




# 2500-LB. ATV WINCH

## OWNER'S MANUAL



 **WARNING:** Read carefully and understand all **INSTRUCTIONS** before operating. Failure to follow the safety rules and other basic safety precautions may result in serious personal injury.

**Item #141450**

Thank you very much for choosing a NORTHERN TOOL + EQUIPMENT CO., INC. Product! For future reference, please complete the owner's record below:

Model: \_\_\_\_\_ Purchase Date: \_\_\_\_\_

Save the receipt, warranty and these instructions. It is important that you read the entire manual to become familiar with this product before you begin using it.

This machine is designed for certain applications only. Northern Tool + Equipment cannot be responsible for issues arising from modification. We strongly recommend this machine is not modified and/or used for any application other than that for which it was designed. If you have any questions relative to a particular application, DO NOT use the machine until you have first contacted Northern Tool + Equipment to determine if it can or should be performed on the product.

For technical questions please call **1-800-222-5381**.

## INTENDED USE

This winch is applicable to a wide variety of mounting options.

## TECHNICAL SPECIFICATIONS & PACKING LIST

Item	Description
Pulling capacity	2500 lbs. (single line)
Gear ratio	153:1
Motor	12V DC with 0.9 HP output/ Permanent magnet
Drum size:	1.61" x 2.9"
Cable	50' of 3/16"
Roller	4-way fairlead

## GENERAL SAFETY RULES



**WARNING: Read and understand all instructions.** Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury.



**WARNING: The warnings, cautions, and instructions discussed in this instruction manual cannot cover all possible conditions or situations that could occur.** It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.



**WARNING: DO NOT ATTEMPT TO INSTALL WIRING WHEN THE BATTERY IS CONNECTED!** Automotive and power sports batteries contain flammable and explosive gases. Wear eye protection during installation and remove all metal jewelry. Do not lean over battery while making connections.

## SAVE THESE INSTRUCTIONS

## WINCH USE & SAFETY



**WARNING: MOVING PARTS ENTANGLEMENT HAZARD.** Failure to observe these instructions could lead to severe injury or death.

- **Always** keep hands clear of wire rope, hook loop, hook and fairlead opening during installation, operation, and when spooling in or out.
- **Always** use extreme caution when handling hook and wire rope during spooling operations.
- **Always** wear heavy leather gloves when handling a wire rope, and never let wire rope slip through your hands.
- **Always** stand clear of wire rope and load during operation, and keep bystanders away as well. Do not try to guide the cable
- **Always** be certain the anchor you select will withstand the load, and the strap or chain will not slip.
- **Never** use as an overhead hoist, or to suspend a load.
- **Never** use to lift or move persons.
- **Never** exceed the winch or wire rope rated capacity.
- **Never** apply load to hook tip or latch. Apply load to only the center of the hook.
- **Never** use a hook whose throat opening has increase, or whose tip is bent or twisted.
- **Never** touch wire rope or hook while in tension or under load.
- **Never** hook wire rope back onto itself.

## ASSEMBLY OF WINCH



**WARNING: Before installing this winch, disconnect the vehicle ground and positive leads from the battery.**



**WARNING: CHEMICAL AND FIRE HAZARD.** Failure to observe these instructions could lead to severe injury or death.

- **Always** remove jewelry and wear eye protection.
- **Never** lean over battery while making connections.
- **Always** verify area is clear of fuel lines, fuel tank, brake lines, electrical wires, etc... when drilling.
- **Never** route electrical cables:
  1. Across any sharp edges.
  2. Through or near moving parts.
  3. Near parts that become hot.
- **Always** insulate and protect all exposed wiring and electrical terminals.
- **Always** install terminal boots as directed.
- **Always** choose a mounting location that is sufficiently strong to withstand the maximum pulling capacity of the winch.

**NOTE:** The wire cable has been installed on your winch under minimal load at the factory. The wire rope must be re-spoiled onto the drum under load so that the outer layers will not draw down into the inner layers, damaging the wire rope.

### **Step (1)**

Install mounting kit or prepare a flat, secure mounting location for the winch. Carefully follow the instructions included with the mounting kit.

**Note:** If you choose not to use a mounting kit, you will need to drill holes in the structural support of your vehicle. Be certain that your structural support will stand up to the rated pulling forces of this winch.

### **Step (2)**

Position the winch over the holes in the mounting kit or structural support.

### **Step (3)**

Secure winch to mounting kit or structural support using bolts, washers and nuts supplied.

**Note:** In order to gain access to the hardware directly underneath the cable drum it may be necessary to unspool the cable from the winch drum.

## **WINCH WIRING INSTALLATION**



**CAUTION:** When attaching wires to the motor or solenoid terminals, hold the inner nut with a wrench while tightening the outer nut with a second wrench. Do not allow the terminals to rotate in their housings. Rotation may cause internal wire damage or part misalignment.

### **Step (1)**

**Contact Location:** The contactor is mainly a safety component for your winch system. It separates your winch from its power source when not in use. It is recommended that the contactor be mounted close to the battery in a clean, dry location. Typical locations are in or near the rear storage box and on some models under the seat. Make sure the location you chose allows sufficient clearance from all metal components such as frame tubes. Drill mounting holes once location is found but do not install as it is easier to wire the contactor prior to mounting.

### **Step (2)**

**Switch Mounting:** Switch is typically mounted on the left handlebar. Use a piece of black electrical tape to prevent rotation on the bar. Do not install over any wires or hoses. Once mounted, route the wiring harness back to where the contactor will be mounted, attaching the harness to hard points on the vehicle with cable ties. Splice this wire to a key controlled electrical wire, or connect to terminal 1 of contactor, or battery positive pole (We recommend splice the wire 7 to No.1 on Contactor or battery positive terminal). A test light can be used to locate an appropriate wire. The wire should only have power when the key is on. Attach the two bullet point wires to their corresponding wires on the contactor in Figure 1.

**NOTE:** When routing the wires, the appropriate terminals should be located near the battery, switch mounting point and winch. Your installation requirements will vary depending upon your vehicle and winch. Note that if the wires are not long enough to reach the battery, switch mounting point and winch you may need to increase the length and/or wire gauge of the wiring harness.



**WARNING:** Ensure that the wiring harness does not interfere or come in contact with any hot or moving engine, suspension, steering, braking or exhaust parts.

### **Step (3)**

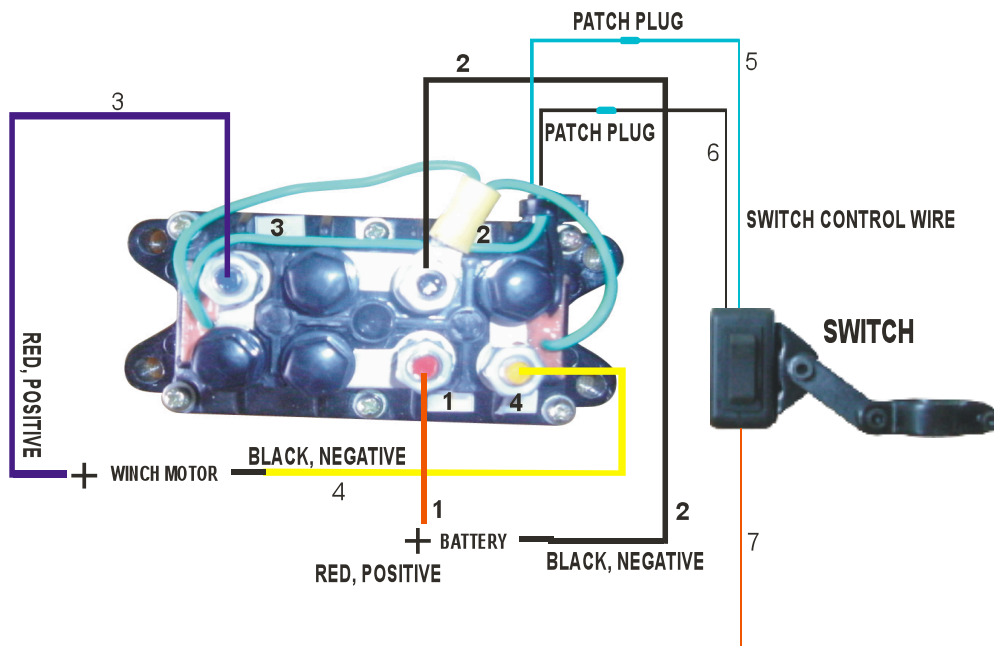
Attach battery wires to contactor locations 1 and 2 as shown in Figure 1. Do not connect to battery at this time.

#### Step (4)

Attach winch wires to contactor locations 3 and 4 as shown in Figure 1. The opposite ends should be routed to the winch and can be connected at this time red to positive (red nut) and black to negative (silver nut).

#### Step (5)

Contactor can now be secured to your chosen mounting location. When all wires have been properly routed and secured with cable ties and electrical tape, take a moment to ensure that your system is properly installed and free from restrictions. You may now attach the wires to the battery positive and negative.



Splice this wire to a key controlled electrical wire, or connect to terminal 1 of contactor, or battery positive pole



**WARNING:** Be sure that switch-mounting position does not impede the operation of the vehicle. Before driving the vehicle, test the vehicle control system range or motion to ensure that switch wiring does not interfere with vehicle operation.



**WARNING:** Before testing winch operation, be sure to reel off approximately two feet of wire rope.

**NOTE:** If you choose to locate the winch or switch at a greater distance than the wires permit, it may be necessary to purchase a heavier gauge wire to get the best performance from your winch.

If the total length of additional wire to be added exceeds 10 feet, use a heavier wire gauge.

**NOTE:** If your vehicle is equipped with side pole terminals, it may be necessary to obtain auxiliary side terminal bolts from your local parts store to make these connections.

## HANDWHEEL OPERATION

### Step (1)

Move the handwheel operation knob to the free position as shown in Figure 2a.



**CAUTION:** If there is a load on the drum, the handwheel knob may not move easily. DO NOT FORCE THE HANDWHEEL KNOB! Release tension on the drum by letting out some of the cable.

### Step (2)

Pull out the cable and secure to an anchor point or load.

### Step (3)

Check to ensure that there are at least 5 turns of cable left on the drum.

### Step (4)

Re-engage the drum by returning the clutch to the ENGAGED position as shown in Figure 2b.



**CAUTION:** Handwheel knob must be fully in the engaged position as shown in figure 2b before winching. NEVER attempt to free or engage the handwheel knob while the drum is turning.

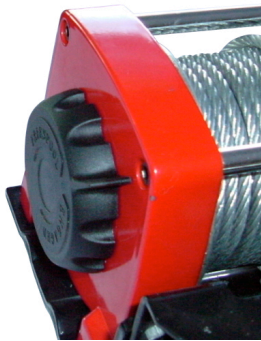


Figure 2a Handwheel disengaged  
(Free Position)

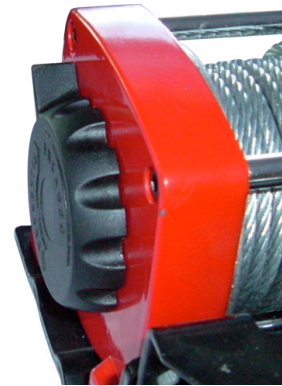


Figure 2b Handwheel Engaged

## WINCH OPERATION



**WARNING:** Clutch must be fully engaged before starting the winching operation. Do not disengage clutch under load. Do not leave clutch engaged when which is not in use.



**WARNING:** A minimum of five wraps of cable around the drum barrel is necessary to hold the load. The cable clamp is not designed to hold a load.



**CAUTION:** Always inspect which installation, wire rope and hook condition before operating winch. Frayed, kinked or damaged wire rope must be replaced immediately. Loose or damaged winch installation must be corrected immediately. Immediately replace a hook that is damaged, bent or twisted.

## ROCKER SWITCH OPERATION:

Activate the winch by depressing the switch in either direction. The rocker switch automatically returns to the OFF position when released.

**NOTE:** In the OFF position, an electrical shunt provides dynamic braking action, which will eliminate coasting. In the OFF position, the shunt reduces the action of a load backdriving the winch. However, a load can cause the winch to creep.



**WARNING:** The winch is not designed to act as a load holding device or to replace a tie down. **DO NOT use the winch to hold loads in place.** Use tie down straps or chains for securing loads.



**WARNING:** Disconnect the winch from the battery when unattended to prevent unauthorized use!

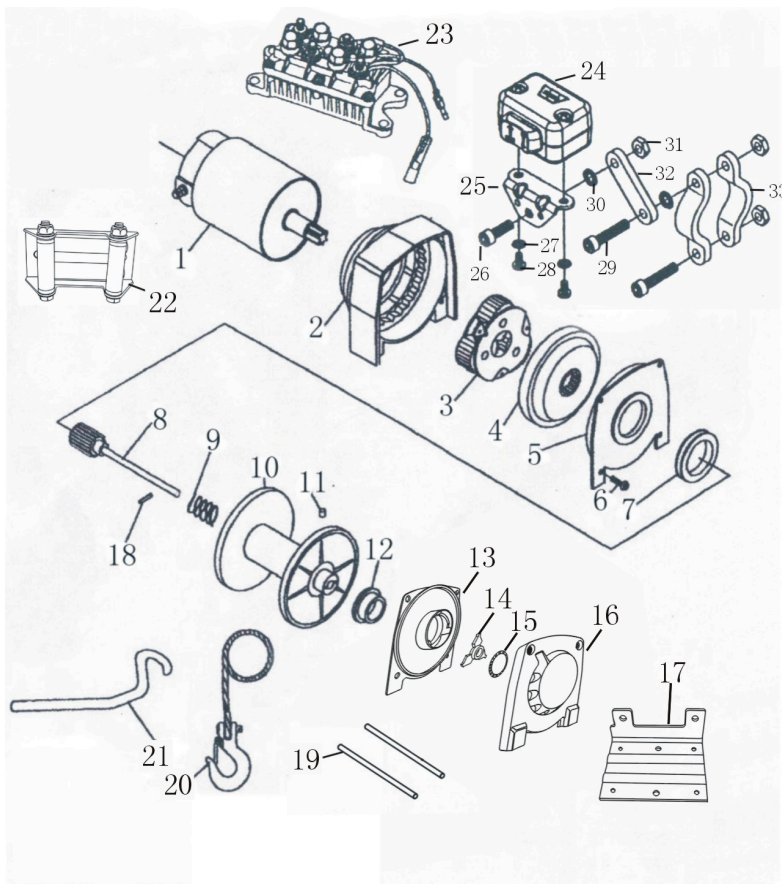
## MAINTENANCE



**WARNING:** Make sure this tool is disconnected from its power source before attempting any maintenance, cleaning, or inspection.

- **Cleaning.** Use only soap and a damp cloth to clean your winch. Many household cleaners are harmful to plastics and other insulation. Never let liquid get inside a winch.
- **Periodically check** mounting bolts and electrical connections for tightness. Remove dirt or corrosion that has accumulated on the electrical connections.
- **Lubrication:** The gearbox and drum bearings are permanently lubricated. No internal lubrication by the owner should be required for the life of the winch. Re-lubrication is necessary after repair or disassembly only.
- **Always** check the condition of wire before using.
- **Wire cable replacement:** Never substitute a heavier or lighter wire rope as a replacement. Never use a rope made of any material other than wire.
- **Always replace a damaged wire rope with a manufacturer's identical replacement part!** Pass the attaching end of the wire rope through the fairlead (if equipped) and attach it to the drum. When attaching the wire rope into the drum, insert it into the correct end of the hole provided. Tighten the setscrew securely.

## DIAGRAM



## PARTS LIST

No.	Description
1	Motor
2	Reduction box
3	Planetary gear
4	Inner gear
5	Drum support plate(box cover)
6	Pan head screw
7	Drum support bushing
8	Spline shaft
9	Spring
10	Drum Assembly
11	Screw
12	Bushing
13	Supporting plate
14	Rocker block
15	Baffle Circle
16	Supported end and handwheel
17	Mounting plate
18	Pin
19	Cross bar



20	3/16" x 50' Wire rope and Hook 13/64" x 50' Wire rope and Hook 7/32" x 50' Wire rope and Hook
21	Manual handle
22	Roller fairlead
23	Contactora
24	Rocker switch
25	Angular supporter
26	Bolt
27	Washer
28	Bolt
29	Bolt (long)
30	Washer
31	Screw cap
32	Joint lever
33	Fastener

## TROUBLESHOOTING GUIDE

Symptom	Possible Cause(s)	Corrective Action
Motor will not operate or runs in one direction only	1. Switch Inoperative 2. Broken wires or bad connection 3. Damaged Motor	1. Replace switch 2. Check for poor connections. 3. Replace or repair motor.
Motor runs extremely hot.	1. Long period of operation. 2. Damaged motor.	1. Allow to cool. 2. Replace or repair motor
Motor runs but with insufficient power or line speed.	1. Weak battery. 2. Battery to winch wire too long. 3. Poor battery connection. 4. Poor ground. 5. Damaged motor.	1. Recharge or replace battery. Check charging system 2. Keep winch within distance allowed by lead wires. 3. Check battery terminals for corrosion. Clean as required. 4. Check and clean connections. 5. Replace or repair motor
Motor runs but drum doesn't turn	1. Clutch not engaged	1. Engage clutch.
Winch runs backwards	1. Motor wires reversed 2. Switch wires reversed. 3. Switch installed incorrectly.	1. Recheck wiring. 2. Recheck wiring. 3. Check switch installation.
Winch will not hold load	1. Excessive load.	1. Reduce load or double line.

For replacement parts and technical questions, please call **1-800-222-5381**.

## WARRANTY

### One-Year Limited Warranty



Northern Tool + Equipment Co.,  
2800 Southcross Drive West  
P.O. Box 1499  
Burnsville, MN 55337-0499  
Made in China