MAGNA Charger

Installation Instructions for:

Radix

Intercooled Supercharger System
2003 & 2004
GM SUV

(Avalanche Denali, Tahoe, Suburban & Yukon)

Step-by-step instructions for installing the best in supercharger systems.

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INSTALLATION MANUAL

Magna Charger
SUV MODELS
2003-2004 Models

We encourage you to read this manual thoroughly before you begin work, for a few reasons:

A quick parts check to make certain your kit is complete (See shipper parts list in this manual). If you discover shipping damage or shortage, please call our office immediately.

Take a look at exactly what you are going to need in terms of tools, time, and experience.

Review our limited warranty with care.

Make sure to have 91 or higher octane fuel in the tank.

When unpacking the supercharger kit **DO NOT** lift the supercharger assembly by the black plastic bypass actuator. This is *pre-set* from the factory and can be altered if used as a lifting point!

Tools Required

- Safety glasses
- Metric wrench set
- 1/4” drill bit
- 1/4”, 3/8”, & 1/2” drive metric socket set (standard and deep)
- 8mm hex (Allen) wrench
- 3/8” and 1/2” drive foot pound and inch pound torque wrenches
- Belt tensioner wrench or 1/2” breaker bar
- 7/32” socket
- Drill and 5/16” drill bit
- Phillips and flat head screwdrivers
- Fuel quick disconnect tools (included in kit)
- E5 inverted Torx socket
- Small or angled 3/8” drill motor
- Drain pan
- Compressed air
- Blow gun
- Electrical tape
- Electrical stripper & crimpers
- Hose cutters
- Hose clamp pliers

Important

Our Magna Charger kits are designed for stock engines, with stock components, in good mechanical condition only. Installation on worn or damaged engines is not recommended and may result in engine failure, for which we naturally can't be responsible . Magna Charger is not responsible for the engine or consequential damages.

Aftermarket engine recalibration devices that modify fuel and spark curve (i.e.. programmers) are not recommended and may cause engine damage or failure. If you have any questions, call us!

Caution: Relieve the fuel system pressure before servicing fuel system components in order to reduce the risk of fire and personal injury. After relieving the system pressure, a small amount of fuel may be released when servicing the fuel lines or connections. In order to reduce the risk of personal injury, cover the regulator and fuel line fittings with a shop towel before disconnecting. This will catch any fuel that may leak out. Place the towel in an approved container when the job is complete, and of course, no smoking.

Magna Charger strongly recommends the following:

- ☑ Clean your engine compartment before starting any engine disassembly.
- ☑ You must have a clean fuel filter - check and replace as needed before installation.
- ☑ You must have a clean air filter - this system comes with a new air filter for your convenience.
- ☑ OE type / Stock spark plugs and stock plug gap is recommended.
- ☑ Start with and use only 91 octane fuel or higher.

Drive belt is a Gates #K061120

After you finish your installation and road test your vehicle, please fill out and mail the limited warranty card, so we can add you to our files (this is important for your protection).

Please remember to follow all safety rules that apply when working, including:

- Wear eye protection at all times.
- Do not work on a hot engine.
- Be careful around fuel - use shop towels to catch any spills and dispose of towels properly.
- Keep sparks and flames away from your work area - remember fuel is highly flammable.

Radix Supercharger Instructions For 2003-2004 Avalanche, Denali, Suburban, Tahoe & Yukon

1. Start the supercharger installation by installing the upgraded fuel pump. Ensure that the fuel tank is less than 1/8 full (preferably empty) 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 eye protection and fuel resistant gloves are strongly recommended.

2. On the right (passenger) side of the intake manifold, locate the fuel pressure test port. CAUTION! The fuel in the system is under pressure! Relieve the pressure in the fuel system by depressing the check valve with a screwdriver and collecting the fuel with a shop towel.

3. Relieve the pressure in the fuel tank by removing the fuel filler cap. The following steps are for 2004 vehicles, for 2003 skip this section and continue to step 36.

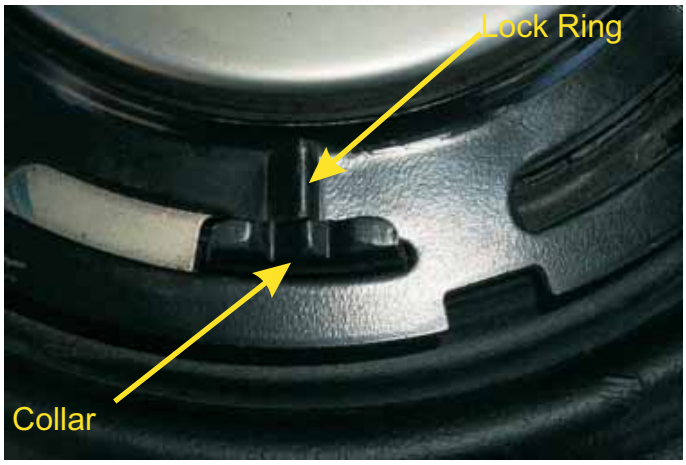
4. At the rear of the fuel tank, loosen the lower clamp and disconnect the fuel fill pipe from the tank. Disconnect the tank vent and large white vapor canister connectors by squeezing the sides of the connectors and then pulling back. To release the small vapor canister connector, push the colored tabs on the bottom of the connector together and up and then pull the connector free.

5. At the front of the fuel tank disconnect the fuel line by pushing the colored tabs on the bottom of the connector together and up and then pull the connector free.

6. Remove the fuel tank straps by removing the two strap bolts with a 15mm socket wrench. Gently lower the fuel tank down approximately 18" to gain access to the connections on the top of the tank.

7. Disconnect the large electrical connector on the top of the tank by pulling back on the gray lock tab and squeezing the end of the connector. Disconnect the tank pressure sensor connector by lifting up on it's lock clip and pulling back on the connector. Disconnect the fuel and vapor connections on the top of the tank module. Squeeze the colored tabs on the bottom of the two smaller connectors together and then push up on the tabs to release the connectors. Push the large vapor connector towards the tank module; squeeze the sides of it and then pull back to release it from the tank module. Lower the tank free from the vehicle. With the aid of an assistant, remove the fuel tank to a suitable work area.

8. The tank module is retained in the tank by a lock ring that locks into a retaining collar on the tank.



9. Note the position of the lock ring in relation to the collar.

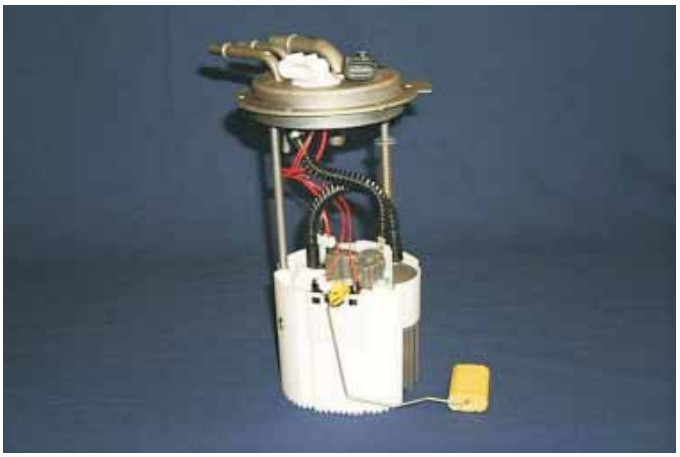
11. After rotating the lock ring counter-clockwise, remove the lock ring.

10. **CAUTION! USE A NON METALLIC HAMMER OR DRIFT** to remove the lock ring by tapping the ring counter-clockwise. Do not use a metallic hammer and/or drift as a spark may result and ignite a fire.

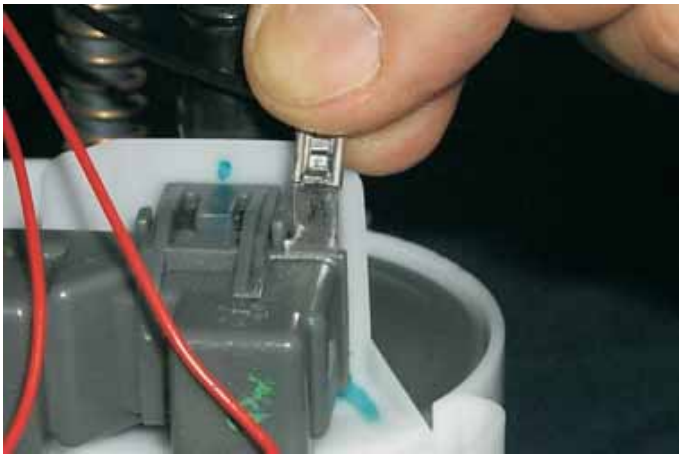
12. Pull the module out of the tank carefully, so the fuel level float will not catch on the edge of the opening. Once the fuel module is removed from the tank, the white plastic “can” of the fuel module will still contain about one quart (1 liter) of fuel. Carefully tilt the module “can” so you can pour this excess fuel back into the tank.

13. After removing the module from the tank, use a shop towel to cover the tank opening to prevent any debris from entering.

15. Squeeze and pull to disconnect the electrical connector from the fuel pump.



14. Here is the fuel module unit removed from the tank.



16. Disconnect the ground terminal at the fuel filter.

17. Using a sharp knife cut the black plastic fuel line at the filter connection and pull the fuel line free.

19. Unclip the two clips on the sides of the retainer to release it.

18. Release the fuel pump from the module body by removing the pump retainer.

20. Remove the pump, fuel line and retainer from the tank module. These parts will not be reused.

21. Here are the new components for installation in the module assembly. Note: hose type may vary.

23. Secure the clamp by using a pair of side cutting pliers to crimp the loop of the clamp around the fuel line. Take care not to cut the loop but only tighten it.

22. Install the new fuel hose supplied over the nipple of the new pump. Slide one of the crimp clamps supplied over the hose end.

24. Install the Ty-Wrap strap supplied around the top of the fuel pump. Do not over tighten the Ty-Wrap strap.

25. Insert the new pump into the module body. Rotate the pump until the pump inlet nipple registers with the port in the bottom of the body and press down. At this point, the pump should no longer be able to rotate.

26. Mark this location on the pump and module body, and then remove the pump.

27. Reinstall the new pump aligning the marks on the pump and body, as you do slide the brass ground terminal between the pump and the module body trapping it in place. Ensure that the pump inlet is aligned with the port in the bottom of the body.

28. Slide the Ty-wrap strap around the top of the pump until the anchor end contacts the side of the module body. Mark this location with a line going down from the top edge approximately 3/8”.

29. At the bottom of this line, drill a ¼" hole.

31. Install the electrical connector into the top of the new pump. Connect the ground connection that previously went to the filter to the new ground jumper lead supplied.

30. Slide the Ty-wrap around the top of the pump body and push the anchor end through the new hole to secure the pump.

32. On the new ground jumper lead, connect the large female spade connector to the new ground terminal at the fuel pump and the small spade connector to the filter terminal.

33. Connect the remaining end of the fuel line to the filter nipple and secure it with a crimp-clamp supplied.

34. The fuel module unit is now ready for reinstallation in the tank.

35. Reinstall the tank module into the tank with the large vapor nipple pointing towards the metal tank shield. Coat the bottom surface of the lock ring with some of the grease supplied, then install the ring on the retaining collar. Apply some more grease on the seven raised lock bumps on the surface of the lock ring. Using the same tools you used to remove the lock ring, rotate the ring clock-wise until the lock bumps are in the same position as they were in step 12. With the help of an assistant, reposition the fuel tank back into the position on your jack. Reattach the fuel vapor and electrical connectors by pushing them in. Raise the tank back into its original position and reinstall the fuel tank straps with a 17mm socket wrench, torque these bolts to 40lb-ft. Slide the canister vent solenoid on the side of the tank. At the front tank, clip the metal fuel and vapor lines into the plastic retaining clip on the tank. Install the fuel and vapor connectors onto the metal lines. Install the fuel fill pipe onto the tank and tighten the clamp securely. Refill the fuel tank with 91 minimum octane.

36. With a 8mm wrench disconnect the (-) negative battery cable. Make sure the cable is far enough away from the battery that it does not accidentally touch the battery and make connection during the installation. (Wrap negative cable connector with electrical tape)

37. With a cool engine remove the radiator cap (Be careful not to remove the cap if the engine is still hot).

38. Open radiator petcock and drain coolant into a clean drain pan. Save coolant for reuse later on.

39. Remove the top plastic sight shield bolt using a 10mm socket wrench. The top shield and right and left side shields will not be reused.

40. Remove the two side sight shields by first removing the two fasteners along their lower edges with a 8mm nut driver.

41. Using a 8mm nut driver loosen the two large hose clamps holding the air cleaner duct assembly.

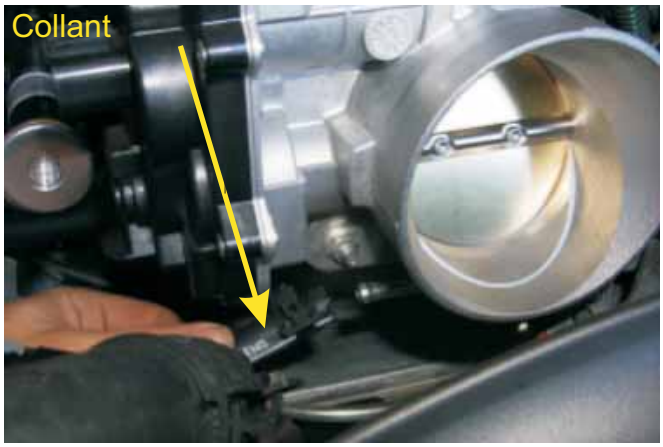
42. Remove the duct assembly by lifting it out. Sight shield and duct assembly will not be reused.

43. Unplug the electrical connector to the (MAF) sensor.

44. Firmly grasp the air intake box and pull up removing it from the vehicle.

45. To prevent foam from escaping, insert the black plastic plug supplied in the hole located in the upper edge of the right (passenger) side wheel well.

46. Locate the can of expansion foam in your kit. Follow the directions on the back of the can. Insert the end of the straw into the hole and dispense the foam into the hole for 10 to 12 seconds. In the exsisting hole that is just to the rear of the slot that the coolant tank sits in, again dispense the foam into the hole for 10 to 12 seconds. You will not need the entire can. Do not attempt to over fill the fender. (Note: do not disturb foam for 8 hours.) Noise levels will be drastically reduced when foam has set.



47. Using a long pair of pliers, remove the coolant hoses from the bottom of the throttle body.

48. Remove the (PCV) vent hose from the throttle body or intake manifold on passenger side. (Depending on year).

49. Using a 10mm socket wrench, remove the three bolts that fasten the cover support bracket from the top of the intake manifold.

50. Open the large electrical harness retainer clip, then using a 10mm socket wrench remove the bolts holding the plastic wire harness retainer to the intake manifold.

51. Disconnect the following electrical and hose connections from the intake manifold area.

52. Disconnect the eight fuel injector connections by gently pulling up on the gray plastic release trigger on the connector and then pulling firmly on the connector itself.

53. Disconnect electrical throttle control (ETC) connector from the throttle body by removing the gray plastic locking tab first, then squeeze and pull free the ETC connector itself.

54. At the rear of the of the intake manifold disconnect the manifold absolute pressure (MAP) sensor connector by gently raising the gray plastic retaining clip and then pull free the connector itself.

55. Disconnect the engine knock sensor connector and steel-mounting clip from the intake manifold by prying it free with a small screwdriver. Next gently raise the black plastic retaining clip and then pull free the connector from the harness.

56. Disconnect the evaporative purge solenoid (EVAP) connector by raising the black plastic retaining clip and then pull free the connector itself.

58. Disconnect the (EVAP) vent tube from the solenoid by squeezing the retainer, then release the tube from the solenoid. Follow the same procedure on the other end of the (EVAP) vent tube and remove the tube from the vehicle.

57. Lift the electrical harness from the top of the engine and set off to the side.

59. Remove the positive crankcase vacuum hose (PCV) from the intake manifold on driver side.

60. Remove the power brake hose from the control valve. (Some vehicles have hydraulic assist and do not have this hose.)

62. Using a 8mm socket wrench remove the ten intake manifold bolts.

61. With the fuel line disconnect tool supplied, remove the fuel lines from the fuel rail. Caution! The system may be under pressure. Avoid open flame or other sources of ignition.

63. Carefully remove the intake manifold assembly and set aside.

64. Using a vacuum cleaner, remove any dirt or debris from the intake port area. (Be careful not to get any dirt in the intake ports).

66. Using a 15mm wrench, remove the steel bracket from the rear of the driver side cylinder head. This will not be re-used.

65. Cover the intake ports with tape or clean rags to keep dirt and objects from entering the engine. (Remember, be clean).

67. Using a 10mm socket wrench remove the two coolant vent pipe bolts.

68. Remove the vent pipe assembly. (Make sure that the o-ring gaskets did not stick to the cylinder heads, if so remove them).

70. Using a 15mm socket wrench remove the three bolts holding the factory belt tensioner to the bracket and remove the tensioner.

69. Using a 15mm tensioner wrench or breaker bar, remove the stock serpentine belt from the vehicle. The belt will not be reused.

71. Using a 10mm wrench disconnect the battery positive terminal from the back of the alternator.

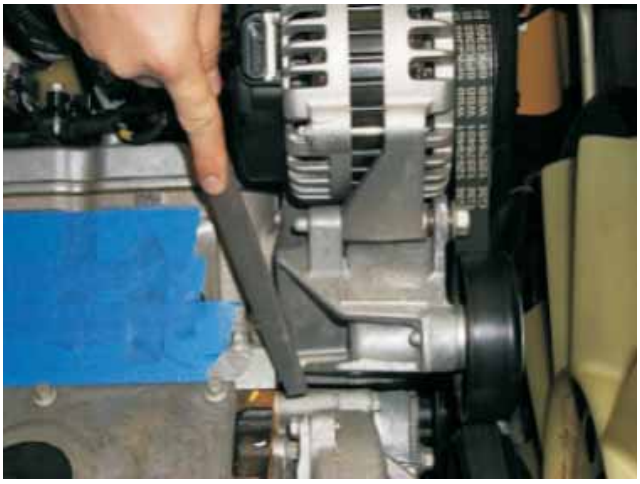
72. With a 15mm socket wrench remove the two bolts holding the alternator to the alternator bracket. Remove the alternator.

74. Install the short oil filler neck supplied by inserting it into the valve cover and rotating it 180 degrees clock-wise. Transfer the oil fill cap from the long neck to the new short one.

73. Remove the long oil filler neck from the valve cover by rotating it 180 degrees counter clock-wise and pulling it out.

75. Take the new supplied coolant vent pipe and test fit to the front of the cylinder heads. Check for clearance between the pipe and the alternator bracket as shown.

76. Use a felt tip marker and mark the alternator bracket were the coolant vent pipe hits as shown.



77. Using a file or die grinder, remove material from the alternator mounting bracket marked in the previous step. Once clearance is achieved, recheck with the new vent pipe. Ensure that the vent pipe does not touch the alternator bracket.

78. Using the stock bolts removed in step 75 install the new coolant vent pipe supplied. Ensure that the o-ring seals are installed correctly. Torque the bolts with a torque wrench and 10mm socket to 106 lb-in.

79. Using the new supplied 16” x 3/8” (PCV) vacuum hose, connect one end to the (PCV) valve as shown and lay the other end of the hose off to the driver side, out of the way. (To be connected in a later step.)

80. Install the eight intake manifold gaskets supplied onto the supercharger manifold. Ensure that the tab on the gaskets lines up with the tab notch in the manifold.

81. Remove the stock (MAP) sensor from the stock intake manifold by pulling back on the two tabs and lifting the sensor out. Ensure that the orange MAP sensor seal is not damaged, as it will be used.

82. Put some lubricant on the (MAP) sensor seal and press the (MAP) sensor into the provided hole in the supercharger manifold as shown.

83. Using a 4mm allen wrench, install the (MAP) sensor retaining clip with the provided 6mm button head screw as shown.

84. Remove the power brake hose and clamp from the stock intake manifold.

85. Remove the stock (MAP) sensor from the stock intake manifold by pulling back on the two tabs and lifting the sensor out. Ensure that the orange MAP sensor seal is not damaged, as it will be used.

86. **The following steps are for 2003 vehicles only, 2004-on skip to step 90.** Remove the stock fuel pressure regulator from the fuel rail by disconnecting the vacuum hose. pulling off the spring clip and pulling the regulator out. Be careful not to loose any of the small O-rings on the regulator.

87. Make sure that the two O-rings and the screen filter is complete as shown.

88. Using a small amount of grease or oil lubricate the two O-rings on the fuel pressure regulator and push it into the new supplied fuel manifold as shown.

90. Apply a small amount of grease to the new supplied fuel manifold O-ring and set in the machined recessed area on the new driver's side fuel rail as shown.

89. Using a pair of C-clip pliers install the new supplied C-clip into the fuel manifold as shown. (Make sure that the clip seats into the machined grove in the manifold).

91. Install the assembled fuel manifold to the drivers side fuel rail using the two new supplied 6mm bolts. Using a 10mm socket wrench torque the bolts to 106 lb-in. (Be careful not to pinch the O-ring).

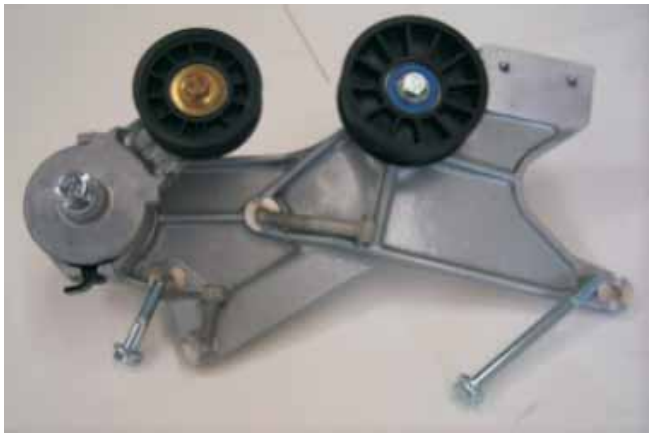
92. Using a 10mm socket wrench remove the stock throttle body from the stock intake manifold. Next using a # 5 internal Torx socket remove the three mounting studs from the stock intake manifold.

93. Install the three studs removed in the previous step into the new supercharger inlet manifold using a # 5 internal Torx socket and wrench.

94. Remove the EVAP solenoid from the stock manifold with a 10mm socket wrench.

95. Lubricate the o-ring with the supplied grease.

96. Mount evap solenoid on front of intake manifold.



98. Here is the new tensioner support bracket and hardware. The new bracket will locate in the original tensioner location. Note the different fasteners and their locations.

97. Remove the one bolt directly below the alternator and factory GM idler with a 15mm socket wrench.

99. In the original tensioner location, install the new tensioner support bracket. Torque all mounting fasteners to 40 lb-ft.

100. Install the tensioner and it's mounting bolt on the new mounting bracket. Torque the tensioner mounting bolt to 50 lb-ft.

101. Install the 90mm idler and spacer on the idler support bracket. Torque the mounting bolt to 40 lb-ft.

102. Spray silicone or some mild soap and water solution on cylinder head surface to lubricate. This makes the intake manifold slide around a little to help line up the holes. (Do not use anything that will damage the intake gaskets such as petroleum based products, etc.)

103. Using an assistant, carefully lower manifold assembly into place, being careful not to damage gaskets.

104. Remove the 10 spilt looms that support the fasteners. Start all ten bolts by hand.

106. Push the fuel line connector on to the fuel manifold. Ensure that the fuel line is pushed all the way on. Pull on the connector to check that it is secure, you should not be able to remove the connector unless you use the removal tool.

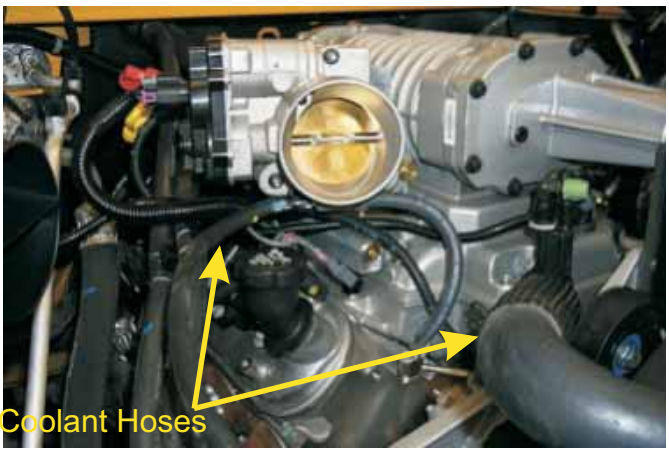
105. Torque all 10 bolts gradually and evenly to a torque of 89 in-lbs.

107. Using supplied gasket, mount throttle body using stock nuts.

108. Remove the wiring harness from the original bracket.

110. Plug in the electrical connectors for the following components, the Fuel Injectors, Electronic Throttle Control, Map Sensor, Knock Sensor and EVAP Solenoid.

109. Route the wiring harness over the left side fuel rail and attach it to the supercharger manifold as shown, using the Adel clamp and bolt supplied.



111. Attach one end of the ¼" coolant hose supplied to the new steam vent pipe and the other end to the barb on the bottom of the throttle body with the clamps supplied. Attach the original steam vent hose and clamp from the radiator to the remaining barb on the bottom of the throttle body.

112. Mount the nose support and torque the fasteners 15-17 ft-lbs.

114. Install alternator on the stock bracket and torque the fasteners to 40 ft-lb.

113. Reinstall the EVAP tube on the EVAP solenoid at the front of the supercharger manifold. Route the tube under the supercharger nose and along the inside of the left fuel rail to the EVAP connection between the cylinder head and the firewall.

115. Reattach the battery cable to the alternator terminal.

116. Install the Radix information sticker on the black plastic radiator cover below the GM factory-warning sticker.

117. Using belt routing decal, install belt. Please double check your routing before moving to the next step. Put belt routing diagram sticker over the GM belt routing diagram.

118. Using a screwdriver, remove the four screws that secure the top cover to the base of the air box assembly.

119. Remove and discard the stock paper air filter.

120. Remove the stock air box gasket and replace it with the new gasket supplied with the K&N air filter.

122. Here is the air tube and it's components.

121. Install K&N air filter and reassemble the air box assembly. Reinstall the completed unit on the vehicle.

123. Assemble the bellows and coupler to the air tube. Note the position of the clamp screws. The screws must be facing up so that you can install the assembly on the vehicle.

124. Install the brass barb into the threaded port in the bottom of the air tube with a 14mm wrench. Do not over tighten!

126. Push the bellows end of the air tube assembly on to the air box first, and then install the remaining end with the coupler on to the throttle body. Tighten all clamp screws securely.

125. Using some of the O-ring grease supplied, apply a light coating of grease on the inside of the coupler.

127. Attach the PCV hose from the right (passenger) side valve cover to the brass barb on the bottom of the air tube. Connect the PCV hose from the step 84 to the remaining barb next to the power brake hose connection on the back of the inlet manifold. Connect the power brake hose to the control valve shown

128. Here is the intercooler and it's mounting components.

130. Assemble the heat exchanger to the installed mounts; note that the threaded ports are on the top of the heat exchanger.

129. Assemble the four heat exchanger mounts to the cross member with a 10mm socket wrench.

131. Using a small amount of grease supplied, lube the o-rings on the two aluminum adaptors.

132. Remove the two plastic shipping plugs from the ports of the heat exchanger and install the two adaptors in their place. Tighten securely.

133. Install the two 90 degree “elbow” fittings to the adaptors, position them such that they are pointing to the right side when the flange of the cross member is on the back side of the heat exchanger. Tighten securely.

134. Remove the seven push-lock fasteners that secure the black plastic radiator cover. Do this by prying up on the center of the fastener with a small straight blade screwdriver.

135. Remove the seven fasteners completely.

136. Remove the radiator cover.

137. Remove the grille assembly by first removing the upper retaining bolt with a 10mm socket wrench.

138. Pull out on the grille assembly at the corners to release the snap-in fasteners.

139. Remove the grille assembly.

140. Remove the stock cross member bolts from the radiator brace bolt at each end with a 13mm socket wrench.

141. The intercooler and cross member will mount in front of the stock cross member.

142. Mount the intercooler assembly to the radiator brace by placing the spacers supplied between the new cross member and the original cross member. Use the new longer bolts supplied with a 12mm socket wrench to do this.

143. Here is the intercooler installed on the radiator brace. Note that the elbow fittings are pointed to the left (driver) side.

144. Here is the intercooler reservoir/pump assembly. Note the hose and electrical connections.

146. Install the reservoir/pump assembly on the radiator shroud with the self-piercing screws supplied using a 10mm socket wrench.

145. Position the intercooler reservoir/pump assembly on the left side of the radiator shroud beneath the upper radiator hose.

147. Starting at the intercooler barb on the left side of the supercharger, attach one end of the length of the 5/8” hose with a #10 clamp. Run the hose forward and down beside the left side of the radiator.

148. On vehicles equipped with HID headlights, locate the square hole between the HID transformer and the headlight. Pass the two hoses for the intercooler through this hole.

149. In the rubber weather shield beside the radiator, make a slot or hole for the hoses from the intercooler to pass.

150. Continue the hose to elbow right elbow fitting on the top of the heat exchanger. At this point cut the hose and push it on the barbed end of the right elbow fitting. Secure it with a #10 clamp.

151. From the length of hose attach one end to the barbed end of the left elbow fitting. Route the hose through the slot in the weather shield and on to the outlet barb out the intercooler pump. Cut the hose and secure both ends with #10 clamps.

152. From the remaining length of hose, connect one end to the inlet barb of the intercooler reservoir with a #10 clamp.

154. Remove fender to firewall brace bracket to gain access to the fuse relay panel, on driver side.

153. Cut the remaining end of the hose to length and connect it to the “T” connection on the supercharger with a #10 clamp.

Install the grill assembly by snapping the six corners back in place and installing the upper retaining bolt with a 10mm socket wrench. Install the radiator cover by inserting the seven push-lock fasteners back in their holes and pressing the center of the push-lock fasteners down to secure them.

155. Firmly grasp the relay centers cover and lift off.

156. Pull back on the two tabs holding the relay centers main cover off.

157. Lift the cover off and set aside for re-installation later.

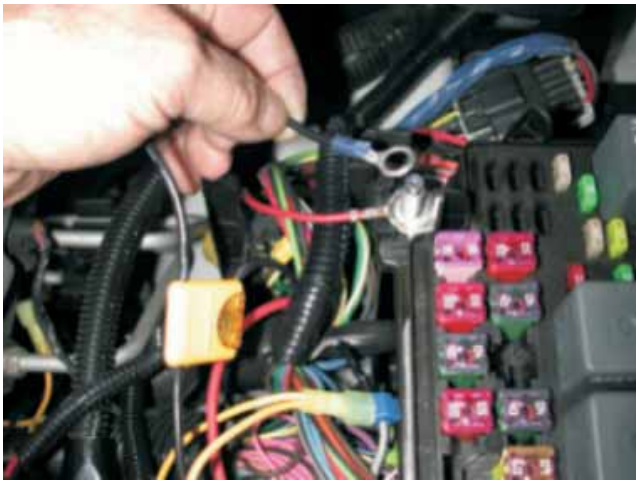
158. Install the intercooler pump harness starting at the relay center. Cover the red and black wires that lead to the intercooler coolant pump connector with the split loom supplied. Tuck the relay under the factory GM wiring so that the relay center cover base will cover it. Route the harness with the coolant pump connector down and forward along the factory GM harness.

159. Install the intercooler electrical connector into the bottom of the coolant pump. Secure the wiring as necessary with the ty-wrap straps supplied.

160. In the wiring below the fuse/relay center, locate the gray fuel pump wire that goes from the relay center down the frame towards the rear of the vehicle. Use a 12 volt automotive test light or voltmeter to check that you have the correct wire. With the battery temporarily connected, switch the ignition on and your test light should glow for about 3 seconds and then go out when you have located the correct wire. Install a T-tap connector onto the gray fuel pump wire.

161. Connect the yellow wire from the relay into the T-tap connector installed in the last step.

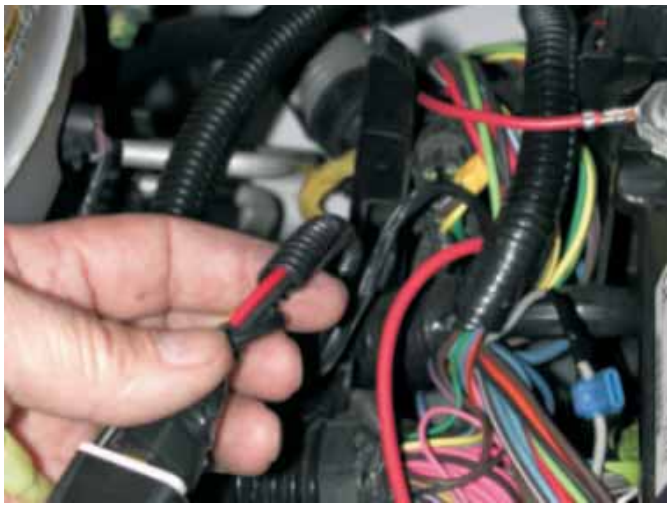
162. Using a 13mm socket wrench remove the positive terminal nut from the lug. (Caution make sure the battery is disconnected.



163. Install the positive terminal from the relay to the positive lug as shown. (This is the wire with the fuse holder in it).

164. Using a 10mm socket wrench, remove the nut off the stud in the left rear corner of the firewall as shown.

165. Locate the single black ground wire from the relay, strip the insulation back ¼" from the end and then firmly crimp the ring terminal on the end. Install the black wire with its ring terminal on the stud from the previous step and secure it firmly with the original nut.



166. This step is for 2003 vehicles only, 2004 vehicles skip to step 167. Install the wiring harness for the fuel pump in the same location as you did for the intercooler pump wiring harness. Attach the extra yellow wire from the intercooler pump relay onto the male spade terminal marked "85" on the bottom of the fuel pump relay. Attach the ring connector from the fused power wire in the same location as you did for the intercooler pump relay in step163. Attach the black ground wire ring connector in the same location as you did in step 165. Route the black and red split loom covered wires down and along the inside of the left frame rail to the fuel filter location.

167. Reinstall the relay center cover. (Be careful not to pinch any wires).

168. Reinstall the fuse / relay cover by aligning it up and pushing down on it.

169. Re-install fender to firewall brace.

170. The following steps are for 2003 vehicles only, 2004-on skip to step 180. Locate your vehicles fuel filter, usually located on the inside of the drivers (left) side frame rail. At this time we recommend that you replace the fuel filter.

171. Using 5/8 and 13/16 wrenches, disconnect fuel line from filter. Use rags to soak up and fuel. (Be sure to dispose of rags properly.) Do not lose small o-ring on fitting.

172. Using small amount of grease, lubricate o-ring threads of OE fitting. Carefully bend tube to run parallel to frame rail and direct into pump discharge fitting.

174. While supporting the pump using back-up 7/8" wrench, tighten fuel line fittings. (Make sure adapter does not get loosened.)

173. Using 21/64 drill carefully drill through bottom of frame rail. Clean up chips, deburr hole and fasten pump with supplied hardware.

175. Lubricate o-rings and threads of u-bend adapter and install on discharge side of fuel filter. Position as in photo.

176. Wrap inlet hose & fitting around to filter adapter, and “click” into place.

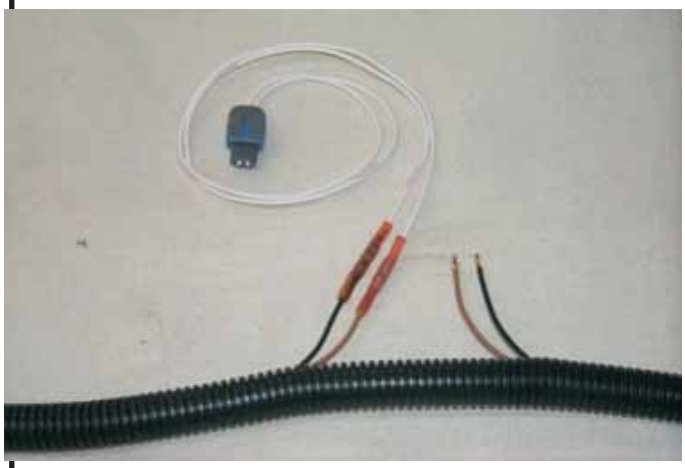
178. Cut the pump wiring loom installed earlier in step 166 so that the black and red wires will reach the new pump.

177. Use tie wraps supplied in kit to fasten hose & wires out of harms way, and to allow smooth bends.

179. The fuel pump wiring must be hooked up correctly to work, the red positive wire goes to the “+” post on the pump and the black negative wire goes to the “-” post on the pump. (Double check your installation before moving on.)

*Note: Do not over-tighten the nuts and break the studs.

180. Locate MAF cable, pull back flex loom approximately 8 inches. Separate the tan & black wires from this harness.



181. Cut the tan & black wires approximately 7” from the MAF connector.

182. Using the new harness and crimp/shrink connectors supplied, connect the new IAT harness to the tan wire and the black wire that run to the vehicles computer. Strip about ¼” of insulation from the ends of all the wires and crimp the connectors on, then crimp the new IAT harness to the connectors. Using a heat gun or blow dryer set on HIGH; shrink the insulation on the connectors so that it contracts around the wires completely. <u>You must shrink the insulation, as crimping the connectors alone is not enough to secure them!</u>

183. Plug the IAT harness into the IAT sensor located under the supercharger nose.

184. Refill radiator and intercooler system with a 50/50 mixture of coolant and water. Bleed system at “T” and at reservoir. Check system periodically for fluid level.

Note: Reservoir types may vary.

“This section intentionally blank.”

185. Vehicle Programing Instructions For the Micro Tuner

IMPORTANT! To ensure trouble-free programming of your vehicle's computer:
***Make sure the vehicle's battery is sufficiently charged.**
***Turn off all accessories & close doors to prevent unnecessary drain on the battery.**
***Do not attempt to program your vehicle while a battery charger is connected.**
***Improper battery voltage will result in failure of the programming process.**
***Do not disconnect the cable or turn off the ignition during programming.**
***Apply emergency brake to disable daytime running lights.**
***Reconnect battery ground (-) cable.**

A. Connect the supplied cable to the 9-pin connector at the top of the handheld unit. Use the thumbscrews to secure the cable to connector.

B. Connect the other end to your ALDL connector located under the dash near the steering column. Make sure this connection is seated all the way in and that it is secure. You do not want this cable coming out of the connector during programming.

C. Turn the ignition key to the on or run position <u>but do not start the vehicle.</u>

D. To begin programming your vehicle, you must press the YES button.

E. You only need to press the YES button once to start the programming cycle. The programming process only takes about a minute.

F. The handheld unit will inform you that the programming process has completed and to turn the ignition off and disconnect the cable. <u>Only at this time should the ignition be turned off</u>

***DO NOT DISTURB THE CABLE OR TURN THE IGNITION OFF DURING THIS TIME! IF THE PROGRAMMING IS DISRUPTED YOUR COMPUTER WILL NOT START OR RUN YOUR VEHICLE!**

In the event that the vehicle needs to be returned to its original calibration, follow the directions as described above. The handheld unit will prompt you that you have already modified the vehicle's computer. Select YES to return you vehicle's computer back to the stock calibration. Wait for the handheld to finish, then disconnect cable as described above.

186. Start the vehicle for 5 seconds and shut off, once again check for fuel leaks and fan-supercharger belt alignment. Check radiator and intercooler reservoir.

187. Test drive vehicle for the first few miles under normal driving conditions, listen for any noises, vibrations, engine missfire or anything that does not seem normal. The supercharger does have a slight whining noise under boost conditions, which is normal. Check & bleed intercooler reservoir as needed.

188. After the initial test drive gradually work the vehicle to wide open throttle runs, listen for any engine detonation (Pinging), If engine detonation is present let up on the throttle immediately. Most detonation causes are low octane gasoline still in the tank. If you have questions about your vehicles performance, please check with your installation facility or call Magna Charger at (805) 289-0044, Monday through Friday, 8am to 5pm.

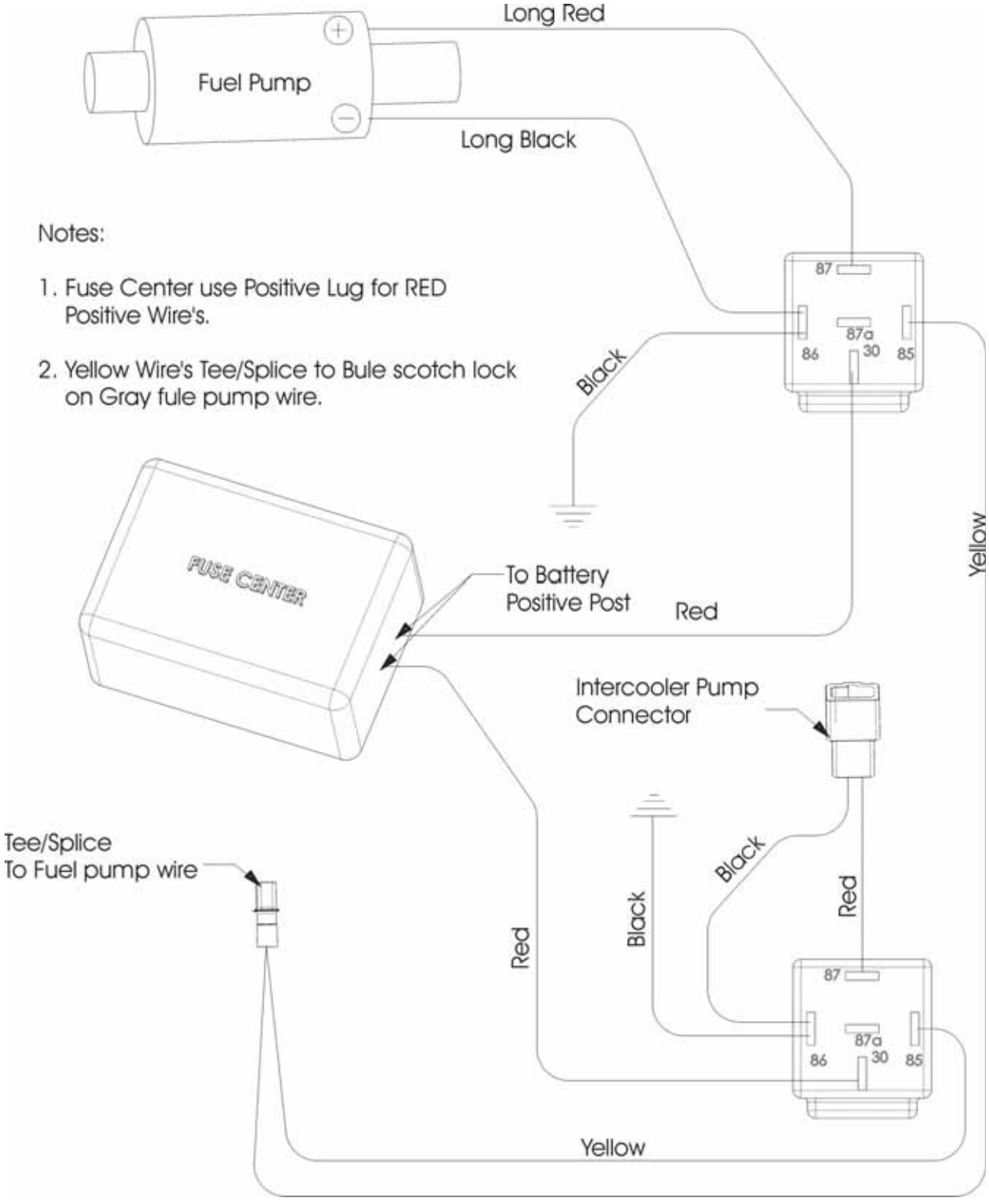
Please enjoy your “Magna Charged” performance responsibly.

Ventura, CA (November 21, 2002) Magna Charger, manufacturer of superchargers and supercharger systems for foreign and domestic vehicles, was presented the prestigious award at the annual Specialty Equipment Market Association Show (SEMA) in Las Vegas, Nevada.

Sponsored by General Motors Corporation, the 2002 SEMA Design Award for the “Most Innovative Product” was awarded to Magna Charger and recognized by the all-star team of judges for their outstanding and innovative design achievement. The criteria used by the judges included innovation, technical achievement, quality and workmanship.

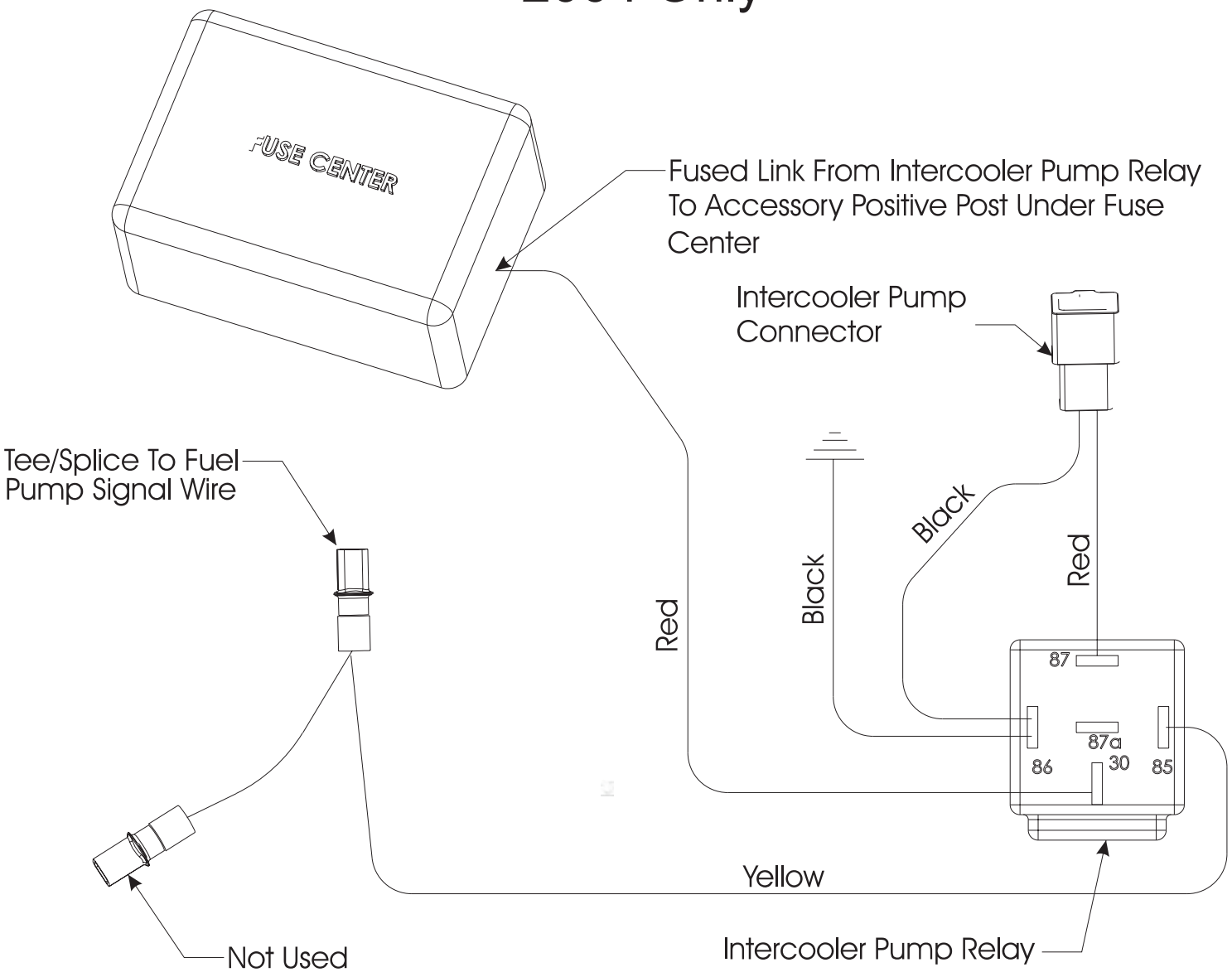
The award was presented for the Radix® Intercooled supercharger system, designed for the Chevrolet, GMC and Cadillac, 4.8L, 5.3L and 6.0L General Motors Trucks and SUV's including the new H2.

2003 Only



INTERCOOLER/FUEL PUMP WIRE ROUTING DIAGRAM

2004 Only



Notes:

1. Under Fuse Center use Positive (6mm stud) for RED Positive Wire.

2. Yellow Wire Tee/Splice to Blue Scotch Lock on Gray Fuel Pump Signal Wire.

INTERCOOLER WIRE ROUTING DIAGRAM

2003 RADIX TRUCK PARTS LIST

BOM#	DESCRIPTION	QTY
03-12-60-001	**S/C ACCYS, RADIX TRUCK**	
31-12-00-003	**S/A HEAT EXCHANGER, RADIX TRUCK**	**1**
68-01-00-008	HEAT EXCHANGER, RADIX TRUCK	1
65-12-60-004	BRACKET, HEAT EXHANGER MOUNT GEN 3 TRUCK	1
48-46-10-003	CLAMP HOSE #10 (CLA10)	1
48-46-00-101	FITTING, SETRAB HEAT EXCHANGER	2
48-46-00-032	FITTING -10 TO 5/8" BARB 90deg 37/45 JIC FEMALE	2
48-46-10-038	CLAMP, ADEL #38 (PUMP MOUNT)	1
74-74-25-100	SCREW, SELF TAPPING FLG HEAD, 1/4" X 1"	1
74-74-25-150	SCREW, SELF TAPPING FLG HEAD, 1/4" X 1 1/2"	2
68-01-00-060	RUBBER SANDWICH MOUNT (M6X1.0 STUDS)	4
77-73-06-100	NUT, FLG 6MM X 1.00, ZINC	10
48-46-00-069	FITTING, 1/2"NPT MALE X 5/8" HOSE MALE BARB	1
69-05-00-001	SPACER, 1.0"X .25" X 1.875"	2
71-06-10-065	BOLT-HEX FLANGE M6 X 1.0 65MM ZINC	2
71-06-10-016	BOLT-HEX FLANGE M6 X 1.0 65MM ZINC	2
82-55-00-009	HOSE 5/8"X 84" HEATER RUBBER	2
31-12-00-015	**S/A, AIR INTAKE, RADIX TRUCK**	
80-59-57-001	GASKET THROTTLE BODY, GENIII GM	1
48-46-10-024	CLAMP, #60	2
80-59-53-010	SEAL AND CLAMP, RADIX AIR INTAKE TUBES	1
35-12-60-001	MANIFOLD, BELLOWS, RUBBER, GM TRUCK KIT	1
35-20-53-002	MANIFOLD, AIR INLET TUBE, RADIX TRUCK KIT	1
85-05-20-053	EXPANSION FOAM SEALANT	1
69-35-53-003	3/8" PLASTIC PLUG #700-330	1
48-46-00-030	FITING, 1/4" NPT MALE 3/8" HOSE BARB BRASS	1
31-12-00-018	**S/A S/C, I/C PUMP & RESERVOIR, RADIX**	
68-01-03-011	RESERVOIR TANK GEN III TRUCK	1
68-01-03-022	RESERVOIR CAP, GENIII TRUCK	1
68-14-59-002	I/C PUMP	1
82-55-00-007	HOSE 3/4" X 3 1/4" COOLANT	1
48-46-10-003	CLAMP, #10	2
31-12-00-100	**S/A, S/C TO CYL HEAD BOLTS, RADIX**	
71-06-10-100	BOLT-HEX FLANGE 6MM X 1.0 X 100MM ZINC	9
31-12-00-013	**S/A, ELECTRICAL, RADIX**	
82-55-53-005	IAT WIRE ASSY	1
82-01-04-001	WIRE LOOMS, 1/4" X 24" & 34" (1PC EACH) BLACK	1
82-55-20-002	WIRE LOOM, 3/8" X 32" BLACK	1
69-90-24-004	TY-WRAP 7.5" BLACK	10
82-55-80-001	WIRE/CONN ASSY, RADIX INTERCOOLER PUMP	1
82-55-50-115	FUSE, 15AMP	1
82-55-60-101	16-14GA. RING TERM, FOR 5/16" STUD	1
82-55-40-006	T-TAP FML CNTR .250" 16-14 GAUGE	1

31-12-00-005	**S/A TENSIONER, RADIX**	
65-03-53-001	BRACKET, LOWER STRUT, IDLER SUPPORT, RADIX	1
56-50-53-006	TENSIONER, BELT	1
56-50-53-004	IDLER, RIBBED (INSTALLED ON TENSIONER)	1
71-08-12-021	BOLT-HEX FLANGE 8MM X 1.25 X 20MM ZINC	2
71-10-15-040	BOLT-HEX FLANGE 10MM X 1.5 X 40MM ZINC	1
69-90-57-001	SPACER, IDLER PULLEY	1
65-12-60-002	BRACKET, UPPER STRUT, NOSE SUPPORT, GM TRUCK	1
71-10-15-050	BOLT-HEX FLANGE 10MM X 1.5 X 50MM ZINC	1
71-10-15-120	BOLT-HEX FLANGE 10MM X 1.5 X 120MM ZINC	1
71-12-17-090	BOLT-HEX FLANGE 12MM X 1.75 X 90MM ZINC	1
31-12-00-020	**S/A HOSES AND FITTINGS, RADIX**	
82-55-00-002	HOSE, 3/8" X 16"	1
82-55-00-020	HOSE, 1/4" X 9"	1
71-00-06-010	BOLT-HEX FLANGE 6MM X 1.0 X 10MM, ZINC	2
69-65-30-001	TUBE, OIL FILL, SHORT	1
48-46-10-022	CLAMP, ADEL #16	2
48-46-10-019	CLAMP, HOSE #6	2
89-89-00-004	**LITERATURE KIT, RADIX TRUCK**	
89-89-00-004	MAGNACHARGER WARRANTY/REG CARD	1
91-01-01-001	6" MAGNACHARGER STICKER	1
91-91-10-001	LABEL, FUEL TANK - PREMIUM FUEL ONLY	1
91-91-60-001	LABEL, VACUUM AND BELT ROUTING DIA. RADIX TRUCK	1
89-89-60-004	INSTALLATION INSTRUCTIONS- 03-04 RADIX TRUCK	1
83-91-00-013	LUBRICANT, "LUBRIPLATE" GREASE 3/8 OZ TUBE	1
31-12-00-024	**S/A, INLINE PUMP '03 RADIX TRUCK**	
88-85-60-020	FUEL PUMP, INLINE	1
88-85-60-022	FUEL PUMP, WIRING KIT	1
88-85-60-022	FUEL PUMP MOUNTING KIT	1
48-46-00-070	FITTING 10MM X 1.0 MALE TO 3/8' HOSE BARB	1
71-00-08-030	BOLT-HEX FLANGE 8MM X 1.25 X 25MM ZINC	1
77-08-12-001	LOCKNUT, 8MM X 1.25, ZINC	1
69-90-24-004	TY-WRAP 7.5"	12
48-46-00-071	FITTING, FUEL, SAG. FEMALE TO 10MM X 1.0 MALE	1
48-46-00-074	FITTING, FUEL, SAG. MALE TO U-BEND TO MALE QUICK	1
48-4805-001	CLAMP, CRIMP 11/16"	1
82-55-00-025	HOSE, 3/8" X 16" FI SPEC	1
82-01-34-001	WIRE LOOM, 3/4" X 14" BLACK	1
82-55-40-006	T-TAP FML CNTR .250" 16-14 GAUGE	1
82-55-40-041	CONNECTOR, BUTT 18-20 GAUGE	1
82-55-60-101	16-14GA. RING TERM, FOR 5/16" STUD	1
82-55-80-002	WIRE CONN ASSY RADIX FUEL PUMP	
82-55-50-120	FUSE, 20AMP	1
82-55-00-024	HOSE, 5/16" X 15" FUEL	
31-12-00-010	**S/A FUEL MANIFOLD '03 RADIX TRUCK**	
35-15-01-201	MANIFOLD, FUEL, GEN III RADIX	1
69-51-10-013	PLUG, -6 LOW HEAD (INSTALLED IN 35-15-01-201)	2
71-06-10-035	BOLT-HEX FLANGE M6 X 1.0 35MM ZINC	2
80-62-31-112	O-RING, #112 VITON	1
80-62-31-113	O-RING, #014 VITON	1
69-12-41-002	FITTING -3/8' FUEL ADAPTER	1
69-12-41-001	FITTING -5/16' FUEL ADAPTER	1
69-12-57-001	TOOL, FUEL RAIL DISCONNECT	1
69-00-01-006	SNAP RING	1

2004 RADIX TRUCK PARTS LIST

BOM#	DESCRIPTION	QTY
03-12-60-001	**S/C ACCYS, RADIX TRUCK**	
31-12-00-003	**S/A HEAT EXCHANGER, RADIX TRUCK**	**1**
68-01-00-008	HEAT EXCHANGER, RADIX TRUCK	1
65-12-60-004	BRACKET, HEAT EXHANGER MOUNT GEN 3 TRUCK	1
48-46-10-003	CLAMP HOSE #10 (CLA10)	1
48-46-00-101	FITTING, SETRAB HEAT EXCHANGER	2
48-46-00-032	FITTING -10 TO 5/8" BARB 90deg 37/45 JIC FEMALE	2
48-46-10-038	CLAMP, ADEL #38 (PUMP MOUNT)	1
74-74-25-100	SCREW, SELF TAPPING FLG HEAD, 1/4" X 1"	1
74-74-25-150	SCREW, SELF TAPPING FLG HEAD, 1/4" X 1 1/2"	2
68-01-00-060	RUBBER SANDWICH MOUNT (M6X1.0 STUDS)	4
77-73-06-100	NUT, FLG 6MM X 1.00, ZINC	10
48-46-00-069	FITTING, 1/2"NPT MALE X 5/8" HOSE MALE BARB	1
69-05-00-001	SPACER, 1.0"X .25" X 1.875"	2
71-06-10-065	BOLT-HEX FLANGE M6 X 1.0 65MM ZINC	2
71-06-10-016	BOLT-HEX FLANGE M6 X 1.0 65MM ZINC	2
82-55-00-009	HOSE 5/8"X 84" HEATER RUBBER	2
31-12-00-015	**S/A, AIR INTAKE, RADIX TRUCK**	
80-59-57-001	GASKET THROTTLE BODY, GENIII GM	1
48-46-10-024	CLAMP, #60	2
80-59-53-010	SEAL AND CLAMP, RADIX AIR INTAKE TUBES	1
35-12-60-001	MANIFOLD, BELLOWS, RUBBER, GM TRUCK KIT	1
35-20-53-002	MANIFOLD, AIR INLET TUBE, RADIX TRUCK KIT	1
85-05-20-053	EXPANSION FOAM SEALANT	1
69-35-53-003	3/8" PLASTIC PLUG #700-330	1
48-46-00-030	FITING, 1/4" NPT MALE 3/8" HOSE BARB BRASS	1
31-12-00-018	**S/A S/C, I/C PUMP & RESERVOIR, RADIX**	
68-01-03-011	RESERVOIR TANK GEN III TRUCK	1
68-01-03-022	RESERVOIR CAP, GENIII TRUCK	1
68-14-59-002	I/C PUMP	1
82-55-00-007	HOSE 3/4" X 3 1/4" COOLANT	1
48-46-10-003	CLAMP, #10	2
31-12-00-100	**S/A, S/C TO CYL HEAD BOLTS, RADIX**	
71-06-10-100	BOLT-HEX FLANGE 6MM X 1.0 X 100MM ZINC	9
31-12-00-013	**S/A, ELECTRICAL, RADIX**	
82-55-53-005	IAT WIRE ASSY	1
82-01-04-001	WIRE LOOMS, 1/4" X 24" & 34" (1PC EACH) BLACK	1
82-55-20-002	WIRE LOOM, 3/8" X 32" BLACK	1
69-90-24-004	TY-WRAP 7.5" BLACK	10
82-55-80-001	WIRE/CONN ASSY, RADIX INTERCOOLER PUMP	1
82-55-50-115	FUSE, 15AMP	1
82-55-60-101	16-14GA. RING TERM, FOR 5/16" STUD	1
82-55-40-006	T-TAP FML CNTR .250" 16-14 GAUGE	1

31-12-00-005	**S/A TENSIONER, RADIX**	
65-03-53-001	BRACKET, LOWER STRUT, IDLER SUPPORT, RADIX	1
56-50-53-006	TENSIONER, BELT	1
56-50-53-004	IDLER, RIBBED (INSTALLED ON TENSIONER)	1
71-08-12-021	BOLT-HEX FLANGE 8MM X 1.25 X 20MM ZINC	2
71-10-15-040	BOLT-HEX FLANGE 10MM X 1.5 X 40MM ZINC	1
69-90-57-001	SPACER, IDLER PULLEY	1
65-12-60-002	BRACKET, UPPER STRUT, NOSE SUPPORT, GM TRU	1
71-10-15-050	BOLT-HEX FLANGE 10MM X 1.5 X 50MM ZINC	1
71-10-15-120	BOLT-HEX FLANGE 10MM X 1.5 X 120MM ZINC	1
71-12-17-090	BOLT-HEX FLANGE 12MM X 1.75 X 90MM ZINC	1
31-12-00-020	**S/A HOSES AND FITTINGS, RADIX**	
82-55-00-002	HOSE, 3/8" X 16"	1
82-55-00-020	HOSE, 1/4" X 9"	1
48-46-00-002	FITTING, 1/4"NPT X 1/2" MALE HOSE BARB	1
71-00-06-010	BOLT-HEX FLANGE 6MM X 1.0 X 10MM, ZINC	2
69-65-30-001	TUBE, OIL FILL, SHORT	1
48-46-10-022	CLAMP, ADEL #16	2
48-46-10-019	CLAMP, HOSE #6	2
89-89-00-004	**LITERATURE KIT, RADIX TRUCK**	
89-89-00-004	MAGNACHARGER WARRANTY/REG CARD	1
91-01-01-001	6" MAGNACHARGER STICKER	1
91-91-10-001	LABEL, FUEL TANK - PREMIUM FUEL ONLY	1
91-91-60-001	LABEL, VACUUM AND BELT ROUTING DIA. RADIX TR	1
89-89-60-004	INSTALLATION INSTRUCTIONS- 03-04 RADIX TRUCK	1
83-91-00-013	LUBRICANT, "LUBRIPLATE" GREASE 3/8 OZ TUBE	1
31-12-00-030	**S/A FUEL MANIFOLD '04 RADIX TRUCK**	
35-15-01-213	MANIFOLD, FUEL, GEN III RADIX	1
69-51-10-013	PLUG, -6 LOW HEAD (INSTALLED IN 35-15-01-213)	2
71-06-10-035	BOLT-HEX FLANGE M6 X 1.0 35MM ZINC	2
80-62-31-112	O-RING, #112 VITON	1
80-62-31-113	O-RING, #014 VITON	1
69-12-41-002	FITTING -3/8' FUEL ADAPTER	1
69-12-57-001	TOOL, FUEL RAIL DISCONNECT	1
31-12-00-026	**S/A FUEL PUMP, IN-TANK FUEL PUMP, 2004 RADIX**	
88-85-60-030	FUEL PUMP, IN-TANK	1
88-85-60-031	FUEL PUMP, INLET SCREEN	1
88-85-60-032	FUEL PUMP SLEEVE, 2004 RADIX TRUCK	1
48-46-05-002	CLAMP, CRIMP	1
82-55-60-110	16-14 GAUGE FEMALE SPADE, BLUE SHRINK	2
82-55-00-026	HOSE, 5/16' X 7 3/4" FI SPEC	1