

PARTS, OPERATION AND MAINTENANCE MANUAL

for

HAND WINCH MODELS

LM6/LM6W
2 TON

LM10/LM10W
2 TON

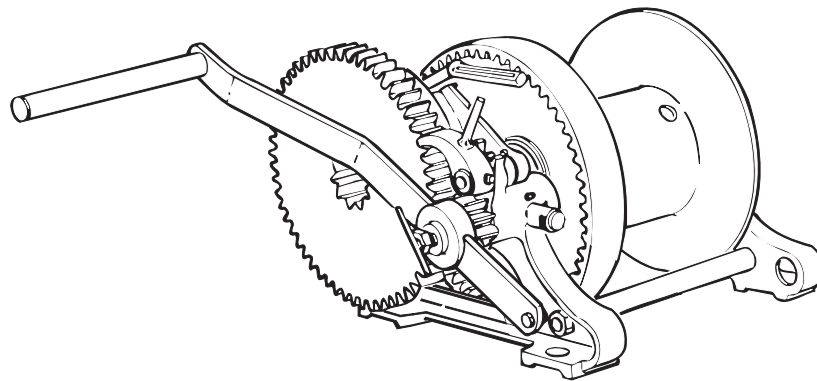
LM16/LM16W
2 TON

HM8/HM8W
5 TON

HM12/HM12W
5 TON

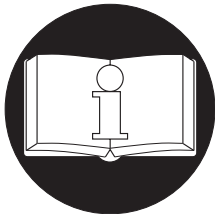
HM16/HM16W
5 TON

HM24/HM24W
5 TON



Note: "W" denotes handwheel

1 Ton= 2000 lbs



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 or your nearest Distributor.

Form MHD56031
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SAFETY INFORMATION

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 and understand 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 a hazard. 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, supporting, or transporting people or lifting or supporting loads over 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.

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 cranes or assist in hooking on or arranging a load should be instructed to keep out from under the load. From a safety standpoint, one factor is paramount: conduct all lifting operations in such a manner that if there were an equipment failure, no personnel would be injured. This means keep out from under a raised load and keep out of the line of force of any load.

WINTECH Material Handling winches are manufactured in accordance with the latest ASME B30.7 standards.

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. It is recommended that all applicable industry, trade association, federal, state and local regulations be checked. 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** 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** or recommended tools.
2. Safety procedures, precautions and work habits established by accepted industry standards.

WINTECH 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 ANSI B30.7 and are intended to avoid unsafe operating practices which might lead to personal injury or property damage.

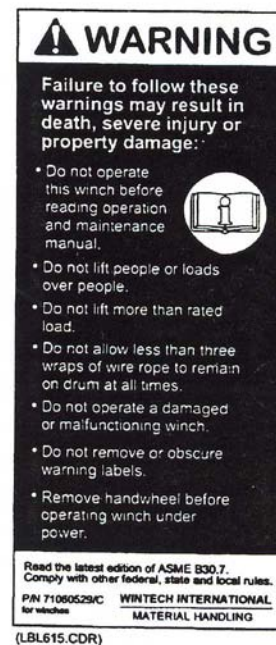
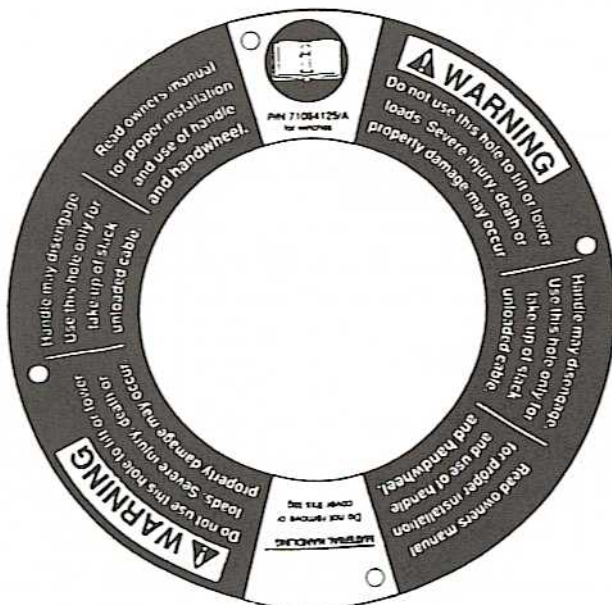
WINTech recognizes that most companies who use winches have a safety program in force. In the event that some conflict exists between a rule set forth in this publication and a similar rule already set by an individual company, the more stringent of the two should take precedence.

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 instructed in safety and operation of this winch 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, do not operate the winch until the sign has been removed by designated personnel.
4. Before each shift, check the winch for wear and damage. Never use a winch that inspection indicates is worn or damaged.
5. Never lift a load greater than the rated capacity of the winch. See warning labels and tags attached to winch.
6. Keep hands, clothing, etc., clear of moving parts.
7. Never place your hand in the throat area of a hook or near wire rope spooling onto or off of the winch drum.
8. Always rig loads properly and carefully.
9. Be certain the load is properly seated in the saddle of the hook. Do not tiplod the hook as this leads to spreading and eventual failure of the hook.
10. Do not "side pull" or "yard".
11. Make sure everyone is clear of the load path. Do not lift a load over people.
12. Never use the winch for lifting or lowering people, and never allow anyone to stand on a suspended load.
13. Ease the slack out of the wire rope when taking-up wire rope. Do not jerk the load.
14. Do not swing a suspended load.
15. Never suspend a load for an extended period of time.
16. Never leave a suspended load unattended.
17. Pay attention to the load at all times when operating the winch.
18. After use, properly secure winch and all loads.
19. The operator must maintain an unobstructed view of the load at all times.
20. Never use the wire rope as a sling.

WARNING LABELS AND TAGS

Each winch is supplied from the factory with the warning tag and label shown. If the tag or label is not attached to your unit, order a new tag or label and install it. Refer to the parts list for the part number. Read and obey all warnings and other safety information attached to this winch. Warning tag and label may not be shown actual size.



SPECIFICATIONS

Table 1

Model No.	Capacity 1st Layer US Tons	Gear Ratio**	Full Drum Capacities (ft)						Net Weight*	
			1/4 in	5/16 in	3/8 in	7/16 in	1/2 in	5/8 in	lbs	kg
LM6/LM6W	2	4:1/22:1	285	203	114	106	68	---	60	27
LM10/LM10W			483	346	195	182	118	---	70	32
LM16/LM16W			780	561	316	296	192	---	83	38
HM8/HM8W	5	4:1/24:1	---	---	394	314	230	124	110	50
HM12/HM12W			---	---	601	480	352	191	138	63
HM16/HM16W			---	---	807	645	474	258	150	68
HM24/HM24W			---	---	1221	977	719	392	175	80

* Winch without wire rope

** The 4:1 gear ratio is for fast take-up of slack unloaded line only. The 22:1 and 24:1 gear ratio is for lifting or pulling loads.

Wire rope capacities are calculated for full drum storage and may vary from figures printed elsewhere.

(TBL.SPECS)

Model Code Explanation

Model Code Example

LM6W-GC-M

Series _____

- LM** = 2 US Ton 4,000 lb. (1815 kg) Hand Winch
- HM** = 5 US Ton 10,000 lb. (4536 kg) Hand Winch

Drum Length (measured between drum flanges) _____

- 6** = 6 in (152 mm)
- 10** = 10 in (254 mm)

Handwheel _____

- W** = With Handwheel
- = Without Handwheel

Gear Cover _____

- GC** = With Gear Cover
- = Without Gear Cover

Options _____

- M** = Marine 812 top coat
- RD** = Reverse Dog
- SBH** = Disc Brake Handle. Must not be used with handwheel winches
- SD** = Drum Divider Flange*

* Not covered in this manual. For additional information contact **WINTECH**

INSTALLATION

Prior to installing the winch, carefully inspect it for possible shipping damage.

⚠ CAUTION

- Owners and users are advised to examine specific, local or 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 putting winch to use.

Mounting

1. If product is to be mounted in one position be sure the mounting surface is even and of sufficient strength to handle the rated load and prevent possible binding of the winch.
2. Make sure the winch is positioned so handle or optional handwheel can rotate a full 360 degrees unobstructed. Reposition winch if necessary.
3. Make sure the mounting surface is flat to within 1/16 in. (2 mm). Shim if necessary.
4. Mounting bolts must be 9/16 in. (14 mm) for LM models and 5/8 in. (16 mm) for HM models and must be Grade 5 or better. Use self-locking nuts or nuts with lockwashers. Refer to Table 2 and Dwg. MHTPA0124 for bolt pattern dimensions.
5. Tighten mounting bolts evenly and torque to:

Size	Dry	Lubricated
9/16 in	115 ft lbs (155 Nm)	105 ft lbs (142 Nm)
5/8 in	160 ft lbs (215 Nm)	145 ft lbs (196 Nm)
6. Maintain a fleet angle between the sheave and winch of no more than 1-1/2 degrees. For every inch (25 mm) of drum length, the lead sheave must be at least 1.6 feet (0.5 m) from the drum.
7. Do not weld to any part of the winch.

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 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. Refer to Table 3 for minimum and maximum wire rope diameters. The maximum diameter of the wire rope is limited by the size of the wire rope anchor.

Table 3

Model No.	Wire Rope Diameter			
	Minimum		Maximum	
	in.	mm	in.	mm
LM6/LM6W	1/4	6	1/2	13
LM10/LM10W				
LM16/LM16W				
HM8/HM8W	3/8	9	5/8	16
HM12/HM12W				
HM16/HM16W				
HM24/HM24W				

(TBL.WIREROPE)

⚠ WARNING

- Check wire rope diameter provides an adequate safety factor.

Installing Wire Rope

(Ref. Dwg. MHTPA0120)

⚠ CAUTION

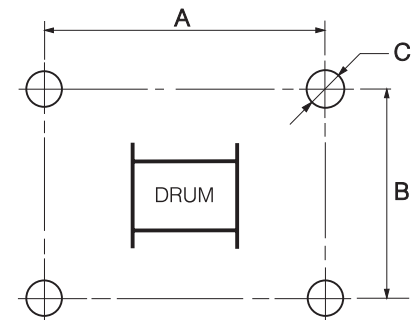
- Position the wire rope so that it comes off the top of the drum for overwind operation.

1. Cut wire rope to length and fuse end to prevent fraying of strands in accordance with the wire rope manufacturer's instructions.

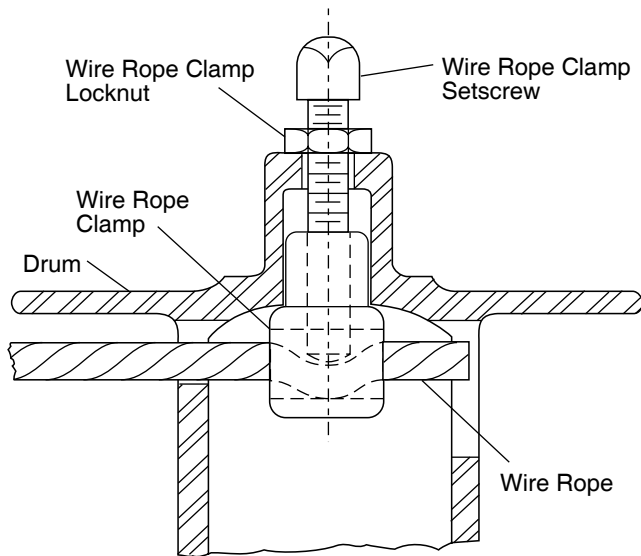
Table 2

Model No.	Bolt Pattern Dimensions					
	"A"		"B"		"C"	
	in	mm	in	mm	in	mm
LM6/LM6W	10-3/4	273	7-9/16	192	5/8	16
LM10/LM10W	14-5/8	371				
LM16/LM16W	20-5/8	524				
HM8/HM8W	13-7/8	352	10-3/16	259	11/16	17
HM12/HM12W	17-3/4	451				
HM16/HM16W	22-1/4	565				
HM24/HM24W	30-1/4	768				

(TBL.BOLTPATT)



(Dwg. MHTPA0124)



(Dwg. MHTPA0120)

2. Feed the fused end of the wire rope into the wire rope anchor hole in the drum and through the hole in the wire rope clamp (23) until the wire rope end extends to the inside wall of the drum.
3. Tighten wire rope clamp setscrew (28) and locknut (29).

Safe Wire Rope Handling Procedures

1. Always use gloves when handling wire rope.
2. Never use wire rope which is frayed or kinked.
3. Never use wire rope as a sling.
4. Always ensure wire rope is correctly spooled and first layer is tight.

Wire Rope Spooling

To allow for uneven spooling and decrease in line pull capacity as the drum fills up, use as short a wire rope as practical. Always maintain three or more wraps of wire rope on the drum. When rewinding wire rope apply tension to eliminate slack. This helps achieve level winding and tight spooling.

Rigging

Make sure all wire rope blocks, tackle and fastenings have sufficient safety margin to handle the required load. 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 wire rope manufacturer's handbook for proper sizing, use and care of wire rope.

Power Driven Winches (optional feature)

The LM and HM winches may be operated with a power drive attachment. Power conversion pinions for different drive methods are shown in the parts section. This method of operating the winch is *only* intended for the purpose of rapidly taking up wire rope without load. When operating the winch with a power drive attachment care must be taken to ensure gears and bearings are properly lubricated.

⚠ WARNING

- Do not exceed the maximum speed and torque stated in Table 4. Excessive speed or torque will result in premature winch failure.
- Do not use a power drive pinion when a Load Disc Brake is installed. Always remove the Load Disc Brake before using power drive option.

Table 4

Model No.	Power Drive Motor Information	
	Maximum Motor RPM	Maximum Motor Torque
LM6/LM6W	120	364 in. lb (4.2 kg.m)
LM10/LM10W		
LM16/LM16W		
HM8/HM8W	120	1312 in. lb (15.1 kg.m)
HM12/HM12W		
HM16/HM16W		
HM24/HM24W		

(TBL.POWER)

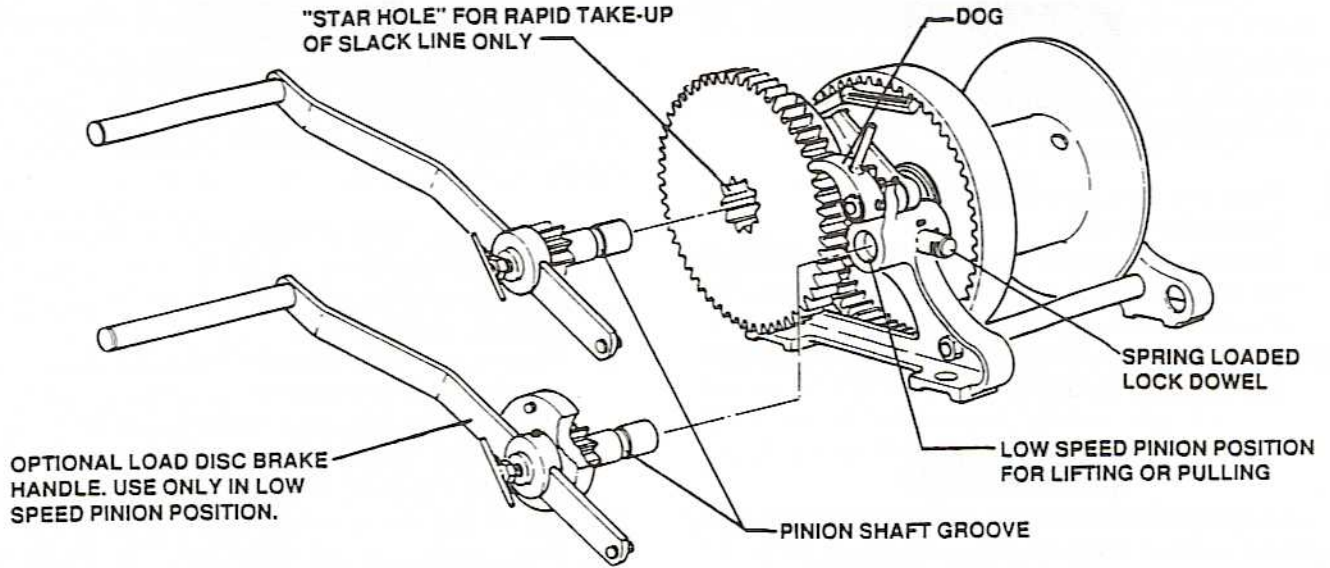
⚠ WARNING

- Always ensure power drive pinion is fully engaged in the large gear (12) "star hole".
- Power drive pinions are only intended for fast wire rope take-up with no load and must never be used to power the winch with a load.

Safe Installation Procedures

1. Do not use wire rope as a ground 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.
4. When a lead sheave is used, it must be aligned with the center of the drum as described in the "Mounting" instructions. The diameter of the lead sheave must be at least 18 times the diameter of the wire rope.
5. Always maintain at least three full wraps of wire rope on the drum.

OPERATION



(Dwg. MHTPA0123)

The four most important aspects of winch operation are:

1. Follow all safety instructions when operating the winch.
2. Allow only people instructed in the operation of the winch to operate the winch.
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

- This winch is not designed or suitable for lifting, lowering or moving persons. Never lift loads over people.
- Always maintain at least three full wraps of wire rope on the drum at all times.

Handle Attachment

(Ref. Dwg. MHTPA0125)

Insert handle (34) through the slot in pinion (33) and clamp in required position with locking screw (35). Handle length is adjustable. Install handle retainer (32) and locknut (31) in the hole provided at the end of handle (34) arm. Pinion (33) is retained by the spring loaded lock dowel (30) when the pinion is installed in the low speed position.

Operation

When lifting or pulling always:

1. Operate with handle in low speed pinion position.
2. Ensure spring loaded lock dowel is engaged in the pinion shaft groove. Check that spring loaded lock dowel is engaged by pulling on handle.
3. Engage dog before moving load.

4. For releasing or lowering load make sure handle is in low speed gear and locked in. Crank load up so that dog is free for release. If it is difficult to crank the load up to release the dog the winch may be overloaded and the load must be reduced before attempting to lower. Maintain a firm grip on handle with one hand and disengage dog with the other. Release or lower load slowly with two hands on crank. An alternate load release method is to drag brake with one hand and crank handle with the other after dog is disengaged.

Handle Position	Gear Ratio	Operating Condition
Low Speed Pinion	22:1 (LM) 24:1 (HM)	Take-up or payout of loaded or slack wire rope.
"Star Hole" in Gear	4:1	Take-up or payout of slack wire rope only.

(TBL.HANDLE)

Paying Out or Hauling In with Handle

When facing the gear and handle side of the winch:

1. Rotate the handle (34) clockwise to rotate the drum counterclockwise.
2. Rotate the handle (34) counterclockwise to rotate the drum clockwise.

To avoid "birdnesting" caused by slack wire rope, apply tension to the wire rope when spooling onto the drum.

To Let Out Unloaded Wire Rope (Free-Spool Condition)



• To avoid injury and damage to equipment due to a falling load, disconnect the load before activating free-spool condition.

1. Make sure there is no load on the winch.
2. Remove handle (34).
3. Releasing the dog (24) and brake lever (13) will allow the drum to rotate.
4. Pull end of wire rope to desired location.
5. When sufficient wire rope has been pulled from the drum re-apply the dog (24).



• A creeping load can cause death or injury. Do not rely on the hand brake to hold a suspended load.
• Do not overload winch.

Installing a 28 in. Handwheel (optional feature)

1. Install retaining ring (39) on shaft (38).
2. Install shaft (38) into handwheel pinion (36).
3. Place bushing (37) on the end of shaft (38) and install roll pin (40) through shaft (38).
4. Use handwheel lock assembly on threaded stud in the end of the cluster shaft or in the "large gear" only. For normal operation (winching) the handwheel is retained by the spring loaded lock dowel (30), when installed in the low-speed pinion position.



• Never attempt to raise or lower a load with the handwheel inserted in the "star hole" at the center of the gear. This position is for rapid take-up of slack line only.
• Before lifting, lowering or moving a load always make sure that the spring loaded lock dowel (30) is locked in by pulling on the handle.
• Never release the spring loaded lock dowel (30) when holding a load.



• Use extreme caution when using the handwheel for rapid take-up of slack wire rope with pinion inserted in the gear "star hole". Never use the handwheel in the "star hole" on gear (12) without a threaded stud in the "star hole" to secure the handwheel.

Load Disc Brake Assembly (optional feature)

(Ref. Dwg. MHTPA 0056)



• Never use the load disc brake assembly in the "star hole" in the center of the cluster gear (rapid wire rope take-up position). This position is for slack line take-up only.

1. The load disc brake assembly will install in place of the standard winch turning handle. When installed it will not permit the winch to freewheel for rapid wire rope take-up or pay-out.
2. When the load disc brake assembly has been installed into the regular low speed pinion position align the anchor bracket link (126) with the spacer (27) on the winch large frame (3). To ensure correct load brake operation the anchor bracket link (126) must be in a vertical position when installed.
3. Once aligned screw the anchor bar (121) onto the end of spacer (27) and turn clockwise until it is tight. Once tightened, place the cotter pin (123) through the anchor bar (121) to secure the load disc brake assembly.
4. Check that the load disc brake assembly is fully locked in place by the spring loaded lock dowel (30). Check that spring loaded lock dowel is engaged by pulling on handle.
5. To adjust handle length loosen lockscrew (35), set handle (34) to required position then tighten lock-screw (35).
6. To take-up wire rope rotate handle in a clockwise direction. This causes the actuating screw (107) to clamp the friction discs (105) against the ratchet wheel (106). Continued turning of the handle will disengage the ratchet dog (113) and allow the ratchet wheel (106) to turn. An audible clicking will be noticed as each tooth on the ratchet wheel rotates past the ratchet dog and the spring (112) causes the dog to engage the next tooth.
7. To payout wire rope rotate handle in a counterclockwise direction. This will rotate the actuating screw (107) to release the friction discs (105) from the ratchet wheel (106) which is held stationary by the ratchet dog (113). When handle rotation ceases tension on the wire rope will tighten the actuating screw to clamp the friction discs and hold the load.

NOTICE

• The load disc brake assembly requires no adjustment.

Power Driven Winches (optional feature)

When using a power drive pinion it must only be installed in the large gear (12) "star hole". The power drive pinion is only to be used for rapid take-up of unloaded wire rope. Refer to the "INSTALLATION" section for maximum allowable operating input speed and torque.

INSPECTION

There are two types of inspection, the frequent inspection performed by the operator and more thorough periodic inspections performed by qualified personnel. 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.

Any deficiency revealed through inspection must be reported to an appointed person. A determination must be made as to whether a deficiency constitutes a safety hazard before resuming operation of the winch.

Records and Reports

Some form of inspection record should be maintained for each winch, listing all points requiring periodic inspection. A written report should be made monthly on the condition of the critical parts of each winch. These reports should be dated, signed by the person who performed the inspection, and kept on file where they are readily available to authorized personnel.

Frequent Inspection

On winches in continuous service, frequent inspection should be made at the beginning of each shift. In addition, visual observations should be conducted during regular service for any damage or evidence of malfunction.

1. **OPERATION.** To make sure the drive mechanism operates properly, check for sticking or other signs of malfunction. Repair if necessary. Test brake operation by lifting a load 1 to 2 in. (25 to 50 mm) off the floor and check that the brake holds the load.
2. **LIMIT DEVICES.** If used, check that they operate properly.
3. **WIRE ROPE.** Lubricate if necessary. Replace the wire rope if damaged or excessively worn. Consult the wire rope manufacturer's inspection information or a recognized safety source, such as the latest edition of National Safety Council, Accident Prevention Manual for Industrial Operations or ASME B30.7. The following list is a users guide to the accepted standards by which wire rope must be judged and is not presented as a substitute for an experienced inspector.
 - a. Damage, such as: bird cages, kinking, core protrusion, crushing, heat damage, and main strand displacement.
 - b. Corrosion and nicking.
 - c. Wear of crown wires. Replace at 1/3 wear of the original diameter of any crown wire.
 - d. Broken wires or strands, particularly at connections. Replacement is necessary if one wire is broken at a connection; six broken wires within one lay; three broken wires in one strand within one lay.

4. **WIRE ROPE REEVING.** Check reeving and ensure wire rope is properly secured to the drum. Make sure the wire rope anchor screw is tight and check for signs of slippage of the wire rope end. If slippage is evident, reinstall wire rope per installation procedure.

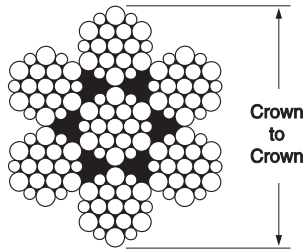
Periodic Inspection

According to ASME B30.7, frequency of periodic inspection depends on the severity of usage: **NORMAL**, yearly; **HEAVY**, semi-annually; **SEVERE**, quarterly. Disassembly may be required for **HEAVY** or **SEVERE** usage. Keep accumulative records of periodic inspections to provide a basis for continuing evaluation.

Inspect all items in "Frequent Inspection" also inspect the following:

1. **MEMBERS.** Check for deformed, cracked or corroded main components. Replace damaged parts if necessary.
2. **FASTENERS.** Check rivets, cotter pins, capscrews and nuts on winch, including mounting bolts. Replace if missing and tighten if loose.
3. **DRUM.** Check for cracks, wear or damage. Replace or repair if necessary.
4. **ALL COMPONENTS.** Inspect for wear, damage, distortion and cleanliness. If external evidence indicates the need, for example poor performance or excessive noise, disassemble and inspect. Check pins, gears, shafts, bushings, sheaves, covers, etc. Replace worn or damaged parts.
5. **BRAKE.** Check the thickness of the brake shoe lining. Replace the brake shoe if lining is less than .062 in. (2 mm) thick anywhere along its edge. Check adjustment of adjusting setscrew (11). (Ref. Dwg. MHTPA0127).
6. **SUPPORTING STRUCTURE.** Check for distortion, wear and continued ability to support the winch and load.
7. **LABELS AND TAGS.** Check for presence and legibility. Replace if necessary.
8. **WIRE ROPE.** Besides the items in a frequent inspection, inspect the following:
 - a. Build-up of dirt and corrosion. Clean if necessary.
 - b. Loose or damaged end connection. Replace if loose or damaged.
 - c. Check wire rope anchor is secure.
 - d. Changes in the size of the wire rope diameter. Periodically measure the diameter of the wire rope from crown-to-crown throughout the life of the wire rope. The actual diameter should be recorded when the wire rope is under equivalent loading and in the same operating section. 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.
(Ref. Dwg.MHTPA0056).



(Dwg. MHTPA0056)

⚠ WARNING

- **Never use a winch that inspection indicates is defective.**

Winches Not in Regular Use

A winch which has been idle for a period of one month or more, but less than six months, shall be given an inspection conforming with the requirements of "Frequent Inspection" before being placed into service.
A winch which has been idle for a period of over six months shall be given a complete inspection conforming with the requirements of "Periodic Inspection".

Standby winches shall be inspected at least semi-annually in accordance with the requirements of "Frequent Inspection". If abnormal operating conditions apply winches may require a more frequent inspection.

Testing

Operational Tests

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

1. Operate winch in both directions with no load.
2. Check operation of brakes and pawls.
3. Check operation of limit switches, and locking or safety devices when provided.
4. Check all tie-downs are secure.

Rated Load Test

Prior to initial use, all new, extensively repaired, or altered winches shall be tested by or under the direction of a qualified person, and a written report furnished confirming the rating of the winch. Test loads shall not be more than 110% of the rated line pull.

LUBRICATION

⚠ CAUTION

- **Lubricate the winch regularly using only the recommended grease.**

Gears

If winch is disassembled, clean all parts thoroughly and coat gears with clean grease. Lubricate working surfaces of all gear teeth. Brush with grease as often as necessary to keep the teeth liberally covered. If the grease becomes contaminated with sand, dirt or other abrasive materials clean off old grease and relubricate. For temperatures -20° to 50° F (-29° to 10° C) use a multipurpose lithium-based EP 1 grease. For temperatures 30° to 120° F (-1° to 49° C) use a multipurpose lithium-based EP 2 grease.

Pivot Points and Bushings

Lubricate the five grease fittings (9) monthly with 2 or 3 pumps from a grease gun or more frequently, depending on severity of service. Rotate drum and gearing slowly as grease is being applied. Use the same grease recommended for the gears. Refer to the parts drawing MHTPA0125 for grease fitting locations.

Wire Rope

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

⚠ CAUTION

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

1. If there is dirt, rock dust or other foreign material on the surface of the wire rope, clean with a brush or steam.
2. Apply a wire rope lubricant, or SAE 30 W oil.
3. Brush, drip or spray lubricant weekly, or more frequently, depending on severity of service.

⚠ WARNING

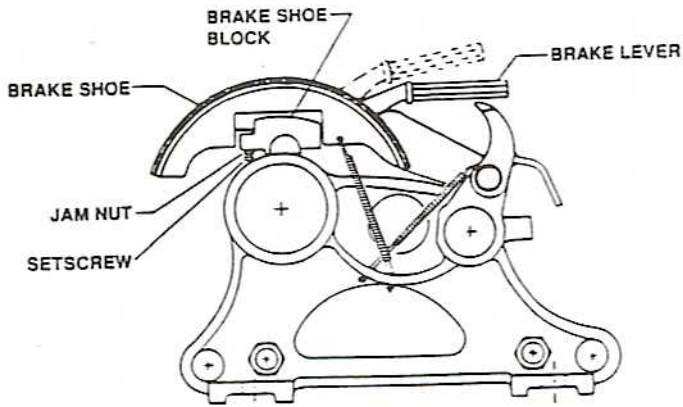
- Never perform maintenance on the winch while it is supporting a load.
- Before performing maintenance, tag winch:
DANGER - DO NOT OPERATE - EQUIPMENT BEING REPAIRED.
- Only allow service personnel trained in service and repair to perform maintenance.
- After performing any maintenance on the winch, test winch to 110% of its rated capacity before returning to service.

Make sure that all parts are in place and operating correctly. Replace worn or missing parts with genuine **WINTECH International, Inc.**, factory replacement parts.

Drum Brake

Adjustment (Ref. Dwg. MHTPA0127)

1. Remove gear (12) and brake drum.
2. Loosen jam nut (10) and adjustment setscrew (11).
3. Tighten adjustment setscrew (11) to increase brake torque.



(Dwg. MHTPA0127)

4. Lock adjustment setscrew (11) with jam nut (10).
5. Replace gear (12) and brake drum.
6. Brake is adjusted properly when drum is locked with brake lever (13) approximately 1-1/2 in. (37 mm) away from the stop. Drum should turn freely when lever is against stop.

⚠ CAUTION

- Brake shoe (15) should be replaced if lining is less

than 0.062 in. (2 mm) thick anywhere along its length.

General Disassembly

The following instructions provide the necessary information to disassemble, inspect, repair, and assemble the winch. Assembly drawings of the winch are provided in the Parts Section to assist 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 on a sturdy work bench. In the process of disassembling the winch, 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.
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. When grasping a part in a vise, always use leather-covered or copper-covered vise jaws to protect the surface of the part and help prevent distortion. This is particularly true of threaded members and shafts.
5. Do not remove any part which is press fit in or on a subassembly unless the removal of that part is necessary for repairs or replacement.

Winch Disassembly

1. Remove the wire rope from the drum (18).
2. Remove the winch from its mounting and set in a clean work area on a sturdy work bench.
3. Pull back on the spring loaded lock dowel (30) to remove the handle (34) and pinion (33) assembly.
4. Remove cotter pin (6) and dowel (5) from the top of the large frame (3).
5. Pull the gear (12) from the large frame (3).
6. Remove nuts (1) from spacers (27) and slide small frame (19) from the drum (18). Remove spacers (27).
7. Remove the drum (18) from large frame (3).
8. Remove cotter pin (21) from dog pin (22). Remove dog spring (26) from dog (24).
9. Carefully tap dog pin (22) from the large frame (3) and remove dog (24).
10. Unhook spring (17) and remove brake shoe (15), brake shoe block (14) and brake lever (13).
11. Press out bushings (2), (4) or (16) only if they are to be replaced

Cleaning, Inspection and Repair

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

Cleaning



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

Clean all winch component parts in solvent (except for the brake shoe). 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 maybe necessary to carefully scrape old Loctite from the bushing bores. Dry each part using low pressure, filtered compressed air. Clean the brake shoe using a wire brush or emery cloth. Do not wash the brake shoe in liquid. If the brake shoe is oil soaked, it must be replaced.

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.

Bushing Chart

LM (2 ton) Winches

Bushing Location	Bushing Item No.	Original Bore Size		Discard Bore Size	
		in.	mm	in.	(mm)
Frame (3)	2	1.315	33.4	1.375	35
Frame (3)	4	2.505	63.7	2.562	65
Frames(3) and (19)	16	1.753	44.5	1.815	46

HM (5 ton) Winches

Bushing Location	Bushing Item No.	Original Bore Size		Discard Bore Size	
		in.	mm	in.	(mm)
Frame (3)	2	1.437	36.5	1.5	38
Frame (3)	4	3.173	80.6	3.23	82
Frames(3) and (19)	16	2.037	51.7	2.1	53

(TBL.BUSHINGS)

3. Inspect shafts for ridges caused by wear. If ridges caused by wear are apparent on shafts, replace the shaft.
4. Inspect all threaded items and replace those having damaged threads.
5. Inspect the brake shoe lining for oil. If the brake shoe lining is oil-soaked, replace the brake shoe. If the brake shoe is glazed, sand it lightly using fine emery cloth.
6. Measure the thickness of the brake shoe lining. If the brake shoe lining is less than .062 in. (2 mm) replace the brake shoe (15).

Repair

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

1. Worn or damaged parts must be replaced. Refer to the applicable Parts Listing for specific replacement parts information.
2. Inspect all remaining parts for evidence of damage. Replace or repair any part which is in questionable condition. The cost of the part is often minor in comparison with the cost of redoing the job.
3. Smooth out all nicks, burrs, or galled spots on shafts, bores, pins, or bushings.
4. Examine all gear teeth carefully, and remove nicks or burrs.
5. Polish the edges of all shaft shoulders to remove small nicks which may have been caused during handling.
6. Remove all nicks and burrs caused by lockwashers.

Winch Assembly

1. Press new bushings (2), (4) and (16) into large frame (3) so they are 1/16 in. (2 mm) below the outer surface of the frame. Press bushing (16) into small frame (19). Check bores to ensure bushings do not restrict the grease fitting passages. If needed drill a 1/8 in. (3 mm) diameter hole through the bushing to provide a grease passage. Use the existing grease fitting hole as a guide. Install grease fittings (9) in large and small frames.
2. Install hub on the geared end of the drum (18) into large frame (3).
3. Assemble small frame (19) on opposite end of drum and locate frames with spacers (27) and nuts (1).
4. Slide dog (24) onto dog pin (22). Align cotter pin hole in dog pin with hole in large frame and drive dog pin into large frame. Install cotter pin (7). If a new dog pin is being used it will be necessary to drill a 3/16 in. (5 mm) diameter hole through the dog pin using the hole in the large frame as a guide.
5. Connect spring (26) between dog and large frame.
6. Install setscrew (11) and jam nut (10) in brake shoe block (14). Assemble brake lever (13), brake shoe block (14) and brake shoe to large frame (3) so the pivot hole in the brake shoe fits on the dog pin (22).

Secure in position with cotter pin (21).

7. Connect spring (17) from brake shoe (15) to large frame (3). Install spring loaded lock dowel (30) in large frame (3) and secure with cotter pin (6). Cotter pin (6) must pass through slot and between spring coils in the spring loaded lock dowel (30).



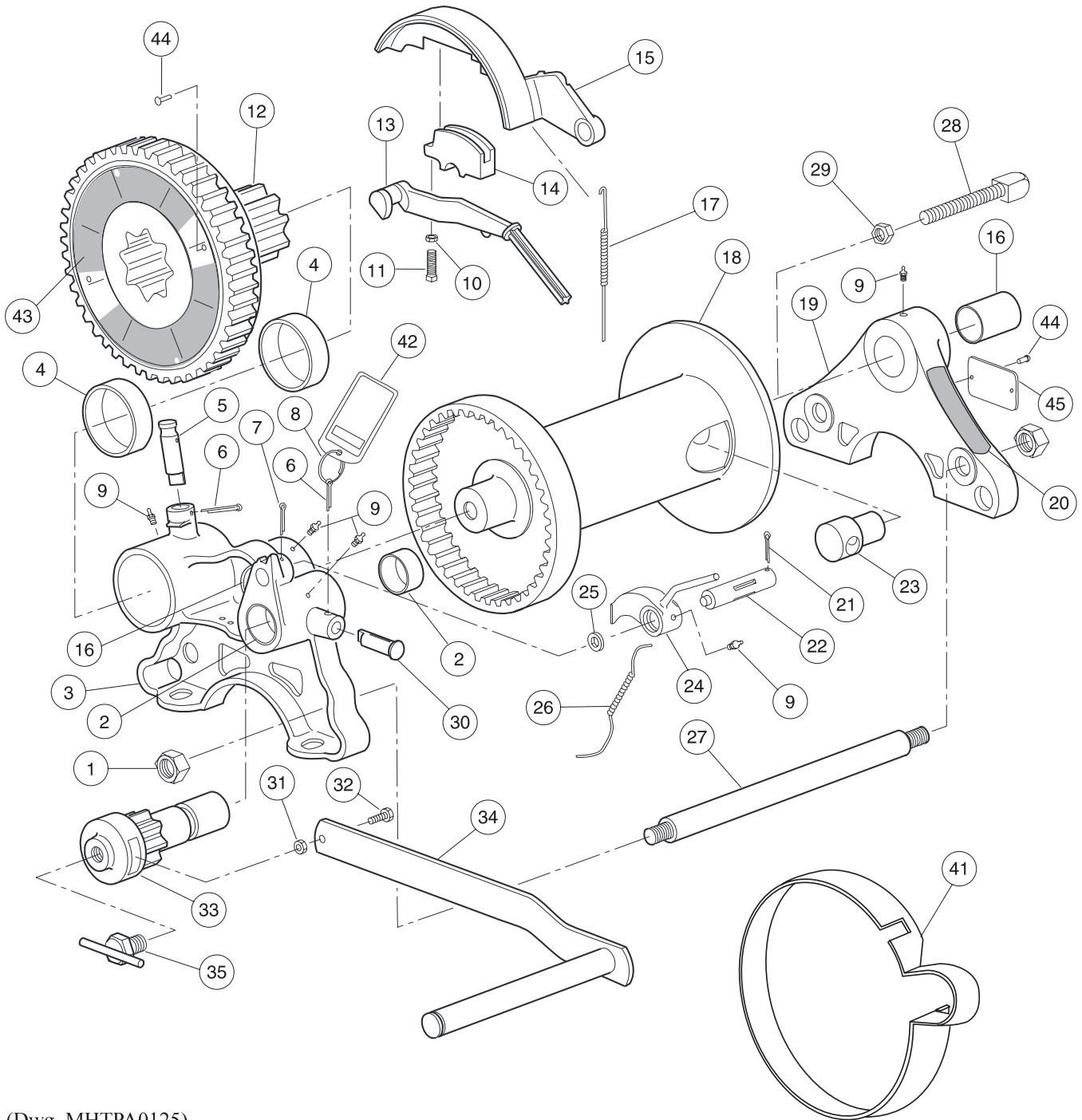
• **The flat of the 90 degree cut out in the spring loaded lock dowel must face toward the drum.**

8. Install gear (12) in large frame so pinion teeth mesh with drum gear teeth. Install dowel (5) and secure in position with cotter pin (6).
9. Check movement of dog and that it freely clicks into position against the teeth on the gear (12).
10. Adjust brake shoe in accordance with instructions for drum brake adjustment in the "MAINTENANCE" section.
11. Install pinion (33) in large frame (3). Ensure the spring loaded lock dowel (30) is fully engaged in the pinion shaft groove.
12. Lubricate all grease fittings as instructed in the "LUBRICATION" section.
13. Install handle (34) through the slot in the pinion (33), adjust to the required length and clamp in position with lockscrew (35). Install handle retainer (32) and locknut (31) in the end of handle (34).
14. Check that all warning labels and tags are attached to the winch and clearly visible. Test winch operation.

Test Check

Upon completion of all winch maintenance and repairs check winch operation following procedures in the "OPERATION" section.

LM AND HM WINCH ASSEMBLY DRAWING



(Dwg. MHTPA0125)

LM AND HM WINCH ASSEMBLY PARTS LIST

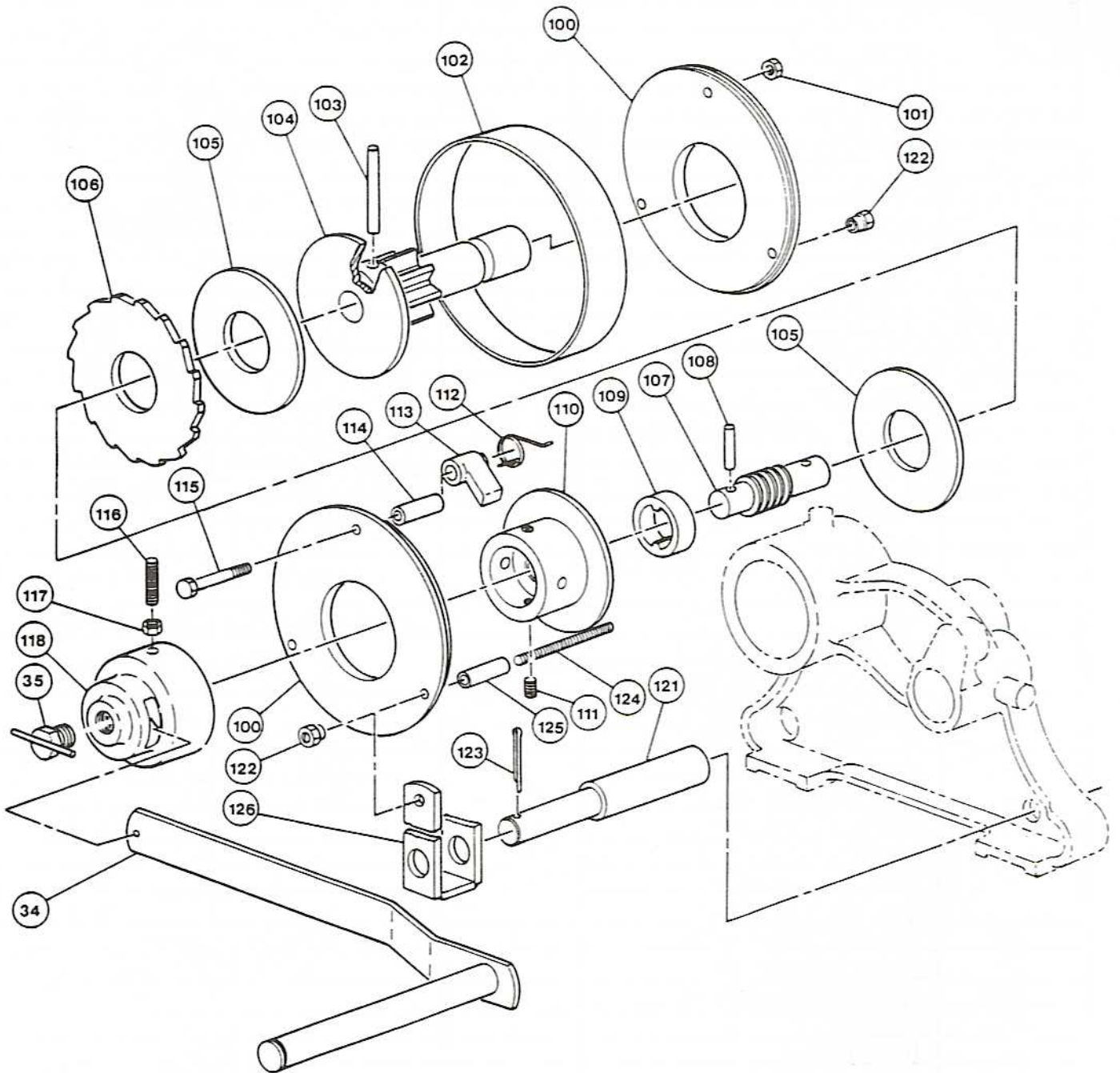
ITEM NO.	DESCRIPTION OF PART	QTY TOTAL	PART NUMBER	
			LM (2 Ton)	HM (5 Ton)
1	Spacer Nut	4	52848	
2	Pinion Bushing	2	1288-1	1288-4
3	Large Frame	1	Not Sold Separately	
4	Gear Bushing	2	1288-3	1288-6
5	Dowel	1	290	
6	Cotter Pin	1	54725	
7	Cotter Pin	2	51021	
8	Label Ring	1	50040 (Refer to Kit Part Number 23223)	
9	Grease Fitting	5	53839	
10	Jam Nut	1	50161	
11	Setscrew	1	54691	
12	Gear	1	462-2	158-2
13	Brake Lever	1	1307	
14	Brake Shoe Block	1	937	
15	Brake Shoe	1	2204	2203
16	Drum Bushing	2	1288-2	1288-5
17	Brake Spring	1	1352	
18	Drum (All models and lengths)	1	172-1	258-2
19	Small Frame	1	1306-A	1302-A
20	IR-Logo Label	1	71106231 (Refer to Kit Part Number 23223)	
21	Cotter Pin	1	54447	54165
22	Dog Pin	1	38	39
23	Wire Rope Clamp (Incl's items 28 & 29)	1	407-B	307-B
24	Dog	1	Order Dog Assy 774	Order Dog Assy 795
25	Washer (without reversing dog)	1	50918	
	Washer (with reversing dog)	2		
26	Dog Spring (without reversing dog)	1	1353	
	Dog Spring (with reversing dog)	2		
27	Spacer (6 in. long drum)	2	279-1	---
	Spacer (10 in. long drum)		279-2	---
	Spacer (8 in. long drum)		---	281-2
	Spacer (12 in. long drum)		---	281-3
	Spacer (16 in. long drum)		---	281-4
	Spacer (24 in. long drum)		---	281-5
28	Wire Rope Clamp Setscrew	1	71063796	71063804
29	Wire Rope Clamp Locknut	1	(50914) Order item 23	
30	Spring Loaded Lock Dowel	1	303	
31	Locknut	1	50852	
32	Handle Retainer	1	52856	
33	Pinion	1	164	165B
34	Handle Assembly (Standard)	1	278	286
35	Lockscrew	1	239	
41	Gear Cover (Optional)	1	250-B	249
42	Warning Tag	1	71056410 (Refer to Kit Part Number 23223)	
43	Warning Label	1	71064125 (Refer to Kit Part Number 23223)	
44	Drive Screw	6	50915 (Refer to Kit Part Number 23223)	
45	Nameplate	1	71064208-R (NOT SOLD)	
* 130	Reversing Dog	1	308	367

**Recommended spare.

*Not shown on drawing.

(TBL.IMPARTS)

LOAD DISC BRAKE ASSEMBLY DRAWING (OPTIONAL FEATURE)



(Dwg. MHTPA0256)

LOAD DISC BRAKE ASSEMBLY PARTS LIST (OPTIONAL FEATURE)

ITEM NO.	DESCRIPTION OF PART	TOTAL QTY.	PART NO.	
			LM (2 Ton)	HM (5 Ton)
---	Load Disc Brake Assembly (Incl's items 34, 35 and 100 through 126)	1	3679-1	3677-1
34	Handle	1	278	286
35	Lockscrew	1	239	
100	Housing Plate	2	1999	
101	Nut	2	51682	
102	Housing Cylinder	1	1998	
103	Pin	1	3981	
104	Flange Head Pinion	1	2208	2005
105	Friction Disc	2	2207	
106	Ratchet Wheel	1	2178	
107	Actuating Screw	1	1992	
	Actuating Screw (Reverse Dog)		1992-1	
108	Pin	1	20466	
109	Retainer Bushing	1	1993	
110	Actuating Flange Nut	1	2004	
	Actuating Flange Nut (Reverse Dog)		2004-1	
111	Setscrew	1	50855	
112	Ratchet Dog Spring	1	2002	
113	Ratchet Dog	1	1996	
114	Spacer Sleeve	1	1996-1	
115	Capscrew	2	52831	
116	Setscrew	1	54173	
117	Nut	2	50198	
118	Handle Socket	1	1990	
121	Anchor Bar	1	2206	
122	Link Nut	2	2199	
123	Cotter Pin	1	51021	
124	Housing Anchor Stud	1	20465	
125	Spacer Sleeve	2	1997	
126	Anchor Bracket Link	1	2193	

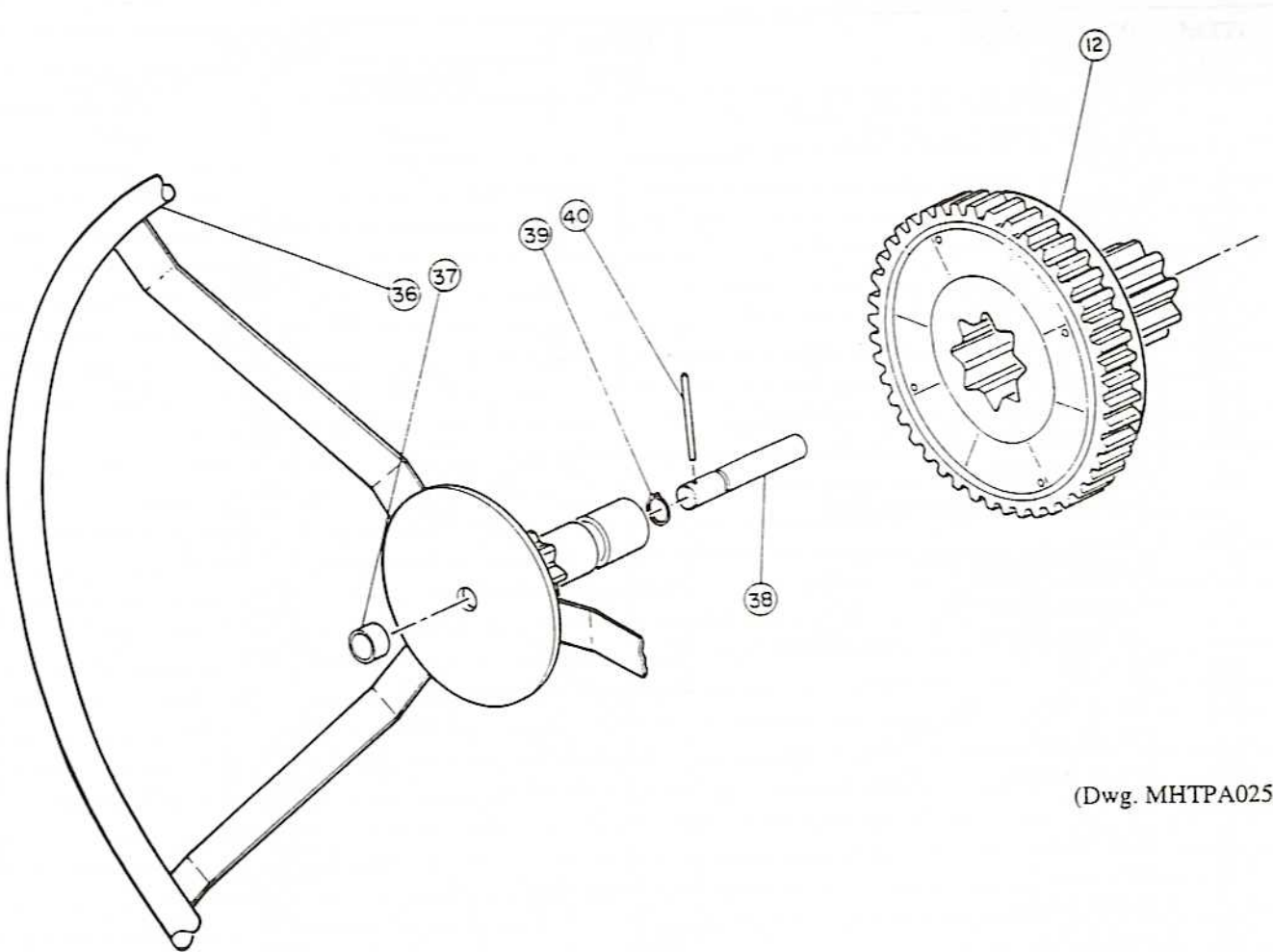
(TBL.LMHMPL2)

Assemblies

DESCRIPTION OF PART	PART NO.	
	LM (2 Ton)	HM (5 Ton)
Pinion and Handle Assembly (Incl's items 31 through 35)	287	289
Brake Assembly (Incl's items 10, 11, 13, 14, 15 and 17)	762	796
Load Disc Brake Assembly (Incl's items 34, 35, and 100 through 126)	3679	3677
Dog Assembly (Incl's items 9, 21, 22, 24, 25 and 26)	774	795
Tag and Label Kit (Incl's items 8, 20, 42, 43, and 44)	23223	

(TBL.ASEMBLY)

HANDWHEEL ASSEMBLY DRAWING AND PARTS LIST (OPTIONAL FEATURE)



(Dwg. MHTPA0258)

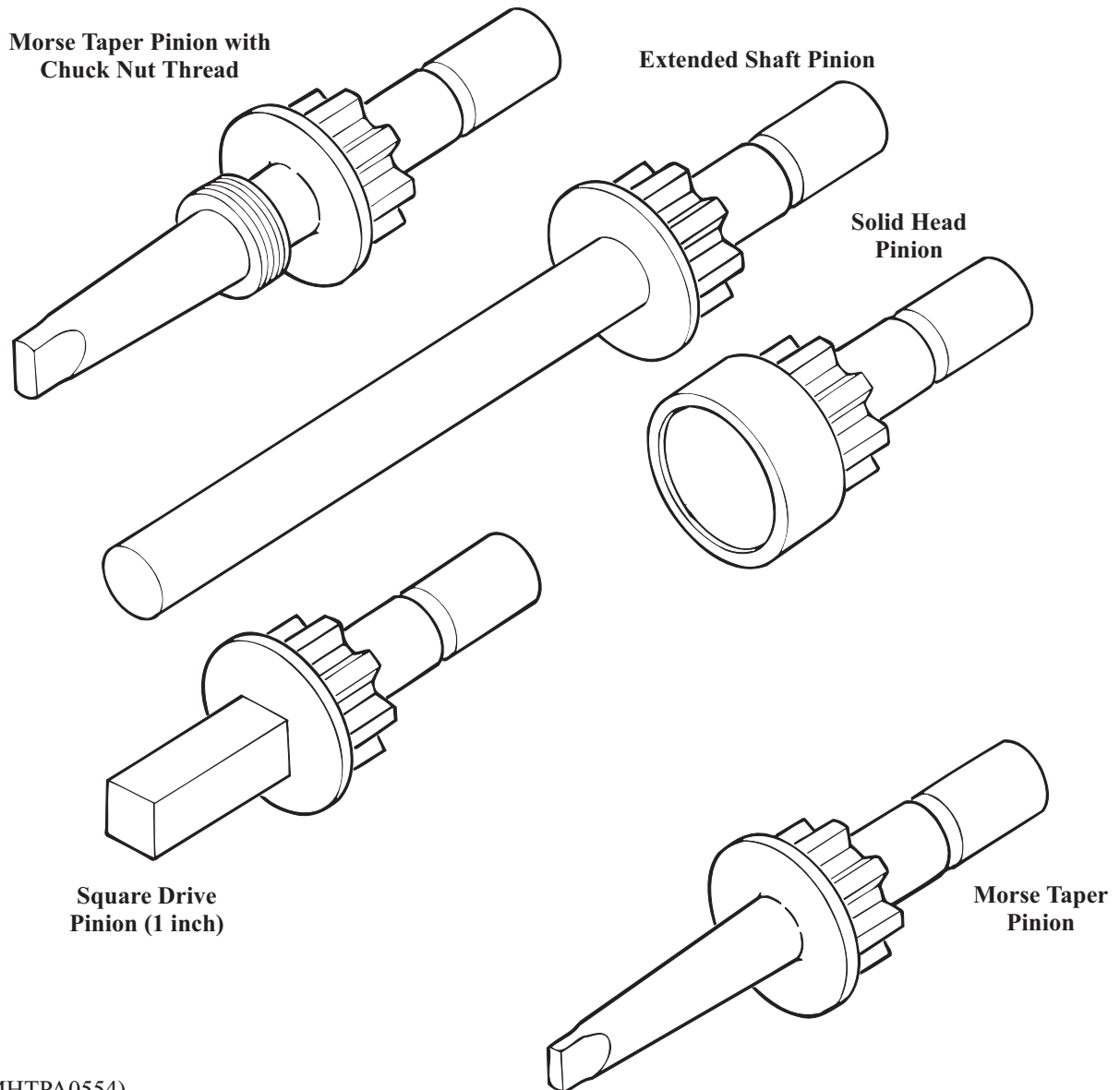
ITEM NO.	DESCRIPTION PART	OF	TOTAL QTY.	PART NO.	
				LM (2 Ton)	HM (5 Ton)
12	Gear		1	462-HM	158-HM
36	Handwheel 28 in. Dia. (optional feature)**		1	1580-2	1580-1
37*	Bushing		1	778	
38*	Sleeve Shaft		1	780B	
39*	Retainer Ring		1	71038939	
40*	Pin		1	71038947	

* Used only with optional Handwheel item 36.

** Handwheel item 36 cannot be used with standard gears item 12 part numbers 462-2 (2 Ton) and 158-2 (5 Ton) shown on page 15.

(TBL.LMHMPL3)

OPTIONS AND ACCESSORIES



(Dwg. MHTPA0554)

DESCRIPTION OF PART	PART NO.	
	LM (2 Ton)	HM (5 Ton)
Touch-Up Paint	FAP-237Y	
Lubricant	LUBRI-LINK GREEN	
Available Pinion:		
Morse Taper Pinion No.3	1942	1948
Discontinued Pinions:		
Pinions listed below and shown in Dwg. MHTPA0554 are no longer available. The part numbers listed are for reference only. Contact your distributor or Wintech International for assistance in replacing these parts.		
Extended Shaft Pinion	2833	991
Morse Taper Pinion No.3	1942	1948
Morse Taper Pinion No.3 with Chuck Nut Thread	1944	1946
Morse Taper Pinion No.4	1943	1947
Solid Head Pinion	241	894
Square Drive Pinion (1 in.)	4040	3458

(TBL.PINIONS)

SERVICE NOTES

SERVICE NOTES

PARTS ORDERING INFORMATION

The use of other than **WINTECH** replacement parts may invalidate the Company's warranty. For prompt service and genuine **WINTECH** parts, provide your nearest Distributor with the following:

1. Complete model number as it appears on the name plate.
2. Part number and part description as shown in this manual.
3. Quantity required.

The winch nameplate is located on the small frame (19).

Return Goods Policy

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

NOTICE

• **Continuing improvement and advancement of design may cause changes to this winch 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.**

Disposal

When the life of the winch has expired, it is recommended that the winch 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 warrants to the original user 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** invoice, nor should payment of the **WINTECH** 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.
5319 Shreveport/Blanchard Hwy.
Shreveport, LA. 71107**

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

