



RIVA RACING
PERFORMANCE PRODUCTS & ACCESSORIES

SVHO Pro-Series Power Cooler Kit

PART# -RY17080-PC

APPLICATION(S): Yamaha FZ/FX-SVHO

Note: RIVA Racing recommends the use of part # RY10080-ECUK-PC, Pro Series Cooling Kit, with this Power Cooler.

We strongly recommend the use of a service manual to familiarize yourself with the various components and procedures involved with this installation. Please note that some of the original clamps, hoses and hardware removed in the disassembly process will be used in the installation process. These instructions have been written in point form and refer to illustrations. Read through instructions entirely before performing installation. Please follow these step-by-step instructions and illustrations carefully.

NOTE: These installation instructions are broken up into 2 sections.

Section 1 outlines installation process for RIVA Pro-Series Power Cooler.

Recommended tools
Service Manual

Part#
CALL

Section 2 outlines how to modify intake manifold for HKS S.S.Q.V. Blow-off Valve.

Required tools
1/8" NPT Tap
21/64" Drill Bit

Part#
N/A
N/A

Recommended tools
Service Manual

Part#
CALL

- SECTION 1 INSTALLATION INSTRUCTIONS -

(POWER COOLER KIT INSTALLATION PROCEDURE)

***** NOTE: Allow craft's engine to cool thoroughly before performing installation. *****

- INSTALLATION INSTRUCTIONS -

1. Disconnect battery cables. **NOTE: Negative (black) first. Positive (red) second.**
2. Remove seats and rear storage bin.
3. Remove engine cover. Remove brackets (2) on right side of valve cover for plastic engine cover. (see illustration #1-1)
4. While holding a heavy shop rag under fitting disconnect fuel supply hose from front of engine fuel supply rail. (see illustration #1-1) **NOTE: Fuel system is under pressure. Use care when disconnecting.**
5. Disconnect electrical connectors at spark plug coils and fuel injectors.
6. Remove bolts (3) securing fuel rail to intake manifold.
7. Lift up on fuel rail to remove fuel injectors from intake manifold. Raise front of fuel rail up and move towards back of engine. You will need to disconnect several electrical connectors during this step. Store fuel rail assembly vertically in engine compartment to right of electrical box.
8. Reach down alongside intake manifold to locate hose clamp connecting throttle body to 'J' pipe. (see illustration #1-2) Loosen clamp securing 'J' pipe to throttle body.
9. At top of intake manifold remove bolts and cap nuts securing intake manifold to engine. (see illustration #1-3) At rear of intake manifold disconnect electrical connector at map sensor.
10. Remove intake manifold by lifting up and away from motor.
11. Loosen clamp securing 'J' pipe to stock intercooler. Remove & discard 'J' pipe & hose clamps.
12. On intake manifold remove zip tie boss at front using a saw or cut-off wheel. (see illustration #1-4)
 - If you plan to use the recommended HKS SSQV Blow-off Valve proceed to page 13. Otherwise proceed to step 13
 - If you plan to install a RIVA Intake Manifold Upgrade Kit do so now before proceeding to step 13.
13. Replace intake manifold. Follow torque sequence on illustration #1-3. **NOTE: Apply blue Loc-tite to bolts. Torque the 8 manifold bolts and 2 cap nuts to 10N·m (7.4 lbf·ft) first and then 20 N·m (14.8 lbf·ft). Torque the 2 intake manifold support bolts to 22 N·m (16.2 lbf·ft) first and then 42 N·m (31 lbf·ft).**
14. Reconnect map sensor. Replace fuel rail making sure fuel injectors are installed completely into intake manifold. **NOTE: Apply blue Loc-tite to bolts. Do not over tighten bolts.**
15. Reconnect all electrical connections disconnected during step 7.
16. At front of engine remove hoses (2) between air box & supercharger and supercharger & stock intercooler. (see illustration #1-5)
17. Cover supercharger air outlet with masking tape to prevent debris from entering. (see illustration #1-6)
18. Remove intercooler support bracket. (see illustration #1-6) **Note:** Remove bolts securing intercooler to bracket first and bolts securing bracket to engine second. Discard bracket and bolts.
19. Remove bolts (6) securing supercharger to motor. Remove supercharger unit by lifting straight up. Store on a clean surface.

20. Cover opening on front of engine left when supercharger was removed to prevent debris from entering. (see illustration #1-7)
21. At reverse lever reach up behind hood cowling and disconnect reverse cable from lever. (see illustration #1-8) Remove the brass nuts (2) securing reverse cable bracket to hull. (see illustration #1-8) Pull cable down into engine compartment and lay over towards left side of craft.
22. At top of stock intercooler disconnect cooling outlet hoses(2). (see illustration #1-9)
23. Locate intercooler cooling outlet fittings. (outside hull below bond line directly below steering at right). (see illustration #1-27) Remove both nuts securing outlet fittings to hull. Remove intercooler cooling outlet hoses with fittings from inside of hull.
24. Remove cooling lines from fittings. Install supplied light duty (shiny black) vacuum caps on outlet fittings. Secure caps on fittings using stock spring clamps. (see illustration #1-28) Reinstall fittings in hull. **NOTE: Do not over tighten nuts.**
25. At bottom of stock intercooler remove cap nut securing intercooler to engine mount stud. (see illustration #1-7)
26. Lift intercooler up and lean forward. Remove cooling inlet hose from bottom of intercooler. (see illustration #1-10)
27. Remove intercooler and discard. Remove shim on stud for intercooler and discard.
28. **FZ Models ONLY:** Unfasten cable tie & remove steering cable from cable tie bracket. Remove cable tie bracket. Grind off rivets (2) flush with hull. (see illustration #1-11)
29. At this point, install engine / intercooler cooling kit. RIVA Racing recommends the use of part number RY10080-ECUK-PC. (refer to instructions for Riva SVHO Cooling Kit, part # RY10080-ECUK-PC)
30. Install recommended blow-off valve or block-off plate onto intercooler. Place o-ring into o-ring groove in intercooler. Prior to installing blow-off valve install spring clip onto blow-off valve flange.
31. While holding blow-off valve or block-off plate in place install spring clip. Ensure spring clip 'snaps' into place all the way around. **Note direction blow-off valve is facing. (see illustration #1-12)**
32. Disconnect electrical connectors (4) for spark plug coils. Trace wire for cam position sensor back to its connector and disconnect. Remove breather hose. (see illustration #1-13)
33. Remove bolts holding ignition coils in place (8). Remove ignition coils by pulling straight up on coil.
34. Remove bolts (8) securing valve cover to cylinder head. Remove valve cover by lifting straight up. Cover valve train with a clean rag or new shop towel. (see illustration #1-14)
35. Apply masking tape to front edge of engine compartment. (see illustration #1-14) Remove oil level gauge stick.
36. Carefully install intercooler into hull. **1)** Rotate so that flush kit end is facing fuel tank. (see illustration #1-15) **2)** As you slide into begin to rotate intercooler so that it becomes level. (see illustration #1-16) **3)** Slide intercooler to right while rotating and place against side of hull under steering cable. (see illustration #1-17)
37. Replace applicable parts removed during steps 32, 33 and 34. **NOTE: Apply blue Loc-tite to bolts. Do not over tighten bolts.**
38. Place supplied intercooler bracket into hull at front of engine. While lifting intercooler up sneak bracket in and up between inlet pipe so that lower bracket mount can be placed onto stud on engine. (see illustration #1-18)
39. Continue lifting intercooler while rotating bracket towards engine to allow bracket to slip into place on intercooler. (see illustration #1-18) Loosely install supplied M10 socket head cap bolts (2) with washers where bracket is secured to front of motor. (see illustration #1-19) **NOTE: Apply red Loc-tite to bolts.**

40. Loosely install supplied M10 nut, lock washer and flat washer (1 each) onto stud on engine at lower bracket mount. (see illustration #1-18)
41. Secure intercooler to bracket using supplied M8 socket head cap bolts (4) and fender washers. (see illustration #1-20) **TIP: Loosely install top bolts first. NOTE: Apply blue Loctite to threads. Do not over tighten bolts.**
42. Torque intercooler bracket bolts (2) and stud nut (1) each to 31 ft-lb. **NOTE: Steering cable should route alongside and over top of intercooler.** Install supplied 'J' hose between intercooler outlet flange and throttle body. Secure using supplied #44 hose clamps. **TIP: Apply a generous amount of glass cleaner to inside of 'J' hose. Place hose clamp on intercooler flange prior to installing 'J' hose. NOTE: Do not over tighten clamps. Check hose and clamp alignment using a mirror.**
43. Install cooling lines onto fittings at front of intercooler. Cooling inlet waterline attaches to lower fitting. Cooling outlet waterline attaches to upper fitting. (see illustration #1-21) Secure using supplied clamps. **NOTE: Do not over tighten clamps. Check hose and clamp alignment using a mirror.**
44. Replace reverse cable. **NOTE: Make sure cable end is secured onto lever properly. Do not over tighten nuts.** Install supplied coupler onto intercooler inlet pipe completely. Loosely install one supplied coupler clamp.
45. On top of supercharger gear housing remove the small bolt and gasket (washer). (see illustration #1-22) While rotating supercharger impeller add Yamalube 4M engine oil to pre-lubricate impeller shaft.
46. Inspect lubrication port gasket (washer). If deformed or severely crushed replace with new gasket (washer). Order part# [6S5-14199-00-00](#). Install bolt and gasket (washer). **NOTE: Do not apply Loc-tite. Torque bolt to 3 ft-lb.**
47. Inspect underside of supercharger gear housing. Make sure o-ring is in o-ring groove and there are no foreign objects present. Apply a thin layer of grease onto o-ring.
48. Loosely install other supplied coupler clamp onto supercharger outlet. Install supercharger unit onto engine without bolts in place. (see illustration #1-23) **NOTE: Make sure locator pins (2) are in place.** Secure using stock hardware. **NOTE: Apply blue Loc-tite to bolts. Torque the four M8 bolts to 14.8 ft-lb and the two M6bolts to 7.4 ft-lb.** (see illustration #1-24)
49. Slide coupler down onto supercharger outlet enough so it can be secured to both the supercharger and intercooler evenly. (see illustration #1-26) **NOTE: Do not over tighten clamps.**
50. If using recommended HKS SSQV Blow-off Valve install vacuum hose supplied with blow-off valve. Route hose under fuel rail. (see illustration #1-25) **NOTE: Longer end of hose connects to blow-off valve. Shorter end connects to fitting installed at rear of intake manifold. It will be necessary to trim excess hose from longer end.**
51. Secure vacuum hose to blow-off valve, intake manifold fitting and fuel rail supports using supplied zip ties. Route fuel supply hose towards motor between intercooler and intercooler inlet pipe.
52. Reconnect fuel supply hose to fuel supply rail. **TIP: Apply a thin coat of engine oil onto fitting. NOTE: Make sure connector is installed onto fitting completely and locking clip is secure.**
53. Replace air intake system. **NOTE: Do not over tighten clamps.**
54. Replace rear grab handle/seat support. **NOTE: Apply blue Loc-tite to bolts. Do not over tighten bolts.**
55. Replace engine cover brackets. **NOTE: Apply blue Loc-tite to bolts. Do not over tighten bolts.**
56. Replace plastic engine cover.

57. Reconnect battery cables. **NOTE: Positive (red) first. Negative (black) second.** Check bilge for tools, rags, etc. Start craft and run using stock Yamaha flush kit to check for proper operation.

IMPORTANT MAINTENANCE TIP: To assure optimal performance with this kit extra care must be used with flushing the cooling system after riding. After flushing the craft using the stock Yamaha flush kit you must flush the intercooler using the supplied flush kit. When doing so we strongly recommend the use of a salt /deposit remover such as Salt-Away® which can be purchased through RIVA Racing's parts department. When flushing with a salt/deposit remover do not flush with fresh water afterwards. Allow salt/deposit remover to remain in cooling system. This will prevent build up of salt and/or mineral deposits from water left in cooling system that could clog intercooler core.

***Remember, the water belongs to everyone.
Please ride responsibly and respect the environment!***

Technical Support

For answers to questions regarding installation or trouble shooting RIVA Performance Products contact: RIVA Technical Support directly at (954) 247-0705 or by e-mail at tech_support@rivamotorsports.com.

Limited Warranty

This RIVA Power Cooler carries a 90 day limited warranty to the original purchaser. They are warranted to be free of defects in materials and workmanship under normal use and service. Customer modified components will be void of warranty. This warranty is limited to defects in the primary components only. Finish and/or wear marks in or on primary components are not covered under this warranty.

RIVA Racing's liability is expressly limited to the repair or replacement of the components contained within or associated with this kit. RIVA Racing agrees to repair or at RIVA's option, replace any defective unit without charge, if product is returned to RIVA Racing freight prepaid within the warranty period. Any equipment returned which, in RIVA's opinion, has been subjected to misuse, abuse, overheating or accident shall not be covered by this warranty.

RIVA Racing shall have no liability for special, incidental or consequential damages or injury to persons or property from any cause arising from the sale, installation or use of this product.

No other warranty, express or implied, including, but not limited to the implied warranties of merchantability and fitness for a particular purpose, applies. Various states do not allow for the limitation of incidental or consequential damages and therefore the above exclusion or limitation may not apply to you.

Warranty does not include the expenses related to freight or transportation of parts or compensation for any inconvenience or loss of use while being repaired. A copy of the original invoice and a Return Authorization Number (RA#) must accompany all warranty claims. Warranted replacement parts will be returned freight collect.

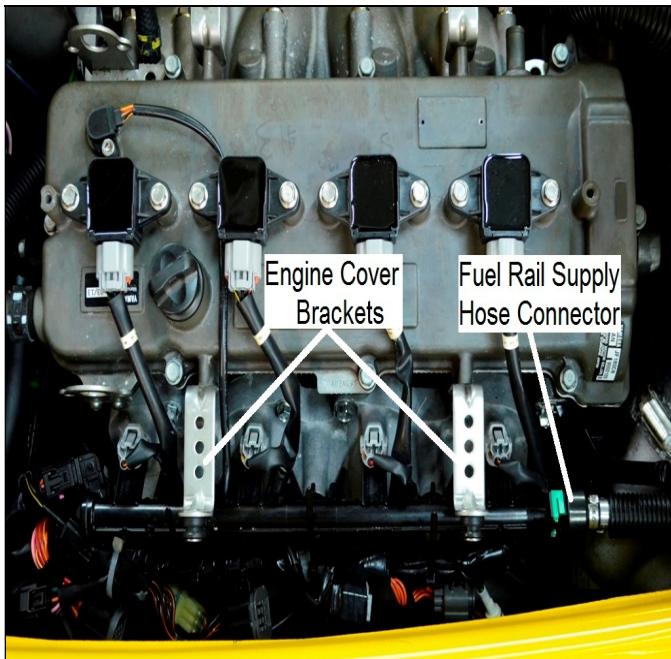


Illustration #1-1

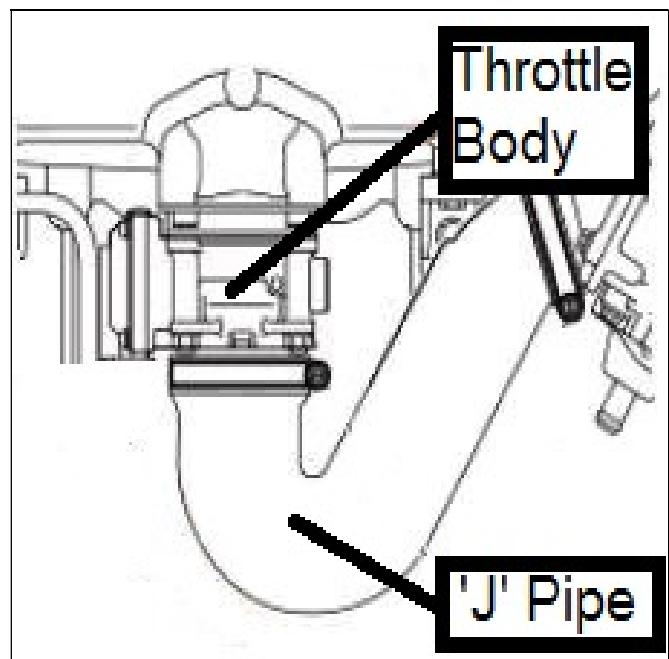


Illustration #1-2

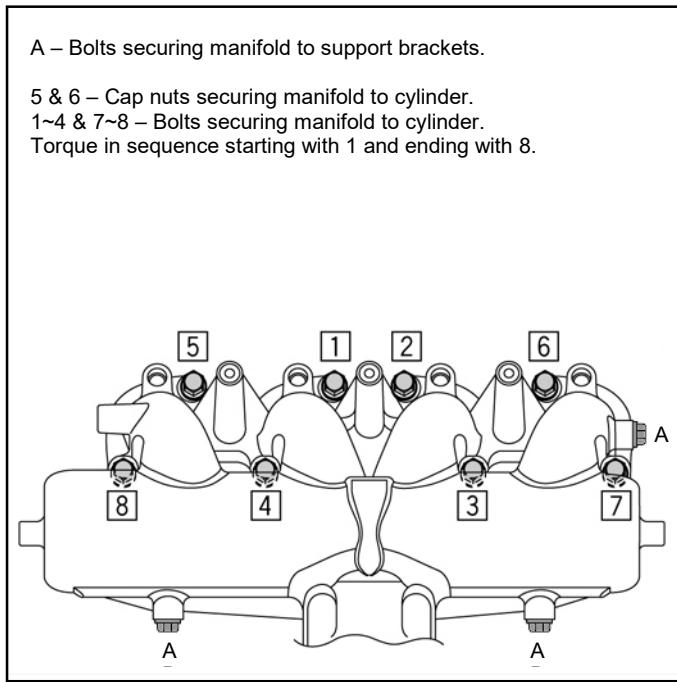


Illustration #1-3

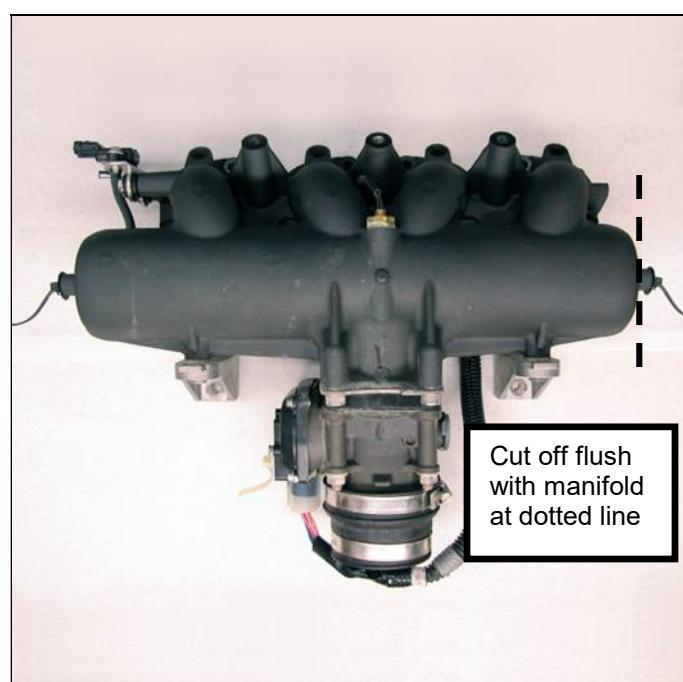


Illustration #1-4

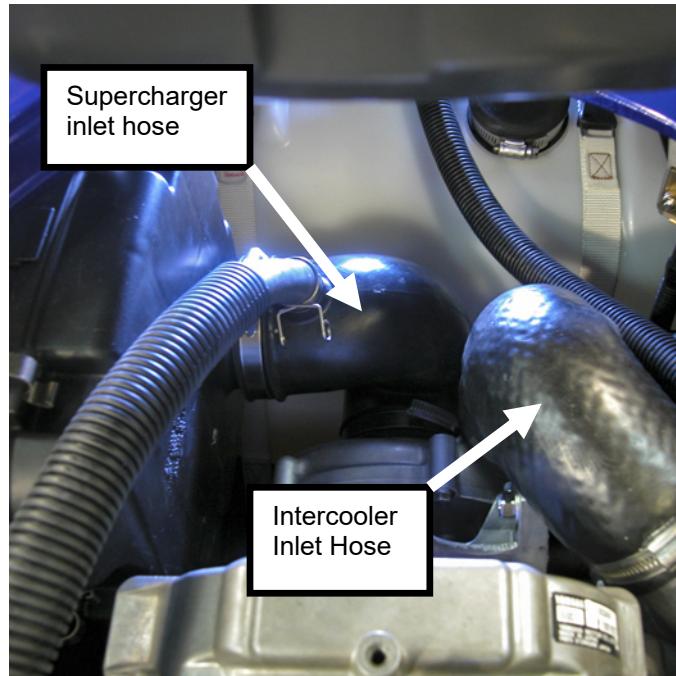


Illustration #1-5

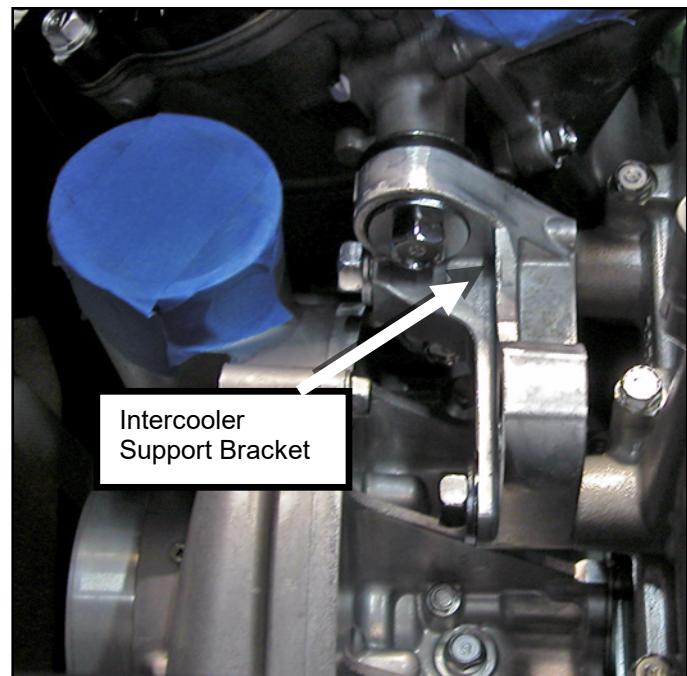


Illustration #1-6

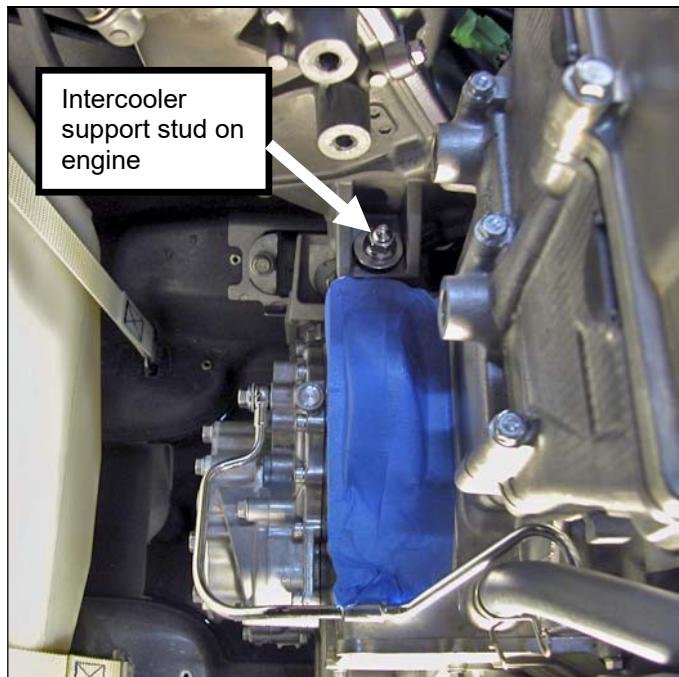


Illustration #1-7

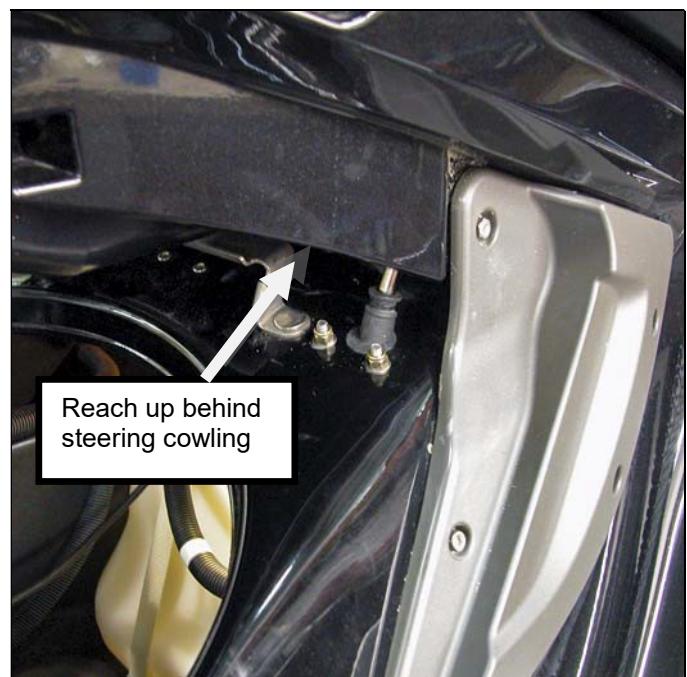


Illustration #1-8



Illustration #1-9

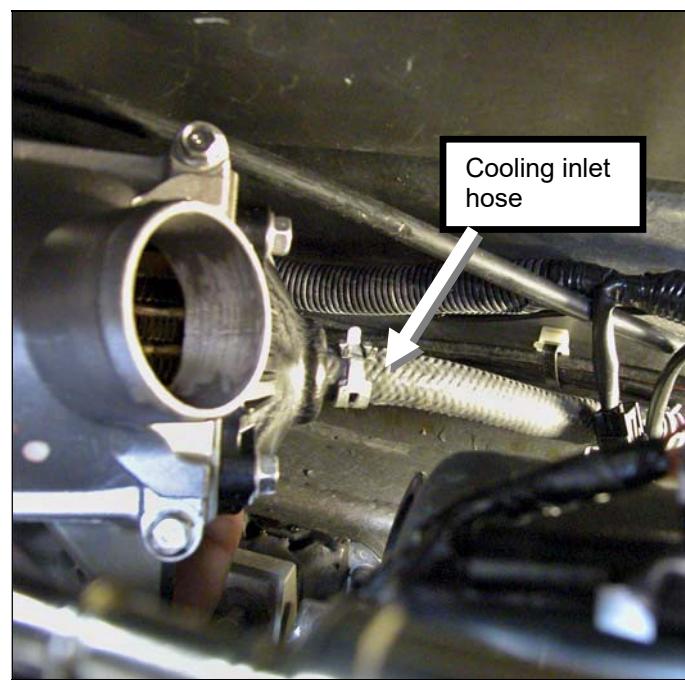


Illustration #1-10

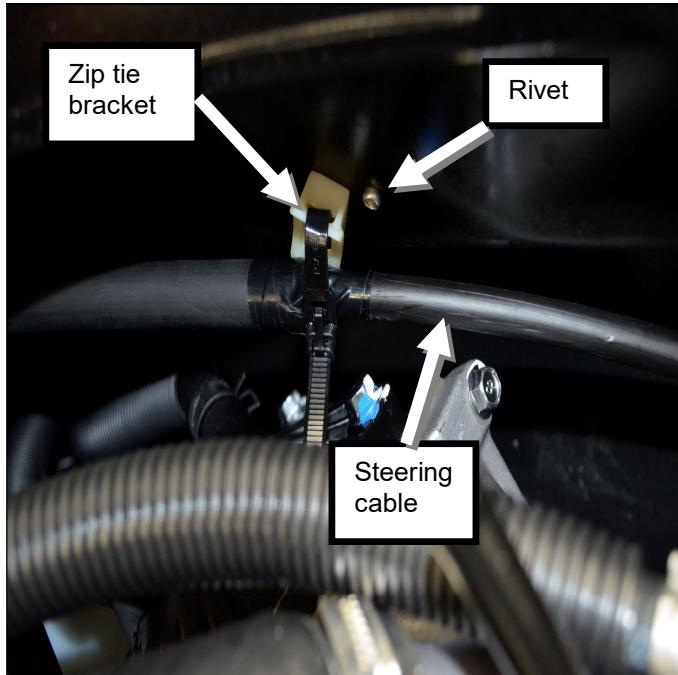


Illustration #1-11



Illustration #1-12

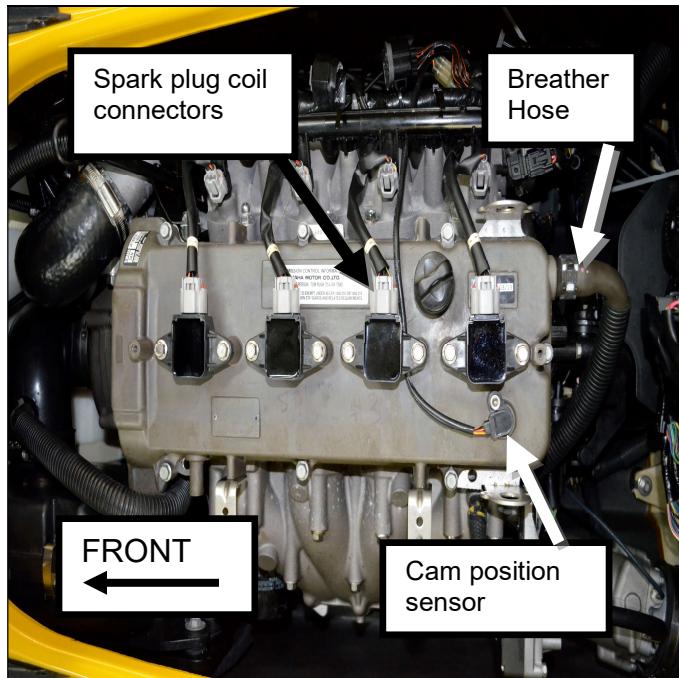
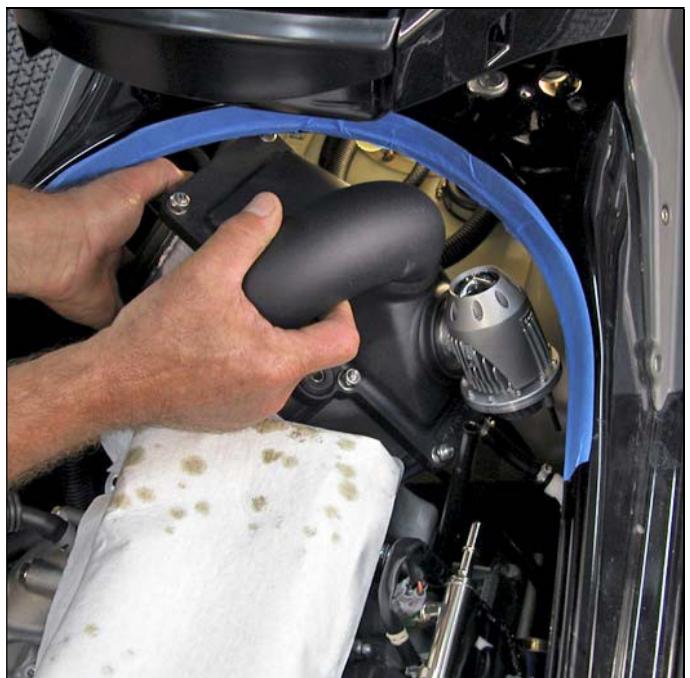
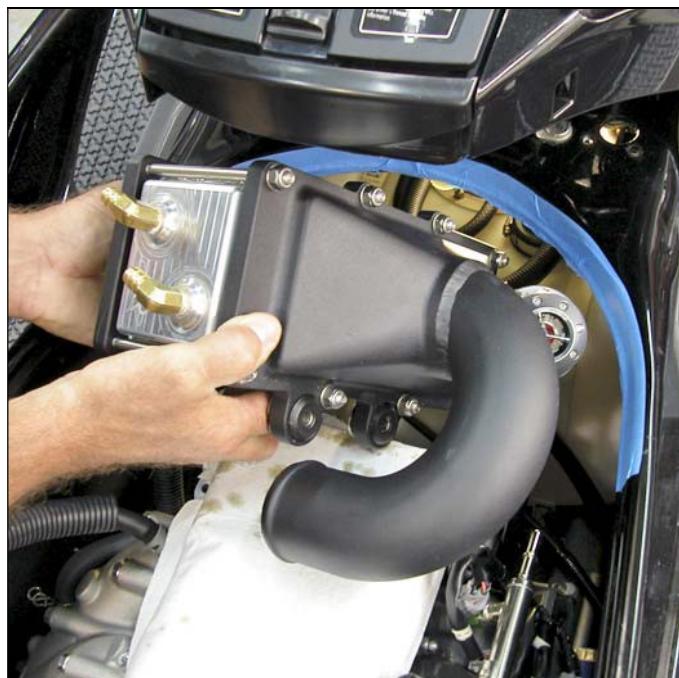
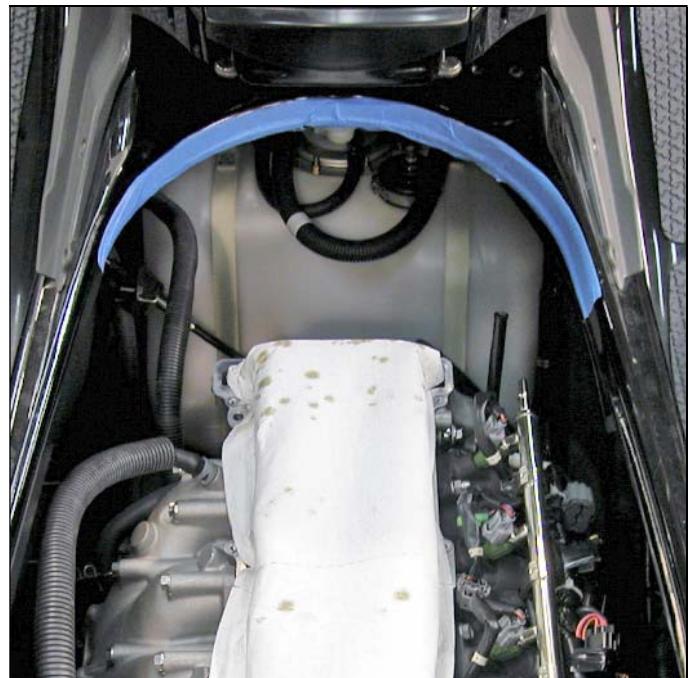


Illustration #1-13



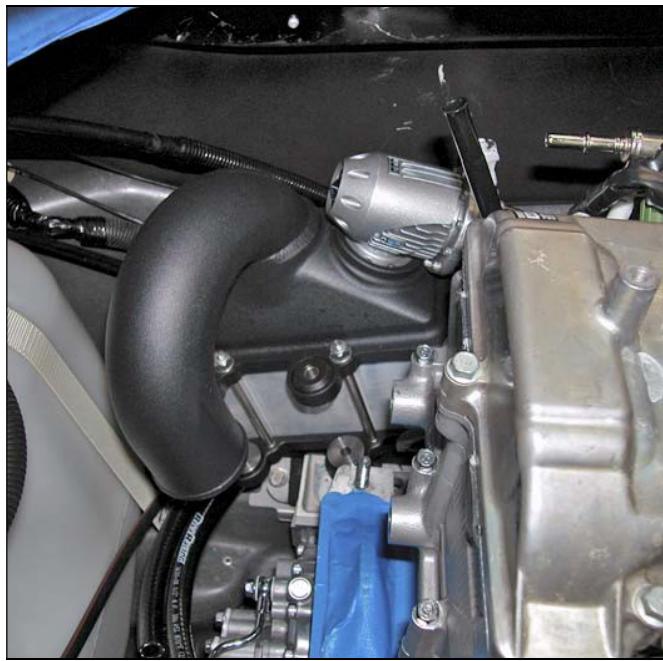


Illustration #1-17

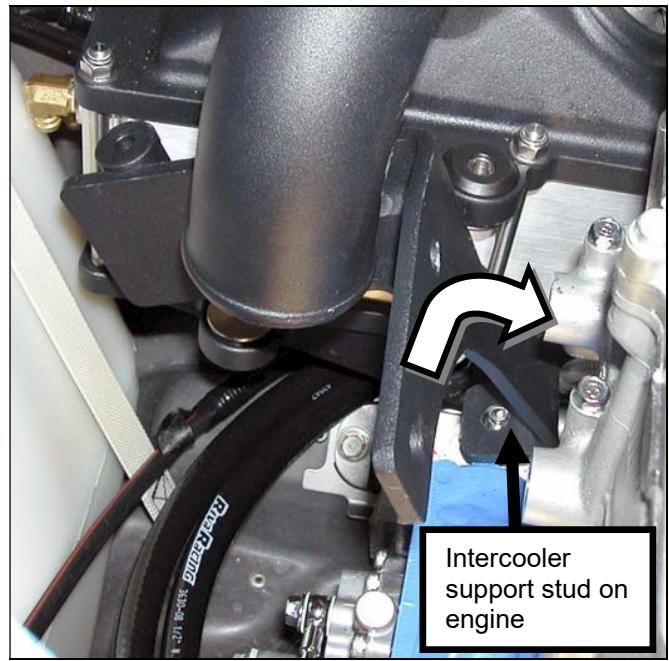


Illustration #1-18

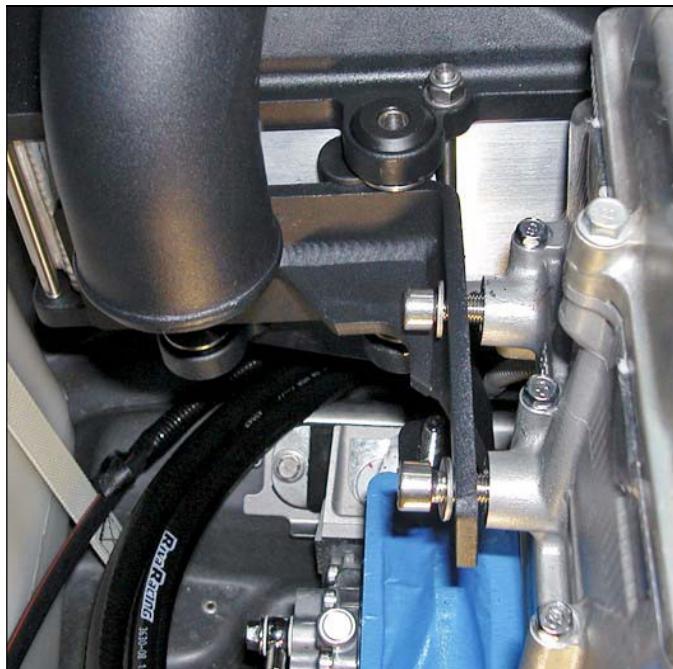


Illustration #1-19



Illustration #1-20

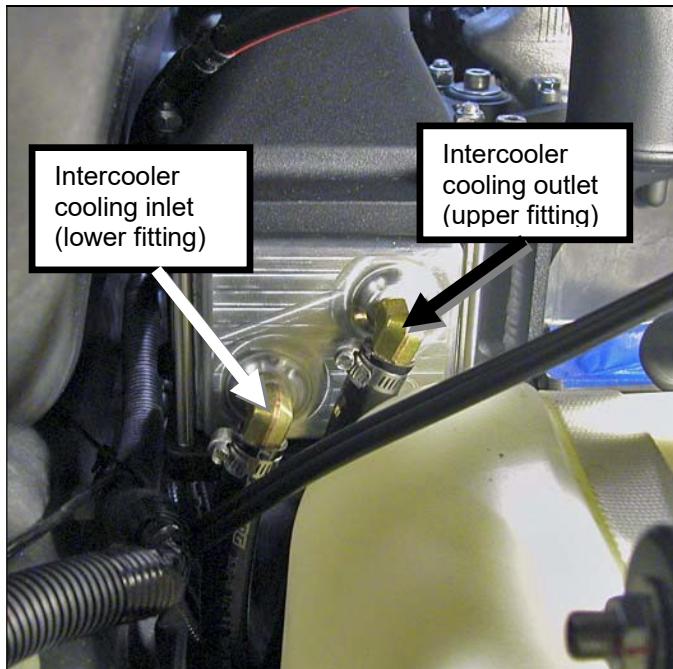


Illustration #1-21

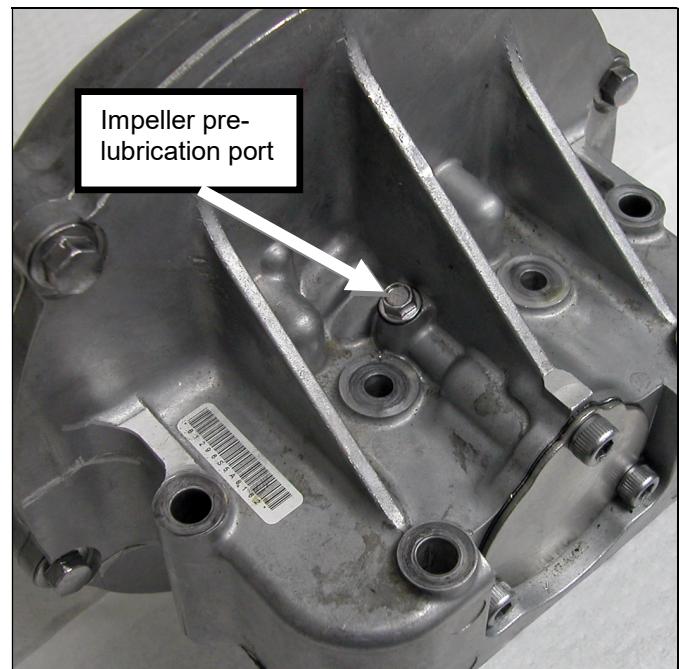


Illustration #1-22



Illustration #1-23

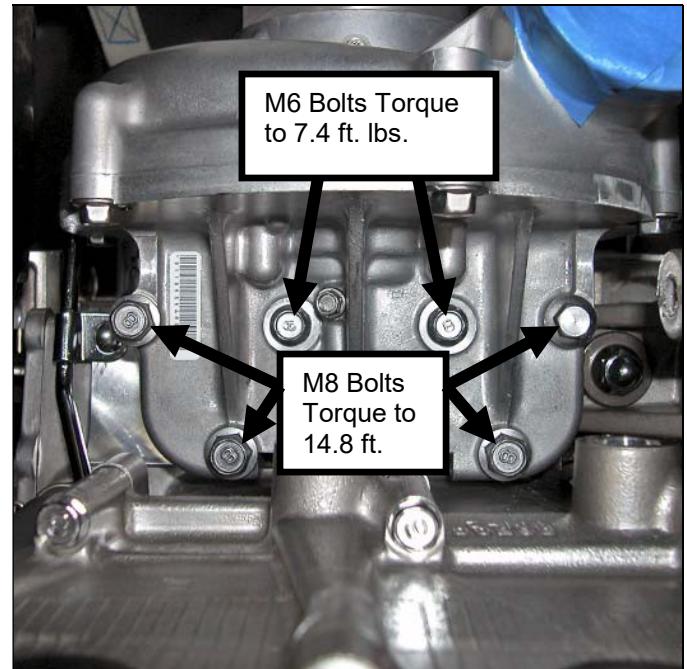


Illustration #1-24

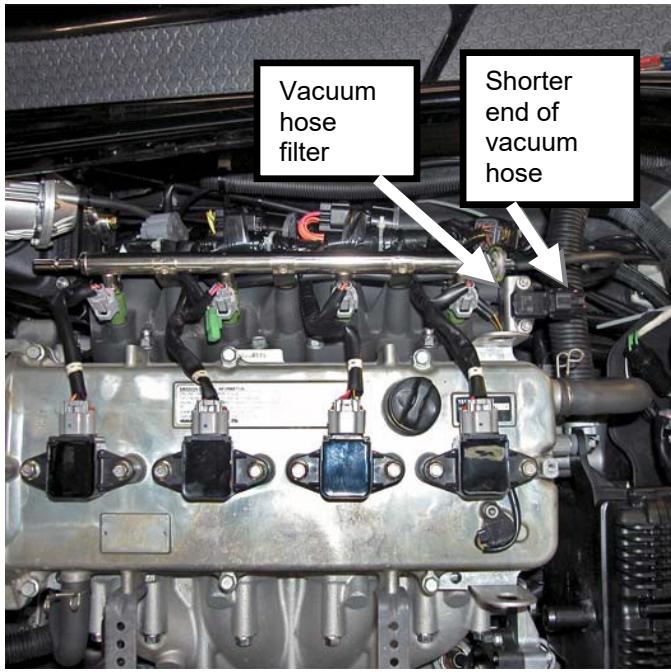


Illustration #1-25



Illustration #1-26

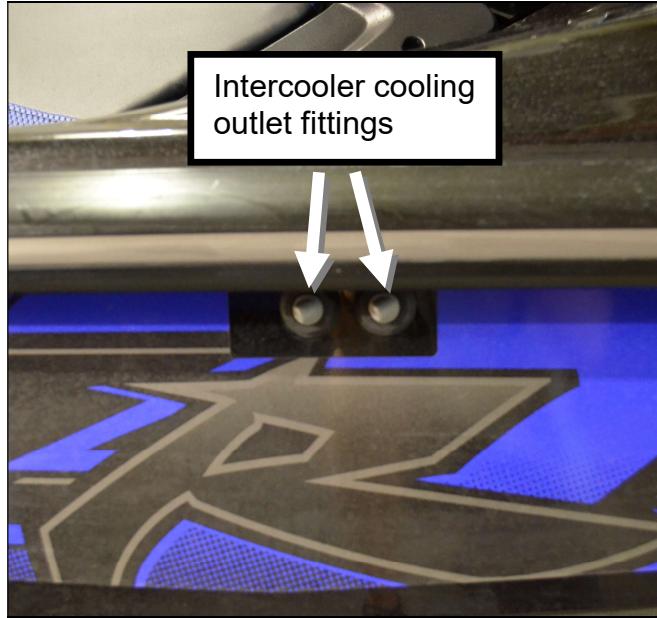


Illustration #1-27

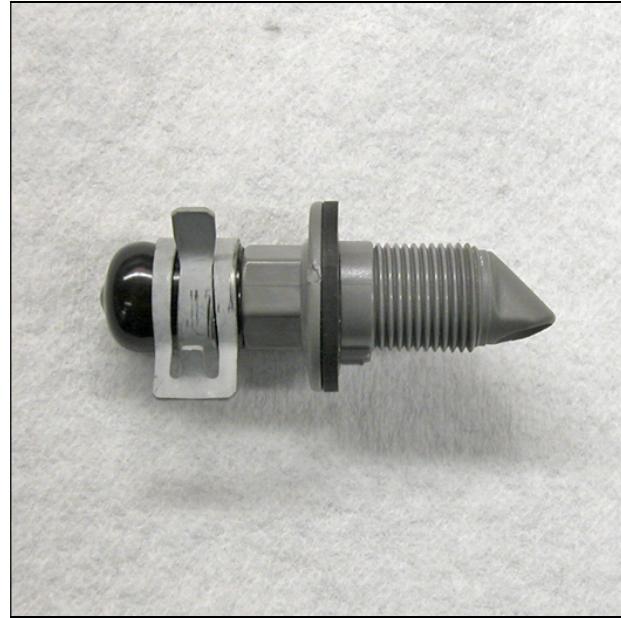


Illustration #1-28

- SECTION 2 INSTALLATION INSTRUCTIONS -

(INTAKE MANIFOLD MODIFICATION PROCEDURE)

Required tools

1/8" NPT Tap
21/64" Drill Bit

Part#

N/A
N/A

- Aluminum Manifold -

1. Remove zip tie clip from boss at rear of intake manifold. (see illustration #2-1)
2. Carefully drill a hole into center of boss and into intake manifold using a 21/64" drill bit. **NOTE: It is important you use the proper size drill bit.**

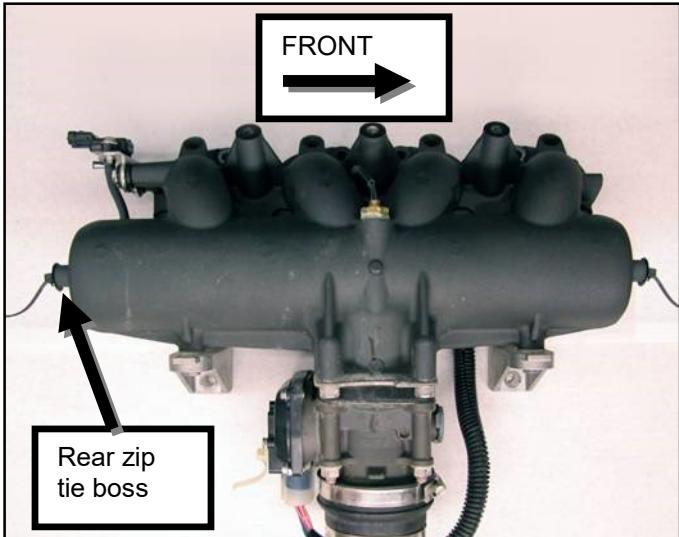


Illustration #2-1

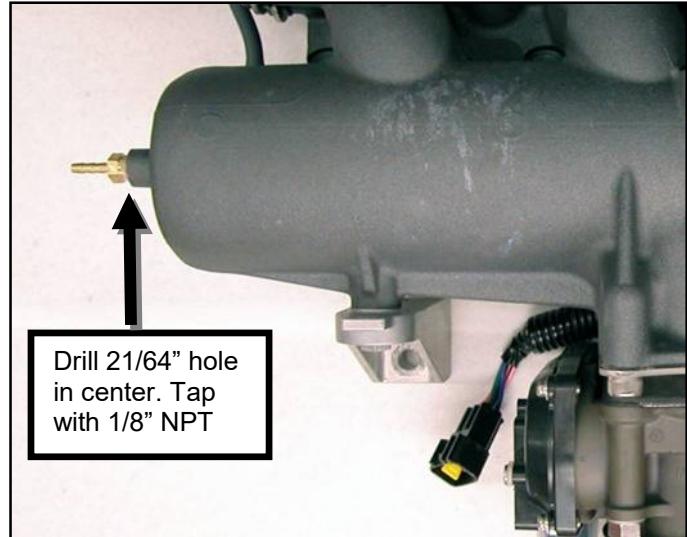


Illustration #2-2

- Plastic Manifold -

1. Locate center of finless area below MAP sensor vacuum fitting on rear of intake manifold.
2. Carefully drill a hole into center of boss and into intake manifold using a 21/64" drill bit.

NOTE: It is important you use the proper size drill bit. (see illustration #2-3)

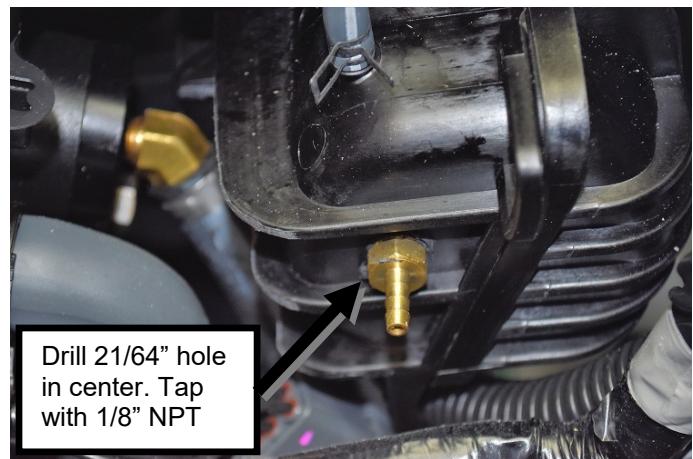


Illustration #2-3

- All -

3. Tap newly made hole using a 1/8" NPT Tap. **NOTE: Thoroughly clean intake manifold inside and out.**
4. Install supplied brass vacuum fitting. (see illustration #2-2) **NOTE: Apply pipe thread sealant to threads. Do not over tighten fitting.**