

# CorkSport

MAZDA PERFORMANCE



## Installation Instructions for the CorkSport 1987-1991 Mazda Rx7 Turbo Intercooler Kit

### Tools Required

- 8mm wrench or socket
- 11mm wrench or socket
- 14mm wrench or socket
- Die grinder or Dremel
- Floor Jack
- Safety Glasses
- Metal File
- 10mm wrench or socket
- 12mm wrench or socket
- 17mm wrench or socket
- Philips screwdriver
- Pliers
- Jack stands
- Black Sharpie

### Contents

- 24x11x3 Intercooler
- Four Intercooler Pipes
- Two Intercooler Mounting Brackets
- Air Filter
- Cast Aluminum AFM Adapter
- 3-Way Bypass T-connector
- Six 2.25" T-bolt Clamps
- Two M10 Washers
- Two M10 x 1.50 Nuts
- Four M8 Washers
- Four M8 Lock Washers
- Four M6 x 1.0 20mm Bolts
- 18 Page Installation Instructions
- Two 2.25" Silicone Couplers
- Two 2.25" to 2.5" Silicone Reducers
- 9" long 10mm I.D. Silicone Hose
- Aluminum Battery Tray
- AFM Support Bracket
- Two 2.50" T-bolt Clamps
- Two 5/8 Hose Clamps
- Two M10x1.50 25mm Bolts
- Four M8 x1.25 20mm Bolts
- Four M6 Washers

## **Parts Pictures**

Intercooler Upper Mounting Bracket

Intercooler Lower Mount Bracket

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Battery Tray



AFM Filter Adapter



Bypass T



AFM Bracket



Intercooler Pipe #1



Intercooler Pipe #2

### Parts Pictures Continued

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Intercooler Pipe #3



Intercooler Pipe #4



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**WARNING:**

This kit requires the removal of your A/C compressor. For this we recommend your vehicle be taken to an authorized A/C filling and discharge station and have your system discharged prior to the start of installation of this kit. CorkSport does not condone the release of your refrigerant into the atmosphere.

**WARNING:**

This kit also requires the use of a shorter style of battery or battery relocation. For a standard lead acid battery you will need to purchase a 21R series battery.

**WARNING:** This kit requires cutting sheet metal.

**NOTE:** Installation of this kit takes 6-7 hours. Installation of this kit is fairly complex requires more than a basic mechanical understanding of Rx7s.

**NOTE:**

The vehicle used in these installation instructions was a non power steering equipped 1987 Turbo II. Installation may vary from model to model.

**NOTE:**

Read the instructions completely before starting installation. See the last pages of the installation instructions for parts. When installing the intercooler pipes to keep from scratching leave the bubble wrap on the piping to protect it. Once you have the pipes installed remove the bubble wrap.

Step 1: Before you start disconnect the ground from the battery. Remove the battery hold down bracket. Remove the stock battery tray. It is held down by four 10mm headed bolts.



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Step 2: Loosen the hose clamps on the factory intercooler. Remove the two air bypass hoses from the passenger side of the intercooler. (Only one hose on the S5)



Step 3: Remove the four 12mm headed bolts from the stock intercooler and remove it from your car. Loosen the stock hose clamp on the rubber hose on the turbocharger outlet and the throttle body inlet so they can be repositioned later.



Step 4: Disconnect the AFM (air flow meter) plug. The connector is fragile so be gentle.



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Step 5: Loosen the clamp that holds the AFM to the turbo inlet pipe.



Step 6: Remove the three 10mm headed bolts from the factory air box. Remove the three 10mm headed bolts from the air box inlet pipe. Remove the inlet pipe. Disconnect the air pump inlet hose from the air box. Remove the air box.



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Step 7: With the air box removed remove the four 10mm headed bolts that hold the AFM to the air box. Carefully remove the AFM from the air box being careful not to damage the gasket. Set aside the AFM, 4 bolts and the gasket for later use.



Step 8: Disconnect the front lighting plugs that are located underneath the battery tray and the air box.



Step 9: Raise the front of your vehicle and place it securely on jack stands. From underneath the remove the thirteen 10mm headed bolts that hold the under tray on and remove the under tray.

Step 10: Remove the two 10mm headed bolts from the lower part of the inner fender liner from the driver side and passenger side.



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Step 11: Pull the fender liner out towards the wheels to gain access to the six 10mm headed nuts (three per side) that hold the bumper to the fenders. Remove the four 10mm headed bolts that attach the bumper to the bottom of the car.



Step 12: Using the manual headlight knobs open the headlights. With the headlights open remove the one 10mm nut (per side) in the corner of the fender to the bumper.



Step 13: Remove two 8mm headed bolts (per side) that attach the lower lip to the fender. Remove the five 10mm headed bolts on the top edge of the bumper and remove the bumper.



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Step 14: Remove the eight 12mm head bolts top and bottom from the bumper fiberglass support/crash bar and remove the bar.



Step 15: Remove the three 14mm headed bolts (per side) and remove the stock fiberglass crash bar support brackets from the car.



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Step 16: On the drivers side remove the headlight wiring harness isolator/protector from the core support and move the harness out of the way. Repeat for the passenger side.

Step 17: The template for trimming the holes are on page 19 and 20. Place the template for the corresponding side against the round hole. Mark the sheet metal with a sharpie and using a cutting tool cut the metal out. Use a file to remove any sharp edges. See the pictures below for the finished product for each side.



Step 18: Remove the four 10mm headed bolts from the plastic under tray/bumper support and remove.



Step 19: Cut the factory bumper sheet metal as shown in the pictures below for the clearance for the intercooler. The pictures below are after trimming.



Pictures Continued on Next Page

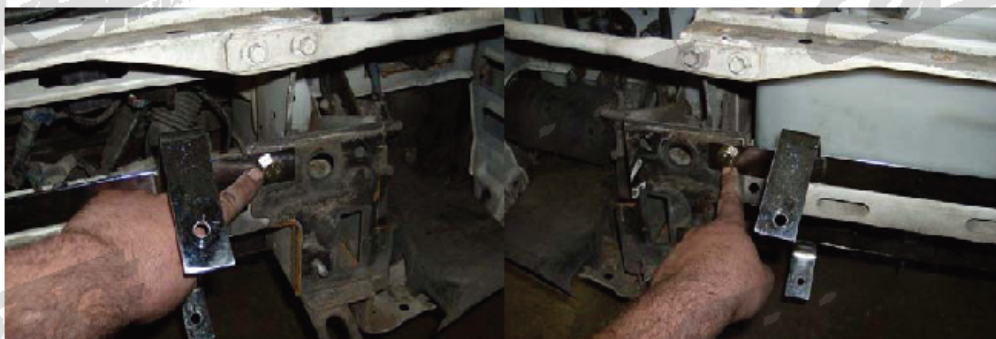
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Step 20: Using the two 10mm headed bolts from the under tray install the lower intercooler bracket.



Step 21: With the M10 x 1.5 bolts and nuts provided install the upper intercooler-mounting bracket.



Step 22: Test fit the intercooler to make sure the cutting job allows for enough clearance. If not trim more and test fit again. Using the M8 x 1.25 bolts and washers carefully install the intercooler onto the brackets. This may require an extra set of hands to keep from damaging the intercooler.

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Step 23: Rotate the turbocharger outlet hose towards the front passenger side of the engine bay as shown in the picture below.



Step 24: Install the intercooler pipe #1 as shown.



Step 25: Install the second intercooler pipe as shown. Install the silicone couplers and clamps but leave them loose for now.

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Step 26: If your car was not equipped with A/C skip this step. Disconnect the A/C lines that connect to the compressor. Remove the A/C compressor belt. Remove the four 12mm headed bolts from the A/C compressor that secure it to the bracket. Remove the compressor. Remove the A/C line that goes to the passenger side of the firewall. It is illegal to empty your A/C charge into the atmosphere. If your car has an A/C charge take it to an authorized discharge and re-fill station and have the system emptied.

Step 27: Rotate the factory throttle body inlet hose as shown in the picture below. Install the 3<sup>rd</sup> intercooler pipe.



Step 28: Install the 4<sup>th</sup> intercooler pipe from the front of the vehicle and attach the pipe with the 2.25" connector to the throttle body intercooler pipe. Connect the 4<sup>th</sup> intercooler pipe to the intercooler with the 2.25" to 2.5" inch silicone adapter.



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Step 29: Adjust the intercooler pipe until they are clear from the car body and alignment is good. Tighten all twelve hose clamps.

Step 30: Install the supplied "T" pipe to the bypass valve as shown below. From the "T" connect the supplied hose to the intercooler pipe.



Step 31: If you are using the supplied battery bracket and have purchased the shorter battery install the battery bracket with two 10mm headed bolts and one 10mm headed nut. If you have relocated your battery to a different location skip this step.



Step 32: Attach the cast AFM filter adapter to the AFM with the four 10mm headed bolts and gasket. Install the AFM into the turbo inlet pipe as shown below.



Step 33: Use the supplied AFM support bracket as shown below in pictures. Install the supplied air filter carefully. It is a tight fit so you may want to use WD-40 or a similar lubricant to help make the filter slide on easier. Reconnect the AFM connector and tighten hose clamps and brackets.

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Pictures Continued on Next Page



Step 34: Reinstall the bumper. Make sure to feed the wiring for the front lights back into the engine bay.

Step 35: Reinstall the five 10mm headed bolts on the top of the bumper. Reinstall the two 10mm nuts into the corner located for the front bumper. Reinstall the six 10mm headed nuts into the fender to bumper locations. Reinstall the four 10mm headed bolts into the inner fender liner. Re-attach the four 8mm headed bolts that secure the lip to the fender. This is reverse of the removal of the front bumper.

Step 36: Cut out the corners of the under tray as shown below along the front edge to allow the intercooler to fit.



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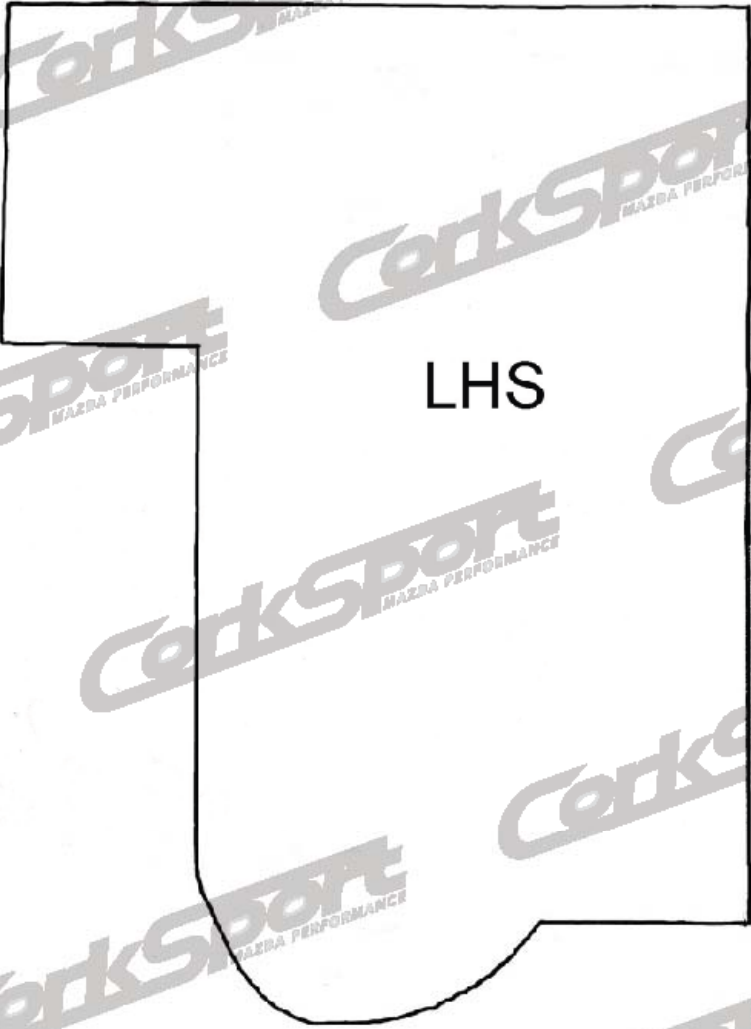


Step 37: Remove the two 10mm headed bolts from the lower intercooler mounting bracket and reinstall the under tray. Reinstall the two 10mm headed bolts through the under tray and back into the lower intercooler-mounting bracket. Reinstall the side and rear 10mm bolts. On the front bumper to under tray edge mount the under tray with the original bolts, supplied washers, and supplied nuts.

Step 38: Reinstall the battery and bracket. Reconnect the battery terminals. Start up vehicle and run to operating temperature. Check for air leaks once the vehicle warms up. A sign you have an air leak is rough running, hard starting, or a high idle. Double check all clamps for tightness, if something is loose tighten it. Test drive and you are finished.

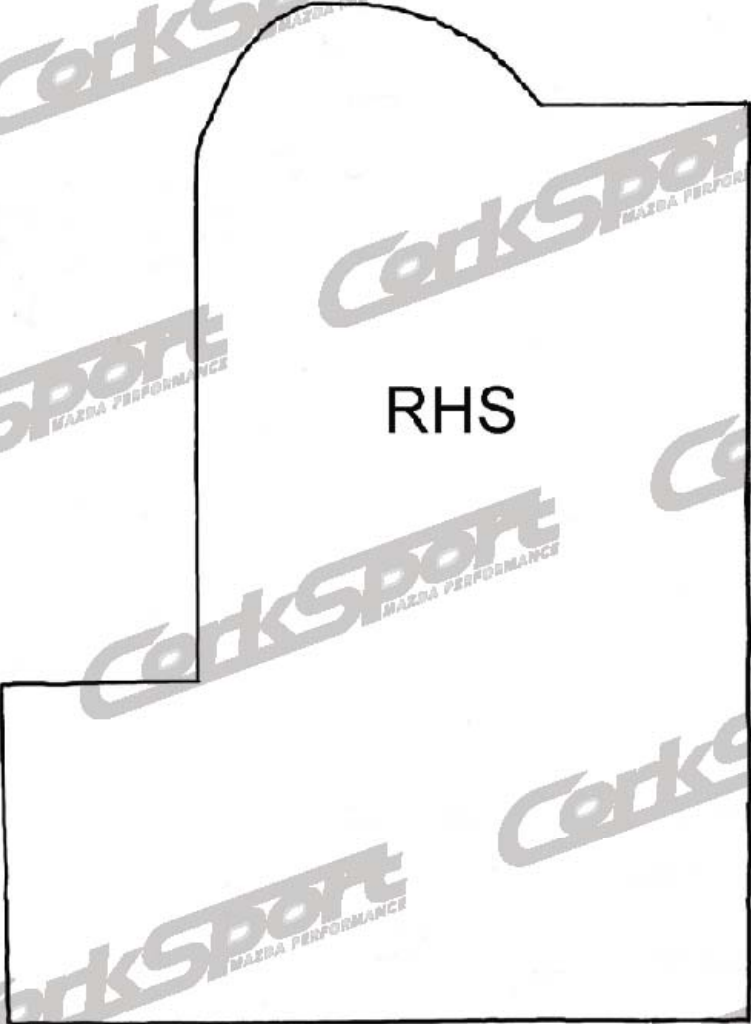
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LHS

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RHS

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