



Winch Installation and Operator's Guide

Every winching situation has the potential for personal injury. In order to minimize that risk, it is important to read this guide and *The Basic Guide to Winching Techniques* carefully. Please familiarize yourself with the operation of your winch before using it, and be constantly safety oriented. In this guide, we will set forth many of the basic rules of safe winch operation. Please read *The Basic Guide to Winching Techniques* for more information on your winch and proper rigging techniques. Remember, because every winching situation is different, your constant good judgment and consistent focus on safety are of great importance.

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SYMBOL INDEX

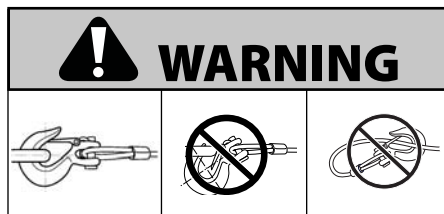
SYMBOL	EXPLANATION
	Read All Product Literature
	Always Wear Hearing and Eye Protection
	Never Use Winch as a Hoist
	Properly Seat Load in Throat of Hook
	Wind Rope on Bottom of Drum
	Finger/Fairlead Crushing Hazard
	Hand Piercing/Cutting Hazard
	Explosion/Bursting Hazard
	Never Route Electrical Cables through Sharp Edges Hazard
	Avoid Installing Electrical Cables around Pinch and Wear/Abrasion Points

SYMBOL	EXPLANATION
	Always Wear Leather Gloves
	Do Not Move People
	Always Use Supplied Hook Strap
	Never Apply Load to Hook Tip or Latch
	Never Wind Rope Over Top of Drum
	Fairlead Pinch Point
	Hot Surface Hazard
	Fire and Burn Hazard
	Never Route Electrical Cables through or near Moving Parts Hazard
	Exposed Wiring Hazard, Insulate Exposed Wiring and Terminals
	Never Hook Back on Rope

Warnings and Cautions



As you read these instructions, you will see WARNINGS, CAUTIONS, NOTICES and NOTES. Each message has a specific purpose. WARNINGS are safety messages that indicate a potentially hazardous situation, which, if not avoided could result in serious injury or death. CAUTIONS are safety messages that indicate a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. A CAUTION may also be used to alert against unsafe practice. CAUTIONS and WARNINGS identify the hazard, indicate how to avoid the hazard, and advise of the probable consequence of not avoiding the hazard. NOTICES are messages to avoid property damage. NOTES are additional information to help you complete a procedure. **PLEASE WORK SAFELY!**



MOVING PARTS ENTANGLEMENT HAZARD

Failure to observe these instructions could lead to serious injury or death.

- **Always** ensure hook latch is closed and not supporting load.
- **Never** apply load to hook tip or latch. Apply load only to the center of hook.
- **Never** use a hook whose throat opening has increased, or whose tip is bent or twisted.
- **Always** use a hook with a latch.
- **Always** ensure the operator and bystanders are aware of the stability of the vehicle and/or load.
- **Always** keep wired remote control lead and power cord clear of the drum, rope, and rigging. Inspect for cracks, pinches, frayed wires or loose connections. Damaged components must be replaced before operation.
- **Always** pass remote lead thru window when used in vehicle.
- **Never** hook back on rope.

WARNING	
MOVING PARTS ENTANGLEMENT HAZARD Failure to observe these instructions could lead to serious injury or death. General Safety: <ul style="list-style-type: none"> • Always Know Your Winch. Take time to fully read the Instructions and/or Operations Guide, and/or Basic Guide to Winching Techniques, in order to understand your winch and its operations. • Never exceed winch or winch rope rated capacity. Double line using a snatch block to reduce winch load. • Always wear heavy leather gloves when handling winch rope. • Never use winch or winch rope for towing. Shock loads can damage, overload and break rope. • Never use a winch to secure a load. • Never operate this winch when under the influence of drugs, alcohol or medication. • Never operate this winch if you are under 16 years of age. Installation Safety: <ul style="list-style-type: none"> • Always choose a mounting location that is sufficiently strong to withstand the maximum pulling capacity of your winch. • Always use class 8.8 metric (grade 5) or better hardware. • Never weld mounting bolts. • Always use factory approved mounting hardware, components, and accessories. • Never use bolts that are too long. • Always complete the winch installation and hook attachment before installing the wiring. • Always keep hands clear of winch rope, hook loop, hook and fairlead opening during installation, operation, and when spooling in or out. • Always position fairlead with warning readily visible on top. • Always prestretch rope and respool under load before use. Tightly wound rope reduces chances of "binding", which can damage the rope. 	

WARNING	
MOVING PARTS ENTANGLEMENT HAZARD Failure to observe these instructions could lead to serious injury or death. Winching Safety: <ul style="list-style-type: none"> • Always inspect winch rope, hook, and slings before operating winch. Frayed, kinked or damaged winch rope must be replaced immediately. Damaged components must be replaced before operation. Protect parts from damage. • Always remove any element or obstacle that may interfere with safe operation of the winch. • Always be certain the anchor you select will withstand the load and the strap or chain will not slip. • Always use supplied hook strap whenever spooling winch rope in or out, during installation and during operation. • Always require operators and bystanders to be aware of vehicle and/or load. • Always be aware of stability of vehicle and load during winching, keep others away. Alert all bystanders of an unstable condition. • Always unspool as much winch rope as possible when rigging. Double line or pick distant anchor point. • Always take time to use appropriate rigging techniques for a winch pull. • Never touch winch rope or hook while someone else is at the control switch or during winching operation. • Never engage or disengage clutch if winch is under load, winch rope is in tension or drum is moving. • Never touch winch rope or hook while under tension or under load. • Always stand clear of winch rope and load and keep others away while winching. • Never use vehicle to pull load on winch rope. Combined load or shock load can damage, overload and break rope. • Never wrap winch rope back onto itself. Use a choker chain or tree trunk protector on the anchor. 	

WARNING	
FALLING OR CRUSHING HAZARD Failure to observe these instructions could lead to serious injury or death. <ul style="list-style-type: none"> • Always stand clear, keep hands clear, keep others away. • Never operate winch with less than 5 wraps of rope around the drum. Rope could come loose from the drum, as the rope attachment to the drum is not designed to hold a load. • Never use winch as a hoist or to suspend a load. • Always be certain anchor will withstand load, use appropriate rigging and take time to rig correctly. • Never use winch to lift or move persons. • Never use excessive effort to freespool winch rope. • Always use proper posture/lifting technique or get lifting assistance while handling and installing product. • Always wind the winch rope on bottom (mountside) of drum. • Never wind rope over top of drum. • Always spool the winch rope onto the drum in the direction specified by the drum rotation labels on the winch and/or in the documentation. This is required for the automatic brake (if so equipped) to function properly. 	

WARNING	
CUT AND BURN HAZARD Failure to observe these instructions could lead to serious injury or death. To avoid injury to hands and fingers: <ul style="list-style-type: none"> • Always wear heavy leather gloves when handling winch rope. • Always be aware of possible hot surfaces at winch motor, drum or rope during or after winch use. 	

GENERAL SAFETY PRECAUTIONS


 WARNING		
		
		
CHEMICAL AND FIRE HAZARD Failure to observe these instructions could lead to serious injury or death. <ul style="list-style-type: none"> • Always remove jewelry and wear eye protection. • Never route electrical cables across sharp edges. • Never route electrical cables near parts that get hot. • Never route electrical cables through or near moving parts. • Always place the supplied terminal boots on wires and terminals as directed by the installation instructions. • Never lean over battery while making connections. • Never route electrical cables over battery terminals. • Never short battery terminals with metal objects. • Always verify area is clear of fuel lines, fuel tank, brake lines, electrical wires, etc., when drilling. • Always consult operator's manual for proper wiring details. • Always insulate and protect all exposed wiring and electrical terminals. 		


 CAUTION	
	
CUT AND BURN HAZARD Failure to observe these instructions could lead to minor or moderate injury. <ul style="list-style-type: none"> • Never let winch rope slip through your hands. 	


 CAUTION	
	
MOVING PARTS ENTANGLEMENT HAZARD Failure to observe these instructions could lead to minor or moderate injury. To avoid injury to hands or fingers: <ul style="list-style-type: none"> • Never leave remote control where it can be activated during free spooling, rigging, or when the winch is not being used. • Never leave the winch remote control plugged in when installing, freespooling, rigging, servicing or when the winch is not being used. 	

NOTICE
AVOID WINCH AND EQUIPMENT DAMAGE <ul style="list-style-type: none"> • Always avoid side pulls which can pile up winch rope at one end of the drum. This can damage winch rope or winch. • Always ensure the clutch is fully engaged or disengaged. • Always use care to not damage the vehicle frame when anchoring to a vehicle during a winching operation. • Never submerge winch in water. • Always store the remote control in a protected, clean, dry area.

SAFE WORKING CONDITIONS

 WARNING
Always stand clear, keep hands clear, keep others away.

 WARNING
Always require operators and bystanders to be aware of vehicle and/or load.

 CAUTION
Never leave remote control where it can be activated during free spooling, rigging, or when the winch is not being used.

NOTICE
Never submerge winch in water.

SAFE WORKING CONDITIONS

The operator should always operate the winch from a safe position when pulling a load. The safe areas are:

- (1) Perpendicular to the wire rope,
- (2) Inside the vehicle with the hood up (if winch is mounted on front of vehicle). These safe positions will help prevent the wire rope from striking the operator if the wire rope fails when under load.

Operate winch from the fully extended remote control cord length whenever possible. The operator must always be at least 8 ft. (2.44 m) from the winch while operating. This will prevent entanglement with the fairlead and keep the operator out of harms way during winch load pulling.

Never work around the wire rope while under load.

Sound Emissions

The winch is designed so that the sound emissions do not exceed 70 dBA from the operator's station. The operator must be at least 8 ft. (2.44 m) from the winch while operating. If the winch is exceeding 70 dBA from the operator's station, have the winch inspected at an authorized service center.

Cleaning

Do not direct high pressure water (pressure washers, car washes, etc.) between the drum support and drum flange or clutch lever.

Use low pressure water and a soapy rag or sponge to clean the winch.

Avoid using chemicals that may damage the finish.

Thoroughly clean salt residue from the winch as soon as possible to minimize corrosion.

Maintenance

No lubrication is required for the life of the winch unless the winch has been submerged in water. If this occurs, a qualified service center must complete service as soon as possible to prevent corrosion damage. If the control pack is submerged, it must be replaced when the winch is serviced.

Check battery cables and electrical connections at 90 day intervals to be certain they are clean and tight at all connection points.

Inspect the wire rope before and after each winching operation. When damaged, replace with the size specified in the Replacement Parts List, or go to the Warn website at www.warn.com.

The wire rope must always spool onto the drum as indicated by the drum rotation decal on the winch.

Instructions For Wire Rope

Installation

Remove the end cap from the drum support and insert the end of the wire rope through the fairlead and through the hole in the drum. Attach the wire rope clamp and pull tight so clamp returns to inside the drum. Secure the winch as stated in the winch mounting instructions.

MOUNTING

MOUNTING WINCH

Choose a mounting location that is sufficiently strong enough to withstand the loads you intend to winch. Only the mounting orientation shown are possible for safe winching operation. All others are improper and inappropriate. The use of recommended bolt and lock washer combinations torqued to recommended levels will prevent vibration during operation. The mounting details indicate the proper torque levels.

Remember the winch rope must always spool onto the drum as indicated by the drum rotation decal.

Refer to the following diagrams for proper mounting orientation.

The alignment between the winch gear housing and the winch drum support is of prime importance for the life of your winch. For winches that are not mounted on a factory mounting plate, it is recommended to use a winch mounting bracket as shown below, applying the illustrated hole pattern, hole diameters and tolerances.

1) Place the winch on the mounting plate, align the upper holes in the gear case and drum end support with the upper holes in the mounting plate. Secure loosely with two 7/16" - 14x1-1/2" hex head cap screws with lock washers in the upper holes.

2) Align holes in fairlead with holes in mounting plate and winch. Insert two 7/16" - 14x1-1/2" hex head cap screws with lock washers through fairlead and secure loosely to winch with 7/16" square nuts. (Cavities have been provided in the gear case and drum support for square nuts.) Any deviation from this standard mounting will be shown on the mounting kit installation instructions.

NOTE: Drum end support must be tightened first. Lightly tighten gear side and align with end support. Assume that drum rotates freely with clutch disengaged. If drum binds or does not rotate freely, relocate end support and repeat process. On models without clutch, check for binding after electrical connections are made.

3) Tighten the above cap screws to 45-50 ft. lbs. (61-68Nm) torque. Install

two soft plugs into fairlead holes with hammer. This is an anti-theft device.

Control Pack Installation

Mount the control pack according to the instructions included in the WARN mounting system kit. Use the bracket included in the kit.

Mounting Bolt Pattern:

10" x 4.5", 254 mm x 114.3 mm

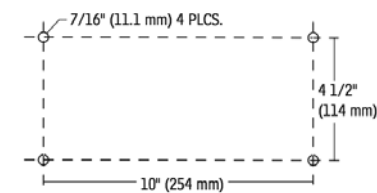
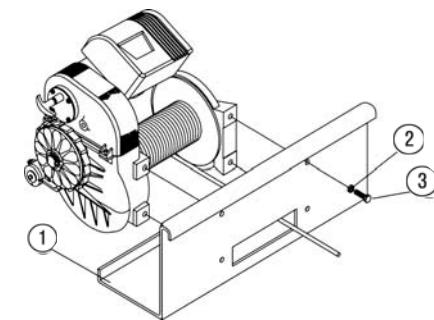


Plate Thickness	Bolt Length
1/4" (7 mm)	1.5" (40 mm)
3/8" (10 mm)	1.5" (40 mm)
1/2" (13 mm)	1.75" (45 mm)

Mounting Details:

- (1) Smooth and flat, thickness = 1/4" (6.4 mm)
- (2) 7/16" (11.1 mm) lockwasher X 4
- (3) 7/16-14 X 1 1/2" long, grade 5 bolt X 4
Torque 45-50 ft. lbs. (61-68Nm)



⚠ WARNING

Always choose a mounting location that is sufficiently strong to withstand the maximum pulling capacity of your winch.

⚠ WARNING

Always complete the winch installation and attach the hook before installing the wiring.

⚠ WARNING

Never use bolts that are too long.

ELECTRICAL CONNECTIONS

⚠ WARNING

Never route electrical cables across sharp edges.

⚠ WARNING

Never route electrical cables near parts that get hot.

⚠ WARNING

Never route electrical cables through or near moving parts.

⚠ WARNING

Always place the supplied terminal boots on wires and terminals as directed by the installation instructions.

⚠ WARNING

Always insulate and protect all exposed wiring and electrical terminals.

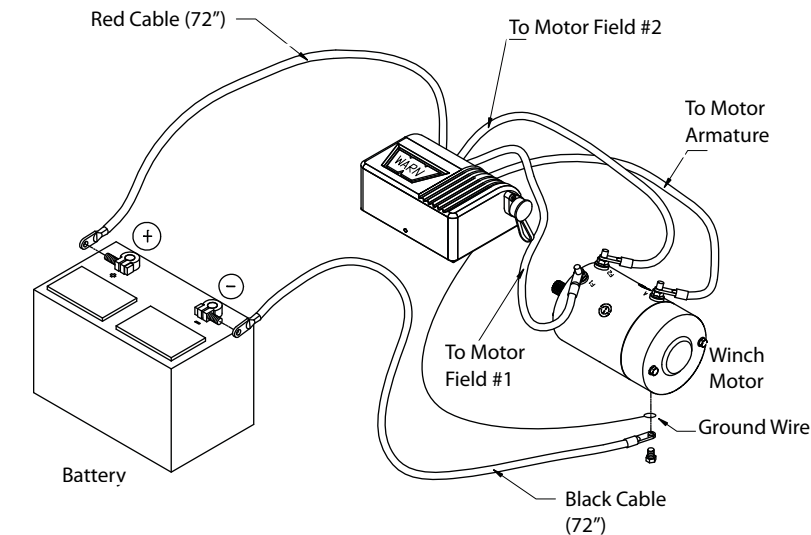
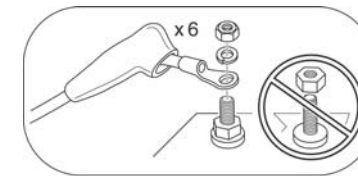
ELECTRICAL CONNECTIONS

Use the included insulating boots on exposed connections to prevent electrical shorting. Route battery connection cables in areas which will not cause them to chafe or cut through the insulation causing a potential short circuit.

Upon completion of installation, check winch for proper operation.

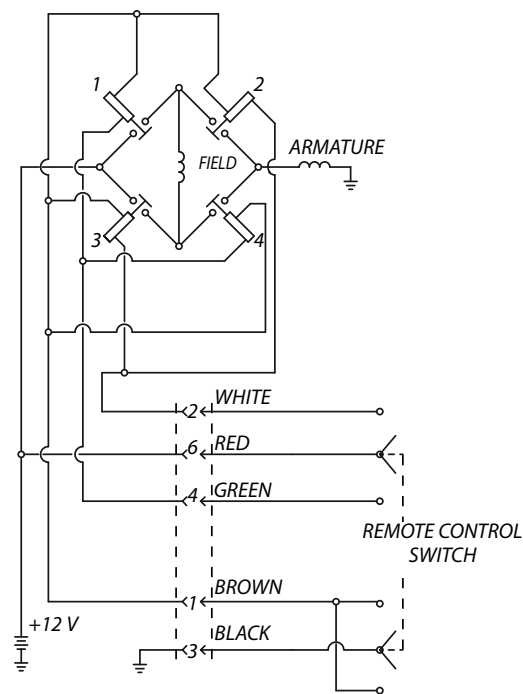
Refer to the electrical circuit diagrams on the following page.

Electrical Diagrams:

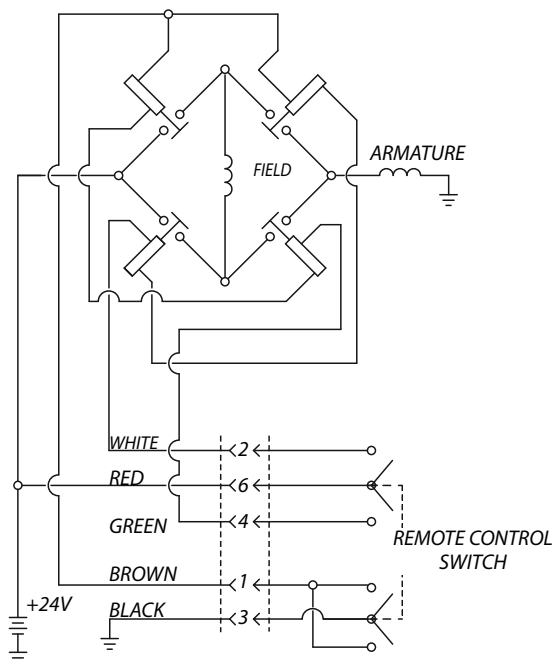


ELECTRICAL CIRCUIT DIAGRAMS

12V



24V



Remote Control Switch

WARNING**Always**

take time to fully understand your winch and the winching operation by reviewing *The Basic Guide to Winching Techniques* included with your winch.

WARNING

Never engage or disengage clutch if winch is under load, winch rope is in tension or drum is moving.

WARNING

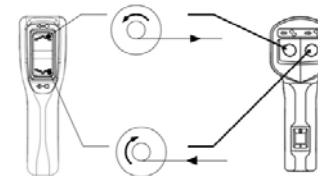
Never operate winch with less than 5 wraps of rope around the drum. Rope could come loose from the drum, as the rope attachment to the drum is not designed to hold a load.

NOTICE

Do Not power-out rope more than 30 ft. without allowing the winch to cool for 20 minutes before powering rope back in. Instead, place the clutch in freespool and pull the rope off by hand.

Do not leave the remote plugged into the winch when not in use. Leaving the remote plugged in, may result in a dangerous condition and/or battery drain.

Vertical/Horizontal Remote:

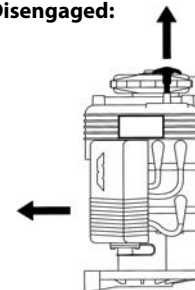


Clutch Operation

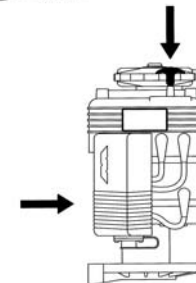
When the clutch is engaged, the gear train is coupled to the wire rope drum and power can be transferred from the winch motor. When the clutch is disengaged it is in the freespool position and the gear train and wire rope drum are uncoupled allowing the drum to rotate freely.

The clutch lever, located on the winch housing opposite the motor, controls the clutch position. To prevent damage, always fully engage or fully disengage the clutch lever.

Disengaged:



Engaged:



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 might be under. Disengage the clutch. Then freespool by manually spooling out enough wire rope for the winching operation. See *The Basic Guide to Winching Techniques* for more information.

Always leave at least 5 wraps of rope on the drum.

Spooling In Under Load

Never exceed winch's rated line pull. Power-in the wire rope evenly and tightly on the drum. This prevents the outer wire wraps from sinking into the inner wraps, binding, and damaging the wire rope.

Avoid shock loads when spooling, by pulsing the control switch to take up wire rope slack. Shock loads can momentarily far exceed the winch and rope ratings.

Spooling In Under No Load

Spooling with an Assistant: Have the assistant hold the hook strap 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 6 ft. (2 m) from the fairlead opening.

Spool in the remainder for storage as directed below.

Spooling Alone: 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.

OPERATING INSTRUCTIONS

Cont.

Repeat process until the hook is a minimum of 6 ft. (2 m) from the fairlead opening.

Spool in the remainder for storage as directed below.

Spooling Remainder for Storage

When the hook is within 6 ft. (2 m) of the fairlead, disconnect the hook from the anchor or load. Hold onto the supplied hook strap and hold tension on the winch rope. Slowly power-in the winch by “pulsing” the power-in switch on the remote control until the hook is within 3 ft. (1 m) of the fairlead. Stop winching in and attach the hook to a suitable anchor point on the vehicle.

DO NOT POWER THE HOOK INTO THE FAIRLEAD. This could cause damage to the fairlead. Once the hook is suitably attached to the vehicle, power-in the remaining slack in the winch rope by “pulsing” the power-in switch on the remote control until there is minimal slack in the winch wire rope.

Overloading/Overheating

This winch is rated for intermittent duty. When the motor approaches stall speed, very rapid heat buildup occurs which may cause motor damage.

Double-line rigging (see *The Basic Guide to Winching Techniques*) will reduce the amperage draw, and reduce heat buildup in the motor. This allows longer continual use.

STRETCHING WIRE ROPE

The life of a wire rope is directly related to the use and care it receives. During its first use, a new wire rope must be spooled onto its drum under a load of at least 1000 lbs. (454 kgs). Use the following instructions to properly stretch the wire rope onto the winch drum.

1) Choose a FLAT AND LEVEL location that is large enough to run out the entire length of wire rope.

2) Turn the clutch lever on the winch to the “Free Spool” position. Spool out the wire rope to the last 5 wraps on the drum. Once the wire rope is spooled out, turn the clutch lever on the winch to the “Engaged” position.

3) Attach the hook end of the rope to a suitable anchor point and back the vehicle away from the anchor point until there is very little slack in the wire rope. Before getting out of the vehicle, set the parking brake, place the vehicle in gear or park and turn the vehicle off.

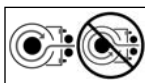
4) Connect the remote control to the winch. Standing approximately 8 ft. (2.44 m) away from the winch, power-in the winch until all of the slack is wound onto the winch drum. Disconnect the remote control from the winch. Hold tension on the wire rope with one hand; carefully push the wire rope to the side of the drum the wire rope is attached to so there are no gaps between each coil on the drum. Be sure to check that the wire rope is winding off of the bottom of the drum, not the top, or the automatic load holding brake will not function properly. (If the wire rope is winding off the top you have powered the winch “out” instead of “in” on the remote control).

5) The following steps should be done using two people for proper safety. If you attempt to tension your wire rope alone be sure to always

WARNING
Always keep hands clear of winch rope, hook loop, hook and fairlead opening during installation, operation, and when spooling in or out.

WARNING
Never touch winch rope or hook while someone else is at the control switch or during winching operation.

WARNING
Always wear heavy leather gloves when handling winch rope.



WARNING
Always use supplied hook strap whenever spooling winch rope in or out, during installation or operation to avoid injury to hands and fingers.

STRETCHING ROPE

STRETCHING WIRE ROPE Cont.

engage the parking brake, place the transmission in gear and turn the vehicle off every time you exit the vehicle to inspect the winch wire rope. Never exit the vehicle with a load on the winch wire rope. Tensioning the wire rope is critical to ensure a long product life. Tensioning the wire rope will prevent outer layers of wire rope from pinching and deforming the inner layers.

6) Use care to evenly wrap each layer to prevent damage to the rope.

7) Pass the remote control through the driver's window for the driver of the vehicle to operate. Instruct your assistant to stand to the side of the vehicle and away from the winch wire rope. Your assistant should signal you if the wire rope is winding correctly by watching it move across the fairlead as the wire rope is powered in. Start the vehicle and place the transmission in neutral. Release the parking brake while applying moderate brake pedal pressure. Press power-in on the remote control switch. After winching in for approximately 6 ft. (2 m), stop winching. Slowly let up off of the brake pedal and then apply the parking brake. This will ensure that there is no load on the winch rope. Then place the transmission in park or in gear and turn the vehicle off. Exit the vehicle and inspect the winch to make sure that the wire rope is being evenly wound onto the winch drum and not sinking into the lower layer. If the wire rope is sinking, power the wire rope out and repeat this step from the beginning with more brake pedal pressure.

8) When you are convinced the wire rope is winding onto the winch drum properly, repeat step 6 until the vehicle is within 6 ft. (2 m) of the winch anchor. Once within 6 ft. (2 m), slowly let up off of the brake pedal and then apply the parking brake. This will ensure that there is

no load on the winch wire rope. Then place the transmission in park or in gear and turn the vehicle off. Exit the vehicle. Disconnect the hook from the anchor. While holding onto the supplied hook strap, hold tension on the winch rope and slowly power-in the winch by “pulsing” the power-in switch on the remote control until the hook is within 3 ft. (1 m) of the fairlead. Stop winching in and attach the hook to a suitable anchor point on the vehicle.

DO NOT POWER THE HOOK INTO THE FAIRLEAD. This could cause damage to the fairlead. Once the hook is suitably attached to the vehicle, power-in the remaining slack in the winch rope by “pulsing” the power-in switch on the remote control until there is minimal slack in the winch wire rope.

WARNING
Always prestretch rope and respool under load before use. Tightly wound rope reduces chances of “binding”, which can damage the rope.

WARNING
Never touch rope or hook while someone else is at the control switch or during winching operation.

WARNING
Never operate winch with less than 5 wraps of rope around the drum. Rope could come loose from the drum, as the rope attachment to the drum is not designed to hold a load.