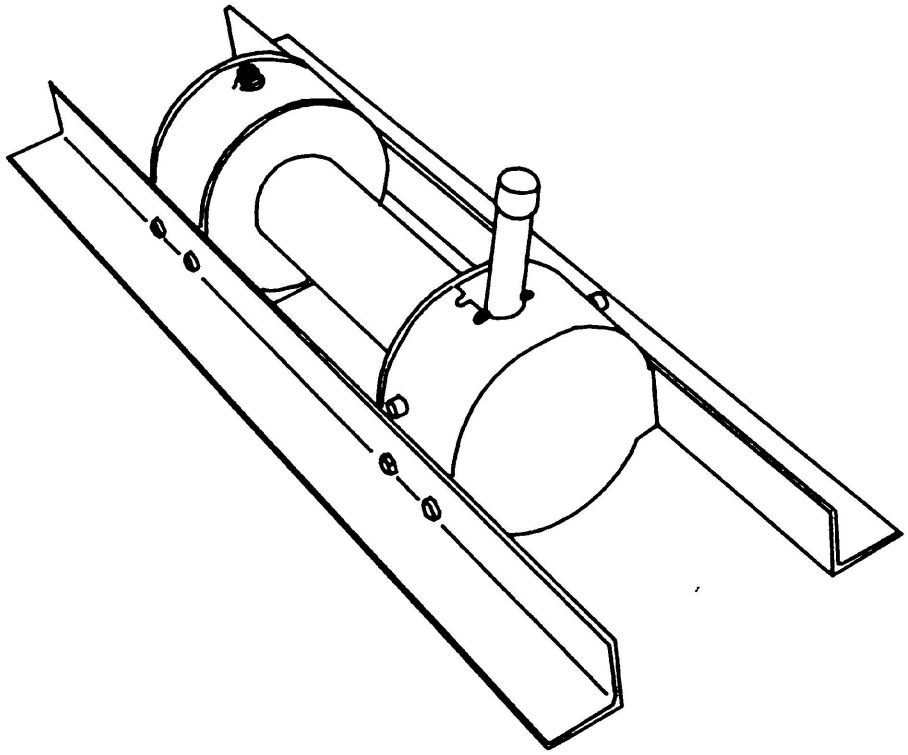
RAMSEY WINCH

OPERATING, SERVICE AND MAINTENANCE MANUAL



MODEL 200 SERIES
MODEL H-200 SERIES
DOW-LOK® EQUIPPED
INDUSTRIAL LOW-MOUNT
WINCHES

U. S. PATENT #4379502

INCLUDES 200/Y-200, 246/Y-246, D-200/DY-200 H-200/HY-200, H-246/HY-246, HD-200/HDY-200 AND MODELS EQUIPPED WITH OPTIONAL ADJUSTABLE, AUTOMATIC, OIL COOLED SAFETY BRAKE: G-200 SERIES & HG-200 SERIES

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

TABLE OF CONTENTS

RAMSEY WINCH MODEL 200/H-200 SERIES

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 (lbs. 1st Layer).....8,000 lbs.

Gear Reduction: 200/H-200.....60:1
246/H-246.....46:1
D-200/HD-200.....30:1

Weight: 200/246/D-200.....85 lbs. (39 Kgs.)
H-200/H-246/HD-200.....110 lbs. (50 Kgs.)
Y-200/Y-246/YD-200.....80 lbs. (36 Kgs.)
HY-200/HY-246/HYD-200.....105 lbs. (48 Kgs.)

Layer of Cable		1	2	3	4
Rated Line Pull per layer	Lbs.	8,000	6,700	5,700	5,000
	Kgs.	3,620	3,030	2,610	2,290
Long Drum Cable capacity per layer	Ft.	25	60	95	140
	M.	8	18	30	43
Short "Y" Drum cable capacity per layer	Ft.	15	30	55	75
	M.	4	9	16	22

Line Speed		Worm RPM	1	2	3	4
200 Y-200	FPM	1000	16.8	20.0	23.0	26.0
	MPM		5.0	6.0	7.0	8.0
246 Y-246	FPM	1000	22.0	26.0	29.0	34.0
	MPM		6.6	7.8	8.8	10.5
D-200 YD-200	FPM	1000	33.0	40.0	46.0	53.0
	MPM		10.1	12.1	14.1	16.1
H-200 HY-200	FPM	750	12.6	15.1	17.5	20.0
	MPM		3.8	4.5	5.3	6.0
H-246 HY-246	FPM	750	16.5	19.7	22.0	26.0
	MPM		5.0	5.9	6.6	7.9
HD-200 HDY-200	FPM	750	25.0	30.0	35.0	40.0
	MPM		7.6	9.1	10.6	12.1

*These specifications are based on recommended 3/8 inch dia. extra improved plow steel wire rope or equivalent.

△Winch only conforms to SAE J706. For SAE qualification of mounting angles, if applicable, consult Ramsey Engineering.

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 drum. If this happens, reverse the winch to relieve the load and move your anchor point further to the center of the vehicle. After the job is done you can unspool and rewind for a neat lay of the cable.

When pulling a load where there is even a remote chance of cable failure, place a blanket, jacket or tarpaulin over the cable about six feet behind the hook. This will slow the snap back of a broken cable and could prevent serious injury.

Inspect the cable frequently. If the cable becomes frayed with broken strands, replace immediately. Cable and hook assembly may be purchased from a Ramsey distributor.

> NOTE: The Ramsey Level Winder for both drum lengths is an available accessory for tightly respooling unloaded cable onto the drum.

The DOW-LOK® clutch provides free spooling and clutch engagement with the cable drum. With the clutch disengaged, the cable can be pulled off the drum by hand. For winching in the load, the clutch must be fully engaged with the drum.

The DOW-LOK® clutch is latched into either the engaged, "IN", position or the disengaged "OUT", position by a pin at the bottom of the shifter handle which fits into latching slots.

TO UNLATCH CLUTCH, grasp handle firmly and while pushing on the top of the handle with the thumb for leverage, lift until pin clears latching slots.

TO DISENGAGE CLUTCH, unlatch and push handle to "OUT" position and fully insert pin sinto latching slots. **DO NOT ATTEMPT TO DISENGAGE WITH A LOAD ON THE WINCH.**

TO ENGAGE CLUTCH, unlatch and pull handle toward "IN" position as far as it will go. 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. The clutch will automatically spring into engagement and pin will drop into "IN" slots when this alignment takes place. **DO NOT ATTEMPT TO LIFT A LOAD UNLESS PIN IS FULLY INTO "IN" SLOTS. KEEP CLEAR OF SPRING LOADED HANDLE DURING AUTOMATIC ENGAGEMENT. The plastic plug in top of clutch housing may be removed, for inspection of clutch to assure total engagement.**

⚠ WARNINGS

CLUTCH MUST BE TOTALLY ENGAGED BEFORE STARTING THE WINCHING OPERATION.

DO NOT DISENGAGE CLUTCH UNDER LOAD.

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

STAY OUT FROM UNDER AND AWAY FROM RAISED LOADS.

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

DO NOT EXCEED MAXIMUM LINE PULL RATINGS SHOWN IN TABLE.

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

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

IN CAR CARRIER APPLICATIONS, AFTER THE VEHICLE IS LOADED AND SECURED BY TWO FRONT TIE DOWN CHAINS OR STRAPS, RELIEVE THE WINCH CABLE TENSION. SECURE THE LOAD AT THE REAR WITH TWO TIE DOWN CHAINS OR STRAPS THE WINCH CABLE IS NOT TO BE USED AS A TIE DOWN.

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. Check the action of the Dow-Lok® clutch 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 fully 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. Check the torque setting of the oil cooled worm brake. Make any adjustments required, following the procedure described in ADJUSTING THE OIL COOLED WORM BRAKE in the Owner's Manual.
5. Check alignment of chain and sprockets and adjust as required to minimize wear.
6. 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 200/H-200 Series Winches are furnished with recommended mounting angles. Angle size is 1/4 x 2-1/2 x 2-1/2 x 36" Lg. high strength steel angle.

CABLE INSTALLATION

1. Unwind cable by rolling it out along the ground to prevent kinking. Securely wrap end of cable, opposite hook, with plastic or similar tape to prevent fraying.
2. Insert the end of cable, opposite hook end, into the 7/16" dia. hole in 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.

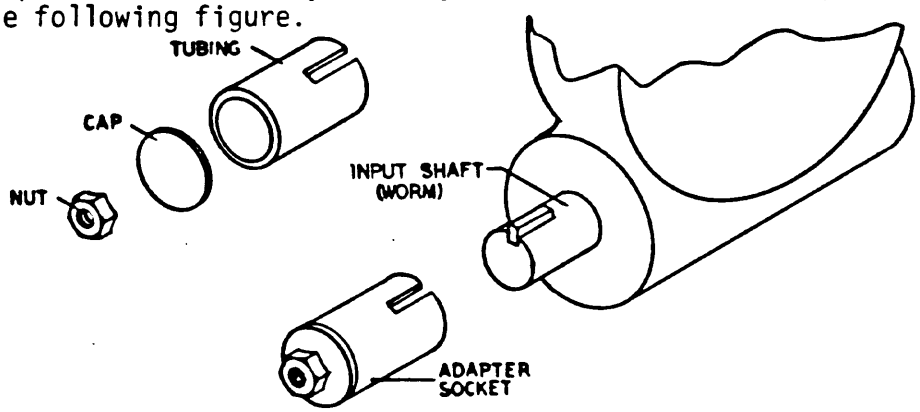
ADJUSTING THE OIL COOLED WORM BRAKE

The oil-cooled, fully adjustable, automatic safety brake operates in the worm housing lubricant, all parts being submerged in oil. When the brake wears to the point that the load begins to drift, the brake can be adjusted as follows:

1. Loosen the lock nut on the adjusting screw.
2. Tighten the brake by turning the adjusting screw clockwise. CAUTION: Only 1/4 turn is usually required to adjust the brake. Over-tightening can cause overheating, and damage to the brake parts. Tighten the lock nut after adjustment is completed.

If the brake does not respond to adjustment then a new leaf spring and brake disc is needed.

A torque wrench can be equipped with a special adapter to fit the input shaft (worm) of the winch. The adapter can be made by welding a nut to the end of a piece of tubing as shown in the following figure.



After welding the cap and nut to the tubing, slot the tubing as shown. This will allow the special adapter to slide over the keyway and will then act as a large socket. A torque wrench can then be used to apply the proper torque. Turn the torque wrench so that the drum turns in the spool out direction or lowering direction. The torque rating for the Model 200/246 should be 8 to 13 ft. lbs. (D-200, 13 to 18 ft. lbs.). If the torque wrench does not show the proper value as it turns, then the worm brake adjusting bolt should be turned clockwise 1/4 turn. Each time the adjusting bolt is turned, check the torque reading. Continue this procedure until the proper torque reading is achieved. Then tighten the lock nut.

SERVICING OF THE OIL COOLED SAFETY BRAKE

1. Remove the drain plug and drain the worm gear oil from the worm housing.

2. Back off the lock nut, then the adjusting screw, both two turns or more by turning them counter-clockwise.

3. Remove the cover mounting screws.

4. Remove the cover along with coil spring and leaf spring.

5. Remove the retainer plate, composition brake disc, cam plate and balls. Note slots balls are in.

6. Inspect parts as follows:

   a). Composition brake discs are 1/8" thick when new. Replace if thinner than .080" or if surfaces are glazed or burnt.

   b). Inspect the flat, ground surface of the cam plate and retainer plate for glazing, warpage, or other damage. Glazing can be removed by scraping carefully.

   c). Inspect the leaf spring. It should be bowed 1/8".

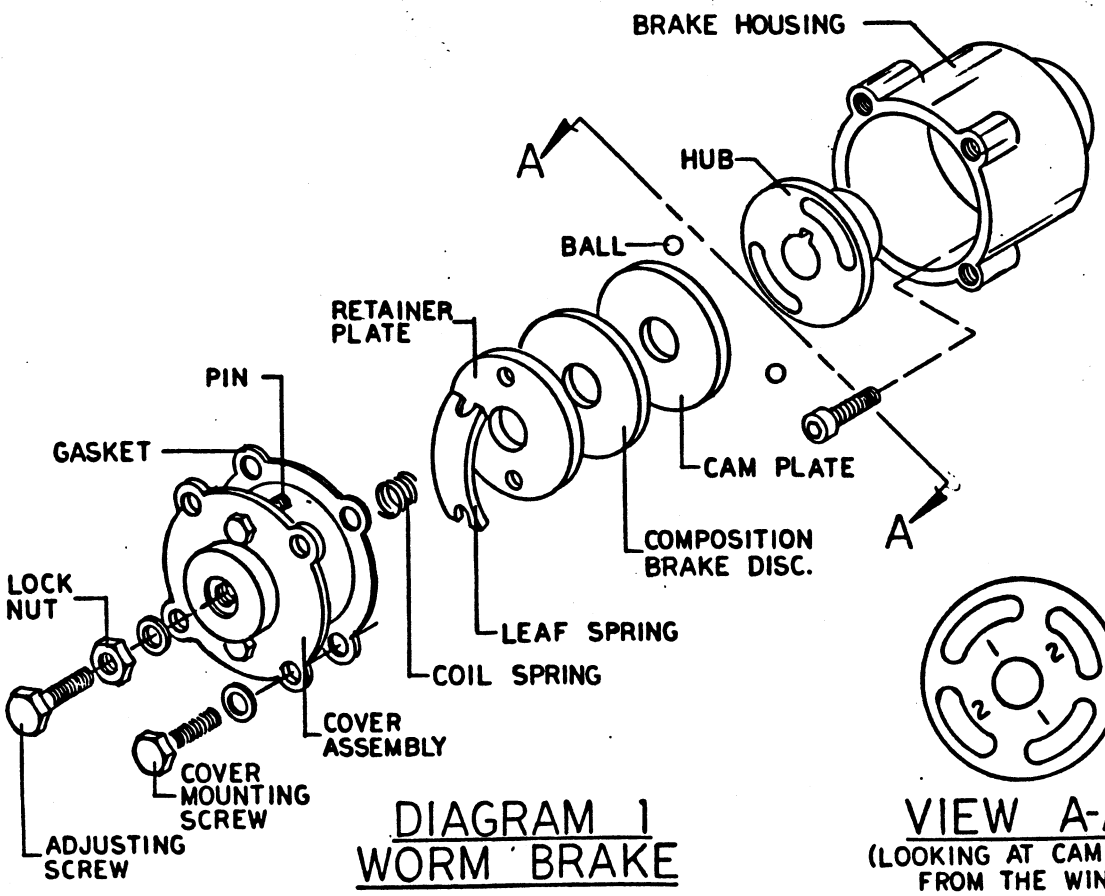


DIAGRAM 1
WORM BRAKE

VIEW A-A
(LOOKING AT CAM PLATE FROM THE WINCH)

RE-ASSEMBLING AND CHECKING THE BRAKE

1. Press brake hub into place over worm shaft and key.

2. Assemble ball into appropriate slots of cam. (Refer to diagram 1, page 5). Use stiff grease to hold balls into place and slide cam over end of worm. Be sure that balls are secure, between cam slots and hub slots. Refer to Page 7 to determine proper ball slot setting.

3. Install brake disc.

4. Install retainer plate, smooth side toward brake disc.

5. Install the gasket on the cover with a small amount of grease or sealer.

6. The coil spring goes over the adjusting screw on the inside of the cover.

7. Install the notches of the leaf spring on the pins protruding through the cover. The hollow side of the leaf spring goes toward the brake.

8. Install brake housing cover, making sure the protruding pins go through the leaf spring and into the holes in the retainer plate.

9. Bolt cover into place with the mounting screws. Install drain plug and add 1 pint SAE 140 EP oil.

10. Turn winch in the hoisting direction at least one turn of the input shaft.

11. Turn the adjusting screw in until it is finger tight.

TEST FOR PROPER BRAKE ASSEMBLY

After the brake has been adjusted to the proper torque setting disengage clutch. Start vehicle engine and run winch in the reel in (hoisting direction). Allow winch to run in this direction for one minute.

Place your hand on the safety brake housing. If housing is not hot to the touch then run winch in the reverse direction (cable out) for one minute. Brake housing should begin to heat.

When these conditions exist, proper installation has been made. If heating becomes noticeable when running the winch in forward rotation (hoisting direction), the brake should be again disassembled. When disassembled, place the brake balls in the alternate set of slots in the cam plate, then carefully follow the instructions for re-assembling and checking the brake.

INSTRUCTIONS FOR CHECKING ASSEMBLY ARRANGEMENT AND SETTING OF WORM BRAKE

When the worm brake is assembled the brake must be set with the balls in the #1 or the #2 set of cam slots. (View A-A, page 5). It is indicated on the name plate whether the balls were installed in the #1 or the #2 slots at the factory.

Three factors determine which slots the balls should be in:

1. Direction cable winds on the drum. It normally **WINDS OVER THE TOP** of the drum barrel.

2. The cut of the gear set, right or left gear. The last letter in the model number of the winch, either R or L, designates right or left gear set. Example: R-20A<u>R</u>, R-30<u>L</u>, 700<u>R</u>, 800<u>L</u>.

3. The side of the winch that the input shaft is on. The **INPUT SHAFT IN NORMALLY TOWARD THE CAB.** Whether the winch has the gear box on the right or on the left side of the winch does not affect the brake setting.

EXAMPLE: When cable winds over the top of the drum, winch has a right cut gear and input shaft is toward the cab (diagram 2), then the balls need to be in the #2 cam slots.

If any one of these three factors differ from those stated above, the balls need to be in the #1 slots in the cam. A second change in these factors requires the original arrangement, and if all three factors are different, the balls need to be in the #1 slots. (See page 5 and 6 for disassembly and assembly instructions).

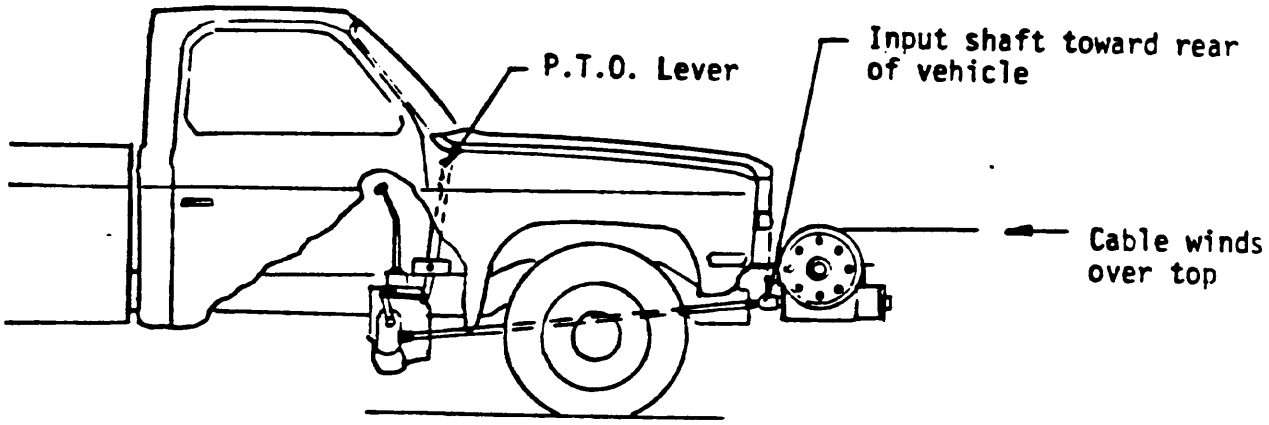


DIAGRAM 2

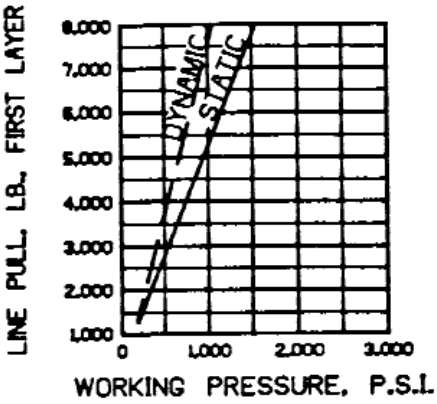
Three factors determine brake assembly arrangement.

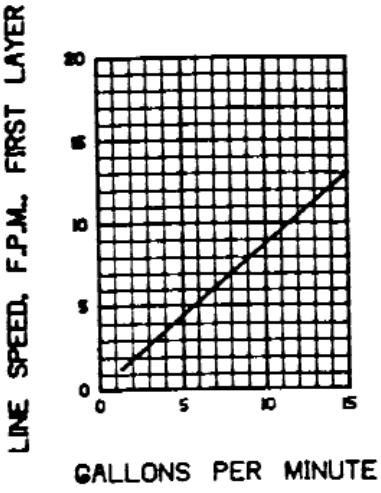
HYDRAULIC SYSTEMS

Refer to the performance charts, below, to properly match your hydraulic system to the H-200 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.

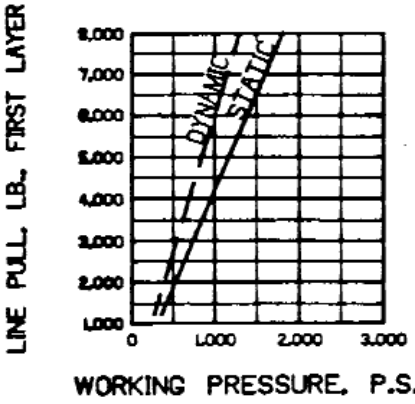
Performance based on a motor displacement of 4.5 cubic inches with 15 GPM maximum flowrate. See page 18 for motor port size.

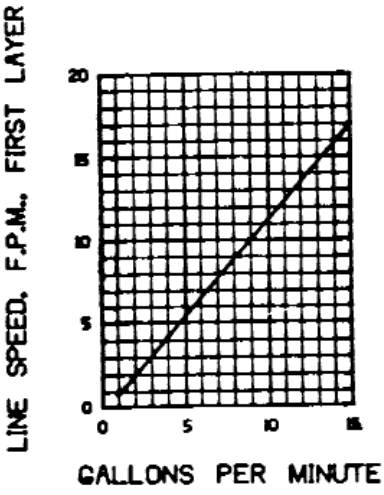
H-200 PERFORMANCE
8,000 LB. DUTY RATING
60:1 GEAR RATIO



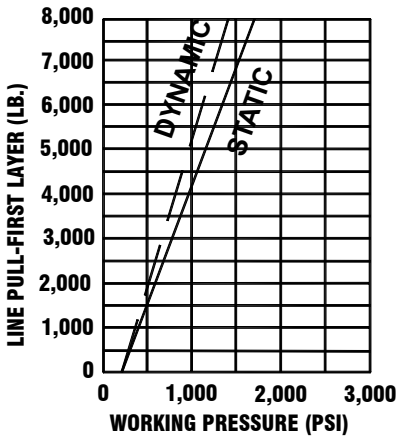


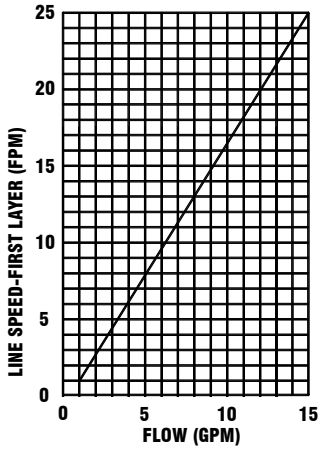
H-246 PERFORMANCE
8,000 LB. DUTY RATING
46:1 GEAR RATIO

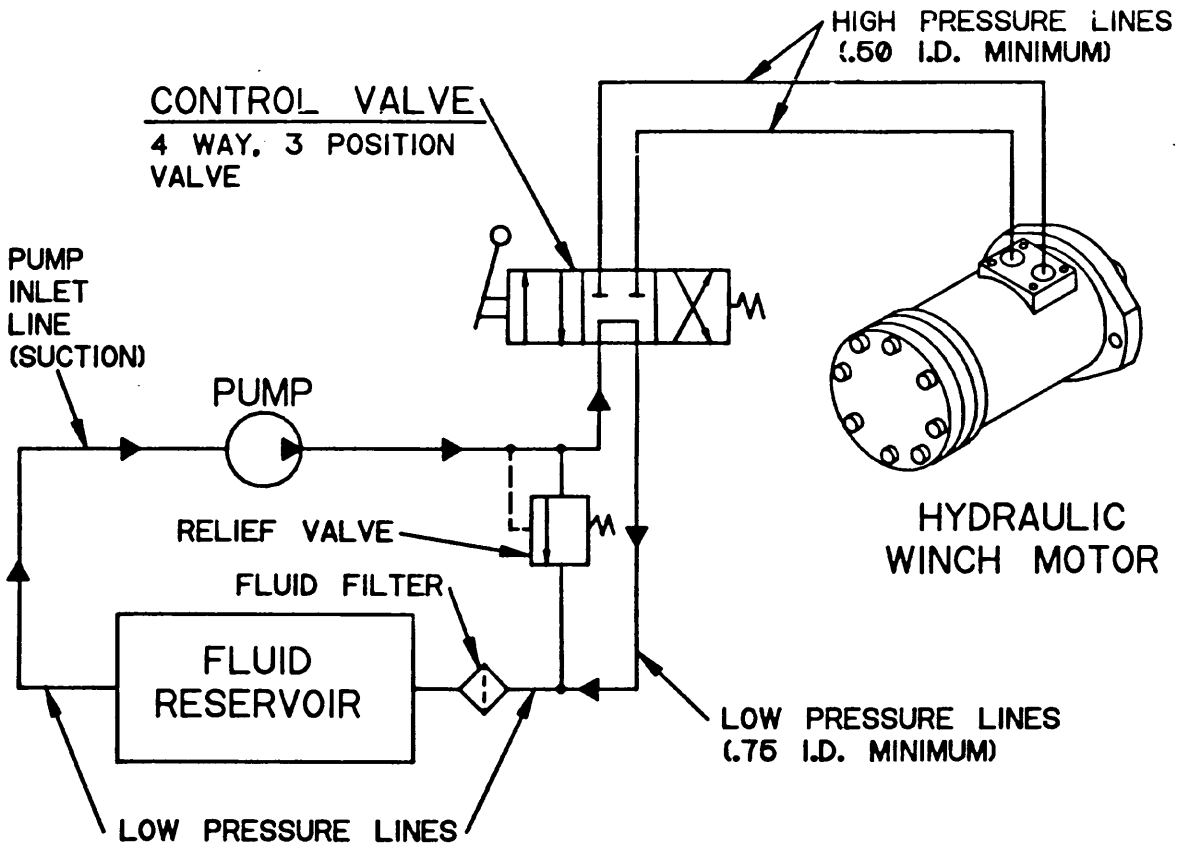




HD-200 PERFORMANCE
8,000 LB. DUTY RATING
30:1 GEAR RATIO (HD-200)







TROUBLE SHOOTING TIPS

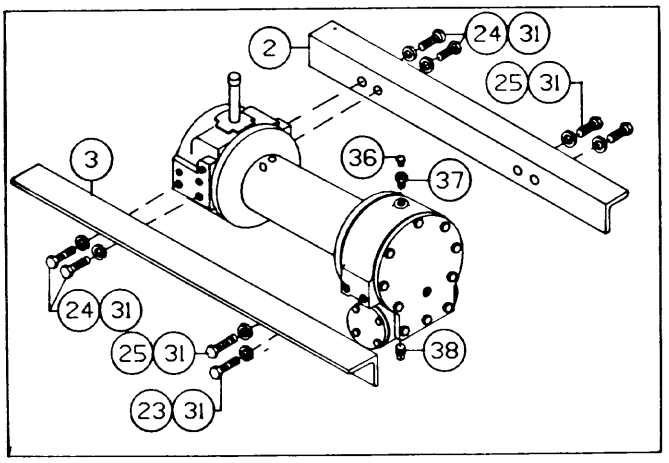
CONDITION	POSSIBLE CAUSE	CORRECTION
CLUTCH INOPERATIVE OR BINDS	1. Dry or rusted clutch. 2. Bent yoke or linkage.	1. Clean and lubricate. 2. Replace yoke or shifter assembly.
CLUTCH HANDLE WON'T LATCH IN SLOTS.	1. Debris in clutch.	1. Clean & lube per Page 15, paragraph 18.
OIL LEAKS FROM HOUSING.	1. Seal damaged or worn. 2. Too much oil. 3. Damaged gasket.	1. Replace seal. 2. Drain excess oil. Refer to TECHNIQUES OF OPERATION. 3. Replace gasket.
LOAD DRIFTS DOWN.	1. Safety brake has become worn. 2. Safety brake out of adjustment.	1. Replace brake disc. (See Page 5, Diagram 1). 2. Turn adjusting bolt clockwise 1/4 turn or until load does not drift.
WINCH RUNS TOO SLOW.	1. Hydraulic motor worn out. 2. Low flow rate.	1. Replace motor. 2. Check flow rate. Refer to HYDRAULIC SYSTEMS flow chart page 8.
CABLE DRUM WILL NOT FREE SPOOL.	1. Winch not mounted squarely, causing end bearings to bind drum.	1. Check mounting. Refer to WINCH MOUNTING Page 4.
CABLE BIRDNESTS WHEN CLUTCH IS DISENGAGED.	1. Drag brake disc worn.	1. Replace discs.
HYDRAULIC FLUID LEAKS OUT HOLE IN MOTOR ADAPTER.	1. Hydraulic motor shaft seal damaged.	1. Replace seal.

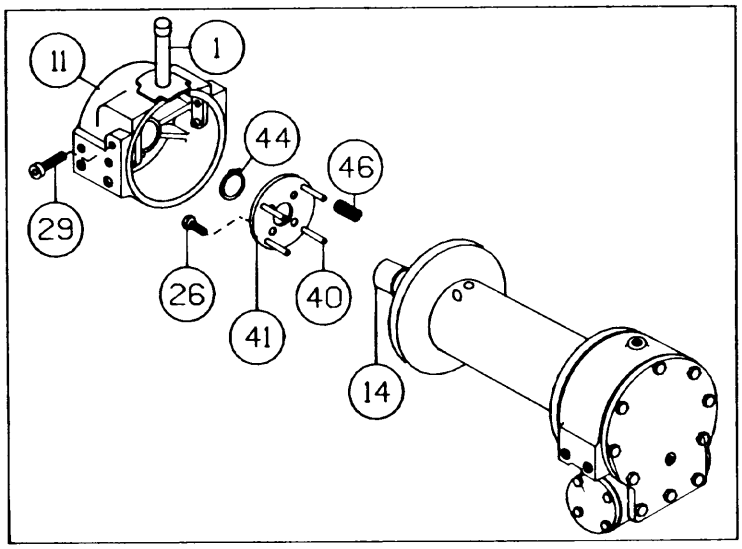
MODEL 200/H-200 SERIES DOW-LOK® WINCHES

DISASSEMBLY

Refer to Parts List and Parts Drawing pages for actual item numbers and corresponding parts number

1. Drain oil from gear housing by removing (item #38) plug from bottom of gear housing. Remove plugs (items #36 & #37) from top of gear housing. Remove mounting angles (items #2 & #3) from winch by removing hardware shown.





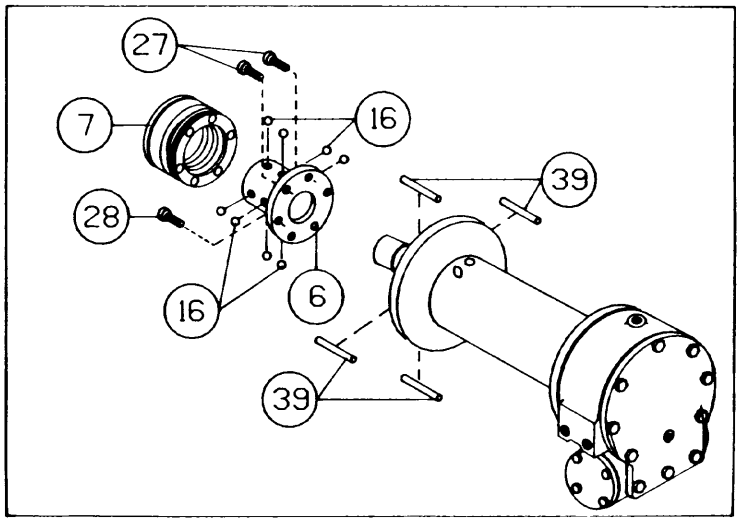
2. Remove (item #29) capscrew and slide clutch housing (item #11) from end of winch assembly. Remove snap ring (Item #44) from end of drum shaft (item #14). Unscrew (4) capscrews (item #26) to remove spring plate (item #41) and springs (item #46).

3. Slide locking ring (item #7) from the clutch (item #6). NOTE: The locking ring cannot be removed unless the clutch is engaged, with dowel pins (item #39) seated in the shaft keyways.

   Rotate drum so the eight balls (item #16) and four dowel pins (item #39) can be removed.

   If necessary, the clutch (item #6) may be disassembled from the drum (item #9) by removing capscrews (items #27 & #28).

   Remove drum (item #9) and thrust washer, between drum and gear housing, from drum shaft.

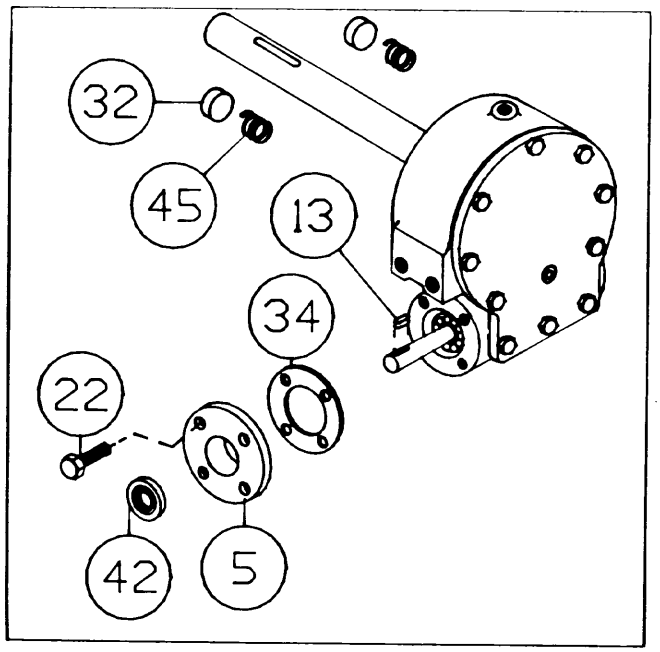


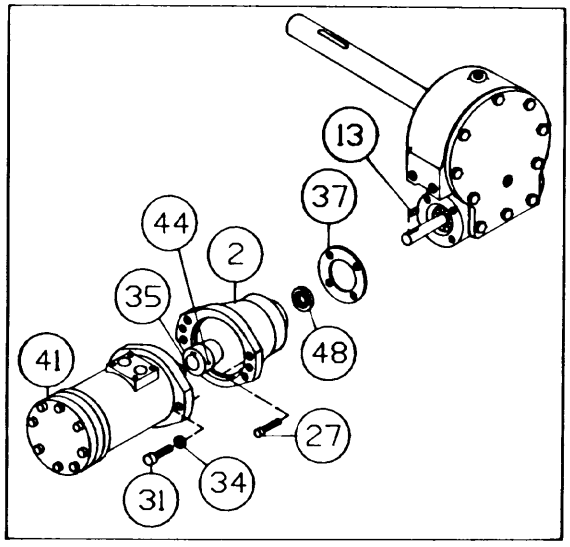
4. Remove key (item #13) from worm gear shaft.

   Remove bearing cap (item #5) and gasket (item #34) by unscrewing four capscrews (item #22).

   Remove seal (item #42) from bearing cap and press new seal into place.

   Drag brake disc (item #32) and spring (item #45) should be examined and replaced if necessary.





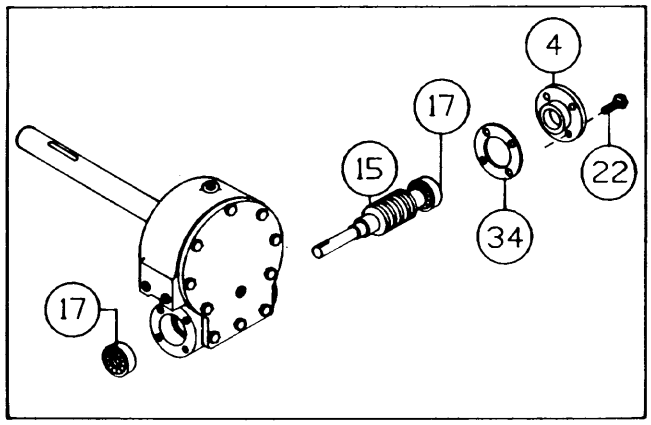
5. Remove motor (item #41) and coupling (item #35) from (item #2) adapter by unscrewing two (item #31) capscrews.

   Remove key (item #13) from worm shaft. Unscrew four capscrews (item #27) and remove adapter from gear housing. Replace adapter seal (item #48) and gasket (item #37).

6. Remove bearing cap (item #4) from gear housing by unscrewing four capscrews (item #22). Remove worm (item #15) and bearings (item #17) 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.

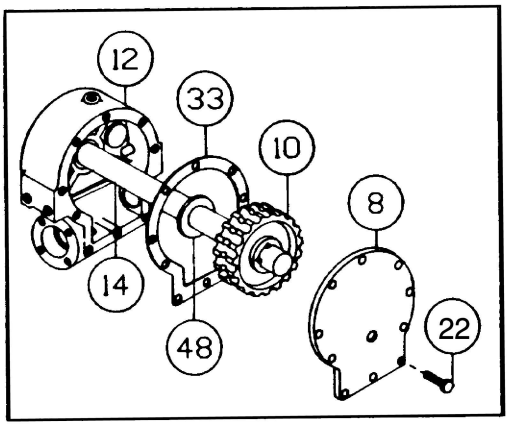
   Check for signs of wear or damage to worm (item #15) and bearing (item #17). Replace if necessary.

   For models with optional worm brake refer to Pg. 5, SERVICING OF THE OIL COOLED SAFETY BRAKE, for disassembly instructions.



7. Remove gear housing cover (item #8) from gear housing (item #12) by unscrewing capscrews (item #22). Thread two of the capscrews into the two tapped holes of cover and tighten. This will pull the cover loose from gear housing.

   Remove cover gasket (item #33) and pull shaft (item #14), with gear attached, and thrust washer (item #48) from gear housing.

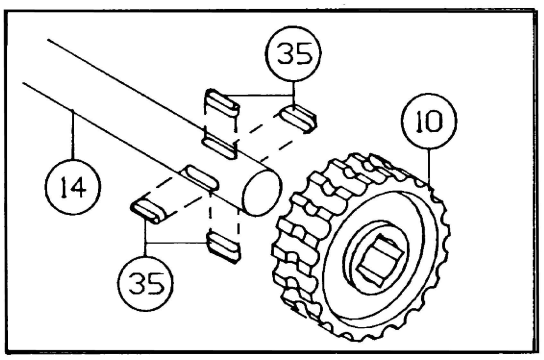


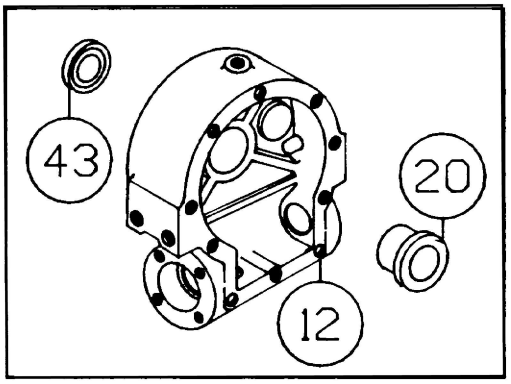
8. Check for sign of wear on gear teeth. If replacement of gear is necessary replace as follows:

   a) Press gear (item #10) from shaft (item #14).

   b) Examine shaft keys and keyways. If distortion of keys and/or keyways is evident, shaft and keys should be replaced.

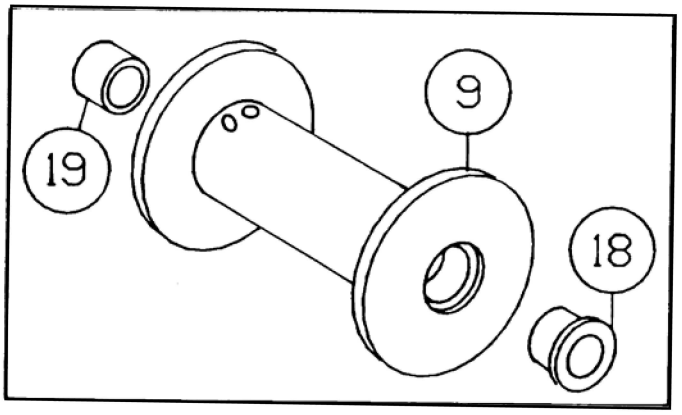
   c) Use a soft hammer to gently tap keys (item #35) into keyways. Press gear (item #10) over shaft and keys. Gear must be centered over keys.

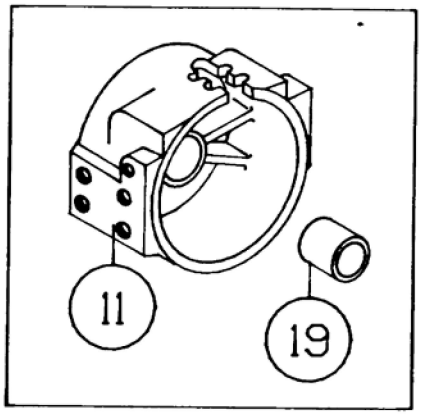




9. Remove seal (item #43) from back of (item #12) gear housing. Press bushing (item #20) from gear housing. Press new bushing and seal back into place.

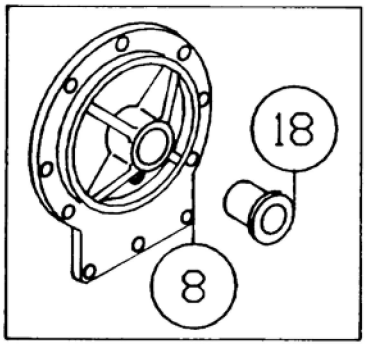
10. Check drum bushings (items #18 & #19) for signs of wear. Replace if necessary by pressing old bushings from drum. Press bushing (item #18) into bore in drum until bushing flange is seated against bottom of counterbore. Press bushing (item #19) into opposite bore of drum until end of bushing extends .25" from end of drum.



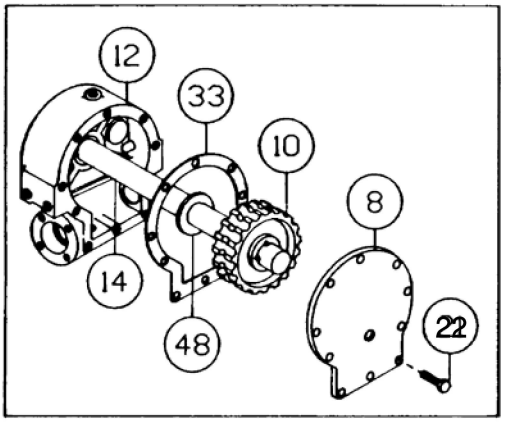


11. Check clutch housing bushing (item #19) for wear. If necessary, remove old bushing and press new bushing into place.

12. Check cover bushing (item #18) for signs of wear. If necessary remove old bushing and press new bushing into place.

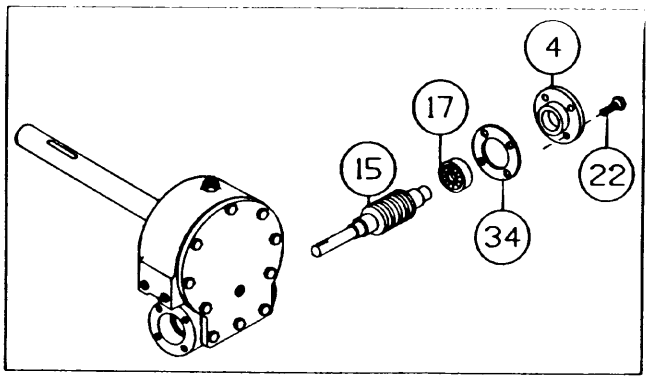


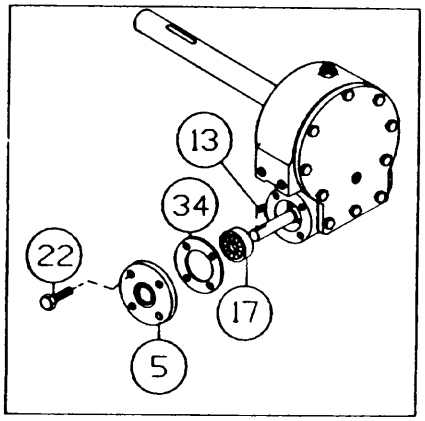
RE-ASSEMBLY



13. Apply grease to end of shaft, opposite gear. Apply grease to bushing in gear housing (item #12). Place greased end of shaft through thrust washer (item #48) and bushing in gear housing (item #12). Place gasket (item #33) onto gear housing cover (item #8). Apply grease to gear end of shaft and cover bushing. Place cover onto shaft and secure to housing with ten (item #22) capscrews. Tighten capscrews to 8 ft-lbs. (10.8 Nm) each.

14. Press bearing (item #17) onto worm (item #15). 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 #34) onto bearing cap (item #4). Use four capscrews (item #22) to secure cap to gear housing. TIGHTEN CAPSCREWS TO 8 FT. LBS. (10.8 Nm.) EACH.

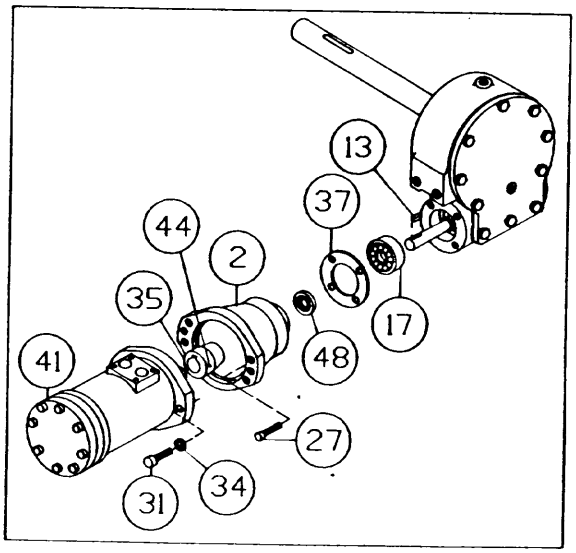




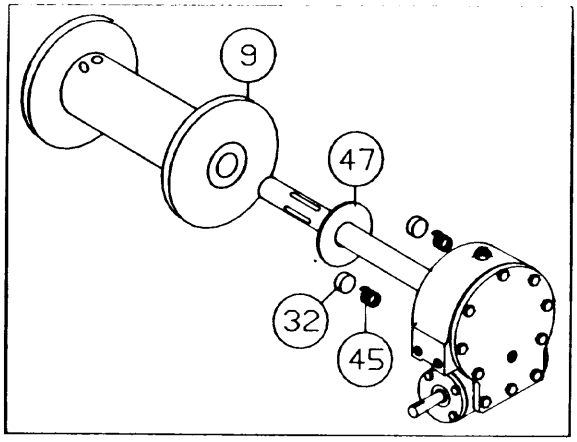
15. Press bearing (item #17) onto worm and into gear housing. NOTE: Be sure that thick shoulder of bearings outer race (side with manufacturer's name and part number) is out, away from worm threads. Place gasket (item #34) onto bearing cap. Attach bearing cap (item #5), to gear housing. Use four (item #22) capscrews to secure. TIGHTEN CAPSCREWS TO 8 FT. LBS. (10.8 Nm.) EACH. Tap key (item #13) into keyway.

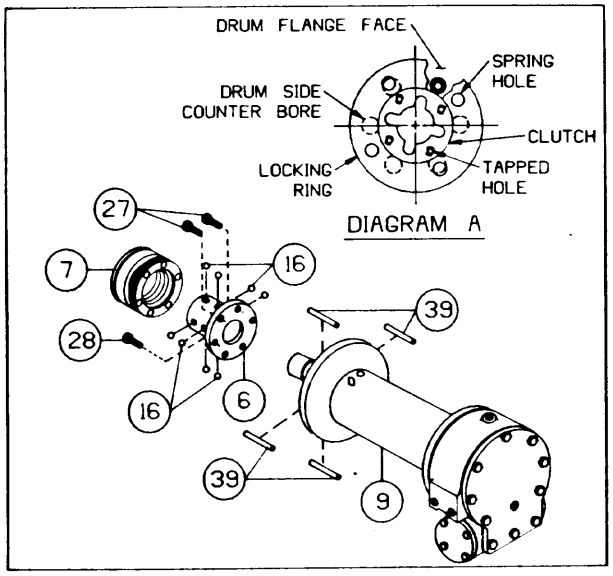
16. Press bearing (item #17) onto worm and into housing. NOTE: Be sure that thick shoulder of bearings outer race (side with manufacturers name and part number) is out, away from threads. Place gasket (item #37) onto adapter (item #2). Attach adapter to gear housing using four (4) capscrews (item #27). Tighten capscrews to 12 ft. lbs. (16.3 Nm) each. Insert key (item #13) into keyway of worm shaft. Slide tapered end of coupling (item #35) over end of worm shaft. Be sure roll pin (item #44) is in coupling.

Place motor shaft, with key in keyway, into coupling. Secure motor (item #41) to adapter, using two (2) capscrews (item #31) and lockwashers. Tighten capscrews to 75 ft. lbs. (102 Nm) each.



17. Place winch, with gear housing cover down, on work bench. Drum shaft should be in vertical position. Slide spacer (item #47) over drum shaft & slide downward until washer rests on gear housing. Set springs (item #45) and drag brake disc (item #32) into pockets of gear housing. Grease bushings of drum (item #9). Slide drum assembly onto drum shaft.





18. Slide clutch (item #6) over end of drum shaft. Align the clutch over the pilot bushing in drum. Install capscrews (items #27 & #28) and torque the capscrews to 16 ft. lbs. (21.7 Nm.) to securely seat the clutch to the drum. NOTE: The two shorter 3/4 in. long capscrews (item #27) must be installed into the two tapped holes in the drum which break through into the cable anchor slot in the drum barrel.

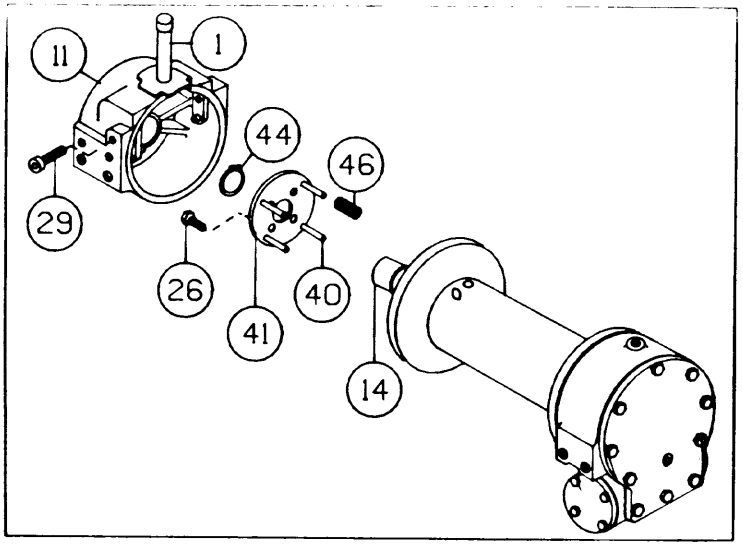
Rotate the drum to align the clutch slots with the shaft keyway. Lightly grease four dowel pins (item # 39) and eight balls (item #16). Use molybdenum disulfide or graphite bearing grease. Insert the four dowel pins (item #39) and eight balls (item #16). In the engaged position the balls are nearly flush with the clutch.

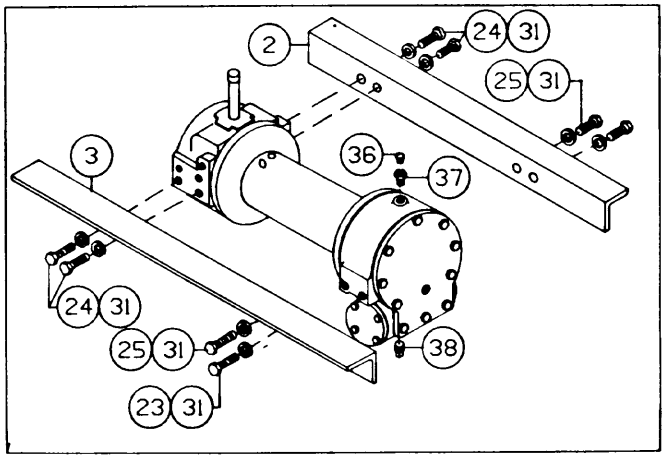
Lightly grease the internal and external groove and bore of locking ring (item #7) and clutch (item #6).

Slide locking ring onto 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. NOTE: The locking ring must be oriented (clocked) on the clutch such that the six counterbores in its front face will fit down over the heads of capscrews (item #27 & #28).

19. Place four springs (item #46) over four roll pins on retainer plate (item #41). Install retainer plate and secure to clutch using four capscrews (item #26). Push down on drum and firmly seat retainer ring (item #44) into drum shaft groove.

Set the shifter assembly (item #1) so that the screw heads engage the external groove in the locking ring (item #7). Push the clutch housing (item #11) onto the drum shaft and latch the shifter assembly in the engaged "IN" position. Insert the two capscrews (item #29), to secure shifter assembly to clutch housing.

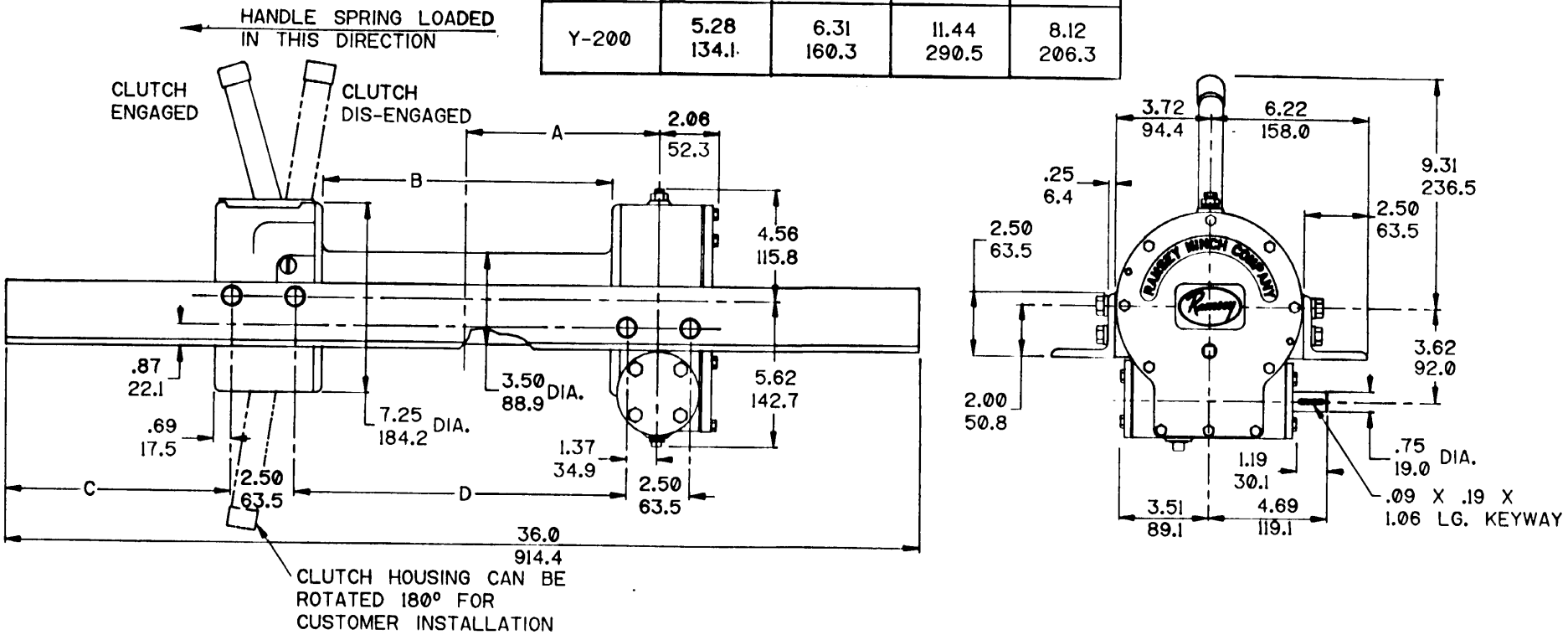




20. Attach two mounting angles (items #2 & #3) using four capscrews (item #24), two (item #25) capscrews and two capscrews (item #23) with lockwashers. Torque capscrews to 34 ft. lb. (46 Nm.) each. Insert plug (item #38) into bottom of gear housing. Permatex may be applied to threads to help prevent leakage.

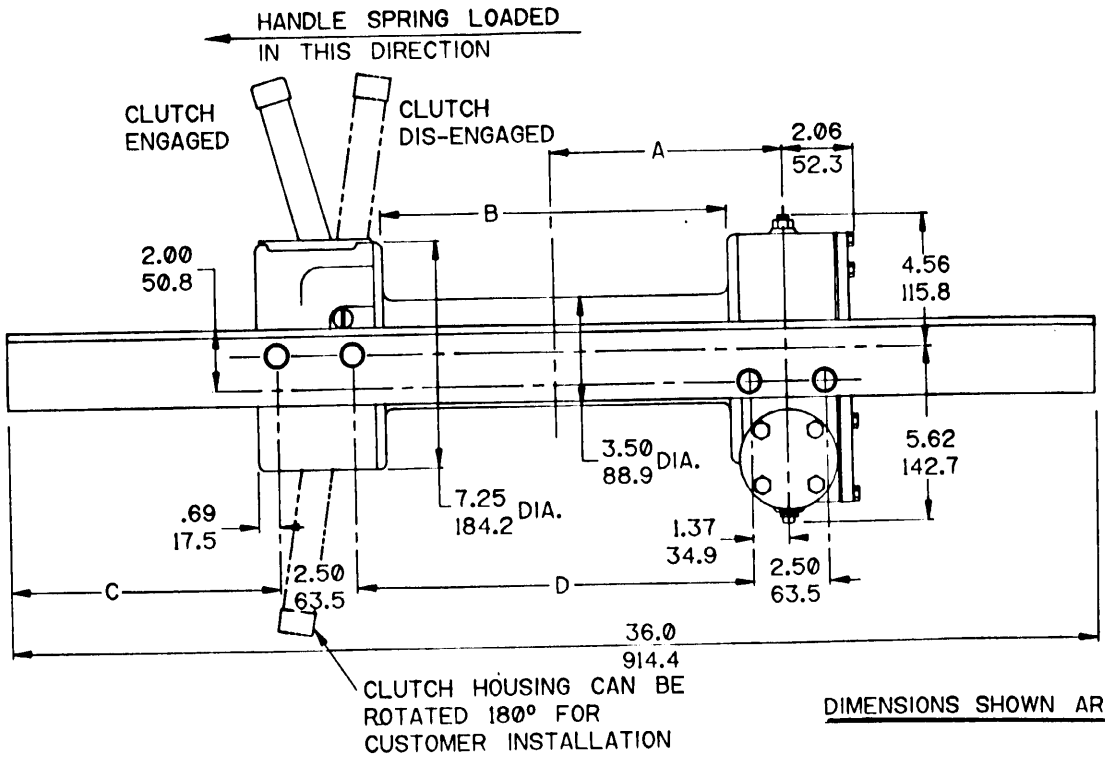
Pour 3/4 pint of SAE 140 EP gear oil (1 pt. if winch has a brake) into housing thru hole in top of housing. Insert relief fitting (item #36) into reducer (item #37). Reducer should then be placed into hole on top of gear housing. Tighten fitting and reducer securely.

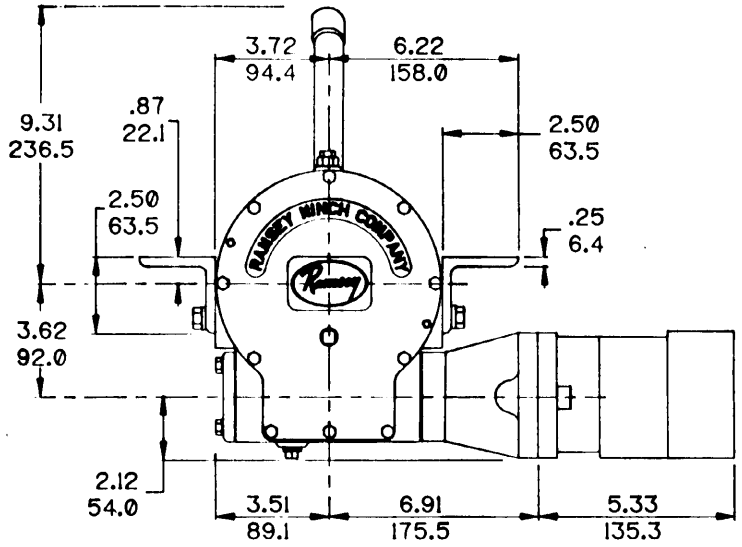
WINCH MODEL	A INCHES MM	B INCHES MM	C INCHES MM	D INCHES MM
200	7.78 197.6	11.31 287.3	8.94 227.0	13.12 333.3
Y-200	5.28 134.1	6.31 160.3	11.44 290.5	8.12 206.3



DIMENSIONS SHOWN ARE INCHES OVER MILLIMETERS

WINCH MODEL	A INCHES MM	B INCHES MM	C INCHES MM	D INCHES MM
H-200	7.78 197.6	11.31 287.3	8.94 227.0	13.12 333.3
HY-200	5.28 134.1	6.31 160.3	11.44 290.5	8.12 206.3

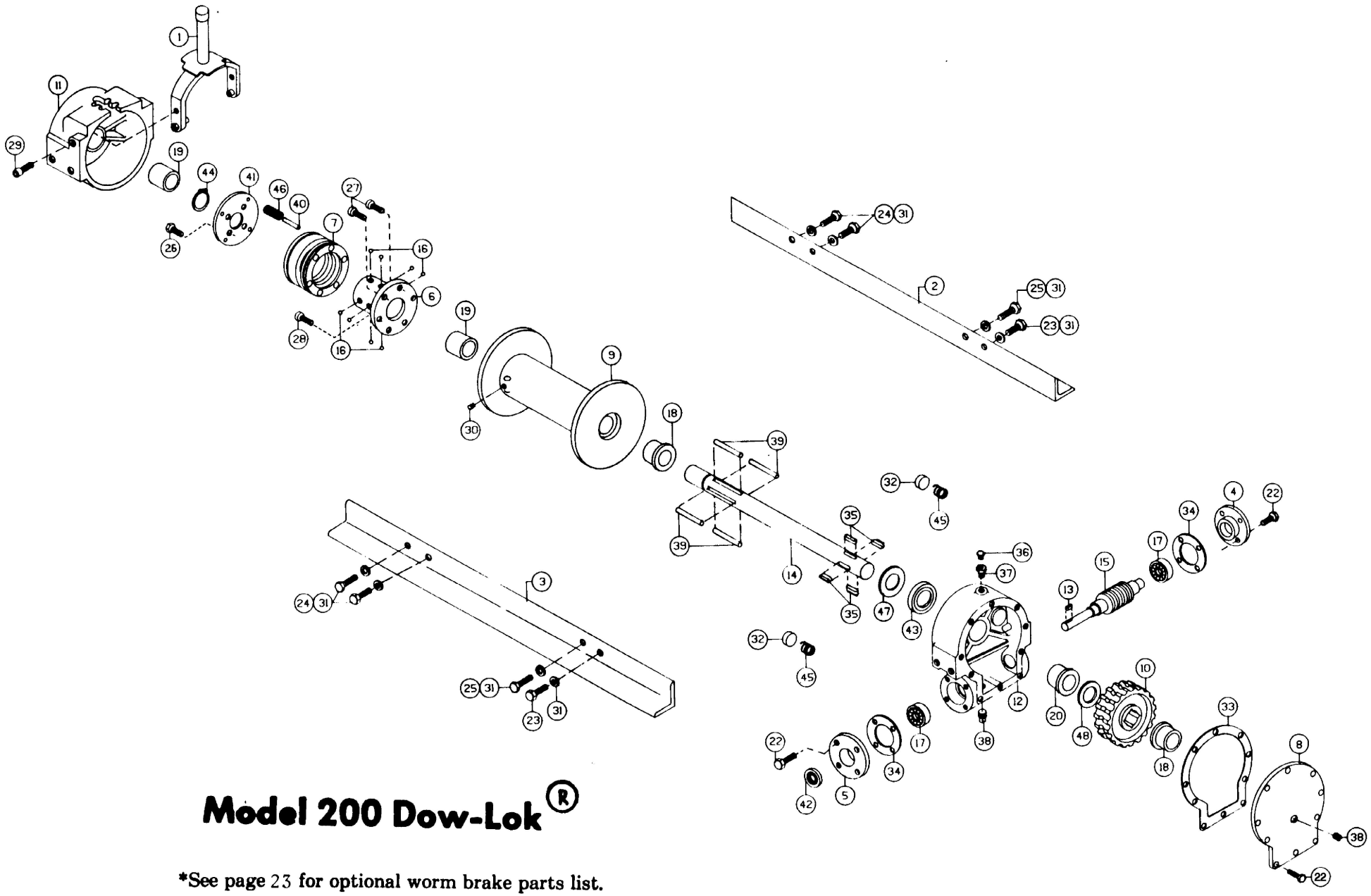




MOTOR PORT SIZE:
(2) 7/8-14 SAE O-RING

DIMENSIONS SHOWN ARE INCHES OVER MILLIMETERS

Model H-200 Dow-Lok®

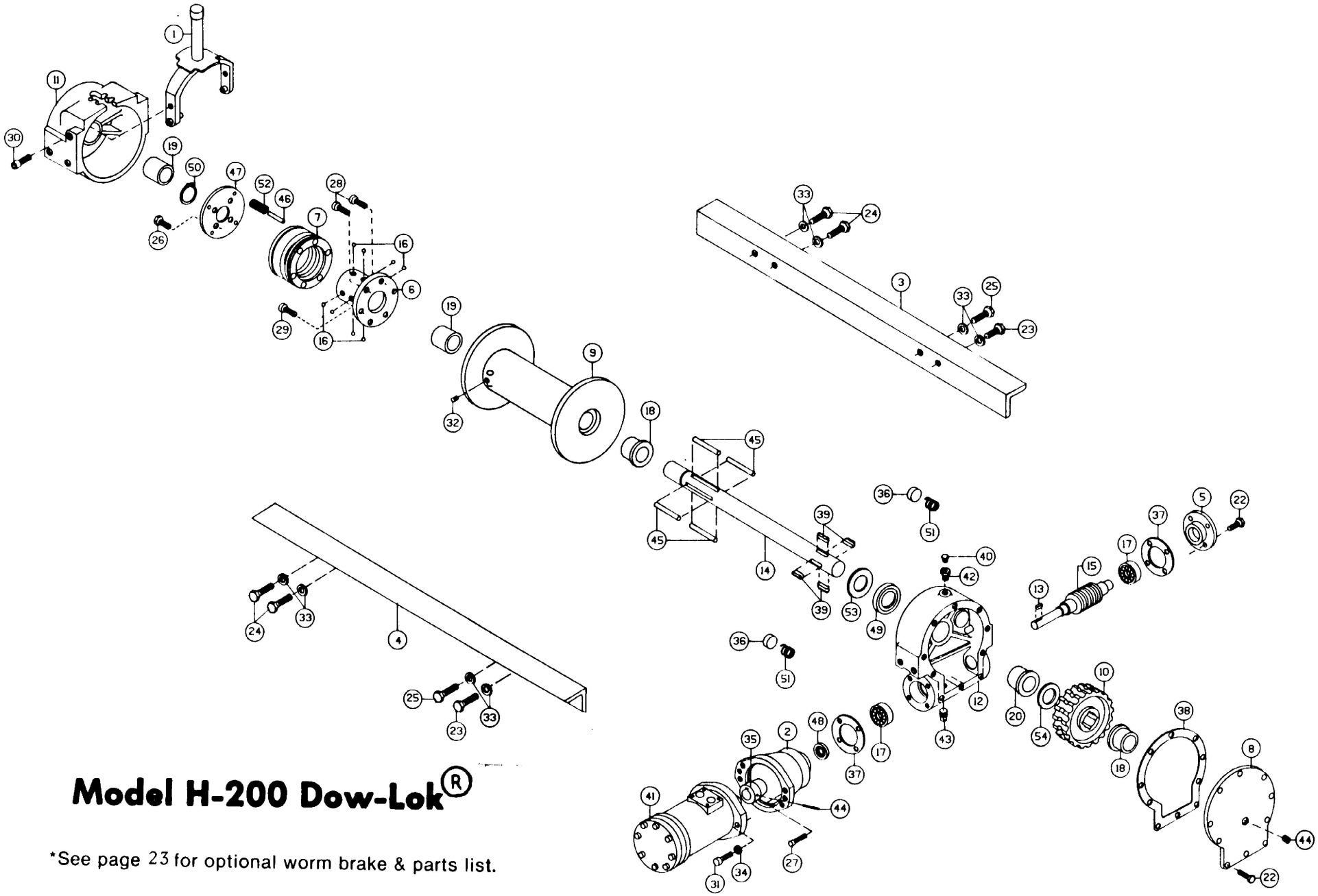


Model 200 Dow-Lok®

*See page 23 for optional worm brake parts list.

PARTS LIST
Model 200 Dow-Lok®

Item No.	Qty.	Part No.	Description
1	1	276032	SHIFT LEVER ASSY.
2	1	302829	ANGLE-"STD"
	1	302830	ANGLE-"Y"
3	1	302833	ANGLE-"STD"
	1	302834	ANGLE-"Y"
4	1	316083	CAP-BEARING
5	1	316084	CAP-BEARING
6	1	324149	CLUTCH
7	1	324316	LOCK-CLUTCH
8	1	328134	COVER-GEAR HOUSING
9	1	332113	DRUM-"STD"
	1	332114	DRUM-"Y"
10	1	334161	GEAR R.H. 60:1
	1	334162	GEAR L.H. 60:1
	1	334163	GEAR R.H. 46:1
	1	334164	GEAR L.H. 46:1
	1	334165	GEAR R.H. 30:1
	1	334166	GEAR L.H. 30:1
11	1	338229	HOUSING-CLUTCH
12	1	338273	HOUSING-GEAR
13	1	342027	KEY-RD. END
14	1	357482	DRUM SHAFT-"STD"
	1	357483	DRUM SHAFT-"Y"
15	1	368002	WORM R.H. 46:1
	1	368007	WORM R.H. 60:1
	1	368008	WORM L.H. 60:1
	1	368009	WORM L.H. 46:1
	1	368010	WORM L.H. 30:1
	1	368011	WORM R.H. 30:1
16	8	400004	BALL-POPPET
17	2	402002	BEARING-BALL
18	2	412003	BUSHING
19	2	412044	BUSHING
20	1	412045	BUSHING
22	18	414045	CAPSCREW 1/4-20NCx7/8 LG. HX.HD. GR.5
23	2	414279	CAPSCREW 3/8-16NCx3/4 LG. HX.HD. GR.5
24	4	414281	CAPSCREW 3/8-16NCx1 LG. HX.HD. GR.5
25	2	414282	CAPSCREW 3/8-16NCx1-1/4 LG. HX.HD. GR.5
26	4	414833	CAPSCREW 1/4-20NCx1/2 LG. SOC.HD. SELF-LOCKING
27	2	414893	CAPSCREW 5/16-18NCx3/4 LG. SOC.HD. SELF-LOCKING
28	4	414894	CAPSCREW 5/16-18NCx1 LG. SOC. HD. SELF-LOCKING
29	2	414905	CAPSCREW 3/8-16NCx1-1/2 LG. SOC.HD. C.P.
30	1	416057	SETSCREW 3/8-16NCx3/8 SOC. HD.
31	8	418177	LOCKWASHER 3/8 MED. SECT. C.P.
32	2	438014	DRAG BRAKE
33	1	442205	GASKET
34	2	442184	GASKET
35	4	450016	KEY-BARTH
36	1	456008	RELIEF FITTING
37	1	468002	REDUCER
38	2	468011	PIPE PLUG
39	4	470039	PIN-DOWEL
40	4	470041	ROLL PIN
41	1	474027	PLATE-SPRING RET.
42	1	486009	OIL SEAL
43	1	486017	OIL SEAL
44	1	490006	RING-RETAINER
45	2	494002	SPRING
46	4	494063	SPRING
47	1	518014	THRUST WASHER
48	1	518015	THRUST WASHER



Model H-200 Dow-Lok®

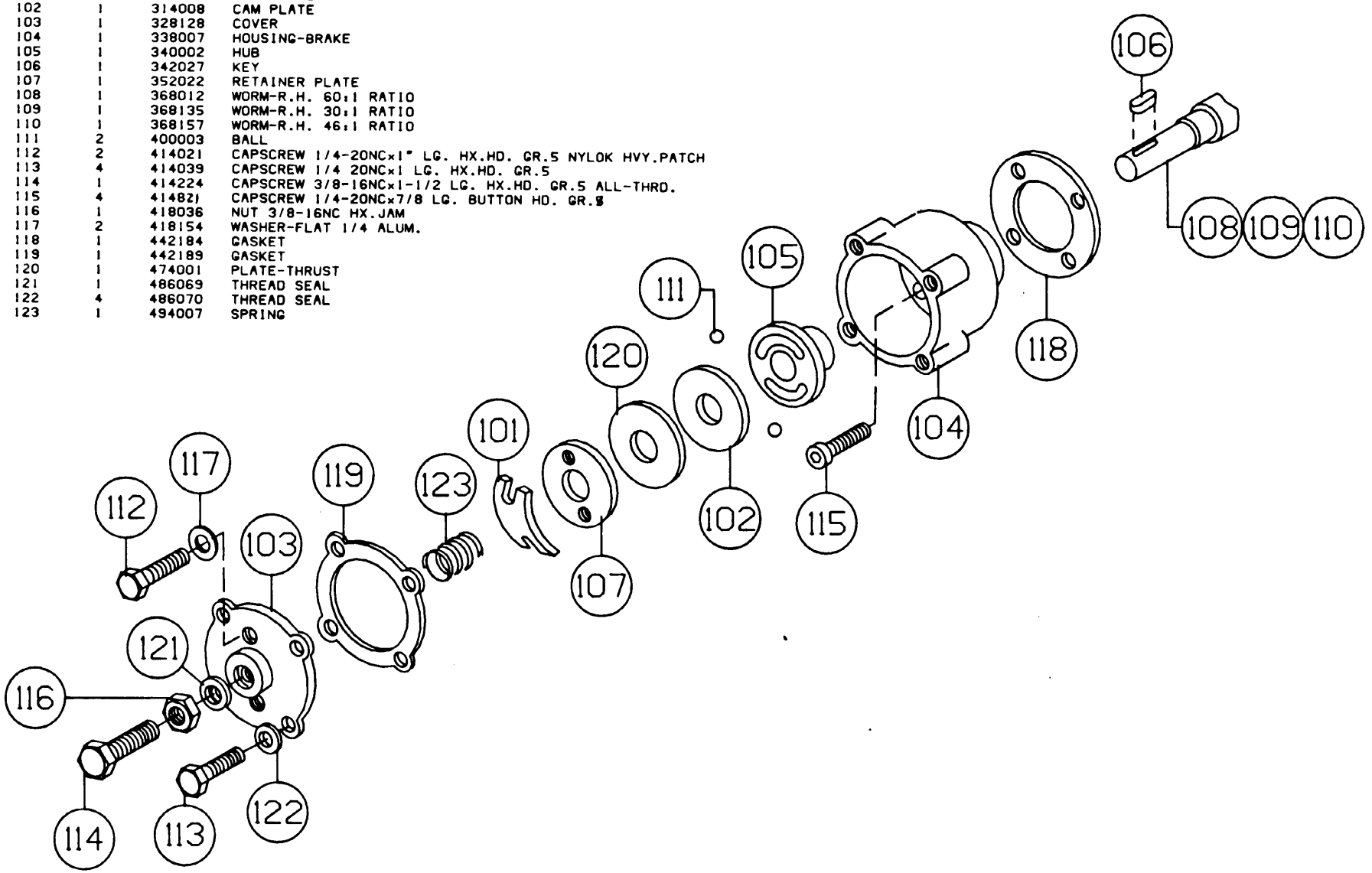
*See page 23 for optional worm brake & parts list.

PARTS LIST

Model H-200 Dow-Lok®

Item No.	Qty.	Part No.	Description
1	1	276032	SHIFT LEVER ASSEMBLY
2	1	300057	ADAPTER
3	1	302829	ANGLE-STD.
	1	302830	ANGLE-MOD. "Y"
4	1	302833	ANGLE-STD.
	1	302834	ANGLE-MOD. "Y"
5	1	316083	CAP-BEARING
6	1	324149	CLUTCH
7	1	324316	LOCK-CLUTCH
8	1	328134	COVER-GEAR HOUSING
9	1	332113	DRUM-STD.
	1	332114	DRUM-MOD. "Y"
10	1	334161	GEAR-R.H. 60:1
	1	334163	GEAR-R.H. 46:1
	1	334165	GEAR-R.H. 30:1
11	1	338229	HOUSING-CLUTCH
12	1	338273	HOUSING-GEAR
13	1	342027	KEY-RD. END
14	1	357482	SHAFT-DRUM STD.
	1	357483	SHAFT-DRUM MOD. "Y"
15	1	368002	WORM-R.H. 46:1
	1	368007	WORM-R.H. 60:1
	1	368011	WORM-R.H. 30:1
16	8	400004	BALL-POPPET
17	2	402002	BEARING-BALL
18	2	412003	BUSHING
19	2	412044	BUSHING
20	1	412045	BUSHING
22	14	414045	CAPSCREW 1/4-20NCx7/8 LG. HX.HD. GR.5
23	2	414279	CAPSCREW 3/8-16NCx3/4 LG. HX.HD. GR.5
24	4	414281	CAPSCREW 3/8-16NCx1 LG. HX.HD. GR.5
25	2	414282	CAPSCREW 3/8-16NCx1-1/4 LG. HX.HD. GR.5
26	4	414833	CAPSCREW 1/4-20NCx1/2 LG. SOC.HD. SELF-LOCKING
27	4	414842	CAPSCREW 1/4-20NCx1-3/4 LG. SOC.HD. LOC-WEL
28	2	414893	CAPSCREW 5/16-18NCx3/4 LG. SOC.HD. SELF-LOCKING
29	4	414894	CAPSCREW 5/16-18NCx1 LG. SOC.HD. SELF-LOCKING
30	2	414905	CAPSCREW 3/8-16NCx1-1/4 LG. SOC.HD. C.P.
31	2	414952	CAPSCREW 1/2-13NCx1-1/2 LG. SOC.HD. C.P.
32	1	416057	SETSCREW 3/8-16NCx3/8 LG. SOC.HD.
33	8	418177	LOCKWASHER 3/8 MED. SECT. C.P.
34	2	418218	LOCKWASHER 1/2 MED. SECT. C.P.
35	1	431008	COUPLING
36	2	438014	BRAKE-DRAG
37	2	442184	GASKET
38	1	442205	GASKET
39	4	450016	KEY-BARTH
40	1	456008	FITTING-RELIEF
41	1	458050	MOTOR
42	1	468002	REDUCER
43	2	468011	PLUG-PIPE
44	1	470033	PIN-SPIROL
45	4	470039	PIN-DOWEL
46	4	470041	PIN-ROLL
47	1	474027	PLATE-RETAINER
48	1	486009	SEAL-OIL
49	1	486017	SEAL-OIL
50	1	490006	RING-RETAINER
51	2	494002	SPRING
52	4	494063	SPRING
53	1	518014	WASHER-THRUST
54	1	518015	WASHER-THRUST

Item No.	Qty.	Part No.	Description
101	1	306034	SPRING-FLAT
102	1	314008	CAM PLATE
103	1	328128	COVER
104	1	338007	HOUSING-BRAKE
105	1	340002	HUB
106	1	342027	KEY
107	1	352022	RETAINER PLATE
108	1	368012	WORM-R.H. 60:1 RATIO
109	1	368135	WORM-R.H. 30:1 RATIO
110	1	368157	WORM-R.H. 46:1 RATIO
111	2	400003	BALL
112	2	414021	CAPSCREW 1/4-20NC×1" LG. HX.HD. GR.5 NYLOK HVY.PATCH
113	4	414039	CAPSCREW 1/4 20NC×1 LG. HX.HD. GR.5
114	1	414224	CAPSCREW 3/8-16NC×1-1/2 LG. HX.HD. GR.5 ALL-THRD.
115	4	414821	CAPSCREW 1/4-20NC×7/8 LG. BUTTON HD. GR.5
116	1	418036	NUT 3/8-16NC HX.JAM
117	2	418154	WASHER-FLAT 1/4 ALUM.
118	1	442184	GASKET
119	1	442189	GASKET
120	1	474001	PLATE-THRUST
121	1	486069	THREAD SEAL
122	4	486070	THREAD SEAL
123	1	494007	SPRING



NOTES

NOTES

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.

RAMSEY WINCH

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OM-912406-0307-U