

Respons TMS Valve Installation Instructions

Part # T9025



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Installation Instructions for GFB Respons (part # T9025)

T9025 is designed as a direct replacement for plastic Bosch-style 25mm diverter valves.

PLEASE NOTE!

In most cases, the GFB Respons **MUST** be installed in the opposite orientation to a Bosch diverter valve.

Bosch valves are typically factory installed so that boost pressure enters the side of the valve, and dumps through the base. The GFB Respons should be oriented so that boost enters the base, and dumps through the sides. **THE RESPONS WILL NOT OPERATE CORRECTLY IF INSTALLED IN THE INCORRECT ORIENTATION.**



For typical Bosch diverter valve replacements (image shows a VW Golf GTi):

1. Remove any factory-fitted engine covers, and locate the factory diverter valve. Take note of the orientation and trace the hoses that connect to it. The bottom of the Bosch valve is typically connected to a hose or fitting that vents air into the turbo's intake, whilst the side of the valve is connected to the intercooler piping where it receives boost pressure (see picture). If this is the case, the GFB Respons must be installed in the reverse orientation.
2. Some cars have crimp-type hose fittings on the diverter valve (can be seen on the vacuum hose in the picture above), which cannot be re-used once removed. If your car has these clamps, make sure you have suitable replacements on hand for the installation.
3. Remove the 2 large and one small hose clamps from the factory diverter valve, then pull the valve free from the hoses.
4. Check the location of the small vacuum hose that attaches to the top of the diverter valve. Take note of the orientation of the vacuum nipple on the GFB Respons to determine if it points in the right direction. If not, the Respons cap can be removed and re-fitted in any one of 4 positions for a better fit.
5. Fit the Respons into the factory hoses in the correct orientation, and tighten the hose clamps.



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.

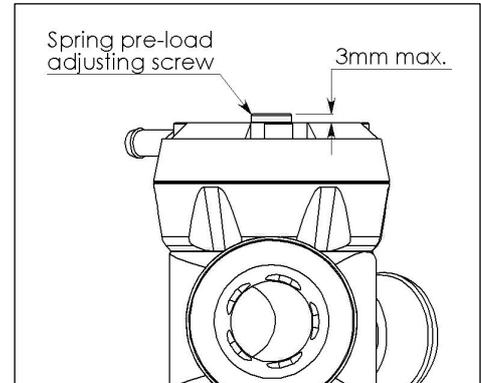
GFB recommends that only qualified motor engineers fit this product. Warranty is for the period of one year from the date of purchase and is limited only to the repair or replacement of GFB products provided they are used as intended and in accordance with all appropriate warnings and limitations. No other warranty is expressed or implied.

Spring Adjustment

Contrary to popular belief and the advice of other brands on the market, the spring pre-load on a GFB Respos *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 (shown opposite). 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. Do not set the screw more than 3mm above the head (you will see an o-ring appear on the screw head – if this happens the screw is too far out – screw it back down until the o-ring is covered).

- Set the spring to the softest setting, and move the noise adjusting ring to about 50% atmosphere venting (see section below on how to make this adjustment) 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.
- Give the engine a good hard rev, and watch the piston - **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. The piston should lift and vent with a “whoosh”, 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).
- If the piston stays open too long, and does not close before 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 another 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, particularly if you partially spool the turbo and lift off slowly. This is a result of the different way in which this valve operates compared to the factory unit, and is perfectly normal and not detrimental to the turbo.

A video example of setting up the spring pre-load can be seen at:

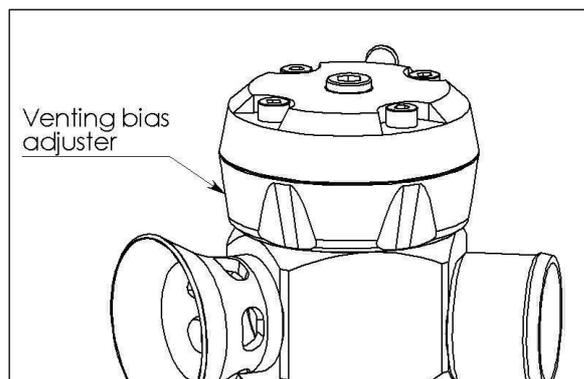
<http://www.youtube.com/watch?v=iqQR5WUF9lc>

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 fully anti-clockwise means all the air will vent through the trumpet, which is the loudest setting.

Turning the adjuster clockwise from this position will begin to open up more of the recirc outlet, until a ratio of 50/50 is reached. As you turn the adjuster further clockwise, the recirc port is fully open and the trumpet port will begin to close. When the adjuster reaches the maximum clockwise position, the trumpet is completely closed, and the valve will operate like a factory recirculating bypass valve.



Notes on atmosphere-venting:

Typically, most engines will allow at least 50% atmosphere venting with no problems, provided the spring pre-load is adjusted correctly. Some cars will even accept up to 100% atmosphere venting without any issues, whilst others may require less than 50%. The key benefit of the venting bias adjustment feature is it allows you to dial in exactly how much air is vented to atmosphere without causing problems that are typically associated with atmo-venting valves such as stalling and check engine light error codes.

Do not be afraid to experiment with the spring and noise settings, no harm will come to the engine if wrong setting is used, however if a check engine light error does occur, simply dial back the amount of 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. 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, or better yet, remove the Respons from the car entirely. 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.

Technical Support

If you experience any issues during installation or use of your GFB Respons that are not answered in these instructions, please contact the GFB tech support team on +612 9534 0099, or email support@gfb.com.au.