

**PLAZMAMAN**  
.com



# Plazmaman Surge Tank

---

Installation instructions to suit Ford BA/BF models



**Plazmaman**

**9 Bond Crescent,  
Wetherill Park,  
NSW, 2164**

**+ 61 (0)2 9725 1728**

**+61 (0) 02 9725 1722**

**11 / 1 / 2009**

# 1. Disclaimer

1. This product is designed and sold solely for motorsport and its use on street cars is not implied or intended.
2. This product must only be fitted by suitably qualified installer.
3. If you are intending to use this surge tank on a street car, you will need an automotive engineer to approve it.
4. The installer must have a dry powder fire extinguisher suitable for use on fuel fires checked to make sure it is not out of date and standing by at all times during installation.
5. It is highly recommended that a dry powder fire extinguisher suitable for use on fuel fires is to be permanently installed on any vehicle with a modified fuel system.
6. The battery must be disconnected before any work is done on the fuel system. Turn the ignition to on before disconnecting both wires from the battery and ensure that it is not possible for any wire(s) or any other piece of conductive material to touch either of the battery terminals.
7. The installer must check that the starter motor cable is not rubbing on anything including but not limited to the chassis and surge tank.
8. The installer must inspect the wiring loom and connectors for any signs of damage or loose connectors before installation.
9. The installer must inspect the wiring loom after installation and ensure that it is routed away from hot engine parts and it not able to rub anything including but not limited to the chassis and surge tank.
10. The installer must inspect the fuel hoses and connections to ensure that they are not damaged before installation.
11. The installer must inspect the electrical connections after installation to ensure that there no connections are loose.
12. The installer must inspect the mechanical connections after installation to ensure that there no connections are loose.
13. The installer must inspect the fuel fittings and hose clamps and ensure that they are all installed correctly.
14. The installer must verify that there is no fuel leaks after the installation is complete.
15. Plazmaman will not be held responsible for any damages caused by use of this product.

## 2. Contents

1. Disclaimer.....	2
2. Contents.....	3
3. Parts List.....	4
4. Installation .....	5

## 3. Parts List

### Parts (supplied by Plazmaman)

1. Surge Tank (supplied pre assembled with the parts below)
  - a. Bosch motorsport fuel pump
  - b. Bosch motorsport fuel pump mount
  - c. Fuel rail supply hose from Bosch pump (incl. 1 x threaded nipples, male OEM connector, hose & 2 hose clamps)
  - d. Fuel supply extension hose from in tank pump (incl. female OEM connector, hose, threaded nipple & 2 x hose clamps)
  - e. Fuel return extension hose to in tank pump (incl. female OEM connector, hose, threaded nipple & 2 x hose clamps)
  - f. Fuel rail return male OEM fitting
  - g. Anti vibration mounts x 2
2. Mounting bolts x 2
3. Flat washers x 2
4. Spring washers x 2

### Optional Parts (supplied by Plazmaman – please ask)

1. Wiring loom

### Additional Required Parts (not supplied by Plazmaman)

2. Dry powder fire extinguisher suitable for use on fuel fires
3. 25A automotive relay with integrated fuse
4. 20A fuse
5. Electrical tape
6. Soldering Iron
7. Resin cored Solder
8. Cable ties

## 4. Installation

1. Get a dry powder fire extinguisher suitable for use of fuel fires, check it is not out of date and have it positioned ready for immediate use. See picture to the right.



2. After installation of the surge tank it is highly recommended that you install this fire extinguisher in the boot. See picture below.



3. Put key in ignition and turn it until the ignition is on and the dash warning lights are illuminated. See picture below.



4. Disconnect both battery terminals and suitably insulate them so that they will not touch any of the wires, the car or any of your tools.
5. Remove factory fuse box cover and mounting bolts.
6. Carefully remove electrical tape from large factory wiring loom that exits the factory fuse box closest to the original battery location.
7. Identify the thin pink wire and then carefully strip enough of the cable insulation off so that you can solder to it as shown in picture below.
8. Mount automotive relay near the brake master cylinder reservoir using the existing tapped hole and bolt in the position shown in the picture below.





9. Install the Plazmaman wiring loom as shown in the pictures below and secure with cable ties in appropriate locations.



10. Tin both the small red wire from the Plazmaman wiring loom and the pick wire where it is exposed and solder the two together.
11. Insulate the soldered connection from the other wires with high quality automotive electrical tape.
12. Re-tape up the large factory wiring loom as shown in the picture below.
13. Connect both of the black wires from the Plazmaman wiring loom to the negative/black battery clamp.
14. Connect the large red wire from the Plazmaman wiring loom to the positive/red battery terminal.

15. Connect the push on crimp connectors in the middle of the Plazmaman wiring loom to the automotive relay as shown in the pinout list and diagrams below.



#### Automotive Relay Pinout List

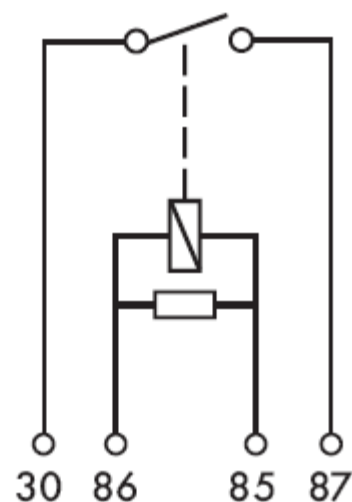
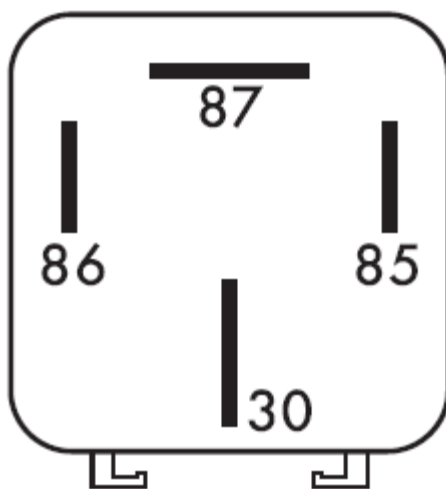
Pin 30: Large red wire that connects to the positive/red battery terminal.

Pin 87: Large red wire that connects to the positive/red Bosch fuel pump terminal.

Pin 85: Small black wire in connects to the negative/black battery terminal.

Pin 86: Small red wire that connects to the small pink wire in the factory wiring loom.

Note: Please check polarity of pins 85 & 86 on the relay and/or relay packaging.



16. Locate the electrical terminals on the large red and black wires in the Plazmaman wiring loom that are for connection to the pump and suitably insulate them from each other and the car so that the relay can be tested for function before the pump is connected.

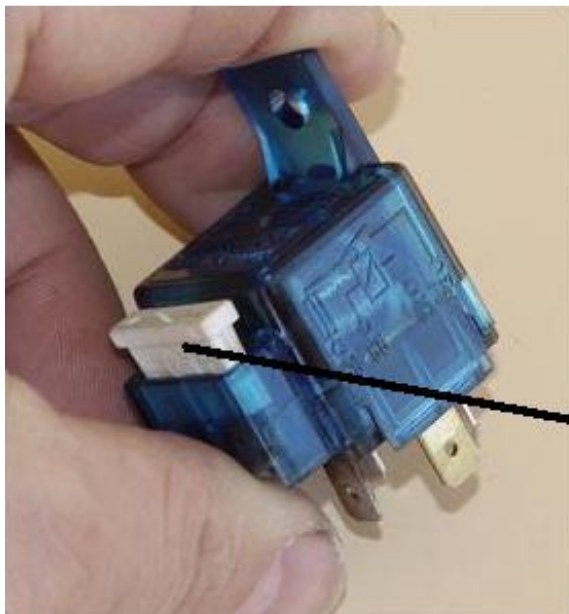


17. Remove fuel pump fuse from factory fuse box. See picture below.



In Tank 20 Amp Fuel Pump Fuse

18. Remove fuse from automotive relay supplied by Plazmaman. See picture below.



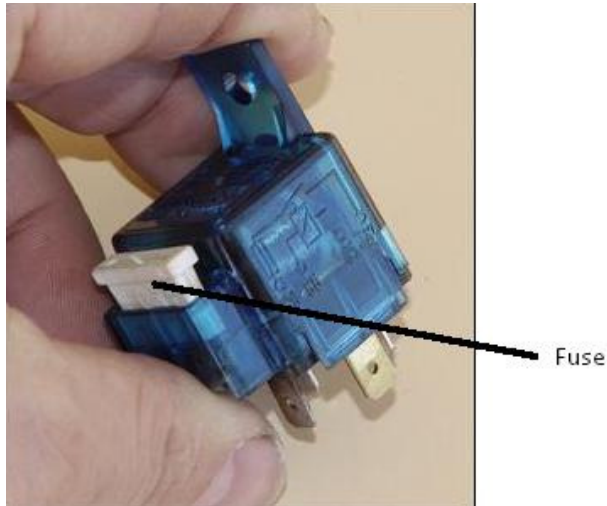
Fuse

19. Reconnect both battery terminals.

20. Turn off ignition.

21. Check with a multimeter that there is **0VDC** between the small red wire and the small black wire in the Plazmaman wiring loom where they meet the relay. If there is voltage, then the wiring connection is incorrect and the connection will need to be traced back to find the fault.
22. Check with a multimeter that there is **12VDC** between the large red wire in the Plazmaman wiring loom where it meet the relay and the negative/black battery terminal. If there is no voltage, then the wiring connection is incorrect and the connection will need to be traced back to find the fault.
23. Turn on ignition and listen to ensure that the in tank fuel pump does **not** run at all
24. Check with a multimeter that there is **0VDC** between the small red wire and the small black wire in the Plazmaman wiring loom where they meet the relay. If there is voltage, then the wiring connection is incorrect and the connection will need to be traced back to find the fault.
25. Turn off ignition.
26. Install 20A fuel pump fuse in factory fuse box.
27. Turn on Ignition and listen to ensure the in tank fuel pump turns on for approx 1 second.
28. Turn off ignition.
29. Connected multimeter to the small red and black wires in the Plazmaman wiring loom and turn ignition on and off to verify that you get **12VDC** showing on the multimeter for approx 1 sec after key is turned to the ignition on position. If there is no voltage at all or if the voltage is still present after approx 1 second , then the wiring connection is incorrect and the connection will need to be traced back to find the fault.
30. Connected multimeter to both the large red wires in the Plazmaman wiring loom where they meet the relay and turn ignition on and off to verify that you get **no** continuity showing on the multimeter for approx 1 sec after key is turned to the ignition on position. If there is continuity, then the wiring connection is incorrect and the connection will need to be traced back to find the fault or the relay is faulty.

31. Install 20A fuse in the automotive relay supplied by Plazmaman. See picture below.



32. Connected multimeter to both the large red wires in the Plazmaman wiring loom where it meet the relay and turn ignition on and off to verify that you get continuity showing on the multimeter for approx 1 sec after key is turned to the ignition on position. If there is no continuity or the continuity is still present after approx 1 second, then the wiring connection is incorrect and the connection will need to be traced back to find the fault.

33. Connect the multimeter to the electrical terminals on the large red and black wires in the Plazmaman wiring loom that are for connection to the pump and turn ignition on and off to verify that you get 12VDC showing on the multimeter for approx 1 sec after key is turned to the ignition on position. Please double check that the polarity is correct. If there is no voltage or the voltage is present for more than approx 1 second, then the wiring connection is incorrect and the connection will need to be traced back to find the fault.

34. Turn on ignition.

35. Disconnect both battery terminals and suitably insulate them so that they will not touch any of the wires, the car or any of your tools.

36. On level ground, jack the front of the car off the ground and put it on suitable stands with the park brake on and chock the wheels or lift it on a hoist. Please note that as the surge tank uses the bolts for the factory front sway bar bracket, it is not a good idea to jack one side of the car as the sway bar bracket will move making it difficult to get the bolts back in.

37. Remove the bolts in the front LHS sway bar bracket as shown in the picture.
38. Remove red wire from starter motor, reroute it leaving as much clearance as possible between it and everything else in the vicinity and reconnect it.
39. Disconnect both fuel lines where the flexible hose meets the hard pipes. Please note that in order to undo the OEM connectors, you need to push the fittings together first, then hold the tabs in, then separate them.
40. Bolt surge tank into place using the longer bolts provided.
41. Connect the Bosch pump outlet hose to the fuel rail supply hose (the end **without** the fuel pressure regulator on it).
42. Connect the fuel rail return hose (the end **with** the fuel pressure regulator on it) to the fitting installed in the lower of the three tapped holes in the top of the surge tank.
43. Connect the fuel supply line from the in tank pump (the one **with** the inline fuel filter on it) to the hose that it connected to the middle of the three tapped hole in the top of the surge tank.
44. Connect the fuel return line to the main tank to the hose that is connected to the highest of the three tapped holes in the top of the surge tank.
45. Clean up any spilled petrol and leave it until any areas wet from fuel have evaporated.
46. Locate the electrical terminals on the large red and black wires in the Plazmaman wiring loom that are for connection to the pump and suitably insulate them from each other and the car so that the surge tank can be can be primed and checked for leaks.
47. Remove fuse from automotive relay supplied by Plazmaman.
48. Reconnect both battery terminals.
49. Turn off ignition.

50. Repeatedly turn the ignition on and off to prime the surge tank and fuel rail with fuel while simultaneously checking for leaks. Note that you should hear the in tank pump turning on for approx 1 sec every time you turn the ignition on and you should also hear the fuel running through the hoses & pipes.
51. Repeat approx 15 times.
52. Quickly inspect for any signs of leaks at all of the connection points before any minor leaks could evaporate.
53. Turn on ignition.
54. Disconnect both battery terminals and suitably insulate them so that they will not touch any of the wires, the car or any of your tools.
55. Carefully inspect for any signs of leaks at all of the connection points.
56. Run Plazmaman wiring loom down next to the surge tank as shown in pictures and secure with cable ties at appropriate locations.
57. Connect Plazmaman wiring loom the Bosch fuel pump and ensure that the wires do not rub anywhere and double check that the polarity is correct.
58. Reconnect both battery terminals.
59. Turn off ignition.
60. Install 20A fuse in the automotive relay supplied by Plazmaman.
61. Repeatedly turn the ignition on and off to prime the surge tank and fuel rail with fuel while simultaneously checking for leaks. Note that you should hear both pumps turning on for approx 1 sec every time you turn the ignition on and you should also hear the fuel running through the hoses & pipes.
62. Repeat approx 10 times.
63. Quickly inspect for any signs of leaks at all of the connection points before any minor leaks could evaporate.

64. Turn on ignition.

65. Disconnect both battery terminals and suitably insulate them so that they will not touch any of the wires, the car or any of your tools.

66. Carefully inspect for any signs of leaks at all of the connection points.

67. Reconnect both battery terminals.