Equipped with AEM® Dryflow™ Filter
No Oil Required!

INSTALLATION INSTRUCTIONS

PART NUMBER: 21-466

2003 TOYOTA Matrix XRS L4-1.8L C.A.R.B. E.O. # D-670

⋆ **NOTE: Legal in California only for racing vehicles which may never be used upon a highway**

PARTS LIST

Description	Qty.	Part Number
Element Parts Kit 2.75 X 5" Dry Ele.	1	21-202DK
Inlet Pipe	1	2-507
Hose; 5/16ID X 23"L	1	5-2023
Hose, Adapter 2.75/3.00 X 3" Bl.	1	5-273
Decal, Matrix Vacum Routing Dia.	1	10-908
Mount, Rubber 1" X 6mm	1	1228599
Zip Tie, 6 Long	2	1-113
Spacer, 1.00 ODX .315 ID X .2 - Anodize Black	1	2-665
Vacuum Cap, 1/8"	1	8-105
Bracket, Assembly VSV	1	32-3015
Bolt, Socket 8-32 X 5/16 SS	2	1-2023
Bolt, Hex M6-1 X 12mm	1	1-2065
Bolt, Hex M8-1.25 X 25mm	1	1-2066
Washer, 6mm Soft Mount	1	559999
Nut, M6 Hex Serrated	1	444.460.04
1/2" Bnd. Hose Clamp, 2.56"-3.50"	2	9448
1/2" Bnd. Hose Clamp, 2.31-3.25"	1	9444

Read and understand these instructions <u>BEFORE</u> attempting to install this product. Failure to follow installation instructions and not using the provided hardware may damage the intake tube, throttle body and engine.

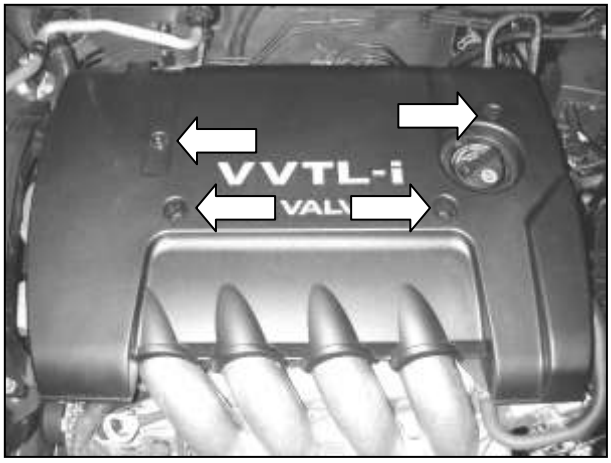
The AEM® intake system is a performance product that can be used safely during mild weather conditions. During harsh and inclement weather conditions, you must return your vehicle to stock OEM air box and intake tract configuration. Failure to follow these instructions will void your warranty.

1. Preparing Vehicle

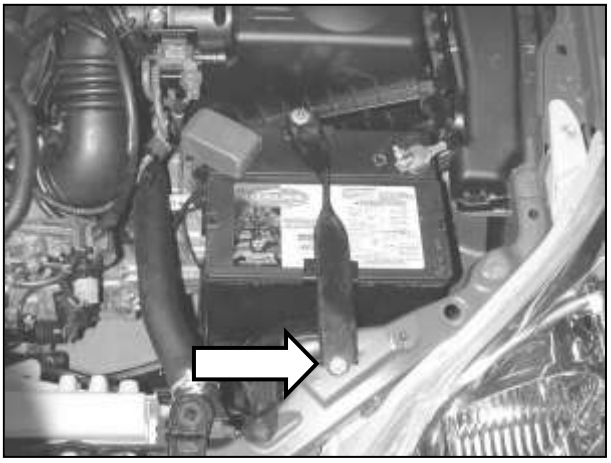
a. Make sure vehicle is parked on level surface.
b. Set parking brake.
c. If engine has run in the past two hours, let it cool down.
d. Disconnect negative battery terminal.
e. Raise the front of the vehicle with a jack. Refer to your owner's manual for proper jack and jack stand placement to properly support vehicle. Support your vehicle using properly rated jack stands before wheel removal or while working under the vehicle.
NEVER WORK UNDER A VEHICLE WITHOUT USING JACK STANDS.
i. Remove the front right tire. Then remove the necessary hardware and inner fender liner.
f. Do not discard stock components after removal of the factory system.

2. Removal of stock system

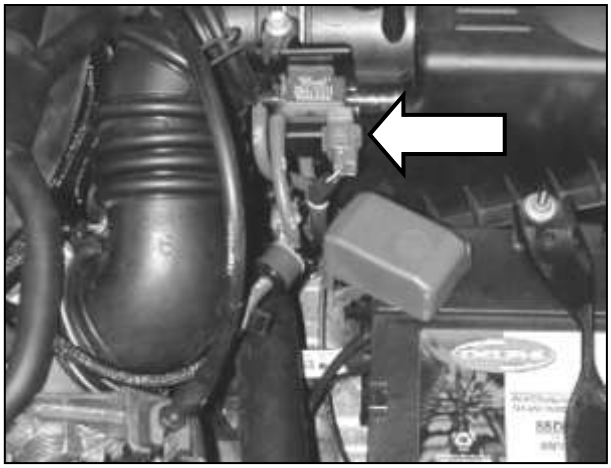
a. There are three Vacuum Switching Valves (VSV), and one air flow meter that have electrical and/or vacuum connections going to them. Be sure to label these connections before disconnecting them.



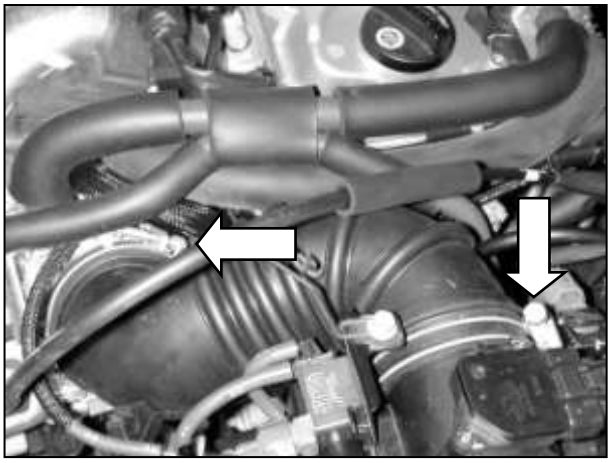
b. Remove the three bolts and one nut that hold the plastic engine cover on. Remove the cover.



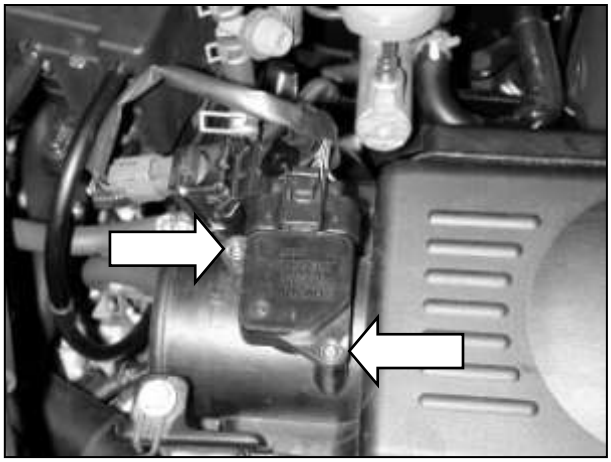
c. Remove the bolt in the radiator support that holds the battery bracket. Unhook the rod at the rear of the battery bracket. Remove the battery from the vehicle.



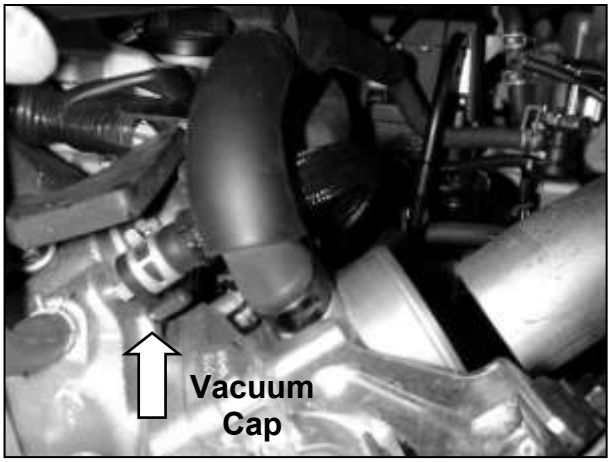
d. Unplug the brown connector from the VSV on the front of the air box cover. This VSV controls the auxiliary intake air control. This VSV will be removed from the vehicle and will not be used in conjunction with the AEM® intake system.



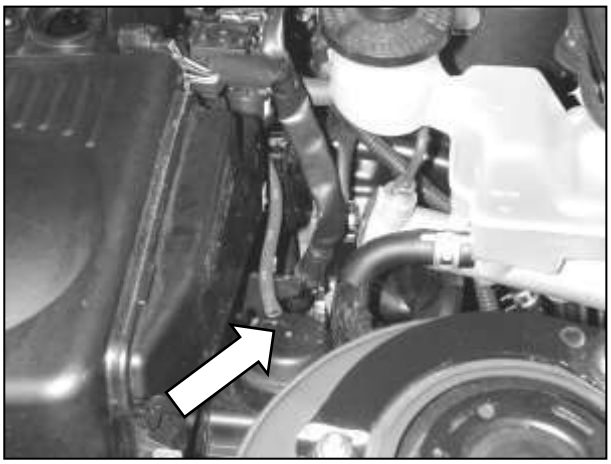
e. Loosen the two 10mm hose clamps at the throttle body and air box. Remove the stock rubber intake hose from the engine bay.



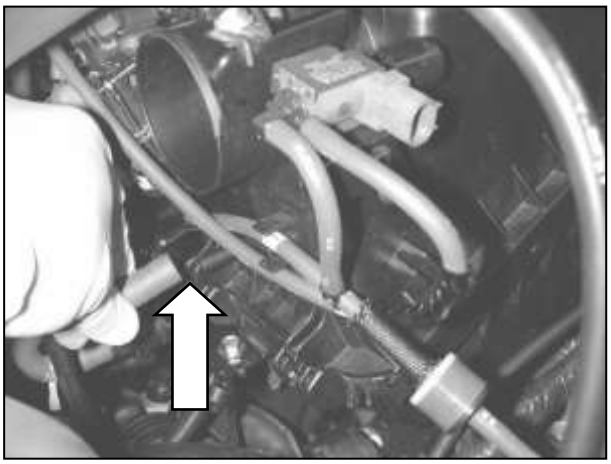
f. Remove the air flow meter connector, and then remove the air flow meter by loosening the two small screws. Be extremely careful with this component as it can be damaged easily. Set the air flow meter aside in a safe place.



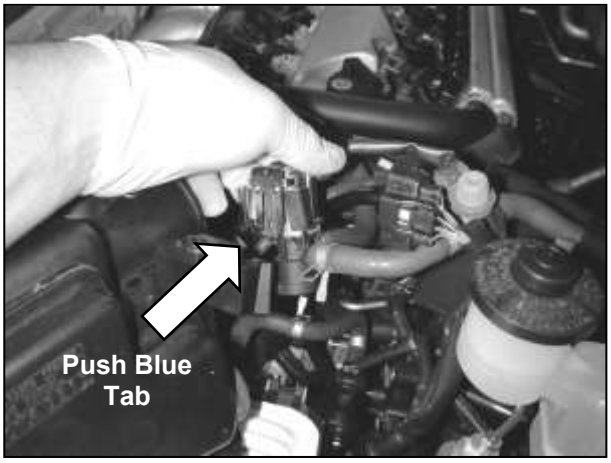
g. Remove the small vacuum line from the nipple on the intake manifold above the throttle body. Place the supplied 1/8” vacuum cap on the exposed vacuum nipple.



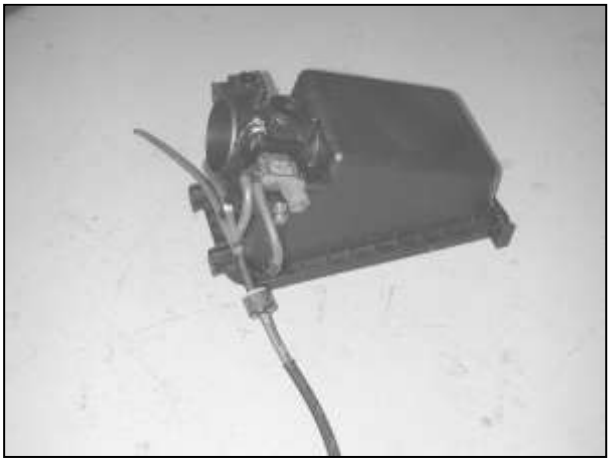
h. Remove the vacuum line from the auxiliary intake air control vacuum diaphragm. This diaphragm is located on the backside of the air box.



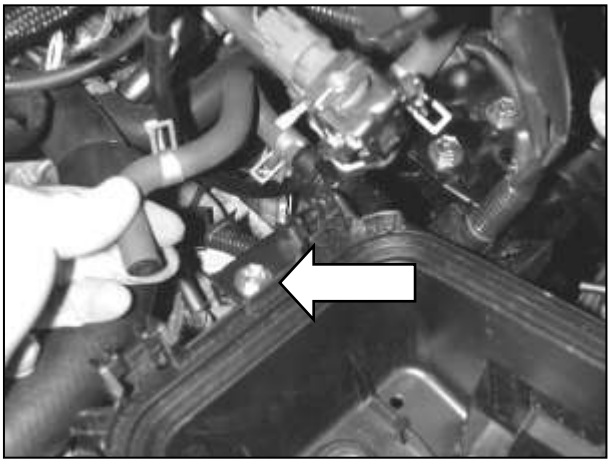
i. Remove the large vacuum line from the engine side of the air box cover.



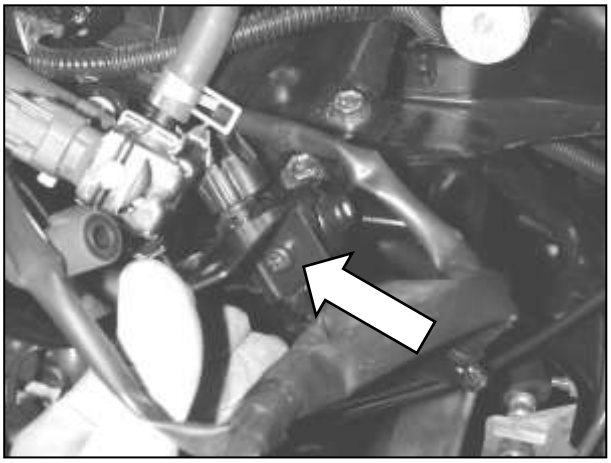
j. Release the two air box cover clips and lift the air box cover to gain access to the VSV with the blue connector on the back side of the cover. Press the tab on the VSV and slide upwards to release the VSV from the air box cover.



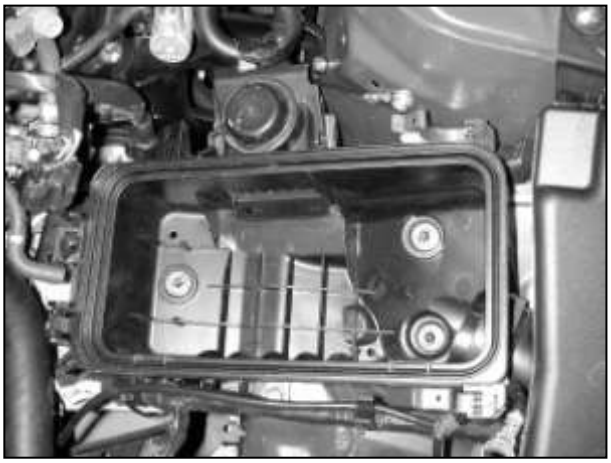
k. Remove the air box cover from the vehicle. The VSV for the auxiliary intake air control and the associated vacuum lines should come out with the air box cover.



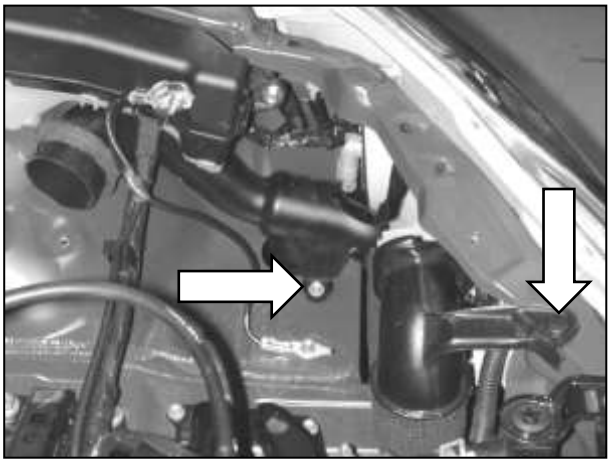
l. Remove the bolt holding the lower VSV bracket to the air box.



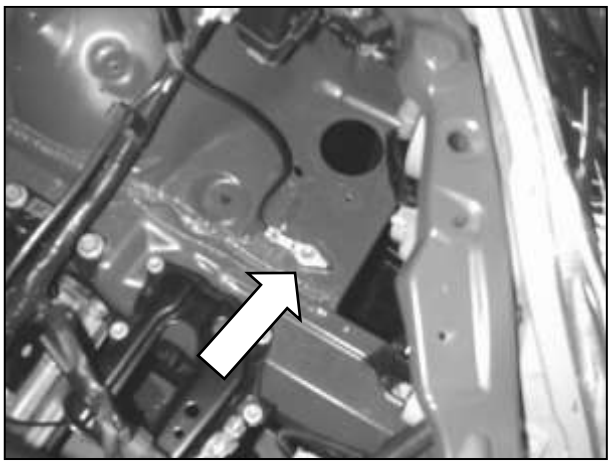
m. Remove the Phillips head screw that holds the metal bracket to the VSV. This bracket will not be reused with the AEM® inlet svstem.



n. Remove the three bolts retaining the lower air box. Remove the lower air box from the vehicle.



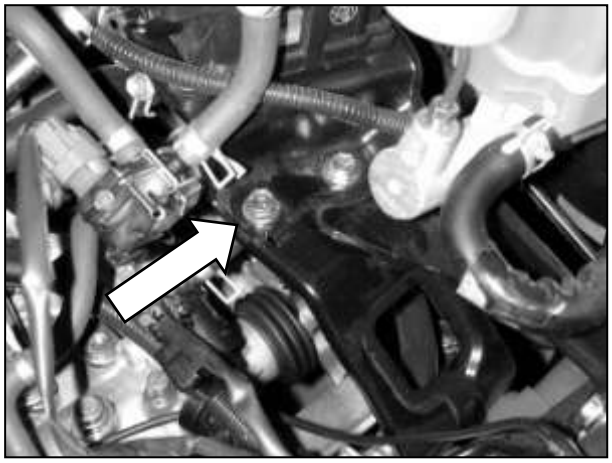
o. Remove the stock intake air duct from the engine bay. The duct is retained by one bolt and one plastic rivet. Pry the center of the plastic rivet up with a small screwdriver, then the entire rivet should pull out.



p. Remove the lower bolt on the black ground wire. This will facilitate installation of the AEM® intake pipe.

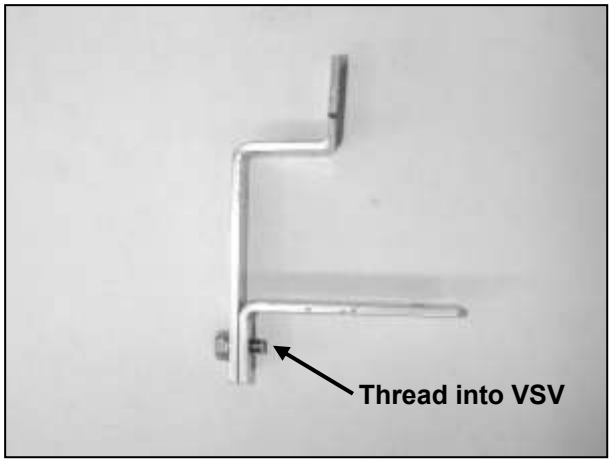
3. Installation of AEM® intake system.

a. When installing the intake system, do not completely tighten the hose clamps or mounting hardware until instructed to do so.

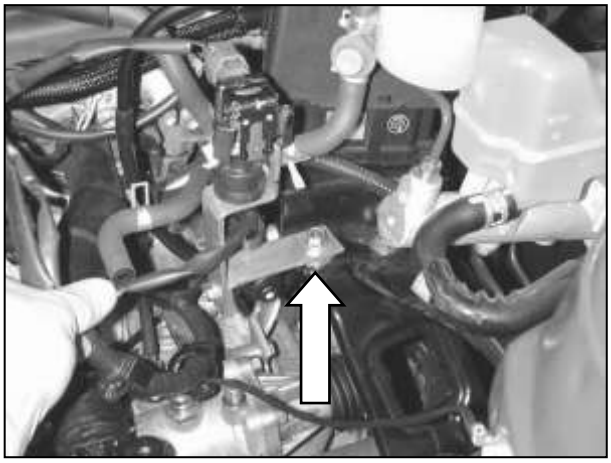


b. Remove the forward-most M8 bolt from the black bracket under the brake master cylinder.

c. Place the supplied VSV bracket spacer in line with the hole exposed in the previous step.



d. Using the supplied M6 bolt, mount the VSV bracket assembly to the lower VSV from step 2m.

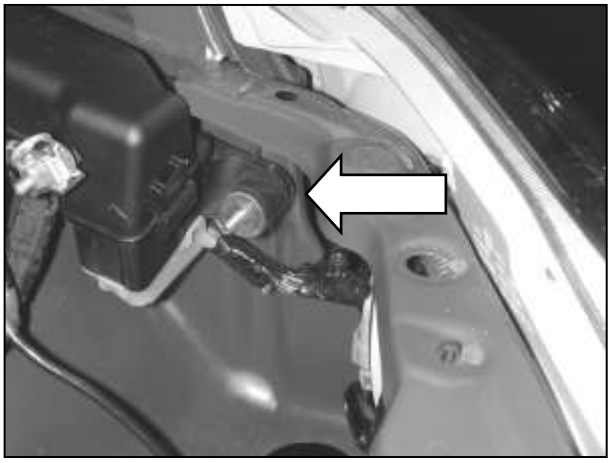


e. Use the supplied M8 bolt to secure the assembly to the bracket beneath the master cylinder. Be sure that the spacer remains in place. Rest the upper VSV on the bracket as shown. The rear vacuum line may need to be pulled back slightly to clear the bracket.

f. Use one of the supplied zip ties to secure the upper VSV to the bracket. Make sure the zip tie rests in the notches in the bracket to ensure that it does not slide off.

g. Mount the MAF sensor to the adaptor on the underside of the AEM® inlet pipe using the two supplied 8-32 cap screws.

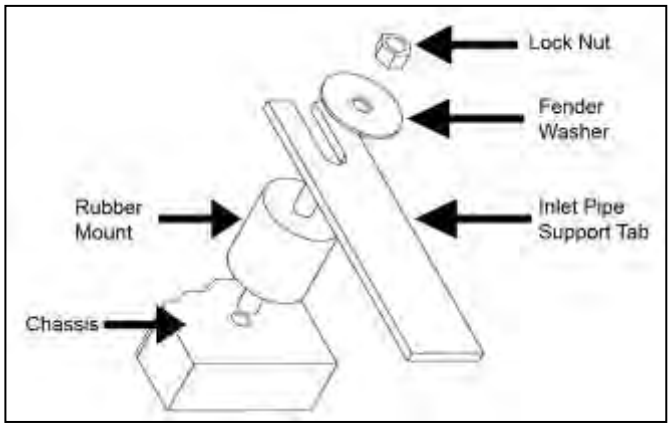
h. Place the supplied silicone coupler on the throttle body. Use the 3.00” hose clamp on the throttle body end and the 2.75” clamp on the AEM® intake pipe end.

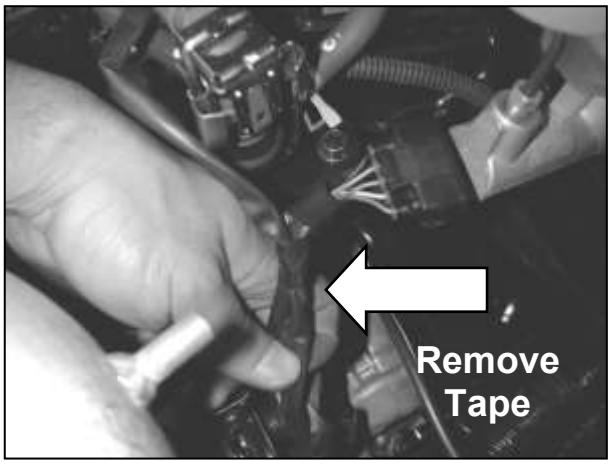


i. Remove the M6 bolt that retains the front of the fuse box. Replace the factory bolt with the supplied rubber mount.

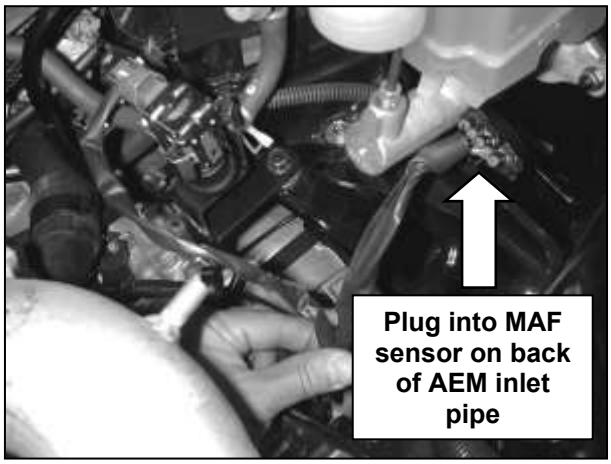
j. Insert the AEM® intake pipe into the engine bay, filter end first. The pipe passes under the bundle of wires going to the fuse box. Install the throttle body end of the pipe into the silicone coupler, but do not tighten the hose clamps.

k. Loosely secure the bracket to the rubber mount with the supplied M6 washer and nut. Refer to the following diagram for proper soft mount installation.

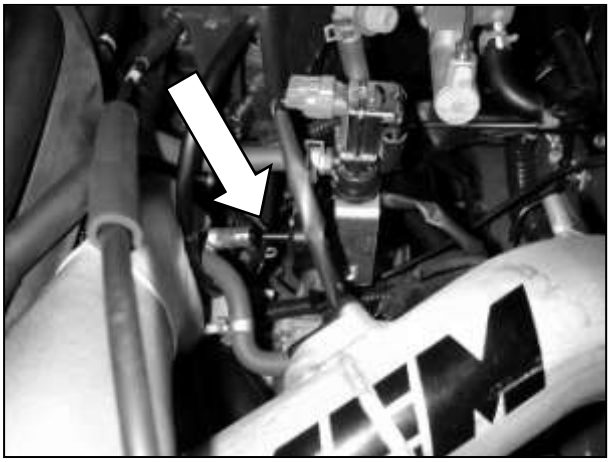




l. Carefully remove the electrical tape joining the wire harnesses for the upper VSV and the MAF sensor. Use care to avoid damaging the insulation on either harness.

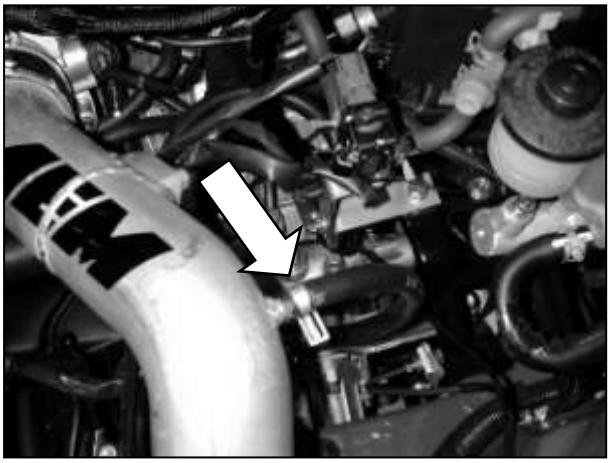


m. Separating the two harnesses allows enough slack in the wire harness to reach both the upper VSV and the MAF sensor located on the backside of the AEM® intake pipe. Plug in the MAF sensor on the backside of the intake pipe.

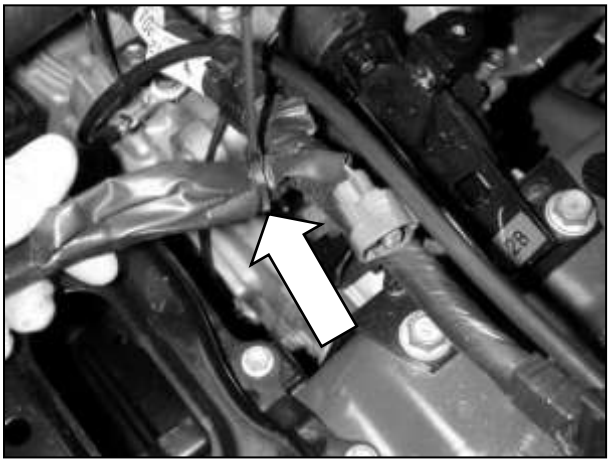


n. Remove the engine-side vacuum line from the lower VSV. This is the line that is not connected to anything at this point.

o. Replace the vacuum line removed in the previous step with the supplied length of 5/16" vacuum hose. Reuse the stock spring clamp.



p. Use the other stock spring clamp on the intake pipe side of the 5/16" vacuum hose. Route the hose carefully to avoid kinks.



q. Use the second supplied zip tie to secure the brown VSV connector to the positive battery cable. This connector will not be used with the AEM® intake system.

r. Remove two screws and one plastic rivet from the plastic splashguard under the front bumper. Pull the plastic liner back to allow access to the air filter end of the AEM® intake pipe. Install the AEM® air filter on the end of the AEM intake pipe. Make sure the air filter does not contact any part of the vehicle and tighten the hose clamp.

Factory air box system installed

AEM® intake system installed

4. Reassemble Vehicle

a. **Fender liner and Lower Front Splashguard:** Install the fender liner, lower splashguard and any hardware that was removed.
NOTE: Failure to install the fender liner will result in diminished performance and increase the potential for engine damage due to water ingestion in rainy conditions.

b. **Wheel:** Install the driver's side wheel using the factory torque specification (see owner's manual).

c. **Battery:** Install the battery in the reverse order of removal.
NOTE: If vehicle was started without one of the VSV's or the air flow meter connected then the "Check Engine" light may come on. If this happens turn the engine off and disconnect the battery for one minute. Reconnect the battery and restart the engine.

d. Position the inlet pipes for the best fitment. Be sure that the pipes or any other components do not contact any part of the vehicle. Tighten the rubber mount, all bolts, and hose clamps.

e. Check for proper hood clearance. Re-adjust pipes if necessary and re-tighten them.

f. Inspect the engine bay for any loose tools and check that all fasteners that were moved or removed are properly tightened.

g. Reconnect negative battery terminals and start engine. Let the vehicle idle for 3 minutes. Perform a final inspection before driving the vehicle.

5. CARB Sticker Placement

a. The C.A.R.B. exemption sticker, (attached), must be visible under the hood so that an emissions inspector can see it when the vehicle is required to be tested for emissions. California requires testing every two years, other states may vary.

6. Service and Maintenance

a. It is recommended that you service your AEM® Dryflow™ filter every 20,000 miles for optimum performance. Use AEM Dryflow cleaning kit part # 21-110.

b. Use aluminum polish to clean your polished AEM® intake tube.

c. Use window cleaner to clean your powder coated AEM® intake tube. **(NOTE: DO NOT USE aluminum polish on powder coated AEM intake tubes).**

If an AEM® Bypass Valve is installed, the AEM Bypass Valve should be installed on the filter side of the second bend of the intake pipe as shown in the figure above. Install the AEM Bypass Valve as close to the bend as possible, to ensure adequate clearance from the battery.

For technical inquiries
e-mail us at
sales@aemintakes.com
or
call us at
800.992.3000

AEM Air Intake System Warranty Policy

AEM® warrants that its intake systems will last for the life of your vehicle. AEM will not honor this warranty due to mechanical damage (i.e. improper installation or fitment), damage from misuse, accidents or flying debris. AEM will not warrant its powder coating if the finish has been cleaned with a hydrocarbon-based solvent. The powder coating should only be cleaned with a mild soap and water solution. Proof of purchase of both the vehicle and AEM intake system is required for redemption of a warranty claim.

This warranty is limited to the repair or replacement of the AEM part. In no event shall this warranty exceed the original purchase price of the AEM part nor shall AEM be responsible for special, incidental or consequential damages or cost incurred due to the failure of this product. Warranty claims to AEM must be transportation prepaid and accompanied with dated proof of purchase. This warranty applies only to the original purchaser of product and is nontransferable. Improper use or installation, use for racing, accident, abuse, unauthorized repairs or alterations voids this warranty. AEM disclaims any liability for consequential damages due to breach of any written or implied warranty on all products manufactured by AEM. Warranty returns will only be accepted by AEM when accompanied by a valid Return Merchandise Authorization (RMA) number. Credit for defective products will be issued pending inspection. Product must be received by AEM within 30 days of the date RMA is issued.

If you have a warranty issue, please call (800) 992-3000 and our customer service department will assist you. A proof of purchase is required for all AEM warranty claims.