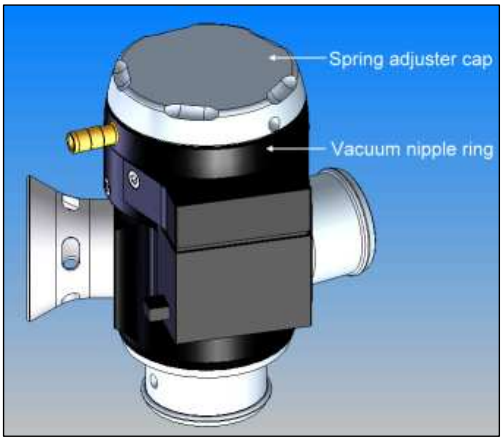
Fitting Instructions for GFB Mitsubishi Lancer GSR/EVO Deceptor Pro blow-off valve

Included in kit:

- Deceptor Pro blow-off valve fitted with:
- 33 mm base (5333) and plumb back (5233)
- Blow-off valve in-car volume controller
- Double sided tape

Thank you for purchasing the GFB Deceptor Pro blow off valve, *the world's first in-car electronically adjustable blow-off valve*. We ***highly*** recommend that you familiarize yourself with the operation and adjustments of the Deceptor Pro before installing it.



The top of the Deceptor Pro is divided into two separate sections:

Spring adjuster cap: The Deceptor Pro's chrome cap adjusts spring preload; clockwise for firmer, and anti-clockwise for softer. Note that the chrome cap rotates when the volume level is being electronically adjusted with the controller, so although it may appear that the spring is being adjusted when the volume level is changing, this is not the case - the volume and the spring pre-load are in fact independent adjustments.

Vacuum nipple ring: Directly under the chrome cap, this ring is free to rotate 360° independently to make attaching the vacuum hose easier.

Installing and wiring the in-car volume controller

1. Test the unit before installation by connecting the Deceptor Pro's plug to the in-car controller. Strip the end of the red wire and connect it to the positive terminal of your car's battery or a 12V source. Connect the black wire with the eyelet to the negative terminal. Upon initial power-up, the unit will perform an open/close cycle before reverting to the position indicated on the controller dial. By turning the dial, you will see the chrome cap rotate with the inner sleeve. Observe that the inner sleeve rotates from 'trumpet port closed' to 'plumb back port closed'; this will be obvious when looking through the respective ports.

   WARNING: Do not manually rotate the noise adjustment, always apply power and use the controller to change the venting bias. When testing your Deceptor Pro, DO NOT put fingers or foreign objects through the trumpet or plumb back ports. Doing so may result in personal injury or damage to the blow-off valve.

2. Find a suitable location on or around the dashboard, steering column or instrument binnacle for your in-car volume controller. Clean both mating surfaces with Methylated Spirits or similar cleaner and secure the controller using the supplied double-sided tape. Press hard and hold the unit for about 30 seconds, and note that it takes up to 24 hours for the tape to develop a strong bond.

3. Using a multi-meter or voltmeter, find a suitable power wire that reads 12V only when the ignition is turned on. Strip the end of the volume controller positive (red) wire and solder it to the 12 V source, making sure that the fuse is still accessible and that the joint is insulated properly.

4. Find a suitable bolt on the body/chassis (up to 5mm diameter) to connect the unit's ground (black) wire to. Connect the unit's ground wire using the attached eyelet.

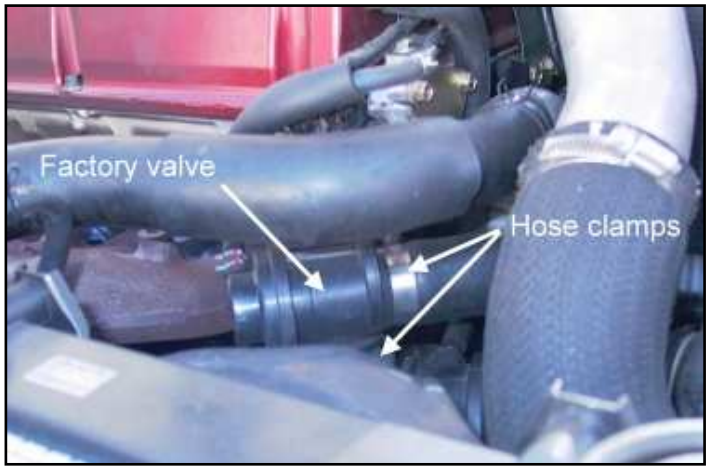
5. At this point you should plug the Deceptor Pro back into the in-car volume controller, and test its operation again to ensure the electrical connections are good. Make sure the unit powers on and off with the ignition.

6. Unplug the Deceptor Pro and pass the controller's extension lead through the firewall into the engine bay. Often there is an existing grommet that can be used for this purpose. In any case, it is important to ensure that the lead is protected where it passes through the firewall to prevent wear or damage. Ensure that all excess wiring inside the car is bundled together and secured under the dashboard.

Installing the Deceptor Pro

1. The factory diverter valve on the EVO is located under the top radiator hose. Loosen the two hose clamps with a 10mm socket then pull the valve free from the two large hoses.

2. Open the small hose clip that retains the vacuum hose using a pair of pliers. Slide the vacuum hose off the valve (if it is difficult to remove, try pushing the end of the hose off carefully with a flat screwdriver instead of pulling it).



3. Unscrew the trumpet from the Deceptor Pro to make this step easier. Replace it again when finished. Push the base of the GFB valve into the hose so that it is in the same orientation as the factory valve. Then push the plumb back outlet into the turbo intake pipe. Tighten both hose clamps.

4. Rotate the vacuum nipple into a position that allows the vacuum hose to reach, then push the vacuum hose onto the nipple and replace the hose clip.

Adjusting the spring pre-load

The spring pre-load **DOES NOT** need to be adjusted to hold different boost levels. The valve will stay shut *regardless* of boost pressure or spring pre-load as long as the vacuum hose is properly connected. Rather, the spring adjustment changes how easily the valve opens when you lift the throttle, and how long it stays open when it vents. It is also used to accommodate variations in manifold vacuum levels on different cars. There are 11 full turns of spring adjustment, and stops at both ends of travel.

NOTE: The Deceptor Pro is assembled using a light grease on the piston, which during the first week or two of use can slow the operation of the valve a little. You may notice the venting characteristics of the valve changing slightly in the initial period, this is completely normal.

With the car idling at normal operating temperature, start with the spring adjustment at the softest setting (anti-clockwise). Watch the piston through the trumpet (not too closely!), stab the throttle hard then quickly lift off. The piston should rapidly lift and vent, then close slowly and smoothly. If the piston remains slightly open as the engine returns to idle, tighten the spring a few turns until it closes fully. This is a good "rough" setting to begin with. For cars with airflow meters, the spring can sometimes take a little more fine tuning according to the following guide.

If you notice any of the following symptoms, turn the chrome cap clockwise until the problem disappears:

- The piston is open at idle
- The engine "stumbles" or the RPM "dips" as it returns to idle speed
- If when driving you notice a hesitation during gearshifts or loud/excessive backfiring from the exhaust

If when driving a significant fluttering noise is heard (when using full boost and high revs), turn the chrome cap anti-clockwise a few turns.

NOTE: There is usually a range of around 4-5 turns within which your valve will operate properly, and if it is outside this range it will be immediately noticeable in the symptoms described above. Also note that you cannot damage your

engine by experimenting with the adjustment. If you notice none of the symptoms mentioned above, then simply leave it where it is.

Using the In-Car Controller

When powered up the volume dial rim will glow red, and will brighten for easy reading when you make an adjustment, then automatically dim 3 seconds later to reduce unnecessary glare. The position of the dial is directly proportional the venting bias - turning the dial fully anti-clockwise sets the valve to 100% recirc, fully clockwise results in 100% atmosphere venting, and any proportion is possible between these limits.

The controller also features a program button on the rear of the casing. This can be used to limit the range of the atmosphere-venting bias of the Deceptor Pro. For example, if you prefer that the maximum atmosphere venting bias is 50%, you can program the controller so that full travel on the dial gives you only 50% movement at the valve. This is particularly useful on cars that through experimentation, find that full atmosphere venting does not agree with them.

To use this feature, set the dial in a position that you want as your maximum atmosphere-venting limit, then press the program button. The unit will now record this position as the maximum atmosphere-venting limit. Now when you turn the dial fully clockwise, the Deceptor Pro will only open as far as the point which you have just set. For example, if you pushed the button with the dial set in the middle (50% atmosphere venting), full travel of the dial will now move the valve from full recirc to 50% atmosphere-venting only.

Every time the button is pushed, the position of the dial will determine the maximum venting bias of your Deceptor Pro. So to re-set the controller to allow the full range again, simply turn the dial fully clockwise and push the button.

Maintenance

All GFB valves are designed to be as maintenance free as possible. In most cars the small amount of crankcase and rocker-cover blow-by oil that is directed into the intake system is enough to keep the piston well lubricated. However, in some cases oil deposits or dirt can dry out and create a build-up on the piston that causes erratic operation or sticking. If you notice a grey film on the piston or erratic venting behavior, it is a good idea to clean the valve.

This is best done with the valve removed from the car. Flush out the piston with a penetrating spray such as WD40, whilst working the piston up and down. Using a rag, wipe off as much of the grime and build-up as possible. Re-lubricate the valve by applying a small amount of engine oil to the piston through the side outlets and the underside of the valve, and working the piston up and down by hand. It is a good idea to keep the trumpet area clean and free from oil, as it attracts dirt which can result in damage to the piston.

Troubleshooting

Problem: A fluttering sound is heard during gearshifts.
Solution: It is not uncommon for an aftermarket blow-off valve to induce low-RPM flutter, depending on the particular application. The different way that the Deceptor Pro operates compared to a factory diverter is responsible for the improvement in throttle response, but can result in low RPM flutter. The blow-off valve will not usually vent until the RPM is above the point where the turbo is starting to build boost. So for a larger turbo, the RPM where the valve will begin to vent is higher, and such flutter will be more pronounced. Provided the flutter does not occur once the turbo is making full boost, no damage will occur to the engine or turbo, and throttle response will be optimum. If the flutter occurs at high RPM see below:

Problem: The valve does not vent at all, or a fluttering sound is heard at high RPM.
Solution: Ensure the valve is oriented correctly. As the hoses are the same size on the inlet and the outlet, it is possible to install the valve in the incorrect orientation. Ensure that the boost pressure enters the bottom and dumps through the sides.

Check the spring pre-load setting; try loosening it by turning the chrome cap anti-clockwise a few turns. If the pre-load is too hard, the valve will have difficulty opening.

Check the vacuum connection. If the signal is weak because of a hose kink or leak, it will not open properly. If possible, ensure no other hoses/devices are teed into the vacuum hose, as this can prevent a strong vacuum signal reaching the valve.

Multiple throttle bodies, big cams or wild porting can reduce the amount of vacuum available to help open the valve (the Pulsar GTi-R is an example of this). Check the idle vacuum with a gauge, if it reads less than 16 inches mercury (inHg), you will need a softer spring. Contact your local GFB dealer should you need one. Note that this is the ONLY condition that requires a softer spring.

Problem: The valve cracks open under boost.
Solution: There are **only two things** that can cause the valve to open under boost: 1) a mechanical jam, or 2) a significant pressure difference between the top and bottom of the valve.

1) If the valve blows off when you shift gears, it is not jammed. If the piston does not move, refer to the first and second problems above.

2) Check the vacuum connection. The valve relies on the manifold connection to provide boost pressure to keep the piston shut. If there is a leak or kink in the hose, the pressure will be uneven on the top and bottom of the piston, causing it to open.

Measure the boost pressure at the manifold, and at a point close to where the valve is mounted on the intercooler pipe. If the pressure difference is more than 5psi, this will result in the valve opening under boost. The causes of a large pressure difference can be a restrictive intercooler (only a problem if the valve is mounted before the intercooler) or piping, or a poor boost signal from the manifold as described above.

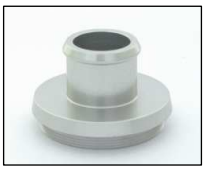
Problem: The valve does not respond to the controller
Solution: Check that the red light on the volume dial comes on when the ignition is switched on. If not, check that the power connections are receiving at least 12V, and also check the fuse. If the fuse is blown, the replacement is a commonly available 3AG size, 2A rating.

If the red light does come on with the ignition, check the lead to the servo, making sure the insulation hasn't been damaged.

If for any reason you are unable to resolve an issue with your Deceptor Pro, you can contact GFB for technical support on +612 9534 0099, or email **support@gfb.com.au**.

Accessories/Adaptors

Base adaptors (screw on in place of existing base):
5320 – 20mm hose base
5325 – 25 mm hose base (shown)
5330 – 30 mm hose base
5335 – 35 mm hose/1" pipe mount base
5338 – 38 mm / 1.5" pipe mount base



Plumb back adaptors:
5220 – 20 mm
5225 – 25 mm
5230 – 30 mm (shown)

Weld-on pipe (weld to turbo piping for custom installation)
5601 – 1" mild steel
5602 – 1" alloy
5603 – 1" stainless steel
5604 – 1.5" (38mm) alloy
5605 – 1.5" (38mm) stainless steel (shown)

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/drivetrain 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.