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Mount Box No. 61820 INSTALLATION INSTRUCTIONS

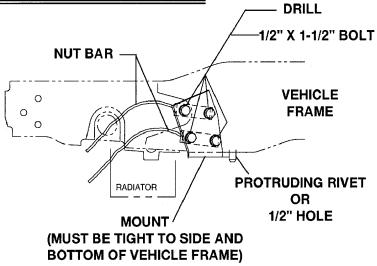
Recommended Fastener Torque Chart (FtLb.)						
Size	SAE Grade 2	Grade 5	Grade 8			
1/4-20	6	9	13			
5/16-18	11	18	28			
3/8-16	19	31	46			
3/8-24	24	46	68			
7/16-14	30	50	75			
1/2-13	45	75	115			
9/16-12	66	110	165			
5/8-11	93	150	225			
3/4-10	150	250	370			
7/8-9	202	378	591			
1-8	300	583	893			
Metric Grade 8.8 (FtLb.)						
Size	Torque	Size	Torque			
M 6	7	M 12	60			
M 8	17	M 14	95			
M 10	35	M 16	155			
	alues apply to m oted in the instru		asteners			

MOUNT BARS - DR & CU

- 1. Remove the bumper, with brackets attached, from the vehicle.
- Locate the mounts tight to the outside and to the bottom of vehicle frame and against the long protruding rivet. (On vehicles without frame rivets, locate mounts to front edge of 1/2" holes in bottom of vehicle frame rails.) Clamp mounts in place.
- 3. Use mounts as templates to drill four 1/2" holes in each side of vehicle frame. Install two nut bars to inside of each vehicle frame rail aligning with drilled holes. Fasten each mount to the nut bars with four 1/2" x 1-1/2" cap screws and lock washers. Tighten cap screws to corresponding torque chart values.

IMPORTANT: Read instructions before assembling. Finger tighten bolts until instructed to tighten to torque shown in torque chart. Use standard methods and practices when attaching snowplow, including wearing safety glasses during drilling.

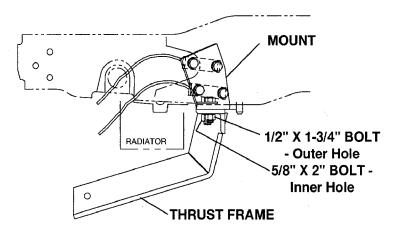
AS VIEWED FROM DRIVER SIDE



THRUST FRAME

- Loosely attach thrust frame to each mount with one 1/2" x 1-3/4" bolt, flat washer, and locknut in the outer hole and one 5/8" x 2" bolt, flat washer, and locknut in the inner hole. Install flat washers against slots in mounts.
- If the vehicle has an evaporator canister that interferes with the mount, remove the canister and install the furnished bracket to the original canister mounting holes using existing fasteners. Secure canister to the rear side of bracket using four furnished 5/16" x 1" bolts, flat washers and locknuts. Install flat washers against slots.

AS VIEWED FROM DRIVER SIDE



CAUTION: Maintain adequate clearance horizonally and vertically between hoses, steering linkage at maximum right turn, alternator drives, oil cooler lines, and do not collapse evaporator hose.

MOUNT FRAME

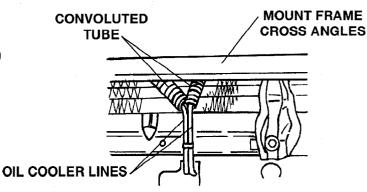
 On vehicles with transmission cooler located in front of the radiator on the curb side, install a convoluted tube over each cooler line above "Y" formed by the cooler lines.

2. Place mount frame onto vehicle frame horns. Align large hole in side plates to large holes (or

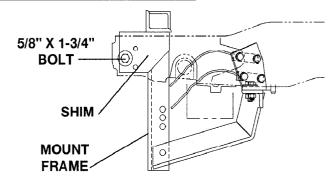
3. Slide a shim into place between vehicle frame

each side of vehicle. Install a flat washer against mount frame side plate and against ve-

and side plates on mount frame. Align large holes and from outside of frame insert a 5/8" x 1-3/4" bolt, two flat washers and locknut on



AS VIEWED FROM DRIVER SIDE



SPREADER - DR & CU

hicle frame.

slots) in vehicle frame.

1. Position a spreader frame, with link arm lugs towards center of vehicle, between each mount frame angle and thrust frame angle.

During installation, allow for drop in vehicle height when weight of plow is added. The distance between the center of the coupling lug hole and the level surface should be 9-1/2" to 10-1/2" with plow attached and resting on the level surface. (See Coupling Lug Height Check near the end of these instructions.)

2. On each side of mount frame, insert a:

5/8" x 2-1/4" bolt through the thrust frame, spreader frame, and lower hole of mount frame angle;

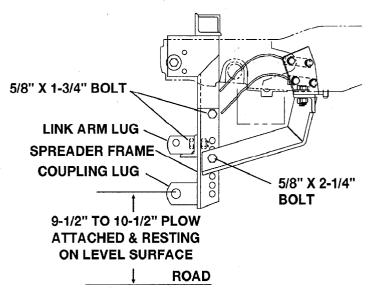
a 5/8" x 1-3/4" bolt through highest hole possible in spreader frame and mount frame angle; and

a 5/8" x 1-3/4" bolt through hole between link arm lugs and front of mount frame angle.

Loosely retain each bolt with a locknut.

Continued on next page.

AS VIEWED FROM DRIVER SIDE



GUSSET - DR & CU

1. Installation of gussets is determined by the number of holes in the spreader which are below the thrust frame angles.

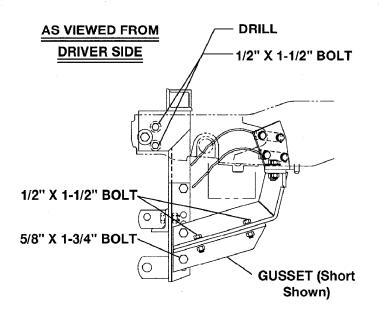
Attach the widest gusset that will fit to the underside of each thrust frame angle using two $1/2" \times 1-1/2"$ bolts and locknuts.

Attach each gusset to a spreader frame with one or two 5/8" x 1-3/4" bolt(s) and locknut(s) on each side of vehicle.

2. Starting with the mount frame to vehicle frame fasteners, tighten all bolts to corresponding torque chart values.

SECURING MOUNT FRAME

- 1. Use each mount frame side bar as a template to drill two 1/2" holes into each vehicle frame rail.
- 2. Secure each side with two 1/2" x 1-1/2" bolts, flat washers, and locknuts. Install flat washers against vehicle frame.



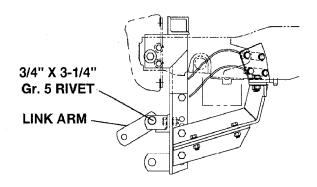
LINK ARMS

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

AS VIEWED FROM DRIVER SIDE



TIGHTEN ALL BOLTS TO CORRESPONDING TORQUE CHART VALUES.

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

HARNESS KIT SELECTION

For DUAL replaceable bulb type HB-5 headlamps, use box no. 61540 Headlamp Kit 9-Pin and 61590 Harness Kit HB-5 9-Pin -A.

NOTE: After 5 to 10 hours of snowplow usage, retorque all mount assembly fasteners.

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

Solenoid Control INSTALLATION INSTRUCTIONS

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 $#8 \times 3/8$ " hex head thread cutting screw and lock washer on each side.

- 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 in each side.
- Secure solenoid control to control bracket with two #8 x 5/8" hex head tapping screws.
- 4. Move seat forward and 4 wheel drive lever toward seat. 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.

SOLENOID CONTROL BRACKET CONTROL 56308 CABLE CLAMP th 55381 Ю #8-32 X 3/8" THREAD CUTTING TAPPING SCREW #8 x 5/8" HEX 93157 HEAD TAPPING SCREWS (2) 93154 DASH BRACKET #10 X 1" SHEET -HOLE SEE STEP 2 METAL SCREWS (4) 90388 DASH BRACKET #10 LOCK WASH-HOLE SEE STEP 1 -60 Ò ERS (4) 91242 G), Yo. #8-32 X 3/8" HEX HEAD THREAD CUT-**TING SCREW (4) 93157** DASH BRACKET #8 SPRING LOCK 56080 WASHER (4) 91231

AUTION: Check for clearance before drilling holes. Secure dash bracket to tunnel with four #10 x 1" tapping screws and lock washers.

- 7. Reassemble control bracket to dash bracket. Bend top flange of control bracket to desired position.
- 8. Secure harness to control bracket with cable clamp and one #8 x 3/8" hex head thread cutting screw.

Vehicle Underhood HARNESS, SOLENOID CONTROL & MOTOR RELAY INSTALLATION INSTALLATION INSTRUCTIONS DIAGRAM Solenoid Large Terminals **Optional Reversed** Control 22" Red Cable Position Black Cable 14 No Stripe Small Relay - Solenoid Terminals Hydraulic System **ON/OFF Switch** (Motor Relay) #8 x 5/8" Ground to Battery Negative Post #8 X 3/8" Screw **HiLo Screw** . Cablé w/ (On Rev 10 & Later Brown/Red Red Vehicle Harnesses) Stripe Control Bracket Firewall Grommet Cable Assembly - Vehicle Clamp (Long Battery Cable Assembly) Orange/ 50 Connector Black **Red Wire** Vehicle Harness Self-Stripping Fuse Holder-Connector (Blue) SFE-6 Amp) Vehicle Wire Controlled by **Grill Connectors** Wires to (Mounted or Passed Through Grill) Ignition (key) Switch **Headlamp Relays** (Apply dielectric grease to pin cavities) (See Plug-In Harness Instructions) - 5 -Form No. 13601

Installation instructions continue on next page.



WARNING: The symbol at left identifies a safety warning that indicates a potentially hazardous situation that, if not avoided, could result in death or serious personal injury.

VEHICLE HARNESS AND MOTOR RELAY

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

CAUTION: To prevent corrosion on all under-hood electrical connections, use dielectric grease to fill receptacles and lightly coat ring terminals and blades before assembling, or lightly coat the connections after assembling.

- 1. Identify wires for the parking lamp 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.



ARNING: Electrical shock hazard. Disconnect battery before beginning electrical installation.

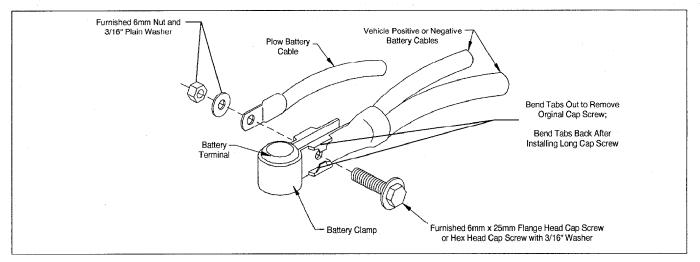
3. Find a location for the motor relay where it will be protected from road splash and will be within 18" of the vehicle primary battery.

NOTE: Motor relay terminals must be up or horizontal.

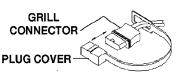
Using the motor relay mounting plate as a template, drill two 9/32" holes, and mount motor relay to holes using 1/4" x 3/4" bolts, flat washers, and locknuts.

4. Route 22" red battery cable between a large motor relay terminal and the POSITIVE battery terminal avoiding sharp edges, and hot or moving parts. Attach cable to motor relay terminal with a lock washer and 5/16"-24 jam nut. Attach cable to battery POSITIVE terminal with existing terminal fastener.

1996 & Later—The original equipment battery terminal clamp bolt is not long enough to secure the hydraulic unit battery cables. Remove the original cap screw and replace it with the items indicated in the diagram below (found in the mount box).



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



6. Find a location on the vehicle grill on the battery side for mounting the battery cable grill 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.

Allow grill 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).

7. Route battery cable through the grill at the selected location and through or around the radiator bulkhead to the motor relay avoiding sharp edges, and hot or moving parts.

- 8. 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.
- 9. Route the battery cable without a stripe directly to the NEGATIVE battery terminal (carefully separate the two cables as needed to reach the battery ground). DO NOT attach cable to battery at this time.
- 10. Find a location in grill on driver side for mounting the vehicle harness (similar position to battery cable mount). See Steps 6 & 7 above for how to mount. Route vehicle harness through grill and around, or through radiator bulkhead (drill 5/8" hole if needed) into engine compartment.
- 11. 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 sharp edges, and hot or moving engine parts.

IMPORTANT: On all vehicles with DRLs, insert fuse holder on pink wire of DRL Adapter Kit (PN 61584) through firewall first. Route end of pink wire with receptables to area of driver-side headlamp.

Feed vehicle harness fuse holder through hole and then feed the plastic connector and harness through to the cab. Disassembling the fuse holder may make it easier to pass through 5/8" hole.

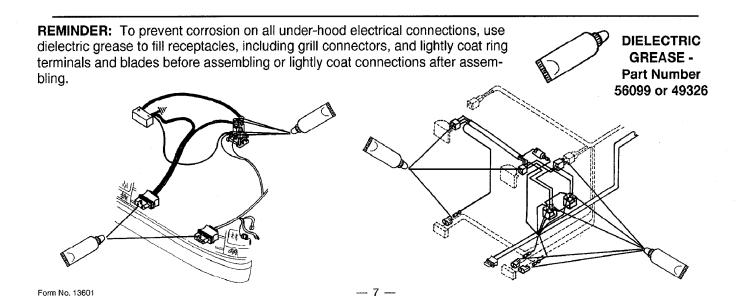
12. Route brown/red and orange/black (early revision harnesses have brown/red and black/orange wires) wire loom to motor relay. Early revision harnesses must be modified if the CabCommand control is being installed. (See instructions furnished with the CabCommand control.)

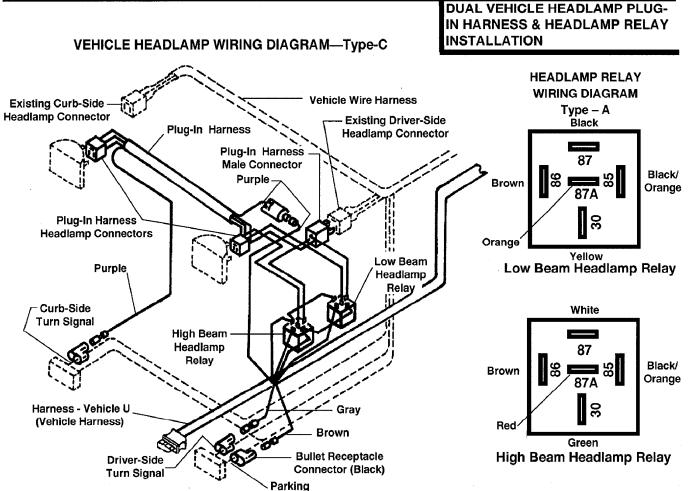
Attach the brown/red and orange/black (early revisions black/orange) wires small ring terminals to separate small terminals on motor relay using a lock washer and #10-32 nut for each connection.

- 13. Route the orange/black wire with 3/8" ring terminal to the battery negative post DO NOT attach wire to battery at this time.
- 14. Inside the cab, route vehicle harness connector to solenoid or CabCommand control and couple the connectors together.
- 15. Reconnect vehicle ground cable to the NEGATIVE battery terminal. Attach the hydraulic unit black battery cable and orange/black wire terminal to the negative clamp bolt as shown in the diagram on the previous page.
- 16. 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.

Open the 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.

* Early style harnesses have a 10-amp fuse which must be replaced with SFE-6 fuse for CabCommand control.





VEHICLE HEADLAMP PLUG-IN HARNESS & HEADLAMP RELAYS

REMINDER: Lubricate all receptacles and blades with dielectric grease before assembling.

- 1. In the engine compartment behind the driver-side headlamp, insert wire bullets from vehicle harness into black bullet connectors (installed in step one of previous section) with brown wire to parking lamp wire on driver side, and gray wire to left turn signal wire on driver side.
- 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 curb-side headlamp. Remove headlamp connector and couple matching connector with plug-in harness 1-wire male plug. Attach plugin harness headlamp connector to headlamp terminals.
- 4. On the curb 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 the driver-side headlamp, insert the purple wire bullet from the vehicle harness into the purple wire receptacle on the plug-in harness.
- 6. 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.)
- 7. Place grommet around vehicle harness and insert into firewall hole (also put a grommet in the hole in the radiator bulkhead if one was drilled). Use cable ties (found in harness kit) to secure harnesses, relays and wires away from sharp edges, and hot or moving engine parts and to prevent accidental grounding of connections.
- 8. Replace vehicle turn signal flasher with flasher furnished in harness kit.
- 9. Lubricate terminal cavities of both grill connectors with dielectric grease. Give dielectric grease tube to vehicle owner for future lubrication of grill connectors.

Continued on next page.

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OPERATIONAL TESTS AND ADJUSTMENTS

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

Filling Hydraulic Unit

- 1. Push lift channel all the way down.
- 2. Remove fill plug and fluid level plug.
- 3. Fill unit through fill plug hole until fluid runs out of fluid level hole. Replace both plugs.
 - Use: automatic transmision fluid (ATF) Dexron III to -10° F (-23° C), or **Fluid Level Plug** WESTERN[®] High Performance Fluid to -25° F (-32° C), or Texaco 1537 Aircraft Hydraulic Oil for temperatures below -25° F (-32° C).
- 4. Turn ignition (key) switch to the ON or ACCESSORY position.
- 5. Turn the control ON/OFF switch to the ON position.
- 6. Move control lever to angle left and angle right several times to remove air from Hydra-Turn[®] rams. **DO NOT** raise blade. This may cause pump cavitation.
- 7. Refill unit with fluid following the procedure in Step 3 of this section.
- 8. Move the control lever as indicated on label to control the plow. Raise and lower plow several times to remove air. Recheck fluid level according to Step 3 of this section.
 - Capacity: Solenoid ISARMATIC[®] Mark IIIa reservoir 1-3/4 quarts Equipped with 10" Hydra-Turn rams 2-3/8 quarts

WARNING: To prevent accidental movement of plow, always turn the solenoid control to the OFF position when the mounted plow is not in use.

Blade Drop Speed Adjustment

The quill on the top rear of the valve manifold (see diagram) adjusts blade drop speed.

Turn quill IN (clockwise) to decrease drop speed.

- Turn quill OUT (counterclockwise) to increase drop speed.
- **NOTE:** Turning quill too far in can slow raise time

Quill

COUPLING LUG HEIGHT CHECK

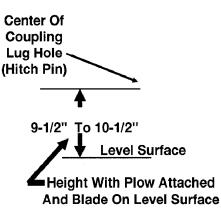
OPERATIONAL TESTS AND ADJUSTMENTS

Filler Plug

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 list.
- 2. Lift plow and move vehicle a minimum of 10 feet. Lower blade.
- After step 2, with blade on level surface, slack in lift chain, and rear ballast located behind rear wheels, the center of coupling lug holes (hitch pin shaft) to level surface should measure 9-1/2" to 10-1/2". To obtain height, adjust spreader position.

NOTE: Coupling height must be 9-1/2" minimum to allow stand to be pinned to lift 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 lift channel. After it 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.

Final Hydraulic Inspection

- 1. Make sure all fasteners and hydraulic and electrical connections are tight.
- 2. Check ram packing nuts for oil leakage. If any leakage is observed, tighten the packing nut 1/4 turn after you feel the nut contact the packing. Do not overtighten overtightening 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.

VEHICLE LIGHTING CHECK

Vehicle Lighting Check

1. Check the operation of vehicle and plow lights with plow mounted to vehicle and both plow plugs connected.

Turn signals and parking lamps

Parking lamps ONBoth vehicle and plow parking lamps should be on at the same time.Right Turn Signal ONBoth vehicle and plow right turn signal lamps should flash at the same time.Left Turn Signal ONBoth 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 grill connector should switch between vehicle and plow headlamps as follows:

9-pin plow plug DISCONNECTED 9-pin plow plug CONNECTED Vehicle headlamps should be on, plow headlamps off. Plow headlamps should be on, vehicle headlamps 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 or CabCommand Control

9-pin vehicle harness revision 10 and later or

9-pin vehicle harnesses-earlier revisions modified for CabCommand control:

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

Solenoid Control used with earlier revision harnesses

9-pin revision 7, 8, or 9 vehicle harnesses:

The control indicator light should light whenever the control ON/OFF switch and the ignition (key) switches are both turned ON and the plow plugs are connected to the grill connectors.

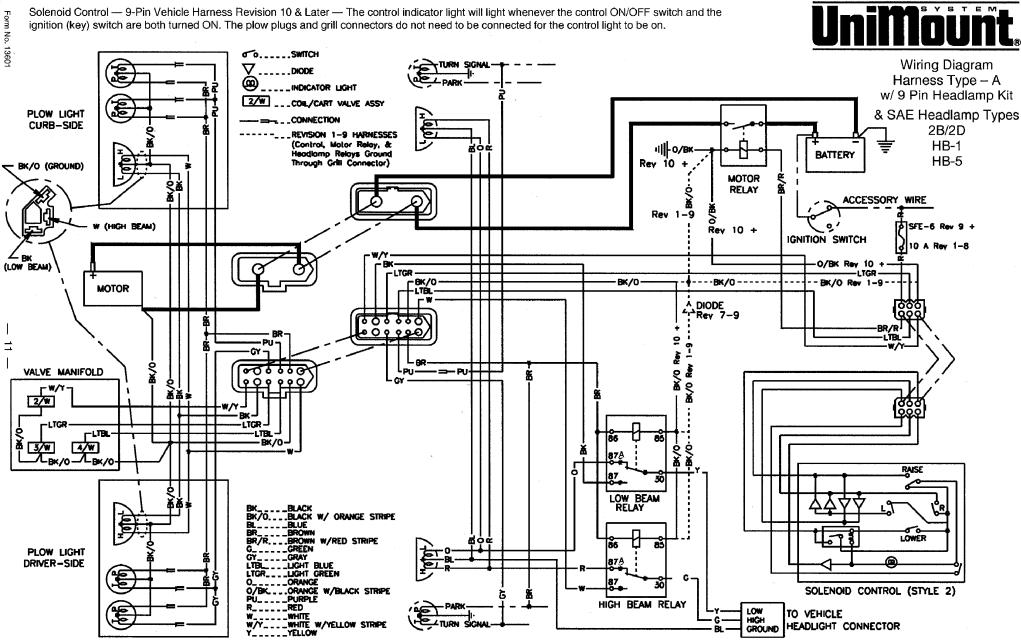
9-pin vehicle harnesses-all earlier revisions:

The indicator light will also light when the control and ignition (key) switches are on the plow plugs are disconnected. If the parking lights are turned on (with plow plugs disconnected), the indicator light will go out.

- 2. Connect plow plug to grill connector. Raise plow and aim plow headlamps according to SAE J599 Lighting Inspection Code (See Service Bulletin SP 608) and any applicable federal, 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 grill connectors and insert the plow plugs into the boot on the hydraulic unit.

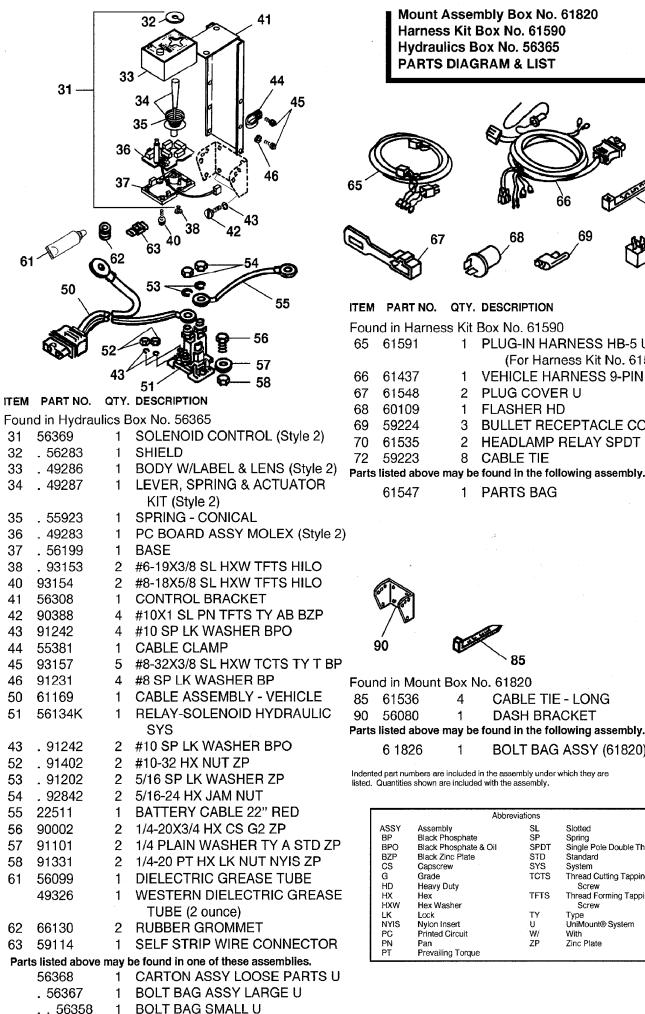
NOTE: After 5 to 10 hours of snowplow usage, retorque all mount assembly fasteners.

Solenoid Control — 9-Pin Vehicle Harness Revision 10 & Later — The control indicator light will light whenever the control ON/OFF switch and the ignition (key) switch are both turned ON. The plow plugs and grill connectors do not need to be connected for the control light to be on.



Vehicle harnesses - 9 pin, P.N. 61437 rev. 7 or 12 pin, P.N. 61557, rev. 5 and later - The indicator light on the solenoid control will only light when the plow is attached to the vehicle and the ignition switch and control on/off switch are both turned on.

Vehicle harnesses with revision numbers prior to listed revisions at right - The indicator light will also be on when the control and ignition (key) switches are ON and the plow plugs are disconnected. If the parking lights are turned on (with plow plugs disconnected), the indicator light will go out.



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,	1010	Screw
	TFTS	Thread Forming Tapping
r		Screw
	TY	Туре
t	U	UniMount® System
uit	W/	With
	ZP	Zinc Plate
orque		

DASH BRACKET

Abbreviations

SL

SP

SPDT

STD

SYS

TCTS

BOLT BAG ASSY (61820)

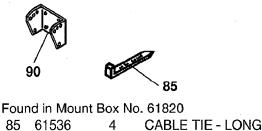
Slotted

Standard

System

Spring Single Pole Double Throw

Thread Cutting Tanning



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61535	2	HEADLAMP RELAY SPDT
59223	8	CABLE TIE
s listed above	may be	e found in the following assembly.
61547	1	PARTS BAG
		,8.



1

1

2

1

3

PLUG-IN HARNESS HB-5 U -A

VEHICLE HARNESS 9-PIN U

PLUG COVER U

FLASHER HD

(For Harness Kit No. 61590)

BULLET RECEPTACLE CONNECTOR