

GFB Mach 2/Deceptor Pro

Kia Stinger Twin Valve Kit Part #T9513

WARNING: If you are not experienced in automotive wiring, GFB recommends that this installation is carried out by a professional. Irreversible damage could occur if wired incorrectly, which is not covered by warranty.

Do not manually rotate the internal sleeve on the valve, always apply power and use the controller to change the venting bias. DO NOT put fingers or foreign objects into the valve's ports. Doing so may result in personal injury or damage to the blow-off valve.

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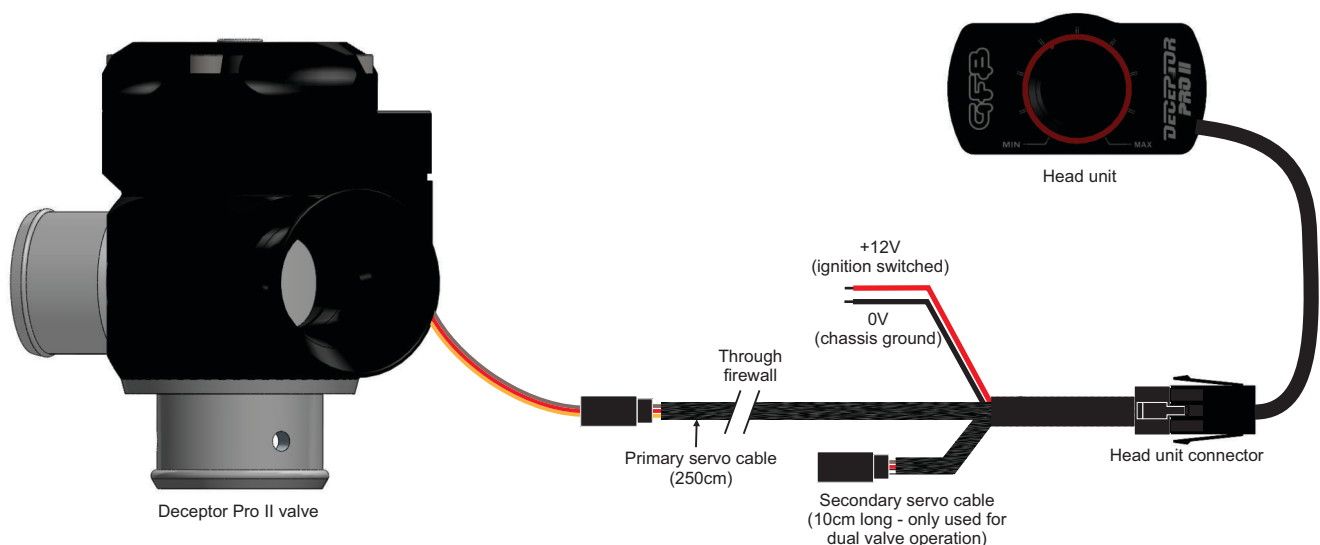
Installing the Control Box

Connect the red wire to a +12V power supply inside the cabin – make sure this power supply is ignition switched and not permanently powered.

Connect the black wire to ground, most commonly this is a bolt on the chassis.

Find a suitable mounting location for the control box. Ensure both mating surfaces are clean and dry, then secure the control box using the supplied double-sided tape. Press hard and hold for 30 seconds.

At this point it is worth testing the wiring before continuing. Plug the Deceptor Pro cable into the wiring loom as shown, then turn the ignition on. Please read the **Adjusting the Sound** section, then confirm correct operation of the control box and valve before proceeding with the rest of the installation.

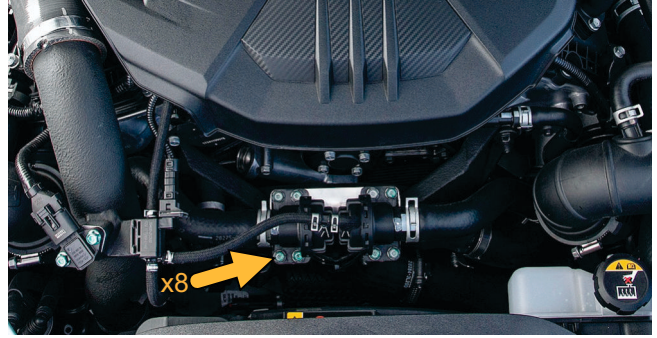


Continue the installation by feeding the primary servo cable through the firewall into the engine bay. Ensure that the cable is protected where it passes through the firewall to prevent shorting out.

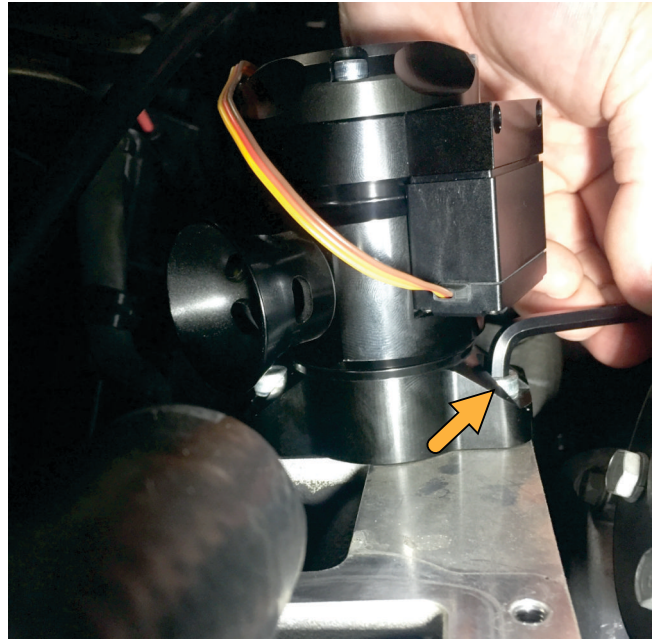
Now proceed with the blow-off valve installation.

Installing the Blow-Off Valves

1) Begin by removing the two factory diverter valves. It is easiest to start by removing the large recirc hoses from the valves first, 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, remove the two vacuum hoses, then take the valves out.



2) Start by installing the Deceptor Pro on the left side. Two of the supplied mounting screws are already inserted into the base, so begin by tightening these by hand as much as possible, then use the supplied shortened hex key to fully tighten (→). Insert and tightening the remaining two mounting screws.

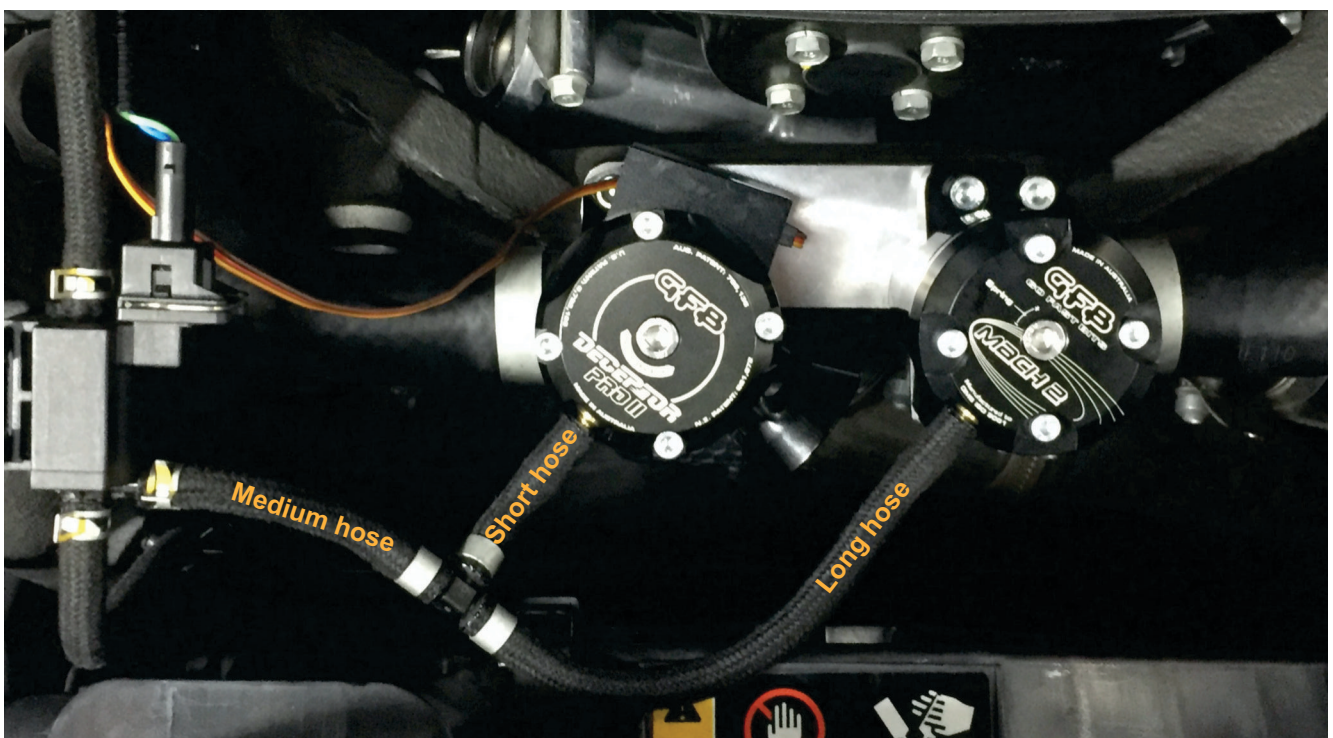


3) Now the Mach 2 can be installed on the right-hand side, using the 4 supplied mounting screws.

4) Fit the two recirc hoses onto the outlets of both valves, and replace the clamps.

5) Remove the long factory vacuum hose from the solenoid, and flip it around so the long hose now connects to the Mach 2, and the medium hose now goes to the solenoid. The shortest hose goes to the Deceptor Pro. The installation below does not use 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.

6) Connect the cable from the Deceptor Pro to the wiring loom, and secure to ensure the loom cannot rub or touch hot parts in the engine bay.



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.

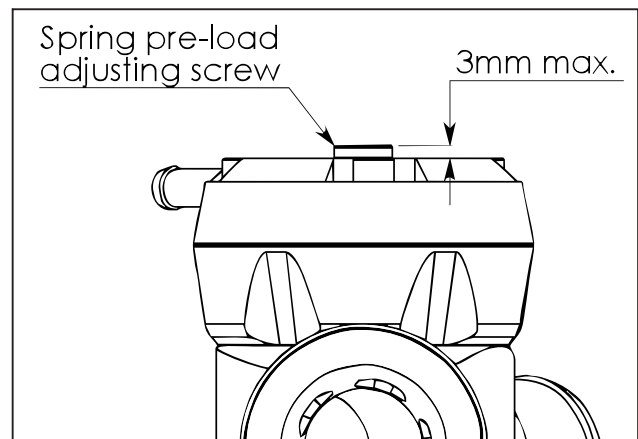
Since there is no MAF sensor on the Stinger, the ECU is completely unaffected by atmosphere venting or spring pre-load, and therefore the spring pre-load can simply be set to your preference to control how easily the valves blow off when you lift off the throttle.

The screw in the centre of each valve cap 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 Deceptor Pro to full atmosphere (so you can hear it vent during setup), then set both spring pre-load screws level with the top of the valves.

Take the car for a drive, and take note of how easily the valves vent when you lift off. 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.

It is not critical that both valves have exactly the same spring pre-load, since they both feed off a common chamber. However, since you cannot hear the Mach 2 venting during the setup process, it is easiest to simply adjust both valves by the same amount.



Adjusting the Sound

The control box dial controls the patented venting bias adjustment system of the Deceptor Pro II BOVs. Turning the dial fully anti-clockwise sets the valves to 100% recirc for silent operation, full clockwise results in 100% atmosphere venting for maximum sound, and any ratio is possible between these limits.

The control box features a "sleep" mode that dims the dial lighting after approximately 10 seconds. This reduces power consumption and also prevents accidental adjustment of the valve position.



Push to activate, turn to adjust

To make position adjustments, wake the unit up by pressing the dial briefly (lighting will brighten), at which point the valves will respond to dial position adjustments. The unit will return to sleep mode after 10 seconds.

Adjusting the Sound - Continued

The control box also has a range limiting feature. This can be used to limit the maximum atmosphere-venting bias position of the Deceptor Pro valve. To use this feature, set the dial to the position that you want as your new maximum, then press and hold the dial until the light flashes. Now when you move the dial to the maximum position, the valves will only open as far as the position which you have just set as your new limit.

To reset the range to maximum again, turn the dial fully clockwise, then press and hold the dial.

Do not be afraid to experiment with the spring and sound settings, as the Stinger's air/fuel ratio cannot be affected, nor is it possible to damage the engine or turbos with BOV adjustments.

The default venting configuration for the Mach 2 is fully recirculated, with the Deceptor Pro valve being used for the venting bias adjustment. This method results in a maximum of 50/50 venting, which still produces a significant sound.

However, if you want an even louder sound, it is possible to vent the Mach 2 valve to atmosphere by removing the recirc hose. The recirc hose then needs to be plugged, and the correct sized hose plug is available separately from GFB, part # 5225. Combined with the Deceptor Pro, this configuration gives combined venting bias between 50/50 and 100% atmo using the Deceptor Pro.

You can also purchase whistling trumpets to change the venting sound. Part # 5702 is a single whistling trumpet, which you can use on either BOV, or buy two to put on both valves. It changes the venting sound to a high-pitch whistle.



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 Deceptor Pro II 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
www.gfb.com.au/images/tech-articles/GFB_DP_Diverter%20leak.pdf

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.