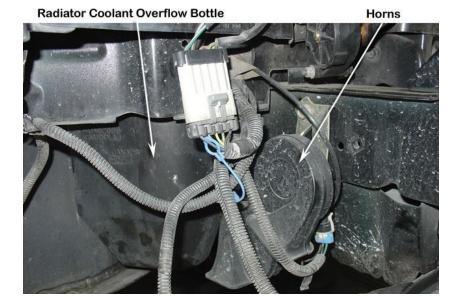
- 1. Ensure that the headlights are in the raised position and disconnect the battery terminals from the battery.
- 2. Remove the following items in accordance with the factory service manual:
- Plastic under tray Inner fenders Front bumper
- 3. Remove the stock air filter assembly and stock ducting to the throttle body. Retain the stock Mass Air Flow meter and the stock temperature sensor and mounting grommet for reinstallation at a later stage.



- 4. Remove the following components in accordance with the factory service manual.
- Front bumper support beam Windscreen washer bottle Hood catch Hood catch support bracket
- 5. Remove the horns, horn mounting bracket and the stock battery tray/radiator overflow bottle in accordance with the factory service manual.



6. Apply a liberal amount of penetrating thread unlocking oil and remove the exhaust system from the flanges shown.

Exhaust Pipes

Remove the oxygen sensors.

Remove the engine oil dipstick.

7. Remove the cat pipes and exhaust manifolds.



Oxygen Sensors



8. Drain the engine oil and coolant from the engine.

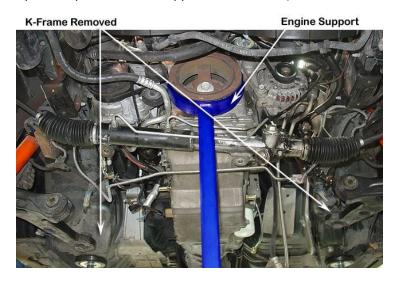
Remove the stock ignition coil packs and plug leads.

Note: If the stock LS1 valve springs are still being used, then upgraded valve springs must be installed. This is a convenient stage to do so.

9. Support the vehicle chassis and engine block securely.

Note that the oil pan will be removed at the next step after K-Frame removal - hence the engine block must be supported fully from points other than the oil pan.

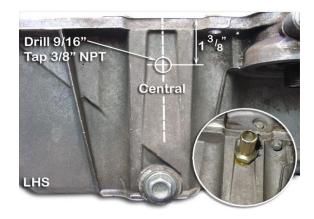
Remove the stock K-Frame in accordance with the BMR instructions (except for supporting the engine by the oil pan - must be supported elsewhere).



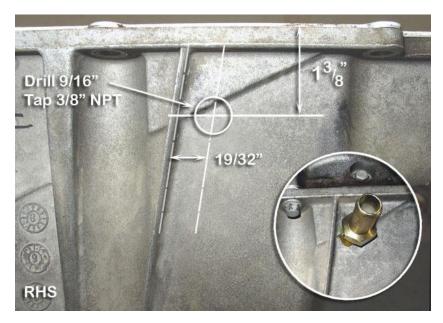
10. Remove the engine oil pan and drill a 9/16" hole on the LHS of the pan in the position shown.

Tap the hole using a 3/8" NPT tap.

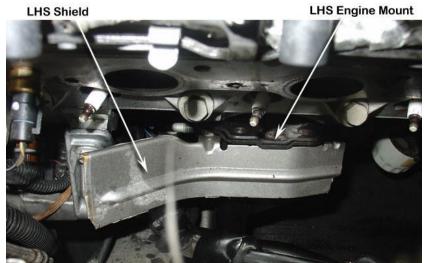
Apply thread sealant to the 3/8" NPT x 5/8" Barb Adaptor and install into the pan as shown.



11. Drill a 9/16" hole on the RHS of the oil pan in the position shown.
Tap the hole using a 3/8" NPT tap.
Apply thread sealant to the 3/8" NPT x 5/8" Barb Adaptor and install into the oil pan as shown.
Clean the modified oil pan thoroughly and reinstall



12. Remove the stock engine mounts and discard the stock LHS shield shown

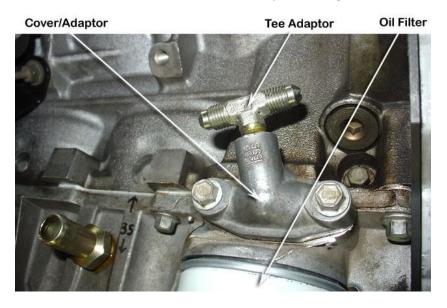


13. Remove engine mounts that will replaced with pedestals with your new required BMR K-member.

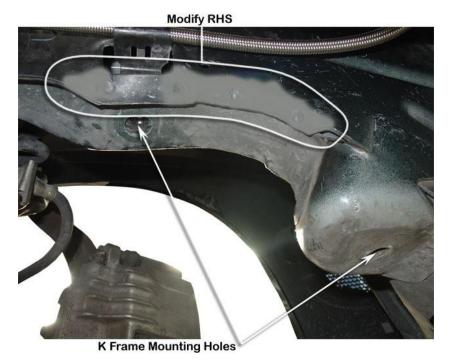
14. Remove the stock oil cooler take-off cover above the oil filter. Drill and tap the outlet port on the cover with a 11/32" drill. Tap to 1/8" NPT thread.

Apply thread sealant to the -4an run x 1/8" NPT branch Tee Adaptor and install into the oil cooler take-off cover. NOTE the orientation of the adaptor relative to the oil take-off cover

Install the oil cooler take-off cover assembly to the engine as shown. NOTE Orientation.

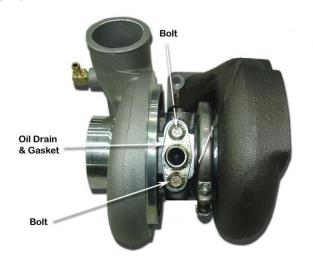


15. Modify the lower lip of the RHS chassis rail by bending outwards for clearance. Clean the area and apply a coat of paint.



16. Repeat the above for the lower lip of the LHS chassis rail.

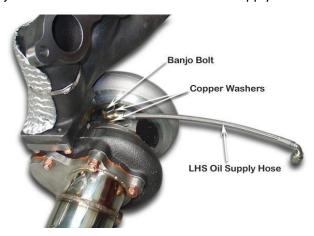
17. Install the short straight oil drain and gasket to the LHS turbocharger assembly and retain with 6mm \times 1.0 \times 16mm hex head bolts. Note orientation of the compressor housing, turbine housing, and center cartridge in the photo below as well as photo in step 18. Use snap ring pliers to loosen the compressor housing via the snap ring on the inside of the housing and the clamp on the inside of the turbine housing. Minor re-clocking adjustments may be needed once installed in the vehicle later to ensure proper orientation.



18. Install five $8 \times 1.25 \times 1.0 \times 23.5$ mm (35.5mm O/L) stainless steel studs into the LHS turbocharger flange as shown. Install a single 6mm $\times 1.0 \times 20$ mm stainless steel stud into the LHS turbocharger flange as shown.



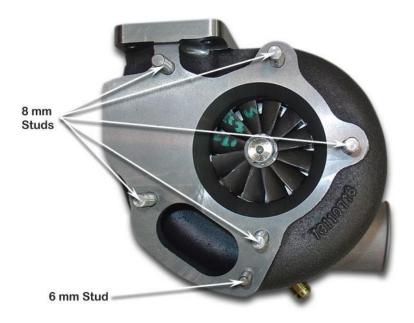
- 19. Apply a thin coating of Permatex ultra copper sealant to the LHS exhaust manifold outlet flange and install the LHS turbocharger assembly. Ensure that the turbocharger is square on the studs and retain with four $8 \text{mm} \times 1.0$ nuts and flat 8 mm stainless steel washers.
- 20. Apply a thin coating of Permatex ultra copper sealant to the LHS turbocharger outlet flange and install the LHS outlet pipe to the LHS turbocharger outlet. Retain with 8mm x 1.0 Selfloc buts and 8mm stainless steel washers in the positions shown. Use a 6.0mm x 1.0mm Selfloc nut and 6mm stainless steel washer in the position shown.
- 21. Install the LHS oil supply hose with a copper washer on either side of the fitting and retain with a banjo bolt. Note the orientation of the oil supply hose.



22. Install the short straight oil drain and gasket to the RHS turbocharger assembly and retain with 6mm \times 1.0 \times 16mm hex head bolts. Note orientation of the compressor housing, turbine housing, and center cartridge in the photo below as well as in step 23. Use snap ring pliers to loosen the compressor housing via the snap ring on the inside of the housing and the clamp on the inside of the turbine housing. Minor re-clocking adjustments may be needed once installed in the vehicle later to ensure proper orientation.



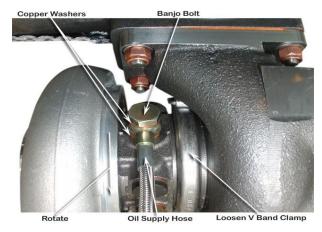
23. Install five $8 \times 1.25 \times 1.0 \times 23.5$ mm (35.5mm O/L) stainless steel studs into the RHS turbocharger flange as shown. Install a single 6mm $\times 1.0 \times 20$ mm stainless steel stud into the RHS turbocharger flange as shown.

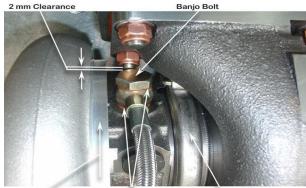


24. Apply a thin coating of Permatex ultra copper sealant to the RHS exhaust manifold outlet flange and install the RHS turbocharger assembly. Ensure that the turbocharger is square on the studs and retain with four 8mm x 1.0 nuts and flat 8mm stainless steel washers.

25. Loosen the V Band clamp on the RHS turbocharger and rotate in the direction shown in order to provide clearance for further installation steps. Install the RHS oil supply hose with a 12/18mm copper washer on either side of the fitting and retain with a 12mm x 1.5 banjo bolt.

26. Rotate back in the direction shown until 2mm clearance between the banjo bolt and stud is achieved. Tighten the V Band clamp.

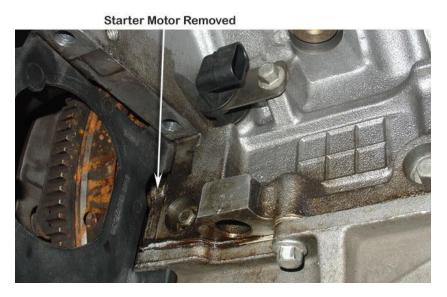




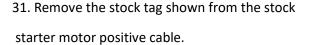
27. Apply a thin coating of Permatex ultra copper sealant to the RHS turbocharger outlet flange and install the RHS outlet pipe to the RHS turbocharger outlet. Retain with 8mm x 1.0 Selfloc nuts and 6mm stainless steel washers in the positions shown. Use a 6.0mm x 1.0mm Selfloc nut and 6mm stainless steel washer in the position shown.



- 28. Install the stock RHS O2 sensor to the RHS outlet pipe and route the stock wiring forward.
- 29. Remove the starter motor assembly.



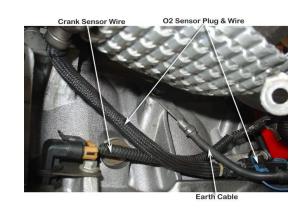
30. Position the stock negative cable located at the RHS rear of the engine block as shown.







- 32. Carefully raise the RHS exhaust manifold/turbocharger/outlet pipe assembly from below the vehicle and install onto the cylinder using the OEM Exhaust manifolds and secure with the supplied m8x1.25x30mm long bolts. Note that this operation requires two people one from above and one below. DO NOT fully tighten yet.
- 33. Route the stock O2 sensor and crank angle sensor wires behind the earth cable located on the RHS rear of the engine block.



34. Install the new MSD starter on the supplied CNC Billet starter Block and install in the car as shown.

Ensure that there is no contact between the wires.



35. Install the LHS oil Supply Hose to the rear port of the Oil Supply Adaptor installed earlier.



36. Install the LHS stock front O2 sensor and wiring.

37. Install the supplied HS-44 wastegates to the downpipe tubes using the supplied hardware in the wastegate boxes. Note the proper orientation of the barb fittings. Be sure the supplied block offs are

installed in the un-used lower/side port on each wastegate. Ensure the copper washers are used on each side of the barb fitting when installing. The top port may be left open if only running boost pressure based on the wastegate spring(s). You will use this top port if adding a boost controller and in that event please refer to the connection directions from the boost controller being used. Ensure the CNC valve seal is installed in the bottom of each wastegate that rests in the recess cut into the flange welded on the section with flex. Secure the wastegate using the (2) supplied clamps, one on the inlet and one on the exit side.

<u>Drivers' Side</u> <u>Passenger Side</u>



38. Install the LHS oil drain hose to oil drain and secure with 16/25 mm hose clamps.

Connect the LHS boost sensing hose between the barb fitting on the compressor housing, to the barb fitting on the wastegate ensuring to secure using spring clips.



39. Route the RHS turbocharger oil supply hose under the front lower portion of the oil pan to the forward facing port of the oil supply adaptor installed earlier.

40. Connect the RHS oil drain hose to the oil drain and oil pan adaptor securing with hose clamps. Install the boost sensing hose between the barb fitting on compressor housing and the barb fitting on the wastegate, securing with spring clips.



41. Install the BMR K-Frame as per BMR instructions.

NOTE: RHS rear lower control arm bolt is installed from below

Open Wrench Ring Wrench

NOTE: Remove locating tab.



Tab Removed

42. Ensure adequate clearance of turbocharger compressor housing outlets to frame and BMR K member and fully tighten manifolds to cylinder head nuts

43. The radiator support panel requires modification as described in the following steps



Lower Radiator Support Panel

This Area

Mark as shown

Trim as shown



Trim

Remove and discard the stock wiring loom

support clip.



After Trimming





Remove Clip

44. Mark and cut the lower seam on the LHS

top radiator support panel as shown



Cut I HS

45. Mark and cut the lower seam on the RHS

top radiator support panel as shown.

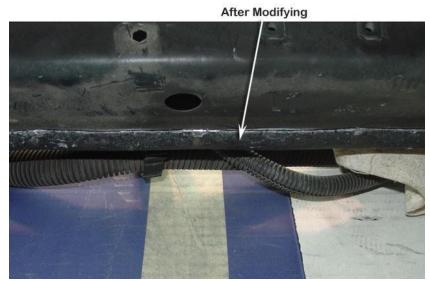


Cut RHS

46. Carefully bend the lip forward.



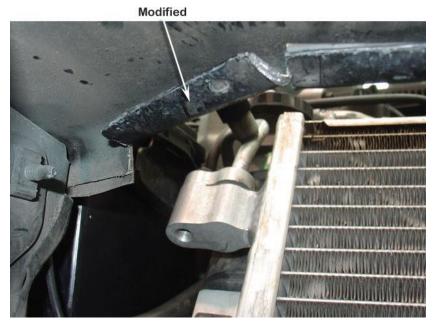
47. After bending the lip.



48. Mark and cut a further 3 inches on LHS of the first cut and bend upwards.



49. View of modified lip



50. Mark and cut a further 3 inches on RHS of the first cut and bend upwards.



51. Use Superglue to install the rubber edging to lower edge of radiator support panel



Rubber Edging

52. Remove the stock radiator cooling fans by pushing upwards to unclip and remove from below vehicle.



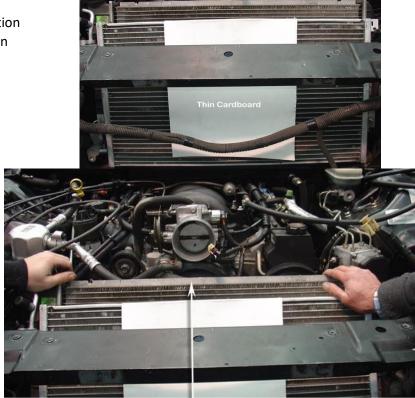
Radiator Cooling Fans Removed

53. Unplug the wiring harness from ABS brake unit

Unplug Wiring Harness

The state of the stat

54. To protect air condenser during the installation of the intercooler assembly, place a sheet of thin cardboard over the condenser



intercooler outlet tank, use masking tape to cover the front section that may come into contact with any panel work (not shown).

55. To avoid damage to the finish of the

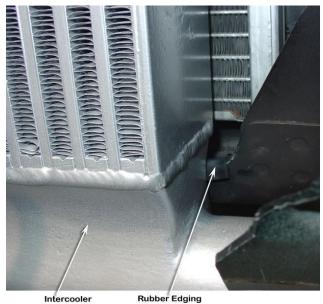
Carefully push the radiator and air condenser rearward while lifting intercooler into position.





56. Intercooler shown in position.

57. Locate the intercooler assembly on the rubber edging on the lower radiator support panel.

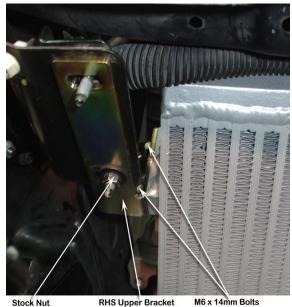


Intercooler

58. Install the upper brackets LHS and RHS



59. Secure with 6mm x 1.0 x 14mm bolts to intercooler. Stock nuts mount the brackets to the radiator support panel. Do not fully tighten.

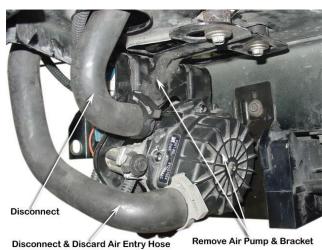


RHS Upper Bracket

60. Discard the stock cruise control cable cover from the LHS chassis rail.



61. Remove the air pump, mounting bracket, and all Associated components with the AIR system.



62. Lower the sway bar from chassis rails.



63. Install the LHS compressor discharge hoseto the LHS turbocharger and retain with T-bolt ClampDo not tighten yet.



Discharge Hose

64. Install the silicone joiner hose to the LHS intercooler entry and retain with a T-bolt clamp.

NOTE: Stainless Steel Duct shown will be installed in the following steps.



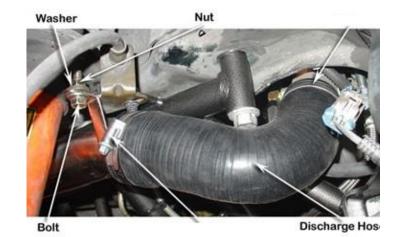
Silicone Joiner

65. Position the LHS discharge duct between the LHS discharge hose and the LHS intercooler entry joiner hose as shown.

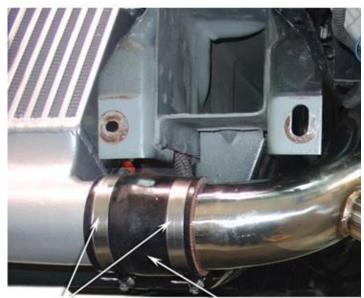


LHS Discharge Duct

66. Secure the LHS discharge duct to the stock brake hose bracket using a 8mm x 1.25x 25mm bolt, 8mm washer, and 8mm x 1.25 nyloc nut.



Install the LHS discharge duct to the compressor discharge hose using a T-bolt Clamps.

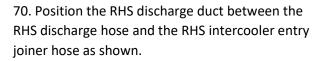


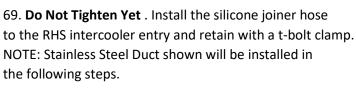
Silicone Joiner

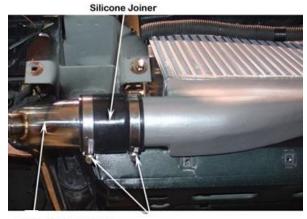
67. Tighten the T-bolt clamps on the turbocharger compressor outlet at this time.

68. Install the RHS discharge hose to RHS turbocharger compressor outlet and retain with a T-bolt clamp.

to the RHS intercooler entry and retain with a t-bolt clamp. NOTE: Stainless Steel Duct shown will be installed in the following steps.







RHS Discharge Duct



RHS Discharge Duct

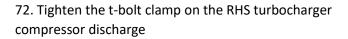
70. Secure the RHS discharge duct to the stock brake hose bracket using a 8mm x 1.25 x 25mm bolt, 8mm washer and 8mm x 1.25 nyloc nut.

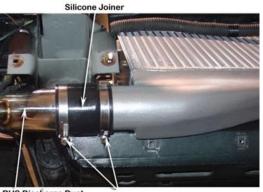
Install the RHS compressor discharge hose to the RHS discharge duct and retain with a t-bolt clamps



Discharge hose

71. Install the RHS discharge duct to the RHS intercooler entry joiner hose and retain with a t-bolt clamp





RHS Discharge Duct

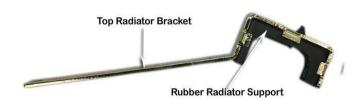
73. Front view showing the intercooler assembly with the joiner hoses and LHS & RHS compressor discharge ducts installed



74. Remove the top radiator stock rubber isolators from the stock plastic support.



75. Insert the stock rubber isolators into top radiator brackets



76. Align the intercooler outlet with center of throttle body



80. Install 6mm x $1.0\,\mathrm{x}$ 20mm bolts through the top air directional duct and body washers as shown. Do not fully tighten.

81. Ensure that the air direction duct is level with the top of air condenser and drill two 1/8" holes through the top edge of the condenser.



Drill 1/8 Hole

Ensure Level

82. Secure the air directional duct to the condenser using two 4.2mm x 16mm self tapping screws. Fully tighten the front air direction duct bolts



Fully Tighten

Self Tapper

83. Reinstall the stock radiator fans from below



Re Install Fans

84. Drill 11/32 hole and install the stock grommet and air temperature sensor to the intercooler outlet

85. If retaining the MAF sensor, install between the Intercooler outlet and throttle body using the 2 supplied Reducing couplers and secure with t-bolt clamps.

If running in Speed Density, use the single longer supplied Coupler to connect Intercooler outlet to Throttle Body And secure using t-bolt clamps.

86. Cut the filler neck of the stock radiator overflow bottle 7 1/2" from the top

87. Install the battery tray by aligning the battery clamp mounting hole and securing the tray with a 8mm x 1.25 x 16mm B/H cap screw, as shown





88. Install the rubber grommet into the stainless steel radiator overflow bottle



89. Install the radiator overflow bottle from below, using B/H 8mm x 1.25 x 16mm screws with 5/16" I.D. x 1" O.D. S/S body washer, 8mm flat washers and 8mm nyloc nuts to secure it in place.

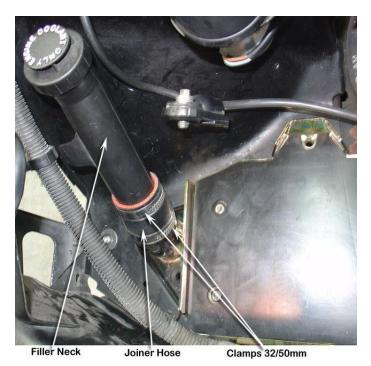




90. Install the rubber pad, in the floor of the battery tray in order to protect the bottom of the battery



91. Install the radiator overflow bottle filler neck using a 42mm ID x 50mm joiner hose. Secure it in place with t-bolt clamps.

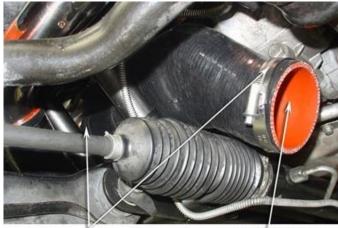


92. Install the 3/8" ID x 29.5" overflow hose, between the radiator filler neck and grommet, in the radiator overflow bottle



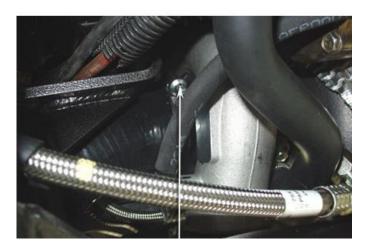
Overflow Hose

93. Install the RHS air entry hose using t-bolt clamp, onto the compressor entry of the turbocharger. Place a second t-bolt clamp around forward end of air entry hose, as shown.



RHS Inlet Hose

NOTE: Clamp orientation



94. Install the RHS stainless steel air entry duct which is secured by the stock sway bar mounting bolts with two 10mm flat washers at each bolt, used as spacers between the stock sway bar mounting bracket and the brackets on the air entry duct. Tighten t-bolt clamps around air entry hose.



Sway Bar Bolts

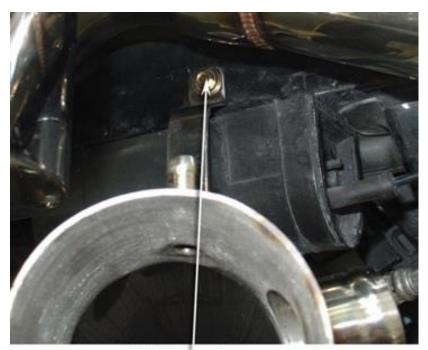
RH Inlet Duct

95. Drill a 1/8" hole for the front support bracket of RHS S/S air entry duct.



Drill 1/8" Hole

96. Secure the support bracket using self tapping screw.



Self Tapping Screw

97. Install the Air filter using supplied hose clamp



98. Install supplied HS-50 Blow-Off Valves to each discharge tube securing them to the flange on each tube with the supplied BOV clamp and ensuring the supplied O-ring is in place.

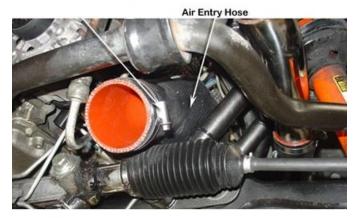


99. Install the LHS turbocharger air entry hose and retain with a t-bolt clamp, to the compressor entry of the turbocharger

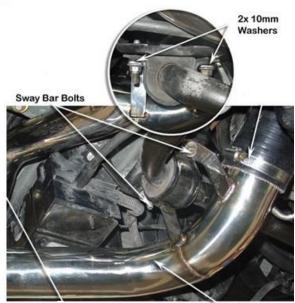


100. The other end of the LHS air entry hose is positioned as shown in preparation for the installation of more components.

Loosely install a t-bolt clamp over the end.



101. Install two 10mm washers on each bolts between the stock sway bar mounting bracket and the bracket on the LHS air entry duct as shown. Install the LHS air entry hose to the LHS air entry duct and retain with a t-bolt clamp.

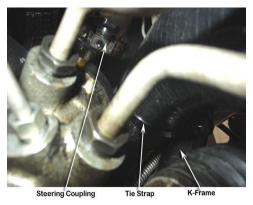


LHS Air Entry Duct

102. Secure the LHS air entry hose to the K-Frame with a tie strap



103. Ensure that there is adequate clearance to the steering shaft coupling

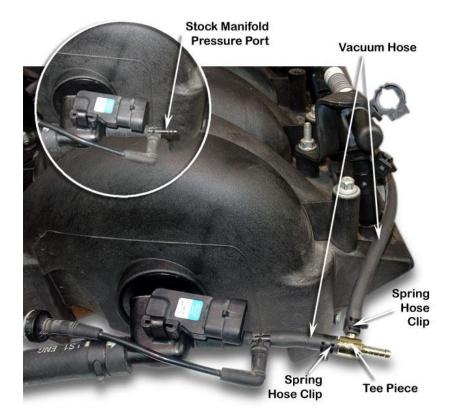


104. Install the LHS air filter to the LHS air entry duct and retain with supplied clamp same as RHS.

For a Basic PCV Setup, please use the following. If using an aftermarket system like a Mighty Mouse Catch Can System, please follow their connection directions and you can skip to step 110.

105. Install the 4mm ID x 127" vacuum sensing hose with a 3/16" tee piece to the vacuum port at the rear of the stock intake manifold and retain with a spring clips. The vacuum sensing hose is used as part of the BOV circuit to be installed at a later step in the installation guide.

Note: the stock intake manifold has been removed in order to show the rear manifold pressure port details. This operation can be performed without removing the intake manifold



106. Route the vacuum sensing hose along the RHS rocker cover as shown.

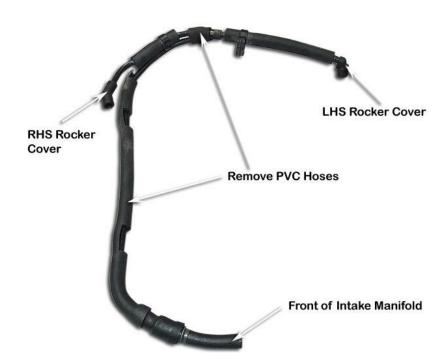


Vacuum Sensing Hose

107. Remove the stock PCV hoses.

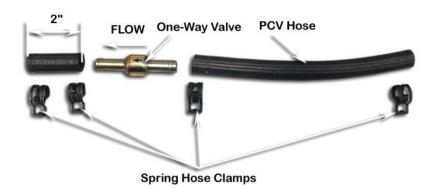
Remove the stock breather hose that runs from the RHS rocker cover to the throttle body and discard.

Cut a 2" length from the PCV hose and install the one-way valve. Retain with spring hose clamps.





Remove Breather Hose



108. Install the hose/one-way valve assembly between the RHS rocker cover and the PCV port in the front of the intake manifold. Retain with spring hose clamps.

Install a blank off plug to the rear of the throttle body and retain with a spring hose clamp.

Remove the rocker cover fitting from the stock breather hose.



PCV Hose



Spring Clip Plug



109. The LHS rocker breather is routed to the RHS air intake as described below.

Install the LHS Breather Hose with stock fitting to the LHS rear rocker cover.

Route the breather hose behind the engine to the rear of the RHS rocker cover and along the RHS of the intake manifold towards the front RHS of the engine.

Route next to the battery tray as shown, down to the

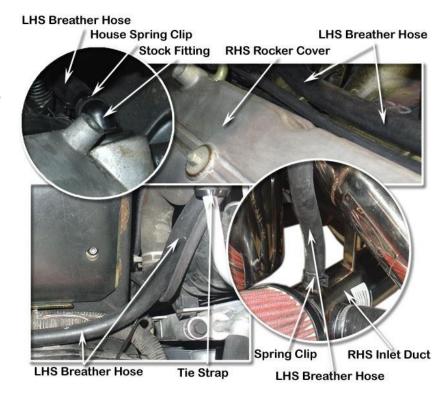
RHS air entry duct and secure using spring clips and tie straps.

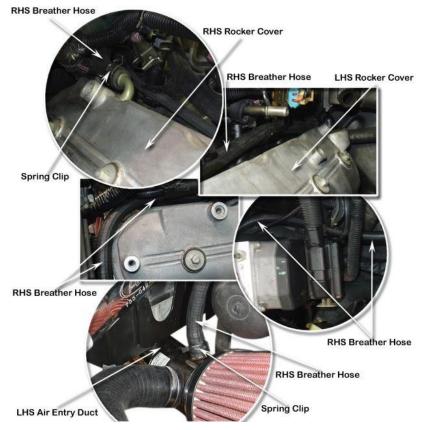
The RHS rocker breather is routed to the LHS air intake as described below.

Install the RHS breather hose to the barb in the rear of the RHS rocker cover.

Route breather hose behind the engine to the rear of the LHS rocker cover and forward along LHS of the intake manifold to the front LHS of the engine.

Route behind the power steering pump reservoir and the ABS unit to the LHS air entry duct securing using spring clips



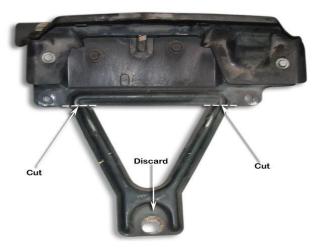


- 110. Reinstall the dip stick
- 111. Reinstall coil packs and spark plug leads
- 112. Cut foam edging as shown and adhere to the LHS & RHS sides of intercooler forward face

113. Insert spire clips to the front air directional duct



114. Cut section from hood catch as shown



115. Remove front section from hood catch



Remove Front Section From Bonnet Catch

116. Flatten edges on hood catch as shown.

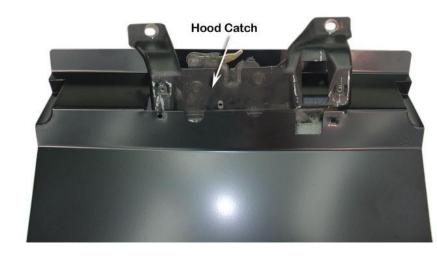




Detail view of flattened edges



117. Insert the hood catch into the front air directional duct

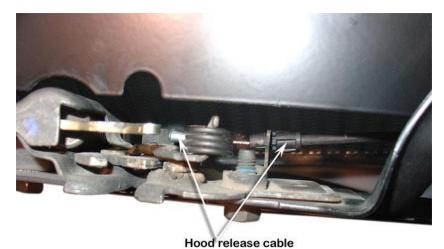


118. Secure using stock bolts (Finger tight).



Top view for reference

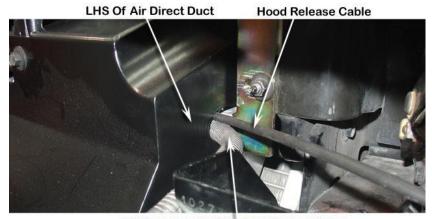




119. Locate air directional duct onto the radiator support panel (Note fit hood release cable and route through notch on LHS of air directional duct).

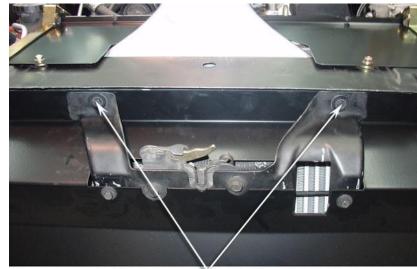


120. Wiring loom located upwards along top of on intercooler



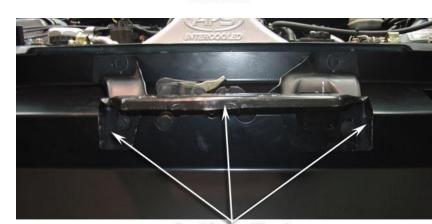
Wiring Loom For Window Washer Motor

121. Secure using stock bolts



Stock Bolts

122. Install the stock front support bracket to the front of air directional duct

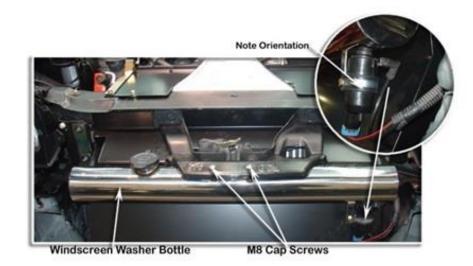


Front Support Panel

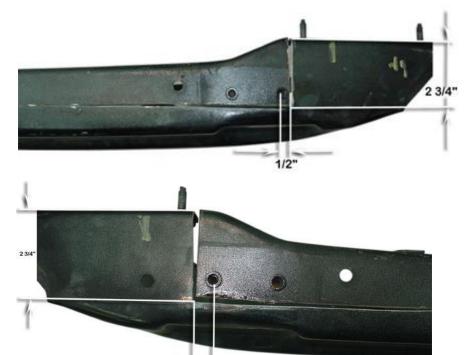
123. Install the stock windscreen washer bottle cap and pump using the stock grommet and cushion clamp securing using 6mm x 1.0 x 16mm bolt with washers and nut nyloc to windscreen washer bottle.



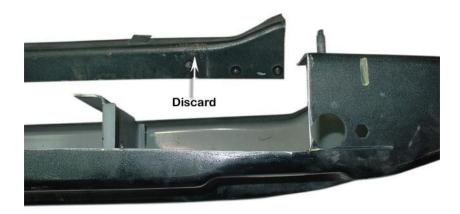
124. Install the windscreen washer bottle to the front bumper support using 8mm x 1.25 x 16mm B/H cap screws. Note orientation of stock washer pump



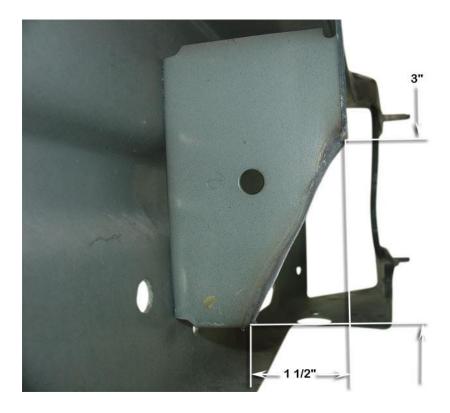
125. Trim front bumper beam as shown



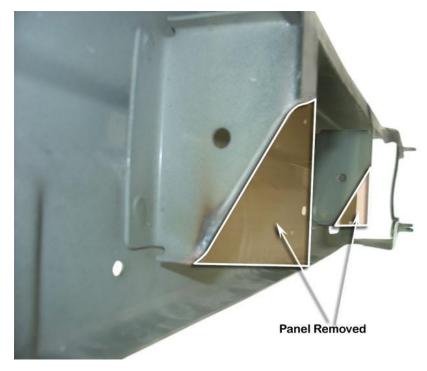
Discard Section Cut



126. Trim front bumper inner panel as shown.



127. Mark the forward top LHS edge of bumper beam as shown



128. Bend forward top LHS edge of bumper beam as shown

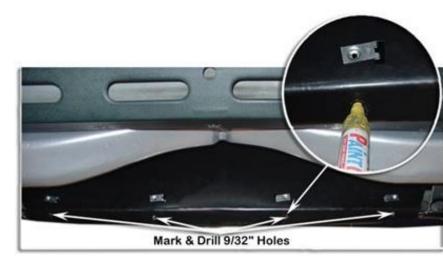


129. Reinstall the modified front bumper beam

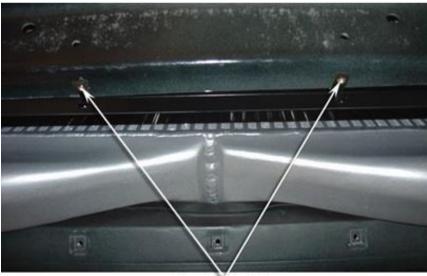


130. Pull the front air directional duct forward from below and using it as a template, mark 4 holes in the modified lower front bumper beam in line with the holes in the duct.

Drill the 4 holes to 9/32" diameter as shown.



131. Insert spire clips into the 2 center 9/32" holes previously drilled in front bumper beam.



Insert Spire Clips

132. FOR TRANS AM Fog-Lights Trim driving light support brackets as shown



133. Mount driving lights using 6mm x 1.0 x 20mm bolts with 6mm washers and 6mm x 1.0 nuts using 9/32" outer holes, previously drilled in beam for location of inner holes in driving light brackets mark and drill 9/32" outer driving light bracket holes and mount driving lights as shown.

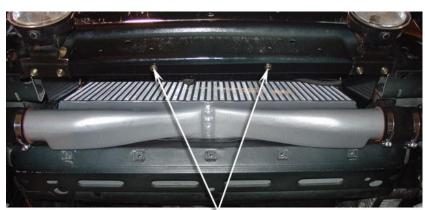


6mm x 1.0 x 20mm Bolt, 6mm Washer & 6mm x 1.0 Nyloc nut

134. Support center of air directional duct using 4.6mm x 16mm S/T screws, into spire clips previously installed in center holes in the bumper beam

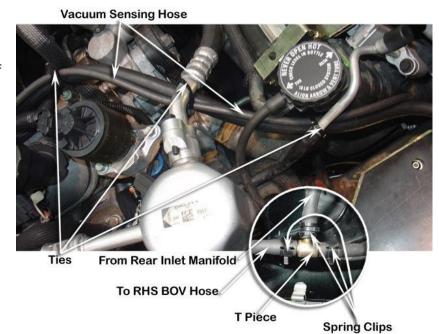


Install 2nd 6mm x 1.0 x 20mm Bolt, 6mm x 1.0 Washer & Nyloc nut



Self tapping Screws

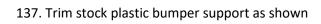
135. Route Vacuum sensing hose (that was previously installed on the tee piece at the rear of the intake manifold) beside the RHS of the radiator, to the front bumper beam. Cut 43.5" for the LHS BOV and 18" for the RHS BOV and install the Tee Piece. Secure using spring clips and ties

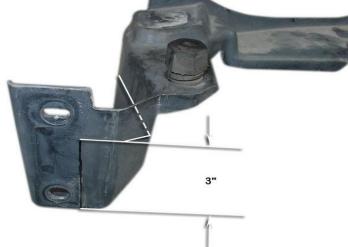


136. Straighten the tab on the stock mounting bracket and reposition horns

Install the stock horn assembly to the RHS chassis rail as shown



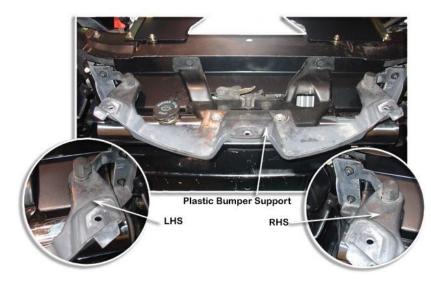








138. Reinstall plastic bumper support as shown

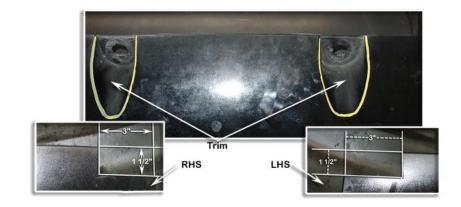


139. Reinstall foam bumper support as shown



Plastic Bumper Support

140. Trim plastic fascia as shown.



141. Reinstall front fascia.

142. From below, mark 4 holes in the plastic fascia, as shown, in line with the spire clips installed in the front air directional duct. Drill 4 9/32" holes as marked in the plastic fascia and install 4 S/T screws 4.6mm x 16mm



Drill 4 9/32" holes



Self Tapping Screws

143. Trim the front LHS plastic inner fender as shown and reinstall

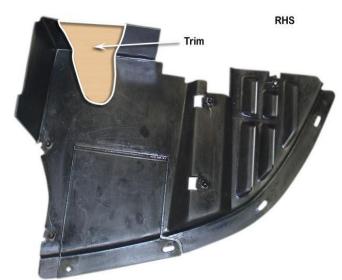
144. Trim the front RHS plastic inner fender as shown and reinstall



145. Trim LHS plastic under tray as shown.



146. Trim RHS plastic under tray as shown



Once trimmed, the plastic trays are reinstalled



Inner Guards & Undertray Reinstalled

Ensure front air directional spoiler is undamaged as this is crucial for engine cooling.

147. Reinstall the stock lower air directional spoiler N.B.

IT IS **ESSENTIAL** THAT THIS COMPONENT BE IN **AS NEW** CONDITION!!

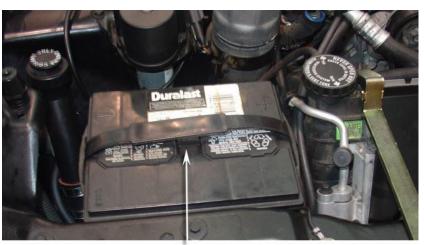


Stock Air Directional spoiler





Stock Air Directional Spoiler



Battery

148. Reinstall Battery.

Completion of Installation

- 1 Ensure that the engine oil grade utilized is suitable for use with gasoline turbocharged engines.
 - **2** Re-fill power steering system in accordance with the factory service manual.
- Refill the engine coolant in accordance with the factory service manual.
- 4 Verify that all hose clamps and fasteners are tightened.
- Verify that all components which are affected by engine movement have sufficient clearance to adjacent body panels.
 - **6** Verify there are no oil, water or most importantly fuel leaks in either the engine compartment.
- After a final check for fluid leaks, replace the cosmetic engine cover and any other auxiliary components that were removed during the installation.