

GFB Hybrid

Installation Instructions

Part #T9203



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TURBO MANAGEMENT SYSTEMS



PERFORMANCE WITHOUT COMPROMISE

INSTALLATION

Covered vehicles: WRX MY01-07, STi MY02-on, Forester XT MY05-08

On Impreza models without an electronic throttle, it is necessary to move the intercooler to gain access to the hose clamp under the factory valve. It does not need to be removed completely, it just needs to slide back far enough to reach underneath as illustrated below.

For Impreza models with an electronic throttle and also Forester XT models, it is usually possible to access the clamp without shifting the intercooler. In this case, ignore the steps 1, 3, 4 & 5.

1) Pull the hoses from aluminium tubes that run across the front of the intercooler (2 on the left and 1 on the right hand side).

2) Using a 12mm socket or wrench, remove the bolts that hold the factory blow-off valve.

3) On the hose between the intercooler and throttle body, loosen the hose clamp closest to the intercooler, and the clamp holding the hose onto the outlet of the turbo.

4) Undo and remove the two mounting bolts (again with the 12mm socket or wrench) that hold the intercooler in place.

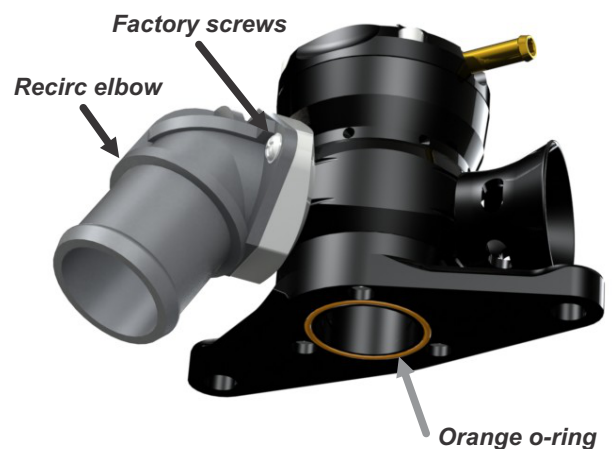
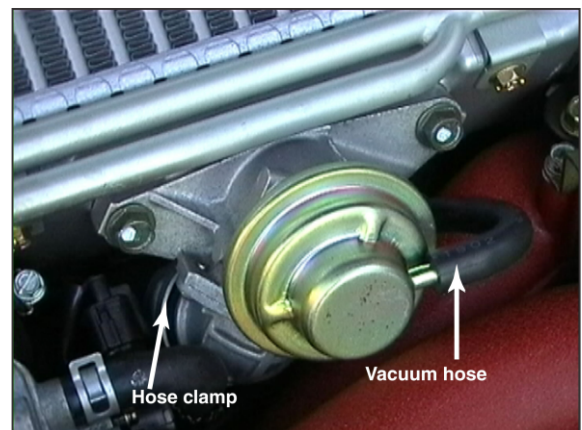
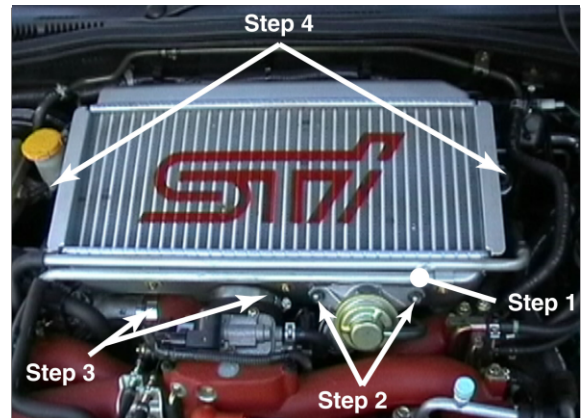
5) Carefully slide the intercooler back, just far enough to access the hose clamp on the recirc hose under the factory valve. Take care when handling the intercooler since the cooling fins are very fragile, and also take care not to bend the hose from the turbo too much.

6) Take note of the position of factory valve and then use pliers to open the hose clamp and remove the valve entirely.

7) Remove the recirc elbow from the factory valve by unscrewing the two phillips-head screws holding it on. Fit the recirc elbow to the outlet of the Hybrid using the factory screws and o-ring.

8) If the factory gasket is stuck to the intercooler, it should be removed at this point. Scraping may be required to remove all gasket material if it does not peel off cleanly. Take care not to drop any gasket material into the intercooler.

9) Install the Hybrid valve in the reverse order of removal, making sure the orange o-ring is installed in the groove of the base flange. No gasket or sealant is required. Ensure all hose clamps and intercooler bolts loosened during installation are tightened.

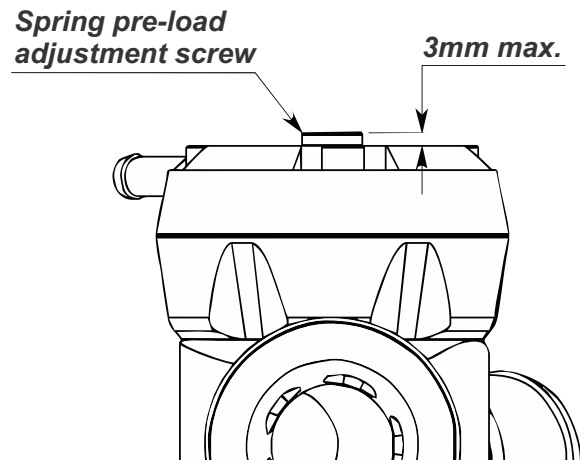


ADJUSTING THE SPRING PRELOAD

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

The spring pre-load affects how easily the valve opens when you lift off the throttle, and how long it stays open. It is adjusted to ensure the valve opens easily enough to release the air, but not long enough to cause idling problems. The guide below will walk you through the steps involved.

- Using the supplied 5mm hex key, set the spring pre-load adjusting screw to the softest setting (3mm above the head, as shown opposite), and ensure the atmosphere venting port is open so you can see the movement of the piston during setup.
- Start the car and let it warm up for a couple of minutes. Make sure the A/C is off.
- Look at the piston through the trumpet. If it is hovering open, wind the adjustment screw in the "+" direction until the piston closes fully. If it is already closed, proceed to the next step.



WARNING: For this next step, keep your face away from the trumpet when revving the engine. View the piston from a safe distance away from the blast of air.

- Give the engine a rev - stab the throttle hard then lift off quickly. The piston should lift slightly and vent, then close slowly and smoothly. The harder you stab the throttle, the further the piston will open, but typically it will not fully open when revving in neutral as the turbo doesn't generate significant boost until the engine is under load.
- If the piston does not close before the engine drops back to idle, it may cause the engine to "stumble" or stall. If this happens, turn the adjustment screw in the "+" direction one turn at a time until the engine returns smoothly to idle after revving.
- For the final adjustment, take the car for a drive. Accelerate moderately in 2nd gear then pull up to a stop quickly whilst watching the tacho - if the revs dip below idle, tighten the spring 1-2 turns.
- If a fluttering sound is heard when lifting off sharply from full boost, 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 under certain conditions. This is a result of the different way in which this valve operates compared to the factory unit, and is not detrimental in any way.

Note there is no harm to the engine when experimenting with the spring pre-load and venting bias adjustments, in fact we encourage you to do so. Every car responds differently, and getting the spring pre-load right will usually offer a noticeable throttle response improvement over the factory valve. If you get it wrong, there may be noticeable negative drivability effects such as backfiring, stalling, or poor throttle response, in which case keep making adjustments until you find what works best for your car.

A video example of setting up the spring pre-load can be found using the QR code opposite or the link below:

gfb.com.au/downloads/gfb-tv?video=KgGRfR6jt-c



CHANGING THE SOUND

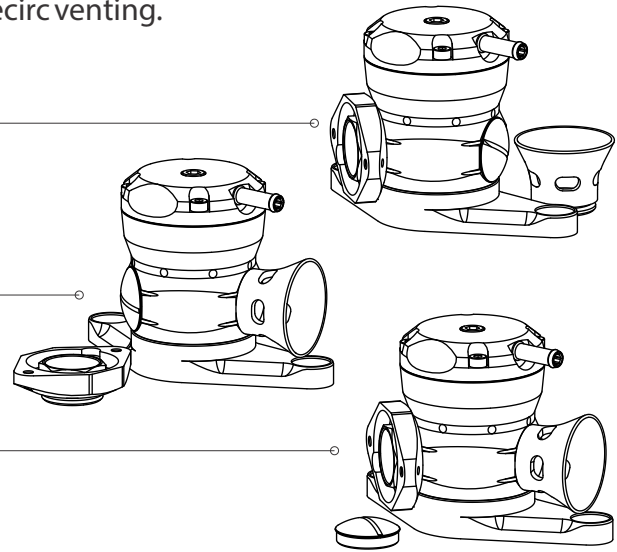
The GFB Hybrid is supplied with a plug set that allows you to configure the valve in 3 different ways, depending on your preference.

Typically, most engines will allow 100% atmosphere venting with no problems, however some combinations of modifications can result in backfiring or stalling with full atmosphere venting. In this case the solution is to revert back to 50/50 or full recirc venting.

For silent, fully recirculated operation, leave the recirc hose connected and swap the trumpet for the threaded plug.

For full atmosphere venting and maximum noise, plug the recirc hose with the supplied hose plug, and install the screw-in plug in place of the Hybrid's recirc outlet.

For 50/50 venting and a moderate sound, keep the recirc hose connected and the trumpet installed.



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 indefinitely.

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.

Cleaning Procedure: 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.

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.