



WARN INDUSTRIES, INC.

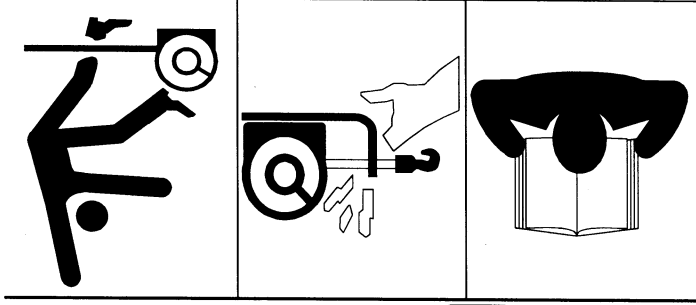
Installation Instructions, Operator's Manual and Replacement Parts List for the

Z3500 WINCH

WARN INDUSTRIES, INC. * 12900 CAPPS ROAD * CLACKAMAS, OREGON 97015
(503)722-1200 * CUSTOMER SERVICE LINE 1-800-543-WARN * FAX (503)722-3000

SAFETY PRECAUTIONS

WARNING



MOVING PART HAZARD

TO PREVENT SERIOUS INJURY AND PROPERTY DAMAGE:

- Do not operate or install winch without reading and understanding the operators manual.
- Keep hands clear of wire rope, hook, and fairlead opening during operation and when spooling.
- Stand clear of wire rope and load during operation.
- Keep others away.
- Always inspect winch installation and wire rope condition before operating winch.
- Do not exceed winch rated capacity.
- Never touch wire rope or hook while in tension.

INSTALLATION INSTRUCTIONS

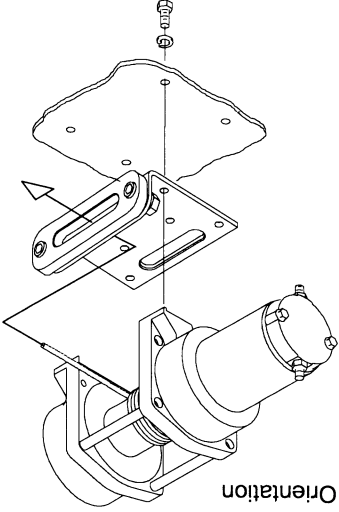
SAFETY FIRST

When installing your winch system, read and follow all mounting and safety instructions. Always use caution when working with electricity and remember to verify that no exposed electrical connections exist before energizing your winch circuit.

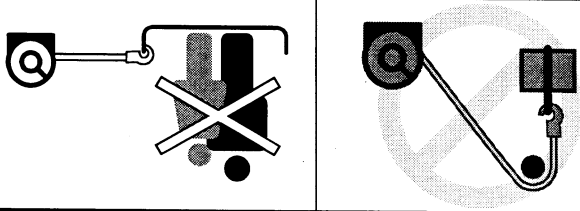


For safety, it is recommended that your winch be disconnected from its power source when not in use. If your installation is accessible to others, please order and install a power interrupt accessory kit available from your Warn distributor.

WINCH MOUNTING

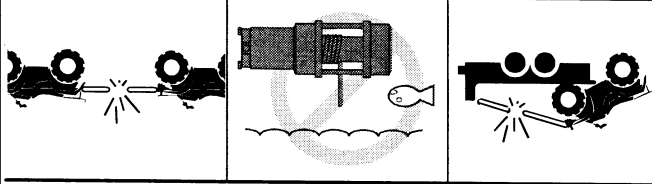


APPLICATION INFORMATION



TO PREVENT SERIOUS INJURY:

- Do not use as a hoist.
- Do not use to move persons.



TO AVOID INJURY AND PROPERTY DAMAGE:

- Do not use winch to secure a load during transport.
- Do not submerge in water.
- Do not use to tow other vehicles.

- Maximum single line pulling capacity : 3500 lb. (1587 kg).
- Intermittent duty rating.
- 12 Volts DC.
- Use only 7/32" (5.5 mm) 7 x 19 aircraft wire rope.

For custom installations, always remember:

- Choose a mounting location that is sufficiently strong enough to withstand the loads you intend to winch.

To secure the winch, always use:

- A flat, secure mounting location at least 3/16 in. (4.8 mm) thick.
- 5/16 in. Lockwasher x 4.
- 5/16-18 x 1 in. Long, hex head capscrew, Grade 5 or better x 4.
- Torque mounting bolts to 12 ft-lbs.

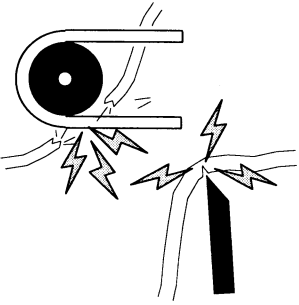
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SOLENOID INSTALLATION

The solenoid is a primary safety feature in your winch system. It disconnects your winch from its power source when not in use. Carefully, follow the instructions for installation, the solenoid must be correctly installed to work properly. Mount the solenoid pack in a convenient location close to the winch motor. Choose a location that is protected and will remain dry.

WARNING

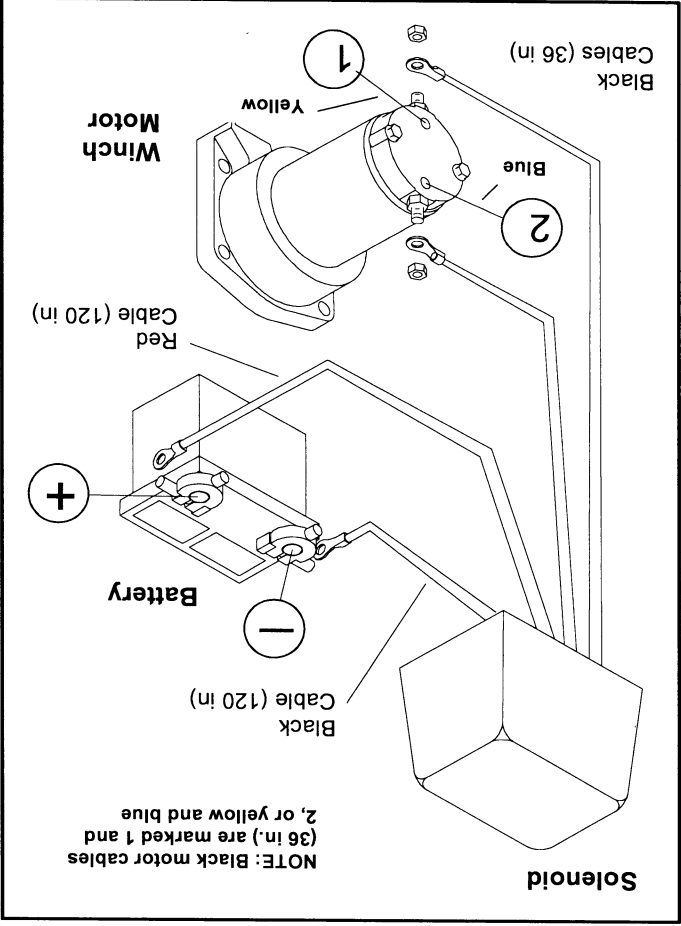
- Do not route electrical cables across sharp edges.
- Do not route electrical cables through or near moving parts.
- Read and follow all wiring instructions included in operators manual.
- Insulate and protect all exposed wiring and electric



CAUTION

- Do not leave remote control plugged into winch while freespooling, rigging, or sitting idle.
- Before winching, inspect remote control lead for damage.
- When using remote control inside a vehicle, always pass it through a window to avoid pinching the lead in a door.
- Always store the remote control in a protected, clean, dry area.

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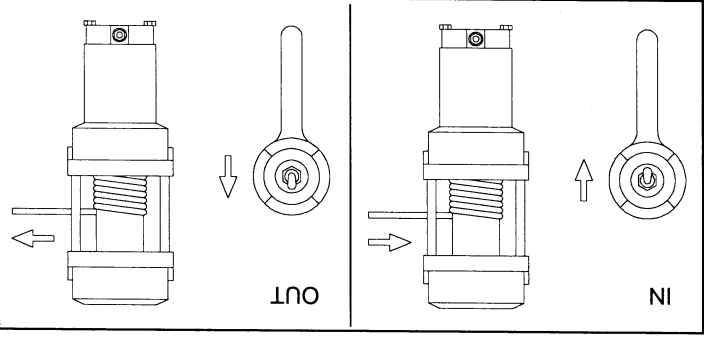


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CAUTION

KNOW YOUR WINCH: Take time to fully understand your winch and the winching operation.

OPERATING INSTRUCTIONS



CONTROL SWITCH

WARNING

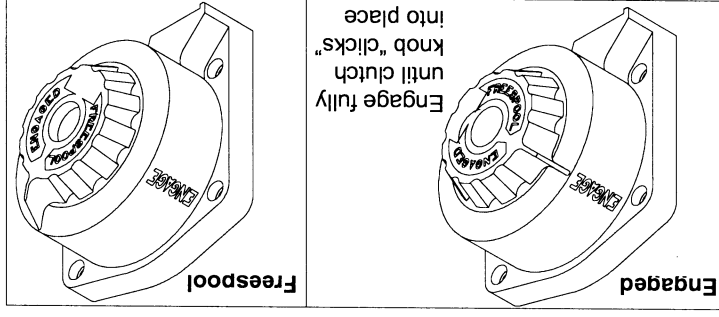
TO PREVENT SERIOUS INJURY OR PROPERTY DAMAGE:

- Do not disengage clutch if winch is under load or wire rope is in tension.

CLUTCH OPERATION

When the clutch is engaged the gear train is coupled to the wire rope drum and power may be transferred from the winch motor. When the clutch is in free spool the gear train and wire rope drum are uncoupled allowing the drum to rotate freely. The clutch knob, located on the winch housing opposite the motor, controls the clutch position. To prevent damage, always fully engage or fully disengage the clutch knob.

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OVERLOADING/OVERHEATING

This winch is rated for intermittent duty. It should not be operated with the motor slowed down to a low RPM. When the motor approaches stall speed, a very rapid heat build-up occurs which may cause motor damage. To judge safe running time, stop winching and lay your hand on the motor. If the temperature is uncomfortable, shut down and cool the motor. This can be used as an opportunity to recharge the battery. Double line rigging will reduce the amperage draw from the motor allowing longer continual use (see rigging section).

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BATTERY RECOMMENDATIONS

A fully charged battery and good connections are essential to the proper operation of your winch. The minimum requirement for a 12 volt DC battery is 45 AMP hour.

MAINTENANCE

- No lubrication is required for the life of the winch.
- Check battery cables at 90 day intervals to be certain that they are clean and tight at all connections.
- Inspect the wire rope before and after each winching operation. Replace when damaged.

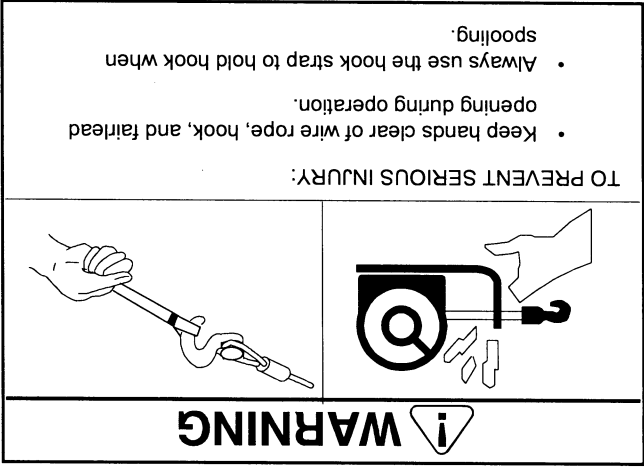
SPOOLING OUT

Freespooling is generally the quickest and easiest way to spool out wire rope. Before freespooling wire rope out from the winch, power out enough rope to remove any tension the wire rope may be under before disengaging the clutch. Now freespool by manually spooling out enough wire rope for the winching operation.



STRETCHING THE WIRE ROPE

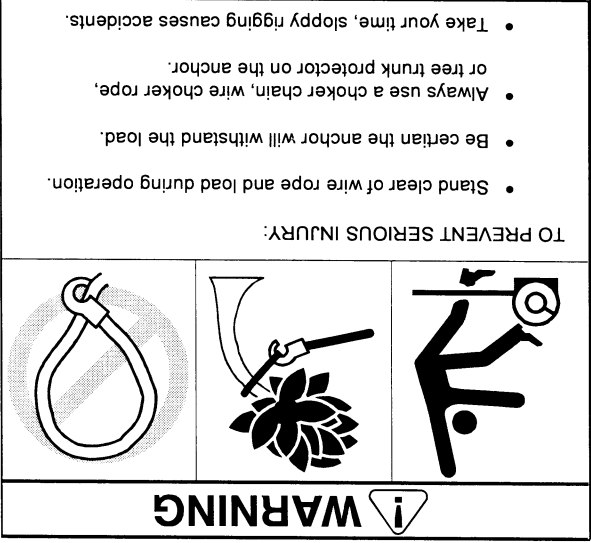
The life of a wire rope is directly related to the care and use it receives. During its first use, a new wire rope must be spooled onto its drum under a load of at least 500 lb. (227kg). Spool out the entire wire rope length leaving 5 wraps on the drum, then power in the wire rope under a load of 500 lb. (227kg) or more. This will stretch new wire rope and create a good wire wrap around the drum. Failure to do so may result in the outer wire wraps drawing into the inner wraps, binding, and damaging the wire rope.



SPOOLING IN UNDER LOAD

- The wire rope must always spool onto the drum as indicated by the drum rotation decal on the winch.
- Power in the wire rope evenly and tightly on the drum. This prevents the outer wire wraps from drawing into the inner wraps, binding and damaging the wire rope.
- Avoid shock loads when spooling, by using the control switch intermittently to take up wire rope slack. Shock loads can momentarily far exceed the winch and wire rope ratings.
- When powering in wire rope during side pull operations the wire rope will stack up at one end of the drum. Eventually this stack will become large enough to cause serious damage to the winch. To prevent damage, line up pulis as straight ahead as possible and stop winching if the wire rope comes close to the tie rods or mounting plate. To correct an uneven stack, spool out that section of the rope and reposition it to the opposite end of the drum which will free up space for continued winching.

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RIGGING

- **Assisted:** Have your assistant hold the hook with a cord or rag putting as much constant tension on the wire rope as possible. While keeping tension, the assistant should walk toward the winch while you operate the control switch spooling in the wire rope. Release the switch when the hook is a minimum of 1m (4ft) from the fairlead opening. Spool in the remainder for storage.
 - **Unassisted:** Arrange the wire rope to be spooled so it will not kink or tangle when spooled. Be sure any wire rope on the drum is tightly and evenly layered. Spool enough wire rope to complete the next full layer on the drum. Tighten and straighten the layer. Repeat process until the hook is a minimum of 1m (4ft) from the fairlead. Spool in the remainder for storage.
- SPOOLING REMAINDER FOR STORAGE**
Keep hands clear of wire rope, hook, and fairlead opening. Always use a rag or cord to hold hook when spooling under no load. Carefully power in the remaining wire rope, jogging the control switch to take up the last of the slack. Secure the hook to a suitable anchor point near the winch. Be careful not to over tighten or damage may occur to the wire rope or anchor point.

- Always spool out as much wire rope as possible when preparing rigging. Pick an anchor as far away as practical. This provides the winch with its greatest pulling power.

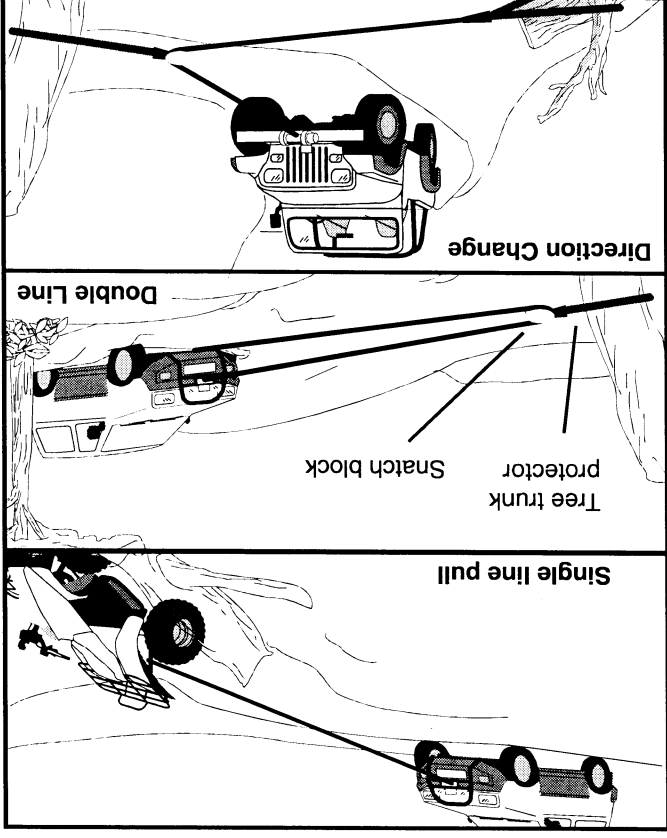
- Rigging a double line with a snatch block will reduce the load on the winch to half without significant loss of spooling speed.

- Natural anchors such as trees, stumps and rocks are the handiest when available. Attach the choker chain, wire choker rope or tree trunk protector on the anchor as low as possible to avoid pulling the anchor down. If several possible anchors are available but they are not strong enough individually, it may be practical to attach a wire or chain choker around several anchors to form a strong collective anchor point.

- Approximate pulling power:

Pulling Power	3500 lb. [1587 KG]
Wire Rope Layer	1st layer*
	2nd layer
	3rd layer
	4th layer
	*closest to drum core
	2376 lb. [1078 KG]
	2700 lb. [1225 KG]
	3080 lb. [1397 KG]

- Some of the most commonly used riggings are shown on page 14 :



Service

Should you encounter a problem during installation or operation of your winch, please follow these steps toward resolving the problem:

1. Refer to your operator's guide and installation instructions. It has illustrations and detailed information on the installation and safe and proper operation of your winch. It also includes a replacement parts list and assembly diagrams. If you are unable to resolve the problem, then go to step 2.
2. Contact your dealer where you purchased your winch. If, after discussing the problem with their parts and service staff, you are still unable to resolve the problem then go to step 3.
3. Call an Authorized Warm Service Center from the list provided on the back of the warranty sheet included with the product. When calling, please have the following information available: winch model number and purchase date, make, model & year of ATV.
4. If you are unable to resolve the problem to your satisfaction, please call Warm Industries customer service at 1-800-543-9276. When calling, please have the following information available: winch model number and purchase date; make, model & year of ATV. You may also contact Warm by visiting our website www.warm.com.

Warranty

Please refer to the warranty sheet enclosed with your winch for details.

WARN Z3500 WINCH
REPLACEMENT PARTS LIST

ORDERING INFORMATION: Parts may be obtained through your local dealer or distributor.

ITEM	QTY	NUMBER	DESCRIPTION
1	1	2174	End Housing, Clutch Knob, Black (includes items 3 & 4)
2	4	7953	Square Nut, 5/16-18
3	1	21872	Cam Follower
4	1	21895	Trust Plate
5	1	21292	Sun Gear, Stage 2
6	1	21329	Carrier Assy, Stage 2
7	1	21330	Carrier Assy, Stage 3
8	2	21597	Drum Support (includes item 9)
9	2	25257	Drum Bushing
10	2	25257	Cable Protector
11	1	28711	Drum Assy
12	1	13699	Button Head Cap screw 1/4-20 x 1/4
13	1	29586	Wire Rope, 7/32" x 60'
14	1	31098	Wire Rope Assy, 7/32" x 60'
15	1	24479	Tie Rod
16	1	34798	Drive Shaft
17	2	21883	Clutch Return Spring
18	1	22142	Carrier Assy, Stage 1, w/ brake
19	1	21595	End Housing, Stage 1 (includes item 29)
20	4	1936	Socket Head Cap screw 1/4-20 x 5/8
21	3	8956	Hook, 1/4 Clevis Slip w/ Strap
22	1	39557	Mounting Plate, Fairlead
23	1	21331	Hex Head Cap screw 5/16-18 x 1
24	7	21316	Lock washer, 5/16
25	1	21316	Motor Shaft Bushing
26	1	29687	Armature, 12 VDC Motor
27	1	36300	Motor, 12 VDC
28	1	31928	Cap Assy, 12 VDC Motor
29	2	21422	Boat, Electric Terminal
30	1	21710	Remote Control
31	2	14157	Socket Head Cap screw 7/16-14 x 1
32	1	27414	Fairlead, Cast
33	1	29256	Roller fairlead
34	2	2146	Lockwasher, 7/16
35	2	2583	Nut, 7/16-14
36	1	60486	Solenoid Pack, 12 VDC, (inc. pack & cables)
37	3	2079	Nut, 5/16-18
38	2	9639	Solenoid, 12 VDC
39	1	38293	Strap, Hook

PARTS BREAKDOWN

