Respons TMS Valve

Installation Instructions

Part # T9001

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Installation Instructions for GFB Respons (part # T9001)

Covered vehicles:

- WRX MY08-on
- GT Liberty/Legacy MY03-on
- XT Forester MY09-on

1) Remove the 4 fasteners that hold the plastic engine cover using the Phillips screwdriver (GT Liberty/Legacy only). Lift the engine cover off and set aside.

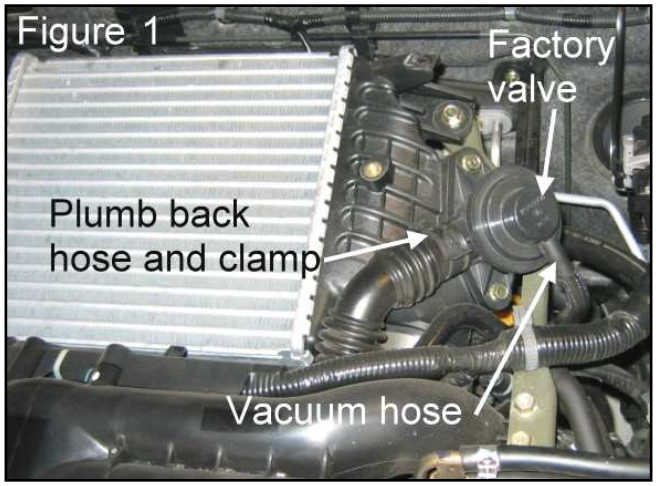
2) Using the 10mm socket, remove the two bolts holding the factory bypass valve to the intercooler, then use the pliers to open the hose clamp to remove the plumb back hose (fig. 1).

3) Pull the vacuum hose from the factory valve and remove it completely.

4) Unscrew the trumpet from the GFB Respons, then position it on the intercooler flange with the supplied gasket in between.

5) Replace the two bolts and tighten firmly, then push the vacuum hose onto the nipple on top of the GFB valve (fig 2).

6) Spread the hose clamp and push the plumb back hose onto the Respons's outlet, then ensure the hose clamp is secured.



Adjusting the Noise

The unique patented venting bias adjustment feature on the GFB Respons lets you vary the amount of air vented to atmosphere or recirc, thereby changing the volume of the sound.

Turning the venting bias adjuster (figure 3) anti-clockwise will open up the trumpet outlet more, making the valve louder, whilst clockwise will open up more of the recirc outlet for quiet operation. Turning the valve fully clockwise until it stops will close off the trumpet completely, and the valve will operate like a factory bypass valve. Conversely, turning it fully anti-clockwise will make it vent completely to atmosphere, which is the loudest setting.

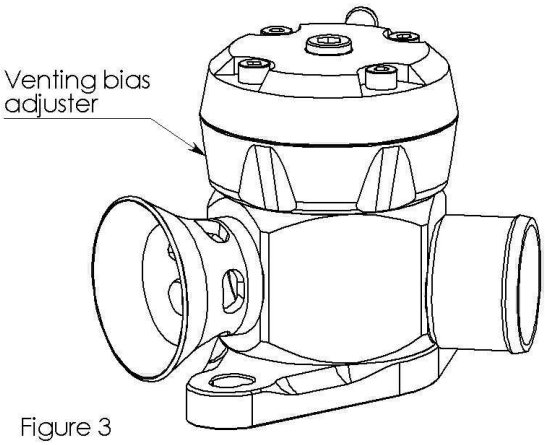


Figure 3

Typically, most Subaru engines will allow 100% atmosphere venting with no problems. However, some combinations of modifications can result in backfiring when the valve vents to atmosphere, in which case the solution is simply to dial back the amount of air vented to atmosphere until the problem is resolved – this is one of the key benefits of the venting bias adjustment feature.

Do not be afraid to experiment with the spring and noise settings, no harm will come to the engine if wrong setting is used.

Spring Adjustment

Contrary to popular belief, the spring pre-load ***DOES NOT*** need to be adjusted to suit different boost levels. The valve 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. Adjusting the spring is a simple matter of ensuring the valve opens enough to release the air, but not long enough to cause idling problems. The guide below will walk you through the steps involved.

The screw in the centre of the head is the spring adjuster (figure 4). Use the supplied 5mm hex key for this screw.

The softest spring setting is achieved when the top of the adjustment screw is 3mm above the head of the valve (figure 4). Do not set the screw more than 3mm above the head.

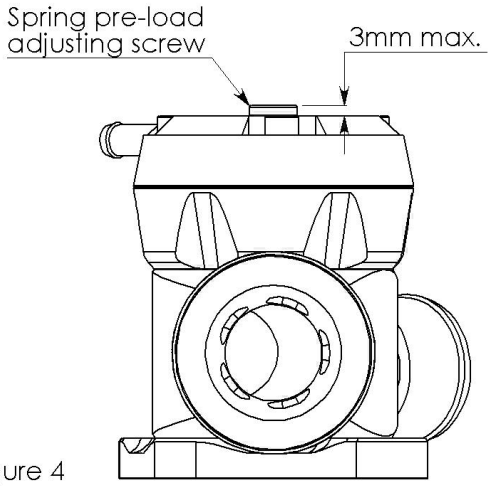


Figure 4

- Set the spring to the softest setting, and move the noise adjusting ring to at least 50% atmosphere venting so you can see the piston through the trumpet
- Start the car and let it warm up to normal operating temperature. Make sure the A/C is off
- Look at the piston through the trumpet. If it is hovering open, wind the adjustment screw in the "+" direction until the piston closes fully. If it is already closed, proceed to the next step
- Give the engine a good hard rev – because of the electronic throttle, you will need a helper to do this whilst you watch the piston. The piston should lift slightly and vent, then close slowly and smoothly. The harder you stab the throttle, the further the piston will open (note: it will only open fully when driving, as the turbo does not generate boost until the engine is under load). **WARNING:** Keep your face away from the trumpet opening when revving the engine. View the piston from an angle away from the blast of air
- If the piston stays open too long, and is not closed when the revs drop back to idle, the engine will "stumble". If this happens, wind the adjustment screw in the "+" direction one turn at a time until the engine returns smoothly to idle after revving
- For the final fine-tune, take the car for a drive. Watch the tacho as you pull up to a stop - if the revs dip below idle and then rise again, tighten the spring 1-2 turns
- If a loud flutter is heard when lifting off sharply after accelerating hard above 3500RPM, wind the adjustment screw in the "-" direction one turn at a time until the noise disappears. Note that it is not uncommon to hear a slight fluttering at low RPM under certain conditions. This is a result of the different way in which this valve operates compared to the factory unit, and is perfectly normal

A video example of setting up the spring pre-load can be seen at:
http://www.youtube.com/watch?v=iqQR5WUF9lc

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. 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.

Put a rag under the valve to catch any parts that may drop. 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.

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.