

75 Series Winch Instructions

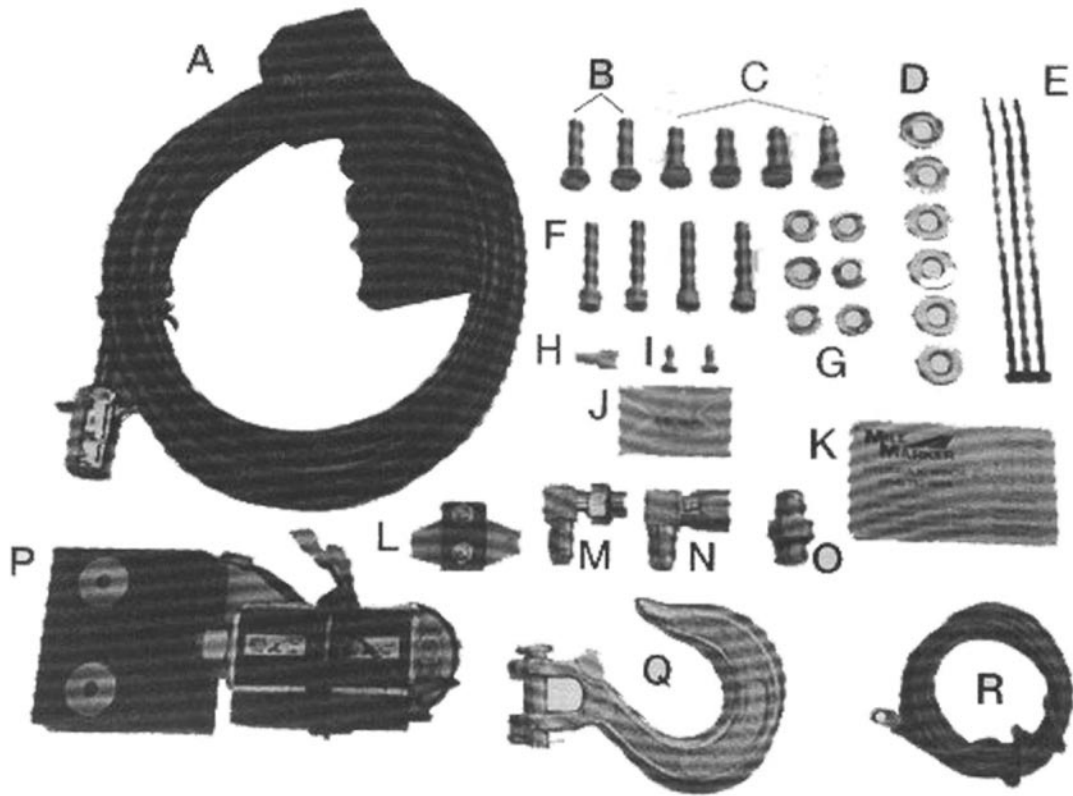
Hydraulic Winch & P.T.O. System



Smooth Power
Reversible Mounting
No Battery Drain 12 or 24 volt



TM



Parts Listing	Quantity
A. 93-50012 Hand Control Assembly	(1)
B. 90-501 <input type="checkbox"/>	(2)
C. 90-50099 <input type="checkbox"/>	(4)
D. 86-50020 Washer 3/8 <input type="checkbox"/>	(6)
E. Wire Tie <input type="checkbox"/>	(3)
F. 90-50121 5/16-18x1 1/2 socket Head (valve)	(4)
G. 86-50030 3/8 lockwashers	(6)
H. 93-50090 Female Connector	(1)
I. 90-50114 P <input type="checkbox"/>	(2)
J. 983-0067 Plate hold down screw	(4)
K. 983-0060 Lever Configuration plate	(1)
L. 93-80036 Circuit Breaker 24v 15amp	(1)
M. 90-50067 90° for valve	(1)
N. 90-50060 Male to female for valve 90°	(1)
O. 90-50091 Straight Fitting	(1)
P. 35-50300 75 Series Valve	(1)
Q. 19-51202 <input type="checkbox"/>	(1)
R. 93-50027 9ft red wire	(1)
S. 88-50060 Hose 60" (not shown)	(1)
T. 88-50078 Hose 78" (not shown)	(1)

ATTACHING VALVE ASSEMBLY TO WINCH MOTOR. (SEE FIGURE 1)

Rotate winch onto its front so that smooth machined area on the winch motor is facing up.

Remove rubber plugs from holes in the side of the winch motor. Remove the 2 Motor square-cut O-rings from rubber plugs and re-seat at the lips of the holes from which they were removed in the motor.

Remove rubber bands from valve assembly being sure not to drop metal washers (B) and flow disk (C).

The purpose of the flow disk is to maintain back pressure for controlled release of cable under tension. If this disk is installed improperly it will negatively affect the performance of your winch and greatly reduce its pulling power. This is a safety item; IT MUST BE INSTALLED.

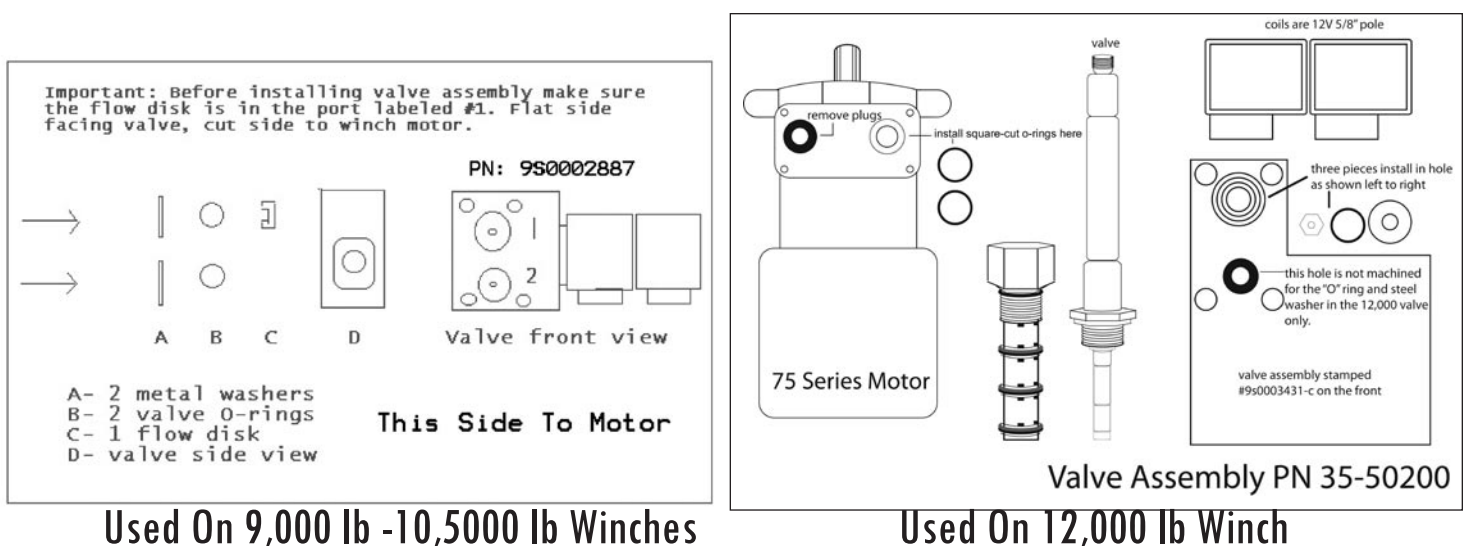
BEFORE SECURING VALVE ASSEMBLY TO THE MOTOR MAKE SURE THAT THE FLOW RESTRICTOR DISK IS IN PORT LABELED #1 WITH THE FLAT SIDE FACING THE SOLENOID BODY AND THE CUT SIDE FACING THE WINCH MOTOR. Also, make sure that the hole(s) in the valve assembly have thin O-ring(s) installed, then re-seat the metal washer(s).

*A small dab of axle grease can be used to help hold the metal washers in place.

Use the four allen bolts supplied (f-5/16 18 X 1 1/2 SS Socket Head Cap Screw) to mount the solenoid valve to the winch motor. Make sure to Lock-Tite the allen bolts using no washers. Tighten to 25 ft/lbs.

*Note: Lock-Tite not included.

FIGURE 1



MOUNTING WINCH

Winch body on 9000 lb. and 10500 lb. winch has mounting holes only on the bottom. Winch body on 12000 lb. winch has four mounting holes on front, back, and bottom of the winch. This may allow the winch to be mounted easier on some winch mounts or for other applications.

The motor on Mile Marker 2-speed winches may also be rotated in 90° increments if needed. This may allow easier installation on some winch mounts.

TYPICAL INSTALLATION

Depending on amount of clearance between winch mount tray and winch body, attach the roller fairlead with two bolts (B-3/8 16 X 1¼ SS Hex Head Bolt) through roller fairlead and pre-drilled holes on front of winch mount tray and attach with 3/8 SS nuts (not provided) .

When facing grill of truck, position the winch with the hydraulic 2-speed levers to the left (passenger side). The Free/Low lever will be on top. In this position, 4 mounting holes will be on the bottom on any style of Mile Marker winch. **CABLE MUST SPOOL OFF BOTTOM OF DRUM !**

Attach winch to winch-mount tray by screwing 4 bolts (C-3/8 X 16 X 1 SS Hex Head Bolt) and washers (D-3/8 SS Washer) through the pre-drilled holes in bottom of winch mount tray into bottom of winch body. Tighten to 35 ft/lbs. Make sure that you have **AT LEAST 6** threads going into the winch legs, but **NO MORE THAN 10** threads going into winch leg.

PLUMBING CONNECTIONS

Keep all hoses away from any areas where heat may be considered too extreme (such as exhaust manifold or turbo). Lines cannot be mounted or allowed to rub on any abrasive or vibrating/moving surfaces

INSTALLATION PROCEDURES

REMOVAL OF FACTORY HOSE Take a clean drain bucket to catch the oil and place under the vehicle.

VACUUM BRAKES (NON HYDROBOOST)

If the vehicle is **NOT** equipped with hydroboost, remove the factory high pressure hose from the power steering pump to the steering box. Let it drip dry, and store in safe place. This will be necessary to re-install if the winch is ever removed from vehicle. See Figure 2.

HYDROBOOSTED

If the vehicle is equipped with hydroboost, remove the factory high pressure hose from the hydroboost to the steering box. There is only one high pressure hose going to the steering box. See Figure 3.

NOT SURE?

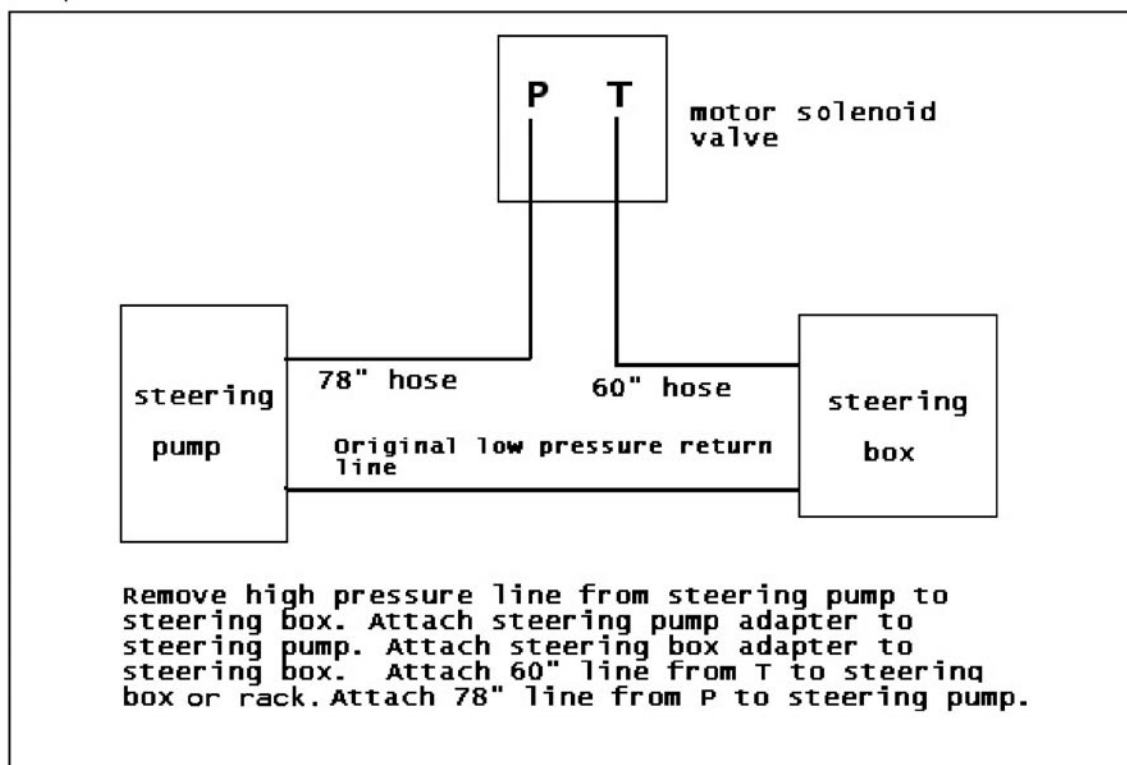
Which one is the high pressure hose? The hose with heavy duty crimped on fittings. The low pressure return lines from the steering box or hydroboost both end up at the pump reservoir will have hose clamps or something similar.

Does the factory hose have a sensor in it? What this does is increase the rpm of the engine slightly when there is high power steering pump pressure during idle. We have found this is not needed. Remove it from the factory hose and install it back into the wiring harness plug. Tape it securely in place. The vehicles computer will not be affected.

INSTALL THE ADAPTERS

Take the MM adapter kit for the vehicle; match the fittings up to those on the factory hose you removed. Re-use the factory "O" rings; install them on MM fittings if required. There may be more than two fittings in the kit due to multiple applications. You will only need two of them. Install them and tighten to the factory specifications. Take the solenoid fittings ("M"/90-50067 and "O"/90-50091) place into the "P" and "T" ports of the black solenoid valve block. You will have to look and see where they will best suit your application in mating up with the hoses from the engine bay. Then add the 90 degree "N"/90-50060 fitting to the straight fitting "O"/90-50091 you just installed. Remember the hoses will come thru either the grill or under the truck in an open area. When you are sure of where the fittings will face, tighten them in place making sure the "O" ring is compressed (tight) or for the flare fitting, ¼ turn past finger tight.

FIGURE 2



CONNECTING THE HOSES

There will be two JIC -6 hoses provided in the kit. One is "S"/60" and the other is "T"/78". Connect the 78" hose from the power steering pump or hydroboost to the "P" port on the black solenoid block. Connect the 60" hose from the "T" port of the black solenoid block to the steering box. These can go thru the grill of the truck or under the radiator area. Tighten the flare fittings hand tight then go ¼ turn more. They can be longer than needed sometimes as this is designed to fit many applications. For that custom look, the local hydraulic shop can shorten them or call us, we can also do it. For pictures:

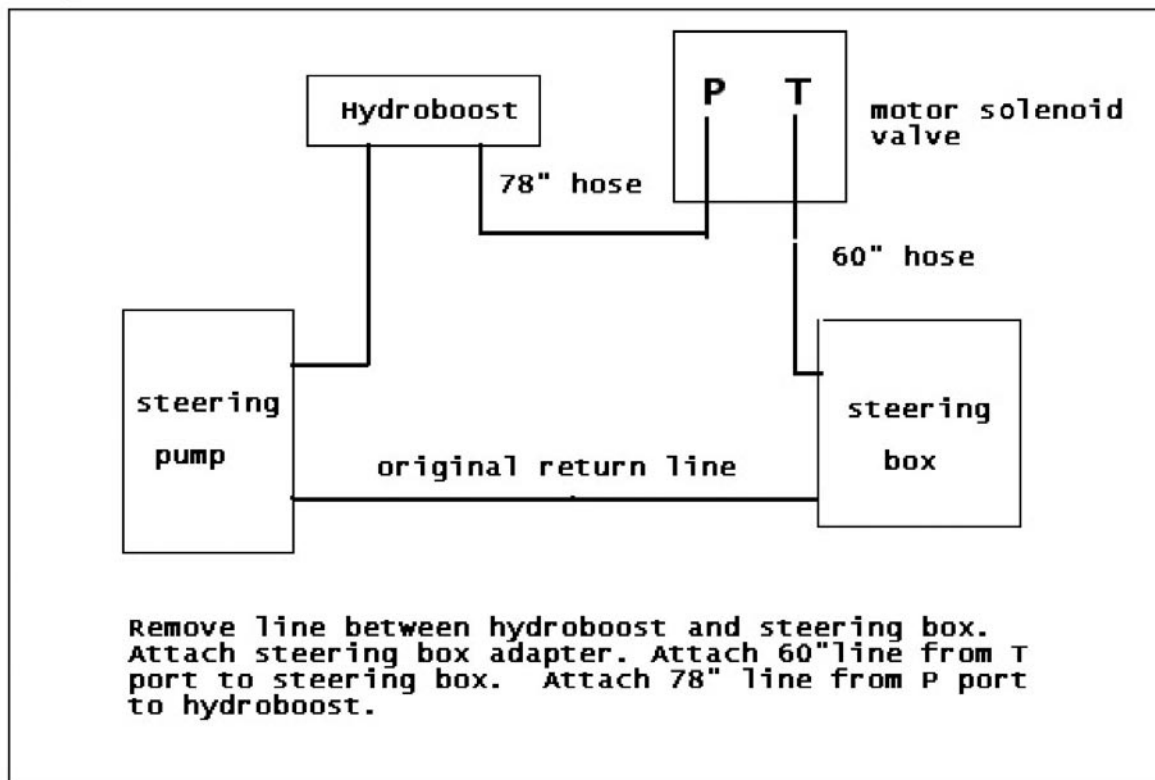
SEE FIGURE 2 for vacuum brakes

SEE FIGURE 3 for hydroboost brakes

***DO NOT OVER TIGHTEN FLARE FITTINGS**

They will crack and then leak. The only way to fix them will be to replace them!

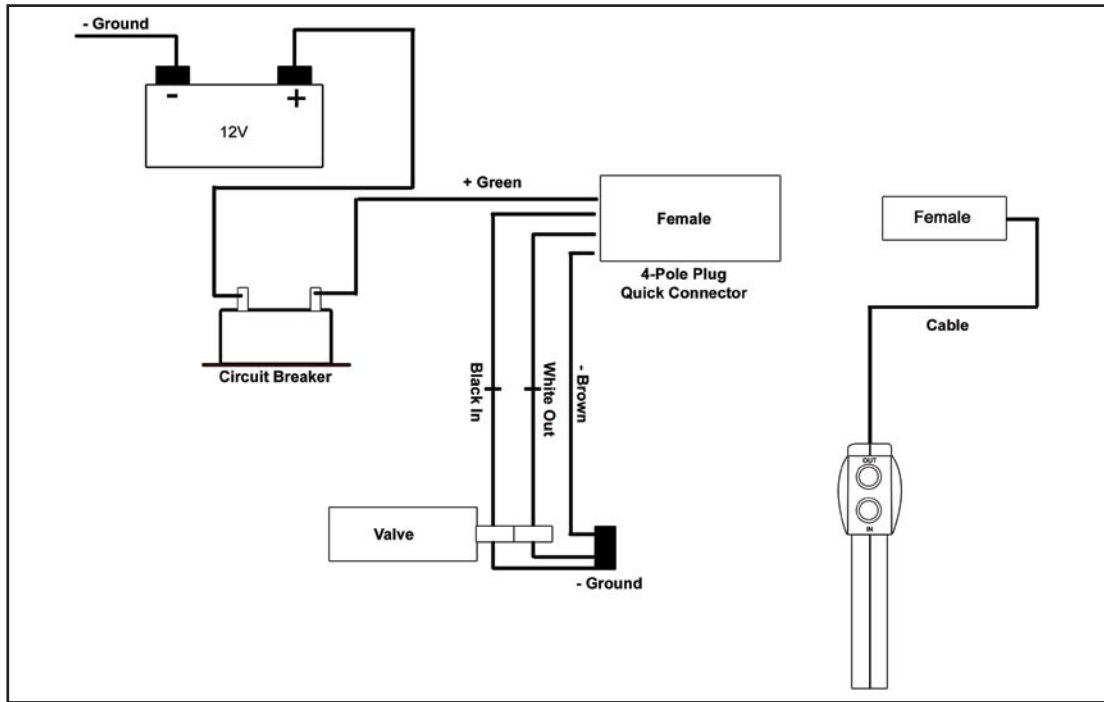
FIGURE 3



ELECTRICAL CONNECTION (FIGURE 4)

The power source to the solenoid can not be energized until the four-pole quick connector plug is plugged in. Each solenoid has two black wires that are connected to each other at the factory and are grounded. The other black wires will plug into the white and black wires from the hand control connection shown in figure 4. The brown wire will go to ground from the female 4 pole plug gray box. Attach the circuit breaker to the vehicle under the hood. Connect all wiring as shown in illustration. Test hand control unit, solenoids will make a slight "click" sound if connected correctly. Do not start vehicle to do this test.

FIGURE 4



WHEN DONE

Check Fluid Level. Replace lost fluid in system until full. To purge air, start engine, run for two seconds and shut off engine. Check fluid level again. Add fluid until full. Do this until system stays full. Run truck for three minutes or until fluid loses aeration. After system has been filled, turn wheels from lock to lock position (completely right and left) five times. This will aid in bleeding out any air that may still be in the system. If the hand control unit is working backwards, simply reverse the connections at the solenoids (switch the white and black wire on the solenoid valve). See Figure 4. Make sure that you hear a slight “hiss” when the hand controller is pressed “out” when the vehicle is running.

WARNING

- Winch cable must be wound onto the drum under a load of at least 500 lbs or outer wraps will draw into the inner wraps and damage the winch cable.

MILE MARKER TWO-SPEED WINCH OPERATION

A. GENERAL

The vehicle's steering pump is used to power the winch. The engine must be running while operating the winch, as the engine turns the power steering pump which pumps fluid to rotate the winch. The winch will have full pulling capabilities at an engine idle. The winch is operated by an electric activated switching valve.

B. PREPARATION FOR USE

1. For use in pulling objects other than self recovery, park vehicle directly facing object to be winched.
Apply parking brake.
2. Place transmission shift lever in "N" (neutral).
3. Chock wheels.
4. Start engine.

C. UNWINDING WINCH CABLE

To unwind cable by hand, turn top lever to "FREE" (free spool). Turn side lever to "FREE" (free spool). Both levers should be in "FREE" positions to unwind cable. See Figure 5.

WARNING

- Wear leather gloves when handling winch cable. Do not handle cable with bare hands. Broken wires cause injuries.
- When fully extending winch cable, make sure that five wraps of winch cable remain on drum at all times. Failure to do this may cause serious injury.
- Pull off cable by hand to desired length. Connect to load leaving about one foot of slack in cable.
- Place a blanket over cable near middle

D. PULLING LOAD

1. Turn top lever to "LOW" (lock low gear). Leave the side lever at "FREE" (free spool). This will engage the winch into low gear.

WARNING

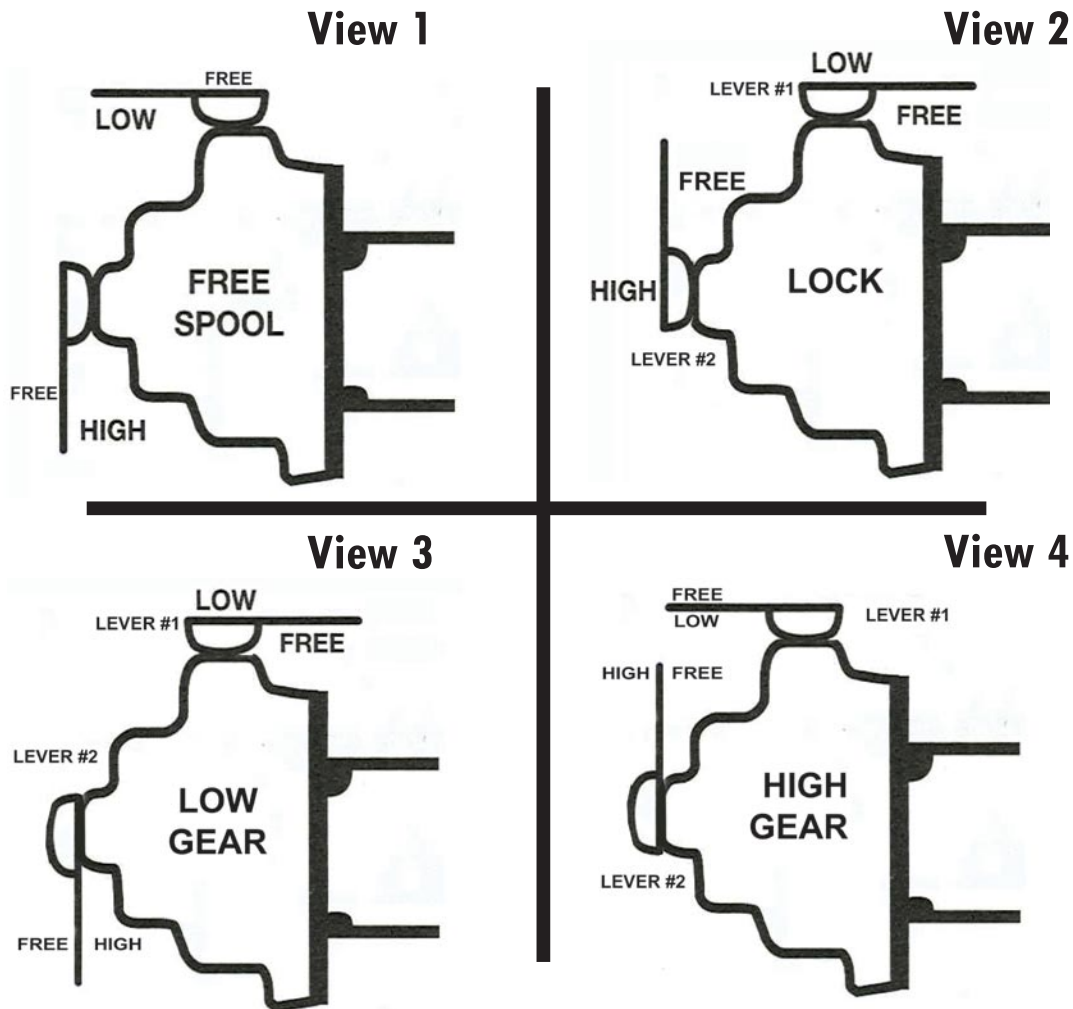
- Direct all personnel to stand clear of winch cable during winch operation. A snapped winch cable will cause serious injury or death.
- Do not activate winch electric connector when engine is OFF with a LOAD on cable. This can put the winch into a retarded free spool mode.

2. Operate remote control switch to "IN" or "OUT" until load has been retrieved. Secure winch after operation.

E. OPERATION OF HIGH GEAR

1. Turn top lever to "FREE." Turn side lever to "HIGH" (lock high gear).

MILE MARKER HYDRAULIC 2-SPEED WINCH LEVER POSITIONS (figure 5)



WARNING

- DO NOT shift levers with load on winch cable!
- DO NOT move shift levers when powering winch in or out!

LEVER POSITIONS AND WINCH MODES

<u>LEVER #1</u>	<u>LEVER #2</u>	<u>MODE</u>	<u>VIEW#</u>
Free.....	Free.....	Free Spool.....	1
Low..... <input type="checkbox"/>			
Low.....	Free.....	Low Gear.....	3
Free.....	High.....	High Gear.....	4

GENERAL OPERATION

- The vehicle's hydraulic pump is used to power the winch. The engine must be running for winch operation. •The winch has maximum pulling capabilities at engine idle.
- The winch is operated by an electrically activated hydraulic switching valve.
- Wear leather gloves when handling winch cable. DO NOT handle cable with bare hands as broken wires can cause injuries. Always use a hook strap where possible.
- When extending winch cable, ensure that at least five wraps of cable remain on drum under load. Serious personal injury or property damage may result.
- Ensure that all persons stand well clear of winch cable and load during winch operation, 1.5 times the cable length is recommended. If a cable pulls loose or breaks under load it can lash back and cause serious personal injury or death.
- Draping a heavy blanket or similar object over the extended winch cable is recommended as it will dampen any lash back should a failure occur.
- Ensure rated "D" or bow shackles are used in conjunction with an approved tree trunk protector to provide a safe anchor point.
- DO NOT operate the winch control when the engine is OFF and a load remains on the cable. This may put the winch into a freespool mode when not required, therefore not holding the load.
- NEVER disengage the winch clutch under load.
- Store the winch with clutch lever function in the HIGH GEAR position.
- The maximum winch capacity is available on the first layer of rope on the winch drum. During all winching operations it is recommended to unspool the rope back to the first layer to provide maximum capacity and avoid rope damage.
- The use of a snatch block will aid recovery operations by providing: A doubling of the winch capacity and a halving of the winching speed; and the means to maintain a direct line pull to the center of the rollers.
- The Mile Marker winch is a 2-Speed unit: low speed for vehicle recovery winching and high speed for line retrieval.
- DO NOT use the winch to lift, support or otherwise transport personnel, as it is not to be used as a hoist.
- DO NOT drive your vehicle to assist the winch in any way. Vehicle movement in combination with winch operation may overload the cable, the winch itself, or cause damaging shock loads.
- Shock loads when winching are dangerous! A shock load occurs when an increased force is suddenly applied to the cable. A vehicle rolling back on a slack cable may induce a damaging shock load.

WINCHING TIPS AND USE OF A SNATCH BLOCK

- Use OEM tow hooks, recovery eyes or a clevis mount for attachment of a tow strap or winch cable. Warning: Never use a ball and /or ball mount as an anchor point for tow strap or winch cable. Severe personal injury or death could occur.
- Always heed all winch manufacturer's recommendations, cautions, and warnings.
- Attach return cable to tow hook or recovery eye when using a snatch block. Always use a clevis to secure snatch block to strap, or severe damage could occur to persons and vehicle. (See Figure 6 Below). Caution: Never attach return cable to winch mount. This may overload winch mount and/or front receiver.

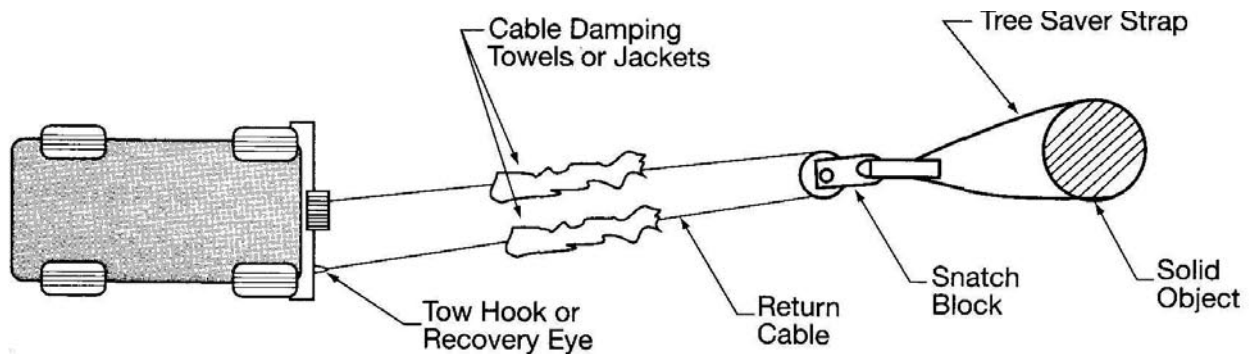


Figure 6

RATING

For maximum line pull rating, winch cable direction must not exceed:

1. 15° angle up or down from horizontal (See Figure Below).
2. 45° angle left or right from straight ahead (See Figure 7 Below). Caution: Exceeding the maximum line pull rating may overload winch, winch mount, and/or front mounted receiver.

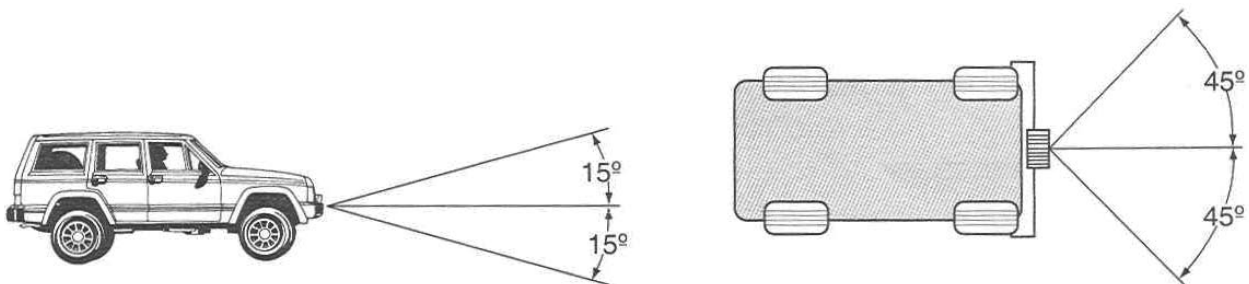


Figure 7

SAFETY TIPS

- **NEVER DISENGAGE LOW GEAR CLUTCH LEVER WHEN THERE IS A LOAD ON THE WINCH.** To manually lock the winch to hold a load, engage BOTH HIGH and LOW GEARS. First, engage low gear. After low gear is engaged, engage high gear. Power the winch IN momentarily. You will hear the high gear engage, and the winch will “lock up.” In this position, it is mechanically locked up and will not freespool, power IN or OUT. To disengage locked position, disengage high gear lever to “FREE.” Power the load OUT momentarily and the spring loaded high gear will disengage, leaving the winch in LOW gear.
- Store the remote control cord in a safe place when not in use to prevent use by children or other unauthorized persons who could injure themselves or others or damage the controls.
- Do not operate winch under the influence of drugs, alcohol, or medications.
- Isolate winch before putting hands in or around the fairlead or wire rope drum (The Danger Zone).
- **DO NOT OVERLOAD YOUR WINCH.** Do not maintain power to the winch if the drum stops. Overloads can damage the vehicle, winch or winch rope and create unstable operating conditions.
- It is recommended to lay a heavy blanket or jacket over the rope about halfway along to the hook attachment. If a rope failure should occur, the weight of the cloth will act as a damper and help prevent the broken rope from whipping (See Figure 8 Below). Remember to move the blanket or jacket as winching proceeds, but halt winching when doing so. Partially raising the hood of the vehicle will also give a measure of protection to its occupants from broken rope or cable, consistent with sufficient forward visibility for the operator.

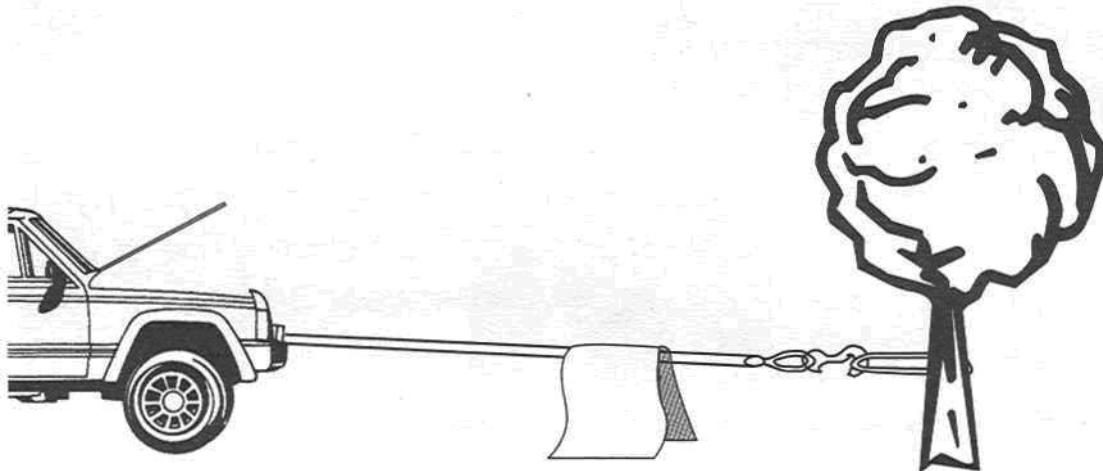


Figure 8

SELF-RECOVERY

1. Always aim to get the cable as straight as possible to the direction of the vehicle. It is acceptable to start a pull at an angle if it is obvious that the vehicle will turn towards the hook anchoring point. Turning the steering wheel will assist the process. It is recommended that the driver is in the vehicle.
2. Make sure hand brake and foot brake are free and that the transmission is in neutral.
3. When the driver's attempt to regain vehicle traction is successful, he or she should be careful not to overrun the cable and risk the possibility of it being trapped under the vehicle.
4. **DO NOT** move your vehicle in reverse to assist the winch. The combination of the winch and vehicle pulling together could overload the cable and winch itself.

USE OF A PULLEY BLOCK OR SNATCH BLOCK

Figure 9: Vehicle self-recovery using the pulley block attached to the anchor point for direct pull. In this instance the vehicle becomes the “load” and the actual pulling power on the vehicle will be double at half winch rope speed. Never connect wire rope or hook back to winch mount!

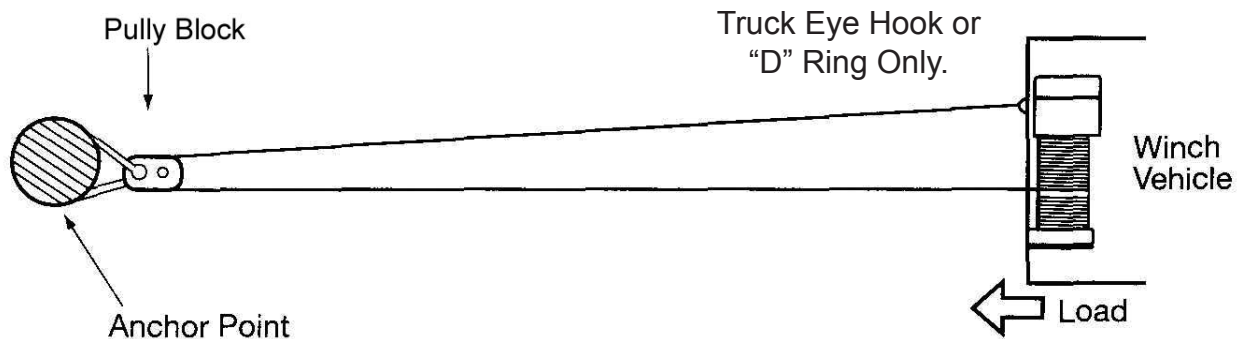


Figure 9

Figure 10: Direct pull on load using the winch vehicles as the anchor with pulley block attached to the load.

The most important aid to successful winching (after the winch) is the pulley block, which can be used to increase the pulling power of the winch or for indirect pulls. Pulley blocks can be used in two modes. First mode is attached to the load and second is secured to an anchor point.

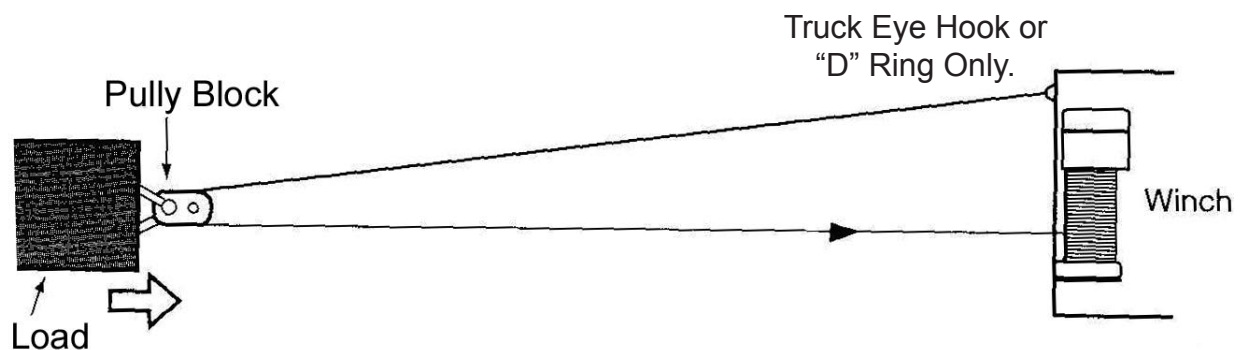


Figure 10

Figure 11: Indirect pull necessitated by obstructions or soft ground. Pulley block attached to load using a suitable anchor point. Note the angled direction taken by the load and subsequent angle of rope feed-back on the winch drum (extreme example shown). There may be unavoidable circumstances requiring this mode, though in general it is not recommended unless applied in stages by moving the anchor point or vehicle to avoid the sharp angled rewind on the winch drum. The actual load pulling power and rope speed will depreciate with any increased angle between the ropes.

The anchor point, when used must be secure, using a tree, another vehicle or any firm structure to which a pulley block can be used to your advantage.

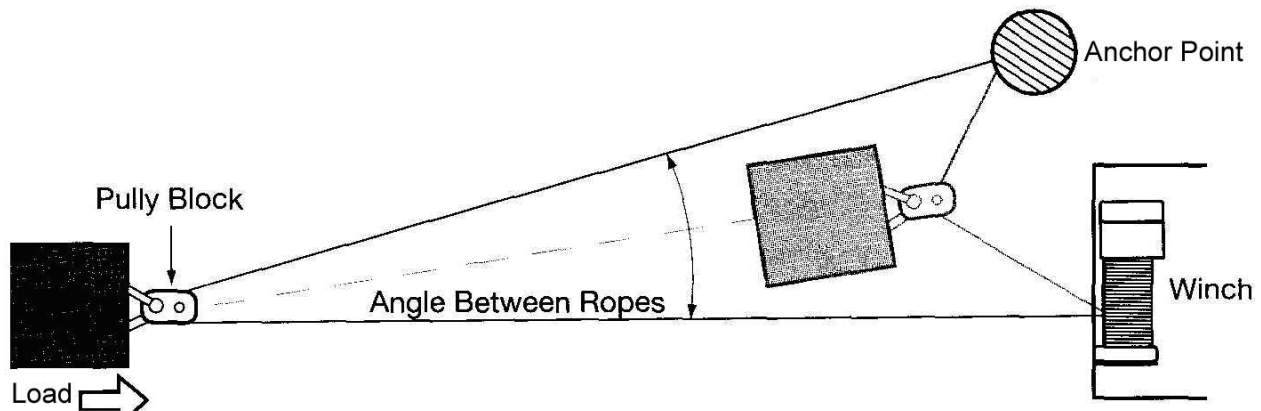


Figure 11

USE OF A NYLON SLING AND SHACKLE

- A shackle should always be used when attaching winch hooks to nylon slings. NOTE: The shackle must pass through both eyes of the sling. The safe working load of the nylon sling is based on the use of both eye ends. Never use the cable or hook to connect directly to the nylon sling.

USE OF GLOVES

- When handling or rewinding the cable always use gloves to eliminate the possibility of cuts caused by burrs and broken strands. Inspect cable and equipment frequently. The cable should be replaced immediately if any sign of burrs or broken strands are evident. A frayed cable with broken strands should be replaced immediately. Always replace the cable with a Mile Marker recommended replacement part. Any substitution must be IDENTICAL in strength, quality, lay and stranding. Never hook the cable back onto itself. Hooking the cable back onto itself creates an unacceptable strain, breaking individual strands which in turn weakens the entire cable. Use a sling. Avoid continuous pulls from extreme angles as this causes cable to pile up at one end of the drum and break the winch. Adjust the cable and ensure that line lays neatly across drum of winch.



MILE MARKER INC. HYDRAULIC WINCH LIMITED WARRANTY

Mile Marker, Inc. warrants each winch when used in normal service against factory defects in materials and workmanship to the original purchaser, (Commercial and Recreational Warranty) for the period of two (2) years. (Exclusion from this warranty are cables, the finish, and any condition Mile Marker determines to have been caused by misuse, abnormal use.) The Mile Marker hydraulic motor has a five (5) year warranty. The owner will be responsible for removing the winch and returning it to Mile Marker freight prepaid. Mile Marker will repair or replace any or all winch parts it determines to be defective after inspection. See each individual product package for more detailed warranty information.