January 31, 2003
Lit. No. 27887

27890

ISOLATION MODULE ELECTRICAL SYSTEM

Installation Instructions

Chevy/GMC C4500/5500 2003 – 20__

⚠ CAUTION
Read this document before installing the snowplow.

⚠ CAUTION
See your sales outlet for application recommendations. The Kit Selection Guide/ Selection List has specific vehicle and snowplow requirements.

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

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 in damage to product or property.

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

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.

TORQUE CHART

⚠ CAUTION

Read instructions before assembling. Fasteners should be finger tight until instructed to tighten according to the torque chart. Use standard methods and practices when attaching snowplow, including wearing proper personal protective safety equipment.

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	150	378	591
1-8	220	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 fasteners except those noted in the instruction.

FUSES

The vehicle control harness contains two automotive-style fuses. One fuse is for the snowplow park/turn lamp power and the other is for the snowplow control power. If a problem should occur and fuse replacement is necessary, the replacement fuse should be of the same value as the original. Installing a fuse of a larger value could damage the system.

MOTOR RELAY AND VEHICLE CABLE ASSEMBLY INSTALLATION

⚠ 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.

1. Turn off the vehicle ignition.

2. Disconnect both the NEGATIVE (–) and the POSITIVE (+) battery cables.

3. Mount the motor relay on the motor relay bracket, found in plug-in harness kit, using 1/4" x 3/4" cap screws, washers, and locknuts.

⚠ CAUTION

Before installing self-drilling screws or drilling mounting holes, check the selected mounting area for any wires, hoses, or other obstructions.

4. On the passenger side of the radiator bulkhead, mount the motor relay bracket with the motor relay attached to an existing bolt in the bulkhead using the 8mm nut and 3/8" lock washer from the harness kit. **Refer to photo A on page 9 for specific location.**

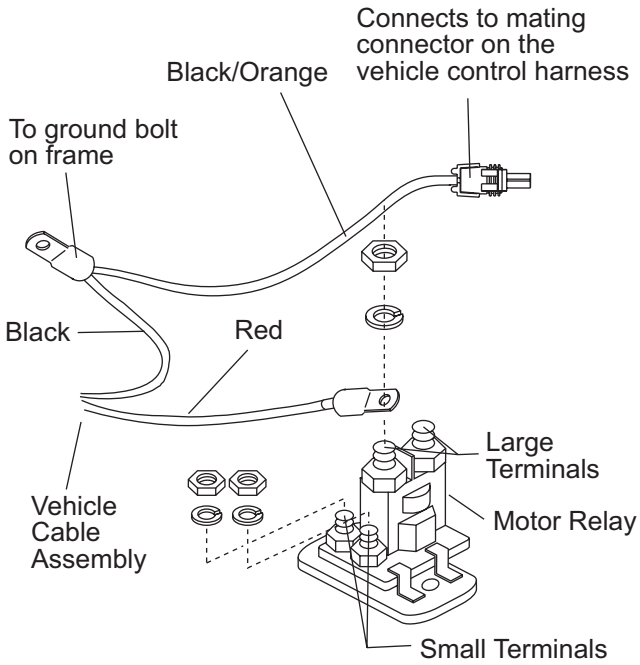
NOTE: Motor relay terminals must be up or horizontal.

5. Route the vehicle cable assembly from the bumper or grille through or around the radiator bulkhead to the motor relay. Be sure to avoid sharp edges and hot or moving parts.

6. Attach the red wire from the vehicle cable assembly to one of the large terminals on the motor relay. Secure with a lock washer and 5/16" nut.

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

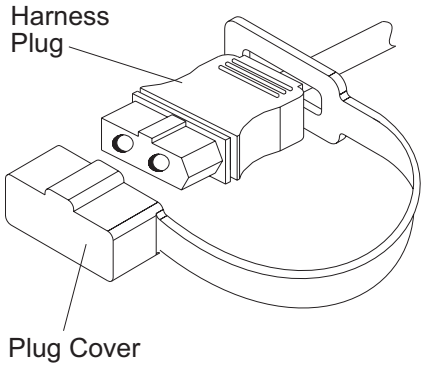
7. Connect the black wire from the vehicle cable assembly to an existing hole in the vehicle frame using the 3/8" x 1-1/4" cap screw, washer, and locknut provided. Before attaching wire, clean away any paint or dirt on the vehicle frame to ensure a good ground connection.



NOTE: This vehicle is equipped with a tilt hood, so a service loop will be necessary when making the transition from the tilt hood to the frame. Check the cable installation for interference by raising and lowering the hood a number of times. Add anti-chafing material (installer-supplied) as needed.

PLUG COVER INSTALLATION

1. Stretch the rectangular opening of the plug cover strap over the harness plug of the vehicle cable assembly. Place the plug cover over the molded harness plug when snowplow is not in use.



2. If grille plates are used, choose the one most suitable for your installation. Slide the harness plug into the plate.

NOTE: When choosing a location for the grille plate, keep in mind the connection between the vehicle and the snowplow. Mounting the grille plate too close to the center of the vehicle may make it difficult to make your electrical connections to the snowplow.

3. Mount grille plate to the vehicle grille using the supplied cable ties.

4. If you choose not to install a grille plate, secure the cable assembly so it is protected when not in use and is easily retrieved for connection to the snowplow.

ISOLATION MODULE MOUNTING

The design of the Isolation Module allows it to be mounted to a variety of surfaces **within** the engine compartment. The function of the Isolation Module will not be affected by its mounting orientation.

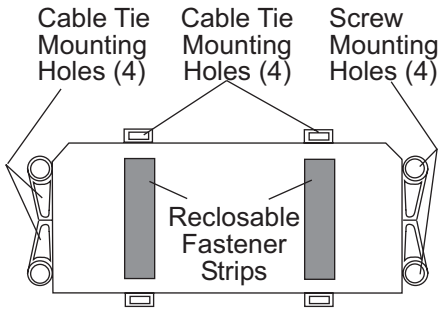
⚠ CAUTION

Before installing self-drilling screws or drilling mounting holes, check the selected mounting area for any wires, hoses, or other obstructions.

Suggested Mounting Location:

Locate the Isolation Module on the passenger side near the fire wall on the shelf underneath the maxi fuse center and electrical distribution components. The lengths of the plug-in harnesses were designed with the Isolation Module mounted in this area. **Refer to photo B on page 9 for specific location.**

Cable tie the Isolation Module to existing brackets or harnessing. Reclosable fastener strips, cable ties, and self-drilling screws are supplied for mounting the Isolation Module. When using the reclosable fastener strips, the mounting surface must be free of dirt and grease. If using self-drilling screws, install the screws in opposite corners if possible.



Isolation Module
Bottom View

Suggested Mounting Options:

- Flat, non-metallic, non-drillable surfaces – use reclosable fasteners
- Flat, non-metallic, drillable surfaces – use self-drilling screws (supplied), nuts, and cap screws (not supplied)
- Flat metallic surfaces – use reclosable fasteners, self-drilling screws (supplied), nuts, and cap screws (not supplied)
- No flat surface found – use cable ties and tie to existing brackets or harness

VEHICLE LIGHTING AND VEHICLE CONTROL HARNESS INSTALLATION

Vehicle lighting and vehicle control harnesses are designed to plug into one another when the snowplow is not attached. The control harness exits the grille or bumper on the passenger side and the lighting harness exits on the driver side. Plug the harnesses together before cable tying them to ensure adequate length.

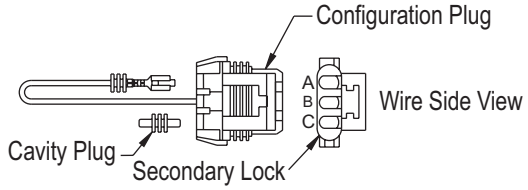
1. Find a location in the grille or bumper on the driver side for routing the vehicle lighting harness. Then find a location in the grille or bumper on the passenger side for the vehicle control harness.

2. Route both harnesses around or through the radiator bulkhead to the Isolation Module.

3. Make the following connections:
   - Vehicle control harness to Position 1 on Isolation Module
   - Vehicle lighting harness to Position 2 on Isolation Module.
   - Single-wire connector (black/orange wire) from vehicle control harness to single-wire connector (black/orange wire) on vehicle lighting harness.
   - Configuration plug onto vehicle control harness 3-position plug near Isolation Module. (Refer to plug configuration drawing for instructions.)

PLUG CONFIGURATION

Headlamp Common = NEGATIVE (–)



1. Jumper Position B to Position A
2. Insert cavity plug into Position C
3. Install secondary lock

To insert terminal or jumper wire into position:

1. Push terminal into correct cavity,
2. Listen for a click. If terminal pulls out, carefully bend locking tab outward and reinstall terminal.

4. Route the end of the vehicle control harness with the white, 6-pin connector or the 10 loose terminals to the fire wall. Route the vehicle control harness breakout with four wires to the motor relay.

   Motor relay small terminal connections:
   Straight blades: brown/red and black/orange
   V-plows: brown/red and brown/green

   Secure wires to small terminals of motor relay with #10 lock washers and 10-32 nuts.

5. Connect the single-wire connector (black/orange wire) from the vehicle control harness breakout to the single-wire connector (black/orange wire) from the vehicle cable assembly. Do not cable tie the harness at this time.

6. Attach the 22" red battery cable and the red/green wire from the vehicle control harness to a large terminal on the motor relay with a lock washer and 5/16" nut. Route the 22" red battery cable from motor relay terminal to the bottom of the junction block located near the maxi fuse center. **Refer to photo C on page 9 for more details.** Connect the 22" battery cable to the lower POSITIVE (+) terminal of the junction block. Trim junction block cover as necessary to close.

⚠ CAUTION

Before installing self-drilling screws or drilling mounting holes, check the selected mounting area for any wires, hoses, or other obstructions.

7. On the driver side, there is a hole in the fire wall with a rubber grommet in it. If this hole is not available, drill a 5/8" hole through the fire wall in a convenient place away from sharp, hot, or moving parts.

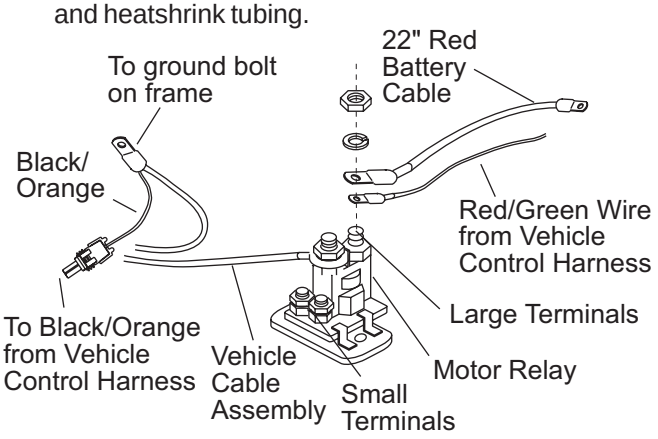
8. **Straight blade controls only:** Push the braided harness breakout with the control connector through the fire wall hole and into the cab. Use a grommet to protect the harness where it passes through the fire wall. Route the harness to the selected control mounting location. To mount the control, follow the instructions supplied with the control.

9. **V-plow control only**: Remove the packing material from the end of the vehicle control harness. This exposes 10 socket-type terminals. Carefully push these terminals through fire wall hole into the cab. Use a grommet to protect the harness where it passes through the fire wall. Route the harness to the selected control mounting location. Follow the instructions in the next section to attach the terminals to the connector. To mount the control, follow the instructions supplied with the control.

10. Locate an accessory wire controlled by the ignition switch. Acceptable accessory wires show +12V when the ignition switch is on, and 0V when it is off.

11. Route the red wire from the vehicle control harness to this location and trim away excess length.

12. Following the recommended splicing procedure (see page 8), splice the red wire into the switched accessory wire using the supplied parallel splices and heatshrink tubing.



UNDER-DASH VEHICLE CONTROL HARNESS CONNECTOR PIN ASSIGNMENTS

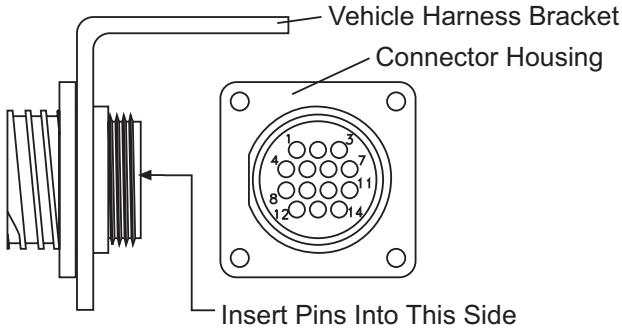
V-Plow Control Only

1. In the cab, pass the 10 socket-type terminals through the vehicle harness bracket.

2. Insert each of the 10 socket-type terminals into the connector housing. Refer to chart below.

NOTE: You will feel a snap as the terminals are successfully inserted. An extraction tool is provided for removing pin terminals if necessary. Keep this tool for future use.

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



3. Attach the vehicle harness bracket to the vehicle with the supplied #8-18 x 5/8" tapping screws. Secure the connector housing to the vehicle harness bracket with the #6 x 1/4" tapping screws and lock washers.

NOTE: Cable tie control harness and accessory tap away from any moving parts, brake, clutch, gas or parking brake pedals.

PLUG-IN HARNESS INSTALLATION

1. On the passenger side, locate the OEM vehicle headlamp harness connector that is near the hinge for the hood. **Refer to photo D on page 9 for more details.**

2. Remove the small, light-gray connector lock by carefully sliding it back away from the connector. Separate the connectors by pushing down on the locking tab and pulling them apart.

3. Connect the female connector of the short plug-in harness to the male connector from the OEM vehicle headlamp harness. Reinstall the small, light-gray connector lock. Connect the male connector of the plug-in harness to the female connector of the OEM vehicle headlamp harness.

4. Route the plug-in harness along the OEM vehicle cables to the Isolation Module.

5. On the driver side, repeat the instructions in Steps 1, 2, and 3 using the long plug-in harness.

6. Route the long plug-in harness to the Isolation Module by running the harness along the existing cables underneath the engine and radiator area.

7. Connect the driver-side plug-in harness (long) to Position 3 on the Isolation Module, and connect the passenger-side plug-in harness (short) to Position 4.

8. Cable tie the vehicle control harness, vehicle lighting harness, and both plug-in harnesses away from any sharp, hot, or moving parts. The vehicle control harness and vehicle lighting harness are designed to plug into one another for storage.

9. Reconnect the vehicle POSITIVE (+) battery cables to the POSITIVE (+) battery terminal.

10. Reconnect the vehicle NEGATIVE (–) cable to the NEGATIVE (–) battery terminal.

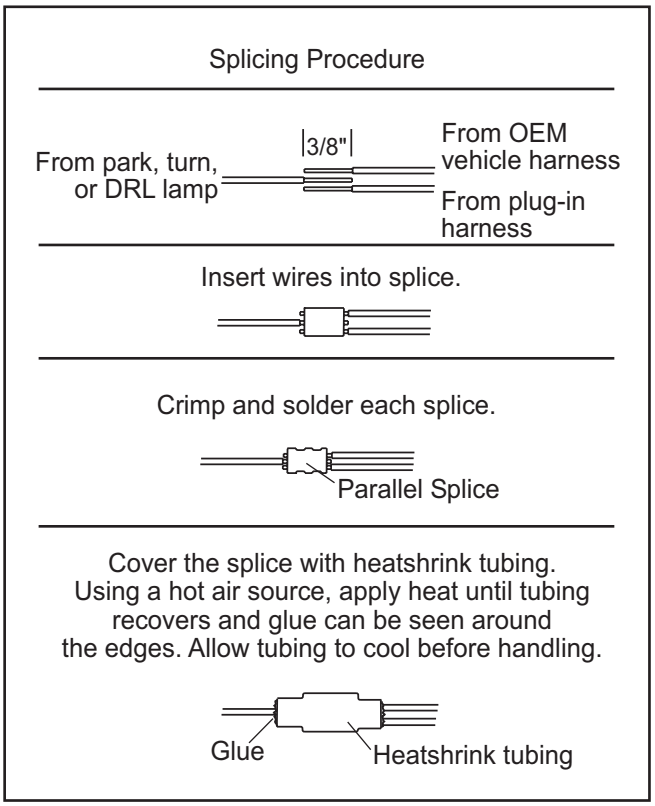
NOTE: This vehicle is equipped with a tilt hood, so a service loop will be necessary when making the transition from the tilt hood to the frame. Check the cable installation for interference by raising and lowering the hood a number of times. Add anti-chafing material (installer-supplied) as needed.

RECOMMENDED SPLICING PROCEDURE

1. Locate wire to be spliced into.
2. Cut wire at least 1-1/2" from any other splice, connector, or terminal. If wires are covered by tubing or braid, remove enough of it to achieve the minimum clearance required.
3. Strip away 3/8" of the insulation from the ends of the wires to be spliced.
4. Slide two wires into one end of the supplied parallel splice.
5. Place a piece of heatshrink tubing (3/16" x 1-1/4" long) over the remaining wire to be spliced.
6. Insert wire into the open end of the splice and crimp using an appropriate crimp tool. One or two crimps may be necessary to ensure a good connection. No wire strands should be visible outside of the splice.
7. Preheat a soldering tool for at least one minute to help promote even solder flow.
8. Apply heat to the splice. Avoid heating too close to the insulation. Apply solder to the wires. Use just enough solder to produce an even flow through the splice. **Use rosin core solder ONLY. Do not use acid core solder.**

NOTE: Avoid using an excessive amount of solder as it can result in wicking. Wicking occurs when solder travels up the wire core. This may cause the wire to become stiff or brittle which could lead to a broken or open circuit.

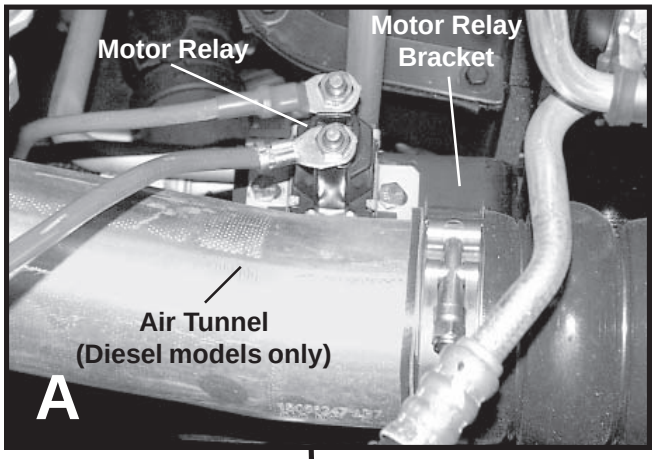
9. Check circuits for continuity.
10. Cover the splice with heatshrink tubing. The tubing should extend beyond the splice on both sides.
11. Using a hot air source, starting in the center and working to either side, apply heat until the tubing recovers and glue can be seen around the edges. Allow the tubing to cool before handling.

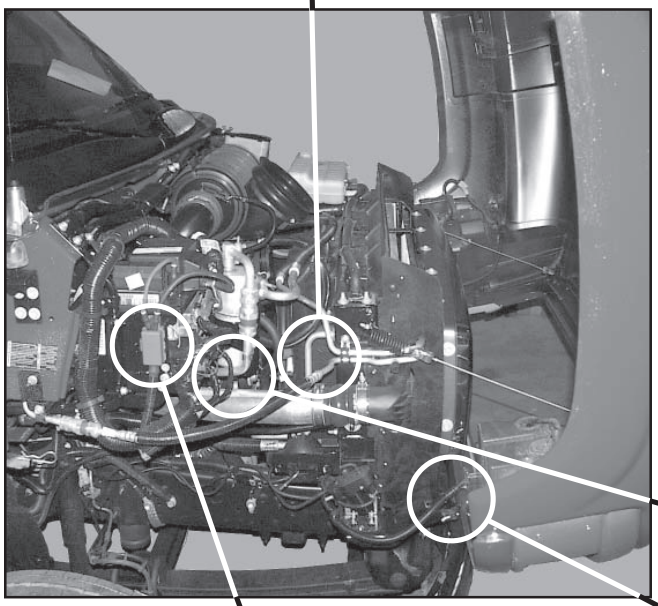


NOTE: The splices supplied will accommodate 18-gauge wires as shown. For larger gauge wires, cut the wire, strip the ends 3/8" to 1/2", and twist together. Apply solder to the splice and cover with heatshrink tubing.

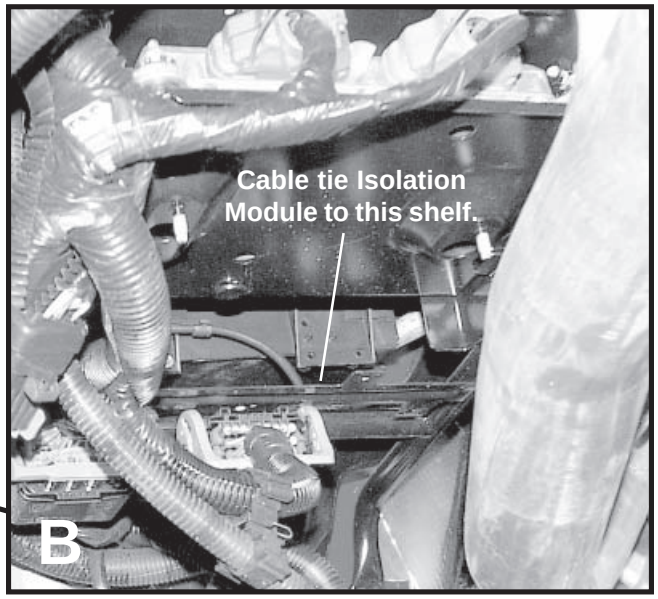
INSTALLATION PHOTOS

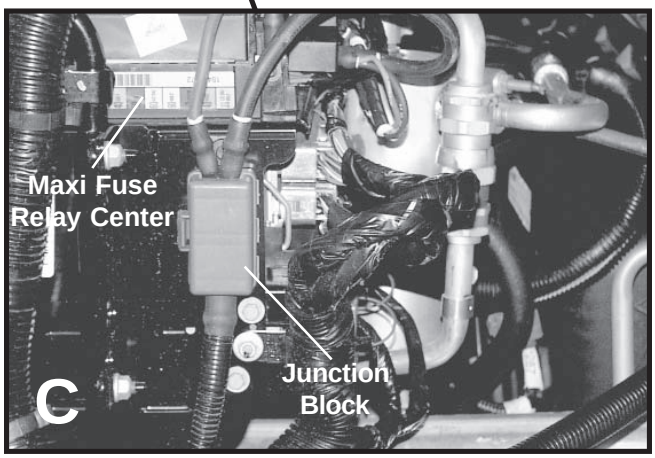
NOTE: These photos are a supplement to the installation instructions contained in this document. Please see the previous pages for a more detailed description of how to install this product. All photos are from the passenger side of the vehicle unless noted.

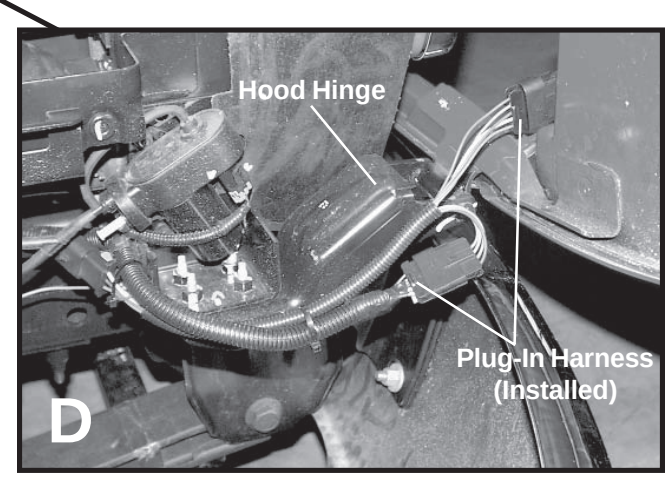




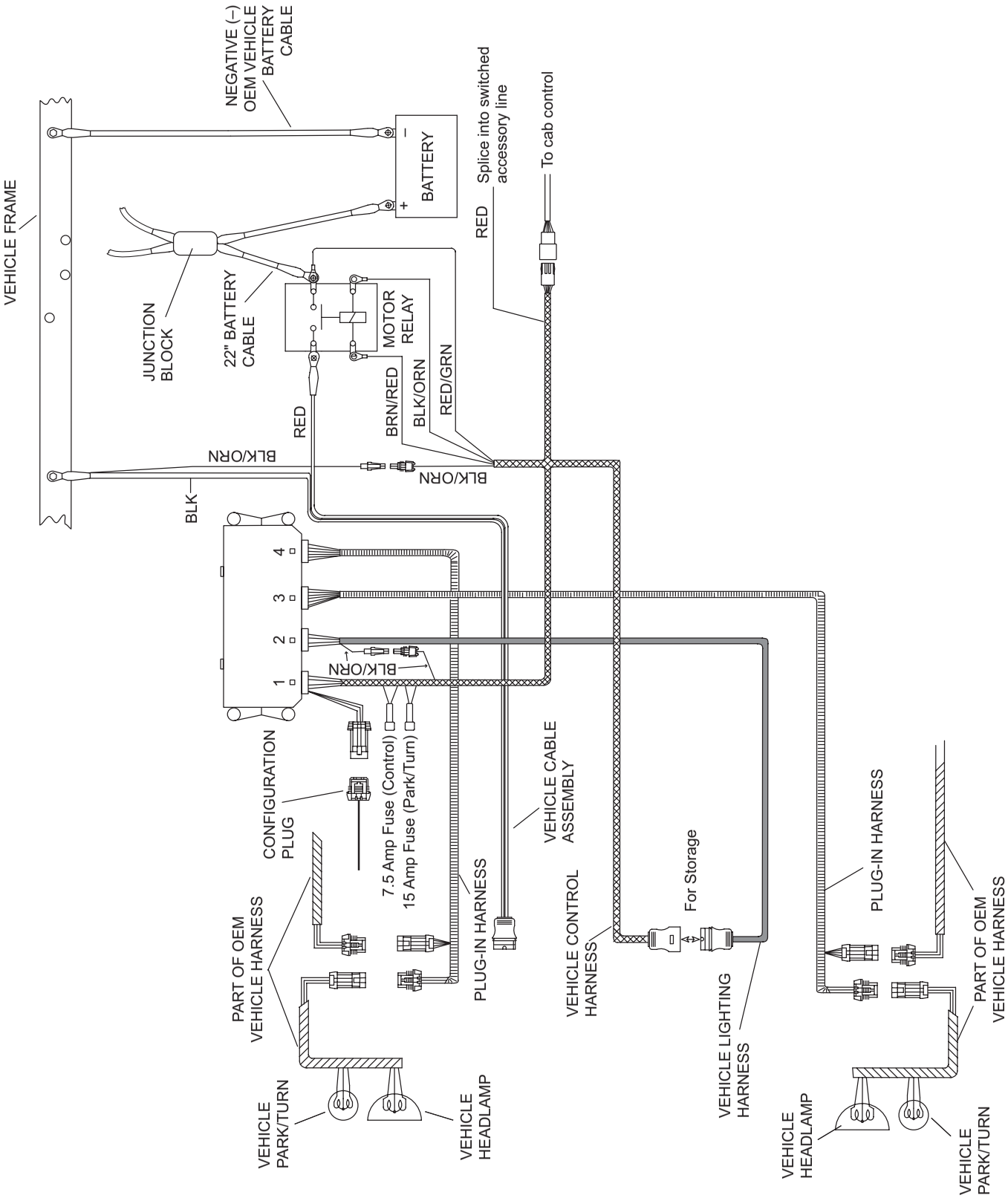
Front View



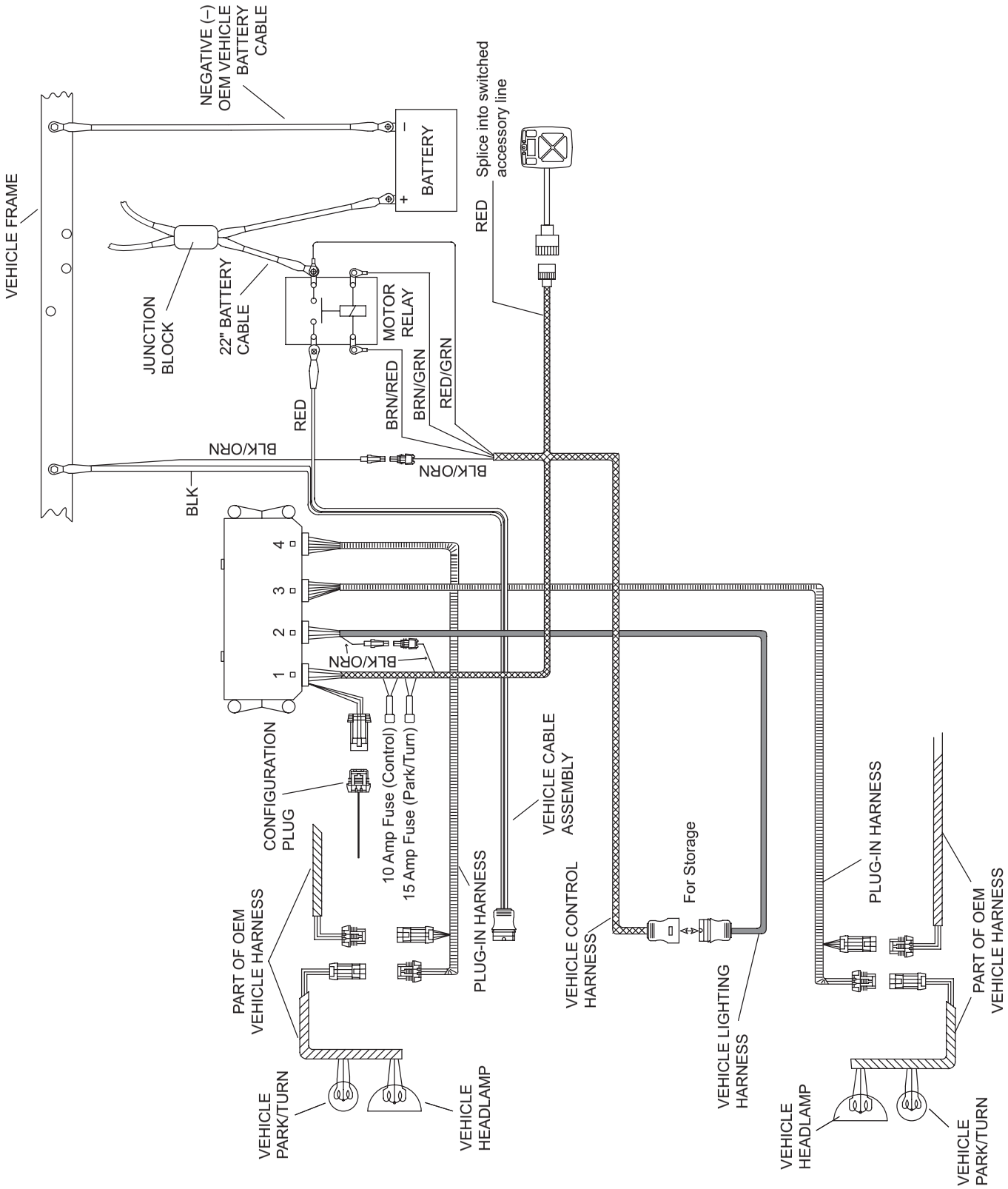




SYSTEM DIAGRAM – STRAIGHT BLADES



SYSTEM DIAGRAM – V-PLOWS



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