

Flyin' Miata

tech line: 970 464 5600

Mazdaspeed Miata Intake Upgrade

01/17/11

Start by inspecting and cleaning the inside of your new intake pipes. Brake cleaner and compressed air works well. We've cleaned them already, but any debris can damage the engine so this is important!

The FM intake parts have been designed to work as a system. If not all the FM components are used, you may have to plug various fittings that are left over. If a part isn't specified as being reused, you can assume that it won't be. That having been said, don't get rid of anything until you're done.

Throttle Body Inlet Pipe:

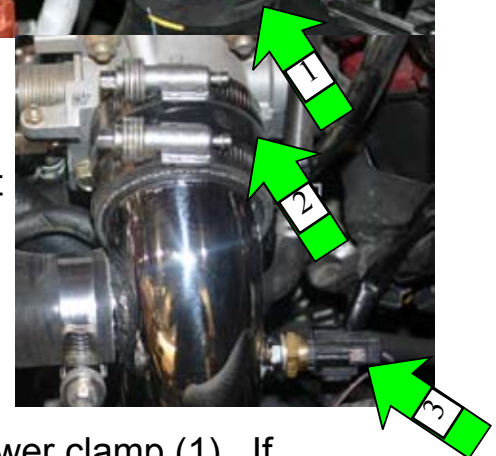
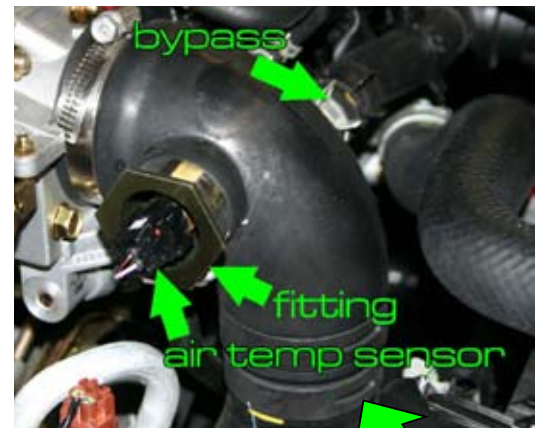
1. Remove the post-turbo intake air temp (IAT) sensor from the fitting in the stock throttle body inlet. If necessary, hold the very large hex fitting with something like a set of Channellock pliers while you unscrew the sensor itself. Set it aside, it will be reused.

2. Remove the hose running to the bypass valve from the throttle body inlet. This won't be reused, but the metal coupler will be. Set it aside.

3. Remove the clamp at the throttle body, then remove the lower clamp (1). If it's not possible to get the clamp on the hose from the intercooler, remove the one immediately below that. Be careful with the stock black hose clamps, they can be vicious.

4. Remove the throttle body inlet. If the metal coupler is still in its original place (in the hose coming up from the intercooler), remove it. If the coupler is still in the stock throttle body inlet, leave it there, it won't be reused.

5. Put the new silicone coupler onto the new throttle body inlet (2). Slip the hose clamps on, but don't tighten them. Also slip the new hose clamp onto the lower hose (coming up from the intercooler), but don't tighten it either. Slip the new inlet into the lower hose, then work the coupler onto the throttle body. Once everything is properly aligned, lube the threads on the clamps, then tighten them. If the supplied clamps have four washers under the bolt head, tighten it until the four washers have bottomed out against each other. Do NOT tighten them beyond that, no matter how much you want to. You will strip them.



6. Reinstall the stock post-turbo air temp sensor and plug it back in (3). The new bypass valve will be installed later.

Turbo Intake and Outlet Pipes:

1) Remove the breather hose from the airbox inlet (1) and remove the valve cover breather hose from the valve cover (2). Unbolt the shock tower brace (3) at both ends and set it out of the way as far as possible.

2) Remove the rubber hose (5) that runs between the MAF (4) and the compressor inlet.

3) Unplug the MAF and remove it. It will be reused. Unplug the pre-turbo IAT and pull it and its grommet out of the airbox (6). Set it aside, the sensor and grommet will also be reused. Chase the wires for each and make sure to release all of the catches that hold the wires onto the airbox.

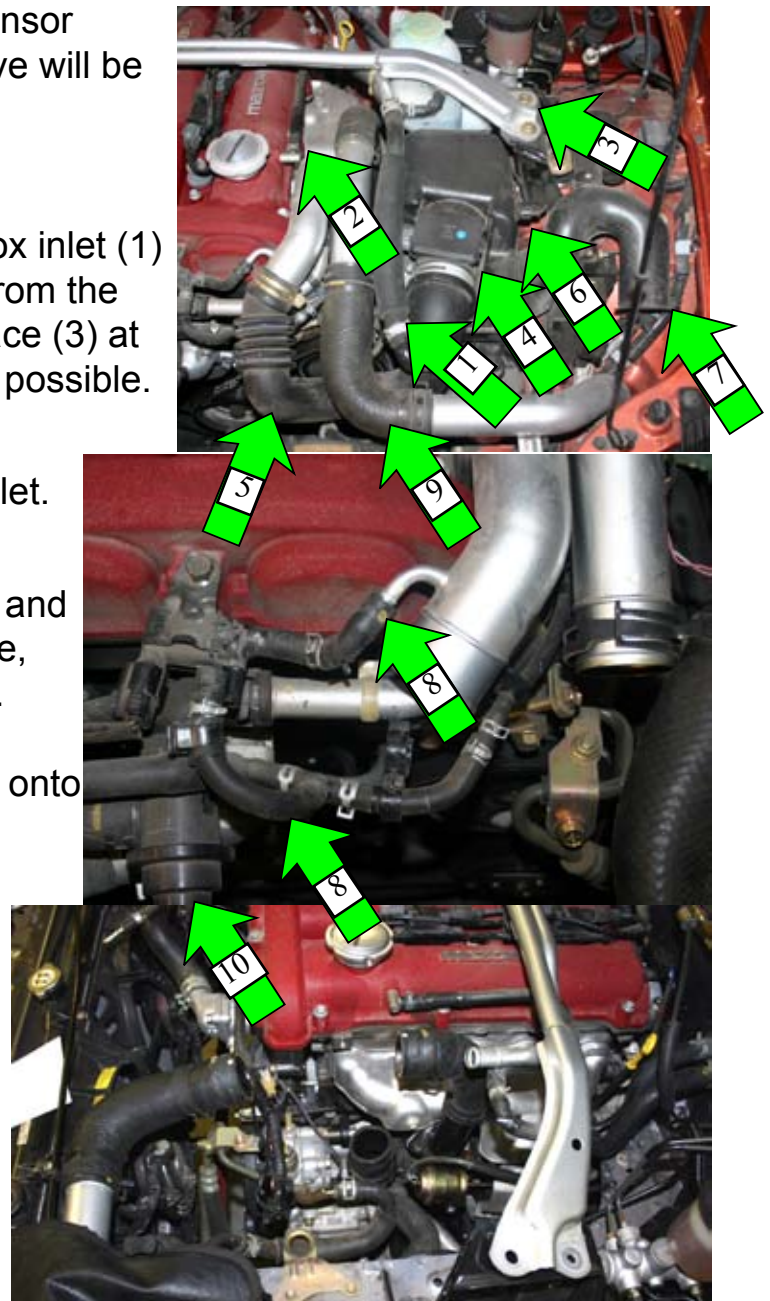
4) Remove the snorkel (7) by removing the one bolt that holds it down and slipping it off of the airbox.

5) Remove the airbox. There's a metal brace that holds the bottom of the airbox. This won't interfere with the intake kit and doesn't need to be removed, but if so desired it can be removed.

6) Remove the hoses (8) running to the boost control solenoid. Leave the solenoid itself with the electrical connection plugged in, as you'll get a check engine light if you remove it. If you really want to remove it, run a 50 ohm resistor between the two wires. Then remove the bypass valve (10) along with its associated plumbing. The bypass valve won't be reused, but the 90° elbow on its outlet (connected to the silver metal pipe) will be reused.

7) Remove the rubber compressor outlet hose (9) from the silver pipe next to the engine (the opposite end from the arrow). It stays connected to the other silver pipe.

8) Remove the clamp that holds the silver collection of pipes (that the outlet hose was just removed from) to the rubber compressor inlet. Then remove the pipes. There is a bolt on the heatshield and a bolt on the underside that threads into the head. Be sure to reinstall the bolt in the heatshield, but the bolt into the head doesn't need to be reinstalled.



9) Install the pre-turbo IAT grommet into the air filter mount pipe, as shown. Then carefully press the pre-turbo IAT itself in (10).

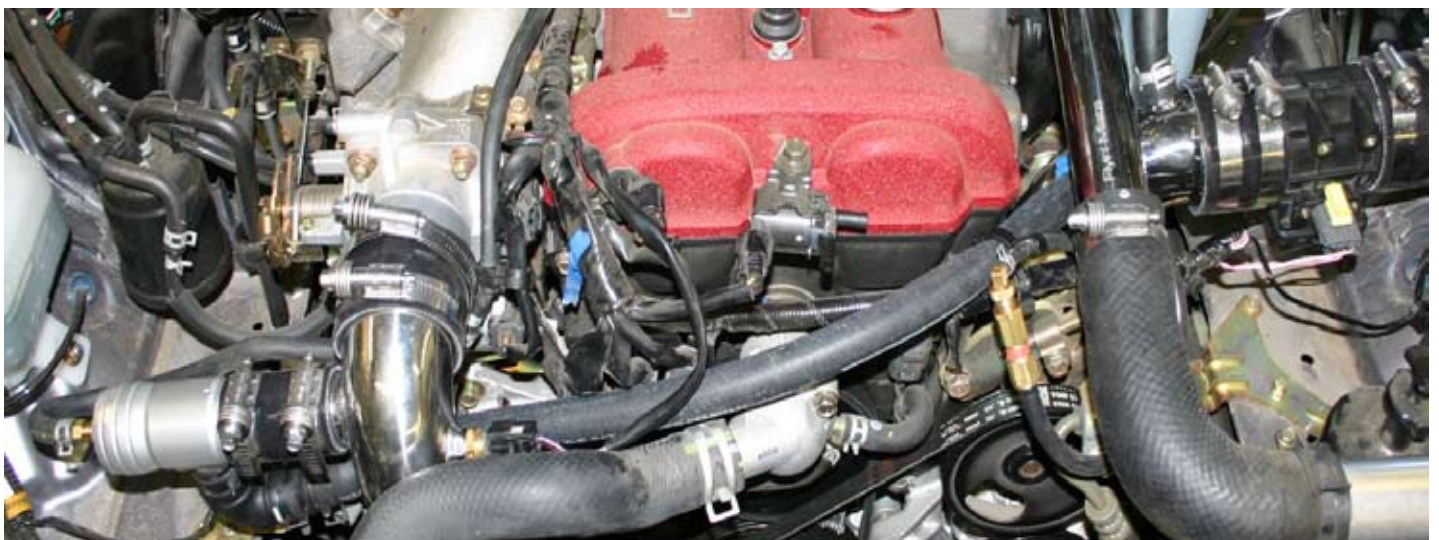


10) Assemble the compressor inlet, MAF and air filter mount pipe as shown. Be sure to remove the rubber ring on the MAF, it won't be reused. The MAF has an arrow on it, be sure that it points in the direction of the airflow (away from the filter). Also loosely install the air filter. Leave the clamps loose for now.



11) Slip the assembly into place, reusing the stock black clamp on the compressor inlet. Arrange everything so that the air filter mount pipe sits on the shock tower brace as well as possible. If need be, rotate the rubber compressor inlet to get better fitment.

12) Once everything has been arranged properly, bolt the shock tower brace back on. Then plug the pre-turbo IAT and MAF in. You may need to rotate the MAF and / or trim back some of the electrical tape to let the wires reach a little farther. Once they're both plugged in, tighten all of the hose clamps. Once that's been done, reconnect the valve cover breather and trim and reconnect the breather hose that goes into the compressor inlet. Be sure to use the supplied hose clamp, as the stock one won't hold it tight. If you need to bend the metal breather pipe on the shock tower brace for better fitment, go ahead, just don't crimp the pipe.



13) Install the new compressor outlet hose, which should be the last metal pipe. It is engraved with "Flyin' Miata" and has different size ends. You should be able to read "Flyin' Miata" from the left (driver's side in the US) fender. Use the new hose clamps, the stock ones won't work.

14) Find the 90° elbow and metal coupler you removed from the stock bypass valve plumbing. Install it onto the new bypass valve as shown and connect the 3/4" hose. Then slip the silicone coupler and hose clamps onto the valve. Next slip it onto the throttle body inlet, but don't tighten the hose clamps down. Route the 3/4" hose over to the bung on the compressor inlet (called out on page 3) and connect it. Trim the hose if need be. Tighten down the hose clamps. Now run the signal line hose (small hose that used to be connected to the top of the original bypass valve) to the small silver nipple on the top of the bypass valve. Don't change the routing on the other end of the hose, which should be connected to the intake manifold.



15) Run a new vacuum line from the nipple on the compressor outlet to the "non-wastegate" nipple on the boost controller. The "wastegate" nipple on the boost controller should be connected to the long line that originally went to the factory boost controller. Find the metal coupler connected to this line and remove it and every line between it and the original boost controller.



Then take the line that runs from the turbo up to the coupler you just removed and plug it into the new boost controller. Then install the boost controller somewhere (the plastic piece behind the headlights is a nice place). Replace the lines if need be to reach your desired location.

16) To set the boost control, the best way is to use a boost gauge. This is NOT pre-set, it must be set by you. Set the boost controller to its lowest setting (spin the knob towards the "-" until it stops) and go drive the car. Don't drive the car until all of the parts you're installing (e.g., exhaust, downpipe, O2 signal modifier, etc) are on the car. Do a full throttle pull in fifth or sixth gear, as you're going to make the most boost in higher gears. Be sure to rev the car past 4000 RPM to make sure that you're getting full boost. Gradually increase the boost (spin the knob towards the "+" one or two clicks at a time until you get a feel for how big of a difference each click makes) until you hit 9 psi, if you have a boost gauge. If you don't have a boost gauge, set the boost just under the (violent) boost cut threshold. You won't hurt your car by hitting the cut but it won't be any fun. You'll know when you hit it, it feels just like hitting the rev limiter in your car.

17) Have fun!