



WESTERN PRODUCTS
7777 NORTH 73RD STREET
P.O. BOX 23045
MILWAUKEE, WISCONSIN 53223

UniMount.

DD A DIVISION OF DOUGLAS DYNAMICS, INC.

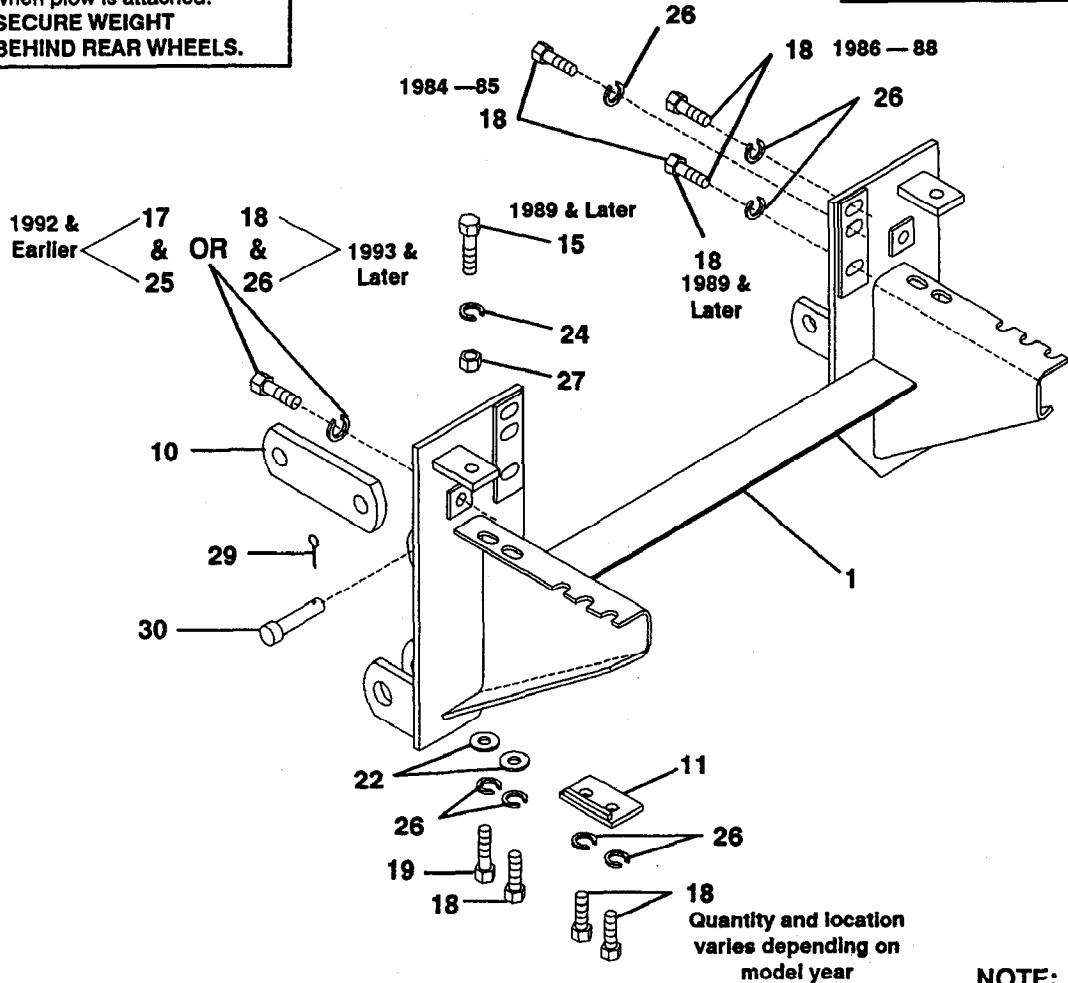
Vehicle Installation Instructions and
Parts List

Model 2355
Mount Assembly Box No. 61870
Toyota 4 x 4 Pick-Up & 4Runner
1984 & Later
Hydraulics Box No. 56365
Harness Kit No. 61555 or 61505
December 17, 1992

**MINIMUM VEHICLE
RECOMMENDATIONS**

REAR BALLAST — Pick-Ups -
400 lbs., 4Runner - 350 lbs.
when plow is attached.
**SECURE WEIGHT
BEHIND REAR WHEELS.**

**Mount Assembly Box No. 61870
PARTS DIAGRAM & LIST**



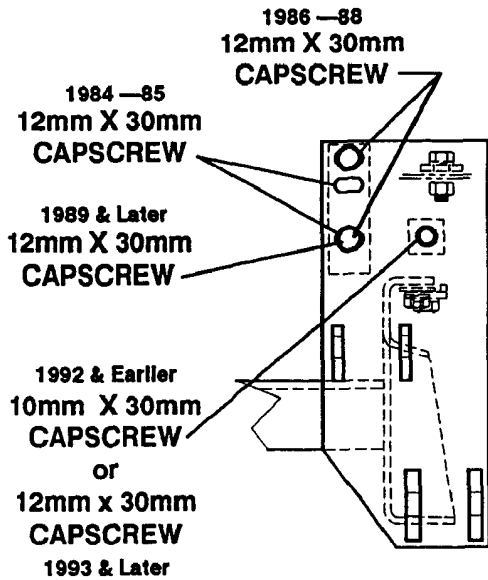
Quantity and location
varies depending on
model year

NOTE: Colored fasteners
are Metric.

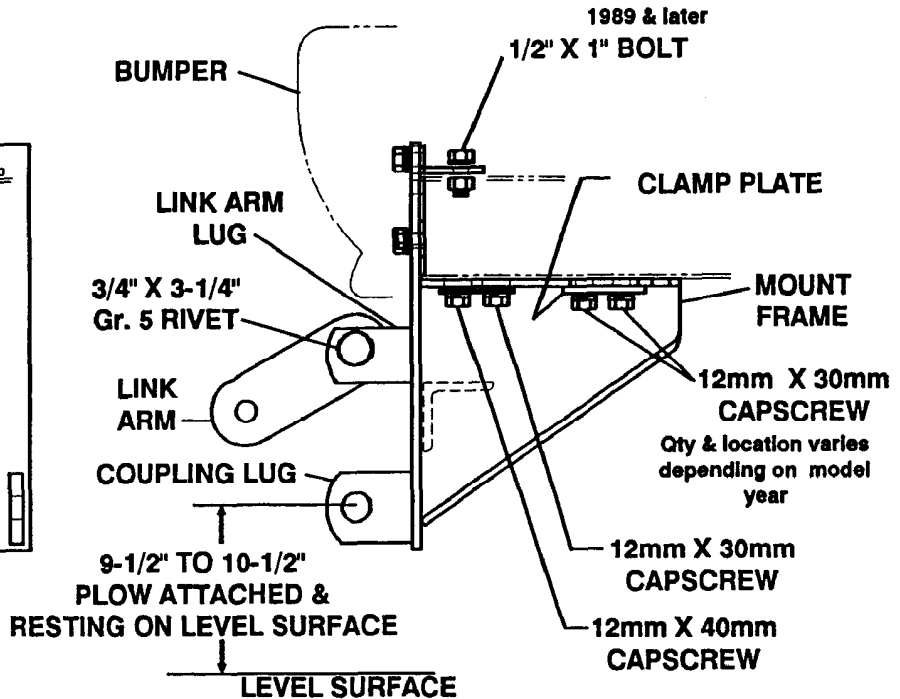
ITEM	PART NO.	QTY.	DESCRIPTION
1	61865	1	MOUNT FRAME 2355
10	61412	2	LINK ARM
11	61869	2	CLAMP PLATE
15	90098	2	1/2-13X1 HX CS G5 ZP
17	95050	2	M10X1.25X30 HX CS G8.8
18	95071	8	M12X1.25X30 HX CS G8.8
19	95072	2	M12X1.25X40 HX CS G8.8
22	91104	4	7/16 PLAIN WASHER TY A STD ZP
24	91205	2	1/2 SP LK WASHER ZP
25	95173	2	M10 SP LK WASHER
26	95174	10	M12 SP LK WASHER
27	91415	2	1/2-13 HX NUT ZP
29	91911	2	5/32X1-1/2 COTTER PIN ZP
30	93062	2	RIVET 3/4" X 3-1/4" G5 ZP

Abbreviations	
CS	Capscrew
G	Grade
HX	Hex
LK	Lock
M	Millimeter
SP	Spring
STD	Standard
TY	Type
ZP	Zinc Plate

DRIVER-SIDE FRONT VIEW



AS VIEWED FROM DRIVER-SIDE



IMPORTANT: Read instructions before assembling. Bolts should be finger tight until instructed to tighten to torque shown in torque chart. Use standard methods and practices when attaching snowplow including wearing safety glasses during drilling.

MOUNT FRAME

1988 & Earlier

Remove splash pan and narrow body sheet metal panel from below bumper. Retain splash pan and reinstall whenever mount is removed from vehicle.

All Vehicles

1. Disconnect park/turn lights at plug (behind bumper), and remove bumper with brackets. Remove tow hook and tie-down bracket. Retain tow hook and tie-down bracket and reinstall whenever mount is removed from vehicle.
2. Place mount frame onto vehicle frame horns. Install a;
 - on 1993 & later vehicles, 12mm X 30mm capscrew and lock washer,
 - on 1992 & earlier vehicles, 10mm x 30 mm capscrew and lock washer,
 through front of mount into end of each frame rail.
3. Attach front slot of mount frame to bottom of each frame rail with a 12mm X 40mm capscrew, 7/16" flat washer and lock washer. Attach second slot with a 12mm X 30mm capscrew, 7/16" flat washer and lock washer.
4. Using weld nuts in vehicle frame, align clamp plate holes over notches and attach with one or two 12mm X 30mm capscrews and lock washers. Location and quantity varies with model year.

1989 & Later

1. Attach upper tab to body support on top of frame rail with 1/2" X 1" bolt and lock washer inserted from top into locknut inside body support.
2. Install a 12mm x 30mm capscrew and lock washer into each lower inboard hole in the front plate of the mount frame.

TIGHTEN ALL BOLTS TO CORRESPONDING TORQUE CHART VALUES,

LINK ARMS

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

Recommended Fastener Torque Chart (Ft.-Lbs.)				
Size	SAE Grade 2		SAE Grade 5	
	SAE Grade 2	SAE Grade 5	SAE Grade 8	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	589	
Metric Grade 8.8 (Ft.-Lbs.)				
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.				

BUMPER

1988 & Earlier

Reinstall bumper to original mounting holes using two 12mm X 30mm capscrews and lock washers for each bumper bracket. Torque to corresponding torque chart values. Reinstall narrow body sheet metal panel below bumper.

1989 & Later

Reinstall bumper to original position using the existing fasteners. Torque to corresponding torque chart values.

HARNESS KIT SELECTION

For DUAL Type 2B/2D headlamps - use Box No. 61550 Headlamp Kit 12-Pin and 61555 Harness Kit 2B/2D 12-Pin -B.

For DUAL replaceable bulb type HB-1 headlamps - Use Box 61550 Headlamp Kit 12-Pin and 61505 Harness Kit HB-1 12-Pin - A -2. Special instructions for modifying and installing harnesses are included with this kit.

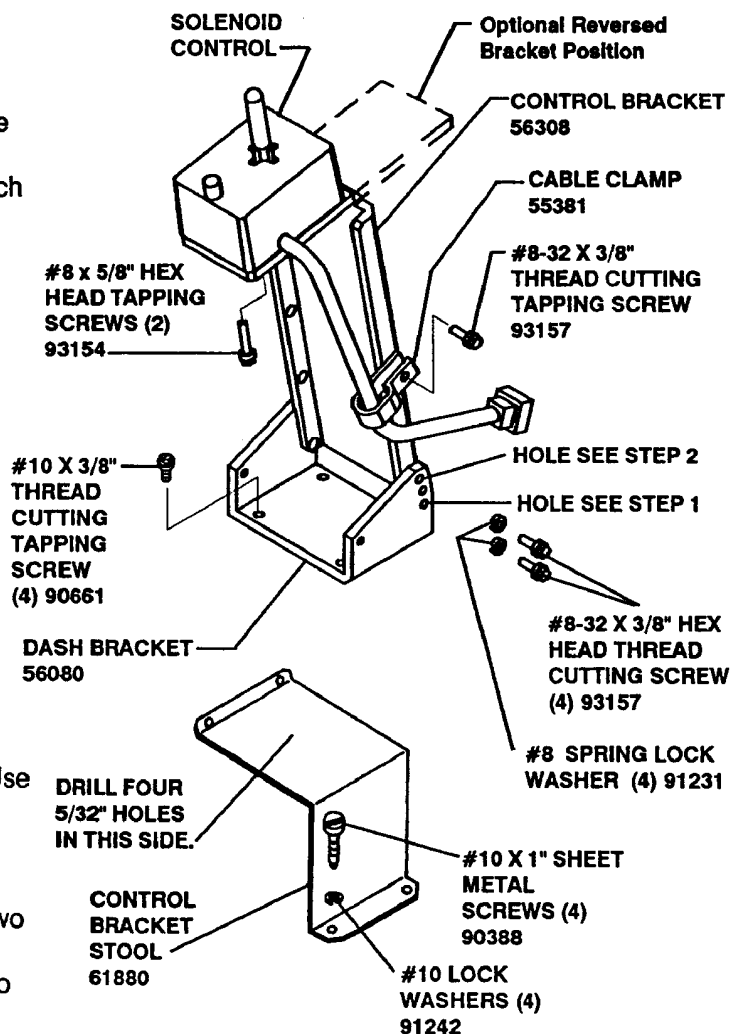
Replace vehicle flasher with flasher furnished in harness kit. Plug the two blades on the flasher into the "B" and "L" openings of the flasher connector.

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

Vehicle underhood installation instructions start on page 4

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 x 3/8" 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 in each side.
3. Secure solenoid control to control bracket with two #8 x 5/8" hex head tapping screws.
4. Move seat forward. Temporarily hold control assembly on top of control bracket stool and locate assembly on curb-side of floor tunnel so that it does not interfere with the operation of vehicle controls. Mark location of stool on tunnel and floor, and dash bracket on stool.
5. Remove control bracket from dash bracket. Use dash bracket as a template to drill four 5/32" holes in stool.
6. Place stool in marked location. Use stool as a template to drill two 1/8" holes in tunnel and two 1/8" holes in floor. **CAUTION:** Check for clearance before drilling holes. Secure stool to tunnel and floor with four #10 x 1" tapping screws and lock washers.
7. Secure dash bracket to top of stool with four #10 x 3/8" thread cutting tapping screws (furnished in mount box).
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.

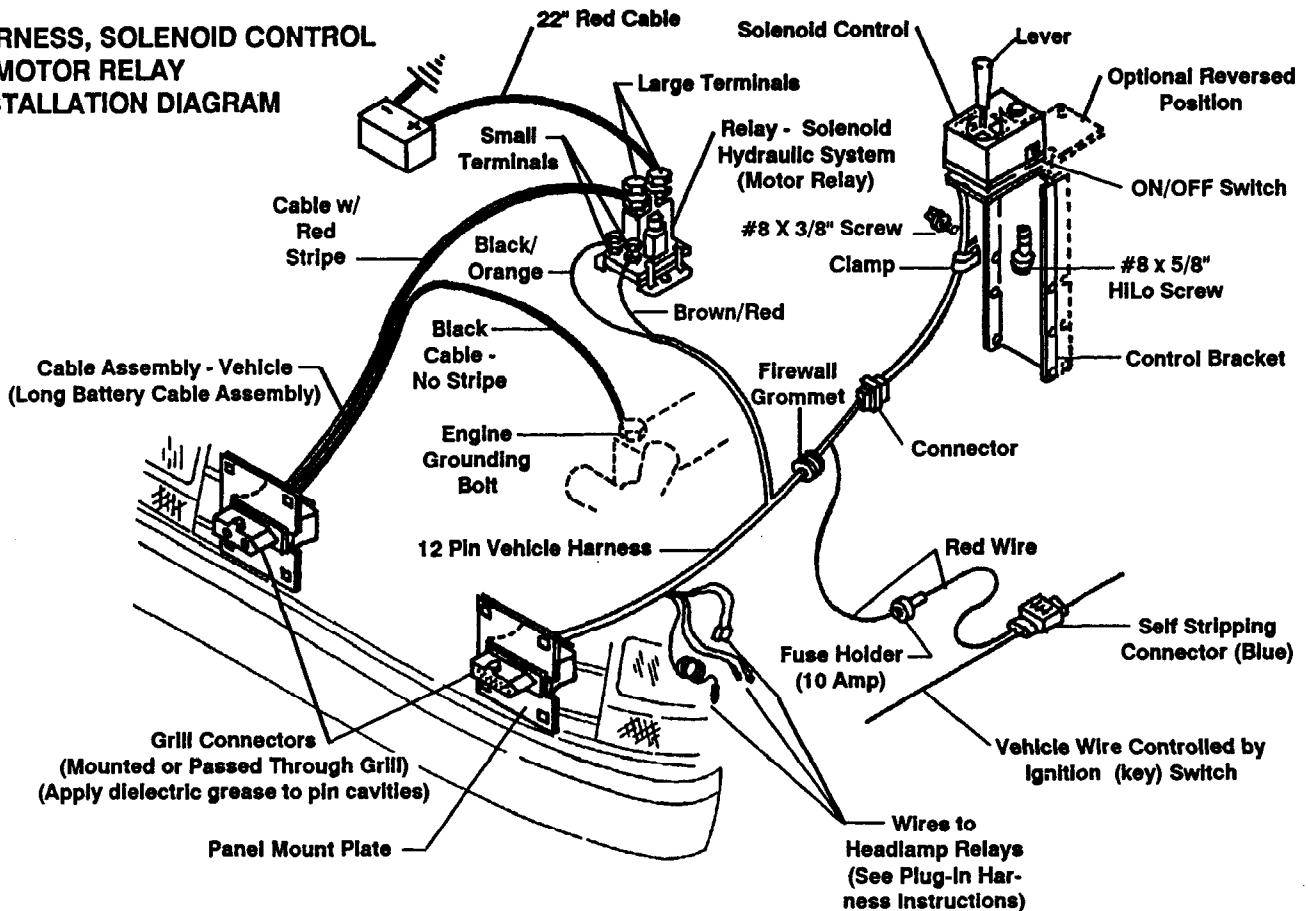


12 Pin Vehicle Harness And Motor Relay

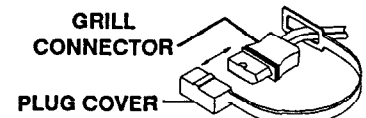
Except as noted, parts to be installed are found in the hydraulics box.

NOTE: To prevent corrosion on all underhood electrical connections, use dielectric grease to fill receptacles and lightly coat ring terminals and blades before assembly or lightly coat connections after assembly.

**HARNESS, SOLENOID CONTROL
& MOTOR RELAY
INSTALLATION DIAGRAM**



1. Identify wires for the parking lamp on the driver-side and the turn signals on both sides. 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.
WARNING: 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 POS battery terminal, taking care to avoid sharp edges and hot or moving engine parts. Attach cable to motor relay terminal with a lock washer and 5/16"-24 jam nut. Attach cable to battery POS terminal with existing terminal fastener.
5. 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 in 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.

Grill openings less than 3/4" high:

Allow grill connector of each harness to hang out in front of grill. Allow enough cable so it is easy to mate and remove connectors.

Grill openings more than 3/4" high:

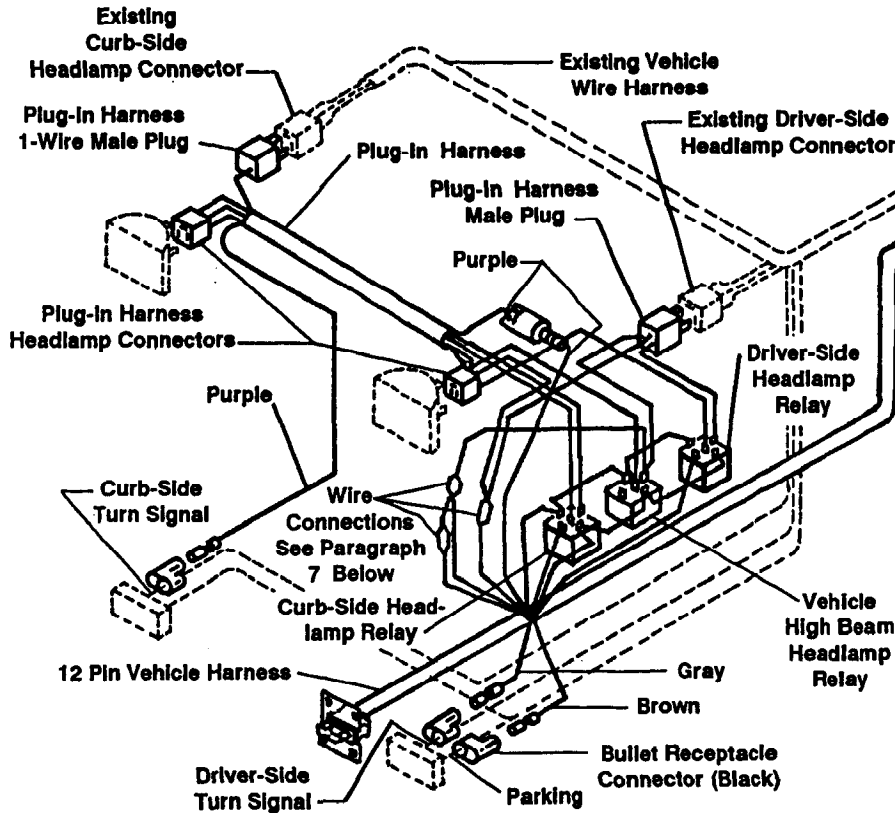
Use panel mount plates (found in mount box) to mount grill connectors to grill. For openings 3/4" to 1-1/4" mount the plates in front of the grill. For openings larger than 1-1/4", mount plates behind the grill (this will conceal the connector when not in use), making sure connectors can be easily mated.

If using mount plates, slide grooves of grill connectors into the large rectangular openings of the panel mount plates. Route the plug cover strap through the opening of the panel mount plates.

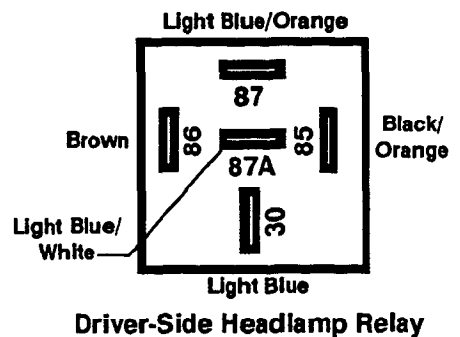
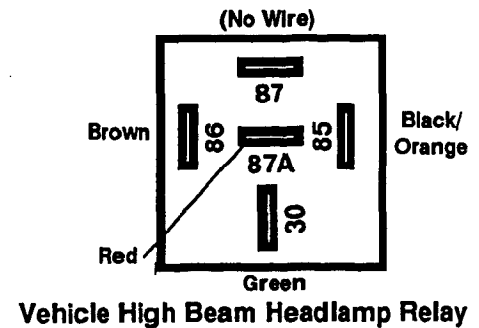
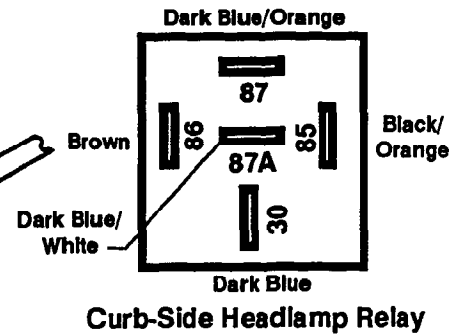
7. Route battery cable through the grill at the selected location and through or around the radiator bulkhead to motor relay taking care to avoid sharp edges and hot or moving engine parts.
If using mounting plate, make sure the center key is up and secure the mount plate to the grill using four long cable ties (found in harness kit). Hide cable latch behind grill.
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. Attach cable without stripe to a ground bolt on engine or directly to the negative battery terminal (separate the two cables as needed to reach ground bolt or battery).
10. Find a location in grill on driver-side for mounting 12 pin vehicle harness (similar position to battery cable mount). See Step #5 & 6 above for how to mount. Route 12 pin 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 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 any convenient location away from hot or moving engine parts. Feed fuse holder through hole first and then feed the plastic connector and harness through to the cab.
12. Route brown/red and black/orange wire loom to motor relay. Attach each ring terminal to separate small motor relay terminals using a lock washer and #10-32 nut for each terminal.
13. Reconnect vehicle ground cable to battery negative terminal.
14. Inside the cab, route 12 pin harness connector to solenoid control and couple the connectors together.
15. Locate an accessory wire that is controlled by the ignition switch (power is turned off when ignition switch is in OFF position). Route the 10 amp fuse holder red wire to this location and trim excess length (leave 10 amp fuse holder in system). Open blue self-stripping connector and place the end of the red wire against the inner groove stop (end of wire must not protrude from connector when it is closed) and the accessory wire in the outer groove. Close connector over the wires with pliers and snap locking tab into place.
OPTION: Locate an unused fuse box terminal operated by the ignition switch. Attach a terminal (not furnished) to the red wire and plug into fuse box terminal.

Continued on next page.

VEHICLE HEADLAMP WIRING DIAGRAM - TYPE - B



HEADLAMP RELAY WIRING DIAGRAM Type - B



Plug-In Harness & Headlamp Relay Installations

- In the engine compartment behind the driver-side headlamp, insert the wire bullets from the 12 pin vehicle harness into the black bullet connectors (installed in step #1, previous section) as follows:
Brown wire to parking lamp wire on driver-side.
Gray wire to turn signal wire on driver-side.

Follow paragraphs 2 through 10 below for type 2B/2D headlamps. For HB-1 Headlamp bulbs, see instructions in harness kit.

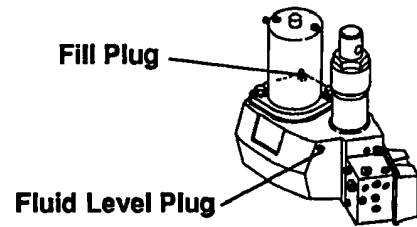
- At the vehicle driver-side headlamp, remove the connector from the headlamp and couple with plug-in harness 3-wire male plug (found in harness kit). Attach plug-in harness headlamp connector to headlamp terminals.
- Route other end of harness along radiator bulkhead or over radiator shroud to curb-side headlamp. Remove headlamp connector and couple with plug-in harness 1-wire male plug. Secure connectors with a cable tie. Attach plug-in harness headlamp connector to headlamp terminals.
- On the curb-side, insert purple wire bullet from plug-in harness into vehicle turn signal wire black bullet connector installed in step # 1, previous section.
- At the driver-side headlamp, insert the purple wire bullet from the 12 pin vehicle harness into the purple wire receptacle on the plug-in harness.
- At driver-side headlamp, connect 12 pin vehicle and plug-in harness wires with receptacles to the three headlamp relays (found in harness kit) as shown in the diagram above. Use cable ties (found in harness kit) to secure relays and prevent accidental grounding of connections.
- Plug the following blades into receptacles: black/white wire blade to black/white wire receptacle, black wire blade to yellow and orange wire receptacle, white wire blade to green wire receptacle.
- Place grommet around harness and insert into firewall hole (also put a grommet in the hole in the radiator bulkhead if one was drilled). Use cable ties to secure harnesses and wires away from hot or moving engine parts.
- Unless noted in Harness Kit Selection paragraph on page 3 of these instructions, replace vehicle turn signal flasher with the flasher furnished in the harness kit.
- Lubricate terminal cavities of both grill connectors with dielectric grease. Furnish dielectric grease tube to vehicle owner for future lubrication of grill connectors.

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 with automatic transmission fluid (ATF) through fill plug hole until fluid runs out of fluid level hole. Replace both plugs. NOTE: For low temperature operation you can use Mobil One or Texaco 1537 Aircraft Hydraulic Oil.



Alternate method: (Systems without fluid level plug.) Remove plow from vehicle. With stand lock pin in place, refill unit through fill plug opening. Unit is full when fluid reaches fill hole threads. Replace fill plug.

4. Turn ignition (key) switch to ON or ACCESSORY position.
5. Turn the control ON/OFF switch ON.
6. Move control lever to angle left and angle right several times to remove air from Hydra-Turn® rams. **DO NOT raise blade as this may cause pump cavitation.**
7. Refill unit with fluid following procedure in paragraph 3 above.
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 per paragraph 3 above.

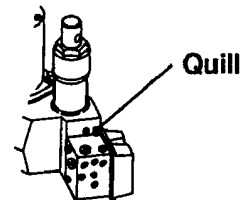
Capacity: Solenoid ISARMATIC® Mark IIIa reservoir 1-3/4 quarts
 Equipped with 10" Hydra-Turn® rams 2-3/8 quarts

WARNING: Always return lever to the neutral position. To prevent accidental movement of plow, always turn the solenoid control to OFF 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.

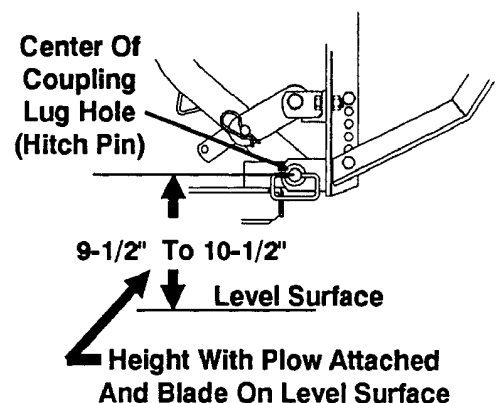
- Turn quill IN (clockwise) to slow drop speed.
- Turn quill OUT (counterclockwise) to increase drop speed.
- NOTE: Turning quill too far IN can slow raise time.



COUPLING LUG HEIGHT CHECK

Coupling Lug Height Check:

1. Mount plow to vehicle (see label on back of blade or owner's manual for mounting instructions).
2. Lift plow and move vehicle. Travel a minimum of 10 feet. Lower blade.
3. After step 2, with: blade on level surface, slack in lift chain, rear ballast located behind rear wheels, center of coupling lug holes (hitch pin shaft) to level surface should measure 9-1/2" to 10-1/2".



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.

Continued on next page.

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.

Light Check

1. Check the operation of vehicle and plow lights.

Turn signals and parking lamps:

Parking lamps ON	Both vehicle and plow lamps should be on at the same time.
Right turn signal ON	Both vehicle and plow lamps should flash at the same time.
Left turn signal ON	Both vehicle and plow lamps should flash at the same time.

Headlamps:

Move vehicle headlamp switch to the ON position. Connecting and disconnecting the 9 or 12 pin plow plug from the grill connector should switch between vehicle and plow headlamps as follows:

9 or 12 pin plow plug DISCONNECTED	Vehicle headlamps should be on.
9 or 12 pin plow plug CONNECTED	Plow headlamps should be on.

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

Solenoid Control:

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.

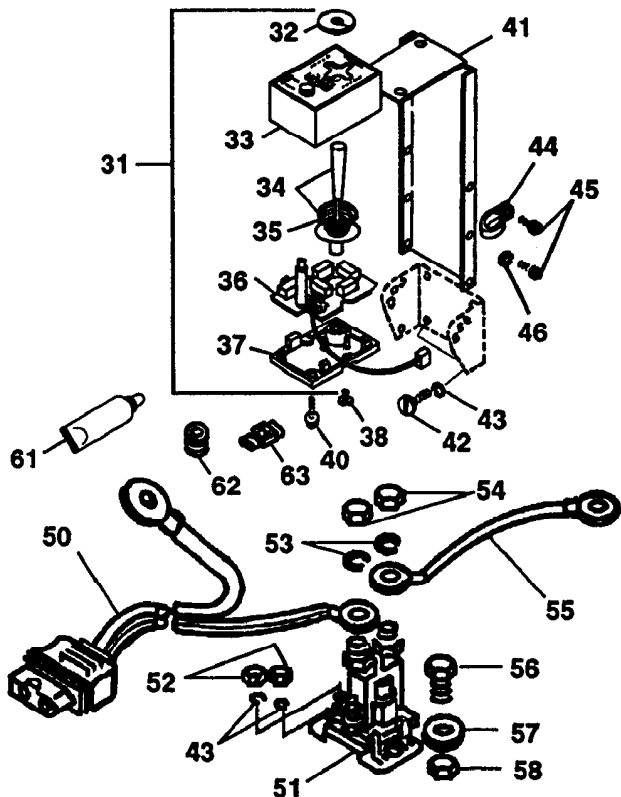
The indicator light will also light when the control and ignition (key) switches are on and the plow plugs are disconnected. If the parking lights are turned on (with plow plugs disconnected), the indicator light will go out.

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.

Mount Box No. 61870
 Harness Kit Box No. 61555 or 61505
 Hydraulics Box No. 56365

PARTS DIAGRAM & LIST



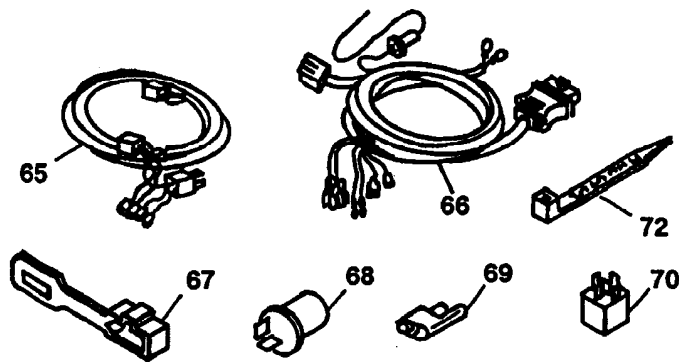
ITEM PART NO. QTY. DESCRIPTION

Found in Hydraulics Box No. 56365

31	56369	1	SOLENOID CONTROL (Style 2)
32	56283	1	SHIELD
33	49286	1	BODY W/LABEL & LENS (Style 2)
34	49287	1	LEVER, SPRING & ACTUATOR KIT (Style 2)
35	55923	1	SPRING - CONICAL
36	49283	1	PC BOARD ASSY MOLEX (Style 2)
37	56199	1	BASE
38	93153	2	#6-19X3/8 SL HXW TFTS HILO
40	93154	2	#8-18X5/8 SL HXW TFTS HILO
41	56308	1	CONTROL BRACKET
42	90388	4	#10X1 SL PN TFTS TY AB BZP
43	91242	4	#10 SP LK WASHER BPO
44	55381	1	CABLE CLAMP
45	93157	5	#8-32X3/8 SL HXW TCTS TY T BP
46	91231	4	#8 SP LK WASHER BP
50	61169	1	CABLE ASSEMBLY - VEHICLE
51	56134K	1	RELAY - SOLENOID HYDRAULIC SYS
43	91242	2	#10 SP LK WASHER BPO
52	91402	2	#10-32 HX NUT ZP
53	91202	2	5/16 SP LK WASHER ZP
54	92842	2	5/16-24 HX JAM NUT
55	22511	1	BATTERY CABLE 22" RED
56	90002	2	1/4-20X3/4 HX CS G2 ZP
57	91101	2	1/4 PLAIN WASHER TY A STD ZP
58	91331	2	1/4-20 PT HX LK NUT NYIS ZP
61	56099	1	DIELECTRIC GREASE TUBE
62	66130	2	RUBBER GROMMET
63	59114	1	SELF STRIP WIRE CONNECTOR

Parts listed above may be found in one of these assemblies.

56368	1	CARTON ASSY LOOSE PARTS U
56367	1	BOLT BAG ASSY LARGE U
56358	1	BOLT BAG SMALL U



ITEM PART NO. QTY. DESCRIPTION

Found in Harness Kit Box No. 61555 OR 61505

65	61556	1	PLUG-IN HARNESS 2B/2D U -B (For Harness Kit No. 61555)
	61571	2	PLUG-IN HARNESS HB-1(9004) U -A (For Harness Kit No 61505)
66	61557	1	VEHICLE HARNESS 12-PIN U
67	61548	2	PLUG COVER U
68	60109	1	FLASHER HD
69	59224	3	BULLET RECEPTACLE CONNECTOR
70	61535	3	HEADLAMP RELAY SPDT
72	59223	8	CABLE TIE

Parts listed above may be found in the following assembly.

61547	1	PARTS BAG
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ITEM PART NO. QTY. DESCRIPTION

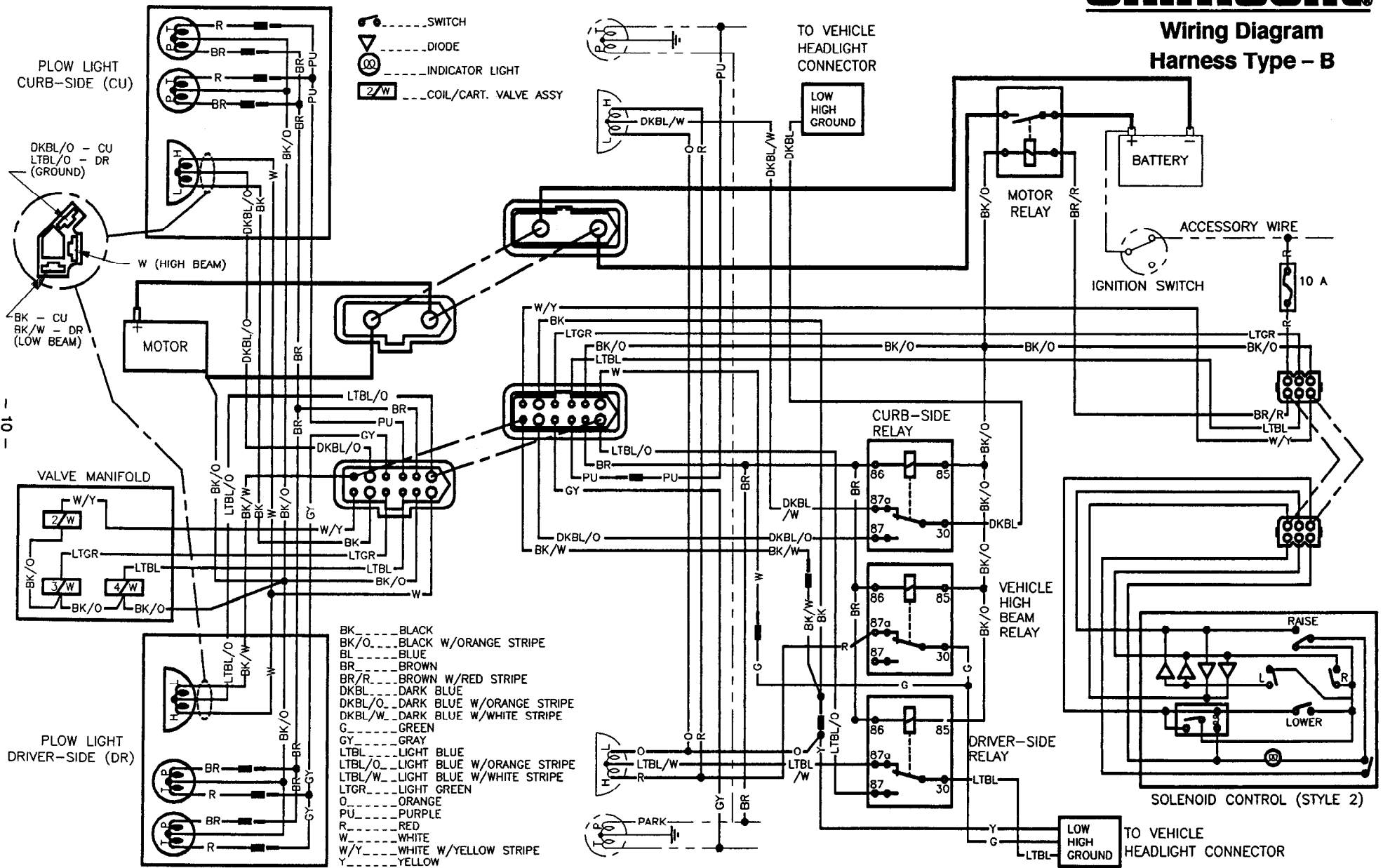
Found in Mount Box No. 61870

90	56080	1	DASH BRACKET
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Abbreviations			
ASSY	Assembly	SL	Slotted
BP	Black Phosphate	SP	Spring
BPO	Black Phosphate & Oil	SPDT	Single Pole Double Throw
BZP	Black Zinc Plate	STD	Standard
CS	Capscrew	SYS	System
G	Grade	TCTS	Thread Cutting Tapping
HD	Heavy Duty		Screw
HX	Hex	TFTS	Thread Forming Tapping
HXW	Hex Washer		Screw
LK	Lock	TY	Type
NYIS	Nylon Insert	U	UniMount® System
PC	Printed Circuit	W/	With
PN	Pan	ZP	Zinc Plate
PT	Prevailing Torque		

Indented part numbers are included in the assembly under which they are listed. Quantities shown are included with the assembly.

Wiring Diagram Harness Type - B

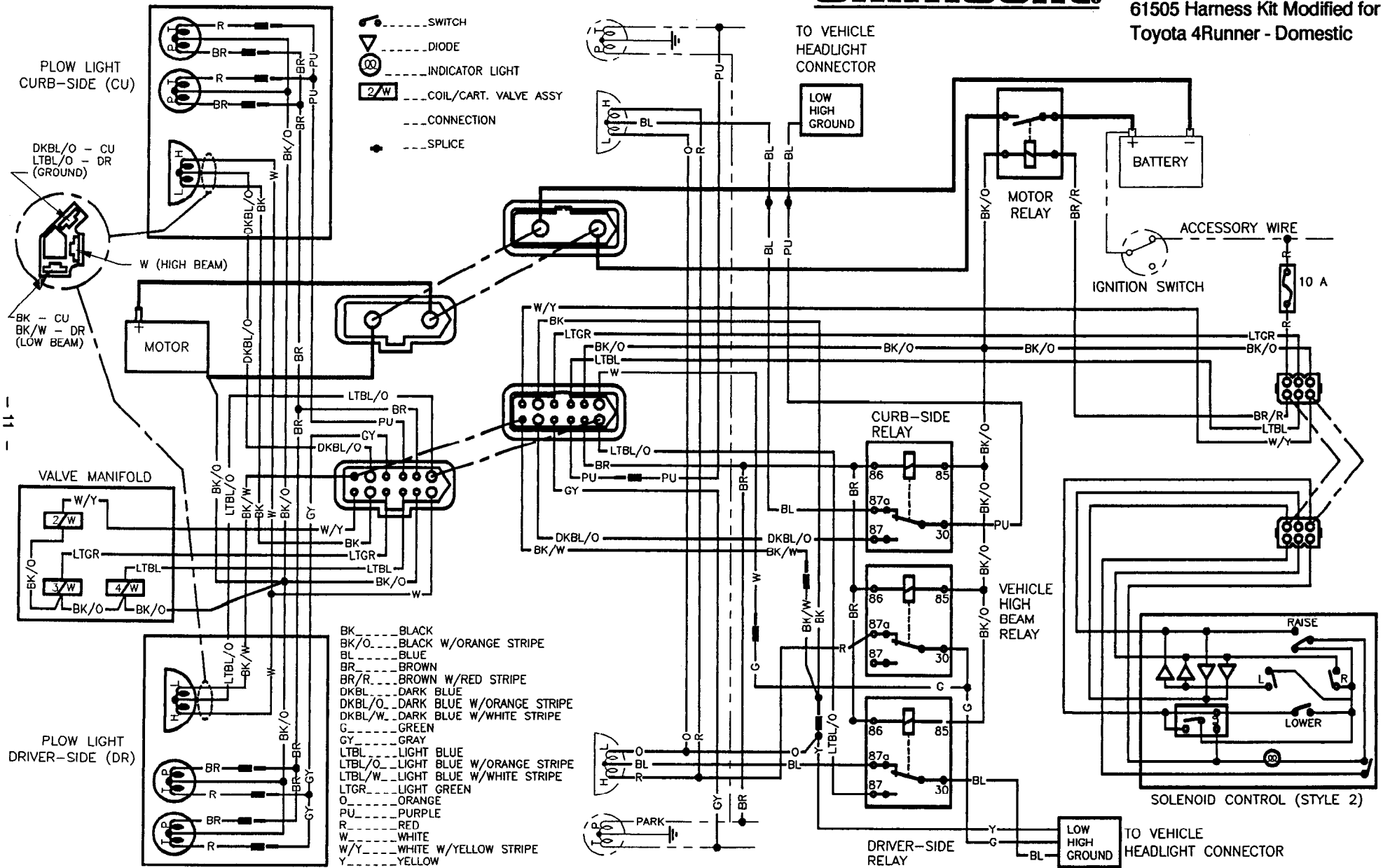


Solenoid Control - The control indicator light should light whenever the control ON/OFF switch and the ignition (key) switch are both turned ON and the plow plugs are connected to the grill connector.

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.

Unimount[®] SYSTEM

Wiring Diagram Harness Type - B 61505 Harness Kit Modified for Toyota 4Runner - Domestic



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

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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