GFB MACH 2 TMS

TE100

INSTRUCTION MANUAL

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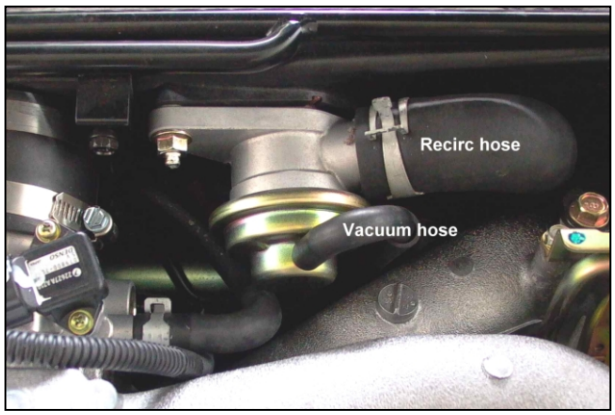
MACH 2 INSTALLATION

T9100 applicable vehicles:
- WRX/STi MY99-00
- Liberty/Legacy B4 MY98-02
- Forester GT MY98-02
- Forester XT MY03-04

1) Using a pair of pliers, open the hose clamp that holds the large rubber recirc hose onto the factory bypass valve, then pull the hose free.

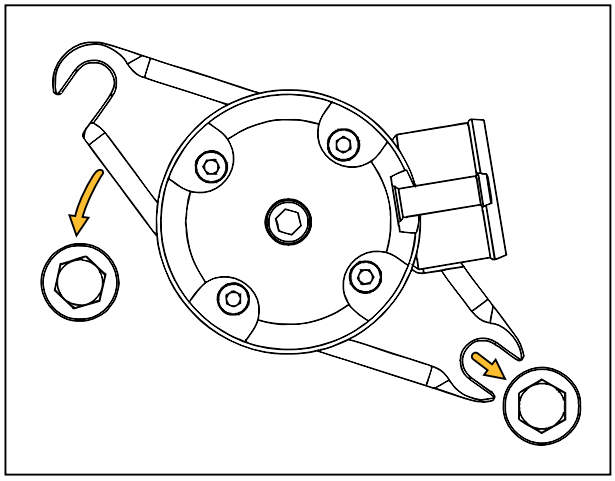
2) Remove the two bolts holding the factory bypass valve to the intercooler, taking care not to drop the bolts or the gasket from behind the valve (it's tricky to retrieve them if they fall!).

3) Pull the vacuum hose from the factory valve, then remove the valve completely from the car.



4) Replace the two mounting bolts and factory gasket back onto the intercooler, screwing the bolts in about 3 turns. The GFB Mach 2 valve can be mounted with the screws partially in place. This makes it easier to install, and reduces the chance of dropping the screws or the gasket.

5) Slot the Mach 2 onto the two partially screwed-in bolts (lower bolt first, then rotate counter-clocwise onto the top bolt), then tighten the bolts completely. Replace the recirc hose and hose clamp, and the vacuum hose.



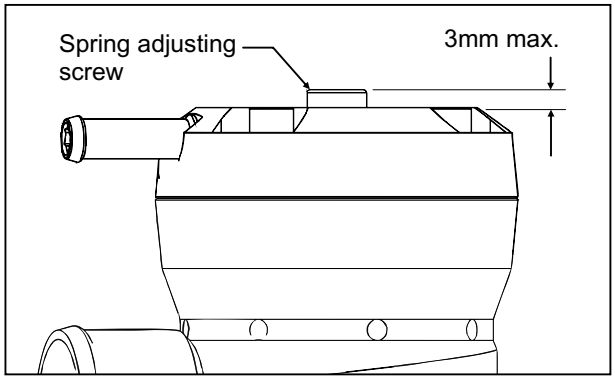
ADJUSTING THE SPRING PRELOAD

PLEASE NOTE! Contrary to popular belief, the spring pre-load **DOES NOT need to be adjusted for different boost pressures**. The Mach 2 will stay shut under full throttle conditions *regardless of boost pressure* or spring pre-load.

Rather, the spring pre-load affects how easily the valve opens when you lift the throttle, and how long it stays open when it vents.

The screw in the centre of the head is the spring adjustment. Use the supplied 5mm hex key to make adjustments.

The softest spring setting is achieved when the adjustment screw is 3mm above the head of the valve as shown to the right. Do not set the screw more than 3mm above the head.



SPRING PRELOAD CONTINUED...

NOTE: On some cars, access to the adjustment screw is blocked by the ignition coil pack. In this case, it is easiest to loosen the valve mounting bolts 1 turn, then rotate the valve upwards just enough to make spring adjustments, then rotate the valve back down and re-tighten the mounting bolts.

Unlike an atmosphere-venting BOV, the spring pre-load on a fully recirculated valve does not need to be adjusted to prevent stalling or backfiring, since all of the vented air is recirculated.

It is possible to use the Mach 2 straight out of the box without any spring pre-load adjustments, however you can use the adjustment to fine-tune throttle response. Generally speaking, the hardest spring pre-load you can run without causing compressor surge (fluttering sound when lifting off the throttle) is ideal.

To set the spring pre-load for maximum throttle response:

- Set the spring to the hardest setting (adjust the screw all the way down).
- Start the car and drive it until it is warm, and make sure the A/C is off.
- Accelerate moderately in a high gear to about 3000RPM and then ease off the accelerator, keeping the clutch engaged - these are the conditions most likely to cause compressor surge. If you hear a fluttering sound as you lift off, turn the adjustment screw in the "-" direction one turn at a time until the noise disappears. This is now the ideal setting for best throttle response.

Note that all cars have a different threshold for compressor surge (especially when the car is modified with bigger turbo/intercooler etc) so it is possible that you may be able to leave the valve in the hardest setting without hearing surge.

Don't be afraid to experiment with the spring pre-load adjustment, you can't cause any damage by doing so, and getting the setting right to suit your car can help to optimise throttle response.

CONVERTING TO ATMO VENTING

If you want to change your Mach 2 to 100% atmosphere venting for a blow-off sound, simply purchase and fit GFB's atmo conversion kit part # 5930.

Atmo conversion kit part # 5930 includes a trumpet to replace the recirc outlet, a firmer spring that is suitable for venting to atmosphere (keeps the piston closed at idle), and a 30mm hose plug to block off the recirc hose.

Maintenance

GFB blow-off valves are designed to be as maintenance-free as possible. In most cars the small amount of crankcase and rocker-cover oil vapor that is directed into the intake system is enough to keep the piston well lubricated indefinitely.

However, if you notice the sound of the valve changing over time (e.g. slow response time, intermittent operation), or if you can see that the piston is not moving smoothly, it may require a clean and re-lube.

Cleaning Procedure: Remove the four screws holding on the cap, taking care as the spring will try to push the cap off as the last screw is removed. Remove the spring and the brass piston, and wipe any grime from the inside of the valve and the piston with a rag. Apply normal engine oil to the piston and the inside of the bore, and re-assemble.