COME-UP WINCH

Model: DHC-1200
DHC-1600
DHC-2000
DHC-3000

INSTRUCTION MANUAL

Heavy Duty Hoist

TAIWAN · SYMBOL OF EXCELLENCE · WINNER

TÜV CERT ISO-9001:2000

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Heavy Duty Hoist

Thank you for purchasing a COME-UP 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.

General Safety Precautions

A COME-UP Hoist is designed to give safe and dependable service if operated according to the instructions. Read and understand this manual before installation and operation of hoist.

Follow these general safety precautions:

- Don't place any part of your body or clothing near rotating or moving components
- Don't stand too close to hoist when operating
- Don't lift loads greater than the rated load of the hoist
- Don't touch or hand wire rope or riggings when operating
- Don't put wire rope around an object and hook it back to rope
- Don't use unsuitable rope in construction, strength or having any defects.

⚠ WARNING

1. The hoist is rated for intermittent-periodic duty.
2. The hoist is not to be used to transport personnel.
3. A minimum of five (5) wraps of rope around the drum are necessary to support the rated load.

I. Performance Data

▶Specifications

Model			DHC-1200	DHC-1600	DHC-2000	DHC-3000
Line Pull (first layer)			545 kg / 1,200 lb	726 kg / 1,600 lb	907 kg / 2,000 lb	1,360 kg / 3,000 lb
Line Speed (first layer, no load)			12.5 mpm / 41 fpm	14 mpm / 45.9 fpm	10.2 mpm / 33.5 fpm	11.7 mpm / 38.4 fpm
Amp. Draw	Full load 12V		150 A	200 A	210 A	250 A
	Full load 24V		80 A	120 A	140 A	170 A
Motor	Type		Series wound			
	Output	12V	900 w / 1.2 hp	900 w / 1.2 hp	4,175 w / 5.6 hp	4,175 w / 5.6 hp
		24V	600 w / 0.8 hp	600 w / 0.8 hp	2,684 w / 3.6 hp	2,684 w / 3.6 hp
Gear Train	Type		3 stage planetary			
	Ratio		216 : 1	216 : 1	261 : 1	315 : 1
Brake			Automatic, full load cone brake PLUS auxiliary inverted current brake			
Control			Detachable solenoid pack			
Wire Rope	Length		A7 x 19 Aircraft galvanized			
	Size		18.3 m / 60 ft	19.8 m / 65 ft	30.5 m / 100 ft	22.9 m / 75 ft
Drum Size			Ø 89 x 72.7 mm (Ø3.5" x 2.86")	Ø 95 x 115.3 mm (Ø3.75" x 4.54")	Ø 114.3 x 146.8 mm (Ø4.5" x 5.78")	Ø 141.3 x 146.8 mm (Ø5.56" x 5.78")
Standard Accessories			• Wire rope with hook • Remote control WA-0310 • Detachable solenoid pack WA-0817			

▶Lifting Load, Line Speed and Rope Capacity

Model		DHC-1200	DHC-1600	DHC-2000	DHC-300
1st layer	Lifting load (kg / lb)	545 / 1,200	726 / 1,600	907 / 2,000	1,360 / 3,000
	Line speed (mpm / fpm)	5.5 / 18	4.5 / 14.8	4.2 / 13.8	4.3 / 14.1
	Total Rope (m / ft)	4.2 / 13.8	6.6 / 21.7	8.0 / 26.2	7.5 / 24.6
2nd layer	Lifting load (kg / lb)	494 / 1,089	657 / 1,448	820 / 1,808	1,224 / 2,698
	Line speed (mpm / fpm)	6.1 / 20	5.0 / 16.4	4.6 / 15.1	4.8 / 15.8
	Total Rope (m / ft)	8.8 / 28.9	13.9 / 45.6	16.8 / 55.1	15.9 / 52.2
3rd layer	Lifting load (kg / lb)	452 / 996	601 / 1,325	748 / 1,649	1,113 / 2,454
	Line speed (mpm / fpm)	6.6 / 21.7	5.5 / 18	5.1 / 16.7	5.3 / 17.4
	Total Rope (m / ft)	13.8 / 45.3	19.8 / 65	26.4 / 86.6	22.9 / 75
4th layer	Lifting load (kg / lb)	417 / 919		688 / 1,517	
	Line speed (mpm / fpm)	7.2 / 23.6		5.5 / 18	
	Total Rope (m / ft)	18.3 / 60		30.5 / 100	

▶Line Speed and Amp. Draw (First layer of rope)

(1st layer of wire rope on the drum)

DHC-1200

Line Pull		Line Speed		Amp. Draw		Percentage Duty Cycle
kg	lb	mpm	fpm	12V	24V	%ED
0	0	12.5	41.0	25	35	25
110	250	9.5	31.2	55	50	23
230	500	8	26.2	70	60	20
340	750	7	23.0	105	68	18
450	1,000	6.2	20.3	130	75	15
545	1,200	5.5	18.0	150	80	13

DHC-1600

Line Pull		Line Speed		Amp. Draw		Percentage Duty Cycle
kg	lb	mpm	fpm	12V	24V	%ED
0	0	14.0	45.9	60	35	25
110	250	10.6	34.8	80	60	23
230	500	8.9	29.2	110	80	20
450	1,000	6.2	20.3	160	100	15
545	1,200	5.0	16.4	180	110	13
726	1,600	4.5	14.8	200	120	11

DHC-2000

Line Pull		Line Speed		Amp. Draw		Percentage Duty Cycle
kg	lb	mpm	fpm	12V	24V	%ED
0	0	10.2	33.5	75	50	25
230	500	7.1	23.3	140	80	23
450	1,000	6.0	19.7	170	100	20
680	1,500	4.9	16.1	190	120	18
907	2,000	4.2	13.8	210	140	15

DHC-3000

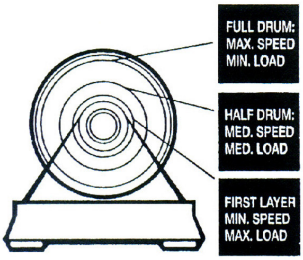
Line Pull		Line Speed		Amp. Draw		Percentage Duty Cycle
kg	lb	mpm	fpm	12V	24V	%ED
0	0	11.7	38.4	80	50	25
230	500	8.8	28.9	130	75	23
450	1,000	7.6	24.9	165	100	20
907	2,000	5.6	18.4	210	140	15
1,360	3,000	4.3	14.1	250	170	13

$$\text{Percentage duty cycle (\% ED)} = \frac{Tb}{Tb + Ts} * 100\%$$

Tb: total sum of overall loading operating hours
Ts: total sum of stopping hours
Tb + Ts = approximately 1 to 10 min.

▶How the hoist is rated

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. For this reason, hoists are rated on their performance first layer of rope on the drum



II. Installation

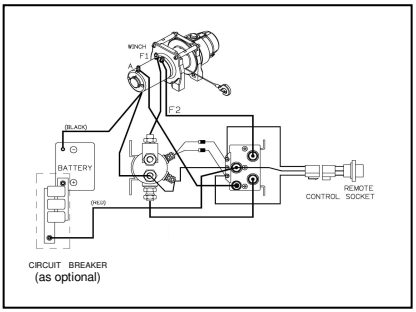
▶Mounting

1. It is very important that the hoist be mounted on a flat and hard surface to within +/- 0.5mm in order to make sure the motor, drum and gearbox housing are aligned correctly.
2. 8.8 Grade High Tensile Steel Bolts must be used in order to sustain the loads imposed on the hoist mounting
3. Torque all mounting bolts according to the requirement

Bolt's Specification

Model	Type	Q'ty	Torque Required	Mounting (mm)
DHC-1200	M10	4	45N-M	101.6x114
DHC-1600	M10	4	45N-M	152.4x114
DHC-2000	M12	8	80N-M	203.2x114
DHC-3000	M12	8	80N-M	203.2x114

▶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.

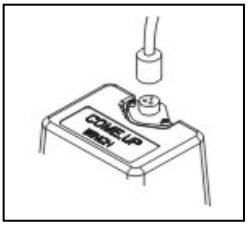
Red lead: 4 AWG x 1.83m /72", Positive (+)

Black lead: 4 AWG x 1.8m /71", Negative (-)

1. Connect the battery lead from control terminals to hoist motor terminals as shown below.
2. Connect positive (+) and negative (-) lead from control terminals to battery.
3. If leads longer than 3 m (10') required, then 2 AWG is recommended.
4. A circuit breaker may be installed in the positive (+) lead near the battery to protect against short circuit.
5. Rating for circuit breaker

Model	DHC-1200	DHC-1600	DHC-2000	DHC-3000
12V	120A	120A	200A	200A
24V	60A	60A	150A	150A

▶Switch Connection



1. A trigger switch with ϕ 1.25 mm X 3C X5 m (16AWG X 3C X 17ft) cord supplied.
2. Open the dust-proof cover of the hoist, then insert the switch plug into the socket.

Ⅲ. Operation

▶Precautions

⚠ Check all safety and environmental conditions prior and during use.

⚠ Before use, ensure that you are familiar with all lifting operations (hoist speeds & direction).

⚠ A wire rope should be replaced if it shows signs of excessive wear, broken wires, corrosion or any other defects.

⚠ The operator must remain with the hoist when it is being operated.

⚠ The hoist duty rating is S3 (intermittent – periodic)

⚠ If the hoist fails to pull a load under normal conditions, stop the operation within 30 seconds otherwise motor damage may occur.

⚠ Ensure that the hoist is connected to the correct voltage. 12VDC or 24VDC only

⚠ Make sure the wire rope is wound evenly on the first layer on the drum, rewind it if not evenly wound.

⚠ Remove the trigger switch from the hoist when not in use.

⚠ Do not wrap the wire rope around the load and back onto it self.

⚠ Keep hands and clothes away from the hoist, wire rope, and fairlead.

⚠ Never unplug the trigger switch when hoisting a load.

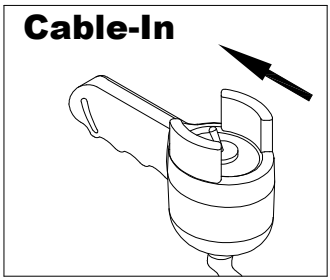
⚠ To avoid insufficient power when hoisting a load, the vehicle should be running and in neutral.

⚠ Keep the trigger switch cord clear of the battery leads at all times.

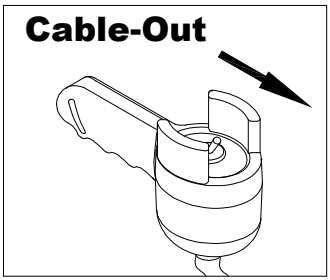
⚠ If noise or vibration occurs when running, stop the hoist immediately and return it for repair.

▶Cable-in/ Cable-out Operation

1). To determine “Cable - Out”, trigger → out (fig.4)
2). To determine “Cable - In”, trigger ← in (fig.5)
3). To stop hoist, release the trigger



(Fig4)



(Fig5)

▶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 a marine type grease.

Ⅳ. Maintenance

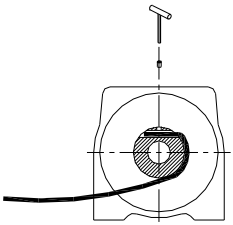
▶Wire Rope Replacement

- Never use a rope of a different size or material and only use genuine replacement parts.
- If the hoist is subjected to a high duty or excess load, the rope may require frequent replacement.

1). Spool the entire wire rope, and then remove it from the drum.

2). Put and pass the replacement wire rope below the drum, and insert it into the hole on the drum core.

3). Tighten the screw downwards to secure the wire rope.



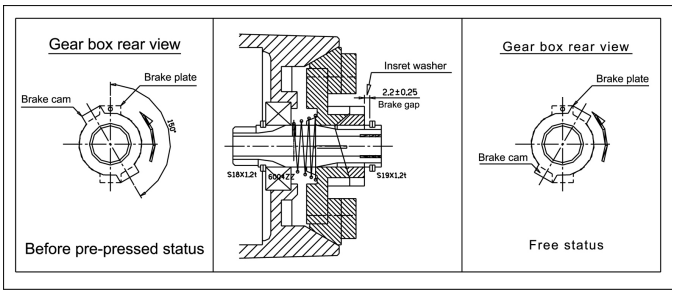
▶Brake Adjustment

When the brake wears to the point that 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 dived into Daily, Monthly and 3 Monthly.

3). Always keep the hoist and accessories free of dirt, oil, grease, water and other substances.

Classification of check			Item		Checking method	Checking reference
Daily	Periodical					
	One month	Three month				
○			Installation	Mounting bolts & alignment.	Bolt tension & wear.	Existence of abnormalities
○			Trigger switch	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 tighting 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	Visual evidence of wear	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

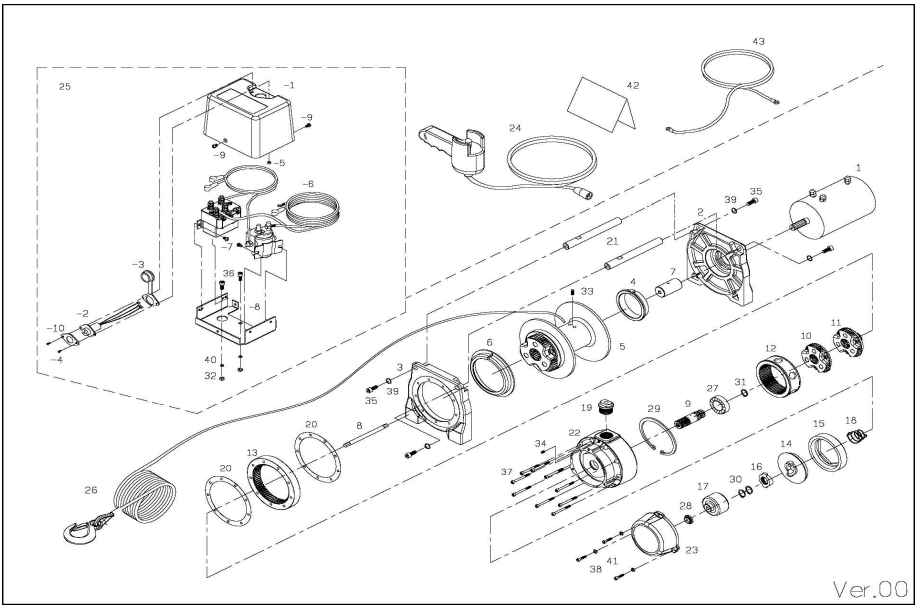
Ⅴ. Trouble Shooting

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

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 solenoid	Replace solenoid
	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 solenoid	Replace solenoid
	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
Brake distance is too long	Worn or damaged brake	Replace or adjust brake
	Oil leakage at brake.	Clean oil leakage
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

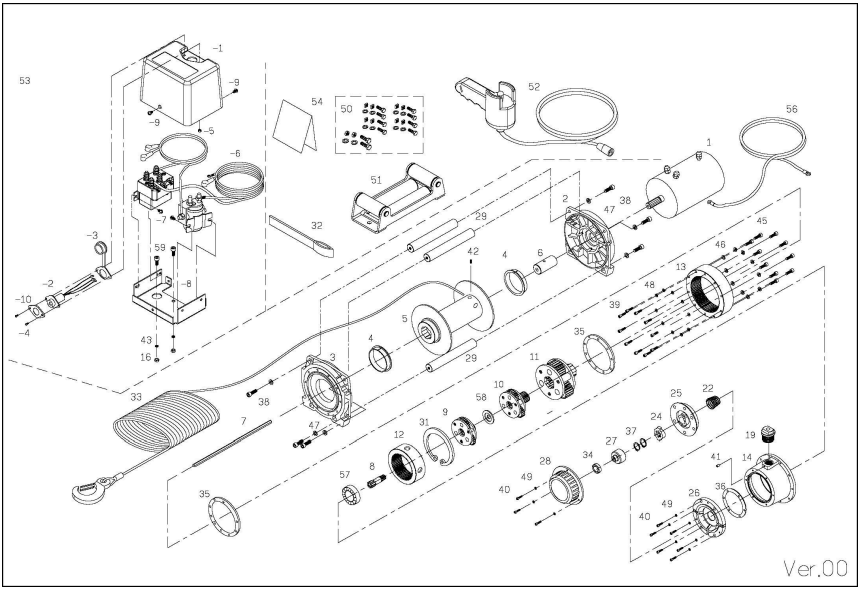
Ⅵ. Replacement parts List

▶DHC-1200/1600



P/N	Description	Q'ty	P/N	Description	Q'ty	P/N	Description	Q'ty
1	Motor	1	19	Cap	1	27	Bearing	1
2	Motor support rack	1	20	Anti-leakage packing	2	28	Bearing	1
3	Gearbox support rack	1	21	Tie bar	2	29	Retaining ring	1
4	Drum bushing	1	22	Gear box	1	30	Retaining ring	2
5	Drum	1	23	Brake cover	1	31	Retaining ring	1
6	Drum bushing A	1	24	Remote control	1	32	Hex bolt	2
7	Connecting socket	1	25	Solenoid pack	1	33	Hex bolt	1
8	1st shaft	1	-1	Upper cover	1	34	Hex bolt	1
9	1st pinion	1	-2	Switch socket	1	35	Hex bolt	4
10	1st stage carrier	1	-3	Socket gland	1	36	Hex bolt	2
11	2nd stage carrier	1	-4	Round bolt	2	37	Hex bolt	9
12	1st & 2nd ring gear	1	-5	Nut	2	38	Hex bolt	3
13	3rd ring gear	1	-6	Solenoid ass'y	1	39	Spring washer	4
14	Brake cam B	1	-7	Round bolt	4	40	Spring washer	2
15	Brake disc	1	-8	Down cover	1	41	Spring washer	3
16	Brake cam A	1	-9	Hex bolt	3	42	Foot print	1
17	Brake freespool base	1	-10	Switch socket plate	1	43	Black lead	1
18	Spiral spring	1	26	Wire rope w/hook	1			

▶DHC-2000/3000



No.	Description	Q'ty	No.	Description	Q'ty	No.	Description	Q'ty
1	Motor 12V	1	27	Brake freespool base	1	50	Mounting hardware	1
2	Motor support rack	1	28	Brake cover	1	51	Roller fairlead	1
3	Gearbox support rack	1	29	Tie bar	2/3	52	Remote control	1
4	Drum bushing	2	31	Retaining ring	1	53	Solenoid pack	1
5	Drum	1	32	Handsaver strap	1	-1	Upper cover	1
6	Motor coupling	1	33	Wire rope w/hook	1	-2	Switch socket	1
7	1st shaft	1	34	Bearing	1	-3	Socket gland	1
8	1st pinion	1	35	Gasket A	2	-4	Round bolt	2
9	1st stage carrier	1	36	Gasket B	1	-5	Nut	2
10	2nd stage carrier	1	37	Retaining ring	2	-6	Solenoid ass'y	1
11	3rd stage carrier	1	38	Hex. bolt	6	-7	Round bolt	4
12	1st & 2nd ring gear	1	39	Hex. bolt	10	-8	Down cover	1
13	3rd ring gear	1	40	Hex. bolt	9	-9	Hex bolt	3
14	Gear box	1	41	Hex. bolt	1	-10	Switch socket plate	1
15	Plain washer	1	42	Hex. bolt	1	54	Foot print	1
16	Hex nut	1	43	Spring washer	2	56	Black lead	1
19	Cap	1	45	Hex. bolt	10	57	Bearing	1
22	Spiral spring	1	46	Spring washer	10	58	Washer	1
24	Brake cam	1	47	Spring washer	6	59	Hex bolt	2
25	Brake disc	1	48	Spring washer	10			
26	Brake base	1	49	Spring washer	9			

Limited Warranty

This Limited Warranty is given by the Comeup Industries Inc. (the "Seller") to the original purchaser (the "Purchaser") of a COMEUP **Hoist** specified in this manual. This Limited Warranty is not transferable to any other party.

The Seller takes the responsibility for all parts and components, with the exception of the wire rope, to be free from defects in materials and workmanship appearing under normal use for as long as the said Purchaser owns the vehicle that the hoist was originally mounted on. Electrical components are warranted for 1 Year from date of purchase under the same conditions. Any COMEUP Hoist, which is defective, will be repaired or replaced without charge to the Purchaser.

Upon discovering any defect, the Purchaser under this Limited Warranty is requested to return the complete hoist and inform the seller or their authorised distributors of any claims. The Purchaser must provide a copy of the proof of purchase bearing the hoist serial number, date of purchase, owners name and address.

The Limited Warranty does not cover any failure that results from improper installation, operation or the Purchaser's modification in design. The Seller does not warrant them to be suitable for such use.