

PARTS, OPERATION AND MAINTENANCE MANUAL

for

ELECTRIC "LO-PRO™" SERIES BARGE WINCH MODELS

Left Hand

Right Hand

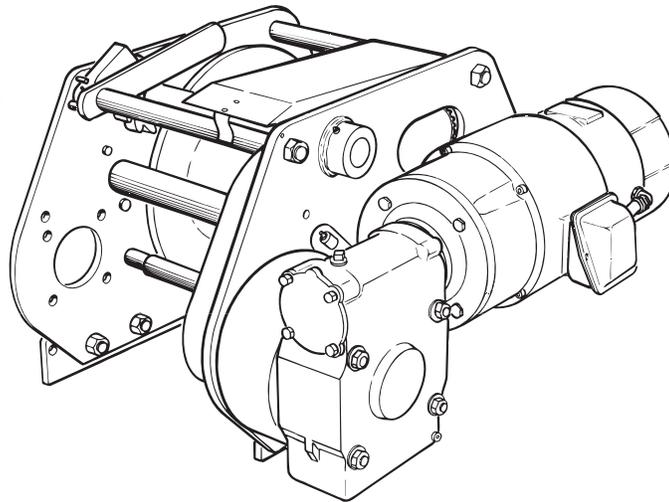
25HL-E

50HL-E

25HR-E

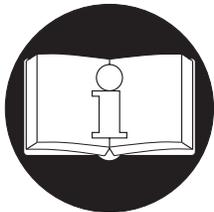
50HR-E

75HL-E



75HR-E

* Left Hand model shown.



READ THIS MANUAL BEFORE USING THESE PRODUCTS. This manual contains important safety, installation, operation and maintenance information. Make this manual available to all persons responsible for the operation, installation and maintenance of these products.

⚠ WARNING

Do not use this winch for lifting, supporting, or transporting people or lifting or supporting loads over people.

Always operate, inspect and maintain this winch in accordance with American National Standards Institute Safety Code (ANSI B30.7) and any other applicable safety codes and regulations.

Refer all communications to Wintech International Inc. or your nearest Distributor.

Form MHD56077

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Inspection and safety information contained in this manual is based, in part, on the American National Standards Institute Safety Code (ASME B30.7). However, it should be noted that ASME B30.7 covers "Base Mounted Hoists" and does not specifically apply to winches used as barge pullers or in horizontal pulling applications. This manual provides important information for all personnel involved with the safe installation, operation and proper maintenance of this product. Even if you feel you are familiar with this or similar equipment, you should read this manual before operating the product.

Danger, Warning, Caution and Notice

Throughout this manual there are steps and procedures which, if not followed, may result in an injury. The following signal words are used to identify the level of potential hazard.

DANGER

Danger is used to indicate the presence of a hazard which *will* cause *severe* injury, death, or substantial property damage if the warning is ignored.

WARNING

Warning is used to indicate the presence of a hazard which *can* cause *severe* injury, death, or substantial property damage if the warning is ignored.

CAUTION

Caution is used to indicate the presence of a hazard which *will* or *can* cause *minor* injury or property damage if the warning is ignored.

NOTICE

Notice is used to notify people of installation, operation, or maintenance information which is important but not hazard-related.

Safety Summary

WARNING

- Do not use this winch for lifting or lowering loads or for supporting, or transporting people.
- The supporting structures and load-attaching devices used in conjunction with this winch must provide an adequate safety factor to handle the rated load, plus the weight of the winch and attached equipment. This is the customer's responsibility. If in doubt, consult a registered structural engineer.
- Electrical installation should be performed by licensed electricians in accordance with the latest edition of the National Electrical Code (ANSI/NFPA 70) and any applicable local, state and national electrical codes and ordinances.

The National Safety Council, Accident Prevention Manual for Industrial Operations, Eighth Edition and other recognized safety sources make a common point: Employees who work near material handling equipment or assist in hooking on or arranging a load should be instructed in safe rigging procedures. From a safety standpoint, one factor is paramount: conduct all pulling operations in such a manner that if there were an equipment failure, no personnel would be injured. This means keep out of the line of force of any load.

The Occupational Safety and Health Act of 1970 generally places the burden of compliance with the owner/employer, not the manufacturer. Many OSHA requirements are not concerned or connected with the manufactured product but are, rather, connected with the final installation. It is the owner's responsibility and user's responsibility to determine the suitability of a product for any particular use. Check all applicable industry, trade association, federal, state and local regulations. Read all operating instructions and warnings before operation.

Rigging: It is the responsibility of the operator to exercise caution, use common sense and be familiar with proper rigging techniques. See ANSI/ASME B30.9 for rigging information, American National Standards Institute, 1430 Broadway, New York, NY 10018.

This manual has been produced by **Wintech International** to provide dealers, mechanics, operators and company personnel with the information required to install, operate, maintain and repair the products described herein.

It is extremely important that mechanics and operators be familiar with the servicing procedures of these products, or like or similar products, and are physically capable of conducting the procedures. These personnel shall have a general working knowledge that includes:

1. Proper and safe use and application of mechanics common hand tools as well as special **Wintech International** or recommended tools.
2. Safety procedures, precautions and work habits established by accepted industry standards.

Wintech International can not know of, nor provide all the procedures by which product operations or repairs may be conducted and the hazards and/or results of each method. If operation or maintenance procedures not specifically recommended by the manufacturer are conducted, it must be ensured that product safety is not endangered by the actions taken. If unsure of an operation or maintenance procedure or step, personnel should place the product in a safe condition and contact supervisors and/or the factory for technical assistance.

SAFE OPERATING INSTRUCTIONS

The following warnings and operating instructions have been adapted in part from American National (Safety) Standard ASME B30.7 and are intended to avoid unsafe operating practices which might lead to injury or property damage.

Wintech International recognizes that most companies who use winches have a safety program in force at their facility. In the event that some conflict exists between a rule set forth in this publication and a similar rule already set by an individual company, the more stringent of the two should take precedence.

Safe Operating Instructions are provided to make an operator aware of dangerous practices to avoid and are not necessarily limited to the following list. Refer to specific sections in the manual for additional safety information.

1. Only allow personnel trained in safety and operation of this product to operate and maintain the winch.
2. Only operate a winch if you are physically fit to do so.
3. When a "DO NOT OPERATE" sign is placed on the winch, or controls, do not operate the winch until the sign has been removed by designated personnel.
4. Before each shift, the operator should inspect the winch for wear or damage. Never use a winch that inspection indicates is worn or damaged.
5. Do not use winch if hook latch on a hook has been sprung or is broken. Check that the hook latches are engaged before using.
6. Only pull loads less than or equal to the rated capacity of the winch.
7. Never place your hand in the throat area of a hook or in the vicinity of the wire rope as it spools onto the drum.
8. Position load correctly. Only pull in a straight line. Do not "side pull" or "yard".
9. Keep hands, clothing, etc., clear of moving parts.
10. Do not force a hook into place by hammering.
11. Be certain the load is properly seated in the saddle of the hook.
12. Do not pull the load on the tip of the hook.
13. Never run the wire rope over a sharp edge. Use a sheave.
14. Pay attention to the load at all times when operating the winch.
15. Make sure all people are clear of the loadpath.
16. Never use the winch for lifting or lowering loads and never allow anyone to stand on a moving load.
17. Ease the slack out of the wire rope when starting a pull.
18. Never weld or cut on a load held by the winch.
19. Do not operate winch if jamming, overloading, or binding occurs.
20. After use, properly secure winch and all loads.
21. Always rig loads properly and carefully.

WARNING LABELS

Each winch is supplied from the factory with the warning labels shown. If the labels are not attached to your winch, order new labels and install. Refer to Dwg. MHTPA0613 for installation locations and part numbers. Read and obey all warnings and other safety information attached to this winch. Labels are shown smaller than actual size.

Warning Label:
(Refer to Dwg. MHTPA0613, item 611)



(LBL611.CDR)

Warning Label:
(Refer to Dwg. MHTPA0613, item 613)

NOTICE

- Required with optional handwheel assembly.



(LBL613.CDR)

Warning Label:
(Refer to Dwg. MHTPA0613, item 614)



(LBL615.CDR)

SPECIFICATIONS

Model Code

Example: **50HL-E2B41-16B**

50H L - E2 B 41 - 16 B

Series/Holding Capacity:

25H = 25 US Tons	22,680 kg ~ 22.5 metric tons
50H = 50 US Tons	45,360 kg ~ 45 metric tons
75H = 75 US Tons	68,039 kg ~ 68 metric tons

Configuration: (handwheel to wire rope take-off)

- R = Right hand.
- L = Left hand.**

Horsepower:

- E1 = 5 HP
- E2 = 7.5 HP**
- E3 = 10 HP

Voltage:

- A = 230 volts - 3 phase - 60 cycle
- B = 460 volts - 3 phase - 60 cycle**
- C = Specify voltage

Drum Lengths Available:

25H	= 9 inches	229 mm
	= 17 inches	432 mm
	= 35 inches	889 mm
	= 52 inches	1321 mm
	= 69 inches	1753 mm
50H	= 11 inches	280 mm
	= 20 inches	508 mm
	= 41 inches	1041 mm
75H	= 61 inches	1549 mm
	= 82 inches	2083 mm
	= 10 inches	254 mm
	= 20 inches	508 mm
	= 40 inches	1016 mm
	= 61 inches	1549 mm
	= 81 inches	2057 mm

Wire Rope Size (number equals wire rope diameter in sixteenths of an inch):

10	= 10/16 inch	= 5/8 inch	16 mm
12	= 12/16 inch	= 3/4 inch	18 mm
14	= 14/16 inch	= 7/8 inch	22 mm
16	= 16/16 inch	= 1 inch	26 mm
18	= 18/16 inch	= 1-1/8 inch	28 mm
20	= 20/16 inch	= 1-1/4 inch	32 mm
22	= 22/16 inch	= 1-3/8 inch	36 mm
24	= 24/16 inch	= 1-1/2 inch	40 mm

Options:

- B = Angled deck bracket.**
- C = Disengaging clutch.
- D = Drum divider with second wire rope anchor.
- G = Grooved drum.
- P = Special paint: Marine 812 top coat.
- T = Torque limiter clutch.
- Z = Sand blasted/carbozinc plating.

(TBL.MDLCODE)

(TBL.ELECTR)

Model Number	Capacities						Holding				Line Speed				Volts Phase Cycle	HP
	Rated Pull		Stall Pull*		Hand Pull**		Electric Brake		Holding Dog		No Load		Rated Pull			
	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	fpm	mpm	fpm	mpm		
25HL-E1	4,000	1,815	11,000	4,990	20,000	9,070	46,000	20,865	50,000	22,680	34	10.36	31	9.45	230/460	5
25HL-E2	6,000	2,721	16,500	7,485												7.5
25HL-E3	8,000	3,630	22,000	9,980												10
50HL-E1	6,000	2,721	16,500	7,485	30,000	13,600	67,000	30,390	110,000	49,897	23	7.00	21	6.40	3	5
50HL-E2	9,000	4,082	24,800	11,250												7.5
50HL-E3	12,000	5,443	33,000	14,970												10
75HL-E1	9,300	4,218	25,600	11,612	40,000	18,140	111,000	50,345	150,000	68,039	14	4.25	13	4.00	60	5
75HL-E2	13,900	6,305	38,200	17,327												7.5
75HL-E3	18,500	8,390	50,900	23,088												10

* Stall pull rated at specified voltage with holding dog engaged.

** Hand pull requires optional disengaging clutch and ratchet assemblies.

(TBL.CAPACITY)

Drum Length (inches)	Wire Rope Capacity ft. (m)													
	5/8	16 mm	3/4	18 mm	7/8	22 mm	1	26 mm	1-1/8	28 mm	1-1/4	32 mm		
25HE	4 layers			4 layers			4 layers			3 layers				
9	248	75	162	52	142	43	88	26	---	---	---	---		
17	479	146	314	100	277	84	174	52	---	---	---	---		
35	975	297	643	205	568	173	359	107	---	---	---	---		
52	1472	449	971	309	860	262	544	163	---	---	---	---		
69	1969	600	1299	414	1151	351	729	218	---	---	---	---		
50HE	---				4 layers			4 layers			3 layers		3 layers	
11	---	---	---	---	194	59	174	51	110	34	100	30		
20	---	---	---	---	377	115	338	101	216	66	197	60		
41	---	---	---	---	773	236	694	207	445	136	408	124		
61	---	---	---	---	1168	356	1051	314	674	205	619	189		
82	---	---	---	---	1564	477	1407	421	903	275	830	253		
75HE	3 layers		3 layers		3 layers			2 layers						
	1-1/8	28 mm	1-1/4	32 mm	1-3/8	36 mm	1-1/2	40 mm						
10	119	36	108	33	98	29	56	16	Note: Wire rope capacities are calculated for full drum storage and do not comply with ASME/ANSI or any other standards which may require that the top layer not exceed a specified distance below the drum flange diameter. Figures may vary from those published elsewhere.					
20	247	75	225	69	207	61	119	35						
40	523	159	478	146	441	131	254	74						
61	798	243	731	223	675	200	390	114						
81	1074	327	983	300	909	270	525	154						

(TBL.WEIGHT)

Model Assembly Weight:

Drum Length	Model Number	Net Weight (without wire rope)		Model Number	Net Weight (without wire rope)		Model Number	Net Weight (without wire rope)		Drum Diameter	
		lbs.	kgs.		lbs.	kgs.		lbs.	kgs.	inches	mm
9	25HL-E1	700	318	25HL-E2	750	340	25HL-E3	800	363	10-3/4	273
17		785	355		835	379		885	401		
35		970	440		1,020	462		1,070	485		
52		1,150	522		1,200	544		1,250	567		
69		1,335	605		1,385	628		1,435	651		
11	50HL-E1	1,225	555	50HL-E2	1,275	578	50HL-E3	1,325	601	12-3/4	324
20		1,365	620		1,415	642		1,465	665		
41		1,665	755		1,715	778		1,765	800		
61		1,970	894		2,020	916		2,070	939		
82		2,270	1,030		2,320	1,052		2,370	1,075		
10	75HL-E1	1,930	875	75HL-E2	1,980	898	75HL-E3	2,030	921	16	406
20		2,135	969		2,185	991		2,235	1,013		
40		2,575	1,168		2,625	1,191		2,675	1,213		
61		3,015	1,368		3,065	1,390		3,115	1,413		
81		3,455	1,567		3,505	1,590		3,555	1,612		

INSTALLATION

Prior to installing the winch, carefully inspect it for possible shipping damage.
Winches are supplied fully lubricated from the factory.

⚠ CAUTION

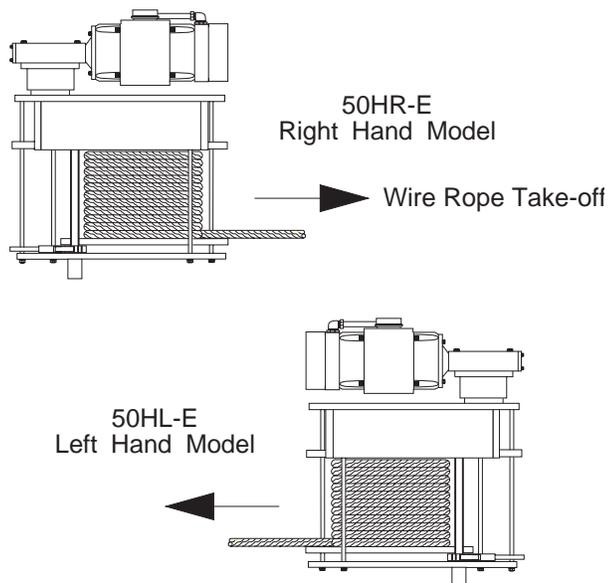
• Owners and users are advised to examine specific, local and other regulations, including American National Standards Institute and/or OSHA Regulations which may apply to a particular type of use of this product before installing or using winch.

Winch Configuration

(Refer to Dwg. MHTPA0571)

As viewed from the side of the winch opposite from the motor, the direction of wire rope take-off determines if winch is left or right hand.

Winch Wire Rope Take Off Diagram



(Dwg. MHTPA0571)

Mounting

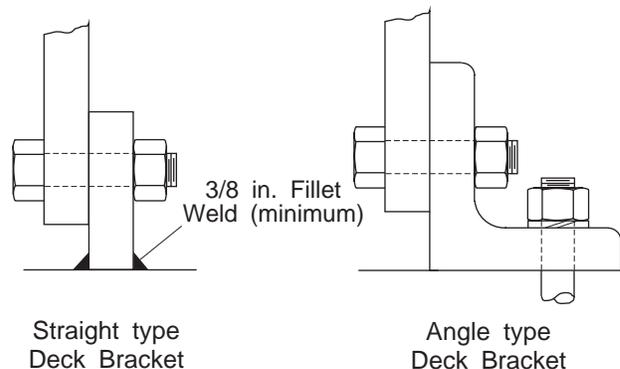
(Refer to Dwg. MHTPA0217)

1. Mount the winch on a rigid surface capable of supporting the winch and that will prevent deflecting or distortion of the winch when operated at maximum capacity.
2. Choose a site that uses as short a wire rope as practical.

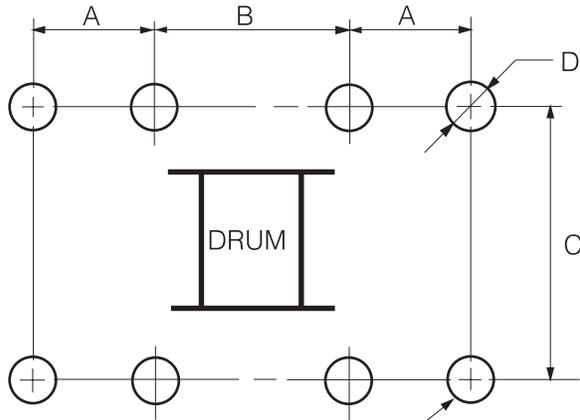
⚠ WARNING

• The winch is not a balanced load and may weigh as much as 3,555 lbs. (1,612 kgs.). Use extreme care when lifting winch into position.

3. When a lead sheave is used, it should be aligned with the center of the drum. The diameter of the lead sheave must be at least 18 times the diameter of the wire rope.
4. Maintain a fleet angle between the sheave and winch of no more than $1-1/2^\circ$. For every inch (25 mm) of drum length the lead sheave must be at least 1.6 feet (0.5 m) from the drum.
5. Make sure the mounting surface is flat to within 1/16 in. (1.6 mm). Shim as necessary.
6. Position the winch so there is enough space for manual operation and for maintenance personnel to access the winch for inspection and maintenance.
7. Mount the winch using the straight type deck bracket when welding to a steel deck. Mount the winch using the angle type deck bracket when bolting the winch to the mounting surface. Refer to Dwg. MHTPA0217 and Table 1.
8. Mount the winch to the deck brackets:
 - a. When using the straight brackets, install with one side frame mounted to the inside of the deck bracket and the other side frame mounted to the outside of the other deck bracket.
 - b. When using the angled brackets, both side frames must be mounted to the inside of the deck brackets.
9. Mounting bolts or screws must be Grade 8 (metric 10.9) or better. Size for 25HE winches is 3/4 inch (20 mm) diameter; for 50HE/75HE winches, 1 inch (24 mm) diameter. Secure using nuts with lockwashers or self-locking nuts.
10. Tighten mounting bolts evenly. For Grade 8 dry thread fasteners torque to 380 ft. lbs. (515 Nm) for 3/4 inch bolts and 900 ft. lbs. (1220 Nm) for 1 inch bolts. If the Grade 8 fasteners are plated, lubricated or a thread locking compound is used, torque to 280 ft. lbs. (380 Nm) for 3/4 inch bolts and 680 ft. lbs. (922 Nm) for 1 inch bolts.



(Dwg. MHTPA0217)



25HE = 10 Places / 5 each side
 50HE = 12 Places / 6 each side
 75HE = 16 Places / 8 each side

(Dwg. MHTPA0206)

Table 1 (Refer to Dwg. MHTPA0206)

Bolt Pattern Dimensions						
Model	"A"		"B"		"D"	
	in	mm	in	mm	in	mm
25HE	4	102	2	51	13/16	21
50HE			7	178	1-1/8	28
75HE						

Drum Length (inches)	"C"					
	25HE		50HE		75HE	
	in	mm	in	mm	in	mm
9	21	533	---	---	---	---
10	---	---	---	---	26-1/4	667
11	---	---	25-1/4	641	---	---
17	29	737	---	---	---	---
20	---	---	34-3/4	883	35-3/4	908
35	46-1/4	1175	---	---	---	---
40	---	---	---	---	56-1/4	1429
41	---	---	55-1/4	1403	---	---
52	63-1/2	161	---	---	---	---
61	---	---	75-3/4	1924	76-3/4	1949
69	80-3/4	2051	---	---	---	---
81	---	---	---	---	97-1/4	2470
82	---	---	96-1/4	2445	---	---

(TBL.BOLTPATN)

Safe Installation Procedures

1. Do not use wire rope as a ground (earth) for welding.
2. Do not attach a welding electrode to winch or wire rope.
3. Never run the wire rope over a sharp edge. Use a correctly sized sheave. Refer to the "MOUNTING" section for specific instructions.
4. Do not weld on or to any part of the winch.
5. Always maintain at least three full, tight wraps of wire rope on the drum.
6. Verify the gears and winch components are lubricated before using winch. Refer to the "LUBRICATION" section for specific information.

Wire Rope

Wire Rope Selection

Consult a reputable wire rope manufacturer or distributor for assistance in selecting the appropriate type and size of wire rope and, where necessary, a protective coating. Use a wire rope which provides an adequate safety factor to handle the actual working load and that meets all applicable industry, trade association, federal, state and local regulations.

When considering wire rope requirements the actual working load must include not only the static or dead load but also loads resulting from acceleration, retardation and shock load. Consideration must also be given to the size of the winch wire rope drum, sheaves and method of reeving. Wire rope construction must be 6 X 19 or 6 X 37 IWRC right lay to permit correct installation of wire rope anchor. Refer to Table 2 for minimum and maximum recommended wire rope diameters.

CAUTION

- Ensure the wire rope diameter provides an adequate safety factor.

Table 2

Minimum and Maximum Wire Rope Size				
Model	Minimum Wire Rope Size		Maximum Wire Rope Size	
	inch	mm	inch	mm
25HE	5/8	16	1	26
50HE	7/8	22	1-1/4	32
75HE	1-1/8	28	1-1/2	40

Wire rope maximum diameter is limited by the size of the wire rope anchor hole (located in the winch drum).

(TBL.WIREROPE)

Safe Wire Rope Handling Procedures

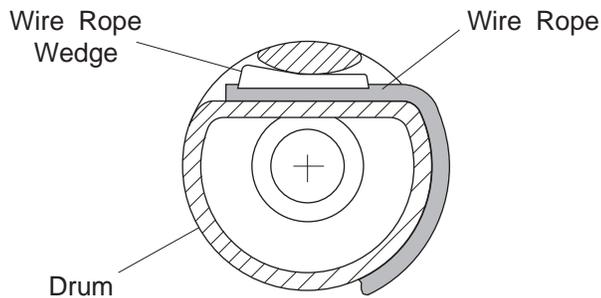
1. Always use gloves when handling wire rope.
2. Never use wire rope which is twisted, frayed or kinked.
3. Never use wire rope as a sling.
4. Always ensure wire rope is correctly spooled and first layer is tight.
5. Always maintain at least three full wraps of wire rope on the drum.

Installing Wire Rope

⚠ CAUTION

- **Install the wire rope so that it comes off the bottom of the drum (underwind).**
- **Maintain at least 3 wraps of wire rope on the drum at all times.**

1. Cut wire rope to length. To prevent fraying of strands, fuse wire rope ends in accordance with the wire rope manufacturer's instructions.
2. Feed the end of wire rope into the wire rope anchor hole. Position the end of the wire rope just beneath the drum surface. Refer to Dwg. MHTPA0218.



(Dwg. MHTPA0218)

3. Make sure the wire rope wedge is the correct size for the wire rope. Cast numbers on the wedge indicate the required wire rope size with which it is to be used.
4. Install the wire rope wedge into anchor hole. Install the wedge from the side of the hole with the wire rope end. Position the wire rope on the serrated surface of the wedge. Insert the narrow end of the wedge first. Position the wedge such that it is nearest the surface of the drum.
5. Hammer the wedge into the wire rope anchor hole to secure the wire rope.
6. Maintain tension on the wire rope while winding onto the drum at slow speed.

⚠ CAUTION

- **Make sure the first wrap of wire rope is flush against the drum flange.**

Wire Rope Spooling

To compensate for uneven spooling and the decrease in line pull capacity as the drum fills up, use as short a wire rope as practical. When rewinding wire rope apply tension to the end of the wire rope to eliminate line slack. This helps achieve level winding and tight spooling.

Rigging

Make sure all wire rope blocks, tackle and fasteners have a sufficient safety margin to handle the required load under all conditions. Do not allow wire rope to contact sharp edges or make sharp bends which will cause damage to wire rope, **use a sheave**. Refer to the wire rope manufacturer's handbook for proper sizing, use and care of wire rope.

Electrical Component Installation

Electrical Wiring

The motor and brake voltage, phase and cycle must match the electrical power supply source. Ensure the power supply is properly grounded. Insulate and enclose all electrical connections.

⚠ WARNING

- **Electrical installation should be performed by licensed electricians in accordance with the latest edition of the National Electrical Code (ANSI/NFPA 70) and any applicable local, state and national electrical codes and ordinances.**
- **Never use a 230V motor with a 115V power supply. The motor can be permanently damaged.**
- **Switches and starter enclosures must be properly grounded.**

Electrical power supply voltage must be within 4% (+/-) of motor requirements.

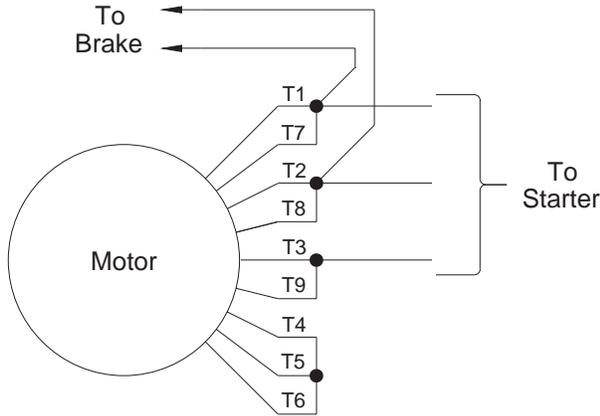
1. For a 230V motor, the power supply required range is 221V to 239V.
2. For a 460V motor, the power supply required range is 442V to 478V.

Brake Connections

(Refer to Dwgs. MHTPA0198, MHTPA0247 and MHTPA0249.)

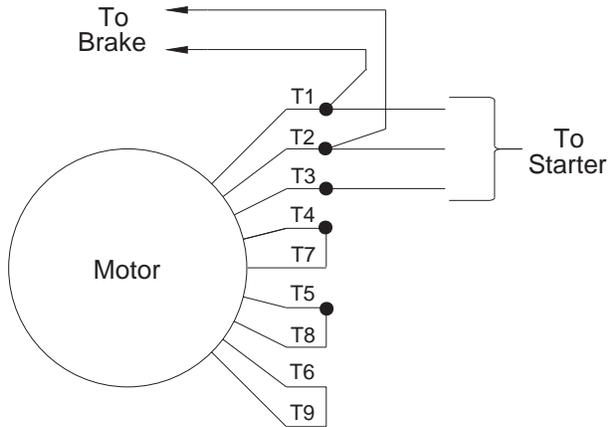
Brake power connections depend upon winch motor and brake operating voltages. Refer to Dwg. MHTPA0247 for 230V units; Dwg. MHTPA0249 for 460V units, and; Dwg. MHTPA0198 for brake power connection locations.

230V Motor and 230V Brake Electrical Connections



(Dwg. MHTPA0247)

460V Motor and 460V Brake Electrical Connections



(Dwg. MHTPA0249)

Electrical Controls

A momentary contact, reversing drum switch is recommended for the winch control, unless remote or automatic control of the winch is required. Refer to "Winch Controls" in the Parts Section for additional switch information.

Refer to Dwg. MHTPA0201 for three phase motor wiring information.

If remote or automatic control is required, an electromagnetic reversing starter is recommended. The starter can be used with either a hand held pendant control or with a wall mounted remote control station. Automatic control depends on application. Refer to wiring diagrams for winches using starters. For three phase motors refer to Dwg. MHTPA0198.

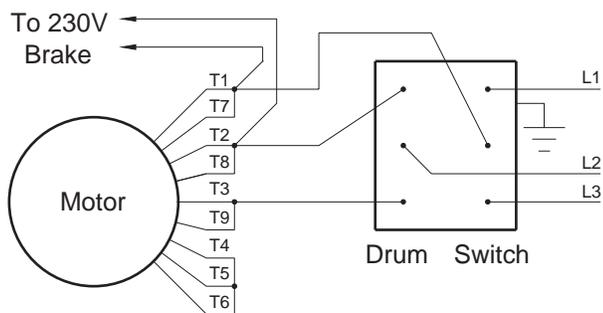
Contact the **Wintech International** factory for assistance on specific applications.

Initial Operating Checks

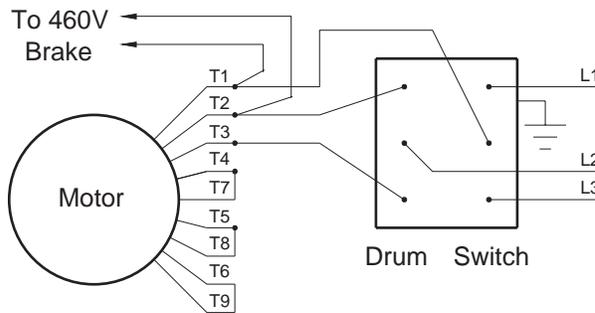
1. Prior to initial winch operation verify oil level in reduction gear and grease components as described in the "LUBRICATION" section.
2. Ensure all winch mounting fasteners are tight and wire rope is spooled correctly onto the drum for underwind operation.
3. Operate winch, without load, slowly in both directions. During operation inspect winch components for abnormal noises, indications of binding and misalignment of parts.
4. Operate winch, with light load, slowly in both directions. During operation inspect winch components for abnormal noises, indications of binding and misalignment of parts.
5. Test brake; when motor is stopped, brake should hold load without slipping.
6. If equipped, test disengaging clutch to ensure it properly releases the power pinion from the drum gears. Verify ratchet operation.

DRUM SWITCH CONNECTION DIAGRAM

230 Volt, 3 Phase:



460 Volt, 3 Phase:

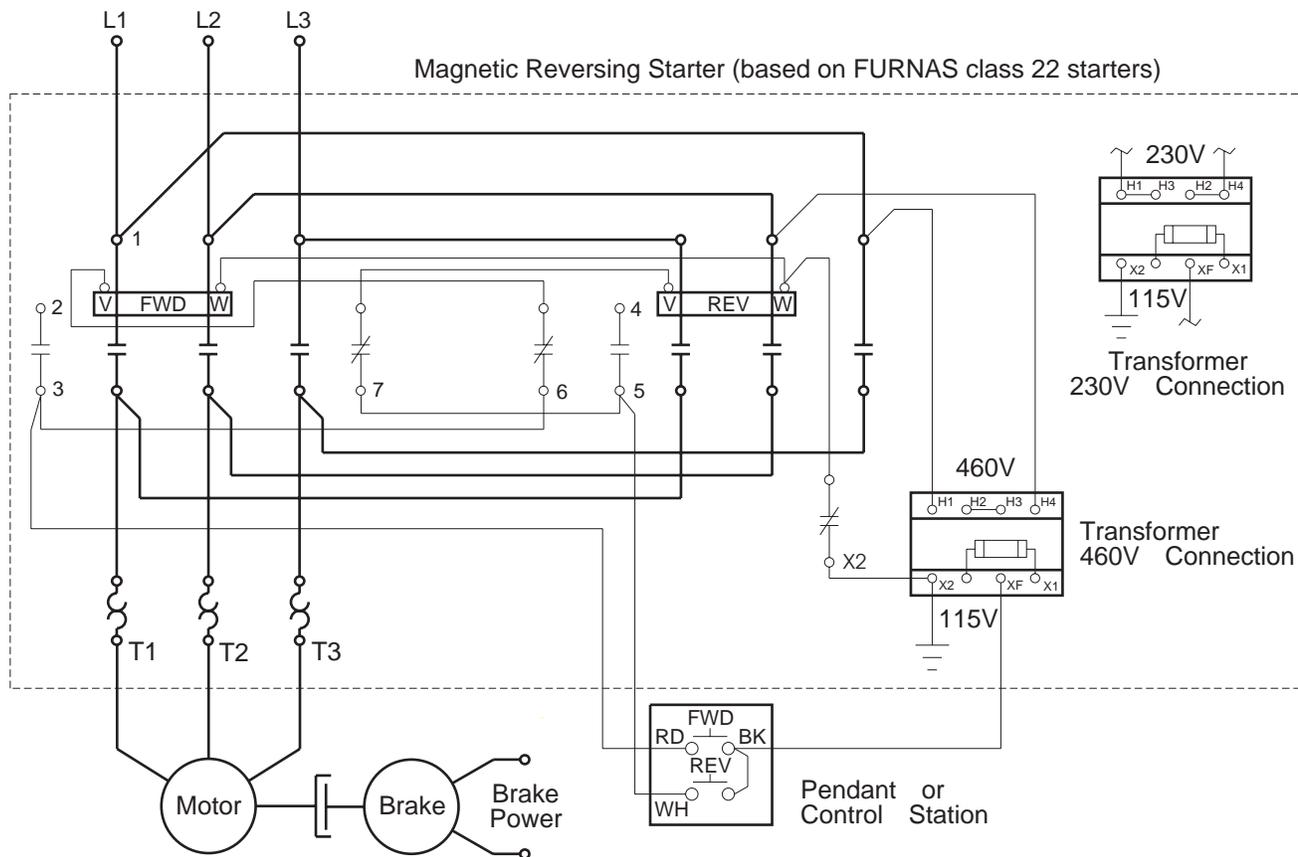


Top of Drum Switch Diagram is Handle end, knob toward viewer

(Dwg. MHTPA0201)

WIRING DIAGRAM

230/460 Volt, 3 Phase:



(Dwg. MHTPA0198)

OPERATION

The four most important aspects of winch operation are:

1. Follow all safety instructions when operating the winch.
2. Allow only people trained in safety and the operation of this winch to operate this product.
3. Subject each winch to a regular inspection and maintenance procedure.
4. Be aware of the winch capacity and weight of load at all times.

WARNING

- Only allow personnel trained in safety and operation of this winch to operate this product.
- To avoid damage to the rigging, the structure supporting the rigging, and the winch, do not “two-block” the end of the wire rope.

Inspection

Before each shift inspect winch as described in "Frequent Inspection" of the "INSPECTION" section.

Power Operation

WARNING

- A creeping load can cause death or injury. Do not rely on the gear reduction or brake to hold a load. Engage holding dog.

CAUTION

- Operating winch for time periods longer than recommended may result in motor damage.

The winch motor has an intermittent duty rating of 15 minutes. This is the number of minutes the motor may be operated during a one hour period when the winch is carrying the full rated load. Maximum winch motor tensioning capacities are listed in "SPECIFICATIONS". When operating the winch avoid unnecessary 'jogging' of the controls.

Tensioning

Motor Tensioning

1. Connect wire rope to the load.
2. Engage the holding dog by placing the holding dog lever in the forward position.
3. Using the motor, slowly take up slack wire rope. Ensure wire rope is spooled evenly and tightly onto drum.
4. Using the motor, tension the wire rope. Maximum tensioning capacities are listed in "SPECIFICATIONS".

Disengaging Clutch and Ratchet Tensioning (optional feature)

1. Ensure the holding dog is engaged. Using the clutch handle (64), shift power pinion (166) away from cluster gear (36) until the gears are disengaged.

WARNING

- If the winch is holding a load the holding dog must be engaged before shifting the power pinion away from the drum gear to prevent possible uncontrolled release of the load.

2. To operate the ratchet dog, rotate the ratchet lever from the stored position to engage the ratchet dog with the drive shaft ratchet gear at approximately 45° up from the horizontal.
3. Place the ratchet extension tube over the ratchet lever handle and, from the front of the winch, pull down on the ratchet lever.
4. Using the ratchet, tension the wire rope. Maximum tensioning capacities are listed in "SPECIFICATIONS".

CAUTION

- When tensioning is complete, ensure the holding dog is engaged and then remove and store the ratchet extension handle, move the ratchet lever to its stowed position, and ensure the ratchet dog is disengaged from the ratchet gear.

Releasing Tension

Motor Release

WARNING

- Ensure the brake release knob is in the 'in' position before releasing holding dog when winch is holding load.
- Before releasing holding dog ensure personnel are clear of load path.

1. Rotate the holding dog release lever to the rear of the winch.
2. Using a mallet, strike the end of the holding dog release lever until the holding dog is disengaged from the drive shaft holding gear.
3. Using the motor, reverse the winch direction to pay out wire rope until the tension has been reduced.

If the load was tensioned using the ratchet lever conduct the following to release tension:

⚠ WARNING

- Do not release holding dog with winch holding load unless the ratchet dog (if provided) is disengaged from the handwheel shaft ratchet gear.
- Before releasing holding dog ensure handwheel (if provided) rotation is not obstructed. Ensure personnel remain clear of spinning handwheel.

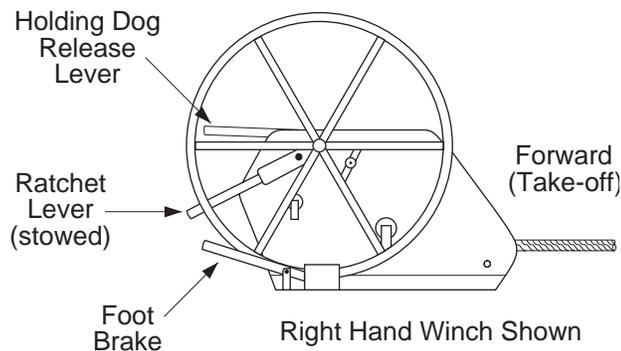
1. Make sure the ratchet lever is in the stowed position.
2. Make sure the ratchet dog is disengaged from the drive shaft ratchet gear.
3. Rotate the holding dog release lever to the rear of the winch.
4. Using a mallet, strike the end of the holding dog release lever until the holding dog is disengaged from the drive shaft holding gear.

Handwheel Operation (optional feature)

(Refer to Dwg. MHTPA0479)

The handwheel is used to take in slack and initially tension wire rope. Handwheel tensioning capacities are listed in the "SPECIFICATIONS" section.

1. Connect wire rope to load.
2. Engage the holding dog by placing the holding dog lever in the forward position.
3. Take up slack wire rope by turning the handwheel in the clockwise direction (viewed facing handwheel). Ensure wire rope is spooled evenly and tightly onto drum.
4. Using the handwheel, tension wire rope up to maximum capacities listed in the "SPECIFICATIONS" section.



(Dwg. MHTPA0479)

Manual Brake Release

(Refer to Dwg. MHTPA0585)

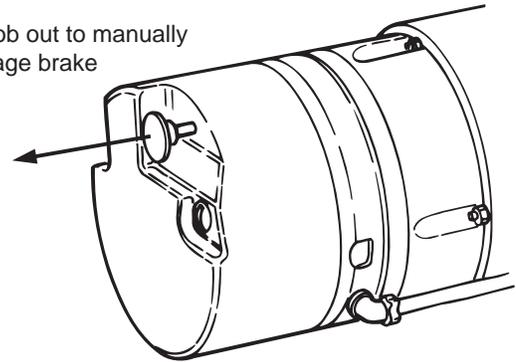
The brake is provided with a manual release knob. When the motor is off and the load is to be moved without energizing the motor, pull the manual release knob out to disengage the brake. This will release the holding torque from the motor shaft allowing it to be turned, however drag may be noted.

The brake will remain in the manual release position until the release knob is manually reset.

⚠ CAUTION

- To prevent friction disc overheating, wear and possible damage, do not energize and operate motor with the brake in the manual release position.

Pull knob out to manually disengage brake

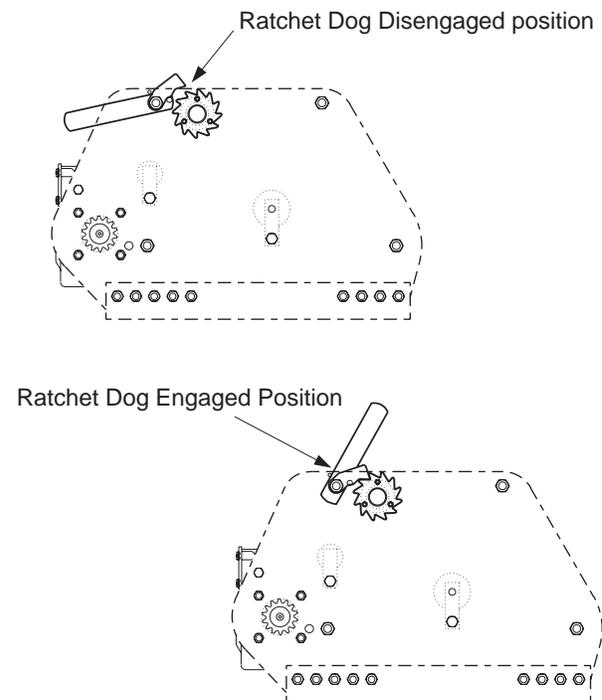


(Dwg. MHTPA0585)

Holding Dog Ratchet Positions

(Refer to Dwg. MHTPA0614)

The holding dog is either engaged or disengaged. When engaged, the winch may haul in wire rope (tension), but cannot pay out wire rope (release tension). To prevent accidental wire rope pay out during operation it is recommended that the holding dog be engaged until necessary to release and pay out wire rope.



(Dwg. MHTPA0614)

Inspection information is based in part on the American National Standards Institute Safety Codes (ASME B30.7). However, it should be noted that ASME B30.7 applies specifically to “Base Mounted Drum Hoists” and not to winches used as barge pullers or in horizontal pulling applications.

⚠ WARNING

• All new, altered or modified equipment should be inspected and tested to 110% of rated capacity by personnel trained in safety, operation and maintenance of this equipment to ensure safe operation at rated specifications before placing equipment in service.

Frequent and periodic inspections should be performed on equipment in regular service. Frequent inspections are visual examinations performed by operators or personnel trained in safety and operation of this equipment and include observations made during routine equipment operation. Periodic inspections are thorough inspections conducted by personnel trained in the safety, operation and maintenance of this equipment. Inspection intervals depend upon the nature of the critical components of the equipment and the degree of their exposure to wear, deterioration or malfunction.

Careful inspection on a regular basis will reveal potentially dangerous conditions while still in the early stages, allowing corrective action to be taken before the condition becomes dangerous.

Deficiencies revealed through inspection, or noted during operation, must be reported to designated personnel trained in safety, operation and maintenance of this equipment. A determination as to whether a condition constitutes a safety hazard must be decided, and the correction of noted safety hazards accomplished and documented by written report before placing the equipment in service.

Records and Reports

Inspection records, listing all points requiring periodic inspection should be maintained for all load bearing equipment. Written reports, based on severity of service, should be made on the condition of critical parts as a method of documenting **periodic** inspections. These reports should be dated, signed by the person who performed the inspection, and kept on file where they are readily available for review by authorized personnel.

Wire Rope Reports

Records should be maintained as part of a long-range wire rope inspection program. Records should include the condition of wire rope removed from service. Accurate records will establish a relationship between visual observations noted during frequent inspections and the actual condition of wire rope as determined by periodic inspections.

Frequent Inspection

On equipment in continuous service, frequent inspection should be made by operators at the beginning of each shift. In addition, visual inspections should be conducted during regular operation for damage or evidence of malfunction.

1. OPERATION. During operation visually inspect and listen for abnormal noises which could indicate potential problems. Do not operate the winch unless the wire rope feeds onto the drum smoothly.
2. WINCH. Prior to operation, visually inspect winch shafts, gears, brakes, motor, electrical wiring, side-plates and drum for indications of damage. Do not operate winch until noted discrepancies have been reviewed and inspected further by personnel trained in the operation, safety and maintenance of this winch.
3. WIRE ROPE. Visually inspect all wire rope which can be expected to be in use during the day’s operations. Inspect for damage indicated by distortion of wire rope such as kinking, “birdcaging,” core protrusion, main strand displacement, corrosion, broken or cut strands. If damage is evident, do not operate winch until the discrepancies have been reviewed and inspected further by personnel trained in the operation, safety and maintenance of this winch.

NOTICE

• The full extent of wire rope wear cannot be determined by visual inspection. At any indication of wear inspect the wire rope in accordance with instructions in “Periodic Inspection.”

4. LUBRICATION. Visually inspect wire rope and winch components. Clean and lubricate as necessary.
5. BRAKE. Before loading winch operate the brake release knob. Pull knob out and release. Knob should remain in the 'out' position. Push knob in, knob should remain in the 'in' position. During operation, with a load, stop winch in position. Brake should hold load up to maximum capacity listed in "SPECIFICATIONS" section without slipping.
6. MOTOR. Before loading winch, operate motor in both directions. Motor and winch should operate smoothly without sticking or binding.

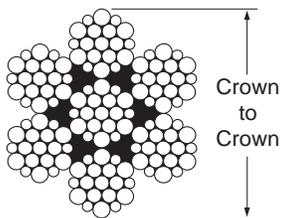
Periodic Inspection

Periodic inspection intervals for equipment use under various operating conditions are listed below:

NORMAL	HEAVY	SEVERE
yearly	yearly	quarterly

Disassembly may be required as a result of initial indications of inspections or in order to properly inspect the individual components. Disassembly steps are described in the "MAINTENANCE" section. Maintain written records of periodic inspections to provide an accumulative basis for continuing evaluation. Inspect all items listed in "Frequent Inspection." Also inspect the following:

1. **SIDE FRAMES.** Check for deformed, cracked or corroded main components. Replace damaged parts.
2. **FASTENERS.** Check retainer rings, split pins, cap-screws, nuts, and other fasteners on winch, including mounting bolts. Replace if missing or damaged and tighten if loose.
3. **DRUM AND SHEAVES.** Check for cracks, wear or damage. Replace if necessary.
4. **WIRE ROPE.** Additionally inspect for the following:
 - a. Build-up of dirt and corrosion. Clean with steam or a stiff wire brush to remove dirt and corrosion if necessary.
 - b. Loose or damaged end connection. Replace if loose or damaged.
 - c. Check wire rope anchor is securely mounted in drum.
 - d. Verify wire rope diameter. Measure the diameter of the wire rope from crown-to-crown throughout the life of the wire rope. Recording of the actual diameter should only be done with the wire rope under equivalent loading and in the same operating section as accomplished during previous inspections. If the actual diameter of the wire rope has decreased more than 1/64 in. (0.4 mm) a thorough examination of the wire rope should be conducted by an experienced inspector to determine the suitability of the wire rope to remain in service. (Refer to Dwg. MHTPA0056).



(Dwg. MHTPA0056)

5. **MOTOR.** Visually inspect exterior for damage, wear and cleanliness. Inspect wiring for damaged, frayed or exposed wires. Verify motor operation is smooth, without sticking or binding, in both directions. Inspect and lubricate as described in the "LUBRICATION" section.
6. **ALL COMPONENTS.** Inspect for wear, damage, distortion, deformation and cleanliness. If external evidence indicates damage, disassemble as required to conduct a detailed inspection. Inspect gears, shafts, bearings, sheaves, springs and covers. Replace worn or damaged parts. Clean, lubricate and reassemble.
7. **BRAKE.** Ensure proper operation. Visually inspect brake during operation. Brake should hold loads listed in the "SPECIFICATIONS" section. If indicated by poor operation or visual damage, disassemble and repair brake. Check all brake surfaces for wear, deformation or foreign deposits. Clean and replace components as necessary. Replace friction discs when thickness is less than 1/8 inch (3 mm).
8. **SUPPORTING STRUCTURE.** Check for distortion, wear and continued ability to support winch. Ensure winch is firmly mounted and that fasteners are in good condition and tight.
9. **DOGS AND RATCHET GEARS.** Check condition of gears and dogs. Verify smooth engagement and release with winch unloaded. Replace gears and dogs indicating cracked, chipped or worn surfaces.
10. **DISENGAGING CLUTCH.** (Optional feature) Verify clutch disengages power pinion from gears smoothly without sticking or binding. Lubricate, adjust and repair as necessary.
11. **LABELS AND TAGS.** Check for presence and legibility of labels. Replace if damaged or missing.
12. **ELECTRICAL COMPONENTS.** Check for loose wires, corrosion and indications of deterioration.

Winches Not in Regular Use

1. Winches which has been idle for a period of one month or more, but less than six months, shall be given an inspection conforming to the requirements of "Frequent Inspection" before being placed in service.
2. Winches which has been idle for a period of over six months shall be given a complete inspection conforming with the requirements of "Periodic Inspection" before being placed in service.
3. Standby winches shall be inspected at least semi-annually in accordance with the requirements of "Frequent Inspection". In abnormal operating conditions winches should be inspected at shorter intervals.

INSPECTION AND MAINTENANCE REPORT

Electric Lo-Pro® Barge Winch

Model Number:	Date:
Serial Number:	Inspected by:
Reason for Inspection: (Check Applicable Box)	
1. Scheduled Periodic Inspection (___ Monthly ___ Yearly).	Operating Environment: ___ Normal ___ Heavy ___ Severe
2. Discrepancy(s) noted during Frequent Inspection.	
3. Discrepancy(s) noted during maintenance.	
4. Other: _____	

Refer to the Parts, Operation and Maintenance Manual "INSPECTION" section for general inspection criteria. Refer to applicable component and unit safety codes for specific technical requirements. If in doubt about an existing condition contact the nearest WINTECH distributor or the factory for technical assistance.

COMPONENT	CONDITION		CORRECTIVE ACTION		NOTES
	Pass	Fail	Repair	Replace	
Bearings			- - -		
Brake					
Motor					
Reduction Gear					
Covers					
Fasteners					
Gears					
Labels and Tags			- - -		
Load Bearing Sheaves			- - -		
Shafts					
Springs					
Supporting Structure					
Holding Dog					
Holding Gear					
Ratchet Dog					
Ratchet Gear					
Wire Rope Wedge			- - -		
Other Components (list in NOTES section)					

TESTING	Pass	Fail	NOTES
Operational (No Load)			
Operational (10% Load)			
Operational (Maximum Test Load *)			

* Refer to the Parts, Operation and Maintenance manual, Form #MHD56077, 'Testing' in the "MAINTENANCE" Section to determine maximum test load.

LUBRICATION

Lubrication intervals are based on intermittent operation of the winch eight hours each day, five days per week. If the winch is operated continuously, more than eight hours per day, or under heavy or severe environments lubrication should be performed more frequently. Use only recommended lubricants. Other lubricants may affect the performance of the winch. Recommended lubricants are based on winch operation in environments relatively free of dust, moisture, and corrosive fumes. Approval for the use of other lubricants, or recommendations on the proper lubricant use in specific environmental situations should be obtained from **Wintech International**. Failure to observe this precaution may result in damage to the winch and/or the associated components.

3. Always inspect removed oil for evidence of internal damage or contamination (metal shavings, dirt, water, etc.).
4. Always drain oil into a suitable container.
5. Add oil slowly to prevent spilling.

Bushings and Pivot Points

(Refer to Dwg. MHTPA0546)

Components with grease fittings should be lubricated monthly with 2 or 3 pumps from a grease gun, or more frequently, depending on severity of service. Rotate components slowly as grease is applied.

When the winch is disassembled, clean all parts thoroughly and coat bushings and shafts with clean grease. Apply sufficient grease to provide a good protective coat. Refer to 'Recommended Lubricants' for grease type.

INTERVAL	LUBRICATION CHECKS
Start of each shift	Visually inspect winch gear lubrication.
Monthly	Lubricate components supplied by grease fittings.
	Inspect wire rope lubrication and cleanliness.
	Check reduction gear oil level.
Yearly	Drain and refill winch reduction gear oil.

(TBL.LUB-ELWN)

Recommended Lubricants

Oil

- | Temperature | Type Oil |
|-------------------------------|----------|
| 1. Below 32 °F (0 °C) | SAE 10W |
| 2. 32° to 80 °F (0° to 27 °C) | SAE 20W |
| 3. Above 80 °F (27 °C) | SAE 30W |

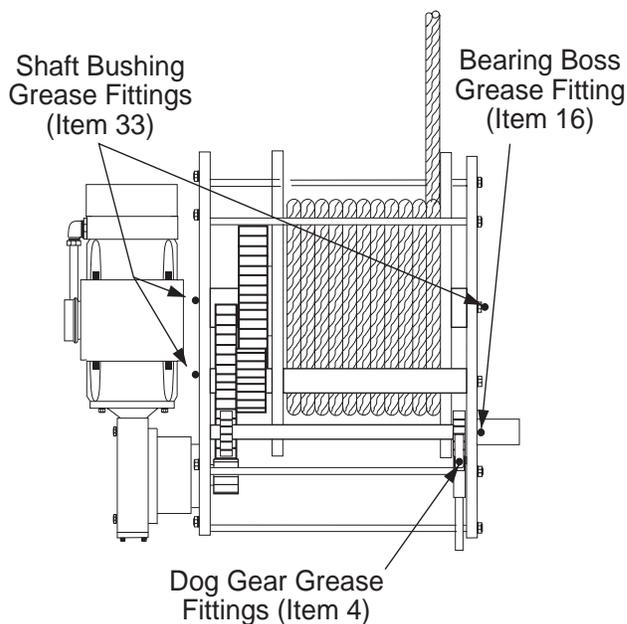
Grease

- | Temperature | Type Grease |
|-------------------------------------|---|
| 1. -20° to 50 °F
(-30° to 10 °C) | EP 1 multipurpose
lithium-based grease |
| 2. 30° to 120 °F
(-1° to 49 °C) | EP 2 multipurpose
lithium-based grease |

General Lubrication

Correct lubrication is one of the most important factors in maintaining efficient winch operation.

1. The recommended grade of oil must be used at all times since the use of unsuitable oil may result in excessive temperature rise, loss of efficiency and possible damage to the gears. Refer to the 'Recommended Lubricants' section.
2. Drain and replace oil according to the operating environment as defined by the **Periodic** inspection interval table in the "INSPECTION" section, or more frequently if desired.



(Dwg. MHTPA0546)

Gears

Lubricate working surfaces of all gear teeth. Brush with grease as often as necessary to keep teeth liberally covered. If grease becomes contaminated with sand, dirt or other abrasive materials clean off old grease and apply new grease.

Apply sufficient grease to provide a good protective coat. Refer to 'Recommended Lubricants' for grease type.

Wire Rope

Follow the wire rope manufacturer's instructions. At a minimum, observe the following guidelines.

1. Clean with a brush or steam to remove dirt, rock dust or other foreign material on the surface of the rope.



• **Do not use an acid-based solvent. Only use cleaning fluids and lubricants specified by the wire rope manufacturer.**

2. Apply a wire rope lubricant, or SAE 30W oil.
3. Brush, drip or spray lubricant weekly, or more frequently, depending on severity of service.

Reduction Gear

(Refer to Dwg. MHTPC0555.)

Drain and replace oil in the reduction gear after the first 50 hours of initial winch operation. Thereafter, replace reduction gear oil yearly if operated in normal conditions or more frequently in severe conditions. Always replace fluid if assembly has been repaired or disassembled.

Reduction gear oil capacity is approximately 2 quarts (1.9 litres).

1. To Drain:

NOTICE

• **Drain oil into a suitable container and recycle or dispose of properly.**

- a. Remove drain plug (187) from base of housing (189). Drain plug is located on motor end of housing.
 - b. Remove fill plug (188) on top of housing (189) or level plug (187) on motor end of housing to vent.
2. To Fill:
 - a. Ensure drain plug (187) is installed in base of housing (189).
 - b. Remove fill plug (188) and level plug (187).
 - c. Fill unit with oil until oil is level with level plug hole.
 - d. Install fill plug (188) and level plug (187).

Motor

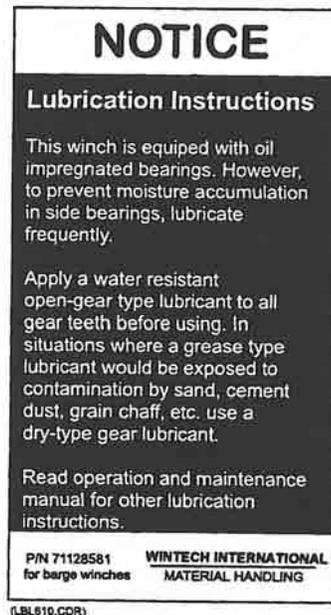
The motor ball bearings are pre-packed with grease and do not require periodic greasing. Ensure replacement bearings are of the same type and are packed with grease capable of withstanding temperature ranges of -20 °F to +329 °F (-29 °C to +165 °C). Contact **Wintech International** for assistance in determining replacement motor parts.

Brake

The brake does not require lubrication. Care should be taken to ensure lubricants do not come into contact with the brake internals. Brake friction discs that are contaminated with oil or grease must be replaced.

Lubrication Label

(Refer to Dwg. MHTPA0613, item 610)



TROUBLESHOOTING

This section provides basic troubleshooting information. Determination of specific causes to problems are best identified by thorough inspections performed by personnel trained in safety, operation and maintenance of this equipment. The chart below provides a brief guide to common winch problems, probable causes and solutions.

PROBLEM	CAUSE	SOLUTION
Winch will not operate.	Winch is overloaded.	Reduce load to within rated capacity.
	Holding dog not released. (Wire rope payout [release] direction only.)	Ensure holding dog disengages from the drive shaft holding gear.
	Damaged gears and/or shafts.	Inspect gears and shafts for indications of abnormal wear and damage.
	Motor damaged or loss of power to motor.	Check power supply, wires and connections to motor. Check motor for excessive heat, noise or binding.
	Brake does not disengage.	Check brake electrical connections and operation. Disassemble and inspect brake internals if operation is unsatisfactory.
Load continues to move when winch is stopped.	Winch is overloaded.	Reduce load to within rated capacity.
	Holding Dog is not engaged.	Check holding dog is engaged in handwheel shaft holding gear.
	Brake is not working.	Check brake electrical connections and operation. Check release knob is in. Disassemble and inspect brake internals if operation is unsatisfactory.
Winch does not haul in.	Winch is overloaded.	Reduce load to within rated capacity
	Damaged gears.	Inspect winch gears as described in the "INSPECTION" section. Examine all parts and replace any that are worn or damaged.
	Motor damaged or loss of power to motor.	Check power supply, wires and connections to motor. Check motor for excessive heat, noise or binding.
	Brake is not releasing.	Check brake electrical connections and operation. Check release knob is in. Disassemble and inspect brake internals if operation is unsatisfactory.
Winch runs hot or makes excessive noise during operation.	Lubrication inadequate.	Inspect, clean components and lubricate as directed in the "LUBRICATION" section.
	Winch is misaligned and may be binding.	Check mounting, side frames, shafts, gears, etc. for alignment. Check fasteners are tight.
	Motor overloaded; worn or damaged motor parts.	Ensure load is within capacity of winch. Inspect motor operation, lubrication and installation is correct.
	Brake engaged during operation.	Verify brake releases during motor operation. Verify solenoid operation. Verify power to brake.

(TBL.TBLSHOT)

⚠ WARNING

• Before performing maintenance, remove all loads from the winch. Isolate the winch electrically by pulling fuses, opening circuit breakers and disconnecting wires from the power source to the motor and brake. Tag winch motor controller and power source:

DANGER-DONOTOPERATE-EQUIPMENT BEING REPAIRED

• Only allow service personnel trained in maintenance and operation of this equipment to perform maintenance.
 • After performing maintenance on load bearing parts, test unit to 110% of its rated capacity before returning to service. Refer to 'Testing' in the "MAINTENANCE" section. (Testing to more than 110% might be required to comply with standards and regulations set forth in areas outside the USA.)

Adjustments

Brake Friction Discs

The brake is a spring actuated, electrically released disc brake. The disc brakes are self-adjusting. The brake friction disc(s) should be replaced when disc thickness reaches 1/8 inch (3 mm) or less.

Brake Solenoid

(Refer to Dwg. MHTPA0618)

The solenoid is factory set with a 13/16 to 15/16 inch (21 to 24 mm) air gap and generally requires no resetting, even when changing friction discs. The gap is measured between the mating surfaces of the solenoid plunger (235) and the solenoid frame (236). Adjustments are made by loosening the capscrews and raising (to increase gap) or lowering (to decrease gap) the wrap stop spring.

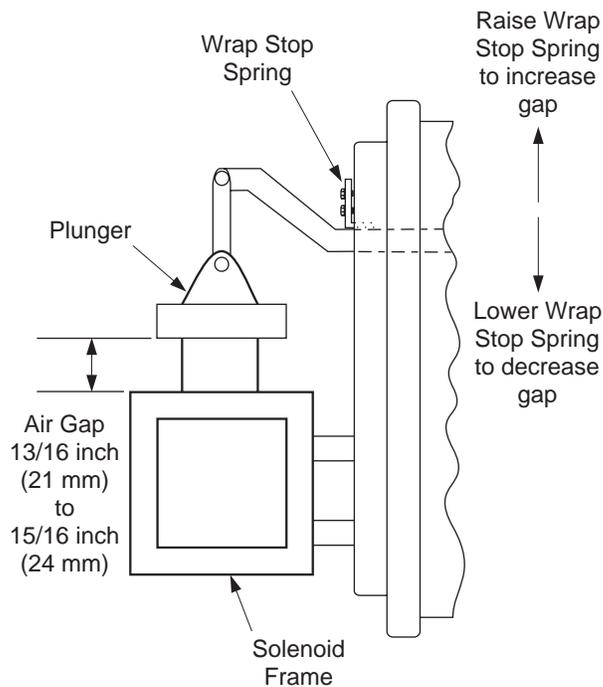
General Disassembly

The following instructions provide the necessary information to disassemble, inspect, repair, and assemble the winch. Drawings of the winch and associated components are provided in the parts section to assist in part identification. If a winch is being completely disassembled for any reason, follow the order of the topics as they are presented. It is recommended that all maintenance work on the winch be performed in a clean, dust free work area.

During winch disassembly observe the following:

1. Never disassemble the winch any further than is necessary to accomplish the needed repair. A good part can be damaged during the course of disassembly.
2. Never use excessive force when removing parts. Tapping gently around the perimeter of a part with a soft hammer should be sufficient to loosen the part.

Brake Solenoid Air Gap Adjustment



(Dwg. MHTPA0618)

3. Do not heat a part with a flame to free it for removal, unless the part being heated is already worn or damaged beyond repair and no additional damage will occur to other parts.

In general, the winch is designed to permit easy disassembly and assembly. The use of heat or excessive force should not be required.

4. To prevent dirt and other foreign matter from getting into bearings or other moving parts keep the work area as clean as practical.
5. When grasping a part in a vise always use leather or copper-covered vise jaws to protect the part. This is especially important when clamping threaded areas and machined surfaces of parts.
6. Do not tap on bushing edges during installation. Place a wood block between the bushing and the hammering tool to prevent damage.

Disassembly

Brake

(Refer to Dwg. MHTPC0555 and MHTPA0560)

The brake must be disassembled to remove it from the motor.

1. Unscrew and remove manual release knob (241), housing screw-nuts (242) and housing (246).
2. Disconnect wires from the motor and pull through the hole in the endplate (222). Fully depress solenoid plunger (235) in solenoid frame (236). Wire tie plunger in the depressed position.

NOTICE

• **Ensure solenoid plunger (235) remains in the depressed position when secured to solenoid frame (236).**

3. Evenly loosen screws (238). Remove screws and lockwashers (237). Remove support plate assembly (232).
4. On brake models E1 and E2 remove pressure plate (231) and friction disc (228). On brake models E3 also remove the stationary disc (229) and second friction disc (228).
5. Loosen two setscrews (226) and slide hub assembly (225) off of motor shaft. Remove key (201) from motor shaft and store in a safe place.
6. Remove endplate (222) by removing four capscrews (202) and gently tapping endplate assembly using a soft mallet, or hammer, to break the Loctite® seal between the brake and motor.

Motor

(Refer to Dwg. MHTPC0555 and MHTPA0577)

⚠ CAUTION

• **To prevent possible equipment damage and/or injury support the motor before removing from winch assembly.**

NOTICE

• **Motor disassembly is not recommended or discussed in this manual. For additional information on motor disassembly contact Wintech International or the factory.**
• **To prevent damage to components, do not use excessive force when removing the motor.**

1. Remove the four capscrews (197) and lockwashers (198) securing motor (199) to motor adapter (194).
2. The motor shaft and key (201) engage the worm (177) in the reduction gear housing (189). Slide the motor (199) out and away to remove. Remove the shaft key and store in a safe place until reassembly.

Reduction Gear

(Refer to Dwg. MHTPC0555)

⚠ CAUTION

• **To prevent possible equipment damage and/or injury support the reduction gear before removing from winch assembly.**

NOTICE

• **Disassemble the reduction gear only if repairs are required. To prevent damage to components, do not use excessive force when removing the reduction gear assembly.**

1. Disconnect reduction gear assembly from side frame (1) by removing capscrews (158) and lockwashers (159).
2. Remove drain plugs (187). Remove fill plug (188). Drain the reduction gear oil into a suitable container and dispose of oil in an environmentally safe manner. It is recommended that the reduction gear assembly be moved to a clean work area before continuing disassembly.
3. Remove capscrew (164), pinion retainer (165) and power pinion (166) from worm gear shaft (184).
4. Remove nuts (196) and washers (156) from housing studs (169). Use a soft hammer or mallet to break seal between bracket (178) and housing (189). Remove bracket.
5. Remove seal (168) and spacer (167) from bracket bore (178). Discard seal.
6. Remove bearing cup (175) from bracket bore.
7. Remove gasket (179) material from bracket (178) and housing (189) mating flanges. Be careful to avoid damaging the mating surfaces during removal.
8. Remove bearing cone (176) and spacer (183) from shaft (184) splined end. If required, remove bearing cup (175) from housing (189).
9. Grasp the shaft (184) and, while slowly turning clockwise, pull to remove from housing (189).
10. Remove bearing cone (176) from shaft (184) key end.
11. Remove worm gear (186) from shaft (184). Remove worm gear keys (185) and store in a safe place.
12. Remove motor adapter (194) by removing capscrews (193) and pulling off of worm (177). Remove seal (192) from adapter bore. Discard seal.
13. Remove capscrews (171), lockwashers (172), cover (173) and shims (174). Remove worm (177) by tapping worm from the motor adapter side with a soft hammer or mallet. Bearing cup (175) and bearing cone (176) on the cover (173) side of housing (189) will be removed with worm.
14. Remove bearing cup (175) and bearing cones (176) from worm (177). Remove bearing cup (175) from motor adapter end of housing (189).

Disengaging Clutch (optional feature)

(Refer to Dwg. MHTPB0576)

Disassembly instructions for the ratchet assembly supplied with the disengaging clutch are provided in the 'Ratchet' section.

1. Remove the three nuts (66), nut (77), the two capscrews (158), capscrew (67) and capscrew (75). Remove the shifter yokes (63) and clutch handle (64).
2. Remove the two nuts (74), lockwashers (73) and capscrews (70) to allow disassembly and removal of the shifter band (71) halves.
3. Remove pivot bracket (76) from side frame (1) by removing capscrews (158) and lockwashers (159).

Handwheel and Foot Brake **(optional feature with disengaging clutch)** (Refer to Dwg. MHTPB0477)

1. To remove handwheel (90) loosen setscrew (95) and pull handwheel off of handwheel shaft (39). Remove key (94) and safely store until re-installation.

On models before 15 July 1993: loosen four setscrews (95) on handwheel (90).

2. To remove the foot brake as an assembly, remove nut (58) from shaft (57). Pull brake assembly from side frame (1).

Ratchet (optional feature with disengaging clutch) (Refer to Dwg. MHTPC0486)

1. Slide ratchet lever (7) and ratchet gear (11) off of handwheel shaft (39). Remove key (10) and safely store until reinstallation.
2. If complete disassembly of ratchet is required, remove retainer ring (8) from either end of shaft (9). Tap shaft through ratchet lever (7).

When removing shaft (9) from ratchet lever (7) the washers (5), ratchet dog (6), spring (13) and spring guide (12) will be separated from the ratchet assembly. Collect these pieces and safely store until reinstallation.

Cluster Gear (Refer to Dwg. MHTPC0486)

1. Using a hoist, support the cluster gear (36).
2. Remove all paint and surface imperfections from the intermediate shaft (22). Coat the exposed shaft surface with oil.
3. Loosen setscrew located in collar (38) until collar rotates freely on intermediate shaft (22).
4. Remove the capscrew (24) securing the intermediate shaft (22) to the side frame (1).
5. Slide intermediate shaft (22) through cluster gear (36), collar (38) and both side frames (1).
6. Lower cluster gear to the ground after shaft has been removed.

Drum (Refer to Dwg. MHTPC0486)

1. Using a hoist, support the drum (26). If the wire rope is on the drum, secure the wire rope end to keep it out of the way.
2. Remove all accessible paint and surface imperfections from the drum shaft (23). Coat the exposed shaft surface with oil.
3. Remove the capscrew (24) securing the drum shaft (23) to the side frame (1).
4. Using a soft material rod and mallet, drive the drum shaft (23) through the drum (26) and both side frames (1).
5. Carefully lower the drum to the ground after shaft has been removed.

Side Frames (Refer to Dwg. MHTPC0486)

1. If installed using **straight deck brackets**, one side frame (1) should be attached to the inside and the other side frame (1) to the outside of the deck brackets (19). Remove the deck bracket capscrews (20) and nuts (21) to free the side frame attached to the outside of deck bracket (19).
2. If installed using **angled deck brackets**, both side frames should be installed outside the deck brackets. To disassemble unit, remove capscrews and nuts holding deck brackets (19) to the foundation.
3. On one side frame (1):
 - a. remove the nuts (34) securing the three spacer shafts (28) to the side frame (1).
 - b. remove the nut (34) securing the holding dog shaft (43).
4. Carefully pull the side frame (1) away to provide enough clearance to remove the handwheel shaft (39).
5. Remove the remaining nuts (34) securing the spacer shafts (28) and holding dog shaft (43) to the opposite side frame (1). Remove the shafts.

Wire Rope Guard (optional)

If equipped, the wire rope guards are installed by welding to two of the spacer tubes (29) located on spacer shafts (28). To remove, use a hoist to support the wire rope guard when removing the spacer shafts. When shafts are removed, lower the wire rope guard to the ground.

Cleaning, Inspection and Repair

Use the following procedures to clean, inspect, and repair the winch and associated components.

Cleaning

Clean all winch component parts in solvent (except for internal brake and motor parts). The use of a stiff bristle brush will facilitate the removal of accumulated dirt and sediments on the gears, frames and drum. If bushings have been removed it may be necessary to carefully scrape old sealant from the bushing bores. Dry each part using low pressure, filtered compressed air.

Inspection

All disassembled parts should be inspected to determine their fitness for continued use. Pay particular attention to the following:

1. Inspect all gears for worn, cracked, or broken teeth.
2. Inspect all bushings for wear, scoring, or galling.
3. Inspect all electrical wires, connections and covers. Replace damaged, frayed and broken wires. Connections must be tight. Remove corrosion at connections using a wire brush. Covers and seals must provide an air-tight seal.
4. Inspect shafts for ridges caused by wear. If ridges caused by wear are apparent on shafts, replace the shaft.
5. Inspect all threaded items and replace those having damaged threads.

Repair

Component repairs are limited to the removal of small burrs and other minor surface imperfections from gears, bushings and shafts. Use a fine stone or emery cloth for this work.

1. Inspect all parts for evidence of damage. Worn or damaged parts must be replaced. Refer to the applicable parts listing for specific replacement parts information.
2. Using a fine stone or emery cloth, smooth out all minor nicks, burrs, or galled spots on shafts, bores, pins, and bushings.
4. Examine the gear teeth carefully. Using a fine stone or emery cloth, remove any small nicks or burrs. Replace the gear if any teeth are chipped, cracked, stretched or missing.
5. Using a fine stone or emery cloth, polish the edges of all shaft shoulders to remove small nicks which may have been caused during handling.
6. Remove any nicks and burrs caused by capscrews, nuts and lockwashers.
7. Disassemble corroded electrical connections and individually clean items, or replace fasteners, clamps and wires as necessary.

Bushings

(Refer to Dwg. MHTPC0486)



• **Bushings that are loose, worn or rotate in the frame, gears or drum must be replaced. Failure to observe this precaution will result in additional component damage.**

Repair of bushings is limited to the removal of small nicks and burrs, using fine emery cloth or a stone. If the bushing bore is worn, scored or exceeds the maximum allowable diameter, it must be replaced. Refer to Table 3 for bushing bore information. In components where there are more than one bushing (i.e., gears, drums), it is recommended that all bushings be replaced at the same time to ensure uniform wear and component alignment.

1. Bushings are press fit into the gear and drum housings. To remove, use an inside puller. Carefully remove the bushing, ensuring it is pulled out as straight as possible to prevent binding and scoring of the housing.
2. Clean the component bushing housing. Remove minor nicks and burrs using fine emery cloth or a stone. Lightly lubricate with grease recommended in the "LUBRICATION" section.
3. Inspect the new bushing. Remove minor nicks and burrs using fine emery cloth or a stone. Lightly lubricate the outside of the bushing with grease recommended in the "LUBRICATION" section.

4. To install:
 - a. Place the bushing on the housing lip. Ensure the bushing edge mates with the sleeve edge in a full 360° contact.
 - b. Place a block of wood, or similar soft material, on the opposite end of the bushing. Using a mallet, carefully tap, or press the bushing into the housing. Make sure the bushing alignment remains straight during installation.
 - c. After bushing has been installed in side frame, remove grease fitting (16). Using the grease fitting hole as a guide, drill a hole through the bushing. Reinstall grease fitting.

Table 3: Bushing Chart

25HE Winch

Bushing Location	Bushing Item No.	Bore Size Original		Bore Size Replace	
		inch	mm	inch	mm
Frame (1)	14	1.133	28.8	1.195	30.4
Gear (36)	35	2.199	55.9	2.261	57.4
Drum (26)	25	3.016	76.6	3.078	78.2

50HE Winch

Bushing Location	Bushing Item No.	Bore Size Original		Bore Size Replace	
		inch	mm	inch	mm
Frame (1)	14	1.508	38.3	1.570	39.9
Gear (36)	35	2.765	70.2	2.827	71.8
Drum (26)	25	4.018	102	4.080	103.6

75HE Winch

Bushing Location	Bushing Item No.	Bore Size Original		Bore Size Replace	
		inch	mm	inch	mm
Frame (1)	14	1.760	44.7	1.822	46.3
Gear (36)	35	3.204	81.4	3.267	83
Drum (26)	25	5.018	127.5	5.080	129

(TBL.BUSHING)

Assembly

Winch

(Refer to Dwg. MHTPC0486)

NOTICE

• **Refer to the "INSTALLATION" section for deck bracket installation information.**

1. Install one side frame (1) by placing it inside the deck bracket. Attach securely with capscrews (20) and nuts (21).
2. Install holding dog shaft (43) (with holding dog assembly attached) and the spacer shafts (28) to the installed side frame (1). Secure with nuts (34). Slide

spacer tubes (29) on spacer shafts (28).

If the optional wire rope guard is installed on spacer tubes (29) refer to 'Wire Rope Guard' section for installation instructions.

3. Place the remaining side frame (1) on the outside of deck bracket (19) for straight type deck brackets; place on the inside of deck bracket for angled type deck bracket. Loosely install capscrews (20) and nuts (21).
Do not tighten.
 - a. Align holding dog shaft (43) with holes on side frame (1).
 - b. Align spacer shafts with holes in side frame (1).
 - c. Install and align handwheel shaft (39) with holes in side frame (1).
 - d. Tighten capscrews (20) and nuts (21); ensure side frame (1) and shafts align as the side frame is secured.
 - e. Install and tighten nuts (34) on holding dog shaft (43) and spacer shafts (28).
4. Lightly lubricate the drum (26) bushings (25) with grease recommended in the "LUBRICATION" section. Using a hoist, lower the drum (26) between the side frames.
5. Clean, lightly oil and install the drum shaft (23) from the holding dog side of the winch. Secure drum shaft to side frame (1) using capscrew (24).

The drum gear must be located on the same side as the motor. Installation of the drum shaft requires that the drum alignment be as straight as possible to prevent binding of the bushings by the shaft.

6. Lightly lubricate the cluster gear bushings (35) with grease recommended in the "LUBRICATION" section. Using a hoist, lower the cluster gear (36) between the side frames.

The large gear must be on the same side as the motor.

7. Clean, lightly oil and install the intermediate shaft (22) from the holding dog side of the winch. Place the collar (38) on shaft before placing gear on shaft. During installation, after gear is on shaft, align the drive gear, cluster gear and drum gear teeth to mesh smoothly. Secure drum shaft to side frame (1) using capscrew (24).
8. Slide collar (38) against cluster gear and secure with setscrew. Apply Loctite® 212 to setscrew threads before installing. Tighten setscrew to hold collar in place.
9. When assembled, lubricate as described in the "LUBRICATION" section.
10. When completely assembled verify winch operation as described in 'Testing' in the "MAINTENANCE" section.

Reduction Gear

(Refer to Dwg. MHTPC0555)

1. Ensure bracket (178) and housing (189) insides are clean and dry.

NOTICE

• **During reduction gear assembly lubricate component parts using recommended lubricants listed in the "LUBRICATION" section.**

2. Install seal (192) in motor adapter (194) with lip facing motor. Install motor adapter to housing (189) and secure using capscrews (193). Coat capscrew threads with Loctite® 214 before installation.
3. Install bearing cup (175) in housing (189) and carefully tap, using a soft hammer or mallet, until flush with motor adapter (194).
4. Install a bearing cone (176) on each end of worm (177). Bearing cones should mate flush against worm machined face.
5. Install worm (177) by inserting from the cover (173) end of housing (189). Install bearing cup (175) in housing cover end.
6. Place cover (173) on housing (189) and secure using capscrews (171) and lockwashers (172). Tighten capscrews evenly, but only enough to compress cover against housing.
7. Slide worm gear (186) onto shaft (184) and keys (185).
8. Press bearing cups (175) into bracket (178) and housing (189).
9. Install spacer (183), bearing cones (176), and seal sleeve (167) on shaft (184).
10. Install assembled shaft and worm gear into housing. Ensure bearing cup on worm gear end of shaft aligns with seating area of housing (189).
11. Install seal (168), with lip facing out, in bracket (178).
12. Install four housing studs (169) through holes in housing (189).
13. Place a thin bead of Loctite® 515 on mating surfaces of housing (189) and bracket (178). Place gasket (179) on housing studs (169), and housing mating surface.
14. Align bracket (178) with shaft (184) and housing studs (169) and carefully install. Ensure seal sleeve (167) and seal (168) are not damaged during assembly.
15. Lightly coat housing stud (169) threads with Loctite® 214. Install washers (156) and nuts (196) on each end of studs. Tighten nuts evenly until bracket and housing mating surfaces are flush.
16. Adjust worm (177) and worm gear (186) backlash as follows. Backlash must not exceed 0.010 inch (0.30 mm).
 - a. determine the backlash between the worm gear and worm without shims installed.

- b. remove capscrews (171) and cover (173) and add, or remove, shims located between cover and housing (189). To reduce backlash, decrease shims.

Shim sets (174), part number 51895, include three 0.005 inch (0.10 mm), three 0.007 inch (0.20 mm) and one 0.014 inch (0.40 mm) shim.

- c. Reinstall cover and recheck backlash. When backlash has been adjusted to within 0.010 inch (0.30 mm), remove each cap screw, lightly coat threads with Loctite® 214 and reinstall.
 - d. when assembled, ensure reduction gear will operated without sticking or binding. Grasp the end of shaft (184) and turn in both directions.
17. Install power pinion (166) on shaft (184) by aligning splines and sliding pinion onto shaft. Secure on shaft using retainer (165) and cap screw (164). Lightly coat cap screw threads with Loctite® 214 before installing.



• To prevent possible damage to equipment and/or injury support the reduction gear assembly during installation onto winch.

18. Install reduction gear to side frame (1) using cap screws (158) and lockwashers (159).

Motor

(Refer to Dwg. MHTPC0555)



• To prevent possible damage to equipment and/or injury support the motor during installation.

1. Verify maximum total shaft runout does not exceed 0.002 inch (0.10 mm).
2. Align motor shaft and key (201) with worm (177) and slide motor onto motor adapter (194).
3. Rotate motor to align mounting holes on motor (199) face and motor adapter (194).
4. Lightly coat threads with Loctite® 214 and install four cap screws (197) with lockwashers (198). Torque to 60 ft. lbs. (81 Nm).

Brake

(Refer to Dwgs. MHTPC0555 and MHTPA0560)

1. Install oil seal (221) into endplate (222). Oil seal rubber lip must face motor (when installed).
2. Apply thin film of Loctite® 515 to motor mating surface of endplate (222). Apply Loctite® 242 to threads of four cap screws (202). Attach endplate to motor face and secure with cap screws. Torque cap screws to 60 ft. lbs. (84 Nm).

3. Install motor shaft key (201) on motor shaft.
4. Install hub (225) by aligning hub groove with key and sliding onto motor shaft. Position hub and key on motor shaft to maintain a gap of approximately 1/32 to 1/16 inch (1 to 2 mm) between hub and friction disc (228). Lightly coat setscrew (226) threads with Loctite® 214 and install. Tighten the two setscrews in hub against motor shaft and key. Torque setscrews to 24 ft. lbs. (32 Nm).
5. Ensure endplate (222) is clean.
 - a. On model E3 brakes, place a friction disc (228), the stationary disc (229), another friction disc (228) and the pressure plate (231) into endplate housing.
 - b. On model E1 and E2 brakes, place a friction disc (228) and the pressure plate (231) into endplate housing.
6. Place support plate assembly (232) on endplate housing. Align screw holes. Ensure the support plate is installed such that the manual release rod aligns with the hole in the housing (246). Lightly coat screw (238) threads with Loctite® 214 and install lockwashers (237) and screws. Torque screws to 7.5 ft. lbs. (10 Nm).
7. Route the wires carefully through the hole in the endplate (222) housing. Be carefull to ensure wires are not crimped, cut or placed such that they may bind or catch on brake components. If the solenoid is wire tied in the depressed position, remove wire.
8. Place 'O' rings (227) on screw-nuts (242) and between housing and support plate assembly (232) and install housing (246). Ensure grommet (239) between housing and manual release shaft is in good condition. Replace if defective. Install manual release knob onto shaft.

Disengaging Clutch (optional feature)

(Refer to Dwg. MHTPB0576)

Assembly information for the ratchet assembly supplied with the disengaging clutch is provided in the 'Ratchet' section.

1. Install index bracket (61) and pivot bracket (76) to side frame (1) using cap screws (158) and lockwashers (159). Torque cap screws to 150 ft. lbs. (205 Nm) for dry threads or 110 ft. lbs. (150 Nm) for lubricated threads.
2. Install shifter band (71) halves in groove on power pinion (166). Secure with cap screws (70), lockwashers (73) and nuts (74).
3. Install power pinion (166) on shaft (184).
4. Install shifter yokes (63) on shifter bands. Secure to clutch bracket (76) using cap screws (75 and 158) and nuts (66 and 77). Place clutch handle (64) between shifter yokes and secure by installing cap screw (158) and nut (66) in the upper hole, and cap screw (67) with nut (66) in the lower hole. Cap screws (67 and 158) must be installed as shown in Dwg. MHTPB0576.
5. Install retainer (165) and cap screw (164).

Ratchet Dog Assembly
(optional feature with disengaging clutch)
 (Refer to Dwg. MHTPC0486)

1. To assemble install spring (13) and spring guide (12) in ratchet lever (7) handle. Place ratchet dog (6) with a washer (5) on each side in ratchet lever, install shaft (9) and secure with retainer rings (8).
2. Install key (10) on handwheel shaft (39).
3. Slide ratchet lever (7) assembly and ratchet wheel (11) on to handwheel shaft (39). Align ratchet wheel groove with key (10) and tap assembly into place.

Handwheel and Foot Brake Assembly
(optional feature with disengaging clutch)
 (Refer to Dwg. MHTPB0477)

1. Align handwheel (90) with key (94) on handwheel shaft (39) and tap into place. Secure with setscrew (95).

On models before 15 July 1993: Tighten four setscrews (95) on handwheel (90).

2. To install the foot brake as an assembly, install brake assembly to side frame (1). To secure install nut (58) to shaft (57).

Wire Rope Guard (optional feature)

The wire rope guard feature is welded to the spacer tubes (29), therefore installation of the drum (26) is required prior to the installation of the second side frame (1), the spacer shafts (28) and spacer tubes (29). Extreme care must be taken to ensure the drum is supported during installation of wire rope guard, side frame, and when aligning and installing drum and drum shaft.

Testing

Operational Tests

Prior to initial use, all new, altered or repaired winches should be tested to ensure proper operation.

- a) Check all mounting bolts are in good condition and properly secured.
- b) Check foot brake, ratchet dog, handwheel and holding dog operation.
- c) Check operation of limit switches, and locking or safety devices when provided.
- d) Operate winch in both directions with no load.

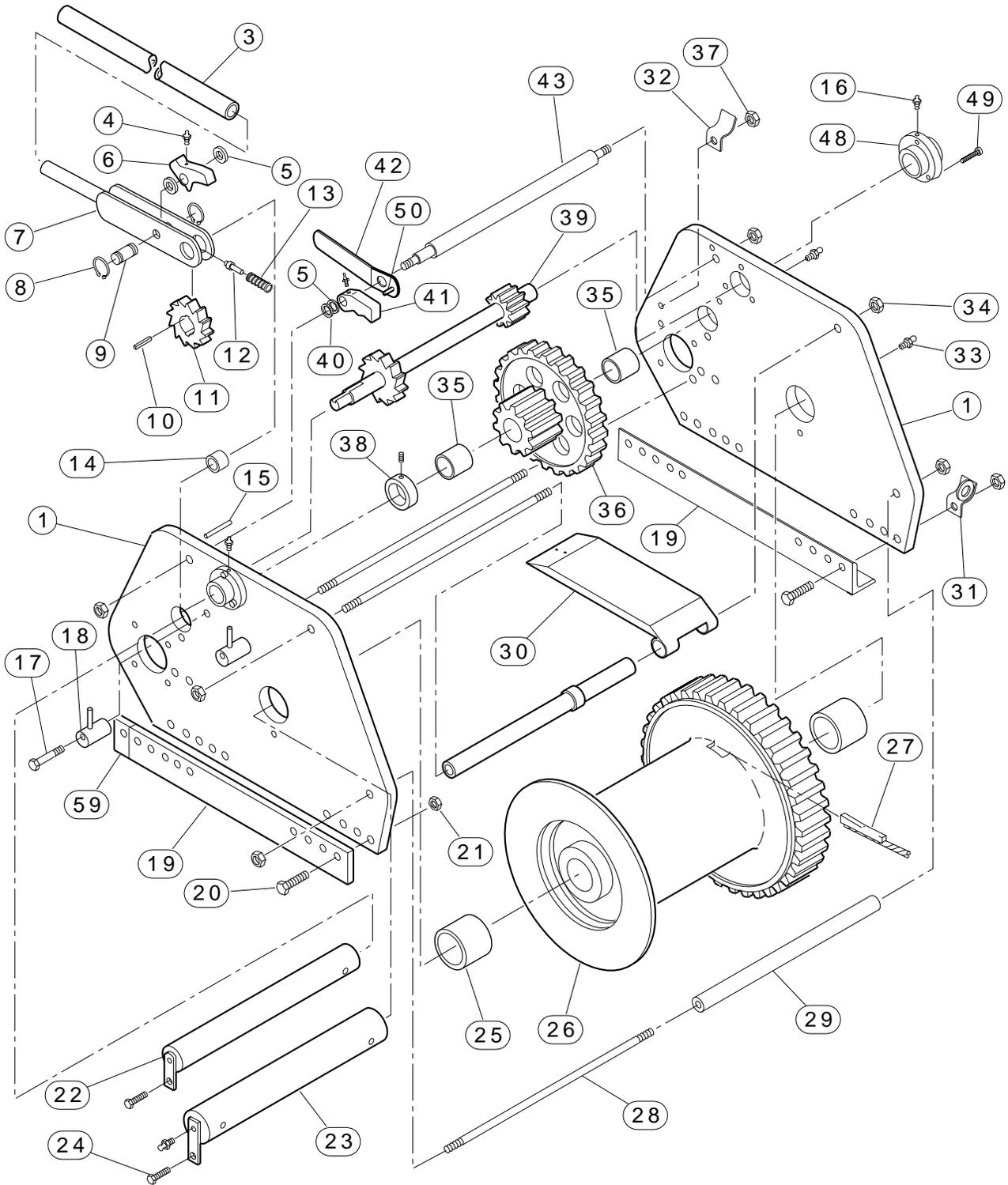
Load Test

Prior to initial use, all new, extensively repaired, or altered winches shall be load tested by or under the direction of a person trained in safety, and the operation and maintenance of this winch. A written report must be completed confirming the testing and rating of the winch. Test loads should not be more than **110%** of the rated line pull.

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BARGE WINCH ASSEMBLY DRAWING



(Dwg. MHTPC0486)

BARGE WINCH ASSEMBLY PARTS LIST

ITEM NO.	DESCRIPTION OF PART	QTY TOTAL	PART NUMBER		
			25HE	50HE	75HE
1	Side Frame	2	22948	22937	22939
* 3	Ratchet Lever Extension	1	7900-35	7960-35	7960-35
4	Grease Fitting, Dog	2	52676		
5	Washer	4	9779		
* 6	Ratchet Dog	1	7907		
7	Ratchet Lever	1	7966		
* 8	Retainer Ring	2	50810		
* 9	Shaft	1	7914		
* 10	Key, Ratchet Wheel	2	19465-125		
* 11	Ratchet Wheel	1	7965		
* 12	Spring Guide	1	7911		
* 13	Spring	1	50807		
14	Bushing	2	1293-6		
* 15	Pin	1	50823		
16	Grease Fitting, Bushing	2	53497		
* 17	Capscrew	2	50884		
* 18	Ratchet Stop	2	7917		
19	Deck Bracket, Straight	2	589	324	8068
	Deck Bracket, Angled		513	1111	8069
20	Capscrew, Deck Bracket	17	50902	54221	54232
21	Nut	18	50880/50826		
24	Capscrew	2	50160	50878	
25	Bushing, Drum	2	1293-1	1293-4	1293-8
27	Wire Rope Anchors:				
	5/8 inch	1	530	---	---
	3/4 inch		529	---	---
	7/8 inch		528	334	---
	1 inch		527	333	---
	1-1/8 inch		---	332	8070-1
	1-1/4 inch		---	331	8070-2
	1-3/8 inch		---	---	8070-3
1-1/2 inch	---		---	8070-4	
30	Gear Cover	1	7963		8064
31	Lower Bracket, Left	1	7967-L		
	Lower Bracket, Right		7967-R		
32	Upper Bracket	1	7967		
33	Grease Fitting	3	53095		
34	Nut, Shaft	8	50825		
35	Cluster Gear Bushing	See ()	1293-2 (3)	1293-5 (2)	1289-1 (2)
36	Cluster Gear (includes item 35)	1	9104	338	8063-E
37	Capscrew	1	50824	50160	
38	Set Collar	1	4046-6	4046-4	4046-5

Recommended spare

BARGE WINCH ASSEMBLY PARTS LIST (CONT'D)

ITEM NO.	DESCRIPTION OF PART	QTY TOTAL	PART NUMBER		
			25HE	50HE	75HE
40	Washer	1	9779-1		9779
41	Holding Dog	1	7968		
42	Holding Dog Lever	1	7969		
48	Bearing Boss	2	22943		22944
49	Capscrew	6	51766		
50	Pin (Holding Dog Stop)	1	Not sold separately; order item 42.		
59	Deck Bracket Extension	1	8104	---	

(TBL.HEPRTSB)

Part Numbers listed by Drum Length (inches)

ITEM NO.	DESCRIPTION OF PART	QTY TOTAL	PART NUMBER				
			9	17	35	52	69
25HE			9	17	35	52	69
22	Intermediate Shaft	1	511-1	511-2	511-4	511-5	511-6
23	Drum Shaft	1	512-1	512-2	512-4	512-5	512-6
26	Drum	1	7902-A-9	7902-A-17	7902-A-34	7902-A-51	7902-A-69
28	Spacer Shaft	3	7908-1	7908-2	7908-3	7908-4	7908-5
29	Spacer Tube	3	8291-8	8291-9	8291-10	8291-11	8291-12
39	Handwheel Shaft - Right hand unit	1	7905-1R	7905-2R	7905-3R	7905-4R	7905-5R
	Handwheel Shaft - Left hand unit		7905-1L	7905-2L	7905-3L	7905-4L	7905-5L
43	Holding Dog Shaft	1	7906-A-1	7906-A-2	7906-A-3	7906-A-4	7906-A-5
50 HE			11	20	41	61	82
22	Intermediate Shaft	1	326-1	326-2	326-4	326-5	326-7
23	Drum Shaft	1	325-1	325-2	325-4	325-5	325-7
26	Drum	1	7962-A-11	7962-A-20	7962-A-41	7962-A-61	7962-A-82
28	Spacer Shaft	3	7971-1	7971-2	7971-4	7971-5	7971-7
29	Spacer Tube	3	8291-1	8291-2	8291-4	8291-5	8291-7
39	Handwheel Shaft - Left hand unit	1	7964-1L	7964-2L	7964-4L	7964-5L	7964-7L
	Handwheel Shaft - Right hand unit		7964-1R	7964-2R	7964-4R	7964-5R	7964-7R
43	Holding Dog Shaft	1	7970-1	7970-2	7970-4	7970-5	7970-7
75HE			10	20	40	61	81
22	Intermediate Shaft	1	8066-1	8066-2	8066-3	8066-4	8066-5
23	Drum Shaft	1	8065-1	8065-2	8065-3	8065-4	8065-5
26	Drum	1	8062-10	8062-19	8062-40	8062-60	8062-81
28	Spacer Shaft	3	7971-1	7971-2	7971-4	7971-5	7971-7
29	Spacer Tube	3	8291-1	8291-2	8291-4	8291-5	8291-7
39	Handwheel Shaft - Left hand unit	1	7964-1L	7964-2L	7964-4L	7964-5L	7964-7L
	Handwheel Shaft - Right hand unit		7964-1R	7964-2R	7964-4R	7964-5R	7964-7R
43	Holding Dog Shaft	1	7970-1	7970-2	7970-4	7970-5	7970-7

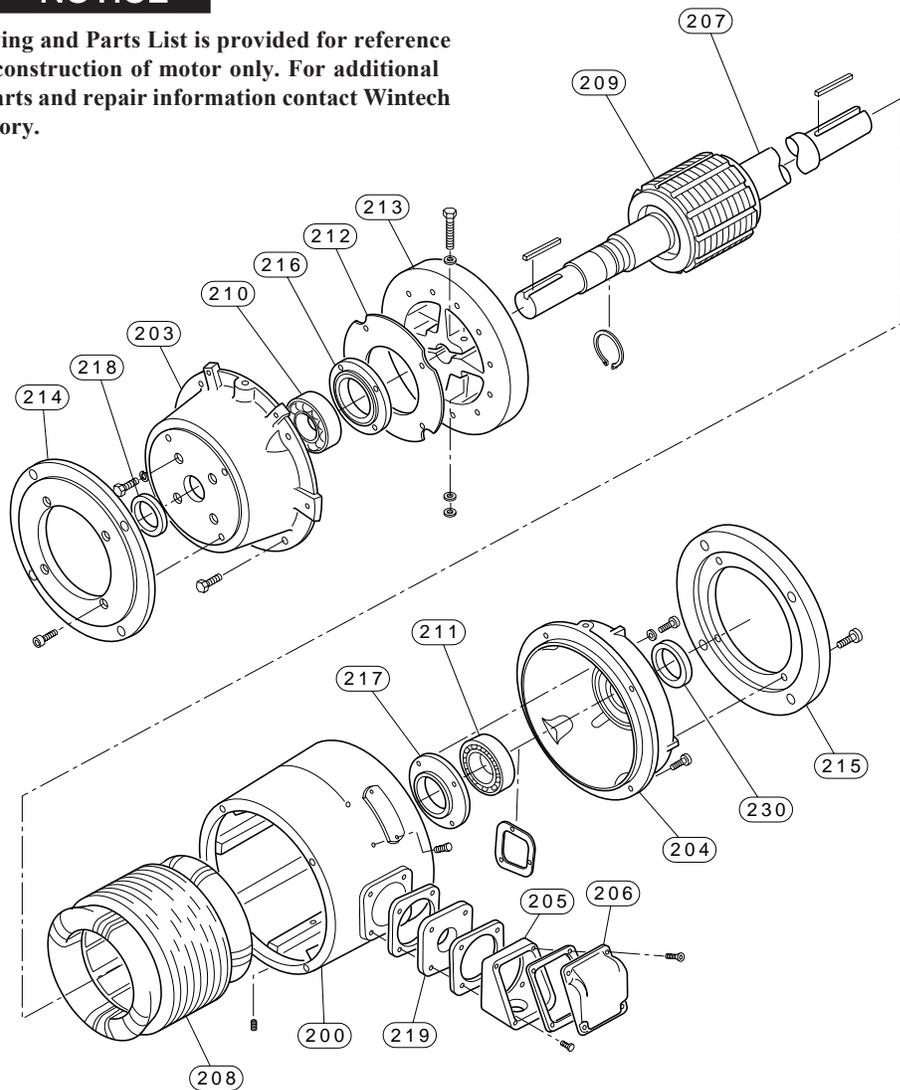
* Optional items, may be purchased with disengaging clutch assembly. Contact your Ingersoll-Rand distributor or the factory for additional information.

(TBL.HEPRTSC)

BARGE WINCH MOTOR ASSEMBLY DRAWING AND PARTS LIST

NOTICE

• Motor Assembly Drawing and Parts List is provided for reference to the general internal construction of motor only. For additional information on motor parts and repair information contact Wintech International or the factory.



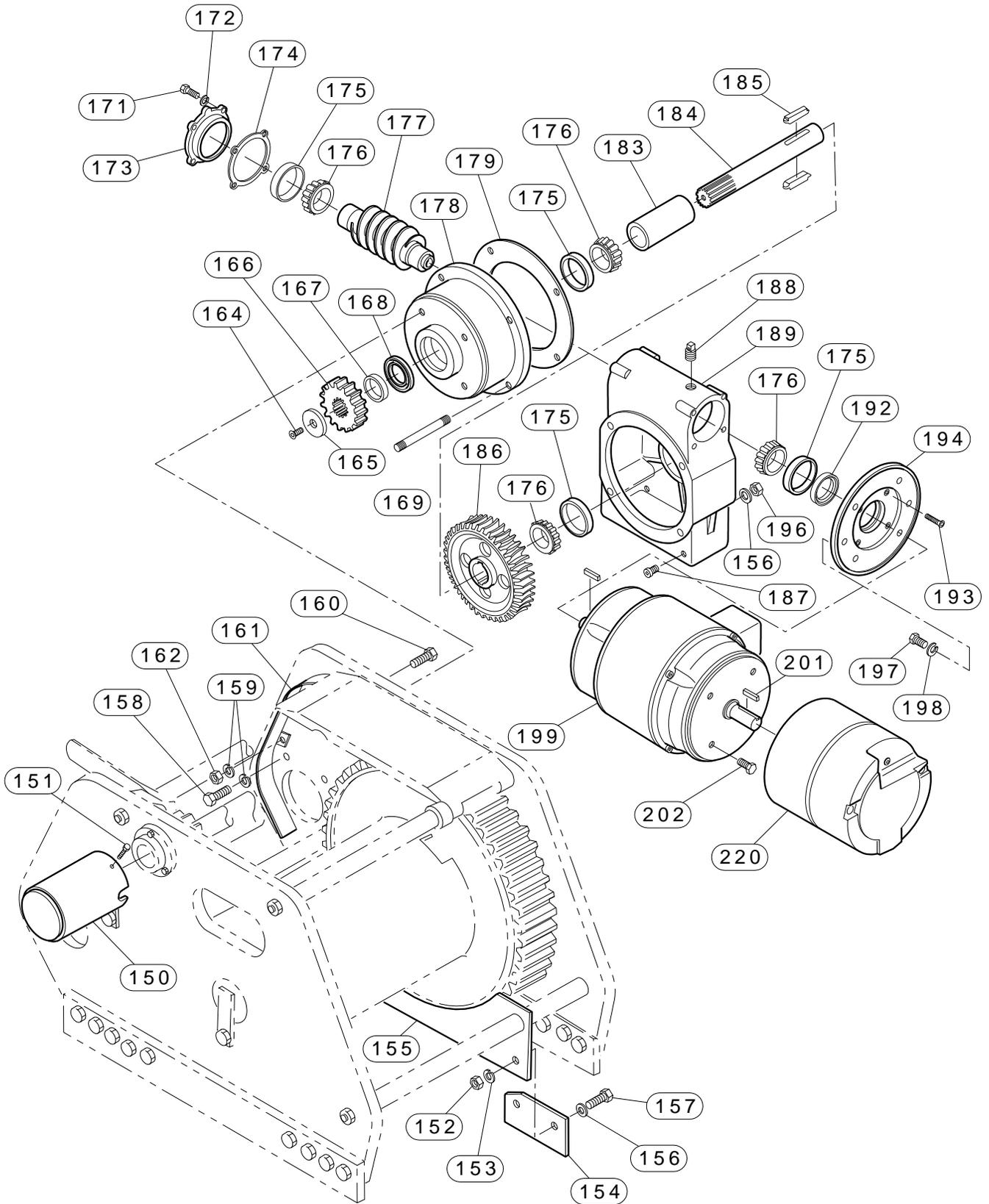
(Dwg. MHTPB0577)

ITEM NUMBER	DESCRIPTION OF PART	ITEM NUMBER	DESCRIPTION OF PART
199	Motor Assembly	211	Bearing, Reduction Gear End
200	Frame	212	Baffle Plate
203	End Bell, Brake End	213	Fan
204	End Bell, Reduction Gear End	214	Brake Adapter
205	Terminal Box	215	Reduction Gear Adapter
206	Cover	216	Bearing Housing, Brake End
207	Shaft, Motor	217	Bearing Housing, Reduction Gear End
208	Stator	218	Seal, Brake End
209	Rotor	219	Terminal Box Adapter
210	Bearing, Brake End	230	Seal, Reduction Gear End

Note: When ordering motor parts provide part name from this list. Also, from nameplate attached to the motor, provide the following information -- motor type, motor frame, model number, and serial number to ensure correct matching of parts to your equipment.

(TBL.MOTOR)

REDUCTION GEAR ASSEMBLY DRAWING



(Dwg. MHTPC0555)

REDUCTION GEAR ASSEMBLY PARTS LIST

ITEM NO.	DESCRIPTION OF PART	QTY TOTAL	PART NUMBER	ITEM NO.	DESCRIPTION OF PART	QTY TOTAL	PART NUMBER
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Common Parts:

150	Shaft Guard	1	23058	183	Spacer	1	8194-1
151	Capscrew	3	71039226	184	Shaft, Worm Gear	1	9102-1
152	Nut	4	50205	185	Key, Worm Gear	2	6409
153	Lockwasher	4	50181				
156	Washer	4	50182	187	Plug, Lube Drain	2	54657
157	Capscrew	4	50183	188	Plug, Lube Fill	1	6671
158	Capscrew	4	50872	189	Housing	1	B-5381
159	Lockwasher	4	50203	192	Seal	1	50820
160	Capscrew	1	50850	193	Capscrew	4	50828
162	Nut	1	50913	194	Motor Adapter	1	9103
164	Capscrew	1	54643	196	Nut	4	51750
165	Retainer	1	9067	197	Capscrew	4	50827
167	Sleeve, Seal	1	6418-1	198	Lockwasher	4	50181
168	Seal	1	50821		Motor (Models E1)	1	50818
169	Housing Stud	4	6469-1	199	Motor (Models E2)	1	50358
171	Capscrew	4	54648		Motor (Models E3)	1	50819
172	Lockwasher	4	50200	201	Key, Shaft (#199)	2	Not sold separately
173	Cap, Bearing	1	6416	202	Capscrew	4	52380
174	Shim Set *	1	51895		Brake (Models E1)		
175	Bearing Cup	4	50475	220	Brake (Models E2)	1	52424
176	Bearing Cone	4	50474		Brake (Models E3)		51329
178	Bracket	1	B-5975				
179	Gasket	1	6419				

* Shim set, item 174 contains three 0.005 inch (0.20 mm), three 0.007 inch (0.30 mm) and one 0.0140 inch (0.40 mm) shims.

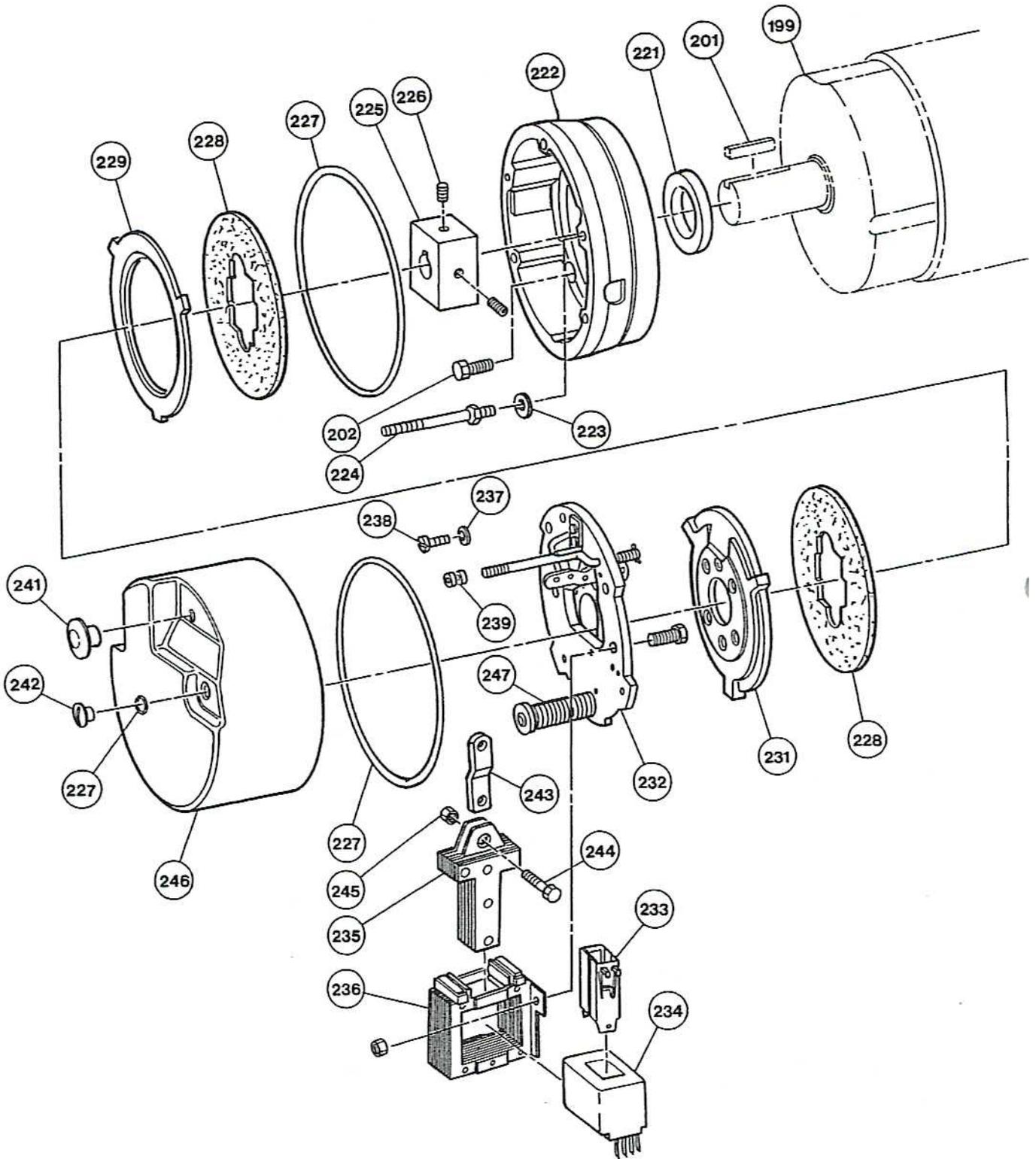
(TBL.REEDGEARA)

ITEM NUMBER	DESCRIPTION OF PART	QUANTITY TOTAL	PART NUMBER		
			25HE	50HE	75HE
Specific Parts Listed by Capacity:					
---	Reducer Assembly Includes items 150 thru 220	1	23102	23105	23107
154	Bracket	1	1733-1	1732-1	
155	Drum Guard	1	9567	9241	9786
161	Gear Guard	1	9608-L or -R	9608-1L or -1R	9608-3L or -3R
166	Power Pinion (Standard)	1	9066-1	9217	
177	Worm	1	6874-1	9219-1	7282-2
186	Worm Gear	1	6729	9220	7283-1

Recommended spare.

(TBL.REEDGEARB)

BRAKE ASSEMBLY DRAWING



(Dwg. MHTPA0560)

BRAKE ASSEMBLY PARTS LIST

ITEM NO.	DESCRIPTION OF PART	QTY TOTAL	PART NUMBER		
			Model E1	Model E2	Model E3
199	Motor	1	50818	50358	50819
201	Key	2	Not sold separately; provided with motor		
202	Capscrew	4	52380		
220	Brake Assembly (Includes items 221 through 247)	1	52424		51329
221	Oil Seal	1	Not sold separately; order Endplate Assembly, item 222		
222	Endplate Assembly (Includes item 221)	1	71136394		71136402
223	Lockwasher	2	Not sold separately; refer to Hardware Kit		
224	Housing Stud	2			
225	Hub Assembly	1	71136378		71136386
226	Setscrew	2	Not sold separately; order Hub Assembly, item 225		
227	'O' Ring	1 Kit	Not sold separately; order Gasket and Seal Kit		
• 228	Friction Disc	See ()	52899 (1)		52899 (2)
229	Stationary Disc	1	- - -		5-66-8372-00
231	Pressure Plate	1	71136360		
232	Support Plate Assembly	1	Not sold separately; order Brake Assembly, item 220		
233	Plunger Guides	2	Not sold separately; order Coil, item 234		
234	Coil	1	52870		71139158
235	Solenoid Plunger	1	71109128		54780
236	Solenoid Frame	1	Not sold separately; order Solenoid Plunger, item 235		
237	Lockwasher	3	Not sold separately; order Hardware Kit		
238	Screw	3			
239	Housing Grommet	1			
241	Release Knob	1			
242	Screw Nut	2			
243	Solenoid Link	1	71139174		71139166
244	Capscrew, Solenoid Link	1	71139190		71139182
245	Nut	1	Not sold separately; order Solenoid Plunger, item 235		
246	Housing	1	71136352		
247	Pressure Spring	1	54252		53267

Brake Assembly Kits:

•	---	Hardware Kit	1	71125645
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Kit Description: contains external lead wire plugs (2), wrap spring stop (1) wrap spring stop screws (2), solenoid lever stop (1), support plate screws (3), support plate lockwashers (3), housing studs (2), housing stud lockwashers (2), housing nuts (2), release rod (1), release rod spring (1), release rod spring retainer (1), housing grommet (1), release knob (1).

•	---	Gasket and Seal Kit	1	71089965
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Kit Description: contains endplate oil seal (1), housing seal (1), housing nut gaskets (2), housing to endplate gasket (1), lead wire bushings (3) and pipe plug (1).

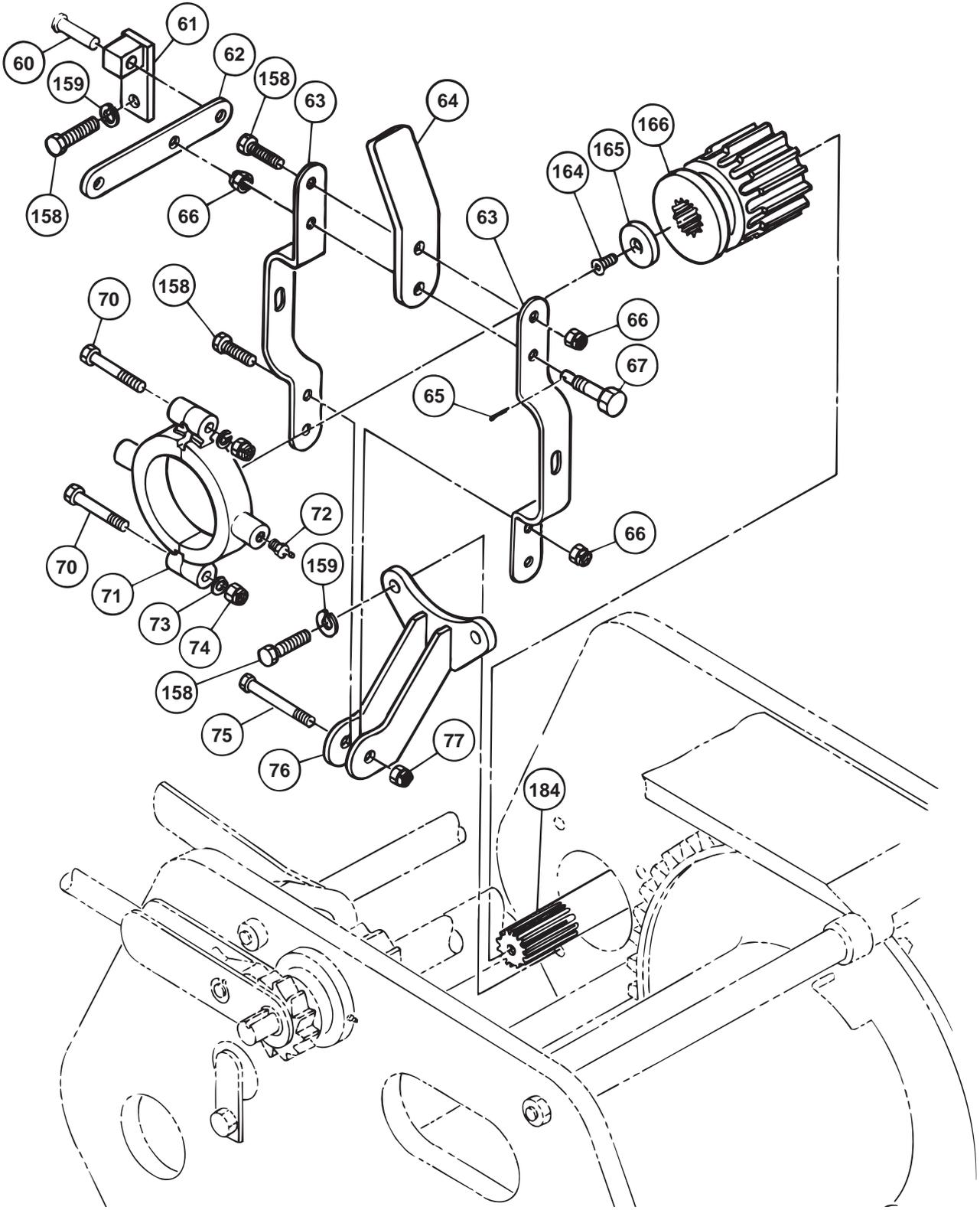
	1	54780	71109728
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Kit Description: contains plunger (1), frame (1), mounting screws (3), mounting lockwashers (3), solenoid link nut (1).

• Recommended spare.

(TBL.BRAKE)

DISENGAGING CLUTCH ASSEMBLY DRAWING (OPTIONAL)



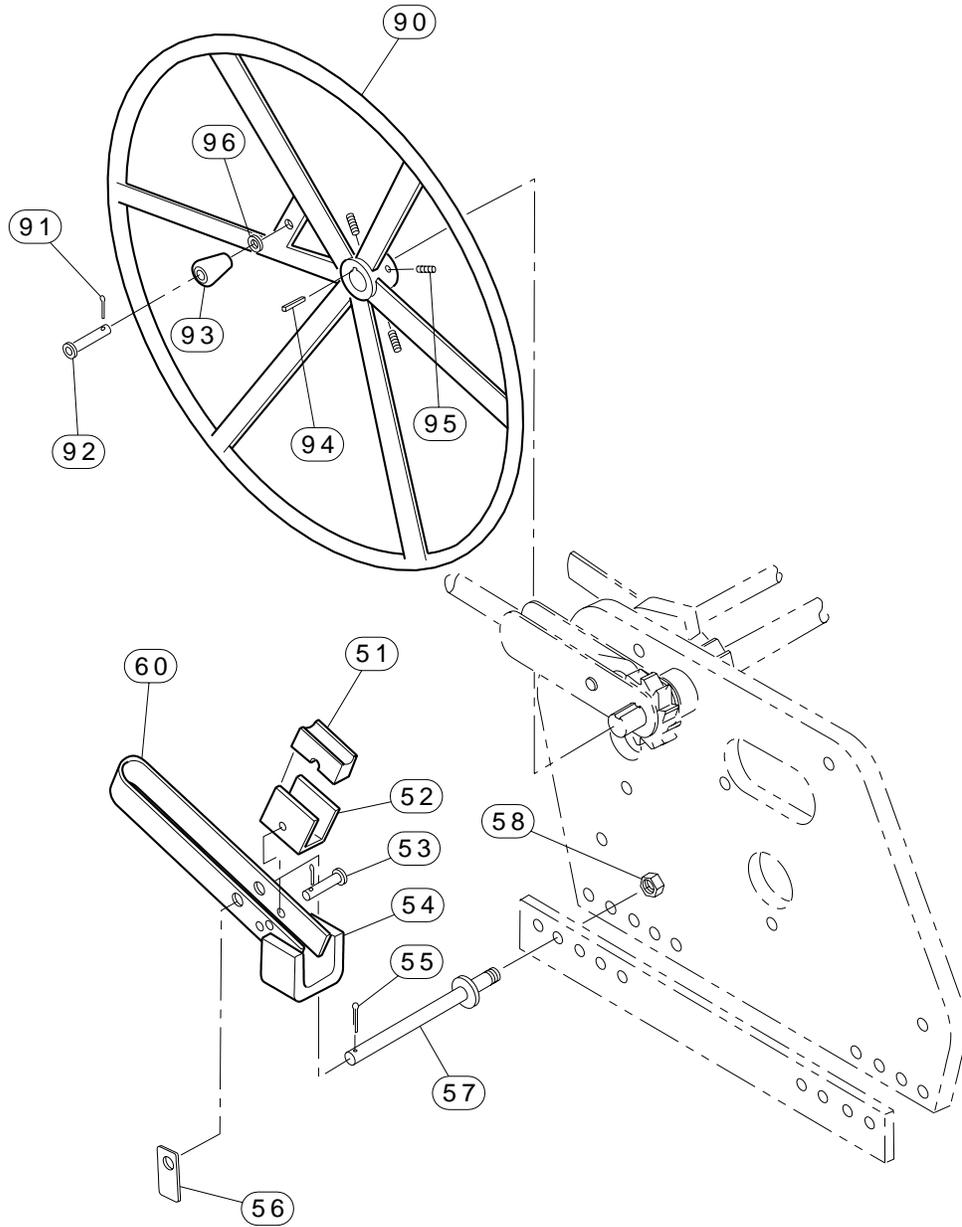
(Dwg. MHTPB0576)

DISENGAGING CLUTCH ASSEMBLY (OPTIONAL) PARTS LIST

ITEM NUMBER	DESCRIPTION OF PART	QTY TOTAL	PART NUMBER
- - -	Disengaging Clutch Assembly	1	9218 (MODELS 50 & 75 ONLY)
60	Pin	1	50885
61	Index Bracket	1	9068
62	Index Bar	1	9072
63	Shifter Yoke	2	9064
64	Clutch Handle	1	9069
65	Pin, Cotter	2	51996
66	Nut	3	50914
67	Capscrew	1	9073
70	Capscrew, Shifter Band	2	52844
71	Shifter Band	1	6247-2
72	Grease Fitting	1	53498
73	Lockwasher, Shifter Band	2	51013
74	Nut, Shifter Band	2	52265
75	Capscrew	1	51007
76	Pivot Bracket	1	9063
77	Nut	1	50812
158	Capscrew	5	50872
159	Lockwasher	3	50203
164	Capscrew	1	54643
165	Retainer	1	9067
166	Pinion	1	9066

(TBL.DISCLTCH)

HANDWHEEL AND FOOT BRAKE ASSEMBLY DRAWING (OPTIONAL)



(Dwg.MHTPB0477)

HANDWHEEL AND FOOT BRAKE ASSEMBLY PARTS LIST (OPTIONAL)

ITEM NUMBER	DESCRIPTION OF PART	QTY TOTAL	PART NUMBER		
			25HE	50HE	75HE

Handwheel (optional feature)

90	Handwheel	1	7927	347	8067
91	Cotter Pin (before 15 July 1993)	1	51996		
	Nut (after 15 July 1993)		51750		
92	Shaft, Spinner Knob (before 15 July 1993)	1	4867		
	Capscrew (after 15 July 1993)		71059851		
93	Spinner Knob, Handwheel	1	4868		
94	Key, Shaft	1	19886-175		
95	Setscrew (before 15 July 1993)	4	50900		
	Setscrew (after 15 July 1993)	1			
96	Washer (before 15 July 1993)	1	50808		
	Washer (after 15 July 1993)	3			

Foot Brake (optional feature)

- - -	Foot Brake Assembly (Includes items 51 through 60)	1	22956	323	
● 51	Brake Block	1	A315		
52	Brake Pad	1	316		
53	Pin, Clevis	1	318-B		
54	Brake Pedal Counterbalance	1	Not sold separately. Order item 60.		
55	Pin, Cotter	2	51996		
56	Bracket	1	317-B		
57	Shaft	1	591	319-B	
58	Nut	1	50880		
60	Brake Pedal Bar	1	322		

● Recommended spare

(TBL.HNDL-FTB)

LABEL PARTSLIST

ITEM NO.	DESCRIPTION OF PART	QTY TOTAL	PART NUMBER
610	Lubrication Instructions	1	71128581
611	Warning Label	1	71107130
612	Nameplate	1	71106967-R
613	Warning Label	1	71053714
614	Warning Label	1	71060529
615	IR Logo Label	2	71106264
616	Cable Takeoff Direction Label	2	71126452
617	Cable Takeoff Arrow Label	2	71126460
618	Direction of Drum Rotation Label	1	71110068
619	Rivets	4	50914

(TBL.LABELS)

WINCH CONTROLS PARTSLIST

Magnetic Reversing Starter

DESCRIPTION OF PART	MOTOR HP	PART NUMBER (by Voltage)	
		230 Volts	460 Volts
Three Phase NEMA 1 (General Purpose)	5	51356	51683
	7.5		51356
	10	52592	
Three Phase NEMA 4 (Watertight)	5	52426	51360
	7.5		52426
	10	51558	

Controls

DESCRIPTION OF PART	PART NUMBER
Wall Mount Control Station NEMA 1 (General Purpose)	50235
Wall Mount Control Station NEMA 4 (Watertight)	50248
Hand Held Pendant NEMA 3R (Waterproof)	70555
Hand Held Pendant NEMA 4 (Watertight)	52761
Control Cord (specify length)	71032312

Drum Reversing Switches

DESCRIPTION OF PART	PART NUMBER
NEMA 1 (General Purpose)	50249
NEMA 4 (Watertight)	51626

(TBL.MTRCNTRL)

ACCESSORIES

DESCRIPTION OF ACCESSORY	ACCESSORY PART NUMBER
Lubricant	LUBRI-LINK®-GREEN
Touch-up Paint	FAP-237Y

(TBL.ASSYWNCH)

PARTS ORDERING INFORMATION

The use of other than **WINTECH** replacement parts will invalidate the Company's warranty.

For your convenience and future reference it is recommended that the following information be recorded.

Model Number _____

Serial Number _____

Date Purchased _____

When ordering replacement parts, please specify the following:

1. Complete model number and serial number as it appears on the nameplate.
2. Part number(s) and part description as shown in this manual.
3. Quantity required.

The nameplate is located on the side frame.

Each unit is supplied from the factory with the nameplate shown. If a nameplate is not attached to your unit, order a new nameplate and install it. See the parts list for the part numbers.

NOTICE

• **Continuing improvement and advancement of design may cause changes to this equipment which are not included in this manual. Manuals are periodically revised to incorporate changes. Always check the manual edition number on the front cover for the latest issue.**

Return Goods Policy

WINTECH will not accept any returned goods for warranty or service work unless prior arrangements have been made and written authorization has been provided from the location where the goods were purchased.

When the life of the unit has expired, it is recommended that it be disassembled, degreased and parts separated as to materials so that they may be recycled.

For additional information contact:

WINTECH

5319 Shreveport-Blanchard Hwy.
Shreveport, La. 71107

Phone: (318) 929-1242

1-888-946-8325

Fax: (318) 929-1245

HOIST AND WINCH LIMITED WARRANTY

Wintech International warrants to the original user of its Hoists and Winches (Products) to be free of defects in material and workmanship for a period of one year from the date of purchase.

Wintech will repair, without cost, any Product found to be defective, including parts and labor charges, or at its option, will replace such Products or refund the purchase price less a reasonable allowance for depreciation, in exchange for the Product. Repairs or replacements are warranted for the remainder of the original warranty period.

If any Product proves defective within its original one year warranty period, it should be returned to any Authorized Hoist and Winch Service Distributor, transportation prepaid with proof of purchase or warranty card.

This warranty does not apply to Products which **Wintech** has determined to have been misused or abused, improperly maintained by the user, or where the malfunction or defect can be attributed to the use of non-genuine **Wintech** parts.

Wintech makes no other warranty, and all implied warranties including any warranty of merchantability or fitness for a particular purpose are limited to the duration of the expressed warranty period as set forth above. Wintech's maximum liability is limited to the purchase price of the Product and in no event shall Wintech be liable for any consequential, indirect, incidental, or special damages of any nature rising from the sale or use of the Product, whether based on contract, tort, or otherwise.

Note: Some states do not allow limitations on incidental or consequential damages or how long an implied warranty lasts so that the above limitations may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which may vary from state to state.

IMPORTANT NOTICE

It is our policy to promote safe delivery of all orders.

This shipment has been thoroughly checked, packed and inspected before leaving our plant and receipt for it in good condition has been received from the carrier. Any loss or damage which occurs to this shipment while enroute is not due to any action or conduct of the manufacturer.

Visible Loss or Damage

If any of the goods called for on the bill of lading or express receipt are damaged or the quantity is short, do not accept them until the freight or express agent makes an appropriate notation on your freight bill or express receipt.

Concealed Loss or Damage

When a shipment has been delivered to you in apparent good condition, but upon opening the

crate or container, loss or damage has taken place while in transit, notify the carrier's agent immediately.

Damage Claims

You must file claims for damage with the carrier. It is the transportation company's responsibility to reimburse you for repair or replacement of goods damaged in shipment. Claims for loss or damage in shipment must not be deducted from the **Wintech International** invoice, nor should payment of **Wintech International** invoice be withheld awaiting adjustment of such claims as the carrier guarantees safe delivery.

You may return products damaged in shipment to us for repair, which services will be for your account and form your basis for claim against the carrier.

United States Office Location

**For Order Entry, Order Status, and
Technical Support:**

**Wintech International, L.L.C.
5301 Shreveport/Blanchard Hwy.
Shreveport, LA. 71107**

**Phone: (318) 929-1242
1-888-946-8325
Fax: (318) 929-1245
www.wintech-winch.com**

