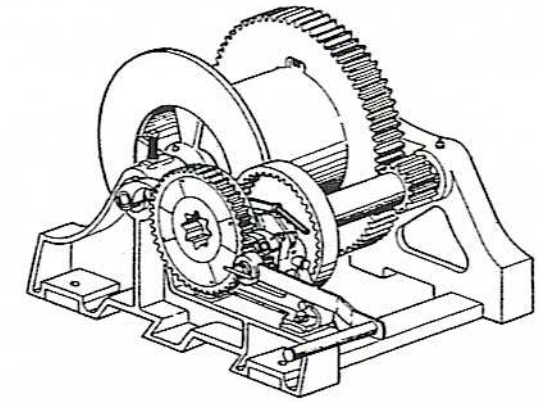
OPERATION AND MAINTENANCE MANUAL
for
HAND WINCH MODELS

R10/R10W
15 TON

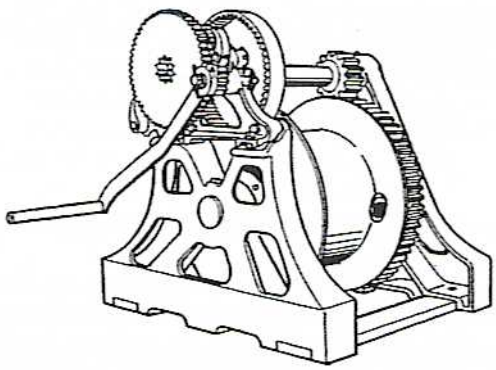
R14/R14W
10 TON

BW10/BW10W
15 TON

BW14/BW14W
10 TON



Model R



Model BW

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 International Inc. or your nearest Distributor.

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Edition 1
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WINTECH

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 must 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*** personal 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*** personal 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*** personal 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 qualified 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.

To the best of our knowledge, WINTECH INTERNATIONAL winches are manufactured in accordance with the latest standards in effect at time of manufacture.

However, contrary to common belief, the Occupational Safety and Health Act of 1970, as we understand it, generally places the burden of compliance with the user, 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.

NOTICE

Using other than genuine WINTECH INTERNATIONAL parts will result in the void of warranty.

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.

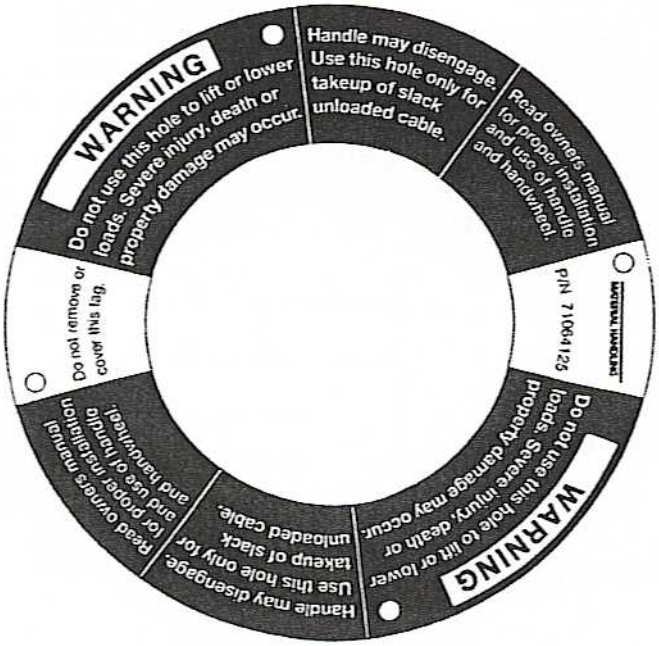
WINTECH INTERNATIONAL recognizes that most companies who use winches have a safety program in force in their plants. In the event that some conflict exists between a rule set forth in this publication and a similar rule already set by an individual company, the more stringent of the two should take precedence.

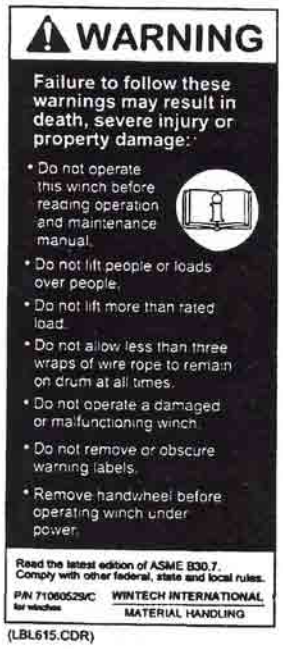
Safe Operating Instructions are provided to make an operator aware of dangerous practices to avoid and are not necessarily limited to the following list. Refer to specific sections in the manual for additional safety information.

1. Only allow qualified personnel (trained in safety and operation) to operate and maintain a 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 or damage.
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.
8. Always rig loads properly and carefully.
9. Be certain the load is properly seated in the saddle of the hook. Do not tipload 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 starting a lift. 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. After use, properly secure winch and all loads.
18. The operator must maintain an unobstructed view of the load at all times.
19. Never use the wire rope as a sling.

WARNING LABELS AND TAGS

Each winch is supplied from the factory with the warning label and tag shown. If the label or tag are not attached to your unit, order a new label or tag 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. Label and tag may not be shown actual size.





(LBL615.CDR)

SPECIFICATIONS

Model No.	Capacity 1st Layer US tons		Gear Ratio**	Static Pull (dog)	Drum Capacities (ft)***					Net Wt.
	Winching	Tightening		US tons	1/2"	5/8"	3/4"	1"	1-1/8"	(lbs)*
R10/R10W	15	20	4:1,19:1,109:1	30	1120	675	520	290	-	644
R14/R14W	10	15	4:1,19:1,109:1	30	842	510	360	218	142	683
BW10/BW10W	15	20	4:1,19:1,109:1	30	1120	675	520	290	-	758
BW14/BW14W	10	15	4:1,19:1,109:1	30	842	510	360	218	142	787

* Winch without wire rope. (Add 19 lbs. for 28 in. dia. handwheel)
** 4:1 and 19:1 ratios for fast take-up of slack unloaded line only. 109:1 ratio for winching load.
*** Drum capacities shown are for a 10 in. dia. x 12.5 in. long drum.

INSTALLATION

⚠ CAUTION

• Owners and users are advised to examine specific, local or other regulations, including American National Standard 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 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 3/4 in. (19 mm) Grade 5 or better. Use self-locking nuts or nuts with lockwashers.
5. Torque mounting bolts evenly.
6. Maintain a fleet angle between the sheave and winch of no more than 1-1/2 degrees. The lead sheave must be on a center line with the drum and for every inch of drum length 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. Minimum and maximum wire rope diameters are listed below. The maximum diameter of the wire rope is limited by the size of the wire rope anchor.

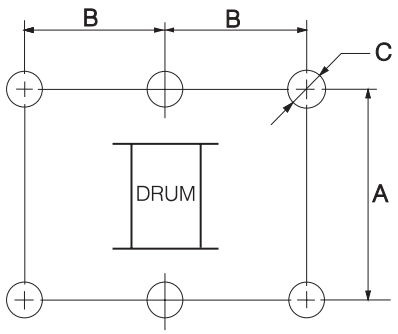
⚠ WARNING

• Check wire rope diameter provides adequete safety factor.

Model No.	Wire Rope Diameter Minimum in.	Minimum (mm)	Maximum in.	Maximum (mm)
R10/R10W	1/2	13	1	25
R14/R14W	1/2	13	1-1/8	28
BW10/BW10W	1/2	13	1	25
BW14/BW14W	1/2	13	1-1/8	28

Bolt Pattern Dimensions

Model No.	"A" in.	"A" (mm)	"B" in.	"B" (mm)	"C" in.	"C" (mm)
R10/R10W	24-5/16	618	12-5/8	321	15/16	24
R14/R14W	24-5/16	618	12-5/8	321	15/16	24
BW10/BW10W	24-5/16	618	12-5/8	321	15/16	24
BW14/BW14W	24-5/16	618	12-5/8	321	15/16	24



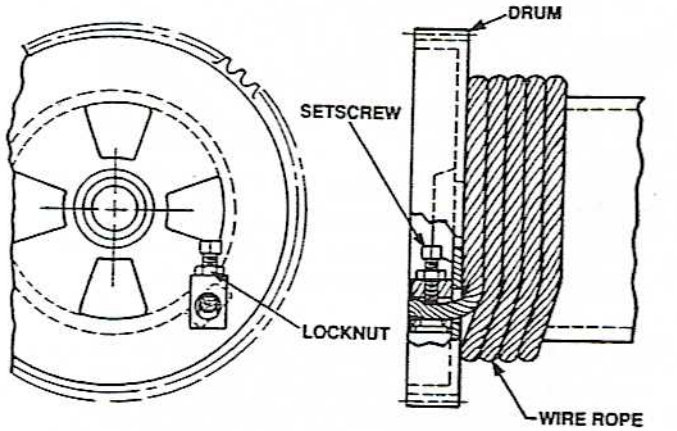
(Dwg. MHTPA0132)

Installing a Wire Rope

⚠ CAUTION

• Position the wire rope so that it comes off the top of the drum.

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



(Dwg. MHTPA0158)

2. Feed the fused end of the wire rope into the anchor hole in the drum and clamp in position with setscrew. Tighten locknut on setscrew.

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 the first layer on the drum 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. To rewind wire rope apply tension to eliminate slack. This helps achieve level winding, tight spooling and avoids “Birdnesting”.

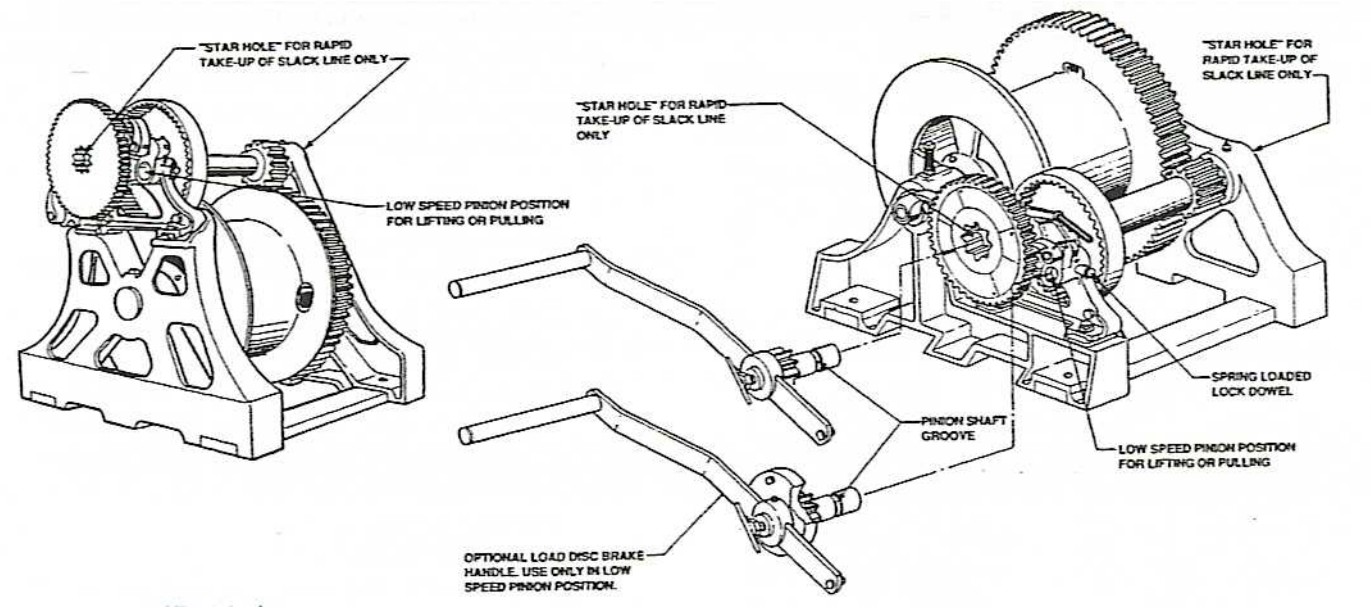
Rigging

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 manufacturers handbook for proper sizing, use and care of wire rope.

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. 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. MHTPA0162)

The four most important aspects of winch operation are:

1. Follow all safety instructions when operating the winch.
2. Allow only qualified people 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

• WINTECH INTERNATIONAL products are 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.

Handle Attachment

(ref. Dwg. MHTPB0148)

Insert handle (53) through the slot in pinion (57) and clamp in required position with lockscrew (56). Handle length is adjustable. Install handle retainer capscrew (54) and nut (55) in the hole provided at the end of handle (53) arm. Pinion (57) is retained by the spring loaded lock dowel (52) when the pinion (57) is installed in the low speed pinion position.

Operation

When lifting or pulling always:

1. Operate with handle and pinion assembly in the low speed pinion position.
2. Ensure spring loaded lock dowel (52) is engaged in the pinion shaft groove. Check that spring loaded lock dowel is fully engaged by pulling on handle and pinion assembly.
3. Engage dog before moving load.
4. For releasing or lowering load make sure handle is in low speed pinion position 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 maybe overloaded and the load must be reduced before attempting to lower. Maintain a firm grip on handle (53) with one hand and disengage dog with the other. Release or lower load slowly with two hands on handle, 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	109:1	Take-up or payout of loaded or slack wire rope.
"Star Hole" in Gear	19:1	Take-up or payout of slack wire rope only.
"Star Hole" in Cluster Shaft Assembly	4:1	Rapid take-up or payout of slack wire rope only.

Dogs

Each winch is supplied with two dogs. To determine which dog must be used to support the load check the direction of drum rotation when taking up wire rope. Use dog (47) when wire rope is overwound on the drum. For under-wound applications on Model R winches use dog (21) and on BW winches use dog (60).

To Disengage Dog

1. Hold the handle on dog and pull dog away from the frame (26).
2. Rotate the dog 45° away from the gear (31).
3. Press the dog against the frame (26).
4. Check that dog is disengaged from the teeth of gear (31) and locked into place.

To Engage Dog

1. Hold the handle on dog and pull dog away from the frame (26).
2. Release the dog. The dog spring (49) will rotate the dog toward the gear (31).
3. Press the dog against frame (26).
4. Check that dog is engaged with the teeth of gear (31) and locked into place.

Paying Out or Hauling In with Handle

When facing the gear and handle side of the winch with the handle located in the low speed pinion position:

Rotate the handle (53) clockwise to rotate the drum clockwise.

Rotate the handle (53) counterclockwise to rotate the drum counterclockwise.

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)

⚠ WARNING

• To avoid injury to personnel and damage to equipment due to a falling load, disconnect the load before disengaging the dog.

1. Make sure there is no load on the winch.
2. Remove handle.
3. Releasing the dog and brake lever (32) 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.

⚠ WARNING

• 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. dia. Handwheel

(ref. Dwg. MHTPA0125)

Handwheels are supplied assembled from the factory. The following instructions will be helpful only if the handweel has been disassembled.

1. Install retaining ring (39) on shaft (38).
2. Install shaft (38) into handwheel (36).
3. Place bushing (37) on the end of shaft (38) and install roll pin (40) through shaft (38).
4. When installing handwheel assembly in the end of the cluster shaft assembly (1) or in the gear (31) ensure threaded bore in shaft (38) engages with threaded stud.

For normal operation (winching) the handwheel is retained with the "spring loaded lock dowel", when installed in the low-speed pinion position.

⚠ WARNING

• Never attempt to raise or lower a load with the handwheel inserted in either the "star hole" at the center of the gear (31) or the cluster shaft assembly (1). These positions are for rapid take-up of slack line only.
• Before lifting, lowering or moving a load always make sure that the spring loaded lock dowel (52) is locked in by pulling on the handle (53) or handwheel (36).
• Never release the spring loaded lock dowel (52) when holding a load.

⚠ CAUTION

• Use extreme caution when using the handwheel for rapid take-up of slack wire rope with handwheel pinion inserted in the gear (31) or cluster shaft assembly (1) "star hole". Never use the handwheel in the "star hole" on a cluster shaft assembly (1) or gear (31) without a threaded stud in the "star hole" to secure the handwheel.

Disc Brake Assembly

⚠ WARNING

• Never use the load disc brake assembly in the "star hole" in the center of the gear (31) or cluster shaft assembly (1) (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 (53). When installed it will not permit the winch to freewheel for rapid wire rope take-up or pay-out.
2. Assemble the anchor bar (121) to frame (26) with capscrew (119) and lockwasher (120).
3. Install the load disc brake assembly into the regular low speed pinion position and align the anchor bracket link (126) with the anchor bar (121) on the frame (26). The anchor bracket link (126) will be in a vertical position when load disc brake is correctly installed.

4. When load disc brake is correctly positioned install the cotter pin (123) through the anchor bar (121) to secure the load disc brake assembly.
5. Check that the load disc brake assembly is fully locked in place by the spring loaded lock dowel (52). Check that spring loaded lock dowel is engaged by pulling on the handle.
6. To adjust handle length loosen lockscrew (56), set handle (53) to required position then tighten lockscrew (56).
7. 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 ratchet dog spring (112) causes the ratchet dog to engage the next tooth.
8. 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. When handle rotation ceases, tension on the wire rope will tighten the actuating screw (107) to clamp the friction discs (105) and hold the load.

NOTICE

• **The load disc brake assembly requires no adjustment.**

INSPECTION

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

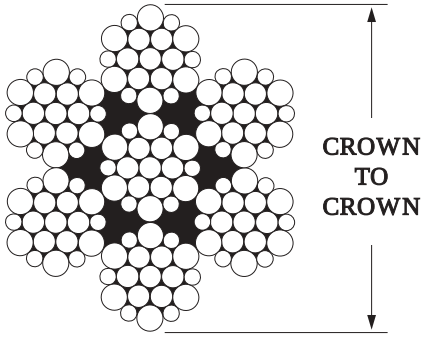
1. OPERATION. To make sure the drive mechanism operates properly, check for sticking or other signs of malfunction. Repair if necessary. Test brake operation by lifting a load 1 to 2 in. (25 to 50 mm) off the floor and check that the brake holds the load.
2. LIMIT DEVICES. If used, check that they operate 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 ANSI/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, nicking and wear of crown wires.
   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.

Periodic Inspection

According to ANSI/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 the lining is less than .062 in. (2 mm) thick anywhere along its edge. Check ability of brake to hold rated load. Adjust brake as required. Refer to brake adjustment procedures in "MAINTENANCE" section.
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 for the following:
   a. Loose or damaged connections to wire rope. Check for build-up of dirt and corrosion. Clean if necessary. 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 per wire rope anchor installation procedure.
   b. Check for changes in the size of the wire rope diameter. Measure the diameter from crown-to-crown. (See Dwg. MHTPA0056). If the nominal diameter of the wire rope has decreased more than 1/64 in. (0.4 mm), replace the wire rope.



(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 adnormal 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 brake and dogs.
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 reparied, 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 lubricants.

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 all grease fittings 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 applied. Use the same grease recommended for the gears.

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 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 adjustments or maintenance on the winch while it is supporting a load.
• Before performing maintenance, tag winch handle: DANGER - DO NOT OPERATE - EQUIPMENT BEING REPAIRED.
• Only allow qualified service personnel 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 factory replacement parts.

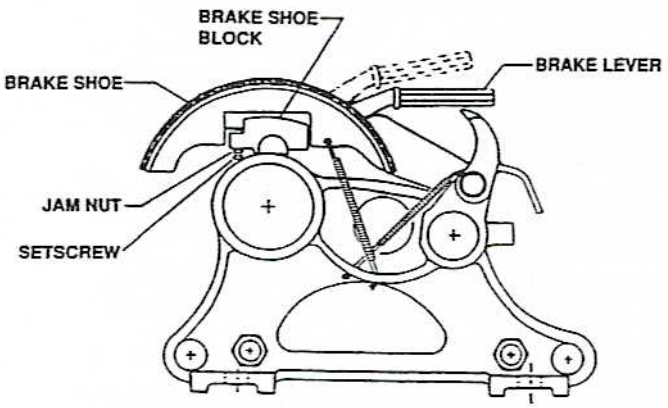
Brake

Adjustment (ref. Dwg. MHTPA0127)

1. Remove cotter pin (43) and dowel (42). Pull out gear (31).
2. Loosen nut (29) and adjusting screw (28).
3. Tighten adjusting screw (28) to increase brake torque.
4. Lock adjusting screw (28) with nut (29).
5. Replace gear (31). Secure in position with dowel (42). Install cotter pin (43) through frame (26) and dowel (42).
6. Brake is adjusted properly when drum is locked with brake lever (32) approximately 1.0 in. (25 mm) away from the stop. Drum should turn freely when brake lever is against stop and dog is disengaged.

⚠ CAUTION

• Brake shoe (34) should be replaced if lining is less than .062 in. (2 mm) thick anywhere along its edge.



(Dwg. MHTPA0127)

General Disassembly

The following instructions provide the necessary information to disassemble, inspect, repair, and assemble the winch. An exploded drawing of the winch is 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 in a clean and spacious work area.
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 torch to free it for removal, unless the part being heated is already worn or damaged beyond repair.

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

Model R Winch

(ref. dwg. MHTPB0147)

1. Remove the wire rope from the drum (6).
2. Remove the winch from its mounting and set in a clean work area.
3. Remove drum gear guard (7) if equipped.
4. Remove capscrews (10), lockwashers (12), nuts (13) and spacer washers (11). Note position and quantity of spacer washers for reassembly.
5. Unhook dog spring (49) from large dog (21).
6. Support the weight of the cluster shaft assembly (1) and remove the assembled frame (26) and set to one side for later disassembly.
7. Slide cluster shaft assembly (1) from frame (19).
8. Remove setscrews (14) and (22) in frame (19).
9. Pull large dog (21) and dog pin (20) from the end of drum shaft (18).
10. Using an overhead hoist support the weight of the drum (6) and drive out drum shaft (18). Care must be taken to avoid damage to the pins located in the end of the drum shaft.

11. Remove bushing (8) from frame (19) and bushings (5) from drum (6) only if they must be replaced

Model BW Winch
(ref. dwg. MHTPB0146)
1. Remove the wire rope from the drum (6).
2. Remove the winch from its mounting and set in a clean work area.
3. Remove drum gear guard (2) if equipped.
4. Remove capscrews (10), lockwashers (12), nuts (13) and spacer washers (11). Note position and quantity of spacer washers for reassembly.
5. Support the weight of the cluster shaft assembly (1) and remove the assembled frame (26). Set to one side for later disassembly.
6. Slide cluster shaft assembly (1) from frame (9).
7. Loosen or remove setscrews (14) in frame (9).
8. Using an overhead hoist support the weight of the drum (6) and drive out drum shaft (18).
9. Remove bushing (8) from frame (9) and bushings (5) from drum (6) only if they must be replaced.

Frame Disassembly
Model R and BW Winch
(ref. dwg. MHTPB0148)
1. Pull back on the spring loaded lock dowel (52) to remove the handle (53) and pinion assembly (57).
2. Remove cotter pin (43) and dowel (42) from the top of frame (26).
3. Pull gear (31) from the frame (26).
4. Remove cotter pins (23) and (58) from dog pin (48). Unhook springs (49) and (35).
5. Carefully tap dog pin (48) from the frame (26).
6. Remove dog (47) from dog pin (48).
7. Remove brake shoe (34), brake shoe block (33) and brake lever (32).
8. Press bushings (25), (46) and (51) out of frame (26) 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
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 lining is oil soaked, it must be replaced.

Inspection

⚠ CAUTION

• Bushings that are loose, worn or rotate in the frame or drum must be replaced. Failure to observe this precaution will result in additional component damage. (See Bushing Chart).

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

Bushing location	Bushing Item No.	Original bore size (in.)	Discard bore size (in.)
Drum (6)	5	3.204	3.28
Frame (9) or (19)	8	3.180	3.36
Frame (26)	25	3.173	3.24
Frame (26)	46	2.037	2.10
Frame (26)	51	1.437	1.50

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) at any point along its edge replace the brake shoe (34).

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

Frame Assembly

Model R and BW Winch

(ref. dwg. MHTPB0148)

1. Press new bushings (25), (46) and (51) into frame (26) so they are 1/16 in. (2 mm) below the outer surface of the frame. 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 existing grease fitting hole in frame as a guide. Install grease fittings (41) in frame (26).
2. Slide dog (47) onto dog pin (48). Align cotter pin hole in dog pin (48) with hole in frame (26) and tap dog pin into frame. Install cotter pin (23). 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 frame as a guide.
3. Connect spring (49) between dog (47) and frame.
4. Install setscrew (28) and nut (29) in brake shoe block (33). Assemble brake lever (32), brake shoe block (33) and brake shoe to frame (26) so the pivot hole in the brake shoe fits on the dog pin (48). Secure in position with cotter pin (58).
5. Connect spring (35) from brake shoe (34) to frame (26). Install spring loaded lock dowel (52) in large frame (26) and secure with cotter pin (43). Cotter pin (43) must pass through slot and between spring coils in the spring loaded lock dowel (52).

⚠ CAUTION

• The flat of the 90 degree cut out in the spring loaded lock dowel (52) must face toward the drum.

6. Install gear (31) in frame (26). Install dowel (42) so the flat of the 90° cut out faces toward the drum. Secure in position with cotter pin (43).
7. Check movement of dog (47) and that it freely clicks into position against the teeth on the gear (31).
8. Adjust brake shoe in accordance with instructions for drum brake adjustment in the "MAINTENANCE" section.
9. Install pinion (57) in frame (26). Ensure the spring loaded lock dowel (52) is fully engaged in the pinion shaft groove.
10. Lubricate all grease fittings as instructed in the "LUBRICATION" section.
11. Install handle (53) through the slot in the pinion (57), adjust to the required length and clamp in position with lockscrew (56). Install handle retainer capscrew (54) and nut (55) in the end of handle (53).

Model R Winch

(ref. dwg. MHTPB0147)

1. Press new bushings (5) into the drum (6) if they are being replaced. Install bushings (5) so lubrication hole lines up with grease fitting hole in drum. Check drum shaft (18) slides into bushings (5) without binding.
2. Using an overhead hoist position the drum (6) in frame (19) and install drum shaft (18) through drum and frame. Install drum shaft (18) so the end with the drilled hole is on the side where frame (26) will mount.
3. Rotate drum shaft (18) to align locating hole with setscrew (22). If a new drum shaft is being installed use the setscrew hole in frame (19) as a guide to mark the position of locating hole. Remove drum shaft. Drill one 0.781 in. (20 mm) diameter hole deep enough for it to fully break through into the cross hole. Reinstall the drum shaft.
4. Install dog (21) on dog pin (20) and press dog pin into the end of drum shaft (18). Lock drum shaft (18) and dog pin (20) in position with setscrew (22). Tighten setscrews (22) and (14) and locknuts (15). Connect dog spring (49).
5. Press new bushing (8) into frame (19) if it is being replaced. Check bore to ensure bushing does not restrict the grease fitting passage. If needed drill a 1/8 in. (3 mm) diameter hole through the bushing to provide a grease passage. Use existing grease fitting hole in frame as a guide. Install grease fittings (41) in frame (19).
6. Install cluster shaft assembly (1) in frame (19).
7. Support cluster shaft assembly (1) and install pre-assembled frame (26).
8. Secure in position with capscrews (10), lockwashers (12), nuts (13) and spacer washers (11). Position spacer washers as noted on disassembly. Check cluster shaft assembly and gear rotate freely and do not interfere with frame. Adjust spacer washers (11) to provide correct clearance.
9. Install drum guard (7) if equipped.

Model BW Winch

(ref. dwg. MHTPB0146)

1. Press new bushings (5) into the drum (6) if they are being replaced. Install bushings (5) so lubrication hole lines up with grease fitting hole in drum. Check drum shaft (18) slides into bushings without binding.
2. Using an overhead hoist position the drum (6) in frame (9) and install drum shaft (18) through drum (6) and frame (9).
3. Lock drum shaft in position with setscrews (14). Tighten locknuts (15).
4. Press new bushing (8) into frame (9) if it is being

replaced. Check cluster gear shaft (1) slides into bushing (8) without binding. Check bore to ensure bushing does not restrict the grease fitting passage. If needed drill a 1/8 in. (3 mm) diameter hole through the bushing to provide a grease passage. Use existing grease fitting hole in frame as a guide. Install grease fittings (41) in frame (9).

5. Install cluster shaft assembly (1) in frame (9).
6. Support cluster shaft assembly (1) and install pre-assembled frame (26).
7. Secure in position with capscrews (10), lockwashers (12), nuts (13) and spacer washers (11). Position spacer washers as noted on disassembly.
8. Install drum guard (2) if equipped.

Test Check

Check that all warning labels and tags are attached to the winch and clearly visible. Inspect guards for proper installation. Check all fasteners are secure.

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

PARTS ORDERING INFORMATION

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

1. Complete model number: R10/R10W, R14/R14W, BW10/BW10W or BW14/BW14W.
2. Part number and part description as shown in this manual.
3. Quantity required.

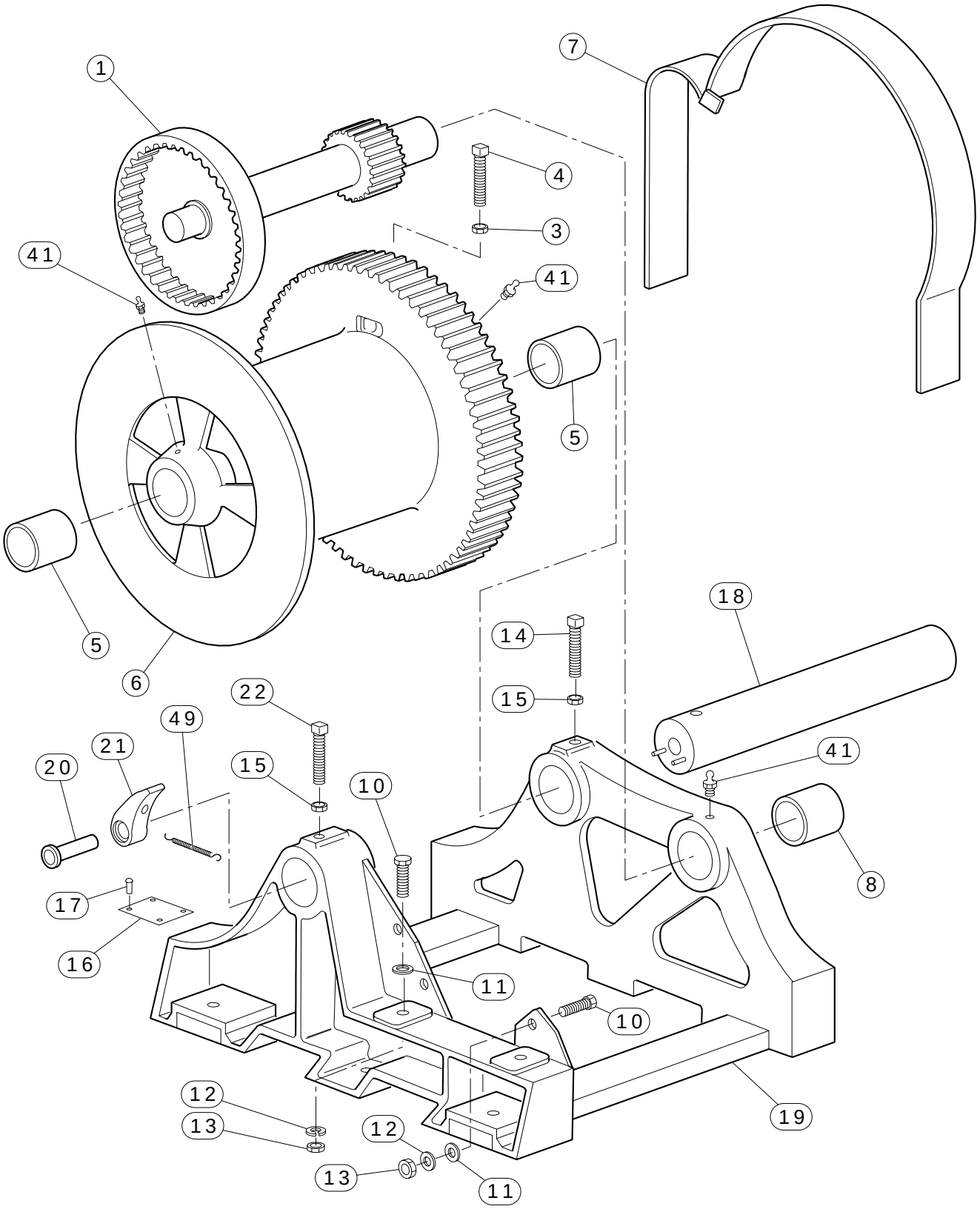
Return Goods Policy

WINTECH Interna-

NOTICE

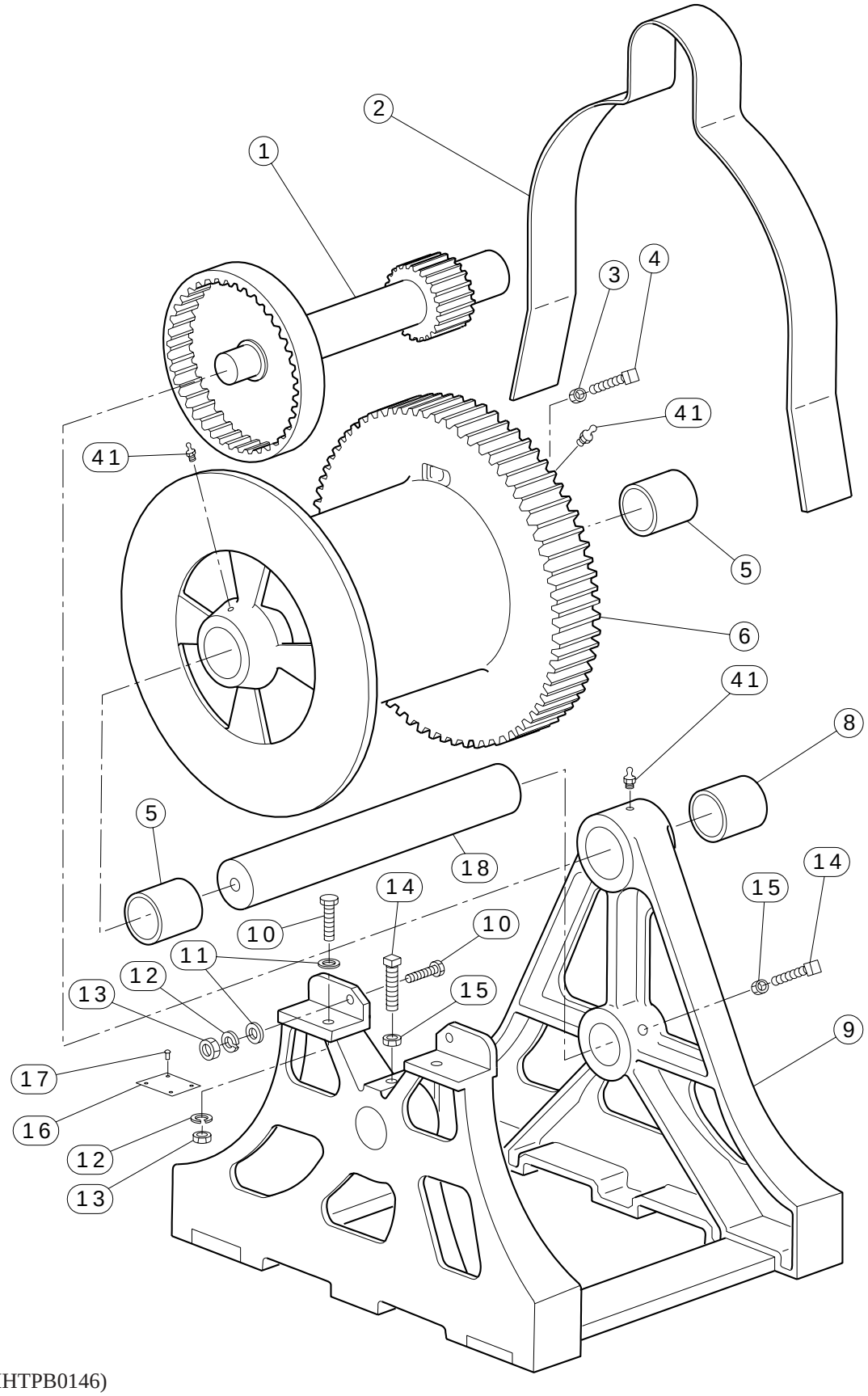
• Continuing improvement and advancement of design may cause changes to this winch which are not included in this manual. Manuals are periodically revised to incorporate changes. Always check the manual edition number on the front cover for the latest issue.

R WINCH ASSEMBLY DRAWING



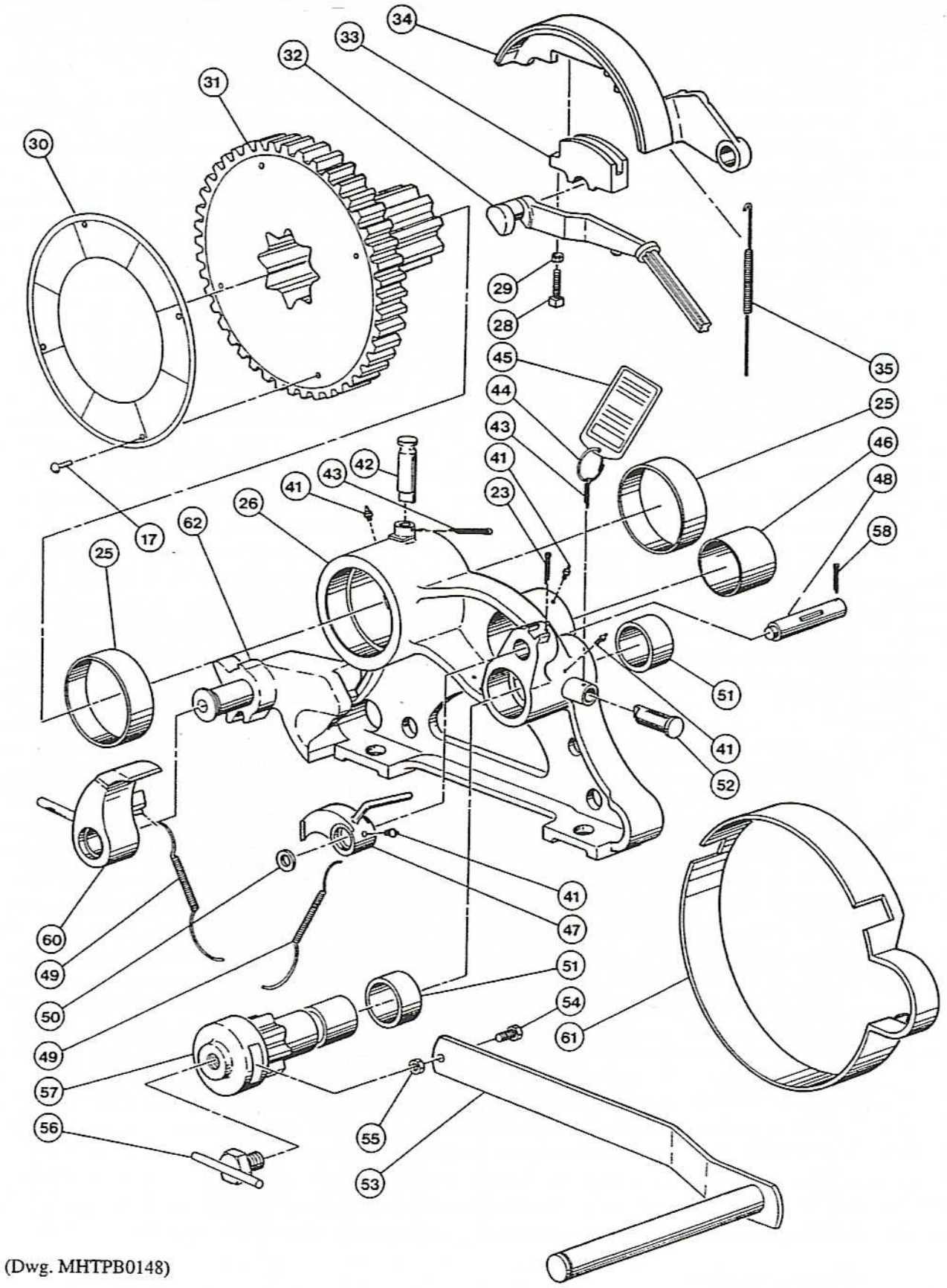
(Dwg. MHTPB0147)

BW WINCH ASSEMBLY DRAWING



(Dwg. MHTPB0146)

R AND BW WINCH ASSEMBLY DRAWING



(Dwg. MHTPB0148)

WINCH ASSEMBLY PARTS LIST

ITEM NO.	DESCRIPTION OF PART	TOTAL QTY.	PART NO.	
			R	BW
1	Cluster Shaft Assembly (12.5 in long drum)	1	255-1	255-1
	Cluster Shaft Assembly (20 in long drum)		255-2	255-2
	Cluster Shaft Assembly (35 in long drum)		255-3	255-3
	Cluster Shaft Assembly (60 in long drum)		255-4	255-4
2	Gear Guard	1	---	148-1
3	Nut	1	52255	52255
4	Cable Anchor Setscrew	1	52254	52254
5	Bushing	2	1289-1	1289-1
6	Drum (10 in dia. x 12.5 in long)	1	246-1	246-1
	Drum (10 in dia. x 20 in long)		246-2	246-2
	Drum (10 in dia. x 35 in long)		246-3	246-3
	Drum (10 in dia. x 60 in long)		246-4	246-4
	Drum (14 in dia. x 12.5 in long)		247-1	247-1
	Drum (14 in dia. x 20 in long)		247-2	247-2
	Drum (14 in dia. x 35 in long)		247-3	247-3
	Drum (14 in dia. x 60 in long)		247-4	247-4
7	Drum Gear Guard	1	148	---
8	Bushing	1	1289-2	1289-2
9	Frame (12.5 in long drum)	1	---	1295-1
	Frame (20 in long drum)		---	1295-2
	Frame (35 in long drum)		---	1295-3
	Frame (60 in long drum)		---	1295-4
10	Capscrew	4	50892	50892
11	Spacer Washer	As Req'd	71053904	71053904
12	Lockwasher	4	50203	50203
13	Nut	4	50913	50913
14	Setscrew	See ( )	71064737 (1)	71064737 (2)
15	Nut	2	50159	50159
16	Nameplate	1	T51	T51
17	Drive Screw	8	50915	50915
18	Drum Shaft (12.5 in long drum)	1	683-1	681-1
	Drum Shaft (20 in long drum)		683-2	681-2
	Drum Shaft (35 in long drum)		683-3	681-3
	Drum Shaft (60 in long drum)		683-4	681-4
19	Frame (12.5 in long drum)	1	1297-1	---
	Frame (20 in long drum)		1297-2	---
	Frame (35 in long drum)		1297-3	---
	Frame (60 in long drum)		1297-4	---
20	Large Dog Pin	1	23	---
21	Large Dog	1	22-A	---
22	Setscrew	1	71064745	---
23	Cotter Pin	1	51021	51021
25	Large Gear Bushing	2	1288-6	1288-6
26	Frame	1	1300	1300-B
28	Adjusting Screw	1	54691	54691
29	Nut	1	50161	50161
30	Warning Label	1	71064125	71064125
31	Gear	1	158-2	158-2

Recommended Spare

WINCH ASSEMBLY PARTS LIST

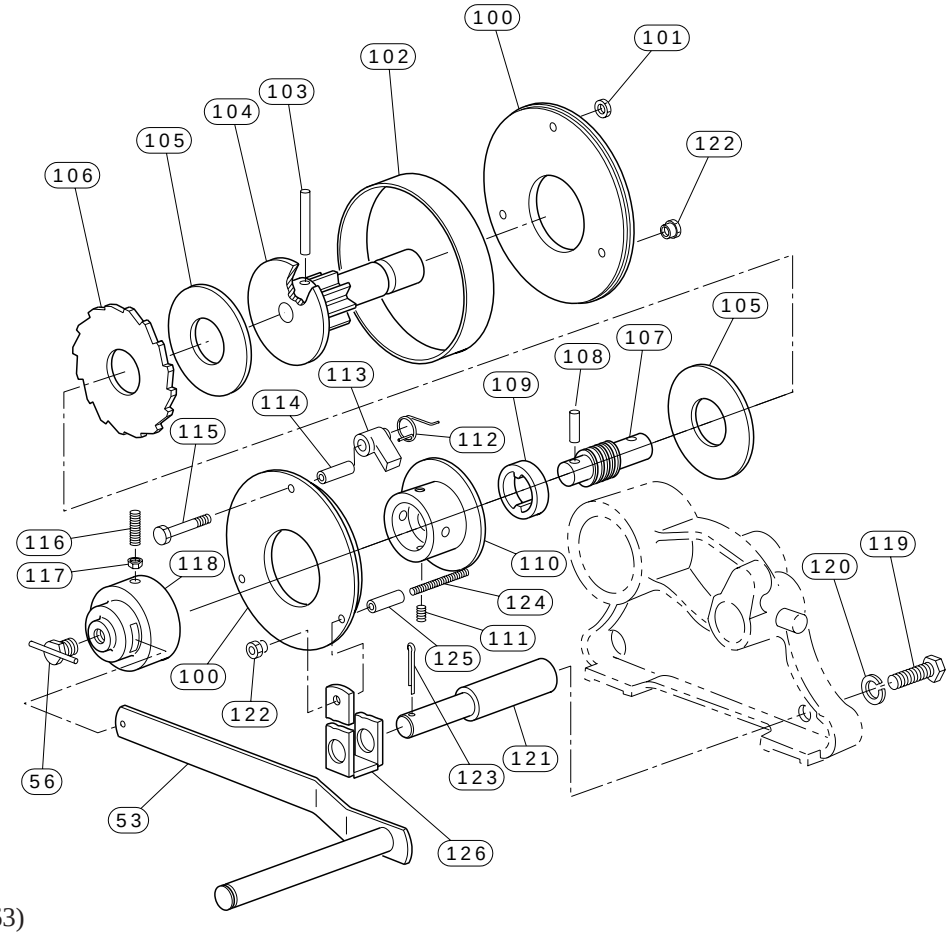
ITEM NO.	DESCRIPTION OF PART	TOTAL QTY.	PART NO.	
			R	BW
32	Brake Lever	1	1307	1307
33	Brake Shoe Block	1	937	937
34	Brake Shoe	1	2203	2203
35	Brake Spring	1	1352	1352
41	Grease Fitting	See ( )	53839 (8)	53839 (7)
42	Dowel	1	290-B	290-B
43	Cotter Pin	2	54165	54165
44	Label Ring	1	50040	50040
45	Warning Tag	1	71056410	71056410
46	Cluster Shaft Bushing	1	1288-5	1288-5
47	Dog	1	Not sold separately	
48	Dog Pin	1	39	39
49	Dog Spring	2	1353	1353
50	Spacer Washer	1	50918	50918
51	Pinion Bushing	2	1288-4	1288-4
52	Spring Loaded Lock Dowel	1	303	303
53	Handle	1	286	286
54	Capscrew	1	52856	52856
55	Nut	1	53541	53541
56	Lockscrew	1	239	239
57	Pinion	1	165B	165B
58	Cotter Pin	1	54447	54447
60	Reverse Dog	1	---	367
61	Gear Guard	1	249	249
62	Reverse Dog Bracket	1	---	Not sold separately

Recommended Spare

ASSEMBLIES

DESCRIPTION OF PART	PART NO.	
	R	BW
Pinion and Handle Assembly (Incl's items 53 thru 57)	289	289
Brake Assembly (Incl's items 28, 29 and 32 thru 35)	796	796
Dog Assembly (Incl's items 41, 47 thru 50 and 58)	795	795
Load Disc Brake Assembly (Incl's items 53, 56 and 100 thru 126)	3677	3677

LOAD DISC BRAKE ASSEMBLY PARTS LIST



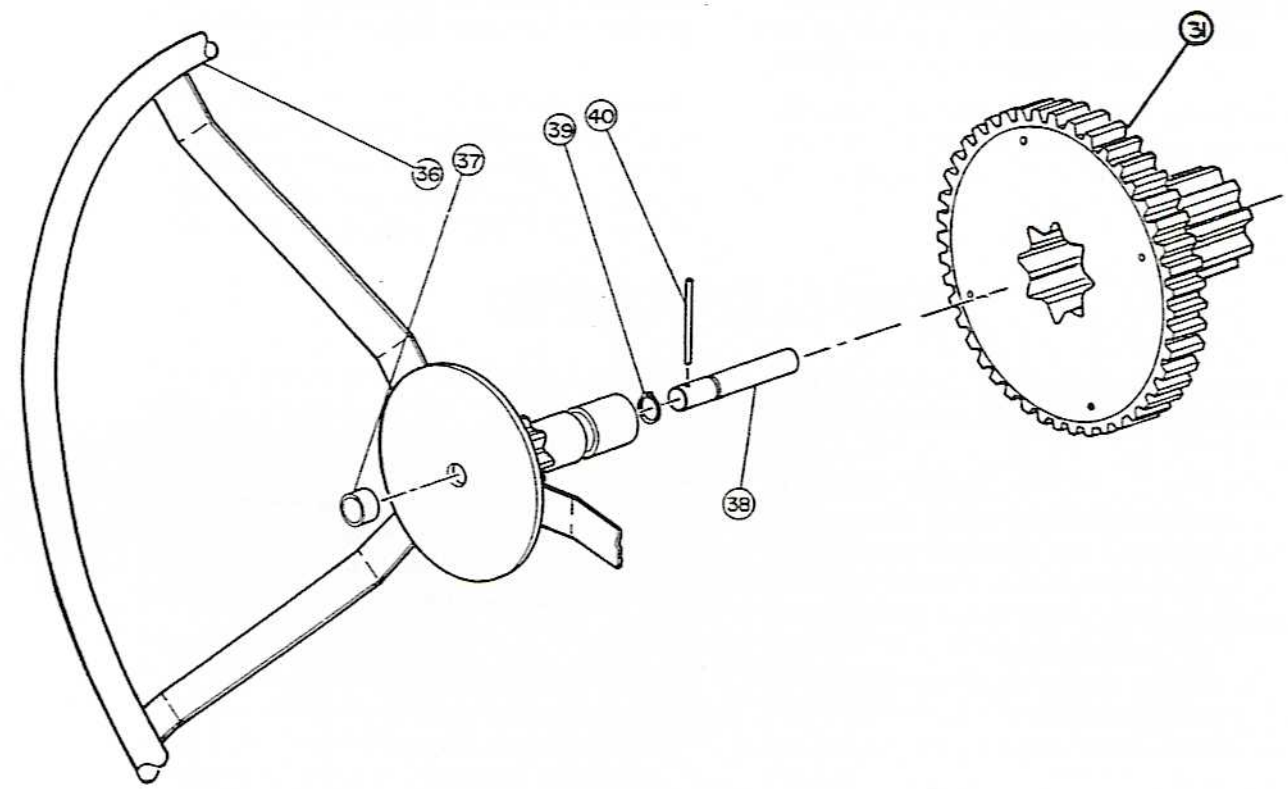
(Dwg. MHTPA0163)

ITEM NO.	DESCRIPTION OF PART	TOTAL QTY.	PART NO.
	Load Disc Brake Assembly	1	3677
53	Handle	1	286
56	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	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

ITEM NO.	DESCRIPTION OF PART	TOTAL QTY.	PART NO.
115	Capscrew	2	52831
116	Setscrew	1	54173
117	Nut	1	50198
118	Handle Socket	1	1990
119	Capscrew	1	71068761
120	Lockwasher	1	71027734
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
127*	Handwheel 28 in. Dia. (Optional)	1	3628

* Not Shown. Handwheel replaces items 53, 56 and 118 when used.

R AND BW HANDWHEEL ASSEMBLY



(Dwg. MHTPA0125)

ITEM NO.	DESCRIPTION OF PART	TOTAL QTY.	PART NO.
31	Gear	1	158-HM
36	Handwheel 28 in. dia. (Optional)	1	1580-1
37*	Bushing	1	778
38*	Shaft	1	780
39*	Retainer Ring	1	71038939
40*	Pin	1	71038947

* Used only with optional handwheel item 36.

SERVICE NOTES

HOIST AND WINCH LIMITED WARRANTY

Wintech International 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 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.

5319 Shreveport/Blanchard Hwy.
Shreveport, LA. 71107

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