



GFB Mach 2 T9103 Installation Instructions

Applicable Vehicles:

- » WRX MY01-07
- » STi MY02-on
- » Forester XT MY05-08

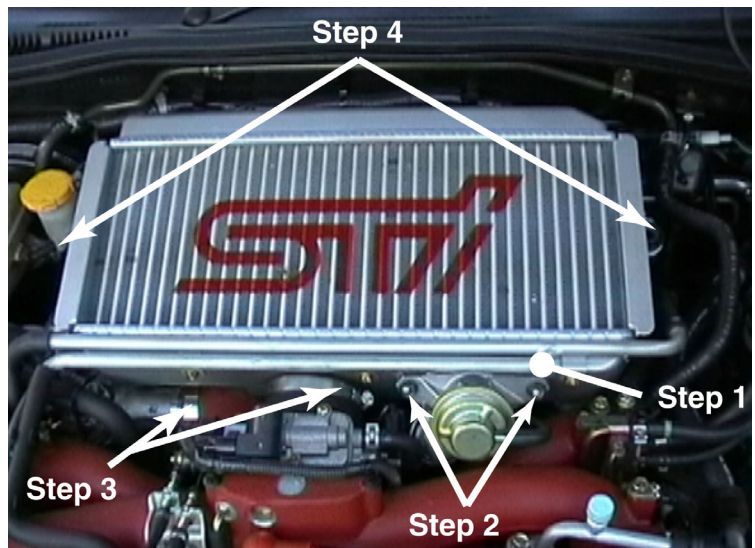
Included In T9003 Kit:

- » Mach 2 valve
- » Orange silicone 30 x 2 o-ring (installed in valve flange)
- » 5mm hex key
- » 2x M8 x 20 countersunk socket mounting bolts

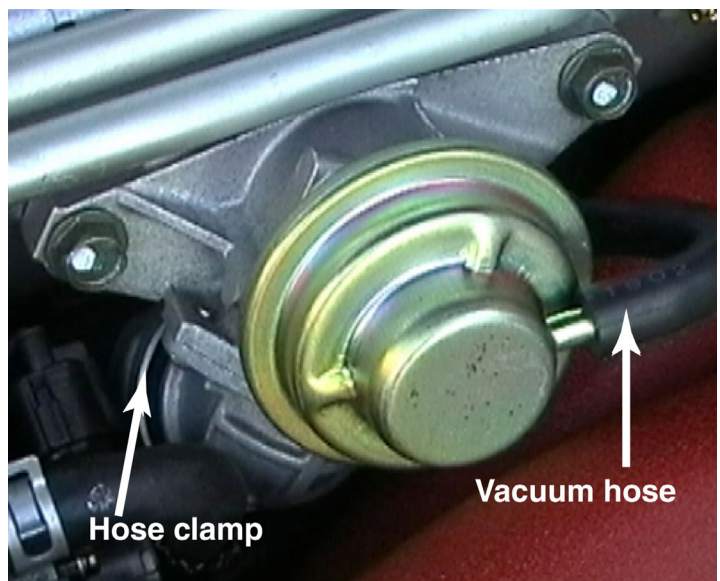
On Impreza models without an electronic throttle, it is necessary to move the intercooler to gain access to the hose clamp under the factory valve. It does not need to be removed completely; it just needs to slide back far enough to reach under. These instructions take you through it step-by-step.

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.

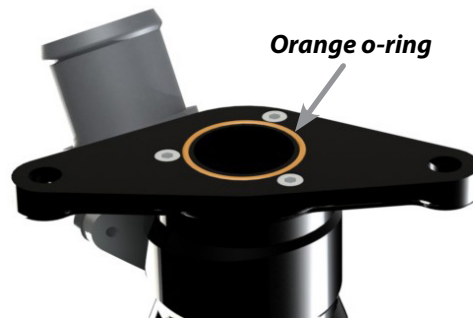
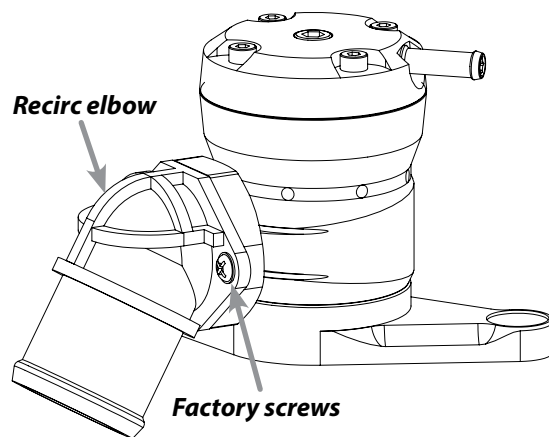
1. Remove the breather hoses from the aluminium tube that runs across the front of the intercooler (two on the left, one on the right).
2. Using a 12mm socket or wrench, undo and remove the two bolts holding the factory bypass valve, leaving it supported by the hoses.
3. Loosen the throttle body hose clamp closest to the intercooler, and the clamp holding the hose onto the outlet of the turbo (as shown opposite, labelled "step 3").
4. Undo and remove the two intercooler mounting bolts (again with the 12mm socket or wrench - shown opposite, "step 4").



5. Carefully slide the intercooler back just enough to access the hose clamp on the BOV (figure 2). 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 - the WRX has a corrugated plastic turbo hose and it is possible to crack this hose if you bend it too much.
6. Remove the vacuum hose from the factory valve, then use pliers to open the recirculation hose clamp and remove the factory valve from the car.



7. On the factory valve, remove the recirc elbow by unscrewing the two Phillips-head screws holding it on. Fit the recirc elbow and o-ring to the outlet of the Mach 2 valve as shown, using the factory screws.
8. If the factory gasket is stuck to the intercooler at this point, it should be removed. It may be necessary to scrape using a blade to remove all gasket material if it does not come off cleanly. Take care not to drop any gasket material into the intercooler hole.
9. Check that the orange o-ring is installed in the groove on the underside of the BOV flange as shown.
10. Push the recirc elbow into the recirc hose and rotate the valve so that the flange mounting holes are horizontal, then replace the hose clamp.
11. Bolt the valve onto the intercooler using the supplied M8 x 20 mounting bolts (using a METRIC 5mm hex key) and replace the intercooler.
12. Push the vacuum hose onto the nipple on the top of the valve, then perform a final check to make sure the turbo, throttle body, and recirc hose clamps are tight, the three breather hoses are reconnected to the pipes running across the intercooler, and that all bolts are tight.



Spring Adjustment

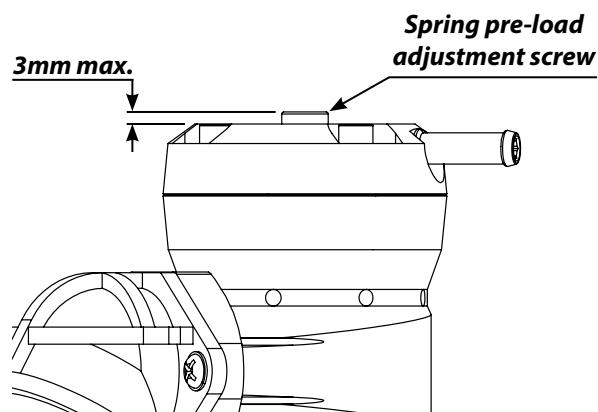
Contrary to popular belief, the spring pre-load **DOES NOT** need to be adjusted to suit different boost levels. **All GFB valves will stay shut under full throttle conditions regardless of boost pressure or spring pre-load.**

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

The screw in the centre of the BOV cap is the spring pre-load adjustment screw, and the direction of adjustment is labeled (+ direction increases spring pre-load). Use the supplied 5mm hex key for this screw.

The softest spring setting is achieved when the adjustment screw is 3mm above the head of the valve. Do not exceed 3mm or the o-ring that seals the screw and provides friction will become visible and the screw may rattle loose and fall out whilst driving.

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.



Spring Adjustment Continued

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, so it is possible that you may be able to leave the valve in the hardest setting without hearing surge.

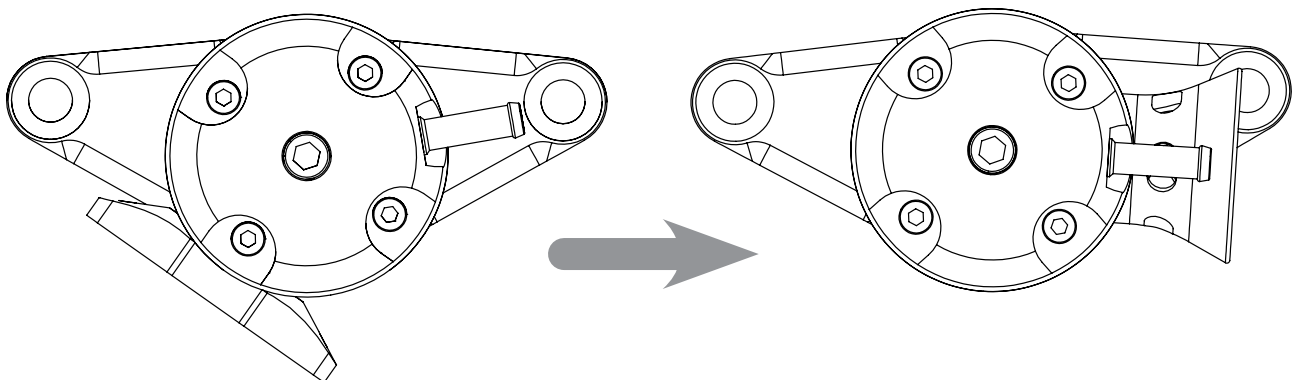
Don't be afraid to experiment with the spring pre-load adjustment, you can't cause any damage by doing so, and getting the setting right to suit your car can help to optimise throttle response.

Converting to Atmosphere 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 # 5933.

You will also need to re-orient the flange and cap so the trumpet and vacuum nipple point in a suitable direction (rather than at the recirc hose). This is easy to do, and complete instructions are included in the conversion kit.

Atmo conversion kit part # 5933 includes a trumpet to replace the recirc outlet, a firmer spring that is suitable for venting to atmosphere (keeps the piston closed at idle to prevent stalling), and a 33mm hose plug to block off the recirc hose.



Recirc venting

Atmosphere venting

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.

Customer Support

No-one knows a GFB product like the engineers who designed it, who are always available to help with any enquiries or issues you may have with the installation or use of your GFB products:

Email: support@gfb.com.au

Ph: (within Australia): 02 9534 0099

Ph: (international): +612 9534 0099

This product is intended for racing use only, and it is the owner's responsibility to be aware of the legalities of fitting this product in his or her state/territory regarding noise, emissions and vehicle modifications.

GFB products are engineered for best performance, however incorrect use or modification of factory systems may cause damage to or reduce the longevity of the engine/drive-train components.

GFB recommends that only qualified motor engineers fit this product. Warranty is for the period of one year from the date of purchase and is 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.



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