Lit. No. 13766 October 5, 2001



FORD F-150 4x4 1997 & LATER FORD F-250 LD 4x4 1997-1999 **INSTALLATION INSTRUCTIONS**

Model No. 1225

Hydraulics Box No. 56365 Harness Kit No. 63420 Used with Headlamp Kit No. 61540-1

ACAUTION

Read this document before installing the snowplow.

ACAUTION

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.



SAFETY

MOUNT INSTALLATION

Mount Frame	. 4
Coupling Lugs	. 4
Link Arm Lugs	. 4
Link Arms	. 5
Bumper	. 5

UNDER HOOD INSTALLATION

Harness Kit Selection	6
Solenoid Control – Floor Mount	6
Vehicle Harness and Motor Relay	7
Plug-in Harness and Headlamp Relay Installation	11

OPERATIONAL TESTS AND ADJUSTMENTS

Filling Hydraulic Unit	12
Blade Drop Speed Adjustment	13
Final Inspection	13
Coupling Lug Height Check	13
Vehicle Lighting Check	14

WIRING DIAGRAMS

Harness Type - A W/9-Pin Headlamp Kit	15
Harness Type -A W/9-Pin Headlamp Kit W/DRLs \ldots	16
61185 Park or Turn Harness Kit	17

SAFETY DEFINITIONS

AWARNING

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

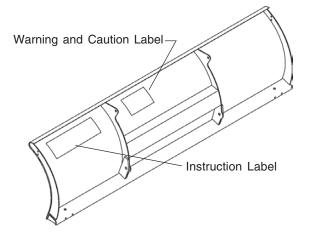
ACAUTION

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

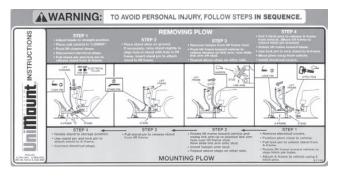
NOTE: Identifies tips, helpful hints and maintenance information the owner/operator should know.

WARNING/CAUTION AND INSTRUCTION LABELS

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



Instruction Label



Warning and Caution Label

LOWER BLADE WHEN VEHICLE IS PARKED.

REMOVE BLADE ASSEMBLY BEFORE PLACING VEHICLE ON HOIST.

DO NOT EXCEED GVWR OR GAWR INCLUDING BLADE AND BALLAST.



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.

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.

AWARNING

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.

A WARNING

Remove blade assembly before placing vehicle on hoist.

(Continued on next page.)

SAFETY PRECAUTIONS (Continued)

AWARNING

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.

A WARNING

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

ACAUTION

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

ACAUTION

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

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

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.

BATTERY SAFETY

ACAUTION

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.

ACAUTION

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

HYDRAULIC SAFETY

AWARNING

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

ACAUTION

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

ACAUTION

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

MOUNT FRAME

- 1. Remove bumper with brackets attached and tow hooks from vehicle frame.
- 2. If necessary, remove the skid plate and retain parts for reinstallation if mount is removed from the vehicle.
- 3. Place mount frame to vehicle frame rail and attach to tow hook holes using existing hardware. Verify the mount frame is tight to the bottom of the vehicle frame.
- 4. Using front mount frame brackets as templates, drill a 1/2" hole through the outer wall of each side of the vehicle frame. Install a 1/2" x 1-1/2" cap screw and a flat washer to the vehicle frame from inside. Secure with a locknut on the outside of the mount frame.
- 5. The larger bottom hole of the mount frame should line up with top of slot on vehicle frame; ream is required. Drill two 9/16" holes on each side using rear mount frame brackets as template.

Install a nut bar inside each frame rail, aligning it to drilled holes. Fasten each rear mount frame bracket to nut bar with a $5/8" \times 1-1/2"$ cap screw and lock washer and two $1/2" \times 1-1/2"$ cap screws and lock washers.

COUPLING LUGS

 During coupling lug installation, allow for drop in vehicle height when weight of plow is added. Final coupling lug hole center to level surface distance should be 9-1/2" to 10-1/2" with plow attached and resting on the level surface. (Turning coupling lugs upside down changes height by 1".)

Position a coupling lug (1" diameter holes) against each coupling lug.

2. Secure with two 1/2" x 1-1/2" bolts and locknuts for each coupling lug.

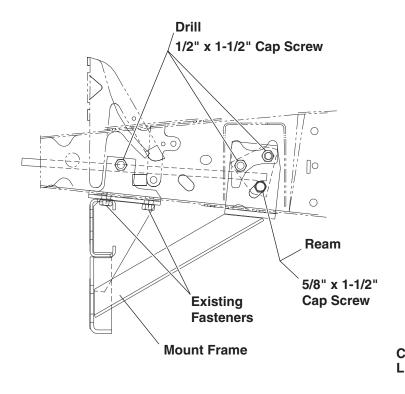
LINK ARM LUGS

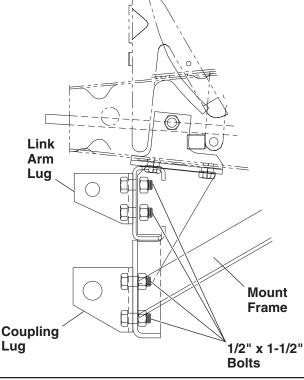
1. Install link arm lugs (3/4" diameter holes) so angled side is in the same position as the angled side of the coupling lugs. Position the link arm lugs to the upper pairs of holes on the mount angle.

NOTE: Centers of coupling lug holes to centers of link arm lug holes should be 5-1/2".

2. Secure each link arm lug with two 1/2" x 1-1/2" bolts and locknuts.

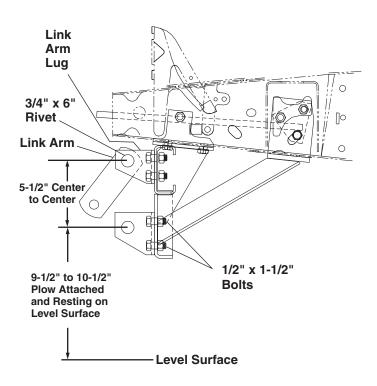
TIGHTEN ALL BOLTS TO CORRESPONDING TORQUE CHART VALUES.





LINK ARMS

Attach one link arm between the upper pair of link arms lugs with one 3/4" x 6" grade 5 rivet, spring, washer and cotter pin on each side.



BUMPER

- 1. Reinstall bumper to original position using existing fasteners.
- 2. The air deflector may require notching for clearance of link arm lugs, or it may be removed from the vehicle. If reinstalling deflector, use existing fasteners. If deflector is removed from vehicle, retain deflector and fasteners and reinstall whenever the snowplow mount is removed from vehicle.

TIGHTEN ALL BOLTS TO CORRESPONDING TORQUE CHART VALUES.

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

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 with Park or Turn Harness.

- Install Park or Turn Harness in plow left or right turn signal circuits.
- 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 require use of 61584 DRL Kit on headlamp relays. (61584 sold separately.)
- SOLENOID CONTROL FLOOR MOUNT
- 1. Align dash bracket hole shown in diagram to end hole of control bracket.

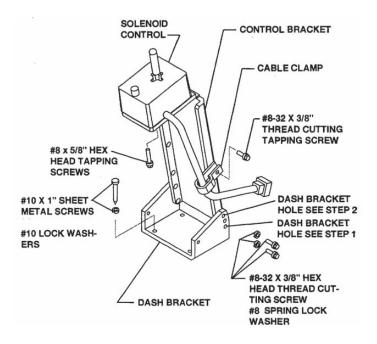
NOTE: Top flange of control bracket may be reversed in dash bracket from position shown in diagram. Attach with one #8 x 5/8" hex head thread cutting screw and lock washer on each side.

- 2. Secure dash bracket to control bracket with a second screw and lock washer on each side.
- 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.

 Place dash bracket in marked location. Use dash bracket as a template to drill four 1/8" holes in tunnel.

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.



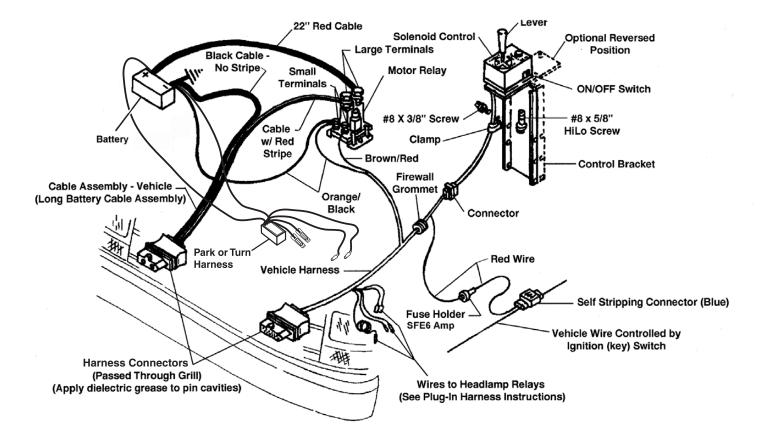
Except as noted, parts to be installed are found in hydraulics box.

NOTE: Use dielectric grease to prevent corrosion on all 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.

- 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.
- 2. Remove NEGATIVE battery cable from battery.

(Continued on next page)



HARNESS, SOLENOID CONTROL & MOTOR RELAY INSTALLATION DIAGRAM

(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 1.)

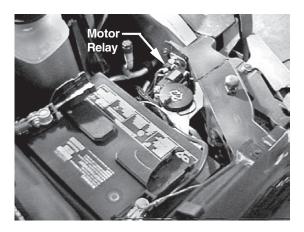


Photo 1

NOTE: Motor relay terminals must be up or horizontal.

 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.

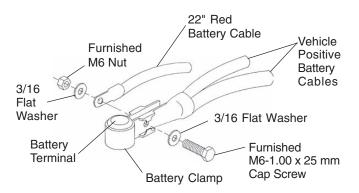
<u>Optional Method</u>: Use a 3/8" drill bit to enlarge slots in relay and use existing 3/8" body bolt to attach as shown in **Photo 1**.

- 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.**

 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.)

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.



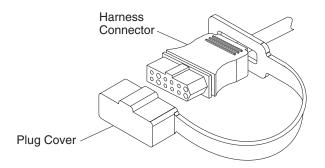
Part No.	Qty.	Description	
91055	2	CS HX M6X1.00X25 G8.8 DCB	
91056	2	M6-1.00 HX NUT	
91119	4	WASHER FL 3/16 TY A WIDE ZP	

Abbreviations			
CS	Cap Screw	HX	Hex
DCB	Dichromate-Blue	М	Metric
FL	Flat	ΤY	Туре
G	Grade	ZP	Zinc Plate

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(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.



- Find a location in the vehicle grill/bumper area 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 or in bumper openings. 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 or bumper 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 at this time.**

- 14. Find a grill/bumper area 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 or bumper 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. Inside the cab, route vehicle harness connector to solenoid or CabCommand control and couple the connectors together.
- 19. Route brown/red and orange/black wire loom to motor relay.
- 20. 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.
- 21. 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.
- 22. 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.

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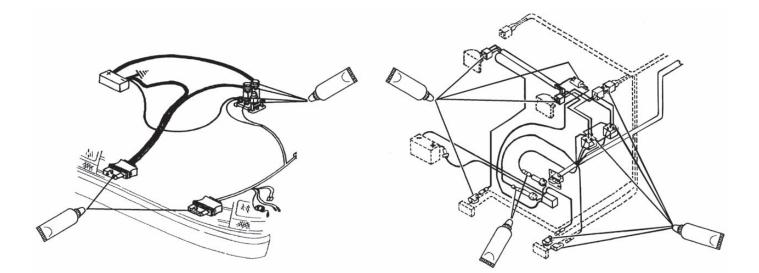
(Continued)

- 23. Locate an accessory wire capable of carrying 7 amps in addition to existing circuit loads and controlled by the ignition (key) switch. 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 if required.

DIELECTRIC GREASE (1/4 oz) Part Number 56099

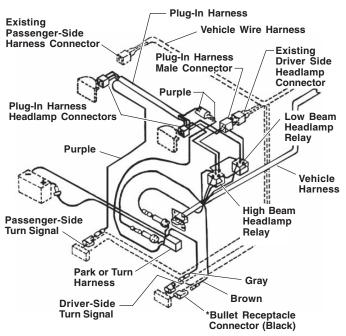


A larger tube (2 oz) of dielectric grease is available. Part Number for larger tube is 49326.



PLUG-IN HARNESS AND HEADLAMP RELAY INSTALLATION

(Add 61185 Relay Kit to park lamp circuit on vehicles with cab marker lights. Add 61584 DRL Kit to vehicles with Daytime Running Lights.)



VEHICLE HEADLAMP WIRING DIAGRAM (TYPE A)

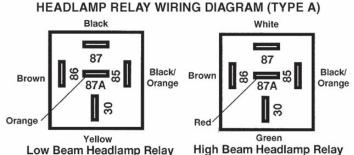
NOTE: All installations of this mount shall have the Park or Turn Harness Kit installed in the plow lights left and right turn signal circuit.

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.)



- 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 1 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.
- 7. Lubricate terminal cavities of both harness connectors with dielectric grease.

Please refer to AQ&L assembly instructions for additional information on operational tests and adjustments.

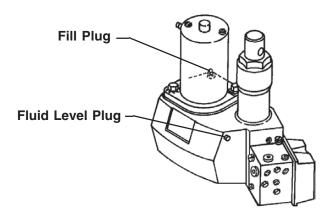
FILLING HYDRAULIC UNIT

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

ACAUTION

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.

ACAUTION

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 rams.
- Refill unit with fluid following the procedure in steps 1 - 4 of this section.
- 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 of this section.

FLUID CAPACITY

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

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

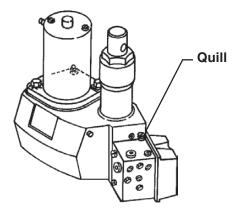
AWARNING

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

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

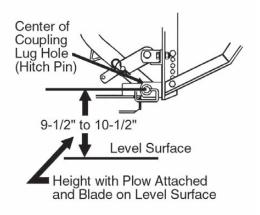
- 1. Make sure all fasteners and hydraulic and electrical connections are tight.
- 2. Check ram packing nuts for oil leakage. If excessive leakage is observed, tighten the packing nut 1/4 turn after you feel the nut contact the packing.

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 9-1/2" 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.

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.

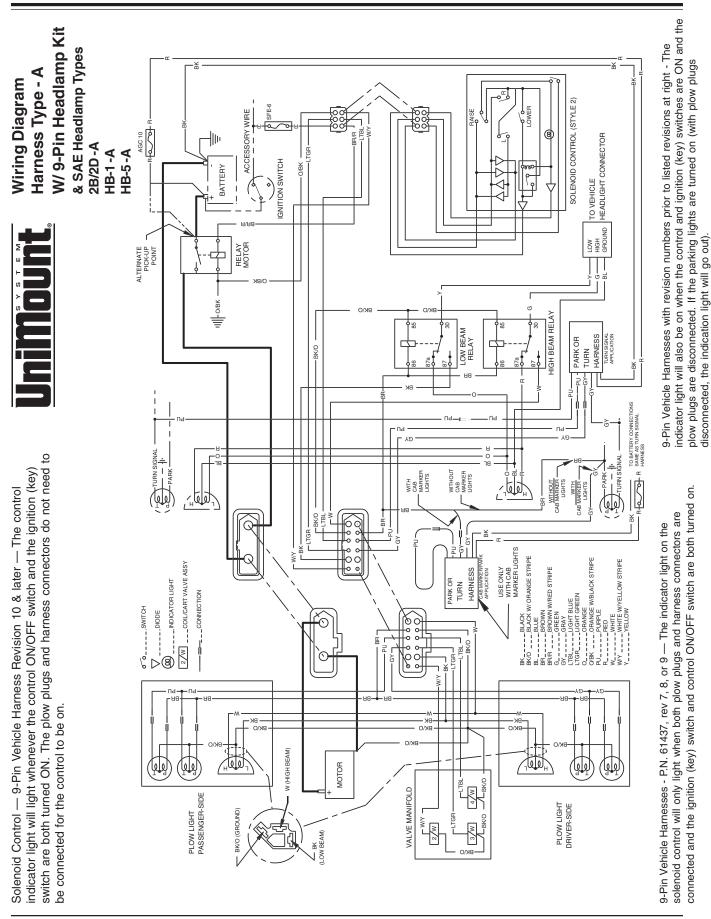
Solenoid Control or CabCommand Control

9-pin vehicle harness revision 10 and later

• 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.

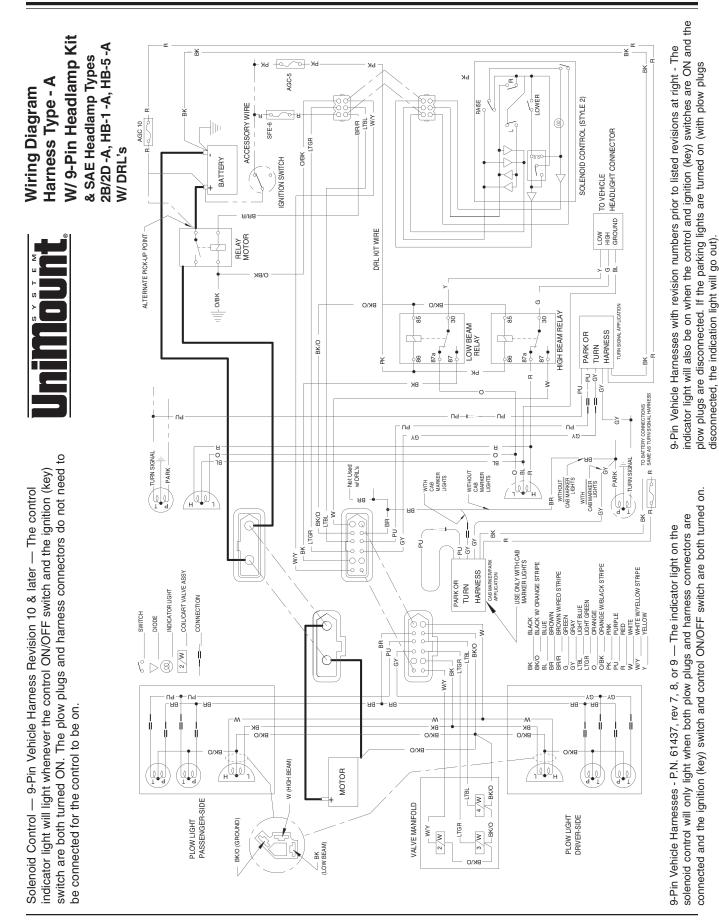
- Connect plow plug to vehicle harness connector. Raise plow and aim plow headlamps according to SAE J599 Lighting Inspection Code (See Service Bulletin SP 608) and any state or local regulations.
- 3. Check aim of vehicle headlamps with plow removed.
- 4. When plow is removed from the vehicle, install 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.

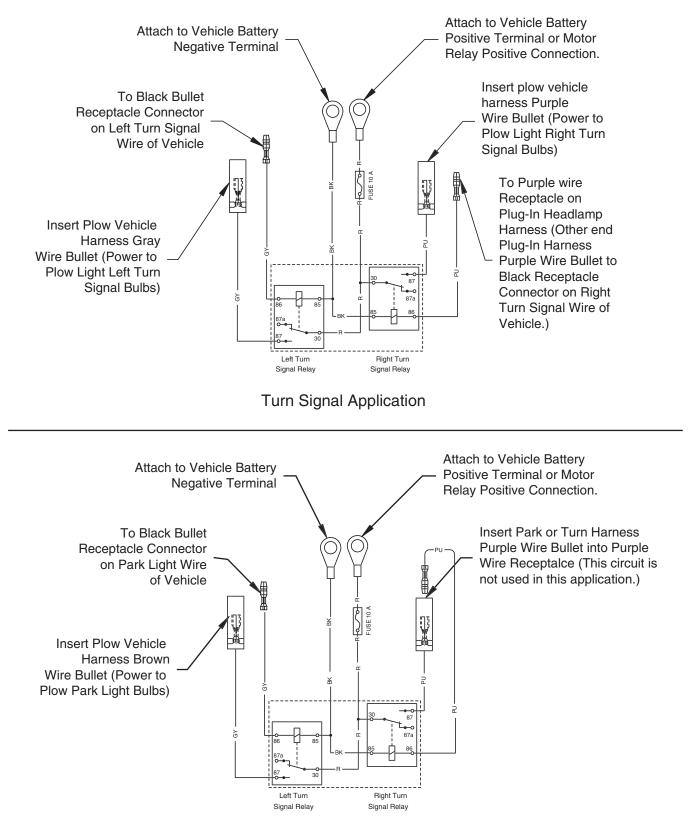


WIRING DIAGRAM

Lit. No. 13766



Lit. No. 13766







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