

# GFB Mach 2

Part #T9103



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TURBO MANAGEMENT SYSTEMS



PERFORMANCE WITHOUT COMPROMISE

## Installation

T9103 applicable vehicles:

- WRX MY01-07
- STi MY02-22
- Forester XT MY05-08

On Impreza models without an electronic throttle, it is necessary to move the intercooler to gain access to the hose clamp under the factory valve. It does not need to be removed completely; it just needs to slide back far enough to reach underneath. These instructions take you through it step-by-step.

For Impreza models with an electronic throttle (and also Forester XT models), it is usually possible to access the clamp without shifting the intercooler. In this case, simply ignore the steps 1, 3, 4 & 5.

1) Pull the hoses from aluminium tubes that run across the front of the intercooler (2 on the left and 1 on the right hand side).

2) Using a 12mm socket or wrench, remove the bolts that hold the factory blow-off valve.

3) On the hose between the intercooler and throttle body, loosen the hose clamp closest to the intercooler, and the clamp holding the hose onto the outlet of the turbo.

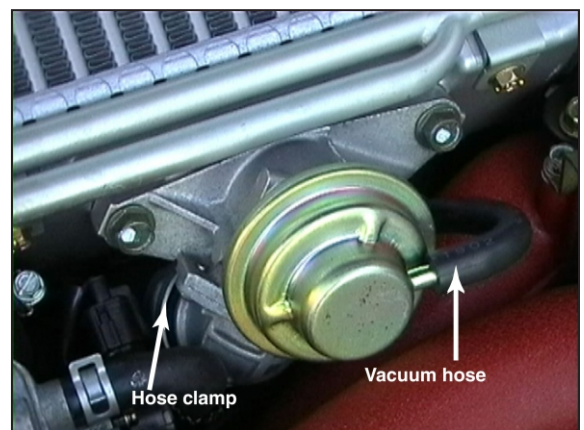
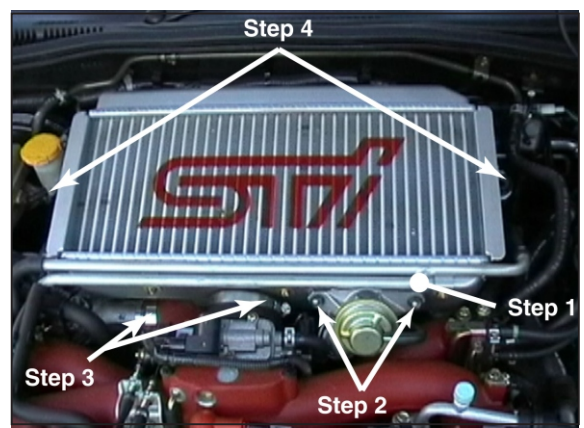
4) Undo and remove the two mounting bolts (again with the 12mm socket or wrench) that hold the intercooler in place.

5) Carefully slide the intercooler back, just far enough to access the hose clamp on the recirc hose under the factory valve. Take care when handling the intercooler since the cooling fins are very fragile, and also take care not to bend the hose from the turbo too much.

6) Take note of the position of factory valve and then use pliers to open the hose clamp and remove the valve entirely.

7) Remove the recirc elbow from the factory valve by unscrewing the two phillips-head screws holding it on. Fit the recirc elbow to the outlet of the Mach 2 using the same screws and o-ring.

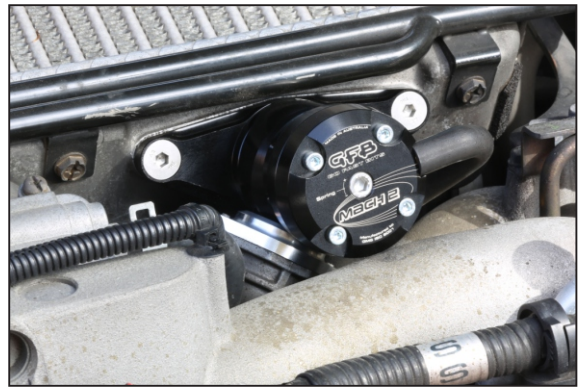
8) If the factory gasket is stuck to the intercooler, it should be removed completely. Scrape off any remaining gasket material, taking care not to drop any into the intercooler. The Mach 2 does NOT require a gasket, as it is supplied with an o-ring embedded into the flange.



9) Fit the elbow into the recirc hose so the valve flange is level, and secure the hose clamp.

10) Bolt the valve onto the intercooler using the supplied stainless steel bolts, then refit the vacuum hose.

11) Bolt the intercooler back into place, then do a final check to make sure all bolts, hoses and clamps are tight.



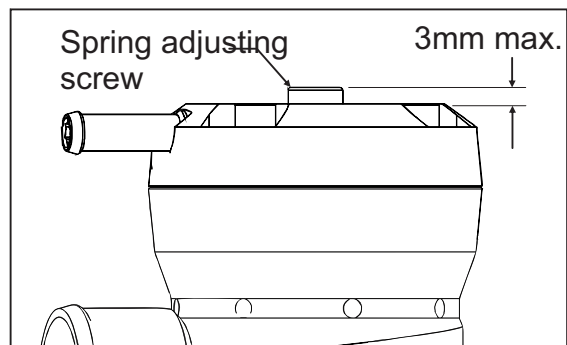
## Adjusting the Spring Pre-Load

### PLEASE NOTE!

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

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.

Unlike an atmosphere-venting BOV, the spring pre-load on the Mach 2 does not need to be adjusted to prevent stalling or backfiring, since all of the vented air is recirculated in the same way as the OEM bypass valve.



It is therefore 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.

## 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.

## Warranty

### **WARNING:**

GFB recommends that only qualified motor engineers fit this product. GFB products are engineered for best performance, however incorrect use or modification may cause damage to or reduce the longevity of the engine/drive-train components.

### **GFB LIFETIME WARRANTY:**

Our commitment to quality means that when we put our name to something, we are also staking our reputation on it. That's why we back our products with the best warranty in the business!

You should expect a lifetime of use from a well-engineered product, so if your GFB product fails as a result of defective materials or faulty workmanship whilst you remain the original owner, we will repair or replace it (limited only to the repair or replacement of GFB products provided they are used as intended and in accordance with all appropriate warnings and limitations. No other warranty is expressed or implied).

If a fault occurs as a result of usage outside of the terms of the warranty, or you are not the original owner, fear not, we can still help you. You should never need to throw a GFB product away, as spare parts are available and won't cost the earth.

### **TECH SUPPORT:**

We want you to get the best advice, first time. That's why our engineers are available to answer any technical questions you may have.

Head to [www.gfb.com.au/contact-us](http://www.gfb.com.au/contact-us) to get in touch.