

GFB WGA

Part #7302

For Mitsubishi EVO 9



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TURBO MANAGEMENT SYSTEMS



PERFORMANCE WITHOUT COMPROMISE

GFB WGA Introduction

The GFB WGA is designed to help optimize boost response and control by using a larger diaphragm area for greater authority and control over the wastegate flap, and by allowing fine adjustment of the base boost pressure via the 3 supplied springs and turnbuckle adjustment.

PLEASE NOTE:

Adjustment and/or tuning is required when installing this product, as it will result in higher boost pressure which could damage your engine if the ECU is not tuned to suit.

GFB makes no recommendations regarding “safe” boost levels for your engine. This product is a tuning tool and maximum boost pressure should be determined by an expert, taking into account the capabilities and limitation of your specific engine and supporting modifications.

Spring Selection

Before installation, you should first determine the minimum and maximum boost pressure that you want to run, and your control method, and ensure the most appropriate spring combination is selected and installed in the WGA.

Care should be taken when selecting boost pressures, and it is always best initially to err on the conservative side, until the engine can be run on a dynamometer to ensure safety. Always consult an expert when making boost changes, and it is recommended that the car be checked on a dyno, as high boost and/or lean air/fuel mixtures can cause engine damage or worse, total failure.

If you are planning on having variable boost through the use of a boost controller, the range you can achieve depends on your turbo setup. The lowest boost your car can run is determined by the spring (this is commonly known as “gate pressure”), and boost can then be increased through the use of a boost controller.

As a rule of thumb, try to select springs so that your maximum boost is no more than double the “gate pressure”. Whilst it is possible to increase boost beyond this, you may find that boost becomes less stable and harder to control. This is because the boost controller must bleed most of the control pressure signal to the actuator, so the wastegate is less able to self-correct for changes in manifold pressure. Using a stronger spring means the controller bleeds off less of the pressure signal, giving the wastegate greater ability to regulate boost changes.

The WGA part #7302 comes with 3 springs which can be used individually or installed together to achieve different boost levels. The 7psi and 10psi springs are pre-installed for a gate pressure of 17psi, which is suitable for most EVO applications.

If you require a different gate pressure, use the table opposite to determine the most appropriate spring combination.

Note that this table is only a guide to help your selection – the actual boost level achieved ultimately depends on a large number of variables, and may differ from the gate pressure shown in the table.

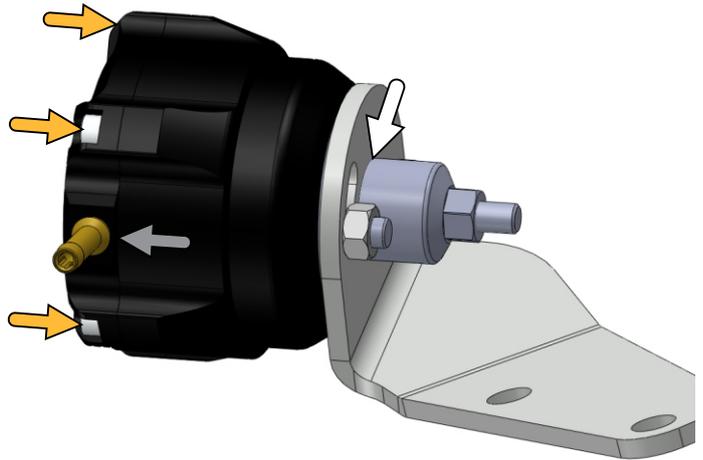
Gate Pressure (psi)	5psi Inner	7psi Middle	10psi Outer
5	●		
7		●	
10			●
12	●	●	
15	●		●
17 (pre-installed)		●	●
22	●	●	●

Changing the Springs

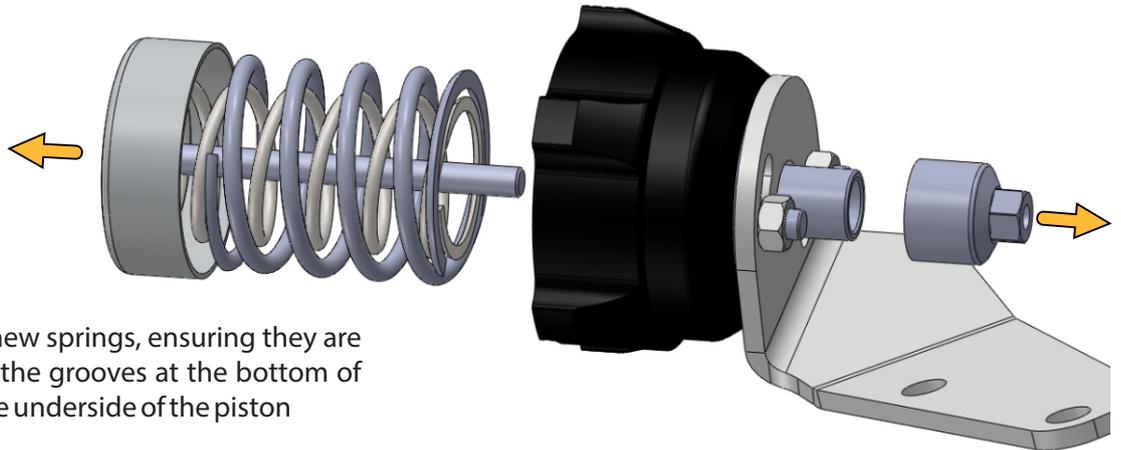
1. The spring force must be restrained before attempting to remove the cap. To do this, spin the rain shield counter clockwise (this part has a left-hand thread) until it butts up against the bracket ⇨

2. Remove all five cap screws using a metric 3mm hex key ⇨

3. Residual friction from the diaphragm sealing bead will hold the cap on even after the screws have been removed. If the cap cannot be removed by hand, it can be carefully pried off using the flat surface under the hose barb ⇨



4. Once the cap and diaphragm are removed, unscrew the rain shield completely to remove the piston, rod, and springs.

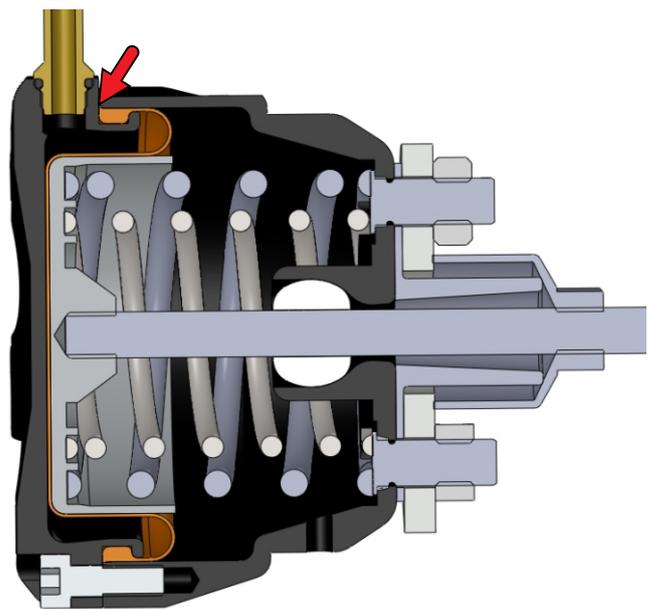


5. Install the new springs, ensuring they are correctly seated in the grooves at the bottom of the body, and on the underside of the piston

6. CAUTION: during re-assembly take care not to pinch the diaphragm as it compresses into the body (⇨). It can be helpful to apply a thin smear of oil to the outside of the diaphragm to help it slip into the body easily.

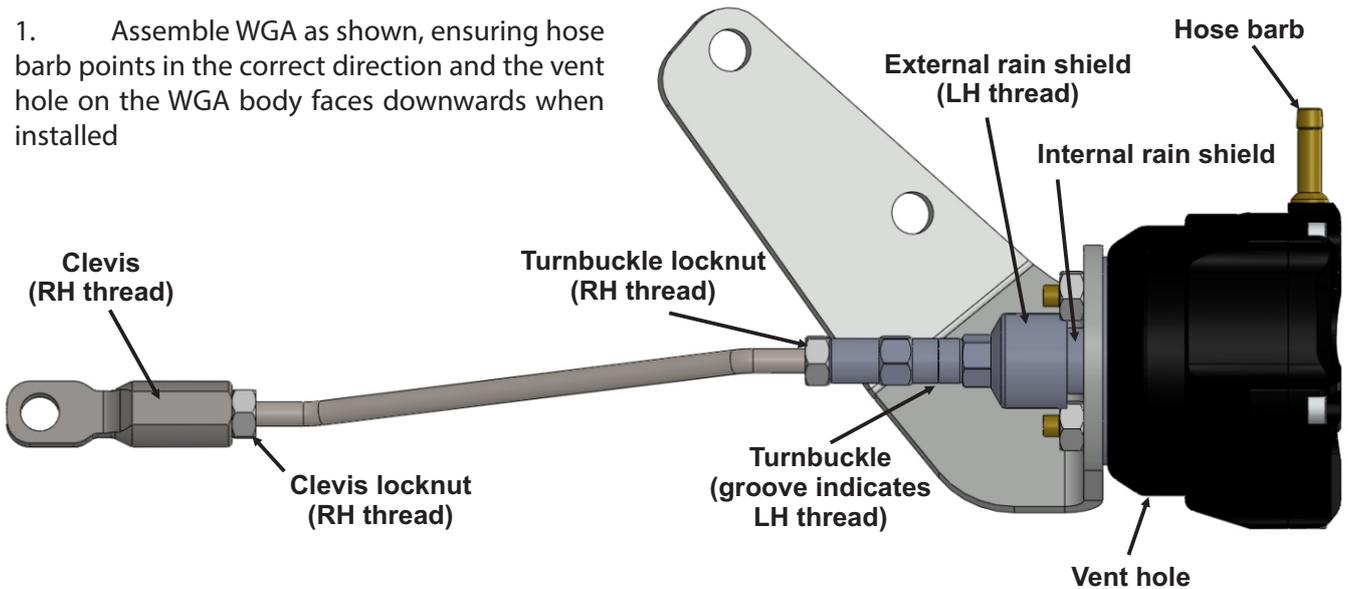
7. Ensure the diaphragm is correctly convoluted and the piston is centred in the diaphragm, then press the cap/diaphragm onto the piston using the same method of compressing the spring as used during disassembly.

8. Re-install screws



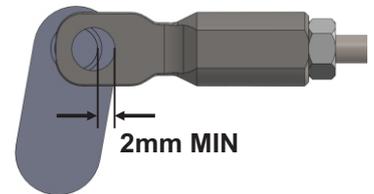
Assembly/Installation

1. Assemble WGA as shown, ensuring hose barb points in the correct direction and the vent hole on the WGA body faces downwards when installed



2. Ensure the clevis and turnbuckle have at least 5mm of thread engaged, but do not tighten any of the locknuts at this stage

3. Mount the WGA onto the turbo, and adjust the clevis until there is at least 2mm of pre-load before attaching the clevis to the wastegate arm.



4. Tighten all locknuts (including the external rain shield - this acts as the locknut for the LH thread end of the turnbuckle)
5. Ensure the hose barb is connected to the boost source/boost controller, then perform a boost run to check the boost level. If boost pressure is too low, increase the pre-load via the turnbuckle (or clevis)

Warranty

WARNING:

GFB recommends that only qualified motor engineers fit this product. GFB products are engineered for best performance, however incorrect use or modification may cause damage to or reduce the longevity of the engine/drive-train components.

GFB LIFETIME WARRANTY:

Our commitment to quality means that when we put our name to something, we are also staking our reputation on it. That's 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.

TECH SUPPORT:

We want you to get the best advice, first time. That's why our engineers are available to answer any technical questions you may have. Head to www.gfb.com.au/contact-us to get in touch.