

# CorkSport

MAZDA PERFORMANCE



## Installation Instructions for the CorkSport Mazdaspeed Protégé Front Mount Intercooler

### Tools Required

- 8mm wrench or socket
- 11mm wrench or socket
- 13mm wrench or socket
- Die grinder or Dremel
- Floor Jack
- Drill
- 9mm drill bit or equivalent
- Sharpie or marker
- 10mm wrench or socket
- 12mm wrench or socket
- 14mm wrench or socket
- Philips screwdriver
- Flat screwdriver
- Pliers
- Two jack stands
- Scissors

### Contents

- 24x6x3.5 Intercooler
- Four intercooler pipes
- Two intercooler mounting brackets
- Air Bypass Pipe
- One 2.0 inch t-bolt clamp
- Nine 2.25 inch t-bolt clamps
- Four M8 x 1.25 25mm long bolts
- Eight M8 flat washers
- Four M8 lock washers
- Optional: 10 inch Maradyne Fan
- Optional: CS Intake Kit
- 26 Page Installation Instructions
- Two 2.25 inch silicone connectors
- Three 2.25 to 2.5 inch silicone connectors
- One 2.0 to 2.25 inch silicone connector
- Three 2.5 inch t-bolt clamps
- Two M8 x 1.25 12mm long bolts
- Four M8 x 1.25 nuts
- Rubber 1/8 vacuum cap
- Two small hose clamps

Please call 360-260-2675 if you have any questions with the installation of this product.

Major Components Pictures

Pipe #1



Pipe #2



Pipe #3



Pipe #4



Bypass Pipe



Intercooler Brackets



Intercooler



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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.

WARNING: This kit will raise boost level approximately 2-3 psi on an otherwise stock car. It may be necessary to check air/fuel ratio after installation.

WARNING: This kit requires cutting sheet metal.

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.

NOTE:

The vehicle used in these installation instructions was a 2003.5 Mazdaspeed Protégé equipped with an Injen Intake.

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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Passenger Side Template

14mm



10mm



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Drivers Side Template

14mm

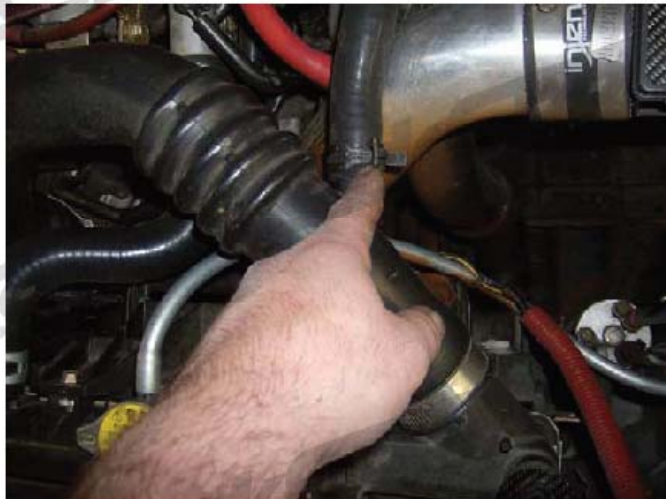
10mm

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Step 1: Loosen the two 8mm headed hose clamps from the factory charge pipe.



Step 2: Disconnect the factory bypass valve hose from the charge pipe.



Step 3: Remove the charge pipe.

Step 4: Disconnect the vacuum line to the factory bypass valve.



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Step 5: Loosen the 8mm headed hose clamps at the turbo inlet and the AFM and remove the pipe. The test vehicle for installation was equipped with an Injen intake. If your car has the stock airbox remove it before proceeding. Follow factory service manual.

Step 6: Remove the 10mm headed nut on the solenoid attached to the intercooler pipe at the throttle body.



Step 7: Loosen the two 8mm headed clamps, one at the throttle body and one on the intercooler. Remove the pipe.



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Step 8: Remove the two 10mm headed nuts for the A/C fan on the radiator. Disconnect the fan plug and remove the fan.



Step 9: Remove the two Phillips headed screws at the corner of the grille.



Step 10: Jack up your car and place it securely on jack stands.

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

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Step 11: Remove the two Philips headed clips and one 8mm headed bolt from the inner fender liner to bumper on both sides of the car.



Step 12: From under the car remove the three 8mm headed screws from the wheel liner on both sides of the car.



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Step 13: If your car is equipped with driving lights un-plug them.



Step 14: Remove the seven 10mm headed bolts from the lower under trays.



Pictures Continues on the Next Page

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Step 15: Gently pull the inner fender liner towards the wheel and remove the two 8mm headed screws that attach the bumper to the fender from each side of the car.



Step 16: Disconnect the windshield washer reservoir bottle hose and plug it with the 1/8 rubber vacuum cap provided.



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Step 17: Disconnect the electrical plug from the windshield washer bottle. Remove the two 10mm headed bolts and remove the bottle.



Step 18: Remove the four 14mm headed bolts that hold the tie down brackets from each side of the car. If your car has a cold air intake you will need to remove the filter prior to removing the drivers side bracket.



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Step 19: Print and cut out the templates for the intercooler piping located on page 4 and 5. The templates will look like the ones in the picture below once cut out.



Step 20: Use the 14mm hole on the template to line up with the lower front 14mm bolt hole that originally secured the tie down brackets. At the other end of the cut out template line up the 10mm bolt hole for the wheel liner. Using a marker draw the shape of cutout on the car.

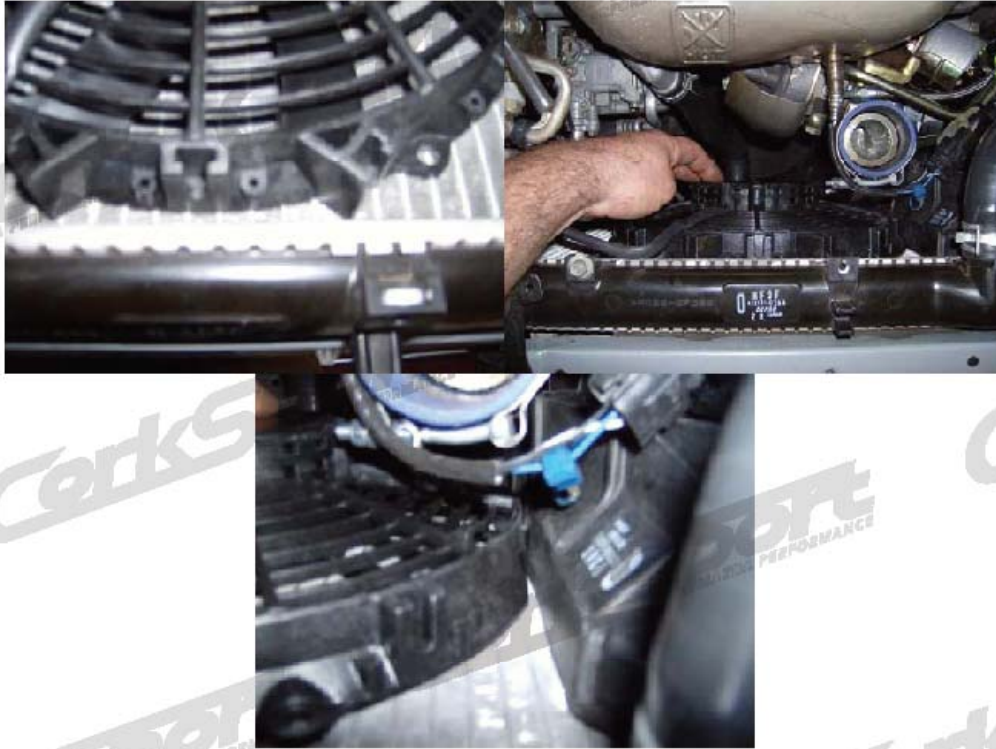
Step 21: Using a cutting tool, cut out the sheet metal on the lines made with the template.



**NOTE:** If you purchased a fan with the kit follow steps #22-25 if not skip to #26

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Step 22: Test fit the fan supplied with the kit against the radiator to get it positioned as shown in the pictures below. The position of the fan is  $\frac{3}{4}$  of an inch from the top of the radiator and against the main fan on the side.



Step 23: Follow the mounting instructions included with the fan for mounting to the radiator.

Step 24: Locate the fan plug from the original A/C fan which was removed. Cut off the electrical plug approximately 2 inches from the motor.

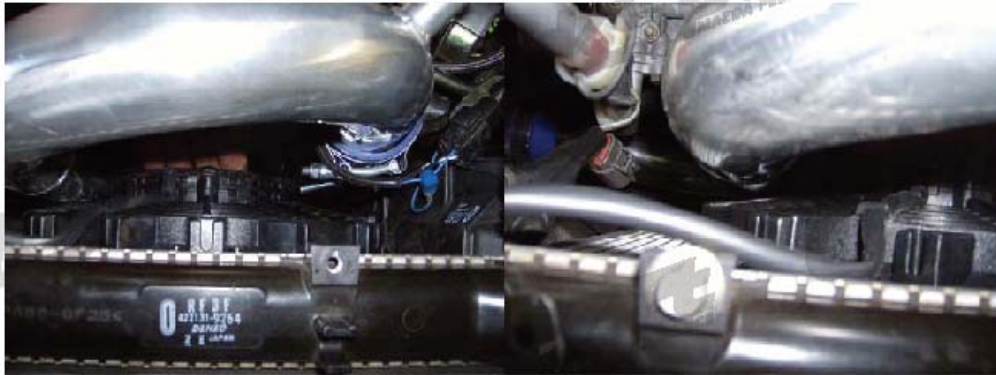
Step 25: Cut off the plug provided with the fan and connect the original plug to the new fan. The blue wire from the original connector goes to the positive on the new fan. The black wire from the original fan goes to the negative on the new fan. CorkSport **strongly** recommends using solder and heat shrink for this connection.

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Step 26: Using the 2.0 inch to 2.25 inch silicone coupler (2.0 inch side on the turbo), the 2 inch hose clamp, and one 2.25 inch hose clamp install pipe #2 from the turbocharger. Tighten the hose clamp on the pipe but leave the connection on the turbo loose for now.



Step 27: Double check clearance against the A/C fan. The piping and the fan should be positioned as shown in the pictures below.



Step 28: Install a straight coupler on the other end of pipe #2.



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Step 29: Install the short end of intercooler pipe #1 into the coupler.



Step 30: Using a 10mm bolt from the under tray secure the intercooler pipe in the factory bolt location on the core support.



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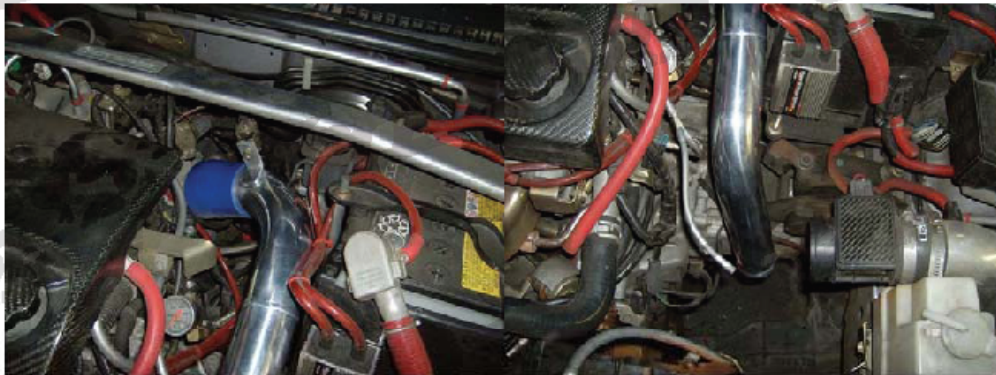
Step 31: Using another of the silicone reducers install the small end on the intercooler pipe and push the connector on until the big end is flush with the pipe as shown in the picture below.



Step 32: With a silicone reducer place the large end onto the throttle body and secure with a hose clamp.

Step 33: Install the factory solenoid to the intercooler charge pipe with the factory 10mm headed nut.

Step 34: Install intercooler pipe #4 onto the throttle body and leave the hose clamp loose.



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Step 35: Install a straight silicone coupler on intercooler pipe #4 and connect to intercooler pipe #3.



Step 36: Using a 10mm headed bolt from the under tray secure intercooler pipe #4 to the car using the factory bolthole in the core support.



Step 37: Using the last silicone reducer install the small end first on intercooler pipe #3 until the large end is flush with the end of the intercooler pipe.

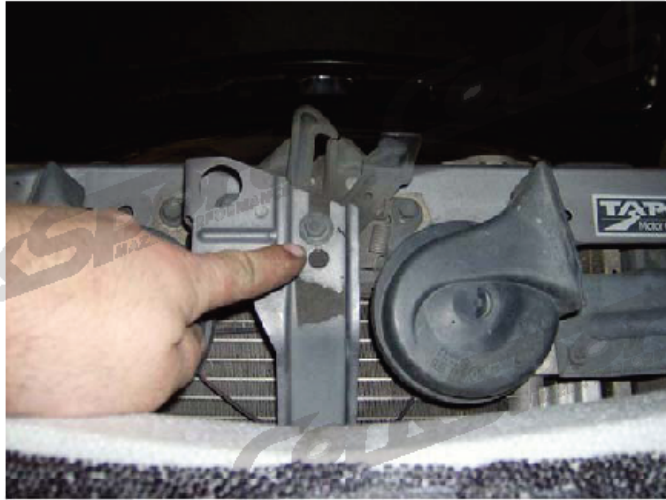


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Step 38: Remove the 10mm headed bolt from the power steering cooler line bracket to hood latch support bracket.

Step 39: Remove the 10mm headed bolt from the hood latch to core support bracket.

Step 40: Remove the 10mm headed bolt from the center of the hood latch to the support bracket.



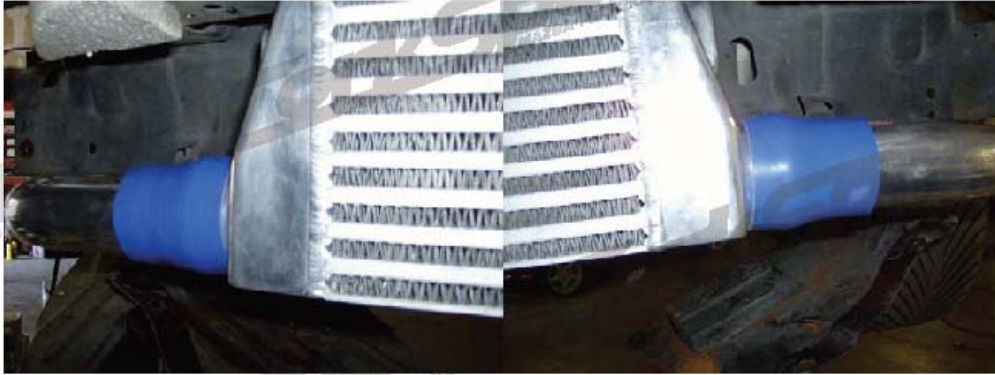
Step 41: Using some effort bend the power steering cooler line back towards the A/C condenser carefully. Make sure you do not contact the A/C condenser.

Step 42: With the power steering cooler lines behind the location of the hood latch support reinstall the hood latch support.



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Step 43: Using something or someone support the intercooler between the two pipes and slide the silicone couplers onto the intercooler. Be sure the intercooler is not against the hood latch support bracket.



Step 44: Lift the intercooler up towards the factory crash bar. You want 1mm of clearance between the bar and the top of the intercooler. Support the intercooler at this height.



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Step 45: Take one of the intercooler mounting brackets and put it against the intercooler mount tab on the end tank and up against the crash bar as in the pictures show below. Using the 12mm long M8 bolts and washers supplied with the kit bolt the brackets to the intercooler end tanks so the bracket is positioned flat against the crash bar.



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Step 46: With the brackets against the crash bar mark and drill the two holes into the crash bar per side with a 9mm drill bit.



Step 47: With the M8 35mm long bolts, nuts and washers attach the intercooler-mounting bracket to the crash bar and secure.

Step 48: Remove the bolts securing the bracket to the intercooler and remove the intercooler. Make sure there is no debris in either end of the intercooler. If there is then clean out all the metal material. Remove packaging tape if present. Reinstall intercooler.

Step 49: Check all the intercooler pipe clearances and adjust so the piping is not touching any components. Tighten all the hose clamps on the intercooler and all the intercooler piping.

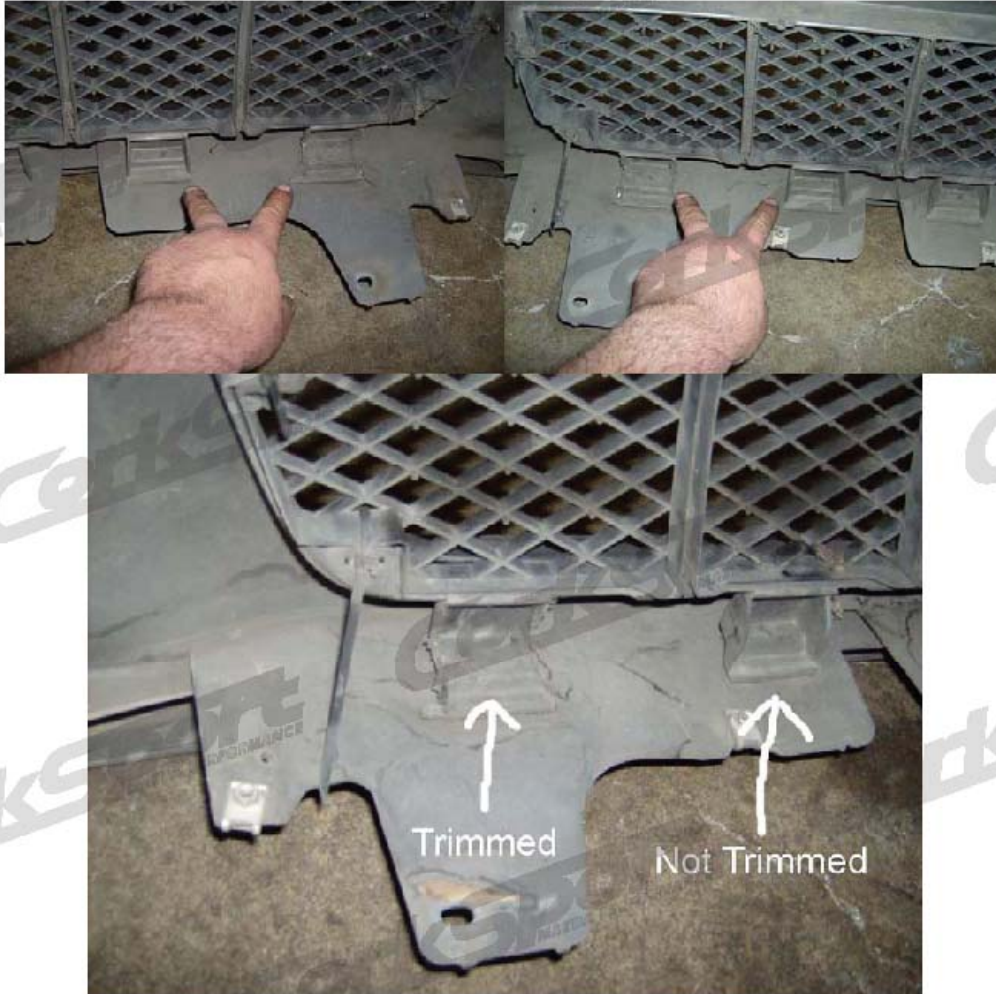
Please call 360-260-2675 if you have any questions with the installation of this product.

Step 50: Using the cutting tool trim the under tray and wheel liners as shown below so they fit into the factory locations and clear the intercooler piping. The first two pictures show the spots needed to trim on the inner fender liner for the driver and passenger side.



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Step 51: Using the cutting tool trim the back of the bumper as shown below for intercooler clearance. The bottom picture shows the tab cut on the left and the second tab un-cut on the right.



Step 52: Reinstall the factory windshield washer bottle, electrical connector, and feed hose.



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Step 53: Re-install the air filter if your car has a cold air intake.



Step 54: Re-install the bumper with the original hardware.

Step 55: Remove the two 10mm headed bolts securing the intercooler pipes to the core support.



Step 56: Re-install the under tray back into position and reinstall the seven 10mm headed bolts. Make sure the intercooler pipe brackets get bolted up when re-installing the under-tray.

Step 57: Re-install the wheel liners on both sides of the car.

Step 58: Re-install the turbo inlet to AFM pipe.

Step 59: Take the long factory BOV hose and cut in half. Attach one half of the hose to the BOV.

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Step 60: Attach the second half of the factory BOV hose to the BOV hose extension pipe and position it on to pipe #2. Position the hose so there are no kinks and tighten the hose clamps.



Step 61: Reconnect the negative battery cable. 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.

Step 62: Lower your car to the ground and test drive.

**WARNING:** Detonation can cause serious engine damage. If detonation is heard then immediately let off throttle and stay of boost until necessary repairs are made.

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