



FORD SUPER DUTY F-SERIES 350/450/550 4x2 and 4x4 1999 & LATER INSTALLATION INSTRUCTIONS

**FOR USE WITH 9.5 FOOT MVP® AND
9 & 10 FOOT HEAVYWEIGHT SNOWPLOWS**

Model No. 3225

Straight Blade

Hydraulics Box No. 56400

Harness Kit No. 63420 (HB-5) or 63422 (2B-1)

Used with Headlamp Kit 9-Pin No. 61540-1

MVP® Blade

Hydraulics Box No. 66587

Harness Kit No. 63421 (HB-5) or 61423 (2B-1)

Used with Headlamp Kit No. 66640-1

⚠ CAUTION

Read this document before installing the snowplow.

⚠ CAUTION

See your WESTERN® outlet for application recommendations. The Selection List has specific vehicle and snowplow requirements.

This document supersedes all editions with an earlier date.

TABLE OF CONTENTS

SAFETY

Safety Definitions	1
Warning/Caution & Instruction Labels	1
Safety Precautions	1
Personal Safety	2
Fire and Explosion	2
Ventilation	2
Battery Safety	3
Hydraulic Safety	3
Torque Chart	3

MOUNT INSTALLATION

Mount Assembly	4
Link Arms	6

SOLENOID CONTROL INSTALLATION

Harness Kit Selection	7
Solenoid Control - Floor Mount	7

UNDER HOOD INSTALLATION

Vehicle Harness and Motor Relay	8
Plug-in Harness and Headlamp Relay Installation	12

MVP® IN-CAB INSTALLATION INSTRUCTIONS

Vehicle Harness and Vehicle Cable Installation ...	13
--	----

OPERATIONAL TESTS AND ADJUSTMENTS

Filling Hydraulic Unit	15
Blade Drop Speed Adjustment	16
Final Inspection	16
Coupling Lug Height Check	16
Vehicle Lighting Check	17

WIRING DIAGRAMS

Straight Blade	18
Electrical Schematic – MVP	19
61185 Park or Turn Harness Kit	20

SAFETY

SAFETY DEFINITIONS

⚠ WARNING

Indicates a potentially hazardous situation that, if not avoided, could result in death or serious personal injury.

⚠ CAUTION

Indicates a situation that, if not avoided, could result damage to product or property.

NOTE: Identifies tips, helpful hints and maintenance information the owner/operator should know.

Warning and Caution Label

⚠ WARNING

LOWER BLADE WHEN VEHICLE IS PARKED.

REMOVE BLADE ASSEMBLY BEFORE PLACING VEHICLE ON HOIST.

DO NOT EXCEED GVWR OR GAWR INCLUDING BLADE AND BALLAST.

⚠ CAUTION

READ OWNER'S MANUAL BEFORE OPERATING OR SERVICING SNOWPLOW.

TRANSPORT SPEED SHOULD NOT EXCEED 45 MPH. REDUCE SPEED UNDER ADVERSE TRAVEL CONDITIONS.

PLOWING SPEED SHOULD NOT EXCEED 10 MPH.

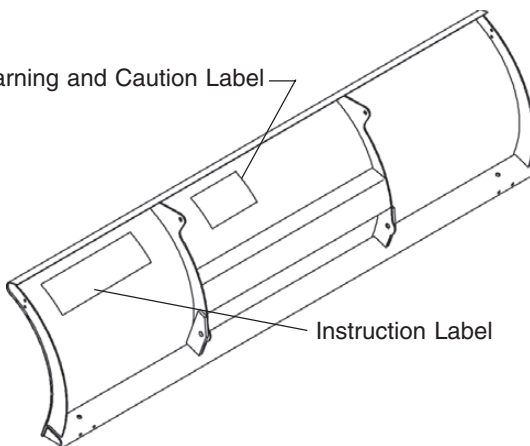
SEE YOUR WESTERN OUTLET FOR APPLICATION RECOMMENDATIONS.

59900

WARNING/CAUTION AND INSTRUCTION LABELS

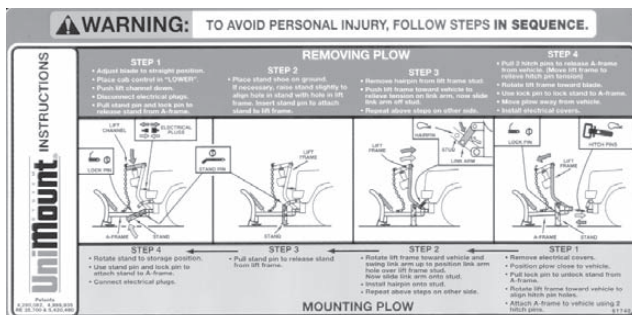
Become familiar with and inform users about the warning and instruction labels on the back of the blade.

Warning and Caution Label



Instruction Label

Instruction Label



SAFETY PRECAUTIONS

Improper installation and operation could cause personal injury, and/or equipment and property damage. Read and understand labels and the *Owner's Manual* before installing, operating, or making adjustments.

⚠ WARNING

Lower blade when vehicle is parked. Temperature changes could change hydraulic pressure, causing the blade to drop unexpectedly or damaging hydraulic components. Failure to do this can result in serious personal injury.

⚠ WARNING

Remove blade assembly before placing vehicle on hoist.

(Continued on next page.)

SAFETY

SAFETY PRECAUTIONS (Continued)

WARNING

The driver shall keep bystanders clear of the blade when it is being raised, lowered or angled. Do not stand between the vehicle and the blade or within 8 feet of a moving blade. A moving or falling blade could cause personal injury.

WARNING

Do not exceed GVWR or GAWR including blade and ballast. The rating label is found on driver-side vehicle door cornerpost.

CAUTION

Refer to the current selection list for minimum vehicle recommendations and ballast requirements.

CAUTION

To prevent accidental movement of the blade, always turn the ON/OFF switch to OFF whenever the snowplow is not in use. The control indicator light will turn off.

PERSONAL SAFETY

- Wear only snug-fitting clothing while working on your vehicle or snowplow.
- Do not wear jewelry or a necktie, and secure long hair.
- Wear safety goggles to protect your eyes from battery acid, gasoline, dirt and dust.
- Avoid touching hot surfaces such as the engine, radiator, hoses and exhaust pipes.
- Always have a fire extinguisher rated BC handy, for flammable liquids and electrical fires.

FIRE AND EXPLOSION

WARNING

Gasoline is highly flammable and gasoline vapor is explosive. Never smoke while working on vehicle. Keep all open flames away from gasoline tank and lines. Wipe up any spilled gasoline immediately.

Be careful when using gasoline. Do not use gasoline to clean parts. Store only in approved containers away from sources of heat or flame.

VENTILATION

WARNING

Vehicle exhaust contains deadly carbon monoxide (CO) gas. Breathing this gas, even in low concentrations, could cause death. Never operate a vehicle in an enclosed area without venting exhaust to the outside.

SAFETY

BATTERY SAFETY

⚠ CAUTION

Batteries normally produce explosive gases which can cause personal injury. Therefore, do not allow flames, sparks or lit tobacco to come near the battery. When charging or working near a battery, always cover your face and protect your eyes, and also provide ventilation.

Batteries contain sulfuric acid which burns skin, eyes and clothing.

Disconnect the battery before removing or replacing any electrical components.

⚠ CAUTION

Always disconnect the battery before removing or replacing electrical components such as a motor relay or battery cable.

HYDRAULIC SAFETY

⚠ WARNING

Hydraulic oil under pressure could cause skin injection injury. If you are injured by hydraulic oil, get medical attention immediately.

⚠ CAUTION




Do not mix different types of hydraulic fluid. Some fluids are not compatible and may cause performance problems and product damage.

- Always inspect hydraulic components and hoses before using. Replace any damaged or worn parts immediately.
- If you suspect a hose leak, DO NOT use your hand to locate it. Use a piece of cardboard or wood.

TORQUE CHART

⚠ CAUTION

Read instructions before assembling. Bolts should be finger tight until instructed to tighten according to the torque chart. Use standard methods and practices when attaching snowplow including wearing safety glasses during cutting, drilling and welding.

Recommended Fastener Torque Chart (Ft.-Lb.)			
Size	 SAE Grade 2	 SAE Grade 5	 SAE Grade 8
1/4-20	6	9	13
5/16-18	11	18	28
3/8-16	19	31	46
3/8-24	24	46	68
7/16-14	30	50	75
1/2-13	45	75	115
9/16-12	66	110	165
5/8-11	93	150	225
3/4-10	150	250	370
7/8-9	202	378	591
1-8	300	583	893
Metric Grade 8.8 (Ft.-Lb.)			
Size	Torque	Size	Torque
M 6	7	M 12	60
M 8	17	M 14	95
M 10	35	M 16	155
These torque values apply to mount assembly fasteners except those noted in the instruction.			

MOUNT INSTALLATION

MOUNT ASSEMBLY

NOTE: Two wheel drive trucks must have a minimum clearance of 20-1/4" between the bottom of the bumper and the ground measured at the frame. If truck does not have this clearance, the front must be raised with air bags, air shocks or suspension lift kits, before proceeding. Remove 2 inches on both sides for 2WD and some 4X4 applications to obtain 12" - 13" coupling height (See Photo 1.)

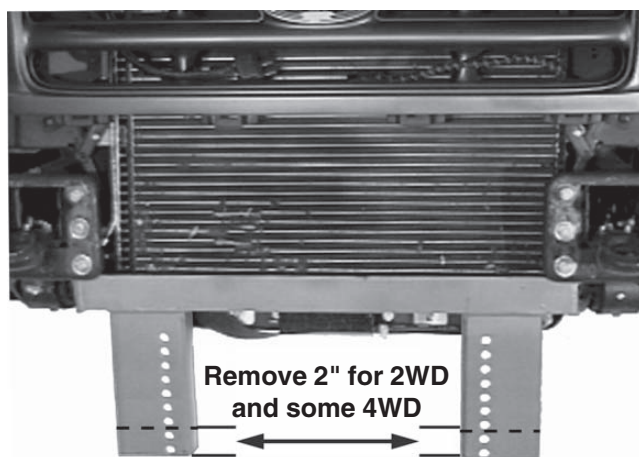


Photo 1

1. If vehicle is equipped with fog or driving lamps or engine block heater, unplug wire harness at connection or disconnect heater cord straps. Remove rubber air dam and retain.
2. Remove four bumper mounting bolts through front of bumper openings. Retain bolts, speed nuts and nut plates for reassembly. Remove bumper from vehicle.

⚠ WARNING

BlockerBeam™ tag provided must be attached to BlockerBeam when removed from truck. BlockerBeam must be reinstalled if plow mount is ever removed.

If vehicle is equipped with a BlockerBeam between the frame horns and behind the bumper, unbolt and remove. Retain for reinstallation if plow mount is removed from vehicle. Attach BlockerBeam tag provided to BlockerBeam using nylon tie strap provided.

3. From the top of the middle slot on each bumper bracket, measure up to 1-3/8". Center punch and drill a 1/2" hole through each bracket. (See Photo 2.)

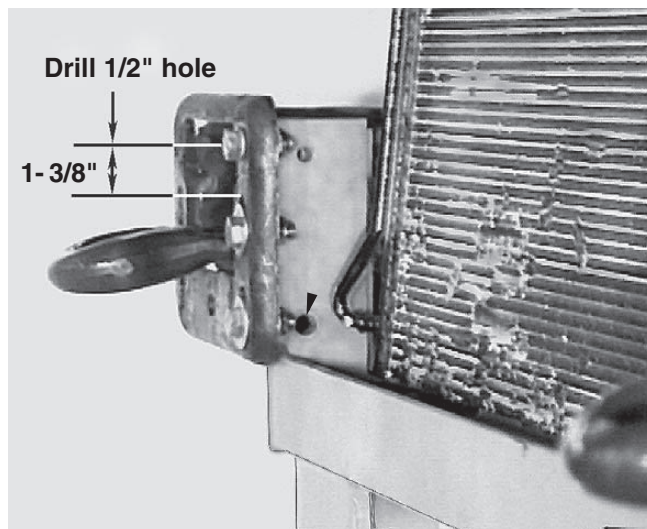


Photo 2

4. Remove power steering cooler attaching hardware and loop cooler and hoses over mount frame.
5. Place the mount frame between the frame horns and behind the bumper brackets. (See Photo 3.) Bolt the mount frame to the bumper brackets with six 1/2" x 1-1/2" bolts and flatwashers to slots and locknuts to mount frame. (Leave all fasteners loose until instructed to tighten.)

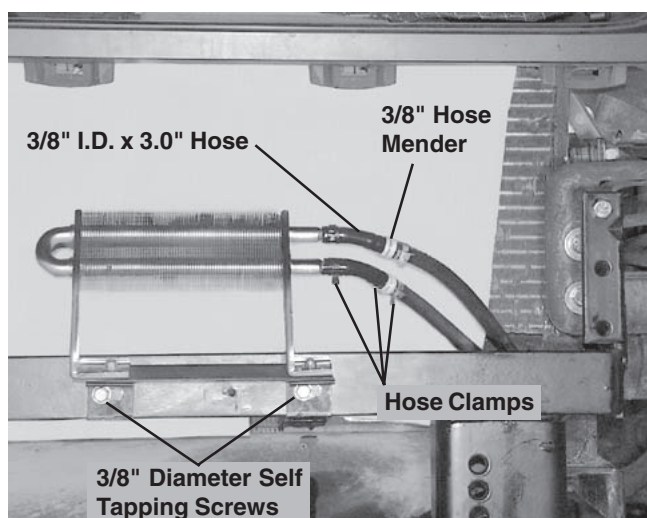


Photo 3

(Continued on next page)

MOUNT INSTALLATION

MOUNT ASSEMBLY (Continued)

⚠ CAUTION

**Power steering fluid may be hot!
It is recommended that vehicle be shut off and allowed to cool before relocating the power steering cooler.**

Gently clamp each power steering line with a locking pliers to prevent fluid flow. (Use caution not to clamp locking pliers too firmly and damage hoses.) Place a drain pan under power steering cooler, label hoses to keep track of upper and lower hose, and remove hoses from cooler.

Attach power steering cooler to mount frame as shown in Photo 3 using brackets and hardware provided.

Insert 3/8" brass hose mender into end of upper power steering hose and clamp with existing spring hose clamp. Insert 3/8" I.D. x 3.0" long rubber hose over opposite end of hose mender and clamp with spring loaded hose clamp provided in kit. Slide another spring loaded hose clamp over the end of the hose and install the hose to the upper fitting of the cooler and clamp in place. Repeat with lower hose.

On 2WD vehicles equipped with a sway bar, remove and keep for re-installation, if plow is removed.

6. Prior to January 2000 Build:

Remove rear bolt from spring bracket. Hold thrust arm up against the bottom of the frame. Assemble the bolt removed from the spring bracket through the forward hole of the thrust arm bracket and tighten.

After January 2000 Build:

Attach thrust arm to frame through forward hole with 1/2" x 1-1/2" bolt and locking nut.

7. On F350 models use 1/2" x 1-3/4" bolts and locknuts to attach rear of thrust arm to sway bar bracket welded to vehicle frame (if so equipped). ***If bracket is missing, proceed to Step 8.***
8. On F450 and F550 models use the two holes in the center of the thrust arm as a guide to drill two 1/2" diameter holes through the bottom of the vehicle frame (requires a long shank 1/2" diameter drill bit). Assemble thrust arm to frame using two 1/2" x 1-3/4" bolts, lock washers, spacers and nut bar provided.

9. (See Photo 4 and Table A for adjusting spreader frame to obtain 12" to 13" hitch pin height with plow attached and on level ground.) Attach spreader frame to mount frame using four 5/8" x 1-3/4" bolts and flat washers to slots and lock nuts to front holes, and two 5/8" x 1-3/4" bolts and lock nuts to highest lined up side holes. (Leave fasteners loose.)

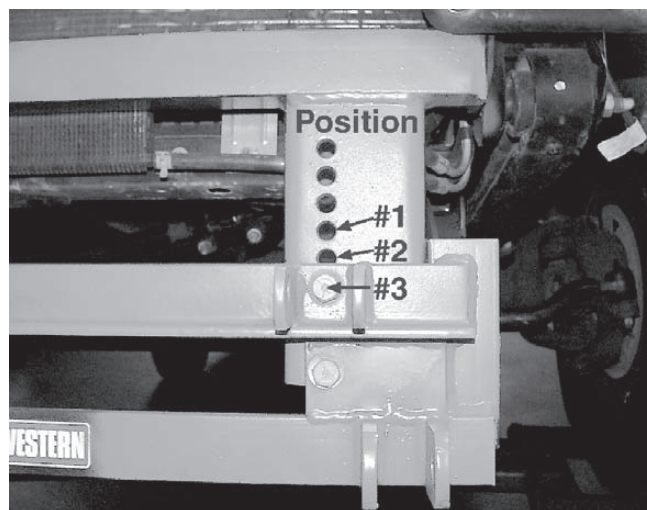


Photo 4

Use (Table A) for suggested spreader after installation.

Position 1	F450/550 diesel
Position 2	Gas, ext. & crew cab with 6000# spring, code "X" F 450/550
Position 3	Reg. Cab with 6000# spring, code "X"

Table A

NOTE: Further adjustment may be necessary after plow is attached.

(Continued on next page)

MOUNT INSTALLATION

MOUNT ASSEMBLY (Continued)

10. Assemble thrust arms to outside of spreader and mount frame with two 5/8" x 2-1/2" bolts and locknuts to lowest lined up holes. **(See Photo 5.)** Using the two holes on the outside of the thrust arm bracket as a guide, drill two 1/2" diameter holes through the outside of the frame. Attach to frame with two 1/2" x 1-1/2" bolts, lock washers and nut bars provided.

NOTE: Thrust arm gusset must be installed when spreader top bolt is in position 4, 5 or 6. (See Photo 5 and Table A.)

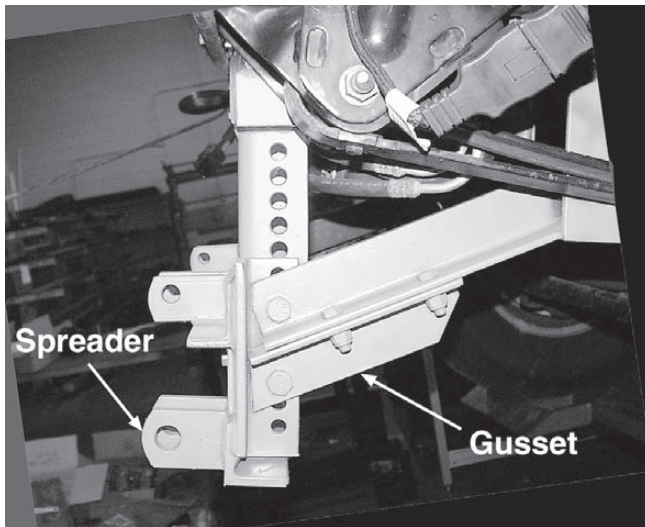


Photo 5

11. Tighten all 1/2" fasteners on mount frame attached to front bumper bracket. Using holes in side plates of mount frame as a guide, drill one 1/2" diameter hole per side in the vehicle frame and one 1/2" diameter hole per side in the spring bracket. **(See Photo 6.)**

Install and tighten 1/2" fasteners and tighten.

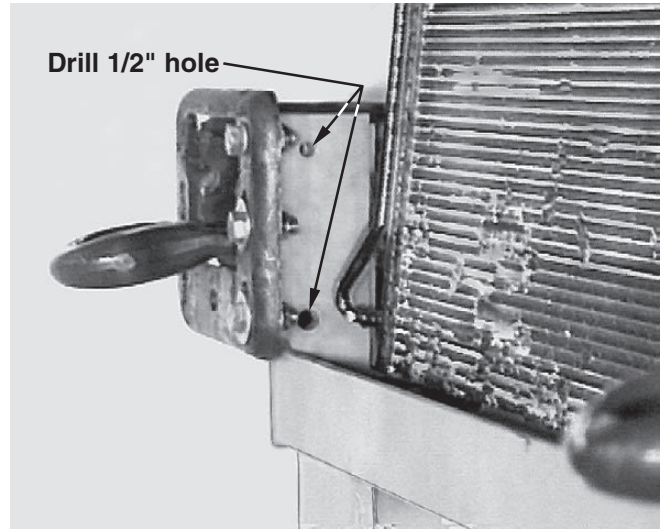


Photo 6

⚠ CAUTION

On vehicles with Air Conditioning, care must be taken not to damage the evaporator unit and any tubing attached to it.

12. Tighten all fasteners to specifications in Fastener Torque Chart.
13. Place convoluted tubing over power steering lines in area of mount.
14. Using the speed nuts and bumper bolts from Step 2, attach the 1/2" thick bumper spacer to the back of the bumper.
15. Reattach the vehicle bumper and align for best fit.
16. Trim forward corners of rubber air dam and reattach.

NOTE: After five to ten hours of snowplow usage, retorque all mount assembly fasteners.

LINK ARMS

- Fasten a link arm between each pair of link arm lugs with one 1 x 3-1/4" grade 5 rivet and cotter pin on each side.

SOLENOID CONTROL INSTALLATION

HARNESS KIT SELECTION

Straight Blade

- For DUAL replaceable bulb type HB-5 headlamps use Box No. 61540-1 Headlamp Kit 9-Pin and 63420 Harness Kit HB-5 9-Pin -A with Park or Turn Harness Kit.
- For 2B Sealed Beam headlamps use Box No. 61540-1 Headlamp Kit 9-Pin and 63422 Harness Kit 2B/2D 9-Pin -A with Park or Turn Harness Kit.

MVP® Blade

- For DUAL replaceable bulb type HB-5 headlamps use 66640-1 Headlamp Kit 12-Pin MVP and 63421 Plug-in Harness HB-5 -A with Park or Turn Harness Kit.
- For 2B Sealed Beam headlamps use Box No. 66640-1 Headlamp Kit 12-Pin MVP and 63423 Plug-in Harness 2B/2D -A with Park or Turn Harness Kit.

Any of above vehicles with:

- Cab marker lights require the use of a second 61185 Park or Turn Harness Kit installed in the cab marker / park light circuit. (Second 61185 sold separately.)
- DRL's requires use of 61584 DRL Kit on headlamp relays. (61584 sold separately.)

3. Secure solenoid control to control bracket with two #8 x 5/8" hex head tapping screws.
4. Move seat forward. Locate control and bracket assembly on floor tunnel so that it does not interfere with the operation of vehicle controls. Mark this location.
5. Remove control bracket from dash bracket.
6. Place dash bracket in marked location. Use dash bracket as a template to drill four 1/8" holes in tunnel.

⚠ CAUTION

Before drilling any holes, check both sides of the material for any wires, fuel lines, fuel tanks, etc. that may be damaged by drilling.

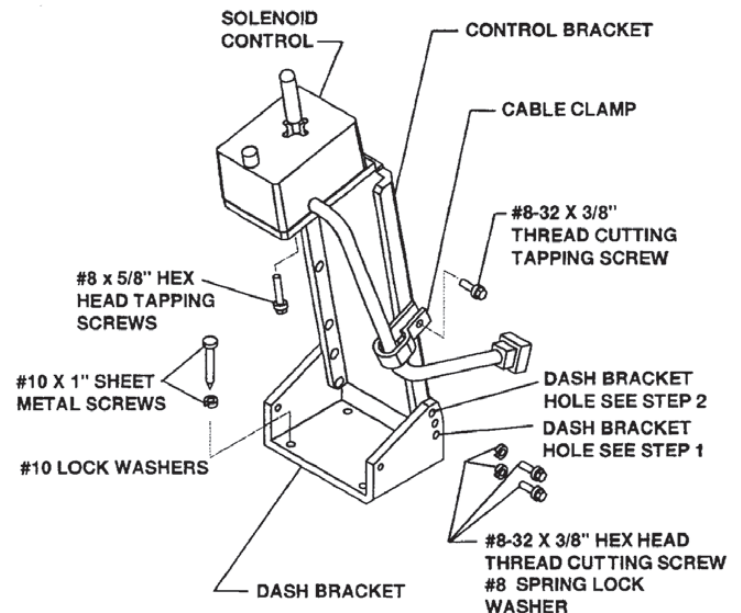
7. Secure dash bracket to tunnel with four #10 x 1" sheet metal screws and lock washers.
8. Reassemble control bracket to dash bracket. Bend top flange of control bracket to desired position.
9. Secure harness to control bracket with cable clamp and one #8 x 3/8" hex head thread cutting screw.

SOLENOID CONTROL - FLOOR MOUNT

1. Align dash bracket hole shown in diagram to end hole of control bracket.

NOTE: Top flange of control bracket may be reversed in dash bracket from position shown in diagram. Attach with one #8 x 5/8" hex head thread cutting screw and lock washer on each side.

2. Use top holes in dash bracket (see diagram) as a template to drill a 9/64" hole in each side of control bracket. Secure dash bracket to control bracket with a second screw and lock washer on each side.



UNDER HOOD INSTALLATION

VEHICLE HARNESS AND MOTOR RELAY

Except as noted, parts to be installed are found in hydraulics box.

NOTE: Use dielectric grease to prevent corrosion on all under hood electrical connections. Fill receptacles and lightly coat ring terminals and blades before assembly.

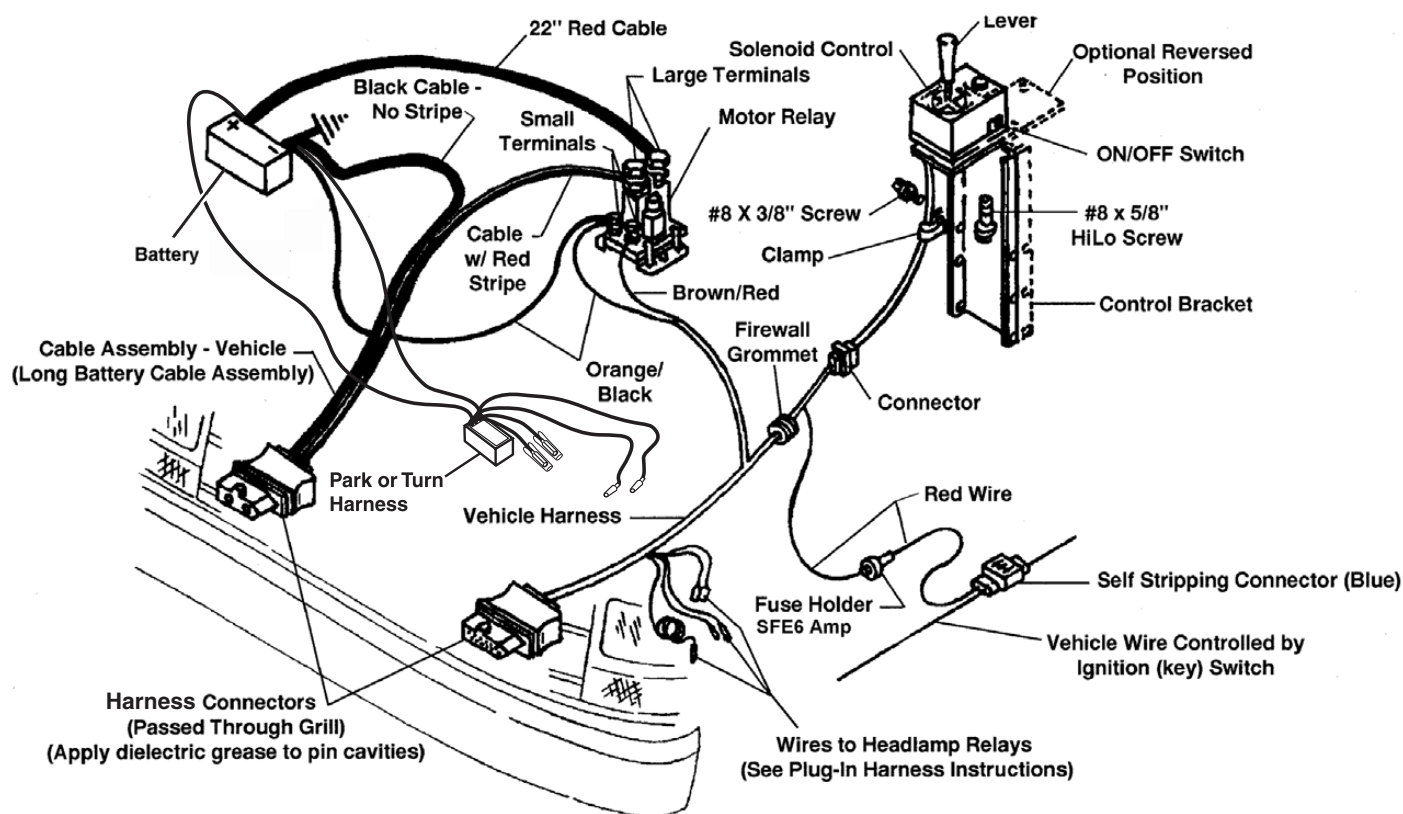
NOTE: During electrical installation, the LONG BATTERY GROUND CABLE (no stripe) MUST BE GROUNDED TO THE NEGATIVE BATTERY TERMINAL.

Plow may be removed from vehicle for installation of electrical components.

1. Identify wires for the parking lamp on the driver-side and the turn signals on both sides of the vehicle. Attach a black self-stripping bullet receptacle connector (found in harness kit) to each of these three wires. (On HB5 type headlamps, park turn lamps may be removed by taking out two phillips head screws and pulling lamp straight forward.)
2. Remove NEGATIVE battery cable from battery.

(Continued on next page)

HARNESS, SOLENOID CONTROL & MOTOR RELAY INSTALLATION DIAGRAM



UNDER HOOD INSTALLATION

VEHICLE HARNESS AND MOTOR RELAY

(Continued)

3. Find a location for the motor relay where it will be protected from road splash and within 18" of the vehicle primary battery. (See Photo 6.)

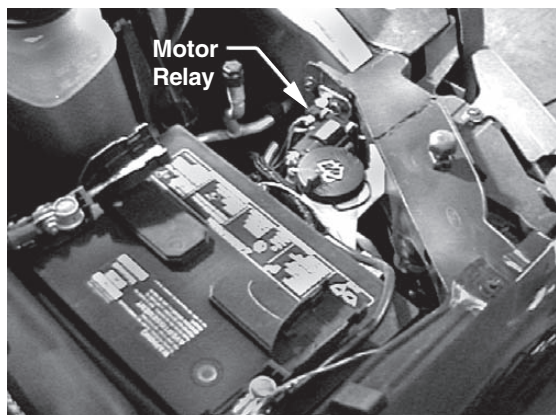


Photo 6

NOTE: Motor relay terminals must be up or horizontal.

4. Using the motor relay base as a template, drill two 9/32" holes, and mount motor relay to holes using 1/4" x 3/4" bolts, flat washers and lock nuts.
- Optional Method:** Use a 3/8" drill bit to enlarge slots in relay and use existing 3/8" body bolt to attach as shown in **Photo 6**.
5. Route 22" battery cable between a large motor relay terminal and the POSITIVE battery terminal taking care to avoid sharp edges and hot or moving parts.

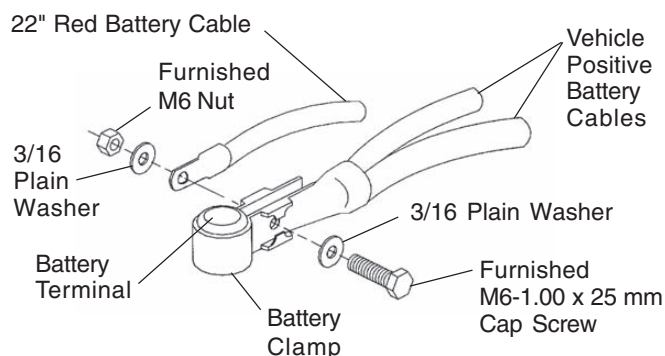
6. Position the insulated end (box) of the park or turn harness (found in harness kit) in the area behind the driver side headlamp. Route the red wire with the fuse holder to either the large terminal on the motor relay with the 22" battery cable on it, or to the clamp of the positive post of the battery.

Route the park or turn harness black wire with ring terminal to the negative post clamp of the battery. Do not connect at this time.

7. Attach cable to motor relay terminal with a lock washer and a 5/16"-24 jam nut. Attach cable to battery POSITIVE terminal with hardware provided. (See diagram and instructions below.)

On vehicles equipped with diesel engines attach using existing clamp hardware.

NOTE: The original battery terminal clamp screw is not long enough to secure the hydraulic unit 22" red battery cable. Remove the original cap screw and replace it with the blue chromate finished items shown below.



Part No.	Qty.	Description
91055	2	CS HX M6X1.00X25 G8.8 DCB
91056	2	M6-1.00 HX NUT
91119	4	WASHER FL 3/16 TY A WIDE ZP

Abbreviations

CS	Cap Screw	HX	Hex
DCB	Dichromate-Blue	M	Metric
FL	Flat	TY	Type
G	Grade	ZP	Zinc Plate

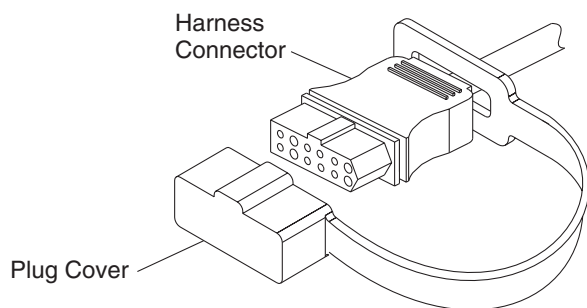
(Continued on next page)

UNDER HOOD INSTALLATION

VEHICLE HARNESS AND MOTOR RELAY

(Continued)

8. Stretch rectangular openings of plug cover straps (found in harness kit) over harness connector ends of long battery cable assembly (found in hydraulics box) and vehicle harness (found in harness kit). Place plug covers over harness ends.



9. Find a location in the vehicle grill on the battery side for mounting the battery cable connector. The best location is at least 10-1/2" from the center of the grill and at a convenient height for connecting the plow plugs.
10. Allow connector of each harness to hang out in front of grill. Allow enough cable so it is easy to mate and remove connector. Secure with long cable ties (found in mount box).
11. Route battery cable through the grill at the selected location and through or around the radiator bulkhead to motor relay taking care to avoiding sharp edges, and hot or moving parts.
12. Attach cable with red stripe to the unused large terminal on the motor relay, and secure it with a lock washer and 5/16"-24 jam nut.
13. Route cable without a stripe directly to the NEGATIVE battery terminal (carefully separate the two cables as needed to reach the battery ground connection). **DO NOT** reconnect the battery ground.
14. Find a grill location on driver-side for the vehicle harness (similar position to battery cable mount). See Steps 9 and 10 above for how to install. Route vehicle harness through grill and around, or through radiator bulkhead (drill 5/8" hole if needed) into engine compartment.
15. Route the wires that break out of the vehicle harness to the area behind the driver-side headlamp. Route rest of harness to the firewall. Drill a 5/8" hole through the firewall in a convenient location away from hot or moving engine parts.
16. All vehicles with DRL's - Insert fuse holder on pink wire of DRL Adapter Kit (P.N. 61584) through firewall first. Route end of pink wire with receptacles to area of driver-side headlamp.
17. Feed vehicle harness fuse holder through hole and then feed the plastic connector and harness through to the cab. Disassembly of the fuse holder may make it easier to pass through 5/8" hole.
18. Route brown/red and orange/black (early revision harnesses have brown/red and black/orange wires) wire loom to motor relay.
19. Attach the brown/red and orange/black wires small ring terminals to separate small terminals on motor relay using a lock washer and #10-32 nut for each connection.
20. Route the 24" long orange/black wire with 3/8" ring terminal to battery NEGATIVE post. **DO NOT attach wire to battery at this time.**
- For MVP® Blade Installation, Continue on Page 13.**
21. Inside the cab, route vehicle harness connector to solenoid or CabCommand control and couple the connectors together.
22. Reconnect vehicle ground cable to NEGATIVE battery terminal along with the all black plow battery cable, orange/black wire and the small black park or turn harness wire.

(Continued on next page)

UNDER HOOD INSTALLATION

VEHICLE HARNESS AND MOTOR RELAY

(Continued)

23. In the right side of the panel opening below the steering column...

[1999 to 2001 - Locate the hot in run, fuse no. 27 (10 amp) light blue/pink blunt cut wire.

2002 - Locate the hot in run 10 amp fused white/blue blunt cut wire above the diagnostic connector.]

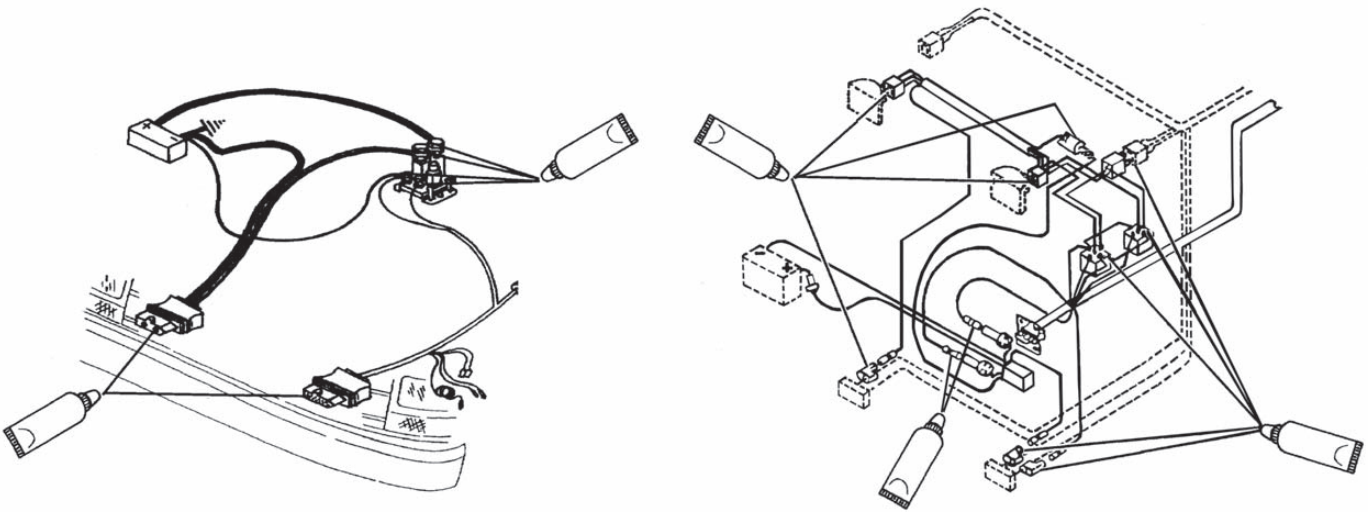
...route the vehicle harness SFE-6 fuse holder red wire to this location and trim off any excess length of wire (keep fuse holder in system). If used, DRL pink wire requires 0.4 amps.

24. Open blue self stripping connector and place the end of the red wire against the inner groove stop (end of wire must not extend from the closed connector), and the accessory wire in the outer groove. Close connector over the wires using a pliers and snap the locking tab in place. Repeat with DRL pink wire.

DIELECTRIC GREASE (1/4 oz)
Part Number 56099



*A larger tube (2 oz) of dielectric grease is available.
Part Number for larger tube is 49326.*

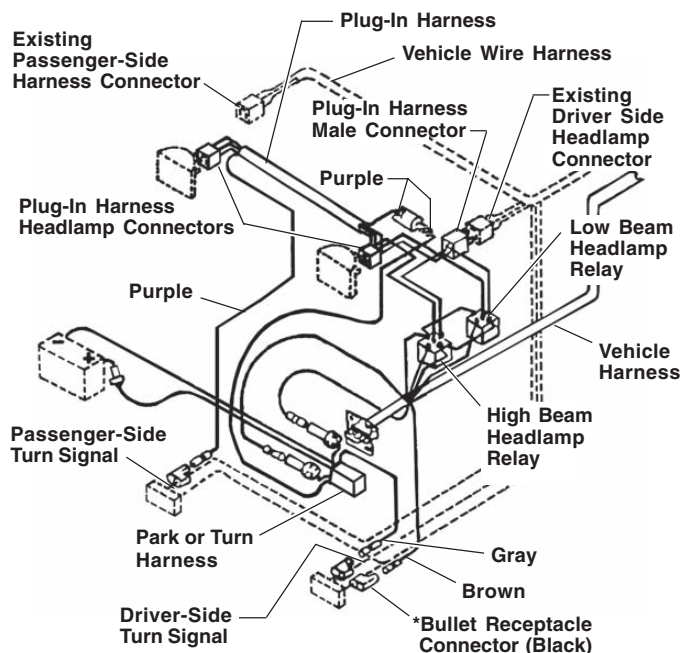


UNDER HOOD INSTALLATION

PLUG-IN HARNESS AND HEADLAMP RELAY INSTALLATION

(Add 61185 relay kit on vehicles with cab marker lights.)

VEHICLE HEADLAMP WIRING DIAGRAM (TYPE A)



NOTE: All installations of this mount shall have the Park or Turn Harness Kit installed in the plow lights left and right turn signal circuit.

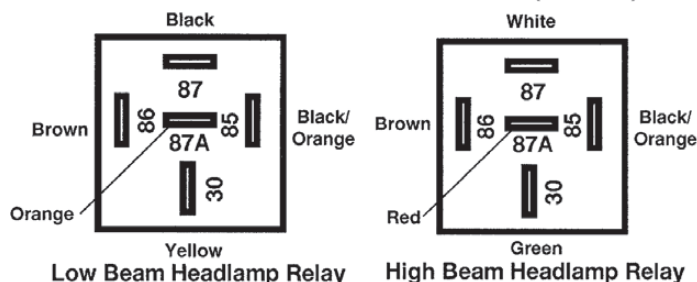
1. In the engine compartment behind the driver-side headlamp, make the following wire connections (read chart left to right...from - to):

Vehicle Harness	Park or Turn Harness	Plug-In Harness	Black Bullet Receptacles*
From Brown Wire Bullet			To Park Lamp Wire Receptacle**
From Gray Wire Bullet	To Gray Wire Receptacle		
From Purple Wire Bullet	To Purple Wire Receptacle		
	From Gray Wire Bullet		To Turn Wire Receptacle
	From Purple Wire Bullet	To Purple Wire Receptacle	

*Installed Step 1 previous section

**Vehicle with cab marker lights: Install a second 61185 park or turn harness in park lamp circuit. Follow kit instructions for Cab Marker/ Park Lamp installation. (Second 61185 kit sold separately.)

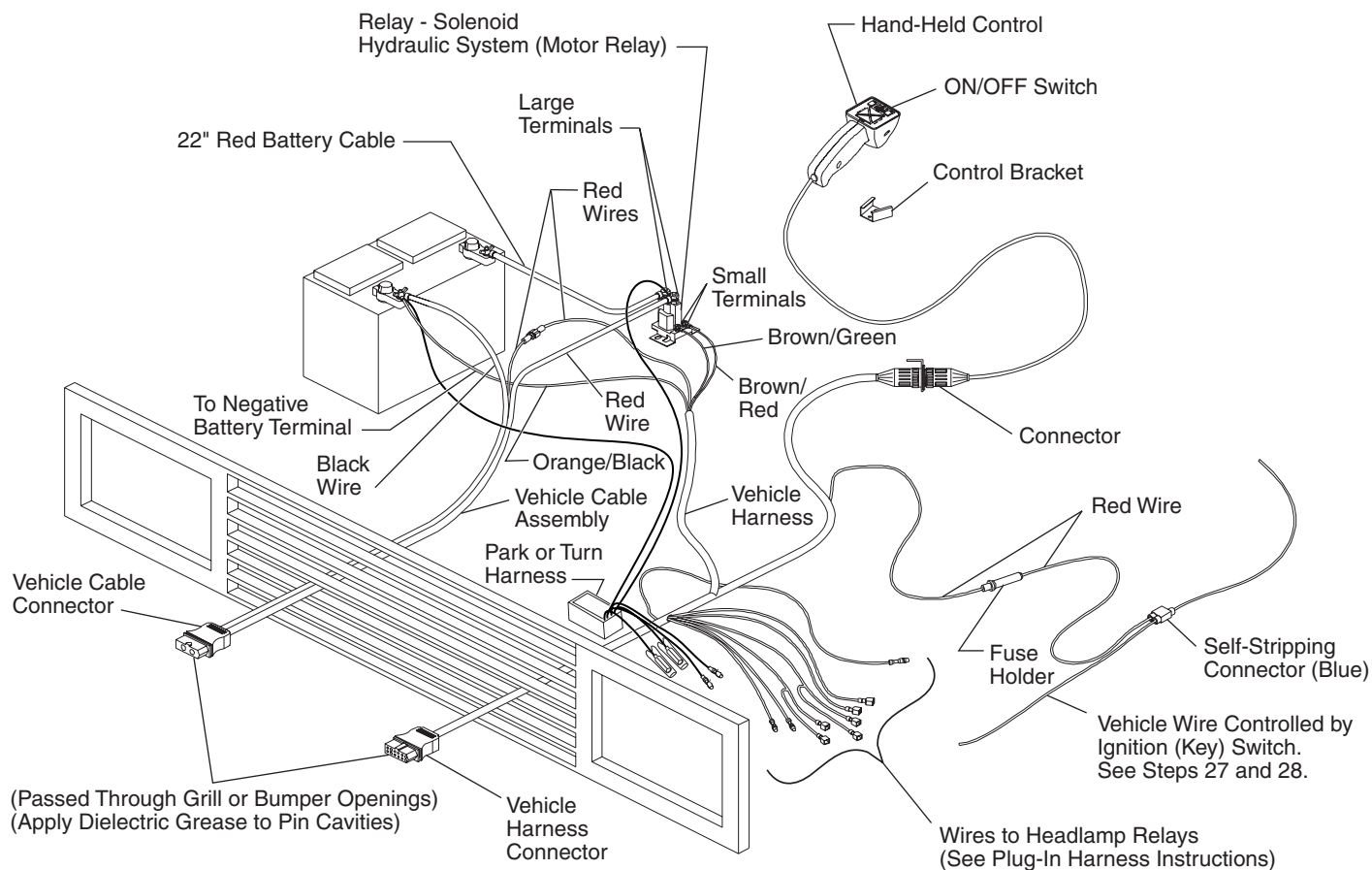
HEADLAMP RELAY WIRING DIAGRAM (TYPE A)



2. At the vehicle driver-side headlamp, remove the connector from the headlamp and couple matching connector with plug-in harness 3-wire male plug (plug-in harness found in harness kit). Attach plug-in harness headlamp connector to headlamp terminals.
3. Route other end of plug-in harness along radiator bulkhead or over radiator shroud to passenger-side headlamp. Remove headlamp connector and secure connector with a cable tie. Attach plug-in harness headlamp connector to headlamp terminals.
4. On the passenger-side, insert purple wire bullet from plug-in harness into vehicle turn signal black bullet connector installed in step one of the previous section.
5. At driver-side headlamp, connect vehicle and plug-in harness wires with receptacles to the two headlamp relays (found in harness kit) as shown in the above diagram. (If vehicle has DRLs, replace brown wires with pink wire from DRL kit. Brown wires from vehicle harness are not used in DRL installations.)
6. Place grommet around vehicle harness and insert into firewall hole (also put a grommet in the radiator bulkhead hole if one was drilled). Use cable ties (found in harness kit) to secure harnesses, relays, park or turn harness, and wires away from sharp edges, and hot or moving engine parts and to prevent accidental grounding of connections.
8. Lubricate terminal cavities of both harness connectors with dielectric grease.

MVP® IN-CAB INSTALLATION INSTRUCTIONS

VEHICLE HARNESS AND VEHICLE CABLE INSTALLATION

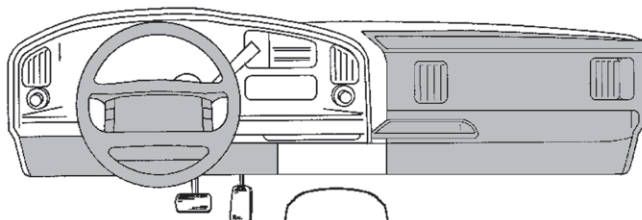


(Continued from page 10.)

21. Remove the packing material from the end of the harness near the fuse. This will expose 10 socket-type terminals. Push the fuse holder through the firewall hole and then carefully feed the end of the harness with the 10 terminals through to the cab.
22. Locate a connector bracket mounting position under the dash where it will not interfere with other equipment. Mount the connector bracket using #8 x 5/8" tapping screws and washers.

⚠ CAUTION

Do not alter, modify, or install additional components in shaded areas of the illustration below. Failure to comply may cause damage to the product or property.



VEHICLE HARNESS AND VEHICLE CABLE INSTALLATION (Continued)

23. Feed the vehicle harness through the bracket.
24. Insert each of the 10 socket-type terminals into the connector housing. **(See Figure Below.)**

Refer to the Table 1 below for under-dash vehicle harness connector pin assignments.

NOTE: A “snap” will be felt as the terminals are successfully inserted. An extraction tool is provided for removal of pin terminals if necessary.

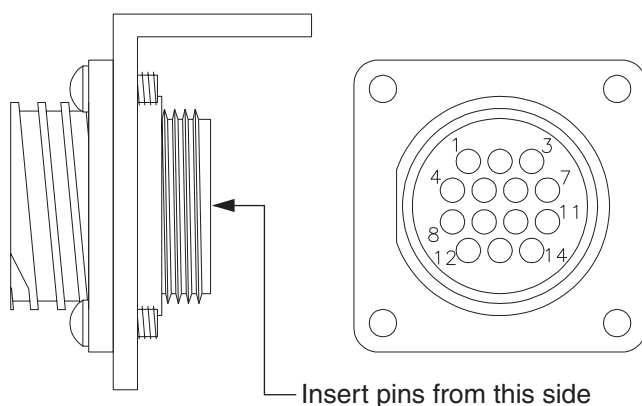


Table 1

Wire Color	Pin No.
Light Blue With Orange Stripe	1
Blue With Orange Stripe	2
Black With White Stripe	3
Light Green	4
Light Blue	5
White With Yellow Stripe	6
Brown With Red Stripe	7
Red	8
Orange With Black Stripe	9
Brown With Green Stripe	10

25. Secure the connector to the bracket with the provided #6-32 x 1/4" tapping screws and lock washers.

26. In the right side of the panel opening below the steering column...

[1999 to 2001 - Locate the hot in run, fuse no. 27 (10 amp) light blue/pink blunt cut wire.

2002 - Locate the hot in run 10 amp fused white/blue blunt cut wire above the diagnostic connector.]

...route the vehicle harness 10 amp fuse holder red wire to this location and trim off any excess length of wire (keep fuse holder in system). If used, DRL pink wire requires 0.4 amps.

27. Open blue, self stripping connector and place the end of the red wire against the inner groove stop (end of wire must not extend from the connector when it is closed), and the accessory wire in the outer groove. Close the connector over the wires using a pliers and snap the locking tab in place.
28. Under hood near motor relay, connect the female spade terminal on the small red wire from the vehicle cable to the male spade terminal on the red wire from the vehicle harness.
29. Reconnect vehicle ground cable to **NEGATIVE** battery along with the all black plow battery cable, orange/black wire, and the small black park or turn harness wire.
30. Install plug-in harness, park and turn harness, and relays as shown on page 12 of these instructions.

OPERATIONAL TESTS AND ADJUSTMENTS

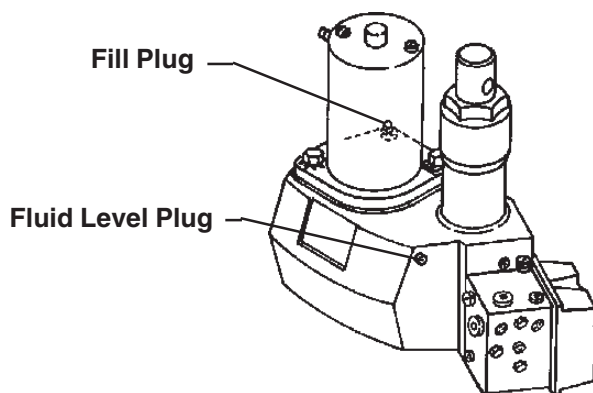
FILLING HYDRAULIC UNIT

NOTE: Mount plow assembly to vehicle. (See label on back of blade or Owner's Manual for mounting instructions.)

⚠ CAUTION

Remove fluid level plug slowly to allow any residual pressure in the reservoir to bleed off.

1. Push lift channel all the way down.
2. Remove fluid level plug and fill plug.



3. Fill unit through fill plug hole until fluid runs out of fluid level plug hole.

USE

- WESTERN® High Performance Fluid to -25° F (-32° C)
- Automatic transmission fluid (ATF) DEXRON® III to -10° F (-23° C)
- Texaco 1537 Aircraft Hydraulic Oil for temperatures below -25° F (-32° C)

4. Replace both plugs.
5. Turn ignition (key) switch to the ON or ACCESSORY position.
6. Turn the control ON/OFF switch to the ON position.

⚠ CAUTION

DO NOT raise blade as this may cause pump cavitation.

7. Move control lever to angle left and angle right several times to remove air from hydraulic rams.
8. Refill unit with fluid following the procedure in steps 1 - 4 of this section.
9. Move the control lever as indicated on label to control the plow. Raise and lower plow several times to remove air. Place control lever in float position. Push lift channel all the way down. Recheck fluid level according to steps 1 - 4 or this section.

FLUID CAPACITY

Solenoid ISARMATIC® Mark IIIa reservoir – 1-3/4 quarts

Equipped with 10" hydraulic rams – 2-3/8 quarts

⚠ WARNING

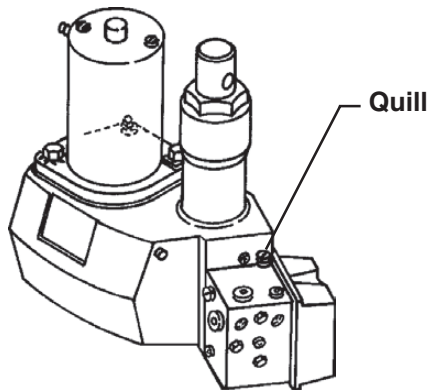
To prevent accidental movement of plow, always turn the solenoid control to the OFF position when not using the mounted plow.

OPERATIONAL TESTS AND ADJUSTMENTS

BLADE DROP SPEED ADJUSTMENT

NOTE: The quill on the top rear of the valve manifold (see diagram) adjusts blade drop speed. Turning quill too far in can slow raise time and cause battery drain.

- Turn quill IN (clockwise) to decrease drop speed.
- Turn quill OUT (counterclockwise) to increase drop speed.



FINAL INSPECTION

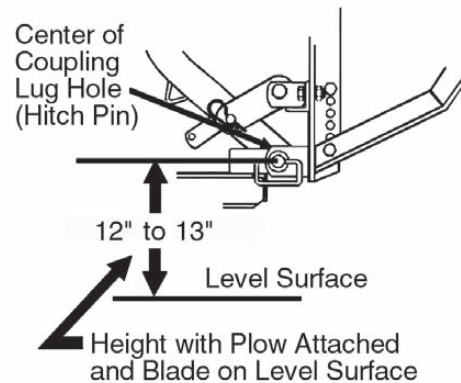
1. Make sure all fasteners and hydraulic and electrical connections are tight.
2. Check ram packing nuts for oil leakage. If excessive leakage is observed, tighten the packing nut 1/4 turn after you feel the nut contact the packing.

NOTE: Do not over tighten packing nuts. Over tightening affects cylinder operation and shortens the life of the packing. A short period of normal operation will allow chevron packings to become saturated, and leakage will normally stop. A small amount of leakage is necessary to properly lubricate the cylinder rod.

COUPLING LUG HEIGHT CHECK

1. Mount plow to vehicle. (See label on back of blade or Owner's Manual for mounting instructions.) Add recommended ballast as found in Selection Guide.
2. Lift plow and move vehicle a minimum of 10 feet.
3. With the blade on a level surface:
 - slack in lift chain
 - rear ballast located behind rear wheels
 - the center of the coupling holes (hitch pin shaft) to level surface should measure 9-1/2" to 10-1/2".

To obtain height, both Coupling Lugs and Link Arms may be turned over to change height 1".



NOTE: Coupling height must be 12" minimum to allow stand to be pinned to frame.

4. Adjust chain slack with plow mounted to vehicle and lift channel pushed all the way down. To adjust, remove chain from hook, straighten chain and pull tight. Rehook it to the lift channel. After chain is hooked, it will have the correct amount of slack for blade "float". DO NOT remove chain from lift channel when removing plow from vehicle.

OPERATIONAL TESTS AND ADJUSTMENTS

VEHICLE LIGHTING CHECK

1. Check the operation of vehicle and plow lights with plow mounted to vehicle and all harnesses connected.

Turn signals and parking lamps

Parking lamps ON

- Both vehicle and plow parking lamps should be on at the same time.

Right turn signal ON

- Both vehicle and plow right turn signal lamps should flash at the same time.

Left turn signal ON

- Both vehicle and plow left turn signal lamps should flash at the same time.

Headlamps

Move vehicle headlamp switch to the ON position. Connecting and disconnecting the 9-pin plow plug from the vehicle harness connector should switch between vehicle and plow headlamps as follows:

9-pin plow plug DISCONNECTED

- Vehicle headlamps should be on.
- Plow headlamps should be off.

9-pin plow plug CONNECTED

- Plow headlamps should be on.
- Vehicle headlamps should be off.

Dimmer switch should dim whichever headlamps are operating. The high beam indicator on the dash should light when either set of headlamps is on high beam.

Solenoid Control or CabCommand Control

- The control indicator light should light whenever the control ON/OFF switch and the ignition (key) switches are both turned ON. The plow plugs do not need to be connected to the vehicle harness connectors.

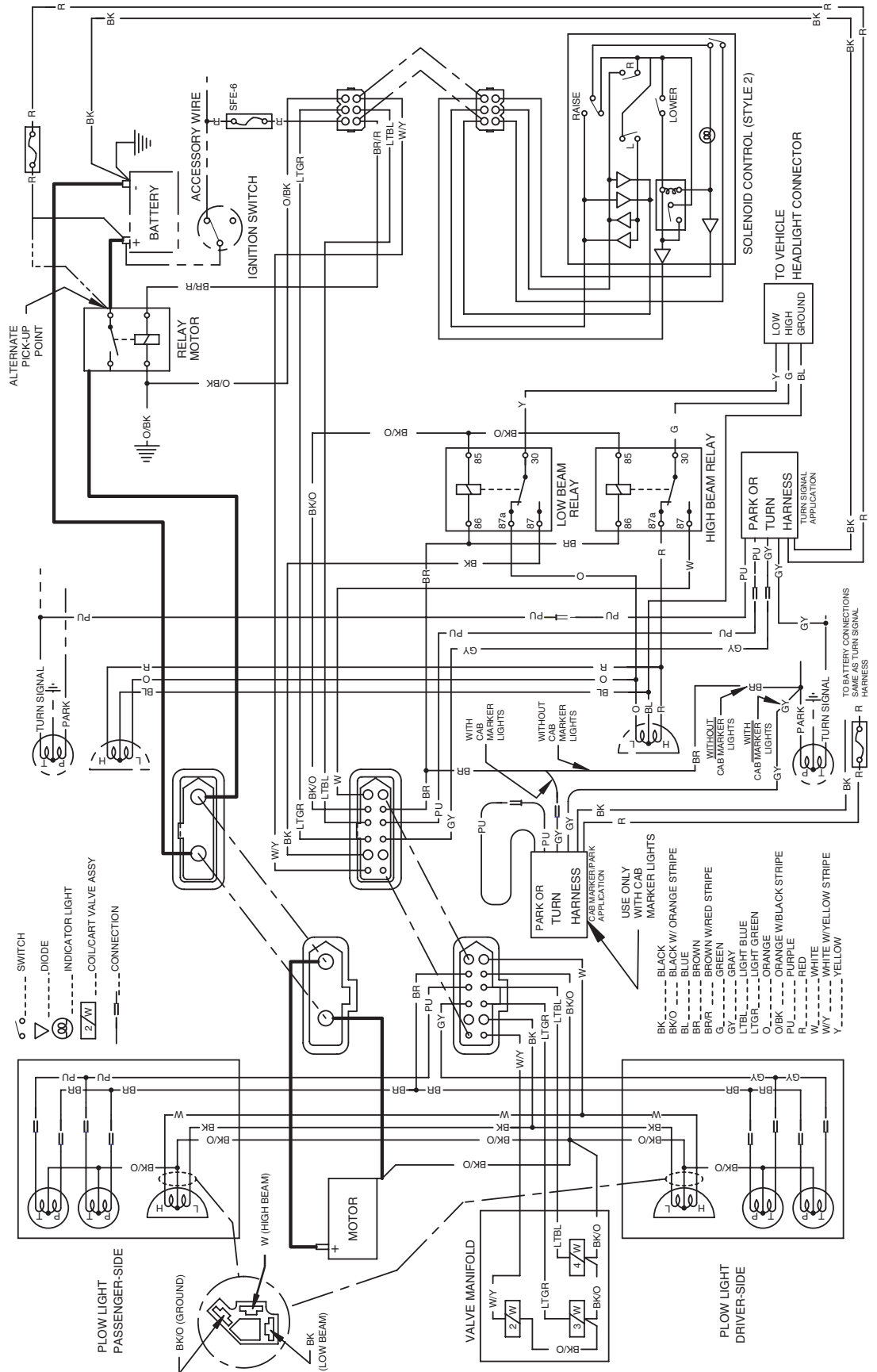
2. Connect plow plug to vehicle harness connector. Raise plow and aim plow headlamps according to SAE J599 Lighting Inspection Code (**See Service Bulletin SP 608**) and any state or local regulations.
3. Check aim of vehicle headlamps with plow removed.
4. When plow is removed from the vehicle, install plug covers on vehicle harness connectors and insert the plow plugs into the boot on the hydraulic unit.

After using the snowplow for 5-10 hours, retorque all mount assembly fasteners.

WIRING DIAGRAM

Wiring Diagram Harness Type - A W/ 9 Pin Headlamp Kit & SAE Headlamp Types 2B/2D HB-1 HB-5

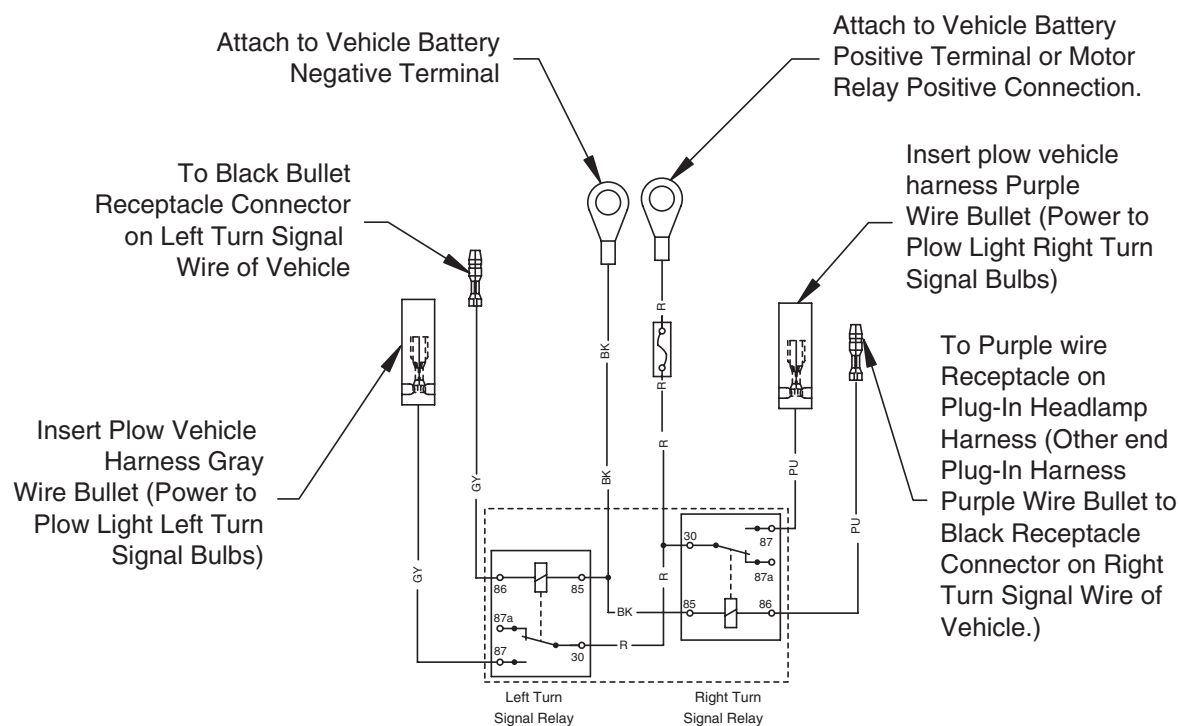
Unimount
SYSTEM



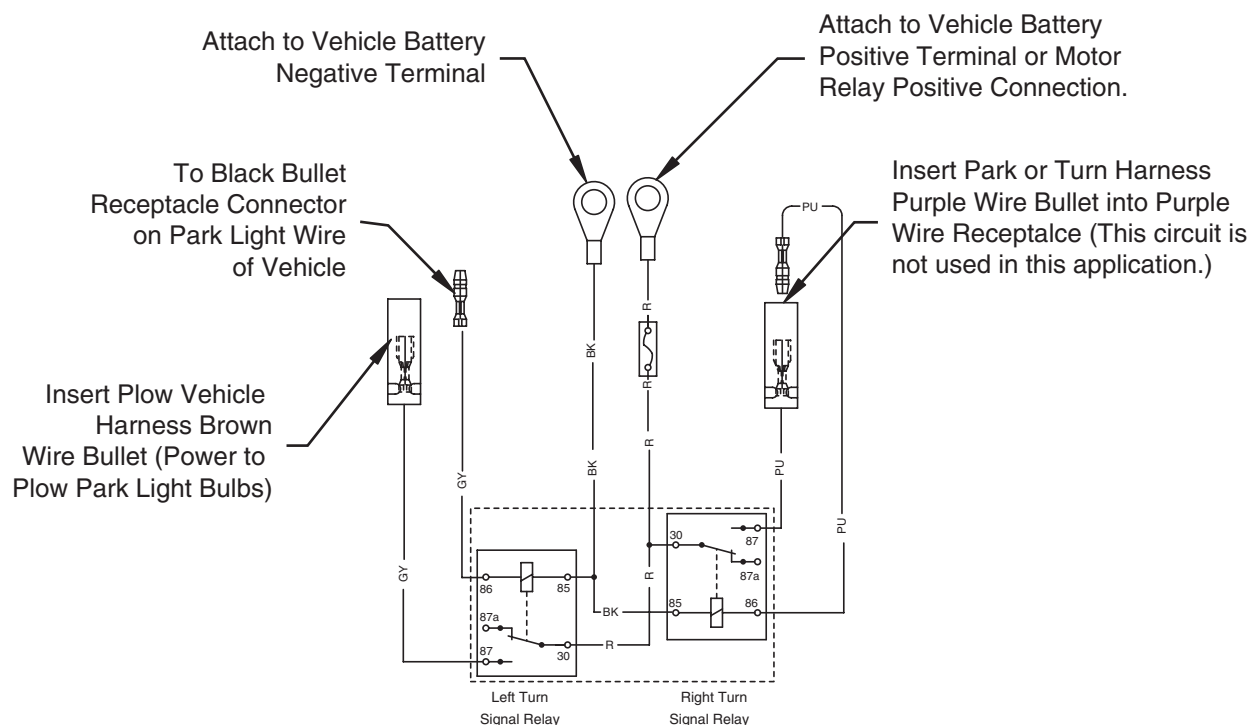
Electrical Schematic - MVP®



WIRING DIAGRAM - 61185 Park or Turn Harness Kit



Turn Signal Application



Cab Marker / Park Lamps Application



WESTERN PRODUCTS
P.O. BOX 245038
MILWAUKEE, WI 53224-9538

 A DIVISION OF DOUGLAS DYNAMICS, L.L.C.

Western Products reserves the right under its Product Improvement Policy to change construction or design details and furnish equipment when so altered without reference to illustrations or specifications used herein. Western Products and the vehicle manufacturer may require and/or recommend optional equipment for snow removal. Western Products offers a limited warranty on the snowplows and accessories. See separately printed page for this important information. The following are registered ® trademarks of Douglas Dynamics, L.L.C.: UNIMOUNT® and WESTERN®.