

**MILE
MARKER**
RECOVERYGEAR+

H SERIES

Installation and Operator's Manual

H9000 (PN 70-50080C)

H10500 (PN 70-50050C)

H12000 (PN 70-52000C)

**2121 BLOUNT ROAD
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SAFETY WARNINGS

1. Wear leather gloves when handling winch cable. DO NOT handle cable with bare hands as broken wires can cause injuries.
2. 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.
3. 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.
4. 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.
5. Ensure rated "D" or bow shackles are used in conjunction with an approved tree trunk protector to provide a safe anchor point.
6. DO NOT operate the winch control when the engine is OFF and a load remains on the cable. This may put the winch into freespool mode when not required, therefore not holding the load.
7. Ensure the winch clutch is totally engaged before starting any winch operation. When engaging or disengaging the clutch it may be necessary to rotate the drum by hand to align the clutch pin.
8. NEVER disengage the winch clutch under load.
9. Store the winch with clutch lever function in the HIGH GEAR position.
10. The maximum winch capacity is available on the first layer of rope on the bare winch drum. During all winching operations it is recommended to unspool the rope back to the first layer so as to provide maximum capacity and avoid rope damage. Ensure that at least five wraps of cable remain on the drum at all times.
11. 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.
12. The MileMarker winch is a 2-speed unit, low speed for vehicle recovery winching and high speed for line retrieval.
13. DO NOT use the winch to lift, support or otherwise transport personnel.
14. 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.
15. 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.

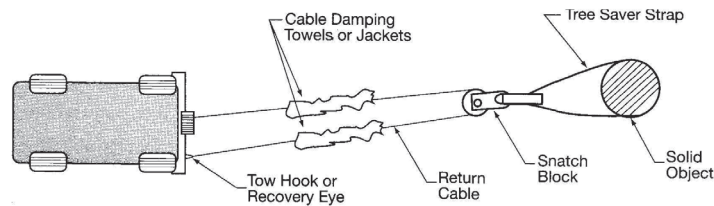
PRECAUTIONS

1. Keeps hands and body away from Fairlead (cable intake slot) when operating.
2. Secure vehicle in position before using winch.
3. Do not exceed winch load weight capacity (see Winch Specifications).
4. Be certain winch is properly bolted to a structure (or vehicle) that can hold the winch load.
5. Always use proper couplings when connecting winch cable hook to load.
6. Do not lift items vertically. The winch was designed for horizontal use only.
7. Do not overload the winch (see Model Specifications). It will do the job better at the load it was intended.
8. Do not use inappropriate attachments to extend the length of the winch cable.
9. NEVER LIFT PEOPLE OR HOIST LOADS OVER PEOPLE.
10. Never come in between the winch and the load when operating.
11. Do not apply load to winch when cable is fully extended. Keep at least 5 full turns of cable on the drum.
12. After moving an item with the winch, secure the item. Do not rely on the winch to hold it for an extended period.
13. Examine winch before using. Components may be affected by exposure to everyday weathering, chemicals, salts, and rust.
14. Never fully extend cable while under load. Keep 5 COMPLETE TURNS of cable around the winch drum.
15. When loading a boat into a trailer without reel or side hull rollers, make sure the trailer is submerged in the water when the boat is loaded by the winch. Attempting to drag the boat on to the trailer while on land can cause winch failure and possible injury.
16. Never operate winch if cable shows any signs of weakening, is knotted or kinked.
17. Winch does not have a locking mechanism. Secure load after moving.
18. Do not cross over or under the cable while it is in process of loading.
19. Do not move vehicle with cable extended and attached to load to pull it. The cable could snap.
20. Apply blocks (such as a wheel choke) to vehicle when parked on an incline.
21. Re-spool cable properly.

WINCHING TIPS & TECHNIQUES

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 Below). Caution: Never attach return cable to winch mount. This may overload winch mount and/or front receiver.

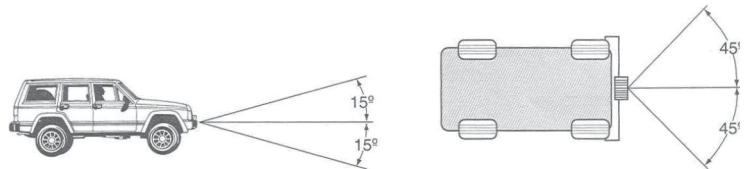


Rating

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

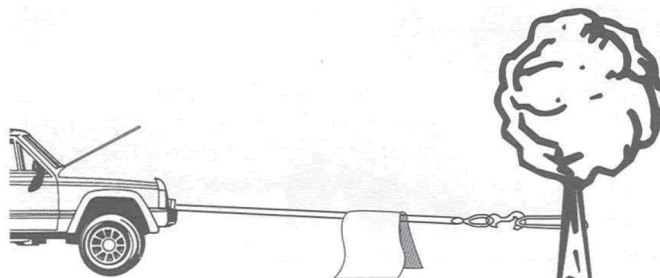
1. 15° angle up or down from horizontal (See Figure Below).
2. 45° angle left or right from straight ahead (See Figure Below).

Caution: Exceeding the maximum line pull rating may overload winch, winch mount, and/or front mounted receiver.



Safety Tips

- NEVER DISENGAGE CLUTCH LEVER WHEN THERE IS A LOAD ON THE WINCH. Mile Marker electric winches utilize an automatic load holding brake, therefore no adjustment to clutch is needed to maintain load.
- 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 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.

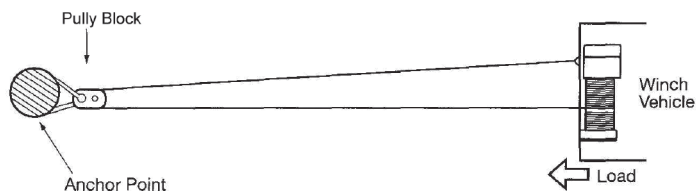


Self Recovery

1. Always attempt 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

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!



Below: 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.

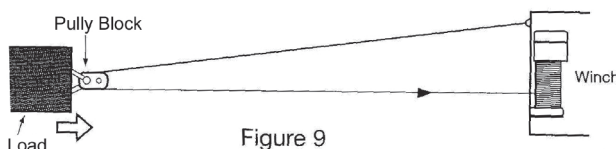
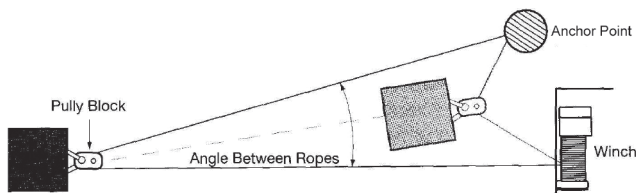


Figure 9

Below: 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.



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.

GETTING STARTED

Unpacking Your Winch

Unpack your new Mile Marker winch and ensure that all the parts are included by referring to parts list and exploded view drawings provided in this manual.

NOTE: If you find any missing or broken parts, please call Mile Marker as soon as possible at the number present on the front page of this manual.

Winch Mounting

NOTE: Mile Marker recommends the use of its mounting systems for proper winch installation and optimum winch performance. However, when not using Mile Marker Mounting System, ensure that the mounting platform is strong enough to meet the maximum rated load of the winch in use. Mile Marker recommends steel plates with thickness of at least 0.25”.

Your winch should be aligned and secured to a solid part of the vehicle (front or rear) where the full rated load will be evenly distributed.

CAUTION: It is essential that the mounting surface be flat and the winch is mounted such that the three major sections (Gear housing end, drum and motor end) are in proper alignment.

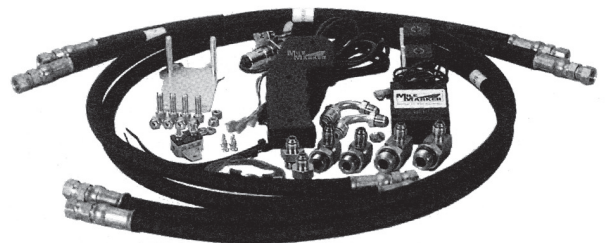
1. Drill four mounting holes (10mm in Dia.), if necessary, according to the bolt pattern mentioned in the winch specifications.
2. Fasten the winch body to the mounting platform using the four Capscrews (M10 X 34mm) and Nuts (M10) provided.
3. Torque the Capscrews to about 35 ft-lb (47.5 N-m).
4. All Mile Marker Mounting Systems come predrilled with fairlead holes. If you are using any other mounting platforms, drill two holes for the roller fairlead installation. Position the holes such that the fairlead opening hole stretches from the circumference of the drum to the end of the maximum permissible layers on the drum in the direction cable is being rolled.

CAUTION: When replacing the capscrews or when longer bolts are required, make sure that you use bolts of Grade 5 or greater.

NOTE: Must have a 34 Series Valve Adapter Kit to complete assembly.

Kit includes:

- 12 ft. lead remote control
- All hoses and fittings
- Power in and power out
- Remote solenoid activated control valve draws only two amps
- Uses existing power steering pump as hydraulic power source



CABLE MUST SPOOL OFF THE BOTTOM OF THE DRUM

NOTE: Please attach hand control box to the top motor bolt on the winch assembly.

SOLENOID VALVE ASSEMBLY

The Mile Marker solenoid valve should be mounted away from any areas where heat may be considered too extreme such as an exhaust manifold or turbo. Be sure all plumbing and wiring reaches from the area selected without being stressed. The Mile Marker solenoid valve may be mounted by using the bracket and alien screws supplied. Using the bracket as a guide, mark the location of where the mounting holes are going to be drilled and remove the plate and drill two 2¼/ holes. Mount valve assembly using nuts, bolts and washers supplied. Your solenoid valve comes with a flow disc. Make sure you install it in the right port. See (Fig. 1).

NOTE: On some vehicles the grill may have to be removed to install plumbing and wiring for the winch.

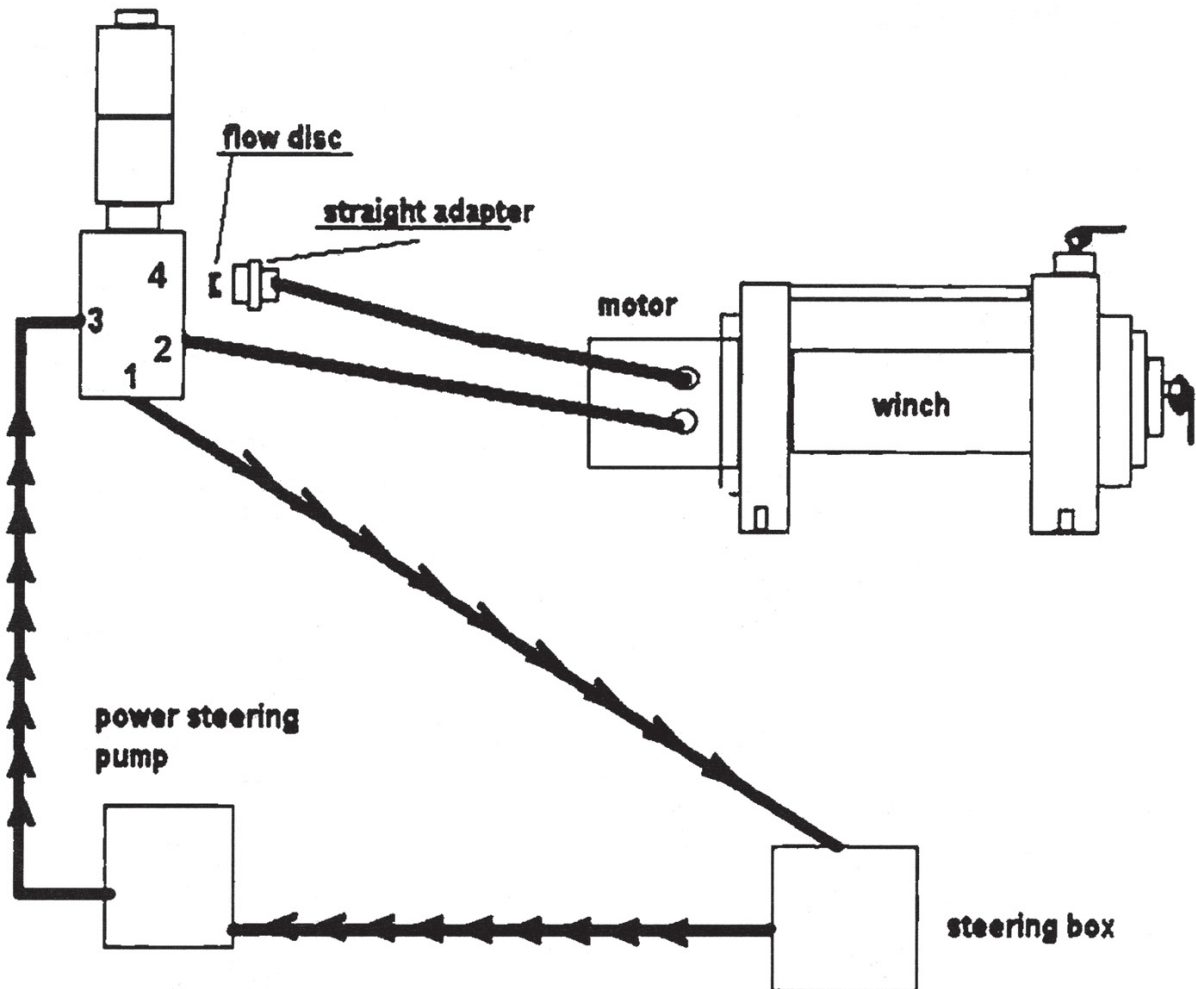


Figure 1

WIRING INSTRUCTIONS

Electrical Connections

The Mile Marker valving system is designed to default to the power steering gearbox so power steering is always available even when the winch is in use. The power source to the solenoid is not energized until the four pole Quick Connector Plug is plugged in. Each solenoid has two black wires, either of which can be used as a ground or for electric power. The grounds are connected to each other at the factory. The other black wires plug to the white and black wire in the harness (see illustration). Determine a location on the front grill to mount the female 4-pole plug connector. If desired, the female 4-pole plug connector is connected to the winch with the top motor bolt. If you choose to take the plug out of the box, drill four holes at your desired location and secure with screws. 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 properly.

DO NOT CONNECT POWER CABLES TO BATTERY UNTIL FINAL STEP OF INSTALLATION!

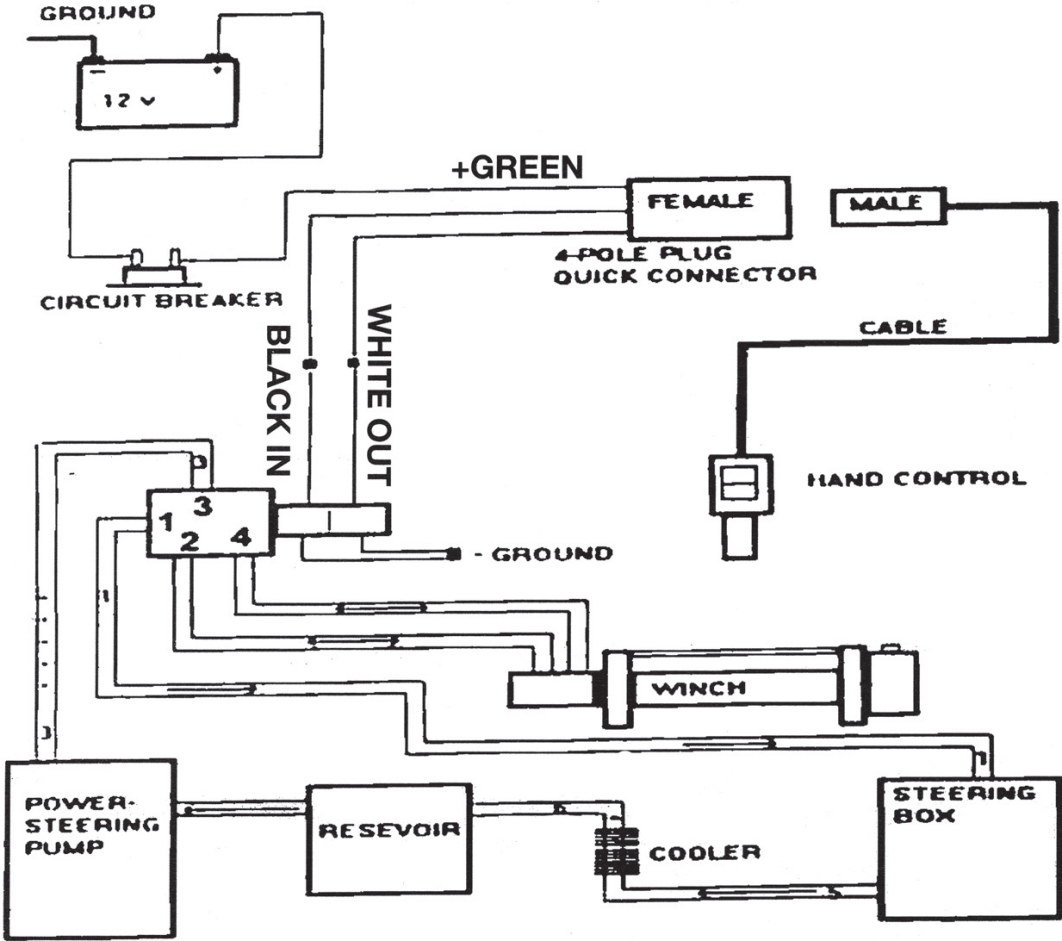


Figure 2

Disc must be installed in the port that goes to the top port on motor. Disc must be installed with cut side to motor.

PLUMBING CONNECTIONS

Please refer to illustration. Keep all hoses away from any areas where heat may be considered too extreme (such as exhaust manifold or turbo). Lines should not be allowed to rub on any abrasive or vibrating surfaces. In some applications, 90° fittings on the solenoid valve are necessary to make hose mounting more flexible. After plumbing has been laid out on vehicle, install O-ring fittings supplied to valve. Torque tight. Do not over tighten any fittings. Install O-ring fittings on winch motor. Torque tight. Connect hose number two to port number two on the valve assembly. Attach the other end of hose number 2 to any port on winch. Connect hose number four to port number four on valve assembly and attach the other end of number four to the other port on winch. Torque both hoses (both sides) ¼ turn past finger tight. See (Fig. 2).

NOTE: Make sure and re-use any O-rings or seals from OEM tube fittings!

Disconnect original (OEM) high pressure line from the power steering pump to the steering gearbox. If your truck has hydroboost brakes, you will remove the high pressure line from the hydroboost to the steering box. Note: Low pressure line will normally have a hose clamp. See (Fig. 3).

CAUTION: Fluid will be lost from the system.

Attach any O-ring or seal from vehicle's original tube fitting to tube fitting #3. Connect tube fitting #3 to power steering pump. Torque to vehicle factory specifications. Connect hose #3 to tube fitting #3. Torque ¼ turn past finger tight. Attach other end of hose #3 to port #3 on solenoid valve. Torque ¼ turn past finger tight. Attach any O-ring or seal from vehicle's original tube fitting to tube fitting #1. Connect tube fitting #1 to steering gearbox. Torque to vehicle factory specification. Attach hose #1 to tube fitting #1. Torque ¼ turn past finger tight. Connect the other end of hose #1 on Solenoid valve. Torque ¼ turn past finger tight. See (Fig. 2).

If your application is supplied with an added cooler, remove (OEM) low pressure line from reservoir. Attach hose #5 to existing return line using male to male coupler and hose clamps supplied. Tighten hose clamps. Connect the other side of hose #5 to cooler supplied with hose clamp. Tighten hose clamp. Attach hose #6 to cooler and reservoir with hose clamps. Tighten hose clamps. Check fluid level. Replace lost fluid to system. System will need to be purged. Lift pin on free spool release on winch. Manually pull approximately 10 feet of cable off winch drum. Lock free spool pin back down. Add fluid until full. Start engine. Power winch cable out five feet. Shut off engine. Check fluid level. Add fluid until full if necessary. Start engine. Power winch cable into desired position. Turn the vehicle's front wheels from lock to lock position five times (all the way to the right and then all the way to the left). This will aid in bleeding out any air that may have gotten into the system.

NOTE: If the hand control unit is working backwards, simply reverse the black and white wire connectors on the valve assembly.

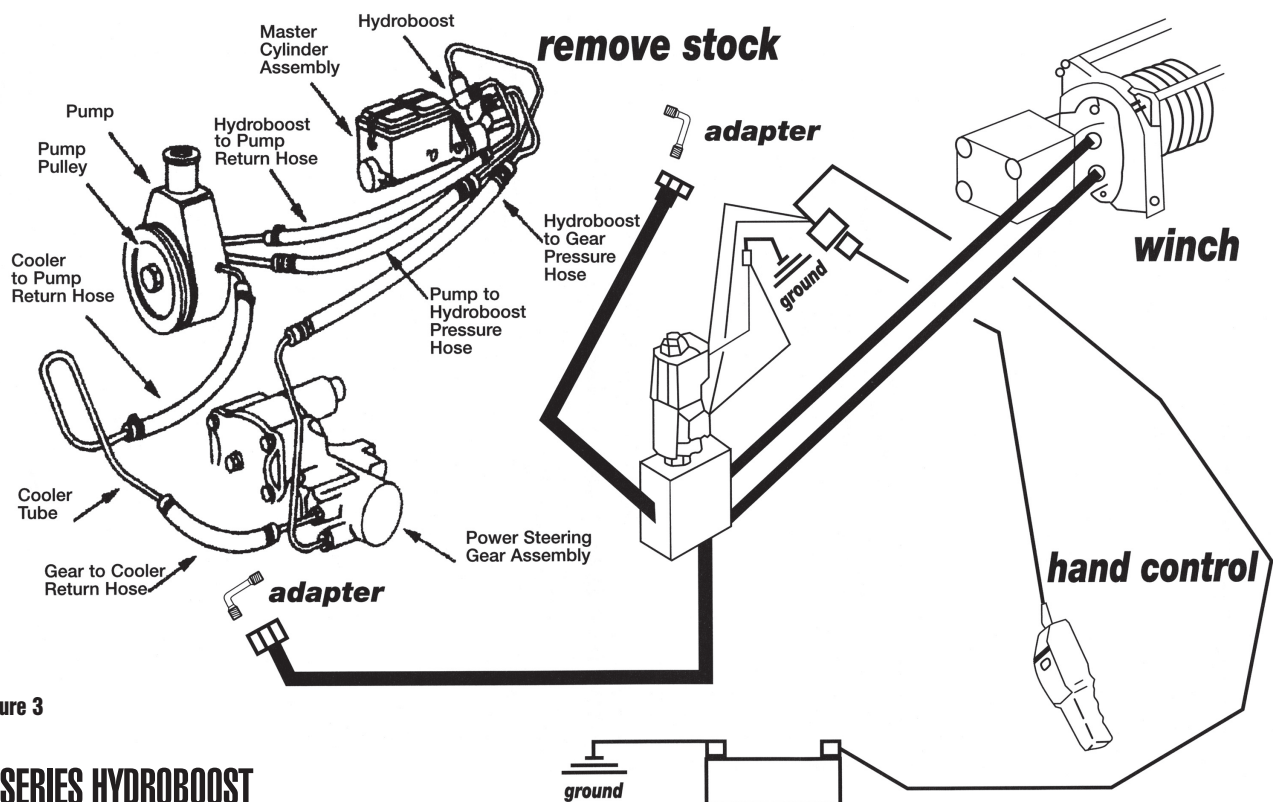


Figure 3

H SERIES HYDROBOOST

WINCH OPERATION

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. When engaging or disengaging the clutch and/or shift lever, it may be necessary to rotate the drum by hand to align gears.

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. Start engine.
4. Chock wheels.

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. When engaging or disengaging the clutch and/or shift lever, it may be necessary to rotate the drum by hand to align gears.

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.

CAUTION: 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 one foot of slack in cable.

Pulling Load

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

CAUTION: 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.

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

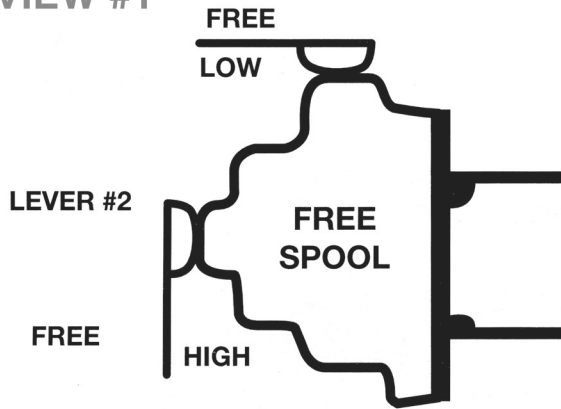
CAUTION: Direct all personnel to stand clear of winch cable during winch operation. A snapped winch cable will cause serious injury or death. Do not activate winch electric connector when engine is OFF with a LOAD on cable. This can put the winch into a retarded free spool mode.

Operation of High Gear

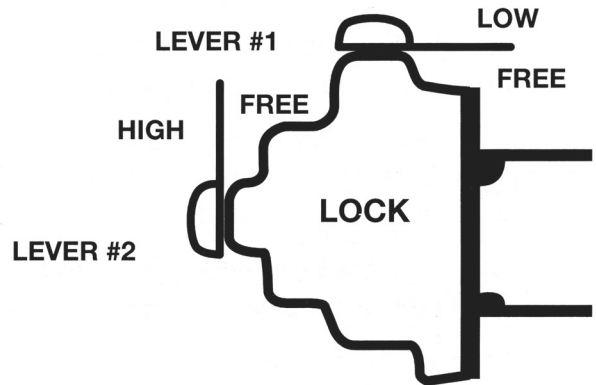
Turn top lever to "FREE." Turn side lever to "HIGH" (lock high gear).

2-SPEED WINCH LEVER POSITIONS

VIEW #1



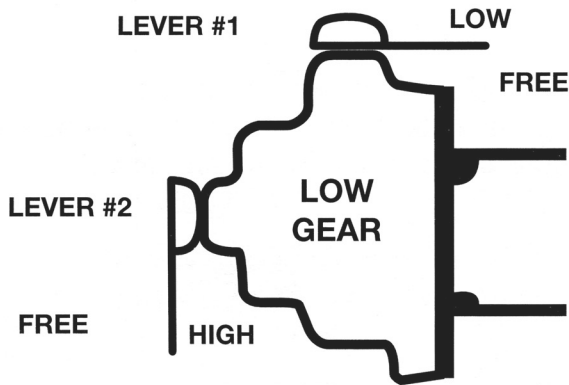
VIEW #2



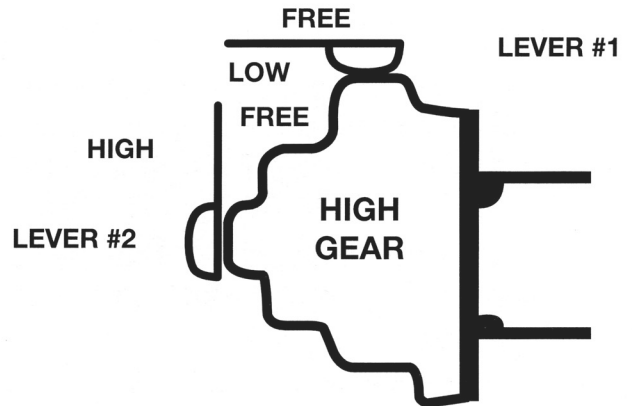
WARNING

DO NOT MOVE SHIFT LEVERS WITH LOAD ON WINCH CABLE!!

VIEW #3



VIEW #4



WARNING

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	HIGH	LOCK	2
LOW	FREE	LOW GEAR	3
FREE	HIGH	HIGH GEAR	4

WARRANTY INFORMATION

Hydraulic Winch Limited Warranty

Mile Marker Industries 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 mis-use, abnormal use. All electronics have a 1 year warranty. The Mile Marker hydraulic motor has a five (5) year warranty. The owner will be responsible for removing the winch and returning it to the Mile Marker freight prepaid. Mile Marker will repair or replace all or any winch parts, which after inspection it determines to be defective. See each individual product package for more detailed warranty information.

FOR FULL WARRANTY, PLEASE REGISTER YOUR PRODUCT ON OUR WEBSITE AT

WWW.MILEMARKER.COM/WARRANTY

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