

*Vehicle Without Winch (Single Wheels).* Place a bar through the hole in the end of the axle flange of each rear wheel. On each wheel, fasten one end of the rope to the bar and the other to an anchor. Move the vehicle in reverse gear to wind the rope in behind the bar (File 22-5). This procedure cannot be used on vehicles equipped with a Center Tire Inflation System (CTIS).

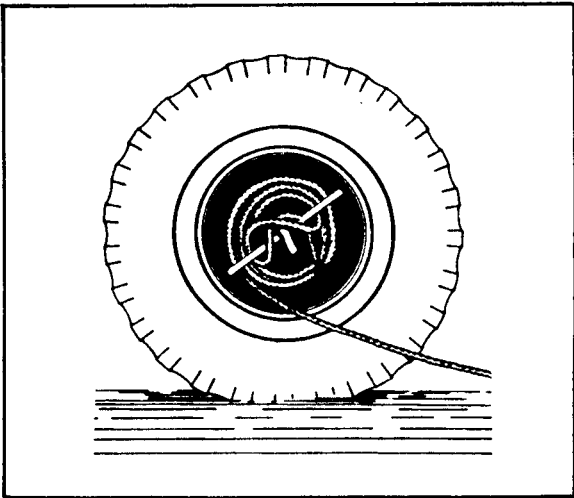


FIGURE 22-5. Single-Wheel Winch.

### Two-Vehicle Winch Operation

Mechanical advantage is gained by using a mechanism to transmit force. A small force, when moved through a long distance by one or more mechanisms (pulleys), will move a large weight (vehicle) for a short distance. Use one of the following procedures when rigging for greater mechanical advantage.

*Two-Part Line.* This simple hookup gives a 2:1 mechanical advantage (Figure 22-6). Attach a snatch block to the load. Next, run your winch cable through the block and secure the cable to the winch vehicle. Place a log in front of the towing vehicle to help hold its ground.

*Three-Part Line.* To get a mechanical advantage of 3:1, use two snatch blocks – one at the load and one on the winch vehicle (Figure 22-7). Thread the winch cable first through the block on the load, back through the block on the winch, and then again to the load where it is secured.

*Four-Part Line.* To get a 4:1 mechanical advantage, use two snatch blocks – a double-sheave block for the load and a single-sheave block for the winch vehicle (Figure 22-8). Thread the winch cable through one sheave of the double block attached to the load back through the single sheave on the winch vehicle, and again to the load through the second sheave of the double block. Finally secure it to the winch vehicle.

### Winch Safety

*Cable.* Recovery operations take time. Do not hurry. A broken winch line reacts like a whip. When hooking to a vehicle, use both shackles whenever possible so effort is applied equally and damage to the vehicle is minimized.

Never bend the wire cable at a sharp angle. Straighten out all kinks and twists as you take up the slack. Do not let tractors or vehicles with metal tracks run over the cable. Such abuse flattens the cable, exposes the Manila hemp core, and lets water enter, causing internal rust and weakening the cable.

### WARNING

Stand clear of a winch cable before it is tightened. A cable being tightened may break and whip back with enough force to seriously maim or kill.

After using the winch, have one person or preferably two pull back on the cable while it is wound slowly and evenly on the drum in accordance with the appropriate vehicle operator -10 TM. Keep the cable lubricated according to the vehicle lubrication order.

*Shear Pin.* When the winch is overloaded, the shear pin breaks to protect the cable. Never use makeshift shearing of unknown strength to replace a broken pin. Too strong a pin may snap the cable and damage the winch. Use only authorized replacement pins. Do not depend on the shear pin for protection. Even with the proper pin installed, a kinked, damaged, or weakened cable may snap. Vehicles with electric winches have circuit breakers to protect the winch from overloading. Check the appropriate vehicle operator -10 TM for correct winch.