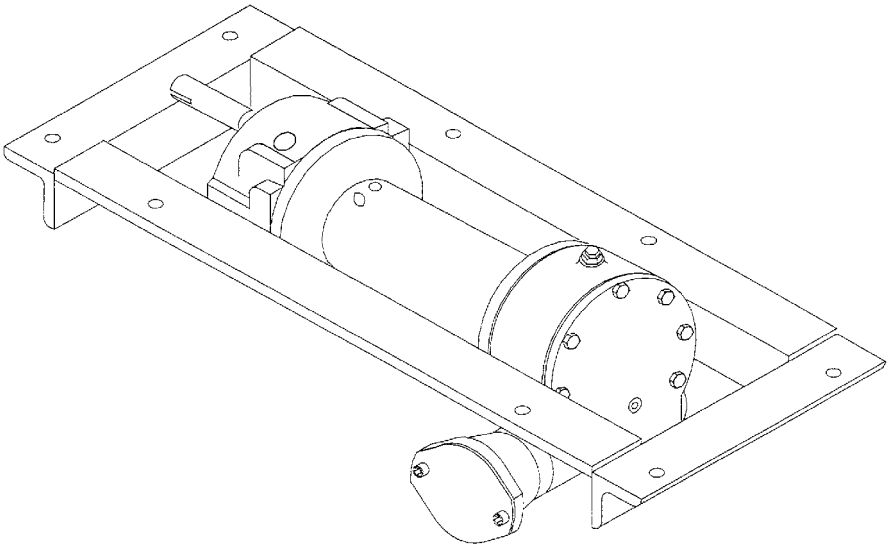




OPERATING, SERVICE AND MAINTENANCE MANUAL



MODEL HD 234 RAM-LOK® INDUSTRIAL LOW-MOUNT (MFG. PER JERR-DAN SPECS.)



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

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RAMSEY WINCH MODEL HD-234 RAM-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 (lbs.)	8,000
(kg)	3,620
Gear Reduction	34:1
Weight (without cable)	110lbs. (50 kg)

LAYER OF CABLE		1	2	3	4
*Rated line pull	lbs.	8,000	6,700	5,700	5,000
per layer	kg	3,620	3,030	2,610	2,290
*Cable capacity	ft.	25	60	95	140
	m	8	18	30	43
*Line speed	FPM	28	34	39	44
(at 15 GPM)	MPM	8,6	10,1	11,7	13,4

*These specifications are based on recommended wire rope of 3/8 inch diameter 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 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 SETSCREW IS NOT DESIGNED TO HOLD LOAD.

DO NOT USE WINCH AS A TIE DOWN. DO NOT MAINTAIN LOAD ON WINCH CABLE DURING TRAN-SIT.

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.

NOTE: The Ramsey level winder is an available accessory for tightly respooling unloaded cable onto the drum.

The Ram-Lok® semi-automatic clutch allows rapid unspooling of the cable, from cable drum, for hooking onto the load.

The Remote Rod-adaptor shifter is operated as follows:

1. **TO DISENGAGE CLUTCH**, run the winch in the reverse (reel out) direction until the load is off the cable. Lift up knob and pull out, lock in place. See warning label located by shifter knob. The clutch is now locked out and the cable may be pulled off by hand.
2. **TO ENGAGE CLUTCH**, lift up knob then release. See warning label located by shifter knob. Run the winch in reverse until the shifter knob snaps fully in or

until the cable drum starts turning. At this point make sure the shifter knob is all the way in. The plastic plug in top of clutch housing may be removed, for inspection of clutch to assure total engagement. After the clutch is fully engaged, the winch is ready for winching in the cable.

The Air Shifter is operated as follows:

1. **TO DISENGAGE CLUTCH**, run the winch in the reverse (reel out) direction until the load is off the cable. Apply 60-125 PSI to inlet port fitting of air cylinder. Run winch in the forward (reel in) direction to disengage clutch.
2. **TO ENGAGE CLUTCH**, remove air pressure from air cylinder. Run the winch in reverse until the cable drum starts turning. The plastic plug in top of clutch housing may be removed, for inspection of clutch to assure total engagement. After the clutch is fully engaged, the winch is ready for winching in the cable.

The Manual T-Handle Shifter is operated as follows:

1. **TO DISENGAGE CLUTCH**, run the winch in the reverse (reel out) direction until the load is off the cable. Pull outward on the T-handle, rotate it counter-clockwise 90° and release. The clutch is now locked out and the cable may be pulled off by hand.
2. **TO ENGAGE CLUTCH**, pull outward on the handle, rotate it clockwise 90° and release. Run the winch in reverse until the clutch handle snaps fully in or until the cable drum starts turning. At this point make sure the clutch handle is all the way in. To confirm this, remove the plastic plug on top of the clutch housing to inspect the clutch for total engagement. After the clutch is fully engaged, the winch is ready for winching in the cable.

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 gases may escape.
3. Lubricate cable with light oil.

B. MONTHLY

1. Check the action of the sliding clutch—ensure it is fully engaging and disengaging with the cable drum. To observe if the clutch is fully engaging, remove the plastic plug in top of the housing. If clutch is not fully engaging:
 - Inspect clutch shifter assembly parts, check for damage or excessive wear and replace as necessary.
 - Observe the jaws on both the clutch and cable drum, checking for rounding of the driving faces. If rounding has occurred, they should be replaced immediately.
2. Grease the shaft and barth keys the jaw clutch slides on using Mobilith SHC 007 Synthetic Grease or equivalent. Replace the plastic plug when finished.
3. Check the winch mounting bolts. If any are missing, replace them and securely tighten any that are loose. Make sure to use only SAE 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 Phillips SMP 80W-90, Mobil HD 80W-90, Shell Spirax HD 80W-90, or CITGO MP 80W-90 gear oil only.**
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.

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.

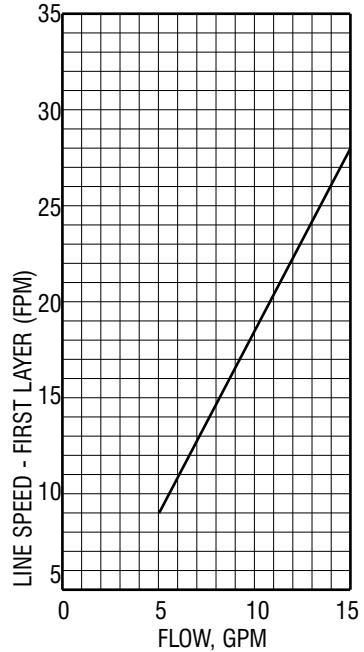
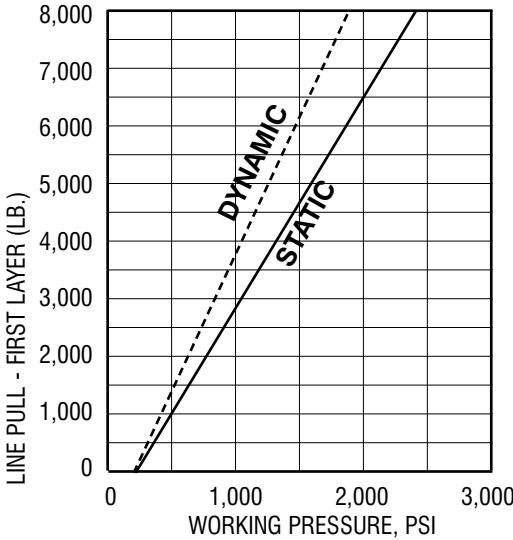
HYDRAULIC SYSTEMS

Refer to performance charts, below, to properly match your hydraulic system to the HD-234 winch performance. The charts consist of:

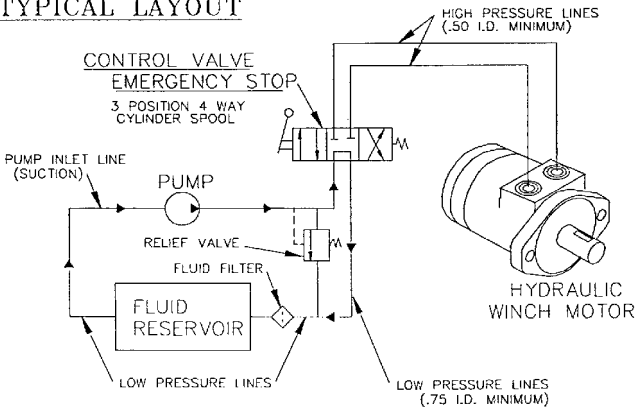
1. Line pull (lbs.) first layer vs. working pressure (PSI). STATIC (solid line) refers to hoisting a suspended load from rest; DYNAMIC (dashed line) refers to maintaining the motion of a moving load.
2. Line speed, first layer (FPM) vs. gallons per minute (GPM).

Performance based on a motor displacement of 3.6 cubic inches with 15 GPM maximum flow rate.

HD-234 PERFORMANCE 8,000 LB. DUTY RATING 34:1 GEAR RATIO



TYPICAL LAYOUT



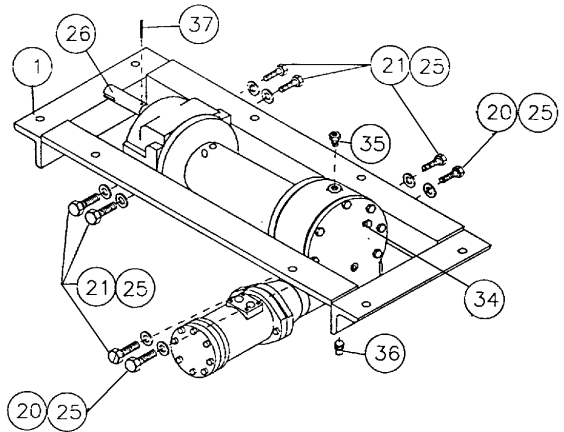
TROUBLESHOOTING GUIDE

CONDITION	POSSIBLE CAUSE	CORRECTION
Clutch inoperative or binds up	<ol style="list-style-type: none"> 1. Dry or rusted shaft 2. Bent yoke or linkage. Clutch jaws are in contact 	<ol style="list-style-type: none"> 1. Clean and lubricate 2. Replace yoke or shaft assembly. 3. See Techniques of Operation.
Oil leaks from housing	<ol style="list-style-type: none"> 1. Seal damaged or worn. 2. Too much oil. 3. Damaged gasket. 	<ol style="list-style-type: none"> 1. Replace seal. 2. Drain excess oil. Refer to Techniques of Operation. 3. Replace gasket.
Winch runs too slow	<ol style="list-style-type: none"> 1. Hydraulic motor worn out. 2. Low flow rate. 	<ol style="list-style-type: none"> 1. Replace motor. 2. Check flow rate. Refer to Hydraulic Systems flow chart page 7.
Cable birdnests when clutch is disengaged	<ol style="list-style-type: none"> 1. Drag brake disc worn. 	<ol style="list-style-type: none"> 1. Replace Discs.
Hydraulic fluid leaks out hole in motor adapter	<ol style="list-style-type: none"> 1. Hydraulic motor shaft seal. 	<ol style="list-style-type: none"> 1. Replace damaged seal.

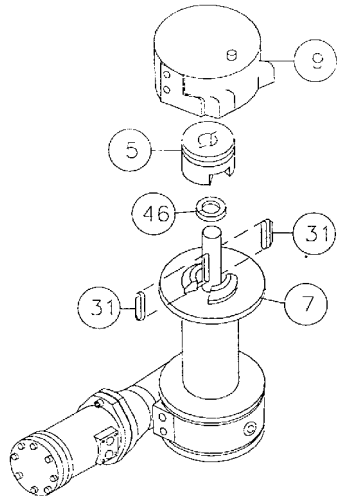
INSTRUCTIONS FOR OVERHAUL OF RAMSEY MODEL HD-234 RAM-LOK®

DIS-ASSEMBLY

1. Drain oil from gear housing by removing (item #36) plug from bottom of gear housing. Remove plug (Item #35) from top of gear housing. Remove adapter rod (item #26) by driving pin (item #37) from shifter shaft of winch. Remove mounting frame (item #1) from winch by removing hardware shown.

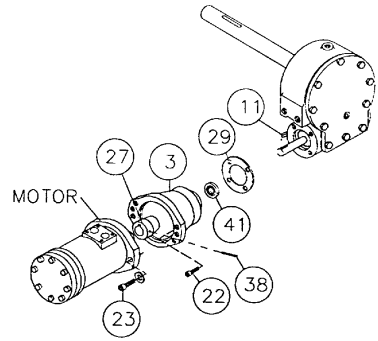


2. Remove clutch housing (item #9) and clutch (item #5) from winch assembly. Remove two keys (item #31) from keyways. A screwdriver can be used, at notch, to aid in the removal of keys. Once keys have been removed, drum (item #7) and thrust washer (item #46) can be removed from drum shaft.



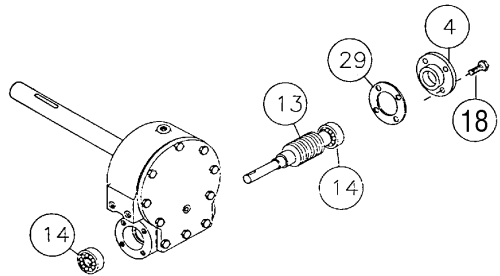
3. Remove motor and coupling (item #27) from (item #3) adapter by unscrewing two (item #23) capscrews with lock-washer.

Remove key (item #11) from worm shaft. Unscrew four capscrews (item #19) and remove adapter from gear housing. Replace adapter seal (item #41) and gasket (item #29).



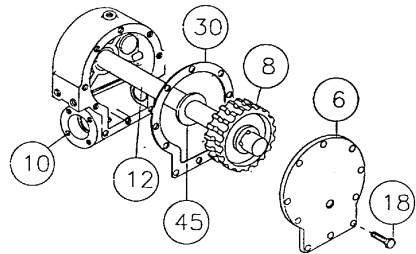
4. Remove bearing cap (item #4) from gear housing by unscrewing four capscrews (item #18). Remove worm (item #13) and bearings (item #14) from gear housing. Use soft hammer to gently tap input end of worm and drive worm and bearing from gear housing. Once worm has been removed from housing, bearing can be pressed from end of worm.

Check for signs of wear or damage to worm (item #13) and bearing (item #14). Replace if necessary.



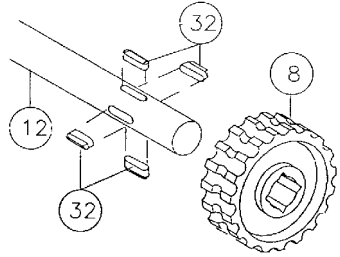
5. Remove gear housing cover (item #6) from gear housing (item #10) by unscrewing capscrews (item #18). Thread two of the capscrews into the two tapped holes of cover and tighten. This will pull the cover loose from gear housing.

Remove cover gasket (item #30) and pull shaft (item #12), with gear attached, and thrust washer (item #45) from gear housing.

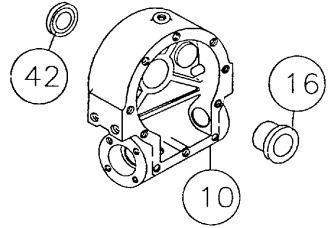


6. Check for signs of wear on gear teeth. If replacement of gear is necessary, replace as follows:

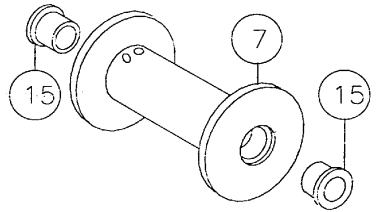
- a) Press gear (item #8) from shaft (item #12).
- b) Examine shaft keys and keyways. If distortion of keys and/or keyways is evident, shaft and keys should be replaced.
- c) Use a soft hammer to gently tap keys (item #32) into keyways. Press gear (item #8) over shaft and keys. Gear must be centered over keys.



7. Remove seal (item #42) from back of (item #10) gear housing. Press bushing (item #16) from gear housing. Press new bushing and seal back into place.

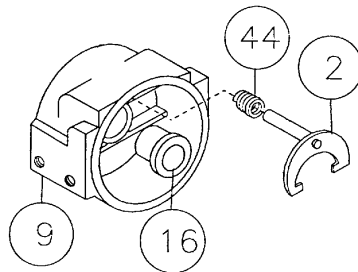


8. Check drum bushings (item #15) for signs of wear. Replace if necessary by pressing old bushings from drum. Press new ones into place.

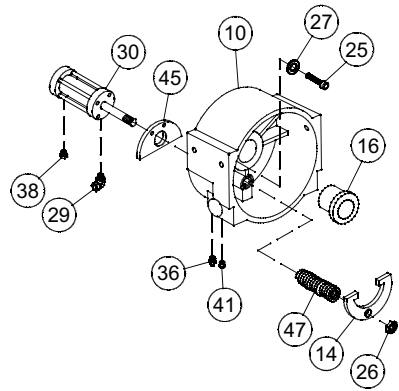


9. Examine shifter assembly (item #2) for damage to yoke. Yoke should be firmly attached to shaft, yet, able to swivel freely around shaft. Replace if necessary.

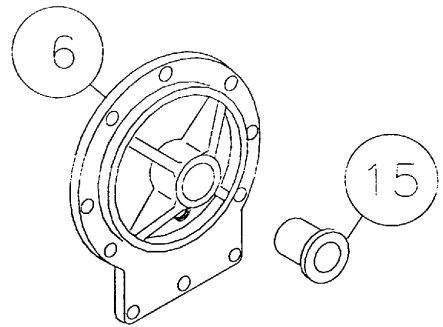
Install new shifter assembly (item #2) by placing end of shaft, opposite yoke, through spring (item #44) and into housing (item #9).



9a. For the air shifter, examine yoke (item #14 for damage. Yoke should be firmly attached to shaft. Replace if necessary. If air cylinder (item #30) needs to be replaced, remove it from the end of the clutch housing by removing 4 cap-screws (item #25) and lockwashers (item #27). Inspect the breather vent (item #38) and elbow connector (item #29) to ensure they are not plugged.

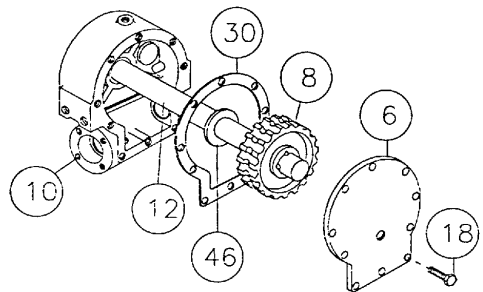


10. Check cover bushing (item #15) for signs of wear. If necessary remove old bushing and press bushing into place.

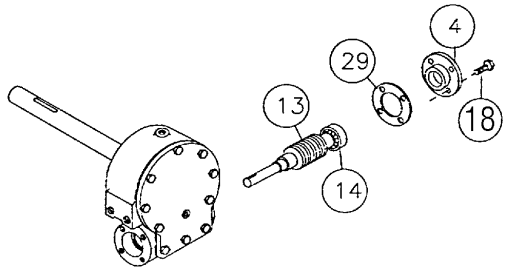


RE-ASSEMBLY

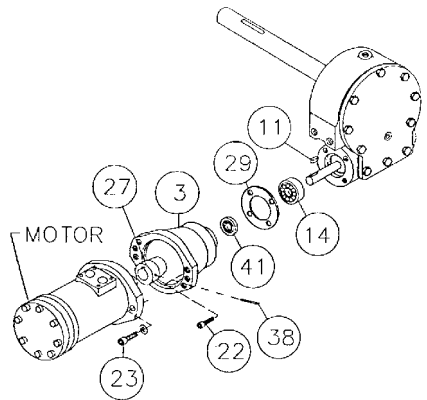
11. Apply grease to end of shaft, opposite gear. Apply grease to bushing in gear housing (item #10). Place greased end of shaft through thrust washer (item #46) and bushing in gear housing (item #10). Place gasket (item #30) onto gear housing cover (item #6). Apply grease to gear end of shaft and cover bushing. Place cover onto shaft and secure to housing with ten (item #18) cap-screws. Tighten capscrews to 8 ft. lbs. (10.8 Nm.) each.



12. Press bearing (item #14) onto worm (item #13). 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 #29) onto bearing cap (item #4). Use four capscrews (item #18) to secure cap to gear housing. TIGHTEN CAPSCREWS TO 8 FT. LBS. (10.8 Nm.) EACH.

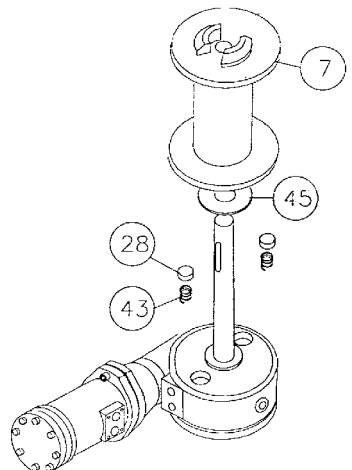


13. Press bearing (item #14) onto worm and into housing. NOTE: Be sure that thick shoulder of bearings outer race (side with manufacturer's name and part number) is out, away from worm threads. Place gasket (item #29) onto adapter (item #3). Attach adapter to gear housing using four (4) capscrews (item #22). TIGHTEN CAPSCREWS TO 12 FT. LBS. (16.3 Nm.) EACH. Insert key (item #11) into keyway of worm shaft. Slide tapered end of coupling (item #27) over end of worm shaft. Be sure roll pin (item #38) is in coupling.



Place motor shaft, with key in keyway, into coupling. Secure motor to adapter, using two (2) capscrews (item #23) and lockwashers. TIGHTEN CAPSCREWS TO 75 FT. LBS. (102 Nm.) EACH.

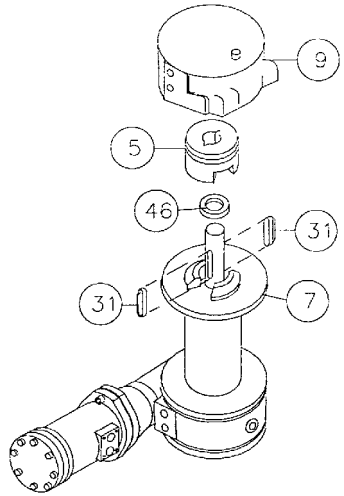
14. Place winch with gear housing cover down on work bench. Drum shaft should be in vertical position. Slide thrust washer (item #45) over drum shaft and slide downward until washer rests on gear housing. Set springs (item #43) into pockets of gear housing with drag brakes (item #28) on top of springs. Slide drum assembly (item #7) onto drum shaft with drum jaws upward.



15. Place thrust washer (item #46) over end of drum shaft and slide downward until spacer rests on drum. Press drum downward to compress springs in gear housing. Insert keys (item #31) into keyways with sharp edge of keys pointing outward and notched end of keys upward. A rubber or brass mallet will be needed to gently tap keys into position.

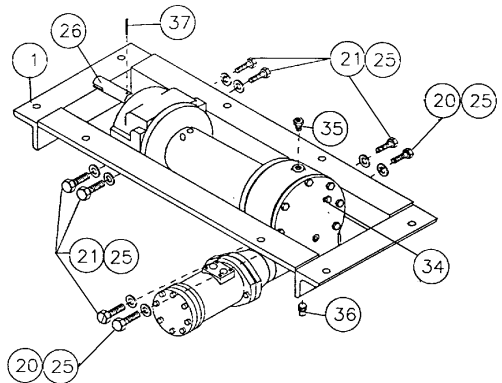
Apply Mobilith SHC 007 Synthetic grease to keys and end of shaft. place jaw clutch (item #5) over end of shaft and slide jaw clutch over keys.

Set clutch housing (item #9) over end of drum shaft. Pull jaw clutch (item #5) upward, toward clutch housing, enough to allow yoke, in clutch housing, to fit properly in groove around jaw clutch.

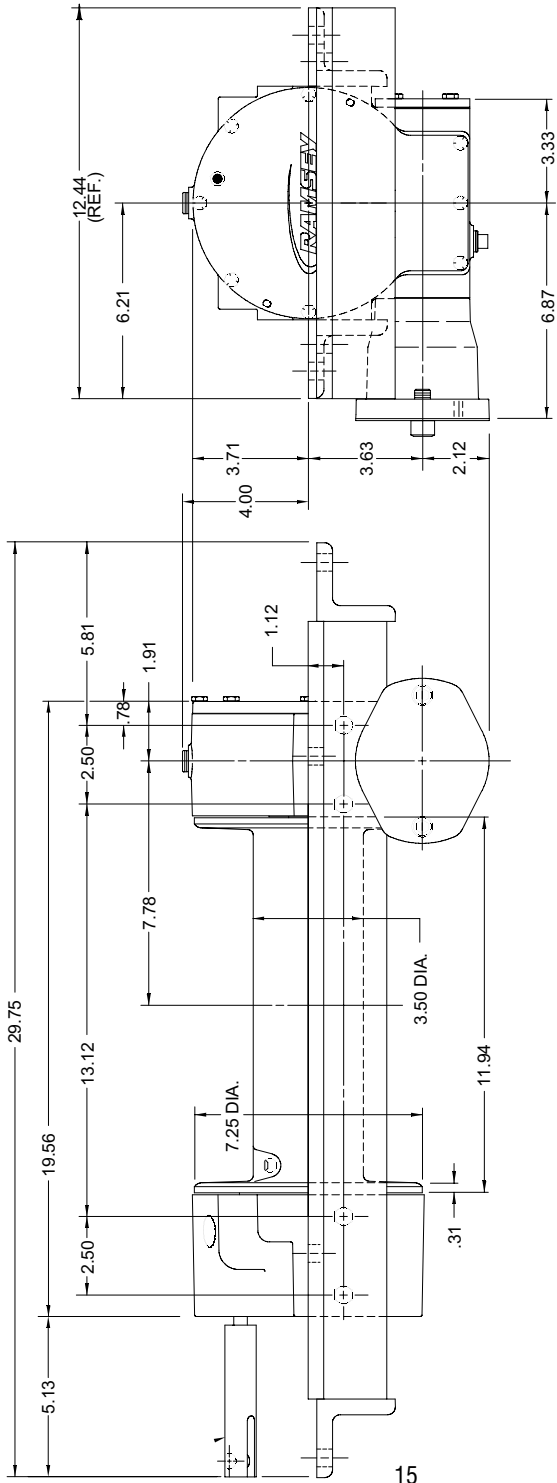


16. Attach frame assembly (item #1) using six capscrews (item #21) with lockwashers and two capscrews (item #20) with lockwasher. Torque capscrews to 34 ft. lbs. (46 Nm.) each. Insert plug (item #36) into bottom of gear housing. Permatex may be applied to threads to help prevent leakage.

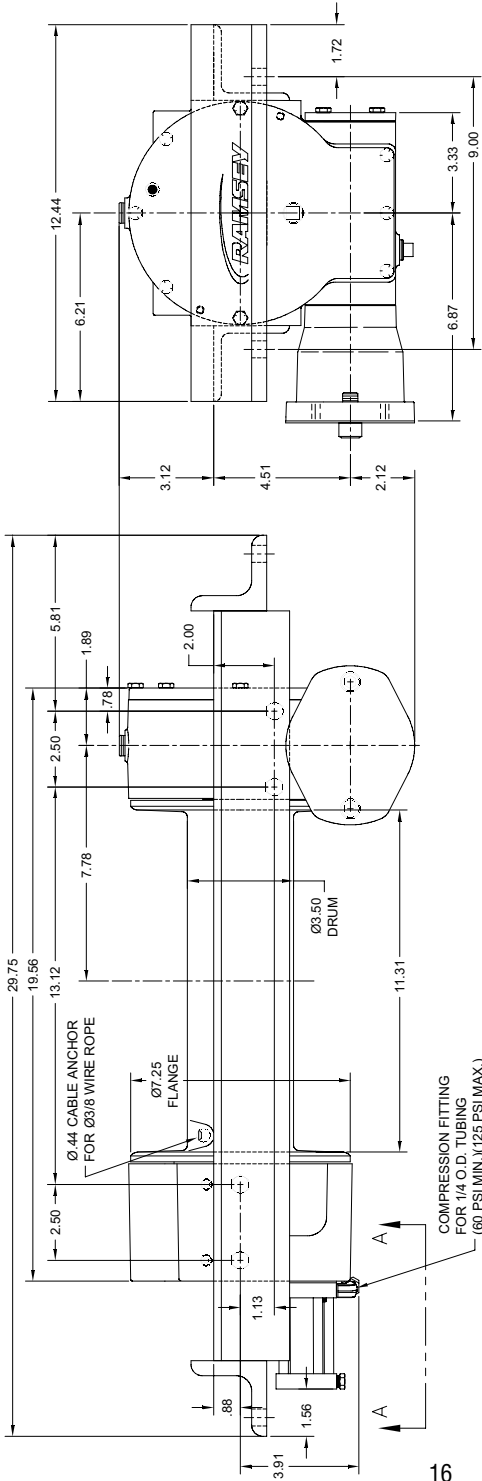
Attach adapter rod (item #26) to clutch shaft using pin (item #37).



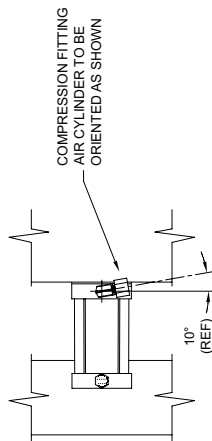
Pour 3/4 pint of **Phillips SMP 80W-90, Mobil HD 80W-90, Shell Spirax HD 80W-90 or CITGO MP 80W-90 gear oil only** into housing through hole in top of housing. Pipe plug (Item #35) should then be placed into hole on top of gear housing. Tighten securely.



Model HD-234 Ram-Lok® Remote Shifter Adapter



COMPRESSION FITTING
FOR 1/4 O.D. TUBING
(60 PSI MIN., 125 PSI MAX.)
FOR DISENGAGING CLUTCH.
(CLUTCH IS SPRING ENGAGED)



DETAIL A-A

INSTALLATION INSTRUCTIONS FOR TAGS 434385 AND 434386

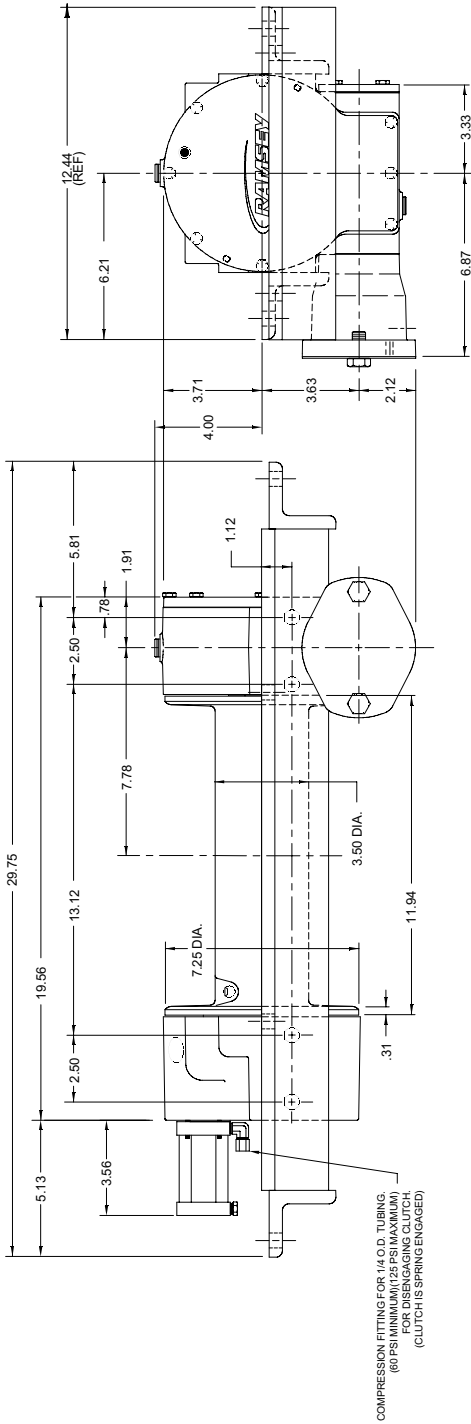
**CLUTCH
ENGAGED**

The clutch is spring loaded for engagement when air pressure is removed from air shifter. Verify air shifter control valve lever position for engaged position. This tag, 434385, must be mounted as near as possible to air shifter control lever in the ENGAGED position.

**CLUTCH
DISENGAGED**

The clutch is dis-engaged by applying 60-125 psi air pressure to air shifter. Verify air shifter control valve lever position for dis-engaged position. This tag, 434386, must be mounted as near as possible to air shifter control lever in the DIS-ENGAGED position.

Model HD-234 Air Shifter down



INSTALLATION INSTRUCTIONS FOR TAGS 434385 AND 434386

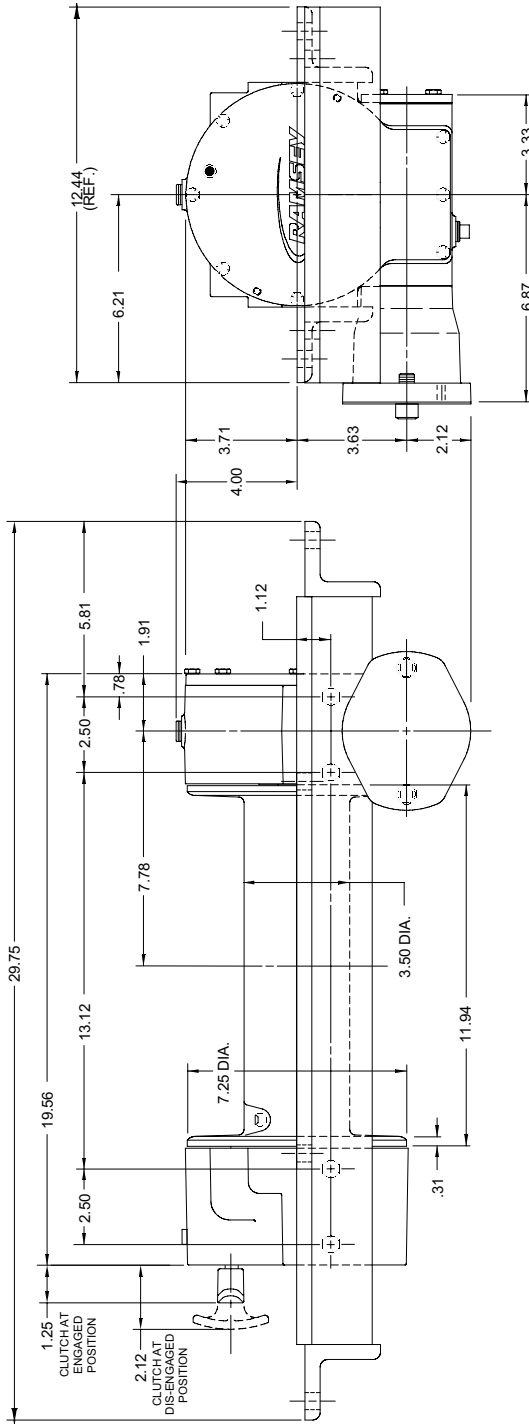


The clutch is spring loaded for engagement when air pressure is removed from air shifter. Verify air shifter control valve lever position for engaged position. This tag, 434385, must be mounted as near as possible to air shifter control lever in the ENGAGED position.

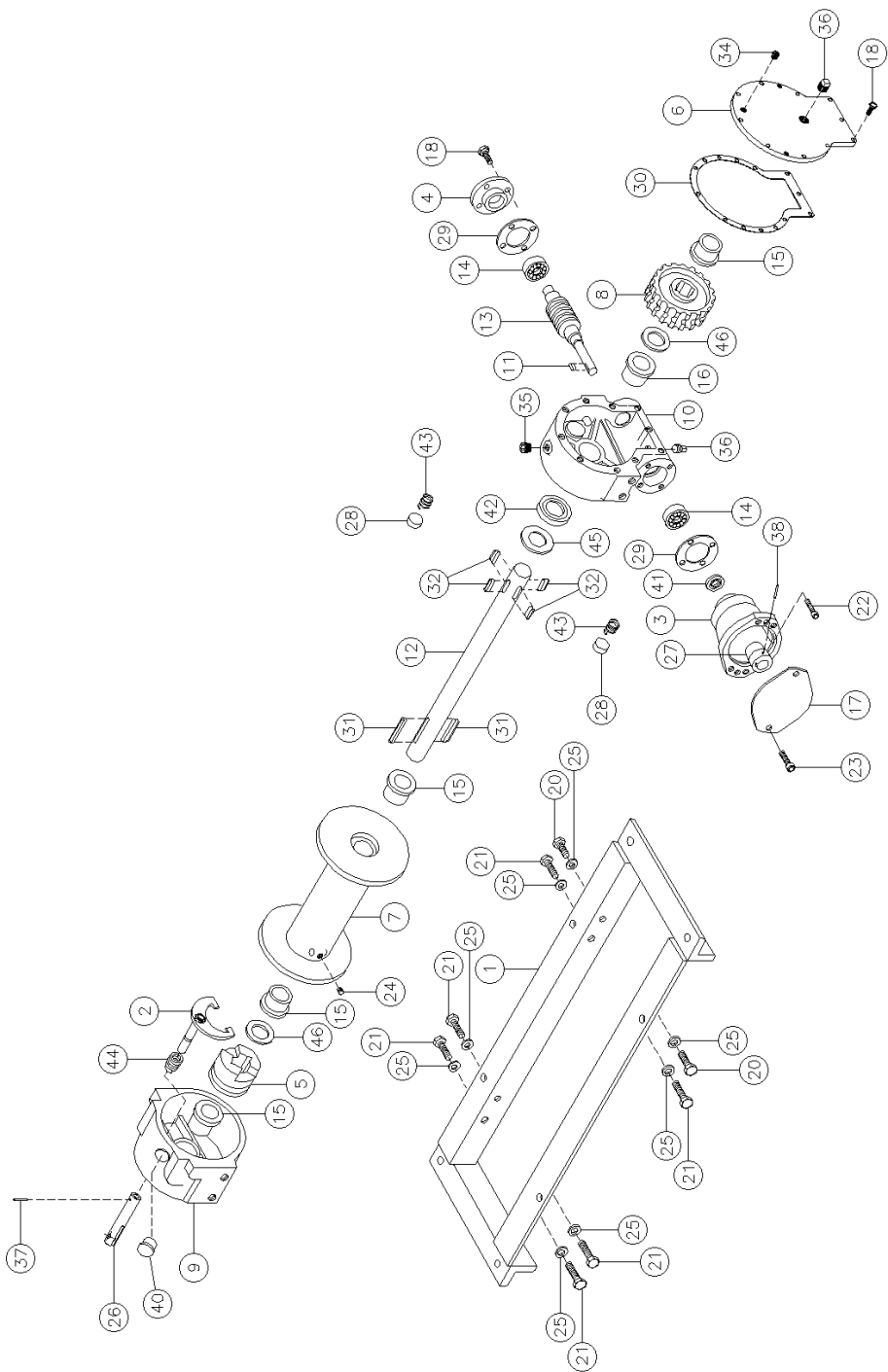


The clutch is dis-engaged by applying 60-125 psi air pressure to air shifter. Verify air shifter control valve lever position for dis-engaged position. This tag, 434386, must be mounted as near as possible to air shifter control lever in the DIS-ENGAGED position.

Model HD-234 Air Shifter up

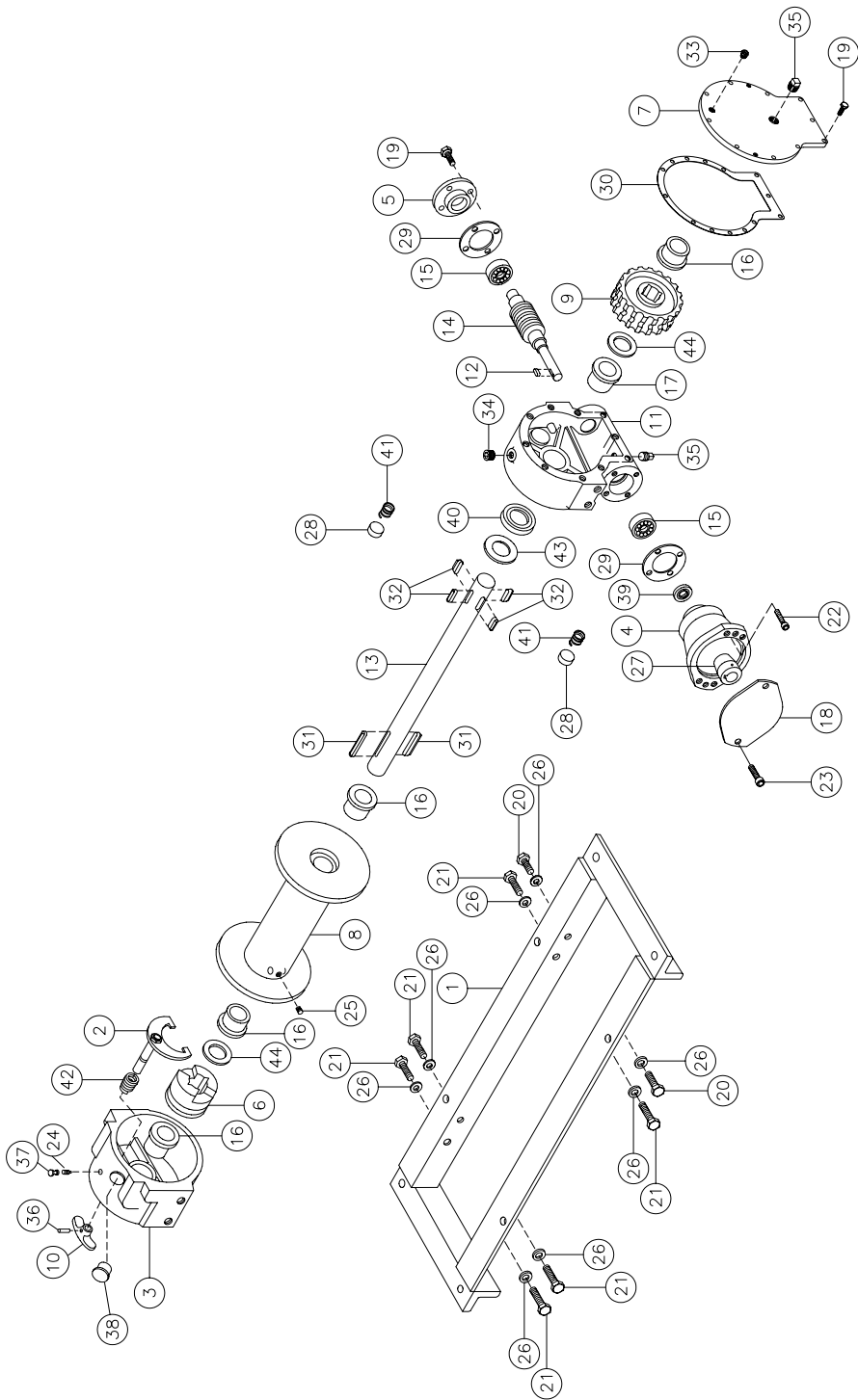


Model HD-234 Ram-Lok® T-handle Manual Shifter



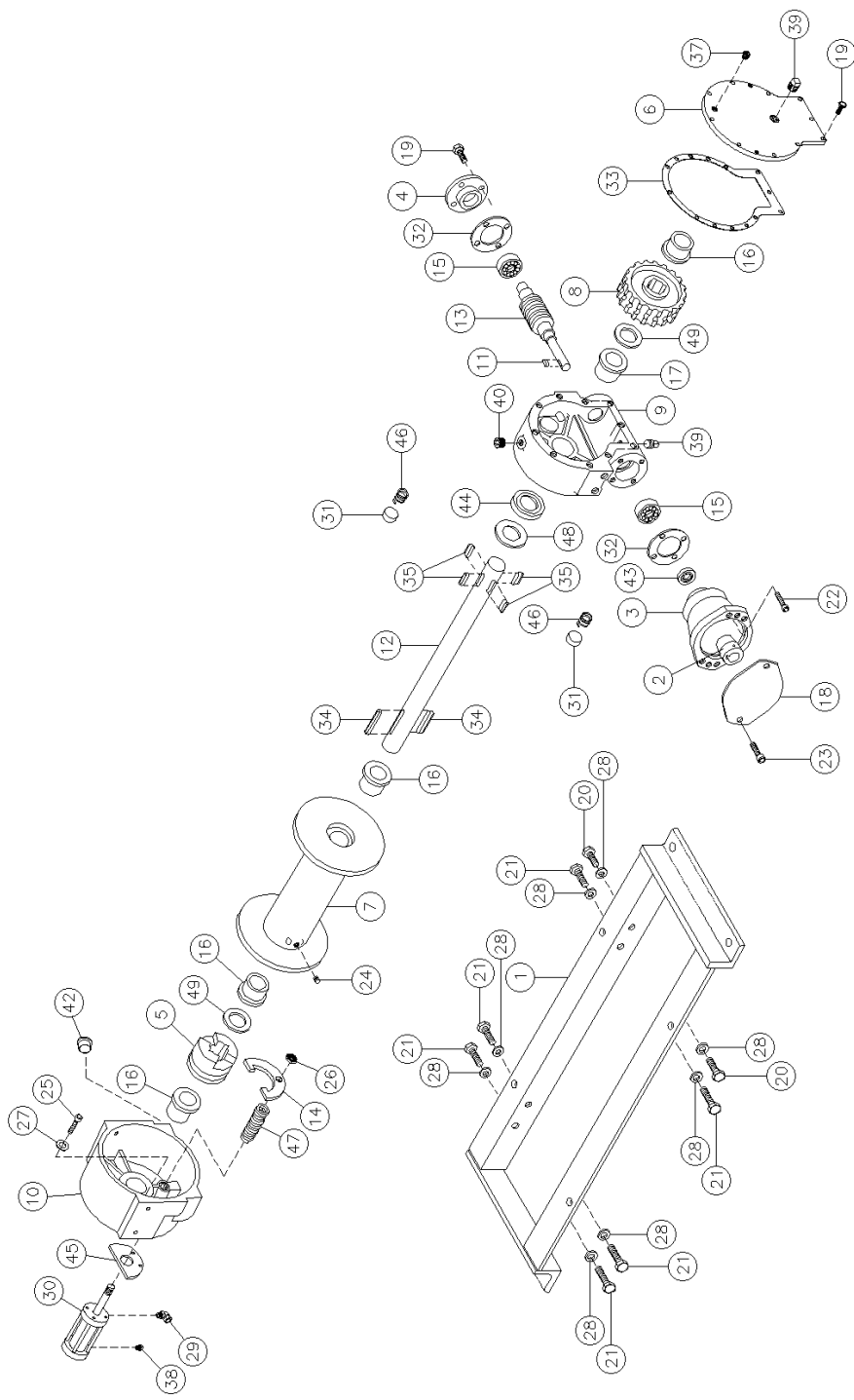
Parts List Model HD-234 Ram-Lok® Remote Shifter Adapter

ITEM	QTY.	PART NO.	DESCRIPTION	ITEM	QTY.	PART NO.	DESCRIPTION
1	1	242174	FRAME ASSEMBLY	25	8	418177	LOCKWASHER 3/8 MED. SECT.
2	1	276057	SHIFTER ASSEMBLY	26	1	426049	ROD ADAPTER
3	1	300057	ADAPTER	27	1	431008	COUPLING
4	1	316083	BEARING CAP	28	2	438014	DISC BRAKE
5	1	324502	JAW CLUTCH	29	2	442184	GASKET
6	1	328152	COVER	30	1	442205	GASKET
7	1	332150	DRUM - "STD"	31	2	450006	KEY BARTH
8	1	334183	GEAR R.H. - 34:1	32	4	450016	KEY BARTH
9	1	296633	HOUSING CLUTCH				
10	1	338273	HOUSING GEAR	34	1	456008	FITTING - RELIEF
11	1	342027	KEY	35	1	468018	PIPE PLUG
12	1	357479	SHAFT - DRUM "STD."	36	2	468011	PIPE PLUG
13	1	368203	WORM R.H. 34:1	37	1	470002	SPIROL PIN
14	2	402002	BEARING - BALL	38	1	470033	SPIROL PIN
15	4	412003	BUSHING				
16	4	412045	BUSHING	40	1	472013	PLASTIC PLUG
17	1	413013	ADAPTER COVER	41	1	486009	OIL SEAL
18	14	414045	CAPSCREW 1/4-20NC X X7/8 LG. HX HD GR.5	42	1	486017	OIL SEAL
				43	2	494002	SPRING
20	2	414277	CAPSCREW 3/8-16NC X 1 LG HX HD GR.5	44	1	494053	SPRING
21	6	414282	CAPSCREW 3/8=16NCX1-1/4 LG. SOC. HD. GR.5	45	1	518014	THRUST WASHER
22	4	414842	CAPSCREW 1/4-20NCX1-3/4 LG. SOC. HD. L/W	46	1	518015	THRUST WASHER
23	2	414952	CAPSCREW 1/2-13NCX1-1/2 LG. SOC. HD. Z/P				
24	1	416059	SETSCREW 3/8-16NCX1/2 LG. SOC. HD				



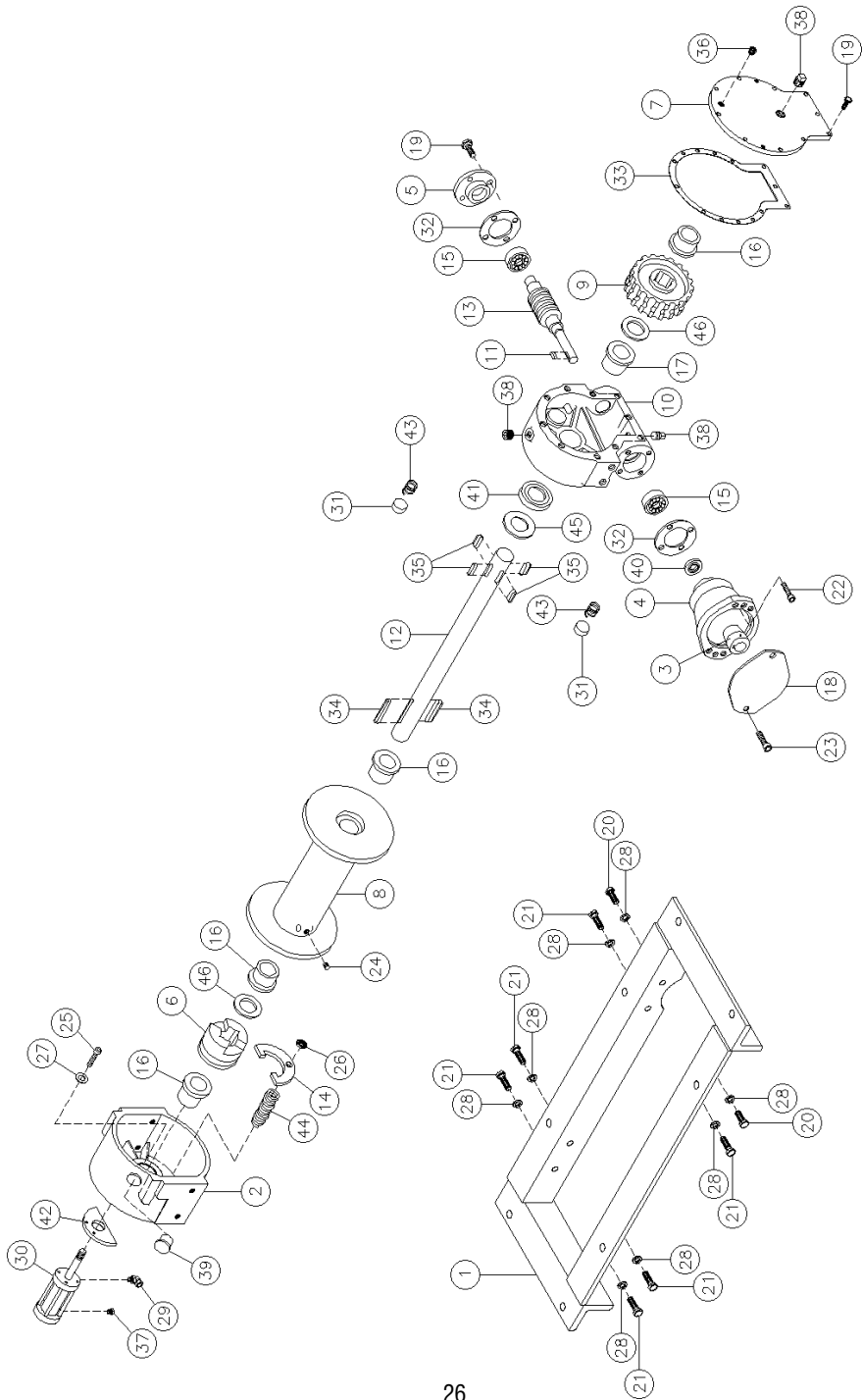
Parts List Model HD-234 Ram-Lok® T-handle Manual Shifter

ITEM	QTY.	PART NO.	DESCRIPTION	ITEM	QTY.	PART NO.	DESCRIPTION
1	1	242174	FRAME ASSEMBLY	24	1	416030	SETSCREW 1/4-20NCX3/8 HX SOC
2	1	276059	SHIFTER ASSEMBLY	25	1	416059	SETSCREW 3/8-16NCX1/2 LG. SOC. HD
3	1	296640	HOUSING - CLUTCH	26	8	418177	LOCKWASHER 3/8 MED. SECT.
4	1	300057	ADAPTER	27	1	431008	COUPLING
5	1	316083	BEARING CAP	28	2	438014	DISC BRAKE
6	1	324502	JAW CLUTCH	29	2	442184	GASKET
7	1	328152	COVER	30	1	442205	GASKET
8	1	332150	DRUM - "STD"	31	2	450006	KEY BARTH
9	1	334183	GEAR R.H. - 34:1	32	4	450016	KEY BARTH
10	1	336010	HANDLE	33	1	456008	FITTING - RELIEF
11	1	338273	HOUSING - GEAR	34	1	468018	PIPE PLUG
12	1	342027	KEY	35	2	468011	PIPE PLUG
13	1	357479	SHAFT - DRUM "STD."	36	1	470033	SPIROL PIN
14	1	368203	WORM R.H. 34:1	37	1	472012	RUBBER PLUG
15	2	402002	BEARING - BALL	38	1	472013	PLASTIC PLUG
16	4	412003	BUSHING	39	1	486009	OIL SEAL
17	4	412045	BUSHING	40	1	486017	OIL SEAL
18	1	413013	ADAPTER COVER	41	2	494002	SPRING
19	14	414045	CAPSCREW 1/4-20NC X 7/8 LG. HX HD GR.5	42	1	494053	SPRING
20	2	414277	CAPSCREW 3/8-16NC X 1 LG HX HD GR.5	43	1	518014	THRUST WASHER
21	6	414282	CAPSCREW 3/8-16NCX1-1/4 LG. SOC. HD. GR.5	44	1	518015	THRUST WASHER
22	4	414842	CAPSCREW 1/4-20NCX1-3/4LG. SOC. HD. L/W				
23	2	414952	CAPSCREW 1/2-13NCX1-1/2 LG. SOC. HD. Z/P				



Parts List Model HD-234 Air Shifter down

Item No.	Qty.	Parts No.	Description	Item No.	Qty.	Parts No.	Description
1	1	242176	FRAME ASSEMBLY	26	1	418044	NUT - 3/8-16NC FLEX-LOK
2	1	299037	COUPLING ASSEMBLY	27	4	418136	LOCKWASHER - #6 MED
3	1	300057	ADAPTER	28	8	418177	LOCKWASHER 3/8 MED Z/P
4	1	316083	BEARING CAP	29	1	432033	FITTING - ELBOW
5	1	324502	JAW CLUTCH	30	1	433021	AIR CYLINDER
6	1	328152	COVER - GEAR HSG	31	2	438014	BRAKE DISC
7	1	332150	DRUM - STD.	32	2	442184	GASKET
8	1	334183	WORM GEAR	33	1	442205	GASKET
9	1	338273	HOUSING - GEAR	34	2	450006	KEY
10	1	296632	HOUSING - CLUTCH	35	4	450016	KEY
11	1	342027	KEY				
12	1	357479	DRUM SHAFT	37	1	456008	RELIEF FITTING
13	1	368203	WORM	38	1	456038	FITTING - BREATHER VENT
14	1	370043	YOKE	39	3	468011	PIPE PLUG
15	2	402002	BALL BEARING	40	1	468018	PIPE PLUG
16	4	412003	BUSHING				
17	1	412045	BUSHING				
18	1	413013	COVER - HYDRAULIC ADAPTER	42	1	472013	PLUG, PLASTIC
19	14	414045	CAPSCREW - 1/4-20NC X 7/8 HX HD GR5 Z/P	43	1	486009	OIL SEAL
20	2	414279	CAPSCREW - 3/8-16NC X 3/4 HX HD GR5	44	1	486017	OIL SEAL
21	6	414282	CAPSCREW - 3/8-16NC X 1-1/4 HX HD GR5	45	1	488012	SHIM
22	4	414842	CAPSCREW 1/4-20NC X 1-3/4 HX SOC NDSTRIP Z/P	46	2	494002	SPRING
23	2	414952	CAPSCREW 1/2-13NC X 1-1/2 SOC HD Z/P	47	1	494053	SPRING
24	1	416059	SETScrew - 3/8-16NC X 1/2 HX SOC CUP	48	1	518014	THRUST WASHER
25	4	416198	SCREW - #6-32NC X 1 HX SOC HD Z/P	49	2	518015	THRUST WASHER



Parts List Model HD-234 Air Shifter up

Item No.	Qty.	Parts No.	Description	Item No.	Qty.	Parts No.	Description
1	1	242174	FRAME ASSEMBLY	24	1	416059	SETSCREW - 3/8-16NC X 1/2 HX SOC CUP
2	1	296644	HOUSING - CLUTCH	25	4	416198	SCREW - #6-32NC X 1 HX SOC HD Z/P
3	1	299037	COUPLING ASSEMBLY	26	1	418044	NUT - 3/8-16NC FLEX-LOK
4	1	300057	ADAPTER	27	4	418136	LOCKWASHER - #6 MED
5	1	316083	BEARING CAP	28	8	418177	LOCKWASHER 3/8 MED Z/P
6	1	324502	JAW CLUTCH	29	1	432033	FITTING - ELBOW
7	1	328152	COVER - GEAR HSG	30	1	433021	AIR CYLINDER
8	1	332150	DRUM - STD.	31	2	438014	BRAKE DISC
9	1	334183	WORM GEAR	32	2	442184	GASKET
10	1	338273	HOUSING - GEAR	33	1	442205	GASKET
11	1	342027	KEY	34	2	450006	KEY
12	1	357479	DRUM SHAFT	35	4	450016	KEY
13	1	368203	WORM	36	1	456008	RELIEF FITTING
14	1	370043	YOKE	37	1	456038	FITTING - BREATHER VENT
15	2	402002	BALL BEARING	38	3	468018	PIPE PLUG
16	4	412003	BUSHING	39	1	472013	PLUG, PLASTIC
17	1	412045	BUSHING	40	1	486009	OIL SEAL
18	1	413013	COVER - HYDRAULIC ADAPTER	41	1	486017	OIL SEAL
19	14	414045	CAPSCREW - 1/4-20NC X 7/8 HX HD GR5 Z/P	42	1	488012	SHIM
20	2	414277	CAPSCREW - 3/8-16NC X 1 HX HD GR5 NYLOK	43	2	494002	SPRING
21	6	414282	CAPSCREW - 3/8-16NC X 1-1/4 HX HD GR5	44	1	494053	SPRING
22	4	414842	CAPSCREW 1/4-20NC X 1-3/4 HX SOC NDSTRIP Z/P	45	1	518014	THRUST WASHER
23	2	414952	CAPSCREW 1/2-13NC X 1-1/2 SOC HD Z/P	46	2	518015	THRUST WASHER

LIMITED WARRANTY

RAMSEY WINCH warrants each new RAMSEY winch to be free from defects in material and workmanship for a period of one (1) year from date of purchase.

The obligation under this warranty, statutory or otherwise, is limited to the replacement or repair at the Manufacturer's factory, or at a point designated by the Manufacturer, of such part that shall appear to the Manufacturer, upon inspection of such part, to have been defective in material or workmanship.

This warranty does not obligate RAMSEY WINCH to bear the cost of labor or transportation charges in connection with the replacement or repair of defective parts, nor shall it apply to a product upon which repair or alterations have been made, unless authorized by Manufacturer, or for equipment misused, neglected or which has not been installed correctly.

RAMSEY WINCH shall in no event be liable for special or consequential damages. RAMSEY WINCH makes no warranty in respect to accessories such as being subject to the warranties of their respective manufacturers.

RAMSEY WINCH, whose policy is one of continuous improvement, reserves the right to improve its products through changes in design or materials as it may deem desirable without being obligated to incorporate such changes in products of prior manufacture.

If field service at the request of the Buyer is rendered and the fault is found not to be with RAMSEY WINCH's product, the Buyer shall pay the time and expense to the field representative. Bills for service, labor or other expenses that have been incurred by the Buyer without approval or authorization by RAMSEY WINCH will not be accepted

See warranty card for details.



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