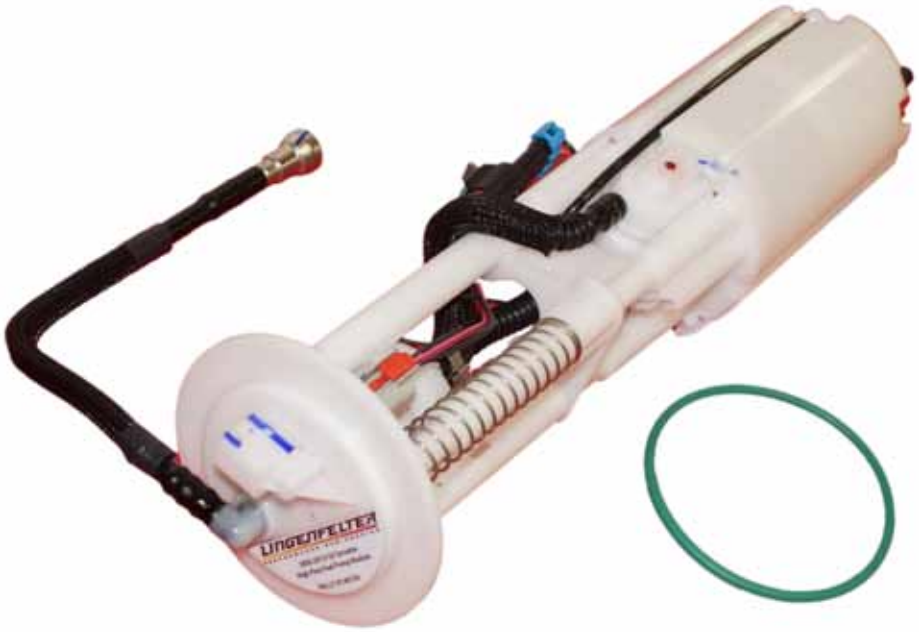
Lingenfelter High Flow Fuel Pump Module with Internal Regulator for 2005-2013 Chevrolet C6 Corvette, 2003.5-2004 C5 Corvette** & 2004-2009 Cadillac XLR



PN: L710140105

Level sensor not included.
Does not fit ZR1

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Parts List

LPE C6 Corvette High flow Fuel Pump Module, L710140105

#	Description	Part Number
1	LPE C6 fuel pump module assembly	
1	Fuel pump module O-ring	21008100
1	LPE decal	L920010000
1	Instructions	

Tools & Materials Required

- Vehicle lifting equipment (automotive lift or jack & jack stands)
- Wheel lug wrench or socket
- Ratchet wrench
- Torque wrench
- 7 mm socket
- 10 mm socket
- 13 mm socket
- M10-1.5x55mm (x2)
- Fuel line disconnect tool (for older models - available from LPE, see below)
- Wire brush
- Several shop towels
- Scribe or small screwdriver
- Three small screwdrivers
- Oetiker pliers or side cutting pliers
- Safety glasses
- Fuel resistant gloves
- Fire extinguisher
- Flat blade screwdriver
- Block of wood or similar
- Fuel pressure gauge
- Lubriplate 630-AA
  - PN: L0067-076
- Gm rubber lubricant
  - PN: 1051717
- Service manual
- Drivetrain support fixture (Automatic Trans. Only)
- Transmission jack (Automatic Trans. Only)

Additional Required Components

- Fuel pump lock ring tool GM PN: J39765-A
- Exhaust Gasket for automatic transmission only (not required for manual transmission).
  - 2003 - 2004** Corvette (C5 Corvette)
    - PN: GM 10276792 (x2)
  - 2005 - 2007 Corvette with LS2 engine
    - PN: GM 21992620 (x2)
  - 2006 - 2013 Corvette with LS7 engine
    - PN: GM 15272179 (x2)
  - 2008 - 2011 Corvette with LS3 engine
    - PN: GM 21992620 (x2)
  - 2012 - 2013 Corvette with LS3 engine
    - PN: GM 15272179 (x2)

Optional Items

- Fuel line disconnect tool
  - PN: KMJ-41769 GM
- Kenne Bell Boost-A-Pump 40 amp model
  - PN: KB-89068 for naturally aspirated applications (vacuum trigger switch)
  - PN: KB-89069 for boosted applications (pressure trigger switch)
- JMS Booster PN JMS-P2000GM
- Fuel level sensor
  - 2003-2006 Corvette** (see next page)
    - PN: 88967316 (GM)
    - PN: SK1175 (AC Delco)
  - 2007-2013 Corvette
    - PN: 19207710 (GM)
    - PN: SK1228 (AC Delco)
- Fuel line disconnect tool
  - PN: MAG69-12-57-001

The Lingenfelter C6 High Flow Fuel Pump Module with Internal Regulator flows* 260 lph at 13.5 volts at 400 kPa (58 psi) fuel pressure. On gasoline at 13.5 volts, the module will support roughly 850 HP naturally aspirated (~0.5 BSFC) and 700 HP for turbocharged/supercharged applications (~0.6 BSFC). On E85 at 13.5 volts, the module will support roughly 600 HP naturally aspirated and 500 HP for turbocharged/supercharged applications. The module is also capable of producing fuel flow* of 340 lph at 17 volts at 400 kPa (58 psi) fuel pressure. On gasoline at 17 volts, the module will support roughly 1100 HP naturally aspirated and 900 HP for turbocharged/supercharged applications. At 17 volts on E85, the module will support roughly 750 HP naturally aspirated and 600 HP for turbocharged/supercharged applications. The fuel pump module can be voltage boosted up to 18 volts for additional fuel flow increase.

*Flow specification is a true module out flow rating and includes losses due to the module's internal check valve, internal fuel filter, module venturi pump and transfer venturi pump.

The Lingenfelter High Flow Fuel Pump Module with Internal Regulator is designed to fit:

- 2003 - 2004** Corvette with LS1 engine (C5 Corvette)
- 2003 - 2004** Z06 Corvette with LS6 engine (C5 Corvette)
- 2005 - 2007 Corvette with LS2 engine
- 2008 - 2013 Corvette with LS3 engine
- 2006 - 2013 Corvette with LS7 engine
- 2004 - 2009 Cadillac XLR and XLR-V (4.4L and 4.6L engines)

The Lingenfelter High Flow Fuel Pump Module with Internal Regulator will fit in place of the following fuel pumps:

- GM
  - 19149687
  - 19207431
  - 19301844
  - 19302042
- ACDelco
  - M10057
  - M10059
  - M10068
  - MU1881

The Lingenfelter C6 High Flow Fuel Pump Module with Internal Regulator will not fit 2009 - 2013 ZR1 Corvettes with an LS9 engine.

The Lingenfelter C6 High Flow Fuel Pump Module with Internal Regulator kit does not include the fuel level sender. This kit is designed to re-use the existing level sensor. See parts list to obtain a new sensor.

** During the 2003 model year GM made a change to the Corvette fuel system. The 2003 model year C5 fuel system change over occurred on November 25, 2002. If your car was built on or after this day, you have the newer fuel system and this module will fit in your vehicle. If your car is a 2003 model year car and the last six (6) digits of your VIN are 114930 or higher, you have the newer fuel system.

Read the entire instruction manual before beginning installation. Some stock parts will be used in reassembly.

When referencing the side of the vehicle, the driver side of the vehicle is considered the left side and the passenger side of the vehicle is considered the right side of the vehicle.

CAUTION: Before servicing any electrical component, the ignition key must be in the OFF or LOCK position and all electrical loads must be OFF, unless instructed otherwise in these procedures. If a tool or equipment could easily come in contact with a live exposed electrical terminal, also disconnect the negative battery cable. Failure to follow these precautions could result in personal injury and/or damage to the vehicle or it's components.

WARNING: Before attempting installation of the new fuel pump module, ensure that the fuel tank is less than 1/8th full by checking the fuel level gauge. Even though the gauge may read empty, some residual fuel will be present in the tank. Exercise extreme caution and common sense when working around gasoline. Extinguish all open flame or other sources of ignition and be sure to perform the following steps in an area with adequate ventilation. Personal protection in the form of safety glasses and fuel resistant gloves is strongly recommended.

1. Turn off ignition key and disconnect the negative battery terminal. Wrap or secure the negative battery terminal so that it does not make a ground connection to the battery or chassis.

2. Raise the vehicle on an automotive lift or jack & jack stands at the points recommended by the manufacturer. Refer to the owner's manual or a shop manual for further specifications. To avoid any vehicle damage, serious personal injury, or death, when major components are being removed from the vehicle and the vehicle is supported by a hoist, make sure to support vehicle with jack stands at the opposite end from which the components are being removed.
3. Remove both rear wheels to gain better access to the fuel pump assembly.

4. Remove the driver's side rear wheelhouse liner. There are 4 plastic retainers and 7 panel bolts on each side.

5. The next step is to remove the left and right side mufflers. Install adjustable jack stands under the front and rear of the intermediate pipe. Loosen the exhaust muffler band clamps and separate the exhaust muffler from the intermediate pipe.

   N**ote: if your vehicle is an automatic, you may have to lower the suspension to provide clearance for the exhaust removal**

6. Remove the exhaust pipe hanger lower nuts.

7. Remove the intermediate pipe-to-catalytic converter pipe nuts and pipe seals.

8. Remove the intermediate pipe from the jack stands.

9. Disconnect the vacuum line from the muffler assembly, if equipped. Remove the mufflers from the hangers.

10. **Skip to step 58 for manual transmission**

    For automatic transmission, the next step is to remove the driveline support assembly. Do this by removing the left side catalytic converter. Disconnect the heated oxygen sensors from the engine wiring harness and electrical connector.

11. Remove the catalytic converter-to-exhaust manifold nuts and the exhaust manifold gasket.

12. Remove the left side catalytic converter from the vehicle.

    Repeat steps 10-12 for the right side catalytic converter.

13. Remove the floor panel tunnel reinforcement bolts and then remove the reinforcement.

14. Remove the two plug bolts from the front of driveline support assembly.

15. Install two bolts, M10-1.5x55mm, or longer, in place of the plug bolts.

    Note: The bolts are used to maintain the propeller input shaft front bearing in its original position during removal and reinstallation.

16. Tighten the propeller input shaft front bearing positioning bolts to (26 lb-ft) 35 Nm.

17. Use a flat-bladed screwdriver to remove the engine flywheel housing access plug.

18. Loosen the propeller shaft hub clamp bolt and rotate the engine at the flywheel for alignment.

19. Disconnect the transmission oil cooler rear pipes from the junctions fittings at the engine flywheel housing, then cap the pipes and plug the junction fittings to prevent contamination.

20. Remove the nuts retaining the transmission shift cable bracket to the transmission.

21. Disconnect the transmission shift control cable from the transmission shift lever. Unsnap to release the cable.

22. Disconnect the brake pad wear sensor electrical connector if equipped.

23. Remove the brake caliper bolts.

24. Remove the brake caliper and support with heavy mechanics wire or equivalent.

25. Remove and discard the brake rotor retainers.

26. Matchmark the position of the brake rotor to the wheel hub and remove the brake rotor.

27. If equipped, disconnect the electronic suspension rear position sensor link from the rear axle lower control arm ball stud.

28. Loosen the rear axle lower control arm ball joint nut.

29. Separate the suspension knuckle from the rear axle lower control arm ball joint stud.

30. Remove the rear axle lower control arm ball joint nut.

31. Support the rear suspension knuckle.

32. Carefully raise the rear axle lower control arm to relieve the tension on the rear shock absorber lower bolt using a jack.

33. Remove the rear shock absorber lower nut.

34. Disconnect the outer tie rod end from the suspension knuckle. Loosen the tie rod nut. Separate the tie rod from the suspension knuckle. Remove the tie rod nut. Remove the tie rod from the suspension knuckle.

35. Remove the shock absorber lower mounting bolt.

36. Disconnect the wheel speed sensor harness electrical connector.

37. Separate the knuckle from the rear axle lower control arm ball joint stud.

38. Remove the axle nut. Then separate the wheel drive shaft from the wheel bearing and hub.

39. Disconnect the parking brake rear cable from the knuckle and the park brake actuator.

40. Remove the straight jack from the control arm.

41. Repeat steps 34-40 on the other side of the vehicle.

42. Assemble the drivetrain support fixture.

43. Install the drivetrain support fixture to a transmission jack.

44. Disconnect the wiring harness retainer from the rear suspension crossmember.

45. Remove the driver's side brake line retaining bolt from subframe.

46. Disconnect the brake line union for the passenger side/rear brake leaving the brake line attached to the subframe.

47. Remove the passenger/rear banjo bolt that connects the brake line to the caliper.

48. Position a transmission jack under the rear suspension crossmember and firmly secure the crossmember to the jack.

49. Use only hand tools to remove the rear suspension crossmember retaining nuts.

50. Slowly lower the rear suspension crossmember away from the vehicle frame rails until the crossmember clears the studs.

51. Release the retainer securing the wiring harness to the L-shaped brackets along the driveline support assembly, then slide the harness up out of the brackets and position out of the way.

52. Slowly lower the driveline while adjusting the angle of tilt.

53. Release the wiring harness from the harness retainer along the top of the transmission.

54. Use a block of wood to protect the engine oil pan and place a jack under the rear of the engine oil pan to support the engine from stressing the composite dash panel.

55. Remove the five driveline support assembly to engine flywheel housing bolts.

56. Bend the wiring harness bracket away from the driveline toward the driveline tunnel wall.

57. Lower the driveline out of the vehicle.

    Set aside for reinstall later.

58. Disconnect the fuel fill hose and the recirc line from the fill pipe.

59. Disconnect the fuel pump jumper harness connector.

60. Disconnect the fuel feed pipe at the rear of the left fuel tank

61. Some models will need a special tool to disconnect the fuel lines. A fuel line disconnect tool is provided (PN: MAG69-12-57-001).

62. Cap the fuel pipes to prevent fuel system contamination.

63. Loosen the fuel tank shield in order to drop the tank approximately 1 inch.

64. Disengage the crossover tube connector position assurance retained by pulling the tab outward and rotate.

65. Rotate the collar counterclockwise to disengage.

66. Disconnect the crossover tube from the left fuel tank.

67. Disconnect the evaporative emission (EVAP) crossover pipe quick connect fitting at the left fuel tank.

68. Cap the EVAP pipes to prevent system contamination.

69. Remove the fuel tank shield mount bolts and remove the fuel tank shield from the vehicle.

70. Remove the fuel tank.

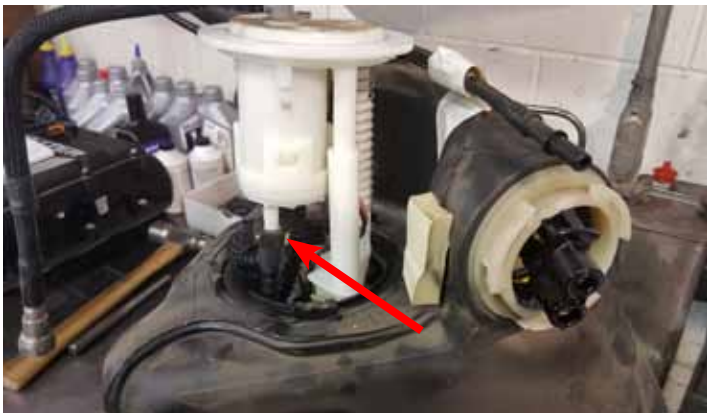
71. Place the fuel tank on a suitable work surface and disconnect the jet line insert connector from the crossover tube to fuel tank opening.

72. Disconnect the fuel feed line from the welded clip on the side of the fuel tank.

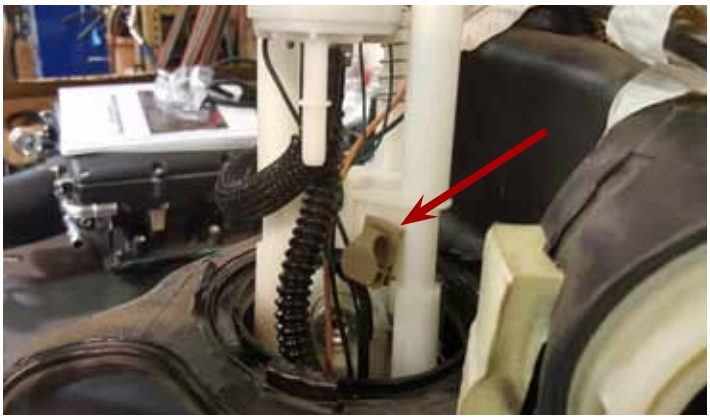
73. Disconnect the sending unit harness.

74. Remove the fuel pump locking ring using the fuel pump lock ring tool (PN: J39765-A).

75. Carefully remove the fuel pump module from the fuel tank.



76. Disconnect the jet line quick-connect connectors from the fuel pump module.



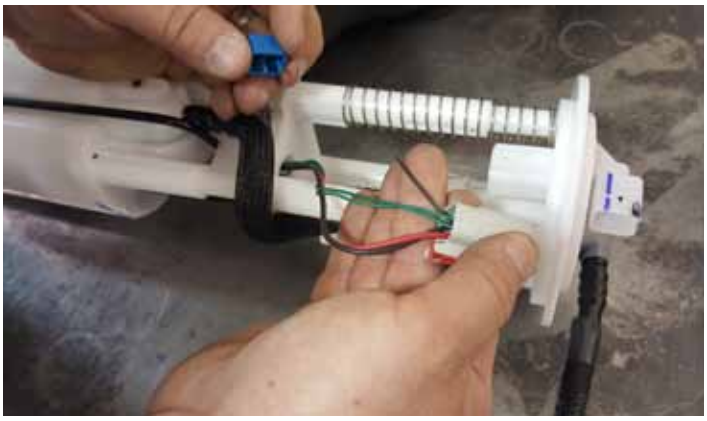
77. Remove the jet line from the module retainer clip.

78. Remove the fuel pump module o-ring from the fuel tank opening.

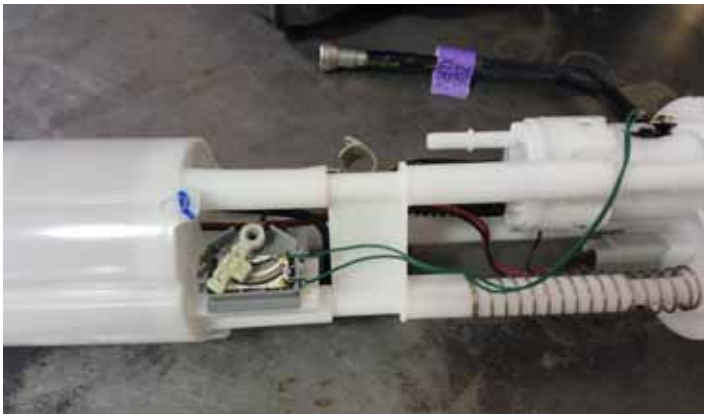
79. Remove the fuel level sender from the fuel pump module that was just removed from the tank.

Note: the top and bottom halves of the fuel pump module may need to be separated in order to remove the fuel level sender

80. Using a small flathead screwdriver, remove the connector lock. Then remove the terminals from the connector.



81. Place the terminals into the new fuel pump connector. This is a resistive type sensor so polarity does not matter.



82. Install the fuel level sender from the existing fuel pump onto the Lingenfelter High Flow Fuel Pump Module.

83. Connect the float to the fuel level sender.

84. Install the Lingenfelter fuel pump module halfway into the fuel tank.

85. Use a coat hanger to gently pull the jet line up through the fuel pump module opening.

86. Secure the jet line into the module retaining clip.

87. Connect the jet line quick connect connectors.

88. Install the new fuel pump module O-ring to the fuel tank opening.

89. Gently lower the fuel pump module into the fuel tank.

90. Reinstall the fuel pump module lock ring using the fuel pump lock ring tool (PN: J39765-A).

91. Connect the fuel pump jumper harness to the fuel pump module.

92. Reinstall the fuel tank.

93. Reinstall the fuel tank shield and reinstall the fuel tank shield bolts to the vehicle. Do not completely tighten the bolts.

94. Remove the caps that you placed over the EVAP pipes.

95. Reconnect the EVAP crossover pipe quick connect fittings.

96. Using GM 1051717 rubber lubricant or similar substitute such as Lubriplate 630-AA, lubricate the crossover tube O-rings.

97. Connect the crossover tube to the left fuel tank. Connect the jet line insert connector into the crossover tube to fuel tank opening.

98. Rotate the collar clockwise to engage.

99. Rotate the crossover tube connector position assurance retainer counterclockwise to lock. Then push the tab into the lock position.

100. Remove the caps that were inserted onto the fuel pipes during disassembly and connect the fuel feed pipe at the rear of the left fuel tank.

101. Tighten the fuel tank shield bolts to 18 lb-in (25 Nm).

102. Reconnect the fuel fill hose and recirc line to the fill tube. Tighten the clamp to 35 lb-in (4 Nm).

103. Connect the fuel pump jumper harness.

104. Skip to step 130 for manual transmission.

Position the driveline under the vehicle and begin to raise the driveline at the same angle used to remove it.

105. Carefully seat the driveline to the engine flywheel housing.

106. Reposition the wiring harness bracket so bracket is aligned with the driveline support assembly bolt hole.

107. Reinstall the five driveline support assembly to engine flywheel housing bolts. Tighten to 37 lb-ft (50 Nm).

108. Reinstall the wiring harness to the harness retainer along the top of the transmission.

109. Raise the driveline to just below the final installed height.

110. Remove the caps from the front of the transmission oil cooler rear pipes and remove the plugs from the junction fittings at the engine flywheel housing.

111. Connect the vehicle speed sensor.

112. Raise the driveline to installation height.

113. Remove the jack that supported the engine.

114. Raise the rear suspension crossmember to the vehicle frame rails. Guide the crossmember alignment pins into the alignment holes in the frame rails. Raise the crossmember to seat to the farm rails.

115. Install new rear suspension crossmember mounting nuts to 81 lb-ft (110 Nm). Then remove the transmission jack.

116. Support the lower control arm with a straight jack.

117. Connect the lower ball joint to the suspension knuckle.

118. Install the shock absorber lower mounting bolt. Tighten to 162 lb-ft (220 Nm).

119. Connect the outer tie rod end to the suspension knuckle.

120. Remove the straight jack from the suspension control arm.

121. Carefully pull the wiring harness down into the L-shaped brackets along the driveline support assembly, align the harness retainer to the hole in the forward bracket. Then secure in place.

122. Reinstall the transmission shift cable and bracket into position.

123. Connect the transmission shift cable to the transmission shift lever. Press to secure the cable.

124. Reinstall the nuts retaining the transmission shift cable bracket to the transmission. Tighten to 15 lb-ft (20 Nm).

125. Remove the propeller input shaft front bearing bolts (M10-1.5x55 mm) from the driveline support assembly.

126. Install and tighten the two plug bolts to the front of the driveline support assembly to 37 lb-ft (50 Nm).

127. Reinstall the floor panel tunnel panel reinforcement. Tighten the bolts to 89 lb-in (10 Nm).

128. Install the new exhaust gasket on the driver's side catalytic converter. Then position the catalytic converter on the exhaust manifold.

129. Install the mounting nuts for the catalytic converter. Tighten to 15 lb-ft (20 Nm).

130. Install the heated oxygen sensors. Tighten the sensors to 30 lb-ft (41 Nm). Reconnect the electrical connectors accordingly.

131. Repeat steps 126-128 on the right side of the vehicle.

132. Using a wire brush, clean the contact area of the intermediate pipe for the muffler. Install the left muffler to the hangers.

133. Connect the vacuum line to the muffler assembly, if equipped.

134. Position the intermediate pipe on jack stands. Then raise the intermediate pipe and install it.

135. Install the exhaust pipe seal.

136. Install the intermediate pipe to the exhaust mufflers. Install the retaining nuts.

137. Remove the jack stands.

138. Tighten the exhaust clamp bolts to 32 lb-ft (44Nm).

139. Tighten the intermediate pipe-to-catalytic converter pipe nuts and bolts to 18 lb-ft (25 Nm).

140. Tighten the exhaust pipe hanger lower nuts to 10 lb-ft 14 (Nm).

141. Install the left rear wheelhouse liner. Tighten the eleven (11) rear wheelhouse panel bolts to 18 lb-in (2 Nm).

142. Install the rear wheels. Have an assistant hold the brakes or lower the vehicle to the ground while you torque the lug nuts. Use a star pattern to tighten to 100 lb-ft (140 Nm).

143. Lower the vehicle.

144. Refuel the fuel tank.

145. Reconnect the negative terminal of the battery.

146. Check for any leaks by: cycling the ignition switch on for 2 seconds, then off for 10 seconds, then turn the ignition switch on again. When the fuel pump is on, the pressure at the fuel rail should be 58 psi (400 kPa). When the fuel pump is off, the pressure at the fuel rail should be 52 psi (359 kPa).

147. Additional Leak Checks:
    - Visually inspect for leaks
    - Smell for fuel

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NOTICES:

It is the responsibility of the purchaser to follow all guidelines and safety procedures supplied with this product and any other manufacture's product used with this product.

Lingenfelter Performance Engineering assumes no responsibility for damages resulting from accident, improper installation, misuse, abuse, improper operation, lack of reasonable care, or all previously stated reasons due to incompatibility with other manufacturer's products.

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It is the purchaser's responsibility to check the state and local laws and sanctioning body requirements pertaining to the use of this product for racing applications. Lingenfelter Performance Engineering does not recommend nor condone the use of its products for illegal street racing.

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