

CorkSport Mazda Performance Products

[c o r k s p o r t]



Installation Instructions for the CorkSport Mazdaspeed 6 Front Mount Intercooler Kit

Contents

- 21x10x3 Inch Intercooler
- Five Intercooler Pipes
- Ten 2.25" (63-71mm) T-bolt Clamps
- Two 2.5" (70-78mm) T-bolt Clamps
- Two 2.75" (77-85mm) T-bolt Clamps
- Three 3" (83-91mm) T-bolt Clamps
- One 2.0" (57-65mm) T-bolt Clamp
- One 1.5" (32-37mm) T-bolt Clamp
- Two Core Support Brackets
- Intercooler Support Bracket
- 12" long ~12mm Silicone Hose
- 6 inch ~4mm Silicone Hose
- 32 Page Installation Instructions
- Turbo Inlet Pipe
- MAF Pipe
- RAM Airbox
- K&N Panel Air Filter
- One 2.25" to 2.0" Silicone Reducer
- Three 2.25" Silicone Coupler
- Two 2.25" to 2.5" Silicone Reducer
- One 2.75" Silicone Coupler
- One 3" Silicone Coupler
- One 2.25" to 3" Silicone Reducer
- Optional: Boost Cut Killer

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Contents – Hardware

- Two M8 x 1.25 Bolt, 20mm length
- Two M8 x 1.25 Bolt, 16mm length
- Four M8 x 1.25 Nuts
- Four M8 Flat Washers
- Two M6 x 1.00 Flange Nut (airbox)
- Rubber Isolator Assembly
- 8 inch Zip Tie

Major Components

Pipe #1



Pipe #2



Pipe #3



Pipe #4



Pipe #5



Turbo Inlet Pipe



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Major Components Continued

Intercooler



Core Support Brackets



MAF Pipe



Airbox



Intercooler Mounting Bracket



Air Filter



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Tools Required

- 7mm wrench
- 8mm wrench or socket
- 11mm wrench or socket
- Die grinder or Dremel
- Floor Jack
- Sharpie or marker
- Two jack stands
- Safety Glasses
- 4mm Allen wrench
- 10mm wrench or socket
- 12mm wrench or socket
- 14mm wrench or socket
- Philips screwdriver
- Flat screwdriver
- Pliers

WARNING: This kit will raise boost level approximately 2-3 psi on an otherwise stock car. Please make sure if you have other modifications to your vehicle that fuel delivery is correct and safe for your modifications including this front mount intercooler kit.

CAUTION: Installation of this kit takes 6-7 hours for experienced mechanic. Installation of this kit is fairly complex and requires more than a basic auto repair skills. Read the instructions completely before starting installation. It is best to have the Mazda factory service manual for reference.

WARNING: This kit requires cutting some plastic supports on the radiator/core support.

WARNING: This kit requires removal and re-installation of fragile electronic sensors. Careful handling is required.

NOTE: The vehicle used in these installation instructions was a 2006 Mazdaspeed 6 equipped with a Mazdaspeed Intake. These instructions do not cover the removal of the factory airbox which needs to be removed for this installation.

NOTE: Before you get started make sure the car is cooled off and disconnect the negative battery cable. Also make sure there is no residual oil in the new intercooler piping. If there is oil rinse out the pipes with warm soapy water until clean.

NOTE: This kit has been tested and is known to fit the following Bypass/Blow off valves HKS, Greddy, OEM Mazda and forge. If you have another type of valve there may be clearance problems and relocation of the valve flange may be required.

TIP: When installing the intercooler leave the bubble wrap on the pipes to keep from scratching them. Once you have the pipes installed remove the bubble wrap.

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Step 1: Disconnect the negative and positive battery connections with a 10mm wrench.

Step 2: Loosen the 10mm headed nut on the battery bracket.



Step 3: Remove the 10mm headed bolt on the other side of the battery bracket. Remove the battery bracket and then the battery.



Step 4: Remove the two 10mm headed bolts from the intercooler cover and remove the cover.



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Step 5: Loosen the two hose clamps with a 10mm wrench or Philips screw driver. There is one located at the throttle body and one at the intercooler inlet.



Step 6: Disconnect the vacuum line and relief line at the bypass valve.



Step 7: Remove the three 12mm headed bolts from the intercooler. Carefully remove the intercooler from the engine bay and set it aside in a safe place. To keep damage from occurring to the stock intercooler store it in a safe place.



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Step 8: Disconnect the Mass Air Flow (MAF) sensor.



Step 9: Disconnect the crankcase vent hose from the intake pipe.



Step 10: If your vehicle is equipped with a Mazdaspeed cold air intake remove the two hose clamps shown below and remove the pipe.



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Step 11: Remove the 10mm headed nut from the intake hard pipe bracket.



Step 12: Remove the wiring harness clip from the intake hard pipe.



Step 13: Carefully disconnect the wastegate vent line from the intake hard pipe.



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Step 14: Loosen the intake to turbo hard pipe hose clamps and remove the hard pipe.



Step 15: Disconnect the crankcase vent hose from the valve cover.



Step 16: Loosen the bottom hose clamp on the turbo outlet hose and reposition it as shown in the picture below. Leave the clamp loose at this time.



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Step 17: If your vehicle is equipped with a cold air intake loosen the nut and intake bracket.
Remove the isolator mount.



Step 18: Remove the two Phillips headed screws clips and screws from the corners of the grille.



DANGER!

Follow instructions that came with your jack/stands. Death and or significant property damage could result if you do not.

Step 19: Jack up the front of your vehicle and place it securely on jack stands.

Step 20: Remove the four (two per side) Phillips headed screw clips from the fender liner to bumper.



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Step 21: Remove the eight 8mm/Phillips headed screws (four per side) from the lower fender liners.



Step 22: On the passenger side pull the fender liner down disconnect the driving light harness and side marker light plug.



Step 23: On the drivers side pull the fender liner down and disconnect the driving light harness and side marker light plug.



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Step 24: Remove the two 10mm headed bolts from the bumper to core support.

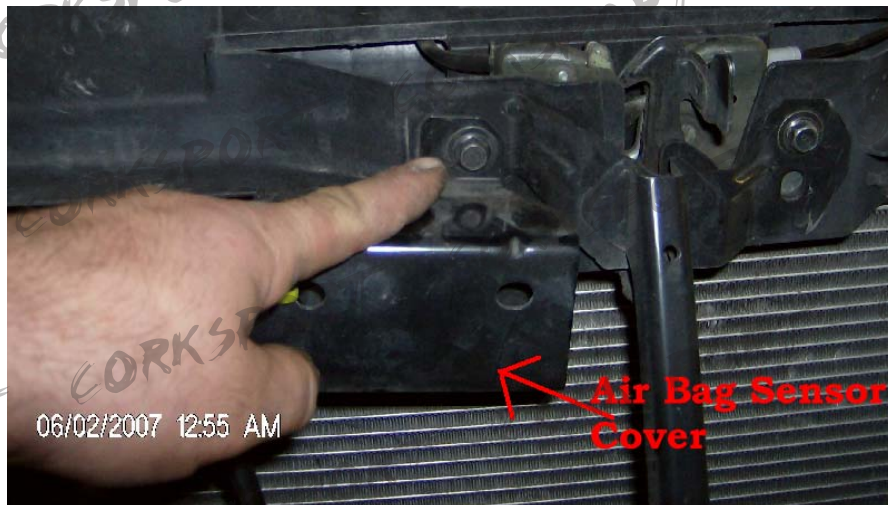


Step 25: With the fender liners pulled back towards the wheel, remove the two (one per side of the car) 8mm/Phillips header screws that secure the bumper to the fender. Carefully remove the bumper and set it aside in a safe place like a soft blanket or a surface that won't scratch the paint on the bumper.



Step 26: If your vehicle is equipped with a cold air intake remove the pipe and filter.

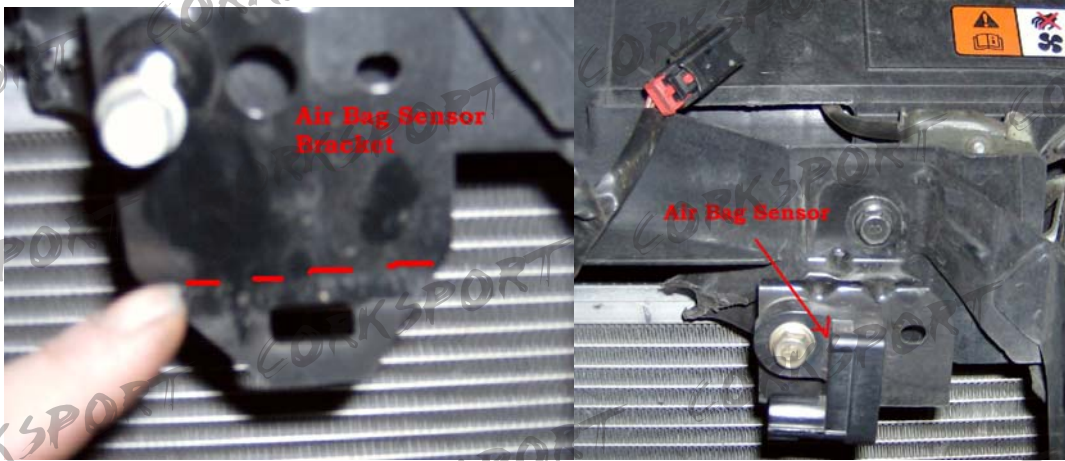
Step 27: Remove the 10mm headed bolt from the airbag sensor cover. Unplug the sensor and place the harness out of the way.



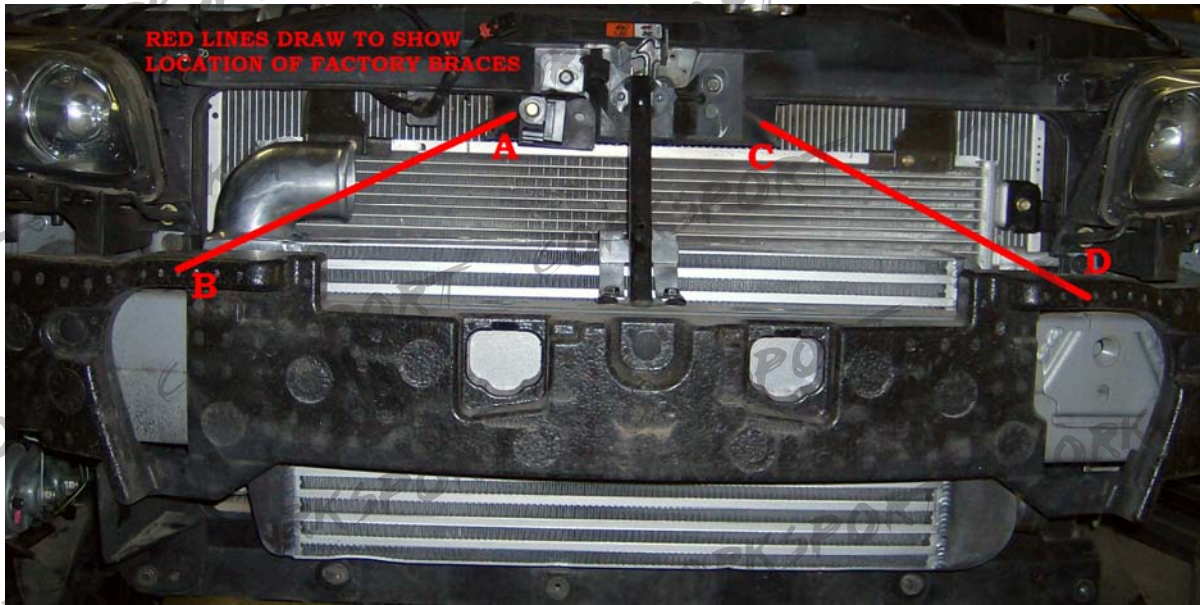
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Step 28: Remove the 10mm headed bolt which holds the airbag sensor to the bracket. Cut the bracket at the bottom edge of the bracket as shown in the picture below-left. The cut should be just at the lowest point of the airbag sensor. Re-attach the airbag sensor with the 10mm headed bolt. The picture below-right shows the sensor reinstalled after bracket modification.



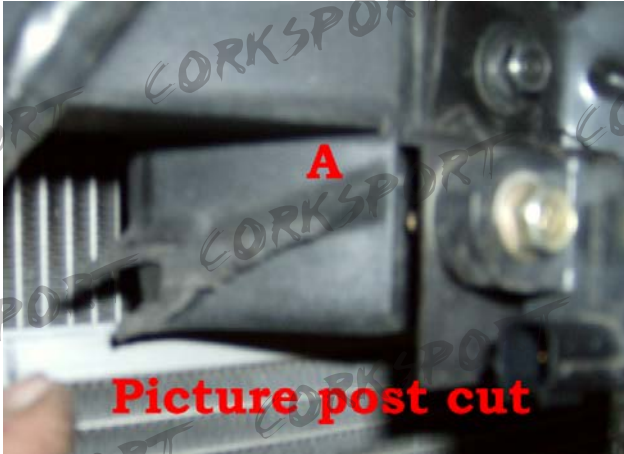
Step 29: With a cutting tool cut out the plastic braces from the core support to the hood latch as shown.



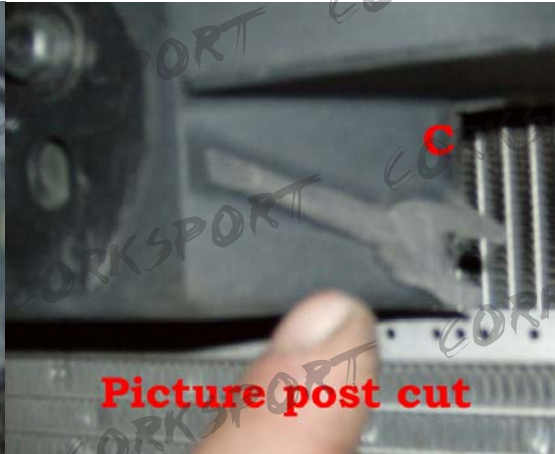
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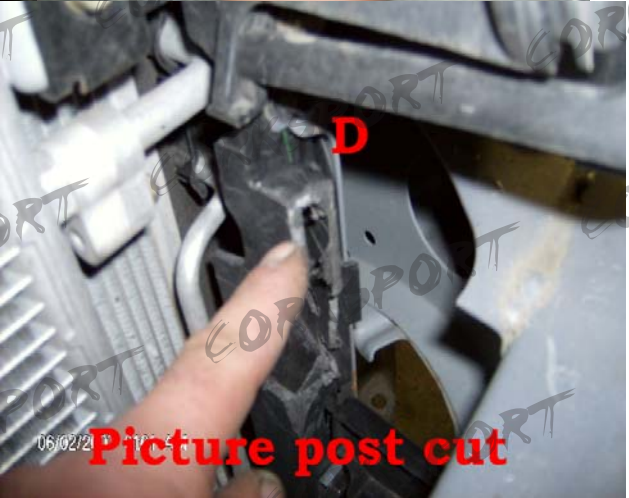
Picture post cut



Picture post cut

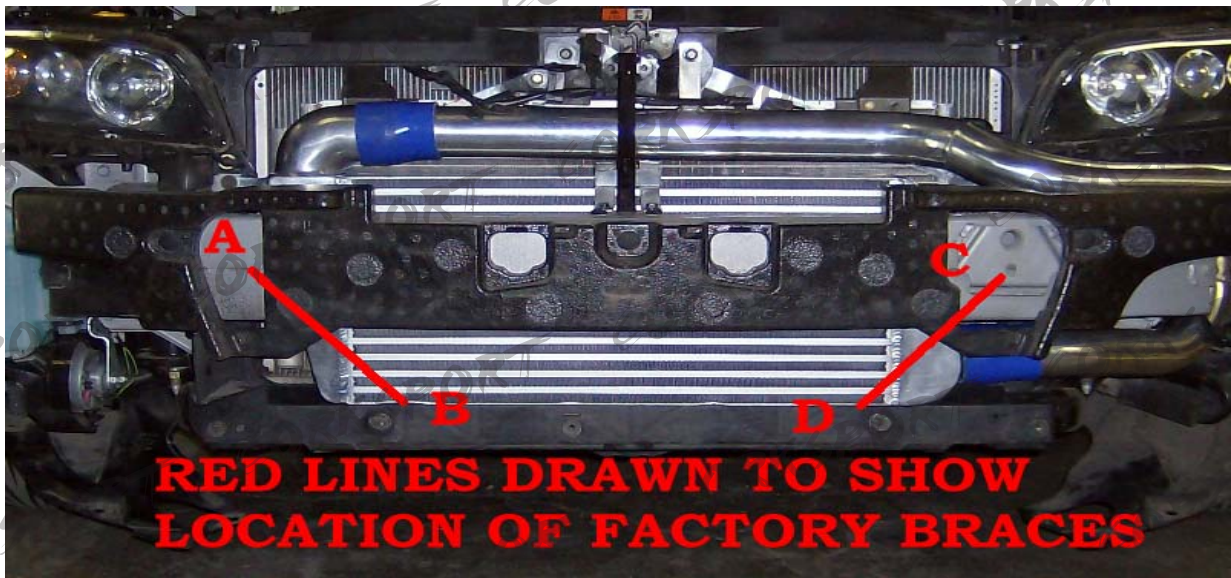


Picture post cut



Picture post cut

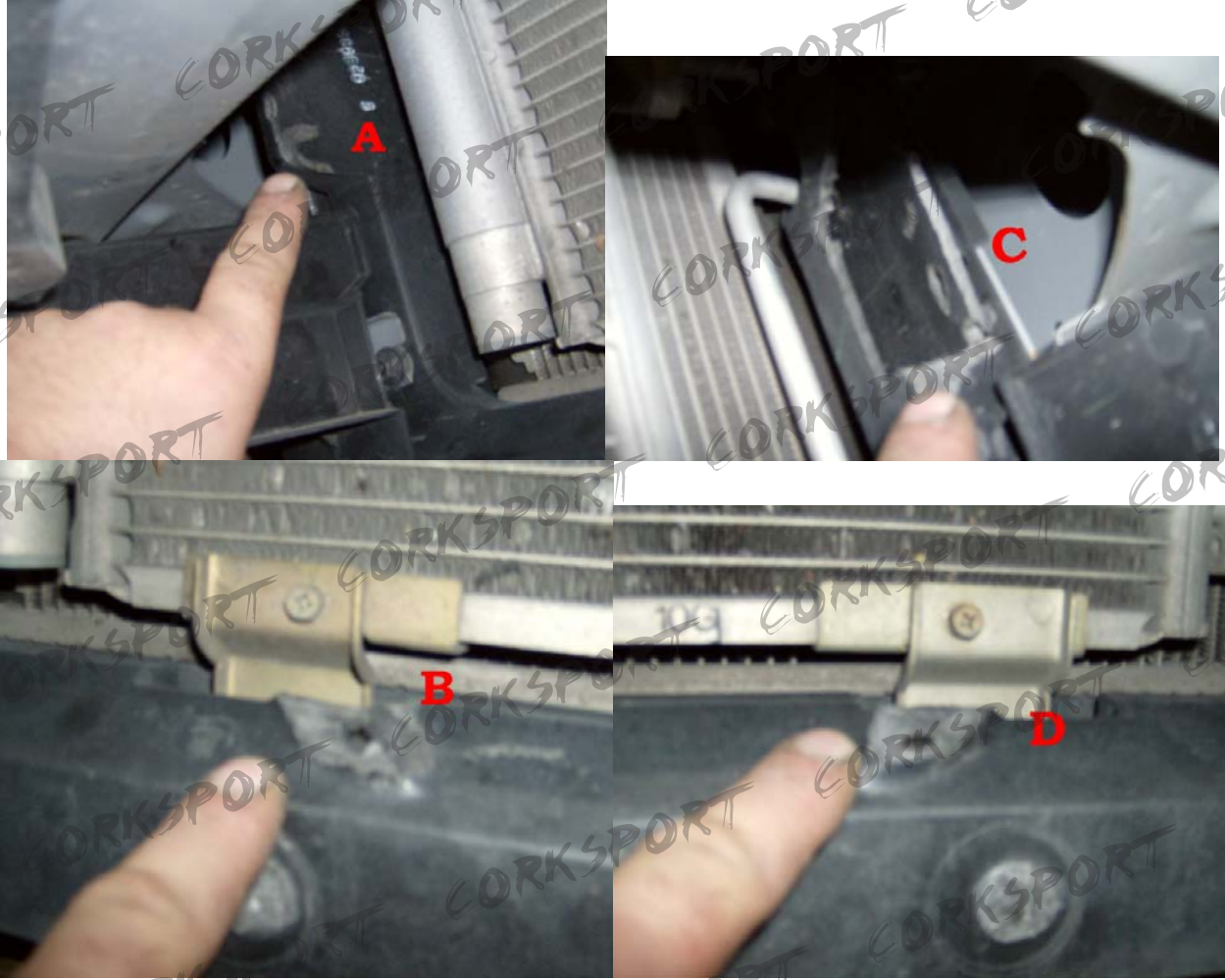
Step 30: With a cutting tool remove the plastic brace to core support braces from the bottom to the side of the core support.



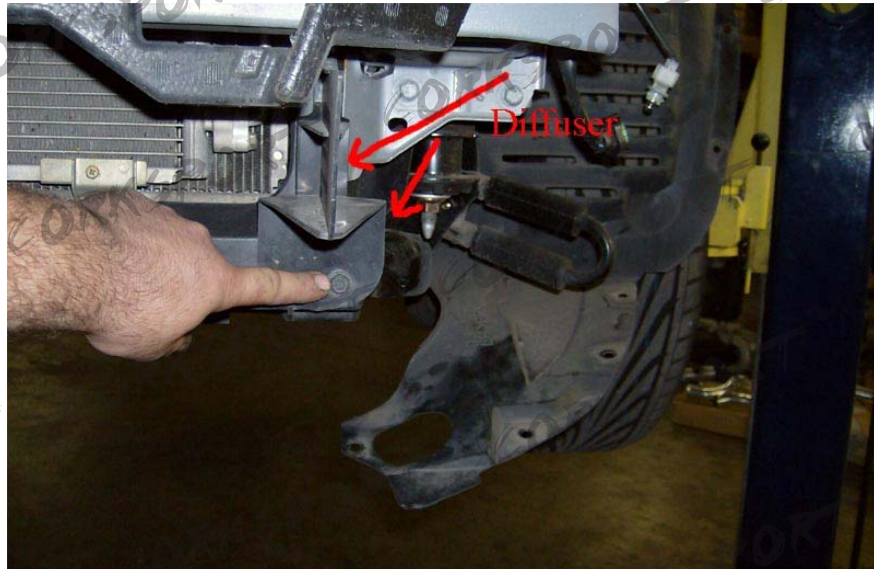
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Step 31: Looking at the front of the vehicle, remove the 10mm headed bolt from the plastic air diffuser on the right side. Remove the plastic air diffuser.



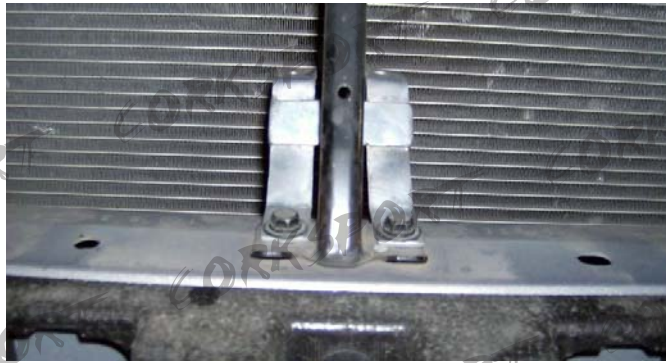
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Step 32: Remove the two 10mm headed bolts from the hood latch support to front crash bar.



Step 33: Using the two 10mm headed bolts from step 32 install the intercooler mounting bracket as shown below.



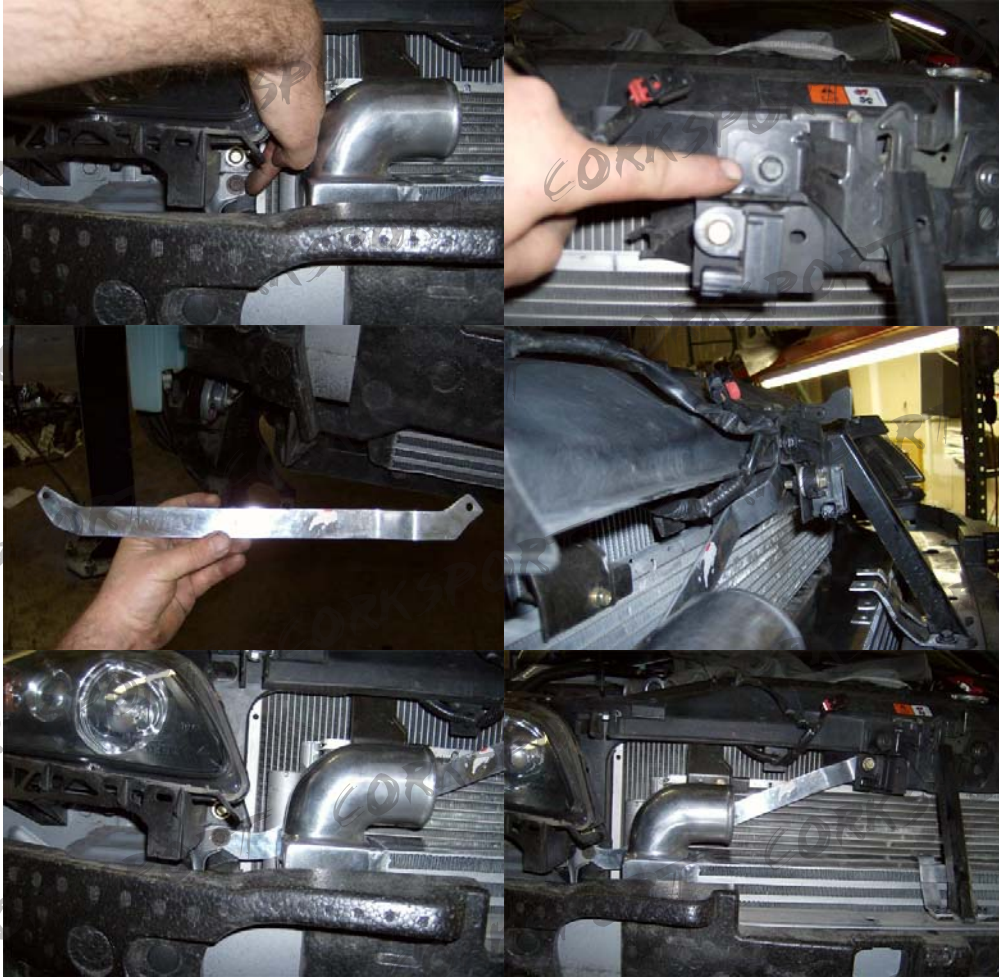
Step 34: Carefully place the intercooler in the vehicle as shown and mount to the intercooler mounting bracket with the two M8 x 1.25 bolts and four M8 washers provided. Two of the washers go on top of the intercooler and sit between the intercooler and the intercooler mounting bracket. With the intercooler mounting bracket in place the intercooler will be secure.



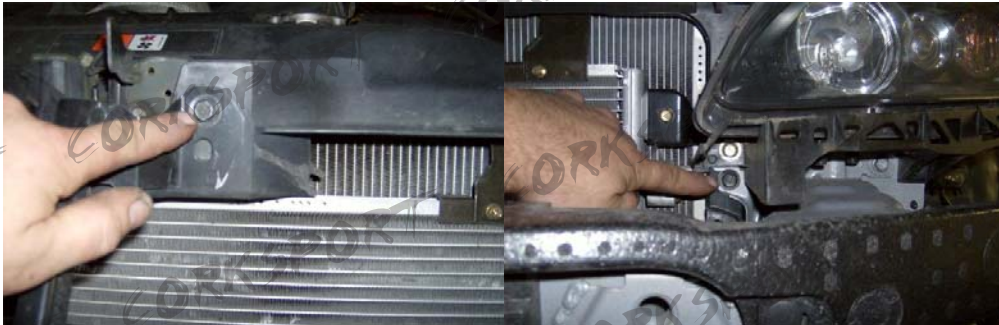
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Step 35: Looking at the front of your vehicle, on the left remove two 10mm headed bolts shown and place the new core support bracket with the two 10mm headed bolts.



Step 36: Looking at the front of your vehicle, on the right remove two 10mm headed bolts shown and place the new core support bracket with the two 10mm headed bolts.



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Step 37: Place a 2.25 to 2.5 silicone coupler onto the top outlet of the intercooler.



Step 38: Trim out the Styrofoam buffer on the crash bar as shown below. Trim enough so that pipe #3 can be routed between the Styrofoam and headlight.



Step 39: Trim off the plastic from the bottom of the drivers side headlight bracket. Trim enough so that pipe #3 can be routed between the Styrofoam and headlight. There should be 2mm of clearance between piping and headlight.



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Step 40: Place intercooler pipe #3 into the coupler on the intercooler as shown. Make sure the intercooler pipe sits down under the edge of the headlight as shown below.



Step 41: Install the hood latch bracket bolt through the intercooler pipe bracket as shown



Step 42: Install intercooler pipe #1 as shown.



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Step 43: Using the 2.75 inch silicone connector install intercooler pipe #5 on to the throttle body as shown.



Step 44: Install the isolator in the bolt hole shown below.



Step 45: Install the straight silicone connector on intercooler pipe #5 as shown.



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Step 46: Install the silicone reducer on intercooler pipe #4 as shown.



Step 47: Install intercooler pipe #4 into the coupler on pipe #5 then onto the intercooler. Make sure the bracket lines up with the rubber isolator. Install your BOV now and connect the vacuum line to the BOV.



Step 48: Remove the 10mm headed bolt from the ground harness located next to the installed intercooler pipe #4.



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Step 49: Install a straight 2.25 inch silicone connector on intercooler pipe #2 as shown.



Step 50: Install intercooler pipe #2 between intercooler pipe #1 and #3 as shown below. Make sure to line up the hole in the bracket for the 10mm headed bolt for the ground connection.



Step 51: Check the clearance with the car body on all of the intercooler pipes and adjust as necessary and install hose clamps. You want the pipes to have 1cm clearance if possible.

Step 52: Reconnect the airbag sensor connector.

Step 53: Re-position the air temp sensor as shown and zip tie into place.



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Step 54: Replace the bumper onto the vehicle and re-connect the fog lamps and side marker connectors for both sides of the car. *Note you may skip this section and reinstall the bumper last once you have checked for pipe leaks and done a test drive. If you do make sure to secure the wheel liners before the test drive to avoid damage to them*



Step 55: Replace the two Phillips headed screws and screw clips in the corners of the grill.



Step 56: Install the two 10mm headed bolts from the bumper to core support.



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Step 57: Install the eight 8mm/Phillips headed screws (four per side) from the lower fender liners.



Step 58: Install the two (one per side of the car) 8mm/Phillips header screws that secure the bumper to the fender.



Step 59: Install the four (two per side) Phillips headed screw clips from the fender liner to bumper.



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Step 60: Remove your vehicle from the jack stands and lower it to the ground.

Step 61: Install the “Boost Cut Killer” per the instructions included with it. This intercooler kit could raise boost beyond the limit set by Mazda and thus result in boost cut by the factory EFI. This kit is necessary to eliminate this boost-cut. If you have no other modifications to your Mazdaspeed6 you can run the intercooler kit without installing this.

CAUTION!

The factory boost cut is a safety feature used by Mazda to protect car and driver. Defeating this system could result in engine damage if not properly managed.

Step 62: Install the 2.0 to 2.25 silicone coupler with a clamp onto the turbo inlet. The 2 inch side goes on the turbo.



Step 63: Install clamp and turbo inlet pipe onto coupler. Make sure the bracket on the turbo inlet pipe goes on the stud.



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Step 64: Tighten both hose clamps on the turbo inlet pipe. Install and tighten the 10mm headed nut onto the bracket.



Step 65: Install the supplied 3.5mm wastegate hose (boost controller vent) on to the small nipple on the turbo inlet pipe and the other end on to the boost controller solenoid.



Step 66: Install the 12mm silicone hose from the valve cover breather to the turbo inlet pipe.



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Step 67: Install the 3 inch to 2.25 silicone connector on to the MAF housing and tighten the clamp. Carefully install MAF sensor into the housing.



Step 68: Install a 2.25 inch clamp and small end of the 3 inch to 2.25 silicone connector onto the turbo inlet pipe. Do not tighten the clamp at this time.

Step 69: Install the 3 inch straight coupler on to the end of the airbox outlet with two 3 inch hose clamps.

WARNING: When removing the airbox or adjusting the 3" silicone coupler do not use a screwdriver or other metal tool to remove the silicone by prying. It can damage the airbox. With the hose clamp removed pry back the edges around the silicone connector by hand on the airbox side to get the silicone connector loose then pull it off.

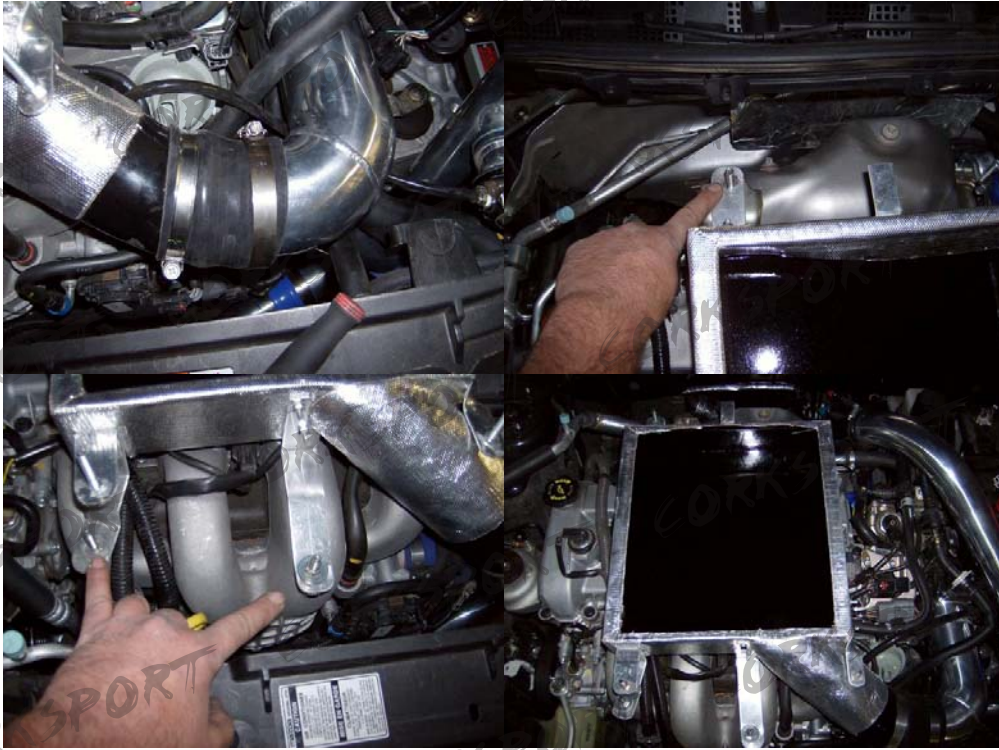


DO NOT USE A DAMAGED AIRBOX. TURBO FAILURE COULD RESULT!!!

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Step 70: Slip the 3 inch silicone coupler that is on the airbox outlet on to the MAF housing pipe. Then place the airbox onto the top mount intercooler mounting studs.



NOTE: Some adjustment might be required with the metal brackets that the airbox mounts to the engine. If the airbox does not sit even, gently bend the aluminum mounting brackets to correct the level.

Step 71: Replace the three 12 mm headed nuts with the supplied washers on the airbox mounting brackets and tighten.



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Step 72: Tighten the hose clamps on the airbox to MAF housing and MAF housing to turbo inlet pipe.



Step 73: Reconnect the MAF electrical connector.



Step 74: Install the supplied air filter into the airbox. Make sure the filter is sitting flush with the airbox on the edges.



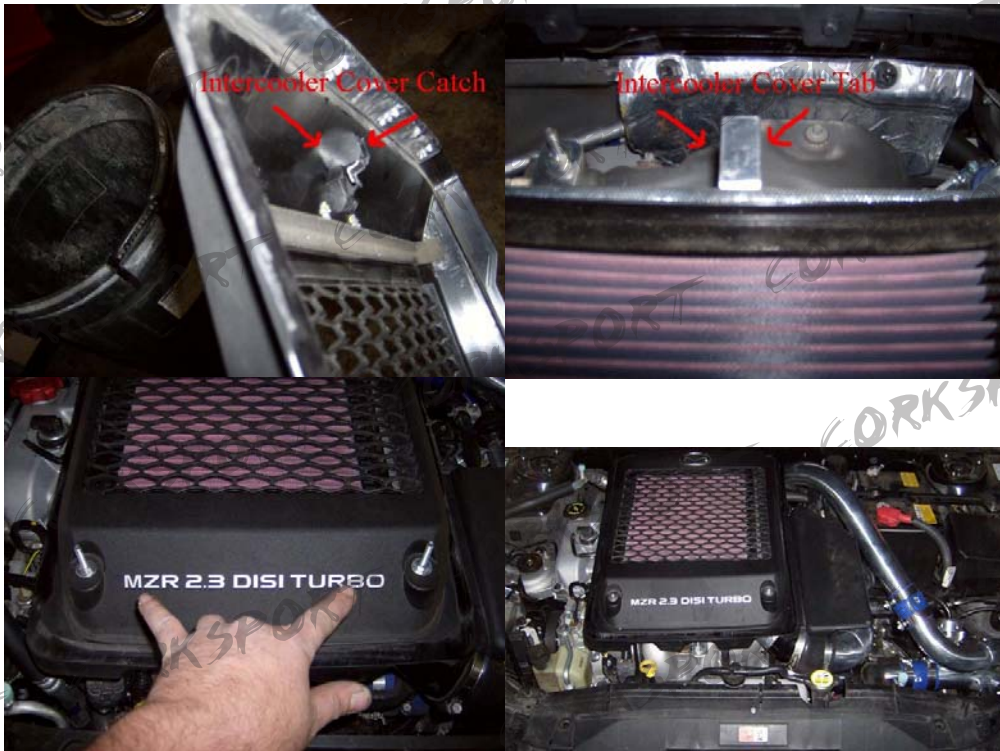
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Step 75: Trim the edge of the intercooler cover to allow clearance to intercooler pipe #1 (turbo outlet).



Step 76: Slide the intercooler cover onto the tab at the rear of the airbox then on to the studs on the front of the airbox. Install the supplied two 10mm headed nuts and washers and tighten to Make sure the rear cover tab catches the airbox mounting bracket on the rear of the airbox for proper fitment.



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Step 77: Re-install the battery bracket with the 10mm headed bolt.



Step 78: Tighten the battery bracket down with the 10mm headed nut on the bracket.



Step 79: Reconnect the positive and negative battery connections.

Step 80: Start your car and check for running issues or hard starting. If any hard starting or running issues occur then check for air leaks. This can be done with a spray bottle of water by spraying the silicone connectors and joints. If the idle changes when spraying connections then check the hose clamps for tightness and the fitment of the silicone couplers. After finding a connection leak re-start your car and repeat if necessary.

Test drive your vehicle after the installation. If you experience a “whistle” or “squeal” you will need to adjust the alignment of the intercooler pipes. The best method for locating the noise is to look for a silicone junction where the piping is not straight. To fix the problem loosen the clamps at the junction and adjust the piping so both pipes line up straight in the connector.

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