2008-2010 Ford 6.4L Powerstroke Positive Air Shutoff

P/N#	1036702
P/N#	1036702-M

PLEASE READ ALL INSTRUCTIONS BEFORE INSTALLATION

BD Engine Brake Inc.
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U.S. Shipping Address: 88-446 Harrison St, Sumas, WA 98295 U.S. Mailing Address: P.O. Box 231, Sumas, WA 98295
Phone: 604-853-6096 | Fax: 604-853-8749 | Internet: www.bd-power.com

KIT CONTENTS:

Please check to make sure that you have all the parts listed in this kit ***before*** you start the disassembly of your truck.

1036702 Kit Contents			
1302300	**1302271**	**1302254**	**1405404**
			
Air Shutoff Valve	*3"-3 ¼ "Angle Silicone Boot*	*Wiring Harness*	*3"-3 ¼" Silicone Boot*
Qty: 1	**Qty: 1**	**Qty: 1**	**Qty: 1**
1302280	**1302282**	**1405211**	**1407030**
			
3" PAS Bead Ring	*PAS Drill Template*	*0325 Clamps*	*0350 Clamps*
Qty: 1	**Qty: 1**	**Qty: 2**	**Qty: 2**
1800060	**1301381**	**1302277**	**1306700**	**1302285**
				
Velcro strips	*Heat Shrink*	*C-Clip*	*Ford Electronic Module*	*Solder*
Qty: 2 x 4"	**Qty: 3"**	**Qty: 1**	**Qty: 1**	**Qty: 5"**

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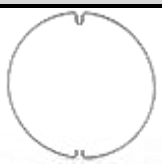
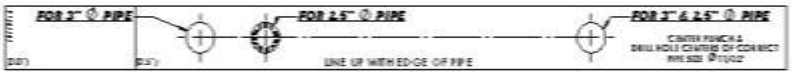
1036702-M Kit Contents

1302300	1302271	1302249	1405404
			
Air Shutoff Valve	*3”-3 ¼ ”Angle Silicone Boot*	*Wiring Harness*	*3”-3 ¼” Silicone Boot*
Qty: 1	**Qty: 1**	**Qty: 1**	**Qty: 1**

1302280	1405211	1407030
		
3” PAS Bead Ring	*0325 Clamps*	*0350 Clamps*
Qty: 1	**Qty: 2**	**Qty: 2**

1302277	1302282
	
C-Clip	*PAS Drill Template*
Qty: 1	**Qty: 1**

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WELCOME

Thank you for purchasing a BD positive air shutoff. This manual is divided into different areas to assist you with your installation and operation of your positive air shutoff.

This product is a safety product and should be tested often.

Installation should occur on a vehicle properly secured to prevent rolling.

TABLE OF CONTENTS

REQUIRED TOOLS

- Frequency/Voltmeter (Optional)
- Drill
- 1/8”, 11/32” Drill Bit
- 1/2” Unibit
- Electrical Tape
- Soldering Iron
- Air or Manual Ratchet
- 7/16”, 1/2” Sockets
- Wire Strippers
- Heat Gun
- band saw or reciprocating saw or cutoff wheel.

MAINTENANCE

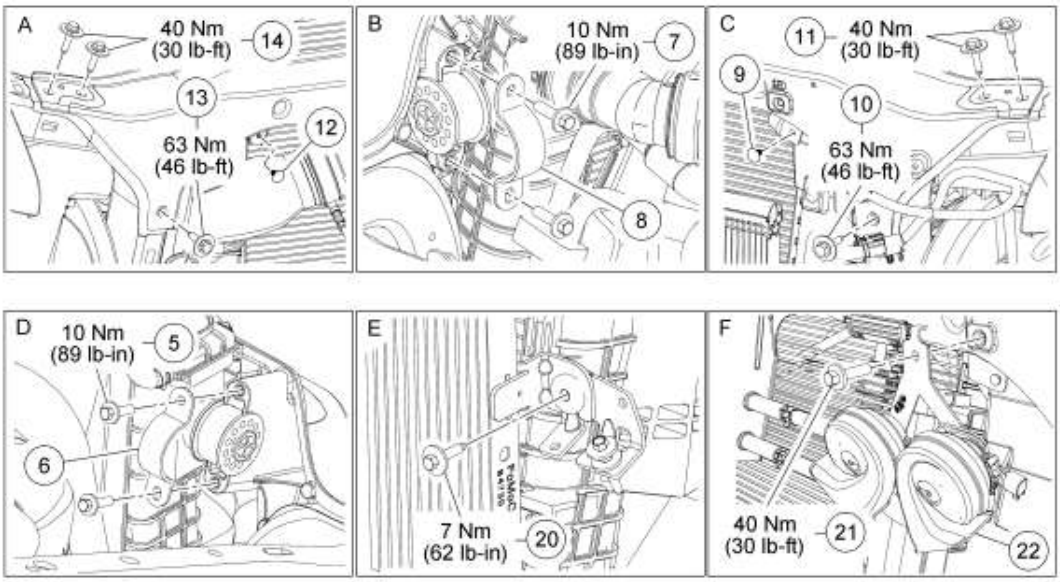
The only maintenance required is to test the valve operation at regular intervals. Please see the testing section later in the manual for the correct procedure.

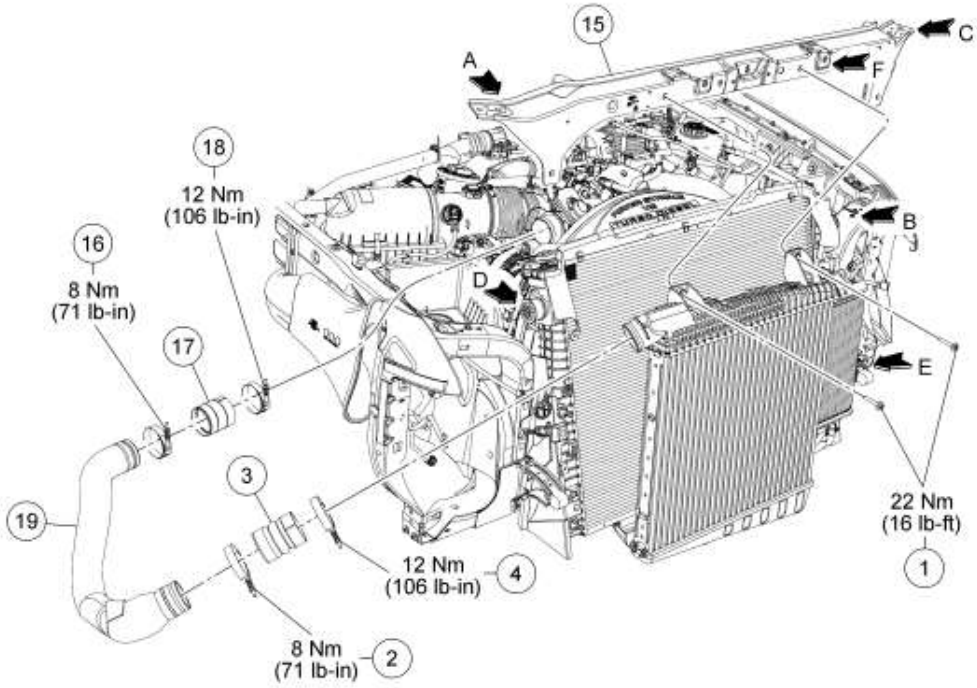
INSTALLATION with OVER SPEED ELECTRONICS (1036702)

VEHCILE SHOULD BE SAFELY SECURED BEFORE INSTALLATION.

Block the wheels of the vehicle to prevent the vehicle from rolling.

Open the hood.





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Item	Description	Item	Description
1	Charge Air Cooler (CAC) mount bolts (2 required)	12	RH radiator air deflector push pin retainer
2	RH CAC tube-to-CAC tube flex joint clamp	13	RH radiator support front bolt
3	RH CAC tube flex joint	14	RH radiator support top bolts (2 required)
4	RH CAC tube flex joint-to-CAC clamp	15	Radiator support
5	RH radiator support clamp bolt (2 required)	16	RH CAC tube-to-CAC tube flex joint clamp
6	RH radiator support clamp	17	RH CAC tube flex joint
7	LH radiator support clamp bolt (2 required)	18	RH CAC tube flex joint-to-Throttle Body (TB) clamp
8	LH radiator support clamp	19	RH CAC tube
9	LH radiator air deflector push pin retainer	20	Fuel cooler bolt
10	LH radiator support front bolt	21	Horn and bracket assembly bolt
11	LH radiator support top bolts (2 required)	22	Horn and bracket assembly

2. Loosen RH Charge Air Cooler (CAC) tube clamps and disconnect the CAC tube from the flex hoses.

3. Remove the side bolt for the fuel cooler radiator.

4. Remove the 2 bolts for the CAC.

5. Remove the 4 radiator support clamp bolts and the 2 radiator support clamps.

6. Remove the 1 radiator isolator on the passenger side.

7. Disconnect the horn assembly electrical connector, the hood latch release cable position retainer and if equipped, disconnect the fog light electrical connector position retainer.

8. Remove the bolt for the horns.

9. If equipped, disconnect the temperature sensor push pin and position aside.

10. Remove the 2 air deflector push pin retainers.

11. Disconnect the hood cable retainer. Remove the 2 power steering cooler bolts and position the power steering cooler aside.

NOTE: MARK THE FRONT BOLTS TO AID IN RE-INSTALLATION.

12. Remove the 2 front bolts for the radiator core support.

13. Remove the 4 top bolts for the radiator core support and remove the support by lifting up and forward.

14. Remove CAC tube from vehicle.

15. With the CAC pipe removed you will need to cut a section from the tube and discard.

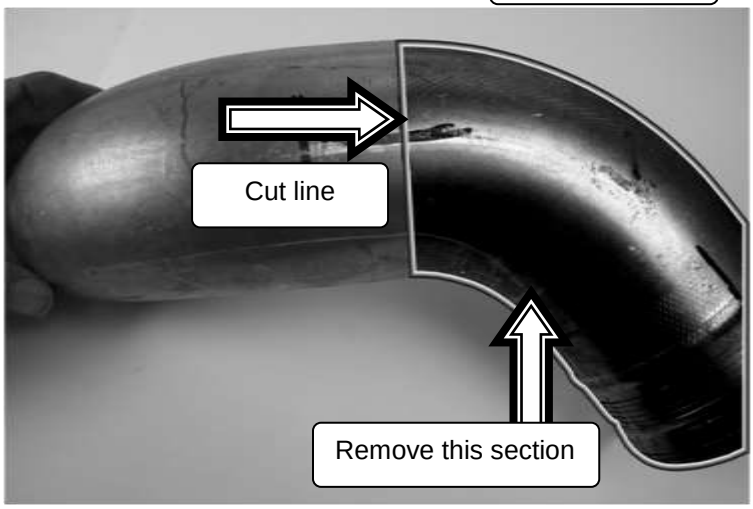
    Pay particular attention to the correct side of the pipe, as this is the end that connects to the intake manifold.

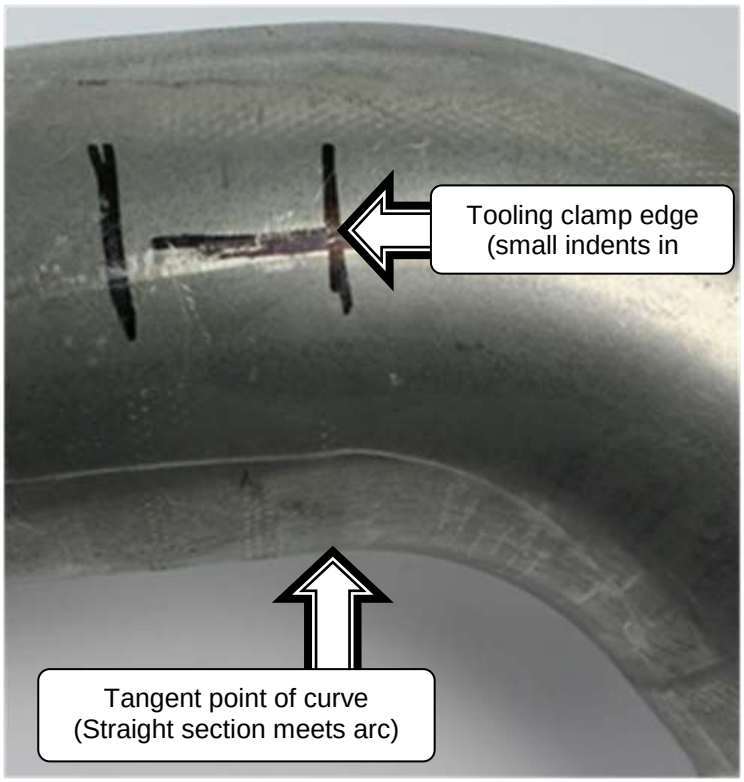
    Once you have indentified the correct end, pay attention to the last bend. You will need to remove this last bend.

    To cut in the correct location locate the tangent point of the inside arc of the bend. This is basically the point in which the bend (arc) stops and becomes a straight section.

    At this point you will also notice the grip marks on the tube bend machine stop.

    Cut the pipe square across at this point. Be sure to deburr the pipe inside and out once it is cut.





16. With the pipe cut, you will now need to drill a couple of holes to secure the boot bead on the end of the pipe you just removed.

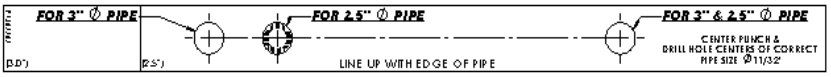
17. Firstly, remove the backing from drill template sticker and wrap around pipe. The edge of the sticker should line up with the edge of the pipe.

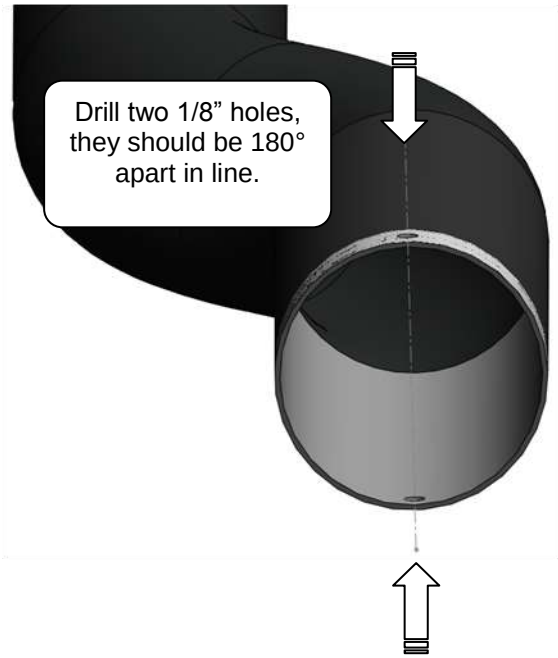
    For the 3” pipe the sticker should wrap perfectly around the pipe, the start of the sticker should meet the end of the sticker.

18. With the sticker in place use a center punch and then use a Ø1/8” drill bit and drill a hole in the center of the holes marked “For 3Ø”.

    There will be two holes and they should be perfectly 180° inline with each other through the pipe.

    DO NOT DRILL COMPLETELY THROUGH THE PIPE AND OUT THE OTHER END. YOU WILL NEED TO DRILL ONE SIDE THEN ROTATE, AND THEN DRILL THE OTHER SIDE.





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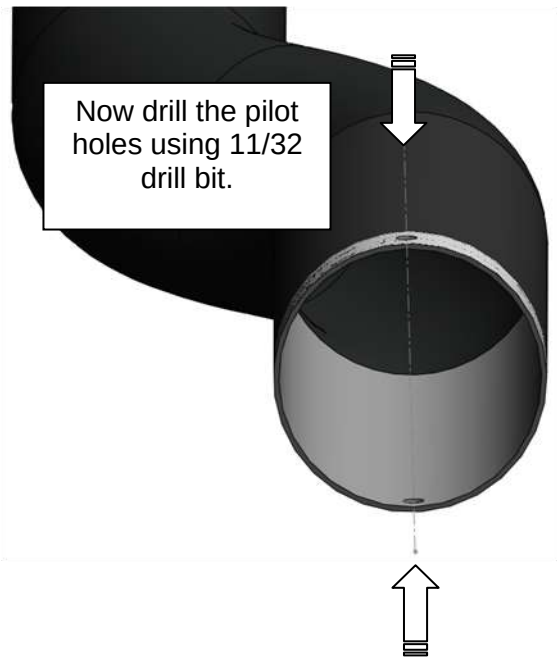
19. Once the pilot holes are drilled you will need to drill an Ø11/32” hole through the pilot holes.

    You can now remove the sticker.

    You must deburr the inside of the drilled holes.



20. Once the holes are drilled, install the ring bead around the pipe. Lock each end of the ring bead into each hole.

    You can use needle nose pliers to tweak or adjust the ring fit slightly.

    Be careful not to bend the ring bead to much as you will weaken it.

    Note the ring bead does not have to be perfectly tight or snug around the pipe, as we will be installing a silicone boot over top of it.

    With the ring bead in place, you should not be able to pull the ring bead off axially from the tube.

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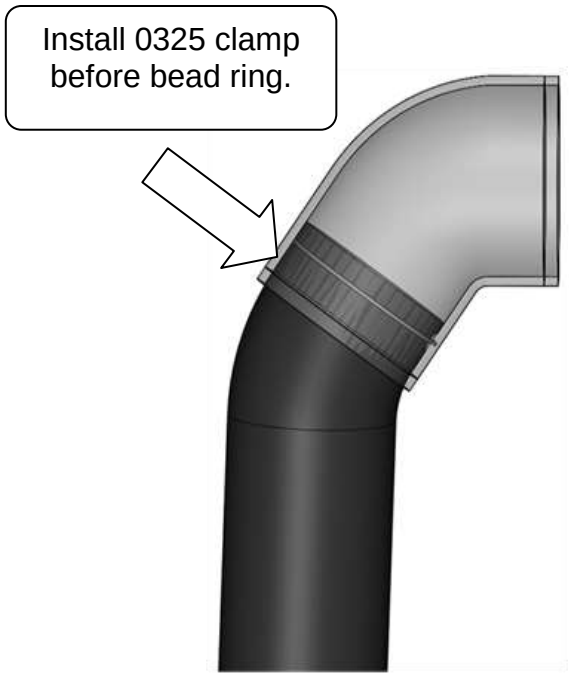
21. Once the ring bead is installed you can now slip the 3” ID end of the elbow boot (#1302271) over the pipe and bead wire assembly. Slide the boot far enough down so will have ample room to install the 0325 spring clamp (#1405211) before the spring bead.

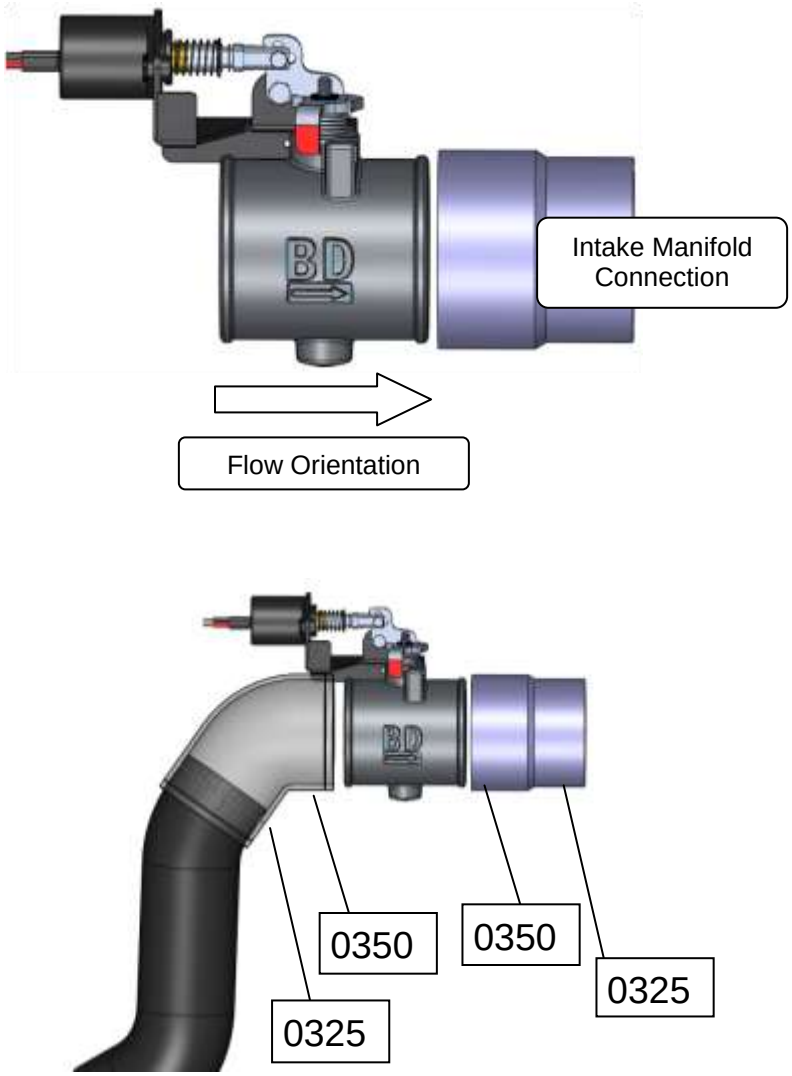


22. Install the 3.25” (#1405404) stepped boot onto the outlet of the PAS Valve. Please note the flow arrow orientation. Secure this connection with the 0350 spring clamp (#1407030).

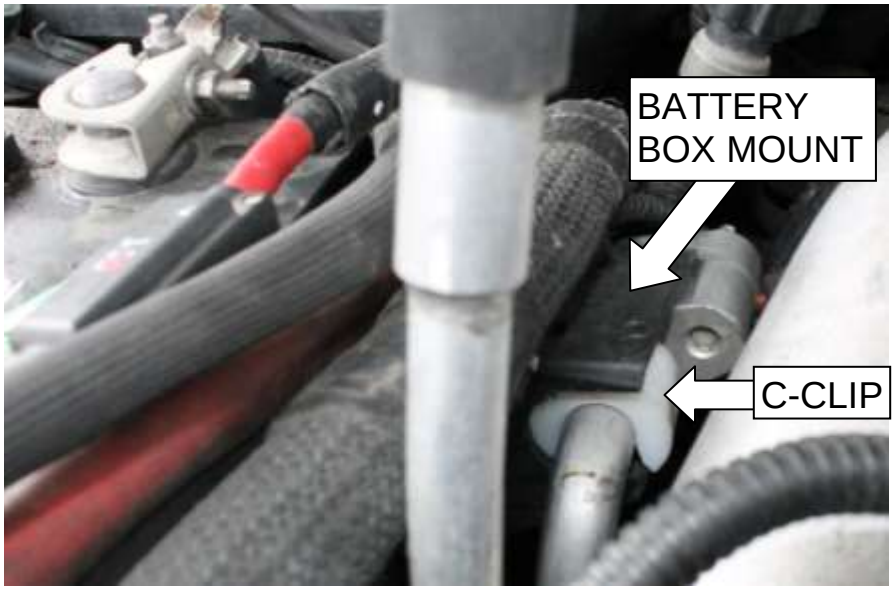
23. Now insert the valve assembly on to the intake manifold inlet. Make sure the flow orientation is correct and the valve is rotated so that it will not contact anything. Secure this connection with the 0325 spring clamp (#1405211).

24. Connect the CAC pipe and boot to the inlet of the PAS valve. Secure this connection with the 0350 spring clamp (#1407030).

Tighten all spring clamps until spring bound.



25. Slide A/C line junction towards the firewall, then install spacer c-clip onto line in front of junction. Reinstall A/C line with C-Clip spacer into battery box mount. This will give the PAS boot extra clearance from the A/C line.



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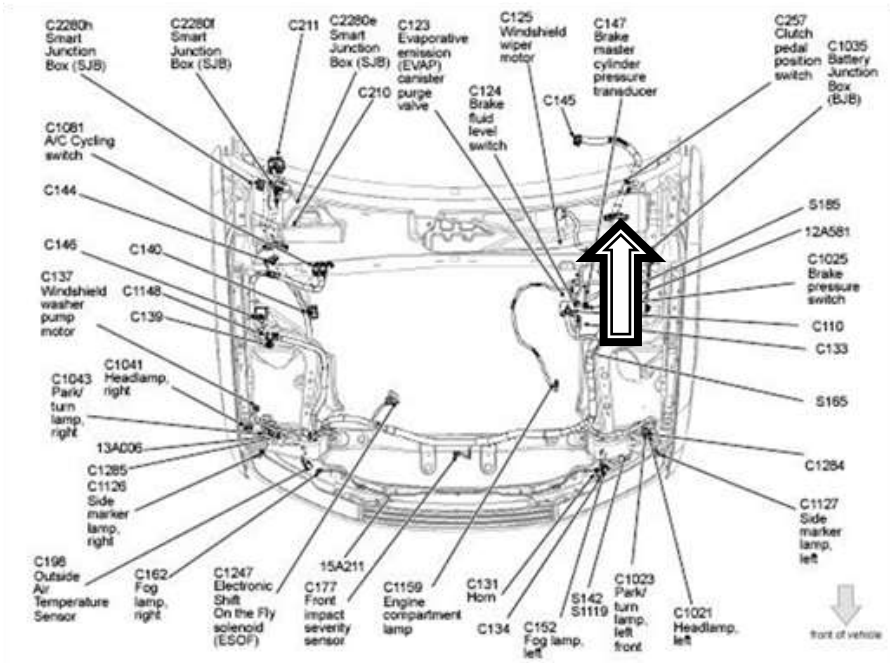
26. Lay out supplied wiring harness over top of the engine.

27. You will then need to route the switch through the firewall on the driver's side (note you will need to remove the switch from the harness to accomplish this). See wiring diagram on page 32

    Choose a highly visible location for the switch and mount it to the dash.



Recommended Locations

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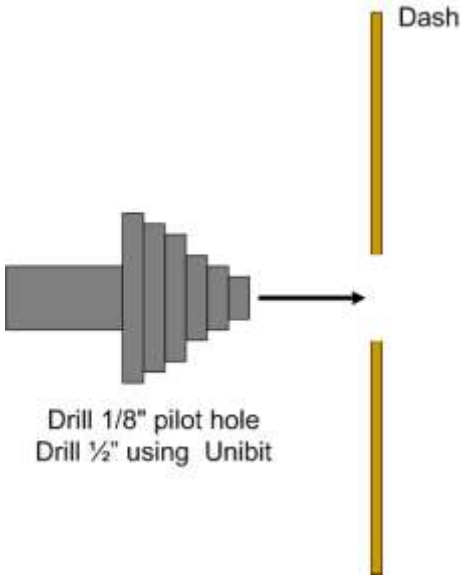
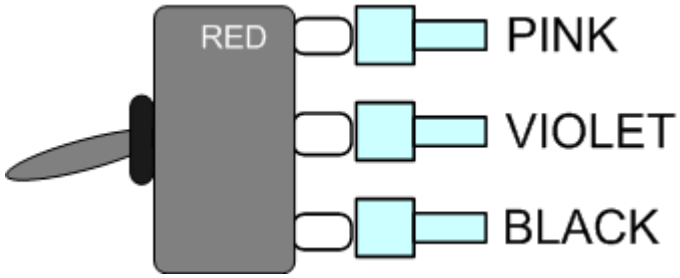
28. Using a 1/8” drill, drill a pilot hole in the location you have selected for the switch to be mounted.

Finally using a ½” UNIBIT drill bit, drill an exact ½” round hole.



29. Once you have the mounting hole drilled, insert the switch from the backside.

Reinstall the correct wires to the correct switch terminals.



30. Mount the switch so that the groove on thread boss is facing down.

    Adjust the HEX washer/nut so that the switch threads do not protrude an unsightly amount.

Switch install with decal

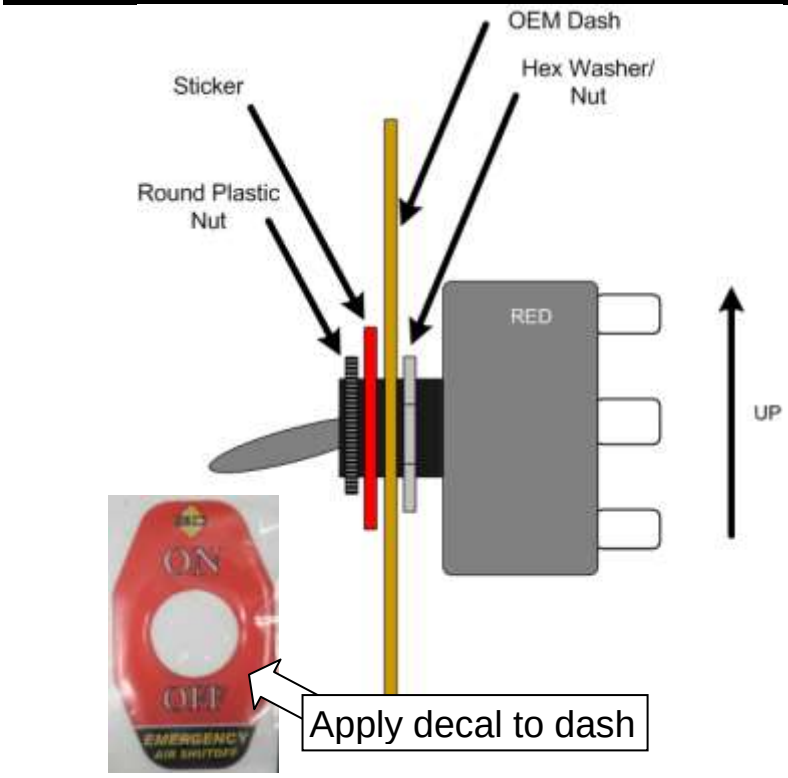
Apply the supplied decal to the dash and tighten the round plastic nut.

Switch install with Guard

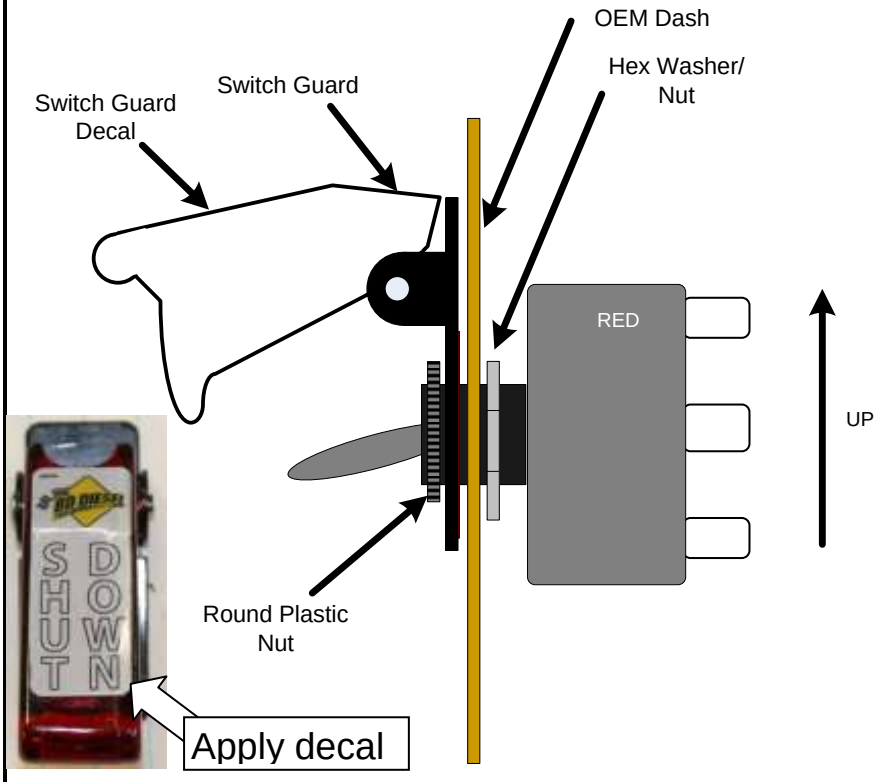
Install the switch guard onto the switch by aligning the tab with the groove on the thread boss.

Then tighten on the round plastic nut and apply the decal to the switch guard.

Switch install with Decal



Switch Install with Guard



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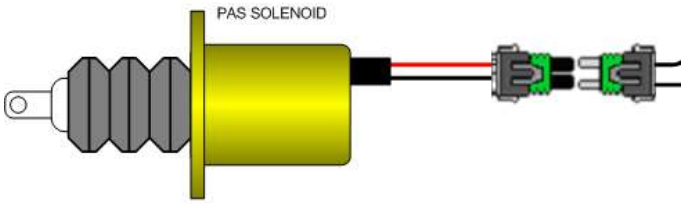
31. Now underneath the hood locate and connect the weather pack connector on the wiring harness to the solenoid on the PAS valve. See page 32 for more info.



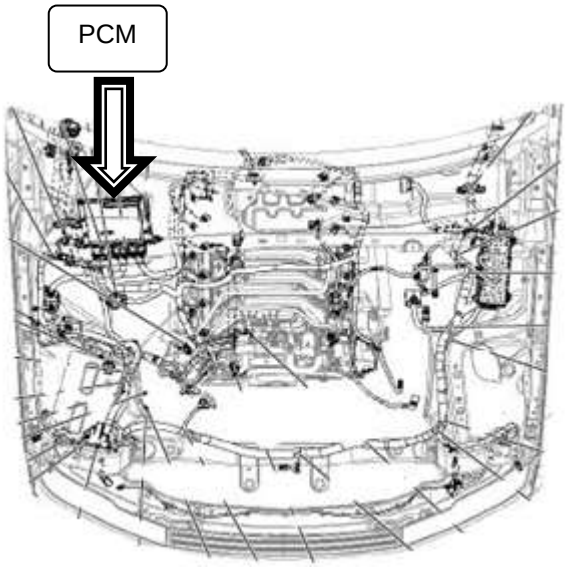
32. On the passenger's side firewall of the engine bay you will need to locate the PCM.

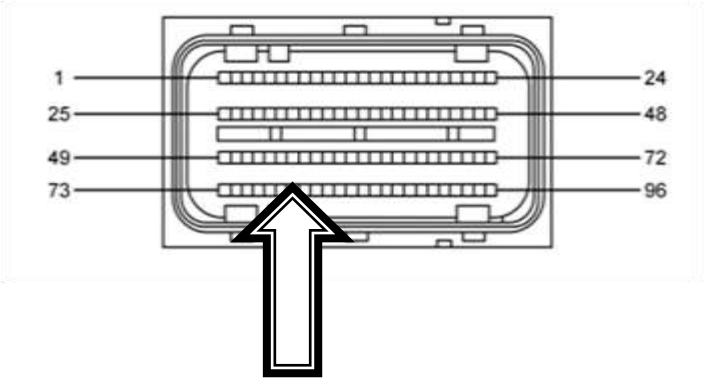
33. Now locate the 96 pin connector. It will be the connector closest to the engine.

    To gain access to the back of the connector, you will need to remove the back cover of the connector. There is a locking pin on one side. Depress this and the cover will come off.

    Now locate pin 80. This is the crankshaft signal wire. You will need to attach the PAS electronic module RPM speed signal to this wire.

    Once you have finished you will need to place the cover back on, be sure to align the locking tab gears to the two slide lock mechanism





Pin#	Wire Color
80	YL/VT

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34. Being that the RPM signal is critical you will need to solder the connection.

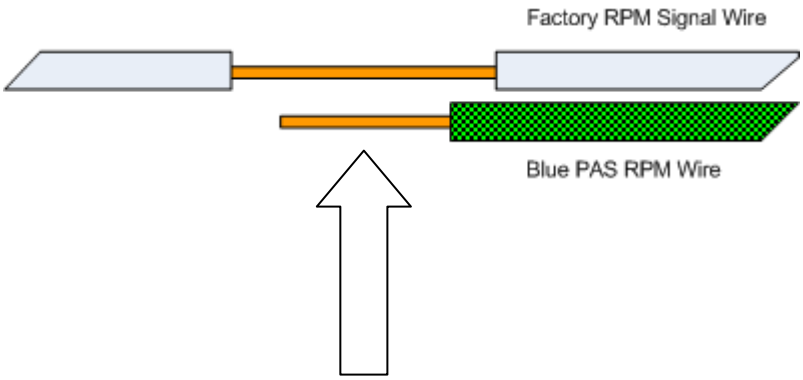
    Using wire strippers create a 1” window/gap in insulation of the wire.

    Then strip about 1” of insulation of the RPM signal wire of the BLUE wire from the PAS wiring harness.

    Wrap the copper wire around the factory RPM signal wire and solder this connection.

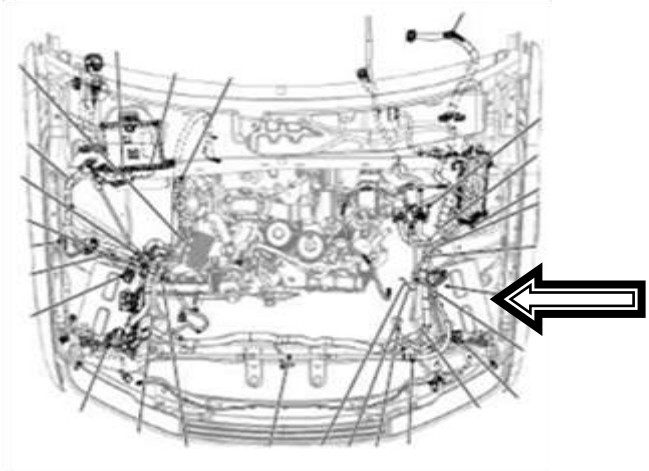
    Then use electrical tape to wrap this connection so that it is water tight.

    You can also cut the factory crank signal wire and use heat shrink tubing if you would like.



Solder the connection and then wrap and seal with electrical tape

35. Next on the wiring harness connection the BLACK and RED wires to the respective battery connections (Driver’s Side Battery).



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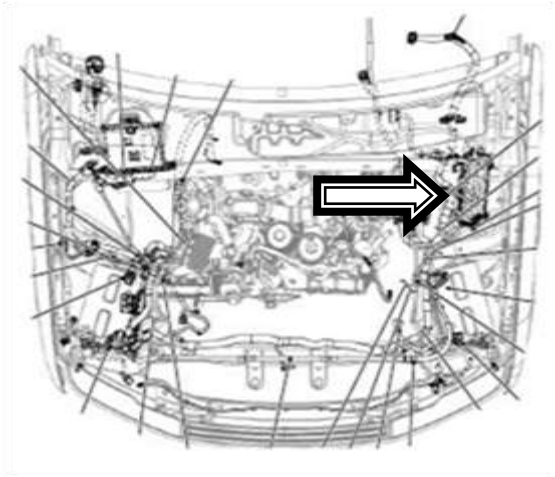
36. For the last connection you will need to locate ignition power. This will power the automatic over speed control box LED switch. Note that the unit can still be activated manually with the switch at any time.

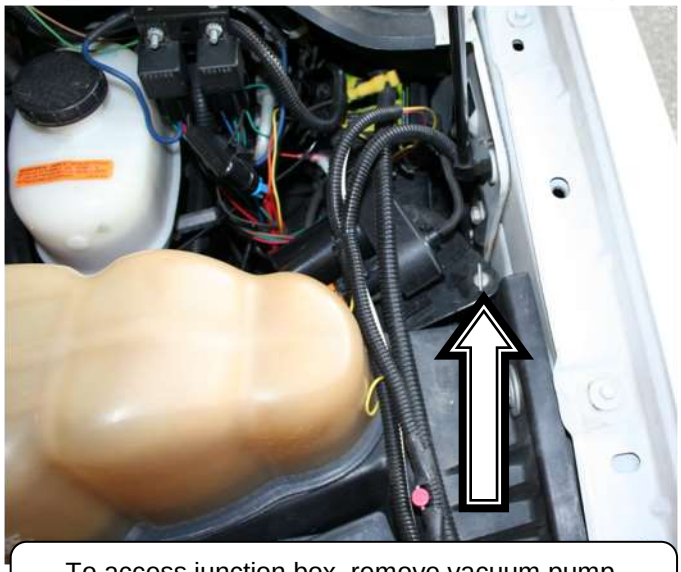
    Locate the battery junction box at the driver's side rear of the engine compartment.

    You will need to remove the vacuum pump that is mounted to the top of the junction box.

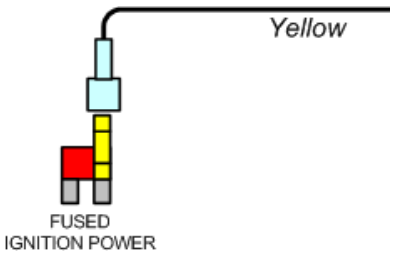
    Open the junction box and locate Fuse #67 (20 AMP). It will be near the front of the junction/fuse box.

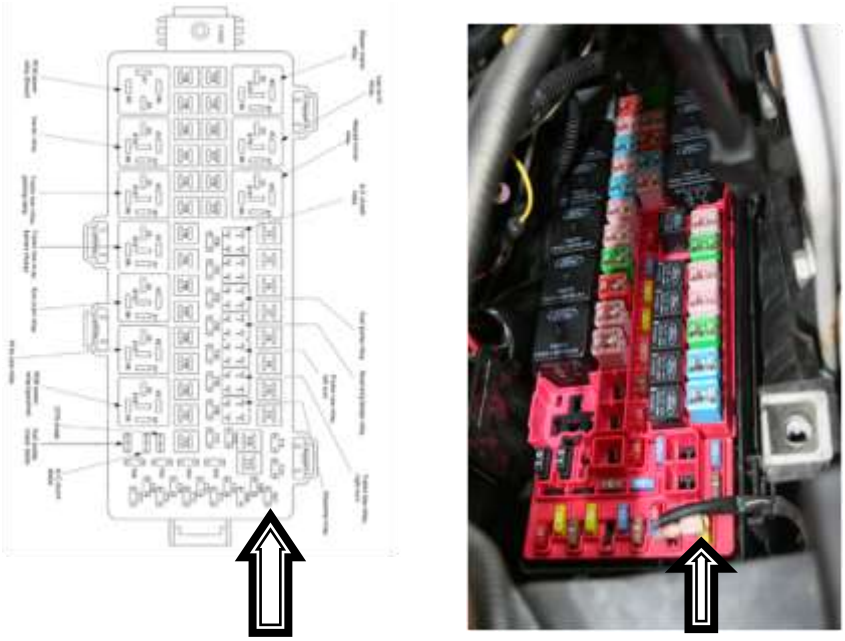
    Locate appropriate fused ignition power circuit (see table below). Install fuse tapper on to fuse, reinstall fuse. Connect yellow lead wire with flag connector to this new connection. Route wire out of the box and close lid and kick panel. Re-attached vacuum pump.





To access junction box, remove vacuum pump. Twist the wing bolt which will release the locking bracket.

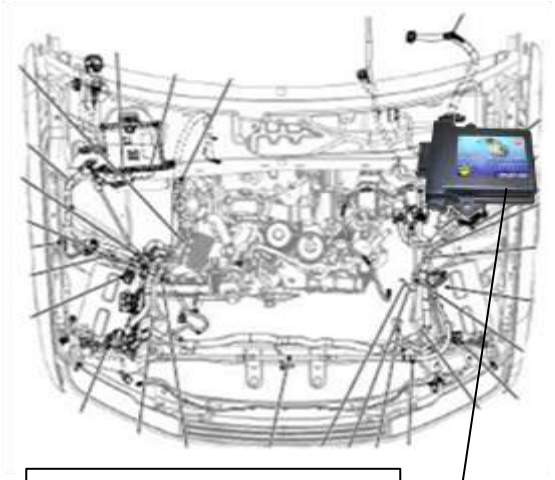




Fuse #67 (20 AMP)

Mount the electronic control unit on top of the junction/fuse box. Be sure to clean the mounting surface with alcohol before applying Velcro.

Connect the wiring harness to the electronic control unit.



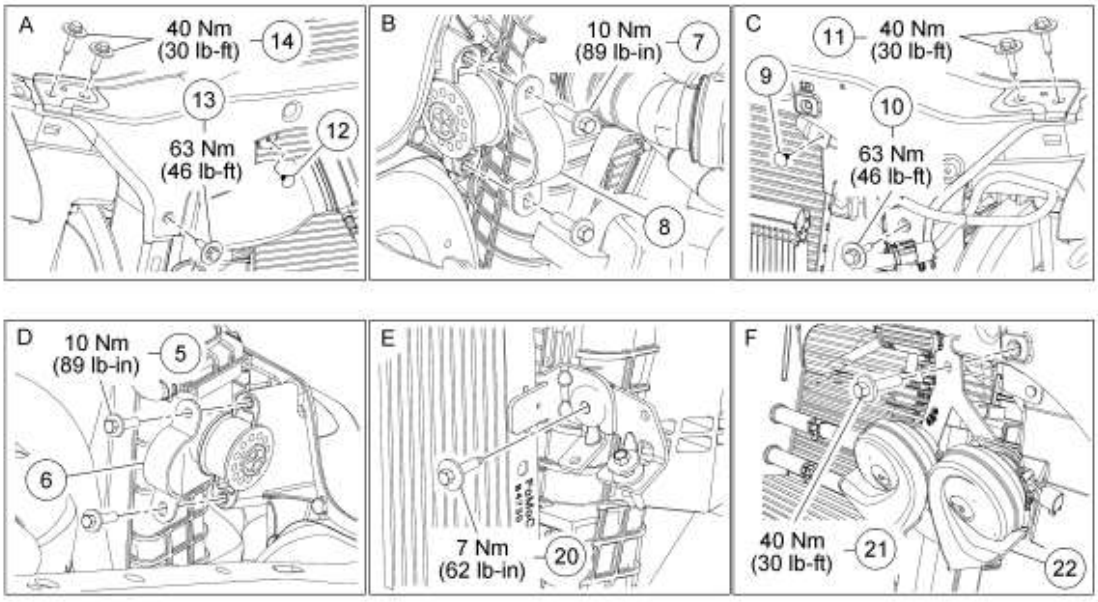
37. Double check all wiring connections and ensure wires are routed away from any heat sources and moving parts. And continue to the Setup, Testing and Verification with Over Speed Electronics section in this manual.

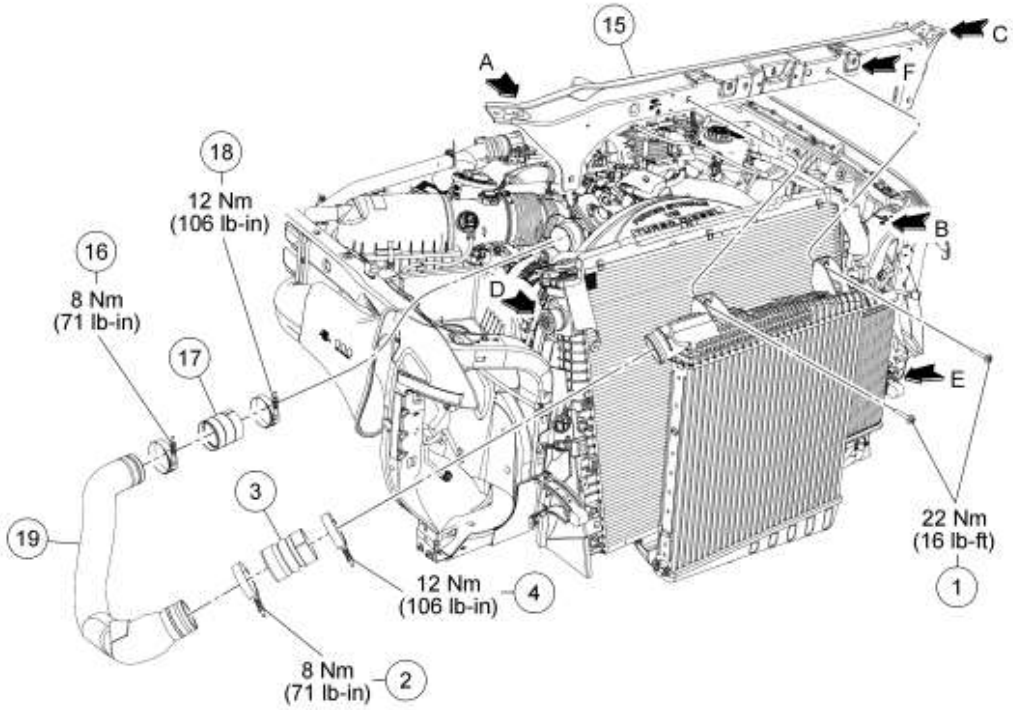
INSTALLATION without OVER SPEED ELECTRONICS (1036702-M)

VEHCILE SHOULD BE SAFELY SECURED BEFORE INSTALLATION.

1. Block the wheels of the vehicle to prevent the vehicle from rolling.

   Open the hood.





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Phone: 604-853-6096 | Fax: 604-853-8749 | Internet: www.bd-power.com

Item	Description
1	Charge Air Cooler (CAC) mount bolts (2 required)
2	RH CAC tube-to-CAC tube flex joint clamp
3	RH CAC tube flex joint
4	RH CAC tube flex joint-to-CAC clamp
5	RH radiator support clamp bolt (2 required)
6	RH radiator support clamp
7	LH radiator support clamp bolt (2 required)
8	LH radiator support clamp
9	LH radiator air deflector push pin retainer
10	LH radiator support front bolt
11	LH radiator support top bolts (2 required)

Item	Description
12	RH radiator air deflector push pin retainer
13	RH radiator support front bolt
14	RH radiator support top bolts (2 required)
15	Radiator support
16	RH CAC tube-to-CAC tube flex joint clamp
17	RH CAC tube flex joint
18	RH CAC tube flex joint-to-Throttle Body (TB) clamp
19	RH CAC tube
20	Fuel cooler bolt
21	Horn and bracket assembly bolt
22	Horn and bracket assembly

2. Loosen RH Charge Air Cooler (CAC) tube clamps and disconnect the CAC tube from the flex hoses.

3. Remove the side bolt for the fuel cooler radiator.

4. Remove the 2 bolts for the CAC.

5. Remove the 4 radiator support clamp bolts and the 2 radiator support clamps.

6. Remove the 1 radiator isolator on the passenger side.

7. Disconnect the horn assembly electrical connector, the hood latch release cable position retainer and if equipped, disconnect the fog light electrical connector position retainer.

8. Remove the bolt for the horns.

9. If equipped, disconnect the temperature sensor push pin and position aside.

10. Remove the 2 air deflector push pin retainers.

11. Disconnect the hood cable retainer. Remove the 2 power steering cooler bolts and position the power steering cooler aside.

NOTE: MARK THE FRONT BOLTS TO AID IN RE-INSTALLATION.

12. Remove the 2 front bolts for the radiator core support.

13. Remove the 4 top bolts for the radiator core support and remove the support by lifting up and forward.

14. Remove CAC tube from vehicle.

15. With the CAC pipe removed you will need to cut a section from the tube and discard.

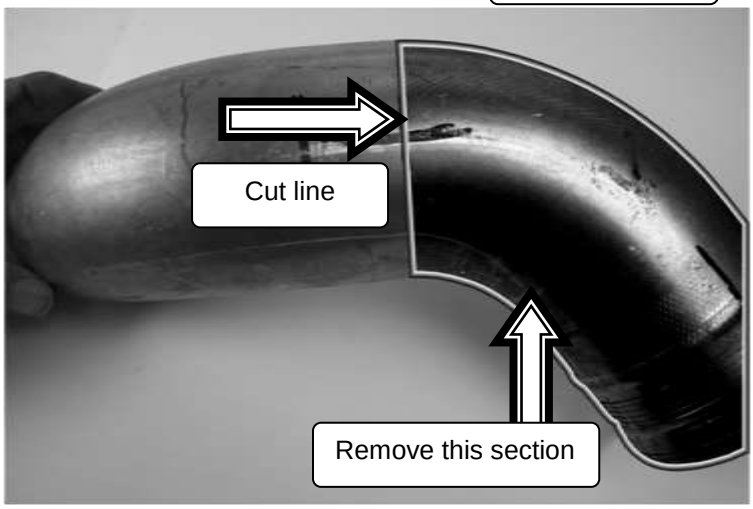
Pay particular attention to the correct side of the pipe, as this is the end that connects to the intake manifold.

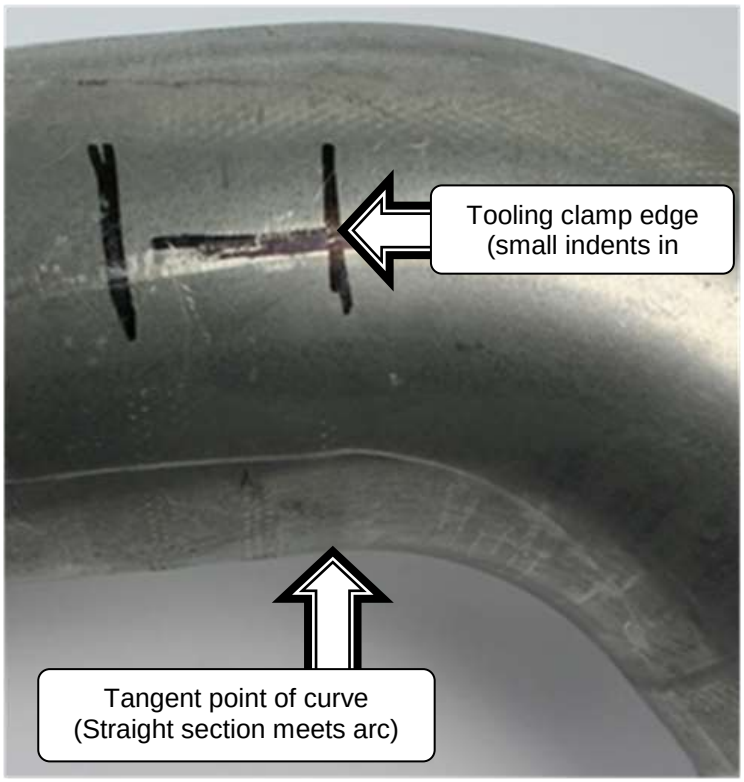
Once you have indentified the correct end, pay attention to the last bend. You will need to remove this last bend.

To cut in the correct location locate the tangent point of the inside arc of the bend. This is basically the point in which the bend (arc) stops and becomes a straight section.

At this point you will also notice the grip marks on the tube bend machine stop.

Cut the pipe square across at this point. Be sure to deburr the pipe inside and out once it is cut.





16. With the pipe cut, you will now need to drill a couple of holes to secure the boot bead on the end of the pipe you just removed.

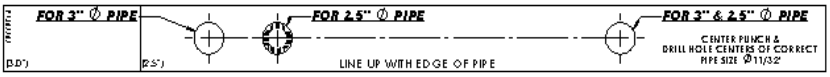
17. Firstly, remove the backing from drill template sticker and wrap around pipe. The edge of the sticker should line up with the edge of the pipe.

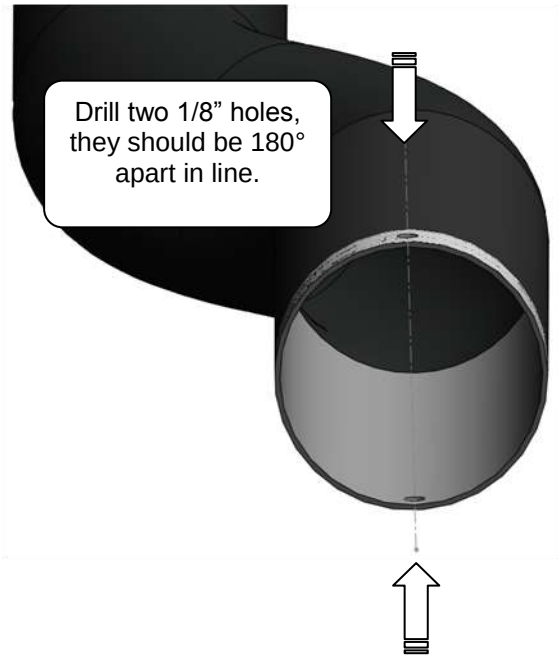
    For the 3” pipe the sticker should wrap perfectly around the pipe, the start of the sticker should meet the end of the sticker.

18. With the sticker in place use a center punch and then use a Ø1/8” drill bit and drill a hole in the center of the holes marked “For 3Ø”.

    There will be two holes and they should be perfectly 180° inline with each other through the pipe.

    DO NOT DRILL COMPLETELY THROUGH THE PIPE AND OUT THE OTHER END. YOU WILL NEED TO DRILL ONE SIDE THEN ROTATE, AND THEN DRILL THE OTHER SIDE.

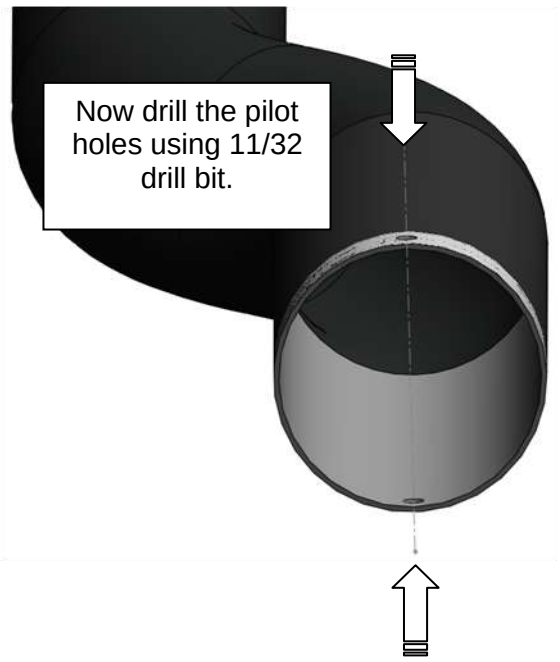




19. Once the pilot holes are drilled you will need to drill an Ø11/32” hole through the pilot holes.

    You can now remove the sticker.

    You must deburr the inside of the drilled holes.



20. Once the holes are drilled, install the ring bead around the pipe. Lock each end of the ring bead into each hole.

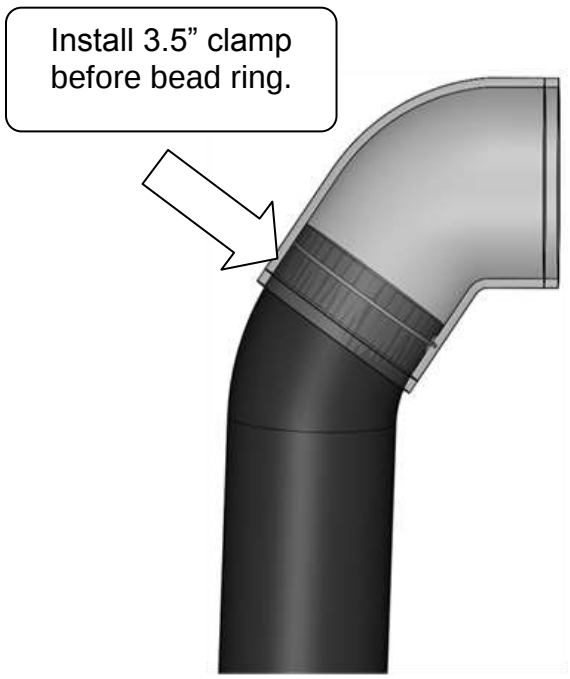
    You can use a needle nose plier to tweak or adjust the ring fit slightly.

    Be careful not to bend the ring bead to much as you will weaken it.

    Note the ring bead does not have to be perfectly tight or snug around the pipe, as we will be installing a silicone boot over top of it.

    With the ring bead in place, you should not be able to pull the ring bead off axially from the tube.

21. Once the ring bead is installed you can now slip the 3” ID end of the elbow boot (#1302271) over the pipe and bead wire assembly. Slide the boot far enough down so will have ample room to install the 0325 spring clamp (#1405211) before the spring bead.

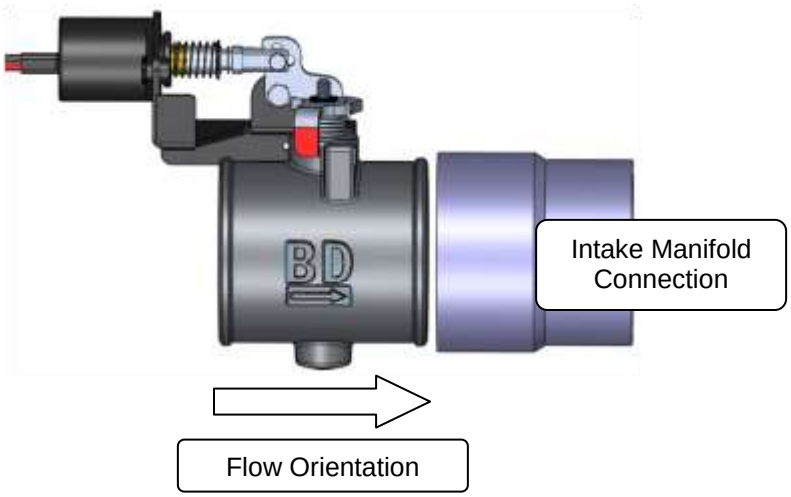


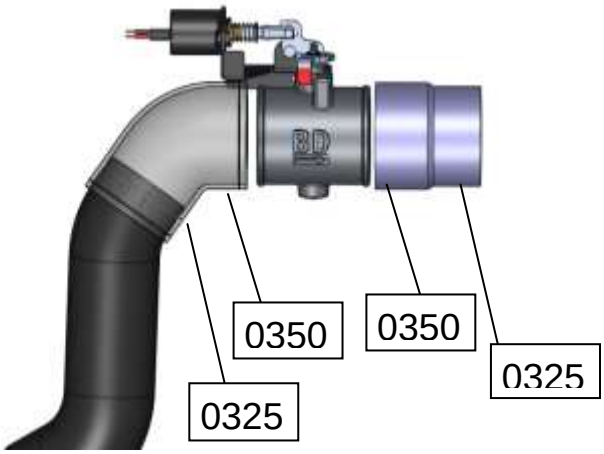
22. Install the 3.25" (#1405404) stepped boot onto the outlet of the PAS Valve. Please note the flow arrow orientation. Secure this connection with the 0350 spring clamp (#1407030).

23. Now insert the valve assembly on to the intake manifold inlet. Make sure the flow orientation is correct and the valve is rotated so that it will not contact anything. Secure this connection with the 0325 spring clamp (#1405211).

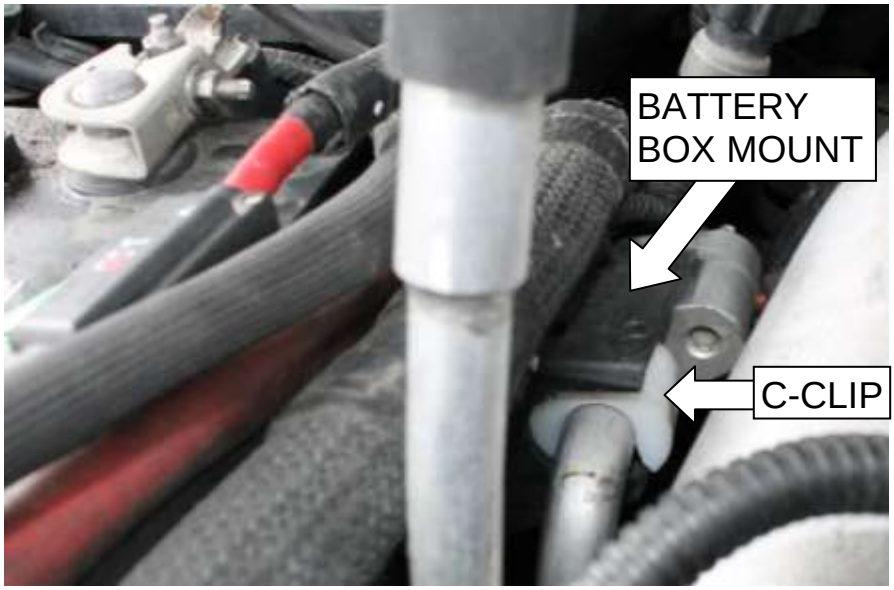
24. Connect the CAC pipe and boot to the inlet of the PAS valve. Secure this connection with the 0350 spring clamp (#1407030).

Tighten all spring clamps until spring bound.



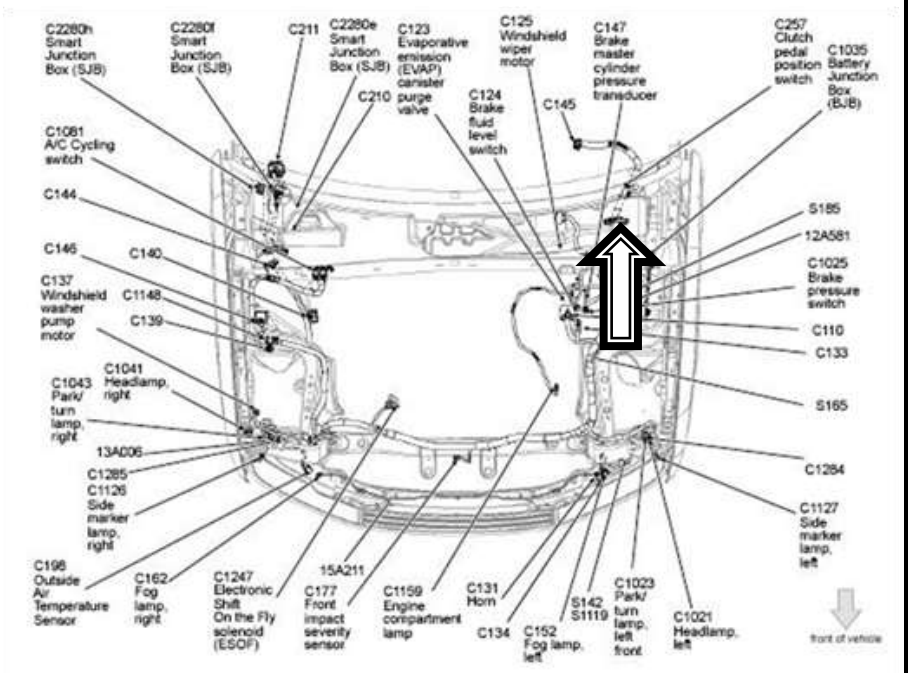


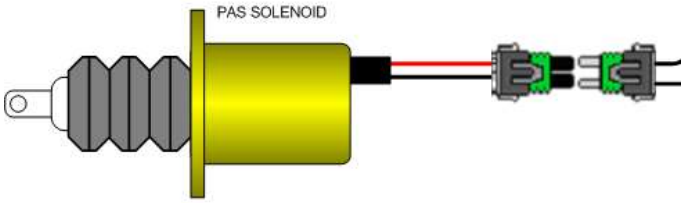
25. Slide A/C line junction towards the firewall, then install spacer c-clip onto line in front of junction. Reinstall A/C line with C-Clip spacer into battery box mount. This will give the PAS boot extra clearance from the A/C line.



26. Lay out supplied wiring harness over top of the engine.

    Locate and connect the weather pack connector on the wiring harness to the solenoid on the PAS valve.





27. You will then need to route the switch wires through the firewall on the driver's side.

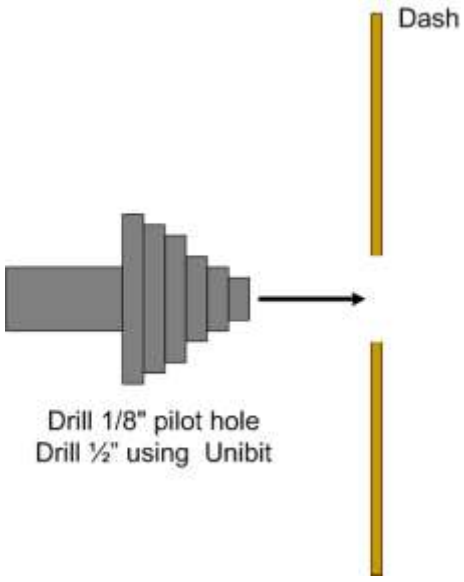
    Choose a highly visible location for the switch and mount it to the dash.

NOTE: You may need to trim the switch wires to length once you have located where the switch is to be mounted.

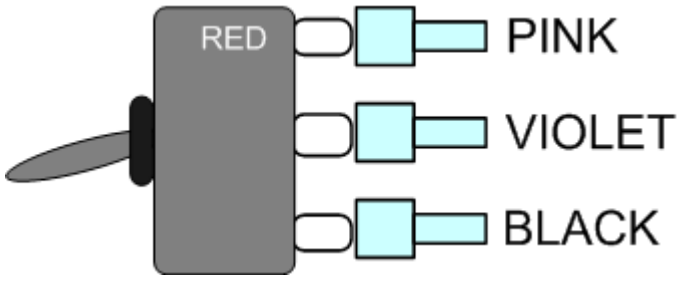
Using a 1/8" drill, drill a pilot hole in the location you have selected for the switch to be mounted.

Finally using a ½" UNIBIT drill bit, drill an exact ½" round hole.

Recommended Locations



28. Once you have the mounting hole drilled, crimp the switch connectors to the switch wires and install the correct switch wires to the correct switch terminals, then insert the switch into the dash from the backside.



29. Mount the switch so that the groove on the thread boss is facing down.

    Adjust the HEX washer/nut so that the switch threads do not protrude an unsightly amount.

Switch install with decal

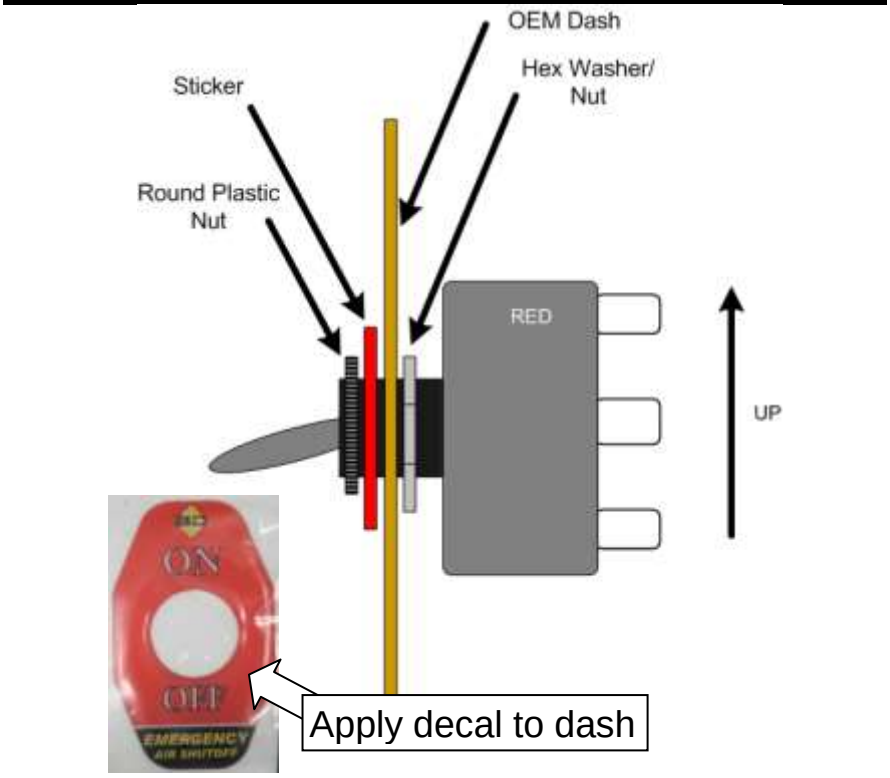
Apply the supplied decal to the dash and tighten the round plastic nut.

Switch install with Guard

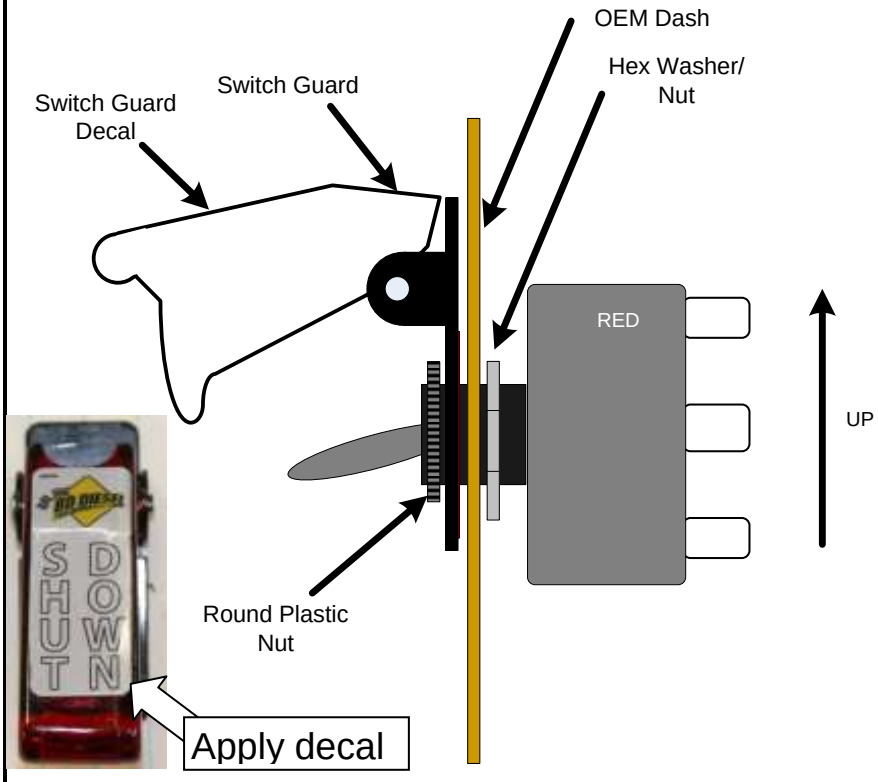
Install the switch guard onto the switch by aligning the tab with the groove on the thread boss.

Then tighten on the round plastic nut and apply the decal to the switch guard.

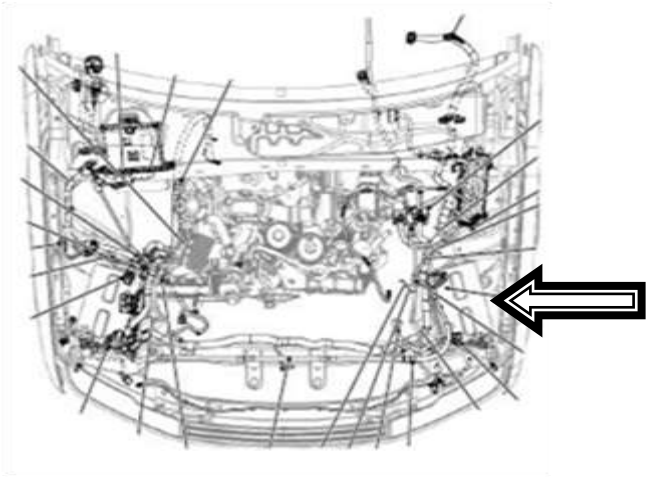
Switch install with Decal



Switch Install with Guard



30. Next trim the wires to length and crimp the ring terminals to the BLACK and RED wires to connect to the respective battery connections.
(Driver side battery)



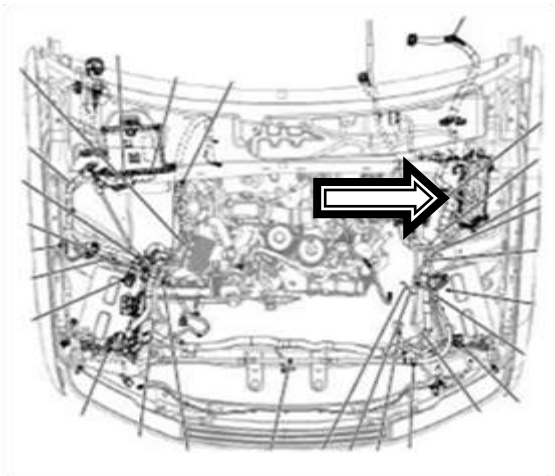
31. For the last connection you will need to locate ignition power.

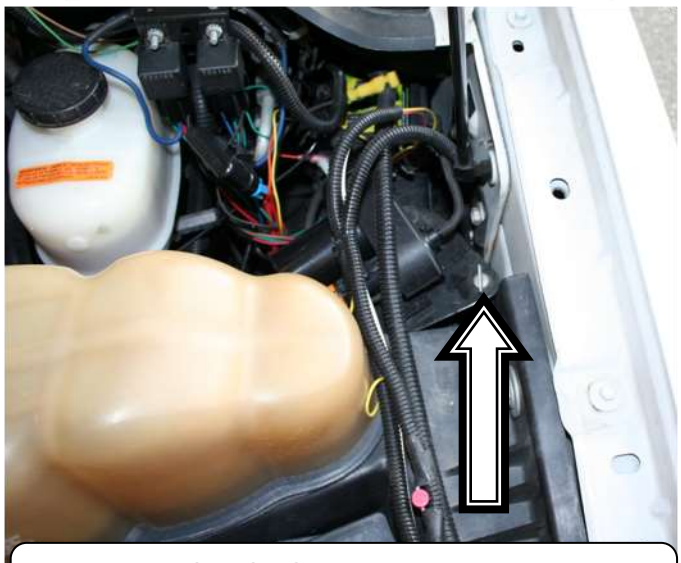
Locate the battery junction box at the driver's side rear of the engine compartment.

You will need to remove the vacuum pump that is mounted to the top of the junction box.

Open the junction box and locate Fuse #67 (20 AMP). It will be near the front of the junction/fuse box.

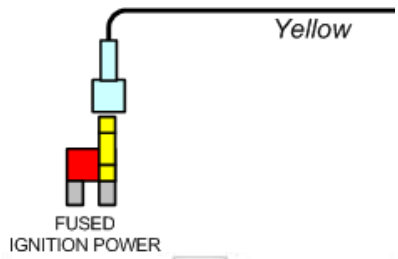
Locate appropriate fused ignition power circuit (see table below). Install fuse tapper on to fuse, reinstall fuse. Trim the pink wire to length and crimp the flag connector to the wire and connect the pink lead wire with flag connector to this new connection. Route wire

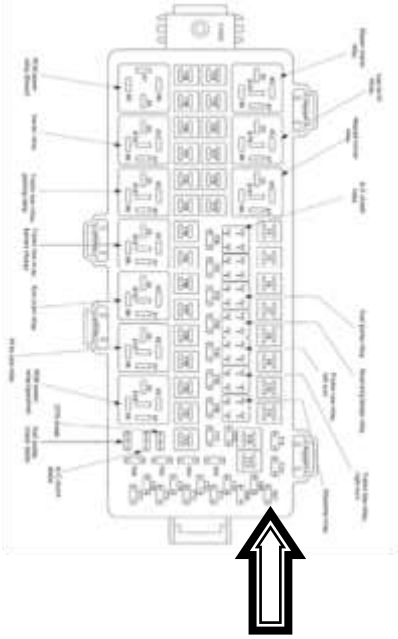




To access junction box, remove vacuum pump. Twist the wing bolt which will release the locking bracket.

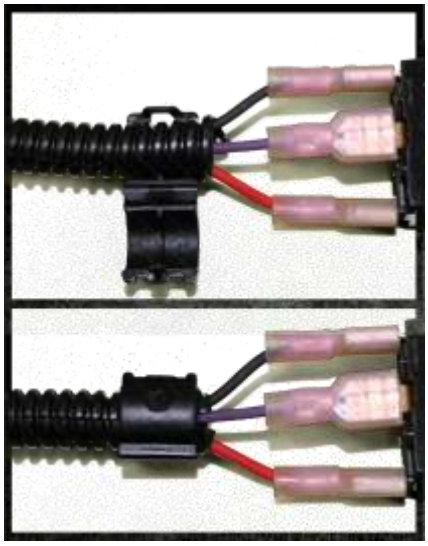
out of fuse box and close lid.





Fuse #67 (20 AMP)

32. Double check all wiring connections and ensure wires are routed away from any heat sources and moving parts. Then install the loom with the supplied tee connector and clips for the loom ends and continue to the testing flow chart without over speed electronics in this manual.



BD Engine Brake Inc.
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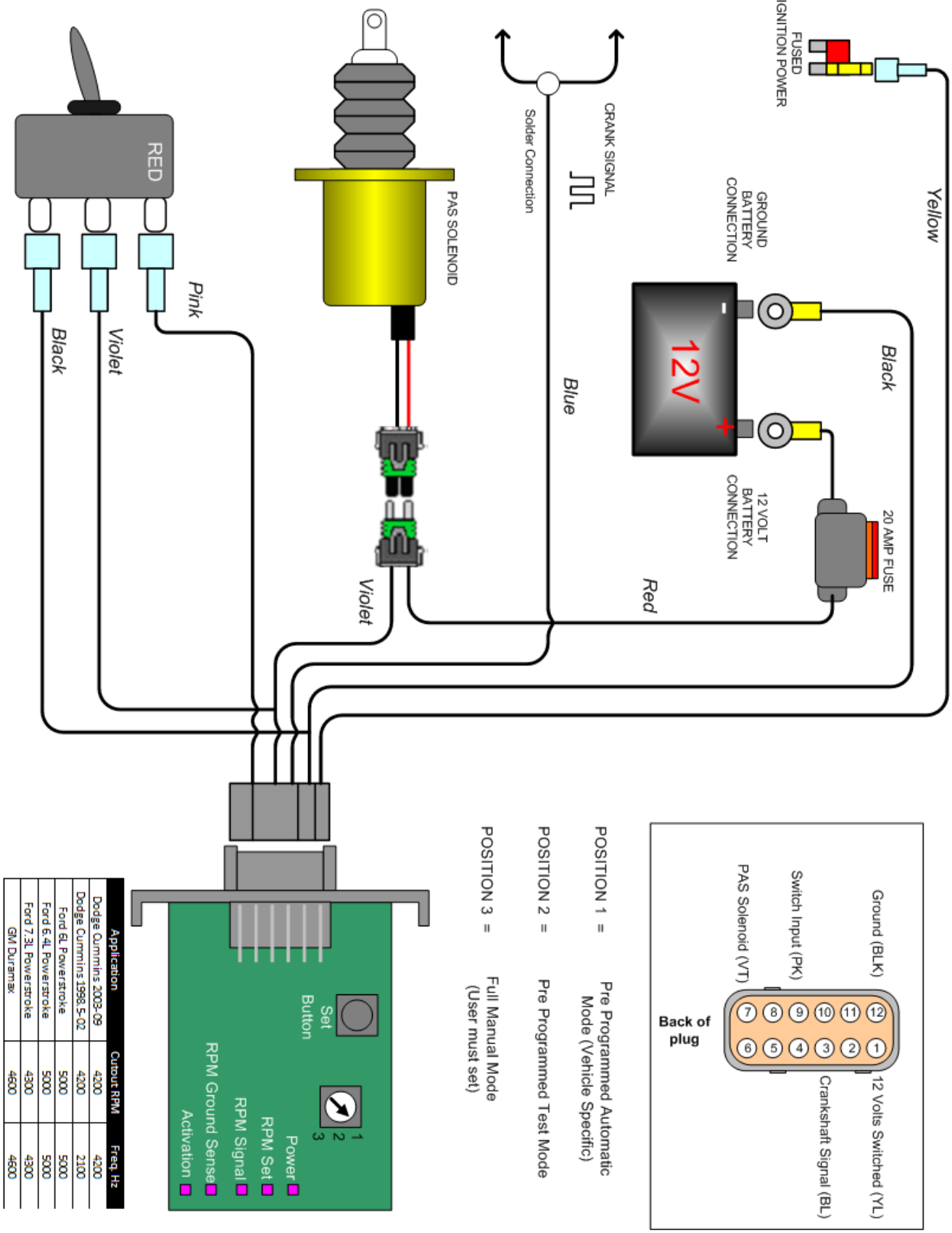
WIRING DIAGRAM with OVER SPEED ELECTRONICS (1036702)



Application	Cutout RPM	Freq Hz
Dodge Cummins 2003-09	4200	4200
Dodge Cummins 1998.5-02	4200	2100
Ford 6L Powerstroke	5000	5000
Ford 6.4L Powerstroke	5000	5000
Ford 7.3L Powerstroke	4300	4300
GM Duramax	4600	4600

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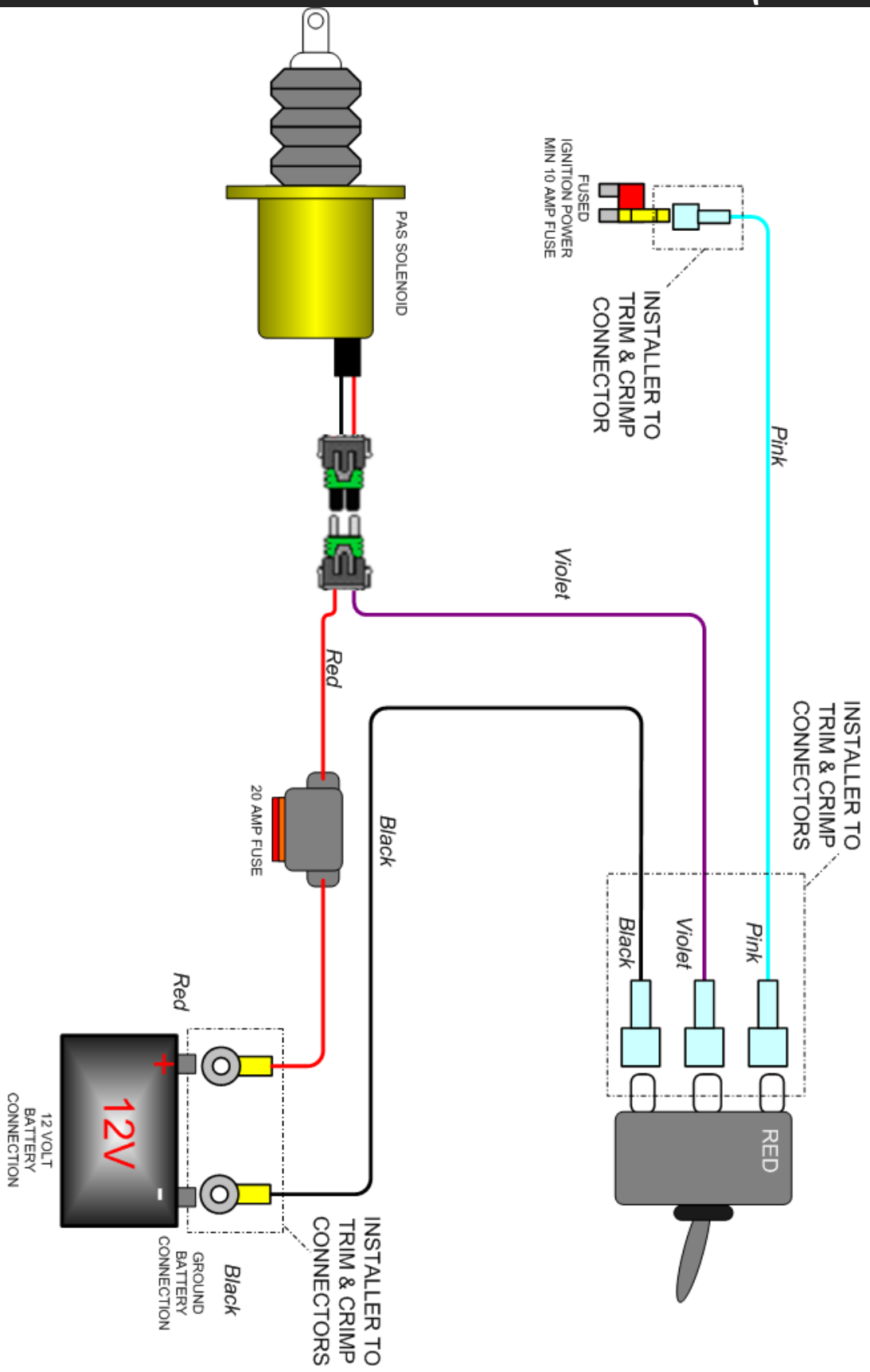
WIRING DIAGRAM without OVER SPEED ELECTRONICS (1036702-M)



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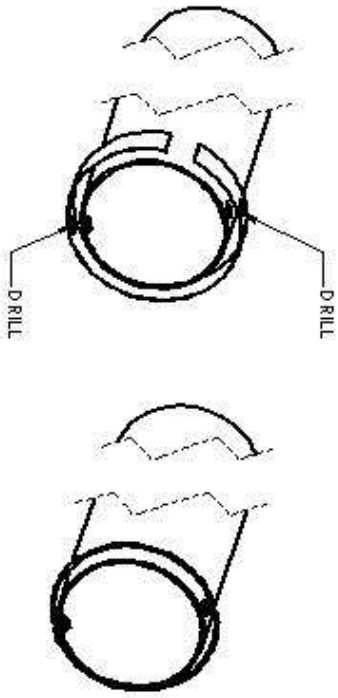
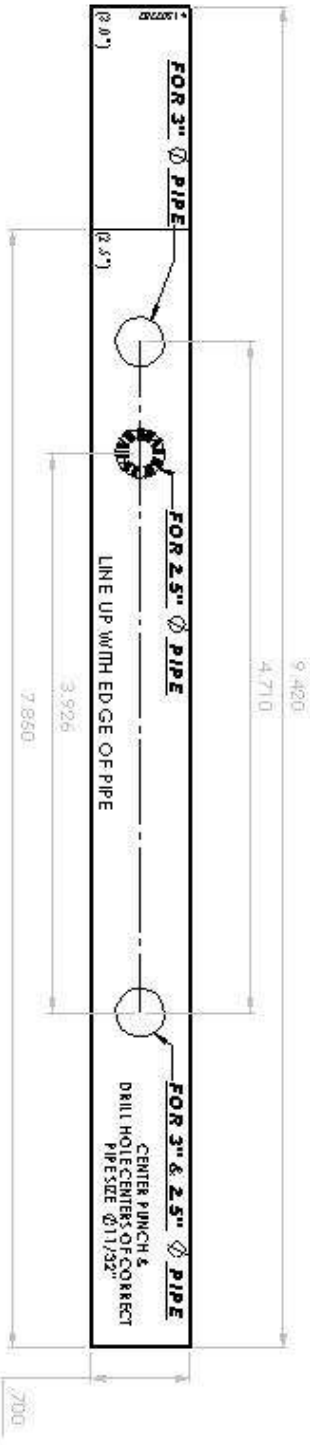
BEAD RING AND DRILL JIG INSTALLATION

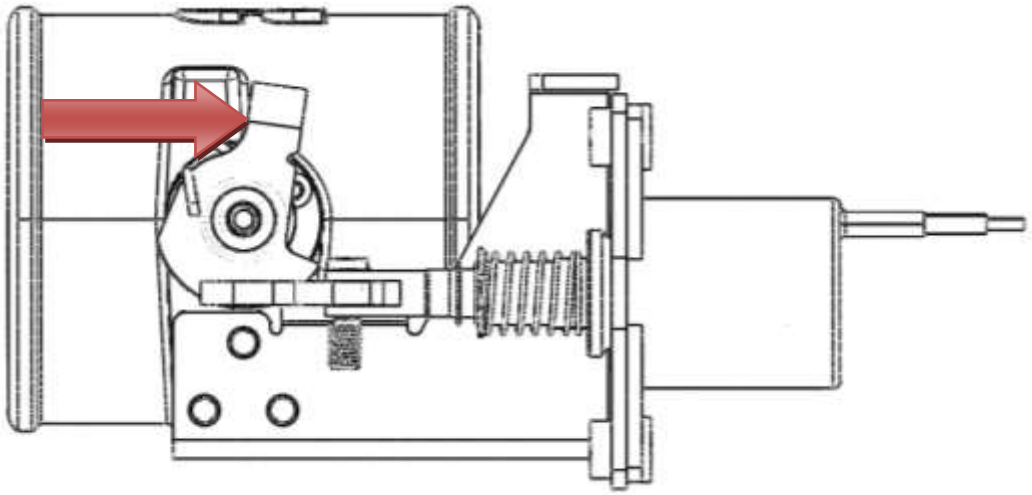
- WRAP CORRECT STICKER AROUND PIPE. LINE UP STICKED GE WITH ED GE OF PIPE. MAKE SURE STICKER IS SQUARE AROUND PIPE AND BOTH ENDS CONNECT
- CENTER PUNCH CENTER OF MARKED HOLES
- USE CORRECT SIZE DRILL BIT AND DRILL THROUGH PIPE. ROTATE PIPE AND DRILL THROUGH SECOND MARKED HOLE, THE HOLES SHOULD BE PERFECTLY STRAIGHT
- REMOVE STICKER AND DEBURR INSIDE AND OUTSIDE OF PIPE
- THEN WRAP WIRE BEAD AROUND TUBE. YOU MAY NEED TO FORM IT SLIGHTLY. IF DONE CORRECTLY THE BEAD WILL NOT PULL OFF OF TUBE
- INSTALL SLICONE BOOT AND CLAMP AS YOU WOULD NORMALLY



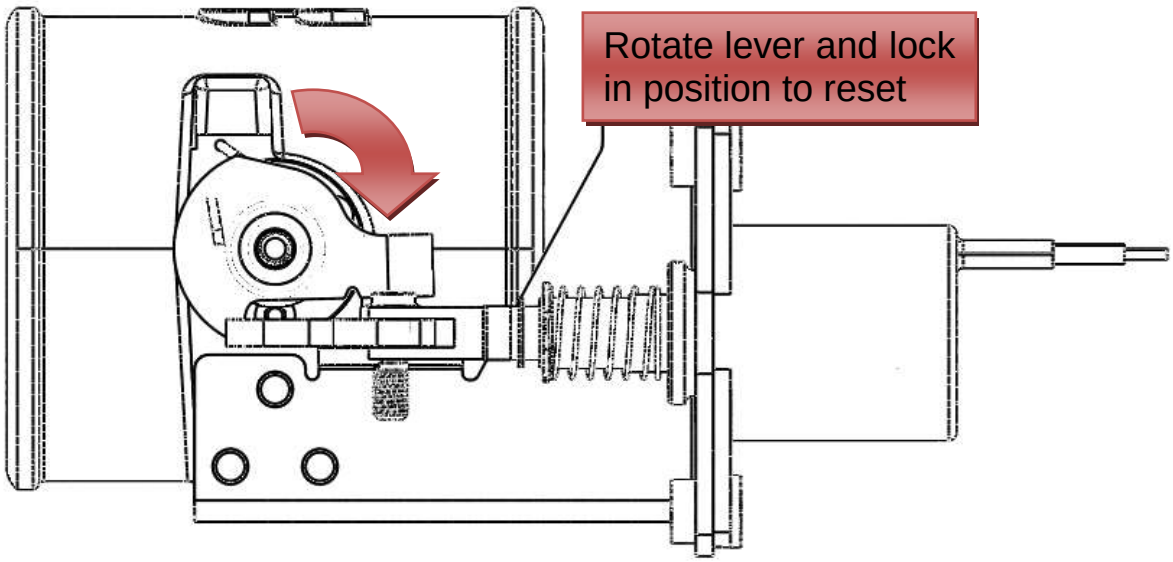


RESETTING THE VALVE

Valve Activated (Closed)



Valve Reset (Open)



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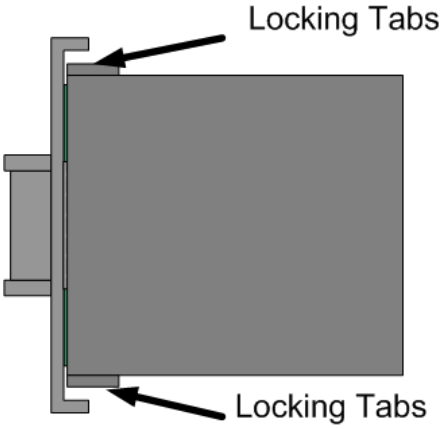
SETUP, TESTING AND VERIFICATION with OVER SPEED ELECTRONICS

Each unit is specifically configured for each model of truck. As in the case of different model years and makes the engine RPM frequency is different.	Engine Idle Speed Frequency 2008-10 Ford 6.4
	600-800 Hz (1:1) ratio

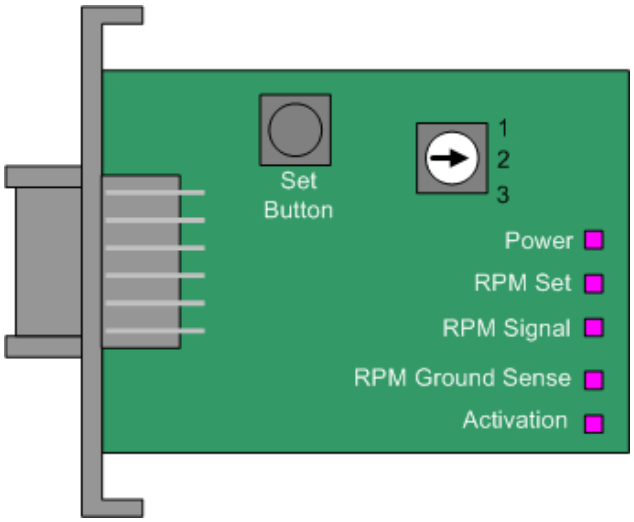
2007-2009 6.4L Ford	Activation RPM	Activation Freq. (Hz)
PAS Switch Position #1 (Automatic Mode)	5000	5000
PAS Switch Position #2 (Test Mode)	1200	1200
PAS Switch Position #3 (Manual Mode)	User Configured	User Configured

Automatic Mode (Pre Configured RPM)	
Action	Failure/Fix/Notes
1. Turn the ignition key to the on position. You should see the RED light illuminate on the toggle switch.	If the LED does not illuminate, check the wiring to the back of the switch first. Then check entire circuit.
2. Next, start the engine. 3. With the engine idling, activate the toggle switch. You should hear the solenoid activate and the valve close. The engine should die. Once the engine dies the switch should flicker ON and OFF indicating a trip condition.	If the engine does not die, check to make sure the valve actuated. If the valve did not actuate check switch and ground wiring. If valve did actuate but the engine is still running, ensure nothing has contacted the valve mechanism
4. You can now reset the valve, by rotating the upper lever and engaging the solenoid stop.	

5. With the valve reset, remove the outer enclosure from the control module. There are two locking tabs on the sides of the enclosure.



6. Change the position selection switch to position #2 (Auto Test). Slide enclosure cover over circuit board.



7. Start the vehicle, with the vehicle in park step on the throttle increasing the engine RPM. At 1200RPM the PAS should engage itself automatically, and the engine should stall. Like with all activations the toggle switch should flash.

If the engine did not stall, check to make sure the valve actuated.
If the valve did not actuated, double check the engine RPM electrical connection.
Check the RPM Signal LED on the circuit board, it should flash proportionally to the engine RPM.

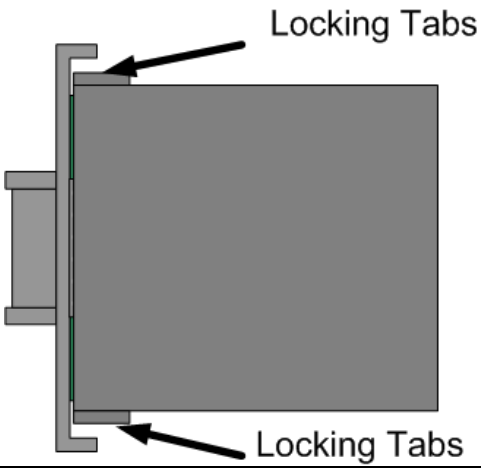
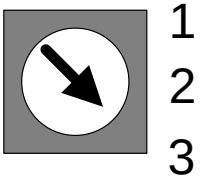
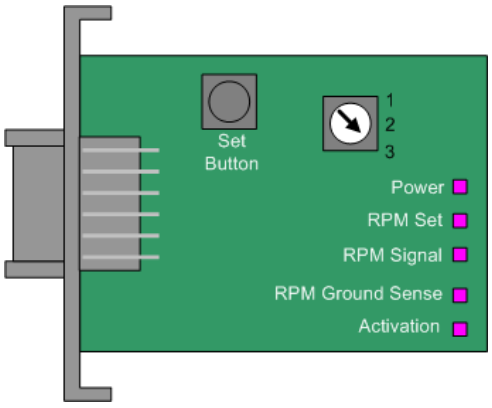
8. Reset the valve and reset the mode position switch to position #1	
You are now complete and the unit should function correctly. This test cycle should be completed once a year.	

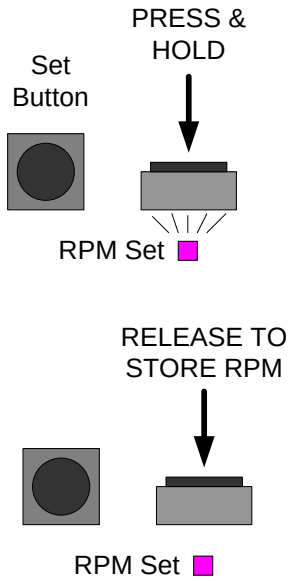
Manual Mode (User Configured RPM)

Setup

With the control unit, the user/installer has the ability to set their own activation RPM. It is necessary that you chose a low activation RPM first to test that the units is operating correctly. Once it is, you will need to set the high limit RPM activation.

Note: When you press the Set button the module will add 25% to the set speed.

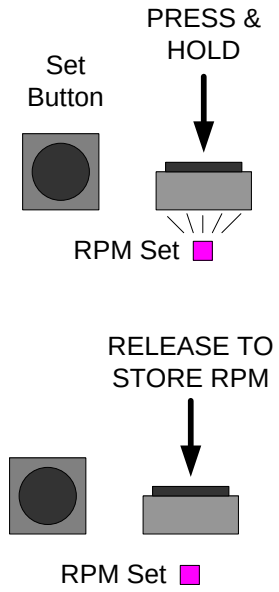
1. Open electronic enclosure, by releasing the two locking tabs on the side of the unit.	
2. Adjust the position switch to position #3. 	

3. Start the engine. 4. Press and hold the RPM SET button. When you push the SET RPM button will see the “RPM Set” LED illuminate. 5. With another person helping you, have them step on the accelerator with the vehicle in park. Raise the engine RPM to 1200 RPM. 6. Release the SET RPM button. Upon releasing the button the unit will store the RPM + 25%. So for this example the unit has stored 1200RPM + 25% = 1500RPM.	 You should see the RPM signal flash proportionally to engine RPM.
7. Now increase the RPM of the engine to test the activation circuit is working correctly. As in this example the valve should activate at 1500RPM.	You should see the ACTIVATION LED flash ON/OFF on activation. If the valve does not activate check the wiring. If the valve activates but the engine does not stall, ensure nothing has contacted the valve linkage.
8. With the valve activated the engine should die. Reset the valve and restart the engine.	
9. Press and hold the RPM SET button. When you push the SET RPM button will see the “RPM Set” LED illuminate. 10. With another person helping you, have	

them step on the accelerator with the vehicle in park. Raise the engine RPM to MAXIMUM engine RPM.

11. Release the SET RPM button.

Upon releasing the button the unit will store the RPM + 25%. So for this example the unit has stored MAXIMUM engine RPM + 25%.



12. You can now put the electronic enclosure back together and secure it the fuse box.

13. With the engine running you will need to test to make sure the manual activation switch is functioning correctly.

14. With the engine running, lift the activation switch and the engine should die.

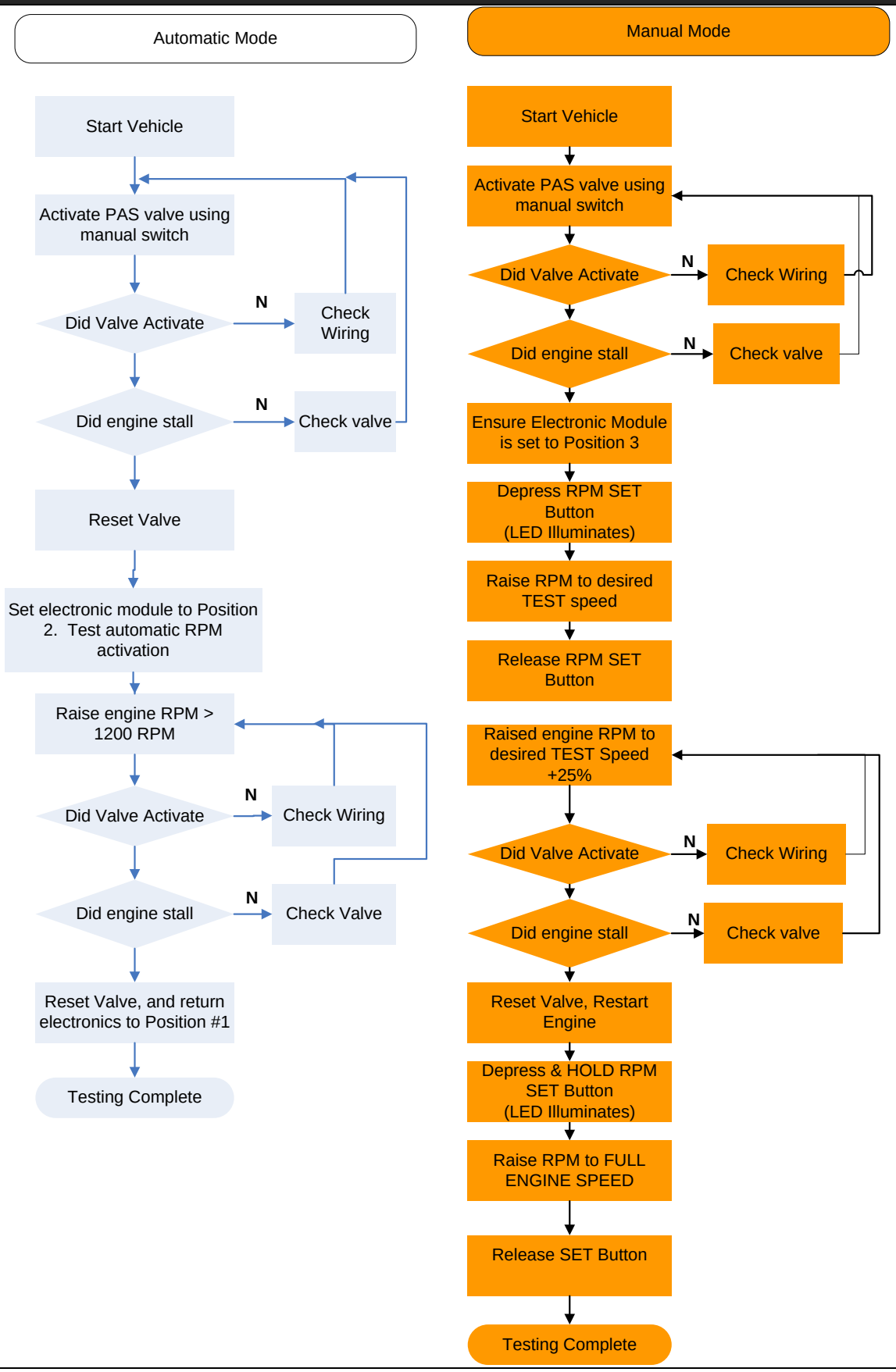
15. Reset the valve and you are now complete.

If valve does not activate check the wiring.

If the valve activates and the engine does not die ensure nothing has contacted the linkage.

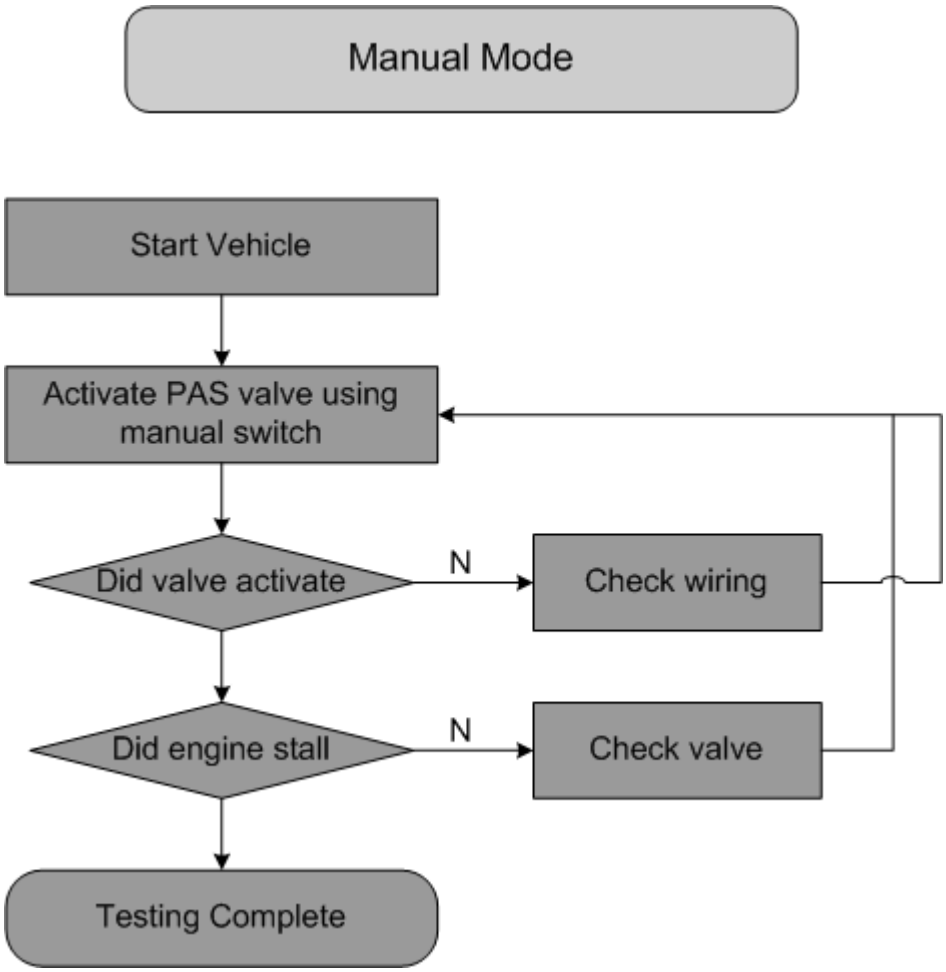
You have now completed the installation, please be sure to complete the test once a year to make sure the unit is functioning correctly.

TESTING FLOW CHART with OVER SPEED ELECTRONICS

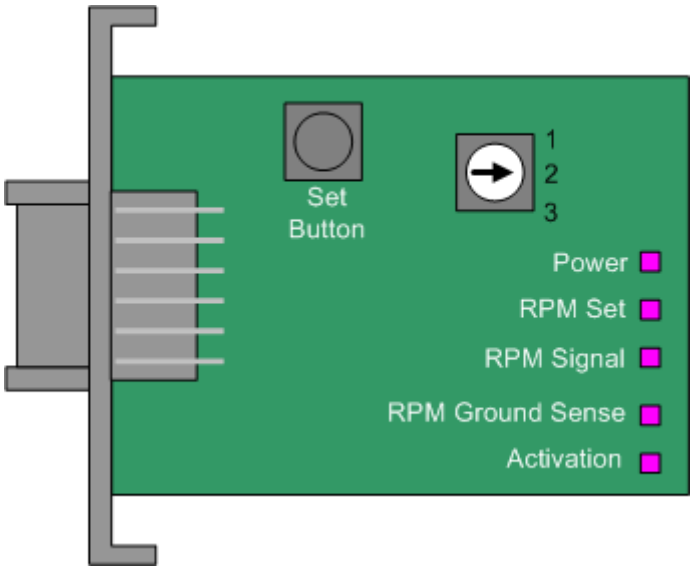


BD Engine Brake Inc.
Plant Address: 33541 MacLure Rd. Abbotsford, BC, Canada V2S 7W2
U.S. Shipping Address: 88-446 Harrison St, Sumas, WA 98295 U.S. Mailing Address: P.O. Box 231, Sumas, WA 98295
Phone: 604-853-6096 | Fax: 604-853-8749 | Internet: www.bd-power.com

TESTING FLOW CHART without OVER SPEED ELECTRONICS



LED OPERATION



LED	Description
POWER	Illuminates when unit is POWERED
RPM SET	Illuminates when SET Button is Pressed
RPM Signal	Flashes proportional to Engine RPM
Ground Sense	Illuminates when a GROUND signal is sensed on the activation line
Activation	Flashes when a valve activation is commanded manually (switch) or automatically
Toggle Switch LED	The LED will flash indicating either a problem with the system (Loss of RPM or Power) or an activated valve activation.

If you have any technical difficulties, concerns, comments, or complaints, please phone our Technical Support hotline at (800) 887-5030 between 8:30am-5:00pm PST (Pacific Standard Time) Monday to Friday, or post a message on the BD Discussion Forums located at:
http://forum.bd-power.com/