

banks

with Installation Instructions
Owner's Manual

**Banks
Monster-Ram®
Intake and Grid
Heater Delete Kit
For Racing Only**

Cummins 6.7L ISB 1st/2nd Gen

THIS MANUAL IS FOR USE WITH SYSTEM 42788, 42788-PC,
42790, 42790-PC, 43209, 42712 AND 42714

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General Installation Practices

Dear Customer,

If you have any questions concerning the installation of your Banks Monster-Ram Intake System, please call our Technical Service Hotline at (888) 839-2700 between 7:00 am and 4:00 pm (PT). If you have any questions relating to shipping or billing, please contact our Customer Service Department at (888) 839-5600.

Thank you.

1. For ease of installation of your Banks Monster-Ram Intake, please familiarize yourself with the procedures by reading the entire manual before starting work.
2. Disconnect the ground cable from the battery before beginning work. If there are two batteries, disconnect both.
3. Route and tie wires a minimum of 6 inches away from exhaust heat, moving parts and sharp edges. Clearance of 8 inches or more is recommended where possible.
4. The installation should be performed at a time when the vehicle has been allowed to completely cool. This installation requires the installer to work near surfaces that may remain hot after the vehicle has been run. Failure to allow the vehicle to cool may result in personal injury.
5. During installation, keep your work area and components clean to avoid possible dirt entry into the engine.
6. Banks recommends that a Pyrometer (EGT) gauge and a Boost gauge be installed to monitor performance and exhaust gas temperature of the vehicle.

Tools Required:

- Inch and metric combination or open-end wrenches
- 19 mm flare nut wrench
- Inch and metric sockets
- Standard and flat head screwdrivers
- T15 Torx driver
- Torque wrench (10-30 lb-ft)
- Gasket scraper

Important note: Before you begin any of the steps, you must be sure of two things:

(1) Please confirm that you already have the *custom fuel line* from Banks Power, as the Monster-Ram (both the 3.5" and the 4.0" version) will not function without it.

(2) If you are installing the 4.0" Monster-Ram, please note that the stock boost tubes will not fit.

(3) This product is for racing only and may require ECM reconfiguration.

In either of the above cases, please contact Banks Power for assistance.

WARNING!

The High Pressure Fuel Line (HPFL) must be installed exactly as instructed in step 28 and 49. The HPFL provided in the Banks Power Monster Ram kit is a one-time use item and cannot be reused. Failure to install a new HPFL by following the instruction in this manual anytime the HPFL is removed may cause fuel leaks or fuel line failures.

Stock Ram Removal

1. Disconnect the negative cables from both batteries.
2. Remove the engine oil dipstick. Then remove the 4 bolts retaining the plastic engine cover using a 10 mm socket. Reinsert the dipstick.
3. Unplug the two EGR connectors (see **Figure A**), the throttle connector (on the throttle), the MAP connector, and the thermocouple connector (if equipped) located on the back of the stock intake elbow.
4. Remove the two harness clips from the studs on the stock intake elbow to allow the harness to be pulled away from the intake elbow. See **Figure B**.
5. Remove the EGR tube by removing the two V-band clamps on the ends of the tube using a 7/16 or 11 mm deep socket. Using an 8mm socket, remove the bolt retaining the tube at the center

of the tube. The radiator hose may need to be pushed down to allow access to this screw. See **Figure A**.

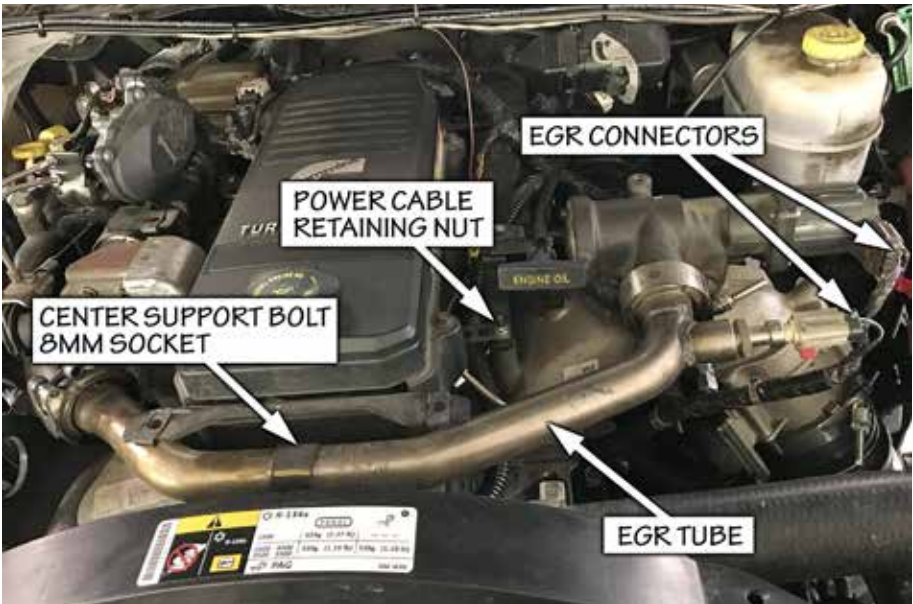
6. Remove the bolt that holds the dipstick on the intake. Save the bolt for reuse. Gently push and move the dipstick tube out of the way as needed.

7. Remove the nut connecting the heater power cable to the heater (see **Figure C**). Remove the nut retaining the power cable to the stock intake elbow (See **Figure A**). Move the cable out of the way.

8. Loosen the clamp that holds the rubber hose at the inlet of the stock intake elbow and slide the hose free of the inlet. Save the clamp for re-use.

CAUTION: Cover the intercooler up-pipe opening with a clean rag to prevent foreign objects from entering the intake tract.

Figure A



Stock Ram Removal, *cont.*

Figure B



9. Remove the 6 bolts at the base of the stock intake elbow and remove the intake elbow from the intake manifold, being careful to not knock any debris into the intake through the electric grid heater.

CAUTION: Cover the opening in the intake manifold with a clean rag to prevent foreign objects from entering the engine.

Figure C



Banks Grid Heater Delete Kit Installation

If not installing Banks Grid Heater Delete Kit proceed to the Banks Monster-Ram Installation on page 11.

Caution: It is important that no debris or contaminants are allowed into the intake manifold. Take care to cover the open manifold when possible and ensure that no debris gets into the intake manifold. Ensure this area remains clean.

10. Disconnect the three connectors on the passenger side of the engine shown in **Figure D** and pull the harness clip from the stud so this section of the harness can be moved to the driver's side of the engine.

11. Disconnect the two blue fuel injector connectors and the CCV pressure sensor connectors on the driver's side of the engine. See **Figure E**.

12. Disconnect the Fuel Rail Pressure sensor connector at the back of the fuel rail and Intake Air Temperature sensor connector. See **Figure E**.

13. Pull the harness clips from the rail mounting studs and move the harness out of the way.

14. Unscrew the two PCV lines from the side of the valve cover and move them out of the way. See **Figure F**.

15. On 2nd Gen 6.7L Cummins ISB engines, remove the sound deadening foam rubber covering the fuel lines. See **Figure E**.

Figure D



Banks Grid Heater Delete Kit Installation, *cont.*

Figure E

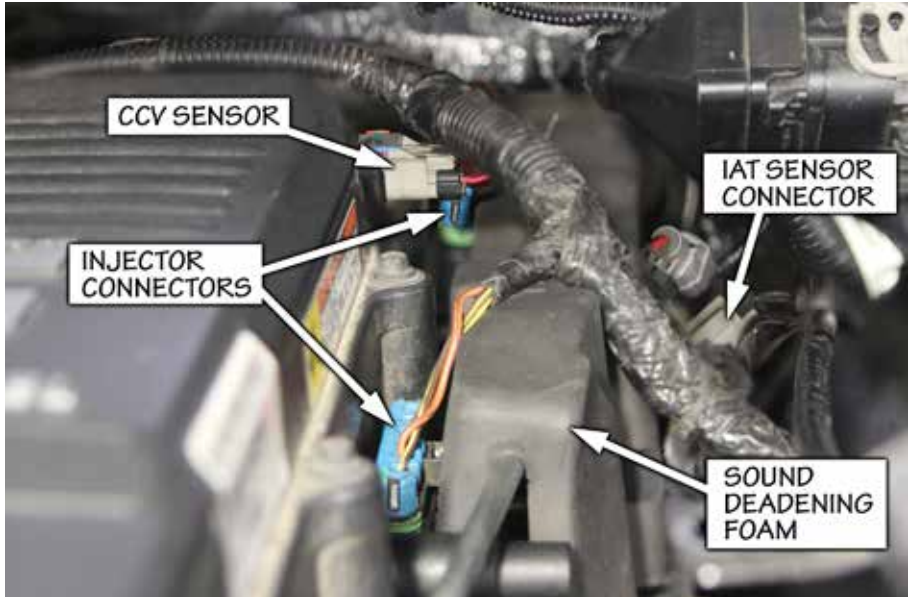
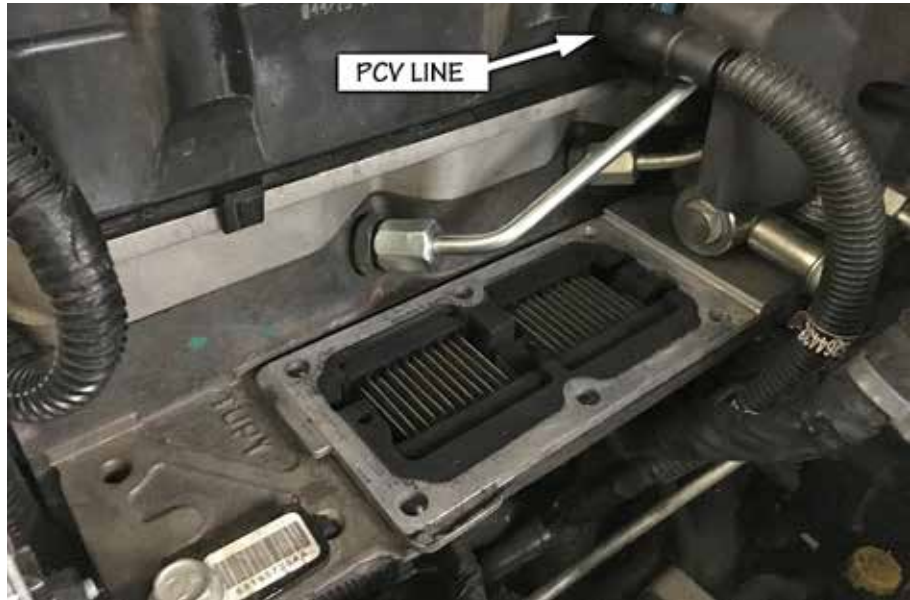


Figure F



16. Remove the nut retaining the dipstick tube mount and move the dipstick tube out of the way. See **Figure G**.

17. Remove the banjo bolt and washers for the fuel return line located on the front side of the fuel rail. Be careful to not lose the washers as they are needed for reinstallation. See **Figure G**.

18. Remove the fuel supply line connecting to the side of the fuel rail in the center of the rail using a 19 mm flare nut wrench to loosen the tube nuts on both ends. See **Figure G**.

19. Remove all six injector lines using a 19 mm flare nut wrench to loosen the tube nuts on both ends of each line starting with #1 and working back to #6.

Note: With the engine off there is not high pressure in these fuel lines. They are safe to remove. They may leak some fuel so placing a shop rag below the fittings will minimize the fuel dripping onto the engine.

Note: Make sure to wear safety glasses when performing this step.

Note: Mark each line with its number to aid in reinstallation.

20. Remove the four bolts retaining the fuel rail using a 10 mm socket. Remove the fuel rail.

21. Remove the Intake Air Temperature sensor from the grid heater plate using a 1" wrench.

22. Remove the four remaining bolts retaining the grid heater plate and remove the plate.

23. Chase the treads of the fourteen M8x1.25 tapped holes in the intake plenum to ensure they are clean. Remove any remnants of the stock gasket from the intake plenum being careful to not allow any debris into the intake plenum. Clean and dry all sealing surfaces thoroughly.

24. Install the Intake Air Temperature sensor into the Banks Grid Heater Delete Plate in the threaded port provided.

25. Place the Banks Grid Heater Delete Gasket (the longer of the two gaskets) on the intake plenum with the tab towards the front of the engine. Then place the Banks Grid Heater Delete Plate onto the gasket with the opening towards the front of the engine.

26. Apply medium strength thread lock to the 4 bolts removed in **step 22** and reinstall these 4 bolts. Torque these bolts to 18 lb-ft. Cover the opening in the plate to prevent debris from getting into the intake manifold.

Note: Once the thread lock is applied to the screw it must be torqued to 18 lb-ft within 10 minutes before the thread lock begins to set-up and harden.

27. Apply medium strength thread lock to the 4 bolts used to retain the fuel rail. Using the 4 supplied spacers under the fuel rail, reinstall the 4 bolts retaining the fuel rail to the Banks Grid Heater Delete Plate.

28. Reinstall the six injector lines in correct order using the markings you made when removing. Install the fuel line nuts until finger tight. Gently shake and position the line for best alignment while snugging the nuts with a 19mm flare nut wrench. Snug the fuel rail nut before snugging injector nut. Torque the fuel rail nut to 30 lb-ft first before torquing injector nut to 30 lb-ft. *Note: If installing the Banks Monster-Ram, replace fuel line #1 with the line from Banks made specifically for the Banks Monster-Ram.*

29. Reinstall the fuel supply line (30 lb-ft) and the banjo bolt (18 lb-ft) and washer for the fuel return line.

30. Reinstall the dipstick tube mount and secure to the fuel rail mounting stud with the nut previously removed.

Banks Grid Heater Delete Kit Installation, *cont.*

31. Reinstall the sound deadening foam rubber covering the fuel lines if removed.

32. Reconnect the two blue fuel injector connectors along with the CCV pressure sensor connector and Fuel Rail Pressure sensors connector at the rear of the rail.

33. Reconnect the IAT sensor connector. If installing on a 2nd Gen 6.7L Cummins engine, install the supplied extension harness included in the Banks Grid Heater Delete kit (#42714) between the sensor and the factory harness connection.

34. Push the harness clips back onto the rail mounting studs to secure the harness.

35. Reconnect the three harness connections on the passenger's side of the engine and push the harness clip back onto the stud.

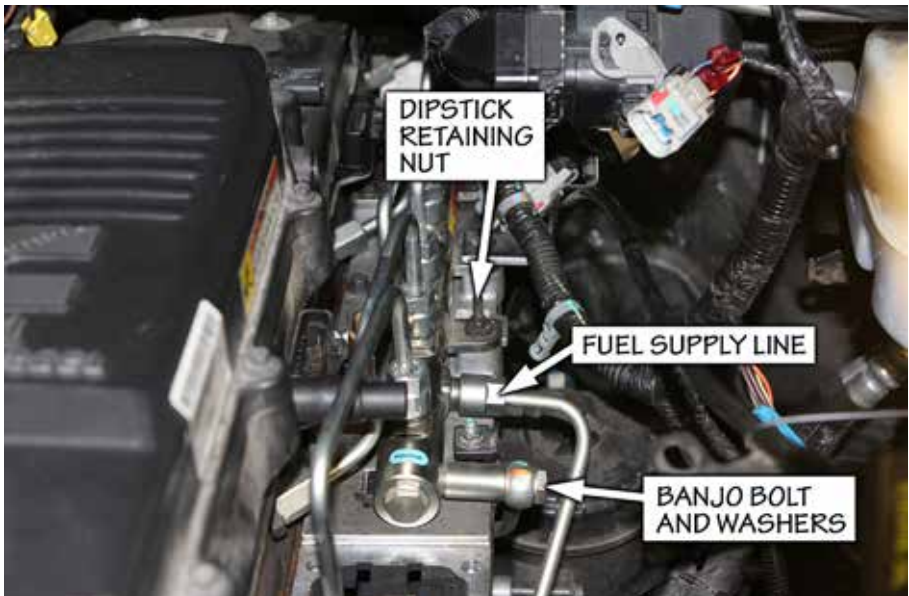
36. Reconnect the PVC line to the side of the engine.

37. Install dual wall heat shrink over the end of the heater power cable or seal with electrical tape to prevent shorting to ground. If using dual wall heat shrink, the heat shrink should be installed to overhang the terminal end of the cable. Apply heat the heat shrink tubing until it shrinks tight to the cable. Pinch the end of the heat shrink tubing to seal the end of the terminal. Secure the cable out of the way of rotating components and away from sources of heat using the supplied zip ties.

If installing the Banks Monster-Ram proceed to the Banks Monster-Ram Installation section. If not installing the Banks Monster-Ram continue to step 38.

38. Remove the covering you added from the opening in the Banks Grid

Figure G



Heater Delete Plate and place the supplied gasket over the opening.

39. Apply medium strength thread lock to the 6 bolts that secure the intake elbow. Install the intake elbow and secure with the 6 bolts. Torque these bolts to 18 lb-ft.

40. Reconnect the boost hose to the inlet of the intake elbow and tighten the hose clamp to secure the hose.

41. Reinstall the bolt securing the dipstick tube to the stock intake elbow. Tighten to 14 lb-ft.

42. Reinstall the EGR tube. Make sure the gasket is installed between the tube and the EGR valve on the stock intake elbow. Tighten the two V-bands clamps and the mounting bolt at the center of the EGR tube.

43. Reconnect the two EGR connectors, the throttle connector, the MAP connector, and the thermocouple connector, if equipped, and reinstall the two harness clips onto the stock intake elbow.

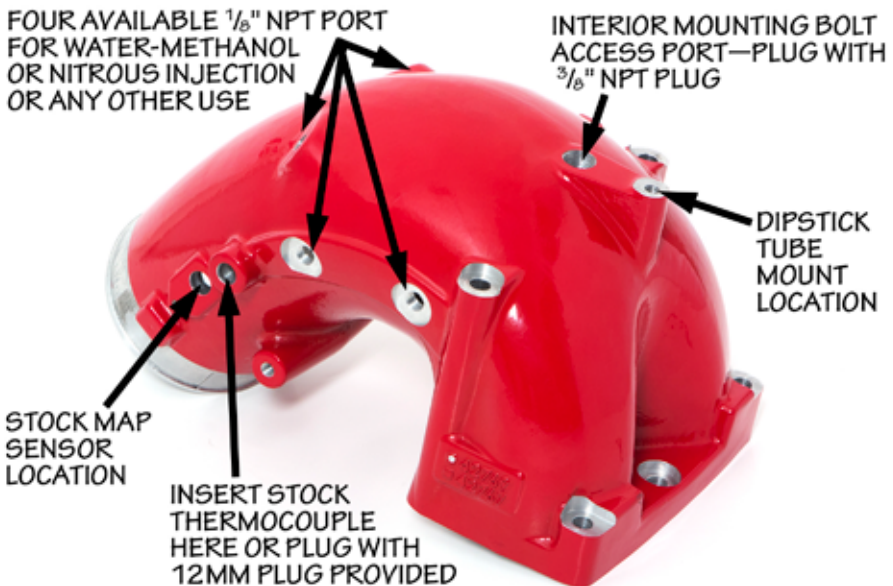
44. Reinstall the plastic engine cover.

45. Reconnect the two battery ground cables.

46. Go over the installation making sure that all fasteners are tight and the harnesses and hoses are secure and out of the way of rotating components and sources of heat.

This completes the installation of the Banks Grid Heater Delete kit.

Figure H



Banks Monster-Ram Installation

47. Remove the MAP sensor and thermocouple (if equipped) from the stock intake elbow and install them on the Banks Monster-Ram. If the vehicle does not have the thermocouple installed, use the supplied 12mm plug to plug this opening. Apply medium-strength thread lock when installing this plug.

48. The Banks Monster-Ram comes with four 1/8" NPT ports that can be used for Banks Water Methanol injection or instrumentation. If any of these ports are not to be used, install the supplied 1/8" NPT plugs with thread sealant to plug the unused ports. See **Figure H**.

49. Replace the stock fuel line for cylinder #1 with the fuel line from Banks made specifically for the Banks Monster-Ram. Install the fuel line nuts until finger tight. Gently shake and position the line

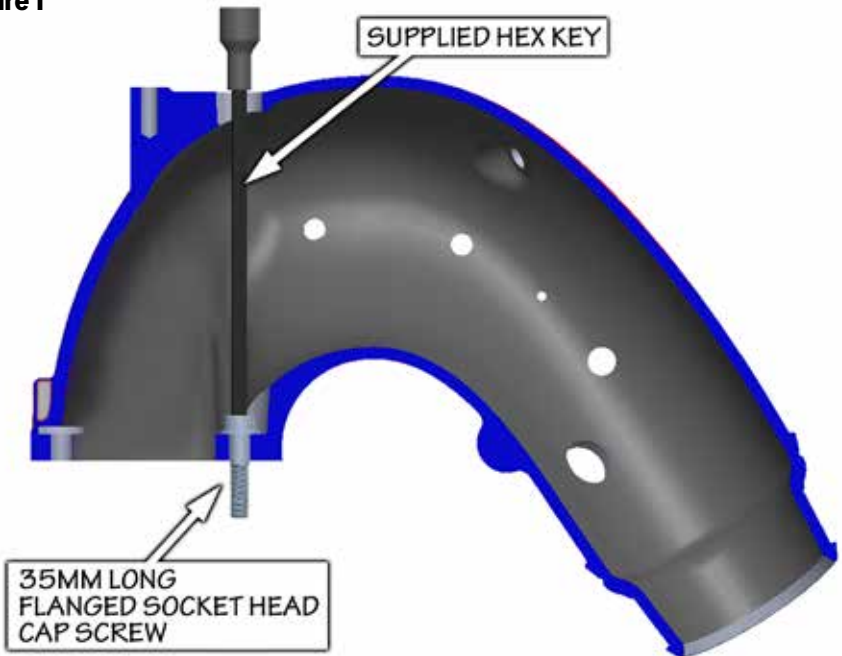
for best alignment while snugging the nuts with a 19mm flare nut wrench. Snug the fuel rail nut before snugging injector nut. Torque the fuel rail nut to 30 lb-ft first before torquing injector nut to 30 lb-ft.

The sound deadening foam rubber covering over the fuel lines must be moved out of the way to access one end of the fuel line. (If you have installed the Banks Grid Heater Delete this step has already been done.)

Note: With the engine off there is not high pressure in the fuel line. It is safe to remove. It may leak some fuel so placing a shop rag below the fittings will minimize the fuel dripping onto the engine.

Note: Make sure to wear safety glasses when performing this step.

Figure I



50. Remove the covering over the opening in the heater plate. Chase the treads of the six M8x1.25 tapped holes in the intake plenum to ensure they are clean. Remove any remnants of the stock gasket from the intake plenum being careful to not allow any debris into the intake plenum. Clean and dry all sealing surfaces thoroughly. Place the Intake Gasket onto the heater plate.

51. Apply medium strength thread lock to one of the provided 35mm long flanged socket head cap screws. Insert this screw from inside the Monster-Ram as show in **Figure I**. Insert the supplied hex key through the 3/8" NPT port on the top of the Monster-Ram and into the socket head of the flanged screw.

Note: Once the thread lock is applied to the screw it must be torqued to 18 lb-ft within 10 minutes before the thread lock begins to set-up and harden.

52. Carefully holding the hex key to keep the flanged screw in place set the Monster-Ram onto the heater plate over the Intake Gasket. Start the flanged screw into the threaded hole using the hex key but do not tighten completely. This step can be challenging but it is critical that the screw be kept in the hole through the flange so that it does not drop into the intake plenum.

53. Apply medium strength thread lock to the other five socket head cap screws. Insert the other flanged screw in the middle of the Monster-Ram on the other side. Insert the two 150mm long screws with washers and the two 55 mm long screws with washers in the other 4 holes in the Monster-Ram and get all screws started in their holes. Make sure the gasket remains in place. Adjust the gasket position as needed to get all 6 screws started. See **Figure J**.

54. Tighten the 6 screws to 18 lb-ft. Take care to not over tighten and strip out the treads.

55. Apply medium strength thread lock to the provided 3/8" NPT plug and use it to plug the 3/8" NPT port.

56. Move the stock dipstick tube over the Monster-Ram and align the hole in the bracket on the tube with the boss on the top of the Monster-Ram. Reusing the stock bolt, secure the dipstick tube to the Monster-Ram. Tighten to 14 lb-ft.

57. Reconnect the MAP connector and thermocouple connector (if equipped) to the sensors.

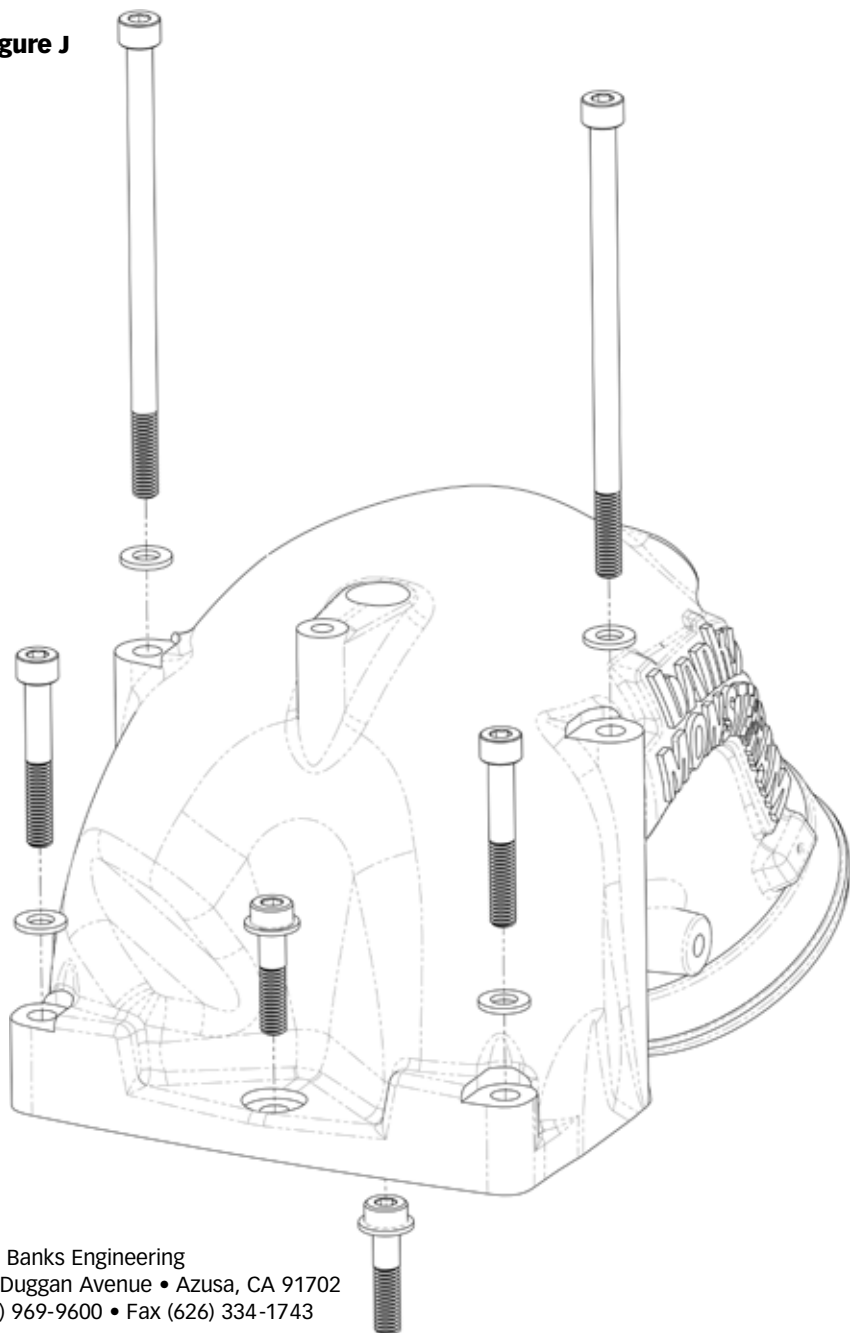
58. The installer must reconfigure the EGR system into a racing configuration to work with the Monster-Ram. This is the responsibility of the installer and is not part of the kit supplied by Banks Power.

59. If installing a Banks 3.5" Monster-Ram, reinstall the stock boost hose onto the inlet of the 3.5" Monster-Ram and tighten the stock clamp to secure the hose. If installing a Banks 4" Monster-Ram install the transition boost hose onto the Monster-Ram with a 4" clamp and connect to the 3.5" boost tube using a 3.5" clamp. Tighten both clamps to 100 in-lbs.

60. If desired, the plastic engine cover can be reinstalled using the four bolts previously removed.

61. Reconnect the batteries. Go over the installation making sure that all fasteners are tight and the harnesses and hoses are secure and out of the way of rotating components and sources of heat. *The Banks Monster-Ram installation is now complete*

Figure J



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