

# GFB Mach 2/Respons

*Kia Stinger Twin Valve Kit*

*Part #T9013*



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PERFORMANCE WITHOUT COMPROMISE

## Installation

1) Begin by removing the two factory diverter valves. It is easiest to start by removing the recirc hoses from the valves before unscrewing them from the car, as they are quite tight and it helps if the valves are still solidly mounted. Then use a 10mm socket to remove the 8 screws holding the valves in place, remove the two vacuum hoses, then take the valves out.

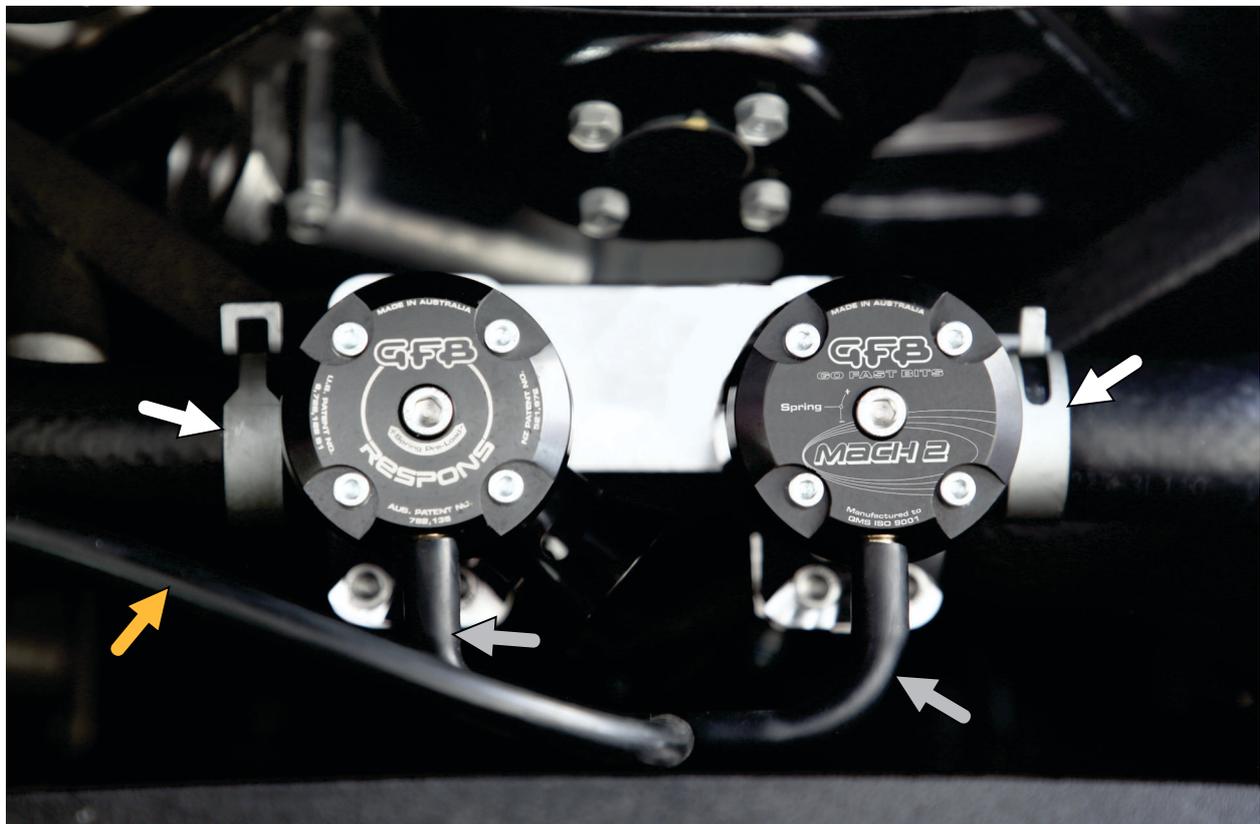
Remove all vacuum hoses from between the valves and the solenoid, as these will be replaced with the supplied silicone hose.



2) Ensure the brown o-rings are installed in the grooves on the underside of the GFB valves, then install them onto the engine using the supplied screws and 5mm hex key. The valves are oriented so the vacuum nipples point to the front of the car

3) Fit the two recirc hoses onto the outlets of the valves, and replace the clamps (⇨)

4) Remove the tee from the factory vacuum hoses. Cut the supplied vacuum hose into 2 x 6.5cm pieces (⇨) and push them onto the factory tee opposing each other. Push these onto the GFB valves, then cut another piece of hose 19cm long (⇨) to fit between the tee and the solenoid valve



## Adjusting the Spring Pre-Load

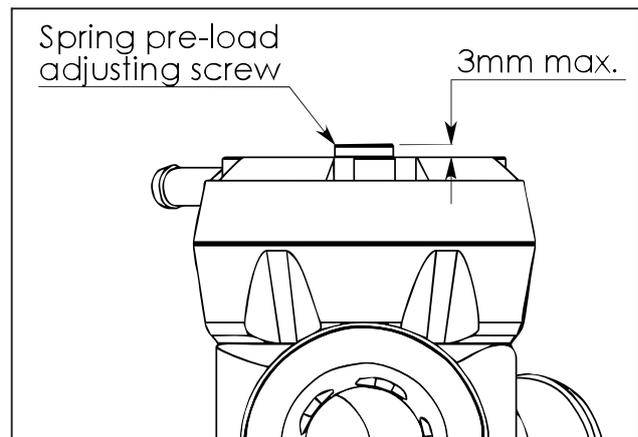
The spring pre-load **DOES NOT** need to be adjusted to suit different boost pressure. **All GFB valves will stay shut** under full throttle conditions **regardless** of boost pressure or spring pre-load.

Because the Stinger uses an ECU-controlled solenoid valve to switch the top port of the BOVs from boost to vacuum when it requires them to open, the conditions under which the BOVs vent are largely determined by the ECU. However, the duration of the sound and how easily they blow off is controlled by the spring pre-load.

The ECU typically triggers the solenoid immediately on throttle lift off (even if the throttle is only slightly lifted), but usually only above a certain RPM and load. Therefore, the valves may appear to vent at odd times, or at low load it may appear not to vent at all, this is normal and is determined by the ECU.

Since there is no MAF sensor on the Stinger, the ECU is completely unaffected by atmosphere venting or spring pre-load, and therefore the spring pre-load can simply be set to your preference to control how easily the valve blows off when you lift off the throttle.

The screw in the centre of the GFB valve caps is the spring adjuster, which requires the supplied 5mm hex key for adjustments. The softest spring setting is achieved when the top of the adjustment screw is 3mm above the head of the valve as shown opposite. Do not set the screw more than 3mm above the head.



Start by setting the venting bias adjustment of the Respons valve to full atmosphere (so you can hear the venting sound during setup - see next page for venting bias adjustment), then set the spring pre-load screws of both valves level with the top of the BOVs.

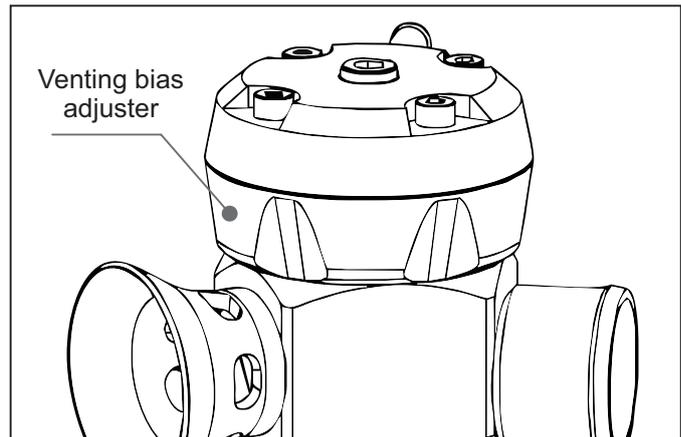
Take the car for a drive, and take note of how easily the Respons valve vents when you lift off (obviously you will only hear the Respons valve venting, but for the purposes of setting up the spring pre-load, make the same adjustments to both valves).

Making the springs softer will allow the valves to open easier and vent longer, and increasing the pre-load means you will need to drive the car harder (i.e. more boost) before you start to hear the BOVs venting, and the blow-off sound will be shorter in duration.

## Adjusting the Sound

The 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.

The most common setup for the T9013 kit is to use the Mach 2 for recirc venting, and the Respons valve for adjusting the venting sound. If you prefer, it is possible to vent the Mach 2 to atmosphere also, which requires its recirc hose to be removed and plugged.



Turning the Respons venting bias adjuster fully clockwise completely opens the trumpet port and gives the loudest sound, whilst setting it fully anti-clockwise results in 100% recirculation venting, which is the same as the stock valves and is the quietest operation. You can set the adjustment anywhere in between for a variable venting ratio and to control the sound volume.

Do not be afraid to experiment with the spring and noise settings, as the Stinger's air/fuel ratio cannot be affected regardless of the BOV settings, and it is not possible to damage the engine or turbos with BOV adjustments.

## Leak Testing

If you or your tuner pressure test your car's intake system as part of routine maintenance, or to troubleshoot a problem, please note that it is common to detect a false leak from a Respons BOV (or indeed any type of dual-port BOV), which does not necessarily indicate a fault or boost leak. This is due to the test method (even when done "correctly") and is explained in detail in the tech articles and video below:

[www.gfb.com.au/tech/tech-articles/15-smoke-testing-boost-leaks](http://www.gfb.com.au/tech/tech-articles/15-smoke-testing-boost-leaks)

[www.gfb.com.au/images/tech-articles/GFB\\_DP\\_Diverter%20leak.pdf](http://www.gfb.com.au/images/tech-articles/GFB_DP_Diverter%20leak.pdf)

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### **GFB Limited Lifetime Warranty:**

We live in a throw-away society, conditioned by cheap products and built-in obsolescence to expect eventual failure and discard something when it stops working or is superseded. However, pride in workmanship and our commitment to quality means that when we put our name to something, we are also staking our reputation on it.

That is 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.