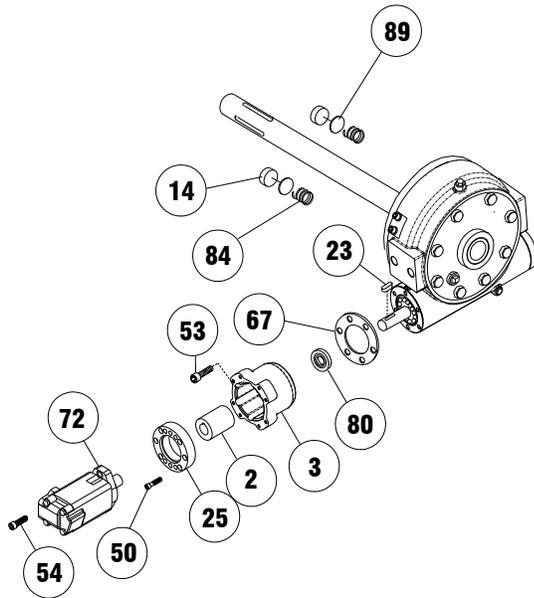
NOTE: For overhaul of air shifter, refer to page 13.



(3)  
Slide the locking ring (item #10) from the clutch. NOTE: The locking ring cannot be removed unless the clutch is engaged, with dowel pins (item #77) seated in the shaft keyways.

Rotate the drum so the eight balls (item #32) and four dowel pins (item #77) can be removed.

If necessary, the clutch (item #9) may be disassembled from the drum by removing eight cap screws (item #44). Slide drum (item #15) from drum shaft.



(4)  
Remove motor (item #72) from adapter plate (item #25) by removing cap screws (item #54) . Remove adapter plate and coupling (item #2) from adapter (item #3) by unscrewing eight cap screws (item #50).

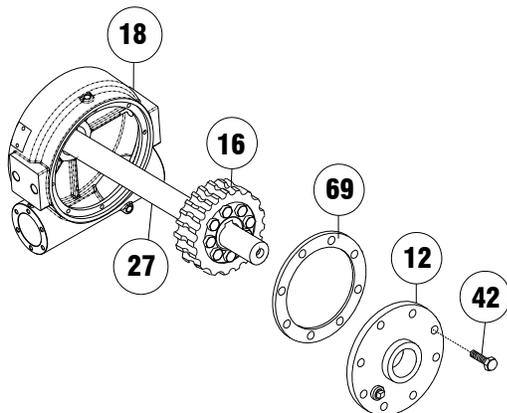
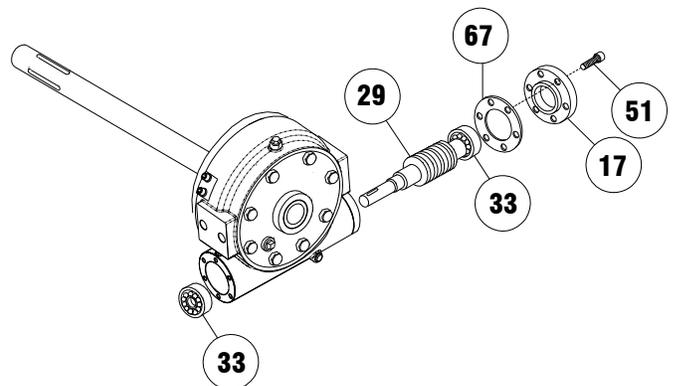
Remove key (item #23) from worm shaft. Unscrew six cap screws (item #53) and remove adapter from gear housing. Replace adapter seal (item #80) and gasket (item #67).

Drag brake disc (item #14), spacer (item #89) and spring (item #84) should be examined and replaced if necessary.

(5)

Remove bearing cap (item #17) from gear housing by unscrewing six (item #51) cap screws. Remove worm (item #29) and bearings (item #33) from gear housing. Use a soft hammer to gently tap input end of worm and drive worm and bearing from gear housing. Once worm has been removed from housing, bearing can be pressed from end of worm.

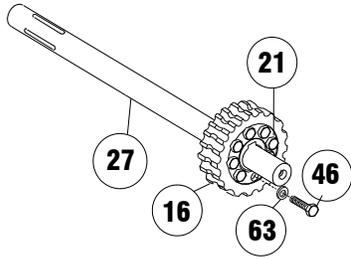
Check for signs of wear or damage to worm (item #29) and bearings (item #33). Replace if necessary.



(6)

Remove gear housing cover (item #12) from gear housing (item #18) by unscrewing eight cap screws (item #42). Thread two of the cap screws into the two tapped holes of cover and tighten. This will pull the cover loose from gear housing.

Remove cover gasket (item #69) and pull shaft (item #27), with gear (item #16) attached, from gear housing.



(7)

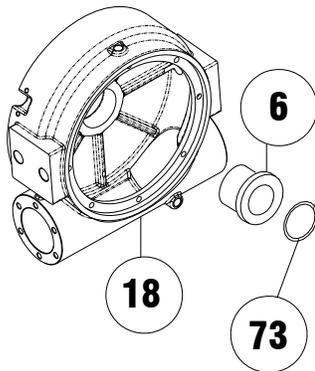
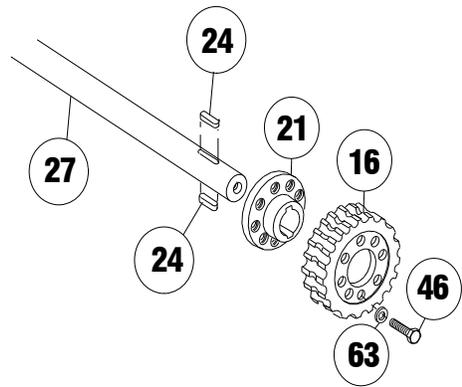
Check for signs of wear on gear teeth. If necessary, replace gear by removing eight cap screws (item #46) and lockwashers (item #63).

Place new gear (item #16) onto gear hub (item #21). Align holes in gear with holes in hub. Press gear onto hub. Be sure gear is seated all the way on the hub. Use ten cap screws (item #46) and lockwashers (item #63) to secure gear to hub. Torque to 121 ft. lbs. (164 Nm.) each.

(8)

If shaft and/or hub is damaged, replace as follows:

1. Tap keys (item #24) into short keyways of drum shaft (item #27).
2. Press shaft (item #27) and keys through gear hub (item #21) until end of keys on long end of shaft are flush with hub.
3. Secure gear to hub using ten (item #46) cap screws with lockwashers (item #63). Torque to 121 ft. lbs. (164 Nm.) each.

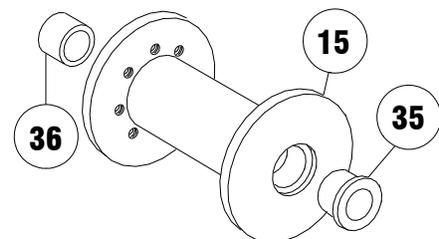


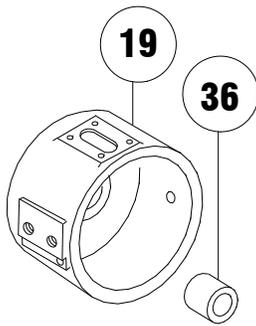
(9)

Check gear housing bushing (item #6) and o-ring (item #73) for signs of wear. Replace if necessary by pressing old bushing from gear housing (item #18). Press new bushing into place and insert new o-ring (item #73) into groove inside of bushing.

(10)

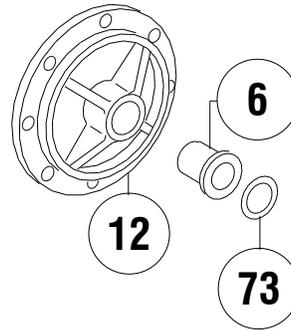
Check drum bushings (items #35 & #36) for signs of wear. Replace if necessary by pressing old bushings from drum (item #15). Press bushing (item #35) into bore in drum until its flange is seated against bottom of counter-bore. Press bushing (item #36) into opposite bore on drum until end of bushing extends .50" from end of drum.



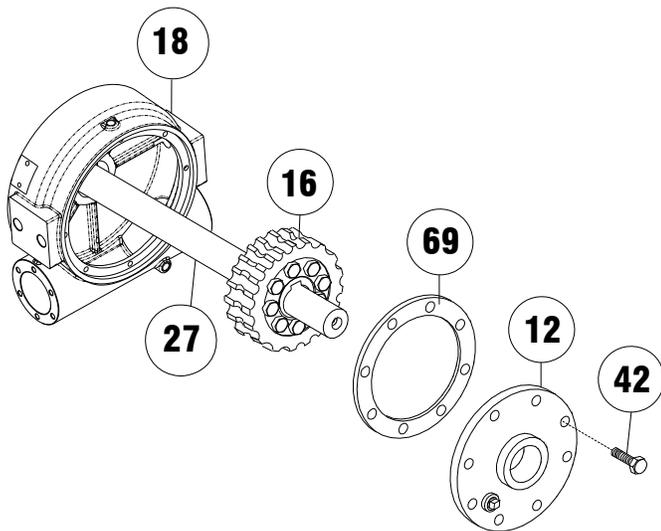


(11)  
Check end bearing bushing (item #36) for signs of wear. If necessary, remove old bushing and press new bushing into place.

(12)  
Check cover bushing (item #6) and o-ring (item #73) for signs of wear. Replace if necessary by pressing old bushing from gear housing cover (item #12). Press new bushing into place and insert new o-ring (item #73) into groove inside of bushing.

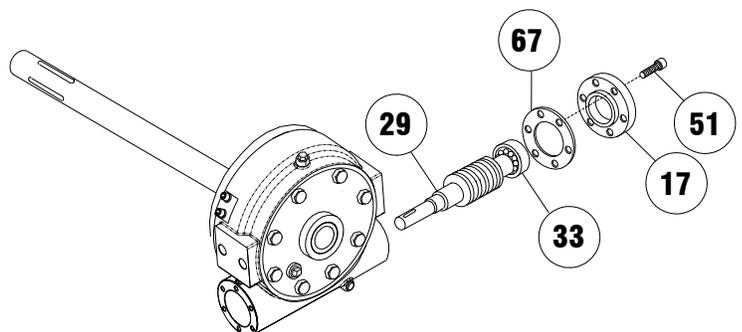


### **RE-ASSEMBLY**



(13)  
Apply grease to end of shaft (item #27), opposite gear (item #16). Apply grease to bushing in gear housing (item #18). Place greased end of shaft through bushing in gear housing (item #18). Place gasket (item #69) onto gear housing cover (item #12). Apply grease to gear end of shaft and cover bushing. Place cover onto shaft and secure to housing with eight (item #42) cap-screws. Tighten cap screws to 39 ft. lbs. (52 Nm.) each.

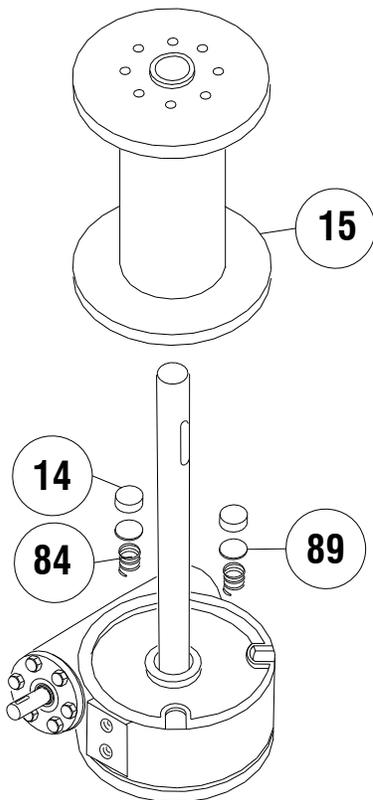
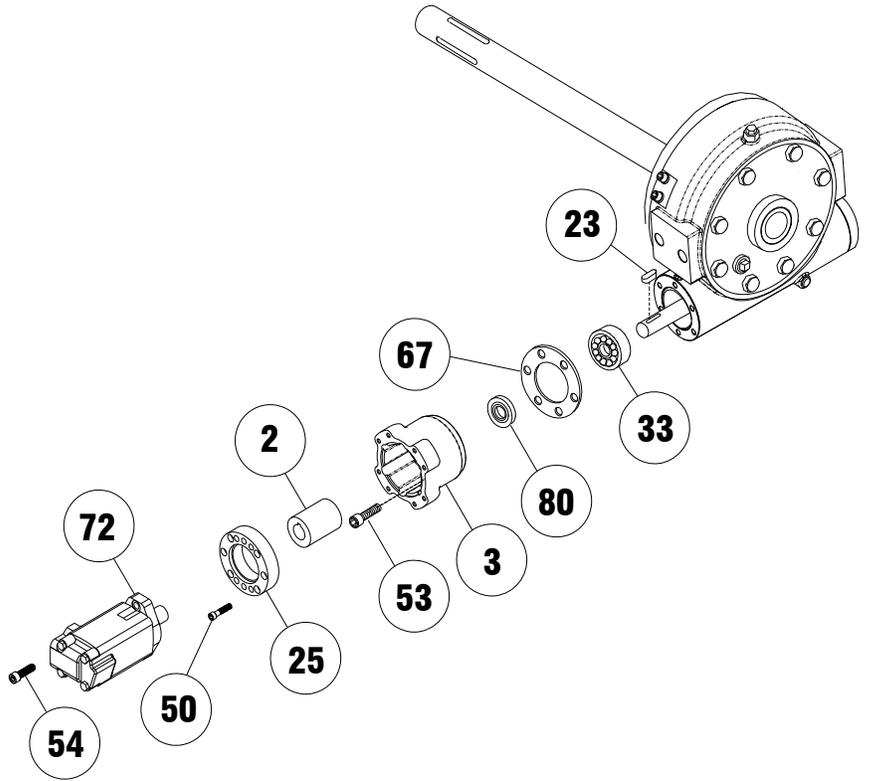
(14)  
Press bearing (item #33) onto worm (item #29).  
**NOTE:** Be sure that thick shoulder of bearings outer race (side with manufacturer's name and part number) is out, away from worm threads. Press bearing and worm into gear housing. Slip gasket (item #67) onto bearing cap (item #17). Use six cap screws (item #51) to secure brake housing to gear housing. Tighten cap screws to 45 ft. lbs. (61 Nm.) each.



(15)

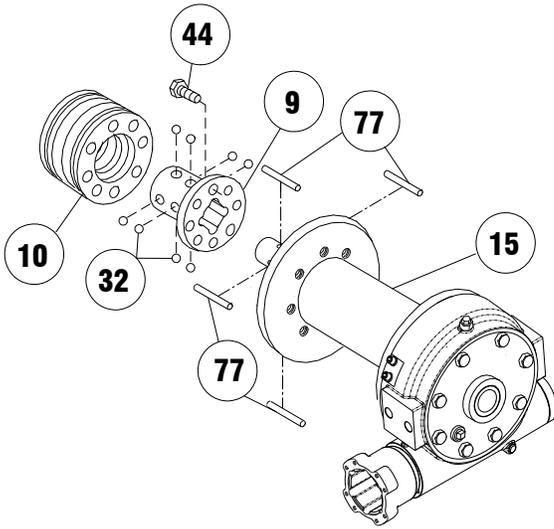
Press bearing (item #33) onto worm and into housing. **NOTE:** Be sure that thick shoulder of bearings outer race (side with manufacturer's name and part number) is out, away from worm threads. Attach adapter (item #3) to gear housing using six capscrews (item #53). Tighten capscrews to 45 ft. lbs. (61 Nm.) each. Insert key (item #23) into keyway of worm shaft. Slide coupling (item #2) over end of worm shaft. Attach adapter plate (item #25) to adapter using eight capscrews (item #50). Tighten capscrews to 21 ft. lbs. (28 Nm.) each.

Place motor shaft, with key in keyway, into coupling. Secure motor (item #72) to adapter, using two capscrews (item #54). Tighten capscrews to 102 ft. lbs. (138 Nm.) each.



(16)

Place winch with gear housing cover down on work bench. Drum shaft should be in vertical position. Set springs (item #84) into pockets of gear housing with drag brakes (item #14) on top of disc (item #89) and springs. Slide drum assembly (item #15) onto drum shaft as shown.



(17)

Place clutch (item #9) over end of drum shaft. Align the clutch over the pilot bushing in drum. Install the eight capscrews (item #44) and torque the capscrews to 103 ft. lbs. (139 Nm.) to securely seat the clutch to the drum.

Rotate the drum to align the clutch slots with the shaft keyways. Lightly grease four dowel pins, (item #77) and eight balls (item #32) with molybdenum disulfide or graphite bearing grease. Insert the four dowel pins and eight balls. In the engaged position the balls are nearly flush with the clutch.

Lightly grease the internal and external groove and bore in locking ring (item #10) and clutch (item #9).

Slide locking ring onto the clutch. When fully engaged, the locking ring touches the clutch flange and there is .71 to .73 inches between the end of the locking ring and the end of the clutch.

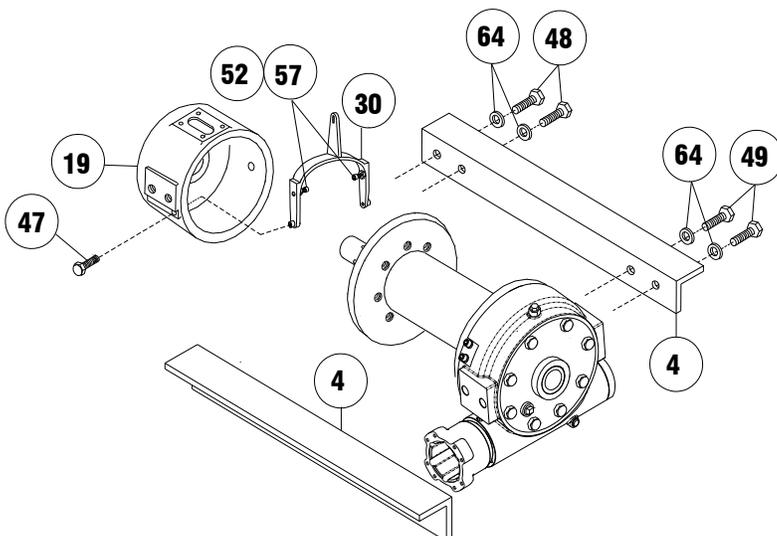
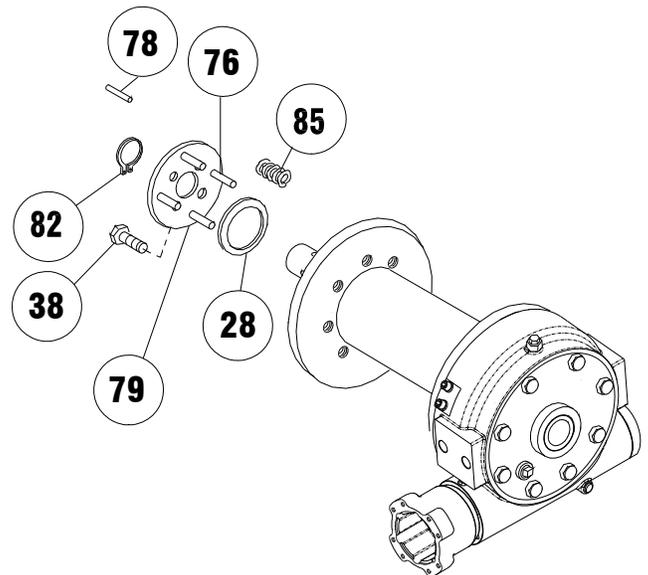
(18)

Lightly grease the four springs (item #85) and place over four roll pins on retainer plate (item #76).

**NOTE:** If roll pins (items #76 & #78) are damaged, remove pins from plate and install new pins as follows:

Insert four roll pins (item #76) into same retainer plate holes. Drive pins into plate until pins extend 5/16" thru, the clutch housing side, of retainer plate. Drive roll pins (item #78) into ends of (item #76) pins, extending 5/16" beyond retainer plate, until ends of roll pins are flush. Check to make sure that roll pins still extend 5/16" through retainer plate.

Install spacer (item #28), retainer plate, with springs, and secure to clutch using four capscrews (item #38). Torque capscrews to 9.7 ft./lbs. (13 Nm.) each. Firmly seat the retainer ring (item #82) into drum shaft groove.



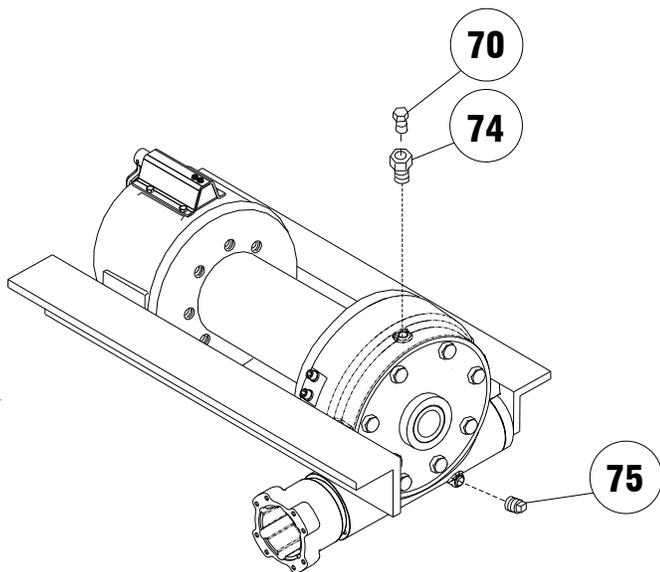
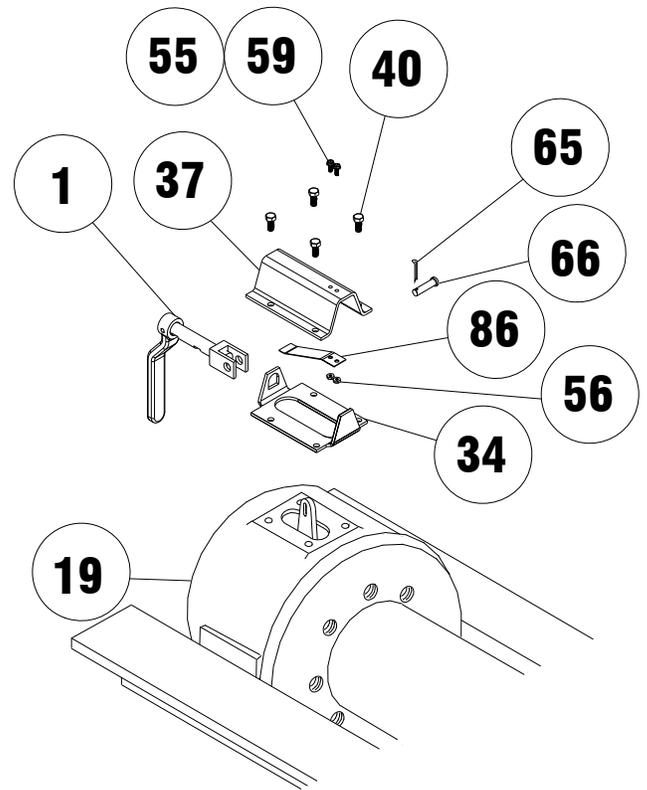
(19)

Set the yoke (item #30) so that the screw heads (item #52) engage the external groove in the locking ring. Push the clutch housing (item #19) onto the drum shaft and latch the shifter assembly in the engaged "IN" position. Insert the two capscrews (item #47) and securely tighten. Attach mounting angles (item #4) to winch assembly using four capscrews (item #48), at clutch housing, and four capscrews (item #49), at gear housing, with lockwasher (item #64). Torque capscrews to 500 ft. lbs. (678 Nm.) each.

(20)

The shift linkage on top of the clutch housing is adjusted at the factory to provide reliable shifting of the "Dow-Lok" clutch. When reassembling, it may be necessary to readjust it as follows. Attach the bracket (item #34) to the clutch housing with the capscrews (item #40). Attach the shifter lever assembly to the yoke using the clevis pin and cotter pin (items #65 & #66). With the clutch in the engaged "IN" position, the notch in the shifter shaft should be latched onto the bracket with a minimum of shaft end play so that the clutch is securely latched "IN". If adjustment is needed, loosen the large jam nut and screw the shaft into or out of the clevis as needed. Securely tighten the jam nut.

Lift up on the handle and pull it toward you as far as it will go until the other notch in the shaft latches onto the bracket, thus securing the clutch in the disengaged "OUT" position. You should now be able to turn the cable drum freely by hand. After turning the cable drum by hand, lift up on the handle and push in as far as it will go. Turn the cable drum by hand a maximum of 1/4 revolution and the handle will spring to the "IN" position latching the clutch into engagement. Attach the cover (item #37) to the clutch housing and check the action of the clutch several times.



(21)

Insert plug (item #75) into bottom of gear housing.

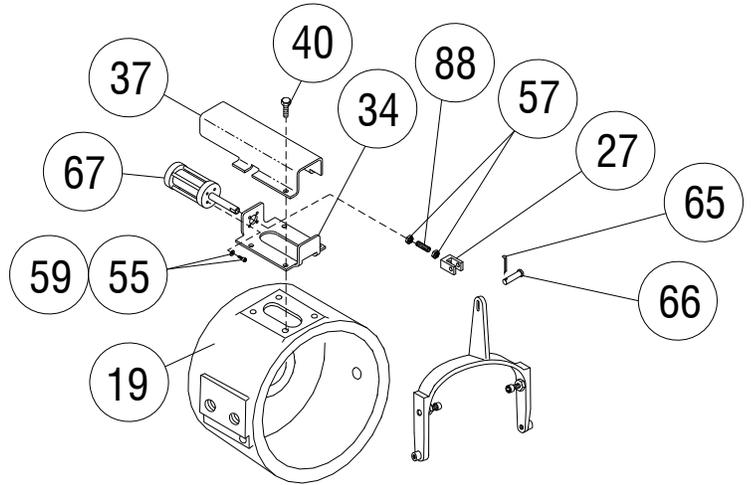
Remove plug (items #70 & #74) from top of gear housing. Pour 4 pints of E.P. 140 worm gear oil into hole and replace plugs.

# AIR SHIFTER OVERHAUL

## DISASSEMBLY

If the air cylinder needs to be removed, remove (4) capscrews (item #40) that hold the cover (item #37) and bracket (item #34) onto the clutch housing (item #19). Remove cotter pin (item #65) and clevis pin (item #66) that hold clevis (item #27) to yoke. Loosen jam nuts (item #57) and unscrew stud (item #88) from clevis and air cylinder (item #67).

To remove air cylinder from bracket, remove (4) capscrews and lockwashers (items #55 and #59).



## RE-ASSEMBLY

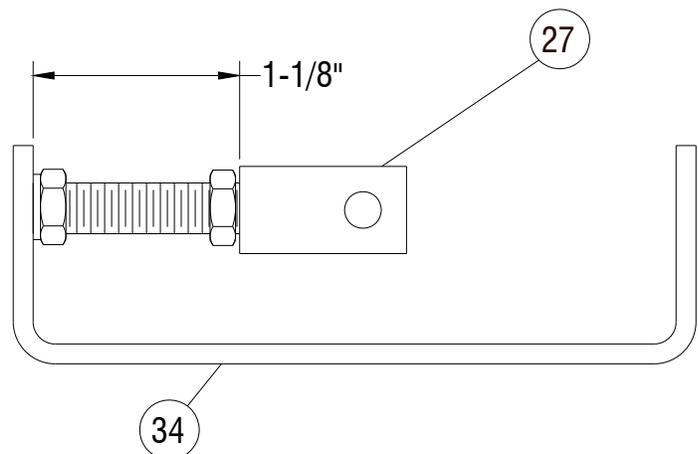
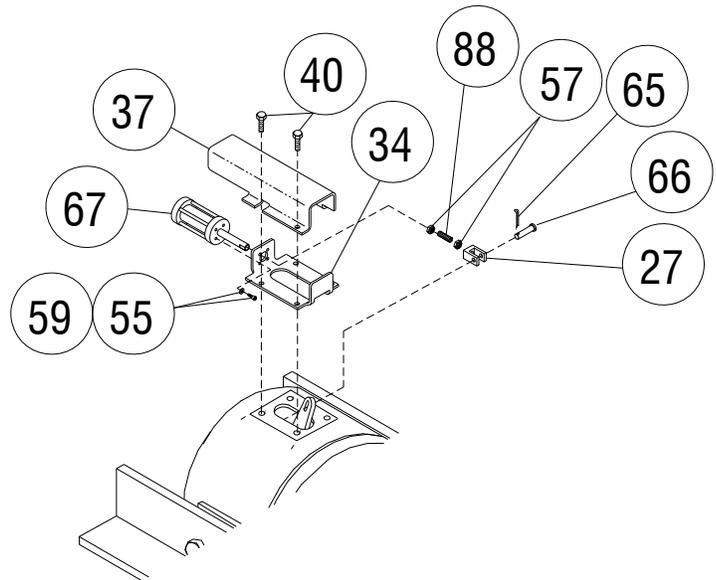
Install bracket (Item #34) using (2) capscrews (item #40), reserving the other (2) capscrews to install the cover later. Tighten to 18 ft-lbs torque. Install the air cylinder (item #67) using (4) capscrews and lockwashers (items #55 and #59). Tighten these screws to 45 in-lbs.

Apply Loc-tite #262 to stud (item #88). Install (2) jam nuts (item #57) onto stud, then attach stud to air cylinder shaft. Screw clevis (item #27) to other end of stud and adjust stud until back of clevis is 1-1/8" from bracket (item #34), as shown at right.

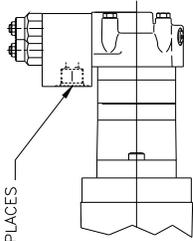
Pull yoke to fully engaged position, and attach clevis to shifter using pin (item #66) securing with cotter pin (item #65). Confirm that clevis pin is not in a bind when shifter is in engaged position. Adjust stud slightly if it is. Tighten jam nuts to keep stud in correct position.

Connect air pressure (70-90 PSI) to inlet port of air cylinder and disengage clutch. Confirm that clutch is fully disengaged and freespool winch. Release air pressure and confirm that travel of air cylinder shaft is 1/8 to 3/16". Continue to freespool winch and confirm that winch shifts to full engagement.

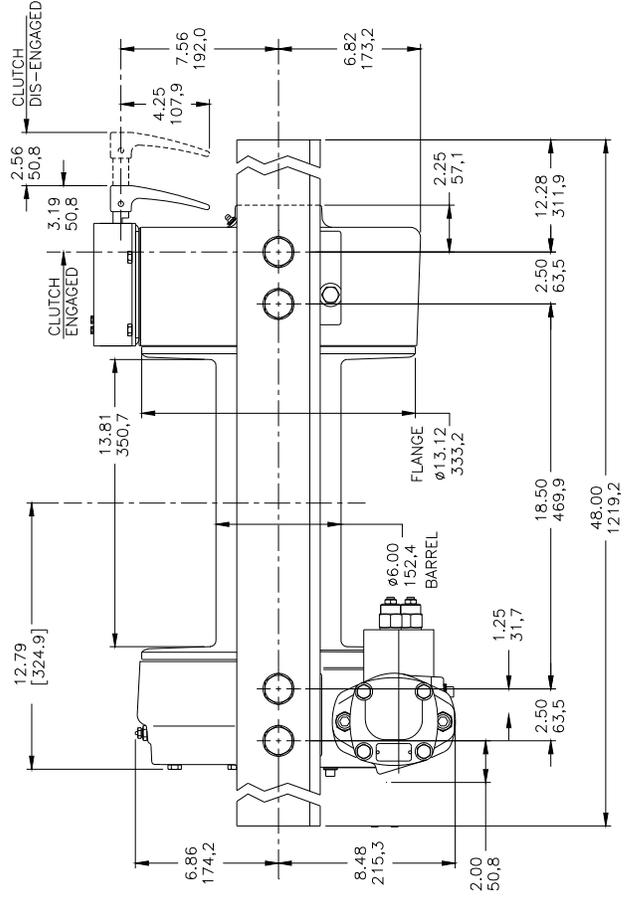
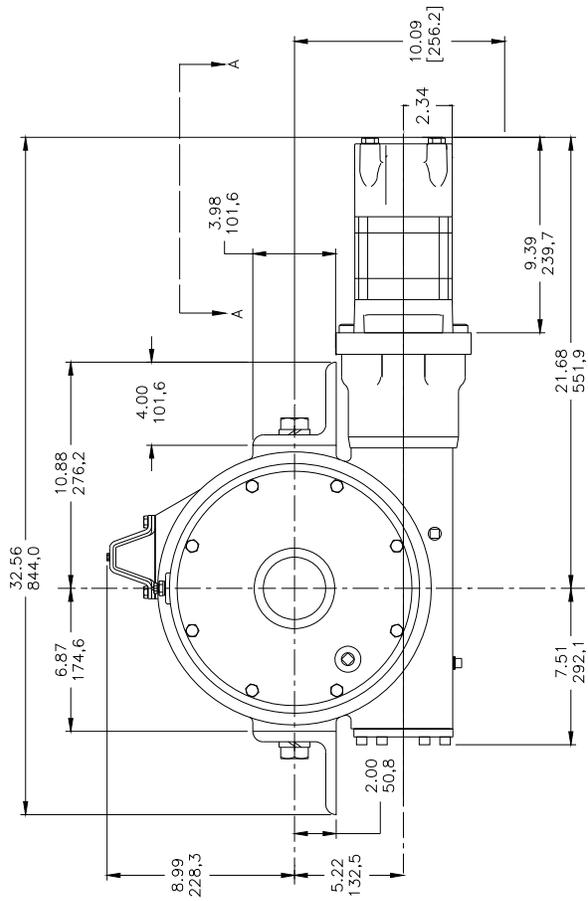
Install cover (item #37) using (2) capscrews (item #40). Tighten to 18 ft-lbs. torque.



7/8-14 SAE O-RING PORTS  
(TYP) 2 PLACES

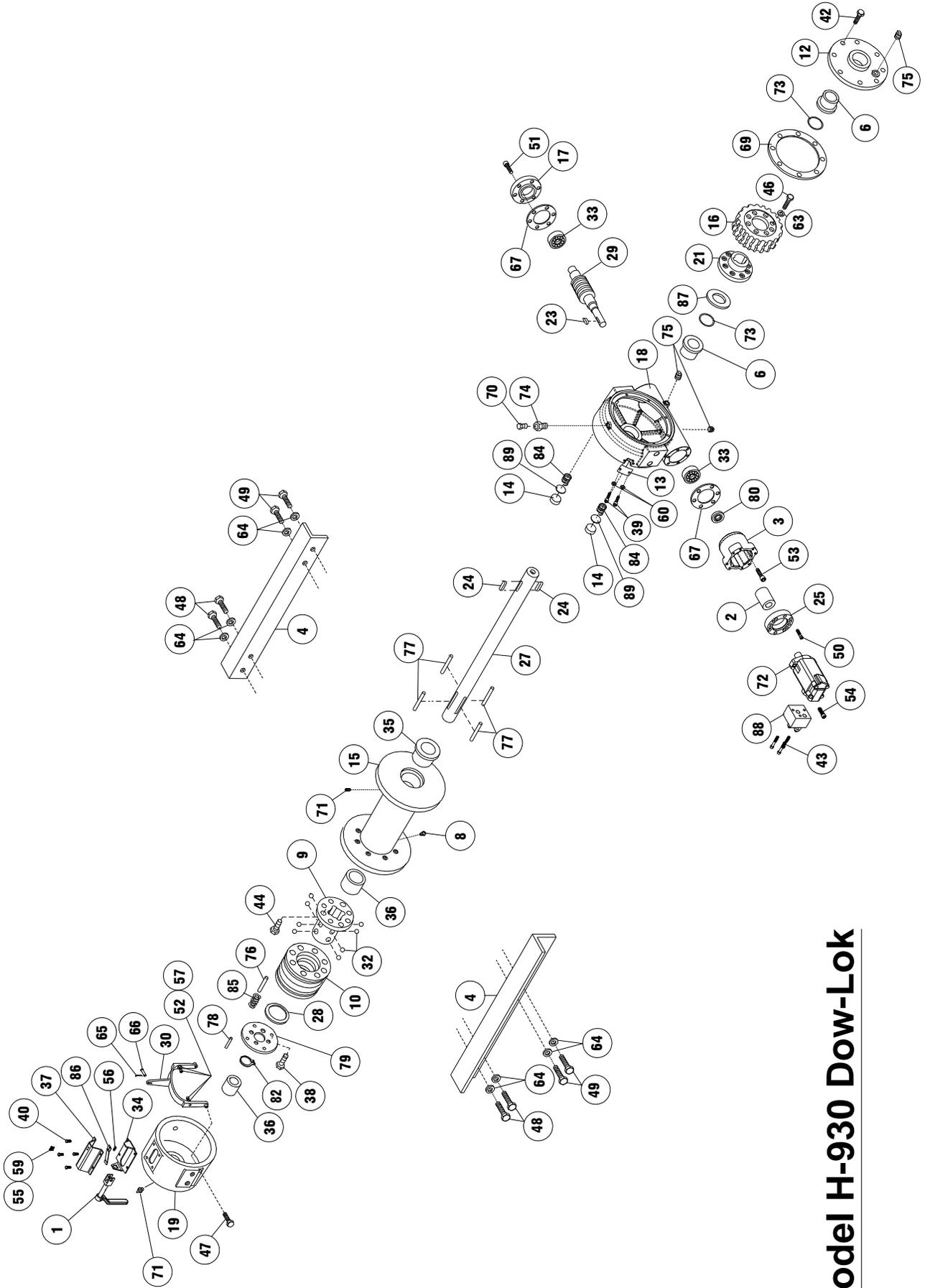


VIEW A-A



DIMENSIONS SHOWN ARE INCHES OVER MILLIMETERS

## NOTES



# Model H-930 Dow-Lok

# PARTS LIST

## Model H930 Dow-Lok®

Item No.	Qty.	Part No.	Description	Item No.	Qty.	Part No.	Description
1	1	276040	SHIFTER ASSEMBLY	46	10	414606	CAPSCREW - 1/2-20NF X 2 LG HX HD GR.8
2	1	299733	COUPLING ASSEMBLY	47	2	414619	CAPSCREW - 1/2-13NC X 2-1/2 LG HX HD ALL-THRD C.P.
3	1	300048	ADAPTER	48	4	414784	CAPSCREW - 7/8-9NC X 2 LG HX HD GR.5
4	2	302902	ANGLE	49	4	414786	CAPSCREW - 7/8-9NC X 2 LG HX HD NYLOK H.P.
5	2	308083	NOT USED	50	8	414871	CAPSCREW - 5/16-18NC X 1-1/4 LG SOC HD LOK-WEL
6	2	308083	BUSHING	51	6	414897	CAPSCREW 3/8-16NC X 1 LG SOC. HD.
7	2	308083	NOT USED	52	2	414905	CAPSCREW 3/8-16NC X 1-1/4 LG SOC. HD.
8	1	416059	SETScrew - 3/8-16NC X 1/2 LG CUT POINT	53	6	414909	CAPSCREW 3/8-16NC X 1-3/4 LG SOC HD LOK-WEL
9	1	324151	CLUTCH	54	2	414950	CAPSCREW 1/2-13NC X 1-3/4 LG SOC HD LOK-WEL
10	1	324321	LOCKING RING	55	2	416236	SCREW - #10-24NC X 1/2 HX HD CP
11	1	324321	NOT USED	56	2	418004	NUT #10-24NC HX REG CP
12	1	328122	COVER - GEAR HSG.	57	2	418035	NUT 3/8-16NC HX REG C.P.
13	2	328127	COVER - DRAG BRAKE	58	2	418141	NOT USED
14	2	330010	SHOE - DRAG BRAKE	59	2	418149	LOCKWASHER - #10 MED
15	1	332132	DRUM	60	4	418149	LOCKWASHER 1/4 MED SECT CP
16	1	334150	GEAR - R.H.	61	2	418149	NOT USED
17	1	316021	BEARING CAP	62	2	418149	NOT USED
18	1	338253	HOUSING - GEAR	63	10	418217	LOCKWASHER 1/2 MED SECT
19	1	338254	HOUSING - CLUTCH	64	8	418258	LOCKWASHER 7/8 MED SECT
20	1	340068	NOT USED	65	1	424005	COTTER PIN
21	1	340068	HUB - GEAR	66	1	424205	PIN - CLEVIS
22	1	342083	NOT USED	67	2	442192	GASKET
23	1	342153	KEY	68	2	442192	NOT USED
24	2	350535	KEY	69	1	442195	GASKET
25	1	350535	PLATE - ADAPTER	70	1	456008	FITTING - RELIEF
26	1	357457	NOT USED	71	2	456031	FITTING- LUBE
27	1	362224	SHAFT - DRUM	72	1	458165	MOTOR-HYD.
28	1	368212	SPACER	73	2	462013	QUAD RING
29	1	370052	WORM - R.H.	74	1	468002	REDUCER
30	1	370052	YOKE	75	2	468011	PIPE PLUG
31	1	400011	NOT USED	76	2	470042	PIN - ROLL
32	8	402045	BALL - CLUTCH	77	4	470044	PIN - DOWEL
33	2	408112	BEARING - BALL	78	4	470056	PIN - ROLL
34	1	412051	BRACKET - CLUTCH SHIFTER	79	1	474030	PLATE - RETAINER
35	1	412051	BUSHING	80	1	486068	SEAL - OIL
36	2	412052	BUSHING	81	1	490025	NOT USED
37	1	413028	COVER - SHIFTER	82	1	490025	RING - RETAINER
38	4	414038	CAPSCREW - 1/4-20NC X 3/4 LG HX HD GR.5	83	2	494002	NOT USED
39	4	414055	CAPSCREW - 1/4-20NC X 1/2 LG HX HD C.P.	84	4	494069	SPRING - DISC
40	4	414069	CAPSCREW - 5/16-18NC X 3/4 HX HD	85	4	494078	SPRING
41	4	414069	NOT USED	86	2	494078	SPRING - FLAT
42	8	414277	CAPSCREW - 3/8-16NC X 1 LG HX HD NYLOK H.P.	87	1	518016	THRUST WASHER
43	3	414305	CAPSCREW - 3/8-16NC X 3 1/4 HXHD, Z/P, G5	88	1	516056	MOTOR VALVE
44	8	414571	CAPSCREW - 1/2-20NF X 1 LG HX HG GR.5	89	2	530094	SPACER - BRAKE
45	1	414571	NOT USED				

## 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 repairs or alterations have been made, unless authorized by the Manufacturer, or for equipment misused, neglected or which has not been installed correctly.

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 of 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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