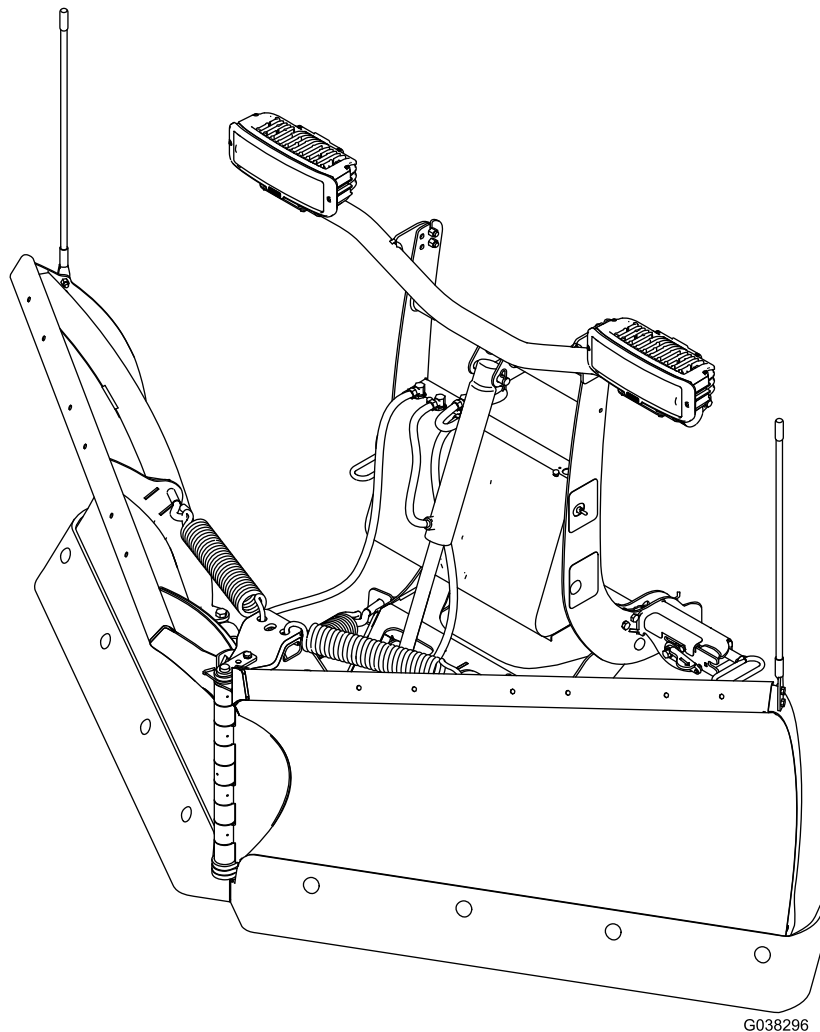




P.O. Box 787
Iron Mountain, MI 49801
United States

Installation Instructions

RT3 HTX V-Blade Plow



⚠ WARNING

CALIFORNIA Proposition 65 Warning

This product contains a chemical or chemicals known to the State of California to cause cancer, birth defects, or reproductive harm.

Safety

Improper use or maintenance by the operator or owner can result in injury. To reduce the potential for injury, comply with these safety instructions and always pay attention to the safety-alert symbol ⚠, which means: *Caution, Warning, or Danger*—personal safety instruction. Failure to comply with the instruction may result in personal injury or death.

Preparation

- Read the *Operator's Manual* before operating or servicing the plow.
- Use a 500 kg (1/2 ton) minimum lifting device to move heavy plow components.
- Always follow the vehicle manufacturer's recommendations relating to snowplow installation. For recommended vehicle models, refer to the *BOSS Snowplow Application Chart and Selection Guide*.
- Ensure that only trained personnel install and perform maintenance on the equipment.
- Many trucks are equipped with air bags. **Never** disable, remove, or relocate any sensors or other components related to the operation of the air bags.
- Keep your hands, feet, and clothing away from moving parts and mounting points.
- Ensure the plow is properly attached to the vehicle before moving it.
- To comply with federal regulations and to assure a safe vehicle, do not exceed the front gross-axle-weight rating (FGAWR), rear gross-axle-weight rating (RGAWR), and the gross-vehicle-weight rating (GAWR) at any time.

Introduction

Note: Use this manual to assemble and install all BOSS HTX V-blade plows. Illustrations may vary.

Contents

Safety	2
Preparation.....	2
Operation.....	3
Safety and Instructional Decals	4
Installation	6
Installing the Push Frame and Angle Cylinders	6
Installing the Trip Springs and Coupler Tower.....	7
Installing the Hydraulic Hoses.....	8
Installing the Light Bar.....	8
Installing the Blade Guides and Filling the Hydraulic Reservoir	9
Installing the Wire Harness	10
Installing the Headlight Adapters.....	13
Mounting the Plow Controller.....	14
Mounting the Snowplow	15
Aiming the Headlights	16
Checking the Installation	16
Product Overview	17
Controls	17
Operation	19
Mounting the Plow.....	19
Checking the Hydraulic Fluid Level.....	20
Adding Hydraulic Fluid.....	20
Troubleshooting	21
Schematics	25

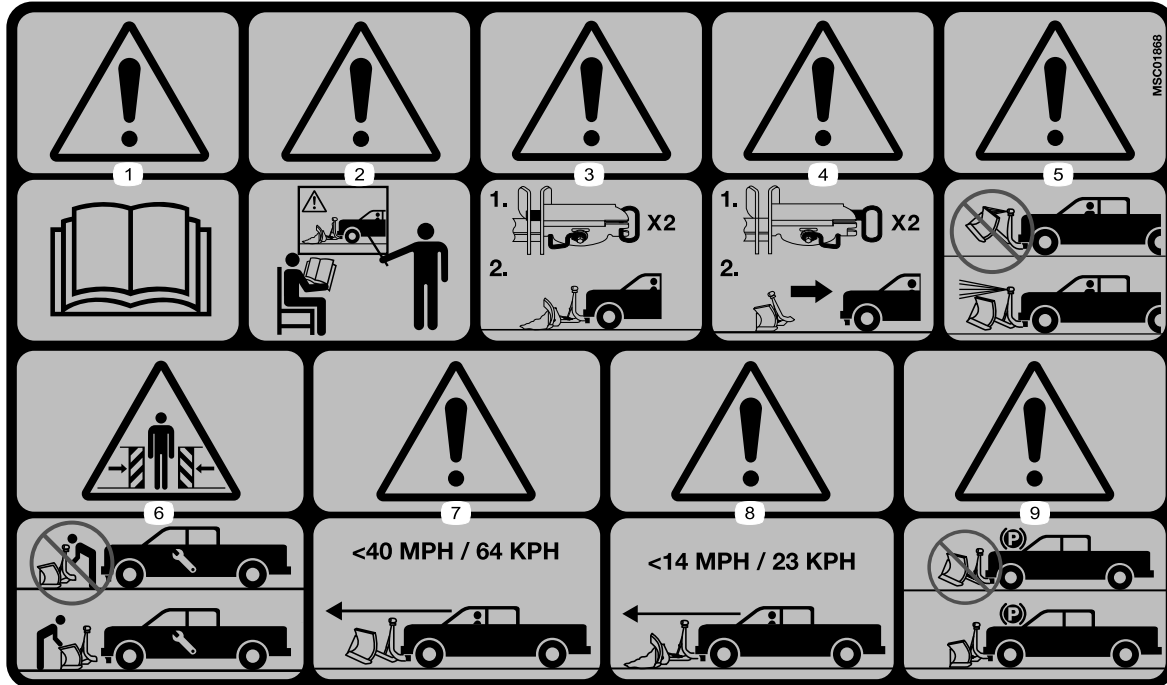
Operation

- Vehicles equipped with air bags are designed so that the air bags activate in a frontal collision equivalent to hitting a solid barrier (such as a wall) at approximately 22 km/h (14 mph) or more, or a frontal perpendicular collision with a parked car or truck of similar size at approximately 45 km/h (28 mph) or more. Careless or high-speed driving while plowing snow can deploy the air bag.
- When transporting the vehicle, position the plow so as not to block your vision or the plow headlights.
- **Do not** change the blade position when traveling.
- **Do not** exceed 64 km/h (40 mph) when transporting the plow.
- **Do not** exceed 22 km/h (14 mph) when plowing.
- Always lower the blade when the vehicle is not in use.
- **Never** put any part of your body between the plow and the vehicle.
- Do not operate the machine while ill, tired, or under the influence of alcohol or drugs.
- Always wear your seat belt while operating a motor vehicle.
- Due to the variety of equipment that you can install on the vehicle, do not exceed the front gross-axle-weight rating (FGAWR), rear gross-axle-weight rating (RGAWR), and the gross-vehicle-weight rating (GAWR) at any time. This may require weighing the vehicle and adding ballast as necessary. It may also limit the payload capacity of the vehicle.

Safety and Instructional Decals

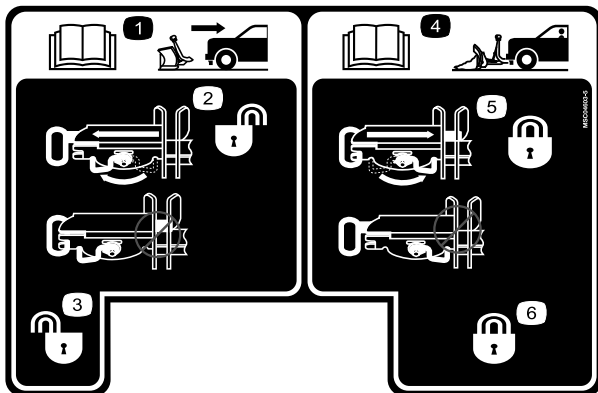


Safety decals and instructions are easily visible to the operator and are located near any area of potential danger. Replace any decal that is damaged or missing.



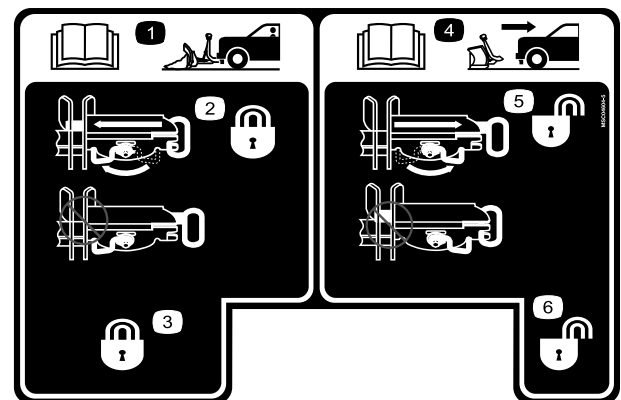
MSC01868

1. Warning—read the *Owner's Manual*.
2. Warning—all operators should be trained before operating the machine.
3. Warning—coupler spring pins must be locked before plowing.
4. Warning—coupler spring pins must be unlocked to remove the plow.
5. Warning—do not block the vehicle headlights with the plow.
6. Crushing hazard—do not stand between the plow and vehicle during maintenance.
7. Warning—do not exceed 64 km/h (40 mph) when transporting the plow.
8. Warning—do not exceed 22 km/h (14 mph) when plowing.
9. Warning—lower the plow when the vehicle is not in use.



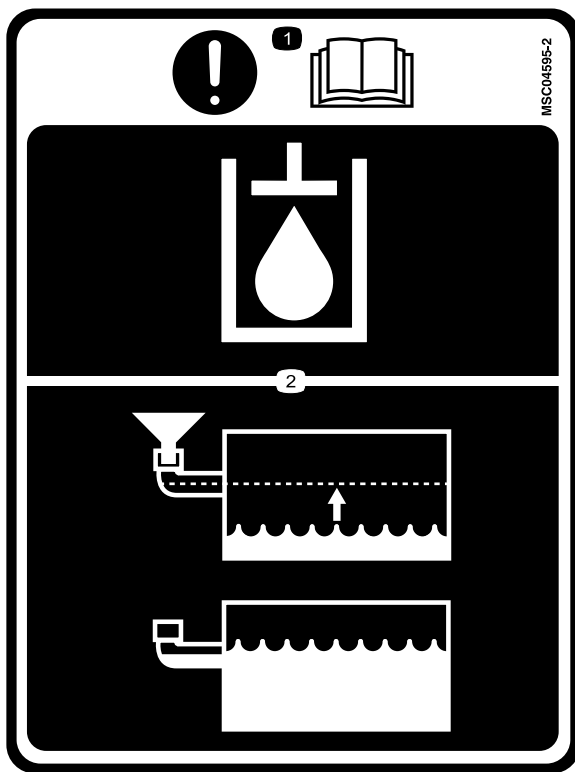
MSC04603-5

1. Read the *Owner's Manual* for information on removing the plow.
2. Coupler spring pin unlock
3. Coupler spring pin unlock
4. Read the *Owner's Manual* for information on attaching the plow.
5. Coupler spring pin lock
6. Coupler spring pin lock



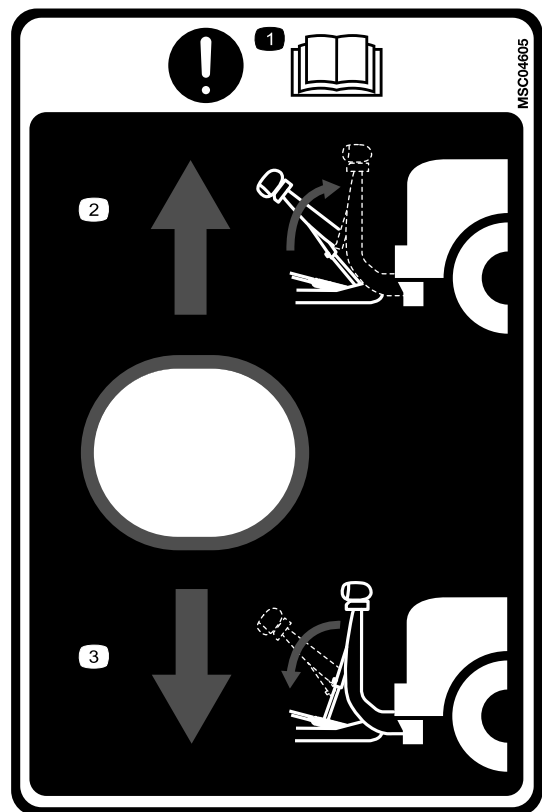
MSC04604-5

1. Read the *Owner's Manual* for information on attaching the plow.
2. Coupler spring pin lock
3. Coupler spring pin lock
4. Read the *Owner's Manual* for information on removing the plow.
5. Coupler spring pin unlock
6. Coupler spring pin unlock



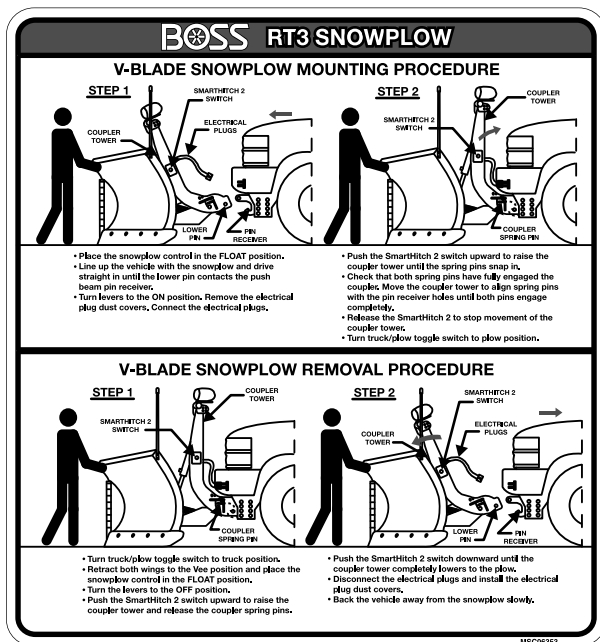
MSC04595

1. Important—read the *Owner's Manual*.
2. Fill the hydraulic fluid to the bottom of the fill elbow.



MSC04605

1. Important—read the *Owner's Manual*.
2. Raise the coupler tower.
3. Lower the coupler tower.



MSC06353

Installation

Determine the left and right sides of the machine from the normal operating position.

Installing the Push Frame and Angle Cylinders

If desired, install optional plow shoes before starting this installation.

1. Lay the left and right blades face down and bring them together so that the hinges interlock and the cutting edges are even ([Figure 1](#)).

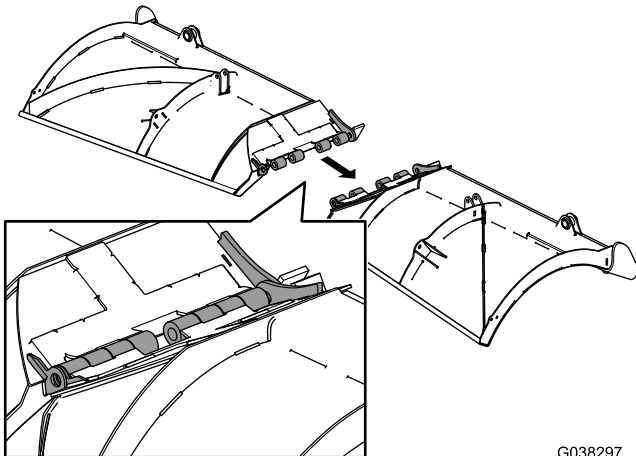


Figure 1

2. Insert the push-frame assembly between the blade hinges and secure all 3 pieces together with the center hinge pin, split lock washer, and hex-head lock bolt with nylon lock patch ([Figure 2](#)).

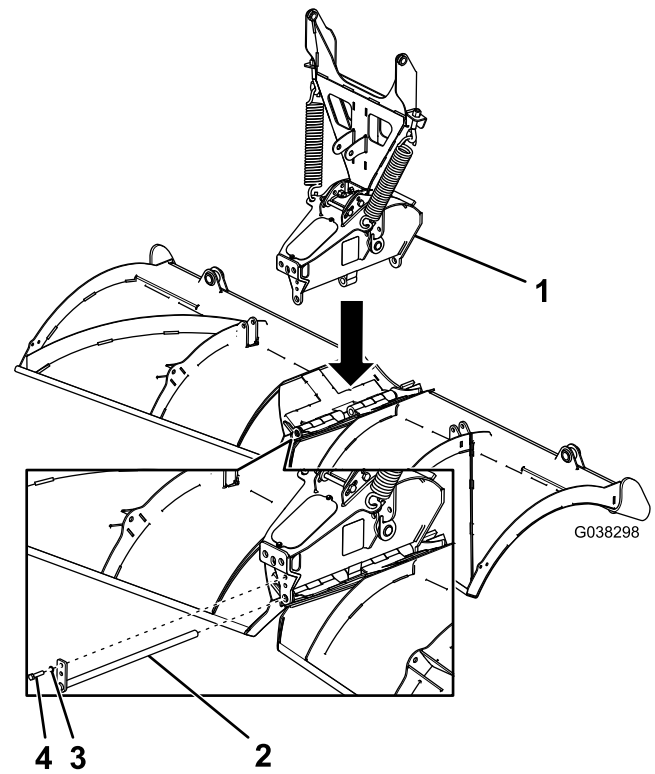


Figure 2

- | | |
|------------------------|-----------------------|
| 1. Push-frame assembly | 3. Split lock washer |
| 2. Center hinge pin | 4. Hex head lock bolt |

3. Stand the blade upright and position the sides into a "V" shape.
4. Attach the body end of the angle cylinders to the push-frame assembly using 2 hex-head bolts (3-1/2 inches) and top locknuts ([Figure 3](#)).

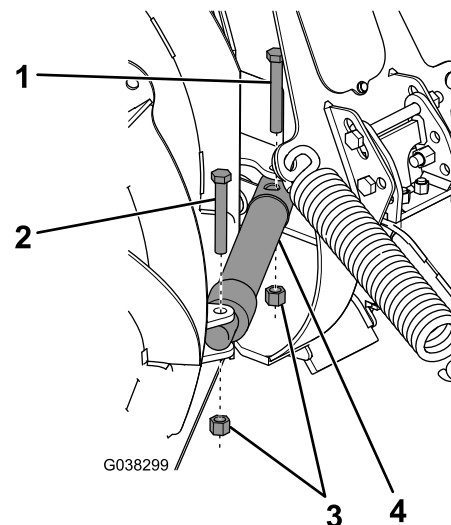


Figure 3

- | | |
|---------------------------------|-------------------|
| 1. Hex-head bolt (3-1/2 inches) | 3. Top locknuts |
| 2. Hex-head bolt (3 inches) | 4. Angle cylinder |

- Attach the rod end of the angle cylinders to the blades using 2 hex-head bolts (3 inches) and 2 top locknuts (Figure 3).

Installing the Trip Springs and Coupler Tower

- Hook the 2 trip springs through the holes on the top of the push-frame assembly (Figure 4).

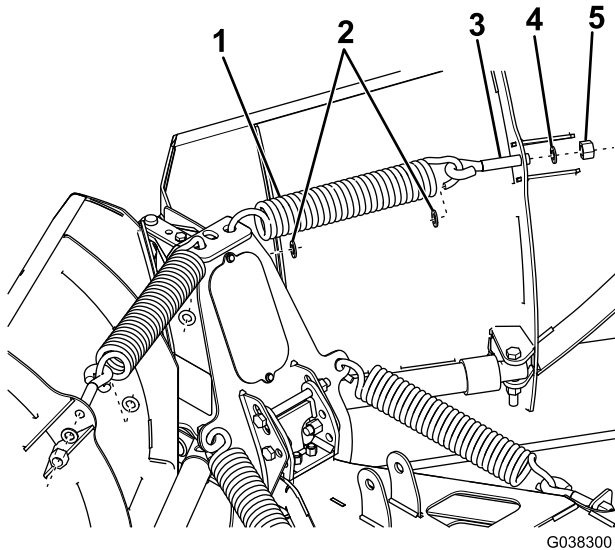


Figure 4

- | | |
|-----------------------|--------------------------------|
| 1. Trip spring | 4. Washer (1/2 inch) |
| 2. Push nut retainers | 5. Self-locking nut (1/2 inch) |
| 3. Eyebolt | |

- Hook the other ends of the trip springs to 2 eyebolts (Figure 4).
- Insert the threaded end of the eyebolts through the holes on the plow blade and secure them using 2 washers (1/2 inch) and 2 self-locking nuts (Figure 4).
- Tighten the self-locking nuts until there is a gap of 0.8 mm (1/32 inch) between the trip spring coils.
- Slide a push nut retainer onto each end of the trip springs (Figure 4).
- Align the pivot holes of the coupler tower with the pivot holes on the push-frame assembly, and secure them as shown in Figure 5.

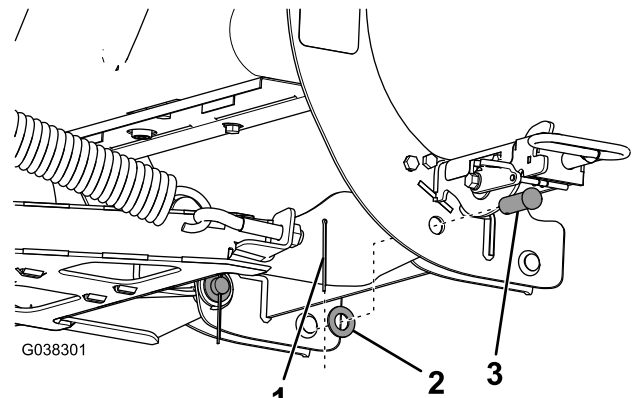


Figure 5

- | | |
|---------------------------|--------------|
| 1. Cotter pin | 3. Pivot pin |
| 2. Flat washer (3/4 inch) | |

- Secure the rod end of the lift cylinder to the push-frame assembly using a clevis pin (5/8 inch) and hairpin cotter (Figure 6).

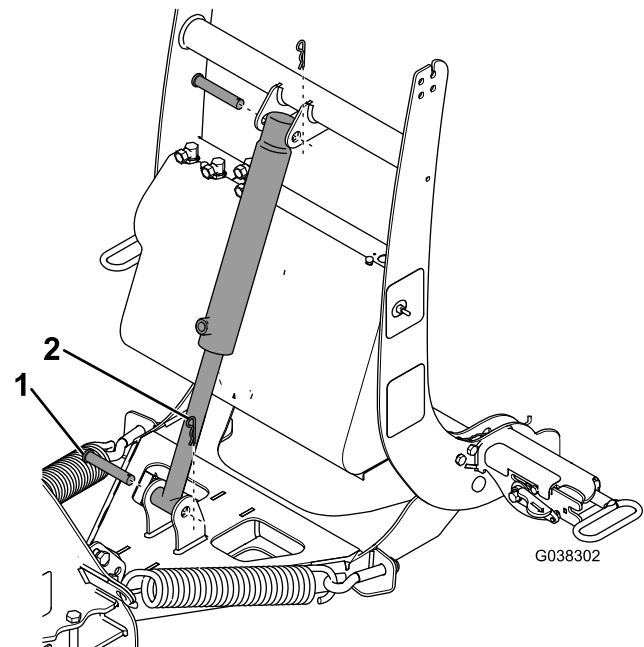


Figure 6

- | | |
|-------------------|--------------------------|
| 1. Hairpin cotter | 2. Clevis pin (5/8 inch) |
|-------------------|--------------------------|

- Secure the free end of the lift cylinder to the coupler tower using a clevis pin and hairpin cotter (Figure 6).

Installing the Hydraulic Hoses

1. Install a swivel fitting to the lower port on the lift cylinder (Figure 7).
2. Install the 45 cm (18 inch) hydraulic hose to the middle fitting on the hydraulic shelf and the lower fitting on the lift cylinder (Figure 7). Turn the fitting until it is finger tight, then turn it 2 to 3 more times.

Important: Do not overtighten.

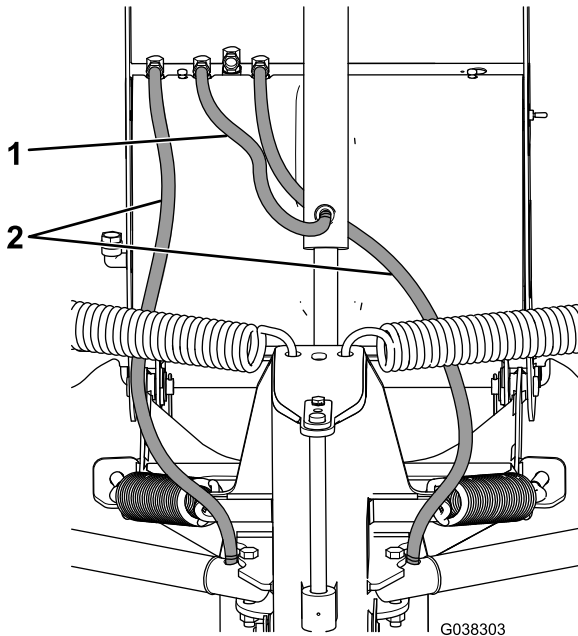


Figure 7

1. 45 cm (18 inch) hose
2. 106 cm (42 inch) hoses

3. Install the O-ring end of the 106 cm (42 inch) hydraulic hose to the port on the right angle cylinder and the other end to the right fitting on the hydraulic shelf (Figure 7). Turn the fitting until it is finger tight, then turn it 2 to 3 more times.

Important: Do not overtighten.

4. Repeat step 3 on the left side.
5. Remove the plug on the upper fitting on the lift cylinder (Figure 8).

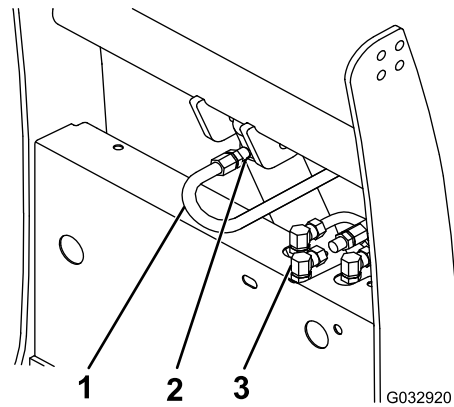


Figure 8

1. 39 cm (15-1/2 inch) hose
2. Upper lift-cylinder fitting
3. Rear fitting

6. Using thread compound, install the 39 cm (15-1/2 inch) hydraulic hose to the upper fitting on the lift cylinder (Figure 8). Turn the fitting until it is finger tight, then turn it 2 to 3 more times.

Important: Do not overtighten.

7. Creating an “S” shape with the hose, connect the free end of the hydraulic hose to the rear fitting on the hydraulic shelf (Figure 8). Turn the fitting until it is finger tight, then turn it 2 to 3 more times.

Important: Do not overtighten.

Installing the Light Bar

1. Secure the light bar to the top of the coupler tower through the rear holes using 4 bolts (3/8 x 1-1/4 inch) and self-locking nuts (3/8 inch) (Figure 9). Torque the bolts to 31 N·m (23 ft-lb).

Note: If the light bar or plow headlights comes in contact with the hood of your vehicle, install the bar using the front holes.

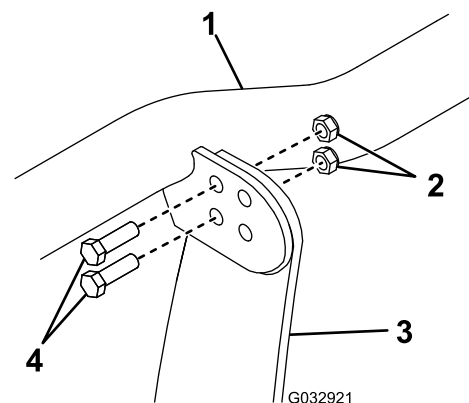


Figure 9

1. Light bar
2. Self-locking nuts (3/8 inch)
3. Coupler tower
4. Bolts (3/8 x 1-1/4 inch)

2. Ensure that the end caps are installed on the ends of the light bar (Figure 10).

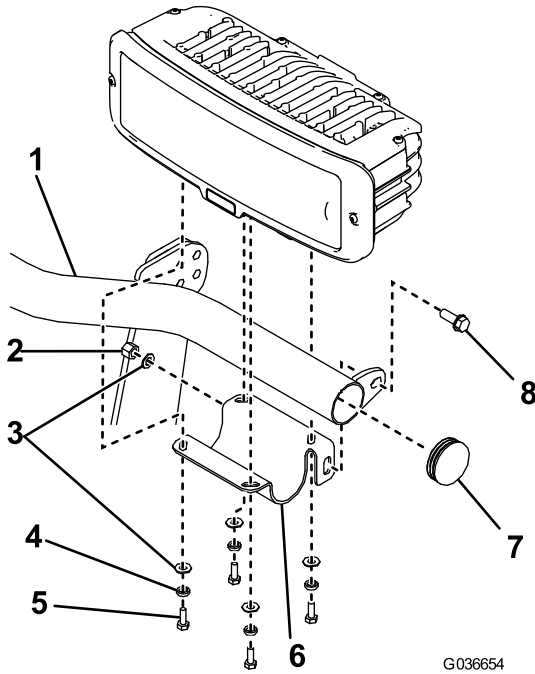


Figure 10

- | | |
|----------------------|------------------------------------|
| 1. Light bar | 5. Bolt (1/4 inch) |
| 2. Nylon locknut | 6. Headlight bracket |
| 3. Flat washer | 7. End cap |
| 4. Split lock-washer | 8. Flange-head bolt (3/8 x 1 inch) |

3. Secure the left headlight-bracket to the light bar using a flange-head bolt (3/8 x 1 inch), a flat washer, and a nylon locknut (Figure 10). Torque the bolts to 31 N·m (23 ft-lb).
4. Secure the left headlight to the headlight bracket using 4 bolts (1/4 inch), split lock-washers, and flat washers (Figure 10).

Note: Do not tighten the fasteners at this time.

5. Repeat steps 3 and 4 for the right headlight bracket and headlight.
6. Insert the headlight connectors on the wire harness to the back of the headlight housing (Figure 11).

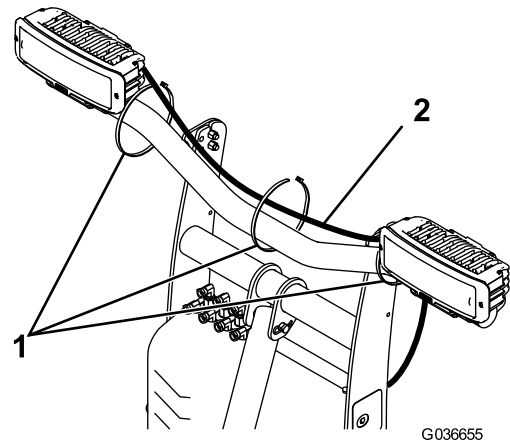


Figure 11

- | | |
|---------------|-----------------------|
| 1. Cable ties | 2. Short wire harness |
|---------------|-----------------------|

7. Secure the short wire harness to the light bar using 3 cable ties as shown in Figure 11.

Installing the Blade Guides and Filling the Hydraulic Reservoir

1. Attach the blade guides to the plow blade using 4 bolts (5/16 inch) and 4 self-locking nuts (Figure 12).

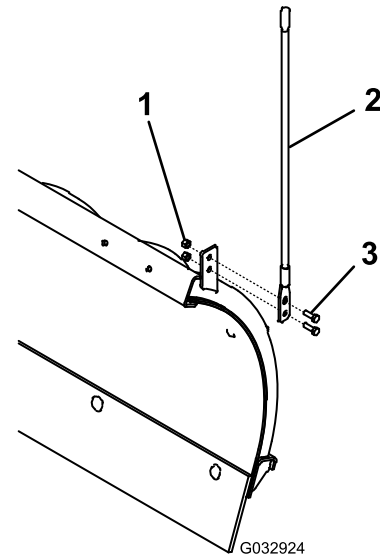


Figure 12

- | | |
|---------------------|---------------------|
| 1. Self-locking nut | 3. Bolt (5/16 inch) |
| 2. Blade guide | |

2. Ensure that the lift cylinder is completely collapsed.

Note: The lights should tilt forward.

3. Remove the fill cap from the hydraulic reservoir (Figure 13).

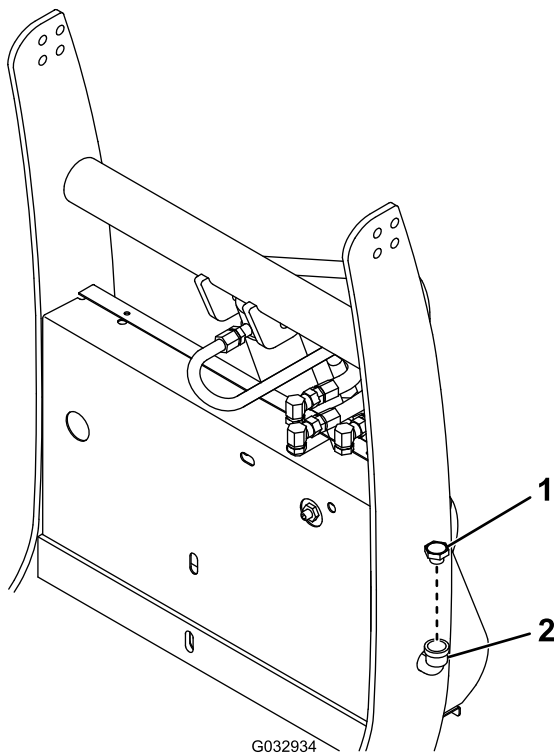


Figure 13

1. Fill cap
2. Hydraulic reservoir

4. Slowly fill the reservoir with BOSS high-performance hydraulic-fluid until it accepts no more.

Note: The reservoir holds approximately 1.9 L (2 US qt) of hydraulic fluid.

5. Install the previously removed fill cap.

Installing the Wire Harness

⚠ DANGER

Vehicle engines contain moving parts and can become extremely hot, capable of causing severe burns and serious bodily harm.

Shut off the engine and allow it sufficient time to cool down before installing this kit.

⚠ DANGER

Vehicle batteries can cause dangerous electrical shocks that could lead to severe burns or death.

Disconnect your battery before installing this kit.

Note: Apply dielectric grease to all electrical connections.

Note: Some vehicles require a turn signal relay kit. Contact your Authorized BOSS Dealer for more information.

Note: If your vehicle requires a headlight adapter kit, refer to [Installing the Headlight Adapters \(page 13\)](#).

1. Disconnect the wire harness plug from the back of the left vehicle headlight ([Figure 14](#)).

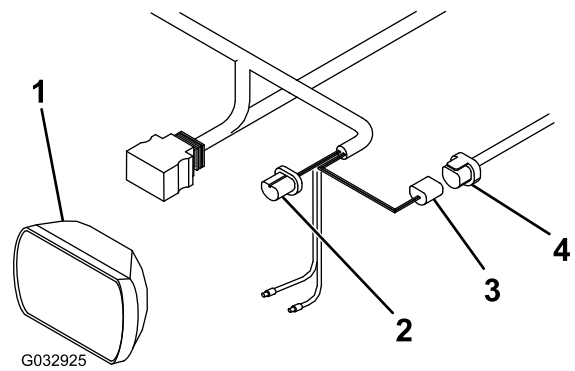


Figure 14

1. Vehicle headlight
 2. Blue plug
 3. Black plug
 4. Vehicle wire-harness plug
2. Connect the blue plug from the long wire harness to the back of the left vehicle headlight ([Figure 14](#)).
 3. Connect the black plug from the long wire harness to the previously disconnected plug on the vehicle wire harness ([Figure 14](#)).
 4. Repeat steps 1 through 3 on the right vehicle headlight.
 5. Connect the pink wire from the long wire harness to the right turn signal wire using a splice connector ([Figure 15](#)).

Important: Identify the circuit with a test lamp before splicing into any electrical circuit to prevent vehicle damage.

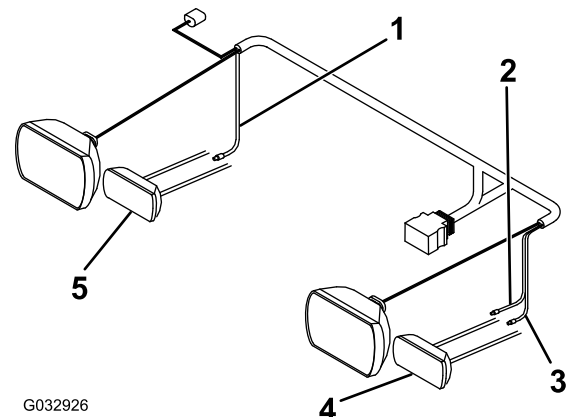


Figure 15

1. Pink wire
 2. Violet wire
 3. Yellow wire
 4. Left turn signal
 5. Right turn signal
6. Connect the violet wire from the long wire harness to the left turn signal wire using a splice connector ([Figure 15](#)).
 7. Connect the yellow wire from the long wire harness to the left park light wire using a splice connector ([Figure 15](#)).

8. Ensure that the vehicle firewall is clear of obstructions.
9. Drill a 3 cm (1-1/4 inch) diameter hole through the firewall on the driver side of the vehicle.

Note: The hole should be in an easily accessible area.

10. Insert the split rubber-grommet into the hole.
11. Pull the plow controller connector, black/red wire, and 2 black wires into the vehicle cab through the hole in the firewall ([Figure 16](#)).

Important: Ensure that all wiring is secured in a position that avoids hot or moving parts to prevent damage to the vehicle or plow.

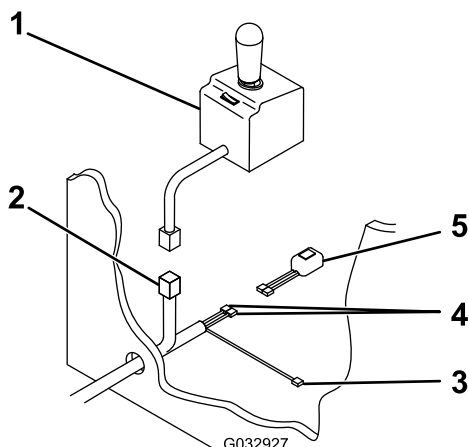


Figure 16

- | | |
|-------------------------|----------------------------|
| 1. Plow controller | 4. Black wires |
| 2. Controller connector | 5. Headlight toggle switch |
| 3. Black/red wire | |

12. Connect the 2 black wires to the headlight toggle switch ([Figure 16](#)).
13. Determine where you will mount the headlight toggle switch and clean the area thoroughly.
- Note:** Allow the area to dry completely after cleaning.
14. Remove the adhesive backing and press the toggle switch to the clean area of the dashboard for 30 seconds.
15. Plug the plow controller connector into the plow controller.
16. Mount the plow controller; refer to [Mounting the Plow Controller](#) (page 14).
17. Connect the black/red wire to a keyed 12 V + ignition source.

Note: Connecting the wire to a source that is not keyed can cause the battery to drain.

18. Connect the white/black wire from the long wire harness to the small post on the pump solenoid ([Figure 17](#)).

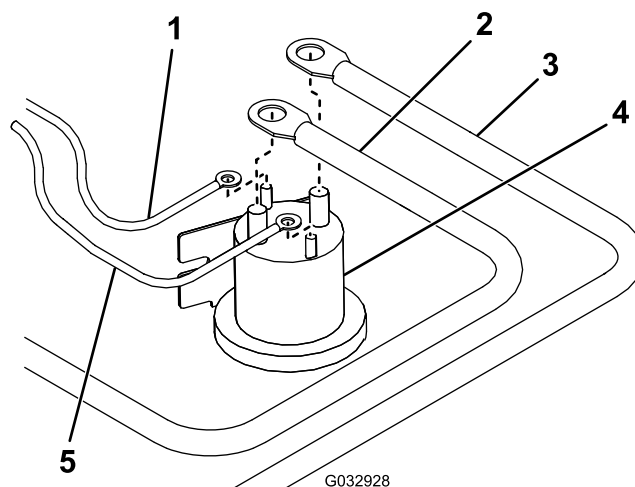


Figure 17

- | | |
|---------------------------|------------------|
| 1. White/black wire | 4. Pump solenoid |
| 2. Battery cable | 5. Brown wire |
| 3. Red power/ground cable | |

19. Connect the brown wire from the long wire harness to the other small post on the pump solenoid ([Figure 17](#)).
- Note:** The wires may go on either small post, but should not share a post.
20. Mount the pump solenoid inside the engine compartment of the vehicle, ensuring that it stays in an upright position and does not contact the body, hood, or other conductive material on the vehicle.
21. Connect the red power/ground cable to the large post on the pump solenoid ([Figure 17](#)).
22. Connect the battery cable to the other large post on the pump solenoid ([Figure 17](#)).
- Note:** The wires may go on either large post, but should not share a post.
23. Connect the black power/ground cable to the negative (-) battery terminal ([Figure 18](#)).

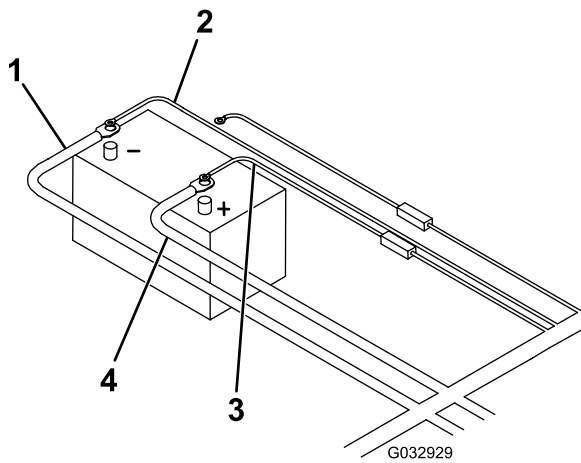


Figure 18

1. Black power/ground cable
2. Brown wire
3. Red fused wire
4. Battery cable

24. Connect the brown wire to the negative (-) battery terminal (Figure 18).
25. Connect the free end of the battery cable to the positive (+) battery terminal (Figure 18).
26. Connect the red, fused wire to the positive (+) battery terminal (Figure 18).
27. Mount the truck-side, wire-harness plow connector to the lower part of the bumper using the control-harness mounting-bracket (Figure 19).

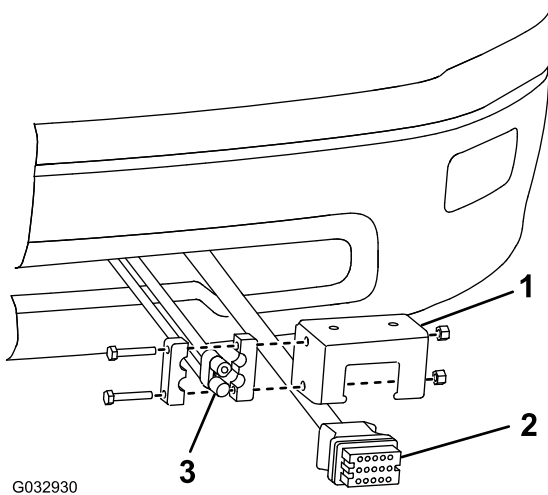


Figure 19

1. Control-harness mounting-bracket
2. Plow connector
3. Power/ground connector

28. Mount the black and red power/ground connector to the control harness mounting bracket (Figure 19).
29. Mount the relay pack to the inside of the engine compartment using 4 sheet-metal screws (Figure 20).

Note: Ensure that the relay pack is mounted in the upright position.

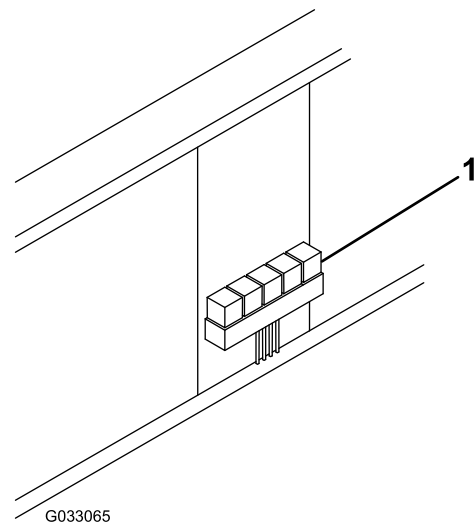


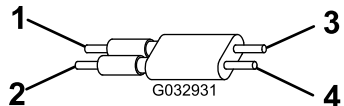
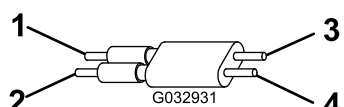
Figure 20

1. Relay pack

30. Locate the vehicle option connector and align it according to the table below:

Note: If your vehicle is not listed in the table, use the standard orientation.

Note: If the vehicle option connector is not properly oriented, the lights on the plow do not function correctly.

Models	Orientation
1992 and newer Ford models 1988 and newer GM models 2003 and newer Dodge models Dodge models with a 4-headlight system	Standard Orientation  1. Red/yellow wire 2. White/yellow wire 3. Red/yellow wire 4. White/yellow wire
1987 and older GM models with a 4-headlight system 1987 to 1991 Ford models (9004 bulb) 1994 to 2002 Dodge models with a 2-headlight system (9004 bulb)	Reverse Orientation  1. White/yellow wire 2. Red/yellow wire 3. Red/yellow wire 4. White/yellow wire

31. Connect the red/white wire to the battery according to the table below:

Note: If the red/white wire is installed incorrectly, the low beams do not illuminate when the plow high-beams are on.

Models	Wire Placement
1999 to 2002 Chevrolet and GMC models 1999 to 2002 Dodge models 2000 to 2006 Toyota models	Negative (-) battery terminal
All other vehicles	Positive (+) battery terminal

32. Secure the wire harness.
33. Attach the snowplow to the vehicle; refer to [Mounting the Plow \(page 19\)](#).
34. Test the wire harness installation as follows:

Note: Turn the ignition to the ON position before testing.

Note: If any of the lights fail to work, check the wiring and make any corrections.

- A. To test the vehicle low-beam lights, do the following:
 - Switch the vehicle headlights to the ON position.
 - Switch the plow headlight toggle switch to the TRUCK position.
 - Ensure that the low-beam light indicator on the vehicle is illuminated.

Only the vehicle low-beam lights should be illuminated.

- B. To test the vehicle high-beam lights, do the following:
 - Switch the vehicle headlights to the HIGH-BEAM position.
 - Switch the plow headlight toggle switch to the TRUCK position.
 - Ensure that the high-beam light indicator on the vehicle is illuminated.

Only the vehicle high-beam lights should be illuminated.

- C. To test the plow low-beam lights, do the following:
 - Switch the vehicle headlights to the ON position.
 - Switch the plow headlight toggle switch to the PLOW position.
 - Ensure that the low-beam light indicator on the vehicle is illuminated.

Only the plow low-beam lights should be illuminated.

- D. To test the plow high-beam lights, do the following:
 - Switch the vehicle headlights to the HIGH-BEAM position.

- Switch the plow headlight toggle switch to the PLOW position.
- Ensure that the high-beam light indicator on the vehicle is illuminated.

Only the plow high-beam and low-beam lights should be illuminated.

- E. To test the plow and vehicle turn signals, do the following:
 - Activate the left or right vehicle turn signal.
 - Ensure that the appropriate vehicle turn-signal indicator is illuminated.

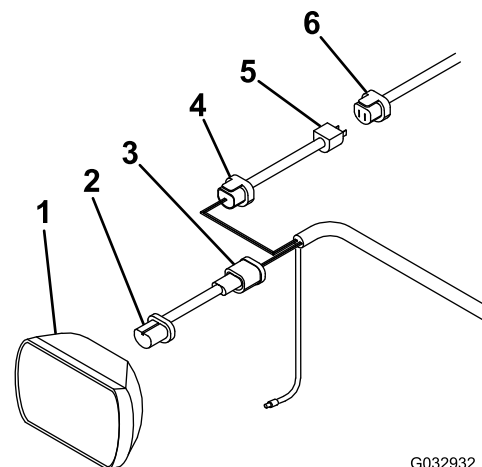
Both the vehicle and plow turn signals should flash.
 - F. To test the plow and vehicle park lights, activate the vehicle park lights.
- All the plow and vehicle park lights should be on.

Installing the Headlight Adapters

Optional

For Two-Headlight Vehicles

1. Disconnect the wire harness plug from the back of the left vehicle headlight ([Figure 21](#)).



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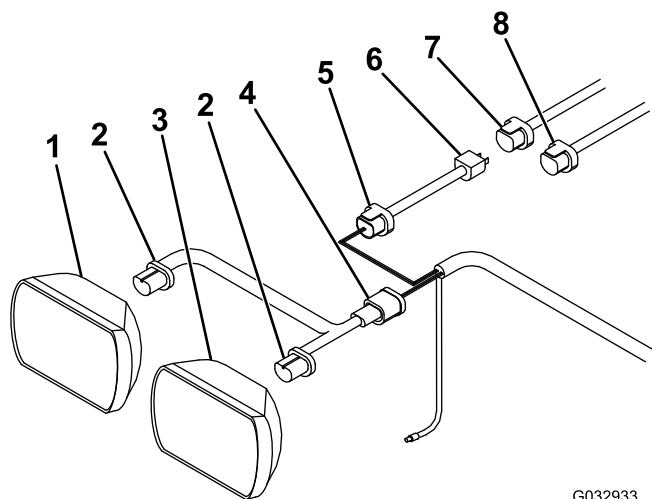
Figure 21

- | | |
|----------------------|------------------------------|
| 1. Vehicle headlight | 4. Blue plug |
| 2. Headlight adapter | 5. Headlight adapter |
| 3. Black plug | 6. Vehicle wire-harness plug |
-
2. Connect the headlight adapter to the back of the left vehicle headlight ([Figure 21](#)).
 3. Connect the black plug from the headlight adapter to the long wire harness ([Figure 21](#)).

4. Connect the blue plug from the headlight adapter to the blue plug on the long wire harness (Figure 21).
5. Connect the free end of the headlight adapter to the previously disconnected plug on the vehicle wire harness (Figure 21).
6. Repeat steps 1 through 5 on the right vehicle headlight.
7. Continue the wire harness installation from step 5 of [Installing the Wire Harness](#) (page 10).

For Four-Headlight Vehicles

1. Disconnect the wire harness plugs from the back of the left vehicle headlights (Figure 22).



G032933

Figure 22

- | | |
|----------------------------|---------------------------|
| 1. Outer vehicle headlight | 5. Blue plug |
| 2. Headlight adapter | 6. Headlight adapter |
| 3. Inner vehicle headlight | 7. Vehicle low-beam plug |
| 4. Black plug | 8. Vehicle high-beam plug |

2. Connect the 2 ends of the headlight adapter to the back of the left vehicle headlights (Figure 22).
3. Connect the black plug from the headlight adapter to the long wire harness (Figure 22).
4. Connect the blue plug from the headlight adapter to the blue plug on the long wire harness (Figure 22).
5. Connect the free end of the headlight adapter to the previously disconnected low-beam plug on the vehicle wire harness (Figure 22).
6. Grease, tuck, and secure the previously disconnected high-beam plug on the vehicle wire harness (Figure 22).

Note: You will not use this connector.

7. Repeat steps 1 through 6 on the right vehicle headlights.
8. Continue the wire harness installation from step 5 of [Installing the Wire Harness](#) (page 10).

Mounting the Plow Controller

Mounting the Joystick Controller

Note: Mount the controller in the cab in a dry area where it does not interfere with vehicle operation or visibility.

⚠ DANGER

The controller could cause serious injury if contacted during a crash.

Mount the controller in a location that vehicle occupants will not contact during a crash.

1. Determine the best location and configuration for your controller mounting-bracket; refer to [Figure 23](#) for possible configurations.
2. Secure the mounting brackets to the vehicle and joystick controller using 8 to 10 bolts (#8), washers (#10), and nuts (#8) as shown in [Figure 23](#).
3. Continue the wire harness installation from step 17 of [Installing the Wire Harness](#) (page 10).

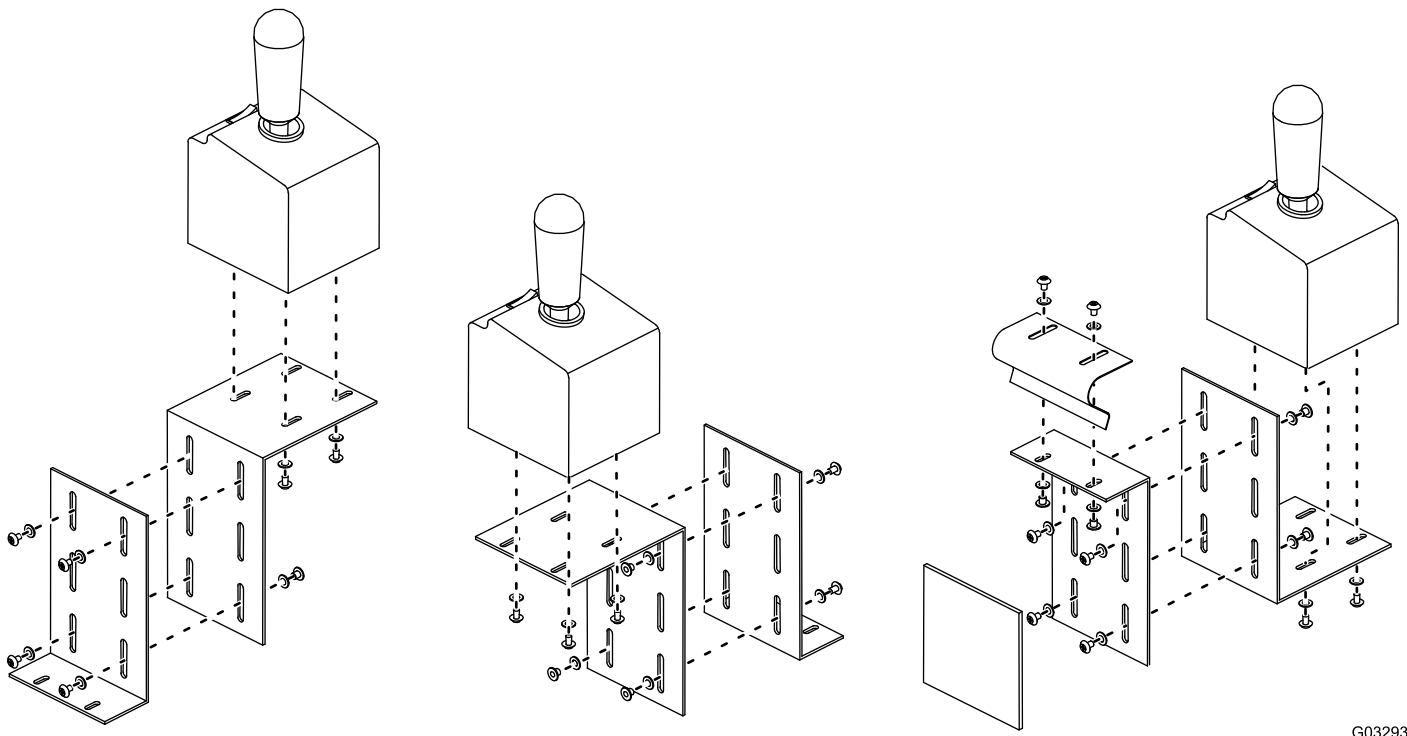


Figure 23

G032937

Mounting the SmartTouch2™ Controller

Note: Mount the controller in the cab in a dry area where it does not interfere with vehicle operation or visibility.

Important: Do not install the swivel mount when temperatures are below 16 °C (60 °F).

⚠ DANGER

The controller could cause serious injury if contacted during a crash.

Mount the controller in a location that vehicle occupants will not contact during a crash.

1. Determine the mounting location for the controller.
2. Clean the location with the provided alcohol wipe and dry it with a cloth or paper towel.
3. Clean the back of the swivel mount (Figure 24) with the alcohol wipe and then dry it.

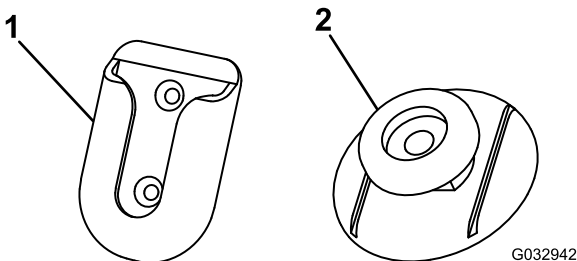


Figure 24

G032942

1. Swivel mount
2. Mounting tab

4. Remove the backing from 1 side of the adhesive and apply it to the back of the swivel mount.
5. Remove the remaining backing from the swivel-mount adhesive and press the swivel mount to the clean area of the dashboard for 30 seconds.

Important: Once the mount is placed, you cannot remove it without destroying the adhesive.

6. Clean the back of the controller with the alcohol wipe and then dry it.
7. Remove the backing from 1 side of the adhesive and apply it to the back of the mounting tab (Figure 24).
8. Remove the remaining backing from the controller adhesive and press the mounting tab to the controller for 30 seconds.
9. Let the swivel mount rest unused for 72 hours before sliding the controller into the mounting bracket.

Important: Mounting the controller immediately may cause the adhesive to fail.

10. Continue the wire harness installation from step 17 of [Installing the Wire Harness \(page 10\)](#).

Mounting the Snowplow

Refer to [Mounting the Snowplow \(page 15\)](#) to mount the plow.

Aiming the Headlights

Important: Certify that the installation of the snowplow lights conforms to applicable federal motor vehicle safety standards.

1. Park the vehicle on a level surface 7.5 m (25 ft) away from a matte white screen or garage door.
Note: The screen should be perpendicular to both the ground and the front of the vehicle.
2. Ensure that the vehicle is equipped for normal operation with the snowplow attached and in the raised position.
3. Perform the following actions to ensure optimal headlight alignment:
 - Remove any ice or mud from under the fenders.
 - Ensure that all tires are fully and evenly inflated.
 - Check vehicle springs for sag or broken leaves.
 - Check the function of any level ride controls.
 - Stabilize the suspension by rocking the vehicle sideways.
 - Ensure that there is no load in the vehicle other than the driver.
 - Clean the headlights and matte white screen.
4. Mark the vertical vehicle centerline on the screen (Figure 25).

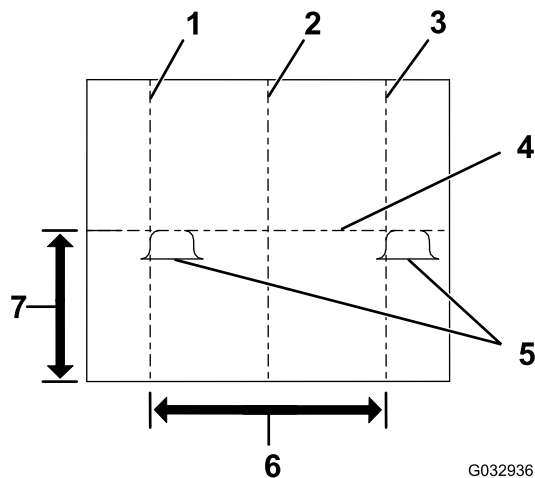


Figure 25

- | | |
|--|--|
| 1. Vertical left headlight centerline | 5. Brightest points |
| 2. Vehicle centerline | 6. Distance between headlight centers |
| 3. Vertical right headlight centerline | 7. Distance from ground to headlight centers |
| 4. Horizontal headlight centerline | |

6. Mark the horizontal headlight centerline on the screen (Figure 25).

Note: The horizontal headlight centerline should be the distance from the ground to the center of the headlight.

7. Adjust the plow headlights until the brightest part of the plow low-beam lights are aligned as shown in Figure 25.
8. Tighten the 4 bolts securing each headlight to the headlight brackets and torque them to 8 N·m (6 ft-lb).

Checking the Installation

1. Park the vehicle on a level surface and lower the plow in the V-position. If the plow is not flush against the ground, proceed to step 2. If the plow is flush against the ground, proceed to step 6.
2. Loosen the nut securing the long bolt on the push-frame assembly, as shown in Figure 26.

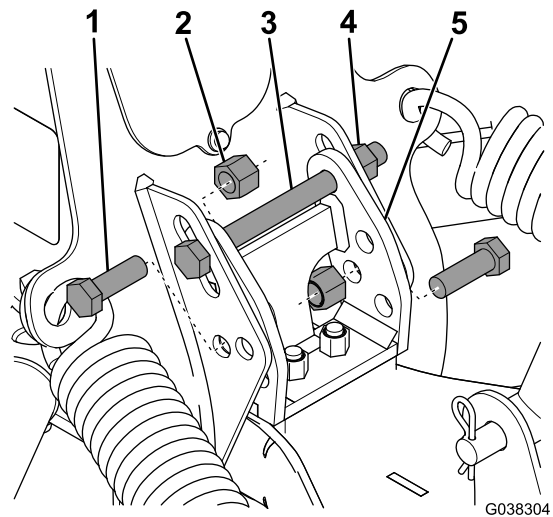


Figure 26

- | | |
|-----------------|------------------------|
| 1. Short bolt | 4. Nut (loosen) |
| 2. Nut (remove) | 5. Bumper-stop bracket |
| 3. Long bolt | |

3. Remove the 2 short bolts and nuts, as shown in Figure 26.
4. Raise or lower the bumper-stop bracket to the desired height (Figure 26).
5. Install the previously removed short bolts and nuts, and tighten the nuts on the long bolt (Figure 26). Torque the nuts to 76 N·m (56 ft-lb).
6. Raise the plow and then lower the blade in the scoop position. If the plow is not flush against the ground, repeat steps 2 through 5 to level the plow.

5. Mark the vertical headlight centerline on the screen (Figure 25).

Product Overview

Controls

Become familiar with all the controls before you operate the plow.

SmartHitch2 Switch

The SmartHitch2 switch controls the movement of the coupler tower to facilitate plow attachment and removal. Press the switch up to raise the tower and down to lower the tower.

Couplers

The couplers secure the plow to the vehicle push beam. Turn the levers toward the coupler tower to turn on the spring pins. Turn the levers away from the coupler tower to turn off the spring pins.

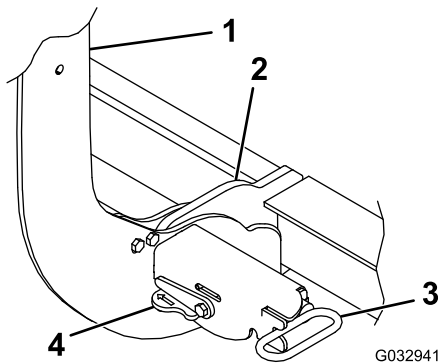


Figure 27

- | | |
|------------------|-----------------------|
| 1. Coupler tower | 3. Coupler spring-pin |
| 2. Pin receiver | 4. Coupler lever |

Joystick Controller

The joystick controller operates the movement of the snowplow. You can rotate the Raise/Lower switch for right or left hand operation by pulling up the joystick and rotating it to the desired position.

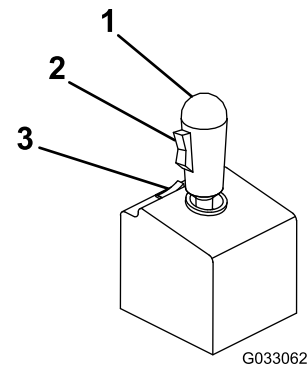


Figure 28

- | | |
|-----------------------|------------------|
| 1. Joystick | 3. On/Off switch |
| 2. Raise/Lower switch | |

- On/Off switch—turns the plow controller on and off. A red light illuminates when the controller is on.

Note: Turn off the controller when not in use to prevent accidental activation of the plow.

- Raise/Lower switch—raises or lowers the plow blade. Press the switch up to raise the plow. Press the switch down to lower the plow.
- Directional joystick—controls the direction that the plow moves
 - To activate the Float feature, pull the joystick back until it clicks into the detent position, allowing the plow blade to follow the contour of the ground. The joystick stays in the Float position until it is centered again.
 - To move the right plow wing out, push the joystick diagonally right and forward.
 - To move the left plow wing out, push the joystick diagonally left and forward.
 - To make the scoop shape with the plow, move both wings out and push the joystick forward.
 - To move the right plow wing in, pull the joystick diagonally right and backward.
 - To move the left plow wing in, pull the joystick diagonally left and backward.
 - To angle the entire plow blade right, move the right wing in, the left wing out, and push the joystick right.
 - To angle the entire plow blade left, move the right wing out, the left wing in, and push the joystick left.

SmartTouch2 Controller

The SmartTouch2 controller operates the movement of the snowplow.

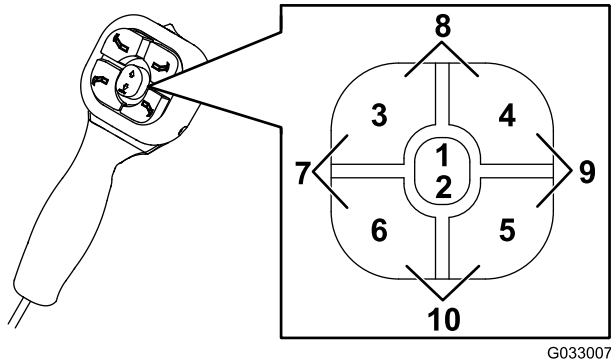


Figure 29

- | | |
|--------------------------|------------------------|
| 1. Raise button | 6. Left Wing In button |
| 2. Lower/Float button | 7. Angle left |
| 3. Left Wing Out button | 8. Scoop |
| 4. Right Wing Out button | 9. Angle right |
| 5. Right Wing In button | 10. V |

- On/Off switch—turns the plow controller on and off. A green light illuminates when the controller is on.

Note: Turn off the controller when not in use to prevent accidental activation of the plow.

- Raise button—raises the plow blade. Pressing the button quickly twice automatically raises the blade.
- Lower/Float button—lowers the plow blade and activates the Float feature. Pressing the button quickly twice automatically lowers the blade and activates the Float feature, allowing the plow blade to follow the contour of the ground. A red light illuminates when the Float feature is active.
- Left Wing Out button—moves the left wing out
- Right Wing Out button—moves the right wing out
- Left Wing In button—moves the left wing in
- Right Wing In button—moves the right wing in
- Sleep mode—If you do not use the controller for 20 minutes, it enters sleep mode and the controller lights flash green and red. Turn the controller off and on again to deactivate the sleep mode.

To perform different tasks, you can configure the plow wings as follows:

- To angle the entire plow blade right, press the Right Wing In and Right Wing Out buttons simultaneously until the blades are fully angled.
- To angle the entire plow blade left, press the Left Wing In and Left Wing Out buttons simultaneously until the blades are fully angled.

- To make the scoop shape with the plow, press the Left Wing Out and Right Wing Out buttons simultaneously until the blades are fully extended.
- To make the “V” shape with the plow, press the Left Wing In and Right Wing In buttons simultaneously until the blades are fully retracted.

Headlight Toggle Switch

The headlight toggle switch controls which set of headlights is being used. Move the switch to the TRUCK position to use the headlights on the vehicle. Move the switch to the PLOW position to use the headlights on the plow.

Operation

Mounting the Plow

Note: The vehicle must be running before starting this procedure.

1. Activate the FLOAT feature on your plow controller.
2. Line up the vehicle with the snowplow and slowly drive forward until the lower pin contacts the push-beam pin receiver (Figure 30).

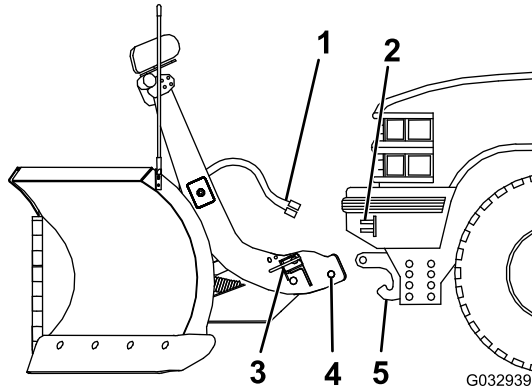


Figure 30

1. Plow wire harness
2. Vehicle wire harness
3. Coupler
4. Lower pin
5. Pin receiver

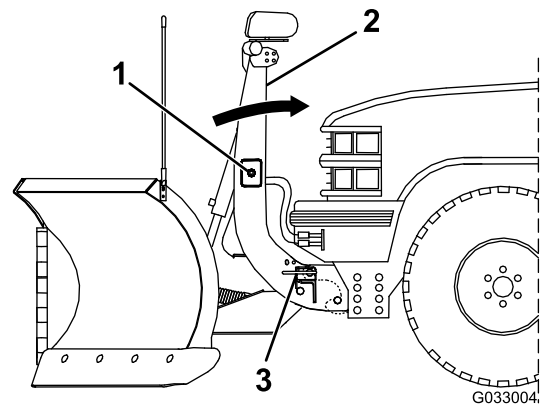


Figure 32

1. SmartHitch2 switch
2. Coupler tower
3. Coupler spring pin

6. Ensure that both coupler spring pins have fully engaged the coupler (Figure 31).

Note: Move the coupler tower until the spring pins engage completely.

7. Switch the headlight toggle switch to the PLOW position.

3. Turn the levers on the couplers to the ON position (Figure 31).

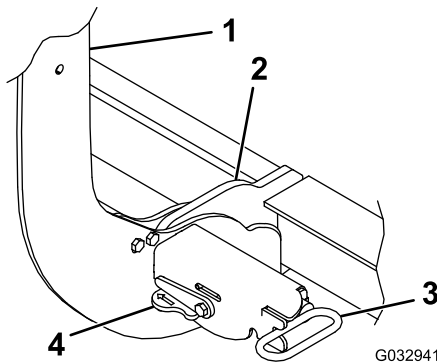


Figure 31

1. Coupler tower
2. Pin receiver
3. Coupler spring pin
4. Coupler lever

4. Remove the electrical-plug dust-covers and connect the plow wire harness to the vehicle wire harness (Figure 30).
5. Push the SmartHitch2 switch on the side of the coupler tower upward and raise the tower until the coupler spring pins snap in (Figure 32).

Checking the Hydraulic Fluid Level

1. With the plow mounted to the vehicle, lower the plow to the ground and ensure that it is in the straight position.
2. Clean the area around the fill cap (Figure 33).

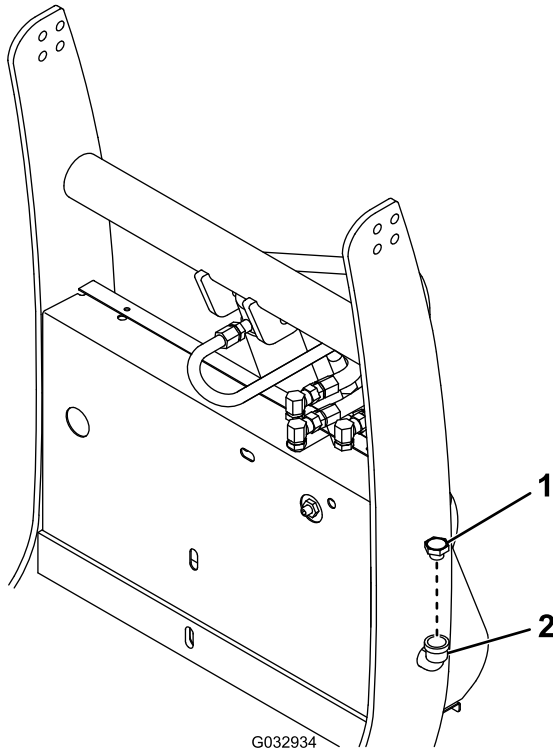


Figure 33

1. Fill cap
2. Fill elbow

4. Slowly fill the reservoir with BOSS high-performance hydraulic fluid to the bottom of the fill elbow (Figure 34).

Note: The reservoir holds approximately 1.9 L (2 US qt) of hydraulic fluid.

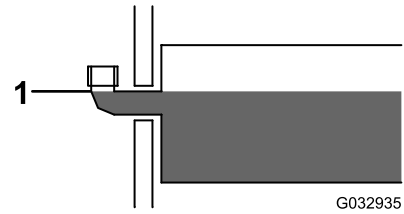


Figure 34

5. Install the previously removed fill cap.
6. Start the vehicle and operate the plow in its full range of movement.
7. Stop the vehicle, check the hydraulic-fluid level, and replenish the fluid if necessary; refer to [Checking the Hydraulic Fluid Level](#) (page 20).

3. Remove the fill cap from the hydraulic reservoir (Figure 33).
4. Ensure that the fluid comes up to the bottom of the fill elbow. If it does not, add more hydraulic fluid; refer to [Adding Hydraulic Fluid](#) (page 20).
5. Install the previously removed fill cap.

Adding Hydraulic Fluid

1. Ensure that the lift cylinder is completely collapsed.

Note: The lights should tilt forward.

Important: Do not manually pull the tower down. This can cause an air pocket to form in the hydraulic system and fluid to spill out of the internal filler cap.

2. Clean the area around the fill cap (Figure 33).
3. Remove the fill cap from the hydraulic reservoir (Figure 34).

Troubleshooting

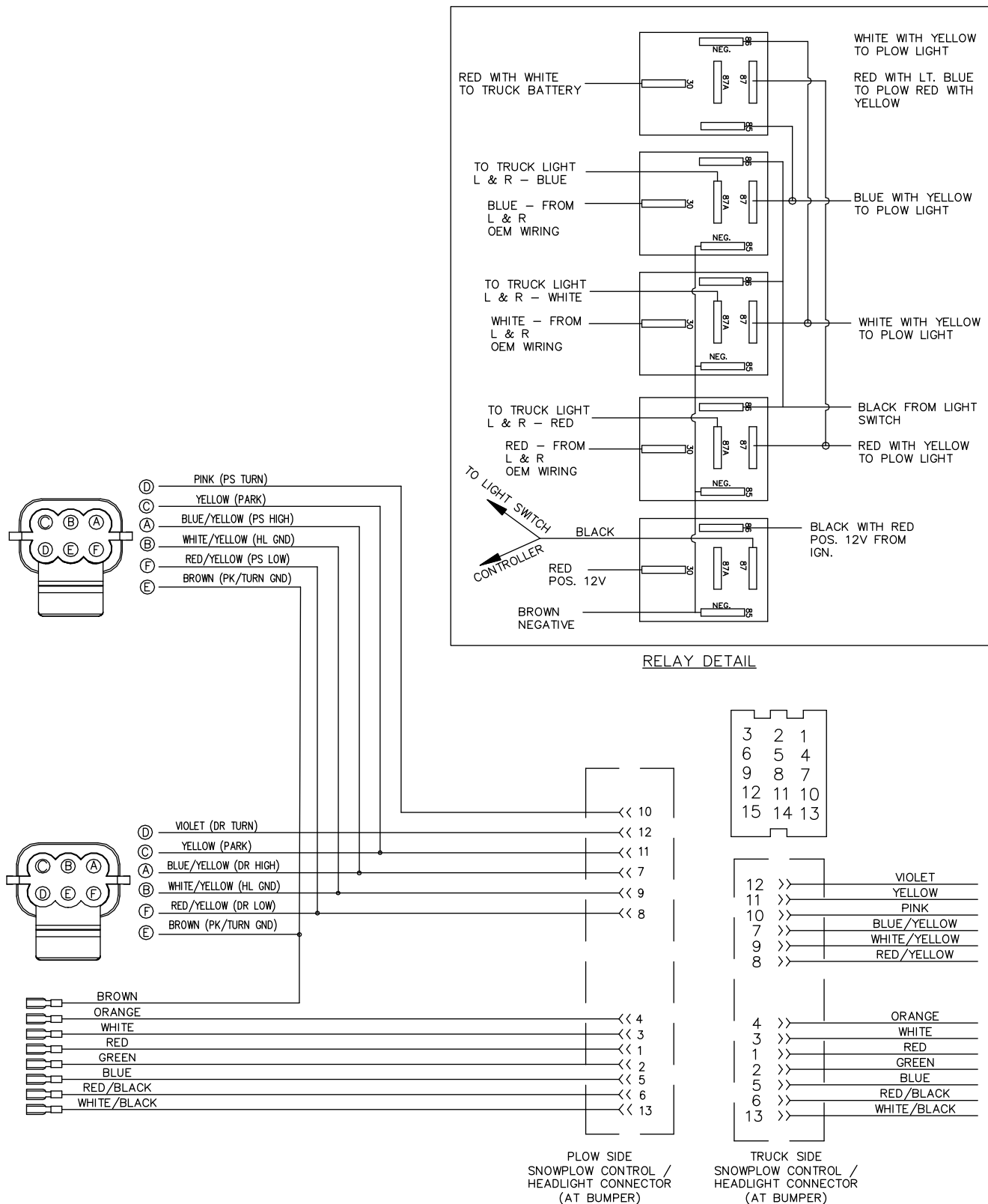
Problem	Possible Cause	Corrective Action
The pump motor does not run.	<ol style="list-style-type: none"> 1. Check that the power/ground cables and control cables are connected properly. 2. Check for voltage at the pump motor while the ignition switch is on and the RAISE button is pressed on the controller. 3. Check for power to the solenoid by testing for voltage between both large terminals and ground. 4. Check for voltage between the other large terminal of the solenoid and ground while jumping power to the small terminal with the white/black wire. 5. Test the power to the controller by checking the voltage between the black wire and ground at the white 9-pin connector. 	<ol style="list-style-type: none"> 1. Connect the cables if they are not connected. 2. If voltage is present, the pump motor has failed or the pump has seized. Motor brushes may be replaced, otherwise replace the pump/motor assembly. 3. If voltage is not present between one large terminal and ground, the cable between the battery and the solenoid is disconnected or broken. 4. If no voltage is present, the solenoid has failed and must be replaced. If voltage is present, the wire from the small terminal of the solenoid to ground may be disconnected or broken. 5. If no voltage is present, power from the relay has become disconnected. If voltage is present, check the wiring and controller switches.
The pump continues to run while the switch is in neutral.	<ol style="list-style-type: none"> 1. Disconnect the controller and turn the ignition on. 2. Disconnect the controller and turn the ignition on. 	<ol style="list-style-type: none"> 1. If the pump continues to run, the solenoid has failed in the closed position. Quickly remove power to the pump by disconnecting the power/ground cables to the plow. Replace the solenoid. 2. If the pump stops running, check the wiring of the controller for a short between the black and white/black wire in the controller, or a failed switch.
The plow does not lower.	<ol style="list-style-type: none"> 1. Check that the power/ground cables and control cables are connected properly. 2. Check the flow-control valve. 3. Check the wiring on the valve block for proper connections. 4. Check for voltage between the solenoid valve terminal and ground while the ignition switch is on and the controller is in the FLOAT position. 5. Test the power to the control box by checking the voltage between the black wire and ground at the white 9-pin connector. 	<ol style="list-style-type: none"> 1. Connect the cables if they are not connected. 2. If the flow-control valve is completely closed, place the controller in neutral, then open the flow-control valve. 3. Refer to the wiring diagram included with your <i>Owner's Manual</i>. 4. If voltage is present, the solenoid valve or valve coil has failed. Replace the valve or valve coil. 5. If no voltage is present, power from the relays has become disconnected. If voltage is present, check the wiring and switch off the controller.

Problem	Possible Cause	Corrective Action
The plow does not raise or raises slowly.	<ol style="list-style-type: none"> 1. Check the hydraulic-fluid level. 2. Check that the power/ground cables and the control cable are connected properly. 3. Check the wiring on the valve block for proper connections. 4. Load a test battery. 5. Check the pressure at the pressure port of the pump. 6. Check the RAISE control solenoid valve. 7. Check the LOWER control solenoid valve. 	<ol style="list-style-type: none"> 1. The hydraulic-fluid level should be within 2 cm (3/4 inch) of the top of the reservoir when lowered. 2. Connect the cables if they are not connected. 3. Refer to the manifold wiring diagram included with your <i>Owner's Manual</i>. 4. Replace the battery if it is weak or defective. 5. If the pressure is less than 2,500 psi (at the end of the lift), the motor brushes may be defective, the pump pressure relief valve may be contaminated, damaged, or set to less than 2,500 psi, or the pump may be worn. 6. If the RAISE solenoid valve is not opening completely, replace it. 7. The LOWER solenoid valve may be stuck open. Replace it.
While trying to raise the plow, the wing(s) extend prior to raising the plow and do(es) not retract.	<ol style="list-style-type: none"> 1. Check the pressure and return line routing. 	<ol style="list-style-type: none"> 1. The pressure line must be connected from the "P" on the pump to the "P" on the valve manifold. The return line must be connected from the "T" on the pump to the "T" on the valve manifold.
The wings drift back when extended.	<ol style="list-style-type: none"> 1. Check the wing-return-solenoid valve on the manifold. 2. Check the pressure 	<ol style="list-style-type: none"> 1. If the solenoid valve is contaminated, clean or replace it. 2. If the pressure-relief valve is contaminated, clean or replace it.
The plow lowers too fast.	<ol style="list-style-type: none"> 1. Check the flow-control valve. 	<ol style="list-style-type: none"> 1. Close the flow-control valve to the desired drop speed.
The wing(s) do(es) not extend or extend slowly when the motor runs.	<ol style="list-style-type: none"> 1. Check the hydraulic-fluid level. 2. Check that the power/ground cables and control cable are connected properly. 3. Check the wiring on the valve block for proper connections. 4. Load a test battery. 5. Check the pressure at the pressure port of the pump. 6. Check the Wing Out control solenoid valve. 7. Check the wiring and control box. 	<ol style="list-style-type: none"> 1. The hydraulic-fluid level should be within 2 cm (3/4 inch) of the top of the reservoir when lowered and in the V position. 2. Connect the cables if they are not connected. 3. Refer to the wiring diagram included with your <i>Owner's Manual</i>. 4. Replace the battery if it is weak or defective. 5. If the pressure is less than 2,500 psi (at the end of the lift), the motor brushes may be defective, the pump pressure relief valve may be contaminated, damaged, or set to less than 2,500 psi, or the pump may be worn. 6. If the Wing Out solenoid valve is not opening completely, replace it. 7. Refer to the wiring diagram included with your <i>Owner's Manual</i>.

Problem	Possible Cause	Corrective Action
The wing(s) extend, but do(es) not retract or retract slowly.	<ol style="list-style-type: none"> 1. Check that the power/ground cables and control cable are connected properly. 2. Check the wiring on the valve block for proper connections. 3. Check for voltage between the solenoid valve terminal and ground while the ignition switch is on and the controller is in the WING IN position. 	<ol style="list-style-type: none"> 1. Connect the cables if they are not connected. 2. Refer to the wiring diagram included with your <i>Owner's Manual</i>. 3. If voltage is present, the solenoid valve or valve coil has failed. Verify the magnetism. If there is none, replace the valve. Check the wiring and controller.
The plow wings do not extend or retract.	<ol style="list-style-type: none"> 1. If the status light on the plow module is green but not blinking, the controller is not communicating correctly. 2. If the status light on the plow module is orange, the plow module may be wired incorrectly. 3. If the status light on the plow module is blinking orange or red, there is a problem with the module driver. 4. If the status light on the plow module is off, the plow module is not getting power. 	<ol style="list-style-type: none"> 1. Check the controller connections. Replace the controller if it is broken. 2. Refer to the wiring diagram included with your <i>Owner's Manual</i>. 3. Check the module connections for shorts. Replace the module if it is broken. 4. Check that the controller is on and that all of the plugs are connected.
The wing(s) retract too easily while plowing.	<ol style="list-style-type: none"> 1. The pressure-relief valve pressure is set too low. 	<ol style="list-style-type: none"> 1. See an authorized BOSS dealer for pressure-relief-valve adjustment.
The plow angles while plowing.	<ol style="list-style-type: none"> 1. Check the ANGLE control solenoid valve. 2. Check that the pressure relief valve is not contaminated. 3. Check that the pressure relief valve is set correctly. 	<ol style="list-style-type: none"> 1. If the ANGLE control solenoid valve is contaminated, clean or replace it. 2. If the pressure relief valve is contaminated, clean or replace it. 3. If the pressure is set too low, contact your authorized BOSS dealer.
The plow does not angle or angles slowly.	<ol style="list-style-type: none"> 1. Check the hydraulic-fluid level. 2. Check that the power/ground cables and the control cable are connected properly. 3. Check the wiring on the valve block for proper connections. 4. Load a test battery. 5. Check the ANGLE control solenoid valve. 	<ol style="list-style-type: none"> 1. The hydraulic-fluid level should be within 2 cm (3/4 inch) of the top of the reservoir when lowered. 2. Connect the cables if they are not connected. 3. Refer to the manifold wiring diagram included with your <i>Owner's Manual</i>. 4. Replace the battery if it is weak or defective. 5. If the ANGLE solenoid valve is not opening completely, replace it.
Oil leaks from the lift cylinders.	<ol style="list-style-type: none"> 1. Inspect the fittings and O-rings. 2. Check the rod condition. 	<ol style="list-style-type: none"> 1. Tighten loose fittings. See your authorized BOSS dealer for a seal kit. 2. If the rods are pitted or rough, polish them with a copus cloth or extra fine steel wool.
The vehicle battery dies when the vehicle is turned off.	<ol style="list-style-type: none"> 1. Verify that the plow was installed to a keyed fuse source. 	<ol style="list-style-type: none"> 1. Refer to the wiring diagram included with your <i>Owner's Manual</i>.
The vehicle battery dies when all of the switches are in the NEUTRAL position.	<ol style="list-style-type: none"> 1. Inspect the controller wiring for a short. 2. Inspect the wire harness for a short. 3. Inspect the valve coils for a short. 	<ol style="list-style-type: none"> 1. If there is a short, repair or replace the controller. 2. If there is a short, repair or replace the wire harness. 3. If there is a short, replace the valve coils.

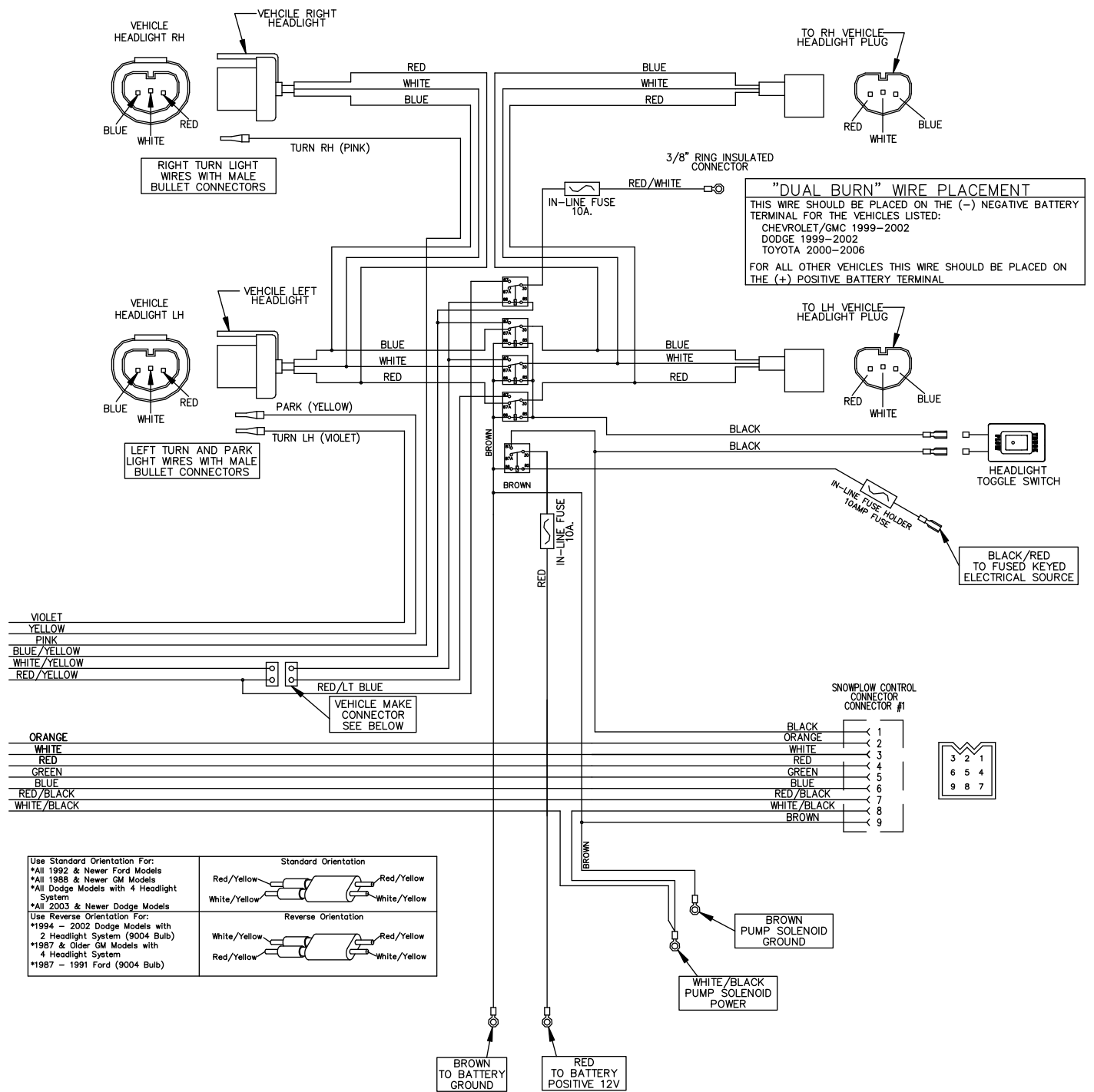
Problem	Possible Cause	Corrective Action
The plow lights are dim, do not come on, or flicker.	<ol style="list-style-type: none"> 1. Check the electrical connections. 2. Check the headlight adapter wires. 3. Check the relays for corrosion and function. 	<ol style="list-style-type: none"> 1. Clean and repair any corroded or damaged terminals. 2. Verify that the proper headlight adapters are being used and are correctly installed. 3. The relays should click when energized.
The turn signals flash at a rapid rate.	<ol style="list-style-type: none"> 1. Check the headlight adapters. 2. Check the flasher. 	<ol style="list-style-type: none"> 1. Verify that the proper headlight adapters are being used and are correctly installed. 2. Replace the vehicle flasher with the heavy-duty 6 A flasher.
There is no high-beam indicator light, or it does not function properly.	<ol style="list-style-type: none"> 1. Check the headlight adapters. 	<ol style="list-style-type: none"> 1. Verify that the proper headlight adapters are being used and are correctly installed.
The blade digs into the ground in the V position.	<ol style="list-style-type: none"> 1. Check the bumper-stop position. 2. The push beam is installed too high. 	<ol style="list-style-type: none"> 1. Adjust the bumper-stop position. 2. Lower the push beam.
The blade does not lay flat on the ground in the scoop position.	<ol style="list-style-type: none"> 1. Check the bumper stop position. 2. The push beam is installed too low. 	<ol style="list-style-type: none"> 1. Adjust the bumper stop position. 2. Raise the push beam. If the push beam is at the highest setting, adjust the bumper stop further into the center section.
The blade trips too easily.	<ol style="list-style-type: none"> 1. Check the trip-spring adjustment. 2. Check the push-beam height. 	<ol style="list-style-type: none"> 1. Tighten the springs and replace them if they are damaged. 2. Adjust the push beam to the proper height.
The plow does not clean up snow from low areas.	<ol style="list-style-type: none"> 1. The controller is not in the FLOAT position. 	<ol style="list-style-type: none"> 1. Activate the FLOAT feature on the controller.
Fluid is running out of the fill cap of the hydraulic pump.	<ol style="list-style-type: none"> 1. Power the light tower down. Do not pull the tower down. 2. The terrain is too steep. 3. The pump reservoir is overfilled. 4. The plow is hitting snowbanks too hard. 	<ol style="list-style-type: none"> 1. Disconnect the plow and adjust the hydraulic-fluid level. 2. Avoid steeply sloped areas. 3. The hydraulic fluid level should be within 2 cm (3/4 inch) of the top of the reservoir. 4. Do not plow recklessly.
The pump chatters when raising or angling the plow.	<ol style="list-style-type: none"> 1. Check that the hydraulic-fluid level is not low. 	<ol style="list-style-type: none"> 1. The hydraulic-fluid level should be within 2 cm (3/4 inch) of the top of the reservoir when lowered.
The SmartHitch2 doesn't attach to the plow.	<ol style="list-style-type: none"> 1. Make sure that the vehicle is on and the controller is in the FLOAT position. 2. Make sure that the controller is staying in the FLOAT position. 3. Check valve block and the SmartHitch2 switch for proper connections. 	<ol style="list-style-type: none"> 1. Turn the vehicle on and put the controller in the FLOAT position. 2. If the controller comes out of the FLOAT position when using the SmartHitch2 controller, replace the controller. 3. Refer to the manifold wiring diagram included with your <i>Owner's Manual</i>.
The plow lights and truck lights are on at the same time.	<ol style="list-style-type: none"> 1. Check the vehicle harness wiring connected to the truck headlights. 	<ol style="list-style-type: none"> 1. Refer to the wiring diagram included with your <i>Owner's Manual</i> and ensure that the vehicle wire harness is not plugged into the vehicle headlight.
All of the plow and vehicle lights are on at the same time.	<ol style="list-style-type: none"> 1. Check the headlight adapters. 	<ol style="list-style-type: none"> 1. If the headlight adapters are installed incorrectly, unplug them and connect them as shown in Installing the Wire Harness.

Schematics



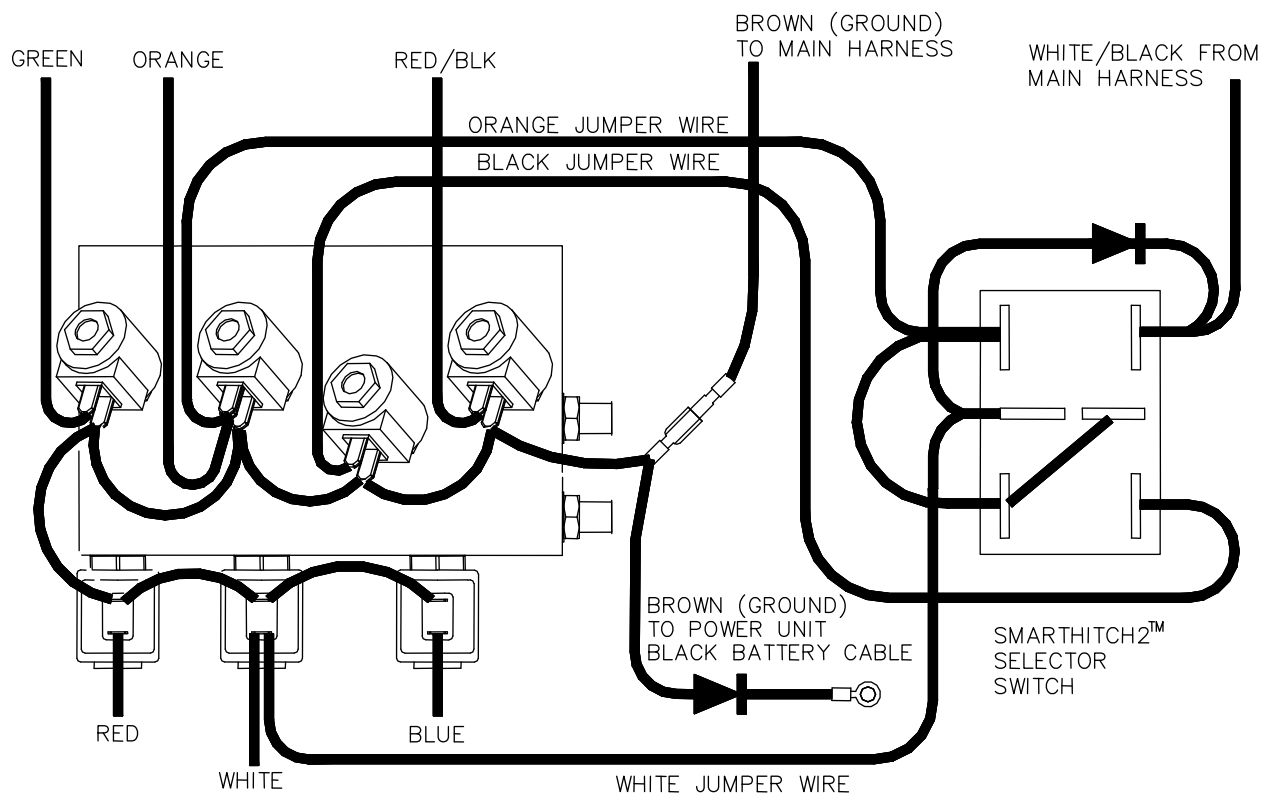
Plow Side Electrical Schematic (Rev. 0)

G038305



Truck Side Electrical Schematic (Rev. 0)

G038107



G038306

Wire Color	Function
Green	Right Wing In
Red	Right Wing Out
White	Lift
Orange	Lower
Red/Black	Left Wing In
Blue	Left Wing Out
Black	SmartHitch2
White/Black	Pump Solenoid
Brown	Ground

Hydraulic Diagram (Rev. 0)

BOSS
S N O W P L O W