



ELECTRIC WINCH

CH500

PLEASE READ CAREFULLY BEFORE OPERATE THE WINCH



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DESCRIPTION

The CH series electric winch is for intermittent duty only. Motor cool-down time is required. Can be mounted horizontally or vertically. Winch can be utilized in a variety of lifting operations involving machinery, trucks, boats, farm implements, etc. Equipped with DC motor, permanently lubricated/sealed gear box, switch with harness assembly. For additional information, consult Specifications and Performance.

UNPACKING

Please unpack carefully and read the instructions before beginning. Inspect carefully for any damage that may have occurred during transit. Check for loose, missing or damaged parts.

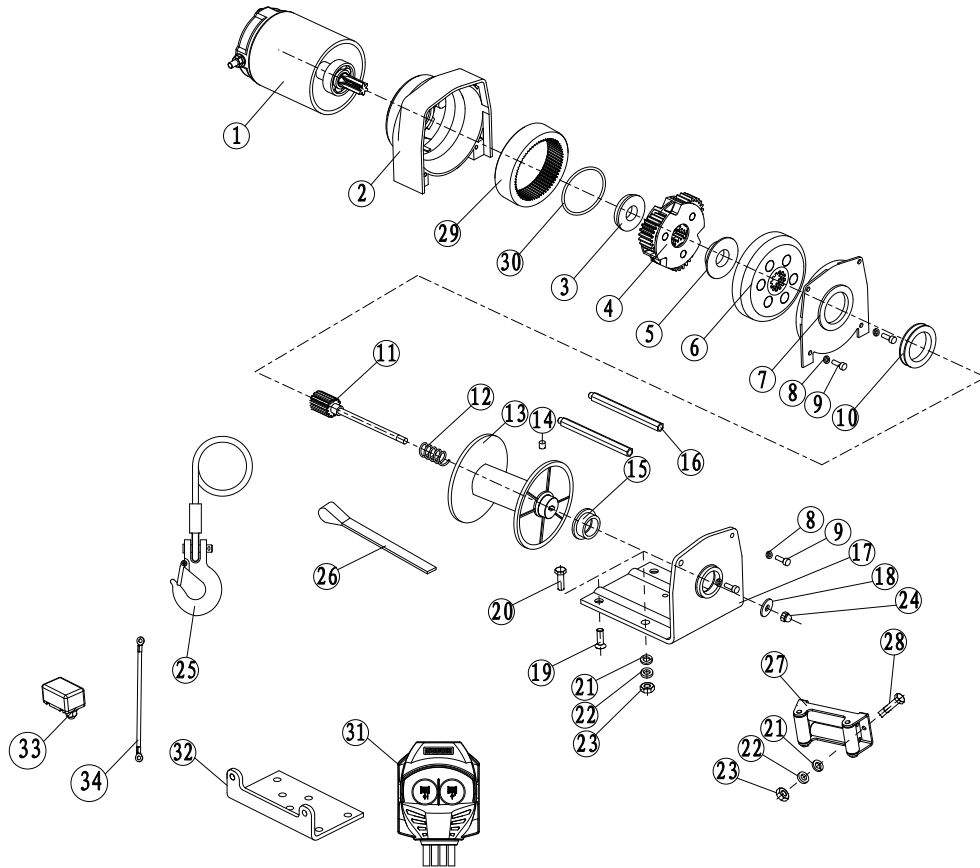
DANGER

This equipment must be used as recommended by the manufacturer. Failure to follow these recommendations could endanger your life or cause property damage.

CH500-Parts list

	No.	Description	Qty	Remark
Electric Motor Assembly	1	Motor	1	
	2	Stationary Gear Housing Assembly	1	
Gearbox Assembly	3	Rub Reduce Washers	1	
	4	Gear Carrier Assembly	1	
	5	Rub Reduce Washers	1	
	6	T-Series Rotator Gear	1	
	7	Drum Support Plate	1	
	8	Spring Washer ϕ 5	2	
	9	Cap Screw M5 \times 12	2	
	11	Clutch Assembly	1	
	12	Spring	1	
	17	T-Series Base Plate	1	
	18	The big washer ϕ 8	1	
	24	Cap Nut M5	1	
	29	Gear Ring	1	
30	Retaining Ring Clip	1		
Tie Bar Assembly	8	Spring Washer ϕ 5	2	
	9	Cap Screw M5 \times 12	2	
	16	Tie Bar	2	
Drum Assembly	10	Drum Support Bushing	1	
	13	Drum Assembly	1	
	14	Screw M5 \times 8	1	
	15	T-Series Bushing	1	
Accessories	19	Cap Screw M6 \times 16	2	
	20	Cap Bolt M8 \times 25	2	
	21	Washer-Flat ϕ 8	4	
	22	Locking Washer ϕ 8	4	
	23	Nut M8	4	
	25	Wire rope and hook	1	
	26	Handsaver	1	
	27	Roller Fairlead	1	
	28	Cap Bolt M8 \times 20	2	
	31	Switch Assembly	1	
	32	Mounting Plate	1	
33	Protection Relay Set	1		
34	Relay Connect Wire	1		

Explosion Drawing With 500



GENERAL SAFETY INFORMATION

⚠ WARNING

Do not use for lifting, supporting, or transporting people, or over areas where people are present. Disconnect power before servicing.

1. Read and save all instructions.

2. Do not over load. See Performance information. Do not maintain power to the winch if the motor stalls. Overloads can damage the winch and create unsafe operating conditions.

3. Learn to use winch. After installing your winch, take the time to practice using it so that you are comfortable with it when the need arises. Periodically check the winch installation to assure that all bolts are tight.

4. Never allow children or untrained personnel to operate winch.

5. Inspect electric cable fittings for tightness before each use.

6. Replace damaged or broken parts immediately with manufacturer's recommended replacement parts.

⚠ DANGER

Never connect winch to 110VAC power as fatal shock may occur.

7. Use caution when using the winch. Keep people, pets, and property clear of the path of the load. Do not use winch to lift or move people.

8. Do not use the winch to support an unattended load.

9. Keep the electric cables from heat, oil, and sharp edges. Periodically inspect for damage.

10. Do not operate the winch under the influence of fatigue, medication, drugs or alcohol.

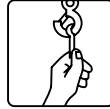


11. Never install winch in such a way that the warning and instruction labels are obscured. Someone who has not read this manual may need to see them to understand the proper operation of the winch.

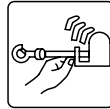
12. Always operate the winch with an unobstructed view of the winching operation.

13. Check for correct direction of rotation before using winch. The winch must be properly wired to ensure correct direction of drum rotation.

14. Remove and store the remote pendant assembly in a safe place when not in use to prevent unauthorized use.



15. Always unplug the remote pendant before working in or around the roller fairlead or winch drum (the danger zone) to prevent the winch from being turned on accidentally. Use hand saver when winding end of wire rope.



16. When lifting a load, slowly take up the slack until it becomes taut. Stop, recheck all winching connections.

17. Do not machine or weld any part of the winch. Such alterations may weaken the structural integrity of the winch, and void your warranty.

18. Never allow shock loads to be applied to winch.

TROUBLESHOOTING CHART

Symptom	Possible Cause(s)	Corrective Action
Motor will not operate or runs in one direction only	<ol style="list-style-type: none"> Damaged or stuck solenoid Switch inoperativ Broken wires or bad connection Damaged moto Solenoids not grounded 	<p>CAUTION Be prepared to disconnect power when performing this test. If a solenoid sticks once, it is likely to stick again and must be replaced immediately .</p> <ol style="list-style-type: none"> Tap solenoid to free stuck contacts. Check by applying voltage to the small solenoid terminal. Be sure solenoid is grounded back to source. A solenoid that is not stuck will make an audible ?click? when first energized. Replace switch. Check for poor connections. CAUTION Always use 2 wrenches (See Figure 1). Replace or repair motor. Check the ground path between battery negative and solenoid base.
Winch will not shut off	Solenoid stuck "ON"	If a solenoid sticks on, reverse direction and hold trigger switch until the power lead can be disconnected. A safety disconnect switch is available as an accessory.
Motor runs extremely hot	<ol style="list-style-type: none"> Long period of operation Damaged motor Damaged brak 	<ol style="list-style-type: none"> Allow to cool. Replace or repair motor. Replace or repair brake.
Motor runs but with insufficient power or line speed	<ol style="list-style-type: none"> Weak batter Battery to winch wire extended with same size wire Poor battery connection Poor groun Damaged brak 	<ol style="list-style-type: none"> Recharge or replace battery. Check charging system. Use larger diameter wire. Check battery terminals for corrosion. Clean as required. Check and clean connections. Repair or replace brake.
Winch runs backward	<ol style="list-style-type: none"> Motor wires reversed Solenoids wired incorrectly 	<ol style="list-style-type: none"> Recheck wiring. Recheck wiring.
Will not hold load	<ol style="list-style-type: none"> Excessive lo Worn or damaged brake 	<ol style="list-style-type: none"> Reduce load or double line. Repair or replace brake.

3. Prevent kinks before they occur. (See Figure 6)

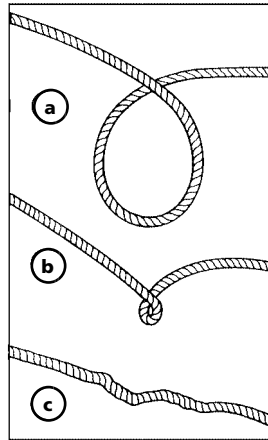


Figure 6

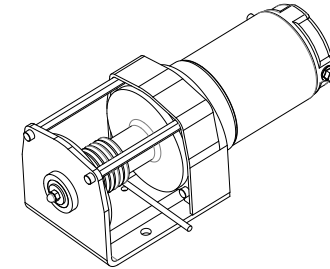
- a. This is the start of a kink. At this time, the wire rope should best raightened.
- b. The wire rope was pulled and the loop has tightened to a kink. The wire rope is now permanently damaged and must be replaced.
- c. Kinking causes the wire strands under the greatest tension to break and thus reduces the load capacity of the wire rope. The wire rope must be replaced.

LUBRICATION

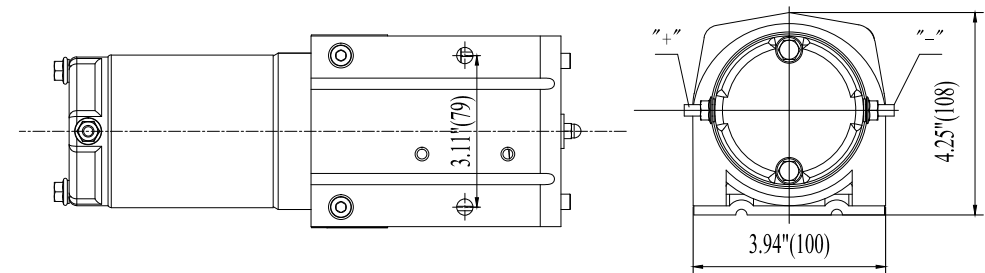
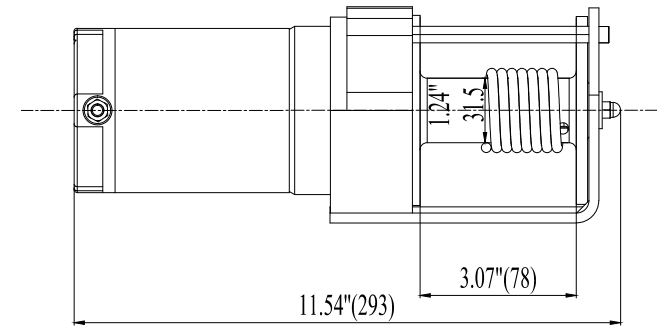
The winch is permanently lubricated. There may be grease leakage out of winch, especially during first few operations. This is normal and it is not necessary to grease or oil any internal part of winch at anytime.

Periodically lightly lubricate wirerope with penetration oil and wipeoff excess.

GENERAL DESCRIPTION



DIMENSIONS



CH500

CH500lb Specifications	
Rated line pull	500lbs(226kgs)
Motor(Series wound)	DC 12V: 0.54hp/0.40kW
Gear train	1 stage planetary gear
Gear ratio	153:1
Braking action	Differential self-locking
Fairlead	4-way roller fairlead
Wire rope	3/16"×15.7'(Φ4.8×4.8m)
Dimensions	11.81"×3.93"×4.25"(300mm×100mm×108mm)
Bolt pattern	3.12"(79.5mm)
Net weight	4.7kg

12V DC Line speed and motor current (first layer)			
Line pull	lbs	0	500
	kgs	0	226
Line speed	fpm	11.2	8.2
	mpm	3.4	2.5
Motor current	amps	18	32

500lb Line pull and cable capacity				
Layer of cable		1	2	3
Rated line pull per layer	lbs	500	395	327
	kgs	226	180	148
Cable capacity per layer	ft	5.5	12.4	15.7
	m	1.7	3.8	4.8

⚠ WARNING

Keep clear of winch wire rope and hook when operating winch. Never put your finger through the hook. Placing finger(s) in hook could result in injury.

- Never hook wire rope back onto itself. Hooking wire rope onto itself can damage rope. Use a nylon sling (See Figure 5). When using a sling, make sure that sling is properly seated in saddle of hook.

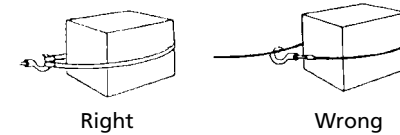


Figure 5

⚠ CAUTION

Avoid continuous pulls from extreme angles. This will cause wire rope to pile up at one end of drum. This can jam wire rope in winch causing damage to rope or winch itself.

- Do not use wire rope as a ground for welding.
- Never touch welding electrode to wire rope.
- Keep wire rope tight and even on drum.
- Replace wire rope when frayed.

TIPS FOR EXTENDING THE LIFE OF YOUR WINCH

- Keep a tightly wound wire rope drum. Do not allow the wire rope to become loosely wound. A loosely wound drum allows a wire rope under load to work its way down into the layers of wire rope on the drum. When this happens, the wire rope may become wedged within the body of the windings, damaging the wire rope. To prevent this problem, keep the wire rope tightly and evenly wound on the drum at all times. A good practice is to rewind the wire rope under tension after each use. One way to do this is to attach the hook to a small load and winch that load to rewind rope.
- To maximize winch and wire rope life, use pulley block to double line heavier loads.

REPLACING THE WIRE ROPE

Replace damaged wire rope with the manufacturer's recommended replacement part or a factory approved equivalent identical in strength, quality, lay, and stranding. Pass the attaching end of wire rope through the fairlead and attach it to the drum. When inserting the wire rope into the drum, insert it into the correct end of the hole provided (See Figure 3). Tighten the set screw securely. It is important that the wire rope be wound tightly onto the drum.

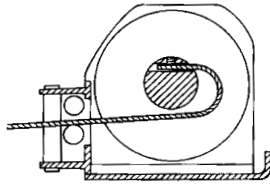


Figure 3

HANDLING THE WIRE ROPE

▲ WARNING

Use heavy leather gloves when handling wire rope. Do not allow wire rope to slide through hands.

1. Never winch with less than 5 turns of wire rope around winch drum, since wire rope and fastener may not withstand the load. Always use hand saver bar when guiding hook for the last few feet of rope (See Figure 4)

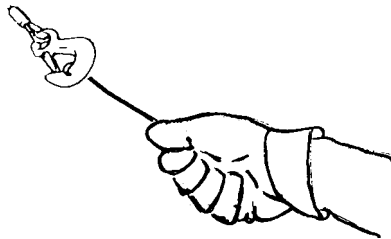


Figure 4

INSTALLATION

LOCATION

Mount the winch to a firm base. The structure the winch is attached to must be capable of with standing a load greater than 1-1/2 times the winch's rated line pull.

The winch can be mounted in a horizontal or vertical position. Do not mount the winch where there would be the possibility of it being submerged in water. The winch is not waterproof.

▲ WARNING

This winch must be mounted with the pull in the underwind direction. Improper mounting could damage your winch, cause the brake to not work and void your warranty.

Step (1)

Install structural support for winch. See "Dimensions" section for winch dimensions.

Step (2)

Mount the winch to the mount that you have designed. Mounting bolts supplied are the correct length for use with a 1/4"(6.3mm) thick mounting plate.

▲ WARNING

Do not substitute any bolt with strength weaker than grade 5.

When attaching wire to the motor terminals and solenoids (relays), hold the inner nut when tightening the outer nut. Do not allow the terminals to rotate. It may cause internal wire breakage or part misalignment. Be especially careful in preventing the solenoid (relay) terminals from rotating. Any rotation can damage the solenoid (see Figure 1).

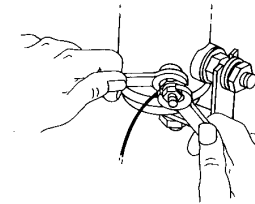


Figure 1

Batteries contain gases which are flammable and explosive. Wear eye protection during installation and remove all metal jewelry. Do not lean over battery while making connections.

Step (4)

Select a convenient location for mounting the Control box. The mounting plate must be electrically grounded to the battery. If it is not, the winch will not work.

Electrical Connection

There are four lengths of wire from the remote control, two red and two black. These four wires can reach battery to the winch. (See figure 2). When routing all wires, be sure to keep them away from all hot or moving parts.

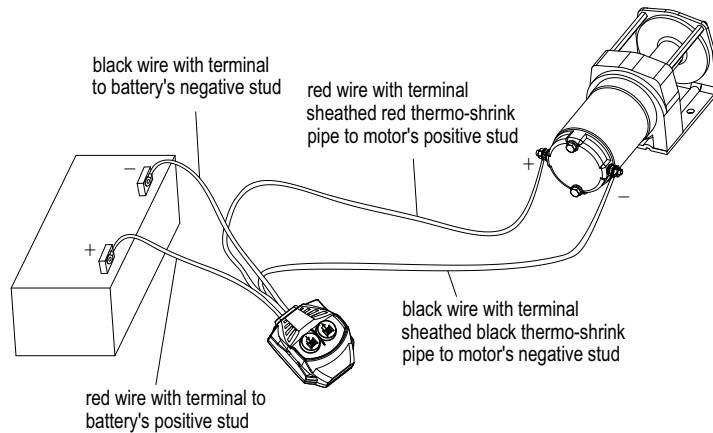


Figure 2

1. Connect one of the red wire ring terminal to the motor positive terminal.
Connect one of the black wire ring terminal to the motor negative terminal.
2. Connect one of the red wire ring terminal to the battery positive terminal.
Connect one of the black wire ring terminal to the battery negative terminal.

Plug the remote control and with the directional lever in the "rope out" position, momentarily depress the trigger to check for proper rotation direction of the winch drum. If the winch run in the wrong direction, reverse the wires connected to the winch motor.

Circuit Breaker

We recommend using a 15Amps circuit breaker for 24V model, 30Amp circuit breaker for 12V model between the battery positive terminal and wire that goes to the switch or solenoid pack. The circuit breaker prevents to overload to the switch and to the winch motor.

PENDANT OPERATION



The switch assembly must be kept free of dirt and moisture to ensure safe operation.

Do not allow winch motor to over-heat. The winch is for intermittent use only. During long or heavy pulls the motor will get hot. Allow to cool after 2 minutes of "ON" time.

MAINTENANCE AND REPAIR

Periodically check tightness of mounting bolts and electrical connections. Remove any dirt or corrosion that may have accumulated on the electrical connections.

BRAKE OPERATION

Your winch has a wrap spring brake that stops and holds loads up to 500 lb. (226 kg). When the winch is powered out, as in releasing a load, the brake is engaged and the motor must overpower the brake resistance to rotate the drum. Therefore, it is normal for the winch to operate faster in one direction than the other. The brake is designed for the wire rope to be used in the underwind position only. Drum must turn counter-clockwise, looking from motor end, when winching in. DO NOT OVER WIND. Powering against the brake will cause heat to build up in the drum and may transfer heat to the wire rope. DO NOT POWER OUT FOR MORE THAN 2 MINUTES.



The drum may get very hot.

OPERATION