

COMEUP

HEAVY DUTY HOIST



INSTRUCTION MANUAL



COMEUP

Heavy Duty Hoist

Limited One (1) Year Warranty

WARRANTY

Comeup Industries Inc. (COMEUP) warrants to the original purchaser that COMEUP heavy duty hoist will be free of defects in material and workmanship for a period of one (1) year from the original date of purchase. All COMEUP mounting kits and other accessories carry a one (1) year limited warranty against defects in material workmanship.

This warranty applies only to the original purchaser of the hoist. To obtain any warranty service, the purchaser under this Limited Warranty is requested to advise COMEUP or its authorized distributors on any claim. The purchaser must provide a copy of the purchase receipt bearing the hoist serial number, date of purchase, owners name, email or Tel & Fax, address and purchaser vehicle details. Any products that COMEUP determines to be accountable for defective will be repaired or replaced or refund at COMEUP sole discretion without charge to buyer upon buyer's compliance with these procedures. In the event of repair or replace, purchaser must send the defective hoist or part, with freight prepaid, to COMEUP or its authorized distributor. And COMEUP will send the serviced product back to purchaser on COMEUP's cost. This warranty does not cover the removal or reinstallation of the hoist.

COMEUP takes the responsibility for COMEUP hoist parts and components to be free from defects in materials and workmanship, but the following portions are hereby excluded and disclaimed. COMEUP or its authorized distributors may make reasonable charges for parts and labour for repairs or resumption in the following portions not covered by this limited warranty.

- (1). All warranties of wire rope assembly after initial use
- (2). All warranties of fitness for a particular purpose
- (3). All warranties of the product's finish
- (4). All warranties of merchantability

The limited warranty does not cover any failure that results from improper installation/operation, third party part substitution, purchaser's alteration or modification on COMEUP hoist. This warranty is void when COMEUP serial number plate is removed or defaced.

COMEUP's liability to the purchaser under the hoist purchases for any loss or damage howsoever and whatsoever arising shall not exceed the price of the initial hoist purchase receipt. COMEUP shall not in any event be liable to the purchaser for any consequential and/or indirect loss or damage whether for loss or for profit or otherwise, costs, expenses or other claims for consequential compensation whatsoever and whether caused by negligence of COMEUP employees, distributors and their employees or otherwise. COMEUP reserves the right to change product design without notice. In situations in which COMEUP has changed a product design, COMEUP shall have no obligation to upgrade or otherwise modify previously manufactured products.

Thank you for purchasing a **COMEUP** Hoist. This manual covers operation and maintenance of the hoist. All information in this publication is based on the latest production information available at the time of printing. We reserve the right to make changes without notice because of continued product improvement.

It has been designed to give safe and dependable service if operated according to the instructions. Read and understand this manual before installation and operation of hoist. Careless hoist operation can result in serious injury or property damage.

When requesting information or ordering replacement parts, always give the following information:

1. Hoist model and voltage
2. Serial Number
3. Item. No. and Part Number
4. Part Description

WARNING



1. The hoist is rated at the first layer of wire rope on the drum for short-time duty.
2. A minimum of five (5) wraps of rope around the drum is necessary to support the rated load.
3. Keep clear of hoist, rope, and hook while operating.
4. Hoist rope can break without warning. Always keep a safe distance from the hoist and rope while under a load.
5. Failure to adequately align, support, or attach hoist to a suitable mounting base could result in a loss of efficiency of performance or damage the hoist, rope and mounting channel.

I. Safety Requirement

► General Rules

- ⚠ The operator of a hoist in some cases is required to have qualifications according to applicable laws and ordinances.
- ⚠ Check all safety and environmental conditions prior to and during use.
- ⚠ Don't use unsuitable rope in construction, strength or having any defects.
- ⚠ Don't use an unsuitable hook and snatch block for rope.
- ⚠ The operator must remain with the hoist when it is being operated.
- ⚠ The hoists' duty rating is S2 (short-time duty).
- ⚠ Do not use the hoist as moving people.
- ⚠ Ensure that the hoist is connected to the correct voltage. 12V DC or 24V DC only.
- ⚠ Do not exceed maximum line lifting shown in tables. Shock load must not exceed these ratings.
- ⚠ Keep hands clear of rope and fairlead opening.
- ⚠ A rope should be replaced if it shows signs of excessive wear, broken strands, corrosion or any other defects.
- ⚠ If the hoist fails to lift a load under normal conditions, stop the operation within 30 seconds otherwise motor damage may occur.
- ⚠ Remove the switch from the hoist when not in use.
- ⚠ Keep hands and clothes away from the hoist and rope.
- ⚠ Never unplug the remote control when hoisting a load.
- ⚠ To avoid insufficient power when hoisting a load, the vehicle should be running and in neutral.
- ⚠ If noise or vibration occurs when running, stop the hoist immediately and return it for repair.
- ⚠ The rope shall be wound in according to drum rotation sticker or refer to owners manual.

II. Environment Precautions

	DANGER
	The following environmental conditions may result in the possible causes of hoist trouble.

- Low temperature below -10°C, high temperature above 40°C or humidity above 90% conditions.
- In an organic chemistry or explosive powder condition.



※ Cause malfunction of spare parts

- In heavy acid or salty conditions.
- In the rain or snow conditions.



※ Cause malfunction of spare parts.



※ Cause explosion

- In a heavy general powder.

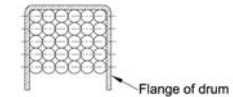
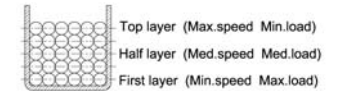


※ Cause malfunction of performances.

III. Hoisting Principles

► Load Rated

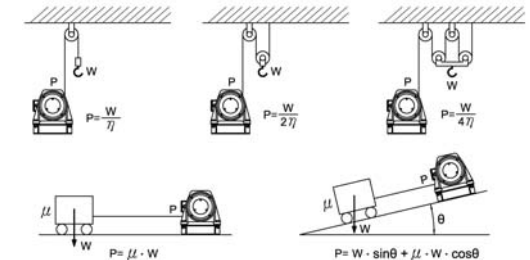
Load and speed varies according to how much wire rope is on the drum. The first layer of rope on the drum delivers the slowest speed and the maximum load. The top layer of rope on the drum delivers the maximum speed and the minimum load. For this reason, all hoists are rated at their first layer capacities.



The flanged drum end plates shall protrude beyond the rope wound on the drum at the top layer by at least 1.5 x the nominal rope diameter.

► Calculating Head Load

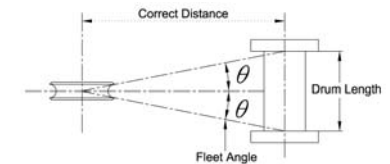
P: Rope tension
 η : Sheave coefficient
 θ : Angle
 W: Load
 μ : Friction factor



No. of sheaves	1	2
Roller bearing	0.98	0.96
Sleeve bearing	0.96	0.92

► Calculating Fleet Angle

- The hoist should be mounted as close to centre and as perpendicular as possible to the direction of the line pull. This will keep the wire rope fleet angle centred on the drum as small as possible.
- If the proper fleet angle is not maintained, the wire rope could wind onto one side of the drum.
- This could cause failure of the hoist or wire rope, resulting in damage, injury or death.
- Experience has shown that the best wire rope service is obtained when the maximum fleet angle is not more than 1.5° for smooth drums.
- Therefore the correct distance between centre of drum and of should be derived as a fleet angle of 1.5° is the equivalents of approximately 19 cm of lead for each centimetre of overall drum width.



► **D/d Ratio**

The drum diameter to wire rope diameter ratio (D/d) determines the wire rope size required. Minimum hoist drum root diameter = wire rope diameter x ANSI B30.5* ratio minus rope diameter. The greater the ratio the longer the wire rope life.

* In compliance with standard of ANSI B 30.5, the rope safety factor shall maintain at least 18:1

► **Rope Safety Factor**

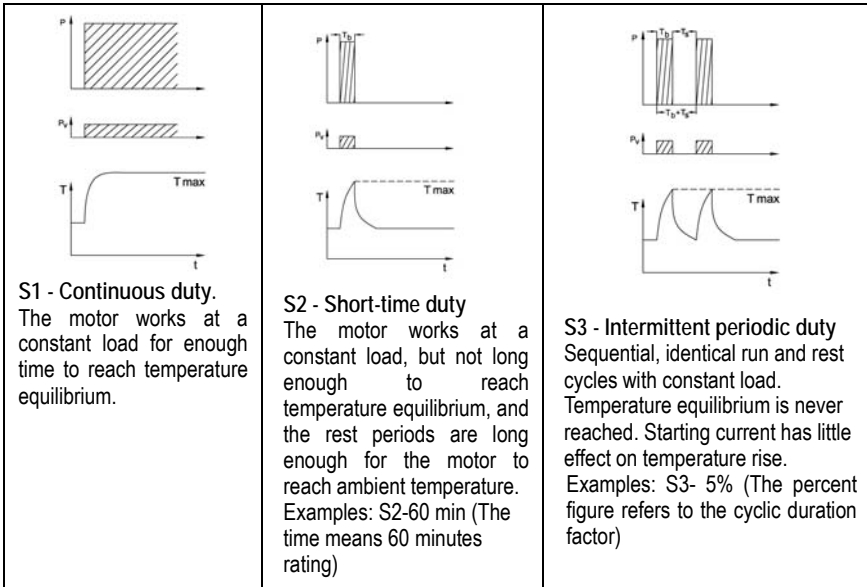
The working coefficient shall be determined from the ratio of the minimum breaking force of the rope and the maximum possible pulling force.

* In compliance with standard of ANSI B 30.5, the rope safety factor shall maintain at least 3.5:1

► **Duty Cycle Ratings**

Duty cycle ratings usually specify continuous, intermittent, or special duty (typically expressed in minutes).

Key of curves: P.....load Tmax.....maximum temperature
 T.....temperature Pv.....electrical losses Tb.....time of operation
 Ts.....time of rest t.....time



For this reason, the hoists are rated at S2 – short-time duty.

► **Percentage Duty Cycle**

Calculate the percentage duty cycle according to the following formula

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

Where, T_b : Total sum of overall loading operating hours

T_s : Total sum of stopping hours

$T_b + T_s =$ Approximately 1 to 10 min

► **EC Directives**

The EC directive includes the following individual directives

• **Machinery Directive 2006/42/EC**

It applies to independently functional machinery or the interlinking machines to form entire systems. The complete machine and plant must always fulfill the directive.

• **Electromagnetic Compatibility Directive (EMC) 2004/108/EC**

It applies to most electrical and electronic apparatus, that is, finished products and systems that include electrical and electronic equipment to ensure that the electromagnetic disturbance generated by apparatus does not exceed a level allowing radio and telecommunications equipment and other apparatus to operate as intended, and that apparatus has an adequate level of intrinsic immunity to electromagnetic disturbance to enable it to operate as intended.

► **Operation Precaution**

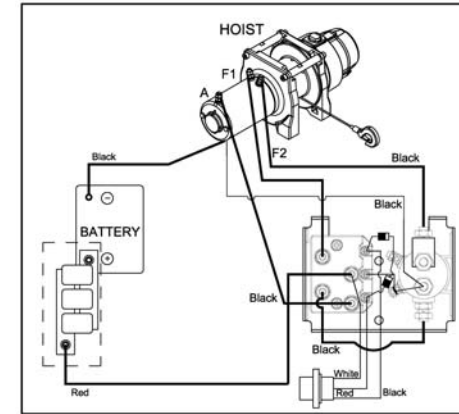
- * To prevent the risk of electric shock, the power plug must be plugged into a matching outlet and grounded in good condition.
- * Never try to lift a load higher than the rated cap.
- * Never hitch a ride on the hook, sling or load being moving.
- * Hoists are not to be used for lifting or lowering people.
- * Don't work, walk or stand under an operating hoist.
- * Always remain in control. Never neglect the hoist while actually hosting a load.
- * While working, never stand under a lifting load or within the conveying area.
- * Always look up when working around hoist, there is potential danger overhead.
- * Never gravitate a load free.
- * Be sure to lift a load vertically. Slack may allow wires to be caught in the drum.
- * Prior to starting of use, carry out the daily checking without fail, and after confirming the safety of function.
- * If having a counter rotation incurred, make sure to correct its rotation direction.
- * Prior to lift, make sure to have a precise performance of brake. If any malfunction of brake happened, stop the operation immediately.
- * When load suspended in air, it will not allow to be welding.

- * Wire rope with one or more of the following defects shall be removed or replaced immediately.
 - 1) kink,
 - 2) distortion,
 - 3) corrosion.
 - 4) showing sings of excessive wear or of having broken wires not less than 10 pcs.
- * Stop the operation if there is any queer noise or vibration in the gear box to be happened.
- * Do not connect the wire rope with the grounding of welding machine.
- * While welding, do not have any contact with the welding objects because of having spark.
- * Do not pull the switch.
- * Never plugging (instant reverse-wind) or inching.
- * Do not over continuous ratings.
- * In order to prevent the layer down due to over loosening of rope irregular winding, etc., operate according to the suitable operating method.
- * Use a hoist by fixing so securely that the rope around the drum is even.
- * Be sure to fix a rope in the center of swivel hook.
- * Be sure to stop operation immediately when the wire rope becomes fully slackened.
- * Avoid catching the hook or lifting a load on a fixed obstruction.
- * Always leave the push button switch positioned immediately after use.
- * Make sure that the load being lifting are well balanced and secured before starting.
- * Avoid water splashes on the push button switch.
- * Never wrap the load with the wire rope.

IV. Operation

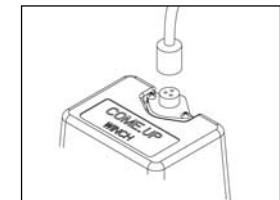
► Battery leads connection

Before using the hoist, make sure all electrical components have no corrosion or damaged; the environment should be clean and dry. The voltage drop from the battery connections to the hoist must not exceed 10% of the nominal voltage under normal operating condition.



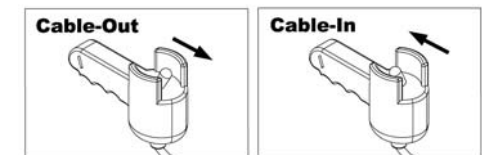
► Switch Connection

1. A trigger switch with 1.25 mm (diameter) X 3C X 5 m (16AWG X 3C X 17ft) cord supplied.
2. Open the dust-proof cover of the hoist and then insert the switch plug into the socket.



► Cable-in / Cable-out Operation

1. To determine "Cable - Out", trigger → out
2. To determine "Cable - In", trigger ← in
3. To stop hoist, release the trigger



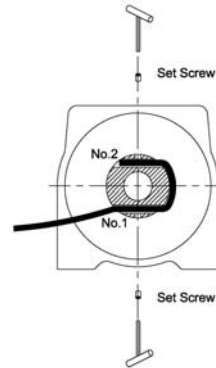
► Lubrication

All moving parts in the hoist are permanently lubricated at the time of assembly. Under normal conditions factory lubrication will suffice. If re-lubrication is necessary after repair or disassembly use marine type grease.

V. Maintenance

► Wire Rope Replacement

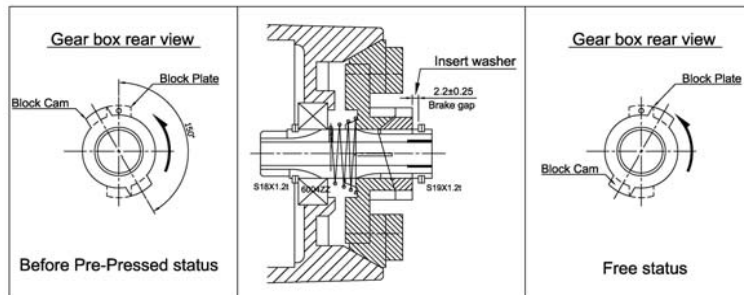
- Feed the end of the wire rope into No. 1 anchor hole in the drum and wind about 1/4 wrap of rope on the drum. Insert the wire rope into No. 2 hole and tighten the set screw securely.
- Make sure the first layer of wire rope is tight and maintain a freeboard at least 1.5 x rope diameter on the drum.
- Wire rope shall be wound in an under-wound orientation only.
- To compensate for uneven spooling and the decrease in line pull capacity as the drum fills up, use as short a wire rope as practical.



► Brake Adjustment

When the brake wears to the point, the load begins to slip. The brake can be adjusted as follows:

1. Loosen the bolt on the brake cover and take out c-rings.
2. Insert few washers to maintain the brake spacer between to be 2.2 ± 0.25 mm.
3. Make sure to keep the clutch base plate counter-clockwise by 150 – 180 degree.



► Maintenance Schedule


1. Ensure that a responsible person carries out all inspections as per schedule.
2. Inspections are divided into Daily, Monthly and Quarterly.
3. Always keep the hoist and accessories free of dirt, oil, grease, water and other substances.

Classification of check	Periodical		Item	Checking method	Checking reference	
	Daily	Monthly				Quarterly
○			Installation	Mounting bolts & alignment	Bolt tension & wear	Existence of abnormalities
○			Remote control / contactor	Working	Manual	Reasonable actuation
		○		Wearing in contact points	Visual	Free of wear or damage
	○		Wire rope	Broken strands	Visual, measuring	Less than 10%
	○			Decrease in rope diameter	Visual, measuring	7% of nominal diameter max
	○			Deforming or corrosion	Visual	Existence of abnormalities
	○			Fastening condition of end	Visual	Existence of abnormalities
	○		Wirings	Fastening condition of terminals	Visual	Free of corrosion and tightening terminals
		○	Motor	Staining, damage	Visual evidence of wear	Existence of abnormalities
		○	Brake	Wearing of lining	Visual evidence of wear	Free of wear or damage
○				Performance	Visual	Reasonable actuation
		○	Gear train	Damage, wearing	Damage, wearing	Free of wear or damage
		○	Housing	Tie bar	Visual	Mounting surface is flat to within ± 0.5 mm
		○		Support racks	Visual	Free of bent or crack

VI. Trouble Shooting

When the hoist fails to operate after several attempts, or if there is any fault while

Symptom	Possible Cause	Remedy
Hoist will not operate	Cut circuit	Check battery lead
	Weak battery	Recharge or replace battery (at least 650CCA)
	Damaged circuit breaker	Replace circuit breaker
	Bad connection of wirings	Reconnect tightly
	Damaged contactor	Replace contactor
	Cut circuit on switch	Replace switch
	Damaged motor or worn carbon brush	Replace motor or carbon brush
	Dropt or lost motor wiring	Tighten wirings
Motor runs in one direction	Broken wiring or bad connection	Reconnect or replace wiring
	Damaged or stuck contactor	Replace contactor
	Switch inoperative	Replace switch
	Dropt or lost wiring	Replace wiring and tighten, wirings
Hoist won't lift rated load	Considerable voltage drop exceeds by 10% of the rated voltage of 12V DC or 24V DC.	Correct leads size
		Replace battery as bad condition
		Clean and tighten the wirings
No brake	Damaged brake cam and disc	Replace brake cam and disc
	Damaged gear box	Replace gear box
	Dropt snatch ring	Replace snatch ring
	Oil leakage at brake	Clean oil leakage
	Damaged or inoperative spiral spring	Replace and position spiral spring
	Damaged or stuck solenoid	Replace solenoid
Brake distance is too long	Worn or damaged brake	Replace or adjust brake
	Oil leakage at brake	Clean oil leakage
	Damaged or stuck solenoid	Replace solenoid
Damaged gear train	Hit by certain exterior force	Replace the damaged components
	Damaged gear train	Replace the damaged components
	Over load operation	Replace a new hoist
Motor runs extremely hot	Long period of operation	Allow to cool
	Damaged motor	Replace or repair motor
	Damaged or inoperative brake	Replace or repair brake
Hoist vibrates badly or is noisy	Damaged brake	Replace or repair brake
	Mounting surface is not flat	Make sure mounting surface is flat
	Tie bar is bent	Replace tie bar
	Crack on the motor and gearbox support racks	Replace racks



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