

COLUMBIA

WINCHES & HOISTS

Manufactured by Allied Power Products, Inc.

HOOK-MOUNTED WIRE ROPE HOIST

With Control Pendant & Power Cord

**Models: HMH-230, HMH-450,
HMH-600, HMH-750**

ASSEMBLY AND OPERATING INSTRUCTIONS

FEATURES

- Rated to lift loads vertically
- Unique bail and safety latch mount
- Automatic, load suspending brake
- Secondary ratchet & pawl brake
- 115 or 230 VAC 1Ø power
- Upper and lower limit sensors
- Latching swivel hook
- Push-button pendant control

CAUTION:

The final determination as to the suitability of this product for any purpose is solely that of the user.

Columbia products are not to be used to lift or move people or to lift anything over people.





WARNING

DO NOT WORK, WALK OR STAND UNDER AN OPERATING HOIST.

ALWAYS STAND CLEAR OF WIRE ROPE WHILE LIFTING.

DO NOT TRY TO GUIDE WIRE ROPE WHILE OPERATING.

DO NOT EXCEED MAXIMUM LINE PULL RATINGS SHOWN IN TABLE.

DO NOT USE HOIST TO LIFT, SUPPORT, OR OTHERWISE TRANSPORT PEOPLE.

A MINIMUM OF 5 WRAPS OF WIRE ROPE AROUND THE DRUM IS REQUIRED TO HOLD THE RATED LOAD.

BEFORE LIFTING, TEST THE BRAKING PERFORMANCE.

NEVER USE THE HOISTING WIRE ROPE AS A SLING AROUND THE LOAD TO BE LIFTED. ONLY USE THE SWIVEL HOOK.

Installation Precautions

DO NOT operate hoist in temperatures below 15°F (-10°C) or above 105°F (40°C), in humidity above 90%, in heavy acid or salty conditions—component malfunction can occur.

DO NOT operate hoist in rain or snow—rusting or short circuiting can result.

DO NOT operate hoist in an environment of organic chemistry, explosive powder, heavy general powder—an explosion or performance malfunction can occur.

HMH-Series Performance

Calculated performance based on intermittent duty cycles.

HMH-230: Calculated Performance

Layer	Capacity	Line Speed	Rope
	lbs	fpm	feet
1	230	73.8	8
2	209	83.7	17
3	190	91.9	27
4	176	99.7	37
5	162	107.9	49
6	151	116.1	61
7	141	123.0	79

HMH-450: Calculated Performance

1	450	57.4	11
2	412	63.2	24
3	377	68.9	37
4	347	74.6	52
5	322	80.4	68
6	301	86.1	85
7	282	90.2	102

HMH-600: Calculated Performance

1	600	36.9	11
2	560	42.2	23
3	510	46.3	36
4	470	50.4	50
5	435	54.5	65
6	405	57.4	82

HMH-750: Calculated Performance

1	750	36.9	12
2	715	39.8	25
3	656	43.5	38
4	607	46.8	54
5	565	50.4	70
6	528	53.3	82

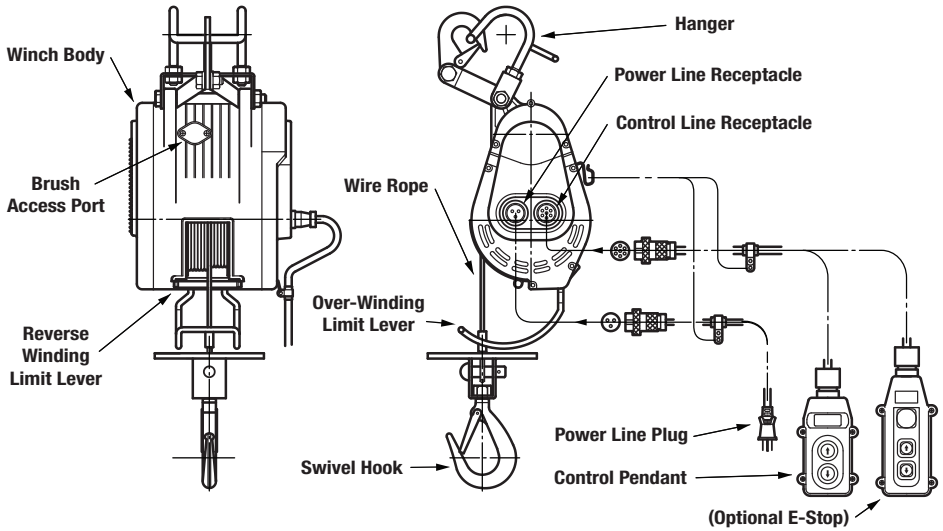


CAUTION

The amount of wire rope on the drum affects the performance of the unit. Line-pull decreases with each additional layer of wire rope wound on the drum. Line-speed increases with each additional layer of wire rope wound on the drum.

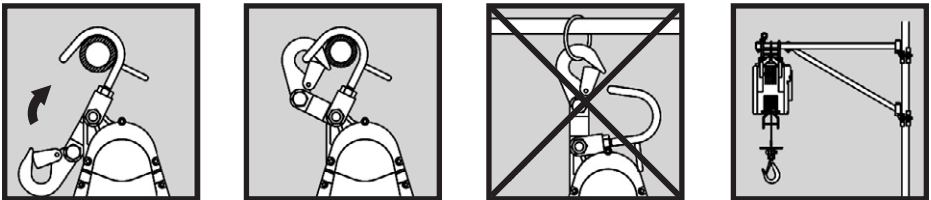
Assembly & Mounting

WINCH ASSEMBLY



MOUNTING

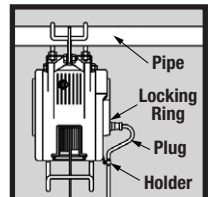
This HMH series hoist is designed to only be hanged or mounted on a firm and stable bar or bracket that will support the intended load. The hanger must be locked for safety. When hanging, do not allow the swivel hook or load to be caught by any framework, or other obstruction.



CONNECT POWER & CONTROL LINES

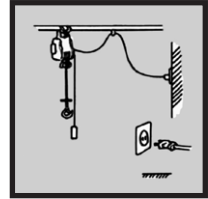
Insert the power line and control pendant connectors into the appropriate receptacles of the winch. Tighten each by turning the locking ring clockwise.

Be sure to secure the cords by a holder. Do not allow the cords to be caught by the wire rope and drum.



Using a power cord longer than the one provided may subject the motor to a damaging voltage drop. If using an extension cord, be sure to use one with the proper amperage rating. If over 50 foot long, an extension with a larger gauge will help prevent a loss of power.

To prevent the risk of electric shock, the power plug must be inserted into a properly grounded outlet.



Operation

PREPARATION BEFORE WORKING

Be sure to carefully check all safety and environmental conditions are okay before use.

The wire rope anchor, which attaches the first wrap of the wire rope to the drum, is not designed to hold rated loads. Keep a minimum of (5) five wraps of wire rope on the drum at all times to achieve rated load.

During operation, never let the wire rope rub against sharp edges that might damage its strands. Wire rope should be replaced and not be used again if it shows signs of excessive wear, too many broken wires, corrosion or other defects. Contact your dealer for replacement parts.

Make sure to connect the main power source and grounding at the correct voltage. (Malfunction may occur if input voltage is out of the rated voltage by +/- 10%.)

Never lift weight exceeding the rated load.

PROPER LATCHING TECHNIQUE

Always be sure your rope or line is centered on the swivel hook as shown. Never use the hoisting wire rope as a sling around the load to be lifted.

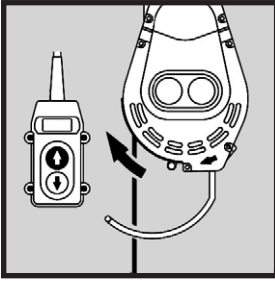


CAUTION

Prior to lifting, be sure to test the performance of the brake. If the brake malfunctions in any way, stop operating immediately.

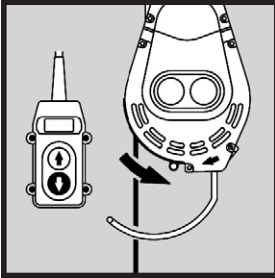
If any strange noise or vibration is heard, stop operating immediately.

Always maintain control. Do not leave a suspended load unattended.



LIFTING

To lift a load, press the ▲ button on the control pendant and the drum will rotate as shown in the illustration at right. When the button is released, the drum will stop moving.



LOWERING

To lower a load, press the ▼ button on the control pendant and drum will rotate as shown in the illustration at right. When the button is released, the drum will stop moving.

BRAKING

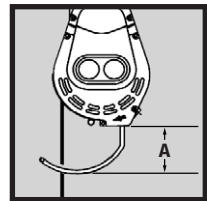
This hoist utilizes a mechanical brake and an electrically generated brake. Distance from the time of braking until stopping completely should be within 1.5% of rope length to that wound in during 1 minute.



OVER-WINDING PREVENTION

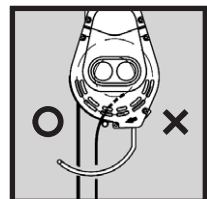
Over-winding when lifting is prevented by limit lever. When the swivel hook touches the limit lever, lifting is automatically stopped. However, if the limit lever is set too close to the hoist body, it will cause serious damage to the hoist.

A suggested distance (A) between the limit lever and the hoist body is 3 1/8—4 in. for **HMH-230** and 2 3/4—3 1/2 in. for **HMH-450**, **HMH-600**, and **HMH-750**. Adjust if necessary.

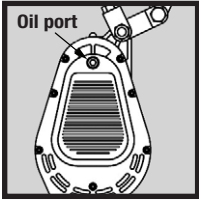


REVERSE-WINDING PREVENTION

When lowering and a wire rope is fully extended, the wire rope will be shifted from position **O** to **X**. When a wire rope touches the over-winding limit lever, the hoist will automatically stop. Return the wire rope to the position of **O** by pulling the rope and pressing the ▲ button on the control pendant until the rope begins winding onto the drum in the **O** position.



Lubrication and Servicing



LUBRICATING YOUR HOIST

Your hoist has been pre-lubricated at the factory and does not require initial lubrication. Re-lubrication interval depends upon the amount of use. Oil replenishment can generally be performed once a year with an average duty cycle.

Using an appropriate gear oil such as Caltex Multifak EP or Cosmogeart SP460, apply through the oil port indicated in the illustration the following amount: $3\frac{1}{3}$ ounces for **HMH-230** and $8\frac{1}{2}$ ounces for **HMH-450**, **HMH-600**, and **HMH-750**.

INSPECT AND CLEAN WIRE ROPE

The wire rope should always be inspected before using the hoist, and cleaned before storage. Any dirt, corrosion or surface rust should be cleaned off with a wire brush. If necessary, lubricate the surface of the rope with a rag soaked with a light-weight oil.

WIRE ROPE REPLACEMENT

If any of the following damage is noted during inspection of the rope, replacement with a new rope is recommended.



Kinked wire rope



Bent wire rope



Birdcaging

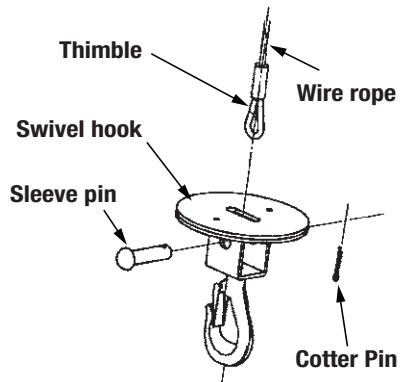
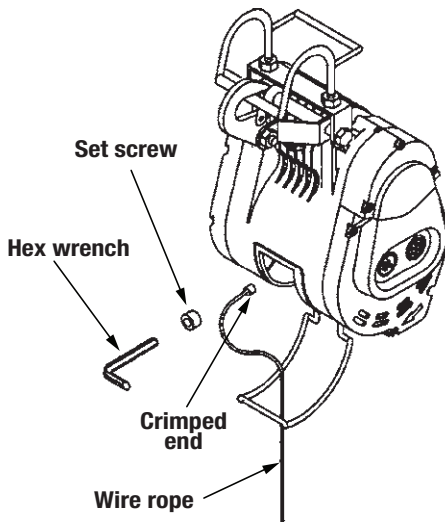
Also replace the wire rope if inspection reveals:

- Broken wires or strands
- Excessive corrosion
- Heat damage (indicated by discolored wires)
- Diameter of the wire is visibly reduced
- Any other distortion of the structure

When installing a new wire rope, first remove the old rope. Pass the crimped end of the new rope through the limit lever and insert it into the hole of the drum. Place set screw into the hole of the drum and tighten it with a hex wrench. Press the ▲ button to rotate the drum in the lifting direction.

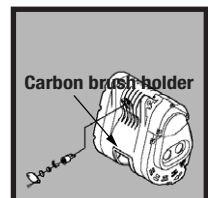
Next, pass the new wire rope through the hole of the round plate of the swivel hook and insert the sleeve pin through the thimble of wire rope. Insert cotter pin through the sleeve pin and bend it over with pliers to secure it.

Wind wire rope evenly onto the drum.



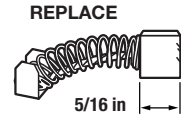
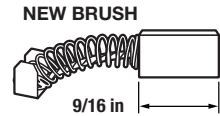
CARBON BRUSH REPLACEMENT

It is essential to check the carbon brush periodically. If its remaining length is less than 5/16 inch as a result of wear, it is necessary to replace it immediately before using the hoist.



When replacing, carefully insert the new carbon brush into the holder in the same position, then place the cap into the hole. Making sure the O-ring is positioned correctly, tighten the cap.

There is a set two of carbon brushes on opposite sides of the hoist body. Both must be replaced at the same time.



CAUTION

Clean the accumulation of powder from the carbon brush periodically to maintain the insulation resistance up to 1MΩ.

BRAKE ADJUSTMENT

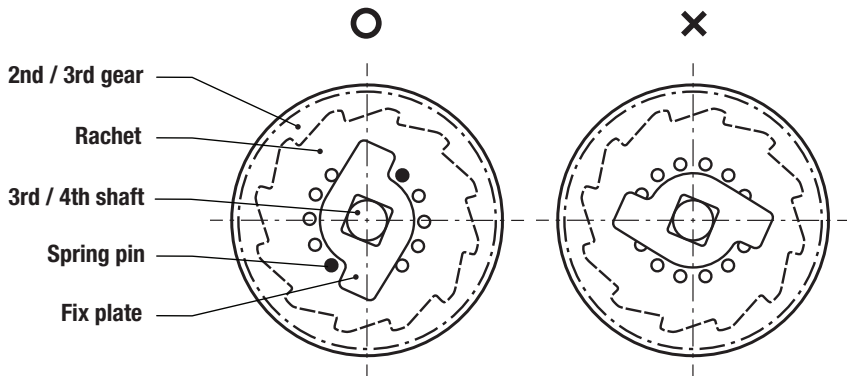
It is recommended that any adjustments are done by a qualified technician.

Step 1. Remove retaining ring and spring pin.

Step 2. Tighten 2nd gear/3rd shaft for **HMH-230** or 3rd gear/4th shaft for **HMH-450/600/750** counter-clockwise until holding to the ratchet.

Step 3. Find the closed pole between spring pins and place fix plate, then put fix plate onto the square hole of the 3rd or 4th shaft.

Step 4. Insert spring pins and lock retaining ring.



Winching Principles

PERCENTAGE OF DUTY CYCLE

The life of the hoist is dependant on the conditions of the load and working frequency. Make sure to use the hoist within its short time ratings. Short time ratings means the working duty cycle (%ED) is subject to the rated voltage, rated frequency and a 63% of rated load. All HMS series hoists are rated 25% percentage duty cycle (%ED).

$$\text{Percentage duty cycle (\%ED)} = \frac{T_b}{T_b + T_s} \times 100 (\%)$$

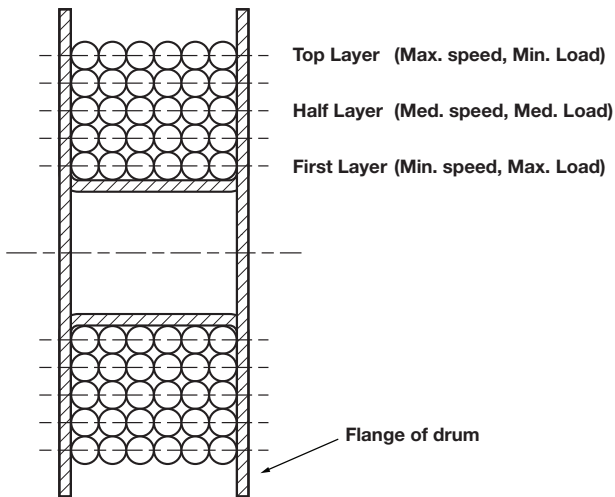
T_b: total sum of overall loadings operating hours.

T_s: total sum of stopping hours.

T_b + T_s = approximately 1 to 10 min.

LOAD RATING

Load and speed vary according to how much wire rope is on the drum. The first layer of rope on the drum delivers the slowest speed and the maximum load. A full drum delivers the maximum speed and the minimum load.



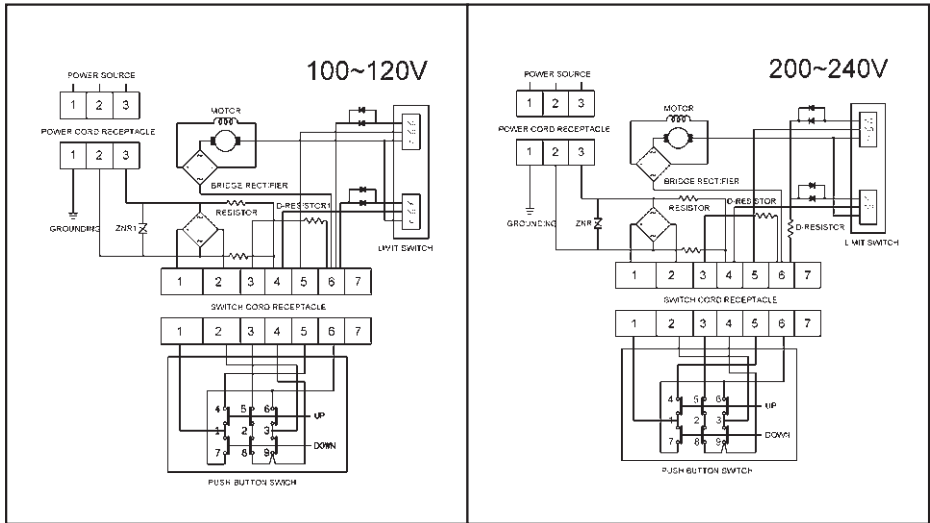
Trouble Shooting

Check the hoist for smooth operation by pressing the ▲ and ▼ buttons of the control pendant. If the hoist fails to start after several attempts, or if any other issues occur, check the table below.

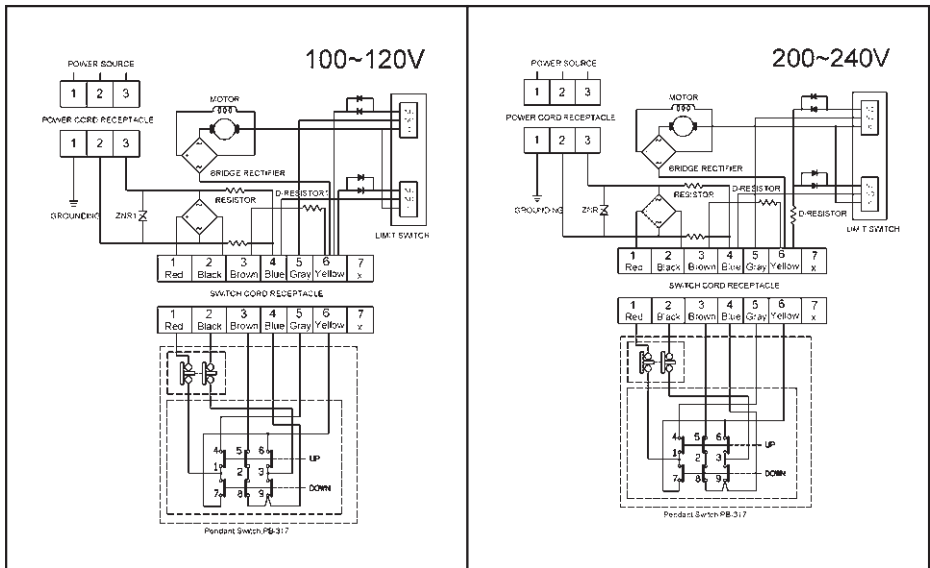
SYMPTOM	POSSIBLE CAUSE	SOLUTION
No reaction after pressing the buttons of control pendant	No power	Check power source
	Disconnection of plug, power cord or control pendant cord	Repair or replace
	Burnt or communicated motor resulting from overload	Replace
	Burnt diode ass'y.	Replace
		Clean motor
	Considerable voltage drop	Adjust to rated voltage
Carbon brush wear	Replace brush set	
Braking distance too long	Wearing of lining, pressed plate and pawl	Replace
	Disconnection of electronic generated feed-back braking	Repair nut and cord
	Too high voltage	Replace D type resistor
No over-winding prevention when swivel hook touches limit lever	Disconnection of electronic generated feed-back braking	Repair nut and cord
	Malfunction of limit switch	Replace
Lifting speed too slow	Overload	Reduce load
	Considerable voltage drop	Adjust to rated voltage
Check the power cord and/or extension cord		
Electricity leakage or shock	Burnt motor resulting from overload	Replace motor
	Wearing of carbon brush	Replace carbon brush and clean carbon powder left in the motor
	Water entered motor or control pendant	Allow it to dry completely
Replace motor if too much water has entered		
Abnormal sound in gear box	Insufficient oil resulting from oil leakage	Replace oil seal
		Fill with sufficient oil
	Distortion of gear box	Repair

Wiring Diagram

STANDARD VERSION



CONTROL PENDANT WITH EMERGENCY STOP



TWO YEAR LIMITED WARRANTY

Columbia Winch & Hoist warrants the products it manufactures to be free from defects in material and workmanship to the original buyer for a period of 24 MONTHS from the date of shipment from Columbia Winch & Hoist. All warranties for products sold but not manufactured by Columbia Winch & Hoist are solely that of the manufacturer.

This warranty and liability of Columbia Winch & Hoist is limited to the replacement or repair of any product manufactured by Columbia Winch & Hoist if the product is found – upon examination at our facility – defective due to materials or workmanship. All freight, removal and/or installation charges shall be borne by the Buyer.

This warranty does not cover failures or malfunctions found by Columbia Winch & Hoist to result from:

- Improper installation, operation and/or maintenance of the product.
- Replacements, repairs and/or alterations made by or on behalf of the buyer without written approval from Columbia Winch & Hoist.
- Use of accessories and/or other components in conjunction with the product without written approval from Columbia Winch & Hoist.

COLUMBIA WINCH & HOIST SHALL NOT IN ANY EVENT BE HELD LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGE OR FOR EXPENSES OR DELAY CAUSED BY DEFECTIVE MATERIAL OR WORKMANSHIP.

Except for the above warranty, Columbia Winch & Hoist makes no other express or implied warranties and NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

This warranty shall be governed by and construed in accordance with the laws of the State of Oregon and enforced in Oregon courts. If any portion of this limited warranty and limitation on damages is determined to be invalid or unenforceable, the remainder of the warranty shall remain in full force and effect.

All warranty claims must be submitted to Columbia Winch & Hoist in writing to:

Allied Power Products, Inc.
6590 SW Fallbrook Place
Beaverton, OR 97008

WARNING: Our products are not to be used to lift or move people or to lift anything over people.

Columbia Winch & Hoist
6590 SW Fallbrook Place, Beaverton, OR 97008
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Fax: 503.646.1996

Columbia winches and hoists are available for AC, DC, hydraulic or pneumatic power sources. Special models for any application can be supplied – please contact your distributor for details.

www.columbiawinch.com