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2001-2016 Duramax Lift Pump Kit 165gph - 10psi

1050322	2001-2010 Duramax
1050323	2011-2016 Duramax


This kit includes both a water separator and fuel filter.





Kit Contents

1500431-10	1500330-D
	
<p>Pump Assembly Qty: 1</p>	<p>Wiring Harness; GM Qty: 1</p>

1500313	1500394	1500380
		
<p>Fitting; 08 ORB- 1/2" Barb Qty: 2</p>	<p>Tube; 1/2" Hose to 1/2" QC Qty: 1</p>	<p>Fitting; QC 1/2" to 1/2" Barb Qty: 1</p>

1604054	1330157	1452821	1500436
			
<p>Hose; Fuel 1/2" Qty: 90"</p>	<p>Loom; 3/4" Nylon Qty: 90"</p>	<p>Clamp; 1" Gear Qty: 4</p>	<p>Bracket; Pump Qty: 1</p>

1500356	1300529	FT-0141716	1300131
			
<p>Vibration Isolator Qty: 3</p>	<p>Self-Tap Screw Qty: 1</p>	<p>Bolt; M6x1 - 90mm SHCS Qty: 4</p>	<p>Zip-tie Qty: 12</p>

1900015	1402609	1500359	1500357
			
Bolt; M8-1.25x30 Flange CZP	Washer; M8x24 Fender	Screw; 3/8"-16x1- 1/2" TCS CZP	Washer; 3/8"x1.00" Flat
Qty: 3	Qty: 3	Qty: 3	Qty: 3

Kit Dependent Parts



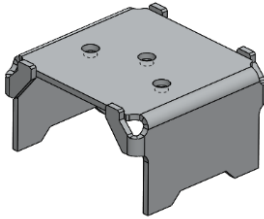

1050322 (2001-2010 Duramax)		1050323 (2011-2016 Duramax)	
1500373	1500392	1500333	1500393
			
Bracket;Box Frame Mnt 3.25"	Strap; Flowmax 20.7"	Bracket;Box Frame Mnt 2.5"	Strap; Flowmax 23.5"
Qty: 1	Qty: 2	Qty: 1	Qty: 2

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Introduction

The 2001-2016 Duramax 6.6L does not come with a lift pump from the factory and relies on an internal gear pump to draw fuel. The CP3 and CP4 pump relies on a steady supply of fuel to lubricate the internal bearings. If this supplied fuel runs out or cavitates, you will have high pressure pump failure.

BD's Lift Pump is designed to work efficiently on both stock trucks and high flow CP3's offering up to 900hp.

Operation

The BD Lift Pump is built in-house and uses ball bearings to reduce the parasitic drag within the pump allowing the pump to operate efficiently and quietly. A fuel pressure regulating diaphragm is used to improve fuel pressure regulation, allowing for more consistent fuel pressure and maximizing flow. Military grade type III hard coating is applied to the pump body to maximize durability.

Optional Accessories

<p>1050346 Fuel Heater Kit 12V 320W</p> <p>Self-regulating 320W heater designed to prevent cold weather gelling of your fuel system with PTC heating element. Sandwiched between the water separator, pre-filter and/or the filter head.</p>	 <p>The image shows the Fuel Heater Kit components, including a black corrugated heater cable with electrical connectors, a black circular water separator, a brass fitting, and other small hardware.</p>
<p>1050330 High Flow Sump Kit</p> <p>This kit installs in the bottom of the fuel tank to reduce restriction on the supply line. Kit can be installed without dropping the tank. Includes a screen to keep debris from entering the fuel line.</p>	 <p>The image shows the High Flow Sump Kit components, including a black sump housing, a red cap, a white plastic bracket, a black hose, a circular screen, and various fittings and hardware.</p>

Installation

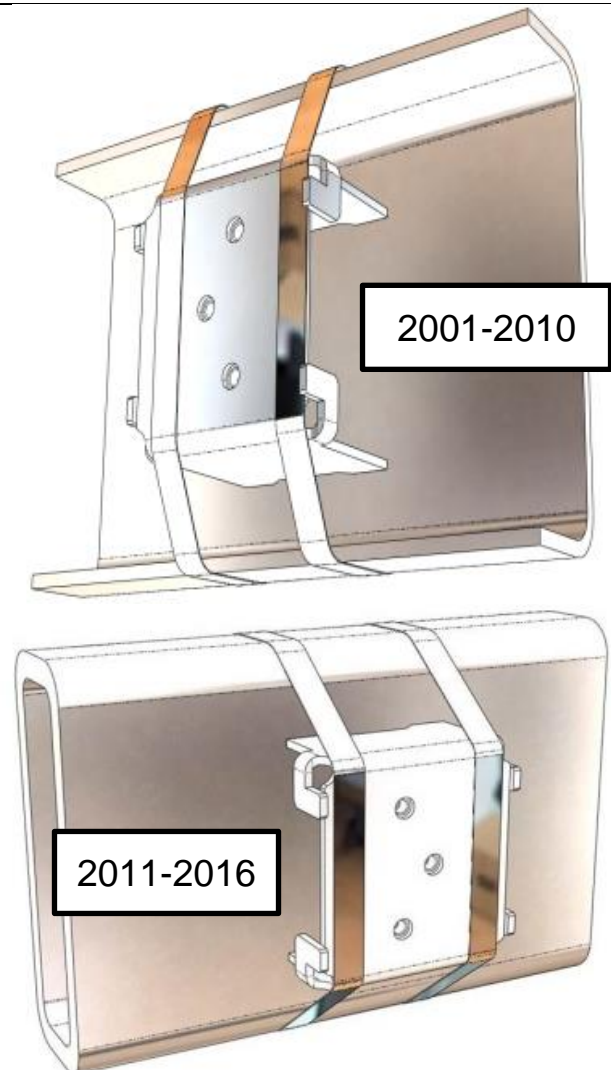
Frame Mount

Disconnect both vehicle batteries before installation for safety.

Mount the frame bracket on the driver side of the frame in front of the fuel tank. Use the supplied straps.

- 2001-2010 (C channel frame trucks), mount bracket on inside of frame
- 2011-2016 (rectangular frame) mount on inside or outside.

Note: The center hole is to be positioned to back of truck if on inside, and positioned to front if on outside.



Insert the three vibration isolators (1500356) in through the back side of the Pump bracket (1500436) and mount to the frame bracket using the M8 bolts (1900015) and washers (1402609).

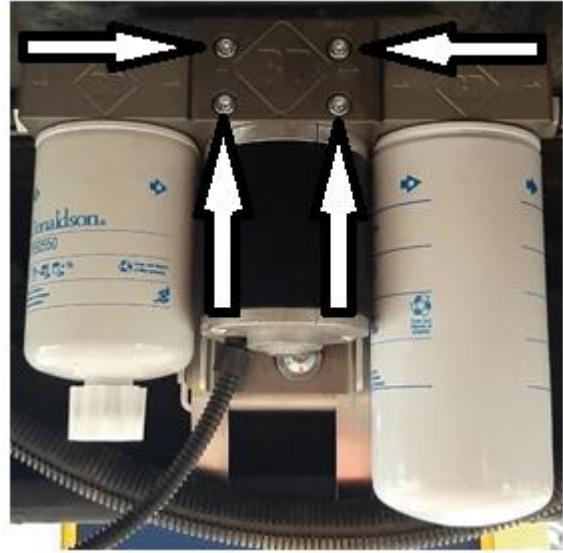
Tighten to **12 lb-ft**.



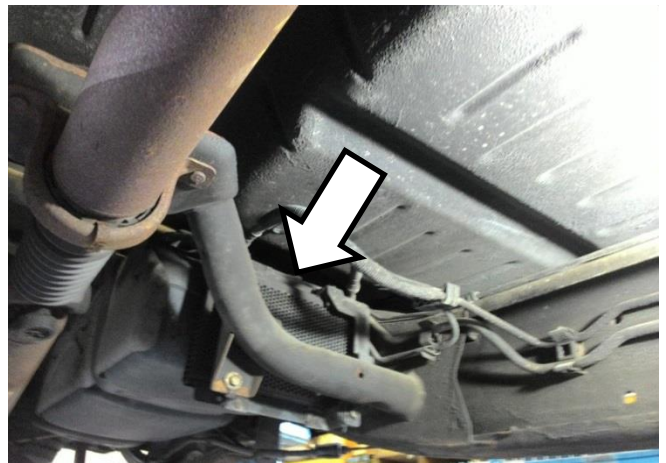
Screw in the 1/2" barb fitting (1500313) on either end of the pump.

Mount the Pump to the frame using the four M6 bolts (FT-0141716).

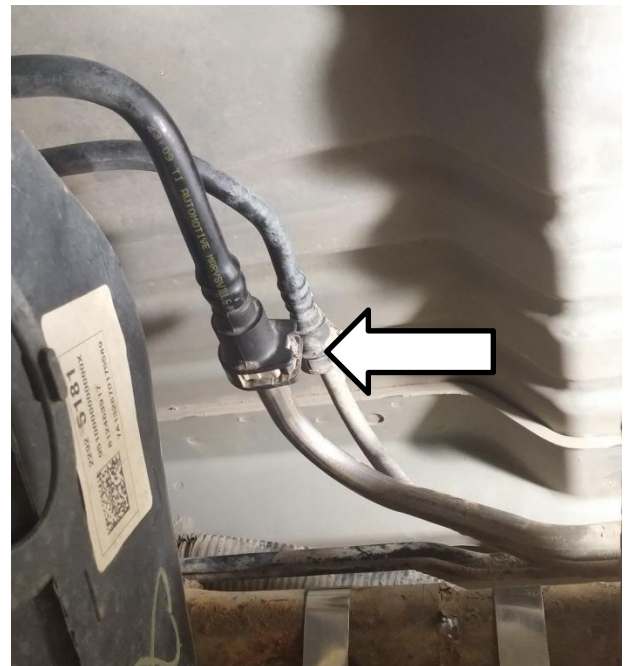
Tighten to **8 lb-ft.**



2001-2010

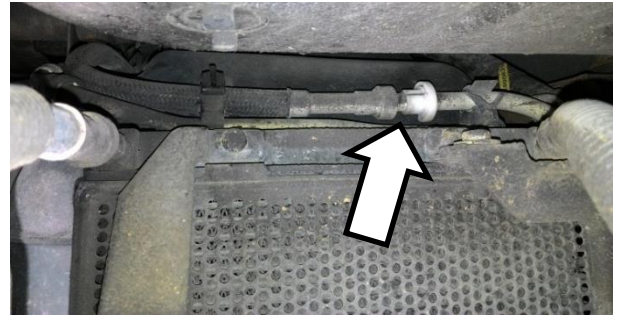


2011-2016



Locate the factory fuel line disconnect at the top of the fuel cooler, directly ahead of the fuel tank.

Position a drain pan below the connection to catch the fluid. Use a $\frac{1}{2}$ " fuel line disconnect tool to release this fuel line connection.



Install the $\frac{1}{2}$ " male quick connect fitting (1500394) into the flexible line from the tank.



Push the $\frac{1}{2}$ " fuel line onto the fitting (1500394) and connect it to the fuel pump "IN" side. Cut the fuel hose to length and use the supplied gear clamps (1452821).

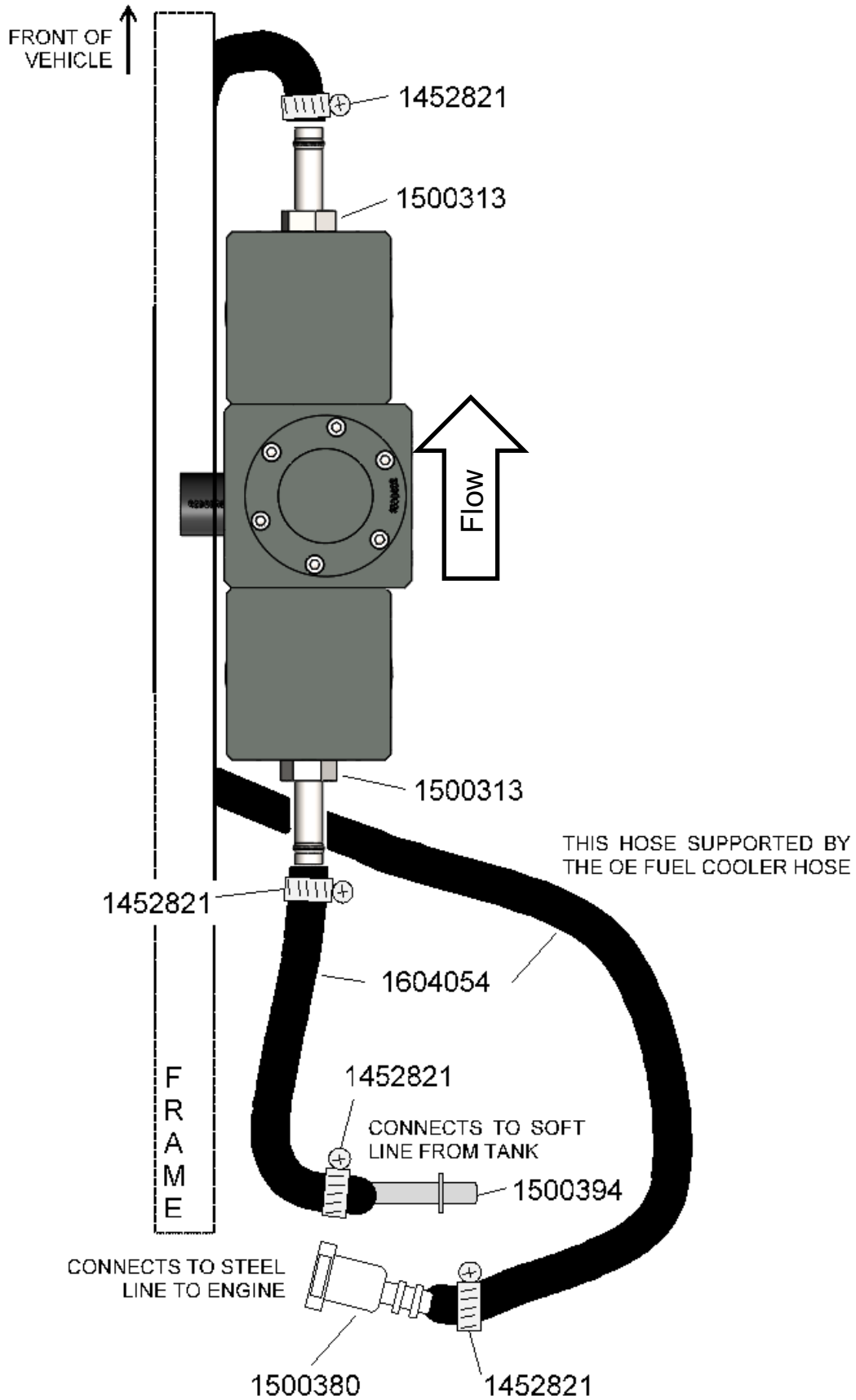


Using the remaining hose push the $\frac{1}{2}$ " female quick connect fitting (1500380) into the $\frac{1}{2}$ " hose and connect in line.

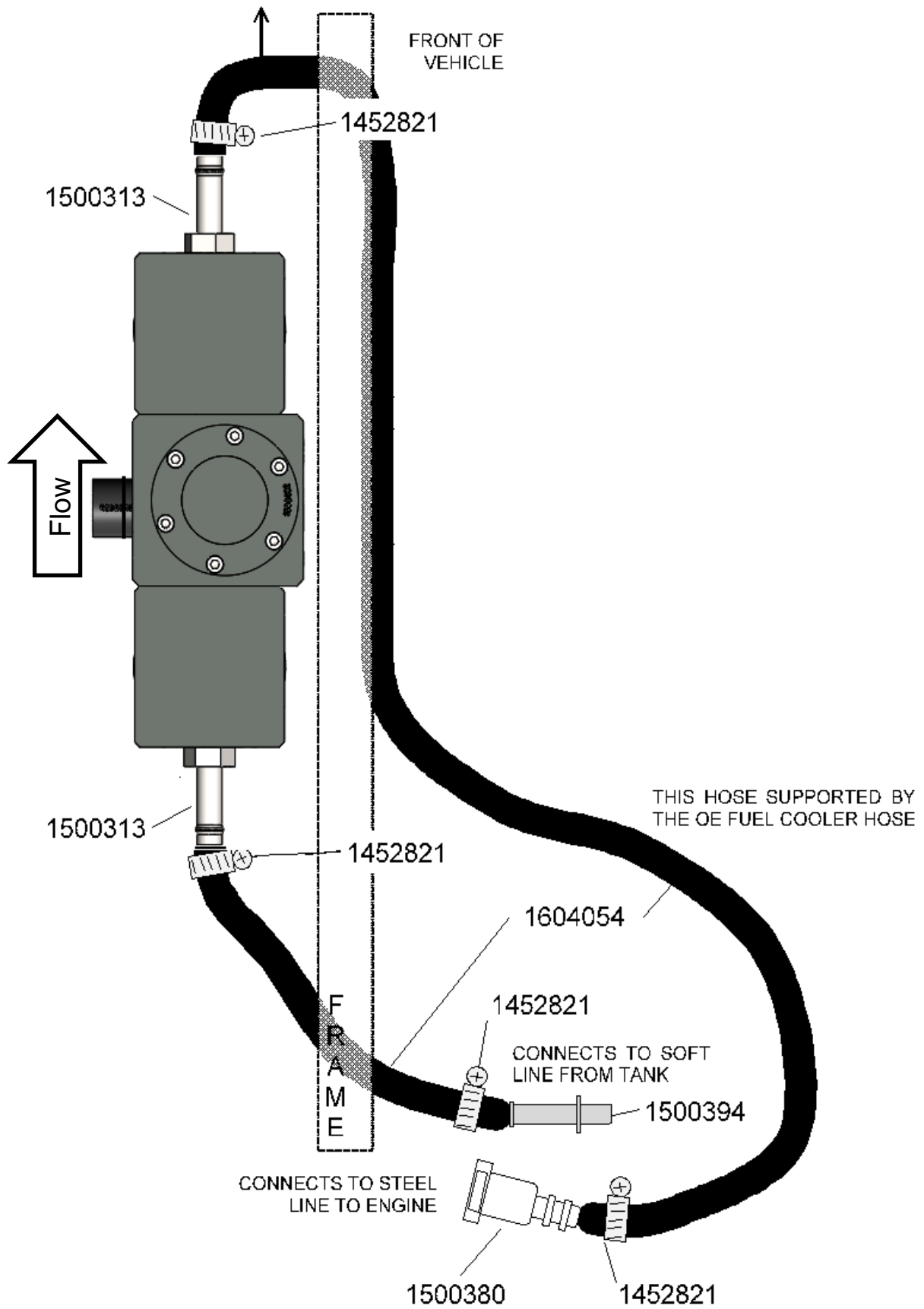


Cover both fuel hose with the supplied $\frac{3}{4}$ " loom (1330157) and secure using zap-straps.

Inner Frame Mounting



Outer Frame Mounting





Regular Cab Mounting Location

Due to the short frame on these truck models, the mounting of the kit will need to be rotated to adjust the height of the pump after bracket is mounted.

An ideal location for mounting is on the outside of the frame on the drivers side, rearward of the forward frame box mount as indicated in the photo.

With the mount inverted, Use the pump bracket as a template to mark the location of the mounting holes to be drilled. With the mount inverted, the pump location is lowered to fit with the frame.

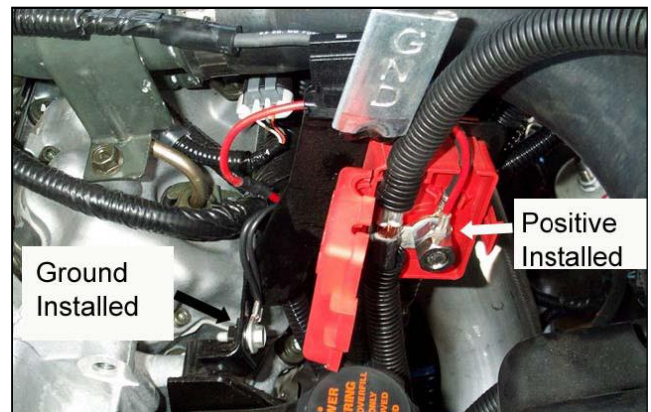


Wiring

Connect the supplied wiring harness to the battery power and ground.

Red - Positive
Black – Ground

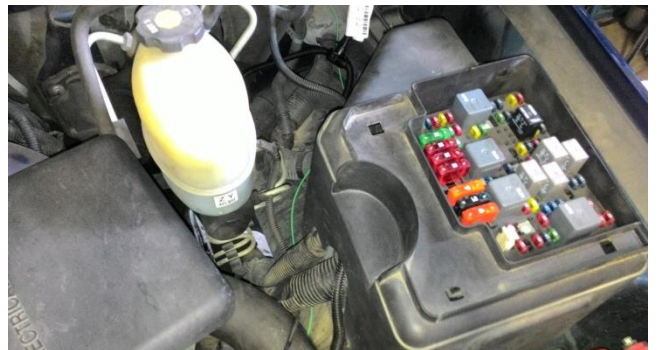
On LB7, LLY, LBZ (2001-2007) trucks, connect the positive to the battery junction box on the engine, connect the ground under the bolt securing the junction box bracket to the engine.

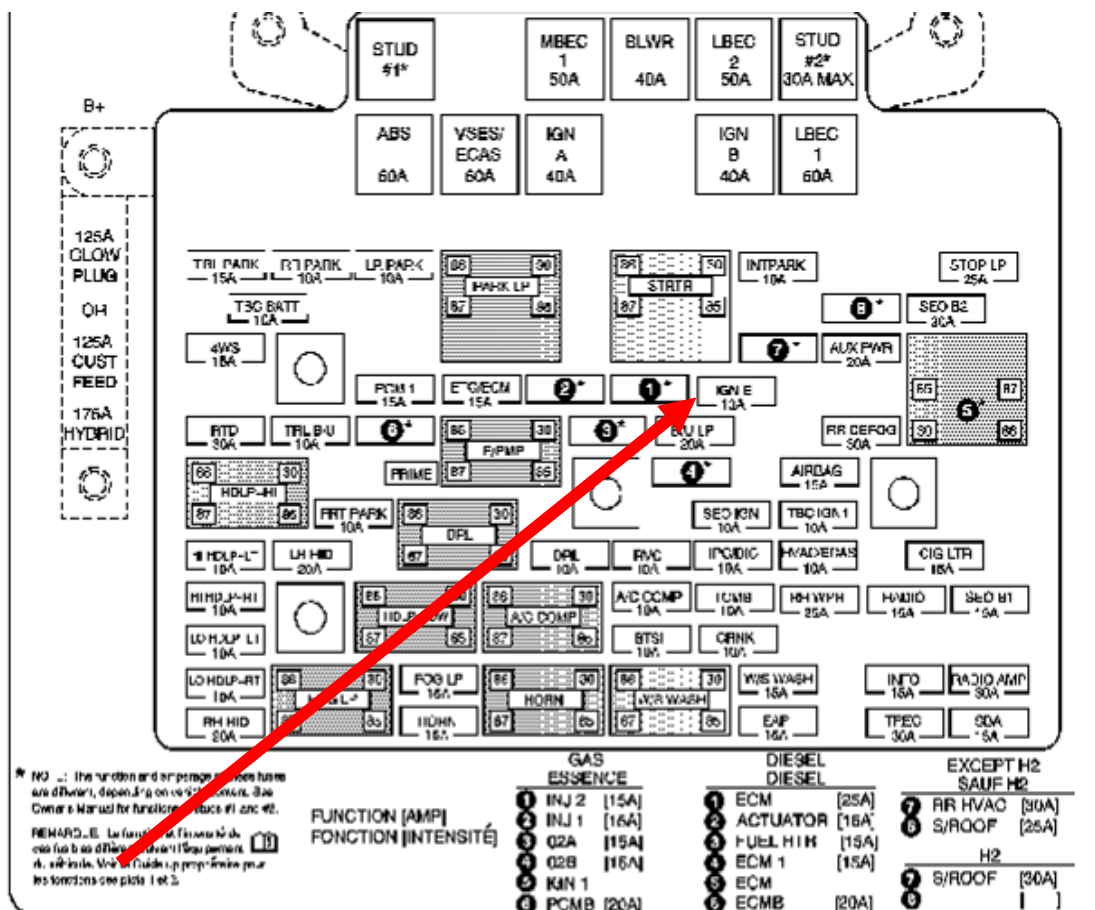
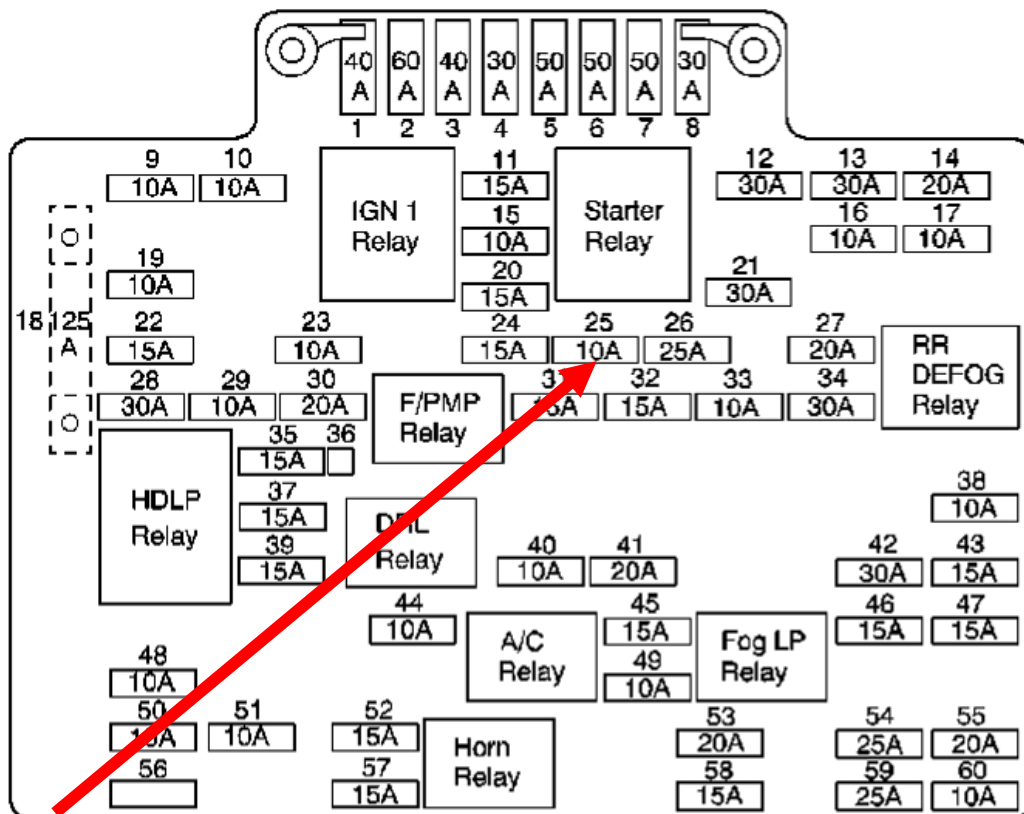


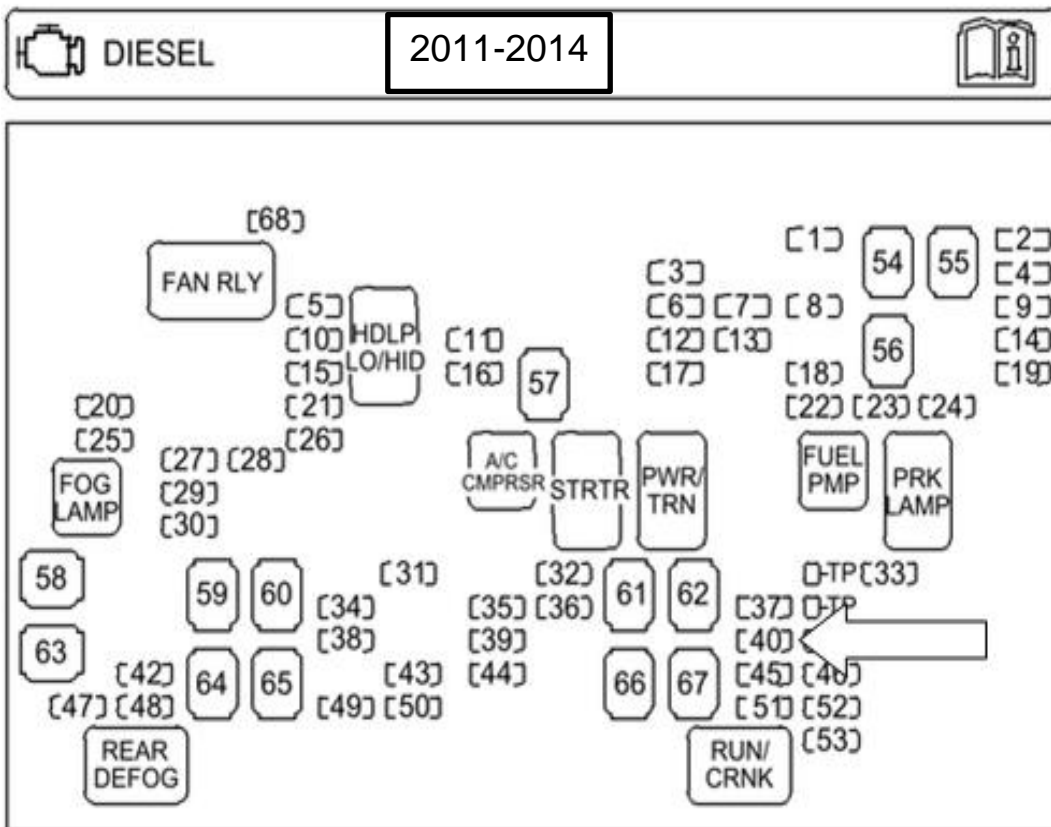
On LMM (2007-2010) trucks, connect the positive to the small stud on the driver side battery terminal, and connect the ground to either the battery negative or to a body ground.



Install the fuse tapper in the fuse box so that it is attached to a switched ignition feed. This is what will trigger the pump to run. (You may optionally solder this wire to a switched ignition power source, the fuse tapper is supplied for convenience). You may need to make a slot in the fuse box so that the lid closes correctly over the wire







**MINI FUSES
MINI-FUSIBLES**

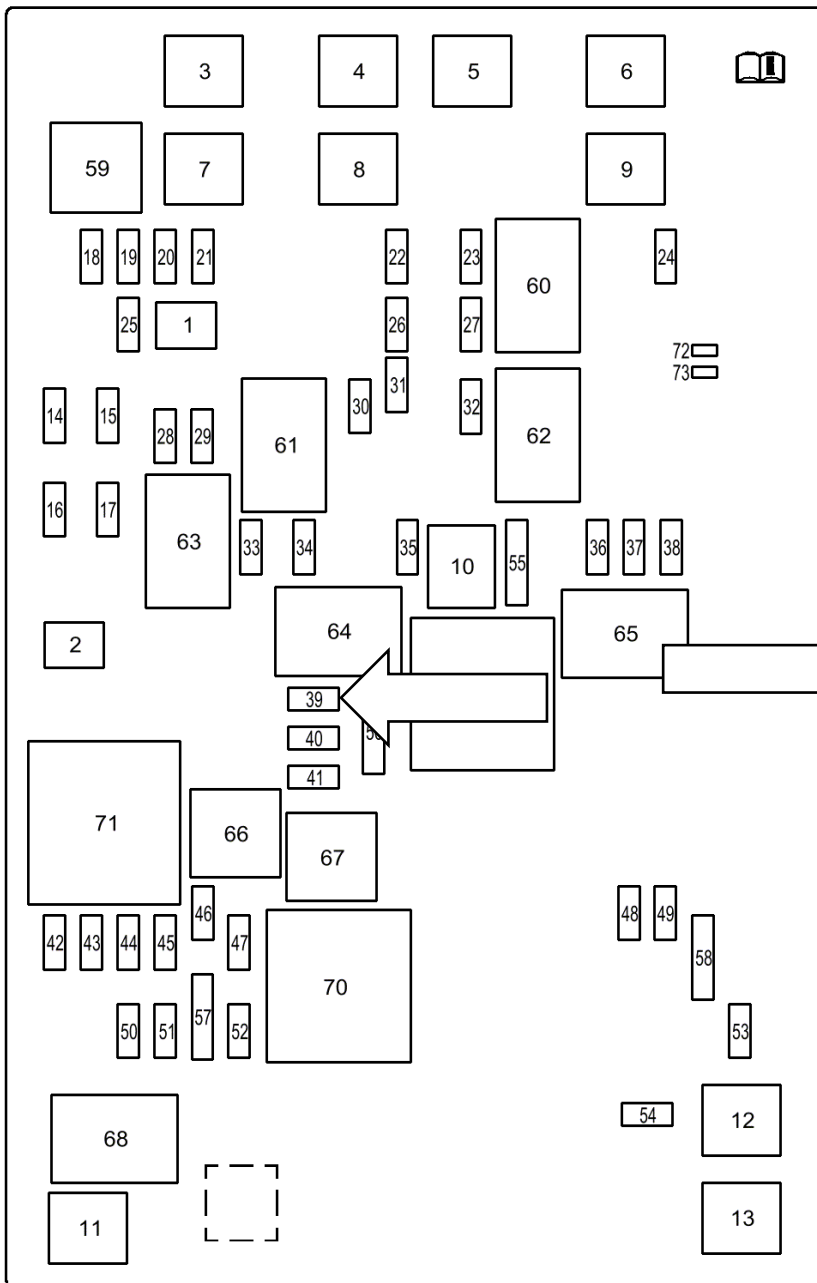
- | | | |
|---------------------------|-----------------------|-------------------------|
| 1 - ESC/ALC EXH (30A) | 19 - ITBC (15A) | 38 - AMP (30A) |
| 2 - TRLR STOP LT (10A) | 20 - HDLP WASH (20A) | 39 - RDO (15A) |
| 3 - ENG (15A) | 21 - REA | 40 - MISC IGN (10A) |
| 4 - TRLR STOP RT (10A) | 22 - TRLR PRK (15A) | 41 - L/GATE RELSE (15A) |
| 5 - FRT WASH (15A) | 23 - LT PRK (15A) | 42 - AIRBAG BATT (15A) |
| 6 - FUEL HTR (15A) | 24 - RT PRK (15A) | 43 - IPC (10A) |
| 7 - TCM-BATT (15A) | 25 - FOG LAMP (15A) | 44 - EXP/PTO (15A) |
| 8 - ABS 2 (25A) | 26 - HORN (15A) | 45 - AUX HVAC-IGN (10A) |
| 9 - TRLR BCK/UP (10A) | 27 - HI HDLP-RT (10A) | 46 - CHMSL (15A) |
| 10 - LO HDLP-LT (20A) | 28 - DRL (15A) | 47 - REAR DEFOG (30A) |
| 11 - ECM-BATT (10A) | 29 - HI HDLP-LT (10A) | 48 - HTD MIR (15A) |
| 12 - DSL ECM (30A) | 30 - DRL 2 (15A) | 49 - SEO B1 (15A) |
| 13 - TRNS IGN 1 (15A) | 31 - S/ROOF (30A) | 50 - LTR (20A) |
| 14 - VEH BCK/UP (10A) | 32 - DLIS (2A) | 51 - SEO/ALC (10A) |
| 15 - LO HDLP-RT (20A) | 33 - WPR (25A) | 52 - HVAC-IGN (10A) |
| 16 - A/C CMPRSR (10A) | 34 - SEO B2 (30A) | 53 - ECM-IGN (15A) |
| 17 - EMC/THROT CONT (15A) | 35 - EAP (15A) | 68 - FAN (10A) |
| 18 - FUEL PUMP (25A) | 36 - HVAC BATT (10A) | |
| | 37 - AIRBAG IGN (10A) | |

**J-CASE FUSES
FUSIBLES JCASE**

- | |
|---------------------------|
| 54 - ALC/COMP (40A) |
| 55 - HEAVY DUTY ABS (60A) |
| 56 - ABS-1 (40A) |
| 57 - STRTR (40A) |
| 58 - STUD-2 (30A) |
| 59 - LBEC1 (60A) |
| 60 - ELEC RUN BOARD (30A) |
| 61 - WSW/HTR (60A) |
| 62 - TREC (30A) |
| 63 - STUD-1 (40A) |
| 64 - MBEC1 (60A) |
| 65 - HVAC BLWR (40A) |
| 66 - LGM (30A) |
| 67 - LBEC2 (60A) |



2015-2016



MICRO J-CASE FUSES

- 1. TRLR BRK (30A)
- 2. TRLR BATT (30A)

J-CASE FUSES

- 3. ABS PUMP (60A)
- 4. I/P BEC 1 (60A)
- 5. MSB PASS (40A)
- 6. 4WD TREC (30A)
- 7. ELEC PRK BRK (40A)
- 8. I/P BEC 2 (60A)
- 9. MSB DRVR (40A)
- 10. REAR DEFOG (30A)
- 11. STRTR (40A)
- 12. COOL FAN 1 (40A)
- 13. COOL FAN 2 (40A)

MINI FUSES 2 PIN

- 14. TRLR STOP TRN LT (10A)
- 15. TRLR PRK LAMP (20A)
- 16. REV LAMP (10A)
- 17. TRLR STOP TRN RT (10A)

MICRO FUSES 2 PIN

- 18. FUEL PUMP (20A)
- 19. ICCM (10A)
- 20. ESC ELC EXH (30A)
- 21. FPPM (30A)
- 22. UPFTR SW1 (5A)
- 23. UPFTR 2 (30A)
- 24. FRT/WPR (25A)
- 25. ABS VLV (25A)
- 26. UPFTR SW2 (5A)
- 27. UPFTR SW3 (5A)
- 28. PRK LAMP RT (15A)
- 29. PRK LAMP LT (15A)
- 30. UPFTR 3 (30A)
- 31. UPFTR SW4 (5A)
- 32. UPFTR 4 (30A)
- 33. BCK UP LAMP (10A)
- 34. ECM IGN (15A)
- 35. A/C CLTCH (10A)
- 36. HTD MIR (15A)
- 37. UPFTR 1 (30A)
- 38. CHMSL (10A)
- 39. MISC IGN (15A)
- 40. TRANS IGN (15A)
- 41. FUEL PUMP 2 (20A)
- 42. COOL FAN CLTCH (10A)
- 43. ENG (15A)
- 44. INJ A ODD (20A)
- 45. INJ B EVEN (20A)
- 46. O2 SNSR B (15A)
- 47. THROT CONT (15A)
- 48. HORN (15A)
- 49. FOG LAMP (15A)
- 50. O2 SNSR A (15A)
- 51. ECM (30A)
- 52. INT HTR (10A)
- 53. ACCY PWR MDL/TPIM PUMP (10A)
- 54. FRT WASH (15A)

MICRO FUSES 3 PIN

- 55. A/C CMPRSR MDL/BATT RVC (5A/5A)
- 56. A/C CMPRSR MDL/BATT PCK (10A/10A)
- 57. TCM / ECM (15A/15A)
- 58. HDLP RT / LT (10A/10A)

MICRO RELAYS

- 59. FUEL PUMP
- 60. UPFTR 2
- 61. UPFTR 2
- 62. UPFTR 2
- 63. TRLR PRK LAMPS
- 64. RUN/CRNK
- 65. UPFTR 1
- 66. FUEL PUMP 2
- 67. A/C CNTRL
- 68. STRTR

MINI RELAYS

- 69. REAR DEFOG
- 70. ECM

SOLID STATE RELAY

- 71. COOL FAN CLTCH

TEST POINTS

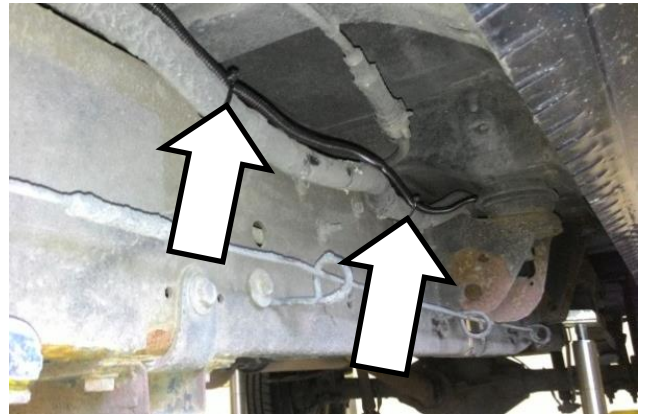
- 72. CKT 95
- 73. CKT 92

Mount the relay in the engine bay using a zip tie or self tapping screw (1300529).



Zip tie the harness along the frame rail, securing the line every 18".

Plug the harness into the pump.



We recommend pre-filling the water separator filter to speed up the priming process.

Assembled Dimensions

10" Wide
9" Tall
3.375" Deep



Troubleshooting

The most common failure is due to debris caught in the pump. Make sure you have a water separator filter installed in front of your fuel pump.

DO NOT HIT YOUR PUMP. Physical damage will cause a non-warrantable failure.

<p>Lift pump won't prime when replacing the filters</p>	<p>Purge air from the lines. When the lift pump is off, unscrew the filter on the pump outlet (side of the pump labeled "OUT") by 90 degrees so there is a small air gap. When the fuel pump begins to prime, QUICKLY tighten up the pump to minimize any fuel leakage.</p>
<p>Check for 12v at the motor</p>	<p>With the key on, check for 12v at the electric motor. If 12V is not found, check the fuse and wiring harness for faults.</p>
<p>Inline fuse is blown</p>	<p>Unplug and check the internal resistance of the motor. The resistance should be ~1-10ohms at room temperature. Check for debris in the pre-filter. Remove the filter heads by removing the 4 M6 bolts (two in either filter head) and gently blow out the pump body with compressed air. With a new fuse plugged in, the filter heads and debris removed, the pump should now rotate freely when supplied 12v.</p>
<p>Motor runs but won't pump fuel</p>	<p>Check plug pinout on the pump connector. Red wire to Deutsch connector Pin 1 Black wire to Deutsch connector Pin 2</p>
<p>Have tried the corrections listed above and the pump still does not work</p>	<p>The Lift pumps are built in house, please contact BD for warranty assistance.</p>

Flow Specifications

Minimum flowrate is 2.75gpm (165gph) @14VDC

OR

Filling a 1-gallon container every 22 seconds @14VDC

Replacement Center Section

If the center section needs to be replaced, a **1500430-10** may be ordered as a replacement. Contact BD Diesel for more details.



Venom Center Section, 10 PSI
Qty: 1

Update a FlowMax Pump to a Venom Pump



Venom Retrofit Kit, 10 PSI
Qty: 1

Replacement Filter Cross Reference

The Venom Lift pump kit is supplied with a water separator and fuel filter combo. The replacement filter part numbers through BD are listed below with equivalents.

Water Separator		Fuel Filter	
BD Diesel	P550550-VEN	BD Diesel	P551315-VEN
Donaldson	P550550	Donaldson	P551315
Baldwin	BF1275	Baldwin	BF7634
WIX	33616	WIX	33626
Luber-Finer	LFF9594	Luber-Finer	LFF4783