

GFB Mach 2

Kia Stinger Twin Valve Kit

Part #T9112



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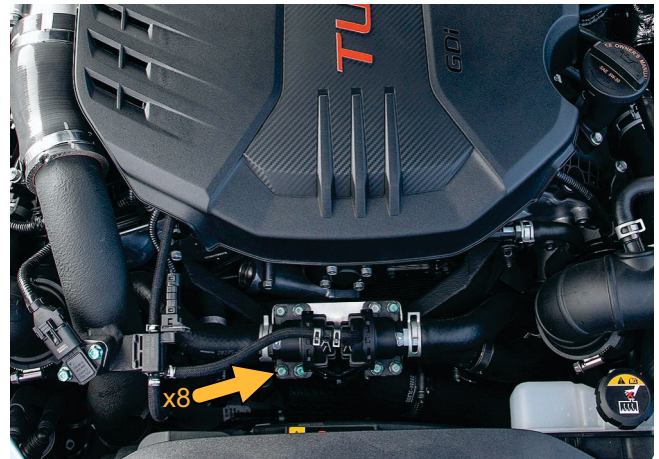
PERFORMANCE WITHOUT COMPROMISE

Installation

- 1) Begin by removing the two factory diverter valves.

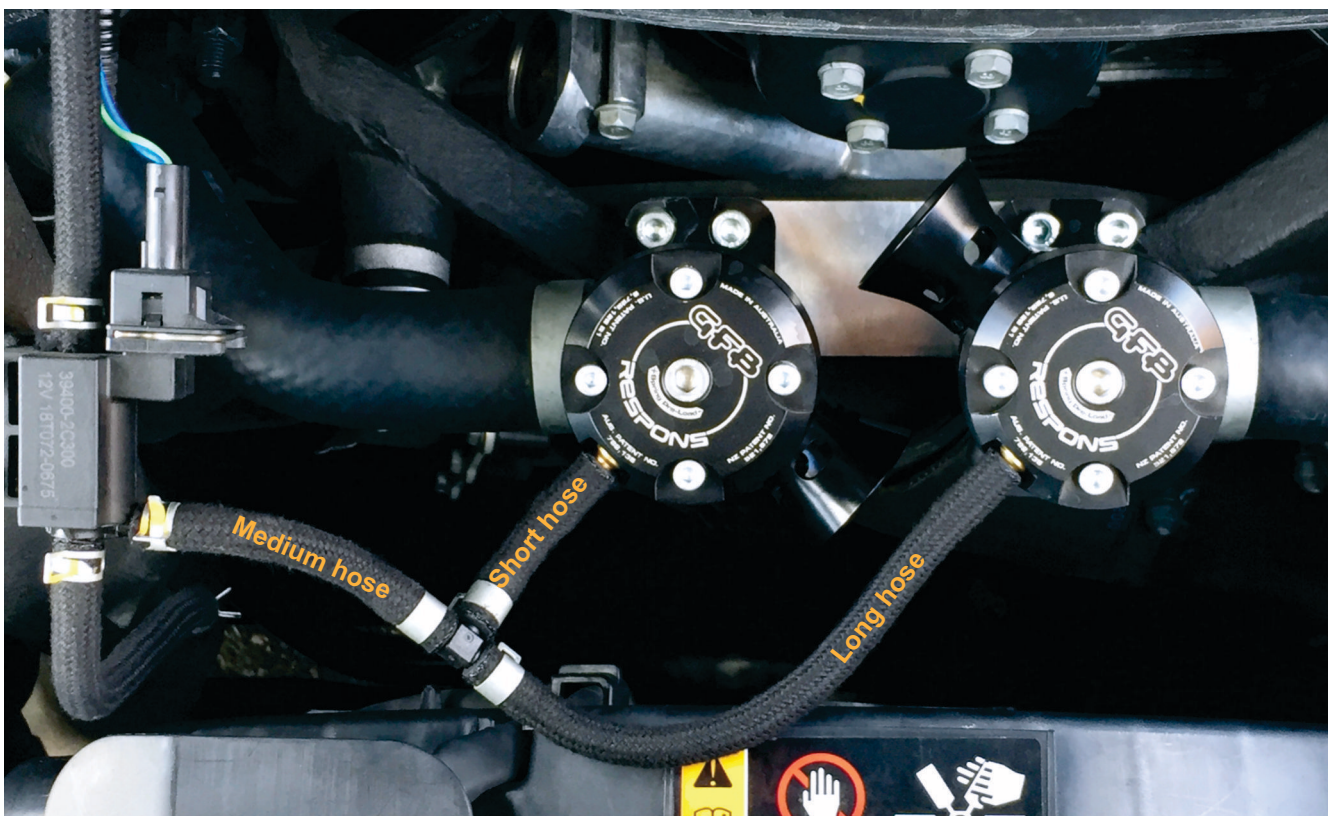
It is easiest to start by removing the recirc hoses from the valves before unscrewing them from the car, as they are quite tight and it helps if the valves are still solidly mounted.

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.



- 2) Ensure the brown o-rings are installed in the grooves on the underside of the Mach 2 valves, then install both valves 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 as shown below (please note, Respons valves shown, but vacuum orientation is the same for the Mach 2 valves).
- 3) Fit the two recirc hoses onto the outlets of the valves, and replace the clamps.
- 4) The factory vacuum hoses are re-used, but just configured differently to fit.

Remove the long factory vacuum hose from the solenoid, and flip it around so the long hose now connects to the right hand valve, and the medium hose now goes to the solenoid. The shortest hose goes to the left hand valve. The installation below does not show the hose spring clips on the valves to neaten the installation. The barbs are a tight fit, and the hoses will not pop off if you choose to do the same.



Adjusting the Spring Pre-Load

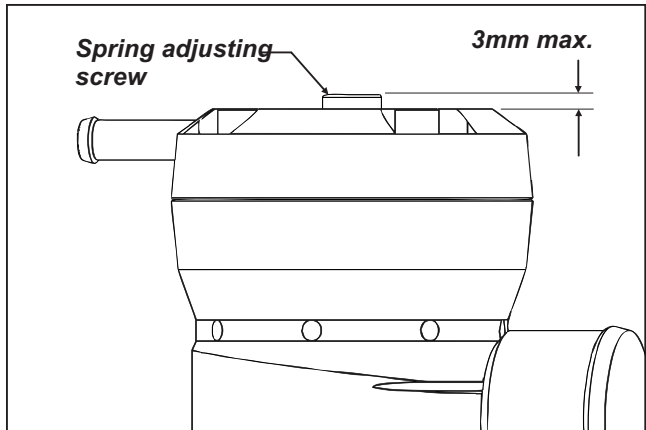
The spring pre-load **DOES NOT** need to be adjusted to suit different boost pressure. **All GFB valves will stay shut** under full throttle conditions **regardless** of boost pressure or spring pre-load.

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 venting and how easily they blow off is controlled by the spring pre-load.

The screw in the centre of the Mach 2 cap is the spring adjuster, which requires a 5mm metric hex key (supplied).

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.

Since the Mach 2 valves are fully recirculated, and there is no MAF sensor on these cars, the spring pre-load adjustment is not critical and it is possible to use the Mach 2 valves straight out of the box without adjustment. 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
- Accelerate moderately in a high gear to about 3000RPM and then lift off the accelerator - 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 Atmo Venting

It is possible to vent your Mach 2 valves to 100% atmosphere for a blow-off sound, however you will need suitable plugs to block off the recirc hoses. These plugs are available separately from GFB, part # 5525 (you will need two). All you need to do is remove the recirc hoses from the valve outlets and plug them with the 5525 plugs. No other changes to the Mach 2 valves are required for atmosphere venting, and because the Stinger has no MAF sensor the ECU is completely unaffected.

You can also purchase standard or whistling trumpets to change the venting sound - the standard trumpets (part # 6110, two required) increases the sound volume, whilst the whistling trumpets (part # 5702, two required) change the venting sound to a high-pitch whistle. It is also possible to mix trumpets, or just use one on its own, or even vent just one of the two valves to atmosphere to change the venting sound. It makes no difference to the car, and it is not necessary for both valves to be set up the same way since they both feed from a common chamber.

When venting to atmosphere, the spring pre-load adjustment will change how easily the valves vent, and the duration of the venting sound. A softer setting allows the valves to vent at lower RPM and with less boost, and also means the blow-off sound trails on longer, whilst a harder setting does the opposite.

WARNING: GFB recommends that only qualified motor engineers fit this product. 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 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.