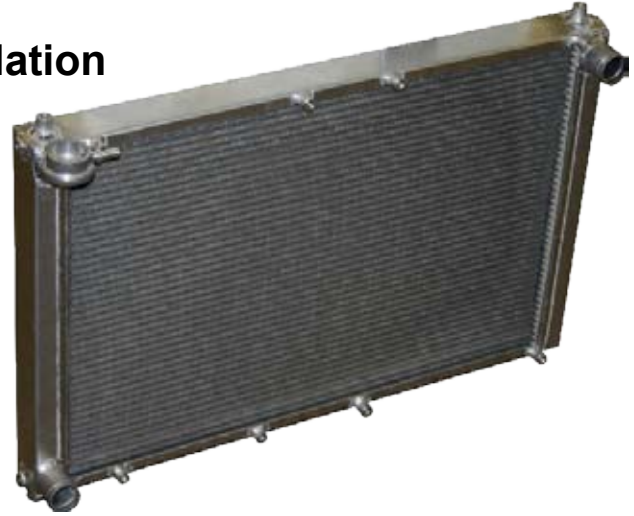


Flyin' Miata

tech line: 970 464 5600

Crossflow Radiator Installation

Congratulations on purchasing our crossflow radiator! This radiator is the result of thorough (and instrumented) testing and should be a large improvement in cooling. This radiator was designed to work with all '90 - '05 Miatas, so there will be some fittings / bungs that won't be used in your application.



1. Drain the radiator, disconnect the hoses and unplug the fans. There's no need to remove the fans yet, as they'll come out with the radiator. You might need to remove some intake plumbing, but this will vary based on your specific setup.

2. **Mazdaspeed Miatas only:** If you still have the stock intake, you should seriously consider our complete intake kit. Also, you'll need to remove the outlet hose that runs from the MAF, which is mounted to the airbox, to one of the silver pipes next the engine.

2. **On '99 - '05 cars:** Remove the two brackets securing the top of the radiator and pull the radiator and fans out. Remove the fans from the radiator once the assembly is out of the car.

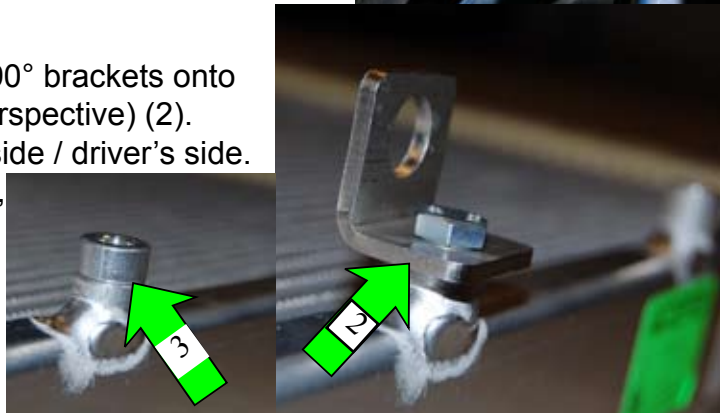
3. **On '90 - '97 cars:** Remove the horizontal bolts near the top of the brackets on the side (1). Once the brackets / bolts have been removed, you can lift the radiator and fans out of the car. Remove the fans from the radiator once the assembly is out of the car.

4. **On '99 - '05 cars:** Transfer the rubber sleeves on the top and bottom of the original radiator (four in total) to the new radiator. You'll need to cut a hole in the bottom of the lower left (driver's side) sleeve for the drain on the radiator. Be sure the drain plug is tight.

5. **On '90 - '97 cars:** Remove the side brackets from the original radiator and bolt them onto the new radiator. Be sure to match the orientation (the pin points towards the back of the car) of the brackets. You'll use the same bracket-to-radiator mounting point on the top and one farther up on the bottom. The lower boss on the radiator should match up with a different hole on the bracket, everything should be pretty straightforward there.

6. **On '99 - '05 cars:** With stock fans, bolt the small 90° brackets onto the two shorter bosses (lower left from the driver's perspective) (2). Mazdaspeed Miatas only use one bracket on the outside / driver's side.

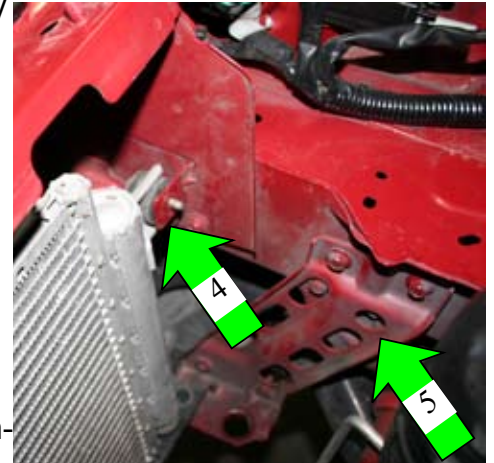
The side with the smaller hole is bolted onto the boss, the tab with the larger hole should be oriented above the boss (closer to the fins than the very bottom of the radiator). If you're using our shroud, you'll use the aluminum spacers included with the shroud, *not* the brackets described here.



7. **On '90 - '97 cars:** Use the two included 1/4" aluminum spacers to make the shorter spacers the same height as the rest (3). Use the included longer bolts here.

8. Mount the fans. You may have to remove the overflow nipple in order to mount the fans. Regardless of whether or not you remove it, you'll need to tighten the overflow nipple - they're loosely installed here. **DO NOT OVERTIGHTEN!!** This is soft (and hollow!) aluminum, it's definitely possible to break something. Use some Teflon tape or sealant and get it snug. Also remember that these are NPT threads - they won't look like they've bottomed out, decide if they're tight based on how much torque is necessary, not how many threads are showing. Unless you're using our shroud, you'll need to trim the factory shrouds to fit around the inlet, outlet and cap. The tighter you trim the shroud, the more efficient your fans will be (more air will come through the radiator instead of coming around the shroud).

9. **On '01 - '05 cars only:** The AC condenser (if so equipped) may need to be moved so that it's in front of its upper mounting brackets (4) (it should currently be installed behind them). Test-fit the radiator to find out, and remember that a steel bolt will rub through an aluminum radiator tank very quickly. In order to move the condenser (if necessary), unbolt the lower radiator brackets (5) then slip the condenser down, in front of the brackets, then back up. Be careful with the aluminum lines, but they will allow a bit of movement. On Mazdaspeed Miatas that still have the stock intercooler (you haven't upgraded to ours yet?!), you'll need to remove the intercooler mounting bracket, as it mounts to both of the radiator brackets. This can be reinstalled later if so desired. Secure the condenser and re-install the lower radiator mounts. Once the radiator has been installed, check for contact with any AC lines and tweak as necessary. The AC lines are relatively soft and easy to bend, and you have to try pretty hard to damage them (although it is possible).



10. **On '99 - '05 cars only:** One fender washer (small hole on the inside, large diameter on the outside) is included with the kit. **This washer is only used on the Mazdaspeed Miatas** - if you don't have an MSM, please ignore that washer and skip to the next step. The silver pipe that runs behind the headlight / radiator will need to be relocated slightly. Remove the nut and bolt that hold the pipe down and pull the tab off of the stud (6). Then find the rubber hose that runs from the silver pipe in question to the compressor outlet (7) and release the hose clamp on the compressor inlet. Push the rubber hose towards the back of the car to create the clearance necessary for the neck on the new radiator. Once there's enough clearance (you'll have to test-fit the radiator to be sure), re-install the hose clamp. Be sure that you put in the correct place on the metal compressor outlet. Slip the fender washer over the stud (6) and tighten the nut back down. You can trim the excess rubber if you like, but it's not necessary.



10. **On '01 - '05 cars only:** The lines for the power steering cooler might interfere with the lower radiator outlet. Test-fit the radiator to see if this is an issue for you - you'll probably have to slip the lower hose on to be sure. If you have any interference, pull the radiator back out and unbolt the bracket that holds the lines to the radiator bracket (8). Locate the rubber hose that connects one of the cooler lines to the reservoir (9), then measure 5/8" down from its top edge. Cut around the circumference of this hose, the slit it up, towards the top. Remove this piece of hose, then push the hose up, onto the barb coming out of the reservoir. This should move both lines out of the way of the radiator outlet. Look at the PS line bracket, and determine where you need to drill the hole to remount that bracket. Do so, then bolt it back down. Remember that you can simply pull the lines through the bracket (in a fore-aft direction) if need be.

11. Be sure the drain bolt is tight (it's in the lower left (driver's side) spud) and slip the radiator into the car. Be aware that all of the spuds are threaded, but only the lower left has a hole into the tank. Bolt it down using either the top mounts or side mounts, depending on your year.

12. Connect the hoses. You'll probably need to use a longer hose for the inlet (top), which we sell. The V8 cars will need different hoses altogether, if you don't already have them, give us a call.

13. Connect the included 5/16" hose to the nipple on the radiator cap mount and run it over to the overflow tank. Use the included wire looms to hold the hose where the fans mount. Ziptie it in a couple of places if need be.

14. **V8-specific radiators only:** Thread the 90° hose barb fitting into the boss on the passenger's side tank using sealant or thread tape. Don't get any sealant / tape on the last two threads, as we don't want any of it getting into the coolant. Run a hose from here to the steam fitting on the engine.

15. You may have to tweak your hood prop slightly in order to get it to lay down. This will be a trial-and-error exercise, but it shouldn't take much.

16. Always remember that water transfers heat better than coolant. Therefore, you want to use as much water as possible for your specific winter conditions. We usually find that 70% distilled water and 30% coolant is ideal. Also remember that you need some coolant to inhibit corrosion and act as a lubricant. If you don't run any coolant, you'll need something like Redline's Water Wetter and a higher pressure radiator cap (water boils at a lower temperature than a water / coolant mix, a higher pressure cap brings this boiling point back up). The radiator includes a 16 psi cap, running straight water requires a 22 psi cap. Be sure to always run distilled water.

17. Fill the radiator. Try to get the cap as high as possible for this (raise the front of the car) to make the cap the highest point. Once it's full, start the car to ensure that coolant is circulating. Top it off again if need be. Also be sure that your overflow tank is full. It's a good idea to check the coolant level (in both the overflow tank and radiator) after the car has been up to full operating temperature.

