



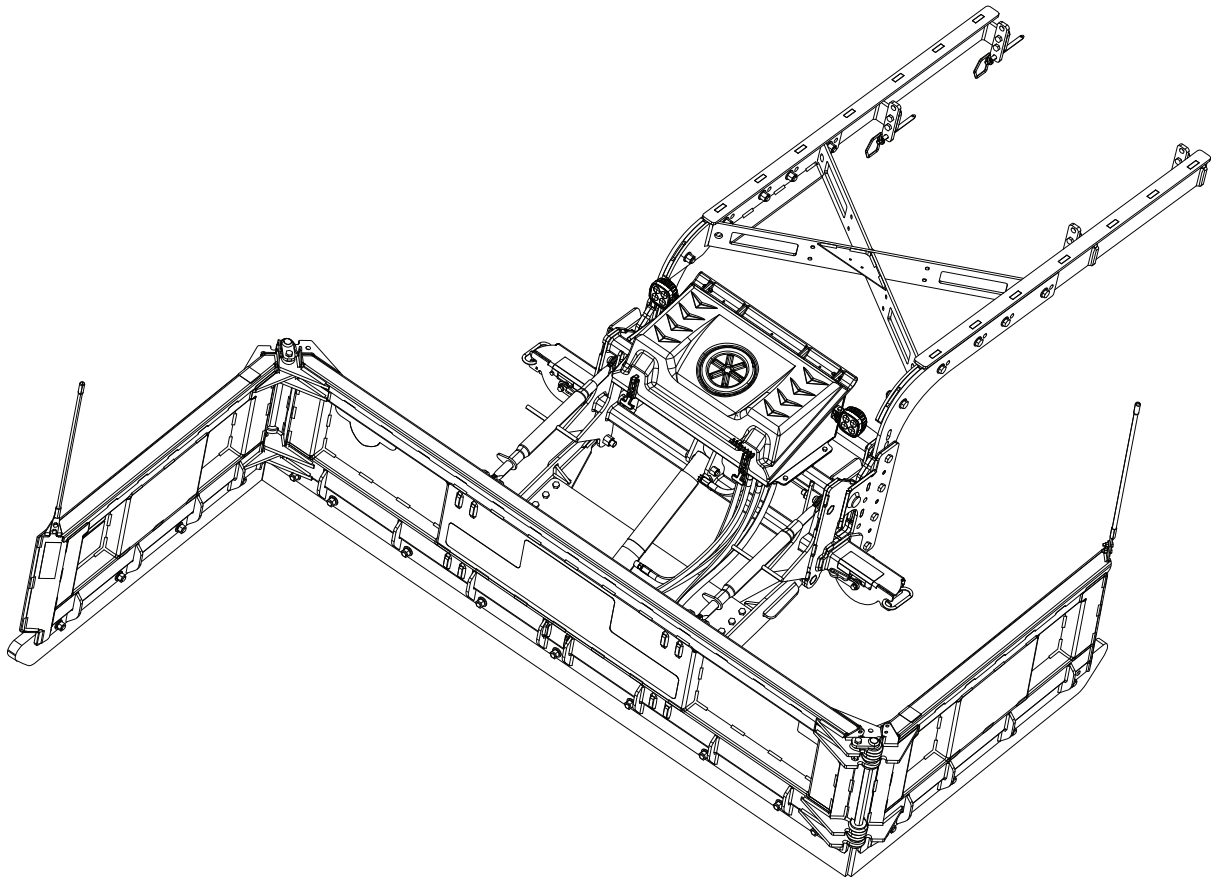
P.O. Box 787  
Iron Mountain, MI 49801  
United States

# Owner's Manual

## Drag Pro 180Z

Part No. RPL24500—Serial No. 400000000 and Up

Part No. RPL24516—Serial No. 400000000 and Up



BOSS Products limited consumer warranty and BOSS Products commercial warranty policies are located at [www.BOSSPlow.com](http://www.BOSSPlow.com).  
Patent [www.ttcopats.com](http://www.ttcopats.com).

Model No.	_____
Serial No.	_____
Blade Crate Serial No.	_____

Introduction

**Note:** This manual is used for the assembly, operation, and maintenance of the BOSS expanding wing rear mounted plows. Illustrations may vary.

Read this information carefully to learn how to operate and maintain your product properly and to avoid injury and product damage. You are responsible for operating the product properly and safely.

Visit [www.BOSSPlow.com](http://www.BOSSPlow.com) for product and accessory information, help finding a dealer, or to register your product.

Whenever you need service, genuine BOSS parts, or additional information, contact an Authorized BOSS Dealer or BOSS Technical Service (1-800-286-4155) and have the model and serial numbers of your product ready. [Figure 1](#) and [Figure 2](#) identify the locations of the model and serial numbers on the product. Write the numbers in the space provided.

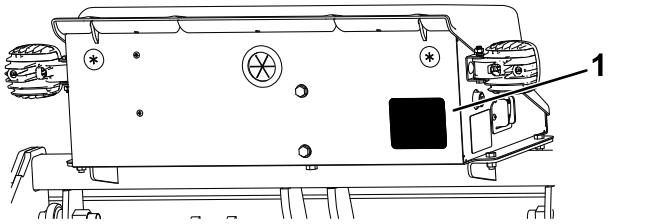


Figure 1

1. Serial number decal

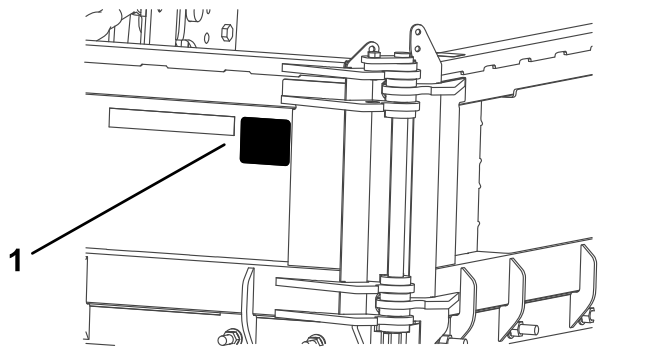


Figure 2

1. Serial number decal

This manual identifies potential hazards and has safety messages identified by the safety-alert symbol ([Figure 3](#)), which signals a hazard that may cause serious injury or death if you do not follow the recommended precautions.



Figure 3

g000502

1. Safety-alert symbol

This manual uses 2 words to highlight information. **Important** calls attention to special mechanical information and **Note** emphasizes general information worthy of special attention.

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Date Purchased	_____
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# Safety

## Preparation

- Read the *Owner's Manual* before operating or servicing the plow.
- Always follow the vehicle manufacturer's recommendations relating to snowplow installation. For recommended vehicle models, refer to the BOSS product selector tool at [www.BOSSPlow.com](http://www.BOSSPlow.com).
- Ensure that only trained personnel install and perform maintenance on the equipment and hydraulic components.
- Never disable, remove, or relocate any sensors or other components related to the operation of the air bags in your vehicle.
- 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 (GVWR) at any time.
- To comply with federal regulations, ensure that the equipment does not obstruct the truck's taillight when the plow is raised. If the taillights are obstructed, auxiliary taillights may be required.
- Always wear appropriate personal protective equipment when operating and servicing the machine. Wear substantial, slip-resistant footwear, and cold-weather clothing.
- Use a 500 kg (1/2 ton) minimum lifting device to move heavy plow components.
- Material safety data sheets (MSDS) are available at [www.BOSSPlow.com](http://www.BOSSPlow.com).

## 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.
- Do not change the blade position when traveling.
- Do not exceed 64 km/h (40 mph) when transporting the plow.
- Do not exceed 23 km/h (14 mph) when plowing.

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- 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 (GVWR) at any time.

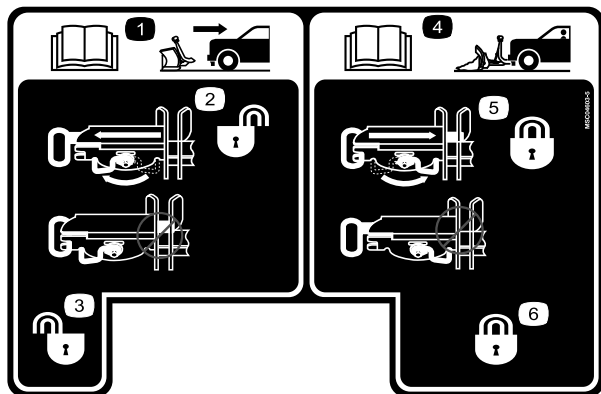
This may require weighing the vehicle and adding ballast as necessary. It may also limit the payload capacity of the vehicle.

- This machine has an operating sound level below 70 dBA.
- When transporting the machine, ensure that it is properly secured. Instructions are available at [www.BOSSPlow.com](http://www.BOSSPlow.com).
- Use your full attention while operating the machine. Do not engage in any activity that causes distractions; otherwise, injury or property damage may occur.

## Safety and Instructional Decals



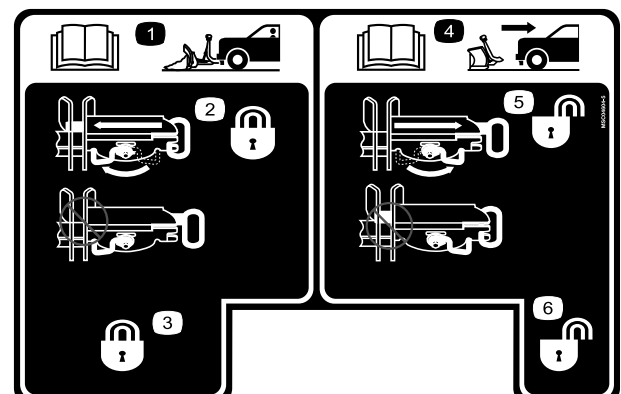
Safety decals and instructions are easily visible to the operator and are located near any area of potential danger. Replace any decal that is damaged or missing.



decalsmc04603-5

**MSC04603-5**

- |  |   |
|--|---|
| 1. Read the <i>Owner's Manual</i> for information on removing the plow.  | 4. Read the <i>Owner's Manual</i> for information on attaching the plow.  |
| 2. Rotate the release lever clockwise and pull out the spring pin handle to unlock the coupler; do not leave the spring pin pushed in. | 5. Rotate the release lever counterclockwise and push in the spring pin handle to lock the coupler; do not leave the spring pin pulled out. |
| 3. Coupler spring pin unlock   | 6. Coupler spring pin lock  |



decalsmc04604-5

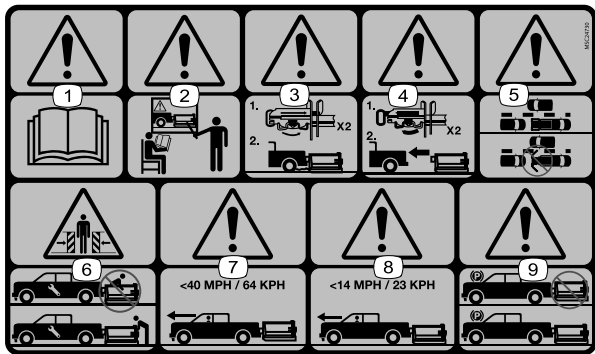
**MSC04604-5**

- |  |   |
|--|---|
| 1. Read the <i>Owner's Manual</i> for information on attaching the plow.   | 4. Read the <i>Owner's Manual</i> for information on removing the plow.   |
| 2. Rotate the release lever clockwise and push in the spring pin handle to lock the coupler; do not leave the spring pin pulled out. | 5. Rotate the release lever counterclockwise and pull out the spring pin handle to unlock the coupler; do not leave the spring pin pushed in. |
| 3. Coupler spring pin lock   | 6. Coupler spring pin unlock  |



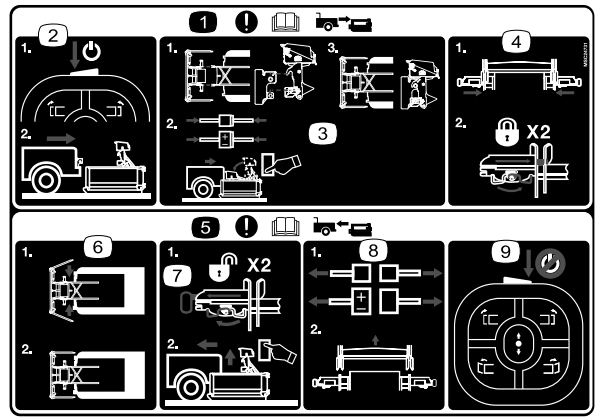
**MSC18131**

1. Crushing hazard—keep hands away.



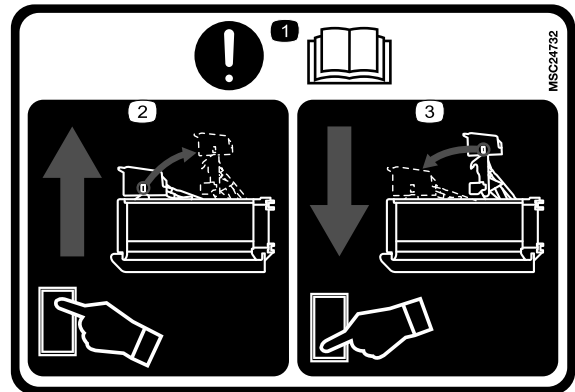
**MSC24730**

1. Warning—read the *Owner's Manual*.
2. Warning—all operators should be trained before operating the machine.
3. Warning—attachment pins must be secured before plowing.
4. Warning—attachment pins must be released to remove the plow.
5. Warning—do not transport the plow with the blade wings extended.
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 23 km/h (14 mph) when plowing.
9. Warning—lower the plow when the vehicle is not in use.



**MSC24731**

1. Attention—read the *Owner's Manual* before attaching the plow.
2. Turn on the plow controller, and slowly back up toward the plow. Ensure the controller is not in FLOAT mode.
3. Connect the ground/power and plow wire harnesses and lower the coupler assembly into the receiver.
4. Secure the attachment pins.
5. Attention—read the *Owner's Manual* before removing the plow.
6. Retract the plow wings.
7. Release the attachment pins and raise the coupler assembly out of the receiver.
8. Disconnect the ground/power and plow wire harnesses, and slowly drive forward.
9. Turn off the plow controller.



**MSC24732**

1. Attention—read the *Owner's Manual*.
2. Press the switch up to raise the coupler assembly.
3. Press the switch down to lower the coupler assembly.

# Setup

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

Retain the hardware from the shipping crate.

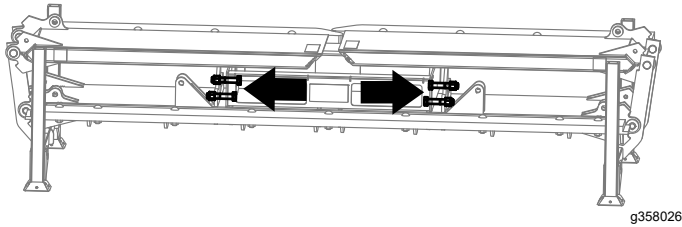


Figure 4

Use a crane to hold components as needed.

## Installing the Plow Wings

1. Interlock the center blade and both of the blade wing hinges, ensuring the cutting edges are even.

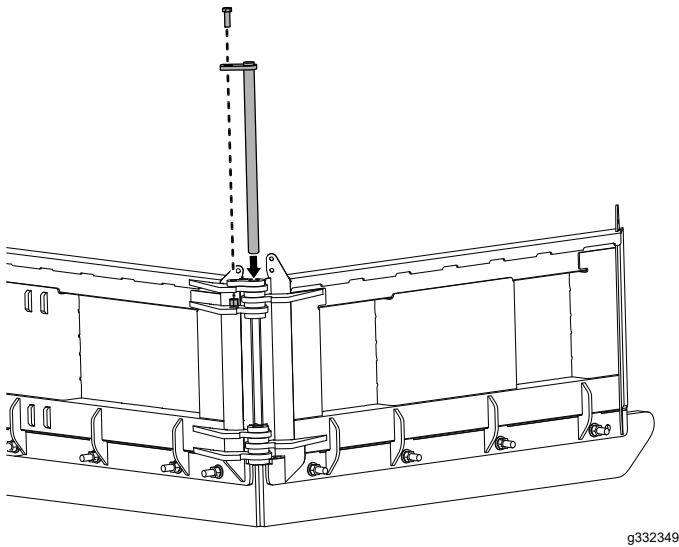


Figure 5

2. Lock the hinges together by inserting the hinge pin down the center.
3. Secure the hinge pin to the center blade with a bolt (1/2 x 1-1/2 inches) and locknut (1/2 inch) from the shipping crate.

## Installing the Lift Arm and Top Links

1. Loosely attach the lower link arm assemblies to the lower brackets on the center blade using 2 bolts (3/4 x 4 inches) and 2 locknuts (3/4 inch) from the shipping crate.

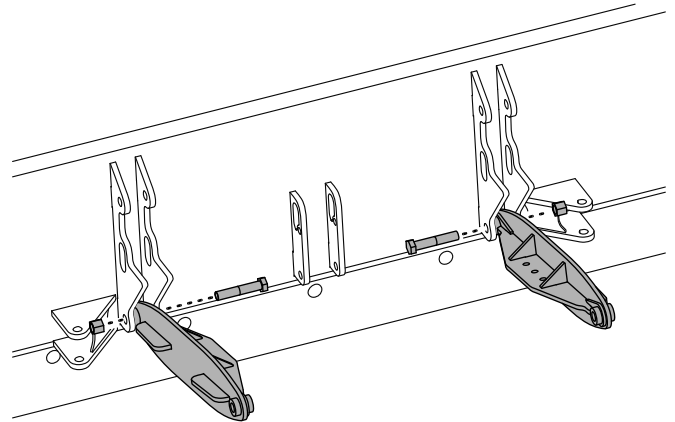


Figure 6

2. Loosely install the flex plate using 6 bolts (1/2 x 2 inches) and 6 nuts (1/2 inch).

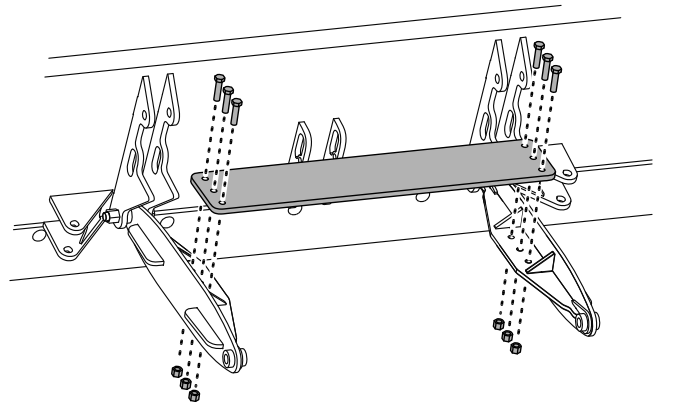
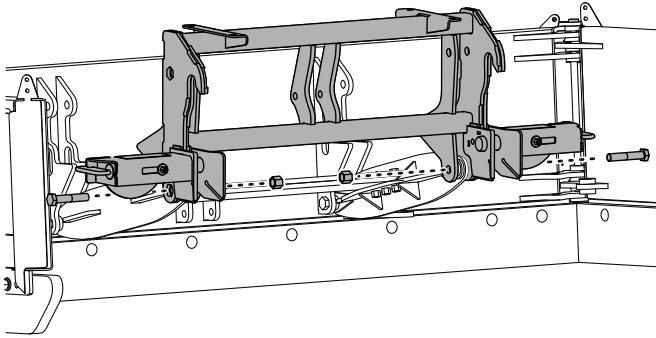


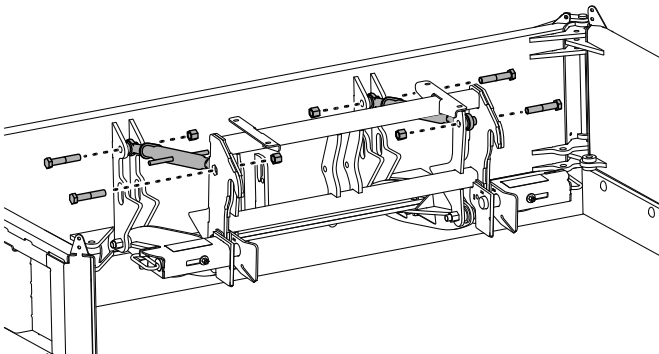
Figure 7

- Loosely attach the coupler assembly to the link arm assemblies using 2 bolts (3/4 x 4 inches) and locknuts (3/4 inch) from the shipping crate.



**Figure 8**

- Loosely attach the top links to the upper brackets on the center blade using 2 bolts (3/4 x 4 inches) and 2 locknuts (3/4 inch).

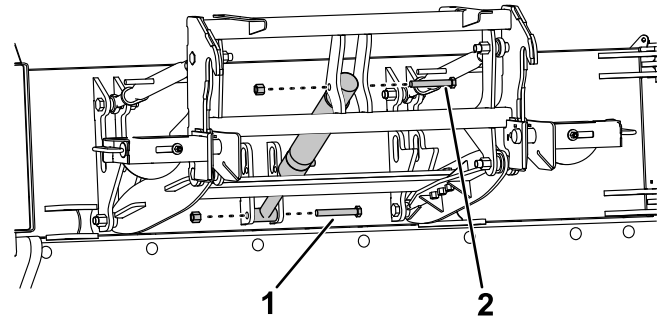


**Figure 9**

- Loosely attach the top links to the upper brackets on the coupler assembly using 2 bolts (3/4 x 4 inches) and 2 locknuts (3/4 inch).

## Installing the Hydraulic Cylinders

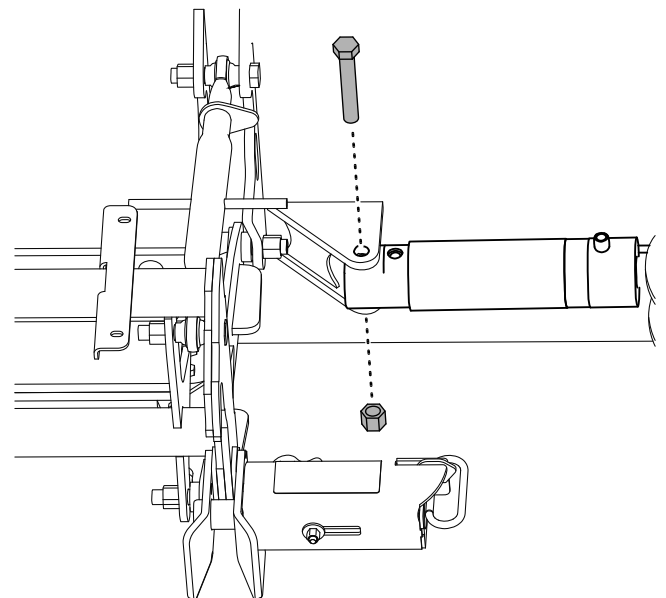
- Loosely attach the rod end of the lift cylinder on the center blade using 1 bolt (5/8 x 5 inches) and 1 locknut (5/8 inch).
- Loosely attach the body end of the lift cylinder to the center bracket using 1 bolts (5/8 x 4-1/2 inches) and 1 locknuts (5/8 inch).



**Figure 10**

- Bolt (5/8 x 5 inches)
- Bolt (5/8 x 4-1/2 inches)

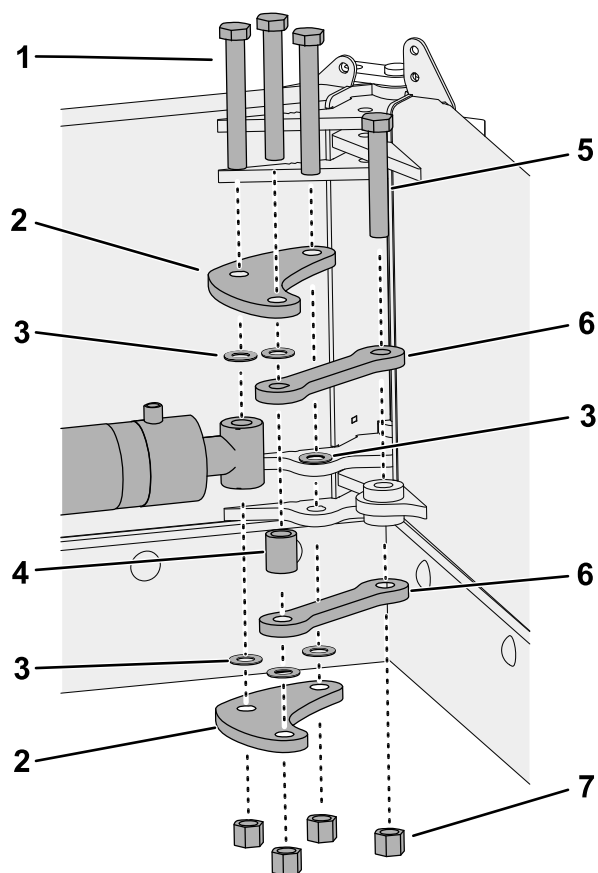
- Loosely attach the body end side of the lift cylinder to the coupler assembly using 2 bolt (5/8 x 4-1/2 inches) and 2 locknuts (5/8 inch) as shown in [Figure 10](#).
- Loosely attach the body end side of the 2 wing hydraulic cylinders to the center blade using 1 bolt (3/4 x 4-1/2 inches) and 1 locknut (3/4 inch) as shown in [Figure 11](#).



**Figure 11**

- Loosely attach the rod end side of the wing cylinders to the wing assembly using 3 bolts (3/4 x 5-1/2 inches), 1 bolt (3/4 x 4-1/2 inches), 6

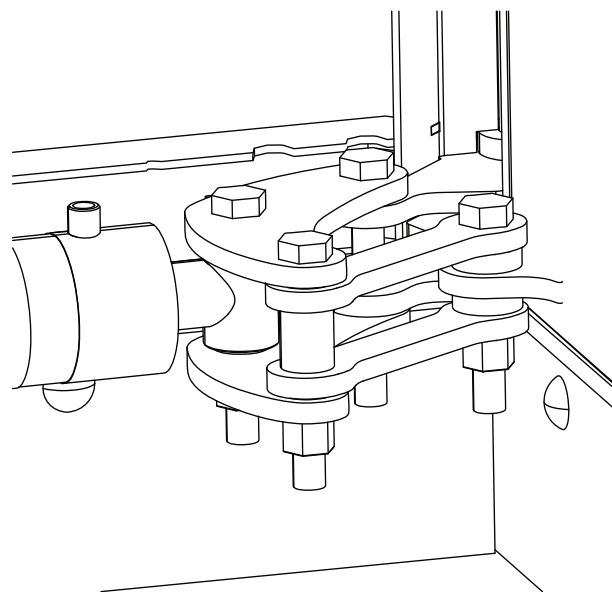
washers, 4 locknuts, 2 cam links, 2 arm links, and 1 spacer as shown in [Figure 12](#).



**Figure 12**

g332358

- |                              |                              |
|------------------------------|------------------------------|
| 1. Bolt (3/4 x 5-1/2 inches) | 5. Bolt (3/4 x 4-1/2 inches) |
| 2. Cam link                  | 6. Arm link                  |
| 3. Washer                    | 7. Nut (3/4 inch)            |
| 4. Spacer                    |                              |



g335520

**Figure 13**  
Assembled View

6. Repeat the installation for the wing hydraulic cylinders on the other side of the center blade.

## Torquing the Fasteners

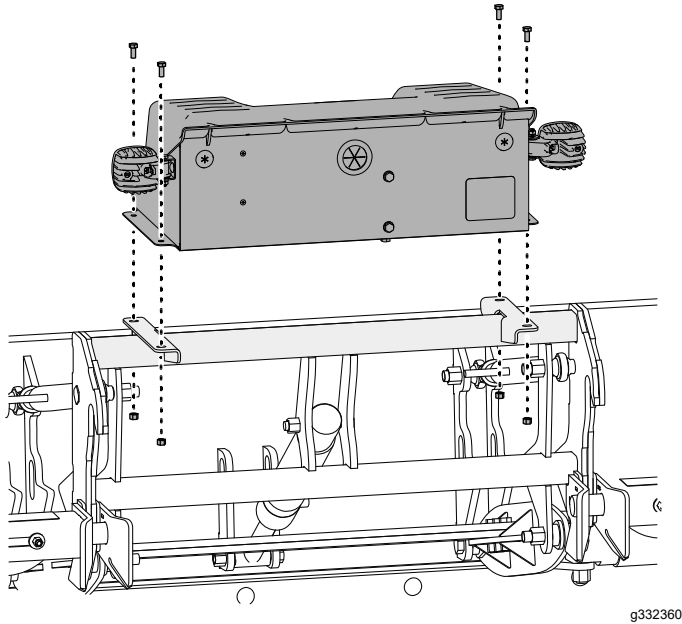
Torque all of the fasteners to the following specifications:

- 1/2-inch bolts to 76 N·m (56 ft-lb)
- 5/8-inch bolts to 153 N·m (113 ft-lb)
- 3/4-inch bolts to 272 N·m (201 ft-lb)

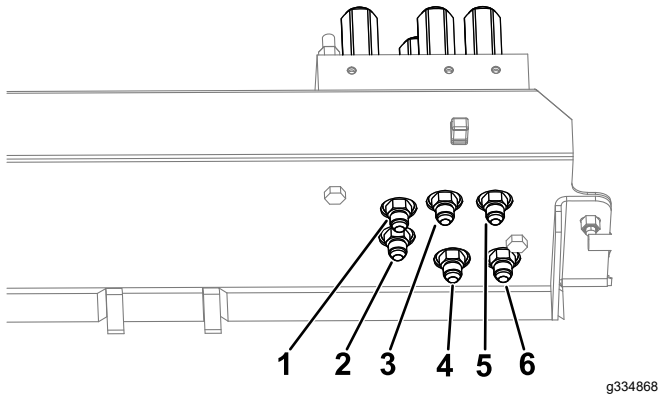


# Installing the Hydraulic Hoses

1. Secure the coupler pan assembly to the coupler assembly using 4 bolts (5/16 x 3/4 inch) and 4 nuts (5/16 inch).



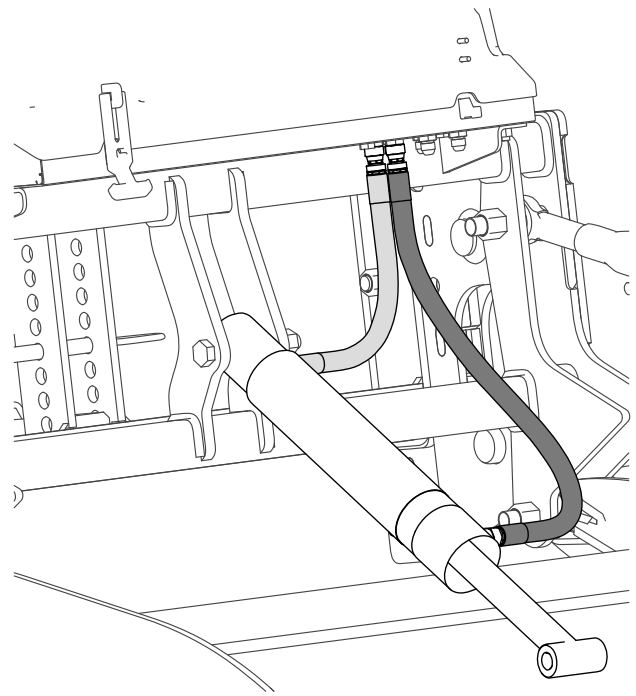
**Figure 14**



**Figure 15**  
Port Overview

- |  |  |
|--|--|
| 1. Left rear port; connect the 25-inch hose  | 4. Middle front port; connect the red hose |
| 2. Left front port; connect the 14-inch hose | 5. Right rear port; connect the blue hose  |
| 3. Middle rear port; connect the white hose  | 6. Right front port; connect the gray hose |

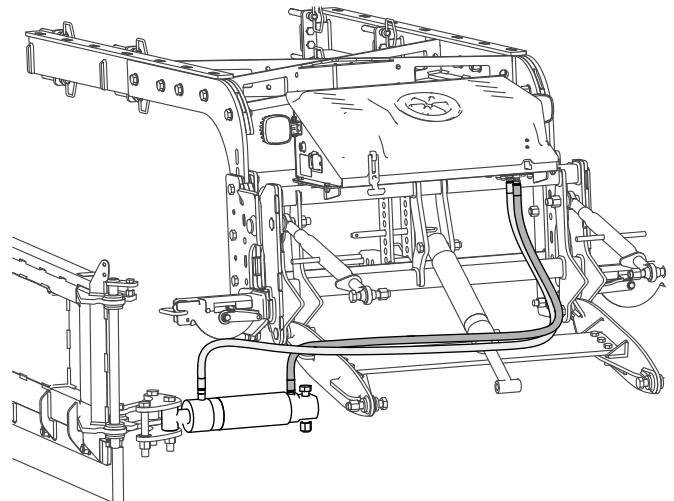
2. Connect the 14-inch hose from the left front port to the base of the center hydraulic cylinder as shown in [Figure 16](#).



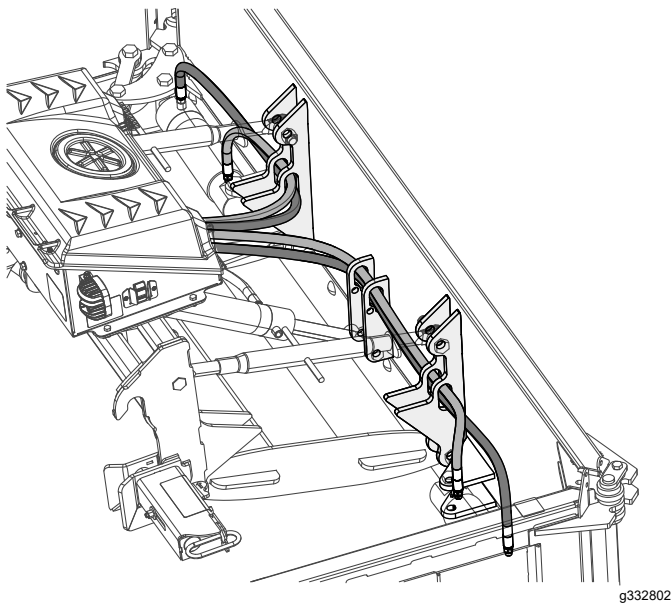
**Figure 16**

3. Connect the 25 inch hose from the left rear port to the lower fitting on the center hydraulic cylinder as shown in [Figure 16](#).
4. Locate the color tags on the wing hoses.
5. Route the white hose from the middle rear port to the inner fitting on the left hydraulic cylinder as shown in [Figure 17](#).

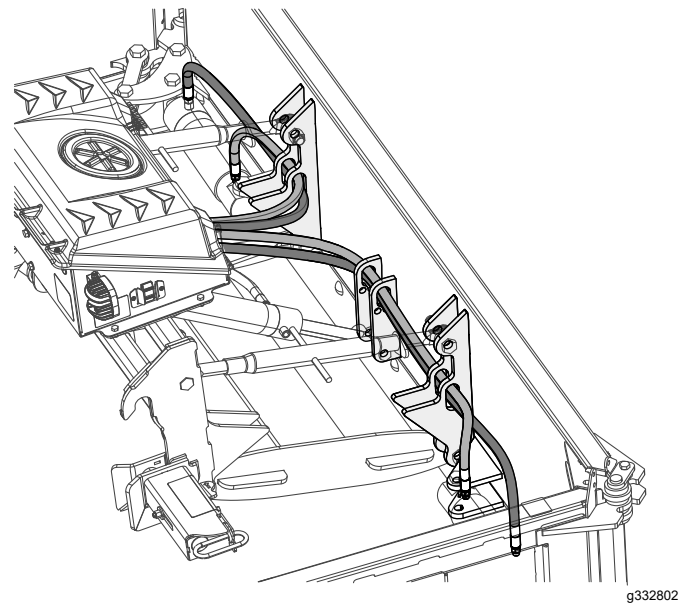
**Note:** Route the hoses through the access hole on the center blade ([Figure 18](#)).



**Figure 17**



**Figure 18**

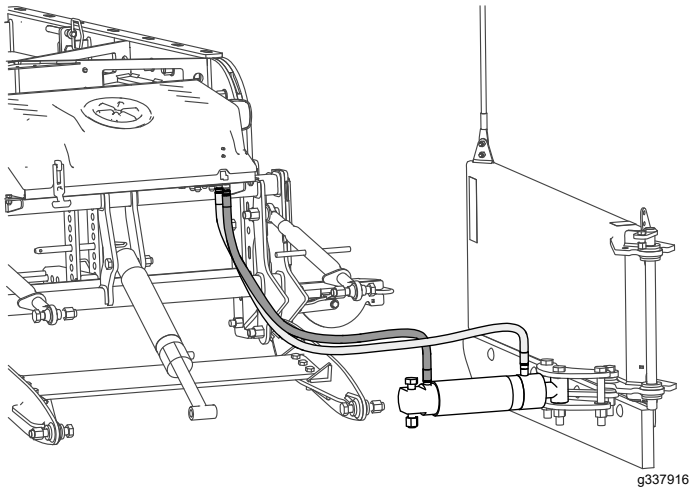


**Figure 20**

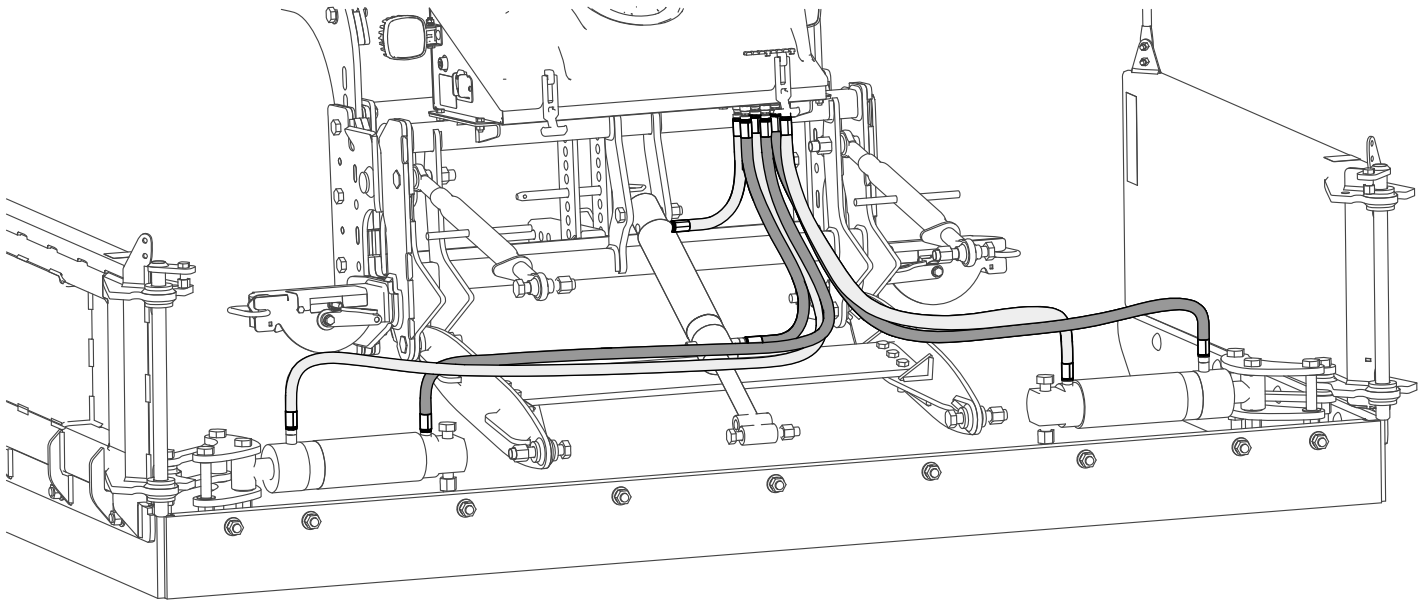
6. Connect the red hose from the middle front port to the outer fitting on the left hydraulic cylinder as shown in [Figure 17](#) and [Figure 18](#).
7. Route the gray hose from the right front port to the outer fitting on the right hydraulic cylinder as shown in [Figure 19](#).

**Note:** Route the hoses through the access hole on the center blade ([Figure 20](#)).

8. Connect the blue hose from the right rear port to the inner fitting on the right hydraulic cylinder as shown in [Figure 19](#) and [Figure 20](#).



**Figure 19**

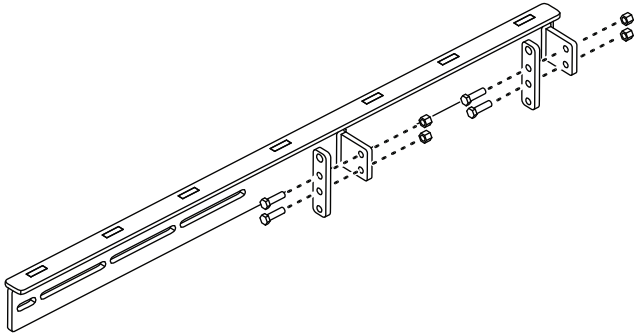


g337915

**Figure 21**  
Overview

# Assembling and Installing the Hitch

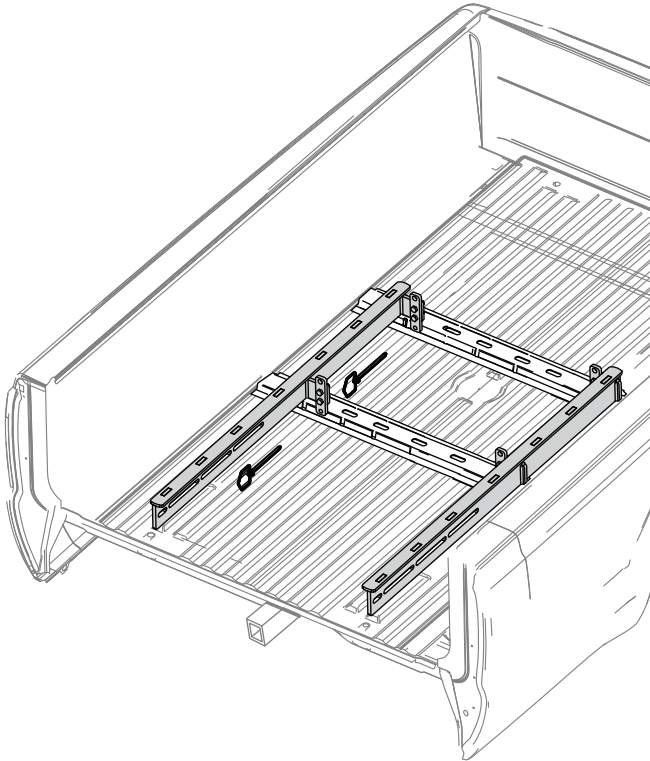
1. Install the 5th wheel rails and hitch receiver.
2. Remove the tailgate.
3. Install the fingers on the hitch rails.



**Figure 22**

g356323

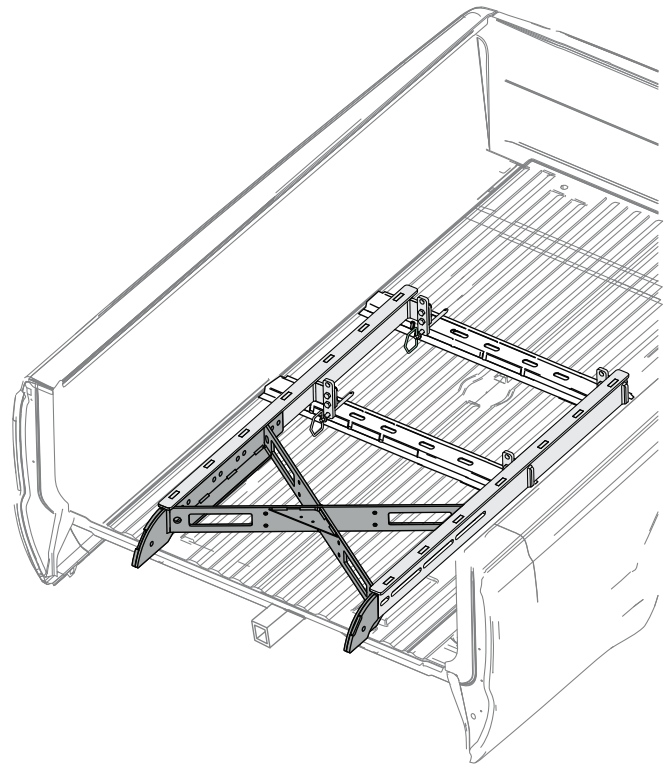
4. Install the hitch rails in the furthest hole on the 5th wheel rails; secure them with the 1/2 inch pins.



**Figure 23**

g356325

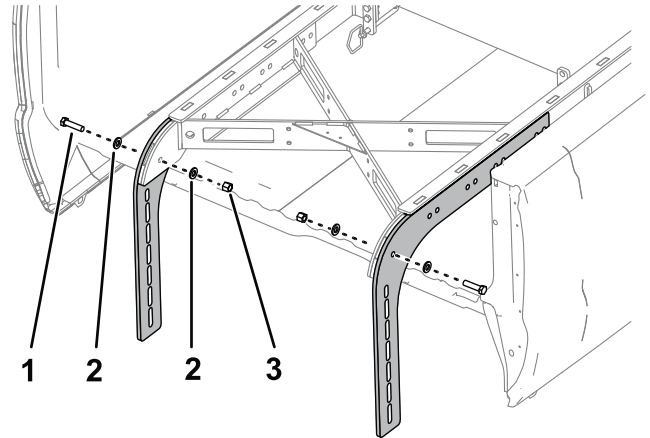
5. Slide the cross bracket in the hitch rails.



**Figure 24**

g356326

6. Loosely attach the curved part of the drop arms to the cross bracket.

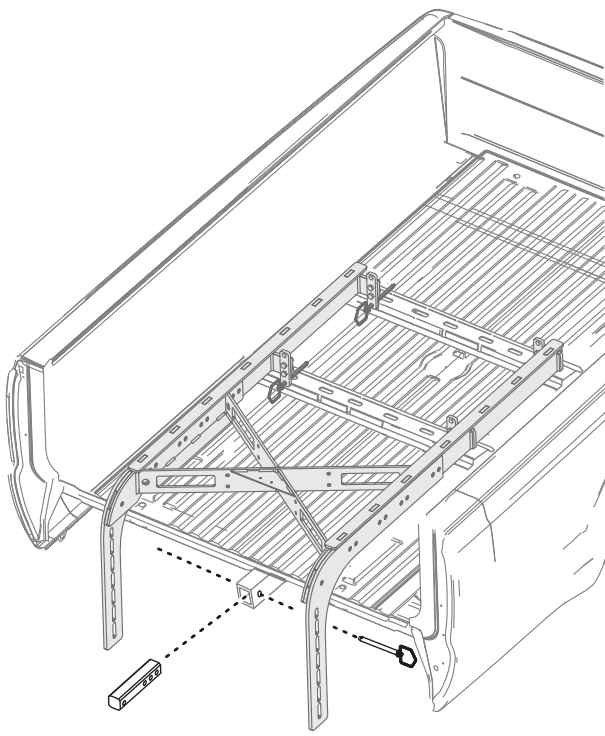


**Figure 25**

g356327

1. Bolt (5/8 x 2-1/2 inches)
2. Washer
3. Nut (5/8 inch)

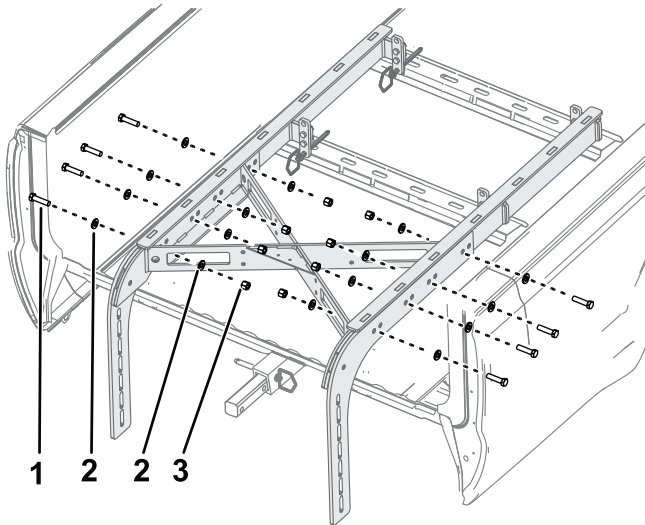
7. Secure the hitch receiver bar onto the vehicle using the hitch pin.



**Figure 26**

g356328

8. Loosely secure the cross bracket to the hitch rails using 8 bolts (5/8 x 2-1/2 inches), 16 washers (5/8 inch), and 8 nuts (5/8 inch).



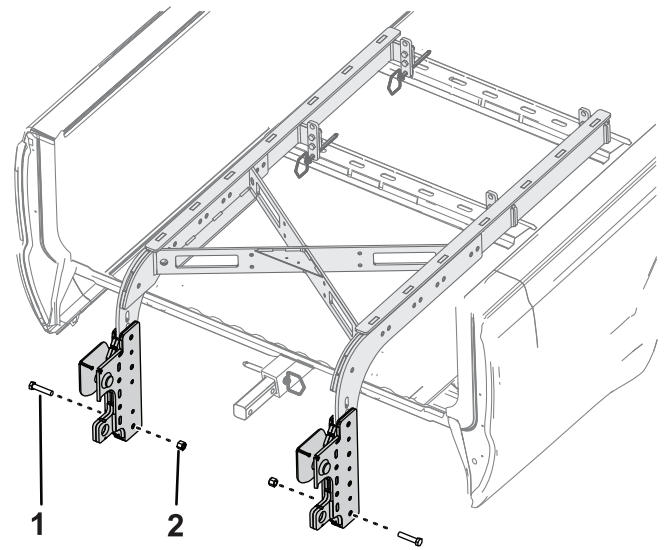
**Figure 27**

g356329

1. Bolt (5/8 x 2-1/2 inches)
2. Washer
3. Nut (5/8 inch)

9. Loosely secure the bottom of the hitch receivers to the drop arms.

**Note:** Ensure that the bottom of the hitch receivers line up with the bottom of the drop arms.

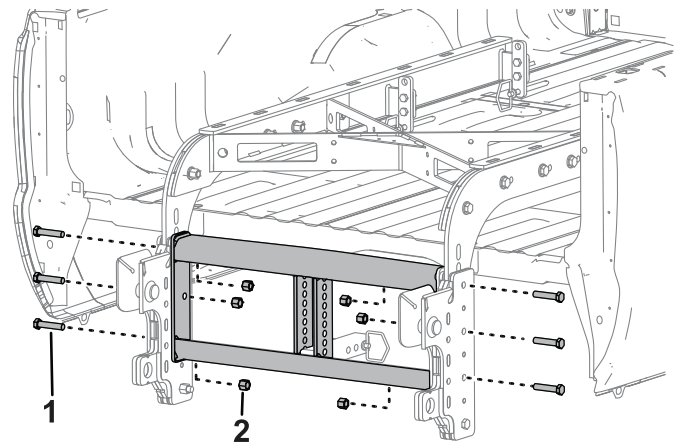


**Figure 28**

g356330

1. Bolt (5/8 x 3 inches)
2. Nut (5/8 inch)

10. Loosely secure the mid brace to the hitch receivers and drop arms using 6 bolts (5/8 x 3 inches) and 6 nuts (5/8 inch).

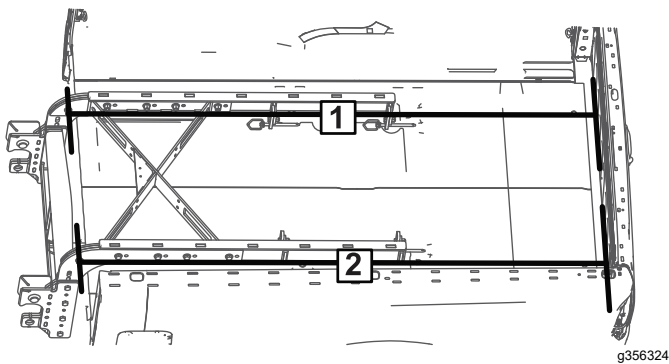


**Figure 29**

g356331

1. Bolt (5/8 x 3 inches)
2. Nut (5/8 inch)

11. Measure the distance between the hitch assembly and the vehicle bumper. A minimum of 5.1 cm (2 inches) is required; adjust the hitch rail length to achieve proper clearance.
12. Measure from the rear bed of the truck to the bolt hole in the curve of the drop arms; adjust as needed so that both sides are equal distance.

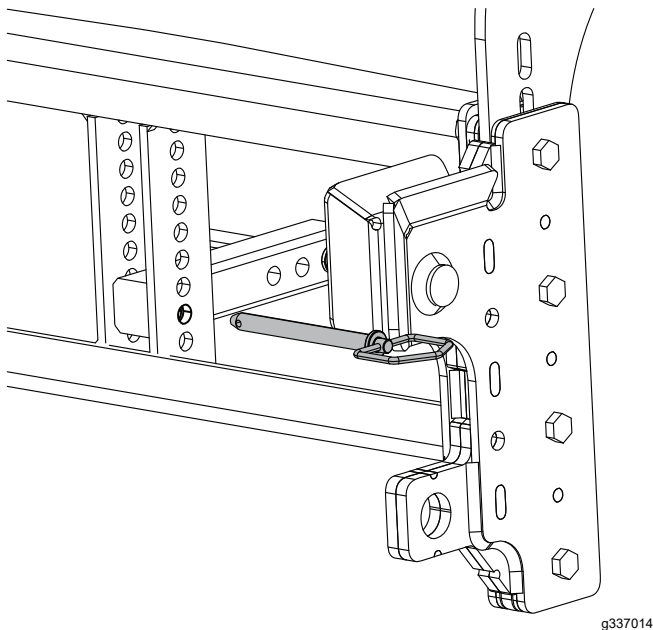


**Figure 30**

1. Measurement 1
2. Measurement 2

13. Secure the hitch receiver bar to the mid brace with the hitch pin.

**Note:** The hole on the hitch receiver bar, that hooks into the hitch mid-brace, will be offset. The hitch receiver bar can be turned over for half inch adjustments.

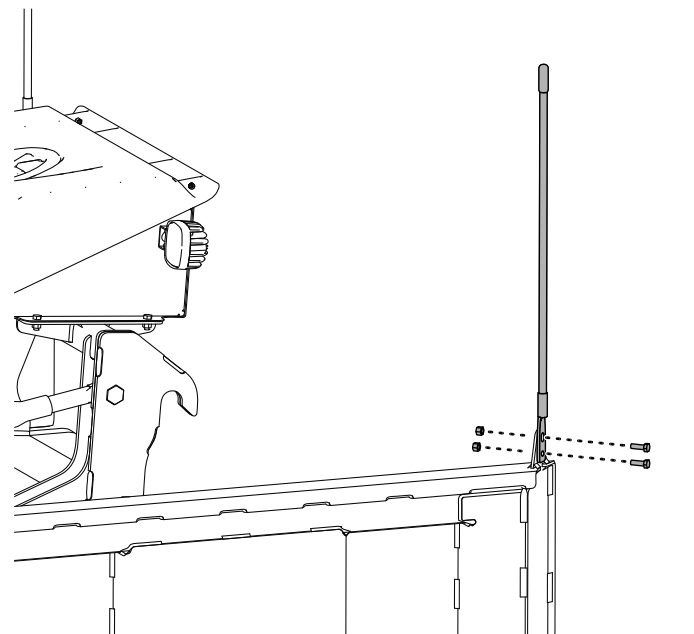


**Figure 31**

14. Torque the bolts to 153 N·m (113 ft-lb).

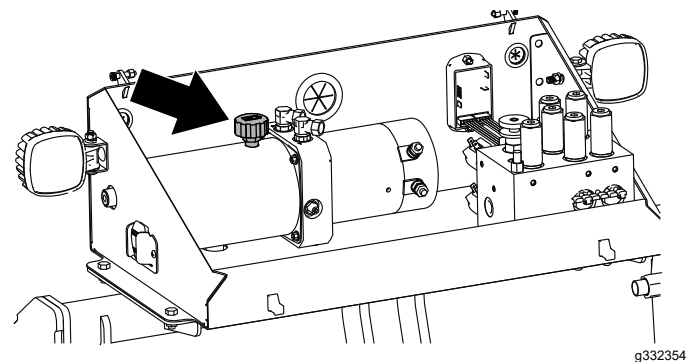
## Installing the Blade Guides and Filling the Hydraulic Reservoir

1. Attach the blade guides to the wing blade using 4 bolts (5/16 x 1 inch) and locknuts.



**Figure 32**

2. Torque the bolts to 19 N·m (14 ft-lb).
3. Lift the hood from the manifold box, and remove the fill cap from the hydraulic reservoir ([Figure 33](#)).



**Figure 33**

4. Slowly fill the reservoir with 1.9 L (2 US qt) of fluid.
5. Run the plow to fill the cylinders and hydraulic lines with fluid. Top off the fluid as need; refer to [Adding Hydraulic Fluid \(page 25\)](#).
6. Install the previously removed fill cap and secure the manifold box lid.



# Installing the Wire Harness

## ⚠ WARNING

Using a drill without proper eye protection may allow debris to enter the eye, causing injury.

When drilling, always wear eye protection.

## ⚠ 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. Remove the negative cable first, then remove the positive cable.

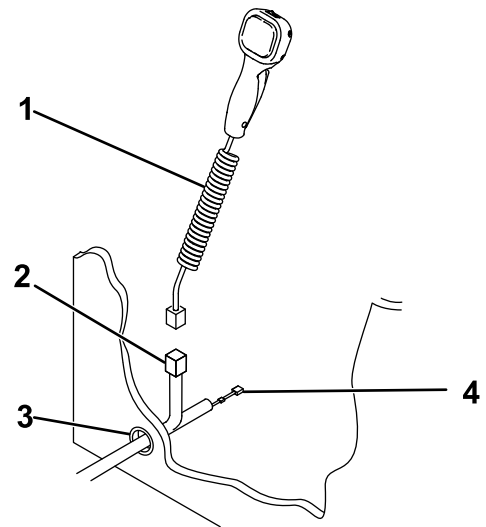
**Note:** Apply dielectric grease to all electrical connections.

1. Ensure that the vehicle firewall is clear of obstructions.
2. 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.

3. Insert the split rubber grommet into the hole.
4. Pull the plow controller connector and black/red wire with an in-line fuse into the vehicle cab through the hole in the firewall ([Figure 34](#)).

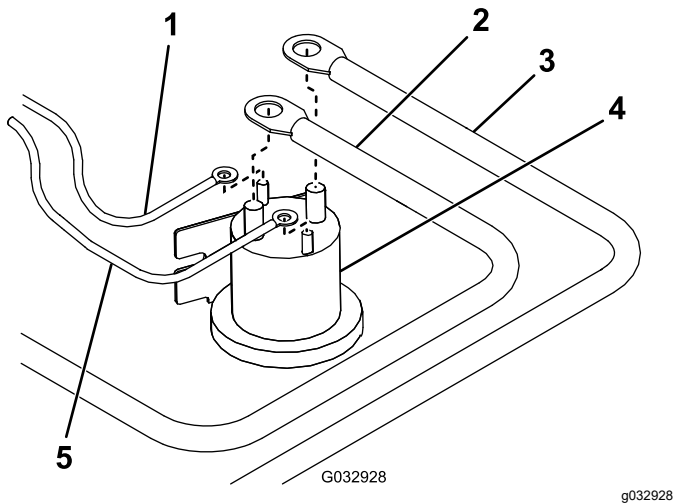
**Important:** Ensure that all wiring is secured in a position that avoids hot or moving parts to prevent damage to the vehicle or plow.



g252336

**Figure 34**

- |                         |                                     |
|-------------------------|-------------------------------------|
| 1. Plow controller      | 3. Rubber grommet                   |
| 2. Controller connector | 4. Black/red wire with in-line fuse |
- 
5. Mount the plow controller; refer to [Mounting the Plow Controller \(page 16\)](#).
  6. Connect the black/red wire with an in-line fuse to a keyed 12 V + ignition source.  
**Note:** Connecting the wire to a source that is not keyed can cause the battery to drain.
  7. Mount the pump solenoid and power distribution module (pdm) 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.
  8. Connect the black and orange wires to the light toggle switch.
  9. Determine where you will mount the light toggle switch and clean the area thoroughly.  
**Note:** The light toggle switch can be found in the hydraulic component box; refer to [Servicing the Hydraulic System \(page 24\)](#).  
**Note:** Allow the area to dry completely after cleaning.
  10. Remove the adhesive backing and press the toggle switch to the clean area of the dashboard for 30 seconds.
  11. Plug the controller connector into the plow controller.
  12. Connect the white/black wire from the wire harness to the small post on the pump solenoid ([Figure 35](#)).



**Figure 35**

- |                           |   |
|---------------------------|---|
| 1. White/black wire       | 4. Solenoid                             |
| 2. Battery cable          | 5. Brown wire with small ring connector |
| 3. Red power/ground cable |   |

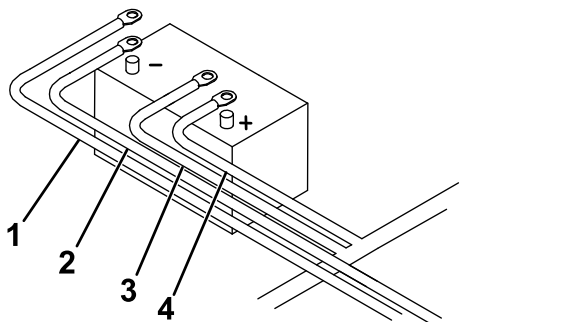
13. Connect the brown wire with the small ring connector to the other small post on the pump solenoid (Figure 35).

**Note:** The wires may go on either small post, but should not share a post.

14. Connect the red power/ground cable to the large post on the pump solenoid (Figure 35).
15. Connect the battery cable to the other large post on the pump solenoid (Figure 35).

**Note:** The wires may go on either large post, but should not share a post.

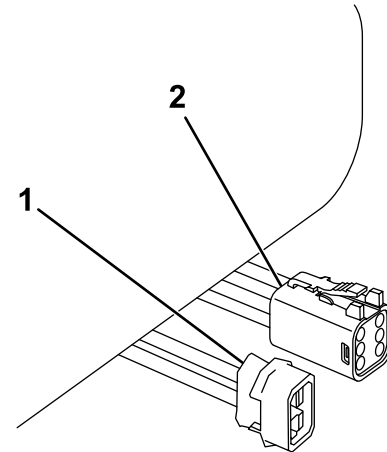
16. Connect the black power/ground cable to the negative (-) battery terminal (Figure 36).
17. Connect the red wire with the ring connector with the positive (+) battery terminal (Figure 36).



**Figure 36**

- |   |                  |
|---|------------------|
| 1. Brown wire with large ring connector | 3. Red wire      |
| 2. Black power/ground cable             | 4. Battery cable |

18. Connect the brown wire with the large ring connector from the wire harness to the negative (-) battery terminal (Figure 36).
19. Connect the free end of the battery cable to the positive (+) battery terminal (Figure 36).
20. Route the plow connector and power/ground connector along the vehicle frame to the rear bumper.
21. Mount the plow connector and the black and red power/ground connector to the lower part of the rear bumper using a cable tie (Figure 37).



**Figure 37**

- |                           |                   |
|---------------------------|-------------------|
| 1. Power/ground connector | 2. Plow connector |
|---------------------------|-------------------|

22. Secure the wire harness to the vehicle frame using cable ties.

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

## Mounting the Plow 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**

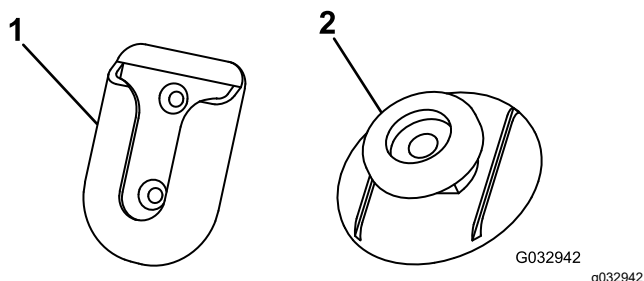
The controller could cause serious injury if contacted during a crash.

**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 38](#)) with the alcohol wipe and then dry it.



**Figure 38**

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 38](#)).
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 6 of [Installing the Wire Harness \(page 15\)](#).

## Mounting the Plow

Refer to [Mounting the Plow \(page 20\)](#) to mount the plow.

## Adjusting the Angle of Attack

Refer to [Adjusting the Angle of Attack \(page 21\)](#) to adjust the plow.

# Product Overview

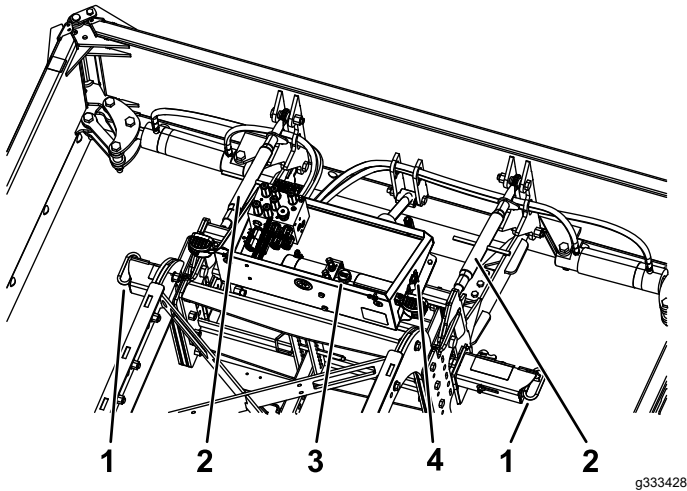


Figure 39

- |                   |                            |
|-------------------|----------------------------|
| 1. Attachment pin | 3. Hydraulic reservoir cap |
| 2. Top link       | 4. Coupler switch          |

- Release the lower button during the red flash to enable Drag Pro mode
- Release the lower button during the green flash to enable the Drag Pro 180Z mode.

**Note:** The controller saves your setting until you change it using the above procedure.

## Controller

- Raise button—raises the plow blade
- Lower button—lowers the plow blade
- 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

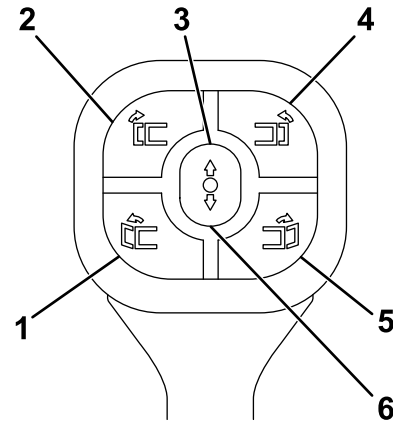


Figure 40

- |                         |                          |
|-------------------------|--------------------------|
| 1. Left Wing Out button | 4. Right Wing In button  |
| 2. Left Wing In button  | 5. Right Wing Out button |
| 3. Raise button         | 6. Lower button          |

## Controls

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

### Coupler Switch

The coupler 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.

## Switching the Control Modes

This controller is equipped with two different software modes that will enable or disable various functions depending on which model plow is used. The controller is factory set to use with the Drag Pro, and can be configured for use with the Drag Pro 180Z to include both 180 degree wing rotation and float functions.

1. With the controller turned off, press and hold the LOWER button.
2. While still pressing the LOWER button, turn the controller on.

**Note:** The light, surrounding the raise and lower buttons on the controller, will alternate flashing red and green.

3. Release the LOWER button during the appropriate colored flash for the desired setting.

### Activating Float

To activate float mode, double tap or hold down the lower button (Figure 40) until the light, surrounding the raise and lower button on the controller, turns red.

### Activating Down Pressure

Triple tap or hold down the lower button until the light, surrounding the raise and lower button on the controller, turns orange.

## Hydraulic Flow-Control Valve

The hydraulic flow-control valve adjusts the speed in which the plow raises and lowers. Refer to [Adjusting the Hydraulic Lowering Speed \(page 25\)](#).

## Top Link

The top links adjust the plow angle of attack. Refer to [Adjusting the Angle of Attack \(page 21\)](#).

# Specifications

Wing blade width	122 cm (4 ft)
Blade width (with wings retracted)	244 cm (8 ft)
Blade width (with wings extended)	4.9 m (16 ft)
Blade height	61 cm (2 ft)
Weight	658 kg (1450 lb)

## Attachments/Accessories

A selection of BOSS approved attachments and accessories is available for use with the machine to enhance and expand its capabilities. Contact your Authorized Service Dealer or authorized BOSS distributor or go to [www.BOSSPlow.com](http://www.BOSSPlow.com) for a list of all approved attachments and accessories.

To ensure optimum performance and continued safety certification of the machine, use only genuine BOSS replacement parts and accessories. Replacement parts and accessories made by other manufacturers could be dangerous, and such use could void the product warranty.

# Operation

## Before Operation

- Familiarize yourself with the *Owner's Manual* before operating or servicing your snowplow.
- Familiarize yourself with local snowplowing laws and regulations.
- Carry the following safety equipment and items in case of emergencies:
  - fire extinguisher
  - tool kit
  - tow strap
  - flashlight
  - flares
  - first-aid kit
  - fuses for your vehicle
  - jumper cables
  - lock deicer
  - ice scraper
  - washer fluid
  - shovel
  - bag of salt or sand

**Note:** In case of emergencies, always carry a cell phone or 2-way radio when plowing.

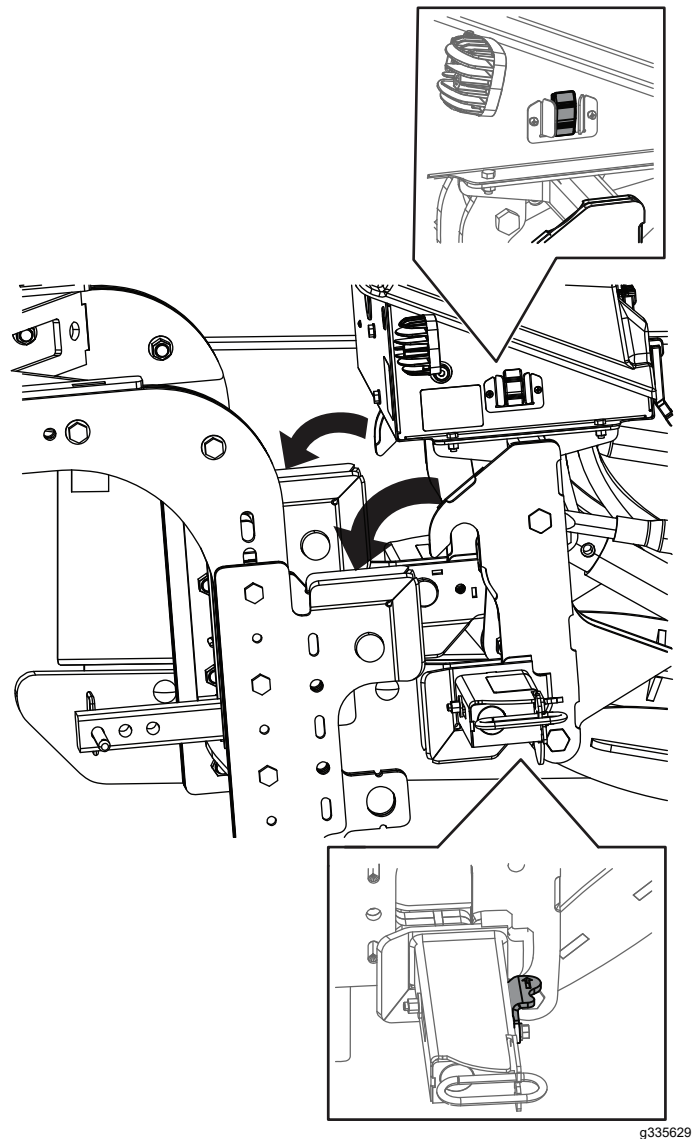
- Wear warm clothes while plowing, including insulated boots, insulated underwear, a warm jacket, hat, gloves, and sunglasses.
- Carry the following snowplow equipment in case of emergencies:
  - hydraulic fluid
  - hydraulic hoses
  - pump solenoid
  - cutting-edge bolts
- Ensure that your vehicle has been maintained according to the manufacturer's recommendation.
- Consider adding a strobe light or backup lights to your vehicle if they are not already equipped.
- Ensure that your vehicle complies with the federal requirements for front and rear weight distribution. Any ballast should be placed behind the rear axle toward the tailgate and secured in place.
- Ensure that all snowplow bolts are tight and torqued properly.
- Ensure that your snowplow blade is not over-worn and in need of replacing.
- Do not exceed 64 km/h (40 mph) when transporting the plow.

- When transporting the plow, keep the plow wings retracted to reduce the chance of catching a curb, snowbank, or other vehicles.
- Turn off the plow controller when transporting the plow to and from a job site.
- When transporting the plow, do not block your vision with the raised plow.
- Before it snows, inspect the location you will be plowing and look for obstacles that will become hidden once it snows. Look for things such as bumper stops, speed bumps, curbs, shrubs, water drains, fire hydrants, fences, and pipes. To prevent damaging the area being plowed, your plow, or your vehicle, mark any obstructions in a way that will be visible after it snows.

## Mounting the Plow

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

1. Turn on the plow controller.
2. Ensure that the controller is not in FLOAT mode.
3. Line up the vehicle with the snowplow and slowly drive backward until you are close enough to connect the plow wire harness to the vehicle wire harness.
4. Remove the electrical-plug dust-covers and connect the plow wire harness to the vehicle wire harness.
5. Use the coupler switch to raise or lower the plow to the desired height, then slowly drive backward until the attachment arms contact the slots on the rail mounting kit ([Figure 41](#)).
6. Lower the plow onto the hitch and flip the pin-locking levers to engage them ([Figure 41](#)).



**Figure 41**

g335629

7. Ensure that the hitch assembly or plow does not obstruct the taillight visibility.

**Important:** If the taillights are obstructed by the hitch assembly or plow, auxiliary taillights must be installed to comply with federal regulations.

# Adjusting the Angle of Attack

1. Park the vehicle on a level surface, bring the plow wings in, and lower the plow completely.
2. Ensure that the plow is just resting on the surface, without any down pressure.
3. Ensure that the controller is not in FLOAT mode.
4. Loosen the nut on the top links.

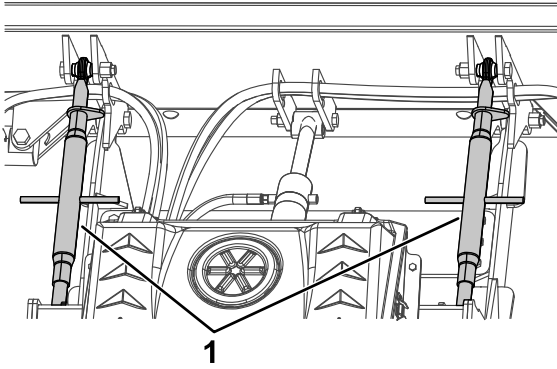


Figure 42

1. Top links

5. Adjust the wing tips by rotating the top links until there is a 1-inch gap between the ground surface and the wing blade edge.

**Note:** Rotate the top links clockwise to lower the wing tips. Rotate the top links counterclockwise to raise the wing tips.

6. Tighten the nuts on the top links.

## Checking the Hydraulic Fluid

1. With the plow mounted to the vehicle, lower the plow to the ground.
2. Clean the area around the fill cap (Figure 43).

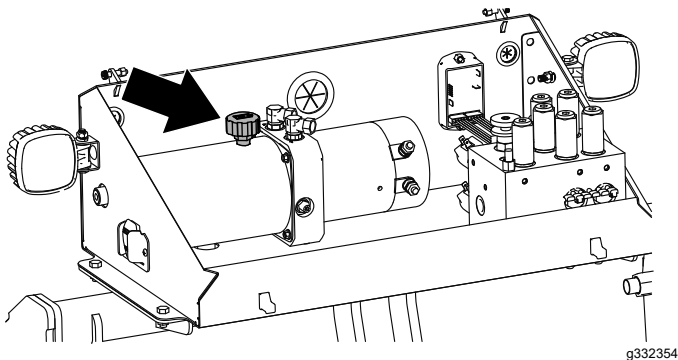


Figure 43

3. Remove the fill cap from the hydraulic reservoir (Figure 43).
4. Ensure that the fluid covers the pump. If it does not, add more hydraulic fluid; refer to [Adding Hydraulic Fluid \(page 25\)](#).
5. Install the previously removed fill cap.

## During Operation

- Do not exceed 22 km/h (14 mph) when plowing.
- Always wear a seatbelt while plowing.
- Never plow with your head out the window.
- When moving in reverse, turn and look behind you instead of relying on vehicle mirrors.
- Start driving forward before lowering the plow for a pass.
- As you come to the end of a pass, lift off the accelerator while starting to use the brake. At the same time, start to raise the blade to help stack the snow and to reduce the load on the electrical system of your vehicle.

## Plowing

1. Back up the vehicle to the location you will start plowing from.
2. Extend the plow wings if desired.
3. Lower the plow blade and begin to slowly drive forward.
4. Once the area has been cleared, raise the plow and retract the wings, if extended.

## Protecting Your Transmission

Transmission damage is a common problem that occurs while plowing. The following steps can help prevent transmission damage:

- Do not plow in overdrive unless the *Owner's Manual* for your vehicle recommends it.
- Plan your plow pattern so that you drive forward as much as possible.
- Come to a complete stop before shifting from forward to reverse.
- Wait until the transmission engages before accelerating.
- Accelerate slowly, allowing the tires to grip the road surface for better traction. Avoid spinning the tires.
- Start driving forward before lowering the plow for a pass.
- Whenever possible, back into a cleared area.

- If you have a manual transmission, avoid riding the clutch while plowing.
- Change the transmission fluid before and during the plowing season. If the fluid has a burnt smell, change the fluid as soon as possible.
- You can install an inline transmission heat gauge to monitor the temperature in your transmission. If it reaches 121°C (250°F), let the vehicle idle until the fluid cools.

## Plowing Parking Lots

- Make sure you know where the customer wants you to pile the snow.
- Use caution when plowing next to curbs.
- If a significant amount of snow is expected, plow during the storm rather than letting snow accumulate.
- Keep water drains and catch basins clear at all times.
- Do not stack snow by the road and block the visibility of vehicles coming or leaving the parking lot.
- Use caution when plowing next to parked cars.
- When plowing snow that is next to a building, move snow away from the building.
- If you are responsible for clearing sidewalks, shovel them first so that you can plow the snow away.
- Plow areas in front of buildings and overhead doors first.
- Move the snowbanks back far enough to accommodate future snowfalls.
- After moving snow away from a building, start plowing the lot. Begin by making a pass down the center of the lot, and then move snow in windrows to the outer edges. If there has been a significant amount of snowfall, move as much bulk off the lot as possible, then go over it again. In large lots, it may be best to break your plowing down into smaller areas.
- Do not pile snow in the middle of the lot. It will be difficult to remove later.
- Do not pile snow near handicapped parking areas.
- Plow in straight lines whenever possible, and move snow to the outer edges of the lot. Keep the wind direction in mind and pile snow downwind to minimize drifting.
- Plow snow during low-traffic hours, and always be cautious of cars and people in the lot.
- Once the majority of snow is removed from the lot, start the cleanup work. Begin by plowing next

to curbs. Be sure to square off corners where possible, and don't leave trails of snow behind.

## Operating Tips

When plowing wet snow, plow until the job is complete. Wet snow left in windrows overnight can freeze and turn into tank traps.

## After Operation

- Lower the blade to the ground and turn off the plow controller when you have finished plowing.
- After plowing, let the vehicle idle for at least 10 minutes to allow the transmission fluid time to cool.

## Removing the Plow

The vehicle must be running before starting this procedure.

1. Turn on the plow controller.
2. Ensure that the controller is not in FLOAT mode.
3. Ensure that the plow wings are retracted and lower the plow blade completely.

### **⚠ WARNING**

**The plow is heavy and could fall and crush the operator or damage the plow if the wings are not retracted before removal.**

**Retract the plow wings before removing the plow.**

4. Release the attachment pins securing the plow to the hitch assembly.
5. Raise the coupler using the switch.
6. Slowly drive forward.
7. Disconnect the plow wire harness and power/ground connector from the vehicle wire harness.
8. Install dust caps on the connectors.
9. Turn the controller off.

## Removing the Hitch Assembly

1. Remove the plow; refer to [Removing the Plow \(page 22\)](#).
2. Remove the pins securing the hitch assembly to the fifth wheel mounting rails.
3. Remove the pin securing the hitch assembly receiver to the vehicle.
4. Lift the hitch assembly up and out of the hitch rails.

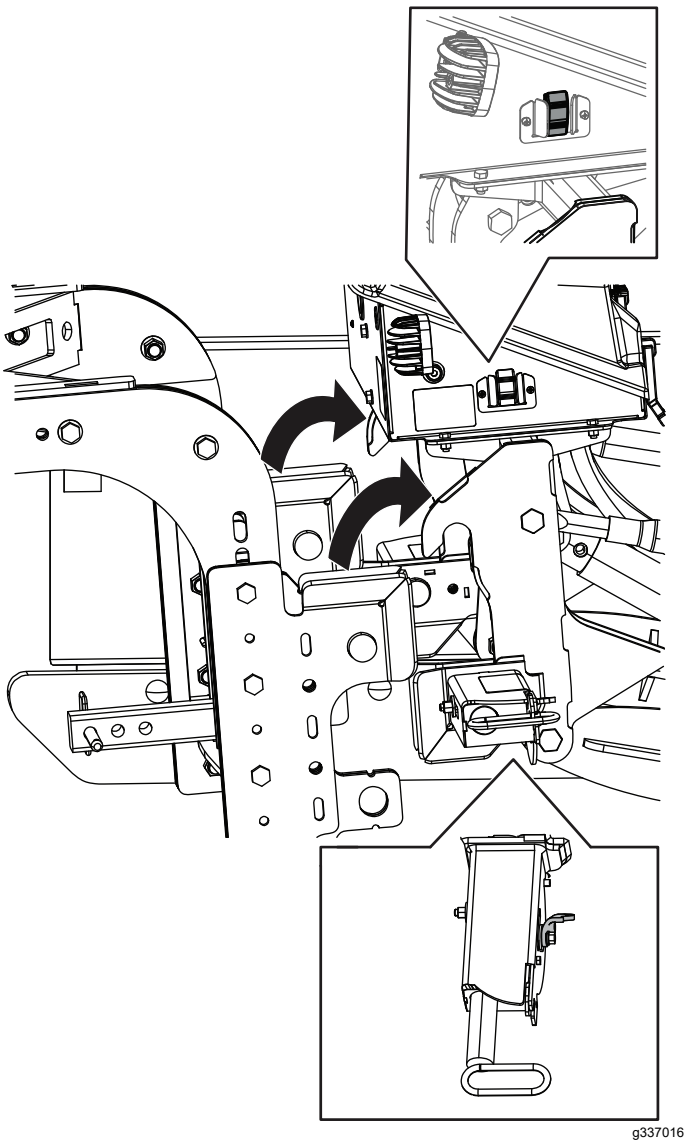


Figure 44

g337016

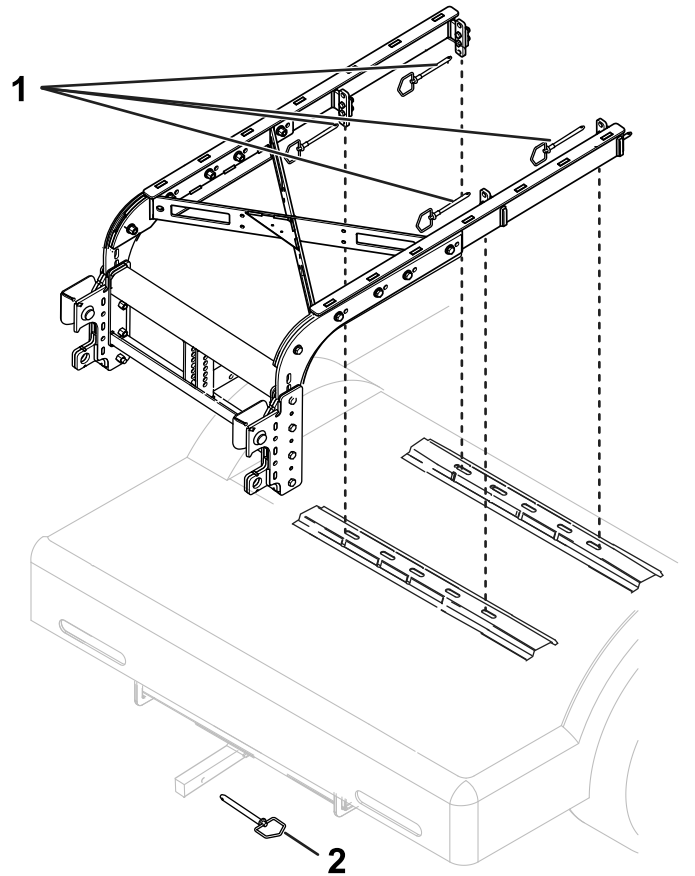


Figure 45

g336862

1. Rail pins
2. Receiver pin



# Maintenance

## ⚠ WARNING

Failure to properly maintain the machine could result in premature failure of machine systems, causing possible harm to you or bystanders.

Keep the machine well maintained and in good working order as indicated in these instructions.

## ⚠ CAUTION

If you leave the key in the switch, someone could accidentally start the engine and seriously injure you or other bystanders.

Remove the key from the switch before you perform any maintenance.

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

## Recommended Maintenance Schedule(s)

Maintenance Service Interval	Maintenance Procedure
Before each use or daily	<ul style="list-style-type: none"><li>• Check the hydraulic cylinders.</li><li>• Check the hydraulic-fluid level.</li><li>• Check the hydraulic lines and hoses.</li><li>• Check the torque of all fasteners, pins, retainers, nuts, and bolts.</li><li>• Check the cutting edge.</li><li>• Check the wire-harness connector.</li></ul>
Before storage	<ul style="list-style-type: none"><li>• Grease the lift-cylinder rods.</li><li>• Apply dielectric grease to the wire-harness connectors.</li></ul>
Monthly	<ul style="list-style-type: none"><li>• Apply dielectric grease to the wire-harness connectors.</li></ul>
Yearly	<ul style="list-style-type: none"><li>• Replace the hydraulic fluid.</li></ul>

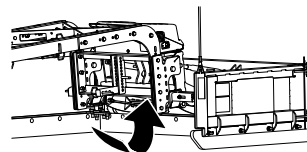
## Servicing the Hydraulic System

### Draining the Hydraulic Fluid

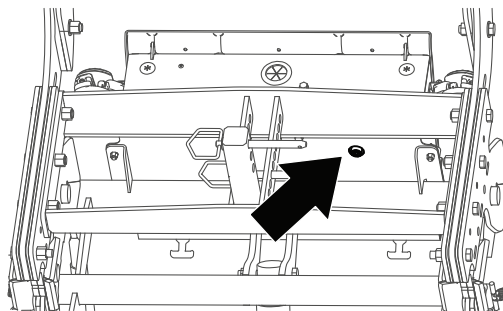
**Service Interval:** Yearly

If the hydraulic fluid becomes contaminated, follow the instructions below or contact your authorized BOSS dealer to have the system flushed.

1. Park the vehicle on a level surface, lower the plow, turn off the vehicle, and remove the keys.
2. Clean the area around the hydraulic drain plug (Figure 46).



g332352



g335641

**Figure 46**

3. Place a drain pan under the plug and remove the plug.
4. Clean the drain plug.



5. Allow the fluid to fully drain, then replace the plug. Torque the plug to 17 to 28 N·m (150 to 250 in-lb).

## Adding Hydraulic Fluid

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

1. Clean the area around the fill cap (Figure 47).

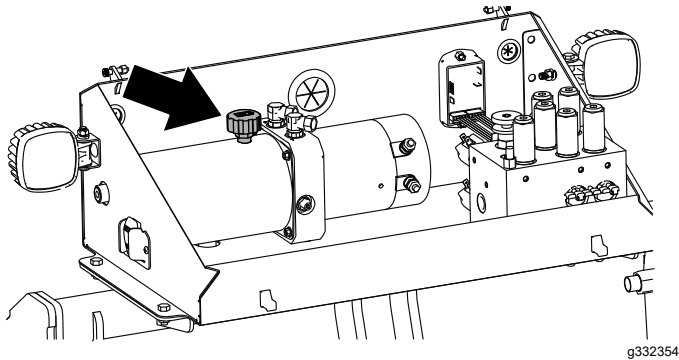


Figure 47

2. Remove the fill cap from the hydraulic reservoir (Figure 47).
3. Slowly fill the reservoir with BOSS high-performance hydraulic fluid until the fluid covers the pump inside the reservoir.
4. Install the previously removed fill cap.
5. Start the vehicle and operate the plow in its full range of movement.
6. Stop the vehicle, check the hydraulic-fluid level, and replenish the fluid if necessary.

## Adjusting the Hydraulic Lowering Speed

### ⚠ WARNING

**Adjusting the flow-control valve can cause the plow to drop suddenly, resulting in bodily harm.**

- Ensure that all observers are standing a safe distance from the plow.
- Ensure that the controller is off before adjusting the plow.
- Keep your body away from the plow blade.

Turn the valve clockwise to decrease the lowering speed.

Turn the valve counterclockwise to increase the lowering speed.

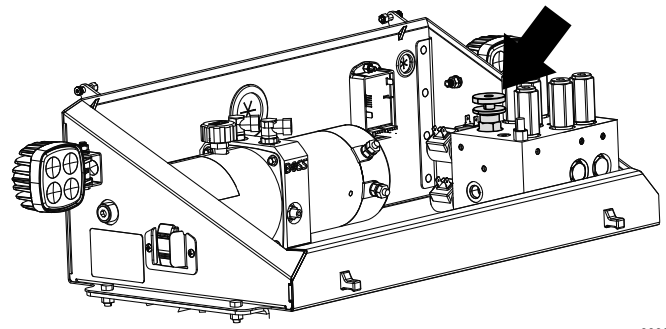


Figure 48

## Checking the Hydraulic Lines and Hoses

### ⚠ WARNING

**Hydraulic fluid escaping under pressure can penetrate the skin and cause injury.**

- Ensure that all hydraulic-fluid hoses and lines are in good condition and all hydraulic connections and fittings are tight before applying pressure to the hydraulic system.
- Keep your body and hands away from pinhole leaks or nozzles that eject high-pressure hydraulic fluid.
- Use cardboard or paper to find hydraulic leaks.
- Safely relieve all pressure in the hydraulic system before performing any work on the hydraulic system.
- Get immediate medical help if fluid is injected into skin.

Check the hydraulic lines and hoses daily for leaks, kinked lines, loose mounting supports, wear, loose fittings, weather deterioration, and chemical deterioration. Make all necessary repairs before operating.

# Storage

## Storing the Plow

1. Drive the snowplow to your storage location and remove the plow; refer to [Removing the Plow \(page 22\)](#).
2. Grease any exposed chrome or nitro bar on the hydraulic cylinders.
3. Apply dielectric grease to all of the wire-harness connectors and install the dust caps.
4. Lightly sand and use touch-up paint on painted areas that are scratched, chipped, or rusted.

## Removing the Plow from Storage

1. Check the plow for cracked welds.
2. Check the torque of all fasteners, pins, retainers, nuts, and bolts; tighten as necessary.
3. Check the hydraulic lines and hoses for cracks or leaks.
4. Replace the hydraulic fluid; refer to [Servicing the Hydraulic System \(page 24\)](#).
5. Check the cutting edge for wear.
6. Lightly sand and use touch-up paint on painted areas that are scratched, chipped, or rusted.
7. Apply dielectric grease to all of the wire harness connectors.
8. Attach the plow to the vehicle; refer to [Mounting the Plow \(page 20\)](#).
9. Move the plow through its range of motion to check the hydraulic cylinder rods.

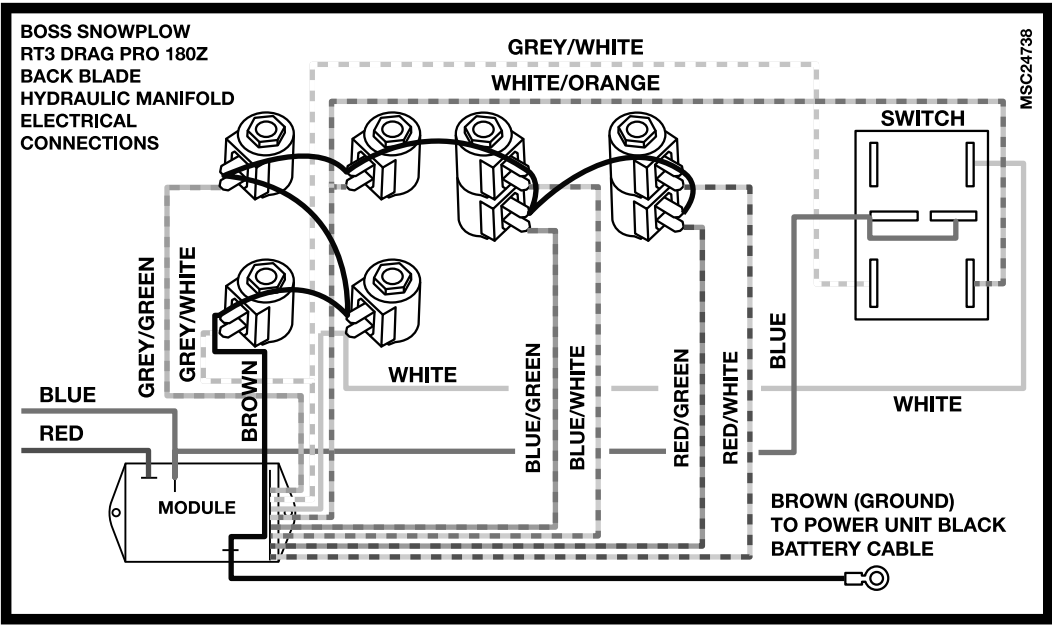
# Troubleshooting

Problem	Possible Cause	Corrective Action
The pump motor does not run.	<ol style="list-style-type: none"> <li>1. The power/ground cables or control cables are not connected.</li> <li>2. The pump motor has failed or the pump has seized.</li> <li>3. The cable between the battery and the solenoid is disconnected or broken.</li> <li>4. The solenoid has failed.</li> <li>5. Power from the relay is disconnected.</li> </ol>	<ol style="list-style-type: none"> <li>1. Connect the cables.</li> <li>2. Check for voltage at the pump motor while the ignition switch is on and the Raise button is pressed on the controller. If voltage is present, the motor brushes or pump/motor assembly may be replaced.</li> <li>3. Check for power to the solenoid by testing for voltage between both large terminals and ground. If voltage is not present between one large terminal and ground, connect or replace the cable.</li> <li>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. If no voltage is present, replace the solenoid. If voltage is present, connect or replace the wire from the small terminal of the solenoid to ground.</li> <li>5. Test the voltage between the black wire and ground at the white 9-pin connector. If no voltage is present, connect the relay. If voltage is present, check the wiring and controller switches.</li> </ol>
The pump continues to run while the switch is in neutral.	<ol style="list-style-type: none"> <li>1. The solenoid has failed in the closed position.</li> <li>2. There is a short between the black and white/black wire in the controller.</li> <li>3. The switch has failed.</li> </ol>	<ol style="list-style-type: none"> <li>1. Disconnect the controller and turn the ignition on. If the pump continues to run, quickly remove power to the pump by disconnecting the power/ground cables to the plow and replace the solenoid.</li> <li>2. Disconnect the controller and turn the ignition on. If the pump stops running, replace the wire.</li> <li>3. Replace the switch.</li> </ol>
The plow does not lower.	<ol style="list-style-type: none"> <li>1. The power/ground cables or control cables are not connected.</li> <li>2. The flow-control valve is closed.</li> <li>3. The wiring on the valve block is not connected.</li> <li>4. The solenoid valve or valve coil has failed.</li> <li>5. Power from the relays is disconnected.</li> </ol>	<ol style="list-style-type: none"> <li>1. Connect the cables if they are not connected.</li> <li>2. Place the controller in neutral, then open the flow-control valve.</li> <li>3. Refer to the wiring schematic.</li> <li>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. If voltage is present, replace the valve or valve coil.</li> <li>5. Check the voltage between the black wire and ground at the white 9-pin connector. If no voltage is present, connect the relays. If voltage is present, check the wiring and switch off the controller.</li> </ol>
The plow lowers too fast.	<ol style="list-style-type: none"> <li>1. The flow-control valve is open too much.</li> </ol>	<ol style="list-style-type: none"> <li>1. Close the flow-control valve to the desired drop speed.</li> </ol>

<b>Problem</b>	<b>Possible Cause</b>	<b>Corrective Action</b>
The plow does not raise or raises slowly.	<ol style="list-style-type: none"> <li>1. The hydraulic-fluid level is low.</li> <li>2. The power/ground cables or the control cable are not connected.</li> <li>3. The wiring on the valve block is not connected.</li> <li>4. The battery if it is weak or needs replacing.</li> <li>5. The motor brushes are bad.</li> <li>6. The pump pressure relief valve is set to less than 172 bar (2,500 psi), contaminated, or damaged.</li> <li>7. The pump is worn.</li> <li>8. The Raise control solenoid valve is not opening completely.</li> <li>9. The Lower control solenoid valve is stuck open.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the hydraulic-fluid level; refer to the Checking the Hydraulic Fluid section.</li> <li>2. Connect the cables.</li> <li>3. Refer to the wiring schematic.</li> <li>4. Load a test battery and replace it if necessary.</li> <li>5. Check the motor brushes and replace them if necessary.</li> <li>6. Ensure that the pressure is set to 172 bar (2,500 psi). Check the pressure again. If it is less than 172 bar (2,500 psi) at the end of the lift, clean or replace the pressure relief valve.</li> <li>7. Replace the pump.</li> <li>8. Replace the valve.</li> <li>9. Replace the valve.</li> </ol>
Oil leaks from the lift cylinders.	<ol style="list-style-type: none"> <li>1. The fittings are loose or the O-rings are damaged.</li> <li>2. The rods are pitted or rough.</li> </ol>	<ol style="list-style-type: none"> <li>1. Tighten loose fittings. See your authorized BOSS dealer for a seal kit.</li> <li>2. Polish them with a copus cloth or extra fine steel wool.</li> </ol>
The vehicle battery dies when the vehicle is turned off.	<ol style="list-style-type: none"> <li>1. The wire harness is not connected to a keyed fuse source.</li> </ol>	<ol style="list-style-type: none"> <li>1. Connect the wire harness to a keyed fuse source; refer to the wire schematic.</li> </ol>
The vehicle battery dies when all of the switches are in the Neutral position.	<ol style="list-style-type: none"> <li>1. There is a short in the controller wiring.</li> <li>2. There is a short in the wire harness.</li> <li>3. There is a short in the valve coils.</li> </ol>	<ol style="list-style-type: none"> <li>1. Repair or replace the controller.</li> <li>2. Repair or replace the wire harness.</li> <li>3. Replace the valve coils.</li> </ol>
Fluid is running out of the fill cap of the hydraulic pump.	<ol style="list-style-type: none"> <li>1. The terrain is too steep.</li> <li>2. The pump reservoir is overfilled.</li> <li>3. The plow is hitting snowbanks too hard.</li> </ol>	<ol style="list-style-type: none"> <li>1. Avoid steeply sloped areas.</li> <li>2. The hydraulic fluid level should be within 2 cm (3/4 inch) of the top of the reservoir.</li> <li>3. Do not plow recklessly.</li> </ol>
The pump chatters when raising or angling the plow.	<ol style="list-style-type: none"> <li>1. The hydraulic-fluid level is low.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the hydraulic-fluid level; refer to the Checking the Hydraulic Fluid section.</li> </ol>
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"> <li>1. The pressure or return lines are incorrectly routed.</li> </ol>	<ol style="list-style-type: none"> <li>1. Ensure that the pressure line is connected from the "P" on the pump to the "P" on the valve manifold, and the return line is connected from the "T" on the pump to the "T" on the valve manifold.</li> </ol>
The wings drift back when extended.	<ol style="list-style-type: none"> <li>1. The wing-return-solenoid valve on the manifold is contaminated.</li> <li>2. The pressure-relief valve is contaminated.</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean or replace it.</li> <li>2. Clean or replace it.</li> </ol>

Problem	Possible Cause	Corrective Action
The wing(s) do(es) not extend or extend slowly when the motor runs.	<ol style="list-style-type: none"> <li>1. The hydraulic-fluid level is low.</li> <li>2. The power/ground cables or the control cable are not connected.</li> <li>3. The wiring on the valve block is not connected.</li> <li>4. The battery if it is weak or needs replacing.</li> <li>5. The motor brushes are bad.</li> <li>6. The pump pressure relief valve is set to less than 172 bar (2,500 psi), contaminated, or damaged.</li> <li>7. The pump is worn.</li> <li>8. The Wing Out control solenoid valve is not opening completely.</li> <li>9. The wiring or control box is not connected.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the hydraulic-fluid level; refer to the Checking the Hydraulic Fluid section.</li> <li>2. Connect the cables.</li> <li>3. Refer to the wiring schematic.</li> <li>4. Load a test battery and replace it if necessary.</li> <li>5. Check the motor brushes and replace them if necessary.</li> <li>6. Ensure that the pressure is set to 172 bar (2,500 psi). Check the pressure again. If it is less than 172 bar (2,500 psi) at the end of the lift, clean or replace the pressure relief valve.</li> <li>7. Replace the pump.</li> <li>8. Replace it.</li> <li>9. Refer to the wiring schematic.</li> </ol>
The wing(s) extend, but do(es) not retract or retract slowly.	<ol style="list-style-type: none"> <li>1. The power/ground cables or control cable are not connected.</li> <li>2. The wiring on the valve block is not connected.</li> <li>3. The solenoid valve or valve coil has failed.</li> </ol>	<ol style="list-style-type: none"> <li>1. Connect the cables.</li> <li>2. Refer to the wiring schematic.</li> <li>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. If voltage is present, replace the valve or valve coil.</li> </ol>
The plow wings do not extend or retract.	<ol style="list-style-type: none"> <li>1. If the status light on the plow module is green but not blinking, the controller is not communicating correctly.</li> <li>2. If the status light on the plow module is orange, the plow module may be wired incorrectly.</li> <li>3. If the status light on the plow module is blinking orange or red, there is a problem with the module driver.</li> <li>4. If the status light on the plow module is off, the plow module is not getting power.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the controller connections. Replace the controller if it is broken.</li> <li>2. Refer to the wiring diagram included with your <i>Owner's Manual</i>.</li> <li>3. Check the module connections for shorts. Replace the module if it is broken.</li> <li>4. Check that the controller is on and that all of the plugs are connected.</li> </ol>
The wing(s) retract too easily while plowing.	<ol style="list-style-type: none"> <li>1. The pressure-relief valve pressure is set too low.</li> </ol>	<ol style="list-style-type: none"> <li>1. See an authorized BOSS dealer for pressure-relief-valve adjustment.</li> </ol>

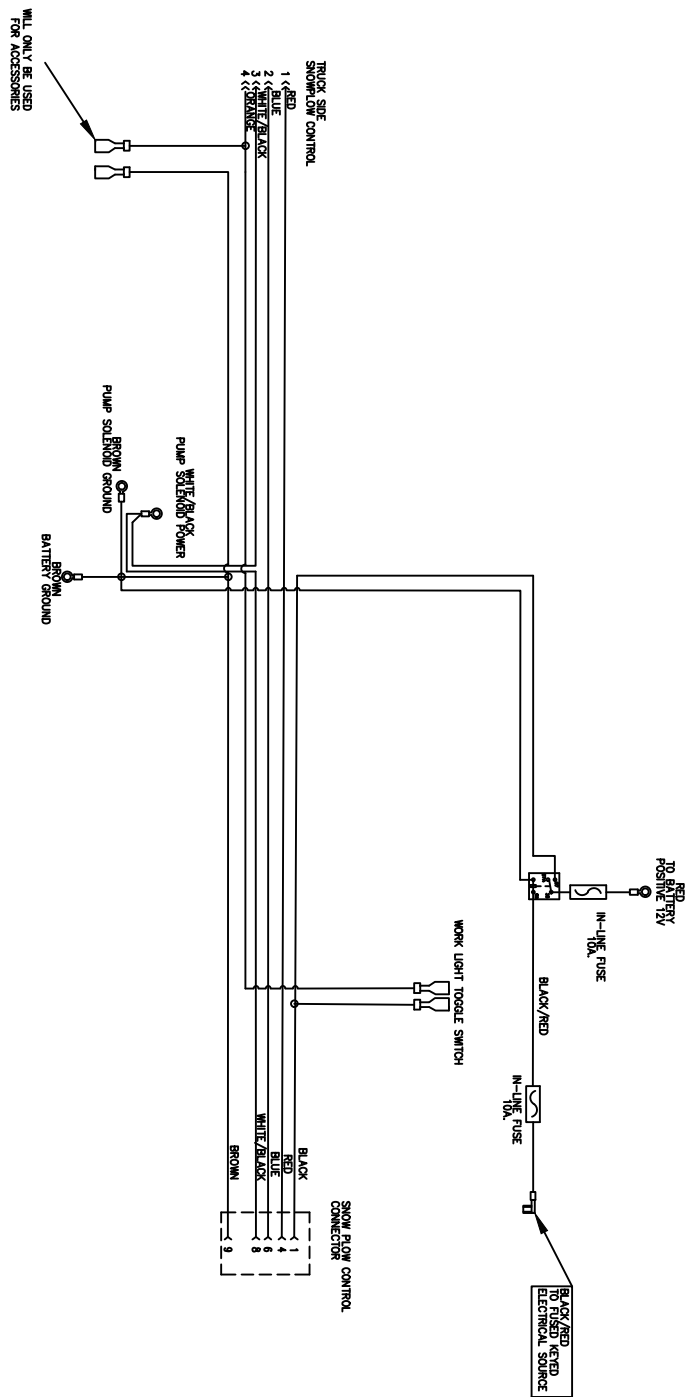
# Schematics



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Wire Color	Function
Blue/Green	Left Wing Out
Blue/White	Left Wing In
Red/White	Right Wing Out
Red/Green	Right Wing In
White and Gray/Green	Raise
Gray/White and Gray/Green	Lower
Red	Communication
Blue	Module Power
Brown	Ground

Hydraulic Manifold Wiring (Rev. A)



(Rev. A)

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