

BOSS PRODUCTS  
A Division of Northern Star Industries, Inc.  
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# NEXT GENERATION ELECTRICAL WITH SMARTHITCH2™ INSTALLATION MANUAL

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5568694, 6108946, 6170178, 6134814, 6035944, 2137853, 7437839, 6467199  
Other Patents Pending

***PUSHING THE EDGE***

MSC17858-0

## **WARNING**

Serious injury or death can result if you do not follow these instructions and procedures which are outlined further within your owner's manual

- Read this manual carefully before operating this snowplow.
- 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.
- Vehicles equipped with air bags are designed such that the air bags will be activated in a frontal collision equivalent to hitting a solid barrier (such as a wall) at approximately 14 mph or more, or, roughly speaking, a frontal perpendicular collision with a parked car or truck of similar size at approximately 28 mph or more. Careless or high speed driving while plowing snow, which results in vehicle decelerations equivalent to or greater than the air bag deployment threshold described above, would deploy the air bag.
- Many newer trucks are equipped with air bags. DO NOT under any circumstances disable or remove or relocate any sensors or other components related to the operation of the air bags.
- When transporting, position plow so as not to block vision or plow headlights.
- DO NOT change blade position when traveling.
- DO NOT exceed 40 mph when transporting plow.
- DO NOT exceed 14 mph when plowing.
- Always lower blade when vehicle is not in use.
- Make sure plow is properly attached before moving vehicle.
- To comply with Federal Regulations and to assure a safe vehicle, the Front Gross Axle Weight Rating (FGAWR), Rear Gross Axle Weight Rating (RGAWR), and the Gross Vehicle Weight Rating (GAWR) must not be exceeded at any time.
- Due to the variety of equipment that can be installed on this vehicle, it is necessary to verify that the Front Gross Axle Weight Rating (FGAWR), Rear Gross Axle Weight Rating (RGAWR), and the Gross Vehicle Weight Rating (GAWR) are not exceeded at any time. This may require weighing the vehicle and adding ballast as necessary. It may also limit payload capacity of the vehicle. It is the operator's responsibility to verify that these ratings are not exceeded.
- Make sure Base Angle Lock-Out Bolts have been removed from snowplow blades prior to use.

**SmartHitch2™**

**MOUNTING INSTRUCTIONS**

**CAUTION**

**BOTH COUPLER SPRING PINS MUST BE FULLY ENGAGED. FAILURE TO COMPLETELY ENGAGE BOTH SPRING PINS MAY RESULT IN PERSONAL INJURY AND PROPERTY DAMAGE.**

**SNOWPLOW MOUNTING**

**STEP 1**

- Place the snowplow control in the FLOAT position.
- Line up the vehicle with the snowplow and drive straight in until the lower pin contacts the push beam pin receiver.
- Remove the electrical plug dust covers. Connect the electrical plugs, turn levers to the ON position.

**STEP 2**

- Push the SmartHitch2 switch upward to raise the coupler tower until the spring pins snap in.
- Check that both spring pins have fully engaged the coupler. SEE CAUTION INSERT. Move the coupler tower to align spring pins with the pin receiver holes until both pins engage completely.
- Release the SmartHitch2 switch to stop movement of the coupler tower.
- Turn truck/plow switch to plow position.

**SNOWPLOW REMOVAL**

**STEP 1**

- Turn truck/plow switch to truck position.
- Retract both wings to the Vee position and place the snowplow control in the FLOAT position.
- Turn the levers to the OFF position.
- Push the SmartHitch2 switch upward to raise the coupler tower and release the coupler spring pins.

**STEP 2**

- Push the SmartHitch2 switch downward until the coupler tower completely lowers to the plow.
- Disconnect the electrical plugs and install the electrical plug dust covers.
- Back the vehicle away from the snowplow slowly.

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Figure 1: Mounting and Removal Instructions

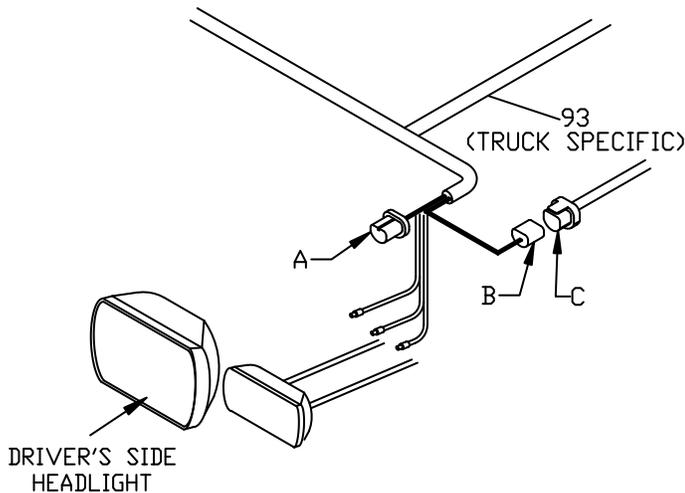
### Electrical System Wiring Procedure

#### **! WARNING**

Before starting any Electrical Wiring Procedure make sure that the engine is not running and that the engine has had sufficient time to cool down. Failure to do so may result in serious bodily injury or death.

#### **! WARNING**

Before starting any Electrical Wiring Procedure make sure to disconnect the battery. Failure to do so may result in serious bodily injury or death.



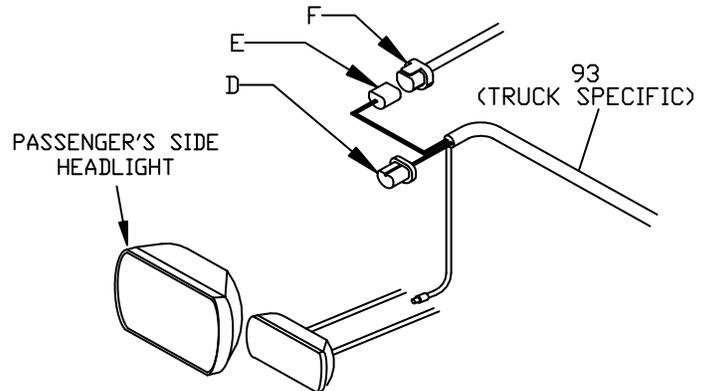
**Figure 2:** Driver Side Headlight

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**Note:** Dielectric grease should be applied to all electrical connections.

1. Disconnect the driver side headlight connector plug (C) from the back of the driver side vehicle headlight.
2. Connect the Vehicle Specific Connector (A) from Headlight Harness (93) into the back of the driver side vehicle headlight.
3. Connect the Vehicle Specific Connector (B) from Headlight Harness (93) into the OEM Wiring Harness (C). OEM Wiring Harness (C) is the vehicle connector that was unplugged from the back of the headlight in Step 1.

**Note:** The Headlight Harness is vehicle specific for most models and years. Refer to *NGE Vehicle Headlight Harness Chart* to determine which Headlight Harness and/or Headlight Adapter Kit will be needed.



**Figure 3.** Passenger Side Headlight

G10736

4. Disconnect the passenger side OEM Wiring Harness (F) from the back of the passenger side vehicle headlight.
5. Connect the Vehicle Specific Connector (D) from Wiring Harness (93) into the back of the passenger side vehicle headlight.
6. Connect the Vehicle Specific Connector (E) from Wiring Harness (93) into the OEM Wiring Harness (F). OEM Wiring Harness (F) is the vehicle connector that was unplugged from the back of the headlight in Step 4.

## Electrical System Wiring Procedure

### NOTICE

Before splicing into any electrical circuit, identify the circuit with a test lamp. Failure to test circuits may result in vehicle damage. Be sure the wire loom does not interfere with the operation of the vehicle's pedals.

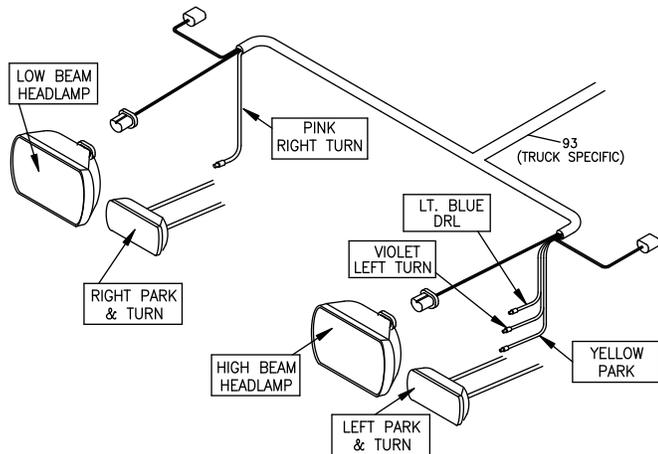


Figure 4: Connecting Park and Turn

G10744

7. Connect the PINK wire from Headlight Harness (93) to the passenger side turn signal wire. Use the splice connector provided in the hardware kit.
8. Connect the VIOLET wire from Headlight Harness (93) to the driver side turn signal wire. Use the splice connector provided in the hardware kit.
9. Connect the YELLOW wire from Wiring Harness (60) to the driver side park light wire. Use the splice connector provided in the hardware kit.
10. If your vehicle has a separate Daytime Running Light Headlamp, then connect the LIGHT BLUE wire from Headlight Harness (93) to the driver side daytime running light wire. Use the splice connector provided to you in the hardware kit. If there is no separate DRL Headlamp then disregard the light blue wire.

**Note:** Refer to Figure 5 for steps 12 through 31

11. Take the Vehicle Control Module Mounting Bracket (not shown) and mount to an area free of obstructions using two 10-32X3/4" Self-Drilling Screws.

12. Take the Vehicle Control Module (90) and mount it to the bracket installed in Step 12 using four 10-32X5/8" Pan Head Screws and four 10-32 Nuts.
13. Lay the three wiring harnesses (91), (92), and (93) across the engine compartment with the connectors for each harness (T), (V), and (X) next to the Vehicle Control Module's connectors (U), (W), and (Y). Do not connect the Harness Connectors to the Vehicle Control Module (90).

**Note:** Be sure that the firewall is clear of obstructions before drilling in Step 14.

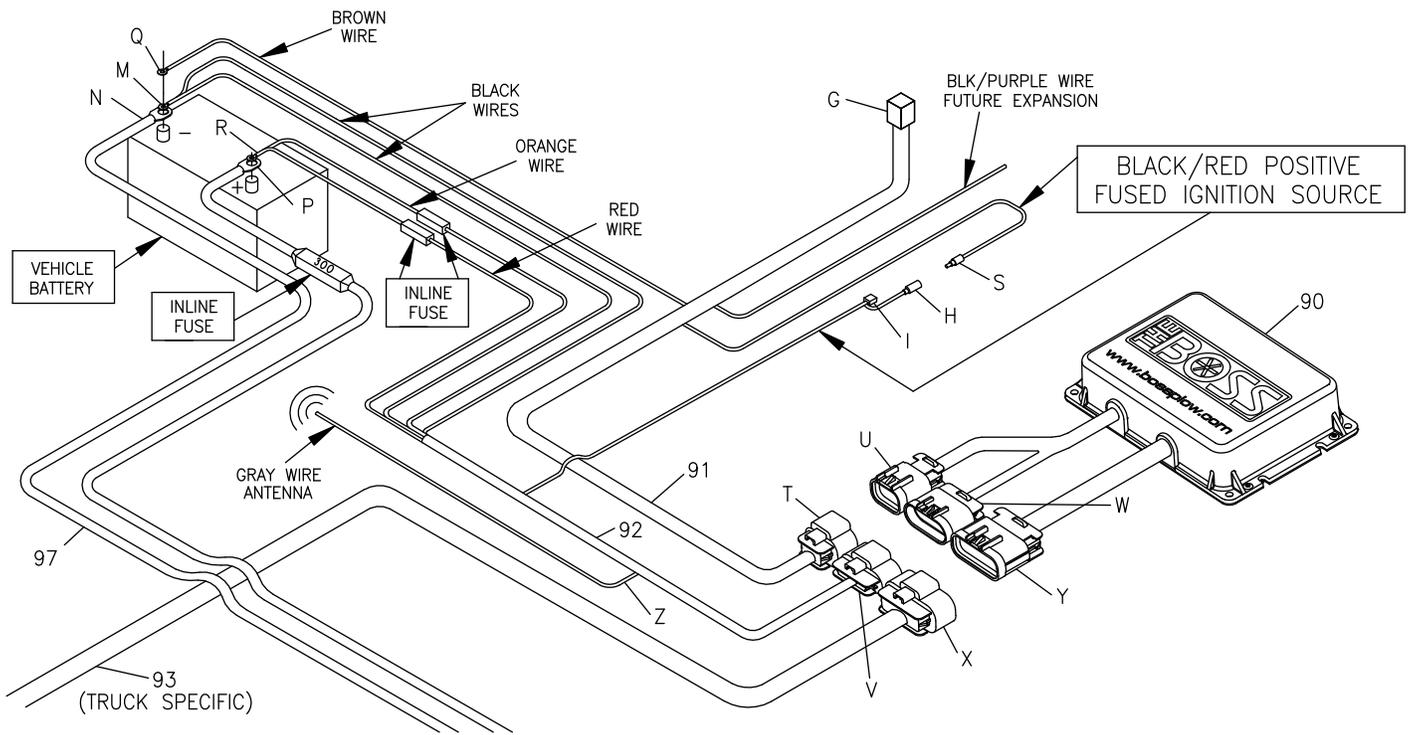
14. Drill a 1-1/4" diameter hole through the firewall. The hole should be located on the driver side, in an easily accessible area.
15. Pull the 9 Pin Molex connector (G) from the engine compartment into the cab through the 1-1/4" diameter hole in the firewall.
16. Install Split Rubber Grommet (Not Shown) into the hole that was cut in the firewall.

### NOTICE

All plow wiring should be secured under the hood in a position that provides sufficient room so that hot or moving parts will not be contacted. Vehicle damage could occur if wires are not properly secured.

17. Secure the 9 Pin Molex Connector (G) and wire loom underneath the dashboard.
18. Plug the controller into the 9 Pin Molex Connector (G).
19. Direct the three BLACK/RED wires (I), (H), and (S), to the fuse box.
20. Connect the BLACK/RED wire (I) to a "keyed" 12V+ ignition source.
21. Connect the BLACK/RED Bullet Connectors together (H and S).

**Note:** This 12V+ source should only be active when the key is in the ON position. Failure to wire to a "keyed" source can allow a condition to occur causing the battery to drain.



**Figure 5:** Internal Cab Wires

G10739

22. Attach the eyelet end (N) of BLACK Power/Ground Cable (97) to the negative battery terminal.

23. Attach the eyelet end (P) of RED Power/Ground Cable (97) to the positive battery terminal.

24. Connect the eyelet (Q) of the BROWN wire to the negative battery terminal.

25. Connect the eyelet (M) of the two BLACK wires to the negative battery terminal.

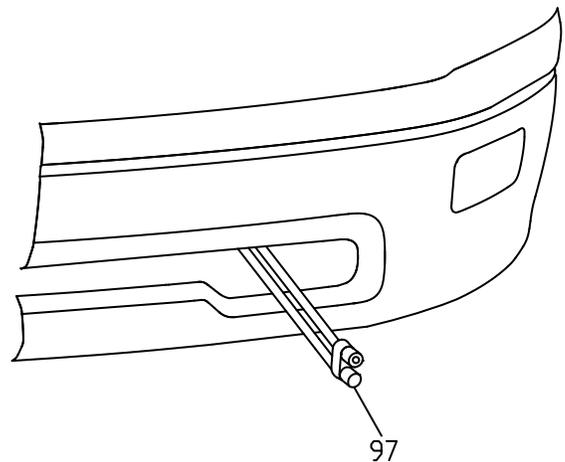
26. Connect the eyelet (R) of the RED Fused wire and the ORANGE Fused wire to the positive battery terminal.

27. Locate the GRAY wire (Z) in the Power Harness (92) and pull it out of the loom. Direct the GRAY wire (Z) to the front of the vehicle and secure it along the inside of the grill, or in front of the radiator if the grill is attached to the hood.

28. Connect the Control Harness (91) Connector (T) to the Vehicle Control Module (90) Connector (U).

29. Connect the Power Harness (92) Connector (V) to the Vehicle Control Module (90) Connector (W).

30. Connect the Headlight Harness (93) Connector (X) to the Vehicle Control Module (90) Connector (Y).



**Figure 6:** Vehicle Connection

G10743

31. Route the Power/Ground Cable to the bottom of the front bumper on the driver's side as shown in Figure 6.

## Electrical System Wiring Procedure

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32. Secure all plow harness wiring.

33. Test for the proper operation of the Headlight Wiring Harness. Follow the procedures below.

**Note:** When testing the truck and plow lights, make sure the **IGNITION** is in the **ON** position.

- *LOW BEAM (Truck Lights)*
  - ◆ Vehicle Headlight Switch – ON
  - ◆ Low Beam Lights on Truck Indicator

**RESULTS** - Only vehicle low beam headlights should be illuminated.

- *HIGH BEAM (Truck Lights)*
  - ◆ Vehicle Headlight Switch – ON
  - ◆ High Beam Indicator Light – ON

**RESULTS** - Only vehicle high beam headlights should be illuminated.

34. Attach the snowplow to the vehicle. Use the “Snowplow Mounting Procedure” that is located in this manual to properly attach the snowplow to the vehicle.

**Note:** The NGE System automatically switches light functions from truck to plow.

- *LOW BEAM (Plow Lights)*
  - ◆ Ignition - ON
  - ◆ Vehicle Headlight Switch – ON
  - ◆ Low Beam Lights on Truck Indicator

**RESULTS** - Only plow low beam headlights should be illuminated.

- *HIGH BEAM (Plow Lights)*
  - ◆ Ignition - ON
  - ◆ Vehicle Headlight Switch – ON
  - ◆ High Beam Indicator Light – ON

**RESULTS** - Both plow high beam and low beam headlights should be illuminated.

- *TURN SIGNALS (Plow and Truck)*
  - ◆ Left Turn Signal Indicator – ON

**RESULTS** - Both Left Plow and Left Truck turn signal bulbs should be flashing.

- ◆ Right Turn Signal Indicator – ON

**RESULTS** - Both Right Plow and Right Truck turn signal bulbs should be flashing.

- *PARK LIGHTS (Plow and Truck)*
  - ◆ Park Lights on Vehicle – ON

**RESULTS** - All Four, Left Plow, Right Plow, Left Truck, and Right Truck Park Lights should be on.

**Note:** If any of the lights are not working properly, re-check the wiring against the “Electrical Wiring Diagram” located in this manual and make any necessary corrections.

### Headlight Adapter Installation Procedure

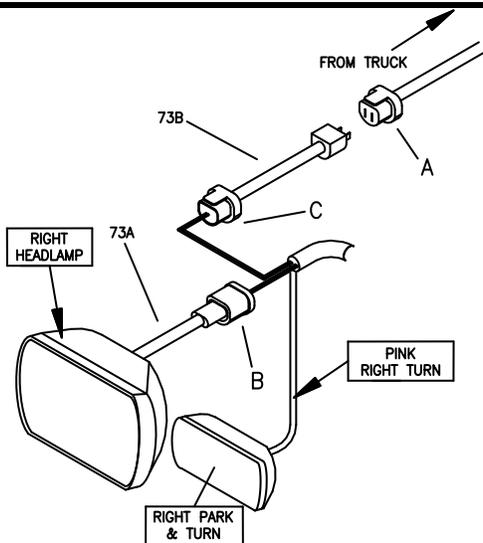


Figure 7: Single Headlight Adapter Connections G10149

**Note:** This is a general diagram for the Universal Headlight Harness (Reference NGE Headlight Harness Chart). All vehicles and headlight adapters may not be identical. Installation will be very similar.

1. Disconnect the OEM Headlight Connector Plug (A) from the back of the vehicle headlight.
2. Connect one end of Headlight Adapter (73A) into the back of the vehicle headlight.
3. Connect the Black Rubber Female Socket (B) of Headlight Adapter (73A) into the plow wiring harness.
4. Connect the Blue Sealed Beam Connector (C) of Headlight Adapter (73B) into the plow wiring harness.
5. Connect the opposite end of Headlight Adapter (73B) into the OEM Headlight Connector Plug (A).
6. Repeat Steps 1 through 5 for the opposite side headlight.
7. Continue with the Step 7 of "Electrical System Wiring Procedure" located in this manual.

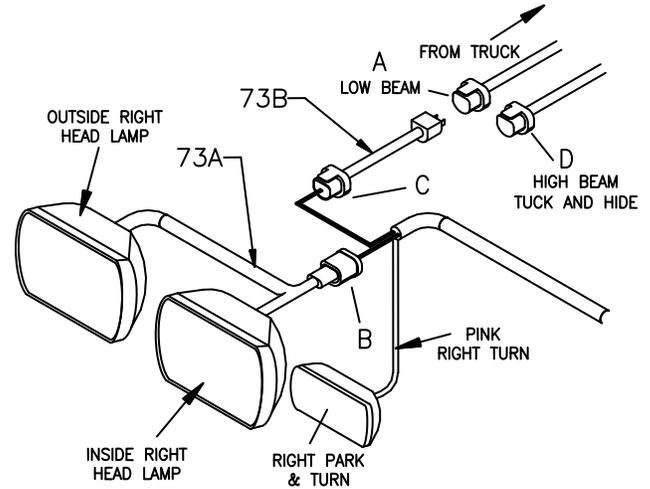


Figure 8: Dual Headlight Adapter Connections G10151

**Note:** This is a general diagram for the Universal Headlight Harness. All vehicles and headlight adapters may not be identical. Installation will be very similar.

1. Disconnect OEM Headlight Connector Plugs (A and D) from the back of the vehicle headlight.
2. Connect two ends of Headlight Adapter (73A) into the back of the vehicle headlights.
3. Connect the Black Rubber Female Socket (B) of Headlight Adapter (73A) into the plow wiring harness.
4. Connect the Blue Sealed Beam Connector (C) of Headlight Adapter (73B) into the plow wiring harness.
5. Connect the opposite end of Headlight Adapter (73B) into the OEM Wiring Harness (A).
6. Grease, tuck, and secure OEM Connector Plug (D). This connector is not used.
7. Repeat Steps 1 through 6 for the opposite side headlight.
8. Continue with the Step 7 of "Electrical System Wiring Procedure" located in this manual.

**Note:** Headlight adapters are only needed if a vehicle specific headlight harness does not exist.

## Electrical Wiring Procedure for Vehicles that Require a Headlight Resistor Kit

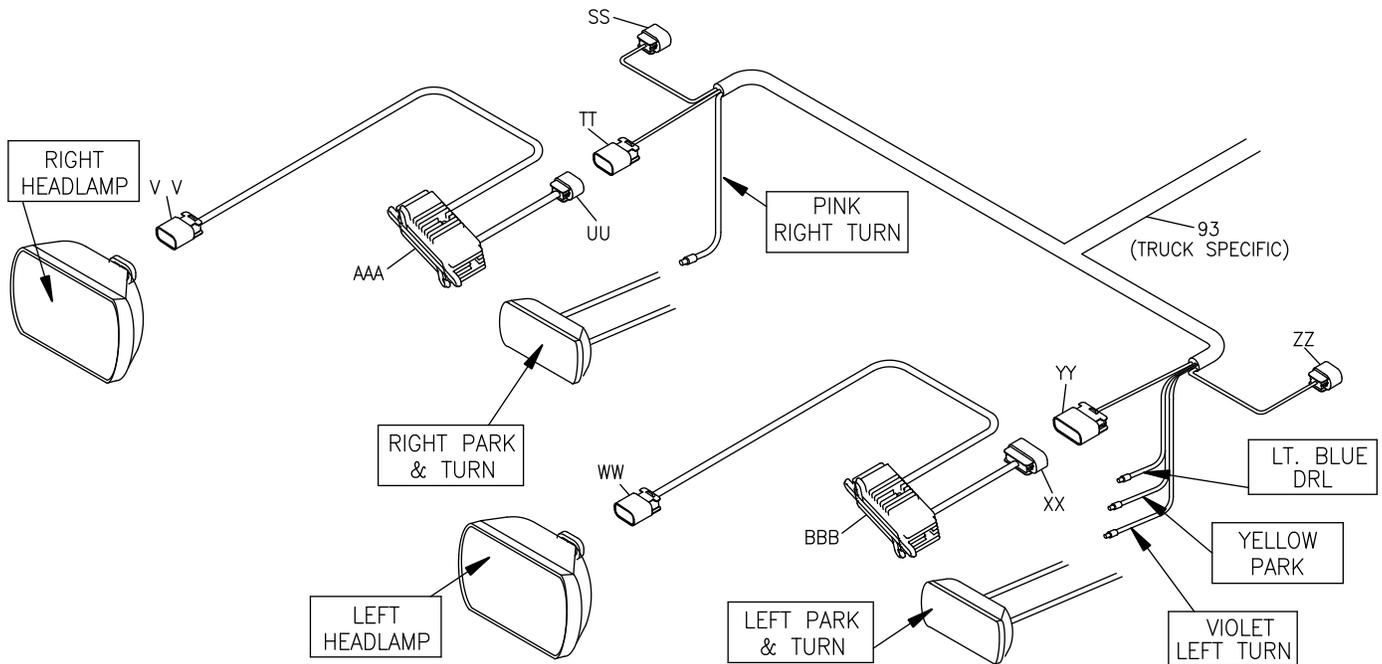


Figure 9: Headlight Resistor Wiring

G10748

1. Remove OEM plugs from the Headlights.
  2. Plug in the three pin connectors (SS) and (ZZ) into the OEM plugs on the OEM vehicle harness that were removed in step 1.
- Note:** The Passenger Side Resistor (AAA) has TWO three pin connector. The Driver Side Resistor (BBB) has ONE three pin connector and ONE six pin connector.
3. Take the passenger side resistor (AAA) and plug the SHORT three pin connector (UU) into the Vehicle Specific Headlight Harness Connector (TT).

4. Take the long three pin connector (V V) on resistor (AAA) and plug it into the Passenger Side (Right) Headlight.
5. Take the driver side resistor (BBB) and plug the SHORT six pin connector (XX) into the Vehicle Specific Headlight Harness Connector (YY).
6. Take the long three pin connector (WW) on resistor (BBB) and plug it into the Driver Side (Left) Headlight.
7. Headlight.

**Note:** Not all vehicles require a Headlight Resistor Kit. Refer to the NGE Vehicle Headlight Harness Chart to determine if your vehicle requires the Resistor Kit.

## Electrical Wiring Procedure for NGE Upgrade (Plow Side) 2012 & Newer

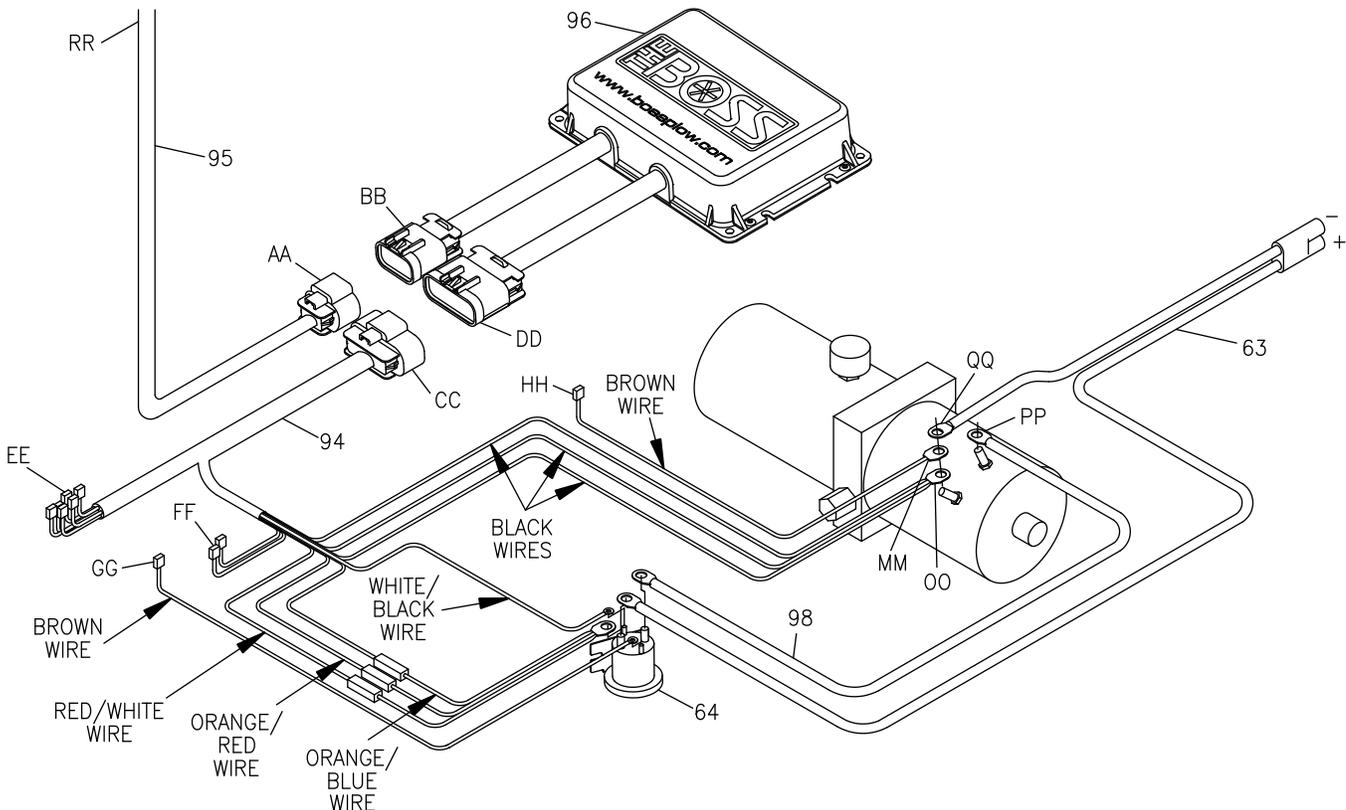


Figure 10: Plow Side Wiring

G10740

1. Remove all the Plow Side Wiring except the BROWN daisy-chain ground wire that is connect to the valves and Pump Motor.

2. Using four 10-32X5/8" Pan Head Screws, four Rubber Washers, and four 10-32 Thin Nuts, provided in the installation kit, mount Plow Control Module (96) to the predrilled holes in the coupler tower.

**Note:** Do not flatten Rubber Washers. Pan Head Screws and Thin Nuts should be snug.

3. The Plow Control Module should be mounted with the LED and Button in an upright orientation. Install the BLACK Rubber Button and CLEAR Rubber Sight Window as seen in Figure 11.

4. Take the Solenoid Mounting Bracket and install it in the coupler using the predrilled holes and two 1/4-

20X3/4" Hex Head Bolts and two 1/4-20 Nyloc Nuts supplied in the mounting kit.

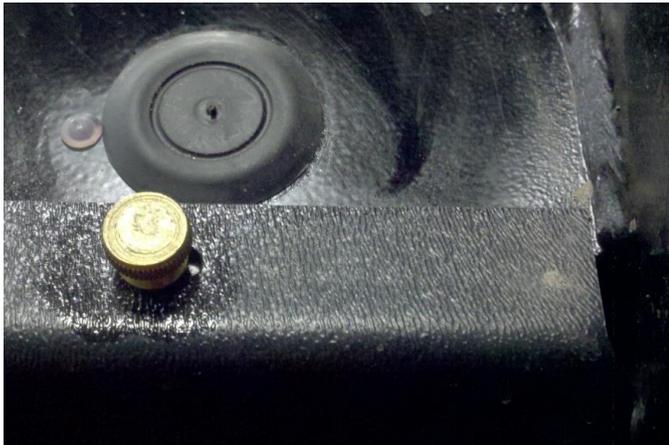
5. Mount the solenoid to the bracket that was installed in step 4 with two 1/4-20X3/4" Hex Head Bolts and two 1/4-20 Nyloc Nuts supplied in the mounting kit.

6. Connect the eyelet (QQ) on the BLACK power/ground wire (63) to the negative terminal on the pump motor.

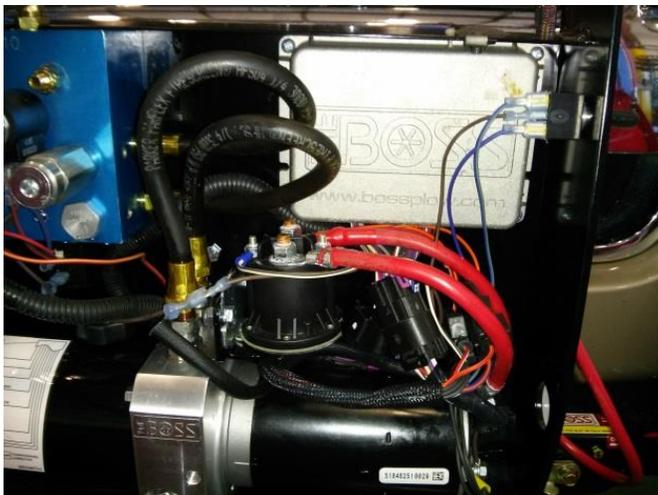
7. The eyelet (MM) on the BROWN Daisy Chain Wire is connected to the negative terminal on the pump motor. Leave it connected.

8. The eyelet (OO) on the three BLACK wires is the last wire that needs to be connected to the negative terminal on the pump motor.

9. Connect the eyelet (PP) on the RED power jumper wire (98) to the positive terminal on the pump motor.

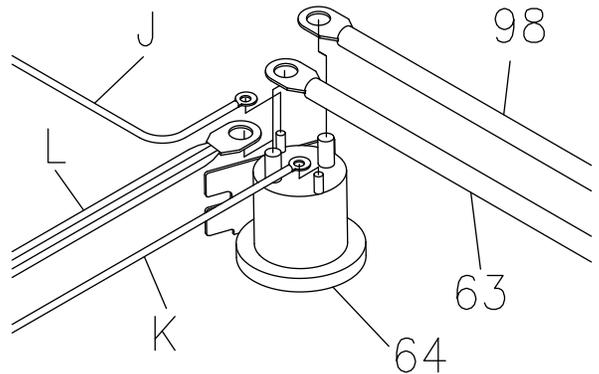


**Figure 11:** NGE Coupler Sync Button and Light Window



**Figure 12:** Plow Side Mounting Locations

**Note:** For Solenoid and Plow Control Module Mounting locations, please refer to Figure 12.



**Figure 13:** Solenoid Wiring

G10738

10. Connect the RED Power Jumper Wire (98) to one of the large terminals on the solenoid.
  11. Connect the RED Power/Ground wire (63) to the opposite terminal that was used in step 10.
  12. Connect the eyelet (L) of the RED/WHITE, ORANGE/RED, and ORANGE/BLUE to the terminal used in step 11.
  13. The eyelet (J) on the WHITE/BLACK wire should be connected to one of the small terminals on the solenoid.
  14. The eyelet (K) on the BROWN jumper wire included in the kit should be connected to the small terminal opposite of the one used in step 13.
  15. Connect ends (HH) and (GG) of the two BROWN wires.
- Note:** For connections of (EE) and (FF) please refer to the Electrical System Wiring Schematic located in this manual. Choose the Schematic that corresponds with your plow (Vee Blade or Straight Blade)
16. Connect the new plow side headlight harness (95) to the plow lights. They will connect the same way as they were connected to the original harness.
  17. Connect the Plow Light Harness (95) Connector (AA) to the Plow Control Module (96) Connector (BB).
  18. Connect the Power/Manifold Harness (94) Connector (CC) to the Plow Control Module (96) Connector (DD).

# Electrical System Wiring Schematic Plow Side (Straight Blade)

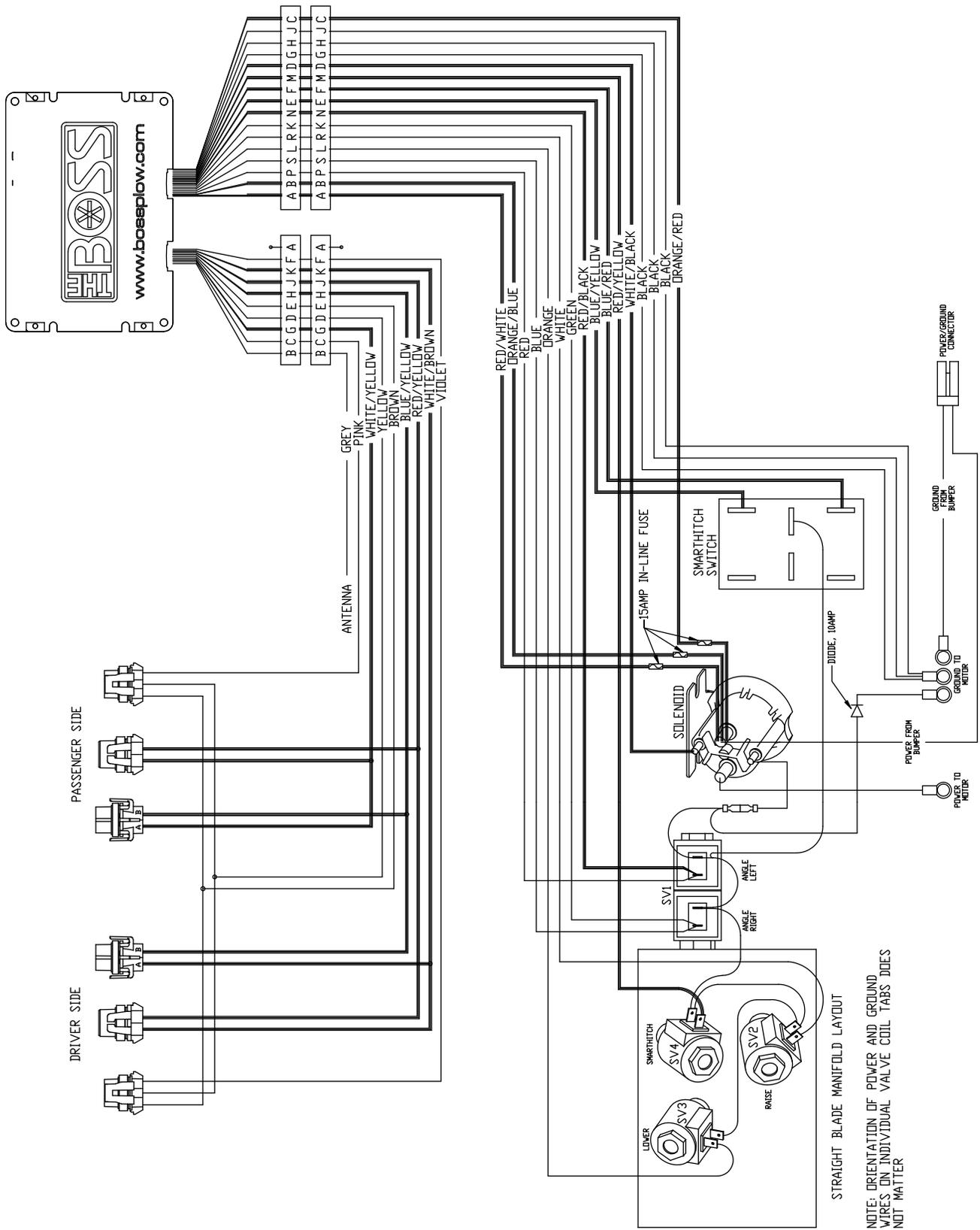


Figure 14: Electrical System Wiring Schematic (Plow Side Straight Blade)

# Electrical System Wiring Schematic Plow Side (Vee Blade)

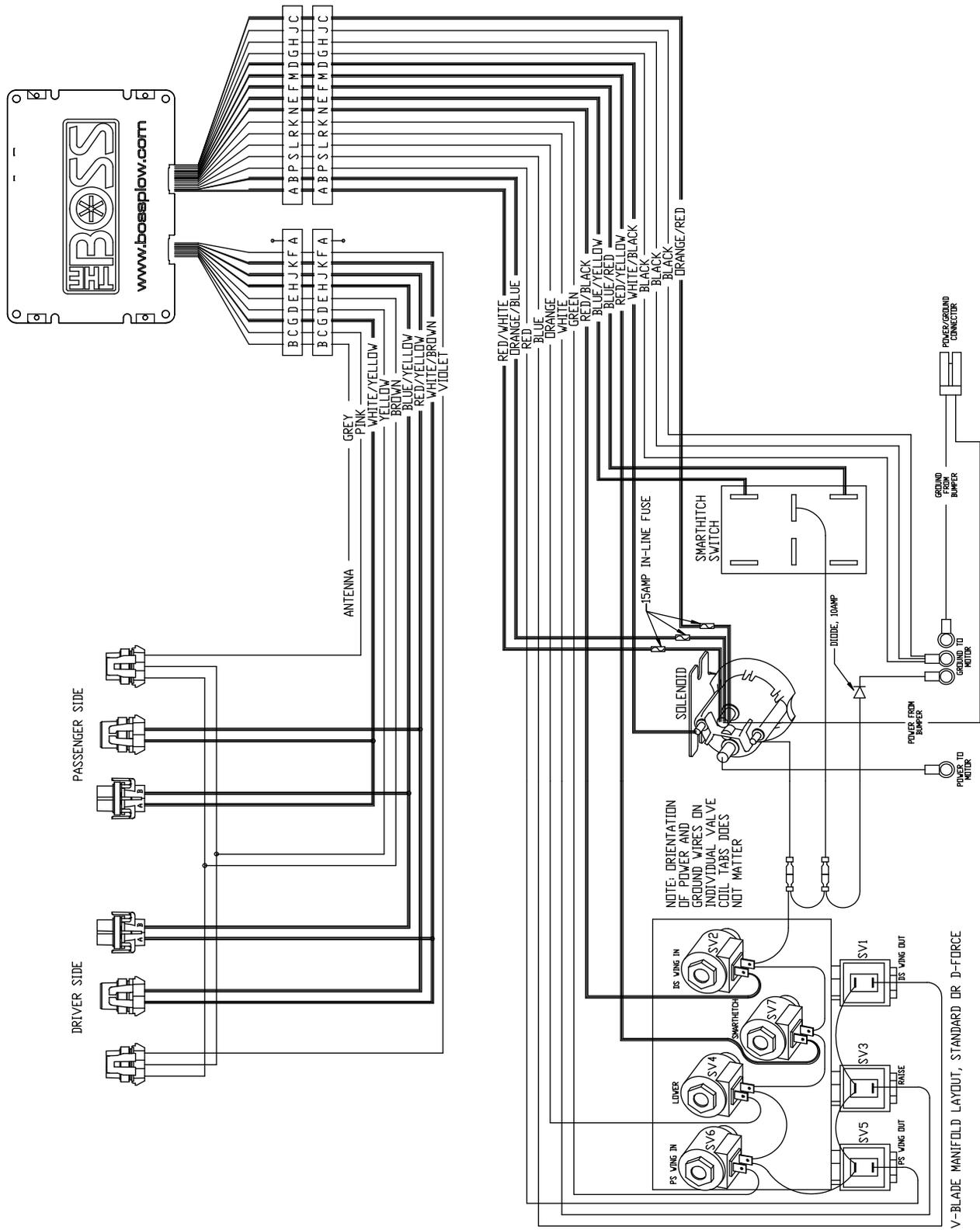


Figure 15: Electrical System Wiring Schematic (Plow Side Vee Blade)

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# Electrical System Wiring Schematic Truck Side

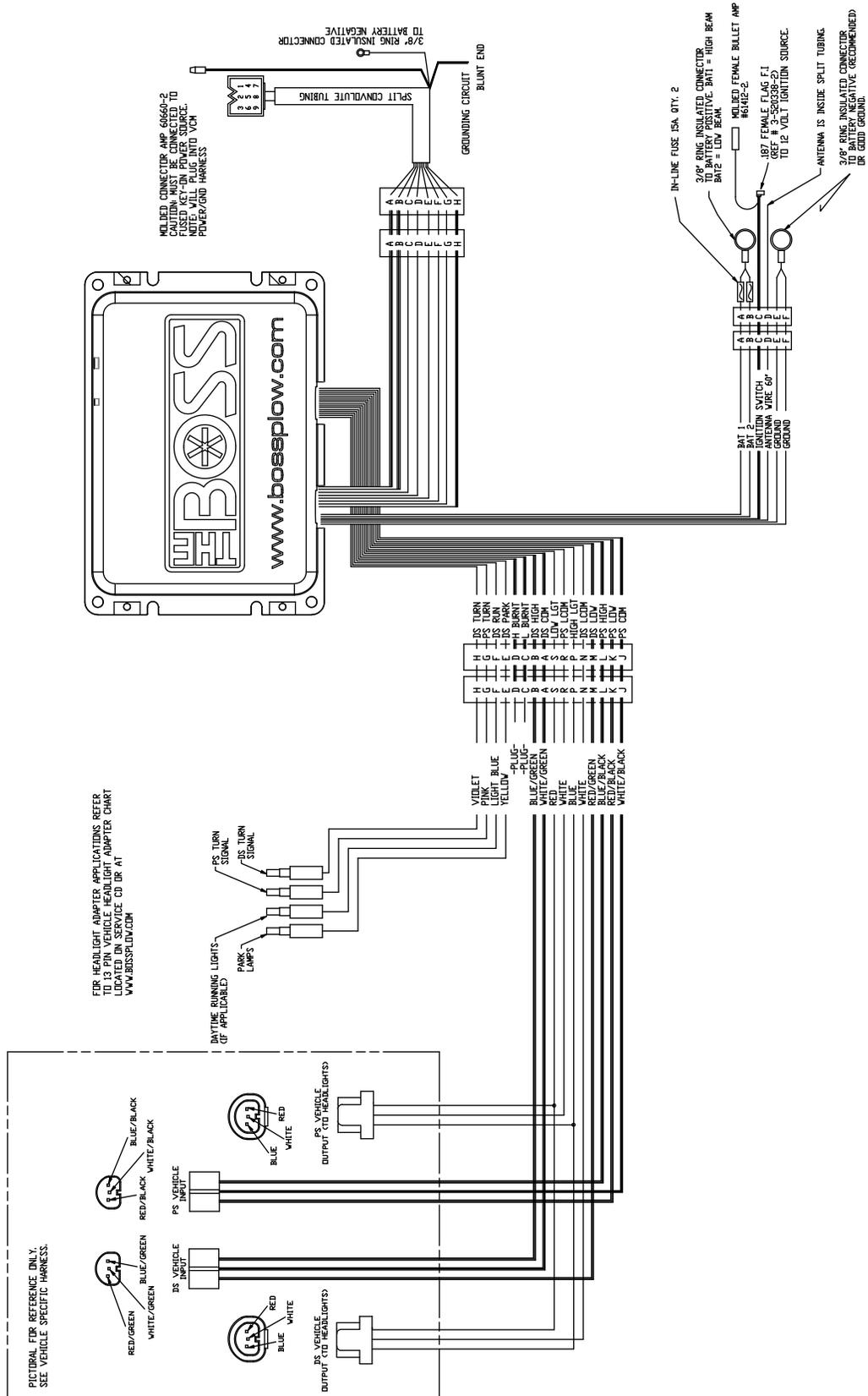


Figure 16: Electrical System Wiring Schematic (Truck Side)

# Electrical System Wiring Schematic Truck Side with Resistor Boxes

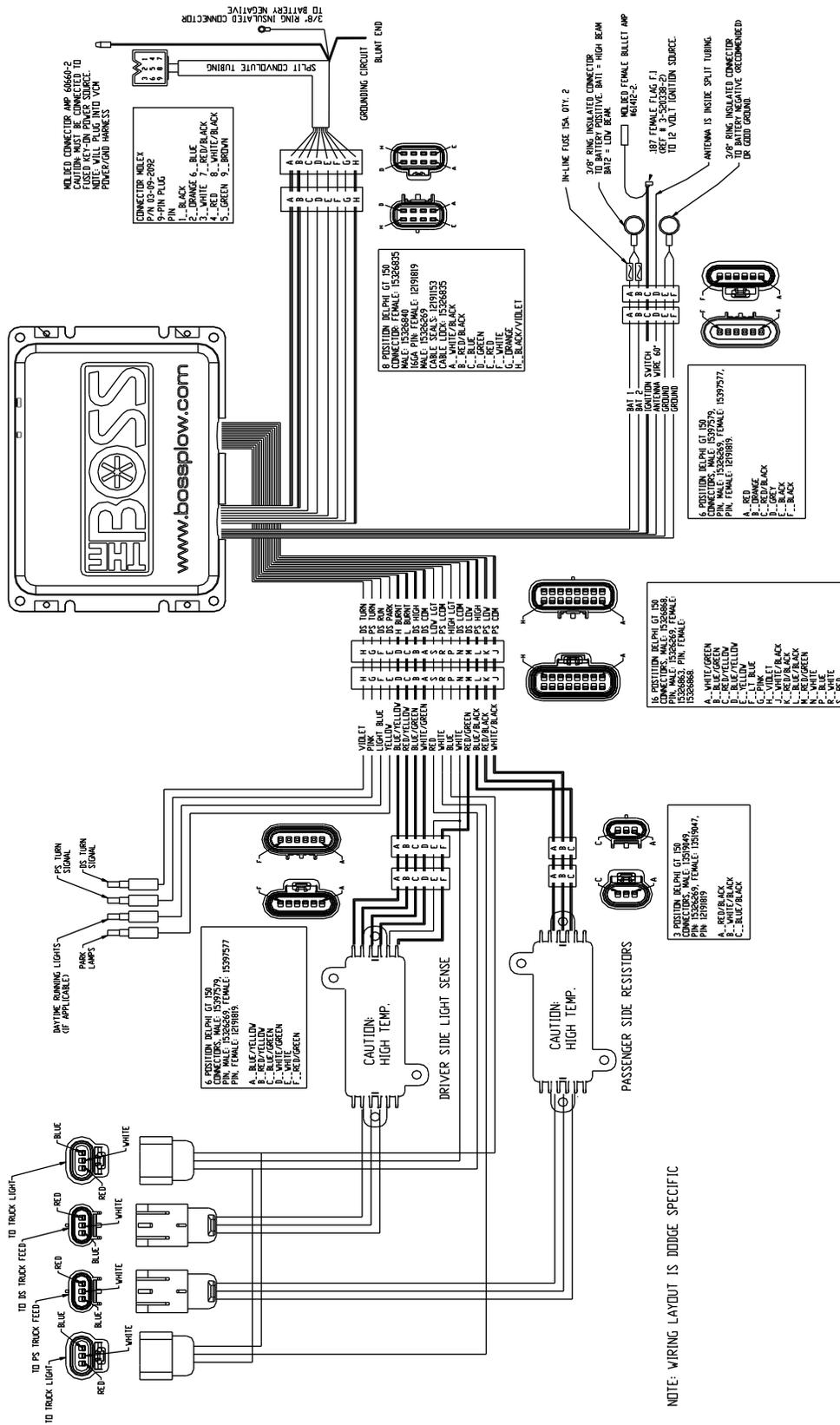


Figure 17: Electrical System Wiring Schematic (Truck Side with Resistor Boxes)

# Electrical System Wiring Diagram

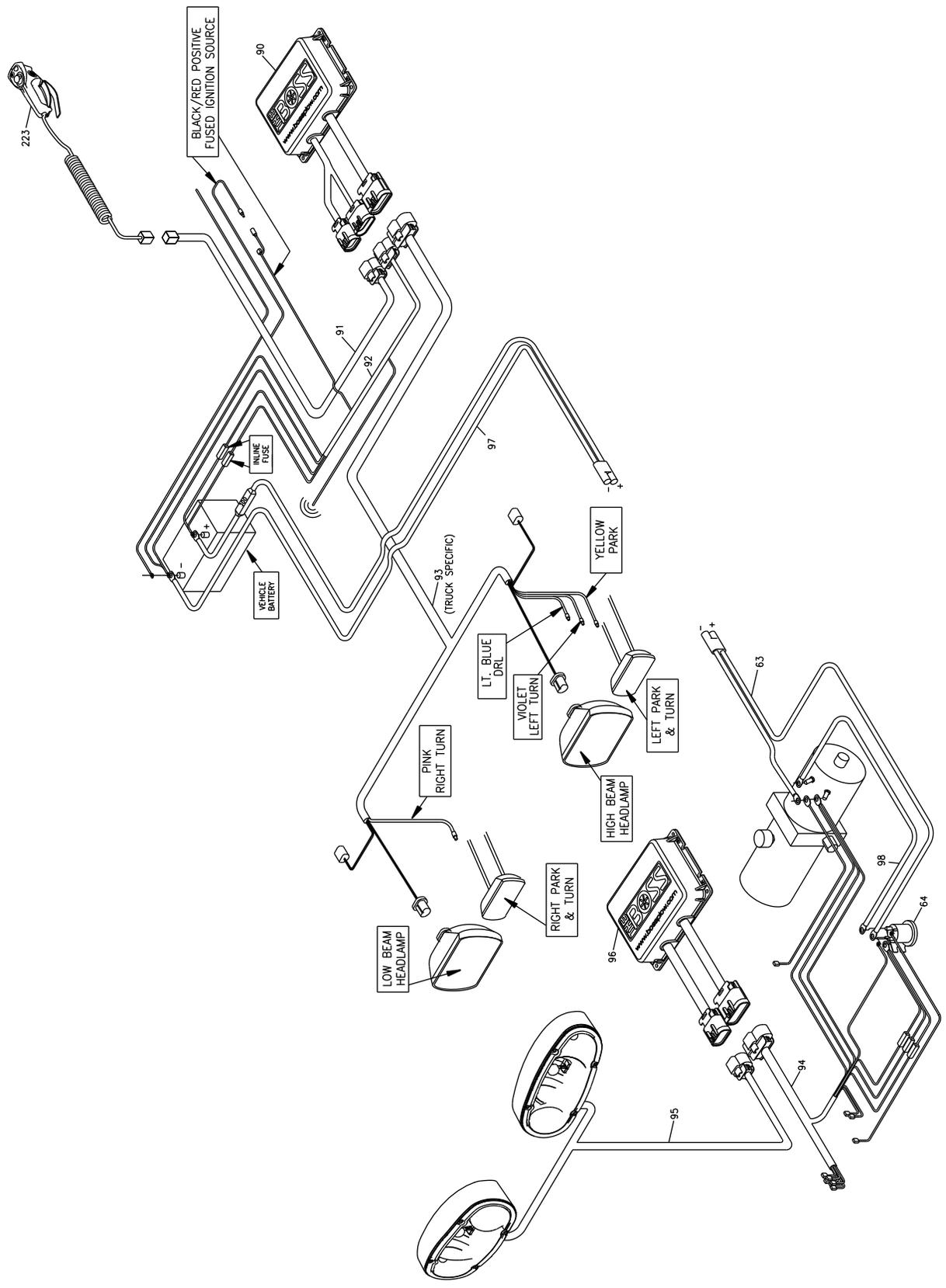


Figure 18: Electrical System Wiring Diagram

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## NGE Controller Operating Instructions

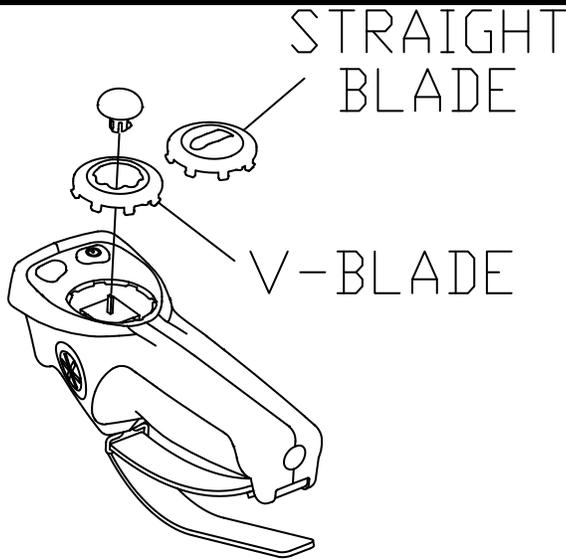


Figure 19: NGE Controller Instructions G10741

**Note:** There are two CLEAR discs that come with the NGE Controller. Depending on whether you have a Vee or Straight Blade will determine which disc you need.

1. There is a small alignment tab on the disc; it should be pointed to the base of the controller. Once you have the alignment tab in place snap in the clear disc.
2. Take the thumb button and snap it onto the joystick

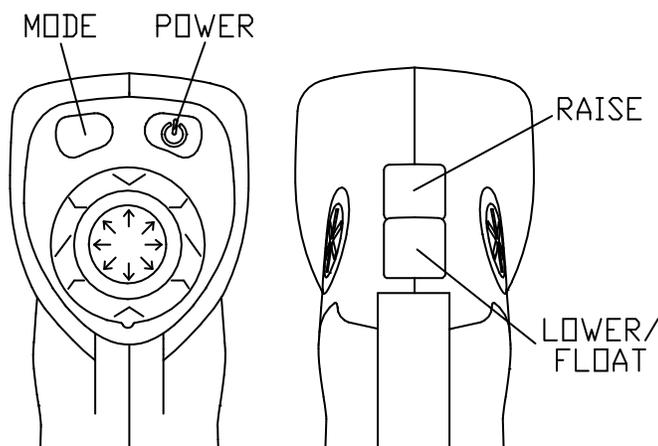


Figure 20: NGE Controller Instructions G10742

**ON/OFF:** Push the POWER button to turn the controller on. Four Green LED indicators will light up and flash on the control. Push the Power Button again to turn the controller off.

**RAISE:** To raise the blade of the plow, press and hold the Upper Trigger Button until the blade is fully raised.

**LOWER:** To lower the blade of the plow, quickly press the Lower Trigger Button twice. You can also press and hold the Lower Trigger Button until the blade is fully lowered.

**FLOAT:** The plow will automatically activate the FLOAT feature when the Lower Trigger Button is quickly pressed twice. (The center LED indicator will turn RED). You can also press and hold the center button downward for 2 seconds. (The center LED indicator will turn RED). Press the Upper Trigger Button to turn the FLOAT function off.

**“What Is FLOAT?”:** The FLOAT feature allows the plow blade to follow the contour of the ground. Press the raise button to turn FLOAT function off.

**Note:** The control MUST be in FLOAT to use SmartHitch2™ to attach or detach the snowplow.

**ANGLE LEFT:** To plow snow to the left, use your thumb and push the joystick to the left until the plow is fully angled.

**ANGLE RIGHT:** To plow snow to the right, use your thumb and push the joystick to the right until the plow is fully angled

**VEE:** To create the Vee shape with the plow blades, use your thumb and pull the joystick to the down until the blades are fully retracted.

**SCOOP:** To create the Scoop shape with the plow, use your thumb and push the joystick to the up until the blades are fully extended.

**Note:** The control should be turned off when not in use. It can then be unplugged and stored.

**SLEEP mode:** If the controller is ON but not used for 20 minutes, the automatic SLEEP mode will be activated. The controller LED lights will flash green and red when the controller is in SLEEP mode. Turn the controller OFF to deactivate SLEEP mode

### Set Up and Programing for Straight and Vee Blade Mode

**Note:** The MSC17864 and MSC17039 are synced together and ready for Vee Blade use out of the box. No syncing needed (see **sync mode** if the units are not communicating properly with each other.)

1. To change to Straight Blade mode or back to Vee Blade mode, push and hold the rubber button on top of the coupler near the colored light window.
2. While holding the button the light window will slowly blink red. The unit will do this until you let the button go. Letting go when **RED will put the unit in Vee Blade mode.** Letting go when it is **OFF will put the plow in Straight Blade mode.** The system is now ready to use.

### Sync Mode

**Note:** If the system were to lose sync, the Plow Control Module and the Vehicle Control Module will each have a one second orange blink. Do the following steps to re-sync the units.

1. Turn on the vehicle ignition. Then turn on the hand control.
2. Push and release the buttons on the PCM and the VCM once. The buttons do not have to be pushed at the same time, and the order in which the buttons are pushed does not matter. The lights will glow solid orange on both units.
3. Push and release the buttons on the PCM and the VCM one more time. The lights will be solid green.

**Note:** If the hand control is not on the lights on the PCM and VCM will blink green.

4. Test plow operation and check lights on the PCM and VCM. If the plow is not working properly repeat steps 1-3.

### Configuration Mode for the Pistol Grip Controller

**Note:** Configuration mode allows the user to select and set individual functions.

1. Turn on the hand control.

2. Press and hold the power button, then press the lower button, and release both buttons at the same time. The top center light will glow orange and you are now in configuration mode.

**Note:** To exit configuration mode, press and release the lower button.

### Enable or Disable Pistol Grip Time-Out Function

**Note:** The hand control will go into standby mode after 20 minutes (factory setting). There are four different time settings to choose from. To change the length of time it takes, do the following steps.

1. Put the hand control into configuration mode.
2. Press and hold the power button to see the blink rate. Then release the button to set the standby time. Repeat this process to the desired standby time. Below is a list of what each blink rate means.

**Blink Rate 1 (Fastest)** = 5 minutes to standby  
**Blink Rate 2** = 10 minutes to standby  
**Blink Rate 3** = 15 minutes to standby  
**Blink Rate 4 (Slowest)** = 20 minutes to standby (factory setting)

**Note:** To exit configuration mode, press and release the lower button

### Enable or Disable Pistol Grip Rapid Up

**Note:** There is now the option to enable or disable the rapid up feature. Do the following steps to change this feature.

1. Put the hand control into configuration mode.
2. Push and release the raise button. Now the raise button will act as a toggle; Green light means rapid up is enabled and Red light means rapid up is disabled.

**Note:** To exit configuration mode, press and release the lower button.

**SmartTouch2** Control  
Operating Instructions

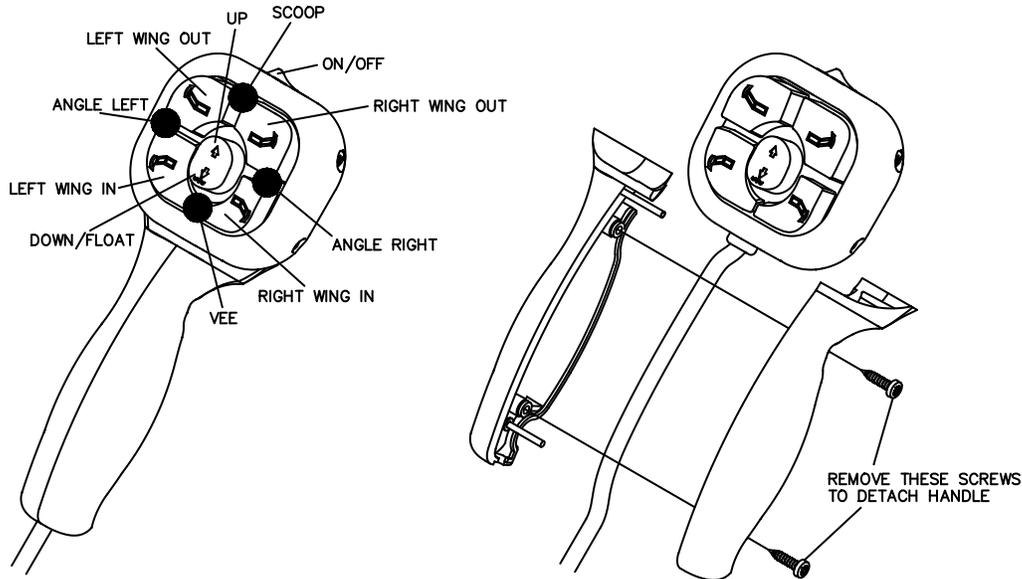


Figure 21: V-Blade Control Instructions

G10365

**ON/OFF:** Push the ON/OFF switch to the left ON position to turn the control on. Green LED indicators will light up on the control. Push the ON/OFF switch to the right OFF position to turn the control off.

**RAISE:** To raise the blade of the plow, quickly press the center button upward twice. You can also press and hold the center button upward until the blade is fully raised.

**LOWER:** To lower the blade of the plow, quickly push the center button downward twice. You can also press and hold the center button downward until the blade is fully lowered.

**FLOAT:** The plow will automatically activate the FLOAT feature when the center button is quickly pressed downward twice. (The center LED indicator will turn RED). You can also press and hold the center button downward for 2 seconds. (The center LED indicator will turn RED). Press the raise button to turn the FLOAT function off.

**“What Is FLOAT?”:** The FLOAT feature allows the plow blade to follow the contour of the ground. Press the raise button to turn FLOAT function off.

**Note:** The control MUST be in FLOAT to use SmartHitch2™ to attach or detach the snowplow.

**ANGLE LEFT:** To plow snow to the left, press and hold the left wing out and left wing in buttons simultaneously until the blades are fully angled.

**ANGLE RIGHT:** To plow snow to the right, press and hold the right wing out and right wing in buttons simultaneously until the blades are fully angled.

**VEE:** To create the Vee shape with the plow blades, press both the left wing in and right wing in buttons simultaneously until the blades are fully retracted.

**SCOOP:** To create the Scoop shape with the plow, press both the left wing out and right wing out buttons simultaneously until the blades are fully extended.

**Note:** The control should be turned off when not in use. It can then be unplugged and stored.

**SLEEP mode:** If the controller is ON but not used for 20 minutes, the automatic SLEEP mode will be activated. The controller LED lights will flash green and red when the controller is in SLEEP mode. Turn the controller OFF to deactivate SLEEP mode.

**SmartTouch2** Control  
Operating Instructions

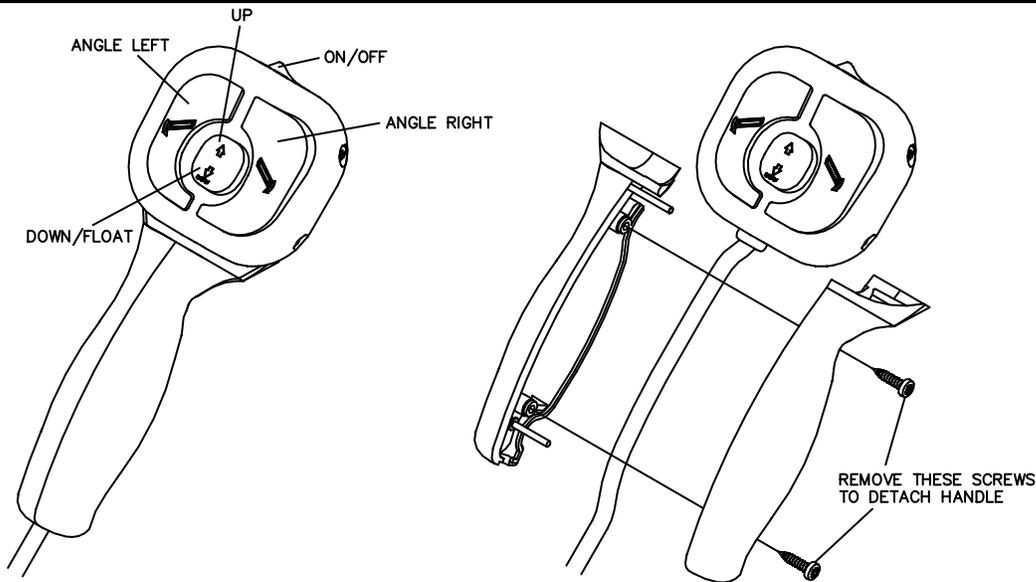


Figure 22: Straight Blade Control Instructions

G10366

**ON/OFF:** Push the ON/OFF switch to the left ON position to turn the control on. Green LED indicators will light up on the control. Push the ON/OFF switch to the right OFF position to turn the control off.

**RAISE:** To raise the blade of the plow, quickly press the center button upward twice. You can also press and hold the center button upward until the blade is fully raised.

**LOWER:** To lower the blade of the plow, quickly push the center button downward twice. You can also press and hold the center button downward until the blade is fully lowered.

**FLOAT:** The plow will automatically activate the FLOAT feature when the center button is quickly pressed downward twice. (The center LED indicator will turn RED). You can also press and hold the center button downward for 2 seconds to activate the FLOAT feature. (The center LED indicator will turn RED).

**“What is FLOAT?”:** The FLOAT feature allows the plow blade to mirror the contour of the ground. Press the raise button to turn the FLOAT function off.

**Note:** The control must be in float to power the SmartHitch.

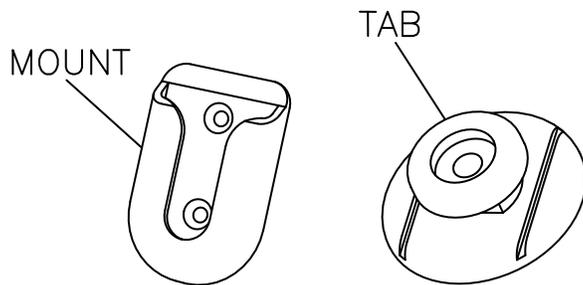
**ANGLE LEFT:** To angle the blade to the left, press and hold the angle left button until the blade is fully angled.

**ANGLE RIGHT:** To angle the blade to the right, press and hold the angle right button until the blade is fully angled.

**Note:** The control should be turned off when not in use. It can then be unplugged and stored.

**SLEEP mode:** If the controller is ON but not used for 20 minutes, the automatic SLEEP mode will be activated. The controller LED lights will flash green and red when the controller is in SLEEP mode.

# BOSS SmartTouch2 Control Mounting Instructions



9. Place SmartTouch2™ Control on the Swivel Mount.

**Note:** Other mounting options are available. Contact your BOSS Snowplow dealer for more information.

**Figure 23:** SmartTouch2™ Mounting Hardware G10311

1. Remove the Swivel Mount and Tab from the **MSC05058** Swivel Mount Kit.
2. Use the enclosed alcohol wipe to clean a spot on the vehicle interior where you want to place the SmartTouch2™ Control. Wipe dry immediately with a cloth or paper towel.
3. Do not apply when the surface temperatures are lower than +60°F (Working temperature range of the adhesive is -40°F to +200°F).
4. Peel off the paper backing on one side of the adhesive and apply to Swivel Mount. Apply maximum pressure to all areas.
5. Apply the Swivel Mount onto the spot of the interior that was just cleaned. (MAKE SURE IT IS IN THE CORRECT PLACE) Once it is placed it cannot be removed without destroying the adhesive.
6. Clean the back of the SmartTouch2™ Control with the alcohol wipe.
7. Peel off adhesive backing of tape, apply to Tab, and press firmly.
8. Remove remaining backing and apply the Tab to the back of the SmartTouch2™ Control. Apply pressure for 30 seconds.

## NOTIXE

After attaching the Swivel Mount, let it sit unused for 72 hours before attaching the SmartTouch2™ Control to allow the adhesive to bond to the surface and ensure secure mounting.

## Troubleshooting Guide

### Glossary of Problems:

1. Pump motor does not run.
2. Pump continues to run with switch in neutral.
3. Pump will not lower.
4. Plow will not raise or raises slowly, motor runs.
5. While trying to raise the plow, blades extend and wings will not retract.
6. Wings drift back when extended.
7. Plow lowers too fast.
8. Wing(s) will not extend, but motor runs.
9. Wing(s) will extend, but will not retract or retract slowly.
10. Wing(s) retract too easily while plowing.
11. Oil leaks from cylinders.
12. Battery goes dead with all switches in neutral.
13. Plow lights are dim, will not come on or flicker.
14. Turn signals flash at a rapid rate.
15. Blade digs into the ground in the V position.
16. Blade does not lay flat against the ground in the scoop position.
17. Blade trips too easily.
18. Plow does not clean-up snow from low areas.
19. Oil runs out of fill cap of hydraulic pump.
20. Pump chatters when raising the plow or extending wings.
21. SmartHitch2™ will not attach plow.
22. Plow lights and truck lights are on at the same time.
23. Plow and truck High and Low beam lights are on at the same time.

PROBLEM	DIAGNOSTIC CHECK	RESULT
1. Pump motor does not run.	Check that power/ground cables and control cables are connected properly.	Connect.
	Check for voltage at pump motor while ignition switch is on and LIFT control button is pushed.	If voltage is present, pump motor has failed or pump has seized. Motor brushes may be replaced, otherwise replace pump/motor assembly.
	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, the cable between the battery and solenoid is disconnected or broken.

## Troubleshooting Guide

PROBLEM	DIAGNOSTIC CHECK	RESULT
	Check for voltage between the other large terminal of the solenoid and ground while jumping power to the small terminals with the white wire.	If NO voltage is present, solenoid has failed and must be replaced. If voltage is present, wire from small terminal of solenoid to ground may be disconnected or broken.
	Test power to the controller by checking voltage between black wire and ground at the white 9-pin connector.	If NO voltage is present, power from relay has become disconnected. If voltage is present check wiring and controller switches.
2. Pump continues to run with switch in neutral.	Disconnect control box, ignition ON.	If pump continues to run, solenoid has failed in the closed position. Quickly remove power to the pump by disconnecting the power/ground cables to the plow. Replace solenoid.
		If pump stops running, check wiring of controller for short between black and white/black wire in controller, or failed switch.
	If the NGE system and the 13-pin system are both on the vehicle.	Be sure to have the plow side power/ ground cable plugged into the correct truck side power/ ground cable.
3. Plow will not lower.	Check power/ground cables and control cables are connected properly.	Connect.
	Check flow control valve.	If flow control valve is completely closed, place RAISE/LOWER switch in NEUTRAL, then open the flow control valve.
	Check wiring on valve block for proper connections.	Refer to the wiring diagram in this manual.
	Check for voltage between solenoid valve terminal and ground with ignition switch on and control switch in FLOAT position.	If voltage is present solenoid valve or valve coil has failed. Replace valve.
	Test power to the control box by checking voltage between black wire and ground at the white 9-pin connector.	Check wiring and switch of controller.

## Troubleshooting Guide

PROBLEM	DIAGNOSTIC CHECK	RESULT
4. Plow will not raise or raises slowly.	Check power/ground cables.	Connect.
	Check wiring on valve block for proper connections.	Refer to the manifold wiring diagram in this manual.
	Load test battery.	Replace battery if weak or defective.
	Check pressure at pressure port of pump.	If pressure is less than 2500 psi (at end of lift). Motor brushes may be defective, pump pressure relief valve may be contaminated, damaged, or set less than 2500 psi, pump may be worn.
	Check LIFT Solenoid Valve.	Lift solenoid valve not opening completely. Replace.
	Check lower Solenoid Valve.	Lower solenoid valve not open completely. Replace.
5. While trying to raise plow, wing(s) extend prior to raising plow and will not retract.	Check the pressure and return line routing.	Pressure line MUST be connected from P on pump to P on valve manifold. Return line MUST be connected from T on pump to T on valve manifold.
6. Wings drift back when extended.	Check wing return solenoid valve on manifold Check pressure	If solenoid valve is contaminated, clean or replace. If pressure relief valve is contaminated, clean or replace.
7. Plow lowers too fast.	Check flow control valve.	Close flow control valve to desired drop speed.
8. Wing(s) will not extend or extend slowly, motor runs.	Check hydraulic fluid level.	Hydraulic fluid level should be within 3/4" from top of reservoir when lowered and in the V-position.
	Check power/ground cables.	Connect.
	Check wiring on valve block for proper connections.	Refer to the wiring diagram in this manual.
	Load test battery.	Replace battery if weak or defective.

## Troubleshooting Guide

PROBLEM	DIAGNOSTIC CHECK	RESULT
	Check pressure at pressure port of pump.	If pressure is less than 2500 psi (at end of lift). Motor brushes may be defective, pump pressure relief valve may be contaminated, damaged, or set less than 2500 psi, pump may be worn.
	Check WING OUT solenoid valve.	WING OUT solenoid valve not opening completely. Replace.
	Check wiring and control box.	Refer to the wiring diagram in this manual.
9. Wing(s) extend, but will not retract or retract slowly.	Check power/ground cables.	Connect.
	Check wiring on valve block for proper connections.	Refer to the wiring diagram in this manual.
	Check for voltage between solenoid valve terminal and ground with ignition switch on and control switch in WING IN position.	If voltage is present, solenoid valve or valve coil has failed. Replace valve. If NO voltage is present, check wiring and switch box control.
10. Wing(s) retract too easily while plowing.	Pressure relief valve pressure set too low.	See an Authorized BOSS Dealer for pressure relief valve adjustment.
11. Oil leaks from cylinders.	Inspect fittings and O-rings.	Tighten fittings if loose. See BOSS dealer for seal kit.
	Check rod condition.	If rods are pitted or rough, polish with copus cloth or extra fine steel wool.
12. Battery goes dead with all switches in neutral.	Verify keyed fuse source.	Refer to wiring diagram in manual.
13. Plow lights are dim, will not come on or flicker.	Check electrical connections.	Clean and repair any corroded or damaged terminals.
	Check headlight adapter wires.	Verify proper headlight adapters are being used and are correctly installed.
14. Turn signals flash at a rapid rate.	Check flasher.	Replace original vehicle flasher with heavy-duty six-lamp flasher.

## Troubleshooting Guide

PROBLEM	DIAGNOSTIC CHECK	RESULT
15. Blade digs into the ground in the V-position.	Check Bumper Stop location.	Adjust Bumper Stop following directions in manual.
	Push beam installed too high.	Lower the push beam.
16. Blade does not lay flat against the ground in the scoop position.	Check Bumper Stop location.	Adjust Bumper Stop following directions in manual.
	Push beam installed too low.	Raise the push beam. If push beam is at highest setting, Adjust the Bumper Stop further into the center section.
17. Blade trips too easily.	Check trip spring adjustment.	Tighten springs. Replace springs if permanently deformed or damaged.
18. Plow does not clean-up snow from low areas.	UP/DOWN switch not in FLOAT position.	Place switch in FLOAT position.
19. Oil running out of fill cap of hydraulic pump.	Power light tower down. Do not pull the tower down.	Follow the dismounting instructions in this manual.
	Plowing on steeply inclined terrain.	Avoid too steeply sloped areas.
	Pump reservoir over filled.	Reservoir should be filled to 3/4" from top.
	Hitting snowbanks too hard.	Do not plow recklessly.
20. Pump chatters when raising plow or extending wing(s).	Hydraulic fluid low.	Add hydraulic fluid. Reservoir should be filled to 3/4" from top.
21. SmartHitch2™ will not attach plow.	Make sure key is on and controller is in FLOAT.	Turn key on and put controller in FLOAT.
	Make sure controller is staying in the Float position	If controller comes out of Float when using the SmartHitch2™ switch, replace the controller.
	Check valve block and SmartHitch2™ switch for proper connections.	Refer to manifold wiring diagram located within this manual.
22. Plow lights and truck lights are on at the same time.	Check vehicle harness wiring to truck headlights.	Refer to electrical system wiring instructions located within this manual. Ensure OEM is not plugged into truck headlight.

## ***Troubleshooting Guide***

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PROBLEM	DIAGNOSTIC CHECK	RESULT
23. Plow and truck High beam and Low beam are on at the same time.	Check headlight adapters for correct connections.	Check wiring to the schematic for NGE; then sync units.

## Recommended Push Beam Height and Bolt Torque

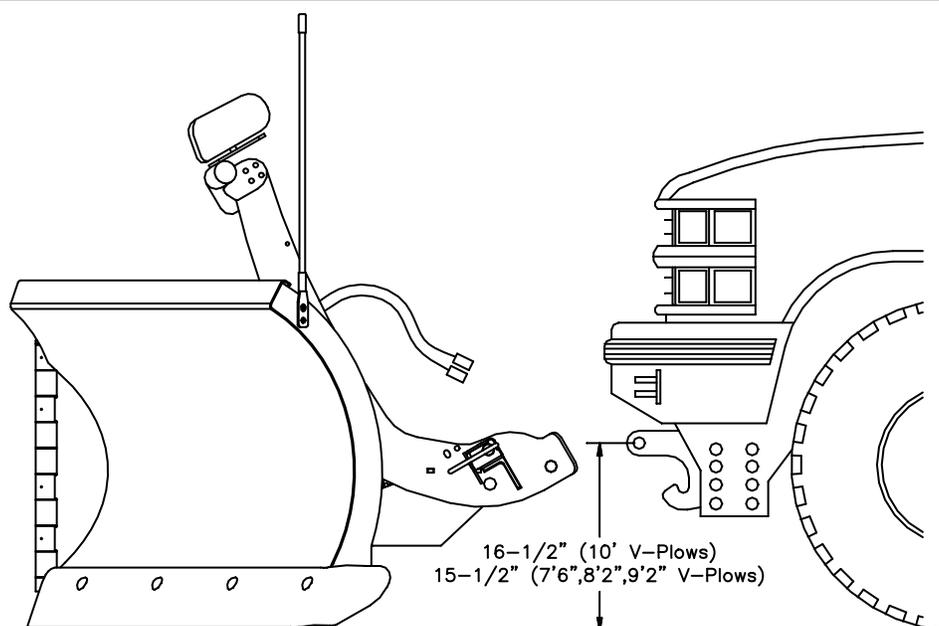


Figure 24. Recommended Push Beam Height

G10364

## Recommended Bolt Torque

DIAMETER/ PITCH	GRADE 5	GRADE 8	GRADE 8.8	GRADE 10.9
1/4 – 20	6	9		
5/16 – 18	14	19		
3/8 – 16	23	33		
7/16 – 14	38	53		
1/2 – 13	56	80		
9/16 – 12	82	116		
5/8 – 11	113	159		
3/4 – 10	201	283		
1 – 8	440	680		
M10 X 1.25			36	
M10 X 1.5				49
M12 X 1.75				71
M14 X 2.0				80

**ALL TORQUE VALUES ARE IN FOOT – POUNDS (FT. – LB.)**

Figure 25. Recommended Bolt Torque

G10410

**NOTE:** The torque values listed above are based on dry, coated bolts, variables such as oil, or other lubrications may appreciably alter these values and must be taken in to consideration.

**NOTICE:** IT IS IMPORTANT THAT ALL FASTENERS BE PROPERLY TORQUED TO ASSURE A SAFE OPERATING PLOW. RE-TIGHTEN ALL FASTENERS AFTER 2 HOURS OF PLOWING.