

Flyin' Miata

tech line: 970 464 5600

Flyin' Miata Fan Shroud

Ver 1.3

Congratulations on purchasing our fan shroud kit! We're confident that this is the best solution on the market, and we've done the testing to back it up. That having been said, here are some hints to help with the installation. Please read the entire write-up before you install the shroud.

- Bolt the fans to the shroud before installing the shroud. The fan with the larger motor goes on the driver's side with most setups, but feel free to change if need be. Get these bolts snug, but don't go crazy, as it is possible to tear the threaded inserts out.



- Use the included weatherstripping on the edge of the shroud, as shown. Cut to length as necessary to get proper fitment. If it's too short to seal, try crushing the grip portion a bit so that you don't have to push it all the way on.

- While the radiator probably doesn't need to be removed from the car to install this shroud, it would be much easier if it was. I would strongly recommend removing the radiator, installing the shroud, then reinstalling the assembly. This is also a good way to figure out which spacer is necessary (see the next bullet). Be sure everything is lined up and tight, the lower bolts can be a pain to get to.



- The shroud should be spaced off of the radiator as far as possible. This is so that the air pulls through the entire radiator (not just two fan shaped circles) and so that the effect of the spiraling air from the fans is minimized. Sixteen 1/4" spacers are included to appropriately space the fan shroud from the radiator. The V8 cars typically need the 1/4" spacers; four cylinder cars can typically use two 1/4" spacer(s). Bear in mind that your car might be different and adjust accordingly. If you have a radiator with especially long fan bosses, consider not using any spacers. You'll need to reuse the factory bolts if you do that. Get the bolts snug, but be sure not to strip anything - don't go crazy.

- Getting fan mounting bosses in the proper location is apparently one of the most complicated parts of building an aftermarket radiator. We tried to design in as much freedom as possible, but we can only do so much. While the locations on the shroud are correct for the factory radiator (and therefore should be for aftermarket radiators), you may have to open up the holes a bit in order to fit the shroud to your radiator. If you do, be sure to use washers (fender washers can be a good option).

- **'99 - '05 Cars only:** You'll need to use the included brackets on the lower left (driver's side) fan mounts. The brackets need to be bolted to the radiator, then the shroud should be bolted to the bracket. Be sure that you have the bracket in the correct orientation (that larger side goes on the radiator, as shown). Use the slop between the bracket and the radiator to get the bracket in the best location. If your radiator has unusually large holes, get fender washers to make up the difference.



- 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).

- **94 - 05 Cars only:** Wiring specifics are covered below, but here's how to connect the included plugs: Splice in the new wires using the included plugs and the yellow butt connectors. You'll need to cut off the ring terminal, but you can reuse the pre-crimped butt connector if you like. The wires are left pretty long, so we include enough butt connectors to trim the wires shorter, if you'd prefer. Be certain that you get a good crimp on the factory wires, as they're a bit smaller than the Spal wires. If it looks like the wire is too thin for the butt connector, strip more wire and double it over.

- **NON-MAZDASPEED MIATAS ONLY:** Make 100% sure that your wiring is correct. Be sure that the black Spal wire goes to the black factory wire and the red or blue Spal wire goes to the other factory wire.

- **MAZDASPEED MIATAS WITH STOCK ECUS ONLY:** The Mazdaspeed Miatas (MSMs) have goofy fan wiring. Instead of having a separate primary / engine fan and secondary / AC fan, they have two different speeds for each fan. This has nothing to do with voltage / current, it's a matter of which winding in the motor is used. This is why there are four wires going into each fan on the MSM but only two on the included Spal fans (and the stock fans on earlier cars). To wire the Spals in, you need to connect the red or blue Spal wire to the yellow factory wire. Then connect the black Spal wire to the black factory wire. This is true for both the large and small fans. This means that both fans will come on at the same time.

- **MAZDASPEED MIATAS WITH HYDRA ECUS ONLY:** The Mazdaspeed Miatas (MSMs) have goofy fan wiring. Instead of having a separate primary / engine fan and secondary / AC fan, they have two different speeds for each fan. This has nothing to do with voltage / current, it's a matter of which winding in the motor is used. This is why there are four wires going into each fan on the MSM but only two on the included Spal fans (and the stock fans on earlier cars). To wire the small Spal in, you need to connect the red or blue Spal wire on the small fan to the yellow factory wire. Then connect the black Spal wire to the black factory wire. On the big fan, connect the red or blue Spal wire to the light green with black stripe (LG/B by factory nomenclature) wire, then connect the black Spal wire to the red factory wire. For the remaining wires (the yellow and black wires on the big fan and the LG/B and red wires on the small fan) use electrical tape to seal the ends and hold them out of the way (I suggest wrapping them onto the existing harness). For MSMs with the Hydra ECU, follow the next step. For cars with something else, you might want to double-check the wiring and triggers at / within the ECU. You need to set the temperature at which the main fan comes on. To do this, plug into the Hydra and pull up the software. Then go to Settings 1 -> Air conditioner & fans -> Thermofan on temp. 90° C is typically a good temp, but something close to where the thermostat opens is a good choice. This is output F6 at the Hydra. For the second / AC fan, go to Settings 2 -> User logic (2xOR, 4xAND) -> user 13A (or) type -> Coolant temp >. You'll want to set this temp a couple degrees higher than the main fan temp to keep them from both coming on at the same time. The logic here is that User 13 will go to ground if the coolant temp exceeds X (user 13A) or if the A/C request voltage exceeds Y (user 13B). This output is A2 at the Hydra.

• If the car overheats very quickly once you're done, go back and check the wires. You'd be amazed how quickly a car will overheat when the fans are pushing in the wrong direction - which is what happens if you connect the wires backwards. Once everything's complete and the fans are spinning, make sure that they're blowing towards the engine, not towards the front of the car. Make sure that you're feeling air that's moving towards the engine and not air that's being sucked from the engine, it's sometimes hard to tell the difference.

Hardware List:

(8) M6 x 1.0 x 16 bolts, to bolt the fans to the shroud.

(8 (for upright radiators) / 6 (for crossflow radiators)) M6 x 1.0 x 25 bolts, to bolt the shroud to the radiator.

(8) M6 washers, for the bolts that hold the fans to the shroud.

(75") gasket material, to seal the shroud to the radiator.

(1) shroud itself.

(2) fans, different sizes.

(2) rubber flaps, pre-installed on shroud.

(4) heat-shrink butt connectors, for fan wiring.

(2) 90° brackets, for 99 - 05 upright shrouds only. For two lower driver's side shroud mounts.

(4) M6 x 1.0 x 10 bolts, for 99 - 05 upright shrouds only. Hold 90° brackets to shroud and radiator.

(4) 1/4" washers (with bigger lip / outside diameter, as compared to M6 washers), for 99 - 05 upright shrouds only. For above bolts.

(2) 1/4" aluminum spacers, for 99 - 05 crossflow shrouds only. For two lower driver's side shroud mounts.

(2) M6 x 1.0 x 30 bolts, to be used with above spacers.