

3 Ways to Get the Most from Your Winch

1. Physics of The Pulling Power Zone™

How the Laws of Physics govern winch performance.

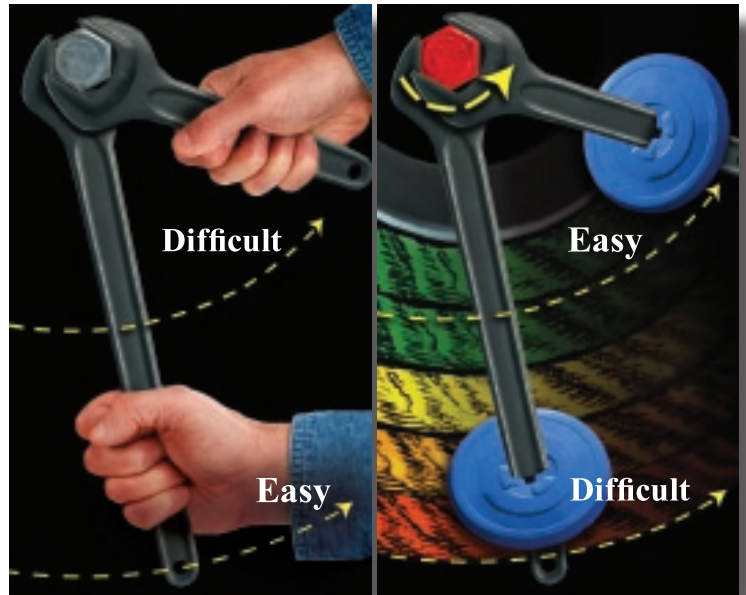
We know that using a long-handled wrench makes a job easier. You pull further away from the bolt – a longer turning radius.

WHAT IF THE BOLT WAS DOING THE PULLING?

Then the opposite is true. It's easier for the bolt to turn the same weight when it's closer to the bolt – a shorter turning radius.

Just like the drum on a winch.

As layers of rope build up, pulling the same weight requires greater force, robbing your winch of power. The first 2 layers of rope on the drum we call the Pulling Power Zone. Beyond 2 layers, pulling capacity can be reduced as much as 42%.



Get the most from your winch. Extra layers cut pulling power. Stay in The Pulling Power Zone.

Start each pull with a minimum of **5 wraps*** around the drum.

From the minimum 5 wraps of rope, to the maximum of **2 layers**** on the drum, you are working in the **Pulling Power Zone.**

* The industry safety standard. The rope fastener alone cannot support a heavy load.



** Pulling capacity is determined by the load a winch can pull with only the bottom layer of rope on the drum. For practical purposes, full capacity is retained with up to 2 layers.

- 5 Layers: Power drops 42%
- 4 Layers: Power drops 32%
- 3 Layers: Power drops 19%
- 2 Layers | **The Pulling Power Zone™**
- 1 Layer

The power loss percentages above are approximate.

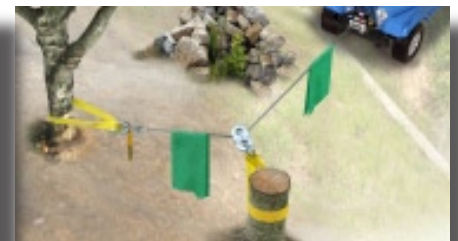
2. Use a pulley block and double the capacity of your winch.

Another Law of Physics: double the line with a pulley block and you double the pulling capacity of your winch. Removing extra rope from the drum also allows you to work in the Pulling Power Zone.

Some typical pulls: a single-line, straight pull.

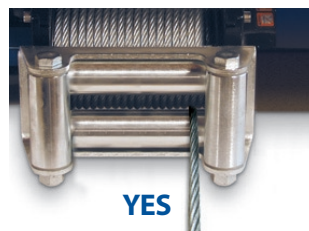
A typical double-line winch and pulley arrangement doubles winch capacity.

A redirected pull. If there's no straight, clear line to the anchor point, use a pulley block.



3. Keep the rope feeding through the fairlead as straight as possible.

This will help keep the rope wrapping smoothly across the drum. Rope feeding through the fairlead at a sharp angle will bunch up.



The following safety precautions must be implemented when preparing a winch recovery task:

- Practice using the winch before you need to use it.
- Do not rush. Take the time to plan and prepare carefully.
- Estimate the load to be winched.
- Use the correct equipment and do not take shortcuts.
- Recheck the condition of the wire winch rope and any other equipment being used for serviceability and any obvious damage.
- Ensure that the winch controls (remote pendant) are not plugged into the winch while setting up.
- Do not exceed the rated safety capacity of the wire rope. Use a double line (2:1) recovery layout if required. If the winch rope must be anchored back onto the winch vehicle when using a 2:1 layout do not attach it to the winch frame as this will double the forces acting on the frame. Attach it to the chassis.
- Never use a winch as a hoist. Winches are for pulling not for lifting.
- Do not use the winch rope as a tow rope.
- Do not use the winch rope to secure cargo on a vehicle.
- Do not attach a winch rope to a vehicle's tow ball, axles or suspension.
- Wear leather gloves when handling wire rope. Do not allow the rope to slide through the gloves .
- Use the hook strap supplied with the winch to pull the winch rope from the drum.
- Endeavour to set up the wire rope so that it is retrieved at a 90 degree angle to the winch drum. (straight pull) This will ensure that it is rewound onto the winch drum evenly and will avoid the damage and delays when over stacking and binding occur.
- Do not hook the wire rope back onto itself. Use a choker chain or sling instead.
- Remove any obstructions which may interfere with the safe winching operation.
- Ensure that any anchors used are strong enough to hold the load .
- Place a bag or a blanket over the winch rope to minimise cable whiplash damage if it breaks. In the absence of a bag or a blanket consider using a heavy jacket or leafy branches.
- Only allow one person to handle the wire rope and the winch controls (remote pendant).
- Establish no go safety zones for assistants and onlookers.